ROYAL GOVERNMENT OF BHUTAN
DEPARTMENT OF CIVIL AVIATION

BHUTAN
AVIATION
REQUIREMENTS

AIRWORTHINESS PROCEDURES
(BAR-AW)

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BHUTAN AVIATION REQUIREMENTS
AIRWORTHINESS PROCEDURES

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BHUTAN AVIATION REQUIREMENTS
AIRWORTHINESS PROCEDURES

FOREWORD

1. Purpose

The Bhutan Aviation Requirements – Airworthiness Procedures, hereinafter referred to as BAR-AW, are published by the Director of Civil Aviation under the authority of the Bhutan Air Navigation Regulations (BANR). They comprise minimum requirements and constitute the basis for the issue of approvals and certificates required by the BANR currently in force.

2. General

BAR-AW prescribes requirements for the design, certification, maintenance, modification and repair of civil aircraft registered in Bhutan. BAR-AW also prescribes requirements for the certification of individuals performing aircraft maintenance.

The requirements have the same effect as the BANR and shall be applied as appropriate in each case unless the Director specifically approves or directs otherwise.

The Director may accept proposals to vary the procedures in a particular case, provided such variations give at least, an equivalent level of safety to that intended by the BAR-AW.

3. Presentation

BAR-AW is divided into five chapters. The chapters are further divided by subjects into parts, the numbering of each part being associated with its chapter (e.g. Chapter 1 contains parts 1.1, 1.2, 1.3, etc.).

Amendments are incorporated into the print text by means of an 'Amendment'.

New, amended and corrected text is indicated with a marginal line. Correction of typographical mistakes and reformat of paragraphs are however not indicated.

4. Interpretation

These are minimum requirements; it is essential that they are interpreted and applied against a background of aeronautical knowledge.

Where necessary the BAR-AW requirements are supplemented by Appendices. Generally these appendices take the form of acceptable interpretation of requirements, state recommended practices, or give supplementary information.

Mandatory clauses are invariably denoted by the use of "shall" or "must". "Should" and "may" are used for permissive or recommended clauses. When in doubt over the technical contents of these requirements the ruling of the Director of Civil Aviation should be sought.

5. Effective Date

New requirements and amendments promulgated in BAR-AW are effective from the date printed on them.

6. Distribution

These requirements may be purchased in complete volume from the Department of Civil Aviation. The initial purchase does not include the amendment service, which is instead subjected to payment of an annual subscription fee.

Each operator or approved maintenance organisation is required to have at least one copy of these requirements at its location where maintenance work is performed, and should be easily accessible to maintenance personnel.

Certifying staff should have their own copy of the BAR-AW and must be familiar with the pertinent requirements.

7. Applications and Enquiries

Applications for further copies of the BAR-AW, permission to reproduce any part of the BAR-AW and any enquiries regarding their technical contents should be sent to the following address:

Airworthiness Office
Department of Civil Aviation
Paro

Fax: 08-271909
Email: **aviation@druknet.bt**

Wangdi Gyeltshen
Director

Department of Civil Aviation
Paro
Bhutan

BHUTAN AVIATION REQUIREMENTS
AIRWORTHINESS PROCEDURES

ABBREVIATIONS

1. BAR-AW: Bhutan Aviation requirements (Airworthiness Procedures)
2. JAR: Joint Aviation Requirements
3. BANR: Bhutan Air Navigation Regulations
4. ICAO: International Civil Aviation Organisation
5. DCA: Department of Civil Aviation
6. MCTOW: Maximum Certificated Take-off Weight

BHUTAN AVIATION REQUIREMENTS
AIRWORTHINESS PROCEDURES

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Chapter 1 – Airworthiness Design Standards

BHUTAN AVIATION REQUIREMENTS
AIRWORTHINESS PROCEDURES

1 Airworthiness Design Standards

1.1 General

1.1.1 Applicability

(a) This chapter prescribes airworthiness design standards for aircraft for which a certificate of airworthiness is to be issued.

(b) Terms and abbreviations used in the design standards shall, unless otherwise specified by the Director, be interpreted as having the meanings defined or applied therein.

1.2 Design Standards

1.2.1 Aircraft

(a) The basic airworthiness design standards for aircraft are European Aviation Safety Requirements issued by the European Aviation Safety Agency:

(i) CS-23, Normal, Utility, Aerobatic, and Commuter Category Aeroplanes

(ii) CS-25, Large Aeroplanes

(iii) CS-27, Small Rotorcraft

(iv) CS-29, Large Rotorcraft

(b) The Director may alternatively accept any airworthiness design standards which:

(i) Comply with Annex 8 to the International Convention; and

(ii) Provide equivalent levels of safety to those airworthiness design standards prescribed in paragraph (a).

1.2.2 Engines, APUs and Propellers

(a) The basic airworthiness design standards for aircraft engines and propellers are European Aviation Safety Requirements:

(i) CS-E, Engines

(ii) CS-APU, Auxiliary Power Units

(iii) CS -P, Propellers

(b) The Director may alternatively accept any airworthiness design standards which:

(i) Comply with Annex 8 to the International Convention; and

(ii) Provide equivalent levels of safety to those airworthiness design standards prescribed in paragraph (a).

1.2.3 Equipment

(a) The basic airworthiness design standards for equipment are European Technical Standard Orders, CS-ETSO.

(b) The Director may alternatively accept any airworthiness design standards which:

(i) Comply with Annex 8 to the International Convention; and

(ii) Provide equivalent levels of safety to those airworthiness design standards prescribed in paragraph (a).

***Note**: The Director recognises the corresponding FAR regulations of the Federal Aviation Administration of USA as providing equivalent levels of safety to the EASA design standards listed above under 1.2.1, 1.2.2 & 1.2.3.*

Chapter 2 – Airworthiness Certification Procedures

2 Airworthiness Certification Procedures

2.1 General

2.1.1 Applicability

This chapter prescribes the requirements for:

(i) Type acceptance certification of aircraft types to be imported into Bhutan; and

(ii) The airworthiness certification of aircraft; and

(iii) The registration of aircraft; and

(iv) The identification of aircraft, aircraft engines, propellers, critical parts, and replacement and modification parts.

2.1.2 Definitions

Aircraft – means an aeroplane, helicopter or airship.

Authority – means the Department of Civil Aviation.

Critical Part - means an aircraft part for which a replacement time, inspection interval, or related procedure is specified in the Airworthiness Limitations section of a manufacturer's Maintenance Manual or Instructions for Continued Airworthiness.

Director – means the Director of the Department of Civil Aviation.

Modification – means the alteration of an aircraft/aircraft component in conformity with an approved standard.

Parts and Appliances - means any instrument mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight and is installed in or attached to the aircraft. It includes parts of an airframe, engine, or propeller.

Person – is a legal entity, which is subject to the jurisdiction of the Kingdom of Bhutan; it can include an Organisation or Company.

Product - means an aircraft, aircraft engine, or propeller.

Repair – means the restoration of an aircraft/aircraft component to a serviceable condition in conformity with an approved standard.

Type Certificate - includes:

(i) The type design; and

(ii) The operating limitations; and

(iii) The type certificate data sheet; and

(iv) The applicable airworthiness design standards specified in Chapter 1; and

(v) For an aircraft type, the flight manual; and

(vi) Any other conditions or limitations prescribed for the product type under this part.

Type Design – includes:

(i) Drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the Applicable Requirements; and

(ii) Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product; and

(iii) The Airworthiness Limitations section of the Instructions for Continued Airworthiness as required by the applicable requirement; and

(iv) Any other data necessary to allow by comparison, the determination of the airworthiness of later products of the same type.

Type Design Changes – Minor is one that has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product.

Type Design Changes – Major all changes other than minor changes are classified as major changes.

2.2 Aircraft and Component Type Certification

2.2.1 Applicability

This part prescribes the requirements for:

(i) Type Acceptance Certification of aircraft, aircraft engines and propellers to be imported into Bhutan; and

(ii) Operating requirements for the holder of a Type Acceptance Certificate.

2.2.2 Certificate Categories

(a) The following type acceptance certificates are granted under this subpart:

(i) Standard category type acceptance certificate for an aircraft type to be imported into Bhutan; or

(ii) Restricted category type acceptance certificate for an aircraft type to be imported into Bhutan.

(b) A type acceptance certificate may be granted in both the standard and restricted categories if the certification requirements for each category are met.

(c) A restricted category type acceptance certificate shall specify the operational purposes for which the aircraft type is certificated such as, agricultural aircraft operations, special purpose operations like helicopter external load operations, etc.

2.2.3 Eligibility

(a) Any person or organisation may apply for a type acceptance certificate, including a foreign person or organisation such as the aircraft manufacturer; and

(b) A person may only apply for the grant of a type acceptance certificate for an aircraft type, which has previously not been issued with a type acceptance certificate in Bhutan.

(c) A type acceptance certificate for an aircraft type shall be issued only once. Any subsequent import of the aircraft type will not require type acceptance certification.

2.2.4 Application for Type Acceptance Certificates

(a) Each applicant for the grant of a type acceptance certificate for an aircraft shall complete form DCA 001/01, which shall require:

(i) The name and address for service in Bhutan of the applicant; and

(ii) Such further particulars relating to the aircraft and the applicant as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the Bhutan Air Navigation Regulations (BANR).

(b) The Type acceptance certificate is issued to recognise a foreign type certificate in Bhutan; and

(c) The type acceptance certificate is issued in respect of the aircraft type itself, there is no specific ownership to the certificate as such; and

(d) It is by no means necessary for an example of the aircraft type to have been imported.

(e) The issue of a Bhutan type acceptance certificate is a pre-requisite to the issue of a Certificate of Airworthiness in the Standard or Restricted Category for an aircraft of more than 2730 Kg Maximum Certificated Takeoff Weight (MCTOW).

2.2.5 Issue of Type Acceptance Certificates

(a) An applicant is entitled to a type acceptance certificate for an aircraft type if:

(i) The applicant meets the applicable type acceptance certification requirements in 2.2.8 in a manner acceptable to the Director; and

(ii) The granting of the certificate is not contrary to the interests of aviation safety

(b) A type acceptance certificate for an aircraft type shall be issued only once. Any subsequent import of the aircraft type will not require type acceptance certification.

2.2.6 Special Conditions

The Director may prescribe special conditions for a product type to establish a level of safety equivalent to the airworthiness design standards specified in Chapter 1, if the Director determines that the airworthiness design standards do not contain adequate or appropriate safety levels because:

(i) The product has novel or unusual design features relative to the design practices on which the applicable airworthiness design standards are based; or

(ii) The intended use of the product is unconventional; or

(iii) Experience from other similar products in service or products having similar design features, has shown that unsafe conditions may develop.

2.2.7 Duration of Type Acceptance Certificates

A type acceptance certificate shall remain in force until it is suspended or revoked by the Director.

2.2.8 Type Acceptance Certification Requirements

2.2.8.1 Airworthiness Requirements

Each applicant for the grant of a type acceptance certificate for an aircraft type shall provide the Director with evidence that:

(i) The aircraft type meets the applicable airworthiness design standards specified in Chapter 1, effective at the date assigned in the foreign type certificate or an equivalent document, unless another date is specified by the Director; and

(ii) The aircraft type meets any special conditions imposed under the foreign type certification or prescribed by the Director under 2.2.6; and

(iii) Any airworthiness requirements not complied with are compensated for by factors that provide an equivalent level of safety; and

(iv) No feature or characteristics of the aircraft type makes it unsafe for which certification is requested.

2.2.8.2 Data Requirements

(a) Each applicant for the grant of a type acceptance certificate for an aircraft shall provide the Director with:

(i) Evidence that the type design has been approved by a Contracting State by issue of a type certificate or an equivalent document; and

(ii) Details of the airworthiness requirements complied with, for the issue of the type certificate prescribed in subparagraph (i), including:

(a) The airworthiness design standards; and

(b) The effective date of the standards; and

(c) Any special conditions imposed under the foreign type certification; and

(d) Any requirements not complied with and any compensating factors providing an equivalent level of safety; and

(e) Any airworthiness limitations.

(i) A list identifying the data submitted for the issue of the type certificate prescribed in subparagraph (i), showing compliance with the applicable airworthiness design standards; and

(ii) A copy of the flight manual approved under a foreign type certificate; and

(i) The illustrated parts catalogue; and

(ii) Where required by the Director:

(a) The maintenance manual for the aircraft type; and

(b) All current service information issued by the manufacturers of the aircraft, aircraft engine and propeller; and

(ii) Evidence that the manufacturer has agreed to provide the Director with a copy of all amendments and re-issues of the documents prescribed in subparagraphs (iv), (v) and (vi).

(b) The Director may specify the range of serial numbers or models of aircraft to which the application relates, or redefine the applicability of the type acceptance certificate if 2.2.8.1 and 2.2.8.2 are satisfied for any additional product.

2.2.8.3 Additional Data Requirements

Each applicant for the grant of a type acceptance certificate for an aircraft certificated under CS-25 or an equivalent shall subsequently agree to provide the Director with:

(i) The detailed specification for the type; and

(ii) Operations manual; and

(iii) Master minimum equipment list (MMEL); and

(iv) Maintenance planning document (MPD); and

(v) Maintenance review board document (MRB); and

(vi) Maintenance schedule.

2.2.8.4 Instructions for Continued Airworthiness

Each applicant for the grant of a type acceptance certificate for an aircraft type shall provide the Director with evidence that:

(i) The manufacturer of the aircraft will provide post certification support for continued airworthiness of the aircraft; and

(ii) The authority of the state of design will provide continuing airworthiness support for the aircraft in accordance with ICAO Annex 8, Part II.

2.2.9 Type Acceptance Certificate Contents

The type acceptance certificate will contain the following information:

(i) The Type Certificate Number; and

(ii) The Designation of the Type; and

(iii) The Aircraft Manufacturer (Type Certificate Holder); and

(iv) A statement that the type of aircraft concerned is acceptable for Bhutan airworthiness certification; and

(v) A reference to the associated type certificate data sheet.

2.3 Design Changes

2.3.1 Applicability

This part prescribes means for the approval and acceptance of design changes.

2.3.2 Acceptance of Design Changes

Design changes are acceptable to the Director if they are approved by the relevant foreign aeronautical authorities and described by technical data listed under Appendix A to this chapter.

2.3.3 Approval of Design Changes

(a) Design changes (major or minor) to the aircraft or its components, which are not covered by technical data approved by relevant foreign aeronautical authorities, must be approved by the Director before its use on the aircraft.

(b) The Director may approve design changes if the technical data supporting the design change is approved in accordance with subpart 2.14.3.

(c) A design change may be approved in the form of a modification or repair.

2.3.4 Approval of Modifications

The Director shall approve a modification by approving the modification's technical data in accordance with subpart 2.14.3.

2.4 Changes to Type Acceptance Certificates

2.4.1 Applicability

This part prescribes means for the approval of changes to type acceptance certificates.

2.4.2 Changes to Type Acceptance Certificates

A change to a type acceptance certificate in accordance with this part may result from changes to:

(i) The type certificate; or

(ii) The type design; or

(iii) The type certificate data sheet; or

(iv) Any special conditions prescribed on the type certificate.

2.4.3 Application for Changes to Type Acceptance Certificates

Each applicant for the approval of a change to a type acceptance certificate shall make a new application for a type acceptance certificate in accordance with subpart 2.2.4 and provide the Director with evidence that the applicable foreign aeronautical authority has approved the change to its type certificate in accordance with the applicable airworthiness requirements.

2.5 Airworthiness Certification

2.5.1 Applicability

This part prescribes requirements governing the issue and renewal of certificates of airworthiness of aircraft.

2.5.2 Eligibility

Any registered owner of Bhutan registered aircraft, or authorised representative of the owner, may apply for a Certificate of Airworthiness for that aircraft.

2.5.3 Certificate Categories

(a) The following categories of certificates of airworthiness are granted under this part:

(i) Standard Airworthiness Certificate will be issued for aircraft in the specific category and model designated by the state of design in the type certificate.

(ii) Restricted Category Airworthiness Certificate will be issued for aircraft, which hold a restricted type acceptance certificate.

(iii) The authority may issue a Special Airworthiness Certificate in the form of:

(1) Special Flight Permit; or

(2) Experimental Certificate.

(b) The Director may prescribe operating conditions and limitations, and purposes on an airworthiness certificate.

(c) An airworthiness certificate may be granted in both the standard and restricted categories if:

(i) The aircraft meets the certification requirements for each category when in the configuration for that category; and

(ii) The aircraft can be converted from one configuration to the other by removing or adding equipment by simple mechanical means.

2.5.4 Application for Certificate

(a) Each applicant for the grant of a standard or restricted airworthiness certificate shall complete form DCA 002/01, which shall require:

(i) The name and address for service in Bhutan of the applicant; and

(ii) Such further particulars relating to the aircraft and applicant as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANRs.

(b) Each applicant for the grant of an experimental certificate shall complete form DCA 002/02, which shall require:

(i) The name and service in Bhutan of the applicant; and

(ii) Such further particulars relating to the aircraft and applicant as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANRs.

(c) Except as provided in paragraph (d), each applicant for the grant of a special flight permit shall complete form DCA 002/03, which shall require:

(i) The name and address for service in Bhutan of the applicant; and

(ii) Such further particulars relating to the aircraft and applicant as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANRs.

(d) An applicant for the grant of a special flight permit may use means acceptable to the Director other than the form DCA 002/03 to provide information required by paragraph (c).

(e) The completed application form must reach the Director not later than 30 days before the desired date of issue/renewal.

2.5.5 Standard or Restricted Airworthiness Certification Requirements

Each applicant for the issue or renewal of a standard or restricted category airworthiness certificate for an aircraft shall provide the Director with evidence that:

(i) For new aircraft – the aircraft conforms with a EASA approved Type Design (or its equivalent) in a statement signed by the exporting authority; and

(ii) For new aircraft – the certificate of airworthiness or export certificate of airworthiness issued by the state of manufacture, within a period 60 days immediately preceding the date of application; and

(iii) For used aircraft - the aircraft type conforms to a Type Design approved under a Type Certificate issued in accordance with the certification procedures of BCAR-21, and to any applicable Supplemental Type Certificate, and to applicable Airworthiness Directives; and

(iv) For used aircraft – the original certificate of airworthiness or export certificate of airworthiness issued by the state of manufacture; and a certificate of airworthiness for export issued by the exporting airworthiness authority within 60 days immediately preceding the date of application; and

(v) A standard or restricted category type acceptance certificate has been issued for the aircraft under part 2.2; and

(vi) The aircraft conforms to an applicable type acceptance certificate issued under subpart 2.2.5; and

(vii) Each modification and repair to the aircraft conforms to design changes approved for the type; and

(viii) The aircraft complies with any applicable airworthiness directives issued by the appropriate foreign aeronautical authority; and

(ix) The aircraft is issued with the appropriate flight manual, and any logbooks, repair and alteration forms, and documents, that the Director may require; and

(x) The aircraft has a weight and balance report, with a loading schedule, when applicable, in accordance with the applicable BCAR-OPS; and

(xi) The aircraft is Bhutan registered aircraft and displays nationality and registration marks in accordance with part 2.9; and

(xii) The aircraft, its engines, propellers, and propeller hubs and blades are identified by the means specified in subpart 2.15.2; and

(xiii) The aircraft conforms with any applicable additional airworthiness requirements prescribed under CS 26; and

(xiv) Depending on its maintenance schedule, the aircraft has within 60 days prior to application, undergone a 100-hour/Annual Inspection in accordance with chapter 3 of this BAR, acceptable to the Director; and

(xv) The aircraft is in a safe condition for operation.

2.5.6 Experimental Certificate Requirements

(a) Each applicant for the grant of an experimental certificate for an aircraft shall provide the Director with:

(i) A statement specifying the purpose for which the aircraft is to be used; and

(ii) Sufficient data to identify the aircraft; and

(iii) Any information that the Director may require to safeguard the public; and

(iv) Flight manuals, maintenance manuals and such documents relating to the operation of the aircraft as the Director may require; and

(v) Evidence that:

(1) The aircraft complies with any design changes necessary for the safe operation of the aircraft that the Director may require; and

(2) The aircraft is a Bhutan registered aircraft and displays nationality and registration marks in accordance with the part 2.9; and

(3) The aircraft is identified by the means specified in subpart 2.15.2.

(b) Each applicant for the grant of an experimental certificate for an aircraft to be used for the purpose of research and development or showing compliance with the regulations shall, in addition to paragraph (a), provide the Director with:

(i) The purpose of the test; and

(ii) The estimated time or number of flights required for the test; and

(iii) Details of the areas over which the test will be conducted; and

(iv) Except for aircraft converted from a previously certificated type without appreciable change in the external configuration, three-view drawings or three-view dimensional photographs of the aircraft.

(c) Each applicant for the grant of an experimental certificate for an aircraft to be used for a purpose other than those prescribed in paragraph (b), shall, in addition to paragraph (a), provide the Director with evidence that:

(i) A period of flight evaluation has been completed showing:

(1) The aircraft is controllable throughout its normal range of speeds and throughout all the manoeuvres to be executed; and

(2) The aircraft has no hazardous operating characteristics or design features; or

(ii) The aircraft conforms to a type design that has been shown to provide an acceptable level of safety for the purpose by:

(1) Showing compliance with an appropriate airworthiness design standard; or

(2) Providing information concerning the airworthiness history of aircraft that conform to the type design.

2.5.7 Special Flight Permit Requirements

Each applicant for the grant of a special flight permit for an aircraft shall provide the Director with the following details:

(i) Aircraft description; and

(ii) The purpose of the flight and grounds for request; and

(iii) The flight details including proposed route, date of flight, etc

(iv) The crew required to operate the aircraft and its equipment; and

(v) Details of non-compliance with any applicable airworthiness requirements; and

(vi) Any restriction the applicant determines necessary for the safe operation of the aircraft; and

(vii) A certificate of fitness for flight completed by a licensed aircraft maintenance engineer. For special flight permits with continuing authorisation, the licensed aircraft maintenance engineer may enter the fitness for flight certification in the aircraft documentation.

(viii) Any other information the Director may require for the purpose of prescribing operating limitations.

2.5.8 Aircraft Survey for Issue or Renewal of Certificate of Airworthiness

(a) Each aircraft for which application is made for the issue, or renewal of a certificate of airworthiness shall be subject to survey inspection, the extent of which is at the discretion of the Director.

(b) The survey inspection may be performed by an airworthiness inspector or may be delegated to an appropriately approved organisation, at the discretion of the Director.

(c) The survey inspection is carried out to ensure that the aircraft:

(i) Conforms to its approved type design; and

(ii) Complies with the applicable requirements; and

(iii) Is in a condition for safe operation.

(d) If the Director is satisfied that an aircraft has been adequately inspected within the previous one month, he may waive the survey inspection when renewing the certificate of airworthiness.

(e) The applicant must furnish the following for the airworthiness inspector:

(i) An aircraft complete and ready to fly except for cowlings, fairings, and panels opened for inspection; and

(ii) An aircraft that has had the following carried out, as required:

(1) Weight and balance measurements.

(2) Rigging checks.

(3) Full power engine runs.

(4) Taxi Tests.

(5) A compass swing; and

(iii) An aircraft certificate of registration; and

(iv) Logbooks of the aircraft, engine, propeller, and airworthiness directives to allow for the review of servicing records and the recording of the inspection and certification by the DCA Inspector; and

(v) Depending on the aircraft maintenance schedule, evidence that the minimum of a 100-hour/Annual Inspection in accordance with Chapter 3 of this BAR has been carried out.

(f) A survey inspection may include any or all of the following:

(i) Weighing of the aircraft.

(ii) Inspection of the structure for corrosion, cracks and distortion.

(iii) Duplicate inspection of flying controls.

(iv) Inspection of all systems for condition and functioning.

v) Cabin pressurisation check.

(vi) Instrument serviceability check.

(vii) Compass Swing.

(viii) Inspection of radio station for condition and functioning.

(ix) Inspection of safety equipment for condition.

(x) Check on implementation of all applicable Airworthiness Directives, and modification from other sources, and the engineering records etc.

(xi) Intermediate stage inspections during the progress of any work associated with issue, validation or renewal of a certificate of airworthiness.

(g) On completion of a survey inspection, the Director may require the aircraft to be test flown depending on whether the aircraft has undergone a major modification or repair, or maintenance involving flight and engine control systems, or any type of maintenance, which in the opinion of the Director will warrant conducting a test flight.

2.5.9 Flight Testing for Issue/Renewal of Certificate of Airworthiness

(a) On completion of the aircraft survey inspection, depending on its result the Director may require the aircraft to be test flown.

(b) The flight test shall be conducted in accordance with the requirements under part 2.6.

2.5.10 Issue of Standard or Restricted Airworthiness Certificate

(a) An applicant is entitled to a standard or restricted airworthiness certificate for an aircraft if:

(i) The applicant meets the applicable requirements of paragraph 2.5.5 and 2.5.8 in a manner acceptable to the Director; and

(ii) The granting of the certificate is not contrary to the interests of aviation safety.

(b) The Director may validate an airworthiness certificate issued by another contracting state upon registration of the aircraft in Bhutan for the period specified in that certificate. The validation may be established by granting a suitable authorisation to be carried with the former certificate of airworthiness accepting it as the equivalent of a certificate of airworthiness issued by the Director.

2.5.11 Issue of Special Airworthiness Certificate

(a) The Director may issue a Special Airworthiness Certificate to the aircraft that does not qualify for a standard or restricted certificate.

(b) Aircraft holding experimental airworthiness certificates shall be subject to operating limitations within Bhutan and may not make international flights. The Director shall issue special operating limitations for each special airworthiness certificate.

(c) The Director may issue Special Flight Permits to an aircraft that is capable of safe flight, but unable to meet applicable airworthiness requirements, for the purpose of:

(i) Ferry flying to base where repairs, modifications, maintenance, or inspections are to be performed, or to a point of storage; or

(ii) Conducting flight test after repairs, modifications, or major maintenance have been performed; or

(iii) Evacuating aircraft from areas of impending danger; or

(iv) Exporting an aircraft, if required in accordance with subpart 2.7.5(b)(i)(5).

(d) Prior to issuing a special flight permit, the authority shall require a certificate of fitness for flight to be signed in respect of the aircraft by a person or organisation, authorised in accordance to chapter 3, subpart 3.3.3, stating that the subject aircraft has been inspected and found to be safe for the intended flight.

(e) The operator shall obtain all required over-flight authorisations from countries to be over-flown on flights outside Bhutan.

(f) For the purpose of this part an aircraft may be ferry flown if the aircraft:

(i) Does not comply with applicable airworthiness requirements; or

(ii) Has been damaged; or

(iii) Has inoperative equipment; or

(iv) Otherwise cannot meet the operational requirements under relevant sections of the BANR.

2.5.12 Special Flight Permit – Continuing Authorisation

(a) A special flight permit with a continuing authorisation may be granted to:

(i) The holder of an Air Operator Certificate issued under the BANR, for the purpose of flying aircraft to a base where maintenance or alterations are to be performed.

(b) Before releasing the aircraft under the provisions of a Special Flight Permit – Continuing Authorisation, a certificate of fitness for flight must be signed in respect of the aircraft by a person or organisation authorised in accordance with chapter 3, subpart 3.3.3, stating that the subject aircraft has been inspected and found to be safe for the intended flight.

(c) The operator shall notify the Director within 24 hours of flying the aircraft under the provisions of a Special Flight Permit – Continuing Authorisation. Formal report must be submitted within 3 days accompanied by a copy of the Certificate of Fitness for Flight.

2.5.13 Renewal of Airworthiness Certificate

(a) Each applicant for the renewal of a standard or restricted airworthiness certificate shall complete form DCA 002/04, which shall require:

(i) The name and address for service in Bhutan of the applicant; and

(ii) Such further particulars relating to the aircraft and applicant as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANR.

(b) The application for airworthiness certificate renewal shall be submitted only after the aircraft, its relevant records and manuals (Flight Manual, etc.) have been reviewed by Quality Assurance, and satisfied that the aircraft is in a condition fit to be issued with a renewal certificate. In particular, confirmation of the correct Flight Manual amendment status shall be provided to the Director. The application shall be accompanied with a "Certificate of Airworthiness – Renewal Recommendation Report" form, duly filled and signed by Quality Assurance.

(c) The Certificate of Airworthiness – Renewal Recommendation Report form shall be of the approved format as shown in Appendix B to this chapter.

(d) The certificate of airworthiness renewal application must reach the Director at least 30 days in advance of the expiry date on the airworthiness certificate.

(e) The applicant must furnish all relevant records of maintenance, inspection, modification and repair in the form of logbooks or separate records forming part of log books if requested by the Director.

(f) The applicant shall furnish the aircraft for survey inspection in accordance with subpart 2.5.8 (d)(i).

(g) The Director may require aircraft to be test flown in accordance with 2.5.9 for the renewal of airworthiness certificate if he has reasons to believe that the flight test is required to ascertain the aircraft's airworthiness condition.

2.5.14 Re-weighing of Aircraft for Renewal of Airworthiness Certificate

(a) Re-weighing of aircraft at the time of the renewal of certificate of airworthiness may be required depending on the date of last weighing, and on the history of the aircraft.

(b) Aircraft with MCTOW more than 5700Kg shall be weighed according to the weighing interval specified under the JAR-OPS 1 & 3, subpart J.

(c) Aircraft with MCTOW less than 5700Kg shall be re-weighed at such times as the Director may require.

(d) The Director shall be consulted if there is any doubt as to whether the aircraft ought to be reweighed.

(e) When re-weighing is necessary, a weight and balance report must be prepared giving an amended Weight and Centre of Gravity limits. During the course of any re-weighing procedures the accuracy of all data previously recorded (for example lever arms) shall be checked against the appropriate manufacturer's current data.

(f) If the aircraft is re-weighed following the addition, removal or relocation of equipment, a copy of the revised Weight and Balance report shall be submitted to the Director at the time of renewal of the certificate of airworthiness.

2.5.15 Amendment or Modification of Airworthiness Certificate

The Director may amend or modify an Airworthiness Certificate:

(i) Upon application from an operator; or

(ii) On his own initiative

2.5.16 Transfer or Surrender of Airworthiness Certificate

(a) An owner shall transfer an airworthiness certificate:

(i) To the lessee upon lease of an aircraft within or outside Bhutan.

(ii) To the buyer upon sale of the aircraft within Bhutan.

(b) An owner shall surrender the airworthiness certificate of the aircraft to the Director upon sale of the aircraft outside of Bhutan.

2.5.17 Aircraft Availability

Each aircraft for which the Director has issued a certificate of airworthiness shall upon request be made available for inspection by the Authority.

2.5.18 Duration of Certificate

(a) An airworthiness certificate remains in force until the termination date expires or it is sooner surrendered, suspended or revoked, provided that:

(i) Maintenance on the aircraft is performed in accordance with the applicable European Aviation Safety Requirements and chapter 3 to this BAR; and

(ii) The aircraft remains on the Bhutan register.

(b) The Director may suspend summarily any certificate of airworthiness if he considers such action necessary to ensure compliance with the BANRs, or in the interest of safety, or if it is ascertained that the holder of the certificate has given false information for the purpose of obtaining the certificate.

(c) When the certificate of registration of an aircraft is cancelled, the certificate of airworthiness shall also be deemed cancelled. The owner must return the two certificates to the Director.

(d) When the aircraft suffers damage, does not have a valid Certificate of Maintenance Review, or develops a defect, which cannot normally be remedied by the flight crew, the certificate of airworthiness shall be deemed suspended.

(e) Upon suspension, revocation or termination of a certificate of airworthiness by the Director, the certificate shall be surrendered to the Director.

(f) A certificate of airworthiness is invalid when the type certificate under which it is issued is suspended or revoked.

(g) In case of a foreign certificate of airworthiness, which has been validated by suitable authorisation, the validity of the authorisation shall not extend beyond the period of validity of the certificate of airworthiness or one year, whichever is less.

2.6 Flight Testing For Issue or Renewal of a Certificate of Airworthiness

2.6.1 Applicability

This part prescribes aircraft test flight requirements for the issue or renewal of a Certificate of Airworthiness.

2.6.2 General Requirements

(a) Aircraft flight tests shall be conducted by a DCA approved test pilot.

(b) In order that the Director may accept flight-test reports, the qualifications and experience of personnel involved in flight-testing under the provisions of this part shall be acceptable to the Director.

(c) All owners of aircraft to be flown by a DCA approved test pilot for any test purposes are required to ensure that insurance policies covering damage to the aircraft and third parties are suitably endorsed to provide appropriate cover against any claims arising out of the test flight.

2.6.3 Flight Test Requirements

(a) Flight tests shall be completed to establish that:

(i) Handling characteristics are satisfactory and typical of the type; and

(ii) Climb performance equals or exceeds the scheduled data; and

(iii) The aircraft and its equipment function satisfactorily; and

(iv) Additional requirements and special conditions, where applicable have been complied with.

(b) For new aircraft, the flight tests shall be conducted by approved test pilot of the aircraft type design organisation in the presence of the DCA approved test pilot.

(c) For used aircraft, the flight tests shall be conducted by the DCA approved test pilots.

(d) A flight test report, in a form acceptable to the Director, shall be provided. The Director may require any of the tests to be repeated.

2.6.4 Flight Test Schedule

(a) The flight tests shall be made to the Airworthiness Flight Test Schedule for the type, or to such other schedules as may be approved by the Director. Such a schedule shall contain details of the aircraft type to which it refers, shall be

marked with a reference number, issue number, and date, and shall include the following:

(i) Tests to check the aircraft performance; and

(ii) Tests to check such handling qualities of the aircraft as have been agreed in consultation with the Director:

(1) A qualitative assessment of the take-off.

(2) An assessment of the trim of the aircraft and the effectiveness of primary flight controls and trimmers in steady flight.

(3) Hover manoeuvres for helicopters.

(4) Flight at maximum speed.

(5) Stall in the take-off and landing configurations.

(6) A qualitative assessment of the landing; and

(iii) Tests to check functioning of the aircraft equipment in flight; and

(iv) Such other tests as are required by the Director.

(b) UKCAA Airworthiness Flight Test Schedules are published by the UnitedKingdom Civil Aviation Authority. They are recognised by the Director as an acceptable basis for showing compliance with the flight test requirement as required by the BANR.

2.6.5 Flight Test Results

(a) The flight tests results, in a form acceptable to the Director, shall be submitted to the Director for acceptance.

(b) The flight test result shall include a certificate (Flight Test Certificate), which shall be signed by the pilot who conducted the test.

(c) The Flight Test Certificate shall be of the approved format as shown in Appendix C to this chapter.

2.7 Export Airworthiness Certificates

2.7.1 Applicability

This part prescribes:

(i) Procedural requirements for the issue of export airworthiness certificates/approvals; and

(ii) Requirements governing the holders of those approvals.

2.7.2 Eligibility

Any exporter or exporter's authorised representative may apply for the issue of export airworthiness certificate for:

(i) A new product, part or appliance; or

(ii) A used product, part or appliance.

2.7.3 Export Airworthiness Certificates

(a) An export airworthiness certificate issued under this subpart shall:

(i) For complete aircraft be in the form of export airworthiness certificate; and

(ii) For other products, parts, or appliances be in the form of authorised release certificate (DCA Form One). Refer part 3.7 for the use of DCA From One.

(b) The issue of an export airworthiness certificate for a product, part, or appliance does not authorise its installation.

(c) The issue of an export airworthiness certificate for an aircraft does not authorise its operation.

2.7.4 Export Airworthiness Certificate Exceptions

If the applicant for an export airworthiness certificate provides a written statement from the state of the importer, in accordance with paragraph 2.7.6 (b), the Director may issue the export airworthiness certificate with listed exceptions of:

(i) The requirements of this subpart that have not been met; and

(ii) Any differences in configuration between the exported product and the relative type approved or type accepted product.

2.7.5 Application for an Export Airworthiness Certificate

(a) Each applicant for an export airworthiness certificate shall complete form DCA 002/05, which shall require:

(i) The name and address for service in Bhutan of the applicant; and

(ii) Evidence that:

(1) The product conforms to a type design acceptable to the state of the importer; and

(2) Any special certification conditions of the state of the importer have been met; and

(3) The state of the importer accepts any exceptions to be listed on the export airworthiness certificate; and

(4) The product has been identified in accordance with subpart 2.15.2; and

(5) The applicable airworthiness directives have been complied with; and

(iii) Any logbooks, modification and repairs forms, and such historical records that the Director may require for other than new products; and

(iv) A description of any methods used, including the method's duration of effectiveness, for the preservation and packaging of products to protect them against corrosion and damage while in transit or storage; and

(v) The date when ownership passed, or is expected to pass, to a purchaser in the foreign state; and

(vi) The date on which any documents not available at the date of application are expected to become available; and

(vii) Supporting documentation for any variances to this subpart; and

(viii) Such further particulars relating to the product and applicant as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANR.

(b) Each applicant for an export airworthiness certificate for an aircraft shall, in addition to paragraph (a), provide the Director with:

(i) Evidence that:

(1) It possesses or could qualify for an airworthiness certificate in accordance with part 2.5; and

(2) The aircraft is issued with the appropriate flight manuals and, for new aircraft, maintenance manuals; and

(3) A weight and balance report has been completed, with a loading schedule where applicable; and

(4) The aircraft has, within 60 days prior to application, undergone an Annual or 100-hour inspection in accordance with chapter 3, acceptable to the Director; and

(5) Any installations incorporated for the purpose of export delivery comply with the applicable airworthiness requirements or have been approved by the issue of a special flight permit under subpart 2.5.11; and

(ii) Confirmation that any installation described in paragraph (b)(i)(5) will be removed and the aircraft restored to the approved type configuration upon completion of the delivery flight.

(c) The applicant shall make the product and associated data available for inspections as the Director may require.

2.7.6 Issue of Export Airworthiness Certificate

(a) An applicant is entitled to an export airworthiness certificate for a product if:

(i) The applicant meets the applicable requirements of this subpart in a manner acceptable to the Director; and

(ii) The granting of the certificate is not contrary to the interests of aviation safety; and

(iii) Any airworthiness requirements not complied with are compensated for by factors that provide a level of safety acceptable to the Director.

(b) Notwithstanding paragraph (a), a product need not meet all the requirements of paragraph 2.7.5 if it is acceptable to the state of the importer and the state of the importer indicates that acceptability in writing.

2.7.7 Validity of Export Airworthiness Certificate

(a) An export airworthiness certificate issued under this subpart shall remain valid, providing there is no subsequent design change to the product, until completion of delivery to the importer's state.

(b) The holder of an export airworthiness certificate invalidated because of a design change shall forthwith surrender the certificate to the Director.

2.7.8 Transfer of Export Airworthiness Certificate

An export airworthiness certificate is transferred with the product.

2.7.9 Use of an Authorised Release Certificate (DCA Form One) for Export

(a) The authorised release certificate shall only be used for the export of products other than aircraft, or a part or appliance where the product:

(i) Is new, has been newly overhauled, or was last installed on an aircraft possessing a valid standard airworthiness certificate and is fit for release to service; and

(ii) Conforms to the approved design data; and

(iii) Is in a condition for safe operation; and

(iv) Meets any special conditions for import required by the state of the importer.

(b) The authorised release certificate being used may be issued in accordance with the requirements of Chapter 3, part 3.7 of this manual and the procedures of an organisation certificated in accordance with BCAR-145 for maintenance.

(c) Notwithstanding paragraph (a)(i), a product need not meet all the requirements under it if acceptable to the state of the importer and the state of the importer indicates that acceptability in writing.

2.7.10 Duties and Responsibilities of an Export Airworthiness Certificate Holder

(a) When ownership to an aircraft passes or has passed to a foreign purchaser, the exporter who was granted an export airworthiness certificate shall:

(i) Where applicable, request the cancellation of the Bhutan registration and airworthiness certificates, giving the date of transfer of the ownership and address and the name and address of the foreign owner; and

(iii) Return the registration and airworthiness certificates to the Director; and

(b) Unless otherwise agreed with the state of the importer, the exporter who was granted an export airworthiness certificate shall:

(i) Forward to the appropriate authority of the state of the importer:

(1) All documents and information necessary for the proper operation of the product and any other material as is stipulated in the special requirements of the state of the importer; and

(2) The applicable manufacturer's assembly instructions for un-assembled aircraft and an approved flight test check list; and

(ii) Preserve and package products to protect them against corrosion and damage whilst in transit or storage; and

(iii) Upon completion of an export delivery of an aircraft, remove, or have removed, any temporary installation incorporated for the purpose of delivery and restore the aircraft to the approved type configuration.

2.8 Registration of Aircraft

2.8.1 Applicability

This part prescribes requirements for the registration of aircraft in Bhutan.

2.8.2 Definitions

For the purpose of this subpart the following definitions apply:

Fireproof material – A material capable of withstanding heat as well as or better than steel when the dimensions in both cases are appropriate for the specific purpose.

Glider – A non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces, which remain fixed under given conditions of flight.

Heavier-than-air aircraft – Any aircraft deriving its lift in flight chiefly from aerodynamic forces.

Lighter-than-air aircraft – Any aircraft supported chiefly by its buoyancy in the air.

State of Registry – The state on whose register the aircraft is entered.

2.8.3 Requirement for Aircraft Registration

(a) Every person lawfully entitled to the possession of an aircraft must, if the aircraft flies to, from, within, or over Bhutanese territory, register that aircraft and hold a valid certificate of registration for that aircraft from:

(i) The Director; or

(ii) The appropriate aeronautical authorities of a contracting state of ICAO.

2.8.4 Registration Eligibility

An aircraft is eligible for registration if it is:

(i) Owned by a natural citizen, an individual citizen of a foreign state who is lawfully admitted for permanent residence in Bhutan, a corporation lawfully organised and doing business under the laws of Bhutan, or a government entity of Bhutan; and

(ii) Not registered under the laws of any foreign country.

2.8.5 Application for Registration

(a) An application for the registration of an aircraft in Bhutan must be made by the person, or by the authorised representative of the person, who is lawfully entitled to the possession of the aircraft.

(b) The applicant must complete form DCA 003/01, which requires:

(i) The manufacturer, model and serial number of the aircraft; and

(ii) The name and address for service in Bhutan of the applicant under paragraph (a); and

(iii) Such further particulars relating to the aircraft and the person specified in paragraph (a) as may be required by the Director as indicated on the form,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANR.

(c) The Director may require the applicant under paragraph (a) to produce the following:

(i) Evidence of the manufacturer, model and serial number of the aircraft; and

(ii) A statutory declaration by the applicant under paragraph (a) that he is lawfully entitled to possession of the aircraft.

Note: *Lawful entitlement to possession of the aircraft may be in the form of a formal Agreement for Lease, Hire or Purchase, or a legal ownership.*

2.8.6 Registration and Grant of Certificate

(a) An applicant is entitled to the grant of a Bhutan Certificate of Registration if the Director is satisfied that:

(i) The aircraft is not registered in any other country; and

(ii) The applicant satisfies the applicable requirements of subparts 2.8.4 & 2.8.5.

(b) If the Director is satisfied that a certificate of registration may be granted in accordance with paragraph (a), the Authority must enter in the Bhutan Register of Aircraft:

(i) The date of registration; and

(ii) The description of aircraft given in the application; and

(iii) The name and address of the person lawfully entitled to the possession of the aircraft; and

(iv) The registration mark allocated to the aircraft by the Director under 2.9.3.

(c) A Bhutan certificate of registration is normally issued with the certificate of airworthiness in accordance with the requirements of part 2.5.

(d) Upon registration of an aircraft in Bhutan, the DCA will notify the aeronautical authority of the country of design of the aircraft regarding the aircraft's registration in Bhutan, and request that the DCA receives any and all airworthiness directives addressing that aircraft's airframe, engine, propeller, appliance, or component part.

2.8.7 Change of Possession of Aircraft

(a) If the holder of Bhutan certificate of registration ceases to have lawful possession of the registered aircraft, the certificate expires on the date the certificate holder ceases to have lawful possession of the aircraft.

(b) The certificate holder whose certificate expires in accordance with paragraph (a) must:

(i) Within 14 days after the date of expiry, submit to the Director completed form DCA 003/01 with a payment of the appropriate fee prescribed by the BANR.

(ii) Where applicable, notify the Director in accordance with subpart 2.8.11.

2.8.8 Replacement of Certificate

(a) The holder of a Bhutan certificate of registration may apply for a replacement certificate if the certificate is lost, stolen, or destroyed.

(b) The applicant for replacement certificate must complete form DCA 003/01 and submit it to the Director with a payment of the appropriate fee prescribed under the BANR.

2.8.9 Duration of Certificate

(a) A Bhutan certificate of registration remains valid until:

(i) It expires under subpart 2.8.7; or

(ii) It is suspended or revoked by the Director.

(b) The holder of a Bhutan certificate of registration that is suspended must immediately produce the certificate to the Director for endorsement.

(c) The holder of a Bhutan certificate of registration that is revoked must immediately surrender the certificate to the Director.

2.8.10 Destruction, Loss, Theft, Withdrawal from use, or Foreign Registration of Aircraft

(a) The holder of a Bhutan certificate of registration must notify the Director in accordance with paragraph (b):

(i) Within 14 days after becoming aware that the aircraft is destroyed, lost, stolen or permanently withdrawn from use; or

(ii) Immediately upon the application for registration of the aircraft on the register of a foreign country.

(b) Notification under paragraph (a) shall be made in writing, setting out the circumstances of what has occurred, signed by the certificate holder, and be accompanied by the certificate of registration.

2.8.11 Cancellation of Registration

(a) An aircraft remains registered until:

(i) The holder of a certificate of registration requests the Director to revoke the certificate for the aircraft and the Director revokes the certificate; or

(ii) The Director is notified under this subpart and subsequently revokes the certificate of registration; or

(iii) The Director otherwise revokes the certificate of registration in accordance with the BANR.

(b) Upon the Director's revocation of the certificate of registration of an aircraft in accordance with paragraph (a), the aircraft's details will be removed from the Bhutan Register of Aircraft.

2.9 Nationality and Registration Marks

2.9.1 Applicability

This part prescribes requirements for:

(i) The allocation of nationality and registration marks for Bhutan registered aircraft; and

(ii) The display of marks on Bhutan registered aircraft.

2.9.2 Requirement for Aircraft Marking

(a) No person may operate a civil aircraft registered in Bhutan unless it displays:

(i) Registration mark allocated under 2.9.3, and the nationality mark, in accordance with the requirements of 2.9.4 to 2.9.8; and

(ii) Displays an identification plate in accordance with the requirements of 2.9.11.

2.9.3 Nationality and Registration Marks

(a) The nationality mark of a Bhutan registered aircraft must be the capital letter "A" followed by Arabic numeral "5".

(b) The registration mark of a Bhutan registered aircraft must be:

(i) Allocated to the aircraft by the Director; and

(ii) A group consisting of 3 letters appearing after and separated from the nationality mark by a hyphen.

2.9.4 Display of Marks

(a) The nationality and registration marks required to be displayed under 2.9.2 must:

(i) Be painted on the aircraft or affixed by any other means ensuring a similar degree of permanence; and

(ii) Have no ornamentation; and

(iii) Be kept clean and visible at all times.

(b) The letters, numeral and hyphen of the nationality and registration mark must be of one colour that contrasts clearly with the background on which they are painted or otherwise affixed.

2.9.5 Location of Marks – lighter-than-air aircraft

(a) Airships must display marks required under 2.9.2 (a):

(i) Lengthwise, on each side of the hulls near the maximum cross section of the airship and on the upper surface of the line of symmetry; or

(ii) On the following stabilisers:

(1) The horizontal stabiliser, on the right half of the upper surface and on the left half of the lower surface with the tops of the letters towards the leading edge.

(2) The vertical stabiliser, on each side of the bottom half stabiliser, with the letters placed horizontally.

(b) Spherical Balloons must display the marks required under 2.9.2 (a) in 2 places diametrically opposite and located near the maximum horizontal circumference of the balloon.

(c) Non-spherical balloons must display the marks required under 2.9.2 (a) on each side, located near the maximum cross-section of the balloon and immediately above the rigging band or the points of attachment of the basket suspension cables.

(d) Lighter-than-air aircraft (other than unmanned free balloons) must display the marks required under 2.9.2 (a) on the sides to be visible both from the sides and from the ground.

(e) Unmanned Free Balloons must display the marks required under 2.9.2 (a) to appear on the identification plate.

2.9.6 Location of marks – heavier-than-air aircraft

(a) Except as provided in paragraph (c), aeroplanes, gliders and powered gliders must display the marks required under 2.9.2 (a):

(i) Once, on the lower surface of the wing structure. If the marks are confined to the outer half of the wing structure they must be located on the left lower surface. The tops of the letters must be towards the leading edge of the wing and so far as is possible, be equidistant from the leading and trailing edges of the wing; and

(ii) Horizontally on both sides of the fuselage between the wings and tail surfaces, or horizontally on the upper half of the vertical tail surfaces. Marks on a single vertical tail surface must appear on both sides. Marks on multi-vertical tail surfaces must appear on the outboard sides of the outer surfaces.

(b) Except as provided in paragraph (c), rotorcraft must display the marks required under 2.9.2 (a) in a prominent place not obscured in normal use:

(i) On both surfaces of cabin, fuselage, boom or tail; and

(ii) On the bottom surface of the fuselage or cabin.

(c) If an aeroplane, glider, powered glider, or rotorcraft:

(i) Does not possess parts corresponding to those mentioned in the applicable paragraphs; or

(ii) Does not possess surfaces required to be marked in accordance with this requirement large enough to accommodate the size of marks specified in 2.9.7,

the Director may approve marks, to be located elsewhere on the aircraft if:

(i) The marks are placed in prominent place not obscured in normal use; and

(ii) The marks can be readily identified.

2.9.7 Measurement of Marks

(a) The nationality and registration marks must consist of capital letters in Roman characters without ornamentation. The numbers shall be Arabic numbers without ornamentation.

(b) The width of each character (except the letter I and the number 1), and the length of hyphens shall be two-thirds of the height of a character.

(c) The character and hyphens shall be formed by solid lines and the thickness of the lines shall be one-sixth of the height of the character.

(d) Each character shall be separated from that which it immediately precedes or follows, by a space of not less than one-quarter of a character width. A hyphen shall be regarded as a character for this purpose.

(e) The marks required for fixed-wing aircraft must have the same height, width, thickness, and spacing on both sides of the aircraft.

(f) The characters shall be of equal height and on:

(i) Fixed-wing aircraft must be at least 30 cm high.

(ii) Rotorcraft must be at least 30 cm high.

(iii) Lighter-than-air aircraft at least 50 cm high.

2.9.8 Deviation for Size of Marks

If a heavier-than-air aircraft does not possess surfaces large enough to accommodate marks of sizes required under 2.9.7, the Director may approve marks of smaller measurements provided the aircraft can be identified readily.

2.9.9 Change of Registration Marks

(a) The holder of a Bhutan certificate of registration may apply to the Director for a new registration mark to replace the mark allocated to the aircraft specified in the certificate.

(b) The applicant for a change of registration mark must apply in writing and submit to the Director:

(i) The certificate of registration; and

(ii) The registration mark sought; and

(iii) A payment of the appropriate fee prescribed by the BANR.

(c) On receiving an application under paragraph (b), the Director may withdraw the registration mark allocated to the aircraft and allocate the new registration mark.

(d) On allocation of a new registration mark under paragraph (c), the authority must enter in the Bhutan Register of Aircraft the particulars of the registration mark allocated to the aircraft.

2.9.10 Sale of Aircraft – Removal of Marks

When an aircraft that is registered in Bhutan is sold, the holder of the certificate of registration shall remove, before its delivery to the purchaser, all nationality and registration marks of Bhutan, unless the purchaser is a citizen or other legal entity as prescribed in 2.8.4 (i).

2.9.11 Identification Plate

(a) The identification plate required to be displayed under 2.9.2 (a) (ii) must be etched, stamped, or engraved with the allocated nationality and registration mark.

(b) The identification plate must:

(i) Be made of fireproof metal or other fireproof material of suitable physical properties; and

(ii) Be affixed to the aircraft in a prominent position near the main point of entrance to the aircraft.

2.10 Aircraft Radio Installations

2.10.1 Applicability

This part prescribes requirements for:

(i) Issue of Radio Station Approval; and

(ii) Radio Station Licence

2.10.2 Aircraft Radio Station Licence

(a) For an aircraft operator to maintain and operate a radio station on board a particular aircraft it must in respect of that aircraft:

(i) Obtain a Radio Station Licence from the Bhutan Telecommunications Authority, which permits the aircraft operator to establish, maintain and operate a Radio Station; and

(ii) Obtain a Radio Station Approval from the authority, which approves the radio equipment type being used and the installation and maintenance of the approved radio equipment on board the aircraft.

(iii) The Radio Station Licence becomes valid only after the Director has issued the Radio Station Approval, except that the licence authorises the applicant to carry out such ground and flight tests, before the Director issues the Approval, as are necessary to comply with 2.10.4.

2.10.3 Application for Approval of Aircraft Radio Station

(a) The Application for issue or renewal of Aircraft Radio Station must be made on form DCA 004/01.

(b) The Application for approval shall be made along with the application for issue or renewal of certificate of airworthiness of the aircraft.

2.10.4 Aircraft Radio Station Approval Survey, Ground and Flight Tests

(a) The approval of an aircraft radio station is based on a survey by an airworthiness inspector, followed by such ground and flight-tests as are required in respect of the particular installation, to prove the satisfactory functioning of the installation.

(b) The applicant shall furnish the aircraft for survey in an appropriate area, convenient time, date and place.

(c) On satisfactory completion of the survey and the ground and flight tests, a Radio Flight Test Report and Radio Flight Test Certificate shall be forwarded to the Director.

(d) The Radio Flight Test Report shall include information under the following headings, together with such additional information as is required by the Director in a particular case:

(i) Type and Registration Marks of the aircraft

(ii) Type of installation

(iii) Modification reference number

(iv) Date and time of test

(v) Position and height of the aircraft and details of the radio tests, including particulars of aerials and transmitter(s) used.

(e) The Radio Flight Test Certificate shall be signed by the pilot, or radio operator, as appropriate at the conclusion of the flight test and shall contain the following:

> "I hereby certify that, with the exceptions stated below, the radio installation in the above designated aircraft has been proved to perform satisfactorily in flight and the functions for which it is approved."

Exceptions ---------- Signed ----------

---------- Date ----------

2.10.5 Issue of Radio Station Approval

(a) Upon being satisfied that all the requirements under 2.10.4 and such other requirements as deemed fit by the Director have been fulfilled, the Director may grant the Radio Station Approval.

(b) The Radio Station Approval is granted by the Director on form DCA 004/01.

2.10.6 Change of Ownership

A change of aircraft ownership invalidates the radio station licence. The new owner shall obtain a new licence from the Bhutan Telecommunications Authority.

2.11 Flight Manual Approval

2.11.1 General

(a) A Flight Manual is a document prescribed by the International Civil Aviation Organisation and is intended primarily for use by the flight crew. The Manual contains limitations, recommended procedures and information of a nature such that adherence to it will enable the level of safety which is intended by the Bhutan Air Navigation Regulations and associated Airworthiness Requirements to be regularly achieved. The Flight Manual, by definition in the Bhutan Air Navigation Regulations, forms part of the Certificate of Airworthiness.

(b) Flight Manuals and amendments thereto shall be approved, amended, and published in accordance with the procedures set out in this part.

(c) Aircraft for which a certificate of airworthiness is in force shall carry a Flight Manual or other approved document on all flights.

2.11.2 Applicability

(a) The requirements and procedures of this part are applicable to flight manuals which are required to be provided as part of the certification documentation of a type of aircraft new to Bhutan and to new Flight Manuals for Variant or Series aircraft for which an application has been made for a Bhutan Certificate of Airworthiness.

(b) For aircraft with MCTOW not exceeding 2730 kg, a Flight Manual need not be supplied provided that:

(i) A Flight Manual is not prescribed as a mandatory part of the certificate of airworthiness by the responsible authority of the state of design of the aircraft, and

(ii) The limitations, procedures and information necessary for the operation of the aircraft in accordance with the BANR are promulgated in an acceptable document other than a flight manual.

2.11.3 Approval of Flight Manual

(a) Flight Manuals and all amendments thereto shall be subject to approval by the Director.

(b) The Director may approve as the Flight Manual a flight manual:

(i) Approved by the competent authority in the state of manufacture, or

(ii) Produced in accordance with standards prescribed by the Director.

(c) The Director will approve the Flight Manual by issuing a Flight Manual Approval Certificate and List of Effective Pages of the Aircraft Flight Manual contents.

(d) The approved Flight Manual shall be identified either by a unique reference number, or by exact designation of all the aircraft to which the Manual is to apply.

2.11.4 Contents of Flight Manual

A flight manual shall contain all the information required by the airworthiness design standards under chapter 1, and such further information as the Director may require.

2.11.5 Approval of Amendments to Flight Manuals

(a) For flight manuals approved in accordance with 2.11.3, the operator shall be responsible for, and shall make the necessary arrangements to ensure, the supply of any amendments, which are necessary to keep the flight manual up to date for as long as an aircraft of the type remains registered in Bhutan.

(b) Amendments shall not be incorporated into the flight manual unless the amendment has been approved by the regulatory authority of the country of manufacture of the aircraft that have approved the flight manual, and the Director has issued an approval page to the amendments.

(c) The approval of amendments to the flight manual will be by issue of a revised DCA List of Effective Pages.

2.11.6 Change Sheets and Supplements

(a) The Director may approve amendments to the flight manual initiated by the operator. Such amendments may be effected in the form of a Change Sheet or a Supplement.

(b) A Change Sheet may consist of an additional page or pages, which is used to cover simple changes to existing data. It is embodied in the flight manual adjacent to the basic page to which the change sheet relates.

(c) A supplement is normally used to add to or vary the data contained in the flight manual of an aircraft type when a modification is incorporated or additional equipment is fitted.

(d) One copy of the proposed amendments shall be submitted to the Director for approval, at least three weeks in advance of the desired date for publication.

(e) The applicant shall make any alterations, which the Director may consider necessary at this stage.

(f) One copy of the amendments as approved shall be supplied to the Authority for intention.

(g) The Operator shall incorporate the approved amendments in accordance with the instructions provided.

2.11.7 Responsibilities of the Operator

The operator shall ensure that:

(i) Only DCA approved Flight Manual or amendments are included in the aircraft flight documentation; and

(ii) Amendments approved by the authority are promptly incorporated.

2.12 Products, Parts and Appliances

2.12.1 Applicability

This part prescribes requirements for the approval or acceptance of parts and appliances.

2.12.2 Release of Parts and Appliances for installation

A replacement or modification material, part, or appliance to be installed on a type-certificated product shall:

(i) Be authorised by the holder of the type certificate for the product as complying with the type design; or

(ii) Be accompanied by an Authorised Release Certificate; and

(iii) Marked in accordance with 2.15; or

(iv) Be a part accepted for the purpose by the Director.

***Note**: The authorised release certificate may be in the form of JAA Form One, USA FAA Form 8130-3, Transport Canada TCA Form 24-0078, or equivalent documents from other national aeronautical authorities.*

2.13 Repairs

2.13.1 Applicability

This subpart prescribes the means for the approval of repair designs.

2.13.2 Approval of Design for Repairs

A repair, the design of which has not been approved under the type certificate or type acceptance certificate, shall be treated as a design change, and must be:

(i) Approved in accordance with 2.3.3; or

(ii) Accepted in accordance with 2.3.2.

2.14 Technical Data and Airworthiness Specifications

2.14.1 Applicability

This part prescribes the means for:

(i) The approval or acceptance of technical data; and

(ii) The approval or acceptance of specifications for materials, parts, processes, and appliances.

2.14.2 Acceptable Technical Data

(a) Technical data shall only be used if it is approved by, or is acceptable to the Director.

(b) Acceptable technical data are listed in Appendix A to this part.

2.14.3 Approval of Technical Data

(a) Except as provided in paragraphs (b), each applicant for the approval of technical data shall complete form DCA 005/01, which shall require:

(i) The name and address for service in Bhutan of the applicant; and

(ii) Any documentation necessary to define the data; and

(iii) A description of any design change including:

(1) Sufficient data to identify the change; and

(2) The identification of all parts of a product, component, or appliance affected by the change; and

(iv) For a product, component, or appliance to be changed in accordance with the data:

(1) Identification of any investigations necessary to show compliance with the applicable airworthiness requirements; and

(2) Adequate maintenance and operating data to ensure the product, component, or appliance can be properly maintained and operated; and

(v) Such further particulars relating to the technical data, any design change, and the applicant as may be required by the Director as indicated on the form; and

(vi) Either:

(1) A statement of compliance provided by a certificated design organisation from Europe or the USA stating that the technical data meets the airworthiness requirements of 2.2.8.1 and any associated design change is fit for embodiment; or

(2) An equivalent statement to that required by paragraph (a)(vi)(1) issued in accordance with the requirements of an appropriate foreign authority; or

(3) A written request that a statement of compliance be provided during the technical data approval process,

and submit it to the Director with a payment of the appropriate application fee prescribed by the BANR.

(b) Notwithstanding paragraph (a)(vi)(1), a statement of compliance may state that the technical data:

(i) Meets the airworthiness requirements incorporated by reference in the type certificate; or

(ii) If special conditions are applied, meets a level of safety equivalent to that provided in paragraph (a)(vi)(1).

(c) An applicant is entitled to the approval of technical data if:

(i) The applicant meets the applicable requirements of 2.14.3 in a manner acceptable to the Director; and

(ii) The approval of the data is not contrary to the interests of aviation safety; and

(iii) Any airworthiness requirements not complied with are compensated for by factors that provide a level of safety acceptable to the Director; and

(iv) No feature or characteristic of a product, component, or appliance makes it unsafe for its intended use when:

(1) Changed in accordance with the data; and

(2) Operated in accordance with the correctly amended flight manual or other prescribed limitations.

2.14.4 Acceptance of Specifications

A specification for a material, part, process, or appliance may be acceptable to the Director if:

(i) It is applied by, or accepted for use in, an airworthiness design standard listed in Appendix A and is used only for that airworthiness design standard; or

(ii) It has been approved or accepted by a recognised foreign aviation authority; or

(iii) It is a specification for a standard part and it is:

(1) An established industry specification; or

(2) A recognised foreign national specification.

2.15 Identification of Products, Parts and Appliances

2.15.1 Applicability

This part prescribes requirements governing the identification of:

(i) Aircraft, aircraft engines, and propellers; and

(ii) Critical parts; and

(iii) Certain replacement and modification parts.

2.15.2 Identification of Aircraft, Aircraft Engines and Propellers

(a) Aircraft and Aircraft Engines:

A person who imports aircraft and aircraft engines into Bhutan shall ensure that:

(i) It is identified by means of a fireproof plate that has the information specified in 2.15.3 marked on it by etching, stamping, engraving, or other approved method of fireproof marking.

(ii) The identification plate is secured in such a manner that it will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

(b) Propellers and Propeller Blades and Hubs:

A person who imports propellers, propeller blades, or propeller hubs shall ensure that:

(i) It is identified by means of a plate, stamping, engraving, etching, or other approved method of fireproof identification that is placed on it on a non-critical surface, and contains the information specified in 2.15.3.

(ii) The identification will not be likely to be defaced or removed during normal service, or lost or destroyed in an accident.

(c) Manned Free Balloons:

A person who imports manned free balloons into Bhutan shall ensure that:

(i) It is identified by means of a fireproof plate that has the information specified in 2.15.3 marked on it by etching, stamping, engraving, or other approved method of fireproof marking.

(ii) The identification plate must be secured to the balloon envelope and must be located, if practicable, where it is legible to the operator when the balloon is inflated.

(iii) The basket and any heater assembly must be permanently and legibly marked with the manufacturer's name, part number (or equivalent) and serial number (or equivalent).

2.15.3 Identification Data

The identification data required by 2.15.2 (a), (b) & (c) shall include the following information:

(i) Manufacturer's name.

(ii) Product or Part description.

(iii) Manufacturer's serial number.

(iv) Where applicable, the type certificate number.

(v) Where applicable, the manufacturing certificate number.

(vi) For aircraft engines, the established rating.

(vii) Any other information the Director may require.

2.15.4 Removal, Alteration and Replacement of Identification Data

(a) Except as provided in paragraph (b), a person shall not remove, alter, or replace the identification data prescribed in 2.15.3 on any product or part without the approval of the Director.

(b) A person performing maintenance in accordance with Chapter 3 of this BAR or BCAR-145 may remove, alter, or replace the identification data prescribed in 2.15.3 if it is removed, altered, or replaced in accordance with methods, techniques and practices acceptable to the Director.

2.15.5 Removal and Installation of Data Plate

(a) Except as provided by paragraph (b) a person shall not remove or reinstall the data plate containing the identification data prescribed in 2.15.3 without the approval of the Director.

(b) A person performing maintenance in accordance with Chapter 3 or BCAR-145 may remove or reinstall the data plate containing the identification data prescribed in 2.15.3 if:

(i) The removal of the data plate is necessary during the maintenance; and

(ii) The data plate is removed and reinstalled in accordance with methods, techniques, and practices acceptable to the Director; and

(iii) The removed data plate is reinstalled on the product or part from which it was removed.

Appendix A - Acceptable Technical Data

(a) Subject to paragraph (b), the following are acceptable technical data:

(1) Foreign type certificate data sheets used for the issue of a type acceptance certificate.

(2) Type design data for type certificated products.

(3) Design change data received from the type certificate holder.

(4) Design change data that support a design change approved by the means specified in 2.3.3.

(5) Data approved by the Director under 2.14.3.

(6) Foreign airworthiness directives that give specific instructions for modification or repair.

(7) Supplemental type certificates issued by the.

(i) United Kingdom Civil Aviation Authority; and

(ii) The United States Federal Aviation Administration.

(8) Aeronautical specifications.

(9) Data giving specific instructions for modification or repair contained in a maintenance manual, repair manual, overhaul manual, continuing airworthiness document, service bulletin, or an equivalent provided by the manufacturer of the product for which it is to be used and which is listed in the type certificate or by reference in the type acceptance certificate.

(10) Data included in, and specific to the category of, an airworthiness certificate.

(11) Data prescribed in the UK CAA Airworthiness Notices as approved.

(b) The technical data listed in paragraph (a) are acceptable provided that:

(1) The data is appropriate to the product, component, or appliance, directly applicable to the work being carried out; and

(2) For a foreign supplemental type certificate or supplemental type approval.

(i) A complete new flight manual is not introduced; and

(ii) The aircraft type is not re-designated; and

(iii) The data is supplemental to the particular type certificate accepted by the Director and that type certificate is referenced on the supplemental type certificate or supplemental type approval.

(3) Data provided by the manufacturer of a component does not conflict with data provided by the manufacturer of the product or assembly of which the component is to form a part.

Appendix B - Certificate of Airworthiness Renewal Recommendation Report

***(Note:** As per the requirements under 2.5.13(b) of BAR-AW the entries in this form must be filled in and signed by the Airline's Quality Assurance)*

A. Aircraft & Engine Records

1. Aircraft Type :
2. Aircraft Registration No. :
3. Aircraft Serial No. :
4. Aircraft Hours : TSN _____ as on _____
   : Total Ldgs _____ as on _____
5. Engine Hours/Cycles with Serial No. : as on _____

Position	S/No.	TSN	CSN
I			
II			
III			
IV			

6. APU Hours/Cycles with Serial No. : as on _____

S/No.	TSN	CSN

B. Review of Maintenance Programme & Scheduled Maintenance Checks

1. Approved Aircraft Maintenance Programme.

Ref. No.	Revision Status	Last Revision

2. List of Variations/Concessions to the Approved Maintenance Programme**.**

3. Details of Scheduled Maintenance Checks carried out since last C of A Renewal (additional sheets may be attached).

Type of Check	Accomplished at(A/C Hrs)	Place	Date

4. List of Life-limited Components.

5. Aircraft Maintenance Log Review.

C. Review of AD's, SB's and DCA Mandatory Inspections

1. List of all applicable AD's and DCA Mandatory Inspections complied with since last C of A renewal.

2. List of all AD's due on the aircraft but outstanding (with brief reasons and due compliance time).

3. List of all SB's incorporated since last C of A renewal.

D. Review of Modifications, Repairs, Defects and Rectifications Actions

1. List of all Base Deferred Defects (BDD).

2. List of outstanding Acceptable Deferred Defects (ADD).

3. List of Major Repairs and Modifications carried out since last C of A renewal.

4. Details of Corrosion.

5. Status of SSI's and CPCP.

6. Radio Installation Modifications.

7. Referrals to Manufacture on major defects, incidents, etc.

8. List of Mandatory Occurrence Reporting (MOR) raised.

E. Review of Miscellaneous Records

1. Flight Manual Status.

2. Weight & Balance Records.

   (a) Date of previous weighing: _____

   (b) Date of next weighing: _____

3. Flight Test Reports.

   (a) Date of last Flight Test: _____

   (b) Next flight test due on: _____

F. Quality Assurance (QA) Surveillance Reports

1. QA survey of aircraft and maintenance records carried out before C of A application, and report shall be made available for review of DCA's inspector at the time of C of A renewal survey visit.

2. QA inspection of aircraft carried out before C of A application, and report shall be made available for review of DCA's inspector at the time of C of A renewal survey visit.

G. C of A Renewal Recommendation

I have inspected the referenced aircraft and reviewed its maintenance records. As of this date I have found no major unairworthy condition that could affect the airworthiness of the aircraft. I hereby recommend the DCA the renewal of the Certificate of Airworthiness of this aircraft, subject to the DCA being satisfied upon its regulatory survey inspection.

Signed: _____ Date: _____

Name: _____ Designation: _____

Appendix C – Flight Test Certificate

FLIGHT TEST CERTIFICATE

Aircraft Type: _____ Registration: _____

Manufacturer's Serial No: _____

I Certify that I have tested the above aircraft to the Airworthiness Flight Test Schedule reference _____

The following deficiencies and unsatisfactory features were revealed by the flight tests or noted at other times during the flight(s) and I consider that those annotated 'R' and/or 'FT' should be dealt with as follows:

(a) Those annotated 'R' should be rectified prior to the re-entering of normal operational service;
(b) Those annotated 'FT' should be re-assessed in flight, following remedial action, before the defect can be considered to be rectified.

ITEM	DEFICIENCY	R/FT
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____
8	_____	_____

The above defects have been transcribed into the _____ for rectification and clearance.

Pilot _____ Signed _____

Date _____ Licence No. _____

Intentionally left blank

Chapter 3 – Aircraft Maintenance Requirements

3 Aircraft Maintenance Requirements

3.1 General

3.1.1 Maintenance Requirements

(a) In accordance with the Bhutan Air Navigation Regulations, as amended, an aircraft registered in Bhutan in respect of which a Certificate of Airworthiness is in force, shall not fly unless it has been maintained in accordance with a Maintenance Programme approved by the Director and Certificates of Maintenance Review issued certifying that a maintenance review has been carried out.

(b) This chapter establishes, for all aircraft, the minimum standard of maintenance considered necessary to ensure the continued validity of their airworthiness certificates.

3.1.2 Applicability

This part prescribes requirements for:

(i) The maintenance of aircraft having a valid Bhutan airworthiness certificate issued under Chapter 2, part 2.5 of this BAR; and

(ii) The release to service after maintenance of aircraft having a Bhutan airworthiness certificate issued under chapter 2, part 2.5 of this BAR; and

(iii) The maintenance and the release to service after maintenance of components to be fitted to aircraft having a Bhutan airworthiness certificate issued under, chapter 2, part 2.5 of this BAR; and

(iv) The annual review of airworthiness.

3.1.3 Definitions

In this part:

Aerial Work – means an aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Commercial Air Transport - means an aircraft operation involving the carriage of Passengers, Cargo or Mail for remuneration or hire.

Control System - means a system by which the flight path, attitude, or propulsive force of an aircraft is changed, including the flight, engine and propeller controls, the related system controls and the associated operating mechanisms.

Duplicate Inspection – An inspection first made and certified by one qualified person and subsequently made and certified by a second qualified person.

Inspection – means the examination of an aircraft/aircraft component to establish conformity with an approved standard.

Maintenance – means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft/aircraft component.

3.1.4 Falsification, reproduction, or alteration of maintenance documentation

(a) A person shall not make or cause to be made:

(i) Any fraudulent or intentionally false entry in any record or report that is required to be made, kept, or used to show compliance with any requirement under this Part; or

(ii) Any reproduction or alteration, for fraudulent purpose, of any record or report made under this Part.

(b) A person who commits any act prohibited under paragraph (a) may have his or her aircraft maintenance engineer license, rating, certificate, qualification, or authorisation revoked or suspended.

3.2 Maintenance

3.2.1 Persons authorised to perform maintenance

(a) No person may perform any task defined as maintenance on an aircraft or aeronautical products, except as provided in the following:

(i) An aircraft maintenance engineer who holds a current licence and an appropriate type rating issued in accordance with the BANRs for the time being in force; or

(ii) The holder of an authorisation issued by a BCAR-145 certificated aircraft maintenance organisation, to perform maintenance within the scope of that certificate; or

(iii) A person performing maintenance under the direct supervision of:

(1) An aircraft maintenance engineer who holds a current licence and an appropriate type rating issued in accordance with the BANRs for the time being in force; or

(2) The holder of an authorisation issued by the holder of a BCAR-145 certificated aircraft maintenance organisation, and the maintenance is within the scope of that authorisation.

(iv) A pilot licensed by the DCA with an appropriate type rating may perform maintenance listed in Appendix A on any aircraft if the licence holder is:

(1) Appropriately trained; and

(2) Authorised by the owner or operator of the aircraft.

3.2.2 Performance of Maintenance

Any person performing maintenance on an aircraft or aircraft component shall:

(i) Be familiar with the maintenance actions required for the continued airworthiness of that aircraft or component; and

(ii) Use adequate housing and facilities for the necessary disassembly, proper inspection, and reassembly of the aircraft; and

(iii) Use methods, techniques and practices that:

(1) Are prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness; or

(2) Are acceptable to the Director; and

(iv) Use materials, parts, and appliances in accordance with chapter 2, part 2.12 of this BAR; and

(v) Use the tools, equipment, and test apparatus necessary to ensure completion of the work in accordance with paragraph (a)(iii); and

(vi) Use any special or test equipment recommended by the manufacturer, or equivalent equipment that ensures the equipment being tested is in operable condition; and

(vii) Perform the maintenance so as to ensure that the aircraft or component meets all applicable airworthiness requirements; and

(viii) When performing maintenance specified in the Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for continued Airworthiness, perform the maintenance in accordance with that section; and

(ix) When performing maintenance in accordance with a maintenance programme approved under BCAR-M:

(1) At the start of the maintenance programme, inspect the aircraft completely; and

(3) After the initial inspection, conduct routine inspections and detailed inspections in accordance with the maintenance programme.

(x) On completion of the maintenance, ensure that the condition of the aircraft or component is satisfactory for release to service and is at least equal to its original or properly modified condition with regard to:

(1) Aerodynamic function; and

(2) Structural strength; and

(3) Resistance to vibration and deterioration; and

(4) Other qualities affecting airworthiness.

(b) No person shall perform maintenance on or release to service:

(i) An aircraft engaged in commercial air transport operations; or

(ii) A component fitted or intended to be fitted to an aircraft referred to in paragraph (b)(i),

except under the authority of, and in accordance with the provisions of, a BCAR-145 certificated aircraft maintenance organisation.

(c) No person shall perform any of the following kinds of maintenance on any aircraft or component, or release any aircraft or component to service, except under the authority of, and in accordance with the provisions of, a maintenance organisation certificated under BANRs and BCAR-145:

(i) Overhaul of a component; or

(ii) Maintenance on an aircraft or component where the relevant airworthiness data requires the use of jig that is approved or certified by the manufacturer or that is approved by the Director; or

(iii) Maintenance on a component where the maintenance involves the disturbance of any part of the component that is supplied as a bench tested unit, except where:

(1) The disturbance is for the replacement or adjustment of a part normally replaceable or adjustable in service; and

(2) Subsequent functioning of the part disturbed can be demonstrated without the use of test apparatus that is additional to the test apparatus used for normal functioning checks; or

(iv) Maintenance on an aircraft engine where the maintenance involves:

(1) Dismantling and assembly of a piston engine except where this is to obtain access to the piston or cylinder assembly; or

(2) Dismantling and assembly of any main casing or main rotating assembly of a turbine engine, except where this is for replacement of a main casing or rotating assembly, the maintenance manual for the engine provides instruction for the replacement, and the removal from the engine is achieved solely by disconnecting the flanges of main casings; or

(xi) Aircraft propeller balancing other than in situ dynamic propeller balancing in accordance with the aircraft manufacturer's instructions; or

(xii) Maintenance on a helicopter where the maintenance involves the dismantling of any transmission gearbox, except where this is for separation of casings to obtain access for the purpose of internal inspection in accordance with the helicopter manufacturer's instructions.

3.2.3 Recording of Overhaul

A person shall not state in any maintenance document entry required by the BANRs that an aircraft, airframe, engine, propeller, or other aircraft component, has been overhauled unless it has been:

(i) Disassembled, cleaned, inspected and repaired as necessary, and reassembled, using methods and techniques acceptable to the Director; and

(ii) Tested in accordance with:

(1) Current standards and technical data which have been developed and documented by the holder of the type certificate, supplemental type certificate and accepted by the Director under chapter 2, part 2.14 of this BAR; or

(2) Other standards or technical data approved by the Director under chapter 2, part 2.14 of this BAR.

3.2.4 Performance of Inspections

3.2.4.1 General

Each person performing an inspection required by the authority shall:

(i) Perform the inspection so as to determine whether the aircraft, or portion(s) thereof under inspection, meets all applicable airworthiness requirements; and

(ii) If there is an inspection programme required or accepted for the specific aircraft being inspected, perform the inspection in accordance with the instructions and procedures set forth in the inspection programme.

3.2.4.2 Rotorcraft Inspection

Each person performing an inspection required on a rotorcraft shall inspect the following systems in accordance with the maintenance manual or Instructions for Continued Airworthiness of the manufacturer concerned:

(i) The drive shafts or similar systems; and

(ii) The main rotor transmission gearbox for obvious defects; and

(iii) The main rotor and centre section (or equivalent area), and

(iv) The auxiliary rotor on helicopters.

3.2.4.3 Annual and 100-hour Inspections

(a) Each person performing an Annual or 100-hour inspection shall use an approved checklist while performing the inspection. The checklist shall include as a minimum the tests and inspections listed in Appendix B to this Chapter.

(b) Each person certifying a reciprocating engine powered aircraft for release to service after an annual or 100-hour inspection shall perform the checks listed under 3.3.5.

(c) Each person certifying a turbine engine powered aircraft for release to service after an annual or 100-hour inspection shall perform the checks listed under 3.3.6.

3.2.5 Non-destructive Testing

Each person performing maintenance on an aircraft or aircraft component where the applicable maintenance data requires a non-destructive test using fluorescent penetrant, magnetic particle, eddy current, ultrasonic or radiography methods shall:

(i) Hold a certificate issued by a NDT training organisation that meets the certification standards prescribed under Part 3.9, and is acceptable to the Director; and

(ii) Perform the non-destructive testing using appropriate methods, techniques and practices specified by the organisation responsible for design and or manufacture of aircraft, material, structure or component, or methods, techniques and practices acceptable to the Director.

3.2.6 Maintenance Records and Entries

(a) Each person performing maintenance on an aircraft or component shall record, on completion of the maintenance:

(i) Details of the maintenance including, where applicable the identity of the inspection, and any technical data used; or

(ii) For a component removed or fitted:

(1) Its description; and

(2) Its part number and serial number, if any; and

(3) The references to the applicable authorised release certificate or other release documentation; and

(iii) Details of measurements or test results obtained, including the results of any ground or air tests; and

(iv) The date of completion; and

(v) The name of the person completing the maintenance, if other than the person certifying release to service; and

(vi) The location and, where applicable, the name of the facility where the maintenance was carried out; and

(vii) Where maintenance has been performed as a consequence of the failure of any part, or damage caused by forced landing, other incident, or accident, the reasons for performing the maintenance.

(b) The person performing the maintenance shall:

(i) Record the details required by paragraph (a) in the appropriate logbook or in a maintenance record acceptable to the Director; and

(ii) Record the details legibly and in ink or other permanent material; and

(iii) Where worksheets or other associated maintenance records are used to document the detail of the maintenance task reference those records in:

(1) The logbook; or

(2) The maintenance record acceptable to the Director.

(c) Further requirements for logbooks, maintenance records, etc are described under 3.8.

3.3 Maintenance Certification

3.3.1 Certificate of Release to Service

3.3.1.1 Persons to certify Release to Service

(a) A person shall not certify an aircraft or aircraft component for release to service after maintenance unless he:

(i) Holds a current aircraft maintenance engineer licence and an appropriate type rating issued under the BANRs for the time being in force; or

(ii) Is authorised by the holder of a BCAR-145 certificated aircraft maintenance organisation, to certify maintenance within the scope of that certificate; or

(iii) Is approved by the Director to certify an aircraft or aircraft component for release to service; or

(iv) Hold a pilot licence and have performed the maintenance under the conditions prescribed in 3.2.1; or

(v) For maintenance outside Bhutan, hold a licence issued by a contracting state of ICAO for the type of aircraft or aircraft component.

3.3.1.2 Certifying Requirements

(a) A person shall not certify an aircraft or aircraft component for release to service after maintenance unless that maintenance has been carried out in accordance with the BANRs and, in respect of that maintenance, the aircraft or aircraft component is considered ready for release to service.

(b) A person shall not certify an aircraft or aircraft component for release to service after the performance of a major modification or a major repair unless that major modification or major repair has been certified in accordance with 3.5.

(c) Where the acceptable technical data for a modification or repair to an aircraft or component includes changes to the operating limitations of flight data in the aircraft flight manual, the certifying person shall not certify the release to service until the changes have been incorporated into the flight manual.

3.3.1.3 Certifying after Maintenance

(a) Each person who certifies an aircraft or component for release to service after maintenance shall enter in the logbook or other record required by part 3.8:

(i) For certifications made other than by organisations approved in accordance with BCAR-145, a statement of release to service:

(1) After the recorded details required by 3.2.6; and

(2) That indicates, "the work recorded above has been carried out in accordance with the requirements of the Bhutan Air Navigation Regulations for the time being in force and in respect of that work the aircraft or aircraft component is considered fit for release to service"; and

(ii) For certifications made by organisations approved in accordance with BCAR-145, a statement of release to service:

(1) After the recorded details required by 3.2.6; and

(2) That reads, "Certifies that the work specified except as otherwise specified was carried out in accordance with the BCAR-145 and in respect to that work the aircraft/aircraft component is considered ready for release to service"; and

(iii) Beside the statement of release to service:

(1) Their signature; and

(2) Their licence, approval, or authorisation number; and

(1) Place; and

(4) The date of entry.

(b) Where a component is not installed on, or allocated to, an aircraft, the person certifying the release to service shall certify the release to service on:

(i) DCA Form One for a component that:

(1) Requires maintenance to be conducted under the authority of, and in accordance with the provisions of, an aircraft maintenance organisation certificated under BANRs & BCAR-145; or

(2) Is to be exported.

3.3.1.4 Release to Service with Inoperative Equipment

Each person who certifies an aircraft or component for release to service that includes equipment permitted to be inoperative under the BANRs shall:

(i) Provide the owner or operator with a list of the inoperative equipment; and

(ii) Place a placard on each inoperative instrument and the cockpit controls of each item of inoperative equipment, marking each item **Inoperative**; and

(iii) Enter in the logbook or other record required by part 3.8 a statement of release to service:

(1) After the recorded details required by 3.2.6; and

(2) Either of the following statements depending on whether or not the certification is made by an organisation approved in accordance with the BANRs & BCAR145:

"Certifies that the work specified except as otherwise specified was carried out in accordance with the BCAR-145 and in respect to that work the aircraft/aircraft component is considered ready for release to service"; OR

"the work recorded above has been carried out in accordance with the requirements of the Bhutan Air Navigation Regulations for the time being in force and in respect of that work the aircraft or aircraft component is considered fit for release to service".

3.3.1.5 Discrepancies

Any person performing maintenance who does not release the aircraft or component to service shall:

(i) Provide the owner or operator with a list of the discrepancies where the person finds that the aircraft is not in airworthy condition; and

(ii) Enter in the logbook or other record required by part 3.8 a statement:

(1) After the recorded details required by 3.2.6; and

(2) That indicates that the aircraft or component is considered not ready for release to service; and

(iii) Enter beside the statement:

(1) Their signature; and

(2) Their licence, approval, or authorisation number; and

(3) Place; and

(4) The date of entry.

3.3.2 Certificate of Maintenance Review

3.3.2.1 General

(a) An aircraft registered in Bhutan, with MCTOW of 5700 Kg or above and involved in commercial air transport operation or aerial work operation shall be subject to a maintenance review at intervals specified in the Approved Maintenance Programme.

(b) At the completion of the maintenance review, a Certificate of Maintenance Review shall be issued certifying that all applicable maintenance specified in the approved maintenance programme and any other maintenance in respect of the aircraft has been carried out and certified in accordance with the requirements of Bhutan Air Navigation Regulations for the time being in force and the manufacturer's appropriate manuals and procedures.

3.3.2.2 Persons Authorised to issue Certificate of Maintenance Review

A certificate of maintenance review shall be issued only by one of the following:

(i) The holder of a current aircraft maintenance engineer's licence with an appropriate type rating granted under the BANRs.

(ii) The holder of a current aircraft maintenance engineer's licence with an appropriate type rating granted by a contracting state and duly validated by the Director and subject to any conditions he may prescribe.

(iii) A person approved by the Director to issue such certificates, and in accordance with that approval.

(iv) A person authorised by the Director to issue a certificate of maintenance review in a particular case and in accordance with that authority.

(v) Notwithstanding the foregoing a certificate of maintenance review shall only be issued by a person approved by the Director.

(vi) For an organisation approved in accordance with the BANRs and BCAR-145, the Certificate of Maintenance Review will be signed by the Quality Assurance of that organisation under the approval of the Director. He shall fulfil the following requirements:

(1) Be the holder of a current aircraft maintenance engineer's licence without type rating valid in at least two categories.

(2) Hold a position within the approved organisation compatible with the responsibilities involved.

(3) Have successfully completed familiarisation training on the aircraft type for which the authorisation is to be granted and the procedures of the organisation including:

(a) The concept of approval

(b) The status of the certificate of maintenance review and the responsibilities of a signatory of the certificate.

(c) The form and implementation of the approved maintenance programme for the type of aircraft concerned.

(d) The details of the systems and procedures contained in the exposition and associated documents, together with requirements of the organisation for their implementation.

(e) The maintenance support systems, which are related to continuing airworthiness, e.g. reliability programmes, defect control, production control, development engineering, training, certification authority and modification control.

(f) The form and use of the aircraft technical log, deferred defect log, fuel and instrument log, and the minimum equipment list.

(g) The form and implementation of mandatory inspections/modifications for the type of aircraft concerned.

3.3.2.3 Issue of Certificate of Maintenance Review

(a) The signatory shall only issue a certificate of maintenance review, when satisfied at the time of the review that the following aspects of maintenance have been carried out:

(i) All required maintenance specified in the approved maintenance programme has been carried out within the prescribed time period and any extension to the limiting periods is in accordance with the procedures approved by the Director.

(ii) All mandatory modifications and inspections have been carried out within the prescribed time periods and any extension to the limiting periods has been authorised by the Director. Due accounts must be taken of any repetitive inspections.

(iii) All defects entered in the Technical Log have been rectified or deferred in accordance with procedures approved by the Director.

(iv) All certificate of release to service required have been issued in accordance with the procedures of 3.3.1.1 through 3.3.1.5 or BANRs & BCAR-145 as necessary.

(v) No out-of-phase inspection or replacement of components is due on the aircraft before the expiry date of the certificate of maintenance review except those which have been recorded in the aircraft maintenance records and are controlled in accordance with approved procedures.

(b) A certificate of maintenance review shall be issued in duplicate. The original copy shall be carried in the aircraft and the other copy shall be kept elsewhere than in the aircraft for a period of not less than two years from the date of expiry of the validity or for such periods as may be otherwise agreed by the Director.

(c) The certificate of maintenance review shall be of the approved format as shown in Appendix C to this chapter.

3.3.3 Certificate of Fitness for Flight

3.3.3.1 General

(a) A certificate of fitness for flight is required to be issued in respect of an aircraft which:

(i) Does not have a valid certificate of airworthiness, and the aircraft is required to be test flown for the purpose of issue or renewal of a certificate of airworthiness, after undergoing modifications, repairs, or major maintenance; or

(ii) Is required to be ferried to a maintenance base where repairs, modifications, maintenance, or inspections are to be performed; or

(iii) Evacuating aircraft from areas of impending danger.

(b) A certificate of fitness for flight is **not** a release to service for the aircraft.

3.3.3.2 Persons authorised to certify Fitness for Flight

A certificate of fitness for flight shall be issued only by the following:

(i) A holder of an appropriately type rated licence issued in accordance with the BANRs for the time being in force; or

(ii) A person approved by the Director to issue such certificates and in accordance with that approval; or

(iii) A person authorised by the maintenance organisation certificated under the BANRs and BCAR145, and in accordance with that authorisation.

3.3.3.3 Issue of Certificate of Fitness for Flight

(a) The certificate of fitness for flight shall be issued in duplicate. The original copy shall be carried in the aircraft and the other copy kept elsewhere than in the aircraft. The period of validity shall be stated on the certificate but shall not exceed 7 (seven) days from the date of issue.

(b) The certificate of fitness for flight shall be of the approved format as shown in Appendix D to this chapter.

(c) The aircraft shall not fly over any congested area of a city except to the extent that is necessary for take off and landing and shall not carry any cargo, or any persons other than the flight crews necessary for the flight.

3.3.4 Duplicate Inspection of Controls

(a) A person shall not certify an aircraft or component for release to service after the initial assembly, following a repair, overhaul, replacement, modification, or adjustment of any part of an aircraft control system or component control system unless a duplicate safety inspection of the control system has been performed. A Duplicate Inspection is defined as follows:

(i) An inspection after maintenance by a person authorised under 3.3.1.1 to certify the release to service of the control system; and

(ii) A second inspection by another person authorised under 3.3.1.1 to certify the release to service of the control system.

(b) The first and second inspections must take account of the full extent of the work undertaken and not simply the immediate area of disturbance. This is to ensure that distant or remote parts of the system that may have been affected by the disturbance are also subject to duplicate inspections. Where work has been carried out on other systems for safety precautions, or to enhance accessibility, the need to carry out a duplicate inspection on these systems shall be considered. Persons who carry out and certify duplicate inspections are therefore required to undertake an independent review of the complete task, as detailed in the maintenance manual and by reference to worksheets used, including shift hand-over records, to assess the scope of the duplicate inspection(s) required.

(c) It may not be possible to inspect the complete control system when assembled in the aircraft, due to routing the controls through conduits or boxed-in sections and the pre-sealing of various units. In these cases the persons certifying the duplicate inspection shall be satisfied that a duplicate inspection has been made previously on the units and covered sections and that the sealed units are acceptable for the particular use. Such tests as are necessary shall be completed to determine that these particular units and sections have full, free and correct directional movement.

(d) Control systems subject to duplicate inspection must not be disturbed or re-adjusted after the first certified inspection and the second part of the duplicate inspection must, as nearly as possible, follow immediately after the first part.

(e) If a control system is disturbed after completion of the duplicate inspection, that part which has been disturbed shall again be inspected in duplicate and a certificate of release to service issued before the aircraft flies.

(f) The duplicate inspection shall be the final operation to establish the integrity of the control system when all the work has been completed and shall take into account all the relevant instructions and information contained in the associated technical data.

(g) The inspections prescribed for control systems under this part shall include an inspection to ensure that full, free and correct movement of the controls is obtained throughout the systems relative to the movements of the crew controls. An additional inspection shall be made, when all covers and fairings are finally secured, to ensure that full, free and correct movement of the controls is obtained.

(h) Should a minor adjustment of the control system be necessary when the aircraft is away from base, the second part of the duplicate inspection may be completed by a pilot or flight engineer licensed for the type of aircraft concerned, provided that authorisation is granted by the responsible BANR-JAR 145 approved maintenance organisation, if the aircraft is being used for the purpose of commercial air transport.

(i) Each person who certifies a duplicate safety inspection required by paragraph (a) shall enter in the logbook or other record required by part 3.8:

(i) A statement that indicates the aircraft control system or component control system is free from defects and operates correctly; and

(ii) Beside the statement:

(1) Their signature; and

(2) Their licence, approval, or authorisation number; and

(3) Place; and

(4) The date of entry.

(j) A duplicate inspection certification shall be in the approved format as shown in Appendix E to this chapter.

3.3.5 Ground Running Checks – Reciprocating Engine

A person shall not certify a reciprocating engine powered aircraft for release to service after an annual or 100-hour inspection unless he/she ensures that:

(i) A ground run of the aircraft engine or engines has been performed to determine satisfactory performance, in accordance with the manufacturer's recommendations, for:

(1) The power output (static and idle RPM); and

(2) The ignition system or systems; and

(3) The fuel and oil pressure; and

(4) The cylinder or coolant temperature, and oil temperature; and

(ii) The ambient conditions of temperature and atmospheric pressure and the details of the results are recorded in:

(1) The appropriate engine or aircraft logbook; or

(2) A maintenance record acceptable to the Director.

3.3.6 Ground Running Checks – Turbine Engine

A person shall not certify a turbine engine powered aircraft for release to service after an annual or 100-hour inspection unless he/she ensures that:

(i) A ground run of the aircraft engine or engines has been performed to determine satisfactory performance in accordance with the manufacturer's recommendations; and

(ii) The ambient conditions of temperature and atmospheric pressure and the details of the results are recorded in:

(1) The appropriate engine or aircraft logbook; or

(2) A maintenance record acceptable to the Director.

3.3.7 Technical Log Completion

A person shall not certify an aircraft or aircraft component for release to service in an aircraft technical log unless each applicable section of the technical log is completed, including details of any deferred rectification.

3.4 Annual Review of Airworthiness

3.4.1 General

The Annual Review of Airworthiness is a condition and conformity inspection required for operators of:

(i) Non-air transport aircraft, excluding aircraft involved in aerial work operations.

(ii) Commercial air-transport aircraft with MCTOW of 5700 kg or less, which opts to use Annual Review of Airworthiness in lieu of the Certificate of Maintenance Review process.

3.4.2 Persons to perform Annual Review of Airworthiness

A person shall not perform an annual review of airworthiness for an aircraft unless he/she holds an Authorisation issued by the Director.

3.4.3 Annual Review of Airworthiness Requirements

Each person performing an annual review of airworthiness for an aircraft shall, before certifying that the review has been carried out:

(i) Ensure that the aircraft conforms to its type certificate; and

(ii) Ensure that any modifications and repairs conform to the applicable technical data listed in Appendix A to chapter 2; and

(iii) Ensure that all due maintenance specified in the applicable maintenance programme has been completed; and

(iv) Ensure that all applicable airworthiness directives have been complied with; and

(v) Ensure that each discrepancy recorded in the technical log has been actioned and certified in accordance with relevant sections of the BANR; and

(vi) Ensure that all applicable releases to service have been completed and certified in accordance with 3.3.1; and

(vii) Ensure that all components' overhaul and finite lives are within the limits laid down in the applicable maintenance programme; and

(viii) Ensure that the weight and balance in the aircraft logbook is accurate and within the limitations of the aircraft type certificate; and

(ix) Ensure that the flight manual is the current version for the aircraft; and

(x) Perform a general condition inspection of the aircraft.

3.4.4 Certifying Annual Review of Airworthiness

Each person who performs and certifies an annual review of airworthiness for an aircraft shall enter:

(i) The following statement in the aircraft logbook or other approved technical record:

"I hereby certify that an annual review of airworthiness has been carried out on this aircraft and that the requirements of the Bhutan Air Navigation Regulations for the time being in force have been complied with"; and

(ii) Beside the statement required by subparagraph (i), their signature, authorisation number, place, and the date of the entry; and

(iii) In the appropriate section of the aircraft technical log, the date that the review is next due.

3.4.5 Discrepancies

(a) Each person who performs an annual review of airworthiness and finds that an aircraft does not comply with the requirements listed in 3.4.3 shall:

(i) Record the discrepancies in the aircraft logbook or other approved technical record; and

(ii) Forward a copy of the discrepancies to the Director.

(b) Subject to paragraph (c), where a person performing an annual review of airworthiness finds that an aircraft does not comply with the requirements listed in 3.4.3(ii), that person may, with the approval of the operator of the aircraft, permit rectification of the discrepancy to be deferred within the time period permitted by the BANR for the time being in force.

(c) The deferral of the rectification of a discrepancy permitted under paragraph (b) shall:

(i) Not apply to any discrepancy that would affect the safe operation of the aircraft; and

(ii) Be certified in the aircraft logbook or other approved technical record by the person performing the annual review of airworthiness.

3.5 Certifying Conformity following Major Modification or Major Repair

3.5.1 Applicability

This Part prescribes requirements governing the certification of aircraft issued with standard or restricted category airworthiness certificates under chapter 2, subpart 2.5.10, for conformity with acceptable or approved technical data following major modifications or major repairs.

3.5.2 Persons to certify conformity

A person shall not certify that an aircraft or aircraft component conforms to acceptable or approved technical data following a major modification or a major repair unless he/she:

(i) Is authorised by the holder of a maintenance organisation certificate, issued under BANRs & BCAR-145, to perform conformity certifications; or

(ii) Is approved by the Director to perform conformity certifications.

3.5.3 Certifying requirements

Any person certifying conformity of an aircraft or aircraft component following a major modification or major repair shall, before certifying to that effect, ensure that the modification or repair conforms to the applicable technical data acceptable to, or approved by, the Director.

3.5.4 Certification

(a) Except as provided by paragraph (b), each person who certifies that an aircraft or aircraft component conforms to the applicable technical data required by 3.5.3 following a major modification or major repair shall complete form DCA 005/01 and provide the holder of the certificate of registration for the aircraft with a copy of the completed form.

(b) A maintenance organisation certificated under BANRs & BCAR-145 may use documents other than the form DCA 005/01 to record the information required by paragraph (a).

(c) Each person who certifies conformity on a form DCA 005/01 shall forward a copy of the completed form to the authority within seven days of the completion of the certification.

3.5.5 Use of form DCA 005/01 to approve Technical Data and Certificate of Conformity following major modifications and repairs

(a) Chapter 2, paragraph 2.3.4 states that the approval of modifications is by the approval of the technical data. This means that the technical data itself is approved and not the incorporation of that modification. The incorporation of the modification or repair is certified for conformity with the applicable technical data on the form DCA 005/01 in accordance with 3.5.4.

(b) In considering the use of form DCA 005/01, there are four possibilities:

(i) Acceptable technical data and minor modification - The technical data itself requires no approval and the embodiment of modification can be achieved as normal maintenance without requiring a certificate of conformity.

(ii) Acceptable technical data and major modification – The technical data itself requires no approval but following the incorporation of the modification a certificate of conformity will be required.

(iii) Unapproved technical data and minor modification – The technical data requires approval but the embodiment of modification can be achieved as normal maintenance without requiring a certificate of conformity.

(iv) Unapproved technical data and major modification – The technical data requires approval and following the embodiment of the modification a certificate of conformity will be required.

(c) Form DCA 005/01 should only be used for Bhutan registered aircraft.

(d) Instructions for the use of form DCA 005/01 are discussed under Appendix G to this chapter.

3.5.6 Major Modifications & Repairs

(a) The embodiment of the modification or repair must be assessed for its likelihood to affect the safety of the modified aircraft. This assessment relies upon the experience, training, and familiarity with the tasks involved of the licensed aircraft maintenance engineer to determine if the modification/repair is major or not. In particular, the embodiment should be assessed for its potential to cause:

(i) Structural collapse.

(ii) Loss of control.

(iii) Failure of motive power.

(iv) Unintentional operation of, or inability to operate, any systems or equipment essential to the safety or operational function of the aircraft.

(v) Incapacitating injury to any occupant.

(vi) Unacceptable unserviceability or maintainability

(b) The person performing the modification/repair is primarily responsible for making the determination of whether the modification/repair is major or not. If the person embodying the modification/repair is unsure, then the persons authorised under 3.5.2 may be consulted to determine if a modification/repair is major and require a certificate of conformity after embodiment.

(c) Examples of major modifications and major repairs are discussed under Appendix F to this chapter.

3.5.7 Flight Test following Major Modification or Repair

3.5.7.1 Applicability

(a) This part prescribes requirements for an aircraft to undergo flight tests following a major modification or major repair.

(b) The flight tests shall be conducted in accordance with the requirements under part 2.6.

3.5.7.2 Modifications and Repairs requiring flight tests

(a) If in the opinion of the Director, the design of an aircraft is so modified as to affect the flight characteristics or functioning in flight of the aircraft, the Director may decide that a flight test evaluation is required. The schedule of flight test shall include:

(i) The flight tests necessary to re-establish compliance with the appropriate airworthiness requirements.

(ii) The flight tests necessary to provide new or revised information for inclusion in the documents associated with the certificate of airworthiness.

(iii) The flight tests contained in the approved airworthiness flight test schedule for an aircraft of the type concerned (refer 2.6.4), except where these tests are covered by the tests referred to in (i) and (ii).

3.5.7.3 Flight Test Results

(a) The flight test results, in a form acceptable to the Director, shall be submitted to the Director for acceptance.

(b) The flight test result shall include a certificate (Flight Test Certificate), which shall be signed by the pilot who conducted the test.

(c) The Flight Test Certificate shall be of the approved format as shown in Appendix C to chapter 2.

3.6 Mandatory reporting, investigation and rectification of unairworthy conditions

3.6.1 Applicability

(a) This part prescribes the requirements for mandatory reporting of unairworthy conditions found in Bhutan registered aircraft or aircraft component, and except for the provisions of 3.6.4 applies to a foreign aircraft operating in Bhutan under the jurisdiction of a Bhutan operator (e.g. leased aircraft).

(b) For the purpose of this part unairworthy condition means a failure or malfunction of an aircraft or aircraft component, whether found in flight or on the ground, and that could seriously hazard the safety of aircraft operations.

(c) Unairworthy conditions that require mandatory reporting are listed in Appendix H to this chapter. The Director may additionally require other conditions to be reported by requiring them to be listed in the operator's maintenance management exposition or the maintenance organisation's maintenance organisation exposition.

3.6.2 Operator and Maintenance Organisation Responsibilities for Reporting of Unairworthy Conditions

(a) Every operator of an aircraft shall report to the Director and the aircraft type certificate holder as soon as practicable any unairworthy condition that is notified to him, or of which he otherwise becomes aware, unless he knows that the report has been filed to the Director in accordance with paragraph (b).

(b) Any approved maintenance organisation or person maintaining aircraft or aircraft component shall report to the operator of the aircraft, the Director and the aircraft type certificate holder as soon as practicable any unairworthy condition identified on the aircraft.

3.6.3 Reporting Procedure

(a) Reports must be made as soon as practicable but in any case within three days of identifying the unairworthy condition to which the report relates.

(b) In addition to the report required by paragraph (a), if an unairworthy condition is of such a character that the immediate safety of the aircraft or its occupants is threatened, the condition shall be notified to the Director within 24 hours of the discovery. This notification may be by any appropriate means.

(c) Notifying the Director of a condition under paragraph (b) does not obviate the operator from the responsibility to file a formal report required under paragraph (a).

(d) The reporting procedure and details of the unairworthy condition to be reported shall be in accordance with Mandatory Occurrence Reporting required under the BANR.

3.6.4 Investigation and Reporting

(a) Each operator shall ensure that any unairworthy condition found on his aircraft or its components including equipment, is promptly and fully investigated in order to determine the cause, and that any necessary action is taken to prevent recurrence.

(b) After completion of the investigation, submit a report of the investigation to the authority no later than 90 days after the condition was identified, along with the corrective or preventive actions taken to prevent the recurrence of a similar occurrence.

(c) The reporting procedure for investigation and corrective actions taken shall be in accordance with the Mandatory Occurrence Reporting required under the BANR.

(d) The Director may initiate his own investigation into the occurrence if he so desires in the interest of safety.

3.6.5 Reporting the Sate of Design

The Director, may upon receiving such reports submit the information to the State of Design, if he feels it necessary in the interest of safety.

3.7 DCA Form One and its use

3.7.1 Applicability

This part prescribes the requirements for the use of DCA Form One, an Authorised Release Certificate, to:

(i) Release new aircraft components after manufacture; and

(ii) Release to service aircraft components after maintenance work being carried out on them,

by organisations approved under the Bhutan Air Navigation Regulations.

3.7.2 Purpose and scope of DCA Form One

(a) The purpose of the certificate is to release products, parts and appliances as identified in blocks 7 through 11 as applicable (hereafter referred to as 'items') after manufacture, to release maintenance work carried out on items under the approval of DCA Bhutan, and to allow items removed from one aircraft/aircraft component to be fitted to another aircraft/aircraft component.

(b) The certificate referenced DCA Form One is called the Authorised Release Certificate.

(c) 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. For export of products, parts and appliances outside of Bhutan it is to be used as an Export Airworthiness Certificate in accordance with part 2.7.

(d) The DCA Form One can only be issued by organisations approved by the Director within the scope of the approval or by the Director himself.

(e) Aircraft are not to be released using the certificate.

(f) A mixture of 'New' and 'Used' items is not permitted on the same certificate.

(g) A mixture of items certified in conformity to 'approved data' and to 'non-approved data' is not permitted on the same certificate, and consequently only one box in block 14 can be ticked.

(h) For maintenance activity, whilst the certificate is primarily intended for use by BCAR-145 approved maintenance organisations, provision has been made to allow use by non BCAR-145 approved maintenance organisations, such as for general aviation and private operation.

(i) 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.

***Note**: When used for Domestic purposes, it shall be used by a BCAR-145 approved maintenance organisation to certify release to service of an aircraft component for use by another approved maintenance organisation, or an operator of an air transport, or private aircraft.*

When a BCAR-145 approved maintenance organisation maintains an aircraft component for use by the organisation, a DCA Form One may not be necessary depending upon the organisations' internal release procedures defined in the maintenance organisation exposition

.

3.7.3 General

(a) The certificate should comply with the approved format as shown in Appendix I to this chapter, 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.

(b) All printing should be clear and legible to permit easy reading.

(c) The certificate may either be pre-printed or computer generated but in either case the printing of the 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.

(d) Completion of the certificate should be in English.

(e) The details to be entered on the certificate can be either machine/computer printed or hand-written using block letters, and should permit easy reading. Abbreviations should be restricted to a minimum.

(f) The space remaining on the reverse side of the certificate may be used by the originator for any additional information but should not include any certification statement.

(g) The original certificate should accompany the items and correlation should be established between the certificate and the items. A copy of the certificate should 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 the Director, it is permissible to retain the certificate format and data on a secure database.

(h) There is no restriction in the number of copies of the certificate sent to the customer or retained by the originator.

(i) The certificate that accompanies the part may be attached to the part by being placed in an envelope for durability.

3.7.4 Completion of the Release Certificate by the Originator

The guidelines given hereunder cover the use of DCA Form One for maintenance purposes only.

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

Block 1 **'**DCA, BHUTAN' may be pre-printed.

Block 2 Pre-printed 'Authorised Release Certificate/DCA Form One'.

Block 3 A unique number should 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 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 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 should be given. Preference should be given to use of the Illustrated Parts catalogue (IPC) designation.

Block 8 State the part number. Preference should be given to the use of IPC number designation.

Block 9 Used to indicate the type-approved products for which the released items are eligible for installation. Completion of the 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'.

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 should 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 should 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 should 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.

Note: This provision should 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, BCAR-21.

(*) Approved Standard means a manufacturing/design/maintenance/quality standard approved by the authority.

Approved by the authority means approved by the Director or is done in accordance with a procedure approved by the Director.

The above statements should 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 should be clear, complete, and provided in a form and manner, which is adequate for the purpose of making such a determination.

Each statement should be clearly identified as to which 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 national regulation if not BANRs & BCAR-145.

- Release statements to satisfy a foreign maintenance requirement.

Note: *The last statement allows the possibility of a dual release against both BCAR-145 and a foreign maintenance requirement, or the single release of a BCAR-145 approved maintenance organisation against a foreign maintenance requirement. However care should be exercised to tick the relevant box(es) in block 19 to validate the release. It should also be noted that the dual release requires the approved data to be approved/accepted by both the DCA and the appropriate foreign authority and the single release requires the approved data to be approved/accepted only by the appropriate foreign authority.*

Block 14, 15, 16, 17 & 18:

Must not be use for maintenance tasks by BCAR-145 approved maintenance organisations. These blocks are specifically reserved for the release/certification of newly manufactured items in accordance with BCAR-21 and other foreign national aviation regulations, which are not applicable here.

Block 19 Contains the required BCAR-145.50(a) release to service statement for all maintenance by BCAR-145 approved maintenance organisations. When non BCAR-145 maintenance is being released block 13 should specify the particular national regulation. In any case the appropriate box should 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 BCAR-145.

(c) The case where the maintenance was carried out in accordance with a non BCAR-145 requirement.

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

Block 20 For the signature of the certifying staff authorised by the BCAR-145 approved maintenance organisation. This signature can be computer printed subject to the DCA 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 BCAR-145 approved maintenance organisation reference number given by the DCA.

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. The month should appear in letters e.g. Jan, Feb, Mar, etc. The release to service should be signed at the "completion of maintenance".

Note: *The User Responsibility Statements are on the reverse side 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.*

3.8 Maintenance Records

3.8.1 General

(a) The owner of every Bhutan registered aircraft shall be responsible for maintaining and preserving or causing to be maintained and preserved the records required by the Bhutan Air Navigation Regulations in respect of an aircraft, its engine(s), propeller(s) and components.

(b) The following logbooks shall be maintained in respect of Bhutan registered aircraft and aircraft components intended for installation in any such aircraft:

(i) For every aircraft – an aircraft logbook

(ii) For every propeller in which provision is made for adjustment or variation of the pitch of the blades – a propeller logbook.

(iii) For every engine, including airborne auxiliary power units – an engine logbook.

(c) Unless otherwise approved or prescribed, logbooks shall be maintained in accordance with the "Instructions for Use" contained therein and in such a manner as to provide an accurate and complete history of the aircraft, engine, and propeller to which they relate:

(i) Entries in the logbook shall be made within 24 hours of the event to which they relate, with the exception that in the case of those logbooks normally kept at the usual station of the aircraft an entry shall be made within 24 hours of the return of the aircraft to that station.

(ii) Each entry shall be legible, signed and dated by the person making it. Signatures must be hand written, but the actual entries in the logbooks shall be written in ink or typed.

(d) Aircraft, engine and propeller logbooks and associated maintenance records shall be preserved during the life of the aircraft, engine or propeller and for a further period of 2 years following withdrawal from service.

(e) All logbooks and associated maintenance records relating to a particular aircraft, engine or propeller shall be handed over to the new owner on change of ownership.

3.8.2 Detailed Maintenance Records

(a) If the details of any maintenance done are so voluminous as to render it inconvenient to enter them in the logbook, those details may be entered in a separate maintenance record which shall be numbered for identification purposes and certified in the like manner to that required for the relevant entry

in the logbook and retained in safe custody. The following information shall appear in the detailed maintenance records:

(i) Brief description of the work carried out; and

(ii) All the certification details and release to service statements required under 3.3.1.3.

(b) Maintenance performed on removable equipment may be recorded in a suitable document associated with the equipment, or on the equipment itself, if such methods of recording are prescribed in the Bhutan Air Navigation Regulations, or are otherwise approved by the Director.

(c) Maintenance performed on a component may be recorded in a suitable document associated with the component.

(d) If a document is used under the provisions of paragraphs 3.8.2 (b) or (c), it shall be identified in the appropriate logbook and retained as part of the maintenance record.

(e) Whenever a "life" component, either zero time or part life, is fitted to an aircraft, engine or propeller, a suitable recording system shall be maintained to indicate the hours/cycles or date at which the component must be removed. Such records shall be capable of providing advanced notice of the hours or date an item is due for removal.

3.8.3 Approval of Logbooks

(a) The Director may approve manufacturer's logbooks, or logbooks issued by the airworthiness authority of the state of manufacture, or equivalent, for use as Bhutan logbooks, provided the method of recording and certification complies with this BAR.

3.8.4 Recording Times

(a) "Air Time" shall be computed by totalling the time in hours and minutes, or hours and decimal increments of an hour, from the moment an aircraft leaves the ground on every flight until it touches the ground at the end of that flight, or by the use of other approved means such as an approved time recording tachometer. If times are to be recorded in hours and decimal increments of an hour the appropriate columns on each page in each logbook shall be clearly annotated to indicate that this is the case.

(b) Aircraft, engine and propeller time in service shall be recorded in the appropriate logbooks by either of the following methods:

(i) Hours and minutes, with minutes being reduced to not more than five minute increments; or

(ii) Hours and decimal increments of an hour, each decimal unit being six minutes.

Note1: *Recording shall be made to the nearest whole increment.*

Note 2: *It is permissible to record in the engine and propeller logbooks block time entry, which must include, for installation, removal, maintenance, the hours and cycles and date at time of fitment or removal or the maintenance activity.*

(c) For airborne auxiliary power units (APU), the APU operating times and cycles shall be recorded in an engine logbook.

(d) "Times Since Overhaul" shall not revert to zero unless the aircraft, engine or propeller has been completely overhauled.

3.8.5 Logbook Entries

(a) Unless otherwise prescribed or approved full particulars of all maintenance carried out shall be entered in the aircraft, engine or propeller logbook as appropriate and certified in conformity with the Bhutan Air Navigation Regulations and the following shall apply:

(i) If the appropriate logbook is not available, the particulars of the maintenance carried out and the certificate of release to service may be given separately as a loose leaf logbook entry which shall be affixed in the logbook as soon as is practicable.

(ii) Each entry shall contain details of maintenance required under 3.2.6 as applicable.

(b) Unless otherwise prescribed or approved, entries shall be made in the aircraft logbook in respect of the following:

(i) All maintenance carried out on the aircraft and its components, excluding the engine(s) and propeller(s).

(ii) Each major component removed or changed, including engines and propellers.

(iii) Each compass swing, including a copy of the deviation card.

(iv) Each fuel flow test.

(v) The duplicate inspection of a disturbed flying control system.

(vi) Each renewal of the certificate of airworthiness with reference to the associated inspection report.

(vii) On each occasion the aircraft is weighed, by insertion of the weight and balance report.

(viii) Defects or damage of a kind affecting airworthiness.

(c) Unless otherwise prescribed or approved, entries shall be made in the engine logbook in respect of the following:

(i) All maintenance carried out on the engine and its components, accessories and auxiliaries.

(ii) Each engine and engine accessory and auxiliary when initially installed and when subsequently removed or changed.

(iii) Each propeller when initially installed on, and when subsequently removed from, the engine.

(iv) At the engine change, the aircraft from which the engine is removed or into which it is installed, shall be identified. In the case of multi-engined aircraft, the engine position shall also be stated.

(v) Each ground run to test the engine's performance and correct functioning.

(vi) Defects or damage of a kind affecting airworthiness.

(d) Unless otherwise prescribed or approved, entries shall be made in the propeller logbook in respect of the following:

(i) All maintenance carried out on the propeller including the maintenance carried out as a result of an inspection.

(ii) Each component or part removed or changed.

(iii) Each propeller change. The aircraft from which the propeller is removed or into which it is installed shall be identified, together with the related engines. In the case of multi-engined aircraft, the propeller position shall also be stated.

(iv) Defects or damage of a kind affecting airworthiness.

3.8.6 Maintenance Records System – Paper or Electronic

(a) Maintenance records can be maintained in either a paper or computer system or any combination of both.

(b) Paper systems should use robust material that can withstand normal handling and filing. The record should remain legible throughout the required retention period.

(c) Computer systems used to control maintenance and/or record details of maintenance work carried out must be acceptable to the Director with regard to its system abilities.

(d) Computerised record systems used for maintenance should ensure information security, integrity, and retrieval. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database.

(e) Computerised record systems used for maintenance should have at least one backup system that should be updated at least within 24 hours of any maintenance.

(f) Procedures for computerised record keeping should consider the following aspects:

(i) Avoidance of data loss in the event of power interruptions

(ii) Software control, amendments and prevention of corruption

(iii) Unauthorised access

(iv) Audit trail facilities

(v) Archiving of data in a similar manner to paper copies, and for a similar period

(vi) Backup of records every 24 hours and storage of backup records

(vi) Data verification, on entry and retrieval

(vii) Publication provision

(viii) Staff training

(ix) Amendment and protection of stored data

(x) A problem report register including the problem details and solutions.

(g) The procedural aspects under para (e) should be documented in the organisation's maintenance exposition and be subject to quality systems monitoring.

(h) Maintenance records should be stored in a safe way with regard to fire, flood and theft.

(i) Computer backup discs, tapes etc. should be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.

3.9 Standards for Performance of Specialised Services

3.9.1 General

(a) This part prescribes requirements for the qualification of personnel performing specialised services.

(b) For the purpose of this part, specialised services include such processes as non-destructive testing (NDT) and welding, which are performed in the course of maintenance of aircraft or aircraft components, and which may affect the airworthiness of the aircraft or aircraft components.

3.9.2 Certification Standards for personnel performing Specialised Services

(a) The basic standards for the qualification of personnel performing specialised services shall be the following European Standards:

(i) Non-Destructive Testing – EN473 or EN4179

(ii) Welding – (Reserved)

(b) The Director may alternatively accept any of the international standards, which in his opinion is equivalent to the basic standards in 3.9.2 (a).

3.9.3 Procedures for qualification of Specialised Services Personnel

(a) The BCAR-145 approved organisation involved in any specialised services shall develop and maintain written procedures for the qualification and authorisation of personnel performing specialised services in accordance with the standards established in 3.9.2.

(b) The Director currently recognises the UK national scheme for Personnel Certification in Non-Destructive Testing (PCN) administered by the British Institute of Non-Destructive Testing as meeting the requirements of EN473.

3.9.4 Qualified Staff

(a) BCAR-145 approved organisations undertaking specialised services during the course of aircraft and aircraft component maintenance must satisfy the Director that they have adequate numbers of suitably qualified staff to discharge the responsibilities of the approval.

(b) Only after having satisfied the Director with their level of training and experience should personnel be authorised by a BCAR-145 approved organisation to perform specialised services.

3.9.5 Inspection and Certification of Inspection (NDT)

(a) NDT Inspections shall be carried out by personnel approved in accordance with the BCAR-145 approved maintenance organisation's written practice. Where NDT procedures are specified by the organisation responsible for the design and/or manufacture of the aircraft, material, structure or component, then these must be used.

(b) Normally, certification of inspections will be made by persons who hold level 2 or above authorisations. However, where an inspection task is determined by the Nominated Level 3 to have clearly defined acceptability and rejection criteria requiring no interpretation, then certification may be carried out by an authorised Level 1, as detailed within the written practice.

(c) Where the airworthiness data published by the Type Certificate holder permits changes (e.g. selection of equipment model, probe type, etc.) then such changes must be authorised in writing by a Level 3 qualified in the appropriate method.

(d) Any other changes require the written agreement of the Type Certificate holder responsible for the design of the product/structure before such a change is implemented.

(e) NDT Instructions prepared by a Level 2 holder shall be approved by a Level 3 holder qualified in the applicable method.

(f) The procedure for the control of all NDT techniques, procedures and instructions, including their preparation and authorisation within any DCA approved organisation, shall be detailed in the organisation's approved quality procedures.

3.10 Calibration Standards for Precision Measuring Tools and Equipment

3.10.1 General

(a) An organisation or a person performing maintenance on Bhutan registered aircraft shall use only those tools and equipment, which are calibrated and maintained to standards acceptable to the authority.

(b) It is the responsibility of the user to check and satisfy him that the calibration period of the tools and equipment used is valid and that the calibration is traceable to any one of the standards specified under 3.10.2.

3.10.2 Calibration Standards

(a) The following standards for calibration of measuring tools and equipment are considered standards acceptable to the authority:

(i) The standard specified by the appliance manufacturer/design organisation; or

(ii) Any of the international standards acceptable to the Director.

3.10.3 Calibration System Requirements

(a) An operator of an aircraft or an organisation/person performing aircraft maintenance may establish and maintain an internal measuring and calibration system for the measuring tools and equipment used in aircraft maintenance. Such an internal measuring and calibration system must be specifically approved by the authority.

(b) The internal measuring and calibration system must take into account such factors as the degree of accuracy required, frequency of use and reliability of the equipment. The system must ensure that the tools and equipment are calibrated and maintained to the degree of accuracy required for its intended use and are ultimately traceable to any one of the standards specified under 3.10.2.

(c) An aircraft operator or an organisation/person performing maintenance may alternatively contract out to a foreign organisation the calibration of its measuring tools and equipment. In such cases the contract arrangement must be submitted to the authority for acceptance.

(d) An existence of such a contract does not absolve the aircraft operator or an organisation/person performing maintenance from implementing suitable controls and maintaining calibration records appropriate to 3.10.4. In all cases it is the responsibility of the user to check and satisfy that an unbroken traceability chain to a standard prescribed under 3.10.2 is in place.

3.10.4 Procedural Controls

(a) Tools and equipment requiring calibration are those items, which are necessary to perform measurements or tests of an aircraft, system or component to defined limits, as specified in the Type Certificate holder's technical documentation.

(b) Procedures controlling inspection/servicing and, where appropriate, calibration of such items on a regular basis and to indicate to users that the item is within any inspection, service or calibration time-limits should be developed.

(c) A programme should be developed to plan the periodic inspection, service or calibration within defined time limits to ensure appliances remain in calibration. The programme should consider staggering inspections, servicing or calibrations to ensure that the maximum number of tools and equipment are available at all times. A register of such tools and equipment is essential in order that control of the calibration system is achieved in a co-ordinated manner. Where the tools and equipment holding does not provide a level of redundancy, contracted loan arrangements may be acceptable.

(d) The intervals at which calibration is required to be conducted can vary with the nature of the tool or equipment, the conditions under which it is used and the consequences of incorrect results. The inspection, service or calibration intervals should therefore be in accordance with the tool and equipment supplier's instructions, except where the organisation can show that a different interval is warranted in a particular case. This would normally require a system of continuous analysis of calibration results to be established to support variations to manufacturers recommended intervals.

(e) A clear system of labelling calibrated tools and equipment is therefore necessary setting out when the next inspection, service or calibration is due and indicating the necessary serviceability, particularly where it may not be obvious.

(f) Any tool or equipment, whose serviceability is in doubt, should be removed from service and labelled accordingly. Such equipment shall not be returned to service until the reasons for the unserviceability have been eliminated and its continued calibration is re-validated. Where the result of calibration prior to adjustment or repair indicates that a risk of significant errors may have existed in any previous measurements made, the necessary corrective action should be taken.

(g) Records shall be maintained in order that it can be demonstrated that the tool or equipment is capable of functioning within the designated limits. The scope of records to be maintained is dependent on standards used and the nature of the tool or equipment. The record system may also provide valuable reference in cases of dispute, or warranty claims, but they are also used for assessing calibration drift and wear. Such data provides a basis for development of effective calibration intervals.

Calibration records or certificates should, as a minimum, contain the following information for each item calibrated:

(i) Identification of tool or equipment

(ii) Standards used

(iii) Result obtained

(iv) Uncertainty of measurement

(v) Assigned calibration interval

(vi) Limits of permissible error

(vii) The authority under which the release document was issued

(viii) Any limitation of use of the equipment

(ix) Date on which each calibration was conducted

(h) Where calibration services are provided by outside organisations, it is acceptable to the authority for the accuracy of the item to be attested by a release document in the name of the company which records the information specified in paragraph (i).

(i) Any measurement is affected to some degree by the environmental conditions under which it is carried out. Equipments need to be calibrated, transported and stored under conditions compatible with the type of equipment to ensure accuracy is not impaired.

(j) To provide valid repeatable test results, the facilities used for calibration undertakings are expected to provide controlled environmental conditions to comply with the applicable standard or original tool/equipment supplier's specification. It will therefore be necessary to control temperature, humidity, vibration, dust, cleanliness, electromagnetic interference, lighting and other factors that may affect calibration results to predetermined standards. In cases where appliances cannot be placed in a controlled environment for calibration, compensation corrections should be applied to the calibration standard to provide the required level of accuracy.

(k) Although not a substitute for regular calibration, confidence that a tool/equipment continues to measure correctly can be obtained by the use of checking measurement standard, applied by the user. This will demonstrate that, at the value or values checked and under the conditions of the check, the tool/equipment is still functioning correctly. The checking standard itself, which usually has to be simple and robust, will need to be calibrated in order that the results obtained by its use can, with reliance, be attributed to the instrument and not to changes in the checking measurement standard.

(l) Any calibration system adopted would need to comply with the minimum requirements of the airworthiness code to which it has been implemented. The continued effectiveness of the calibration system and associated procedures should be periodically and systematically reviewed by the company's quality systems.

3.11 Maintenance Concessions

(a) There shall be no departure from the requirements in this BAR, except otherwise approved by the Director in the form of a Concession to a specific requirement.

(b) If an owner or operator, or a person or organisation performing maintenance, considers there are exceptional circumstances that warrant grant of a concession, application may be made to the Director.

Appendix A - Pilot Maintenance

Maintenance on aircraft by a person authorised in accordance with 3.2.1 (iv) may include:

(i) Replacement of landing gear tyres or tailskid shoes.

(ii) Greasing and lubrication that does not require disassembly other than removal of access panels, fairings, or cowls.

(iii) Simple or temporary fabric patch repairs where:

(1) The repair is not applied to any flying control surface; and

(2) The repair does not require the removal of any control surface or structural parts; and

(3) The repair does not involve restringing or rib stitching.

(iv) Restoration of damaged or worn decorative coatings and application of preservative or protective material to components, provided the work does not involve:

(1) Removal or disassembly of any primary structure; or

(2) Disturbance of any operating system; or

(3) Control surface restoration, preservation, or protection.

(ii) Simple or temporary repairs to fairings or non-structural cover plates.

(iii) Replacing side windows, provided the work does not interfere with the structure or any operating system.

(iv) Replacing the aircraft battery.

(v) Replacing fuses and lights.

(vi) GPS equipment maintenance including:

(1) The installation and removal of receivers provided the equipment has quick disconnect capabilities, any subsequent test requirements are built in to the equipment, and the applicable information for the installation and removal of the equipment is immediately available; and

(2) The routine updating of database information.

(vii) Replenishment of hydraulic fluid in hydraulic reservoirs.

(viii) Compressor washing provided:

(1) The installation of the wash equipment does not require the disassembly of any primary engine control system; and

(2) The applicable information for the washing is immediately available and includes procedures for the installation and removal of any wash equipment and the safe operation of the engine during the wash runs and any necessary drying runs.

(ix) Installation and removal of seats, doors, and role equipment provided:

(1) The configuration of the aircraft with the particular equipment installed or removed that has been approved; and

(2) The aircraft flight manual incorporates the necessary information for the safe operation of the aircraft with the equipment installed or removed, including weight and balance data for each configuration; and

(3) The applicable information for the installation and removal of the equipment is immediately available; and

(4) No special tooling, special equipment, or subsequent inspection is required.

(x) The completion of the repetitive airworthiness directive inspections provided:

(1) Each flight control system that is inspected is flight tested in accordance with part 2.6 and re-inspected before the aircraft is released to service; and

(2) No special tooling or special equipment is required.

Appendix B - Annual and 100-hour Inspection

This appendix applies to persons referred to in 3.2.4.3.

B.1 General

(a) The aircraft and its components shall first be thoroughly cleaned.

(b) The inspection shall be a thorough functional and visual check of the designated system, component, assembly, or installation.

(c) The inspection shall be conducted with all applicable inspection panels, access doors, cowls, and detachable fairings and fillets, removed.

B.2 Inspections

(a) All items shall be inspected for general condition that includes, as applicable, the following:

(i) Correct operation, full and free movement in the correct sense.

(ii) Correct rigging, alignment, and tension.

:

(iii) Appropriate lubrication.

(iii) Correct fluid quantities or levels.

(iv) Correct gaseous pressures.

(v) Security and cleanliness.

(vi) Legibility and correctness of markings and placards.

(vii) Wear within acceptable limits.

(viii) No loose or missing fasteners.

(ix) Vents free from obstructions.

(x) Correct clearance.

(xi) Bonding straps correctly positioned, undamaged, and secure.

(xii) Freedom from excessive:

(1) Leakage; and

(2) Corrosion or deterioration of protective treatments; and

(3) Cracks and disbonds; and

(1) Deformation, scoring, chafing, flat spots, and fraying; and

(2) Obstruction or other obvious damage; and

(3) Burning, arcing, or heat damage.

(b) The following items shall be inspected using the following criteria and the general inspection criteria contained in paragraph (a):

(i) The components of the fuselage and hull group including:

(1) Fabric and skin for deterioration, distortion, and other evidence of failure, and defective or insecure attachment of fittings; and

(2) Systems and components for improper installation, apparent defects, and unsatisfactory operation.

(ii) The components of the cabin and cockpit group including:

(1) Cabin and cockpit generally for uncleanliness and loose equipment that might foul the controls; and

(2) Cabin heating systems for sources of carbon monoxide contamination; and

(3) Seats and safety belts for poor condition, apparent defects, and security of adjustment devices; and

(4) Windows and windshields for deterioration and breakage; and

(5) Instruments for poor condition, mounting, marking, and, where practicable, improper operation; and

(6) Flight and engine controls for improper installation and improper operation; and

(7) Batteries for improper installation and improper charge; and

(8) All system for improper installation, poor general condition, apparent or obvious defects, and insecurity of attachment.

(iii) The components of the engine and nacelle group including:

(1) The engine section for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks; and

(2) Studs and nuts for improper torquing or obvious looseness, and obvious defects; and

(3) The engine for metal particles or foreign matter on screens and sump drain plugs and if there is weak cylinder compression, for improper internal condition and improper tolerances; and

(4) Engine mounts for cracks and looseness of mount to engine and airframe; and

(5) Flexible vibration dampeners for poor condition and deterioration; and

(6) Engine controls for defects, improper travel, and improper safety; and

(7) Lines, hoses, and clamps for leaks, improper condition, and looseness; and

(8) Exhaust stacks for cracks, defects, and improper attachment; and

(9) Accessories for apparent defects and insecurity of mounting; and

(10) All systems for improper installation, poor general condition, defects, and insecure attachments; and

(11) Cowlings for cracks and defects.

(iv) The components of the landing gear including:

(1) All units for poor condition and insecurity of attachment; and

(2) Linkages, trusses, and members for undue or excessive wear, fatigue, and distortion; and

(3) Shock absorbing devices for improper charge; and

(4) The retracting and locking mechanism for improper operation; and

(5) Hydraulic lines for leakage; and

(6) The electrical system for chafing and improper operation of switches; and

(7) Wheels for cracks, defects, and condition of bearings; and

(8) Tyres for wear and cuts; and

(9) Brakes for improper adjustment; and

(10) Floats and skis for apparent or obvious defects and insecurity of attachment:

(v) All components of the wing and centre section assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, and insecurity of attachment.

(vi) All components and systems that make up the complete empennage assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, improper component installation, improper component operation, and insecurity of attachment.

(iii) The components of the propeller group including:

(1) Propeller assembly for cracks, nicks, binds, and oil leakage; and

(2) Bolts for improper torquing and lack of safety; and

(3) Anti-icing devices for improper operation and obvious defects; and

(4) Control mechanisms for condition, improper operation, insecure mounting, and restricted travel; and

(5) All components for improper installation, poor general condition, apparent or obvious defects, and insecurity of attachment.

(iv) The components of the radio group including:

(1) Radio and electronic equipment for improper installation and insecure mounting; and

(2) Wiring and conduits for improper routing, insecure mounting, and obvious defects; and

(3) Bonding and shielding for improper installation and poor condition; and

(4) Antenna, including trailing antenna, for poor condition, insecure mounting, and improper operation.

(v) For a helicopter, systems and components for improper operations and obvious defects that include:

(1) The drive shaft and similar systems; and

(2) Transmission system components; and

(3) Main rotors; and

(4) Auxiliary rotors.

(vi) Each installed miscellaneous item that is not otherwise covered by this listing for improper installation and improper operation.

Appendix C – Certificate of Maintenance Review

CERTIFICATE OF MAINTENANCE REVIEW

1. Aircraft Type & Model _____

   Nationality & Registration Marks _____

2. It is hereby certified that a maintenance review of this aircraft and such of its equipment as is necessary for its airworthiness has been carried out in accordance with the requirements of the Bhutan Air Navigation Regulations for the time being in force.

   The next maintenance review is due _____

   Signed _____

   DCA Approval/licence _____

   Date _____

   Organisation _____

Appendix D – Certificate of Fitness for Flight

CERTIFICATE OF FITNESS FOR FLIGHT

1. Aircraft Type & Model _____

   Aircraft Manufacturer _____

   Serial Number _____

   Nationality & Registration Marks _____

2. It is hereby certified that the aircraft defined hereon has been inspected and having regard to the minimum standards of airworthiness prescribed in the Bhutan Air Navigation Regulations for the time being in force, is fit for flight for the purpose of ***Test / Ferry / Positioning***, provided it is properly loaded.

   This certificate is valid until _____, or until the airworthiness condition of the aircraft is altered, whichever is earlier.

   Signed _____ Date _____

   AME Licence No _____

   Signed _____ Date _____

   AME Licence No _____

Appendix E – Duplicate Inspection Certification

DUPLICATE INSPECTION CERTIFICATION

1. Aircraft Registration _____ System _____

   Component_____ Serial No _____

2. Ist Inspection

   Signed _____ Licence/Approval No _____

   Date _____

   2nd Inspection

   Signed _____ Licence/Approval No _____

   Date _____

Appendix F - Major Modifications and Major Repairs

F1 Major Modification – A major modification is a modification that, in the installer's estimation, opinion, or judgement, based upon their education, experience, and expertise, might have an appreciable effect on, or produce an appreciable change in, the weight and balance, structural strength, performance, characteristics or operation.

F1.1 Appreciable effect on weight and balance

(a) What is considered appreciable varies dependent on the aircraft size and type.

(b) The following are considered acceptable guidelines for weight and balance changes:

(i) For aircraft less than or equal to 5700Kg MCTOW:

(1) A cumulative weight change of up to 1% is considered negligible.

(2) A moment arm change of less than 1% is considered negligible.

(ii) For aircraft greater than 5700 kg MCTOW:

(1) A cumulative weight change of up to ½ % is considered negligible.

(2) A moment arm change of less than ½ % is considered negligible.

(c) If a modification moves the weight or centre of gravity outside the existing approved limits, the modification is major as far as weight and balance is concerned.

F1.2 Appreciable effect on structural strength

(a) To assess an appreciable effect on structural strength the types of structures involved must be considered. The types of structures are commonly referred to as:

(i) Primary Structure

That structure whose failure might directly result in one of the results listed under 3.5.6 (a).

(ii) Secondary Structure

Any item, that the definition of primary structure would be apply but has an alternative load path as a back-up.

(iii) Tertiary Structure

Normally unstressed or lightly stressed parts not covered by the previous terms

(b) Modifications to primary and secondary structure normally are considered major as far as structure is concerned. The failure of a change to these types of structure will directly affect the safety of the aircraft. Examples are:

(i) Modifications on non-pressurised aircraft that require cutting of metal or plywood stressed skin more than 150 mm in any direction.

(ii) Modifications that require drilling or cutting into any pressurised skin.

(iii) Modifications that require the making of additional seams in or splicing of skin sheets.

(iv) Installation of equipment having an appreciable weight.

(v) Replacement of fabric covering using other than the original types of materials, fasteners, or both.

F1.3 Appreciable effect on performance

(a) Any of the following might appreciably affect the performance of an aircraft:

(i) Any change in the external configuration of the basic aircraft design.

(ii) Any change from the approved aircraft engine-propeller combination.

(iii) Any change that might appreciably affect the weight or balance.

(iv) Changes that may restrict or otherwise alter the operation of aircraft, engine, or propeller controls.

(v) Modification to any system that may appreciably affect the operation of the engine, propeller, landing gear, or other system.

(b) Flight performance can be appreciably affected by changes that might appear to be very insignificant. For example, different rivets or fasteners in wing skins might appreciably affect flight characteristics and also the performance of an aircraft.

F1.4 Appreciable effect on engine operation

(a) Any of the following might appreciably affect the operation of an engine:

(i) Changing the cowling design; or

(ii) Changing the shape, size, position, or composition of engine air baffles; or

(iii) Changing the exhaust system; or

(iv) Major changes to the propeller; or

(v) Fuel system changes that might affect fuel flow; or

(vi) Changes in the engine oil system such as oil filter installations; or

(vii) Changes that affect carburettor air induction; or

(viii) Changes involving engine controls.

F1.5 Appreciable effect on flight characteristics

(a) Any alteration that is likely to change the balance of a flight control might appreciably affect flight characteristics.

(b) Changes in the external configuration of fixed and movable control surface or of any surface forward of a flight control might affect the proper airflow around the control surface and cause flutter or vibration.

F1.6 Other qualities affecting airworthiness

(a) Any of the following might appreciably affect other airworthiness qualities:

(i) Changes to ground or water handling characteristics; or

(ii) Changes to personnel and cargo accommodations; or

(iii) Fire protection for the aircraft and the engine; or

(iv) Vibration characteristics; or

(v) Functioning of required equipment.

F2 Examples of Major Modifications

F2.1 Airframe Major Modifications

Major modifications include modifications to the listed aircraft parts, or the listed types of modifications (when not included in the applicable aircraft specifications):

(i) Wings.

(ii) Tail Surfaces.

(iii) Fuselage.

(iv) Engine Mounts.

(v) Control System.

(vi) Landing Gear.

(vii) Hull or Floats.

(viii) Elements of an airframe including spars, ribs, fittings, shock absorbers, bracing, cowlings, fairings, and balance weights.

(ix) Hydraulic and electrical actuating system of components.

(x) Rotor Blades.

(xi) Changes to the empty weight or empty balance which result in an increase in the maximum certificated weight or centre of gravity limits of the aircraft.

(xii) Changes to the basic design of the fuel, oil, cooling, heating, cabin pressurisation, electrical, hydraulic, de-icing, or exhaust systems.

(xiii) Changes to the wing or to fixed or movable control surfaces, which affect flutter and vibration characteristics.

F2.2 Powerplant Major Modifications

Major powerplant modifications, even when not listed in the applicable engine specifications, include:

(i) Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios or the substitution of major engine parts which requires extensive rework and testing of the engine.

(ii) Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts not specifically approved by the authority.

(iii) Installation of an accessory, which is not approved for the engine.

(iv) Removal of accessories that are listed as required equipment on the aircraft or engine specification.

(v) Installation of structural parts other than the type of parts approved for the installation.

(vi) Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

F2.3 Propeller Major Modifications

Major propeller modifications, when not authorised in the applicable propeller specifications, include:

(i) Changes in blade design.

(ii) Changes in hub design.

(iii) Changes in the governor or control system.

(iv) Installation of a propeller governor or feathering system.

(v) Installation of propeller de-icing system.

(vi) Installation of parts not approved for the propeller.

F2.4 Appliance Major Modifications

(a) Modifications of the basic design not made in accordance with recommendations of the appliance manufacturer or in accordance with applicable airworthiness directive are appliance major modifications.

(b) Changes in the basic design of radio communication and navigation equipment approved under type certification or other authorisation, that have an effect on frequency stability, noise level, sensitivity, selectivity, distortion, spurious radiation, AVC characteristics, or ability to meet environmental test conditions and other changes that have an effect on the performance of the equipment are also major modifications.

F3 Examples of Major Repairs

F3.1 Airframe Major Repairs

Repairs to the following parts of an airframe and repairs of the following types, involving the strengthening, reinforcing, splicing, and manufacturing of primary structural members of their replacement, when replacement is by fabrication such as riveting or welding, are airframe major repairs:

(i) Box Beams.

(ii) Monocoque or semimonocoque wings or control surfaces.

(iii) Wing stringers or chord members.

(iv) Spars.

(v) Spar flanges.

(vi) Members of truss-type beams.

(vii) Thin sheet webs of beams.

(viii) Keel and chine members of boat hulls or floats.

(ix) Corrugated sheet compression members, which act as flange material of wings or tail surfaces.

(x) Wing main ribs and compression members.

(xi) Wing or tail surface brace struts.

(xii) Engine Mounts.

(xiii) Fuselage Longerons.

(xiv) Members of the side truss, horizontal truss, or bulkheads.

(xv) Main seat support braces and brackets.

(xvi) Landing gear brace struts.

(xvii) Axles.

(xviii) Wheels.

(xix) Parts of the control system such as control columns, pedals, shafts, brackets, or horns.

(xx) Repairs involving the substitution of material.

(xxi) The repair of damaged areas in metal or plywood stressed covering exceeding six inches in any direction.

(xxii) The repair of portions of skin sheets by making additional seams.

(xxiii) The splicing of skin sheets.

(xxiv) The repair of three or more adjacent wing or control surface ribs or the leading edge of wings and control surfaces, between such adjacent ribs.

(xxv) Repair of fabric covering involving an area greater than that required to repair two adjacent ribs.

(xxvi) Replacement of fabric on fabric covered parts such as wings, fuselages, stabilisers, and control surfaces.

(xxvii) Repairing, including rebottoming, of removable or integral fuel tanks and oil tanks.

F3.2 Powerplant Major Repairs

Repairs of the following parts of an engine and repairs of the following types, are powerplant major repairs:

(i) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger.

(ii) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing.

(iii) Special repairs to structural engine parts by welding, plating, metalising, or other methods.

F3.3 Propeller Major Repairs

Repairs of the following types to a propeller are propeller major repairs:

(i) Any repairs to or straightening of steel blades.

(ii) Repairing or machining of steel hubs.

(iii) Shortening of blades.

(iv) Retipping of wood propellers.

(v) Replacement of outer laminations on fixed pitch wood propellers.

(vi) Repairing elongated boltholes in the hub of fixed pitch wood propellers.

(vii) Inlay work on wood blades.

(viii) Repairs to composite blades.

(ix) Replacement of tip fabric.

(x) Replacement of plastic covering.

(xi) Repair of propeller governors.

(xii) Overhaul of controllable pitch propellers.

(xiii) Repairs to deep dents, cuts, scars, nicks, etc., and straightening of aluminium blades.

(xiv) The repair or replacement of internal elements of blades.

F3.4 Appliance Major Repairs

Repairs of the following types to appliances are appliance major repairs:

(i) Calibration and repair of instruments.

(ii) Calibration of avionics or computer equipment.

(iii) Rewinding the field coil of an electrical accessory.

(iv) Complete disassembly of complex hydraulic power valves.

(v) Overhaul of pressure type carburettors, and pressure type fuel, oil, and hydraulic pumps.

Appendix G - Instructions on the Use of Form DCA 005/01

(a) If there is no acceptable data, or the acceptable data is not applicable to the work being carried out, the form DCA 005/01 must be raised and submitted with the descriptive, substantiating, and other data entered on, or attached to, the form. The technical data and the form DCA 005/01 comprise the modification package or repair scheme.

(b) The data must be approved by the Director or a person delegated the power to approve design changes. The approving person may also suggest whether the modification or repair constitutes a major modification or repair.

(c) Once the technical data has been approved, the person wishing to perform the modification or repair should determine whether the work is major or not.

(d) The work may be performed by a person in accordance with subpart 3.2 but if the modification or repair is determined to be major, a certificate of conformity must be signed on the form DCA 005/01 in accordance with 3.5.4.

(e) The inspection of a major modification or major repair by a person authorised to sign a conformity certificate shall consist of the following basic operations:

(i) Determining that the modification or repair has acceptable data.

(ii) Inspecting the configuration of the modification or repair for conformity to the acceptable technical data and the maintenance performance standards of subpart 3.2.

(iii) Ensuring that the aircraft still complies with the applicable airworthiness requirements and the modification or repair does not conflict with other installations.

(iv) Ensuring a flight manual supplement is added to the aircraft flight manual.

(v) Determining that the proper aircraft maintenance record entries have been made and that the weight and balance data and equipment list has been revised, when appropriate. A statement on the form DCA 005/01 should reflect any such revisions.

(vi) Certifying conformity in block 7 of the form DCA 005/01 and returning it to the person who performed the work for distribution as below.

(f) After inspection and conformity certification by the authorised person in accordance with 3.5.4 the form DCA 005/01 should be returned to the person who performed the work, who should then:

(i) Give a signed copy to the aircraft owner to be entered in the aircraft maintenance records.

(ii) Make the proper entry in the aircraft maintenance records making reference to the form DCA 005/01.

(iii) Forward a copy of the form DCA 005/01 to the authority within seven days.

(g) If the form DCA 005/01 has been completed for an aircraft component, a copy of the form should be attached to the component until it is installed on an aircraft. The person installing the component should then:

(i) Complete the form DCA 005/01 by filling out the blocks one and two.

(ii) Give a signed copy to the aircraft owner to be entered in the aircraft maintenance records.

(iii) Make the proper entry in the aircraft maintenance records making reference to the form DCA 005/01.

(iv) Forward a copy of the form DCA 005/01 to the authority within seven days.

(h) The following instructions apply to the corresponding blocks of the form DCA 005/01.

Design Change Reference

A reference to the design change approval should be entered here. This is a DCA assigned number. Approval may be indicated in this panel when the Director or the delegated person determines that the data to be used in performing a modification or repair described in the appropriate block complies with all applicable requirements.

Aircraft

Information obtained from the aircraft manufacturer's identification plate.

For a modification or repair to be used on a series of aircraft the serial number and registration panels should detail each individual aircraft.

When a major repair or modification is made to an aircraft component this block is left blank. The form DCA 005/01 remains with the component until such time that the component is installed on an aircraft.

Originator

Enter the design change originator's complete name and address for service in Bhutan.

Unit Identification

These panels are used to identify the airframe, engine, propeller, or component that has been modified or repaired.

Type of Action

Identify in the appropriate column if the component was modified or repaired.

Technical Data

The person wishing to perform the modification or repair, the originator, should ensure that acceptable technical data is available. This block records that determination and who made it, indicating if further approval is required.

If technical data is acceptable, the form DCA 005/01 is only required for major modification and major repairs.

Note: *Modifications that, by their very nature, require supplemental type certificates are normally major.*

For a modification or repair using acceptable technical data, the technical data block is not required to be completed. The person should complete the modification or repair in accordance with acceptable methods, techniques, and practices and ensure that an authorised person under 3.5.2 certifies the form. The completed form should be distributed in accordance with paragraph (f)(i) through (iii).

For a modification or repair using technical data requiring approval, the form DCA 005/01 should be forwarded to the DCA. The technical data block indicates that the form is an application for the approval of technical data and will incur the appropriate fees. Supporting data such as stress analysis, test reports, sketches, or photographs should be submitted with, and detailed on the form. When the data is approved and the appropriate statement in the data approval block checked, the form DCA 005/01 is returned to the applicant.

If the modification or repair is not considered major the conformity certification is not required. The form DCA 005/01 should be included in the maintenance records and the work completed in accordance with acceptable methods, techniques, and practices.

Approval of Technical Data

If technical data requires approval, the Director or the delegated person will assess the modification package or repair scheme against the applicable airworthiness requirements.

Approval will be based upon the modification package meeting the applicable airworthiness requirements, and there being in place a statement of compliance

provided by a certificated design organisation from the UK or USA, or an equivalent statement as required under chapter 2, paragraph 2.14.3 (a)(vi)(1), (2). The approving person will consider all aspects of the proposal's design, its application, and its possible results.

The person approving the data should indicate in this block whether the modification or repair is appropriate for one aircraft only or could be applied to several aircraft by the original modifier. This decision will require liaison with the person wishing to perform the modification.

The person approving a design may also indicate in this block whether, in his/her opinion, the modification or repair is major or not.

Note: *The entry of this decision is not a requirement for further processing of the form.*

Conformity Determination

For a modification or repair using acceptable technical data, this block should be completed only if the modification or repair is assessed as major.

For a modification or repair using technical data yet to be approved, this block should be left blank until the appropriate person completes the technical data approval block. Once the data is approved and the modification or repair embodied, this block should be completed by a person authorised under 3.5.2, who then returns the form to the person who performed the work.

One copy of the form DCA 005/01 should be given to the aircraft owner, the work details should be entered in the appropriate maintenance record, and a copy of the form forwarded to the DCA within seven days of the work being inspected.

A signature in this block certifies that:

- The technical data was:
    - Appropriate for the modification or repair described on the form; and
    - Appropriate for the aircraft described on the form.
- The modification or repair was accomplished in accordance with that technical data and 3.2.

Note: *The signatures on the form do not constitute approval of the work described on the form for release to service. Release to service must be completed in accordance with 3.3.1 in the appropriate maintenance record.*

Technical Data and Description of Work accomplished

The technical data requiring approval, or the acceptable technical data used as the basis for certifying the modification or repair for release to service should be identified and described in this area. For data listed as acceptable in Appendix A to chapter 2, or included on separate sheets, only a suitable reference need be included.

It is recommended that this block contain only a listing of the attached sheets and that the attached sheets contain the detail of the data. Extra sheets describing the repair or modification should be attached to the form DCA 005/01 bearing the aircraft registration mark and the date the work was completed.

A clear, concise and legible statement describing the work carried out should be entered in this block. It is important that the location of the repair or modification, relative to the aircraft or component, be described. The description should refer to the applicable sections of the approved technical data used.

If the repair or modification is to be covered with other structure then a statement should be made certifying that a pre-cover inspection was carried out and the work completed is satisfactory.

In all cases where the weight and balance of the aircraft are affected, the changes should be recorded in the aircraft records with a reference to the form DCA 005/01 that required the changes.

Appendix H - List of Reportable Unairworthy Conditions

Unairworthy Condition - means a failure or malfunction of an aircraft or aircraft component, whether found in flight or on the ground, and that could seriously hazard the safety of aircraft operations.

The following kinds of unairworthy conditions are classified as reportable under the Mandatory Occurrence Reporting (MOR) System:

(a) Damage to Aircraft Structure:

(i) Damage to any primary structure, or any damage to secondary structure, that consequently hazarded or could have hazarded the aircraft, unless it is minor accidental damage readily evident and notified to the aircraft operator at the time it occurred.

(ii) Damage or deterioration found as a result of a special inspection or check, for example an airworthiness directive.

(iii) Separation from the aircraft, in flight, of any part of the aircraft.

(iv) Significant defects or damage found as a result of a heavy landing, or turbulence check.

(v) Significant deterioration, defects, or damage found during routine maintenance, being of a nature or type not normally expected to arise from normal service operation. This may include serious cracks, permanent deformation, burning, serious corrosion of structure, etc.

(b) Aircraft Systems:

(i) Any failure, significant malfunction, or deterioration of any items, or systems, or equipment, found as a result of a special mandatory inspection or check, for example manufacturer's alert service bulletins, airworthiness directives, and the like.

(ii) Significant defects, deterioration, or damage, to system components, found during routine maintenance or repair, of a nature or type not formally expected to arise from normal service operation.

(iii) System or component failures, or significant malfunctions, identified by routine testing and inspection procedures, either on the aircraft or in the workshops. For example, defects causing, or likely to cause, failure of an actuating system for flaps, spoilers, drag devices, landing gear, brakes, and the like.

(iv) Failure, or malfunction, of any item, not normally considered as reportable, where the circumstances of the failure, or its association with other failures, introduces an element of hazard, for example, furnishings

and equipment, water systems, and items included in an allowable deficiency or minimum equipment list.

(c) In-service unairworthy conditions:

(i) Failure or malfunction of engines.

(ii) Loss or shutdown of any engine.

(iii) Inability to shut down an engine, or to control power, thrust or RPM, by use of normal procedures.

(iv) Significant overspeed or runaway of engines, propellers, rotors, APU, or other high speed rotating components.

(v) Uncontrolled failure of any high speed rotating components, for example, APU, air starters, ACM, ATM, and the like.

(vi) Failure or malfunction of aircraft systems and equipment.

(vii) Any loss or significant malfunction of one main system, sub-system, or set of equipment, for example, hydraulic power, flight control system, electrical power, air systems, ice protection, communication systems, navigation systems and instruments, warning systems and devices, brake systems, wheel or tyres, or both, on each landing gear, when:

(1) It occurs at a critical phase or time, for example V_1.

(2) Exceptional circumstances exist or unforeseen consequences arise, for example, uncontained failure, fire, and the like.

(3) Relevant back-up systems, subsystems, or equipment do not perform satisfactorily.

(viii) Significant asymmetry of flaps, slats, spoilers, and the like.

(ix) Limitations of movement, stiffness, or poor or delayed response, in the operation of the primary flight control systems, or their associated tab and lock systems.

(x) Loss, or malfunction, of any rotorcraft auto stabiliser mode.

(xi) Inability to achieve the intended aircraft configuration for any flight phase.

(xii) Malfunction of any indication systems when the possibility of significantly misleading indication to the crew results.

(xiii) Operation of any primary warning system associated with aircraft systems or equipment when:

(1) It is clearly evident to the crew that the indication is false; or

(2) The indication is confirmed as false after landing.

For example, fire or smoke warning, door warning, and the like.

(xiv) Operation of any other primary warning system associated with manoeuvring of the aircraft when:

(1) It is clearly evident to the crew that the indication is false; or

(2) The indication is confirmed as false after landing.

For example, stall warning (stick shake), stall protection (stick push), over-speed warning, and the like.

(xv) Reversion to manual control of powered primary controls, other than for training or test purposes.

(xvi) Failure of ice-protection equipment, or build up of ice on the aircraft beyond the capability of the ice-protection system.

(xvii) Critical AC or DC power system, or electrical component failure.

(xviii) Loss of cabin pressurisation.

(xix) Contamination of the cabin, cockpit, or baggage compartment.

(xx) For twin engine aircraft approved for extended range twin operations (ETOPS):

defects that occur in flight which would not permit dispatch of the aircraft on an ETOPS flight under the conditions of the minimum equipment list (MEL), whether or not an ETOPS flight is being flown.

(xxi) For helicopters, defects causing, or likely to cause, failure of rotors, or rotor drive systems.

(xxii) Any abnormal vibration or buffeting caused by a structural or system malfunction, defect, or failure.

(xxiii) Significant contamination of fuel.

(xxiv) Fuel starvation in flight as the result of a defect.

(xxv) Each interruption to a flight, unscheduled change of aircraft en route, or unscheduled stop or diversion from a route caused by known or suspected technical difficulties or malfunctions.

(xxvi) Any other defect, which the reporter considers, may affect its occupants, or cause the aircraft to become a danger to other persons or property.

Appendix I – DCA Form One

1. DCA, BHUTAN	2. **AUTHORISED RELEASE CERTIFICATE DCA FORM ONE**				3. Form Tracking No.	
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: ☐ Approved design data and are in condition for safe operation ☐ Non-approved design data specified in block 13		19. ☐ BCAR-145.50 Release to Service ☐ 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 BANRs & BCAR-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)

DCA Form One – Issue 1 * Installer must cross-check eligibility with applicable technical data

DCA Form One (reverse side)

AUTHORISED RELEASE CERTIFICATE – DCA FORM ONE

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 specified in block 1 it is essential that the user/installer ensure that his/her Airworthiness Authority accepts parts/components/assemblies from the Airworthiness Authority 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 national regulations by the user/installer before the aircraft may be flown.

Chapter 4 – Airworthiness Directives

4 Airworthiness Directives

4.1 General

4.1.1 Applicability

This chapter prescribes the requirements governing the:

(i) Acceptance and mandatory compliance of foreign airworthiness directives applicable to; and

(ii) Issue of airworthiness directives for,

each Bhutan registered aircraft issued with an airworthiness certificate in accordance with chapter 2, part 2.5 of this BAR.

4.1.2 Notification

Upon registration of an aircraft in Bhutan, the DCA will notify the aeronautical authority of the country of design of the aircraft regarding the aircraft's registration in Bhutan, and request that the DCA receives any and all airworthiness directives addressing that aircraft's airframe, engine, propeller, appliance, or component part.

4.1.3 Responsibility of the Operator

Each owner/operator of the Bhutan registered aircraft shall ensure that a reliable system has been established to get regular supply of the mandatory airworthiness requirements listed under Appendix A, applicable to its aircraft type.

4.1.4 Exemptions

The Director shall not exempt any person from the requirements of 4.2.3.

4.2 Airworthiness Directives

4.2.1 Issue

(a) The Director may issue an airworthiness directive in respect of aircraft or aeronautical products if he believes on reasonable grounds:

(i) An unsafe condition exists in any aircraft or aeronautical product; and

(ii) That condition is likely to exist or develop in any other aircraft or aeronautical product of the same design.

(b) Any airworthiness directive issued by the Director will be based on the manufacturer's service bulletins and other sources of data, which the Director considers adequate.

(c) The Director shall specify in each airworthiness directive the date by which each holder of a certificate of registration for an aircraft must comply with the airworthiness directive.

4.2.2 Acceptance of Foreign Mandatory Airworthiness Requirements

(a) Whenever the State of Design considers that a condition in an aircraft, airframe, aircraft engine, propeller, appliance, or component part is unsafe as shown by the issuance of an airworthiness directive by that State, the authority shall require such directives apply to Bhutan registered civil aircraft of the type identified in that airworthiness directive, unless otherwise determined by the Director.

(b) The foreign airworthiness directives applicable to Bhutan registered aircraft shall be in accordance to the Appendix A to this chapter.

4.2.3 Compliance

(a) The holder of a Bhutan certificate of registration shall not permit the operation of that aircraft unless the certificate holder ensures compliance with:

(i) Each applicable airworthiness directive issued in accordance with 4.2.1 by the date specified in the airworthiness directive; or

(ii) Each of the applicable mandatory airworthiness requirements listed in Appendix A.

4.2.4 Promulgation

(a) The Director shall upon issue of an airworthiness directive under 4.2.1 forward them as soon as practicable to the holder of a Bhutan certificate of registration for the aircraft type to which the airworthiness directive applies.

(b) The Director shall upon receipt of a foreign airworthiness directive determine its applicability, and immediately notify the holder of a Bhutan certificate of registration for the aircraft type to which the airworthiness directive applies.

4.2.5 Amendments

The Director may issue an amendment to an airworthiness directive in accordance with 4.2.1 and shall identify the amendment by a suffix to the original airworthiness directive number.

4.2.6 Repetitive Airworthiness Directives

(a) Where an airworthiness directive requires repetitive inspection, the holder of a Bhutan certificate of registration for an aircraft may, unless specifically prohibited by the airworthiness directive, be permitted by the Director to defer an inspection for a period up to 10% of the inspection interval specified in the airworthiness directive, to allow accomplishment during other scheduled maintenance.

(b) Prior approval for the increase in any repetitive inspection interval must be obtained from the Director in writing.

Appendix A - Mandatory Airworthiness Requirements

(a) For the following specified aircraft types the mandatory airworthiness requirements for the airframe are:

(i) UK CAA airworthiness directives and manufacturer's modifications and inspections declared mandatory by the UK CAA for:

(1) BAe 146 series aircraft.

(ii) USA FAA airworthiness directives for:

(iii) French Direction Generale de l'Aviation Civile airworthiness directives for:

(iv) Transport Canada airworthiness directives for:

(b) The mandatory airworthiness requirements for the aeronautical products used on an aircraft type specified in paragraph (a) are the mandatory airworthiness requirements of the aeronautical product's country of origin. This includes aircraft engines and propellers.

Chapter 5 – Aircraft Fuelling: Fire Prevention and Safety Measures

5 Aircraft Fuelling: Fire Prevention and Safety Measures

5.1 General

5.1.1 Applicability

(reserved)

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BHUTAN AVIATION REQUIREMENTS
AIRWORTHINESS PROCEDURES

List Of Application Forms

DCA 001/01	-	Issue of Type Acceptance Certificate
DCA 002/01	-	Issue, re-issue or amendment of Standard and/or Restricted Airworthiness Certificate
DCA 002/02	-	Issue of Experimental Airworthiness Certificate
DCA 002/03	-	Issue of Special Flight Permit
DCA 002/04	-	Renewal of Airworthiness Certificate
DCA 002/05	-	Issue of Export Certificate of Airworthiness
DCA 003/01	-	Registration of Aircraft/Change of Possession of Aircraft/Replacement of Certificate
DCA 004/01	-	Issue or renewal of Aircraft Radio Station Approval
DCA 005/01	-	Approval of Technical Data and Conformity Certification of Major Modification or Major Repair