



GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPPOSITE SAFDARJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS

SECTION 6 – DESIGN STANDARDS & TYPE CERTIFICATION

SERIES 'A' PART IV

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F. No. XXXXXX-AED

Subject: Requirements for Issuance of Certificate of Design Acceptance of an aircraft.

1. Introduction

- 1.1 Rule 49I of the Aircraft Rules, 1937 states that notwithstanding anything contained in rules 49A to 49G, the Director General may accept the design of an aircraft after evaluation against minimum standards and on being satisfied that it is in a condition for safe operation.
- 1.2 This CAR is issued under the proviso of Rule 133A of the Aircraft Rules, 1937 and lays down the requirements for acceptance of design for an aircraft. This CAR also stipulates the conditions under which the design of an aircraft will be accepted by DGCA, India.

2. Definition

"**Aircraft**" means any machine which can derive support in the atmosphere from reactions of the air other than reactions of the air against the earth's surface and includes balloons whether fixed or free, airships, kites, gliders and flying machine.

"**Aircraft component**" means any part, the soundness and correct functioning of which, when fitted to an aircraft, is essential to the continued airworthiness or safety of the aircraft and includes any item of equipment.

"**Glider**" means 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, including sailplane;

"**Gyroplane**" means a rotorcraft whose rotors are not engine-driven, except for initial starting, but are made to rotate by action of the air when the rotorcraft is moving; and whose means of propulsion, consisting usually of conventional propellers, is independent of the rotor system

"**Light Sport Aircraft**" means a fixed wing aircraft with maximum certificated take off mass exceeding 450 kg but not exceeding 600 kg (650 kg in case of sea planes) and stalling speed not exceeding 45 knots;

"Microlight Aircraft" means Microlight aircraft (single seater) and Microlight aircraft (two seater) and excludes hang gliders and para-planes

"Microlight aircraft (single seater)" means a fixed wing aircraft with maximum all up weight not exceeding 330 kg and a wing area not less than 10 sq. meters and which is designed to carry not more than one person;

"Microlight Aircraft (two seater)" means a fixed wing aircraft with a maximum all up weight not exceeding 450 kg and a wing area not less than 10 sq. meters and which is designed to carry not more than two persons;

"Powered Hang Gliders" means a power-driven heavier-than-air aircraft that has the maximum all up weight less than 275 kg for a single seater; has maximum all up weight less than 375 kg for a double seater. The aircraft is not capable of more than 70 knots calibrated air speed at full power in level flight, and has a power-off stall speed which does not exceed 30 knots calibrated airspeed.

'Powered sailplane', means a fixed wing single engine (spark- or compression-ignition) powered aircraft with a maximum all up weight not exceeding 850 kg with a maximum ratio of weight to wing span squared of 3 kg/m² and which is designed to carry not more than two persons;

"Restricted Type Certificate" means a document issued, validated or accepted by the Director-General signifying that the design of a type of aircraft or engine or propeller does not fully meet the applicable type design standards specified by the Director-General.

'Sailplane', means a fixed wing aircraft with a maximum all up weight not exceeding 750 kg with a maximum ratio of weight to wing span squared of 3 kg/m² and which is designed to carry not more than two persons;

"State of Design" means state having jurisdiction over the organization responsible for the type design.

"Type Certificate" means a document issued by a Contracting State to define the design of an aircraft, engine or propeller type and to certify that this design meets the appropriate airworthiness requirements of that State.

3. **Applicability**

The provisions of this CAR shall apply to any natural or legal person, in respect of any aircraft defined in para 4.1, when:

- a) engaged in design, development and manufacture of aircraft; or
- b) engaged in import of aircraft for safe operation.

4. **Criteria for design acceptance of an aircraft**

- 4.1 Aircraft with maximum all up weight not exceeding 750kg or 850kg in case of powered aircraft and that does not meet the airworthiness requirements prescribed in CAR 21 for issuance of Type Certificate (TC)/ Restricted Type Certificate (RTC) will be

considered for grant of design acceptance. This includes light-sport aircraft, micro light, powered hang gliders, sailplanes, powered sailplanes and gyroplanes.

- 4.2 The maximum number of occupants for such aircraft shall not be more than two, including the pilot.
- 4.3 The aircraft shall be used in day VFR conditions only.

5. Requirements for design acceptance of an aircraft

- 5.1 An applicant for design acceptance of an aircraft shall ensure that the aircraft complies with the minimum airworthiness standards as specified in the **Annexure-I** to this CAR or any other standards as agreed by DGCA. Further, DGCA may impose additional airworthiness requirement, as necessary.
- 5.2 For the purpose of issuance of design acceptance, application shall be submitted and addressed to the Director (AED), DGCA along with the following enclosures:-
- (i) Application for design acceptance as per **Annexure – II**;
 - (ii) Certificate(s) issued by the Civil Aviation Authority (CAA) of the State of Design or any entity recognised by the CAA indicating design approval/ acceptance, if any;
 - (iii) Compliance Statement(s) with applicable airworthiness standards and associated evaluation & test reports;
 - (iv) Declaration of compliance;
 - (v) Aircraft build standard and drawings of components, sub-assemblies and assemblies;
 - (vi) Conformity Statement that the aircraft conforms to the manufacturer's design data, using the manufacturer's quality assurance system that meets the applicable airworthiness standard;
 - (vii) Aircraft's operating instructions and flight training supplement.
 - (viii) Aircraft's maintenance and inspection procedures;
 - (ix) Organization's procedure manual detailing procedures followed by the applicant for design and development of aircraft. The manual should provide an outline of information as mentioned in **Annexure –III**;
 - (x) Receipt of online payment of applicable fees in accordance with Rule 62 of the Aircraft Rules, 1937.
- 5.3 DGCA at its discretion may ask any additional information/documentation/ clarification from the applicant for design acceptance of aircraft.
- 5.4 The applicant shall demonstrate compliance to the minimum standards by analysis, ground tests, flight tests, etc. that are necessary for assessment of design and performance requirements.
- 5.5 The applicant shall perform all inspections and tests necessary to show compliance with the applicable airworthiness standards and shall allow DGCA to make any inspection necessary to ascertain the airworthiness of the aircraft and its suitability for aviation purposes.

- 5.6 Prior to conducting test flight for aircraft manufactured in India, the applicant shall get the aircraft registered as per the applicable requirements of DGCA.
- 5.7 An application for issue of special flight permit shall be submitted to AED, DGCA in the form and manner as prescribed in CAR 21 Subpart P along with complete information on flight conditions for conducting the flight tests.
- 5.8 Flight testing for the purpose of design acceptance of an aircraft shall be conducted in accordance with conditions specified in the special flight permit and shall include:
- (i) aircraft incorporating engine/ propeller that does not conform to the type certification standards, at least 40 hours of operation; and
 - (ii) aircraft incorporating engine/ propeller that conform to the type certification standards, at least 25 hours of operation;
 - (iii) For aircraft under para 5.2 (ii) above, the test flights carried out for certification is acceptable;
- 5.9 Flight test procedures as indicated in FAA AC 90-89 or latest revision or any other equivalent is acceptable to DGCA.
- 5.10 The applicant shall arrange familiarization programme of adequate duration for DGCA (AED) officials, depending on the complexity, type of aeronautical product, at its facility.
- 6. Issue of Certificate of Design Acceptance (CoDA):**
- Upon satisfactory demonstration of compliance with the applicable minimum standards, DGCA may grant CoDA for the aircraft along with limitations/ conditions, as applicable.
- 7. Issue of Airworthiness/ Operational approvals:**
- Upon receipt of design acceptance, the applicant shall approach Directorate of Airworthiness (DAW) for grant of 'Special C of A' and other Directorates of DGCA for obtaining specific operational approvals, if any, as per the applicable CARs.

(Vikram Dev Dutt)
Director General of Civil Aviation

ANNEXURE – I

MINIMUM AIRWORTHINESS STANDARDS

The Standards referenced in this annexure when applied by the applicant is considered acceptable to DGCA for grant of Certificate of Design Acceptance.

Airworthiness Standards

1. EASA Certification Specifications (CS) -22 : Sailplanes and Powered Sailplanes
2. EASA Certification Specifications (CS) -LSA : Light Sport Aircraft
3. UK CAA CAP 482 BCAR Section S – Small Light Aeroplane
4. UK CAA CAP 643 BCAR Section T –Light Gyroplane
5. UK CAA CAP 750 BCAR Section VLH – Very Light Helicopter
6. German CAA LBA-LTF 2009 - Airworthiness requirements for Hang-gliders and Para-gliders
7. German CAA BUT 2003 – Airworthiness requirements for ultra-light gyroplanes.

ASTM Standards

1. F2245-12d Design and Performance of a Light Sport Airplane
2. F2483-12 Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft
3. F2746-12 Standard Specification for Pilot's Operating Handbook (POH) for Light Sport Airplane
4. F2339-06 Design & Manufacture of Reciprocating Spark Ignition Engines
5. F2506-10 Design and Testing of Fixed-Pitch or Ground Adjustable Propellers
6. F2538-07a Design & Manufacture of Reciprocating Compression Ignition Engines
7. F2316-12 Airframe Emergency Parachutes for Light Sport Aircraft
8. F2840-11 Design and Manufacture of Electric Propulsion Units

ANNEXURE – II

APPLICATION FOR DESIGN ACCEPTANCE OF AIRCRAFT	
1. Applicant Name	
2. Aircraft model name/designation	
3. Aircraft category (If others , please specify)	☐ Light-sport aircraft ☐ Micro light, ☐ Powered hang gliders, ☐ Sailplanes, ☐ Powered sailplanes and ☐ Gyroplanes ☐ Others
4. Purpose of operation (<i>Note: As defined in para 4.3 of this CAR</i>)	
5. Whether the aircraft has been issued with letter/certificate of Type Approval/ Acceptance by ICAO contracting states? If yes, please enclose copy	
6. Compliance with applicable design standard	
7. Description of the aircraft	
8. Three view sketch, photographs, drawings of the proposed aircraft	☐ Attached ☐ Not attached
9. Maximum All-Up Weight (in kg)	
10. Number of Seats	

11. Engine		
a) Model/Type		
b) Thrust/power rating		
c) Whether engine model is Type certified by any CAA		
12. Propeller		
a) Model/Type		
b) Fixed/variable pitch		
c) Whether propeller model is Type certified by any CAA		
13. Service history of aircraft model		
a. No. of aircraft flying in different countries		
b. Details of accidents/incidents		
c. Details of Airworthiness Directives/Mandatory service bulletins or equivalent		
14. Manuals:		
a. Aircraft operating instructions		
b. Aircraft's maintenance and inspection procedures;		
c. Flight training supplement.		
15. Applicant's declaration		
I confirm that the information contained herein is correct and complete. I shall be solely responsible for design, construction and safe operation of the aircraft.		
16. Signature:		
Date	Name of the Authorised Representative	Signature
This Application should be sent to:		
Director (Aircraft Engineering Directorate), Directorate General of Civil Aviation, Opposite Safdarjung Airport, New Delhi- 110 003, India, Telephone: 91-11-24623211		

ANNEXURE – III

**MODEL CONTENT OF PROCEDURE MANUAL FOR ORGANIZATION
INVOLVED WITH DESIGN AND DEVELOPMENT OF AIRCRAFT**

Part 1: Organization

- 1.1 Objective of handbook and binding statement
- 1.2 Responsible person for administration of handbook
- 1.3 Amendment procedure
- 1.4 List of effective pages
- 1.5 Distribution list
- 1.6 Presentation of organization (including locations)
- 1.7 Scope of work (with identification of type and models of products)
- 1.8 Organization charts
- 1.9 Human resources
- 1.10 Management staff
- 1.11 Roles and Responsibilities

Part 2: Procedures

- 2.1 Design process
- 2.2 Management of changes to type design and design of repairs
 - configuration control
 - approval of modification
- 2.3 Control of design subcontractors
- 2.4 Collecting/ Investigating of failures, malfunctions and defects
- 2.5 Co-ordination with production and Quality Assurances.
- 2.6 Fabrication methods
- 2.7 Assembly
- 2.8 Ground and flight tests
- 2.9 Documentation control
 - in relation with the changes and repairs
 - in relation with failures/ malfunctions and defects (i.e. Service Bulletins)
- 2.10 Instructions for Continued Airworthiness
- 2.11 Record keeping