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AC 135-3B

CHANGE 1

DATE 12/12/80

ADVISORY CIRCULAR

CHANGE



DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

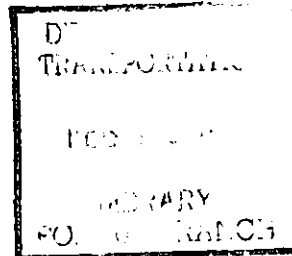
Subject: AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

PURPOSE. This change transmits various revisions to operators' training programs regarding increased training and testing requirements for operation involving turbojet aircraft. Significantly greater emphasis has been placed on this area; such emphasis is further reflected in the revision to Appendix 1.

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KENNETH S. HUNT
Director of Flight Operations, AFO-1



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(2) Surveillance Results. Check airman and the observing FAA inspector should mutually agree on the results of an observed competency, instrument proficiency, or line check before the pilot being checked is advised of the results. Any discussion concerning the pilot or the results of the observed check will not be discussed in the presence of the pilot being checked. The FAA will, if there is a problem with regard to the performance of the check airman, inform the company in writing of the problem, discrepancies, if any, and corrective action which should be taken. This letter will also advise the company as to the future status of the check airman. The FAA inspector observing the conduct of the check will normally debrief the check airman following the check airman's debriefing of the pilot being checked.

82. CHECK AIRMAN AND FLIGHT INSTRUCTOR TRAINING/RECURRENT REQUIREMENTS.

a. Check airmen and flight instructors are required to participate in the regular proficiency check program of the operator, as appropriate, to the airman function for which they are approved. FAR Section 135.337 requires check airmen and flight instructors to hold at least the airman certificates and ratings that must be held to serve as a pilot in command in operations under Part 135.

b. Check airmen and flight instructors must have satisfactorily completed the appropriate training phase (including recurrent training), the applicable training requirements of FAR Section 135.339, and the appropriate competency and instrument proficiency checks that are required to serve as a pilot in command under Part 135.

c. FAA inspectors will monitor the adequacy and effectiveness of the training of check airmen and flight instructor personnel to ensure that their knowledge, proficiency, and ability is sufficient to maintain effective quality control in the ATCO's training program.

83. RECORD OF AIRMEN PROFICIENCY/QUALIFICATION CHECK.

a. Check airmen will record the results of all knowledge and flight tests on an Airman Proficiency/Qualification Check Form (figure 5-1). The form should be completed in duplicate, with one copy being provided to the pilot being checked, and the original being placed in the ATCO files.

b. A letter of competency issued to a pilot who passes an instrument proficiency check will contain the make and model of aircraft used (figure 5-2). However, the make and model of autopilot, if any, need not be identified since a satisfactory demonstration using one autopilot system authorized by appropriate operations specifications will suffice for use of other autopilot systems authorized by operations specifications.

c. During tests conducted for the approval of the use of an autopilot system, a pilot need not demonstrate proficiency using an autopilot to conduct an instrument approach procedure in addition to manually flying the aircraft during each type of instrument approach procedure for which he is authorized. A combination of autopilot and manually-flown approaches should be demonstrated in accordance with FAR 135.297(g).

d. A higher standard of performance is required of commercial pilots assigned to FAR 135 operations than is required for the issuance of a certificate or instrument rating under FAR 61. A general standard of competence is expressed in FAR 61.43 which is flexible enough to accommodate the difference in levels of competence expected between private and commercial pilots. This section requires the pilot to be the obvious master of the aircraft with the outcome of a maneuver never seriously in doubt. In contrast, the standard in FAR 135.293(d) omits the word "seriously" as used in FAR 61.43(a) and (b). Therefore, a commercial or instrument rated pilot may fail to meet the standards of performance for a 6-month instrument check under FAR 135, yet still meet the performance standards of FAR 61 and be eligible to retain his instrument rating (similarly for any other check).

84. TRAINING AND OTHER REQUIREMENTS FOR HANDLING OF HAZARDOUS MATERIALS. It is a requirement that agents, contract personnel, and/or freight forwarders used by an ATCO be trained in the handling or carriage of hazardous materials. Some operators are not knowingly involved in the carriage of hazardous materials. Such operators must nonetheless conduct training in the applicability of pertinent regulations, and the basic classification and broad definitions of hazardous materials. The basis for this requirement is contained in FAR 135.333(c). For an expanded explanation of the above requirements, see AC 121-21A, Information Guide for Training Programs and Manual Requirements in the Air Transportation of Hazardous Materials.

* 85. ADDITIONAL TRAINING AND TESTING REQUIREMENTS FOR OPERATIONS INVOLVING TURBOJET AIRCRAFT.

a. Recently, there has been evidence that crewmembers are operating turbojet aircraft in excess of the M_{MO} specified by the manufacturer. Such practice may have been a contributing factor in several high altitude-related accidents. Some turbojet operators provide no specific training in dutch roll recovery. Yaw dampers are installed to reduce the effect of this undesirable flight characteristic. However, training and testing in specific flight characteristics peculiar to that airplane type are required for an airline transport pilot certificate and by FAR 135.297(i). Recovery from dutch rolls is an example of a flight characteristic intended to be included in this testing area. In summary, an increasing number of turbojet accidents have occurred as a result of aircraft control problems indicating that these operators should increase their training requirements in this area.

* b. Based on the foregoing, the following procedures should be adhered to when turbojet operations are involved:

(1) The ground portion of all training programs relating to turbojet operations should include specific emphasis on the danger of turbojet aircraft operation beyond M_{MO} , in addition to other flight phenomena peculiar to their operation. As an example, there should be a thorough discussion of dutch roll characteristics and recovery procedures. The significance and use of the yaw damper should be thoroughly covered. Other aircraft characteristics, especially those that may be encountered in unusual or emergency operating conditions, should be included. The written examination should include questions on the above items to ensure adequate crewmember comprehension.

(2) Throughout the flight training program, from aircraft familiarization through the flight check, special emphasis should be placed on items peculiar to turbojet operations. In addition to items previously discussed, operation at high altitudes and powerplant characteristics should be covered in flight. In order to thoroughly cover all items peculiar to turbojet operation, it is suggested that the operators' training program allocate additional flight training hours for this purpose. This is especially pertinent for pilots having little or no previous time in make and model, or little or no previous turbojet time.

(3) Simulation of component failure in flight, in some instances, may create an unsafe situation. Accordingly, such simulations should not be accomplished in actual aircraft operation.

86.-100. RESERVED.

1. Training Time (Minimum) (Established times will be shown as determined appropriate by the operator.)
Initial Training Phase
2. Each training phase, both ground and flight, shall be increased by _____ hour(s) for each type aircraft in which the pilot is to be certified.
3. Additional Phase Training for Turbojet Aircraft

* REFERENCE LIBRARY (Course Material). *

1. Federal Aviation Regulations, Part 1, 61, 91, 135, and NTSB Part 830.
2. Training Manuals and Handbooks.
 - (a) AC 00-6A Aviation Weather
 - (b) AC 00-45B Aviation Weather Services *
 - (c) AC 00-24A Thunderstorms
 - (d) AC 135-3B Air Taxi Operators and Commercial Operators of Small Aircraft *
 - (e) AC 61-27B Instrument Flying Handbook
 - (f) AC 90-23D Wake Turbulence
3. Company Manual
4. Airman's Information Manual
5. International Flight Information Manual
6. Aircraft Owners Handbook and/or Flight Manual for each type of aircraft in the operation
7. VFR and IFR navigation, departure and approach data pertinent to the assigned area of operations.

* FACILITIES.

1. Training facilities will consist of the following:
 - (a) Three academic classrooms equipped with blackboards, overhead projectors, and screens.
 - (b) One training room with LR-23 mockup trainer to be used for starting and fuel control procedures.
 - (c) One library room containing at least one reference copy of all course material.
2. All simulator training will be performed off-site at the ABC Simulator Training Corporation. *

CURRICULUM & MINIMUM TRAINING TIME

INITIAL PHASE TRAINING

1. Ground Training:

- a. FAR 91
 - b. FAR 135
 - c. FAR Written Exam
 - d. Operations Specifications and Operations Manual
 - e. Examination
 - f. Aircraft Operated
 - g. Examination on Aircraft
 - h. Navigation and ATC Procedures
 - i. Route and Airport Qualification
 - j. Adverse Weather Operations and Meteorology
 - * k. Examination on g., h., through i.
- (Established times will be shown as determined appropriate by the operator.)

GROUND TRAINING TOTAL:

Pilots with appropriate previous air taxi experience (as determined acceptable by the FAA) may, in lieu of completing all of the ground training curriculum, successfully pass a written examination, on curriculum areas, given by an authorized check airman as an equivalent of ground training curriculum completion.

2. Flight Training:

- a. Aircraft Familiarization and Basic Piloting Technique
 - b. Emergency Procedures
 - * c. Instrument Procedures
 - d. Flight Check
- (Established times will be shown as determined appropriate by the operator. Additional time is suggested in all types for training in turbojet aircraft.)

FLIGHT TRAINING TOTAL:

Pilots with previous air taxi experience (as determined acceptable by the FAA) may, in lieu of completing the total minimum flight training hours as specified in the curriculum, successfully pass the flight checks as required by Federal Aviation * Regulation 135.293(b) and/or 135.297, and 135.299. (It is suggested that a specified minimum be applicable in any case for flight training in turbojet aircraft.)

RECURRENT PHASE TRAINING:

- 1. Ground Training
 - * 2. Written Examinations
 - 3. Flight Training
 - 4. Flight Check
- (Established times will be shown as determined appropriate by the operator. Additional time is suggested in the flight training category for turbojet aircraft.)

6. COMPANY AIRCRAFT & EXAMINATION:

- * Powerplant
- * Propeller and Supercharger operations
- * Electrical
- * Fuel
- * Hydraulic
- * Weight and balance
- * Instruments
- * Heating and ventilation
- * Airspeeds
- * Runway lengths
- * Emergency procedures
- * Examination

7. NAVIGATION AND ATC PROCEDURES

- * General - Pertinent to scheduled operation
- * (1) Instrument approaches
- * (2) Area procedures, including communications facilities

8. ROUTE AND AIRPORT QUALIFICATIONS:

- * General - for new routes
- * (1) Weather characteristics
- * (2) Terrain and obstruction hazards
- * (3) Minimum safe flight levels
- * (4) Congested areas, obstructions, and physical layout of each airport

9. ADVERSE CONDITIONS AND METEOROLOGY:

- * Meteorology, general and appropriate to area of operation
- * Weather analysis and dispatch considerations
- * Operating in turbulent air or icing conditions;
 - (a) Use of airborne weather radar/thunderstorm detection equipment
 - (b) Proper use of stabilizer trim and autopilot (when applicable)
 - (c) Flying qualities in turbulence - Company aircraft
 - (d) Attitude control
 - (e) Flying in vicinity of thunderstorms
 - (f) Use of proper airspeed for turbulence penetration
 - (g) Wake turbulence
 - (h) Door opening (unwanted)
 - (i) Cold weather

- (j) Blocked or frozen pitot systems
- (k) Icing
- (l) Mechanical failure
- (m) Hydroplaning

10. EXAMINATION:

- * Navigation and ATC procedures
- * Route and airport qualifications
- * Bad weather operations and meteorology

FLIGHT TRAINING:

* Flight training standards in practical skills and techniques will be as set forth in Federal Aviation Regulation Part 61 and related advisory circulars for the pilot certificate held, and for the category, class, and type of aircraft the pilot is to operate with the added requirements that the outcome of the maneuver is never in doubt. Items followed by (S) may be accomplished in an aircraft simulator, (T) a training device.

ALTERNATE PROCEDURE RE: USE OF SIMULATOR/TRAINING DEVICE:

If a simulator or training device approved for use under this training program for certain maneuvers, procedures, or functions becomes inoperative or, for any other reason, a maneuver, procedure, or function programmed for the simulator training device cannot be accomplished in the simulator or training device, such maneuvers, procedures, or functions will be accomplished satisfactorily in an aircraft.

1. AIRCRAFT FAMILIARIZATION.

2. BASIC PILOTING TECHNIQUE:

- * Cockpit preflight and use of checklist (T)
- * Taxiing (S)
- * Normal takeoffs and landings
- * Crosswind takeoffs and landings
- * Short field technique
- * Maneuvering - minimum speed (S)
- * Stalls (S)
- * Steep turns (S)
- * High speed maneuvering characteristics - turbojet aircraft
- * Recovery from unusual altitudes

3. INSTRUMENT PROCEDURES:

- * En route climb and descent (T)
- * VOR approach (T)
- * NDB approach (T)
- * ILS approach (T)
- * Circling approach (S)

4. EMERGENCY PROCEDURES - MULTI-ENGINE

- * Emergency systems operations (T)
- * Emergency go-around (S)

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M. 494.4

AC 135-3B

CHANGE 2

DATE 1/12/82

ADVISORY CIRCULAR

CHANGE



DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

Subject: AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

PURPOSE.

a. This change transmits a new paragraph 34 entitled, "Operations in Isolated Areas without an Instrument Rating." In addition, it includes revisions to four other areas as follows:

- (1) The use of the letter of competency has been eliminated.
- (2) Crew coordination procedures are emphasized in training programs.
- (3) Engine failure during takeoff procedures are also emphasized in training programs.

b. Chapters 3, 4, and 6 are revised and Chapter 7 added to clarify and rearrange maintenance information. In addition, the example operations specifications concerning maintenance and weight control are deleted from Chapters 3 and 6. Example operations specifications are in an internal FAA Order 8320.12, Air Carrier Airworthiness Inspector's Handbook, and will be provided to an operator by assigned airworthiness inspectors. Appendix 2 is revised to clarify manual requirements and Appendices 4 and 5 are deleted because AC 135-10, Approved Aircraft Inspection Program, provides criteria for approved aircraft inspection programs.

c. Paragraph 32(f) has been added to provide procedures for operations within, above, and below North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) airspace.

d. Changes are indicated by asterisks in the left and right margins.

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KENNETH S. HUNT
Director of Flight Operations

ADVISORY CIRCULAR



DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

FAR GUIDANCE MATERIAL

Subject: AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

1. PURPOSE. This advisory circular (AC) sets forth one means that would be acceptable to the Administrator to assist persons in complying with the requirements of Federal Aviation Regulations (FAR), Part 135. Such persons, for the purpose of this AC, are hereafter referred to as operators or, in certain cases, certificate holders.
2. CANCELLATION. AC 135-3A, Air Taxi Operators and Commercial Operators of Small Aircraft, dated 1/16/75, is canceled.
3. RELATED FAR. FAR Parts 43, 61, 65, 91, 97, 121, 127, 135, and 145.
4. RELATED READING MATERIAL.
 - a. Additional information may be found in:
 - * (1) AC 120-16C, Continuous Airworthiness Maintenance Programs. *
 - (2) AC 120-17A, Maintenance Control by Reliability Methods.
 - * (3) AC 120-27A, Aircraft Weight and Balance Control. *
 - (4) AC 121-1A, Standard Operations Specifications - Aircraft Maintenance Handbook.
 - * (5) AC 121-14C, Aircraft Simulator and Visual System Evaluation and Approval. *
 - (6) AC 121-21A, Information Guide for Training Programs and Manual Requirements in the Air Transportation of Hazardous Materials.
 - * (7) AC 135-10, Approved Aircraft Inspection Program. *

* (8) AC 135-7, Additional Maintenance Requirements for Aircraft Type
Certificated for Nine or Less Passenger Seats. *

b. The Federal Aviation Administration (FAA) publishes an Advisory Circular
Checklist, AC 00-2 (latest revision), which is available free, upon request, from:

U.S. Department of Transportation
Publications Section, M-443.1
Washington, D.C. 20590

The checklist contains complete information on how to order AC's of interest.

5. BACKGROUND. The following actions were the basis for revision of this AC:
Amendment Nos. 121-147, 127-35, and revised Part 135. These amendments sub-
* stantially revise the requirements for certificate holders under this part and are
intended to result in a higher level of safety. *



KENNETH S. HUNT
Director of Flight Operations

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	5	Table 1. Maneuvers which may not be Checked in a Training Device (2 pages).
* APPENDIX 4.	1	DELETED — CHG 2
APPENDIX 5.	1	DELETED — CHG 2
		*

CHAPTER 3. OPERATIONS SPECIFICATIONS

29. OBJECTIVE AND SCOPE. This chapter provides guidelines for the development of operations specifications. Operations specifications will detail, in precise manner, the operations authorized.

30. OPERATIONS SPECIFICATIONS - GENERAL.

a. Operations specifications outline the operations which a certificate holder is authorized to conduct and, in addition, any limitations placed on the operator. The requirements contained in operations specifications include those items that apply to an individual operation on the basis of a particular situation. Items included in operations specifications to cover a particular situation must be complied with by the operator (FAR Section 135.5).

b. The provisions of the operations specifications, when approved, are legally binding on the operator by virtue of the provisions of FAR Section 135.5.

31. PREPARATION OF OPERATIONS SPECIFICATIONS, FAA FORM 1014.

a. Operations specifications are prepared by the applicant using FAA Form 1014. The FAA Flight Standards district office will provide blank forms. It is the responsibility of the applicant to develop the information required. In many instances, however, considerable time and effort will be saved if the applicant works closely with the assigned FAA inspectors in the formulation of new operations specifications.

(1) Example operations specifications for the operations category are included as figures 3-1 through 3-8 of this chapter.

(2) Example operations specifications pages for aircraft maintenance will be provided by the Flight Standards airworthiness inspector assigned to the operator.

(3) The assigned airworthiness inspector will also provide example operations specifications for approved weight and balance programs.

b. The original and two copies of the completed specifications should be presented to the Flight Standards district office for approval. The original and one copy of the specifications will be signed (approved) and returned to the operator. The operator will retain the original, indicate receipt on the copy, and return the copy to the district office.

c. The operator should designate the names and signatures of those company personnel who are authorized to sign a request for the issuance of operations specifications, a request for an amendment of operations specifications, a request for cancellation of the certificate of operations specifications, or for acceptance of operations specifications by the operator. *

* d. All entries on FAA Form 1014 are required to be typed. Minor corrections are acceptable provided they are initialed on all copies by the person signing the specifications for the operator and the FAA principal inspector. The specifications must be legible, and initialed corrections must not distract from the intent of the specifications. Since these specifications become legal documents once they are approved, care must be taken in their preparation and processing.

e. The operator is responsible for completion of the FAA Form 1014 in its entirety except for the entries: "Effective date," "Inspector's recommendations," approval or disapproval "By direction of the Administrator," "Amendment No.," and "Supersedes specification dated _____." Figures 3-2 and 3-4 depict typical reverse side entries on FAA Form 1014.

f. New operations specifications must be prepared when the name of the operator is changed. It is not necessary to prepare new operations specifications if the operator's certificate is amended or reissued, provided the certificate number and the effective date of the original issuance are retained. The operations specifications cannot predate the certificate. *

32. CONTENT OF OPERATIONS SPECIFICATIONS.

a. Operations specifications contain the category and class of aircraft, the condition of operations, the area of operations, any special deviation, limitations, or other authorizations, maintenance program or approved aircraft inspection program, and additional provisions resulting from an exemption. A standard operations specifications should be issued to operators of aircraft required to comply with Subpart I of FAR Part 135. These operations specifications would apply to aircraft identified in FAR Section 135.363.

b. Operations specifications issued to the holder of an ATCO certificate limited to commercial operations only, shall be appropriately worded to reflect commercial operations only.

c. Identification and numbering operations specifications pages.

(1) The name of the operator should appear at the top of the page directly under the title heading "Operations Specifications." Section designations are shown next under the operator's name. These sections include, but are not limited to, the following:

- (i) Operations.
- (ii) Aircraft Maintenance - Nine or Less Passengers.
- (iii) Aircraft Maintenance - Ten or More Passengers.

(iv) Approved Weight and Balance Program.

(v) Deviations or Exemptions.

* (2) Operations specifications for the maintenance of aircraft require additional clarification such as the make and model of the aircraft if the content of the operations specifications is applicable to a particular aircraft. *

(3) Pages of operations specifications are numbered consecutively by section or, when subtitled for maintenance, consecutively by subtitle. Each page in a section or subtitle will contain an appropriate title and an individual page number and the total number of pages in the specific category (e.g., Operations, page 1 of 21, 2 of 21, 3 of 21, etc.). Should it become necessary to add an additional page in an already established numerical sequence, a number page may be repeated with a suffix letter or number; e.g., 3A of 10, 11-1 of 17, etc. To maintain accountability when a suffix number page is used, the page preceding the suffix numbered page must reference it; e.g., page 7 of 10, next page is 7A of 10, or 7-1 of 10. (See figures at the end of this chapter.)

d. Categories and Classes of Aircraft and Operating Conditions.

Listed below are examples of the category, class, and operating conditions that may be shown on operations specifications as shown on FAA Form 8000-6 (figure 2-1). The largest aircraft authorized for use under a specified set of operating conditions should appear first. If more than one specific operating condition is authorized, it would require additional definitive listings to clearly show the scope of operations authorized in a particular category, class, and type of aircraft.

(1) Airplane Multiengine Land: VFR and IFR day and night, passengers and cargo - 10-19 passengers. (This listing may be used to include multiengine airplane configured for passengers operated under the specified conditions carrying passengers and cargo.)

(2) Airplane Multiengine Land: VFR and IFR day and night, passengers and cargo - 9 passengers or less. (This listing may be used to include multiengine airplane configured for passengers operated under the specified conditions carrying passengers and cargo.)

(3) Airplane Single-Engine Land: VFR and IFR night, passengers and cargo - 10-19 passengers. (This listing may be used to include single-engine airplane configured for passengers operated under the specified conditions carrying passengers and cargo.)

(4) Airplane Single-Engine Land: VFR day and night, passengers and cargo - 9 passengers or less. (This listing may be used to include airplanes single-engine/land operated under specified conditions carrying passengers and cargo.)

(5) Airplane Single-Engine Sea: VFR day and night, passengers and cargo - 10-19 passengers. (This listing may be used to include single-engine airplane configured for passengers operated under the specified conditions carrying passengers and cargo.)

(6) Airplane Single-Engine Sea: VFR day and night, passengers and cargo - 9 passengers or less. (This listing may be used to include airplanes single-engine/sea operated under specified conditions carrying passengers and cargo.)

(7) Helicopter: VFR and IFR day and night, passengers and cargo - 9 passengers or less. (This listing may be used to include helicopters operated under the specified conditions carrying passengers and cargo.)

(8) Helicopter: VFR and IFR day and night, passengers and cargo - 10-19 passengers. (This listing may be used to include helicopters operated under the specified conditions carrying passengers and cargo.)

(9) Helicopter: VFR day and night, passengers and cargo - 9 passengers or less. (This listing may be used to include helicopters operated under the specified conditions carrying passengers and cargo.)

* e. Operations Specifications - Instrument Approaches Authorized. In the amendment of Section 135.297, reference is made in the preamble to the issuance of operations specifications to the operator which contain the instrument approaches authorized. Each certificate holder will determine from the characteristics of their operation which approach procedures they want to be authorized to use. The certificate holder should understand that their operations would be limited to those approach procedures they want to be authorized to use. The certificate holder should understand that their operations would be limited to those approach procedures requested. If the operator is authorized a precision approach such as ILS, each pilot must demonstrate that approach on each 6-month proficiency check. If two or more nonprecision approaches are authorized, at least two of these approaches must also be demonstrated. If the operator desires to use only one such approach procedure in their operation, the pilot is checked on that procedure. If the operator is approved for several different approaches, the inspector or check airman should rotate those approaches demonstrated on subsequent checks. Should the certificate holder not be authorized a precision approach, such as the ILS, it need not be demonstrated on a proficiency check. The testing requirements for competency and instrument proficiency checks are set forth in Order 8430.1B, Appendix 6, Inspection and Surveillance Procedures - Air Taxi Operators/Commuter Air Carriers and Commercial Operators.

f. Operations Specifications - Limited North Atlantic Approval. The objective of the North Atlantic Minimum Navigation Performance Specifications (NAT-MNPS) is to ensure safe operations of aircraft and enable operators to derive maximum economic benefit from the improvement in navigation performance demonstrated in recent years. NAT-MNPS airspace is defined in Advisory Circular 120-33, Operational Approval of Airborne Long-Range Navigation Systems for Flight within *

* the North Atlantic Minimum Navigation Performance Specifications Airspace. Navigation equipment utilized and the associated operating procedures are the choice of the certificate holder. The essential provision is that the combination of equipment and method of operation meets the navigation accuracy established by ICAO for operations within the NAT-MNPS airspace. In addition, operations may be conducted above and below NAT-MNPS airspace under the specific provisions shown in Figure 3-8, Operations Specifications, FAA Form 1014 (Front), Limited North Atlantic Approval. Preparation of this Operations Specifications should be coordinated with the POI and will be approved by the certificate holding office.

g. Operations Specifications - Weight and Balance Program. An operator may submit for approval, by operations specifications, a weight and balance program to ensure each aircraft will be properly loaded and will not exceed authorized weight and balance limitations during operation. The program may be contained on its operations specifications or it may be part of the operator's manual and the manual referenced on its operations specifications. AC 121-27A, Weight and Balance Control, provides criteria for weight and balance programs.

h. Operations Specifications - Aircraft Maintenance. Aircraft maintenance operations specifications are required to be developed by all operators.

(1) The maintenance programs required by FAR Section 135.411 are discussed in detail in chapter 6 of this AC. The content of the operations specifications is dependent on the type certificated passenger seating configuration of an aircraft and the type of maintenance program required or selected by the operator. The extent of the content is set forth in FAR Section 135.11(b)(2)(iii), (iv), and (v). It will be necessary to formulate those operations specifications under applicable subtitles as the following examples:

- (i) Approved Aircraft Inspection Program.
- (ii) Continuous Airworthiness Maintenance Program.
- (iii) Preface.

*

- * (iv) Additional Maintenance Requirements.
- (v) Check, Inspections, and Overhaul Time Limits.
- (vi) Reliability Program Authorization.
- (vii) Maintenance Contractual Arrangements Authorization.
- (viii) Special Flight Permits with Continuing Authorization.
- (ix) Reference to Standards for Check Inspection and Overhaul.

(2) Operations Specifications - Additional Maintenance Requirements.

Operators of aircraft type certificated for 9 or less passenger seats are required to submit operations specifications for the additional airworthiness requirements set forth by FAR Section 135.421. Additional maintenance requirements, submitted by an operator, will include its program for the maintenance of its aircraft engines, propellers, rotors, and items of required emergency equipment. Refer to AC 135-7 for further information on this subject.

(3) Operations Specifications - Approved Aircraft Inspection Program.

FAR Section 135.11(b) requires that registration numbers and types of aircraft that are subject to an Approved Aircraft Inspection Program be listed on operations specifications. The regulation does not require that serial numbers be listed. However, the specification page should identify the make and model of aircraft, especially when more than one model is used by an operator.

(4) Operations Specifications - Continuous Airworthiness Maintenance Program.

(i) An operator using aircraft that are type certificated for 10 or more passenger seats is required by FAR Section 135.411(a)(2) to provide a continuous airworthiness maintenance program.

(ii) The FAA approves this program for each make and model aircraft, by "Operations Specifications - Aircraft Maintenance," which contain the maintenance intervals and processes for airframe, powerplants, propellers, rotors, appliances, and emergency equipment. *

33. AMENDMENT OF OPERATIONS SPECIFICATIONS.

a. Authority. FAR Sections 135.17(a)(1) and (2), and 135.17(b), (c), and (d) provide the authority and procedures for the amendment of operations specifications. Amendments to operations specifications will be numbered sequentially. However, since it is only necessary to reissue those pages containing the items to be amended, an ATCO's operations specifications may have, depending on the number of pages and changes, various effective dates.

b. Amendment requested by operator.

(1) Application to amend existing operations specifications is made by the operator completing the upper half of the signature side of a blank FAA Form 1014 (figure 3-4) and the operations specifications' side of the form stating the wording to appear on the operations specifications. The operator then submits the original and three copies of this form to the certificate holding district office at least 15 days before the date the amendment is to become effective. However, a shorter filing period may be accepted by the district office.

(2) Approval. When the inspector(s) has/have determined that the operator meets all requirements for the change in authorization and determines that safety in air commerce allows that amendment, the inspector will complete the appropriate portions of the FAA Form 1014. Approval, signature, and * distribution will be the same as for original issuance (figure 3-4). *

(3) Denial. If a request for amendment is denied, the operator will be advised, in writing, of the reasons for such denial. An operator may, within 30 days, petition for reconsideration of the denial. In this case, no change in the operations specifications in question will take place until the FAA, after considering the operator's case, grants or denies the petition by letter. The * operator should address his petition in writing to the Director of Airworthiness, AWS-1, 800 Independence Avenue, SW., Washington, D.C. 20591, for maintenance specifications, or to the Director of Flight Operations, AFO-1, for operations. These Directors have been delegated the authority to make final decision on petitions for reconsideration of operations specifications issued * under FAR Part 135.

c. Amendment initiated by the FAA district office.

(1) Notification. When it is determined that an amendment to existing operations specifications is necessary, a notice of the proposed amendment will be given, in writing, to the operator. This notice will consist of a letter explaining the proposed amendment and inviting the operator, within a dated period of not less than 7 days, to submit written information, views, and arguments, as appropriate, concerning the proposed amendment.

(2) Adoption.

(i) If, after careful consideration of all relevant matter presented, the decision is to adopt the amendment, an original and three copies of FAA Form 1014, containing that amendment, will be prepared by the district office. The amended operations specifications are then forwarded to the operator as an enclosure to a letter giving notice of the adoption. Since the amendment becomes effective not less than 30 days after the operator receives notice of adoption, the effective date placed on the operations specifications will be based on the expected delivery time plus at least 30 days.

(ii) The operator should sign and return the receipted copy of the operations specifications to the district office. The signature does not constitute notification of adoption by the Administrator nor does it indicate acceptance by the operator. This action merely acknowledges receipt of that page of the operations specifications by the operator.

(3) Rescission of a notice of proposed amendment is accomplished with a letter informing the operator that the amendment is rescinded and the existing operations specifications continue in effect.

(4) Petition for reconsideration. A person may petition for * reconsideration of the adopted amendment in accordance with the instructions for denied amendments (reference paragraph b(3) preceding).

34. OPERATIONS IN ISOLATED AREAS WITHOUT AN INSTRUMENT RATING.

a. Section 135.243(d) states that the area to be approved for operations by a certificate holder for pilots without instrument ratings shall be isolated and where air navigation is primarily by pilotage. Radio navigational coverage such as VOR or NDB facilities would be limited or largely ineffective.

b. The areas would be sparsely populated and may include small settlements or villages. Commercial transportation such as by bus or train would not be available. No major highway would exist and, in many cases, the settlement or other destination of such flights would be so isolated that air travel would be the primary means to reach these locations. Secondary or unimproved roads suitable for cars and trucks may be available.

c. Landing places used for these operations may be unimproved strips or water depending on the kinds of airplanes used and the time of year. Skiplane operations would involve operations in winter on frozen lakes and rivers in addition to suitable areas on land.

d. The size of areas requested for approval would vary considerably, depending on the needs of a particular certificate holder. FAR 135.243(d) states that the length of flights may not exceed 250 nautical miles from the operator's base of operations. All operators who have requested relief from the instrument *

* rating requirement indicated flights of 35 miles up to 150 miles would be an acceptable area of operation. The point of departure, the en route portion of the flight, and the landing site all must be within the boundaries of the approved area.

e. Navigational radio aids. Radio navigation aids would be limited or unusable due to terrain or proximity to routes or destinations. All flight planning and navigational requirements should be by pilotage only. A radio facility may be located at or near a landing site which serves a small settlement within the isolated area.

f. Weather information. Pilots would rely on reports and forecasts issued by the U.S. Weather Service where available. Area forecasts should be used extensively. Additional information may be obtained by telephone, radio, or similar means to assure that en route and destination weather is VFR and should remain so for 30 minutes after the planned completion of the flight. Pilots and flight managers should be knowledgeable of weather in the areas involved and consider alternate courses of action and emergency landing sites in case of abrupt changes in forecasted VFR weather after departure. The rule provides that pilot observations or other persons competent to supply weather observations can be used for VFR weather information.

g. Applicants requesting approval for isolated area operations must hold an air carrier operating certificate or an operating certificate with operations specifications authorizing Part 135 on-demand charter operations, VFR day, utilizing single-engine land/or seaplanes. On-demand isolated area operations by PIC's without an instrument rating will not be authorized for a certificate holder who is authorized commuter air carrier operations.

h. The application is made on FAA Form 1014, Operations Specifications, requesting an amendment of operations specifications authorizing desired operations. The regional Flight Standards Division must concur on all isolated area approvals.

i. A map or current aeronautical chart identifying the area involved must be attached. This chart must clearly show:

(1) the boundaries of the area;

(2) landing sites; and

(3) distance from the operator's base of operation. POI review must confirm compliance with Section 135.243(d)(3), that the area is isolated, and Section 135.243(d)(6), that distances of flight do not exceed 250 nautical miles. Operations must be conducted within the area.

j. The certificate holder's operators manual must be revised to incorporate guidance pertaining to operations in isolated areas and other pertinent items that ensure adequate management control of the operation. *

* k. A list of pilots and aircraft to be used in the operation must be kept by the certificate holder including management operational controls that guarantee that noninstrument rated PIC's will be used only in approved isolated area operations.

1. The certificate holding district office must determine that the applicant meets the following requirements prior to issuing operations specifications:

(1) The aircraft to be used are single reciprocating engine-powered airplanes, nine or less passengers, equipped for VFR day operations.

(2) Determine that the airmen certificates held which are limited to 50 nautical miles for cross-country flights (Section 61.129) will not result in operations contrary to airman certificate limitations.

(3) The operation is limited to on-demand VFR day flights that do not exceed 250 nautical miles from the base of operations and within the boundaries of the approved areas.

(4) Flight locating procedures are adequate.

(5) The means of determining weather for flights is satisfactory and would provide the necessary VFR minimums in accordance with Section 135.243(d)(5).

(6) The area requested for approval has been studied thoroughly and meets all criteria in Section 135.243(d)(3) as being an isolated area.

(7) The operating procedures outlined in the operators manual and otherwise ensure that the operator has control of all flights to be made in the area to be approved.

35.-41. RESERVED.

*

FIGURE 3-1. OPERATIONS SPECIFICATIONS, FAA FORM 1014 (FRONT)

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION WASHINGTON	Form Approved OMB No. 04-R0075
OPERATIONS SPECIFICATIONS	
Page 1 of 3	
(NAME OF COMPANY)	
OPERATIONS	
<p>(Name of Company) is authorized to conduct air taxi operations as an air carrier engaged in air transportation, or commercial operations as a commercial operator, in accordance with the applicable provisions of Federal Aviation Regulations Part 135, other FARs, and the terms, conditions, and limitations contained therein.</p>	
<p>Operations are authorized in the following categories and classes of aircraft under the conditions and within the area of operations authorized:</p>	
<u>ON DEMAND CHARTER</u>	
Airplane Multiengine Land, VFR and IFR Day and Night (10 to 19 passengers)	
Airplane Single-Engine Land, VFR Day and Night, Passengers and Cargo (9 passengers or less)	
Helicopter, VFR Day and Night, Passengers and Cargo (9 passengers or less)	
<u>COMMUTER AIR CARRIER</u>	
Airplane Multiengine Land, VFR and IFR Day and Night (10 to 19 passengers)	
Airplane Single-Engine Land, VFR Day, Passengers and Cargo (9 passengers or less)	
<u>AREA OF OPERATION</u>	
Continental United States and Canada	
<u>OTHER AUTHORIZATIONS</u>	
IFR operations over routes outside controlled airspace are authorized as follows:	
Richmond VOR Direct Emporia NDB (and reverse course)	
Effective date _____	

**FIGURE 3-6. OPERATIONS SPECIFICATIONS, FAA FORM 1014 (FRONT),
WEATHER MINIMA - CONTINUED**

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION WASHINGTON	Form Approved OMB No. 04-R0075
OPERATIONS SPECIFICATIONS (NAME OF COMPANY) OPERATIONS	
IFR WEATHER MINIMA - ALTERNATE AIRPORTS	
<p>The weather minima for alternate airports designated in flight plans must not be less than the corresponding minima specified for the airport when used as an airport of destination and in no case less than the alternate weather minima specified below:</p>	
<p>1. LANDING - STANDARD.</p> <ul style="list-style-type: none"> a. 600-2 provided an approved PAR or ILS available. b. 800-2 provided an approved nonprecision approach available. c. Basic VFR when no approved instrument approach procedure available. Ceiling and visibility minimums are those allowing descent from the MEA, approach, and landing under basic VFR. 	
<p>2. LANDING - LOWER-THAN-STANDARD. When an airport is served with at least two (2) operative navigational facilities providing approved straight-in instrument approach procedures with different landing directions to a suitable runway(s), the higher landing minima of the two approaches or 200 1/2 above the lower minima of the two approaches, whichever is higher, is authorized provided:</p> <ul style="list-style-type: none"> a. Such lower minima are not specifically denied in the applicable instrument approach procedure(s); b. The applicable instrument approach procedure(s) authorizes alternate weather minima of 800-2 or 600-2; and c. In addition to the provisions of FAR 135.109, the specified weather conditions must be such as to permit a straight-in instrument approach. 	
Effective date _____	

**FIGURE 3-7. OPERATIONS SPECIFICATIONS, FAA FORM 1014 (FRONT),
INSTRUMENT APPROACHES AUTHORIZED**

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION WASHINGTON	Form Approved OMB No. 04-R0075
OPERATIONS SPECIFICATIONS	
(NAME OF COMPANY)	
OPERATIONS	
(Name of Company) is authorized to conduct air taxi operations as an air carrier engaged in air transportation, or commercial operations as a commercial operator in accordance with the applicable provisions of Federal Aviation Regulations Part 135, other FARs, and the terms, conditions, and limitations contained herein.	
Operations are authorized in the following categories and classes of aircraft under the conditions and within the area of operations authorized:	
<u>ON-DEMAND CHARTER</u>	
Airplane Single-Engine Land, VFR Day and Night, Passengers and Cargo (9 passengers or less) Helicopter, VFR Day and Night, Passengers and Cargo (9 passengers or less)	
<u>AREA OF OPERATION</u>	
Continental United States and countries of Canada and Mexico	
<u>OTHER AUTHORIZATIONS</u>	
<u>Instrument Approach Procedures:</u>	
a. Facilities. The certificate holder is authorized to utilize the following types of instrument approach procedures: ILS <u> </u> VOR <u> </u> NDB <u> </u> VOR/DME <u> </u> LOC-BC <u> </u> LOC <u> </u> PAR <u> </u> ASR <u> </u> LFR <u> </u> Other <u> </u>	
<u>Autopilot Authorization</u>	
Use of the autopilot system is authorized in lieu of second in command when passengers are carried under IFR or in actual IFR weather conditions and the pilot has met the proficiency flight check requirements in accordance with Section 135.297(g) for instrument flight using an autopilot	
<u>Special Provisions - Instrument Approach Procedures:</u>	
Instrument approach procedures conducted under IFR outside of controlled airspace are authorized in accordance with Section 135.215(c).	
<u>Isolated Area Operations</u>	
Pilots who do not hold instrument ratings are authorized under Section 135.243(d) to conduct operations only in the isolated area(s) identified on the attached aeronautical chart/map dated _____ initialed by Inspector D.B. Jones.	
Effective date _____	

* FIGURE 3-8. OPERATIONS SPECIFICATIONS, FAA FORM 1014 (FRONT),
LIMITED NORTH ATLANTIC APPROVAL

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION WASHINGTON	Form Approved OMB No. 04-R0075
OPERATIONS SPECIFICATIONS	
Page 1 of 2	
LIMITED NORTH ATLANTIC APPROVAL	
<p>a. Operations may be conducted above and below North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) airspace using the equipment specified in paragraph b below. Also, selected routes within MNPS airspace between N.E. Canada and Iceland and between Iceland and points in the Northern U.K. are authorized by aircraft not normally used in North Atlantic operations using the routes listed below:</p> <ol style="list-style-type: none"> (1) STN/BEN-60N 10W-61N 1234W-LIMA-KF (2) BEL-57N 10W-60N 15W-61N 1630W-MIKE-KF (3) KF-XRAY-KK-SF-FB (4) KF-UNIFORM-63N 30W-61N 40W-OZN (5) OZN-59N 50W-PRAWN-KL (6) OZN-59N 50W-PORGY-HO (7) OZN-58N 50W-LOACH-YR <p>b. Aircraft operating along the above specified routes must be equipped with normal airway navigation equipment (VOR/DME, ADF) and at least one fully operational set of the following long-range navigation equipment:</p> <ul style="list-style-type: none"> - doppler with computer - INS - OMEGA - Loran C <p>c. Routes between Iceland and Northern Europe: aircraft equipped with at least VOR/DME and ADF may operate between Iceland and Northern Europe on G3 and G11 within and above MNPS airspace.</p> <p>d. Aircraft that are equipped with normal airway navigation equipment and at least one fully operational set of the long-range navigation equipment specified in paragraph b, above, are considered capable of meeting MNPS while operating along the following routes:</p> <ol style="list-style-type: none"> (1) PST-35N 20W-FOXTROT TWO-VSM (2) CP-3820N 15W-38N 20W-ECHO/DELTA-VSM/MIL (3) CP-3853N 15W-39N 20W-BRAVO-IM 	
Effective date _____	

*

FIGURE 3-8. OPERATIONS SPECIFICATIONS, FAA FORM 1014 (BACK),
LIMITED NORTH ATLANTIC APPROVAL

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION WASHINGTON	Form Approved OMB No. 04-R0075		
OPERATIONS SPECIFICATIONS			
Page 2 of 2			
<p>e. None of the above operations will be conducted unless the aircraft's navigation equipment and procedures for use of that equipment has been approved by the FAA (see AC 91-49).</p> <p>f. The certificate holder is authorized to operate the following aircraft and equipment in the limited North Atlantic airspace identified above:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><u>Type A/C</u></td> <td style="width: 50%; border: none;"><u>Navigation Equipment</u></td> </tr> </table>		<u>Type A/C</u>	<u>Navigation Equipment</u>
<u>Type A/C</u>	<u>Navigation Equipment</u>		
Effective date _____			

FAA Form 1014 (2-72)

*

1/12/82

AC 135-3B CHG 2

* FIGURES 3-9 thru 3-16. DELETED -- CHG 2 *

CHAPTER 4. OPERATOR'S MANUAL

42. OBJECTIVE AND SCOPE. This chapter provides guidance for the development of a manual by which the operator will conduct its operations.

43. MANUAL REQUIREMENTS - GENERAL.

a. The operator is required by FAR Section 135.21 to prepare, keep current, and use a manual that describes the procedures and policies that the operator will use to conduct its operation. The manual should contain, in sufficient detail, the contents required by FAR Sections 135.23 and 135.427 when applicable so that the certificate holder's flight, ground, and maintenance personnel may properly perform their assigned duties. When it is determined, because of the limited size of an operation, that all or part of the manual is not necessary, the local district office may authorize a deviation. However, no deviation from Section 135.427 is permissible. During the preparation of the manual, an operator should ensure that there is no conflict with any Federal Aviation Regulations that would prevent the FAA's acceptance of the manual.

b. It will be the operator's responsibility to develop its manual and submit it to the district office for approval. Guidance will be provided by the district office within the limitations of available staffing. The district office will not draft or otherwise prepare the manual nor accept responsibility for developing the content thereof. Certification depends on the management and organizational ability of each applicant to develop and manage its proposed operation. Refer to Appendix 2 of this AC for a typical manual outline.

44. MANUAL REVIEW AND ACCEPTANCE BY THE FAA. The local district office will review the operator's manual to ensure that it meets the requirements of the pertinent sections of FAR Part 135 and is acceptable to the FAA for use by the operator in the safe conduct of its operations. It is desirable for an operator to obtain FAA manual acceptance prior to completing a formal application for an operating certificate. If any part of the manual is unacceptable, the district office will so advise the operator and provide recommendations for the changes.

45. MANUAL REVISIONS. Manual revisions are normally initiated by the operator. However, the FAA may request changes in the interest of safety.

a. Operators may amend their manuals and incorporate new or revised practices or procedures provided they comply with the appropriate provisions of the FAR's prior to utilizing the procedures or practices set forth in the amended material.

(1) If an operator decides to make a revision to its manual, concerning organizational arrangements or substantial changes to procedures, etc., the operator should submit the revision to the appropriate FAA principal inspector for acceptance prior to issuing the revision. If the revision is

* acceptable, the FAA will so inform the operator and the manual may be amended to reflect the revision. If not acceptable, the FAA will advise the operator as to the deficiencies or errors that make it unacceptable.

(2) Lesser revisions may be issued by the operator without prior concurrence.

(3) The manual should include a system and method for revision control such as a list of effective pages or periodic audits.

(4) The operator's procedures should ensure that its manuals are complete, current, and properly distributed.

b. Revisions initiated by the FAA. An FAA certificate holding district office may formally request revision to any part of the manual when they determine such revision is in the interest of safety or when the manual does not meet the requirements of the applicable FAR.

46. MANUAL MAINTENANCE REQUIREMENTS, AIRCRAFT TYPE CERTIFICATED FOR NINE OR LESS PASSENGERS.

a. An operator using an Approved Aircraft Inspection Program (AAIP) is required to include that program in its manual.

b. Instructions for certifying approval for return to service should be included in the manual.

47. MANUAL MAINTENANCE REQUIREMENTS, AIRCRAFT TYPE CERTIFICATED FOR 10 OR MORE PASSENGERS. The requirement for including maintenance procedures in an operator's manual is contained in FAR Section 135.427.

a. Under the provisions of FAR Section 43.13(c), an operator's manual is required to contain methods, techniques, and practices for the accomplishment of maintenance, preventive maintenance, and alterations that are acceptable to the FAA. Such manual material is not formally approved by the FAA field inspector but is reviewed by the inspector for adequacy. If time limitations for checks and inspections are included on manual pages, specific formal approval of pages containing this information is accomplished by the operator's operations specifications. Instructions relative to this procedure will be found in chapter 3 of this AC.

b. The manual is required to contain a list of the persons with whom the operator arranges for the performance of maintenance, alterations, and required inspections and a general description of the work that will be performed.

c. Describe the analysis and surveillance systems and their effect on the continuous maintenance and inspection program. The systems should explain how unsatisfactory items disclosed by this program are resolved.

*

* d. In the case of detailed instructions covering the overhaul procedures for airframes, engines, propellers, and accessories, the maintenance manual prepared by an operator may make reference to overhaul manuals or instructions supplied by manufacturers of the equipment involved. The manufacturer's manuals should be clearly identified and should incorporate a system of revision control, including the date of last revision. The manufacturer's manuals or instructions will then become an acceptable part of the operator's manual.

e. Relationship of the maintenance portion of the operator's manual to the inspection organization. FAR Section 135.423 requires that each certificate holder have an organization adequate to perform required inspections. The performance of required inspections shall be organized so as to separate the required inspections' functions from the other maintenance, preventive maintenance, and alteration functions. FAR Section 135.427 sets forth the manual requirements related to the performance of required inspections; however, the operator should determine the method that will be used to perform the inspections on other maintenance, preventive maintenance, and alteration items after that work is completed and prior to the aircraft being approved for return to service. These procedures should be adequately outlined in the operator's manual.

f. Manual requirements - flight test. The manual should include procedures for determining aircraft airworthiness by flight test prior to scheduled operations when an aircraft has been repaired or altered in a manner that may have changed its flight characteristics and that repair or alteration cannot be conclusively determined airworthy by ground tests or inspections. It should designate the items that require flight test prior to returning an aircraft to service. Items such as multiple engine changes and modification or repair to a flight control system may be considered as items needing flight test prior to returning an aircraft to service.

g. Maintenance record retention. The manual should describe the system for the retention of maintenance and inspection records required by FAR Sections 91.173(a) and 135.439(a)(1) and (a)(2).

h. Airworthiness release or aircraft maintenance log entry. The manual should prescribe procedures for the airworthiness release including designation of persons authorized to sign that release.

* 48.-55. DELETED — CHG 2 *

56.-70. RESERVED.

* Figures 4-1 thru 4-3. DELETED — CHG 2 *

CHAPTER 5. TRAINING PROGRAMS

71. OBJECTIVE AND SCOPE. This chapter provides guidance relating to the overall training requirements that must be satisfied by an operator in order to secure and maintain FAA approval of its training programs including the training and approval of check airmen. In addition, it outlines the FAA's responsibility in evaluating and approving training programs. Finally, it provides guidelines for revisions to existing programs and requirements of the revised FAR Part 135. All crewmembers, check airmen, instructors, and other operations personnel employed by an operator should be guided by the provisions of this chapter. This chapter encompasses all of the types of training specified in Section 135.321 and the use of aircraft simulators and other training devices when approved for use in connection with a training program or check under Part 135.

72. TRAINING PROGRAM CONCEPT. An ATCO training program may be characterized as a preplanned organized course of instruction that, when properly executed by the operator, fulfills the requirements of Subpart H, Part 135, Training. The overall training program is composed of the curriculum, facilities, course material, records, and standardized crewmember procedures to adequately train a crewmember to perform his duties. Each program will encompass, as a minimum, initial and recurrent training. Other types of training, as specified in FAR Section 135.321, may be included as appropriate. While ultimately any specific training program must be treated in its entirety, it may best be viewed as being composed of identifiable and rather distinct parts. While no standard segmentation is possible, a typical program might be composed of ground school, aircraft flight training, hazardous materials training, and emergency training. Both the initial and recurrent training phases - and possibly others such as transition and upgrade - would be comprised of these segments, although probably with varying degrees of emphasis. Accordingly, there emerges an interrelationship involving types and segments of training, one which will necessarily vary from one operator to the next.

73. CURRICULUM.

a. The training curriculum is a document that specifies, in separate sections, the initial and recurrent courses of training required for each crewmember. The format will include provisions for a practical test or written test, as appropriate, in all required subjects. (See Appendix 1 for an example of a training curriculum.)

b. Training program curriculums should reflect training to a proficiency level. An approved training program utilizing a simulator or training device should also reflect a plan for implementation of substitute procedures in the event of a malfunction of the simulator or training device.

c. The outline of the proposed training program or revision to an approved training program should normally provide information concerning the nature of the proposed training, the physical locations at which each phase (ground schools, simulator, training device, and inflight) will be conducted, and any other basic information to facilitate the initial evaluation.

d. The training curriculum is submitted for FAA approval as a part of the overall training program under the provisions of Section 135.325. Approval of the training programs is covered in paragraphs 75 and 77 of this AC.

74. REGULATORY PROVISIONS. The following rules pertain to ATCO training programs:

a. Section 135.329: Crewmember Training Requirements. The requirements of this section apply to all crewmembers; e.g., pilots in command, seconds in command, and flight attendants. The basic indoctrination provisions are to be applied to all newly-hired crewmembers, regardless of previous experience, and * such requirement should be expressly included in the training program. For operations with more than one pilot, crew coordination procedures are to be emphasized in all phases of flight. As such, inflight operational duties and responsibilities will be clearly delineated in both the pertinent parts of the training program and the company manual. Such training should be given in each make and model of aircraft flown. *

b. Section 135.331: Crewmember Emergency Training. The operator should submit to the local Flight Standards District Office a training program containing a list of the emergency drills to be performed by each crewmember and a list of the items in which the crewmember will be trained by demonstration. Where the operator proposed to train the crewmember by demonstration, the training program used to show equivalency to the drill must be approved by the district office.

c. Section 135.333: Training Requirements. Handling and Carriage of Hazardous Materials. See paragraph 84 for an explanation of ATCO hazardous materials training programs.

d. Section 135.341: Pilot and Flight Attendant Crewmember Training Programs. Approvals for deviation pursuant to this section may be granted by the local FAA Flight Standards District Office only when careful and thorough evaluation of training requirements clearly indicate that because of the limited size and scope of the operations involved, an appropriate adjustment may be made without sacrifice of required knowledge, proficiency, or level of safety.

e. Section 135.345: Pilots: Initial, Transition, and Upgrade Ground Training. The categories of instruction specified in this section are contained in the sample training plan included as Appendix 1 of this AC.

(2) Surveillance Results. Check airman and the observing FAA inspector should mutually agree on the results of an observed competency, instrument proficiency, or line check before the pilot being checked is advised of the results. Any discussion concerning the pilot or the results of the observed check will not be discussed in the presence of the pilot being checked. The FAA will, if there is a problem with regard to the performance of the check airman, inform the company in writing of the problem, discrepancies, if any, and corrective action which should be taken. This letter will also advise the company as to the future status of the check airman. The FAA inspector observing the conduct of the check will normally debrief the check airman following the check airman's debriefing of the pilot being checked.

82. CHECK AIRMAN AND FLIGHT INSTRUCTOR TRAINING/RECURRENT REQUIREMENTS.

a. Check airmen and flight instructors are required to participate in the regular proficiency check program of the operator, as appropriate, to the airman function for which they are approved. FAR Section 135.337 requires check airmen and flight instructors to hold at least the airman certificates and ratings that must be held to serve as a pilot in command in operations under Part 135.

b. Check airmen and flight instructors must have satisfactorily completed the appropriate training phase (including recurrent training), the applicable training requirements of FAR Section 135.339, and the appropriate competency and instrument proficiency checks that are required to serve as a pilot in command under Part 135.

c. FAA inspectors will monitor the adequacy and effectiveness of the training of check airmen and flight instructor personnel to ensure that their knowledge, proficiency, and ability is sufficient to maintain effective quality control in the ATCO's training program.

83. RECORD OF AIRMEN PROFICIENCY/QUALIFICATION CHECK.

a. Check airmen will record the results of all knowledge and flight tests on an FAA Form 8410-3, Airman Competency/Proficiency Check FAR 135 (figure 5-1). The form should be completed as an original and two copies; one copy is provided to the pilot being checked, the other to the POI, and the original is to be retained in the operator's file.

NOTE: FAA Form 8410-1, Airman Proficiency/Qualification Check, is no longer used to record the results for Part 135 flight checks. A new FAA Form 8410-3, which is more adaptable to Part 135 requirements for the competency and instrument proficiency flight checks, has been developed. The flight maneuvers listed on the new form are contained in Order 8430.1B, Appendix 6. Manuevers covering rotorcraft and seaplanes are now included. The form may also be used for simulator maneuvers. To provide a means to easily determine the current qualification status of a pilot, the flight check form includes information regarding the various checks listed in Sections 135.293, 135.297, and 135.299 plus the autopilot check. The expiration dates of the various checks are also shown. Accordingly, check *

* airmen are encouraged to use a similar form for standardization purposes. In this regard, FAA Form 8410-3 is included as Attachment 2 to be used as a guide. The certificate holder may use any other method of recordkeeping that meets these requirements.

b. The letter of competency has been eliminated. Elimination of the letter of competency will reduce recordkeeping since Section 135.63(a)(4) requires operators to maintain pilot records showing the qualifications of their pilots, designate operations their pilots are authorized to conduct, the types of instrument approaches demonstrated, facilities authorized and pilots-in-command autopilot authorizations. Therefore, continued use of the letter of competency is redundant.

c. DELETED -- CHG 2

d. DELETED -- CHG 2

84. TRAINING AND OTHER REQUIREMENTS FOR HANDLING OF HAZARDOUS MATERIALS. It is a requirement that agents, contract personnel, and/or freight forwarders used by an ATCO be trained in the handling or carriage of hazardous materials. Some operators are not knowingly involved in the carriage of hazardous materials. Such operators must nonetheless conduct training in the applicability of pertinent regulations, and the basic classification and broad definitions of hazardous materials. The basis for this requirement is contained in FAR 135.333(c). For an expanded explanation of the above requirements, see AC 121-21A, Information Guide for Training Programs and Manual Requirements in the Air Transportation of Hazardous Materials.

85. ADDITIONAL TRAINING AND TESTING REQUIREMENTS FOR OPERATIONS INVOLVING TURBOJET AIRCRAFT.

a. Recently, there has been evidence that crewmembers are operating turbojet aircraft in excess of the M_{MO} specified by the manufacturer. Such practice may have been a contributing factor in several high altitude-related accidents. Some turbojet operators provide no specific training in dutch roll recovery. Yaw dampers are installed to reduce the effect of this undesirable flight characteristic. However, training and testing in specific flight characteristics peculiar to that airplane type are required for an airline transport pilot certificate and by FAR 135.297(i). Recovery from dutch rolls is an example of a flight characteristic intended to be included in this testing area. In summary, an increasing number of turbojet accidents have occurred as a result of aircraft control problems indicating that these operators should increase their training requirements in this area.

b. Based on the foregoing, the following procedures should be adhered to when turbojet operations are involved:

(1) The ground portion of all training programs relating to turbojet operations should include specific emphasis on the danger of turbojet aircraft operation beyond M_{MO} , in addition to other flight phenomena peculiar to their operation. As an example, there should be a thorough discussion of dutch roll

characteristics and recovery procedures. The significance and use of the yaw damper should be thoroughly covered. Other aircraft characteristics, especially those that may be encountered in unusual or emergency operating conditions, should be included. The written examination should include questions on the above items to ensure adequate crewmember comprehension.

(2) Throughout the flight training program, from aircraft familiarization through the flight check, special emphasis should be placed on items peculiar to turbojet operations. In addition to items previously discussed, operation at high altitudes and powerplant characteristics should be covered in flight. In order to thoroughly cover all items peculiar to turbojet operation, it is suggested that the operators' training program allocate additional flight training hours for this purpose. This is especially pertinent for pilots having little or no previous time in make and model, or little or no previous turbojet time.

(3) Simulation of component failure in flight, in some instances, may create an unsafe situation. Accordingly, such simulations should not be accomplished in actual aircraft operation.

* 86. POWER LOSS ON TAKEOFF. There has been increasing concern regarding the limited twin-engine performance of Part 23 airplanes in the event of engine failure. At high gross weights and runway temperature conditions, the airplane may not be capable of accelerating to a safe single-engine climb speed, and attempts to do so may result in an immediate loss of control. In such instances, a controlled straight-ahead emergency landing may be the safest option. In view of the foregoing, it is incumbent on all operators to ensure that their training programs contain specific information on the handling of emergencies during takeoff. In addition to initial checkouts, emphasis on the item will be included in all recurrent ground training sessions.

87. INSTRUMENT APPROACHES AUTHORIZED-TRAINING AND CHECKING.

a. Section 135.297(b) has been recently amended to require demonstration of only those instrument approaches appropriate to the operations being conducted. Thus, each certificate holder determines from the characteristics of its operation (and its operation only) which procedure it needs.

b. The types of instrument approach procedures to be used by a particular operator must be satisfactorily completed in their initial flight training program to ensure proficiency in the approach procedures. The operator will be issued operations specifications which identify the instrument approaches authorized to resolve misunderstandings on which approaches are authorized and which approaches must be included in the training programs. The POI should ensure that the certificate holder has adequate initial and recurrent training provided for all instrument approach procedures authorized per Section 135.341.

88. OPERATIONS OF SWEARINGEN SA226TC AIRCRAFT POWERED BY AIRESEARCH TYPE 331 TURBOPROP ENGINES. In June 1981, FAA issued Order 8000.47, Deteriorated Power, Turbopropeller-Powered Air Carrier/Air Taxi Airplanes. In July 1981, FAA issued Notice 8000.224, FAR 135 Swearingen 226TC Operations. The notice provides specific *

* instructions to maintenance personnel regarding program requirements. In addition, however, for operations utilizing these aircraft, or other aircraft that may be subject to the deteriorated power program, flight crewmembers will be made thoroughly familiar with this program both in the initial and recurrent phases of training. Such provisions should be reflected in the operators' training program syllabus.

89.-100. RESERVED.

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1/12/82

Figure 5-1. Sample FAA Form 8410-3, Airman Competency/Proficiency Check FAR 135

AIRMAN COMPETENCY/PROFICIENCY CHECK FAR 135				LOCATION		DATE OF CHECK	
NAME OF AIRMAN <i>(last, first, middle initial)</i>				TYPE OF CHECK FAR 135.293 <input type="checkbox"/> FAR 135.297 <input type="checkbox"/> FAR 135.299 <input type="checkbox"/>			
PILOT CERTIFICATION INFORMATION:	Grade		MEDICAL INFORMATION: Date of Exam.				
	Number		Date of Birth		Class		
EMPLOYED BY		BASED AT <i>(City, State)</i>		TYPE AIRPLANE <i>(Make/Model)</i>			
NAME OF CHECK AIRMAN		SIG. OF CHECK AIRMAN		Simulator/Training Device <i>(Make/Model)</i>			
				FLIGHT TIME			
FLIGHT MANEUVERS GRADE <i>(S - Satisfactory U - Unsatisfactory)</i>							
PILOT							
		Air- craft	Simu- lator	Trng. Dev.		Air- craft	Simu- lator
PREFLIGHT				HELICOPTER			
1. Equipment Examination <i>(Oral or written)</i>				1. Ground and/or Air Taxi			
2. Preflight Inspection				2. Hovering Maneuvers			
3. Taxiing				3. Normal & Crosswind T.O. & Landings			
4. Powerplant Checks				4. High Altitude Takeoffs & Landings			
TAKEOFFS				5. Sim. Engine Failure			
5. Normal				6. Confined Areas, Slopes, & Pinnacles			
6. Instrument				7. Rapid Deceleration <i>(Quick Stops)</i>			
7. Crosswind				8. Autorotations <i>(Single Engine)</i>			
8. With Simulated Powerplant Failure				9. Hovering Autorotations <i>(Single Engine)</i>			
9. Rejected Takeoff				10. Tail Rotor Failures <i>(Oral)</i>			
INFLIGHT MANEUVERS				11. Settling With Power <i>(Oral or Flight)</i>			
10. Steep Turns				SEAPLANE OPERATIONS			
11. Approaches to Stalls				1. Taxiing, Sailing, Docking			
12. Specific Flight Characteristics				2. Stop Taxi & Turns			
13. Powerplant Failure				3. Glassy/Rough Water T.O./Landings			
LANDINGS				4. Normal Takeoff & Landings			
14. Normal				5. Crosswind T.O. & Landings			
15. From an ILS				OTHER			
16. Crosswind				6. Ski Plane Ops. <i>(when applicable)</i>			
17. With Simulated Powerplant(s) Failure				GENERAL			
18. Rejected Landing				7. Judgment			
19. From Circling Approach				8. Crew Coordination			
EMERGENCIES				AIRMAN COMPETENCY INFORMATION:			
20. Normal and Abnormal Procedures				Demonstrated Current Knowledge FAR 135.293(a)			
21. Emergency Procedures				Make/Model Expires (12 months) ()			
INSTRUMENT PROCEDURES				Demonstrated Competency FAR 135.293(b)			
22. Area Departure				Make/Model Expires (12 months) ()			
23. Holding				Satisfactorily Demonstrated Line Checks			
24. Area Arrival				FAR 135.299 Expires (12 months) ()			
25. ILS Approaches				Satisfactorily Demonstrated IFR Proficiency			
26. Other Instrument Approaches				FAR 135.297 Expires (6 months) ()			
Approaches: NDB/ADF				Use of Autopilot (is) (is not) Authorized.			
VOR				Expires (12 months) ()			
ILS				REMARKS			
Other <i>(Specify)</i>							
27. Circling Approaches							
28. Missed Approaches							
29. Comm./Nav. Procedures							
30. Use of Auto. Pilot							
RESULT OF CHECK		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		CHECK AIRMAN'S PERFORMANCE <i>(FAA Only)</i>		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory	
REGION		DISTRICT OFFICE		FAA INSPECTOR'S SIGNATURE			

FAA Form 8410-3 (8-81)

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FIGURE 5-2. DELETED -- CHG 2

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CHAPTER 6. MAINTENANCE, PREVENTIVE MAINTENANCE, AND ALTERATIONS

* 101. GENERAL. The information contained in this chapter relates to Federal Aviation Regulations (FAR) Part 135, Subpart J.

102. APPLICABILITY. The applicability of the maintenance requirements imposed by Subpart J of FAR Part 135 is based on type certificated passenger seating configuration.

a. Type certificated passenger seating capacity is determined by the following:

(1) The maximum passenger seating capacity depicted on the type certificate data sheet.

(2) A passenger seating configuration conforming to approved type certificate data.

(3) A passenger seating configuration conforming to a supplemental type certificate.

(4) The maximum seating capacity is limited to that specified on the type certificate data sheet as the maximum for FAR Part 135 operations.

b. Operators who utilize aircraft type certificated for nine or less passenger seats, excluding any pilot seat, are required to comply with the inspection requirements of FAR Sections 91.169, 91.171, or 135.419 for those aircraft. The Approved Aircraft Inspection Program (AIP) specified by Section 135.419 may be selected as an option by the operator or it may be required by FAA, based on aircraft complexity. An AIP is required for all large and turbine-powered multiengine airplanes because of their complexity. Additional maintenance requirements, as set forth in FAR Section 135.421, require a maintenance program for each aircraft engine, propeller, rotor, and each item of required emergency equipment in addition to the aircraft inspection program.

c. Operators who utilize aircraft type certificated for 10 or more passenger seats, excluding any pilot seat, are required to maintain those aircraft under a continuous airworthiness maintenance program as provided in FAR Sections 135.423 through 135.443, as specified by FAR Section 135.411(a)(2).

d. A certificate holder may elect to maintain its aircraft of nine passenger seats or less under a continuous airworthiness maintenance program as provided by FAR Section 135.411(b).

103. OPERATIONS SPECIFICATIONS. For the programs outlined above, operations specifications are required by FAR Section 135.11(b), as follows:

a. For aircraft carrying nine or less passengers.

*

* (1) For maintenance programs or time limitations regarding additional maintenance requirements for aircraft engine, propellers, rotors, and required emergency equipment as required by FAR Section 135.421. Example operations specifications are contained in Advisory Circular 135-7.

(2) For approved aircraft inspection programs as required by FAR Section 135.419. Example operations specifications are contained in chapter 4 of FAA Order 8320.12, Air Carrier Airworthiness Inspectors Handbook, and are available from the local district office.

NOTE: Aircraft maintained on 100-hour/annual or progressive inspection programs need not be individually listed or identified by "N" number on operations specifications.

(3) For aircraft maintained under a continuous airworthiness maintenance program as required by FAR Section 135.411(a)(2), example operations specifications are contained in chapter 3 of FAA Order 8320.12, Air Carrier Airworthiness Inspector's Handbook, and are available from the local district office.

104. RESPONSIBILITY FOR AIRWORTHINESS. Each operator is primarily responsible for the airworthiness of its aircraft as set forth in FAR Section 135.413. This responsibility includes the airframe, engines, propellers, rotors, appliances and parts thereof, and is outlined as follows:

a. For aircraft of nine or less passengers, an operator who conducts its maintenance in accordance with FAR Section 135.411(a)(1) is required to maintain its aircraft in accordance with FAR Parts 91 and 135 and shall have defects repaired between required maintenance as required by FAR Part 43. The person who performs the maintenance (repair station, mechanic, etc.) is responsible to perform that maintenance in accordance with FAR Part 43 and, for operators with an AAIP, in accordance with that AAIP. The certificate holder is responsible to schedule all of its inspections and other maintenance, including compliance with airworthiness directives as required by FAR Parts 91 and 135. Certificate holders with AAIP's are responsible for the content of that AAIP.

b. For aircraft of 10 or more passengers, an operator who conducts its maintenance in accordance with FAR Section 135.411(a)(2) or 135.411(b) (continuous airworthiness maintenance programs) is required to perform maintenance on its aircraft in accordance with the provisions of its manual and the regulations of FAR Part 43. The operator may contract with another person (certificated repair station, another operator under Part 135 with a continuous airworthiness maintenance program, or an appropriately certificated mechanic) for the conduct of the maintenance on its aircraft. The operator retains the responsibility to ensure that all work performed by the repair station, operator, or mechanic with whom it contracts its maintenance conducts that maintenance in accordance with its manual and the provisions of FAR Part 43. *

* 105. MECHANICAL RELIABILITY REPORT (MRR). Each certificate holder is required by FAR Section 135.415 to submit mechanical reliability reports. Operators conducting scheduled passenger-carrying commuter operations in multiengine aircraft should submit reports for these operations on FAA Form 8070-1, Service Difficulty Report (Figures 6-1 and 6-2). Reports for other operations should be submitted on FAA Form 8010-4, Malfunction or Defect Report (Figure 6-3), these forms are available from the local district office. Each form has a separate space for each item of required information; therefore, either form provides a complete report. An operator may develop its own form; however, it must contain all of the information required by the FAA forms.

a. Reports will be submitted to the district office with certificate responsibility for the operator.

b. The MRR will be reviewed by the district office and forwarded to the FAA Maintenance Analysis Center in Oklahoma City, Oklahoma, where the information will be encoded into a data bank of service difficulties. The MRR reporting system is part of the FAA Service Difficulty Program which provides a communication channel between the FAA and the aviation industry regarding service related problems.

c. The operator is responsible for submitting the reports even though it arranges for maintenance by some other person who discovers the reportable condition. The operator should arrange with persons doing its maintenance to furnish the information necessary to comply with this reporting requirement.

106. MECHANICAL INTERRUPTION SUMMARY REPORT (MIS). Each certificate holder that operates multiengine aircraft is required to submit an MIS report as required by FAR Section 135.417.

a. Reports will be submitted to the FAA district office as with MRR reports.

b. There is no specific format for the MIS report. A format should be developed by the operator that is acceptable to the FAA district office with certificate responsibility for the operator. Selected MIS reports are forwarded to the FAA Maintenance Analysis Center.

107. ADDITIONAL MAINTENANCE REQUIREMENTS - AIRCRAFT TYPE CERTIFICATED FOR NINE OR LESS PASSENGERS. In addition to an inspection program, each operator is required by FAR Section 135.421 to comply with the manufacturer's recommended program or a program approved by the FAA for each aircraft engine, propeller, rotor, and each item of required emergency equipment installed on the aircraft.

a. Advisory Circular 135-7, Additional Maintenance Requirements for Aircraft Certificated for Nine or Less Passenger Seats, is the primary FAA advisory publication for this subject. *

* b. The engine requirements apply to the engine itself, for which the FAR Part 1 definition includes turbo-superchargers, appurtenances, and accessories necessary for its functioning. Obviously, this does not include aircraft provisions such as mounts or cowling nor accessories such as generators, starters, etc. Also by Part 1 definition, propeller includes controls supplied by the manufacturer. In addition, most propeller type certificate data sheets specify the applicable control unit, which should be considered part of the propeller.

c. The term maintenance in FAR Section 135.421 is used in context as defined in FAR Part 1 and includes inspection, overhaul, repair, preservation, and the replacement of parts.

d. Aircraft, aircraft engine, and propeller manufacturers are required by FAR Parts 23, 25, 27, 33, and 35 to provide maintenance manuals containing the frequency and extent of inspections necessary for the proper maintenance of their products. Manufacturers issue additional information in the form of service instructions, service letters and/or service bulletins. In many cases, the aircraft manufacturer assembles instructions from the engine, propeller, and other product manufacturers whose equipment is used on its aircraft, and includes that data in the aircraft maintenance manual which it prepares. Maintenance requirements for rotors may also be found in applicable rotorcraft manuals.

e. Paragraph (b) of Section 135.421 defines manufacturers' maintenance programs. The term "maintenance instructions" includes service bulletins, letters, or other publications concerning maintenance applicable to specified models and configurations (modification status or other groupings that influence maintenance needs). Publications dealing with repairs, alterations, or other matters beyond the scope of the term "maintenance" are not required by this FAR section but may be included in the additional maintenance program to support higher maintenance intervals or other inspection variables. The term "manufacturer's instructions" does not include individual authorizations or recommendations by a repair facility or manufacturer to a particular owner or operator.

f. FAR Section 135.421(a) provides for two types of additional maintenance programs for engines, propellers, rotors, and emergency equipment for each aircraft type model involved.

(1) An aircraft manufacturer's maintenance program and/or the individual product manufacturer's program. This arrangement is normally selected by new operators and operators who are incapable of, or not otherwise interested in, developing their own additional maintenance programs.

(2) Individually approved programs developed by the operator for its use. This provision is for operators capable of developing and analyzing a maintenance program for effectiveness and revising it accordingly. *

* g. Maintenance programs must not conflict with any FAR.

h. Pressure vessels that are part of emergency equipment should meet the requirements of CFR 49, Section 171-173.

108. APPROVED AIRCRAFT INSPECTION PROGRAM (AAIP) - AIRCRAFT TYPE CERTIFICATED FOR NINE OR LESS PASSENGERS. The approved aircraft inspection program is developed or adopted by an operator and can be modified as necessary to provide an inspection program suitable to its needs. It is used in lieu of the aircraft inspection requirements of Part 91. However, it does not supersede other maintenance requirements of Part 91 such as FAR Sections 91.34, Category II Manual, 91.170, Altimeter System Tests and Equipment Check, etc. The basic requirements of an AAIP encompass only the function of inspection, which includes tests and checks, but does not include other functions of maintenance such as overhaul, repair, preservation, and replacement of parts. The program should include inspection of all airframe primary structure at appropriate intervals. An AAIP can be expanded to include additional maintenance requirements specified by FAR Section 135.421, repetitive airworthiness directive compliance and life limit controls, but the inspection program cannot override or alter AD or life limit requirements. An approved inspection program does not require a complete cycle each year as does a progressive inspection program under FAR 91.

a. Advisory Circular 135-10, Approved Aircraft Inspection Program, is the predominant FAA advisory publication on this subject.

b. Following are several factors that should be considered by an operator developing an AAIP:

(1) Size and complexity of the fleet. An AAIP is most effective on fleets of several aircraft. The same applies to the cost benefit for developing and administering the program. An AAIP is most suitable to complex aircraft because of the flexibility provided by the program.

(2) Operator's maintenance management practices. An operator who has a well-established maintenance organization can readily adapt to the disciplines that are necessary in an approved aircraft inspection program. Similarly, the program facilitates arrangements with other organizations by serving as a specification for the inspection to be performed.

(3) Area of operations. Some operational environments are peculiar to certain operators. Examples are operations in extreme cold or hot weather, desert operations that expose aircraft to blowing sand, and operations in salt-laden atmospheres, etc.

(4) Type of operations. The type of operation being conducted may have a significant effect on the type of approved aircraft inspection program being developed or considered for approval.

*

* (i) A fleet of aircraft that are being operated in high density terminal areas under IFR should be inspected with greater frequency than normally required in order to provide the reliability needed to operate in that environment.

(ii) A fleet of aircraft operated on short stage lengths, poor runways, etc., experience more frequent cycles of landing gear, flap, and brake systems than may have been anticipated in a manufacturer's suggested system. Rough terrain operation could impose stresses on the airframe that would necessitate more frequent inspections in some areas.

(iii) Aircraft utilization should also be considered. Air taxi aircraft are being flown as much as 12 hours a day, which leaves little time for inspections and other routine maintenance. Instead of scheduling a complete, comprehensive inspection at one time, it may be advantageous to break the aircraft inspection down into smaller increments that can be accomplished during scheduled aircraft downtime.

(5) Manufacturers' recommendations. Many manufacturers provide comprehensive inspection schedules for their product. These schedules are developed from their knowledge of the product plus service experience gained by operators.

(6) Service history. The service history of an aircraft should be a significant factor in the developing of the aircraft inspection program. After an aircraft model has been in service, trends may become apparent that indicate the need for inspection periods other than those provided in the manufacturer's system. These trends generally result in unsatisfactory or unreliable conditions either experienced by the operator or by other operators in the same basic model.

c. Development. The responsibility for the actual development of the program is solely that of the operator. There is no set format since each operator's inspection requirements may differ from those of another operator. FAR Section 135.419 contains the requirements for each program. *

* (1) Inspection periods are usually established initially on the basis of manufacturers' recommendations but may consider information available from operators with considerable service experience regarding problem areas and service and inspection periods. It is improbable that any two operators will have the same frequency or duration of flights so inspection schedules may vary accordingly.

(2) There are several companies that are offering computerized programs to operators of certain aircraft. These programs must be evaluated by each operator with respect to the operator's needs, and submitted for FAA approval as with any AAIP. The computerization is a scheduling service and does not influence program content.

d. Approval. The inspection program will be approved by the FAA flight standards district office with certificate responsibility for the operator.

e. Revisions. Revisions to the program will be accomplished by amendment to the operations specifications or by a revision system incorporated in the program.

f. The approved program becomes part of the operator's manual. It is the responsibility of the operator to ensure that inspections are accomplished in accordance with the frequency, scope, and detail established in the program. However, the operator is not authorized to perform inspection under the terms of the program as a maintenance entity. Only an appropriately rated certificated mechanic, a person working under his supervision, or an appropriately rated repair station are authorized to perform these inspections. Similarly, only an appropriately rated certificated mechanic or appropriately rated repair station can approve the aircraft for return to service upon completion of an inspection under the program.

(1) The operator is prohibited from using anyone in the position of an airman (such as a mechanic) unless that person holds a current certificate and is qualified for the work to be performed. This applies equally to mechanics employed by the operator or to those with whom the operator may contract for maintenance.

(2) Many operators take advantage of the services provided by manufacturers' training schools and clinics to ensure that their mechanics comply with the above provisions. In some instances, they send one or two supervisory personnel to the manufacturer and they train or "checkout" other personnel on their return. Other operators have elected to set up their own training systems.

g. Changes. After the program is put into operation, the operator should monitor it to ensure it is producing the results desired. Deficiencies may be noted that were not foreseen when the program was approved, or the operating environment may change creating deficiencies in the program. Should this occur, the operator should effect changes as quickly as possible to correct the condition.

*

* h. When aircraft are added to the program, the operator should notify the certificate holding FAA district office by submitting an amended FAA Form 1014 prior to operating the aircraft. The same applies to removing an aircraft from the program.

i. The maintenance status of an aircraft must be reviewed prior to including it on the inspection program. Supplementary inspections may be necessary to upgrade the maintenance status of the aircraft to conform to the program.

109. MAINTENANCE PROGRAMS - AIRCRAFT TYPE CERTIFICATED FOR 10 OR MORE PASSENGERS.

a. A certificate holder operating this category of aircraft is required by FAR Section 135.411(a)(2) to provide a continuous airworthiness maintenance program. FAR Section 135.11(b) requires that time limitations for the overhaul, inspection, and checks (maintenance intervals) associated with the program or the standards for determining those limitations be specified by the certificate holder's operations specifications.

b. Advisory Circular 120-16C, Continuous Airworthiness Maintenance Programs, concerns principles and concepts related to these programs and is the predominant FAA advisory publication on this subject.

c. The FAA approves "Operations Specifications - Aircraft Maintenance" for each type aircraft currently used by the certificate holder which contains the maintenance intervals and processes for airframes, aircraft engines, propellers, rotors, appliances, and emergency equipment. They apply to the aircraft used by each individual certificate holder and are not transferable from one certificate holder to another.

d. Advisory Circular (AC) 121-1A, Standard Operations Specifications - Aircraft Maintenance Handbook, provides acceptable procedures for establishing maintenance intervals and processes for airframes, aircraft engines, propellers, appliances, and emergency equipment.

e. Standard maintenance intervals and processes are provided in AC 121-1A for several aircraft types. Those intervals and processes can be used to establish the initial maintenance and inspection requirements. For aircraft not included in AC 121-1A or have not undergone a Maintenance Review Board (MRB) process, it will be necessary to develop maintenance/inspection requirements acceptable to the FAA.

f. There are many aircraft affected by FAR Section 135.411(a)(2), not covered by standard operations specifications, that have been in service for several years. Some operators of these aircraft are presently utilizing approved aircraft inspection programs. Some parts or provisions of these programs are suitable for inclusion in the maintenance program. *

110. DEVELOPMENT OF MAINTENANCE PROGRAMS - AIRCRAFT TYPE CERTIFICATED FOR 10 OR MORE PASSENGERS. The following may be used as guidelines by operators in the development of maintenance programs for inclusion on operations specifications:

* a. Programs currently in use that may contain acceptable maintenance procedures, processes, or intervals suitable for inclusion in a maintenance program are as follows: *

(1) The aircraft manufacturer's recommended maintenance program as outlined in its maintenance manual for all parts of the aircraft.

(2) The recommended maintenance program as outlined in a maintenance manual provided by the manufacturer of an aircraft engine, propeller, rotor, appliance, and any item of emergency equipment.

* (3) A program approved under FAR Parts 91 or 125.

(4) An Approved Aircraft Inspection Program (AAIP).

(5) A maintenance program developed between an operator and the aircraft manufacturer.

(6) A maintenance program developed by an operator and industry committees.

b. Development and justification of maintenance processes and intervals based on industry experience or experience gained by an operator should consider the following:

(1) Environment in which operator's aircraft are operated.

(2) Aircraft utilization, cycle times as related to takeoff and landing, long hauls versus short hauls, etc.

(3) Payloads carried by aircraft.

(4) Effect that modifications may have on overhaul, life limits, and operations limitations of the aircraft and related products.

(5) Service history of the operator or the industry fleet service history.

(6) Results of a manufacturer's evaluation study.

(7) Information contained on FAA type data sheets or other FAA approved documents. *

* c. Certificate holders intending to operate aircraft that are in process of being type certificated are encouraged to request the aircraft manufacturer to consider developing maintenance specifications on which a maintenance program can be based. In the development of these specifications, the procedures outlined in the AC 121-1A, Standard Operations Specifications - Aircraft Maintenance Handbook, and AC 121-22, Maintenance Review Board (MRB), should be followed. The procedures contained in those publications are accepted industry practices and have proven effective in the development of safe and economical programs.

d. Operators of other aircraft (10 or more but less than 30 passengers and a maximum payload capacity of less than 7,500 pounds) presently issued Operations Specifications - Aircraft Maintenance under FAR Section 135.2 that comply with the requirement of FAR Part 121 may continue to maintain its aircraft under the provisions of those operations specifications.

e. The procedures for the preparation and submission of Operations Specifications - Aircraft Maintenance for 10 or More Passengers are outlined in chapter 3 of this AC.

111. CONTINUING ANALYSIS AND SURVEILLANCE - 10 OR MORE PASSENGER AIRCRAFT. Each operator is required by FAR Section 135.431 to establish and maintain a system for the continuing analysis and surveillance of the performance and effectiveness of its maintenance program and operation. The system should also provide for the correction of any deficiencies that may be noted.

112. MAINTENANCE ORGANIZATION - 10 OR MORE PASSENGER AIRCRAFT. Air carriers and commercial operators under the provisions of FAR Section 135.411(a)(2) or (b) are required to have a maintenance organization adequate to perform the work and an inspection organization adequate to perform required inspections. In the case of required inspections, there must be a separation between the inspection organization and the maintenance organization.

a. The following information pertains to the methods and procedures for the development of inspection activities in accordance with regulatory requirements:

(1) The organization should incorporate provisions to ensure that maintenance, preventive maintenance, and alterations are performed in accordance with the certificate holder's manual; that competent personnel, facilities, and equipment are provided for the proper performance of maintenance, preventive maintenance, and alterations; and that each aircraft released to service is airworthy. This plan also covers airworthiness inspections and required inspection items (RII).

(i) Airworthiness Inspection. FAR Section 135.425 requires an operator to have an inspection program and a program covering other maintenance and preventive maintenance, and alterations that, when performed by it or by other persons, are performed in accordance with its manual. *

* (ii) FAR Section 135.21 requires an operator to have a manual to be used by ground and maintenance personnel in the conduct of its operations.

(iii) FAR Section 135.427 requires the operator to include in its manual the programs required by FAR Section 135.425 and contain the airworthiness inspections, including instructions covering procedures, standards, responsibilities, and authority of inspection personnel.

(2) The methods and procedures established by the operator's manual are required to be followed for all maintenance performed on aircraft subject to those programs.

b. Required Inspection Items (RII).

(1) FAR Section 135.429(b) states that no person may allow any other person to perform a required inspection unless at that time the person who is performing the inspection is under the supervision and control of an inspection unit. This means an operator who performs its own maintenance is required to have a system to ensure that the assignment and performance of required inspection items are controlled by an inspection unit organizationally separated from the production unit. Each operator who has its maintenance performed by another person is required to have a system to ensure that required inspection items are similarly separated. In either case, the regulatory requirements for RII control are imposed on the operator. The operator must ensure that its maintenance organization or the organization of any person performing maintenance of the operator's aircraft provides this separation.

(2) Persons performing maintenance are trained and competent to perform in accordance with the operator's program.

(i) Complies with the operator's system to assign, and ensure that required inspection items are properly separated and accomplished.

(ii) Has a program to ensure that each contractor complies with the requirements of its manual.

(iii) Has, within its system, a program for contractors to perform in accordance with the airworthiness and required inspection items as set forth in its manual.

(3) FAR Section 135.427(b)(2) deals with the designation of maintenance and alteration work which is required to be inspected (required inspection item). As stated in the regulation, the manual must contain, "a designation of the items of maintenance and alteration that must be inspected (required inspections) including at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or if improper parts or materials are used." Accordingly,

* the operator should evaluate its work program and identify required inspection items in a suitable manner. For example, such items may be identified with the abbreviation "RII", an asterisk, or any similar method. The operator, in determining its required inspection items, should consider the importance of, but not limit its consideration to, the following maintenance operations:

(i) Installation, rigging, and adjustments of flight controls, surfaces, and emergency evacuation systems.

(ii) Installation and repair of major structural components.

(iii) Installation of an aircraft engine, propeller, or rotor, and overhaul or calibration of certain components such as engines, propellers, transmissions, gear boxes, or navigation equipment, the failure of which would affect the safe operation of the aircraft.

113. AIRWORTHINESS RELEASE - 10 OR MORE PASSENGER AIRCRAFT.

a. The airworthiness release is a certification by the certificate holder that the maintenance to which it applies satisfies the five requirements of FAR Section 135.443(b)(2). It differs from a maintenance release or an approval for return to service in that it relates to work performed according to the certificate holder's continuous airworthiness maintenance program.

(1) Each certificate holder is responsible for the preparation of an airworthiness release or aircraft maintenance log entry after maintenance, preventive maintenance, or alterations are performed on its aircraft.

(2) The procedures for an airworthiness release or aircraft maintenance log entry required by FAR Section 135.443 may be made either by the certificate holder or by the person with whom the certificate holder contracts for the performance of aircraft maintenance (repair station, another certificate holder with a maintenance program under FAR Section 135.411(a)(2), or a certificated mechanic).

(3) The certificate holder's manual should explain, in detail, the steps to be followed in determining airworthiness (i.e., all items of maintenance are satisfactory and completed, required inspection of work completed by authorized persons, no known unairworthy items remain, and the aircraft is in safe condition for operation) and the procedures for preparing and entering airworthiness release information.

(4) The person completing the airworthiness release or aircraft maintenance logbook entry should be guided by the procedures outlined in the operator's manual for making the entry.

(5) The airworthiness release or aircraft maintenance logbook entry should be signed by a person authorized by the operator. The person authorized may be a certificated mechanic or a repairman. Where the authorized person is a repairman, the release or aircraft maintenance log entry may only be for the work for which he is employed and for which he is certificated.

*

* 114. MAINTENANCE TRAINING PROGRAM. The regulatory basis for maintenance and inspection personnel training is contained in FAR Section 135.433.

a. Maintenance and inspection personnel training programs are important factors in ensuring that aircraft operated by the air taxi operator are maintained at all times in an airworthy condition. The degree of such training is dependent on the individual's experience and the complexity of the work he/she is authorized to perform. The training could range from ordinary on-the-job training with "open book" testing to formal classroom training by the operator or the aircraft or engine manufacturer. In all cases, the maintenance and inspection personnel should be adequately trained to perform any work authorized.

b. The size of the air taxi operator is not the only consideration in the establishment of an effective training program. The extent of the training facilities will, however, vary from a small operator to a large operator. A large operator might provide a complex training facility whereas a small operator might use a contracted facility or factory training provided by the manufacturer. In either case, the training must be of sufficient content and scope to satisfy the training needs of both inspection and maintenance personnel.

c. Each operator is required to provide a section in its manual which pertains to the training and maintenance of inspection personnel. The operator should assign to one of its management personnel the responsibility of developing maintenance and inspection training guidelines, training course outlines, and establishing personnel training records. The person assigned to oversee the training program should make a determination as to the type of training courses needed to properly train the certificate holder's maintenance personnel (such as formal training at a training agency, manufacturer's school, or on-the-job training conducted by the operator). The assigned training program manager should ensure that all inspection personnel are adequately trained in inspection functions and techniques. The training program manager should periodically review contract agency personnel training records to ensure that minimum levels of training are maintained.

d. During the evaluation of its training, an operator should ensure that:

(1) Sufficient emphasis is placed on the training program to ensure that assigned personnel are receiving adequate training and are able to adjust to any changing conditions which affect the operator's operating procedures or maintenance organizations. Examples of changing conditions are:

(i) Purchase of new or different model aircraft.

(ii) Significant increase in aircraft utilization.

(iii) Turnover of maintenance personnel requiring an adjustment of training program.

* (2) Special maintenance and inspection training programs to be introduced with new or different type aircraft should be conducted by the operator in advance of the aircraft delivery date. This will ensure sufficient training prior to the aircraft delivery and provide the needed familiarization of personnel. The scope and content of this type of training should be adequately applied to ensure that all the certificate holder's personnel are properly trained.

e. Maintenance and inspection training records should be established with the following content:

(1) The operators' records identify the personnel by name, occupational speciality, and the training course accomplished.

(2) The records indicate the date of the training received and the results of such training.

(3) The training records provide for recurrent training and new training programs.

(4) Evidence that contract maintenance agencies are providing adequate training to their maintenance and inspection personnel.

115.-116. DELETED — CHG 2

117.-130. RESERVED.

*

**FIGURE 6-1. SERVICE DIFFICULTY REPORT,
FAA FORM 8070-1 (FRONT)**

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

**Service Difficulty Report
AERONAUTICAL EQUIPMENT**

RIS: F5 8070-1	
CONTROL NO	
ATA	CODE

MAJOR EQUIPMENT IDENTITY

Enter pertinent data	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER	N-
AIRCRAFT				
POWERPLANT				
PROPELLER				

PROBLEM DESCRIPTION

DATE	STATUS	CARRIER	ATA	AIRCRAFT TYPE	N-	CONTROL NO	
TEXT							
SPECIFIC PART CAUSING PROBLEM							
PART NAME	MFG PART NUMBER	PART CONDITION	PART/DEFECT LOCATION				
COMPONENT/APPLIANCE ABOVE PART INSTALLED ON					Report photo hours	PART TT	PART TSO
COMP/APPL NAME	MANUFACTURER	MFG MODEL/NUMBER	SERIAL NO				

SUBMITTED BY

SUBMITTER (Check one)																																						
<table border="1"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> <td>F</td> <td>G</td> <td>H</td> <td>I</td> <td>J</td> <td>K</td> <td>L</td> <td>M</td> </tr> <tr> <td>CARRIER</td> <td>REP-STA</td> <td>OPER</td> <td>MECH</td> <td>AIR TAxI</td> <td>MPL</td> <td>FAA</td> <td>OTHER</td> <td>Shop</td> <td>PSL</td> <td>ALERT</td> <td colspan="2">OPER/DO</td> </tr> </table>													A	B	C	D	E	F	G	H	I	J	K	L	M	CARRIER	REP-STA	OPER	MECH	AIR TAxI	MPL	FAA	OTHER	Shop	PSL	ALERT	OPER/DO	
A	B	C	D	E	F	G	H	I	J	K	L	M																										
CARRIER	REP-STA	OPER	MECH	AIR TAxI	MPL	FAA	OTHER	Shop	PSL	ALERT	OPER/DO																											
PREC PROC	NATURE	STAGE	STAT	ROLL	FRAME	SYS	SYS																															
ADDITIONAL COMMENTS																																						

**FIGURE 6-2. SERVICE DIFFICULTY REPORT,
FAA FORM 8070-1 (BACK)**

ALL SUBMITTERS - INSTRUCTIONS FOR COMPLETING FAA FORM 8070-1

MAJOR EQUIPMENT IDENTITY

TITLE	ENTRY
AIRCRAFT POWERPLANT PROPELLER	Identify major equipment related to problem. Enter manufacturer, model, and serial number per FAA/MAUFACTURER type certificate data sheet. If amateur built, do plan or kit name. Use military model designations when appropriate. Avoid colloquial names and member titles.
N.	Aircraft Registration Number.

PROBLEM DESCRIPTION

DATE	Give date problem occurred (i.e., 9-29-73).
TEXT	Whenever possible, describe conditions subsequent to, or leading up to, the reported problem: (a) Identify the cause for malfunction and emergency measures executed. (b) Include compliance or non-compliance with Airworthiness Directives, Service Bulletins, etc.'s, and PM's. (c) Provide any significant fact you feel may help to reduce or eliminate recurrence (i.e., cycles, landings, and suggested changes.)
PART NAME	Span, rib, shaft, venturi, transmitter, capacitor, etc. Avoid colloquial names.
MFG. PART NUMBER	Alphanumeric part identifier assigned by manufacturer.
PART CONDITION	Cracked, bent, burned, corroded, shorted, etc.
PART/DEFECT LOCATION	L.H. alternator, audio, R.H. outboard, range switch, etc.
PART TT	Total service time on part in whole hours (i.e., 00531).
PART TSO	Service time on part since overhaul in whole hours (i.e., 00700).
COMP/APPL NAME	Fuel/age, wing, alternator, carburetor, VOR receiver, etc.
MANUFACTURER	Comp/appl manufacturer: Beech, Cessna, Prattville, Bendix, Collins, etc.
MFG. MODEL NUMBER, SERIAL NUMBER	Alphanumeric model and serial numbers or identifiers assigned by comp/appl manufacturer (i.e., AL18403, N483A1, S18V15). Do not repeat "MAJOR EQUIPMENT IDENTITY" in these locations.

SUBMITTED BY

SUBMITTER	As noted on form.
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FAA DISTRICT OFFICES - SUPPLEMENTAL INSTRUCTIONS (SEE: FAA DIRECTIVE 8000.26)

PROBLEM DESCRIPTION

STATUS	Orig-Open, Orig-Closed, Supp-Open, Supp-Closed.
CARRIER	Approved 3 or 4 digit symbol (i.e., AAL, AXET, PSAT, See 8300.65).
ATA	ATA Spec. 100, 4 digit code related to malfunction (i.e., 2870, 3410, 7230, See 8000.26 Appendix 2 & 3).
AIRCRAFT TYPE	Abbreviated make plus approved model/series identify shown on FAA/MAUFACTURER type certificate data sheet (i.e., B-707-321, BE-99A)
N.	Aircraft registration number.
CONTROL NUMBER	When "STATUS" is supp-open or supp-closed enter original "CONTROL NUMBER", otherwise leave blank.

SUBMITTED BY

SUBMITTER	Enter inspector's name and office symbol (i.e., Tom Higgins, EA-313), check the appropriate block	CHIEF BLOCK	IF REQ'D BY FAA
		A	131, 132, 133, 133.1
		B	133.5
		C	133.5, 133.17
		D	133.11
		NONE	
PREC. PROC.	A thru I, enter one or four codes which best describe Precaut/Unary Procedure (see 8000.26, appendix 3).		
NATURE	A thru S, enter one or three codes which best describe the nature of conditions present (see 8000.26, appendix 3).		
STAGE	Enter one bi-digit code which best describes the stage of operation when problem occurred (see 8000.26, appendix 3).		

FAA OFFICES ONLY, PREPARE FORMS IN DUPLICATE. REMAINING BLOCKS WILL BE COMPLETED AT TIME OF COMPUTER PROCESSING. DO NOT UTILIZE REMAINING SPACE FOR OTHER PURPOSES.

FOLD

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*

1. REGISTRATION NO. N-		DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION MALFUNCTION OR DEFECT REPORT			FOR FAA USE ONLY CONTROL NO.	8. DATE SUB.	Form Approved Budget Bureau No. 04-R0003		
2. AIRCRAFT		A. MAKE	B. MODEL	C. SERIAL NO.	7A. COMMENTS (Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)	SUBMITTED BY	Continue on reverse		
3. POWERPLANT							B. REP. STA.	C. OPER.	D. MECH.
4. PROPELLER							E. AIR TAXI	F. MFG.	G. FAA
5. APPLIANCE/COMPONENT (assy. that includes part)									
A. NAME		B. MAKE	C. MODEL	D. SERIAL NO.					
6. SPECIFIC PART (of component) CAUSING TROUBLE									
A. NAME		B. NUMBER	C. PART/DEFECT LOCATION						
FAA USE DATA CODE		E. PART TT	F. PART TSO	G. PART CONDITION					

FAA Form 8010-4 (7-78) SUPERSEDES FAA Form 8330-2

USE THIS SPACE FOR
ADDITIONAL COMMENTS IF NEEDED

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CHAPTER 7. MISCELLANEOUS

* 131. AIRCRAFT EQUIPMENT.

a. General requirements (FAR Section 135.143). Approved instruments and equipment are those which:

(1) Conform to a technical standard order authorization issued to a manufacturer under Federal Aviation Regulations Part 37, Technical Standard Order Authorization, and are appropriately marked.

(2) Are accepted as part of the aircraft on original type certification by the manufacturer under the Delegation Option Authorization, FAR Part 21, Subpart J.

(3) Are accepted as part of the aircraft on original or supplemental type certification under FAR Part 21, Subpart B or E.

(4) Are specifically approved for the aircraft by an authorized representative of the Administrator, when not covered by a procedure in Subparagraphs 1, 2, and 3. Examples are: FAA Designated Engineering Representative (DER) Approval; FAA Inspector Field Approval; Federal Aviation Regulation, Part 21, Subpart N, Approval of Engine, Propellers, Materials and Appliances: Import.

b. Fire Extinguishers - Passenger Carrying Aircraft FAR Section 135.155.

(1) The fire extinguisher used in air taxi operation must be of an approved type and in operable condition (FAR Section 135.143(b)). Only fire extinguishing agents which qualify for the Underwriters Laboratories, Inc., (U.L.) Toxicity rating of Group 5 or 6, and which in normal fire extinguishing use do not generate decomposition products in concentrations hazardous to life, will be considered for use in aircraft cabin or crew compartments.

(2) An approved aircraft fire extinguisher is defined as an extinguisher which is listed by the Underwriters Laboratories, Inc., FAA Technical Standard Order C-19B, or CFR 46, Subpart 162.028.

(3) Extinguishers utilizing halogenated extinguishing agents classified by the Underwriters Laboratories, Inc., as falling in U.S. Toxicity Group 5 or 6, may be substituted for carbon dioxide extinguishers if it can be shown that there is sufficient free air volume within the aircraft cabin space to avoid producing serious irritating effects on the occupants. The percentage of concentration used will have to put out the fire and still allow the person to breathe normal for 4 to 5 minutes. It must be demonstrated that there will be no danger both immediately after or distant effects after a person is exposed. The use of halogenated extinguishing agents will not be approved if the area of use cannot be ventilated in 4 or 5 minutes after the fire is out. *

* (4) Provide adequate ventilation when fire extinguishers are discharged within crew or passenger compartments. Because of the corrosion problem in electric equipment and the reduction of visibility when discharged, dry chemical fire extinguishers should not be considered acceptable for use in small crew or passenger compartments.

c. Emergency equipment extended overwater operations, FAR Section 135.167. This section of the FAR requires certain approved equipment be carried aboard the aircraft and easily accessible to the occupants if a ditching occurs.

(1) An approved life preserver equipped with an approved survivor light, or

(2) An approved flotation means for each occupant of the aircraft.

(3) Enough properly equipped liferafts to carry all occupants of the aircraft.

(4) Each liferaft shall have at least one approved pyrotechnic signaling device.

(a) An approved life preserver is defined as a life preserver which meets the requirements of Technical Standard Order C-13C or CFR 46, Section 160.055.

(b) An approved survivor locator light is defined as a survivor locator light meeting the requirements of Technical Standard Order C-85.

(c) An approved flotation means is defined as an individual flotation device which meets the requirements of Technical Standard Order C-72b, or it may be a personal flotation device which meets the requirements of CFR 46, Subparts 160.047, 160.049, 160.052, or 160.064.

(d) An approved pyrotechnic signaling device is defined as a signaling device which meets the requirements of CFR 46, Subparts 160.021, 160.022, 160.023, 160.024, or MIL-S-18535A, MIL-S-83352B, or MIL-S-18655C.

(e) Unless referenced otherwise the term "approved" means approved by the Administrator.

d. Oxygen For Medical Use by Passengers, FAR Section 135.91. In order to comply with the provision of this section, medical oxygen equipment carried or operated aboard air taxi aircraft must be of an approved type or in conformity with the provisions of CFR 49, Parts 171, 172, and 173, except paragraph 173.24(a)(1) and must be so constructed so that all valves, fittings, and gauges are protected from damage during carriage or operation. *

* (1) Medical oxygen equipment owned by a certificate holder must be maintained under the certificate holder's approved maintenance program. AC 135-5A, Maintenance Program Approval for Carry-On Oxygen Equipment for Medical Purposes, may be used in developing a maintenance program.

(2) The person using the oxygen equipment must be seated and the equipment must be properly stowed to prevent restricting access to any emergency or regular exit or of the aisle in the passenger compartment.

(3) Only persons properly trained in the use of medical oxygen may connect or disconnect oxygen bottles or other ancillary components.

(4) FAR Section 135.91(d) provides for the use of oxygen equipment furnished by a professional or medical emergency service during a medical emergency when no other practical means of transportation is reasonably available, provided the deviation is reported in accordance with FAR Section 135.91(e).

132. AIRCRAFT LOG. Each certificate holder is required by FAR Section 135.65 to provide an aircraft maintenance log to be carried on board each aircraft for recording or deferring mechanical irregularities and the subsequent corrective actions performed. The operator is also required to establish a procedure for retaining copies of the aircraft maintenance log in the aircraft for access by appropriate personnel.

a. Reporting mechanical irregularities or defects is an important procedure. It is a method whereby the pilot-in-command will inform the operator of mechanical irregularities or defects that come to his attention during flight time or during preflight or post-flight inspection. The operator is then able to inform maintenance personnel of the suspected conditions of the aircraft so that an efficient determination of the airworthiness condition of the aircraft can be made and corrective action applied. It is also a basis for the required Mechanical Reliability Reports and Mechanical Interruption Summary Reports.

b. The aircraft log serves three purposes:

(1) It enables the pilot to comply with the reporting of mechanical irregularities or defects.

(2) It provides the operator with a readily available source for preparing his daily Mechanical Reliability Reports and monthly Mechanical Interruption Summary.

(3) It provides a means of communication between flight personnel and maintenance personnel, allowing maintenance personnel to go straight to the suspected areas without having to search for them.

c. Correction of Mechanical Irregularities or Defects. It is of the utmost importance that procedures be established by the operator to allow the pilot to determine that mechanical irregularities or defects previously reported have been corrected.

* d. Deferment of Maintenance Items. Caution should be used in deferring maintenance items since it may constitute a violation of the FAR to operate an aircraft with equipment inoperative when that equipment was required under the original Type Certificate of the aircraft.

e. Other items that may be included in the aircraft maintenance log are compliance with airworthiness directives and VOR equipment checks.

133. REFUELING PROCEDURES.

a. The operator should establish procedures for refueling aircraft that ensure they are: (1) fueled with the proper grade of uncontaminated fuel, and (2) protected from fire (including electrostatic protection). The supervision and protection of passengers and ramp personnel during refueling should also be included.

b. The operator has the additional responsibility for the storage and maintenance of the fuel quality in storage, transferring fuel to fueling equipment/systems, and dispensing fuel into aircraft fuel systems. Procedures for controlling this function should be included in the operator's manual. The following publications may be useful for developing these procedures and related manual material:

(1) AC 00-34A, Aircraft Ground Handling and Servicing.

(2) AC 20-43C, Aircraft Fuel Control.

(3) FAR 159, National Capital Airports, 159.133, Fueling Operations, which outlines procedures that the FAA requires to be followed at Washington National Airport and Dulles International Airport.

(4) National Fire Protection Association, 60 Batterymarch Street, Boston, Massachusetts 02110, publishes NFPA No. 407, Aircraft Fueling, which establishes industry standards for aircraft fueling on the ground. In addition, the various fuel companies have publications outlining recommended practices and procedures.

134. ACCIDENT NOTIFICATION. The National Transportation Safety Board (NTSB) Investigation Regulations Part 830 requires the operator to immediately, and by the most expeditious means available, notify the nearest NTSB field office of aircraft accidents, incidents, and overdue aircraft. The operator should, therefore, develop a procedure for inclusion in the manual to ensure that it will be immediately notified and furnished information in sufficient detail to comply with this notification responsibility.

*

6. COMPANY AIRCRAFT & EXAMINATION:

- * Powerplant
- * Propeller and Supercharger operations
- * Electrical
- * Fuel
- * Hydraulic
- * Weight and balance
- * Instruments
- * Heating and ventilation
- * Airspeeds
- * Runway lengths
- * Emergency procedures
- * Examination

7. NAVIGATION AND ATC PROCEDURES

- * General - Pertinent to scheduled operation
- * (1) Instrument approaches
- * (2) Area procedures, including communications facilities

8. ROUTE AND AIRPORT QUALIFICATIONS:

- * General - for new routes
- * (1) Weather characteristics
- * (2) Terrain and obstruction hazards
- * (3) Minimum safe flight levels
- * (4) Congested areas, obstructions, and physical layout of each airport

9. ADVERSE CONDITIONS AND METEOROLOGY:

- * Meteorology, general and appropriate to area of operation
- * Weather analysis and dispatch considerations
- * Operating in turbulent air or icing conditions;
 - (a) Use of airborne weather radar/thunderstorm detection equipment
 - (b) Proper use of stabilizer trim and autopilot (when applicable)
 - (c) Flying qualities in turbulence - Company aircraft
 - (d) Attitude control
 - (e) Flying in vicinity of thunderstorms
 - (f) Use of proper airspeed for turbulence penetration
 - (g) Wake turbulence
 - (h) Door opening (unwanted)
 - (i) Cold weather

- (j) Blocked or frozen pitot systems
- (k) Icing
- (l) Mechanical failure
- (m) Hydroplaning

10. EXAMINATION

- * Navigation and ATC procedures
- * Route and airport qualification
- * Bad weather operations and meteorology

FLIGHT TRAINING:

Flight training standards in practical skills and techniques will be as set forth in Federal Aviation Regulation Part 61 and related advisory circulars for the pilot certificate held, and for the category, class, and type of aircraft the pilot is to operate with the added requirements that the outcome of the maneuver * is never in doubt. For operations with more than one pilot, crew coordination procedures are to be emphasized in all phases of flight. Items followed by (S) may be accomplished in an aircraft simulator, (T) a training device. *

ALTERNATE PROCEDURE RE: USE OF SIMULATOR/TRAINING DEVICE

If a simulator or training device approved for use under this training program for certain maneuvers, procedures, or functions becomes inoperative or, for any other reason, a maneuver, procedure, or function programmed for the simulator training device cannot be accomplished in the simulator or training device, such maneuvers, procedures, or functions will be accomplished satisfactorily in an aircraft.

1. AIRCRAFT FAMILIARIZATION

2. BASIC PILOTING TECHNIQUE:

- * Cockpit preflight and use of checklist (T)
- * Taxiing (S)
- * Normal takeoffs and landings
- * Crosswind takeoffs and landings
- * Short field technique
- * Maneuvering - minimum speed (S)
- * Stalls (S)
- * Steep turns (S)
- * High speed maneuvering characteristics - turbojet aircraft
- * Recovery from unusual altitudes

3. INSTRUMENT PROCEDURES:

- * En route climb and descent (T)
- * VOR approach (T)
- * NDB approach (T)
- * ILS approach (T)
- * Circling approach (S)

4. EMERGENCY PROCEDURES - MULTI-ENGINE

- * Emergency systems operations (T)
- * Emergency go-around (S)
- * Vmc demonstration and recovery
- * Engine out maneuvering (S)
- * Takeoff with engine failure (high gross weight) (S) *
- * Landing with engine failure
- * Engine-out approach, go-around and landing (at least one ILS approach required)
- * Emergency operation of systems (T)

RECURRENT PHASE TRAININGCONDUCT OF TRAINING.

1. Recurrent training, as required, must be completed within 12 calendar months after the initial training phase or last recurrent training phase. FAR 135.301(a) provides that if the test or flight check is completed in the calendar month before or after the month in which it is required, that crewmember is considered to have taken the test or check in the calendar month in which it is required.
2. The pilot will be notified, in advance, by the chief pilot when the recurrent training will be accomplished.
3. Due to the thoroughness of the initial training, the instructor may not need to spend as much time on subjects covered in the initial training phase. However, he must spend as much time as necessary to ensure the same standards are met as required in the initial training phase.

TRAINING RECORDS.

The chief pilot will conduct ground and flight training, and administer written and flight tests. Oral tests may be administered in lieu of written tests when approved by the FAA. The chief pilot shall provide, for the company records, a certification of training course completion. The chief pilot shall ensure that appropriate documentation is inserted in each pilot's records which are kept on file in his office.

Sample copies of the certificates of training and statements of competency are provided on the next two pages of this manual.

CERTIFICATE OF GROUND TRAINING

This is to certify that _____
has received (initial)(recurrent) training prior to serving as Pilot in
Command as required by FAA Regulations pertinent to Operating Certificate
No. _____ issued by the Federal Aviation Administration.

This has included, but was not necessarily limited to:

- (1) Instruction in the appropriate provision of the Operations Specifications, FAR 61, 91, and 135.
- (2) Duties and responsibilities of crewmembers as included in the Company Manual.
- (3) For the type of aircraft to be flown, including a study of the aircraft engine, major components and systems, major appliances performance limitations, standard emergency operating procedures, and contents of approved Aircraft Flight Manual or owner's handbook.
- (4) Methods for determining weight and balance limitations for takeoff and landing, and en route operations for each aircraft to be flown.
- (5) Navigation and use of appropriate navigational aids and, when applicable, instrument approach facilities and procedures.
- (6) Air traffic control systems and procedures, VFR and IFR.
- (7) Meteorology, as appropriate to routes and operating areas, most normally used by the company.
- (8) Procedures for operating in icing conditions and avoiding icing conditions, turbulent air, hail, thunderstorms, and other hazardous meteorological conditions.
- (9) Communications procedures and communications equipment failure procedures.
- (10) Ground training necessary to ensure qualification in new equipment, procedures, or techniques.

Ground training hours: _____

Signed _____

Title _____

Date _____

CERTIFICATE OF FLIGHT TRAINING

This is to certify that _____
has received (initial)(recurrent) training prior to serving as Pilot
in Command as required by FAA Regulations and pertinent to operating
Certificate No. _____ issued by the Federal Aviation
Administration.

This has included, but was not necessarily limited to:

- (1) Takeoffs and landings during day and night in the _____
aircraft in which he is to serve as pilot.
- (2) Normal and emergency flight maneuvers in the _____
aircraft in which he is to serve as pilot, or in an approved simulator/training
device.
- (3) Flight under simulated instrument conditions.
- (4) Climbs and climbing turns.
- (5) Engine shutdown and restart (multiengine aircraft only).
- (6) Maneuvering at minimum speeds.
- (7) Approaches to and stalls (as appropriate).
- (8) Flight under simulated IFR conditions using each kind of navigational
and approach facility used in normal operation.
- * (9) Engine failure during/after takeoff. *

Flight training hours completed: _____

Simulator/training device time: _____

(List item numbers approved in whole or part of accomplishment in simulator
or training device): _____

Signed _____

Title _____

Date _____

APPENDIX 2. OPERATOR'S MANUAL OUTLINE

* The following is a brief outline and checklist for a typical operator's manual:

INDEX

Is the index a complete, concise, easy-to-use reference to the contents of the manual?

I. Company Organization.

Is each individual in a management capacity identified with respect to his authority to act, for the certificate holder, in his assigned areas of responsibility?

II. Company Procedures and Policy.

Does this section contain sufficient detail to provide the necessary guidance to enable each employee to carry out assigned duties and responsibilities and act in accordance with the desired company policy? Does it assure the operator that its responsibility for compliance with regulations will be fulfilled?

III. Operations Specifications.

Are copies of the operations specifications approved for the certificate holder included? Does extracted information meet the regulatory requirements? If deviations or exemptions have been authorized, are they included?

IV. Accident Notification Procedures.

Does the procedure ensure the operator that it will be immediately notified and furnished information in sufficient detail to comply with the accident, incident, and overdue notification requirements of the National Transportation Safety Board Investigation Regulation Part 830?

V. Airworthiness Release/Approval for Return-to-Service. Do the procedures ensure that the pilot in command can determine:

That the aircraft is eligible for service; that the airworthiness release or approval for return has been certified and is valid.

VI. Mechanical Irregularities.

1. Reporting - Is the pilot in command provided with a reporting system to inform the operator of aircraft mechanical irregularities or defects that come to his attention during flight or during preflight inspections? *

2. Correction - Can the pilot in command adequately determine the current aircraft maintenance status resulting from corrective action taken on previously reported mechanical irregularities or defects?

VII. Procedures for Obtaining Service and Maintenance.

Does this section clearly define who is authorized to obtain maintenance, preventive maintenance, and servicing, where it may be obtained, to what extent, and what maintenance management approval is needed for emergency maintenance away from the base?

VIII. Minimum Equipment List (MEL) - Multiengine Aircraft.

If an operator is authorized to use an approved MEL under FAR 135.179, are adequate procedures outlined for the use of the MEL? Are procedures for maintenance requirements relative to continuation of flight with inoperative equipment provided and clearly identified?

IX. Refueling Procedures.

Are ground and flight personnel provided with adequate information pertinent to the specific operation for the elimination of fuel contamination, protection from fire, and passenger protection and supervision during refueling? Are provisions for ensuring the quality of stored fuel and dispensing equipment included?

X. Passenger Briefing.

Are procedures provided for the pilot in command or a member of the crew to ensure that the oral briefing of the passengers before flight is properly conducted as required by FAR 135.117? Are procedures provided for the boarding, in-flight attendance, and emergency evacuation of handicapped passengers?

XI. Flight Locating Procedures.

Are the established procedures adequate to ensure compliance with the flight locating requirements of FAR 135.79 for each flight for which an FAA flight plan is not filed?

XII. En Route Qualification.

Does this section provide a method of scheduling to ensure compliance with the initial and recurrent testing? Are the approved check airmen, if appropriate, identified? Is a procedure for recording results provided? *

* XIII. Emergency and Emergency Evacuation Duties and Emergency Reporting Procedures.

Is information provided to define the duties and responsibilities of the operator and flight and ground crews during emergencies and emergency evacuations (FAR 135.123), including procedures for persons who may need the assistance of another person to move quickly to an exit if an emergency occurs? Does it ensure compliance with the operator's and pilot in command's emergency operations and reporting requirements of FAR 135.19?

XIV. Hazardous Materials (Title 49 CFR).

Are procedures and instructions provided:

1. To enable an operator's personnel to recognize hazardous materials as defined in Title 49 CFR? (Those instructions are required even if a certificate holder elects not to accept hazardous materials.)
2. To ensure proper packaging, marking, labeling, shipping documents, and compatibility of articles accepted for shipment and instructions for their loading, storage, and handling in shipment aboard the operator's aircraft and for the care, storage, and handling of those materials at the operator's facility?
3. For the notification of the pilot in command when there are hazardous materials aboard the aircraft?
4. For the notification and reporting of hazardous material incidents as required by Title 49 CFR?

XV. Weight and Balance Procedures.

Are the procedures adequate to ensure compliance with the aircraft weight and balance limitations of each individual make, model, and type aircraft operated? Are provisions for aircraft weighing and control of operating weights included?

XVI. Crewmember Training Programs.

Does the training program provide for the initial, transition, upgrade, ground, recurrent, on-the-job, and emergency training as required for the operator's crewmember personnel?

XVII. Other Than Crewmember Training Programs.

Does the training program provide for the initial, ground, recurrent, on-the-job, and factory training as required for the operator's personnel who are assigned to other than flight crewmember positions? *

* XVIII. Inspection and Maintenance Programs.

1. Are the procedures for the inspection and additional maintenance requirements for aircraft type certificated for nine or less passengers, excluding any pilot seat, outlined in this section (FAR 135.411(a)(1))? If an approved aircraft inspection program is authorized, is the program and related procedures included in the manual?

2. If applicable, is the continuous airworthiness maintenance program required by FAR 135.411(a)(2) included? Are procedures for management of that program included?

XIX. Mechanical Reliability Reports (MRR) (FAR 135.415).

Are the procedures outlined for the collection of information, the preparation, and the responsibility for submission of MRR's adequate?

XX. Mechanical Interruption Summary Reports (MIS) (FAR 135.417).

Are the procedures included in this section for operators of multiengine aircraft for the assembly of information, the preparation, and the responsibility for submission of MIS reports adequate?

XXI. Listing of Manuals

Is a listing of supplementary manuals considered part of the manual system (such as manufacturer's manuals), and their authority, included?

XXII. Distribution.

Does the method of distribution ensure that the manual or appropriate portions (and amendments) will be received by the operator's ground operations personnel, crewmembers, and representatives of the Administrator and will be made available to maintenance personnel? Does it ensure that the manual or appropriate parts will be available for use by ground and flight personnel, at, and away from, the principal base?

1/12/82

AC 135-3B CHG 2

APPENDICES 4 AND 5 -- DELETED -- CHG 2

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U.S. Department
of Transportation

**Federal Aviation
Administration**

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