

# **CIVIL AVIATION AUTHORITY OF NEPAL**



## **NEPALESE CIVIL AIRWORTHINESS REQUIREMENTS**

### **NCAR Part-145**

## **APPROVED MAINTENANCE ORGANISATIONS**

**October 2015**

**Issue 02**



## FOREWORD

Nepalese Civil Airworthiness Requirements Part-145, known hereafter as NCAR Part-145 is issued by the Civil Aviation Authority of Nepal in pursuance of the Rule 82 of the Civil Aviation Regulation 2002 (2058 B.S.) and its amendments.

This NCAR Part-145 has been prepared in accordance with the memorandum of understanding reached between the Civil Aviation Authorities / Directors General of Civil Aviation of the states participating in Cooperative Development of Operational Safety and Continuing Airworthiness Program-South Asia (COSCAP-SA) on establishment of regulation for the maintenance of aircraft by harmonizing the Rules & Regulations relating to Civil Aviation in SAARC countries based on EASA Part-145.

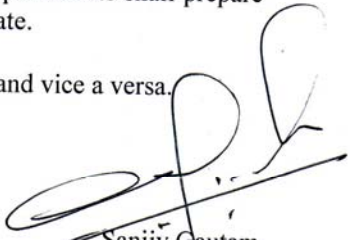
After the Initial Issue of these Requirements as NCAR Part-145, this Issue 02 of NCAR Part-145 has been prepared in close consultation with South Asian Regional Initiative (SARI), which is working to achieve the objective stated above. This Issue 02 of NCAR Part-145 is complete in its contents and is structured as follows.

- Chapter 1: Requirements  
(Section A: Technical Requirements, Section B: Procedure for CAA Nepal)
- Chapter 2: Acceptable Means of Compliance to NCAR Part-145  
(Section A: Technical Requirements, Section B: Procedure for CAA Nepal)
- Chapter 3: Guidance Material to NCAR Part-145

NCAR Part-145, requirements for Approved Maintenance Organization constitute a minimum series of standards for the aircraft maintenance organisation involved in the maintenance of large aircraft or aircraft used for commercial air transport, and components intended for fitment thereto. These requirements shall apply to all civil aircraft maintenance organizations. In case of conflict between NCAR Part-145 and current issue of NCAR, NCAR Part-145 shall prevail and the Civil Aviation Act and Regulation shall prevail over NCAR Part-145.

These requirements shall be fully implemented by 31<sup>st</sup> December 2015. The current issue of NCAR Part-145 shall be revised as necessary and redundant requirements contained therein shall be repealed. All organizations affected by these requirements shall prepare to be fully compliant with these requirements by the stipulated date.

In the texts the use of the male gender implies the female gender and vice a versa.



Sanjiv Gautam  
Director General  
Civil Aviation Authority of Nepal



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**CHAPTER 1-REQUIREMENTS**

**SECTION A-TECHNICAL REQUIREMENTS**

**NCAR-145.A.1 General**

For the purpose of NCAR Part-145, the competent authority for organizations having their principal place of business in Nepal shall be the Civil Aviation Authority of Nepal (CAA Nepal).

Within the scope of this requirement, the following definitions shall apply:

- (a) 'Aircraft' means any machine that can derive support in the atmosphere from the reactions of the air other than reactions of the air against the earth's surface;
- (b) 'Certifying staff' means personnel responsible for the release of an aircraft or a component after maintenance;
- (c) 'Component' means any engine, propeller, part or appliance;
- (d) 'large aircraft' means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5,700 kg(12500 pounds), or a multi-engine helicopter;
- (e) 'large aeroplane' means an aeroplane of more than 5 700 kg (12 500 pounds) maximum certificated take-off weight. The category 'Large Aeroplane' does not include the commuter aeroplane category.
- (f) "Commuter category aeroplane" means a propeller-driven twin-engine aeroplane that has a seating configuration, excluding the pilot seat(s) of nineteen or fewer and a maximum certified take off weight of 8618 kg (19000 lb).
- (g) 'Maintenance' means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection;
- (h) 'Organisation' means a natural person, a legal person or part of a legal person. Such an organisation may hold more than one NCAR Part-145 approval;
- (i) 'Pre-flight inspection' means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight;

**NCAR-145.A.5 Applicability**

Organisations involved in the maintenance of large aircraft or of aircraft used for commercial air transport, and components intended for fitment thereto, shall be approved in accordance with the provisions of NCAR Part-145.

**NCAR-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 for the maintenance of aircraft and component.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations

### NCAR Part-145

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#### Chapter 1

#### Section A-Technical Requirements

#### NCAR-145.A.15 – Application

An application for an approval or for the amendment of an existing approval shall be made on a form and in a manner established by the CAA Nepal.

#### NCAR-145.A.20 – Terms of approval

The organisation shall specify the scope of work deemed to constitute approval in its exposition (Appendix II to NCAR Part-145 contains a table of all classes and ratings).

#### NCAR-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. Specialised 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.

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**Approved Maintenance Organizations**  
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**Chapter 1**  
**Section A-Technical Requirements**

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 authorised personnel.

**NCAR-145.A.30 – Personnel requirements**

- (a) The organisation shall appoint an accountable manager who has corporate authority for ensuring that all maintenance required by the customer can be financed and carried out to the standard required by NCAR Part-145. The accountable manager shall:
1. ensure that all necessary resources are available to accomplish maintenance in accordance with NCAR145.A.65(b) to support the organisation approval.
  2. establish and promote the safety and quality policy specified in NCAR-145.A.65(a).
  3. demonstrate a basic understanding of NCAR Part-145.
- (b) The organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the organisation complies with NCAR Part-145. Such person(s) shall ultimately be responsible to the accountable manager.
1. The person or persons nominated shall represent the maintenance management structure of the organisation and be responsible for all functions specified in this NCAR Part-145.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations

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#### Chapter 1

#### Section A-Technical Requirements

2. The person or persons nominated shall be identified and their credentials submitted in a form and manner established by CAA Nepal.
  3. The person or persons nominated shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of NCAR Part-145.
  4. Procedures shall make clear who deputises for any particular person in the case of lengthy absence of the said person.
- (c) The accountable manager under paragraph (a) shall appoint a person with responsibility for monitoring the quality system, including the associated feedback system as required by NCAR-145.A.65(c). The appointed person shall have direct access to the accountable manager to ensure that the accountable manager is kept properly informed on quality and compliance matters.
- (d) The organisation shall have a maintenance man-hour plan showing that the organisation has sufficient staff to plan, perform, supervise, inspect and quality monitor the organisation in accordance with the approval. In addition the organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period.
- (e) The organisation shall establish and control the competence of personnel involved in any maintenance, management and/or quality audits in accordance with a procedure and to a standard agreed by CAA Nepal. In addition to the necessary expertise related to the job function, competence must include an understanding of the application of human factors and human performance issues appropriate to that person's function in the organisation.

‘Human factors’ means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

‘Human performance’ means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

- (f) The organisation shall ensure that personnel who carry out and/or control a continued airworthiness non-destructive test of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent Standard recognised by the CAA Nepal. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards. By derogation to this paragraph those

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#### Chapter 1

#### Section A-Technical Requirements

personnel specified in paragraphs (g) and (h)(1) and (h)(2), qualified in accordance with NCAR Part-66 category B1 may carry out and/or control colour contrast dye penetrant tests.

- (g) Any organisation maintaining aircraft, except where stated otherwise in paragraph (j), shall in the case of aircraft line maintenance, have appropriate aircraft type rated certifying staff qualified as category B1 and B2 in accordance with NCAR Part-66 and NCAR-145.A.35.

In addition such organisations may also use appropriately task trained certifying staff qualified as category A in accordance with NCAR Part-66 and NCAR-145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such category A certifying staff shall not replace the need for NCAR Part-66 category B1 and B2 certifying staff to support the category A certifying staff. However, such NCAR Part-66 category B1 and B2 staff need not always be present at the line station during minor scheduled line maintenance or simple defect rectification.

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

- 1. in the case of base maintenance of large aircraft, have appropriate aircraft type rated certifying staff qualified as category C in accordance with NCAR Part-66 and NCAR-145.A.35. In addition the organisation shall have sufficient aircraft type rated staff qualified as category B1 and B2 in accordance with NCAR Part-66 and NCAR-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 paragraph (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 large aircraft have either:

- (i) appropriate aircraft type rated certifying staff qualified as category B1 and B2 in accordance with NCAR Part-66 and NCAR-145.A.35 or,



# Nepalese Civil Airworthiness Requirements

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#### Chapter 1

#### Section A-Technical Requirements

- (ii) appropriate aircraft type rated certifying staff qualified in category C assisted by B1 and B2 support staff as specified in paragraph (1).
- (i) Component certifying staff shall comply with NCAR Part-66.
- (j) By derogation to paragraphs (g) and (h), the organisation may use certifying staff qualified in accordance with the following provisions:
  - 1. For organisation facilities located outside Nepal certifying staff may be qualified in accordance with the national aviation regulations of the State in which the organisation facility is registered subject to the conditions specified in Appendix IV to Part. For organisation facilities located within Nepal certifying staff may be qualified in accordance with the conditions specified in Appendix IV to NCAR Part-145, provided that they hold a validation certificate issued by CAA Nepal.
  - 2. For line maintenance carried out at a line station of an organisation which is located outside Nepal, the certifying staff may be qualified in accordance with the national aviation regulations of the State in which the line station is based, subject to the conditions specified in Appendix IV to NCAR Part-145.
  - 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 aircraft commander and/or the flight engineer on the basis of the flight crew licence held. However, the organisation shall ensure that sufficient practical training has been carried out to ensure that such aircraft commander or flight engineer can accomplish the airworthiness directive to the required standard.
  - 4. In the case of aircraft operating away from a supported location the organisation may issue a limited certification authorisation to the commander and/or the flight engineer on the basis of the flight crew licence held subject to being satisfied that sufficient practical training has been carried out to ensure that the commander or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph shall be detailed in an exposition procedure.
  - 5. In the following unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff 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) 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

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NCAR Part-145 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 shall be reported to CAA Nepal 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.

#### **NCAR-145.A.35 – Certifying staff and category B1 and B2 support staff**

- (a) In addition to the appropriate requirements of NCAR-145.A.30(g) and (h), the organisation shall ensure that certifying staff and category B1 and B2 support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated organisation procedures. In the case of certifying staff, this must be accomplished before the issue or re-issue of the certification authorisation.

‘Category B1 and B2 support staff means those category B1 and B2 staff in the base maintenance environment who do not hold necessarily certification privileges.

‘Relevant aircraft and/or components’, means those aircraft or components specified in the particular certification authorisation.

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

- (b) Excepting those cases listed in NCAR-145.A.30 (j) the organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and any type rating listed on the aircraft maintenance licence listed in NCAR Part-66, subject to the licence remaining valid throughout the validity period of the authorisation and the certifying staff remaining in compliance with NCAR Part-66.
- (c) The organisation shall ensure that all certifying staff and category B1 and B2 support staff are involved in at least six months of actual relevant aircraft or component maintenance experience in any consecutive two year period. For the purpose of this paragraph 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 systems specified in the particular certification authorisation.

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- (d) The organisation shall ensure that all certifying staff and category B1 and B2 support staff receive sufficient continuation training in each two year period to ensure that such staff have up-to-date knowledge of relevant technology, organisation procedures and human factor issues.
- (e) The organisation shall establish a programme for continuation training for certifying staff and category B1 and B2 support staff, including a procedure to ensure compliance with the relevant paragraphs of NCAR-145.A.35 as the basis for issuing certification authorisations under NCAR Part-145 to certifying staff, and a procedure to ensure compliance with NCAR Part-66.
- (f) Except where any of the unforeseen cases of NCAR-145.A.30(j)(5) apply, the organisation shall assess all prospective certifying staff for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure as specified in the exposition prior to the issue or re-issue of a certification authorisation under NCAR Part-145.
- (g) When the conditions of paragraphs (a), (b), (d), (f) and, where applicable, paragraph (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, paragraph (c).
- (h) The certification authorisation must be in a style that makes its scope clear to the certifying staff and any official of the CAA Nepal who has the responsibility for oversight of maintained aircraft or component, who may require to examine the authorisation.
- (i) The person responsible for the quality system shall also remain responsible on behalf of the organisation for issuing certification authorisations to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisations in accordance with a procedure as specified in the exposition.
- (j) The organisation shall maintain a record of all certifying staff and category B1 and B2 support staff.

The staff records shall contain:

1. details of any aircraft maintenance licence held under NCAR Part-66;
2. all relevant training completed.
3. the scope of the certification authorisations issued, where relevant, and

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4. Particulars of staff with limited or one-off certification authorisations.

The organisation shall retain the record for at least two years after the certifying staff or B1 or B2 support staff have ceased employment with the organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish certifying staff with a copy of their record on leaving the organisation.

The certifying staff shall be given access on request to their personal records as detailed above.

- (k) The organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.
- (l) Certifying staff shall produce their certification authorisation to any authorised person within 24 hours.
- (m) The minimum age for certifying staff and category B1 and B2 support staff is 21 years.

**NCAR-145.A.40 – Equipment, tools and material**

- (a) The organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work.
  - 1. 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 CAA Nepal via procedures specified in the exposition.
  - 2. Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in an exposition procedure.
  - 3. An organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft can be properly inspected.
- (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.

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**NCAR-145.A.42 – Acceptance of components**

- (a) All components shall be classified and appropriately segregated into the following categories:
1. Components which are in a satisfactory condition, released on a CAAN Form 1 or equivalent and marked in accordance with a standard acceptable to the CAA Nepal.
  2. Unserviceable components which shall be maintained in accordance with this section.
  3. Unsalvageable components which are classified in accordance with NCAR-145.A.42 (d).
  4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data.
  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 must be accompanied by documentation clearly relating to the particular material and containing conformity to specification statement plus both the manufacturing and supplier source.
- (b) Prior to installation of a component, the organisation shall ensure that the particular component is eligible to be fitted when different modification and/or airworthiness directive standards may be applicable.
- (c) 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.
- (d) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved according to the standard acceptable to CAA Nepal.

**NCAR-145.A.45 – Maintenance data**

- (a) The organisation shall hold and use applicable current maintenance data in the performance of maintenance, including modifications and repairs.

‘Applicable’ means relevant to any aircraft, component or process specified in the organisation's approval class rating schedule and in any associated capability list.

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In the case of maintenance data provided by an operator or customer, the organisation shall hold such data when the work is in progress, with the exception of the need to comply with NCAR-145.A.55(c).

- (b) For the purposes of NCAR Part-145, applicable maintenance data shall be any of the following:
1. Any applicable requirement, procedure, operational directive or information issued by the authority responsible for the oversight of the aircraft or component;
  2. Any applicable airworthiness directive issued by the authority responsible for the oversight of the aircraft or component;
  3. Instructions for continuing airworthiness, issued by type certificate holders, supplementary type certificate holders, any other organisation required to publish such data mandated by CAA Nepal and in the case of aircraft or components from third countries the airworthiness data mandated by the authority responsible for the oversight of the aircraft or component;
  4. Any applicable standard, such as but not limited to, maintenance standard practices recognised by CAA Nepal as a good standard for maintenance;
  5. Any applicable data issued in accordance with paragraph (d).
- (c) The organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded 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 maintenance organisation's exposition. With respect to those changes, the organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the type-certificate holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the 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 contained in paragraphs (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards and worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic

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database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task.

Where the organisation provides a maintenance service to an aircraft operator who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the organisation shall establish a procedure to ensure correct completion 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.

#### **NCAR-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) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations.
- (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.

#### **NCAR-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 it has been verified that all maintenance ordered has been properly carried out by the organisation in accordance with the procedures specified in NCAR-145.A.70, taking into account the availability and use of the maintenance data specified in NCAR-145.A.45 and that there are no non-compliances which are known to endanger flight safety.

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- (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 above maintenance shall be brought to the attention of the aircraft operator 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 operator declines to have such maintenance carried out under this paragraph, paragraph (e) is applicable.
- (d) A certificate of release to service shall be issued at the completion of any maintenance on a component whilst off the aircraft. The authorised release certificate or airworthiness approval tag identified as CAAN Form 1 in Appendix I to NCAR Part-145 constitutes the component certificate of release to service. When an organisation maintains a component for its own use, a CAAN Form 1 may not be necessary depending upon the organisation's internal release procedures defined in the exposition.
- (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 derogation to paragraph (a) and NCAR-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, it is permissible to 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 aircraft operator agreement and said component having a suitable release certificate but otherwise in compliance with all applicable maintenance and operational requirements. Such components shall be removed by the above prescribed time limit unless an appropriate release certificate has been obtained in the mean- time under paragraph (a) and NCAR-145.A.42.

#### **NCAR-145.A.55 – Maintenance records**

- (a) The organisation shall record all details of maintenance work carried out. As a minimum, the organisation shall retain records necessary to prove that all requirements have been met for issuance of the certificate of release to service, including subcontractor's release documents.
- (b) The organisation shall provide a copy of each certificate of release to service to the aircraft operator, together with a copy of any specific approved repair/modification data used for repairs/modifications carried out.



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- (c) The organisation shall retain a copy of all detailed maintenance records and any associated maintenance data for two years from the date the aircraft or component to which the work relates was released from the organisation.
1. Records under this paragraph shall be stored in a safe way with regard to fire, flood and theft.
  2. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.
  3. Where an organisation approved under NCAR Part-145 terminates its operation, all retained maintenance records covering the last two years shall be distributed to the last owner or customer of the respective aircraft or component or shall be stored as specified by CAA Nepal.

**NCAR-145.A.60 – Occurrence reporting**

- (a) The organisation shall report to CAA Nepal, the state of registry and the organisation responsible for the design of the aircraft or component any condition of the aircraft or component identified by the organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety.
- (b) The organisation shall establish an internal occurrence reporting system as detailed in the exposition to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary.
- (c) The organisation shall make such reports in a form and manner established by CAA Nepal and ensures that they contain all pertinent information about the condition and evaluation results known to the organisation.
- (d) Where the organisation is contracted by a commercial operator to carry out maintenance, the organisation shall also report to the operator any such condition affecting the operator's aircraft or component.
- (e) The organisation shall produce and submit such reports as soon as practicable but in any case within 72 hours of the organisation identifying the condition to which the report relates.

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#### **NCAR-145.A.65 – Safety and quality policy, maintenance procedures and quality system**

- (a) The organisation shall establish a safety and quality policy for the organisation to be included in the exposition under NCAR-145.A.70.
- (b) The organisation shall establish procedures agreed by CAA Nepal taking into account human factors and human performance to ensure good maintenance practices and compliance with NCAR Part-145 which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with NCAR-145.A.50.
  - 1. The maintenance procedures under this paragraph apply to NCAR-145.A.25 to NCAR-145.A.95.
  - 2. The maintenance procedures established or to be established by the organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the organisation intends to work.
  - 3. With regard to aircraft line and base maintenance, the organisation shall establish procedures to minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check. However, when only one person is available to carry out these tasks then the organisation's work card or worksheet shall include an additional stage for re-inspection of the work by this person after completion of all the same tasks.
  - 4. Maintenance procedures shall be established to ensure that damage is assessed and modifications and repairs are carried out using data approved by CAA Nepal or by a design organization acceptable to CAA Nepal, as appropriate.
- (c) The organisation shall establish a quality system that includes the following:
  - 1. Independent audits in order to monitor compliance with required aircraft/aircraft component standards and adequacy of the procedures to ensure that such procedures invoke good maintenance practices and airworthy aircraft/aircraft components. In the smallest organisations the independent audit part of the quality system may be contracted to another organisation approved under NCAR Part-145 or a person with appropriate technical knowledge and proven satisfactory audit experience; and

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2. A quality feedback reporting system to the person or group of persons specified in NCAR-145.A.30 (b) and ultimately to the accountable manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph (1).
- (d) The organization shall establish a Safety Management System (SMS) that:
- (1) Shall achieve the following objectives as a minimum:
    - (i) Identifies safety hazards;
    - (ii) Assesses the impact of these safety hazards and mitigates risks;
    - (iii) Ensures that remedial action necessary to maintain an acceptable level of safety is implemented;
    - (iv) Provides for continuous monitoring and regular assessment of the safety level achieved; and
    - (v) Aims to make continuous improvement to the overall level of safety.
  - (2) Shall meet the requirements contained in Appendix V to NCAR Part-145; and
  - (3) Shall be approved by CAA Nepal.

#### **NCAR-145.A.70 – Maintenance organisation exposition**

- (a) Maintenance organisation exposition' means the document or documents that contain the material specifying the scope of work deemed to constitute approval and showing how the organisation intends to comply with NCAR Part-145.

The organisation shall provide CAA Nepal with a maintenance organisation exposition, containing the following information:

1. A statement signed by the accountable manager confirming that the maintenance organisation exposition and any referenced associated manuals define the organisation's compliance with NCAR Part-145 and will be complied with at all times. When the accountable manager is not the chief executive officer of the organisation then such chief executive officer shall countersign the statement;
2. the organisation's safety and quality policy as specified by NCAR-145.A.65;
3. the title(s) and name(s) of the persons nominated under NCAR-145.A.30(b);
4. the duties and responsibilities of the persons nominated under NCAR-145.A.30(b), including matters on which they may deal directly with CAA Nepal on behalf of the organisation;

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5. an organisation chart showing associated chains of responsibility between the persons nominated under NCAR-145.A.30(b);
  6. a list of certifying staff and B1 and B2 support staff;
  7. a general description of manpower resources;
  8. a general description of the facilities located at each address specified in the organisation's approval certificate;
  9. a specification of the organisation's scope of work relevant to the extent of approval;
  10. the notification procedure of NCAR-145.A.85 for organisation changes;
  11. the maintenance organisation exposition amendment procedure;
  12. the procedures and quality system established by the organisation under NCAR-145.A.25 to NCAR-145.A.90;
  13. a list of commercial operators, where applicable, to which the organisation provides an aircraft maintenance service;
  14. a list of subcontracted organisations, where applicable, as specified in NCAR-145.A.75(b);
  15. a list of line stations, where applicable, as specified in NCAR-145.A.75(d);
  16. a list of contracted organisations, where applicable.
- (b) The exposition shall be amended as necessary to remain an up-to-date description of the organisation. The exposition and any subsequent amendment shall be approved by CAA Nepal.
- (c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (hereinafter called indirect approval).
- (d) The exposition shall refer to the Safety Management System Manual (SMSM).

#### **NCAR-145.A.75 – Privileges of the organisation**

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

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

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- (b) Arrange for maintenance of any aircraft or component for which it is approved at another organisation that is working under the quality system of the organisation. This refers to work being carried out by an organisation not itself appropriately approved to carry out such maintenance under NCAR Part-145 and is limited to the work scope permitted under NCAR-145.A.65 (b) procedures. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or 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 NCAR-145.A.50.

#### **NCAR-145.A.80 – Limitations on the organisation**

The organisation shall only maintain an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available.

#### **NCAR-145.A.85 – Changes to the organisation**

The organisation shall notify CAA Nepal of any proposal to carry out any of the following changes before such changes take place to enable CAA Nepal to determine continued compliance with NCAR Part-145 and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes must be notified at the earliest opportunity:

1. the name of the organisation;
2. the main location of the organisation;
3. additional locations of the organisation;
4. the accountable manager;
5. any of the persons nominated under NCAR-145.A.30(b);

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6. the facilities, equipment, tools, material, procedures, work scope or certifying staff that could affect the approval.

**NCAR-145.A.90 – Continued validity**

- (a) An approval shall be issued and renewed for a maximum period of one year. It shall remain valid subject to:
1. the organisation remaining in compliance with NCAR Part-145, in accordance with the provisions related to the handling of findings as specified under NCAR-145.A.B.40; and
  2. CAA Nepal being granted access to the organisation to determine continued compliance with NCAR Part-145; and
  3. the certificate not being surrendered or revoked.
- (b) Upon surrender or revocation, the approval shall be returned to CAA Nepal.

**NCAR-145.A.95 – Findings**

- (a) A level 1 finding is any significant non-compliance with NCAR Part-145 requirements which lowers the safety standard and hazards seriously the flight safety.
- (b) A level 2 finding is any non-compliance with the NCAR Part-145 requirements which could lower the safety standard and possibly hazard the flight safety.
- (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 CAA Nepal within a period agreed with CAA Nepal.

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**SECTION B-PROCEDURE FOR CAA NEPAL**

**NCAR-145.B.1 Scope**

This section establishes the administrative procedures which CAA Nepal shall follow when exercising its tasks and responsibilities regarding issuance, continuation, change, suspension or revocation of NCAR Part-145 maintenance organisation approvals.

**NCAR-145.B.10 Competent Authority**

For the purpose of NCAR Part-145, Competent Authority shall be for organizations having their principal place of business in Nepal shall be the Civil Aviation Authority of Nepal (CAA Nepal).

**1. General**

CAA Nepal shall establish documented procedures and an organisational structure.

**2. Resources**

The number of staff must be appropriate to carry out the requirements as detailed in this section.

**3. Qualification and training**

All staff involved in NCAR Part-145 approvals must:

- (a) be appropriately qualified and have all necessary knowledge, experience and training to perform their allocated tasks.
- (b) have received training/continuation training on NCAR Part-145 where relevant, including its intended meaning and standard.

**4. Procedures**

CAA Nepal shall establish procedures detailing how compliance with this Section B is accomplished.

The procedures must be reviewed and amended to ensure continued compliance.

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#### Section B-Procedure for CAA Nepal

#### NCAR-145.B.15 Reserved

Reserved

#### NCAR-145.B.17 Applicable Means of Compliance

CAA Nepal shall develop acceptable means of compliance that may be used to ensure compliance with NCAR Part-145. When acceptable means of compliance has been complied with, the related requirements of NCAR Part-145 shall be considered as met.

#### NCAR-145.B.20 Initial approval

1. Provided the requirements of NCAR-145.A.30 (a) and (b) are complied with, CAA Nepal shall formally indicate its acceptance of the personnel, specified in NCAR-145.A.30 (a) and (b), to the applicant in writing.
2. CAA Nepal shall verify that the procedures specified in the maintenance organisation exposition comply with NCAR Part-145 and verify that the accountable manager signs the commitment statement.
3. CAA Nepal shall verify that the organisation is in compliance with the requirements of NCAR Part-145.
4. A meeting with the accountable manager shall be convened at least once during the investigation for approval to ensure that he/she fully understands the significance of the approval and the reason for signing the exposition commitment of the organisation to compliance with the procedures specified in the exposition.
5. All findings must be confirmed in writing to the organisation.
6. CAA Nepal shall record all findings, closure actions (actions required to close a finding) and recommendations.
7. For initial approval all findings must be corrected before the approval can be issued.

#### NCAR-145.B.25 Issue of approval

1. CAA Nepal shall formally approve the exposition and issue to the applicant a CAAN Form 3 approval certificate, which includes the approval ratings. CAA Nepal shall only issue a certificate when the organisation is in compliance with NCAR Part-145.
2. CAA Nepal shall indicate the conditions of the approval on CAAN Form 3 approval certificate.



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#### Section B-Procedure for CAA Nepal

3. The reference number shall be included on CAAN Form 3 approval certificate in a manner specified by CAA Nepal.

#### **NCAR-145.B.30 Continuation of an approval**

The continuation of an approval shall be monitored in accordance with the applicable 'initial approval' process under NCAR-145.B.20. In addition:

1. CAA Nepal shall keep and update a program listing the approved maintenance organisations under its supervision, the dates when audit visits are due and when such visits were carried out.
2. Each organisation must be completely reviewed for compliance with NCAR Part-145 at periods not exceeding 24 months.
3. A meeting with the accountable manager shall be convened at least once every 24 months to ensure he/she remains informed of significant issues arising during audits.

#### **NCAR-145.B.35 Changes**

1. CAA Nepal shall receive notification from the organisation of any proposed change as listed in NCAR-145.A.85.

CAA Nepal shall comply with the applicable elements of the initial process paragraphs for any change to the organisation.

2. CAA Nepal may prescribe the conditions under which organisation may operate during such changes unless it determines that the approval should be suspended.

#### **NCAR-145.B.40 Maintenance organisation exposition (MOE) amendments**

1. In the case of direct approval of the amendments of the exposition, CAA Nepal shall verify that the procedures specified in the exposition are in compliance with NCAR Part-145 before formally notifying the approved organisation of the approval.
2. In the case of indirect approval of amendments of the exposition, CAA Nepal shall ensure that it has an adequate control over the approval of all exposition amendments.

#### **NCAR-145.B.45 Revocation, suspension and limitation of approval**

CAA Nepal shall:

- (a) suspend an approval on reasonable grounds in the case of potential safety threat; or
- (b) suspend, revoke or limit an approval pursuant to NCAR-145.B.50.

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#### Chapter 1

#### Section B-Procedure for CAA Nepal

#### NCAR-145.B.50 Findings

- (a) When during audits or by other means evidence is found showing non-compliance with the requirements of NCAR Part-145, CAA Nepal shall take the following actions:
1. For level 1 findings, immediate action shall be taken by CAA Nepal to revoke, limit or suspend in whole or in part, depending upon the extent of the level 1 finding, the maintenance organisation approval, until successful corrective action has been taken by the organisation.
  2. For level 2 findings, the corrective action period granted by CAA Nepal must be appropriate to the nature of the finding but in any case initially must not be more than three months. In certain circumstances and subject to the nature of the finding CAA Nepal may extend the three month period subject to a satisfactory corrective action plan agreed by CAA Nepal.
- (b) Action shall be taken by CAA Nepal to suspend in whole or part the approval in case of failure to comply within the timescale granted by CAA Nepal.

#### NCAR-145.B.55 Record-keeping

1. CAA Nepal shall establish a system of record-keeping with minimum retention criteria that allows adequate traceability of the process to issue, continue, change, suspend or revoke each individual organisation approval.
2. The records shall include as a minimum:
  - (a) the application for an organisation approval, including the continuation thereof.
  - (b) CAA Nepal continued oversight program including all audit records.
  - (c) the organisation approval certificate including any change thereto.
  - (d) a copy of the audit program listing the dates when audits are due and when audits were carried out.
  - (e) copies of all formal correspondence including CAAN Form 4 or equivalent.
  - (f) details of any exemption and enforcement action(s).
  - (g) any other CAA Nepal audit report forms. maintenance organisation expositions.
3. The minimum retention period for the above records shall be four years.

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**Section B-Procedure for CAA Nepal**

4. CAA Nepal may elect to use either a paper or computer system or any combination of both subject to appropriate controls.

**NCAR-145.B.60 Exemptions**

All exemptions granted by CAA Nepal shall be recorded and retained by CAA Nepal.

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**Appendix I**

**Use of the CAAN Form 1 for maintenance**

**1. GENERAL**

The certificate shall comply with the format attached including block numbers in that each block must be located as per the layout. 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. The overall size of the certificate may be significantly increased or decreased so long as the certificate remains recognisable and legible. If in doubt consult CAA Nepal.

All printing shall be clear and legible to permit easy reading.

The certificate shall either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible. Pre-printed wording is permitted in accordance with the attached model but no other certification statements are permitted.

Completion of the certificate shall be in English.

The details to be entered on the certificate can be either machine/computer printed or handwriting using block letters and must permit easy reading.

Abbreviations must be restricted to a minimum.

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.

The original certificate must accompany the items and correlation must be established between the certificate and the items. A copy of the certificate must be retained by the organisation that manufactured or maintained the item. Where the certificate format and data is entirely computer generated, subject to acceptance by CAA Nepal, it is permissible to retain the certificate format and data on a secure database.

Where a single certificate was used to release a number of items and those items are subsequently separated out from each other, such as through a parts distributor, then a copy of the original certificate must accompany such items and the original certificate must be retained by the organisation that received the batch of items. Failure to retain the original certificate could invalidate the release status of the items.

**NOTE:** *There is no restriction in the number of copies of the certificate sent to the customer or retained by the originator.*

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The certificate that accompanies the item may be attached to the item by being placed in an envelope for durability.

**2. COMPLETION OF THE RELEASE CERTIFICATE BY THE ORIGINATOR**

Except as otherwise stated, there must be an entry in all blocks to make the document a valid certificate.

Block 1 The name “CIVIL AVIATION AUTHORITY OF NEPAL” under whose approval the certificate is issued.

Block 2 Pre-printed `Authorised Release certificate/CAAN Form 1`.

Block 3 A unique number shall be pre-printed in this block for certificate control and traceability purposes except that in the case of a computer generated document, the unique number need not be pre-printed where the computer is programmed to produce the number.

Block 4 The full name and address plus mailing address if different of the approved organisation releasing the items covered by this certificate. This block may be pre-printed. Logos, etc., are permitted if the logo can be contained within the block.

Block 5 Its purpose is to reference work order/contract/invoice or any other internal organisational process such that a fast traceability system can be established.

Block 6 This block is provided for the convenience of the organisation issuing the certificate to permit easy cross reference to the 'Remarks' Block 13 by the use of item numbers. Completion is not mandatory.

Where a number of items are to be released on the certificate, it is permissible to use a separate listing cross-referring certificate and list to each other.

Block 7 The name or description of the item shall be given. Preference shall be given to use of the Illustrated Parts Catalogue (IPC) designation.

Block 8 State the Part Number. Preference shall be given to use of the IPC number designation.

Block 9 Used to indicate the Type-Approved products for which the released items are eligible for installation. Completion of block is optional but if used, the following entries are permitted:

- (a) The specific or series aircraft, engine, propeller or auxiliary power unit model, or a reference to a readily available catalogue or manual which contains such information, for example: `A300`.

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- (b) 'Various', if known to be eligible for installation on more than one model of Type-Approved product, unless the originator wishes to restrict usage to a particular model installation when it shall so state.
- (c) 'Unknown', if eligibility is unknown, this category being primarily for use by maintenance organisations.

**NOTE:** *Any information in Block 9 does not constitute authority to fit the item to a particular aircraft, engine, propeller or auxiliary power unit. The User/installer shall confirm via documents such as the Parts Catalogue, Service Bulletins, etc. that the item is eligible for the particular installation.*

Block 10 State the number of items being released.

Block 11 State the item Serial Number and/or Batch Number if applicable, if neither is applicable, state 'N/A'.

Block 12 The following words in quotation marks, with their definitions, indicate the status of the item being released. One or a combination of these words shall be stated in this block:

1. "OVERHAULED"

The restoration of a used item by inspection, test and replacement in conformity with an approved standard (\*) to extend the operational life.

2. "INSPECTED/TESTED"

The examination of an item to establish conformity with an approved standard (\*).

3. "MODIFIED"

The alteration of an item in conformity with an approved standard (\*).

4. "REPAIRED"

The restoration of an item to a serviceable condition in conformity with an approved standard (\*).

5. "RETREADED"

The restoration of a used tyre in conformity with an approved standard (\*).

6. "REASSEMBLED"

The reassembly of an item in conformity with an approved standard (\*).

Example: A propeller after transportation.

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NOTE: *This provision shall only be used in respect of items which were originally fully assembled by the manufacturer in accordance with manufacturing requirements, such as, but not limited to that of the CAA Nepal requirements.*

(\*) Approved Standard means a manufacturing/design/maintenance/quality standard approved by CAA Nepal.

The above statements shall be supported by reference in Block 13 to the approved data/manual/specification used during maintenance.

Block 13 It is mandatory to state any information in this block either direct or by reference to supporting documentation that identifies particular data or limitations relating to the items being released that are necessary for the User/ installer to make the final airworthiness determination of the item. Information shall be clear, complete, and provided in a form and manner which is adequate for the purpose of making such a determination.

Each statement shall be clearly identified as to which item it relates.

If there is no statement, state 'None'.

Some examples of the information to be quoted are as follows:

- The identity and issue of maintenance documentation used as the approved standard.
- Airworthiness Directives carried out and/or found carried out, as appropriate.
- Repairs carried out and/or found carried out, as appropriate.
- Modifications carried out and/or found carried out, as appropriate.
- Replacement Parts installed and/or Parts found installed, as appropriate.
- Life limited Parts history.
- Deviations from the customer work order.
- Identity of other regulation if not NCAR Part-145.
- Release statements to satisfy a foreign maintenance requirement.
- Release statements to satisfy the conditions of an international maintenance agreement.

Blocks 14, 15, 16, 17 & 18: Must not be used for maintenance tasks by NCAR Part-145 approved maintenance organisations. These blocks are specifically reserved for

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the release/certification of newly manufactured items in accordance with standards acceptable to CAA Nepal.

Block 19 Contains the required release to service statement for all maintenance by NCAR Part-145 approved maintenance organisations. When non NCAR Part-145 maintenance is being released block 13 shall specify the particular national regulation. In any case the appropriate box shall be 'ticked' to validate the release.

The certification statement 'except as otherwise specified in block 13' is intended to address the following situations;

- (a) The case where the maintenance could not be completed.
- (b) The case where the maintenance deviated from the standard required by NCAR Part-145.
- (c) The case where the maintenance was carried out in accordance with a non NCAR Part-145 requirement.

Whichever case or combination of cases shall be specified in block 13.

Block 20 For the signature of the certifying staff authorised by the NCAR Part-145 approved maintenance organisation. This signature can be computer printed subject to CAA Nepal being satisfied that only the signatory can direct the computer and that a signature is not possible on a blank computer generated form.

Block 21 The NCAR Part-145 approved maintenance organisation reference number given by CAA Nepal.

Block 22 The printed name of the Block 20 signatory and personal authorisation reference.

Block 23 The date of signing the Block 19 release to service. (d/m/y). The month shall appear in letters e.g. Jan, Feb, Mar etc. The release to service shall be signed at the 'completion of maintenance'.

Please note the User Responsibility Statements are on the reverse of this certificate. These statements may be added to the front of the certificate below the bottom line by reducing the depth of the form.



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1. <b>CIVIL AVIATION AUTHORITY OF NEPAL</b>		2. <b>AUTHORISED RELEASE CERTIFICATE CAAN FORM 1</b>			3. Form Tracking Number	
4. Approved Organisation Name and Address:					5. Work order/Contract/ Invoice	
6. Item	7. Description	8. Part No	9. Eligibility*	10. Qty.	11. Serial/Batch No	12. Status/Work
13. Remarks						
14. Certifies that the items identified above were manufactured in conformity to: <input type="checkbox"/> approved design data and are in condition for safe operation <input type="checkbox"/> non-approved design data specified in block 13		19. <input type="checkbox"/> NCAR-145.50 Release to Service <input type="checkbox"/> Other regulation specified in block 13 Certifies that unless otherwise specified in block 13, the work identified in block 12 and described in block 13, was accomplished in accordance with NCAR Part-145 and in respect to that work the items are considered ready for release to service.				
15. Authorised Signature		16. Approval/ Authorisation Number		20. Authorised Signature		21. Certificate/Approval Ref. No
17. Name		18. Date (d/m/y)		22. Name		23. Date (d/m/y)
CAAN Form 1				* Installer must cross-check eligibility with applicable technical data		

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#### AUTHORISED RELEASE CERTIFICATE

#### CAAN Form 1

#### USER/INSTALLER RESPONSIBILITIES

Note:

1. It is important to understand that the existence of the Document alone does not automatically constitute authority to install the Part/component/assembly
2. Where the user/installer works in accordance with the national regulations of an Airworthiness Authority different from CAA Nepal specified in block 1 it is essential that the user/installer ensures that his/her Airworthiness Authority accepts Parts/components/assemblies from CAA Nepal specified in block 1.
3. Statements 14 and 19 do not constitute installation certification. In all cases the aircraft maintenance record must contain an installation certification issued in accordance with the civil aviation regulations, by the user/installer before the aircraft may be flown.

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#### Appendix II

#### Organisations approval class and rating system

1. Except as stated otherwise for the smallest organisation in paragraph 12, Table 1 outlines the full extent of approval possible under NCAR Part-145 in a standardised form. An organisation must be granted an approval ranging from a single class and rating with limitations to all classes and ratings with limitations.
2. In addition to Table 1 the NCAR Part-145 approved maintenance organisation is required by NCAR-145.A.20 to indicate scope of work in the maintenance organisation exposition. See also paragraph 11.
3. Within the approval class(es) and rating(s) granted by CAA Nepal, the scope of work specified in the maintenance organisation exposition defines the exact limits of approval. It is therefore essential that the approval class(es) and rating(s) and the organisation's scope of work are compatible.
4. A category A class rating means that the maintenance organisation approved in accordance with NCAR Part-145 may carry out maintenance on the aircraft and any component (including engines and/or Auxiliary Power Units (APUs), in accordance with aircraft maintenance data or, if agreed by CAA Nepal, in accordance with component maintenance data, only whilst such components are fitted to the aircraft. Nevertheless, such A rated maintenance organisation approved in accordance with NCAR Part-145 may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not eligible for the provisions of this paragraph. This will be subject to a control procedure in the maintenance organisation exposition acceptable to CAA Nepal. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval.
5. A category B class rating means that the NCAR Part-145 approved maintenance organisation may carry out maintenance on the uninstalled engine and/or APU and engine and/or APU components, in accordance with engine/APU maintenance data or, if agreed by the CAA Nepal, in accordance with component maintenance data, only whilst such components are fitted to the engine and/or APU. Nevertheless, such B rated maintenance organisation approved in accordance with NCAR Part-145 may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not eligible for the provisions of this paragraph. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval. A maintenance organisation approved in accordance with NCAR Part-145 with a category B class rating may also carry out maintenance on an installed engine during 'base' and 'line' maintenance subject to a control procedure in the maintenance

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organisation exposition. The maintenance organisation exposition scope of work shall reflect such activity where permitted by CAA Nepal.

6. A category C class rating means that the NCAR Part-145 approved maintenance organisation may carry out maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval.
7. A NCAR Part-145 approved maintenance organisation with a category C class rating may also carry out maintenance on an installed component during base and line maintenance or at an engine/APU maintenance facility subject to a control procedure in the maintenance organisation exposition. The maintenance organisation exposition scope of work shall reflect such activity where permitted by CAA Nepal.
8. A category D class rating is a self contained class rating not necessarily related to a specific aircraft, engine or other component. The D1 - Non-Destructive Testing (NDT) rating is only necessary for a NCAR Part-145 approved maintenance organisation that carries out NDT as a particular task for another organisation. A NCAR Part-145 approved maintenance organisation with a class rating in A or B or C category may carry out NDT on products it is maintaining subject to the maintenance organisation exposition containing NDT procedures, without the need for a D1 class rating.
9. Category A class ratings are subdivided into 'Base' or 'Line' maintenance. A NCAR Part-145 approved maintenance 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.
10. The 'limitation' section is intended to give CAA Nepal maximum flexibility to customise the approval to a particular organisation. Table 1 specifies the types of limitation possible and whilst maintenance is listed last in each class rating it is acceptable to stress the maintenance task rather than the aircraft or engine type or manufacturer, if this is more appropriate to the organisation. An example could be avionic systems installations and maintenance.
11. Table 1 makes reference to series, type and group in the limitation section of class A and B. Series means a specific type series such as Airbus 300 or 310 or 319 or Boeing 737-300 series or RB211-524 series etc. Type means a specific type or model such as Airbus 310-240 type or RB 211-524 B4 type etc. Any number of series or types may be quoted. Group means for example Cessna single piston engined aircraft or Lycoming non-supercharged piston engines etc.
12. When a lengthy capability list is used which could be subject to frequent amendment, then such amendment shall be in accordance with a procedure acceptable to CAA Nepal and included in the maintenance organisation exposition. The procedure shall

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### Chapter 1: Regulation

address the issues of who is responsible for capability list amendment control and the actions that need to be taken for amendment. Such actions include ensuring compliance with NCAR Part-145 for products or services added to the list.

13. A NCAR Part-145 approved maintenance organisation which employs only one person to both plan and carry out all maintenance can only hold a limited scope of approval rating. The maximum permissible limits are:

CLASS AIRCRAFT	RATING A2 AEROPLANES	PISTON ENGINED LINE & BASE 5,700 KG AND BELOW
CLASS AIRCRAFT	RATING A2 AEROPLANES	TURBINE ENGINED LINE 5,700 KG AND BELOW
CLASS AIRCRAFT	RATING A3 HELICOPTERS	SINGLE ENGINED LINE & BASE LESS THAN 3 175 KG
CLASS AIRCRAFT	RATING A4 AIRCRAFT OTHER THAN A1, A2 AND A3	NO LIMITATION
CLASS ENGINES	RATING B2 PISTON	LESS THAN 450 HP
CLASS COMPONENTS RATING OTHER THAN COMPLETE ENGINES OR APUs	C1 TO C20	AS PER CAPABILITY LIST
CLASS SPECIALISED	D1 NDT	NDT METHOD(S) TO BE SPECIFIED

It should be noted that such an organisation may be further limited by CAA Nepal in the scope of approval dependent upon the capability of the particular organisation.

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**Table 1**

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes/ above 5,700 kg	Will state aeroplane/series or type and/or the maintenance task(s)		
	A2 Aeroplanes/ 5,700 kg and below	Will state aeroplane/manufacturer or group or series or type and/or the maintenance tasks		
	A3 Helicopters	Will state helicopter manufacturer or group or series or type and/or the maintenance task(s)		
	A4 Aircraft other than A1, A2 and A3	Will state aircraft series or type and/or the maintenance task(s)		
ENGINES	B1 Turbine	Will state engine series or type and/or the maintenance task(s)		
	B2 Piston	Will state engine manufacturer or group or series or type and/or the maintenance task(s)		
	B3 APU	Will state engine manufacturer or series or type and/or the maintenance task(s)		
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond & Press	Will state 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 task(s)		
	C2 Auto Flight			
	C3 Comms and Nav			
	C4 Doors Hatches			
	C5 Electrical Power			
	C6 Equipment			
	C7 Engine – APU			
	C8 Flight Controls			
	C9 Fuel – Airframe			
	C10 Helicopter – Rotors			
	C11 Helicopter – Trans			
	C12 Hydraulic			
	C 13 Instruments			
	C14 Landing Gear			
	C15 Oxygen			
	C16 Propellers			
	C17 Pneumatic			
	C18 Protection ice/rain/fire			
	C19 Windows			
	C20 Structural			
SPECIALISED SERVICES	D1 Non-Destructive Testing	Will state particular NDT method(s)		

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

Chapter 1: Regulation

### Appendix III – Approval certificate

CAAN Form 3

Page 1 of 2

## CIVIL AVIATION AUTHORITY OF NEPAL

### APPROVAL CERTIFICATE

**Reference: CAAN.145.XXX**

Pursuant to Civil Aviation Regulation/Act and NCAR-145 for the time being in force and subject to conditions specified below, Civil Aviation Authority of Nepal certifies:

**(COMPANY NAME)**

(Company Address)

As a NCAR Part- 145 maintenance organization approved to maintain the products listed in the attached approval schedule 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 approval section of NCAR Part- 145 approved maintenance organization exposition, and
2. This approval requires compliance with the procedures specified in NCAR Part- 145 approved maintenance organization exposition, and
3. This approval is valid whilst the approve maintenance organization remains in compliance with NCAR Part-145.
4. Subject to the date of expiry of the certificate and compliance with the foregoing conditions, this approval shall remain valid until the approval is surrendered, superseded, suspended or revoked.

**Date of Issue:**.....

**Signed**.....

**Date of Expiry**.....

**for CAA Nepal**

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 1: Regulation

CAAN Form 3

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## APPROVAL SCHEDULE

**ORGANISATION:** (COMPANY NAME)

**REFERENCE:** CAAN.145.XXX

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Airplanes above 5700 kgs.	DHC-8/200 Series	X	X
	A2 Airplanes/Airships 5700 kgs and below.	DHC-6 Twin Otter Series	X	
ENGINES	B1 Turbine	PT6A Series		
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond. and Press.	DHC-8/200		
	C2 Auto Pilot	Sperry		
	C5 Electrical Power	DHC-6 Twin Otter		
	C6 Equipment	DHC-6 Emergency		
	C7 Engines-APUs	PT6A Fuel Control		
	C16 Propeller	Fixed Pitch and DHC-6		
SPECIALIZED SERVICES	D1 Non destructive inspection	All Types		

The approval schedule is limited to those products and activities specified in the scope of approval section contained in NCAR Part-145 approved maintenance organization exposition.

Reference:.....

**Date of Issue:**.....

**Signed**.....

**Date of Expiry**.....

**for CAA Nepal**



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## Approved Maintenance Organizations NCAR Part-145

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#### Appendix IV

#### **Conditions for the use of staff not qualified to NCAR Part-66 in accordance with NCAR-145A.30(J)1 and 2**

1. Certifying staff in compliance with the following conditions will meet the intent of NCAR-145.A.30(j)(1) and (2):
  - (a) The person shall hold a licence or a certifying staff authorisation issued under the country's 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 authorisation.
  - (c) The person shall demonstrate he has received training on human factors and airworthiness regulations as detailed in NCAR Part-66.
  - (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 NCAR Part-66 category A certifying staff, need to demonstrate three years maintenance experience only.
  - (e) Line maintenance certifying staff and base maintenance support staff shall receive type training at a level corresponding to NCAR Part-66 Appendix III level 3 for every aircraft on which they are authorised to make certification. However those persons whose authorised tasks do not exceed those of a NCAR Part-66 Category A certifying staff may receive task training in lieu of complete type training.
  - (f) Base maintenance certifying staff must receive type training at a level corresponding to at least NCAR Part-66 Appendix III level 1 for every aircraft on which they are authorised to make certification.
2. Protected rights

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#### Appendix V

#### Safety Management System

##### 1. Scope

This appendix establishes the minimum requirements Safety Management System of maintenance organization complying with NCAR Part- 145 should meet. The maintenance organization may wish to follow more stringent requirements.

##### 2. Definitions

**Acceptable level of safety** means minimum safety performance that a maintenance organisation should achieve while conducting their core business functions, expressed by a number of safety performance indicators and safety performance targets.

**Accountability** means obligation or willingness to account for one's actions.

**Accountable Executive** means a single, identifiable person which might be a Chief Executive Officer, a Chairperson Board of Directors, a partner or a proprietor who has full responsibility for the organization's SMS and have full authority for human resources issues, major financial issues, direct responsibility for the conduct of the organization's affairs, final authority over operations under certificate, and final responsibility for all safety issues.

**Consequence** means potential outcome(s) of the hazard.

**Hazard** means condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

**Mitigation** means measures to address the potential hazard or to reduce the risk probability or severity.

**Predictive** means a method that captures system performance as it happens in real-time normal operations.

**Proactive** means the adoption of an approach which emphasizes prevention through the identification of hazards and the introduction of risk mitigation measures before the risk-bearing event occurs and adversely affects safety performance.

**Probability** means the likelihood that an unsafe event or condition might occur.

**Reactive** means the adoption of an approach where safety measurement is as a responds to the events that already happened, such as incidents and accidents.

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**Risk** means the assessment, expressed in terms of predicted probability and severity, of the consequence(s) of a hazard taking as reference the worst foreseeable situation.

**Risk management** means the identification, analysis and elimination, and/or mitigation to an acceptable level of risks that threaten the capabilities of an organization.

**Safety** means the state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.

**Safety assessment** means a systematic analysis of a proposed change to equipment or procedures to identify and mitigate weaknesses before change is implemented.

**Safety assurance** means what the maintenance organisation do with regard to safety performance monitoring and measurement.

**Safety audit** means what the Civil Aviation Authority performs with regard to its safety programme, and the maintenance organisations perform with regard to the SMS.

**Safety Management System (SMS)** means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

**Safety manager** means a person who is responsible for providing guidance and direction for the operation of the organization's safety management system.

**Safety oversight** means the activities of Civil Aviation Authority as part of its safety programme, performed with regard to the maintenance organisation SMS, in order to confirm the organization's continuing fulfillment of its corporate safety policy, objectives, goals and standards.

**Safety performance indicator** means established objectives of a maintenance organisation SMS, linked to major components of a services provider SMS, and expressed in numerical terms.

**Safety performance monitoring** means the activities of a maintenance organization as part of its SMS, in order to confirm the organization's continuing fulfillment of its corporate safety policy, objectives, goals and standards.

**Safety performance target** means medium or long-term objectives of a maintenance organisation SMS, determined weighing what is desirable and what is realistic for an individual services provider, and expressed in numerical terms.

**Safety policy** means a statement reflecting the organization's philosophy of safety

# Nepalese Civil Airworthiness Requirements

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management, and become the foundation on which the organization's SMS is built. The safety policy outlines the methods and processes that the organization will use to achieve desired safety outcomes.

**Safety programme** means an integrated set of regulations and activities aimed at improving safety.

**Safety requirement** means the operational procedures, technology, systems and programmes to which measures of reliability, availability, performance and/or accuracy can be specified.

**Severity** means the possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation.

**System** means organized set of processes and procedures.

**Systematic** means that safety management activities will be conducted in accordance with a pre-determined plan, and applied in a consistent manner throughout the organization.

### 3. General

The maintenance organisation shall establish, maintain and adhere to a Safety Management System (SMS) that is appropriate to the size, nature and complexity of its scope of work and the safety hazards and risks related to it.

### 4. Safety policy and objectives

#### 4.1 General requirements

- (1) A maintenance organisation shall define the organization's safety policy.
- (2) The safety policy shall be signed by the Accountable Executive of the organization.
- (3) The safety policy shall be in accordance with all applicable legal requirements and international standards, best industry practices and shall reflect organizational commitments regarding safety.
- (4) The safety policy shall be communicated, with visible endorsement, throughout the organization.
- (5) The safety policy shall include a clear statement about the provision of the necessary human and financial resources for its implementation.

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- (6) The safety policy shall, among other things, include the following objectives:
  - (a) Commitment to implement an SMS;
  - (b) Commitment to continual improvement in the level of safety;
  - (c) Commitment to the management of safety risks;
  - (d) Commitment to encourage employees to report safety issues;
  - (e) Establishment of clear standards for acceptable behaviour; and
  - (f) Identification of responsibilities of management and employees with respect to safety performance.
- (7) The safety policy shall be reviewed periodically to ensure it remains relevant and appropriate to the organization.
- (8) A maintenance organisation shall establish safety objectives for the SMS.
- (9) The safety objectives should be linked to the safety performance indicators, safety performance targets and safety requirements of the maintenance organisationr SMS.

#### 4.2 Organizational structure and responsibilities

- (1) A maintenance organisation shall identify an Accountable Executive to be responsible and accountable on behalf of the maintenance organisationr for meeting the requirements of this regulation, and shall notify CAA Nepal the name of the person.
- (2) The Accountable Executive shall be a single, identifiable person who, irrespective of other functions, shall have the ultimate responsibility for the implementation and maintenance of the SMS.
- (3) The Accountable Executive shall have:
  - (a) Full control of the human resources required for the work authorized to be conducted under the maintenance organization approval;
  - (b) Full control of the financial resources required for the work authorized to be conducted under the maintenance organization approval;
  - (c) Final authority over the work authorized to be conducted under the maintenance organization approval;
  - (d) Direct responsibility for the conduct of the organization's affairs; and
  - (e) Final responsibility for all safety issues.
- (4) A maintenance organisation shall establish the safety structure necessary for the implementation and maintenance of the organization's SMS.
- (5) A maintenance organisation shall identify the safety responsibilities of all members of senior management, irrespective of other responsibilities.

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- (6) Safety-related positions, responsibilities and authorities shall be defined, documented and communicated throughout the organization.
- (7) A maintenance organisation shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the development and maintenance of an effective SMS.
- (8) The Safety Manager shall:
  - (a) Ensure that processes needed for the SMS are established, implemented and maintained;
  - (b) Report to the Accountable Executive on the performance of the SMS and on any need for improvement; and
  - (c) Ensure safety promotion throughout the organization.

#### 4.3 SMS implementation plan

- (1) A maintenance organisation shall develop and maintain an SMS implementation plan.
- (2) The SMS implementation plan shall be the definition of the approach the organization will adopt for managing safety in a manner that will meet the organization's safety needs.
- (3) The SMS implementation plan shall include the following:
  - (a) Safety policy and objectives;
  - (b) Safety planning,
  - (c) System description;
  - (d) Gap analysis;
  - (e) SMS components;
  - (f) Safety roles and responsibilities;
  - (g) Safety reporting policy;
  - (h) Means of employee involvement;
  - (i) Safety training;
  - (j) Safety communication;
  - (k) Safety performance measurement; and
  - (l) Management review of safety performance.
- (4) The SMS implementation plan shall be endorsed by senior management of the organization.
- (5) A maintenance organisation shall, as part of the development of the SMS implementation plan, complete a system description.
- (6) The system description shall include the following:
  - (a) The system interactions with other systems in the air transportation system;

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- (b) The system functions;
  - (c) Required human performance considerations of the system operation;
  - (d) Hardware components of the system;
  - (e) Software components of the system;
  - (f) Related procedures that define guidance for the operation and use of the system;
  - (g) Operational environment; and
  - (h) Contracted and purchased products and services.
- (7) A maintenance organisation shall, as part of the development of the SMS implementation plan, complete a gap analysis, in order to:
- (a) identify the safety arrangements and structures that may be already exist throughout an organization; and
  - (b) determine additional safety arrangements required to implement and maintain the organization's SMS.
- (8) The SMS implementation plan shall explicitly address the coordination between the SMS of the maintenance organisation and the SMS of other organizations the maintenance organisation must interface with during the provision of services.

#### 4.4 Coordination of emergency response planning

A maintenance organisation shall develop and maintain, or coordinate, as appropriate, an emergency response/contingency plan that shall ensure:

- (1) Orderly and efficient transition from normal to emergency situation;
- (2) Designation of emergency authority;
- (3) Assignment of emergency responsibilities;
- (4) Coordination of efforts to cope with the emergency; and
- (5) Safe continuation of its activities, or return to normal activities as soon as possible.

#### 4.5 Documentation

- (1) A maintenance organisation shall develop and maintain SMS documentation, in paper or electronic form, to describe the following:
- (a) Safety policy;
  - (b) Safety objectives;
  - (c) SMS requirements, procedures and processes;
  - (d) Responsibilities and authorities for procedures and processes; and
  - (e) SMS outputs.

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- (2) A maintenance organisation shall, as part of the SMS documentation, develop and maintain a Safety Management System Manual (SMSM), to communicate the organization's approach to safety throughout the organization.
- (3) The SMSM shall document all aspects of the SMS, and its contents shall include the following:
  - (a) Scope of the Safety Management System;
  - (b) Safety policy and objectives;
  - (c) Safety accountabilities;
  - (d) Key safety personnel;
  - (e) Documentation control procedures;
  - (f) Hazard identification and risk management schemes;
  - (g) Safety performance monitoring;
  - (h) Emergency response/contingency planning;
  - (i) Management of change; and
  - (j) Safety promotion.

## 5. Safety risk management

### 5.1 General

- (1) A maintenance organisation shall develop and maintain Safety Data Collection and Processing systems (SDCPS) that provide for the identification of hazards and the analysis, assessment and mitigation of safety risks.
- (2) A maintenance organisation's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

### 5.2 Hazard identification

- (1) A maintenance organisation shall develop and maintain formal means for effectively collecting, recording, acting on and generating feedback about hazards in its activities, which combine reactive, proactive and predictive methods of safety data collection. Formal means of safety data collection shall include mandatory, voluntary and confidential reporting systems.
- (2) The hazard identification process shall include the following steps:
  - (a) Reporting of hazards, events or safety concerns;
  - (b) Collection and storing the safety data;
  - (c) Analysis of the safety data; and
  - (d) Distribution of the safety information distilled from the safety data.



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#### 5.3 Risk management

- (1) A maintenance organisation shall develop and maintain a formal risk management process that ensures the analysis, assessment and mitigation of risks of consequences of hazards to an acceptable level.
- (2) The risks of the consequences of each hazard identified through the hazard identification processes described in section 7.2 of this regulation shall be analysed in terms of probability and severity of occurrence, and assessed for their tolerability.
- (3) The organization shall define the levels of management with authority to make safety risk tolerability decisions.

#### 6. Safety assurance

##### 6.1 General

- (1) A maintenance organisation shall develop and maintain safety assurance processes to ensure that the safety risks controls developed as a consequence of the hazard identification and risk management activities under paragraph 7 achieve their intended objectives.
- (2) Safety assurance processes shall apply to an SMS whether the activities are accomplished internally or outsourced.

##### 6.2 Safety performance monitoring and measurement

- (1) A maintenance organisation shall, as part of the SMS safety assurance activities, develop and maintain the necessary means to verify safety performance of the organization in comparison with the approved safety policies and objectives, and to validate the effectiveness of implemented safety risk controls.
- (2) Safety performance monitoring and measurement means shall include the following:
  - (a) Safety reporting;
  - (b) Safety audits;
  - (c) Safety surveys;
  - (d) Safety reviews;
  - (e) Safety studies; and
  - (f) Internal safety investigations.
- (3) The safety reporting procedure shall set out the conditions to ensure effective safety reporting, including the conditions under protection from

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disciplinary/administrative action shall apply.

#### 6.3 Management of change

- (1) A maintenance organisation shall, as part of the SMS safety assurance activities, develop and maintain a formal process for the management of change.
- (2) The formal process for the management of change shall:
  - (a) Identify changes within the organization which may affect established processes and services;
  - (b) Describe the arrangements to ensure safety performance before implementing changes; and
  - (c) Eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.

#### 6.4 Continuous improvement of the safety system

- (1) A maintenance organisation shall, as part of the SMS safety assurance activities, develop and maintain formal processes to identify the causes of under-performance of the SMS, determine the implications in its operation, and to rectify situations involving below standard performance in order to ensure the continual improvement of the SMS.
- (2) Continuous improvement of the maintenance organisation SMS shall include:
  - (a) Proactive and reactive evaluations of facilities, equipment, documentation and procedures, to verify the effectiveness of strategies for control of safety risks; and
  - (b) Proactive evaluation of the individuals' performance, to verify the fulfillment of safety responsibilities.

### 7. Safety promotion

#### 7.1 General

A maintenance organisation shall develop and maintain formal safety training and safety communication activities to create an environment where the safety objectives of the organization can be achieved.

#### 7.2 Safety training

- (1) A maintenance organisation shall, as part of its safety promotion activities, develop and maintain a safety training programme that ensures that personnel are trained and competent to perform the SMS duties.

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- (2) The scope of the safety training shall be appropriate to the individual's involvement in the SMS.
- (3) The Accountable Executive shall receive safety awareness training regarding:
  - (a) Safety policy and objectives;
  - (b) SMS roles and responsibilities; and
  - (c) Safety assurance.

#### 7.3 Safety communication

- (1) A maintenance organisation shall, as part of its safety promotion activities, develop and maintain formal means for safety communication, to:
  - (a) Ensure that all staff is fully aware of the SMS;
  - (b) Convey safety critical information;
  - (c) Explain why particular safety actions are taken;
  - (d) Explain why safety procedures are introduced or changed; and
  - (e) Convey generic safety information.
- (2) Formal means of safety communication shall include:
  - (a) Safety policies and procedures;
  - (b) News letters; and
  - (c) Bulletins.

#### 7.4 Quality policy

A maintenance organisation shall ensure that the organization quality policy is consistent with, and supports the fulfillment of the activities of the SMS.

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### CHAPTER 2

#### ACCEPTABLE MEANS OF COMPLIANCE to NCAR Part-145

This Chapter contains Acceptable Means of Compliance (AMC) to NCAR Part-145 Chapter 1 –Requirements. Acceptable Means of Compliance (AMC) illustrate a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met.

#### SECTION A

#### TECHNICAL REQUIREMENTS

##### AMC 145.A.10 – Scope

1. *Line Maintenance* should be understood as any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight.
  - (a) 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.
    - Scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do 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.
    - Minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means.
  - (b) For temporary or occasional cases (AD's, SB's) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled as defined by CAA Nepal.
  - (c) Maintenance tasks falling outside these criteria are considered to be Base Maintenance.

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#### Section A-AMC to Technical Requirements

- (d) Aircraft maintained in accordance with "progressive" type programmes should be individually assessed in relation to this Para. In principle, the decision to allow some "progressive" checks to be carried out should be determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.
2. Where the organisation uses facilities such as satellite facilities, sub-contractors, line stations etc., such facilities may be included in the approval without being identified on the approval certificate subject to the maintenance organisation exposition identifying the facilities and containing procedures to control such facilities and CAA Nepal being satisfied that they form an integral part of the approved maintenance organisation.

#### AMC 145.A.15 – Application

In a form and in a manner prescribed by CAA Nepal means, that the application should be made on a CAAN Form 2.

#### AMC 145.A.20 – Terms of approval

The following table identifies the ATA specification 100 chapter for the category C component 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	24 - 33
	C6 Equipment	25 – 38 – 45
	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 — Airframe	28
	C10 Helicopter - Rotors	62 - 64 - 66 - 67
	C11 Helicopter - Trans	63 – 65
	C12 Hydraulic	29
	C13 Instruments	31
	C14 Landing Gear	32
	C15 Oxygen	35
	C16 Propellers	61
	C17 Pneumatic	36 – 37

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	C18 Protection ice/ rain/fire	26 – 30
	C19 Windows	56
	C20 Structural	53 - 54 - 57.10 - 57.20 - 57.30

#### AMC 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 maintenance programme. 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. 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 (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.

#### 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. Manufacturers 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.

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### Chapter 2

#### Section A-AMC to Technical Requirements

##### **AMC 145.A.30 (a) – Personnel requirements**

With regard to the accountable manager, it is normally intended to mean the chief executive officer of the approved maintenance organisation, who by virtue of 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 required to be necessarily knowledgeable on technical matters as the maintenance organisation exposition defines the maintenance standards. When the accountable manager is not the chief executive officer CAA Nepal will need to be assured that such an accountable manager has direct access to chief executive officer and has a sufficiency of ‘maintenance funding’ allocation.

##### **AMC 145.A.30 (b) – Personnel requirements**

1. Dependent upon the size of the organisation, the NCAR Part-145 functions may be subdivided under individual managers or combined in any number of ways.
2. The organisation should have, dependent upon the extent of approval, a base maintenance manager, a line maintenance manager, a workshop manager and a quality manager, all of whom should report to the accountable manager except in small NCAR Part-145 organisation where anyone manager may also be the accountable manager, as determined by CAA Nepal, he/she may also be the line maintenance manager or the workshop manager.
3. The base maintenance manager is responsible for ensuring that all maintenance required to be carried out in the hangar, plus any defect rectification carried out during base maintenance, is carried out to the design and quality standards specified in NCAR-145.A.65 (b). The base maintenance manager is also responsible for any corrective action resulting from the quality compliance monitoring of NCAR-145.A.65(c).
4. The line maintenance manager is responsible for ensuring that all maintenance required to be carried out on the line including line defect rectification is carried out to the standards specified in NCAR-145.A.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of NCAR-145.A.65(c).
5. The workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in NCAR-145.A.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of NCAR-145.A.65(c).
6. The quality manager’s responsibility is specified in NCAR-145.A.30(c).

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### Chapter 2

#### Section A-AMC to Technical Requirements

7. Notwithstanding the example sub-paragraphs 2 - 6 titles, the organisation may adopt any title for the foregoing managerial positions but should identify to CAA Nepal the titles and persons chosen to carry out these functions.
8. Where an organisation chooses to appoint managers for all or any combination of the identified NCAR Part-145 functions because of the size of the undertaking, it is necessary that these managers report ultimately through either the base maintenance manager or line maintenance manager or workshop manager or quality manager, as appropriate, to the accountable manager.

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

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

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

#### **AMC 145.A.30 (d) Personnel requirements**

1. Has sufficient staff means that the organisation employs or contracts such staff 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. Contract staff, being part time or full time should be made aware that when working for the organisation they are subjected to compliance with the organisation's procedures specified in the maintenance organisation exposition relevant to their duties. For the purpose of this sub-paragraph, employed means the person is directly employed as an individual by the maintenance organisation approved under NCAR Part-145 whereas contracted means the person is employed by another organisation and contracted by that organisation to the maintenance organisation approved under NCAR Part-145.
2. The maintenance man-hour plan should take into account any maintenance carried out on aircraft / aircraft components from outside Nepal and should also take into account all work carried out outside the scope of the NCAR Part-145 approval.
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,



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### Chapter 2

#### Section A-AMC to Technical Requirements

accomplishment of maintenance, inspection and the completion of maintenance records.

4. In the case of aircraft base maintenance, the maintenance man-hour plan should relate to the aircraft hangar visit plan as specified in AMC 145.A.25 (a).
5. In the case of aircraft component maintenance, the maintenance man-hour plan should relate to the aircraft component planned maintenance as specified in NCAR-145.A.25 (a) (2).
6. The quality monitoring compliance function man-hours should be sufficient to meet the requirement of NCAR-145.A.65(c) which means taking into account AMC 145.A.65(c). Where quality monitoring staff perform other functions, the time allocated to such functions needs to be taken into account in determining quality monitoring staff numbers.
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 quality manager and the accountable manager for review. Significant deviation means more than a 25% shortfall in available man-hours during a calendar month for any one of the functions specified in NCAR-145.A.30 (d).

#### **AMC 145.A.30 (e) – Personnel requirements**

1. The referenced procedure requires amongst others that planners, mechanics, specialized services staff, supervisors and certifying staff are assessed for competence by 'on the job' evaluation and/or by examination relevant to their particular job role within the organisation before unsupervised work is permitted. A record of the qualification and competence assessment should be kept.
2. Adequate initial and recurrent training should be provided and recorded to ensure continued competence.
3. To assist in the assessment of competence, job descriptions are recommended for each job role in the organisation. Basically, the assessment should establish that:
  - a. Planners are able to interpret maintenance requirements into maintenance tasks, and have an appreciation that they have no authority to deviate from the maintenance data.
  - b. Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance data and will notify supervisors of mistakes requiring rectification to reestablish required maintenance standards.

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### Chapter 2

#### Section A-AMC to Technical Requirements

- c. Specialised services staff are able to carry out specialised maintenance tasks to the standard specified in the maintenance data and will both inform and await instructions from their supervisor in any case where it is not possible to complete the specialised maintenance in accordance with the maintenance data.
  - d. Supervisors are able to ensure that all required maintenance tasks are carried out and where not completed or where it is evident that a particular maintenance task cannot be carried out to the maintenance data, then such problems will be reported to the NCAR-145.A.30(c) person for appropriate action. In addition, for those supervisors who also carry out maintenance tasks, that they understand such tasks should not be undertaken when incompatible with their management responsibilities.
  - e. Certifying staff are able to determine when the aircraft or aircraft component is ready to release to service and when it should not be released to service.
4. In the case of planners, specialised services staff, supervisors and certifying staff, a knowledge of organisation procedures relevant to their particular role in the organization is important. The aforementioned list is not exclusive and may include other categories of personnel.
  5. Quality audit staff are able to monitor compliance with NCAR Part-145 identifying non compliance in an effective and timely manner in order that the organisation may remain in compliance with NCAR Part-145.
  6. In respect to the understanding of the application of human factors and human performance issues, maintenance, management, and quality audit personnel should be assessed for the need to receive initial human factors training, but in any case all maintenance, management, and quality audit personnel should receive human factors continuation training. This should concern to a minimum:
    - Post-holders, managers, supervisors;
    - Certifying staff, technicians, and mechanics;
    - Technical support personnel such as, planners, engineers, technical record staff;
    - Quality control/assurance staff;
    - Specialised services staff;
    - Human factors staff/ human factors trainers;
    - Store department staff, purchasing department staff;
    - Ground equipment operators;

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### Chapter 2

#### Section A-AMC to Technical Requirements

- Contract staff in the above categories.
7. Initial human factors training should cover all the topics of the training syllabus specified in GM 145.A.30 (e) either as a dedicated course or else integrated within other training. The syllabus may be adjusted to reflect the particular nature of the organisation. The syllabus may also be adjusted to meet 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 objective of the syllabus and in less depth the objective of developing skills for shift working.
  - Depending on the result of the evaluation as specified in paragraph 5, initial training should be provided to personnel within 6 months of joining the maintenance organisation, but temporary staff may need be trained shortly after joining the organisation to cope with the duration of employment.

Personnel being recruited from another maintenance organisation approved under NCAR Part-145 and temporary staff should be assessed for the need to receive any additional Human factors training to meet the new maintenance organisation's approved under NCAR Part-145 human factors training standard.

8. The purpose of human factors continuation training is primarily to ensure that staff remain current in terms of human factors and also to collect feedback on human factors issues. Consideration should be given to the possibility that such training has the involvement of the quality department. There should be a procedure to ensure that feedback is formally passed from the trainers to the quality department to initiate action where necessary.

Human factors continuation training should be of an appropriate duration in each two year period in relation to relevant quality audit findings and other internal/external sources of information available to the organisation on human errors in maintenance.

9. Human factors training may be conducted by the maintenance organisation itself, or independent trainers or any training organisations acceptable to CAA Nepal.
10. The Human factors training procedures should be specified in the maintenance organisation exposition.
11. Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required of maintenance organisations' technical

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### Chapter 2

#### Section A-AMC to Technical Requirements

personnel, especially technical personnel involved with the compliance of Control Design Control Configuration Limitations (CDCCL) tasks.

CAA Nepal guidance is provided for training to maintenance organisation personnel in Appendix IV to AMC 145.A.30 (e).

#### **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 NCAR-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 the European Standard 4179:2000 (EN 4179) dependant upon the non-destructive testing function to be carried out or any equivalent standard acceptable to CAA Nepal.
3. Notwithstanding the fact that Level 3 personnel may be qualified via EN 4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published by the type certificate holder/manufacturer in the form of continued airworthiness data, such as in nondestructive test manuals or service bulletins, unless the manual or service bulletin expressly permits such deviation.
4. All examinations should be conducted by personnel or organisation under the control of a NDT Board recognised by CAA Nepal
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 the standards accepted by the CAA Nepal. Until such time as an agreed standard is established such methods should be carried out in accordance with the particular equipment manufacturers recommendations including any training and examination process to ensure competence of the personnel with the process.
7. Any maintenance organisation approved under NCAR Part-145 that carries out NDT should establish NDT specialist qualification procedures detailed in the exposition and accepted by CAA Nepal.
8. Boroscoping and other techniques such as delamination coin tapping are non-destructive inspections rather than non-destructive testing. Notwithstanding such

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### Chapter 2

#### Section A-AMC to Technical Requirements

differentiation, the maintenance organisation should establish an exposition procedure accepted by CAA Nepal to ensure that personnel who carry out and interpret such inspections are properly trained and assessed for their competence with the process. Non-destructive inspections, not being considered as NDT by NCAR Part-145 are not listed in Appendix 2 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 NCAR Part-145 should qualify for such non-destructive test in accordance with EN4179 or a standard recognised as equivalent or acceptable to CAA Nepal.

#### **AMC 145.A.30 (g) – Personnel requirements**

1. For the purposes of category A minor scheduled line maintenance means any minor scheduled inspection/check up to and including a weekly check specified in the operators approved aircraft maintenance programme. For aircraft maintenance programmes that do not specify a weekly check, CAA Nepal 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 category A for the purpose of the category A issuing an aircraft certificate of release to service as specified in NCAR-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.

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- 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 but excluding 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 CAA Nepal as a simple task.
- q. Replacement of any other component as agreed by CAA Nepal for a particular aircraft type only where it is agreed that the task is simple.

**NOTE:** This list will be periodically updated in the light of ongoing experience and technological changes.

#### **AMC 145.A.30 (h)(1) – Personnel requirements**

The category B1 and B2 support staff need not hold a certifying authorisation in accordance with NCAR-145.A.35 (b) but the organisation may use such appropriately authorized certifying staff to satisfy the requirement.

#### **AMC 145.A.30 (j)(4) – Personnel requirements**

- 1. For the issue of a limited certification authorisation the commander or flight engineer should hold either a valid air transport pilots license (ATPL), commercial pilots license (CPL) or flight engineer (F/EL) licence in accordance with Civil Aviation Regulations, or a national equivalent acceptable to CAA Nepal on the aircraft type. In addition the limited certification authorisation is subject to the maintenance organisation exposition containing procedures to address the personnel requirements of NCAR-145.A.30 (e) and associated AMC and guidance material.

Such procedures should include as a minimum:

- a. Completion of adequate maintenance airworthiness regulation training.

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- b. Completion of adequate task training for the specific task on the aircraft. The task training should be of sufficient duration to ensure that the individual has a thorough understanding of the task to be completed and will involve training in the use of associated maintenance data.
- c. Completion of the procedural training as specified in NCAR Part-145.

The above procedures should be specified in the maintenance organisation exposition and be accepted by CAA Nepal.

- 2. (i) Typical tasks that may be certified and/or carried out by the commander holding an ATPL or CPL are 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 fit, dual controls, FLIR, doors, photographic equipment etc.
  - d. Any check / replacement involving simple techniques consistent with this AMC and as agreed by CAA Nepal.
- (ii) Holders of a valid Flight engineers licence, or a national equivalent acceptable to CAA Nepal, on the aircraft type may only exercise this limited certification authorization privilege when performing the duties of a flight engineer.

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

- a. Replacement of wheel assemblies.
- b. Replacement of simple emergency equipment that is easily accessible.
- c. Replacement of ovens, boilers and beverage makers.
- d. Replacement of internal and external lights, filaments and flash tubes.
- e. Replacement of passenger and cabin crew seats, seat belts and harnesses.
- f. Simple replacement of overhead storage compartment doors and cabin furnishing items.
- g. Replacement of static wicks.

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- h. Replacement of aircraft main and APU aircraft batteries.
  - i. Replacement of inflight entertainment system components but excluding public address.
  - j. The de-activation only of sub-systems and aircraft components as permitted by the operator's minimum equipment list where such de-activation is agreed by CAA Nepal as a simple task.
  - k. Re-setting of tripped circuit breakers under the guidance of maintenance control.
  - l. Any other simple task as agreed by CAA Nepal for a particular aircraft type only where it is agreed that the task is simple.
3. The authorisation should have a finite life of twelve months subject to satisfactory recurrent training on the applicable aircraft type.

#### **AMC 145.A.30 (j) (5) – Personnel requirements**

1. For the purposes of this sub-paragraph “unforeseen” means that the aircraft grounding could not reasonably have been predicted by the operator because the defect was unexpected due to being part of a hitherto reliable system.
2. A one-off authorisation should only be considered for issue by the quality department of the contracted organisation after it has made a reasoned judgement that such a requirement is appropriate under the circumstances and at the same time maintaining the required airworthiness standards. The organisation’s quality department will need to assess each situation individually prior to the issuance of a one-off authorisation.
3. A one-off authorisation should not be issued where 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 required tooling and/or test equipment needed to complete the work.

#### **AMC 145.A.30 (j) (5) (i) – Personnel requirements**

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

1. Flight crew should communicate details of the defect to the operator’s supporting maintenance organisation with full details of the defect. If necessary the supporting



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maintenance organisation will then request the use of a one off authorisation from the quality department.

2. When issuing a one off authorisation, the quality department of the organisation should verify that:
  - a) Full technical details relating to the work required to be carried out have been established and passed to the certifying staff.
  - b) The organisation has an approved procedure in place for co-ordinating and controlling the total maintenance activity undertaken at the location under the authority of the one off authorisation.
  - c) The person to whom a one-off Authorisation is issued has been provided 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, communicated to the one off authorisation holder.
  - d) The person holds authorisations of equivalent level and scope on other aircraft type of similar technology, construction and systems.
3. The one off authorisation holder should sign off the detailed step by step worksheet when completing the work steps. The completed tasks should be verified by visual examination and/or normal system operation upon return to an appropriately approved NCAR Part-145 maintenance facility.

#### **AMC 145.A.30 (j)(5)(ii) – Personnel requirements**

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

#### **AMC 145.A.35 (a) – Certifying staff and category B1 and B2 support staff**

1. Adequate understanding of the relevant aircraft and/or aircraft component(s) to be maintained together with the associated organisation procedures means that the person has received training and has relevant maintenance experience on the product type and associated organisation procedures such that the person understands how the product functions, what are the more common defects with associated consequences.

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2. The organisation should hold copies of all documents that attest to qualification, and to recent experience.

#### **AMC 145.A.35 (b) – Certifying staff and category B1 and B2 support staff**

The organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of NCAR Part-145 and NCAR Part-66. In granting the certification authorisation the maintenance organisation approved under NCAR Part-145 needs to be satisfied that the person holds a valid NCAR Part-66 aircraft maintenance licence.

#### **AMC 145.A.35 (d) – Certifying staff and category B1 and B2 support staff**

1. Continuation training is a two way process to ensure that certifying staff remain current in terms of procedures, human factors and technical knowledge and that the organization receives feedback on the adequacy of its procedures and maintenance instructions. Due to the interactive nature of this training, consideration should be given to the possibility that such training has the involvement of the quality department to ensure that feedback is actioned. Alternatively, there should be a procedure to ensure that feedback is formally passed from the training department to the quality department to initiate action.
2. Continuation training should cover changes in relevant requirements such as NCAR Part-145, changes in organisation procedures and the modification standard of the products being maintained plus human factor issues identified from any internal or external analysis of incidents. It should also address instances where staff failed to follow procedures and the reasons why particular procedures are not always followed. In many cases the continuation training will reinforce the need to follow procedures and ensure that incomplete or incorrect procedures are identified to the company in order that they can be corrected. This does not preclude the possible need to carry out a quality audit of such procedures.
3. Continuation training should be of sufficient duration in each 2 year period to meet the intent of NCAR-145.A.35 (d) and may be split into a number of separate elements. NCAR-145.A.35 (d) requires such training to keep certifying staff updated in terms of relevant technology, procedures and human factors issues which means it is one part of ensuring quality. Therefore sufficient duration should be related to relevant quality audit findings and other internal / external sources of information available to the organisation on human errors in maintenance. This means that in the case of an organisation that maintains aircraft with few relevant quality audit findings, continuation training could be limited to days rather than weeks, whereas a similar organisation with a number of relevant quality audit findings, such training may take several weeks. For an organization that maintains aircraft components, the duration of continuation training would follow the same philosophy but should be scaled down to reflect the more limited nature of the

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activity. For example certifying staff who release hydraulic pumps may only require a few hours of continuation training whereas those who release turbine engine may only require a few days of such training. The content of continuation training should be related to relevant quality audit findings and it is recommended that such training is reviewed at least once in every 24 month period.

4. The method of training is intended to be a flexible process and could, for example, include a NCAR Part-147 continuation training course, aeronautical college courses, internal short duration courses, seminars, etc. The elements, general content and length of such training should be specified in the maintenance organisation exposition unless such training is undertaken by an organisation approved under NCAR Part-147 when such details may be specified under the approval and cross referenced in the maintenance organisation exposition.

#### **AMC 145.A.35 (e) – Certifying staff and category B1 and B2 support staff**

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

#### **AMC 145.A.35 (f) – Certifying staff and category B1 and B2 support staff**

1. As stated in NCAR-145.A.35 (f), with one exception, all prospective certifying staff are required to be assessed for competence, qualification and capability related to intended certifying duties. There are a number of ways in which such assessment may be carried out but the following points need to be considered to establish an assessment procedure that fits the particular organisation.
2. Competence and capability can be assessed by working the person under the supervision of either another certifying person or a quality auditor for sufficient time to arrive at a conclusion. Sufficient time could be as little as a few weeks if the person is fully exposed to relevant work. It is not required to assess against the complete spectrum of intended duties. When the person has been recruited from another approved maintenance organisation and was a certifying person in that organisation then the organisation should accept a written confirmation from the person responsible for running the quality system about the person.
3. Qualification assessment means collecting copies of all documents that attest to qualification, such as the licence and/or any authorisation held. This should be followed by a confirmation check with the organisation(s) that issued such document(s) and finally a comparison check for differences between the product type ratings on the qualification documents and the relevant product types

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maintained by the organisation. This latter point may reveal a need for product type differences training.

#### **AMC 145.A.35 (j) – Certifying staff and category B1 and B2 support staff**

1. The following minimum information as applicable should be kept on record in respect of each certifying person or category B1 or B2 support person:
  - a. Name
  - b. Date of Birth
  - c. Basic Training
  - d. Type Training
  - e. Continuation Training
  - f. Experience
  - g. Qualifications relevant to the approval
  - h. Scope of the authorisation
  - i. Date of first issue of the authorisation
  - j. If appropriate - expiry date of the authorisation
  - k. Identification Number of the authorisation
2. The record may be kept in any format but should be controlled by the organisation's quality department. This does not mean that the quality department should run the record system.
3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
4. CAA Nepal Inspectors are authorised persons when investigating the records system for initial and continued approval or when CAA Nepal has cause to doubt the competence of a particular person.

#### **AMC 145.A.40 (a) – Equipment, tools and material**

Once the applicant for approval has determined the intended scope of approval for consideration by CAA Nepal, it will be necessary to show that all tools and equipment as

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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, tools and material**

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 labelling 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 recognised standard means those standards established or accepted by an official body recognised by CAA Nepal.

#### **AMC 145.A.42 (a) – Acceptance of components**

An equivalent document to a CAAN Form 1 may be:

- (a) a release document issued by an organisation acceptable to CAA Nepal.
- (b) a release document issued by an organisation under the terms of a bilateral agreement signed by CAA Nepal.

#### **AMC 145.A.42 (b) – Acceptance of components**

The CAAN Form 1 identifies the eligibility and status of an aircraft component. Block 13 "Remarks" on the CAAN Form 1 in some cases contains vital airworthiness related information which may need appropriate and necessary actions. The receiving organisation should be satisfied that the component in question is in satisfactory condition and has been appropriately released to service. In addition, the organisation should ensure that the component meets the approved data/standard, such as the required design and modification standard. This may be accomplished by reference to the manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be exercised in ensuring compliance with applicable airworthiness directives, the status of any life

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limited parts fitted to the aircraft component as well as Critical Design Configuration Control Limitations.

#### **AMC 145.A.42(c) – Acceptance of components**

1. The agreement by CAA Nepal for the fabrication of parts by the approved maintenance organisation should be formalised through the approval of a detailed procedure in the Maintenance Organisation Exposition. This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.
2. Fabrication, inspection assembly and test should be clearly within the technical and procedural capability of the organisation;
3. All necessary data to fabricate the part should be approved either by CAA Nepal or the type certificate (TC) holder or design organisation acceptable to CAA Nepal or supplemental type certificate holder (STC);
4. Items fabricated by an organisation approved under NCAR Part-145 may only be used by that organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components undergoing work within its own facility. The permission to fabricate does not constitute approval for manufacture, or to supply externally and the parts do not qualify for certification on CAAN Form 1. 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.
5. Fabrication of parts, modification kits etc for onward supply and/or sale may not be conducted by an organisation approved under NCAR Part-145.
6. The data specified in paragraph 3 may include repair procedures involving the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by an organisation approved under NCAR Part-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 or/and incoming inspection requirement and that the approved organisation has the necessary capability. 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 can not fabricate the part unless the TC/STC-holder gives an approved alternative.
7. Examples of fabrication under the scope of NCAR Part-145 approval can include but are not limited to the following:

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- a) Fabrication of bushes, sleeves and shims.
- b) Fabrication of secondary structural elements and skin panels.
- c) Fabrication of control cables.
- d) Fabrication of flexible and rigid pipes.
- e) Fabrication of electrical cable looms and assemblies.
- f) Formed or machined sheet metal panels for repairs.

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

**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 processes and which is acceptable to CAA Nepal.

8. Where a TC-holder or an approved production organisation is prepared to make available complete data which is not referred to in 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 CAA Nepal in accordance with a procedure specified in the exposition.
9. Inspection and Identification.

Any locally fabricated part should be subjected to an inspection stage 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 the final inspections. All parts, except those having not enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. Additional to the part- number the organisation's identity should be marked on the part for traceability purposes.

#### **AMC 145.A.42 (d) – Acceptance of components**

1. 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;

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- 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. Certified life-limited parts that have reached or exceeded their certified life limits, or have missing or incomplete records;
  - e. Components that cannot be returned to airworthy condition due to exposure to extreme forces, heat or adverse environment;
  - 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.
2. It is common practice for possessors of aircraft components to dispose of unsalvageable components by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale and in the active parts inventories of the aviation community. Misrepresentation of the status of components and the practice of making such items appear serviceable have resulted in the use of unsalvageable nonconforming components. Therefore Organisations disposing of unsalvageable aircraft components should consider the possibility of such components later being misrepresented and sold as serviceable components. Caution should be exercised to ensure that unsalvageable components are disposed of in a manner that does not allow them to be returned to service.
3. The acceptable standards to CAA Nepal are standards approved by either the type certificate (TC) holder or design organisations acceptable to CAA Nepal , or supplemental type certificate (STC) holders as applicable;

#### **AMC 145.A.45 (b) – Maintenance data**

1. Except as specified in sub-paragraph 5, each maintenance organisation approved under NCAR Part-145 should hold and use the following minimum maintenance data relevant to the organisation's approval class rating. All maintenance related Requirements and associated AMCs, approval specifications and Guidance Material, all applicable maintenance requirements and notices and all applicable CAA Nepal airworthiness directives plus any applicable non-national airworthiness directives as well as Critical Design Configuration Control Limitations.
2. In addition to sub-paragraph 1, an organisation with an approval class rating in category A - Aircraft, should hold and use the following maintenance data where



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published. The appropriate sections of the operator's aircraft maintenance programme, aircraft maintenance manual, repair manual, supplementary structural inspection document, corrosion control document, service bulletins, service letters, service instructions, modification leaflets, NDT manual, parts catalogue, type certificate data sheet and any other specific document issued by the type certificate or supplementary type certificate holder as maintenance data.

3. In addition to sub-paragraph 1, an organisation with an approval class rating in category B - Engines/APUs, should hold and use the following maintenance data where published. The appropriate sections of the engine/APU maintenance and repair manual, service bulletins, service letters, modification leaflets, non-destructive inspection (NDI) manual, parts catalogue, type certificate data sheet and any other specific document issued by the type certificate holder as maintenance data.
4. In addition to sub-paragraph 1, an organisation with an approval class rating in category C - Components other than complete engines/APUs, should hold and use the following maintenance data where published. The appropriate sections of the vendor maintenance and repair manual, service bulletins and service letters plus any document issued by the type certificate holder as maintenance data on whose product the component may be fitted when applicable.
5. Appropriate sections of the sub-paragraphs 2 to 4 additional maintenance data means in relation to the maintenance work scope at each particular maintenance facility. For example, a base maintenance facility should have almost complete set(s) of the maintenance data whereas a line maintenance facility may need only the maintenance manual and the parts catalogue.
6. An organisation only approved in class rating category D – Specialised services, should hold and use all applicable specialised service(s) process specifications.

#### **AMC 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. The procedure should then ensure that the NCAR Part-145 approved maintenance organisation notifies the problem to the author of the maintenance data in a timely manner. A record of such communications to the author of the maintenance data should be retained by the NCAR Part-145 approved organisation until such time as the type certificate holder has clarified the issue by e.g. amending the maintenance data.
2. The referenced procedure should be specified in the maintenance organization exposition.

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##### AMC 145.A.45 (d) – Maintenance data

The referenced procedure should address the need for a practical demonstration by the mechanic to the quality personnel of the proposed modified maintenance instruction. When satisfied the quality personnel should approve the modified maintenance instruction and ensure that the type certificate or supplementary type certificate holder is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances;

- a. Where the type certificate / supplementary type certificate holders original intent can be carried out in a more practical or more efficient manner.
- b. Where the type certificate / supplementary type certificate holders original intent cannot be achieved by following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.
- c. For the use of alternative tools / equipment.

**Important note:** Critical Design Configuration Control Limitations (CDCCL) are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCL constitutes an aircraft modification that should be approved in accordance with standards acceptable to CAA Nepal.

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

The maintenance organisation should transcribe accurately the maintenance data onto such work cards or worksheets or make precise reference to the particular maintenance tasks or tasks contained in such maintenance data making reference to the CDCCL where applicable.

##### AMC 145.A.45 (f) – Maintenance data

1. Relevant parts of the organisation means with regard to aircraft base maintenance, aircraft line maintenance, engine workshops, mechanical workshops and avionic workshops. Therefore, for example engine workshops should have a common system throughout such engine workshops that may be different to that in aircraft base maintenance.
2. The work cards should differentiate and specify, when relevant, disassembly, accomplishment of task, reassembly and testing. In the case of a lengthy maintenance task involving a succession of personnel to complete such task, it may be necessary to use supplementary work cards or worksheets to indicate what was actually accomplished by each individual person.

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##### AMC 145.A.45 (g) – Maintenance data

1. 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 TC related data such as certification life limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.
2. 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.
3. 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.

##### 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 NCAR Part-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,

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- 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 safety-critical tasks during periods when staff are likely to be most alert.

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

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

#### **AMC 145.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.

#### **AMC 145.A.50 (a) – Certification of maintenance**

1. A component which has been maintained off the aircraft needs the issue 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. In the case of base maintenance this takes the form of a separate task sign off for the maintenance and installation tasks.

- 1.1 When an organisation maintains a component for use by the organisation, a CAAN Form 1 may not be necessary depending upon the organisations'

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internal release procedures defined in the maintenance organisation exposition.

- 1.2 “Hazard seriously the flight safety” means any instances where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is 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 overdue for compliance is also considered a hazard to flight safety.
2. In the case of the issue of CAAN Form 1 for components in storage prior to NCAR Part-145 and not released on a CAAN Form 1 or equivalent in accordance with NCAR-145.A.42(a) or removed serviceable from a serviceable aircraft or an aircraft which have been withdrawn from service the following applies.
  - 2.1. A CAAN Form 1 may be issued for an aircraft component which has been:
    - Maintained before NCAR Part-145 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.
    - Components maintained by an unapproved organisation.
  - 2.2. An appropriately rated maintenance organisation approved under NCAR Part-145 may issue a CAAN 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 CAA Nepal. 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 CAAN Form 1 under this paragraph.
  - 2.3. For the purposes of this paragraph 2 only, appropriately rated means an organization with an approval class rating for the type of component or for the product in which it may be installed.
  - 2.4. A CAAN Form 1 issued in accordance with this paragraph 2 should be issued by signing in block 20 and stating "Inspected" in block 12. In addition, block 13 should specify:

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- 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 for service life limited parts 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 13. The maintenance history record and acceptance test report or statement, if applicable, should be attached to the CAAN Form 1.

#### 2.5. New / unused aircraft components

- 2.5.1. Any unused aircraft component in storage without a CAAN Form 1 up to the effective date(s) of NCAR Part-145 that was manufactured by an organization acceptable to CAA Nepal at the time may be issued a CAAN Form 1 by an appropriately rated maintenance organisation approved under NCAR Part-145. The CAAN Form 1 should be issued in accordance with the following subparagraphs which should be included in a procedure within the maintenance organisation manual.

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 NCAR Part-145 and not a production release. It is not intended to bypass the production release procedure agreed by CAA Nepal for parts and subassemblies intended for fitment on the manufacturers 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

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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 manufacturers maintenance instructions to establish satisfactory condition and, if relevant, all seals, lubricants and life limited parts replaced. On satisfactory completion after reassembly a CAAN Form 1 may be issued stating what was carried out and the reference of the manufacturers maintenance instructions included.

2.6. Used aircraft components removed from a serviceable aircraft.

2.6.1. Serviceable aircraft components removed from a Nepalese registered aircraft may be issued a CAAN 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 instructions.
- 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 CAAN 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 effect its operation.
- e. A maintenance history record should be available for all used serialized aircraft components.

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- f. Compliance with known modifications and repairs should be established.
  - g. The flight hours/cycles/landings as applicable of any service life limited parts 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 CAAN 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 Nepalese registered aircraft may only be issued a CAAN Form 1 if the components are leased or loaned from the maintenance organisation approved under NCAR Part-145 who retains control of the airworthiness status of the components. A CAAN 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 a Nepalese registered aircraft withdrawn from service may be issued a CAAN Form 1 by a maintenance organisation approved under NCAR Part-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 NCAR Part-145, employing procedures approved by CAA Nepal.
  - b. To be eligible for installation, components removed from such aircraft may be issued with a CAAN Form 1 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



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removed and stored are compatible with the standards required by NCAR Part-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 NCAR Part-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 organisations not approved in accordance with NCAR Part-145.

For used components maintained by a maintenance organisation unapproved under NCAR Part-145, due care should be exercised before acceptance of such components. In such cases an appropriately rated maintenance organisation approved under NCAR Part-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 limit components when no satisfactory evidence of life used is available and/or the components are in an unsatisfactory condition,

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- c) reassembling and testing as necessary the component,
  - d) Completing all certification requirements as specified in NCAR-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 CAAN 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 13.

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

1. The certificate of release to service should contain the following statement:  
  
'Certifies that the work specified except as otherwise specified was carried out in accordance with NCAR Part-145 and in respect to that work the aircraft/aircraft component is considered ready for release to service'.
2. The certificate of release to service should relate to the task specified in the manufacturer's or operator's instruction or the aircraft maintenance program which itself may cross-refer to a manufacturer's/operator's instruction in a maintenance manual, service bulletin etc.
3. 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.
4. 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.
5. The person issuing the certificate of release to service should use his normal signature except in the case where a computer release to service system is used. In this latter case CAA Nepal will need to be satisfied that only the particular person can electronically issue the release to service. One such method of compliance is the use of a magnetic or optical personal card in conjunction with a personal identity number (PIN) known only to the individual which is keyed into the computer. A certification stamp is optional.

#### **AMC 145.A.50 (d) – Certification of maintenance**

The purpose of the certificate is to release assemblies/items/components/parts (hereafter referred to as 'item(s)') after maintenance and to release maintenance work carried out on

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such items under the approval of CAA Nepal and to allow items removed from one aircraft/aircraft component to be fitted to another aircraft/aircraft component.

The certificate referenced CAAN Form 1 is called the authorised release certificate.

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. The certificate is not a delivery or shipping note.

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

The certificate may be used as a rotatable 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 rotatable 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 NCAR Part-145 and the item needs a certificate for the previous maintenance process carried out for the next maintenance organisation approved under NCAR Part-145 to accept the item for subsequent maintenance processes. As mentioned for Block 13, a clear statement of limitation should be endorsed in Block 13.

**NOTE:** Aircraft may not be released using the certificate.

#### **AMC 145.A.50 (e) – Certification of maintenance**

1. Being unable to establish full compliance with sub-paragraph NCAR-145.A.50(a) means that the maintenance required by the aircraft operator could not be completed due either to running out of available aircraft maintenance downtime for the scheduled check or by virtue of the condition of the aircraft requiring additional maintenance downtime.
2. The aircraft operator is responsible for ensuring that all required maintenance has been carried out before flight and therefore NCAR-145.A.50 (e) requires such operator to be informed in the case where full compliance with NCAR-145.A.50 (a) cannot be achieved within the operators limitations. If the operator agrees to the deferment of full compliance, then the certificate of release to service may be issued

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subject to details of the deferment, including the operator's authority, being endorsed on the certificate.

**NOTE:** Whether or not the aircraft operator does have the authority to defer maintenance is an issue between the aircraft operator and CAA Nepal. In case of doubt concerning such a decision of the operator, the approved maintenance organisation should inform CAA Nepal of such doubt, before issue of the certificate of release to service. This will allow CAA Nepal to investigate the matter as appropriate.

3. The procedure should draw attention to the fact that NCAR-145.A.50 (a) does not normally permit the issue of a certificate of release to service in the case of noncompliance 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 aircraft operator so that the issue may be discussed and resolved with the aircraft operator. In addition, the appropriate person(s) as specified in NCAR-145.A.30 (b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.

#### **AMC 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 organization works including the approval or authorisation reference.
2. Compliance with all other NCAR Part-145 and operator requirements means making an appropriate entry in the aircraft technical log, checking for compliance with type design standards, modifications, repairs, airworthiness directives, life limitations and condition of the aircraft component plus information on where, when and why the aircraft was grounded.

#### **AMC 145.A.55(c) – Maintenance records**

Associated maintenance data is specific information such as repair and 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.

#### **AMC 145.A.60 (b) – Occurrence reporting**

1. The aim of occurrence reporting is to identify the factors contributing to incidents, and to make the system resistant to similar errors.

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

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

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

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

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

1. Maintenance procedures should be held current such that they reflect best practice within the organisation. It is the responsibility of all organisation's employees to report any differences via their organisation's internal occurrence reporting mechanisms.
2. All procedures, and changes to those procedures, should be verified and validated before use where practicable.
3. All technical procedures should be designed and presented in accordance with good human factors principles.

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

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

#### **AMC 145.A.65 (b) (3) – Safety and quality policy, maintenance procedures and quality system**

1. The purpose of this procedure is to minimise the rare possibility of an error being repeated whereby the identical aircraft components are not reassembled thereby compromising more than one system. One example is the remote possibility of failure to reinstall engine gearbox access covers or oil filler caps on all engines of a multiengine aircraft resulting in major oil loss from all engines.

Another example is the case of removal and refitment of oil filler caps, which should require a re-inspection of all oil filler caps after the last oil filler cap has supposedly been refitted.

2. Procedures should be established to detect and rectify maintenance errors that could, as minimum, result in a failure, malfunction, or defect endangering the safe operation of the aircraft if not performed properly. The procedure should identify the method for capturing errors, and the maintenance tasks or processes concerned.

In order to determine the work items to be considered, the following maintenance tasks should primarily be reviewed to assess their impact on safety:

- Installation, rigging and adjustments of flight controls,
- Installation of aircraft engines, propellers and rotors,
- Overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes, but additional information should also be processed, such as:
  - Previous experiences of maintenance errors, depending on the consequence of the failure,
  - Information arising from the ‘occurrence reporting system’ required by NCAR - 145.A.60,
  - CAA Nepal requirements for error capturing, if applicable.

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3. In order to prevent omissions, every maintenance task or group of tasks should be signed-off. To ensure the task or group of tasks is completed, it should only be signed off after completion. Work by unauthorised personnel (i.e. temporary staff, trainee,...) should be checked by authorised personnel before they sign-off. The grouping of tasks for the purpose of signing-off should allow critical steps to be clearly identified.

Note: A “sign-off” is a statement by the competent person performing or supervising the work, 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 the release to service of the aircraft. “Authorised personnel” means personnel formally authorised by the maintenance organisation approved under NCAR Part-145 to sign-off tasks. “Authorised personnel” are not necessarily “certifying staff”.

4. The maintenance organisation should ensure that when carrying out a modification, repair or maintenance, Critical Design Configuration Control Limitations are not compromised; this will require the development of appropriate procedures where necessary by the maintenance organisation. The maintenance organisation should pay particular attention to possible adverse effects of any wiring change to the aircraft, even a change not specifically associated with the fuel tank system. For example, it should be common practice to identify segregation of fuel gauging system wiring as a Critical Design Configuration Control Limitation.

Maintenance organisations can prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection. Training should be provided to end indiscriminate routing and splicing of wire and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a Critical Design Configuration Control Limitation.

CAA Nepal guidance is provided for training to maintenance organisation personnel in Appendix IV to Chapter 2.

The maintenance of ignition prevention features is necessary for the inherent safety and reliability of an aircraft’s fuel tank system. The aircraft cannot be operated indefinitely with the failure of an ignition prevention feature. The failure will have a direct adverse effect on operational safety. It could prevent the continued safe flight and landing of the aircraft or cause serious or fatal injury to the occupants. The fuel system review required will identify ignition prevention features of the design. The failure of any of these features may not immediately result in an unsafe condition, but it may warrant certain maintenance to support continued airworthiness.

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

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

For the purpose of the independent audit a product line includes any product under an Appendix 2 approval class rating as specified in the approval schedule issued to the particular organisation.

It therefore follows for example that a maintenance organisation approved under NCAR Part-145 with a capability to maintain aircraft, repair engines, brakes and



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autopilots would need to carry out 4 complete audit sample checks each year except as specified otherwise in subparagraphs 5, 7 or 9.

6. The sample check of a product means to witness any relevant testing and visually inspect the product and associated documentation. The sample check should not involve repeat disassembly or testing unless the sample check identifies findings requiring such action.
7. Except as specified otherwise in sub-paragraph 9, where the smallest organisation, that is an organisation with a maximum of 10 personnel actively engaged in maintenance, chooses to contract the independent audit element of the quality system in accordance with NCAR-145.A.65 (c)(1) it is conditional on the audit being carried out twice in every 12 month period.
8. Except as specified otherwise in sub-paragraph 9, where the organisation has line stations listed as per NCAR-145.A.75 (d) the quality system should describe how these are integrated into the system and include a plan to audit each listed line station at a frequency consistent with the extent of flight activity at the particular line station. Except as specified otherwise in sub-paragraph 9 the maximum period between audits of a particular line station should not exceed 24 months.
9. Except as specified otherwise in sub-paragraph 5, CAA Nepal may agree to increase any of the audit time periods specified in this AMC 145.A.65 (c)(1) by up to 100% provided that there are no safety related findings and subject to being satisfied that the organization has a good record of rectifying findings in a timely manner.
10. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.
11. The independence of the audit should be established by always ensuring that audits are carried out by personnel not responsible for the function, procedure or products being checked. It therefore follows that a large maintenance organisation approved under NCAR Part-145, being an organisation with more than about 500 maintenance staff should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow up to check that findings are being rectified. For the medium sized maintenance organisation approved under NCAR Part-145, being an organisation with less than about 500 maintenance staff, it is acceptable to use competent personnel from one section/department not responsible for the production function, procedure or product to audit the section/department that is responsible subject to the overall planning and implementation being under the control of the quality manager. Organisations with a maximum of 10 maintenance staff actively engaged in carrying out maintenance may contract the independent audit element of the quality system to another organisation or a qualified and competent person approved by CAA Nepal.

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

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

#### **AMC 145.A.70 (a) – Maintenance organisation exposition**

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

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

The exposition should contain the information, as applicable, specified in this AMC. The information, may be presented in any subject order so long as all applicable subjects are

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covered. Where an organisation uses a different format, for example, to allow the exposition to serve for more than one approval, then the exposition should contain a cross reference Annex using this list as an index with an explanation as to where in the exposition the subject matter can be found.

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

The exposition should state how the completion of CDCCL is traced.

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

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

#### PART 0 GENERAL ORGANISATION (Operators within Nepal)

This section is reserved for those maintenance organisations approved under NCAR Part-145 who are also operators within Nepal.

#### PART 1 MANAGEMENT

- 1.1 Corporate commitment by the accountable manager.
- 1.2 Safety and quality policy.
- 1.3 Management personnel.
- 1.4 Duties and responsibilities of the management personnel.
- 1.5 Management organisation chart.
- 1.6 List of certifying 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.

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- 1.10 Notification procedure to CAA Nepal regarding changes to the organisation's activities/approval/location/personnel.
- 1.11 Exposition amendment procedures including, if applicable, delegated procedures.

#### PART 2 MAINTENANCE PROCEDURES

- 2.1 Supplier evaluation and subcontract control procedure.
- 2.2 Acceptance/inspection of aircraft components and material from outside contractors.
- 2.3 Storage, tagging and release of aircraft components and material to aircraft maintenance.
- 2.4 Acceptance of tools and equipment.
- 2.5 Calibration of tools and equipment.
- 2.6 Use of tooling and equipment by staff (including alternate tools).
- 2.7 Cleanliness standards of maintenance facilities.
- 2.8 Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff.
- 2.9 Repair procedure.
- 2.10 Aircraft maintenance programme compliance.
- 2.11 Airworthiness directives procedure.
- 2.12 Optional modification procedure.
- 2.13 Maintenance documentation in use and completion of same.
- 2.14 Technical record control.
- 2.15 Rectification of defects arising during base maintenance.
- 2.16 Release to service procedure.
- 2.17 Records for the operator.
- 2.18 Reporting of defects to CAA Nepal/operator/manufacturer.

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- 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 Control of critical tasks.
- 2.24 Reference to specific maintenance procedures such as -
  - Engine running procedures,
  - Aircraft pressure run procedures,
  - Aircraft towing procedures,
  - Aircraft taxiing procedures.
- 2.25 Procedures to detect and rectify maintenance errors.
- 2.26 Shift/task handover procedures
- 2.27 Procedures for notification of maintenance data inaccuracies and ambiguities, to the type certificate holder.
- 2.28 Production planning procedures

#### PART 2 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 etc.
- 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 control of critical tasks.

#### PART 3 QUALITY SYSTEM PROCEDURES

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section A-AMC to Technical Requirements

- 3.1 Quality audit of organisation procedures.
- 3.2 Quality audit of aircraft.
- 3.3 Quality audit remedial action procedure.
- 3.4 Certifying staff and category B1 and B2 support staff qualification and training procedures.
- 3.5 Certifying staff and category B1 and B2 support staff records.
- 3.6 Quality audit personnel.
- 3.7 Qualifying inspectors.
- 3.8 Qualifying mechanics.
- 3.9 Aircraft or aircraft component maintenance tasks exemption process control.
- 3.10 Concession control for deviation from organisations' procedures.
- 3.11 Qualification procedure for specialised activities such as NDT welding etc.
- 3.12 Control of manufacturers' and other maintenance working teams.
- 3.13 Human factors training procedure
- 3.14 Competence assessment of personnel
- 3.15 Safety Management System

#### PART 4

- 4.1 Contracted operators.
- 4.2 Operator procedures and paperwork.
- 4.3 Operator record completion.

#### PART 5

- 5.1 Sample of documents.
- 5.2 List of Sub-contractors as per NCAR-145.A.75 (b).
- 5.3 List of Line maintenance locations as per NCAR-145.A.75 (d).

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section A-AMC to Technical Requirements

5.4 List of contracted organisations as per NCAR-145.A.70(a)(16).

#### PART 6 OPERATORS MAINTENANCE PROCEDURES

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

#### PART 7 FAA SUPPLEMENTARY PROCEDURES FOR A FAR PART-145 REPAIR STATION

This section is reserved for those maintenance organisations approved under NCAR Part-145 who are also certificated as a FAA FAR Part-145 repair station.

The content of this Part reflects the differences between NCAR Part-145 and FAR Parts 43/145 which will change over time as harmonisation and experience with the FAA progresses.

FAA Advisory Circular 145-7A Appendix 2 contains details of the Part 7 contents.

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

This section reserved for those NCAR Part-145 approved maintenance organisations who are also approved as a TCCA AM573 maintenance organisation.

The content of this Part reflects the difference between NCAR Part-145 and AM 573 and will change over time as harmonisation and experience with Transport Canada Civil Aviation progresses.

TCCA Aircraft Maintenance & Manufacturing Staff Instruction MSI 10 Appendix A contains details of the Part 8 contents.

#### PART 9 EASA

This section is reserved for those maintenance organisations approved under NCAR Part-145 who are also certificated as an EASA Part 145 repair station.

The content of this Part reflects the differences between NCAR Part-145 and EASA Part-145 which will change over time as harmonisation and experience with the EASA progresses.

#### **AMC 145.A.70 (d) Safety Management System:**

The Maintenance organization exposition should include a reference to the Safety

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section A-AMC to Technical Requirements

Management Manual. As the CAA Nepal issue specific approvals for each Safety Management System, the Safety Management Manual should be issued as a specific manual and not be integrated within the Maintenance organization exposition.

#### **AMC 145.A.75 (b) – Privileges of the organisation**

1. Working under the quality system of an organisation appropriately approved under NCAR Part-145 (sub contracting) refers to the case of one organisation, not itself appropriately approved to NCAR Part-145 that carries out aircraft line maintenance or minor engine maintenance or maintenance of other aircraft components or a specialised service as a subcontractor for an organisation appropriately approved under NCAR Part-145. To be appropriately approved to subcontract the organisation should have a procedure for the control of such subcontractors as described below. Any approved maintenance organisation that carries out maintenance for another approved maintenance organisation within its own approval scope is not considered to be subcontracting for the purpose of this paragraph.

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

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 NCAR Part-145**

- 3.1 The fundamental reasons for allowing an organisation approved under NCAR Part-145 to sub-contract certain maintenance tasks are:
  - (a) To permit the acceptance of specialised maintenance services, such as, but not limited to, plating, heat treatment, plasma spray, fabrication of specified parts for minor repairs / modifications, etc., without the need for direct approval by CAA Nepal in such cases.
  - (b) To permit the acceptance of aircraft maintenance up to but not including a base maintenance check as specified in NCAR-145.A.75(b) by organisations not appropriately approved under NCAR Part-145 when it is unrealistic to expect direct approval by CAA Nepal. CAA Nepal will determine when it is



# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section A-AMC to Technical Requirements

unrealistic but in general it is considered unrealistic if only one or two organisations intend to use the sub-contract organisation.

- (c) To permit the acceptance of component maintenance.
  - (d) To permit the acceptance of engine maintenance up to but not including a workshop maintenance check or overhaul of an engine or engine module as specified in NCAR-145.A.75(b) by organisations not appropriately approved under NCAR Part-145 when it is unrealistic to expect direct approval by CAA Nepal. The determination of unrealistic is as per sub-paragraph (b).
- 3.2 When maintenance is carried out under the sub-contract control system it means that for the duration of such maintenance, the NCAR Part-145 approval has been temporarily extended to include the sub-contractor. It therefore follows that those parts of the sub-contractor's facilities personnel and procedures involved with the maintenance organisation's products undergoing maintenance should meet NCAR Part-145 requirements for the duration of that maintenance and it remains the organisation's responsibility to ensure such requirements are satisfied.
- 3.3 For the criteria specified in sub-paragraph 3.1 the organisation is not required to have complete facilities for maintenance that it needs to sub-contract but it should have its own expertise to determine that the sub-contractor meets the necessary standards. However an organisation cannot be approved unless it has the in-house facilities, procedures and expertise to carry out the majority of maintenance for which it wishes to be approved in terms of the number of class ratings.
- 3.4 The organisation may find it necessary to include several specialist sub-contractors to enable it to be approved to completely certify the release to service of a particular product. Examples could be specialist welding, electro-plating, painting etc. To authorise the use of such subcontractors, CAA Nepal will need to be satisfied that the organisation has the necessary expertise and procedures to control such subcontractors.
- 3.5 An organisation working outside the scope of its approval schedule is deemed to be not approved. Such an organisation may in this circumstance operate only under the sub-contract control of another organisation approved under NCAR Part-145.
- 3.6 Authorisation to sub-contract is indicated by CAA Nepal accepting the maintenance organisation exposition containing a specific procedure on the control of subcontractors.
- 4. PRINCIPAL NCAR Part-145 PROCEDURES FOR THE CONTROL OF SUBCONTRACTORS NOT APPROVED UNDER NCAR Part-145**

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section A-AMC to Technical Requirements

- 4.1 A pre audit procedure should be established whereby the maintenance organisations' subcontract control section, which may also be the NCAR-145.A.65 (b) quality system independent audit section, should audit a prospective sub-contractor to determine whether those services of the sub-contractor that it wishes to use meets the intent of NCAR Part-145.
- 4.2 The organisation approved under NCAR Part-145 needs to assess to what extent it will use the sub-contractor's facilities. As a general rule the organisation should require its own paperwork, approved data and material/spare parts to be used, but it could permit the use of tools, equipment and personnel from the sub-contractor as long as such tools, equipment and personnel meet the requirement of NCAR Part-145. In the case of sub-contractors who provide specialised services it may for practical reasons be necessary to use their specialised services personnel, approved data and material subject to acceptance by the organisation approved under NCAR Part-145.
- 4.3 Unless the sub-contracted maintenance work can be fully inspected on receipt by the organisation approved under NCAR Part-145 it will be necessary for such organisation to supervise the inspection and release from the sub-contractor. Such activities should be fully described in the organisation procedure. The organization will need to consider whether to use its own staff or authorise the sub-contractor's staff.
- 4.4 The certificate of release to service may be issued either at the sub-contractor or at the organisation facility by staff issued a certification authorisation in accordance with NCAR-145.A.30 as appropriate, by the organisation approved under NCAR Part-145. Such staff would normally come from the organisation approved under NCAR Part-145 but may otherwise be a person from the sub-contractor who meets the approved maintenance organisation certifying staff standard which itself is approved by CAA Nepal via the maintenance organisation exposition. The certificate of release to service and the CAAN Form 1 will always be issued under the maintenance organisation approval reference.
- 4.5 The sub-contract control procedure will need to record audits of the sub-contractor, to have a corrective action follow up plan and to know when sub-contractors are being used. The procedure should include a clear revocation process for subcontractors who do not meet the NCAR Part-145 approved maintenance organisation's requirements.
- 4.6 The NCAR Part-145 quality audit staff will need to audit the sub-contract control section and sample audit sub-contractors unless this task is already carried out by the quality audit staff as stated in sub-paragraph 4.1.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section A-AMC to Technical Requirements

- 4.7 The contract between the NCAR Part-145 approved maintenance organisation and the sub-contractor should contain a provision for CAA Nepal staff to have right of access to the sub-contractor.

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

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

#### **AMC 145.A.85 – Changes to the organisation**

The primary purpose of this paragraph is to enable the organisation to remain approved if agreed by CAA Nepal during negotiations about any of the specified changes. Without this paragraph the approval would automatically be suspended in all cases

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### SECTION B

#### AMC TO PROCEDURE FOR CAA NEPAL

##### AMC 145.B.10 (1) CAA Nepal - General

1. In deciding upon the required organisational structure, CAA Nepal should review the number of certificates to be issued, the number and size of potential NCAR Part-145 approved maintenance organisations within Nepal, as well as the level of civil aviation activity, number and complexity of aircraft and the size of Nepal's aviation industry.
2. CAA Nepal should retain effective control of important surveillance functions and not delegate them in such a way that NCAR Part-145 organisations, in effect, regulate themselves in airworthiness matters.
3. The set-up of the organisational structure should ensure that the various tasks and obligations of CAA Nepal are not relying on individuals. That means that a continuing and undisturbed fulfilment of these tasks and obligations of CAA Nepal should also be guaranteed in case of illness, accident or leave of individual employees.

##### AMC 145.B.10 (3) CAA Nepal – Qualification and training

1. CAA Nepal surveyors should have:
  - 1.1 practical experience and expertise in the application of civil aviation safety standards and safe operating practices;
  - 1.2 comprehensive knowledge of:
    - a. relevant parts of implementing rules, certification specifications and guidance material;
    - b. CAA Nepal's procedures;
    - c. the rights and obligations of a surveyor;
    - d. quality systems;
    - e. continuing airworthiness management.
  - 1.3 training on auditing techniques.
  - 1.4 five years relevant work experience to be allowed to work as a surveyor independently. This may include experience gained during training to obtain the 1.5 qualification.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section B-AMC to Procedure for CAA Nepal

- 1.5 a relevant engineering degree or an aircraft maintenance technician qualification with additional education. 'relevant engineering degree' means an engineering degree from aeronautical, mechanical, electrical, electronic, avionic or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components.
- 1.6 knowledge of maintenance standards.
2. In addition to technical competency, surveyors should have a high degree of integrity, be impartial in carrying out their tasks, be tactful, and have a good understanding of human nature.
3. A programme for continuation training should be developed that ensures that the surveyors remain competent to perform their allocated tasks.

#### AMC 145.B.10 (4) CAA Nepal - Procedures

The documented procedures should contain the following information:

- (a) The designation of the CAA Nepal(ies).
- (b) The title(s) and name(s) of the manager(s) of CAA Nepal and their duties and responsibilities.
- (c) Organisation chart(s) showing associated chains of responsibility of the senior persons.
- (d) A procedure defining the qualifications for staff together with a list of staff authorised to sign certificates.
- (e) A general description of the facilities.
- (f) Procedures specifying how CAA Nepal ensure(s) compliance with NCAR Part-145.

#### AMC 145.B.20 (1) Initial approval

1. Formally indicated by CAA Nepal in writing means that CAAN Form 4 should be used for this activity. With the exception of the accountable manager, a CAAN Form 4 should be completed for each person nominated to hold a position as required by NCAR-145.A.30 (b).
2. Formal indication of acceptance should be by use of CAAN Form 4 or in the case of the Accountable Manager via approval of the Maintenance Organisation Exposition containing the Accountable Managers commitment statement.
3. CAA Nepal may reject an accountable manager where there is clear evidence that he/she previously held a senior position in CAA Nepal approved Organisation and abused that position by not complying with the particular CAA Nepal requirements."

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Section B-AMC to Procedure for CAA Nepal

#### **AMC 145.B.20 (2) Initial approval**

Verification that the organisation complies with the exposition procedures should be established by CAA Nepal approving the maintenance organization exposition.

#### **AMC 145.B.20 (3) Initial approval**

1. CAA Nepal should determine by whom, and how the audit shall be conducted. For example, for a large organisation, it will be necessary to determine whether one large team audit or a short series of small team audits or a long series of single man audits are most appropriate for the particular situation.
2. It is recommended that the audit is carried out on a product line type basis in that, for example, in the case of an organisation with Airbus A310 and A320 ratings, the audit be concentrated on one type only for a full compliance check and dependant upon the result, the second type may only require a sample check against those activities seen to be weak on compliance for the first type.
3. CAA Nepal auditing surveyor should always ensure that he/she is accompanied throughout the audit by a senior technical member of the organisation. Normally this is the quality manager. The reason for being accompanied is to ensure the organisation is fully aware of any findings during the audit.
4. The auditing Surveyor should inform the senior technical member of the organisation at the end of the audit visit on all findings made during the audit.

#### **AMC 145.B.20 (5) Initial approval**

1. The audit report form should be CAAN Form 6.
2. A quality review of CAAN Form 6 audit report form should be carried out by a competent independent person nominated by CAA Nepal. The review should take into account the relevant paragraphs of NCAR Part-145, the categorisation of finding levels and the closure action taken. Satisfactory review of the audit form should be indicated by a signature on the audit form.

#### **AMC 145.B.20 (6) Initial approval**

1. The reports should include the date each finding was cleared together with reference to CAA Nepal report or letter that confirmed the clearance.
2. There may be occasions when CAA Nepal surveyor may find situations in the applicant's organisation on which he/she is unsure about compliance. In this case, the organisation should be informed about possible non-compliance at the time and the fact that the situation will be reviewed within CAA Nepal before a decision is made.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Section B-AMC to Procedure for CAA Nepal

If the decision is a finding of being in compliance then a verbal confirmation to the organisation will suffice.

3. Findings should be recorded on the audit report form with a provisional categorisation as a level 1 or 2. Subsequent to the audit visit that identified the particular findings, CAA Nepal should review the provisional finding levels, adjusting them if necessary and change the categorisation from provisional to confirmed.
4. All findings should be confirmed in writing to the applicant organization within 2 weeks of the audit visit.

#### **AMC 145.B.25 (1) Issue of approval**

1. The approval should be based only upon the organisational capability (including any associated sub-contractors) relative to NCAR Part-145 and not limited by reference to type certificated products. For example, if the organisation is capable of maintaining within the limitation of NCAR Part-145 the Boeing 737-200 series aircraft the approval schedule should state A1 Boeing 737-200 series and not Boeing 737-2H6 which is a particular airline designator for one of many -200 series.
2. CAA Nepal should indicate approval of the exposition in writing.

#### **AMC 145.B.25 (3) Issue of approval**

The numeric sequence should be unique to the particular approved maintenance organisation.

#### **AMC 145.B.30 (1) Continuation of an approval**

Credit may be claimed by CAA Nepal surveyor(s) for specific item audits completed during the preceding 23 month period subject to four conditions:

- the specific item audit should be the same as that required by NCAR Part-145 latest amendment, and
- there should be satisfactory evidence on record that such specific item audits were carried out and that all corrective actions have been taken, and
- CAA Nepal surveyor(s) should be satisfied that there is no reason to believe standards have deteriorated in respect of those specific item audits being granted a back credit, and
- the specific item audit being granted a back credit should be audited not later than 24 months after the last audit of the item.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Section B-AMC to Procedure for CAA Nepal

#### **AMC 145B.30 (2) Continuation of an approval**

1. Where CAA Nepal has decided that a series of audit visits are necessary to arrive at a complete audit of an organisation, the program should indicate which aspects of the approval will be covered on each visit.
2. It is recommended that part of an audit concentrates on two ongoing aspects of the NCAR Part-145 approval, namely the organisations internal self monitoring quality reports produced by the quality monitoring personnel to determine if the organization is identifying and correcting its problems and secondly the number of concessions granted by the quality manager.
3. At the successful conclusion of the audit including approval of the exposition, an audit report form should be completed by the auditing surveyor including all recorded findings, closure actions and recommendation. A CAAN Form 6 should be used for this activity.
4. The accountable manager should be seen at least once every 24 months to ensure he/she fully understands the significance of the approval.
5. In the case of line stations CAA Nepal can adopt a sampling program based upon number of line stations and complexity.

#### **AMC 145.B.35 Changes**

CAA Nepal should have adequate control over any changes to the management personnel specified in NCAR-145.A.30 (a) and (b) and such changes in personnel will require an amendment to the exposition.

#### **AMC 145.B.35.(1) Changes**

Changes to the NCAR Part-145 approval include the following:

- Name change
- Address change
- Approval scope and rating
- New base facility
- The applicable part/s of CAAN Form 6 should be used for the change.

#### **AMC 145.B.40 MOE amendments**

1. It is recommended that a simple exposition status sheet is maintained which contains information on when an amendment was received by CAA Nepal and when it was approved.



# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Section B-AMC to Procedure for CAA Nepal

2. CAA Nepal may define some class of amendments to the exposition which may be incorporated without prior authority approval. In this case a procedure should be stated in the amendment section of the MOE. The exposition chapter dealing with scope of work/approval should not be subject to this procedure.
3. The organisation should submit each exposition amendment to CAA Nepal whether it is an amendment for approval or a delegated approval amendment. Where the amendment requires approval by CAA Nepal, CAA Nepal when satisfied should indicate its approval in writing. Where the amendment has been submitted under the delegated approval procedure CAA Nepal should acknowledge receipt in writing.

#### **AMC 145.B.50 (a) Findings**

In practical terms a level 1 finding is where a CAA Nepal finds a significant non-compliance with NCAR Part-145.

The following are example level 1 findings:

- Failure to gain access to the organisation during normal operating hours of the organisation in accordance with NCAR-145.A.90(2) after two written requests.
- If the calibration control of equipment as specified in NCAR-145.A.40(b) had previously broken down on a particular type product line such that most “calibrated” equipment was suspect from that time then that would be a level 1 finding.

Note: A complete product line is defined as all the aircraft, engine or component of a particular type.

For a level 1 finding it may be necessary for CAA Nepal to ensure that further maintenance and re-certification of all affected products is accomplished, dependent upon the nature of the finding.

In practical terms where a CAA Nepal surveyor finds a non-compliance with NCAR Part-145 against one product, it is deemed to be a level 2 finding.

The following are example level 2 findings:

- One time use of a component without any serviceable tag.
- The training documents of the certifying staff are not completed.

#### **AMC 145.B.50 (b) Findings**

1. Where the organisation has not implemented the necessary corrective action within that period it may be appropriate to grant a further period of up to three months, subject to CAA Nepal notifying the accountable manager. In exceptional

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2

#### Section B-AMC to Procedure for CAA Nepal

circumstances and subject to a realistic action plan being in place, CAA Nepal may specifically vary the maximum 6 month corrective action period. However, in granting such a change the past performance of the organization should be considered.

2. It may be necessary for CAA Nepal to ensure that further maintenance and re-certification of all affected products is accomplished, dependent upon the nature of the finding.

#### **AMC 145.B.55 Record-keeping**

1. The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organized in a consistent way through out CAA Nepal (chronological, alphabetical order, etc.).
2. All records containing sensitive data regarding applicants or organizations should be stored in a secure manner with controlled access to ensure confidentiality of this kind of data.

All computer hardware used to ensure data backup should be stored in a different location from that containing the working data in an environment that ensures they remain in good condition. When hardware or software changes take place special care should be taken to ensure that all necessary data continues to be accessible at least through the full period specified in NCAR-145.B.55.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 2 Appendices

### Appendix I

CAAN Form 4

#### CIVIL AVIATION AUTHORITY OF NEPAL

Details of Management Personnel required to be accepted as specified in NCAR-.....

1. Name:

2. Position:

3. Qualifications relevant to the item (2) position:

4. Work experience relevant to the item (2) position:

Signature: ..... Date: .....

On completion, please send this form under confidential cover to CAA Nepal

CAA Nepal use only

Name and signature of authorised CAA Nepal staff member accepting this person:

Signature: ..... Date: .....

Name: ..... Office: .....



# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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<b>CIVIL AVIATION AUTHORITY OF NEPAL</b>											
<b>NCAR Part-145 APPROVAL RECOMMENDATION REPORT</b>											
<b>Part 2: NCAR Part-145 Compliance Audit Review</b>											
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 NCAR Part-145 subparagraphs please either tick (√) the box if satisfied with compliance or cross (X) the box if not satisfied with compliance and specify the reference of 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.											
Para	Subject										
145.25	Facilities										
145.30	Personnel										
145.35	Certifying Staff										
145.40	Equipment, Tools, etc										
145.42	Acceptance of Components										
145.45	Maintenance Data										
145.47	Production Planning										
145.50	Certification of Maintenance										
145.55	Maintenance Records										
145.60	Occurrence Reporting										
145.65	Procedures & Quality										
145.70	See Part 3										
145.75	Privileges of AMO										
145.80	Limitations on AMO										
145.85	Changes to AMO										
145.90	Continued Validity										
CAA Nepal surveyor(s)						Signature(s):					
Regulatory office:						Date of CAAN Form 6 part 2 completion:					
completion:											

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 2 Appendices

CAAN Form 6

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#### CIVIL AVIATION AUTHORITY OF NEPAL

#### NCAR Part-145 APPROVAL RECOMMENDATION REPORT

#### Part 3: Compliance with NCAR 145.A.70 Maintenance organisation exposition

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 MANAGEMENT

- |      |                          |   |
|------|--------------------------|---|
| 1.1  | <input type="checkbox"/> | Corporate commitment by accountable Manager   |
| 1.2  | <input type="checkbox"/> | Safety and Quality Policy   |
| 1.3  | <input type="checkbox"/> | Management personnel  |
| 1.4  | <input type="checkbox"/> | Duties and responsibilities of the management personnel   |
| 1.5  | <input type="checkbox"/> | Management Organisation Chart   |
| 1.6  | <input type="checkbox"/> | List of Certifying staff (Note: a separate document may be referenced)  |
| 1.7  | <input type="checkbox"/> | Manpower resources  |
| 1.8  | <input type="checkbox"/> | General description of the facilities at each address intended to be approved                                       |
| 1.9  | <input type="checkbox"/> | Organisations intended scope of work  |
| 1.10 | <input type="checkbox"/> | Notification procedures to CAA Nepal regarding changes to the organisation's activities/approval/location/personnel |
| 1.11 | <input type="checkbox"/> | Exposition amendment procedures   |

#### Part 2 MAINTENANCE PROCEDURES

- |      |                          |   |
|------|--------------------------|---|
| 2.1  | <input type="checkbox"/> | Supplier evaluation and subcontract control procedures  |
| 2.2  | <input type="checkbox"/> | Acceptance/inspection of aircraft components and material from outside contractors  |
| 2.3  | <input type="checkbox"/> | Storage, tagging, and release of aircraft components and material to aircraft maintenance   |
| 2.4  | <input type="checkbox"/> | Acceptance of tools and equipment   |
| 2.5  | <input type="checkbox"/> | Calibration of tools and equipment  |
| 2.6  | <input type="checkbox"/> | Use of tooling and equipment by staff (including alternate tools)   |
| 2.7  | <input type="checkbox"/> | Cleanliness standards of maintenance facilities   |
| 2.8  | <input type="checkbox"/> | Maintenance instructions and relationship to aircraft/aircraft component manufacturer's instructions including updating and availability to staff |
| 2.9  | <input type="checkbox"/> | Repair procedures   |
| 2.10 | <input type="checkbox"/> | Aircraft maintenance programme compliance   |
| 2.11 | <input type="checkbox"/> | Airworthiness Directive procedure   |

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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#### CIVIL AVIATION AUTHORITY OF NEPAL

#### NCAR Part-145 APPROVAL RECOMMENDATION REPORT

#### PART 3: Compliance with NCAR 145.A.70 Maintenance Organisation Exposition

2.12		Optional modification procedures
2.13		Maintenance documentation in use and completion of same
2.14		Technical record control
2.15		Rectification of defects arising during base maintenance
2.16		Release to service procedure
2.17		Records for the operator
2.18		Reporting of defects to CAA Nepal/Operator/Manufacturer
2.19		Return of defective aircraft components to store
2.20		Defective components to outside contractors
2.21		Control of computer maintenance record system
2.22		Control of man-hour planning versus scheduled maintenance work
2.23		Control of critical tasks
2.24		Reference to specific maintenance procedures
2.25		Procedures to detect and rectify maintenance errors
2.26		Shift / task handover procedures
2.27		Procedures for notification of maintenance data inaccuracies and ambiguities to the type certificate holder
2.28		Production planning procedures
Part L2		<b>ADDITIONAL LINE MAINTENANCE PROCEDURES</b>
L2.1		Line maintenance control of aircraft components, tools, equipment, etc
L2.2		Line maintenance procedures related to servicing/fuelling/de-icing, etc
L2.3		Line maintenance control of defects and repetitive defects
L2.4		Line procedure for completion of technical 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 for control of critical tasks

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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#### CIVIL AVIATION AUTHORITY OF NEPAL

#### NCAR Part-145 APPROVAL RECOMMENDATION REPORT

#### PART 3: Compliance with NCAR 145.A.70 Maintenance organisation exposition

##### Part 3 QUALITY SYSTEM PROCEDURES

- |      |                          |  |
|------|--------------------------|--|
| 3.1  | <input type="checkbox"/> | Quality audit of organisation procedures                                     |
| 3.2  | <input type="checkbox"/> | Quality audit of aircraft  |
| 3.3  | <input type="checkbox"/> | Quality audit remedial action procedure                                      |
| 3.4  | <input type="checkbox"/> | Certifying staff qualification and training procedure                        |
| 3.5  | <input type="checkbox"/> | Certifying staff records   |
| 3.6  | <input type="checkbox"/> | Quality audit personnel  |
| 3.7  | <input type="checkbox"/> | Qualifying inspectors  |
| 3.8  | <input type="checkbox"/> | Qualifying mechanics   |
| 3.9  | <input type="checkbox"/> | Aircraft/aircraft component maintenance tasks exemption process control      |
| 3.10 | <input type="checkbox"/> | Concession control for deviation from organisation's procedures              |
| 3.11 | <input type="checkbox"/> | Qualification procedure for specialiseed activities such as NDT, welding etc |
| 3.12 | <input type="checkbox"/> | Control of maufacturers' and other maintenance working teams                 |
| 3.13 | <input type="checkbox"/> | Human Factors training procedure   |
| 3.14 | <input type="checkbox"/> | Competence assessment of personnel   |

##### Part 4

- |     |                          |                               |
|-----|--------------------------|-------------------------------|
| 4.1 | <input type="checkbox"/> | Contracted operators          |
| 4.2 | <input type="checkbox"/> | Operator procedures/paperwork |
| 4.3 | <input type="checkbox"/> | Operator record completion    |

##### Part 5 APPENDICES

- |     |                          |                                   |
|-----|--------------------------|-----------------------------------|
| 5.1 | <input type="checkbox"/> | Sample Documents                  |
| 5.2 | <input type="checkbox"/> | List of sub-contractors           |
| 5.3 | <input type="checkbox"/> | List of line maintenance location |
| 5.4 | <input type="checkbox"/> | List of Part-145 organisations    |

Date of CAAN Form 6 part 3 completion:

MOE Reference:

MOE Amendment:

CAA Nepal audit staff:

Signature(s):

CAA Nepal office:

Date of CAAN Form 6 part 3 completion:



# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 2 Appendices

CAAN Form 6

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#### CIVIL AVIATION AUTHORITY OF NEPAL

#### NCAR Part-145 APPROVAL RECOMMENDATION REPORT

#### Part 4 : Findings regarding NCAR Part-145 compliance status

Each level 1 and 2 finding should be recorded whether it has been rectified or not and should be identified by a simple cross reference to the Part 2 requirement. All non-rectified findings should be copied in writing to the organisation for the necessary corrective action.

Part 2 or 3 ref.	Audit reference(s):  Findings	L e v e l	Corrective action		
			Date Due	Date Closed	Reference

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 2 Appendices

CAAN Form 6

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#### CIVIL AVIATION AUTHORITY OF NEPAL

#### NCAR Part-145 APPROVAL RECOMMENDATION REPORT

#### Part 5 : NCAR Part-145 Approval or continued approval or change recommendation\*

Name of organisation:

Approval reference:

Audit reference(s):

The following NCAR Part-145 scope of approval is recommended for this organisation:

Or, it is recommended that the NCAR Part-145 scope of approval specified in CAAN Form 3 referenced .....be continued.

Name of recommending CAA Nepal surveyor:

Signature of recommending CAA Nepal surveyor:

Regulatory Office:

Date of recommendation:

CAAN Form 6 review (quality checks):

Date:

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 2 Appendices

### Appendix III

CAAN Form 2

Page 1 of 2

#### CIVIL AVIATION AUTHORITY NEPAL

**NCAR Part- 145**

**Application for:**

**Initial grant**

**Change**

1. Registered name of applicant:

2. Trading name (if different):

3. Addresses requiring approval:

4. Tel. .... Fax..... E-mail.....

5. Scope of NCAR Part145 Approval relevant to this application: see page 2 for possibilities:

6. Position and name of the ( proposed\*) Accountable Manager:

7. Signature of the (proposed\*) Accountable Manager: .....

8. Place: .....

9. Date: .....

Note (1): A note giving the address(es) to which the Form(s) should be sent.

Note (2): An optional note to give information on any fees payable.

\* Applicable only in the case of a new NCAR Part-145 Applicant.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

### Chapter 2 Appendices

#### SCOPE OF PART-145 APPROVAL AVAILABLE

AIRCRAFT	A1 Aeroplanes / airships above 5700 kg	Quote aeroplane/airship type																						
	A2 Aeroplanes / airships 5700 kg and below	Quote aeroplane/airship manufacturer or group or type																						
	A3 Helicopters	Quote helicopter manufacturer or group or type																						
	A4 Aircraft other than A1, A2 or A3	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																						
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 – Airframe																							
	C10 Helicopter – Rotors																							
	C11 Helicopter – Trans																							
	C12 Hydraulics																							
	C13 Instruments																							
	C14 Landing Gear																							
	C15 Oxygen																							
	C16 Propellers																							
	C17 Pneumatic																							
	C18 Protection ice/rain/fire																							
	C19 Windows																							
	C20 Structural																							
SPECIALISE D SERVICES	D1 Non Destructive Testing	Quote particular NDT method.																						
<p>With reference to the above scope of approval and item 6 on page 1, please complete the following example style, but relevant to your organisation.</p> <table> <tbody> <tr> <td>A1</td> <td>Base &amp; Line Boeing 737-200</td> <td>B2</td> <td>Lycoming Piston</td> </tr> <tr> <td>A2</td> <td>Base Piper PA34</td> <td>B3</td> <td>Garrett GTCP85</td> </tr> <tr> <td>A2</td> <td>Base &amp; Line Cessna Piston Twins</td> <td>C2</td> <td>SFENA</td> </tr> <tr> <td>A3</td> <td>Base &amp; Line Bell 206/212</td> <td>C4</td> <td>Boeing 747</td> </tr> <tr> <td>B1</td> <td>CFM 56</td> <td>D1</td> <td>Eddy Current</td> </tr> </tbody> </table> <p>There may be a number of types/manufacturers, etc listed against each rating.</p>					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	Base & Line Bell 206/212	C4	Boeing 747	B1	CFM 56	D1	Eddy Current
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	Base & Line Bell 206/212	C4	Boeing 747																					
B1	CFM 56	D1	Eddy Current																					

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# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Appendices

#### Appendix IV to AMC 145.A.30 (e) and 145.B.10 (3) Fuel Tank Safety training

This appendix includes general instructions for providing training on Fuel Tank Safety issues.

##### A) Effectivity:

- Large aeroplanes as defined in Decision 2003/11/RM of the Executive Director of the European Aviation Safety Agency (CS-25) and certified after 1 January 1958 with a maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more, and
- Large aeroplanes as defined in Decision 2003/11/RM of the Executive Director of the European Aviation Safety Agency (CS-25) which contains CS-25 amendment 1 or later in their certification basis.

##### B) Affected organisations:

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

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

Phase 1 only:

- The group of persons representing the maintenance management structure of the organisation, the quality manager and the staff required to quality monitor the organisation.
- Personnel of the CAA Nepal responsible as per 145.B.30 for the oversight of NCAR Part-145 approved maintenance organisations specified in paragraph B).

Phase 1 + Phase 2 + Continuation training:

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

##### D) General requirements of the training courses

Phase 1 - Awareness

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Appendices

The training should be carried out before the person starts to work without supervision but not later than 6 months after joining the organisation. The persons who have already attended the Level 1 Familiarisation course in compliance with Initial Issue of NCAR Part -145 Appendix IV is already in compliance with Phase 1.

Type: Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self study or informative session. Signature of the reader is required to ensure that the person has passed the training.

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

Objectives:

The trainee should, after the completion of the training:

1. Be 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 CAA Nepal to allow organizations to set the necessary courses and impart the training to the personnel, taking into account the organisation's training schemes/means/practices. This flexible period should not extend beyond 31 December 2010.

The persons who have already attended the Level 2 Detailed training course in compliance with Initial Issue NCAR Part-145 Appendix IV either from a NCAR Part-145 maintenance organisation or from a NCAR Part-147

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Appendices

training organisation are already in compliance with Phase 2 with the exception of continuation training.

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

Type: Should be a more in-depth internal or external course. It should not take the form of a training bulletin, or other self study. An examination should be required at the end, which should be in the form of a multi choice question, and the pass mark of the examination should be 75%.

Level: 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 continuous evaluation process should ensure the effectiveness of the training and its relevance;
  - Some questions at intermediate steps of the training should be proposed to ensure that the trainee is authorized to move to the next step;
  - The content and results of examinations should be recorded;
  - Access to an instructor in person or at distance should be possible in case support is needed.

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

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Appendices

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 of 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).

#### Continuation training

The organisation should ensure that the continuation training is required in each two years period. The syllabus of the training programme referred to in 3.4 of the Maintenance Organisation Exposition (MOE) should include the additional syllabus for this continuation 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 CAA Nepal'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 recognise, 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.



# Nepalese Civil Airworthiness Requirements

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### Chapter 2 Appendices

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 behaviour 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:
  1. ignition source prevention and
  2. 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 program 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 instructions for continuing airworthiness (aircraft maintenance manuals, component maintenance manuals, Service Bulletins...)
- 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.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter 2 Appendices

#### F) Approval of training

For NCAR Part145 approved organisations, the approval of the initial and continuation training programme and the content of the examination can be achieved by the change to the MOE.

The necessary changes to the MOE to meet the content of this AMC should be made and Implemented at the time requested by the CAA Nepal.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### CHAPTER 3 – GUIDANCE MATERIAL TO NCAR Part-145

#### SECTION A

#### TECHNICAL REQUIREMENTS

This section contains Guidance Material (GM) to NCAR Part-145 Section A – Requirements. “Guidance Material” helps to illustrate the meaning of a requirement.

##### **GM 145.A.10 – Scope**

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

1. By inference, the smallest maintenance organisation would only be involved with a limited number of light aircraft, or aircraft components, used for commercial air transport. It is therefore a matter of scale, light aircraft do not demand the same level of resources, facilities or complex maintenance procedures as the large organisation.
2. It is recognised that a NCAR Part-145 approval may be required by two quite different types of small organisations, the first being the light aircraft maintenance hangar, the second being the component maintenance workshop, e.g. small piston engines, radio equipment etc.
3. Where only one person is employed (in fact having the certifying function and others), this organisations approved under NCAR Part-145 may use the alternatives provided in this Guidance Material limited to the following:

Class A2 Base and Line maintenance of aeroplanes of 5700 kg and below (piston engines only).

Class A3 Base and Line maintenance of single engined helicopters of less than 3175 kg.

Class A4 Aircraft other than A1, A2 and A3

Class B2 Piston engines with maximum output of less than 450 HP.

Class C Components.

Class D1 Non destructive Inspections.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter- 3 Guidance Material to NCAR-145

Please note that the following sections only include the relevant paragraphs of NCAR Part-145 for which the alternative applies. When paragraphs of NCAR Part-145 not listed means full compliance needs to be demonstrated.

4. Organisations maintaining the class of aeroplanes, helicopters, engines or components within the limitations of AMC 145.A.20 paragraph 5.
5. NCAR-145.A.30(b): The minimum requirement is for one full time person who meets the Part-66 requirements for certifying staff and holds the position of "accountable manager, maintenance engineer and is also certifying staff". No other person may issue a certificate of release to service and therefore if absent, no maintenance may be released during such absence.
  - 5.1. The quality monitoring function of NCAR-145.A.65(c) may be contracted to an appropriate organisation approved under NCAR Part-145 or to a person with appropriate technical knowledge and extensive experience of quality audits employed on a Part time basis, with the agreement of CAA Nepal.

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

- 5.2. NCAR-145.A.35. In the case of an approval based on one person using a subcontracted quality monitoring arrangement, the requirement for a record of certifying staff is satisfied by the submission to and acceptance by CAA Nepal of the CAAN Form 4. With only one person the requirement for a separate record of authorization is unnecessary because CAAN Form 3 approval schedule defines the authorisation. An appropriate statement, to reflect this situation, should be included in the exposition.
- 5.3. NCAR-145.A.65(c). It is the responsibility of the contracted quality monitoring organisation or person to make a minimum of 2 visits per 12 months and it is the responsibility of this organisation or person to carry out such monitoring on the basis of 1 visit preannounced and 1 visit unannounced to the organisation.

It is the responsibility of the organisation to comply with the findings of the contracted quality monitoring organisation or the person.

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

6. Recommended operating procedure for a NCAR Part-145 approved maintenance organization based upon up to 10 persons involved in maintenance.

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter- 3 Guidance Material to NCAR-145

- 6.1. NCAR-145.A.30 (b): The normal minimum requirement is for the employment on a full-time basis of two persons who meet CAA Nepal requirements for certifying staff, whereby one holds the position of "maintenance engineer" and the other holds the position of "quality audit engineer".

Either person can assume the responsibilities of the accountable manager providing that they can comply in full with the applicable elements of NCAR-145.A.30(a), but the "maintenance engineer" should be the certifying person to retain the independence of the "quality audit engineer" to carry out audits. Nothing prevents either engineer from undertaking maintenance tasks providing that the "maintenance engineer" issues the certificate of release to service.

The "quality audit 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 quality assurance, in which case some reduction in the extent of maintenance qualifications may be permitted.

In cases where CAA Nepal agrees that it is not practical for the organisation to nominate a post holder for the quality monitoring function, this function may be contracted in accordance to paragraph 5.1.

#### **GM 145.A.30 (e) – Personnel requirements (Training syllabus for initial human factors training)**

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

The maintenance organisation may combine, divide, change the order of any subject of the syllabus to suit its own needs, so long as all subjects are covered to a level of detail appropriate to the organisation and its personnel.

Some of the topics may be covered in separate training (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 (eg. ICAO HF Digests and Training Manual).

Topics should be related to maintenance engineering where possible; too much unrelated theory should be avoided.

- 1 General / Introduction to human factors

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## Approved Maintenance Organizations NCAR Part-145

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### Chapter- 3 Guidance Material to NCAR-145

- 1.1 Need to address human factors
- 1.2 Statistics
- 1.3 Incidents
- 2 Safety Culture / Organisational factors
- 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

# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter- 3 Guidance Material to NCAR-145

- 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 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
- 7 Communication
  - 7.1 Shift / Task handover

# Nepalese Civil Airworthiness Requirements

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### Chapter- 3 Guidance Material to NCAR-145

- 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 Error provoking behaviour
  - 9.3 Assertiveness
- 10 Organisation's HF program
  - 10.1 Reporting errors
  - 10.2 Disciplinary policy
  - 10.3 Error investigation
  - 10.4 Action to address problems
  - 10.5 Feedback

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

Refer to flight crew licencing requirements.

#### **GM 145.A.55 (a) – Maintenance records**

1. Properly executed and retained records provide owners, operators and maintenance personnel with information essential in controlling unscheduled and scheduled maintenance, and troubleshooting to eliminate the need for re-inspection and rework to establish airworthiness.

The prime objective is to have secure and easily retrievable records with comprehensive and legible contents. The aircraft record should contain basic details of all serialized aircraft components and all other significant aircraft components



# Nepalese Civil Airworthiness Requirements

## Approved Maintenance Organizations NCAR Part-145

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### Chapter- 3 Guidance Material to NCAR-145

installed, to ensure traceability to such installed aircraft component documentation and associated maintenance data as specified in NCAR-145.A.45.

2. Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When owners and operators wish to take advantage of the modular design, then total time in service and maintenance records for each module is to be maintained. The maintenance records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.
3. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics etc. When these things have been done and the record is still incomplete, the owner/operator may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to CAA Nepal for acceptance.

NOTE: Additional maintenance may be required.

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

#### **GM 145.A.60 (a) – Occurrence reporting**

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

#### **GM 145.A.60 (b) Occurrence reporting**

The following examples can be considered occurrence reporting in a NCAR Part-145 environment but should not be considered as the only case of occurrence reporting:

- a) An occurrence reported by the crew the investigations of which lead to suspect or conclude to a maintenance error.

- Main gearbox oil loss: Established that oil hose had chaffed on structure

# Nepalese Civil Airworthiness Requirements

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### Chapter- 3 Guidance Material to NCAR-145

- Poor Air Cycle machine operation: sense pipe found blanked
- Incorrect fuel indications: Connectors found contaminated
- b) A defect detected on the aircraft during a maintenance inspection (scheduled or non-scheduled) which may have its origin in a maintenance or design error.
  - During routine inspection: Damage found to number 4 engine inlet cowl acoustic lining
  - During routine inspection: Rivets found loose on vertical stabiliser
  - Found during after flight inspection: Excessive play in tail rotor blade pitch link bearing at the attachment to the tail rotor blade horn due to bearing migration.
- c) A deviation of maintenance procedure (company manual or manufacturer documentation)
  - Safety pin being left installed in a component, such as an escape slide
  - Alleged inappropriate repair carried out with damage outside of SRM limits.
  - Torch left in intake causing damage to inlet cowl during engine start
  - Part Number of replaced part not properly recorded

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

Each report should contain at least the following information:

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

*Note: CAA Nepal Guidance on Occurrence Reporting may provide further guidance on occurrence reporting*

# Nepalese Civil Airworthiness Requirements

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### Chapter- 3 Guidance Material to NCAR-145

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

1. The purpose of this GM is to give guidance on just one acceptable working audit plan to meet part of the needs of 145.65 (c)1. There are number of other acceptable working audit plans.
2. The proposed plan lists the subject matter that should be covered by the audit and attempts to indicate applicability in the various types of workshops and aircraft facilities. The list should therefore be tailored for the Particular situation and more than one list may be necessary. Each list should be shown against a timetable to indicate when the Particular item is scheduled for audit and when the audit was completed.

PARA NCAR	Comment	HANGAR	ENGINE Workshop	MECH Workshop	AVIONIC Workshop
145.25		Yes	Yes	Yes	Yes
145.30		Yes	Yes	Yes	Yes
145.35		Yes	Yes	Yes	Yes
145.40		Yes	Yes	Yes	Yes
145.42		Yes	Yes	Yes	Yes
145.45		Yes	Yes	Yes	Yes
145.47		Yes	Yes	Yes	Yes
145.50		Yes	Yes	Yes	Yes
145.55		Yes	Yes	Yes	Yes
145.60		Yes	Yes	Yes	Yes
145.65		Yes	Yes	Yes	Yes
2.1	MOE	Yes	Yes	Yes	Yes
2.2	MOE	Yes	Yes	Yes	Yes
2.3	MOE	Yes	Yes	Yes	Yes
2.6	MOE	Yes	Yes	Yes	Yes
2.7	MOE	Yes	Yes	Yes	Yes
2.9	MOE	Yes	Yes	Yes	Yes
2.10	MOE	Yes	No	No	No
2.11	MOE	Yes	Yes	Yes	Yes
2.12	MOE	Yes	Yes	Yes	Yes
2.13	MOE	Yes	Yes	Yes	Yes
2.15	MOE	Yes	No	No	No
2.19	MOE	Yes	Yes	Yes	Yes
2.20	MOE	Yes	Yes	Yes	Yes
2.21	MOE	if appl	if appl	if appl	if appl
2.22	MOE	Yes	Yes	No	No
2.23	MOE	Yes	No	No	No
2.24	MOE	Yes	Yes	Yes	Yes
2.25	MOE	Yes	Yes	Yes	Yes
2.26	MOE	Yes	Yes	Yes	Yes
2.27	MOE	Yes	Yes	Yes	Yes
2.28	MOE	Yes	Yes	Yes	Yes
L2.1	MOE	if appl	No	No	No

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L2.2	MOE	if appl	No	No	No
L2.3	MOE	if appl	No	No	No
L2.4	MOE	if appl	No	No	No
L2.5	MOE	if appl	No	No	No
L2.6	MOE	if appl	No	No	No
L2.7	MOE	if appl	No	No	No
3.9	MOE	if appl	if appl	if appl	if appl
3.10	MOE	if appl	if appl	if appl	if appl
3.11	MOE	if appl	if appl	if appl	no
3.12	MOE	yes	Yes	No	No
3.13	MOE	yes	yes	yes	yes
3.14	MOE	yes	yes	yes	yes
145.65		yes	yes	yes	yes
145.70		yes	yes	yes	yes
145.75		yes	yes	yes	yes
145.80		yes	yes	yes	yes
145.85		yes	yes	yes	yes

Note 1: “if appl” means if applicable or relevant.

Note 2: In the line station case all line stations should be audited at the frequency agreed by CAA Nepal within the limits of AMC 145.A.65 (b).”

#### **GM 145.A.70 (a) – Maintenance organisation exposition**

1. The purpose of the maintenance organisation exposition (MOE) is to set forth the procedures, means and methods of the organisation.
2. Compliance with its contents will assure compliance with the requirements of NCAR Part-145, which is a pre-requisite to obtaining and retaining an approved maintenance organisation certificate.
3. NCAR-145.A.70 (a)(1) to (a)(11) constitutes the 'management' Part of the MOE and therefore could be produced as one document and made available to the person(s) specified under NCAR-145.A.30 (b) who should be reasonably familiar with its contents. NCAR-145.A.70(a)(6) list of certifying staff may be produced as a separate document.
4. NCAR.145.70 (a)(12) constitutes the working procedures of the organisation and therefore as stated in the requirement may be produced as any number of separate procedures manuals. It should be remembered that these documents should be cross-referenced from the management MOE.
5. Personnel are expected to be familiar with those Parts of the manuals that are relevant to the maintenance work they carry out.

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6. The organisation should specify in the MOE who should amend the manual particularly in the case where there are several parts.
7. The quality manager should be responsible for monitoring the amendment of the MOE, unless otherwise agreed by CAA Nepal, including associated procedures manuals and submission of the proposed amendments to CAA Nepal. However CAA Nepal may agree via a procedure stated in the amendment section of the MOE that some defined class of amendments may be incorporated without prior approval by CAA Nepal.
8. The MOE should cover four main parts:
  - a. The management MOE covering the parts specified earlier.
  - b. The maintenance procedures covering all aspects of how aircraft components may be accepted from outside sources and how aircraft will be maintained to the required standard.
  - c. The quality system procedures including the methods of qualifying mechanics, inspection, certifying staff and quality audit personnel.
  - d. Contracted operator procedures and paperwork.
9. The accountable manager's exposition statement as specified under NCAR-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 defines the organisation and procedures upon which CAA Nepal NCAR Part-145 approval is based as required by NCAR-145.70. These procedures are approved by the undersigned and should be complied with, as applicable, when work/orders are being progressed under the terms of the NCAR Part-145 approval.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by CAA Nepal from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that CAA Nepal will approve this organisation whilst CAA Nepal is satisfied that the procedures are being followed and work standards maintained. It is further understood that CAA Nepal reserves the right to suspend, limit or revoke the approval of the organisation if CAA Nepal has evidence that procedures are not followed or standards not upheld.

Signed .....

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Dated .....

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

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

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

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

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