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## § 61.87 Solo requirements for student pilots.

**(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.

**(n) *Limitations on student pilots operating an aircraft in solo flight.*** A student pilot may not operate an [aircraft](#) in solo flight unless that student pilot has received an endorsement in the student's logbook for the specific make and [model aircraft](#) to be flown by an [authorized instructor](#) who gave the training within the 90 days preceding the date of the flight.

**(p) *Limitations on flight instructors authorizing solo flight.*** No instructor may authorize a student pilot to perform a solo flight unless that instructor has -

- (1) Given that student pilot training in the make and model of [aircraft](#) or a similar make and model of [aircraft](#) in which the solo flight is to be flown;
- (2) Determined the student pilot is proficient in the maneuvers and procedures prescribed in this section;
- (3) Determined the student pilot is proficient in the make and model of [aircraft](#) to be flown; and
- (4) Endorsed the student pilot's logbook for the specific make and [model aircraft](#) to be flown, and that endorsement remains current for solo flight privileges, provided an [authorized instructor](#) updates the student's logbook every 90 days thereafter.