

e. Insufficient Data. When an applicant has data whereby he/she can reasonably be expected to obtain a safe job, if accomplished by people of normal competence, it should be considered sufficient. Only if it fails to meet this criteria will it be considered insufficient; in which case, explain the practical shortcomings of the applicant's data and specify the type and extent of any additional data which he/she will need as a basis for approval.

f. Source of Data. The source of data presented by an applicant is strictly his/her own concern. The source, cost, or any other phase of an applicant's acquisition of data, which is presented as a part of an alteration approval action, should not be questioned.

481. COMPATIBILITY OF ALTERATION. Airplanes of the same make and model will not always be in the same configuration because of prior alteration. The possibility of an unairworthy condition resulting from combining the proposed alteration with a previous one is to be considered when approving data. Persons concerned with performing, supervising, and approving alterations should make a concerted effort to determine if the proposed alteration is compatible with previously installed alterations.

a. Records. All maintenance records, including FAA Form 337's and data, should be obtained from the owner/operator for review of previously accomplished alterations. If it is suspected that the FAA Form 337's are missing, a request for all copies should be made to the Aircraft Registration Branch, AAC-250, FAA, Mike Monroney Aeronautical Center, P.O. Box 25082, Oklahoma City, Oklahoma 73125.

b. Inspection. A preliminary evaluation inspection of an aircraft should be accomplished prior to initiating an alteration project in order to determine compatibility with alterations previously accomplished.

482. MINOR VARIATIONS FROM PREVIOUSLY APPROVED DATA.

a. When an applicant desires to accomplish an alteration using data which does not differ appreciably from a previously approved alteration, the inspector will not require new or additional approval. Minor variations which have no bearing on safety are acceptable without formal approval and without submission of a formal application by an applicant. However, the deviations should be recorded on an FAA Form 337.

b. Alterations which are considered to have been previously approved are those which are in reasonably close conformity to jobs covered by Supplemental Type Certificates, Airworthiness Directives, typical airframe repair manuals, and alterations previously approved by FAA engineering and airworthiness personnel, regardless of the form of approval. Jobs done in accordance with data contained in AC 43.13-1A, Acceptable Methods, Techniques, and Practices--Aircraft Inspection and Repair, and AC 43.13-2A, Acceptable Methods, Techniques, and Practices--Aircraft Alterations, are also in this category.

483. ALTERATIONS WHICH ARE CLASSIFIED AS MAJOR ALTERATIONS. Airworthiness and avionics inspectors often classify alterations in the following areas incorrectly. Alterations of the following type are considered major alterations:

a. Substitution (the initial replacement of one unit with one of another type) of required equipment or systems that are not part of the original aircraft type design, as described by the Aircraft Specifications, Type Certificate Data Sheet, or FAA Approved Aircraft Manufacturers Equipment Listing. This requirement does not prohibit substitution of parts or components bearing TSO or PMA approval, as minor alterations provided such parts and units have no critical interface with other units and systems, and that the physical and performance characteristics are equivalent.

b. Equipment installations not listed in the Aircraft Specifications, Type Certificate Data Sheet, or FAA Approved Aircraft Manufacturer Equipment Listing, which appreciably affect aircraft performance, flight characteristics, or required by an operating rule for a particular category of operation. An operating rule example is FAR Section 91.6.

c. Equipment installations that involve interfacing with other systems for which there is no acceptable data.

484. ALTERATION PERFORMANCE - TESTING - RECORDATION. Airworthiness and avionics inspectors shall ensure the following:

a. Performance. That the alteration is accomplished in accordance with data approved by the Administrator. Approved data are those approved by a designated engineering representative (DER), a manufacturer holding a delegation option authorization (DOA), Supplemental Type Certificates (STC); or field approval procedures as outlined in this Order, Chapter 3, Sections 3 and 4. This is not meant to imply that a STC, separate field approval, or conformity inspection is necessary for each and every installation. When the person making the alteration has demonstrated his/her ability to install this equipment on a representative number of similar type installations, reference to previous approvals on FAA Form 337 would constitute previously-approved data and need not require a separate field approval. Data which may be used as a basis for approval of alterations includes: FAR's (e.g., Airworthiness Directives), advisory circulars (e.g., AC 43.13-2A), Technical Standard Orders (TSO's), Parts Manufacturing Approval (PMA), FAA approved manufacturers instructions, kits and service handbooks, Type Certificate Data Sheets and Aircraft Specifications. Alterations listed in the specification are minor alterations per FAR Part 43, Appendix A, Major Alteration, Major Repairs, and Preventive Maintenance.

b. Testing. Each person performing the alteration has completed all testing required by the manufacturer, certification or operating rule. FAA Form 337 and aircraft record entry should indicate that the system has been properly tested and meets the maintenance requirements of the applicable regulation (see FAR Sections 91.36(b), 91.171, 91.172, etc.).

c. Recordation. Each person approving the aircraft for return to service has complied with the provisions of FAR Section 43.9 as to content, form, and disposition of the record and that the equipment associated with the alteration will perform its intended function and meets the appropriate certification rules (CAR Parts 3, 4a, 4b, and FAR Parts 23, 25, 27, and 29).

485. ASSISTANCE BY APPROPRIATELY RATED DESIGNATED ENGINEERING REPRESENTATIVE (DER). If an appropriately rated DER is available and is employed by the applicant, the inspector should work with him. The DER's authority to represent FAA is the same as if he/she were employed by FAA; however, it should be noted that the DER may be limited to technical areas that do not fully cover the entire project. Any area not covered by the DER approval must be reevaluated by the FAA. Additionally, the DER should not be permitted to make the determination as to which inspections are necessary for the pertinent alteration since this activity would be outside the scope of his authorization.

486. INCOMPLETE AND/OR PIECEMEAL INSTALLATION. Aircraft having an incomplete equipment installation may be released to service if;

- a. The alteration data have been approved by an inspector;
- b. The equipment installed remains disconnected and placards affixed to prevent use; and
- c. Approval for return to service is conducted by an authorized person as defined in FAR Section 43.7. This is necessary to maintain the validity of the Certificate of Airworthiness. The applicant should be advised that alterations accomplished on a piecemeal basis may be subject to a complete conformity inspection when the entire project is presented for approval. The formal approval of each step of the alteration would eliminate this possibility and may provide for the utilization of equipment which, in itself, could be safety used.

487. ALTERATIONS WHICH WILL REQUIRE ENGINEERING APPROVAL. Many alterations that are commonly called major alterations are in reality major design changes and require an STC under the provisions of FAR Section 21.113. Major changes to the type design are those which might appreciably affect weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. Alterations of this type require engineering approval. Typical major alterations in this category are:

- a. Increase in gross weight and/or changes in c.g. range.
- b. Installation or relocation of equipment and systems or changes which may adversely affect structural integrity, flight, or ground handling characteristics of the aircraft. For example, engines and/or controllable propellers of a different make or model; pressurization systems; alternate static air or pressure systems; initial or prototype installation of an automatic pilot or automatic approach system; modification of automatic pilot or automatic approach system which changes servo forces, servo rates, or any flight control or performance characteristics; and the relocation or changes of throttle levers, flap controls and similar items.
- c. Any change (alteration) of movable control surfaces which may adversely disturb the dynamic and static balance, alter the contour, or make any difference (plus or minus) in the weight distribution.

- d. Change in control surface travel outside approved limits, control system mechanical advantage, location of control system component parts, or direction of motion of controls.
- e. Changes in basic dimensions or external configuration of the aircraft, such as wing and tail planform or incidence angles, canopy, cowlings, contour or radii, or location of wing and tail fairings.
- f. Changes to landing gear, such as internal parts of shock struts, length, geometry of members, or brakes and brake systems.
- g. Any change to engine cowling and/or baffling which may adversely affect the flow of cooling air, and changes to manifolding.
- h. Changes to primary structure which may adversely affect strength or flutter and vibration characteristics.
- i. Changes to systems which may adversely affect aircraft airworthiness such as relocation of exterior fuel vents, use of hydraulic components, tube material and fittings not previously approved, or use of new type fusible hydraulic plugs.
- j. Changes to oil and fuel lines or systems which may adversely affect their operation, such as new type of hose and hose fittings, changes in fuel dump valves, new fuel cell sealants, new fuel or oil line materials, and new fuel or oil system components.
- k. Any change to the basic engine or propeller design controls or operating limitations, and unapproved changes to engine adjustments and settings having an affect on power output.
- l. Changes in a fixed fire extinguisher or detector system which may adversely affect the system effectiveness or reliability, such as relocation or discharge nozzle or detector units, use of new or different detector components in new circuit arrangements; deletion of detector units or discharge nozzles; change extinguishing agent or decrease in amount of extinguishing agent.
- m. Changes which do not conform to the minimum standards established in a Technical Standard Order under which a particular aircraft component or appliance is manufactured.
- n. Modifications to approved type (TSO or CAATC) radio communications and navigational equipment which may adversely affect reliability or airworthiness, such as changes which deviate from the vacuum tube or semiconductor operating limitations as prescribed by the manufacturer; any changes to I.F. frequency; extension of receiver frequency range above or below the manufacturer's extreme design limits; major changes to the basic design of low approach aids; and changes which deviate from the design environmental performance.

o. Changes to aircraft structure or cabin interior of aircraft which may adversely affect evacuation of occupants in any manner.

p. Changes in airplane flight manuals and/or manual information in the form of placards or markings. (Reference FAR Sections 23.1581, 25.1581, and Order 8110.4, Type Certification, paragraph 174).

488. TYPICAL ALTERATIONS WHICH MAY REQUIRE TECHNICAL ASSISTANCE DUE TO THE NATURE OF THE CHANGE PROPOSED BY THE OPERATOR/OWNER.

- a. Use of synthetic covering materials.
- b. Substitution of materials, parts, or processes on which insufficient information is available.
- c. New chrome plating applications.
- d. New titanium applications.
- e. Ceramic coatings.
- f. Use of synthetic resin glues.
- g. New stripping or plating coatings.
- h. New welding or brazing techniques.
- i. Welding of certain types of propeller or engine parts.
- j. Application of TSO's to specific installations.
- k. Alternative means for complying with airworthiness directives or approved service bulletins.
- l. New magnesium applications.
- m. Any other complex special processes which, if not properly performed, could have an adverse effect on the integrity of the product.
- n. Any change to a required aircraft instrument system.

489. FAA INSPECTOR APPROVAL ENTRY ON FAA FORM 337. Data alterations approval by an FAA inspector will be recorded by entering the appropriate statement in Block 3 of FAA Form 337. See Paragraph 490, Notes 2, 3, and 4 of this section for applicable statement. Approval for return to service (Block 7 of FAA Form 337) by a Flight Standards airworthiness inspector will be performed ONLY when the services of authorized industry/persons are not readily available. See Section 5 of this Chapter for guidance on the administrative processing of FAA Forms 337.

490. DOCUMENT DISPOSITION.

Applicant Presents

- 1. FAA Form 337 or Air Carrier Engineering Orders (in duplicate).

- 2. Substantiating data: A clear description of work performed is required by FAR Section 43.9. Drawings or sketches that include sufficient details for a determination of compliance with acceptable airworthiness standards is satisfactory.

- 3. Photographs, if available, may be acceptable in lieu of drawings. Sufficient descriptive data must accompany them to identify material used but need not be so detailed as to support reproduction.

Applicant Receives

(If data and FAA Form 337 and/or Engineering Order are acceptable.)

- 1. All copies of FAA Form 337 and/or Engineering Order with approval statement and signature. (See Notes 2, 3, and 4.)

- 2. Inspection for conformity with this approved data will be in accordance with FAR Part 43.

(If the data submitted is not acceptable.)

- 1. Return complete file to applicant with specific instructions for correcting all discrepancies. (Every effort should be made to be sure the applicant fully understands what is required, thereby avoiding the need for again rejecting his application for lack of proper information.)

For FAA Files

When inspection for conformity is completed, a duplicate of FAA Form 337 will be forwarded in accordance with instructions contained in Section 5 of this Chapter. Return supporting data to applicant.

NOTE 1:

All forms and data presented for approval should be evaluated as expeditiously as practicable and the entire transaction be completed with a minimum of delay.

NOTE 2: Approval by Examination of Data Only - One Aircraft.

"The data identified herein complies with the applicable airworthiness requirements and is approved for the above described aircraft, subject to conformity inspection by a person authorized in FAR Part 43, Section 43.7."

District Office

Date

Signature of FAA Inspector

NOTE 3: Approval by Physical Inspection, Demonstration, Testing, etc. - One Aircraft.

"The alteration identified herein complies with the applicable airworthiness requirements and is approved for the above described aircraft, subject to conformity inspection by a person authorized in FAR Part 43, Section 43.7."

District Office

Date

Signature of FAA Inspector

NOTE 4: Approval by Examination of Data Only - Duplication of Identical Aircraft.

"The alteration identified herein complies with the applicable airworthiness requirements and is approved for duplication on identical aircraft make, model, and altered configuration when accomplished by the original modifier."

District Office

Date

Signature of FAA Inspector

491.-495. RESERVED.

SECTION 4. MAJOR REPAIRS

496. AUTHORITY. The regulatory basis for approval of major repairs is contained in FAR Sections 43.7, 65.95, 121.379(b), 127.140(b), 135.437(b), and 145.51.

497. REQUIREMENT FOR APPROVED DATA. Any airframe, engine, propeller, or appliance that has undergone a major repair must have had the work accomplished in accordance with data approved by the Administrator prior to it being approved for return-to-service. Those items of repair classified as major are listed in FAR Part 43, Appendix A(b).

498. PREVIOUSLY APPROVED DATA. Approved repairs are those shown in FAA approved maintenance manuals or instructions such as the following list which is representative and not all inclusive.

a. Airframe, engine, and propeller manufacturer's maintenance manuals or instructions when they are FAA approved.

b. Appliance manufacturer's maintenance manuals or instructions, even though not specifically approved by the FAA, are considered to be in compliance with the above cited regulatory sections unless a specific disapproval is issued by the Administrator. It should be noted that in the event that the airframe, engine, or propeller manufacturer's instructions require special procedures, tolerances, or specifications, they shall prevail over the appliance manufacturer's instructions.

c. Major Repair and Alteration, FAA Form 337, when the data specified thereon has been approved by an FAA inspector.

d. Airworthiness Directives.

e. Supplemental Type Certificate Data, provided the applicability extends to the specific article being repaired.

f. Parts Manufacturer Approvals.

g. Delegation Option Authorization.

h. Designated Alteration Station Authorization Approvals.

i. Designated Engineering Representative approved data.

j. Other data that is approved by the Administrator.

499. MAJOR REPAIR DATA APPROVAL (NOT PREVIOUSLY APPROVED). Major repair data will require approval by the inspector, engineering and manufacturing, or designated engineering representative when there is no conclusive evidence that drawings and the methods, techniques, or materials used have been previously approved. Data approval must be obtained for a major repair before the aircraft or component can legally be released for return-to-service. All action concerning approvals of major repair data should be expedited.

a. Inspector-Approved Repairs. Field approval of such data by inspectors is desirable and will be granted when an inspector is certain that the data presented meets the requirements of the airworthiness part under which the aircraft was manufactured and is acceptable under the provisions of FAR Section 43.13.

b. Engineer-Approved Repairs. MAJOR REPAIRS BEYOND THE CAPABILITIES OF THE INSPECTOR TO EVALUATE, SUCH AS THOSE REQUIRING STRESS ANALYSIS OR POSSIBLE INCOMPATIBILITY WITH OTHER REPAIRS OR INSTALLATIONS, WILL BE REFERRED TO THE LOCAL AIRCRAFT CERTIFICATION DIVISION/OFFICE FOR ASSISTANCE AND ADVICE. When contacting the local Flight Standards engineer, all details must be available and clearly transmitted in order to expedite the matter and avoid error.

c. Procedures. In many cases, the normal contact with engineering and manufacturing personnel is by telephone. Therefore, to ensure mutual understanding, a transcript of the telephone conversation should be forwarded to the engineering and manufacturing personnel with whom contact was made. The engineering and manufacturing personnel will then have an immediate opportunity to cause correction of misunderstanding or omission, and eliminate problems which may develop by such misunderstanding. If the local FAA engineer cannot provide the necessary assistance or advice, the inspector will forward the repair data with a letter of transmittal (application file) to his regional office requesting assistance in review of approval. An application file will normally consist of an FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller or Appliance), or in the case of a Designated Engineering Representative (DER), a Statement of Compliance with the Federal Aviation Regulations. FAA Form 8110-3, Statement of Compliance of Aircraft or Aircraft Compliance With Federal Aviation Regulations, and additional supporting data as may be required or, in the case of an air carrier, an engineering order or similar document, drawings, and other data prepared by the operator, airman, or repair station. In addition to the above:

- (1) A narrative account of any information which is pertinent to the subject.
- (2) Recommendations and comments as to probable reliability or desirability from a maintenance standpoint.

d. Review. Regional personnel will review the inspector's transmittal and attached data, taking such action on the material as is warranted, after which arrangements for necessary interoffice coordination and assistance will be made. Upon return of the application file, the inspector will carefully review the engineering conclusions and advise the person requesting FAA approval.

e. Alternate Procedures. One of the following procedures may also be used:

- (1) Many manufacturers employ Designated Engineering Representatives (DER) who are authorized to approve data on behalf of the FAA. Accordingly, any individual, operator, airman, or repair station may submit data to the DER located at the factory of the manufacturer of the aircraft or component involved, for obtaining the FAA approval. An inspector may accept such data, as approved, if he has evidence that it has been approved by such an appropriately authorized representative of the FAA.

(2) If a DER has been appointed within the repair station or air carrier from which the application was received, the inspector may be able to obtain on-the-spot engineering assistance from such persons. In those cases where a DER has been appointed within the repair station or air carrier, prior engineering concurrence will normally have been indicated on the application. (Keep in mind, however, that DER's are usually limited to specialized areas of approved authority).

(3) Aircraft owners and operators may also avail themselves of the services offered by DER's who are self-employed engineering consultants acting in the capacity of FAA representatives. Accordingly, data approved for the FAA by such authorized private individuals may be accepted as denoting FAA engineering approval similar to (1) and (2). The guidance provided in paragraph 485 of this Chapter regarding use of appropriately rated DER's for the approval of alteration data is equally applicable to DER approvals of repair data.

500. MISTAKEN CLASSIFICATION OF MAJOR REPAIRS AS ALTERATIONS. A frequent problem encountered in handling the approval of major repairs is their erroneous classification by the inspector as an alteration. In some instances, owners or operators have been told the repair jobs should be handled by applying for a supplemental type certificate. By using common sense and the definitions in FAR Part 1, error can be avoided in classifying major repairs.

501. SURVEILLANCE. The inspector is responsible for the surveillance of workmanship, airworthiness, and proper recording of major repairs and major alterations returned-to-service within the jurisdiction of the district field office.

a. Major repairs and major alterations performed, approved, and returned to service and, subsequently, found to be below an acceptable standard, require attention in the form of corrective action. A corrective action follow-up procedure should also be initiated to ensure the repaired item is placed in an airworthy condition prior to operation.

b. In numerous cases, individuals who perform repairs and alterations are insistent that minor repairs and minor alterations should be classed and recorded as major repairs and major alterations. This results in excess paperwork and unnecessary handling of the file and should be discouraged.

502. PROCESSING OF FAA FORM 337. See Section 5 of this Chapter for guidance on the administrative processing of FAA Form 337.

503. DISPOSITION OF AIR CARRIER MAJOR REPAIRS AND MAJOR ALTERATIONS. (Including commercial operators of large aircraft). In conducting surveillance of air carrier major repairs and major alterations, the field inspector should determine that the carrier is properly recording maintenance in accordance with FAR Section 43.9(b) and is complying with FAR Sections 121.707 and 127.317 when applicable.

a. Submission of Engineering Authorization data:

(1) Only copies of the Engineering Authorization involving major alterations should be submitted and retained as required by FAR Sections 121.707 and 127.317.

(2) Engineering Authorization submitted for major repairs and requiring FAA approval should be retained; however, those major repairs which conform to previously approved data should not be submitted or retained.

(3) If Engineering Authorizations for minor repairs and/or alterations are presented, they should be returned to the operator with a notation that such data should not be submitted.

b. The retention of air carrier maintenance records shall be in accordance with the instructions contained in the appropriate section of Order 1350.15, Records Organization, Transfer and Destruction Standards.

c. The responsibility for determining whether a repair or alteration is major or minor rests with the operator.

504.-509. RESERVED.

SECTION 5. MAJOR REPAIR AND ALTERATION, FAA FORM 337

510. PURPOSE. This section will provide guidance to inspectors on the administrative processing of FAA Form 337.

511. AUTHORITY. The regulatory authority for the FAA Form 337 is contained in FAR Part 43, Section 43.9 and Appendix B(a)(1), (2), and (3).

512. GENERAL. FAR Section 43.9 requires certain information to be entered in the maintenance records by the person maintaining, altering, or rebuilding an aircraft or component. In addition to that entry, an FAA Form 337 is to be executed whenever a major repair or major alteration is accomplished. FAA Form 337 services two purposes; one is to provide owners and operators with a record of major repairs and major alterations indicating details and approval, and the other is to provide the FAA with a copy of FAA Form 337 for inclusion in the aircraft records at Oklahoma City.

513. DISPOSITION OF FAA FORM 337. An original and duplicate copy of FAA Form 337 will be executed by the applicant. District Office processing of the forms will depend upon whether the applicant used previously approved or non-previously approved data as follows:

a. Previously approved data. If the data used in performing the major repair or major alteration was previously approved data, the applicant will complete Block 7, "Approval For Return To Service," give the original to the owner and send the duplicate to the local FAA district office.

b. Data not previously approved. If the data used in performing the major repair or major alteration was not previously approved, the applicant will make both copies of FAA Form 337 available to the local district office. When the inspector determines that the major repair or alteration data complies with applicable regulations and is in conformity with accepted industry practices, he will record data approval by entering the appropriate statement in Block 3 of FAA Form 337 (see Section 3, paragraph 490, Note 2, of this Chapter for applicable statement). Both forms will then be returned to the applicant who will complete Block 7, "Approval For Return To Service." The applicant will give the original to the owner for inclusion in the aircraft records and return the duplicate copy to the local FAA district office.

c. Final disposition. In both cases (a and b above) the final disposition of the form will be:

(1) The airworthiness inspector will review the form to ensure all applicable sections are complete, all dates and signatures are affixed, and that FAA-approved data was utilized and adhered to and is properly referenced under Item 8 on the back of the form;

(2) Stamp the local office identifier in the space provided on the upper right hand corner, and

(3) Forward the form to the Federal Aviation Administration, Aircraft Registration Branch, AAC-250, P.O. Box 25082, Oklahoma City, Oklahoma 73125.

514. DISCUSSION. The Aircraft Registration Branch, AAC-250, has been receiving copies of FAA Form 337 relating to military aircraft, foreign registered aircraft, and component parts not installed on an aircraft. Such forms are not to be forwarded to the Aircraft Registration Branch as they cannot be added to the records unless the form identifies an aircraft by make, model, serial number, and United States registration number (reference Block 1, FAA Form 337).

515.-519. RESERVED.

SECTION 6. RECIPROCAL ACCEPTANCE OF MAINTENANCE AND ALTERATIONS
PERFORMED BY CANADIAN MECHANICS AND U.S. REPAIR AGENCIES

520. AUTHORITY. The regulatory basis for reciprocal acceptance of maintenance and alterations performed by Canadian mechanics and U.S. repair agencies is contained in FAR Section 43.17.

521. GENERAL. Under the terms of a reciprocal arrangement between Canada and the United States, which has been in effect since 1951, the respective civil aviation authorities have recognized maintenance, repair and alteration operations to aircraft of Canadian or United States registry performed by certificated and appropriately rated mechanics of either country.

522. UNITED STATES REGULATIONS. FAR Section 43.17 contains the implementation of the reciprocal arrangement with respect to the recognition of work functions performed on aircraft of U.S. registry by Canadian certificated and rated mechanics. Similar recognition by the Canadian Ministry of Transport has been afforded to those work operations performed on aircraft of Canadian registry by certificated and appropriately rated U.S. mechanics. This authority is provided in the Canadian Ministry of Transport Engineering and Inspection Manual.

523. MECHANICAL WORK PERFORMED ON U.S.-REGISTERED AIRCRAFT IN CANADA.

a. FAR Section 43.17, Mechanical work performed on U.S.-registered aircraft by certain Canadian persons, permits work functions to be performed on U.S. aircraft by the following Canadian persons: An Aircraft Maintenance Engineer (AME) holding a valid mechanic certificate and appropriate ratings, or a person who is an authorized employee (approved inspector) performing work for an approved company whose system of quality control for the inspection and maintenance of aircraft has been approved by the Canadian Ministry of Transport. These persons may perform the following functions on U.S.-registered aircraft:

(1) Perform maintenance, preventive maintenance, and alterations in accordance with the performance rules of FAR Section 43.13 and make maintenance record entries in accordance with FAR Section 43.9.

(2) Perform 100-hour inspections in accordance with the additional performance rules for inspections and make maintenance record entries in accordance with FAR Sections 43.11 and 43.15, respectively.

(3) Approve (certify) maintenance, preventive maintenance, and alterations; however, an AME may not approve a major repair or major alteration for return to service. A Canadian Ministry of Transport airworthiness inspector or an authorized employee performing work for a company approved by the Canadian Ministry of Transport may approve (certify) this work for return to service, provided that technical data used to accomplish major repairs or major alterations is approved by the FAA administrator.

524. APPROVAL FOR RETURN TO SERVICE OF WORK OPERATIONS PERFORMED ON CANADIAN AIRCRAFT BY U.S. REPAIR AGENCIES. The Canadian requirements for certification of their aircraft in the United States are contained in the following excerpt from their Engineering and Inspection Manual:

"2.15 CERTIFICATION OF CANADIAN AIRCRAFT OUTSIDE CANADA

"2.15.1 Canadian registered aircraft continue to be subject to the maintenance and certification requirements of the Air Navigation Orders when the aircraft is in a foreign country. This section contains the conditions and limitations applicable to the certification of Canadian aircraft abroad.

"2.15.2 AIRCRAFT IN THE UNITED STATES. Minor modifications (alterations) as defined in the U.S. Federal Aviation Regulations (FAR's), and periodic routine maintenance shall be completed and documented in accordance with the requirements of FAR Part 43.

"2.15.3 Data relating to major modifications (alterations) shall be approved either by the DOT, or in the case of an aircraft manufactured in the U.S. by the issue of an FAA Supplemental Type Certificate.

"These modifications shall be certificated (approved for return to service) in accordance with the requirements of FAR Part 43, by an FAA Flight Standards Inspector or by an authorized employee of an appropriately rated Certificated Repair Station.

"2.15.4 Repairs shall be certified in accordance with the requirements of FAR Part 43 by persons appropriately rated and authorized by the Administrator of the FAA. For the purpose of this requirement, an engine overhaul shall be deemed to be a major repair.

"2.15.5 On return of an aircraft to Canada following overhaul, major repair, or major modification, DOT Form 26-0023 shall be completed and a copy forwarded to the appropriate office together with a copy of FAA Form 337 or equivalent certification document."

525. CANADIAN ENGINES OVERHAULED BY U.S. REPAIR AGENCIES. The following requirements for Canadian engines are contained in an excerpt from their Engineering and Inspection Manual:

"4.1 ENGINES - OVERHAUL STANDARDS

"4.1.1 Engines must be overhauled in accordance with the following:

"(a) the manufacturer's recommendations as to tolerances and procedures are to be followed;

"(b) parts from the engine being overhauled which are serviceable or are within reconditioning tolerances must be replaced in that particular engine; the practice of pooling parts is not permitted;

"(c) all replacement parts must be either:

"(i) new, with documentary proof of compliance with the standards for the new type, or

"(ii) used parts from other engines, if subjected to a close inspection for condition, are within the manufacturer's recommended tolerances and have a known history as to the engine model and serial number from which the parts were removed and the total number of hours in service at the time of installation in the overhauled engine, the details of which must be recorded in the engine log or overhaul data sheet;

"(d) all replacement for "lifer" parts must be new;

"(e) matched parts (wherever components of an assembly are not available individually from the manufacturer) must be replaced as an assembly;

"(f) magnetos and carburetors or fuel injectors must be overhauled and tested with the overhauled engine;

"(g) the overhauled engine must be run-in and tested before being certified;

"(h) the log entry shall include details of the overhaul, a list of all parts replaced, modifications incorporated, and a record of the run-in test."

526. ADVISORY CIRCULAR 43-10A, Mechanical Work Performed on U.S. and Canadian Registered Aircraft, contains additional guidance material concerning this subject.

527.-534. RESERVED.

SECTION 7. LEASING OF AIRCRAFT

535. GENERAL. In recent years there has been a marked increase in the number of aircraft that are being operated under leasing arrangements. Generally speaking, no problems are created by this type of operations; however, certain cases do cause problems. Among these are the leasing to and operation by foreign operators. Another problem area is when financial consortia purchase aircraft for the purpose of leasing them and may have had no previous connection with the aviation industry.

536. TYPE OF LEASES. For the purpose of this handbook, leases are considered to be three types:

a. A wet lease is considered to be one in which the lessor provides an aircraft and crew. He retains operational control, including the arranging for maintenance of the aircraft. If a lessor provides an aircraft on a wet lease arrangement, he is operating it for hire and the appropriate inspection requirements must be met.

b. A dry lease is considered to be one wherein the lessee provides the crew, exercises operational control, and arranges for the maintenance. Operation of the aircraft in this instance may or may not be operation for hire, the particular circumstances involved in the individual case would be the determining factor.

c. A lease-purchase arrangement is one wherein the lessee has possession and operational control of the aircraft and, after a stipulated period of time, acquires complete ownership.

537. LEASES TO FOREIGN OPERATORS. In accordance with ICAO, Annex 8, the United States is responsible for determining the continuing airworthiness of U.S.-registered aircraft wherever they may be operated. This is true of normal inspections as well as inspections after the aircraft has been damaged. Special problems are created at times when leases are arranged with foreign operators.

a. The aircraft are generally operated in areas remote from where surveillance by FAA inspectors is conducted. Often the FAA office does not even have knowledge that the aircraft are located in their jurisdictional area. This means that this country has no way of assuring the continued airworthiness of U.S.-registered aircraft. This can cause embarrassing problems of the country involved. In case of an accident, it could cause diplomatic repercussions. Another factor is that the foreign operator, knowing the FAA is remote, may be prone to let the aircraft deteriorate or completely disregard the FAR's.

b. In many instances, the aircraft are operated in areas where there are no FAA-certificated mechanics or repair stations. This leads to a lack of maintenance or to having improper or illegal maintenance performed. Not all aircraft manufacturers furnish maintenance information in foreign languages; and when foreign maintenance personnel attempt to maintain the aircraft, they are unable to properly do so.

c. There have been numerous instances where aircraft operated in foreign and remote areas have not had the annual inspection performed (reference FAR Section 91.169) or have not been maintained in accordance with a continuous inspection program under FAR Section 91.169. Enforcement in these cases should be directed against the registered owner, since we have no jurisdiction over the operator.

d. A lease-purchase arrangement with a citizen of a foreign country creates a unique problem. It is common practice, when concluding lease-purchase arrangements with U.S. citizens, to have the aircraft registered in the name of the purchaser. Since the purchaser is a U.S. citizen, the aircraft is eligible for registration under FAR Part 47. However, when a lease-purchase arrangement is made with a citizen of a foreign country, registration is usually retained in the name of the U.S. seller in order to facilitate recovery in case of default. In cases of this nature, the foreign citizen becomes "owner" or buyer in possession (reference FAR Section 47.5(c)); and, in accordance with Section 501(b) of the FAA Act of 1958, the aircraft is not eligible for registration. All the pertinent facts should be presented through channels to the regional attorney for a determination of whether action should be taken to revoke the registration certificate.

e. In some cases, a U.S.-registered aircraft of a particular make and model will be leased to a foreign operator who operates the same make and model under registry of his own country. This creates a problem for the maintenance personnel who may be required to maintain the same type aircraft under two different sets of maintenance regulations. The resulting confusion is obvious.

f. When leased aircraft are returned from foreign countries, particular emphasis should be placed on surveillance of the aircraft. Owners should be encouraged to make a searching inspection of the aircraft for hidden damage and unapproved repairs or alterations. The aircraft maintenance records should be examined to see that proper entries have been made and to determine if any required inspections need to be accomplished.

538. AIRCRAFT REMOVED FROM AIR CARRIER OPERATING CERTIFICATES. When aircraft are removed from a FAR Parts 121 or 127 certificate and leased to another operator who does not operate under FAR Parts 121 or 127, certain procedures are necessary. The following will serve as a guide:

a. The revision number of the airworthiness certificate should be determined. All certificates prior to Standard Airworthiness Certificate, FAA Form 8100-2, should be exchanged for that form (reference Order 8130.2B, Airworthiness Certification of Aircraft and Related Approvals).

b. Since the maintenance records kept by an air carrier often differ from those required by FAR Section 91.173, the operator should be advised to obtain the necessary records from the previous owner that will comply with FAR Section 91.173.

c. The date the next inspection (100-hour, annual, progressive) is due will be determined by the assigned inspector and then be entered in the maintenance records referred to in Paragraph b above.

539. LEASES TO FAR PARTS 91, 121, AND 127 OPERATORS. These types of leases sometimes create problems. Each lease needs to be considered on its own merits; therefore, specific guidelines are difficult to prescribe. The guidance in AC 91-37A, Truth in Leasing, should be followed in giving assistance to the owner and to the prospective operators. Regular surveillance should be conducted on these aircraft.

540. SURVEILLANCE OF LEASED AIRCRAFT. In the past, many problems have been created with such aircraft because maintenance responsibilities were not clearly spelled out or were being ignored. Inspectors should attempt to be knowledgeable of all leased aircraft operating within their area of responsibility and make a special effort to determine that proper maintenance is being accomplished. To do this properly, it should be determined if any exemptions have been issued specifying a particular type of maintenance to be performed. This is particularly important in cases of aircraft operating outside the United States, since these aircraft are operating in relatively remote areas and maintenance facilities are scarce. In addition, these aircraft are often being operated by foreign nationals who are not familiar with U.S. maintenance requirements and in some cases do not care to know them.

541.-549. RESERVED.

SECTION 8. USE OF AIRCRAFT PARTS/COMPONENTS OF
UNKNOWN CONDITION OR ORIGIN

550. GENERAL. Parts, appliances, and components of unknown origin, or from aircraft which have been involved in accidents or crashes, are available to the industry as replacements. These parts, appliances, and components can be of questionable serviceability (airworthiness). Under present regulations, we are not in a position to prevent sale of such parts. Assured serviceability of parts, appliances, and components before their use on a certificated aircraft is, however, required by Section 43.13 of the FAR's. Use of parts in the subject category is often made attractive by virtue of their lower cost, and the purchaser or potential user may be unaware of all hazards involving their installation.

551. CLASSIFICATION AND SOURCE CATEGORIES.

a. Salvage Sources. Parts, appliances, and components of unknown condition or origin may have been subject to forces or temporary environments which would render them permanently unairworthy. For example:

(1) Parts may have been subjected to excessive heat, thereby affecting original strength or dimensions. Small to large parts which have been involved in fire are likely to be unserviceable, regardless of their rejuvenated appearance. Attempted sale of a transport category aircraft wing as a replacement part which had been seared by fire is a matter of record.

(2) Foreign or corrosive liquids can take their toll on an aircraft part. Recently, parts from a crashed transport aircraft that had been submerged in salt water were sold as replacement parts.

(3) Certain parts that have been deformed or subjected to unknown or unmeasurable forces in a ground accident or crash could be of permanent questionable serviceability; e.g., landing gear, landing gear fittings, and components or propeller blades, gears, and components. Aircraft, including all parts of the airframe, powerplants, and appliances which have been involved in accidents are of questionable serviceability, quality, condition, and airworthiness.

b. Surplus Parts. Ex-military aircraft now under civilian type certificates create parts problems, particularly when the original manufacturer has discontinued production. Certain parts of original manufacture are available for a given aircraft for years after its departure from military status. These parts are termed SURPLUS. If original manufacturer fabrication can be substantiated for such parts, they are acceptable providing they comply with airworthiness directives, if applicable to the parts involved.

c. Newly Manufactured Parts/Bogus Parts. Some parts for ex-military or currently manufactured aircraft are, and have been, in short supply. On occasion, these parts have been illegally manufactured for sale by other than the original or approved manufacturer and, in some cases, constitute a hazard to flight safety. For example, parts have been manufactured by other than the original or approved manufacturer using an original part as a sample. In other

words, drawings, specifications such as heat treatment, and raw material type for the part were, in some cases, unknown to the person using the authentic product as a sample.

(1) In many cases, the newly manufactured parts appeared to be as good as the originals. The hidden elements were not evident, which is an important criterion in assuring airworthiness of such new parts. These parts are termed "bogus parts" or parts of "unknown origin."

(2) Since this problem is not new, FAA has had a parts manufacturing approval system in effect which ALLOWS CONTROLLED REPRODUCTION of parts for sale. Any part manufactured under this system bears ample evidence of FAA approval which verifies its origin and serviceability. The Parts Manufacturing Approval (PMA) is designed to cover manufacture of replacement parts to be sold. These parts are occasionally sold by the manufacturer and by vendors.

(3) Replacement parts may be made by certificated mechanics, repair stations, and air carriers as a part of their maintenance activities. These parts are acceptable provided they are manufactured in accordance with approved data. In cases where such data is not available, certain older engine parts can be fabricated CONDITIONALLY as outlined in AC 43.13-1A, Acceptable Methods, Techniques and Practices--Aircraft Inspection and Repair. Many simple parts may be made in accordance with acceptable standards.

552. INSPECTORS' RESPONSIBILITY AND ACTION. Airworthiness inspectors, in the exercise of their surveillance duties, are expected to be alert and cognizant of replacement parts being used on certificated aircraft under their jurisdiction. They should assure that mechanics, repair stations, or air carriers are advised and cognizant of their overall position regarding use of questionable aircraft parts on a certificated aircraft.

a. Assistance and guidance should be rendered by the airworthiness inspector when requested by persons performing maintenance, repair, or overhaul on certificated aircraft under his jurisdiction. Such assistance and guidance can preclude potential trouble for both the inspector and the user of questionable parts. Acceptable condition, origin, and serviceability of parts should be determined BEFORE their actual installation and use.

b. Any person who uses any part of unknown quality, condition, or origin in aircraft maintenance and repair, and any person who operates an aircraft on which such parts have been used, may be in violation of the Federal Aviation Regulations unless he has proved conclusively and beyond any doubt that such parts conform to the provisions of FAR Section 43.13. In addition, the validity of the airworthiness certificate would be questionable to the extent that the airworthiness inspector would be justified in seeking suspension of such certificate in any case where the airworthiness of such parts is not positively and accurately determined. (Refer to the terms of the Certificate of Airworthiness in Sections 603(c) and 610 of the FAA Act.) Remedial and enforcement action should be taken by the airworthiness inspector if he determines conclusively that parts have been installed on a certificated aircraft which do not comply with standards established in FAR Section 43.13.

NOTE: Nothing in this directive shall be construed or applied in such manner as to restrict or prohibit the use of any part or component of questionable or unknown origin when such components are:

(1) Not required as a part of an aircraft as originally certificated or properly altered.

(2) Not required under an operating rule or special airworthiness rule.

(3) Of such nature and installed in such manner that it will not be unsafe in itself and will not adversely affect the airworthiness of the aircraft in which it is installed.

553. ADVISORY CIRCULAR 20-62C, ELIGIBILITY, QUALITY, AND IDENTIFICATION OF APPROVED AERONAUTICAL REPLACEMENT PARTS, provides information relative to the determination of the eligibility of the aeronautical parts and material for installation on certificated aircraft.

554.-559. RESERVED.

SECTION 9. AIRCRAFT - AIRWORTHINESS DIRECTIVES (AD's)

560. PURPOSE. This section provides guidance in the adjustment of repetitive inspections, alternate means of compliance, exemptions, and recordation of AD accomplishment by other than mechanics.

561. ADJUSTMENT OF REPETITIVE INSPECTION TIME. Amendment, modification, or adjustment of the terms or conditions of an AD must be accomplished by petition in accordance with the rulemaking procedures set forth in FAR Part 11.

a. In the case of repetitive or periodic inspections in AD's, the compliance times specified are set to coincide, insofar as practicable from a safety standpoint, with established inspection periods in effect at the time of AD issuance. In some instances certain operators subsequently are able to substantiate longer inspection intervals on the basis of accumulated service experience with their particular maintenance practices.

b. In order to provide for flexibility in administering AD's which require repetitive inspections without requiring petition for exemption under FAR Part 11, a statement, when feasible, will be included in AD's which will empower the local FAA airworthiness inspector to authorize, subject to prior approval of the Engineering and Manufacturing Branch in the controlling region, reasonable adjustments in the intervals specified to allow compliance at an established inspection period of the operator. Such a statement will appear in those AD's which require repetitive inspections and will apply generally only to aircraft which are maintained under an approved continuous airworthiness inspection program. It may also apply, in some cases, to aircraft maintained under a progressive inspection system in accordance with FAR Section 91.171, an inspection program under Part 125, or an Approved Aircraft Inspection Program under Part 135.

c. When an operator requests an adjustment of repetitive AD inspection times, it should be determined that the operator's request includes an accurate description of the adjustment desired, appropriate substantiating data, or supporting evidence and a valid reason for the request. The request and associated data should be thoroughly reviewed to determine if the requested adjustment will adversely affect aircraft safety. After review, it should be forwarded through appropriate channels to the Aircraft Certification Division/Office concerned, with comments or recommendations for their consideration and action. In those cases where it is determined that the operator's request is not in accordance with the best interests of safety, the matter should be discussed with the operator in an effort to arrange a reasonable adjustment of unsatisfactory items before forwarding the request file to the controlling region Aircraft Certification Division/Office.

d. Approval of the request by the Aircraft Certification Division/Office will normally be accomplished by interregional memorandum to the region in which the request originated. After receiving engineering approval (disapproval), the operator should be advised by letter. At this time, any necessary changes in the operator's operations specifications aircraft maintenance, maintenance manual, and inspection records should be accomplished as appropriate to reflect the amended times.

562. ALTERNATE MEANS OF COMPLYING WITH THE AD.

a. General. In addition to providing for adjustments in compliance times, AD's will indicate the acceptability of alternate means of compliance. It cannot be assumed that only one specific repair, modification, or inspection method, etc., is acceptable to correct a particular difficulty. Even though an equivalent means of compliance may be unknown when issuing the AD, this does not preclude the possibility of an alternate means of compliance subsequently developed and substantiated. Therefore, it is appropriate to provide for the acceptance of FAA-approved equivalency in the AD. This is not only desirable from the operator's point of view, but also for the FAA to eliminate constant AD revisions as different equivalents are developed. There have been cases where FAA-approved alternate means of compliance have been developed, but because there was no provision for equivalency, they were not acceptable until the AD was revised and published in the Federal Register.

b. FAA-Approved Equivalent. The phrase "FAA-approved equivalent" will be used when equivalency may be determined and approved by an authorized representative of the Administrator. When this phrase is used, it will be necessary that the FAA inspector formally approve the alternate method or material. In cases where the inspector feels that he needs the assistance of specialized personnel, he should notify his supervisor to obtain the services of the specialist needed. In some cases, the inspector may feel that the alternative proposed should receive engineering approval. In these cases the matter should be referred, through appropriate channels, to the Manager of the Aircraft Certification Division/Office in the controlling region for his recommendations or approval.

c. The authority to use an alternate method of compliance should be granted in letter form, substantially stating that:

This is your authority to accomplish compliance with AD _____ on aircraft number _____ by utilizing the methods and/or materials described in (identify drawings, letters, etc.).

A copy of all such letters including incoming request with descriptive material, should be kept on file at the district office.

d. Equivalents Requiring Engineering Evaluation. In those cases where the possible equivalent is sufficiently critical that its equivalency can only be determined by engineering evaluation, the AD will include a statement to the effect that engineering approval must be obtained from an FAA regional Aircraft Certification Division/Office.

563. EXEMPTIONS. Airworthiness Directives, FAR Part 39, are promulgated and handled in accordance with the rulemaking procedures set forth in FAR Part 11.

a. Because Airworthiness Directives are Federal Aviation Regulations, the modifications and inspections specified therein are mandatory. Only the controlling region has authority to amend any of the conditions of an AD unless the AD specifically provides such authority as described in paragraphs 561 and 562 of this Order.

b. Among other conditions of FAR Part 11 is a provision whereby interested persons may petition for exemption from any of the conditions of a rule such as AD's. Field personnel are expected to be familiar with the provisions of the part and be able to inform an operator of his right to petition; but shall not, under any circumstances, encourage any person to seek exemption from any rule. If such a petition is made by an operator, it should be submitted by such petitioner to the attention of the Director, Office of Airworthiness, and in accordance with FAR Part 11. It must not be submitted through the district or regional office personnel or handled by them in any manner which would place them in a prejudiced position or cause them to appear as an intermediary or agent of the petitioner. In other words, they may advise the operator as to how he may petition for a waiver, but will not participate in the petition process.

c. When an operator fails to comply with the applicable terms and conditions of an AD, the affected aircraft, component, or appliance is considered unairworthy, and the FAA inspector shall act accordingly.

564. MONITORING AIR CARRIER OR FLEET OPERATORS' COMPLIANCE WITH AD's. Where air carrier or fleet operators' compliance is concerned, it is essential that the operators' progress on applicable AD's is monitored.

565. RECORDATION - OTHER THAN MECHANIC. An Airworthiness Directive may prescribe an operation which, due to its nature, could be considered preventive maintenance. Recordation of compliance must be made as required by FAR Section 91.173(a) regardless of the nature of the maintenance, FAR Section 43.9 notwithstanding. If the AD states that compliance may be performed by a person specified by FAR Section 43.3(g) and a pilot does the prescribed operation, he/she must make the required entry in the aircraft records and identify himself/herself by name and pilot's certificate number.

566. RELATIONSHIP OF AD's PRIOR TO FAA APPROVAL OF TECHNICAL DATA FOR MAJOR REPAIRS OR MAJOR ALTERATIONS. Prior FAA approval of technical data for alterations or repairs has no relationship to AD compliance unless accomplishment of such alterations or repairs also accomplishes some part or all of the action required by the Airworthiness Directive. Where the repair or alteration is identical to the AD, accomplishment of the one should satisfy the other. In this situation, no need would exist for the operator to seek authority to use an FAA approved equivalent method of compliance. However, if the alteration or repair is not identical, the operator would be expected to comply with the AD as stated, or seek authority to use an FAA approved equivalent. If he/she seeks authority to use the alteration or repair, in part or in whole to comply with the AD, his/her request should be handled as outlined in paragraph 562.

567.-574. RESERVED.

SECTION 10. TESTING OF AIRCRAFT POWERPLANTS AFTER OVERHAUL

575. PURPOSE. This section provides information and guidance to field personnel to assure that powerplant overhaul facilities accomplish the maintenance procedures recommended by the engine manufacturers for testing powerplants after overhaul.

576. REFERENCE. FAR Section 43.13(a).

577. DISCUSSION.

a. FAR Section 43.13 performance rules require that each person performing maintenance shall use methods, techniques, and practices acceptable to the Administrator. If special equipment or test apparatus is recommended by the powerplant manufacturer, that equipment or apparatus or its equivalent acceptable to the Administrator must be used.

b. By reference in FAR Section 145.57, the performance rules in FAR Section 43.13 apply to FAA-approved repair stations as well. Appendix A(b)(1)(v) of FAR Part 145, requires repair stations to have the equipment required to test overhauled powerplants in compliance with manufacturer's recommendations or equivalent equipment that will accomplish the same purpose. The testing may be performed by the repair station itself, or may be contracted to an outside agency. In either case, the repair station will be responsible for the final acceptance of the tested engine since the repair station is the final approving authority for return to service.

c. A powerplant overhaul agency that requests another person to perform the overhaul testing should have established procedures. The procedures should show that:

(1) The person who is to perform the test has the information necessary to properly complete the test:

(2) The powerplant records include the statements required by FAR Sections 145.59 and

(3) The powerplant has not been tested, is not considered airworthy for return to service until the required test procedures have been completed by a person authorized by FAR Section 43.7, and that they are responsible for the final acceptance of the tested powerplant.

578. GUIDANCE.

a. Powerplant manufacturers are very specific in their recommended procedures for powerplant testing after overhaul. The powerplant testing after overhaul is required to run-in new parts, check powerplant performance, and check the quality of the work performed during overhaul.

b. The procedures to be followed in post overhaul testing of a powerplant vary by make and model, but are clearly outlined in the manufacturer's manual.

c. A primary recommendation of the manufacturer is that powerplant testing after overhaul be accomplished with the powerplant in a test stand/cell equipped as outlined in the overhaul manual. This is necessary for a turbine powerplant. The performance of a turbine engine is greatly affected by the surrounding atmospheric conditions; therefore, it is essential that the powerplant be tested under the controlled conditions that are available in an engine test cell.

d. The manufacturers of reciprocating engines allow the airframe to be considered a suitable test stand for running-in overhauled engines; provided the following requirements are observed:

- (1) A test club is used in place of a flight propeller.
- (2) A suitable cooling shroud or scoop is used to gather and direct cooling air over the cylinders.
- (3) A cylinder head temperature pickup installed on each cylinder to monitor individual cylinder temperature.
- (4) All necessary calibrated gauges are installed independent of the aircraft gauges.

579. ACTION. When other methods for testing come to the attention of inspectors, they should be evaluated to determine if they are equivalent to the above methods. When noncompliance with FAR Section 43.13 is evident, positive corrective action shall be initiated to correct any discrepancies.

580.-585. RESERVED.

SECTION 11. SERVICING AND MAINTENANCE MANUALS

586. PURPOSE. This section provides information with relation to aircraft manufacturers' servicing and maintenance manuals that may conflict with component manufacturers' servicing and maintenance manuals.

587. GENERAL. Aircraft manufacturers' servicing and maintenance manuals, including operation and installation data intended for the use of maintenance personnel, occasionally contain data which conflict with component part manufacturers' servicing and maintenance instructions. This same situation may be found in the case of service bulletins which contain instructions, tolerances, pressures, etc., that differ from those set forth in the aircraft manufacturers' manuals.

588. DISCUSSION. Aircraft manufacturers' service information may have been developed specifically for the purpose of showing compliance with applicable airworthiness standards, as necessary for issuance of the type certificate. The component manufacturers' service instructions often are developed for aircraft of different type design and therefore may be more general than those of the aircraft manufacturer. Accordingly, when aircraft manufacturers' service information differs from that of a component manufacturers, the aircraft manufacturers' information is the controlling document and is the one to be used. The individual component manufacturers' service information would only be used when so instructed by the aircraft manufacturer.

589.-595. RESERVED.

SECTION 12. TESTING FABRIC COVERING OF AIRCRAFT

596. PURPOSE. This section provides guidance and instructions concerning the controversial subjects of aircraft fabric, surveillance, testing, and arbitration between the aircraft owner and maintenance personnel or agencies.

597. GENERAL. Under the Technical Standard Order System, the FAA has delegated full responsibility to the manufacturer for establishing the adequacy of the material produced. In meeting the requirements, the manufacturer must fully comply with the various provisions of the related Technical Standard Order issued by the Administrator. Two such standards have been issued for the manufacture of Aircraft Fabric covering; TSO-C14, Aircraft Fabric - Intermediate Grade - External Covering Material, and TSO-C15, Aircraft Fabric - Grade A - External Covering Material. Each bolt of TSO fabric is required to be identified by a continuous marking along the salvage edge, indicating the TSO under which it was manufactured. Fabric approved by the Administrator prior to July 31, 1959, may continue to be manufactured under the provisions of its original approved specifications.

598. AIRCRAFT OWNER/MAINTENANCE PERSONNEL CONTROVERSY. Fabric covering is one of the most controversial subjects confronting the inspector. In many cases, the inspector is called upon to arbitrate a dispute between the aircraft owner and maintenance personnel who differ in opinions concerning the airworthiness of the fabric. The inspector should provide all advisory assistance possible, but is not authorized to conduct or evaluate fabric tests. It is particularly important that the inspector should not participate in tests of fabric by which the owner wishes to establish the tensile strength of the fabric prior to installing it upon the aircraft.

599. FIELD TESTING OF FABRIC. The use of various fabric testers in the field is widespread. They serve a purpose by providing a GENERAL indication of the degree of deterioration in the strength of fabric covering. However, the results of such tests cannot be considered final and conclusive. Instrument calibration errors, instrument deterioration, improper use, improper specimen preparation, and the varied conditions of temperature and humidity under which a field test is necessarily conducted are factors that may cause an erroneous indication of fabric strength outside of laboratory conditions. The range of temperature may also affect the reading of the instrument due to contraction or expansion of the spring tension mechanism.

600. LABORATORY TESTING OF FABRIC. In a controversy, or when it is necessary to establish the airworthiness of fabric, the following procedure should be followed when FAA field personnel are asked for help in making airworthiness determination:

a. The owner/operator or his agent should be advised to subject the fabric to laboratory test. Normally, samples are taken from each major components of the aircraft under question. The top surfaces of the components are most susceptible to deterioration. However, bottom and side surfaces should also be tested when their strength is in doubt. Care should be taken to take samples from the most deteriorated fabric and not from recently patched or repaired areas unless these are specifically under question. Ensure that samples are identified by some marking.

b. Normally, samples are tested under Federal Specification CCC - T - 191a which specifies that the strip should be six inches long and one and one-half inches wide, of which one-fourth inch of each edge of the width shall be frayed, reducing the woven width to one inch. Samples tested under American Society for Testing Materials, Specification D-39-39, or other methods, may require different type of samples. Therefore, the applicant for test should contact the laboratory to determine the correct type of sample to be provided. The inspector should inform the applicant when it has been determined, by experience, that a particular type sample is required by a specific laboratory.

c. The cost of all laboratory tests and sample preparations will be borne by the owner/operator or his agent.

d. The results of all tests (preliminary and final) should be entered in the aircraft maintenance records.

e. If the tests were made upon the advice of the inspector or later come to his attention because of marginal fabric, suitable followup surveillance action should be taken. The necessity for the tests would normally indicate marginal airworthiness of the fabric.

f. Names and addresses of qualified laboratories may be obtained from the classified telephone directory in major cities or by contacting the appropriate agency charged with certifying testing laboratories within the state. Persons having need for specialized testing service should be advised to use only those testing laboratories that will certify the results of the tests performed.

601.-609. RESERVED.

SECTION 13. MAINTENANCE RECORDS

610. PURPOSE. This section brings to the attention of all field inspectors the requirements of FAR Parts 43, 91, 121, 125, and 135 that relate to maintenance records and their respective retention periods. The specific FAR Sections are:

- a. Sections 43.9 and 43.11.
- b. Sections 91.161, 91.173, and 91.174.
- c. Sections 121.369, 121.380, and 121.380A.
- d. Sections 125.249 and 125.407.
- e. Sections 135.427, 135.439, and 135.441.

611. ACTION. Airworthiness inspectors should carefully review these regulations to ensure that operators within their area of responsibility are aware of, and in compliance with, the retention periods of the specified maintenance records.

612.-619. RESERVED.

SECTION 14. MAINTENANCE AND ADEQUACY OF AIRBORNE CARGO EQUIPMENT

620. PURPOSE. This section provides guidance to inspectors for the proper maintenance and adequacy of airborne cargo equipment.

621. GENERAL. Recently, an all-cargo aircraft was seriously damaged by loose cargo during flight in turbulent air. It was found that the cargo would not have become loosened if it had been adequately and correctly secured.

622. KEY SURVEILLANCE AREAS. Operators conducting passenger/cargo combination flights and those conducting all-cargo flights are subjects of the specific surveillance recommended by this section. The inspector should bear the following factors in mind:

a. Maintenance of Cargo Equipment. Operators' maintenance manuals and maintenance procedures should include specific provisions for inspection, repair, and replacement of airborne cargo equipment. The provisions should ensure that the quality, and design requirements of cargo equipment are maintained in transport category aircraft certificated for all-cargo operations. There should be provisions to ensure that cargo equipment used in nontransport category cargo aircraft set up for passengers/cargo operations are properly designed, installed, and maintained.

b. Adequacy of Cargo Equipment. Operators' aircraft configured for cargo service or passenger/cargo service should be spot checked periodically to determine that sufficient cargo equipment is provided and that the equipment is being properly maintained. Items such as tiedown rings, cables, chains, chain tighteners, and nets should be checked. The securing devices used in all-cargo aircraft set up for mechanized pallet loading should also be checked. The inspector's examination of aircraft being added to an operator's fleet should include a special check of cargo provisions if the aircraft are configured for all- or part-cargo operations. Special attention should be given to livestock pens and other specialized types of cargo equipment.

623. ACTION. If deficiencies are noted in any of the aforementioned areas, the inspector should take timely steps to notify the operator pointing out the specific nature of each deficiency. Further, the operator should be asked to reevaluate the adequacy and design of cargo equipment if it appears that such equipment is requiring excessive maintenance corrective action or is subject to frequent breakdown and malfunction in service.

624.-629. RESERVED.

SECTION 15. POWERPLANT REPAIRS

630. PURPOSE. This section provides guidance to field personnel concerning major/minor repairs to powerplants and classifies the structural parts of turbine engines.

631. BACKGROUND. Field personnel are being asked to provide guidance concerning repairs to structural parts of aircraft powerplants. FAR 43, Appendix A(b)(2), defines powerplant major repairs and speaks to structural engine parts, however, the section addresses itself specifically to reciprocating engines. This leads to a particular need for guidance concerning turbine engine repairs and the classification of turbine engine structural parts. Therefore, in order to arrive at a uniform policy concerning repairs to turbine and reciprocating engines, the following criteria are offered as guidance.

632. TURBINE ENGINE PARTS. Each manufacturer may not use the identical terminology used below, however, what is used will be equivalent to these terms.

a. The structural engine parts are:

- (1) All frames.
- (2) All casings or housings.
- (3) Engine mounts, and associated engine structure.
- (4) Complete rotor assembly.

b. The engine frames are:

- (1) Front frames or front bearing support.
- (2) Compressor rear frame.
- (3) Turbine midframe.
- (4) Turbine rear frame or rear bearing support.

c. The engine casings or housings are:

- (1) Fan casing.
- (2) Compressor, both low and high.
- (3) Combustor casing or housing.
- (4) Turbine casing or housing.
- (5) Accessory gear case housing.

633. TURBINE ENGINE REPAIRS. Regarding modular and non-modular designed turbine engines the following would apply:

a. Modular Design Turbine Engines. The changing of modules should not be considered a major repair. The disassembly of a module should be considered a major repair.

b. Non-Modular Design Turbine Engines. The disassembly of any of the main sections of a turbine engine should be considered a major repair. The main sections are:

- (1) Fan section.
- (2) Compressor section, both low and high pressure.
- (3) Combustion section.
- (4) Turbine section.
- (5) Accessory section.

634. RECIPROCATING ENGINES. Major and minor repair to structural parts of reciprocating engines are:

a. Major Repair

- (1) Welding of crankcases.
- (2) Machining operations necessitated by weld repair.
- (3) Crankshaft grinding.
- (4) Camshaft recontouring and similar complex precision machining.
- (5) Boring of crankshaft and camshaft bosses.
- (6) Machining oil pump housings and accessory drive pads following weld repairs.

b. Minor Repair. Simple machine operations such as spot facing, lapping and grinding valves, and reaming valve guides in accordance with the manufacturer's overhaul and service instructions are considered minor repairs.

635. DEFINITIONS. It is difficult to provide definitions as to major or minor repairs that will cover every case. There will always be instances where judgement must be exercised. Whenever a question exists as to whether a repair is major or minor, the guidance provided by the definition of major/minor repair in FAR Part 1 should prevail. Each individual repair must be evaluated on the basis of how it may affect factors itemized by the definition. If a question still exists as to the classification of a repair, the regional specialist or Aircraft Certification Division/Office should be consulted as appropriate.

636. APPROVED DATA AND RETURN-TO-SERVICE. Airworthiness inspectors should ensure that all engine major repairs are made using FAA-approved data and are approved for return-to-service in accordance with FAR Section 43.5.

637. REPAIR STATIONS. Repair stations issued a limited rating for specialized service must have a "process specification" approved by the FAA. The rating issued should list the specific process for which the limited rating was issued such as; chrome plating - cylinder; welding - exhaust systems; and welding - engine crankcase. Each approved process to be used by a repair station must be listed on their Repair Station Operations Specifications, FAA Form 8000-4-1.

638.-649. RESERVED.

SECTION 16. ORIGINAL AIRWORTHINESS CERTIFICATION

650. PURPOSE. This section emphasizes to all field personnel that MANUFACTURING INSPECTION DISTRICT OFFICES (MIDO's) are responsible for the original airworthiness certification of all aircraft.

651. BACKGROUND. Numerous complaints have been received from the public criticizing the apparent lack of uniformity throughout the FAA in the airworthiness certification of aircraft. The problem stems from the variations employed in determining that the aircraft conforms to a type design prior to the issuance of an airworthiness certificate. This may be due, in part, to the unavailability of technical data needed to make a finding of conformity to the type design since these data are usually only available through the MIDO.

652. ACTION. All applications for original airworthiness certification received by field offices will be referred to the MIDO having jurisdiction for their action. An exception to this requirement is AMATEUR-BUILT and EXHIBITION aircraft which may be excluded at regional discretion.

653. DELEGATION OF AUTHORITY. In view of the complexities involved, MIDO's will not, as a rule, delegate original airworthiness certification to other field offices. However, this does not preclude the delegation, on aircraft-by-aircraft basis, of the original airworthiness certification function to field offices having appropriately qualified airworthiness inspectors/advisors. Factors to be considered in the delegation would be:

- a. Long distances involved.
- b. Manpower shortage.
- c. Heavy workloads.
- d. The airworthiness inspector or advisor delegated the certification task has had previous experience in similar certification functions.

654. THE CERTIFICATION TASK. The certification task, when delegated, must be coordinated with the cognizant MIDO which will provide pertinent information, technical data and other expertise as necessary for the certification effort.

655.-665. RESERVED.

SECTION 17. IMPORT AND EXPORT AIRWORTHINESS APPROVALS

666. PURPOSE. This section provides reference and guidance to job functions relating to Engineering and Manufacturing Inspectors and General Aviation Airworthiness Inspectors.

667. AUTHORITY. The regulatory authority for import and export airworthiness approvals, including related advisory material, is as follows:

- a. FAR 21, Subpart L, contains the provisions for export airworthiness approvals.
- b. FAR Section 21.325 covers products which may be approved for export.
- c. AC 21-2 (as revised), Export Airworthiness Approval Procedures, provides general information and guidance concerning issuance of export approvals.
- d. FAR Section 21.29 establishes the procedural requirements for import products.
- e. FAR Section 21.183 establishes the procedural requirements for issuance of standard airworthiness certificates for foreign manufactured import aircraft.
- f. FAR Section 21.500 establishes the requirements for issuance of certificates of airworthiness for export for foreign manufactured engines and propellers.
- g. AC 21-7 (as revised), Certification and Approval of Import Products, provides general information and guidance concerning certification and approval of import products.
- h. Order 8130.2 (as revised), Airworthiness Certification of Aircraft and Related Approvals, provides the instructions authorized for the original and recurrent airworthiness certification of aircraft and related import and export approvals.

668. GENERAL. Manufacturing Inspection District Offices (MIDO's) are responsible for original airworthiness certification of import and export aeronautical products. The following are considered "original certification":

- a. Export certification of aeronautical products which have never been certificated or approved.
- b. Certification of all imported aircraft.
- c. Aircraft of United States manufacture and U.S. registry which have been operated under foreign registry.

669. DELEGATION OF AUTHORITY. Although MIDO's have prime responsibility for original airworthiness certification, this does not preclude the delegation of the responsibility to field offices having appropriately qualified airworthiness inspectors/advisors. The factors and conditions to be considered in the delegation of authority are covered in Section 16 of this chapter, titled "Original Airworthiness Certification."

670.-679. RESERVED.

SECTION 18. SPECIAL FLIGHT PERMITS

680. PURPOSE. This section provides reference and guidance to job functions performed by Engineering and Manufacturing Inspectors and General Aviation Airworthiness Inspectors.

681. AUTHORITY. The regulatory authority for special flight permits, including related advisory material, is as follows:

a. FAR Part 21, Subpart H, Sections 21.197 and 21.199 contain the provisions governing special flight permits.

b. FAR Section 91.28 contains the provisions for special flight authorizations for foreign civil aircraft.

c. AC 20-65 (as revised), U.S. Airworthiness Certificates and Authorizations for Operation of Domestic and Foreign Aircraft, provides general information and guidance concerning issuance of special flight authorization for operation in the U.S. of foreign aircraft not having standard airworthiness certificates issued by the country of registry.

d. AC 21-12 (as revised), Application for U.S. Airworthiness Certificate, FAA Form 8130-6 (OMB 04-R0058), provides instructions and examples on the preparation of application for special flight permits.

e. AC 21-4 (as revised), Special Flight Permits for Operation of Overweight Aircraft, provides guidance concerning special flight permits necessary for operation in excess of maximum certificated takeoff weight.

f. Order 8130.2B (as revised), Airworthiness Certification of Aircraft and Related Approvals, provides the detailed instructions authorized for the issuance of special flight permits and operating limitations.

682. GENERAL. Consistent with current applicable policies and instructions, a manufacturing inspector or airworthiness inspector in the district office is authorized to issue special flight permits and related approvals depending on the complexities involved. Manufacturing and airworthiness personnel may assist each other, as necessary, in the performance of their assigned duties.

683.-689. RESERVED.

SECTION 19. COOPERATION WITH FOREIGN GOVERNMENTS IN ISSUANCE OF FOREIGN AIRWORTHINESS CERTIFICATES

690. PURPOSE This section outlines the procedure to be followed when foreign governments request agency technical assistance in certificating or recertificating U.S.-manufactured aircraft of foreign registration.

691. PROCEDURE. When such requests are received from ICAO countries, they should be honored if within the capability of the local office and the cost in manpower is not prohibitive. This determination will be made after the request is received in the region concerned.

692.-849. RESERVED.

CHAPTER 4. AGENCIES

SECTION 1. APPLICATION FOR REPAIR STATION CERTIFICATE

850. AUTHORITY. Federal Aviation Regulations Part 145, Section 145.11.

851. GENERAL. FAA Form 8310-3, Application for Repair Station Certificate and/or Rating (OMB 04-R0097)/Record of Action - Repair Station Inspection (RIS: FS 8320-5), will be used by the applicant and FAA personnel. An application for a repair station certificate and rating, an additional rating, a change in location or housing and facilities, or change in ownership, is made through applicant's completion of Items 1 through 5 of FAA Form 8310-3. The applicant should indicate the exact rating(s) desired in Block 3 of FAA Form 8310-3. When application is made for a limited rating(s), each make and model must be listed. For specialized services, the specific function(s) shall be shown. The reverse side of the form may be used or additional sheets attached, as necessary. The lower portion of the form, Items 6 through 10, is completed by FAA personnel to record subsequent action taken on the application (see Figures 4-1 and 4-2 of this section).

852. NAME OF OWNER. To avoid legal difficulties from the standpoint of FAR enforcement, it is essential that the true name and correct address of the applicant be determined. The agency name and the physical location of the facilities, wherein the maintenance functions will be performed, shall be entered on FAA Form 8310-3 and FAA Form 8000-4, Air Agency Certificate, as follows:

Name & Address of ApplicantOperating As:

Joe J. Doe d/b/a
Doro Aviation Service
Municipal Airport
Bayside, Virginia

Individual

Signature of applicant required on application.

John J. Doe, Allen B. Smith,
Richard Roe d/b/a
Doro Aviation Service
Municipal Airport
Bayside, Virginia

Partnership

Signature of all partners on application.

Doro Aviation Service, Inc.
Municipal Airport
Bayside, Virginia

Corporation

State and date of incorporation.
Signature of President - Vice President
or Secretary - Treasurer on application

Doro Aviation, Inc. d/b/a
Doro Aviation Service
Municipal Airport
Bayside, Virginia

Corporation

State and date of incorporation.
Signature of President - Vice President
or Secretary - Treasurer on application

853. CONTRACTED MAINTENANCE FUNCTIONS. Maintenance functions identified by an asterisk, in FAR Part 145, Appendix A, and contracted to outside agencies, must be listed on FAA Form 8310-3, in Block 4. The reverse side of the application may be used when additional space is needed. The repair station must be inspected for the performance of asterisked items not listed.

854. ASSISTANCE TO PROSPECTIVE APPLICANTS. Field personnel having jurisdiction over the area in which the prospective applicant's facilities are located should advise the applicant relative to the requirements of FAR Part 145 and endeavor to make a preliminary visit to his facility. Generally, time spent on the precertification phase will result in more expeditious handling of the formal application and final certification of the facility.

855. FAA OPERATED REPAIR STATIONS. FAA General Maintenance Manual, Order 4100.24A, Chapter/Section 5-5, was issued for the guidance of FAA facility managers when applying for a repair station certificate under FAR Part 145. The appendix to the General Maintenance Manual will contain material applicable to the Aviation Standards National Field Office, Hangar 6, WNA, and each Region/Center and Maintenance Organization.

856. FORMS. Typical execution of an application for repair station and ratings is illustrated in the following Figures 4-1 and 4-2.

857.-865. RESERVED.

FIGURE 4-1. APPLICATION FOR REPAIR STATION CERTIFICATE AND/OR RATING, FAA FORM 8310-3

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		Form Approved Budget Bureau No. 04-R0097	
APPLICATION FOR REPAIR STATION CERTIFICATE AND/OR RATING			
If additional space is required for any item, attach additional sheets of paper.			
1. REPAIR STATION NAME, NUMBER, LOCATION, & ADDRESS		2. REASON FOR SUBMISSION	
A. OFFICIAL NAME OF STATION Southern Aviation Services, Inc.		NUMBER 109-92 <input checked="" type="checkbox"/> ORIGINAL APPLICATION FOR CERTIFICATE AND RATING <input checked="" type="checkbox"/> CHANGE IN RATING <input type="checkbox"/> CHANGE IN LOCATION OR HOUSING AND FACILITIES <input type="checkbox"/> CHANGE IN OWNERSHIP OTHER (Specify)	
B. LOCATION WHERE BUSINESS WILL BE CONDUCTED Hanger 10 Municipal Airport Bay Shore, Maryland			
C. OFFICIAL MAILING ADDRESS OF REPAIR STATION (Number, street, city, state, and ZIP code) Hanger 10 Municipal Airport Bay Shore, Maryland 20689			
3. RATINGS APPLIED FOR		4. LIST OF MAINTENANCE FUNCTIONS CONTRACTED TO OUTSIDE AGENCIES	
<input checked="" type="checkbox"/> AIRFRAME	CLASS 1-3	LIMITED See reverse side	
<input checked="" type="checkbox"/> POWERPLANT	1	See reverse side	
<input checked="" type="checkbox"/> PROPELLERS	1		
<input checked="" type="checkbox"/> RADIO	1-2	See reverse side	
<input checked="" type="checkbox"/> INSTRUMENT	1-2-3		
<input checked="" type="checkbox"/> ACCESSORY		See reverse side	
<input checked="" type="checkbox"/> SPECIALIZED SERVICE		See reverse side	
5. APPLICANT'S CERTIFICATION			
NAME OF OWNER (Include name(s) of individual owner, all partners, or corporation name giving state and date of incorporation) Southern Aviation Service, Inc., Maryland, 1976			
I hereby certify that I have been authorized by the repair station identified in item 1 to make this application and that statements and attachment hereto are true and correct to the best of my knowledge.			
DATE February 1, 1977	TITLE President	AUTHORIZED SIGNATURE <i>Dorothy Southern</i>	
FOR FAA USE ONLY		RECORD OF ACTION REPAIR STATION INSPECTION	
		Reports Identification Symbol FS 8320-5	
6. REMARKS (Identify by item number. Include deficiencies found, ratings denied)			
7. FINDINGS - RECOMMENDATIONS			
<input checked="" type="checkbox"/> A. STATION WAS FOUND TO COMPLY WITH REQUIREMENTS OF FAR 145			
<input type="checkbox"/> B. STATION WAS FOUND TO COMPLY WITH REQUIREMENTS OF FAR 145 EXCEPT FOR DEFICIENCIES LISTED IN ITEM 6.			
<input checked="" type="checkbox"/> C. RECOMMEND CERTIFICATE WITH RATING APPLIED FOR ON APPLICATION BE ISSUED			8. DATE OF INSPECTION March 10, 1977
<input type="checkbox"/> D. RECOMMEND CERTIFICATE WITH RATING APPLIED FOR ON APPLICATION (Except those listed in item 6) BE ISSUED			
9. OFFICE		SIGNATURE(S) OF INSPECTOR(S)	
A EA-GADO-9		<i>Emil Ellwell - MAINTENANCE</i>	
A EA-GADO-9		<i>Shel Day - AVIONICS</i>	
10. SUPERVISING OR ASSIGNED INSPECTOR			
ACTION TAKEN		CERTIFICATE ISSUED	
<input checked="" type="checkbox"/> APPROVED AS SHOWN ON CERTIFICATE ISSUED ON DATE SHOWN →		NUMBER 109-92	
<input type="checkbox"/> DISAPPROVED		DATE March 20, 1977	
		INSPECTOR'S SIGNATURE <i>Skip Jack</i>	
		TITLE Airworthiness Unit Chief	

FIGURE 4-2. EXAMPLE OF LIMITED RATINGS ENTERED ON THE REVERSE SIDE OF FAA FORM 8310-3, APPLICATION FOR REPAIR STATION CERTIFICATE AND/OR RATING

LIMITED RATINGS

AIRFRAME

Douglas Model DC-3 Series
Grumman Model G-149 Series

POWERPLANT

Pratt & Whitney Model R-1830 Series

RADIO

VOR - Collins Model 344D-1 Series
NARCO All Models
Marker Beacon - NARCO Model M 35
ARC Model R 33A
RNAV - Foster Air Data Model 611

ACCESSORY

Carburetor - Marvel Schebler - All models
Alternator - Prestolite Models 110136
thru 110914

SPECIALIZED SERVICES

Nondestructive Inspection - Radiographic -
(X-ray) per MIL STD 453, as revised.
Ultrasonic - per Southern Aviation
Service, Inc. Process Specification
SAS-U1, dated March 1, 1977, as revised.
Magnetic Partical - per MIL STD 1-6868,
as revised.

SECTION 2. REPAIR STATION RATINGS

866. AUTHORITY. Federal Aviation Regulations Part 145, Sections 145.31 and 145.33.

867. PURPOSE. This section provides a general description of repair station ratings and furnishes information pertinent to issuance of limited ratings and specialized service ratings.

868. GENERAL. The adequacy of the qualifications of an applicant for ratings must be determined by physical inspection of the applicant's facilities, equipment, and an evaluation of the applicant's personnel. To require an applicant to have equipment and technical data for all current models would be an unreasonable request for the issuance of a class rating.

869. LIMITED SPECIALIZED SERVICE RATINGS. These ratings may be issued for a special maintenance function when the function is performed in accordance with a specification or data acceptable to the Administrator. Data or specifications developed by the manufacturer of the article are acceptable to the Administrator, or any other data approved by the an FAA Rotocraft, Airplane, Engine, or Propeller Certification Directorate, Aircraft Certification Office, or Manufacturing Inspection Office are acceptable. It is not intended that ratings be issued for maintenance functions of a trivial nature; therefore, care and good judgment should be used in evaluating applications for specialized service ratings. It should be determined that the rating desired is a valid specialized service. The certificate issued for a specialized service rating will be a limited-specialized service rating (see Figure 4-3, Section 3 of this chapter). The Repair Station Operations Specifications (FAA Form 8000-4-1) will show the limitations imposed, including the controlling specification (see Figure 4-7, Section 3 of this chapter).

870. AN APPLICANT FOR A CLASS RATING. An applicant who proves the capability to maintain a representative number of items for the class rating requested can be issued a full class rating. When a request for additional ratings is made, repair station capabilities should be reviewed and consideration should be given to the issuance of a class rating for those repair stations that now list a representative number of items under the limited rating.

871. LIMITED RATINGS. These ratings may be issued to repair stations for the performance of maintenance on a particular type(s) of airframe, powerplant, propeller, radio, instrument, accessory or parts thereof.

872. RADIO-RATED REPAIR STATIONS. These repair stations may perform radio installations appropriate to the class(es) of radio rating held by the station and may return to service the aircraft involved. When an installation involves alteration of the aircraft, that portion of work may be accomplished by an outside agency having the equipment and materials to do such work. The aircraft alterations may be done by personnel of the "radio" rated station if the FAA finds that the station has the personnel, equipment, and material necessary to perform the aircraft alteration and the station has been issued a limited airframe rating covering the specific operation.

873.-879. RESERVED.

SECTION 3. ISSUANCE OF REPAIR STATION CERTIFICATE

880. GENERAL. The applicant's compliance with the requirements must be determined prior to issuance of the repair station certificate. (The FCC requirements, including the licensing of personnel, should not be considered in the issuance of repair station certificates.)

a. Issuance.

(1) Air Agency Certificate. FAA Form 8000-4 will be used. Enter the number assigned to the facility, in accordance with the current air agency numbering system. Where this form states "to operate an approved," insert the words "REPAIR STATION." The ratings listed on FAA Form 8000-4 shall be in the broad category when the repair station is to be certificated under a class rating, such as AIRFRAME, POWERPLANT, PROPELLER, RADIO, etc. The issuance date of the certificate will be the date of original certification (see Figure 4-3 of this section). If a repair station is issued a limited rating for a category and does not hold any class ratings under that category, then the limited rating for the category shall be listed on the Air Agency Certificate, FAA Form 8000-4 (see Figure 4-4 of this section). Where this form states "shall continue in effect," insert the word "INDEFINITELY."

(2) Repair Station Operations Specifications. FAA Form 8000-4-1 will be used to set forth the limitations of the certificate. When issuing limited ratings, the item listed should be by model series, series of part or drawing numbers, or other identification which will preclude long lists of products. When a repair station can prove the capability to maintain a representative number of products under a class rating, the class rating should be issued in lieu of a limited rating. A class rating should not be issued and then be restricted to a specific product. For such a case, a limited rating should be issued. A limited rating for specialized service must include the specification used by the repair station to perform that specialized service. Civil or military specifications or a specification developed by an applicant is acceptable for use, provided that an evaluation is made to assure those specifications meet acceptable standards before they are approved for use by the repair station. The listing should be as short as possible, but must be specific when necessary (see Figures 4-6 and 4-7 of this section).

EXAMPLE

LIMITED RATINGS:

ACCESSORY - Carburetor

Marvel Schebler - Float Type, all models
 Bendix Stromberg - all models
 Generator - (DC) Delco Remy
 Models 1101914 through 1109676
 Magneto - all makes and models

SPECIALIZED SERVICE:

EMERGENCY EQUIPMENT - Liferrafts, preservers, slides,
and slide-rafts
Air Cruisers Co. - All models
Air Safety Co. - All models
Work to be accomplished in
accordance with (name or repair
station) process specification,
NRS-1, dated March 1, 1977

b. Foreign Certificates. For foreign repair stations, where the certificate states "shall continue in effect," insert the date one year from the date of issuance. As an example, a certificate issued January 19, 1976, will continue in effect "UNTIL JANUARY 19, 1977." At the very bottom of the page, the last line referring to "any alteration of the certificate" will be stricken in its entirety (see Figure 4-5 of this section). Foreign certificates being renewed because of the expiration date will bear the date the first certificate was issued in the space marked "date issued." The "continue in effect" date will be one year from the renewal date. Certificated foreign repair stations, in addition to meeting all other requirements, must have performed work functions or have firm commitments from U.S. operators for needed work to be eligible for renewal of their certificate. A foreign repair station certificate may be renewed for 24 months providing the station complies with FAR Section 145.71 and applies before its certificate expires. Expiration date is not applicable to manufacturer maintenance facility certificate issuances.

c. Repair Station Certificate numbers will be assigned in accordance with instructions contained in Section 10 of this chapter.

d. Certificate changes or amendments that affect a previously issued certificate require a new application, FAA Form 8310-3 (OMB 04-R0097).

(1) The original issuance date will be shown on each changed certificate for:

- (a) A change in location or housing and facilities.
- (b) A revised or amended rating, including deletions.
- (c) A change in name with same ownership.

(2) The amendment date will be shown on each amended certificate for a change in ownership. An amended certificate issued to a new owner is an original issuance, and a new certificate number will be assigned in accordance with Section 10 of this chapter.

(3) When ratings in a new category are issued, the date of such issuance shall be shown in parentheses following each new category.

(4) When a new FAA Form 8000-4-1 is required, the date shown will be the date of the revision. Only the FAA Form 8000-4-1 will be required for the addition or deletion of ratings in a previously approved category unless, in the deletion of ratings, the category is canceled.

e. Mobility of station. Because of the requirement of the biennial test of altimeter systems on aircraft operating under IFR (FAR Section 91.171) and other specialized services such as X-ray, magnaflux, etc., there is a need for a station to have the capability to move from place to place. Stations performing work at a place other than its fixed location may move any or all of its facilities, material, equipment, and technical personnel from place to place for the purpose of performing its functions. The address shown on the repair station certificate is considered the station's fixed location; however, if the station established an additional fixed location different than that shown on the certificate, satellite certification should be utilized.

f. Repairman Certificates. In those instances where a repairman certificate is required in the certification of a repair station, the personnel authorized to issue the repair station certificate should issue the temporary repairman certificate concurrent with the issuance of the repair station certificate (see Chapter 5 of this Order).

881. SATELLITE REPAIR STATIONS. A certificated repair station may request certification of additional facilities at other locations as satellites of the parent organization. The purpose of that request would be to enable the parent facility to establish and control the inspection procedures at each facility. There are no regulatory procedures for establishing satellite repair stations. Each satellite repair station must satisfy all the requirements of FAR 145 for the ratings issued and the type of repair station as set forth in Section 145.1(b) of the FAR.

a. A domestic repair station may request certification of additional facilities at different locations as satellites of the parent organization in the United States or its possessions.

b. A domestic repair station that can show a need, as outlined in FAR Section 145.71, can make application as required by FAR Section 145.15 for the certification of a satellite repair station in a foreign location. Such a repair station will be considered a foreign repair station. The effectivity of that repair station's certificate will be determined in accordance with the requirements of FAR Section 145.17(b) and FAR Section 145.71.

c. A certificated "foreign" repair station may request certification of additional facilities at different locations as a satellite of the parent organization providing the requirements of FAR Section 145.71 are satisfied for each facility.

d. The parent organization shall specify the work to be performed by its satellite and provide a specification of operations in manual form. An application for the satellite station need not be limited to the rating held by the parent organization. Ratings issued to the satellite station are based upon the facilities, material, equipment, and personnel at the location and are controlled by the manual which the parent organization has provided.

e. When a repair station desires to establish a satellite in a region or district other than the one in which it is located, they may submit the application to the district office in whose jurisdictional area they are located, or if more convenient to the applicant, to the district office in whose jurisdictional area the satellite is to be located. The district office receiving the request shall inform their respective regions of the application. The district office will, through regional channels, coordinate all matters when the facility is located in an area outside their jurisdiction.

f. The repair station can cross utilize personnel within their "parent-satellite" system. The repairman's certificate will bear only the parent station number without suffix. The repairman may serve in any station in the system where he is carried on the roster in accordance with FAR Section 145.43.

g. The regional office in whose area the satellite station is to be located will, in accordance with their policy, provide for the certification of the satellite and exercise the necessary surveillance of its operation. Tissue copies of the entries on Air Agency Certificates, FAA Form 8000-4, Repair Station Operations Specifications, FAA Form 8000-4-1, and all of the inspection reports are to be forwarded, through regional channels, to the district office in whose area the parent station is located.

882. SPECIAL PROVISIONS FOR REPAIR STATIONS PERFORMING MAINTENANCE FOR U.S.-CERTIFICATED AIR CARRIERS. The following procedures are to be used to permit a certificated repair station to perform work at a place other than where a repair station is located under the terms of a contractual agreement with a U.S. air carrier. Procedures are also outlined for the issuance of a foreign repair station certificated limited to the performance of maintenance for a specified U.S. air carrier's fleet under the terms of a contract with that carrier.

a. U.S. air carriers have encountered a need for maintenance at locations where the frequency and scope of that maintenance do not warrant staffing and equipping the station for its accomplishment. This situation may be further complicated by prohibitions against U.S. mechanics working in foreign countries by the governments of those countries.

b. To provide the needed service to U.S. operators and reduce the administrative effort for the FAA and industry, the established procedures outlined in FAR Part 145 (especially Sections 145.15, 145.45, 145.51(d)), and FAR Section 121.369 will be utilized).

c. Principal air carrier airworthiness inspectors shall request their assigned carriers to provide FAA with sufficient notification of their intent to contract with a facility subject to this policy. This notification should include the following:

(1) The date of their intended operations and the length of time they plan on using this facility.

(2) The extent of maintenance to be performed.

(3) A statement that the station is equipped with the necessary facilities, qualified personnel, and technical data to perform the maintenance of their aircraft.

(4) That part of the contract on which the authorization or certification is to be based, outlining the scope of the work to be performed.

d. The Air Carrier District Office (ACDO), when notified by the air carrier of their desire to use the services of a currently certificated repair station at a place other than where the station is located, shall ascertain that the air carrier has the procedures in their manual required by FAR Section 121.369 to ensure that maintenance performed by the repair station is performed in accordance with its manual and that the affected repair station personnel are trained and qualified to perform in accordance with its procedures. They will arrange for the inspection of the facility in accordance with regional policy and will coordinate all matters relative to the inspection of the facility. The inspection will be made to determine that the facilities, at the locations requested, are satisfactory and that personnel are capable of performing maintenance as outlined in the air carrier's manual. Regardless of which district office makes the inspection, the results will be conveyed to both the air carrier and repair station certificate holding offices as expediently as possible. Effort should be made to conduct this inspection during a line station inspection, thus avoiding a duplication of inspection by the FAA. The procedures outlined in Paragraph 881 of this Order can be used as a guide during the certification process. The air carrier certificate holding office shall provide the repair station certificate holding office with a copy of the air carrier's contractual arrangements pertinent to the authorization.

e. The ACDO shall also provide the inspecting office with a copy of the contract or apprise them of the scope of contractual arrangements. The facility must comply with those sections of FAR Section 145.35 that are applicable to the maintenance to be performed at that facility.

f. When a determination has been made that a facility is qualified to perform work contracted for by the U.S. air carrier, the repair station certificate holding office shall include a statement on the Repair Station Operations Specifications (FAA Form 8000-4-1) showing the contractual geographical location in which the repair station is to exercise the privileges of its certificate (see Figure 4-8 of this section).

g. Repair stations that are presently doing contractual maintenance for a U.S. air carrier at a place other than where the repair station is located and meet the conditions as outlined in this section shall be issued amended Repair Station Operations Specifications without further showing or the need to make application.

h. The air carrier certificate holding office shall notify the repair station certificate holding office whenever the contract between the U.S. air carrier and the repair station has expired or is cancelled. The certificate holding office will then amend the Repair Station Operations Specifications accordingly, or withdraw authorization, as appropriate.

i. If the arrangements involve maintenance away from their parent station, procedures necessary to comply with FAR Sections 145.2 and 145.51(d) will be included in the repair station inspection procedures manual.

j. A foreign repair station certificate, limited to maintenance of a specified U.S. air carrier fleet, may be issued to a foreign air carrier, manufacturer, or other maintenance organization that does not currently hold a repair station certificate. The requirements of FAR Part 145, Subpart C, must be satisfied. The following guidelines shall be utilized for that certification:

(1) The limited rating can be issued authorizing only the scope of maintenance that is defined by the contracting U.S. air carrier and applicable only to the equipment specified in the contract. The Repair Station Operations Specifications (FAA Form 8000-4-1) (see Figure 4-9 of this section) shall specify the equipment type and the scope of maintenance; e.g., B-747 - preflight inspection and minor maintenance in accordance with XYZ airline station manual and show the contractual geographical location in which the repair station is to exercise the privileges of its certificate. The Air Agency Certificate (FAA Form 8000-4) will be completed as outlined in Figure 4-10 of this section.

(2) The inspection of the facilities will be conducted as outlined in Paragraph 882(d).

(3) The applicant's inspection system must provide a satisfactory level of quality control. The methods, standards, and procedures specified in the air carrier's manuals and other publications are eligible for adoption by the repair station by referencing each publication and its level of authority in their repair station inspection procedures manual. In effect, the repair station inspection procedures manual will concern itself only with how the resources provided by the U.S. carrier are to be used in relation to its maintenance contract. Training provided by the U.S. air carrier is acceptable, but the repair station must provide additional training, as necessary, to bridge the interrelationship between the repair station and the carrier.

(4) The equipment and material requirements should be related to the scope of the contract and what the U.S. air carrier is to provide in the contract. Equipment maintenance must be accounted for. The storage of parts, etc., provided by the carrier, is the applicant's responsibility.

(5) The U.S. air carrier's work forms are an acceptable method for controlling and recording work performed. They may be used by the applicant to satisfy retention requirements as outlined in FAR Sections 145.61 and 145.79.

k. These instructions establish the procedure for the certification of a facility to perform contractual geographical maintenance for U.S. air carriers and are intended to facilitate the qualification of an air agency to provide such service. It is not intended that this policy will reduce repair station certification standards.

883. RECORDKEEPING AND RELATED REPORTS.

a. Repair station records will be established and maintained in accordance with instructions contained in Chapter 2, Section 14 of this Order.

b. Mailing list information will be forwarded in accordance with instructions contained in Chapter 2, Section 14 of this Order.

884. FORMS. Typical execution of referenced forms are illustrated in the Figures 4-3 through 4-10.

885.-899. RESERVED.

FIGURE 4-3. AIR AGENCY CERTIFICATE, FAA FORM 8000-4

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number 109-92

This certificate is issued to

Southern Aviation Service, Inc.

whose business address is

Hangar 10 Municipal Airport
Bay Shore, Maryland

upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved REPAIR STATION

with the following ratings:

AIRFRAME
POWERPLANT
ACCESSORY
RADIO

INSTRUMENT
PROPELLER
LIMITED-SPECIALIZED SERVICE (3/20/77)

This certificate, unless canceled, suspended, or revoked, shall continue in effect INDEFINITELY.

Date issued:

November 5, 1976

By direction of the Administrator

Skip Jack

SKIP JACK

This Certificate is not Transferable, and any major change in the basic facilities, or in the location thereof, shall be immediately reported to the appropriate regional office of the Federal Aviation Administration

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both

FIGURE 4-4. AIR AGENCY CERTIFICATE (LIMITED RATING), FAA FORM 8000-4

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number 109-94

This certificate is issued to

Northern Aviation Services, Inc.
whose business address is
Hangar 10 Municipal Airport
Baltimore, Maryland

upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved REPAIR STATION

with the following ratings:

LIMITED AIRFRAME
LIMITED POWERPLANT

This certificate, unless canceled, suspended, or revoked, shall continue in effect INDEFINITELY

By direction of the Administrator

Date issued:

November 5, 1976

Skip Jack
SKIP JACK

Airworthiness Unit Chief, AEA-GADO-9

THIS CERTIFICATE IS NOT TRANSFERABLE, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF, SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE FEDERAL AVIATION ADMINISTRATION

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both

FIGURE 4-5. AIR AGENCY CERTIFICATE (FOREIGN REPAIR STATION), FAA FORM 8000-4

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number 003-F

This certificate is issued to

West Africa Air Service Limited

whose business address is

West Mobimbo Airport
Nairobi, Kenya (Africa)

upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved REPAIR STATION

with the following ratings:

AIRFRAME
POWERPLANT
ACCESSORY
RADIO

INSTRUMENT
PROPELLER
LIMITED-SPECIALIZED SERVICE

This certificate, unless canceled, suspended, or revoked, shall continue in effect until November 5, 1978

Date issued:

November 5, 1976

By direction of the Administrator

Jack Sezar
JACK SEZAR

THIS CERTIFICATE IS NOT TRANSFERABLE, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF, SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE FEDERAL AVIATION ADMINISTRATION

FIGURE 4-6. REPAIR STATION OPERATIONS SPECIFICATIONS, FAA FORM 8000-4-1

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Repair Station Operations Specifications

(Continuation)

Limitations:

The ratings (r) set forth on this Agency Certificate Number 109-92 is/are limited to the following:

AIRFRAME	CLASS 1 & 2
POWERPLANT	CLASS 1
RADIO	CLASS 1
INSTRUMENT	CLASS 1 & 2

LIMITED RATINGS

AIRFRAME	Douglas Model DC-3 Series Grumman Model G 149 Series
POWERPLANT	Pratt & Whitney Model R 1830 Series
RADIO	VOR - Collins Model 51RV-1 NAV System NAV REC - NARCO Model NAV 11 RNAV - Foster Air Data Model 611 System Bendix - RDR 1200
ACCESSORY	Carburetor - Marvel Schebler - All Models Alternators - Prestolite Model 110136 thru 110914
INSTRUMENT	NARCO - Model HSI-100 Indicator Collins - Model 562A-5M Flight Computer

Delegated authorities: NONE*Date issued or revised:*

March 20, 1977

For the Administrator:

Skip Jack
SKIP JACK

Airworthiness Unit Chief, AEA-GADC-9

FIGURE 4-7. REPAIR STATION OPERATIONS SPECIFICATIONS, FAA FORM 8000-4-1

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Repair Station Operations Specifications

(Continuation)

Limitations:

The rating(s) set forth on the Agency Certificate Number 109-92 is/are limited to the following:

LIMITED RATINGS: (Continued)

SPECIALIZED SERVICE:

Non Destructive Inspection - Radiographic (X-Ray) in accordance with Mil Std. 453, as revised.

Ultrasonic in accordance with Southern Aviation Service, Inc. Process Specification SAS-U1, dated March 1, 1977, as revised.
Magnetic Particle in accordance with Mil. Std. 1-6886, as revised.

Delegated authorities: NONE

Date issued or revised:

March 20, 1977

For the Administrator:

Skip Jack

SKIP JACK

Airworthiness Unit Chief, AEA GADO-9

FIGURE 4-8. REPAIR STATION OPERATIONS SPECIFICATIONS, FAA FORM 8000-4-1, SHOWING PRESENTLY CERTIFICATED REPAIR STATION WITH AIR CARRIER GEOGRAPHIC AUTHORIZATIONS

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Repair Station Operations Specifications

(Continuation)

Limitations:

The ratings (s) set forth on this Agency Certificate Number 000-1F is/are limited to the following:

AIRFRAME	CLASS - 3
POWERPLANT	CLASS - 1
RADIO	CLASS - 1

LIMITED RATINGS

AIRFRAME	McDonnell Douglas - Model DC-8 Series Lockheed - Model L-1011 Series Boeing - Model B-747
POWERPLANT	Pratt & Whitney - Model JT8 Series
RADIO	Bendix - Model RDR-1200

AIR CARRIER GEOGRAPHIC AUTHORIZATIONS

1. Liber Ville, Gabon Boeing Model B-747 - Preflight inspection and minor maintenance per XYZ Airline Station Manual in accordance with XYZ Airline Maintenance Contract No. 6309 dated August 28, 1977.
2. Cape Town, South Africa McDonnell Douglas DC-8 Series. Turn around and line maintenance per WYZ Airline Technical Manual in accordance with WYZ Airline Maintenance Contract No. 1234 dated August 11, 1977.

Delegated authorities: NONE

Date issued or revised:

August 28, 1977

FAA Form 8000-4-1 (1-78)

For the Administrator:

George Joneses
George Joneses

FAA Representative AEU-AROM-1

FIGURE 4-9. REPAIR STATION OPERATIONS SPECIFICATIONS, FAA FORM 8000-4-1, SHOWING LIMITED RATINGS FOR FOREIGN REPAIR STATIONS PERFORMING CONTRACTUAL MAINTENANCE FOR A U.S. AIR CARRIER

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Repair Station Operations Specifications

(Continuation)

Limitations:

The rating (s) set forth on this Agency Certificate Number 000-2F is/are limited to the following:

LIMITED RATINGS

- | | |
|------------|---|
| AIRFRAME | Boeing Model B-707 - Preflight and minor maintenance per CBS Airline Maintenance Manual. |
| POWERPLANT | Pratt & Whitney Model JT-3D - Preflight and minor maintenance per CBS Airline Maintenance Manual. |

The privilege of these Limited Ratings are authorized for the duration of CBS Airline Maintenance Contract No. 6905 dated August 28, 1977, at the following air carrier geographical locations:

1. Cape Shore, South Africa
2. Monrovia, Liberia

Delegated authorities: NONE

Date issued or revised:

August 29, 1977

FAA Form 8000-4-1 (1-78)

For the Administrator:

George Joneses
George Joneses

FAA Representative, AEU-ARMO-1

FIGURE 4-10. AIR AGENCY CERTIFICATE, FAA FORM 8000-4, SHOWING A FOREIGN REPAIR STATION WITH LIMITED RATINGS FOR PERFORMING CONTRACTUAL MAINTENANCE FOR A U.S. AIR CARRIER

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number 000-2F

This certificate is issued to

Shore Air Service
whose business address is
1111 16th Ave.
Cape Shore, South Africa 22210

upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved

with the following ratings:

LIMITED AIRFRAME
LIMITED POWERPLANT

This certificate, unless canceled, suspended, or revoked, shall continue in effect Until August 28, 1978

Date issued:

August 28, 1977

By direction of the Administrator

George Joneses
George Joneses

FAA Representative, AEU-AROM-1

THIS CERTIFICATE IS NOT TRANSFERABLE, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF, SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE FEDERAL AVIATION ADMINISTRATION

SECTION 4. CHANGE IN LOCATION OF A REPAIR STATION

900. AUTHORITY. Federal Aviation Regulations Part 145, Section 145.21.

901. GENERAL. An application for approval of a repair station after a change in location will be processed in the same manner as an application for original certification except that the certificate number and date of issuance will remain the same. No operation at the new location is authorized until certification at the new location has been accomplished. Partial operation at the old location may be authorized. The authorization for partial operation must be by letter, from responsible field personnel, in accordance with regional policy and instruction.

902.-909. RESERVED.

SECTION 5. REPAIR STATION CERTIFICATION INSPECTIONS

910. AUTHORITY. Section 607, FA Act of 1958 and FAR Section 145.23.

911. PURPOSE. This section sets forth procedures for performing and reporting the findings of the original inspection for a repair station certificate issuance, change in rating, change in location or housing and facilities, and change in ownership.

912. GENERAL. The objective of the inspection is to determine compliance with the applicable requirements of FAR Part 145 for purposes of issuing or continuing in effect a repair station certificate. The inspector should carefully review FAR Part 145, identify the applicable sections, and proceed to conduct the inspection for compliance. While conducting the inspection, the inspector should verify the capability of the facility to carry out its proposed or adopted inspection system and perform the maintenance functions as listed in the appropriate documents.

913. REPAIR STATION INSPECTION REPORTS.

a. Enter remarks relative to the inspection in Block 6 of FAA Form 8310-3, Application for Repair Station Certificate and/or Rating (OMB 04-R0097). Include discrepancies, ratings denied, etc. The reverse side of this form and additional sheets may be used as necessary.

b. Enter inspector's findings/recommendations in Block 7 of FAA Form 8310-3, Record of Action - Repair Station Inspection (RIS: FS 8320-5).

914. FOREIGN REPAIR STATION INSPECTION. A policy has been established which provides for the review of reports and records of foreign countries to assist in determining whether a particular repair station in that country should be certified. Before engaging in the review of reports and records from the authorities in any foreign country:

a. Determine that the rules and regulations of that country covering continuous airworthiness, aircraft maintenance practices and procedures, repair station certification and operation, and the certification and experience requirements of maintenance airmen are the equivalent of those in the United States.

b. Determine that the capability and competence of the civil air authority to administer and enforce the rules referred to above, are the equivalent of those in the United States.

c. Coordinate the action with the American Embassy in the country in which the repair station will be located. Notify AWS-300, by letter, after the certification action has been completed.

915.-925. RESERVED.

SECTION 6. REPAIR STATION PERSONNEL

926. PURPOSE. This section clarifies repair station personnel requirements.

927. REFERENCE. FAR Part 145, Repair Stations, FAR Section 145.39, Personnel Requirements.

928. REQUIREMENTS.

a. Only those individuals who are to be directly in charge of maintenance functions for the repair station need to be certificated.

(1) The applicant for a repair station certificate is responsible for the competency of his personnel.

(2) The FAA is particularly interested in the qualifications of personnel assigned to technical supervisory positions who must meet the experience requirements and be technically qualified for the work assigned.

b. Technical supervisory personnel in propeller or instrument repair stations require repairman certification as provided for by FAR Part 65, Subpart E.

c. In radio repair stations:

(1) Technical supervisory personnel may be certificated airframe mechanics or certificated repairmen.

(2) When a repairman certificate is issued:

(a) It should carry the rating "Repairman - Radio," synonymous with repair station rating.

(b) No further designation of job function on the certificate is necessary.

(c) Repair station records are required by FAR Section 145.43 to carry a statement of the scope of present assignment. It should identify responsibility for radio installation if appropriate.

(3) The Federal Communications Commission requires licenses for the performance of functions on certain radio equipment; however, the possession of such a license shall not be a factor in the issuance of a repairman certificate.

d. When an air carrier under the continuous airworthiness requirements of Parts 121, 127, and 135 and Part 125 operators contracts with a repair station for the performance of required inspection items:

(1) The repair station becomes subject to the rules under which the operator holds a certificate as stated in FAR Section 145.2.

(2) Each individual that is authorized to perform such work must be properly trained, qualified, and appropriately certificated.

(3) Individuals in a foreign repair station need not be certificated if they meet FAR Section 145.75.

e. Repairman certificates will be prepared in accordance with the instructions contained in Chapter 5 of this Order.

929.-935. RESERVED.

SECTION 7. FOREIGN REPAIR STATIONS

936. AUTHORITY. Federal Aviation Regulations Part 145, Section 145.71.

937. PURPOSE. This section provides greater latitude to regional directors in the certification of foreign repair stations. It provides examples which may be used to establish that the station is necessary for maintaining or altering U.S.-registered aircraft outside of the U.S.

938. BACKGROUND. In the interest of uniformity and in maintaining a satisfactory FAA image in foreign countries, we are obligated to provide for the maintenance of U.S.-registered aircraft as prescribed in Part 91, Subpart C, and Part 43 of the Federal Aviation Regulations.

a. Regional directors have been delegated authority to issue certificates for foreign repair stations, but have indicated that it is difficult to perform the certification or the necessary supervision with available manpower. Many of these certificated repair stations are regularly inspected by foreign governments. We recognize the prescribed standards and requirements of some of these foreign governments, and find their inspections and reports to be of a quality acceptable as a basis for meeting FAA requirements.

b. The following examples are valid reasons why a foreign repair station may be necessary and should be considered in your evaluation:

(1) Demonstration flights and operations of U.S. certificated aircraft by U.S. aircraft manufacturers and sales organizations.

(2) Airworthiness Directives (AD) compliance of U.S.-registered aircraft on extended foreign operations.

(3) Normal maintenance requirements of U.S. executive and personal aircraft during foreign operations.

939. ACTION. When a regional director determines that the repair station inspectors of a foreign country apply standards, perform inspections, and prepare reports of a quality which assures that they can be relied on as a basis for determining whether the repair stations in that country meet FAA requirements, the regional director, in certifying foreign repair stations, may review the pertinent reports and records of the foreign country concerned to assist in determining whether a particular repair station in that country should be certified.

940. DELEGATION. No delegation of authority to a foreign government is to be implied by this directive. The authority to issue certifications remains with the regional directors who have the responsibility for ensuring compliance with FAA requirements.

941.-949. RESERVED.

SECTION 8. REPAIR STATION INSPECTION SYSTEM

950. AUTHORITY. The regulatory authority for this section is FAR Section 145.45.

951. GENERAL. The inspection system used by a repair station must provide a continuity of inspection control over all items from the time they are received until they are released as airworthy by the repair station.

a. The repair station inspection system should be incorporated in an inspection procedures manual which explains the system briefly but in sufficient detail to be readily understood by their technical employees. The inspection procedures manual should also contain samples of the forms designed to provide general inspection control of the items processed; for example, serviceable parts tag, repairable parts tag, rejection tag, release form, work order, etc. Detailed inspection forms used by the repair station are not required in the inspection procedures manual. Since no two inspection systems will be identical, even though they encompass the same areas, it should be determined that the inspection procedures which are proposed will meet the requirements of FAR Section 145.45.

b. The following criteria may be used as an aid in making this determination (also see AC 145-3, Guide For Developing and Evaluating Repair Station Inspection Procedures Manuals):

(1) Incoming Material, Service, and Parts. Does it provide for the inspection of incoming articles and/or materials for shipping damage, authenticity of new and replacement parts, conformity to specifications, drawings, or dimensions, type of material, and state of preservation? Is the system or method of recording the results of this inspection described?

(2) Preliminary Inspection. Will units or articles be given a preliminary inspection for state of preservation and, if pertinent, functional operation prior to disassembly? Is the method of recording the results of this inspection shown on a form provided by the repair station? What individual, by job title, is responsible for the inspection?

(3) Hidden Damage. Will units which have been involved in accidents, or that have incurred other damage, be opened up as necessary and inspected for hidden damage in adjacent areas? Is the system used to record the results of this examination described?

(4) Continuity of Inspection. Does this section provide for inspections to be performed during and after disassembly and at various stages while work is in progress? Is the system described which is used to record and to show continuity of these inspections?

(5) Final Inspection, Test, and/or Calibration. Does it provide for units to be inspected, tested, and/or calibrated as necessary at various states of buildups? Is a provision made for recording such tests and/or calibrations such as instrument test and calibrations, carburetor settings and flow records, results of generator or magneto run-in, engine run-in records, etc.? Is a

record made of such functions as landing gear retraction tests, rigging measurements, etc.? Samples of these detailed record forms should not be included in the manual but should become part of the repair station records.

(6) Tagging and Identification. Is a system of tagging or other means of identification used during the various stages of inspection of the articles and/or parts being processed? Are samples of these tags or forms included in the inspection procedures manual?

(7) Maintenance Release. Is an explanation given as to how, when, where, and by whom a maintenance release may be used? Is a sample of the maintenance release form included in the inspection procedures manual? Repair stations may return major repairs to service by maintenance release in lieu of FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), under the privileges of their certificate. However, use of a maintenance release is not mandatory. A maintenance release may be used for partial repairs or for inspections, provided the work function that was performed is identified on the release.

(8) Forms. Does a section of the inspection procedures manual contain sample copies of work orders, maintenance release forms, inspection tags, inspection stamps, etc.? It need not contain samples of detailed inspection forms such as carburetor flow records or engine overhaul inspection sheets.

(9) Procedures. Are procedures established to maintain required equipment in serviceable conditions and are the standards and responsibility for the test and calibration provided? These procedures and standards shall be at least those recommended by the manufacturer of the equipment used or those procedures approved by the FAA.

952.-969. RESERVED.

SECTION 9. ASSIGNMENT OF AIR AGENCY CERTIFICATE NUMBERS

970. PURPOSE. This section provides instructions for the assignment of air agency certificate numbers.

971. GENERAL. Air agency certificate numbers will be established and assigned by the office handling the certificate action. Numbers shall incorporate the regional designator, per Order 1375.2A, Standard Data Elements and Codes--General Standards, Chapter 2, Section 1, together with the last two characters of the assigned cost center code, followed by a numerical designator identifying the air agency; e.g., 118-1. Additional designator numbers assigned will follow in numerical order; e.g., 118-1, 118-2, etc. The area designator is not included in the structure as it is not required. Existing numbers need not be changed.

X X ----- Sequentially assigned numbers.

X X ----- Appropriate district office designator
(cost center code)

X X X ----- Appropriate region designator.

a. Satellite facilities of a repair station will be assigned the number designation of the parent organization followed by a letter suffix; e.g., 118-1A. Additional satellite facility designations for the same organization will follow in alphabetical order regardless of where located. The letter "F" will not be used to designate a satellite station.

b. Numbers assigned to foreign repair stations will contain the suffix "F"; e.g., 820-6F or 820-6FA.

c. Numbers assigned to a manufacturer's maintenance facility will contain the prefix "MMF"; e.g., MMF-118-6.

d. Numbers are not ordinarily reissued except to the original organization; i.e., the individual, partnership or corporate identity that first received the certificate number. However, if a new owner requests reissuance of an old number, the original individual, partnership or corporation should agree to relinquish, in writing, further right to its use. A copy of this statement should be retained as part of the agency file.

972.-979. RESERVED.

SECTION 10. FORMAL AND INFORMAL INSPECTION OF DOMESTIC AND FOREIGN REPAIR STATIONS

980. INSPECTION.

a. Formal inspections are thorough examinations conducted to determine compliance with FAR 145, on an "as needed" basis after certification. They are performed at the discretion of the local district office or may be combined with certificate changes. During formal inspections, emphasis should be directed at the quality of work performed. In addition, determine that the inspection system is adhered to and is satisfactory. Limited shelf life items and those critical to contaminants should also be checked.

b. Stations involved in general aviation aircraft work combined with air carrier or commercial operator work and/or electronic work should be inspected by teams if considered desirable. Organize the team and plan the action in advance. Avoid a series of related visits by different FAA personnel at different times. (See paragraph 982.)

c. Inspection of stations performing work away from their fixed location will be conducted by the district office in whose area the station is working. Controversial matters between offices regarding procedures, manuals, equipment, personnel, etc., will be resolved by the office of certificate jurisdiction with a minimum involvement of the station.

d. Informal inspections are routine type inspections and may be performed with a specific objective involving a problem area. They need not be complete inspections of the stations.

e. Foreign repair station inspections may be performed in accordance with the above instructions or by the procedures contained in paragraph 985 of this chapter.

981. INSPECTION AND SURVEILLANCE RECORD, FAA FORM 3112. All repair station inspections shall be recorded on FAA Form 3112, except when certification or amendments to the certificate are involved.

a. Block number one - enter formal or informal inspection as applicable.

b. Block numbers two through seven are self-explanatory.

c. Block number eight - findings and recommendations. List general remark relative to the inspection such as suggestions or advice.

982. ARRANGEMENTS FOR WORK BY A REPAIR STATION FOR AN AIR CARRIER OR COMMERCIAL OPERATOR.

a. Cross utilization or teams consisting of general, avionics, and air carrier inspectors on formal and informal inspections should be used rather than two separate inspections. However, keep in mind that separate and sometimes

different specifications and standards will apply to an identical work function. General aviation work, although mixed in actual performance with air carrier work, should be evaluated against general requirements.

b. When a repair station, either foreign or domestic, is performing work for an air carrier or commercial operator, it must be performed in accordance with the air carrier's or commercial operator's manual (reference FAR Parts 121, 125, 127, and 135). The air carrier or commercial operator must specify the items that will be performed by the repair station.

c. Repair stations performing the inspection of required inspection items must have a separate maintenance organization and an inspection organization adequate to perform the work specified. These may or may not be the same as used in general aviation work. Personnel of domestic repair stations must hold appropriate airman certificates and be properly trained, qualified, and authorized to perform such inspections. Such personnel in foreign repair station do not need an airman certificate if they have been qualified under FAR Section 145.75(c). The air carrier or commercial operator or the repair station must maintain a list of these individuals. In addition, the repair station must have applicable parts of the air carrier or commercial operator's maintenance and inspection programs that pertain to the work to be performed by it.

983. REPORTS OF DEFECTS OR UNAIRWORTHY CONDITIONS. The repair stations are required to submit reports of serious defects and recurring unairworthy conditions of airframes, powerplants, propellers, or any component thereof including newly manufactured components or replacement parts. The provisions of FAR Section 145.63 should be discussed with station management to assure they are understood.

a. The discussion should include the 72-hour reporting period, the manner of reporting, and the need for expeditious reports where an imminent hazard is involved. These provisions are important to our efforts in reducing accidents. In order to discharge our safety responsibilities, all reports of unairworthy conditions must be reported by the repair station as required by regulations.

b. The airworthiness inspector must provide information, forms and instructions relative to the submission of the report and should encourage its use by the repair station. The form to be used is FAA Form 8010-4, Malfunction or Defect Report. Other arrangements that provide the same information may be used when they are determined to be as effective as the FAA Form 8010-4. When the discrepancy involves an air carrier or commercial operator's aircraft and is the result of a flightcrew report or an aircraft service inspector, follow procedures in the air carrier's maintenance manual and in Chapter 2, Section 2, of Order 8010.2, Flight Standards Service Difficulty Program.

984. ACTIONS RESULTING FROM INSPECTIONS. When the findings of an inspection reveal no defects, no further action other than the report required in paragraph 971 is necessary. If the inspection indicates violation action is necessary, Order 2150.3, Compliance and Enforcement Program, and subsequent revisions will be followed.

985. ACCEPTANCE OF FOREIGN GOVERNMENT INSPECTION REPORTS.

a. Many of the FAA certificated foreign repair stations are regularly inspected by foreign civil aviation authorities who report their findings to their respective foreign governments. The standards and requirements prescribed for repair stations by some of these foreign governments and the inspections of and reports on such stations are of a quality that they can be relied on and used as a basis for determining whether the repair stations in the particular country continue to meet FAA requirements. Under this condition, such reports may be accepted to assist in making a finding in the conduct of formal and informal inspections in accordance with this chapter.

b. When a regional director determines it advantageous to accept findings in reports of foreign country, the following guidance will apply:

(1) Determine that the rules and regulations of that country covering continuous airworthiness, aircraft maintenance practices and procedures, repair station certification and operation, and the certification and experience requirements of maintenance airmen are the equivalent of those in the United States.

(2) Determine that the capability and competence of the Civil Air Authority to administer and enforce the rules referred to above are the equivalent of those in the United States.

(3) Obtain concurrence from agency headquarters which in turn will coordinate such concurrence with the Department of State. Direct request for concurrence through AWS-300.

c. No delegation of authority to a foreign government is to be implied by this instruction. The authority to issue certification remains with the regional directors who have the responsibility for ensuring compliance with FAA requirements. Sufficient surveillance should be conducted to assure that repair stations continue to meet these requirements.

986.-995. RESERVED.

SECTION 11. SURVEILLANCE OF MAINTENANCE FACILITIES AND AIRCRAFT
OPERATED BY THE FEDERAL AVIATION ADMINISTRATION

996. PURPOSE. This section provides procedures for surveillance of FAA operated maintenance facilities and FAA operated aircraft in accordance with Order 4000.3C, Certification, Maintenance and Operation of Agency Aircraft.

997. FAA FACILITIES CERTIFICATED AS REPAIR STATIONS. FAA facilities classified as domestic repair stations per Order 4000.3C will be subject to surveillance in accordance with procedures in Section 11 of this chapter.

998. PROCEDURE FOR REPORTING INSPECTION OF FAA FACILITIES CERTIFICATED AS REPAIR STATIONS. Forward a copy of each Inspection and Surveillance Record, FAA Form 3112 to the Manager, Flight Programs Division, AVN-200.

999. NONCERTIFICATED FAA MAINTENANCE FACILITIES. Prior to conducting an inspection, the inspector should become familiar with the maintenance programs prescribed by the FAA General Maintenance Manual, Order 4100.24A. Noncertificated facilities will be inspected in accordance with the following guidelines:

a. Maintenance is performed by or under the direct supervision of appropriately certificated and qualified personnel.

b. Maintenance is performed in accordance with the requirements of the maintenance standards prescribed by the Technical Issuance System (Order 4100.24A, Chapter/Section 3-11) for each type aircraft.

c. The equipment and facilities are adequate for the specific maintenance to be performed on assigned aircraft.

d. Ensure that precision tools, such as torque wrenches, cable tensionmeters, etc., are calibrated in accordance with an established program.

e. Fueling practices, for aircraft and ground support equipment, meet acceptable standards.

f. The safety program prescribed by Order 4100.24A, Chapter 7, is in effect.

1000. PROCEDURES FOR RECORDING AND REPORTING NONCERTIFICATED FAA MAINTENANCE FACILITY INSPECTION - GENERAL AVIATION INSPECTION AND SURVEILLANCE RECORD, FAA FORM 3112. Results of this inspection should be recorded on FAA Form 3112. A copy of this report should be retained within the region and a copy forwarded to the Manager, Flight Programs Division, AVN-200.

1001. MAINTENANCE SPOT CHECKS. Maintenance spot checks of FAA aircraft will be conducted concurrently with inspection of FAA maintenance facilities. When performing maintenance spot checks, the inspector should utilize the following inspection guidelines:

a. Aircraft Logbook/Maintenance Records.

- | | |
|-----------------------------|--|
| (1) Inspections | (6) Correction of Service Difficulties including those described in service letters, notes, and bulletins. |
| (2) AD Compliance | (7) Chronic Mechanical Difficulties |
| (3) Malfunction and Defects | (8) Weight and Balance |
| (4) Time Limitations | |
| (5) Pilot Complaints | |

b. Exterior of Aircraft.

- | | |
|----------------------|--|
| (1) Fuselage | (6) Powerplant - security & condition of cowling, nacelles, propellers, etc. |
| (2) Wings | (7) Leaks - Fuel, Oil, Hydraulic, Air |
| (3) Control Surfaces | (8) Placards |
| (4) Empernage | |
| (5) Landing Gear | |

c. Interior of Aircraft.

- | | |
|--------------------------------|--|
| (1) Airworthiness Certificate | (9) Emergency Equipment - First-Kits |
| (2) Public Aircraft Document | (10) Fire Extinguisher, etc. |
| (3) Registration Certificate | (11) Seats |
| (4) Condition of Cockpit/Cabin | (12) Safety Belts |
| (5) Windshield/Canopy | (13) Emergency Exits - Marked and Accessible |
| (6) Instruments | (14) Placards |
| (7) Radio Equipment | |
| (8) Oxygen | |

1002. PROCEDURES FOR RECORDING AND REPORTING MAINTENANCE SPOT CHECK. In all cases (airworthy or unairworthy), an Aircraft Condition Notice, FAA Form 8620-1, will be completed. The procedures and guidelines for execution of the form as set forth in Chapter 7, Section 3, paragraph 2292, will be followed. Distribution of the report will be as follows:

a. Retain carbon copy for the district office.

b. Forward owner's copy to the Manager, Flight Programs Division, AVN-200.

c. The hard copy will be left with the aircraft or with the facility performing the maintenance on the aircraft.

1003. FAA FACILITY OR AIRCRAFT VIOLATION ACTIONS. Alleged violations involving FAA personnel or agency aircraft are to be investigated and reported in accordance with Order 2150.3, Compliance and Enforcement Program, and reported in accordance with Chapter 10 of that Order. Major details of any alleged violations will also be included in the maintenance facility inspection and/or maintenance spot check report.

1004.-1015. RESERVED.

SECTION 12. PILOT SCHOOL - CERTIFICATION AND SURVEILLANCE

1016. AUTHORITY. The regulatory basis for the certification of pilot schools is contained in Federal Aviation Regulations, Part 141.

1017. PURPOSE. This section is to acquaint airworthiness inspectors with pilot school certification requirements and provide guidelines for the evaluation of the applicant's maintenance program.

1018. BACKGROUND. The primary responsibility for evaluation of the school curriculum and final certification rests with the assigned principal operations inspector. However, airworthiness inspectors have a responsibility for determining that the applicant meets the requirements of FAR Part 141, Sections 141.39 and 141.75 and FAR Part 91, Sections 91.33 and Subpart C.

1019. APPLICATION FOR CERTIFICATION. Application for the issuance of an Air Agency Certificate to a pilot school is made on FAA Form 8420-8, Application For Pilot School Certificate.

1020. INSPECTOR UTILIZATION. Airworthiness Inspectors utilization will be in accordance with Chapter 2, Section 1, of this Order.

1021. INSPECTOR'S RESPONSIBILITIES. The inspector's responsibility for the certification of pilot schools involves a cooperative effort between operations and airworthiness personnel. They should inspect the operator's equipment and facilities as a team, define and follow a logical sequence of inspection to ensure completeness and proper emphasis on each element inspected, and set a good example through using a systematic approach and placing each element in proper perspective. Airworthiness inspectors should determine that the applicants' aircraft are:

a. Equipped to perform functions appropriate to the school's curriculum.

b. Registered as civil aircraft of the United States.

c. Maintained and inspected in accordance with the requirements of FAR Part 91 that apply to aircraft used to give flight instruction for hire.

d. The equipment installed in aircraft to be used for radio navigation and instrument training is operational and complies with the minimum requirements set forth in FAR Section 91.33, as applicable. All operational checks will be performed by the applicant or his authorized representative and not by FAA inspectors.

1022. MAINTENANCE FACILITIES. Ensure that the applicant's maintenance facilities, personnel, and equipment are adequate to maintain the school's aircraft. Maintenance may be accomplished under contract arrangement providing enough certificated mechanics are readily available to maintain the school's aircraft. Arrangement for maintenance by other than school operated facilities and personnel should be described in a written statement.

1023. REPORT OF INSPECTION. The "recommendations of inspector(s)" section of FAA Form 8420-8 will be used by the inspector to record approval or denial of all or any portion of the application for a pilot school certificate. The applicant should be notified, in writing, listing the reasons for any denial.

1024. APPLICATION OF SYSTEMS ANALYSIS PROCESSES. Experience has shown that safety is enhanced when operators employ systems analysis concepts. Operators should be encouraged to develop and use systems to control the maintenance of school aircraft.

a. A few basic rules of good management are:

- (1) Clearly define the management organization.
- (2) Establish a chain of command.
- (3) Provide individual job descriptions defining the scope and detail of authority and responsibility.
- (4) Provide statements as to what, where, when, and how jobs will be accomplished.

b. With regard to the maintenance of pilot school aircraft, the following procedures should be defined:

- (1) Control and schedule of aircraft for required inspection and maintenance.
- (2) Scope and detail of "maintenance inspections."
- (3) How pilot reported discrepancies will be corrected and recorded in aircraft records.
- (4) How aircraft operated under lease arrangement are to be maintained.

1025. SURVEILLANCE. Surveillance of pilot training aircraft is an essential function of Flight Standards airworthiness inspectors in the furtherance of the prime FAA objective, the assurance of continuing safety in aviation. Due to the nature of their operation and environment, the importance of maintaining continuing airworthiness of pilot training aircraft cannot be overemphasized.

a. Minor malfunctions that may be tolerated by the experienced pilot could place the relatively inexperienced student pilot in a critical situation.

b. Training aircraft are subject to greater wear and deterioration because of frequent takeoffs and landings. This is particularly true in aircraft with retractable gear. Engines are also very vulnerable to overheat and rapid cooling damage under these conditions.

1026. INSPECTION. Inspections may be conducted on the ramp areas between flights. However, every effort should be exercised to avoid causing delays of flight schedules. When possible, inspectors should check aircraft that are undergoing inspection, maintenance, or servicing where they may accomplish several maintenance program functions at one time.

1027. GUIDELINES. When performing pilot school surveillance and inspections of pilot training aircraft, the inspector should use these guidelines in conjunction with his general knowledge and experience relating to a particular aircraft and/or operator.

a. Examine aircraft records to ensure that the weight and balance information is current and available to the pilot. Determine that the weight and balance records reflect the current configuration with regard to seating arrangements, equipment installations, and approved alterations.

b. Each make and model aircraft has its own problem areas such as those found in General Aviation Airworthiness Alerts, AC 43-16 (as amended), and upon inspection, these areas should be checked first. Time and circumstance will control the extent of the inspection.

1028. REPORT OF AIRCRAFT SURVEILLANCE. These reports should be prepared in accordance with Chapter 7, Section 3, paragraph 2292 of this Order.

1029. MALFUNCTION OR DEFECT REPORTS. M or D reports will be reported in accordance with Chapter 7, Section 3, paragraph 2292, of this Order.

1030.-1049. RESERVED.