VOLUME 2 AIR OPERATOR AND AIR AGENCY CERTIFICATION AND APPLICATION PROCESS

CHAPTER 4 THE CERTIFICATION PROCESS—14 CFR PART 135

Section 8 Safety Assurance System: Evaluate a Part 135 (Nine or Less) Operator's/Applicant's Maintenance Requirements

2-506 REPORTING SYSTEM(S). Use Safety Assurance System (SAS) automation to record Title 14 of the Code of Federal Regulations (14 CFR) part 135 maintenance oversight. This section is related to SAS elements in System 4, Aircraft Technical Operations.

2-507 OBJECTIVE. This section provides information, policy, and guidance on aircraft maintenance requirements a person must meet to operate under 14 CFR part 135 with aircraft type certificated (TC) for a passenger seating configuration, excluding any pilot seat, of nine seats or less. Inspectors should use this section with other applicable sections in Volume 2, Chapter 4.

2-508 BACKGROUND.

A. Part 135 Maintenance Requirements. The primary factor in determining the applicable maintenance, preventive maintenance, and alterations requirements for aircraft operated under part 135 is the number of TC'd passenger seats configured for the aircraft. Part 135, § 135.411(a)(1) contains the requirements for aircraft TC'd for a passenger seating configuration, excluding any pilot seat, of nine seats or less. Section 135.411(a)(2) contains the requirements for aircraft TC'd for a passenger seating configuration, excluding any pilot seat, of 10 seats or more. In practice, the number of seats installed in an aircraft as manufactured will differ from the maximum capacity approved as part of the aircraft's type design. Some manufacturers may approve passenger seating "configurations" as part of the type design with fewer number of passenger seats specified than the maximum "capacity" allowed by that type design. To determine which maintenance program under § 135.411(a) applies to a particular aircraft, one would compare the number of seats and as configured interior to those listed, or referenced, on either the Type Certificate Data Sheet (TCDS) or the type certificate (TC) (see 14 CFR part 21, § 21.41, for the definition of TC). For the purpose of this section, operators may elect to configure their aircraft in accordance with any of those TC'd passenger seating configurations.

B. Distinction Between Nine or Less and 10 or More. The Federal Aviation Administration (FAA) made the 9 or less and 10 or more distinction in 1978 when amending part 135. The preambles to both the Notice of Proposed Rulemaking (NPRM) and the Final Rule make clear that it is the TC'd passenger seating configuration (meaning the actual numbers of seats listed in the TC or Supplemental Type Certificate (STC) as an approved configuration) of an aircraft, not its size or complexity, that determines which of the above two alternative maintenance programs applies to a particular aircraft (42 FR 43536, August 29, 1977, and 43 FR 46779, October 10, 1978). As further discussed below, this means that the passenger seating configuration and the actual numbers of seats of the particular aircraft at issue must be included in the TC (which may be referenced on the TCDS or approved through an STC).

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C. Part 135 Maintenance Provisions. For the purposes of § 135.411(a), an aircraft's maximum seating capacity does not necessarily determine the applicable maintenance provisions of this section. Some design approval holders (DAH) may obtain an FAA-issued TC for an aircraft, without providing or referencing an interior seating configuration on the TCDS. Based on an engineering analysis and proof of regulatory compliance, they will often place an "up to" or "maximum passenger capacity" limitation on the TCDS for that aircraft. This TCDS number is relevant because the DAH will generally demonstrate compliance to the applicable certification standards by specifying the maximum number of passenger seats allowed, giving consideration to such things such as weight, balance, floor loading, and passenger egress, for example. However, this figure does not generally represent the TC'd seating configuration and actual number of seats approved (TC'd) for a particular aircraft. Instead, it generally represents the maximum passenger capacity allowed for that particular type design.

D. Removal of Passenger Seats. The FAA considered that some air carriers could remove one or two seats from the aircraft that carried slightly more than 10 passengers to avoid the otherwise applicable regulation. However, the FAA believed this was unlikely to cause a problem because seat removal precluded the realization of the aircraft's full productivity potential and resulted in a significant economic penalty to the air carrier. The FAA noted that the trend at the time was to operate aircraft with more seats, not less.

NOTE: For aircraft conducting operations under the provisions of part 135, (with nine or less passenger seats) the pilot of that certificate holder may perform the removal and reinstallation of approved aircraft cabin seats, provided that pilot has satisfactorily completed an approved training program and is authorized in writing by the certificate holder to perform that task. The air carrier must have written procedures available for the pilot to evaluate the accomplishment of the task.

E. Type Certificated Passenger Seating Configuration. To determine which maintenance program under § 135.411(a) applies to a particular aircraft; one would compare the number of seats and as configured interior to those listed, or referenced, on the TCDS. Different configurations may also have been approved during the type certification process, but are not always provided to the owner/operator through TCDS; these configurations may reside only in the DAH's drawings. Accordingly, if an aircraft is being operated under part 135, and is configured with any one of a number of passenger seating configurations that are included in the TC (e.g., drawings that are approved as part of the type design), the passenger seating configuration and number of seats installed on that particular aircraft determines whether § 135.411(a)(1) or § 135.411(a)(2) applies for purposes of determining the aircraft's maintenance program. A DAH may also provide the FAA with one or more seating configuration(s) and seat numbers, at the time of certification, that are within the maximum capacity limitation. Generally, these configurations are referenced on the TCDS, and provide the various configurations through either the Aircraft Flight Manual (AFM) or pilot's operating handbook (POH). If there are any questions on whether the seating configurations located in the AFM or POH are approved or not, contact the Aircraft Certification Office (ACO) in your geographic area for assistance.

F. Maintenance Programs for Custom Type Designs. Occasionally, owners/operators elect to customize the interior configurations of their aircraft, with configurations that are not included in the approved type design, to meet their needs. In order to use these seating

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configurations when determining which maintenance program should be used, (i.e., whether § 135.411(a)(1) or § 135.411(a)(2) applies), either the DAH would have to amend the type design, to include the owner/operator's configuration, or the configuration would require approval through the STC process.

G. Operation Versus Maintenance. Whereas the removal of passenger seats without an STC or TC amendment, blocking of passenger seats, and the use of place cards restricting the use of passenger seats may be acceptable for aircraft operations, it does not constitute an acceptable means of qualifying the aircraft for maintenance requirements under § 135.411(a)(1). These methods do not change the TC'd passenger seating configuration.

2-509 OPERATIONS SPECIFICATIONS (OPSPECS).

A. Commuter Operations. The air carrier that conducts commuter operations under part 135 must obtain the OpSpecs listed in 14 CFR part 119, § 119.49.

B. On-Demand Operations. The air carrier that conducts on-demand operations under part 135 must obtain the OpSpecs listed in § 119.49(c).

C. Additional Maintenance Requirements. Section 119.49(c)(9) requires the air carrier conducting on-demand operations to obtain the following OpSpecs for additional maintenance requirements under § 135.421, as applicable. The following OpSpecs may not require the listing of every item on the aircraft with a time limit as OpSpec D088, Maintenance Time Limitations Authorization, or OpSpec D089, Maintenance Time Limitations Section, do. However, this does not relieve the air carrier from tracking and complying with time limit-related regulations such as 14 CFR part 91, §§ 91.403(c) and 91.409(e).

- OpSpec D101, Additional Maintenance Requirements—Aircraft Engine, Propeller, and Propeller Control (Governor);
- OpSpec D102, Additional Maintenance Requirements—Rotorcraft;
- OpSpec D103, Additional Maintenance Requirements—Single Engine IFR; and
- OpSpec D104, Additional Maintenance Requirements—Emergency Equipment.

2-510 MAINTENANCE AND INSPECTION REQUIREMENTS–§ 135.411(a)(1).

A. Maintenance and Inspection. Section 135.411(a)(1) requires air carriers utilizing aircraft that are TC'd for a passenger seating configuration, excluding any pilot seat, of nine seats or less to maintain the aircraft under 14 CFR parts 43 and 91, including §§ 135.415, 135.417, 135.421, and 135.422. Section 135.411(a)(1) also provides the air carrier the option of using the Approved Aircraft Inspection Program (AAIP) under § 135.419 to inspect its aircraft in lieu of using an inspection listed under § 91.409. Additionally, § 135.411(b) provides a third option to the air carrier, which is to maintain its aircraft under a Continuous Airworthiness Maintenance Program (CAMP) under § 135.411(a)(2). The FAA evaluates and authorizes a CAMP in accordance with the guidance in Volume 3, Chapter 43, Section 1, Evaluating a Part 121 and Part 135 Continuous Airworthiness Maintenance Program. Because of these variables/options for maintaining aircraft with nine or less seats, the air carrier and inspector must read, understand, and follow the applicable regulations for maintaining the aircraft.

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B. Authority to Perform and Approve Maintenance. The air carrier that maintains its aircraft under § 135.411(a)(1) is not a maintenance entity and is not authorized under part 135 to perform and approve maintenance on its aircraft under its certificate.

NOTE: The authority to perform and approve maintenance as provided in § 135.427 only applies to the air carrier that maintains its aircraft under § 135.411(a)(2). Therefore, the air carrier maintaining its aircraft under § 135.411(a)(1) must use persons listed in part 43, §§ 43.3 and 43.7 authorized to perform maintenance and approve the aircraft for return to service.

C. Manual Requirements. The air carrier that maintains its aircraft under § 135.411(a)(1) is not required to comply with the manual requirements specified in § 135.427. However, this does not relieve the air carrier from having the programs, instructions, and manuals required elsewhere in the regulations, such as in § 91.409(d). Except for single-pilot and single pilot-in-command (PIC) operations, all air carriers, regardless of how they maintain their aircraft, are required to have the manual specified in § 135.21. Although this manual is commonly referred to as the operations manual, it contains some maintenance-related items, such as the AAIP, when applicable.

D. Part 135 Included. Under § 135.411(a)(1), the air carrier is required to comply with the following maintenance related sections of part 135, which are discussed later in this section:

- Section 135.413;
- Section 135.415;
- Section 135.417;
- Section 135.419 (only required for AAIP);
- Section 135.421; and
- Section 135.422.

2-511 MAINTAINING AIRCRAFT UNDER PART 91.

A. Part 91. Unless stated otherwise in the regulation, the part 91 maintenance regulations referenced in § 135.411(a)(1) are those listed in part 91 subpart E, Maintenance, Preventive Maintenance, and Alterations, and § 91.207. Instead of restating each part 91 subpart E regulation, this section will address those regulations that have caused the most confusion.

B. Responsibility. Section 135.413(a) makes the air carrier that maintains its aircraft under § 135.411(a)(1) primarily responsible for the airworthiness of its aircraft. However, responsibility for the performance of maintenance is shared between the air carrier and the mechanic performing the maintenance. This is consistent with the part 91 and part 43 regulation under which the aircraft is maintained, such as §§ 91.403, 91.405, 43.13, and 43.15.

C. Part 91 Inspections. If the air carrier does not choose the AAIP or CAMP options under § 135.411 for its nine or less aircraft, it must inspect its aircraft in accordance with § 91.409. The inspector should advise the air carrier to read § 91.409 carefully, starting at the beginning to determine which inspection is appropriate for their type of operation. Some types of inspections listed under § 91.409 are optional and some are required. If requested, the inspector

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may provide assistance to the air carrier by explaining the inspections listed in § 91.409 applicable to the air carrier.

D. Annual. Section 91.409(a) states that, except as provided in § 91.409(c), no person may operate an aircraft unless, within the preceding 12 calendar-months, it has had an annual inspection in accordance with part 43 and has been approved for return to service by a person authorized by § 43.7. The air carrier that inspects its aircraft under the annual inspection must include all of the items listed in part 43 appendix D, Scope and Detail of Items (As Applicable to the Particular Aircraft) to Be Included in Annual and 100-Hour Inspections that apply to the air carrier's particular aircraft. The air carrier may include more items in its inspections than those listed in part 43 appendix D.

E. 100-Hour. Section 91.409(b) states that, except as provided in § 91.409(c), no person may operate an aircraft carrying any person (other than a crewmember) for hire unless within the preceding 100 hours of time in service the aircraft has received an annual or 100-hour inspection and has been approved for return to service in accordance with part 43 of this chapter or has received an inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter. Part 43 appendix D lists the scope and detail of the 100-hour inspection. The air carrier that inspects its aircraft under the 100-hour inspection must include all of the items listed in part 43 appendix D that apply to the air carrier's particular aircraft. The air carrier may include more items in its inspections than those listed in part 43 appendix D. The air carrier may exceed the 100-hour limitation by no more than 10 hours while en route to reach a place where the inspection can be done. However, this provision does not apply to Airworthiness Directives (AD) or airworthiness limitations (AL) in the manufacturer's maintenance manual or instructions for continued airworthiness (ICA). In computing the next 100 hours of time in service, the air carrier must include the excess time it used to reach the place where the inspection took place.

F. Annual/100-Hour Applicability. Section 91.409(c) states that § 91.409(a) and (b) do not apply to the following:

- An aircraft that carries a special flight permit, a current experimental certificate or a light-sport or provisional airworthiness certificate;
- An aircraft inspected in accordance with an AAIP under part 135 and so identified by the registration number in the OpSpecs of the certificate holder having the approved inspection program;
- An aircraft subject to the requirements of § 91.409(d) or (e); or
- Turbine-powered rotorcraft when the operator elects to inspect that rotorcraft in accordance with § 91.409(e).

G. Progressive Inspection. Section 91.409(d) provides that each registered owner or operator of an aircraft desiring to use a progressive inspection program must submit a written request to the Flight Standards District Office (FSDO) that has jurisdiction over the area in which the applicant is located, and shall provide the following:

1) A certificated mechanic holding an Inspection Authorization (IA), a certificated airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection.

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2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail:

- An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;
- An inspection schedule specifying the intervals in hours or days for routine and detailed inspections that includes instructions for exceeding an inspection interval by not more than 10 hours while en route and for changing an inspection interval because of service experience;
- Sample routine and detailed inspection forms and instructions for their use;
- Sample reports, records and instructions for their use;
- Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and
- Appropriate current technical information for the aircraft.

H. Progressive Inspection Advantages. A progressive inspection allows the air carrier to inspect the aircraft progressively. It breaks down the large task of conducting a major inspection, such as an annual inspection, into smaller tasks that an air carrier can accomplish periodically without taking the aircraft out of service for an extended period of time. The air carrier normally gains the advantage of the progressive inspection when the aircraft operates beyond a minimum number of hours per year, usually established by the manufacturer.

I. Progressive Inspection Review. The Airworthiness inspector will verify the following criteria:

1) The air carrier has submitted their written request to use the progressive inspection.

2) The air carrier is located within the jurisdiction of the FSDO.

3) The air carrier's request contains the name of one of the persons listed under § 91.409(d)(1). If the air carrier provides the name of a mechanic, the inspector will verify the mechanic's certificate and IA. If the air carrier provides the name of a repair station, the inspector will verify the repair station is rated to conduct the inspection.

4) The air carrier provides a current inspection procedures manual that contains in detail all the requirements listed under § 91.409(d)(2) and the last paragraph under § 91.409(d).

5) The inspection procedures manual is available and readily understandable to the pilot and maintenance personnel.

6) The air carrier provides enough housing and equipment for necessary disassembly and proper inspection of the aircraft.

7) The air carrier provides appropriate current technical information for the aircraft.

8) The air carrier is aware of the regulatory requirements for discontinued use of the progressive inspection.

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J. Large Airplanes, Turbojet Multiengine Airplanes, Turbopropeller-Powered Multiengine Airplanes, and Turbine-Powered Rotorcraft. Section 91.409(e) pertains to large airplanes (more than 12,500 pounds maximum takeoff weight (MTOW); see Volume 2, Chapter 2, Section 2, subparagraph 2-129C for modified aircraft), turbojet multiengine airplanes, turbopropeller-powered multiengine airplanes, and turbine-powered rotorcraft. The inspector will verify the following:

- The air carrier's aircraft conforms to the requirement for replacement of life-limited parts specified in the aircraft specifications, TCDS, or other documents approved by the Administrator.
- The air carrier has a method, means and controls for tracking life-limited parts and ensuring their replacement.
- The air carrier selects an inspection program under § 91.409(f) and inspects the aircraft including the airframe, engines, propellers, rotors, appliances, survival equipment, and emergency equipment in accordance with the program.

NOTE: The air carrier operating a turbine-powered rotorcraft may elect to use the inspection provisions of § 91.409(a), (b), (c), or (d) in lieu of an inspection option of § 91.409(f).

K. Identify Inspection Program. The inspector will verify the air carrier identifies the inspection program it selected under § 91.409(f) in the aircraft maintenance records. The inspector will also verify the air carrier includes in its program the name and address of the person responsible for scheduling the inspections required by the program. The inspector will verify that the air carrier makes a copy of that program available to the person performing inspections on the aircraft and, upon request, to the Administrator. The following is a list of programs under § 91.409(f) that the air carrier may select from:

NOTE: The inspection listed in § 91.409(f)(4) is the only inspection listed under § 91.409(f) that requires FAA approval.

1) If the air carrier selects a continuous airworthiness inspection program, it must show that it is part of a CAMP currently in use by a person holding an air carrier operating certificate or an operating certificate issued under 14 CFR parts 121 or 135 and operating that make and model aircraft under part 121, or operating that make and model under part 135 and maintaining it under § 135.411(a)(2).

NOTE: A continuous airworthiness inspection program is not the same thing as a CAMP. The inspection program is only one element of the maintenance program. The inspector will verify what the air carrier has submitted is correct.

2) If the air carrier chooses the AAIP program, it must show that it is approved under § 135.419 and currently in use by a person holding an operating certificate issued under part 135. The inspector will verify what the air carrier has submitted is correct. The inspector does not approve the AAIP again. However, once authorized, any changes must be FAA-approved.

3) If the air carrier selects a current inspection program recommended by the

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manufacturer, it must provide the manufacturer's document that shows and describes the program. The inspector will verify that the program submitted is current, applicable, and complete.

NOTE: Normally, the manufacturer's inspection program applies to the aircraft as it was configured when it left the factory. If the aircraft was altered after it left the factory, the air carrier must account for the manufacturer's inspection requirements for the alteration.

4) Any other inspection program established by the registered owner or operator of that airplane or turbine-powered rotorcraft and approved by the Administrator under § 91.409(g). However, the Administrator may require revision of this inspection program in accordance with the provisions of § 91.415. The inspector will use the manufacturer's recommended inspection program as the basis for approving this program. The inspector should be aware that the manufacturer's inspection program might not cover all the equipment installed on the aircraft after it was manufactured.

L. Changes to Inspection Program. Section 91.409(h) requires that, when the air carrier changes from one inspection program under § 91.409(f) to another, the time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program.

M. FAA Changes to Aircraft Inspection Programs. Section 91.415 provides the authority to the FAA to make changes to the air carrier's FAA-approved inspection program under § 91.409(f)(4). The FAA must find that the revisions are necessary for the continued adequacy of the program.

N. Maintenance Records. Section 91.417 contains the maintenance records requirements for the air carrier maintaining its aircraft under § 135.411(a)(1). For additional information on maintenance records, see Volume 6, Chapter 1, Section 3.

2-512 MAINTAINING AIRCRAFT UNDER PART 43.

A. Part 43. The part 43 regulations referenced in § 135.411(a)(1) are all those listed in part 43, unless stated otherwise in each section of part 43. Instead of restating each part 43 regulation, this section will address those regulations that have caused the most confusion.

B. Authority to Perform Maintenance. An air carrier that is subject to § 135.411(a)(1) is not authorized to perform maintenance and must use persons authorized, as specified in §§ 43.3 and 43.7. Sections 43.3 and 43.7 list persons authorized to perform and approve maintenance on the air carrier aircraft maintained under § 135.411(a)(1). The inspector should note that the reference to the air carrier in § 43.3(f) and § 43.7(e), respectively, does not apply because the provision in § 135.437 to perform and approve maintenance only applies to the air carrier that maintains its aircraft under § 135.411(a)(2).

C. Approval for Return to Service. Sections 43.5 and 91.407 govern approval for return to service following the performance of maintenance on aircraft maintained under § 135.411(a)(1).

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D. Content Form and Disposition of Records.

1) Except Inspections. Section 43.9 contains the requirements for recording maintenance, preventive maintenance, rebuilding, and alterations for aircraft maintained under § 135.411(a)(1).

2) For Inspections. Section 43.11 contains the requirements for recording inspections performed under part 91 and §§ 135.411(a)(1) and 135.419.

E. Maintenance, Preventive Maintenance, and Alteration Performance Rules. Section 43.13 contains the performance rule for maintenance, preventive maintenance, and alterations for aircraft maintained under § 135.411(a)(1). The provision under § 43.13(c) for using the air carrier's manual does not apply to aircraft maintained under § 135.411(a)(1).

F. Additional Performance Rules for Inspections. Section 43.15 contains additional performance rules for inspections performed under parts 91 and 135 that are applicable to aircraft maintained under § 135.411(a)(1).

G. Airworthiness Limitations. Section 43.16, which is applicable to the air carrier that maintains its aircraft under § 135.411(a)(1), requires each person performing an inspection or other maintenance specified in an ALs section of a manufacturer's maintenance manual or ICA shall perform the inspection or other maintenance in accordance with that section, or in accordance with the OpSpecs approved by the Administrator under part 135, or an inspection program approved under § 91.409(e). Additional information on ICAs is available in the current edition of Advisory Circular (AC) 33.4-1, Instructions for Continued Airworthiness.

2-513 ADDITIONAL MAINTENANCE REQUIREMENTS.

A. Additional Requirements. Each air carrier maintaining its aircraft under § 135.411(a)(1) must also comply with the additional maintenance requirements of § 135.421. Section 135.421 states that each certificate holder who operates an aircraft TC'd for a passenger seating configuration (excluding any pilot seat) of nine seats or less, must comply with the manufacturer's recommended maintenance programs or a program approved by the Administrator for each aircraft engine, propeller, rotor, and each item of emergency equipment required by the regulations. It is important to note that the requirements are not just limited to inspections; they must include all requirements, such as cleaning, inspecting, adjusting, testing, and lubricating.

B. Manufacturer's Maintenance Program. Section 135.421 specifies that a manufacturer's maintenance program is one that is contained in the maintenance manual or maintenance instructions set forth by the manufacturer as required by the applicable regulations for the aircraft, aircraft engine, propeller, rotor, or item of emergency equipment. These added requirements are intended to ensure the performance of the manufacturer's recommended maintenance programs on engines, propellers, rotors, and each item of required emergency equipment. These requirements do not apply to the airframe.

C. Engines and Propellers. Engine requirements apply to the engine itself, including turbosuperchargers and accessories necessary to its function. They do not include aircraft

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provisions such as mounts or cowling, or accessories such as generators or starters. A propeller is defined in 14 CFR part 1 as including controls normally supplied by the manufacturer. Most propeller TCDSs specify the applicable control unit, which a person should consider part of the propeller.

D. Program Approved by Administrator. Section 135.421 provides the applicant the option to use an FAA-approved maintenance program in lieu of the manufacturer's recommended maintenance program for each aircraft engine, propeller, or rotor it intends to operate and each item of emergency equipment required by regulation. If the applicant chooses this option and submits a program for approval, the inspector will use the manufacturer's recommended maintenance program as the basis for the review.

1) The inspector must inform the applicant prior to the review that he or she will only consider any deviation from the manufacturer's program on the basis of the applicant submitting acceptable justification for the deviation. Additionally, the inspector may consider for approval a program submitted by the applicant that is based on a current approved program for another air carrier for a similar make and model aircraft. However, the inspector must take into account such things as the applicant's experience, operating environment, and maintenance support before approving the program.

2) Once approved, any changes made to the program must also receive FAA approval. Changes submitted by the air carrier that are based on changes to the manufacturer's program will not receive automatic approval. Again, the inspector will consider such things as the air carrier's experience, operating environment, and maintenance support prior to approving the changes.

E. Single-Engine Aircraft Used in Passenger-Carrying Instrument Flight Rules (IFR) Operations. Section 135.411(c) requires the air carrier that uses a single-engine aircraft in passenger-carrying IFR operations to maintain the aircraft in accordance with § 135.421(c), (d), and (e).

1) Section 135.421(c) requires that, for each single-engine aircraft used in passenger-carrying IFR operations, the air carrier must incorporate into its maintenance program either:

- The manufacturer's recommended engine trend monitoring program (see subparagraph 2-514A), which includes an oil analysis, if appropriate; or
- An FAA-approved engine trend monitoring program that includes an oil analysis at each 100-hour interval or at the manufacturer's suggested interval, whichever is more frequent (see subparagraph 2-514B).

2) Section 135.421(d) requires that, for single-engine aircraft to be used in passenger-carrying IFR operations, written maintenance instructions containing the methods, techniques, and practices necessary to maintain the equipment specified in §§ 135.105 and § 135.163(f) and (h) are required.

3) Section 135.421(e) states that no air carrier may operate a single-engine aircraft

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under passenger-carrying IFR operations unless the air carrier records and maintains in the engine maintenance records the results of each test, observation, and inspection required by the applicable engine trend monitoring program specified in § 135.421(c)(1) and (2).

2-514 ENGINE TREND MONITORING.

A. Manufacturer. Some aircraft/engine manufacturers have developed engine trend monitoring programs for their products. Additionally, there are third-party service providers that will provide engine trend monitoring services to their customers. The inspector should review the engine trend monitor program to ensure that it is applicable to the air carrier's aircraft/operations and that the air carrier has the resources necessary to use the program (e.g., competent personnel, training, procedures, software (if applicable), equipment, and a recordkeeping system).

B. FAA-Approved. The current edition of AC 20-105, Reciprocating Engine Power-Loss Accident Prevention and Trend Monitoring, contains basic information on a trend monitoring program that the inspector should use to approve an engine trend monitoring program. Inspectors can seek assistance with approving the program from the applicable FAA Aircraft Evaluation Group (AEG).

AAIP. Section 135.411(a)(1) provides the air carrier the option of using the AAIP under § 135.419 for its TC'd nine or less passenger seat aircraft. Additionally, under § 135.419, the FAA may require the air carrier to use the AAIP for the reasons specified in the regulation. Regardless of the reason, the inspector will use Volume 3, Chapter 38, Section 1 to evaluate and approve the AAIP.

2-516 AGING AIRPLANE INSPECTIONS AND RECORDS REVIEWS FOR MULTIENGINE AIRPLANES CERTIFICATED WITH NINE OR LESS PASSENGER SEATS.

A. Applicability. Section 135.422 applies to multiengine airplanes certificated with nine or less passenger seats, operated by the air carrier in a scheduled operation under part 135, except for those airplanes operated by the air carrier in a scheduled operation between any point within the State of Alaska and any other point within the State of Alaska.

B. Compliance Dates. After the dates specified in § 135.422, the air carrier may not operate a multiengine airplane in a scheduled operation under part 135 unless the Administrator has notified the air carrier that the Administrator has completed the aging airplane inspection and records review required by § 135.422. During the inspection and records review, the air carrier must demonstrate to the Administrator that the maintenance of age-sensitive parts and components of the airplane has been adequate and timely enough to ensure the highest degree of safety.

1) Airplanes exceeding 24 years in service on December 8, 2003; initial and repetitive inspections and records reviews. For an airplane that has exceeded 24 years in service on December 8, 2003, no later than December 5, 2007, and thereafter at intervals not to exceed seven years.

2) Airplanes exceeding 14 years in service but not 24 years in service on

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December 8, 2003; initial and repetitive inspections and records reviews. For an airplane that has exceeded 14 years in service, but not 24 years in service, on December 8, 2003, no later than December 4, 2008, and thereafter at intervals not to exceed 7 years.

3) Airplanes not exceeding 14 years in service on December 8, 2003; initial and repetitive inspections and records reviews. For an airplane that has not exceeded 14 years in service on December 8, 2003, no later than five years after the start of the airplane's 15th year in service and thereafter at intervals not to exceed 7 years.

C. Scheduling Conflicts. In the event of an unforeseen scheduling conflict for a specific airplane, the Administrator may approve an extension of up to 90 days beyond an interval specified in § 135.422(b).

D. Must Make Available. The air carrier must make available to the Administrator each airplane for which an inspection and records review is required under § 135.422 in a condition for inspection specified by the Administrator, together with the records containing the following information:

- Total years in service of the airplane;
- Total time in service of the airframe;
- Date of the last inspection and records review required by this section;
- Current status of life-limited parts of the airframe;
- Time since the last overhaul of all structural components required to be overhauled on a specific time basis;
- Current inspection status of the airplane, including the time since the last inspection required by the inspection program under which the airplane is maintained;
- Current status of applicable AD, including the date and methods of compliance and, if the AD involves recurring action, the time and date when the next action is required;
- A list of major structural alterations; and
- A report of major structural repairs and the current inspection status for these repairs.

E. Notification to the FAA. Each air carrier must notify the Administrator at least 60 days before the date on which it will make the airplane and airplane records available for inspection and records review.

2-517 SERVICE DIFFICULTY REPORTS (SDR). Section 135.415 (which applies to all part 135 air carriers, operations, and aircraft) requires the air carrier to report the occurrence or detection of each failure, malfunction, or defect in an aircraft for the items listed under § 135.415. The inspector should use Volume 8, Chapter 5, Section 6 to evaluate the air carrier's compliance.

2-518 MECHANICAL INTERRUPTION SUMMARY REPORT (MISR). Section 135.417 (which applies to all part 135 air carriers, operations, and aircraft) requires the air carrier to mail or deliver, before the end of the 10th day of the following month, a summary report of the

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occurrences listed under § 135.417 in multiengine aircraft for the preceding month to the certificate-holding district office (CHDO). The inspector should use Volume 3, Chapter 32, Section 14 to evaluate the air carrier's compliance.

2-519 EXTENDED OPERATIONS (ETOPS). Section 135.411(d) requires an air carrier that elects to operate in accordance with § 135.364 to maintain its aircraft under § 135.411(a)(2) and the additional requirements of part 135 appendix G, Extended Operations (ETOPS). The inspector should use Volume 4, Chapter 6, Section 2 to evaluate the air carrier's compliance.

2-520 MANUFACTURER'S SERVICE PUBLICATIONS. Refer to the current edition of FAA Order 8620.2, Applicability and Enforcement of Manufacturer's Data.

RESERVED. Paragraphs 2-521 through 2-535.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 19 TRAINING PROGRAMS AND AIRMAN QUALIFICATIONS

Section 4 Safety Assurance System: Emergency Training Curriculum Segments Flightcrew General

3-1166 GENERAL. There are two types of emergency training that Title 14 of the Code of Federal Regulations (14 CFR) parts 121 and 135 operators must provide to flightcrew members. One type is aircraft-specific training. This type of emergency training includes instruction and practice in emergency and abnormal procedures associated with aircraft systems, structural design, and operational characteristics. This training provides pilots and Flight Engineers (FE) with the knowledge and skills necessary to perform the emergency or abnormal procedures specified in the approved Aircraft Flight Manual (AFM) or those AFM procedures incorporated in the operator's aircraft operating manual. Examples of such procedures are those used when engine, landing gear, flight control, and/or pressurization problems occur. Aircraft-specific training also includes training on the location of specific items of emergency equipment on the aircraft, such as fire extinguishers, oxygen bottles, liferafts, life vests, and first aid kits. Aircraft-specific training must be included in the aircraft ground and flight training curriculum segments as described in Volume 3, Chapter 19, Sections 4 and 5. The other type of emergency training is referred to as "general emergency training." General emergency training is required for crewmembers on each item specified in part 121, § 121.417 and part 135, § 135.331. This section provides direction and guidance on the content, methods of presentation, evaluation, and approval of flightcrew general emergency training. This section is related to Safety Assurance System (SAS) Element 2.1.1 (OP), Training of Flight Crew Members.

A. Subject Areas. Two distinct subject areas of training are required in the conduct of general emergency training. These areas of training are emergency drill training and emergency situation training. The general emergency training curriculum segment must contain training modules that provide for training in both subject areas.

1) Emergency drill training provides instruction and practice in the actual use of certain items of emergency equipment, such as fire extinguishers, life vests, oxygen bottles, and first aid equipment.

NOTE: The discharge of Halon extinguishing agents during firefighting drills is not appropriate unless a training facility is used that is specifically designed to prevent harm to the environment from the discharged Halon. When such facilities are not used, other fire extinguishing agents that are not damaging to the environment should be used during the drills.

2) Emergency situation training consists of instruction on the factors involved, as well as the procedures to be followed, when emergency situations occur. Examples include passenger evacuations, ditching, rapid decompressions (RD), aircraft fires, and persons needing first aid.

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B. Type of Operation. The training modules for general emergency training must address the type of operation performed by an operator. For example, if a company operates aircraft above 25,000 feet, crewmembers must receive instruction in subjects such as respiration, hypoxia, decompression sickness (DCS), and any related procedures. As another example, a company that does not conduct extended overwater operations does not need to conduct training in the use of liferafts.

3-1167 JOINT PILOT/FLIGHT ATTENDANT (F/A) EVACUATION TRAINING.

A. Background.

1) During a study, the National Transportation Safety Board (NTSB) asked flightcrews who had participated in actual evacuations that received detailed investigations what changes could be implemented to improve emergency evacuation of passengers. Four flightcrew members mentioned joint training with F/As. In addition, two F/As recommended joint training with the flightcrew on evacuation procedures. Although many crewmembers had participated in joint Crew Resource Management (CRM) training, a much smaller percentage indicated that it included joint evacuation drills. NTSB recommendations A-92-74 and A-92-77 recommended joint evacuation and/or wet ditching drill training, and joint CRM training that included group exercises to improve crewmember communication and coordination.

2) The Federal Aviation Administration (FAA) agreed with the intent of these safety recommendations. On February 8, 2001, the FAA issued Advisory Circular (AC) 120-51D, CRM Training, which states that F/As should conduct CRM training with flightcrews covering shared issues, such as evacuations and ditching. In addition, on February 12, 1995, the FAA issued Flight Standards Information Bulletin for Air Transportation (FSAT) 95-04, Emergency Evacuation and Ditching Drills, which expired on February 29, 1996. The bulletin directed principal operations inspectors (POI) to ensure that their assigned certificate holders are aware of the performance benefits that result when flightcrews and F/As perform emergency evacuation and ditching drills together.

B. Policy. Giving crewmembers the opportunity to experience crew coordination and teamwork during required training drills is highly desirable. This is not always possible because of the difference in the numbers, the training schedules, and the training facilities of F/As and flightcrew members. Regardless of these challenges, airlines have used a variety of methods to ensure that crewmembers understand the procedures and actions of other crewmembers during emergency situations. These methods have included the use of videos that show the procedures for both flightcrew and F/As during a simulated emergency situation, and the timeframes required to complete those procedures. The simulation is especially helpful when followed by a discussion in which crewmembers are encouraged to discuss the role of fellow crewmembers.

1) The FAA recognizes the value of all activities that encourage communication and coordination between crewmembers. This would include joint CRM training, joint evacuation training, schedules that allow pilots and F/As to remain together as a crew for the duration of their trip sequence, preflight briefings that occur between the captain and the F/A crew, and coordination between flightcrew and F/A training departments to ensure standardization of procedures. As evidenced in previous guidance that the FAA has published, these activities are

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strongly encouraged, and air carriers routinely integrate one or more of these items into their operational procedures or training programs.

2) POIs and cabin safety inspectors (CSI) (if applicable) should ensure that their assigned certificate holders are aware of the desirability of flightcrew and F/As performing emergency evacuation and ditching drills together. Furthermore, they should ensure that when this is not possible, air carriers are aware of the desirability of training programs that include information addressing the roles of other crewmembers during emergency evacuations and ditchings.

3-1168 GENERAL EMERGENCY TRAINING CURRICULUM SEGMENTS.

A. Part 121. All part 121 operators must develop and obtain approval of a general emergency training curriculum segment for the initial new-hire category of training. Part 121 operators using both Group I (propeller-driven) and Group II (turbojet-powered) aircraft must develop a general emergency training curriculum segment for flightcrew members required to receive initial equipment training on an aircraft in a different group for the first time. Part 121 operators may elect (or POIs may require them) to develop a separate general emergency training curriculum segment for flightcrew members required to receive initial equipment training on an aircraft in the same group. In this situation, the decision to develop a separate general emergency training curriculum segment should be based on the complexity of the operation, the extent of the differences in the flight regimes of the aircraft involved, and the extent of differences in the emergency equipment and procedures associated with the aircraft involved.

B. Part 135. All part 135 operators must develop and obtain approval of a general emergency training curriculum segment for the initial new-hire category of training. Part 135 operators may elect (or POIs may require them) to develop a separate general emergency curriculum segment for flightcrew members required to receive the initial equipment category of training. In this situation, the decision to develop a separate general emergency training curriculum segment should be based on the complexity of the operation, the extent of the differences in the flight regimes of the aircraft involved, and the extent of differences in the emergency equipment and procedures associated with the aircraft involved. For example, an operator who operates both reciprocating-powered and turbojet-powered aircraft may need to develop separate general emergency training curriculum segments for incorporation into the initial equipment category of training appropriate for these types of aircraft.

C. Related Aircraft Differences Training—Part 121. Aircraft-specific emergency training must be included in related aircraft differences ground and flight training curriculum segments, as specified by the Flight Standardization Board (FSB) report. (See Volume 3, Chapter 19, Section 12, for additional information regarding related aircraft designation and related aircraft differences training).

D. Transition and Upgrade Training—Parts 121 and 135. There is not a requirement for a separate general emergency curriculum segment for the transition and upgrade categories of training. For these categories of training, flightcrew members will have previously received the appropriate general emergency training during initial new-hire training or, when appropriate,

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initial equipment training. Aircraft-specific emergency training must be included in the transition or upgrade aircraft ground and flight training curriculum segments.

E. Recurrent Training—Parts 121 and 135. Part 121 and 135 operators must develop and obtain approval of a separate general emergency training curriculum segment for the recurrent category of training. Usually, for part 121, it will be appropriate to have two general emergency curriculum segments: one that reflects a 12-month cycle of emergency situation training, and another that reflects a 24-month cycle of emergency drill (actual hands-on) training (see paragraph 3-1169). However, for part 121, it is acceptable to incorporate the emergency drill (hands-on) training into a single curriculum segment provided it clearly requires that flightcrew members receive the emergency drill (hands-on) training at least once every 24 months.

F. Requalification Training—Parts 121 and 135. Whether a general emergency curriculum segment is required for the requalification category of training is dependent on the purpose of the requalification training. In general, if the purpose of the requalification training is to requalify flightcrew members that have been unqualified for more than 1 year, a general emergency training curriculum segment should be required.

3-1169 RECURRENT GENERAL EMERGENCY TRAINING. Part 121 and 135 operators are required to conduct recurrent general emergency training. This curriculum segment is separate from the aircraft ground recurrent training curriculum segment. Recurrent general emergency training consists of emergency situation and emergency drill training modules.

A. Requirements. Recurrent general emergency training for part 121 and 135 operators consists of all the items contained in §§ 121.417 and 135.331, respectively. This training must be conducted every 12 months, usually at the same time that aircraft ground recurrent training is conducted.

B. Emergency Situation. The emergency situation training modules that are part of the recurrent general emergency training curriculum segment must include at least the following:

- RD (if applicable);
- In-flight fire (or on-the-surface) and smoke control procedures;
- Ditching and evacuation situations; and
- Illness, injury, the proper use of first aid equipment, and other abnormal situations involving passengers or crewmembers.

C. Emergency Drill Training.

1) Part 121. The emergency drill training modules, which require the crewmember to actually operate the items of emergency equipment (hands-on), must be conducted at least every 24 months. During the alternate 12-month periods, the emergency drill training may be accomplished by pictorial presentation or demonstration.

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2) Part 135. Emergency drill training modules must be completed at least every 12 months. Emergency drills must be hands-on, unless the POI has determined that for a particular drill, the crewmember can be adequately trained by demonstration. (Refer to § 135.331(c).)

3) Modules. The emergency drill training modules that are part of the recurrent general emergency training curriculum segment must include at least the following:

- Operation of emergency exits (such as floor level, overwing, and tailcone) in the normal and emergency modes;
- Operation of each type of hand-held fire extinguisher;
- Operation of each type of emergency oxygen system;
- Donning, use, and inflation of life preservers and other flotation devices (if applicable); and
- 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 liferaft or slide raft, as appropriate.

D. Part 121 Chronology. Table 3-44 serves to clarify the chronological order of part 121 recurrent general emergency training requirements:

Table 3-44. Chronological Order of Part 121 Recurrent General Emergency Training Requirements

TYPE OF RECURRENT GENERAL EMERGENCY TRAINING REQUIRED	MONTHS SINCE FIRST EMERGENCY TRAINING CURRICULUM SEGMENT WAS COMPLETED			
	12 MONTHS	24 MONTHS	36 MONTHS	48 MONTHS
Emergency Situation Training	X	X	X	X
Emergency Drill (either hands-on or pictorial presentation/demo)	X	X	X	X
Emergency Drill (hands-on required)		X		X

3-1170 GENERAL EMERGENCY TRAINING MODULES.

A. Number of Modules. A general emergency training curriculum segment must include as many training modules as necessary to ensure appropriate training. Each module outline must provide at least:

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- A descriptive title of the training module; and
- A list of the related elements or events that will be presented during instruction on the module.

B. Contents. The training module outline must contain sufficient elements or events to ensure that a student will receive training on the emergency equipment and procedures common to all of the operator's aircraft and the type of operation being conducted.

C. Outline. It is unnecessary to include detailed descriptions of each element within a training module outline. Such detailed descriptions are appropriate when included in the operator's courseware, such as lesson plans. During the approval process, the POI should review courseware as necessary to ensure that the scope and depth of the training modules are adequate. Table 3-45 is an example of an acceptable method of presenting a general emergency training module outline:

Table 3-45. An Acceptable Method of Presenting a General Emergency Training Module Outline

3. AIRCRAFT FIRES

a. Principles of combustion and classes of fires
b. Toxic fumes and chemical irritants
c. Use of Halon, CO2, and water extinguishers
d. Lavatory fires
e. Smoke masks and goggles

NOTE: In the preceding illustration, such items as engine fire procedures, electrical fire procedures, and the location of each fire extinguisher are intentionally not included. These elements or events are included in the aircraft ground and flight training curriculum segments.

D. Interrelationship of Modules. Table 3-46 illustrates the interrelationship of training modules in the flightcrew member general emergency training curriculum segment:

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Table 3-46. The Interrelationship of Training Modules in the Flightcrew Member General Emergency Training Curriculum Segment

IV. FLIGHTCREW MEMBER GENERAL EMERGENCY TRAINING CURRICULUM SEGMENT — **Title of Curriculum**

A. Training Objective: — **Statement of Training Objectives**

B. Emergency Situation Training: — **Title of Subject Area**

1. Crewmember Duties and Responsibilities
2. Crewmember Coordination and Company Communication
3. Aircraft Fires
4. First Aid Equipment
5. Illness, Injury, and Basic First Aid
6. Ground Evacuation
7. Ditching
8. Rapid Decompression
9. Previous Aircraft Accidents/Incidents
10. Crewmember Incapacitation
11. Basic Survival Training

— **Training Modules within a Curriculum Segment**

8. Rapid Decompression
(a) Respiration
(b) Hypoxia, Hypothermia, and Hyperventilation
(c) Time of Useful Consciousness
(d) Gas Expansion/Bubble Formation
(e) Physical Phenomena and Actual Incidents

— **Elements within a Training Module**

3-1171 TRAINING HOURS. A minimum number of training hours for general emergency training curriculum segments is not specified in parts 121 and 135. When approving these curriculum segments, the FAA must consider the complexity of the type of operation and the complexity of the aircraft used. When approving general emergency training curriculum segments, POIs should use Table 3-47, Initial New-Hire Flightcrew Member General Emergency Training Hours, as a guide. The table includes a list of national norms for the initial new-hire general emergency training hours. The training hours for a complex type of operation may need to exceed the national norm, while training hours below the national norm may be acceptable for a less complex type of operation. National norms have not been established for initial equipment or recurrent general emergency training.

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Table 3-47. Initial New-Hire Flightcrew Member General Emergency Training Hours

AIRCRAFT FAMILY	TYPE OF OPERATION	TRAINING HOURS
Part 121 and 135 Transport and Commuter Category	All	8
General Purpose Multiengine Airplane	Land Operations	4
	Extended Overwater	6
	Uninhabited Environment	6
Single-Engine Airplanes	Land Operations	2
	Extended Overwater	4
	Uninhabited Environment	6
Helicopters	Land Operations	4
	Extended Overwater	6
	Uninhabited Environment	6

3-1172 COURSE COMPLETION REQUIREMENTS. Completion of the curriculum segment must be documented by an instructor's or supervisor's certification that the student has successfully completed the course. The certification is usually based on the results of a written examination given at the end of the course. With some training methods, the certification may be based on student progress checks administered during the course.

3-1173 CONTENT OF FLIGHTCREW MEMBER GENERAL EMERGENCY TRAINING CURRICULUM SEGMENTS. A general emergency training curriculum segment must indicate that training will be given, appropriate to the operator's type of operation, in two distinct areas. These areas of training are "emergency situation" and "emergency drill."

3-1174 EMERGENCY SITUATION TRAINING MODULES. Emergency situation training modules provide instruction, demonstration, and practice in the handling of emergency situations. The following are examples of recommended training modules for the emergency situation subject area:

A. Flightcrew Member Duties and Responsibilities.

- Emergency assignments;
- Captain's emergency authority; and
- Reporting incidents and accidents.

B. Crew Coordination and Company Communication.

- Cabin crew notification procedures;
- Ground agency notification procedures (e.g., FAA, Airport Authority); and
- Company communication procedures.

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C. Aircraft Fires.

- Principles of combustion and classes of fire;
- Toxic fumes and chemical irritants;
- Use of appropriate hand-held extinguishers;
- Lavatory fires; and
- Smoke masks and goggles.

D. First Aid Equipment.

- Contents of first aid kit;
- Requirements for first aid kit integrity; and
- Use of individual items.

E. Illness, Injury, and Basic First Aid.

- Principles of cardiopulmonary resuscitation (CPR);
- Ear and sinus blocks;
- Seeking medical assistance;
- Treatment of shock; and
- Heart attack and pregnancy situations.

F. Ground Evacuation.

- Aircraft configuration;
- Directing passenger flow;
- Blocked or jammed exit procedures;
- Fuel spills and other ground hazards; and
- Handicapped persons.

G. Ditching.

- Cockpit and cabin preparation;
- Passenger briefing;
- Crew coordination;
- Primary swells, secondary swells, and sea conditions;
- Ditching heading and water landings; and
- Ditching at night.

H. Rapid Decompression (RD).

- Respiration;
- Hypoxia, hypothermia, hyperventilation;
- Time of useful consciousness (TUC);
- Gas expansion/bubble formation; and
- Physical phenomena and actual incidents.

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I. Previous Aircraft Accidents/Incidents.

- NTSB accident report reviews;
- Human factors (HF)/considerations; and
- National Aeronautics and Space Administration (NASA) reporting system.

J. Crewmember Incapacitation.

- Company procedures;
- Reporting requirements (NTSB); and
- Interference with crewmembers.

K. Hijacking and Other Unusual Situations.

- Hijack procedures;
- Bomb threat procedures;
- Security coordinator responsibilities; and
- In-flight intercept signals and procedures.

3-1175 SITUATIONS REQUIRING EMERGENCY EVACUATIONS.

A. Background.

1) In a study, the NTSB examined what situations would cause a flightcrew to require an emergency evacuation, according to their company procedures. The most frequent event leading to an evacuation was an engine fire, accounting for 18 of the 46 evacuations (39 percent). At some air carriers, checklist procedures direct the flightcrew to initiate or consider ground evacuation procedures for emergency landing, fire (engine, auxiliary power unit (APU), avionics, and cargo), smoke (in cabin equipment, in air conditioning, and smoke removal), abnormal landing gear, ditching, and aircraft sabotage. However, other air carriers direct flightcrews to initiate or consider evacuation only for gear-up landings, ditchings, or forced landings.

2) Based on this information, the NTSB concluded that pilots are not receiving consistent guidance, particularly in Flight Operations Manuals (FOM) and safety manuals, on when to evacuate an airplane. The NTSB believes that the FAA should require FOMs and safety manuals to include abnormal and emergency procedures checklists, a checklist item that directs flightcrews to initiate or consider emergency evacuation in all emergencies that could reasonably require an airplane evacuation (e.g., a cabin fire or an engine fire).

B. Policy. Air carriers should evaluate the guidance and training that is given to their flightcrews regarding a crew's decision to initiate or consider an emergency evacuation, and ensure that it addresses the majority of situations for which an emergency evacuation may be warranted, including smoke or fire in the cabin. In addition, each carrier should consider a checklist item that directs flightcrews to initiate or consider an emergency evacuation in all emergencies that could reasonably require an airplane evacuation.

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3-1176 EMERGENCY DRILL TRAINING MODULES. 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. Examples of recommended training modules for the emergency drill training subject area are as follows:

A. Hand-Held Fire Extinguishers.

- Inspection tags, dates, and proper charge levels;
- Removal and stowage of extinguishers;
- Actual discharge of each type of extinguisher; and
- Maintenance procedures and minimum equipment list (MEL).

B. Portable Oxygen Systems.

- Inspection tags, dates, and pressures;
- Removal and stowage of oxygen bottles; and
- Actual operation of each type of bottle and each type of mask.

C. Emergency Exits and Slides.

- Actual operation (open and close) of each exit in the normal and emergency modes;
- 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
- Actual use of slide or slide raft (this requirement needs to be accomplished only once during initial new-hire or initial equipment training).

D. Ditching Equipment (if applicable).

- Actual donning, use, and inflation of individual flotation means (life preservers);
- Instruction on liferaft removal from the aircraft and inflation of each type of liferaft;
- Instruction on the use of lifelines;
- Actual boarding of a liferaft or slide raft; and
- Instruction on survival equipment.

3-1177 PLANNED EMERGENCY BRIEFINGS.

A. Background. During a study, the NTSB reviewed both planned and unplanned evacuations. The majority of cases (31) in the study were reported to be unplanned evacuations and 14 were carried out following crew planning for a possible evacuation. For the planned evacuations, the amount of planning varied from case to case. Prior to landing in an A320 that had an unsafe nose gear, the F/As completed a comprehensive preparation for landing that included relocating the passengers and a detailed passenger briefing to prepare them for the evacuation. No passengers received injuries during the successful evacuation. In another case,

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passengers were informed that a maintenance problem had occurred and the airplane would be returning to the airport. F/As calmed and reassured the passengers, but did not prepare the cabin for an emergency evacuation. In this case, 11 passengers sustained minor injuries.

1) Planning for evacuations involves more than just keeping passengers calm. Reviewing brace positions improves the chance that passengers will be properly braced for the emergency landing. Planned evacuations also allow the F/As to inform the passengers of what to expect, thereby avoiding surprises that could possibly delay the evacuation. For example, passengers who were flying on a Beech 1900 reported that they were surprised there were no slides at the exits.

2) Inadequate time to prepare, no procedures for abbreviated briefings, and lack of communication from the flightcrew regarding the possibility of an evacuation prevented adequate passenger briefings in several cases studied.

B. Policy. Passengers who are informed and briefed regarding the possibility of an evacuation are better prepared to handle an evacuation, should one occur. Air carriers should ensure that they have procedures in place to encourage communication from the flightcrew to the F/As regarding the possibility of an evacuation. In addition, air carriers should have procedures in place to ensure that passengers are provided with precautionary briefings when flightcrews anticipate an eventual evacuation.

1) Furthermore, air carriers should develop procedures that are designed to accommodate abbreviated timeframes for cabin preparation for a planned evacuation or ditching. They should establish guidance and procedures for their F/As that specifically address reduced timeframes for cabin preparation, and give their F/As the opportunity to practice these procedures during emergency training. These procedures should prioritize the cabin preparation tasks and critical elements of passenger information that can have a maximum positive effect on an evacuation and can be delivered in an abbreviated timeframe. For example, a review of the brace position and a reminder to review the safety information card for exit location and operation provides passengers with information that they can use to prepare for a safer and more efficient evacuation.

2) There are several methods that an air carrier may employ to accomplish this. For example, an air carrier could have one announcement/checklist and structure it so that tasks are completed in order of importance. Even an abbreviated timeframe would allow the most critical tasks to be completed first. Another method could be to have two different announcements/checklists to accomplish specific timeframes, such as “over 10 minutes to prepare/under 10 minutes to prepare.” Regardless of the method the air carrier chooses, POIs and CSIs (if applicable) should ensure that their assigned operators have procedures in place that are able to accommodate abbreviated timeframes for cabin preparation for an emergency landing.

3-1178 RECURRENT GENERAL EMERGENCY TRAINING MODULES. Recurrent general emergency training consists of emergency situation training elements and emergency drill training events (in the form of training modules) that are selected by the operator and approved by the POI.

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A. Pictorial Presentations or Demonstrations. During alternate 12-month periods, when (actual hands-on) emergency drill training is not required, operators may use approved pictorial presentations or demonstrations. When approving pictorial presentations, the POI must ensure that the presentation meets the following criteria:

- The equipment shown in each pictorial presentation must be functionally identical to the equipment on board the aircraft;
- The pictorial display of equipment must be large enough to be properly viewed by the whole class;
- All procedures must be accurately and logically presented; and
- All emergency equipment not actually demonstrated during the course of instruction must be presented pictorially.

B. Hands-On Training. Every 24 months, each crewmember must receive (actual hands-on) emergency drill training. This means that each crewmember must actually perform each drill or procedure and must actually operate each piece of emergency equipment specified in paragraph 3-1176. Certain hands-on emergency drill events must be conducted in a static aircraft or in an approved cabin/exit mockup training device.

3-1179 CABIN AND EXIT MOCKUPS. Hands-on emergency drill training for items such as emergency exits and passenger oxygen systems should be conducted in a static aircraft, in an approved cabin mockup training device, or by use of an approved exit mockup training device. Cabin and exit mockup training devices should be representative of a full-scale section of an aircraft. Cabin mockups should include operational doors, window exits, slides, rafts, and other equipment used in emergency drill training. POIs should not approve cabin or exit mockup training devices without an inspection to determine the adequacy of the devices. Generally, cabin and exit mockup training devices are acceptable if they meet the following criteria:

- Cabin mockups should be representative of the operator’s aircraft with appropriate equipment installed;
- Cabin mockups should be full-scale, except for length;
- The forces required to open the exit mockups should duplicate normal and emergency conditions with the slides or slide raft installed; and
- The mechanisms and instructions required to operate the exits should be representative of the operator’s aircraft.

3-1180 EVALUATION OF FLIGHTCREW MEMBER GENERAL EMERGENCY TRAINING CURRICULUM SEGMENT OUTLINES FOR INITIAL APPROVAL. When evaluating a general emergency training curriculum segment for initial approval, inspectors must determine that the training modules contain information of sufficient quality, scope, and depth to ensure that the flightcrew member can perform emergency duties and procedures without supervision. Inspectors should use the appropriate SAS Element Design Data Collection Tool (ED DCT) or Element Performance Data Collection Tool (EP DCT) 2.1.1 (OP), Training of Flight Crew Members, and Table 3-48, Flightcrew Member General Emergency Training Job Aid, when evaluating the proposed curriculum segment outline.

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3-1181 FLIGHTCREW MEMBER GENERAL EMERGENCY TRAINING JOB AID.

A. Job Aid Contents. Table 3-48 is provided to assist the inspector when evaluating this curriculum segment. The regulatory requirements of parts 121 and 135 general emergency training are contained in this job aid. The job aid covers the two subject areas of general emergency training, emergency situation and emergency drill training, and is intended to assist the inspector in evaluating individual training modules.

B. Using the Job Aid. When using this job aid, the inspector should make a side-by-side comparison of the operator's proposal to make the following determinations:

- Whether training modules provide for training on the required elements and events in terms of flightcrew member duties and procedures; and
- Whether sufficient training module elements and events are outlined to ensure that the appropriate depth and scope of the material will be presented.

NOTE: Although some elements and events in general emergency training are aircraft-specific (such as exits, slides, or slide rafts), the majority of the elements and events should apply to the operator's aircraft fleet.

C. Organization. The job aid is organized with the training subjects listed in the left column and evaluation criteria listed horizontally across the top. Inspectors may use the spaces within the matrix for items such as notes, comments, dates, and checkmarks. There are also blank columns and rows in the job aid that permit inspectors to add other training modules or evaluation criteria.

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Table 3-48. Flightcrew Member General Emergency Training Job Aid

SUBJECT AREA 1: EMERGENCY SITUATION TRAINING

TRAINING SUBJECTS	EVALUATION CRITERIA			
	ADEQUACY OF ELEMENTS/ EVENTS	ADEQUACY OF COURSEWARE TRAINING	AIDS AND FACILITIES	
Duties and Responsibilities				
Crew Coordination				
Aircraft Fires				
First Aid Equipment Illness, Injury, and Basic First Aid				
Ground Evacuation Ditching Procedures				
Rapid Decompression Previous Accidents and Incidents				
Basic Survival Training				

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Table 3-48. Flightcrew Member General Emergency Training Job Aid (Continued)

SUBJECT AREA 2: EMERGENCY DRILL TRAINING

TRAINING SUBJECTS	EVALUATION CRITERIA			
	ADEQUACY OF ELEMENTS/ EVENTS	ADEQUACY OF COURSEWARE TRAINING	AIDS AND FACILITIES	
Hand-Held Fire Extinguishers				
Emergency Oxygen System				
Emergency Exits and Slides*				
Life Preservers				
Ditching Procedures**				

*Each crewmember is only required to participate in one emergency evacuation using a slide during initial new-hire or initial equipment training.

**Crewmembers are not required to deploy, remove, detach, transfer, or inflate slides or slide rafts on the aircraft or training device.

3-1182 SMOKE GOGGLES AND OXYGEN MASKS.

A. POI. POIs should:

1) Discuss with each certificate holder the extreme importance of revising certificate holder's checklists and expanded procedures in the appropriate operations manual to require that both smoke goggles and oxygen masks be donned at the first indication of any unidentified odor.

2) Determine that each certificate holder's approved training program provides sufficient hands-on training for all Protective Breathing Equipment (PBE). In addition, each training program must ensure that each flightcrew member is proficient in donning the oxygen mask and smoke goggles. Flightcrew members must be able to don the smoke goggles and oxygen mask within the timeframe established in the current editions of Technical Standard Order (TSO)-C99, Flight Deck (Sedentary) Crewmember Protective Breathing Equipment, and Society of Automotive Engineers (SAE) Aerospace Standard (AS) 8031, Personal Protective Devices for Toxic and Irritating Atmospheres Air Transport Flight Deck (Sedentary) Crewmembers.

NOTE: The design objective is that the device shall be capable of being donned within 15 seconds.

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3) Determine that each certificate holder's training program, checklists, operations manual, and amendments to those manuals and training programs are in compliance with § 121.337(c), which states, "Before each flight, each item of PBE at flightcrew member duty stations must be checked by the flightcrew member who will use the equipment."

4) Work with the certificate holder to determine which PBE is universal-fit and which is not. This information must then be made available to flightcrews.

5) Ensure that each certificate holder locates flightcrew member PBE (i.e., smoke goggles and oxygen mask) in a ready position at each flightcrew member duty station in a manner that is immediately available. Smoke goggles must not impair the wearer's vision and must allow corrective glasses to be worn without impairment of vision or loss of protection, as required by § 121.337.

B. Aviation Safety Inspector (ASI). ASIs (Operations) conducting en route inspections should actively emphasize compliance with § 121.337.

RESERVED. Paragraphs 3-1183 through 3-1195.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 19 TRAINING PROGRAMS AND AIRMAN QUALIFICATIONS

Section 6 Safety Assurance System: Flight Training Curriculum Segments

3-1226 GENERAL. This section specifies the objectives of flight training. Both the structure and content of flight training curriculum segments are discussed. Also clarified are the differences between training objectives and qualification objectives. 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 to satisfy the requirements of Title 14 of the Code of Federal Regulations (14 CFR) parts 121 and 135, are specified in the maneuvers and procedures tables (see Tables 3-62 through 3-68). This section is related to Safety Assurance System (SAS) Subsystem 2.1, Training & Qualification.

3-1227 FLIGHT TRAINING OBJECTIVES. Flight training, as used in this section, means the conduct of training events in an aircraft or a flight simulation training device (FSTD) in accordance with an approved training curriculum. Flight training (except for wind shear training) may be conducted entirely in an aircraft. Flight training may also be conducted using a combination of an aircraft and an FSTD. In certain cases, flight training may be conducted entirely in a full flight simulator (FFS). In all cases, the primary objective of flight training is to provide an opportunity for flightcrew members to acquire the skills and knowledge necessary to perform to a desired standard. This opportunity provides for demonstration, instruction, and practice of the maneuvers and procedures (training events) pertinent to a particular aircraft and flightcrew member duty position. Successful completion of flight training is validated by appropriate testing and checking.

3-1228 QUALIFICATION OBJECTIVES. The objective of the qualification curriculum segment is to determine whether enough learning has occurred by comparing an individual's performance in practical situations to established standards. A person meeting the qualification objectives satisfactorily completes the curriculum. A person failing to meet these objectives must be returned to training status. After additional training, that person must retake and satisfactorily complete at least the previously unsatisfactory portions of the qualification curriculum segment.

3-1229 FLIGHT TRAINING MODULES OR EVENT OUTLINES.

A. 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 descriptive title of the training module;
- A list of the training events that must be accomplished during flight training;
- Any specific conditions applicable to a particular training event, such as the weather minimums to be used; and
- Provisions for briefing before and after each training period.

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B. Training Outline. The operator may submit an outline containing training modules representing blocks of training events or an outline listing all the elements and events to be accomplished during the flight training. Other forms of presenting the flight training curriculum segment may be acceptable. Regardless of the format used, inspectors should evaluate a proposed flight training curriculum by comparing it with the maneuvers and procedures tables in this section. During actual training, the order and rate of training event presentation may vary. An instructor may vary the events in a published curriculum segment, during any particular period, when a student's progress indicates it is necessary. However, a required event must not be omitted from the curriculum segment. A principal operations inspector (POI) may need to review the operator's flight training courseware, such as lesson plans or instructor guides, to assure that a plan exists in which all events will be appropriately accomplished. To further support that a plan exists, a POI may need to review the forms that will be used to record flight training. It is unnecessary for the POI to approve courseware or training record forms.

C. Aircraft Flight Manual (AFM). It is unnecessary to include detailed descriptions of how specific maneuvers or procedures will be accomplished in a flight training module outline or training event outline. However, detailed descriptions must be included in a Federal Aviation Administration (FAA)-approved AFM, the operator's aircraft operating manual, or a separate maneuvers and procedures document. Detailed descriptions or pictorial displays are required for certain normal, abnormal, and emergency maneuvers, procedures, and functions which are performed in flight training. POIs may require operators to provide extremely detailed training outlines in any of the following situations:

- When directed by the Air Transportation Division (AFS-200);
- When a new technology or procedure is addressed in the training module (examples include fly-by-wire aircraft control and helicopter instrument flight rules (IFR) flight slower than minimum speed (V_{MINI})); and
- When an operator has had approval of a curriculum segment withdrawn because of deficiencies, the POI may require any redeveloped flight curriculum segments to include highly detailed training module or training event outlines. (The level of detail should provide sufficient information for the POI to determine that previously identified deficiencies are corrected.)

D. Regulatory Compliance. To ensure regulatory compliance, the training module or training event outlines must contain at least the training events listed in the appropriate maneuvers and procedures tables in this section. The interrelationship of training modules and/or training events in a curriculum segment should provide for an orderly and practical progression of training. For example, taxiing may be listed as a training event in the first module of a flight training curriculum segment but does not have to be listed in subsequent training modules, even though training on the taxiing maneuver will occur throughout flight training. Training event modules should be developed so that training events are presented in a logical sequence. For example, missed approach training should be conducted in conjunction with approach training.

E. Interrelationship Example. The following example illustrates the interrelationship of a curriculum segment and training modules when a modular format is used:

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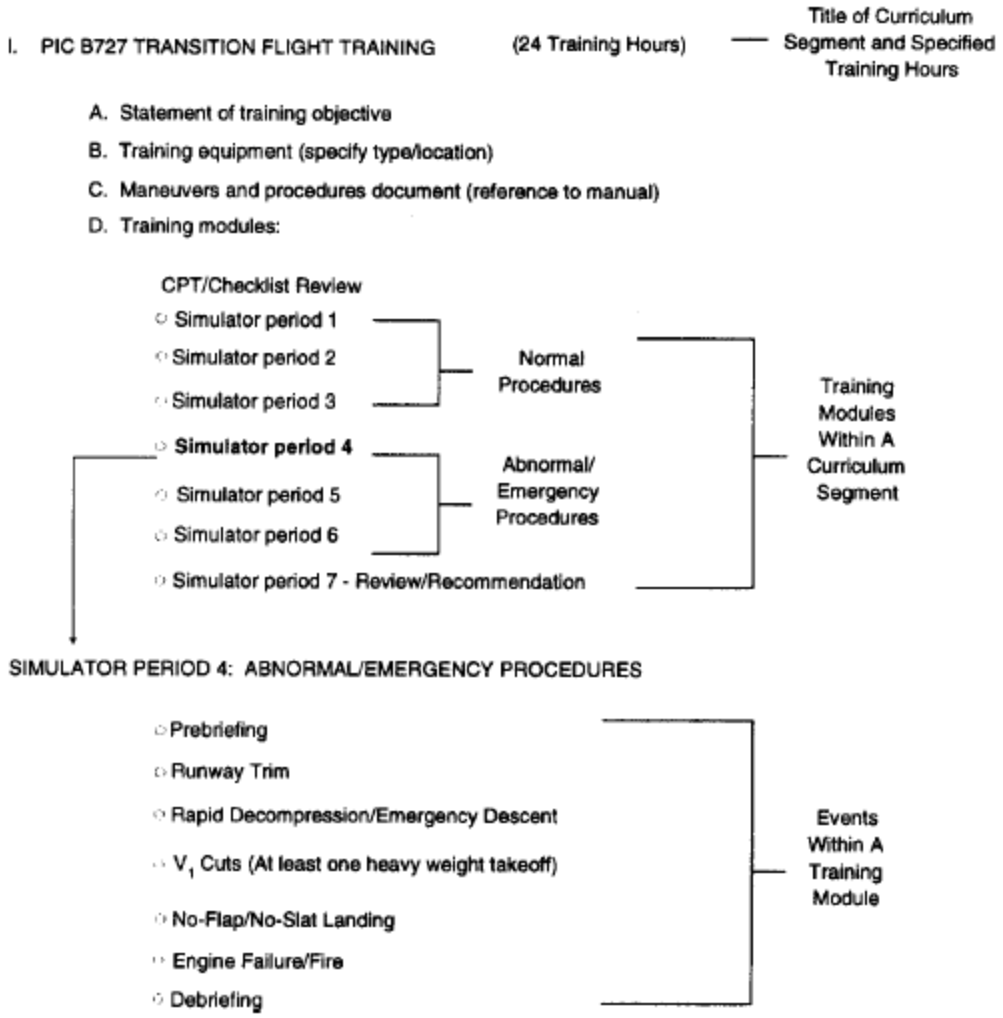
Figure 3-78. Interrelationship of a Curriculum Segment and Training Modules—Modular Format



3-1230 TRAINING HOURS. Flight training curriculum segments must specify the training hours. The operator's proposed number of training hours must realistically allow enough time for demonstration, instruction, and practice of the training events listed in the entire curriculum segment. A POI will not approve a proposed flight training curriculum segment unless the specified training hours realistically allow enough time to accomplish the required training events.

A. Programmed Hours—Part 121. Part 121, §§ 121.424 and 121.425 specify programmed hours of flight training for pilots and Flight Engineers (FE) enrolled in the initial new-hire and initial equipment categories of training. Table 3-58, Title 14 CFR Part 121 Regulatory Programmed Hours by Category of Training, lists the part 121 programmed hours.

1) In accordance with § 121.405(d), a POI may approve a reduction in the 14 CFR programmed hours requirements for initial new-hire and initial equipment categories of training.

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When approving a reduction, a POI must consider the training aids, devices, methods, and procedures listed in the certificate holder's curriculum that increase the quality and effectiveness of the teaching-learning process.

2) Under § 121.418(c), a POI is authorized to approve a modification to the 14 CFR programmed hour requirements for initial new-hire and initial equipment categories of training for designated related aircraft. When approving a modification, the POI must determine that the training hours for the designated related aircraft are realistic based on the training methods and level of differences specified in the Flight Standardization Board (FSB) report. Unless reduced in accordance with § 121.405(d), the 14 CFR programmed hour requirements for initial new-hire and initial equipment categories of training apply to the base aircraft. (See Volume 3, Chapter 19, Section 12, for additional information regarding related aircraft designation and related aircraft differences training).

Table 3-58. Title 14 CFR Part 121 Regulatory Programmed Hours by Category of Training

		Initial New-Hire			Initial Equipment		
		PIC	**SIC**	**FE**	**PIC**	**SIC**	**FE**
14 CFR Part 121 Airplane Groups	Group I (Reciprocating)	10	6	6	10	6	6
	Group I (Turboprop)	15	7	7	15	7	7
	Group II (Turbojet)	20	10	10	20	10	10

B. Training Hours. Section 121.427(d)(1)(ii)(A) and (d)(2)(i) stipulates that programmed hours are not specified for pilot or FE recurrent flight training (RFT). However, if the flight training is conducted in an approved FFS, § 121.409(b)(1) requires at least 4 hours of training at the pilot controls for pilot-in-command (PIC) and second-in-command (SIC) training. Four hours of training are required regardless of whether the training is conducted on the events listed in part 121 appendix F or the training is conducted under an approved Line-Oriented Flight Training (LOFT) program.

C. Curriculum Segment Outlines. Part 121 does not specify programmed hours for the other categories of training. Part 135 does not specify programmed hours for any of the categories of training. The number of training hours must be specified, however, on all flight training curriculum segment outlines. Because of the various situations that can be encountered, it is difficult to provide guidance on acceptable training hours for flight training curriculum segments. POIs must thoroughly study an operator's proposals. Based on experience with the operator, past experiences with other operators, as well as their own training experiences, POIs must use reasonable judgment when determining whether the training can be adequately accomplished within the training hours specified by the curriculum segment.

D. Pilot Concurrent Training. When flight training is conducted in an FSTD, it is acceptable and preferable for the flight training curriculum segment to be developed so that two pilots can be trained during a single flight training session. This includes the training of a PIC

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and SIC, two PICs, or two SICs at the same time. During this type of training, one pilot (pilot A) manipulates the controls of the aircraft while the other pilot (pilot B) performs the duties of the pilot monitoring (PM) the aircraft. During the same training session, the pilots reverse roles. Pilot B manipulates the controls, and pilot A performs the duties of the PM. The duties of the PM are typically included in the operator's aircraft operating manuals and/or in the maneuvers and procedures document. These duties include normal, abnormal, and emergency duties (that are performed by the PM) and the crew participation activities (Crew Resource Management (CRM) concepts) used by the operator. Both pilots are receiving essential "crew concept" training throughout the training session. Therefore, the total training hours accomplished during the training session can be credited to each of the participating pilots. For example, if a PIC and an SIC participated in a 4-hour FFS session, both pilots would receive 4 hours of training credit. This method of crediting training hours is valid only when both student pilots manipulate the controls for approximately equal amounts of time. This method of crediting training hours is not valid when the instructor is providing instruction and is also occupying one of the pilot seats of the FSTD or aircraft.

E. LOFT Training Session. Both recurrent and qualification LOFT training sessions should be based on at least 4 hours of total crewmember training activity. When the guidance contained in the current edition of Advisory Circular (AC) 120-35, Line Operational Simulations: Line-Oriented Flight Training, Special Purpose Operational Training, Line Operational Evaluation, is followed, all crewmembers who participate in a LOFT training session are credited with 4 hours of training time, as follows:

1) Two Trainees. Appropriate crew composition is central to the LOFT training concept. Acceptable scheduling practices and crew substitution allowances differ in recurrent LOFT and qualification LOFT. Refer to AC 120-35 for specific differences. When the crew consists of two PIC trainees or two SIC trainees, both pilots should receive full credit (4 hours) provided the following conditions are met:

- The LOFT session conforms to the minimum 4-hour format described in AC 120-35,
- At least 2½ hours are spent in the LOFT scenario, and
- The pilots swap seats at approximately the midpoint in the LOFT flight segment.

2) One Trainee. When only one trainee participates in qualification LOFT, that trainee should receive full credit (4 hours) provided the following conditions are met:

- The LOFT session conforms to the minimum 4-hour format described in AC 120-35, and
- At least 2½ hours are spent in the LOFT scenario (including spot).

NOTE: A 2-hour qualification LOFT session for one pilot does not meet the training requirements of part 121 appendix H. A qualification LOFT program consists of at least a 4-hour course of training for each flightcrew.

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F. National Norms.

1) Table 3-60, Flight Training Hours (National Norms) Two Pilots—FSTD, and Table 3-61, Flight Training Hours (National Norms) One Pilot—FSTD or When All Training is Conducted in an Aircraft, specify established national norms for flight training curriculum segments. These norms are based on the assumption that there is reasonable training support, such as proficient instructors and well-organized flight instructor guides. The national norms in Table 3-60 are for flight training when most or all of the training is being conducted in an FSTD and when two pilots are being trained at the pilot controls during the same training session (see subparagraph 3-1230D). The national norms in Table 3-61 are for flight training when only one pilot is being trained in an FSTD, or when flight training is conducted entirely in an aircraft.

2) National norms have not been established for related aircraft differences flight training curriculum segments. The training hours required for designated related aircraft will vary based on the training methods and level of differences specified in the FSB report. (See Volume 3, Chapter 19, Section 12, for additional information regarding related aircraft designation and related aircraft differences training.)

G. Adequacy of Training Hours. When determining the adequacy of flight training hours, a POI should use these national norms as a point from which other factors shall be weighed. There may be many reasons why the training hours need to be greater than the national norm. The operator may need to specify more hours because of the complexity of the aircraft or types of operation. The POI may need to require more hours because of inadequate training support. Conversely, training hours fewer than the national norm may be fully acceptable due to the use of highly sophisticated modern training methods, effective systems integration in aircraft ground training, less complex aircraft, or the conduct of a less complex type of operation. Some factors that would indicate a need for more training hours may be counterbalanced by other factors indicating that fewer training hours are necessary. The following diagram illustrates some of the factors that should be considered when determining the adequacy of flight training hours.

Table 3-59. Factors of Flight Training Hours

Special Operations		**No Special Operations**
New Entrant Operator		Basic Servo/Mechanical Instruments
Complex Pilot Operation of Aircraft Systems, Engines, Propellers		Pilot Experience with Similar Aircraft
Critical Aircraft Performance		Modern FSTDs
EFIS, FMS, Autoflight		Well-Organized Flight Instructor Guides
Dissimilar Flightcrew Experience Levels		Basic Navigation System
Low Visibility Capabilities		Simple Flight Handling Characteristics
Complex Navigation Systems		Effective System Integration Training
More than National Norm	National Norm	Less than National Norm

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Table 3-60. Flight Training Hours (National Norms) Two Pilots—FSTD

		CATEGORY OF TRAINING				
	Family of Aircraft	**Initial New-Hire**	**Initial Equipment**	**Transition**	**Upgrade**	**Recurrent**
TRANSPORT AND COMMUTER CATEGORY AIRPLANE	Part 121 Group I (Reciprocating)	PIC – 24 SIC – 24 FE – 20	PIC – 20 SIC – 20 FE – 20	PIC – 20 SIC – 20 FE – 20	SIC TO PIC 8 FE TO SIC 20	PIC – 4 SIC – 4 FE – 4
	Part 121 Group I (Turboprop)	PIC – 24 SIC – 24 FE – 20	PIC – 20 SIC – 20 FE – 20	PIC – 20 SIC – 20 FE – 20	SIC TO PIC 8 FE TO SIC 20	PIC – 4 SIC – 4 FE – 4
	Part 121 Group II (Turbojet)	PIC – 28 SIC – 28 FE – 20	PIC – 24 SIC – 24 FE – 20	PIC – 24 SIC – 24 FE – 20	SIC TO PIC 8 FE TO SIC 28	PIC – 4 SIC – 4 FE – 4
	Part 135 Transport and Commuter Category	PIC – 24 SIC – 24	PIC – 20 SIC – 20	PIC – 20 SIC – 20	SIC TO PIC 8	PIC – 4 SIC – 4
MULTIENGINE AIRPLANE	Part 135 IFR/VFR	PIC – 16 SIC – 16	PIC – 12 SIC – 12	PIC – 8 SIC – 8	SIC TO PIC 4	PIC – 2 SIC – 2
	Part 135 VFR Only	PIC – 4 SIC – 4	PIC – 4 SIC – 4	PIC – 4 SIC – 4	SIC TO PIC 4	PIC – 1 SIC – 1
SINGLE-ENGINE AIRPLANE	Part 135 IFR/VFR	PIC – 8 SIC – 8	PIC – 4 SIC – 4	PIC – 4 SIC – 4	SIC TO PIC 2	PIC – 2 SIC – 2
	Part 135 VFR Only	PIC – 4 SIC – 4	PIC – 4 SIC – 4	PIC – 4 SIC – 2	SIC TO PIC 2	PIC – 1 SIC – 1
HELICOPTER	IFR/VFR	PIC – 16 SIC – 16	PIC – 12 SIC – 12	PIC – 8 SIC – 8	SIC TO PIC 4	PIC – 2 SIC – 2
	VFR Only	PIC – 4 SIC – 4	PIC – 4 SIC – 4	PIC – 4 SIC – 4	SIC TO PIC 4	PIC – 1 SIC – 1

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Table 3-61. Flight Training Hours (National Norms) One Pilot—FSTD or When All Training is Conducted in an Aircraft

		CATEGORY OF TRAINING				
	Family of Aircraft	**Initial New-Hire**	**Initial Equipment**	**Transition**	**Upgrade**	**Recurrent**
TRANSPORT AND COMMUTER CATEGORY AIRPLANE	Part 121 Group I (Reciprocating)	PIC – 14 SIC – 14 FE – 12	PIC – 14 SIC – 14 FE – 12	PIC – 12 SIC – 12 FE – 12	SIC TO PIC 6 FE TO SIC 14	PIC – 4 SIC – 4 FE – 4
	Part 121 Group I (Turboprop)	PIC – 15 SIC – 15 FE – 12	PIC – 15 SIC – 15 FE – 12	PIC – 12 SIC – 12 FE – 12	SIC TO PIC 6 FE TO SIC 15	PIC – 4 SIC – 4 FE – 4
	Part 121 Group II (Turbojet)	PIC – 20 SIC – 16 FE – 12	PIC – 20 SIC – 16 FE – 12	PIC – 12 SIC – 12 FE – 12	SIC TO PIC 6 FE TO SIC 16	PIC – 4 SIC – 4 FE – 4
	Part 135 Transport and Commuter Category	PIC – 12 SIC – 12	PIC – 10 SIC – 10	PIC – 8 SIC – 8	SIC TO PIC 6	PIC – 4 SIC – 4
MULTIENGINE AIRPLANE	Part 135 IFR/VFR	PIC – 8 SIC – 8	PIC – 6 SIC – 6	PIC – 6 SIC – 6	SIC TO PIC 4	PIC – 3 SIC – 3
	Part 135 VFR Only	PIC – 4 SIC – 4	PIC – 3 SIC – 3	PIC – 3 SIC – 3	SIC TO PIC 2	PIC – 2 SIC – 2
SINGLE-ENGINE AIRPLANE	Part 135 IFR/VFR	PIC – 6 SIC – 6	PIC – 4 SIC – 4	PIC – 4 SIC – 4	SIC TO PIC 4	PIC – 3 SIC – 3
	Part 135 VFR Only	PIC – 3 SIC – 2	PIC – 2 SIC – 1	PIC – 2 SIC – 1	SIC TO PIC 1	PIC – 1 SIC – 1
HELICOPTER	IFR/VFR	PIC – 10 SIC – 10	PIC – 8 SIC – 8	PIC – 6 SIC – 6	SIC TO PIC 4	PIC – 4 SIC – 4
	VFR Only	PIC – 4 SIC – 4	PIC – 3 SIC – 3	PIC – 3 SIC – 3	SIC TO PIC 2	PIC – 2 SIC – 2

3-1231 COURSE COMPLETION REQUIREMENTS.

A. Failure to Meet Requirements. Ordinarily, a flightcrew member completes a flight training curriculum segment by successfully accomplishing each training event and the specified number of training hours. Flightcrew members are then required to successfully meet the requirements specified in the qualification curriculum segment (see Volume 3, Chapter 19, Section 7, for the qualification curriculum segment requirements). If a person fails to meet any of the qualification requirements because of a lack in flight proficiency, that person must be returned to training status. After retraining, an instructor recommendation is required for reaccomplishing the unsatisfactory qualification requirement.

B. Exceptions to Requirements. A flightcrew member may successfully complete a flight training curriculum segment without completing the specified number of training hours, provided all of the following conditions are met:

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1) The crewmember successfully completes all of the training events required by the curriculum segment.

2) An instructor recommends the flight test be conducted before completion of the specified number of training hours. The recommendation must be suitably documented.

3) The flightcrew member satisfactorily completes the qualification curriculum segment requirements. If a flightcrew member fails to meet the qualification curriculum segment requirements because of a lack of flight proficiency, he or she must be required to complete all the training hours specified in the flight training curriculum segment. The crewmember must then be recommended by an instructor before being rechecked on the failed qualification requirements.

3-1232 EVALUATION OF FLIGHT TRAINING CURRICULUM SEGMENT OUTLINES FOR INITIAL APPROVAL. When evaluating a flight training proposal for initial approval, an inspector must determine that the proposed curriculum segment meets the following requirements:

A. Maneuvers and Procedures Table. The training events must be consistent with the maneuvers and procedures tables applicable to the specific category of training. An inspector must select the appropriate maneuvers and procedures table and make a side-by-side comparison of the table and the proposed flight training curriculum segment. The required training events and the appropriate level FSTD or aircraft to be used must be in the proposal. Omission of any required training event or inappropriate use of an FSTD is sufficient reason to deny initial approval.

B. Realistic Training Hours. The specified training hours are realistic, as discussed in paragraph 3-1230.

C. Examining Courseware. The training emphasizes specific areas applicable to the category of training. Since flight training curriculum outlines are not usually constructed in a manner that allows for a determination that appropriate areas are emphasized, an inspector must examine courseware (such as flight instructor guides and LOFT scenarios) to determine if appropriate areas will be emphasized and if the operator is capable of developing acceptable courseware. In the paragraphs preceding the applicable maneuvers and procedures tables in this section, training emphasis considerations for each category of flight training are discussed.

3-1233 EVALUATING THE OPERATOR'S MANEUVERS AND PROCEDURES DOCUMENT. The operator must provide a maneuvers and procedures document for approval by the FAA. An inspector must determine that this document provides detailed descriptions or pictorial displays for the normal, abnormal, and emergency maneuvers, including the procedures and functions that will be performed in flight training. Instructor guides or lesson plans which support the maneuvers and procedures document should specify the conditions (such as weather, aircraft weight, and other parameters) to be applied during training on a maneuver or procedure. The conditions specified in these guides or lesson plans should be equivalent to the types of operations authorized by the operations specifications (OpSpecs), such as low visibility takeoffs or the use of Category (CAT) I Approach or CAT II Approach minimums. FAA policy requires

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detailed descriptions (or pictorial displays) of at least those training events identified with the symbol "M" in the appropriate maneuvers and procedures tables. Maneuvers and procedures documents must be evaluated in sufficient detail to ensure the following requirements are met:

A. FSB Recommendations. The descriptions of applicable maneuvers or procedures must conform to recommendations made in the FSB report when appropriate.

B. Flight Manual. The description of each maneuver or procedure must conform to the operating limitations and procedures in the FAA-approved AFM/Rotorcraft Flight Manual (RFM) or the operator's aircraft operating manual.

C. Procedural Instructions. The description of each maneuver or procedure must conform to the certificate holder's procedural instructions for flight deck checks, altitude awareness, required callouts, crew coordination, and CRM.

D. Specify Procedures. The description of each maneuver or procedure must specify the operator's procedures, such as altitudes, configuration airspeeds, and other parameters.

3-1234 AIRCRAFT FAMILIES. The four families of aircraft used in part 121 and part 135 operations are described in Volume 3, Chapter 19, Section 1, paragraph 3-1073. The flight training requirements for flightcrew members differ significantly between each family. Within each family, the flight training requirements are similar, even though individual aircraft may differ significantly in construction and appearance. The maneuvers and procedures tables have been tailored to account for similar flightcrew member knowledge, skill, and ability requirements common to aircraft of a particular family and specific to different kinds of operations within a family.

A. Transport and Commuter Category Airplane Family. Airplanes in this family are similar in operational characteristics. Flightcrew members of airplanes in this family are required to have similar knowledge, skills, and abilities regardless of the applicable operating regulation (part 121 or part 135). The maneuvers and procedures tables containing required training events for flightcrew members operating airplanes in this family are in paragraphs 3-1245 through 3-1248 (see Tables 3-62 through 3-65).

B. Multiengine General Purpose Airplane Family. Flightcrew members of airplanes in this family are required to have similar knowledge, skills, and abilities when operating under part 135. The flight training events required for flightcrew members operating airplanes in this family are identified in the maneuvers and procedures table in paragraph 3-1249 (see Table 3-66, Flight Training PIC/SIC Training (All Training Categories)—Multiengine General Purpose Airplanes).

C. Single-Engine Airplane Family. Flightcrew members of airplanes in this family are required to have similar knowledge, skills, and abilities to be operated under part 135. The flight training events required for the operation of single-engine airplanes are identified in the maneuvers and procedures table in paragraph 3-1250 (see Table 3-67, Flight Training PIC/SIC Flight Training (All Training Categories)—Single-Engine Airplanes).

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D. Helicopter Family. Flightcrew members operating helicopters under part 135 are required to have similar knowledge, skills, and abilities. The flight training events required for flightcrew members operating helicopters are identified in the maneuvers and procedures table (see Table 3-68, Flight Training PIC/SIC Flight Training (All Training Categories)—Helicopter (under development)).

3-1235 FSTD. Flight training equipment consists of flight training devices (FTD), FFSs, and the aircraft. The approved use of each item of flight training equipment is listed in the maneuvers and procedures tables. These FTDs and FFSs are the only types of flight training equipment (other than aircraft) which may be approved for use in an FAA-approved flight training program. Before any level 4 or 5 FTD can be used, it must be evaluated by the POI to determine that it meets the prescribed requirements for the appropriate level of FTD. Before a level 6 or higher FTD or any level FFS can be used, it must be evaluated and qualified by the National Simulator Program (NSP) and approved by the operator's POI. The following paragraphs describe the FSTDs applicable to parts 121 and 135 flight training. Title 14 CFR part 60 specifies the qualification, maintenance, and evaluation requirements for FSTDs. For previously qualified FSTDs, as permitted by part 60, § 60.17, the current edition of AC 120-40, Airplane Simulator Qualification; AC 120-45, Airplane Flight Training Device Qualification; AC 121-14, Aircraft Simulator Evaluation and Approval; or AC 120-63, Helicopter Simulator Qualification, provides the qualification policy and criteria. The functional descriptions in the following paragraphs provide only a brief overview. Therefore, part 60 and the appropriate ACs, if applicable, are the only authorized source documents and must be used for evaluation and approval of FSTDs.

NOTE: Levels 1 through 3 FTDs may not be used in part 121 or part 135 training programs.

3-1236 LEVEL 4 FTD.

A. Purpose. To permit learning, development, and the practice of skills and flight deck procedures necessary for understanding and operating the integrated systems of a specific aircraft.

B. Functional Description. A level 4 FTD has the following characteristics and components:

- A replica of the flight deck panels, switches, controls, and instruments, in proper relationship, to represent the aircraft for which training is to be accomplished;
- Systems indications which respond appropriately to switches and controls which are required to be installed for the training or checking to be accomplished; and
- Air/ground logic (however, simulated aerodynamic capabilities are not required).

3-1237 LEVEL 5 FTD.

A. Purpose. To permit learning, development, and the practice of skills, flight deck procedures, and Instrument Flight Procedures (IFP) necessary for understanding and operating the integrated systems of a specific aircraft in typical flight operations in real time.

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B. Functional Description. A level 5 FTD has the following characteristics and components:

- A replica of the flight deck panels, switches, controls, and instruments, in proper relationship, to represent the aircraft for which training is to be accomplished;
- Systems indications which respond appropriately to switches and controls which are required to be installed for the training or checking to be accomplished;
- Simulated aerodynamic capabilities representative of the aircraft group or class;
- Functional flight and navigational controls, displays, and instrumentation; and
- Control forces and control travel of sufficient precision for manually flying an instrument approach.

3-1238 LEVEL 6 FTD.

A. Purpose. To permit learning, development, and the practice of skills in flight deck procedures, IFPs, certain symmetrical maneuvers, and flight characteristics necessary for operating the integrated systems of a specific aircraft in typical flight operations.

B. Functional Description. A level 6 FTD has the following characteristics and components:

- Systems indications which respond appropriately to switches and controls which are required to be installed;
- A replica of the flight deck of the aircraft for which training is to be accomplished;
- Simulated aerodynamic capabilities which closely represent the specific aircraft in ground and flight operations;
- Functional flight and navigational controls, displays, and instrumentation;
- Control forces and control travel which correspond to the aircraft; and
- Instructor controls.

3-1239 LEVEL A FFS.

A. Purpose. To permit development and practice of the necessary skills for accomplishing flight operational tasks, to a prescribed standard of airman competency, in a specific aircraft and duty position. Level A FFSs may be used for specified pilot recency-of-experience requirements and specified flight operational task training requirements in transition, upgrade, recurrent, and requalification training under parts 121 and 135. It may also be used for initial new-hire and initial equipment training on specified events.

B. Functional Description. Level A FFSs have the following characteristics and components:

- Systems representations, switches, and controls which are required by the type design of the aircraft and by the user’s approved training program;

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- Systems which respond appropriately and accurately to the switches and controls of the aircraft being simulated;
- A full-scale replica of the flight deck of the aircraft being simulated;
- Correct simulation of the aerodynamic characteristics of the aircraft being simulated;
- Correct simulation of the effects of selected environmental conditions which the simulated aircraft might encounter;
- Control forces and travel which correspond to the aircraft;
- Instructor controls and seat;
- At least a night visual system with the minimum of a 45-degree horizontal by 30-degree vertical field of view (FOV) for each pilot station; and
- A motion system with at least 3 degrees of freedom.

3-1240 LEVEL B FFS.

A. Purpose. To permit development and practice of the necessary skills for accomplishing flight operational tasks, to a prescribed standard of airman competency, in a specific aircraft and duty position. Level B FFSs may be used for pilot recency-of-experience requirements and for specified flight operational task training requirements in transition, upgrade, recurrent, and requalification training under parts 121 and 135. It may also be used for initial new-hire and initial equipment training on specified events. Level B FFSs may also be used to accomplish night takeoffs and landings, and for landings in a proficiency check.

B. Functional Description. Level B FFSs have the following characteristics and components:

- Systems representations, switches, and controls which are required by the type design of the aircraft and by the user's approved training program;
- Systems which respond appropriately and accurately to the switches and controls of the aircraft being simulated;
- A full-scale replica of the flight deck of the aircraft being simulated;
- Correct simulation of the aerodynamic (including ground effect) and ground dynamic characteristics of the aircraft being simulated;
- Correct simulation of the effects of selected environmental conditions which the simulated aircraft might encounter;
- Control forces and travel which correspond to the aircraft;
- Instructor controls and seat;
- At least a night visual system with a minimum of a 45-degree horizontal by 30-degree vertical FOV for each pilot station; and
- A motion system with at least 3 degrees of freedom.

3-1241 LEVEL C FFS.

A. Purpose. To permit development and practice of the necessary skills for accomplishing flight operational tasks to a prescribed standard of airman competency in a specific aircraft and duty position. Level C FFSs may be used for pilot recency-of-experience

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requirements and for specified flight operational task training in transition, upgrade, recurrent, and requalification training under parts 121 and 135. It may also be used for initial new-hire and initial equipment training for all events. All training events may be conducted in a level C FFS for persons who have previously qualified as PIC or SIC with that operator.

B. Functional Description. Level C FFSs have at least the following characteristics and components:

- Systems representations, switches, and controls which are required by the type design of the aircraft and by the user's approved training program;
- Systems which respond appropriately and accurately to the switches and controls of the aircraft being simulated;
- A full-scale replica of the flight deck of the aircraft being simulated;
- Correct simulation of the aerodynamic (including ground effect) and ground dynamic characteristics of the aircraft being simulated;
- Correct simulation of the effects of selected environmental conditions which the simulated aircraft might encounter;
- Control forces, dynamics, and travel which correspond to the aircraft;
- Instructor controls and seat;
- At least a night and dusk visual system with a minimum of a 75-degree horizontal by 30-degree vertical FOV for each pilot station; and
- A motion system with at least 6 degrees of freedom.

3-1242 LEVEL D FFS.

A. Purpose. To permit development and practice of the necessary skills for accomplishing flight operational tasks to a prescribed standard of airman competency in a specific aircraft and duty position. Level D FFSs may be used for parts 121 and 135 pilot recency-of-experience requirements and for all flight operational task training, except for static aircraft training.

B. Functional Description. Level D FFSs have the following characteristics and components:

- Systems representations, switches, and controls which are required by the type design of the aircraft and by the user's approved training program;
- Systems which respond appropriately and accurately to the switches and controls of the aircraft being simulated;
- A full-scale replica of the flight deck of the aircraft being simulated;
- Correct simulation of the aerodynamic (including ground effect) and ground dynamic characteristics of the aircraft being simulated;
- Correct simulation of selected environmentally affected aerodynamic and ground dynamic characteristics of the aircraft being simulated considering the full range of its flight envelope in all approved configurations;
- Correct and realistic simulation of the effects of environmental conditions which the aircraft might encounter;

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- Control forces, dynamics, and travel which correspond to the aircraft;
- Instructor controls and seat;
- A daylight, dusk, and night visual system with the minimum of a 75-degree horizontal by 30-degree vertical FOV for each pilot station; and
- A motion system with at least 6 degrees of freedom.

3-1243 MANEUVERS AND PROCEDURES TABLES.

A. Compliance. The events which must be accomplished during flight training are listed in the maneuvers and procedures tables in this section. The requirements of parts 121 and 135 are included in these tables. These tables can be used as a single-source document in the development and evaluation of flight training curriculum segment proposals. Compliance with the provisions of these tables automatically ensures that all requirements of both parts 121 and 135 are met. These tables also contain the acceptable flight training equipment (FSTD or aircraft) which may be used for any training event. An "X" indicates that the specified FSTD has been qualified for that event without further consideration or approval. An "A" indicates that a lower-level FSTD may be used for procedural training if that device has the necessary systems representations and functions for training on the event. These systems representations and functions exceed the basic requirements for that level FSTD; therefore, an "A" indicates that the FSTD must be evaluated and approved for each particular event. Any maneuver or procedure permitted in a specific level of FSTD may also be conducted in a higher level of FSTD or the aircraft itself (provided the event can safely be accomplished in the aircraft). Certain training events within the tables are preceded with a box ([ ]). If the operator is authorized (or required) to conduct these maneuvers by OpSpecs (e.g., a circling approach), a POI should check the appropriate box to indicate these events must be included in the training curriculum. Certain optional training events indicated by a pound sign (#) in the maneuvers and procedures tables are not specifically required by the regulations or OpSpecs. Many of these optional training events, however, are often included in an operator's flight training curriculums and should be conducted in a properly qualified FSTD.

NOTE: See paragraph 3-1233 for description of maneuvers marked with the letter M.

B. Wind Shear Training. Wind shear training is a training event in each table. The tables indicate that wind shear training may only be performed in an FFS. Operators who do not use an FFS may perform their wind shear/microburst training in accordance with the guidelines in the FAA Windshear Training Aid.

C. Ice-Contaminated Tailplane Stall (ICTS). Verify training includes AFM limitations and procedures for operating in icing conditions, if available. For airplanes that are not susceptible to ICTS, verify tailplane stall recovery is not included. For airplanes that have not been evaluated for ICTS, verify training includes manufacturer recommendations regarding operations in icing conditions, if available. Contact the Small Airplane Directorate Standards Office (ACE-110) for a list of airplanes susceptible to ICTS.

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D. Requirements Paragraph. Preceding each maneuver and procedure table is a paragraph which states the required maneuvers and procedures for each flightcrew member and provides guidance on specific areas of emphasis which should be included in the training.

3-1244 PIC/SIC INITIAL NEW-HIRE AND INITIAL EQUIPMENT FLIGHT TRAINING—TRANSPORT AND COMMUTER CATEGORY AIRPLANES.

A. Required Maneuvers and Procedures. Training in the maneuvers and procedures in Table 3-62, Flight Training PIC/SIC Initial New-Hire and Initial Equipment Flight Training—Transport and Commuter Category Airplanes, must be conducted for satisfactory completion of initial new-hire and initial equipment flight training.

1) PICs must complete training in each training event in this table.

2) SICs must complete training in each training event in this table. SIC training in the following events does not require manipulation of the primary aircraft controls but should emphasize duties of the PM:

- Approach and landing with pitch mistrim,
- Approach and landing with 50 percent loss of power,
- Approach and landing with flap/slat malfunction, and
- Steep turns.

B. Training Emphasis Considerations. A POI should ensure that the operator's flight training emphasizes appropriate areas for these categories of training:

1) For initial new-hire training, emphasis should be on specific company procedures and procedures for the particular aircraft.

2) For initial equipment training, emphasis should be on company procedures specific to the aircraft.

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Table 3-62. Flight Training PIC/SIC Initial New-Hire and Initial Equipment Flight Training—Transport and Commuter Category Airplanes (Front Side)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Visual Inspection (For aircraft with FE, use of pictorial display authorized)									X
	Prestart Procedures	A	A	X		X	X	X	X	X
	Performance Limitations	X	X	X		X	X	X	X	X
SURFACE OPERATION	Pushback			X		X	X	X	X	X
	[ ] Powerback Taxi							X	X	X
	Starting	A	A	X		X	X	X	X	X
	Taxi/Runway Operations							X	X	X
	Pretakeoff Checks	A	A	X		X	X	X	X	X
TAKEOFF	Normal M							X	X	X
	Crosswind							X	X	X
	Rejected M			X		X	X	X	X	X
	Power Failure V_1 M					X	X	X	X	X
	Powerplant Failure During Second Segment #					X	X	X	X	X
	[ ] Lower than Standard Minimum					X	X	X	X	X
CLIMB	Normal			X		X	X	X	X	X
	One Engine Inoperative During Climb to En Route Altitude #					X	X	X	X	X
EN ROUTE	Steep Turns PIC			X		X	X	X	X	X
	Stall Prevention (Approaches to Stalls): M (Takeoff Config.) (En Route Config.) (Landing Config.) X* The approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning).			X*		X	X	X	X	X
	Inflight Powerplant Shutdown	A	A	X		X	X	X	X	X
	Inflight Powerplant Restart		A	X		X	X	X	X	X
	High-Speed Handling Characteristics					X	X	X	X	X
DESCENT	Normal			X		X	X	X	X	X
	Maximum Rate					X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
APPROACHES	VFR Procedures M Visual Approach							X	X	X
	With 50 percent loss of power on one-side PIC M (2 engines inoperative on 3-engine airplanes) A* (May be accomplished in levels A or B provided one-engine-inoperative training is conducted in level C or D, or the aircraft)					A*	A*	X	X	X
	With Slat/Flap Malfunction PIC M					X	X	X	X	X
	IFR Precision Approaches M ILS/Normal							X	X	X
	ILS/One Engine Inoperative							X	X	X
	[ ] PAR/Normal					X	X	X	X	X
	[ ] PAR/One Engine Inoperative #					X	X	X	X	X
	IFR Nonprecision Approaches M NDB/Normal			A*		X	X	X	X	X
	VOR/Normal A* At least one Nonprecision approach must be accomplished in a FFS or the aircraft			A*		X	X	X	X	X
	Nonprecision Approach One Engine Inoperative #		A	X		X	X	X	X	X
	[ ] LOC Backcourse Procedures		A	X		X	X	X	X	X
	[ ] SDF/LDA Procedures		A	X		X	X	X	X	X
	[ ] ASR Procedures		A	X		X	X	X	X	X
	[ ] RNAV Procedures		A	X		X	X	X	X	X
	[ ] LORAN C Procedures		A	X		X	X	X	X	X

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Table 3-62. Flight Training PIC/SIC Initial New-Hire and Initial Equipment Flight Training—Transport and Commuter Category Airplanes (Back Side)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
APPROACHES (Cont'd)	[ ] Circling Approach M (FFS must be qualified for training/checking on the circling maneuver)							X	X	X
	Missing Approaches M From Precision Approach					X	X	X	X	X
	From Nonprecision Approach					X	X	X	X	X
	With Powerplant Failure					X	X	X	X	X
	NOTE: At least one MAP must be a complete approved procedure. At least one MAP must be with a powerplant failure									
LANDINGS	Normal							X	X	X
	With Pitch Mistrim PIC							X	X	X
	From Precision Instrument Approach							X	X	X
	From Precision Instrument Approach With Most Critical Engine Inoperative							X	X	X
	With 50 percent loss of power on one side PIC (2 engines inoperative on 3-engine airplanes) A* (May be accomplished in Levels A or B, provided one-engine-inoperative training is conducted in level C or D, or the aircraft.)					A*	A*	X	X	X
	With Flap/Slat Malfunction					X	X	X	X	X
	Crosswind							X	X	X
	With Manual Reversion/Degraded Control Augmentation					X	X	X	X	X
AFTER LANDING	Parking #							X	X	X
	Emergency Evacuation #			X		X	X	X	X	X
OTHER FLIGHT PROCEDURES DURING ANY AIRBORNE PHASE	Holding			X		X	X	X	X	X
	Ice Accumulation on Airframe #					X	X	X	X	X
	Air Hazard Avoidance #					A	A	X	X	X
	Wind Shear/Microburst #					X	X	X	X	

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Normal - Abnormal - Alternate	Pneumatic/Pressurization	A	A	X		X	X	X	X	X
	Air Conditioning	A	A	X		X	X	X	X	X
	Fuel and Oil	A	A	X		X	X	X	X	X
	Electrical	A	A	X		X	X	X	X	X
	Hydraulic	A	A	X		X	X	X	X	X
	Flight Controls	A	A	X		X	X	X	X	X
	Anti-Icing and Deicing Systems			X		X	X	X	X	X
	Autopilot (AP)		A	X		X	X	X	X	X
	Flight Management Guidance Systems and/or Automatic or Other Approach & Landing Aids		A	X		X	X	X	X	X
	Stall Warning Devices, Stall Avoidance Devices, and Stability Augmentation Systems			X		X	X	X	X	X
	Airborne Weather Radar	A	A	X		X	X	X	X	X
	Flight Instrument System Malfunction		A	X		X	X	X	X	X
	Communications Equipment	A	A	X		X	X	X	X	X
	Navigation Systems	A	A	X		X	X	X	X	X
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Emergency	Aircraft Fires	A	A	X		X	X	X	X	X
	Smoke Control	A	A	X		X	X	X	X	X
	Powerplant Malfunctions	A	A	X		X	X	X	X	X
	Fuel Jettison	A	A	X		X	X	X	X	X
	Electrical, Hydraulic, Pneumatic Systems	A	A	X		X	X	X	X	X
	Flight Control Systems Malfunction	A	A	X		X	X	X	X	X
	Landing Gear and Flap Systems Malfunction	A	A	X		X	X	X	X	X

3-1245 PIC/SIC TRANSITION AND UPGRADE FLIGHT TRAINING—TRANSPORT AND COMMUTER CATEGORY AIRPLANES.

A. Required Maneuvers and Procedures. Training in the maneuvers and procedures in Table 3-63, Flight Training PIC/SIC Transition and Upgrade Flight Training—Transport and Commuter Category Airplanes, must be conducted for satisfactory completion of transition or upgrade flight training.

1) PIC Transition Training. PICs must complete training in each training event in this table.

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2) SIC Transition Training. SICs must complete training in each training event in this table. SIC training in the following events does not require manipulation of the primary flight controls but should emphasize the duties of the PM:

- Approach and landing with pitch mistrim,
- Approach and landing with 50 percent loss of power,
- Approach and landing with flap/slat malfunction, and
- Steep turns.

3) PIC Upgrade Training. An SIC upgrading to PIC must complete training in each training event in this table (including those marked "PIC").

4) SIC Upgrade Training. FEs upgrading to SIC must complete training in each training event in Table 3-63. FEs upgrading to SIC are not required to manipulate the primary flight controls for the following events, but should receive training which emphasizes duties of the PM. The training events are as follows:

- Approach and landing with pitch mistrim,
- Approach and landing with 50 percent loss of power,
- Approach and landing with flap/slat malfunction, and
- Steep turns.

B. Training Emphasis Considerations. POIs should ensure that the operator's transition and upgrade training emphasizes the appropriate areas for these categories of training:

1) For transition training, emphasis should be on the handling characteristics and the maneuvers and procedures pertinent to the specific aircraft type.

2) For upgrade training, emphasis should be on the specific duties and responsibilities pertinent to the flightcrew member position. Additionally, in the case of an FE upgrading to SIC, maneuver-emphasis training (particularly in approaches and landings) should be included.

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Table 3-63. Flight Training PIC/SIC Transition and Upgrade Flight Training—Transport and Commuter Category Airplanes (Front Side)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Visual Inspection (For aircraft with FE, use of pictorial display authorized)									X
	Prestart Procedures	A	A	X		X	X	X	X	X
	Performance Limitations	X	X	X		X	X	X	X	X
SURFACE OPERATION	Pushback			X		X	X	X	X	X
	[ ] Powerback Taxi							X	X	X
	Starting	A	A	X		X	X	X	X	X
	Taxi							X	X	X
	Pretakeoff Checks	A	A	X		X	X	X	X	X
TAKEOFF	Normal M							X	X	X
	Crosswind							X	X	X
	Rejected M			X		X	X	X	X	X
	Power Failure V1 M					X	X	X	X	X
	Powerplant Failure During Second Segment #					X	X	X	X	X
	[ ] Lower than Standard Minimum					X	X	X	X	X
CLIMB	Normal			X		X	X	X	X	X
	One Engine Inoperative During Climb to En Route Altitude #					X	X	X	X	X
EN ROUTE	Steep Turns PIC			X		X	X	X	X	X
	Stall Prevention (Approaches to Stalls): M (Takeoff Config.) (En Route Config.) (Landing Config.) X* The approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning).			X*		X	X	X	X	X
	Inflight Powerplant Shutdown	A	A	X		X	X	X	X	X
	Inflight Powerplant Restart		A	X		X	X	X	X	X
	High-Speed Handling Characteristics					X	X	X	X	X
DESCENT	Normal			X		X	X	X	X	X
	Maximum Rate					X	X	X	X	X
APPROACHES	VFR Procedures M Visual Approach							X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	With 50 percent Loss of Power on One side PIC M (2 engines inoperative on 3-engine airplanes)					X	X	X	X	X
	With Slat/Flap Malfunction PIC M					X	X	X	X	X
	IFR Precision Approaches M ILS/Normal							X	X	X
	ILS/One Engine Inoperative					X	X	X	X	X
	[ ] PAR/Normal			X		X	X	X	X	X
	[ ] PAR/One Engine Inoperative #					X	X	X	X	X
	IFR Nonprecision Approaches M NDB/Normal			A*		X	X	X	X	X
	VOR/Normal A* At least one Nonprecision approach must be accomplished in a FFS or the aircraft			A*		X	X	X	X	X
	Nonprecision Approach One-Engine Inoperative #					X	X	X	X	X
	[ ] LOC Backcourse Procedures		A	X		X	X	X	X	X
	[ ] SDF/LDA Procedures		A	X		X	X	X	X	X
	[ ] ASR Procedures		A	X		X	X	X	X	X
	[ ] RNAV Procedures		A	X		X	X	X	X	X
	[ ] LORAN C Procedures		A	X		X	X	X	X	X

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Table 3-63. Flight Training PIC/SIC Transition and Upgrade Flight Training—Transport and Commuter Category Airplanes (Back Side)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
APPROACHES (Cont'd)	Missing Approaches M From Precision Approach					X	X	X	X	X
	From Nonprecision Approach					X	X	X	X	X
	With Powerplant Failure					X	X	X	X	X
	NOTE: At least one MAP must be a complete approved procedure. At least one MAP must be with a powerplant failure									
LANDINGS	Normal							X	X	X
	With Pitch Mistrim PIC					X	X	X	X	X
	From Precision Instrument Approach							X	X	X
	From Precision Instrument Approach With Most Critical Engine Inoperative							X	X	X
	With 50 percent Loss of Power on One Side PIC (2 engines inoperative on 3-engine airplanes)					X	X	X	X	X
	With Flap/Slat Malfunction					X	X	X	X	X
	Crosswind							X	X	X
	With Manual Reversion/Degraded Control Augmentation					X	X	X	X	X
AFTER LANDING	Parking #							X	X	X
	Emergency Evacuation #			X		X	X	X	X	X
OTHER FLIGHT PROCEDURES DURING ANY AIRBORNE PHASE	Holding			X		X	X	X	X	X
	Ice Accumulation on Airframe #			X		X	X	X	X	X
	Air Hazard Avoidance #					A	X	X	X	X
	Wind Shear/Microburst #					X	X	X	X	
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Normal - Abnormal - Alternate	Pneumatic/Pressurization	A	A	X		X	X	X	X	X
	Air Conditioning	A	A	X		X	X	X	X	X
	Fuel and Oil	A	A	X		X	X	X	X	X
	Electrical	A	A	X		X	X	X	X	X
	Hydraulic	A	A	X		X	X	X	X	X
	Flight Controls	A	A	X		X	X	X	X	X
	Anti-Icing and Deicing Systems			X		X	X	X	X	X
	Autopilot		A	X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Flight Management Guidance Systems and/or Automatic or Other Approach and Landing Aids		A	X		X	X	X	X	X
	Stall Warning Devices, Stall Avoidance Devices, and Stability Augmentation Systems			X		X	X	X	X	X
	Airborne Weather Radar	A	A	X		X	X	X	X	X
	Flight Instrument System Malfunction		A	X		X	X	X	X	X
	Communications Equipment	A	A	X		X	X	X	X	X
	Navigation Systems	A	A	X		X	X	X	X	X
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Emergency	Aircraft Fires	A	A	X		X	X	X	X	X
	Smoke Control	A	A	X		X	X	X	X	X
	Powerplant Malfunctions	A	A	X		X	X	X	X	X
	Fuel Jettison	A	A	X		X	X	X	X	X
	Electrical, Hydraulic, Pneumatic Systems	A	A	X		X	X	X	X	X
	Flight Control Systems Malfunction	A	A	X		X	X	X	X	X
	Landing Gear and Flap Systems Malfunction	A	A	X		X	X	X	X	X

3-1246 PIC/SIC RFT—TRANSPORT AND COMMUTER CATEGORY AIRPLANES.

A. Required Maneuvers and Procedures. Training in the maneuvers and procedures in Table 3-64, Flight Training PIC/SIC Recurrent and Requalification Flight Training—Transport and Commuter Category Airplanes, in accordance with the following paragraphs, must be conducted for the satisfactory completion of RFT.

1) Part 135 RFT. Part 135 RFT must be conducted periodically, at least once every 12 months, for both PICs and SICs. Part 135, § 135.351(c) specifies that RFT for pilots must include at least "flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by § 135.293" (the competency check) "may be substituted for recurrent flight training." The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate, for the operations authorized, and appropriate to the category, class, and type of aircraft involved. The instrument proficiency check (IPC), as specified in § 135.293(c), may be substituted for the competency check. Additionally, there are no provisions in part 135 that allow recurrent training to substitute for required checks or tests. There are no training appendices in part 135 containing lists of the required maneuvers and procedures for flight training or checking. Training on the events in the applicable tables in this section meets the part 135 competency and IPC requirements and, therefore, the RFT requirements.

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NOTE: When training or evaluating the ability of a pilot to control an aircraft on instruments and to navigate without reference to outside cues, the inspector, check pilot, or instructor must restrict the pilot's vision to the aircraft's instrument panel. This can only be ensured with the use of an appropriate view-limiting device. When an FSTD is not available for training or checking, the dilemma is how to safely perform these maneuvers under the "see and be seen" requirements of visual meteorological conditions (VMC) flight and still be able to accurately assess the pilot's ability to control and navigate an aircraft without reference to outside cues. On one hand, the use of a view-limiting device must not restrict the ability of the check pilot or other observers to safely clear the area and conduct outside vigilance during all maneuvers. On the other hand, the check pilot must be certain that the pilot is not using any outside references. In final analysis, the check or training should not be conducted if the requirements of safety and test integrity cannot be met (see Volume 5, Chapter 3, Section 4, paragraph 5-887).

2) Part 121 RFT. Part 121 RFT is training that must be conducted for PICs once every 6 months and for SICs once every 12 months, and must include training on the maneuvers and procedures listed in part 121 appendix F. Levels B, C, and D FFSs qualify for "training and checking to proficiency" on all the maneuvers and procedures required for RFT by part 121. RFT can always be conducted in an airplane. A proficiency check (§ 121.441) may be substituted for RFT.

3) Part 121 Level A RFT. Level A RFT is conducted in a level A FFS. Level A RFT is referenced in several different ways in part 121. The following are examples: "A course of training in an airplane simulator" (§ 121.409(b)); "flight training program approved by the Administrator" (§ 121.427(d)(1)(ii)); and "the approved simulator course of training" (§§ 121.433(c)(2) and 121.441(a)). For the purpose of standardization and mutual understanding, the term "level A recurrent flight training" or "level A RFT" should be used in reference to this type of training when it is conducted entirely in a level A FFS. Level A FFSs are not qualified to be used for "training to proficiency" on certain maneuvers listed in appendix F (such as takeoffs and landings). However, level A FFSs can be used for training and practice on the procedures used to accomplish these maneuvers. These maneuvers are annotated by a "C" in the RFT maneuvers and procedures table (Table 3-64). Level A RFT may be substituted for alternate periods of RFT (required by § 121.433(c)(2)) or for alternate proficiency checks (required by § 121.441(e)), provided the person being trained is evaluated by a check pilot during the subsequent proficiency check (for PICs, once each 12 months; for SICs once each 24 months). The proficiency check may be conducted in a level A FFS, provided the person being checked is evaluated during the conduct of two landings on the line (or other check) by a check pilot (or, for SICs, by a line PIC). The entire proficiency check (without the landings on the line requirement) may be conducted in a level B, C, or D FFS.

B. Training Emphasis Considerations. Operators should develop RFT and level A RFT curriculum segments which serve to maximize training on certain maneuvers and procedures. A pilot's competency to function in his assigned duty position is evaluated during an annual proficiency check (or a competency check). During that check, at least the events required by part 121 appendix F (for part 121 operators) and any of the events required for the original issuance of the particular pilot certificate involved (for part 135 operators) must be

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accomplished. The RFT curriculum outline should address all the required training events listed in Table 3-64. However, during RFT or level A RFT, specific training on every event is unnecessary unless it is needed for maintaining pilot proficiency on particular events. It is national direction and guidance that, during periods of RFT or level A RFT, training emphasis should be on those events or other maneuvers or procedures not normally encountered during routine line operations, such as abnormal or emergency procedure training or wind shear training. Additionally, training on new or revised maneuvers or procedures, new equipment, or other similar areas is ideally suited for periods of RFT or level A RFT. Time should be allotted to conduct training in maneuvers or procedures the pilot wishes to practice, or in certain operational areas in which deficiencies have surfaced during proficiency or line checks, indicating a need for additional training.

NOTE: Even though all of the maneuvers and procedures may not be accomplished during RFT or level A RFT, the RFT curriculum segment outline should address all of the required training events listed in Table 3-64.

Table 3-64. Flight Training PIC/SIC Recurrent and Requalification Flight Training—Transport and Commuter Category Airplanes (Front Side)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Visual Inspection (Use of pictorial display authorized)									X
	Pretaxi Procedures		X	X		X	X	X	X	X
	Performance Limitations	A	A	X		X	X	X	X	X
SURFACE OPERATION	Pushback	A	A	X		X	X	X	X	X
	[ ] Powerback Taxi					X	X	X	X	X
	Starting			X		X	X	X	X	X
	Taxi					C	C	X	X	X
	Pretakeoff Checks	A	A	X		X	X	X	X	X
TAKEOFF	Normal M					C	C	X	X	X
	Crosswind					C	C	X	X	X
	Rejected M			X		X	X	X	X	X
	Power Failure V1 M					X	X	X	X	X
	Powerplant Failure During Second Segment #					X	X	X	X	X
	[ ] Lower than Standard Minimum					X	X	X	X	X
CLIMB	Normal			X		X	X	X	X	X
	One Engine Inoperative During Climb to En Route Altitude #					X	X	X	X	X
EN ROUTE	Steep Turns PIC			X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Stall Prevention (Approaches to Stalls): M (Takeoff Config.) (En Route Config.) (Landing Config.) X* The approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning).			X*		X	X	X	X	X
	Inflight Powerplant Shutdown	A	A	X		X	X	X	X	X
	Inflight Powerplant Restart		A	X		X	X	X	X	X
	High-Speed Handling Characteristics					X	X	X	X	X
DESCENT	Normal			X		X	X	X	X	X
	Maximum Rate			X		X	X	X	X	X
APPROACHES	VFR Procedures M Visual Approach					C	X	X	X	X
	With 50 percent Loss of Power on One side PIC M (2 engines inoperative on 3-engine airplanes)					X	X	X	X	X
	With Slat/Flap Malfunction PIC M					X	X	X	X	X
	IFR Precision Approaches M ILS/Normal					X	X	X	X	X
	ILS/One Engine Inoperative					C	X	X	X	X
	[ ] PAR/Normal			X		X	X	X	X	X
	[ ] PAR/One Engine Inoperative #					X	X	X	X	X
	IFR Nonprecision Approaches M NDB/Normal			A*		X	X	X	X	X
	VOR/Normal A* At least one Nonprecision approach must be accomplished in a FFS or the aircraft			A*		X	X	X	X	X
	Nonprecision Approach One-Engine Inoperative #					X	X	X	X	X
	[ ] LOC Backcourse Procedures		A	X		X	X	X	X	X
	[ ] SDF/LDA Procedures		A	X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	[ ] ASR Procedures		A	X		X	X	X	X	X
	[ ] RNAV Procedures		A	X		X	X	X	X	X
	[ ] LORAN C Procedures		A	X		X	X	X	X	X
	[ ] Circling Approach M (FFS must be qualified for training/checking on the circling maneuver)					X	X	X	X	X

Table 3-64. Flight Training PIC/SIC Recurrent and Requalification Flight Training—Transport and Commuter Category Airplanes (Back Side)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
APPROACHES (Cont'd)	Missing Approaches M From Precision Approach					X	X	X	X	X
	From Nonprecision Approach					X	X	X	X	X
	With Powerplant Failure					X	X	X	X	X
LANDINGS	Normal					C	X	X	X	X
	With Pitch Mistrim PIC					C	X	X	X	X
	From Precision Instrument Approach					X	X	X	X	X
	From Precision Instrument Approach With Most Critical Engine Inoperative					X	X	X	X	X
	With 50 percent Loss of Power on One Side PIC (2 engines inoperative on 3-engine airplanes)					X	X	X	X	X
	Crosswind					A	X	X	X	X
AFTER LANDING	Parking #					X	X	X	X	X
	Emergency Evacuation #			X		X	X	X	X	X
OTHER FLIGHT PROCEDURES DURING ANY AIRBORNE PHASE	Holding			X		X	X	X	X	X
	Ice Accumulation on Airframe #					X	X	X	X	X
	Air Hazard Avoidance #					A	X	X	X	X
	Wind Shear/Microburst #					X	X	X	X	

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Normal - Abnormal - Alternate	Pneumatic/Pressurization	A	A	X		X	X	X	X	X
	Air Conditioning	A	A	X		X	X	X	X	X
	Fuel and Oil	A	A	X		X	X	X	X	X
	Electrical	A	A	X		X	X	X	X	X
	Hydraulic	A	A	X		X	X	X	X	X
	Flight Controls	A	A	X		X	X	X	X	X
	Anti-Icing and Deicing Systems			X		X	X	X	X	X
	Autopilot			X		X	X	X	X	X
	Flight Management Guidance Systems and/or Automatic or Other Approach and Landing Aids		A	X		X	X	X	X	X
	Stall Warning Devices, Stall Avoidance Devices, and Stability Augmentation Systems			X		X	X	X	X	X
	Airborne Weather Radar	A	A	X		X	X	X	X	X
	Flight Instrument System Malfunction	A	A	X		X	X	X	X	X
	Communications Equipment	A	A	X		X	X	X	X	X
	Navigation Systems	A	A	X		X	X	X	X	X
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Emergency	Aircraft Fires	A	A	X		X	X	X	X	X
	Smoke Control	A	A	X		X	X	X	X	X
	Powerplant Malfunctions	A	A	X		X	X	X	X	X
	Fuel Jettison	A	A	X		X	X	X	X	X
	Electrical, Hydraulic, Pneumatic Systems	A	A	X		X	X	X	X	X
	Flight Control Systems Malfunction	A	A	X		X	X	X	X	X
	Landing Gear and Flap Systems Malfunction	A	A	X		X	X	X	X	X

3-1247 PIC/SIC RELATED AIRCRAFT DIFFERENCES FLIGHT TRAINING—TRANSPORT CATEGORY AIRPLANES.

A. Required Maneuvers and Procedures. Under § 121.418(c), a POI is authorized to approve a modification to the flight training maneuver and procedure requirements of § 121.424 for designated related aircraft. The flight training must be conducted in the aircraft or minimum level of FSTD, as specified in the FSB report for each maneuver and procedure. See Volume 3, Chapter 19, Section 12, for additional information regarding related aircraft designation and related aircraft differences training.

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3-1248 FE INITIAL EQUIPMENT, INITIAL NEW-HIRE, INITIAL EQUIPMENT, TRANSITION, AND RFT—TRANSPORT CATEGORY AIRPLANES.

A. Training Required for Initial Issuance of an FE Certificate. All applicants for an FE certificate with the initial class rating must satisfy one of the seven aeronautical experience and/or training requirements specified in 14 CFR part 63, § 63.37.

1) Section 63.37(b)(1), (2), (3), and (4) require, in addition to other specific requirements, that an applicant receive 5 hours of flight training in the duties of an FE. This training must be accomplished in an airplane in flight. There are no provisions for the substitution of FSTDs for any part of these 5 hours of flight training. These 5 hours of flight training may not be acquired during revenue operations conducted under part 121.

2) Section 63.37(b)(5), (6), and (7) are alternative methods for satisfying the aeronautical experience and/or training requirements of part 63. An applicant who meets the aeronautical experience requirements in subparagraph (b)(5) or (b)(6) is eligible for an initial FE certification check without any flight training (including the 5-hour airplane training requirement). Section 63.37(b)(7) allows the successful completion of an approved FE ground and flight course of instruction, as provided in part 63 appendix C, to satisfy the aeronautical experience requirements. If a student for initial issuance of an FE certificate uses the training received from a part 121 operator to meet the aeronautical experience requirements of § 63.37, that operator's FE training course must be approved under §§ 63.43, 121.419, and 121.425.

NOTE: When an operator's FE training curriculum meets the requirements of this order and is approved under part 121, it also meets the requirements of part 63. The operator may obtain approval of that curriculum under § 63.43 by submitting a letter requesting approval in accordance with the provisions of that regulation. A POI must approve or deny the request by letter.

3) Training under part 63 appendix C includes at least 10 hours of flight instruction. Appendix C is the only section in part 63 that permits the use of FSTDs. In accordance with part 63 appendix C (a)(3)(iv), an operator may reduce the flight training requirement to 5 hours of actual airplane time by substituting time in FSTDs for a total of at least 10 hours of flight training. It is important, however, to note that FFSs may be substituted on a two-to-one basis, and FTDs on a three-to-one basis, for actual airplane time. For example, for an operator to be permitted a reduction to 5 hours of airplane training, that operator must provide at least 10 hours of FFS time (two-to-one) or 15 hours of FTD time (three-to-one), or any other combination thereof which, when added to the 5 hours of airplane training, meets the 10-hour appendix C flight training requirement.

4) Part 63 appendix C (a)(iv)(b) permits an FE student holding at least a commercial pilot certificate with an instrument rating to substitute either FFS time or a combination of FSTD time for up to the full 10 hours of required airplane flight time. The two-to-one and three-to-one provisions still apply with an additional restriction that a maximum of 15 hours FTD time may be substituted. For example, an operator may substitute 20 hours of FFS time (2:1 = 10 hours of airplane flight training) for the total 10-hour appendix C airplane flight training requirement. Another example is an operator may substitute 10 hours of FFS time (2:1 = 5 hours of airplane

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flight training) plus a maximum of 15 hours of FTD time (3:1 = 5 hours of airplane flight training for meeting the total 10-hour appendix C airplane flight training requirement. The purpose of the 15-hour FTD limitation is to ensure a certain amount of the flight training will include a full crew complement. It is important to note that substitution of FSTDs for airplane training is only permitted under a part 63 appendix C program (as discussed in subparagraphs A3) and 4) above). This provision should not be confused with § 63.37(b)(4), which permits a student holding a commercial pilot certificate with an instrument rating and who has received at least 5 hours of airplane flight training (no FSTD substitution permitted) to qualify for an FE check. Therefore, if an applicant with a commercial pilot certificate and instrument rating attends a part 63 appendix C school, the applicant can use § 63.37(b)(7) to satisfy the experience requirement and can take advantage of the FSTD substitution provisions.

B. FE Transition Flight Training. An FE employed by a part 121 operator who transitions from one airplane to another must complete a transition flight training curriculum segment approved under part 121. This training is not approved or conducted within the context of part 63. The use of FSTDs or aircraft for accomplishing training events must be proposed by the operator and approved by the POI.

NOTE: FE applicants who qualify under the Airlines for America (A4A) exemption number 4901 may receive the normal procedures portion of the initial certification check in a "flight engineer simulator." An FE simulator, as defined in that exemption, is the equivalent of a level 6 FTD or higher, or any level FFS. The definition does not require motion for visual systems. This exemption permits compliance with § 63.39(b)(2), which requires the "normal" procedures portion of the certification check to be accomplished in the FE simulator rather than in an actual aircraft. For further explanation, see Volume 5, Chapter 4, Section 2, paragraph 5-1009.

C. Required Maneuvers and Procedures. Training in the maneuvers and procedures in Table 3-65, Flight Training FE Initial Equipment, Initial New-Hire, Transition, and Recurrent Flight Training, must be conducted for satisfactory completion of initial new-hire, initial equipment, and transition or recurrent training for previously certificated FEs and for the initial certification of FEs. Training for these maneuvers and procedures must include training in normal, abnormal, alternate, and emergency procedures, as appropriate.

D. Training Emphasis Considerations. A POI should ensure that the operator's FE flight training emphasizes the appropriate areas for these categories of training:

1) For initial new-hire training, emphasis should be on areas involving crew concept, duties, responsibilities, systems integration concepts, and company procedures.

2) For transition and initial equipment training, emphasis should be on the systems and procedures that pertain to the specific aircraft type.

3) For recurrent training, emphasis should be on new or revised maneuvers or procedures that are pertinent to line operations.

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Table 3-65. Flight Training FE Initial Equipment, Initial New-Hire, Transition, and Recurrent Flight Training

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Airplane Preflight • Logbook Procedures • Safety Checks (PICTORIAL DISPLAY) • Cabin/Interior • Exterior Walkaround M • Servicing/Deicing • Use of Oxygen	X	X	X		X	X	X	X	X
GROUND OPERATIONS	Performance Data • T/O LND Data • Airport Analysis • Weight and Balance (W&B)	X	X	X		X	X	X	X	X
	Use of Checklist • Panel Setup	X	X	X		X	X	X	X	X
	Starting • External PWR • External Air • APU	X	X	X		X	X	X	X	X
	Communications • Station Procedures • ACARS	X	X	X		X	X	X	X	X
	Taxi	X	X	X		X	X	X	X	X
TAKEOFF	Powerplant Control		X	X		X	X	X	X	X
	Flaps/Landing Gear		X	X		X	X	X	X	X
	Fuel Management	X	X	X		X	X	X	X	X
	Other Systems Operation	X	X	X		X	X	X	X	X
	Aircraft Performance	X	X	X		X	X	X	X	X
	Checklist Completion	X	X	X		X	X	X	X	X
CLIMB	Powerplant Control		X	X		X	X	X	X	X
	Fuel Management	X	X	X		X	X	X	X	X
	Pressurization		X	X		X	X	X	X	X
	Electrical System	X	X	X		X	X	X	X	X
	Air Conditioning		X	X		X	X	X	X	X
	Flight Controls	X	X	X		X	X	X	X	X
	Other Systems	X	X	X		X	X	X	X	X
EN ROUTE	Powerplant Operation		X	X		X	X	X	X	X
	Fuel Management	X	X	X		X	X	X	X	X
	Performance Management		X	X		X	X	X	X	X
	High Altitude Performance		X	X		X	X	X	X	X
	Other Systems Operation	X	X	X		X	X	X	X	X
DESCENT	Powerplant Operation		X	X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Other Systems Operations	X	X	X		X	X	X	X	X
	Performance Management	X	X	X		X	X	X	X	X
APPROACH	Landing Data	X	X	X		X	X	X	X	X
	Landing Gear Operation	X	X	X		X	X	X	X	X
	Flat/Slat/Spoiler Operation		X	X		X	X	X	X	X
	Approach Monitoring M		X	X		X	X	X	X	X
LANDINGS	Powerplant Operation		X	X		X	X	X	X	X
	Aircraft Configuration		X	X		X	X	X	X	X
	System Operation	X	X	X		X	X	X	X	X
	Emergency Evacuation			X		X	X	X	X	X
PROCEDURES DURING ANY GROUND OR AIRBORNE PHASE - Normal - Abnormal - Alternate - Emergency	Flight Deck Equipment			X		X	X	X	X	X
	Flap/Slats/Gear		X	X		X	X	X	X	X
	Powerplant		X	X		X	X	X	X	X
	Pressurization		X	X		X	X	X	X	X
	Pneumatic	X	X	X		X	X	X	X	X
	Air Conditioning	X	X	X		X	X	X	X	X
	Fuel and Oil	X	X	X		X	X	X	X	X
	Electrical	X	X	X		X	X	X	X	X
	Hydraulic	X	X	X		X	X	X	X	X
	Flight Controls		X	X		X	X	X	X	X
	Anti-Icing and Deicing		X	X		X	X	X	X	X

3-1249 PIC/SIC FLIGHT TRAINING (ALL TRAINING CATEGORIES)—MULTIENGINE GENERAL PURPOSE AIRPLANES.

A. Required Maneuvers and Procedures. Training in the maneuvers and procedures Table 3-66, Flight Training PIC/SIC Training (All Training Categories)—Multiengine General Purpose Airplanes, must be conducted for satisfactory completion of each category of flight training. Those training events annotated with an “SEA” symbol are only required for those operators engaged in seaplane operations.

1) PICs must complete training in each training event in this table.

2) SICs must complete training in each training event in this table. SIC training in the following events does not require manipulation of the primary aircraft controls but should emphasize duties of the PM:

- Approach and landing with pitch mistrim,
- Approach and landing with 50 percent loss of power on one side,
- Approach and landing with flap/slat malfunction, and
- Steep turns.

B. Training Emphasis Considerations. A POI should ensure that the operator’s flight training emphasizes the appropriate areas for these categories of training:

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- For initial new-hire training, emphasis should be on specific company procedures.
- For transition training, emphasis should be on the handling characteristics and the maneuvers and procedures pertinent to the specific aircraft type.
- For upgrade training, emphasis should be on the specific duties and responsibilities pertinent to the PIC position.
- For recurrent training, emphasis should be on new or revised maneuvers or procedures pertinent to line operations.

C. Part 135 RFT. RFT must be conducted periodically for both PICs and SICs, at least once every 12 months. Section 135.351(c) specifies that RFT for pilots must include at least "...flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by § 135.293" (the competency check) "may be substituted for recurrent flight training." The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate, for the operations authorized, and appropriate for the category, class, and type of aircraft involved. The IPC, as specified in § 135.293(c), may be substituted for the competency check. Additionally, there are no provisions in part 135 which allow RFT to substitute for required checks or tests. There are no training appendices in part 135 containing lists of the required maneuvers and procedures for flight training or checking. Training on the events in the applicable tables in this section, however, does meet the part 135 competency and IPC requirements and, therefore, the RFT requirements.

Table 3-66. Flight Training PIC/SIC Training (All Training Categories)—Multiengine General Purpose Airplanes

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Visual Inspection									X
	Pretaxi Procedures		X	X		X	X	X	X	X
	Performance Limitations	X	X	X		X	X	X	X	X
SURFACE OPERATION	Flight Deck Management			X		X	X	X	X	X
	Securing Cargo									X
	Starting	X	X	X		X	X	X	X	X
	Taxi	X				X	X	X	X	X
	[ ] Powerback Taxi						X	X	X	X
	Steep Turns SEA									X
	Sailing SEA									X
	Pretakeoff Checks			X		X	X	X	X	X
TAKEOFF	Normal M						X	X	X	X
	Crosswind						X	X	X	X
	Short/Soft Field M								X	X
	Glassy/Rough Water SEA								X	X
	VMC Demonstration and Recovery					X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Powerplant Failure Below VMC (Rejected)			X		X	X	X	X	X
	Powerplant Failure After VMC					X	X	X	X	X
	[ ] Lower than Standard Minimum					X	X	X	X	X
CLIMB	Normal			X		X	X	X	X	X
	One Engine Inoperative #					X	X	X	X	X
EN ROUTE	Steep Turns			X		X	X	X	X	X
	Stall Prevention (Approaches to Stalls): M (Takeoff Config.) (En Route Config.) (Landing Config.) X* Only if stall warning/stall avoidance provides first stall indication			X*		X	X	X	X	X
	Powerplant Shutdown and Restart			X		X	X	X	X	X
	Slow Speed Handling Characteristics			X		X	X	X	X	X
	With a Powerplant Inoperative			X		X	X	X	X	X
DESCENT	Normal			X		X	X	X	X	X
	Maximum Rate			X		X	X	X	X	X
APPROACHES	VFR Procedures M Normal						X	X	X	X
	With 50 percent Loss of Power on One side PIC M					X	X	X	X	X
	With Slat/Flap Malfunction PIC M					X	X	X	X	X
	IFR Precision Approaches M ILS/Normal						X	X	X	X
	ILS/One-Engine Inoperative						X	X	X	X
	[ ] PAR/Normal						X	X	X	X
	[ ] PAR/One-Engine Inoperative #						X	X	X	X
	IFR Nonprecision Approaches M NDB/Normal			A*		X	X	X	X	X
	VOR/Normal A* At least one Nonprecision approach must be accomplished in a FFS or the aircraft			A*		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Nonprecision Approach One-Engine Inoperative #					X	X	X	X	X
	[ ] LOC Backcourse Procedures		A	X		X	X	X	X	X
	[ ] SDF/LDA Procedures		A	X		X	X	X	X	X
	[ ] ASR Procedures		A	X		X	X	X	X	X
	[ ] RNAV Procedures		A	X		X	X	X	X	X
	[ ] LORAN C Procedures		A	X		X	X	X	X	X
	[ ] Circling Approach M (FFS must be qualified for training/checking on the circling maneuver)							X	X	X
	Missing Approaches M From Precision Approach					X	X	X	X	X
	From Nonprecision Approach					X	X	X	X	X
	NOTE: At least one MAP must be a complete approved procedure.									
	With Powerplant Failure					X	X	X	X	X
LANDINGS	Normal							X	X	X
	With Pitch Mistrim PIC					X	X	X	X	X
	From Precision Instrument Approach					X	X	X	X	X
	From Precision Instrument Approach With Most Critical Engine Inoperative					X	X	X	X	X
	With 50 percent Loss of Power on One Side PIC					X	X	X	X	X
	Crosswind							X	X	X
	Short/Soft Field							X	X	X
	Glassy/Rough Water SEA							X	X	X
	With Manual Reversion/Degraded Control Augmentation					X	X	X	X	X
AFTER LANDING	Docking, Mooring and Ramping SEA								X	X
	Parking #						X	X	X	X
	Emergency Evacuation #			X		X	X	X	X	X
OTHER FLIGHT PROCEDURES DURING ANY AIRBORNE PHASE	Holding			X		X	X	X	X	X
	Ice Accumulation on Airframe #					X	X	X	X	X
	Air Hazard Avoidance #					A	A	X	X	X
	Wind Shear/Microburst #					X	X	X	X	
	Pneumatic/Pressurization	A	A	X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Normal - Abnormal - Alternate	Air Conditioning	A	A	X		X	X	X	X	X
	Fuel and Oil	A	A	X		X	X	X	X	X
	Electrical	A	A	X		X	X	X	X	X
	Hydraulic	A		X		X	X	X	X	X
	Flight Controls	A		X		X	X	X	X	X
	Anti-Icing and Deicing Systems			X		X	X	X	X	X
	Autopilot		A	X		X	X	X	X	X
	Flight Management Guidance Systems and/or Automatic or Other Approach and Landing Aids		A	X		X	X	X	X	X
	Stall Warning Devices, Stall Avoidance Devices, and Stability Augmentation Systems			X		X	X	X	X	X
	Airborne Weather Radar	A	A	X		X	X	X	X	X
	Flight Instrument System Malfunction		A	X		X	X	X	X	X
	Communications Equipment	A	A	X		X	X	X	X	X
	Navigation Systems	A	A	X		X	X	X	X	X
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Emergency	Aircraft Fires	A	A	X		X	X	X	X	X
	Smoke Control	A	A	X		X	X	X	X	X
	Powerplant Failure/Fire	A	A	X		X	X	X	X	X
	Electrical, Hydraulic, Pneumatic Systems	A	A	X		X	X	X	X	X
	Flight Control Systems Malfunction	A	A	X		X	X	X	X	X
	Landing Gear and Flap Systems Malfunction	A	A	X		X	X	X	X	X
	Air Hazard Avoidance #					X	X	X	X	X
	Wind Shear/Microburst M					X	X	X	X	X

3-1250 PIC/SIC FLIGHT TRAINING (ALL TRAINING CATEGORIES)—SINGLE-ENGINE AIRPLANES.

A. Required Maneuvers and Procedures. Training in the maneuvers and procedures in Table 3-67, Flight Training PIC/SIC Flight Training (All Training Categories)—Single-Engine Airplanes, must be conducted for satisfactory completion of each category of flight training. Those training events annotated with an “SEA” symbol are only required for operators engaged in seaplane operations.

1) PICs must complete training in each training event in this table.

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2) SICs must complete training in each training event in this table. SIC training in the following events does not require manipulation of the primary aircraft controls but should emphasize duties of the PM:

- Approach and landing with pitch mistrim, and
- Steep turns.

B. Training Emphasis Considerations. A POI should ensure that the operator's flight training emphasizes the appropriate areas for these categories of training:

- For initial new-hire training, emphasis should be on specific company procedures;
- For transition training, emphasis should be on the handling characteristics and the maneuvers and procedures pertinent to the specific aircraft type;
- For upgrade training, emphasis should be on the specific duties and responsibilities pertinent to the PIC position; and
- For recurrent training, emphasis should be on new or required maneuvers or procedures pertinent to line operations.

C. Part 135 RFT. RFT must be conducted periodically for both PICs and SICs, at least once every 12 months. Section 135.351(c) specifies that RFT for pilots must include at least "...flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by § 135.293" (the competency check) "may be substituted for recurrent flight training." The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate, for the operations authorized, and appropriate to the category, class, and type of aircraft involved. The IPC, as specified in § 135.293(c), may be substituted for the competency check. Additionally, there are no provisions in part 135 which allow RFT to substitute for required checks or tests. There are no training appendices in part 135 containing lists of the required maneuvers and procedures for flight training or checking. Training on the events in the applicable tables in this section, however, does meet the part 135 competency and IPC requirements and, therefore, the RFT requirements.

Table 3-67. Flight Training PIC/SIC Flight Training (All Training Categories)—Single-Engine Airplanes

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Visual Inspection									X
	Pretaxi Procedures		X	X		X	X	X	X	X
	Performance Limitations	X	X	X		X	X	X	X	X
SURFACE OPERATION	Flight Deck Management			X		X	X	X	X	X
	Securing Cargo									X
	Starting	X	X	X		X	X	X	X	X
	Taxi					X	X	X	X	X
	[ ] Powerback Taxi						X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Steep Turns SEA									X
	Sailing SEA									X
	Pretakeoff Checks			X		X	X	X	X	X
TAKEOFF	Normal M						X	X	X	X
	Crosswind						X	X	X	X
	Rejected M			X		X	X	X	X	X
	Short/Soft Field M								X	X
	Glassy/Rough Water SEA								X	X
CLIMB	Normal			X		X	X	X	X	X
	One-engine Inoperative #					X	X	X	X	X
EN ROUTE	Steep Turns			X		X	X	X	X	X
	Stall Prevention (Approaches to Stalls): M (Takeoff Config.) (En Route Config.) (Landing Config.) X* Only if stall warning/stall avoidance provides first stall indication			X*		X	X	X	X	X
	Powerplant Shutdown and Restart			X		X	X	X	X	
	Slow Speed Handling Characteristics			X		X	X	X	X	X
DESCENT	Normal			X		X	X	X	X	X
	Maximum Rate			X		X	X	X	X	X
APPROACHES	VFR Procedures M Normal Approach						X	X	X	X
	Accuracy						X	X	X	X
	IFR Precision Approaches M ILS						X	X	X	X
	[ ] PAR						X	X	X	X
	IFR Nonprecision Approaches M NDB			A*		X	X	X	X	X
	VOR/Normal A* At least one Nonprecision approach must be accomplished in a FFS or the aircraft			A*		X	X	X	X	X
	[ ] LOC Backcourse Procedures		A	X		X	X	X	X	X
	[ ] SDF/LDA Procedures		A	X		X	X	X	X	X
	[ ] TACAN Procedures		A	X		X	X	X	X	X
	[ ] ASR Procedures		A	X		X	X	X	X	X
	[ ] RNAV Procedures		A	X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	[ ] LORAN C Procedures		A	X		X	X	X	X	X
	[ ] Circling Approach M (FFS must be qualified for training/checking on the circling maneuver)							X	X	X
	MISSED APPROACHES M From Precision Approach					X	X	X	X	X
	From Nonprecision Approach					X	X	X	X	X
	NOTE: At least one MAP must be a complete approved procedure.									
LANDINGS	Normal							X	X	X
	Spot							X	X	X
	With Simulated Powerplant Failure							X	X	X
	With Pitch Mistrim PIC					X	X	X	X	X
	From Precision Instrument Approach							X	X	X
	Crosswind							X	X	X
	Short/Soft Field								X	X
	Glassy/Rough Water SEA								X	X
AFTER LANDING	Docking, Mooring and Ramping SEA								X	X
	Parking #						X	X	X	X
	Emergency Evacuation #			X		X	X	X	X	X
OTHER FLIGHT PROCEDURES DURING ANY AIRBORNE PHASE	Holding			X		X	X	X	X	X
	Ice Accumulation on Airframe #					X	X	X	X	X
	Air Hazard Avoidance #					X	X	X	X	X
	Wind Shear/Microburst #					X	X	X	X	
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Normal - Abnormal - Alternate	Pneumatic/Pressurization	A	A	X		X	X	X	X	X
	Air Conditioning	A	A	X		X	X	X	X	X
	Fuel and Oil	A	A	X		X	X	X	X	X
	Electrical	A	A	X		X	X	X	X	X
	Hydraulic	A	A	X		X	X	X	X	X
	Flight Controls	A	A	X		X	X	X	X	X
	Anti-Icing and Deicing Systems			X		X	X	X	X	X
	Autopilot		A	X		X	X	X	X	X
	Flight Management Guidance Systems and/or Automatic or Other Approach and Landing Aids		A	X		X	X	X	X	X

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Stall Warning Devices, Stall Avoidance Devices			X		X	X	X	X	X
	Airborne Weather Radar	A	A	X		X	X	X	X	X
	Flight Instrument System Malfunction		A	X		X	X	X	X	X
	Communications Equipment	A	A	X		X	X	X	X	X
	Navigation Systems	A	A	X		X	X	X	X	X
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Emergency	Aircraft Fires	A	A	X		X	X	X	X	X
	Smoke Control	A	A	X		X	X	X	X	X
	Powerplant Malfunctions	A	A	X		X	X	X	X	X
	Electrical, Hydraulic, Pneumatic Systems	A	A	X		X	X	X	X	X
	Flight Control Systems Malfunction	A	A	X		X	X	X	X	X
	Landing Gear and Flap Systems Malfunction	A	A	X		X	X	X	X	X

3-1251 PIC/SIC FLIGHT TRAINING (ALL TRAINING CATEGORIES)—HELICOPTERS.

A. Required Maneuvers and Procedures. Training in the maneuvers and procedures in Table 3-68 must be conducted for satisfactory completion of each category of flight training. Those training events annotated with an “SEA” symbol are required only for an operator engaged in water operations.

1) PICs must complete training in each training event in this table.

2) SICs must complete training in each training event in this table. SIC training in the following events does not require manipulation of the primary aircraft controls but should emphasize the duties of the PM:

- Category “A” vertical and/or edge takeoffs and landings, and
- Approach and landing with anti-torque malfunctions.

NOTE: The levels of FSTDs to be used for the training events listed in Table 3-68 are currently under development.

B. Training Emphasis Considerations. A POI should ensure that the operator’s flight training emphasizes the appropriate areas for these categories of training:

- For initial new-hire training, emphasis should be on specific company procedures;
- For transition training, emphasis should be on the handling characteristics and the maneuvers and procedures pertinent to the specific aircraft type;

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- For upgrade training, emphasis should be on the specific duties and responsibilities pertinent to the PIC position;
- For recurrent training, emphasis should be on new or revised maneuvers or procedures pertinent to line operations;
- For all helicopter pilot training programs, emphasis should be applied to avoidance and recovery from inadvertent instrument meteorological conditions (IIMC) encounters, the loss of adequate surface or horizontal reference in visual flight rules (VFR) conditions, the application of the operator's controlled flight into terrain (CFIT) avoidance program, and avoidance of whiteout, brownout, and flat-light; and
- For all training programs, emphasis on operations in various environments, such as mountainous areas, deserts, overwater, and in desolate areas.

C. Part 135 RFT. RFT must be conducted periodically for both PICs and SICs, at least once every 12 months. Section 135.351(c) specifies that RFT for pilots must include at least "...flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by § 135.293" (the competency check) "may be substituted for recurrent flight training." The competency check may include any of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate, for the operations authorized, and appropriate to the category, class, and type of aircraft involved. The IPC, as specified in § 135.293(c), may be substituted for the competency check. Additionally, there are no provisions in part 135 listing the required maneuvers and procedures for flight training or checking. Training on the events in the applicable tables in this section, however, does meet the part 135 competency and IPC requirements and, therefore, the RFT requirements.

D. Helicopter FSTD Usage. The criteria for the use of helicopter FSTDs are currently under development. Several helicopter FSTDs have been individually approved using interim criteria. These FSTDs may continue to be used in part 135 training and checking activities in accordance with specific approvals currently in effect.

3-1252 INADVERTENT INSTRUMENT METEOROLOGICAL CONDITIONS (IIMC) TRAINING AND CHECKING. All helicopter pilots operating under part 135 must be trained and checked on procedures for the avoidance and recovery from IIMC. Inspectors will evaluate the certificate holder's operational procedures for recovery from IIMC and ensure these procedures are incorporated into the certificate holder's initial and recurrent training program(s). Training and checking should emphasize the identification of circumstances likely to lead to IIMC encounters and encourage the pilot to abandon a planned flight path or route to avoid continued VFR flight into deteriorating conditions.

A. General. After April 22, 2015, each competency check given in a rotorcraft must include a demonstration of the pilot's ability to maneuver the rotorcraft solely by reference to instruments. The check must determine the pilot's ability to safely maneuver the rotorcraft into VMC following an encounter with IIMC. For competency checks in non-IFR-certified rotorcraft, the pilot must perform such maneuvers as are appropriate to the rotorcraft's installed equipment, the certificate holder's OpSpecs, and the operating environment.

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B. Approving Methods. POIs should approve methods appropriate to the aircraft, equipment, and facilities available. POIs should consider the operator's hiring standards and practices (such as requiring a helicopter instrument rating for VFR pilots) in evaluating training and checking modules. POIs shall ensure that an operator's pilots accomplish these training and checking events in the aircraft in which the pilot will be qualified for revenue operations (or in an appropriately equipped FSTD). The events should reflect a realistic course of action the pilot might take to escape from an encounter with IIMC.

C. General Operations Manual (GOM). In addition to training, the operator should establish a loss of control (LOC) IIMC avoidance policy that supports the emergency authority of the pilot to divert, make a precautionary landing, or make an emergency transition to IFR.

1) The Inspector should evaluate the operator's LOC/IIMC avoidance plan of action as a component of the GOM. This plan should describe pilot, medical personnel, and Operations Control Specialist (OCS) duties, responsibilities, and authorities in the avoidance and recovery from IIMC encounters. This plan should be adaptable to each facility from which the certificate holder conducts operations. The plan of action should include a checklist for emergency IFR transitions and integrate all resources to support the pilot's decisionmaking and performance of the appropriate avoidance and recovery actions. For example, though it is expected that the pilot is fully trained and qualified to maneuver the helicopter while managing communications and navigation tasks, the plan may include the optional inclusion of onboard medical personnel assistance to the pilot and as applicable, OCS or Communications Specialist assistance during an IIMC emergency situation.

2) Medical personnel may assist by reading frequencies, courses, and altitudes for the pilot, allowing a higher level of pilot concentration on controlling the aircraft during the VFR/IFR transition. This assistance during an emergency should not interfere with patient care. In this case, the operator should provide appropriate training and aeronautical information reference materials for the medical personnel.

D. IIMC Training. All pilots should be trained in basic instrument flying skills to recover from IIMC, including those authorized to conduct IFR operations under part H OpSpecs. Training should be directed at unplanned transitions from VFR flight to emergency IFR operations, as this involves a different set of pilot actions, including navigation and operational procedures, interaction with air traffic control (ATC), and CRM. IIMC training should include visual cues and unusual conditions, which should prompt pilot action to avoid an IIMC encounter and pilot reaction plans to divert, land, or initiate an emergency transition to IFR as appropriate to the situation.

E. Non-IFR-Certified Aircraft. In the absence of an IFR-certified helicopter, training and checking should include maneuvers appropriate to the installed equipment, the certificate holder's OpSpecs, and the operating environment. Training and checking for all pilots, whether helicopter instrument rated or not, should include attitude instrument flying, recovery from unusual attitudes, and ATC communications. The objective is for non-instrument rated pilots to demonstrate their ability to be able to recover to VMC.

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3-1253 RECOGNIZING AND AVOIDING FLAT-LIGHT, WHITEOUT, AND BROWNOUT CONDITIONS. After April 22, 2015, rotorcraft pilots are required by § 135.293(a)(9) to satisfactorily complete training and an oral or written test for procedures for aircraft handling in flat-light, whiteout, and brownout conditions, including methods for recognizing and avoiding those conditions. Inspectors should ensure this training and testing is incorporated in the operator's approved training program.

Table 3-68. Flight Training PIC/SIC Flight Training (All Training Categories)—Helicopter (under development)

FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
PREPARATION	Visual Inspection									
	Before-Taxi Procedures									
	Performance Limitations									
SURFACE OPERATION	Starting									
	Rotor Engagement									
	Rotor Engagement on Water SEA									
	Taxiing									
	Water Taxiing SEA									
	Lift-to-Hover IGE/OGE M									
	Hover Turns IGE/OGE									
	Sideward/Rearward Hovering									
	Slope Operations									
	Liftoff									
	Landing									
	Taxiing									
TAKEOFF	Normal M									
	Instrument									
	Obstacle Clearance									
	Running (High Altitude)									
	Category "A" M									
	Category "A" M With Powerplant Failure Before CDP									
	Category "A" M With Powerplant Failure After CDP CLIMB									
	Rejected Takeoff M									
CLIMB	Normal									
	Best Rate									
	Best Angle									
EN ROUTE	Medium-Banked Turns									
	Powerplant Shutdown and Restart									

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Low-Speed Characteristics									
	High-Speed Handling Characteristics									
	High-Speed Handling Characteristics									
DESCENT	Normal									
	Maximum Rate									
	Autorotative Glide									
APPROACHES	VFR Procedures M Normal									
	Obstacle Clearance									
	High Altitude									
	Elevated Landing Site									
	With Degraded Control Augmentation									
	Balked Landing M									
	Brownout/Whiteout/Flat Light Operations									
	IFR Precision Approaches M ILS/Normal									
	ILS/One Engine Inoperative									
	[ ] PAR/Normal									
	[ ] PAR/One Engine Inoperative #									
	IFR Nonprecision Approaches M NDB/Normal									
	VOR/Normal									
	[ ] LOC Backcourse Procedures									
	[ ] SDF/LDA Procedures									
	[ ] ASR Procedures									
	[ ] RNAV Procedures									
	[ ] LORAN C Procedures									
	[ ] Circling Approach M (FFS must be qualified for training/checking on the circling maneuver)									
	Missing Approaches M From Precision Approach									
	From Nonprecision Approach									

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	NOTE: At least one MAP must be a complete approved procedure.									
	With Powerplant Failure									
LANDINGS	Normal									
	Normal to-the-water SEA									
	[ ] Category "A"									
	[ ] Category "A" With Powerplant Failure after LDP									
	Crosswind									
	From Precision Instrument Approach									
	From a Precision Approach With at Least 50 percent Power Deficiency									
	With Degraded Control Augmentation									
AFTER LANDING	Taxi									
	Parking #									
	Stopping the Rotors									
	Emergency Evacuation #									
UNPREPARED SITE OPERATIONS	Confined Areas									
	Pinnacles									
	Ridgelines									
	Water Sites SEA									
OTHER FLIGHT PROCEDURES DURING ANY AIRBORNE PHASE	Recovery from IIMC									
	Holding									
	Ice Accumulation on Airframe #									
	Air Hazard Avoidance #									
	Wind Shear/Microburst #									
SYSTEMS PROCEDURES TRAINING DURING ANY PHASE - Normal - Abnormal - Alternate	Pneumatic/Pressurization									
	Air Conditioning									
	Fuel and Oil									
	Electric									
	Hydraulic									
	Flight Controls									
	Anti-Icing and Deicing Systems									
	Autopilot									
	Flight Management Guidance Systems									
	Automatic or Other Approach and Landing Aids									

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FLIGHT PHASE	TRAINING EVENT	LEVEL OF FLT TRNG DEVICE				LEVEL OF FULL FLT SIM				ACFT
		4	5	6	7	A	B	C	D	
	Loss of Anti-Torque Effectiveness M									
	Airborne Weather Radar									
	Flight Instrument System Malfunction									
	Communications Equipment									
	Navigation Systems									
SYSTEMS PROCEDURES TRAINING DURING ANY AIRBORNE PHASE - Emergency	Aircraft Fires									
	Smoke Control									
	Powerplant Malfunctions									
	Electrical, Hydraulic, Pneumatic Systems									
	Flight Control Systems Malfunction									
	Landing Gear Malfunction									
	Anti-Torque Failure M									
	Settling-with-Power									
NIGHT VISION GOGGLE (NVG)	NVG Operational Checks									
	NVG Failure									
	Transitions: Aided/Unaided									
ADDITIONAL CONSIDERATIONS	Inadvertent IMC									
	Unusual Attitude Recovery									
	Ground Hazard Recognition									
	Brownout/Whiteout/Flat-Light Operations									
	External Light Techniques									
	Scanning Techniques									

RESERVED. Paragraphs 3-1254 through 3-1270.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 19 TRAINING PROGRAMS AND AIRMAN QUALIFICATIONS

Section 10 Safety Assurance System: Flightcrew Recurrent Training Curriculums

3-1336 GENERAL. This section contains information, direction, and guidance to be used by principal operations inspectors (POI) in the evaluation of an operator's flightcrew member recurrent training curriculums. The information covered includes the objectives and content of these recurrent training curriculums. The recurrent category of training is conducted for flightcrew members who have been previously trained and qualified by the operator, who are continuing to serve in the same duty position and aircraft type, and who must receive recurring training and/or checking within a specific eligibility period to maintain qualification. Title 14 of the Code of Federal Regulations (14 CFR) parts 121 and 135 flightcrew recurrent curriculums contain the following curriculum segments: aircraft ground training, general emergency training, flight training, and qualification. Special operations, differences, and related aircraft differences training curriculum segments must also be included when applicable. This section is related to Safety Assurance System (SAS) Subsystems 2.1, Training & Qualification, and 3.1, Training & Qualification.

3-1337 OBJECTIVE OF RECURRENT TRAINING. The objective of recurrent training is to ensure that flightcrew members continue to be knowledgeable of, and proficient in, their specific aircraft type and duty assignment. Periodic recurrent training also provides operators with an opportunity to introduce flightcrew members to changes in company operating procedures, in crewmember duties and responsibilities, and in developments within the operating environment and aviation industry.

A. Required Training Hours. POIs must ensure that the operator conducts the required number of hours of training for each cycle of recurrent training and within the time period specified by 14 CFR. Furthermore, POIs must take into account that although an operator may have satisfied 14 CFR, the operator may not have satisfied the objective. The POI can consider the objective to have been met when the flightcrew member is able to perform at the required standard of proficiency immediately before entering the next cycle of required training.

B. Curriculum Segments. POIs shall review recurrent training curriculum segments to ensure that the subject matter is appropriate, and of the proper scope and depth. The training given by the operator in each segment must meet the objective of that segment. Since there are limits as to the amount of recurrent training operators can reasonably conduct, POIs must ensure that operators use the time allocated for recurrent training efficiently and effectively. POIs and operators should carefully consider the following:

1) Title 14 CFR requires that all required subjects and topics in initial training be covered in recurrent training. Flightcrew members must remain proficient in these subjects as long as they continue to serve in the aircraft and flightcrew member duty position. Operators must give sufficient training to ensure that flightcrew members continually remain proficient. The training required to meet this objective must be given even if it is in excess of the scheduled hours or listed topics.

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2) Title 14 CFR does not require that every subject and topic of training be reviewed during each cycle of training. POIs should encourage operators to construct recurrent training outlines with different topics and elements emphasized in each cycle of training, so that when an element is addressed, it may be addressed in adequate depth.

3) Recurrent training curriculum segments may not contain material that is not pertinent to flightcrew member ground training, flight training, and general emergency training requirements (such as security training, a separate training requirement and curriculum segment).

4) Recurrent training syllabuses (not necessarily curriculum outlines) should be revised frequently (preferably annually). Operators must remove any unnecessary, outdated, superfluous, or inappropriate material and replace it with current and timely material. POIs should encourage operators to construct recurrent training curriculum segment outlines in a manner that allows for training syllabus variation in subsequent cycles of training, while not necessitating a new program approval (see paragraph 3-1339, Recurrent Aircraft Ground Training Curriculum Segments).

5) POIs shall encourage operators to use pretesting to identify areas in which flightcrew members are deficient. While operators do not have to train in areas in which flightcrew members demonstrate competence, they must, however, be able to identify areas with deficiencies and conduct training to proficiency in those areas.

3-1338 TRAINING/CHECKING MONTH AND ELIGIBILITY PERIODS. Both parts 121 and 135 require that for flightcrew members to be scheduled or serve in revenue service, they must have completed various recurrent training and checking events within 12 calendar-months. When an operator adopts a modular approach for recurrent training, all such training elements and events must be grouped into specified modules to be administered and recorded as a recurrent training curriculum segment. When an operator does not adopt a modular training approach, records must be kept of each flightcrew member's accomplishment for each element of required training and each element or event must be scheduled separately. POIs should use the following direction and guidance when reviewing an operator's recurrent training and checking events.

A. Designating the Training/Checking Month. When a flightcrew member completes an initial, transition, upgrade, or requalification training program within a 3 calendar-month period, the month in which the qualification curriculum segment is completed is then considered to be that flightcrew member's training/checking month. If the training has been completed within the 3-month period, the operator may make a single record of the entire curriculum without noting when individual events occurred. Subsequent scheduling of recurrent training may then be based on the training/checking month. If the time taken to complete initial, upgrade, transition, or requalification training has exceeded 3 calendar-months, however, the operator must record and schedule the accomplishment of recurring events separately.

NOTE: The requirement that pilots in command (PIC) of turbojet aircraft must accumulate 100 hours in command is not considered for the purpose of establishing the 3-month period.

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B. Adjusting the Training/Checking Month. Operators may adjust a flightcrew member's training/checking month by administering a period of recurrent training and qualification. When training is accomplished before it is due, operators must ensure that all requirements are accomplished within the 12 calendar-months allowed by the regulations. Requirements are sometimes omitted when a flightcrew member completes an initial-equipment, transition, or upgrade training curriculum at some time other than the previous eligibility period. When a training/checking month is adjusted, the reason for the adjustment must be noted in the flightcrew member's record. A coding system for this adjustment may be used for computerized recordkeeping systems.

C. Eligibility Period. A flightcrew member who has not completed all recurrent training or checking requirements in the month due may be scheduled and may serve in revenue service during the remainder of the eligibility period, but not thereafter. A flightcrew member who fails to complete all required training and qualification modules within the eligibility period must complete requalification training before serving in revenue operations.

3-1339 RECURRENT AIRCRAFT GROUND TRAINING CURRICULUM SEGMENTS. POIs must ensure that an operator's recurrent aircraft ground training consists of instruction in three subject areas: general operational subjects (including airport ground operational safety per the current editions of Advisory Circular (AC) 120-74, Parts 91, 121, 125, and 135 Flightcrew Procedures During Taxi Operations, and AC 91-73, Parts 91 and 135 Single Pilot, Flight School Procedures During Taxi Operations), aircraft systems, and systems integration training. Differences, related aircraft differences, and special operations training (such as wind shear) may also be required. Part 121, § 121.427 and part 135, § 135.351 both require that recurrent aircraft ground training must contain instruction in the same subjects required for initial training. This requirement does not mean that each element of initial training must be reaccomplished during each period of recurrent training. It means that pertinent subject areas must be reaccomplished often enough to ensure that flightcrew members remain competent in the performance of their assigned duties. The regulations also require that certain subjects, such as emergency training be covered each year.

A. Training Hours. Ground training hours must be specified in the recurrent training curriculum segment. The number of training hours required for various aircraft and the approval of training hours are discussed in Volume 3, Chapter 19, Section 5, paragraph 3-1200, Training Hours. Operators may be required, however, to conduct more than the minimum number of hours specified by the regulations to achieve the training objective. Sections 121.427(b)(2) and 135.351(b)(2) require that training in all subject elements which are required in initial aircraft ground training must be given "as necessary" in recurrent training. A recommended means of constructing recurrent training segments is to focus on one or two training modules within each subject area. During recurrent training, additional training modules may be accomplished at subsequent cycles of training until all of the areas of initial training have been completely reviewed. A complete cycle should not exceed 3 years.

B. Differences, Related Aircraft Differences, and Special Operations Training. When differences, related aircraft differences, or special operations training is applicable, it must be included in recurrent training curriculums. This training may either be presented as a separate and distinct curriculum segment or the training may be integrated into other modules.

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An effective way for an operator to conduct differences training is to discuss the differences in individual systems and procedures as an integral part of the training. The training methods and level of differences specified in the Flight Standardization Board (FSB) report will determine whether related aircraft differences can be effectively integrated or whether a separate curriculum segment is necessary. (See Volume 3, Chapter 19, Section 12, for additional information regarding related aircraft designation and related aircraft differences training.) When special operations are conducted, special curriculum modules are normally required as opposed to integrating the training into other segments. Recurrent training should also include updated information on equipment, operational practices and procedures, information from accidents and incidents, and areas which require emphasis as a result of line and proficiency check evaluations.

3-1340 WRITTEN OR ORAL TESTING. POIs must ensure that the following written or oral testing requirements are in the operator's recurrent training curriculum.

A. General. Written or oral testing is a required module of the recurrent flight checks for both parts 121 and 135 curriculums. This testing may either be conducted in conjunction with the flight check module or separately. The testing must be accomplished within the flightcrew member's eligibility period (see paragraph 3-1338, Training/Checking Month and Eligibility Periods).

NOTE: Although operators may use computer-based instruction (CBI), programmed instruction, or "open book" instruction and testing to obtain a reduction in ground training hours, this training/checking is not intended to be a substitute for the testing required in the qualification segment.

B. Composition of Written and Oral Test Modules. The oral or written test module must contain three distinct sets of test elements.

1) The first set of test elements is general in nature and covers the applicable provisions of: 14 CFR parts 61, 63, 91, 121, and 135; the operator's operations specifications (OpSpecs); and the operations manual. This segment only has to be completed once during each qualification cycle and does not need to be repeated if the flightcrew member is qualifying on more than one aircraft.

2) The second set of test elements includes aircraft systems, operating procedures, Weight and Balance (W&B), airport ground operational safety, and performance data relative to each specific make and model of aircraft. This segment of the test module must be completed on each make and model aircraft on which the flightcrew member is to serve. When the flightcrew member is qualifying to serve on more than one variation of an aircraft, a written or oral differences test segment is also required.

3) The third set of test elements consists of special or unique operations. Special operations testing may be included in the general or aircraft specific segments, as appropriate.

3-1341 RECURRENT GENERAL EMERGENCY TRAINING CURRICULUM SEGMENTS. Both parts 121 and 135 operators are required to conduct recurrent general emergency training. This curriculum segment is separate from the aircraft ground recurrent training curriculum segment. Recurrent general emergency training consists of emergency

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situation and emergency drill training modules. Volume 3, Chapter 19, Section 4, contains additional direction and guidance on the scope and content of general emergency training modules.

3-1342 RECURRENT FLIGHT TRAINING AND QUALIFICATION CURRICULUM SEGMENTS—PART 121. POIs must refer to §§ 121.433 and 121.441 when determining the various acceptable means that an operator may use to construct recurrent flight training and qualification curriculum segments. POIs should use the direction and guidance that follows when making these determinations.

A. Section 121.433(c)(1)(i). Section 121.433(c)(1)(i) requires that all flightcrew members satisfactorily complete a recurrent flight training curriculum segment and proficiency check or flight check, as applicable, within the preceding 12 calendar-months in each airplane type in which the flightcrew member is to serve.

B. Section 121.433(c)(1)(iii). Section 121.433(c)(1)(iii) requires PICs to also complete a recurrent flight training curriculum segment within the preceding 6 calendar-months in an airplane in which the pilot serves as PIC in part 121 operations.

C. Substitute Simulator Training. Section 121.433(c)(2) allows an approved course of simulator training described under § 121.409(b) to be substituted for alternate periods of recurrent flight training for pilots. In accordance with § 121.409(b)(1), this course of training must provide at least 4 hours at the pilot controls as well as a proper briefing before and after the training. Section 121.409(b)(2) requires the course of training to include at least the procedures and maneuvers in part 121 appendix F or Line-Oriented Flight Training (LOFT). If LOFT is conducted, § 121.409(b)(2)(ii)(A) requires the LOFT to:

1) Utilize a complete flightcrew.

2) Include at least the maneuvers and procedures (abnormal and emergency) that may be expected in line operations.

3) Be representative of a flight segment appropriate to the operations being conducted by the certificate holder.

D. Substitute Proficiency Check. Section 121.433(c)(2) permits an operator to conduct a proficiency check instead of recurrent flight training for pilots but does not authorize training instead of a required proficiency check. This provision is not intended to allow perpetual substitution of checking for training. POIs must emphasize that training is of primary importance, and checking is the means of verifying that training has been adequate. POIs shall ensure that operators conduct adequate refresher and remedial flight training in addition to conducting the required checks. The provision allowing for the substitution of checks for training is intended to allow the following:

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- Realignment of a pilot's training/checking month;
- Relief for pilots requalifying after losing qualification; and
- Necessary flexibility for operators when realigning and revising training programs.

E. PIC Proficiency Checks. Section 121.441 requires that a PIC must have completed a proficiency check within the last 12 calendar-months and either a proficiency check or one of the simulator courses of training described under § 121.409(b) within the last 6 calendar-months. If a PIC serves on two airplane types, § 121.433 requires the PIC to complete recurrent flight training or checking on each airplane type within the preceding 12 calendar-months. Therefore, to meet the requirements of §§ 121.433 and 121.441, the PIC should complete a proficiency check on alternating airplane types every 6 months.

F. Second-in-Command (SIC) Proficiency Check. Section 121.441 requires an SIC to have completed a proficiency check or a course of simulator training described under § 121.409(b) every 12 calendar-months. An SIC must also have completed a proficiency check or LOFT within 24 calendar-months. If an SIC serves on two airplane types, § 121.433 requires the SIC to complete recurrent flight training or checking on each airplane type within the preceding 12 calendar-months.

G. Deviation Authorization. In accordance with § 121.441(f), the Air Transportation Division (AFS-200) may authorize a deviation from the proficiency check requirements of § 121.441(a) and (b)(1) for a designated related aircraft. (See Volume 3, Chapter 19, Section 12, for additional information regarding deviations based on designation of related aircraft.)

H. Methods of Compliance. Table 3-74, Methods for Combining Recurrent Training, Part 121, which follows, contains a summary of the methods that a part 121 operator may use to comply with the combined recurrent training and qualification requirements of the cited regulations.

Table 3-74. Methods For Combining Recurrent Training, Part 121

Months	0	6	12	18	24
PIC	P	P	P	P	P
	P	T or L	P	T or L	P
	P	P	L or T	P	L or T
SIC	P		P		P, L, T
	P		L		P, L, T
	P		T		P or L

P = Proficiency check in an airplane or full flight simulator (FFS)
L = LOFT
T = Simulator training

I. Flight Engineers (FE). For recurrent training, FEs must have completed a flight check within 12 calendar-months.

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J. Multiple Aircraft Types. When a flightcrew member flies more than one aircraft type, the training/checking month for each subsequent airplane is the same calendar-month that is 1 year after the original check on that type of airplane. Operators normally find it advantageous to align the training/checking month on the second airplane 6 calendar-months after the training/checking month on the first airplane.

3-1343 RECURRENT FLIGHT TRAINING AND QUALIFICATION CURRICULUM SEGMENTS—PART 135. The recurrent qualification check requirements for pilots in part 135 operations are as follows:

A. Transport or Commuter Category, Turbojet Airplane, or Helicopter. Each pilot serving in a transport or commuter category airplane, turbojet airplane, or helicopter must have completed a competency check in each make and model of aircraft in which the pilot serves within 12 calendar-months. Part 135 operators who operate these families of aircraft may comply with part 121 subparts N and O instead of part 135 subparts G and H. A part 135 operator who does comply with part 121 subparts N and O is considered to be in full compliance with part 135 subparts G and H. POIs should encourage operators of transport category, turbojet, and commuter airplanes to adopt this option to take full advantage of advanced simulation and LOFT.

B. Multiengine General Purpose Airplane. Each pilot serving in airplanes of the multiengine, general purpose aircraft family must have completed a competency check in one model of airplane of the equivalent aircraft family within 12 calendar-months. A competency check in one airplane of an equivalent aircraft family qualifies the pilot in all airplanes of that family.

C. Single-Engine Airplanes. Each pilot serving in single-engine airplanes other than turboprop or turbojets must have completed a competency check in any make and model of the aircraft family within 12 calendar-months. Only one competency check is required to qualify the candidate in all single-engine airplanes of this family.

NOTE: The provisions of subparagraphs B and C do not relieve a pilot from having to complete recurrent differences training and that portion of the oral or written competency test applicable to each make, model, and variation of the airplane that the pilot will operate as required by § 135.293(a)(2).

D. Instrument Proficiency Check (IPC). Section 135.297 requires a PIC conducting instrument flight rules (IFR) operations to have completed an IPC in one aircraft in which the pilot serves within the preceding 6 calendar-months. The IPC may be substituted for the competency check required by § 135.293(b) for the aircraft type used. A PIC is due an IPC in the calendar-month 6 calendar-months after the training/checking month.

1) Section 135.297 specifies that the IPC consists of those maneuvers and events required for original issuance of the certificate required for the operation being conducted (either airline transport pilot (ATP) or commercial/instrument). The events required on an IPC are discussed in Volume 3, Chapter 19, Section 7.

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2) Section 135.297 allows a pilot operating both single-engine and multiengine aircraft to alternate the IPCs in the two classes of aircraft and be considered qualified in both classes. The pilot must, however, have completed an IFR check in a multiengine aircraft before beginning the alternating sequence. This provision does not, however, relieve the pilot from having to accomplish a competency check (as discussed in Volume 3, Chapter 19, Section 7) in each family of aircraft or, when required in each individual aircraft, once every 12 calendar-months (see Volume 3, Chapter 19, Section 7, paragraph 3-1283).

NOTE: Section 135.297 was written before competency checks for IFR operations were required for operators to satisfy the requirements of § 135.297 as well as § 135.293. The provision for alternating checks has little practical application under the current requirements.

E. Autopilot Instead of SIC. Before a PIC may be authorized to conduct IFR operations with an autopilot instead of an SIC, the PIC must satisfactorily demonstrate this ability once every 12 calendar-months. This demonstration should be conducted in conjunction with an IFR competency check.

F. Multiple Qualification. When a pilot flies two or more aircraft of different families or aircraft requiring individual qualification, the pilot's training/checking month for each airplane or family of airplanes is the same calendar-month 1 year after the original qualification on that aircraft or aircraft family. Operators will usually find it advantageous to align the training/checking month for the second aircraft 6 calendar-months after the training/checking month for the first aircraft. This arrangement eliminates the need for separate IPCs.

RESERVED. Paragraphs 3-1344 through 3-1360.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 19 TRAINING PROGRAMS AND AIRMAN QUALIFICATIONS

Section 15 Safety Assurance System: Air Ambulance Specific Flight Crewmember Training Programs

3-19-15-1 GENERAL. This section contains guidance to be used by inspectors when evaluating a Title 14 of the Code of Federal Regulations (14 CFR) part 135 air ambulance operator training programs for flightcrew members. This section should be used in conjunction with Volume 3, Chapter 19, Sections 1 through 11, as it does not contain comprehensive guidance for an entire part 135 training program. Air ambulance operators are not exempted, by virtue of the urgent medical response implications of this industry, from any other training requirements imposed upon all part 135 operators. This section addresses only the additional subject matter required for air ambulance (helicopter or airplane) training programs. This section is related to Safety Assurance System (SAS) Element 2.1.1 (OP), Training of Flight Crewmembers, and Element 2.1.4 (OP), Outsource Crewmember Training.

3-19-15-3 AIRPLANE TRAINING PROGRAMS. Inspectors must consider the following elements when evaluating an operator's airplane flight training program and airplane ground training program:

A. Airplane Ground Training Program. Inspectors must evaluate the following ambulance-specific areas in the operator's ground training curriculum:

- Aircraft medical systems variations;
- Passenger restraining methods in flight;
- Flightcrew functions and responsibilities, including Crew Resource Management (CRM) as it pertains to interface between medical personnel and flightcrew members;
- Aircraft systems variations, such as special electrical systems, navigational radios, and instrumentation and their performance characteristics;
- Handling of special medical equipment to include loading/unloading of stretchers, isolettes, balloon pumps, and ventilators;
- Appropriate restraint of infants, pediatric patients, and problem passengers to include prisoners;
- International operations (if appropriate); and
- Blood-borne pathogens and biohazard and infection control, including prevention and control of infectious diseases.

B. Airplane Flight Training Program. There are no airplane flight training maneuvers that are unique to air ambulance services.

3-19-15-5 HELICOPTER TRAINING PROGRAMS. Inspectors must carefully consider the following elements when evaluating a helicopter air ambulance (HAA) operator's training program:

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A. Pilot Ground Training. Inspectors must evaluate the operator's ground training curriculum. The operator must ensure that the following topics are included:

1) Risk analysis procedure required by part 135, § 135.617 and as described in Appendix A of the current edition of AC 135-14, Helicopter Air Ambulance Operations.

2) Local flying area (LFA) familiarity. Pilots must receive training and must demonstrate their familiarity with each LFA they are authorized to use by passing an examination given by the certificate holder within the previous 12 calendar-months prior to taking advantage of LFA weather minimums. In other words, pilots who have not demonstrated their familiarity by examination within the past 12 calendar-months may not operate to lower Class G minimums listed in the table within § 135.609(a). This examination may be conducted in conjunction with a § 135.293(a) check or may be made via flight check by a computer-based training and checking system, or by written or oral examination administered by a company-designated individual who is familiar with the LFA involved. Subject matter that should be included in the training and examination are as follows:

a) LFA borders;

b) Locations of terrain features and obstructions that may pose a hazard to HAA flight operations;

c) Available (emergency) and operator-approved airports, heliports, and off-airport landing sites/areas along with appropriate ingress/egress routes and limitations or guidance;

d) Preferred low-altitude flyways and minimum cruising altitudes throughout the LFA;

e) Air traffic control (ATC) frequencies, instrument approaches, and the terms and conditions of any local Memorandums of Understanding (MOU) established between the ATC facilities and the operator;

f) Weather resources available within the LFA;

g) Local communications procedures between the aircraft and any communications centers, specialists, or Operations Control Centers (OCC);

h) Specific local area adverse weather cues; and

i) Additional local concerns as appropriate (refer to § 135.609).

3) Flight planning and weather minimums (refer to § 135.615).

4) Flightcrew functions and responsibilities, including CRM as it pertains to interface between medical personnel and flightcrew members.

5) Obstacle recognition and avoidance.

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6) Handling, loading, and unloading of special medical equipment such as stretchers, isolettes, balloon pumps, and ventilators.

7) Appropriate restraint of infants, pediatric patients, and passengers who may pose a threat to the safety of the aircraft and crew, to include patients who are hysterical or combative.

8) Hospital heliport operations and procedures.

9) Day and night unimproved landing area (scene) operations.

10) International operations (if appropriate).

11) Blood-borne pathogens, biohazard, and infection control, including prevention and control of infectious diseases.

12) Refueling procedures and methods to ensure fuel quality.

B. Helicopter Pilot Flight Training with Flight Simulation Training Devices (FSTD).

1) Helicopter FSTDs are rapidly becoming more advanced. Some are now capable of full motion with realistic visual cockpit displays. A growing number of helicopter FSTDs are approved by the Federal Aviation Administration (FAA).

2) Training in inadvertent instrument meteorological conditions (IIMC), flat light, and other special conditions can be enhanced through the use of FSTDs, which have the capability to suddenly decrease visibility and simulate a variety of situations not realistically possible in flight. FSTDs can provide realistic training to hone appropriate pilot responses to all types of sudden onset emergencies. Inspectors must become thoroughly familiar with the types of FSTD and simulator practices that the operator intends to use and the FSTD capabilities prior to authorizing the use of these FSTDs.

C. Flight Training Curriculum. Inspectors should verify that the following recommended topics are included in the operator's flight training curriculum as appropriate to the operations conducted:

1) LFA orientation (day/night) to familiarize pilots with and to reinforce LFA features, hazards, special procedures, and concerns, presented in subparagraph 3-19-15-5A2);

2) Hospital heliport operations and procedures (day/night and multi-aircraft);

3) Unimproved landing zone (LZ) operations (off-airport, day/night, and multi-aircraft);

4) Day and night cross-country flights, including cockpit and exterior lighting and forced landing considerations (including use of a searchlight if installed); and

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5) Communications, including air-to-ground and flight crew/medical personnel procedures.

D. IIMC Avoidance and Recovery Procedures. This is a topic that applies to all part 135 helicopter operations and as such is checked in all § 135.293 competency checks. It is emphasized here because of the high proportion of helicopter accidents that were at least partially attributed to continued visual flight rules (VFR) flights into instrument meteorological conditions (IMC).

1) Inspectors should evaluate the certificate holder's training and checking procedures, particularly the identification and recognition of circumstances likely to lead to IIMC encounters and that serve to prompt the pilot to abandon continued VFR flights into deteriorating conditions.

2) The inspector must also evaluate the training program treatment of IIMC recovery techniques and procedures, including the appropriate declaration of an emergency due to an IIMC encounter and the obtaining of an instrument flight rules (IFR) clearance at the first opportunity. Inspectors are cautioned to avoid pursuit of enforcement action under these circumstances providing adequate pre-flight planning and risk analysis was performed.

3) IIMC may effectively occur when visual meteorological conditions (ceiling and visibility) may exist but conditions do not allow for the determination of a usable horizon. Such conditions include flat light conditions (discussed in paragraph 3-9 of the current edition of AC 135-14) and may occur during night operations over unlit surfaces in low-lighting conditions. These conditions may result in a loss of horizontal or surface reference by which the pilot typically controls a helicopter in VFR flight. Without adequate training and checking, pilots may not be prepared to contend with these conditions, leading to loss of control that may not be survivable.

4) An oral or written test covering procedures for aircraft handling in flat-light, whiteout, and brownout conditions, including methods for recognizing and avoiding those conditions, is required. Refer to § 135.293(a)(9) and see Volume 3, Chapter 19, Section 7, Flightcrew Qualification Curriculum Segments, for further details.

E. Night Training.

1) A disproportionate number of HAA-associated accidents occur at night. Inspectors must evaluate an HAA certificate holder's night training and checking to verify that flight, ground, and simulator training emphasize night operations, both aided (night vision goggles (NVG)) and unaided. Pilot night proficiency is essential for 24-hour HAA operations. Night training must be tailored to the certificate holder's specific requirements and capabilities, taking into account the experience level of their pilots, the area of operations, type of aircraft, and the installed equipment. If applicable, night flight training should include the effective use of Night Vision Imaging Systems (NVIS), Helicopter Terrain Awareness and Warning System (HTAWS), and radar altimeters.

2) Night competency checks. HAA operators with operations specification (OpSpec) A050 NVIS/NVG authorization are increasingly likely to perform all § 135.293 competency

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checks during darkness. If this is the case, the inspector must annually evaluate or observe competency checks performed by check airmen to verify maneuvers are performed with and without the aid of NVIS.

NOTE: All HAAs must be equipped with HTAWS by April 24, 2017, in accordance with § 135.605.

NOTE: Effective April 24, 2017, all HAA pilots must hold a valid helicopter instrument rating or an Airline Transport Pilot Certificate (ATPC) with a category and class rating not limited to VFR. (Refer to § 135.603.)

3-19-15-7 CREW RESOURCE MANAGEMENT (CRM) TRAINING. Inspectors should evaluate how air ambulance operators provide CRM training that integrates medical personnel during routine flight operations and how medical personnel on board and, as appropriate, communications specialists (CS) or Operations Control Specialists (OCS) may be integrated to supplement the flightcrew, as appropriate, during operations including IIMC recovery, NVG operations, and operations involving unimproved LZs, etc. Refer to the current editions of AC 120-51, Crew Resource Management Training, for general CRM concerns and AC 00-64, Air Medical Resource Management, to identify certain HAA CRM training issues. The inspector must bear the following overarching aeronautical decision-making (ADM) concepts in mind when reviewing certificate holder CRM training programs.

A. Crewmember Judgment. Crewmember judgment is the mental process by which the crewmember recognizes, analyzes, and evaluates information about himself or herself, the helicopter, and the external environment. Judgment and decisionmaking can be developed and improved with training. Pamphlet DOT/FAA/PM-86/45, Aeronautical Decision Making for Helicopter Pilots, is recommended as a tool to improve ADM and CRM.

B. Decisionmaking. Decisionmaking training should include topics such as LFA, refueling locations, terrain, local weather patterns, aircraft characteristics and capabilities, and medical equipment. Emphasis in training should be placed on identifying and addressing the types of decisions likely to be required by the specific needs of HAA operations.

C. Risk Analysis. Risk analysis is an integral component of the decisionmaking process. It must be trained for, understood, and practiced by HAA crewmembers before and during all flight operations.

D. Medical Condition of the Patient. Industry best practices indicate that the medical condition of the patient should not be a factor in any pilot-in-command (PIC) decisionmaking processes to accept, decline, or divert a flight and should not be briefed to the PIC in advance of the decisionmaking process. This should be emphasized in training.

3-19-15-9 AIR MEDICAL RESOURCE MANAGEMENT (AMRM) TRAINING.

A. AMRM training is optional but strongly recommended. If the operator engages in AMRM, inspectors should evaluate the operator's AMRM. Verify that both the certificate holder and medical management personnel have received initial and recurrent training in clearly defining and consistently applying safe operating philosophies, policies, safety culture, best

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practices, and procedures throughout their respective organizations. Ideally, AMRM training should not be limited to the classroom but should include engagement with high-level decisionmakers, including medical or hospital management. Refer to AC 00-64 to identify AMRM training issues.

B. If the inspector observes or is made aware of certificate holder or customer management actions or practices that are potentially detrimental to HAA safety, this may indicate that AMRM training was not effective. The inspector should address the observed or reported actions or practices through the AMRM program so the issue can be remediated, and he or she should review the AMRM training program to identify deficiencies and encourage preventative corrections to the training program so it is unlikely the same issue would recur.

3-19-15-11 MANAGEMENT PERSONNEL TRAINING. Management personnel should participate in the certificate holder's training program. Management personnel should be familiar with the ADM process. Knowledge of appropriate FAA regulations and guidelines related to safe operations is essential.

3-19-15-13 through 3-19-15-27 RESERVED.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 20 CHECK AIRMAN, INSTRUCTOR, AND SUPERVISOR PROGRAMS FOR TITLE 14 CFR PART 121 AND 135 CERTIFICATE HOLDERS

Section 2 Safety Assurance System: Part 121 Check Pilot and Check Flight Engineer Approval and Surveillance

3-1421 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS) Codes.

- Approve Check Pilot: 1346.
- Approve Check Flight Engineer (FE): 1347.
- Remove Check Pilot: 1359.
- Remove Check FE: 1360.
- Check Pilot Observation—Proficiency Check (Simulator): 1642.
- Check Pilot Observation—Proficiency Check (Aircraft): 1643.
- Check Pilot Observation—Line Check: 1644.
- Check Pilot Observation—Operating Experience (OE): 1645.
- Check FE Observation—Flight Check (Simulator): 1642.
- Check FE Observation—Flight Check (Aircraft): 1643.
- Check FE Observation—OE: 1645.

NOTE: PTRS codes for surveillance of Advanced Qualification Program (AQP) evaluators are located in Volume 3, Chapter 21, Section 2.

B. Safety Assurance System (SAS) Element(s). This section is related to SAS Element 2.1.2 (OP), Training of Check Airmen and Instructors.

C. Procedures.

1) This section addresses procedures for approval and surveillance of check pilots and check FEs. All check pilots and check FEs must be approved by an operator's principal operations inspector (POI). Approval is based on a candidate:

- Having the proper certificates and ratings;
- Being qualified in accordance with the operator's approved initial, transition, or upgrade training program;
- Having completed the operator's approved check pilot or check FE training program for the appropriate check functions; and
- Having demonstrated the ability to conduct a check and to evaluate the performance of flightcrew members to the satisfaction of a Federal Aviation Administration (FAA) inspector.

2) The check pilot and check FE approval process follows the five phases described below.

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3-1422 PHASE ONE—OPERATOR FAMILIARIZATION WITH REQUIREMENTS AND LETTER OF REQUEST.

A. Beginning the Approval Process. The first phase of the check pilot and check FE approval process involves a discussion between the operator and the POI. The POI should ensure that the operator understands the regulatory check pilot and check FE training requirements and that a candidate must satisfactorily demonstrate the ability to perform check functions to an FAA inspector before approval. The POI should also ensure that the operator is prepared to submit the necessary documentation to initiate the approval process, which is as follows:

B. Required Information. The letter of request constitutes the operator's nomination. It originates from the operator, not a training center, candidate, or some other party. It includes:

- Candidate's name,
- Business address,
- Applicable Airman Certificate number,
- Current flightcrew member position,
- Requested check pilot or check FE classification,
- Aircraft type,
- Brief résumé of the candidate's aviation background and experience, and
- Copies of the candidate's training records, including his or her initial, transition, or upgrade training in requested aircraft type; record of most recent applicable recurrent training; and record of check pilot or check FE training.

NOTE: A POI may require that this information be expanded to suit circumstances.

3-1423 PHASE TWO—SUBMISSION OF DOCUMENTATION. Phase two begins when the operator submits the documentation listed in paragraph 3-1422 to the POI for evaluation. The operator may transmit this submission by conventional mail, email, fax, or by other means mutually acceptable to the operator and the POI. The POI will initially review the information to determine if the candidate meets the basic qualification requirements for the classification of check pilot or check FE approval sought. (See Volume 3, Chapter 20, Section 1.)

A. Unacceptable Submission. If the operator's submission is unacceptable, the POI should return the submitted documentation with a statement of the reason for nonacceptance.

B. Acceptable Submission. If the operator's submission is acceptable, the POI should initiate phase three.

3-1424 PHASE THREE—REVIEW OF DOCUMENTATION.

A. Verification. The POI will verify the candidate's certificates and background using the enhanced Vital Information Database (eVID), the Safety Performance Analysis System (SPAS), PTRS, and local office procedures. The POI will then create a file for the individual in the check airman section of eVID.

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NOTE: Creation of the eVID file at this point in the process will allow for documentation of subsequent action regarding the individual without having the records rejected. During the upload/download process, check pilot and check FE surveillance records are cross-checked (last name and certificate number) against the check airman ancillary file in the eVID file for the operator.

B. Training Requirements. Before the POI can evaluate a candidate for approval as a check pilot or check FE, all required training must be completed. The candidate's training records must show satisfactory completion of initial, transition, or upgrade training and all training required under the operator's approved check pilot or check FE training program for the specified classification. The approved training program must contain all training required by Title 14 of the Code of Federal Regulations (14 CFR) part 121, §§ 121.411 and 121.413 and part 121 appendix H that is applicable to the approval being sought. When the candidate's records show that the candidate has previously completed a required curriculum segment, the segment does not have to be repeated.

C. Nonqualification. If, after reviewing the documentation, the POI determines that the candidate does not qualify as a check pilot or check FE, the POI will provide the operator with a statement of the reason for nonacceptance.

3-1425 PHASE FOUR—CHECK PILOT AND CHECK FE EVALUATION. In order to evaluate a candidate effectively, inspectors must become thoroughly familiar with the operator's procedures. Inspectors must also become familiar with any special regulatory requirements affecting the operator, such as special conditions contained in the operations specifications (OpSpecs) and exemptions.

A. Choosing Airmen as Subjects. The inspector conducting an evaluation for an original check pilot or check FE approval must observe the candidate conducting an actual check. The purpose of the evaluation is to ensure that the candidate has achieved the required skills for briefing, evaluating, and debriefing a flightcrew member. The flightcrew member receiving the check should be a line flightcrew member who is due for an evaluation. The flightcrew member will not be an instructor, check pilot, or check FE unless previous approval has been received from the POI. Such approval is reserved for unusual circumstances.

B. Candidate's Flying Skills. Except for an initial cadre approval, an evaluation does not entail an evaluation of the candidate's flying skills in a flightcrew member duty position. An operator should not request approval of an individual as a check pilot or check FE when there is any question about the individual's flying skills in a flightcrew member duty position. Should the POI have reason to question a candidate's proficiency, the evaluation will not be conducted until the candidate's proficiency is verified. An acceptable way to verify the candidate's proficiency is to check the candidate. An inspector may conduct a proficiency check, a flight check, or a line check of the candidate, scheduled at some time before the official evaluation. (Such checks are not routinely required.)

C. Satisfactory Evaluation. If the inspector determines that a candidate meets criteria for the requested approval, the inspector will inform the candidate that a recommendation of approval will be reported to the POI. In this case, the candidate will certify the proficiency

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of the flightcrew member receiving the check and complete the necessary recordkeeping tasks. The POI may permit the new check pilot or check FE to be scheduled immediately as a check pilot or check FE, even though processing of the letter of approval has not been completed, provided that a PTRS entry has been completed to document the satisfactory evaluation.

D. Unsatisfactory Evaluation. If the inspector determines a candidate does not qualify for the requested approval, the inspector will inform the candidate that approval will not be granted. In such a case, the inspector must determine whether the flightcrew member receiving the check performed satisfactorily, and must certify the flightcrew member's proficiency and complete the necessary records.

NOTE: The failure of a candidate is uncommon and usually ends a candidate's eligibility for check pilot or check FE status. In rare circumstances, the POI may allow a reevaluation. In such a case, the operator must conduct sufficient additional training, recertify the candidate's proficiency, and arrange to have another evaluation conducted by an FAA inspector.

E. Content of Check Pilot or Check FE Evaluation. The following guidance applies to an inspector's evaluation in respect to each of the six classifications of check pilots and check FE.

1) Proficiency Check Pilot—Aircraft. An inspector must evaluate this candidate while the candidate conducts a proficiency check in an aircraft in-flight. The inspector should observe the candidate conducting the entire check in the aircraft. The candidate must be evaluated on his/her ability to evaluate an individual while, at the same time, performing the flightcrew member activities normally associated with the seat the check pilot candidate occupies. With the approval of the POI, the inspector may observe part of the check in the aircraft and the remainder in a flight simulation training device (FSTD).

2) Proficiency Check Pilot—Simulator. An inspector must evaluate this candidate while the candidate conducts the FSTD segment of an actual proficiency check. The candidate must be evaluated on his/her ability to evaluate an individual while, at the same time, demonstrating proficiency in operating the FSTD. Time management and the ability to adapt to events that might disrupt a planned sequence of events should be considered. If the entire proficiency check can be accomplished in a full flight simulator (FFS), the candidate must be observed conducting the entire check.

3) Line Check Pilot—All Seats. An inspector will evaluate this candidate while the candidate conducts an actual line check from either pilot seat. Satisfactory performance will also permit the candidate to conduct a line check from the observer's seat. A candidate for line check pilot—all seats must be qualified to be the pilot in command (PIC) for that operator and hold a first-class medical certificate.

NOTE: The operator must have procedures published in its operations manual that will be followed in the event that a line check pilot determines that a flightcrew member's performance does not meet standards that would allow the

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individual to continue to operate the aircraft. The flightcrew member will not be allowed to continue the flight series or trip. If the line check pilot is not qualified to substitute for the flightcrew member, specific alternative procedures must be followed.

4) Line Check Pilot—Observer's Seat Only. An inspector must evaluate this candidate while he or she conducts an actual line check from the forward observer's seat. If the aircraft is equipped with more than one observer's seat, the evaluation must be conducted in the aircraft. When the evaluation is conducted during revenue service, in an aircraft with only one observer's seat, a candidate who holds a second-class medical certificate, who has not yet reached 65 years of age and is otherwise qualified for part 121 operations may be evaluated while conducting a line check from the right pilot seat. In this case, the PIC must be fully qualified and line current. When the evaluation is conducted during nonrevenue operations in an aircraft with only one observer's seat, a candidate who holds at least a third-class medical certificate and who is over 65 years of age and is otherwise qualified for part 121 operations may be evaluated while conducting a line check from the right pilot seat. If the candidate does not hold a medical certificate and the aircraft is equipped with only one observer's seat, the evaluation may be conducted in a FFS during Line-Oriented Flight Training (LOFT).
A check pilot who is approved to conduct line checks from the observer's seat and who does not maintain line currency must be observed by an inspector at least once every 24 calendar-months. If an evaluation within this time period is not given, the check pilot is not authorized to conduct line checks.

NOTE: The operator must have procedures published in its operations manual that will be followed in the event that a line check pilot determines that a flightcrew member's performance does not meet standards that would allow the individual to continue to operate the aircraft. The flightcrew member must not be allowed to continue the flight series or trip. If the line check pilot is not qualified (including appropriate medical certificate) to substitute for the flightcrew member, specific alternative procedures must be followed.

5) Check Pilot—All Checks. An inspector must evaluate this candidate in accordance with the preceding paragraphs. The evaluations for this approval may be treated cumulatively.

NOTE: A pilot may have been a proficiency check pilot—aircraft for a number of years, and then qualify as a line check pilot—all seats. If the operator does not use FFSs in the training program, then upon satisfactory completion of the line check evaluation, the check pilot could be approved to conduct all of the forgoing checks.

6) Check FE. An inspector must evaluate this candidate while the candidate conducts an FE flight check in a FSTD. In normal, abnormal, and emergency procedures, segments of the check are normally accomplished in a FSTD. In those instances when a check FE candidate is to conduct any portion of a check in an airplane in-flight, the check FE candidate must be a qualified and current FE and must be evaluated during actual flight.

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F. Conducting a Check Pilot or Check FE Evaluation.

1) Preevaluation Briefing. An inspector conducting a check pilot or check FE evaluation must arrange to meet with the candidate in sufficient time for a preevaluation briefing. The inspector must explain the purpose of the evaluation and some ground rules, including:

a) That the check should be conducted as if the candidate were fully qualified in the role of check pilot or check FE;

b) That during the briefing, the inspector may ask questions of the check pilot or check FE candidate as part of the evaluation; and

c) That the inspector will not ask questions while the check is in progress.

2) Observing and Debriefing the Candidate. While the check is in progress, the inspector will observe, but should not interrupt or otherwise interfere with the check pilot or check FE candidate's management of the check. The inspector must determine:

- That all required events and maneuvers were conducted properly;
- That the check pilot or check FE candidate's evaluation of the flightcrew member's performance was objective and accurate; and
- That the check pilot or check FE candidate's debriefing of the flightcrew member was thorough and constructive.

3-1426 PHASE FIVE—CHECK PILOT AND CHECK FE APPROVAL. All check pilots and check FEs approved for part 121 operations must be approved by the operator's POI.

A. Letter of Approval. POIs may only approve check pilots and check FEs for operators under their oversight. Approval of a check pilot or check FE will be in the form of a letter of approval addressed to a responsible official of the operator and signed by the POI, or a representative approved by the POI. This letter of approval may be transmitted to the operator by conventional mail, email, fax, or by other means acceptable to the operator and the POI. The POI should retain a copy of the letter of approval together with the operator's original letter of nomination for the candidate. The letter of approval must contain the following:

- Identification of the operator for which the approval is granted;
- Check pilot's or check FE's name and applicable FAA Airman Certificate number;
- Approved check pilot or check FE classification;
- Specified category, class, or type of aircraft;
- Authorizations and limitations; and
- Effective date of each approval (since different approvals may occur at different times, this information simplifies record checks. The date on which the check pilot or check FE was recommended for approval by an inspector will be the effective date of approval). See Figure 3-87, Sample Check Pilot Letter of Approval.

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NOTE: Under current regulations, no normal term of expiration is specified for approvals of check pilots or check FEs. A check pilot's or check FE's approval, however, may be given, limited, or withdrawn, in the discretion of the POI.

B. Limitations. A check pilot or check FE will be approved only in the six classifications listed in this section.

NOTE: Currently, a separate check airman file in the eVID must be entered into the system for each operator for which the check pilot or check FE holds approval. A forthcoming change to the eVID will result in a single file for each check pilot or check FE, and will permit the listing of all operator affiliations and classifications.

C. Letter of Approval—Other Copies.

1) The original of the letter of approval will be sent to the operator for which the check pilot or check FE has been approved.

2) A copy of the letter of approval will be retained in the POI's files, together with the operator's original letter of request for the check pilot or check FE. Additional documentation submitted with the letter of request must also be retained if it is not accessible in an FAA database. The file must be maintained in the FAA office files in accordance with the current edition of FAA Order 1350.14, Records Management.

3) When the individual is a training center instructor or Training Center Evaluator (TCE) who is being approved to evaluate an operator's personnel, and if the POI anticipates requesting assistance from the Training Center Program Manager (TCPM) with check pilot or check FE surveillance and oversight, a copy of the letter of approval should be forwarded to that TCPM for inclusion in his or her records.

D. PTRS and eVID. The POI must ensure that a record of the approval is entered in the PTRS. Each time an approval is given or withdrawn, the POI must ensure that the operator's eVID file accurately reflects:

1) The current number of active check pilots and check FEs approved for the operator, and

2) The correct status of the individual.

NOTE: Due to PTRS archiving, the PTRS record of initial approval may not be available.

3-1427 APPROVAL OF INITIAL CADRE CHECK PILOTS AND CHECK FEs. During the early phases of establishing a check pilot and check FE program, initial cadre check pilots and check FEs are required. Initial cadre check pilot and check FE candidates must first become fully qualified as flightcrew members and then be trained, evaluated, and approved as check pilots and check FEs. Because the regulatory language of part 121 does not address

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a training process for initial cadre check pilots and check FEs, this section provides guidance. This process that follows is valuable for startup operations for at least two reasons:

- It is a practical way to initiate and build a check pilot and check FE program; and
- It takes advantage of proving flights, when the operator/applicant is under close FAA scrutiny—with desirable effects on the check pilot and check FE program.

A. Letter of Request from Operator. The overseeing inspector must arrange with the operator/applicant to approve one or more likely candidates to form an initial cadre of temporary check pilots and check FEs. The operator/applicant will submit a letter of request, as described earlier in this section. This letter comprises the request for initial cadre check pilots and check FEs and a description of the training that they will undergo.

B. Letter of Approval. The POI must approve the candidates using procedures described earlier in this section. Usually initial cadre are approved to function as check pilot—all checks or check FE, so that they may conduct all types of checks and supervise OE during the period that the startup operation is beginning. The initial cadre letter of approval is a temporary approval, to be replaced with a permanent letter of approval after the check pilot or check FE is fully qualified. The initial cadre letter must contain a statement similar to the following:

> (Name) is approved as an initial cadre check (pilot or FE) to function as a (check pilot—all checks or check FE) for the purpose of initiating operations with the (type of aircraft) for (name or operator). This approval expires on (expiration date).

3-1428 TRAINING, CERTIFICATION, AND QUALIFICATION—STARTUP.
The operator must provide a full qualification process for its initial cadre check pilots and check FEs.

A. Initial Training and Certification. The operator must first arrange to have initial cadre check pilots and check FEs trained and appropriately certificated for their flightcrew member duty positions. The operator may provide the training by contracting with a manufacturer, with another operator of the same 14 CFR operating part, or with properly qualified individuals. An inspector or an aircrew program designee (APD) designated examiner may certificate the initial cadre, provided that the examiner is employed by a U.S. air carrier/operator.

B. Gaining Proficiency as Instructors. After the initial training and certification, initial cadre check pilots and check FEs must become proficient in the operator's proposed training program by instructing each other, or in the case of a single initial cadre check pilot or check FE, by self-training. During this training, an operator may arrange for a pilot from the manufacturer, from another operator, or from another source to act as the safety pilot or instructor pilot.

C. Proficiency and Flight Checks. After the first initial cadre check pilots and check FEs have become proficient as instructors, they may then begin the training and checking of other initial cadre check pilots and check FEs in accordance with the operator's initially

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approved flight training and qualification curriculum segments. Each check must be observed by an FAA inspector who holds the appropriate Airman Certificate, and the appropriate type rating, when applicable. If the inspector determines that the performance of an initial cadre check pilot or check FE conducting a certain check is satisfactory, the inspector will recommend to the overseeing inspector that the candidate be approved as an initial cadre check pilot or check FE for that type of check. One initial cadre check pilot or check FE may check another, with the process repeated until each candidate has been approved as an initial cadre check pilot or check FE or has been terminated from the program. If only one person is being considered to be the initial cadre check pilot or check FE, an inspector will observe that person conducting a check of another flightcrew member. If the candidate's performance is satisfactory, the inspector must recommend to the POI that the candidate be removed from temporary status and approved for full-time check pilot or check FE duty with the operator.

D. OE.

1) Initial cadre check pilots and check FEs will be permitted to acquire OE flight hours on any flight that can be credited toward the proving test flight-hour requirement (including training flights, ferry flights, and representative en route proving flights). OE flight hours may be accrued by initial cadre check pilots and check FEs while they are:

- Conducting aircraft checks,
- Overseeing the OE of other flightcrew members,
- Being checked, or
- Acquiring OE under the supervision of other initial cadre check pilots or check FEs.

2) Initial cadre check pilots must receive a line check and conduct a line check during an en route proving flight or a ferry flight. The same process (see above) will apply: one initial cadre check pilot line checks another while being observed by an FAA inspector. If the check pilot's performance is satisfactory, the inspector may recommend that the person be removed from temporary status and approved for full-time duty as a check pilot for the operator. If there is only one initial cadre check pilot, then the FAA inspector will conduct the line check.

3-1429 APPROVAL OF A CHECK PILOT OR CHECK FE IN MULTIPLE AIRCRAFT. Before a candidate may be approved as a check pilot or check FE in more than one type of aircraft, the operator must show that there is a need. The candidate must be fully qualified and current in each of the aircraft types. Overseeing inspectors must be judicious in approving check pilots and check FEs and vigilant in overseeing their performance. There are various acceptable combinations of check pilot and check FE approvals. Before a candidate may be approved as a proficiency check pilot—aircraft, line check pilot—all seats, check pilot—all checks, or check FE—aircraft in two commuter category aircraft types or two transport category types, the overseeing inspectors must ensure that the following conditions are met:

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A. Designated Related Aircraft with Different Type Certificates (TC).

1) Proficiency Check Pilot—Aircraft. The candidate must have logged at least 100 hours as PIC in the base aircraft type and 100 hours as PIC in the designated related aircraft type.

2) Line Check Pilot—All Seats. The candidate must have logged at least 25 hours as PIC in the base aircraft type and 25 hours as PIC in the designated related aircraft type.

3) Check Pilot—All Checks. The candidate must have logged at least 100 hours as PIC in the base aircraft type and 100 hours as PIC in the designated related aircraft type.

NOTE: See Volume 3, Chapter 19, Section 12, for additional information regarding related aircraft designation and related aircraft differences training.

NOTE: There is no minimum PIC flight time requirement for proficiency check pilot—simulator.

B. Aircraft with Different TCs Not Designated as Related.

1) Proficiency Check Pilot—Aircraft. The candidate must have logged at least 500 hours as PIC in each type.

2) Line Check Pilot—All Seats. The candidate must have logged at least 100 hours as PIC in each type and at least 1,000 hours as PIC in transport or commuter category airplanes.

3) Check Pilot—All Checks. The candidate must have logged at least 500 hours as PIC in each type.

4) Check FE—Aircraft. The candidate must have logged at least 500 hours as an FE in each type.

NOTE: There is no minimum PIC flight time requirement for proficiency check pilot—simulator.

3-1430 APPROVAL OF A CHECK PILOT OR CHECK FE FOR MULTIPLE OPERATORS. This paragraph provides a standard method for approving a check pilot or check FE to serve multiple operators. The approval of a check pilot or check FE to serve more than one operator is limited to those cases in which the operator's aircraft, aircraft operating manuals, procedures, and checklists are compatible in the judgment of the overseeing inspector(s). Provision for multiple check pilot or check FE approvals may be made for part 121 operators with programs that are compatible, in the judgment of the respective operator's POI. An operator's POI may also approve a check pilot or check FE to serve multiple part 121 operators on a temporary basis, when a startup operation is initiated or when new equipment is being introduced. Other multiple approvals may be made with the concurrence of the regional Flight Standards division (RFSD) when justified.

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3-1431 TRAINING CENTER INSTRUCTORS/EVALUATORS APPROVED BY AN OPERATOR'S POI AS CONTRACT CHECK PILOTS OR CHECK FEs. Training centers have made FSTD training and checking available to a broad range of aviation users, including operators with smaller fleets and smaller aircraft. With the approval of an operator's POI, an employee of a 14 CFR part 142 training center may serve one or more operators as a contract check pilot or check FE. The guidance contained in this paragraph applies to training center personnel who have been requested to serve as such contract check pilots or check FEs.

A. POI Approves the Check Pilot or Check FE Candidate. Only the POI may approve a check pilot or check FE for use in an operator's training program. Normal procedures apply, including a letter of request from the operator, and a letter of approval from the operator's POI.

B. TCPM Role. Without diminishing the responsibility or authority of the POI, experience has shown that the TCPM may be in the best position to make quality assessments at training centers on behalf of the Administrator. The TCPM continually assesses training programs conducted by a training center for certification of airmen under 14 CFR parts 61 and 63. Similarly, the TCPM assesses the instructors and TCEs employed by a training center. At the request of an operator's POI, a center's TCPM may therefore assist with the evaluation of an operator's request to use the services of a center's employee as a contract check pilot or check FE.

C. Scheduling Multiple-Use Check Pilots and Check FEs and Maintaining Check Pilot or Check FE Status. Before a multiple approval is made, the overseeing inspector must ensure that the operators understand that the scheduling and use of the check pilot or check FE is their responsibility. An operator entering into a multiple-use arrangement may employ a check pilot or check FE on a part-time basis, may contract with another operator or training center to provide a check pilot or check FE, or may contract directly with the check pilot or check FE.

NOTE: Each operator is responsible for ensuring that the check pilot or check FE maintains currency as specified in their OpSpec A031, the appropriate operating rule, and Volume 3, Chapter 20, Section 1, and that he or she performs adequately when serving the operator.

D. Issuing Additional Letters of Approval. An operator seeking check pilot or check FE approval for an individual who is serving as a check pilot or check FE for another operator must provide the necessary information to its POI. The operator's POI must consider the means the operator will use to train, to qualify, and to maintain qualification of the contract check pilot or check FE candidate and the documentation that will be required. Contract check pilots and check FEs may be able to meet recurrent training requirements for more than one operator simultaneously. When the operator and the POI have agreed on the training and qualification necessary for the contract check pilot or check FE, the operator must submit a written letter of request to the POI, as described earlier in this section. When the second or subsequent POI approves the individual as a contract check pilot or check FE for his/her operator, that POI will issue an additional letter of approval following the procedures described

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above. Additionally, if the subject check pilot or check FE is an employee of a part 142 training center, the POI will forward a copy of the new approval letter to the center's TCPM.

NOTE: The check airman file in the eVID is being modified to allow for a single file for each individual who has been approved as a check pilot or check FE for an operator. This consolidated check airman eVID file will be linked to a unique airman identifying number, and will permit multiple entries for aircraft and operator combinations.

E. Primary Oversight Responsibility. Each operator for which an individual is approved as check pilot or check FE, along with the operator's POI, has responsibility for oversight of the contract check pilot or check FE. When the check pilot or check FE is employed by a training center, the FAA TCPM may provide assistance as requested by the POI with this responsibility. Any POI who has issued a letter of approval to the check pilot or check FE may, however, conduct surveillance activities at any time.

F. Contract Check Pilot or Check FE Letter of Approval. When approved as a contract check pilot or check FE for an operator, the POI of that operator will issue a letter of approval showing the operator; the check pilot or check FE classification; the type(s) of aircraft authorized, and the type(s) of checks authorized (by regulatory reference). A sample contract check pilot letter of approval is provided on the FAA Air Carrier Training Systems and Voluntary Safety Programs Branch's (AFS-280) Web site at http://www.faa.gov/pilots/training/part_142/media/check_pilot_loa.doc.

G. Recordkeeping. Each operator is required by their operating rules to maintain training and qualification records for his/her check pilots and check FEs. This responsibility cannot be delegated. However, by agreement between the operator and the training center, a training center may keep a contract check pilot's or check FE's training and qualification records. This agreement must be documented in each operator's recordkeeping system and approved by the POI. The POI must maintain a record in the operator's file that documents the details of any such arrangement, including the location in the operator's manual where such arrangement is described.

3-1432 FLIGHTCREW MEMBER FAILURE RATES. The repetitive failure of a single flightcrew member or the failure of several flightcrew members during proficiency or flight checks, may indicate a training program deficiency. Overseeing inspectors must establish procedures with their certificate holders that provide for FAA notification when flightcrew member unsatisfactory performance occurs. Identified deficiencies should be promptly investigated and corrective action taken.

3-1433 SURVEILLANCE OF CHECK PILOTS AND CHECK FEs. Overseeing inspectors must establish a surveillance program for each check pilot and check FE at the time of approval.

A. Biennial Check Pilot or Check FE Observation of Approved Checking Activity or Supervising OE. The surveillance program for each office must include an observation by an FAA inspector or APD of each approved check pilot and check FE in his or her area of responsibility at least once every 24 months. Check pilot and check FE observations should

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be conducted while the check pilot or check FE is conducting an approved checking activity or supervising OE. For example, a check pilot approved to conduct proficiency checks, line checks, and supervision of OE should be observed conducting a proficiency check in the aircraft or FSTD, conducting a line check, or supervising OE. At the discretion of the POI, an observation conducted by another POI or by a TCPM for a check under the same rule part need not be repeated. It is the responsibility of the operator to maintain records showing that this observation has been completed.

B. Periodic Report by the Operator. The POI should arrange to have the operator provide the POI with a periodic report of each check pilot's and check FE's activities, including a pass/fail rate, to coincide with the POI's periodic review (annual, semiannual, or other). POIs may arrange for these reports to arrive at a time that meets the POI's needs. A check pilot or check FE should be active enough to retain the required knowledge and skills. This activity level may vary depending on the check pilot or check FE function, the size of the operator, and the number of approved check pilots and check FEs. The POI should specifically reassess the operator's need for those check pilots and check FEs whose records indicate low activity levels.

C. Withdrawing Check Pilot or Check FE Approval. The POI's reasons for withdrawing the approval of a check pilot or check FE may include a lack of check pilot or check FE activity, a request by the operator, or an unsatisfactory performance on the part of the check pilot or check FE. To withdraw approval of a check pilot or check FE, the POI must notify the operator by letter that approval is withdrawn. The letter should include the name of the check pilot or check FE, the effective date of withdrawal, and the reason approval is being withdrawn. If the approval of a check pilot or check FE is withdrawn because of unsatisfactory performance, the letter of withdrawal must be sent to the operator by certified mail—return receipt requested. The POI must make a PTRS entry for the withdrawal or termination of a check pilot's or check FE's letter of approval.

NOTE: Under current regulations, no normal term of expiration is specified for approvals of check pilots and check FEs. Contract check pilots and check FEs who are employees of a part 142 training center will have their term contingent upon continued employment with the training center and maintaining their instructor or evaluator qualification with the employing center.

D. POI Authority. A check pilot's or check FE's approval may be given, limited, withdrawn, or terminated at the discretion of the POI.

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Figure 3-87. Sample Check Pilot Letter of Approval

February 24, 2006

Mr. Sam A. Frost
Chief Pilot
Transcon Express, Inc.
48 Perimeter Rd.
Utica, OH 22032

Dear Mr. Frost:

John R. Smith, FAA certificate number 467120928, is approved as a check pilot. This check pilot is approved to conduct checks in the Douglas DC-9 aircraft for employees of Transcon Express, Inc. This approval is applicable for the following checking functions:

[ ]	Proficiency Check Pilot—Aircraft	Effective_____
[X]	Proficiency Check Pilot—Simulator	Effective_____8/27/2009
[ ]	Line Check Pilot—All Seats	Effective_____
[X]	Line Check Pilot—Observer's Seat Only	Effective_____02/20/2009
[ ]	Check Pilot—All Checks	Effective_____

Please retain a copy of this letter in Mr. Smith's individual flight training records.

Sincerely,

James J. Jones
Principal Operations Inspector
FSDO (XXXX)

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Figure 3-88. Check Pilot and Check FE Approval Job Aid

1. Operator's Letter Contains Necessary Information:

[ ] Name of candidate.

[ ] Business address of candidate.

[ ] Flightcrew member duty position and aircraft type.

[ ] Type of check pilot or check FE designation requested.

2. Training Records (copies):

[ ] Initial, transition, or upgrade to requested aircraft and flightcrew member duty position.

[ ] Recurrent.

[ ] Check pilot or check FE.

3. [ ] Resume of experience included.

4. [ ] eVID, SPAS, and PTRS verification satisfactory.

5. [ ] Open eVID file.

6. [ ] Check pilot or check FE evaluation scheduled.

7. [ ] Report of evaluation received from PTRS.

Favorable Report:

8. Prepare Letter of Approval:

[ ] Original letter to operator.

[ ] Copy to operator file.

[ ] Copy to other POI (if check pilot or check FE for another operator).

9. [ ] Update operator eVID file.

10. [ ] Complete PTRS.

Unfavorable Report:

11. [ ] Prepare letter to operator indicating disapproval.

12. [ ] Update operator eVID file.

13. [ ] Complete PTRS.

RESERVED. Paragraphs 3-1434 through 3-1450.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 20 CHECK AIRMAN, INSTRUCTOR, AND SUPERVISOR PROGRAMS FOR TITLE 14 CFR PART 121 AND 135 CERTIFICATE HOLDERS

Section 6 Safety Assurance System: Part 135 Check Pilot Approval and Surveillance

3-20-6-1 OBJECTIVE. This section establishes Federal Aviation Administration (FAA) procedures for the approval and surveillance of check pilots. All check pilots must be approved by an operator's principal operations inspector (POI). The check pilot approval process follows the five phases described in this section.

3-20-6-3 APPROVAL BASIS. Approval is based on a candidate:

- Satisfying the qualifications and training requirements found in Title 14 of the Code of Federal Regulations (14 CFR) part 135;
- Having the proper certificates and ratings;
- Being qualified in accordance with the operator's approved initial, transition, or upgrade training program;
- Having completed the operator's approved check pilot training program for the appropriate check functions; and
- Having demonstrated the ability to conduct a check and to evaluate the performance of flightcrew members to the satisfaction of an FAA inspector.

3-20-6-5 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS) Codes.

- Approve Check Pilot: 1346.
- Remove Check Pilot: 1359.
- Check Pilot Observation—Proficiency Check Oral or Part 135, § 135.293(a) Knowledge Test: 1641.
- Check Pilot Observation—Proficiency or Competency Check (Simulator): 1642.
- Check Pilot Observation—Proficiency or Competency Check § 135.293(b) or § 135.297 (Aircraft): 1643.
- Check Pilot Observation—Line Check § 135.299: 1644.
- Check Pilot Observation—Operating Experience (OE): 1645.

B. Safety Assurance System (SAS) Element(s). This section is related to SAS Element 2.1.2 (OP), Training of Check Airmen and Instructors.

3-20-6-7 PHASE ONE—OPERATOR FAMILIARIZATION WITH REQUIREMENTS AND LETTER OF REQUEST.

A. Beginning the Approval Process. The first phase of the check pilot approval process involves a discussion between the operator and the POI. The POI should ensure that the operator understands the regulatory check pilot training requirements and that a candidate must

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satisfactorily demonstrate the ability to perform check functions to an FAA inspector before approval. The POI should also ensure that the operator is prepared to submit the necessary documentation to initiate the approval process, which is as follows.

B. Required Information. The letter of request constitutes the operator's nomination. It originates from the operator, not a training center, candidate, or some other party. It includes:

- The candidate's name;
- Business address;
- Applicable Airman Certificate number;
- Current flightcrew member position;
- Requested check pilot classification and functions;
- Aircraft type(s);
- Brief résumé of the candidate's aviation background and experience; and
- Copies of the candidate's training records, including his or her initial, transition, or upgrade training in requested aircraft type; most recent applicable recurrent training; and check pilot training.

NOTE: See paragraph 3-20-6-33, Affidavit Use, for additional training record options. Applicable only to contract check pilots associated with 14 CFR part 142 training centers.

NOTE: A POI may require that this information be expanded for unique circumstances.

3-20-6-99 PHASE TWO—SUBMISSION OF DOCUMENTATION. Phase two begins when the operator submits the documentation listed in paragraph 3-20-6-7 to the POI for evaluation. The operator may transmit this submission by conventional mail, email, fax, or by other means mutually acceptable to the operator and the POI. The POI will initially review the information to determine if the candidate meets the basic qualification requirements for the classification of check pilot approval sought, (see Volume 3, Chapter 20, Section 5).

A. Unacceptable Submission. If the operator's submission is unacceptable, the POI should return the submitted documentation with a letter defining the reason for non-acceptance.

B. Acceptable Submission. If the operator's submission is acceptable, the POI should initiate phase three.

3-20-6-11 PHASE THREE—REVIEW OF DOCUMENTATION.

A. Verification. The POI will verify the candidate's certificates and background using the enhanced Vital Information Database (eVID), the Safety Performance Analysis System (SPAS), PTRS, other sources, and local office procedures. The POI will then create a file for the individual in the check airman section of eVID.

NOTE: Creation of the eVID file at this point in the process will allow for documentation of subsequent action regarding the individual without having the

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records rejected. During the upload/download process, check pilot surveillance records are cross-checked (last name and certificate number) against the check airman ancillary file in the eVID file for the operator.

B. Training Requirements and Considerations. Before the POI can evaluate a candidate for approval as a check pilot, all required training must be completed. The candidate's training records must show satisfactory completion of initial, transition, or upgrade training and all training required under the operator's approved check pilot training program for the specified classification and functions requested. The approved training program must contain all training required by §§ 135.337 and 135.339 that is applicable to the approval being sought.

C. Check Pilot Expansion of Approved Functions. Check pilot training requirements are identified in § 135.339. When additional check pilot functions are requested, the operator must ensure the respective check pilot training is completed.

D. Nonqualification. If after reviewing the documentation the POI determines that the candidate does not qualify as a check pilot, the POI will provide the operator with a statement identifying the reason for nonqualification.

3-20-6-13 PHASE FOUR—CHECK PILOT EVALUATION GENERAL. In order to evaluate a candidate effectively, inspectors must become thoroughly familiar with the operator's procedures. Inspectors must also become familiar with any special regulatory requirements affecting the operator, such as special conditions contained in the operations specifications (OpSpecs) and exemptions.

A. Choosing Airmen as Subjects. The inspector conducting an evaluation for an original check pilot approval must observe the candidate conducting an actual check. The purpose of the evaluation is to ensure that the candidate has achieved the required skills for briefing, evaluating, and debriefing a flightcrew member. The flightcrew member receiving the check should be a line flightcrew member who is due for an evaluation. The flightcrew member will not be an instructor or check pilot, unless previous approval has been received from the POI. Such approval is reserved for unusual circumstances.

B. Candidate's Flying Skills. Except for an initial cadre approval, an evaluation does not entail an evaluation of the candidate's flying skills in a flightcrew member duty position. An operator should not request approval of an individual as a check pilot when there is any question about the individual's flying skills in a flightcrew member duty position. Should the POI have reason to question a candidate's proficiency, the evaluation will not be conducted until the candidate's proficiency is verified. An acceptable way to verify the candidate's proficiency is to check the candidate. An inspector may conduct a proficiency check, a competency check, or a line check of the candidate, scheduled at some time before the official evaluation. (Such checks are not routinely required.)

C. Satisfactory Evaluation. If the inspector determines that a candidate meets criteria for the requested approval, the inspector will inform the candidate that a recommendation of approval will be reported to the POI. In this case, the candidate will certify the proficiency

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of the flightcrew member receiving the check and complete the necessary recordkeeping tasks. The POI may permit the new check pilot to be scheduled immediately as a check pilot, even though processing of the letter of approval has not been completed, provided that a PTRS entry has been completed to document the satisfactory evaluation.

D. Unsatisfactory Evaluation.

1) If the inspector determines a candidate does not qualify for the requested approval, the inspector will inform the candidate that approval will not be granted. In such a case, the inspector must determine whether the flightcrew member receiving the check performed satisfactorily, and must certify the flightcrew member's proficiency and complete the necessary records.

2) The failure of a candidate is uncommon and usually ends a candidate's eligibility for check pilot status. In rare circumstances, the POI may allow a reevaluation. In such a case, the operator must conduct sufficient additional training, recertify the candidate's proficiency, and arrange to have another evaluation conducted by an FAA inspector.

3-20-6-15 PHASE FIVE—CHECK PILOT APPROVAL. All check pilots approved for part 135 operations must be approved by the operator's POI.

A. Check Pilot Letter of Approval. All check pilots approved to conduct part 135 checks must be approved by the operator's POI. Approval of a check pilot will be in the form of a letter of approval found in Figure 3-20-6B, Sample Check Pilot Letter of Approval, addressed to a responsible official of the operator, and signed by the POI or a representative approved by the POI. This letter of approval may be transmitted to the operator by conventional mail, email, fax, or by other means acceptable to the operator and the POI.
The certificate-holding district office (CHDO) must retain a copy of the check pilot letter of approval together with the operator's original letter of nomination for the candidate.

B. Check Pilot Approval Renewal Requirements. Regulations do not require renewal or a term of expiration for the approvals of check pilots. However, check pilots must continue to demonstrate competency and ability in those functions authorized. Since check pilot oversight requirements have defined intervals, the need to reissue approvals is unwarranted, inefficient, and thus not required. Inspectors make performance assessments of the check pilot on an ongoing basis and address deficiencies as needed. Check pilots are selected, appointed, and trained to serve the needs of the operator to meet regulatory requirements to augment the FAA's safety mission. Therefore, a check pilot's approval may be given, limited, or withdrawn at the discretion of the POI for any reason considered appropriate by the Administrator. Check pilots who are performing poorly as a check pilot or as a pilot in line operations, or require excessive resources to manage may have their approval withdrawn to ensure continued effectiveness of the check pilot program. The check pilot letter of approval must contain the following (see Figure 3-20-6B):

- Name and certificate number of the operator for which the approval is granted;
- Check pilot's name and applicable FAA Airman Certificate number;
- Approved check pilot classification;

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- Specified category, class, or type of aircraft;
- Authorizations and limitations; and
- Effective date of each approval. (Since different approvals may occur at different times, this information simplifies record checks. The date on which the check pilot was recommended for approval by an inspector will be the effective date of approval.)

C. Letter of Approval—Other Copies.

1) The original letter of approval will be sent to the operator for which the check pilot has been approved.

2) A copy of the letter of approval will be retained in the POI's files, together with the operator's original letter of request for the check pilot. Additional documentation submitted with the letter of request must also be retained if it is not accessible in an FAA database. The file must be maintained in the FAA office files in accordance with the current edition of FAA Order 1350.14, Records Management.

3) When the individual is a training center instructor or Training Center Evaluator (TCE) who is being approved to evaluate an operator's personnel, and if the POI anticipates requesting assistance from the Training Center Program Manager (TCPM) with check pilot surveillance and oversight, a copy of the letter of approval may be forwarded to that TCPM for inclusion in his or her records.

D. PTRS and eVID. PTRS and eVID entries are required whenever there is a change in the approval status of the check pilot. The POI must ensure that a record of the initial approval or when additional functions are added, a PTRS is completed. Each time an approval is given or withdrawn, the POI must ensure that the check pilot eVID file reflects the classification of check pilot and approved functions.

1) Recording Check Pilot Functions in the eVID. Check the following boxes in the eVID Configuration Check Airman Information Panel (see Table 3-20-6A, Configuration Check Airman Information Panel). In addition, add comments in eVID when optional functions are approved.

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Table 3-20-6A. Configuration Check Airman Information Panel

eVID Selection Options	Check corresponding eVID box when authorized
Pilot-All Checks	§ 135.293, § 135.297, § 135.299 checks
Pilot-Proficiency Aircraft	§ 135.293, § 135.297–Aircraft
Pilot-Proficiency Simulator	§ 135.293, § 135.297–Simulator
Pilot Line All Seats	§ 135.299–when authorized in all seats
Pilot Line Observers (Jump) Seat Only	§ 135.299–when limited to observer seat only

2) Issuing Functions. Comment entries:

a) When issuing functions that allow § 135.293(a)(1) and (4) through (8) written or oral tests for other multiple aircraft (applicable for all check pilots types), enter a comment in eVID as follows: "§ 135.293(a)(1) and (4) through (8) multiple aircraft, *(list aircraft type(s))*."

b) When issuing functions that allow § 135.293(a) written or oral tests (applicable only to line check pilots), enter a comment in eVID as follows: "§ 135.293(a) written or oral tests, *(list aircraft type(s))*."

3) Initial Approval and/or Additional Functions. When the POI determines the initial approval of the check pilot or adds additional functions, it must be recorded in the PTRS using code 1346.

NOTE: Due to PTRS archiving, the PTRS record of initial approval or addition of functions may not be available.

3-20-6-17 PREVIOUSLY ISSUED LETTERS OF APPROVAL. Previously issued letters of approval will remain in effect until replaced. All approval letters must be updated with the format found in this order within 24 months of August 3, 2015. Approval letters for contract check pilots do not need to be updated at this time.

3-20-6-19 APPROVAL OF INITIAL CADRE CHECK PILOTS. During the early phases of establishing a check pilot program, initial cadre check pilots are required. Initial cadre check pilot candidates must first become fully qualified as flightcrew members and then be trained, evaluated, and approved as check pilots. Because the regulatory language of part 135 does not address a training process for initial cadre check pilots, this section provides guidance. This process that follows is valuable for startup operations for at least two reasons:

- It is a practical way to initiate and build a check pilot program; and
- It takes advantage of proving flights, when the operator/applicant is under close FAA scrutiny, with desirable effects on the check pilot program.

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A. Letter of Request from Operator. The overseeing inspector must arrange with the operator/applicant to approve one or more likely candidates to form an initial cadre of temporary check pilots. The operator/applicant will submit a letter of request, as described earlier in this section. This letter comprises the request for initial cadre check pilots and a description of the training that they will undergo.

B. Letter of Approval. The POI must approve the candidates using procedures described earlier in this section. The initial cadre letter of approval is a temporary approval, to be replaced with a permanent letter of approval after the check pilot is fully qualified. The initial cadre letter must contain a statement similar to the following:

> (Name) is approved as an initial cadre check pilot with the following functions for the purpose of initiating operations with the (type of aircraft) for (name or operator). This approval expires on (expiration date).

C. Training, Certification, and Qualification—Startup. The operator must provide a full qualification process for its initial cadre check pilots.

D. Initial Training and Certification. The operator must first arrange to have initial cadre check pilots trained and appropriately certificated for their flightcrew member duty positions. The operator may provide the training by contracting with a manufacturer, with another operator of the same 14 CFR operating part, or with properly qualified individuals. An inspector or an aircrew program designee (APD) designated examiner may certificate the initial cadre, provided that the examiner is employed by a U.S. air carrier/operator.

E. Gaining Proficiency as Instructors. After the initial training and certification, initial cadre check pilots must become proficient in the operator's proposed training program by instructing each other, or in the case of a single initial cadre check pilot, by self-training. During this training, an operator may arrange for a pilot from the manufacturer, from another operator, or from another source to act as the safety pilot or instructor pilot.

F. Proficiency and Competency Checks. After the first initial cadre check pilots have become proficient as instructors, they may then begin the training and checking of other initial cadre check pilots in accordance with the operator's initially approved flight training and qualification curriculum segments. Each check must be observed by an FAA inspector who holds the appropriate Airman Certificate, and the appropriate type rating, when applicable. If the inspector determines that the performance of an initial cadre check pilot conducting a certain check is satisfactory, the inspector will recommend to the overseeing inspector that the candidate be approved as an initial cadre check pilot for that type of check. One initial cadre check pilot may check another, with the process repeated until each candidate has been approved as an initial cadre check pilot or has been terminated from the program. If only one person is being considered to be the initial cadre check pilot an inspector will observe that person conducting a check of another flightcrew member. If the candidate's performance is satisfactory, the inspector must recommend to the POI that the candidate be removed from temporary status and approved for full-time check pilot duty with the operator.

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G. OE.

1) Initial cadre check pilots will be permitted to acquire OE flight hours on any flight that can be credited toward the proving test flight-hour requirement (including training flights, ferry flights, and representative en route proving flights). OE flight hours may be accrued by initial cadre check pilots while they are:

- Conducting aircraft checks,
- Overseeing the OE of other flightcrew members,
- Being checked, or
- Acquiring OE under the supervision of other initial cadre check pilots.

2) Initial cadre check pilots must receive a line check and conduct a line check during an en route proving flight or a ferry flight. The same process (see above) will apply: one initial cadre check pilot line checks another while being observed by an FAA inspector. If the check pilot's performance is satisfactory, the inspector may recommend that the person be removed from temporary status and approved for full-time duty as a check pilot for the operator. If there is only one initial cadre check pilot, then the FAA inspector will conduct the line check.

3-20-6-21 APPROVAL OF A CHECK PILOT IN MULTIPLE AIRCRAFT. Before a candidate may be approved as a check pilot in more than one type of aircraft, the operator must show that there is a need. The candidate must be fully qualified and current in each of the aircraft types. Overseeing inspectors must be judicious in approving check pilots and vigilant in overseeing their performance. There are various acceptable combinations of check pilot approvals.

A. All Single-Engine, Normal, or Commuter Category Airplanes. A check pilot may be approved to serve in all single-engine, normal, or commuter category airplanes that an operator operates under part 135.

B. Helicopters. A check pilot may be approved to serve in two different types of helicopters.

C. More Than One Aircraft Family. A check pilot may be approved to serve in a combination of two of the following aircraft families:

- One series of multiengine, normal, or commuter category airplanes;
- Single-engine, normal, or commuter category airplanes; or
- Helicopters.

D. More Than One Commuter or Transport Category Aircraft Type. Before a candidate may be approved as a check pilot—aircraft, in two commuter category aircraft types or two transport category types, the overseeing inspectors must ensure that the following conditions are met:

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1) Check pilots with § 135.293 or § 135.297 authority. The candidate must have logged at least 500 hours as pilot in command (PIC) in each type.

2) Check pilot with only § 135.299 authority—all seats. The candidate must have logged at least 100 hours as PIC in each type and at least 1,000 hours as PIC in transport or commuter category airplanes.

3-20-6-23 APPROVAL OF A CHECK PILOT OR FOR MULTIPLE OPERATORS. This paragraph provides a standardized method for approving a check pilot to serve multiple operators. When the following considerations are satisfied a letter of approval may be issued by the certificate holders POI. Only one certificate holder may be listed on a check pilot's letter of approval.

A. Limitations. The approval of a check pilot to serve more than one operator is limited to those cases in which the operator's aircraft, aircraft operating manuals, procedures, and checklists are compatible in the judgment of the overseeing inspector(s).

B. Multiple Check Pilot Approvals. Provision for multiple check pilot approvals may be made for part 135 single-pilot operators, part 135 single PIC operators, and part 135 operators with programs that are compatible, in the judgment of the respective operator's POI.

C. Temporary Check Pilot Approval. An operator's POI may also approve a check pilot on a temporary basis, when a startup operation is initiated or when new equipment is being introduced.

D. Other Situations. Other multiple approvals may be made with the concurrence of the regional Flight Standards division (RFSD) when justified.

E. Unique Situations. For unique situations FAA Air Transportation Division (AFS-200) may be consulted for additional information.

3-20-6-25 TRAINING CENTER INSTRUCTORS/EVALUATORS APPROVED BY AN OPERATOR'S POI AS CONTRACT CHECK PILOTS. Training centers have made flight simulation training device (FSTD) training and checking available to a broad range of aviation users, including operators with smaller fleets and smaller aircraft. With the approval of an operator's POI, an employee of a part 142 training center may serve one or more operators as a contract check pilot. The guidance contained in this paragraph applies to training center personnel who have been requested to serve as such contract check pilots.

A. POI Approves the Check Pilot Candidate. Only the POI may approve a check pilot for use in an operator's training program. Normal procedures apply, including a letter of request from the operator, and a letter of approval from the operator's POI.

B. TCPM Role. Without diminishing the responsibility or authority of the POI, experience has shown that the TCPM may be in the best position to make quality assessments at training centers on behalf of the Administrator. The TCPM continually assesses training programs conducted by a training center for certification of airmen under 14 CFR part 61. Similarly, the TCPM assesses the instructors and TCEs employed by a training center. At the

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request of an operator's POI, a training center's TCPM may therefore assist with the evaluation of an operator's request to use the services of a center's employee as a contract check pilot.

C. Scheduling Multiple Use Check Pilots and Maintaining Check Pilot Status. Before a multiple-use approval is made, the overseeing inspector must ensure that the operators understand that the scheduling and use of the check pilot is their responsibility. An operator entering into a multiple-use arrangement may employ a check pilot on a part-time basis, may contract with another operator or training center to provide a check pilot, or may contract directly with the check pilot.

NOTE: Each operator is responsible for ensuring that the check pilot maintains currency as specified in the appropriate operating rule, and in Volume 3, Chapter 20, Section 5, and that he or she performs adequately when serving the operator.

D. Issuing Additional Letters of Approval. An operator seeking check pilot approval for an individual who is serving as a check pilot for another operator must provide the necessary information to its POI. The operator's POI must consider the means the operator will use to train, to qualify, and to maintain qualification of the contract check pilot candidate and the documentation that will be required. Contract check pilots may be able to meet recurrent training requirements for more than one operator simultaneously. When the operator and the POI have agreed on the training and qualification necessary for the contract check pilot the operator must submit a written letter of request to the POI, as described earlier in this section. When the second or subsequent POI approves the individual as a contract check pilot for his/her operator, that POI will issue an additional letter of approval following the procedures described above. Additionally, if the subject check pilot is an employee of a part 142 training center, the POI will forward a copy of the new approval letter to the center's TCPM.

E. Primary Oversight Responsibility. Each operator for which an individual is approved as check pilot along with the operator's POI, has responsibility for oversight of the contract check pilot. When the check pilot is employed by a training center, the FAA TCPM may provide assistance as requested by the POI with this responsibility. Any POI who has issued a letter of approval to the check pilot may, however, conduct surveillance activities at any time.

F. Contract Check Pilot or Letter of Approval. When approved as a contract check pilot for an operator, the POI of that operator will issue a letter of approval showing the operator, the check pilot classification, the type(s) of aircraft authorized, and the type(s) of checks authorized (by regulatory reference). A sample contract check pilot letter of approval is provided on the FAA Air Carrier Training Systems and Voluntary Safety Programs Branch's (AFS-280) Web site at: http://www.faa.gov/pilots/training/part_142/media/check_pilot_loa.doc.

G. Recordkeeping. Each operator is required by their operating rules to maintain training and qualification records for their check pilots. This responsibility cannot be delegated. However, by agreement between the operator and the training center, a training center may keep a contract check pilot's training and qualification records. This agreement must be documented in each operator's recordkeeping system and approved by the POI. The POI must maintain

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a record in the operator's file that documents the details of any such arrangement, including the location in the operator's manual where such arrangement is described.

3-20-6-27 FLIGHTCREW MEMBER FAILURE RATES. The repetitive failure of a single flightcrew member or the failure of several flightcrew members during proficiency or competency checks, may indicate a training program deficiency. Overseeing inspectors must establish procedures with their certificate holders that provide for FAA notification when flightcrew member unsatisfactory performance occurs. Identified deficiencies should be promptly investigated and corrective action taken.

3-20-6-29 OVERSIGHT OF CHECK PILOTS. Responsible inspectors must establish a surveillance program for each check pilot at the time of approval.

A. Biennial Check Pilot Observation.

1) Observation of Approved Checking Activity or Supervising OE. The surveillance program for each office must include an observation by an FAA inspector or APD of each approved check pilot in his or her area of responsibility at least once every 24 months. Check pilot observations should be conducted while the check pilot is conducting an approved checking activity or supervising OE. For example, a check pilot approved to conduct proficiency checks, line checks, and supervision of OE, should be observed conducting a proficiency check in the aircraft or FSTD, conducting a line check, or supervising OE. At the discretion of the POI, an observation conducted by another inspector or by a TCPM for a check under the same rule part need not be repeated. It is the responsibility of the operator to maintain records showing that this observation has been completed. See paragraph 3-20-6-31, Check Pilot Oversight and Surveillance, for additional details regarding the 24-month observation required by § 135.339.

2) Constraints of Aircraft with Two Pilot Seats. Inspectors may encounter difficulties in conducting the surveillance of check pilots whose activities are restricted to two-place airplanes or helicopters. In such cases, it may not be possible for an inspector to observe the check pilot conducting actual checks. In lieu of these observations, the POI may review the check pilot's activities and arrange for an inspector to administer the check pilot's competency and line checks.

B. Periodic Report by the Operator. The POI should arrange to have the operator provide the POI with a periodic report of each check pilot's activities, including a pass/fail rate, to coincide with the POI's periodic review (annual, semiannual, or other). A POI may arrange for these reports to arrive at a time that meets the POI's needs. A check pilot should be active enough to retain the required knowledge and skills. This activity level may vary depending on the check pilot function, the size of the operator, and the number of approved check pilots. The POI should specifically reassess the operator's need for those check pilots whose records indicate low activity levels or when deficiencies are observed when performing authorized functions.

C. Withdrawing Check Pilot Approval. The POI's reasons for withdrawing the approval of a check pilot may include a lack of check pilot activity, a request by the operator,

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or an unsatisfactory performance on the part of the check pilot. To withdraw approval of a check pilot, the POI must notify the operator by letter that approval is withdrawn. The letter should include the name of the check pilot, the effective date of withdrawal, and the reason approval is being withdrawn. If the approval of a check pilot is withdrawn because of unsatisfactory performance, the letter of withdrawal must be sent to the operator by certified mail—return receipt requested. The POI must make a PTRS entry identifying the reason for the withdrawal or termination of a check pilot's letter of approval.

NOTE: Under current regulations, no normal term of expiration is specified for approvals of check pilots. Contract check pilots who are employees of a part 142 training center will have their term contingent upon continued employment with the training center and maintaining their instructor or evaluator qualification with the employing center.

D. POI Authority. A check pilot's approval may be given, limited, withdrawn, or terminated at the discretion of the POI.

3-20-6-31 CHECK PILOT OVERSIGHT AND SURVEILLANCE. This paragraph will explain the surveillance methods available to inspectors as well as general oversight considerations.

A. Elements of a Check Pilot Evaluation. Maintaining an accurate surveillance records in the Enhanced Flight Standards Automation System (eFSAS) is crucial to long term management of individual check pilots.

B. Surveillance Event Types. Inspector surveillance events are described below.

1) Check Pilot Observation. Refer to § 135.339(a)(2). This observation conducted by the FAA or APD is to determine if the check pilot has the ability to perform the function(s) authorized in accordance with the operator's training program and regulatory requirements. Use PTRS activity codes 1641–1645.

2) Records Review. Records review is an administrative function that allows the POI to review the quality of the records submitted by the check pilot, whether paper or electronic.

3) Check Pilot Interaction. This is a record of any interaction that has occurred with the check pilot that the POI deems relevant enough to include in the check pilot's file.

C. Check Pilot Observations. Section 135.339(a)(2) requires that check pilots are observed by an inspector or an Aircrew Designated Examiner (ADE) within the preceding 24 calendar-months. Check pilots are required to be observed conducting the applicable proficiency or competency checks in addition to optional functions that are issued. The observation check required by § 135.339(a)(2) is considered to have been completed in the month required if completed in the calendar-month before, or the calendar-month after, the month in which it is due. If the observation check is not conducted, the individual may no longer serve as a check pilot.

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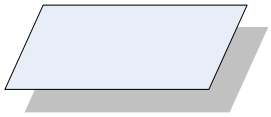
D. Check Pilot with Optional Function Approval(s). The following oversight applies to the content of the inspector's evaluation of the check pilot when additional functions have been approved. The content of the evaluation is dependent upon the approval(s) requested.

1) Written or Oral Test Approval (available to § 135.299 check pilots only). As part of the § 135.339 observation check, an inspector must evaluate the candidate while the candidate conducts a complete written/oral test required by § 135.293(a).

2) Written or Oral Test Multiple Aircraft Approval (available to all check pilots except contract check pilots). As part of the § 135.339 observation check, an inspector must evaluate the check pilot conducting an oral/written test required by § 135.293(a)(1) and (4) through (8) as authorized in their approval letter.

E. Check Pilot Performance Measures. The performance measures below have been established to aid in the consistent evaluation of all check pilots. The three categories of performance measures are technical, procedural, and professional (see Figure 3-20-6A, Performance Measure Consolidation). The type of oversight activities conducted will determine the performance measure attributes considered by the inspector.

Figure 3-20-6A. Performance Measure Consolidation



1) Technical. The check pilot must demonstrate a superior level of technical knowledge, skill, and ability in order to conduct authorized tasks.

a) Equipment and Materials. Does the check pilot select or use the appropriate equipment, device, tools, and reference material when planning or conducting checks?

b) Knowledge and Understanding.

1. Does the check pilot understand the technical terminology contained in the operator manual, the training program, and other reference material used in planning, describing, or conducting pilot checks?

2. Is the check pilot thoroughly familiar with the operator's standard operating procedures, authorizations/limitations, checklists, and other items used by the operator?

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3. Does the check pilot demonstrate an expert level of knowledge about the aircraft operation and systems?

c) Interpret and Apply.

1. Does the check pilot correctly interpret and apply the technical performance standards defined by the appropriate training program standard?

2. Does the check pilot demonstrate effective questioning techniques?

2) Procedural. The check pilot must demonstrate compliance with the operator policies and procedures contained within the operator's manuals and applicable regulations used to conduct approved functions. Factors in determining procedural proficiency:

a) Does the check pilot properly submit information, documents, or data to the operator when required by operator procedures and FAA regulations?

b) While conducting the check:

- Does the check pilot follow the correct procedures when conducting, grading, and providing feedback to pilots during checks or observations?
- Does the check pilot have a plan of action to conduct the check?
- Do pre-briefings contain clear objectives, safety briefing elements, and completion standards?

c) Does the check pilot:

- Complete required events?
- Demonstrate effective workload management?
- Identify deviations from applicable standards and procedures?
- Demonstrate knowledge and observation of the operator's procedures?
- Conduct the check and ensure safe operation of aircraft or proper operation of the FSTD?
- Use proper air traffic control (ATC) phraseology?
- Conduct a debriefing that is accurate, appropriate, clear/concise and informative?
- Demonstrate the proper use of training aids and FSTDs that are realistic and contain appropriate scenario progression?
- Utilize training aid and FSTD capabilities?
- Demonstrate the ability to efficiently use FSTDs?

d) Does the check pilot follow the correct procedure(s) when completing approvals, recording results, or other administrative items upon completion of the checking activity?

3) Professional. Professionalism means compliance with ethical and technical standards that indicate a professional representation of a person approved by the Administrator.

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This includes the quality, completeness, and timeliness of oral and written communications and the continual demonstration of integrity, tact, and diplomacy with pilots, industry, and the FAA. Factors in determining professionalism are:

a) Oral/Written Communication. There are no reported issues of deficient communications between the check pilot, operator, and FAA.

b) Professional Representation of the Operator and the FAA. The POI should consider whether the check pilot demonstrates a positive reflection of the approval provided by the FAA and a willingness to comply with FAA requirements and operator policies and procedures.

c) Cooperative Attitude. The POI should consider whether the check pilot works effectively with and presents a positive attitude when interacting with pilots, operators, and the FAA.

d) Ethics and Judgment. The POI should consider whether the check pilot maintains the highest standards and demonstrates good judgment in the conduct of authorized activities.

F. Overall Oversight Assessment. In determining the overall oversight assessment, the inspector considers the frequency, causal considerations, and safety significance of the three performance measure criteria.

1) Frequency of Deficiencies. The frequency of deficiencies is based on the inspectors evaluation with the following considerations applied:

a) No performance related issues noted.

b) Few or minor performance related issues noted.

c) Some issues noted, but were corrected and/or were of minimal impact to safety.

d) Some significant issues were noted and were safety related.

2) Causal Considerations.

a) Unknowingly—the check pilot was not aware of the error.

b) Carelessly—as a result of inattention by the check pilot, an error was made.

c) Intentionally—the check pilot demonstrates a disregard for policy, procedures, or regulatory requirements.

3) Safety Significance.

a) Because the role of the check pilot is to ensure that the pilot has met competency and safety standards required by regulations and the operator, the position requires

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an exceptional level of integrity, dedication, knowledge, and professionalism. With high initial standards required, any deficiencies should be carefully noted, reviewed, and appropriate action taken.

b) There is minimal tolerance for the display of safety deficiencies, less tolerance for careless acts, and no tolerance for the intentional disregard of safety standards by check pilots. The inspector must carefully consider the cumulative safety significance of deficiencies and causal factors when determining the overall assessment of the check pilot. If the inspector determines that the level of performance expected of the check airman is unsatisfactory, actions must be taken to rescind the check pilot's approval.

4) Recording the Observation. Upon completion of the check pilot observation, the inspector must record the result of the inspection in PTRS by using the appropriate activity codes 1641–1645. If the POI determines that the results of the event require additional review, the POI should determine and record in eFSAS any appropriate followup activity.

3-20-6-33 AFFIDAVIT USE. This paragraph is applicable only to contract check pilots and instructors associated with part 142 training centers.

A. Lost or Unattainable Records. A POI may accept an affidavit for initial training records if a contract instructor or contract check pilot is unable to produce all required records because:

- The records are lost;
- The air carrier is defunct; or
- The air carrier remains in existence, but no longer has the records.

B. Supporting Documentation. The pilot and the air carrier/operator or program manager for which the contract instructor or contract check pilot nomination has been requested may submit a signed and notarized statement (affidavit) attesting to the completion of training identified in Volume 3, Chapter 54, Section 5, subparagraph 3-4415F3) as the basis for having completed the training. The statement must be substantiated by all available evidence, such as completed check ride forms, available training records, logbook entries and other records attesting to flight operation participation, associated pay stubs, W-2 forms (with financially confidential information redacted), tax returns, a statement from a current or former employee of the air carrier/operator or program manager, and other proofs of employment. The pilot and the air carrier/operator or program manager representative must read, sign, and submit a notarized statement containing the information found in Figure 3-20-6D, Contract Instructor and Contract Check Pilot Nominee Training Records Affidavit, and Figure 3-20-6E, Nominating Air Carrier/Operator Affidavit for Lost/Unobtainable Pilot Training Records, and provide supporting documentation to the POI. If the affidavit and documentation that reasonably support the affidavit are provided, the POI may accept the information as meeting the initial new-hire training requirement. An affidavit without supporting documentation must not be accepted.

C. False Statements. A pilot who has lost or is unable to obtain training records should be reminded that any fraudulent or intentionally false statements concerning these records are a basis for enforcement action in accordance with Title 18 of the United States Code (18 U.S.C.)

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§ 1001 and part 61 that could result in a fine, imprisonment, and action against any certificate or rating held.

D. Supporting Documentation Review. The POI should consider the following when determining the acceptability of the documentation provided:

1) Review Records. Review and determine the validity of the records.

2) Ensure Clarity. Ensure that records clearly identify the air carrier/operator and associated employment.

3) Review FAA Database(s). Review FAA database(s) to determine if the air carrier/operator or program manager has records to verify its existence.

4) Review PTRS Records. Review PTRS records that may support the nominee's activities with the air carrier/operator or program manager. (This is not required, but could be used for confirmation in some cases.)

5) Review Evidence. Review the evidence the nominee has provided that confirms the air carrier/operator or program manager no longer retains the records or has not responded to a record request for an air carrier/operator or program manager that currently remains in existence.

6) Review Participation and Qualification. Review records or supporting documents (e.g., logbooks, dispatch releases, evidence of employment, or a statement from a current or former employee of the air carrier/operator or program manager) that attest to or confirm the nominee's flight program participation and qualification as a pilot for the air carrier/operator or program manager.

7) Recordkeeping Requirements. For a contract check pilots only, the POI must maintain a copy of the affidavits in the FAA's check airman file.

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Figure 3-20-6B. Sample Check Pilot Letter of Approval

April 19, 2013

Mr. Sam A. Frost
Chief Pilot
Transcon Express, Inc.
48 Perimeter Rd.
Utica, OH 22032

Dear Mr. Frost:

John R. Smith, FAA certificate number 467120928, is approved as a check pilot. This check pilot is approved to conduct checks for Transcon Express, certificate number A1BC, and their pilots. This approval is applicable for the following checking functions:

	Classification and Types		***Effective Date***
	Simulator M/M/S(s)	***Aircraft* Type(s)**	
Section 135.293 competency check	N/A	N/A	N/A
Section 135.297 proficiency check	N/A	N/A	N/A
Section 135.299 line check			
Observer's seat only, or		N/A	N/A
All seats		BBD-700	05/01/2013
Optional functions when § 135.299 or § 135.293 is also approved			
	Aircraft Type(s)*		**Effective Date**
Section 135.293(a) written or oral test (Not used when check pilot has § 135.293 approval)	BBD-700 only		05/01/2013
Section 135.293(a)(1) and (4) through (8) written or oral test for pilots assigned to the following aircraft	G-V, CL-604, multiengine Cessna reciprocating-series airplanes		05/01/2013

N/A = Not approved

Please retain a copy of this letter in Mr. Smith's individual flight training records.

Sincerely,

James J. Jones
Principal Operations Inspector
FSDO (XXXX)

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Figure 3-20-6C. Check Pilot Approval Job Aid

1. Operator's Letter Contains Necessary Information:

[ ] Name of candidate.

[ ] Business address of candidate.

[ ] Flightcrew member duty position and aircraft type.

[ ] Check pilot classification and functions requested.

2. Training Records (copies):

[ ] Initial, transition, or upgrade to requested aircraft and flightcrew member duty position.

[ ] Recurrent.

[ ] Check pilot training.

3. [ ] Résumé of experience included.

4. [ ] eVID, SPAS, and PTRS verification satisfactory.

5. [ ] Open eVID file.

6. [ ] Check pilot evaluation scheduled.

7. [ ] Report of evaluation received from PTRS.

Favorable Report:

8. Prepare Letter of Approval:

[ ] Original letter to operator.

[ ] Copy to operator file.

[ ] Copy to other POI (if check pilot for another operator).

9. [ ] Update operator eVID file.

10. [ ] Complete PTRS.

Unfavorable Report:

11. [ ] Prepare letter to operator indicating disapproval.

12. [ ] Update operator eVID file.

13. [ ] Complete PTRS.

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Figure 3-20-6D. Contract Instructor and Contract Check Pilot Nominee Training Records Affidavit

STATE OF _____

COUNTY OF _____

[Name of Applicant], being duly sworn, says:

1. On [today's date], I, [Name of Applicant], certify that I have been unable to find or obtain the training records documenting my completion of initial training with [name of air carrier/operator/program manager] on [date].

2. I acknowledge that any fraudulent or intentionally false statements concerning aeronautical experience are a basis for suspension or revocation of any certificate or rating I hold.

Considering the above, I offer the following statement in lieu of the actual records:

I, [Name of Applicant], hereby attest that I successfully completed initial training as a pilot for [name air carrier/operator/program manager], a 14 CFR part [121/135/91K] [air carrier/operator/program manager] based in [city, state, country], on [date training completed].

_____

Airman's Signature

_____

Airman's Name (Printed) and Pilot Certificate Number

SUBSCRIBED AND SWORN TO before me this _____ day of _____, _____

[Seal]

Notary Public in and for

County_____

State of _____

My Commission expires on _____

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Figure 3-20-6E. Nominating Air Carrier/Operator Affidavit for Lost/Unobtainable Pilot Training Records

STATE OF _____

COUNTY OF _____

[Name of Company Representative], being duly sworn, says:

1. On [today's date], I, [Company Representative], [Company Name], certify that I have been unable to find or obtain the training records documenting that [Nominated Contract Check Pilot's Name] completed the initial training curriculum with [Company Name] on [date].

2. I have made a good faith effort to obtain such training records. Notwithstanding this effort, I have been unable to find such records. I do not know where such records presently are, or where they may be found. I believe them to be lost or destroyed.

3. I acknowledge that any fraudulent or intentionally false statements concerning aeronautical experience are a basis for suspension or revocation of any certificate or rating I hold, as well as revocation or suspension of this [air carrier certificate/operating certificate/management specifications].

For the above reason, I offer the below statement in lieu of the actual records:

I, [Company Representative], on behalf of [Company Name], attest the information above is accurate, and therefore [Name of Nominated Contract Check Pilot] meets the baseline requirements of a(n) [instructor/check pilot] as set forth in FAA Order 8900.1, Volume 3, Chapter 54, Section 5; and 14 CFR part [91K/121/135].

Company Representative's Signature_____

Company Representative's Pilot Certificate Number (if applicable)_____

Company Representative's Name (Print)_____

Company Name and Certificate Number_____

SUBSCRIBED AND SWORN TO before me this _____ day of _____, _____

[Seal]

Notary Public in and for

County_____

State of _____

My Commission expires on _____

3-20-6-35 through 3-20-6-49 RESERVED.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 25 OPERATIONAL CONTROL FOR AIR CARRIERS

Section 5 Safety Assurance System: Part 135 Flight Locating Systems and Operating Rules

3-2021 GENERAL. This section contains direction and guidance to be used by inspectors concerning Title 14 of the Code of Federal Regulations (14 CFR) part 135 flight-locating systems and operating rules. Inspectors should use this section along with Section 1 of this Chapter when reviewing an operator's General Operations Manual (GOM) and when conducting inspections of part 135 operators. This section is related to Safety Assurance System (SAS) Elements 2.2.1 (OP), Airmen Duties/Flight Deck Procedures; 3.3.1 (OP), Operational Control; and 4.2.5 (AW), Maintenance Control.

3-2022 GENERAL REQUIREMENTS. Although part 135, § 135.77 explicitly requires that each operator exercise operational control, the method by which an operator does so is not closely defined by 14 CFR. Part 135 operations range from visual flight rules (VFR) operations in simple aircraft to extended overwater operations in highly sophisticated jet transports. Section 135.77 provides operators with the latitude necessary to design systems that fit the conditions surrounding the operations they conduct. Operators and principal operations inspectors (POI) must ensure, however, that each operator's system provides adequate control of the operation being conducted. Inspectors should be aware of the following requirements regarding operational functions:

A. Formal Releases. Part 135 does not require operators to prepare a formal release authorizing a specific flight. Section 135.69 does require that the operator restrict or suspend operations when either the pilot in command (PIC) or the operator becomes aware of a hazardous condition. One acceptable means an operator may use to comply with this requirement is to use a formal release system.

B. GOM Requirements. The operator's GOM must contain adequate briefing and trip planning procedures to ensure that all safety requirements are fulfilled. POIs shall ensure that each operator's GOM contains detailed policies, conditions, and specific procedures for each category of employee responsible for the authorization or planning of a flight.

C. Delegation of Authority. Part 135 operators commonly delegate the authority to PICs for initiating flights. Such delegation has generally proven to be adequate for the operation of general purpose, single-engine, and multiengine airplanes and helicopters in on-demand operations. Such systems may be inappropriate, however, for commuter operations, air ambulance services, jet transport operations, operations conducted beyond the contiguous states, extended overwater operations, and complex operations requiring extensive planning or coordination. POIs should strongly recommend that operators establish operational control systems that require the concurrence of an individual authorized to exercise operational control and the PIC for all flight release decisions. National Aeronautics and Space Administration (NASA) statistics show that police and air ambulance service operators who have adopted such systems have had significantly better safety records than operators of the same type who have not had such systems.

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3-2023 FLIGHT-LOCATING SYSTEMS. Section 135.79 requires that each operator maintain a flight-locating system. The system must provide for the timely notification of a Federal Aviation Administration (FAA) facility or a search-and-rescue facility if an aircraft is overdue or missing. The operator's notification must be at least as prompt as notifications provided by FAA procedures and facilities.

A. Flight Plans Filed by PICs. Part 135 operators may require PICs to file and activate air traffic control (ATC) flight plans as one means of complying with § 135.79. In this case, the operator's GOM must prohibit the PIC from operating without an activated flight plan until arrival at the destination airport. Operators may find that requiring the PIC to file a flight plan to satisfy the requirements of § 135.79 precludes certain operations. For example, it is impractical for a PIC to conduct a flight to a non-controlled field by cancelling instrument flight rules (IFR) at the last radio navigation fix and then proceeding under VFR to destination on a VFR flight plan. ATC does not accept composite IFR/VFR flight plans. Normally, ATC will not activate a VFR flight on an ATC frequency. A PIC who cancels IFR and then changes to a flight-watch frequency to activate a VFR flight plan is not in compliance with § 135.79. One acceptable means an operator may use to comply with § 135.79 is to require the PIC to telephone the person exercising operational control upon arrival at a destination not served by an ATC facility.

B. Procedures in Lieu of Flight plans. When an FAA flight plan is not filed, operators must have established procedures for following and locating each flight. The individual authorized to conduct operational control must be provided with at least the information required in a VFR flight plan.

C. Flight-Locating Information When Radio Contact Cannot Be Maintained. Part 135 operators are not required to maintain the capability to contact flights while they are airborne. When operations are conducted in an area in which radio contact cannot be maintained with ATC, the individual authorized to exercise operational control must be provided with the location, date, and estimated time at which the PIC will reestablish radio or telephone communications. Flight-locating information must be retained at the operator's principal base of operations, or at other places designated by the operator, until the completion of the flight. Operators should maintain sufficient records to show compliance with these requirements.

D. Flight Followers. Part 135 does not specify the qualifications or titles of individuals authorized to authorize or follow flights. Section 135.77 does, however, require the operator to list the name of each individual authorized to perform these duties in the GOM.

E. Contractors. Part 135 operators may contract with other operators or organizations to perform direct operational control functions. The operator remains fully responsible for ensuring that the operations conducted comply with 14 CFR, the operator's GOM, and safe operating practices. The name of each employee of the contractor authorized to perform operational control functions for the operator must be placed in the operator's GOM.

F. Training. Operators are responsible for ensuring that individuals authorized to exercise operational control are adequately trained to perform their assigned duties. One acceptable means an operator may use to meet this requirement is to establish a training and qualification program such as that described in Volume 3, Chapter 22.

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NOTE: Individuals exercising operational control must be knowledgeable of, and have access to, appropriate sections of the operator's GOM while performing their assigned duties.

3-2024 PART 135 FUEL-PLANNING REQUIREMENTS. The fuel-planning requirements of 14 CFR parts 91 and 135 are based on IFR and VFR Class I navigation within the contiguous states. Other types of operations or operations outside of the contiguous states may require additional or special planning.

A. VFR Operations in Airplanes. Section 135.209(a) prohibits takeoff in an airplane under VFR rules unless the airplane has enough fuel to fly to the airport of first intended landing. Thereafter the airplane must have enough fuel (computed at normal cruise) to either fly for 30 minutes during the day or for 45 minutes at night.

B. VFR Operations in Helicopters. Section 135.209(b) prohibits takeoff in a helicopter under VFR rules unless the helicopter has enough fuel to fly to the airport of first intended landing, and then to fly for 20 minutes at normal cruising fuel consumption.

C. IFR Operations in Airplanes. Section 135.223 prohibits takeoff in an airplane in IFR conditions unless the airplane has enough fuel to complete the flight to the airport of first intended landing. Thereafter, the airplane must have enough fuel to fly to the alternate airport, and then to fly for 45 minutes at normal cruise fuel consumption.

D. IFR Operations in Helicopters. Section 135.223 prohibits takeoff in a helicopter in IFR conditions unless the helicopter has enough fuel to complete the flight to the airport of first intended landing. Thereafter, the helicopter must have enough fuel to fly to the designated alternate airport, and then to fly for 30 minutes at normal cruise fuel consumption.

E. Contingency Fuel. Part 135 does not specifically require a specific increment of contingency fuel. Part 91, § 91.103, however, does require that such contingencies be considered in preflight planning. Therefore, an increment of fuel to compensate for foreseeable contingencies must be on board for takeoff. One such contingency would be a delay in receiving takeoff clearance at major terminals. The operator's GOM should contain specific policies and instructions for computing the amount of contingency fuel to be carried under the circumstances likely to be encountered in the operator's specific operation.

F. En Route Requirements. The fuel-planning requirements discussed in subparagraphs A through E above apply for takeoff. Part 135 does not specify the action the PIC must take if an alternate airport goes below minimums when the flight is en route, or how much fuel must be on board when the flight arrives overhead a destination or alternate airport. Section 135.69(b) allows a PIC to continue toward a destination when a hazard to safe operations may reasonably be expected to be corrected before arrival. Section 135.69(b) does prohibit a PIC from continuing a flight toward a destination, however, when the operator or the PIC knows of conditions that make continuation of the flight hazardous. The operator's GOM should contain specific policies and instructions on how the PIC is to proceed in foreseeable circumstances that may be encountered in the operator's specific operation.

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3-2025 WEATHER REQUIREMENTS. Section 135.213 requires that weather reports and forecasts used in part 135 operations be prepared by the National Weather Service (NWS), a source approved by the NWS, or a source approved by the FAA (see Volume 3, Chapter 25, Section 1). Inspectors should ensure that part 135 operators are conducting operations in compliance with 14 CFR weather provisions, as follows:

A. VFR Operations. A flight may not depart under VFR rules unless the ceiling and visibility en route are forecast to be above the applicable VFR minimums until the aircraft arrives at the destination airport.

1) All available reports and forecasts must show that the flight can be completed in visual meteorological conditions (VMC). Available reports include Pilot Weather Reports (PIREP), which must be obtained and used when available.

2) When there is no information available from an approved source, § 135.213(a) authorizes PICs to use their own observations or those of another competent person for operations under VFR. This authority is limited to only those situations in which a report from an approved source is not available. For example, these procedures might be appropriate for floatplane operations at remote lakes where no weather observer is stationed. This provision does not relieve PICs and operational control personnel from obtaining and using the information that is available, such as area forecasts and PIREPs.

3) The operator's GOM must specify the circumstances under which PICs may use the provision of § 135.213(a). If observers other than PICs are used, operators must specify the training and qualifications of these observers.

B. Point of Departure—IFR Operations. A flight may not be originated when the weather at the departure point is below that specified in paragraph C057 or paragraph H106 of the operator's operations specifications (OpSpecs).

1) Takeoff weather minimums may be below the authorized landing minimums. For takeoff in such conditions, an alternate airport must be available within 1 hour of flying time from the departure airport at normal cruise speed.

2) Operators may be authorized to use "lower-than-standard" takeoff minimums by paragraph C057(e)(1) of the OpSpecs. POIs, operators, and PICs must be aware of the limitations associated with this authority. The operator must have an approved lower-than-standard takeoff training program and qualification module. The PIC (and second in command (SIC), when applicable) must have satisfactorily demonstrated competency on their last competency check (§ 135.293) or instrument proficiency check (IPC) (§ 135.297). A single pilot may not conduct lower-than-standard takeoffs in weather conditions below Category I (CAT I) landing minimums.

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C. Destination Weather—IFR. A flight may not depart under IFR or over-the-top rules unless appropriate weather reports or forecasts indicate that conditions will be at or above the minimums required by the OpSpecs at the destination airport at the estimated time of arrival (ETA). The reports or forecasts used must be the most currently available at the time of takeoff. CAT I weather minimums are contained in OpSpec paragraphs C053, C054, and H103. CAT II and CAT III minimums are listed in OpSpec paragraphs C059, C060, H108, and H109.

D. Designation of Alternate Airports. Section 135.223 specifies when an alternate airport is required for IFR operations or over-the-top operations. An alternate airport does not have to be designated when, for at least 1 hour before and 1 hour after the ETA at the destination airport, the appropriate weather reports or forecasts (or any combination of them), show the ceiling will be as follows:

1) At least 1,500 feet above the lowest circling minimum descent altitude (MDA), if a circling approach is authorized for the airport; or

2) If a circling approach is not authorized, at least 1,500 feet above the lowest published instrument approach minimum or 2,000 feet above the airport elevation, whichever is greater; and

3) The visibility at that airport will be at least 3 miles, or 2 miles more than the lowest applicable visibility minimums, whichever is greater, for the instrument approach procedures (IAP) to be used.

E. Alternate Airport Weather. The forecast weather at the designated alternate airport must exceed the requirements of the table in either paragraph C055 or paragraph H105 of the OpSpecs, as applicable.

3-2026 IFR PASSENGER-CARRYING, OVER-THE-TOP OPERATIONS. Part 135 contains a set of rules that limit IFR passenger-carrying, over-the-top flights. These limitations do not apply to cargo-only part 135 flights.

NOTE: Section 135.181 does not prohibit a pilot from operating an aircraft in VFR conditions on an IFR clearance. An aircraft must be IFR equipped and the pilot or pilots must be qualified according to part 135 before an IFR clearance may be requested or IFR weather conditions are entered.

A. Operation of Single-Engine Aircraft in Over-The-Top Operations. Section 135.181 prohibit the operation of single-engine aircraft (airplanes and helicopters) in over-the-top operations unless the following conditions can be met:

1) The flight may be planned to climb to VRF over-the-top conditions as described in paragraph 3-2026.

2) If a ceiling exists, VFR conditions must be forecast to exist under the ceiling along the planned route from the time the flight begins operating over the top until 1 hour after the flight is estimated to reach the destination.

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3) At all points along the route, upon reaching destination, and for 1 hour thereafter, the forecast must show that the flight will be able to descend in VFR conditions (clear of clouds), should an engine fail.

B. Operation of Multiengine Aircraft in IFR, Over-The-Top, Passenger-Carrying Operations. A multiengine aircraft (airplane or helicopter) may be released for IFR or VFR over-the-top, passenger-carrying operations under the following circumstances:

1) The flight may be operated under the conditions described in subparagraph A above, or;

2) The operator may limit the takeoff weight so that the aircraft can climb at 50 feet per minute (fpm) at the minimum en route altitude (MEA) of the route to be flown or at 5,000 feet mean sea level (MSL), whichever is higher, with the critical engine inoperative. Passenger-carrying, multiengine helicopters flying offshore may be started when the helicopter can climb at 50 fpm at the MEA or at 1,500 feet MSL, whichever is higher, with the critical engine inoperative.

3) A flight may start when weather forecasts and reports indicate that the flight will be able to operate in VFR conditions until it reaches the destination and then descend in VFR conditions to beneath the ceiling. Conditions at the destination must allow a VFR descent for the period of the ETA to 1 hour after ETA. While operating over the top, the flight must be able to comply with subparagraph B1) or B2).

4) A flight may start when it can be operated clear of the clouds until it reaches the final approach fix (FAF) at the initial approach altitude under VFR conditions and then conduct an instrument approach.

3-2027 OVERWATER, PASSENGER-CARRYING OPERATIONS. Except for takeoffs, landings, and operations within gliding distance of land, all passenger-carrying flights operated over water must be operated as follows:

A. Airplanes. Operators must limit the takeoff weight of an airplane so that it can climb at 50 fpm at an altitude of 1,000 feet above the surface with the critical engine inoperative.

B. Helicopters. Helicopters must be equipped with flotation devices.

3-2028 PART 135 EXTENDED OVERWATER OPERATIONS. Although part 135 does not specifically address the requirements for extended overwater operations, § 135.21(a) requires that each operator develop a manual establishing the policies and procedures for operations that are acceptable to the FAA Administrator. One means, but not the only means, that a part 135 operator may use to develop acceptable extended overwater operations procedures is to show compliance with those portions of 14 CFR part 121 that correspond to the operation conducted.

A. Flight Planning and Navigation. Flight planning and navigational requirements do not differ from those of part 121 operators conducting operations in the same airspace (see Volume 3, Chapter 25, Sections 1 and 4).

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B. Fuel Planning. The operator must provide adequate procedures for compensating with the limitations of forecast winds. One acceptable means an operator may use is to comply with the requirements of part 121, § 121.641 for reciprocating or turbopropeller aircraft and with the requirements of § 121.645 for turbojet aircraft. These sections provide for appropriate en route reserves.

C. Engine-Out En Route Performance Limits. The operator must develop procedures to comply with the engine-out performance limitations of part 135 subpart I. The operator's analysis must show compliance at the most critical point on the route. Under most conditions, engine-out operations require driftdown procedures. Inspectors must ensure that the operator's analysis considers how oxygen and aircraft systems are affected by engine loss.

3-2029 OPERATIONAL CONTROL.

A. Certificate Holder. A direct air carrier or commercial operator (certificate holder) certificated by the FAA includes any person or entity that provides or offers to provide transportation by air and who maintains control over the operational functions performed in providing that transportation. To legally act as a direct air carrier, a person or entity must hold an FAA 14 CFR part 119 certificate and comply with applicable regulations. Throughout this section, the terms "air carrier," "certificate holder," or "operator" will mean the holder of either an air carrier certificate or operating certificate issued with OpSpecs authorizing operations under part 135, including those authorized operations under both parts 121 and 135.

NOTE: A person or entity that wishes to engage in interstate common carriage operations must, in addition to holding an air carrier certificate, hold appropriate economic licensing authority from the Department of Transportation's (DOT) Office of the Secretary of Transportation (OST) under Title 49 of the United States Code (49 U.S.C.), § 41101 or 14 CFR part 298.

B. Part 119 Certificate Holder. Each part 119 certificate holder conducting operations under part 135 must have a system and/or procedures for the exercise of authority over the initiation, conduct, and termination of a flight. The intent of OpSpec A008 is to promote a mutual understanding between an operator and the FAA concerning the system and procedures used by that operator.

1) Each part 119 certificate holder conducting operations under part 135 must maintain control and authority over the initiation, continuation, conduct, and termination of its part 135 flights. In addition, under § 135.77, each operator conducting operations under part 135 is responsible to list, in the manual required by § 135.21, the name and title of each person it authorizes to exercise operational control. Those operators issued OpSpec A039, Single Pilot in Command Operator, or OpSpec A040, Single Pilot Operator, may not have manuals but may list these authorized persons in OpSpec A039 or A040, as applicable. If a certificate holder is issued OpSpec A037 or A038 and has a full deviation from the manual requirements, these persons must be listed in the certificate holder's OpSpec A006. A part 135 operator may not delegate the responsibility to maintain operational control over its air transportation and commercial services to any outside entity, including any aircraft owner and/or any aircraft management company.

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2) The FAA has become aware that aircraft owners and aircraft management companies have entered into contracts to carry passengers or cargo for compensation or hire. These aircraft owners and management companies solicit and separately contract with a certificate holder conducting operations under part 135 purportedly to allow the flight operations promised to their customers to be conducted under the auspices of the operator's air carrier certificate. Under some of these arrangements, a "certificate fee" is provided to the part 119 certificate holder conducting operations under part 135 and operational control is exercised by the aircraft owner or management company. Where the aircraft owners and management companies are not also certificated as direct air carriers or commercial operators by the FAA to engage in common carriage, such arrangements are unlawful. In addition, when one certificate holder owns an aircraft that it is not authorized to be used in common carriage and enters into an arrangement with a second certificate holder under which the second certificate holder purportedly operates the aircraft, such an arrangement is unlawful if the aircraft owner/certificate holder actually conducts the flights in air transportation.

3) The FAA cautions each air carrier or commercial operator that holds a part 119 certificate authorizing part 135 operations that it may not franchise or lease out its authority to engage in part 135 operations to third parties. Persons not certificated by the FAA to engage in part 135 operations, or persons certificated by the FAA but not authorized to use the type of aircraft used in an operation, or to conduct the kind of operation being conducted, may not be directly or indirectly authorized by a part 135 operator to conduct flights under the authorized certificate holder's name, or under that authorized operator's fictitious business name(s) (i.e., "doing business as" (DBA)).

C. Operational Control.

1) Maintaining operational control of flights (§ 135.77) and providing flight locating functions (§ 135.79) are two distinct responsibilities of each part 135 operator. Flight locating requires procedures by the operator to locate each flight for which an FAA flight plan is not filed. Having a sufficient flight locating system does not mean that the part 135 operator is properly maintaining operational control of a part 135 flight. Operational control also requires that an operator has the knowledge to make those decisions perform those actions on an ongoing basis that are necessary to operate flights safely and in compliance with the regulations, and be held accountable for those decisions and actions.

2) Maintaining operational control requires the part 135 operator to, among other things:

a) Ensure that it alone conducts operations authorized in its OpSpecs.

b) Ensure that only its crewmembers that are trained and qualified in accordance with the applicable regulations and the certificate holder's approved training program are assigned to conduct a flight in accordance with the limitations in § 135.95.

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c) Before initiation of a flight or series of flights, know the identity of each crewmember and affirmatively determine that the crewmember is qualified to function as a required crewmember on the flight. Absent such knowledge and determination, the part 135 operator must not assign a crewmember to a flight or series of flights.

d) Ensure that all of its crewmembers are in compliance with all applicable flight, duty, and rest requirements before assigning the crewmembers to a flight.

e) Designate a PIC for each flight before the flight commences.

f) Specify the conditions under which a flight may be operated, such as determining the weather minimums, proper aircraft loading, center of gravity limitations, icing conditions, and fuel requirements.

g) Put procedures in place to ensure that when safety conditions specified for a flight cannot be met, the flight is canceled, delayed, rerouted, or diverted.

h) Ensure that an aircraft is Airworthy and is in compliance with the conditions and limitations specified by the FAA-approved inspection/maintenance program for the certificate holder before it is allowed to depart on a part 135 flight.

i) Have a system for locating each flight if a flight plan has not been filed.

3) The manner in which each part 119 certificate holder conducting operations under part 135 ensures operational control of flights conducted under its certificate will necessarily vary with the size and scope of the operations and the kind of aircraft flown by the operator. It is impractical, however, for an individual to exercise operational control over flights without the assistance of others in any but the simplest and most basic flight operations. Thus, each part 135 operator must have an organization and system in place—including all the necessary tools such as recordkeeping and management surveillance/oversight—that is sufficient to ensure that all functions have been accomplished before a flight or a series of flights is authorized to depart. This includes establishing effective internal communications, operating procedures, and administrative controls to accomplish regulatory requirements. In addition, the part 135 operator must publish these procedures in the operator's GOM for use by the certificate holder's flight, ground, and maintenance personnel. For those issued OpSpec A037, A038, A039 or A040 that have a full deviation from the manual requirement, abbreviated procedures may be entered into OpSpec A008.

4) Ordinarily, base inspections and operational control evaluations focus on the structure and effectiveness of the certificate holder's operational control system, as revealed by evaluations of the factors identified in subparagraph C2), above. If these evaluations, or other factors, reveal potential inadequacy or loss of operational control, further investigation may be warranted. Factors to be considered in such investigations include, but are not limited to:

a) Who is in actual or legal possession of the aircraft?

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b) The business relationship between the part 119 certificate holder conducting operations under part 135 and the crewmembers. In addition, under part 119, § 119.53(b), an aircraft owner is prohibited from leasing an aircraft and a pilot to a certificate holder. If the certificate holder decides to use a pilot who is employed by the aircraft owner, that pilot must become the direct employee or agent of the certificate holder. The certificate holder is not required to provide any monetary compensation to the pilot. However, if the pilot receives additional monetary compensation specifically for serving as a flightcrew member on a revenue flight operated by the certificate holder, the certificate holder, and not the aircraft owner, must pay that monetary compensation to the pilot.

c) Insurance arrangements. The required OST Form 6410, U.S. Air Carriers—Certificate of Insurance, must certify that certificate holder is insured in accordance with DOT regulations.

d) Other payments, such as fuel payments, insurance payments, administrative payments, and the method of customer payment for air transportation services may be helpful in understanding the relationship between the certificate holder and other entities. For example, it may be completely acceptable for a lease between an aircraft owner and a certificate holder to place the burden for fuel payments on the owner of the aircraft. However, owner fuel payment responsibility, in combination with other circumstances (e.g., the aircraft owner directly collecting payments from the customer and disbursing such payments to the certificate holder after deducting fuel and other costs) could indicate that the owner is in operational control and not the certificate holder.

D. Fictitious Business Names: DBA.

1) Under § 119.9(a), a certificate holder may operate an aircraft under part 121 or part 135 only under a business name appearing in the certificate holder's OpSpecs. OpSpec A001, Issuance and Applicability, identifies the name of the certificate holder to whom the OpSpecs are issued. The name of the certificate holder that is issued the OpSpecs must be the legal name of the certificate holder.

2) OpSpec A001 also provides for authorization to conduct operations under a DBA. The addition of an aircraft owner's and/or management company's name (or close likeness to its name) as a DBA on an air carrier's OpSpecs does not constitute an authorization for the aircraft owner or management company to conduct business as the air carrier. Indeed, such arrangements have the potential to create confusion as to who is exercising operational control of the part 135 flight.

3) Aircraft owners, management companies, and other persons that do not hold part 119 certificates are reminded that air carrier operations can only be conducted by air carriers that have been issued an FAA part 119 certificate and that certificate holder is in direct control of the operations. The addition of a DBA that is the name of another company or corporation that has no part 119 certificate will not be allowed without concurrence from the Air Transportation Division (AFS-200). The required OST Form 6410 must be submitted in accordance with subparagraph C4)c) above.

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E. OpSpec A008. The system and procedures to maintain operational control used by an operator must be described or referenced in OpSpec A008. It is preferable to complete OpSpec A008 with references to an operator's manual or sections of an operator's manual that describe the system and/or procedures used by that operator. It is not necessary to control these references by date. The references should be changed only when a revision to the operator's manual makes the reference in the OpSpecs incorrect. In the case of a certificate holder issued a deviation from the manual requirements, (e.g., a certificate holder issued OpSpec A037, A038, A039, or A040) those procedures may be entered directly into OpSpec A008 itself.

1) Often, it may not be appropriate to use references in OpSpec A008. In these cases narrative descriptions may be necessary. When a narrative description is used, it should be brief but provide sufficient information so that the FAA and the operator have the same understanding about the system and/or procedures used by the operator.

2) The description of the systems and/or procedures for controlling flight movement as described in the operator's manual (which is referenced in OpSpec A008), or described in a narrative in OpSpec A008, must include the following information, as appropriate to the kind of operation:

a) Methods and procedures for initiating, diverting, and terminating flights.

b) Persons or duty positions authorized to, and responsible for, exercise of operational control.

c) Facilities and location of facilities used by the operator in the exercise of operational control.

d) Communication systems and procedures used by the operator.

e) The methods and/or procedures used by the operator to ensure all authorized aircraft are Airworthy.

f) Emergency notification procedures.

g) Methods and procedures for ensuring that assigned crewmembers are qualified before and during all flight operations.

h) Methods and procedures to ensure the assigned PIC knows the certificate holder's responsibilities to exercise operational control.

3) The POI, in coordination with the principal maintenance inspector (PMI) and principal avionics inspector (PAI), must evaluate and substantiate submitted information. If the POI does not concur with the operator's proposal, he or she will forward a letter to the operator denying the proposed system with an explanation of the reasons for denial. The operator should contact the POI to address the POI's concerns. If the POI concurs that the operational control system should be approved, he or she will prepare and forward a letter to the operator accepting the proposed system.

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F. Operational Control Failures. The level of severity of the failure in operational control will dictate the actions required by both the certificate holder and the FAA. Simple cases may require reinforcement or realignment of management structure or procedure. In such cases, administrative action may be acceptable. In more pronounced cases, civil penalty and/or certificate action may be appropriate. For guidance regarding the appropriate type of enforcement action and amount of sanction, refer to the agency's sanction guidance. In cases of suspected renting or franchising of a certificate by the holder to either an uncertificated entity or a certificated entity that is not authorized to conduct flights for compensation or hire using the type of aircraft being operated, please contact the Air Transportation Division (AFS-200) at 202-267-8166 for guidance. The FAA has identified several failure modes of operational control, including at least the following basic conditions:

1) Loss of operational control within the air carrier—hands-off management results in inadequate controls over its own operations.

2) Loss of operational control within the air carrier—exercise of operational control by an unapproved person.

3) Loss or surrender of operational control externally (e.g., an air carrier's illegal renting/franchising-out the use of its air carrier certificate to one or more uncertificated entities).

G. Operational Control Systems Key Concepts. Operational control affects each aspect of a certificate holder's activities, such as, operations, training, aircraft maintenance, advertising, personnel management, capital asset management, aircraft leases, financing, and insurance.

1) The key concepts of operational control are that the certificate holder retains authority and responsibility for operations conducted under its certificate and is capable of conducting such operations. To exercise that authority and meet that responsibility, the certificate holder has to have knowledge of its flight operations, and control those operations through its management personnel for functions described in OpSpec A008, subparagraph d(6)(a). When the certificate holder performs the functions described in OpSpec A008, subparagraph d(6)(b), those functions must be performed by a certificate holder's employees or agents.

2) Basic operational control questions.

a) The basic questions that must be answered in any review of operational control are:

- "Who makes the decisions to assign flightcrew members and aircraft, accept customer requests, and initiate, conduct, and terminate flights?" and
- "For whom do the pilots work as direct employees or agents?"

b) In both cases, the answer must be "the certificate holder."

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NOTE: For contracted maintenance, the certificate holder can direct its action through an appropriate chain of command such as through a contracted 14 CFR part 145 repair station's management chain to the actual individual conducting aircraft maintenance. Also, the certificate holder may contract to an individual for aircraft maintenance. In either case, the actual work being conducted must be in accordance with the certificate holder's approved maintenance and inspection program and under the oversight of the certificate holder's management.

3) Similarly, a certificate holder may contract with a 14 CFR part 142 training center to conduct a portion of the operator's approved training program. During such training the training center and its employees are acting on the behalf of the certificate holder and are subject to the certificate holder's guidance, direction, and standards as communicated through the training center's management.

4) Regardless of the relationship between a certificate holder and another entity (customer, aircraft owner, broker, etc.), the certificate holder must make the flightcrew and aircraft assignments, and determinations regarding the initiation, conduct, and termination of the flight.

5) Whether the pilot or mechanic is a direct employee or an agent, or works for a part 145 repair station or part 142 training center, he or she is doing the certificate holder's work and must adhere to the directions of the certificate holder's management in matters related to flight operations and the air carrier's maintenance, inspection, or training program, as appropriate.

6) In on-demand operations, no flight occurs unless the customer makes a request. This is not the initiation of a flight. Also, a customer may request that specific aircraft and/or pilots be assigned to flights where the customer is a passenger. This is not, by itself, the exercise of operational control by an uncertificated entity, but rather a customer preference in negotiating a service. In such cases, the certificate holder must apply the regulations, its OpSpecs, standards, procedures, policies, and processes to determine if the customer request can be met safely and in compliance with the regulations.

7) The same is true of customer-requested diversions in flight, whether for general customer preference (change in destination for business reasons, for example) or medical reasons (such as in the case of an air ambulance flight). Again, if the certificate holder determines that the request can be satisfied safely and within the regulations, and the certificate holder controls the decisionmaking process and is (through its authorized employees and agents) the decisionmaker, operational control is not necessarily lost.

H. Two-Tiered Operational Control Concept. OpSpec A008 contains a two-tiered approach to operational control.

1) The First Tier. All first-tier actions must be taken by the certificate holder's direct employees.

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a) The first tier is the assignment of flightcrew member(s) and aircraft for revenue service under the operating certificate. The assignment of crew and release of aircraft to revenue service is the responsibility of the certificate holder, and must be made by the management of the certificate holder or management delegates. In order to be delegated the authority to make these decisions, the management delegates must be trained, found competent, and designated by the certificate holder, be listed in the GOM (or in OpSpec A006, A039 or A040, if applicable), and be under management supervision.

b) Management supervision means, for example, that the certificate holder tracks the actions of the management delegate or employee, samples the work of that employee (reviews a sample of the decisions made), and has the ability to enforce the certificate holder's standards through corrective actions such as retraining, requalification, or disciplinary actions such as disqualification, demotion, suspension, or termination. Because the certificate holder is responsible for the conduct of its employees or agents, it must have the ability to monitor and control their performance.

2) The Second Tier. All second-tier actions may be taken either by the certificate holder's direct employees or by the certificate holder's agents. The second tier of operational control is more tactical. This involves the decisions made by personnel (such as the PIC) in the day-to-day conduct of operations. This may include the initiation of flights upon the PIC receiving a request from the customer directly (often the case in on-demand operations being conducted under a dedicated service contract, such as offshore operations or emergency medical service). This is acceptable if the PIC is authorized by the certificate holder to make those decisions on behalf of the certificate holder. To do so would require that the PIC be trained, found competent by the certificate holder, designated, be listed in the GOM (or in OpSpec A006, A039, or A040, if applicable), and be under management supervision. If maintaining a list of these personnel in the GOM is too cumbersome, a list of these personnel may be maintained at the air carrier's principal base of operations and referenced in the GOM. The method of maintaining and distributing this list to all affected parties must be described in OpSpec A008 or in the GOM.

3) The GOM (or other appropriate documentation) must contain guidance which describes the certificate holder's operational control system. The training program must provide the certificate holder's personnel with the knowledge and skills required to ensure that the operational control system is effective.

I. Surveillance.

1) In conducting all surveillance activities, inspectors should consider if the management structure, training, procedures, and practices of the certificate holder provide for effective operational control. When conducting certification and surveillance activities, principal inspectors (PI) should evaluate the effectiveness of the certificate holder's or applicant's operational control system.

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2) Seldom does a single factor determine if an operator has lost operational control. The following factors are offered to provide insight to the effectiveness and regulatory compliance of a certificate holder's operational control system. When factors exist that indicate that operational control may be ineffective or lost, further investigation is required to ascertain the compliance level of the certificate holder. Upon further investigation, the relative value of the individual factors will be determined and an accurate assessment can be made of the operational control system.

3) Some specific questions to consider in these evaluations are:

a) Who scheduled crew and aircraft?

b) Who accepted charter flights from the public?

c) Who reviews weather and Notices to Airmen (NOTAM)?

d) Who performs flight planning?

e) Who designates PIC for each flight?

f) Who ensures that crews comply with flight and duty requirement prior to departure?

g) How is the flightcrew compensated? See subparagraph C4)b) above. Is an obligation placed on the air carrier, by lease or other arrangement or mechanism with the aircraft owner, to use the aircraft owner's pilots (e.g., a wet lease)?

h) Who specifies conditions under which a flight may be dispatched or released, e.g., weather minimums, flight planning, airworthiness of aircraft, aircraft loading, and fuel requirements?

i) Who ensures that only trained and qualified crews are assigned to conduct flights?

j) Whether the air carrier ensures that only those operations authorized by its OpSpecs are conducted?

k) Prior to departure, who ensures that the flight complies with the conditions specified in the release?

l) When conditions specified for a flight's release cannot be met, who ensures that the flight is canceled, delayed, rerouted, or diverted?

m) Who monitors the progress of each flight, and initiates timely actions when the flight cannot be completed as planned, including diverting or terminating the flight?

n) Has the certificate holder shifted financial accountability for its operations or the conduct or safety of the part 135 flight from the air carrier to the aircraft owner or others?

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o) Does an uncertificated entity (one that does not hold a part 119 certificate) or an entity that is not authorized or permitted by the DOT to act as an indirect air carrier receive the direct payment for air transportation from the customer?

J. Leases and Other Agreements.

1) OpSpec A008 requires the certificate holder to determine that all leases and other agreements affecting the aircraft and personnel of the certificate holder are reviewed to ascertain that they are in compliance with regulatory requirements and limitations. The limitations are centered on illegal wet leases (i.e., leases in which an uncertificated entity provides possession of a specific aircraft and at least one crewmember to a certificate holder for a specified period of time). Other nonleasing arrangements could raise operational control red flags, especially those agreements where an aircraft owner dictates which pilot the air carrier can use on part 135 flights with third-party passengers or cargo.

2) Should inspections or surveillance reveal possible or potential loss or transfer of operational control, further investigation may involve the review of leases and other agreements relative to the operation.

3) A determination of who exercises operational control is not dependent solely on the wording of such leases or other agreements or arrangements. Such agreements cannot be viewed in a vacuum. A dry lease, in and of itself, does not shift responsibility for operational control to the lessee. Examination of the substance of a transaction, rather than the form, is essential to determine who actually exercises operational control. Case law has established that the substance, not the form, of contractual agreements establishes the nature of the relationship between parties, and that taking enforcement action against those who effectively operate for compensation or hire in violation of FAA safety regulations is appropriate. When necessary, PIs should seek the assistance of their respective regional counsel for review of leases and other agreements.

K. Summary of Operational Control. Only approved persons may exercise operational control on the certificate holder's behalf.

1) The certificate holder must have adequate controls in place to ensure that officials in a position of authority over flights conducted under the certificate do so safely, and in compliance with the regulations, OpSpecs, GOM, as applicable, and accepted or approved procedures.

2) Management of operations should never be inattentive, distracted, or careless. Hands-off management is not a legitimate excuse for failing to maintain operational control.

L. Specific Policies and Procedures. The following notes describe the FAA's position on the subjects as they relate to operational control.

1) Advertising by Indirect Air Carriers.

a) Indirect air carriers, including air charter brokers, may not purport to directly provide transportation by air.

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b) Indirect air carrier advertising must indicate the name of the certificate holder providing transportation by air. This does not mean that all pages of a Web site, or a brochure or any other advertising vehicle must identify the certificate holder. If more than one certificate holder is used, language to the effect that the advertiser uses FAA-certificated air carriers or operators is acceptable. The test is that a casual reader of the advertisement would understand who is actually conducting the transportation by air.

c) The OST considers it to be an unfair and deceptive practice and unfair method of competition under its economic regulatory authority for any person or entity that is not a direct air carrier to hold out or provide air transportation as a direct air carrier.

2) Aircraft Marking. Must comply with § 119.9(b).

a) The aircraft must be marked so that the "… name of the certificate holder… or the … certificate number of the certificate holder who is operating the aircraft, is legibly displayed on the aircraft and is clearly visible and readable from the outside of the aircraft."

b) In some cases of contractual service (e.g., helicopter emergency medical service (HEMS), offshore, and oil and gas.), the customer may desire that the aircraft have markings such as the oil company or hospital logo and/or name displayed on the aircraft. In such cases, the operator must ensure that it is clear to the passengers and crew that the certificate holder is conducting the air transportation service. Adherence to § 119.9(b) is still required.

c) Regulations of the OST prohibit air charter brokers and other ticket agents from permitting their names or logos to be used in a manner that misleads the public into thinking they are an airline. (Refer to 14 CFR part 399, § 399.80(b).)

3) Billing.

a) There may be circumstances when billing may be accomplished by the indirect air carrier.

b) If possible, the billing should indicate that the air transportation was provided by the certificate holder (by name).

c) In some circumstances, such as insurance or Medicare/Medicaid billing by medical service providers, it is highly impractical for the bill to reflect the name of the certificate holder (transportation by air provider). This is acceptable if other literature, Web sites, advertising, etc., adequately reflect that transportation by air is provided by the certificate holder.

4) Delegation of Authority.

a) Authority and duty, but never responsibility, may be delegated.

b) Functions may be contracted to personnel or organizations in accordance with paragraph 3-2023, Flight-Locating Systems, and Volume 3, Chapter 25, Section 1, subparagraph 3-1921G, Services Provided by Contractors.

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c) Persons to whom authorities or duties (functions) have been delegated must be trained and found competent by the certificate holder; be designated; be listed in the GOM, or in OpSpec A006, A038, or A040, as applicable; and be under management supervision and oversight to ensure performance (management must have disciplinary authority over its contractors).

d) Some functions may never be delegated outside the air carrier (e.g., refer to OpSpec A008, subparagraph d(6)(a)).

5) Flight Locating.

a) The certificate holder must accomplish flight locating unless FAA flight plans are filed for each flight.

b) The certificate holder may delegate flight-locating duties to employees of, or agents for, the certificate holder.

c) Again, these persons must be trained and competent, be designated in writing, be listed in the GOM (or in OpSpec A006, A039 or A040, if applicable), be provided with procedures, policies, and guidance, and be under certificate holder management oversight.

d) The certificate holder must have knowledge of all flight operations.

6) Crew Resource Management (CRM)/Air Medical Resource Management (AMRM).

a) Operational control concepts do not counter CRM and AMRM concepts.

b) In any decisionmaking process, there is a designated decisionmaker.

c) In air transportation matters, that decisionmaker is the certificate holder.

d) Operational control ensures that the certificate holder exercises that decisionmaking authority and meets its regulatory responsibilities.

e) The PIC is directly responsible for, and is the final authority as to, the operation of the aircraft (§ 91.3). The PIC serves in this regulatory capacity and as an agent for the certificate holder after assignment to PIC duty by management.

7) Initiation and Diversion.

a) If authorized by the certificate holder, in accordance with the FAA-approved operational control system, the PIC may receive a request from a customer, and, within his or her documented authorities, accept or decline the request in accordance with certificate holder's policies.

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b) The PIC must be trained and competent, designated in writing, and listed in the GOM (or in A006, A039 or A040, if applicable), be provided with procedures, policies and guidance, and be under certificate holder management oversight. If maintaining a list of these personnel in the GOM is too cumbersome, a list of these personnel may be maintained at the air carrier's principal base of operations and referenced in the GOM. The method of maintaining and distributing this list to all affected parties must be described in OpSpec A008 or in the GOM.

8) Operations Control Center (OCC).

a) Section 135.619 requires certificate holders authorized to conduct helicopter air ambulance (HAA) operations to have an OCC if 10 or more HAAs are assigned to the certificate holder's OpSpecs.

b) While not required by regulation, certificate holders with less than 10 HAAs assigned to the certificate holder's OpSpecs are encouraged to make use of an appropriately scaled OCC.

c) Refer to § 135.619 and the current edition of Advisory Circular (AC) 120-96, Operations Control Center (OCC) for Helicopter Air Ambulance (HAA) Operations, for further information on OCCs.

9) Remote Area Operations.

a) Remote area operations often involve extended operations outside of communications with the certificate holder. Using the two-tiered system of operational control, these operations may be conducted if the certificate holder's management or management designees make the assignment of the crew and the release of the aircraft at the beginning of the remote area operation assignment. Because such assignments may extend over several days, the certificate holder must determine that the crew and aircraft will remain in deployable status (pilot checks, medical examinations, aircraft inspection, and maintenance requirements will all be satisfied) during the assignment period. The crew must receive specific instructions on how to monitor and control operational control elements that it will be authorized to control for the certificate holder when outside communication with company management. In such cases, the certificate holder must establish procedures and alternatives for the PIC to use in the conduct of flight operations, including, but not limited to:

1. Flight, duty, and rest requirements.

2. Airport landing site requirements.

3. Weather limitations.

4. Weight and Balance (W&B) control.

5. Maintenance and servicing requirements.

6. Communications alternatives (relay with airborne aircraft, etc.).

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7. Hazardous materials (hazmat).

8. Emergency operations.

b) Before operating in an area outside of communications with the certificate holder, the certificate holder and PIC must agree on a time, place, and date where communications will be reestablished and the emergency plan if they are unable to establish communications.

c) When applicable, remote area operational control procedures must be described in the GOM (or in OpSpec A008 for those certificate holders issued OpSpec A037, A038, A039, or A040). Furthermore, remote operational control procedures must be addressed in the training program for certificate holders that are not issued OpSpec A037, A038, A039, or A040, and for those certificate holders that do hold OpSpec A037, A038, A039, or A040, it also must be addressed in the training program unless they have a full deviation that includes training. In addition, the certificate holder must identify the area(s) in which remote area operational control procedures will be utilized, and such areas must be described in the FAA-accepted GOM (or in OpSpec A008 for those certificate holders issued OpSpec A037, A038, A039, or A040).

10) The Air Ambulance Operators: Civil Aeronautics Board (CAB) Exemption (83-1-86). It does not permit uncertificated entities to conduct flights in air transportation.

a) The air medical (EMS) community secured a blanket exemption from the economic authority requirements of the DOT on January 12, 1983.

b) This exemption is still valid.

c) It pertains only to the economic authority to act as an indirect air carrier.

d) The actual flight operations and the operational control must be accomplished by a certificate holder.

RESERVED. Paragraphs 3-2030 through 3-2045.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 27 GROUND-DEICING/ANTI-ICING PROGRAMS

Section 2 Safety Assurance System: Approval of Parts 121, 125, and 135 Procedures

3-2194 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). For Title 14 of the Code of Federal Regulations (14 CFR) part 125, use PTRS activity codes: 1310, 3311, 5311.

B. Safety Assurance System (SAS). For 14 CFR parts 121 and 135, use SAS Data Collection Tools (DCT). This section is related to SAS Elements 6.4.2 (OP), Operations in Ground Icing, and 6.4.1 (AW), Operations in Ground Icing.

3-2195 GENERAL. This section contains policy, direction, and guidance to inspectors for review, evaluation, and approval of deicing/anti-icing procedures. The requirements for operations in ground-icing conditions are covered in 14 CFR part 121, §§ 121.629 and 125.221, and part 135, § 135.227.

A. Part 121 Regulatory Requirement. Section 121.629 requires that an operator conducting operations when conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft must satisfy the following criteria:

- Have and use an approved aircraft ground-deicing/anti-icing program in accordance with § 121.629(c); or
- Be issued operations specification (OpSpec) A023 in accordance with § 121.629(d), which requires the operator to perform an Outside-the-Aircraft Check (OTAC) within 5 minutes prior to beginning takeoff to ensure that the wings, control surfaces, and other critical surfaces are free of frost, ice, and snow. See Volume 3, Chapter 18, Section 3 for more information about OpSpecs.

NOTE: Operators who elect to operate in accordance with § 121.629(d) must have the procedures for their OTAC in their appropriate manuals and be approved by the principal operations inspector (POI) prior to conducting operations when frost, ice, or snow may reasonably be expected to adhere to the aircraft.

NOTE: To be eligible for approval, the OTAC procedure for all aircraft must include a provision for close visual scrutiny of selected portions of all of the critical surfaces of the particular type aircraft to be checked. In addition, for hard-wing airplanes with aft, fuselage mounted, turbine-powered engines, the OTAC procedure must also include a tactile check of selected portions of the wing-leading edges and the upper wing surfaces.

B. Part 125 Regulatory Requirement. Part 125 operators are required to comply with the operating limitations of part 125, § 125.221, and the testing requirements of § 125.287. Principal inspectors (PI) will issue OpSpec A041 to authorize a pretakeoff contamination check (not necessarily outside the aircraft). A part 125 certificate holder may choose to comply with

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§ 121.629(c) by having an approved ground-deicing/anti-icing program, in which case the PI will issue OpSpec A023, and operators must have appropriate procedures in their general manuals (GM) showing how they are complying with 14 CFR. If a part 125 operator chooses to operate without a pretakeoff contamination check, or without a § 121.629(c) program, then PIs may only authorize them to operate when ground-icing conditions do not exist by issuing OpSpec A042. See Volume 3, Chapter 18, Section 3 for more information about OpSpecs.

C. Part 135 Regulatory Requirement.

1) Section 135.227 restricts operations when an aircraft has frost, ice, or snow adhering to any rotor blade, propeller, windshield, wing, stabilizing or control surface, powerplant installation, or instrument system. In order to comply with § 135.227, operators must meet the applicable training requirements of §§ 135.341, 135.345, and 135.351, and comply with the following:

- Be issued OpSpec A023 (for outside the aircraft pretakeoff contamination check) in accordance with § 135.227(f), which requires the operator to perform a pretakeoff contamination check within 5 minutes prior to beginning takeoff to ensure that the wings, control surfaces, and other critical surfaces are free of frost, ice, and snow; or
- Have a Federal Aviation Administration (FAA)-approved alternative procedure to determine that the airplane is free of frost, ice, or snow; or
- Have an FAA-approved aircraft ground-deicing/anti-icing program in accordance with § 121.629(c) (OpSpec A023).

2) A part 135 certificate holder may choose to comply with § 121.629(c) by having an approved ground-deicing/anti-icing program, in which case the PI will issue OpSpec A023, and operators must have appropriate procedures in their GMs showing how they are complying with 14 CFR. If a part 135 operator chooses to operate without a pretakeoff contamination check or without a § 121.629(c) program, then PIs may only authorize them to operate when ground icing conditions do not exist by issuing OpSpec A042. See Volume 3, Chapter 18, Section 3 for more information about OpSpecs.

3-2196 APPROVAL PROCESS.

A. Part 121 Operators. The approval of the part 121 operator's ground-deicing/ anti-icing program follows the five step general process for approval and acceptance outlined in Volume 3, Chapter 1, Section 1.

B. Part 125 Operators. The use of the following process for part 125 operators would be helpful, but is not required unless the operator elects to develop a deicing/anti-icing program in accordance with § 121.629(c). However, OpSpec A023 should be issued to clarify the approved deicing/anti-icing program for each part 125 operator.

C. Part 135 Operators. Part 135 deicing/anti-icing requirements are fulfilled in the completion of an approved deicing/anti-icing training program and by the issuance of OpSpec A023. Standard procedures for approval of part 135 operator training programs and the

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issuance of OpSpecs apply. OpSpec A041 must describe or reference pretakeoff contamination check procedures for each specific airplane type. These procedures must also be contained in the operator's GM.

D. OpSpecs Paragraph A023. When an operator has met the requirements for operations in ground-icing conditions under parts 121, 125, or 135, as appropriate, the POI should issue OpSpec A023.

E. Five Step Approval Process. Should an operator elect to develop a deicing/anti-icing program in accordance with § 121.629(c), the following standard approval process would apply. For purposes of clarity and description, the five stage process is described in this section as five separate and distinct stages. In practice, the stages may overlap, and PIs are authorized to vary the process to fit the circumstances.

F. Evaluation of Operator's Program. The approval process requires the evaluation of the operator's program by a team of inspectors, which is composed of the POI, the principal maintenance inspector (PMI), and inspectors of both operations and airworthiness specialties working under their leadership. The principal avionics inspector (PAI) will become preeminent in the approval process with the advent of icing sensors, which are currently under development, and which will offer an alternative means of determining that the aircraft is free of frost, ice, and snow.

G. Issuance of OpSpecs. At the successful conclusion of the process, the operator is issued OpSpecs that authorize the operator to conduct operations under the program when conditions exist such that frost, ice, or snow may reasonably be expected to adhere to the operator's aircraft. If a certificate holder elects to operate according to § 121.629(d), the certificate holder must be issued an OpSpec requiring an OTAC.

NOTE: An operator who is required to conduct an OTAC may deice/anti-ice the aircraft, but may not omit the checking procedures by virtue of having done so.

3-2197 PHASE ONE-INITIAL DISCUSSION. Phase one begins when the operator initially approaches the FAA to obtain approval of a ground-deicing/anti-icing program.

A. Become Familiar with Technical Problems and Regulatory Requirements. At this stage, both the FAA team and the operator must become familiar with the technical problems involved and the regulatory requirements. A discussion of these elements is contained in the current editions of Advisory Circular (AC) 120-60, Ground-deicing and Anti-icing Program, and AC 135-16, Ground-Deicing & Anti-Icing Training and Checking. Section 1 of this chapter includes a listing of documents the operator may find useful in developing a program. PIs should ensure that the operator is aware of these sources of information.

B. Outline Required Elements. The PIs should outline for the operator those elements that must be contained in the operator's proposed program and the actions that will be required at each stage of the approval process. See Volume 3, Chapter 27, Section 1.

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3-2198 PHASE TWO-INITIAL OPERATOR SUBMISSION. Phase two begins when the operator initially submits a proposed program package. The PIs' first action is to review the operator's submission to determine if each element specified in phase one is included. If the operator's initial program is incomplete, the PIs must immediately inform the operator and determine what action the operator proposes to take to complete the package. If the operator's package is complete or the PIs determine that it will soon be complete, the PIs should distribute the elements to the appropriate inspectors for a prompt initial examination. PIs should return obviously unacceptable packages to the operator with a letter outlining the deficiencies.

A. Initial Examination. The initial examination does not include a detailed operational or technical evaluation (this analysis is conducted in phase three). The phase two examination is conducted in sufficient detail to assess the completeness of the operator's package. Inspectors assigned to complete the initial review should promptly complete the initial evaluation and inform the PIs of their findings.

B. Unacceptable Elements. At this point it is appropriate for the PIs to hold a meeting with the operator to discuss any obviously unacceptable elements of the program. Under unusual circumstances, the PIs may need to return the operator's entire package with a written statement that explains why the submission is unacceptable.

C. Initially Acceptable Package. When the operator's package is initially acceptable, the PIs should inform the operator and provide an estimate of when the operator can expect to be informed of the phase three analysis results.

3-2199 PHASE THREE-PRELIMINARY APPROVAL. Phase three consists of a detailed analysis of the operator's ground-deicing/anti-icing program, training, equipment, and facilities. Throughout phase three, inspectors and operators should expect to encounter various deficiencies. Inspectors and operators should plan to meet and work closely to agree on corrections for these deficiencies throughout phase three.

A. Document Review. The first step in phase three is a detailed review and analysis of those manual sections the operator has prepared for the ground-deicing/anti-icing program.

NOTE: A single pilot certificate holder/applicant is not required to have a manual, therefore, a single pilot certificate holder/applicant document review may be the review of a procedure written into the compliance statement, which will then be included into OpSpec paragraph A023 or A041, whichever is applicable.

1) Section 121.135(a)(1) requires the manual to provide all categories of employees with sufficient instructions and information to allow them to perform their duties with a high degree of safety. Section 125.71(a) requires a current manual establishing the operator's procedures, and policies that are acceptable to the Administrator. Section 135.21(a) requires the certificate holder to prepare and keep current a manual establishing the procedures and policies, which are acceptable to the Administrator that must be used by flight, ground, and maintenance personnel.

2) The operator's GM, including those sections concerning the ground-deicing/ anti-icing program, does not require FAA approval. However, the appropriate PI must review

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and find acceptable the appropriate sections of the manual before the FAA grants initial approval to the operator to conduct a ground-deicing/anti-icing program. The operator is granted approval by means of OpSpecs. After the operator receives initial approval of the program or procedures, the applicable PIs may require the operator to further revise manual contents.

3) See Volume 3, Chapter 32 for general guidance on review and acceptance of operator manuals, procedures, and checklists. Inspectors should ensure that the content of the operator's manual meets the following criteria:

- Identifies clearly each category of employee with responsibility for program elements;
- Defines the duties of each category of employee involved; and
- Provides adequate background information, step-by-step procedures and, when appropriate, checklists that allow each category of employee to perform to the required standard.

NOTE: The experience gathered during deicing/anti-icing surveillance has shown that when holdover times have been exceeded, the most critical area of an operator's ground-deicing/anti-icing program is an adequate pretakeoff contamination check (OpSpec A023). It is essential for the POI to ensure that the operator's procedures offer the means for personnel to adequately determine that the aircraft is free of contamination before a takeoff during conditions when frost, ice, or snow may reasonably be expected to adhere to the aircraft. This becomes more critical if the POI authorizes the pretakeoff contamination check to be conducted from inside the airplane (OpSpec A041).

B. Training Program Review. The requirements of parts 121 and 135 will vary to some extent. The inspector should make a careful review of the requirements of the applicable part of 14 CFR before conducting the training program review. Section 121.629(c)(2) covers the initial and recurrent training requirements for operators who wish to receive approval under § 121.629(c). Section 135.345(b)(6)(iv) covers the training requirements for operators seeking approval under § 135.227(f). The operator must prepare a training/testing program to qualify required ground-deicing/anti-icing employees to perform their assigned duties.

1) The training must include both general procedures and the specific requirements of each make, model, series, and variant of aircraft.

2) The training program must include a means of testing and qualification for each category of employee who is covered under the approved program and who checks, inspects, deices, anti ices, releases, dispatches, or operates an aircraft.

3) The operator's training program must include flightcrew and dispatcher training.

C. Facilities and Equipment. The operator must acquire and deploy the equipment to accomplish ground-deicing/anti icing. Inspectors should plan to inspect some or all of the facilities at which this equipment is deployed (depending on the size of the operator) before granting initial approval. Some operators fulfill part of this requirement by demonstrating the

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knowledge of procedures and equipment during nonicing conditions prior to the deicing/anti-icing season. Inspectors must also evaluate coordination procedures between the airport operator and the air traffic control (ATC) facility at the airport.

D. OpSpecs for Operators with Ground-deicing/Anti-icing Program Approval. When the POI and PMI are satisfied that the operator is able to begin ground-deicing/anti-icing operations, they should issue OpSpec A023. The OpSpecs should reference the sections of the operator's manual that contain the operations and airworthiness portions of the operator's program.

3-2200 PHASE FOUR-VALIDATION TESTING. Phase four consists of a validation of the operator's procedures in actual operations. This process consists of a progressive refinement of the operator's manuals, checklists, and procedures as experience is gained and FAA surveillance reports become available.

A. Reason for Surveillance. Surveillance of the operators' ground-deicing/anti-icing programs or procedures is necessary to evaluate the effectiveness of these programs as well as to provide input on the adequacy of the rule requirements. Surveillance will further identify problem areas and will facilitate corrective action. The intended result of this surveillance program is to promote a safe winter operating season.

1) Surveillance Prerequisites. As a prerequisite to conducting surveillance, inspectors should review §§ 121.629, 125.221, and 135.227; AC 120-60; AC 120-58, Pilot Guide Large Aircraft Ground Deicing; AC 20-117, Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing; and must complete the appropriate computer-based instruction (CBI) course:

- Course 27019 – Ground-Deicing/Anti-icing for Airworthiness Inspectors.
- Course 27020 – Ground-deicing/Anti-icing for Operations Inspectors.

2) Geographic Responsibility. Geographic inspectors should be familiar with the airport deicing/anti-icing plans and the ground-deicing/anti-icing programs and procedures of certificate holders that operate out of airports located in their geographic area. Local surveillance requirements should be coordinated with the certificate-holding district office (CHDO).

3) Conduct of Inspections. The only time that it may be possible to determine that the operator's ground-deicing/anti-icing procedures are safe and effective is during actual icing conditions. Therefore, inspection of operator ground-deicing/anti-icing procedures should be conducted during the times that winter operations and certificate holders' ground-deicing/ anti-icing procedures are in effect. Inspector surveillance is a sampling process. It is not intended to observe every deicing operation that occurs during the time that ground-deicing/anti-icing operations are ongoing. Through effective sampling, the CHDO should be able to determine the operator's ability to comply with the ground-deicing regulations and meet the requirements of their OpSpecs. The required number of ground-deicing surveillance activities necessary to determine a particular operator's effectiveness may vary from a relatively low percentage to a very high percentage. For certain operators, 100 percent surveillance may be necessary in order to determine the operator's capability to safely operate during ground-icing conditions.

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a) Inspections can be conducted in conjunction with ramp or en route inspections, or during airport site visits. Each district office should develop and coordinate a ground-deicing/anti-icing surveillance plan as described in Volume 6, Chapter 2, Section 15. This plan should be coordinated with the regional deicing/anti-icing coordinator.

b) Surveillance of operators' recurrent ground-deicing/anti-icing testing or training programs should also be conducted.

c) The POI should coordinate an inspection of the ground-deicing/anti-icing equipment used by the operator, with the geographic units that are responsible for each airport where the equipment is located. In some cases, one operator or contractor may deice more than one air carrier. In this case, it is necessary for the POI to ensure that the operator/contractor doing the deicing has a complete knowledge of the specific operator's approved ground-deicing/anti-icing program. The POI can conduct this type of surveillance prior to the deicing/anti-icing season and should confirm that the company performing the deicing has knowledge and ability regarding ground-deicing/anti-icing equipment.

4) PTRS. An operations inspector should record surveillance of ground-deicing/anti-icing operations by using PTRS Activity Code 1637 for 14 CFR part 125 only with the word "ICE" in the "National Use" block.

B. Conclusion of Phase Four. Phase four may be concluded when, in the judgment of the POI and PMI, surveillance of the operator's program shows that the operator is successfully conducting the program under actual ground-icing conditions. There is no minimum time period for phase four, but the PIs must have an adequate number of surveillance reports to form an educated opinion of the operator's performance. Normally, operators should be able to progress through phase four in one winter season or less.

C. Deficiencies. If final approval cannot be granted after an entire winter season due to deficiencies in the operator's program, the POI and PMI should consider having the operator return to phase two. PIs shall revise the OpSpecs of operators who are returned to phase two.

3-2201 PHASE FIVE-FINAL APPROVAL. When the PIs are satisfied with the operator's performance, they should inform the operator in writing that the verification process is complete.

RESERVED. Paragraphs 3-2202 through 3-2215.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 54 PART 142 TRAINING CENTERS

Section 5 Safety Assurance System: Part 142 Training Centers: Outsource Training—Air Operators and/or Fractional Ownership Program Managers Contracting With Training Providers

3-4409 GENERAL. This section provides policy guidance for principal operations inspectors (POI) that have operators or receive requests from their operators to outsource a portion of their required crewmember training. The information in this section may also be useful for Training Center Program Managers (TCPM), operators, and training center managers (TCM). This section is related to Safety Assurance System (SAS) Element 2.1.4, Outsource Crewmember Training.

3-4410 BACKGROUND.

A. References. In addition to adopting Title 14 of the Code of Federal Regulations (14 CFR) part 142, the Federal Aviation Administration (FAA) also revised applicable sections of 14 CFR parts 61, 63, 91 subpart K (part 91K), 121, 125, 135, and 141 to provide a means for crediting the training, testing, and checking accomplished in flight simulation training devices (FSTD) toward the flight training requirements of those parts. The adoption of part 142 enabled operators to pursue training alternatives not previously available under the regulations. Part 142 has made the use of training centers by operators more widely accepted as an alternative means of providing training to its employees.

> NOTE: "Alternative means" as used in part 142 has in some cases been misunderstood and has been interpreted to mean that compliance with a training center's approved courses will meet the training requirements required by the appropriate operating rules for an operator. This is not the case. "Alternative means" permits an operator to outsource or arrange to have its approved training conducted by a third party. It does not mean that an operator has an "alternative means" to meet the training approval requirements governing its particular operation. Programs approved in accordance with part 142 may not be used as an alternative means of satisfying the requirements of the appropriate operating rules as approved by the operator's POI.

B. TCPMs and POIs. As the use of training centers continues to increase, the interrelationship between a center's TCPM and an operator's POI have become increasingly important. When an operator wishes to use the services of a part 142 training center, the most common operational issues that POIs must resolve—and this section will address—are outlined below:

1) Exactly what portion of the operator's required crewmember training, checking, and/or testing will the center be authorized to conduct?

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2) What qualification requirements are necessary to enable training center flight instructors to conduct the requested training? (Refer to part 91, §§ 91.1091 and 91.1095; part 121, §§ 121.412 and 121.414; and part 135, §§ 135.338 and 135.340.)

3) How does the operator propose to qualify Training Center Evaluators (TCE) or other personnel to become contract check airmen? (Refer to §§ 91.1089, 91.1093, 121.411, 121.413, 135.337, and 135.339.)

4) What documentation is required to ensure the training conducted by the center complies with the operator's approved curriculums, and how does the operator propose to document this training?

3-4411 BASIC STRUCTURE.

A. Operating Rules. The operating rules of parts 121, 125, 135, and 91K permit operators to use the services of another operator certificated under the same part or a certificated part 142 training center to conduct some or all of their required crewmember training. If approved by the operator's POI, an operator may use the training provider's facilities, equipment, and personnel to varying degrees to accomplish the training, checking, and testing required by their approved training program.

B. Training Curriculum. Regardless of who actually developed an operator's training curriculum, the operator is responsible for its approval, oversight, content, and currency. Regulations are very clear regarding an operator's requirement to have appropriate crewmember training programs that support their particular operation. The regulations are also clear concerning the requirement to have these programs approved by the Administrator. In the case of the operator, this approval is delegated to the operator's POI. In similar fashion, training centers certificated under part 142 are also required to have their curriculums approved by the Administrator. For training centers, the approval authority is delegated to the center's TCPM.

C. Arrangements. The following cases are the two most common arrangements that are formed between air carriers and training centers.

1) Case One—Dry Lease.

a) The least complicated way in which an operator may use the facilities and equipment of a training center is through a "dry lease" agreement. In this case, the operator has developed and maintains its own approved training curriculum, associated courseware, materials, checklists, procedures, and personnel to conduct training and checking, but elects to dry lease flight training equipment and facilities from a training center. Associated airman certification functions and proficiency requirements are completed by check airmen employed by the carrier (not the training center), the operator's aircrew program designee (APD), or the FAA. The operator accomplishes recordkeeping, although required training records may be maintained at the training facility if approved by their POI. POIs will make all enhanced Vital Information Database (eVID) entries concerning the operator's check airman activities. The operator's POI approves the use of the center's flight training equipment; however, the operator is responsible for ensuring that the center's equipment and facilities continue to meet the standards required

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to accomplish required training. The training center simply acts as a host for the operator and center personnel are not involved in the training or checking of the operator's crewmembers.

b) POIs are responsible for providing required surveillance to determine if contracted facilities and training equipment meet the requirements for continued approval. Due to the center's physical location in relation to the POI's office, the POI may request the center's TCPM to provide information concerning the training center facility and equipment as well as assistance in performing required surveillance.

c) Operators who conduct training in this manner (dry lease) are not outsourcing their training from another training provider and therefore do not require approval for outsourced training in their Operations Specification (OpSpec)/Management Specification (MSpec)/Letter of Authorization (LOA) A031, Outsourced Training.

2) Case Two—The Training Center Provides Facilities, Instructors, and/or Evaluators Under Contract to the Operator.

a) The second most common way operators use the services of part 142 training centers is to enter into an agreement with the center to provide instructors and/or evaluators to act on behalf of the operator in the conduct of the operator's training curriculum. In this situation the operator may have developed their own training curriculum, hired a consultant to develop the curriculum, or adopted the training center's curriculum. Regardless of the source, each curriculum must be approved by the operator's POI for their use. However, it is not uncommon for operators to adopt one of the center's core or specialty curriculums and submit it without revision, to their POI for approval. Prior to submitting a center-developed curriculum to their POI for approval, the operator must conduct a detailed review and comparison and analysis of the center's curriculum, courseware, procedures, equipment, and personnel to determine if the training center's curriculum will meet their operational needs. If the operator determines that the center's curriculum will meet their needs, they may submit it to their POI for approval. If the POI accepts the submitted curriculum and grants approval, the curriculum becomes part of the operator's approved program, and in effect becomes the operator's curriculum. This trend is particularly evident among part 135 and new entrant part 121 operators for whom the development of a complete in-house pilot qualification program using modern FSTDs often entails prohibitive costs and logistics.

b) Training center personnel (flight instructors) conducting flight training activities for an operator must be trained and qualified in accordance with the air carrier's approved program to become eligible to conduct training under the air carrier's approved curriculum (§§ 121.412 and 121.414; §§ 135.338 and 135.340; or §§ 91.1091 and 91.1095, as appropriate). If an air carrier wishes to have the center provide flight checking or testing services, the air carrier must ensure nominated individuals are trained and qualified as a check airman in accordance with their approved training program (§§ 121.411 and 121.413; §§ 135.337 and 135.339; or §§ 91.1089 and 91.1093, as appropriate).

c) The center may maintain the operator's training records if approved by the POI. However, the responsibility for the adequacy of the records remains with the operator, not the training center.

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d) If the operator elects to nominate one or more of the center's personnel to act as a contract check airman, and the operator's POI authorizes such check airmen, the POI must maintain all check airman entries in the eVID. In other words, whether an operator uses their own personnel as check airmen (as outlined in Case One) or elects to use center employees as contract check airmen, all required eVID entries relating to check airmen will be made by the POI. This will help ensure that both the POI and the operator maintain proper operational control over persons performing check airmen/contract check airmen functions.

e) The POI must be assured that the center's facilities and equipment are adequate to conduct the training the operator is proposing. The center's TCPM is one of the POI's best sources of information to enable him/her to make the determination that the center's facilities and training equipment are adequate for the proposed operation and to assist with required surveillance activities.

f) Operators who wish to engage a training center to accomplish the aircraft-specific training modules of their curriculum create special surveillance requirements. The division of an operator's required training between the operator and a training center creates a unique recordkeeping situation as well as specialized training for the center instructors. POIs must be extremely vigilant in determining who is accomplishing each element of the operator's program and that the complete program is accomplished. POIs should communicate regularly with the training center's TCPM and are encouraged to request assistance with surveillance of the operator's activities at the training center. The TCPM's assistance will typically afford the POI greater flexibility and a higher level of surveillance than would normally be possible without the TCPM's assistance. An operator should develop and keep up to date a "Training Source Document" or similar statement detailing what training will be provided in-house and what will be conducted by the training center. See the FAA's Air Transportation Division (AFS-200), Air Carrier Training Systems and Voluntary Safety Programs Branch (AFS-280) Web site for a sample of such a document.

3-4412 PART 142 APPROVED CURRICULUMS. A short review of the various types of training center curriculums and their approval process will assist with our understanding of the appropriateness of these curriculums for use by an operator. It is important to emphasize that a center's approved curriculum may not be used by an operator without first being evaluated for appropriateness and secondly, being approved for use by the operator's POI.

A. Core Curriculum.

1) A core curriculum is a training center-developed course that is approved by the Administrator (through the TCPM) for the purpose of meeting the training and certification requirements of airman under parts 61 and/or 63. (Refer to § 142.3.)

2) In order for a training course to be approved as a core curriculum it must:

a) Meet the applicable requirements of part 142 subpart B and part 61 or 63;

b) Contain all the events and maneuvers required by the appropriate practical test standards for the issuance of the particular Airman Certificate for which the curriculum was designed;

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c) Meet the requirements of the Flight Standardization Board (FSB) report for that specific aircraft;

d) Consist of training segments that identify training and testing requirements for the issuance of a particular certificate;

e) Follow the guidance in Volume 3, Chapter 54, Section 6, Part 142 Training Centers: Evaluate Training Programs, Curriculums, Flight Training Equipment, and Recordkeeping Requirements and Volume 3, Chapter 19, Section 5, Flightcrew Aircraft Ground Training Curriculum Segments concerning ground and flight training threshold hours; and

f) Include maneuver descriptions, standard operating procedures (SOP), checklists, and other supporting courseware.

3) Part 142 pilot training curriculums are designed to meet the certification requirements of part 61 and therefore do not include many of the operator-specific elements required by the operating rules associated with an air carrier/operator. For example, a part 142 core curriculum does not require a training center to specify the training that is normally found in an operator's OpSpecs, such as authorized takeoff or landing minimums, types of authorized approaches, and captain high minimum requirements. Additionally, ground training in areas such as hazardous materials (hazmat) handling, security, aircraft maintenance, logbook procedures, and flight following is also not required to be part of a part 142 training center's core curriculum. Although a training center's part 142 approved core curriculum may meet the aircraft specific requirements for an operator, these curriculums do not qualify operator's pilots for line operations and may not be used by an operator without the specific approval of the operator's POI.

B. Specialty Curriculums. This term refers to courses that are designed to satisfy a particular requirement of 14 CFR chapter I (parts 1–199), other than airman certification under parts 61 and 63. The Administrator (through the TCPM) is authorized to approve specialty curriculums for use by a training center and, if appropriate, associated satellite and/or remote sites (refer to § 142.3). Training centers often develop specialty curriculums to meet the specific needs of a particular customer. Some examples of specialty curriculums include (but are not limited to) Category II/III authorization, equipment differences training, night vision goggles (NVG) and so forth. Specialty curriculums can vary widely in focus and subject matter and may be developed for personnel other than flightcrew members (refer to § 142.81). The approval of specialty curriculums or courses by a training center's TCPM, however, does not enable those curriculums or course to be used by an operator without the specific approval of the operator's POI.

3-4413 ROLES, RESPONSIBILITIES, AND COORDINATION. The safety, efficiency, and quality of training provided by training centers, through the use of structured programs and FSTDs, has proven to be an effective and economical means for some operators to accomplish required training. Consequently, a number of operators have come to rely on part 142 training centers as a source of technical expertise and as their primary training provider. As the use of approved training centers continues to expand, it becomes increasingly important to understand the roles, responsibilities, and coordination activities required of each participant.

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Subparagraphs A through D of this paragraph that emphasize the regulatory roles and responsibilities as well as the coordination required between operators and training centers when an operator is using a training center to conduct a portion of their required training program. Subparagraphs A through D of this paragraph do not focus on day-to-day activities associated with the surveillance of training centers or operators outside of the context and scope of this section. It is presumed that these activities are being conducted in accordance with the guidance located elsewhere in this chapter, associated regulations, orders, and policy guidance.

A. Air Operators. The regulatory responsibility for ensuring that an operator's training program remains current and continues to meet the operator's needs resides with the operator, not the training provider. When an operator makes application to use the services of an authorized training provider they must:

1) Ensure that all training, testing, and/or checking to be conducted by the training center has been approved by the POI before any training is accomplished.

2) Develop an instructor/check airman standardization program including a checklist, which clearly identifies those elements of the operator's program that are to be completed by the training center and those that are to be completed by the operator. This checklist must specifically identify each training element that will be conducted by the center and include the regulatory and/or the training program reference for each item.

NOTE: A sample air operator standardization review may be found on the AFS-280 Web site. The sample program is designed to be all-inclusive and therefore not every item covered in the sample may be applicable to all operators. The sample is intended to be comprehensive and include sufficient detail to ensure the training provider has an accurate understanding of the operator's training requirements. The FAA suggests that each subject in the sample standardization program be reviewed with a potential training provider to ensure a complete understanding of each party's role.

3) Develop an implementation plan to perform oversight of center facilities and personnel engaged in the conduct of the operator's training and associated evaluations. The operator's implementation plan must:

a) Ensure that all training center personnel selected to act as contract instructors (both ground and flight) and/or contract check airmen are appropriately trained and qualified. Flight instructors and/or check airmen must be qualified in accordance with the operator's approved program. (Refer to §§ 91.1089 through 91.1095; §§ 121.411 through 121.414; and §§ 135.337 through 135.340, as appropriate.)

NOTE: Operators must complete a detailed comparison between their check airman curriculum and that of the training center's TCE curriculum to determine what, if any, additional training must be provided to qualify the center's personnel to act as a contract check airman. Elements of the center's instructor/TCE training curriculum that the operator finds equivalent to their training program may, with the POI's approval, be credited toward the completion of the operator's

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instructor/check airmen curriculum. If the center's curriculum is approved as meeting the requirements of the operator's curriculum, other than the operator specific items, no additional training for the center's personnel would be required. Any differences or deficiencies noted will require the operator to develop a training module to ensure all regulatory requirements are met and to qualify the center's personnel as contract check airman. This module that includes the operator-specific subjects must be presented to the operator's POI for approval/acceptance.

b) Provide the center with appropriate administration procedures and instructions to be used in the accomplishment of agreed training.

c) Provide for the oversight of all contract center personnel who are authorized to conduct training, testing, and/or checking on behalf of the operator.

4) Additionally, the following procedures must be followed when requesting the use of center personnel to become qualified as contract check airmen:

NOTE: These procedures follow the guidance outlined in Volume 3, Chapter 20, and should be accomplished in the order shown.

a) Evaluate the instructor's/TCE's credentials to ensure he or she meets company requirements to become a contract check airman;

b) Evaluate the individual's training record to determine the differences training required to qualify the individual as a contract check airman;

c) Develop an appropriate training differences module(s) to qualify the center's instructor/TCE as a contract check airman and submit the training module to the POI for acceptance/approval; and

d) Conduct and record appropriate check airman training; submit the individual's name, short resume, and training records to the POI for review and approval in accordance with Volume 3, Chapter 20.

NOTE: POIs should notify the center's TCPM whenever they authorize one of the center's personnel to act as a contract check airman by forwarding the TCPM a copy of the contract check airman's LOA.

5) Coordinate the approval of FSTD missing, malfunctioning, or inoperative (MMI) equipment procedures that will be used in support of the operator's curriculum.

B. POIs.

1) When an operator requests the use of a training center's facilities, FSTDs, curriculums (core and/or specialty), flight instructors, TCEs, and/or other services, including recordkeeping, the POI is responsible for determining the operator's request conforms to the appropriate regulations, policies, and procedures.

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2) The approval authority for an operator to conduct training at a training center resides with the operator's POI, and must conform to the training program approval process outlined in Volume 3, Chapter 19. If an operator wishes to use a training center's core and/or specialty curriculums to meet a portion of their required training program, it is the operator's responsibility to ensure:

a) The center's curriculums/courses meet the operator's training requirements.

b) The curriculums are submitted to the operator's POI for review and approval in accordance with the procedures outlined in Volume 3, Chapter 1, Section 1.

c) The curriculums are integrated into the operator's training program.

NOTE: If the curriculums are approved for the operator's use, these curriculums now become a portion of the operator's approved training program, and the maintenance/currency of those curriculums becomes the responsibility of the operator, not the training center.

3) If an operator applies to have the same training curriculum conducted by two or more centers (either operated by the same or a different training provider/company), the operator must develop an implementation plan for each center and ensure that each of the approved centers conducts their training curriculum using the operator's approved training curriculum (including maneuvers, procedures, and checklists). Additionally, each center must be specifically approved for use by the POI and listed in the operator's OpSpec/MSpec/LOA A031. It is the responsibility of the operator to ensure that all required software and hardware approved to support the subject curriculum is available and used by each center during the delivery of their training curriculum. See subparagraph 3-4414D for additional guidance.

NOTE: POIs should notify the center's TCPM whenever they authorize one of the center's personnel to act as a contract check airman. This may be accomplished by forwarding the TCPM a copy of the contract check airmen's LOA. POIs are encouraged to contact the center's TCPM for assistance with the review and potential approval of a contract check airman. TCPMs are often the POI's best source of information relating to a center's operation and personnel. A sample contract check airman LOA is located on the AFS-280 Web site.

4) When an operator requests approval of a training provider's personnel, to act as contract instructor and/or contract check airmen to conduct a portion of their required training, it is the operator's responsibility to ensure those individuals are qualified to conduct the subject training. Prior to authorizing a center's flight instructors or TCE(s) to conduct any portion of an operator's training, the operator must qualify each individual in accordance with the training and testing requirements of their operating rule and provide sufficient evidence of such training and checking to the POI for review and approval.

5) Sections 121.414(a)(2), 135.340(a)(2), and 91.1095(a)(2) require an observation of each authorized flight instructor to be accomplished at least once every 24 months. Additionally, §§ 121.413(a)(2), 135.339(a)(2), and 91.1093(a)(2) require an observation of each simulator and aircraft check airman to be accomplished at least once every 24 months.

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NOTE: Part 142 has similar requirements for flight instructors and evaluators. However, part 142 requires these observations to be conducted at least once every 12 months. (Refer to §§ 142.53(a)(1) and 142.55(a)(2).)

a) The intent of these regulations is to ensure the continued standardization and quality of each operator's training program by performing periodic observations of each flight instructor and check airman by focusing on the individual's performance in conducting a representative part of a curriculum or training program approved for that operator.

b) A qualified inspector or APD may be requested to observe contract flight instructors and contract check airmen on behalf of the POI. Whether conducting its own training or contracting for training with a training provider, each operator must ensure that all required observations are accomplished and documented. A training center's part 142 observations of their flight instructors may meet the requirements for the center under part 142, but not meet the requirements for an air carrier under part 121 or part 135. Such an observation might be acceptable for a portion of an operator's requirement under the following conditions:

1. When the training curriculum or curriculum segment conducted by the training center is essentially the same as that of the operator.

NOTE: Training program components may be viewed as "essentially the same" when they comprise identical checklists, operational procedures, and callouts, and flight deck layouts and flight manuals (fm) which are compatible in the judgment of the operator's POI. Training program components, which relate to like-aircraft types, are dissimilar when they do not meet the criterion for "essentially the same." When differences are too pronounced or too numerous in the judgment of the POI, flight deck layouts and fm must not be viewed as compatible.

2. When the observation is acceptable to the operator's POI.

c) An observation conducted by the FAA is always permissible instead of an observation conducted by an approved check airman or by a designated examiner employed by the operator. An observation by an FAA inspector counts toward the observation requirements of all operators contracting for training program services provided by a training center. POIs and TCPMs may conduct an observation at any time at their discretion. It is anticipated that operators and training centers will exchange information regarding observations of their instructors. However, it is the responsibility of the operator to ensure that all required observations are kept current and are documented.

6) Conduct training center surveillance to determine continued compliance with the operator's approved program.

7) If the operator requests approval of two or more centers, determine that all training, testing, and checking is conducted using the operator's approved curriculum. To ensure standardized training for all of the operator's crewmembers, it is essential that, before authorizing multiple sources of training, the operator provides the POI with a surveillance plan to ensure continued compliance with their approved curriculum by all centers. Each authorized training center must conduct the operator's curriculum as approved by the operator's POI and

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be alike in content, training times, maneuvers descriptions, procedures, checklists, and FSTDs. If a training center is providing the same training program to two or more operators at the same center, it may be permissible (with the operator's permission) to interchange crewmembers during the flight training phase. This may only be accomplished providing the individual operator's training curriculums are essentially similar, including aircraft checklist, flows, emergency procedures, and profiles. In this example, two separate but identical programs are being accomplished simultaneously.

8) Determine that FSTDs are appropriate to, and representative of, the aircraft being operated by the air carrier. Flight training equipment must be specifically qualified and approved for the operator's use, as well as each maneuver, procedure, or crewmember function to be trained.

9) Each training facility must be authorized and listed in the operator's OpSpec/MSpec/LOA A031.

10) Each training curriculum/module approved to be conducted by a training provider must be listed, by curriculum title, in the operator's OpSpec/MSpec/LOA A031.

11) Review the operator's instructor/check airman standardization program.

NOTE: A sample instructor/check airman standardization program can be found on the AFS-280 Web site.

12) Review the operator's training center audit program.

NOTE: Many of the training centers used by operators are located in areas apart from the operator's primary operations base and are often outside of the geographical area of its assigned certificate-holding district office (CHDO). This makes routine surveillance of the training center difficult for POIs and increases the coordination necessary between the CHDO and the FAA office with geographical oversight responsibilities. Under these conditions, it is very important that the POI and CHDO work closely to ensure adequate surveillance of the operator's approved training facilities, equipment, and curriculums.

13) Ensure that required airman training records meet regulatory requirements. If requested by the operator, the POI may permit the training provider to maintain the operator's crewmember training records. However, the operator must be advised that they (the operator) remain responsible for the security, accuracy, and availability of all required records. Permitting a training center to maintain operators' records does not relieve the POI of required check airman/APD tracking requirements outlined elsewhere in this order or the POI's office Quality Management System (QMS) policies.

C. TCPMs. From time to time, TCPMs may be called upon to assist a POI whose operator is using the services of a training center. The TCPM's firsthand knowledge of center personnel, facilities, equipment, and curriculums is a valuable resource that POIs have come to rely on. This knowledge enables TCPMs to:

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1) Provide the POI information regarding the status and approval level of FSTDs and the installed equipment used by center instructors and TCEs;

2) Assist the POI by providing technical information regarding the center's curriculums, FSTDs, and facilities; and

NOTE: TCPMs should advise the POI of any status change involving an instructor or TCE that is also approved as a contract check airman for an operator.

3) Assist the POI with the evaluation of TCEs or other training center personnel nominated by the operator to become contract check airmen or flight instructors. The procedures outlined in Volume 3, Chapter 20, will be followed when evaluating center personnel as potential contract check airman candidates. Aviation safety inspectors (ASI) (e.g., TCPMs) must use the following Program Tracking and Reporting Subsystem (PTRS) codes to document surveillance of contract check airmen:

- Check Pilot Observation—Proficiency Check Oral or § 135.293(a) Knowledge Test (or any portion thereof): 1641.
- Check Pilot Observation—Proficiency or Competency Check (Simulator): 1642.
- Check Pilot Observation—Proficiency or Competency Check § 135.293(b) or § 135.297 (Aircraft): 1643.

NOTE: If the TCPM is observing a TCE, then a PTRS activity using code 1673 (for a TCE observation) should also be completed whether a check pilot observation is being completed or not.

4) Assist the POI with required surveillance activities including:

a) Potential contract check airmen;

b) Observing contract check airman during the evaluation of the operator's airman to ensure evaluations are objective, accurate, and consistent with the operator's program;

c) Evaluation of required crewmember training records that were authorized to be maintained by the training center; and

d) Other surveillance activities appropriate to the operator's activities at the training center.

NOTE: In all cases, the TCPM's assistance is subject to their office's workload requirements.

D. Training Center(s). A training center's roles, responsibilities, and coordination activities include:

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1) Participating in the operator's instructor/check airman standardization program to ensure there is a clear understanding between the center and the operator of exactly what portions (by regulation) of the operator's approved curriculums the center will be conducting.

2) Ensuring the operator has received approval from their POI to use center facilities and personnel in the conduct of their approved curriculums.

3) Establishing a naming convention that will enable operator-approved curriculums/courses to be distinguished from center-approved curriculums. Operator programs are not to be referred to as core or specialty, as these terms are only appropriate for TCPM-approved center curriculums/courses.

NOTE: Training centers are not required to list operator names or the operator curriculums/courses in the center's training specifications (TSpec). Only the center's TCPM-approved core or specialty curriculums/courses are required to be listed in the center's TSpecs.

4) Ensuring that all center personnel used to instruct and/or check on behalf of the operator have been appropriately trained, evaluated, and authorized in accordance with the operator's approved curriculums to conduct such activities. This training must include, at a minimum, training in all portions of the operator's curriculums for which the contract instructors/check airman are assigned to conduct on behalf of the operator.

5) Ensuring that sufficient contract instructors are qualified to support the operator's training agreement and requirements.

6) Recommending (not qualifying) center personnel as potential contract check airman. The center must ensure recommended individuals:

a) Have completed the center's approved instructor training program, and

b) Are currently qualified and actively participating in one or more of the center's core curriculums appropriate to the operator's needs.

7) Maintaining the center's FSTDs in accordance with their qualification standards.

NOTE: If a Simulator Component Inoperative Guide (SCIG) has been developed for a particular full flight simulator (FFS), and the training agreement with an operator includes FFS training, make sure the SCIG has been approved for operator's use.

8) Advising the operator whenever flight training equipment fails to meet required qualification standards and/or when maintenance problems will restrict training.

9) Ensuring required training records are appropriately maintained and remain readily available to both the Administrator and operator.

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10) Ensuring crew pairing policies and procedures are adhered to as it relates to the operator's training and testing/checking.

NOTE: Crew pairing policies and procedures may be found in paragraph 3-4414.

11) Advising operators of any proposed revisions to the center's curriculums that are being used partially or in total by the operator.

3-4414 OUTSOURCED TRAINING PROVIDER APPROVAL PROCESS.

A. Application to Outsource Required Crewmember Training.

1) Operators requesting approval to outsource a portion of their required flightcrew member training must submit an application in a form and manner prescribed by the Administrator. The application must contain sufficient detail to enable the Administrator to evaluate the applicant's request. Applications must be submitted a minimum of 60 days prior to the proposed training and contain at least the following information:

a) A copy of the standardization review including an analysis of the training provider's curriculums, courseware, procedures, equipment, facilities, and personnel that will be used in the conduct of the operator's training.

b) A detailed outline, by regulatory reference, of the training elements proposed to be outsourced.

c) If center personnel will be used as contract instructors to conduct the operator's training, the application must contain an appropriate training module developed to qualify center's instructors/TCEs on the operator's curriculum.

d) If center personnel are being requested to act as contract check airmen, the application must contain an appropriate training module developed to qualify center's instructors/TCEs as contract check airman for the operator. (See paragraph 3-4415 for complete details.)

e) A copy of the operator's instructor/check airman standardization program.

f) A copy of the operator's proposed surveillance plan to ensure the center continues to provide the agreed training.

g) Proposed method to maintain required crewmember, contract instructors, and contract check airman training records including the methodology proposed to ensure curriculum revisions and an appropriate instructor/check airman read file are maintained.

h) Other data that the POI may require to evaluate the application.

2) The approval for an operator to use a part 142 training center or other provider in the conduct of their required training is authorized through the issuance of OpSpec/MSpec/LOA A031. An initial standardization review must be conducted by the

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operator and submitted to the POI before any contract training or checking may be conducted. OpSpec/MSpec/LOA A031 also requires the operator to conduct ongoing audits of the training center/provider to ensure the training center is continuing to provide training and checking in accordance with the operator's approved program. The initial audit must be completed within 60 days of the commencement of contract training or checking operations. Each audit with evaluation must be presented to the certificate holder's POI for review and acceptance within 30 days after completion. Ongoing audits will be conducted at least every 24 months in order for the operator to continue to use the training center/provider. Guidelines for the scope and content of the operator standardization and audit program are located on the AFS-280 Web site. Additional information is contained in paragraph 3-4416. If an operator does not conduct the required 24-month audit, their authorization to use the training center/provider will cease on the last day of the 24th month following the date of their last audit. Operators may reapply to use the training center/provider by completing the application process outlined in accordance with the provisions of subparagraph 3-4414A.

3) A sample outline of the modules and elements of an operator's curriculum that are typically contracted out to a training center can be found on the AFS-280 Web site. These curriculum checklists have been developed to provide a guideline for the operator and center in determining which regulatory requirements may be satisfied by the training provider and which will be completed by the operator.

B. Flight Training Equipment.

1) In order to receive training/checking/testing credit for the use of a FSTD, the specific FSTD must be a part of the operator's approved curriculum. The subject curriculum and FSTD are a part of the outsourced training audit and must include a comparison of the aircraft flown by the operator to the flight training equipment available at the training center. The comparison should encompass the make, model, and series (M/M/S) (and serial number, in some cases) of the aircraft and FSTD and include a summary of the flight instrumentation, autopilot, flight management system (FMS) equipment, aircraft modifications (electrical system, hydraulic system, engines, propellers, thrust rev, heads-up display, etc.) applicable to each. Regulations require that the flight training equipment fully meet the requirements of the operator's training program and accurately represent the M/M/S of aircraft flown by the operator including installed equipment. If the flight training equipment available at the training center does not match the operator's aircraft, the operator's program must state how any differences between the aircraft and the FSTDs will be addressed and develop an appropriate differences training module.

2) A TCPM's approval of a center's FSTDs for use within the center's approved curriculum does not authorize an operator to use the same FSTDs within the operator's curriculum. The TCPM's approval only ensures that the FSTDs are approved to conduct the training, testing, and checking permitted under part 142. In order for an operator to use a center's FSTDs in support of the operator's curriculum, the operator must include the FSTDs in its training program and have the FSTDs approved by its POI. The operator's POI will evaluate the requirements of the operator's program and make a determination concerning the appropriateness of the center's FSTDs and their qualification as it relates to the operator's

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curriculum. POIs may request verification of the flight training equipment authorized for use by a training center by contacting the center's TCPM.

3) To receive training credit for a particular FSTD, the FSTD must first be qualified by the National Simulator Program (NSP) (AFS-205) and be assigned a specific level of qualification. TCPMs and POIs may than approve the FSTD for use by a center or operator respectively, by specific maneuver(s), procedure(s), and crewmember function(s). Approval letters are generally issued to operators and centers specifying the FSTD's use within a specific curriculum. Operators are authorized the use of FSTDs through the inclusion of the FSTD in their training program.

C. Approving/Accepting a Center's Core or Specialty Curriculums for Use by an Operator.

1) Training centers often submit programs to their TCPM for approval that are targeted for specific customers and/or operators. However, these curriculums must meet part 142 requirements and are either "core" or "specialty" as defined by part 142. Once a curriculum is approved by the TCPM, it is listed in the center's TSpecs as a core or a specialty curriculum/course. For an operator to use a center-developed curriculum it must submit the curriculum to its POI for approval. The procedure for approving a center-developed curriculum is the same as if the operator had developed the curriculum or paid a consultant to develop the curriculum. The important point to remember is that when the subject curriculum/course is approved by the operator's POI, it becomes part of the operator's training program and as it relates to the operator, it ceases to be either a core or a specialty curriculum.

2) Once the subject curriculum/course is approved by the operator's POI, the center, when conducting training for the operator, should refer to the subject curriculum by the name given to it by the operator. It is important to note that the training center should not refer to the operator's program as a specialty curriculum. This naming convention is important to clarify oversight and ownership responsibilities for the subject curriculum/course. An operator's programs are approved by its POI in accordance with the appropriate operating rule.

a) Training center curriculums, both core and specialty, are approved by a TCPM in accordance with part 142 and designed to meet the training, testing, and checking requirements of airmen certification under part 61 or 63.

b) The flightcrew member requirements of parts 91K, 121, and/or 135 differ in numerous respects to part 61 requirements. A TCPM's approval of a center's curriculum does not enable an operator to use such curriculum without the specific approval of the operator's POI.

3) In order for an operator to request a training center's approved curriculum to be incorporated into their program, the operator must first complete a comparison between the proposed center's curriculum to their approved curriculum. All differences must be noted and a training module developed to bridge the differences. This training module will be used to qualify the center's instructors and/or TCEs on the operator's curriculum. It is the operator's responsibility to ensure all center instructors and/or proposed contract check airmen receive

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training on the differences module(s) developed as a result of the curriculum comparison before they may be authorized as contract instructors or contract check airman for the operator.

4) The operator may find that a center's curriculum may be used without change but that there may be minor differences in operating procedures and/or checklists. As part of the standardization and audit process, the operator must determine all differences between their curriculum and the center's. If the differences found are minor, the operator's POI may authorize the operator to develop a briefing guide outlining the differences as a suitable method to provide the training necessary to qualify the center's personnel. Major differences between the curriculums will require specialized differences or formal retraining of the center's personnel. In all cases, the operator's regulations require contract instructors and check airman to be trained in the approved methods, procedures, and limitations for performing required normal, abnormal, and emergency procedures appropriate to the curriculum segment.

5) Operators must have training policies and procedures in their operations manuals or training program that describe their standard operating procedures and type of operation(s). At a minimum, operators that apply to contract a portion of their required crewmember training to an authorized provider must have policies and procedures in place that clearly identify the following:

a) This portion of the operator's program must clearly define these functions and their procedures to ensure adequate training is conducted and recorded.

b) SOPs, including but not limited to:

- Crew coordination and "callouts,"
- Maneuvers descriptions and aircraft configuration,
- Flight deck "flows,"
- Checklist procedures,
- Autopilot use and crew coordination,
- Crew resource management, and
- Approach procedures (including approach charts, crew briefing, Electronic Flight Bag (EFB) use, etc.).

6) POIs and operators must be aware that training center-approved curriculum are designed to meet the certification requirements of parts 61 and 63 are not required to include operator-specific items required by part 91K, 121, 125, or 135 training regulations. Part 142 training-center-developed curriculums are required to meet the certification requirements of parts 61 and/or 63 and the associated practical test standards. Consequently, part 142 training center curriculums will not comply with the operating rules governing an air carrier and by default do not contain or reference operator-specific requirements or the limitations/authorizations contained within an operator's OpSpecs/MSpecs.

7) If an operator is introducing a new aircraft and requesting the adoption of a center's curriculum in support of the introduction, the operator is responsible for ensuring the proposed curriculum meets their operational requirements. Additionally the operator must:

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a) Evaluate the proposed curriculum and submit it to their POI for approval/acceptance.

b) Develop a module(s) outlining any operator-specific training required to qualify center personnel as contract instructors and or contract check airman based on the POI's authorized curriculum.

c) If a contract check airman is being proposed, the operator must provide the selected individual with any operator specific training identified during the curriculum approval process.

d) Submit an appropriate contract check airman request to their POI a minimum of 15 working days prior to the proposed use of the contract check airman.

8) Table 3-122A, Sample—Weight and Balance Curriculum Module Comparison Chart, provides an illustration of the differences that normally occur when an operator completes a comparison and evaluation of a Weight and Balance (W&B) training module that was designed for a part 142 training center against one designed for an air carrier. The table also illustrates the complexities typically encountered by an operator when conducting a curriculum comparison between their approved training program and that of a training center.

9) Column A in Table 3-122A lists the elements normally associated with an approved part 142 W&B training module. Column B represents a typical part 135 W&B training module. These differences are a result of the requirements of § 135.293(a)(3), which require operators to train and check their pilots on their (the operator's) method of determining compliance with W&B limitations. Part 142 requires the center's curriculum to comply with part 61, § 61.155(c)(9), which is typically modeled after the manufacturer's procedures. When confronted with these differences, an operator must decide to either:

a) Train and qualify the center's instructors to enable them to conduct the operators approved W&B training module; or

b) Providing there is no negative training involved, permit the center to conduct the manufacturer's weight, balance training, and then conduct a specialized course designed to cover the differences between the center's curriculum and that of the operator. If the operator chooses to permit the center to conduct the center's W&B module, the operator would then be required to convene a separate instructional period to train and test the differences between the center's curriculum and its (operator's) W&B curriculum. This differences training would be required prior to releasing any crewmember for line operations.

c) As mentioned in subparagraph 3-4414C9)a), the operator could elect to provide W&B training to one of the center's instructors in those elements of their curriculum that are different from the center's curriculum. It would then be possible for the qualified instructor to conduct the entire W&B module for the operator's crewmembers. However, without specified training in the operator's procedures, the center may only be authorized to provide training and testing in those subjects that are part of the center's curriculum (Table 3-122A, lines 1–4). In either case, operators must develop a quality control program that will ensure their entire curriculum is conducted in accordance with their approved procedures and conducted

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by qualified individuals. The Instructor/Check Airman Standardization Program located on AFS-280 Web site has been designed to provide assistance in this area.

Table 3-122A. Sample—Weight and Balance Curriculum Module Comparison Chart

	Part 142 Training Center Curriculum Module and Elements [§ 61.155(c)(9)]	**Part 135 Operator Curriculum Module & Elements [§ 135.293(a)(3)]**	**Equivalent Training Yes/No**
1	Aircraft Manufacturers Weight & Balance Procedures (Airplane Flight Manual (AFM))	Aircraft Manufacturers Weight & Balance Procedures (AFM)	
2	Definitions	Definitions	
3	Limitations	Limitations	
4	Load Shift/Fuel Management and Use	Load Shift/Fuel Management and Use	
5		Operations Specifications (Paragraph A096, A097, A098)	No
6		FAA AC 120-27E	No
7		Carry-on Baggage identification and load and storage	No
8		Passenger Weight determination—average, surveyed, actual	No
9		Baggage/cargo weight determination	No
10		Cabin Configuration and loading	No
11		Baggage Compartment loading and security	No
12		Air Carrier Computation method (computer)	No
13		Manifest preparation	No
14	Testing Module	Testing Module	

Row Number:
1: Topic may comply with the operator's approved curriculum. However, the use of company-developed flip charts, computers, "WIZ Wheels", etc., may require specialized training. Differences evaluation required.
2 through 4: Topics may comply with the operator's approved curriculum. Differences evaluation required.
5 through 13: Topics do not conform to the operator's curriculum.
14: Applicable to the particular curriculum. Differences evaluation required.

10) The curriculum an operator submits for approval to its POI must contain sufficient detail to assure all required training is addressed. The operator is responsible for submitting the

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subject curriculum to its POI for review, approval/acceptance, and subsequent inclusion in its training program, before any training is accomplished by the training provider.

11) This document will be jointly developed by the training provider and the operator, and will specify the division of all tasks required for training/testing/checking between the training provider and the operator. (Other equivalent methods that specify the division of tasks may be acceptable.) The operator bears the primary responsibility to ensure that all ground and flight training required by their specific operating rule is conducted and appropriately evaluated. The POI's oversight responsibility is to ensure that the operator's compliance efforts are satisfactory. The POI should check sign-offs (certifications) of ground training and all testing for completeness, and should cross-check those sign-offs against the source document showing the division of tasks. For example, part 135 operators must ensure the training required by § 135.345 is conducted and all subjects required by §§ 135.293, 135.297, and 135.299 are evaluated. A properly executed standardization document between the operator and the training provider will provide guidance to both parties concerning the training and testing/checking obligations for each party. A sample Instructor/Check Airman Standardization Program is located on the AFS-280 Web site.

NOTE: Training centers are not certificated as air carriers or commercial operators and are not issued OpSpecs/MSpecs. The operator-specific requirements of an air carrier's operating regulations make it impossible for a part 142 training center to have a training curriculum approved under those regulations. TCPMs may only approve training center curriculums that comply with part 142. Training centers may develop curriculums designed to comply with the operating rules of an air carrier; however, the curriculums cannot be approved as "meeting" the requirements of those parts. Training center instructors and evaluators are likewise qualified in accordance with a center's approved curriculums and therefore cannot conduct an air operator's training without first being qualified by an air operator before conducting any of the operator's required training. (Refer to §§ 91.1089 through 91.1095, §§ 121.411 through 121.414, and §§ 135.337 through 135.340.) Depending on the content of a particular center's instructor/TCE training curriculum, an operator may be able to credit a portion of the center-provided training as meeting some of their required instructor/check airman training requirements.

12) When a center revises one of their core or specialty training curriculums that originally formed the basis of an operator's approved curriculum, the center should be encouraged to advise the operator of the revision. However, it is important to understand that revisions to a center's core or specialty curriculums, which were used as the basis of an operator's training curriculum, does not automatically create a revision to the operator's POI-approved course. The adoption of such changes is subject to the operator's evaluation and approval by its POI. Center revisions that are considered appropriate for the operator's program may be incorporated by the operator if approved by the operator's POI. Likewise, the operator may make changes to its curriculum, in which case they must notify the center and ensure that all contract instructors and contract check airman are trained in the new procedures (differences). Operators must be especially vigilant to ensure that changes to the training center's core or specialty curriculums do not affect the training they receive.

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D. Air Carrier Training at Multiple Training Centers.

1) Occasionally, an air carrier will request that training be conducted at two or more training centers. These centers may be owned by the same parent company, satellite centers of the same certificate holder, or may be training centers operated by different companies. It is common practice for training centers operated by different owners/companies to take varied approaches to curriculum design and development for the same aircraft M/M/S. These differences often include training equipment, training hours, maneuvers description, operating procedures, and checklists. When evaluated individually, each variant may be perfectly acceptable for the specific aircraft; however, as training products for an air carrier these differences, although subtle, are not consistent with the standardization requirements demanded by air carrier regulations. To ensure standardized training is provided, it is essential that before authorizing the use of multiple sources of training, the air carrier and subsequently the POI determine that the same curriculum and syllabus, including courseware, flight training equipment, maneuver descriptions, procedures, checklists, etc., will be conducted by each provider.

2) Subtle differences between or among training providers may not create standardization difficulties for non-certificated operators. However, because air operators are required to have their own approved programs, differing curriculum between or among training providers is not authorized. Training conducted by different centers will present a standardization problem if not properly monitored and managed by the operator.

3) To qualify a center's personnel to conduct an operator's training curriculums will require the operator to conduct an evaluation of the center's curriculums to determine what, if any, differences exist between the two and provide center instructors and evaluators training in those differences. This process must be repeated for each center authorized to conduct training for the operator. If a contract check airman is requested, the additional training appropriate to the operator's check airmen training will also have to be completed.

4) If POIs have reason to believe that multiple centers can provide the quality training required by the operator's approved curriculum, they may authorize two or more facilities or training companies to conduct the subject training. However, if the POI suspects that an operator curriculum cannot be adequately presented at multiple centers due to differing delivery methods, FSTDs training hours, maneuver descriptions, qualified personnel, etc., and/or the operator's ability to adequately monitor and audit the training being provided, the POI and the operator have the responsibility to limit the number of training providers.

E. Training Policy and Procedures.

1) Operators are required to develop and document, as part of their approved program, adequate procedures and policies to ensure all training providers conduct the operator's crewmember training as approved. These procedures may be part of the operator's manual used by the certificate holder's flight personnel in conducting its operations and/or contained in the operator's approved training program.

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2) Operators must establish training policies and procedures to ensure crewmembers are trained and evaluated in accordance with the policies and procedures that represent the manner in which it conducts its aircraft operations. It is unacceptable to have differences between training/checking and actual aircraft operations or between individual crewmembers.

3) POIs are not to approve requests for outsourced training unless the operator's program contains appropriate policies and procedures to ensure the training conducted by the authorized training provider(s) is in accordance with the operator's approved program.

NOTE: Operators must ensure that approved training providers are provided at least one copy of their operating manual(s), including the revision service for such manuals, which cover the particular areas that the training provider has been approved to conduct. The operator must also ensure the training provider maintains a "read file" specific to the operator that is available to all contract instructors, contract check airmen, and the operator's crewmembers. This read file must contain information pertinent to their flight operations and crewmember operating procedures. See the Instructor/Check Airman Standardization Program on the AFS-280 Web site for additional information.

4) An operator that determines a center-developed curriculum is suitable for its use must receive its POI's approval to integrate the subject curriculum into its training program. See subparagraph 3-4414C for policies and procedures for the integration of a center's curriculum into an operator's program.

F. Crew Pairing.

1) Training centers often provide services to air operators which must meet requirements of particular operating rules (i.e., parts 91K, 121, and 135). Under these rules, training programs include checklists, callouts, profiles, approach procedures, and other features that are approved for the specific air operator by its assigned POI. Occasionally an operator may not be able to assign a complete crew for its training/checking/testing activities at part 142 training centers. When this situation occurs, the training center may provide a qualified crewmember that meets the requirements outlines in the operator's training program.

2) The FAA promotes the crew concept in air carrier training and checking to ensure that crew coordination and other flight management issues are adequately and appropriately addressed. Flight training must address the performance of duties as Pilot Flying (PF) and pilot monitoring (PM) as described in the air operator's approved procedures. To meet both of these seat-dependent training needs, each required flight deck crew position must be occupied by a qualified crewmember.

3) It is desirable that each flight training session be scheduled so that two pilots from the same company or air operator may be trained during a single flight training session. The preferred crew pairing is a pilot in command (PIC) and a second in command (SIC). Other acceptable crew pairings are two PICs or two SICs employed by the same certificate holder. Each pilot receiving training should have completed the appropriate aircraft ground training, including basic indoctrination, prior to beginning the flight training segment.

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4) Permissible crew pairings. Some air carriers often operate with small pilot rosters or with pilots who are widely dispersed. Providing the operator's training program does not otherwise restrict crew pairings for flight training/checking/testing in a FSTD at a training center, the center may use the following guidelines when determining who may be considered an appropriate crewmember.

a) An appropriate crewmember must be one of the following:

1. One of the air carrier's line qualified pilots,

2. One of the air carrier's pilots undergoing training for the same aircraft, or

3. A contract flight instructor (airplane or simulator) or a contract check airman (airplane or simulator) who is authorized to serve in that air carrier's training program.

b) The following conditions apply when a part 135 air carrier pilot is training in an FAA-approved training program for another part 135 air carrier, whose training program is essentially similar.

- When the training curriculums are not essentially similar, pilots may not be paired; similarly, when operational differences between carriers are too pronounced or too numerous, at the discretion of the appropriate POI, pilots may not be paired.
- Each air carrier pilot must be trained in accordance with the training program approved by the POI of his or her own air carrier.
- Minimum equipment lists (MEL), OpSpec/MSpecs, and other features specific to each air carrier's operations must be addressed during flight training.
- When only one pilot is receiving flight training, the other pilot seat must be occupied by a person who is line qualified or line familiar in the specified duty position (see the current edition of Advisory Circular (AC) 120-35, Line Operational Simulations: Line Oriented Flight Training, Special Purpose Operational Training, Line Operational Evaluation, for definition of terms), unless the flight training is being conducted for single pilot operations.

NOTE: Training programs may be viewed as essentially similar when they include the same curriculum, the same checklists, and the same callouts and include flight deck configurations, operational procedures, and fms that are compatible in the judgment of the appropriate POI.

c) Pilots must have completed the operator's applicable ground training curriculum segments prior to starting the flight training curriculum segments.

5) Pairing pilots in flight training and evaluation for operations under different parts. When pilots from different operators are paired in training programs that are essentially similar, the operator-specific features (such as MELs and OpSpecs/MSpecs) of each operator must

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be addressed. Pilots in training for part 135 operations should not routinely be paired with pilots training for operations under part 91. These crew pairings should be avoided in favor of the pairings outlined in subparagraph 3-4414F4). However, such crew pairings are permissible provided the following conditions are met:

a) The part 91 pilot must conform to the training program of the part 135 pilot in every respect. Specifically, checklists, profiles, approach procedures and callouts must be those used in the training program of the part 135 pilot (not vice versa), and the part 91 pilot must understand and apply Crew Resource Management (CRM) principles in accordance with the air transport pilot practical test standards.

b) Each certificated air operator's crewmember must complete the appropriate air operator's evaluation module. Part 135 pilots may support the part 91 pilot's training activities as appropriate.

c) Part 91 pilots paired with an air operator crewmember must use the operator's approved curriculum. In these cases, the TCPM must either concur with the part 91 pilot's use of the air operator's curriculum to complete required training and currency, or approve a documented process submitted by the training center that ensures all requirements described herein are met. The training center should maintain records of such pairings in sufficient detail to allow FAA inspectors to easily determine compliance with the applicable regulation, operator's crew pairing procedures (if provided) and these requirements.

d) The part 91 pilot must have received differences training in the features of the part 135 training curriculum that distinguishes it from the part 91 training curriculum. That training should also include the operator's OpSpecs and operational control procedures.

NOTE: In crew pairings involving pilots of different part 135 operators or pilots operating under different operating rules (parts 135 and 91) POIs and TCPMs must be especially vigilant. The part 135 operator's training program must not be distorted or diminished in order to accommodate dissimilar training needs. If the integrity of the air carrier training program cannot be upheld the crew pairing must not be permitted.

G. Recordkeeping.

1) Regulations require an operator to maintain training and qualification records for each crewmember, flight instructor, and check airman. This requirement includes contract instructors and contract check airmen employed by training providers that are authorized to provide training and checking for the operator. The means and methodology of maintaining required crewmember records must include an acceptable process to record training, checking, and qualifications of the operator's crewmember training conducted by an outsourced training provider. The operator's training program should contain a description of their recordkeeping system as well as describing what records are to be used to comply with each regulatory requirement. If the operator wishes to use an electronic recordkeeping system, the current edition of AC 120-78, Acceptance and Use of Electronic Signatures, Electronic Recordkeeping Systems, and Electronic Manuals, provides guidance for the evaluation and approval of these systems.

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2) Operators and training providers must establish and document procedures to ensure they have a clear understanding of their individual responsibilities for complying with required training and testing/checking recordkeeping requirements. These procedures must include identification of responsible personnel and approved location(s) where specific records will be maintained.

3) Training conducted by center personnel must be documented in accordance with the operator's approved system. Center personnel acting as contract instructors and/or contract check airman for the operator must also be trained in the operator's records system.

4) Training centers are not required under part 142 to maintain an air carrier's crewmember training records when the training was accomplished in accordance with the operator's approved program. Training centers are only required to maintain the records required to support the training accomplished under part 142 that leads to airman certification or proficiency required by part 61 or 63. An operator's crewmembers are not trained and evaluated in accordance with part 142. They are trained and evaluated in accordance with the operator's operating regulations and approved curriculums. Therefore, the responsibility for record maintenance remains with the operator. Training centers that have been authorized to provide training for an operator are considered to be an integral part of that operator's training program. In that context, FAA policy permits the center to be used as a suitable location for required records if approved by the operator's POI. Many training centers provide a large portion of an operator's training and in some cases are the sole providers of such training, which may make the center a logical location for such records.

5) Part 142 requires training centers to maintain the training records of their instructors and TCEs. When these individuals are also approved as contract instructors and/or contract check airman for an operator, it may also make sense for the operator to have its instructor and/or check airmen records maintained by the center. It is, however, the responsibility of the operator to ensure that all crewmember records are readily available for inspection as required by applicable regulations.

6) Operators must ensure that training records developed and maintained by their training providers are available in a timely manner. Records of crewmember training and checking are required to be furnished to the operator upon completion (within 24 hours) of any training and/or checking in order to enable the operator to determine qualifications for crew assignment(s). Training and qualification records for contract instructors and contract check airman must also be made readily available to the operator.

7) In many cases, the TCPM will be the best qualified individual to assist the POI with required inspections, proficiency checks, and observations of assigned operators. Properly maintained records will also enable the TCPM and training centers to provide information on instructors and TCEs to other operators that may need instructor and evaluator assistance.

8) A TCE who is authorized as a contract check airman may be approved by one or more POIs to conduct checks for multiple operators that have contracted with a training center. This may occur when multiple operators of the same aircraft type have contracted for training at the same center and are using essentially the same curriculum.

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9) Although not required, training centers that maintain contract check airman records for operators may be a good source of information for other operators who are evaluating center personnel as potential contract check airman.

10) Training centers must have a process whereby they keep customers apprised of all training or checking conducted on the operator's behalf. Additionally, the center must notify the operator within 24 hours if there is a job functions status change with a TCE or instructor who is also a contract check airman or contract flight instructor for the operator that may affect the individual's check airman or instructor status with the operator.

11) TCPMs are responsible for maintaining eVID information regarding the training center, its instructors, and evaluators. POIs are responsible for maintaining eVID files pertaining to each training center employee authorized as a contract check airman.

3-4415 REQUIREMENTS TO AUTHORIZE CONTRACT FLIGHT INSTRUCTORS AND/OR CONTRACT CHECK AIRMEN FOR AN AIR OPERATOR.

A. Requirements. Sections 91.1073(a)(4), 91.1075(b)(4), 121.401(a)(4), 121.402(b)(4), 135.323(a)(4), and 135.324(b)(4) require operators to provide enough flight instructors and check airmen to conduct the flight training and flight checks required by the applicable operating rules.

1) The determination of a "sufficient" number of contract check airman and/or contract instructors for a particular operator will require a careful evaluation of the following:

- Number of APDs authorized by the FAA and employed by the operator;
- Geographic location of the operator with respect to available FAA support;
- The operators understanding that they are required to provide surveillance and supervision of their contract instructors/check airman;
- Availability of FSTDs and location relative to the operators crewmember domiciles; and
- Operators required crewmember training and evaluation workload.

2) There is no fixed formula that will definitively answer the question of how many contract check airman/instructors are appropriate. Maintaining an equitable balance between the operator's ability to provide required management oversight and surveillance, while meeting their evaluation requirements without compromising standardization or safety, is a primary concern.

B. Qualification and Training Requirements. The qualification and training requirements for individuals to become contract flight instructors and/or contract check airmen for an air carrier are outlined in the specific regulations governing the type of operation (specifically part 91K, part 121 subpart N, and/or part 135 subpart H, as appropriate). Training center instructors and evaluators are trained and qualified under part 142, which does not mirror the instructor and/or check airmen qualification requirements of an air carrier. Although some of the instructor/evaluator training required by part 142 may be considered equivalent to the instructor/check airmen training required by an air carrier, the two currently do not align.

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The differences between these two regulatory requirements will generate additional training requirements for training center instructors and evaluators selected to provide training and checking services for operators.

C. Instructors. Consider the case of a part 142 training center flight instructor (simulator) who is qualified to provide instruction under the training center's approved core curriculum for a particular aircraft.

1) In order for a training center instructor to serve as a flight instructor for an air carrier, the individual must be trained and qualified to instruct in each training segment, module, or element of the air carrier's curriculum that the instructor will be responsible for providing to the air carrier's crewmembers. Current policy does not require center instructors to complete the carrier's entire approved training program or curriculum provided:

a) The individuals are limited to conducting only the training elements of the operator's curriculums that they have been specifically trained and qualified to conduct and have been authorized by the operator; or

b) The individual has had previously received the same training, proficiency/competency checks, and observations in the same M/M/S aircraft for another air carrier operating under the same part.

2) Situations where an air carrier adopts a training center's core or specialty curriculum(s) and the POI approves these curriculums as part of the air carrier's training program would also mitigate some of the training required by the operator to qualify the subject instructor. In this situation the only training the air carrier would be required to provide the center's instructor(s) would be limited to any differences that exist between the training center's curriculum(s) (as approved by the TCPM) and the air carrier's training curriculum (as approved by the carrier's POI).

NOTE: In such cases, it is the air carrier's responsibility to identify each difference between the carrier's approved training curriculum (including curriculum content, checklists, and procedures) and the training center's curriculum. The air carrier must than develop and provide their POI a training module to qualify the center's personnel on all noted differences. This differences training module must be approved by the POI prior to conducting the subject training.

3) The air carrier's POI has the responsibility to determine if the manner and method proposed by the air carrier to train and qualify the center's personnel on curriculum differences, will meet the operator's training requirements.

D. Review. To ensure the center's personnel meet the operator's check airman standards, the operator will need to review the individual's training history and qualifications. Elements of the center's instructor/TCE training curriculums that the operator finds equivalent to their training program may, with the POI's approval, be credited toward the completion of the operator's instructor/check airmen curriculums. If the center's curriculum has been submitted to the POI for approval and is approved as meeting the requirements of the operator's

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curriculum, other than the operator-specific items, no additional training for the center's personnel would be required. Any differences or deficiencies noted will require the operator to develop a training module to ensure all regulatory requirements are met in order to qualify the center's personnel as contract check airmen.

1) In addition to the instructor qualification and testing requirements outlined in subparagraphs 3-4415B and C, operators must accomplish the following to qualify an individual as a contract check airman:

a) Evaluate the instructor's/TCE's credentials to ensure he or she meets the certificate holder's requirements to become a contract check airmen.

NOTE: Individuals must have at least one year of experience as a center instructor or TCE in the make and model aircraft in order to be considered as a contract check airman for an operator. POIs are encouraged to contact the center's TCPM for assistance with the review and potential approval of contract check airman. TCPMs are often the POI's best source of information relating to a center's operation and personnel.

b) Evaluate the center's instructor and TCE training curriculum by comparing it to the operator's check airman curriculum to determine the differences training required to qualify the center's personnel as a contract check airman.

c) Develop an appropriate differences training module(s) to include the operator-specific elements of the check airmen qualification and training/checking regulations to qualify the center's instructor/TCE as a contract check airman.

d) Submit the contract check airmen training module(s) to its POI for acceptance/approval.

e) If the training course is approved, ensure the course is provided to all contract check airmen candidates.

f) Provide the POI with complete training records and submit the individual's name and résumé for review and approval in accordance with Volume 3, Chapter 20.

g) If the applicant is approved as a contract check airman the POI will make the necessary eVID entries.

NOTE: POIs should notify the center's TCPM whenever they authorize one of the center's personnel to act as a contract check airman. This may be accomplished by forwarding the TCPM a copy of the check airman's LOA. A sample contract check airman LOA is located on the AFS-280 Web site.

E. Categories of Authorization. The standard categories of authorization for check airmen currently shown in Volume 3, Chapter 20 do not provide the level of specificity required for the approval of contract check airmen. For example, an operator's check airman, qualified as a line captain may be authorized as a simulator only check airman permitting them

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to administer both § 135.293(a)(1 through 8) as well as § 135.297 evaluations. A contract check airman who is only qualified in the aircraft-specific modules of an operator's curriculum may be authorized to conduct simulator-only evaluations; however, he or she would be limited, due to his or her training, to evaluations of § 135.293(a)(2) and (b) and § 135.297 evaluations. Unless the contract airman is qualified in the operators complete curriculum for the specific aircraft, he or she may not be authorized to conduct the elements required by § 135.293(a)(1) or (a)(3) through (8). Other restrictions may also apply depending on the training and qualification provided by the operator. A sample contract check airmen LOA is located on the AFS-280 Web site.

F. Training of Instructors and Evaluators.

1) Because the typical training program offered by the training center currently does not include all of the ground training subjects contained in an operator's curriculum, it follows that neither the trainees nor the instructors and evaluators themselves receive training in those subjects. It is important to ensure all training center instructors and evaluators are trained and evaluated in all subjects that the center is contracted to conduct. For example, because the typical training program offered by the training center currently does not include ground training in the subjects contained in § 135.293(a)(1) and (a)(4)–(8), it follows that neither the trainees nor the instructors and evaluators themselves receive training in those subjects—which ignores the training requirements of §§ 135.337(b)(2) and 135.338(b)(2). Therefore, a training center evaluator typically is not qualified to evaluate subjects other than those contained in the center's core curriculum which equates to § 135.293(a)(2) and potentially (3). Similarly, a trainee should not be evaluated in those subjects by individuals not qualified in the operator's procedures.

NOTE: To preclude any confusion concerning a contract check airman's authorization, the POI must specify in each contract check airman's LOA what specific subjects the check airman is authorized to test and check.

2) Particular caution must be exercised to ensure that individuals being nominated by an air carrier to become contract instructors/check airmen have a good understanding of the issues typically faced by crewmembers on a daily basis, many of which are learned only through the completion of an air carrier's initial new hire training curriculum. Knowledge of an air carrier's operational environment becomes very important when instructors/check airmen may be required to draw upon that knowledge to ensure that the quality of training and evaluations demanded by the regulations is not compromised. Non-aircraft-specific issues such as flight following/dispatch, MEL/Configuration Deviation Lists (CDL), cabin crew/flightcrew interactions, hazmat, security, company SOPs, etc., play an important role in a crewmember's training; especially during Line-Oriented Flight Training (LOFT) events. To effectively function as an air carrier instructor/evaluator, individuals must have a good understanding of these issues.

3) Before an air carrier authorizes a contract instructor or nominates an individual to become a contract check airman, the air carrier must provide its POI with evidence that these individuals have completed at least one air carrier's initial training and qualification curriculum as a flightcrew member for an operator certificated under the same 14 CFR part. Providing the operator and the assigned POI find this training and qualification acceptable, individuals may be considered to have met the non-aircraft-specific training requirements to become a contract

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instructor/check airman. The completion of an operator's line check requirement(s) is not required. Following the completion of an appropriate differences training curriculum, the subject individuals may be authorized as contract instructors and nominated to become contract check airman. This process should preclude an individual from conducting training and checking in an air carrier environment without ever having had the benefit of, at a minimum, the training required to qualify an individual to act as required crewmember for an air carrier.

G. Proficiency Evaluations. The proficiency evaluations required by an air carrier to qualify and maintain the currency of its check airmen are also applicable to center personnel that are being nominated as contract check airmen for the operator.

NOTE: TCPMs are only required to verify that the center's TCEs receive annual training on the conduct of part 61 certification functions in accordance with part 142 subpart C, relating to the curriculums approved for the training center's use. As outlined above, this training and checking does not qualify an individual to act as an operator's check airman. Operators must complete a detailed comparison between its check airman curriculum and that of the training center's TCE curriculum to determine the extent of the additional training they must provide to qualify the center's personnel to act as a contract check airman on their behalf. If this comparison indicates that the operator's training programs are identical, other than the operator specific items, no additional training for the center's personnel is required. Any differences noted between the curriculums will require the operator to develop a training module to qualify the center's personnel as a check airman. This module must be presented to the operator's POI for approval/acceptance.

H. Contract Instructors/Check Airmen. Training center employees that have been qualified by an operator to serve as a contract instructor/contract check airman may be considered qualified to act in the same capacity for another operator provided that:

1) Both operators are certificated under the same 14 CFR part.

2) Both operators are operating the same M/M/S of aircraft with identical configurations.

3) Both operators are using identical training curriculums, including checklist and operating procedures.

4) The requesting operator finds the subject individual acceptable as a contract instructor/check airmen.

5) The subject instructor/check airman has met the operating or observation experience requirements for at least one operator for which they are providing services. For example, if a training center instructor is qualified to provide instruction in a particular aircraft for three different operators, the instructor may be considered to have met the initial and recurrent line operating or observation requirements for all three by remaining qualified in one of the operator's programs.

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NOTE: In all cases, the acceptance of an instructor/check airmen's qualification by another operator is subject to the approval of the requesting operator's POI.

I. Reports. The POI should arrange to have the operator provide the POI with a periodic report of each check airman's checking activities, including a pass/fail rate, to coincide with the POI's periodic review (annual, semiannual, or other). POIs may arrange for these reports to arrive at a time that meets the POI's needs. A contract check airman should be active enough to retain the required knowledge and skills. This activity level may vary depending on the contract check airman functions and other operators for which he or she is authorized check airmen activities, the size of the operator, and the number of approved check airmen. Usually a check airman should conduct at least eight authorized check airman activities during a 12-month period (including supervision of Operating Experience (OE)). The POI should specifically reassess the operator's need for those check airmen whose records indicate low activity levels.

3-4416 OUTSOURCED TRAINING PROVIDER AUDITS AND ASSOCIATED OPSPEC/MSPEC PROCEDURES.

A. Self-Audit Program. The FAA requires a mandatory self-audit program for operators certificated under the provisions of parts 119 and 91K who contract with a training provider to conduct a portion of their required crewmember training. Such training arrangements are informally known as outsourced training. POIs will use OpSpec/MSpec/LOA A031 to record FAA approval of these contract training arrangements.

B. Operator Responsibility. The FAA is often limited in its ability to oversee an air carrier's training operations conducted under contract by a training provider(s). This oversight is the primary responsibility not of the FAA, but of the operator itself. The operator holds an air carrier certificate as a privilege granted by the Administrator on the presumption that the operator will continually maintain the highest safety standards, including flightcrew training standards. The operator must ensure that its flightcrew training conducted by a contractor continually meets the requirements set by regulations and the standards contemplated at the time of initial certification.

NOTE: The current edition of AC 120-59, Air Carrier Internal Evaluation Programs, recommends a voluntary self-audit strategy for air carriers that may be readily adapted to continuing analysis and surveillance of outsourced flightcrew training.

C. Self-Audit and Summary Report. The self-audit and summary report cycle outlined in this section may be used as the first phase of a plan to implement more effective operator-driven quality assurance (QA) where outsourced flightcrew training is concerned. The cycle must be conducted at least every 24 months in accordance with OpSpec/MSpec/LOA A031, and should be conducted at any time that a major change affects the operator's outsourced flightcrew training.

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D. POI Verification. POIs must verify that their operators arranging with training providers to conduct contract training for their crewmembers, otherwise known as outsourced training, will accomplish the following activities.

1) Self-Audit.

a) Training Program Components: Adherence to Approved Program. The operator must document that the training program delivered by the training provider is identical to the training program approved for the operator's use by the POI. The documentation will address at least the following:

- Manuals;
- The format and content of curriculums, curriculum segments, training modules, and documents depicting flight maneuvers and procedures;
- Courseware;
- Facilities; and
- Qualifications of instructors and check airmen.

b) Training Curriculums: Adherence to Approved Program. The operator must audit curriculums and document that those curriculums presented by the training provider adhere to the curriculums contained in its FAA-approved training program. The documentation must address at least the following, including ground training and flight training curriculum segments:

- Initial new-hire training;
- Upgrade training;
- Transition training;
- Recurrent training;
- Refresher training (121 only);
- Initial equipment training;
- Requalification training; and
- All other approved training such as differences, related aircraft differences (121 only), hazmat, security, and crew resource management, as appropriate.

c) Flight Training and Testing/Checking: Adherence to Approved Program. The operator must observe all contract instructors and contract check airman who are conducting required instruction and evaluations on their behalf by center personnel. The operator must document that regulations contained in §§ 91.1089 through 91.1095; §§ 121.411 through 121.414; or §§ 135.337 through 135.340, as appropriate, are being met and that approved standards are being maintained. Documentation must address at least the following, as applicable:

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- Certification flight checks;
- Proficiency checks, and instrument proficiency checks (parts 91 and 135 only);
- Flight checks (part 121 Flight Engineer (FE))
- Flight training in lieu of the proficiency check, including LOFT;
- Competency checks;
- Maneuver validation (Advanced Qualification Program (AQP)); and
- Line operational evaluations.

d) Training Records: Completion of All Approved Training. The operator must review required training and testing records to ensure compliance with their operating rule. This review must cover all of the operator's crewmembers, including pilots, FEs, and flight attendants (F/A) who have received outsourced training since the last review cycle. The operator must document that each crewmember has successfully completed all of the required components of training and checking comprised by its approved training program.

2) Summary Report. The operator must prepare a report, summarizing the findings of its self-audit. A sample report is on the AFS-280 Web site. This sample report form may be used to compile self-audit findings and to submit findings to the POI as a summary report. Another form mutually acceptable to the operator and the POI may be used instead.
The summary report must be signed by the operator's director of operations. In all instances that discrepancies are found between the training program delivered by the training provider and that which is approved by the FAA, the operator must propose effective remedies. Those remedies must be included in the summary report and must be addressed under the following categories:

a) Immediate corrective action:

1. Action already taken, showing dates, and

2. Action planned, showing target dates.

b) Long-term corrective action, showing target dates; and

c) A strategy for ensuring continuing prevention of recurrence.

3) OpSpec/MSpec/LOA A031. All affected operators are required to be issued OpSpec/MSpec/LOA A031. Any training provider conducting contract training, within the meaning of this section, must be approved by the POI and recorded in OpSpec/MSpec/LOA A031.

E. Program Discrepancies. An operator contracting for training must address any training program discrepancy and undertake corrective action as soon as the discrepancy becomes known. When the operator's own remedies are insufficient, the POI must take additional steps as deemed necessary and appropriate, in accordance with applicable provisions of Title 49 of the Code of Federal Regulations (49 CFR), 14 CFR, FAA Order 8900.1, and the current edition of Order 2150.3, FAA Compliance and Enforcement Program.

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NOTE: For guidance in accomplishing an Internal Evaluation Program (IEP) evaluation, refer to AC 120-59 and Volume 3, Chapter 28, Section 1, Air Carrier Management Effectiveness.

F. New Outsourced Training Arrangements. When approving new outsourced training arrangements for part 91K use the regular PTRS recording procedures for the appropriate job function and enter "Contract" in the "National Use" field.

RESERVED. Paragraphs 3-4417 through 3-4432.

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CHAPTER 57 MAINTENANCE REQUIREMENTS FOR HIGH-PRESSURE CYLINDERS INSTALLED IN U.S.-REGISTERED AIRCRAFT CERTIFICATED IN ANY CATEGORY

Section 1 Safety Assurance System: Maintenance Requirements for High-Pressure Cylinders

3-4544 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). Use PTRS activity codes: 3694, 3341, 3351, 5694, 5341, and 5351, for Title 14 of the Code of Federal Regulations (14 CFR) parts 91, 125, 129, 133, and 137.

B. Safety Assurance System (SAS). Use SAS Automation for 14 CFR parts 121 and 135. This section is related to SAS Element 5.2.4, (OP) Passenger Handling.

3-4545 OBJECTIVE. This section provides guidance for the maintenance requirements of high-pressure cylinders installed in all U.S.-registered aircraft regardless of how the aircraft is operated.

3-4546 GENERAL. The regulatory requirements to maintain, store, and handle aircraft high-pressure cylinders that contain hazardous materials (hazmat) have been a source of misunderstanding within the Federal Aviation Administration (FAA) community. This section will provide information and guidance for the maintenance requirements of high-pressure cylinders installed in U.S.-registered aircraft. This section will also explain the applicability of cylinder requalification requirements for high-pressure cylinders contained in the Hazardous Materials Regulations (HMR) of Title 49 of the Code of Federal Regulations (49 CFR) subtitle B, chapter I, subchapter C.

A. Requirements. There are unique aspects to consider in the FAA maintenance requirements related to high-pressure cylinders installed in an aircraft and different Department of Transportation (DOT) maintenance requirements when the cylinders are not installed in an aircraft.

1) Each high-pressure cylinder installed on a U.S.-registered aircraft must be a cylinder that was manufactured and approved under the DOT requirements of 49 CFR or under a “special permit” issued by the Pipeline and Hazardous Materials Safety Administration (PHMSA) under 49 CFR part 107. There are no exceptions.

2) Each high-pressure cylinder installed or offered for installation with intent to transport on a U.S.-registered aircraft is considered to be an aircraft part and is regulated under the maintenance requirements of 14 CFR appropriate to the type of aircraft and type of operation. In this case, 14 CFR restricts cylinder maintenance to removal, installation, servicing, and inspections (service life and requalification date checks, pressure and weight checks, serviceability/damage inspections, etc.). Cylinder repairs and requalifications are accomplished under the requirements of 49 CFR.

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3) Each high-pressure cylinder that has been removed from a U.S.-registered aircraft and not otherwise intended to be re-installed is not considered to be an aircraft part. For the purpose of overhaul, repair, and testing of the cylinder, such as hydrostatic testing, Title 29 of the Code of Federal Regulations (29 CFR) and 49 CFR, not 14 CFR, regulate the continued serviceability requirement.

4) Each high-pressure cylinder installed in a U.S.-registered aircraft may remain installed past the time when its 49 CFR-required requalification is due, provided the cylinder is not removed from the aircraft. A cylinder that is past the date when its 49 CFR-required requalification is due may not be installed, serviced, or refilled until it has been requalified by a person authorized under the appropriate provisions of 49 CFR.

5) A high-pressure cylinder installed in a U.S.-registered aircraft may not remain installed past the airframe or cylinder manufacturer's service life limit date.

B. Focus of the HMR. The HMR provides instructions for the safe transportation of hazmat in all modes of transportation, not aircraft maintenance. The HMR does not have provisions for maintenance of aircraft parts.

C. Hazmat Table. Title 49 CFR part 172, § 172.101 contains descriptions of the hazmat's proper shipping names and other references for the safe transportation of hazmat.

3-4547 BACKGROUND.

A. Previous Events. There have been events involving high-pressure oxygen cylinders. Most of these events have not involved the structural integrity of the cylinders, but have involved fires attributed to servicing the pressure cylinder while the cylinder was still installed aboard the aircraft. There have also been instances where cylinders that have not been properly approved under 49 CFR have been installed in U.S.-registered aircraft. Many of these events have been attributed to the absence of scheduled maintenance requirements and adequate maintenance procedures.

B. Regulatory Requirements. High-pressure cylinders containing hazmat and used as aircraft equipment are subject to regulations in four different areas of the CFR that are administered by four separate regulatory agencies. These areas are as follows:

1) As discussed above, the HMR is codified in 49 CFR. The HMR is broad in scope and covers all of the elements related to the safe transport of hazmat by any means, including the qualification, maintenance, and use of hazmat packaging or containers. Hazmat sent using commercial transportation and/or other methods must comply with the HMR. These regulations apply to those who offer, accept, or carry hazmat to, from, within, and across the United States. PHMSA promulgates and administers these regulations.

a) PHMSA has delegated administration, surveillance, and enforcement of those specific parts of the HMR related to the transportation of hazmat by air to the FAA's Office of Security and Hazardous Materials Safety (ASH). For more information, refer to http://www.faa.gov/about/office_org/headquarters_offices/ash/ash_offices.

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b) PHMSA has retained administration, surveillance, and enforcement of those parts of the HMR related to the qualification, requalification, maintenance, and use of high-pressure cylinders.

2) Title 29 CFR codifies other regulations regarding the safe handling of hazmat when it is not being offered, accepted, or carried with the intention of transporting hazmat. The Occupational Safety and Health Administration (OSHA) promulgates and administers these regulations.

3) Title 14 CFR contains regulations specific to hazmat training, which relate to the transportation of hazmat by air. There are no specific 14 CFR regulations that deal with the maintenance of pressure cylinders that contain hazmat.

4) The Environmental Protection Agency (EPA) is another agency that becomes involved if the hazmat receives a waste classification. The EPA promulgates and enforces regulations related to mitigating or eliminating the effects of hazmat on the environment. Title 40 of the Code of Federal Regulations (40 CFR) contains these regulations. A few examples of aircraft hazardous waste are expended or expired chemical oxygen generators, oils, fuels, and/or other fluids.

3-4548 HIGH-PRESSURE CYLINDER MAINTENANCE.

A. Installed Pressure Cylinder Maintenance. Title 14 CFR maintenance requirements appropriate to the type of aircraft and operation regulate pressure cylinders installed on a U.S.-registered aircraft. In any case, the maintenance that a provider may accomplish while the cylinder is installed in the aircraft is restricted to the replacement, servicing, or inspection of those cylinders. This is consistent with the meaning of the term “maintenance” in 14 CFR part 1, § 1.1. This is also consistent with 49 CFR part 175, § 175.8, which states that pressure cylinders installed in a U.S.-registered aircraft are not subject to the HMR. This exception only applies when the aircraft has a cylinder installed.

B. Removed Pressure Cylinder Maintenance.

1) Pressure cylinders removed from U.S.-registered aircraft which are being stored, handled, or otherwise moved without the intention of transport come under the appropriate requirements of 29 CFR, Labor. Refer to 29 CFR part 1910, Occupational Safety and Health Standards for additional information.

2) Title 49 CFR regulates pressure cylinders removed from U.S.-registered aircraft and requires testing of the cylinders for requalification under the requirements of 49 CFR. Title 49 CFR requires these cylinders to be requalified on a calendar-time basis. Requirements specific to a cylinder may be found in 49 CFR part 180, §§ 180.3, 180.205, and 180.209, and other CFR parts. The 49 CFR cylinder requalification process contains specific requirements, including a hydrostatic test. However, a hydrostatic test alone does not satisfy the 49 CFR cylinder requalification requirements.

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3) Maintenance providers may not install cylinders in a U.S.-registered aircraft certificated in any category if the cylinders are not approved, qualified, and/or requalified under 49 CFR.

3-4549 PROCEDURES.

A. High-Pressure Cylinders' Maintenance Program Requirement. Each operator of a U.S.-registered aircraft must have maintenance and recordkeeping procedures consistent with its particular regulatory requirements for each high-pressure cylinder installed on the aircraft.

NOTE: Title 14 CFR provides for the continued airworthiness of the high-pressure cylinders through the maintenance instructions provided by the manufacturer of the aircraft. Those instructions will often refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise.

- Operators should develop procedures to ensure that maintenance providers do not fill or service these cylinders after they have reached the time when the 49 CFR requalification requirements are due.
- The maintenance program will include pre-installation instructions to inspect the cylinders prior to aircraft installation for serviceability. Maintenance personnel must reject damaged cylinders for installation per 49 CFR, as this affects cylinder integrity to retain high pressure, which would impose a hazard.
- Title 49 CFR part 180, § 180.205(c) provides that a cylinder may be requalified at any time during or before the month and year that the requalification is due.
- A cylinder filled and installed in the aircraft before the requalification becomes due may remain in service until the cylinder is removed from the aircraft.
- A cylinder may not remain in service beyond the life limits established by the airframe or cylinder manufacturer.
- A cylinder with a specified service life may not be refilled and offered for transportation after its authorized service life has expired.

B. High-Pressure Cylinders Not DOT-Qualified Under 49 CFR. All high-pressure cylinders will meet the requirements and certification standards of 49 CFR. Those cylinders not meeting those standards must not be installed on aircraft and must be replaced if installed.

C. High-Pressure Cylinders Not DOT-Qualified Under 49 CFR and Operator Noncompliance.

- Since Flight Standards Service (AFS) does not enforce the HMR, contact the enforcement section of the PHMSA Regional Office (RO) that covers the location.
- For PHMSA ROs, refer to http://www.phmsa.dot.gov/hazmat/about/org.

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3-4550 FUTURE ACTIVITIES. None.

RESERVED. Paragraphs 3-4551 through 3-4563.

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CHAPTER 59 AIRWORTHINESS DIRECTIVE MANAGEMENT PROCESS AND ALTERNATIVE METHOD OF COMPLIANCE

Section 1 Safety Assurance System: Evaluating an Airworthiness Directives Management Process

3-4749 REPORTING SYSTEM(S).

A. Safety Assurance System (SAS). Use SAS automation and the associated Data Collection Tools (DCT).

B. Program Tracking and Reporting Subsystem (PTRS). For Title 14 of the Code of Federal Regulations (14 CFR) parts 91 subpart K (part 91K) and 125, use the appropriate PTRS activity code.

3-4750 OBJECTIVE. This section provides aviation safety inspectors (ASI) with information to evaluate a certificate holder's Airworthiness Directive (AD) management process.

3-4751 GENERAL.

A. AD Management Process. The AD management process explained in this section presents a tangible means an operator may assess and respond to ADs. However, individual operations and needs should determine an operator's AD management process. When developing an AD management process, operators should consider their size, capabilities, resources, and equipment.

B. AD Process Evaluation. It is the ASI's responsibility to evaluate the operator's process and determine if all pertinent elements of an AD management process are defined. When deficiencies are detected, an ASI should address these matters with the operator. When the AD management process is part of a Continuous Airworthiness Maintenance Program (CAMP), the Continuing Analysis and Surveillance System (CASS) must include the performance and effectiveness of the AD management process. The CASS is responsible to identify and correct deficiencies within the AD management process. The ASI may require the operator to make necessary manual changes when determining compliance with the applicable Continuing Analysis and Surveillance (CAS) rule.

C. Current ADs. In order to perform adequate oversight, ASIs should remain aware of new ADs. This may be done by subscribing to the links listed below. ADs are posted in the Federal Register (FR) both as a notice of proposed rulemaking (NPRM) and as a final rule. These documents are readily available via the following links:

- http://www.faa.gov/regulations_policies/airworthiness_directives/.
- Flight Standards Information Management System (FSIMS) at http://fsims.avs.faa.gov (refer to the link to the Regulatory and Guidance Library (RGL) (http://rgl.faa.gov)).

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NOTE: Each Web site provides a subscription service, which will generate an email notification.

3-4752 BACKGROUND.

A. Federal Aviation Administration (FAA) Authority. The FAA authority regarding civil aircraft may be found generally in Title 49 of the United States Code (49 U.S.C.) § 44701. One of the ways the FAA implements its authority is through 14 CFR part 39. ADs authorized under part 39 are issued in accordance with the public rulemaking procedures of the Administrative Procedures Act (APA).

B. AD Issuance. The FAA issues ADs when an unsafe condition is found to exist in a product and which is likely to exist or develop in other products of the same type design. ADs are used to notify aircraft owners and operators of unsafe conditions and the actions required to resolve those conditions.

NOTE: To ensure continued airworthiness, concerns regarding ADs should be addressed in a logical and comprehensive manner. This can be accomplished by operators developing robust AD management processes, which should encapsulate all six elements discussed in the remaining paragraphs of this section.

C. Service Bulletins (SB) Incorporated by Reference (IBR) into ADs. The following provides background and general information related to best practices for SB related to an AD. The action(s) specified in an AD are intended to detect, prevent, resolve, or eliminate the unsafe condition. Those actions can either be written directly into the regulatory portion ("body") of the AD, or another document, such as a SB, can be referenced in the AD body and submitted to the Office of Federal Register (OFR) for IBR approval. Compliance with a SB that is IBR into an AD is mandatory.

1) Safety Intent and Configuration Description. An SB IBR in an AD may contain paragraphs entitled "Safety Intent," and for ADs that will change the configuration of a part, "Configuration Description." These paragraphs are intended to enhance and focus awareness of the safety issue during the development and approval of the SB as well as during implementation and subsequent maintenance. The "Safety Intent" paragraph should explain what accomplishment of the SB is intended to do (i.e., prevent, resolve, or otherwise remove the unsafe condition). The paragraph should be a concise and clear statement of the specific technical objective of the instructions. If accomplishing the SB will change configuration, a "Configuration Description" paragraph should be included to provide a concise, high-level description of the design change that will result from accomplishing the instructions. The "Configuration Description" should be limited to the features that will prevent development or recurrence of the unsafe condition once the configuration has been implemented. The "Configuration Description" may guide, but cannot be used as the final determinant of compliance with an AD.

2) Critical Task Differentiation. An SB IBR in an AD may identify steps that have a direct effect on detecting, preventing, resolving, or eliminating the unsafe condition, with "RC" (required for compliance). Any substitutions or changes to RC steps will require an alternative

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method of compliance (AMOC) approval. Differentiating these steps from other tasks in a SB will improve an owner/operator's understanding of crucial AD requirements and help provide consistent judgment in AD compliance. In older ADs, the term "RC" is not used and all steps are mandatory. An AMOC is required for any substitution or change desired by the owner/operator.

3-4753 RECOMMENDED PROCEDURES FOR DEVELOPING AN AD MANAGEMENT PROCESS. There are many distinct internal processes, controls, and actions necessary for AD compliance planning, implementation, and auditing. The remaining paragraphs of this section describe common processes and practices to manage ADs. The AD management process can be categorized into six elements:

- Planning.
- Support.
- Provisioning.
- Implementing.
- Recording.
- Auditing.

3-4754 PLANNING. The planning element ensures awareness and assigns responsibility for AD requirements. The planning element may include a review of:

- The AD.
- Referenced documents.
- Engineering.
- Materials.
- Scheduling.
- Recordkeeping.
- Maintenance execution.
- Quality control (QC).
- Quality assurance (QA).

A. AD Configuration Control Board (CCB). An operator's planning element may include an AD CCB that has regular meetings, or equivalent, where action plans are reviewed, coordinated, and assigned. The plan should identify the details (i.e., who, what, when, where, and how) regarding affective AD compliance. These meetings may help ensure all affected departments of the operator are aware of their responsibilities and where acknowledgement of those responsibilities is recorded.

NOTE: Some operators may have fewer resources than others; therefore, a single individual or department may conduct AD planning functions.

B. AD Planning Meetings. The operator may request/invite ASIs to the AD planning meeting. Therefore, the operator may develop a process for notifying and inviting its certificate-holding district office (CHDO)/principal inspector (PI) or local Flight Standards District Office (FSDO) prior to AD planning meetings. When the operator brings forth issues, concerns, or clarification requests, the ASI serves as an observer and a coordinator, and ensures

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that the appropriate FAA discipline (e.g., Aircraft Evaluation Group (AEG), Aircraft Certification Office (ACO), and Engine Certification Office (ECO)) is consulted and their recommendations/guidance is provided as feedback to the operator.

NOTE: Participation of an ASI is at the request of the operator. The ASI does not provide concurrence/approval of an operator's compliance decisions. However, the ASI may provide input on applicable FAA policy and share best practices, safety suggestions and/or concerns. The ASI must clearly state which input is regulatory and which is non-regulatory or advisory as required by Volume 14, Chapter 1, Section 2, subparagraph 14-1-2-9C and the current edition of FAA Order 2150.3, chapter 5, subparagraph 3b). If the ASI is unsure of his or her role or how to participate/respond, the ASI must work interdependently to clarify the role and/or input with his or her office management and/or other subject matter experts (such as the AEG) as needed.

C. Identifying Risks. The planning element is an appropriate venue to determine what verification process may be needed to identify risk, which would ensure continued compliance with ADs. An effective planning element should determine if an AD is applicable to the operator. The planning element should also include a risk analysis that considers the conditions that could arise through implementation or configuration changes. These conditions, which could affect the probability of errors, may include:

- Operator's dynamics.
- ADs with a high risk of change.
- AD complexity (complex or workload-intensive ADs may create greater error rates and higher risks).
- Accessibility/location.
- ADs with repetitive inspections.

D. AD Verification Process.

1) Once these risks are analyzed, a possible AD verification process may be developed to include:

- Physical verification,
- Verification of records,
- Meeting criteria for inclusion into a sampling program, and
- A required one-time verification (i.e., no future verifications are required).

2) An effective planning element should identify ADs that have the highest risk for potential alteration(s) during normal maintenance. Once a risk assessment is accomplished, prioritized ADs should continually be verified through an operator-developed verification program.

E. AEG Consultation. The planning element should include consultation with the AEG, which will coordinate with the ACO/ECO responsible for managing the AD if clarification is needed. Complex AD concerns should be brought forward at this time and clarification should be

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shared with the operator. This is also an opportune time to determine if the contemplated actions will comply with the AD.

F. AMOC Policy. The extent and nature of appropriate AD compliance documentation and determining if an AMOC is required should be considered during the planning element. ASIs must determine that the operator has a defined policy and procedure to identify and determine if an AMOC is necessary. The operator's AMOC policy should:

- Identify the specific requirements needed to obtain approval;
- When proposing an AMOC, consider making it for global distribution;
- When requesting design approval holder (DAH) assistance in obtaining an AMOC, provide permission to allow the DAH to pursue a global AMOC if appropriate;
- Identify personnel and their role in the process;
- Have a concise process to ensure deviations from AD requirements do not occur, unless the deviations have written approval (i.e., an approved AMOC); and
- Ensure AD compliance is recorded only *after* an approved AMOC has been accomplished.

NOTE: AMOC proposals, which can be submitted at any time during the AD management process, must be processed through the cognizant ACO/designee and/or local FSDO/PI. The AD identifies the responsible ACO that approves/disapproves AMOC proposals. Refer to part 39, § 39.19 and the current edition of FAA Order 8110.103, Alternative Methods of Compliance (AMOC), for more information.

G. Communication. As part of an AD management process, it is recommended that operators/air carriers develop a process to coordinate AD compliance matters with their local FAA office. This process may reference a conflict resolution process for circumstances that need an immediate resolution. Before agreeing to such a process, the FAA local office will ensure that the FAA's role, as defined in the process, is consistent with FAA policy.

H. Additional Areas of Consideration. Some of the areas that an operator should consider during the planning element include:

1) Careful review of the AD with particular focus on any unique aspects of the AD. Does it require specific parts or articles that require long lead times? Does it impact future inspection schedules?

2) Determining any unique product or appliance aspects. Does the AD apply to the entire fleet or only particular products or appliances? Are there repairs or alterations on the product or appliance that might require an AMOC?

3) Evaluating the method of compliance as annotated in the maintenance records (e.g., task cards, engineering orders, engineering authorizations, etc.) to ensure AD requirements will be met.

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4) Determining whether to use physical markings to identify areas where an AD is in effect.

5) Determining whether AD-referenced service instructions have already been accomplished. Also, determine if any deviations occurred from the service instructions, which would require an AMOC.

6) Determining whether there should be changes to the Aircraft Maintenance Manual (AMM), an Illustrated Parts Catalog (IPC), or a Wiring Diagram Manual (WDM) to ensure continued compliance.

7) Ensuring rotable spares and work performed in the shop are AD compliant and that noncompliant spares are not installed on compliant aircraft.

8) Determining the need for training and specific labor skills (e.g., avionics, Nondestructive Testing (NDT), structures, etc.).

9) Determining the restriction of AD accomplishment to site-specific locations.

10) Determining the need for an enhanced perspective (i.e., a second set of eyes) at the point of implementation.

11) Determining when and how audit plans will be impacted for ADs that call for segmented actions.

12) Determining whether prototyping is needed and, if so, the persons or departments that will accomplish that process.

3-4755 SUPPORT. The support element may consist of engineering, provisioning material, configuration control, etc. Not all operators will have in-house engineering capabilities; however, they will have personnel responsible for coordinating and auditing technical documentation. Staff responsible for technical documentation may also be responsible for reviewing and evaluating information associated with an AD. The operators may also employ or use outside engineering staff.

NOTE: The term “engineering” is used as a generic reference to a department or individual that performs this function.

A. Establish the Method of Compliance. The operator’s process should ensure that the AD method of compliance is concisely tracked and is included in maintenance records. Therefore, the operator should use the support element to establish the method of compliance with each AD requirement.

B. Schedule Coordination. The support element regarding configuration control may involve confirmation of forecasts and schedules to accomplish the work of AD implementation. The schedule coordination should preclude changes to the direction that was determined (e.g., omissions or changes to task cards).

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C. Organizational Structure. Depending on the operator's organizational structure, materials and scheduling/planning departments are responsible for ensuring the materials specified in the AD and engineering document are provided. Those departments should plan for adequate capacity and time to accomplish the AD requirement(s) in appropriate work environments with the required maintenance personnel.

D. Deviations. During accomplishment of AD-mandated actions, it is sometimes necessary to use an AMOC to deviate from the provided work instructions. Deviations may be due to issues such as configuration differences, damage findings, oversize fastener requirements, material substitutions, or service instruction discrepancies. The operator should have a process in place, preferably during the planning phase of AD implementation, to support these alternative processes/procedures. This process often involves an engineering department capable of collecting and addressing the necessary changes and then coordinating those changes with the DAH, FSDO/certificate management office (CMO), and ACO/ECO, as required. In addition, having an engineering department as part of this process may identify potential fleet-wide compliance or safety concerns and allow industry-wide resolution.

E. Engineering Review. The operator's engineering review should include a side-by-side, paragraph-by-paragraph comparison of all AD requirements against any compliance actions developed by the operator. The engineering review should:

1) Ensure that the certificate holder's method of compliance conforms to each element of an AD, or

2) Identify if an AMOC is needed. (Refer to Order 8110.103.)

NOTE: Obtaining direct input from the maintenance organization during the support element review of engineering-authorized documents can help operators eliminate a single-point failure risk.

F. Prototyping. If prototyping is needed, the AD management process should provide instructions to perform prototyping assistance and monitoring. Silent prototyping (i.e., witnessing a technician accomplish the instructions) is recommended.

3-4756 PROVISIONING.

A. Capabilities, Time, and Materials. The operator's materials and scheduling/planning departments should ensure that the materials specified in the AD and/or AMOC are procurable and available at the scheduled time for AD accomplishment. A provisioning element should also ensure adequate time and capabilities are sufficient to accomplish the AD in an appropriate work environment with the required maintenance personnel, tooling, and equipment.

B. Kitting. An operator may develop or be able to purchase from the Original Equipment Manufacturer (OEM)/DAH a kit that consists of all the AD-required parts and materials. This process is referred to as "kitting." The accuracy of the kit contents should be verified. Special attention should be made to ensure that part or material substitutions are only

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made with written approval from the appropriate ACO/ECO/designee (refer to the AMOC process in Order 8110.103).

C. AMOC Proposal. If AMOCs are required for parts or material substitutions, the AMOC proposal should be coordinated in a timely manner so that all provisions of the AD are in compliance by the due dates.

3-4757 IMPLEMENTING. The implementation element is the result of finalized actions involved in the planning, support, and provisioning elements.

A. AD Work Instructions. Operators are responsible for accomplishing AD work instructions in accordance with their procedures. This is the sole responsibility of the operator regardless with whom they make arrangements for performing AD work instructions.

B. Verify the Method of Compliance. The ASI's presence during the implementation element is an opportune time to verify and validate an operator's compliance method. However, the ASI does not provide concurrence/approval of an operator's compliance method.

C. AD Accomplishment. When evaluating an operator's prototyping process, the ASI should pay attention to an AD's accomplishment with particular attention to determine whether the mechanic can understand and perform the actions required by the AD. If ASIs believe there is a problem during prototyping, they should address their concerns to the operator's appropriate manager.

3-4758 RECORDING. The recording element should include the option of archiving all planning, supporting, provisioning, and implementing element documentation, as well as validation audits.

A. Maintenance Records. Maintenance records establishing AD compliance must be maintained in accordance with regulatory requirements. Once a maintenance record is made showing AD compliance, the product must meet and continue to show compliance with required AD actions. When inspecting AD records, ASIs will review the documents for compliance requirements listed below.

1) Identification of the particular airframe, aircraft engine, propeller, and appliance to which the AD is applicable.

2) AD compliance requirements for part 91, § 91.417(a)(2)(v), which states: "The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required."

3) AD compliance requirements for part 121, § 121.380(a)(2)(vi), which states: "The current status of applicable airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required."

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4) AD compliance requirements for part 135, § 135.439(a)(2)(v), which states: "The current status of applicable airworthiness directives, including the date and methods of compliance, and, if the airworthiness directive involves recurring action, the time and date when the next action is required."

NOTE: Regarding the records for an AD, the "method of compliance" means a concise description of the action taken to comply with the requirements of the AD. If the AD or its service instructions permit the use of more than one method of compliance, the record must include a reference to the specific method of compliance used. When reviewing service instructions, place emphasis on the imbedded notes. If the operator uses an AMOC to comply with an AD, the method of compliance means a description of the AMOC and a copy of the FAA approval of the AMOC. For more guidance regarding recordkeeping, review the sections of this order that pertain to maintenance records.

B. AD Record of Accomplishment. Listing the current status of an AD or method of compliance should not be confused with an AD record of accomplishment. The AD record of accomplishment is a description of the work and the person who performed it on the product.

3-4759 AUDITING. The main objective of an operator's auditing element is to provide a comprehensive method for continual verification and validation of AD compliance.

A. Compliance Validation. An effective auditing element of the operator should have a concise method of auditing ADs for continued compliance. This method may range from periodic compliance validation to a sampling program. The auditing element should also have a written process and procedure with specific intervals identified.

B. Validation Checks. Validation checks are considered when there is a risk of altering mandated AD actions or when there are highly complicated requirements that cross many maintenance areas. Validation checks may include random sampling or physical validation. (Refer to the current edition of Advisory Circular (AC) 39-9, appendix 5, Sampling Program and Physical Verification.)

C. Auditing Subelements. A comprehensive auditing element should include the following subelements:

1) Audit Processing. A documented activity that assesses the effectiveness and efficiency of a series of related or sequential work activities.

2) Audit Scheduling. A program that establishes a schedule of events (SOE) to be performed during a set calendar period.

3) Audit Preparation. A plan that considers the resources needed to perform an audit (e.g., source documents, personnel, facilities, and access of equipment).

4) Audit Performance. A documented activity that determines whether the objective evidence of applicable AD management process elements are implemented and documented.

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5) Audit Results Process. A process that includes:

- A method to identify noncompliance and/or unsafe conditions that should result in immediate reporting and corrective measures to resolve noncompliance;
- Describing audit findings and how they were discovered (results may be presented in terms of findings, concerns, observations, and recommendations);
- Analyzing evidence to determine the root cause(s) of the finding;
- Identifying planned corrective actions to take in response to the finding; and
- Establishing a timeframe for putting corrective actions in place.

D. Documentation. Documenting all decisions made during the AD management process is encouraged so that appropriate measures can be taken and processes can be improved in case any issues arise.

NOTE: To evaluate an operator's CASS performance verification and auditing as it relates to AD compliance, see Volume 3, Chapter 44, Section 1; and refer to the current edition of AC 120-79, Developing and Implementing an Air Carrier Continuing Analysis and Surveillance System.

3-4760 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 CFR Part 39, § 39.19.
- Part 91, § 91.417(a)(2)(v).
- Part 121, §§ 121.373 and 121.380(a)(2)(vi).
- Part 135, § 135.439(a)(2)(v).
- Title 49 U.S.C. § 44701.
- AC 20-176, Design Approval Holder Best Practices for Service Bulletins Related to Airworthiness Directives.
- AC 39-7, Airworthiness Directives.
- AC 39-9, Airworthiness Directives Management Process.
- AC 120-79, Developing and Implementing an Air Carrier Continuing Analysis and Surveillance System.
- FAA IR-M-8040.1, Airworthiness Directives Manual.
- FAA Order 8110.103, Alternative Methods of Compliance (AMOC).
- Volume 10, Safety Assurance System Policy and Procedures.

B. Forms. None.

C. Job Aids. None.

3-4761 TASK OUTCOMES. Follow SAS Volume 10 guidance for Modules 4 and 5 for data collection; completes the Analysis, Assessment, and Action (AAA), and Action Item Tracking Tool (AITT).

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3-4762 FUTURE ACTIVITIES. Follow SAS Volume 10 guidance to plan future risk based surveillance in SAS.

RESERVED. Paragraphs 3-4763 through 3-4774.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 61 AIRCRAFT NETWORK SECURITY PROGRAM

Section 1 Safety Assurance System: Evaluate the Operator's 14 CFR Parts 121, 121/135, 125, and 129 Aircraft Network Security Program

3-4887 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS) Activity Codes.

- 5315 (initial); and
- 5316 (revision).

B. Safety Assurance System (SAS) Automation. This section is related to SAS Elements 4.6.1 (AW), Avionics Special Emphasis Programs.

3-4888 APPLICABILITY.

A. Aircraft Network Security Program (ANSP) Requirement. The requirement for an ANSP is dependent on aircraft design and intended operation. An aircraft requiring an ANSP is one that is certified with a Special Condition (SC) reflected on the aircraft Type Certificate Data Sheet (TCDS) requiring operator actions to mitigate electronic security risks. These mandatory actions are found in the design approval holder's (DAH) maintenance or operational procedures as required by the SC. For the purpose of this chapter, these aircraft will be referred to as "connected aircraft."

B. Connected Aircraft. A connected aircraft operated under Title 14 of the Code of Federal Regulations (14 CFR) parts 121, 121/135, 125, and 129 require an ANSP. Operations under 14 CFR parts 91, 125M, and 135 are not required to have an ANSP. However, parts 91, 125M, and 135, as a condition for issuance of an airworthiness certificate, are required to follow the DAH procedures or instructions for continued airworthiness (ICA) developed to meet SCs addressing electronic system security. The DAH procedures must be included in the maintenance and operational programs.

NOTE: Some aircraft may have an SC for electronic security that applies to the DAH design only and does not require operator action. These aircraft do not need an ANSP or maintenance and operational procedures.

3-4889 OBJECTIVE. This section contains information and guidance that the principal avionics inspectors (PAI) use when evaluating an operator's ANSP. Upon official notification that an operator intends to add connected aircraft to their fleet, the PAI must consult the Flight Standards Service (AFS) Aircraft Maintenance Division, Avionics Branch (AFS-360) at 202-267-1704. This will provide for early coordination to ensure all program requirements are met prior to issuing Operations Specification (OpSpec) D301, Aircraft Network Security Program (ANSP) Authorization. The PAI is responsible for acceptance of the program with the concurrence of AFS-360. Personnel from the Office of Information & Technology (AIT) Security and Privacy Risk Management Staff (AIS-020) will support AFS-360 in the evaluation.

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NOTE: Because of this unique application of computer technology, AFS-360 will collaborate with AIS-020 to provide technical information technology (IT) security support. AFS-360 will rely on AIS-020 personnel for their expertise in IT cyber security to assist in evaluating the operator's security program. The PAI will make airworthiness evaluations with assistance and recommendations from the assigned AFS-360 aviation safety inspector (ASI).

NOTE: The PAI may require concurrence of ASIs in other specialties to assure all aspects of training are addressed, and to assure that the full operational impact of the connected aircraft configuration is assessed.

3-4890 GENERAL. This section contains a general overview of the requirements for evaluating an ANSP under parts 121, 121/135, 125, and 129. This section contains information and guidance about granting authorization for an operator's ANSP.

NOTE: OpSpec D301 for part 125 certificate holders does not apply to part 125M Letter of Deviation Authority (LODA) operators. It applies to U.S.-registered aircraft operated under part 129, and does not apply to part 129 operators that do not have U.S.-registered aircraft. It applies to all aircraft operated under part 129, § 129.14.

3-4891 ACTION. The ANSP is authorized in OpSpec D301. Log in to the Web-based Operations Safety System (WebOPSS) and follow on-screen prompts to complete the authorization.

3-4892 NEW USE OF TECHNOLOGY. Previously, aircraft designers used aviation (ARINC 429/629) or Military Standard (MIL-STD) data buses to interconnect flight critical avionics systems. Advance connectivity technology was used only to support the passenger information and entertainment systems, which were physically and logically separated from the flight critical avionics systems. New aircraft designs use advanced technology for the main aircraft backbone connecting flight critical avionics as well as passenger information and entertainment systems in a manner that makes the aircraft an airborne interconnected network.

A. External Systems Access. The architecture of this airborne network may allow read and/or write access to and/or from external systems and networks, such as wireless airline operations and maintenance systems, satellite communications, email, the Internet, etc. Onboard wired and wireless devices may also have access to portions of the aircraft's digital data buses that provide flight-critical functions.

NOTE: The design of these connected aircraft makes it difficult to maintain the certificated configuration of the aircraft without following procedures documented in an ANSP. OpSpec D301 is necessary to verify that operators have the skills, tooling, and procedures in place to accomplish the requirements of the DAH's aircraft operator security guidance.

B. Risk. Connected aircraft have the capability to reprogram flight critical avionics components wirelessly and via various data transfer mechanisms. This capability alone, or coupled with passenger connectivity on the aircraft network, may result in cyber security

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vulnerabilities from intentional or unintentional corruption of data and/or systems critical to the safety and continued airworthiness of the airplane. Credible examples of risks include the potential for:

- Malware to infect an aircraft system,
- An attacker to use onboard wireless to access aircraft system interfaces,
- Denial of service of wireless interfaces,
- Denial of service of safety critical systems,
- Misuse of personal devices that access aircraft systems, and
- Misuse of off-board network connections to access aircraft system interfaces.

3-4893 REGULATORY REQUIREMENTS. The existing regulations did not anticipate this type of system architecture or electronic access to aircraft systems that provide flight-critical functions. Title 14 CFR and current system safety assessment policy and techniques do not address potential cyber security vulnerabilities that unauthorized access to aircraft data buses and servers could cause. In accordance with 14 CFR part 11, § 11.19, as described in 14 CFR part 21, § 21.16, aircraft network systems are certificated through various means, including but not limited to type certificates (TC) and Supplemental Type Certificates (STC) that include SC requirements of the ICA. Title 14 CFR part 43, § 43.13 requires each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance to use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or ICA prepared by its manufacturer; or other methods, techniques, and practices acceptable to the Administrator. PAIs will determine that an operator's ANSP is in compliance with applicable regulations and manufacturer's instructions. The manufacturer's instructions may be in the form of a recommended aircraft security program, airworthiness limitations (AL), or other instructions.

3-4894 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Advisory Circular (AC) 119-1, Airworthiness and Operational Authorization of Aircraft Network Security Program (ANSP).
- Certificate Holder's Manual.

NOTE: When the certificate holder accepts an industry specification or standard as the means of complying with the regulation, the standard becomes, in effect, a part of the certificate holder's manual. The certificate holder should have available a copy of any specification it references in its manual.

B. Forms. None.

C. Job Aids. None.

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3-4895 OPERATOR ACTION.

A. Develop an ANSP. Operators of connected aircraft must develop and maintain an ANSP that is sufficiently comprehensive in scope and detail to accomplish the following:

1) Ensure that security protection is sufficient to prevent access by unauthorized sources external to the aircraft.

2) Ensure that security threats specific to the certificate holder's operations are identified and assessed, and that risk mitigation strategies are implemented to ensure the continued airworthiness of the aircraft.

3) Prevent inadvertent or malicious changes to the aircraft network, including those possibly caused by maintenance activity.

4) Prevent unauthorized access from sources onboard the aircraft.

NOTE: AIS-020 will be the focal point for verifying the items in subparagraphs 3-4895A1) through A4).

B. Guidelines for Authorization. Operators of connected aircraft during initial certification (including the addition of new types of connected aircraft) should ensure that the initial compliance statement clearly describes the procedures that the operator will use for the ANSP. The operator must develop a section in its General Maintenance Manual (GMM) or other appropriate manual that provides detailed instruction on:

- Roles and responsibilities, including persons with authority and responsibility;
- Training/qualifications;
- Control of maintenance laptop/ground support equipment access and use;
- Control of access to airport wired and wireless service network;
- Controlling access to Loadable Software Airplane Part (LSAP) librarian resources;
- Creating secure parts signing process and controlling access to private keys;
- Control/monitor of physical access to aircraft;
- Control of aircraft conformity to type design, as amended;
- Provisions for parts pooling and parts borrowing;
- Procedures for part exchanges within its own fleet;
- Event recognition and response;
- Event evaluation process with considerations for program improvements; and
- Security environment description.

C. Verify. The PAI should encourage the operator to submit the request for authorization for OpSpec D301, along with ANSP documents at least 60 days prior to planned operation of the connected aircraft. Working with AFS-360, the PAI will verify that the operator has established appropriate event recognition, response processes, and security awareness training within their respective program area.

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3-4896 PROCESS. PAIs, with assistance from AFS-360, will collaborate with certificate holders to determine the mandatory and recommended requirements of the manufacturer's security document.

A. Verify the Most Recent Version. Verify that the certificate holder has the most recent version of the manufacturer's security document. Use the following resources to determine the most recent version:

- Airworthiness Limitation Section (ALS) of the Aircraft Maintenance Manual (AMM).
- Aircraft Certification Office (ACO).
- Aircraft Evaluation Group (AEG).

B. Compare the Requirements and Recommendations. Compare the requirements and recommendations in the manufacturer's security document to those in the ANSP. Verify that the certificate holder addresses the requirements, and that any recommendations appropriate to the certificate holder operations are included.

NOTE: It is not necessary for the PAI to verify the technical aspects of data security. AIS-020 will accomplish this during headquarters (HQ) review.

C. Verify the Appropriate Changes. Verify that appropriate changes are reflected in the certificate holder maintenance program and that the GMM or equivalent manual is revised accordingly. For example, if an ANSP states there is a process to validate the manufacturer's digital signature on software parts received, that process should be described in the "Parts Receiving" section of the GMM. Also, if ANSP sensitive parts are received from a parts pool, the parts pooling procedures should address this.

D. Review the ANSP. During initial implementation of OpSpec D301, the regional specialist is not tasked to review the ANSP.

E. Complete the Package. The PAI will submit the request directly to AFS-360, with a courtesy copy to the regional specialist. Whenever possible, to allow for the most timely and efficient review, the ANSP package will be submitted electronically via email with return receipt requested. The AFS-360 ASI will submit the ANSP to the assigned AIS-020 security specialist for a concurrent review. The AFS-360 ASI and/or the AIS-020 security specialist may collaborate directly with the PAI, the certificate holder, or the regional specialist to satisfy any issues or concerns. When satisfied, AFS-360 will return the complete package to the PAI with a cover letter recommending authorization of OpSpec D301. AFS-360 will provide a courtesy copy of the cover letter to the regional AFS specialist.

F. Data Security Manager. Although not a requirement for every manufacturer's security document, it is critical that the ANSP identify a data security manager. The identity may be by title, organization, and office in the ANSP, provided the certificate holder submits a letter in writing to the certificate-holding district office (CHDO) with the name and contact information for the data security manager. The ANSP should state that the operator shall notify the CHDO within 5 days of subsequent changes to the data security manager. The data security

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manager is the person with primary responsibility for the ANSP and serves as the focal point for interface with the Federal Aviation Administration (FAA) regarding data security.

3-4897 MERGERS, ACQUISITIONS, AND PROGRAM CHANGES. When two or more ANSPs consolidate because of a merger or acquisition, the consolidation of those programs is of particular importance. The PAI must give priority to the accurate consolidation of those programs. Once the PAI accepts the surviving program, the operator should take action to ensure security records, reports, and logs are maintained, archived, or transferred as appropriate from the existing program into the surviving program. During this transition, the PAI will determine the time period required for maintaining the two systems in parallel operation. The surviving program should have at least the same capability as the existing program. The integration of the existing and surviving programs must maintain the integrity of the security system.

3-4898 CONTRACT MAINTENANCE PROVIDERS. The operator must ensure the contract maintenance provider complies with its ANSP as required by part 121, § 121.363(b) or part 125, § 125.245. The operator will verify compliance with this requirement by use of the audit process required by its Continuing Analysis and Surveillance System (CASS) and Continuous Airworthiness Maintenance Program (CAMP) as required by §§ 121.373 and 121.374, or § 125.247(e). A certificated repair station (CRS) that performs maintenance, preventive maintenance, or alterations for an operator that has an ANSP authorized under OpSpec D301 must follow the operator's program as required by 14 CFR part 145, § 145.205.

3-4899 TASK OUTCOMES.

A. Complete the PTRS Record. Use PTRS code 5315 for initial ANSP authorization or 5316 for revision thereof. In the "National Use" field, enter "ANSP Init" for initial authorization or "ANSP Rev" for any revisions to OpSpec D301 or any significant security program revisions even if OpSpec D301 is not revised. The PAI must document all reasons to deny the authorization in the comments section of the PTRS record.

B. Future Activities. Routine surveillance can be found in SAS Elements 4.6.1 (AW), Avionics Special Emphasis Program. PAIs will conduct periodic routine surveillance of an operator's ANSP to verify that the operator maintains network security and that the operator has made no significant changes to the program without PAI concurrence. PAIs will verify that the records and security logs continue to contain the required information to show compliance. If the operator makes changes to the ANSP (even when the change is driven by a revision to the manufacturer's security document), or adds additional models of connected aircraft, the PAI will consult AFS-360 to determine if the program requires reevaluation. In accordance with Volume 3, Chapter 18, Section 2, any changes requiring reissuance of OpSpec D301 requires AFS-360 approval. As new connected aircraft are delivered to operators, AFS-360 is taking a proactive approach to reach out to the affected PAIs to inform, and assist them in initial implementation of OpSpec D301.

NOTE: AIS-020 may provide additional recommended surveillance tasks in the future.

RESERVED. Paragraphs 3-4900 through 3-4916.

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VOLUME 4 AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATIONS

CHAPTER 2 ALL WEATHER TERMINAL AREA OPERATIONS

Section 10 Safety Assurance System: Maintenance/Inspection Programs for Low Approach and Landing Minimums

4-416 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). Use activity code 5435.

B. Safety Assurance System (SAS) Automation. This section is related to SAS Element 4.6.1 (AW), Avionics Special Emphasis Programs.

4-417 OBJECTIVE. This section provides guidance for evaluating applications for lower approach and landing minimums in respect to the appropriate support program.

4-418 GENERAL.

A. Responsibilities.

1) The Avionics aviation safety inspector's (ASI) primary responsibility is to provide technical support to the Operations ASI and the applicant. The responsibility for monitoring all applicants during the evaluation period should be coordinated between the Avionics and Operations ASIs, to include:

- Approvals,
- In-flight evaluation observations, and
- Surveillance.

2) The applicant is responsible for obtaining and submitting all documents that establish the eligibility of its aircraft, such as:

- The required maintenance/inspection program necessary for continued eligibility;
- The applicant's minimum equipment list (MEL), with the limitations for Category (CAT) I operations, if applicable; and
- An acceptable means for maintaining the reliability of the flight guidance control and associated systems.

B. Qualifications for Low Approach and Landing Minimums. Low approach and landing minimums are issued to qualified operators operating under Title 14 of the Code of Federal Regulations (14 CFR) part 91, 121, 125, 129, or 135. While the operating rules for each of these authorizations may vary significantly, the approval guidelines do not. Approval for low or minimum approaches in all categories will require regulatory compliance in the following three major areas:

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- Airborne equipment and systems,
- Flightcrew and maintenance personnel qualifications, and
- Lowered minimum procedures, including a maintenance/inspection program.

C. Deviations. Deviations will not be made without coordination between the Avionics and Operations ASIs. All requests for deviations must be forwarded to the Air Carrier Training Systems and Voluntary Safety Programs Branch (AFS-280) and the Avionics Branch (AFS-360) by the Operations ASI. The applicant will be advised not to proceed in operating under its lower minimum proposal until the deviation request is resolved.

4-419 PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites.

- Knowledge of the regulatory requirements of parts 91, 121, 125, 129, and 135, as applicable.
- Successful completion of the Airworthiness Inspector Indoctrination course(s), or previous equivalent.

B. Coordination. This task requires coordination with the Avionics and Operations ASIs, the applicant, the Aircraft Evaluation Group (AEG), and the Aircraft Certification Office (ACO), if necessary.

4-420 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 CFR Parts 23, 25, and 61.
- AC 120-28, Criteria for Approval of Category III Weather Minima for Takeoff, Landing, and Rollout.
- AC 120-29, Criteria for Approval of Category I and Category II Weather Minima for Approach.

B. Forms. None.

C. Job Aids:

- Job Task Analysis (JTA): 3.3.33, 3.3.144.
- Volume 4, Chapter 2, Section 2, Figure 4-6, Category II/III Approval Job Aid (Avionics/Airworthiness) for Parts 91, 91K, and 125.

4-421 CAT I OPERATIONS. The Avionics ASI's responsibilities for CAT I authorizations are to evaluate the flight director (FD) and/or autopilot systems. The principal operations inspector (POI) is responsible for determining the overall suitability of an operator's CAT I capabilities.

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4-422 CAT II EQUIPMENT APPROVAL UNDER PARTS 91 AND/OR 135 (9 OR LESS).

A. Lower Approach Minimum Approval. An application for lower approach minimum authority will specify the basis for the aircraft approval to conduct lower minimum approaches. This authority will be based on:

- Type certification and the Airplane Flight Manual (AFM)/Rotorcraft Flight Manual (RFM),
- Supplemental Type Certification,
- Operational evaluation, or
- Any acceptable combination of the above.

B. Requirements for CAT II Approval.

1) Requirements for CAT II approval for General Aviation (GA) operators have been established in part 91, §§ 91.189, 91.191, 91.193, and 91.205, and part 91 appendix A (see the note below). These sections specify:

- Required instruments and items of equipment,
- Methods of approval,
- Evaluation program conduct,
- Calibration standards, and
- Maintenance/inspection programs.

2) AC 120-29 is available to assist operators in developing and obtaining approval of CAT II equipment installations and maintenance/inspection programs.

C. Operational Evaluation Programs. Engineering coordination should be requested when necessary, particularly for those aircraft in which the functions and limitations of the automated systems are significant factors for safe operation.

D. FD Systems. Avionics ASIs will be aware that single FD systems with dual displays in which the second display repeats only the instrument landing system (ILS) information on the pilot's display will not meet the requirements for two ILS receiving systems.

E. Optional Avionics Equipment. Optional avionics equipment installed by the operator will either be approved in the field or referred to the ACO for an engineering evaluation. The evaluation can assist in determining if flight testing is required, what limitations may apply, and whether or not the installation may require a Supplemental Type Certificate (STC). If an STC is required, Avionics ASIs will assist in the accomplishment of a compliance and conformity inspection, as necessary, when requested by the ACO. Optional equipment that may be installed and require approval includes the following:

- FD systems,
- Automatic throttle control systems,
- Autopilot and approach coupler systems,

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- Speed control command systems,
- System fault detection and warning systems, and
- Radio altimeters (RA).

F. Alterations. ASIs should carefully review proposals to alter installed avionics equipment required for a particular category of operation and handle them in accordance with established procedures. Each proposal should be evaluated for its effect on system performance, compatibility with the original standard, and compliance with CAT II criteria.

1) When manufacturer-proposed alterations to existing avionics equipment appear to be major, the ASI will verify the approval status before sanctioning incorporation of the change by the operator. If Federal Aviation Administration (FAA) approval of the alteration is not clearly indicated in the manufacturer's instructions, the operator will obtain such approval before performing the alteration.

2) An Avionics ASI will exercise a cautious approach to field approval of alterations. Pressure from any source must not discourage the Avionics ASI from verifying that the alteration is being made in accordance with approved technical data and that the technical evaluation is clearly within the scope of the Avionics ASI's training, experience, and approval authority.

3) ASIs will also carefully examine alterations originating in an operator's engineering department and, when necessary, refer them to the appropriate ACO.

4-423 CAT II/III EQUIPMENT APPROVAL UNDER PART 121/135 (10 OR MORE).

A. Large Aircraft Criteria. Operators using large aircraft operating under part 121 will meet the requirements in this chapter.

NOTE: AC 120-28 or AC 120-29 is available to assist operators in developing and obtaining approval of CAT II/III equipment installations and maintenance/inspections programs.

B. Turbojet Criteria. All operators using turbojet aircraft must comply with the aircraft systems evaluation criteria that applies to part 121 operators. Applicants certificated under part 135 using turbojet aircraft will also use the aircraft equipment evaluation standards.

C. Systems Evaluation Approval. Systems evaluation approval should be accomplished in accordance with AC 120-28 or AC 120-29, as applicable.

D. CAT II/III.

1) The aircraft requirements for Lower Landing Minimums (LLM) include requirements for the total aircraft performance and associated systems. The acceptance of an aircraft in either category must be completely based on performance and approved FAA data.

2) Upon receiving an operator's request for LLM authorization, the assigned Avionics ASI should immediately contact the type certificating office. This action is to

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determine whether the aircraft has been approved for such operation and what equipment and systems have been approved. If the aircraft has not been LLM certified, the ASI should request assistance from the appropriate ACO so that an application for an STC can be properly consolidated.

4-424 CONTINUOUS AIRWORTHINESS MAINTENANCE PROGRAM (CAMP) OR APPROVED AIRCRAFT INSPECTION PROGRAM (AAIP) FOR LLM.

A. Requirements. This section outlines the requirements for the CAMP, part 91K (optional), 121 or 135 and approved inspection program, parts 91K and 125. This type of operation will need a detailed evaluation supported by well-defined maintenance, training, and reliability programs. All maintenance and reliability supporting documents become part of the accepted program. A monthly utilization/reliability summary will be established for the applicable aircraft and is given to the FAA for the initial data collection/demonstration period of 1 year. Quarterly reporting after the initial period will be accomplished in accordance with the certificate holder's reliability.

B. Initial Program. The initial program should also include appropriate programs identified in the Maintenance Review Board (MRB) document. The frequency of maintenance actions may be revised when sufficient experience has been gained to justify a change and when there is no conflict with the certification requirements. MRB-specified tasks and/or other approved maintenance procedures may be revised to ensure the required airborne equipment will continue to meet total system performance, accuracy, availability, reliability, and integrity for the operation.

C. Reliability. The reliability of systems and/or components set forth as substantiation for the LLM certification becomes the performance criteria for the program. Reliability reporting is not required for CAT I programs.

1) Controlled monitoring of the LLM system reliability will require that the operator, after initial evaluation, incorporate the pertinent systems and components into the approved reliability program. If the LLM system reliability does not meet the approved program, the operator will be allowed a reasonable time period in which to improve the reliability.

2) The ACO responsible for the type certification should be advised when the monthly removal rate is exceeded and informed of the probable cause. The reliability reporting is necessary when operational approval was based on probability analysis.

D. Maintenance Manual. The maintenance manual will identify all special techniques, maintenance/inspection frequencies, and test equipment requirements to support the program. It will also specify the method of controlling the operational status of the aircraft. Those technicians qualified to release an aircraft for LLM must be identified.

E. Procedures. The operator's procedures must include a method for manual distribution to assure availability to the appropriate maintenance facility.

F. Method of Approval. Operators will show the method of approval of required equipment as listed in the maintenance portion of the manual.

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G. Approved Training. The operator must provide an approved training and recurrent training program. The list of personnel must be current. All maintenance personnel authorized to carry out this approved maintenance program must have training on the applicable aircraft systems and the approved policy and procedures of the certificate holder's approved LLM aircraft maintenance program authorization. Only those persons trained and qualified should be permitted to perform LLM maintenance/inspections.

H. Airborne Systems. The operational demand for LLM airborne systems with exposure to numerous hidden functions requires that the aircraft be either periodically exercised or functionally checked. This is to ensure that all systems are operational and that no dormant failure has occurred. The initial program will provide either a periodic LLM approach or periodic system functional check.

I. Experience. Until sufficient experience and data is available (excluding the 6-month demonstration), it is recommended the aircraft status period not exceed 35 days. Failure to exercise the system by simulated LLM approach or functionally checking the system within 35 days should automatically place the aircraft in a non-LLM status. The aircraft must maintain this status until the required functional check is made.

4-425 PROGRAM DEVELOPMENT.

A. Initial Development. At the time of formal application, the Avionics ASI will begin to monitor development activity. Participation in all meetings with an applicant will usually require coordination with the Operations ASI. It is important for the operator to include all key personnel in any meetings.

B. The Operator's Lower Minimums Program. The operator's lower minimums program must be developed and the procedures used during the evaluation period. Part D operations specifications (OpSpecs) must reflect all special LLM maintenance requirements that were developed to support repetitive evaluation of LLM systems and equipment.

4-426 MAINTENANCE/INSPECTION PROGRAMS. The proposed maintenance/inspection programs must be tailored to the applicant's operations and maintenance organization. All maintenance and reliability supporting documents become part of the accepted program.

A. Requirements for Maintenance/Inspection Programs. Maintenance/inspection programs will provide for the proper maintenance and inspection of equipment and aircraft systems.

B. Control and Accountability. Emphasis will be placed on control and accountability of all areas associated with LLM approvals. These areas primarily encompass the following:

- Initial and recurrent training on flight guidance control systems,
- The use of test equipment,
- The differences in aircraft systems between aircraft in an operator's fleet,
- Special procedures for airworthiness release and control of the aircraft approach status,

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- Initial and recurrent training in all areas of the lower minimums program, and
- Training for new personnel and equipment types.

C. Operational Status of the Aircraft. The method for controlling the operational status of LLM aircraft equipment must include procedures that keep flight, dispatch, and maintenance personnel aware of that status.

D. Purchase of Avionics Equipment Package Installations. Some manufacturers and repair stations may develop GA maintenance/inspection programs in conjunction with their CAT II avionics equipment installation "package." The contents of such programs should be thoroughly evaluated for compliance and maintainability with LLM regulations.

E. Requalification Procedures. The program must include procedures for requalification of an aircraft for lower minimums following maintenance on any required system. This must include tests after replacements, resetting in rack, and interchange of components.

F. Approval. The Avionics ASI will indicate approval of the maintenance program portion of the operator's CAT II/III manual by signing and dating each page of the program. When the Avionics ASI accepts the manuals and provides them in electronic format, the operator should follow the guidance in the current version of AC 120-78, Acceptance and Use of Electronic Signatures, Electronic Recordkeeping Systems, and Electronic Manuals, to provide a means for the Avionics ASI to indicate approval of applicable CAT II/III maintenance program manual sections (e.g., electronic signature or hard copy signature page).

4-427 MAINTENANCE TRAINING PROGRAMS. Avionics ASIs, during the course of normal surveillance, will evaluate the maintenance facilities performing CAT II/III equipment maintenance to ensure that the training provided meets the requirements of lower minimum standards.

4-428 EXISTING CAMP/AAIP.

A. Develop Programs. Programs can be developed to be compatible with the existing maintenance/inspection program, as long as there is a clear distinction between normal and lower minimum requirements.

B. Proposal. When an operator's proposal is based on an existing maintenance/inspection program, the ASI must ensure that all procedures will provide for the lower minimums program requirements. Caution will be exercised when an applicant has used a program approved for use by another operator for developing its own.

C. Proposal/Existing Program Areas for Close Review. The following areas of the proposal and/or existing programs will be closely reviewed:

- The existing maintenance or inspection program;
- The existing reliability program;
- The training program;
- The initial evaluation checks for existing aircraft and for new aircraft;

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- The existing parts pool, borrowed parts procedure, and control of spare parts; and
- An operator's existing reliability program may be accepted when shown to be adequate for its lower minimum operations.

4-429 TEST EQUIPMENT AND STANDARDS.

A. Performance Standards, Tolerances, and Calibration Procedures.

1) Performance standards, tolerances, and calibration procedures applicable to ILS equipment have been adequately covered by:

- Technical Standard Orders (TSO),
- RTCA documents, and
- Manufacturers' instruction manuals.

2) These standards or their equivalent are generally considered acceptable for inclusion in maintenance/inspection programs for equipment operated to the landing minimums of CAT I. Such standards may not be adequate for CAT II/III. Those that will not provide CAT system performance will be revised to provide the required level of performance.

B. LLM Tolerances. In many cases, the tolerances for CAT II/III airborne equipment are more rigid than those for CAT I. Therefore, the equipment used to inspect, test, and bench check CAT II/III equipment may require more frequent test and calibration.

C. Established Standards and Tolerances. Standards and tolerances established in the maintenance/inspection program for testing and calibrating airborne equipment and systems that are required for CAT II/III operations will not be relaxed following program approval without adequate substantiation that system performance will not be degraded.

D. Built-In Test Equipment (BITE) Test and Return to Service.

1) The BITE test is a maintenance tool that can be used for return to service if certified by the aircraft manufacturer. The proper procedure for return to service is to perform an operational ground or functional flight check. The procedures in the manufacturer's maintenance manual, including the provisions of BITE, the fault isolation manual, the aircraft maintenance manual, and the operator's FAA-approved MEL are all essential portions in the process for an aircraft to be returned to service.

2) For those aircraft for which BITE is minimal or non-existent or that have a mix of digital and analog equipment, a more comprehensive functional test using test procedures and equipment prescribed in the manufacturer's maintenance manual must be accomplished before approval to return to service. On repeat discrepancies, the functional test must consist of the most comprehensive test in the maintenance manual for aircraft that have different levels of test complexities.

3) The CAT II/III maintenance manual will address the procedures for return to service.

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4-430 MAINTENANCE PERIOD EXTENSIONS—GENERAL AVIATION.

A. Applications for Extensions.

1) The Flight Standards District Office (FSDO) will consider applications for extensions of maintenance periods for GA operators at the completion of one maintenance cycle of at least 12 calendar-months. Operators should apply to the FSDO having jurisdiction of the area in which the operator is located.

2) The FSDO will consider the following factors in granting an extension:

- Records of CAT II approaches due to malfunctioning equipment,
- Number of CAT II approaches (actual and simulated),
- Maintenance records of CAT II equipment failures,
- Service history of known trends toward malfunctioning,
- Unit mean time between failures (MTBF), and
- Records of functional flight checks.

B. Check, Test, and Inspection Extensions. Extensions to the check, test, and inspection periods may be granted if factors indicate that the performance and reliability of the CAT II/III instruments and equipment will not be adversely affected. GA extension periods, in most cases, would be 1 calendar-month for tests, inspections, and functional flight checks, and 4 calendar-months for bench checks. The operator's program should include procedures for obtaining the extensions.

C. Increased Extension Periods. The extension periods suggested in subparagraph 4-430B may be increased at the discretion of the Avionics ASI.

4-431 FUNCTIONAL FLIGHT CHECKS. Some operators have submitted programs that provide for functional flight checks. This procedure must not be approved unless all airworthiness requirements have been satisfied before dispatch. In no instance can a functional flight check be substituted for the certification of complete systems or equipment operation.

4-432 REPORTS AND RECORDS.

A. Responsibilities of Recordkeeping. The owner's/operator's organization will provide training to persons responsible for these reports in appropriate parts of the proposed LLM program.

B. CAT III or Any Autoland Category. Operators authorized for any autoland category will provide reports of airborne equipment malfunctions during actual approaches. They will submit the reports on a yearly basis to the FAA or at any time the malfunctions significantly affect the autoland capability.

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4-433 PROCEDURES.

A. Review the Maintenance/Inspection Program. Review the applicant's maintenance/inspection program to ensure that it contains control and accountability over the following:

- All maintenance accomplished on lower minimum required systems and equipment;
- All alterations to systems and equipment;
- Approach status of each aircraft at all times;
- Return to service procedures to upgrade aircraft to CAT II/III status;
- Spare equipment;
- Maintenance calibration, use of test equipment, and records/reporting requirements;
- Repetitive and chronic discrepancies to ensure the affected aircraft remains out of lower minimums approach status until positive corrective actions is made; and
- All aircraft in the fleet that have not been evaluated for lower minimums approaches.

B. Review the Existing Maintenance/Inspection Programs. Ensure that the existing maintenance/inspection program has procedures for the following:

- Identifying chronic discrepancies and corrective action followup;
- Keeping aircraft with chronic and/or repetitive discrepancies out of a lower minimum status until positive corrective action is taken;
- Training maintenance personnel assigned to reliability analysis;
- Conducting initial evaluation checks for existing aircraft and for new aircraft to the fleet before inclusion in the operator's lower minimum operations;
- A means for identifying all CAT II/III components used in the applicable aircraft systems in the existing parts pool, parts borrowing procedure, and control of spare parts;
- Ensuring that calibration standards for all test equipment used for maintaining lower minimum systems and equipment are met;
- Ensuring that each flightcrew and persons with operational dispatch authority are aware of any equipment malfunction that may restrict lower minimum operations; and
- Submitting any changes to the LLM maintenance program to the FAA for acceptance and approval by the principal avionics inspector (PAI) before any changes are adopted.

C. Review the Functional Flight Checks. If a functional flight check has been submitted, ensure that the following information is included:

- Maintenance clearance and/or concurrence before an aircraft is returned to a lower minimum status, even if the functional flight check was found to be satisfactory;

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- Request for a flight check by maintenance in the aircraft log; and
- Maintenance entry acknowledging the results and the action taken.

D. Evaluate the Supporting Data. Unless the applicant provides supporting approval data, the Avionics ASI will coordinate with the Operations ASI and the ACO responsible for the type certificate (TC) to determine the acceptability of each aircraft for the authorizations requested.

E. Review the MEL. Appropriate sections of the MEL must be revised to identify CAT II/III required systems and special procedures, if applicable.

F. Review the Personnel Training Requirements. Ensure that there are procedures for the following:

1) All maintenance personnel involved and authorized to carry out this approved maintenance program must have initial and recurrent specialized training on the applicable aircraft systems and the approved policy and procedures of the certificate holder's approved LLM aircraft maintenance program authorization.

2) Ensuring personnel contracted to perform CAT II/III related maintenance are qualified and the program requirements are made available to these persons.

3) Personnel not qualified to perform maintenance on CAT II systems and equipment, including flightcrew and dispatch, will be trained in the airworthiness release requirements of the lower minimums program.

4-434 TASK OUTCOMES.

A. Complete the PTRS.

B. Follow SAS Guidance for Modules 4 and 5.

C. Complete the Task. The POI has the primary responsibility to grant the operator approval for lower minimums after concurrence from the regional Flight Standards division (RFSD) (AXX-200). It is the Avionics ASI's primary responsibility to evaluate and approve the CAT II/III maintenance requirements and associated support programs after concurrence of the RFSD. Successful completion of this task will therefore consist of coordination with the Operations ASI for sending all original CAT II and III documentation to the RFSD for review and concurrence.

4-435 FUTURE ACTIVITIES. None.

RESERVED. Paragraphs 4-436 through 4-450.

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VOLUME 4 AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATIONS

CHAPTER 6 AIRPLANE AUTHORIZATIONS AND LIMITATIONS

Section 2 Safety Assurance System: Process a Certificate Holder's Application for Part 121/135 Extended Operations Authorization

NOTE: Refer to the current editions of Advisory Circular (AC) 120-42, Extended Operations (ETOPS and Polar Operations), and AC 135-42, Extended Operations (ETOPS) and Operations in the North Polar Area, for additional detailed information on the ETOPS authorization process.

4-1031 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). Use PTRS activity codes 1358, 3368, and 5368.

B. Safety Assurance System (SAS). This section is related to SAS Elements 3.3.5, (OP) Extended Operations (ETOPS) and 4.3.5, (AW) ETOPS.

4-1032 OBJECTIVE. This section provides operations and airworthiness guidance for an aviation safety inspector (ASI) to perform an evaluation of a Title 14 of the Code of Federal Regulations (14 CFR) part 121 or 135 certificate holder's request for authorization to conduct ETOPS, per AC 120-42 or AC 135-42. In addition, Volume 4, Chapter 6, Section 3 contains operations and airworthiness surveillance and oversight requirements for existing ETOPS operations.

NOTE: The ETOPS supplemental maintenance programs described in this chapter are not applicable to aircraft with three or more engines operated under either part.

4-1033 GENERAL.

A. Definition.

1) For part 121 turbine-powered airplanes with two engines, ETOPS are operations conducted over a route containing a point further than 60 minutes flying time at an approved one-engine-inoperative cruise speed under standard conditions (in still air) from an adequate airport.

2) For part 121 turbine-powered airplanes with more than two engines and part 135 multiengine transport category turbine-powered airplanes, ETOPS are passenger-carrying operations conducted over a route containing a point further than 180 minutes at an approved one-engine-inoperative cruise speed under standard conditions (in still air) from an adequate airport.

NOTE: It is important to read and understand the definitions found in part 121, § 121.7 before continuing with the guidance in this chapter.

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B. Types of Authorization.

1) Part 121. The Federal Aviation Administration (FAA) approves ETOPS in accordance with the requirements and limitations contained in part 121 appendix P and § 121.161.

- The FAA may authorize ETOPS with two-engine airplanes over a route that contains a point farther than 60 minutes flying time from an adequate airport at an approved one-engine-inoperative cruise speed under standard conditions in still air.
- For passenger-carrying aircraft with more than two engines, § 121.161 may grant authorization to conduct ETOPS operations over a route that contains a point greater than 180 minutes flying time from an adequate airport at an approved one-engine-inoperative cruise speed under standard conditions in still air.

2) Part 135. The FAA approves ETOPS in accordance with the requirements and limitations contained in part 135 appendix G and part 135, § 135.364 and may allow for authorization of passenger-carrying operations over a route that contains a point farther than 180 minutes, but no more than 240 minutes, flying time from an adequate airport at an approved one-engine-inoperative cruise speed under standard conditions in still air.

C. To Be Granted ETOPS Authorizations, the Certificate Holder Must Demonstrate:

1) Part 121. Compliance with the requirements of the applicable rules in accordance with AC 120-42.

2) Part 135. Compliance with the requirements of the applicable rules in accordance with AC 135-42.

D. Points of Contact (POC). For questions regarding an ETOPS authorization, contact the:

- Air Transportation Division (AFS-200),
- Aircraft Maintenance Division (AFS-300),
- Aircraft Evaluation Group (AEG), or
- Aircraft/Engine Certification Directorate.

4-1034 APPLICATION PROCESS.

A. Initial Contact. The application process usually begins with a visit, phone call, or e-mail from the prospective certificate holder (applicant) to the appropriate certificate-holding district office (CHDO). At that time, ask the following questions and annotate the responses for future reference:

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1) Are you familiar with ETOPS requirements?

NOTE: Inform the certificate holder of the applicable regulations and guidance materials they should review.

2) When do you want to start the operation?

3) What kind of operation do you want? Cargo? Passenger? Both?

4) What routes do you want to fly?

5) How many minutes of ETOPS authority are you seeking?

6) What aircraft/engine combination are you going to use?

7) What are your current capabilities?

8) Do you have an operating certificate?

9) If it is a new entrant, do you want to gain non-ETOPS authorization first *or* do you want to do both together?

10) What is a good day and time for you to meet with us?

NOTE: You should schedule an initial meeting with the certificate holder.

B. Preparation for the Initial Meeting.

1) In preparation for the meeting, complete the following tasks:

a) Inform your CHDO management that a certificate holder is interested in applying for ETOPS.

b) If applicable, discuss the certificate holder's existing programs for any deficiencies that could affect ETOPS authorization with CHDO management.

c) Inform the Regional Office (RO) that a certificate holder is interested in applying for ETOPS.

d) Contact AFS-200 (headquarters (HQ)). AFS-200 will coordinate with AFS-300.

2) The CHDO office manager coordinates team leaders and members for the meeting. The three required members include the:

a) Principal operations inspector (POI) (Operations).

b) Principal maintenance inspector (PMI) (Airworthiness).

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c) Principal avionics inspector (PAI) (Airworthiness).

3) Other resources may include the:

- Assistant principal inspectors.
- Cabin safety inspector (CSI) (Operations).
- Aviation Safety Inspector-Aircraft Dispatch (ASI-AD) (also known as dispatch safety inspector (DSI)) (Operations).
- Partial Program Manager (PPM) (Airworthiness).
- Aircrew program manager (APM) (Operations).
- Navigation specialist for Class II navigation, polar operations, North Atlantic High Level Airspace (NAT HLA) authority, and areas of magnetic unreliability (AMU).

4) If the CHDO does not have ETOPS expertise, make arrangements to get the required assistance by asking for help from the region in preparation for the initial meeting. If there are no ETOPS POCs in the RO, the region may request assistance from AFS-200/AFS-300 at HQ. This applies to the *entire* process.

C. Conduct the Initial Meeting.

1) Initial Meeting. At the initial meeting, the certificate holder should officially request ETOPS authorization and present the CHDO with the official Letter of Intent (LOI) and the application package outlined in subparagraph 4-1034E.

2) Notes. Review any notes from the certificate holder's initial contact (phone call, face-to-face, or email).

NOTE: These meetings are *confidential* and participants may only share information derived from them on a *need-to-know* basis.

3) Discussion. During the initial meeting, discuss the following items with the certificate holder:

a) POCs. Identify all of the POCs for the certificate holder and CHDO. For example, the CHDO manager should appoint the POI, PMI, or PAI, or an assistant, as the certification project manager (CPM). The certificate holder should also appoint a CPM as a POC.

b) Program Deficiencies. If applicable, identify any existing program deficiencies the certificate holder (applicant) may have. If the applicant has existing ETOPS authority, present any existing ETOPS program deficiencies to the applicant. The applicant/certificate holder must address these deficiencies prior to applying for ETOPS authorization. For example, if the certificate holder has a marginal Continuing Analysis and Surveillance System (CASS), the certificate holder must correct it before the FAA grants ETOPS authority.

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c) Identify Appropriate Regulations and Guidance Materials. Identify all of the Federal regulations and guidance materials including 14 CFRs, ACs, and FAA Order 8900.1. Manufacturer's guidance material may also be available.

d) Methods. There are two methods to gain ETOPS authorization: accelerated and in-service. Inform the certificate holder of the 6-month minimum notification requirement prior to the anticipated start date for the accelerated method, and the 60-day minimum notification requirement for the in-service method. The applicant must understand that these times are not negotiable.

1. In accordance with AC 120-42, part 121 applicants may choose to use either method. Depending on the circumstances, discuss the applicable method(s) and be prepared to discuss the pros and cons of each method. Although either method is available for part 121, applicants rarely use the in-service method.

2. In accordance with AC 135-42, part 135 applicants must use the in-service method. A certificate holder can enhance safety when, before conducting ETOPS, a certificate holder gains operational experience in the type of airplane capable of ETOPS, and with the operational environment typically encountered on longer-range flights in areas where there are limited airports available for an en route diversion. Typically, this involves prior operational experience on overwater flights to international areas of operation in accordance with the part 135 regulations and AC.

NOTE: When the in-service method is used, the applicant must understand that all training, processes, and procedures required for ETOPS must already be in place prior to submitting their application.

e) ETOPS Flight Operations Requirements. Brief the applicant on the following:

1. Part 121 Operations. Certificate holders applying for ETOPS authority must present to the CHDO documentation to show that they have policies, procedures, and training programs for pilots, dispatchers, and flight followers (as applicable) to conduct ETOPS. The certificate holder must provide manuals and a training program curriculum to the CHDO for approval. Refer to AC 120-42 for specific requirements. The application must also include the policies and processes that the certificate holder will use to collect, monitor, evaluate, and maintain records for their ETOPS operations.

2. Part 135 Operations. Certificate holders under this part must provide ETOPS training for flightcrew members in accordance with its approved program for ETOPS. Areas of training may be found in AC 135-42, paragraph 302. Due to the unique and demanding nature of ETOPS, certificate holders are urged to provide ETOPS training to individuals conducting flight locating services or who have operational control responsibility.

3. Parts 121 and 135 Applicants. The engine-out speed that applicants will submit for approval will be the basis for ETOPS calculations. In addition, the applicant should provide a graphical display in the form of range circles for the proposed area of operation (see Figure 4-83, Range Circles, and subparagraph 4-1035A2)).

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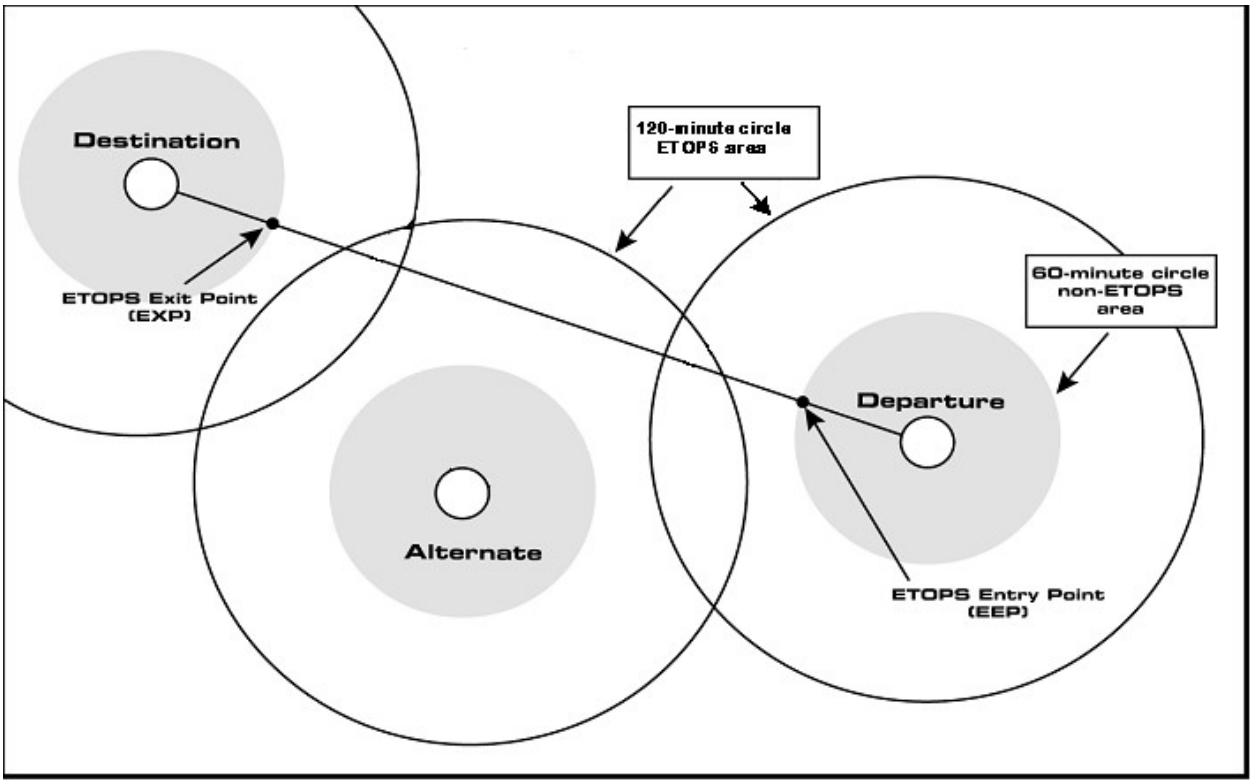
Figure 4-83. Range Circles



f) ETOPS Maintenance Requirements. Ask the certificate holder various questions concerning the ETOPS maintenance requirements to gather additional information. These may include:

1. What airplane/engine combination are they going to use?

2. If they are a certificate holder, do they currently have an approved maintenance program?

3. Do they understand the supplemental maintenance programs required for two-engine ETOPS operations per AC 120-42, paragraph 301 for part 121, or AC 135-42, paragraph 303 for part 135?

NOTE: Although the initial contact conversation may have conveyed this information, re-affirm it during this meeting.

g) Formal LOI. Inform the applicant that ETOPS authorization requires a formal LOI. The applicant may submit this separately, or it may be part of the application package (discussed later). The formal LOI should include the following information at a minimum:

- Proposed ETOPS operating start date.
- Airplane/engine combination.
- Intended areas of operation.

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- Type of ETOPS authorization requested.
- Existing operating certificate information, if applicable.

1. The CHDO will send a copy of the letter to the RO and HQ (AFS-200/300) upon receipt.

2. Inform the applicant that after the FAA CHDO reviews the formal LOI; the CHDO will provide a written response. This response should acknowledge receipt of the letter and should specify acceptance of the LOI, or specify what required information is missing.

3. After the initial meeting with the certificate holder when they have officially requested ETOPS authorization, the CHDO will ensure that the appropriate PTRS entries are made for the evaluation of an ETOPS program (1358, 3368, or 5368, as appropriate). In addition, the CHDO will initiate an Element Design Assessment (EDA) of SAS Elements 3.3.5, (OP) ETOPS and 4.3.5, (AW) ETOPS, for parts 121 and 135 certificate holders.

4. The 6-month notification period for the accelerated method and the 60-day notification period for the in-service method begin upon FAA acceptance of the formal LOI. When the applicant uses the in-service method, the applicant must understand that all training, processes, and procedures required for ETOPS must already be in place prior to FAA acceptance of their formal LOI.

D. Optional ETOPS Briefings. HQ (AFS-200/300) will, upon request, provide the CHDO and the certificate holder with an ETOPS briefing. There are two optional briefings available:

1) The first optional briefing is with AFS-200/300, CHDO, and RO members. This briefing establishes relationships, roles, and responsibilities. This meeting helps clarify the lines of communication and authority in regards to the application and subsequent approval process.

2) The second optional briefing will include the FAA team members and the applicant. AFS-200/300 will discuss the entire ETOPS application process and the roles of HQ, the region, and the CHDO during the ETOPS application and validation process.

NOTE: Additionally, at this meeting AFS-200/300 will inform the applicant that the CHDO is in charge. AFS-200/300 only supports the CHDO, *not* the certificate holder directly. If the certificate holder has any questions, they must go to the CHDO, not to the region or HQ. The point is to make the following perfectly clear: “The CHDO will make the final decision of whether or not the certificate holder has the qualifications to receive ETOPS authorization.”

E. Application Package. The applicant must submit an application. The applicant may submit the package at the same time as the LOI; however, the applicant may also submit it later. The application package is the heart of the ETOPS authorization process. It must contain detailed information on the following:

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1) As stated earlier, the application package may contain the formal LOI.

2) Defined processes, procedures, and related resources being allocated to initiate and sustain ETOPS operations. These processes, procedures, and related resources are typically referred to as the certificate holder's ETOPS program. The certificate holder must demonstrate a commitment by management and all personnel involved in ETOPS flight operations and maintenance. The applicant must describe in detail how they will address the applicable flight operations requirements as defined in the applicable CFRs and ACs. The applicant must describe in detail how they will address each of the maintenance elements as defined in the applicable CFRs and ACs.

3) ETOPS authorization requested (e.g., 120 or 180 minutes).

4) Proposed routes.

5) Dispatch policies and procedures.

6) Requested method of approval (in-service or accelerated).

NOTE: The method the applicant chooses requires the identification of a formal timeline.

7) Documented plan for compliance with requirements of accelerated ETOPS (if applicable).

8) An approved airplane/engine combination, including engine-out speed, those ETOPS calculations will be based on.

9) Detailed review gates or equivalent. You can find further information about review gates later in this section.

10) Validation process. The validation process requires the applicant to identify a formal timeline.

F. CHDO Review Process. The CHDO validates whether the applicant included *all* of the required elements in their application package. A review gate process, normally captured in the form of a matrix, may identify all of these elements and can facilitate tracking them throughout the validation process. If the applicant included all of the elements in the application package, then the CHDO will continue with the evaluation process and proceed to evaluate the application package including all of the elements. If there are missing or incomplete elements, the CHDO sends written notification to the certificate holder describing the shortfalls.

NOTE: As an aid to effectively validate the applicant's proposed ETOPS operations and maintenance program, see Volume 4, Chapter 6, Section 3, paragraphs 4-1056 through 4-1060.

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G. Review Gates.

NOTE: The review gate process, as defined in AC 120-42, is not detailed or required for the in-service method; however, it is a proven process that is useful in both application methods.

1) The review gate process will help ensure that the applicant's processes comply with the provisions of the applicable rules and AC 120-42 and AC 135-42, and are capable of continued ETOPS operations. Normally, the review gate process will start 6 months, at a minimum, before the proposed start of ETOPS and should continue until at least 6 months after the start of ETOPS.

2) Review gates, or an equivalent method, are helpful to track every aspect of an ETOPS approval and to be able to see the status of the project at a glance. Review gates or milestones should be in a matrix form. The method used should:

a) Include dates of pertinent meetings, data submittals, and FAA reviews and/or approvals.

b) Identify each applicable maintenance and flight operations milestone.

c) Include a "process validation plan."

3) Table 4-22, Extended Operations Authorization Review Gate Matrix Example, found in Volume 4, Chapter 6, Section 3, includes what experience has shown to be a "best-practices" example of a review gate matrix. While we cannot mandate that the applicant complete their information in this format, or in any particular format, a matrix is a proven tool that you can share and you should encourage its use.

H. Process Validation Plan. The process validation plan must include how the applicant intends to validate each of the process elements required to attain ETOPS authorization. This plan will spell out in sufficient detail how the applicant intends to ensure that each required process works. Note that this is a living document and it can change many times.

1) The process validation plan must ensure that each ETOPS process is:

a) Defined,

b) Demonstrated,

c) Analyzed,

d) Amended (if required),

e) Revalidated, and

f) Proven (prior to ETOPS authorization).

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2) The process validation plan may include validation through simulation; however, the regulations require final validations be conducted in the aircraft/engine combination that the prospective certificate holder proposes be used in their ETOPS operation.

3) After the CHDO accepts the completed application package and the defined ETOPS processes it contains, and the application package gets coordinated as necessary with the RO and AFS-200/300, inform the certificate holder to begin the execution of their process validation plan. The certificate holder will complete the process validation plan under FAA observation.

4) The final step in the process validation plan is the validation flights. The applicant cannot institute the validation flight portion of the validation until the CHDO develops scenarios and coordinates them through the region and HQ. Upon concurrence, AFS-200 will issue a memo to the local office that authorizes the certificate holder to conduct validation flights.

NOTE: For a new entrant part 121 certificate holder, it will typically require six non-revenue legs to complete the ETOPS validation process. For a new entrant part 135 certificate holder, it will typically require two non-revenue legs to complete the ETOPS validation process. Proving runs, ditching, and evacuation exercises may be conducted concurrently with ETOPS flights provided these exercises do not interfere with the ETOPS validation.

5) Prior to initiation of ETOPS validation flights, the certificate holder (applicant) must have all aspects of their ETOPS program successfully validated with one exception, that is the physical inspection of all the certificate holder's proposed ETOPS stations/facilities. For new ETOPS operators, Airworthiness ASIs from the CHDO may conduct ETOPS station/facility inspections in conjunction with the ETOPS validation flights. It is understood that it may not be possible for CHDO ASIs to visit all of the operator's ETOPS station/facilities during the validation flight process. Ideally, a CHDO ASI should accomplish an ETOPS station/facility inspection prior to an operator conducting revenue ETOPS operations at all of its stations. In the event that this course of action is not practical, principal ASIs must ensure that all of the operator's ETOPS stations/facilities are evaluated within 90 days after the commencement of revenue ETOPS service. The principal Airworthiness ASI must ensure the accomplishment of these evaluations to make certain that every ETOPS station/facility contains all of the elements required to sustain successful ETOPS operations.

6) If the validation flight process is successful, then the certificate holder may be granted ETOPS authority.

4-1035 ETOPS VALIDATION FLIGHTS (PARTS 121 AND 135). The CHDO, after receiving the certificate holder's application, will validate the submitted processes and procedures. The validation process will conclude with validation flights. This ensures that the certificate holder's policies, procedures, and training will enable the certificate holder to safely conduct ETOPS operations. For initial ETOPS approval, a part 121 certificate holder may be required to fly six non-revenue flight legs. A part 135 certificate holder may be required to fly two non-revenue flight legs. If the certificate holder has existing ETOPS approval and is adding a new aircraft/engine combination, a change to their existing authorization (120 minutes to

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180 minutes), or a new geographic area of operation to its ETOPS approval, the certificate holder may be required to fly two flight legs (revenue service may be appropriate). Prior to the initiation of validation flights, the CHDO will issue appropriate operations specifications (OpSpecs) that are restricted to validation flights only (see paragraph 4-1037).

A. Validation Flight Emphasis Areas. The following areas should be given special focus by the principal inspectors (PI) during the approval process. It is recommended that an ASI-AD, commonly referred to as a dispatch inspector or DSI, participate in the ETOPS approval process. If the CHDO does not have an ASI-AD, they should request one be assigned by the RO for the duration of the approval process. If the RO is unable to locate an ASI-AD, the RO should contact AFS-200 for assistance in locating an ASI-AD resource.

NOTE: Unless noted otherwise, all items are identical for both parts 121 and 135 operations.

1) Airplane and Flight Planning Data. The CHDO should ensure that the certificate holder is utilizing the appropriate airplane manufacturer's performance for the calculation of the ETOPS performance data. This information must be available for use by flightcrew members, dispatchers, flight followers, and flight locators and must include the following:

a) One-engine-inoperative level off (gross) fuel planning.

b) One-engine-inoperative level off fuel planning at 10,000 feet.

c) All-engine operating fuel planning to comply with oxygen requirements of § 121.333.

d) The certificate holder must show it can obtain the appropriate winds aloft data for the area of operation in which they are planning to conduct operations. The wind forecasts model utilized in the flight planning system must be World Area Forecast System (WAFS) Grid In Binary (GRIB) data wind forecasts. The GRIB forecast must have a minimum of 140 kilometers (km) horizontal resolution (1.25 degrees). This data must then be biased (increased) by 5 percent of the wind speed to correct for possible variations in the actual winds aloft that could result in an increase in headwind or a decrease in tailwind.

NOTE: The 5-percent increase cannot be added to the tailwind component to improve the fuel burn calculation. If the certificate holder's flight planning system does not utilize 140 km horizontal resolution GRIB data, the CHDO should consult AFS-220 for additional guidance.

e) The flight planning system utilized by the certificate holder must base all ETOPS fuel calculations required by § 121.646 on aircraft-specific performance data in accordance with their approved program for each aircraft type. If the certificate holder does not have an approved program to monitor the in-flight performance of each aircraft it operates and adjust fuel calculations accordingly, then each ETOPS fuel calculation utilized by the certificate holder must include a 5-percent fuel penalty to account for engine degradation and airframe drag.

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f) The in-flight aircraft performance data and ETOPS fuel calculations must consider the additional fuel burn required to account for the use of engine and wing anti-ice for the entire time icing is forecast or ice accretion plus wing and engine anti-ice for 10 percent of the time icing is forecast, whichever is greater.

g) The ETOPS fuel calculations must also include fuel for auxiliary power unit (APU) use, if the APU is a required power source during the flight, and fuel to account for holding, approach, and landing.

2) ETOPS Area of Operation. The certificate holder must show before validation testing that the altitudes and airspeeds used in establishing the ETOPS area of operations for each airplane/engine combination comply with the terrain and obstruction clearance, as well as the critical fuel scenario associated with the applicable ETOPS equal-time point (§ 121.646) and the time-limited system requirements of § 121.633 are not exceeded.

3) En Route Airport Information. Section 121.7 requires the certificate holder to assemble a list of airports for the proposed ETOPS area of operation. This list should be reviewed by the CHDO to determine that the certificate holder is able to access and maintain current information on the operational capabilities of the airports. The certificate holder's program should provide flightcrew members, dispatchers, flight followers, and flight locators with current and forecasted weather, field conditions, Notices to Airmen (NOTAM), rescue and fire fighting services (RFFS), and any other information that may affect the safe operation of the aircraft into the airport with one engine inoperative. See Figure 4-84, Foreign Airport Assessment Aid.

a) Adequate Airports. Section 121.7 allows a certificate holder to list an adequate airport, with FAA approval. An adequate airport must meet the requirements of 14 CFR part 139 subpart D or be an active and operational military airport. In order to be considered adequate for a specific ETOPS operation (flight), the airport must be open and the certificate holder should be able to show that they can land at the airport in accordance with the performance requirements of § 121.197. Unless operating in North Atlantic (NAT) oceanic airspace in accordance with OpSpec paragraph B041, the weather at an adequate airport does not have to meet the landing minimums specified in the certificate holder's OpSpecs.

b) ETOPS Alternate Airports. Section 121.7 requires the certificate holder to list ETOPS alternate airports in their OpSpecs. The certificate holder may list these airports as being strictly for use as ETOPS alternate airports or they may also use any regular, provisional, or refueling airport that is listed in their OpSpec paragraph C070 for use as an ETOPS alternate.

c) Alternate Requirements. ETOPS alternate airports must meet the alternate requirements contained in the certificate holder's OpSpec paragraph C055 prior to takeoff. Once the flight is en route, the weather minimums at an ETOPS alternate airport may fall below the minimums contained in OpSpec C055 but they must remain at or above the landing minimums prescribed in the certificate holder's OpSpecs (Part C).

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NOTE: Any time the weather at the designated ETOPS alternate drops below alternate minimums, the POI must ensure that the certificate holder has procedures in place that indicate they shall make every effort to change the alternate to another approved airport within the maximum diversion time of the aircraft.

d) Operations Beyond 180 Minutes or in the North or South Polar Area. For operations conducted in the North or South Polar Area, the certificate holder must provide a specific passenger recovery plan for the designated ETOPS alternate airports (diversion airports).

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Figure 4-84. Foreign Airport Assessment Aid

Foreign Airport Assessment Aid:			
Date of Assessment:			
Assessment Conducted by:			
Airport ICAO/IATA Identification:		Airport Name:	
Hours of Operation:			
Area	Regulation	Section	Details and Remarks
1	Personnel	139.303(a) *	
			Staffing hours
			Operations Phone Number
2	Airport Overview	121.97	
			Runways
			Taxiways
			Special Airport Qualification
			Pans Ops or TERPS assessment
		139.331 *	Airport Obstacle Assessment ****
			Restrictions
3	Airport Lighting and Navigation Aids	121.97	
			Category III markings and ground surface movement area
			Instrument Approaches Available
4	Snow and Ice Control Plan	139.313 *	
		139.313.(b)(1)	Prompt Removal
		139.313(b)(5)	Access to Field Condition Reports
5	Airport Rescue and Firefighting (ARFF)	121.106	
		121.106(a)(1)	
	(2) **	Category and hours of operation (ICAO index 4 minimum)	
		139.319(i)(2)	Personnel Trained
			Hours of Operation
		139.319(g)	Storage of ARFF Vehicles
			Contact Phone Number
6	Aircraft Fueling		
			Type of Fuel
			Fuel Auditing
			Contact Phone Number
7	Airport Emergency Plan	139.325 *	
			Contact Information for Aircraft or Medical Emergency
8	Airspace	Operations Specification C080	
			Airspace Category
			Controlled Airspace Hours of Operation
			Air Traffic Control Tower or CTAF
		139.323(b) *	Segmented Circle and Lighted Wind Indicator ***
		121.624	Weather Reporting access to Metars
			Availability of a TAF
9	Public Protection	121.624 *	
		139.335(a)(1)	Security Program to restrict access to aircraft movement
	Notes:		
	* Required for airport to be considered "Adequate" IAW 121.7		
	** ARFF ICAO Index 7 required for airports which the air carrier utilizes for operations beyond 180 minutes.		
	*** Required only if the airport does not have a 24 hour tower operation.		
	**** Obstacles within the airport boundaries are accounted for by the assessment and properly illuminated		

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4) One-Engine-Inoperative Speed Selection. The one-engine-inoperative cruise speed is a speed that is within the certified operating limits of the airplane that the certificate holder specifies and the FAA approves. The speed selected is used to determine the still air (no wind), 60-minute range (distance) centered on the adequate airports identified in subparagraph 4-1035A3). If the route of flight takes the aircraft out of this area, the operation must be conducted in accordance with the approved ETOPS program (see Figure 4-83). The certificate holder makes the calculation for the ETOPS maximum diversion times (e.g., 120 or 180 minutes); utilizing the FAA-approved one-engine-inoperative speed. The ETOPS operation must remain within the maximum no-wind distance (based on the maximum diversion time) of the selected ETOPS alternate airports. Normally, the certificate holder will produce a planning chart (paper or electronic) that shows the normal one-engine-inoperative cruise range in the form of circles (Figure 4-83).

NOTE: ETOPS fuel calculations must take into account and comply with terrain clearance, § 121.191, and oxygen requirements contained in §§ 121.329 and 121.333. If the rule required for ETOPS in accordance with § 121.646 exceeds the fuel required by § 121.645, then the flight is considered to be "ETOPS Fuel Critical." The certificate holder must carry the greater of the fuel required by §§ 121.645 and 121.646.

5) Recalculation of Flight Plan While En Route.

a) The certificate holder should have the capability to recalculate the flight plan after departure (in-flight reanalysis). Depending on the route of flight, the ETOPS Entry Point (EEP) can be many hours after departure. Section 121.631(c) requires a reanalysis of the weather at each ETOPS alternate airport prior to entry into the ETOPS airspace. An analysis of the current status of the aircraft systems should also be conducted to ensure all ETOPS significant systems are functioning normally. If the weather at any ETOPS alternate airport falls below landing minimums or any ETOPS significant system becomes inoperative prior to reaching the EEP, the certificate holder must evaluate the impact and take appropriate actions, which may require an in-flight reanalysis of the route of flight, fuel calculations, or any other elements of the flight plan.

b) In addition, the certificate holder should have the capability to re-calculate the flight plan in the event of an en route deviation or reroute to ensure that the aircraft remains within the maximum diversion time of the ETOPS alternate airports, or an appropriate adequate airport, if the new route of flight takes the aircraft out of the maximum diversion range of the listed ETOPS alternate airports.

6) Computer Flight Plan (CFP) System. The certificate holder should substantiate that the CFP and dispatch/flight release system is capable of providing the following information to the pilot and dispatcher:

a) Flight planning based on latitude/longitude as well as air traffic system routings in the event of an in-flight diversion.

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b) Dynamic graphic display of ETOPS circles, based on speed selected during preplanning.

c) Depending on the aircraft type, the aircraft must be able to carry additional fuel for stronger-than-planned winds and additional fuel for icing.

d) A database with a list of suitable en route (ETOPS) alternates where the dispatcher would select from the list based on type of operation and aircraft; e.g., 120 or 180 minutes with a two- or four-engine aircraft.

e) Accuracy of internal computer calculations for the all critical fuel scenario calculations.

f) Ability to apply minimum equipment list (MEL)/Configuration Deviation List (CDL) restrictions and penalties unique to ETOPS operations.

g) Automated equal time point (ETP) calculations. (The certificate holder should maintain the ability to calculate and plot the ETP manually.)

h) Ability to plan a random route flight plan and depending on the operation, select the best route of flight based on a GRIB wind forecast.

i) Calculation of flight information region (FIR) entry and exit points.

j) EEP and ETOPS exit point calculations and display on the CFP.

k) Ability to display to the dispatcher and list on the CFP the forecast valid time of integrated GRIB wind data.

l) ARINC-424 navigation data to show consistency between the CFP and the navigation database utilized in the airplane.

m) International duty/rest time calculations.

NOTE: The certificate holder should substantiate all values in the CFP system against aircraft manufacturer data prior to validation flights. The CFP values will be validated during the ETOPS validation flights.

7) Weather Information System. The certificate holder should substantiate that the weather information system that it uses can be relied on to forecast terminal and en route weather, including icing forecasts, with a reasonable degree of accuracy and reliability in the proposed areas of operation. Factors such as staffing, dispatcher, training, sources of weather reports and forecasts and, when possible, a record of forecast reliability should be evaluated.

8) Alternate Weather Minimums. Alternate weather minimums will be those listed in the certificate holder's OpSpec paragraph C055. These minimums must reflect the current requirements of § 121.625 or § 135.221, as applicable. Although no consideration is given for the use of Global Positioning System (GPS)/Area Navigation (RNAV) approaches, certificate

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holders may obtain authorization to use these approaches from the FAA, who will authorize the approaches in the certificate holder's OpSpecs.

9) Communications. The certificate holder must have a communications system in place that complies with § 121.99, 121.123, or 135.165, as applicable. The communication system is usually two-way very high frequency (VHF) radio, but alternate means such as VHF data link, high frequency (HF) voice or High Frequency Data Link (HFDL), or the certificate holder might substitute a satellite communication (SATCOM) if approved by the CHDO. Refer to MEL considerations, limitations, and restrictions in accordance with § 135.165 for part 135 operations.

NOTE: Currently the regulations do not permit SATCOM for North Atlantic Operations (NAT/OPS).

10) Navigation. The certificate holder must show the availability of navigation facilities adequate for the operation, taking into account the navigation equipment installed on the airplane, the navigation accuracy required for the planned route and altitude of flight, and the routes and altitudes to the airports designated as ETOPS alternates.

11) Dispatch or Flight Release (Part 121 Only). For all ETOPS operations, the dispatch or flight release must list all ETOPS alternates and the planned ETOPS diversion time under which the flight is dispatched or released. (Sections 121.687 and 121.689.)

a) The FAA grants approval to conduct ETOPS greater than 180 minutes. In selecting ETOPS alternate airports, the certificate holder must make every effort to plan ETOPS with maximum diversion distances of 180 minutes or less, if possible. If conditions necessitate using an ETOPS alternate airport beyond 180 minutes, the route may be flown only if the requirements for the specific operating areas contained in part 121 appendix P, § 1, paragraph (h) or (i) are met.

b) Two-hundred-and-seven-minute ETOPS in the North Pacific (NOPAC) area of operation and 240-minute ETOPS in the North Polar Area of the NOPAC, north of the equator, may be granted by the FAA as an exception that may be used on a flight-by-flight basis. This exception may only be used when an ETOPS alternate airport is not available within 180 minutes.

NOTE: In accordance with § 121.633(b), any operation that is authorized beyond 180 minutes must be approved in accordance with the aircraft time-limiting systems, corrected for wind and temperature. In addition, the airplane must remain within the ETOPS-authorized diversion time from an adequate airport that is RFFS-equivalent to International Civil Aviation Organization (ICAO) Category 7 or higher.

c) The certificate holder must inform the flightcrew each time an airplane is proposed for dispatch for greater than 180 minutes and tell them why the route was selected. The reason for the route selection must be included in, or attached to, the dispatch or flight release.

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NOTE: AC 120-42, paragraph 303c8 should be reviewed for the specific criteria required for ETOPS operations greater than 180 minutes.

12) Public Protection.

a) Protection from the Elements. If the certificate holder is applying for ETOPS operations beyond 180 minutes and for operations in the North Polar Area and South Polar Area, dispatch/flight release policies and procedures must be included for facilities at each airport, or in the immediate area, sufficient to protect the passengers and cargo from the elements.

b) Passenger Recovery Plan. The certificate holder must provide training to flightcrew members and dispatchers relative to their perspective roles in the certificate holder's passenger recovery plan.

13) Potential Diversion Airports After Departure. The certificate holder must demonstrate that the pilot, dispatcher (domestic and flag operations), or the person authorized to exercise operational control (supplemental operations), typically known as a flight follower, is able to monitor the airports within the ETOPS area of operation.

a) The certificate holder must make information regarding weather, airport field conditions, and airport facilities readily available and should communicate this information to the pilot in command (PIC) in the event changes in these conditions would render an airport unsuitable for landing. For certificate holders operating under part 121 domestic or flag rules, this information will be communicated to the flightcrew by a dispatcher. For certificate holders operating under part 121 supplemental rules, this information will typically be communicated by a person authorized to exercise operational control by the certificate holder.

b) Prior to reaching the EEP, the PIC and the dispatcher or flight follower must ensure the capability and availability of all en route alternates to support any en route contingencies. Weather from the earliest to latest time of arrival (TOA) at an ETOPS alternate as well as the landing distances, airport services, and facilities must be evaluated. If changes to any of these conditions since the time of departure would preclude a safe approach and landing, the dispatcher or flight follower will notify the PIC and will select a new ETOPS alternate where a safe approach and landing can be made.

14) Emergency Conditions. PIs will ensure the following emergency conditions are simulated during the ETOPS validation flights:

a) Total loss of thrust of one engine (throttle at idle),

b) Total loss of engine-generated (or normal) electrical power,

c) Any other condition considered more critical in terms of airworthiness, crewmember workload, or performance risk.

NOTE: The critical scenario will result in an actual diversion to an alternate airport. Planned diversions must be coordinated with the applicable air traffic control (ATC) facility.

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d) For a part 121 domestic and/or flag certificate holder, if a scenario requires the changing of en route alternates, a dispatcher must issue a new dispatch release. If the flight is en route, a dispatcher must communicate this revised release by voice or data link to the PIC for concurrence. If the flight is on the ground, the dispatcher may use any approved method to transmit flight documentation to deliver the amended release. The revised release should have current weather and any appropriate information for the new ETOPS alternate to it.

15) Diversion and Failure Scenarios. PIs should be sure that there was an assessment of scenarios for system failure and partial system failure. The CHDO should also include other diversion scenarios such as medical emergencies, onboard fire and loss of pressurization, or security threats.

16) Air Operator Certificate (AOC). Whenever the certificate holder conducts a flight to a destination outside the United States, PIs should ensure that the aircraft has an original, certified copy of the AOC on board the aircraft as required by ICAO Annex 6.

B. After Flight Reviews (Parts 121 and 135). After the conclusion of each validation flight, the CHDO and the certificate holder should conduct an in-depth review of the flight. All active participants in the validation flight should participate in the review. If there are any areas of concern to the CHDO regarding the conduct or operation of the flight, the certificate holder must offer remedies prior to initiation of the next validation flight or final approval process.

4-1036 AUTHORIZATION TO CONDUCT ETOPS OPERATIONS.

A. CHDO Recommendation. As stated earlier in this chapter, the CHDO determines the final decision on whether the certificate holder has demonstrated the appropriate qualifications to receive ETOPS authorization. The CHDO will make a recommendation through their region to HQ for approval to issue the applicable OpSpecs.

B. Heightened Surveillance. After the above affirmative recommendations, the Office of the Director (AFS-1) authorizes the issuance of the OpSpec by the CHDO. The CHDO initially completes this via e-mail, with a follow-up letter by mail. The CHDO issues the appropriate OpSpecs paragraphs. Although the certificate holder now has the authority to begin ETOPS revenue flights, heightened surveillance by the CHDO will continue for 6 months.

4-1037 ISSUE OPSPEC PARAGRAPH B342 AND B344, ETOPS UNDER PARTS 121 AND 135 (AS APPLICABLE).

A. ETOPS Authority. The FAA may grant a certificate holder the authority to conduct ETOPS in accordance with part 121 appendix P and § 121.161 or part 135 appendix G and § 135.364. Authority to conduct ETOPS is granted through the issuance of OpSpecs. OpSpec paragraph B342 is issued to certificate holders who have been granted approval to conduct ETOPS with two-engine airplanes, and OpSpec paragraph B344 is issued to certificate holders who have been granted approval to conduct ETOPS with passenger-carrying airplanes with more than two engines.

NOTE: For further information regarding the actual issuance of OpSpecs B342 and B344, see Volume 3, Chapter 18, Section 4.

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B. Additional OpSpecs. In addition to the ETOPS OpSpecs, the type of operation conducted may require additional OpSpecs, such as:

- B036 for Class II Navigation, B037 if the operation involves Central East Pacific (Airspace) (CEPAC).
- B038 if the operation involves NOPAC airspace.
- B039 if the operation involves NAT HLA airspace.
- B040 if the operation involves AMU.
- OpSpec B043 and/or OpSpec B044 if the certificate holder has authorization to use these fuel reserves in ETOPS.
- If the operation involves transatlantic flight in the NAT, these operations can also receive authorization under B041 if the capabilities of the aircraft permit NAT/OPS under the 60-minute rule.
- B055 for north polar operations.

4-1038 ISSUE OPSPEC PARAGRAPH D086 (MAINTENANCE) FOR PARTS 121 AND 135.

A. OpSpec Paragraph D086. OpSpec paragraph D086 contains information on the aircraft, authorized diversion time in minutes, their maintenance programs, and the Configuration Maintenance Procedures (CMP) documents (as applicable) for the airplanes the certificate holder will use in parts 121 and 135 ETOPS.

B. Table 1. Table 1 from OpSpec paragraph D086 contains information that identifies the aircraft and the number of minutes authorized diversion time.

Table 1

Registration No.	**Airplane M/M/S**	**Maximum Diversion Time In Minutes**
Enter the "N" number of the authorized aircraft; i.e.,	Enter the Make, Model, and Series of this aircraft; i.e.,	Enter the authorized maximum diversion time, in minutes; i.e.,
N123AB	**B-767-332**	**180**

C. Table 2. Table 2 from OpSpec paragraph D086 contains information about the maintenance and reliability programs for each make, model, and series (M/M/S) of aircraft and engine combination used in ETOPS service.

NOTE: Each M/M/S may have several documents listed. For part 135, the program date is the revision FAA approval date of the document. For more information, see Volume 4, Chapter 6, Section 3, paragraph 4-1060.

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Table 2

Airplane M/M/S	Program Name	Program Number	Program Date	Powerplant M/M/S	Program Name	Program Number	Program Date
Enter airplane M/M/S; i.e., **B-767-332**	Enter the name of the maintenance and/or reliability program for this M/M/S; i.e., **CAMP**	Enter the program number if applicable; i.e., **D003561**	Enter the current revision date for this document; i.e., **10/21/08**	Enter Engine M/M/S for this aircraft; i.e., **PW4060**	Enter the name of the maintenance and/or reliability program for this engine M/M/S; i.e., **CAMP**	Enter the program number if applicable; i.e., **D003561**	Enter the current revision date for this document; i.e., **10/21/08**

D. Table 3. Table 3 from OpSpec paragraph D086 identifies the CMP documents that may be applicable to the aircraft/engine combination. These documents include non-optional service information such as Service Bulletins (SB), Service Letters (SL), manual revisions, etc., that must be incorporated into the aircraft and Continuous Airworthiness Maintenance Program (CAMP) prior to entry into ETOPS service.

NOTE: Part 135 aircraft may not have an applicable CMP document. In these cases, enter "NONE" in the "FAA-approved CMP Document Name/Number" block, leaving the rest of the blocks blank.

Table 3

Airplane M/M/S	Powerplant M/M/S	FAA-Approved CMP Document Name/Number	Document Date	FAA-Approved Amendment No.
Enter airplane M/M/S; i.e., **B-767-332**	Enter engine M/M/S for this aircraft; i.e., **PW4060**	Enter the applicable CMP document number or name for the listed airplane-engine combination (if applicable); i.e., **D003561**	Enter the current revision date for this document; i.e., **10/21/08**	Enter the FAA-approved amendment No. for the document; i.e., **P**

E. Certificate Holders with Existing ETOPS Authority.

1) Recognize that once a certificate holder has authorization to conduct ETOPS, procedures and systems should be in place to support any additional ETOPS authority. Therefore, the application package for a certificate holder who is experienced in ETOPS and who is requesting a new aircraft/engine combination, a change to their existing authorization (120 minutes to 180 minutes), or a new geographic area of operation may not need to be as complex as an application package from a certificate holder who has never held ETOPS authority. The CHDO will determine the necessary level of complexity with the concurrence of the respective RO and HQ.

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2) For certificate holders with existing ETOPS authority wishing to add a new ETOPS destination, an inspection of the new ETOPS station/facility must be conducted by an Airworthiness inspector from the CHDO no later than 90 days after initial start-up. Additionally, for existing ETOPS stations that have never had a facility inspection or have not had an inspection within the last 24 months, a station/facility inspection by an Airworthiness inspector and, if appropriate, an operations inspector, should be conducted within 120 days of issuance of this guidance. The CHDO should schedule and complete a SAS Element Performance Assessment (EPA) of SAS Elements 3.3.5, (OP) ETOPS, and 4.3.5, (AW) ETOPS, as appropriate, within the specified time periods. The CHDO should make every effort to schedule complementary inspections during the same station/facility visit. For example, also conduct contract maintenance, fuel facility, CAMP requirements inspections, etc., as applicable.

NOTE: Plan these inspections in accordance with SAS guidance.

NOTE: Additional information is available in AC 120-42 and AC 135-42 depending on the type of operation requested.

RESERVED. Paragraphs 4-1039 through 4-1053.

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VOLUME 4 AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATIONS

CHAPTER 13 SPECIAL FLIGHT PERMIT WITH CONTINUING AUTHORIZATION TO CONDUCT FERRY FLIGHTS

Section 1 Safety Assurance System: Evaluating a Part 119 Certificate Holder's and a Part 91K Program Manager/Operator's Special Flight Permit with Continuing Authorization to Conduct a Ferry Flight Program

4-1326 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). Use PTRS activity codes 3404, 5404 for Title 14 of the Code of Federal Regulations (14 CFR) parts 91K and 125.

B. Safety Assurance System (SAS). Use SAS automation and the associated Data Collection Tools (DCT) for 14 CFR parts 121 and 135.

4-1327 OBJECTIVE. This section provides airworthiness inspectors with national policy and guidance for evaluating and approving a 14 CFR part 119 certificate holder's special flight permit (SFP) with continuing authorization to conduct a ferry flight program (CAFP) required by 14 CFR part 21, § 21.197(c)(1). It also provides policy and guidance for evaluating and accepting a 14 CFR part 91 subpart K (part 91K) program manager/operator's CAFP that maintains its aircraft under a Continuous Airworthiness Maintenance Program (CAMP) as provided in § 21.197(c)(2). Section 21.197(c) and this chapter do not apply to part 125 operators. The only difference in the evaluation of a part 119 certificate holder's and a part 91K program manager/operator's CAFP is the process that inspectors follow. Inspectors should follow the general process for approval or acceptance contained in Volume 3, Chapter 1, Section 1, General, as applicable. SAS inspectors must use DCT 4.4.1, Special Flight Permits, along with this section to evaluate all CAFPs. The Federal Aviation Administration (FAA) encourages non-SAS inspectors to use the DCT, as applicable, to provide standardization and incorporate system safety elements.

NOTE: The current edition of FAA Order 8130.2, Airworthiness Certification of Products and Articles, is the governing document for the issuance of SFPs. Chapter 4, Section 13 of the order states the inspector will follow the instruction contained in FAA Order 8900.1 for issuing an SFP with a continuing authorization. Therefore, this handbook section only applies to the issuance of an SFP with a continuing authorization as provided in § 21.197(c).

4-1328 COORDINATION. Airworthiness principal inspectors (PI) are responsible for evaluating and accepting or approving a CAFP. However, because of the operational aspects of ferry flight, PIs must closely coordinate the review and evaluation of the program with the principal operations inspector (POI). Additionally, PIs should verify that the certificate holder includes both its maintenance and operations management personnel in the development and operation of the CAFP.

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4-1329 GENERAL.

A. Amendment to Eligibility Requirements. A recent amendment to § 21.197(c)(1) changed the eligibility requirements for obtaining an SFP with a continuing authorization to ferry aircraft. Formerly, the FAA authorized only parts 121 and 135 certificate holders that maintained their aircraft under a CAMP. The changes make eligible all part 119 certificate holders for an SFP with a continuing authorization to ferry aircraft, provided they have an approved CAFP. The changes, in effect, make part 135 (nine or less) certificate holders that do not maintain their aircraft under a CAMP eligible for the continuous ferry authorization.

B. Standards. The regulatory changes do not lower the standards for obtaining the continuous ferry authorization. The changes recognize that some part 119 certificate holders that do not have all 10 elements of a CAMP are capable of developing and operating a CAFP at an equivalent level of safety as a certificate holder with all 10 CAMP elements. Regardless of how the certificate holder maintains its aircraft, it is responsible for safe operation of its aircraft and the control and oversight of the CAFP.

NOTE: Section 21.197(c)(1) does not specifically exclude part 135 single pilot, single pilot in command (PIC), and basic part 135 certificate holders from eligibility for an SFP with a continuing authorization. However, it is unlikely that these certificate holders could support an approved CAFP to a high degree of safety. Therefore, these types of certificate holders should not have an authorization issued to them unless the manager of the certificate-holding district office (CHDO) determines that the certificate holder has adequate personnel, manuals, quality systems, etc., to control, operate, and oversee the program with a high degree of safety.

C. Requirements. Section 21.197(c) provides for the issuance of an SFP with a continuing authorization to ferry aircraft. Section 21.197(c)(1) specifies the requirement for an approved CAFP for part 119 certificate holders to obtain the authorization. Section 21.197(c)(2) requires part 91K program manager/operators to have a CAMP. The regulation states that upon application, as prescribed in part 119, § 119.51 and part 91, § 91.1017, an SFP with a continuing authorization may be issued for aircraft that may not meet applicable airworthiness requirements, but are capable of safe flight for the purpose of flying aircraft to a base where repair station personnel may perform maintenance or alterations on the aircraft. Section 21.197(c) by itself does not provide the authorization. The certificate holder or operation must apply for operations specifications (OpSpecs) or management specifications (MSpecs). Additionally, the intent of the authorization is for flying aircraft that do not meet applicable airworthiness requirements but are capable of safe flight. It is not intended for any other reason or purposes such as:

- Repositioning flights;
- One-engine inoperative ferry flights (refer to § 91.611);
- Maintenance flights (refer to § 91.407(b));
- Delivering or exporting aircraft;
- Flights in excess of maximum certificated takeoff weight;
- Special Flight Authorization (SFA) for foreign aircraft (refer to § 91.715);

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- Operating aircraft not on OpSpec/MSpec D085; and
- Evacuating aircraft from areas of impending danger.

NOTE: In reference to the SFA for foreign aircraft (refer to § 91.715), the applicant must submit the application for an SFA to the Flight Standards Service (AFS) Division Manager or Aircraft Certification Directorate Manager of the FAA region in which the applicant is located, or to the region within which the U.S. point of entry is located. However, in the case of an aircraft to be operated in the United States for the purpose of demonstration at an airshow, the applicant may submit the application to the AFS Division Manager or Aircraft Certification Directorate Manager.

NOTE: The FAA authorizes the SFP with a continuing authorization in the form of OpSpec D084 for part 119 certificate holders and MSpec M084 for part 91K program manager/operators.

4-1330 AIRWORTHINESS DIRECTIVE (AD)-RELATED SFP.

A. Operator Authority. In accordance with 14 CFR part 39, § 39.23, some OpSpecs may give an operator the authority, including the provision to fly an aircraft to a repair station to perform work required by an AD. If the operator does not have this authority, the local Flight Standards District Office (FSDO) may issue an SFP in accordance with § 21.197(a) unless the AD states otherwise.

1) In cases where the SFP paragraph is intentionally missing from an AD, § 39.23 authorizes the issuance of an SFP if the AD was published after August 21, 2002 (the effective date of § 39.23). In all new ADs, the SFP is authorized by § 39.23 and not the AD, unless the engineer determines that the aircraft cannot be moved safely; therefore, the AD will include a paragraph that does not allow any SFP or has certain restrictions.

2) The aviation safety inspector (ASI) also has the authority under § 39.23 to deny an SFP request for safety reasons as well as adding operating restrictions to the proposed route of flight. An example of a justified denial would be an SFP request for operation over large bodies of water or mountainous terrain with a single-engine aircraft that has an AD applicable to the engine or propeller.

B. Product Operation. If the product is not an aircraft, and the AD does not provide for the product's operation during a ferry flight in accordance with § 39.7, the product cannot be operated during such a flight. If the aircraft on which the product is installed can be operated safely without operating the product, an SFP could be issued in accordance with § 21.197(a) with a limitation that would render the product inoperative for flight.

4-1331 APPLICATION AND EVALUATION PROCESS.

A. Application. As stated above, § 21.197(c)(1) and (2) alone do not automatically provide the necessary authorization for the SFP with a continuous authorization to ferry aircraft. It only provides eligibility for obtaining the authorization. The eligible certificate holder must

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apply for an amendment to its OpSpecs. The certificate holder must also submit its CAFP for approval or acceptance, as applicable, to its assigned principal maintenance inspector (PMI).

B. Program Review.

1) Prior to reviewing the certificate holder's or operator's CAFP, the inspector should review applicable parts of Order 8130.2, Chapter 4, Section 13, Special Flight Permits. This section will provide the inspector with general information on SFPs that can be of use when reviewing the CAFP even though it applies to the FAA when issuing SFPs. The inspector reviewing the CAFP for a part 135 non-CAMP certificate holder should also review the requirements of part 135, § 135.411(a)(1) and (2). This review will provide the inspector with information on the regulatory differences between a CAMP and a non-CAMP operation. The inspector can use this information as a basis for what to look for and consider when reviewing a non-CAMP certificate holder's CAFP. The intent is not to impose CAMP requirements on non-CAMP certificate holders by using the CAFP approval process. The intent is to consider what is missing from a non-CAMP operation that might be necessary (equivalent level of safety) for the proper control and application of the CAFP to a high degree of safety such as an organization, a company maintenance manual, and a maintenance training program.

2) The inspector should verify that the certificate holder and operator document their CAFP and control it as an approved or accepted program as applicable. For part 91K program manager/operators with a CAMP, the maintenance manual required by § 91.1427 should include the accepted CAFP. For part 119 certificate holders with a CAMP, the manual required by part 121, § 121.369 or § 135.427 should include the CAFP, as applicable. For part 119 certificate holders without a CAMP, the manual required by § 135.21 should include the CAFP. All part 119 certificate holders must show how they will control the approved CAFP in an otherwise accepted manual. Without the proper controls, there is a potential for the certificate holder to make changes to the CAFP without receiving prior FAA approval.

3) All inspectors should use SAS Element 4.4.1, (AW) Special Flight Permits, Environmental Deterioration (ED) DCT to evaluate all CAFPs. Using the ED DCT will ensure consistency and ensure the CAFP incorporates system safety attributes. For non-CAMP or part 91K certificate holders, the inspector should use the SAS DCT more as a system safety attribute tool than a regulatory compliance tool. Inspectors for part 91K certificate holders and operators can disregard any non-applicable DCT regulatory references.

4) In addition to the ED DCT, the inspector should verify that the CAFP contains requirements addressing the following, as applicable:

a) All the conditions, limitations, and provisions listed on OpSpec D084 and MSpec M084.

b) Requirements for conveying the authorization to ferry to the flight crew.

c) Provisions for ferrying aircraft to which an AD applies unless the AD states otherwise (refer to § 39.23).

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d) International Civil Aviation Organization (ICAO) prohibition pertaining to ferrying aircraft.

e) Ferry flight situations (especially aircraft damage) that might require the performance of maintenance or alterations on the aircraft to assure safe flight. Even though the certificate holder or operator might consider or call these actions temporary, the regulations govern the performance of all maintenance and alterations. The use of such things as metallic tape (speed tape) must meet regulatory requirements for acceptability.

f) Requirements for training and authorizing maintenance personnel involved with the CAFP, including contract personnel, and how the certificate holder will keep them informed of any changes to the CAFP.

g) Requirements for complying with § 119.43(b)(1), (2), and (c) as it applies to the CAFP and OpSpec D084. The regulation requires each certificate holder to keep each of its employees and other persons used in its operations informed of the provisions of the OpSpecs that apply to that employee's or person's duties and responsibilities.

h) Requirements for documenting the basis used to determine that the aircraft is safe to fly and that the aircraft is in a safe condition for the flight with the discrepancy or condition that triggered the need for the ferry flight permit.

i) Requirements to ensure the safety of the crew and the safe operation of the aircraft with inoperative avionics, instrumentation, and equipment.

j) Aircraft logbook requirements for documenting the ferry flight. The requirements should address such things as persons authorized to sign the log entry for the issuance of the permit, persons responsible for ensuring signature documentation, and what the signature signifies. If the certificate holder or operator uses its own form for issuing the ferry permit, the inspector should verify that the form addresses, at a minimum, all the applicable limitations and provisions listed on OpSpec D084 or MSpec M084, as applicable, and control of the form as a required aircraft record.

5) The inspector should verify that the CAFP contains operational requirements such as:

- Ferry flight pilot training/authorization;
- Pilot ferry flight briefings;
- Aircraft configuration control;
- Operational equipment necessary for safe flight;
- Aircraft weight limits;
- Fuel and fuel distribution limits;
- Center of gravity (CG) limits;
- Maneuvers to which the FAA limits the aircraft;
- Limit on usage of flight equipment such as autopilot, etc.;
- Meteorological conditions to avoid;

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- Airspeed limits as required; and
- Weather minimums appropriate to the aircraft operating condition.

C. Issuance of OpSpec D084 and MSpec M084. Upon completion of the evaluation and the acceptance or approval of the CAFP, the inspector will issue OpSpec D084 or MSpec M084, as applicable, in accordance with Volume 3, Chapter 18, Section 6, Parts D and E Maintenance OpSpecs/MSpecs/LOAs.

NOTE: OpSpecs and MSpecs are "approved by direction of the administrator." This approval is for the OpSpecs paragraphs that provides the certificate holder only the authorization to use the referenced document, process, aircraft, or program. The FAA's issuance of OpSpecs to a certificate holder does not typically approve the actual document, process, aircraft, or program. Unless otherwise specified, documents requiring FAA approval must attain that approval separate and apart from the issuance of the OpSpecs authorizing their use.

4-1332 APPLICATIONS INVOLVING FOREIGN AIR TRANSPORTATION. ICAO Annex 8, Airworthiness of Aircraft, Section II details the airworthiness requirements for all contracting states. This section basically states that all contracting states operating their aircraft over foreign (other contracting states) territory must be airworthy. Because aircraft operated under the provisions of ICAO must meet this requirement any time an aircraft will operate in an unairworthy condition (under the provision of an SFP), the certificate holder must have special permission from each foreign country it wishes to fly over. Because of this requirement, the SFP with continuing authorization alone is not valid outside the United States. Special permission from each foreign country must accompany it in order to be valid.

4-1333 ISSUANCE OF CONTINUOUS SFA TO CERTAIN CANADIAN AIR CARRIERS. The FAA developed a new policy on this subject to satisfy Transport Canada's (TC) request to allow certain Canadian air carriers continuous (blanket) SFA in U.S. airspace. Managers from the Aircraft Certification Service's Production and Airworthiness Certification Division (AIR-200) and the Aircraft Maintenance Division (AFS-300) issued a letter to TC outlining the FAA's policy and procedures for applying for this authorization. The purpose of the FAA's continuous (blanket) SFA is to allow the appropriate FAA official (defined below) to issue the authorization for a repeatedly conducted operation during a given period or for a number of aircraft engaged in the same type operation (e.g., ferry flights).

A. Part 91 Applicability. Section 91.715 pertains to foreign-registered aircraft that do not meet applicable airworthiness requirements.

B. Eligible Applicants. Canadian air carriers with valid, special purpose flight permits issued in accordance with the Canadian airworthiness manual are the only applicants eligible for FAA continuous (blanket) SFAs. These permits, issued by TC, allow Canadian air carriers to issue SFAs for aircraft listed in their maintenance control manual that do not meet all airworthiness requirements, but are capable of safe operations.

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C. Application to the FAA. A Canadian air carrier applying to the FAA for a continuous (blanket) SFA must submit, in writing, the application required by § 91.715 to the FAA's regional Flight Standards division (RFSD) manager where the Canadian air carrier is based. However, the RFSD manager may delegate the authority to issue a continuous (blanket) SFA to the FAA's FSDO location of the Canadian air carrier's PMI.

D. SFA Documentation. Canadian air carriers issued FAA continuous (blanket) SFAs may issue SFAs in the United States. Canadian aircraft must carry the following documents aboard when operating with an SFA in the United States:

- A copy of the FAA continuous (blanket) SFA; and
- A copy of the Canadian air carrier's special purpose flight permit, issued by TC, and the appropriate section of its maintenance control manual.

E. PMI Notification. The Canadian air carrier should inform its FAA PMI within 72 hours of operating an aircraft with the FAA continuous (blanket) SFA of the reason (including aircraft malfunction), date, registration, flight route, and preparatory maintenance actions accomplished.

F. Required CAFP Elements. The inspector should verify that the CAFP contains requirements for displaying the SFP in the aircraft. The CAFP should include requirements for carrying OpSpecs, MSpecs, or portions of the certificate-holder's/program manager's manual containing those conditions, unless the SFP form used by the operator/program manager lists those conditions and limitations.

RESERVED. Paragraphs 4-1334 through 4-1355.

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VOLUME 6 SURVEILLANCE

CHAPTER 11 OTHER SURVEILLANCE

Section 21 Safety Assurance System: Monitor Air Carrier's or Operator's Refueling Procedures (Parts 121, 125, and 135)

6-2666 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS). For Title 14 of the Code of Federal Regulations (14 CFR) part 125, use PTRS activity codes 3638 and 5638.

B. Safety Assurance System (SAS). For 14 CFR parts 121 and 135, use SAS. This section is related to SAS Element 6.2.1 (AW), Fueling.

6-2667 OBJECTIVE. This section provides information, policy, and guidance for inspectors to verify that a 14 CFR part 119 certificate holder is following its procedures for:

- Refueling aircraft;
- Eliminating fuel contamination;
- Protection from fire; and
- Supervising and protecting passengers during refueling.

6-2668 GENERAL. There are many aviation fuel quality specifications used throughout the world. However, in the United States, air carriers commonly use Airlines for America (A4A) Specification 103, Standard for Jet Fuel Quality Control at Airports, and National Fire Protection Association (NFPA) Specification 407, Standard for Aircraft Fuel Servicing, as the basis for developing their procedures to comply with regulatory requirements. The requirements of Specifications 103 and 407 become effective only when the air carrier adopts them and incorporates them into its manual.

6-2669 RESPONSIBILITY.

A. Airports. The Airport Safety and Operations Division (AAS-300) is primarily responsible for the verification of 14 CFR part 139 requirements for airports with airport operating certificates. Airport inspections include verification of fuel-related requirements in part 139, §§ 139.301, 139.311, 139.321, and 139.325. However, these inspections do not include the fuel-related requirements in parts 121, 125, and 135 for air carriers and operators. For more information on airport responsibilities and surveillance activities, go to http://www.faa.gov/airports/airport_safety/.

B. Flight Standards Service (AFS). While airport inspections mainly focus on part 139 fuel storage and dispensing safety practices, AFS inspections focus on parts 121, 125, and 135 aircraft refueling procedures for air carriers or operators. The Federal Aviation Administration (FAA) considers refueling to be servicing, not maintenance, and assigns primary oversight responsibility to the Airworthiness inspector.

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6-2670 AUTHORITY. Part 119, § 119.59 provides the inspector with authority to conduct any inspection or test to determine whether an air carrier or operator is complying with applicable statutes and regulations. This includes inspections of fuel vendors to verify compliance with the certificate holder's procedures. Inspectors perform the inspection from the perspective of the air carrier or operator and report all findings to the air carrier or operator for resolution. However, for any safety-related finding, the inspector must take immediate action to stop an unsafe condition and then follow up with the air carrier or operator.

6-2671 REGULATORY REQUIREMENTS.

A. Overview. Parts 121, 125, and 135 have similar regulations for aircraft refueling and other aviation fuel-related requirements. Each part requires the air carrier and operator to have procedures for refueling aircraft, eliminating fuel contamination, protection from fire, and supervising and protecting passengers during refueling. Besides fuel quality and safe handling practices, parts 121 and 125 also contain regulations on servicing requirements. Inspectors must consider these regulations because refueling is servicing.

B. Manual Requirements.

1) Part 121.

a) Section 121.135(b)(17) requires the air carrier to include instructions and procedures for maintenance, preventive maintenance, and servicing in its manual.

b) Section 121.135(b)(19) requires the air carrier to include in its manual procedures for refueling aircraft, eliminating fuel contamination, protection from fire (including electrostatic protection), and supervising and protecting passengers during refueling.

c) Sections 121.105 and 121.123 require the air carrier to show that competent personnel and adequate facilities and equipment (F&E) (including spare parts, supplies, and materials) are available for the proper servicing, maintenance, and preventive maintenance of aircraft and auxiliary equipment.

2) Part 125.

a) Section 125.73(j) requires the operator to include in its manual procedures for refueling airplanes, eliminating fuel contamination, protecting from fire (including electrostatic protection), and supervising and protecting passengers during refueling.

b) Section 125.73(h) requires the operator to include procedures for the pilot in command (PIC) to follow to obtain maintenance, preventive maintenance, and servicing of the airplane at a place where the operator has not made previous arrangements, when the pilot is authorized to so act for the operator.

3) Part 135.

a) Section 135.23(h) requires the air carrier to include in its manual procedures for the PIC to follow to obtain maintenance, preventive maintenance, and servicing of the

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aircraft, at a place where the operator has not made previous arrangements, when the pilot is authorized to so act for the operator.

b) Section 135.23(j) requires the air carrier to include in its manual procedures for refueling aircraft, eliminating fuel contamination, protecting from fire (including electrostatic protection), and supervising and protecting passengers during refueling.

C. Reviewing the Manual. Prior to the inspection, the inspector must review the air carrier's or operator's manual to determine how the air carrier or operator complies with the regulations noted in subparagraphs 6-2671B1), 2), and 3). The FAA does not intend for the inspector to reevaluate the air carrier's or operator's already accepted procedures. However, if the inspector finds deficiencies in the procedures, the inspector must report the findings to the principal inspector (PI) for resolution. The inspector will use the procedures in the air carrier's or operator's manual as the standard for the inspection.

D. Incorporation by Reference. When the air carrier or operator accepts an industry specification or standard as the means of complying with the regulation, the standard becomes, in effect, a part of the air carrier manual. The FAA expects the air carrier or operator to have an actual copy of any specification it references in its manual. The FAA inspector will obtain a copy of the specification from the air carrier or operator and use it as the standard for the inspection.

E. Deviations.

1) Part 125.

a) Section 125.71(a) contains language that permits deviation from manual requirements, in whole or in part, that might affect the operator's guidance for ground personnel on refueling. The regulations state, "the Administrator may authorize a deviation from this paragraph if the Administrator finds that, because of the limited size of the operation, all or part of the manual is not necessary for guidance of flight, ground, or maintenance personnel."

b) In cases where an operator under part 125 has a deviation from manual requirements, the inspector will use the same guidance specified in subparagraph 6-2671E2)b).

2) Part 135.

a) Section 135.21(a) contains language that permits deviation from manual requirements for single pilot operations. Volume 2, Chapter 4, Section 6 contains details on part 135 manual deviations.

b) A full or partial deviation from the requirements of § 135.21 also means a full or partial deviation from the manual content requirements contained in § 135.23. Depending on the authorized level of deviation, the air carrier might not be required to have § 135.23 requirements. This has caused confusion with inspectors when performing surveillance on the air carrier. Even though the air carrier might not be required to have refueling procedures in its manual, it does not relieve the air carrier from its statutory requirement to perform its services to a high degree of safety. Therefore, when the FAA authorizes a deviation from the manual to include refueling procedures, the air carrier should follow the aircraft manufacturer's

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recommended refueling procedures and other industry standards and practices to ensure safety in its operation.

6-2672 PROCEDURES FOR REFUELING AIRCRAFT.

A. Aircraft-Specific. Aircraft refueling procedures fall into two categories: those that apply to a specific aircraft and those that generally apply to all aircraft. Most aircraft manufacturers publish refueling procedures for each aircraft model they manufacture. The air carrier or operator normally accepts these procedures as their own or uses them as a basis for developing their own refueling procedures. Regardless of how the air carrier uses the procedures, the inspector should review the manufacturer's procedures to better understand the details involved with refueling the aircraft.

B. General. Inspectors can find general aircraft refueling procedures in documents such as advisory circulars (AC). These procedures usually cover general safety and fuel handling practices based on years of industry experience with refueling aircraft. Also, some aircraft manufacturers provide general safety practices in their manuals that the air carrier should follow.

6-2673 INSPECTION CHECKLISTS. Since the focus of this inspection is on the air carrier's refueling procedures and those procedures can vary from air carrier to air carrier, a checklist for this inspection is not practical. As stated in subparagraph 6-2671C, the inspector will use the air carrier's manual as the standard for this inspection.

6-2674 TASK OUTCOMES.

A. Complete the PTRS Record. For part 125.

B. Follow SAS Guidance for Modules 4 and 5. For parts 121 and 135.

C. Complete the Task. The inspector must report all findings noted during the inspection to the air carrier or operator.

6-2675 FUEL STANDARDS (current editions):

- Title 14 CFR Part 139.
- AC 00-34, Aircraft Ground Handling and Servicing.
- AC 20-29, Use of Aircraft Fuel Anti-Icing Additives.
- AC 20-43, Aircraft Fuel Control.
- AC 20-125, Water in Aviation Fuels.
- AC 25.899-1, Electrical Bonding and Protection Against Static Electricity.
- AC 91-13, Cold Weather Operation of Aircraft.
- AC 91-32, Safety in and Around Helicopters.
- AC 150/5230-4, Aircraft Fuel Storage, Handling, and Dispensing on Airports.
- Type Certificate Data Sheet (TCDS).

RESERVED. Paragraphs 6-2676 through 6-2678.

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VOLUME 13 FLIGHT STANDARDS DESIGNEES

CHAPTER 1 AIR TRANSPORTATION DESIGNATED EXAMINERS

Section 1 Safety Assurance System: General

13-1 PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES. None.

13-2 OBJECTIVE. This section provides inspector guidance regarding designated examiners who work in air transportation, including aircrew program designees (APD) designated flight engineer examiners (DFEE), Designated Aircraft Dispatcher Examiners (DADE), and Training Center Evaluators (TCE), unless specifically stated otherwise. Volume 13, Chapter 1 contains general guidance regarding designees. Volume 13, Chapter 2 specifically addresses designating APDs under the Aircrew Designated Examiner (ADE) program. Volume 13, Chapter 3 addresses DADEs.

13-3 GENERAL.

A. Authority. Under Title 49 of the United States Code (49 U.S.C.) Chapter 447, the Administrator may delegate the certification of airmen to any qualified person. In practice, the Administrator's certification tasks are delegated to the aviation safety inspectors (ASI) within the Federal Aviation Administration (FAA) and to examiners (also referred to as designees) outside of the FAA.

NOTE: The policy and guidance contained in these chapters is in addition to the requirements included in the current edition of FAA Order VS 1100.2, Managing AVS Delegation Programs.

B. Need for and Ability to Manage a Designee. Under the terms of Title 14 of the Code of Federal Regulations (14 CFR) part 183, § 183.11(b), "Any local Flight Standards Inspector may select a pilot examiner … whenever he determines there is a need for one." By policy, the designation of examiners is the responsibility of FAA managers. Managers must terminate a designee when a need no longer exists.

C. Designee Oversight. Oversight of designees requires a risk management approach based on differences in the potential impact on safety and the likelihood of error on the part of the designee. Sufficient resources must be allocated to ensure effective management and efficient oversight of designees. The designee management program must be periodically evaluated to ensure it is producing the desired result. This evaluation should be data-driven and based upon objective evidence. Any decisions must be documented in accordance with the guidance material in this chapter.

13-4 TYPES OF DESIGNEES.

A. Aircrew Program Designees (APD) and Designated Flight Engineer Examiners (DFEE). APDs and DFEEs are designated to conduct certification within specifically approved programs, known as ADE programs.

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1) Eligibility. APD/DFEE candidates must be employed by the operator and qualified as a check pilot or check Flight Engineer (FE), as appropriate, for the operator before they may be designated as APDs/DFEEs.

2) Appointment. Principal operations inspectors (POI) are authorized to designate APDs/DFEEs to serve in any ADE program that the POI oversees. The specific functions of an APD/DFEE are named in the letter of authority (LOA) that supplements the Certificate of Designation and Certificate of Authority (COA), which are issued by the POI. APDs and DFEEs are restricted to examining only those applicants employed by their operator and trained in their approved training program.

B. Training Center Evaluators (TCE).

1) TCEs are persons employed by a 14 CFR part 142 certificated training center who are authorized by the center's Training Center Program Manager (TCPM) to conduct certification functions associated with the center's approved 14 CFR parts 61 and 63 curricula.

2) A TCE who has also been approved as a check pilot or check FE for an operator by its POI may conduct certification evaluations of an operator's airmen in accordance with the operator's approved training program and operations specification (OpSpec) A031.

NOTE: For complete details on the appointment and training requirements for TCEs to become check pilots or check FEs for an operator, see Volume 3, Chapter 54.

C. Designated Aircraft Dispatcher Examiner (DADE). Unlike other air transportation designees, DADEs are not necessarily employees of an air carrier or a training center. In many respects, DADE policy and guidance is similar to that of a Designated Pilot Examiner (DPE). Volume 13, Chapter 3 contains those areas where DADE policy and guidance differ from the policy and guidance in this chapter.

13-5 DESIGNEE AUTHORITY AND RESPONSIBILITIES. A designated examiner is authorized by the managing FAA office to conduct only those airman certification activities approved by the FAA.

A. Privileges and Limitations. The following privileges and limitations apply to designated examiners conducting evaluations of personnel in air transportation.

1) A designated examiner may:

a) Conduct only those tests indicated on FAA Form 8430-9, Certificate of Authority, and specifically named in the LOA.

b) Issue temporary certificates to applicants that the designated examiner has evaluated and found qualified for the certificate or rating sought.

c) Be authorized to conduct certification tests within part 121 or 135 training programs at any base or facility approved for the operator's use by the POI.

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d) Amend or alter a certificate as follows:

1. Add a rating to the certificate of an applicant whom the designated examiner has tested and found to be competent.

2. Remove a limitation on a certificate which the examiner is authorized to issue. The TCE, APD, or DFEE must have been trained on evaluating an applicant to determine eligibility for removal of a limitation.

a. Airline Transport Pilot (ATP) limitation removal following completion of an approved curriculum: For a TCE or APD to remove an ATP limitation, it must be done following completion of an approved training curriculum under part 121, 135, or 142. The following conditions must be met:

- The applicant must successfully complete the entire approved curriculum which contains provisions for removal of the limitation;
- The procedure to remove the limitation must be part of an approved curriculum, which includes both ground and simulator/flight training;
- Other than removal of a circling approach limitation or a centerline thrust limitation, the approved procedure to remove the limitation cannot be a standalone training curriculum, but must be part of an existing training curriculum (initial, recurrent, upgrade, etc.); and
- The TCE or APD must follow the certificate holder's procedures, which must be described in the approved curriculum.

b. FE limitation removal: A DFEE may be authorized to remove the limitation imposed by Exemption 4901 for an FE applicant when the examiner has been properly trained to perform the removal.

2) A designated examiner may not:

- Conduct a test for a certificate or rating that the designated examiner does not hold.
- Normally conduct an evaluation of any applicant whom the designated examiner has instructed in preparation for the certificate or rating sought by the applicant. Exceptions may be granted by the supervising inspector only on a case-by-case basis.
- Normally conduct an evaluation of any applicant whose performance the designated examiner has found to be unsatisfactory on the previous evaluation (i.e., a different examiner is required on a "retake"). Exceptions may be granted by the supervising inspector only on a case-by-case basis.

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- Conduct special medical evaluations, tests for waivers, or any test for competency under 49 U.S.C. § 44709. Specialists will instruct designated examiners to direct applicants for waivers, special medical evaluations, and competency tests under § 44709 to an FAA Flight Standards District Office (FSDO) or the certificate management office (CMO).
- For TCEs and APDs, remove an ATP limitation based solely on satisfactory presentation of evidence from the airman.

B. Professional Conduct. Each designated examiner must represent the Administrator in a manner which credits the FAA. Qualities such as promptness, courtesy, and professionalism are essential. Each designated examiner must continuously exhibit a positive personal attitude toward safety and present a positive image of the FAA in respect to aviation safety.

C. Designated Examiner Responsibilities. Designated examiners are responsible for the following:

- Conducting all practical tests in air transportation programs in accordance with the applicable sections of this order. Inspectors should ensure that designated examiners are aware that all operators must have a document covering procedures and maneuvers which contains specific training and testing standards. This document should be based on the applicable practical test standards (PTS).
- Submitting complete and accurate certification packages (which include the PTRS data sheets or locally prepared data input forms) to the supervising FSDO/CMO within 7 calendar-days of administering a test.

D. Multiple Certification Services by an Examiner. An airman may be designated by the FAA to perform multiple certification services as an examiner on behalf of the Administrator. In some cases, an airman:

- May be designated to hold more than one type of designation; or
- May be approved to conduct certification activities under more than one training program, which, in turn, may be approved for use by more than one operator.

1) Designations. An airman may be designated as more than one type of FAA designated examiner. For example, an airman might be designated as a Private Pilot Examiner (PE) in gliders and, separately, as an APD for an air carrier and as a TCE for a training center.

2) Training Programs. A designated examiner for an air carrier may be approved for a maximum of two different training programs.

13-6 FAA PERSONNEL. ASIs and FAA managers have oversight responsibilities for designated examiners.

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A. Supervising Inspectors. For the purposes of these chapters, supervising inspectors are referred to as "specialists." The term "supervising inspectors," as it is used in connection with examiners, comprises:

- POIs;
- Aircrew program managers (APM);
- TCPMs;
- Partial Program Managers (PPM);
- Training center PPMs;
- Geographic PPMs;
- Assistant APMs; and
- ASIs (Aircraft Dispatch).

B. Managers. The term "managers," used in connection with examiners, includes:

- FSDO managers;
- Unit supervisors;
- CMO managers; and
- Regional Flight Standards division (RFSD) managers.

13-7 PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites. This task requires knowledge of the applicable 14 CFR parts 61, 63, 65, 121, 135, 142, and 183 regulations and FAA policies, and qualification as an ASI (Operations) with designee oversight responsibilities.

B. Coordination. This task may require coordination between the managing FAA office, the RFSD, and/or the Air Transportation Division (AFS-200).

13-8 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 CFR Parts 1, 61, 63, 65, 91, 121, 135, 142, and 183.
- Title 49 U.S.C.
- PTRS Procedures Manual.

B. Forms:

- FAA Form 8000-5, Certificate of Designation.
- FAA Form 8430-9, Certificate of Authority.
- FAA Form 8710-6, Examiner Designation and Qualification Record.

C. Job Aids. None.

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13-9 PROCEDURES.

A. Designating Examiners. Managers should consider designating examiners when the volume of certification activity makes such designations desirable to an operator and to the FAA. These conditions may occur when the volume of certification activity is relatively high, when an aircraft type is new to an operator's fleet, or when flight simulation training device (FSTD) training is available. Managers may consider designating examiners for FE and aircraft dispatcher certification as well as for pilot certification. Managers must also consider if they have the resources available to manage designees.

B. Programs for APDs, DFEEs, and TCEs Authorized as Check Pilots or Check FEs. APDs, DFEEs, and TCEs may be designated as follows:

1) ADE Program.

a) APDs and DFEEs are trained in an ADE program. An ADE program is associated with an operator which conducts its own program of airman qualification. It is the preferred program for conducting the certification of flightcrew members for complex parts 121 and 135 operators.

b) The ADE program was originally designed for operators with sophisticated training capabilities (including FSTDs), with highly trained personnel, and with a large volume of certification activity. The program has since been used by a broader range of operators.

c) POIs and managers should consider establishing an ADE program before the operator's airman certification workload for any aircraft type exceeds the FAA's ability to meet requirements using available inspector resources. They should also consider an ADE program as a means of making FSTD training accessible to an operator which might not otherwise find FSTD training practical. FSTD training is acknowledged as the safest and best training method.

2) TCE Program. TCEs are for use only by 14 CFR part 142 training centers. A TCE may also be authorized as a contract check pilots or check FEs for an operator through the issuance of OpSpec A031.

NOTE: For complete details on the appointment and training requirements for TCEs to become check pilots or check FEs for an operator, see Volume 3, Chapter 54.

C. FAA Specialist Training Requirements.

1) FAA specialists are required to complete the managing FAA office's specialist on-the-job training (OJT) program.

2) Mandatory job functions training is required to satisfy recurrent training requirements.

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NOTE: Specific TCPM training requirements are found in Volume 3, Chapter 54. Specific APM training requirements are found in Volume 13, Chapter 2. Specific dispatch inspector training requirements are found in Volume 13, Chapter 3.

13-10 SPECIALIST RESPONSIBILITIES. Specialists are responsible for ensuring that examiners are trained in certification duties and procedures, that surveillance is scheduled and conducted, and that examiners maintain certification standards. Managing the designee program must be data-driven. Safety Performance Analysis System (SPAS) data should be used as a primary data source. For the examiners designated in accordance with this handbook, these responsibilities include the following:

A. Initial Training and Observation. Specialists are responsible for ensuring that, before designation, each examiner candidate is properly trained to conduct certification and is observed while conducting an evaluation.

B. Surveillance. Specialists must ensure that each examiner is observed a minimum of once a year by an appropriately rated ASI and that this observation has been accomplished before the examiner's designation is renewed. The responsibility for scheduling surveillance lies with the supervising inspector. Specialists are responsible for establishing procedures by which the designated examiner provides schedules of proposed activities as far in advance as is practical or required.

C. Airman Certification Standards. Specialists are responsible for ensuring that the designated examiners maintain airman certification standards as prescribed by 14 CFR, by PTS, by approved training programs, and by applicable handbooks. Specialists must conduct an active program of meetings and surveillance to achieve this objective.

13-11 OFFICE MANAGER RESPONSIBILITIES. Office managers must establish effective administrative systems for supporting designated examiner programs. This support must include the following:

A. Certification Paperwork. Office managers are responsible for establishing administrative procedures for the expedient and efficient processing of certification paperwork within the office. Managers are not required to maintain hard copies of certification paperwork, job aids, or PTRS data sheets. The PTRS serves as a record of certification activity.

B. Data Processing Support. Office managers are responsible for establishing administrative procedures for entering the data generated by designated examiners into the PTRS system.

C. Resources. Office managers are responsible for the personnel, training, and budget resources necessary to accomplish the surveillance of designated examiners. Personnel, training, and budget forecasts must contain adequate provisions for the surveillance of designated examiners. Office managers should anticipate changes in personnel requirements due to either growth in operator programs or public demand.

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D. Continuous Improvement. Office managers are responsible for continually evaluating the effectiveness of the delegation program for designees and for responding to feedback on a timely basis.

13-12 RFSD RESPONSIBILITIES. In general, the RFSD is responsible for ensuring that airman certification standards are upheld. RFSDs are not required to take any specific action in respect to approving individual airmen as examiners. Other responsibilities held by the RFSD are as follows:

A. Coordination. RFSDs are responsible for establishing procedures for FSDOs and CMOs for locating inspectors to conduct designated examiner surveillance when a qualified inspector is not locally available.

B. Field Office Evaluation. RFSDs are responsible, coordinating with the Flight Standards Quality Assurance Division (AFS-40), for evaluating each FSDO's and CMO's designation process to ensure the process is producing the desired result. This evaluation must be conducted at least every 36 months based on a risk management approach and, when practical, in conjunction with regularly scheduled office evaluations.

RESERVED. Paragraphs 13-13 through 13-23.

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