GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION

TECHNICAL CENTER, OPPOSITE SAFDARJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 2 - AIRWORTHINESS
SERIES 'F' PART XIV
20th MAY, 1993 **EFFECTIVE : FORTHWITH**

F No.11-690/CAR/F-XIV/2010/AI (2)

Subject : **Registration and Airworthiness of Microlight Aircraft.**

INRODUCTION

This Civil Aviation Requirements is applicable to aircraft falling under the definition of microlight aircraft, excluding hang gliders, powered hang gliders and para planes.

1. DEFINITIONS :

1.1 Single Seater Microlight aircraft means a fixed wing aircraft with maximum all up weight of not exceeding 330 Kg. and a wing area not less than 10 sq. metres and which is designed to carry not more than one person.

1.2 Two seater microlight aircraft means a fixed wing aircraft with a maximum all up weight of not exceeding 450 Kg. and a wing area not less than 10 sq. metres and which is designed to carry not more than two persons.

1.3 Microlight aircraft means a microlight aircraft (single seater) and a microlight aircraft (two seater) and excludes hang gliders and para planes.

1.4 'Permit to Fly' in relation to microlight aircraft means a document issued by the DGCA authorising the flight of a microlight aircraft.

2. REGISTRATION :

2.1 All civil microlight aircraft imported into the country or manufactured in India shall be registered in the Civil Aircraft Register and a Certificate of Registration in respect thereof shall be issued by the DGCA.

2.2 Applications for registration of microlight aircraft should be made to the DGCA on the prescribed form (CA 28) and should be accompanied by documents given in Annex.

2.3 The registration markings assigned to the microlight aircraft shall be painted on the lower surface of the wings and also on each side of the fuselage or on the upper half of the vertical tail surface. If the aircraft does not possess wings or fin or where structural constraints do not permit prominent display of the registration markings, approval of DGCA to affix the registration markings elsewhere on the structure shall be necessary.

2.4 The owner of the microlight aircraft shall ensure that the registration markings are displayed in large and capital Roman letters without ornamentation in a colour in contrast with the background.

2.5 Each microlight aircraft registered shall carry an identification plate showing the registration markings, manufacturer's name, aircraft serial number and the name and address of the registered owner of the aircraft. Such identification plate shall be affixed on the aircraft at a convenient place in order to afford readability when the aircraft is stationary.

3. DESIGN AND MANUFACTURE

3.1 The applicable requirement for the issue of "Type acceptance" for microlight aircraft is BCAR Section S. Applicant shall submit compliance statement pertaining to BCAR Section S or any other standard acceptable to DGCA and associated documents to DGCA.

3.2 Applications for issue of approval shall be addressed to Director (AED), DGCA, Hdqrs. along with the following :-

(i) Approval by the Regulatory Authority of State of design.
(ii) Compliance with BCAR Section "S" or other acceptable standards.
(iii) Drawing of the assemblies and components.
(iv) Application form for Type Acceptance (Annexure – VIII).
(v) Manual as per Annexure -IX

3.3 Applicant does not require to obtain design organisation approval. However, procedure manual detailing procedure followed by applicant for the design and development of microlight aircraft should be made available. Guidance for making procedure manual is as given in Annexure - IX.

3.4 For series production of Microlight aircraft, the manufacturer shall provide an Engineering Organisation Manual along with a documented production inspection system for acceptance by DGCA. Contents of the Engineering Organisation Manual and Production Inspection System shall minimum address the issues specified in the Annex X to this CAR.

3.5 The DGCA shall examine the manufacturing process and subject the product to such ground and flight tests as may be considered necessary.

3.6 After determining that the production facility is satisfactory, approval to manufacture the microlight aircraft or its components may be granted by the Regional Airworthiness office.

3.7 Each aircraft shall be weighed and its centre of gravity established. A weight and balance report shall be prepared and delivered with each aircraft.

3.8 Before delivery, each aircraft shall be tested on ground and in flight. A test schedule covering ground and flight tests to which the aircraft has been subjected shall be prepared by the manufacturer and delivered with each aircraft produced.

3.9 User's manual and Maintenance manual shall be prepared by the manufacturer and three copies of the same shall be submitted to the DGCA along with the application for approval of the firm.

3.10 The manufacturer shall deliver with each aircraft produced, a certificate of compliance to standard aeronautical processes for manufacture of the aircraft. Such compliance certificate shall certify that the aircraft is safe for its intended operations. Production of Certificate of Compliance shall be a pre- requisite for the issue of a Permit to Fly for the microlight aircraft.

3.11 The manufacturer shall maintain a complete record of all microlight aircraft produced and full particulars of those to whom sold and shall produce this record on request for scrutiny of the DGCA.

3.12 A permanent placard should be affixed on the microlight aircraft in full view of the occupants and should be worded as : "THE AIRCRAFT HAS NOT BEEN CERTIFICATED TO AN INTERNATIONAL REQUIREMENT."

3.13 Operating limitations of the aircraft as prescribed by the manufacturer shall be placarded in the cockpit.

4. PERMISSION TO FLY THE MICROLIGHT AIRCRAFT:

4.1 Pursuant to provisions of Rule 15 and Rule 49 of the Aircraft Rules, DGCA may issue a 'Permit to Fly' in respect of the microlight aircraft in lieu of the Type Certificate and the Certificate of Airworthiness. Such permit shall enable the operator to fly the specified microlight aircraft within the union of India without a Certificate of Airworthiness subject to the conditions given therein.

4.2 The 'Permit to Fly' shall be valid for one year unless canceled or withdrawn by the DGCA. The Permit may be renewed for a further period of one year at a time by the DGCA representatives on the recommendations of any licensed AME or by a person authorised by the DGCA.

4.3 Non-conformity to the conditions of the Permit or of the instructions specified in the User's manual shall lead to suspension of the validity of the Permit.

4.4 The application for the Permit to Fly may be made in the prescribed proforma given in Annex I.

5. MAINTENANCE :

5.1 The manufacturer shall develop a satisfactory maintenance programme to ensure continued airworthiness of the aircraft and deliver the same with every aircraft produced.

5.2 The manufacturer shall also specify the overhaul life (TBO) of the engine, propeller, instruments and advise the operators about the organisations which may be approached for the overhaul or other major maintenance. The manufacturer shall also be responsible for issuance of any modifications to the aircraft to improve its safety of operations. For this purpose the manufacturer may provide kits and drawings so that the operators can carry out the modifications.

5.3 The routine maintenance of the aircraft in accordance with the manufacturer's instructions shall be the responsibility of the operator. The operator shall also be responsible for embodiment of modifications in accordance with the plan prescribed by the manufacturer. If the manufacturer is not existing, the modifications desired by the user shall be approved by the DGCA.

5.4 The pilot shall be responsible for carrying out the pre-flight inspections and the next higher inspections upto the 10 hour schedule, and not fly the aircraft in case any abnormality is noticed. After every flight the pilot shall record in the log book any defects noticed during the flight. Before undertaking any flight the pilot shall ensure that the defects recorded in the log book have been attended to and rectified and that the aircraft is safe to undertake the flight.

5.5 The higher than 10 hours inspection schedules and overhaul of the aircraft, engine and its components shall be carried out by appropriately licensed AMEs or by persons authorised by the DGCA.

5.6 A log book shall be maintained by the operator in order to keep a record of the flying, modifications and repair work carried out on the aircraft. All columns of the log book should be filled up by the pilot and signed by him after every flight.

6. SECURITY ASPECTS

6.1 The aircraft shall not be sold or disposed of in any way to any person or firm without production of a certificate from the DGCA. The certificate shall

granted by the DGCA after verifying the antecedents of the prospective buyers from the local police authorities.

6.2 Before registration of aircraft in the name of any person or firm full particulars thereof shall be obtained in the prescribed proforma and security vetting thereof shall be completed.

6.3 One time security clearance of the manufacturer, owner, operator shall be obtained from the local police authorities before initial commencement of the operations.

6.4 The aircraft shall not be flown over the entire air space over the territory of Delhi, Jammu & Kashmir and areas falling within 50 Km from international borders. (The sea coast line will be considered as Indian International border in addition to geographical international border). The aircraft shall also not be flown over an assembly of persons or over congested areas or restricted areas including cantonment areas, defense installations etc. unless prior permission in writing is obtained from appropriate authorities. The restricted areas are listed in Annex VII of this CAR in consultation with the Ministry of Home Affairs.

6.5 The owner/operator shall be responsible for the safe custody, security and access control of the aircraft.

6.6 Normal security measures shall be ensured at the place of operation before each flight.

6.7 No remote sensing appurtenances except those required for the safe operation of the aircraft shall be carried in the aircraft.

6.8 The aircraft shall be parked at the registered airports/ approved places only.

6.9 Severe penalties/ action will be taken against the defaulters.

The proforma for furnishing particulars for the security clearance of the applicants is given in Annex II.

Sd/-
(Dr. Nasim Zaidi)
Director General of Civil Aviation

ANNEX I

APPLICATION FOR ISSUE OF PERMIT TO FLY FOR MICROLIGHT AIRCRAFT

GOVERNMENT OF INDIA

Application for Permit to Fly for Microlight Aircraft

This form when completed, should be forwarded to the Director General of Civil Aviation, Opposite Safdarjung Airport, New Delhi and must be accompanied by the documents specified below.

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1. Name of owner

2. Address (in full)

3. Nationality

4. Name and address of applicant. (To be completed in cases in which the applicant is not the owner of the aircraft).

5. Constructor of Aircraft

6. Nationality & Registration Marks

7. Description of Aircraft:

   (a) Type (Name & Description)

   (b) Constructor's No.

   (c) Type of engine

   (d) Maximum number of persons to be carried including crew

   (e) Maximum All Up Weight (Kg.)

   (f) Wing Area (Sq. Meters)

8. Area of operation of Microlight Aircraft as cleared by AAI/ appropriate ATC authority

9. Name and Licence Nos. of pilots who may fly this aircraft. (Microlight pilot licence holders)

10. Purpose for which the aircraft may fly

I hereby declare that the above particulars are true in every respect. I am aware of the rules and regulations promulgated by the DGCA for the operation and maintenance of microlight aircraft and undertake to abide by them.

Date Signature of the Applicant
Place

Documents which must accompany an application for the issue of a Permit to Fly for the Microlight Aircraft.

1. Certificate of Erection signed by an Aircraft Maintenance Engineer holding current Indian A.M.E. Licence in Category 'A' confirming that aircraft has been assembled as per manufacturer's instructions.

2. Certificate of Flying Test signed by a pilot holding a current C.P.L. and specially authorised by DGCA, quoting DGCA authorisation number and date.

3. Document certifying the clearance of area of operation from AAI/appropriate ATC authority.

4. Operator's hand book or aircraft flight manual.

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ANNEX II

PROFORMA DETAILING PARTICULARS FOR VERIFICATION BY APPLICANT FOR MANUFACTURE, PURCHASE, REGISTRATION AND OPERATION OF MICROLIGHT AIRCRAFT/HOT AIR BALLOONS

WARNING : SUPPRESSION OF MATERIAL OR FACTUAL INFORMATION IN THIS FORM SHALL BE A DISQUALIFICATION.

1. (a) Name of Applicant in full (in block letters)

Surname Name Aliases, if any

(b) Parentage :

Surname Name Aliases, if any

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2. Present address in full, including Police Station:

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3. (a) Permanent address in full, including Police Station:

(b) If originally a resident of a country other than India, address in that country and the date of migration to India:

4. Nationality :

5. Date and place of birth, with full address:

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6. Profession/occupation after the age of 18 years :

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7. Particulars of places, with full address, where the applicant has resided for more than a year during the preceding ten years:

8. (a) Particulars of relatives - Indian and non-Indians working in foreign Missions, foreign organisations including foreign concerns, with full details :

(b) Particulars of relatives living abroad with their full address:

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9. Is the applicant or any of his relatives a member of social or cultural organisation which is associated with or assisted by a foreign Mission or organisation?

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10. Has the applicant visited a foreign country recently? If so, details thereof:

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11. Has the applicant ever been arrested, prosecuted, kept under detention, or convicted by a court? Give details :

Certified that the information furnished in this proforma is correct and complete to the best of my knowledge and belief. I am aware that furnishing of wrong information or suppression of factual or material information will dis-entitle me from grant of the licence/permit.

Date: Signature of the Applicant.

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ANNEX III

DOCUMENTS REQUIRED FOR REGISTRATION OF MICROLIGHT AIRCRAFT

1. Registration fee as per Rule 133 C in the form of a bank draft payable to PAO, DGCA, MCA, New Delhi.

2. Application for registration duly filled (form CA-28).

3. User's manual

4. Maintenance manual

5. An undertaking to the effect that the owner and operator shall be fully responsible for the safe custody, security and access control of the aircraft.

6. Test reports for flight and ground tests to which the aircraft conforms.

7. Weight and balance report

8. Compliance certificate of the manufacturer certifying that the aircraft has been manufactured following the standard aeronautical manufacturing processes (not required for experimental aircraft.)

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ANNEX IV

USER'S MANUAL (OPERATOR'S HAND-BOOK)

The user's manual is mandatory for all microlight aircraft of series production.

The manual should contain clear and precise instructions which should be clearly followed by the user. In general, the manual should contain description about the following:

1. All necessary details on the operation of the aircraft and its equipment and information regarding the performance, maneuverability and stability of the aircraft.

2. Specific operating conditions and the associated limits for the aircraft without giving consideration to the type or the runway to be used for the operation.

3. In general, the user's manual should contain paragraphs as per guidelines given below:

3.1 Weight Limitations

3.1.1 Empty Weight : It is the weight of the aircraft structure excluding the weight of all removable equipment and usable fuel and oil quantities but including fuel and oil quantities both trapped and unusable.

3.1.2 Maximum All Up Weight : It is the maximum weight to which the aircraft has been subjected during flight tests and ground tests. The Max. AUW should be laid down in a way that it is higher than the aircraft empty weight together with full fuel and oil tanks and 75 kgs. for each occupant seat.

3.2 Maximum Weight Performance

3.2.1 Stalling Speed : It is the minimum speed at which level flight can be maintained.

3.2.2 Take off

- Take off run
- Take off distance (to clear 15 m obstacle)

3.2.3 Climb

- Take off climb

3.2.4 Landing

- Landing distance (from 15 m obstacle)
- Landing roll

3.2.5 Speed associated with maximum aerodynamic efficiency.

3.3 Maneuverability and Stability

3.3.1 Behaviour of the aircraft with respect to weight

3.3.2 Specific headwind/crosswind limits for take off and landing.

3.4 Structure

3.4.1 Load factors

- negative
- positive

3.4.2 Maximum Load

- on the movable surface
- on the flying controls

3.5 Engine and Propeller

- engine maximum power
- duration of maximum power
- propeller maximum power
- reduction type and ratio of reduction.

3.6 Assembly and Disassembly procedures

3.7 List of controls and specific operating instructions for each item.

3.8 Fuel

3.9 List of equipment and instruments including radio and specific instructions for the user on these items.

3.10 Optional equipment :

- List of optional equipment
- Effect of assembly of optional equipment on the limitations indicated in the manual and associated instructions for use.

3.11 Emergency procedures.

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ANNEX V

FLYING TESTS AND GROUND TESTS

1. The components concerned with airworthiness and relevant to safety should be tested by a series of flying tests and ground tests. The program of tests should be mentioned in the Test documents required for registration of the microlight. The manufacturer should furnish these documents to the user.

2. The minimum test program should comprise of the following:

2.1 Flying tests for determining

a) Maximum weight performance described in the user's manual
b) Maneuverability and stability of aircraft in relation to its weight during the following phases of flight:

-take-off and landing (with and without power)
-climb
-level flying
-dive
-behaviour of the microlight during vibrations.

2.2 Ground tests for determining the technical characteristics of materials used in bending, tension, torsion loads and the scatter factor/margins chosen for taking into account the variation in material characteristics.

2.3 Flying tests or bench tests for determining the behaviour of the engine determined for a fixed period of utilisation.

3. The manufacturer shall be responsible for the execution of the test flight program. In case of a microlight aircraft imported into India, the owner shall be responsible for conducting the test flights by qualified pilots.

3.1 All test results should be compiled in a statement stating the date and place of the tests carried out alongwith the parameters which influenced the results.

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ANNEX VI

COMPLIANCE CERTIFICATE FOR MICROLIGHT AIRCRAFT

REGN. MARKING VT-

1. Type of Microlight aircraft
2. Manufacturer
3. Empty weight with equipment
4. Maximum all up weight
5. Accommodation (crew + passenger)
6. Engine Type
7. Manufacturer of the engine
8. Power rating
9. Wing Area
10. Span

I hereby certify that the above microlight aircraft has been manufactured in accordance with the standards of airworthiness.

I also certify that the flying and ground testing of the aircraft has been carried out in accordance with Civil Airworthiness Requirements Series 'F' Part XII Issue II and the aircraft is declared safe for its intended operations.

Authorised Signatory
on behalf of the manufacturer

Date:
Place:

ANNEX VII

RESTRICTED AREAS AS IDENTIFIED BY THE MINISTRY OF HOME AFFAIRS

Areas of Rangareddi district (Andhra Pradesh)

Defense Areas

1. Air Force Academy, Dundigal
2. Air Force Station, Hakimpet
3. Nuclear Fuel Complex, Kusaiguda
4. Electronic Corpn. of India Ltd. Kusaiguda
5. Hindustan Aeronautics Ltd. Balanagar
6. National Remote Sensing Agency, Balanagar
7. Indian Immonological, R' Puram
8. Bharat Electronics Ltd. Nacharam
9. Research Centre Immarath, Padadisharif
10. R.F.C. Moulali

CONGESTED AREAS

1. Jeedimetla 2. Balanagar 3. Fathenagar
4. Ferozguda 5. Kukatpalli 6. Saroonagar
7. Sanatnagar 8. Uppal 9. Malkajgiri
10. Chandanagar 11. Tandur

CANTONMENT AREAS

Alwal, Bolarum
Ramakrishnapuram
Golconda lines

Areas falling within a radius of 30km of the the twin cities of Hyderabad and Secunderabad.

ANNEX - VIII

APPLICATION FOR ISSUE OF DESIGN ACCEPTANCE OF MICROLIGHT AIRCRAFT

(1) Manufacturer

(2) Certification Basis

(3) Definition of basic standard

(4) Compliance with the Micro light Definition

(a) MTOW
(b) No. of Seats
(c) Maximum Wing Loading
(d) Permitted range of pilot weights
(e) Typical empty weight
(f) ZFW + 172 kg crew + 1hr Kg. fuel
(g) ZFW + 86 kg pilot + full fuel (45 litres, 32 kg)
(h) Max allowed ZFW at initial permit issue

(5) Powerplants

Designation
Engine Type
Reduction Gear
Exhaust System
Intake System
Propeller Type
Propeller Dia x Pitch
Noise Type Cert. No.

(6) Mandatory Limitations

(a) Maximum Take-Off Weight
(b) Cockpit Loadings Min

Max
(c) Never Exceed Speed

(d) Maneuvering Speed

(e) Permitted Maneuvers

(f) Fuel contents (max usable)

(g) Power Plant

Engine

Max RPM
Max CHT
Max EGT
Fuel Spec
Engine Oil Spec
Gearbox Oil Spec
Fuel / Oil Mix
Max Coolant Temp
Max Oil Pressure
Min Oil Pressure
Oil Temperature

(7) Instruments Required

(8) Control Deflections

(9) Pilots Notes, Maintenance Manuals, References:

(10) Mandatory Modifications/Service Bulletins/ Airworthiness Directives Etc..

(11) Minimum Performance at Max Takeoff weight

(Authorized Signatories)

ANNEX - IX

Model content of procedure manual for organisation involved with design and development of microlight aircraft.

Part 1. Organisation

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 organisation (including locations)
1.7 Scope of work (with identification of type and models of products)
1.8 Organisation charts
1.9 Human resources
1.10 Management staff

Part 2. Procedures

2.1 Management of changes to type design and design of repairs
- configuration control
- approval of modification

2.2 Control of design subcontractors
2.3 Collecting/Investigating of failures, malfunctions and defects
2.4 Co-ordination with production
2.5 Documentation control
- in relations with the changes and repairs
- in relation with failures/malfunctions and defects (i.e. Service Bulletins)

2.6 Record keeping

ANNEX X

Contents of Engineering Organisation Manual and Production Inspection System

Engineering Organisation Manual

1. A statement signed by the owner of the production organisation confirming that the Engineering Organisation and any associated manuals which define the approved organization's compliance with this CAR will be complied with at all times.
2. The title(s) and names of managers administering the manufacturing activity
3. The duties and responsibilities of the manager overseeing the manufacturing activities
4. An organizational chart showing associated chains of responsibility of the managers
5. A list of certifying staff approved by the organisation
6. A general description of man-power resources.
7. A general description of the facilities
8. A general description of the production organization's scope of work
9. Description of production inspection system.
10. The procedure for the notification of organizational changes to DGCA.
11. Procedure for the amendment of Engineering organisation manual

Production Inspection System

(i) Design and production document issue, approval, or change.

(ii) Vendor and subcontractor assessment and control.

(iii)Verification of incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data.

(iv) Manufacturing processes.

(v) Inspection and testing, including production flight tests and certification.

(vii) Non conforming item control

(viii) Identification and traceability.

(ix) Airworthiness coordination with the designer / design organisation.

(x) Records completion and retention.

(xi) Calibration of tools, jigs, and test equipment

(xii) Personnel qualification and competence.

(xiii) Handling, storage and packing.

(xiv) Internal quality audits and resulting corrective actions.

END