

NEPALESE CIVIL AIRWORTHINESS REQUIREMENTS

SECTION A

GENERAL

CHAPTER A.1

DEFINITIONS IN N. C. A. R.

In these Requirements, unless the context otherwise requires, the following definitions shall apply:

'AMT' means aircraft maintenance technician

'Aeroplane' means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on the surfaces which remain fixed under given conditions of flight.

'Aircraft' means any machine that can derive support in the atmosphere from the reactions of the air, other than the reactions of the air against the earth's surface.

'Aircraft Components' include airframe structural parts, engines, propellers, instruments, system components, accessories and equipment forming part of an aircraft as defined in its type certificate data.

'Aircraft System' means a combination of aircraft components and associated wiring, plumbing or other interconnections installed in an aircraft to perform specific functions.

'Aerial Work' means a commercial air service other than an air transport service or a flight training service.

'Air Operator' means a person, organization or enterprise who is the holder of an Air Operator Certificate.

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'Air Operator Certificate' means a certificate issued by the Director General_pursuant to the Rules that authorizes the holder of the certificate to operate a commercial air services.

'Airship' means a power-driven lighter-than-air aircraft.

'Air Time' with respect to keeping technical records, means the time in hours and minutes_from the moment an aircraft leaves the ground on every flight untill it touches the ground at the end of that flight.

'Air Transport Service' means a commercial air service that is operated for the purpose of transporting persons, personal belongings, baggage, goods or cargo in aircraft between two points.

'Airworthiness Directive' means mandatory modifications or special inspections required by the Director General or by the airworthiness authority of a Contracting State.

'Airworthiness Limitations' means a life limitation applicable to life limited part or any maintenance task which is mandatory as a condition of the type certificate of an aeronautical product.

'Airworthy' means in respect of an aeronautical product, in a fit and safe state for flight and in conformity with the applicable type design.

'Airworthiness Standard' in respect of the design manufacture or maintenance of an aeronautical product, means the description, in terms of a minimum standard, of the properties and attributes of the configuration, material and performance of physical characteristics of that aeronautical product, and includes the procedures to ascertain compliance with or to maintain that minimum standard, as specified in the applicable parts of the Airworthiness Manual

'Anticipated operating conditions' means those conditions which are known from experience or which can be reasonably envisaged to occur during the operational life of the aircraft taking into account the operations for which the aircraft is made eligible, the conditions so considered being relative to the meteorological state of the atmosphere, to the configuration of the terrain, to the functioning of the aircraft, to the efficiency of the personnel and to all the factors

affecting safety in flight. Anticipated operating conditions do not include :

a)those extremes which can be effectively avoided by means of operating procedures; and

b)those extremes which occur so infrequently that to require the Standards to be met in such extremes would give a higher level of airworthiness than experience has shown to be necessary and practical.

'Appropriate airworthiness requirements': The comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration.

'Approved' means accepted by the Director General in writing as suitable for a particular purpose..

'Apron' means a part of an aerodrome, other than the maneuvering area, that is intended to be used for the loading and unloading of passengers and cargo, the refueling, servicing, maintenance and parking of aircraft and the movement of aircraft, vehicles and persons engaged in services necessary for those purposes.

'Associated aircraft systems'. Those aircraft systems drawing electrical/pneumatic power from an auxiliary power unit during ground operations.

'Authorized Person' means an officer of Civil Aviation Authority of Nepal to whom the Director General has delegated functions specified in these Requirements.

'Auxiliary power-unit (APU)'. A self-contained power-unit on an aircraft providing electrical/pneumatic power to aircraft systems during ground operations.

'Avionics' means the electrical, instrument and electronic components and systems of aircraft.

'Balloon' means a non-power-driven lighter than air aircraft or a lighter-than-air aircraft that is not engine driven.

'Balloon Component' means any part, soundness and correct functioning of which when fitted to a balloon is essential for the continued airworthiness and safety of the balloon.

'Basket' means the container suspended beneath the envelope, mainly used for the balloon occupants.

'By-pass ratio'. The ratio of the air mass flow through the by-pass ducts of a gas turbine engine to the air mass flow through the combustion chambers calculated at maximum thrust when the engine is stationary in an international standard atmosphere at sea level.

'CAA' stands for Civil Aviation Authority.

'CAAN' stands for Civil Aviation Authority of Nepal.

'Crew Member' means a person assigned or self assigned to duty in an aircraft during flight time.

'Component' means any material, part or subassembly intended for use on an aeronautical product.

'Common mark' means a mark assigned by the International Civil Aviation Organization to the common mark registering authority registering aircraft of an international operating agency on other than a national basis.

'Common mark registering authority' is the authority maintaining the non-national register or, where appropriate, the part thereof, in which aircraft of an international operating agency are registered.

'Configuration(as applied to the aeroplane)': A particular combination of the positions of the moveable elements, such as wing flaps and landing gear, etc., that affect the aerodynamic characteristics of the aeroplane.

'Contracting State' means a State which is a party to the Convention.

'Convention' means the Convention on International Civil Aviation, and includes the international standards and recommended practices and procedures adopted and/or approved by the International Civil Aviation Organization in pursuance of Article 37 of the Convention.

'Corrosion Level 1' is defined as being corrosion damage that is occurring between successive inspections which is local and can be re-worked within structural repair manual limits or can be attributed to an event not typical of an operator usage of other aircraft in the same fleet (e.g. mercury spill), or where the latest inspection reveals corrosion damage which is a cumulative blend-out of several previous inspections now exceeds the allowable limits requiring a repair or partial replacement of a primary structural member.

'Corrosion Level 2' is defined as corrosion damage occurring between successive inspections requiring re-work which exceeds the structural repair manual limits or which requires a repair or partial replacement of a primary structural member, but is not of immediate airworthiness concern.

'Corrosion Level 3' is defined as being corrosion damage of immediate airworthiness concern requiring expeditious action.

'Critical power-unit(s)': The power-unit(s) failure of which gives the most adverse effect on the aircraft characteristics relative to the case under consideration.

'Day' means the period beginning one half hour before sunrise and ending one half hour after sunset.

'Derived version of an aeroplane'. An aeroplane which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely.

'Derived version of a helicopter'. A helicopter which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely.

'Director General' means the Director General of Civil Aviation Authority of Nepal.

'Design landing mass': The maximum mass of the aircraft at which, for structural design purposes, it is assumed that it will be planned to land.

'Design take-off mass': The maximum mass at which the aircraft, for structural design purposes, is assumed to be planned to be at the start of take-off run.

'Design taxiing mass': The maximum mass of the aircraft at which structural provision is made for load liable to occur during use of the aircraft on the ground prior to the start of take-off.

'Effective CPCP' is defined as being a Corrosion Prevention and Control Program which is capable of maintaining all corrosion findings to corrosion level 1 or better between successive inspections of the same area.

'Envelope' means the enclosure in which the lifting medium is contained.

'External equipment (helicopter)'. Any instrument, mechanism, part, apparatus, appurtenance, or accessory that is attached to or extends from the helicopter exterior but is not used nor is intended to be used for operating or controlling a helicopter in flight and is not part of an airframe or engine.

'FAA' stands for Federal Aviation Agency of the United States of America.

'Factor of safety' : A design factor used to provide for the possibility of loads greater than those assumed, and for uncertainties in design and fabrication.

'Final approach and take-off area (FATO)'; A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced.

Where the FATO is to be used by performance class 1 helicopters, the defined area includes the rejected take-off area available.

'FAR' stands for Federal Aviation Regulations published by the Government of the United States of America.

'Fireproof material' means 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.

'Flight Time' means the Total Time in hours and minutes from the moment the aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight.

'Foreign Aircraft' means any aircraft other than an aircraft registered in Nepal.

'First Aid Kit' a kit containing such items which can be used for the purpose of first aid treatment of injuries which may occur in flight or as a result of minor accidents.

'Glider' means a non-power-driven heavier-than-air aircraft which derives its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

'Gyroplane' means a heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors which rotate freely on substantially vertical axes.

'Heavier-than-air' means any aircraft deriving its lift in flight chiefly from aerodynamic forces.

'Helicopter' : A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

'Hot Air Balloon' means a balloon that derives its lift from heated air contained within the envelope.

'Human Factors principles' : Principles which apply to aero-nautical design, certification, training, operations and maintenance and

which seek safe interface between the human and other system components by proper consideration to human performance.

'Human performance' : Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

'IFR' stands for Instrument Flight Rules.

'International operating agency' is an agency of the kind contemplated in Article 77 of the Convention.

'EASA' stands for European Aviation Safety Agency

'Journey Log' means a chronological record of the particulars relating to the operation and maintenance of an aircraft.

'Landing' means

- (a) in respect of an aircraft other than an airship or balloon, the act of coming into contact with a supporting surface, and includes the acts immediately preceding and following the coming into contact with that surface, and
- (b) in respect of an airship or balloon, the act of bringing the airship or balloon under restraint, and includes the acts immediately preceding and following the bringing of the airship or balloon under restraint.

'Landing surface' : That part of the surface of an aerodrome which the aerodrome authority has declared available for the normal ground or water run of aircraft landing in a particular direction.

'Lighter-than-air aircraft' means any aircraft supported chiefly by its buoyancy in the air.

'Limit loads' : The maximum loads assumed to occur in the anticipated operating conditions.

'Load factor' : The ratio of a specified load to the weight of the aircraft, the former being expressed in terms of aerodynamic forces, inertia forces, or ground reactions.

'Life Limit Part' means a part which, as a condition of the type certificate, may not exceed a specified time, or number of operating cycles, in service.

'Maintenance' means the performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or

combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.

'Maintenance Release' means the certificate required by Annex 6 to the Convention to certify that all required maintenance has been completed satisfactorily; a 'Certificate of Maintenance' is a form of Maintenance Release.

'Major Maintenance' means the overhaul, major repair or extensive modification of aircraft or aircraft components, the extensive dismantling or reassemble of them and the manufacture of simple replacement parts in accordance with approved data.

'Manufacturer' means the person, organization or enterprise who has been granted authority, by the Civil Aviation Authority of a Contracting State, to manufacture an aeronautical product in accordance with the standards specified in a design approval issued by the Civil Aviation Authority

'Minor Maintenance' means all work relating to the maintenance of aircraft other than major maintenance. Minor maintenance includes adjustment, periodic inspection, functional testing, component replacement, minor repair and minor modification of aircraft including components and equipment.

'Modification' means any alteration to an aircraft or aircraft component affecting its design, construction, equipment, performance or its safe operation.

'MRB (Maintenance Review Board)' means the Federal Aviation Administration (FAA) Maintenance Review Board report that provides requirements to manufacturers to ensure that their Maintenance Planning Documents (MPD) provide continuing airworthiness for their aircraft.

'MSG(Maintenance Steering Group)-3' means the Air Transport Association (ATA) Airline/ Manufacturer Maintenance Program Planning Document. It describes the "Top Down" approach to Maintenance whereby failures in aircraft components are analyzed at the systems level first and then "Downward" toward establishing specific maintenance tasks.

'NFSR' means Nepalese Flying School Requirements

'Nepalese Aircraft' means aircraft that is registered pursuant to Chapter B.5 of NCAR

'NCAR' stands for Nepalese Civil Airworthiness Requirements.

'Operator' means a person, organization or enterprise, being either the owner or the hirer, engaged in or offering to engage in an aircraft operation.

'Ornithopter' means a power-driven heavier-than-air aircraft supported in flight chiefly by the reactions of the air on planes to which a flapping motion is imparted.

'Owner' means the person, organization or enterprise lawfully entitled to possession of an aircraft, except that, if an aircraft is hired for any period exceeding 28 days, the hirer shall be regarded as the owner for the purposes of these Requirements.

'Passenger' means a person, other than a crew member, who is carried on board an aircraft.

'Performance Class 1 helicopter' : A helicopter with performance such that, in case of engine failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area.

'Performance Class 2 helicopter' : A helicopter with performance such that, in case of engine failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after take-off or after a defined point before landing, in which cases a forced landing may be required.

'Performance Class 3 helicopter' :A helicopter with performance such that, in case of engine failure at any point in the flight profile, a forced landing must be performed.

'Physician's Kit' a kit containing such life saving drugs intended to be administered only by qualified medical practitioner if and when available.

'Power-unit' : A system of one or more engines and ancillary parts which are together necessary to provide thrust, independently of the continued operation of any other power-unit(s), but not including short period thrust-producing devices.

'Pressure-altitude' : An atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere.

'Primary Structure' means a structure that carries flight, ground or pressure loads.

'Private Aircraft' means an aircraft that is registered as a private aircraft pursuant to Chapter B.5 and Chapter A.4 of NCAR

'Permit to Fly' means a certificate of authorization granted by the Director General permitting the flight on private operations only of an aircraft which cannot comply with the requirements for a Certificate of Airworthiness.

Re-certification. Certification of an aircraft with or without a revision to its certification noise levels, to a Standard different to that to which it was originally certificated.

'Rendering (a Certificate of Airworthiness) valid' : The action taken by a Contracting State, as an alternative to issuing its own Certificate of Airworthiness, in accepting a Certificate of Airworthiness issued by any other Contracting State as the equivalent of its own Certificate of Airworthiness.

'Repair' : The restoration of an aeronautical product to an airworthy condition as defined by the standard airworthiness standard.

'Rotorcraft' means a power-driven heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors.

'Satisfactory evidence'. A set of documents or activities that a Contracting State accepts as sufficient to show compliance with an airworthiness requirement.

'Schedule Maintenance' means any maintenance performed at predetermine intervals as required pursuant to these Requirements, an approved inspection plan or an airworthiness directive.

'Self-sustaining powered sailplane'. A powered aeroplane with available engine power which allows it to maintain level flight but not to take off under its own power.

'Serviceable' in respect of an aeronautical product, means in a fit and safe condition for flight.

'Small Aircraft' means an aeroplane having a maximum allowable take off weight of 5700 kg (12,566 lb.) or less, or a rotorcraft having a maximum allowable take off weight of 2730 kg (6,018 lb.) or less.

'Standard atmosphere' : An atmosphere defined as follows :

a) the air is a perfect dry gas;

b) the physical constants are :

Sea level mean molar mass :

$$M_0 = 28.964420 \times 10^{-3} \text{ kg mol}^{-1}$$

Sea level atmospheric pressure:

$$P_0 = 1013.250 \text{ hPa}$$

Sea level temperature :

$$t_0 = 15^\circ\text{C}$$

$$T_0 = 288.15 \text{ K}$$

Sea level atmospheric density :

$$\rho_0 = 1.2250 \text{ kg m}^{-3}$$

Temperature of the ice point :

$$T_i = 273.15 \text{ K}$$

Universal gas constant :

$$R^* = 8.31432 \text{ JK}^{-1} \text{ mol}^{-1}$$

c) the temperature gradients are :

Geopotential altitude (km)		Temperature gradient
From	To	(Kelvin per standard geopotential kilometer)
-5.0	11.0	-6.5
11.0	20.0	0.0
20.0	32.0	+1.0
32.0	47.0	+2.8
47.0	51.0	0.0
51.0	71.0	-2.8
71.0	80.0	-2.0

'State of Design' : The State having jurisdiction over the organization responsible for the type design.

'State of Manufacture' :The state having jurisdiction over the organization responsible for the final assembly of the aircraft.

'State of Registry' : The State on whose register the aircraft is entered.

Subsonic aeroplane. An aeroplane incapable of sustaining level flight at speeds exceeding flight Mach number of

'Take-off surface' : That part of the surface of an aerodrome which the aerodrome authority has declared available for the normal ground or water run of aircraft taking off in a particular direction.

'Technical Record' means a chronological record of the particulars relating to the maintenance of an aircraft or any aeronautical product installed on the aircraft.

'Type Certificate' : A document issued by a Contracting State to define the design of an aircraft type and to certify that this design meets the appropriate airworthiness requirements of that State.

'The Act' means the Civil Aviation Act 1959 (2015 B.S.) and any subsequent amendment.

'The Rules' mean the Civil Aviation Rules 1996 (2052 B.S.) and any subsequent amendments.

'Time in Service' means the time in hours and minutes from the moment an aircraft leaves the ground on every flight until it touches the ground at the end of that flight.

'Ultimate load' : The limit load multiplied by the appropriate factor of safety.

'Type Design' means

- (a) the drawings and specifications and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product in conformity with the basis of approval applicable to the product,
- (b) information on dimensions, materials and manufacturing processes necessary to define the structural strength of the product,
- (c) any other data necessary to allow, by comparison, the determination of the Airworthiness,
- (d) where applicable, environmental characteristics of later products of the same type or model.

'V.F.R.' stands for Visual Flight Rules.

'Validation' means the acceptance of certificate/approval or any other document issued by airworthiness authority.

'USA' stands for United States of America.

Civil Aviation Authority of Nepal.