Airworthiness requirements

1. Required instruments and equipment for day/night VFR (91.205)
   - **Day**
     - Tachometer
     - Oil pressure gauge
     - Manifold pressure gauge (for each altitude engine)
     - Airspeed indicator
     - Temperature gauge (for each liquid-cooled engine)
     - Oil temperature gauge (for each air-cooled engine)
     - Fuel gauge (for each tank)
     - Landing gear position indicator
     - Altimeter
     - Magnetic compass
     - ELT
     - Seat belts
   - **Night**
     - Fuses (one full set of fuses, or three spare fuses of each kind required)
     - Landing light (if for hire)
     - Anti-collision lights
     - Position lights
     - Source of electricity

2. Procedures and limitations for determining airworthiness of the airplane with inoperative instruments and equipment with and without a minimum equipment list (MEL) (91.213)
   - **With MEL**
     - All small rotorcraft, non-turbine powered airplanes, gliders, or lighter-than-air aircraft operated under part 91 are eligible to use the maintenance deferral provisions of section 91.213(d). However, once an operator requests an MEL, and a Letter of Authorization (LOA) is issued by the FAA, then the use of the MEL becomes mandatory for that aircraft. All maintenance deferrals must be accomplished in accordance with the terms and conditions of the MEL and the operator-generated procedures document.
     - The FAA considers an approved MEL to be a supplemental type certificate (STC) issued to an aircraft by serial number and registration number. It therefore becomes the authority to operate that aircraft in a condition other than originally type certificated.
     - With an approved MEL, if the position lights were discovered inoperative prior to a daytime flight, the pilot would make an entry in the maintenance record or discrepancy record provided for that purpose. The item is then either repaired or deferred in accordance with the MEL. Upon confirming that daytime flight with inoperative position lights is acceptable in accordance with the provisions of the MEL, the pilot would leave the position lights switch OFF, open the circuit breaker (or whatever action is
called for in the procedures document), and placard the position light
switch as INOPERATIVE.
-There are exceptions to the use of the MEL for deferral. For example,
should a component fail that is not listed in the MEL as deferrable (the
tachometer, flaps, or stall warning device, for example), then repairs are
required to be performed prior to departure. If maintenance or parts are not
readily available at that location, a special flight permit can be obtained
from the nearest FSDO. This permit allows the aircraft to be flown to
another location for maintenance. This allows an aircraft that may not
currently meet applicable airworthiness requirements, but is capable of
safe flight, to be operated under the restrictive special terms and
conditions attached to the special flight permit.

-Without MEL
- The deferral provision of section 91.213(d) is widely used by most
pilot/operators. Its popularity is due to simplicity and minimal paperwork.
When inoperative equipment is found during preflight or prior to
departure, the decision should be to cancel the flight, obtain maintenance
prior to flight, or to defer the item or equipment.
- Maintenance deferrals are not used for in-flight discrepancies. The
manufacturer’s AFM/POH procedures are to be used in those situations.
The discussion that follows assumes that the pilot wishes to defer
maintenance that would ordinarily be required prior to flight.
- Using the deferral provision of section 91.213(d), the pilot determines
whether the inoperative equipment is required by type design, the CFRs,
or ADs. If the inoperative item is not required, and the aircraft can be
safely operated without it, the deferral may be made. The inoperative item
shall be deactivated or removed and an INOPERATIVE placard placed
near the appropriate switch, control, or indicator. If deactivation or
removal involves maintenance (removal always will), it must be
accomplished by certificated maintenance personnel.

3. Requirements and procedures for obtaining a special flight permit
- A special flight permit is a Special Airworthiness Certificate issued authorizing
operation of an aircraft that does not currently meet applicable airworthiness
requirements but is safe for a specific flight. Before the permit is issued, an FAA
inspector may personally inspect the aircraft, or require it to be inspected by an
FAA certificated A&P mechanic or an appropriately certificated repair station, to
determine its safety for the intended flight. The inspection shall be recorded in the
aircraft records.
- The special flight permit is issued to allow the aircraft to be flown to a base
where repairs, alterations, or maintenance can be performed; for delivering or
exporting the aircraft; or for evacuating an aircraft from an area of impending
danger. A special flight permit may be issued to allow the operation of an
overweight aircraft for flight beyond its normal range over water or land areas
where adequate landing facilities or fuel is not available.
If a special flight permit is needed, assistance and the necessary forms may be obtained from the local FSDO or Designated Airworthiness Representative (DAR).

4. Airworthiness directives, compliance records, maintenance/inspection requirements, and appropriate records

-AD’s

- A primary safety function of the FAA is to require correction of unsafe conditions found in an aircraft, aircraft engine, propeller, or appliance when such conditions exist and are likely to exist or develop in other products of the same design. The unsafe condition may exist because of a design defect, maintenance, or other causes. 14 CFR part 39, Airworthiness Directives (ADs), defines the authority and responsibility of the Administrator for requiring the necessary corrective action. ADs are the means used to notify aircraft owners and other interested persons of unsafe conditions and to specify the conditions under which the product may continue to be operated.

-ADs may be divided into two categories:
  1. Those of an emergency nature requiring immediate compliance prior to further flight, and
  2. Those of a less urgent nature requiring compliance within a specified period of time.

-Airworthiness Directives are regulatory and shall be complied with unless a specific exemption is granted. It is the aircraft owner or operator’s responsibility to ensure compliance with all pertinent ADs. This includes those ADs that require recurrent or continuing action. For example, an AD may require a repetitive inspection each 50 hours of operation, meaning the particular inspection shall be accomplished and recorded every 50 hours of time in service. Owners/operators are reminded there is no provision to overfly the maximum hour requirement of an AD unless it is specifically written into the AD. To help determine if an AD applies to an amateur-built aircraft, contact the local FSDO.

-14 CFR part 91, section 91.417 requires a record to be maintained that shows the current status of applicable ADs, including the method of compliance; the AD number and revision date, if recurring; the time and date when due again; the signature; kind of certificate; and certificate number of the repair station or mechanic who performed the work. For ready reference, many aircraft owners have a chronological listing of the pertinent ADs in the back of their aircraft, engine, and propeller maintenance records.

-Annual

-Any reciprocating-engine powered or single-engine turbojet/ turbo-propeller powered small aircraft (12,500 pounds and under) flown for business or pleasure and not flown for compensation or hire is required to be inspected at least annually. The inspection shall be performed by a certificated airframe and powerplant (A&P) mechanic who holds an Inspection Authorization (IA), by the manufacturer, or by a certificated and appropriately rated repair station. The aircraft may not be operated unless the annual inspection has been performed within the preceding 12-calendar months. A period of 12-calendar months extends...
from any day of a month to the last day of the same month the following year. An aircraft overdue for an annual inspection may be operated under a Special Flight Permit issued by the FAA for the purpose of flying the aircraft to a location where the annual inspection can be performed. However, all applicable Airworthiness Directives that are due must be complied with.

**-100-hour**

All aircraft under 12,500 pounds (except turbojet/turbopropeller powered multiengine airplanes and turbine powered rotocraft), used to carry passengers for hire, must have received a 100-hour inspection within the preceding 100 hours of time in service and have been approved for return to service. Additionally, an aircraft used for flight instruction for hire, when provided by the person giving the flight instruction, must also have received a 100-hour inspection. This inspection must be performed by an FAA certificated A&P mechanic, an appropriately rated FAA certificated repair station, or by the aircraft manufacturer. An annual inspection or an inspection for the issuance of an Airworthiness Certificate may be substituted for a required 100-hour inspection. The 100-hour limitation may be exceeded by not more than 10 hours while en route to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service.

5. Procedures for deferring maintenance on aircraft without an approved MEL
   - See number 2, part 2