
14 Part 91 - Overview for Private Pilot Applicants

91.3 - PIC Responsibility/Authority. PIC has final authority and can deviate from any rule of part 91 in an emergency. If the FAA requests, they must send a written explanation of the deviation.

91.7 - Civil Aircraft Airworthiness. An airplane must be airworthy to operate, and that determination is PIC responsibility.

91.9 - Pilots must comply with flight manuals, markings, placards etc (if the type of aircraft has one) and U.S. register aircraft must have an N-number registration visible.

91.13 - Reckless operations are prohibited. What is “reckless?” Hard to say... don’t give the FAA something to come after you for.

91.15 - You can drop objects from airplanes BUT NOT if it creates hazards to persons or property.

91.17 - Prohibitions against alcohol and drugs. No flying within 8 hours of drinking (8hrs bottle to throttle) a BAC of .04 or greater, while under influence of drugs that can affect safety. Neither can they carry passengers who seem intoxicated, either by drugs or alcohol — unless in an emergency.

91.103 - The PIC must be familiar with *all available information* concerning a flight. This includes runway lengths, takeoff and landing distance required, weather reports and forecasts, fuel requirements, ATC delays and available alternates. Many pilots simplify this process using the acronym NWKRAFT.. (Notams, Weather, Known ATC Delays, Runways, Alternates, Fuel, Takeoff and Landing Distance).

91.105 - Your seatbelt and shoulder harness (if equipped) must be used during takeoff, landing and en-route. The shoulder harness is only required during takeoff and landing.

91.107 - PIC must ensure passengers are told to use, *and shown how to use*, their seatbelts and shoulder harnesses (if applicable). Infants (under 2) may be held. This section also details the placarding labels for child seats. There is no law mandating children use a child seat specifically.

91.111 - Nobody can operate an aircraft so close to another as to create a collision hazard. This is intentionally vague — “collision hazard” doesn’t prohibit formation flight if the pilots are properly skilled and trained. To fly formation, however, the PICs of each aircraft must arrange with each other and no *passengers for hire* may be aboard.

91.113 - Regardless of weather conditions, pilots have a responsibility to “see and avoid”. Aircraft in distress have right-of-way. Right-of-way is usually on the written exam, so study it!

91.113 applies to non-water operations. 91.115 applies to water operations.

- Aircraft in distress have right-of-way

- Category priority (highest to lowest) —> Balloon, Glider, Airship, Powered Parachute, Weight-Shift-Control, Airplane, Rotorcraft. When you think about this, it makes sense: Right-of-way is broken down by the maneuverability of the aircraft. A balloon, for example, is at the mercy of winds, whereas an airplane can turn.
- If approaching head on: Each aircraft turn right.
- Overtaking: The airplane being overtaken has right-of-way. Overtaking airplane should pass to the right.
- Landing: Aircraft on final or landing have right-of-way. When multiple airplanes are approaching, the lower has right-of-way but shall not take advantage of this to cut off others.

91.115 - When operating an aircraft on the water, keep clear of vessels.

Crossing: Aircraft or vessel to the right has the right-of-way

Head-on: Each shall turn right.

Overtaking: The vessel or aircraft being overtaken has right-of-way. Pass to the right

Circumstances must be factored in. Safety is the highest priority.

91.117 - Indicated airspeed is restricted to 250 knots below 10,000 MSL. Indicated airspeed is restricted to 200 knots within 4nm and 2500' of the primary airport in class D or C airspace. 200kt IAS under class B or within VFR corridor through class B.

There is no speed limit IN class B except the 250kt below 10,000.

If the minimum safe airspeed for an airplane is higher than the “speed limit”, the pilot can fly at that speed.

91.119 - Minimum safe altitudes. Pilots must adhere to the following except when necessary for takeoff and landing.

Anywhere: An altitude allowing an emergency landing after engine failure without undue hazards to persons or property on the surface.

Over Congested Areas: 1,000 over the highest obstacle within 2,000' of the aircraft.

Non-congested Areas: 500' above the surface, and no closer than 500' to any person, vessel, vehicle or structure.

Can you land on the desert if you aren't near people or property? Yes

What is a congested area? The FARs don't define it specifically, but when in doubt count it as congested. The FARs say “city, town, settlement or open air assembly”.

91.121 - Set the altimeter to a reported altimeter setting within 100 nautical miles of the aircraft, or to the elevation of the departure airport if no altimeter setting is available or no radio is available.

Above 18,000 set the altimeter to 29.92

91.123 - PIC may not deviate from an ATC clearance unless:

A new clearance is obtained

Emergency (any UNSAFE situation)

Deviation for a TCAS resolution advisory (equipment is uncommon in training airplanes)

Pilots may not deviate from an ATC instruction except in an emergency (safety).

If a pilot is given priority in an emergency, they should submit a report to ATC within 48 hours **if requested**. Side note: There are no fees, punishments etc for declaring an emergency. When in doubt, declare. Most pilots are scared to declare an emergency for one reason or another. Pilots and passengers, even in airlines, have died because pilots didn't declare an emergency in time.

91.125 - Light Gun Signals

| Signal | On Surface | In Flight |
|--------------------------------|------------------------------|------------------------------------|
| Green (Steady/Flashing) | Cleared takeoff/cleared taxi | Cleared to land/return for landing |
| Steady red | Stop | Give way and circle |
| Flashing Red | Clear runway | Do not land (unsafe) |
| Flashing White | Returning to starting point | N/A |
| Alternating Red/Green | Exercise caution | Exercise caution |

91.126 Class G Airspace:

When approaching to land at an airport in class G airspace, all turns should be made to the left, unless visual Indicators (ie segmented circle) demonstrate otherwise.

91.127 Class E: When operating in or near class E...

Pilots must comply with any traffic patterns established.

91.129 Class D: When operating in class D...

ATC communications must be established prior to entering the airspace.

When departing from the primary airport, communications must be maintained until clear of the airspace unless approved or instructed by ATC. When departing a satellite airport, establish communications as soon as practical after takeoff.

In a communications failure, the PIC may land if visual contact with tower and weather meets basic VFR weather minimums.

Pilots must comply with any departure procedures established by the FAA.

No pilot can operate on a runway or taxiway, or takeoff or land without an appropriate clearance.

91.130 Class C: When operating in class C...

When departing from the primary airport, communications must be maintained until clear of the airspace unless approved or instructed by ATC. When departing a satellite airport, establish communications as soon as practical after takeoff.

No pilot may operate in or over Class C unless equipped with a Mode C Transponder, or after Jan 1 2020, ADSB.

91.131 - Class B: When operating in class B...

A **clearance** is required by the ATC facility with jurisdiction.

The PIC must be at least a private pilot or a student pilot who has received the appropriate endorsements. Note that some Class B airspaces prohibit student pilots regardless of endorsements.

When operating in class B, two way radio communication is required.

A mode C transponder is required, and after 2020, ADSB.

91.133 - No person may enter prohibited or restricted airspace without ATC permission.

91.135 - When operating in class A...

Aircraft must conduct operations under IFR with an ATC clearance (this means pilot and airplane must meet IFR requirements as well).

A mode C transponder is required and, after 2020 ADS-B.

9.137, 91.141 - When temporary flight restrictions (TFRs) are established, pilots may not enter without ATC approval, nor contrary to the restrictions in the TFR NOTAM.

91.146 - Pilots may not carry passengers for a charitable, non-profit or community event unless...

The flight is nonstop and within 25nm of the airport, has a maximum payload of 7500lbs and maximum of 30 seats, is conducted in VFR day conditions, reimbursement cannot exceed pro-rata share of fuel, oil, airport expenditures and rental fees, the beneficiary cannot be in business of air transportation, the private pilot has at least 500 hours of flight time.

4 charitable or non-profit events per year.

1 community event per year

91.151 - No pilot can takeoff under VFR unless they have enough fuel to fly to their first intended landing and thereafter fly for 30 minutes during the day, or 45 minutes at night, at normal cruising speed.

91.155 - Basic VFR Weather Minimums

Class A - N/A

Class B - 3sm and remain clear of clouds

Class C - 3sm, 500' below, 1000' above, 2000' horizontal.

Class D - 3sm, 500' below, 1000' above, 2000' horizontal.

Class E -

Below 10,000: 3sm, 500' below, 1000' above, 2000' horizontal.

At or Above 10,000: 5sm, 1,000 below, 1,000 above, 1sm horizontal.

Class G -

1,200 and below from the surface (regardless of MSL): 1sm and clear of clouds.

At or above 10,000: 5sm, 1,000 below, 1,000 above, 1sm horizontal

Otherwise...

Day: 1sm and clear of clouds

Night: 3sm, 500' below, 1000' above, 2000' horizontal.

You may operate at night with visibility at least 1sm and clear of clouds if within class G and within 1/2sm of the runway. —> You probably shouldn't but you *can*.

No-one may operate an aircraft beneath a ceiling under VFR, within the lateral bounds of controlled airspace to the surface unless the ceiling is at least 1,000 feet (unless they have special VFR).

Nobody may takeoff, land or enter the traffic pattern within the lateral boundaries of surface areas of Class B, C, D or E unless ground visibility is at least 3sm, or flight visibility is at least 3sm.

Aircraft operating at the base of a class E area are considered to be in the airspace directly below that airspace.

91.157 - Special VFR operations allow for operation with visibility of 1sm within the lateral bounds of controlled airspace *to the surface*.

Day Special VFR may be conducted if...

Operations are below 10,000 MSL, with ATC clearance, and the aircraft remains clear of clouds.

Night Special VFR may be conducted if the requirements for Day SVFR are met and the pilot and aircraft are certified and equipped for IFR flight. (In which case, just go IFR dummy).

91.159 VFR aircraft should cruise:

On a **magnetic course** of 0-179 degrees at odd-thousands +500' (3500, 5500, etc)

On a **magnetic course** of 180-359 degrees at even-thousands +500' (4500, 6500, etc)

Exceptions: When operating at or below 3,000' AGL, while turning, or when holding for less than 2 minutes.

91.203 - Aircraft require an operating certificate and registration certificate (or application for registration).

91.205 - Outlines the required equipment for VFR day, night, and IFR flight. We outline this using the acronym ATOMATOF LAMES (day) and FLAPS (night).

In addition this section requires:

For small civil airplanes *certificated* after March 11, 1996, an anti-collision light system is required (before 1996 it is only required at night).

If operating for hire and beyond power off gliding distance from shore, approved flotation gear (life vests) are required for each occupant.

An approved restraint system for all occupants 2 years of age and older

A shoulder harness for each front seat if the airplane was manufactured after July 18, 1978

A shoulder harness for all seats if the airplane was manufactured after Dec 12, 1986

91.207 - Stipulates the requirement for emergency locator transmitters (ELTs).

ELT batteries must be replaced or recharged if used for more than 1 cumulative hour, when 50% of the useful life of the battery has been reached (which shall be clearly marked on the outside of the transmitter).

ELTs must be inspected every 12 calendar months.

Flights may be conducted without ELTs if they are:

Ferrying it somewhere to repair (if repairs cannot be made at its current location) or install an ELT. No person other than required crew members may be carried.

ELTs are NOT need for—

Aircraft doing training operations entirely within a 50nm distance from the airport

Flight operations required for design and testing.

Cropdusting

Aircraft equipped to carry only one person

If the ELT is removed for inspection, repair, modification or replacement and the aircraft records include specific phrasing and specific placards are in view of the pilot. In this case, the aircraft can be operated for up to 90 days.

91.209 Operations from sunset to sunrise require use of position lights, and anti-collision lights if installed. Relocating or parking an aircraft at night requires clear illumination of the aircraft.

The PIC can (and should) limit the use of anti-collision lights in the interest of safety. Strobes are bright and mess up yours and other pilot's night vision if used at the wrong times.

91.211 Supplemental oxygen is required for flight crew above 12,500' pressure altitude when operating at that altitude for more than 30 minutes. Above 14,000, the minimum flight crew is required to use oxygen during the whole time at that altitude. Above 15,000 oxygen is required to be available for each occupant.

91.213 Inoperative Equipment. This section specifies the procedures for MELs and flying with inoperative equipment.

If equipment is inoperative, can we fly? If it is approved an MEL, then yes.

Likely we won't have an MEL. In that case...

Is it required by type certification?

Is it required by the aircraft's equipment list (POH) or Kinds of Operation Equipment List?

Is it required by 91.205 day or night (if applicable)? (ATOMATOFLAMES/FLAPS)

Is it required by Airworthiness Directive?

If the answer to ALL of those questions is no, then we can go. But first we'll have to remove or deactivate the equipment, placard it as inoperative or removed and make a note in the maintenance logbook. Think about it this way — imagine another pilot was going to take it flying after, but you won't see them. They need to know what is broken and what you have done. This is *technically* true even in your own airplane.

91.215 - Mode C Transponders are required in class A, B and C airspaces, within mode C veils, above class B and C airspace, at and above 10,000' unless at or below 2500' AGL

91.303 - Aerobatic flight is prohibited over congested areas, within lateral boundaries of B, C, D, or E to the surface for an airport, within 4nm of an airway, below 1,500 feet AGL and when flight visibility is less than 3sm.

91.313 - People cannot be carried on a restricted category civil aircraft unless they are crewmember, trainee, perform an essential function to the purpose of the certification or are necessary to accomplish work directly associated with that function.

Furthermore, restricted category aircraft cannot operate over densely populated areas, congested airways or busy airports with passenger transport operations unless when operating in accordance of the certificate of waiver or special operating limitations.

91.319 - Experimental aircraft cannot be used to carry persons or property for hire. Additionally, there are more requirements in this section that discuss what steps must be taken with the FAA before an experimental aircraft may be operated outside the initial assigned area.

For most pilots, this isn't something they need to know a lot about. But if you'll be flying an experimental airplane, this is a must read.

91.403 - **The owner or operator is responsible for maintaining that aircraft in an airworthy condition.** This will be a test question. However, the PIC is always responsible for determining if the aircraft is airworthy before flying it.

91.405 - Owners and operators shall ensure that maintenance is performed as required and that maintenance entries are performed as required, including placards. They shall have inoperative items repaired, replaced removed or inspected at the next required inspection.

91.407 - No aircraft can be flown after maintenance, preventive maintenance, rebuilding or alternation unless it has been approved for return to service by an authorized mechanic and the maintenance record has been made as required.

No aircraft can be flown with occupants other than crew members after maintenance that may have appreciably changed its flight characteristics unless an operational flight has been performed and logged.

91.409 - Annual and 100-hr inspections.

Annual Inspection every 12 calendar months. (signed off by IA)

100 hour inspection every 100 hours of tachometer time, if the airplane is for hire (A&P or IA)

Annual and 100 hour compliance is not required if operating under a special flight permit.

Inspections in General: We use A1TAPE or AVIATE to remember these. These will be on your written test and oral. Memorize them.

Annual Inspection every 12 calendar months.

100 hour inspection every 100 hours of tachometer time, if the airplane is for hire

Transponder every 24 calendar months

ADs

Pitot-Static every 24 calendar months (IFR, controlled airspace only)

ELT (1 hr cumulative use, 50% battery life or every 12 calendar months)

91.411 - Pitot Static Test. Logbook entries for pitot-static tests will reference this number.

91.413 - Transponder Test. Logbook entries for transponder tests reference this number.

91.417 - Maintenance Records. Records must be kept for each aircraft including the airframe, engine and propeller and must include: date of work completion, work performed, signature of person approving a return to service, among several other items. That signature is a **critical** component.



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