

## Airworthiness

### Airplane:

Manufacturer designs and builds an airplane, then FAA issues airworthiness certificate. Then it has to be kept that way. What might happen that it wouldn't be kept that way? Something has to be redesigned or a service bulletin comes out. How does the pilot play a role in this? Check logbooks, preflight inspection.

"Airworthy" per NTSB decisions is defined as:

1. Airplane conforms to the type-certificate as modified by STC and ADs. This seems more to help the FAA prove violations cases than to help pilots understand their responsibilities.
2. Airplane must be in condition for safe operation (PIC is responsible for determining this. 91.7).

Preflight begins in the airplane's logbooks. (airframe, engine and propeller)

- Logbook must contain "ok for return to service" endorsement after repairs or alterations are made. (91.407 (a)).
- Engine overhaul no later than manufacturer's recommended TBO\*
- Annual Inspection completed within previous 12 calendar months (can count as a 100-hour inspection)
- 100-hour inspection\* (91.409) (10 hours grace to relocate airplane to maintenance facility) *Watch out for 100-hour periodic AD – they have no grace.*
- All ADs must be complied with—no grace period. ([www.faa.gov](http://www.faa.gov))
  - One time AD -or-
  - Recurring AD (watch out for 100-hour AD)
- Transponder must be inspected within 24 calendar months (91.413)
- ELT inspection within 12 calendar months (91.207)
  - Does not apply if airplane is engaged in training operations within a 50 nm radius of airport.
  - Battery must be replaced when 1 hour of cumulative use or after 50% of useful life of battery. Date on ELT battery is controlling.
  - (Note: if ELT removed temporarily for service/repair, must be installed within 90 days.)
- For IFR flight: VOR check by pilot within 30 days (91.171) This may be in the airplane.
- For IFR flight: Static pressure system, altimeter & pressure altitude reporting system inspected within 24 months (91.411):

- Write down latest airplane weight and moment to compare with data in airplane. They should match.

### Airplane preflight inspection:

#### Inoperative Equipment:

1. Is it required by 91.205?
2. Is it indicated as “required” in the POH/AFM equipment list?
3. Does it cause a hazard under anticipated operating conditions?

If the answer to all 3 questions is “NO” then it can be placarded inoperative. (Remove inoperative component and placard controls)

If answer to any is “YES” – consult a mechanic.

If an MEL exists, follow MEL (91.213)

Fuel on board: to first point of intended landing plus alternate fuel of 30 minutes at cruise during day, 45 minutes at night.

#### Documents on board (AROW):

- **A**irworthiness Certificate (91.203) – this means that the airplane was airworthy on the day it was certificated. Effectively, renewed by inspections, IA signatures in logbooks, and pilot preflight inspections.
- **R**egistration (91.203) – Shows to whom the aircraft is registered at the FAA’s Aircraft Registry in the Aeronautical Center in Oklahoma City.
- **O**perating Limitations (91.9) – Approved Flight Manual, Pilot’s Operating Handbook, placards, markings in plain view of the pilot.
- **W**eight and Balance Data (FAR?) – Should match latest entry in aircraft logbook and provide sufficient information to compute a weight & balance problem.

### Pilot:

Presuming you're interested in the total airworthiness of the system ...you must include the pilot.

All available information including (91.103):

- Takeoff and landing distances required
- Runway lengths at airports of intended use
- For IFR or not in vicinity of airport:
  - Weather reports and forecasts
  - Fuel requirements
  - Alternates available
  - Known ATC traffic delays

Certified for operation

Current Medical for operation

3 takeoffs and landings within 90 days to carry passengers (full stop in tailwheel)

3 takeoffs and landings at night to full stop within 90 days to carry passengers at night

If IFR flight: pilot must have ICC or flown and logged within the past 6 months (6 month grace period before ICC is required):

Six approaches

Holding

Intercepting

Tracking

Satisfactorily completed a flight review within 24 months

Practical test counts

Completed phase of FAA Wings program counts

AIM: "IM SAFE" (8-1-2)

Illness

Medication (91.17)

Stress

Alcohol (8 hours since consumption or .04 blood alcohol level 91.17)

Fatigue (consider FAA limits for commercial operation)

Emotion

Now that you've completed all this, go back to AIM paragraph 8-1-2 and confirm you're not too fatigued to fly! 😊