

CIVIL AVIATION REQUIREMENTS

CAR - 145

APPROVAL OF MAINTENANCE ORGANISATIONS

Issue 03, Revision 2

DIRECTORATE GENERAL OF CIVIL AVIATION,
TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT,
NEW DELHI-110003

Issue 3, Revision 2, November 2026

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FOREWORD

Rule 133B of the Aircraft Rules 1937 stipulates that organisations engaged in the maintenance of aircraft and aircraft components shall be approved.

CAR 145 Rev.0 was introduced on 26th January 2005 in order to harmonize requirements for approval of aircraft maintenance organizations with that of international requirements, which was primarily based on EASA CAR-145 regulation. Since the initial issue, CAR 145 has been revised from time to time to harmonise with EASA Part-145.

CAR 145 Issue 03 dated 31st July 2024 has been issued based on the latest revision to EASA Part 145 dated 02nd December 2022.

This CAR is issued under the provisions of Rule 133A of the Aircraft Rules, 1937.

RECORD OF REVISIONS

Initial Issue (Revision 0) 26th January 2005

In order to harmonize Indian requirements for approval of maintenance organisations with international requirements CAR-145 Rev.0 was introduced on 26th January 2005 which was primarily based on JAR 145 regulation.

Revision 1 28th February 2008

The Revision 1 to CAR 145 was issued with effect from 01.07.2008 to align the numbering system with that of EASA and certain customization to suit Indian environment. The revision was applicable to organizations involved in the maintenance of large aircraft (large aircraft means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5700 kg, or a multi engined helicopter) or maintenance of aircraft used for commercial air transport, and components intended for fitment thereto.

Issue 02 8th October 2013

This Issue 02 to CAR 145 is issued to make Indian regulations aligned with EASA Part 145 latest revisions and SARI 145 Revision1 dated 15 November 2012. Salient features of the revision are.

1. The requirements, related AMC and GM are brought together for easy reference purposes.

2. Requirements for Critical Design Configuration Control Limitations (CDCCL) and training guide lines have been introduced.

3. Scope of components maintenance enhanced to include Indicating and Recording System, Water Ballast and Propulsion Augmentation System.

4. The scope of simple defect rectification, which can be accomplished by flight crew has been enhanced to include
   a) Inspection for and removal of de-icing/anti-icing fluid residues.
   b) Removal/ closure of panels, cowls or covers those are easily accessible but not requiring the use of special tools.

5. The scope of Practical skills training provided to flight crew by an organisation approved under CAR 145 which includes 35 Hours practical experience has been enhanced to include:
   - De-icing/anti-icing related maintenance activities.

6. Sub-paragraphs CAR-145.A.35 (n) & (o), CAR-145.A.65 (d), CAR-145.A.70 (c) and CAR145.A.70 (d) have been added.

7. Sub-paragraphs AMC-145.A.35 (c), AMC-145.A.35 (n), AMC No. 1 to 145.A.50 (d), AMC No. 2 to145.A.50 (d) ,GM-145.A.50 (d) and GM-145.A.60 (b) have also been added.

8. The format of CA Form 1 (as given in Appendix I) has been revised exactly in line with CAR M.

9. Appendix to AMC A.30.(e) on Fuel Tank Safety Training has been newly added as Appendix VIII.

Issue 02 (Revision 1) 8th June 2015

Amendment to the validity of CAR 145 approval in line with Rule 133B of the Aircraft Rules, 1937.

Issue 02 (Revision 2) 23rd September 2016

The CAR 145 Issue 02 Rev 02 is amended to harmonise with 66 Issue II requirements and with latest revisions of EASA Part 145 regulations.

Issue 02 (Revision 3) 14th June 2017

The CAR 145 Issue 02 Rev 03 is amended to harmonise with amended Rule 61 of the Aircraft Rules, 1937 and CAR 66 (Issue II, R1) requirements. References of CAR (Sec- Series "L" Part-X and Series "L" Part-XIV have been deleted as these requirements/ procedures are now covered in CAR 66 (Sub Part-C) and AAC 2 of 2017 respectively.

Issue 02 (Revision 4) 12th June 2020

The CAR 145 Issue 02 Rev 04 is amended to harmonise with amended CAR M and with the latest revisions of EASA Part 145 regulations.

Issue 02 (Revision 5) 15th June 2021

The CAR 145 Issue 02 Rev 05 is amended to include UK CAA Form 1 as an acceptable equivalent document.

Issue 03 31st July 2024

1. CAR 145 Issue 03 is amended to harmonise with the latest revision of EASA Part 145 dated 02nd December 2022.
2. Quality system has been redefined and restructured.
3. SMS system and requirements of SMS manager are included.
4. References of new CARs provided where ever needed.

Issue 03 Revision 1 July 2026

CAR Issue 03, Revision 01 has been amended to extend the compliance deadline for organisations issued approvals under CAR 145, Issue 2 from 30.06.2026 to 31.07.2026

Issue 03 Revision 2 November 2026

CAR Issue 03, Revision 02 has been amended to harmonise with amendment 7,8,& 9 to EASA Part 145 issue 2.

GENERAL

SECTION A – TECHNICAL REQUIREMENTS, RELATED AMC AND GM

145.1 Competent Authority

For the purpose of this CAR, the competent authority shall be DGCA for organizations having their principal place of business in India or any other country.

GM1 to CAR-145 Definitions

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

Audit	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. *Note: Audits may include inspections.*
Assessment	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. *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.* *Remark: For 'risk assessment', please refer to the definition below.*
Base maintenance	Ref. AMC1 145.A.10
Base maintenance hangar	refers to a closed facility that can house an aircraft and protect it from environmental conditions.
Certifying staff'	means personnel responsible for the release of an Aircraft or a component after maintenance.
Competency	is a combination of individual skills, practical and theoretical knowledge, attitude, training, and experience.
A complex motor powered aircraft	means: (1) An aeroplane: (i) With a maximum certificated take-off mass exceeding 5700 Kg., or (ii) Certificated for a maximum passenger seating configuration of more than nineteen; or (iii) Certificated for operation with a minimum crew of at

	least two pilots, or (iv) Equipped with (a) turbojet engine(s) or more than one turboprop engine, or (2) A helicopter certificated: (i) For a maximum take-off mass exceeding 3175 Kg, or (ii) for a maximum passenger seating configuration of more than nine, or (iii) for operation with a minimum crew of at least two pilots, or (3) A tilt rotor aircraft.
Component	means any engine, propeller, part or appliance.
Correction	is the action to eliminate a detected non-compliance.
Corrective action	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.
Error	is an action or inaction by a person that may lead to deviations from accepted procedures or regulations. 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.
Fatigue	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.
Hazard	is a condition or an object with the potential to cause or contribute to an aircraft incident or accident.
Human factors	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.
Inspection	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. *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.*

Just culture	means a culture in which front-line operators or other persons are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, wilful violations and destructive acts are not tolerated;
'Large Aircraft'	means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5700 kg, or a multi engined helicopter.
Line maintenance	Ref. AMC1 145.A.10
Maintenance	means any one or combination of the following activities: overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection;
Near miss	is an event in which an occurrence to be mandatorily reported according to Regulation was narrowly averted or avoided. *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.*
Organization	means a natural person, a legal person or part of a legal person. Such an organization may hold more than one CAR 145 approval
Organisational factor	is a condition that affects the effectiveness of safety risk controls, related to the culture, policies, processes, resources, and workplace of an organisation.
Oversight planning cycle	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.
Oversight programme	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.
Pre-flight inspection	means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight
Preventive action	is the action to eliminate the cause of a potential non-compliance or other undesirable potential situations.
Risk assessment	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.
Safety culture	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.

Safety risk	refers to the predicted probability and severity of the consequences or outcomes of a hazard.
Safety training	refers to dedicated training to support safety management policies and processes, including human factors training. *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.* *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).*
Working days	refer to days between and including Monday to Friday, not including public holidays.

145. A.05 Applicability and Effectivity

CAR 145 Issue 3 dated 31st July 2024 is effective from 1st January 2025.

Approvals issued in accordance with CAR 145 Issue 2 shall continue to remain in force beyond 31st December 2024. However, such organizations shall demonstrate compliance with the requirements of this CAR, latest by 31st July 2026.

145. A.10 Scope

This Section establishes the requirements to be met by an organization to qualify for the issue or continuation of an approval certificate for the maintenance of aircraft and components.

AMC1 145.A.10 Scope

LINE MAINTENANCE AND BASE MAINTENANCE

(a) 'Line maintenance' refers to limited maintenance for the aircraft suitable to be carried out whilst the aircraft remains in the air operation environment.

Line maintenance may include:

- trouble shooting;
- defect rectification;
- component replacement with use of external test equipment if required.

Component replacement may include components such as engines and propellers;

- maintenance 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;

- repairs, 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) 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

(d) In particular, maintenance tasks of aircraft subject to maintained in accordance with 'progressive' or 'equalised' maintenance programmes should be individually assessed in respect of such procedure to ensure that all the tasks within the particular check can be carried out safely and to the required standards at the designated line maintenance station.

GM1 145.A.10 Scope

SMALL ORGANISATIONS

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

(a) Organisations that employ only one person who carries out the certification function and other functions, and that are approved under CAR-145 may use the alternatives provided below limited to the terms of approval specified in point (m) of Appendix II of CAR-145

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145.A.30(b): The minimum requirement is for one full-time person who meets the CAR-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.

(1) The independent audit element of the compliance monitoring function of point 145.A.200(a)(6) may be subcontracted to an appropriate organisation approved under CAR-145 or contracted to a person with appropriate technical knowledge and extensive experience of audits, working under the management system of the organisation, with the agreement of the DGCA.

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

(2) 145.A.35: In the case of an approval based on one person using an 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 DGCA of the CA Form 4. With only one person, the requirement for a separate record of authorisation is unnecessary the DGCA Form 3 certificate defines the authorisation. An appropriate statement, to reflect this situation, should be included in the exposition.

(3) 145.A.200(a)(6) It is the responsibility of the monitoringorganisation or person referred to in point (1) to make a minimum of two on-site audits every year, and it is the responsibility of this organisation or person to carry out these activities on the basis of one pre-announced visit and one unannounced visit to the maintenance organisation.

It is the responsibility of the CAR-145 organisation to ensure that effective implementation of all corrective actions takes place.

(b) Recommended operating procedure for a CAR-145 organisation based upon up to 10 persons involved in maintenance.

(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 DGCA requirements for certifying staff, whereby one holds the position of 'maintenance engineer' and the other holds the position of 'compliance monitoring engineer'.

Either person can assume the responsibilities of the accountable manager and safety managerprovided 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 '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.

The '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, in which case some reduction in the extent of his or her maintenance qualifications may be permitted.

In cases where the DGCA agrees that it is not practical for the organisation to nominate a person responsible for the independent audit of the compliance monitoring function, this element may be arranged in accordance with point (a)(1).

145. A.15 Application for an organisation certificate

(a) An application for a certificate or an amendment to an existing certificate in accordance with this CAR shall be made in a form and manner established by the DGCA, taking into account the applicable requirements of CAR-M, CAR -ML and this CAR.

(b) Applicants for an initial certificate pursuant to this CAR shall provide the DGCA with:

(1) the results of a pre-audit performed by the organisation against the applicable requirements provided for in CAR-M, CAR-ML and this CAR;

(2) documentation demonstrating how they will comply with the requirements established in this CAR.

AMC1 145.A.15 Application for an organisation certificate

An application should be made on a CA Form 2 given as Appendix VII to this CAR through eGCA.

Note: CA Form 6 – Approval Recommendation Report (Appendix VI) shall be used for grant/ change/ continuation to a maintenance organisation approval.

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 DGCA 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 DGCA 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 CAR. This should allow the organisation to demonstrate to the DGCA 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.

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

(a) The organisation's scope of work shall be specified in the maintenance organisation exposition (MOE) in accordance with point 145.A.70.

(b) The organisation shall comply with the terms of approval attached to the organisation certificate issued by the DGCA, and with the scope of work specified in the MOE.

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

The following table identifies the ATA specification 2200 chapter for the category C component rating. If the maintenance manual (or equivalent document) does not follow the ATA Chapters, the corresponding subjects still apply to the applicable C rating.

CLASS	RATING	ATA CHAPTERS
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond & Press	21
	C2 Auto Flight	22
	C3 Comms and Nav	23 - 34
	C4 Doors – Hatches	52
	C5 Electrical Power & lights	24 – 33 - 85
	C6 Equipment	25 – 38 -44 – 45 -50
	C7 Engine – APU	49 - 71 - 72 - 73 - 74 - 75 - 76 - 77 - 78 - 79 - 80 - 81 - 82 -83
	C8 Flight Controls	27 - 55 - 57.40 - 57.50 -57.60 - 57.70
	C9 Fuel	28 - 47
	C10 Rotorcraft – Rotors	62 - 64 - 66 – 67
	C11 Rotorcraft – Trans	63 – 65
	C12 Hydraulic power	29
	C13 Indicating/Recording System	31 – 42 - 46
	C14 Landing Gear	32
	C15 Oxygen	35
	C16 Propellers	61
	C17 Pneumatic & Vacuum	36 – 37
	C18 Protection ice/ rain/fire	26 – 30
	C19 Windows	56
	C20 Structural	53 - 54 - 57.10 - 57.20 - 57.30
	C21 Water Ballast	41
	C22 Propulsion Augmentation	84
	C23 Others	

The rating for an organisation approved for the maintenance of an electric engine that powers a propeller/rotor to generate thrust and/or lift for the aircraft should be B4, rather than C5.
C23 should be used as component rating when C1 to C22 or the corresponding ATA chapters are not adequate for the component; for instance, in case of innovative aircraft architectures/systems.

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 DGCA is satisfied that they form an integral part of the approved maintenance organisation.

145. A.25 Facility requirements

The organisation shall ensure that:

a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialized workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur.

1. For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;

2. For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.

b) Office accommodation is provided for the management of the planned work referred to in paragraph (a), and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards.

c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment must be such that the effectiveness of personnel is not impaired:

1. temperatures must be maintained such that personnel can carry out required tasks without undue discomfort.

2. dust and any other airborne contamination are kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident. Where dust/other airborne contamination results in visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.

3. lighting is such as to ensure each inspection and maintenance task can be carried out in an effective manner.

4. noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.

5. where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions are observed. Specific conditions are identified in the maintenance data.

6. the working environment for line maintenance is such that the particular maintenance or inspection task can be carried out without undue distraction. Therefore where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

d) Secure storage facilities are provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage are in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorized personnel.

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. The aircraft hangar visit plan should be updated on a regular basis.

2. Protection from the weather elements relates to the normal prevailing local weather elements that are expected throughout any twelve month period. Aircraft hangar and component workshop structures should prevent the ingress of rain, hail, ice, snow, wind and dust etc. Aircraft hangar and component workshop floors should be sealed to minimise dust generation.

3. For line maintenance of aircraft, hangars are not essential but it is recommended that access to hangar accommodation be demonstrated for usage during inclement weather for minor scheduled work and lengthy defect rectification.

4. Subject to a risk assessment and agreement by the DGCA, 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.

AMC 145.A.25 (b) Facility requirements

It is acceptable to combine any or all of the office accommodation requirements into one office subject to the staff having sufficient room to carry out assigned tasks.

In addition, as part of the office accommodation, aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

AMC 145.A.25 (d) Facility requirements

1. Storage facilities for serviceable aircraft components should be clean, well ventilated and maintained at a constant dry temperature to minimise the effects of condensation. Manufacturer's storage recommendations should be followed for those aircraft components identified in such published recommendations.

2. Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.

3. All aircraft components, wherever practicable, should remain packaged in protective material to minimize damage and corrosion during storage.

145.A.30 PERSONNEL REQUIREMENTS

(a) The organisation shall appoint an accountable manager who has corporate authority for ensuring that all maintenance activities of the organization can be financed and carried out in accordance with this CAR. The accountable manager shall:

1. ensure that all necessary resources are available to accomplish maintenance in accordance with this CAR 145, CAR-M and CAR-ML, as applicable, to support the organisation certificate;

2. establish and promote the safety and quality policy specified in point 145.A.200(a)(2).

3. demonstrate a basic understanding of this CAR.

(b) The accountable manager shall nominate a person or group of persons representing the management structure for the maintenance functions and with the responsibility to ensure that the organisation works in

accordance with the MOE and approved procedures. It shall be made clear in the procedures who deputises for a particular person in the case of lengthy absence of that person.

(c) The accountable manager shall nominate a person or group of persons with the responsibility to manage the compliance monitoring function as part of the management system.

(ca) The accountable manager shall nominate a person or group of persons with the responsibility to manage the development, administration and maintenance of effective safety management processes as part of the management system.

(cb) The person or group of persons nominated in accordance with points (b), (c) and (ca) shall have a responsibility to the accountable manager and direct access to him/her to keep him/her properly informed on compliance and safety matters.

(cc) The person or persons nominated in accordance with points (b), (c) and (ca) shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this CAR.

The person or persons nominated shall be identified and their credentials submitted in CA Form 4 (Appendix V) and forwarded to DGCA under confidential cover.

(d) The organisation shall have a maintenance man-hour plan to ensure it has sufficient and appropriately qualified staff to plan, perform, supervise, inspect and monitor the organisation's activities in accordance with the terms of approval. In addition, the organisation shall have a procedure to reassess the work intended to be carried out when the actual staff availability is reduced compared to the planned staffing level for a particular work shift or period.

(e) The organisation shall establish and control the competence of personnel involved in any maintenance, safety management and compliance monitoring in accordance with a procedure and to a standard agreed with the DGCA. In addition to the necessary expertise related to the job function, the competency of the personnel must include an understanding of the application of safety management principles, including human factors and human performance issues, which is appropriate to their function and responsibilities in the organisation.

(f) The organisation shall ensure that personnel who carry out or control a continued airworthiness non-destructive test of aircraft structures or components, or both, are appropriately qualified for the particular non-destructive test in accordance with the DGCA specified standard or equivalent Standard recognised by DGCA. Personnel who carry out any

other specialised task shall be appropriately qualified in accordance with officially recognized Standards. By derogation from this point, personnel referred to in point (g) and (h)(1) and (h)(2), qualified in Category B1, B3 or L in accordance with CAR 66 may carry out and/or control colour contrast dye penetrant tests.

(g) Any organisation maintaining aircraft, except where stated otherwise in point (j), shall in the case of aircraft line maintenance, have appropriate aircraft rated certifying staff qualified as category B1, B2, B2L, B3 and L, as appropriate, in accordance with CAR 66 and point 145.A.35.

In addition such organisations may also use appropriately task-trained certifying staff holding the privileges set out in points 66.A.20 (a)(1) and 66.A.20(a)(3)(b) and qualified in accordance with CAR-66 and point 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for category B1, B2, B2L, B3 and L certifying staff, as appropriate.

(h) Any organisation maintaining aircraft, except where stated otherwise in paragraph (j) shall:

1. in the case of base maintenance of complex motor-powered aircraft, have appropriate aircraft type-rated certifying staff, qualified as Category C in accordance with CAR 66 and point 145.A.35. In addition the organisation shall have sufficient aircraft type-rated staff qualified as category B1, B2 as appropriate, in accordance with CAR 66 and point 145.A.35 to support the Category C certifying staff.

   (i) B1 and B2 support staff shall ensure that all relevant tasks or inspections have been carried out to the required standard before the category C certifying staff issues the certificate of release to service.

   (ii) The organisation shall maintain a register of any such B1 and B2 support staff.

   (iii) The category C certifying staff shall ensure that compliance with point (i) has been met and that all work required by the customer has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the operator to defer such work to another specified check or time limit.

2. In the case of base maintenance of aircraft other than complex motor-powered aircraft have one of the following:

   (i) appropriate aircraft - rated certifying staff, qualified as category B1, B2, B2L, B3 and L, as appropriate, in accordance with CAR 66

and point 145.A.35;

(ii) appropriate aircraft- rated certifying staff qualified category C and assisted by support staff, as set out in point 145.A.35 (a)(i).

(i) Component certifying staff shall be qualified in accordance with CAR 66 and point 145.A.35.

(j) By way of derogation from point (g) and (h), in relation to the obligation to comply with CAR 66, the organisation may use certifying staff and support staff that are qualified in accordance with the following provisions:

1. For base maintenance carried out at a location outside India, the certifying staff and support staff may be qualified in accordance with the national aviation regulations of the State in which the base maintenance facility is located, subject to the conditions specified in Appendix IV to this CAR.

2. For line maintenance carried out at a line station located outside India, the certifying staff may be qualified, subject to the conditions specified in Appendix IV to this CAR, in accordance with the following alternative conditions:

   - national aviation regulations of the State in which the line station is located,

   - national aviation regulations of the State in which the organisation's principal place of business is located.

3. For a repetitive pre-flight airworthiness directive which specifically states that the flight crew may carry out such airworthiness directive, the organisation may issue a limited certification authorisation to the pilot on the basis of the flight crew licence held. In that case, the organisation shall ensure that the pilot has carried out sufficient practical training ensuring that the pilot can accomplish the airworthiness directive.

4. If the aircraft is operated away from a supported location, the organisation may issue a limited certification authorisation to pilot on the basis of the flight crew licence held, subject to being satisfied that the pilot has carried out sufficient practical training ensuring that the pilot can accomplish the specified task.

5. In the following unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staffs are available, the organisation contracted to provide maintenance support may issue a one- off certification authorisation:

(i) to one of its employees holding equivalent type authorisations on aircraft of similar technology, construction and systems; or

(ii) to any person with not less than five years maintenance experience and holding a valid ICAO aircraft maintenance licence rated for the aircraft type requiring certification provided there is no organisation appropriately approved under this CAR at that location and the contracted organisation obtains and holds on file evidence of the experience and the licence of that person.

All such cases as specified in this subparagraph must be reported to DGCA within seven days of the issuance of such certification authorisation. The organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved organisation.

AMC1 145.A.30(a) Personnel requirements

ACCOUNTABLE MANAGER

Accountable manager, 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 knowledgeable on technical matters, as the MOE defines the maintenance standards. When the accountable manager is not the chief executive officer, the organisation should demonstrate to the DGCA that the accountable manager has direct access to the chief executive officer and has the necessary 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 CAR-145 maintenance functions may be divided under nominated persons 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 CAR-145 maintenance function is attributed to one nominated person.

2. Dependent upon the extent of approval, the organisation structure should normally include a base maintenance manager, a line maintenance manager, and a workshop manager, all of whom should report to the accountable manager except in a small CAR-145 organisation where any one manager may also be the accountable manager, as determined by the DGCA.
3. The base maintenance manager is responsible for ensuring that all base maintenance is carried out in the base maintenance hangar (or facility as provided for in point 4 of AMC1 145.A.25(a) and to the standards specified in point 145.A.65. The base maintenance manager is also responsible for base maintenance-related corrective actions resulting from the compliance monitoring of point 145.A.200(a)(6)
4. The line maintenance manager is responsible for ensuring that all line maintenance including line defect rectification is carried out to the standards specified in point 145.A.65. This manager is also responsible for line maintenance related corrective actions resulting from the compliance monitoring of point 145.A.200(a)(6)
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. This manager is also responsible for workshop-related corrective actions resulting from the compliance monitoring of point 145.A.200(a)(6)
6. (reserved)
7. Notwithstanding the examples of titles provided in points 2 - 5, the organisation may adopt any title for the foregoing managerial positions but it should identify to the DGCA 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 maintenance functions because of the size of the undertaking, these managers should report to the accountable manager through the nominated persons.

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.

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 DGCA, 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 CAR-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) 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 DGCA. '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 with 133B of Aircraft rule 1937 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 DGCA 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 CAR-147 organisation, by the manufacturer, by the CAR-145 organisation or by any other organisation accepted by the DGCA. Aircraft/engine type training courses should be at least at a level equivalent to the CAR-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 2730 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 DGCA. 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

1. Has sufficient staff means that the organisation employs or contracts competent staff, as detailed in the man-hour plan, of which at least half the staff that perform maintenance in each workshop, hangar or flight line on any shift should be employed to ensure organisational stability. For the purpose of meeting a specific operational necessity, a temporary increase of the proportion of contracted staff may be permitted to the organisation by the DGCA, in accordance with an approved procedure which should describe the extent, specific duties, and responsibilities for ensuring adequate organisation stability. For the purpose of this sub- paragraph, employed means the person is directly employed as an individual by the maintenance organisation approved under CAR -145 whereas contracted means the person is employed by another organisation and contracted by that organisation to the maintenance organisation approved under CAR-145.

2. The maintenance man-hour plan should take into account all maintenance activities carried out outside the scope of the CAR-145 approval.

   The planned absence (for training, vacations, etc.) should be considered when developing the man-hour plan.

3. The maintenance man-hour plan should relate to the anticipated maintenance work load except that when the organisation cannot predict such workload, due to the short term nature of its contracts, then such plan should be based upon the minimum maintenance workload needed for commercial viability. Maintenance work load includes all necessary work such as, but not limited to, planning, maintenance record checks, production of worksheets/cards in paper or electronic form, accomplishment of maintenance, inspection and the completion of maintenance records.

4. For 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 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 man-hours allocated to the compliance monitoring function should be sufficient to meet the requirement of point 145.A.200(a)(6) which means taking into account the AMC to 145.A.200(a)(6). Where 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 compliance monitoring staff.

7. The maintenance man-hour plan should be reviewed at least every 3 months and updated when necessary.

8. Significant deviation from the maintenance man-hour plan should be reported through the departmental manager to the compliance monitoring manager and the accountable manager for review. It may also be reported through the internal safety reporting scheme. A significant 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:

    a) if the actual number of staff available is less than the planned staffing level for any particular work shift or period;

    b) 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

The 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 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 qualification 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;

— Whether there is a need for additional training.

A record should be kept of each individual's qualifications and competency assessment (refer also to point 145.A.55(d)).

This should include copies of all documents that attest to their qualifications, such as a licence and/or any authorisation held, as applicable.

For a proper competence 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 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 related to their job function, and be trained as per 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.

- 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, if they are not completed or it is evident that a particular maintenance task cannot be carried out according to the maintenance data, that these problems will be adequately addressed to eliminate the non-compliance, and reported through the internal safety reporting scheme to prevent their reoccurrence. 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 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.

- Compliance monitoring staff are able to monitor compliance with this CAR-145 and to identify non-compliances in an effective and timely manner so that the organisation may remain in compliance with CAR-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 GM 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), 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 initial and recurrent safety training, appropriate for their responsibilities. This should include at least the following staff members:

- 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;
- Specialised services staff;
- 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 organization.

(b) Initial safety 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 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 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. New, directly employed personnel working under direct supervision may receive training within 6 months after joining the maintenance organisation.

(c) The purpose of 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. There should be a procedure to ensure that feedback is formally reported by the trainers through the internal safety reporting scheme to initiate

action where necessary.

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

(d) Safety factorstraining may be conducted by the maintenance organisation itself, independent trainers, or any training organisations acceptable to the DGCA.

(e) The safety training procedures should be specified in the MOE.

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 fuel tank safety training is provided in 'Appendix VIII to AMC 145.A.30(e)

GM1 145.A.30 (e) Personnel requirements

TRAINING SYLLABUS FOR INITIAL SAFETY TRAINING (INCLUDING HUMAN FACTORS)

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

The maintenance organisation may combine, divide, or change the order of any of the subjects 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).

Topics should be related to the maintenance activities of the organization to the greatest extent 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
4.5 Situational awareness
4.6 Memory
4.7 Claustrophobia and physical access
4.8 Motivation
4.9 Fitness/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 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 inspection
6.2 Work logging and recording
6.3 Procedure – practice / mismatch / norms
6.4 Technical documentation – access and quality
6.5 Critical maintenance tasks and error-capturing methods (independent inspection, re inspection, etc.)

7. Communication

7.1 Shift/task 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 error-provoking behaviour
9.3 Assertiveness

10. Organisation’s safetyprogramme

10.1 Safety policy and objectives, just culture principles
10.2 Reporting errors and hazards, internal safety reporting scheme
10.3 Investigation process
10.4 Action to address problems
10.5 Feedback and safety promotion

GM2 145.A.30(e) Personnel requirements

COMPETENCY ASSESSMENT ELEMENTS

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):

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Compliance monitoring 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 CAR-M, CAR-ML, CAR-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 (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 on of CDCCL when relevant	X	X	X	X	X	X	X	X
Knowledge on 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 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

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Compliance monitoring staff	Safety management personnel
Ability to determine the 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 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			
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

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 an individual in another organisation.

Aviation Maintenance personnel experience credential		
Name	Given name	
Address Telephone	E-mail	
Independent worker ☐ Trade Group: airframe ☐ engine ☐ electric ☐ avionics ☐ other (specify) ☐……..…		
Employer's details (when applicable) Name Address Telephone		
Maintenance organisation details Name Address Telephone Approval Number Period of employment	From:	To:
Domain of Employment:		
☐Planning	☐Engineering	☐Technical Records
☐Store Department	☐Purchasing	
Mechanics/Technician		
☐Line Maintenance	☐Base Maintenance	☐Component Maintenance
☐Servicing	☐Removal/installation	☐Testing/inspection
☐Scheduled Maintenance	☐Inspection	☐Repair
☐Trouble-shooting	☐Trouble-shooting	☐ Overhaul
	☐Repair	☐Re-treatment
		☐Reassembly
A/C type	A/C type	Component type

Certifying Staff and support staff

☐Cat A A/C type ☐Cat B1 A/C type ☐Cat B2 A/C type ☐Cat C A/C type ☐Component type Component type ☐Other (e.g. NDT) Specify

Certification privileges Yes ☐/ No ☐

☐Specialised services Speciality *(NDT, composites, welding, etc.):*

☐ Skilled personnel Speciality *(sheet metal, structures, wireman, upholstery, etc.):*

☐ Ground equipment operation

☐ Supervision ☐Compliance monitoring ☐ Training

☐Safety Investigation ☐ Safety mangement

Total number of boxes ticked: ☐

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 credential will be kept for at least 3 years from its 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 DGCA 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).

AMC 145.A.30 (f) Personnel requirements

1. Continued airworthiness non-destructive testing means such testing specified by the type certificate holder /aircraft or engine or propeller manufacturer in accordance with the maintenance data as specified in CAR 145.A.45 for in service aircraft/aircraft components for the purpose of determining the continued fitness of the product to operate safely.
2. Appropriately qualified means to Level 1, 2 or 3 as defined by DGCA in Airworthiness Advisory Circular (AAC) 2 of 2017, dependent upon the non-destructive testing function to be carried out.
3. Notwithstanding the fact that Level 3 personnel may be qualified as per Airworthiness Advisory Circular (AAC) 2 of 2017 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published in the maintenance data unless the maintenance data manual or service bulletin expressly permits such deviation.
4. Procedure for issue of authorization to personnel engaged in NDT is given in Airworthiness Advisory Circular 2 of 2017.
5. Particular non-destructive test means any one or more of the following; Dye penetrant, magnetic particle, eddy current, ultrasonic and radiographic methods including X ray and gamma ray.
6. It should be noted that new methods are and will be developed, such as, but not limited to thermography and shearography, which are not specifically addressed in Airworthiness Advisory Circular (AAC) 2 of 2017. Until time as an agreed standard is established such methods should be carried out in accordance with the particular equipment manufacturer's recommendations including any training and examination process to ensure competence of the personnel in the process.
7. Any maintenance organisation approved under CAR-145 that carries out NDT should establish NDT specialist qualification procedures detailed in the exposition and accepted by DGCA.
8. Boroscoping and other techniques such as delamination coin tapping are non-destructive inspections rather than non-destructive testing. Notwithstanding such differentiation, the maintenance organisation should establish an exposition procedure accepted by DGCA to ensure that personnel who carry out and interpret such inspections are properly trained and assessed for their competence in the process. Non-destructive inspections, not being considered as NDT by CAR- 145 are not listed in Appendix II under class rating D1.
9. The referenced standards, methods, training and procedures should be specified in the maintenance organisation exposition.
10. Any such personnel who intend to carry out and/or control a non- destructive test for which they were not qualified prior to the effective date of CAR-145 should qualify for such non-destructive test in accordance with Airworthiness Advisory Circular (AAC) 2 of 2017.

11. In this context officially recognised standard means those standards established or published by an official body and acceptable to DGCA, which are widely recognised by the air transport sector as constituting good practice.

AMC 145.A.30 (g) Personnel requirements

1. For the purposes of CAR 66.A.20 (a) (1) and 66.A.20(a)(3)(b) personnel personnel, minor scheduled line maintenance means any minor scheduled inspection/check up to and including a weekly check specified in the aircraft maintenance programme. For aircraft maintenance programmes that do not specify a weekly check, DGCA will determine the most significant check that is considered equivalent to a weekly check.

2. Typical tasks permitted after appropriate task training to be carried out by the CAR 66.A.20 (a) (1) and the 66.A.20(a)(3)(b) personnel for the purpose of these personnel issuing an aircraft certificate of release to service as specified in 145.A.50 as part of minor scheduled line maintenance or simple defect rectification are contained in the following list:

(a) Replacement of wheel assemblies.
(b) Replacement of wheel brake units.
(c) Replacement of emergency equipment.
(d) Replacement of ovens, boilers and beverage makers.
(e) Replacement of internal and external lights, filaments and flash tubes.
(f) Replacement of windscreen wiper blades.
(g) Replacement of passenger and cabin crew seats, seat belts and harnesses.
(h) Closing of cowlings and refitment of quick access inspection panels.
(i) Replacement of toilet system components but excluding gate valves.
(j) Simple repairs and replacement of internal compartment doors and placards but excluding doors forming part of a pressure structure.
(k) Simple repairs and replacement of overhead storage compartment doors and cabin furnishing items.
(l) Replacement of static wicks.
(m) Replacement of aircraft main and APU aircraft batteries.
(n) Replacement of inflight entertainment system components other than public address.
(o) Routine lubrication and replenishment of all system fluids and gases.
(p) 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 DGCA as a simple task.
(q) Inspection for and removal of de-icing/anti-icing fluid residues, including Removal /closure of panels, cowls or covers or the use of special tools.
(r) Any other task agreed by DGCA as a simple task for a particular aircraft type.

This may include defect deferment when all the following conditions are met:

- There is no need for troubleshooting; and
- The task is in the MEL; and
- The maintenance action required by the MEL is agreed by DGCA to be simple.

In the particular case of helicopters, and in addition to the items above, the following:

(s) removal and installation of Helicopter Emergency Medical Service (HEMS) simple internal medical equipment.
(t) removal and installation of external cargo provisions (i.e., external hook, mirrors) other than the hoist.
(u) removal and installation of quick release external cameras and search lights.
(v) removal and installation of emergency float bags, not including the bottles.
(w) removal and installation of external doors fitted with quick release attachments.
(x) removal and installation of snow pads/skid wear shoes/slump protection pads.

No task which requires troubleshooting should be part of the authorised maintenance actions. Release to service after rectification of deferred defects should be permitted as long as the task is listed above.

3. The requirement of having appropriate aircraft-rated certifying staff qualified as category B1, B2, B2L, B3, L, as appropriate, in the case of aircraft line maintenance does not imply that the organisation must have B1, B2, B2L, B3 and L personnel at every line station. The MOE should have a procedure on how to deal with defects requiring those categories of certifying staff.

4. DGCA may accept that in the case of aircraft line maintenance an organisation has only B1, B2, B2L, B3 or L certifying staff, as appropriate, provided that the DGCA is satisfied that the scope of work, as defined in the MOE, does not need the availability of all those categories of certifying staff. Special attention should be taken to clearly limit the scope of scheduled and non-scheduled line maintenance (defect rectification) to only those tasks that can be certified by the available category of certifying staff.

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 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 authorization, the pilot should hold either an airline transport pilot licence (ATPL), or a commercial pilot licence (CPL) in accordance with Schedule II of Aircraft Rules, 1937.

2. In addition, the limited certification authorisation is subject to the containing procedures to address the personnel requirements of point 145.A.30(e). The procedures should be accepted by the competent authority and should include as a minimum:

   (a) completion of adequate 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 CAR-145.

   2(i) Typical tasks that may be certified and/or carried out by a pilot 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, 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 require the use of special tools;

      (e) Any check/ replacement that involves simple techniques that are consistent with this AMC and that have been agreed by DGCA.

3. The validity of the authorisation should be limited to twelve months, and may be renewed if there has been satisfactory re-current training on the task(s) for which the pilot holds an authorization.

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

1. For the purposes of point 145.A.30(j)(5), 'unforeseen' means that the grounding of the aircraft 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. Issuing a one-off authorisation should only be considered under the responsibility of the compliance monitoring manager of the contracted organisation after a reasoned judgement has been made that such an authorisation is appropriate under the circumstances, while at the same time it maintains the required airworthiness standards. The organisation'scompliance monitoring personnel should assess each situation individually prior to issuing a one-off authorisation, and may request contribution from technical and safety management personnel.

3. A one-off authorisation should not be issued 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 case it is necessary to issue a one-off certificationauthorisationto a certifying staff on an aircraft type for which he or she does not hold a type-rated, the following procedure is recommended:

1. The flight crew should communicate full details of the defect to the maintenance organisation. If necessary, the maintenance organisation will then request the use of a one-off authorisation from the compliance monitoring personnel

2. When issuing a one-off authorisation, the compliance monitoring personnel should verify that:

   (a) full technical details relating to the work required to be carried out have been established and passed on to the certifying staff;

   (b) theorganisation 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 authorization;

   (c) 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;

(d) the person holds authorisations of equivalent levels and scopes on other aircraft types that have similar technology, construction and systems.

3. The holder of the one-off authorization 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 CAR 145 maintenance facility.

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

Point 145.A.30(j)(5)(ii) 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),the compliance monitoring personnel of the organisation may issue such a one-off authorisation provided that full details relating to the qualifications of the proposed certifying personnel are verified by the compliance monitoring personnel and made available at the location.

145.A.35 Certifying and support staff

(a) In addition to the requirements of 145.A.30(g) and (h), the organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft or components,or both, to be maintained and of the associated organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or reissue of the certification authorisation.

1. “Support staff” means those staff holding an aircraft maintenance engineer licence under CAR 66 in category B1, B2, B2L, B3 and/or L with the appropriate aircraft ratings, working in a base maintenance environment while not necessarily holding certification privileges.

2. “Relevant aircraft and/or components”, means those aircraft or components specified in the particular certification authorisation.

3. “Certification authorisation” means the authorisation issued to certifying staff by the organisation and which specifies the fact that ~~they~~ those staff may sign certificates of release to service within the limitations stated in such authorisation on behalf of the approved organisation.’;

(b) Except for the cases listed in points 145.A.30 (j) and 66. 20(a) 3 (b) the organisation may only issue a certification authorisation to certifying staff in relation to the categories or subcategories and except for the category A licence, any type rating listed on the aircraft maintenance licence as required by CAR 66, subject to the licence remaining valid throughout the validity period of the authorisation and to the certifying staff remaining in compliance with the CAR 66.

(c) The organisation shall ensure that all certifying staff and support staff are

involved in at least 6 months of actual relevant aircraft or component maintenance experience in any consecutive 2-year period.

For the purpose of this point “involved in actual relevant aircraft or component maintenance” means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/or has actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

(d) The organisation shall ensure that all certifying staff and support staff receive sufficient recurrent training in each 2 year period to ensure that such they have up-to-date knowledge of relevant technologies, organisation procedures and safety management, including human factor issues.

(e) The organisation shall establish a programme for recurrent training for certifying staff and support staff, including a procedure to ensure compliance with the relevant provisions of this point, and a procedure to ensure compliance with CAR 66.

(f) With the exception of the unforeseen cases specified in point 145.A.30(j)(5), the organisation shall assess all certifying staff for their competence, qualifications and capability to carry out their intended certifying duties in accordance with a procedure in the MOE prior to the issue or re-issue of a certification authorisation under this CAR to staff such.

(g) When the conditions of point (a), (b), (d), (f) and, where applicable, point (c) have been fulfilled by the certifying staff, the organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs (a), (b), (d), and where applicable (c).

(h) The certification authorisation must be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, the organisation shall make a code translation readily available. ‘Authorised person’ means the officials of DGCA, who has responsibility for the oversight of the maintained aircraft or component.

(i) The person or persons referred to in point 145.A30(c) that are responsible for compliance monitoring function shall also remain responsible for issuing certification authorisations to certifying staff.

That personnel may nominate other persons to effectively issue or revoke the certification authorisations in accordance with a procedure in the MOE.

(j) The organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.

(k) Certifying staff shall produce their certification authorisation to any authorised person within 24 hours.

(l) The minimum age for certifying staff and support staff is 21 years.

(m) The holder of a category A aircraft maintenance licence may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant category A aircraft task training carried out by an organisation appropriately approved in accordance with CAR-145 or CAR-147. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the organisation.

(n) The holder of a category B2 aircraft maintenance licence may only exercise the certification privileges described in point 66.A.20 (a) (3) (b) of CAR-66 following the satisfactory completion of ;

(i) the relevant category A aircraft task training; and

(ii) 6 months of documented practical experience covering the scope of the authorization that will be issued.

The task training shall include practical hands on training and theoretical training as appropriate for each task authorized. Satisfactory completion of the training shall be demonstrated by an examination or by workplace assessment. Task training and examination/assessment shall be carried out by the maintenance organization issuing the certifying staff authorization. The practical experience shall be also obtained within such maintenance organization.'

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

1. Holding a CAR-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 for assessing the competency of the holder for the scope of the maintenance to be authorised.

2. The sentence "the organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated organisation procedures" means that the person has received training and has been successfully assessed on:

- the type of aircraft or component;
- the differences on:
  - the particular model/variant;
  - the particular configuration.

The organisation should specifically ensure that the individual competencies have

been established with regard to:

- relevant knowledge, skills and experience in the product type and configuration to be maintained, taking into account the differences between the generic aircraft type rating training that the person received and the specific configuration of the aircraft to be maintained.
- appropriate attitude towards safety and observance of procedures.
- knowledge of the associated organisation and operator procedures (i.e. handling and identification of components, MEL use, Technical Log use, independent checks, etc.).

3. Some special maintenance tasks may require additional specific training and experience, including but not limited to:

- in-depth troubleshooting;
- very specific adjustment or test procedures;
- rigging;
- engine run-up, starting and operating the engines, checking engine performance characteristics, normal and emergency engine operation, associated safety precautions and procedures;
- extensive structural/system inspection and repair;
- Other specialised maintenance required by the maintenance programme.

For engine run-up training, simulators and/or real aircraft should be used.

4. The assessment of the competency of the holder should be conducted in accordance with a procedure approved by the competent authority (item 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).

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

AMC 145.A.35 (b) Certifying staff and support staff

The organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of CAR-145 and CAR 66. In granting the certification authorisation the maintenance organisation approved under CAR-145 needs to be satisfied that the person holds a valid DGCA CAR 66 aircraft maintenance licence and may need to confirm such fact with DGCA, if required.

AMC 145.A.35(c) Certifying staff and support staff

For the interpretation of “6 months of actual relevant aircraft maintenance experience in any consecutive 2-year period”, the provisions of AMC 66.A.20 (b) 2 are applicable.

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

1. Recurrent 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 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. There should be a procedure to ensure that feedback is formally reported by the trainers through the internal safety reporting scheme to initiate action where necessary.

2. Recurrent training should cover changes made to the modification standard of the products being maintained, to the relevant requirements such as CAR-145, to the organisation's procedures, safety policy and objectives as well as human factors and safety issues identified from internal or external analysis of incidents and compliance monitoring results. It should also address instances in which staff failed to follow the procedures, and the reasons why particular procedures were not always followed. In many cases, the recurrent training will reinforce the need to follow the procedures and will ensure that incomplete or incorrect procedures are identified to the company so that they can be corrected. It may be necessary to carry out an audit of these procedures.

3. 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. Therefore, sufficient duration should be related to relevant 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 limited relevant audit findings,hazards and related safety risks identified, recurrent training could be limited to days rather than weeks, whereas in the case of a similar organisation with a number of relevant 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 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 recurrent training, whereas those who release turbine engines may only require a few days of such a training. The content of recurrent training should be related to relevant audit findings, hazards and related safety risks identified. 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 a CAR-147 organisation, an aeronautical

college the CAR-145 organisation, or another training or maintenance organization.The elements, general content and length of such training should be specified in the MOE.

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

The programme for 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 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).

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 competency related to their intended duties. Said assessment should be conducted in accordance with AMC 1, 2, 3, 4 and 5 to point 145.A.30(e), as applicable..

AMC1 145.A.35 (m) Certifying staff and support staff

1. It is the responsibility of the CAR-145 organisation issuing the Category A certifying staff authorisation to ensure that the task training received by this person covers all the tasks to be authorised. This is particularly important in those cases where the task training has been provided by a CAR-147 organisation or by a CAR-145 organization different from the one issuing the authorisation.

2. 'Appropriately approved in accordance with CAR-147' means an organisation holding an approval to provide category A task training for the corresponding aircraft type.

3. 'Appropriately approved in accordance with CAR-145' means an organisation holding a maintenance organisation approval for the corresponding aircraft type.

AMC1 145.A.35 (n) Certifying staff and support staff

1. The privilege for a B2 licence holder to release minor scheduled line maintenance and simple defect rectification in accordance with 66.A.20(a)(3)(b) can only be granted by the CAR-145 approved organisation where the licence holder is employed/contracted after meeting all the requirements specified in 145.A.35(n). This privilege cannot be transferred to another CAR-145 approved organisation.

2. When a B2 licence holder already holds a certifying staff authorisation containing minor scheduled line maintenance and simple defect rectification for a particular aircraft type, new tasks relevant to category A can be added to that type without requiring another 6 months of experience. However, task training

(theoretical plus practical hands-on) and examination/assessment for these additional tasks is still required.

3. When the certifying staff authorisation intends to cover several aircraft types, the experience may be combined within a single 6-month period.

4. For the addition of new types to the certifying staff authorisation, another 6 months should be required unless the aircraft is considered similar per AMC 66.A.20 (b) 2 to the one already held.

5. The term '6 months of experience' may include full-time employment or part-time employment. The important aspect is that the person has been involved during a period of 6 months (not necessarily every day) in those tasks which are going to be part of the authorization.

145.A.37 Airworthiness review staff Reserved

145. A.40 Equipment and tools

(a) The organisation shall have available and use the necessary equipment and tools to perform the approved scope of work.

(i) Where the manufacturer specifies a particular tool or equipment, the organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by DGCA via procedures specified in the exposition.

(ii) Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent is not necessary. Such cases shall be detailed in an exposition procedure.

(iii) An organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking as required for the proper inspection of the aircraft.

(b) The organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to an officially recognised standard at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the organisation.

AMC 145.A.40 (a) Equipment and tools

Once the applicant for approval has determined the intended scope of work for consideration by the DGCA, it will be necessary to show that all tools and equipment as specified in the maintenance data can be made available when needed. All such

tools and equipment that require to be controlled in terms of servicing or calibration by virtue of being necessary to measure specified dimensions and torque figures etc, should be clearly identified and listed in a control register including any personal tools and equipment that the organisation agrees can be used.

AMC 145.A.40 (b) Equipment and tools

1. The control of these tools and equipment requires that the organisation has a procedure to inspect/service and, where appropriate, calibrate such items on a regular basis and indicate to users that the item is within any inspection or service or calibration time-limit. A clear system of labeling all tooling, equipment and test equipment is therefore necessary giving information on when the next inspection or service or calibration is due and if the item is unserviceable for any other reason where it may not be obvious. A register should be maintained for all precision tooling and equipment together with a record of calibrations and standards used.

2. Inspection, service or calibration on a regular basis should be in accordance with the equipment manufacturers' instructions except where the organisation can show by results that a different time period is appropriate in a particular case.

3. In this context officially recognized standard means those standards established or published by an official body and acceptable to DGCA.

145.A.42 Components

a) Classification of components.

All components shall be classified into the following categories:

1. Components which are in a satisfactory condition, released on a CA Form 1 or equivalent and marked in accordance with CAR 21 Subpart Q, unless otherwise specified in CAR- 21, in point M.A.502 of CAR-M, in point ML.A.502 of CAR-ML, or in this CAR.
2. Unserviceable components which shall be maintained in accordance with this Regulation.
3. Components categorised as unsalvageable because they have reached their mandatory life limitation or contain a non-repairable defect
4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the maintenance data and accompanied by evidence of conformity traceable to the applicable standard.
5. Material, both raw and consumable, used in the course of maintenance when the organisation is satisfied that the material meets the required specification and has appropriate traceability. All material shall be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement as well as the manufacturing and supplier source.

b) Components, standard parts and materials for installation

(1) The organisation shall establish procedures for the acceptance of components, standard parts and materials for installation to ensure that components, standard parts and materials are in satisfactory condition and meet the applicable requirements of point (a).
(2) The organisation shall establish procedures to ensure that components, standard parts and materials shall only be installed on an aircraft or a component when they are in satisfactory condition, meet the applicable requirements of point (a) and the applicable maintenance data specifies the particular component, standard part or material.
(3) The organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities, provided procedures are identified in the exposition.
(4) Components which are referred to CAR-21 shall only be installed if considered eligible for installation by the aircraft owner on their own aircraft

c) Segregation of components

(1) Unserviceable and unsalvageable components shall be segregated from serviceable components, standards parts and materials.
(2) Unsalvageable components shall not be permitted to re-enter the component supply system, unless mandatory life limitation have been extended or a repair solution has been approved in accordance with CAR 21.

AMC1 145.A.42(a)(1) Components

CA FORM 1 OR EQUIVALENT

(a) A document equivalent to an CA Form 1 may be:

(1) a release document issued by an organization under the terms of a bilateral agreement signed by the DGCA;

(2) EASA Form 1

(3) FAA 8130-3

(4) Airworthiness release documents issued by the manufacturer of aircraft for new components shall be acceptable for the installation on type of aircraft for which Type Certificate is accepted by DGCA.

(5) A release document issued by an organisation approved under CAR 145;

(6) UK CAA Form 1

(7) Any other form acceptable to DGCA.

(8) ‘declaration of maintenance accomplished’ issued by the person or

organisation that performed the maintenance, as specified in point M.A.502(e) or in point ML.A.502(c).

GM1 145.A.42(a)(1) Components

Refer CAR-21 specifies the new components that do not need an CA Form 1 or equivalent to be eligible for installation. Refer CAR-21 specifies the conditions for the document accompanying the component.

AMC1 145.A.42(a)(2) Components

UNSERVICEABLE COMPONENTS

(a) The organisation should ensure the proper identification of any unserviceable components. The unserviceable status of the component should be clearly declared on a tag together with the component identification data and any information that is useful to define actions that are necessary to be taken. Such information should state, as applicable, in-service times, maintenance status, preservation status, failures, defects or malfunctions reported or detected, exposure to adverse environmental conditions, and whether the component is installed on an aircraft that was involved in an accident or incident. Means should be provided to prevent unintentional separation of this tag from the component.

(b) Unserviceable components should typically undergo maintenance due to:

(1) expiry of the service life limit as defined in the aircraft maintenance programme;

(2) non-compliance with the applicable airworthiness directives and other continuing airworthiness requirements mandated by DGCA;

(3) absence of the necessary information to determine the airworthiness status or eligibility for installation;

(4) evidence of defects or malfunctions; or

(5) being installed on an aircraft that was involved in an incident or accident likely to affect the component's serviceability.

AMC1 145.A.42(a)(3) Components

UNSALVAGEABLE COMPONENTS

The following types of components should typically be classified as unsalvageable:

(a) components with non-repairable defects, whether visible or not to the naked eye;

(b) components that do not meet design specifications, and cannot be brought

into conformity with such specifications;

(c) components subjected to unacceptable modification or rework that is irreversible;

(d) parts with mandatory life limitations that have reached or exceeded these limitations or have missing or incomplete records;

(e) components whose airworthy condition cannot be restored due to exposure to extreme forces, heat or adverse environmental conditions;

(f) components for which conformity with an applicable airworthiness directive cannot be accomplished;

(g) components for which maintenance records and/or traceability to the manufacturer cannot be retrieved.

AMC1 145.A.42(a)(4) Components

STANDARD PARTS

(a) Standard parts are parts that are manufactured in complete compliance with an established industry, DGCA competent authority or other government specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. The specification should include all the information that is necessary to produce and verify conformity of the part. It should be published so that any party may manufacture the part. Examples of specifications are National Aerospace Standards (NAS), Army-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), SAE Sematec, Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and American National Standards Institute (ANSI), EN Specifications, etc.

(b) To designate a part as a standard part, the TC holder may issue a standard parts manual accepted by the competent authority of the original TC holder or may make reference in the parts catalogue to the specification to be met by the standard part. Documentation that accompanies standard parts should clearly relate to the particular parts and contain a conformity statement plus both the manufacturing and supplier source. Some materials are subject to special conditions, such as storage conditions or life limitation, etc., and this should be included in the documentation and/or the material's packaging.

(c) An CA Form 1 or equivalent is not normally issued and, therefore, none should be expected.

AMC2 145.A.42(a)(4) Components

STANDARD PARTS

For sailplanes and powered sailplanes, non-required instruments and/or equipment

that are certified under the provision of CS 22.1301(b), if those instruments or equipment, when installed, functioning, functioning improperly or not functioning at all, do not in themselves, or by their effect upon the sailplane and its operation, constitute a safety hazard.

'Required' in the term 'non-required', as used above, means required by the applicable airworthiness code (CS 22.1303, 22.1305 and 22.1307) or required by the relevant regulations for air operations and the applicable Rules of the Air or as required by air traffic management (e.g. a transponder in certain controlled airspace). Examples of non-required equipment which can be considered to be standard parts may be electrical variometers, bank/slip indicators ball-type, total energy probes, capacity bottles (for variometers), final glide calculators, navigation computers, data logger/barograph/turnpoint camera, bugwipers and anti-collision systems. Equipment which must be approved in accordance with the airworthiness code shall comply with the applicable ITSO or equivalent and it is not considered to be a standard part (e.g. oxygen equipment).

AMC1 145.A.42(a)(5) Components

MATERIAL

(a) Consumable material is any material which is only used once, such as lubricants, cements, compounds, paints, chemical dyes and sealants, etc.

(b) Raw material is any material that requires further work to make it into a component part of the aircraft, such as metal, plastic, wood, fabric, etc.

(c) Material both raw and consumable should only be accepted when satisfied that it is to the required specification. To be satisfied, the material and/or its packaging should be marked with the applicable specification and, where appropriate, the batch number.

(d) Documentation that accompanies all materials should clearly relate to the particular material and contain a conformity statement plus both the manufacturing and supplier source. Some materials are subject to special conditions, such as storage conditions or life limitation, etc., and this should be included in the documentation and/or the material's packaging.

(e) An CA Form 1 or equivalent should not be issued for such materials and, therefore, none should be expected. The material specification is normally identified in the data issued by the (S)TC holder except in the case where the DGCA or the competent authority has agreed otherwise.

GM1 145.A.42(b) Components

Used components maintained by a CAO appropriately approved for component maintenance and released on a CA Form 1 cannot be installed on complex motor-powered aircraft or aircraft used by an air operator certified in accordance with Rule 134 and Schedule XI of the Aircraft Rules, 1937.

AMC1 145.A.42(b)(1) Components

ACCEPTANCE OF COMPONENTS FOR INSTALLATION

(a) The procedures for the acceptance of components, standard parts and materials should have the objective of ensuring that the components, standard parts and materials are in satisfactory condition and meet the organisation's requirements. These procedures should be based upon incoming inspections which include:

(1) physical inspection of the components, standard parts and materials;

(2) review of the accompanying documentation and data, which should be acceptable in accordance with 145.A.42(a).

(b) For the acceptance of components, standard parts and materials from suppliers, the above procedures should include supplier evaluation procedures.

GM1 145.A.42(b)(1) Components

INCOMING PHYSICAL INSPECTION

(a) To ensure that a components, standard parts and materials are in satisfactory condition, the organisation should perform an incoming physical inspection.

(b) The incoming physical inspection should be performed before the component is installed on the aircraft.

(c) The following list, although not exhaustive, contains typical checks to be performed:

(1) verify the general condition of the components and their packaging in relation to damages that could affect their integrity;

(2) verify that the shelf life of the component has not expired;

(3) verify that items are received in the appropriate package in respect of the type of the component: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary;

(4) verify that the component has all plugs and caps appropriately installed to prevent damage or internal contamination. Care should be taken when tape is used to cover electrical connections or fluid fittings/openings because adhesive residues can insulate electrical connections and contaminate hydraulic or fuel units.

(d) Items (e.g. fasteners) purchased in batches should be supplied in a package. The packaging should state the applicable specification/

standard, P/N, batch number, and the quantity of the items. The documentation that accompanies the material should contain the applicable specification/standard, P/N, batch number, supplied quantity, and the manufacturing sources. If the material is acquired from different batches, acceptance documentation for each batch should be provided.

GM2 145.A.42(b)(1) Components

EXAMPLES OF SUPPLIERS

A supplier could be any source that provides components, standard parts or materials to be used for maintenance. Possible sources could be: CAR-145 organisations, CAR 21 Subpart G organisations, operators, stockist, distributors, brokers, aircraft owners/lessees, etc.

GM3 145.A.42(b)(1) Components

SUPPLIER EVALUATION

(a) The following elements should be considered for the initial and recurrent evaluation of a supplier's quality system to ensure that the component and/or material is supplied in satisfactory condition:

(1) availability of appropriate up-to-date regulations, specifications (such as component handling/storage data) and standards;

(2) standards and procedures for the training of personnel and competency assessment;

(3) procedures for shelf-life control;

(4) procedures for handling of electrostatic sensitive devices;

(5) procedures for identifying the source from which components and materials were received;

(6) purchasing procedures that identify documentation to accompany components and materials for subsequent use by approved CAR-145 maintenance organisations;

(7) procedures for incoming inspection of components and materials;

(8) procedures for control of measuring equipment that provide for appropriate storage, usage, and for calibration when such equipment is required;

(9) procedures to ensure appropriate storage conditions for components and materials that are adequate to protect the components and materials from damage and/or deterioration. Such procedures should comply with the manufacturers' recommendations and relevant standards;

(10) procedures for adequate packing and shipping of components and materials to protect them from damage and deterioration, including

procedures for proper shipping of dangerous goods (e.g. ICAO and ATA specifications);

(11) procedures for detecting and reporting of suspected unapproved components;

(12) procedures for handling unsalvageable components in accordance with applicable regulations and standards;

(13) procedures for batch splitting or redistribution of lots and handling of the related documents;

(14) procedures for notifying purchasers of any components that have been shipped and have later been identified as not conforming to the applicable technical data or standard;

(15) procedures for recall control to ensure that components and materials shipped can be traced and recalled if necessary;

(16) procedures for monitoring the effectiveness of the quality system.

(b) Suppliers which are certified to officially recognised standards that have a quality system that includes the elements specified in (a) may be acceptable; such standards include:

(1) EN/AS9120 and listed in the OASIS database;

(2) ASA-100;

(3) EASO 2012;

(4) FAA AC 00-56.

The use of such suppliers does not exempt the organisation from its obligations under 145.A.42 to ensure that supplied components and materials are in satisfactory condition and meet the applicable criteria of 145.A.42.

(c) Supplier evaluation may depend on different factors, such as the type of component, whether or not the supplier is the manufacturer of the component, the TC holder or a maintenance organisation, or even specific circumstances such as aircraft on ground. This evaluation may be limited to a questionnaire from the CAR-145 organisation to its suppliers, a desktop evaluation of the supplier's procedures or an on-site audit, if deemed necessary.

GM1 145.A.42(b)(2) Components

INSTALLATION OF COMPONENTS

Components, standard parts and materials should only be installed when they are specified in the applicable maintenance data as specified in 145.A.45(b). So, the installation of a component, standard part or material can only be done after checking the applicable maintenance data

This check should ensure that the part number, modification status, limitations, etc., of the component, standard part or material are the ones specified in the applicable maintenance data of the particular aircraft or component where the component,

standard part or material is going to be installed. The organisation should establish procedures to ensure that this check is performed before installation.

AMC1 145.A.42(b)(3) Components

FABRICATION OF PARTS FOR INSTALLATION

(a) The agreement of the competent authority on the fabrication of parts by the approved maintenance organisation should be formalised through the approval of a detailed procedure in the Maintenance Organisation Exposition (MOE). This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.

(b) Fabrication, inspection, assembly and test should be clearly within the technical and procedural capability of the organisation.

(c) All necessary data to fabricate the part should be approved either by the DGCA or the type certificate (TC) holder, or CAR 21 design organisation approval holder, or supplemental type certificate (STC) holder.

(d) Items that are fabricated by an organisation approved under CAR-145 may only be used by that organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components, performing work at its own facilities. The permission to fabricate does not constitute approval for manufacture, or to supply externally, and the parts do not qualify for CA Form 1 certification. This prohibition also applies to the bulk transfer of surplus inventory, in that locally fabricated parts are physically segregated and excluded from any delivery certification.

(e) Fabrication of parts, modification kits, etc., for onward supply and/or sale may not be conducted by an organisation that is approved under CAR-145.

(f) The data specified in (c) may include repair procedures that involve the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by an organisation that is approved under CAR-145. Care should be taken to ensure that the data include details of part numbering, dimensions, materials, processes, and any special manufacturing techniques, special raw material specification and/or incoming inspection requirement, and that the approved organisation has the necessary capability to fabricate those parts. That capability should be defined by way of exposition content. Where special processes or inspection procedures are defined in the approved data, which are not available at the organisation, the organisation cannot fabricate the part unless the TC/STC holder gives an approved alternative.

(g) Examples of fabrication within the scope of a CAR-145 approval may include but are not limited to the following:

(1) fabrication of bushes, sleeves and shims;
(2) fabrication of secondary structural elements and skin panels;

(3) fabrication of control cables;
(4) fabrication of flexible and rigid pipes;
(5) fabrication of electrical cable looms and assemblies;
(6) formed or machined sheet metal panels for repairs.

All the above-mentioned fabricated parts should be in accordance with the data provided in the overhaul or repair manuals, modification schemes and service bulletins, drawings, or should be otherwise approved by the competent authority.

Note: It is not acceptable to fabricate any item to pattern unless an engineering drawing of the item is produced which includes any necessary fabrication process and which is acceptable to the competent authority.

(h) Where a TC holder or an approved production organisation is prepared to make available complete data which is not referred to in the aircraft manuals or service bulletins but provides manufacturing drawings for items specified in parts lists, the fabrication of these items is not considered to be within the scope of an approval unless agreed otherwise by the competent authority in accordance with a procedure specified in the exposition.

(i) Inspection and identification

Any locally fabricated part should be subject to inspection before, separately, and preferably independently from any inspection of its installation. The inspection should establish full compliance with the relevant manufacturing data, and the part should be unambiguously identified as fit for use by stating conformity to the approved data. Adequate records should be maintained of all such fabrication processes including heat treatment and final inspections. All parts, except those that do not have enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. In addition to the part's number, the organisation's identity should be marked on the part for traceability purposes.

AMC1 145.A.42(c) Components

SEGREGATION OF COMPONENTS

(a) Unserviceable components should be identified and stored in a secure location that is under the control of the maintenance organisation until a decision is made on the future status of such components. The organisation that declared the component to be unserviceable may transfer its custody after identifying it as unserviceable to the aircraft owner provided that such transfer is reflected in the aircraft logbook, or engine logbook, or component logbook.

(b) 'Secure location under the control of an approved maintenance organisation' refers to a secure location whose security is the responsibility of the approved maintenance organisation. This may include facilities that are established by the organisation at locations different from the main maintenance facilities.

These locations should be identified in the relevant procedures of the organisation.

(c) In the case of unsalvageable components, the organisation should:

(1) retain such component in the secure location referred to in paragraph (b);
(2) arrange for the component to be mutilated in a manner that ensures that they are beyond economic salvage or repair before disposing it; or
(3) mark the component indicating that it is unsalvageable, when in agreement with the component owner, the component is disposed of for legitimate non-flight uses (such as training and education aids, research and development), or for non-aviation applications, mutilation is often not appropriate. Alternatively to marking, the original part number or data plate information can be removed or a record kept of the disposal of the components.

GM1 145.A.42(c)(1) Components

MUTILATION OF COMPONENTS

(a) Mutilation should be accomplished in such a manner that the components become permanently unusable for their originally intended use. Mutilated components should not be able to be reworked or camouflaged to provide the appearance of being serviceable, such as by replating, shortening and rethreading long bolts, welding, straightening, machining, cleaning, polishing, or repainting.

(b) Mutilation may be accomplished by one or a combination of the following procedures:

(1) grinding;
(2) burning;
(3) removal of a major lug or other integral feature;
(4) permanent distortion of parts;
(5) cutting a hole with cutting torch or saw;
(6) melting;
(7) sawing into many small pieces; and
(8) any other method accepted by DGCA.

(c) The following procedures are examples of mutilation that are often less successful because they may not be consistently effective:
(1) stamping or vibro-etching;
(2) spraying with paint;
(3) small distortions, incisions, or hammer marks;
(4) identification by tags or markings;
(5) drilling small holes; and
(6) sawing in two pieces only.

145. A.45 Maintenance data

a) The organisation shall hold and use applicable current maintenance data which is necessary in the performance of maintenance, including modifications and repairs. ‘Applicable’ means relevant to any aircraft, component or process specified in the organisation's approval and in any associated capability list.

In the case of maintenance data provided by the person or organization requesting the maintenance, the organisation shall hold such data when the work is in progress, with the exception of the need to comply with the point 145.A.55 (a)(3).

b) Applicable maintenance data is the data specified in point M.A.401(b) CAR-M or in point ML.A.401(b) CAR-ML, as applicable.

c) The organisation shall establish procedures to ensure that if inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction is found in the maintenance data used by maintenance personnel, it is recorded as part of the internal safety reporting scheme referred to in point 145.A.202 and notified to the author of the maintenance data.

d) The organisation may only modify maintenance instructions in accordance with a procedure specified in the MOE. With respect to changes to maintenance instructions, the organisation shall demonstrate that they result in equivalent or improved maintenance standards, and shall inform the author of the maintenance instructions of such changes. For the purposes of this point, “maintenance instructions” mean instructions on how to carry out a particular maintenance task; they exclude the engineering design of repairs and modifications,

e) The organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the organisation. In addition, the organisation shall either transcribe accurately the maintenance data refered to in point (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained that maintenance data. Work cards andworksheets may be computer generated and held on an electronic database that is adequately protected against un-authorised alteration, and for which there is a back-up electronic database which shall be updated within 24 hours after an entry is made to the main electronic database. Complex or long maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure that there is a record of the accomplishment of the complete maintenance task.

Where the organisation provides a maintenance service to an aircraft operator which requires its own work card or worksheet system may be used. In that case, the organisation shall establish a procedure to ensure that those work cards or work sheets are correctly completed of the aircraft operators' work

cards or worksheets.

f) The organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel.

g) The organisation shall establish a procedure to ensure that maintenance data it controls is kept up to date. In the case of operator/customer controlled and provided maintenance data, the organisation shall be able to show that either it has written confirmation from the operator/customer that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the operator/customer maintenance data amendment list.

GM1 145.A.45(b) Maintenance data

The provisions of GM1 M.A.401(b)(3) and (b)(4), GM1 M.A.401(b)(4) and GM1 ML.A.401(b) apply.

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 CAR-145 approved maintenance rganization 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 CAR-145 approved rganization until such time as the author of the maintenance data has clarified the issue by e.g. amending the maintenance data.

2. The referenced procedure should be specified in the MOE.

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 to the compliance monitoring personnel, of the 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 compliance monitoring personnel should approve the modified maintenance instruction, and ensure that the author of the maintenance instruction 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 original intent of the maintenance instruction can be carried out in a more practical or more efficient manner.

(b) Where the original intent of the maintenance instruction cannot be achieved 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 a change to a (restricted) type certificate that should be approved in accordance with CAR -21.

AMC1 145.A.45(e) Maintenance data

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

2. The 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 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.

AMC 145.A.45 (f) Maintenance Data

1. Data being made available to personnel maintaining aircraft means that the

data should be available in close proximity to the aircraft being maintained, for supervisors, mechanics and certifying staff to study.

2. Where computer systems are used, the number of computer terminals should be sufficient in relation to the size of the work programme to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/ printers are used, a similar requirement is applicable.

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

145.A.47 Production planning

a) The organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work.

b) As part of the management system, the planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations, including the threat of fatigue for maintenance personnel.

c) When it is required to hand over the continuation or completion of maintenance tasks for reasons of a shift or personnel changeover, relevant information shall be adequately communicated between outgoing and incoming personnel.

d) The organisation shall ensure that aviation safety hazards associated with external working teams carrying out maintenance at the organisation's facilities are considered by the organisation's management system.

AMC 145.A.47 (a) Production planning

1. Depending on the amount and complexity of work generally performed by the maintenance organisation, the planning system may range from a very simple procedure to a complex organisational set-up including a dedicated planning function in support of the production function.

2. For the purpose of CAR-145, the production planning function includes two complementary elements:

- scheduling the maintenance work ahead, to ensure that it will not adversely interfere with other work as regards the availability of all necessary personnel, tools, equipment, material, maintenance data and

facilities.
- during maintenance work, organising maintenance teams and shifts and provide all necessary support to ensure the completion of maintenance without undue time pressure.

3. When establishing the production planning procedure, consideration should be given to the following:
   - logistics,
   - inventory control,
   - square meters of accommodation,
   - man-hours estimation,
   - man-hours availability,
   - preparation of work,
   - hangar availability,
   - environmental conditions (access, lighting standards and cleanliness),
   - co-ordination with internal and external suppliers, etc.
   - scheduling of critical maintenance tasks during periods when staff are likely to be most alert.

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 enablesthe 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.

AMC145.A.47(c) Production planning

The primary objective of the changeover / handover information is to ensure

effective communication at the point of handing over the continuation or completion of maintenance actions. Effective task and shift handover depends on three basic elements:

- The outgoing person's ability to understand and communicate the important elements of the job or task being passed over to the incoming person.
- The incoming person's ability to understand and assimilate the information being provided by the outgoing person.
- A formalised process for exchanging information between outgoing and incoming persons and a planned shift overlap and a place for such exchanges to take place.

GM1 145.A.47(d) Production planning

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

- contracted by the CAR-145 maintenance organisation; or
- subcontracted by the CAR-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 is 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.

145. A.48 Performance of maintenance

(a) The organisation may only carry out maintenance on an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and personnel are available.

(b) The organisation shall be responsible for the maintenance that is performed within the scope of its approval.

(c) The organisation shall ensure that:

(1) after the completion of the maintenance, a general verification is carried out to ensure that the aircraft or component is clear of all tools, equipment and any extraneous parts or material, and that all access panels that were

removed have been refitted;

(2) an error-capturing method is implemented after the performance of any critical maintenance task;

(3) the risk of errors during maintenance and the risk of errors being repeated in identical maintenance tasks are minimised; and

(4) damage is assessed, and modifications and repairs are carried out using the data specified in point M.A.304 of CAR-M or point ML.A.304 of CAR-ML, as applicable;

(5) the assessment of aircraft defects is carried out in accordance with point M.A.403(b) of CAR-M or ML.A.403(b) of CAR-ML, as applicable.

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.

GM 145.A.48 Performance of maintenance

AUTHORISED PERSON

An 'authorised person' is a person formally authorised by the maintenance organisation to perform or supervise a maintenance task. An 'authorised person' is not necessarily 'certifying staff'.

SIGN-OFF

A 'sign-off' is a statement issued by the 'authorised person' which indicates that the task or group of tasks has been correctly performed. A 'sign-off' relates to one step in the maintenance process and is, therefore, different to a certificate of release to service.

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

The organisation should have a procedure 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 errorcapturing methods.

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

CRITICAL MAINTENANCE TASKS

(a) The procedure should ensure that the following maintenance tasks are reviewed to assess their impact on flight safety:

(1) tasks that may affect the control of the aircraft flight path and attitude, such as installation, rigging and adjustments of flight controls;

(2) aircraft stability control systems (autopilot, fuel transfer);

(3) tasks that may affect the propulsive force of the aircraft, including installation of aircraft engines, propellers and rotors; and

(4) overhaul, calibration or rigging of engines, propellers, transmissions and gearboxes.

(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 where these are available from the person or organisation responsible for the aircraft continuing airworthiness;
(8) feedback from training.

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

ERROR-CAPTURING METHODS

a) Error-capturing methods are those actions defined by the organisation to detect maintenance errors that are made 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) Performance of maintenance

INDEPENDENT INSPECTION

Independent inspection is one possible error-capturing method.

(a) What is an independent inspection

An independent inspection is an inspection performed by an 'independent qualified person' of a task carried out by an 'authorised person', taking into account that:

(1) the 'authorised person' is the person who performs the task or supervises the task and they assume the full responsibility for the completion of the task in accordance with the applicable maintenance data;

(2) the 'independent qualified person' is the person who performs the independent inspection and attests the satisfactory completion of the task and that no deficiencies have been found. The 'independent qualified person' does not issue a certificate of release to service, therefore they are not required to hold certification privileges;

(3) the 'authorised person' issues the certificate of release to service or signs off the completion of the task after the independent inspection has been carried out satisfactorily;

(4) the work card system used by the organisation should record the identification of both persons and the details of the independent inspection as necessary before the certificate of release to service or sign-off for the completion of the task is issued.

(b) Qualifications of persons performing independent inspections The organisation should have procedures to demonstrate that the 'independent qualified person' has been trained and has gained experience in the specific inspection to be performed. The organisation could consider making use of, for example:

(1) staff holding a certifying staff or support staff or sign-off authorisation or equivalent necessary to release or sign off the critical maintenance task;

(2) staff holding a certifying staff or support staff or sign-off authorisation or equivalent necessary to release or sign off similar task in a product of similar category and having received specific practical training in the task to be inspected; or

(3) a commander holding a limited certification authorisation in accordance with 145.A.30(j)(4) and having received adequate practical training and having enough experience in the specific task to be inspected and on how to perform independent inspection.

(c) How to perform an independent inspection

An independent inspection should ensure correct assembly, locking and sense of operation. When inspecting control systems that have undergone maintenance, the independent qualified person should consider the following points independently:

(1) all those parts of the system that have actually been disconnected or disturbed should be inspected for correct assembly and locking;

(2) the system as a whole should be inspected for full and free movement over the complete range;

(3) cables should be tensioned correctly with adequate clearance at secondary stops;

(4) the operation of the control system as a whole should be observed to ensure that the controls are operating in the correct sense;

(5) if different control systems are interconnected so that they affect each other, all the interactions should be checked through the full range of the applicable controls; and

(6) software that is part of the critical maintenance task should be checked, for example: version, compatibility with aircraft configuration.

(d) What to do in unforeseen cases when only one person is available

REINSPECTION:

(1) Reinspection is an error-capturing method subject to the same conditions as an independent inspection is, except that the ‘authorised person’ performing the maintenance task is also acting as ‘independent qualified person’ and performs the inspection.

(2) Reinspection, as an error-capturing method, should only be performed in unforeseen circumstances when only one person is available to carry out the task and perform the independent inspection. The circumstances cannot be considered unforeseen if the person or organisation has not assigned a suitable ‘independent qualified person’ to that particular line station or shift.

(3) The certificate of release to service is issued after the task has been performed by the ‘authorised person’ and the reinspection has been carried out satisfactorily. The work card system used by the organisation should record the identification and the details of the reinspection before the certificate of release to service for the task is issued.

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

The procedures should be aimed at:

(a) minimizing 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(c)(2).

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

To minimise the risk of errors during maintenance 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.48(c)Performance of maintenance

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 VIII to AMC 145.A.30(e).

145.A.50 Certification of maintenance

a) A certificate of release to service shall be issued by appropriately authorised certifying staff on behalf of the organisation when that certifying staff has been verified that all maintenance that was ordered has been properly carried out by the organisation in accordance with the procedures specified in 145.A.70, taking into account the availability and use of the maintenance data specified in point 145.A.45 and that there are no known non-compliances which are known to endanger flight safety.

b) A certificate of release to service shall be issued before flight at the completion of any maintenance.

c) New defects or incomplete maintenance work orders identified during the maintenance shall be brought to the attention of the aircraft person or organization responsible for the aircraft continuing airworthiness for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order. In the case where the aircraft person or organization declines to have such maintenance carried out under this point, point (e) is applicable.

d) A certificate of release to service shall be issued by appropriately authorised certifying staff on behalf of the organisation after the maintenance that was ordered has been carried out on a component whilst it was off the aircraft. The authorised release certificate CA Form 1 referred in Appendix I to this CAR constitutes the component certificate of release to service except if otherwise specified in point M.A.502 of CAR M or ML.A.502 of CAR-ML, as applicable. When an organisation maintains a component for its own use, CA Form 1 may not be necessary if the organisation's internal release procedures in its MOE so provides.

e) By derogation to paragraph (a), when the organisation is unable to complete all maintenance ordered, it may issue a certificate of release to service within the approved aircraft limitations. The organisation shall enter such fact in the aircraft certificate of release to service before the issue of such certificate.

f) By way of derogation from point 145.A.50(a) and 145.A.42, when an aircraft is grounded at a location other than the main line station or main maintenance base due to the non- availability of a component with the appropriate release certificate, the organization contracted for the maintenance of that aircraft may temporarily fit a component without the appropriate release certificate for a maximum of 30 flight hours or until the aircraft first returns to the main line station or main maintenance base, whichever is the sooner, subject to the agreement of the person or organisation responsible for the aircraft's continuing airworthiness and subject to that component having a suitable release certificate but otherwise in compliance with all applicable maintenance and operational

requirements. Such components shall be removed by the time limit provided for in the first sentence of this point unless an appropriate release certificate has been obtained in the meantime under point 145.A.50(a) and 145.A.42.

AMC 145.A.50 Certification of maintenance after embodiment of a Standard Change or Standard Repair (SC/SR)

AMC M.A.801 of the AMC to CAR-M and AMC1 ML.A.801 of the AMC to CAR-ML contains acceptable means of compliance for the release to service of a SC/SR by an organisation approved in accordance with CAR-145.

GM1 145.A.50(a) Certification of maintenance

'Endanger flight safety' means any instances where safe operation could not be assured, or which could lead to an unsafe condition. These typically include, but 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.

AMC145.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 CAR-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 DGCA CAR-145 approval number and the identity of the person who issued the release.

2. It is acceptable to use an alternate abbreviated certificate of release to

service consisting of the following statement 'CAR-145 release to service' instead of the full certification statement specified in paragraph 1. When the alternate abbreviated certificate of release to service is used, the introductory section of the technical log should include an example of the full certification statement from paragraph 1.

3 The certificate of release to service should relate to the task specified in the (S)TC holder's or operator's instruction or the aircraft maintenance program which itself may cross-refer to a maintenance data.

4. The date such maintenance was carried out should include when the maintenance took place relative to any life or overhaul limitation in terms of date/flying hours/cycles/ landings etc., as appropriate.

5. When extensive maintenance has been carried out, it is acceptable for the certificate of release to service to summarise the maintenance so long as there is a unique cross-reference to the work-pack containing full details of maintenance carried out. Dimensional information should be retained in the work-pack record.

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

The purpose of the certificate is to certify maintenance work carried out on assemblies/items/components/parts (hereafter referred to as 'item(s)'). 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 to another aircraft/aircraft component.

The certificate is to be used for export/import purposes, as well as for domestic purposes, and serves as an official certificate for items from the manufacturer/maintenance organisation to users.

It can only be issued by organisations approved by DGCA within the scope of the approval.

The certificate may be used as a rotable tag by utilising the available space on the reverse side of the certificate for any additional information and despatching the item with two copies of the certificate so that one copy may be eventually returned with the item to the maintenance organisation. The alternative solution is to use existing rotable tags and also supply a copy of the certificate.

Under no circumstances may a certificate be issued for any item when it is known that the item has a defect considered a serious hazard to flight safety.

A certificate should not be issued for any item when it is known that the item is unserviceable except in the case of an item undergoing a series of maintenance processes at several maintenance organisations approved under CAR-145 and the item needs a certificate for the previous maintenance process carried out for the next maintenance organisation approved under CAR-145 to accept the item for subsequent maintenance processes. In such cases, a clear statement of limitation should be endorsed in Block 12.

AMC2 to 145.A.50 (d) Certification of maintenance

1. A component which has been maintained off the aircraft needs the issuance of a certificate of release to service for such maintenance and another certificate of release to service in regard to being installed properly on the aircraft when such action occurs

When an organisation maintains a component for use by the organisation, a CA Form 1 may not be necessary depending upon the organisation's internal release procedures defined in the maintenance organisation exposition.

2. In the case of the issue of CA Form 1 for components in storage prior to CAR-145 and CAR-21 became effective and not released on a CA Form 1 or equivalent in accordance with 145.A.42(a) or removed serviceable from a serviceable aircraft or an aircraft which have been withdrawn from service the following applies.

1.1 A CA Form 1 may be issued for an aircraft component which has been:

- Maintained before CAR-145 became effective or manufactured before CAR-21 became effective.

- Used on an aircraft and removed in a serviceable condition. Examples include leased and loaned aircraft components.

- Removed from aircraft which have been withdrawn from service, or from aircraft which have been involved in abnormal occurrences such as accidents, incidents, heavy landings or lightning strikes.

- maintained by an unapproved organisation.

2.2 An appropriately rated maintenance organisation approved under CAR-145 may issue a CA Form 1 as detailed in this AMC sub-paragraph 2.5 to 2.9, as appropriate, in accordance with procedures detailed in the exposition as approved by DGCA. The appropriately rated organisation is responsible for ensuring that all reasonable measures have been taken to ensure that only approved and serviceable aircraft components are issued a CA Form 1 under this paragraph.

2.3 For the purposes of this AMC No 2 only, appropriately rated means an organisation with an approval class rating for the type of component or for the product in which it may be installed.

2.4 A CA Form 1 issued in accordance with this paragraph 2 should be issued by signing in block 14b and stating "Inspected/Tested" in block

11. In addition, block 12 should specify:

2.4.1 When the last maintenance was carried out and by whom.

2.4.2 If the component is unused, when the component was manufactured and by whom with a cross reference to any original documentation which should be included with the Form.

2.4.3 A list of all airworthiness directives, repairs and modifications known to have been incorporated. If no airworthiness directives or repairs or modifications are known to be incorporated then this should be so stated.

2.4.4 Detail of life used life-limited parts and time-controlled components being any combination of fatigue, overhaul or storage life.

2.4.5 For any aircraft component having its own maintenance history record, reference to the particular maintenance history record as long as the record contains the details that would otherwise be required in block 12. The maintenance history record and acceptance test report or statement, if applicable, should be attached to the CA Form 1.

2.5 New / unused aircraft components

2.5.1 Any unused aircraft component in storage without a CA Form 1 up to the effective date(s) for CAR-21 that was manufactured by an organisation acceptable to DGCA at the time may be issued a CA Form 1 by an appropriately rated maintenance organisation approved under CAR-145. The CA Form 1 should be issued in accordance with the following subparagraphs which should be included in a procedure within the maintenance organisation exposition.

Note 1: It should be understood that the release of a stored but unused aircraft component in accordance with this paragraph represents a maintenance release under CAR- 145 and not a production release under CAR-21. It is not intended to bypass the production release procedure agreed by DGCA for parts and subassemblies intended for fitment on the manufacturer's own production line.

(a) An acceptance test report or statement should be available for all used and unused aircraft components that are subjected to acceptance testing after manufacturing or maintenance as appropriate.

(b) The aircraft component should be inspected for compliance with the manufacturer's instructions and limitations for storage and condition including any requirement for limited storage life, inhibitors, controlled climate and special storage containers. In addition or in the absence of specific storage instructions the

aircraft component should be inspected for damage, corrosion and leakage to ensure good condition.

(c) The storage life used of any storage life limited parts should be established.

2.5.2 If it is not possible to establish satisfactory compliance with all applicable conditions specified in subparagraph 2.5.1 (a) to (c) inclusive, the aircraft component should be disassembled by an appropriately rated organisation and subjected to a check for incorporated airworthiness directives, repairs and modifications and inspected/tested in accordance with the manufacturer's maintenance instructions to establish satisfactory condition and, if relevant, all seals, lubricants and life limited parts replaced. On satisfactory completion after reassembly a CA Form 1 may be issued stating what was carried out and the reference of the maintenance data included.

2.6 Used aircraft components removed from a serviceable aircraft.

2.6.1 Serviceable aircraft components removed from a DGCA registered aircraft may be issued a CA Form 1 by an appropriately rated organisation subject to compliance with this subparagraph.

(a) The organisation should ensure that the component was removed from the aircraft by an appropriately qualified person.

(b) The aircraft component may only be deemed serviceable if the last flight operation with the component fitted revealed no faults on that component /related system.

(c) The aircraft component should be inspected for satisfactory condition including in particular damage, corrosion or leakage and compliance with any additional manufacturer's maintenance data

(d) The aircraft record should be researched for any unusual events that could affect the serviceability of the aircraft component such as involvement in accidents, incidents, heavy landings or lightning strikes. Under no circumstances may a CA Form 1 be issued in accordance with this paragraph 2.6 if it is suspected that the aircraft component has been subjected to extremes of stress, temperatures or immersion which could affect its operation.

(e) A maintenance history record should be available for all used serialised aircraft components.

(f) Compliance with known modifications and repairs should be established.

(g) The flight hours/ cycles/ landings, as applicable of any life-limited parts and time-controlled components including time since overhaul should be established.

(h) Compliance with known applicable airworthiness directives should be established.

(i) Subject to satisfactory compliance with this subparagraph 2.6.1 a CA Form 1 may be issued and should contain the information as specified in paragraph 2.4 including the aircraft from which the aircraft component was removed.

2.6.2 Serviceable aircraft components removed from a non-Indian registered aircraft may only be issued a CA Form 1 if the components are leased or loaned from the maintenance organisation approved under CAR-145 who retains control of the airworthiness status of the components. A CA Form 1 may be issued and should contain the information as specified in paragraph 2.4 including the aircraft from which the aircraft component was removed.

2.7 Used aircraft components removed from an aircraft withdrawn from service. Serviceable aircraft components removed from an Indian registered aircraft withdrawn from service may be issued a CA Form 1 by a maintenance organisation approved under CAR-145 subject to compliance with this sub paragraph.

a) Aircraft withdrawn from service are sometimes dismantled for spares. This is considered to be a maintenance activity and should be accomplished under the control of an organisation approved under CAR-145, employing procedures approved by DGCA.

b) To be eligible for installation components removed from such aircraft may be issued with a CA Form one by an appropriately rated organisation following a satisfactory assessment.

c) As a minimum the assessment will need to satisfy the standards set out in paragraphs 2.5 and 2.6 as appropriate. This should where known, include the possible need for the alignment of scheduled maintenance that may be necessary to comply with the maintenance programme applicable to the aircraft on which the component is to be installed.

d) Irrespective of whether the aircraft holds a certificate of airworthiness or not, the organisation responsible for certifying any removed component should satisfy itself that the manner in which the components were removed and stored are compatible with the standards required by CAR-145.

e) A structured plan should be formulated to control the aircraft disassembly process. The disassembly is to be carried out by an appropriately rated organisation under the supervision of certifying staff, who will ensure that the aircraft components are removed and documented in a structured manner in accordance with the appropriate maintenance data and disassembly plan.

f) All recorded aircraft defects should be reviewed and the possible effects these may have on both normal and standby functions of removed components are to be considered.

g) Dedicated control documentation is to be used as detailed by the disassembly plan, to facilitate the recording of all maintenance actions and component removals performed during the disassembly process. Components found to be unserviceable are to be identified as such and quarantined pending a decision on the actions to be taken. Records of the maintenance accomplished to establish serviceability are to form part of the component maintenance history.

h) Suitable CAR-145 facilities for the removal and storage of removed components are to be used which include suitable environmental conditions, lighting, access equipment, aircraft tooling and storage facilities for the work to be undertaken. While it may be acceptable for components to be removed, given local environmental conditions, without the benefit of an enclosed facility subsequent disassembly (if required) and storage of the components should be in accordance with manufacturer's recommendations.

2.8 Used aircraft components maintained by organizations not approved in accordance with CAR-145.

For used components maintained by a maintenance organisation not unapproved under CAR-145, due care should be exercised before acceptance of such components. In such cases an appropriately rated maintenance organisation approved under CAR-145 should establish satisfactory conditions by:

a. dismantling the component for sufficient inspection in accordance with the appropriate maintenance data,
b. replacing of all service life-limited parts and time-controlled components when no satisfactory evidence of life used is available and,
c. reassembling and testing as necessary the component,
d. completing all certification requirements as specified in 145.A.50.

2.9 Used aircraft components removed from an aircraft involved in an accident or incident.

Such components should only be issued with a CA Form 1 when processed in accordance with paragraph 2.7 and a specific work order including all additional necessary tests and inspections made necessary by the accident or incident. Such a work order may require input from the TC holder or original manufacturer as appropriate. This work order should be referenced in block 12.

GM 145.A.50 (d) CA Form 1 Block 12 'Remarks'

Examples of data to be entered in this block as appropriate:

- Maintenance documentation used, including the revision status, for all work performed and not limited to the entry made in block 11.
- A statement such as 'in accordance with the CMM' is not acceptable.
- NDT methods with appropriate documentation used when relevant.
- Compliance with airworthiness directives or service bulletins.
- Repairs carried out.
- Modifications carried out.
- Replacement parts installed.
- Life-limited parts status.
- Shelf life limitations.
- Deviations from the customer work order.
- Release statements to satisfy a foreign Civil Aviation Authority maintenance requirement.
- Information needed to support shipment with shortages or re-assembly after delivery.
- References to aid traceability, such as batch numbers.

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

1. Being unable to establish full compliance with point 145.A.50(a) means that the maintenance required by the person or organisation responsible for the aircraft continuing airworthiness could not be completed due to either 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 is responsible for ensuring that all required maintenance has been carried out before flight and therefore 145.A.50(e) requires such person or organization to be informed in the case where full compliance with 145.A.50(a) cannot be achieved within the relevant limitations. If that person or organization 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 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 does have the authority to defer maintenance is an issue between that person or organization and DGCA (as the State of Registry of the aircraft). In case of doubt concerning such a decision, the approved

maintenance organisation should inform DGCA of such doubt, before issuing the certificate of release to service. This will allow DGCA to investigate the matter, 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 so that the issue may be discussed and resolved with that person or organisation. 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..

4. Certain maintenance data issued by the design approval holder (e.g. aircraft maintenance manual (AMM)) requires that a maintenance task be performed in flight as a necessary condition to complete the maintenance ordered. Within the aircraft limitations, an appropriately authorised certifying staff should release the incomplete maintenance before the flight on behalf of the maintenance organisation. GM M.A.301(i) or GM1 ML.A.301(f) describe the relations with the aircraft operator, which retains the responsibility for the maintenance check flight (MCF). After performing the flight and any additional maintenance necessary to complete the maintenance ordered, a certificate of release to service should be issued in accordance with 145.A.50(a).

AMC 1 145.A.50 (f) Certification of maintenance

1. Suitable release certificate means a certificate which clearly states that the aircraft component is serviceable; that clearly specifies the organisation releasing said component together with details of the authority under whose approval the organisation works including the approval or authorisation reference.

2. Compliance with all applicable maintenance and operational 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 including modifications, repairs, airworthiness directives, life limitations and condition of the aircraft component plus information on where, when and why the aircraft was grounded.

145. A.55 Record-keeping

(a) Maintenance Records

(1) The organisation shall record the details of maintenance work that is carried out within the scope of its approval. As a minimum, the organisation shall retain all the records that are necessary to prove that all

requirements have been met for the issue of the certificate of release to service, including if any, subcontractor's release documents.

(2) The organisation shall provide a copy of each certificate of release to service to the operator or customer, together with a copy of detailed maintenance record that are associated with the work carried out and that are necessary to demonstrate compliance with point M.A.305 of CAR-M or ML.A.305 of CAR-ML, as applicable.

(3) The organisation shall retain a copy of all detailed maintenance records (including certificates of release to service) and of any associated maintenance data for 3 years from the date when the aircraft or component to which the work relates was issued with a certificate of release to service.

(4) If an organisation terminates its operation, it shall transfer all the retained maintenance records that cover the last 3 years to the last customer or owner of the respective aircraft or component, or shall store them in the manner specified by DGCA.

(b) Airworthiness review records

(1) If an organisation has the privilege referred to in point 145.A.75(f), it shall retain a copy of each airworthiness review certificate that it has issued, together with all the supporting documents, and shall make those records available, upon request, to the owner of the aircraft.
(2) The organisation shall retain a copy of all the records referred to in point (1) for 3 years after the issue of the airworthiness review certificate.

(3) If an organisation terminates its operation, it shall transfer all the retained airworthiness review records that cover the last 3 years to the last owner or operator of the respective aircraft, or shall store them in the manner specified by the competent authority.

(c) Management system, contracting and subcontracting records

The organisation shall ensure that the following records are retained for a minimum period of 5 years:

(i) records of management system key processes referred to in point 145.A.200;
(ii) contracts, both for contracting and subcontracting, referred to in point 145.A.205.

(d) Personnel records

(1) The organisation shall ensure that the following records are retained:

(i) records of the qualifications, training and experience of the personnel involved in maintenance, compliance monitoring and safety management;

(ii) records of the qualifications, training and experience of all airworthiness review staff.

(2) The records of all airworthiness review staff shall include details of any appropriate qualifications held, together with a summary of their relevant continuing airworthiness experience and training, and a copy of the airworthiness review authorisation issued to that staff by the organisation.

(3) The records of all the certifying staff and support staff shall include the following:

(i) the details of any aircraft maintenance licence held under CAR-66 or equivalent;
(ii) the scope of the certification authorisations that were issued to that staff, where relevant;
(iii) the particulars of the staff that held limited or one-off certification authorisations referred to in point 145.A.30(j).

(4) Personnel records shall be kept for as long as a person works for the organisation, and shall be retained for at least 3 years after the person has left the organisation, or after an authorisation issued to that person has been withdrawn.

(5) The organisation shall give to the staff referred to in points (2) and (3), upon their request, access to their personnel records as detailed in those points. In addition, upon their request, the maintenance organisation shall furnish each of them with a copy of their personnel records on leaving the organisation.

(e) The organisation shall establish a record-keeping system that allows adequate storage and reliable traceability of all its activities.

(f) The format of the records shall be specified in the organisation's procedures.

(g) The records shall be stored in a manner that ensures that they are protected from damage, alteration and theft.

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 RECORDS

1. Properly executed and retained maintenance records provide:

   (i) owners and persons or organisations responsible for aircraft continuing airworthiness 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, eliminating the need for re-inspection and rework.

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 to take advantage

of the modular design, then the total time in service and the maintenance records for each module 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.

AMC1 145.A.55(a)(3) Record-keeping

'Associated maintenance data' refers to specific information such as data pertaining to embodiment of a repair 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. DGCA is authorised to access personal records when investigating the records system for initial certification and oversight, or when DGCA 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 CAR-ML;
(e) Qualifications relevant to the approval (knowledge of relevant parts of CAR-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).

145.A.60 Occurrence reporting

(a) As part of its management system, the organisation shall establish and maintain an occurrence-reporting system, including mandatory and voluntary reporting.

(b) The organisation shall report to DGCA, and to the design approval holder of the aircraft or component any safety-related event or condition of an aircraft or component identified by the organization which endangers or, if not corrected or addressed, could endanger an aircraft, its occupants or any other person, and in particular any accident or serious incident.

(c) The organisation shall also report any such event or condition that affects an aircraft to the person or organisation that is responsible for the continuing airworthiness of that aircraft in accordance with point M.A.201 of CAR-M or point ML.A.201 CAR-ML, as applicable. For events or conditions that affect aircraft components, the organisation shall report to the person or organisation that requested the maintenance.

(d) For organisations that do not have their principal place of business in India:

(1) the initial mandatory reports shall:

(i) appropriately safeguard the confidentiality of the identity of the reporter and of the persons mentioned in the report;

(ii) be made as soon as practicable, but in any case within 72 hours after the organisation has become aware of the occurrence unless exceptional circumstances prevent this;

(iii) be made in a form and manner established by the DGCA;

(iv) contain all pertinent information about the condition known to the organisation;

(2) where relevant, a follow-up report that provides details of the actions the

organisation intends to take to prevent similar occurrences in the future shall be made as soon as those actions have been identified; those follow-up reports shall:

(i) be sent to the entities referred to in points (b) and (c) to which the initial report was sent;

(ii) be made in a form and manner established by the DGCA.

AMC1 145.A.60 Occurrence reporting

GENERAL

(a) Where the organisation holds one or more additional organisation certificates under rule 133B of the Aircraft Rules, 1937:

(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 DGCA for all certificates is the same and such single reporting was agreed with that DGCA.

(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 under rule 133B of the Aircraft Rules, 1937 where the occurrence reporting system is fully integrated with that required under the additional certificate(s) held.

GM1 145.A.60 Occurrence reporting

MANDATORY REPORTING — GENERAL

(a) For organisations having their principal place of business in India, CAR Section 5 Series C Part I 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 CAR.

(b) Occurrences related to technical conditions, maintenance and repair of the aircraft are detailed in AAC 2 of 2024.

MAINTENANCE AND CONTINUING AIRWORTHINESS MANAGEMENT

(1) Serious structural damage (for example: cracks, permanent deformation, delamination, debonding, burning, excessive wear, or corrosion) found during maintenance of the aircraft or component.

(2) Serious leakage or contamination of fluids (for example: hydraulic, fuel, oil, gas or other fluids).

(3) Failure or malfunction of any part of an engine or powerplant and/or transmission resulting in any one or more of the following:

(a) non-containment of components/debris;
(b) failure of the engine mount structure.

(4) Damage, failure or defect of propeller, which could lead to in-flight separation of the propeller or any major portion of the propeller and/or malfunctions of the propeller control.

(5) Damage, failure or defect of main rotor gearbox/attachment, which could lead to in-flight separation of the rotor assembly and/or malfunctions of the rotor control.

(6) Significant malfunction of a safety-critical system or equipment including emergency system or equipment during maintenance testing or failure to activate these systems after maintenance.

(7) Incorrect assembly or installation of components of the aircraft found during an inspection or test procedure not intended for that specific purpose.

(8) Wrong assessment of a serious defect, or serious non-compliance with MEL and Technical logbook procedures.

(9) Serious damage to Electrical Wiring Interconnection System (EWIS).

(10) Any defect in a life-controlled critical part causing retirement before completion of its full life.

(11) The use of products, components or materials, from unknown, suspect origin, or unserviceable critical components.

(12) Misleading, incorrect or insufficient applicable maintenance data or procedures that could lead to significant maintenance errors, including language issue.

(13) Incorrect control or application of aircraft maintenance limitations or scheduled maintenance.

(14) Releasing an aircraft to service from maintenance in case of any non-compliance which endangers the flight safety.

(15) Serious damage caused to an aircraft during maintenance activities due to incorrect maintenance or use of inappropriate or unserviceable ground support equipment that requires additional maintenance actions.

(16) Identified burning, melting, smoke, arcing, overheating or fire occurrences.

(17) Any occurrence where the human performance, including fatigue of personnel, has directly contributed to or could have contributed to an accident or a serious incident.

(18) Significant malfunction, reliability issue, or recurrent recording quality issue affecting a flight recorder system (such as a flight data recorder system, a data link recording system or a cockpit voice recorder system) or lack of information needed to ensure the serviceability of a flight recorder system.

GM1 145.A.60(b) Occurrence reporting

Depending on the case, the 'design approval holder' will be the holder of a type certificate, a restricted type certificate, a supplemental type certificate, Indian Technical Standard Order (ITSO), 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 by the DGCA.

145. A.65 Maintenance procedures

(a) The organisation shall establish procedures which ensure that human factors and good maintenance practices are taken into account during maintenance, including subcontracted activities, and which comply with the applicable requirements of this CAR, CAR-M and CAR-ML. Such procedures shall be agreed with the DGCA.

(b) The maintenance procedures established under this point shall:

(1) ensure that a clear work order or contract has been agreed between the organisation and the person or organization requests the maintenance,

to clearly establish the maintenance to be carried out so that aircraft and components may be released to service in accordance with 145.A.50;

(2) cover all aspects of carrying out the maintenance, including the provision and control of specialised services and lay down the standards according to which the organisation intends to work.'.

AMC1 145.A.65 Maintenance procedures

GENERAL

1. Maintenance procedures should be kept up to date such that they reflect the current best practices within the organisation, while being compliant with the Regulation. All organisation's employees should report differences via their organisation's internal safety reporting scheme.

2. All procedures, and changes to those procedures, should be verified and validated before use where practicable and applicable.

3. All 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) Maintenance procedures

Appendix XI to AMC M.A.708(c) or Appendix IV to AMC1 CAMO.A.315(c) provides guidance on the elements that need to be considered for the maintenance contract between the CAMO and the maintenance organisation. The CAR-145 organisation should take into account these elements to ensure that a clear contract or work order has been concluded before providing maintenance services.'

AMC1 145.A.65(b)(2) Maintenance procedures

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.

145.A.70 Maintenance Organisation Exposition (MOE)

(a) The organisation shall establish and maintain a maintenance organisation exposition (MOE) that includes, directly or by reference, all of the following:

(1) a statement signed by the accountable manager confirming that the maintenance organisation will at all times work in accordance with this CAR, CAR-M and CAR-ML, as applicable, and with the approved MOE. If the accountable manager is not the chief executive officer of the organisation, then the chief executive officer shall countersign the statement;

(2) the organisation's safety policy and the related safety objectives referred to in point 145.A.200(a)(2);

(3) the title(s) and name(s) of the person(s) nominated under points 145.A.30(b), (c) and (ca);

(4) the duties and responsibilities of the persons nominated under points 145.A.30(b), (c) and (ca), including the matters on which they may deal directly with the DGCA on behalf of the organisation;

(5) an organisation chart showing the accountability and associated lines of responsibility established in accordance with point 145.A.200(a)(1), between all the persons referred to in points 145.A.30(a), (b), (c) and (ca);

(6) a list of the certifying staff and, if applicable, support staff and airworthiness review staff with their scope of authorisation;

(7) a general description of the manpower resources and of the system that is in place to plan the availability of staff, as required by point 145.A.30(d);

(8) a general description of the facilities at each approved location;

(9) a specification of the scope of work of the organisation that is relevant to the terms of approval as required by point 145.A.20;

(10) the procedure that sets out the scope of changes not requiring prior approval and that describes how such changes will be managed and notified to DGCA, as required by point 145.A.85(c);

(11) the procedure, for amending the MOE;

(12) the procedures specifying how the organisation ensures compliance with this CAR;

(13) a list of the commercial operators to which the organisation provides regular aircraft maintenance services, and the associated procedures;

(14) where applicable, a list of the subcontracted organisations referred to in point 145.A.75(b);

(15) a list of the approved locations including, where applicable, line maintenance locations referred to in point 145.A.75(d);

(16) a list of the contracted organisations;

(b) The initial issue of the MOE shall be approved by the DGCA. It shall be amended as necessary so that it remains an up-to-date description of the organisation.

(c) Amendments to the MOE shall be managed as set out in the procedures referred to in points (a)(10) and (a)(11). Any amendments that are not included in the scope of the procedure referred to in point (a)(10), as well as any amendments related to the changes listed in point 145.A.85(a), shall be approved by the DGCA.

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.

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

1. The purpose of the (MOE) is to:

   −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 with its contents will ensure that the organisation remains in compliance with CAR-145 and, as applicable, CAR-M and/or CAR-ML.

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

This AMC provides an outline of the layout of an acceptable MOE.

The maintenance organisation exposition should have list of effective pages including Revision Number and date.

PART 1 **GENERAL**

1.1 Statement by the accountable manager
1.2 Safety 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 Organisations intended scope of work.
1.10 Procedures for changes (including MOE amendment) requiring prior approval
1.11 Procedures for changes (including MOE amendment) not requiring prior approval

PART 2 MAINTENANCE PROCEDURES

2.1 Supplier evaluation and subcontractor control procedure
2.2 Acceptance/inspection of aircraft components and material, and installation
2.3 Storage, tagging and delivery of components and material to 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
2.8 Maintenance data and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff
2.9 Acceptance, coordination and performance of repair works
2.10 Acceptance, coordination and performance of scheduled maintenance works
2.11 Acceptance, coordination and performance of airworthiness directives works
2.12 Acceptance, coordination and performance of modification works
2.13 Maintenance documentation development, completion and sign-off
2.14 Technical record control
2.15 Rectification of defects arising during maintenance
2.16 Release to service procedure
2.17 Records for the person or organisation that ordered maintenance
2.18 Occurrence reporting
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 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
2.28 Production planning and organising of maintenance activities
2.29 Airworthiness review procedures and records
2.30 Fabrication of parts
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)

L 2.1 Line maintenance control of aircraft components, tools, equipment etc.
L 2.2 Line maintenance procedures related to servicing/fuelling/de-icing including inspection for/removal of de-icing/anti-icing fluid residues, etc.
L 2.3 Line maintenance control of defects and repetitive defects.

L 2.4 Line procedure for completion of technical log.
L 2.5 Line procedure for pooled parts and loan parts.
L 2.6 Line procedure for return of defective parts removed from aircraft.
L 2.7 Line procedure control of critical maintenance asks and error-capturing methods

PART 3 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 Audit plan and audit procedures
  3.8.2 Product audit and inspections
  3.8.3 Audit findings — corrective action procedure
3.9 Certifying staff and support staff qualifications, authorisation and training procedures
3.10 Certifying staff and support staff records
3.11 Airworthiness review staff qualification, authorisation and records
3.12 Compliance monitoring and safety management personnel
3.13 Independent inspection staff qualification
3.14 Mechanics qualification and records
3.15 Process for exemption from aircraft/aircraft component maintenance tasks
3.16 Concession control for deviations from the organisation's procedures
3.17 Qualification procedure for specialised activities such as NDT, welding, etc.
3.18 Managementof external working teams
3.19 Competency assessment of personnel
3.20 Training procedures for on-the-job training as per Section 6 of Appendix III to CAR-66.
3.21 Procedure for the issue of a recommendation to DGCA for the issue of a CAR-66 licence in accordance with point 66.B.105.
3.22 Management system record-keeping

PART 4 RELATIONSHIP WITH CUSTOMER/OPERATORS

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

PART 5 SUPPORTING DOCUMENTS

5.1 Sample documents
5.2 List of sub-contractors as per point 145.A.75(b)

5.3 List of Lline maintenance locations as per point 145.A.75(d)
5.4 List of contracted organisations as per point 145.A.70(a)(16)

PART 6 RESERVED
PART 7 RESERVED
PART 8 RESERVED
PART 9 RESERVED

PART 10 EASA SUPPLEMENTARY PROCEDURES FOR A EASA PART-145 MAINTENANCE ORGANISATION

This section is reserved for those DGCA CAR 145 approved foreign maintenance organisations holding EASA Part 145 approval.

The contents of this Part are given in Appendix A.

Appendix A

DGCA Supplement

1. List of Effective Pages
2. Amendment procedures
3. Introduction
4. Accountable Manager/ Responsible person commitment
4.1. List of responsible post holders/ senior persons
4.2. Organization Chart highlighting persons mentioned in para 4.1.
5. Acceptance and limitations
6. Location/ Site Map
7. Access by the DGCA
8. Work orders/contracts
9. Airworthiness Directives
10. Major repairs and modifications
11. Authorised Release Certificate
12. Certificate of Release to Service
13. Reporting of unairworthy conditions
14. Aircraft Technical Records
15. Confirmation to the conditions of acceptance
16. Safety Management System
17. Sample Forms
18. Para wise CAR 145 compliance

Note 1: Details are provided in CAR Section 2 Series E Part XI.

Note 2: All foreign AMOs which are not holding EASA approval and are desirous of obtaining CAR 145 approval, are required to prepare MOE as stipulated in CAR 145.A.70.

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 CAR-145 approval certificate is issued by DGCA.*

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 CAR-145, CAR-M and CAR-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 CAR-145, CAR-M and CAR-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:

Whenever the accountable manager changes, it is important that the new

accountable manager signs the statement at the earliest opportunity.

145.A.75 Privileges of the organization

In accordance with the MOE, the organisation shall be entitled to carry out the following tasks:

(a) Maintain any aircraft or component for which it is approved at the locations identified in the approval certificate and in the MOE;

(b) Arrange for maintenance of any aircraft or component for which it is approved at another subcontracted organisation that works under the management system of the organisation. This is limited to the work permitted under the procedures established in accordance with point 145.A.65 and it shall not include a base maintenance check of an aircraft, or a complete workshop maintenance check or overhaul of an engine or an engine module;

(c) Maintain any aircraft or any component for which it is approved at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance, subject to the conditions specified in the exposition;

(d) Maintain any aircraft and/or component for which it is approved at a location identified as a line maintenance location capable of supporting minor maintenance and only if the organisation exposition both permits such activity and lists such locations;

(e) Issue certificates of release to service in respect of completion of maintenance in accordance with 145.A.50.

(f) Reserved

AMC1 145.A.75(b) Privileges of the organization

SUBCONTRACTING

1. Working under the managementsystem of an organisation appropriately approved under CAR-145 (sub contracting) refers to the case of one organisation, whether or not it isapproved under CAR-145 that carries out certain maintenance (seeparagraph 3.1) under the approval certificate of a CAR-145 organisation. In order to subcontract, the CAR-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 certificatefor another approved maintenance organisation is not considered to be subcontracted for the purpose of this paragraph, but contracted by that other organisation (see GM2 145.A.205).

2. Maintenance of engines or engine modules other than a complete workshop maintenance check or overhaul 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 CAR-145

3.1 The most common reasons for allowing an organisation approved under CAR- 145 to sub-contract 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) specialised maintenance services, such as, but not limited to surface treatment (e.g. plating, plasma spraying), fabrication of specified parts for repairs / modifications, welding etc.;

(b) 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);

(c) component maintenance;

(d) 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).

3.2 When maintenance is carried out under management system of a CAR-145 organisation, it means that for the duration of such maintenance, the CAR-145 approval has been temporarily extended to include the sub-contractor. It therefore follows that all parts of the sub-contractor (facilities, personnel, equipment and tools, components, maintenance data and procedures) involved with the maintenance organisation’s products undergoing maintenance should meet CAR-145 requirements and the CAR-145 organisation’s MOE for the duration of that maintenance, and it remains the CAR-145 organisation’s responsibility to ensure such requirements are satisfied..

3.3 When subcontracting, the CAR-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 the sub-contractor meets the necessary standards. However, a CAR-145 organisation cannot be approved unless it has in-house the 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.

3.4 The organisation may find it necessary to include specialised sub-contractors to enable it to be approved to issue the certificate of release to service of a particular maintenance. Examples are provided in point 3.1(a). To authorise the use of such subcontractors, the competent authority will need to be satisfied that the CAR-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 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 control of another organisation appropriately approved under CAR-145.

3.6 Authorisation to sub-contract is indicated by the competent authority approving the MOE containing a specific procedure on the control of subcontractors as well as a list of sub-contractors.

4. CAR-145 PROCEDURES FOR THE CONTROL OF SUB- CONTRACTORS

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

4.2 The CAR-145 organisation needs to assess to what extent it will use the sub-contractor resources (facilities included). The contract between the CAR-145 organisation and the subcontractor will determine whether the CAR-145 organisation requires its own paperwork, maintenance data and components to be used or, provided that they meet the requirements of CAR-145, if the facilities, equipment and tools, from the sub-contractor will be used. In the case of sub-contractors who provide specialised services, it may for practical reasons be necessary to use their specialised services, paperwork, maintenance data and components, subject to acceptance by the CAR 145 organisation.

4.3 Unless the sub-contracted maintenance work can be fully inspected on receipt by the CAR-145 organisation, it will be necessary for the CAR-145 organisation to establish an MOE procedure to control the subcontracted maintenance work (and associated supporting documents) The organisation will need to consider whether to use its own personnel or to

authorise the subcontractor personnel for that control.

4.4 The certificate of release to service may be issued either by subcontractor staff holding a certification authorisation issued by the CAR-145 organisation in accordance with points 145.A.30 and 145.A.35 as appropriate, or by the CAR-145 organisation certifying staff.

4.5 The sub-contract 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 sub-contractors that do not meet the CAR-145 maintenance organisation's requirements.

4.6 The CAR-145 compliance monitoring staff will need to audit the subcontractor control function of the CAR-145 organisation and to audit the sub-contractors unless this task is already carried out by the subcontractor control function on behalf of the compliance monitoring function.

4.7 The contract between the CAR-145 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.

145. A.85 Changes to the organization

(a) The following changes to the organisation shall require prior approval by the DGCA:

(1) changes to the certificate, including the terms of approval of the organisation;
(2) changes of the persons referred to in points 145.A.30(a), (b), (c) and (ca);
(3) changes to the reporting lines between the personnel nominated in accordance with points 145.A.30(b), (c) and (ca), and the accountable manager;
(4) the procedure as regards changes not requiring prior approval referred to in point (c);
(5) additional locations of the organisation other than those that are subject to point 145.A.75(c).

(b) For the changes referred to in point (a) and for all other changes requiring prior approval in accordance with this CAR, the organisation shall apply for and obtain an approval issued by the DGCA. The application shall be submitted before such changes take place in order to enable the DGCA to

determine that there is continued compliance with this CAR and to amend, if necessary, the organisation certificate and the related terms of approval that are attached to it.

The organisation shall provide the DGCA with any relevant documentation.

The change shall only be implemented upon the receipt of a formal approval from the DGCA.

The organisation shall operate under the conditions prescribed by the DGCA during such changes, as applicable.

(c) All changes not requiring prior approval shall be managed and notified to the DGCA as set out in a procedure which is approved by the DGCA.

AMC1 145.A.85 Changes to the organization

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 organization

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 organization

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 DGCA) for specific cases listed under (1) to (5);

- Point (b) address all instances (including (a)) where this CAR-145 explicitly

requires an approval by the DGCA (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 CAR.

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 DGCA 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 organization

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 DGCA 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 organization

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 organization

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 DGCA (other than those covered by point 145.A.85(a)), as specified in CAR-145:

(a) Reserved

(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) Reserved.

145. A.90 Continued validity

(a) An approval shall be issued and renewed for the period as specified in Rule 133B of the Aircraft Rules, 1937. It shall remain valid subject to:

1. the organisation remaining in compliance with CAR-145 taking into account the provisions of point 145.A.95(a) related to the handling of findings

2. the DGCA being granted access to the organisation to as specified in point 145.A.140;

3. the certificate not being surrendered by the organisation, or suspended or revoked by DGCA.

(b) Upon surrender or revocation, the certificate shall be returned to DGCA without delay.

145.A.95 Findings and observations

(a) After the receipt of a notification of findings in accordance with point 145.A.95(a), the organisation shall:

(1) identify the root cause(s) of, and contributing factor(s) to, the non-compliance;
(2) define a corrective action plan;
(3) demonstrate the implementation of corrective action to the satisfaction of the DGCA.

(b) The actions referred to in point (a) shall be performed within the period agreed with that DGCA in accordance with point 145.A.95(a).

(c) The observations received in accordance with point 145.A.95(a) shall be given due consideration by the organisation. The organisation shall record the decisions taken in respect of those observations.

145.A.95(a) Findings

(a) A level 1 finding is any significant non-compliance with CAR -145 requirements, with the organisation's procedures and manuals, or with the organisation's certificate including the terms of approval which lowers the safety standard and hazards seriously the flight safety.

Level 1 findings shall also include:

(1) any failure to grant the competent authority access to the organisation's facilities referred to in point 145.A.140 during normal operating hours and after two written requests;

(2) obtaining the organisation certificate or maintaining its validity by falsification of the submitted documentary evidence;

(3) any evidence of malpractice or fraudulent use of the organisation certificate;

(4) the lack of an accountable manager.

(b) A level 2 finding is any non-compliance with CAR -145 requirements, with the organisation's procedures and manuals, or with the organisation's certificate including the terms of approval which is not classified as a level 1 finding.

(c) After receipt of notification of findings, the holder of the maintenance organisation approval shall define a corrective action plan and demonstrate corrective action to the satisfaction of DGCA within a period agreed by DGCA.

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 DGCA for acceptance before it is effectively implemented.

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

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

AMC2 145.A.95 Findings and observations

DUE CONSIDERATION TO OBSERVATIONS

For each observation notified by the DGCA, 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.

145.A.140 Access

For the purpose of determining compliance with the relevant requirements of CAR, the organisation shall ensure that access to any facility, aircraft, document, records, data, procedures or to any other material relevant to its activity subject to certification, whether it is subcontracted or not, is granted to any person authorised by DGCA.

145.A.155 Immediate reaction to a safety problem

The organisation shall implement:

(a) any safety measures mandated by DGCA in accordance with point 145.B.135;
(b) any relevant mandatory safety information issued by DGCA.

145.A.200 Management system

(a) The organisation shall establish, implement and maintain a management system that includes:

(1) clearly defined accountability and lines of responsibility throughout the organisation, including a direct safety accountability of the accountable manager;
(2) a description of the overall philosophies and principles of the organisation with regard to safety ("the safety policy"), and the related safety objectives;
(3) the identification of aviation safety hazards entailed by the activities of the organisation, their evaluation and the management of the associated risks, including taking actions to mitigate the risks and verify their effectiveness;
(4) maintaining personnel trained and competent to perform their tasks;
(5) documentation of all management system key processes, including a process for making personnel aware of their responsibilities and the procedure for amending that documentation;
(6) a function to monitor the compliance of the organisation with the relevant requirements. Compliance monitoring shall include a feedback system of findings to the accountable manager to ensure the effective implementation of corrective actions as necessary.

(b) The management system shall correspond to the size of the organisation and the nature and complexity of its activities, taking into account the hazards and the associated risks inherent in those activities.

(c) If the organisation holds one or more additional organisation certificates under the Aircraft Rules, 1937, the management system may be integrated with that required under the additional certificate(s) held.

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. This frame work 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 super imposing another system onto their existing management system and governance structure. In addition, if the organisation holds multiple organisation certificates under the Aircraft Rules 1937, 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, 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;

(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 then 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 CAR-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, including human factors, organisational factors and the environment in which the organization 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 personor 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 time scales;
(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 India, CAR145 defines the 'just culture' principles to be applied.

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 DGCA, 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 DGCA 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 itidentifies 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 CAR-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.

(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 anobviously 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 managementof 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;
(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 minimize 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.

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 CAR-145 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 monitoringfunction 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 CAR-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 lineand 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 oneproduct (such as one aircraft or engine or component) while undergoing maintenance on eachproduct 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 CAR-145 maintenance organisation approved tomaintain 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 perpoint 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, theaudit 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 DGCA.

(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 tobecome responsible for this element, with the agreement of the DGCA.

This does not prevent a larger organisation from occasionally using external support forconducting 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 compliancemonitoring manager; and

(2) the organisation remains responsible for ensuring that the external personnel have therelevant knowledge, background, and experience that are appropriate to the activitiesbeing 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 allcorrective 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 theroot cause(s) and contributing factor(s) are identified (see GM1 145.A.95), and that correctiveactions are defined. The feedback part of the compliance monitoring function should definewho is required to address any non-compliance in each particular case, and the procedure tobe 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 CAR-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 datesshould 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 toimplement 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 withthe applicable requirements. This means that the compliance monitoring function itself should besubject 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 meetpart 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 sco**p**e 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 CAR-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 uponany 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 carriedout) 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 AMC2145.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 CAR-145 requirementis 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.

145.A.202 Internal safety reporting scheme

(a) As part of its management system, the organisation shall establish an internal safety reporting scheme to enable the collection and evaluation of such occurrences that are to be reported under point 145.A.60.

(b) The scheme shall also enable the collection and evaluation of those errors, near misses and hazards reported internally that do not fall under point (a).

(c) Through that scheme, the organisation shall:

(1) identify the causes of, and contributing factors to, the errors, near misses

and hazards reported, and address them as part of its safety risk management process in accordance with point 145.A.200(a)(3);

(2) ensure an evaluation of all known, relevant information relating to errors, near misses, hazards and the inability to follow procedures, and a method to circulate the information as necessary.

(d) The organisation shall make arrangements to ensure the collection of safety issues related to subcontracted activities.

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 reportedby the organisation personnel and use this reported information to improve the level ofcompliance 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, sothat 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 becomplementary 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 whichroutine 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 organization to react to the information that it receives, and to take the necessary action.

145.A.205 Contracting and subcontracting

(a) The organisation shall ensure that when contracting or subcontracting any part of its maintenance activities:

(1) the maintenance conforms to the applicable requirements;

(2) any aviation safety hazard associated with such contracting or subcontracting is considered as part of the organisation's management system.

(b) If the organisation subcontracts any part of its maintenance activities to another organisation, the subcontracted organisation shall work under the scope of

approval of the subcontracting organisation.

GM1 145.A.205 Contracting and subcontracting

RESPONSIBILITY WHEN CONTRACTING OR SUBCONTRACTING MAINTENANCE

(a) Regardless of the approval status of the subcontracted organisations, a CAR-145 organisation isresponsible for ensuring that all subcontracted activities are subject to hazard identification andrisk 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 CAR-145 organisation is responsible for identifying hazards that may stem from the existenceof complex maintenance arrangements (such as when multiple organisations are contracted, orwhen multiple levels of contracting/subcontracting are included) with due regard to theorganisations' interfaces (see GM1 145.A.200(a)(3)). In addition, the compliance monitoringfunction 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 CAR-145 organisation is responsible for ensuring that interfaces and communication channelsare established with the contracted maintenance organisation(s) for occurrence reporting. Thisdoes not replace the obligation of the contracted organisation(s) to report to DGCA

For subcontracted activities, interfaces and communication channels are also needed for thepurpose 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 maintenanceorganisation management system.

This is the case when a third party carries out certain maintenance tasks on behalf of the CAR-145 organisation, and the responsibility remains with the CAR-145 organisation (this CAR-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 willbe working under the management system of the CAR-145 organisation, and the maintenancewill be released under the approval of this organisation.

(b) 'Contracting maintenance' means contracting to another maintenance organisation which willrelease the maintenance under its own approval.

This is the case when a CAR-145 organisation, contracted to carry out maintenance by anowner/ operator/ CAMO, further contracts certain

maintenance tasks to another approvedCAR-145 organisation, and transfers the responsibility for the release of such tasks to thesecond CAR-145 organisation.

Contracting should only be envisaged when it is allowed by the person or organisation thatrequests 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.

(Vir Vikram Yadav)
Director General of Civil Aviation

SECTION B - PROCEDURES FOR DGCA

Refer Airworthiness Procedures Manual

Appendix I - Authorised Release Certificate (CA Form 1)

These instructions relate only to the use of the CA Form 1 for maintenance purposes. Attention is drawn to Appendix I to CAR 21 which covers the use of the CA Form 1 for production purposes.

1. Purpose and use

1.1 The primary purpose of the Certificate is to declare the airworthiness of maintenance work undertaken on products, parts and appliances (hereafter referred to as 'item(s)').

1.2 Correlation must be established between the Certificate and the item(s). The originator must retain a Certificate in a form that allows verification of the original data.

1.3 The Certificate is acceptable to many airworthiness authorities, but may be dependent on the existence of bilateral agreements and/or the policy of the airworthiness authority. The 'approved design data' mentioned in this Certificate then means approved by the airworthiness authority of the importing country.

1.4 The Certificate is not a delivery or shipping note.

1.5 Aircraft are not to be released using the Certificate.

1.6 The Certificate does not constitute approval to install the item on a particular aircraft, engine, or propeller but helps the end user determine its airworthiness approval status.

1.7 A mixture of production released and maintenance released items is not permitted on the same Certificate.

2. General Format

2.1 The Certificate must comply with the format attached including block numbers and the location of each block. The size of each block may however be varied to suit the individual application, but not to the extent that would make the Certificate unrecognisable.

2.2 The Certificate must be in 'landscape' format but the overall size may be significantly increased or decreased so long as the Certificate remains recognisable and legible. If in doubt consult DGCA.

2.3 The User/Installer responsibility statement can be placed on either side of the form.

2.4 All printing must be clear and legible to permit easy reading.

2.5 The Certificate may either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible and in accordance with the defined format.

2.6 The Certificate should be in English, and if appropriate, in one or more other languages.

2.7 The details to be entered on the Certificate may be either machine/computer printed or hand-written using block letters and must permit easy reading.

2.8 Limit the use of abbreviations to a minimum, to aid clarity.

2.9 The space remaining on the reverse side of the Certificate may be used by the originator for any additional information but must not include any certification statement. Any use of the reverse side of the Certificate must be referenced in the appropriate block on the front side of the Certificate.

3. Copies

3.1 There is no restriction in the number of copies of the Certificate sent to the customer or retained by the originator.

4. Error(s) on a Certificate

4.1 If an end-user finds an error(s) on a Certificate, he must identify it/them in writing to the originator. The originator may issue a new Certificate only if the error(s) can be verified and corrected.

4.2 The new Certificate must have a new tracking number, signature and date.

4.3 The request for a new Certificate may be honored without re-verification of the item(s) condition. The new Certificate is not a statement of current condition and should refer to the previous Certificate in block 12 by the following statement; “This Certificate corrects the error(s) in block(s) [enter block(s) corrected] of the Certificate [enter original tracking number] dated [enter original issuance date] and does not cover conformity/ condition/release to service”. Both Certificates should be retained according to the retention period associated with the first.

5. Completion Of The Certificate By The Originator

Block 1 DGCA, India

This information may be pre-printed.

Block 2 “AUTHORISED RELEASE CERTIFICATE CA FORM 1”

This information may be pre-printed.

Block 3 Form Tracking Number

Enter the unique number established by the numbering system/procedure of the organisation identified in block 4; this may include alpha/numeric characters.

Block 4 Organisation Name and Address

Enter the full name and address of the approved organisation (refer to CA form **3)** releasing the work covered by this Certificate. Logos, etc., are permitted if the logo can be contained within the block.

Block5 WorkOrder/Contract/Invoice

To facilitate customer traceability of the item(s), enter the work order number, contract number, invoice number, or similar reference number.

Block 6 Item

Enter line item numbers when there is more than one line item. This block permits easy cross-referencing to the Remarks block 12.

Block 7 Description

Enter the name or description of the item. Preference should be given to the term used in the instructions for continued airworthiness or maintenance data (e.g. Illustrated Parts Catalogue, Aircraft Maintenance Manual, Service Bulletin, Component Maintenance Manual).

Block 8 Part Number

Enter the part number as it appears on the item or tag/packaging. In case of an engine or propeller the type designation may be used.

Block 9 Quantity

State the quantity of items.

Block 10 Serial Number

If the item is required by regulations to be identified with a serial number, enter it here. Additionally, any other serial number not required by regulation may also be entered. If there is no serial number identified on the item, enter “N/A”.

Block 11 Status/Work

The following describes the permissible entries for block 11. Enter only one of these terms – where more than one may be applicable, use the one that most accurately describes the majority of the work performed and/or the status of the article.

(i) *Overhauled.* Means a process that ensures the item is in complete conformity with all the applicable service tolerances specified in the type certificate holder’s, or equipment manufacturer’s instructions for continued airworthiness, or in the data which is approved or accepted by the Authority. The item will be at least disassembled, cleaned, inspected, repaired as necessary, reassembled and tested in accordance with the above specified data.

(ii) *Repaired*. Rectification of defect(s) using an applicable standard (*).

(iii) *Inspected/Tested*. Examination, measurement, etc. in accordance with an applicable standard (*) (e.g. visual inspection, functional testing, bench testing etc.).

(iv) *Modified*. Alteration of an item to conform to an applicable standard (*).

*Applicable standard means a manufacturing/ design/ maintenance/ quality standard, method, technique or practice approved by or acceptable to DGCA. The applicable standard shall be described in block 12.

Block 12 Remarks

Describe the work identified in Block 11, either directly or by reference to supporting documentation, necessary for the user or installer to determine the airworthiness of item(s) in relation to the work being certified. If necessary, a separate sheet may be used and referenced from the main CA Form 1. Each statement must clearly identify which item(s) in Block 6 it relates to.

Examples of information to be entered in Block 12 are:

(i) Maintenance data used, including the revision status and reference.

(ii) Compliance with airworthiness directives or service bulletins.

(iii) Repairs carried out.

(iv) Modifications carried out.

(v) Replacement parts installed.

(vi) Life limited parts status.

(vii) Deviations from the customer work order.

(viii) Release statements to satisfy a foreign Civil Aviation Authority maintenance requirement.

(ix) Information needed to support shipment with shortages or re-assembly after delivery.

(x) For maintenance organisations approved in accordance with Subpart F of CAR M and CAR- CAO the component certificate of release to service statement referred to in point M.A.613 and CAO.A.070, as applicable:

“Certifies that, unless otherwise specified in this block, the work identified in block 11 and described in this block was accomplished in accordance with the requirements of Section A, Subpart F of CAR M and CAR- CAO and in respect to that work the item is considered ready for release to service.”

If printing the data from an electronic CA Form 1, any appropriate data not fit for other blocks should be entered in this block.

Block 13a-13e

General Requirements for blocks 13a-13e: Not used for maintenance release. Shade, darken, or otherwise mark to preclude inadvertent or unauthorised use.

Block 14a

Mark the appropriate box(es) indicating which regulations apply to the completed work. If the box “other regulations specified in block 12” is marked, then the regulations of the other airworthiness authority(ies) must be identified in block 12.

At least one box must be marked, or both boxes may be marked, as appropriate.

For all maintenance carried out by maintenance organisations approved in accordance with Section A, Subpart F of CAR M, or CAR-CAO, the box “other regulation specified in block 12” shall be ticked and the certificate of release to service statement be entered in block 12. In that case, the certification statement “unless otherwise specified in this block” is intended to address the following cases;

(a) Where maintenance could not be completed.

(b) Where the maintenance deviated from the standard required by CAR M or CAR- CAO.

(c) Where maintenance was carried out in accordance with a requirement other than that specified in CAR M or CAR-CAO. In this case block 12 shall specify the particular national regulation.

For all maintenance carried out by maintenance organisations approved in accordance with Section A of CAR145, the certification statement “unless otherwise specified in block 12” is intended to address the following cases;

(d) Where maintenance could not be completed.

(e) Where maintenance deviated from the standard required by CAR 145.

(f) Where maintenance was carried out in accordance with a requirement other than that specified in CAR 145. In this case block 12 shall specify the particular national regulation.

Block 14b Authorised Signature

This space shall be completed with the signature of the authorised person. Only persons specifically authorised under the rules and policies of DGCA are permitted to sign this block. To aid recognition, a unique number identifying the authorised person may be added.

Block 14c Certificate/Approval Number

Enter the Certificate/Approval number/reference. This number or reference is issued by DGCA.

Block 14d Name

Enter the name of the person signing block 14b in a legible form.

Block 14e Date

Enter the date on which block 14b is signed, the date must be in the format dd = 2 digit day, mm = 2 digit, yyyy = 4 digit year.

User/Installer Responsibilities

Place the following statement on the Certificate to notify end users that they are not relieved of their responsibilities concerning installation and use of any item accompanied by the form:

"THIS CERTIFICATE DOES NOT AUTOMATICALLY CONSTITUTE AUTHORITY TO INSTALL. WHERE THE USER/INSTALLER PERFORMS WORK IN ACCORDANCE WITH REGULATIONS OF AN AIRWORTHINESS AUTHORITY DIFFERENT THAN THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1, IT IS ESSENTIAL THAT THE USER/INSTALLER ENSURES THAT HIS/HER AIRWORTHINESS AUTHORITY ACCEPTS ITEMS FROM THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1.

STATEMENTS IN BLOCKS 13A AND 14A DO NOT CONSTITUTE INSTALLATION CERTIFICATION. IN ALL CASES AIRCRAFT MAINTENANCE RECORDS MUST CONTAIN AN INSTALLATION CERTIFICATION ISSUED IN ACCORDANCE WITH THE NATIONAL REGULATIONS BY THE USER/INSTALLER BEFORE THE AIRCRAFT MAY BE FLOWN."

1. DGCA, India	2. **AUTHORISED RELEASE CERTIFICATE** **CA FORM 1**	3. Form Tracking Number
4. Approved Organization Name and Address:		5. Work Order/Contract/ Invoice

6. Item	7.Description	8. Part No	9. Qty	10.Serial/ Batch No.	11. Status/ Work

12. Remarks

13a. Certifies that the items identified above were manufactured in conformity to: ☐ approved design data and are in condition for safe operation. ☐ non approved design data specified in block12.	14a. ☐ CAR 145.A.50 Release to Service ☐ Other regulation specified in block 12. Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, was accomplished in accordance with CAR 145 and in respect to that work the items are considered ready for release to service.

13b. Authorised Signature	13c. Approval / Authorisation Number	14b. Authorised Signature	14c. Certificate/ Approval Ref No.
13d. Name	13e. Date (dd/mm/yyyy)	14d. Name	14e. Date (dd/mm/yyyy)

USER/ INSTALLER RESPONSIBILITIES

THIS CERTIFICATE DOES NOT AUTOMATICALLY CONSTITUTE AUTHORITY TO INSTALL THE ITEMS(s).

WHERE THE USER/ INSTALLER PERFORMS WORK IN ACCORDANCE WITH REGULATIONS OF AN AIRWORTHINESS AUTHORITY DIFFERENT THAN THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1, IT IS ESSENTIAL THAT THE USER/ INSTALLER ENSURES THAT HIS/ HER AIRWORTHINESS AUTHORITY ACCEPTS ITEMS FROM THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1.

STATEMENTS IN BLOCKS 13A AND 14A DO NOT CONSTITUTE INSTALLATION CERTIFICATION. IN ALL CASES AIRCRAFT MAINTENANCE RECORDS MUST CONTAIN AN INSTALLATION CERTIFICATION ISSUED IN ACCORDANCE WITH THE NATIONAL REGULATIONS BY THE USER/ INSTALLER BEFORE THE AIRCRAFT MAY BE FLOWN.

CA FORM 1- ISSUE 3

Appendix II - Class and rating system for the terms of approval of Part-145 maintenance organisations

(a) Except as stated otherwise for the smallest referred to in point (m), the table referred to in Table 1 provides the possible classes and ratings to be used to establish the terms of approval of the certificate of the organisation approved (CAR- 145). An organisation must be granted terms of approval that range from a single class and rating with limitations to all classes and ratings with limitations.

(b) In addition to the table 1 in point (l) each maintenance organisation is required to indicate its scope of work in its MOE.

(c) Within the approval class(es) and rating(s) established by the DGCA, the scopeof work specified in the MOE defines the exact limits of its approval. It is therefore essential that the approval class(es) and rating(s) and the organisation's scope of work match.

(d) A category A class rating means that the maintenance organisation may carry out maintenance on aircraft and components (including engines and/or auxiliary power units (APUs)), in accordance with the aircraft maintenance data or, if agreed by the DGCA, in accordance with the component maintenance data, only while such components are fitted to the aircraft. Nevertheless, such an A-rated maintenance organisation may temporarily remove a component for maintenance in order to improve access to that component, except when its removal generates the need for additional maintenance that the organisation is not approved to perform. Such removal of component for maintenance by A-rated maintenance organisation shall be subject to an appropriate control procedure in the MOE.

The limitation column must specify the scope of such maintenance, thereby indicating the extent of the approval.

(e) Category A class ratings are subdivided into "Base" or "Line" maintenance categories. Such an organisation may be approved for either "Base" or "Line" maintenance, or both. It should be noted that a "Line" facility located at a main base facility requires a "Line" maintenance approval.

(f) A category B class rating means that maintenance organisation may carry out maintenance on uninstalled engines and/or APUs and engine and/or APU components, in accordance with the engine and/or APU maintenance data or, if agreed by the DGCA, in accordance with the component maintenance data, only while such components are fitted to the engine and/or the APU. Nevertheless, such a B-rated approved maintenance organisation may temporarily remove a component for maintenance in order to improve access

to that component, except when its removal generates the need for additional maintenance that the organisation is not approved to perform.

The limitation column must specify the scope of such maintenance, thereby indicating the extent of the approval.

A maintenance organisation that is approved with a category B class rating may also carry out maintenance on an installed engine during aircraft base and line maintenance, provided that an appropriate control procedure in the MOE has been approved by the DGCA. The scope of work in the MOE shall reflect those activities if they are permitted by the DGCA.

(g) A category C class rating means that the maintenance organisation may carry out maintenance on uninstalled components (excluding complete engines and APUs) that are intended to be fitted on the aircraft or the engine/APU.

The limitation column must specify the scope of such maintenance, thereby indicating the extent of the approval.

A maintenance organisation that is approved with a category C class rating may also carry out maintenance on an installed component (other than a complete engine/APU) during aircraft base and line maintenance, or at an engine/APU maintenance facility provided that an appropriate control procedure in the MOE has been approved by the DGCA. The scope of work in the MOE shall reflect those activities if they are permitted by the DGCA.

(h) A category D class rating is a self-contained class rating that is not necessarily related to a specific aircraft, engine or other component. The D1 – Non-Destructive Testing (NDT) rating is only necessary for a maintenance organisation that carries out NDT as a particular task for another organisation. A maintenance organisation that is approved with a class rating in the A, B or C category may carry out NDT on products that it maintains without the need for a D1 class rating provided that the MOE contains appropriate NDT procedures.

(i) The limitation column is intended to give DGCA the flexibility to customise an approval for any particular organisation. Ratings may only be mentioned on the approval if they are appropriately limited. The table 1 specifies the types of limitations that are possible. It is acceptable to stress in the limitation column the maintenance task rather than the type or manufacturer of the aircraft or engine, if that is more appropriate to the organisation (an example could be avionics systems installations and the related maintenance). If that is mentioned in the limitation column, it indicates that the maintenance organisation is approved to carry out maintenance up to and including that particular type/task.

(j) When reference is made to the series, type and group in the limitation column of class A and B, it shall be understood as follows:

— "series" means a specific type series such as the Airbus 300, 310 or 319, or the Boeing 737-300 series, the RB211-524 series, the Cessna 150 or Cessna 172, the Beech 55 series, the continental O-200 series, etc.,

— "type" means a specific type or model such as the Airbus 310-240 type, the RB 211-524 B4 type, or the Cessna 172RG type.

Any number of series or types may be quoted,

— "group" means, for example, Cessna single piston engine aircraft or Lycoming nonsupercharged piston engines, etc.

(k) By way of derogation from point 145.A.85(a)(1), when a component capability list is used that could be subject to frequent amendments, then the organisation may propose to include such amendments in the procedure referred to in point 145.A.85(c) for changes not requiring prior approval.

(l) Refer Table 1

Table 1

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes/ above 5 700 kg maximum take-off mass (MTOM)	[Shall state the aeroplane manufacturer or the group or series or type and/or the maintenance tasks] Example: Airbus A320 Series	YES/NO*	YES/NO*
	A2 Aeroplanes/ 5 700 kg MTOM and below	[Shall state the aeroplane manufacturer or the group or series or type and/or the maintenance tasks] Example: DHC-6 Twin Otter Series State whether the issuing of airworthiness review certificates is authorised (only possible for aircraft covered by CAR-ML)	YES/NO*	YES/NO*
	A3 Helicopters	[Shall state the helicopter manufacturer or the group or series or type and/or the maintenance task(s)]	YES/NO*	YES/NO*

		Example: Robinson R44 State whether the issuing of airworthiness review certificates is authorised (only possible for aircraft covered by CAR-ML).		
	A4 Aircraft other than A1, A2 and A3 Aircraft	[Shall state the aircraft category (sailplane, balloon, airship, etc.), the manufacturer or group or series or type and/or the maintenance task(s)] State whether the issuing of airworthiness review certificates is authorised (only possible for aircraft covered by CAR-ML).	YES/NO*	YES/NO*
ENGINES	B1 Turbine	[Shall state engine series or type and/or the maintenance task(s)] Example: PT6A Series		
	B2 Piston	Shall state engine manufacturer or group or series or type and/or the maintenance task(s)		
	B3 APU	Shall state engine manufacturer or series or type and/or the maintenance task(s)		
	B4 Engines other than B1, B2 and B3	Shall state the engine manufacturer or group or series or type and/or the maintenance task(s)		
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond & Press	Shall state the aircraft type or aircraft manufacturer or component manufacturer or the particular component and/or cross refer to a capability list in the exposition and/or the maintenance tasks Example: PT6A Fuel Control		
	C2 Auto Flight			
	C3 Comms and Nav			
	C4 Doors — Hatches			
	C5 Electrical Power & Lights			
	C6 Equipment			
	C7 Engine — APU			
	C8 Flight Controls			
	C9 Fuel			
	C10 Helicopter — Rotors			
	C11 Helicopter — Trans			
	C12 Hydraulic Power			

	C13 Indicating recording system	
	C14 Landing Gear	
	C15 Oxygen	
	C16 Propellers	
	C17 Pneumatic and Vaccum	
	C18 Protection ice/ rain/ fire	
	C19 Windows	
	C20 Structural	
	C21 Water Ballast	
	C22 Propulsion Augmentation	
	C23 Others	
SPECIALISED SERVICES	D1 Non-Destructive Testing	Shall state particular NDT method(s)
(*) Delete as appropriate		

(m) A maintenance organisation which employs only one person to both plan and carry out all its maintenance activities can only hold limited terms of approval. The maximum permissible limits are as follows

CLASS	RATING	LIMITATION
AIRCRAFT	A2	PISTON ENGINE AEROPLANE OF 5700 KG MTOM OR LESS
AIRCRAFT	A3	SINGLE ENGINED HELICOPTER OF 3175 KG MTOM OR LESS
AIRCRAFT	A4	NO LIMITATIONS
ENGINES	B2	LESS THAN 450 HP
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 TO C22	AS PER CAPABILITY LIST
SPECIALISED SERVICES	D1 NDT	NDT METHOD(S) TO BE SPECIFIED

It should be noted that such an organisation may be further limited by DGCA in terms of approval depending on the capabilities of the particular organisation.

Appendix III – Maintenance Organisation Certificate

CA FORM 3 - 145 *Page 1 of 3*



GOVERNMENT OF INDIA
DIRECTORATE GENERAL OF CIVIL AVIATION

MAINTENANCE ORGANISATION CERTIFICATE

*REFERENCE:*_____

Pursuant to Rule 133B of Aircraft Rules 1937 and CAR 145 for the time being in force and subject to the conditions specified below, DGCA hereby certifies:

[COMPANY NAME AND ADDRESS]

as a maintenance organization in compliance with Section A of CAR 145 approved to maintain products, parts and appliances listed in the attached terms of approval and issue related certificates of release to service using the above reference.

CONDITIONS:

1. This approval is limited to that specified in the scope of work section of the approved maintenance organization exposition, as referred to in Section A of CAR 145, and
2. This approval requires compliance with the procedures specified in the approved maintenance organization exposition, and
3. This approval is valid whilst the approved maintenance organization remains in compliance with CAR 145.
4. Subject to compliance with the foregoing conditions, this approval shall remain valid for duration as specified in the attached validity sheet, unless the approval is surrendered, superseded, suspended or revoked.

Date of original issue:…….
Date of revision:…….
Revision No……
Signed:……
Directorate General of Civil Aviation

CA FORM 3 - 145 *Page 2 of 3*

MAINTENANCE ORGANISATION

TERMS OF APPROVAL

Reference: DGCA/145_____

Organisation Name: [COMPANY NAME AND ADDRESS]

CLASS	RATINGS	LIMITATION	BASE	LINE
AIRCRAFT (*)	(**)	(***)	[YES/NO] (**)	[YES/NO] (**)
	(**)	(***)	[YES/NO] (**)	[YES/NO] (**)
	(**)	(***)	[YES/NO] (**)	[YES/NO] (**)
	(**)	(***)	[YES/NO] (**)	[YES/NO] (**)
ENGINES (*)	(**)	(**)		
	(**)	(**)		
COMPONENTS OTHER THAN COMPLETE ENGINES OR APU (*)	(**)	(**)		
	(**)	(**)		
	(**)	(**)		
	(**)	(**)		
	(**)	(**)		
	(**)	(**)		
SPECIALISED SERVICES (*)	(**)	(**)		
	(**)	(**)		

These terms of approval are limited to those products, parts and appliances and to the activities specified in the scope of work section of the approved maintenance organisation exposition,

Maintenance Organisation Exposition reference: _____
Date of original issue:_____
Date of last revision approved:_____Revision No._____

Signed:

For DGCA

(*) Delete as appropriate if the organization is not approved.

(**) Complete with appropriate rating and limitation

(***)Complete with appropriate rating and state whether the issue of airworthiness review certificates is authorised or not.

CA FORM 3 - 145 *Page 3 of 3*

MAINTENANCE ORGANISATION

VALIDITY OF APPROVAL

Reference: DGCA/145_____

Organisation Name: [COMPANY NAME AND ADDRESS]

FROM	TO	Signature

AMC1 to Appendix III— Maintenance Organisation Approval referred to in CAR-145

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

— Date of original issue: It refers to the date of the original issue of the maintenance organisation exposition

— Date of last revision approved: It refers to the date of the last revision of the maintenance organisation exposition affecting the content of the certificate. Changes to the maintenance organisation exposition which do not affect the content of the certificate do not require the reissuance of the certificate.

— Revision No: It refers to the revision No of the last revision of the maintenance organisation exposition affecting the content of the certificate. Changes to the maintenance organisation exposition which do not affect the content of the certificate do not require the reissuance of the certificate

GM1 Appendix III — Maintenance Organisation Certificate — CA Form 3-145

The expression ‘or not’ at the end of the footnote ‘(***)’ on page 2 of 3 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 DGCA will state it on the relevant line. If the organisation does not have that privilege, the DGCA may state it, but does not have to.

Appendix IV - Conditions for the use of staff not qualified in accordance with CAR-66 referred to in points 145.A.30 (j) 1 and 2

1. Certifying staff in compliance with the following conditions will meet the intent of 145.A.30(j)(1) and (2):

(a) The person shall hold a licence or a certifying staff authorisation issued under the national regulations in compliance with ICAO Annex 1.

(b) The scope of work of the person shall not exceed the scope of work defined by the National licence/ certifying staff authorization, whatever is most restrictive.

(c) The person shall demonstrate he has received training on human factors and airworthiness regulations as detailed in DGCA CAR 66 Requirements.

(d) The person shall demonstrate five years maintenance experience for line maintenance certifying staff and eight years for base maintenance certifying staff. However, those persons whose authorised tasks do not exceed those of a CAR-66 category A certifying staff, need to demonstrate 3 years maintenance experience only.

(e) Line maintenance certifying staff and base maintenance support staff shall demonstrate that he/she received type training and passed examinations as category B1, B2 or B3 level, as applicable, referred to in CAR 66 for each aircraft type in the scope of work referred to in Point (b). Those persons whose scope of work does not exceed those of a category A certifying staff may however receive task training in lieu of a complete type training.

(f) Base maintenance certifying staff shall demonstrate he/she received type training and passed examination as per DGCA licensing system for each aircraft type in the scope of work referred to in point (b), except that for the first aircraft type, training and examination shall be at the category B1, B2 or B3 level of Appendix III of CAR 66.

2. RESERVED

Appendix V – CA FORM 4

CA Form 4



GOVERNMENT OF INDIA
DIRECTORATE GENERAL OF CIVIL AVIATION

MANAGEMENT PERSONNEL REQUIRED TO BE ACCEPTED AS SPECIFIED IN CAR 145.

1. Name:

2. Position:

3. Qualifications relevant to the item (2) position:

4.Work experience relevant to the item (2) position:

5. Organisation:

6. Approval Number relevant to the item (5):

Signature: ..... Date: .....

On completion, please send this form under confidential cover to DGCA.

DGCA USE ONLY

Name, designation and signature of the DGCA Official accepting this person:

Signature: ..... Date.....

Name: ..... Office: ……

Appendix VI - CA FORM 6
CAR-145 APPROVAL RECOMMENDATION REPORT

PART 1: GENERAL

Name of Organisation:

Approval reference:

Requested approval rating:

CA Form 3 dated*:

EASA / FAA Title 14 CFR Part 145 Cert No. (If app.):
National Aviation Authority Approval No. (if applicable):

Address of Facility Audited:

Audit Period: From: To:

Date(s) of Audit:

Audit reference(s):

Persons interviewed:

DGCA Inspector(s): Signatures(s):

DGCA office: Date of Form 6 Part 1 completion:

*delete as appropriate

CAR-145 APPROVAL RECOMMENDATION REPORT

PART 2: CAR -145 COMPLIANCE AUDIT REVIEW

The five columns may be labeled & used as necessary to record the approval class &/or product line reviewed. Against each column used of the following CAR-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.

Point	Subject					
145.A.25	Facilities requirements	☐	☐	☐	☐	☐
145.A.30	Personnel requirements	☐	☐	☐	☐	☐
145.A.35	Certifying staff and support staff	☐	☐	☐	☐	☐
145.A.37	Airworthiness review staff	☐	☐	☐	☐	☐
145.A.40	Equipment, and tools	☐	☐	☐	☐	☐
145.A.42	Components	☐	☐	☐	☐	☐
145.A.45	Maintenance data	☐	☐	☐	☐	☐
145.A.47	Production planning	☐	☐	☐	☐	☐
145.A.48	Performance of maintenance	☐	☐	☐	☐	☐
145.A.50	Certification of maintenance	☐	☐	☐	☐	☐
145.A.55	Record-keeping	☐	☐	☐	☐	☐
145.A.60	Occurrence reporting	☐	☐	☐	☐	☐
145.A.65	Maintenance procedures	☐	☐	☐	☐	☐
145.A.70	Maintenance organisation exposition(MOE) (see Part 3)	☐	☐	☐	☐	☐
145.A.75	Privileges of the organization	☐	☐	☐	☐	☐
145.A.85	Changes to the organization	☐	☐	☐	☐	☐
145.A.90	Continued Validity	☐	☐	☐	☐	☐

145.A.95	Findings	☐	☐	☐	☐	☐
145.A.140	Access	☐	☐	☐	☐	☐
145.A.155	Immediate reaction to a safety problem	☐	☐	☐	☐	☐
145.A.200	Management system	☐	☐	☐	☐	☐
145.A.202	Internal safety reporting scheme	☐	☐	☐	☐	☐
145.A.205	Contracting and subcontracting	☐	☐	☐	☐	☐

DGCA inspector(s): DGCA office:	Signature(s): Date of Form 6 Part 2 completion

CAR -145 APPROVAL RECOMMENDATION REPORT CA FORM 6		
PART 3: Compliance with 145.A.70 Maintenance organisation exposition (MOE) Please either tick (✓) the box if satisfied with compliance; or 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.		
Part 1 General		
1.1		Statement by the accountable manager
1.2		Safety policy and objective
1.3		Management personnel.
1.4		Duties and responsibilities of the management personnel.
1.5		Management ~~O~~organisation~~C~~chart
1.6		List of ~~C~~certifying staff, support staff and airworthiness review staff (Note: a separate document may be referenced)
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
1.11		Procedures for changes (including MOE amendment) not requiring prior approval
Part 2 Maintenance procedures		
2.1		Supplier evaluation and subcontractor control procedure
2.2		Acceptance/inspection of aircraft components and material,and installation
2.3		Storage, tagging, and delivery of components and material to 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
2.8		Maintenance data and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff
2.9		Acceptance, coordination and performance of repair works
2.10		Acceptance, coordination and performance of scheduled maintenance works
2.11		Acceptance, coordination and performance of airworthiness directives works
2.12		Acceptance, coordination and performance of modification works
2.13		Maintenance documentation development, completion and sign-off
2.14		Technical record control.

CAR -145 APPROVAL RECOMMENDATION REPORT CA FORM 6		
PART 3: Compliance with 145.A.70 Maintenance organisation exposition (MOE) Please either tick (✓) the box if satisfied with compliance; or 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.		
2.15		Rectification of defects arising during maintenance
2.16		Release to service procedure
2.17		Records for the person or organisation that ordered maintenance
2.18		Occurrence reporting
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 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
2.28		Production planning and organising of maintenance activities
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
2.29		Airworthiness review procedures and records
2.30		Fabrication of parts
Part L2	Additional line maintenance procedures	
L2.1		Line maintenance control of aircraft components, tools, equipment, etc.
L2.2		Line maintenance procedures related to servicing/fuelling/de-icing
L2.3		Line maintenance control of defects and repetitive defects
L2.4		Line procedure for completion of technical log
L2.5		Line procedure for pooled parts and loan parts
L2.6		Line procedure for return of defective parts removed from aircraft
L2.7		Line procedure critical maintenance tasks and error-capturing methods
Part 3 Management system procedures		

CAR -145 APPROVAL RECOMMENDATION REPORT CA FORM 6		
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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		Audit plan and audit procedures
3.8.2		Product audit and inspections
3.8.3		Audit findings — corrective action procedure
3.9		Certifying staff and support staff qualifications,authorisation and training procedures
3.10		Certifying staff and support staff records
3.11		Airworthiness review staff qualification, authorisation and records
3.12		Compliance monitoring and safety management personnel
3.13		Independent inspection staff qualification
3.14		Mechanics qualification and records
3.15		Process for exemption from aircraft/aircraft component maintenance tasks
3.16		Concession control for deviations from the organisation's procedures
3.17		Qualification procedure for specialised activities such as NDT, welding, etc.
3.18		Management of external working teams
3.19		Competency assessment of personnel
3.20		Training procedures for on-the-job training as per Section 6 of Appendix III to CAR-66(limited to the case where the DGCA for the CAR-145 approval and for the CAR-66 licence is the same).
3.21		Procedure for the issue of a recommendation to the competent authority for the issue of a CAR-66 licence in accordance with 66.B.105 (limited to the case where the DGCA for the CAR-145 approval and for the CAR-66 licence is the same).

CAR -145 APPROVAL RECOMMENDATION REPORT CA FORM 6		
PART 3: Compliance with 145.A.70 Maintenance organisation exposition (MOE) Please either tick (✓) the box if satisfied with compliance; or 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.		
3.22		Management system record-keeping
PART 4 Relationship with customer/operators		
4.1		List of the commercial operators to which the organisation provides regular aircraft maintenance services
4.2		Customer interface procedures/paperwork
4.3		[Reserved]
Part 5 Supporting documents		
5.1		Sample Documents
5.2		List of sub-contractors
5.3		List of Line maintenance locations
5.4		List of contracted organisations
PART 6 RESERVED		
6.1		Reserved

MOE Reference:	MOE Amendment:
DGCA official(s):	Signature(s):
DGCA office:	Date of Form 6 Part 3 completion:

CAR -145 APPROVAL RECOMMENDATION REPORT	CA FORM 6

Part 4: Findings CAR-145 Compliance status

Each level 1 and 2-finding should be recorded, whether it has been rectified or not, and should be identifiedby a simple cross-reference to the Part 2 requirement. All non-rectified findings should be copied in writing to the organisation for them to take the necessary corrective action.

Part 2 or 3 reference	Audit reference(s): Findings	Level	Corrective action		
			Date Due	Date Closed	Reference

CAR -145 APPROVAL RECOMMENDATION REPORT	CA FORM 6

Part 5: CAR-145 Approval or continued approval or change recommendation*

Name of organisation:

Approval reference:

Audit reference(s):

The following CAR-145 terms of approval are recommended for this organisation:

Or, it is recommended that the CAR-145 terms of approval specified in CA Form 3 referenced..... should be continued.

Name of recommending DGCA Inspector:

Signature of recommending DGCA Inspector

DGCA office:

Date of recommendation:

Form 6 review Date:

*delete as appropriate

Appendix VII - Application Form (CA FORM 2)

CA Form 2	*Application for:*
DIRECTORATE GENERAL OF CIVIL AVIATION, INDIA **Application for CAR 145 APPROVAL**	Initial grant Renewal Variation

1. Registered name of the applicant:

2. Trading name (if different):

3. Addresses requiring approval:

4. Tel..... Fax……..

E-Mail ……..

5. Terms of approval and scope of work to this application: (See page 2 for possibilities)

6. Position and name of the (proposed*) Accountable Manager: ……

7. Fees as per Rule 133C of the Aircraft Rules, 1937……..

8. Signature of the proposed* Accountable Manager: ……..

9. Place:_____

10. Date:_____

Note: When completed, this form shall be sent to concerned regional airworthiness office for organisations based in India and to DGCA Hdqrs for organisations based outside India.

*Applicable only in the case of a new CAR-145 Applicant. *Page 1 of 2*

Page 2 – SCOPE OF CAR-145 APPROVAL AVAILABLE

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1	Quote aeroplane/airship type		
	A2	Quote aeroplane/ airship manufacturer or group or type		
	A3	Quote helicopter manufacturer or group or type		
	A4	Quote aircraft type or group		
ENGINES	B1 Turbine	Quote engine type		
	B2 Piston	Quote engine manufacturer or group or type		
	B3 APU	Quote engine manufacturer or type		
	B4 Engines other than B1, B2 and B3	Shall state the engine manufacturer or group or series or type and/or the maintenance task(s)		
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond & Press	Quote aircraft type or aircraft manufacturer or component manufacturer or the particular component and or cross refer to a capability list in the exposition.		
	C2 Auto Flight			
	C3 Comms and Nav			
	C4 Doors – Hatches			
	C5 Electrical Power			
	C6 Equipment			
	C7 Engine – APU			
	C8 Flight Controls			
	C9 Fuel			
	C 10 Helicopter – Rotors			
	C 11 Helicopter – Trans			
	C12 Hydraulic			
	C13 Indicating and Recording System			
	C14 Landing Gear			
	C15 Oxygen			
	C16 Propellers			
	C17 Pneumatic			
	C18 Protection ice/ rain/ fire			
	C19 Windows			
	C20 Structural			
	C21 Water Ballast			
	C22 Propulsion Augmentation			
	C23 Others			
SPECIALISED SERVICES	D1 Non destructive Insp.	Quote particular NDT method		
With reference to the above scope of approval and item 5 on page 1, please				

complete in the following example style, but relevant to your organization.	
A1 Base & Line Boeing 737-200	B2 Lycoming Piston
A2 Base Piper PA34	B3 Garrett GTCP85
A2 Base & Line Cessna Piston Twins	C2 SFENA
A3 Bell 206/212	C4 Boeing 747
B1 CFM 56	D1 Eddy Current
There may be any number of types/manufacturers, etc. listed against each rating.	

Appendix VIII - Appendix to AMC 145.A.30 (e) Fuel Tank Safety Training

This appendix includes general instructions for providing training on Fuel Tank Safety issues.

A) Effectivity:

- Large aeroplanes as defined as maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more.

B) Affected organisations:

- CAR-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 for the oversight of the CAR-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 compliance monitoring manager, the safety manager and the staff who are directly involved in monitoring the compliance of the organisation.
- Personnel of the competent authorities who areresponsible for the oversight of CAR-145 approved maintenance organisations specified in paragraph B).

Phase 1 + Phase 2 + recurrent training:

- Personnel of the CAR-145 approved maintenance organisations 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 Familiarization course in compliance with appendix VIII from a CAR-145 maintenance organization are already in compliance with Phase 1.

Type: It should provide awareness 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 signature of the trainer 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 familiar with the basic elements of the fuel tank safety issues.
2. 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 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 DGCA to allow organisations to set up the necessary courses and 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 2013.

The persons who have already attended the Level 2 Detailed training course in compliance with appendix VIII from a CAR-145 maintenance organization are already in compliance with Phase 2 with the exception of continuation training.

Staff should have received Phase 2 training by 31 December 2013 or within 12 months of joining the organization, 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, which should be in the form of multiple-choice questions, and the pass mark of the examination should be 75%.

Level: 2 It should be a detailed course on the theoretical and practical elements of the subject.

The training may be made either:

- in appropriate facilities containing examples of components, systems and parts affected by Fuel Tank Safety (FTS) issues. The use of films, pictures and practical examples on FTS is recommended; or
- by attending a distance course (e-learning or computer based training)

including a film when such film meets the intent of the objectives and content here below. An e-learning or computer based training should meet the following criteria:

A duration of 8 hours for phase 2 is an acceptable compliance.

When the course is provided in a classroom, the instructor should be very familiar with the data in Objectives and Guidelines. To be familiar, an instructor should have attended himself a similar course in a classroom and made additionally some lecture of related subjects.

Objectives:

The attendant should, after the completion of the training:

- have knowledge of the history of events related to fuel tank safety issues and the theoretical and practical elements of the subject, have an overview of the FAA regulations known as SFAR (Special FAR) 88 of the FAA and of JAA Temporary Guidance Leaflet TGL 47, be able to give a detailed description of the concept of fuel tank system ALI (including Critical Design Configuration Control Limitations CDCCL, and using theoretical fundamentals and specific examples;
- have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner;
- have knowledge on how the above items affect the aircraft;
- be able to identify the components or parts or the aircraft subject to FTS from the manufacturer's documentation,
- be able to plan the action or apply a Service Bulletin and an Airworthiness Directive.

Content: Following the guidelines described in paragraph E).

Recurrent training:

The organisation should ensure that the recurrent training is required in each 2-year period. The syllabus of the training programme referred to in Chapter 3.9 of the maintenance organisation exposition (MOE) should include the additional syllabus for this recurrent training.

The continuation training may be combined with the phase 2 training in a classroom or at distance.

The continuing training should be updated when new instruction are issued which are related to the material, tools, documentation and manufacturer's or competent authority's directives.

E) Guidelines for preparing the content of Phase 2 courses.

The following guidelines should be taken into consideration when the phase 2 training programmes are being established:

(a) understanding of the background and the concept of fuel tank safety,

(b) how the mechanics can recognize, interpret and handle the improvements in the instruction for continuing airworthiness that have been made or are being

made regarding the fuel tank system maintenance,

(c) awareness of any hazards especially when working on the fuel system, and when the Flammability Reduction System using nitrogen is installed.

Paragraphs a), b) and c) above should be introduced in the training programme addressing the following issues:

(i) The theoretical background behind the risk of fuel tank safety: the explosions of mixtures of fuel and air, the behavior of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc, the 'fire triangle', – Explain 2 concepts to prevent explosions:
- **a.** ignition source prevention and
- **b.** flammability reduction,

(ii) The major accidents related to fuel tank systems, the accident investigations and their conclusions,

(iii) SFAR 88 of the FAA and JAA Interim Policy INT POL 25/12: ignition prevention pro- gram initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance),

(iv) Explain the briefly concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations items and CDCCL,

(v) Where relevant information can be found and how to use and interpret this information in the applicable maintenance data as defined in 145.A.45(b)

(vi) Fuel Tank Safety during maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc,

(vii) Flammability reduction systems when installed: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,

(viii) Recording maintenance actions, recording measures and results of inspections.

The training should include a representative number of examples of defects and the associated repairs as required by the TC / STC holders maintenance data.

F) Approval of training

For CAR-145 approved organizations, the approval of the initial and recurrent training programme and the content of the examination can be achieved by the change to the MOE exposition. The necessary changes to the MOE to meet the content of this decision should be made and implemented.