

that applies to the aircraft category and class rating sought.

(d) Pass the required knowledge test on the aeronautical knowledge areas listed in § 61.125 of this part;

(e) Receive the required training and a logbook endorsement from an authorized instructor who:

(1) Conducted the training on the areas of operation listed in § 61.127(b) of this part that apply to the aircraft category and class rating sought; and

(2) Certified that the person is prepared for the required practical test.

(f) Meet the aeronautical experience requirements of this subpart that apply to the aircraft category and class rating sought before applying for the practical test;

(g) Pass the required practical test on the areas of operation listed in § 61.127(b) of this part that apply to the aircraft category and class rating sought;

(h) Hold at least a private pilot certificate issued under this part or meet the requirements of § 61.73; and

(i) Comply with the sections of this part that apply to the aircraft category and class rating sought.

#### § 61.125 Aeronautical knowledge.

(a) *General.* A person who applies for a commercial pilot certificate must receive and log ground training from an authorized instructor, or complete a home-study course, on the aeronautical knowledge areas of paragraph (b) of this section that apply to the aircraft category and class rating sought.

(b) *Aeronautical knowledge areas.* (1) Applicable Federal Aviation Regulations of this chapter that relate to commercial pilot privileges, limitations, and flight operations;

(2) Accident reporting requirements of the National Transportation Safety Board;

(3) Basic aerodynamics and the principles of flight;

(4) Meteorology to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts;

(5) Safe and efficient operation of aircraft;

(6) Weight and balance computations;

(7) Use of performance charts;

(8) Significance and effects of exceeding aircraft performance limitations;

(9) Use of aeronautical charts and a magnetic compass for pilotage and dead reckoning;

(10) Use of air navigation facilities;

(11) Aeronautical decision making and judgment;

(12) Principles and functions of aircraft systems;

(13) Maneuvers, procedures, and emergency operations appropriate to the aircraft;

(14) Night and high-altitude operations;

(15) Procedures for operating within the National Airspace System; and

(16) Procedures for flight and ground training for lighter-than-air ratings.

#### § 61.127 Flight proficiency.

(a) *General.* A person who applies for a commercial pilot certificate must receive and log ground and flight training from an authorized instructor on the areas of operation of this section that apply to the aircraft category and class rating sought.

(b) *Areas of operation.* (1) For an airplane category rating with a single-engine class rating:

(i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport and seaplane base operations;

(iv) Takeoffs, landings, and go-arounds;

(v) Performance maneuvers;

(vi) Ground reference maneuvers;

(vii) Navigation;

(viii) Slow flight and stalls;

(ix) Emergency operations;

(x) High-altitude operations; and

(xi) Postflight procedures.

(2) For an airplane category rating with a multiengine class rating:

(i) Preflight preparation;

(ii) Preflight procedures;

(iii) Airport and seaplane base operations;

(iv) Takeoffs, landings, and go-arounds;

(v) Performance maneuvers;

(vi) Navigation;

(vii) Slow flight and stalls;

(viii) Emergency operations;

(ix) Multiengine operations;

(x) High-altitude operations; and

(xi) Postflight procedures.

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(3) For a rotorcraft category rating with a helicopter class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and heliport operations;
- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Emergency operations;
- (ix) Special operations; and
- (x) Postflight procedures.

(4) For a rotorcraft category rating with a gyroplane class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport operations;
- (iv) Takeoffs, landings, and go-arounds;
- (v) Performance maneuvers;
- (vi) Ground reference maneuvers;
- (vii) Navigation;
- (viii) Flight at slow airspeeds;
- (ix) Emergency operations; and
- (x) Postflight procedures.

(5) For a powered-lift category rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and heliport operations;
- (iv) Hovering maneuvers;
- (v) Takeoffs, landings, and go-arounds;
- (vi) Performance maneuvers;
- (vii) Navigation;
- (viii) Slow flight and stalls;
- (ix) Emergency operations;
- (x) High-altitude operations;
- (xi) Special operations; and
- (xii) Postflight procedures.

(6) For a glider category rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Airport and gliderport operations;
- (iv) Launches and landings;
- (v) Performance speeds;
- (vi) Soaring techniques;
- (vii) Performance maneuvers;
- (viii) Navigation;
- (ix) Slow flight and stalls;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(7) For a lighter-than-air category rating with an airship class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subjects;
- (iii) Preflight preparation;

(iv) Preflight lesson on a maneuver to be performed in flight;

- (v) Preflight procedures;
- (vi) Airport operations;
- (vii) Takeoffs, landings, and go-arounds;
- (viii) Performance maneuvers;
- (ix) Navigation;
- (x) Emergency operations; and
- (xi) Postflight procedures.

(8) For a lighter-than-air category rating with a balloon class rating:

- (i) Fundamentals of instructing;
- (ii) Technical subjects;
- (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Preflight procedures;
- (vi) Airport operations;
- (vii) Launches and landings;
- (viii) Performance maneuvers;
- (ix) Navigation;
- (x) Emergency operations; and
- (xi) Postflight procedures.

[Doc. No. 25910, 62 FR 16298, Apr. 4, 1997, as amended by Amdt. 61-124, 74 FR 42558, Aug. 21, 2009]

§61.129 Aeronautical experience.

(a) For an airplane single-engine rating. Except as provided in paragraph (i) of this section, a person who applies for a commercial pilot certificate with an airplane category and single-engine class rating must log at least 250 hours of flight time as a pilot that consists of at least:

(1) 100 hours in powered aircraft, of which 50 hours must be in airplanes.

(2) 100 hours of pilot-in-command flight time, which includes at least—

- (i) 50 hours in airplanes; and
- (ii) 50 hours in cross-country flight of which at least 10 hours must be in airplanes.

(3) 20 hours of training on the areas of operation listed in §61.127(b)(1) of this part that includes at least—

(i) Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a single engine airplane;

(ii) 10 hours of training in an airplane that has a retractable landing gear,