

§ 61.31 Type rating requirements, additional training, and authorization requirements.

- (a) Type ratings required
- (b) Authorization in lieu of a type rating.
- (d) Aircraft category, class, and type ratings:

(e) Additional training required for operating complex airplanes.

- (1) Except as provided in paragraph (e)(2) of this section, no person may act as pilot in command of a complex airplane, unless the person has -
 - (i) Received and logged ground and flight training from an authorized instructor in a complex airplane, or in a full flight simulator or flight training device that is representative of a complex airplane, and has been found proficient in the operation and systems of the airplane; and
 - (ii) Received a one-time endorsement in the pilot's logbook from an authorized instructor who certifies the person is proficient to operate a complex airplane.
- (2) The training and endorsement required by paragraph (e)(1) of this section is not required if -
 - (i) The person has logged flight time as pilot in command of a complex airplane, or in a full flight simulator or flight training device that is representative of a complex airplane prior to August 4, 1997; or
 - (ii) The person has received ground and flight training under an approved training program and has satisfactorily completed a competency check under § 135.293 of this chapter in a complex airplane, or in a full flight simulator or flight training device that is representative of a complex airplane which must be documented in the pilot's logbook or training record.

(f) Additional training required for operating high-performance airplanes.

- (1) Except as provided in paragraph (f)(2) of this section, no person may act as pilot in command of a high-performance airplane (an airplane with an engine of more than 200 horsepower), unless the person has -
 - (i) Received and logged ground and flight training from an authorized instructor in a high-performance airplane, or in a full flight simulator or flight training device that is representative of a high-performance airplane, and has been found proficient in the operation and systems of the airplane; and
 - (ii) Received a one-time endorsement in the pilot's logbook from an authorized instructor who certifies the person is proficient to operate a high-performance airplane.
- (2) The training and endorsement required by paragraph (f)(1) of this section is not required if -
 - (i) The person has logged flight time as pilot in command of a high-performance airplane, or in a full flight simulator or flight training device that is representative of a high-performance airplane prior to August 4, 1997; or
 - (ii) The person has received ground and flight training under an approved training program and has satisfactorily completed a competency check under § 135.293 of this chapter in a high performance airplane, or in a full flight simulator or flight training device that is representative of a high performance airplane which must be documented in the pilot's logbook or training record.
- (g) Additional training required for operating pressurized aircraft
- (h) Additional aircraft type-specific training.
- (i) Additional training required for operating tailwheel airplanes.

§ 61.93 Solo cross-country flight requirements.

(a) General.

(b) Authorization to perform certain solo flights and cross-country flights. A student pilot must obtain an endorsement from an authorized instructor to make solo flights from the airport where the student pilot normally receives training to another location. A student pilot who receives this endorsement must comply with the requirements of this paragraph.

(1) Solo flights may be made to another airport that is within 25 nautical miles from the airport where the student pilot normally receives training, provided -

- (i) An authorized instructor has given the student pilot flight training at the other airport, and that training includes flight in both directions over the route, entering and exiting the traffic pattern, and takeoffs and landings at the other airport;
- (ii) The authorized instructor who gave the training endorses the student pilot's logbook authorizing the flight;
- (iii) The student pilot has a solo flight endorsement in accordance with § 61.87 of this part;
- (iv) The authorized instructor has determined that the student pilot is proficient to make the flight; and
- (v) The purpose of the flight is to practice takeoffs and landings at that other airport.

(2) Repeated specific solo cross-country flights may be made to another airport that is within 50 nautical miles of the airport from which the flight originated, provided -

- (i) The authorized instructor has given the student flight training in both directions over the route, including entering and exiting the traffic patterns, takeoffs, and landings at the airports to be used;
- (ii) The authorized instructor who gave the training has endorsed the student's logbook certifying that the student is proficient to make such flights;
- (iii) The student has a solo flight endorsement in accordance with § 61.87 of this part; and
- (iv) The student has a solo cross country flight endorsement in accordance with paragraph (c) of this section; however, for repeated solo cross country flights to another airport within 50 nautical miles from which the flight originated, separate endorsements are not required to be made for each flight.

(c) Endorsements for solo cross-country flights. Except as specified in paragraph (b)(2) of this section, a student pilot must have the endorsements prescribed in this paragraph for each cross-country flight:

- (1) A student pilot must have a solo cross-country endorsement from the authorized instructor who conducted the training that is placed in that person's logbook for the specific category of aircraft to be flown.
- (2) A student pilot must have a solo cross-country endorsement from an authorized instructor that is placed in that person's logbook for the specific make and model of aircraft to be flown.
- (3) For each cross-country flight, the authorized instructor who reviews the cross-country planning must make an endorsement in the person's logbook after reviewing that person's cross-country planning, as specified in paragraph (d) of this section. The endorsement must -
 - (i) Specify the make and model of aircraft to be flown;

- (ii) State that the student's preflight planning and preparation is correct and that the student is prepared to make the flight safely under the known conditions; and
- (iii) State that any limitations required by the student's authorized instructor are met.

(d) Limitations on authorized instructors to permit solo cross-country

flights. An authorized instructor may not permit a student pilot to conduct a solo cross-country flight unless that instructor has:

- (1) Determined that the student's cross-country planning is correct for the flight;
- (2) Reviewed the current and forecast weather conditions and has determined that the flight can be completed under VFR;
- (3) Determined that the student is proficient to conduct the flight safely;
- (4) Determined that the student has the appropriate solo cross-country endorsement for the make and model of aircraft to be flown; and
- (5) Determined that the student's solo flight endorsement is current for the make and model aircraft to be flown.

(e) Maneuvers and procedures for cross-country flight training in a single-engine airplane.

A student pilot who is receiving training for cross-country flight in a single-engine airplane must receive and log flight training in the following maneuvers and procedures:

- (1) Use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;
- (2) Use of aircraft performance charts pertaining to cross-country flight;
- (3) Procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;
- (4) Emergency procedures;
- (5) Traffic pattern procedures that include area departure, area arrival, entry into the traffic pattern, and approach;
- (6) Procedures and operating practices for collision avoidance, wake turbulence precautions, and windshear avoidance;
- (7) Recognition, avoidance, and operational restrictions of hazardous terrain features in the geographical area where the cross-country flight will be flown;
- (8) Procedures for operating the instruments and equipment installed in the aircraft to be flown, including recognition and use of the proper operational procedures and indications;
- (9) Use of radios for VFR navigation and two-way communication, except that a student pilot seeking a sport pilot certificate must only receive and log flight training on the use of radios installed in the aircraft to be flown;
- (10) Takeoff, approach, and landing procedures, including short-field, soft-field, and crosswind takeoffs, approaches, and landings;
- (11) Climbs at best angle and best rate; and
- (12) Control and maneuvering solely by reference to flight instruments, including straight and level flight, turns, descents, climbs, use of radio aids, and ATC directives. For student pilots seeking a sport pilot certificate, the provisions of this paragraph only apply when receiving training for cross-country flight in an airplane that has a V_H greater than 87 knots CAS.

§ 61.87 Solo requirements for student pilots. (General Solo)

(a) *General.* A student pilot may not operate an aircraft in solo flight unless that student has met the requirements of this section. The term "solo flight" as used in this subpart means that flight time during which a student pilot is the sole occupant of the aircraft or that flight time during which the student performs the duties of a pilot in command of a gas balloon or an airship requiring more than one pilot flight crewmember.

(b) Aeronautical knowledge. A student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that meets the requirements of this paragraph:

- (1) The test must address the student pilot's knowledge of -
 - (i) Applicable sections of parts 61 and 91 of this chapter;
 - (ii) Airspace rules and procedures for the airport where the solo flight will be performed; and
 - (iii) Flight characteristics and operational limitations for the make and model of aircraft to be flown.
- (2) The student's authorized instructor must -
 - (i) Administer the test; and
 - (ii) At the conclusion of the test, review all incorrect answers with the student before authorizing that student to conduct a solo flight.

(c) *Pre-solo flight training.* Prior to conducting a solo flight, a student pilot must have:

- (1) Received and logged flight training for the maneuvers and procedures of this section that are appropriate to the make and model of aircraft to be flown; and
- (2) Demonstrated satisfactory proficiency and safety, as judged by an authorized instructor, on the maneuvers and procedures required by this section in the make and model of aircraft or similar make and model of aircraft to be flown.

(d) Maneuvers and procedures for pre-solo flight training in a single-engine *airplane*. A student pilot who is receiving training for a single-engine airplane rating or privileges must receive and log flight training for the following maneuvers and procedures:

- (1) Proper flight preparation procedures, including preflight planning and preparation, powerplant operation, and aircraft systems;
- (2) Taxiing or surface operations, including runups;
- (3) Takeoffs and landings, including normal and crosswind;
- (4) Straight and level flight, and turns in both directions;
- (5) Climbs and climbing turns;
- (6) Airport traffic patterns, including entry and departure procedures;
- (7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;
- (8) Descents, with and without turns, using high and low drag configurations;
- (9) Flight at various airspeeds from cruise to slow flight;
- (10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall;
- (11) Emergency procedures and equipment malfunctions;
- (12) Ground reference maneuvers;
- (13) Approaches to a landing area with simulated engine malfunctions;
- (14) Slips to a landing; and
- (15) Go-arounds.