

DGCA GROUND TRAINING • AIR REGULATIONS

Airworthiness of Aircraft

Chapter 15 | ICAO Annex 8 & National Provisions (Indian Aircraft Rules)

ICAO **ANNEX 8**

Guidance: **Doc 9760**

Threshold: **5 700 kg**

4 Parts in Annex 8

For **CPL / ATPL** Students

Study Notes prepared for CPL / ATPL examination preparation — Ghost Aviator, DGCA Ground Instructor

8

ICAO ANNEX —
AIRWORTHINESS

6 (I)

COMPLEMENTARY
ANNEX

5 700 kg

MCTOM
APPLICABILITY

4

PARTS OF ANNEX 8

These notes break down every clause of the chapter into plain instructional language for student pilots — while keeping **every exact regulatory value, limit and rule** unchanged. Colour-coded boxes are used throughout: **Blue** = **definitions/concepts**, **Green** = **procedures & allowances**, **Red** = **strict limitations & prohibitions**, **Amber** = **instructor & exam tips**.

◆ What This Chapter Covers

1. Introduction — Airworthiness & C of A
2. Compatibility — Annex 8 vs Annex 6
3. International Obligations & Recognition
4. National Codes vs ICAO Standards
5. Scope of Annex 8 & Doc 9760
6. Type Certificate
7. Applicability & Structure of Annex 8
8. Special Security Features
9. National Provisions (DGCA / Aircraft Rules)
10. Question Bank with Explanations
11. Rapid Revision Snapshot

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1

Introduction — Airworthiness & the Certificate of Airworthiness

The whole chapter sits on a single safety idea: an aircraft is only allowed to fly if it has been **designed, constructed and operated** in line with the proper airworthiness requirements. The authority that sets and enforces those requirements for a particular aircraft is the **State of Registry** of that aircraft.

I KEY DEFINITIONS

- **Airworthiness** — the condition of an aircraft being suitable and fit to fly safely.
- **Certificate of Airworthiness (C of A)** — the document issued to an aircraft **declaring that the aircraft is fit to fly**. It is the formal "fitness certificate" of the machine.
- **State of Registry** — the State on whose register the aircraft is entered; it owns the responsibility for that aircraft's airworthiness requirements.

In simple terms: **compliance with airworthiness requirements → the aircraft earns a C of A → the C of A declares it fit to fly**. Without that declaration, the machine is not permitted in the air.

★ INSTRUCTOR'S TIP

Remember the logic chain — *Design & Build correctly → Operate per requirements → Issue C of A → "Fit to fly"*. The C of A is about the **individual aircraft**; keep it separate in your mind from the **Type Certificate** (covered in Section 6), which is about the **design of the whole type**.

2

Compatibility — Annex 8 vs Annex 6, Part I

Airworthiness does not live in isolation. The Standards of **Annex 6, Part I** — which deal with **aeroplane performance operating limitations** — are described as **complementary** to the airworthiness Standards of **Annex 8**. Both Annexes state **broad objectives**, but they look at the aircraft from two different angles.

I TWO ANGLES ON THE SAME AIRCRAFT

Annex 8 deals with airworthiness from the **engineering point of view**. **Annex 6 (Part I)** covers the subject from the **operational and safety point of view**. Together they form one complete picture.

Aspect	ICAO Annex 8	ICAO Annex 6, Part I
Subject	Airworthiness of Aircraft	Operation of Aircraft (International Commercial Air Transport — Aeroplanes)
Point of view	Engineering point of view	Operational & safety point of view
Core content	Airworthiness design & construction Standards	Aeroplane performance operating limitations
Nature	Both state broad objectives • the two are complementary to each other	

3 International Obligations & Recognition of a C of A

◆ Protecting Visiting Aeroplanes

The ICAO Council has urged **Contracting States** not to impose on **visiting aeroplanes** operational requirements other than those established by the **State of Registry** — **provided** those State-of-Registry requirements are **not lower than the Standards of Annex 6, Part I**.

✓ WHAT THIS MEANS IN PRACTICE

A foreign aeroplane visiting another State should be judged by **its own State of Registry's rules** — not by a fresh set of local rules — as long as the State of Registry's rules at least meet the Annex 6, Part I floor. This avoids burdening international operations with duplicate requirements.

◆ Recognising a Foreign Airworthiness Certificate

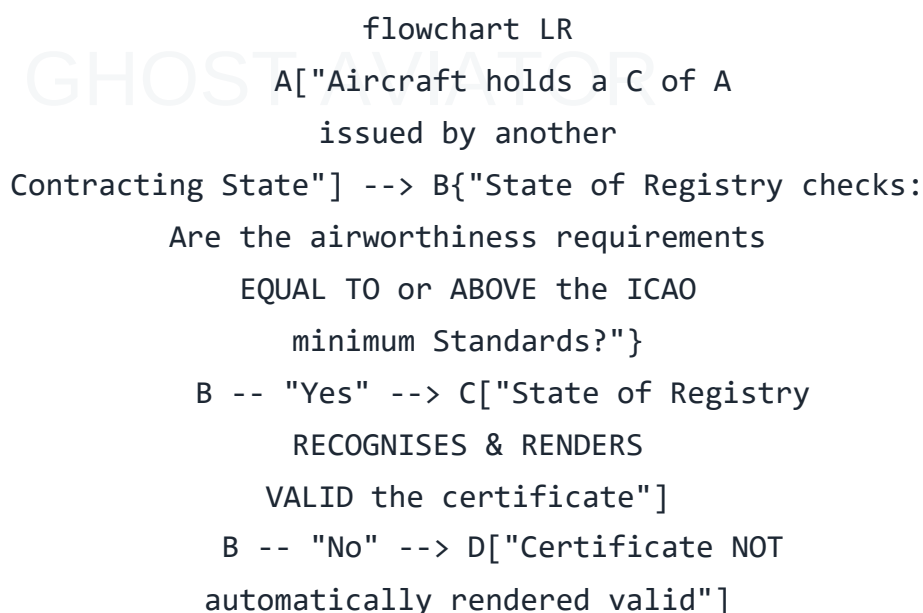
To make it easy to **import, export, lease, charter or interchange** aircraft and to support international air navigation, ICAO places a duty on the **State of Registry to**

recognise and render valid an airworthiness certificate issued by another Contracting State.

! THE STRICT CONDITION FOR RECOGNITION

A foreign C of A is recognised **only on the condition** that the airworthiness requirements under which it was issued or rendered valid are **equal to or above the minimum standards** that ICAO may establish from time to time. If the standards fall **below** the ICAO minimum, recognition does not follow automatically.

FIGURE 3.1 — RECOGNITION OF A FOREIGN CERTIFICATE OF AIRWORTHINESS



4

National Codes vs ICAO Standards

ICAO is realistic about its own limits. It is **recognised that ICAO Standards would not replace national regulations**. ICAO Standards set the broad framework; the fine, detailed work of certifying individual aircraft needs a fuller, more detailed national code.

I WHY NATIONAL CODES ARE NEEDED

National codes of airworthiness — containing the **full scope and extent of detail** that an individual State considers necessary — are required as the **basis for the certification of individual aircraft**. ICAO's broad Standards alone are not detailed enough to certify a specific machine.

✓ EACH STATE'S FREEDOM OF CHOICE

Every State is free to either —

1. **Develop** its own comprehensive and detailed code of airworthiness; **or**
2. **Select, adopt or accept** a comprehensive and detailed code already established by another Contracting State.

5

Scope of Annex 8 & the Airworthiness Technical Manual

Annex 8 includes **broad Standards** which define — for application by the **national airworthiness authorities** — the **minimum basis** for the recognition by States of Certificates of Airworthiness, so that aircraft of other States can fly **into and over their territories**.

I PURPOSE OF ANNEX 8 STANDARDS

By setting that minimum basis, the Standards achieve — among other things — the **protection of other aircraft, third parties and property**.

✓ WHERE THE DETAILED GUIDANCE LIVES

The **level of airworthiness** to be maintained by a national code is indicated by the broad Standards of Annex 8, **supplemented where necessary** by guidance material in ICAO's **Airworthiness Technical Manual — Doc 9760**.

★ EXAM TIP — LOCK THE NUMBERS

Two reference labels are frequently tested: **Annex 8** = Airworthiness of Aircraft, and **Doc 9760** = Airworthiness Technical Manual. Memorise the document number exactly.

6 Type Certificate

While the C of A applies to an individual aircraft, the **Type Certificate** applies to the **design of a whole type** — and it is issued by a different authority.

I TYPE CERTIFICATE — DEFINITION & ISSUING AUTHORITY

The **State of Design**, upon receipt of **satisfactory evidence** that the aircraft type (or **engine type** or **propeller type**, if certificated separately) complies with the design aspects of the appropriate airworthiness requirements, shall issue a **Type Certificate**. The Type Certificate:

- **Defines the type design**, and
- **Signifies its approval**.

Certificate	Issued / Acted on by	What it does
Type Certificate	State of Design	Defines the type design of the aircraft / engine / propeller and signifies its approval — applies to the design of the type .
Certificate of Airworthiness	State of Registry (Director-General)	Declares an individual aircraft fit to fly / in a condition for safe operation.
Special Flight Permit	Director-General	May be issued, on application, to permit a flight while the C of A is suspended (see Section 9).

★ **INSTRUCTOR'S TIP — DON'T CONFUSE THE "STATES"**

State of Design → issues the **Type Certificate**. **State of Registry** → responsible for the **C of A** and continuing airworthiness. A common exam trap is swapping these two.

7 Applicability & Structure of Annex 8

◆ Applicability of the Technical Standards

! **STRICT APPLICABILITY LIMIT — MEMORISE EXACTLY**

At present, the technical Standards dealing with the **certification of aeroplanes** are **limited** to:

Multi-engined aeroplanes of OVER 5 700 kg maximum certificated take-off mass.

Note the precise wording: "**over**" 5 700 kg (not "up to"), "**multi-engined**", and the mass is the **maximum certificated take-off mass**.

These technical Standards include requirements relating to:

- **Performance and flying qualities**
- **Structural design and construction**
- **Engine and propeller design and installation**
- **Systems and equipment design and installation**, and operating requirements

◆ The Four Parts of Annex 8

Annex 8 is divided into **four parts**:

Part	Content
Part I	Definitions
Part II	Procedures for certification and continuing airworthiness of aircraft
Part III	Technical requirements for the certification of new large aeroplane designs
Part IV	Helicopters

FIGURE 7.1 — STRUCTURE OF ICAO ANNEX 8

```

flowchart TD
    X["ICAO ANNEX 8  
Airworthiness of Aircraft"]
    X --> P1["PART I  
Definitions"]
    X --> P2["PART II  
Procedures for Certification  
& Continuing Airworthiness"]
    X --> P3["PART III  
Technical Requirements –  
Certification of New Large  
Aeroplane Designs"]
    X --> P4["PART IV  
Helicopters"]

```

★ MEMORY HOOK

"Def – Cert – Design – Heli" → Part I Definitions, Part II Certification & continuing airworthiness procedures, Part III new large aeroplane Designs, Part IV Helicopters.

8 Special Security Features

Following the events of **hijacking and terrorist acts** on board aircraft, **special security features** have been built into aircraft design to improve the protection of the

aircraft.

✓ SECURITY FEATURES BUILT INTO DESIGN

These features include:

- Special features in **aircraft systems**;
- Identification of a **least-risk bomb location** on the aircraft;
- **Strengthening of the cockpit door**, and of the **ceilings and floors** of the cabin crew compartment.

9 National Provisions (DGCA / Indian Aircraft Rules)

This part of the chapter moves from the **international** ICAO framework to the **national** rules administered by the **Director-General** (DGCA). It covers how a C of A is issued, modified, suspended, cancelled and revalidated.

◆ 9.1 Issue of C of A / Special C of A / Airworthiness Review Certificate

✓ WHO APPLIES, AND TO WHOM

The **owner or operator** of an aircraft may apply to the **Director-General** for —

- the issue of a **certificate of airworthiness** or a **special certificate of airworthiness** for the aircraft; **or**
- the **validation** of a certificate of airworthiness issued **elsewhere** for that aircraft.

I THE TWO CONDITIONS FOR ISSUE

The Director-General may issue a C of A or special C of A in respect of an aircraft **when**:

- **(a)** the applicant **furnishes the documents or other evidence** relating to the airworthiness of the aircraft, **as may be specified by the Director-General**; **and**
- **(b)** the Director-General is **satisfied** that the aircraft is **airworthy or in a condition for safe operation**.

Both conditions (a) *and* (b) must be met — they are joined by "and", not "or".

FIGURE 9.1 — PROCESS FOR ISSUE OF A CERTIFICATE OF AIRWORTHINESS

flowchart TD

```
A["Owner / Operator of the aircraft"] -->| "Applies" | B["Director-General (DGCA)"]
B --> C{"Both conditions checked"}
C --> D["Condition (a)  
Applicant furnishes documents /  
evidence of airworthiness  
as specified by the DG"]
C --> E["Condition (b)  
DG satisfied the aircraft is  
airworthy OR in a condition  
for safe operation"]
D --> F{"Conditions (a) AND (b)  
both satisfied?"}
E --> F
F -- "Yes" --> G["C of A / Special C of A  
ISSUED"]
F -- "No" --> H["Certificate NOT issued"]
```

◆ 9.2 Modification and Repairs

! PROHIBITION — MODIFICATION / REPAIR AFFECTING SAFETY

A person **shall NOT** carry out any **modification or repair affecting the safety** of any aircraft that holds a valid certificate of airworthiness — **unless**:

- he has been **required to do so** in pursuance of these rules; **or**
- he has obtained the **prior approval of the Director-General**.

★ INSTRUCTOR'S TIP

The key trigger phrase is "**affecting safety**". Such a modification or repair is permitted in only two situations — when the rules *require* it, or when the DG has given *prior* approval. "Prior" means **before** the work, not after.

◆ 9.3 Suspension or Cancellation — When a C of A is "Deemed Suspended"

A C of A or special C of A is **deemed to be suspended** automatically when an aircraft falls into any one of the following four situations:

! FOUR GROUNDS FOR DEEMED SUSPENSION

- **(a) Ceases or fails to conform** with the requirement of the rules — in respect of **operation, maintenance, modification, repair, replacement, overhaul, process or inspection** applicable to that aircraft; **or**
- **(b) Is modified or repaired otherwise than in accordance** with the provisions of the rules; **or**
- **(c) Suffers major damage; or**
- **(d) Develops a major defect** which would affect the safety of the aircraft or its occupants in **subsequent flights**.

FIGURE 9.2 — FOUR GROUNDS ON WHICH A C OF A IS DEEMED SUSPENDED

flowchart TD
S["C of A is DEEMED SUSPENDED
when the aircraft..."]
S --> A["(a) Ceases / fails to conform
with the rules – operation,
maintenance, modification, repair,
replacement, overhaul,
process or inspection"]
S --> B["(b) Is modified or repaired
OTHERWISE THAN per
the provisions of the rules"]
S --> C["(c) Suffers
MAJOR DAMAGE"]
S --> D["(d) Develops a MAJOR DEFECT
affecting safety of the aircraft
/ occupants in subsequent flights"]

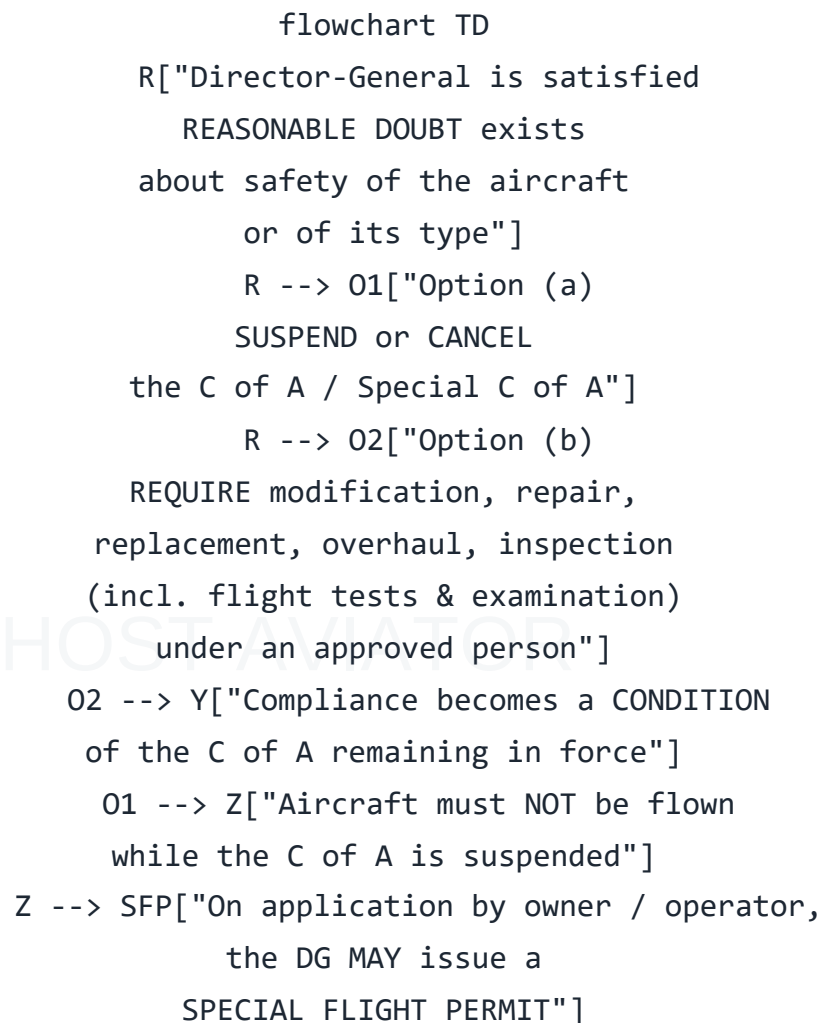
◆ 9.4 Director-General's Powers on "Reasonable Doubt"

If, **at any time**, the Director-General is satisfied that **reasonable doubt exists** as to the safety of an aircraft, or as to the safety of the **type** to which that aircraft belongs, he may take either of the following actions:

✓ THE DG'S TWO OPTIONS

- **(a) Suspend or cancel** the C of A or special C of A in respect of the aircraft; **or**
- **(b) Require** the aircraft, an aircraft component, or an item of equipment to undergo **modification, repair, replacement, overhaul, inspection** — including **flight tests and examination** — under the supervision of an **approved person** as the DG may specify, as a **condition of the C of A remaining in force**.

FIGURE 9.3 — DG'S ACTION ON REASONABLE DOUBT & THE SPECIAL FLIGHT PERMIT



◆ 9.5 Prohibition on Flying & the Special Flight Permit

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! ABSOLUTE PROHIBITION

An aircraft **shall NOT be flown** during any period for which its C of A or special C of A is **suspended or deemed to be suspended**.

✓ THE EXCEPTION — SPECIAL FLIGHT PERMIT

Where the C of A or special C of A is suspended (or deemed suspended), the Director-General **may, upon an application by the owner or operator**, issue a **special flight permit**. This is the lawful route to move/fly the aircraft despite the suspension.

★ EXAM TIP — "MAY" VS "SHALL"

The aircraft **"shall not be flown"** — that is absolute. But the DG **"may"** issue a special flight permit — that is discretionary, and only on the owner/operator's **application**. Watch these modal words carefully in exam questions.

◆ 9.6 Flight Manual

I ENDORSEMENT OF THE C OF A

Where a **flight manual** is required to be kept for an aircraft in accordance with the provisions of these rules, the **Director-General shall endorse** the certificate of airworthiness of the aircraft **accordingly**.

◆ 9.7 Instruments and Equipment

I FITMENT REQUIREMENT

Every aircraft **shall be fitted and equipped** with the **instruments and equipment — including radio apparatus and special equipment** — as may be specified **according to the use and the circumstances** under which the flight is to be conducted.

★ INSTRUCTOR'S TIP

Note that the required instruments/equipment are **not fixed** — they depend on the **type of operation** and the **circumstances of the flight** (e.g. day/night, VFR/IFR). The fitment list scales with how and where the aircraft is used.

10 Question Bank — With Worked Explanations

SELF-TEST All five chapter questions, the correct option, and the reasoning behind each answer.

Question 1

The continuing airworthiness of an aircraft, according to ICAO Annex 8, shall be determined by:

A ICAO

B The operator's state

C The state of registry ✓ Correct

Why C: Responsibility for an aircraft's airworthiness — including its **continuing airworthiness** — rests with the **State of Registry** (the State on whose register the aircraft is entered). ICAO only sets broad Standards; it does not itself determine the airworthiness of an individual aircraft.

Question 2

According to ICAO Annex 8, a certificate of airworthiness shall be renewed or shall remain valid subject to the:

A Laws of the state of registry and operation

B Laws of the state of registry ✓ Correct

C Requirements laid down by ICAO

Why B: The C of A is tied to the **State of Registry**. Its renewal and continued validity are governed by the **laws of the State of Registry** — the same State that is responsible for the aircraft's airworthiness requirements. The State of operation does not control the C of A's validity.

Question 3

The technical standards dealing with certification of aeroplanes are at present limited to multi-engine aircraft of:

A Up to 5700 Kg maximum certificated take-off and landing mass

B Over 5700 Kg maximum certificated take-off mass ✓ Correct

C Up to 5700 Kg maximum certificated take-off mass

Why B: The technical Standards apply to **multi-engined aeroplanes of OVER 5 700 kg maximum certificated take-off mass**. The trap options use "up to" instead of "over", and one adds "and landing mass" — the rule speaks only of **take-off mass**.

Question 4

When an aircraft has sustained damage, the aircraft shall be allowed to resume its flight, if:

A The state of registry, the state of design and the state of manufacture consider that the aircraft is still airworthy

B The state of manufacture informs the state of registry that the damage sustained is of a nature such that the aircraft is still airworthy

C The state of registry considers that the damage sustained is of a nature such that the aircraft is still airworthy ✓ Correct

Why C: Airworthiness decisions for an aircraft are made by its **State of Registry**. After damage, it is the **State of Registry** that judges whether the damage is of a nature that leaves the aircraft still airworthy — and only then may the flight resume. Options needing the State of Design or State of Manufacture to also decide are incorrect.

Question 5

Jet Airways flight is to take off from London to Bosnia. C of A will be as per the rules of:

A UK

B India ✓ Correct

C Bosnia

Why B: The C of A always follows the **State of Registry**, not the departure or destination State. Jet Airways is an Indian operator with aircraft registered in **India**, so the C of A is governed by **India's** rules — even though the flight operates between London (UK) and Bosnia.

Q1

C

Q2

B

Q3

B

Q4

C

Q5

B

**NUMBERS & LABELS TO MEMORISE**

- **Annex 8** — Airworthiness of Aircraft
- **Annex 6, Part I** — complementary; operating limitations
- **Doc 9760** — Airworthiness Technical Manual
- **5 700 kg** — "over" this MCTOM, multi-engined aeroplanes
- **4 Parts** — Definitions / Certification & Continuing Airworthiness / New Large Aeroplane Designs / Helicopters

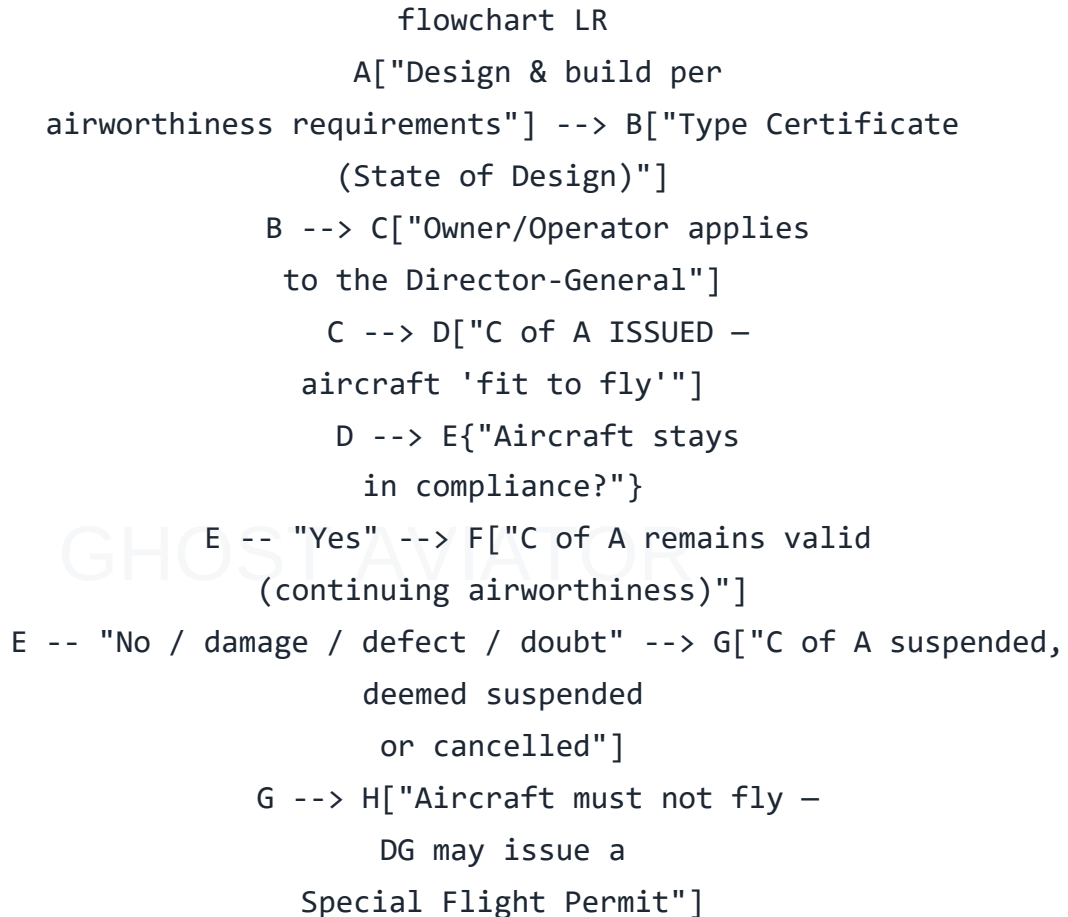
**WHO DOES WHAT**

- **State of Design** → issues the **Type Certificate**
- **State of Registry** → C of A & continuing airworthiness
- **Owner / Operator** → applies for C of A / special C of A / validation / special flight permit
- **Director-General** → issues, endorses, suspends, cancels; may issue a special flight permit

**HARD LIMITS & PROHIBITIONS — NEVER FORGET**

- No modification/repair **affecting safety** on a C of A aircraft — unless **required by rules** or with **prior DG approval**.
- Aircraft **shall NOT be flown** while its C of A is suspended or deemed suspended.
- Foreign C of A recognised **only if** standards are **equal to or above** the ICAO minimum.
- C of A **deemed suspended** on 4 grounds: non-conformity • improper modification/repair • **major damage** • **major defect** affecting subsequent flights.

FIGURE 11.1 — THE LIFE-CYCLE LOGIC OF A CERTIFICATE OF AIRWORTHINESS



Airworthiness of Aircraft — ICAO Annex 8 & National Provisions | DGCA CPL / ATPL Ground Training Notes

Prepared by Ghost Aviator • For instructional use • Always refer to the current ICAO Annex 8 and the latest Aircraft Rules for authoritative regulatory text.

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