VOLUME 2 AIR OPERATOR AND AIR AGENCY CERTIFICATION AND APPLICATION PROCESS

CHAPTER 1 THE GENERIC PROCESS FOR CERTIFICATING ORGANIZATIONS

Section 2 Safety Assurance System: Assignment of FAA Responsibilities

2-26 GENERAL.

A. Federal Aviation Administration (FAA) Activities. FAA activities associated with the certification process for air carrier and commercial operators and oversight of these certificates can cross district office and regional geographic boundaries. Existing operators can revise their organizational structures and change their scope of operations. These changes may affect the capabilities of a district office. Regional Flight Standards divisions (RFSD) are in the best position to know the capabilities of their district office and assigned personnel. Consequently, RFSDs must be responsible for assigning certification and certificate responsibilities to district offices. RFSDs shall specifically determine which district office will be assigned a certification project and have continuing responsibility for existing Title 14 of the Code of Federal Regulations (14 CFR) part 135 or part 121 operators. The RFSD must make periodic assessments of their existing certificate holder's operations to determine that the assigned district offices continue to be the best suited to fulfill FAA responsibilities for a particular operation.

B. Air Carrier Certification Projects.

- For existing and new part 121, see Volume 2, Chapter 3, Section 1.
- For existing and new part 135, see Volume 2, Chapter 4, Section 1.
- For existing and new 14 CFR part 145, see Volume 2, Chapter 11, Section 1.

C. The Assignment of FAA Offices and Personnel for a 14 CFR Part 91K Application and Program Management Responsibilities. This assignment should be handled in the same manner as the certification of a comparably sized or structured part 135 certification, as described in this section. Fractional ownership programs are not issued certificates; however, they are assigned to a Flight Standards District Office (FSDO) for the application process and continued oversight. The term "certificate-holding district office" (CHDO), as used in this section, refers to both an office that certificates and manages a 14 CFR part 119 certificate and an office that issues the management specifications (MSpecs) and provides oversight for a fractional ownership program. The terms "operator" and "certificate holder" in this section refer to both part 119 certificate holders and fractional ownership program managers. A fractional ownership program manager may have one or more affiliate programs. Each affiliate program should be treated as a separate entity for the purposes of issuing MSpecs and oversight; therefore, each affiliate program must have its own assigned principal inspectors (PI). Some fractional ownership programs are associated with a part 119 certificate holder. Some or all aircraft used in the fractional ownership program may be listed on an air carrier's operations specifications (OpSpecs). In addition, provisions of part 91K allow the use of part 135 manuals, training programs, proficiency checks, recordkeeping, flight and rest provisions, maintenance programs and minimum equipment lists (MEL) to meet the part 91K requirements. Therefore,

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the same PIs should be assigned to associated air carriers and the fractional ownership programs. See Volume 2, Chapter 5, for more information on fractional ownership programs.

2-27 PRINCIPAL BASE OF OPERATIONS. Both parts 119 and 91K utilize the term "principal base of operations" to mean the primary operating location. The certificate holder or program manager will designate only one principal base of operations but may designate other operations locations as main bases. A certificate holder must maintain its OpSpecs at its principal base of operations. A part 91K program manager must maintain its MSpecs at its principal base of operations. If records are kept at locations other than the principal base of operations, the certificate holder/program manager will maintain a current listing that will include the location and persons responsible for each required record, document, and report. The office having responsibility for the geographic area in which the principal base of operations is located will normally be assigned the CHDO responsibilities. The principal base of operations and the responsibility for oversight of the certificate holder/program manager is part of the CHDO environment to include staffing considerations. It may be necessary to recruit or transfer inspectors appropriately qualified for the type of operation to the district office having geographic responsibility for the area in which the principal base of operations is located.

2-28 FACTORS TO BE CONSIDERED WHEN DESIGNATING A PRINCIPAL BASE OF OPERATIONS. The FAA's designation of a principal base of operation is essentially a determination of which district office will be assigned certificate-holding responsibilities. In most situations this determination can be based on several predominant factors that clearly indicate a primary operating location and an obvious assignment of a CHDO. However, in some situations, the factors involved in determining the primary operating location and/or which district office is best suited for certificate-holding responsibilities are complicated by the proposed or existing operation. RFSDs must consider all factors involved when designating a principal base of operations. Sometimes the decision will have to be based on a consensus of factors. Some factors that must be considered in descending order of priority include the following:

- Location and accessibility of an applicant's or existing certificate holder's key management personnel and other persons who have authority to make decisions on FAA matters;
- Location of the main operations base and operations system control center;
- Location of the main maintenance base and maintenance system control center;
- Qualification of available district office inspectors with respect to the type of operation and aircraft;
- Geographic centers of route structures and/or areas of operation;
- The applicant's or existing certificate holder's corporate headquarters location;
- Training locations; and
- Employee domicile locations.

2-29 SPLIT MAIN OPERATIONS AND MAIN MAINTENANCE BASE LOCATIONS.

A. Location of Inspectors. Occasionally an operator will locate its main operations base and main maintenance base in different district offices and/or regional geographic areas. The company's management personnel (operations and maintenance) may be separated and maintain

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separate offices at the location of the activity for which they are responsible. In these situations, the most practical and efficient arrangement is to locate the principal operations inspector (POI) near the main operations base and the principal maintenance and avionics inspectors near the main maintenance base. Any full-time assistants should also be similarly located. Physical separation of these key inspectors, if not carefully managed, can result in significant coordination problems.

B. Location of CHDO. When an operator splits its main operations and maintenance bases, the RFSD shall decide which district office will be the CHDO. When two regions are involved, the respective divisions will coordinate and mutually determine which region is to assume responsibility for the operation and which district office within that region will be assigned oversight responsibilities. If the regions are unable to agree, the issues will be forwarded to the Director, Flight Standards Service (AFS-1) for final determination. The basis for determining which region and district office is to be assigned certificate responsibilities will be a thorough consideration of the factors previously listed in paragraph 2-28 and any other relevant data.

C. CHDO Responsibilities. The assigned CHDO management shall have overall responsibility for all FAA reporting requirements, technical administration requirements, and regulatory oversight of the operator. The CHDO and the region shall also be responsible for budgeting travel and other necessary funds for assigned PIs and assistants to conduct appropriate work programs and certificate-holding responsibilities.

1) When an operation is complex and large enough to warrant full-time PIs (inspectors who are solely responsible for one operator), arrangements will be made to locate satellite PIs in district offices that have responsibility for the geographic area where the appropriate main base is located. In these situations the satellite PI and any full-time assistants shall report directly to the CHDO management on all functional and technical aspects of the operator. The CHDO shall have supervisory responsibility over the satellite PI. The district office where the satellite PI is located shall provide administrative support.

2) When an operation is not complex or large enough to warrant full-time PIs, the RFSD will take action as necessary to ensure the following:

a) The assigned PIs are located in a district office responsible for the geographic area where the appropriate main base is located.

b) The assigned PIs report to the CHDO's management on all functional, technical aspects, and other vital information concerning the operator.

c) The district office management where the assigned PIs are located has supervisory responsibility over the PIs and must ensure the CHDO's certificate responsibilities are adequately supported.

D. Split Operations. In situations of split main operations and main maintenance bases, the RFSD must monitor the activities of the respective district offices to ensure that appropriate coordination is occurring. The assigned PIs are physically separated and must be provided the necessary opportunities and tools to effect efficient and timely coordination on technical

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administration, surveillance, and investigatory matters associated with the operator. This coordination is essential to ensure that a standardized and common FAA position is taken with the operator.

2-30 REGIONAL COORDINATION FOR THE ASSIGNMENT OR REASSIGNMENT OF CERTIFICATE-HOLDING RESPONSIBILITIES.

A. Certification Project Reassignment to Different District Office. If at any time it is determined that the certification project should be reassigned to a different district office within the region or a district office in a different region, the RFSD shall ensure that the transfer of work previously accomplished and still to be accomplished is thoroughly coordinated between the district offices. Coordination must include the transfer of working files, appropriate briefing of the applicant's personnel, and interdistrict office briefings as necessary.

B. Establishment or Change of Operation Base Location. Part 91, § 91.1015; part 119, § 119.47; 14 CFR part 125, § 125.47; 14 CFR part 141, § 141.25; and 14 CFR part 147, § 147.41 require a program manager/certificate holder to provide written notification to its CHDO at least 30 days before it proposes to establish or change the location of its principal base of operations, its main operation base, or its main maintenance base. The program manager/certificate holder should submit a plan to its CHDO for relocating its base. The details of the plan should be consistent with the size of the operation and the complexity of the move. At a minimum, the plan should provide answers to basic questions such as: who, what, when, where, why, and how. The proposal might include:

1) Dates. Proposed or specific for moving and whether or not the move will be accomplished at one time or over a period of time.

2) Organization. How will the move affect the organization? Does the program manager/certificate holder anticipate losing any (key) employees as a result of the move? How will the loss of experienced personnel affect the organization? Will the certificate holder have to hire and train new employees at the new location? When will this occur?

3) Operations. How will the move affect the program manager's/certificate holder's operation? Does the program manager/certificate holder plan to continue a normal flying schedule while moving? Will the program manager/certificate holder provide additional supervisors to monitor the move? How will operations centers and maintenance control operate during the move? How will radio communications be maintained? How will aircraft be maintained during the move?

4) Facilities. How will the move affect the program manager's/certificate holder's facilities?

5) OpSpecs/MSpecs. Does the move affect any OpSpec/MSpec authorizations? Does the move affect any issued deviations or exemptions?

6) Recordkeeping. How will the move affect required recordkeeping? Where will records be stored? How will required records be maintained during the move?

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7) Aircraft Parts. How will aircraft parts be moved and protected?

8) Manuals. How will the move affect current programs and procedures?

C. Notification of RFSD. The district office will immediately notify its respective RFSD of the proposed change and forward a copy of the plan. The CHDO will provide any additional information and comments that may assist the RFSD in its review and assessment of the plan. The CHDO will provide any additional information and comments which may assist the RFSD in its review and assessment of the proposed move. It is important that the CHDO communicate concerns about the program manager's/certificate holder's compliance history and behavior, working relationship with the CHDO, projects, or initiatives underway.

D. Impact Assessment. The RFSD will assess the impact of the program manager's/certificate holder's move on the FAA. If the move will significantly impact the FAA or be complex and require additional FAA oversight, the RFSD will notify and coordinate with AFS-1 or the Deputy Director, Flight Standards Service (AFS-2).

E. Reassignment of Certificate Responsibilities. If the RFSD determines that certificate responsibilities need to be reassigned to another district office, one of the following actions shall be taken.

1) When the district offices are in the same region, the RFSD will accomplish the following:

a) Before reassignment, inspect the files of the losing CHDO which are maintained on the operator to determine if they are complete and up to date and take action as necessary to ensure completeness and currency. Inspection of these files should also identify open items and/or discrepancies that must be resolved.

b) Interview the losing CHDO manager and PIs to further identify open items and/or discrepancies that must be resolved by either the losing CHDO or the gaining CHDO.

c) Decide how, when, and who will be responsible for resolving any open items and/or discrepancies.

d) Arrange for a briefing of the gaining CHDO manager and prospective PIs on the certificate holder's operation, key management personnel, and any open items and/or discrepancies that are being transferred for action by the gaining CHDO.

e) Select a date to transfer certificate responsibilities.

f) Arrange a briefing for the certificate holder concerning the decision with an explanation for the need to reassign certificate responsibilities to another district office. Arrange an introductory meeting between the certificate holder's management personnel and the new CHDO manager and newly assigned PIs.

g) Supervise the transfer of the previous CHDO's operator files to the newly assigned CHDO.

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2) When district offices are not in the same region, the respective RFSD will accomplish the following:

a) Initiate interregional coordination and agree on the need to reassign certificate responsibilities. If the regions are unable to agree on a reassignment of certificate responsibility, these issues will be forwarded to AFS-1 for final determination.

b) The losing RFSD will inspect the previously assigned CHDO operator files to determine if the files are complete and current. The RFSD will take action as necessary to ensure completeness and currency. Inspection of these files should identify open items and/or discrepancies that must be resolved.

c) The losing region will interview the losing CHDO manager and PIs to further identify open items and/or discrepancies that must be resolved by either the losing CHDO or the gaining CHDO.

d) The losing region will coordinate with the gaining region and agree on how, when, and who will be responsible for resolving open items and/or discrepancies.

e) The gaining region will arrange for a briefing of the gaining CHDO manager and newly assigned PIs on the certificate holder's operation, key management personnel, and open items and/or discrepancies being transferred for action by the gaining CHDO.

f) The respective regions will select a date to transfer certificate responsibilities. The losing region will notify the operator's management personnel of the decision and give an explanation of the need to change the assigned CHDO.

g) The gaining region will arrange a briefing for the certificate holder and an introductory meeting between the certificate holder's management personnel and the gaining CHDO manager and prospective PIs.

h) The respective regions will coordinate and supervise the transfer of the losing CHDO's operator files to the gaining CHDO.

F. RFSD Responsibilities. The RFSD will oversee and ensure the necessary changes are made to FAA documents and electronic databases (e.g., Air Carrier Certificate, OpSpecs/MSpecs, enhanced Vital Information Database (eVID), Surveillance/Work Programs). Additionally, the RFSD will oversee and coordinate the transfer of files, manuals, and any other item relating to certificate management. Transfer of the manuals should include coordination with the program manager/certificate holder, since many manuals are controlled.

G. Impact of Base Relocation and Certificate Transfer. The impact of the base relocation and certificate transfer, on the air carrier and the FAA respectively, could be complex enough to be designated as an FAA project. If disagreements occur between CHDOs over the prior approvals or accepted policy or procedures, the RFSDs will mediate and decide on appropriate action. Good communication and timely decisionmaking are essential to efficiently and effectively accomplish the task of transferring a certificate and meeting the needs of the program manager/certificate holder and the FAA.

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H. Documentation. RFSD and field personnel will document all certificate transfer and related activity in the Program Tracking and Reporting Subsystem (PTRS) using activity codes 1245, 3240, and 5240.

RESERVED. Paragraphs 2-31 through 2-45.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 1 THE GENERAL PROCESS FOR APPROVAL OR ACCEPTANCE OF AIR OPERATOR APPLICATIONS

Section 1 Safety Assurance System: General

3-1 GENERAL.

A. Generic Process. The general process of approval or acceptance of certain operations, programs, documents, procedures, methods, or systems is an orderly method used by Flight Standards Service (AFS) inspectors to ensure that such items meet regulatory standards and provide for safe operating practices. Applying a modular, generic process to many types of approval or acceptance tasks can help this process. The process consists of five distinct yet related phases and can result in approving or not approving, accepting or not accepting, an operator's proposal. It is important for an inspector to understand that the process described in this section is not all-inclusive, but rather a tool to use with good judgment in conducting day-to-day duties and responsibilities. See Figure 3-1, Approval/Acceptance Process Flow Diagram.

B. Understanding the Process. The following guidance provides aid in understanding and applying this process. It is essential to understand that this process may result in a decision to not approve or not accept an operator's proposal. This process will assist in making either positive or negative determinations.

C. Supplemental Procedures. This general process applies to many tasks described throughout the order. Each section describing an approval or acceptance task supplements the general process by outlining specific requirements for each phase.

D. Tracking Operational Applications. The Federal Aviation Administration (FAA) principal inspector (PI) will provide status reports at certain milestones to applicants for operational approvals (operations specifications (OpSpecs), training specifications (TSpecs), management specifications (MSpecs), letters of authorization (LOA), and Special Area of Operations (SAO)). At a minimum, the PI shall provide a status report to the applicant:

- Within 5 days of a request for status by the applicant;
- Upon a change in status of the application (e.g., return to the applicant for correction, resubmission to the FAA after correction, or prolonged delays in an application due to a user demonstration phase); and
- Upon providing final decision.

3-2 PHASE ONE. The first phase starts when an operator, a person, an aviation interest group, or the FAA inquires about or states a need for a change in some aspect of an aviation activity. Phase one is initiated by one of the following actions:

A. Applicant Initiation. A person or operator conveys to the FAA a need that is related to its operation. This need may be a requirement for FAA approval or acceptance. The operator initiates the process by inquiring about the correct procedures to receive approval or acceptance

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from the FAA for the change. During initial inquiries, it is important for the FAA and the operator to become familiar with the subject matter. If, for example, an operator requests an operational approval, the PI must take the following actions:

1) Become thoroughly familiar with existing FAA policy and approval requirements;

2) Become familiar with the appropriate technical material;

3) Accurately assess the character and scope of the proposal;

4) Determine if a demonstration is required;

5) Determine the need for any coordination requirements;

6) Ensure that the operator has a clear understanding of the minimum requirements that constitute an acceptable submission, including that the submission should be in digital format;

7) Determine the date the operator intends to implement the proposal; and

8) Provide all references, and access to applicable job aids and/or electronic Learning Management System (eLMS) course transcripts.

B. FAA Initiation. Phase one may also begin when the FAA conveys to the operator or person the required approval or acceptance related to its operation. For example, a PI may require an operator to publish, in the approved company aircraft operating manual, information on low-speed buffet. The operator must research and understand that subject area before submitting a proposal to the FAA for evaluation. The PI should act in an advisory capacity to the operator during the preparation of the submission. Such advice may include the following:

- The necessity for a deviation, authorization, waiver, or exemption;
- The necessity for required demonstrations;
- Clarification of Title 14 of the Code of Federal Regulations (14 CFR) parts or order information;
- Sources of specific technical information; and
- Acceptable standards for submission.

C. Operator Responsibility. The common element, regardless of whether the initiated action comes from an operator or the FAA, is the effort expended by the operator.

NOTE: It is essential (particularly in phase one) for the operator to have a clear understanding that, although the PI may provide advice and guidance to the company, the development of the final product submitted to the FAA is solely the responsibility of the operator.

D. FAA/Applicant Communication. In phase one, the PI must ensure that the operator clearly understands the form, content, and documents required for the submission to be acceptable to the FAA. The PI is required to inform the operator of the need and benefits of

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submitting required documents as early as possible, and of its responsibility to advise the FAA in a timely manner of any significant changes in the proposal. Illustrated below is phase one of the process:

1) The operator makes an inquiry or request to the FAA, or the FAA requires the operator to take an action.

2) The FAA and operator develop understanding of subject area.

3) The operator understands form, content, and documents required for acceptable submission, preferably in an electronic submission.

3-3 PHASE TWO. Phase two begins when the operator formally submits a proposal for FAA evaluation.

A. Operator's Proposal. The PI's first action in phase two is to review the operator's proposal to ensure it is clear and that they provided all the specified documentation from phase one. The required information must be complete and detailed enough to permit a thorough evaluation of the operator's capability and competence to fully satisfy the applicable regulations, national policy, and safe operating practices. Phase two does not include a detailed operational and technical evaluation, or analysis of the submitted information (see phase three in paragraph 3-4). However, the PI must examine the submission in sufficient detail to assess the completeness of the required information.

B. Incomplete or Unacceptable Proposal. If the operator's submission is not complete or the quality is obviously unacceptable, the PI must notify the operator in writing of the unacceptable submission, and return it to the operator immediately with a written explanation of the deficiencies before conducting any further review or evaluation. In complex cases, a meeting with the operator and their key personnel may be necessary to resolve issues and agree on a mutually acceptable solution. If there is no mutually acceptable solution, the PI must terminate the meeting, inform the operator that the submission is unacceptable, and return the submission. If all parties are able to reach an agreement on measures to correct omissions or deficiencies, and the applicable PIs determine the submission is acceptable, the PI must notify the operator officially in writing, and phase three will begin. Illustrated below is phase two of the process:

1) The operator submits the proposal.

2) The FAA makes an initial examination of the documents for completeness (with respect to requirements established in phase one).

3) The FAA either:

- Determines the submission is unacceptable and returns the submitted proposal, or
- Advances the application to phase three.

C. Online Posting. The PI who receives the application will upload an electronic version in accordance with subparagraph 3-4D.

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3-4 PHASE THREE.

A. Detailed Analysis. Phase three is the FAA's detailed analysis, review, and evaluation of the operator's proposal. These actions may take place entirely within a field office, at the site of operations, or at both facilities. Phase three of the FAA evaluation focuses on the form, content, and technical quality of the submitted proposal to determine if the information meets the following criteria:

- Is not contrary to any applicable 14 CFR;
- Is not contrary to the direction provided in this order or other safety-related documents; and
- Provides for safe operating practices.

B. Evaluation Criteria. Criteria for evaluating the formal submission are available in the applicable chapters of this order. The PI must ensure that the documents adequately establish the operator's capability and competence to safely conduct operations in accordance with the submitted proposal.

C. Addressing Deficiencies. During phase three, the FAA PI must, in a timely manner, address any deficiencies in the submitted material before proceeding to subsequent phases. Discussion with the operator may be sufficient to resolve certain discrepancies or questions, or to obtain additional information. It may be necessary to return certain sections of the submission to the operator for specific changes. However, when a PI determines that, for specific reasons, the material is deficient or unacceptable, the PI must immediately terminate this phase and officially notify the operator in writing and return the submission with an appropriate explanation. If the results of the evaluation are acceptable and a demonstration is required, the PI may need to grant some form of conditional, initial, or provisional approval to the proposal before continuing with the process. The PI must officially address this in writing to the operator.

D. Online Posting of Application. The Regional Next Generation Air Transportation System (NextGen) Branch (RNGB) (AXX-220) Operational Approval Coordination SharePoint site is designed to increase the speed and efficiency of the application process by utilizing online capabilities. It allows for instantaneous posting, tracking, and updating of operational applications. It also provides headquarters (HQ) with a mechanism to determine the status of an application more rapidly and accurately. For operational approval applications that require higher level concurrence, the PI who received the application will upload an electronic version to their regional site listed below. These regional sites include guidance on the use of the NextGen applications tracker, the SAO application tracker, and the levels of concurrence required for each type of NextGen application.

- Alaskan Region (AAL):
  https://avssp.faa.gov/avs/afs400/AFS-408/AAL/SitePages/Default.aspx.
- Central Region (ACE):
  https://avssp.faa.gov/avs/afs400/AFS-408/ACE/SitePages/Default.aspx.
- Eastern Region (AEA):
  https://avssp.faa.gov/avs/afs400/AFS-408/AEA/SitePages/Default.aspx.

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- Great Lakes Region (AGL): https://avssp.faa.gov/avs/afs400/AFS-408/AGL/SitePages/Default.aspx.
- Northwest Mountain Region (ANM): https://avssp.faa.gov/avs/afs400/AFS-408/ANM/SitePages/Default.aspx.
- Southern Region (ASO): https://avssp.faa.gov/avs/afs400/AFS-408/ASO/SitePages/Default.aspx.
- Southwest Region (ASW): https://avssp.faa.gov/avs/afs400/AFS-408/ASW/SitePages/Default.aspx.
- Western-Pacific Region (AWP): https://avssp.faa.gov/avs/afs400/AFS-408/AWP/SitePages/Default.aspx.

E. Online Updates. The PI will update (to include date of notification) the Operational Approval Coordination site. At a minimum, these updates will be whenever the PI notifies the applicant as listed in subparagraph 3-1D. The RNGB will ensure the site within their region is kept up-to-date, and take appropriate action to ensure the information is accurate.

NOTE: It is important for the PI involved to keep the operator advised of the status of their proposal. If the PI takes no other action, or if the submission is deficient and not returned in a timely manner, the applicant may wrongly assume that the FAA has tacitly accepted the submission and is continuing with the process. The PI must officially notify the applicant in writing of significant events such as return of deficient submissions or the applicant meeting in the criteria of an evaluation process.

F. Phase Four Planning. An important aspect of phase three is for the FAA PI to begin planning the conduct of phase four. While evaluating the operator's formal submission, PIs should begin to formulate plans to observe and evaluate the operator's ability to perform. While evaluating the operator's formal submission, plans must be finalized to observe and evaluate the operator's ability to perform before the actual demonstrations begin. Illustrated below is phase three of the process:

1) The FAA evaluates the formal submission for compliance with 14 CFR, the direction provided in this order, other safety-related documents, and safe operating practices.

2) When results of the FAA evaluation are unsatisfactory, return the submission to the operator for correction and/or terminate the phase.

3) Begin planning phase four (if required).

4) When results of the FAA evaluation are satisfactory, either:

- Proceed with phase four if a demonstration is required, or
- Proceed to phase five if there is no required demonstration.

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3-5 PHASE FOUR.

A. Operator's Demonstration. In phase four, the FAA finalizes plans to observe and evaluate the operator's demonstration of its ability to perform in accordance with the procedures, guidelines, and parameters described in the formal proposal. Phase four is an operational evaluation of the operator's ability to function in accordance with the proposal evaluated in phase three. Some examples of required demonstrations include the following:

- Training programs;
- Proving tests;
- Emergency evacuation demonstration;
- All-weather terminal operations; and
- Air navigation operations.

B. Evaluation of Demonstration. The applicable chapters of this order describe the criteria and procedures for evaluating an operator's demonstrated ability. The PI must plan for the conduct and observation of the demonstration to include such factors as participants, evaluation criteria, and sequence of events.

1) During these demonstrations, it is normal for minor discrepancies to occur. Discrepancies are often resolved during the demonstration by obtaining commitments from responsible company officials. The PI responsible for overseeing a demonstration must evaluate each discrepancy in terms of its overall impact on the operator's ability and competence to conduct the proposed operation. The PI must stop the demonstration in phase four if they observe deficiencies or unacceptable levels of performance. The PI must identify the phase of the general process for approval or acceptance, to which the applicant must return, or decide to terminate the process entirely when it is clear that continuation would not result in approval or acceptance.

2) For example, if an emergency evacuation demonstration is unsatisfactory due to equipment failure (e.g., a slide fails to inflate), it may be appropriate to require the operator to reenter the process at phase four and conduct another demonstration. If the demonstration is unacceptable because crewmembers were unable to perform their assigned duties, it may be appropriate to advise the operator that the process is now terminated pending review and evaluation of the operator's emergency training program, and that the operator may need to reenter the process at phase two (submit a new proposal).

C. Acceptable Demonstration. If the FAA evaluation of the operator's demonstrated ability is acceptable, the process continues. Illustrated below is phase four of the process:

1) The FAA plans for the conduct and observation of the demonstration.

2) The operator demonstrates ability, and:

- The demonstration is unsatisfactory, or
- The demonstration is satisfactory.

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NOTE: An operator must not be authorized to conduct any particular operation until all airworthiness and operational requirements are met, and the operator is clearly capable of conducting a safe operation in compliance with FAA regulations and safe operating practices.

3-6 PHASE FIVE.

A. Approval or Acceptance. In phase five, the FAA approves or accepts the operator's proposal. The operator is notified in phase three or four if the proposal is not approved or accepted.

B. Indicating Approval. Approval is granted by letter, by a stamp of approval, by the issuance of OpSpecs/MSpecs/TSpecs/LOA, or by some other official means of conveying approval. Each section of this order that discusses a requirement for approval provides specific guidance concerning approval procedures and documentation. The following are examples of approvals granted by the FAA:

- All-weather terminal operations;
- Training programs;
- Minimum equipment list (MEL);
- Cockpit checklist;
- Company Aircraft Operating Manual (limitations, performance, and operating procedures); and
- Air navigation operations.

C. Acceptances. Other proposals, submissions, or requests not requiring specific FAA approval but required to be submitted to the FAA are items that are presented for acceptance. Acceptance of an operator's proposal may be accomplished by various means including a letter, or by taking no action, which indicates there is no FAA objection to the proposal. Methods and procedures used to accept operator proposals or submissions, when appropriate, are discussed in the applicable chapters of this order. Phase five is illustrated as follows:

- The FAA approves submission, or
- The FAA accepts submission.

NOTE: Sometimes FAA approval or acceptance of an operator's proposal may be conditional in nature. For example, a training program may be initially approved, provided that the flight simulator to be used in that program receives approval from the National Simulator Evaluation Team (NSET).

3-7 SUMMARY OF PROCESS. The general operational approval or acceptance process, as described, is referenced (in terms of the five phases) with the specific task requirements for each applicable job function. It is important for the PI to understand the modular concepts inherent in the process, the overall interrelationship of the phases, and that this general process is not all inclusive, but a tool to be used in the PI's day-to-day duties and responsibilities.

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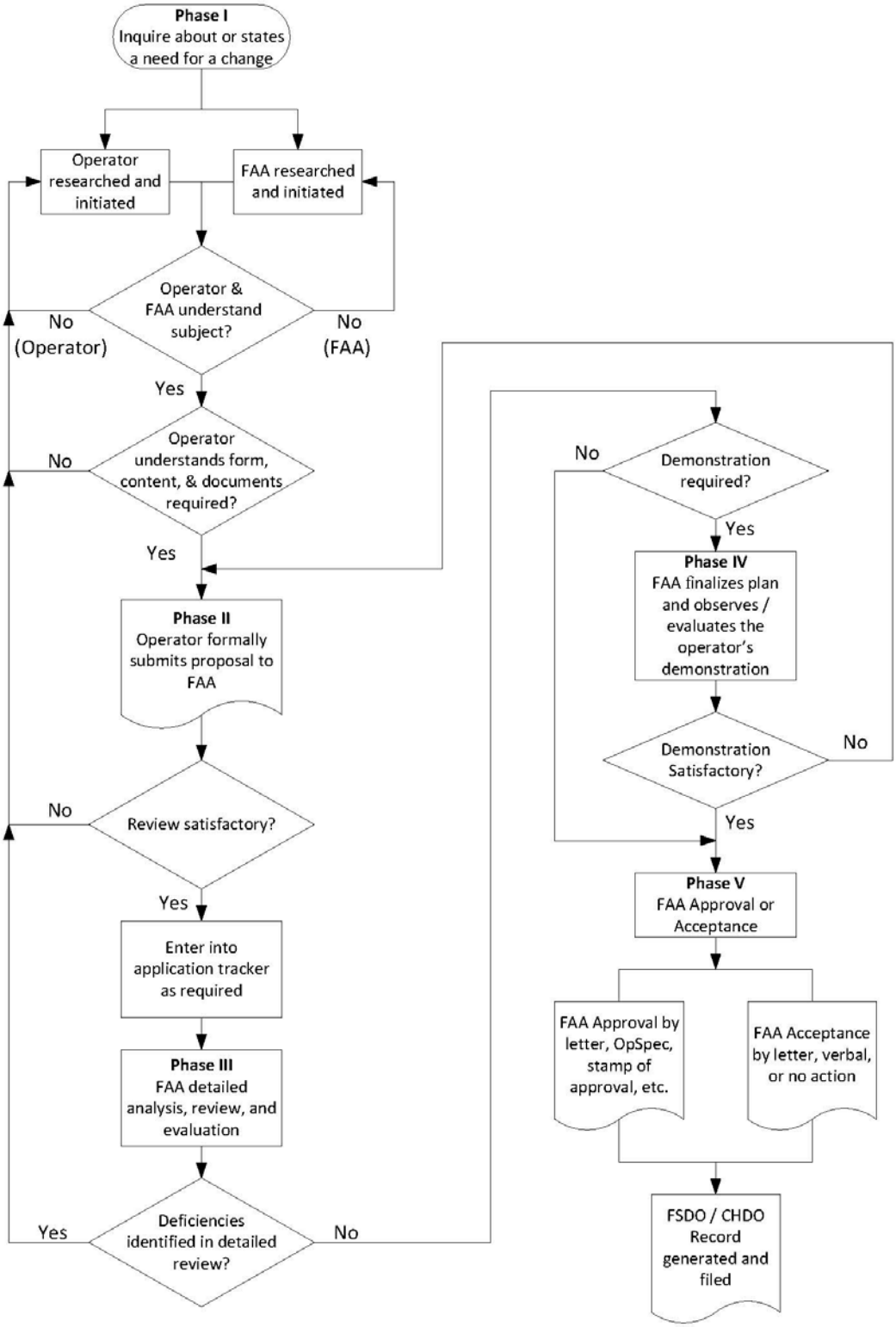
Figure 3-1. Approval/Acceptance Process Flow Diagram



RESERVED. Paragraphs 3-8 through 3-25.

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VOLUME 3 GENERAL TECHNICAL ADMINISTRATION

CHAPTER 29 PROVING AND VALIDATION TESTS

Section 4 Safety Assurance System: Planning the Proving Test

3-2356 APPLICANT'S PLAN FOR PROVING TESTS.

A. Proving Test Plan. An applicant must submit a proving test plan at least 30 days in advance of any in-flight demonstration (including training or ferry flights) that the applicant desires to have credited toward the proving test requirements. Any subsequent change to the plan must be coordinated with the test team. The plan must contain at least the following information:

- Identification of the company coordinator who will serve as the primary proving test spokesperson;
- A detailed schedule of all proposed flights, including dates, times, and airports to be used (the schedule should clearly differentiate which flights will be conducted for training, ferry, or representative en route flights);
- A list of names and positions of the crewmembers who will be participating on each flight;
- A list of names, titles, and company affiliations of non-crewmember personnel whom the applicant intends to have on board each flight; and
- Any other information that the test team determines is necessary to properly plan and conduct the proving flight.

NOTE: It is Federal Aviation Administration (FAA) policy for Title 14 of the Code of Federal Regulations (14 CFR) part 121 and 14 CFR part 135 commuter operations that 50 percent of the scheduled proving flight hours are to consist of representative en route flights over routes and into airports which the applicant intends to serve. See Figure 3-111A, Sample Proving Test Plan.

B. Training Program and Aircraft Maintenance Records.

1) The applicant should be prepared to present personnel training records for, but not limited to:

- Crewmember training records,
- Aircraft maintenance records,
- Maintenance personnel training records,
- Aircraft ground handling personnel training records,
- Cargo loading and handling records, and
- Weight and Balance (W&B) training records.

2) Before initiation of proving tests, inspectors may request copies of records as an attachment to the plan for evaluation.

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3-2357 APPLICANT'S PLAN FOR REQUESTING REDUCED PROVING TEST HOURS. If the applicant requests a deviation from the 14 CFR required number of proving test hours, the request must be made by letter. The letter must transmit the applicant's plan, which is described in the previous paragraph, and it must include the additional information specified in Volume 3, Chapter 29, Section 7.

3-2358 FAA PLANNING FOR PROVING TESTS. For parts 121 and 135 proving tests, the certification project manager (CPM) should verify that the applicant has met all Gate III requirements (see Volume 2, Chapter 3, Section 2, Figure 2-3-2D for part 121 and Volume 2, Chapter 4, Section 1, Figure 2-11 for part 135). For part 121 applicants, the CPM should confirm the "show cause" order has been issued.

A. Early Planning. Development and implementation of the FAA's plan for observation and evaluation is of crucial importance to any proving test. The FAA test team should begin planning in step one of the proving test process. FAA planning should be completed as soon as possible after the inspection team receives the applicant's plan. Planning for parts 121 and 135 proving tests should be done in accordance with the Safety Assurance System (SAS).

B. Initial Review. The test team must review the applicant's plan initially to determine if the appropriate documentation has been submitted. The plan must contain a realistic proposal that will permit the FAA to adequately observe and evaluate the applicant's overall abilities. This review should be accomplished within 5 working days after receipt of the applicant's plan. Based on the results of this initial review, the FAA test team must take one of the following actions:

1) Accept the Plan. If the applicant's plan is feasible, accompanied by supporting documentation, and satisfies regulatory and FAA policy requirements, the CPM should verbally notify the applicant. Any changes should be mutually agreed upon at this time. If the applicant's plan includes a request for deviation from the required number of proving test hours, formal acceptance by letter must follow, after coordination with the regional Flight Standards division (RFSD). This letter must include a statement verifying that a deviation to the appropriate regulations is granted.

2) Return the Plan with Explanation. If the applicant's plan lacks appropriate documentation, or does not satisfy regulatory or FAA policy requirements, the FAA test team must return it to the applicant as soon as possible. A letter that briefly describes the principal reasons for the plan's return should accompany the plan.

NOTE: When the test team denies a request for deviation, the denial must be done by letter. This letter should contain any suggestions the team may have that would make the plan acceptable.

3-2359 OTHER PROVING TEST PARTICIPANTS. Title 14 CFR part 91, § 91.1041(c), part 121, § 121.163(e), and part 135, § 135.145(c) limit the individuals who can participate in the in-flight portion of the proving tests to those who are required by the applicant to conduct the tests, and to those designated by the administrator.

A. U.S. Government Participants. During the demonstration phase, an applicant exercises all aspects of its operation, such as flight control, communications, flight planning,

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nonroutine maintenance, and minimum equipment list (MEL)/Configuration Deviation List (CDL) program control. It is essential that this phase be free from distractions created by nonessential personnel. The test team may authorize the participation of any government or contractor employee, including those from other agencies. These personnel should be limited to those having specific tasks to perform and to inspectors accomplishing on-the-job training (OJT).

B. The Applicant's Participants. Many situations occur during proving flights that require decisions by the applicant's supervisory personnel to correct deficiencies observed during the flights. Therefore, the applicant's participants should include:

- Applicable crewmembers (i.e., pilots, Flight Engineers (FE), Flight Attendants (F/A), check airmen);
- Directors of Operations (DO), Directors of Maintenance (DOM), and directors of quality control (QC) (if applicable); and
- Supervisory personnel needed to act on behalf of the applicant if actions are required to resolve discrepancies (e.g., in-flight management representatives).

C. Other Personnel. Other personnel, such as representatives of engine and aircraft manufacturers, may be authorized to participate if their presence materially enhances the process.

3-2360 COORDINATION. During the development of the FAA plan to conduct proving tests, the FAA CPM is responsible for coordinating all parts of the proposed tests. The applicant's representatives and crewmembers and FAA participants must understand and agree on which tasks must be accomplished to show compliance with regulatory requirements. The CPM notifies the RFSD of proving flight dates, times, and locations. The RFSD notifies other RFSDs affected by the proposed proving flights and any future scheduled operations the applicant proposes. The RFSD also notifies the Air Transportation Division (AFS-200) and the Aircraft Maintenance Division (AFS-300) (part 121), the Part 135 Air Carrier Operations Branch, AFS-250 (part 135), and the General Aviation and Commercial Division (AFS-800) (part 91 subpart K (91K)) of the proving flight schedule. When planning proving tests, the test team should use the job aid in Volume 3, Chapter 29, Section 2, Figure 3-110, General Purpose Proving and Validation Test Job Aid.

NOTE: All flights into Special Areas of Operation (SAO) (e.g., Class II Navigation airspace, North Atlantic High Level Airspace (NAT HLA), or areas of magnetic unreliability (AMU)) require coordination with an FAA regional NextGen (AXX-220) SAO specialist (formerly known as a navigation specialist).

3-2361 PREDEMONSTRATION TEST MEETING (FAA TEST TEAM). The CPM conducts as many predemonstration test meetings as necessary to accomplish the following:

A. Provide Schedules and Assignments. The FAA CPM provides specific team members with schedules and assignments for the proving flights, including:

- Flight times,
- Locations,

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- Inspections, and
- Reporting requirements.

B. Proving Test Scenarios. The test team establishes in-flight and ground scenarios, simulated emergencies, and other means of testing the ability of crewmembers and the applicant to cope with actual operational contingencies independently and safely. Inspectors may wish to attach a copy of the company procedures for quick reference. Such scenarios are effective when evaluating the applicant's overall and specific abilities. The scenarios, and their results, will be retained and become part of the permanent record of the certification and/or request. For parts 121 and 135, develop proving test scenarios that measure the applicant's operating systems at the element level to confirm that the applicant is following its procedures and producing the intended result.

C. Scenario Development.

1) For parts 121 and 135, identify Element Performance (EP) Data Collection Tool (DCT) or Custom (C) DCT questions to assess the applicant's performance.

2) Develop scenarios that generate data for identified questions.

3) Document each scenario on the Proving Flight Test Scenario Worksheet.

4) Match scenarios to specific flight legs.

5) Determine inspector assignments for each scenario and document it in the "Assignment" field of the worksheet.

6) Determine the method for presenting the scenario and document it in the "Initiation" field of the worksheet.

NOTE: It is not always practical to initiate a scenario by handing a note or giving verbal instructions to the applicant. The assigned inspector playing the role of the passenger can best initiate scenarios such as a passenger standing during taxi, appearing intoxicated, or using a cell phone before takeoff.

NOTE: Inspectors may wish to attach a copy of the company procedures for quick reference.

7) CPM. For parts 121 and 135, assign identified EP DCTs to the CPT.

D. Implementation of Scenarios.

1) All team members must clearly understand in-flight and ground scenarios in terms of individual roles and responsibilities. In addition, the scenarios should be multidisciplinary in nature (i.e., involve flight operations, airworthiness, cabin safety, operational control, and/or stations issues, or any combination of these). Initiate only one scenario at a time. The CPM must ensure that the applicant is not encumbered with so many simulated scenarios that a proper

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evaluation of its proposed routine operation is inhibited. Scenarios should focus on areas of weakness found during phases three and four.

2) Since the primary purpose of proving flights is to ensure basic compliance with the regulations and safe operating practices during routine operations, the CPM should not permit compound *emergency scenarios* to occur. When other agencies, such as air traffic control (ATC), airport authorities, and the Transportation Security Administration (TSA) need to be involved for safety and/or security reasons, the CPM ensures that all scenarios are well coordinated. If an actual emergency occurs, all simulated scenarios are terminated.

3) The following examples of typical scenarios may be useful for evaluating the applicant's capabilities:

a) Diversion to Alternate Airports for Reasons Such as Weather or Maintenance. This scenario tests the applicant's communications, maintenance, and other operational control capabilities.

NOTE: A telephone call to the controlling ATC facility(s) is required prior to departure if a diversion will be accomplished. A planned diversion without prior coordination with ATC can put the entire crew at jeopardy with air defense systems. In addition, if and when the diversion occurs, ensure that the flightcrews use the following text: "we are diverting for a simulated emergency that has been pre-coordinated with (name of controlling agency) that is part of a training exercise" in initial communications with ATC.

b) MEL or CDL Situations. These scenarios test the crewmembers' understanding of specific operational limitations and the applicant's operations and maintenance procedures. For example, dispatching with a simulated inoperative generator overwater tests the applicant's ability to comply with the operational and maintenance provisions of the MEL.

c) Performance Problems. These scenarios require aircrew and operational control personnel to demonstrate competency and knowledge of items, such as aircraft performance, airport analysis programs, and alternative company procedures. For example, simulating an inoperative antiskid or thrust reverser while operating on contaminated runways (e.g., ice, slush, or snow) tests the applicant's ability to deal with performance issues.

d) Security and/or Hazardous Cargo Situations. These scenarios require the aircrew and other applicant company personnel to function in accordance with established company hazardous materials (hazmat) and security procedures and FAA/TSA regulations.

NOTE: Hijack or other security-related scenarios are prohibited during proving flights. Aircrew knowledge and company procedures must be examined by inspectors or TSA aviation security inspectors through other methods. The applicant's anti-hijack program is not exercised during proving flights.

e) Situations That Exercise Dispatch, Flight-Following, or Flight Locating Procedures. These scenarios test communications, Notices to Airmen (NOTAM), special flight advisories, weather information dissemination, and other operational control issues. An effective

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means for testing these capabilities is to position an inspector who has specialized dispatch knowledge (dispatch inspector) in the operator's operational control facility (for part 121), at a prearranged time to initiate a scenario such as adverse destination weather that would require a diversion. This action tests the communications and weather reporting capability of the facility and also the applicant's procedural contingencies as demonstrated by the flightcrew.

NOTE: Evaluation of flight locating procedures for parts 91K and 135 are typically conducted by an operations inspector either from an aircraft en route or during ground operations.

f) Maintenance Scenarios. The test team should plan a simulated maintenance problem, however minor, at any location into which the operator operates. This tests the applicant's ability to communicate and resolve problems that flightcrews may experience (see § 121.563) to include an operator's use of contract maintenance.

g) Simulated Aircraft Emergencies. These scenarios test the crewmember's knowledge and competency in handling emergency situations in accordance with the applicant's procedures. They also test applicant communications, maintenance, and other operational capabilities. Examples include:

1. Simulated engine failure. An inspector will *not*, under any circumstances, require an actual engine shutdown.

2. Simulated incapacitated passengers in need of immediate medical assistance.

3. Simulated lavatory fire.

4. Simulated loss of pressurization.

5. Simulated landing gear extension or retraction problems.

6. Simulated auxiliary power unit (APU) inoperative (e.g., inoperative air flow, inoperative electric output).

7. Cabin safety scenarios. Flight attendants (F/A) play a very important role in proving runs. Therefore, in-flight policies and procedures should be represented by appropriate, applicable cabin scenarios. Possible examples include:

- Carry-on baggage;
- Exit seating;
- Incapacitated F/A;
- Passenger smoking in cabin or lavatory;
- Passenger noncompliance; and
- Intoxicated passenger.

NOTE: Under no circumstances should an aircraft divert from a planned route, altitude, or speed without prior coordination with ATC.

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3-2362 ISSUANCE OF LETTER OF AUTHORIZATION (LOA). Until the final phase is completed and the operation specification (OpSpec) approval is issued, an operator must be issued an LOA to conduct the following:

A. Proving Flights. The applicant should submit a letter of request at least 10 business days prior to the first proposed flight. Per 14 CFR part 119, § 119.33(c), all part 121 and 135 applicants must have received an LOA and *draft* OpSpecs before proving tests may commence. See Figure 3-111B, Proving Flight Letter of Authorization.

NOTE: It is important for the CPM to remember to request a precertification designator from the Aviation Data Systems Branch (AFS-620). Use this designator for recording any required or related SAS, Program Tracking and Reporting Subsystem (PTRS), or Labor Distribution Reporting (LDR) information into the FAA data-gathering computer programs.

B. Special Areas of Operation (SAO).

1) All applicants must receive an LOA and *draft* OpSpecs before operating in NAT HLA or Reduced Vertical Separation Minimum (RVSM) airspace.

2) Per FAA Order 8400.12, Required Navigation Performance 10 (RNP 10) Operational Authorization (current edition), all applicants must receive an LOA and draft OpSpecs before operating in North Pacific (NOPAC) and Central East Pacific (CEP) routes (RNP-10).

NOTE: OpSpec/MSpec/LOA B036 is required before issuing the following:

- B037, Operations in Central East Pacific (CEP) Airspace.
- B038, North Pacific (NOPAC) Operations.
- B039, Operations in North Atlantic High Level Airspace.
- B040, Operations in Areas of Magnetic Unreliability.
- B041, North Atlantic Operation (NAT/OPS) with Two-Engine Airplanes Under Part 121.

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Figure 3-111A. Sample Proving Test Plan

Date

Mr. John Jones
Certification Project Manager (CPM)
XYC Flight Standards District Office (FSDO)
P.O. Box 12345
Las Vegas, TX 74321

Dear Mr. Jones:

Enclosed for your consideration is the First Jet Airlines, Inc. Proving Test Plan for the CL-65 Regional Jet.

The plan has been formatted with the "P" series flight numbers indicating a proving test flight.

The plan assumes that all flights will be operated as normal line flights. Each flight will consist of fueling, baggage handling, passenger handling, and aircraft servicing as required by the existing circumstances. Each crewmember will perform their respective duties per First Jet Airlines, Inc. standard operating policies and procedures. Any simulated, abnormal, or emergency situations will be provided by Federal Aviation Administration (FAA) authorized personnel. Any simulated or actual abnormal or emergency situations that may occur will be handled in accordance with First Jet Airlines, Inc. approved Company Flight Manual (CFM) and standard operating procedures (SOP).

I. Company Coordinator - Jack Simpson

II. Proving Test Schedule

A. Representative en route flights 50:07

B. Non-en route segments
1. Ferry flights: None
2. Training flights: None

C. Maintenance test unit: None

<u>Flight Schedule</u>

NOTE: The proving test team will have exclusive use of an aircraft during the test period.

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Figure 3-111A. Sample Proving Test Plan (Continued)

Dallas/Fort Worth International Airport (DFW)
Date:

Flt #	Dep. City	Dep. Time	Arr. City	Arr. Time	Seg. Time	Act. Time	Total Time
101P	DFW	11:30	SAN	12:41	1:11	_____	1:11
102P	SAN	13:30	DFW	14:43	1:13	_____	2:24

Total time scheduled: Hrs. & Min. 2:24

DFW
Date:

Flt #	Dep. City	Dep. Time	Arr. City	Arr. Time	Seg. Time	Act. Time	Total Time
201P	DFW	11:30	OKC	12:41	1:11	_____	1:11
202P	OKC	13:30	DFW	14:43	1:13	_____	2:24
203P	DFW	16:30	DAL	17:20	:50	_____	3:14

Total time scheduled: Hrs. & Min. 3:14 Cumulative time scheduled: Hrs. & Min. 5:38

Total Hours: Hrs. & Min. 50:07

III. Flight Crewmember Pilots

Kevin Nelson
Mark Aponte
Dave Hall
Rob Ryerson
Arlene Nieman
Jonathan Rhodes

Flight Attendants (F/A)

Stefan Wright
Jason Ashcraft
Automm Pellet
Harvey Ritter

IV. Non-Flight Crewmembers

Name	**Position**
Jonathan Glass	Chairman/chief executive officer (CEO)
David Robinson	Director of Safety (DOS)

Your comments and consideration in this matter are greatly appreciated.

If I can be of assistance, please call me at (982) 555-3825 or cell (703) 555-4403.

Sincerely,

Steven Arthur
Director of Operations (DO)
First Jet Airlines, Inc.

Cc: Michael Dundee, First Jet Airlines, Inc

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Figure 3-111B. Proving Flight Letter of Authorization

Flight Standards District Office
(FSDO) Letterhead

Requestor
XYZ Airlines, Inc.
Anywhere, USA 00000

Date

Dear Mr./Ms. Requestor:
Letter of Authorization

As requested in your letter of [*date*], [*name of company*] is authorized to operate [*airplane make/model and registration number*] in compliance with Title 14 of the Code of Federal Regulations (14 CFR) part 121, § 121.163. [*Name of company*] is authorized to conduct for the purpose of training flights, proving flights, and other flights associated with certification under the requirements in accordance with the provisions of 14 CFR part 119, § 119.33(c) and § 121.163. All proving tests must be conducted under the appropriate operating and maintenance requirements of part 121 that would apply if the applicant were fully certificated. Only passengers incidental to the business of the company may be carried under the provisions of this letter.

During the course of any operations conducted under the authority of this letter of authorization (LOA), the company must demonstrate full compliance with and an ability to operate in accordance with part 121, issued draft operations specifications (OpSpecs), and the approved proving flight plan. In the event of actual or simulated equipment malfunction(s) [*name of company*] must operate in accordance with the draft minimum equipment list (MEL).

The proving flights will begin on or about _____ and terminate on or before _____, or otherwise upon satisfactory completion of all required tasks or when the administrator determines that [*name of company*] has demonstrated operational qualifications.

In addition, these proving flights may be suspended or terminated when the administrator determines that the public interest in air safety so requires. [*Name of company*] proving flights may be suspended or terminated if any of the following conditions occur:

- Violation of any section of 14 CFR,
- Noncompliance with draft OpSpecs,
- Unapproved deviation from approved proving flight plan (except actual emergency),
- Inadequate or incomplete training of required crewmember or maintenance personnel,
- Failure to operate in accordance with established company manual procedures,
- Failure to meet three consecutive scheduled takeoff times (if the delay is not the direct result of a scenario generated by the Federal Aviation Administration (FAA)),
- Inability to detect and correct operational and/or maintenance deficiencies, or
- Lack of qualified support personnel to conduct operations.

The above conditions are illustrative and shall not be considered an exclusive listing of the basis for suspension or termination of proving flights. Proving flights may be suspended or terminated at any time when deemed appropriate by the administrator. The administrator shall provide written notice to [*Name of company*] with the reasons for suspension or termination of such flights within five (5) working days.

A copy of this letter must be carried on the above numbered airplanes during the operations specified.

Signed,
Manager

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Figure 3-111C. Proving Flight Test Work Sheet

Proving Flight Test Work Sheet			
Proving Flight Test Scenario Work Sheet			
Applicant:			**Date:**
Flight Number:			**Block Time (UTC):**
Arrival:			**Block In:**
Departure:			**Block Out:**
PIC:			**Block Time:**
A/C Type:	**No:**		**Total Time:**
Scenario Number:		**Scenario:**	
Assignments:			
Initiation:			
Objective:			
Completion Standards:			
Termination:			
Comments:			
SAT	**UNSAT**	**Name:**	**Signature:**

RESERVED. Paragraphs 3-2363 through 3-2375.

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VOLUME 4 AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATION

CHAPTER 1 AIRCRAFT NAVIGATION, COMMUNICATIONS, AND SURVEILLANCE

Section 5 Safety Assurance System: Special Navigation Areas of Operation

4-96 GENERAL. Special Areas of Operation (SAO) are geographic areas having unique characteristics that require the use of special equipment, procedures, and/or techniques to safely conduct flight operations. These special areas also include operational situations when the application of standard criteria is not sufficient, and other-than-standard criteria are more appropriate and can be safely used. This section provides direction and guidance for the evaluation and approval or denial of an operator's/program manager's/Letter of Deviation Authority (LODA) holder's (operator's) request to conduct operations in these SAO. SAO include the following:

- Areas requiring high levels of performance due to a reduction in separation standards;
- Areas where navigation by magnetic reference is unreliable and/or inappropriate;
- Areas where metric altitudes/flight levels (FL) are used (altitudes in meters);
- Areas where communication difficulties are frequently encountered;
- Areas where air traffic control (ATC) difficulties are frequently encountered;
- Areas where operations by U.S. operators have political or international sensitivity;
- Areas where aircraft with unique performance characteristics require special criteria; and
- Areas where dual long-range navigation systems (LRNS) are not normally required.

NOTE: This section is related to Safety Assurance System (SAS) Elements 3.2.2 (OP), Use of Approved Areas, Routes, and Airports; 3.2.3 (OP), Special Navigation Areas of Operation; and 3.3.5 (OP), Extended Operations (ETOPS).

4-97 AREAS REQUIRING HIGH LEVELS OF PERFORMANCE. In SAO, the ATC system supports a reduction in separation standards. This reduction in separation standards requires improved levels of performance. Significant increases in air traffic over certain busy routes, such as U.S. National Airspace, European Domestic Airspace, and the North Atlantic (NAT), can be accommodated efficiently if the ATC separation minimums are reduced to permit more aircraft to operate in the same airspace at the same time. However, this reduction in separation minimums can only be safely accomplished through significant improvements in ATC capabilities and the performance of all aircraft operating within that segment of airspace. The options currently available to permit reductions in ATC separation minimums include the use of the following:

- Independent surveillance (ATC radar),
- Automatic Dependent Surveillance (ADS) (data link of the aircraft's present position to the ATC system),
- Improved traffic flows through the use of time-based metering,
- Reduced lateral separation minimums,
- Reduced Vertical Separation Minimums (RVSM),

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- Reduced longitudinal separation minimums, and
- Communication.

4-98 NORTH ATLANTIC HIGH LEVEL AIRSPACE (NAT HLA).

A. General. The NAT HLA, as implemented in the North Atlantic Region, is a demanding standard. Safety of flight in this airspace is critically dependent on each operator achieving and continuously maintaining a high level of navigation accuracy. The State of Registry or the State of the Operator must approve operations in NAT HLA. The operator must obtain this approval for each airplane and navigation/system combination used for operations in this airspace. To obtain NAT HLA approval, the operator must show compliance with the following conditions:

- Each aircraft is suitably equipped and capable of meeting the NAT HLA standards.
- The operator has established operating procedures that ensure that NAT HLA standards are met.
- The flightcrews are trained and capable of operating to NAT HLA requirements.

B. Navigational Performance. The NAT HLA represents navigational performance (necessary to reduce the risk of collision) on an internationally established level (see Figure 4-2, Illustration of NAT HLA Rectangular Separation). Effective January 2015, all new operational approvals for NAT HLA require Required Navigation Performance (RNP) 10 capability. ICAO Document 9613, Performance-based Navigation Manual, establishes the aircraft and flight crew operating criteria for operations under RNP 10 in international airspace. The current edition of Advisory Circular (AC) 90-105, Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace, provides guidance to U.S. operators on obtaining RNP 10 operational approval.

NOTE: Operational history in NAT HLA clearly shows that most serious navigational errors are directly related to operator/pilot error. Equipment malfunction and equipment accuracy are usually not the primary cause for these errors. Most errors are caused by the flightcrew navigating very precisely to the wrong place while believing that the aircraft is complying with the currently effective ATC clearance.

C. RVSM. RVSM is implemented throughout the NAT HLA. See the following for specific RVSM guidelines and requirements:

- Section 91.706 and part 91 appendix G;
- The documents in the Web-based Operations Safety System (WebOPSS) guidance subsystem in association with operations specification (OpSpec) B046; and
- The RVSM section of the FAA Web site (http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/rvsm).

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D. Initial NAT HLA Approvals. Each operator, and each aircraft and navigation system combination, must be approved before operating in NAT HLA. Each operator must demonstrate (validate) that it can meet NAT HLA standards before receiving approval.

1) Validation flights must be conducted through NAT HLA. See Volume 4, Chapter 1, Section 2, Air Navigation Approval Requirements, for guidance on validation flights. Next Generation Air Transportation System (NextGen) oceanic specialists must be consulted prior to proving/validation flights.

2) Inspectors must ensure that requirements of the applicable AC(s) and/or other FAA official documentation for LORAN-C, Global Positioning System (GPS), or multisensors (or equivalent) are fully met by the operator using those systems before approving any operation in this airspace. All NAT HLA approvals are granted by issuing OpSpec B039, and by adding that area of en route operation to the standard OpSpec B050.

E. Maintaining NAT HLA Authorization. In addition to initially meeting NAT HLA criteria, each operator must continuously maintain the required level of navigational performance. Each gross navigational error (GNE) (errors of 25 NM or more) has a significant impact on flight safety in this airspace and must be fully investigated in a timely manner. The cause of each error must be identified and effective action must be taken to prevent reoccurrence of similar errors. GNEs are detected by ATC and reported to one of the regional monitoring agencies of the world. The regional monitoring agency then provides the notification of the GNE to not only the operator that made the GNE, but also to the NextGen oceanic specialists in the Flight Technologies and Procedures Division (AFS-400) at headquarters (HQ). The NextGen oceanic specialists, in turn, review the GNE and contact the appropriate Flight Standards Service (AFS) office. When an inspector learns of a GNE by one of his or her operators, the inspector must immediately contact the operator and advise that the GNE will be investigated. The inspector must ensure that the operator takes timely corrective action. After this notification, inspectors must determine the effectiveness of the operator's actions as follows:

1) If it is determined that an operator's actions will prevent the occurrence of similar errors, the operator should be permitted to continue NAT HLA operations with close surveillance of the operator's navigational performance. If similar errors occur in subsequent operations more frequently than permitted by the standard, stronger action must be taken.

2) If an operator fails to take action to improve navigation performance, action must be initiated to suspend NAT HLA authorization (OpSpec B039 is rescinded).

3) If it is determined that an operator's actions to improve navigational performance are inadequate or otherwise unsatisfactory, the operator must be notified that the corrective action is unacceptable. When an operator does not implement a satisfactory solution in a timely manner, the action must be initiated to suspend NAT HLA authorization and it could include enforcement action.

NOTE: It is FAA policy that one of the agency's NextGen oceanic specialists participate in the investigation of GNEs. These specialists, at their option, may also participate in the evaluation of the actions proposed by the operator to

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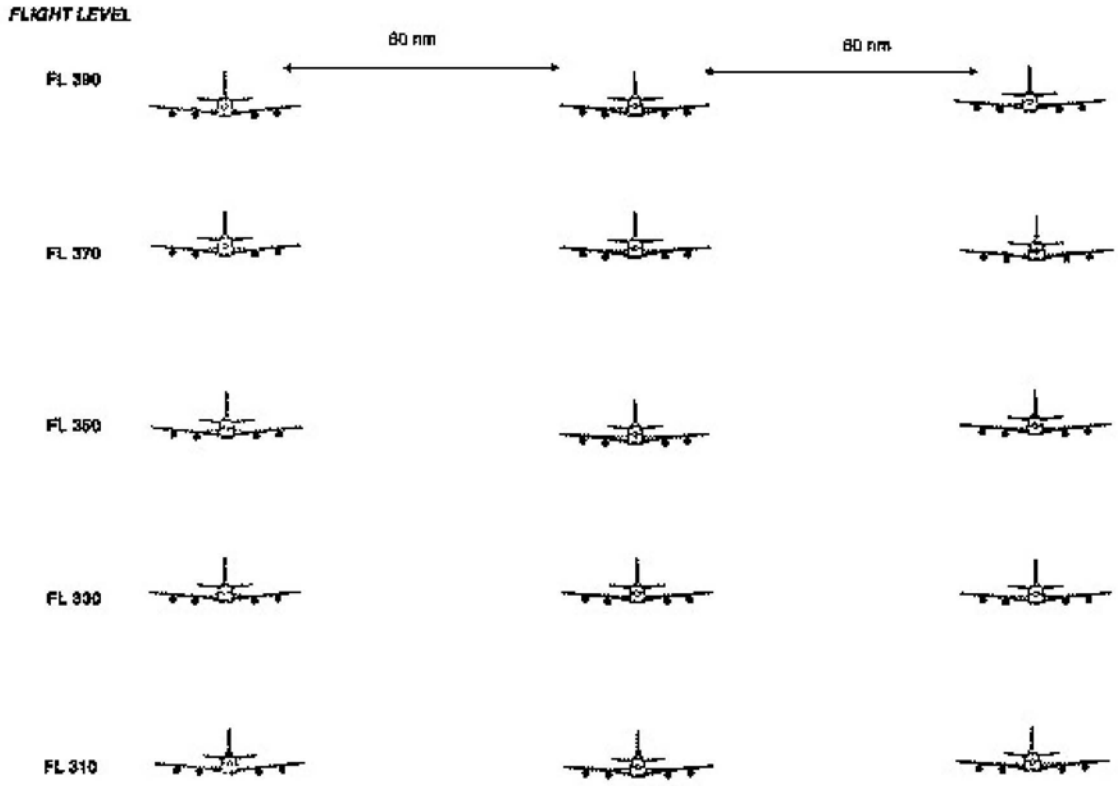
preclude the occurrence of similar errors. AFS-400 must be notified as soon as possible when an inspector and/or a NextGen oceanic specialist determine that actions should be taken to suspend NAT HLA authorization.

Figure 4-2. Illustration of NAT HLA Rectangular Separation



NORTH ATLANTIC HIGH LEVEL AIRSPACE (NAT HLA) SEPARATION STANDARDS.
Aircraft are separated by one of the following methods:

A. Lateral Separation. Lateral separation between co-altitude aircraft (aircraft at the same flight level) is 60 nm.

B. Vertical Separation. Vertical separation between aircraft on the same track is 2,000 feet.

C. Longitudinal Separation. Basic longitudinal separation between aircraft on the same track is 10 minutes. If an aircraft is flying faster than the aircraft behind it (Mach advantage), then this criteria may be reduced.

NOTE: Separation standards may be changed. Consult Regional Supplementary Procedures (ICAO Document 7030/3) for current standards applied in the NAT Region.

4-99 CANADIAN MNPS AIRSPACE. Certain high-altitude airspace in northern Canada has been designated as MNPS airspace (see the Canadian Aeronautical Information Publication (AIP)). The navigational performance criteria for operation in Canadian MNPS airspace are identical to the criteria for NAT HLA.

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A. General Criteria. In general, any aircraft/navigation system combination approved for unrestricted operation in NAT HLA for a particular operator also meets Canadian MNPS criteria. A particular operator can (under most circumstances) be authorized (without recertification under the current edition of AC 120-33, Operational Approval of Airborne Long-Range Navigation Systems for Flight within the North Atlantic Minimum Navigation Performance Specifications Airspace) to conduct Canadian MNPS operations with those aircraft and navigation system combinations authorized for that operator in NAT HLA. However, due to the unique nature of operations in high latitudes and in areas of magnetic unreliability (AMU), approval for Canadian MNPS operation is not automatic. Each proposed operation must be evaluated on its own merits. OpSpec B059 is available for issuance to 14 CFR part 135 certificate holders or 14 CFR part 91K program managers only. OpSpec B039 would be issued for NAT HLA in the part 135 database of the WebOPSS. OpSpec B039 is available in the 14 CFR parts 121 and 125 databases of the WebOPSS, as the policy for authorization for these certificate holders may be conducted and approved concurrently.

B. Special Factors. The following special factors must be considered and carefully evaluated before granting air navigation approvals for operation in Canadian MNPS airspace.

1) The following directions apply for operators currently authorized to use an aircraft in NAT HLA:

a) A primary means inertial navigation system (INS)/inertial reference system (IRS)/Inertial Reference Unit (IRU) meeting NAT HLA criteria automatically meets Canadian MNPS criteria.

b) Other LRNS meeting NAT HLA criteria automatically meet Canadian MNPS criteria except for operations in the AMUs. The LRNS must be evaluated on a case-by-case basis for AMU authorization.

c) Operations at high-latitude airports (greater than 67° N/S) must not be authorized unless INS platform alignment has been successfully demonstrated and approved for those latitudes. If operations are proposed for areas in the Canadian MNPS that fall within the AMU, a validation flight and AMU authorization is required. One of the FAA NextGen oceanic specialists must be consulted.

2) Training programs and crew procedures for operations at high latitudes must provide techniques and methods for the following:

- Approaches and departures using appropriate heading references other than magnetic; and
- Use of ground-based Navigational Aids (NAVAID) oriented to appropriate directional references other than magnetic.

3) The following directions apply for operators who are not currently authorized to use an aircraft and a navigation system combination in NAT HLA, but propose to operate in the Canadian MNPS airspace.

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a) The operator's equipment must meet the criteria in the appropriate AC (or equivalent), considering the conditions unique to Canadian MNPS airspace. The Canadian AIP should also be consulted for airspace requirements.

b) The operator must also meet the special factors specified in subparagraphs 4-99B1) and/or 4-99B2), as appropriate.

C. Canadian MNPS Approvals. For parts 121 and 125 certificate holders, Canadian MNPS airspace approvals are granted by adding that area of en route operations to OpSpec B050. For part 135 certificate holders, the Canadian MNPS airspace approvals are granted by issuance of OpSpec B059 and by adding that area of en route operations to OpSpec B050. For part 135, OpSpec B039 may or may not be issued, as applicable.

4-100 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- International Civil Aviation Organization (ICAO) NAT Doc 007, North Atlantic Operations and Airspace Manual (available from the European and North Atlantic (EUR/NAT) Office Web Site at http://www.paris.icao.int).
- Aeronautical Information Service (AIS) of NAT Air Traffic Service (ATS) Provider States.
- ICAO Doc 7030, Regional Supplementary Procedures (SUPPS).
- AC 120-33, Operational Approval of Airborne Long-Range Navigation Systems for Flight within the North Atlantic Minimum Navigation Performance Specifications Airspace.

B. Forms. None.

C. Job Aids. None.

4-101 CENTRAL EAST PACIFIC (CEP) ROUTE SYSTEM.

NOTE: We have adopted the acronym "CEP" in place of "CEPAC" to be congruent with the term that ATC is using for the Central East Pacific.

A. General. The CEP system is the organized route system between Hawaii and the west coast of the United States. Several ATS routes and associated transition waypoints are within the CEP. Effective February 24, 2000, RVSM and RNP 10 is required for aircraft operating on the CEP routes. Non-approved aircraft can expect to fly above or below the exclusionary airspace. Refer to AC 91-70 and the Alaskan AIP, as well as the Pacific Supplement, for further information.

B. Applicable ATC Procedures. Applicable ATC procedures can be found in the current edition of FAA Order 7110.65, Air Traffic Control; the current edition of FAA Order 8400.12, Required Navigation Performance 10 (RNP-10) Operational Authorization; ICAO Doc 7030; ICAO Annex 2, Appendix 3; and ICAO Doc 9574, Manual on Implementation

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of a 300 m (1,000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (RVSM guidance).

4-102 RVSM AND RNP IN CEP AND NORTH PACIFIC (NOPAC) AIRSPACE: OPSPECS B037 AND B038. This paragraph provides guidance for OpSpecs B037 and B038 to reflect the implementation of RVSM and RNP 10 approval requirements on the CEP and NOPAC route systems. This information is applicable to all part 91 operators and parts 121, 125, and 135 certificate holders that have been or that wish to be authorized to operate on these route systems.

A. Background.

1) RVSM programs enable 1,000-foot vertical separation to be applied between aircraft above FL 290. Section 91.706 and part 91 appendix G provide regulatory policy for RVSM programs.

2) Approval of operators and aircraft for RNP 10 enables a 50-NM lateral separation to be applied between aircraft operating in oceanic/remote areas. AFS policy and procedures for approval of aircraft and operators to operate in areas or on routes designated as RNP 10 airspace are contained in Order 8400.12.

3) The OpSpec providing general authority for RVSM operations is B046. The general authority for RNP operations in oceanic/remote areas is OpSpec B036.

4) The revised OpSpecs B037 and B038 do not address requirements as they pertain to specific FLs or routes because Air Traffic Service Providers (ATSP) notify operators of requirements for filing flight and aircraft navigation equipage requirements on oceanic/remote area routes in aeronautical publications. Oakland and Anchorage Oceanic Centers publish such information in Notices to Airmen (NOTAM) and the Pacific and Alaska Chart Supplements. Tokyo Oceanic Center publishes such information in AIPs and NOTAMs.

B. Policy.

1) All operators conducting operations on the CEP and/or NOPAC route systems must be issued OpSpecs B037 and B038. The principal inspectors (PI) will issue these OpSpecs in accordance with the appropriate guidance for each authorization. Inspectors will also need to review the guidance for RVSM authorization in OpSpec B046 and for Class II navigation authorization in OpSpec B036 whenever issuing B037 and/or B038.

2) Part 91 operators conducting flights on the NOPAC and CEP route systems at FLs where RVSM and/or RNP 10 approval is required must be issued a letter of authorization (LOA) approving such operations. Part 91 operators currently holding an LOA authorizing RVSM and/or RNP 10 operations are not required to be issued a separate LOA for individual areas of operation or route systems where RVSM and/or RNP 10 are implemented.

4-103 AMUs. Two large areas of en route operation have unique features which significantly complicate air navigation. These two areas are centered around Earth's magnetic poles.

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A. Concept. Conventional magnetic compasses sense magnetic direction by detecting the horizontal component of Earth's magnetic field. Since this horizontal component vanishes near the magnetic poles, magnetic compasses are highly unreliable and unusable in an area approximately 1,000 NM from each magnetic pole. Within these areas, air navigation tasks are further complicated by very rapid changes in magnetic variation over small distances. For example, when flying between the magnetic North Pole and the true North Pole, a heading of true North results in a magnetic heading of South (a magnetic variation of 180 degrees).

B. Convergence of the Meridians. Since these two major AMUs also occur near Earth's geographic poles, the convergence of the meridians also presents additional directional complications. When flying great circle courses at latitudes greater than 67 degrees, convergence of the meridians can create rapid changes in true headings and true courses with small changes in aircraft position. As a result, relatively small errors in determining the aircraft's actual position can produce very large errors in determining the proper heading to fly and to maintain the assigned flight path. When even small errors occur, very large navigation errors can develop over extremely short distances. An extreme example of this phenomenon occurs at Earth's geographic North Pole. Flight in any direction from the exact pole is initially due south (that is, the direction to Russia or the United States is south).

C. Special Equipment, Techniques, and/or Procedures. Special navigation equipment, techniques, and/or procedures are critical to operate safely in polar areas, including the two AMUs. Operations based solely on magnetic references within AMUs are unsafe, unacceptable, and must not be approved. Operations within these areas can only be conducted safely if the primary heading reference is derived from sources other than magnetic.

1) All INS/IRS/IRU are capable of calculating true north independently from other aircraft systems. INS/IRS/IRU can be approved and safely used for operations in AMUs and polar areas provided the following conditions are met:

a) The INS is certified as Airworthy for the highest latitude authorized for these operations.

b) Ground alignment of the INS/IRS/IRU is restricted to those airports where satisfactory alignment has been demonstrated or otherwise approved.

c) The operator's training programs and crew procedures provide acceptable techniques and methods for the following:

- Approaches and departures using appropriate heading references other than magnetic.
- The use of ground-based NAVAIDs, which are oriented to appropriate directional references other than magnetic.

NOTE: It is the FAA's direction and guidance that inspectors must not approve operations in polar areas and/or AMUs without the participation and concurrence of one of the agency's NextGen oceanic specialists.

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2) There is a wide variety of other methods, systems, techniques, and procedures that can be used for navigation in AMUs and polar areas. However, due to the variety of means and the complexity of air navigation in these areas, specific direction and guidance for these other means of navigation are not provided in this order.

NOTE: It is the FAA's direction and guidance that inspectors must obtain assistance from one of the agency's NextGen oceanic specialists in evaluating and approving or denying an operator's request to use systems, techniques, or procedures that are not discussed in this section.

D. Boundaries of the AMU.

1) For the Northern Hemisphere, the Canadian AIP establishes the basic boundaries for the AMU. The current edition of the Canadian Air Navigation Order states that no person may operate an aircraft in instrument flight rules (IFR) flight within Canadian northern domestic airspace unless it is equipped with a means of establishing direction that is not dependent on a magnetic source. The special equipment, training, and procedures discussed in this paragraph are required for all operations into the area of northern domestic airspace. The boundaries of this area are shown in Figure 4-3, Canadian Domestic Airspace. This area is also outlined on Canadian en route charts. For the purposes of this paragraph, northern domestic airspace is considered to extend from ground level to infinity.

2) For the Southern Hemisphere, any operation south of lat. 65°00'00" S is considered to be within the AMU. Any proposal to operate within the AMU in the Southern Hemisphere must be reviewed and concurred with by AFS-400 before approval.

E. Approvals. All approvals for operations into AMUs are granted by issuing OpSpec B040, and by adding that area of en route operation to the standard OpSpec B050. A checklist for operations in AMUs is available in the guidance subsystem in association with OpSpec B040.

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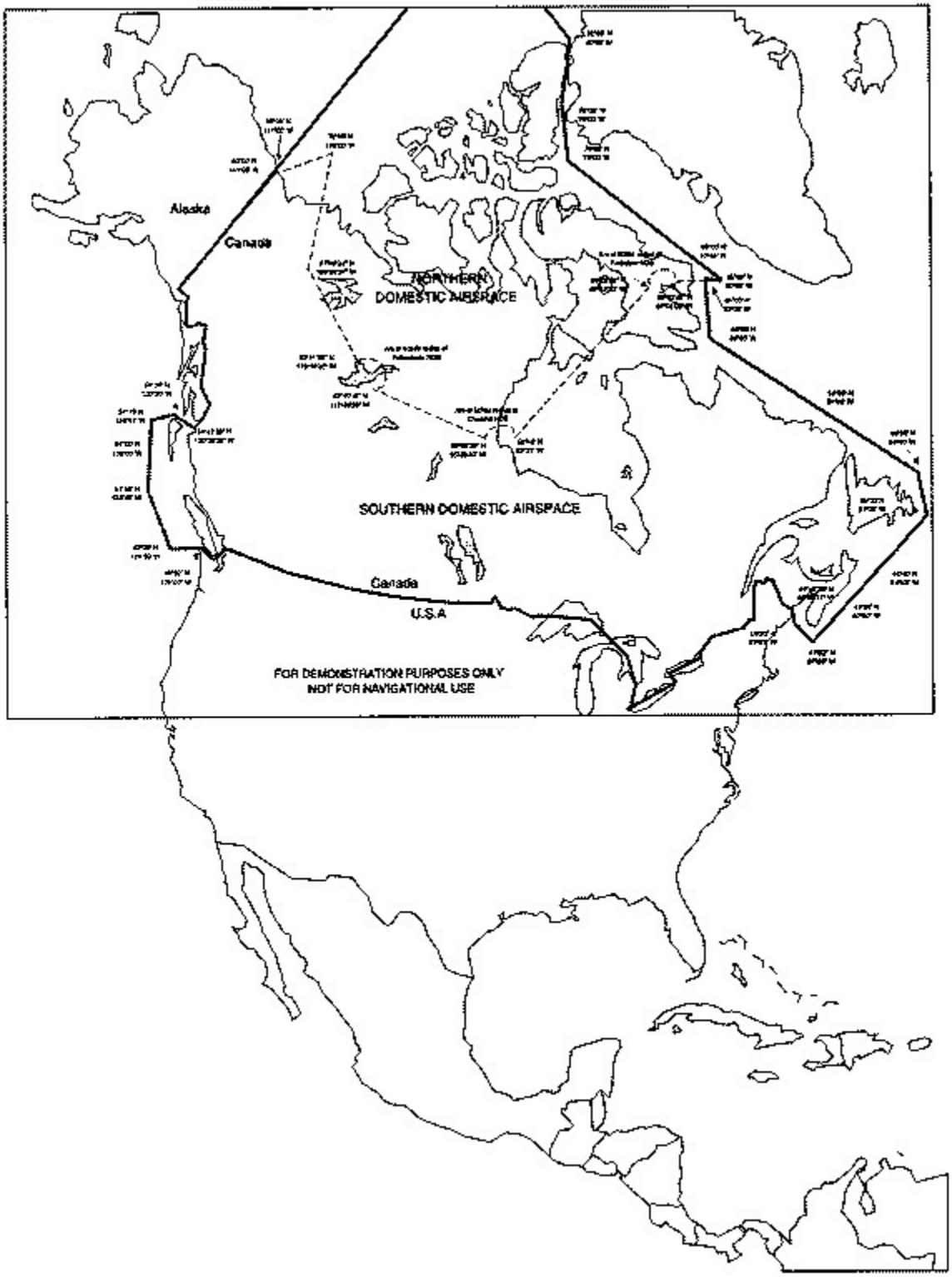
Figure 4-3. Canadian Domestic Airspace



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4-104 NORTH POLAR OPERATIONS. The North Polar Area of Operations is defined as the area that lies north of lat. 78°00’00” N (see OpSpec A002). The North Polar routes across Russia are shown in the Russian AIP or in commercial charting publications for Eastern Europe and Eurasia. OpSpec B055 authorizes North Polar operations. See Volume 3, Chapter 18, Section 4, OpSpec B055, for more information on this authorization. In general, in addition to the authorization for operations in the AMUs, the following will be required for authorizing operations in the polar areas.

A. Fuel Freeze Temperature. A procedure must be established to determine the fuel freeze temperature of the actual fuel load onboard the aircraft that requires coordination between maintenance, dispatch, and assigned flightcrew. The operator may develop a fuel freeze analysis program in lieu of using the standard minimum fuel freeze temperatures for specific types of fuel used.

B. Communication Capability. In accordance with part 121, § 121.99, the operator must have effective communications capability with dispatch and with ATC for all portions of the flight route. The operator must show the FAA the communications medium(s) that it intends to use to fulfill these requirements in the North Polar Area.

1) The communications medium used must meet FAA regulatory requirements and fulfill policy/procedures established by each ATS unit providing control on the route of flight. Anchorage Center publishes this information in the U.S. Government Flight Information Publication (FLIP) Supplement for Alaska. Other countries publish ATS policies and procedures in their state AIPs.

2) High frequency (HF) voice has been considered the primary communications medium in the North Polar Area. However, other mediums may be used as a supplemental means in accordance with the applicable policy. For example, although HF voice remains primary for communications with Anchorage Center, in areas where there is satellite coverage, satellite communication (SATCOM) voice may be used as a backup to communicate with ARINC Radio and, in nonroutine situations, to establish direct pilot-controller voice communications.

3) In areas of satellite coverage, Controller-Pilot Data Link Communications (CPDLC) may be used for ATC communications, provided the ATS unit has an approved capability. In addition, provided the capability is approved, HF data link may also be used to fulfill communications requirements with ATS units having the capability and with airline dispatch. Inspectors must ensure that the operators meet the regulatory and policy requirements for long-range communication systems (LRCS). HF voice capability is always required.

4) It is recognized that SATCOM may not be available for short periods during flight over the North Pole, particularly when operating on some designated polar routes. Communication capability with HF radios may also be affected during periods of solar flare activity. For each dispatched polar flight, the operator must take into consideration the predicted solar flare activity and its effect on communication capability.

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C. Minimum Equipment List (MEL). Before receiving FAA authority to conduct polar operations, the MEL must indicate that the following systems/equipment is required for polar operations dispatch:

1) Fuel quantity indicator system (FQIS) (to include fuel tank temperature indicating system).

2) Autothrottle system.

3) Communication system(s) relied on by the flightcrew to satisfy the requirement for effective communication capability.

4) Except for all-cargo operations, expanded medical kit to include automated external defibrillators (AED).

NOTE: Refer to the current edition of AC 91.21-1, Use of Portable Electronic Devices Aboard Aircraft.

5) For Extended Operations (ETOPS) aircraft:

a) All MEL restrictions for 180-minute operations are applicable.

b) Auxiliary power unit (APU) for two-engine airplanes (including electrical and pneumatic supply to its designed capability).

D. Training Program Requirements. The following must be in the approved training programs:

- Training on Barometric pressure for Standard Altimeter Setting (QNE)/Barometric pressure for Local Altimeter Setting (QNH) and meter/feet issues is required for flightcrew and dispatcher training.
- Training on fuel freeze (included in maintenance, dispatch, and flightcrew training (special curriculum segments)).
- General area- and route-specific training on weather patterns and aircraft system limitations.
- Training on special considerations, such as diversion decision making into austere airport environments to include aircraft performance; crash, fire, and rescue availability; and passenger support.
- Flightcrew training in the use of the cold weather anti-exposure suit.

E. Special Flightcrew Issues for Long-Range Operations. The operator needs to address the following special long-range flightcrew issues:

- Long-range flightcrew rest plan submitted to the principal operations inspector (POI) for review and approval.
- Multicrew (augmented flightcrews) flight proficiency/currency issues need to be addressed in the training program.

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- The progression of pilot-in-command (PIC) authority, as designated in the operator's manual.
- A minimum of two cold weather anti-exposure suits will be required to be onboard so that outside coordination at a diversion airport with extreme climatic conditions can be accomplished safely.

F. En Route Polar Diversion Alternate Airport Requirements. Operators are expected to define a sufficient set of polar diversion alternate airports such that one or more can be reasonably expected to be suitable and available in varying weather conditions (the current edition of AC 120-42, Extended Range Operation with Two-Engine Airplanes (ETOPS), provides additional guidance for two-engine airplanes).

G. Aircraft and Passenger Recovery Plans. A recovery plan is required that will be initiated in the event of an unplanned diversion. The recovery plan should address the care and safety of passengers and flightcrew at the diversion airport and include the plan of operation to extract the passengers and flightcrew from that airport.

H. Validation Flights. An FAA-observed validation flight is required in which the operator exercises its reaction and recovery plan in the event of a diversion to one of its designated en route polar diversion alternate airports. The exercise of the operator's reaction and recovery plan may also be completed prior to the validation flight. The Air Transportation Division (AFS-200) will give favorable consideration to a request by the operator, through the POI, to conduct the validation flight in a passenger revenue status only if the operator's reaction and recovery plan has been previously demonstrated to the satisfaction of the FAA. If the operator elects to demonstrate its reaction and recovery plan as part of and during the validation flight, the flight cannot be conducted in a passenger revenue status. The carriage of cargo revenue is permissible in this case and is encouraged for airplane Weight and Balance (W&B) purposes.

4-105 AREAS WITH SIGNIFICANT COMMUNICATIONS AND/OR ATC DIFFICULTIES. The levels of sophistication in communication, navigation, and ATC capabilities in certain areas of operation outside North America and Europe vary widely. The following subparagraphs provide evaluation criteria that must be considered when approving operations in these areas.

A. NAVAIDs. The ground-based facilities that are implemented to support air navigation in some of these areas are based on antiquated technology and frequently experience reliability problems. The National Airspace System (NAS) and the navigational performance requirements in many countries are based almost exclusively on non-directional radio beacons (NDB). Also, many of the NAVAIDs do not operate continuously. For example, NAVAIDs are shut down from dusk to dawn in certain countries.

B. Communication. The primary means of en route communication with ATC in many areas of operation is almost exclusively HF radio. Atmospheric noise created by extensive thunderstorm activity in tropical areas and aurora activity in polar areas significantly increases the difficulty of using HF as a prime means of communication with ATC.

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C. ATC. The level of ATS varies from radar-based services (equivalent to domestic U.S. operations) to a total absence of any ATC. Flight information regions (FIR) have been established in most areas of the world. Specific ICAO member states have been assigned the responsibility of providing ATS in these FIRs. There are wide variations in the ATC services available. En route ATC radar is not available in all countries and ATS may rely heavily on position reports and airborne navigation performance capabilities for the separation of aircraft. Various levels of ATS provided in these areas are as follows:

NOTE: It is critical that flightcrews understand that subtle terminology differences and language barriers may exist in foreign countries where they operate. For example, crews must ensure they understand whether the altimeter setting issued by ATC is in hectopascals (millibars) or inches of mercury.

1) Within controlled airspace, ATC provides ATC service to prevent collisions between aircraft and to expedite and maintain an orderly flow of air traffic. This also includes air traffic advisory services and those alerting services related to weather and search and rescue.

2) Within advisory airspace, air traffic advisory service is available to provide separation, to the extent possible, between aircraft operating on IFR flight plans. It is important to understand that this is an advisory service (similar to a Flight Service Station (FSS)), not a control service (prevention of collision). In advisory airspace, flightcrews are provided information concerning the location of other aircraft. Prevention of collision is the responsibility of the PIC. Terrain clearance is also the responsibility of the PIC. The ATSs available also include those alerting services related to search and rescue. In certain areas, special reporting procedures called “broadcasts in the blind” have been established to assist pilots in avoiding other aircraft. At designated intervals, each pilot broadcasts the aircraft’s position, route, and FL over a specified very high frequency (VHF). Awareness of the proximity of other aircraft is obtained by maintaining a continuous listening watch on the specified frequency. This procedure is an expected practice in large portions of Northwestern Africa (including the Dakar FIR) and South America (including most Brazilian airspace). In many of these areas, the broadcast-in-the-blind procedure is used to augment the separation of IFR aircraft.

3) FIRs have not been established for a few areas in the world. These are commonly called uncontrolled information regions, or “no man’s land.” The largest of these areas is in the South Atlantic Ocean, annotated as “No FIR.” Flight Information Services (FIS) also do not exist in the high-altitude structure in other large areas (above the top of controlled airspace). Within no man’s land, aircraft separation (prevention of collision) is entirely the responsibility of the PIC. Advice and information for the safe and efficient conduct of flights is not provided by an ATS unit. An ATS unit does not provide alerting services related to search and rescue.

D. Metric FLs. The NAS in the Commonwealth of Independent States (CIS), many Eastern European countries (former Eastern Bloc countries), and some mainland Asian countries are based on the use of metric flight altitudes/FLs. Operations within these areas require special procedures for conversion charts between metric FLs and FLs based on feet. For example, an FL of 10,000 meters represents FL 328, or a flight altitude of 1,000 meters represents an altitude of 3,280 feet.

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4-106 EVALUATION CRITERIA FOR AREAS WITH COMMUNICATIONS AND ATC DIFFICULTIES. POIs must evaluate, on a case-by-case basis, all proposals to conduct operations in the sovereign airspace of countries that are not equivalent or similar to the U.S. NAS.

A. General Criteria. The operator must show (considering factors unique to the proposed area of operation) that safe operations can be conducted within the area of operation, and that the facilities and services necessary to conduct the operation are available and serviceable during the period when their use is required. The operator must also show that the proposed operation is in full compliance with the requirements in Part B OpSpecs that are applicable to that operation.

B. Operations in Advisory Airspace. The operator must show that its training programs and operating procedures permit safe operations in advisory airspace and ensure compliance with the expected operating practices. The operator must also show that the operation is in compliance with OpSpec A014.

C. Operations in Uncontrolled Information Regions (No Man's Land). Since ATC, air traffic advisory, flight information, and alerting services are not available from ATS units when operating within these areas, the operator must show that acceptable, alternative means are available to ensure the following:

1) The appropriate organization can be notified in a timely manner when search and rescue aid is needed.

2) Changes in significant weather information can be provided to the flightcrew in a timely manner.

3) Changes in the serviceability of the required NAVAIDs are available to the flightcrew and the operator's operational control system.

4) Reliable information concerning other IFR aircraft operating within this area is available in flight (e.g., Traffic Alert and Collision Avoidance System (TCAS), Automatic Dependent Surveillance-Broadcast (ADS-B)). This includes broadcast-in-the-blind procedures and other expected practices.

5) The required navigation facilities necessary to safely conduct the operation are available and serviceable.

D. Role of NextGen Oceanic Specialists. The uniqueness of operations in advisory airspace and in no man's land usually requires assistance from persons with special navigational knowledge, skills, and expertise. Inspectors are expected to request the assistance of these specialists when evaluating proposals to conduct operations outside controlled airspace.

4-107 OPERATIONS IN RESTRICTED INTERNATIONAL AREAS. Operations by U.S. operators within the sovereign airspace of certain countries have restrictions levied by various agencies of the U.S. Government. The following are examples:

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- Commercial trade restrictions,
- No-fly zones,
- Special Federal Aviation Regulations (SFAR) flight prohibitions,
- Restriction of certain transactions related to aircraft services,
- Suspension of cargo air operations, and
- Suspension of passenger-carrying operations to the United States because the airport authorities do not maintain and carry out effective security measures.

NOTE: These restrictions frequently specify certain airports, selected routes, and special procedures that must be used.

A. Information on Restricted Areas. The current list of restrictions and information about the processes and agencies to contact in regard to those restrictions is located on the FAA International Programs and Policy Division (AFS-50) Web site at https://employees.faa.gov/org/linebusiness/avs/offices/afs/divisions/hq_region/afs50. Since the processes periodically change, the AFS-50 Web site will provide the current list of restrictions and the specific processes for the operator to follow.

B. FAA Review of Restrictions. The operator should review the current list of restrictions with the POI to confirm what restrictions apply in order for the operator to obtain the applicable license and/or exemption for flight operations in that restricted area.

C. Operator Actions Required. It is important that the operator be advised to take simultaneous actions with all of the agencies that are necessary for the licenses and/or exemptions for the restricted country or countries in which or over which they are requesting to operate. The POI should advise the operator that the FAA does not have control over the process by which other agencies grant licenses. Therefore, the POI should recommend that operators make the requests as far in advance as possible of the intended date of flight. It is critical that overflight permits be coordinated in a timely manner and under no circumstances should the operator conduct an overflight of a restricted airspace unless the issuing authority has given approval.

1) The operator is responsible for obtaining the appropriate licenses and/or exemptions from the U.S. Government agency or agencies that impose the restrictions for that country or area.

2) Except for an SFAR prohibiting flight operations, the POI may issue an amendment to OpSpec B050 authorizing operations to or over countries or areas on the Restricted International Areas list, provided the operator shows that it meets the requirements of 14 CFR part 119, § 119.51(a)(2).

3) If there is an SFAR that imposes a flight prohibition and if other Federal agencies have imposed restrictions for flights into or over a restricted country or area, before flight operations can be authorized, the operator must provide its POI with either:

a) All applicable written Federal agency authorizations and an FAA exemption granting authorization to operate in or over the restricted international area, or

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b) Applicable written Federal agency authorizations with written FAA approval from the Director of Flight Standards Service (AFS-1). If an exemption to a SFAR was granted as one of the requirements, the exemption number must be listed in OpSpec A005 and not in OpSpec B050. If approval was granted from AFS-1, the effective and expiration dates of the approval must be noted in the optional nonstandard text of OpSpec A005.

D. Approval of Operations in Restricted Areas. If an operator requests authorization to conduct operations into or over restricted international areas for which an FAA flight prohibition is not in effect and shows that it meets the requirements of § 119.51(a), the POI should authorize the operation by adding the area of en route operation to OpSpec B050. Even though the information is not required by 14 CFR to be recorded, but an authorization to operate into or over a restricted international area is required, the POI may request the date of issuance and its expiration date for insertion in the note section of OpSpec B050.

4-108 RNP IN CLASS II AIRSPACE. The implementation of RNP is integral to the achievement of NextGen Integration and Implementation, and part of a worldwide ICAO effort for the implementation of performance-based communication, navigation, surveillance, and air traffic management (CNS/ATM) concepts.

A. General. Aircraft/operators that operate on routes where RNP navigation specifications (NavSpecs) are applied must be approved by the State of the Operator or State of Registry, as appropriate, as capable of navigating to prescribed RNP standards (e.g., RNP 10 for the entire route on which RNP 10 is required). Different airplane separation standards require different RNP NavSpecs (e.g., 50-NM lateral separation requires RNP 10, while 30-NM lateral separation requires RNP 4, as well as enhanced communication and surveillance capabilities). The implementation of more stringent RNP and other CNS capabilities is part of an ICAO-coordinated effort to introduce separation standards that will enable more efficient ATM while maintaining acceptable levels of safety. Benefits to users are increased availability of fuel- and time-efficient altitudes, routes and enhanced airspace capacity, and controller flexibility.

B. Applicability of Guidance to Multiple LRNS and Single Long-Range Navigation System (S-LRNS) Equipage. The guidance provided below applies both to airplanes equipped with two or more LRNSs and to S-LRNS-equipped aircraft. Operators and airplanes must be evaluated in accordance with the current edition of Order 8400.12.

C. S-LRNS Eligibility for RNP 10 in a Limited Number of Designated Areas. OpSpec/MSpec/LOA B054/MB054 may be issued to authorize an operator to conduct Class II navigation using S-LRNS with an RNP 10 authorization in a limited number of designated areas of operation. The Gulf of Mexico will be the first of a limited number of areas where this authority will be permitted. A 50-NM lateral separation between airplanes authorized RNP 10 or RNP 4 is planned to be implemented in the Gulf of Mexico oceanic control areas (CTA) in October 2011.

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D. Operational Approval in Oceanic Airspace Where RNP 10 is Required.

1) Background. RNP 10 and RNP 4 are the only RNP NavSpecs currently applicable to oceanic and remote area operations. Other Area Navigation (RNAV) and RNP NavSpecs are applicable to continental en route, terminal area, and approach operations. In accordance with ICAO Doc 7030, aircraft/operators that operate on routes where these separation standards are applied must be approved by the State of the Operator or State of Registry, as appropriate, as capable of navigating to RNP 10 or RNP 4 for the entire route on which the NavSpec is required.

2) Policy.

a) Order 8400.12 is a guide to RNP 10 aircraft and operator approval in any airspace where an RNP 10 NavSpec is applied. The FAA has determined that Order 8400.12 provides acceptable criteria and processes for an operator to obtain authority to operate specific aircraft/navigation systems in areas or on routes where RNP 10 is required.

b) CNS requirements, job aids, and policy and guidance for operation in oceanic airspace can be found on the Oceanic and Offshore Operations Group Web site (https://www.faa.gov/pilots/intl/oceanic_ops/). This Web site contains links to Web sites for individual areas of operation, such as the West Atlantic Route System (WATRS), the Pacific, and the Gulf of Mexico. AFS-400 is coordinating with their Air Traffic counterparts to expand this Web site as new CNS requirements are introduced in oceanic areas.

c) Operator applications for RNP 10 approval must be evaluated in accordance with Order 8400.12 and any additional criteria specified in this paragraph. If an operator requests to deviate from the practices and procedures provided in Order 8400.12, the inspector should forward a request for assistance through the regional Flight Standards division (RFSD) to AFS-400.

d) Parts 121, 121/135, 125, and 135 certificate holders and part 91K program managers are approved for RNP 10 by the issuance of standard OpSpec/MSpec paragraphs:

- OpSpec/MSpec A002.
- OpSpec/MSpec B036, if applicable.
- OpSpec/MSpec B037, if applicable.
- OpSpec/MSpec B038, if applicable.
- OpSpec/MSpec B054/MB054, if applicable.

e) Part 91 operators and part 125M LODA holders will be approved through the issuance of automated operator LOA B036 or, if applicable, LOA B054. For operators requiring short-term operations, LOA D098 will be used.

3) RNP 10 Authorization Approval Process. Inspectors should inform their operators for whom they are responsible that this subparagraph contains the approval process for RNP 10 authorization. The steps in this process should be followed when an operator seeks authority to operate an airplane type/LRNS combination in Class II navigation areas where

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RNP 10 is applied and the operator has not previously received RNP 10 approval for that specific airplane type/LRNS combination. Normally, if an operator has received initial Class II navigation/RNP 10 approval for a specific airplane type/LRNS combination, that operator should not be required to reapply for approval to conduct Class II navigation/RNP 10 operations on additional routes or areas of operation. Operators should be made aware that references to the appropriate subparagraphs and sections of Order 8400.12 are indicated below:

a) Order 8400.12, paragraph 10 provides guidance on the content of an operator's RNP 10 application. The application will contain the items listed in subparagraphs *1-9*. These subparagraphs provide additional detail on application items.

1. Airworthiness documents that establish the proposed aircraft/navigation system group, its RNP 10 approval status, and a list of airframes in that group.

2. Approved or requested RNP 10 time limit for aircraft for which INS or IRU is the only source of long-range navigation (LRN).

3. Documentation establishing the RNP 10 area of operations or routes for which the specific aircraft/navigation system is eligible.

4. Documentation that the operator has adopted operating practices and procedures related to RNP 10 operations.

5. Documentation showing that the pilot's and, if applicable, dispatcher's knowledge of RNP 10 operating practices and procedures will be adequate.

6. Documentation that appropriate maintenance practices and procedures have been adopted.

7. MEL updates, if applicable.

8. Operating history that identifies past problems and incidents, if any, and actions taken to correct the situation.

9. Awareness of the necessity for followup action after navigation error reports, and the potential for removal of RNP 10 operating authority.

b) In accordance with Order 8400.12, paragraph 12, the operator must show the aircraft/navigation system groups that will be presented for approval of RNP 10 operations and provide a list of airframes that are determined to be in the specific aircraft/navigation system groups to be evaluated.

c) Order 8400.12, subparagraph 13a requires that, for aircraft navigation systems that have been approved by an aircraft certification authority to RNP 10 or better, the operator must provide appropriate sections of the Aircraft Flight Manual (AFM) that address RNP, including any associated time limits for INS and IRU navigation systems.

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d) Order 8400.12, subparagraph 13b(3) requires that for aircraft equipped with GPS, where such GPS units are the only systems for LRN, the operator must show that it is approved in accordance with subparagraph 13b(3). An RNP 10 time limit is not applicable.

e) Order 8400.12, subparagraph 13b(4), requires that for multisensor systems incorporating GPS, the operator must show that systems are approved and operated in accordance with Order 8400.12, subparagraph 13b(4). An RNP 10 time limit is not applicable.

f) The operator must show that the LRNS is approved in accordance with Order 8400.12, subparagraph 13b(5). An RNP 10 time limit is not applicable.

g) Order 8400.12, subparagraph 13b(5). Aircraft equipped with a single INS/IRU, or a single GPS approved for primary means of navigation in oceanic and remote areas, are eligible for RNP 10 authorization in a limited number of designated areas of operation. (The first area is the Gulf of Mexico oceanic CTAs.) With the exception of the requirement for two INSs or IRUs, the guidance in Order 8400.12, subparagraph 13b(1) applies. INS and IRU systems must be approved in accordance with part 121 appendix G. With the exception of the requirement for two primary means GPSs, the guidance in Order 8400.12, subparagraph 13b(3) applies. GPS systems must be approved in accordance with the current edition of AC 20-138, Airworthiness Approval of Positioning and Navigation Systems.

h) Order 8400.12, subparagraphs 13b(1) and (2) require the operator to show that INS or IRU installation is approved in accordance with subparagraphs 13b(1) and (2). Unless the operator takes action to extend the approved navigation system time limit and/or plans to update the system en route, a baseline RNP 10 time limit of 6.2 hours, starting at the time the system was placed in navigation mode, is applicable. Refer to Order 8400.12, subparagraph 13d on extending navigation system time limit, and Order 8400.12, subparagraph 13e on en route updating.

i) Order 8400.12, subparagraph 13c specifies that for navigation systems not approved under existing criteria, the operator may demonstrate RNP 10 eligibility through data collection in accordance with Order 8400.12, subparagraph 13c using the processes detailed in Order 8400.12 appendix A or E.

j) Order 8400.12, subparagraph 16f requires the operator to show the routes or areas where it is eligible to operate if restrictions (e.g., INS RNP 10 time limit) apply to navigation systems. In accordance with Order 8400.12, subparagraph 16f, the operator can conduct a one-time evaluation of eligibility to fly in an RNP 10 area of operation or on specific RNP 10 routes, or may elect to evaluate on a per-flight basis.

1. For a one-time evaluation of a specific RNP 10 area or track system, aviation safety inspectors (ASI) should expect the operator to accomplish the following:

a. Calculate the longest distance from either departure airports or en route update points (if applicable) to the point at which the aircraft will begin to navigate by reference to VHF omni-directional range station (VOR), distance measuring equipment (DME), NDB, or comes under ATC radar surveillance.

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b. As detailed in Order 8400.12, subparagraph 16f, using 75 percent probability wind component, convert this distance to en route time.

c. As detailed in Order 8400.12, subparagraph 13e, if navigation systems are to be updated en route, adjust the baseline RNP 10 time limit approved for the specific operator navigation system to account for update accuracy.

- Subtract 0.3 hours from the baseline for DME/DME.
- Subtract 0.5 hours from the baseline for VOR/DME.
- Subtract 1 hour from the baseline for manual update.

d. Compare calculated en route time to the navigation system RNP 10 time limit (adjusted for en route update, if applicable) to determine if the airplane is eligible for the operation.

e. If the aircraft navigation system is found eligible for operation on the specific routes evaluated, then the RNP 10 area of operations or routes on which RNP 10 operations can be conducted are established. If the aircraft navigation system is not found eligible for operation on all routes evaluated, then the operator will need to designate routes for which it is eligible or take action to gain approval for an extended RNP 10 time limit. Refer to Order 8400.12, subparagraph 13d.

2. Order 8400.12, subparagraph 16f(6). For a per-flight evaluation of eligibility to fly a specific RNP 10 route, follow the steps shown in Order 8400.12, subparagraph 16e, using flight plan winds to determine en route time. If the RNP 10 time limit is exceeded, the flight must be rerouted or delayed.

k) Order 8400.12, subparagraph 13d specifies how the operator can show eligibility for an extended time limit by:

1. Obtaining approval from an appropriate Aircraft Certification Office (ACO), or

2. Conducting operational data collection using the processes established in Order 8400.12 appendix A or E.

l) Order 8400.12, paragraph 15 specifies that the certificate holder must provide documentation that appropriate maintenance practices and procedures have been adopted.

m) Order 8400.12, paragraph 14 requires the operator to revise the MEL to address any new operating requirements.

n) Operations programs.

1. Order 8400.12, subparagraphs 10a(5), 13f, 13g, 16, and appendices D and F (if applicable).

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a. Parts 91K, 121, 121/135, 125, and 135 operators must provide revisions to manuals and checklists to show the adoption of the RNP 10 operating practices and procedures contained in the reference paragraphs and sections listed in Order 8400.12, subparagraphs 10a(4) and 10a(5).

b. If applicable, parts 91, 91K, and 125 LODA operators should show appropriate sections of the AFM relating to RNP 10 aircraft/navigation system eligibility.

2. Order 8400.12, subparagraphs 10a(4), 13f, 13g, 15, and appendices D and F (if applicable).

a. Parts 91K, 121, 121/135, and 135 operators should show that training programs have been updated to include the practices in Order 8400.12, subparagraphs 13f and/or 13g (if applicable), paragraph 16, and appendices D and F (if applicable). Part 125 certificate holders' initial and recurrent pilot testing programs should be updated with applicable information from these paragraphs.

b. In accordance with Order 8400.12, appendix D, paragraph 5c, part 91K program managers and part 125M LODA holders must ensure that flightcrew members are qualified in accordance with the program manager's approved training program.

c. In accordance with Order 8400.12, appendix D, paragraph 5b, part 91 operators must show during the application process that pilot knowledge of Order 8400.12, paragraphs 13f and 13g (if applicable), paragraph 16, and appendices D and F (if applicable) will be adequate. Order 8400.12, appendix D, paragraph 5b contains options for part 91 operators to fulfill this requirement.

o) The administrator may authorize an operator to deviate from the RNP 10 requirements of OpSpec/MSpec/LOA B036 for a specific flight in designated RNP 10 airspace if the ATSP determines that the airplane may be provided appropriate separation and the flight will not interfere with, or impose a burden on, other operators. For operations under such authority, the certificate holder will not take off for flight in designated RNP 10 airspace, unless the following requirements of B036 or B054 are met:

1. If fuel planning is predicated on en route climb to FLs where RNP 10 is normally required, an appropriate request must be coordinated with the ATSP in advance of the flight.

2. The appropriate information blocks on the ICAO flight plan filed with the ATSP show that the airplane and/or certificate holder is not approved for RNP 10.

3. For these flights at least one of the navigation system configurations listed below must be installed and operational:

a. At least two independent INSs.

b. At least two flight management system (FMS)/navigation sensor combinations (or equivalent).

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c. At least two independent approved GPS navigation systems acceptable for primary means of Class II navigation in oceanic and remote areas.

d. At least two approved independent LRNS from the list below:

- INS.
- FMS/navigation sensor combination (or equivalent).
- GPS navigation system approved for Class II navigation in oceanic and remote areas.

p) The administrator may authorize an operator to deviate from the RNP 10 requirements of OpSpec/MSpec/LOA B054 for a specific individual flight in designated RNP 10 airspace if the ATSP determines that the airplane may be provided appropriate separation and the flight will not interfere with, or impose a burden on, other operators. For operations under such authority, the certificate holder will not take off for flight in the designated RNP 10 airspace, unless the following requirements of OpSpec/MSpec/LOA B054/MB054 are met:

1. If fuel planning is predicated on en route climb to FLs where RNP 10 is normally required, an appropriate request must be coordinated with the ATSP in advance of the flight.

2. The appropriate information blocks on the ICAO flight plan filed with the ATSP show that the airplane and/or certificate holder is not approved for RNP 10 as specified in the certificate holder's OpSpec/MSpec/LOA B054/MB054.

3. For these flights, at least one of the navigation system configurations must be installed and operational, such as an approved independent LRNS from the list below:

- At least one independent INS. The INS or IRU systems must be approved in accordance with Order 8400.12 or part 121 appendix G.
- At least one FMS/navigation sensor combination (or equivalent) where the navigation system must be suitable for the route to be flown. Multisensor systems must be approved in accordance with the guidance contained in AC 20-138.
- At least one independent IFR GPS navigation system.

q) Order 8400.12, subparagraph 10b. The operator should indicate awareness of the provisions of subparagraph 10b for operator followup action on reported navigation errors and of the potential to remove RNP 10 operating authority.

r) Validation tests and validation flights (see Volume 3, Chapter 29).

1. The following is intended to provide broad guidance for establishing requirements for validation tests and/or validation flights. The inspector should consider each application on its own merit and, in accordance with Volume 3, Chapter 29, must consult with a NextGen oceanic specialist. The oceanic specialists can be contacted through the regional NextGen branches (AXX-220).

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2. Validation testing requires that ASIs evaluate operator programs and documents in accordance with the guidance in this paragraph.

3. The following is provided as guidance for ASIs to consider in determining whether or not validation flights are required.

a. For operators with previous Class II navigation experience with the same navigation equipment as that being proposed for RNP 10 approval, evaluation of the applicant's programs and documents is required. Tabletop exercises and demonstrations on a static airplane may also be required for evaluation purposes. A validation flight should not normally be required.

b. For operators with previous Class II navigation experience navigating with an LRNS other than that being proposed for RNP 10 approval, evaluation of the applicant's programs and documents is required. A validation flight may not be required if the inspector determines that operator policies, procedures, and programs concerning the LRNS being proposed for RNP 10 can be adequately evaluated through one or a combination of the following:

- Document review,
- Tabletop exercise,
- Demonstration on a static aircraft, and
- Any other means found acceptable.

c. For operators with no previous Class II navigation experience proposing to operate where RNP 10 is required, evaluation of the operator's programs and documents is required. A validation flight is required and must be conducted in Class II airspace. It should be a non-revenue flight with the exception that cargo may be carried.

4. Conditions for validation flights.

a. At least one flight should be observed by an FAA ASI.

b. A demonstration of any required dispatch procedures, if applicable, must be conducted for routes or areas where RNP 10 is required.

c. The flight(s) should be of adequate duration for the pilots to demonstrate knowledge of dispatch requirements (if applicable), capability to navigate with the system, and to perform the normal and non-normal procedures.

4) Program Tracking and Reporting Subsystem (PTRS) Codes. PTRS entries will be made. The operations activity code number will be 1442; the avionics activity code will be 5434; and the "National Use" field entry will be "RNP 10" followed by three spaces. (To facilitate the PTRS search function, please ensure that you insert a space between "RNP" and "10.")

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4-109 RVSM AIRSPACE. RVSM airspace is any airspace or route where aircraft are separated by 1,000 feet vertically between FL 290 and FL 410, inclusive. Generally, aircraft and operators that have not been authorized to conduct RVSM operations cannot operate at FLs where RVSM is applied. Exceptions to this rule are published by individual ATSPs. ATSPs have elected to implement RVSM as a means to provide more fuel- and time-efficient altitudes and routes to operators and to enhance en route airspace capacity.

A. RVSM Areas of Operation. For the latest information, see the RVSM Web site, http://www.faa.gov/air_traffic/separation_standards/rvsm.

B. Inspector Action. Using the guidance provided in the current edition of AC 91-85, Authorization of Aircraft and Operators for Flight in Reduced Vertical Separation Minimum Airspace, inspectors will ensure that operators and aircraft meet the standards of part 91 appendix G. This document can be found on the RVSM Web page at http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/rvsm/documentation.

C. Sources of Information on RVSM Programs.

1) The RVSM home page provides information on RVSM programs in various areas of the world. It provides a link to the U.S. Domestic RVSM Web site where information is posted on plans and programs to implement RVSM in the domestic United States. It also links to the RVSM Documentation page that provides specific information on aircraft and operator approval for RVSM operations. The RVSM home page can be accessed at http://www.faa.gov/air_traffic/separation_standards/rvsm.

2) The RVSM Documentation Web site provides access to regulations, guidance, documents, and contacts. This Web site is maintained by AFS-400. It can be accessed:

a) Through the RVSM home page at http://www.faa.gov/air_traffic/separation_standards/rvsm/documentation, or

b) In WebOPSS, in association with OpSpec B046.

D. Regulations. Section 91.706 applies to RVSM operations outside the United States. Section 91.180 applies to RVSM operations within the United States. Both sections require that the operator and the operator's aircraft comply with the standards of part 91 appendix G and that the operator obtain FAA authorization to conduct RVSM operations. Part 91 appendix G provides basic RVSM standards for aircraft and operator programs. The RVSM Documentation Web site provides a link to §§ 91.180 and 91.706, and part 91 appendix G.

E. Guidance. AC 91-85 can be found on the RVSM Documentation Web page. It provides an acceptable means to authorize operators and aircraft to conduct flight in RVSM airspace. It provides detailed guidance for aircraft manufacturers, other engineering organizations, and operators to follow when developing programs intended to meet the standards of part 91 appendix G.

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1) If an operator requests to deviate from the practices and procedures provided in AC 91-85, the inspector should forward a request for assistance through the RFSD to AFS-400. AFS-400 will respond after coordination with the AFS-200, the Aircraft Maintenance Division (AFS-300), or the General Aviation and Commercial Division (AFS-800), as appropriate.

2) The precursor to AC 91-85 (ATO Guidance 91-RVSM, Approval of Aircraft and Operators for Flights in Airspace Above Flight Level (FL) 290 Where a 1,000 Foot Vertical Separation Minimum is Applied) was developed in national and international forums and was used by Civil Aviation Authorities (CAA) throughout the world. ICAO Document 9574, Edition 2, cites ATO Guidance 91-RVSM as an acceptable means for RVSM approval.

F. Overview of the Authorization Process. The POI, principal avionics inspector (PAI), and principal maintenance inspector (PMI) should coordinate the issuance of OpSpecs B046 and D092 to grant the operator authority to conduct RVSM operations for a specific aircraft type or group. The FAA will issue the OpSpecs if the following conditions exist:

1) The FAA determines that operator aircraft comply with RVSM standards. For in-service aircraft, the FAA determines that inspections and/or aircraft system modifications are completed as required by the applicable Service Bulletin (SB), Service Letter (SL), Supplemental Type Certificate (STC), or other ACO-approved document.

2) For aircraft manufactured RVSM compliant, the FAA determines that the AFM or Type Certificate Data Sheet (TCDS) contains a statement of RVSM eligibility. The following are involved with RVSM approval:

- The FAA approves the operator's RVSM maintenance program.
- The FAA approves the operator's RVSM operations program.
- The FAA accepts the operator's plan to participate in monitoring programs.
- If required by the POI in coordination with the PAI and PMI, the operator successfully completes a validation flight.

G. RVSM Authorization Process and Policy.

1) Before issuing OpSpecs, inspectors must coordinate with the responsible Operations, Maintenance, and Avionics inspectors.

2) AC 91-85 provides guidance on the major events in the RVSM authorization process. Also, the Getting Started section of the RVSM Documentation Web site contains an outline or checklist of the events or steps in the authorization process. It includes references to applicable document paragraphs and sections.

3) AC 91-85 provides the following policy for parts 91, 91K, 121, 125, 125M, and 135 operators: The FAA will authorize initial operational approval for RVSM operations by issuing OpSpecs B046 and D092. (Specific make, model, and series (M/M/S) and individual registration numbers are listed in OpSpec D092.) Areas of RVSM operation that are new to the operator will be authorized by adding OpSpec B046 to OpSpec B050. (For questions regarding these OpSpec paragraphs, contact AFS-400 at (202) 385-4586.)

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4) Currently, in designated oceanic airspaces, operators are required to obtain both RVSM authorization and certain horizontal navigation authorizations. These are separate, specific authorization actions. For example, to operate in NAT HLA, operators are required to obtain both RVSM and NAT HLA authority. In Pacific oceanic airspace, operators are required to obtain both RVSM and RNP 10 authorization.

5) Information on TCAS as it relates to RVSM operations can be found on the RVSM Documentation Web site. Part 91 appendix G does not require that aircraft be equipped with TCAS for RVSM operations. Part 91 appendix G, § G2 does require, however, that if an aircraft is equipped with TCAS II and is used in RVSM operations, then it must be a TCAS II that meets Technical Standard Order (TSO) C-119b, Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II with Optional Hybrid Surveillance, Version 7.0 or subsequent versions. TCAS equipage requirements can be found in parts 121, 125, 129, and 135.

6) The phrases "determining aircraft RVSM compliance" and "initial RVSM airworthiness approval" both appear in RVSM documents to indicate that the FAA has determined that the operator's aircraft comply with the RVSM standards of part 91 appendix G. The following is provided as guidance for inspectors:

a) AC 91-85 provides guidance on the inspector's determination that aircraft are RVSM compliant. AC 91-85 discusses the documents that the operator must submit to the FAA to show that in-service aircraft or aircraft manufactured RVSM compliant are in compliance with the RVSM requirements of part 91 appendix G.

b) For most in-service aircraft, the RVSM airworthiness documents take the form of SBs, SLs, or STCs. These documents contain requirements that are specific to individual aircraft types or groups and generally require inspections and/or hardware or software modifications. The operator must submit documents to the FAA to show that the required actions have been completed for each airframe that will operate in RVSM airspace.

c) For aircraft manufactured RVSM compliant, the AFM or TCDS must contain statements that show the aircraft to be eligible for RVSM operations.

7) When the inspector determines that individual operator airframes are RVSM compliant, the PTRS must be updated and the airframes must be listed in OpSpec D092 or an LOA, as appropriate.

8) Other volumes contain Airworthiness inspector guidance for the evaluation and approval of an operator's RVSM maintenance program.

9) Evaluation of operations programs should be completed in conjunction with the evaluation of maintenance programs.

a) AC 91-85 provides operating practices and procedures applicable to all RVSM operations. It also lists special emphasis items for pilot training.

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b) AC 91-85, appendix 5 provides specific practices and procedures for RVSM operations in oceanic airspace.

c) Operators can use AC 91-85 as the basis for their RVSM operations training and operating practices/procedures. Operational procedures such as those for en route failure of RVSM systems in the U.S. NAS have been published. Guidance has also been published in the Aeronautical Information Manual (AIM) and, in addition, AFS-400 published and distributed a sample Pilot Bulletin that can be incorporated into individual operator programs. Operators will be responsible for incorporating this material into their programs prior to conducting RVSM operations in the United States. The operational procedures unique to domestic U.S. airspace are not extensive.

10) Validation tests and flights.

a) AC 91-85 provides guidance on the RVSM validation test. In some cases, review of the operator's RVSM application and program documents may suffice for validation test purposes. However, as determined by the POI, PMI, and PAI, the final step of the approval process may be the completion of a validation flight. The FAA may accompany the operator on a flight to verify that RVSM operations and maintenance procedures and practices are used effectively. The validation flight may be accomplished during a revenue flight, as determined by the PIs on a case-by-case basis.

b) Validation flights are not required to be conducted in conjunction with the monitoring flights described below. Also, the validation flight may be conducted before monitoring requirements are completed.

H. Monitoring Programs.

1) Background. The primary goal of monitoring is to provide a quality control (QC) check on the altitude-keeping performance of the wide variety of operators and aircraft. The height-keeping performance of aircraft is a key element in ensuring the safe operations of RVSM airspace. It has been determined that this may be accomplished by sampling a number of airframes of each aircraft type that an operator will operate in RVSM airspace. Altitude-keeping performance data is analyzed to determine that the aircraft fleet, as well as individual operators, exhibit performance that is consistent with RVSM standards.

2) Who Must Participate. All operators that conduct operations in RVSM airspace are required to participate in the RVSM Monitoring program. Refer to part 91 appendix G:

- Section 2(d), (e), and (f);
- Section 3(c)(1) and (2);
- Section 4(b)(2);
- Section 6(b); and
- Section 7.

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3) Authorization Element – Monitoring Plan. In order to demonstrate that the operators can maintain the altimetry system error (ASE) requirements of part 91 appendix G, the operator should submit an RVSM height-monitoring plan upon request for authorization. The elements of a monitoring plan include:

- Number and Identification of aircraft to be monitored in each monitoring group;
- Expected timeframe for completion of monitoring requirements; and
- Expected method for monitoring.

4) Minimum Requirements. Operators that have been issued a U.S. RVSM authorization are required to conduct initial monitoring within 6 months of date of issue and must conduct monitoring every 2 years or within intervals of 1,000 flight hours per aircraft, whichever period is longer.

a) Operators are not required to complete monitoring prior to being granted operational approval.

b) Evidence of previous successful monitoring of an aircraft transfers to a new owner and may be used to meet the monitoring requirements.

c) When calculating the 1,000-hour provision of the minimum monitoring requirement, the calculation of the flight time should be from the last valid monitoring date on record. Flight logbook data should be sufficient to meet this element.

5) RVSM Minimum Monitoring Chart. Since only a sampling of airframes of each aircraft type need to be monitored, operators with more than one aircraft may not need to have every airframe monitored. Determine the number of airframes each operator is required to have monitored using the RVSM Minimum Monitoring Chart. The current version of this chart can be found on the FAA RVSM Documentation Web page in the Monitoring section.

6) Completion of Monitoring Requirement. The following methods satisfy monitoring requirements:

a) Entry of successful Aircraft Geometric Height Measurement Element (AGHME) or other approved ground-based monitoring system in the U.S. RVSM Approvals Database.

b) A report of a successful monitoring supplied by an FAA approved GPS-based provider.

c) Evidence provided through another ICAO-sponsored Regional Monitoring Agency, such as EUROCONTROL.

NOTE: Requests for monitoring results by monitoring agencies outside the United States should be coordinated through the FAA Technical Center Separation Standards Analysis Branch.

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7) Situations Where Monitoring Is Not Completed On Time. The FAA Technical Center Separation Standards Analysis Branch monitors RVSM airspace in North America and updates the U.S. RVSM Approvals Database to show the last date registered for a valid aircraft height monitoring.

a) In a situation where an operator fails to meet the minimum operator requirements for monitoring within the prescribed time limits in subparagraph 4) above, it is the operator's responsibility to contact the Flight Standards District Office (FSDO), certificate management office (CMO), certificate-holding district office (CHDO), or International Field Office (IFO) to discuss the situation and provide an updated plan for completing the monitoring requirements.

b) If warranted, the FSDO may provide a letter to the operator extending the period for monitoring, not to exceed 3 months, to allow the operator sufficient time to complete height monitoring. During this extension the operator may continue to operate in RVSM airspace. If an operator is unable to complete monitoring requirements within the extended time period, the inspector should coordinate action with AFS-400.

NOTE: PTRS data entry for extensions should be made utilizing Activity Code "nn13."

c) For the appropriate FSDO designation under "Other Actions" with the text, "On this date operator granted an "n" month extension until "mm/dd/yyyy" to meet the RVSM minimum monitoring requirements."

1. 1413 – Operations Activity Code,

2. 3413 – Airworthiness Activity Code, and

3. 5413 – Avionics Activity Code.

NOTE: PTRS data entry will provide an update to the RVSM Approvals Database. Page 3 of the PTRS Data Entry Job Aid provides codes for LOA withdrawal. The Job Aid is included in Volume 4, Chapter 10.

8) Altimetry System Error Reports (ASE-R). Aircraft monitored by the AGHME systems and those found to exhibit large ASE, values greater in magnitude than 200 feet, are investigated by the William J. Hughes FAA Technical Center Quality Control Team in conjunction with the North American Approvals Registry and Monitoring Organization (NAARMO). This group determines if an ASE-R should be generated to notify the operator and AFS HQ that an aircraft is exhibiting unsatisfactory height-keeping performance. The FAA Technical Center will utilize the ASE-R Job Aid when warranted. This job aid can be found at http://www.faa.gov/air_traffic/separation_standards/rvsm/documentation/.

9) Additional Information. Additional information relating to RVSM Monitoring can be found on the FAA RVSM Documentation Web page in the Monitoring section.

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10) Contacts for Questions. Direct your questions or comments concerning this guidance to AFS-400.

4-110 SPECIAL AREAS WHERE REDUNDANT LRNS ARE USUALLY NOT REQUIRED. Certain special areas have been identified where LRN can be conducted with an S-LRNS.

A. Concept. The provisions of §§ 91.511 and 121.351; part 125, § 125.203; and part 135, § 135.165 related to Class II navigation do not specifically require redundant or dual LRNS. The primary Class II navigation requirements are related to the level of navigational performance necessary for the control of air traffic. The objective of requirements for redundant navigational systems is to permit the flight to continue to navigate to the degree of accuracy necessary for the control of air traffic in the event a failure occurs in the navigational system being used.

B. Combination of Standard ICAO Ground-Based NAVAIDs and an S-LRNS.

1) Operations can also be safely conducted in much larger areas using a combination of redundant ICAO standard NAVAIDs and an S-LRNS. These operations consider:

- The availability of ICAO standard NAVAIDs,
- The lateral separation minimums applied by ATC (the navigational performance required),
- The length of the route or route segment,
- The complexity of the route structure, and
- The density of the air traffic.

2) Approval of the use of an S-LRNS may be granted by the issuance of OpSpec B054. It should be noted in OpSpec B050 in association with the applicable areas of operation.

C. WATRS. The WATRS, Caribbean Sea, and Gulf of Mexico routes are special case routes in which the use of an S-LRNS may be authorized for Class II navigation. These routes are located offshore in the WATRS CTA, the Caribbean, and Gulf of Mexico CTAs, as shown on en route charts and described in § 91.511.

NOTE: The WATRS is defined as North Atlantic Ocean west of a line that extends from 44°47’00” N/67°00’00” W to 39°00’00” N/67°00’00” W to 38°30’00” N/60°00’00” W, south along the long. 60°00’00” W line to the point where the line intersects with the northern coast of South America.

1) RNP for WATRS Plus CTAs. On June 5th, 2008, the FAA implemented a redesigned route structure with a reduced lateral separation on oceanic routes or areas in the WATRS Plus CTAs. The existing lateral route separation is 90 NM. The WATRS Plus initiative will reduce the separation to 50 NM between aircraft that are authorized with a NavSpec of RNP 10 or RNP 4.

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2) The WATRS Plus initiative builds upon the experience gained from:

- The FAA's introduction of the RNP 10 NavSpec for aircraft operating in the U.S.-controlled Pacific FIRs, and
- The ongoing operational trial with aircraft authorized for an RNP 4 NavSpec.

3) Reference material and compliance procedures for an RNP 10 NavSpec can be found in Order 8400.12. For RNP 4, use the material and procedures in the current edition of FAA Order 8400.33, Procedures for Obtaining Authorization for Required Navigation Performance 4 (RNP-4) Oceanic and Remote Area Operations. Job aids and further information concerning the applicable ICAO oceanic operational procedures are on the FAA Web site at https://www.faa.gov/pilots/intl/oceanic_ops/.

D. WATRS Procedural Areas. The current edition of FAA Order 7400.2, Procedures for Handling Airspace Matters, establishes the areas in which these operations are conducted to serve aircraft operations between U.S. territorial limits and oceanic CTA/FIR boundaries and/or domestic flights that operate in part over the high seas.

E. Special Provisions for the WATRS, Caribbean Sea, and Gulf of Mexico. The unique nature of the WATRS, the Caribbean Sea, and the Gulf of Mexico permits operations with turbine-powered airplanes and certain offshore helicopter operations to be safely conducted with an approved S-LRNS, in accordance with § 91.511(f).

F. Special Provisions for Certain Routes in NAT HLA. Special contingency routes have been established in limited portions of NAT HLA where aircraft equipped to use standard ICAO NAVAIDs can operate with an S-LRNS. These routes are specified in the International Flight Information Manual (IFIM). Operations over these routes can be authorized, provided the operator shows that the LRNS/aircraft combination used and the operational procedures used meet the NAT HLA requirements. (For guidance, refer to AC 120-33.) The approval is granted in accordance with OpSpec B054 and by adding that area of en route operation to the standard OpSpec B050.

G. Operational Approval for S-LRNS.

1) All Class II navigation operations must be conducted so that the aircraft is continuously navigated to the degree of accuracy established by ATC for operations in that airspace where applicable requirements are in force. For areas where these accuracy and navigation performance standards have not been formally established, the LRNS must be used to continuously navigate the aircraft. This is required so that the cross-track and/or the along-track errors will not equal or exceed 25 NM at any point along the flight plan route specified in the ATC clearance.

2) The navigation system must be operational, as required by OpSpec B039.

3) Before conducting any operations authorized by OpSpec B054, the flightcrew must be qualified in accordance with the certificate holder's approved training program for the system and procedures being used.

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4) Before entering any airspace requiring the use of an LRNS, the aircraft position will be accurately fixed and recorded using airways navigation facilities or ATC radar. After exiting this airspace, the aircraft position will be accurately fixed and the LRNS error must be determined and logged in accordance with the operator's approved procedures.

5) An LRNS fix may be substituted for a required en route ground facility when that facility is temporarily out of service, provided the approved navigation system has sufficient accuracy to navigate the aircraft to the degree of accuracy required by ATC over that portion of the flight.

6) At dispatch, at least one of the navigation systems listed below must be installed and operational:

a) At least one independent INS. INS and IRS must be approved in accordance with part 121 appendix G.

b) At least one FMS/navigation sensor combination (or equivalent), where the navigation system must be suitable for the route to be flown. Multisensor systems must be approved in accordance with the guidance contained in AC 20-138, or equivalent guidance.

c) At least one independent IFR-approved GPS navigation system, approved in accordance with one of the following:

1. The guidelines for operational approval of GPS to provide the primary means of Class II navigation in oceanic and remote areas of operation apply (refer to AC 91-70). The guidelines must be followed with the exception that the operational control restrictions related to fault detection and exclusion (FDE) do not apply. This is because S-LRNS operations in oceanic/remote areas have only been approved on short-duration routes with options available to use other NAVAIDs in the event of an LRNS malfunction.

2. The guidelines for using GPS for IFR en route and terminal operations, and for nonprecision instrument approaches in the U.S. NAS, apply. These guidelines allow for single GPS units that have receiver autonomous integrity monitoring (RAIM) capability (or equivalent) and are approved for IFR operations to serve as the S-LRNS on oceanic routes where an S-LRNS is allowed.

3. Flightcrew procedures must be in place in the event of the loss of the S-LRNS after dispatch. The certificate holder must ensure that the pilots are trained on procedures to continue to navigate and to communicate with ATC in the event of an S-LRNS malfunction.

4. The first area in which S-LRNS-equipped airplanes will be eligible for RNP 10 authorization is the Gulf of Mexico.

H. Other Special Areas. Inspectors cannot authorize operations with S-LRNS in any other areas of operation without the review and concurrence of the NextGen oceanic specialists and AFS-400.

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1) When a request to operate with S-LRNS in areas not described in this paragraph is received, inspectors must request assistance from one of the agency's NextGen oceanic specialists. If the responsible inspector and the NextGen oceanic specialist determine that the proposed operation can be safely conducted, a request for review and concurrence should be forwarded, through the RFSD, to AFS-400.

2) In general, the following are necessary for consideration of this request:

- The required justification for the request, and
- The ability to comply with the limitations and provisions set forth in the applicable guidance and OpSpec B054 for the authorization of the S-LRNS in another area.

4-111 PERFORMANCE-BASED EN ROUTE OPERATIONS.

A. Performance-Based En Route High Altitude RNAV Routes. The first performance-based en route high altitude RNAV routes were published in 2004 as Q Routes. The performance requirement for these operations is a 95 percent accuracy of 2 NM and the route widths for this implementation are a conventional + 4 NM. This performance level is specified as RNAV-2. RNAV systems for this type of operation will be updated with GPS or DME/DME/IRU to obtain the required accuracy. DMEs along Q Routes are also evaluated so that none are identified as critical in nature to support the route. Operators need to be aware that only DMEs that are part of the NAS can be used (normally no Tactical Air Navigational Aid (TACAN)). If DMEs are in test mode radiating a signal, they may not be used in navigation solution. Q Route operations must be approved in accordance with the current edition of AC 90-100, U.S. Terminal and En Route Area Navigation (RNAV) Operations.

B. Performance-Based Operations Aviation Rulemaking Committee (PARC). The PARC has recommended that the FAA establish en route operations throughout the performance-based NAS with a route-to-route separation of 8 NM and obstacle clearance standards of ± 4 NM. These operations will initially be based on a required performance level of RNAV-2 and will use radar as an operational mitigation. The PARC also recommended that RNP aircraft with an en route performance of RNP 2 or better should also be authorized to conduct these operations. In 2005, the FAA began to implement those recommendations.

RESERVED. Paragraphs 4-112 through 4-125.

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VOLUME 4 AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATION

CHAPTER 2 ALL WEATHER TERMINAL AREA OPERATIONS

Section 9 Reserved

RESERVED. Paragraphs 4-381 through 4-415.

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VOLUME 4 AIRCRAFT EQUIPMENT AND OPERATIONAL AUTHORIZATIONS

CHAPTER 14 GENERAL OPERATING AND FLIGHT RULES—MAINTENANCE ISSUES

Section 7 Reserved

RESERVED. Paragraphs 4-1501 through 4-1525.

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VOLUME 6 SURVEILLANCE

CHAPTER 2 PART 121, 135, AND 91 SUBPART K INSPECTIONS

Section 9 Safety Assurance System: Cockpit En Route Inspections

6-372 RECORDING OF ACTIVITIES. Use Safety Assurance System (SAS) automation. This section is related to SAS Elements:

- Element 3.3.1 (OP), Operational Control.
- Element 3.3.2 (OP), Dispatch/Flight Release.
- Element 3.3.3 (OP), Flight/Load Manifest/Weight & Balance Control.
- Element 3.3.4 (OP), MEL/CDL/NEF Procedures.
- Element 3.3.5 (OP), Extended Operations (ETOPS).
- Element 5.2.1 (OP), Crewmember Duties/Cabin Procedures.
- Element 5.2.2 (OP), Carry-on Baggage Program.
- Element 5.2.3 (OP), Exit Seating Program.
- Element 5.2.4 (OP), Passenger Handling.

6-373 OBJECTIVE OF EN ROUTE INSPECTIONS. The primary objective of cockpit en route inspections is for an inspector to observe and evaluate the in-flight operations of a certificate holder within the total operational environment of the air transportation system. En route inspections are one of the Federal Aviation Administration's (FAA) most effective methods of accomplishing its air transportation surveillance objectives and responsibilities. These inspections provide the FAA with an opportunity to assess elements of the aviation system that are both internal and external to an operator.

A. Elements of the Aviation System Internal to the Operator. Elements of the aviation system that are internal to the operator and can be observed during en route inspections are items such as the following:

- Crewmembers,
- Operator manuals and checklists,
- Use of minimum equipment lists (MEL) and Configuration Deviation Lists (CDL),
- Operational control functions (e.g., dispatch, flight following, flight locating),
- Use of checklists, approved procedures, and safe operating practices,
- Crew coordination/cockpit resource management,
- Cabin safety,
- Aircraft condition and servicing, and
- Training program effectiveness.

B. Elements of the Aviation System External to the Operator. Elements of the aviation system that are external to the operator and can be observed during en route inspections are items such as the following:

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- Airport/heliport surface areas,
- Ramp/gate activities,
- Airport construction and condition,
- Aircraft movements,
- Air traffic control (ATC) and airway facilities,
- ATC and airspace procedures,
- Instrument approach procedures (IAP),
- Standard Instrument Departures (SID),
- Standard Terminal Arrival Routes (STAR),
- Navigational aids, and
- Communications.

6-374 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 of the Code of Federal Regulations (14 CFR) parts 1, 61, 91, 121, 125, and 135.
- FAA Order 8000.38, Aviation Safety Inspector Credential Program.
- FAA Order 8000.75, Aviation Safety Inspector En route Inspection Procedures.
- FAA Order 8900.1, Volume 3, Chapter 2, Section 1, paragraph 3-42, Admission to the Flight Deck—Physical, Cognitive, and Language Capabilities.
- The operator's manual.

B. Forms. FAA Form 8430-13, Request for Access to Aircraft.

C. Job Aids. None.

6-375 GENERAL INSPECTOR GUIDANCE. General inspector guidance regarding the following is contained in FAA Order 8000.75:

- Inspector qualifications,
- Authorization to conduct an en route inspection,
- Scheduling of an en route inspection,
- Cockpit en route inspections by aviation safety inspectors (ASI),
- Conduct on an en route inspection,
- Duty time,
- Reporting/recording procedures, and
- Issuance/control of FAA Form 8430-13.

6-376 COCKPIT EN ROUTE INSPECTION AREAS. Inspectors should consider all inspection areas, both internal and external to the operator, to be of equal importance.
Four general inspection areas have been identified for observation and evaluation by inspectors during en route inspections. All inspection areas may not be assessed during each en route inspection. These inspection areas are as follows:

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- Crewmember,
- Flight conduct,
- Airport/heliport, and
- ATC/airspace.

A. The Crewmember Inspection Area. The crewmember inspection area applies to both flightcrew members and cabin crewmembers. Inspectors should evaluate such items as crewmember knowledge, ability, and proficiency by directly observing crewmembers performing their respective duties and functions. The applicable job aid contains a list of reminder items that should be observed in the crewmember inspection area. These items are not all inclusive, but represent the types of items inspectors should evaluate during a cockpit en route inspection.

B. The Flight Conduct Inspection Area. The flight conduct inspection area relates to 10 specific phases of flight that can be observed during an en route inspection. The job aid contains a list of the items that should be evaluated by inspectors during these phases of flight. These items are not all-inclusive and, in some cases (such as powerback), may not be applicable to the flight conducted. Inspectors are, however, encouraged to observe, evaluate, and report on as many of these items as possible.

NOTE: Inspectors that are unfamiliar with the operator's specific procedures for operating the aircraft should comment in their inspection reports on any item they believe should be brought to the principal operations inspector's (POI) attention. Inspectors must use good judgment concerning whether to comment on these items when debriefing crewmembers.

C. The Airport/Heliport Inspection Area. The airport/heliport inspection area pertains to the various elements of airports or heliports that are passed through during the flight such as runways, taxiways, ramps, and aircraft ground movements. Inspectors should observe and evaluate as many of these elements as possible during an en route inspection.

D. The ATC/Airspace Inspection Area. The ATC/airspace inspection area pertains to the various elements of ATC and national or international airspace systems. These elements should be observed and evaluated by inspectors during en route inspections. From an operational standpoint, these evaluations are a valuable information source that can be used, not only to enhance safety with respect to ATC and the airspace system, but also to enhance the effectiveness of en route and terminal facilities and procedures.

E. Other Inspection Areas. Although these four general inspection areas cover a wide range of items, they are not the only areas that can be observed and evaluated during cockpit en route inspections. Inspectors may have the opportunity to evaluate many other areas, such as line station operations, flight control procedures, and flight attendants (F/A) in the performance of their duties. These types of inspection areas can often be observed before a flight begins, at en route stops, or at the termination of a flight.

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6-377 SPECIFIC COCKPIT EN ROUTE INSPECTION PRACTICES AND PROCEDURES.

A. Familiarization with the Operator's Procedures and Facilities. Before conducting en route inspections, it is important that inspectors become familiar with the operating procedures and facilities used by the operator. Inspectors can obtain such familiarization by reviewing pertinent sections of the operator's manuals and by asking questions of, and obtaining briefings from, the POI or other inspectors who are acquainted with the operator's procedures and facilities. The inspector is encouraged to comment on any procedure believed to be deficient or unsafe in the inspection report. The inspector must use good judgment, however, when debriefing crewmembers about procedures that may be specifically approved for that operator.

B. Coordination with Assigned Operators. POIs are responsible for coordinating with their assigned operators to ensure that each operator has established procedures to be used by inspectors for scheduling the observer's seat (jump seat). POIs must ensure that an operator's procedures allow inspectors to have free, uninterrupted access to the jump seat. Inspectors should, however, make jump seat arrangements as far in advance as possible. Since inspectors may have sudden changes in schedule, and may not always be able to provide the appropriate advance notice, POIs must ensure that the operator's procedures are flexible and permit use of an available jump seat on short notice.

C. Avoiding Disruption of Operations. Whenever possible, inspectors should plan cockpit en route inspections in a manner that will avoid disruption of operator-scheduled line checks and initial operating experience (IOE) flights. Should an inspector arrive for a flight and find a line check or IOE in progress, the inspector must determine whether or not it is essential that the cockpit en route inspection be conducted on that flight. If it is essential, the operator must be so advised by the inspector and must make the jump seat available to the inspector. If the cockpit en route inspection can be rescheduled and the objectives of the inspection can still be met, the inspector should make arrangements to conduct the inspection on another flight. When a required checkride is being conducted by a check airman from the forward jump seat and the en route inspection is essential, the inspector should occupy the second jump seat, if one exists. On IOE flights, the check airman should normally occupy one of the pilot seats and the inspector should occupy the forward jump seat. When it is essential that the en route inspection be conducted on an aircraft that does not have two jump seats, the check airman must occupy a pilot seat and the inspector should occupy the jump seat. In such a case, the flightcrew member not being checked must either be seated in the cabin or not accompany the flight.

D. Arriving at the Operations Inspection Facility. An inspector should begin a cockpit en route inspection a reasonable amount of time before the flight (approximately 1 hour) by reporting at the operations area or at the gate, as specified by the POI. There the inspector must first complete the necessary jump seat paperwork for inclusion in the operator's passenger manifest and Weight and Balance (W&B) documents. The inspector should then locate the flightcrew. After the inspector gives a personal introduction to the flightcrew, which includes presentation of the current edition of FAA Form 110A, Aviation Safety Inspector's Credential, the inspector must inform the pilot in command (PIC) of the intention to conduct an en route inspection. The inspector should then request that, at a time convenient for the flightcrew, the flightcrew present both their Airman and medical certificates to the inspector for examination.

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Also, the inspector should request that, at a convenient time, the flightcrew present flight information such as weather documents, Notices to Airmen (NOTAM), planned route of flight, dispatch or flight release documents, and other documents with information about the airworthiness of the aircraft to the inspector for examination.

E. Informing the Flightcrew of the Inspection. Sometimes an inspector cannot meet and inform the PIC of the intention to conduct an en route inspection before boarding the aircraft. In such a case, when boarding the aircraft, the inspector should make appropriate introductions, present FAA Form 110A for the PIC's inspection at the earliest convenient opportunity, and inform the flightcrew of an intention to conduct a cockpit inspection. In this situation, an F/A will usually be at the main cabin entrance door. One of the F/A's primary duties is to ensure that only authorized persons enter the aircraft, such as ticketed passengers, caterers, and authorized company personnel. Therefore, an inspector should be prepared to present FAA Form 110A and any applicable jump seat paperwork to the F/A as identification before entering the cockpit. When boarding the aircraft, an inspector should also avoid unnecessarily impeding passenger flow or interrupting F/As during the performance of their duties. Also, during this time an inspector usually has ample opportunity to observe and evaluate the operator's carry-on baggage procedures and the gate agent's or F/A's actions concerning oversized items. Once inside the cockpit, the inspector should request an inspection of each flightcrew member's Airman and medical certificates, if not previously accomplished. When the flightcrew has completed reviewing the aircraft logbooks (or equivalent documents), the inspector should inspect the logbooks to determine the airworthiness status of the aircraft.

F. The Inspector's In-Flight Responsibilities. The inspector should wear a headset during the flight. During cockpit en route inspections, inspectors must try to avoid diverting the attention of flightcrew members performing their duties during "critical phases of flight." Inspectors must be alert and point out to the flightcrew any apparent hazards, such as conflicting traffic. If during an en route inspection, an inspector becomes aware of a potential violation or that the flightcrew is violating a regulation or an ATC clearance, the inspector must immediately inform the PIC of the situation.

G. Recording En Route Observations. A principal inspector (PI) may combine questions from two or more different Data Collection Tools (DCT) to make a Custom DCT (C DCT). This will focus the inspector's attention on specific inspection areas to be observed and evaluated. Unplanned items may also be evaluated during an en route inspection that are not a part of the DCT. For such items, a Dynamic Observation Report (DOR) should be used to capture the observations. Inspectors can print the DCT to make notes during the inspection, which can later be transferred to the SAS automation.

6-378 CONDUCT OF SPECIFIC COCKPIT EN ROUTE INSPECTION.

A. Safety Briefing and Radio Monitoring. Once situated in the cockpit, the inspector should check the jump seat oxygen and emergency equipment (if applicable) and connect the headset to the appropriate interphone system. The PIC or a designated crewmember should offer to give the inspector a safety briefing. If the PIC does not make such an offer, the inspector should request a briefing. It is important that the inspector monitor all radio frequencies being used by the flightcrew to properly evaluate ATC procedures, flightcrew compliance,

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transmission clarity, and radio phraseology. The monitoring of these frequencies also ensures that the inspector does not inadvertently interfere with any flightcrew communications. Inspectors should continuously monitor these frequencies to remain aware of the progress of the flight.

B. Crewmember Certificates and Identification. There have been several occasions in which pilots have operated certificate holder aircraft without having in their personal possession Airman Certificates and current medical certificates. In some cases, pilots have operated for long periods of time with suspended certificates. The inspector should ensure the following:

1) For part 121 operations:

a) The PIC must have in possession the following:

- Photo identification as required by part 61, § 61.3(a)(2),
- An airline transport pilot (ATP) certificate,
- A first-class medical certificate, which is valid for 12 months for pilots under 40 years old and for 6 months for pilots who are 40 years of age or older, and
- Appropriate type rating for the aircraft being operated.

b) The second in command (SIC) must have in possession the following:

1. For part 121 domestic operations, flag, or supplemental operations requiring only two pilots:

- Photo identification as required by § 61.3(a)(2),
- An ATP certificate with appropriate aircraft type rating or an ATP certificate with restricted privileges and an appropriate aircraft type rating, and
- At least a second-class medical certificate, which is valid for 12 months.

NOTE: For those pilots who are employed as an SIC in part 121 operations on July 31, 2013, compliance with the type rating requirement in part 121, § 121.436(b) is not required until January 1, 2016.

2. For part 121 flag or supplemental operations requiring three or more pilots:

- Photo identification as required by § 61.3(a)(2);
- An ATP certificate with appropriate aircraft type rating. In this scenario, a pilot must hold an ATP certificate issued per the requirements of § 61.159. An ATP certificate issued per the reduced flight hours in § 61.160 is not sufficient; and
- A first-class medical certificate, which is valid for 12 months for pilots under 40 years old and for 6 months for pilots who are 40 years of age or older.

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c) Flight Engineers (FE) must have in their possession the following:

- An appropriate FE's certificate, and
- A second-class medical certificate, which is valid for 12 months.

2) For part 135 operations:

a) The PIC must have in possession the following:

1. For operations in turbojets, aircraft with 10 or more passenger seats, or scheduled multiengine commuter operations:

- Photo identification as required by § 61.3(a)(2),
- An ATP certificate,
- A first-class medical certificate, which is valid for 12 months for pilots under 40 years old and 6 months for pilots who are 40 years of age or older, and
- An appropriate type rating for the aircraft being operated.

2. For operations not described in subparagraph 6-378B2)a)*1*:

- Photo identification as required by § 61.3(a)(2),
- A commercial pilot certificate with an instrument rating for the aircraft being operated, and
- At least a second-class medical certificate, which is valid for 12 months.

b) The SIC must have in possession the following:

- Photo identification as required by § 61.3(a)(2),
- A commercial pilot certificate with an instrument rating for the aircraft being operated, and
- At least a second-class medical certificate, which is valid for 12 months.

c) FEs must have in their possession the following:

- An appropriate FE's certificate, and
- A second-class medical certificate, which is valid for 12 months.

C. Exemptions. If any required crewmember does not have a pilot certificate and/or medical certificate in their possession, the operator may have an approved process in place for lost/missing Pilot and/or Medical Certificates generated from an exemption.

D. Violations. If the flightcrew members do not have the proper, current certificates in their possession and the operator does not have an approved method via exemption:

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1) Advise the offending crewmembers that they will be in violation of § 61.3 and/or 14 CFR part 63, § 63.3.

2) If the flightcrew members still elect to operate the aircraft without having the appropriate certificates in their possession:

a) Deplane,

b) Terminate this inspection, and

c) Immediately notify the operator's operations center.

E. Load Manifests.

1) Ensure the load manifest contains the following information:

- The number of passengers,
- The total weight of the loaded aircraft,
- The maximum allowable takeoff weight for that flight,
- The center of gravity (CG) limits,
- The actual CG of the loaded aircraft, unless the aircraft is loaded according to an approved loading schedule,
- The registration number of the aircraft or the flight number,
- The origin and destination of the flight, and
- The identification of the flightcrew members and their respective position assignments.

2) Ensure the proper fuel load is on board by comparing fuel gauges to the minimum fuel required for dispatch. This fuel requirement is normally found on the dispatch release.

F. Crewmember Observations. Inspectors should observe and evaluate the crew during each phase of flight. This should include an evaluation of crewmember adherence to approved procedures and a proper use of all checklists. The inspector should also observe the PIC's crew management techniques, delegation of duties, and overall conduct. All crewmembers must follow sterile cockpit procedures. Some of the areas that should be observed and evaluated during each flight phase are as follows:

1) Preflight. Inspectors should determine that the flightcrew has all the necessary flight information, including the appropriate weather, dispatch, or flight release information, flight plan, NOTAMs, and W&B information. MEL items should be resolved in accordance with the operator's MEL and appropriate maintenance procedures. Inspectors should observe the flightcrew performing appropriate exterior and interior preflight duties in accordance with the operator's procedures.

2) Predeparture. Inspectors should observe the flightcrew accomplishing all predeparture checklists, takeoff performance calculations, and required ATC communications. The flightcrew should use coordinated communications (via hand signals or the aircraft

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interphone) with ground personnel. Often, pushback or powerback clearance must be obtained from the appropriate ATC or ramp control facility. When W&B information is transmitted to the aircraft by company radio during the outbound taxi, the flightcrew should follow the operator's procedures as to which crewmember receives the information and completes the final takeoff performance calculations and which crewmember monitors the ATC frequency. The inspector should observe the following:

- Accomplishment of checklists during taxi,
- Adherence to taxi clearances,
- Control of taxi speed,
- Compliance with hold lines, and
- Flightcrew conduct of a pretakeoff briefing in accordance with the operator's procedures.

3) Takeoff. The takeoff procedure should be accomplished as outlined in the operator's approved maneuvers and procedures document. Inspectors should observe and evaluate the following items or activities during the takeoff phase:

- Aircraft centerline alignment,
- Use of crosswind control techniques,
- Application of power to all engines,
- Takeoff power settings,
- Flightcrew callouts and coordination,
- Adherence to appropriate takeoff or V-speeds,
- Rate and degree of initial rotation,
- Use of flight director (FD), autopilot, and autothrottles,
- Gear and flap retraction schedules and limiting airspeeds, and
- Compliance with the ATC departure clearance or with the appropriate published departure.

4) Climb. The climb procedure should be conducted according to the outline in the operator's approved maneuvers and procedures document. Inspectors should observe and evaluate the following items and activities during the climb phase of flight:

- Climb profile/area departure,
- Airspeed control,
- Navigational tracking/heading control,
- Powerplant control,
- Use of radar, if applicable,
- Use of autoflight systems,
- Pressurization procedures, if applicable,
- Sterile cockpit procedures,
- Vigilance,
- Compliance with ATC clearances and instructions, and
- After-takeoff checklist.

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5) Cruise. Procedures used during cruise flight should conform to the operator's procedures. Inspectors should observe and evaluate the following areas during the cruise phase of flight:

- Cruise mach/airspeed control,
- Navigational tracking/heading control,
- Use of radar, if applicable,
- Use of turbulence procedures, if applicable,
- Monitoring fuel used compared to fuel planning,
- Awareness of mach buffet and maximum performance ceilings,
- Coordination with cabin crew,
- Compliance with oxygen requirements, if applicable,
- Vigilance, and
- Compliance with ATC clearances and instructions.

6) Descent. Procedures used during descents should conform to the operator's procedures. Inspectors should observe and evaluate the following areas during the descent phase of flight:

- Descent planning,
- Crossing restriction requirements,
- Navigational tracking/heading control,
- Use of radar, if applicable,
- Awareness of maximum operating limit speed (V_{MO}/M_{MO}) and other speed restrictions,
- Compliance with ATC clearance and instructions,
- Use of autoflight systems,
- Pressurization control, if applicable,
- Area/situational awareness,
- Altimeter settings,
- Briefings, as appropriate,
- Coordination with cabin crew,
- Sterile cockpit procedures,
- Completion of appropriate checklist, and
- Vigilance.

7) Approach. Procedures used during the selected approach (instrument or visual) should be accomplished as outlined in the operator's maneuvers and procedures document. Inspectors should observe and evaluate the following areas during the approach phase of flight:

- Approach checklists,
- Approach briefings, as appropriate,
- Compliance with ATC clearances and instructions,
- Navigational tracking/heading and pitch control,
- Airspeed control, reference speed for final approach (V_{REF}),

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- Flap and gear configuration schedule,
- Use of FD, autopilot, and autothrottles,
- Compliance with approach procedure,
- Sinkrates,
- Stabilized approach in the full landing configuration,
- Flightcrew callouts and coordination, and
- Transition to visual segment, if applicable.

G. Landing. Procedures used during the landing maneuver should conform to those outlined in the operator's maneuvers and procedures document. Inspectors should observe and evaluate the following areas during the landing phase of flight:

- Before-landing checklist,
- Threshold crossing height,
- Aircraft centerline alignment,
- Use of crosswind control techniques,
- Sinkrates to touchdown,
- Engine spool up considerations,
- Touchdown and rollout,
- Thrust reversing and speedbrake procedures,
- Use of autobrakes, if applicable,
- Braking techniques,
- Diverting attention inside the cockpit while still on the runway, and
- After-landing checklist.

1) Pre-Arrival. Pre-arrival and parking procedures should conform to the operator's procedures as outlined in the appropriate manual. Inspectors should evaluate crew accomplishment of after-landing checklists, ground crew parking, and passenger deplaning procedures.

2) Arrival. Inspectors should observe and evaluate the flightcrew as they complete postflight duties such as postflight checks, aircraft logbook entries, and flight trip paperwork completion and disposition.

H. Other Inspection Areas. During the en route inspection, inspectors should observe and evaluate other inspection areas, such as ATC and airspace procedures and airports or heliports that the flight transits during the cockpit en route inspection.

1) When evaluating airports or heliports, inspectors should observe the condition of surface areas, such as ramp and gate areas, runways, and taxiways. The following list contains other areas that may be observed and evaluated by inspectors during cockpit en route inspections:

- Taxiway signs, markers, sterile areas, and hold lines,
- Ramp vehicles, equipment, and movement control,
- Aircraft servicing, parking, and taxi operations,

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- Obstructions, construction, and surface contaminants (such as ice, slush, snow, fuel spills, rubber deposits, etc.),
- Snow control, if applicable, and
- Security and public safety.

2) During cockpit en route inspections, inspectors have the opportunity to observe and evaluate ATC operations and airspace procedures from the vantage point of the aircraft cockpit. Inspectors may observe and evaluate the following areas from the cockpit:

- Radio frequency congestion, overlap, or blackout areas,
- Controller phraseology, clarity, and transmission rate,
- Automated terminal information service,
- Use of full call signs,
- Simultaneous runway use operations,
- Clearance deliveries,
- Acceptable and safe clearances,
- Aircraft separation standards, and
- Acceptability of IAPs, departure procedures, and feeder routings.

I. Debrief Crew. After the flight has been terminated, the inspector must debrief the crew on any discrepancies observed and on any corrective actions that should be taken. If the inspector observed a violation during the flight and intends to recommend enforcement action or intends to make critical comments concerning the crew's performance, the inspector must inform the flightcrew during the debriefing.

6-379 AIRCRAFT AIRWORTHINESS PORTION OF THE COCKPIT EN ROUTE INSPECTION.

A. General Guidance. Open discrepancies or improperly deferred MEL items have been discovered in maintenance records just prior to departure. The resulting corrective actions have resulted in lengthy delays.

1) Regulations require that maintenance be recorded when performed. Procedures for ensuring that these recording requirements are met are described in the operator's maintenance procedures manual.

2) The manual contains specific instructions on when an airworthiness release or record entry is required. All discrepancies entered in the record must either be corrected or deferred using the methods identified in the operator's maintenance procedures manual. The ASI must become familiar with the operator's maintenance record handling procedures.

B. Aircraft Maintenance Record Inspection. The inspector should:

NOTE: Notify the appropriate operator personnel immediately of any discrepancies noted during this inspection.

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1) Ensure the following:

- Maintenance/airworthiness releases are current,
- No open items exist,
- All discrepancies are corrected or properly deferred, and
- MEL items were deferred per the procedural and placarding requirements of the operator's approved program.

2) Ensure the length of deferrals is not exceeded by reviewing the following:

- Maintenance record pages,
- Deferred maintenance list, and
- Deferred maintenance placards/stickers.

3) Ensure that the maintenance records contain the following for each discrepancy:

- A description of work performed or reference to acceptable data,
- The name of the person performing the work, if outside the organization, and
- The name or other positive identification of the person approving the work.

4) Determine if repetitive problems indicate a trend.

NOTE: If actions taken by the operator do not comply with regulatory requirements or the operator's manual, terminate the inspection. Advise the operator of the noncompliance and the possibility of enforcement action.

C. Interior Inspection. This inspection should be performed without disturbing the loading and/or unloading of the passengers. Any discrepancies noted should be brought immediately to the attention of the flightcrew. Perform the interior inspection per the guidance in Figure 6-18, Interior Inspection Guidelines, in Volume 6, Chapter 2, Section 4, Ramp Inspections for Part 91 Subpart K Operators and Part 121 and 135 Air Carriers.

D. Exterior Inspection. The inspector should accompany a crewmember on the exterior walk-around to determine the thoroughness of the crewmember's inspection. It is important to be aware of the type of maintenance and servicing activities being accomplished. Perform the exterior inspection per the guidance in Figure 6-19, Exterior Inspection Guidelines, in Volume 6, Chapter 2, Section 4.

E. In-Flight Monitoring.

1) This phase of the inspection provides the opportunity to monitor aircraft systems and evaluate the effectiveness of maintenance performed to correct maintenance record discrepancies.

2) ASIs have different degrees of pilot skills, and the Airworthiness ASI performing an en route inspection is not there to evaluate the competency of the flightcrew. However, if

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obvious discrepancies are noted, such as a deviation from assigned altitude or other operational procedure, they must be brought to the attention of the PIC and the assigned POI.

3) While conducting an en route inspection, do not manipulate, operate, select, or deselect any switches, circuit breakers, or controls.

6-380 CARGO/COMBINATION-CONFIGURED AIRCRAFT.

A. Inspection results have disclosed instances of significant aircraft structural damage resulting from the careless loading of cargo, such as:

- Torn or punctured liners indicating hidden damage to circumferential stringers, fuselage skin, and bulkheads.
- Damaged rollers, ball mats, etc. causing significant structural damage to the floors.
- Severe corrosion, fire, and structural damage resulting from the improper handling of some hazardous materials (hazmat).

B. The surveillance of hazmat handling is not the primary function of the cockpit en route inspection. If discrepancies are noted in the handling of hazmat, contact the appropriate FAA security division.

6-381 DEFERRED MAINTENANCE.

A. MEL Deferred Maintenance. The operator's approved MEL allows the operator to continue a flight or series of flights with certain inoperative equipment. The continued operation must meet the requirements of the MEL deferral classification and the requirements for the equipment loss.

B. Other Deferred Maintenance.

1) Operators frequently use a system to monitor items that have previously been inspected and found to be within serviceable limits. These items are still Airworthy, yet warrant repair at a later time or when items no longer meet serviceable limits. This method of deferral may require repetitive inspections to ensure the continuing airworthiness of the items. Examples of items that are commonly deferred in this manner are fuel leak classifications, dent limitations, and temporary (Airworthy) repairs.

2) Passenger convenience item (not safety/airworthiness-related) deferrals should be handled according to the operator's program guidelines.

C. Approved Maintenance Program. The operator's approved maintenance program must provide for the prompt and orderly repairs of inoperative items.

6-382 ASI BAGGAGE. The ASI must conform to the operator's approved carry-on baggage program. If there is any concern that the baggage will exceed operator limitations, it should be checked. The ASI's identification (FAA Forms 110A and 8430-13) is adequate documentation for the operator to check the baggage.

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6-383 TASK OUTCOMES. For parts 121 and 135, follow SAS guidance for Modules 4 and 5.

A. Recording the Use of FAA Form 8430-13. ASIs that have been trained in SAS will record the FAA Form 8430-13 number in the appropriate SAS DCT. ASIs that have not been trained in SAS will record the FAA Form 8430-13 number in Enhanced Flight Standards Automation System (eFSAS) via Program Tracking and Reporting Subsystem (PTRS).

NOTE: You may record the same FAA Form 8430-13 number in both SAS and the PTRS if required by the activity.

B. Complete the Task. Completion of this task can result in the following:

- Satisfactory inspection, or
- Requirement for a follow-up inspection for a specific discrepancy.

C. Document the Task. File all supporting paperwork in the operator's office file.

6-384 FUTURE ACTIVITIES. Follow SAS guidance.

RESERVED. Paragraphs 6-385 through 6-400.

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CHAPTER 2 PART 121, 135, AND 91 SUBPART K INSPECTIONS

Section 12 Safety Assurance System: Over-Water En Route Inspections for Parts 121 and 135

6-441 REPORTING SYSTEM(S). Use Safety Assurance System (SAS) automation for:

- Element 2.3.1 (OP), Appropriate Operational Equipment.
- Element 3.3.1 (OP), Operational Control.
- Element 3.3.2 (OP), Dispatch/Flight Release.
- Element 3.3.3 (OP), Flight/Load Manifest/Weight & Balance Control.
- Element 3.3.4 (OP), MEL/CDL/NEF Procedures.
- Element 3.3.5 (OP), Extended Operations (ETOPS).
- Element 5.2.1 (OP), Crewmember Duties/Cabin Procedures.

6-442 GENERAL. This section contains information, direction, and guidance to be used by inspectors when conducting over-water en route inspections. This section contains background information on the general navigational principles with which the certificate holder and flightcrews must comply, definitions of relevant terminology, and specific guidance to be used by inspectors when observing flightcrews as they conduct Class II navigation. Inspectors should refer to Section 9 of this chapter, and the current edition of Advisory Circular (AC) 120-47, Survival Equipment for Use in Overwater Operations, for information and guidance related to cockpit en route inspections.

6-443 BACKGROUND. Although navigation errors are infrequent, human errors have accounted for most incidents involving navigation. In most cases, the errors have occurred when the navigation equipment was functioning normally, but the prescribed operating procedures were either inadequate or not followed. Before receiving approval to conduct Class II long-range navigation (LRN), certificate holders must demonstrate competence by using these procedures in validation tests. Certificate holders must develop programs that effectively train flightcrews in LRN. The certificate holder's line check programs must ensure a high degree of cockpit discipline. Inspectors should, therefore, become familiar with the certificate holder's specific procedures.

> NOTE: Refer to the current editions of 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 Extended Operations (ETOPS) authorization process. The current editions of AC 120-33, Operational Approval of Airborne Long-Range Navigation Systems for Flight within the North Atlantic Minimum Navigation Performance Specifications Airspace, and AC 91-70, Oceanic and International Operations, both contain guidance to be used by certificate holders for developing adequate procedures.

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6-444 DEFINITIONS OF TERMS. The following definitions appear in publications such as the Aeronautical Information Manual (AIM) and are repeated for inspectors using this order for both convenience and clarity:

A. Cross-Checking. Cross-checking is the act of verification. Cross-checking involves matching a set of test data against a set of master data to detect deviations in sequence or content.

B. Dead Reckoning (DR). Navigation conducted solely by calculating the effect of known or estimated winds to predict drift, groundspeed, track, and time en route.

C. Fix. A measurement that establishes an aircraft's position at a specific time. A fix may be taken by range and bearing from a standard NAVAID, location by an electronic long-range navigational device, or location by a celestial observation.

D. Gateway. A specific fix at which a transition from Class I to long-range Class II navigation occurs, or vice versa. A gateway must be established so that a positive fix can be established by International Civil Aviation Organization (ICAO) Class I NAVAIDs.

E. Long-Range Class II Navigation. Navigation conducted outside the ICAO standard service volume. Class II navigation requires either a properly qualified flight navigator and the use of celestial navigation equipment or electronic long-range equipment, such as inertial navigation system (INS), Doppler, inertial reference system (IRS), flight management system (FMS), Global Navigation Satellite System (GNSS), or Global Positioning System (GPS).

F. North Atlantic High Level Airspace (NAT HLA). NAT HLA is that airspace located outside the ICAO standard service volume in which minimum standards for adhering to track are required by international agreement. These standards contain minimum separation between parallel tracks. Operations within NAT HLA require special training, navigation equipment, and adherence to specified procedures besides those required for Class II navigation.

NOTE: ICAO NAT Doc 007, North Atlantic Operations and Airspace Manual, contains details on NAT HLA operations.

G. Standard Service Volume. That airspace in which navigation signal coverage is provided from standard ICAO Navigational Aids (NAVAID) (such as very high frequency omni-directional range stations (VOR), distance measuring equipment (DME), and Non-Directional Beacons (NDB)).

H. Track Messages. In the North Atlantic track system, the bulk of air traffic flows east to west early in the day and west to east in the latter part of the day. As a result, early in the day most of the available tracks are east to west, and later in the day most of the available tracks are west to east. The assigned tracks also move north and south to take advantage of, or to avoid, winds. Available tracks for both eastbound and westbound flights vary approximately every 12 hours. ATC selects track coordinates and publishes them in a track message. Track messages provide track coordinates, available flight levels, and gateways. An aircraft that operates on the organized track system (OTS) must have a copy of the track message for the current period in the cockpit.

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I. Waypoint. A point in space specified for navigation, flight planning, and air traffic control (ATC) reporting purposes. A waypoint differs from a checkpoint in that it does not necessarily represent a distinguishable landmark.

6-445 FLIGHT PLANNING. AC 91-70 contains general information and guidance for planning oceanic flights. When evaluating this area, inspectors should use the following guidance:

A. Computerized Flight Plans. Even though most certificate holders use computerized flight plans, all flight plans must still be carefully checked to ensure accuracy. The routing on flight plans must be cross-checked against navigational charts and track messages. Flight plans must also be legible.

B. Waypoint Numbering. After a flight plan is checked, the waypoints should be numbered. Many automatic navigation systems can accept only nine waypoints. Waypoints may be numbered sequentially, initially starting with 1 and going up to 9; then the tenth waypoint can be numbered 1, the eleventh 2, and so on. Other navigation systems, such as FMS, can accept 100 or more waypoints. In such cases it is acceptable for waypoints to be numbered progressively. When more than one type of navigational device is in use (e.g., INS and FMS), the waypoints must be numbered so that they correspond to both devices. In this example, one acceptable practice is to number the first nine waypoints in the FMS as 11 through 19, the second set of waypoints as 21 through 29, and so on.

C. Plotting Chart. The planned route must be drawn on a plotting chart of appropriate scale (1 inch to 120 nautical miles (NM)). All waypoints on the plotting chart must be cross-checked against the master flight plan.

D. Notices to Airmen (NOTAM) and Pilot Reports (PIREP). Current NOTAMs must be available and checked to ensure that the required stations are in service for GPS operations. PIREPs must also be checked to ensure that the actual winds are the same as the winds in the forecast.

6-446 COCKPIT SETUP. Cockpit setup begins with the crewmembers turning the navigation computers on according to the flight manual procedures. Inspectors should observe crewmembers during cockpit setup and be aware of the following:

A. Software and Modification Status. Before loading the initial present position and waypoints, crewmembers should verify that the procedures they are using are compatible with the software loaded in the computer. FMS data bank dates should be checked to ensure that they are current.

B. Present Position and Waypoint Entry. One crewmember should find and enter the initial present position into the navigation computers. A record of this action must be made on the master flight plan. An acceptable method of making this record is for the crewmember to copy the coordinates displayed after the entry sequence and mark them “initial present position.” An acceptable method for recording waypoint entry is to circle the waypoint on the master flight plan.

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C. Cross-Checking Initial Setup. A second crewmember must independently find the initial present position and verify that all of the navigation computers are correctly programmed. The second crewmember must then verify the accuracy of each waypoint as follows:

1) Verification must be recorded by the crewmember on the master flight plan. An acceptable means of recording verification is for the crewmember to draw a diagonal line through the initial present position and each waypoint as it is checked.

2) When the remote feature is used, the crewmember must independently check the present position and waypoints in each computer. It is possible for data to be lost during the transfer since the remote computer may not have received the same data that was transmitted.

D. Zone Distance (ZD) Check. After the waypoints have been entered and verified by the crewmember, the crewmember must compare the track bearing and ZD shown by the computer with that shown in the flight plan. A track bearing or distance that varies by more than +2 should be investigated.

E. Pretakeoff Checks. Some manufacturers of navigation equipment recommend the completion of preflight navigation checks. For example, a manufacturer may recommend that after the crewmember places the “NAV Mode” selector switch to “NAV” on an INS, and before moving the aircraft, the crewmember should check the groundspeed. Any indication of more than a few knots (kts) may indicate a bad system. With systems such as INS and Very Low Frequency Radio Navigation System (OMEGA) that navigate during ground operation, a taxi check may also be recommended. Current present position and groundspeeds should be cross-checked to confirm correct operation. Inspectors should observe flightcrew members making the checks required by the certificate holder’s procedures.

6-447 GATEWAY PROCEDURES. Flights must not proceed beyond the gateway unless the correct functioning of the navigation computers can be verified. Inspectors should observe the flightcrew performing gateway checks and should ensure that flightcrew members are following the certificate holder’s procedures. A typical set of certificate holder procedures with some guidance for inspectors evaluating such procedures follows:

A. Time and Present Position. After crossing the gateway, a crewmember should record the time and present position of each navigation computer. Preferably, the crewmember should use the hold feature on the computer to freeze the present position display. This position must be compared to the known position of the gateway and to the deviation of each computer established. This gateway check detects errors that may have accrued in position information, and it also provides an opportunity for updating, if required, as well as establishing the most accurate computer.

B. Triple Mixing. Usually, the time and distance to the next waypoint is displayed on the computer that is supplying steering signals. This computer may be set up to use triple mixing, if this feature is available. A second computer should be set to display cross-track error (XTK) and track angle error (TKE). The certificate holder’s procedures for triple mixing should be in accordance with the manufacturer’s recommendations.

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C. Actual Winds. A crewmember should record the actual winds for the purpose of comparing them with preflight planning and to use them in case the flight must reverse course.

6-448 WAYPOINT CHANGEOVER PROCEDURES. When conducting an over-water en route inspection, inspectors should ensure that a certificate holder's waypoint changeover procedures include the following:

A. Inbound. When approaching a waypoint, a crewmember should cross-check the coordinates of the subsequent waypoint against the flight plan.

B. Outbound. After passing a waypoint, a crewmember should confirm that each computer has switched to the next leg and that the aircraft is tracking along the desired track. Waypoint passage must be recorded by a crewmember on the master flight plan. One acceptable means of doing this is for the crewmember to place a second diagonal line through the circle surrounding the waypoint number. The crewmember must record both the time that the waypoint was passed and the fuel on board (FOB), as well as compute an estimated time of arrival (ETA) at the next waypoint for ATC reporting.

C. Course Plot. Plotting procedures reduce course deviation incidents and should be used by crewmembers when navigation is done solely by LRN computers. Approximately 10 minutes after passing each waypoint, a crewmember should record the present position and then place that position on the plotting chart. This plotted position should fall on the track line.

6-449 AFTER-ARRIVAL PROCEDURES. Inspectors should ensure that, after arrival, a crewmember determines the distance from the actual position to the present position displayed on each computer. Crewmembers should record these observations in accordance with the certificate holder's procedures.

6-450 NAVIGATION CONTINGENCY PROCEDURES. Inspectors must ensure that a certificate holder's training programs, manuals, and check airman programs contain procedures for partial and total navigation systems failure. Specific procedures depend upon the type of equipment being used and the area in which operations are being conducted. Inspectors must be aware that the improper application of these procedures can result in a collision with another aircraft. Inherent in these procedures is the requirement that the crewmembers contact ATC whenever the flight is unable to continue according to the current ATC clearance. This includes situations in which the aircraft is off course or is unable to maintain assigned altitude. The flightcrew's command of this information must allow for an immediate application in an emergency. The crewmember should have knowledge of the first actions to take without having to reference flight information documents. Flightcrews must be knowledgeable of where these procedures are published and must be able to locate them expeditiously when needed.

6-451 AIRCRAFT PERFORMANCE. Inspectors should be aware of the one-engine and two-engine inoperative performance requirements for extended over-water operations (see Volume 4, Chapter 3). When conducting an extended over-water inspection, inspectors should evaluate the certificate holder's methods of complying with these rules and the flightcrew's knowledge of these procedures. Inspectors should also take into account the guidance that follows when evaluating engine-failure procedures.

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A. Equal Time Points (ETP). Certificate holders often use ETP computations to show compliance with engine-out performance requirements. When evaluating this area, inspectors should consider the following:

1) Proficiency. Flightcrew members are often assigned the responsibility for computing ETPs, and must be proficient in making them. Whether or not flightcrew members perform the calculations, they must be familiar with the conditions for them as well as the meaning of these calculations.

2) Use of Alternate Airports. Certificate holders may use en route alternate airports and compute multiple ETPs to show compliance with engine-out performance rules. For example, on a flight from San Francisco to Tokyo, a certificate holder might designate Seattle, Anchorage, and Adak as en route alternate airports. To do so, each alternate airport must be listed on the flight release. Flightcrews must be knowledgeable in the procedures they must follow should an engine fail.

B. Fuel Dumping and Driftdown. Engine failure procedures normally require driftdown, fuel dumping, or both. Flightcrews must be aware of how to make these determinations. Often, aircraft weight and altitude information is presented in tabular format; therefore, flightcrews must be competent in interpreting these presentations.

6-452 FLIGHT RELEASE RULES. Inspectors should be thoroughly familiar with the rules for releasing flights in an extended over-water operation (see Volume 3, Chapter 25, for a discussion of these rules). Inspectors should ensure that certificate holders and flightcrews comply with these rules, which include the following:

A. Weather Minimums. Inspectors should ensure that the flightcrews are thoroughly familiar with the minimum weather requirements for destination and alternate airports. Flightcrews should be aware of the required procedures to follow when the weather at a destination or alternate airport goes below the minimums while the flight is en route.

B. Special Operations. Since the operations specifications (OpSpecs) contain several restrictions on special operations, inspectors should pay particular attention to operations using special fuel reserves under OpSpec B043 or planned rerelease operations under OpSpec B044.

6-453 INSPECTOR ASSISTANCE. For more assistance on the conduct of over-water en route inspections, navigation and dispatch specialists are available. Inspectors may contact these specialists at the following offices:

A. West Coast. San Francisco (SFO) International Field Office (IFO) at (650) 876-2771.

B. Headquarters (HQ). Flight Operations Branch (AFS-410) at (202) 267-8790.

RESERVED. Paragraphs 6-454 through 6-467.

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CHAPTER 2 PARTS 121, 135, AND 91 SUBPART K INSPECTIONS

Section 14 Safety Assurance System: Crewmember and Dispatcher Records Inspections for Parts 121 and 135

6-489 REPORTING SYSTEM(S). For Title 14 of the Code of Federal Regulations (14 CFR) parts 121 and 135, use Safety Assurance System (SAS) automation. This section is related to SAS Subsystems 2.1, Training and Qualification, and 3.1, Training and Qualification.

6-490 GENERAL. This section provides direction and guidance to operations inspectors for the inspection of crewmember and dispatcher qualification, training, and currency records of part 121 or 135 operators. The inspection shall establish whether or not the operator is keeping the required records and whether or not the required training and qualification events are being conducted. Before conducting a records inspection, inspectors must be thoroughly familiar with Volume 3, Chapter 31, Section 1; part 121, §§ 121.401(c) and 121.683 or part 135, § 135.63, as applicable; and this section.

6-491 PROCEDURES FOR CONDUCTING A RECORDS INSPECTION. This paragraph contains a general description of the procedures inspectors will use when conducting records inspections. Inspectors may modify these guidelines to meet local conditions.

A. Location. Inspectors normally conduct a records inspection at the place where the operator maintains the records. The inspection process does not require that the operator surrender records, even temporarily, and records may not be removed from the operator's premises without the operator's permission. Should an agreement be reached for inspectors to remove records, the operator must be given an itemized receipt for all records.

B. Preparation and Initial Briefing. Normally, advance notice to the operator of a planned records inspection is appropriate.

1) An introduction and initial briefing should be given to the operator. The briefing should describe the purpose of the inspection, what records will be required, and that a debriefing will take place at the conclusion of the inspection.

2) Prior to conducting any records inspections, inspectors must become familiar with the operator's system of recordkeeping and become familiar with which specific records are available at the facility. This familiarization is particularly important when the operator is using a computer-based recordkeeping system, as detailed in Volume 3, Chapter 31, Section 4.

3) Prior to their arrival, inspectors should prepare a list of records to be inspected, since a records inspection uses the operator's work space and usually takes time away from an employee's assigned duties. Preplanning and preparation for a records inspection reflect positively on the professionalism of the Federal Aviation Administration (FAA) and should result in as little disruption to the operator's work routine as possible.

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NOTE: Information from previous records inspections that are contained in SAS or the Program Tracking and Reporting Subsystem (PTRS) should be accessed to aid the inspector in determining the strategy and scope of the inspection.

C. Records Selection. Before conducting a records inspection, inspectors must determine the number of records to be examined, which categories of the records will be inspected, and to what depth records will be scrutinized.

1) Volume 6, Chapter 2, Section 1, provides general guidance to inspectors for determining the actual number of records to examine.

2) Inspectors may obtain information on crewmember and dispatcher population from the enhanced Vital Information Database (eVID).

D. Records Handling. Care should be taken to keep records as intact as the operator presents them. The preferred procedure is for inspectors to take only a few records at a time, examine them, then return that batch to the operator before starting on another batch. If it is necessary or desirable to obtain a copy of a record, the operator may not be willing or able to provide it. In this case, inspectors must make arrangements for copies.

E. Errors or Omissions in Records. During a records inspection, an inspector could find errors or omissions in an operator's records. Minor errors and omissions do not necessarily constitute a lack of compliance on the part of the operator. Some errors or omissions, though, may require further action. For example, a crewmember training record may be found that does not indicate that required recurrent training was accomplished.

1) Further review could produce evidence that the training actually was completed. This omission may easily be corrected on the spot by the operator and may preclude the need for further action by the inspector other than documenting what occurred. In this case, the inspector should refer to Volume 14, Chapter 1, Section 2, Flight Standards Service Compliance Action Decision Procedure, and Volume 10 for documentation and notification procedures. The inspector should discuss with the operator methods for preventing a repetition of the problem and should appropriately record the operator's intended fix.

2) If the operator cannot produce evidence that the training was conducted, the inspector shall refer to Volume 14, Chapter 1, Section 2 to determine what further action is warranted. The inspector who discovers the discrepancy is responsible for recording the finding in accordance with Volumes 10 and 14.

6-492 CATEGORIES OF RECORDS. This paragraph lists the crewmember and dispatcher records required by §§ 135.63 and 121.683. Some or all of the categories are required for pilots, Flight Engineers (FE), flight attendants (F/A), flight and ground instructors, check pilots, check FEs, aircrew program designees (APD), and aircraft dispatchers. Volume 3, Chapter 31, Section 3, gives guidance as to the retention period for each of these categories of records.

A. Crewmember and Aircraft Dispatcher Training and Qualification Records. The operator's recordkeeping procedures should be reviewed to ensure that the training and qualification required for the individual's present duty assignment is documented. Individual

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records should be reviewed according to the sampling plan to verify that the operator is correctly managing the training and qualification program.

1) The training and qualification requirements of parts 121 and 135 can be complex (see Volume 3, Chapter 19 for pilots and FEs; Chapter 20 for flight instructors, check pilots, and check FEs; Chapter 22 for aircraft dispatchers; and Chapter 23 for F/As).

2) Sections 121.401(c) and 135.323(c) require that the documentation of ground, flight, or qualification segments contain a certification by the instructor, supervisor, check pilot, or check FE that the crewmember or dispatcher is knowledgeable and proficient. In an electronic recordkeeping system, the certification does not have to be made by means of a signature.

B. Medical Qualification Records. Inspectors should observe that any required medical certificates are current and appropriate to the applicable flightcrew member duty position.

C. Route, Special Airport, Area Qualification Records. Inspectors must ensure that operators have documented that the pilot in command (PIC) has met the special currency requirements of § 121.443, § 121.445, or § 135.299. Inspectors must also ensure that operators with the authority to conduct flights requiring Class II navigation or to operate in special use airspace (such as North Atlantic High Level Airspace (NAT HLA), North Pacific (NOPAC), or Central East Pacific (CEPAC)) document the successful completion of required training and qualification for each flightcrew member.

D. Operating Experience or Operating Familiarization Records. Documentation should verify that operating experience or operating familiarization has been accomplished.

1) All part 121 crewmembers and part 135 PICs in commuter operations must have satisfactorily completed the required operating experience prior to being assigned unsupervised duty in revenue service.

2) Part 121 PICs who have completed initial or upgrade training must have been observed by an FAA inspector during operating experience.

3) Aircraft dispatchers must have completed operating familiarization.

E. Recent Experience Records. This category refers to events, other than required checks, that flightcrew members must accomplish within a specified time period to remain qualified to serve in revenue operations.

1) Pilots—Part 121. Unless a deviation has been authorized by the Air Transportation Division (AFS-200) in accordance with § 121.439(f), § 121.439(a) requires a pilot to complete at least three takeoffs and landings within the preceding 90 days in the same airplane type in which the pilot is to serve. (See Volume 3, Chapter 19, Section 12, for additional information regarding deviations based on designation of related aircraft.) A pilot who does not complete the three required takeoffs and landings within any consecutive 90-day period must reestablish recency of experience in accordance with § 121.439(b).

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2) Pilots—Part 135. Section 135.247(a)(1) requires a PIC of an aircraft carrying passengers to complete at least three takeoffs and landings within the preceding 90 days in an aircraft of the same category and class and, if a type rating is required, in the same type in which the PIC is to serve. For operations during the period 1 hour after sunset to 1 hour before sunrise, § 135.247(a)(2) requires the three takeoffs and landings to be completed within that period. If the aircraft is a tailwheel airplane, § 135.247(b) requires each takeoff to be made in a tailwheel airplane and each landing must be to a full stop in a tailwheel airplane.

NOTE: In accordance with § 135.247(a)(3), the requirements of § 135.247(a)(2) do not apply to a PIC of a turbine-powered airplane type certificated for more than one pilot, provided the PIC meets the requirements specified in § 135.247(a)(3)(i) or § 135.247(a)(3)(ii).

3) Flight Engineers—Part 121. Section 121.453 requires an FE to acquire at least 50 hours of flight time as an FE or to complete a flight check within the preceding 6 calendar-months in the same airplane type in which the FE is to serve.

F. Check Pilot, Check FE, and APD Records. Operator records should verify that check pilots and check FEs have completed appropriate training, have maintained currency in the flightcrew member duty position they are evaluating, and that letters of approval or designation have been maintained. The inspector should observe that operators record the number of qualification functions being performed by check pilots and check FEs.

G. Special Training and Testing Requirements. The inspector should observe that operators that conduct such operations as air ambulance operations keep records of specialized training.

H. Employment History. Inspectors should ensure that the operator's flightcrew member and aircraft dispatcher records document action taken concerning an individual's release from employment for physical or professional disqualification as required by § 121.683(a)(2) or § 135.63(a)(4)(ix).

6-493 SAS INPUT. The inspector must record any inspection of crewmember or aircraft dispatcher records or any category of the records in the appropriate Data Collection Tool (DCT).

RESERVED. Paragraphs 6-494 through 6-507.

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VOLUME 6 SURVEILLANCE

CHAPTER 2 PART 121, 135, AND 91 SUBPART K INSPECTIONS

Section 22 Safety Assurance System: Operational Control Inspections

6-641 BACKGROUND. This section contains direction and guidance to be used by principal operations inspectors (POI), geographic program managers (GPM) and operations inspectors when planning, conducting, and reporting on operational control inspections. Operational control inspections are applicable to all Title 14 of the Code of Federal Regulations (14 CFR) part 121 operators and part 135 commuter operators. Separate paragraphs of this section cover inspections of dispatch systems and domestic operations, supplemental operations, part 121 extended over-water operations, and part 135 commuter operations. Operational Control oversight must be conducted in the Safety Assurance System (SAS) using the appropriate Data Collection Tools (DCT) from system 3.0, Operational Control.

A. Part 135 On-Demand Operators. The inspection of the operational control function of a part 135 on-demand operator is accomplished in SAS. Inspectors should be familiar with the background material in Volume 3, Chapter 25, Sections 1 and 5 of this order concerning dispatch, flight-following, and flight-locating; and should use these sections for reference.

B. Inspection of Operational Control Functions at Line Stations. An operational control inspection is conducted at the facility where the operator authorizes or releases flights. Operators commonly perform limited operational control functions at line stations, but they may not authorize or release flights at these locations. Inspectors conducting operational control oversight should be familiar with Volume 3, Chapter 25 of this order concerning dispatch, flight-following, and flight-locating; and should use it for reference.

C. Inspection of Operators with 50 or More Aircraft. An inspector qualified as a dispatcher according to Volume 5, Chapter 5, Section 10 should be assigned to the DCT team. The manager responsible for assigning the DCTs shall locate an appropriately qualified inspector with the assistance of the responsible regional Flight Standards division (RFSD).

6-642 OBJECTIVE. An operational control inspection has two primary objectives. The first objective is for the inspector or team to ensure that the operator is in compliance with the minimum requirements of 14 CFR and the operations specifications (OpSpecs). The second objective is for the inspector or team to ensure that the operator's system of control provides positive assurance of public safety. The operator must meet both objectives to obtain and retain an operating certificate under part 121 or part 135. To make this determination, the inspector or team must evaluate the operator to ensure that the following criteria are met:

- Responsibility for operational control is clearly defined;
- An adequate number of operational control personnel are provided;
- Applicable manuals contain adequate policy and guidance to allow operational control personnel and flightcrews to carry out their duties efficiently, effectively, and with a high degree of safety;

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- Operational control personnel are adequately trained, knowledgeable, and competent in the performance of their duties;
- Flight control personnel and flightcrews have been provided with the necessary information for the safe planning, control, and conduct of all flights;
- The operator provides adequate facilities;
- The operator performs all operational control functions required by the regulations;
- The operator performs all functions necessary to provide adequate operational control in the environment in which the operations are conducted; and
- Adequate emergency procedures and contingency plans have been formulated.

6-643 PRACTICES AND PROCEDURES. Inspectors conduct operational control inspections through systematic manual reviews, records inspections, observations, and interviews.

A. Inspector Preparation and Manual Review. Before starting an operational control inspection, the inspector should become thoroughly familiar with the sections of Volume 3, Chapter 25 of this order that are applicable to the operator. Inspectors must then become familiar with the operational control sections of the operator's General Operations Manual (GOM). This manual review is both the first step in the inspection process and preparation for subsequent steps. The DCTs for the various aspects of the inspection contain questions related to the topics which should be included in the operator's manuals. Inspectors should follow the SAS process to determine if the contents of the operator's manual are acceptable.

B. Records Checks, Interviews, and Observations. The inspector should establish with the operator a mutually convenient time for conducting the records checks and interviews. The direction and guidance for inspectors on the techniques of conducting records inspections is contained in Volume 6, Chapter 11, Section 3 and Volume 6, Chapter 2, Section 14 of this chapter.

1) Inspectors must conduct interviews with both management and working-level personnel to meet inspection objectives. Inspectors should plan these interviews so that the required information can be obtained without distracting personnel from their duties and responsibilities. To prevent intruding into actual operations, the inspector should, if possible, conduct these interviews privately and away from the flight control center.

2) Inspectors must observe actual flight-release operations. Before beginning these observations, an inspector should request a tour of the operator's facility for orientation, during which the inspector should observe a number of different people at work. The inspector should ask questions; however, care must be taken not to distract or interfere with the individuals in the performance of their assigned duties. An effort should be made by the inspector to make observations during periods of peak activity, adverse weather, or during nonroutine operations. POIs of large operators should arrange to have these observations conducted at random times throughout the year, preferably in periods of inclement weather.

3) Inspectors should observe competency checks being conducted to evaluate the knowledge level of dispatchers and the performance of the supervisor.

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6-644 EVALUATION OF AN AIR CARRIER'S OPERATIONAL CONTROL PROCEDURES.

A. Background.

1) In January 2000, a U.S.-certificated domestic air carrier experienced a fatal accident. As a result of the investigation, the National Transportation Safety Board (NTSB) made recommendations relating to this accident that directly address air carrier operational control processes. The NTSB also recommended that certificate management offices conduct surveillance of airline dispatch and maintenance control personnel to ensure that their training and procedures provide appropriate dispatch support to pilots who experience a malfunction that threatens safety of flight. In addition, the NTSB recommended that the Federal Aviation Administration (FAA) instruct air carriers to refrain from suggesting continued flight in the interest of airline scheduling.

2) Commercial air carriers are business entities operated for profit. Business managers prioritize and manage the carrier's resources to optimize business and objectives in long-term planning and in daily operations. These objectives and decisions have a close relationship with the management of the air carrier's operations (see Figure 6-34).

3) For domestic and flag operations, the dispatcher and the pilot in command (PIC) are jointly responsible for operational control of flight operations in accordance with the regulations, operations specifications (OpSpecs), and company procedures. For supplemental operations, the Director of Operations (DO), or his/her designee, and the PIC are responsible for operational control in accordance with the regulations, OpSpecs, and company procedures.

4) Many air carriers have established an organization, generally identified as Systems Operations Control (SOC), to integrate business management and operational control functions. By integrating these functions, safety and regulatory compliance are properly considered in business decisions. The manager of the SOC is generally responsible for coordinating all functions in the SOC center. He or she acts as a support mechanism to the dispatcher or the designated individual (supplemental) to ensure the safest operation is conducted. While SOC business management may be overseen by corporate functions, such as marketing, customer service, and finance, inspectors should determine that the operational control decisionmaking is not influenced by the marketing or financial motivation of the company.

B. Inspector Procedures.

1) Each inspector should determine that his/her air carrier's manuals have documented processes that describe a clear separation between business management and operational control. The carrier's manuals should have clear guidance showing the position descriptions, duties, responsibilities, and authorities of those involved in all aspects of operational control, such as:

- DO,
- Chief pilot,

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- Dispatcher (domestic and flag operations),
- Flight follower (supplemental operations),
- Pilot in command (PIC),
- Manager, Flightcrew Scheduling,
- Manager, Maintenance Control, and
- Manager, Systems Operations Control (SOC).

2) Each inspector also should determine that his/her air carrier's operations manuals outline the scope of responsibility and limitations on decisionmaking recommendations and the line of communications for company departments not directly related to operational control, but which could influence or affect operational control decisions.

NOTE: Refer to the operational control diagram in Figure 6-34.

NOTE: It should be emphasized that all operational control personnel are committed to safety first, followed by regulatory compliance and sound business sense. A corporate philosophy should include the fact that the dispatcher, the PIC, and/or the DO, or his/her designee (supplemental), has the authority to modify a business decision for safety or regulatory reasons.

3) Each inspector should ensure that his/her air carrier's operations manuals and checklists contain clear and concise statements of corporate policies and procedures concerning operational control, particularly as they relate to emergency/non-normal situations.

4) Outside participants in the operational control process (business decisionmakers) should not place undue pressure on a PIC's ability to exercise his/her emergency authority. To prevent such pressure, an inspector should see that the carrier's emergency/non-normal checklists contain the statement, "Land as soon as Possible or Practical," in at least the areas stipulated by the manufacturer, as in the case of Fire Indication or Flight Control Problems, etc. In addition, the last item on the appropriate emergency/non-normal checklist should read, "End of Procedures," to help a flightcrew understand that the "FAA-approved Emergency/Non-Normal Checklist" is now complete. Notwithstanding the PIC's, aircraft dispatcher's, and DO's authority to evaluate the performance and handling capabilities of the aircraft, weather, navigational facilities, and landing surface conditions, any outside influence after the completion of the checklist may be construed as "in-flight trouble shooting." Upon completion of the checklist, the PIC should evaluate the current status of the aircraft and systems to facilitate his/her decision on the safety of continued flight versus diversion. The critical nature of this decision rests solely with the PIC and operational control group.

5) Inspectors should determine that the "Emergency Operations" sections of the air carrier's manuals give clear guidance as to when the PIC must declare an emergency and execute his/her emergency authority. It should also provide guidance as to when the aircraft dispatcher may declare an emergency apart from the PIC; for example, when communication with the PIC is impossible or impractical. This guidance should indicate that the aircraft dispatcher may take any action he/she considers necessary under the circumstances. Guidance should include clear, concise procedures regarding communications with the PIC, dispatch, and/or air traffic control (ATC).

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6) Certain dispatch procedures are extremely important, particularly in air carriers with moderate to heavy dispatcher workloads. Inspectors must consider that, under normal circumstances, a dispatcher simultaneously monitors several aircraft in flight, works on releases, and exercises coordination functions. When an emergency occurs, or is in progress, and is not isolated, the dispatcher's workload greatly increases. This may lead to errors or omissions that could further jeopardize safety of flight. Inspectors should determine that the air carrier manuals address these procedures during emergencies:

- Dispatcher handling of emergencies,
- Transfer of authority and responsibility to another qualified dispatcher or qualified dispatcher supervisor due to increased workload during handling of an emergency or abnormal situation,
- Isolation of the emergency,
- Level of emergencies to be handled by inexperienced dispatchers, and
- Handling of emergencies by inexperienced dispatcher.

7) Inspectors should audit flightcrew member training programs (ground and flight) to see that emergency/non-normal operation policies and the PIC's responsibilities in declaring an emergency are emphasized.

8) Inspectors should review both crew resource management (CRM) and dispatcher resource management (DRM) training programs to verify that both the decisionmaking process and effective communications are addressed. All participants in the Operational Control decision team should be encouraged to attend these training programs.

9) Air carriers should be encouraged to develop a course curriculum for "Captain's Leadership." The contents of this training should be developed around corporate cultures, policies, reinforcement of CRM and DRM, and the PIC's and dispatcher's authority and responsibilities as they directly relate to safety and operational control.

10) Air carriers should be encouraged to develop realistic situational scenarios for dispatcher training in handling various levels of emergencies. These scenarios would be required test items in initial and recurrent dispatcher competency checks. The scenario testing would also serve to frequently test procedures and communications during emergencies.

NOTE: Any accident, incident, or occurrence investigation should include a thorough review and analysis to determine that the air carrier's policies were in place and were being used.

C. Special Attention to the Conduct of Supplemental Operations.

1) Situation 1. When conducting supplemental operations, flag and/or domestic air carriers often delegate some or all operational control authorities to a dedicated dispatch desk, often called "Charters," or to any dispatcher on duty when these operations are few or infrequent. Dispatchers often take these flights as their "responsibility." There are instances where DOs often relax their operational control responsibility because "a dispatcher is handling the flight." The DO may delegate authority for operational control but not his/her responsibility.

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2) Situation 2. If a supplemental air carrier employs certificated aircraft dispatchers as flight followers and the DO delegates operational control authority to them, operations manuals shall clearly specify the scope and limitations of authority. The manual chapters containing those procedures should be referenced in OpSpec A008 (operational control). The communications procedures between the PIC and the dispatcher, and the dispatcher and the DO, should be clearly defined. In addition, inspectors should determine if the DO and flight followers clearly understand their level, scope, and limitations of authorities and responsibilities.

Figure 6-31. Dispatch Inspection Items

NOTE: This inspection aid applies to all part 121 flag and domestic operators conducting operations within the contiguous states. The inspection aid that applies to part 121 extended over-water operations (see Figure 6-33) should also be used when applicable.

Inspectors should review the following items *in conjunction* with answering the SAS Data Collection Tool (DCT) questions to ensure accurate assessment of the certificate holder's operational control process.

A. AUTHORIZED OPERATIONS.

(1) Verify the operator clearly specifies the operations that may and may not be conducted according to the operations specifications (OpSpecs) (including Areas of Operation)

(2) Verify the operator provides clear definitions of domestic, flag, and supplemental operations. Verify the operator provides clear definitions of the rules under which each of these operations is conducted.

(3) Verify the operator clearly states the regulations identified and the operator's policies applicable to each type of operation.

B. MANUALS.

(1) Verify the General Operations Manual (GOM) contains a section in which the policy and guidance for operational control has been collected for the guidance of flightcrews and dispatchers.

(2) Verify the topics listed on this inspection aid are adequately covered.

(3) Verify the applicable section of the GOM is readily available to dispatchers and flightcrews while they perform their duties.

(4) Verify the copy of the operator's GOM that is available to dispatchers or flightcrews is current.

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C. ORIGINAL RELEASE.

(1) The conditions under which a flight may and may not be dispatched should be clearly stated.

(2) The conditions under which a flight must be rerouted, delayed, or cancelled should be clearly stated.

(3) The flight release should contain all required elements.

(4) Limitations should be required in the remarks of the release.

(5) A written copy of weather reports and forecasts (including Pilot Weather Reports (PIREP) and Notices to Airmen (NOTAM) should be attached to the release and provided to the flightcrew.

D. RESPONSIBILITY FOR PRE-DEPARTURE FUNCTIONS.

(1) Determine if the responsibility and procedures for accomplishing the following functions are clearly specified.

- Crew assignment.
- Load planning.
- Flight planning.
- Release of the aircraft from maintenance.
- Control of minimum equipment list (MEL) and Configuration Deviation List (CDL) limitations.
- Weight and Balance (W&B).

(2) Determine if adequate procedures for cross-checking and verifying these activities has been established.

(3) Determine if each of these procedures is effective.

(4) Determine if controls are in place for the pilot in command (PIC) and dispatcher to ensure that each of these functions has been satisfactorily accomplished before the aircraft departs.

E. DISPATCHER BRIEFING.

(1) Determine how the operator’s procedures provide for briefing of the PIC by the dispatcher.

(2) Determine if the minimum content of the briefing is specified and adequate.

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F. DUAL RESPONSIBILITY.

(1) Determine how the signatures of both the PIC and the dispatcher on the dispatch release are accomplished.

(2) Determine if the PIC's obligation to operate the flight according to the release, or to obtain an amended release, is clearly stated.

G. FLIGHT-FOLLOWING.

(1) Determine if the dispatcher's flight-following requirements and procedures are clearly stated.

(2) Determine if policy and guidance is provided to flightcrews and dispatchers for monitoring fuel en route.

(3) Flightcrew reporting requirements and procedures should be clearly stated.

(4) Determine if there are specified procedures for dispatchers to follow when a required report is not received.

(5) Determine if a record of communication is made and retained.

H. INABILITY TO PROCEED AS RELEASED.

(1) The operator should have a policy concerning the PIC's latitude to deviate from a dispatch release without obtaining a new release.

(2) The operator should have specific and adequate direction and guidance to PICs and dispatchers for the actions to take when a flight cannot be completed as planned (such as destinations or alternates below minimums, runways closed or restricted).

(3) The operator should have specific and clearly stated procedures to follow in case of diversion or holding.

I. WEATHER.

(1) The operator should obtain weather reports from an approved source.

(2) Forecasts should be based on approved weather reports.

(3) If the operator has an Enhanced Weather Information System (EWINS) the procedures for making flight movement forecasts (FMF) should be clearly specified. Those individuals authorized to make a FMF should be clearly specified. Other individuals should be specifically prohibited from making FMFs.

(4) The operator should have an adverse weather system.

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(5) The operator should have adequate procedures for providing the latest available weather reports and forecasts to flightcrews while the flight is en route.

(6) The operator should have adequate procedures for updating weather information when the aircraft is delayed on the ground.

J. WEATHER MINIMUMS.

(1) Is release under visual flight rules (VFR) authorized by OpSpec B031? If so, determine if the forecast and actual weather allowed VFR flight to destination on those flights so released.

(2) Determine if turbojet aircraft been released under VFR.

(3) Verify that instrument flight rule (IFR) departure minimums are authorized by OpSpec C056.

(4) When flights are released with the departure airport below landing minimums, determine of takeoff alternates are named on the dispatch release.

(5) Verify destination weather minimums are authorized by OpSpecs C075 and C076.

(6) Verify weather minimums are authorized by OpSpec C054 for “high minimums” captains.

(7) Determine how the operator ensures compliance with OpSpec C054 (operable centerline lighting and 15% additional runway for turbojet operations for operations below 300 and ¾).

(8) When a flight is released to a destination below Category I (CAT I) minimums, verify that the airplane type is authorized at Category II (CAT II) or Category III (CAT III) operations at that location according to OpSpec C059 or C060.

(9) When destination alternates are required, verify they are named on the dispatch release.

(10) Verify the weather at the named alternate airport equal or better than that required by OpSpec C055.

(11) Verify that “marginal” is defined for the designation of two alternates on the dispatch release.

(12) Verify that two alternates are designated when required.

(13) Determine how the operator ensures that dispatchers are aware of these limitations before dispatching a flight.

(14) Verify that weather forecasts from the trip records show that these limits have been complied with for dispatch.

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K. SELECTION OF ALTERNATES.

(1) Verify policy, direction, and guidance are provided for the selection of alternates.

(2) Verify terrain and engine-out performance is considered in the alternate selection.

L. NOTAMs. Verify the required NOTAM information is provided (Class I, Class II, Local, and flight data center (FDC)).

M. INFORMATION.

(1) Determine what provisions the operator makes for supplying airport and navigation information.

(2) Determine what means the operator uses to comply with the requirement for an airport data system. Verify it is adequate.

(3) Verify flightcrews are provided with written flight plans for monitoring flight progress and fuel burn.

(4) Determine how the operator provides data to dispatchers on takeoff and landing minimums at each airport.

(5) Verify dispatchers have immediate access to such data.

(6) Determine if provisions are made for nonstandard operations, such as inoperative centerline lighting.

N. FUEL.

(1) Verify all required increments of fuel are provided (start and taxi, takeoff to arrival at destination, approach and landing, missed approach, alternate fuel, 45 minutes of reserve, and contingency fuel).

(2) Verify the operator's policies concerning contingency fuel adequate for the environment in which operations are conducted.

(3) Verify there are minimum fuel procedures specified for both dispatchers and PICs.

(4) When aircraft are dispatched without an alternate, verify that adequate contingency fuel is carried for unforecast winds, terminal area delays, runway closures, and contingencies.

O. EMERGENCY PROCEDURES. Verify emergency action procedures and checklists are published and readily available for the following emergencies:

- In-flight emergency.
- Crash.
- Overdue or missing aircraft.

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- Bomb threat.
- Hijacking.

P. CHANGEOVER PROCEDURES. Verify that an adequate overlap is provided for the dispatcher being released to brief the oncoming dispatcher on the situation.

Q. TRIP RECORDS.

(1) Verify that the required trip records are carried to destination.

(2) Verify trip records are retained for 30 days.

II. DISPATCHERS AND METEOROLOGISTS

A. QUALIFICATION.

(1) Verify all dispatchers are certified.

(2) Verify all dispatchers have successfully completed a competency check within the eligibility period.

(3) Verify all dispatchers have completed route familiarization within the preceding 12 calendar-months.

(4) Determine how the operator ensures that dispatchers are currently familiar with the areas in which they work.

(5) Determine how meteorologists are qualified.

B. KNOWLEDGE OF WEATHER.

(1) Determine if dispatchers are knowledgeable about the following weather conditions:

- Surface (fronts, fog, low ceilings, etc.).
- Upper air (tropopause, jet streams).
- Turbulence (pressure and temperature gradients).
- Severe (low-level windshear, microburst, icing, thunderstorms).

(2) Verify dispatchers can read a terminal report, forecast accurately, and interpret the meanings.

(3) Verify dispatchers can read various weather depiction charts and interpret the meanings.

(4) Verify dispatchers can read upper-air charts and interpret the meanings.

C. KNOWLEDGE OF THE AREA.

(1) Verify dispatchers immediately recognize the airport identifiers for the airports in the area in which they are working.

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(2) Verify dispatchers are generally familiar with the airports in the area in which they are working (number and length of runways, available approaches, general location, elevation, surface temperature limitations).

(3) Verify dispatchers are aware of which airports, in the areas in which they are working, are special airports, and why.

(4) Verify dispatchers are aware of the terrain surrounding the airports in the areas in which they are working.

(5) Verify dispatchers are aware of dominant weather patterns and seasonal variations of weather in the area.

(6) Verify dispatchers aware of route segments limited by drift-down.

D. KNOWLEDGE OF AIRCRAFT AND FLIGHT PLANNING.

(1) Verify dispatchers are aware of the general performance characteristics of each airplane with which they are working (such as average hourly fuel burn, holding fuel, engine-out, drift-down height, effect of an additional 50 knots of wind, effect of a 4,000-foot lower altitude, crosswind limits, maximum takeoff and landing weights, required runway lengths).

(2) Determine if dispatchers can read and explain all the items on the operator's flight plan.

E. KNOWLEDGE OF POLICY.

(1) Verify dispatchers are knowledgeable of the OpSpecs, particularly such items as authorized minimums.

(2) Verify dispatchers are aware of the policies and provisions of the operator's manual as discussed under policies and procedures.

F. KNOWLEDGE OF RESPONSIBILITIES.

(1) Verify dispatchers are knowledgeable of their responsibilities under 14 CFR (such as briefing PIC; canceling, rescheduling, or diverting for safety; in-flight monitoring; in-flight notification to PIC).

(2) Verify dispatchers are knowledgeable of their responsibilities under the operator's manual as discussed in paragraph A.

(3) Verify dispatchers are aware of their obligations to declare emergencies.

G. PROFICIENCY.

(1) Verify dispatchers are competent in the performance of their assigned duties.

(2) Verify dispatchers are alert for potential hazards.

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H. DUTY TIME. Determine if the regulatory duty time requirements are being complied with.

III. SUPERVISORS

A. QUALIFICATION. Verify supervisors are qualified and current as dispatchers.

B. CONDUCT OF CHECKS. Verify competency checks are appropriate, thorough, and rigorous.

IV. FACILITIES AND STAFF

A. PHYSICAL.

(1) Determine if enough space is provided for the number of people working in the dispatch center.

(2) Determine if the temperature, lighting, and noise levels are conducive to effective human performance.

(3) Verify access to the facility is controlled.

B. INFORMATION.

(1) Verify dispatchers are supplied with all the information they require (such as flight status, maintenance status, load, weather, facilities).

(2) Determine if the information is effectively disseminated and displayed. Verify information can be quickly and accurately located without overloading the dispatcher.

(3) Verify real-time weather displays are available for adverse weather avoidance.

C. COMMUNICATIONS.

(1) Determine if a dispatcher can establish rapid and reliable radio communications (voice or Aircraft Communications Addressing and Reporting System (ACARS)) with the captain when a flight is parked at the gate.

(2) Determine how much time it takes to deliver a message to an en route flight and get a response.

(3) Verify direct-voice radio communications are available at all locations and they are reliable. If communications facilities are shared with other airlines, verify traffic congestion does not preclude rapid contact with a flight.

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(4) If hub-and-spoke operations are conducted, verify there are adequate communication facilities available to contact and deliver a message to all arriving flights within a 15-minute period.

(5) Verify backup communications links are available in case of a failure of the primary links.

D. MANAGEMENT.

(1) Determine if overall responsibility for operations in progress has been assigned to one individual who can coordinate the activities of all the dispatchers.

(2) Verify procedures have been established for coordinating with central flow control.

(3) Verify adequate internal communications links have been established.

E. WORKLOAD.

(1) Determine what method the operator uses to show compliance with the requirement to assign enough dispatchers during periods of normal operations and periods of nonroutine operations.

(2) Verify the operator's methods are adequate.

(3) Determine if dispatchers have enough time to perform both dispatch and flight-following duties in a reasonable manner.

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Figure 6-32. Part 121 Flight Release Inspection Items (Supplemental Operations)

NOTE: This inspection aid applies to all part 121 supplemental operators for operations within the contiguous states. Figure 6-33, the inspection aid used for part 121 extended over-water operations, should also be used when applicable.

Inspectors should review the air carrier's flight release process for supplemental operations prior to answering Data Collection Tool (DCT) questions. This review should include an assessment of the following inspection items:

I. POLICIES AND PROCEDURES

A. AUTHORIZED OPERATIONS. Verify the operations that may and may not be conducted according to the operations specifications (OpSpecs) (including Areas of Operation) are clearly specified.

B. MANUALS.

(1) Verify there is a section of the General Operations Manual (GOM) in which the policy and guidance for operational control has been collected for the guidance of flightcrews and flight followers.

(2) Verify the topics listed on this inspection aid are adequately covered.

(3) Determine if the applicable section of the GOM is readily available to flight followers and flightcrews while they perform their duties.

(4) Verify the copy of the operator's GOM is current.

C. ORIGINAL RELEASE.

(1) Verify the conditions are clearly stated under which a flight may and may not be released.

(2) Verify the conditions are stated under which a flight must be rerouted, delayed, or cancelled.

(3) Determine if the flight release contains all required elements.

(4) Verify limitations are required in the remarks.

(5) Determine what provisions are made for PICs and flight followers to obtain weather reports and forecasts (including Pilot Weather Reports (PIREP) and Notices to Airmen (NOTAM)).

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D. RESPONSIBILITY FOR PRE-DEPARTURE FUNCTIONS.

(1) Verify the responsibilities and procedures for accomplishing the following functions clearly specified:

- Crew assignment.
- Load planning.
- Aircraft routing.
- Flight planning.
- Release of the aircraft from maintenance.
- Control of minimum equipment list (MEL) and Configuration Deviation List (CDL) limitations.
- Weight and Balance (W&B).

(2) Verify adequate procedures for cross-checking and verifying these activities have been established.

(3) Verify each of these procedures are effective.

(4) Determine what means the operator has established for the pilot in command (PIC) and flight follower to ensure that each of these functions has been satisfactorily accomplished before the aircraft departs.

E. DUAL RESPONSIBILITY.

(1) Determine how the concurrence of the flight follower is obtained before the PIC signs the release.

(2) Verify the PIC's obligation to operate the flight according to the release, or to obtain concurrence of the flight follower for an amended release, is clearly stated.

F. FLIGHT-FOLLOWING.

(1) Verify the flight follower's duties and procedures are clearly stated.

(2) Verify policy and guidance is provided to flight followers for monitoring flight movements.

(3) Determine if flight-following procedures are effective.

G. INABILITY TO PROCEED AS RELEASED.

(1) Verify a policy is stated concerning the PIC's latitude to deviate from a dispatch release without obtaining a new release.

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(2) Verify there is specific and adequate direction and guidance to PICs and flight followers for the actions to take when a flight cannot be completed as planned (such as destinations or alternates below minimums, runways closed or restricted).

(3) Verify procedures to follow in case of diversion or holding are specifically and clearly stated.

H. WEATHER.

(1) Verify the operator obtains weather reports from an approved source.

(2) Verify forecasts are based on approved weather reports.

(3) Determine if the operator has an Enhanced Weather Information System (EWINS). If so, verify procedures for making flight movement forecasts (FMF) are clearly specified. Verify the privilege of making a FMF is limited to meteorologists and specifically trained dispatchers. Verify other individuals are specifically prohibited from making flight-movement forecasts. As part of the requirements for an EWINS, verify the flight follower has the capability to contact flights while they are en route.

(4) Verify the operator has an adverse weather system.

(5) Verify the operator has adequate procedures for the flightcrews to obtain the latest available weather report while the flight is en route.

(6) Verify the operator has adequate procedures for updating weather information when the aircraft is delayed on the ground.

I. WEATHER MINIMUMS.

(1) Determine if release under visual flight rules (VFR) is authorized by OpSpec B031.

(2) If so, verify the forecast and actual weather allow VFR flight to proceed to destination on those flights so released.

(3) Determine if turbojet aircraft been released under VFR.

(4) Determine what IFR departure minimums are authorized by OpSpec C056.

(5) When flights are released with the departure airport below landing minimums, verify takeoff alternates are named on the dispatch release.

(6) Determine what destination weather minimums are authorized by OpSpecs C075 and C076.

(7) Determine what weather minimums are authorized by OpSpec C057 for “high minimums” captains.

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(8) Determine how he operator ensures compliance with OpSpec C054B (operable centerline lighting and 15% additional runway for turbojet operations for operations below 300 and ¾).

(9) When a flight is released to a destination below Category I (CAT I) minimums, verify that airplane type is authorized at Category II (CAT II) or Category III (CAT III) operations at that location according to OpSpec C059 or C060.

(10) When destination alternates are required, verify they are named on the dispatch release.

(11) Determine if the weather at the named alternate airport is equal or better than that required by OpSpec C055.

(12) Determine if "marginal" is defined for the designation of two alternates on the dispatch release.

(13) Verify two alternates are designated when required.

(14) Determine how the operator ensures that flight followers are aware of these limitations before concurring with the release of a flight.

(15) Verify weather forecasts from the trip records show that these limits have been complied with for dispatch.

J. SELECTION OF ALTERNATES.

(1) Verify policy, direction, and guidance are provided for the selection of alternates.

(2) Verify terrain and engine-out performance are considered in the alternate selection.

(3) Verify an alternate airport is always designated.

K. NOTAMs. Verify the required NOTAM information is provided (Class I, Class II, Local, and flight data center (FDC)).

L. INFORMATION.

(1) Determine what provisions the operator makes for supplying airport and navigation information.

(2) Determine what means the operator uses to comply with the requirement for an airport data system. Is it adequate?

(3) Verify flightcrews are provided with written flight plans for monitoring flight progress and fuel burn.

(4) Determine how the operator provides data to flight followers on takeoff and landing minimums at each airport.

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(5) Verify flight followers have immediate access to such data.

(6) Verify provisions are made for nonstandard operations, such as inoperative centerline lighting.

M. FUEL.

(1) Verify all the required increments of fuel are provided (start and taxi, takeoff to arrival at destination, approach and landing, missed approach, alternate fuel, 30 minutes of reserve, and contingency fuel).

(2) Verify there are minimum fuel procedures specified for both dispatchers and PICs.

(3) Verify the operator's policies concerning contingency fuel are adequate for the environment in which operations are conducted.

N. EMERGENCY PROCEDURES. Verify emergency action procedures and checklists are published and readily available for the following emergencies:

- In-flight emergency.
- Crash.
- Overdue or missing aircraft.
- Bomb threat.
- Hijacking.

O. CHANGEOVER PROCEDURES. Verify an adequate overlap is provided for the flight follower being released to brief the oncoming flight follower on the situation.

P. TRIP RECORDS.

(1) Verify the required trip records are carried to destination.

(2) Verify trip records are retained for 30 days.

II. FLIGHT FOLLOWERS

A. QUALIFICATION.

(1) Determine what means the operator uses to comply with the requirement that flight followers are competent. Determine if the operator's method is effective.

(2) Determine how the operator ensures that flight followers are currently familiar with the areas in which they work.

(3) Determine how meteorologists are qualified.

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B. KNOWLEDGE OF WEATHER.

(1) Verify flight followers are knowledgeable about the following weather conditions:

- Surface (fronts, fog, low ceilings, etc.).
- Upper Air (tropopause, jet streams).
- Turbulence (pressure and temperature gradients).
- Severe (low-level windshear, microburst, icing, thunderstorms).

(2) Verify flight followers can read a terminal report, forecast accurately, and interpret the meanings.

(3) Verify flight followers can read various weather depiction charts and interpret the meanings.

(4) Verify flight followers can read upper-air charts and interpret the meanings.

C. KNOWLEDGE OF THE AREA.

(1) Verify flight followers immediately recognize the airport identifiers for the airports in the area in which they are working.

(2) Verify flight followers are generally familiar with the airports in the area in which they are working (number and length of runways, available approaches, general location, elevation, surface temperature limitations).

(3) Verify flight followers are aware of which airports, in the areas in which they are working, are special airports, and why.

(4) Verify flight followers are aware of the terrain surrounding the airports in the areas in which they are working.

(5) Verify flight followers are aware of dominant weather patterns and seasonal variations of weather in the area.

(6) Verify flight followers are aware of route segments limited by drift-down.

D. KNOWLEDGE OF AIRCRAFT AND FLIGHT PLANNING.

(1) Verify flight followers are aware of the general performance characteristics of each airplane with which they are working (such as average hourly fuel burn, holding fuel, engine-out, drift-down height, effect of an additional 50 knots of wind, effect of a 4,000-foot lower altitude, crosswind limits, maximum takeoff and landing weights, required runway lengths).

(2) Verify flight followers can read and explain all the items on the operator’s flight plan.

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E. KNOWLEDGE OF POLICY.

(1) Verify flight followers are knowledgeable of the OpSpecs, particularly such items as authorized minimums.

(2) Verify flight followers are aware of the policies and provisions of the operator's manual as discussed under policies and procedures.

F. KNOWLEDGE OF RESPONSIBILITIES.

(1) Verify flight followers are knowledgeable of their responsibilities under Title 14 of the Code of Federal Regulations (14 CFR).

(2) Verify flight followers are knowledgeable of their responsibilities under the operator's manual as discussed in paragraph A.

G. PROFICIENCY.

(1) Verify flight followers are competent in the performance of their assigned duties.

(2) Verify flight followers are alert for potential hazards.

III. FACILITIES AND STAFF

A. PHYSICAL.

(1) Determine if enough space is provided for the number of people working in the flight-following center.

(2) Verify the temperature, lighting, and noise levels are conducive to effective human performance.

(3) Verify access to the facility controlled.

B. INFORMATION.

(1) Verify flight followers are supplied with all the information they require (such as flight status, maintenance status, load, weather, facilities).

(2) Verify the information is effectively disseminated and displayed. Determine if information can be quickly and accurately located without overloading the flight follower.

(3) Verify real-time weather displays are available for adverse weather avoidance.

C. COMMUNICATIONS. Verify a flight follower can establish reliable communication with a PIC before release.

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D. MANAGEMENT.

(1) Determine if overall responsibility for operations in progress has been assigned to one individual who can coordinate the activities of all the flight followers.

(2) Verify procedures have been established for coordinating with central flow control.

(3) Verify adequate internal communications links have been established.

E. WORKLOAD.

(1) Determine what method the operator uses to show compliance with the requirement to assign enough flight followers during periods of normal operations and periods of nonroutine operations. Verify the operator's methods are adequate.

(2) Verify flight followers have enough time to perform both release and flight-following duties in a reasonable manner.

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Figure 6-33. Part 121 Extended Over-Water Inspection Job Aid

NOTE: This inspection aid applies to all part 121 operators conducting extended over-water inspections.

Inspectors should review the air carrier's extended over-water process prior to answering Data Collection Tool (DCT) questions. This review should include an assessment of the following inspection items:

I. POLICIES AND PROCEDURES

A. AUTHORIZED OPERATIONS. Verify the areas are clearly specified in the General Operations Manual (GOM) in which extended range operations may be conducted according to the operations specifications (OpSpecs).

B. MANUALS.

(1) Verify there is a section of the GOM in which the policy and guidance for extended over-water operations.

(2) Verify the topics listed on this inspection aid are adequately covered.

(3) Verify the applicable section of the GOM is readily available to flight followers and flightcrews while they perform their duties.

(4) Verify the operator's GOM is current.

C. ORIGINAL RELEASE.

(1) Verify the conditions are clearly stated under which a flight may and may not be released in extended over-water operations.

(2) Determine if OpSpec B031 allows dispatch under visual flight rules (VFR) conditions. Verify all extended over-water operations are conducted under IFR.

(3) Verify the conditions under which a flight must be rerouted, delayed, or cancelled are clearly stated.

(4) Verify the destinations are listed in OpSpec B050 to which a flight may be dispatched when there are no alternates.

(5) Verify alternates are listed for all flights conducted under supplemental rules regardless of the weather.

(6) Verify alternates are designated for all flag flights of six or more hours.

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(7) Determine if flights have been released on flag flights of less than six hours without a destination alternative when an alternate was required.

(8) Verify weather forecasts from the trip records show that the limits and alternate weather minimums have been complied with for dispatch.

D. FUEL.

(1) Verify all the required increments of fuel are provided (start and taxi, takeoff to arrival at destination, approach and landing, missed approach, alternate fuel, 30 minutes of reserve, and contingency fuel).

(2) When aircraft are dispatched without an alternate, verify adequate contingency fuel is carried for unforecast winds, terminal area delays, runway closures, and other contingencies.

(3) Verify there are minimum fuel procedures specified for both pilots in command (PIC) and dispatchers or flight followers.

(4) Verify the operator's policies concerning contingency fuel are adequate for the environment in which operations are conducted.

E. RELEASE WITH SPECIAL FUEL RESERVES. Verify the operator is authorized special fuel reserves by OpSpec B043. Do all flights released under this OpSpec have the required increments of fuel? Verify the increments are correctly computed (en route reserve and holding fuel.) Verify adequate contingency fuel is carried.

F. PLANNED RE-RELEASE.

(1) Verify the operator conducts planned re-release according to OpSpec B044.

(2) Verify the re-release is point common to both routes.

(3) Verify there is separate operational analysis for the two routes prepared, and are they provided to the PIC and the dispatcher or flight follower.

(4) Verify fuel planning is according to OpSpec B044.

(5) Verify there are re-release messages transmitted, acknowledged, and recorded. Determine if the re-release message satisfies all requirements, including Notices to Airmen (NOTAM) and weather information.

(6) Verify the aircraft meets landing performance requirements at the intermediate destination.

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G. ENGINE-OUT PERFORMANCE.

(1) Determine how the operator complies with single-engine-out and two-engine-out performance rules.

(2) Verify the operator's analysis is accurate and complete.

(3) Verify the operator provides the PIC and dispatcher or flight follower with multiple equal time points (ETP) when required.

(4) Verify guidance is provided for the use of single-engine and two-engine ETPs.

(5) Verify the GOM provides adequate guidance for drift-down or determination of fuel dump requirements.

H. INFORMATION. Determine how track messages are provided and checked against flight plans.

I. NORTH ATLANTIC HIGH LEVEL AIRSPACE (NAT HLA) PROCEDURES. Verify the GOM contains information and procedures for navigation in NAT HLA.

II. DISPATCHERS AND FLIGHT FOLLOWERS

A. QUALIFICATION.

(1) Verify dispatchers hold U.S. dispatcher certificates at foreign locations when required.

(2) Determine how the operator ensures that dispatchers and flight followers are currently familiar with the areas in which they work. Verify dispatchers are given en route familiarization in extended over-water operations.

B. KNOWLEDGE OF EXTENDED RANGE OPERATIONS. Verify dispatchers and flight followers are knowledgeable in the performance characteristics of each airplane with respect to over-water considerations (such as average hourly fuel burn, engine-out, drift-down height, engine-out cruise performance, effect of an additional 50 knots of wind on ETPs, effect of a 4,000-foot lower altitude, relationship of single-engine and 2-engine ETPs).

C. KNOWLEDGE OF THE AREA.

(1) Verify dispatchers or flight followers immediately recognize the airport identifiers for the airports in the area in which they are working.

(2) Verify dispatchers or flight followers are generally familiar with the airports in the area in which they are working (number and length of runways, available approaches, general location, elevation, surface temperature limitations).

(3) Verify dispatchers or flight followers are aware of which airports are special airports in the areas in which they are working, and why.

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(4) Verify dispatchers or flight followers are aware of dominant weather patterns and seasonal variations of weather in the area (such as monsoons and jet streams).

(5) Verify dispatchers or flight followers are aware of the available en route alternates and the characteristics of these airports.

(6) Verify dispatchers and flight followers are aware of the available en route alternates and the characteristics of these airports.

D. KNOWLEDGE OF SPECIAL FUEL RESERVES AND PLANNED RE-RELEASE. When special fuel reserves or planned re-release are authorized, verify dispatchers and flight followers are thoroughly versed in these procedures and requirements.

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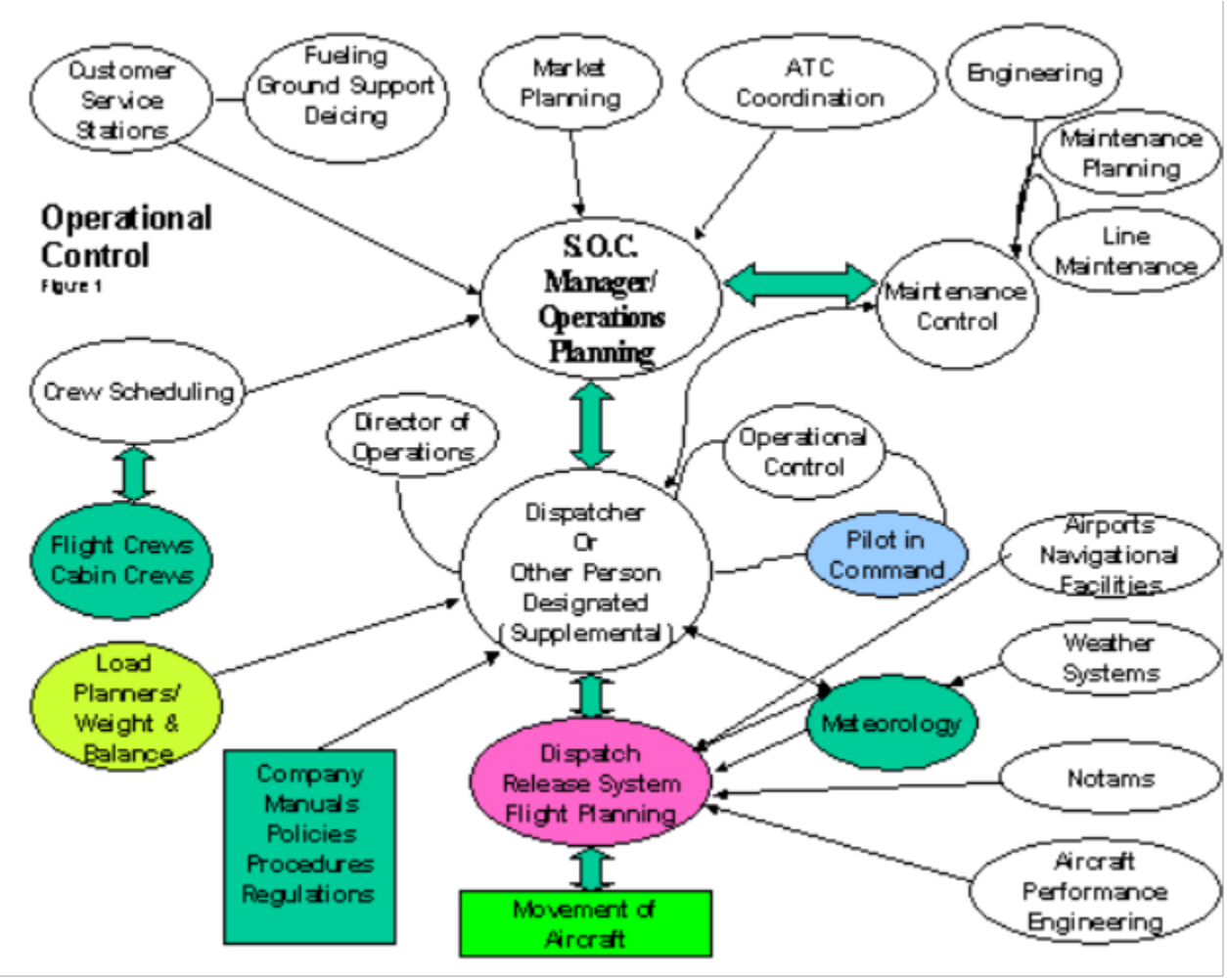
Figure 6-34. Operational Control



RESERVED. Paragraphs 6-645 through 6-659.

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VOLUME 13 FLIGHT STANDARDS DESIGNEES

CHAPTER 2 AIRCREW DESIGNATED EXAMINER PROGRAM

Section 2 Safety Assurance System: FAA's Management of an Aircrew Designated Examiner Program

13-76 REPORTING SYSTEM(S).

A. Program Tracking and Reporting Subsystem (PTRS) Activity Codes. Use PTRS activity codes: 1590, 1621, 1626, 1641, 1642, 1643, 1644, 1645, 1672.

B. Safety Assurance System (SAS). This section is related to SAS Element 2.1.5 (OP), Appropriate Airmen/Crewmember Checks & Qualification.

13-77 OBJECTIVE. This section contains guidance for principal operations inspectors (POI) and aircrew program managers (APM) when managing an Aircrew Designated Examiner (ADE) program. It describes the general structure of the ADE program and the functions of the Federal Aviation Administration (FAA) participants in the program.

13-78 GENERAL. A Flight Standards District Office (FSDO)/certificate management office (CMO) holding a certificate of an air carrier participating in an ADE program may be organized in any one of a variety of ways. Regional Flight Standards division (RFSD) managers structure the management of an ADE program to accommodate local conditions. The following individuals have primary roles in an ADE program:

A. Certificate Manager. The person in a certificate-holding district office (CHDO) with primary responsibility for oversight of an operator is the certificate manager. The certificate manager is responsible for the administration of the operator's certificate. Designation of a certificate manager varies with the structure of the respective office. The CHDO may be a CMO, or it may be a FSDO which has a certificate management unit (CMU). The certificate manager may be:

- An office manager,
- A unit supervisor,
- A supervisory principal inspector (PI),
- A POI,
- A principal maintenance inspector (PMI), or
- A principal avionics inspector (PAI).

B. POI. The POI is responsible for operations within an ADE program. The POI reports to the certificate manager. The organization of operations below the level of POI is in the discretion of the POI, subject to the concurrence of the certificate manager and the RFSD manager. Other operations inspectors assigned to an ADE program support the POI, but may have unrelated activities as well. Similarly, the operator's employees involved in the ADE program also support the POI. Such employees may include the Director of Operations (DO), the chief pilot, the director of training, the respective fleet manager, and others.

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C. APM. An APM is an appropriately trained operations inspector, who is also specifically trained by an operator, to oversee the certification activity and to manage the surveillance of that operator's training program in a specific airplane type. An APM reports to the POI.

D. Partial Program Manager (PPM). One or more PPMs may be assigned to complement the APM in oversight and management activities related to an ADE program. A PPM is specifically trained in the same manner as the APM, and reports to the APM.

13-79 ADE PROGRAM: FAA RESPONSIBILITIES.

A. Responsibilities of a Certificate Manager. A certificate manager is responsible for establishing policies and procedures for operations inspectors in relation to the operator. This responsibility includes coordinating administrative policies and functions, such as scheduling, and maintaining effective working relations between operations inspectors and the operator's employees. Specific functions include the following.

1) Administrative Supervision of APMs. This includes the following:

a) Preparation of APM Employee Performance Reports. District office managers and the RFSD manager organize the district offices so that effective supervisory and reporting relationships are established between a certificate manager and an APM.

b) Standardization of APMs. The APM position requires a high degree of independence, specialization, expertise, and flexibility. An APM usually requires only broad guidance from the certificate manager. On occasion, a certificate manager may be required to provide detailed and specific guidance to standardize APM activities and to implement national policy.

2) Resource Management. Certificate managers are responsible for promoting the implementation of an ADE program, when appropriate, and for recommending its implementation to the RFSD. A certificate manager is responsible for identifying APM resource requirements and for coordinating with the POI, the CHDO manager, and the RFSD to meet these requirements. Resource management functions include the following:

a) Monitoring APM Workloads and Assignments. An APM position may be initially established on the assumption that the APM workload will fully occupy the assigned inspector's time. A certificate manager is responsible for monitoring APM workload and for recommending the deletion of the APM position if workload decreases. On the other hand, a certificate manager may recommend that an APM position be augmented by one or more PPM positions.

1. When an APM's duties, as defined in this order, require less than 100 percent of the APM's available time, the certificate manager and the POI should consider the assignment of additional duties to the APM. For example, an APM might be assigned duty as a PPM on another type of aircraft, or duty as an assistant POI.

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2. When an APM's duties, as defined by this order, exceed 100 percent of the APM's available time, the certificate manager and the POI should consider the assignment of a PPM for the particular airplane type.

b) Identifying and Meeting Staffing Requirements to Support an APM. The certificate manager is responsible for ensuring that APM support requirements are identified, and for coordinating with the POI, the CHDO manager, and the RFSD to meet those requirements. ADE program work and training requirements, as described in this order, must take priority over other inspector functions. When ADE program requirements have not been met, an APM should not be assigned other work. APMs should not normally be assigned administrative tasks or other duties, such as answering complaints or conducting incident investigations and compliance/enforcement activities that are unrelated to an assigned ADE program. Such duties are more appropriately assigned to assistant POIs or other inspectors.

NOTE: This provision does not relieve an APM from normal compliance/enforcement functions when the APM observes noncompliance in the course of ADE program activities. Likewise, it does not relieve an APM from normal administrative functions directly related to the ADE program.

c) Obtaining Manpower and Infrastructure to Support an APM. A certificate manager establishes channels to obtain the services of qualified inspectors to support APM programs, when necessary. Certificate managers coordinate with CHDO and local automation network managers to ensure that APMs are provided with adequate data processing support and are supplied with or can access computer-generated reports.

d) Overseeing APM Training Requirements. The certificate manager ensures that an APM is scheduled for the training provided by the operator, as specified in the Memorandum of Understanding (MOU) establishing an ADE program, and receives that training in a timely manner. Similarly, the certificate manager ensures that an APM receives any requisite training provided by the FAA. The certificate manager identifies and coordinates any requirements with district and RFSD management. A certificate manager is responsible for projecting needed training, together with attendant manpower and budget requirements.

3) Coordinating with Geographic Surveillance Units. Certificate managers are responsible for establishing procedures for communicating with:

- Units having responsibility for geographic surveillance of an operator, and
- Training Center Program Managers (TCPM) when an operator contracts for training at a training center or conducts its training at a training center using its own instructors and check airmen.

B. Responsibilities of a POI. A POI is responsible for all operational matters concerning the administration of the operator's certificate, including management of an ADE program when the operator participates in one. This responsibility includes the following:

1) Achieving Program Objectives. The POI monitors performance to ensure that the ADE program meets its objectives. Objectives are identified nationally under the National

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Work Program or in accordance with the SAS process and locally by FAA managers as special or local emphasis items.

2) FAA/Operator Relations. A POI implements policies and procedures established by the certificate manager.

C. Responsibilities of an APM. An APM supports the POI in technical matters and in surveillance of ADE program activities associated with a specific airplane type. An APM's functions include the following:

1) Airman Certification. An APM is responsible for ensuring that airman certification standards prescribed by Title 14 of the Code of Federal Regulations (14 CFR), by the practical test standards (PTS), and by this order are maintained in the ADE program, as applicable.

a) The operator nominates one or more aircrew program designee (APD) candidates for FAA consideration. An APM recommends a candidate to the POI for selection, and is responsible for qualifying each APD in the conduct of airman certification. An APM maintains certification standards through an active program of meetings and surveillance.

b) To ensure continued, firsthand knowledge of an operator's program and certification activities, an APM will personally conduct a minimum of four certification activities (oral, simulator, or flight evaluations) annually, provided there is sufficient certification activity. If not, an APM will conduct a minimum of four proficiency checks, preferably with no advance notice.

2) Standardization of Check Airmen. An APM ensures that high standards are maintained in the operator's proficiency checks and line checks by developing and maintaining active surveillance of the operator's check airmen.

a) Observing Check Airmen, Initially and Biennially. An APM or PPM should observe each check airman performing a representative check airman function during the initial approval process. The initial check airman observation may be conducted by another qualified inspector when workload prevents an APM or PPM from performing the observation.

NOTE: Another inspector must receive approval from the appropriate POI or APM before conducting an initial check airman observation requested by an operator.

b) Performing Observation. An APM will ensure that each check airman is observed at least biennially (once every 2 years), in accordance with 14 CFR part 121, § 121.413 or 14 CFR part 135, § 135.339, as applicable (PTRS activity code 1641, 1642, 1643, 1644, 1645); or, for a check airman authorized as an APD, at least once per year, in accordance with procedures in Volume 13, Chapter 2, Section 3.

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c) Conducting Inspections Personally. An APM will personally conduct a number of inspections annually. These inspections should include the following:

- At least four inspections (preferably no notice) of the operator's check airmen conducting proficiency checks, and
- At least four inspections of check airmen conducting line checks (preferably no notice).

3) Training Programs, Initial Review, and Surveillance. An APM is responsible for reviewing a proposed training program for an assigned airplane type and, when appropriate, for recommending initial and final approval to the POI. An APM (and PPMs) will monitor an operator's actions when a trainee does not progress as scheduled or fails a proficiency test. An APM is responsible to the POI and the certificate manager for conducting surveillance and for reevaluating the adequacy of the training program at least once each calendar year, using the SAS process. In this reevaluation, the APM should identify any deficiencies and recommend changes as appropriate.

4) Maintaining Airplane Qualification and Currency. An APM will maintain airplane qualification and currency, as specified in paragraph 13-82. Completion of the required training or check in the calendar-month before or after the due month is considered to meet requirements, but does not change the due month.

5) Providing Technical Assistance. An APM develops expert knowledge of the assigned airplane type. An APM may provide technical assistance to other FAA inspectors and offices in incident, accident, and noncompliance investigations related to that airplane type. An APM reviews the operator's procedures, policy and airplane operating manuals, minimum equipment list (MEL), and operations specifications (OpSpec) as an integral part of the surveillance program (PTRS activity code 1621). An APM advises the POI in approving manuals and consults with the appropriate Aircraft Evaluation Group (AEG) for assistance in doing so.

6) En Route Surveillance. An APM is responsible for ensuring a high level of aircrew performance through en route surveillance of operations in the assigned airplane type. En route surveillance includes the following activities:

a) Conducting En Route Surveillance. An APM personally conducts an en route inspection each quarter to maintain firsthand knowledge of the operator's line operations. These observations are conducted in accordance with the SAS process.

b) Monitoring En Route Inspections. An APM continuously monitors the effectiveness of the en route inspections performed in the assigned airplane type. For example, an APM may find that an inadequate number of en route inspections are being conducted in a particular area of operation. The APM may recommend increased en route inspections to the POI. The POI, in turn, may refer the APM's recommendation to the appropriate geographic unit supervisor(s). An APM should analyze inspection results for trends that indicate a need for corrective action. The APM informs the POI of any trends or deficiencies identified and, if appropriate, recommends that the POI establish special-emphasis remedial action.

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c) Preparing Annual En Route Inspection Trend Analysis. The POI, together with each APM, prepares an annual en route inspection trend analysis report. The POI provides a copy of the report to the operator. This report should refer to the comments and observations made by inspectors through the PTRS system. The report is not normally useful as a statistical tool alone, but it does act as an effective early warning and quality control tool for the FAA and for the operator's managers. The report is often a departure point for deliberations by the POI and the operator on the corrective measures to be taken by the operator.

7) Training Geographic Inspectors and Others. An APM participates in a process to provide training for geographic inspectors and other inspectors, as necessary, who are responsible for oversight of an air carrier participating in an ADE program. Such other inspectors might include an operator's POI or certificate manager. Training includes a flight training component and a ground training component comprising the operator's manuals, checklists, and procedures. Training is conducted annually with a 60-day prior notification to the appropriate geographic unit supervisor, so that the inspector may be scheduled in timely manner to attend. This training is accomplished at the FAA's expense, and is apart from the training provided by an operator at the operator's expense, as provided in the applicable MOU.

a) Flight Training.

1. For a geographic inspector, flight training in an appropriate airplane is normally accomplished in accordance with existing FAA procedures, namely:

- By the certificate manager's identifying the need in the annual call for training conducted by Flight Standards Training Division (AFS-500) in February and March, and
- By the inspector's attending training provided under the existing FAA contract for the respective airplane type.

2. Unlike other inspectors, those under the Air Transportation Oversight System (ATOS) are not required by current contracts to attend flight training provided by the respective contract training provider. Ideally, flight training is conducted by the operator upon which a geographic inspector conducts surveillance. However, as a practical matter, flight training provided by the pertinent operator is not always desirable and feasible. In such cases, flight training provided by the contract training provider—another air carrier certificate holder or a 14 CFR part 142 (training center) certificate holder—is an acceptable alternative.

b) Ground Training. Ground training conducted by the appropriate air carrier is the ideal supplement to the flight training described above. A geographic inspector should undergo operator-specific ground training like that of one of the operator's line pilots whenever possible. (Basic indoctrination training may be omitted.) An inspector's attendance in ground training generally does not generate extra costs to an operator, and should be planned and tracked as surveillance. See Volume 10, Safety Assurance System Policy and Procedures, for more detail.

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8) Exchanging of Information. An APM is encouraged to share information and ideas with other APMs and inspectors. An APM identifies inspectors in other FAA offices who are qualified in the APM's assigned airplane and who conduct surveillance on the APM's operator. When appropriate, an APM communicates directly with these inspectors and their supervisors. To provide feedback to district offices with geographic surveillance responsibility for the operator, an APM sends copies of the annual en route inspection program trend analysis report to those district offices.

9) Serving on Boards (Flight Standardization Board (FSB) and Flight Operations Evaluation Board (FOEB)). When selected, an APM should commit to serve on the FSB and/or the FOEB for the appropriate aircraft. An APM is uniquely qualified and is a valuable resource for these boards.

13-80 PREREQUISITES AND COORDINATION REQUIREMENTS.

A. Prerequisites. This task requires knowledge of 14 CFR parts 61, 63, 121, and/or 135 regulations as appropriate and FAA policies, and qualification as an aviation safety inspector (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).

13-81 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 CFR Parts 1, 61, 63, 91, 121, 135, 142, and 183.
- Title 49 of the United States Code (49 U.S.C.).
- PTRS Procedures Manual.

B. Forms. None.

C. Job Aids. Program Assessment Checklist.

13-82 APM ELIGIBILITY REQUIREMENTS.

A. Eligibility Requirements. Before being assigned as an APM in an ADE program an inspector must meet the following eligibility requirements:

- Be fully qualified as an ASI, General Schedule (GS) 1825;
- Hold an Airline Transport Pilot (ATP) Certificate;
- Hold a type rating in an aircraft of the same group, for assignment to an airplane operating under part 121;
- Hold a type rating in an aircraft of the same category, for assignment to an aircraft operating under part 135 requiring a type rating;
- Hold a class rating in an aircraft of the same category, for assignment to an aircraft operating under part 135 not requiring a type rating;

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- Pass the Flight Engineer (FE) written exam before beginning training with the operator, when the aircraft requires an FE;
- Recommended that the candidate have served a minimum of 3 years as an ASI performing airman certifications; and
- Possess interpersonal skills, including sound judgment, integrity, and professionalism in their oversight function. They must be able to communicate expectations, provide constructive feedback, and deal with conflict in a proactive manner.

NOTE: For a candidate for assignment to an airplane operating under part 121, the 3 years of ASI experience must have been acquired in airplanes operating under part 121. For a candidate for assignment to an airplane operating under part 135, the ASI experience must have been acquired in airplanes of the same category. The office manager, with the concurrence of the RFSD, may give credit for equivalent experience gained in industry as a check airman or as a Designated Pilot Examiner (DPE). Credit may also be given for experience in military service as an instructor or flight examiner in equivalent aircraft.

B. Evaluating APM Candidates. Additionally, CHDO managers will evaluate APM candidates to determine that they communicate appropriate expectations, provide constructive feedback, and deal with conflict in a proactive manner.

13-83 APM TRAINING BEFORE DESIGNATION. Before APM designation, an inspector must satisfactorily complete the same training and qualify to the same standards as flightcrew members and as check airmen employed by the operator.

A. FAA Training. An APM candidate must complete applicable APM training. See Volume 13, Chapter 1, Section 1 for initial training requirements.

B. Minimum Required Training for an APM. An APM candidate must complete, to the satisfaction of the POI and the operator, at least the following curriculums/segments of the operator's approved training program:

1) Basic indoctrination training.

2) Pilot-in-command (PIC) initial equipment training, including type rating, when applicable. If the operator does not have a PIC initial equipment training curriculum for the aircraft, APMs must complete the PIC transition curriculum for the aircraft. APMs will complete the FE initial equipment curriculum or transition curriculum, including class rating, when applicable.

3) Any special training, such as Category (CAT) II, CAT III, or long-range navigation (LORAN) that is required by OpSpecs or otherwise for qualification as a PIC for the operator.

4) Training on the proper operation of flight simulation training devices (FSTD).

5) Flight instructor (simulator) and ground instructor training.

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6) Check pilot training and, if applicable, check FE training.

7) The operator's training policies and procedures.

8) Line observation experience. Instead of receiving Operating Experience (OE), as the operator's flightcrew members do, the APM candidate will observe at least four online flight segments that are representative of the operator's use of that aircraft in line operations.

NOTE: An APM candidate is eligible for the advanced simulation provisions of part 121 appendix H, and may receive the certification flight tests in a level C or higher simulator.

C. Inspector Duties During Training. During the period in which an APM candidate is in training with an assigned operator, the candidate should not be assigned or perform unrelated inspector duties.

D. APM Qualification in a New or Additional Airplane Type. Under limited conditions, an inspector may be assigned as an APM on more than one airplane type. The following guidance applies:

1) An inspector will not be assigned as an APM for more than one operator.

2) An APM assigned to an operator's program that involves a turbojet or other airplane requiring a type rating is normally current only in that airplane. An APM may be assigned responsibility for more than one airplane for an operator only with the specific approval of the RFSD manager.

3) An APM assigned to part 135 aircraft other than the transport and commuter category family of aircraft, may be assigned to two families of aircraft, as defined in Volume 3, Chapter 19, Section 1. In the multiengine, general-purpose airplane family other than transport and commuter category, an assigned APM may maintain qualification in two equivalent series of aircraft, such as the Cessna and Piper series.

4) Should it become necessary to qualify an APM in a new aircraft or in a second type of aircraft, the APM will complete all of the training requirements of this section for the second aircraft, except for the following:

- Basic indoctrination training, and
- That portion of check airman training not specific to the second airplane type.

E. Costs of Training. The operator is responsible for providing all required training and bearing its costs. The FAA will bear the cost of any lodging and per diem incurred by the APM.

13-84 MAINTAINING APM QUALIFICATION. An APM must complete the same proficiency, currency, and recurrent training requirements as the operator's check airmen, with the exception of line checks.

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A. Recurrent Training.

1) Recurrent training for an APM consists of the same ground and flight training curriculum segments that the operator provides for its PICs, including the proficiency check requirements for a PIC and FE, when applicable. A proficiency check of an APM is conducted by an inspector chosen by the POI or by an APD observed by another inspector. A company-qualified check airman will occupy the second-in-command (SIC) position as a safety pilot during any APM proficiency check conducted in an airplane.

2) When the operator's training program features single-visit training (under an exemption to part 121), or Advanced Qualification Program (AQP), an APM will participate in that training program in the same manner as the operator's PICs.

NOTE: Section 121.453 specifies the currency requirements for an FE. The POI and the operator should include a provision in the MOU to allow the APM to maintain currency as an FE. One method would be to provide simulator periods every 6 months for training and for checking.

B. Check Airman Qualification.

1) Training and Standardization Meetings. An APM will attend the recurrent check airman training and standardization meetings that the operator provides for its check airmen.

2) Single-Visit Training and AQP. When the operator's training program features single-visit training (under an exemption to part 121) or AQP, the APM will participate in the instructor and evaluator training required by those programs.

C. Landing Currency. The MOU between the FAA and the operator provides for the APM to maintain currency in the assigned airplane. An APM maintains landing currency (three landings every 90 days) for each assigned airplane for which a type rating is required. Each operator offers its APM(s) the opportunity to accomplish landing currency by making available a minimum of 2 hours of simulator time each quarter. If the operator is unable to make available the required simulator time, the operator must provide an aircraft, at the operator's expense, to accomplish the required landing currency. For airplanes not requiring a type rating, an APM maintains currency for the assigned category, class, and equivalent grouping of airplanes.

D. Maintaining Dual Qualification. An APM assigned to two airplane types must be trained and qualified in both airplane types in accordance with this order and the operator's approved training program.

E. Failure to Maintain Qualification and Currency. An APM failing to maintain qualification in accordance with this paragraph will not perform APM functions until all qualification requirements are met.

1) Training completed in the month before or the month after the due month is considered to have been accomplished in the due month.

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2) A POI will not designate an APD when the operator has not provided the APM with the opportunity to remain qualified and current. Likewise, the POI and CHDO managers must take positive action to ensure that FAA responsibilities are fulfilled for keeping an APM qualified and current.

13-85 TRANSITION WHEN AN APM POSITION IS VACATED.

A. Continuity of Staffing. The POI, the office manager, and the RFSD are responsible for assuring the continuity of FAA staffing of an ADE program.

1) When an APM (or PPM) makes known a plan that would cause a position vacancy, such as a planned transfer or a retirement date, the respective POI should immediately arrange for a replacement to be located, selected, and entered into training under the MOU with the affected operator.

2) When an APM (or PPM) vacates a position without time to prepare a replacement, the POI, the office manager, and the RFSD will collaborate to obtain the services of a qualified inspector(s) to act as a temporary replacement until the vacant position can be filled.

B. Position Vacancies. An outgoing APM completes the renewal requirements for those APDs whose designations will expire within 90 days of the date that the APM position will be vacated. If adequate FAA oversight of the ADE program cannot be maintained, the POI cancels one or more APD designations, and may consider canceling the ADE program. If an APM position is vacant for an extended time, the office manager, the POI, and the RFSD detail a qualified inspector to oversee the program. If the APM position remains unfilled for 6 months or more, the office manager will consider canceling the ADE program for the affected airplane fleet.

13-86 REMOTE TRAINING FACILITIES.

A. Facilities Outside the CHDO's Region. An operator with an ADE program may have training facilities located outside the CHDO's area of geographic responsibility. An APM working in such a program is assigned to the CHDO. This APM will regularly travel to the training facility to accomplish APM functions.

1) In some cases, this arrangement may be inefficient, and it may be beneficial to locate the APM in a facility other than the CHDO. The POI and CHDO manager evaluate the specific circumstances, particularly the time and means of commuting to the remote site. If the travel time between the CHDO and the training facility is too great for an APM to travel and to perform APM functions in the same day, locating the APM in a district office closer to the training facility should be considered.

2) Another consideration is whether the APM can perform en route surveillance on the appropriate airplane type during travel to and from the training location.

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B. Facilities in the Same Region. When the CHDO and training facility are in the same region, the recommendation for an APM's remote placement is forwarded to the RFSD. When the CHDO and training facility are in different regions, the recommendation is coordinated through the affected RFSDs and forwarded to AFS-200 for approval. The RFSD for the office in which the remote APM is located ensures that the necessary support is provided by that office.

13-87 AN OPERATOR'S RESPONSIBILITIES. Under an ADE program, the operator makes the following special commitments:

A. FAA–Operator Relations.

1) The ADE program is based on the assumption that an open relationship between the operator and the FAA will be maintained. At any time that an operator participating in an ADE program is unwilling to maintain this vital, open relationship, the POI will cancel the program.

2) An operator must be willing to give an APM complete access to facilities, working-level personnel, and managers. An operator must be willing to accept input from its POI and APM concerning procedures, manuals, and training programs, and to seek mutually acceptable solutions for deficiencies at the working level. The operator must be willing to cooperate fully with incident, accident, and noncompliance investigations. In this relationship, compliance generally comes naturally. However, normal FAA compliance/enforcement procedures apply in respect to noncompliance.

B. APM Support. An operator commits to provide training and to bear the costs of qualifying the APM(s), PPM(s) when required, and replacements for APM or PPM vacancies before the vacancy occurs. The operator must be willing to cooperate in scheduling so that participating FAA inspectors meet qualification and currency requirements in a timely manner.

C. Information. The operator must agree to make the following information available to the POI and APM:

- Projected and revised training schedules;
- Projected and revised APD schedules;
- Notification of any failures and withdrawals from training;
- Actions taken on students who fail or who are withdrawn from training;
- A report of additional training provided to airmen in excess of approved training hours;
- A report of failed proficiency and line checks; and
- At least annually, an analysis of check airmen pass rates. At a minimum, this analysis should compare each individual check airman's pass rate with the overall pass rate at that operator for the specific airplane and type of check (e.g., line check, or proficiency check).

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13-88 CHDO MANAGER'S RESPONSIBILITIES. A manager of a CHDO is responsible for establishing effective administrative systems to support an ADE program. This support includes the following. (See also Volume 13, Chapter 1, Section 1, paragraph 13-11, Office Manager Responsibilities.)

A. Certification Paperwork. An office manager establishes and maintains administrative procedures for the efficient processing of certification paperwork. As much of the processing as possible should be accomplished by trained administrative personnel, not by an inspector, APM, or POI. An APM is not relieved of the responsibility to ensure that an APD punctually and accurately completes certification paperwork. A Flight Standards Service (AFS) office is not required to maintain hard copies of certification paperwork, because the PTRS serves as a record of certification activity.

B. Data Processing Support and Standards Reports. The office manager establishes and maintains administrative procedures for entering APM and APD data into the PTRS. At the close of each quarter, the POI and the office managers will have three reports prepared for use by the APM in managing his/her work program. These reports are generated through ad hoc procedures from the PTRS database. In the future, these reports will be available as standard reports. The three reports are as follows:

1) APD Surveillance Report. An APD surveillance report, showing the surveillance accomplished on each APD during the past 4 quarters, should be formatted as follows:

- Operator;
- Aircraft type and name of each APD assigned to that aircraft;
- Name of each APM;
- Type of surveillance (oral/simulator/aircraft) and date of surveillance;
- Starting date of report; and
- Ending date of report.

2) Check Airman Surveillance Report. A check airman surveillance report, showing the surveillance accomplished on check airmen during the past 4 quarters, should be formatted as follows:

- Operator;
- Aircraft type and number of approved check airmen by specialty (proficiency check or line check);
- Names of check airmen observed, type of surveillance (proficiency check or line check), and date of surveillance;
- Starting date of report; and
- Ending date of report.

3) Aircraft Activity Report. A quarterly activity report should be prepared for each aircraft in the operator's ADE program. (See Figure 13-6, ADE Program Quarterly Activity Report, for format.)

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Figure 13-6. ADE Program Quarterly Activity Report

Aircraft Type: _____

Operator Name: _____

Dates: _____

PILOT CERTIFICATION		ORAL ATP/TR 1510/1514	SIMULATOR ATP/TP 1511/1515	AIRCRAFT ATP/TP 1512/1516
Conducted By:	APM	_____	_____	_____
	ASI	_____	_____	_____
	APD	_____	_____	_____
	Totals:	_____	_____	_____

FE CERTIFICATION		ORAL ORIGINAL/ADDED 1510/1518	SIMULATOR ORIGINAL/ADDED 1511/1519	AIRCRAFT ORIGINAL/ADDED 1512/1520
Conducted By:	APM	_____	_____	_____
	ASI	_____	_____	_____
	APD	_____	_____	_____
	Totals	_____	_____	_____

CHECK AIRMAN SURVEILLANCE – PTRS ACTIVITY CODE 1641, 1642, 1643, 1644, 1645

No. Conducted By APM _____ No. Conducted by ASI _____ Total: _____

APD SURVEILLANCE – PTRS ACTIVITY CODE 1672

No. Conducted By APM _____ No. Conducted by ASI _____ Total: _____

DESIGNATED FLIGHT ENGINEER EXAMINER SURVEILLANCE – PTRS ACTIVITY CODE: 1668

No. Conducted By APM _____ No. Conducted by ASI _____ Total: _____

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13-89 RFSD'S RESPONSIBILITIES.

A. Program Review and Approval. An RFSD manager is responsible for the review and approval of a proposed ADE program involving any operator located within the respective region. The RFSD should give written notification of any such action to AFS-200. The RFSD forwards a copy of the signed MOU to AFS-200 for review and tracking. In any case in which the MOU does not conform strictly to the guidance contained in this order, AFS-200 is party to the review and is the final signature authority. Besides the signatures of the POI, the certificate manager, and the RFSD manager, an AFS-200 signature will be shown on any approved, nonconforming MOU.

B. Resources. The RFSD manager ensures that an ADE program is allocated adequate staffing and funding to function effectively.

1) APM Training. Sufficient resources must be allocated to provide for the training of APMs, in accordance with the requirements of this order.

2) Staffing. An adequate number of APMs, PPMs, assistant POIs, ASIs, and clerical staff must be provided to accomplish the certificate management and APM functions described in this order in an effective and timely manner.

3) Planning. Personnel and budget forecasts will be prepared and revised annually by the certificate manager, and will be reviewed in each cycle by the RFSD manager. The RFSD manager will provide for turnover caused by promotions and retirement and for projected additional positions caused by growth in operators' ADE program activity.

C. Components of ADE Program Assessment. An RFSD conducts periodic reviews of each ADE program authorized within its region. The purpose of these reviews is to ensure that the ADE program is effectively managed in accordance with current FAA policies and procedures and that the program meets its objectives. These reviews are conducted using a risk management approach as often as necessary, but not less often than once each 36 months. A checklist for this purpose is provided in Figure 13-7, Program Assessment Checklist.

1) Assessment Team Members. The program assessment team should consist of five members:

- A team leader from within the region, designated by the RFSD manager;
- A POI of another operator having an ADE program, preferably from outside the region;
- Two APMs from other programs, preferably from outside the region; and
- One ASI without supervisory responsibility from within the region.

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2) Four-Part Program Assessment Report. The program assessment report consists of at least four parts:

- An assessment of the operator's training program to determine if pilots (and FEs, if applicable) are being adequately trained;
- An assessment of the APDs and check airmen to determine if required performance standards are being maintained;
- An assessment of the certificate holder's operating practices to determine if there are any undetected trends which might affect safety (particular attention should be given to manuals, checklists, and operating procedures); and
- An assessment as to whether or not the operations portion of the certificate unit is performing effectively and a determination as to whether the division, certificate manager, POI, assistant POIs, and APMs have followed the guidance of this chapter.

3) Major Findings. The assessment contained in the program assessment report is divided into major and minor findings. Major findings consist of the following items:

- Operator deficiencies which could adversely affect safety and which have gone undetected, unreported, or uncorrected; and
- Management deficiencies which, in the opinion of the assessment team, have a major impact on the effectiveness of the program.

4) Minor Findings. Minor findings contained in the assessment report are those deficiencies which APMs or POIs have recognized. Those deficiencies are being corrected or are correctable. Minor findings should be brought to the attention of the appropriate individual(s) and may be resolved during the assessment period.

5) Oral Outbriefing. An oral outbriefing is given to the certificate manager, the POI, and the APM(s). A written report of the assessment is prepared, containing the identification of each major finding and the recommended corrective action. A review of the extent and nature of minor findings is presented, but the identification of each minor finding and recommended action is unnecessary. A copy of the report is furnished to the certificate manager, the RFSD manager, and AFS-200. A separate outbriefing covering items of concern is conducted for the operator, if applicable.

13-90 HEADQUARTERS (HQ) RESPONSIBILITIES.

A. ADE Program Oversight. The ADE program is one of the most effective designee processes in which the FAA participates. For that reason, any allegation or perception of abuse in the ADE program threatens the program. AFS-200 is the FAA's HQ office with primary responsibility for the ADE program nationwide. That division's chief objective is standardizing the program among the FAA regions, and, as a consequence, promoting its integrity, its effectiveness, and the program itself.

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B. Responsibilities. HQ has the following responsibilities:

1) Collect, Compare, and Track MOUs. AFS-200 will compare and track MOUs submitted by all regions. By that process, inconsistencies among regions, omissions, or misunderstandings of the ADE program are usually identified and corrected at an early stage.

2) Review and Approve Any Nonconforming MOU.

a) The ADE program is founded on a quid pro quo agreement between an operator and the FAA, in which both parties benefit in operational effectiveness. (The public benefits from the safety gains coming from the diligence and expertise that both parties gain under a well-run ADE program.) MOUs are agreed to and signed by both parties. The specific terms of the MOU stipulate that an operator will provide training to inspectors who are charged with oversight responsibilities for appointed APDs.

b) The collegial nature of an effective ADE program has caused critics to allege abuse in some cases. For that reason, any ADE program proposing an MOU that does not conform strictly to the guidance in this order (including the sample MOU in Figure 13-8, Sample Memorandum of Understanding) will be reviewed, approved, and signed by AFS-200 in addition to the POI, certificate manager, and RFSD manager who routinely sign, signifying approval of the program.

13-91 ESTABLISHING AN ADE PROGRAM. An operator or the FAA may initiate discussions about the establishment of an ADE program. A POI should discuss the contents of this chapter in detail with the assigned operator interested in an ADE program. An operator should completely understand the program's objectives and the specific terms of the MOU establishing the program. A sample MOU is included as Figure 13-8.

A. MOU Approved by the RFSD.

1) The MOU must be signed by:

- An appropriate official for the operator,
- The POI,
- The certificate manager, and
- The RFSD manager.

2) The certificate manager forwards a copy of the MOU, any appropriate attachments, and the certificate manager's recommendations to the RFSD manager for review.

3) If the RFSD manager determines that the ADE program should be established, the RFSD manager signs and dates the MOU in the space provided, signifying approval.

4) The RFSD manager returns the original copy of the MOU to the CHDO for retention in its ADE program files, and forwards a copy to AFS-200.

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B. MOU Not Approved by the RFSD. If the RFSD manager determines the ADE program should not be established, the manager forwards a letter to the appropriate office manager and returns the proposed MOU. The letter must contain an explanation of the reasons for withholding approval.

C. Nonconforming MOU, Subject to FAA HQ Approval. In any case in which the MOU does not conform strictly to the guidance contained in this order, including the sample MOU (Figure 13-8), AFS-200 is party to the review and is the final signature authority. The RFSD manager forwards the proposed MOU to AFS-200. Besides the signatures of the POI, the certificate manager, and the RFSD manager, an AFS-200 signature will be shown on any approved, nonconforming MOU.

13-92 PROGRAM REVISIONS. Revisions to an approved ADE program may be required for a variety of reasons, such as mergers and equipment changes. The POI will consider the effects of such changes and take appropriate action. Typically, the MOU is revised. Some changes, such as mergers, may affect more than one operator. Recommendations for changes affecting more than one operator in the same region will be forwarded to the RFSD for action. Office managers are responsible for continually evaluating the effectiveness of ADE programs and for responding to feedback on a timely basis. This evaluation is integral to ongoing continuous improvement.

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Figure 13-7. Program Assessment Checklist

AREA I. OPERATOR'S TRAINING PROGRAM. An assessment of the operator's training program shall be conducted.

A. Are the airmen trained and certified in the program qualified for and proficient in the operations conducted?

B. Does the operator have a consistent cockpit management philosophy which is applied to all aircraft operated?

C. Does the operator's training program incorporate Crew Resource Management (CRM) training?

AREA II. APD AND CHECK AIRMAN PERFORMANCE. An assessment of the APD's/designated flight engineer examiner's (DFEE) and the check airman's performance shall be conducted to determine if the required standards are being maintained.

A. Is the level of competence required for the check airman and APD designation adequate?

B. Are the APDs complying with the airman certification regulations and the guidance of this order?

C. Are the check airmen complying with the regulations and guidance of this order?

AREA III. OPERATING PRACTICES. An assessment of the certificate holder's operating practices shall be made to determine if undetected trends are present which might affect safety.

A. Is the policy and direction provided by the operator clear and adequate?

B. Do crews adhere to the policy and guidance provided by the operator, the regulations, and safe operating practices?

C. Are problems or trends present that have not previously been recognized and documented?

D. Are corrective actions being taken to solve previously identified problems?

E. If there are previously identified problems, does the team judge the corrective actions as likely to be effective and sufficient?

AREA IV. ADE PROGRAM MANAGEMENT. An assessment of the operations portion of the certificate unit will be made to determine if the APM is performing effectively in managing the ADE program.

A. Are APMs able to concentrate on technical questions, APD training, and the surveillance of APDs and check airmen, or are they required to concentrate on certification activities and compliance/enforcement duties?

B. Have APMs gained an expert knowledge of the operator's aircraft, manuals, procedures, management personnel, and training programs?

C. Are APMs personally conducting a minimum of four certification actions (oral tests or flight tests) each year?

D. Are APMs personally conducting the required number of inspections that follow?

- At least four inspections of the operator's check airmen conducting proficiency checks?
- At least four inspections of check airmen conducting line checks?
- Conducting surveillance of the operator's training program-related activities for their assigned aircraft, to include initial, upgrade, differences, recurring, and specialized training?
- Conducting surveillance of the flight simulators and flight training devices used in the operator's training program to determine if they are being properly used with respect to program requirements and if they are being maintained so that training program effectiveness is not adversely affected?
- Are the operator's instructors and examiners documenting malfunctions in the simulators and flight training devices, and is the equipment being repaired promptly when discrepancies are noted?

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E. Are APMs establishing programs to ensure that each check airman is observed at least once every 2 years?

(1) Are geographic units being notified of check airman designations?

(2) Are the results of check airman observations being monitored and analyzed for trends?

F. Are APMs reviewing training programs for their assigned aircraft and monitoring operator's actions when students do not progress as scheduled or fail proficiency tests?

G. Are APMs monitoring and analyzing the effectiveness of the en route inspection program on both the operator and the assigned aircraft on a continuing basis?

(1) Are APMs determining the geographic units which have surveillance responsibility for aircrew domiciles of the assigned aircraft and providing geographic unit supervisors with information to establish Planned Surveillance Work Activities (P-item) by August 1 of each year?

(2) Are APMs analyzing inspection results for trends and other areas that indicate a need for corrective action?

(3) Are en route inspection trend analysis reports prepared by the POI in conjunction with each APM?

(4) Are copies of the report provided to and discussed with the operator?

(5) Are APMs identifying and training geographic unit inspectors who have specific surveillance responsibilities for segments of the program the APM manages?

(6) Are APMs exchanging information and ideas with other APMs and inspectors?

H. Is the operator willing to participate in the program?

(1) Is the operator providing the APMs with the training previously agreed to?

(2) Is the operator extending privileges and courtesies to APMs required as a condition of the program?

(3) Is the operator giving APMs unrestricted access to facilities, working-level personnel, and managers?

(4) Is the operator willing to accept input from the POIs and APMs concerning procedures, manuals, and training programs and to seek mutually acceptable solutions for deficiencies at the working level?

(5) Is the operator willing to cooperate fully with incident, accident, and noncompliance investigations?

(6) Is the operator cooperating in scheduling so that APM qualification and currency requirements are accomplished in a timely manner?

(7) Is the operator providing the required information to the POI and APMs?

I. Is there an MOU between the operator and the CHDO?

(1) In the team's opinion, does the memorandum effectively define the responsibilities of both parties?

(2) Are these responsibilities being faithfully discharged?

(3) Has the MOU been kept up to date?

J. Is the operations unit effectively managed?

(1) Is the certificate manager informed about issues, problems, and corrective actions within the ADE program?

(2) Are both the authority and responsibility for accomplishing the administrative functions related to management of the certificate and to the ADE program vested in one senior operations inspector, who reports to and is directly responsible to the certificate manager?

(3) In the team's opinion, is the organizational structure effective?

(4) How is the operations unit measuring, analyzing, and ensuring that the ADE program meets its objectives?

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(5) Have policies and procedures been established for operations inspectors in relation to the operator? In the opinion of the team, are these policies and procedures effective?

(6) Does the office organizational structure ensure that supervisory and reporting relationships between the POI and the APMs are effective?

(7) Have APMs' resource requirements been analyzed annually? Has coordination been conducted with the certificate manager, office manager, and the RFSD to ensure that these requirements have been satisfied?

(8) Has an annual budget been forwarded by the certificate manager to the RFSD?

(9) Have APMs' administrative support requirements been identified and coordinated with the certificate manager to obtain the necessary support?

(10) Are APMs scheduled for required training from both the operator and from the FAA? Are APMs actually receiving the required training from both the operator and from the FAA?

(11) Were channels established to obtain the services of qualified inspectors in support of APM programs when necessary?

(12) Are adequate data processing support facilities supplied?

K. Are APMs completing the same training and qualified to the same standards as flightcrew members and check airmen employed by the operator in the assigned aircraft? Are APMs completing the following training:

(1) Basic indoctrination training?

(2) PIC initial equipment training?

(3) Special training, such as CAT II, CAT III, or LORAN, that is required for qualification as a PIC for the operator?

(4) The operator's check airman training for the pilot duty position for the FE duty position, when applicable?

(5) Observing at least three crews on line flights before designation?

L. During the period in which APM candidates are training with assigned operator, are they relieved of normal inspector duties?

M. Is the operator satisfied with the qualifications and competency of the individuals assigned as APMs?

N. Are office managers and POIs coordinating with the RFSD to assure continuity of the ADE program when an APM is reassigned?

O. If an operator has training facilities located outside the area of geographic responsibility of the CHDO, has an analysis been made of the benefits of locating the APMs within the CHDO?

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Figure 13-8. Sample Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

BETWEEN

[NAME OF AIR CARRIER]

AND THE

FEDERAL AVIATION ADMINISTRATION

This Memorandum of Understanding (MOU) is based upon guidance in FAA Order 8900.1, Flight Standards Information Management System (FSIMS), Volume 13, Chapter 2. The parties to this MOU are [NAME OF AIR CARRIER], and the Federal Aviation Administration (FAA) Flight Standards District Office (FSDO) (or certificate management office (CMO)).

1. The Aircrew Designated Examiner (ADE) program has been established pursuant to the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 183, which permits, among other things, the delegation of certification authority and responsibility to selected and mutually agreed-upon [NAME OF AIR CARRIER] check airmen, to be known as aircrew program designees (APD). These APDs may conduct airman certification tests under the supervision of FAA inspector(s), known as aircrew program managers (APM). APMs report directly to [NAME OF AIR CARRIER] principal operations inspector (POI) in all matters pertaining to the ADE program.

2. POIs are responsible for management of the ADE program. The POI's functions include establishing policies and procedures, and coordinating and standardizing the activities of FAA inspectors assigned to support [NAME OF AIR CARRIER] ADE program.

3. In order to function effectively in an ADE program, the APM and assigned inspectors require an expert knowledge of the training program and operational procedures being conducted by the operator. [NAME OF AIR CARRIER] agrees to extend to the APM and assigned inspectors all privileges that the operator grants to its own flight instructors and check airmen, except the privilege of acting as pilot in command (PIC) of an aircraft in actual flight operations and those personnel functions that are afforded employees of as a condition of employment. For example, the APM or assigned inspectors must be granted the same authority to operate the controls of flight simulators and flight training devices (FTD) as the operator grants to its own flight instructors and check airmen.

4. APDs will be nominated by [NAME OF AIR CARRIER] in accordance with the policies and procedures outlined in FAA Order 8900.1 and appropriate FAA guidance. APD nominees must complete both [NAME OF AIR CARRIER] and FAA-required training prior to appointment and will conduct all authorized duties and responsibilities under the supervision of the assigned APM. It is understood that APDs with FAA certification authority will be required to complete the training associated with the issuance of FAA certificates. Required FAA training will normally be provided by the APM in accordance with existing FAA guidelines; however, from time to time other FAA-authorized instructors may be assigned to accomplish required training. This training may require the nominee to travel to FAA training facilities not associated with the APD's principal or satellite center. The FAA agrees to provide APD training at no cost to [NAME OF AIR CARRIER]; however, associated travel and lodging expenses will be the responsibility of [NAME OF AIR CARRIER]. Once designated, APDs may be removed by either party, at any time, if that individual becomes unacceptable to the FAA or [NAME OF AIR CARRIER]. Notification of such removal will be made in writing to the other party on or before the effective date of such removal. The policies and procedures contained in FAA Order VS 1100.2 (current edition) will be followed whenever removal action is contemplated or conducted.

5. [NAME OF AIR CARRIER] shall provide the following training at its own expense for the APM and assigned FAA inspectors participating in the ADE program. The training provided shall be the same training that [NAME OF AIR CARRIER] provides to its own flight instructors and check airmen for initial qualification and

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recurrent training. Assigned inspectors shall complete the appropriate training to the mutual satisfaction of [NAME OF AIR CARRIER] and the POI. Should an assigned inspector fail to progress through training satisfactorily, [NAME OF AIR CARRIER] shall provide the same remedial training that it provides to its own crewmembers. Should the inspector continue to fail to reach or maintain a mutually satisfactory level of competency, the POI shall meet with an appropriate airline official to resolve the matter. The minimum required training shall consist of (but not necessarily be limited to):

a. Basic indoctrination training;
b. Initial and recurrent aircraft equipment training, including type rating(s) and Flight Engineer (FE) class rating, if required;
c. Training in any appropriate specialty curriculums associated with an aircraft training program (e.g., Category (CAT) II or III procedures or special instrument approach procedures);
d. Training on the proper operation of center training devices, FTDs, and simulators;
e. Flight (simulator)/ground instructor and check airman training and FE training (if required);
f. [NAME OF AIR CARRIER] training policy and procedures;
g. Any other center programs and or procedures that [NAME OF AIR CARRIER] believes appropriate to maintain the APM and assigned inspectors' currency in the operator's policies and procedures; and
h. Sufficient PIC training in each aircraft authorized, each calendar quarter to ensure currency in accordance with FAA Order 4040.9 (current edition).

NOTE: The training referenced in subparagraphs 5a through 5g may be used to the extent practical to satisfy the requirements of the PIC training required by paragraph 5h. Training considered duplicative in nature is not required.

6. The training referenced in paragraph 5 will be administered and scheduled in accordance with the following guidelines and shall be provided by [NAME OF AIR CARRIER] at its expense:

a. All subject training will be scheduled in coordination with the APM.
b. Training and checking events will be scheduled between the hours of 0600 and 2200, unless an exception has been coordinated with the APM.
c. The APM and assigned inspectors may be scheduled for training in regularly scheduled classes with [NAME OF AIR CARRIER] crewmembers.
d. A 2-hour simulator period will be made available for administering the APM's and assigned inspector's required proficiency checks, unless a greater period is required due to aircraft complexity and standard [NAME OF AIR CARRIER] policies for evaluations relating to that specific aircraft(s). The FAA agrees to use reasonable efforts to provide a complete crew complement for these evaluations. However, in situations where this is not practicable, or at [NAME OF AIR CARRIER] request, [NAME OF AIR CARRIER] will provide a qualified instructor to fill required crew positions as appropriate. [NAME OF AIR CARRIER] will also provide a qualified simulator or FTD operator if required.
e. The APD and other crewmember services referenced in this paragraph will be provided at no cost to the FAA.

7. In lieu of Operating Experience (OE), assigned inspectors shall be authorized to observe from the cockpit observer's seat, a minimum of four revenue segments. This observation process requires that assigned inspectors remain with the flightcrew throughout the assigned trip pattern to become familiar with a cross-section of line operations.

8. The APM and assigned inspectors are eligible for the advanced simulation provisions of 14 CFR part 121 appendix H, and may receive the certification check in a level C or level D simulator. The ADE program may exist apart from an appendix H training program. In such cases the inspectors' training may be conducted in whole or in part in an aircraft, provided at the operator's expense.

9. The APD/DFEE candidate shall submit a complete statement of professional qualifications on FAA Form 8710-6, Examiner Designation Qualification Record (current version). The APM shall review the qualifications and shall recommend to the POI that the candidate be designated as an APD/DFEE, when appropriate.

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10. APD/DFEE designees shall be authorized to perform airman certification in only one type of aircraft. This authority is limited to the certification of graduates of [NAME OF AIR CARRIER] FAA-approved training programs who are employed as flightcrew members by [NAME OF AIR CARRIER].

11. All airman certification activities conducted by the APD/DFEE shall be limited to the privileges of the APD's/DFEE's own Airman Certificate, Certificate of Authority (COA), and letter of authority (LOA), and shall be effective only in the aircraft type named in those documents. The APD may conduct pilot oral tests and flight tests for Airline Transport Pilot (ATP) Certificates, and for category, class and type ratings to be added to ATP Certificates. DFEEs may conduct oral tests and flight tests for FE Certificates and for the addition of class ratings to FE Certificates.

a. An APD/DFEE may not conduct an evaluation of any applicant, which the APD/DFEE has instructed for the certificate or rating to be issued, unless specifically authorized by the POI or the APM. Further, an APD/DFEE may not conduct FAA written tests, special medical evaluations, tests for waivers, or any test for competency under applicable provisions of Title 49 of the United States Code (49 U.S.C.), (formerly section 609(a) of the Federal Aviation Act). Any privileges and limitations shown on an examiner's COA issued outside an ADE program, do not apply within the ADE program.

b. The APM shall train and evaluate the prospective APD/DFEE in applicable duties and responsibilities. The APD/DFEE shall be trained and evaluated in at least the following areas:

1) The knowledge, skill, and ability requirements for the initial issuance of the ATP Certificate, and for type ratings added to the ATP Certificate (or for the issuance of the initial FE Certificate and added class ratings, as applicable);
2) The procedures, methods, and techniques associated with administering the required certification tests;
3) The responsibilities, authority, and limitations of designated examiners under regulations and under FAA Orders 8900.1 and VS 1100.2;
4) The use of FAA forms and job aids associated with the particular job function;
5) The administrative procedures and supervisory relationships that exist in the ADE program;
6) The understanding that [NAME OF AIR CARRIER] policies and economics, union loyalties, and seniority issues are not relevant when certifying airmen; and
7) After formal training, observation of the APM conducting a complete oral test, a complete flight test, and all the necessary briefings; also, the completion of all certification paperwork.

12. The APM shall ensure that essential FAA materials such as FAA forms are available to authorized APDs. The APM shall conduct regular meetings with the APDs for the purpose of maintaining an effective working relationship and resolving problems. The APM shall attend crewmember safety meetings held by [NAME OF AIR CARRIER].

The following signatures signify agreement to this MOU and its contents:

FOR AND ON BEHALF OF [NAME OF AIR CARRIER].

_____ (mm/dd/yyyy)

(Position) Effective Date

FOR AND ON BEHALF OF FEDERAL AVIATION ADMINISTRATION

_____ (mm/dd/yyyy)

(FAA POI or Office Mgr.) Effective Date

(FSDO/CHDO address)

_____ (mm/dd/yyyy)

(Other FAA signatures as deemed appropriate) Effective Date

(Position and office)

RESERVED. Paragraphs 13-93 through 13-105.

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