



United States Department of the Interior
Office of Aviation Services
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DOI OPERATIONAL PROCEDURES MEMORANDUM (OPM) - 34

Subject: Auxiliary Pilots - Crewed Aircraft

Effective Date: January 1, 2023

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1. Summary of Changes.

No changes.

- 2. Purpose.** This OPM establishes experience and operational requirements for using auxiliary pilots (volunteer pilots previously outlined in OPM-34 and contract pilots previously outlined in OPM-54), to perform pilot duties in government-owned aircraft. Appendix 1 is provided to bridge the gap between current DM language and the proposed revised DM language. Appendix 2 (new language) is provided to ensure training is thorough regardless of the pilot's background.
- 3. Authority.** This policy is established by the Director, Department of the Interior, Office of Aviation Services (OAS) in accordance with the provisions of Departmental Manual 112 DM 12: 350 DM 1 and Secretarial Order 3322 dated August 23, 2012.
- 4. Policy.** Some bureaus within the Department of the Interior use volunteers or contract pilots to perform as pilot in command on DOI fleet aircraft. These pilots are considered auxiliary pilots. Use of auxiliary pilots has been determined to be "flight services," and therefore the procurement process shall comply with 353 DM 1. And, this policy augments the existing bureau authority regarding the use of volunteers as pilots.

Auxiliary pilots shall meet the following requirements:

- A. Qualification and training requirements are in the attached appendices.
- B. An auxiliary pilot shall have a Letter of Authorization that includes a description of pilot duties and restrictions to include any special-use requirements, issued by at least the pilot's regional/state office in coordination with the bureau's national aviation manager. Bureaus may further limit an auxiliary pilot's authorized operations.
- C. Prior to committing to a new auxiliary pilot the organization must conduct a check of the pilot's FAA records. The check shall include verification of FAA airperson certificates held and accident/violation history. The OAS Division of Technical Services will conduct the check when requested. The pilot's full name and pilot certificate number is required to request the information.

- D. Auxiliary pilots shall comply with all of the requirements of this OPM, OPM-29 as required and all portions of the *Departmental Manual* that are applicable to DOI pilots, except Pilot Qualifications (see Appendix 1) and Pilot Training (see Appendix 2) of this OPM.
- E. OPM-22 does not apply to an auxiliary pilot.
- F. Comply with applicable bureau policy.

Walker Craig
Acting Director, Office of Aviation Services

Attachments:

Appendix 1: Auxiliary Pilot Qualifications

Appendix 2: Auxiliary Pilot Training

Appendix 1

Auxiliary Pilot Qualifications

1. FAA commercial pilot certificate with appropriate category, class, and type rating if required. In certain cases, a FAA airline Transport Pilot certificate may be required.
2. FAA Instrument rating in the appropriate category.
3. Current FAA medical certificate, second class. In certain cases, a first class medical certificate may be required.
4. Meet the currency requirements of 14 CFR 61 as applicable.
5. Pilot flying hours shall be verified from pilot records. Further verification of flying hours may be required at the discretion of DOI OAS.
6. Any special use endorsements must meet the requirements of OPM-29.
7. Pilot in command (PIC) auxiliary pilots shall have recorded minimum flight time as follows:
 - A. 100 hours Total flight time within the preceding 12 months;
 - B. 50 hours PIC within the preceding 12 months;
 - C. 24 hours PIC in category within the preceding 12 months, including six hours in last six months in category; and
 - D. 75 hours, actual or simulated instrument, with at least 50 hours in an aircraft; and 10 hours in actual instrument meteorological conditions (for operations requiring IFR flights)
 - E. For airplane:
 - 1) 1,500 hours Total flight time;
 - 2) 1,200 hours PIC, airplanes;
 - 3) 75 hours night ;
 - 4) 25 hours PIC make and model;
 - 5) 200 hours PIC, multiengine as appropriate;
 - 6) 25 hours PIC, seaplane as appropriate;
 - 7) 10 hours PIC, amphibian as appropriate with at least 10 transition (switch from land to sea or vice versa) takeoffs and landings;
 - 8) 100 hours turboprop or jet, as appropriate. 50 hours must be in make and model for transport of passengers; and
 - 9) 250 hours large airplanes, as appropriate. 50 hours must be in make and model for transport of passengers.
 - F. For helicopter:

- 1) 1,500 hours PIC helicopter;
- 2) 50 hours make and model;
- 3) 25 hours PIC make, model and series;
- 4) 10 hours make, model and series in the last 12 months;
- 5) 75 hours night with 25 hours PIC helicopter;
- 6) 100 hours in weight class of helicopter. Defined as: "small" - up to an approved gross weight of 7,000 pounds; "medium" - above 7,000 pounds up to 12,500 pounds;
- 7) 200 hours reciprocating engine time, as appropriate;
- 8) 100 hours turbine engine time as appropriate;
- 9) 200 hours mountainous terrain, as appropriate; and
- 10) 10 hours mountainous terrain in make and model, as appropriate.

Operating helicopters in mountainous terrain as identified in 14 CFR 95 Subpart B, Designated Mountainous Area. Operating includes maneuvering and numerous takeoffs and landings to ridgelines, pinnacles and confined areas.

8. Second in command (SIC) auxiliary pilots shall have recorded minimum flight time as follows:
 - A. 1200 hours Total flight time;
 - B. 250 hours PIC in category;
 - C. 100 hours PIC airplane multiengine, as appropriate;
 - D. 25 hours PIC in class;
 - E. 50 hours night with 25 hours PIC in category; and
 - F. 50 hours instrument with 5 hours in actual instrument meteorological conditions, as appropriate.
9. On a case-by-case basis, equivalency will be considered. Equivalency must be requested through the auxiliary pilot's supervisor and routed through the bureau National Aviation Manager (NAM) for concurrence, to the Chief of Technical Services, OAS for approval.
10. On a case by case basis, waivers to flight time minimums will be considered. Waivers must be requested through the auxiliary pilot's supervisor and routed through the bureau NAM for concurrence to the Director OAS for approval.

Appendix 2

Auxiliary Pilot Training

Required training for an auxiliary pilot varies according to the pilot's background. On a case by case basis equivalency will be considered. Equivalency must be requested through the auxiliary pilot's supervisor and routed through the bureau NAM for concurrence to the Chief of Technical Services, OAS for approval.

Examples of equivalence:

1. A retired fleet pilot with a current pilot card (OAS-30) for the aircraft and mission(s) proposed. This pilot should have met all of the initial training requirements of an auxiliary pilot in the course of completing all of the initial and recurrent training required for a fleet pilot, this must be verified. The required FAA background check was completed and does not need to be repeated. Pilot qualifications must be reviewed to ensure the pilot is qualified to be an auxiliary pilot, not all fleet pilots will meet the auxiliary pilot requirements, e.g. a low time dual function pilot. After reviewing the pilot's qualifications and training records a reasonable equivalency request would be: All of the initial training was completed in the course of being a fleet pilot in good standing when the pilot retired. Recurrent training will be completed in accordance with OPM-34 when it is due, based on the pilot's current OAS-30.
2. A retired fleet pilot with an expired (less than three years) OAS-30 for the proposed aircraft and mission(s) proposed. This pilot should have met all of the initial training requirements of an auxiliary pilot in the course of completing all of the initial and recurrent training required for a fleet pilot, this must be verified. The required FAA background check was completed and does not need to be repeated. Pilot qualifications must be reviewed to ensure the pilot is qualified to be an auxiliary pilot, not all fleet pilots will meet the auxiliary pilot requirements. After reviewing the pilot's qualifications and training records a reasonable equivalency request would be: All of the initial training was completed in the course of being a Fleet Pilot in good standing when the pilot retired. The pilot is due for recurrent training and requires a flight evaluation(s) which will be done in accordance with OPM-34.
3. A contract pilot with a current OAS-30 for the aircraft and mission(s) proposed. This pilot should have met most of the initial pilot training requirements of an auxiliary pilot in the course of completing all of the initial training required in accordance with 14 CFR 135, provide training documents as proof of completion. The required FAA background check will need to be done. Pilot qualifications must be reviewed to ensure the pilot is qualified to be an auxiliary pilot, not all contract pilots will meet the auxiliary pilot requirements. After reviewing the pilot's qualifications and training records a reasonable equivalency request would be: Based on 14 CFR 135 training and the current OAS-30, the gaps in training will be completed by the bureau. Flight evaluations will be completed in accordance with the procurement document.
4. There are numerous scenarios where it may be appropriate to consider equivalency e.g. a pilot that has been previously trained in accordance with 14 CFR 121 or 135.

5. Important criteria that must be considered when seeking equivalency: The training must be relevant and timely. Unrelated or old training may not have any added value.

The education and training of auxiliary pilots is the responsibility of bureau management. The following is the minimum training the bureau is required to provide an auxiliary pilot operating a government aircraft. I and II are initial training and III and IV are recurrent training. V is the qualification segment of training.

The bureau will verify that all training has been completed prior to a flight evaluation.

A. INITIAL GROUND TRAINING.

- 1) Basic Indoctrination. This section specifies the objectives and content of basic indoctrination curriculum segments. This training is required for new hire auxiliary pilots. Basic indoctrination is normally the first curriculum segment of instruction conducted for a new hire. It serves as the initial introduction for the new-hire pilot to the Bureau and, in many cases, to the operational requirements of DOI. Typically, basic indoctrination training time is 24 hours for IFR/VFR and 16 hours for VFR only.

Objective: The objective of basic indoctrination training is to introduce and acquaint the pilot with Bureau policy, procedures, forms, organizational and administrative practices, ensuring the pilot has acquired organizational and basic airperson knowledge.

- a) Bureau specific training. Bureau-specific training include topics that pertain to the Bureaus' methods of compliance with the regulations, policies and safe operating practices. Required training, as applicable, topics for the Bureau-specific subject area follows:

- (1) Bureau policy and procedures:

- (a) History, organization, and management structure;
- (b) Authority and responsibilities of duty position;
- (c) Aviation forms, records, and administrative procedures;
- (d) Bureau aviation policy;
- (e) Specific missions and operational procedures; and
- (f) Bureau-required equipment.

- (2) Appropriate provisions of the FAA regulations and DOI policy:

- (a) Pilot certification, training, and qualification requirements;
- (b) Medical certificates, physical examination, and fitness-for-duty requirements;
- (c) Operational control requirements (dispatch, flight release, or flight-locating);
- (d) Flight duty and rest requirements;

- (e) Recordkeeping requirements;
 - (f) Operational rules in 14 CFR parts 91 and 135 (as appropriate), and any other applicable regulations;
 - (g) Policy requirements for bureau manuals; and
 - (h) Other appropriate policies, Departmental Manual, Operational Procedures Memoranda (OPM's), mishap reporting, and aircraft stewardship.
- b) Pilot specific training. The pilot-specific training should contain training to ensure an auxiliary pilot will be able to enter subsequent ground and flight training curriculum segments. These topics address the appropriate portions of the Bureaus' manual and standard practices of aircrewship and flight procedures in other documents such as the Aeronautical Information Manual (AIM). The emphasis in aircrew-specific training is not aircraft-specific. It should relate to the Bureaus' kind of operation and the family or families of aircraft used by the Bureau. The objective of aircrew-specific training is to ensure the pilot has acquired the basic knowledge necessary for Bureau operations. Required training, as applicable for the pilot-specific subject area follows:
- (1) Dispatch or flight release and flight-locating procedures for the Bureau;
 - (a) Dispatch, flight release, or flight-locating systems and procedures (as applicable);
 - (b) Organization, duties, and responsibilities;
 - (c) Weather and Notices to Airmen (NOTAM) information; and
 - (d) Bureau communications.
 - (2) Weight and Balance (W&B);
 - (a) Definitions (such as zero-fuel weight, moments, and inches of datum);
 - (b) General loading procedures and center-of-gravity (CG) computations;
 - (c) Effects of fuel burn and load shifts in flight; and
 - (d) W&B forms, load manifests, fuel slips, and other applicable documents.
 - (3) Aircraft performance and airport analysis;
 - (a) Definitions (such as balanced field, visual meteorological conditions (VMC), obstruction planes, and maximum endurance);
 - (b) Effects of temperature and pressure altitude;
 - (c) General Terminal Instrument Procedures (TERPS) criteria (obstacle clearance standards);
 - (d) Airport analysis system as appropriate to the type of operation and family or families of aircraft; and

- (e) Effects of contaminated runways.
- (4) Meteorology;
- (a) Basic weather definitions (such as forecasts, reports, and symbols);
 - (b) Temperature, pressure, and winds;
 - (c) Atmosphere moisture and clouds;
 - (d) Air masses and fronts; and
 - (e) Thunderstorms, icing, and wind shear.
- (5) Navigation;
- (a) Definitions (such as Class I, Class II navigation);
 - (b) Basic navigational instruments;
 - (c) Dead reckoning (DR) and pilotage concepts and procedures;
 - (d) Navigational Aids (NAVAID); and
 - (e) Very high frequency (VHF), global positioning system (GPS), and self-contained systems (as applicable).
- (6) Airspace and air traffic control (ATC) procedures;
- (a) Definitions (such as precision approaches, airways, and automated terminal information service (ATIS));
 - (b) Description of airspace;
 - (c) Navigation performance and separation standards;
 - (d) Controller and pilot responsibilities;
 - (e) ATC communications;
 - (f) Air traffic flow control; and
 - (g) Wake turbulence recognition and avoidance.
- (7) En route and terminal area charting and flight planning;
- (a) Terminology of charting services (such as Jeppesen or FAA National Aeronautical Charting Office (NACO));
 - (b) Takeoff minimums, landing minimums, and alternate requirements;
 - (c) General Bureau flight-planning procedures;
 - (d) Flight service and international procedures (as applicable);
 - (e) Airport diagrams; and
 - (f) Airport ground operational safety (AC120-74 and AC 91-73).

- (8) Instrument procedures;
 - (a) Definitions (e.g., minimum descent altitude (MDA), height above airport (HAA), height above touchdown (HAT), decision height (DH), Category II (CAT II) instrument landing system (ILS), and no procedure turn required (NOPT));
 - (b) Holding patterns, procedure turns;
 - (c) Precision approaches (such as CAT I, CAT II, and CAT III);
 - (d) Non-precision Approaches (NPA); and
 - (e) Circling, visual, and contact approaches (as applicable).
 - (9) Airport ground operational safety (refer to the current editions of Advisory Circular (AC) 120-74, 14 CFR Parts 91 and 135 Flight crew Procedures During Taxi Operations, and AC 91-73, Parts 91 and 135 Single Pilot, Flight School Procedures During Taxi Operations); and
 - (10) Normal and emergency communication procedures.
- 2) General Emergency Training.
- a) Emergency situation training. Emergency situation training should provide instruction, demonstration, and practice in the handling of emergency situations. The following are recommended training modules for the emergency situation subject area:
 - (1) Pilot Duties and Responsibilities.
 - (a) Emergency assignments;
 - (b) Captain's emergency authority; and
 - (c) Reporting incidents and accidents.
 - (2) Crew Coordination and Bureau Communication.
 - (a) Cabin crew notification procedures;
 - (b) Ground agency notification procedures (e.g., FAA, Airport Authority); and
 - (c) Bureau communication procedures.
 - (3) Aircraft Fires.
 - (a) Principles of combustion and classes of fire;
 - (b) Toxic fumes and chemical irritants;
 - (c) Use of appropriate hand-held extinguishers; and
 - (d) Smoke masks and goggles.

- (4) First Aid Equipment.
 - (a) Contents of first aid kit;
 - (b) Requirements for first aid kit integrity; and
 - (c) Use of individual items.
- (5) Illness, Injury, and Basic First Aid.
 - (a) Principles of cardiopulmonary resuscitation (CPR);
 - (b) Ear and sinus blocks;
 - (c) Seeking medical assistance;
 - (d) Treatment of shock; and
 - (e) Heart attack and pregnancy situations.
- (6) Ground Evacuation.
 - (a) Aircraft configuration;
 - (b) Directing passenger flow;
 - (c) Blocked or jammed exit procedures;
 - (d) Fuel spills and other ground hazards; and
 - (e) Handicapped persons.
- (7) Ditching.
 - (a) Cockpit and cabin preparation;
 - (b) Passenger briefing;
 - (c) Crew coordination;
 - (d) Primary swells, secondary swells, and sea conditions;
 - (e) Ditching heading and water landings; and
 - (f) Ditching at night.
- (8) Rapid Decompression (RD).
 - (a) Respiration;
 - (b) Hypoxia, hypothermia, hyperventilation;
 - (c) Time of useful consciousness (TUC);
 - (d) Gas expansion/bubble formation; and
 - (e) Physical phenomena and actual incidents.
- (9) Previous Aircraft Accidents/Incidents.

- (a) NTSB accident report reviews;
 - (b) DOI/OAS review of A200;
 - (c) Human factors (HF)/considerations; and
 - (d) National Aeronautics and Space Administration (NASA) reporting system.
- (10) Crewmember Incapacitation.
- (a) Bureau procedures;
 - (b) Reporting requirements (OAS and NTSB); and
 - (c) Interference with crewmembers.
- (11) Hijacking and Other Unusual Situations.
- (a) Hijack procedures;
 - (b) Bomb threat procedures;
 - (c) Security coordinator responsibilities; and
 - (d) In-flight intercept signals and procedures.
- b) Emergency drill training. The area of a general emergency training curriculum segment referred to as emergency drill training provides instruction, demonstration, and practice in the actual operation of certain items of emergency equipment. Required training, as applicable, topics for the emergency drill training subject area are as follows:
- (1) Hand-Held Fire Extinguishers.
- (a) Inspection tags, dates, and proper charge levels;
 - (b) Removal and stowage of extinguishers;
 - (c) Actual discharge of each type of extinguisher; and
 - (d) Maintenance procedures and minimum equipment list (MEL).
- (2) Portable Oxygen Systems.
- (a) Inspection tags, dates, and pressures;
 - (b) Removal and stowage of oxygen bottles; and
 - (c) Actual operation of each type of bottle and each type of mask.
- (3) Emergency Exits and Slides.
- (a) Actual operation (open and close) of each exit in the normal and emergency modes;

- (b) Instruction on slide or slide raft deployment, transfer from one door to another, and detachment from the aircraft or training device of each type of slide or slide raft (if applicable); and
 - (c) Actual use of slide or slide raft (this requirement needs to be accomplished only once during initial new-hire or initial equipment training).
- (4) Ditching Equipment (if applicable).
- (a) Actual donning, use, and inflation of individual flotation means (life preservers);
 - (b) Instruction on life raft removal from the aircraft and inflation of each type of life raft;
 - (c) Instruction on the use of lifelines;
 - (d) Actual boarding of a life raft or slide raft; and
 - (e) Instruction on survival equipment.
- 3) Aircraft Ground Training. This section specifies the objectives of aircraft ground training. There are three areas, general operational subjects, aircraft systems, and systems integration training. Typically helicopters and multiengine airplanes require 16 hours of training and single engine airplanes require 8 hours of training.

Objective: The primary objective of aircraft ground training is to provide auxiliary pilots with the necessary knowledge for understanding the basic functions of aircraft systems, the use of the individual system components, the integration of aircraft systems, and operational procedures. An important requirement of an aircraft ground training curriculum segment is that, upon completion, the auxiliary pilot will be sufficiently prepared to enter the flight training curriculum segment. Aircraft ground training, as used in this section, is training for a specific aircraft type. Aircraft ground training may be conducted using many methods, including classroom instruction, ground training devices (GTD), computer-based instruction (CBI), flight simulation training devices (FSTD), and static aircraft.

a) General Operational - Aircraft

- (1) Dispatch, Flight Release, or Flight-Locating Procedures.
- (2) Weight and Balance (W&B) Procedures. Specific to the aircraft, including computation of company W&B forms.
- (3) Adverse Weather Practices. Includes procedures specific to the aircraft that must be followed when operating in the following conditions:
 - (a) Icing,
 - (b) Turbulence,
 - (c) Heavy precipitation,
 - (d) Thunderstorms with associated wind shear and microburst phenomena,

- (e) Low visibility, and
 - (f) Contaminated runways.
- (4) Communication and Navigation Procedures. Procedures for operating specific aircraft communications and navigation equipment in accordance with the following:
- (a) Specific Bureau communications requirements,
 - (b) Air traffic control (ATC) clearance requirements,
 - (c) Area departure and arrival requirements,
 - (d) En route requirements, and
 - (e) Approach and landing requirements.
- (5) Performance Characteristics. Specific performance characteristics of the aircraft during all flight regimes, including:
- (a) The use of charts, tables, tabulated data, and other related manual information;
 - (b) Normal, abnormal, and emergency performance problems;
 - (c) Meteorological and weight-limiting performance factors (such as temperature, pressure, contaminated runways, precipitation, and climb/runway limits);
 - (d) Inoperative equipment performance limiting factors (such as minimum equipment list (MEL)/Configuration Deviation List (CDL) and inoperative antiskid); and
 - (e) Special operational conditions (such as unpaved runways, high-altitude airports, and drift down requirements).
- b) Aircraft Systems.
- (1) Aircraft General. Typical elements include an overview of the basic aircraft, such as dimensions, turning radius, panel layouts, flight deck and cabin configurations, and other major systems and components or appliances.
 - (2) Powerplants. Typical elements include a basic engine description, engine thrust ratings, and engine components such as accessory drives, ignition, oil, fuel control, hydraulic, and bleed air features.
 - (3) Electrical. Typical elements should include elements identifying the sources of aircraft power including engine-driven generators, auxiliary power unit (APU) generator, and external power. Other elements include the electrical buses and related components such as circuit breakers, fuses, the aircraft battery, and other standby power systems, if applicable.

- (4) Hydraulic. Some typical elements are the hydraulic reservoirs, pumps, accumulators, and the means of routing hydraulic fluid through filters, check valves, and interconnects and to associated actuators and hydraulically-operated components.
- (5) Fuel. Elements include the fuel tank system (location and quantities), engine-driven pumps, boost pumps, system valves, crossfeeds, quantity indicators, and provisions (if applicable) for fuel jettisoning.
- (6) Pneumatic. Typical elements include bleed air sources (such as engines, APU, or external ground air), the means of routing, venting, and controlling bleed air via associated valves, ducts, chambers, and temperature- and pressure-limiting devices.
- (7) Air Conditioning and Pressurization. Typical elements include heaters, air conditioning packs, fans, and other environmental control devices. Pressurization system components include elements such as outflow and negative pressure relief valves with associated automatic, standby, and manual pressurization controls and annunciators.
- (8) Flight Controls. Elements in flight controls include primary (yaw, pitch, and roll devices) and secondary controls (leading/trailing edge devices, flaps, trim, and damping mechanisms). Elements that indicate the means of actuation (direct/indirect or fly-by-wire) should be included as well as applicable redundancy devices.
- (9) Landing Gear. Typical elements should include the landing gear extension and retraction mechanism including the operating sequence of struts, doors, and locking devices, and brake and antiskid systems, if applicable. Other elements are steering (nose or body steering gear), bogie arrangements, air/ground sensor relays, and visual downlock indicators.
- (10) Ice and Rain Protection. Elements should include rain removal systems and each anti-icing and/or deicing system that prevents or removes the formation of ice from airfoils, flight controls, engines, pitot-static probes, fluid outlets, flight deck windows, and aircraft structures. Other elements should include system components such as pneumatic/electrical valves, sensors, ducts, electrical elements, or pneumatic devices.
- (11) Equipment and Furnishings. Typical elements are the aircraft exits, galleys, water and waste systems, lavatories, cargo areas, crewmember and passenger seats, bulkheads, seating and/or cargo configurations, and nonemergency equipment and furnishings.

- (12) Navigation Equipment. Typical elements are flight navigation system components including Flight Directors (FD), horizontal situation, Radio Magnetic Indicators (RMI), navigation receivers (automatic direction finder (ADF), Very high frequency Omnidirectional Range (VOR), Area Navigation (RNAV), marker beacon, and Distance Measuring Equipment (DME)) used on the aircraft. Other elements include applicable inertial systems Inertial Navigation System (INS) and Inertial Reference System (IRS)), functional displays, fault indications, and comparator systems; aircraft transponders, radio altimeters, weather radar (WX), and Cathode Ray Tube (CRT) or computer-generated displays of aircraft position and navigation information.
- (13) Auto Flight System. Typical elements include such items of equipment as the autopilot, autothrottles, and their interface with aircraft FD and navigation systems, including automatic approach tracking, autoland, and automatic fuel or performance management systems.
- (14) Flight Instruments. Typical elements should include an overview of the panel arrangement and the electrical and pitot-static sources and alternate sources for the flight instruments. Other elements include attitude, heading (directional gyro (DG) and magnetic), airspeed, Vertical Speed (VS), altimeters, standby flight instruments, and other relevant instruments.
- (15) Communication Equipment. Elements include the Very High Frequency (VHF) High Frequency (HF) radios, audio panels, in-flight interphone and Passenger Address (PA) systems, the voice recorder, and air/ground passive communications systems (Aircraft Communications Addressing and Reporting System (ACARS)).
- (16) Warning Systems. Typical elements are aural, visual, and tactile warning systems, including the character and degree of urgency related to each signal. Other elements include warning and caution annunciator systems, including ground proximity warning (GPW) and takeoff warning systems.
- (17) Fire Protection. Elements should include all fire and overheat sensors, loops, modules, or other means of providing visual and/or aural indications of fire or overheat detection. Other elements include procedures for the use of fire handles, automatic extinguishing systems, agents, and the power sources necessary to provide protection for fire and overheat conditions in engines, APU, cargo bay/wheel well, the flight deck, cabin, and lavatories.
- (18) Oxygen. Typical elements are the aircraft oxygen system including the installed passenger, crew, and portable systems. Other elements include sources of oxygen (gaseous or solid), flow and distribution networks, automatic deployment systems, regulators, pressure levels, gauges, and servicing requirements.
- (19) Lighting. Typical elements are the flight deck, cabin, and external lighting systems, including power sources, switch positions, and spare light bulb locations.

- (20) Emergency Equipment. Typical elements are the type, location, and purpose of each item of emergency equipment such as fire and oxygen bottles, first aid kits, life rafts, life preservers, crash axes, and emergency exits and lights. Other elements include each item of egress equipment such as slides, slide rafts, escape straps or handles, hatches, and ladders or movable stairs.
- (21) APU. Elements should include installation of the APU, APU capacity, and operation including its electrical and bleed air capabilities and how it interfaces with the aircraft's electrical and pneumatic systems. Other elements include the APU components such as inlet doors, exhaust ducts, and fuel supply.

c) Aircraft Systems Integration.

Preparation for Flight Training. Effective systems integration training serves as a logical bridge between conventional ground training instructional delivery methods and flight training. This training allows auxiliary pilots to become familiar with the flight deck layout, checklists, operator procedures, and other areas that are best learned before they conduct actual flight maneuvers and procedures.

(1) Example Topics. The following examples are of aircraft systems integration training modules with typical elements:

- (a) Use of Checklist. Typical elements include safety checks, flight deck preparation (switch position and checklist flows), checklist callouts and responses, and checklist sequence.
- (b) Flight Planning. Elements should include performance limitations (e.g., meteorological, weight, and MEL/CDL items), required fuel loads, and weather planning (e.g., lower than standard takeoff minimums or alternate requirements).
- (c) Display Systems. Typical elements include the use of weather radar and other CRT displays (e.g., checklist, vertical navigation (VNAV) or longitudinal navigation displays).
- (d) Navigation Systems. Elements include preflight and operation of applicable receivers, onboard navigation systems, and flight plan information input and retrieval.
- (e) Autoflight. Typical elements include the autopilot, autothrust, and FD systems, including the appropriate procedures, normal and abnormal indications, and annunciators.
- (f) Flight Deck Familiarization. Typical elements include activation of aircraft system controls and switches to include normal, abnormal, and emergency switches and control positions, and relevant annunciators, lights, or other caution and warning systems.

B. INITIAL FLIGHT TRAINING.

Flight training consists of certain required maneuvers and procedures which are referred to as "training events". The training events, which must be included in flight training curriculum segments are specified below. Typical flight training hours are: Multiengine airplane - IFR/VFR 8 hours, VFR only 4 hours, Single engine airplane - IFR/VFR 6 hours, VFR only 3 hours, and helicopter - IFR/VFR 10 hours, VFR only 4 hours. Objectives. The primary objective of flight training is to provide an opportunity for auxiliary pilots to acquire the skills and knowledge necessary to perform to the FAA Practical Test Standards and Interagency Practical Test Standards (ITPS).

- 1) Curriculum Segment. A flight training curriculum segment may be outlined in a modular format or may be outlined as a series of events in which training must be accomplished. This curriculum segment must include as many training modules or events as necessary to provide appropriate training. Each training module or event outline should provide at least the following information:
 - a) A descriptive title of the training module;
 - b) A list of the training events that must be accomplished during flight training;
 - c) Any specific conditions applicable to a particular training event, such as the weather minimums to be used; and
 - d) Provisions for briefing before and after each training period.
- 2) Maneuvers and procedures tables. The events which must be accomplished during flight training are listed in this section. This list can be used as a single-source document in the development of flight training curriculum.
 - a) Single and multiengine - airplanes.
 - (1) Preparation
 - (a) Visual Inspection
 - (b) Pretaxi Procedures
 - (c) Performance Limitations
 - (2) Surface operations
 - (a) Flight Deck Management
 - (b) Securing Cargo
 - (c) Starting
 - (d) Taxi
 - (e) Powerback Taxi
 - (f) Step Turns, Sea Planes (SEA)
 - (g) Sailing SEA
 - (h) Pretakeoff Checks

- (3) Takeoff
 - (a) Normal
 - (b) Crosswind
 - (c) Short/Soft Field
 - (d) Glassy/Rough Water, SEA
 - (e) Rejected
 - (f) Powerplant Failure After VMC or airborne
 - (g) Lower than Standard Minimum, IFR only
- (4) Climb
 - (a) Normal
 - (b) One Engine Inoperative, ME only
- (5) En route
 - (a) Steep Turns
 - (b) Stall Prevention
 - (c) Powerplant Shutdown and Restart, ME only
 - (d) Slow Speed Handling Characteristics
 - (e) With a Powerplant Inoperative
- (6) Descent
 - (a) Normal
 - (b) Maximum Rate
- (7) Approaches
 - (a) VFR Procedures, normal and single engine
 - (b) With flap failure
 - (c) Precision approaches normal and single engine, IFR only
 - (d) Nonprecision Approaches normal and single engine, IFR only
 - (e) Missing approaches from a precision and nonprecision approaches, IFR only
 - (f) Inadvertent IMC, VFR only
- (8) Landings
 - (a) VFR normal and single engine

- (b) From precision instrument approach normal and single engine IFR only
 - (c) Crosswind
 - (d) Short/soft Field
 - (e) Glassy/rough water SEA
- (9) After landing
- (a) Docking, mooring and ramping SEA
 - (b) Parking
 - (c) Emergency Evacuation
- (10) Other flight procedures during any airborne phase
- (a) Holding, IFR only
 - (b) Ice accumulation on airframe
 - (c) Air hazard avoidance
 - (d) Wind shear/microburst
- (11) Systems procedures training during any phase, normal, abnormal and alternate
- (a) Pneumatic/pressurization
 - (b) Air conditioning
 - (c) Fuel and oil
 - (d) Electrical
 - (e) Hydraulic
 - (f) Flight Controls
 - (g) Anti-Icing and Deicing Systems
 - (h) Autopilot
 - (i) Stall Warning Devices, Stall Avoidance Devices, and Stability Augmentation Systems
 - (j) Airborne Weather Radar
 - (k) Flight Instrument System Malfunction
 - (l) Communications Equipment
 - (m) Navigation Systems
- (12) Systems procedures training during any phase - emergency

- (a) Aircraft Fires
 - (b) Smoke Control
 - (c) Powerplant Failure/Fire
 - (d) Electrical, Hydraulic, Pneumatic Systems
 - (e) Flight Control Systems Malfunction
 - (f) Landing Gear and Flap Systems Malfunction
 - (g) Air Hazard Avoidance
 - (h) Wind Shear/Microburst
 - (13) Special Use
- b) Helicopters
- (1) Preparation
 - (a) Visual Inspection
 - (b) Pretaxi Procedures
 - (c) Performance Limitations
 - (2) Surface operation
 - (a) Starting
 - (b) Rotor Engagement
 - (c) Rotor Engagement on Water SEA
 - (d) Taxiing
 - (e) Water Taxiing SEA
 - (f) Lift-to-Hover IGE/OGE
 - (g) Hover Turns IGE/OGE
 - (h) Sideward/Rearward Hovering
 - (i) Slope Operations
 - (j) Liftoff
 - (3) Takeoff
 - (a) Normal
 - (b) Instrument, IFR only
 - (c) Obstacle Clearance
 - (d) Running (High Altitude)

- (e) Rejected Takeoff
- (4) Climb
 - (a) Normal
 - (b) Best Rate
 - (c) Best Angle
- (5) En route
 - (a) Medium-Banked Turns
 - (b) Low-Speed Characteristics
 - (c) High-Speed Handling Characteristics
- (6) Descent
 - (a) Normal
 - (b) Maximum Rate
 - (c) Autorotative Glide
- (7) Approaches
 - (a) VFR Procedures, Normal
 - (b) Obstacle Clearance
 - (c) High Altitude
 - (d) Elevated Landing Site
 - (e) With Degraded Control Augmentation
 - (f) Balked Landing
 - (g) Brownout/Whiteout/Flat Light Operations
 - (h) Precision approaches normal and single engine, IFR only
 - (i) Nonprecision Approaches normal and single engine, IFR only
 - (j) Missing approaches from a precision and nonprecision approaches, IFR only
- (8) Landings
 - (a) Normal
 - (b) Normal to-the-water SEA
 - (c) Crosswind
 - (d) From Precision Instrument Approach

- (e) With Degraded Control Augmentation
- (9) After landing
 - (a) Taxi
 - (b) Parking
 - (c) Stopping the Rotors
 - (d) Emergency Evacuation
- (10) Unprepared site operations
 - (a) Confined Areas
 - (b) Pinnacles
 - (c) Ridgelines
 - (d) Water Sites SEA
- (11) Other flight procedures during any airborne phase
 - (a) Recovery from IIMC, VFR only
 - (b) Holding, IFR only
 - (c) Ice Accumulation on Airframe
 - (d) Air Hazard Avoidance
 - (e) Wind Shear/Microburst
- (12) Systems procedures training during any phase, normal, abnormal and alternate
 - (a) Pneumatic/Pressurization
 - (b) Air Conditioning
 - (c) Fuel and Oil
 - (d) Electric
 - (e) Hydraulic
 - (f) Flight Controls
 - (g) Anti-Icing and Deicing Systems
 - (h) Autopilot
 - (i) Flight Management Guidance Systems
 - (j) Automatic or Other Approach and Landing Aids
 - (k) Loss of Anti-Torque Effectiveness

- (l) Airborne Weather Radar
 - (m) Flight Instrument System Malfunction
 - (n) Communications Equipment
 - (o) Navigation Systems
- (13) Systems procedures training during any airborne phase, emergency
- (a) Aircraft Fires
 - (b) Smoke Control
 - (c) Powerplant Malfunctions
 - (d) Electrical, Hydraulic, Pneumatic Systems
 - (e) Flight Control Systems Malfunction
 - (f) Landing Gear Malfunction
 - (g) Anti-Torque Failure
 - (h) Settling-with-Power
- (14) Night vision goggle (NVG)
- (a) NVG Operational Checks
 - (b) NVG Failure
 - (c) Transitions: Aided/Unaided
- (15) Additional considerations
- (a) Inadvertent IMC
 - (b) Unusual Attitude Recovery
 - (c) Ground Hazard Recognition
 - (d) Brownout/Whiteout/Flat-Light Operations
 - (e) External Light Techniques
 - (f) Scanning Techniques
 - (g) Special Use

C. RECURRENT GROUND TRAINING.

Auxiliary pilots are required to complete recurrent training annually. Recurrent ground training completed in the month prior or the month after it's due is considered done in the due month.

Reinstatement training is required when an auxiliary pilot does not complete recurrent training within 12 months.

Reinstatement training for an auxiliary pilot that has completed initial or recurrent training in the previous 36 months is the same as recurrent training. Auxiliary pilots that go more than 36 months without any recurrent training are required to complete the initial training prior to reinstatement.

1) General Emergency Training.

a) Emergency Situation.

- (1) Rapid decompression
- (2) In-flight fire (or on-the-surface) and smoke control procedures;
- (3) Ditching and evacuation situations; and
- (4) Illness, injury, the proper use of first aid equipment, and other abnormal situations involving passengers or crewmembers.

b) Emergency Drill Training.

- (1) Operation of emergency exits (such as floor level, over wing, and tail cone) in the normal and emergency modes;
- (2) Operation of each type of hand-held fire extinguisher;
- (3) Operation of each type of emergency oxygen system;
- (4) Donning, use, and inflation of life preservers and other flotation devices (if applicable); and
- (5) Ditching procedures (if applicable), including cockpit preparation, crew coordination, passenger briefing, cabin preparation, the use of lifelines, and boarding of passengers and crew into a life raft or slide raft, as appropriate.

2) Aircraft Ground Training. The subject material required for recurrent aircraft ground training is identical to the initial training required. However, due to the nature of recurrent training the time spent training is significantly less. Typically, 4 hours of aircraft recurrent ground training is considered sufficient for single and multiengine airplanes and helicopters.

D. RECURRENT FLIGHT TRAINING.

Pilots are required to complete recurrent training annually. Within 12 months of completing initial flight training or subsequent recurrent training auxiliary pilots are required to complete recurrent flight training listed below. Recurrent flight training completed in the month prior or the month after it is due is considered done in the due month.

Typically, 1-4 hours of aircraft recurrent flight training is considered sufficient for single and multiengine airplanes and helicopters. Satisfactory completion of the flight evaluation(s) required by policy "may be substituted for recurrent flight training." See Recurrent Ground Training for reinstatement requirements.

E. QUALIFICATION.

Required flight evaluations are done in accordance with DOI policy or the contract, as applicable, and will be conducted in compliance with FAA practical test standards and the IPTS.