

(1) One cross-country flight, if the training is being performed in the state of Hawaii, that must involve landings at a minimum of three points and one of the routes having a straight-line distance of at least 150 nautical miles;

(2) One cross-country flight, if the training is being performed in a State other than Hawaii, that must involve landings at a minimum of three points and one of the routes having a straight-line distance of at least 250 nautical miles; and

(3) 5 hours in night-VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower, except as provided in § 61.131 of this chapter.

(d) *For a rotorcraft-gyroplane course.* At least 10 hours of supervised PIC flying in a gyroplane on the approved areas of operation in section 4.(c)(4) of this appendix, which includes at least—

(1) One cross-country flight, if the training is being performed in the state of Hawaii, that must involve landings at a minimum of three points and one of the routes having a straight-line distance of at least 150 nautical miles;

(2) One cross-country flight, if the training is being performed in a State other than Hawaii, that must involve landings at a minimum of three points and one of the routes having a straight-line distance of at least 250 nautical miles; and

(3) 5 hours in night-VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower, except as provided in § 61.131 of this chapter.

(e) *For a powered-lift course.* At least 10 hours of supervised PIC flying in a powered-lift on the approved areas of operation in section 4.(c)(5) of this appendix, which includes at least—

(1) One cross-country flight, if the training is being performed in the state of Hawaii, that must involve landings at a minimum of three points and one of the routes having a straight-line distance of at least 150 nautical miles;

(2) One cross-country flight, if the training is being performed in a State other than Hawaii, that must involve landings at a minimum of three points and one of the routes having a straight-line distance of at least 250 nautical miles; and

(3) 5 hours in night-VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower, except as provided in § 61.131 of this chapter.

(f) *For a glider-nonpowered course.* At least 5 supervised PIC flights in a nonpowered glider on the approved areas of operation of section 4.(c)(6) of this appendix.

(g) *For a glider-powered course.* At least 5 supervised PIC flights in a powered glider on the approved areas of operation of section 4.(c)(7) of this appendix.

(h) *For a lighter than air-airship course.* At least 10 hours of pilot in command flight training with an authorized flight instructor in airships, on the approved areas of

operation in section 4.(c)(8) of this appendix, which includes at least—

(i) One cross-country flight with landings at a minimum of three points, and one of the routes having a straight-line distance of at least 25 nautical miles from the original point of departure; and

(ii) 5 hours in night-VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) except as provided in § 61.131 of this chapter.

(i) *For a lighter than air-balloon course.* At least 2 flights of supervised pilot-in-command time, on the approved areas of operation in section 4.(c)(9) of this appendix, in the balloon for which the course applies.

#### 6. Stage checks and end-of-course tests.

(a) Each student enrolled in a commercial pilot course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation of section 4 of this appendix for the aircraft category and class rating for which the course applies.

(b) Each student must demonstrate satisfactory proficiency prior to being endorsed to operate an aircraft in supervised PIC flight.

### Appendix E—Airline Transport Pilot Certification Course

1. *Applicability.* This appendix prescribes the minimum curriculum for an airline transport pilot certification course under this part, for:

(a) An airplane category-single engine class rating.

(b) An airplane category-multiengine class rating.

(c) A rotorcraft category-helicopter class rating.

(d) A powered-lift category rating.

2. *Eligibility for enrollment.* A person must have the following to enroll in the flight portion of the airline transport pilot certification course:

(a) Meet at least one of the following requirements—

(1) Hold at least a commercial pilot certificate and an instrument rating;

(2) Meet the requirements of § 61.73 of this chapter to qualify for a commercial pilot certificate and an instrument rating, in the case of a person who is a rated pilot in the U.S. military; or

(3) Hold either a foreign airline transport pilot or foreign commercial pilot license and an instrument rating, in the case of a person who holds a pilot license issued by a member State to the International Civil Aviation Organization.

(b) Hold at least a third-class medical certificate issued under part 67 of this chapter; and

(c) Meet the aeronautical experience requirements prescribed in subpart G, part 61 of this chapter for an airline transport pilot certificate that is appropriate to the aircraft category and class rating for which the course applies upon completion of this course.

#### 3. Aeronautical knowledge training.

(a) Each approved course must include the aeronautical knowledge areas listed in

paragraph (b) of this section, appropriate to the aircraft category and class rating, and must include at least 40 hours of training.

#### (b) Aeronautical knowledge areas.

(1) The applicable Federal Aviation Regulations of this chapter that relate to airline transport pilot privileges, limitations, and flight operations appropriate to the aircraft rating for which the course applies;

(2) Meteorology including knowledge of and effects of fronts, frontal characteristics, cloud formations, icing, and upper air-data;

(3) General system of weather and NOTAM collection, dissemination, interpretation, and use;

(4) Interpretation of weather charts, maps, forecasts, sequences, abbreviations, symbols, and use;

(5) National Weather Service function as it pertains to operation in the National Airspace System;

(6) Windshear and microburst awareness, identification, and avoidance;

(7) Principles of air navigation under instrument meteorological conditions in the National Airspace System;

(8) Air traffic control procedures and pilot responsibilities as they relate to en route operations, terminal area and radar operations, and instrument departure and approach procedures;

(9) Aircraft loading, weight and balance, use of charts, graphs, tables, formulas, and computations, and the effects on aircraft performance that are appropriate to the aircraft category and class rating for which the course applies;

(10) Aircraft aerodynamics relating to the aircraft's flight characteristics, performance, and normal and abnormal flight regimes and characteristics that are appropriate to the aircraft category and class rating for which the course applies;

(11) Flight crewmember physiological factors;

(12) Aeronautical decisionmaking and judgment; and

(13) Flight deck resource management to include crew communication and coordination.

#### 4. Flight training.

##### (a) Approved course requirements.

(1) Flight training in the approved areas of operation of paragraph (c) of this section must be included in the aircraft category and class rating for which the course applies; and

(2) At least 25 hours of flight training, of which at least 15 hours must be instrument flight training, must be included in the aircraft for which the course applies.

##### (b) Use of flight training devices.

(1) Training in a flight training device may be included, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and is given by an authorized ground or flight instructor.

(2) Training in a flight training device that meets the requirements of § 141.41(a)(1) of this part, may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(3) Training in a flight training device that meets the requirements of § 141.41(a)(2) of this part, may be credited for a maximum of