

## Areas of Operation

### I. Preflight Preparation

#### Task A: Equipment Examination

*References:* AC 20-29, AC 20-117, AC 91-43, AC 91-51, AC 91-74, AC 120-60, AC 135-17, 14 CFR part 61; POH; AFM.

**Objective:** To determine that the applicant:

1. Exhibits satisfactory knowledge appropriate to the airplane; its systems and components; its normal, abnormal, and emergency procedures; and uses the correct terminology with regard to the following items—
  - a. landing gear—extension/retraction system(s); indicators, float devices, brakes, antiskid, tires, nose-wheel steering, and shock absorbers.
  - b. powerplant—controls and indications, induction system, carburetor and fuel injection, turbocharging, cooling, fire detection/protection, mounting points, turbine wheels, compressors, deicing, anti-icing, and other related components.
  - c. propellers—type, controls, feathering/unfeathering, auto-feather, negative torque sensing, synchronizing, and synchrophasing.
  - d. fuel system—capacity; drains; pumps; controls; indicators; cross-feeding; transferring; jettison; fuel grade, color and additives; fueling and defueling procedures; and fuel substitutions, if applicable.
  - e. oil system—capacity, grade, quantities, and indicators.
  - f. hydraulic system—capacity, pumps, pressure, reservoirs, grade, and regulators.
  - g. electrical system—alternators, generators, battery, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings.
  - h. environmental systems—heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.
  - i. avionics and communications—autopilot; flight director; Electronic Flight Instrument Systems (EFIS); Flight Management System(s) (FMS); Doppler Radar; Inertial Navigation Systems (INS); Global Positioning System/Wide Area Augmentation System/Local Area

Augmentation System (GPS/WAAS/LAAS); VOR, NDB, ILS, GLS, RNAV systems and components; traffic (MLS deleted) awareness/warning/avoidance systems, terrain awareness/warning/alert systems; other avionics or communications equipment, as appropriate; indicating devices; transponder; and emergency locator transmitter.

- j. ice protection—anti-ice, deice, pitot-static system protection, propeller, windshield, wing and tail surfaces.
  - k. crewmember and passenger equipment—oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.
  - l. flight controls—ailerons, elevator(s), rudder(s), control tabs, balance tabs, stabilizer, flaps, spoilers, leading edge flaps/slats and trim systems.
  - m. pitot-static system with associated instruments and the power source for the flight instruments.
2. Exhibits satisfactory knowledge of the contents of the POH or AFM with regard to the systems and components listed in paragraph 1 (above); the Minimum Equipment List (MEL) and/or configuration deviation list (CDL), if appropriate; and the operations specifications, if applicable.

**Task B: Performance and Limitations**

*References* 14 CFR parts 1, 61, 91; AFD; POH; AFM; AIM; AC 20-117, AC 91-51, AC 91-74, AC 91-79, AC 120-27; AC 120-60, AC 135-17 FAA-H-8083-1, FAA-H-8083-3, FAA-H-8083-23, FAA-H-8083-25.

**Objective:** To determine that the applicant:

- 1. Exhibits satisfactory knowledge of performance and limitations, including a thorough knowledge of the adverse effects of exceeding any limitation.
- 2. Demonstrates proficient use of (as appropriate to the airplane) performance charts, tables, graphs, or other data relating to items, such as—

**Change 1 (12/16/2008), Change 2 (3/18/2009), & Change 4 (4/4/2012)**

- a. Departure airport, taxiway, and runway NOTAMs, runway usable lengths, HOT Spots, taxi restrictions, specific taxi procedures, as applicable, and signage/markings
  - b. accelerate-stop distance.
  - c. accelerate-go distance.
  - d. takeoff performance—all engines and with engine(s) inoperative.
  - e. climb performance including segmented climb performance with all engines operating—with one or more engine(s) inoperative, and with other engine malfunctions as may be appropriate.
  - f. service ceiling—all engines, with engine(s) inoperative, including drift down, if appropriate.
  - g. cruise performance.
  - h. fuel consumption, range, and endurance.
  - i. descent performance.
  - j. Arrival airport, taxiway, and runway NOTAMs, runway usable lengths, HOT Spots, taxi restrictions, specific taxi procedures as applicable, and signage/markings.
  - k. landing distance.
  - l. land and hold short operations (LAHSO).
  - m. go-around from rejected landings (landing climb).
  - n. other performance data (appropriate to the airplane).
3. Describes (as appropriate to the airplane) the airspeeds used during specific phases of flight.
  4. Describes the effects of meteorological conditions upon performance characteristics and correctly applies these factors to a specific chart, table, graph, or other performance data.
  5. Computes the center-of-gravity location for a specific load condition (as specified by the examiner), including adding, removing, or shifting weight.
  6. Determines if the computed center-of-gravity is within the forward and aft center-of-gravity limits, and that lateral fuel balance is within limits for takeoff and landing.
  7. Demonstrates adequate knowledge of the adverse effects of airframe icing during pre-takeoff, takeoff, cruise and landing phases of flight and corrective actions.