



Monday
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Part II

**Department of
Transportation**

Federal Aviation Administration

**14 CFR Parts 11, 91, 121, 135, and 145
Part 145 Review: Repair Stations;
Proposed Rule**

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 11, 91, 121, 135, and 145**

[Docket No. FAA-1999-5836; Notice No. 99-09]

RIN 2120-AC38

Part 145 Review: Repair Stations

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The Federal Aviation Administration (FAA) proposes to update and revise the regulations for repair stations. This action is necessary because many portions of the current repair station regulations do not reflect changes in repair station business practices and aircraft maintenance practices, or advances in aircraft technology. The proposed revisions would reorganize the repair station rules to reduce duplication of regulatory language and eliminate obsolete information. The proposal also would establish new requirements that relate to repair station ratings and classes, manual requirements, recordkeeping, and personnel. In addition, the NPRM contains a proposal to ensure that the special issues associated with repair stations outside the United States are adequately addressed, and it invites public comments on this proposal and other measures to ensure proper safety oversight of these repair stations.

DATES: Comments must be received on or before October 19, 1999.

ADDRESSES: Comments on this document should be mailed or delivered, in duplicate, to: U.S. Department of Transportation Dockets, Docket No. [FAA-1999-5836], 400 Seventh Street SW., Room Plaza 401, Washington, DC 20590. Comments also may be sent electronically to the following Internet address: 9-NPRM-CMTS@faa.gov. Comments may be filed and examined in Room Plaza 401 between 10 a.m. and 5 p.m. weekdays, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Richard E. Nowak, Aircraft Maintenance Division, Airworthiness Systems and Air Agency Branch (AFS-330), Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267-7228.

SUPPLEMENTARY INFORMATION:**Comments Invited**

Interested persons are invited to participate in the making of the proposed action by submitting such written data, views, or arguments as they may desire. Comments relating to the environmental, energy, federalism, or economic impact that might result from adopting the proposals in this document also are invited. Substantive comments should be accompanied by cost estimates. Comments must identify the regulatory docket or notice number and be submitted in duplicate to the DOT Rules Docket address specified above.

All comments received, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking, will be filed in the docket. The docket is available for public inspection before and after the comment closing date.

All comments received on or before the closing date will be considered by the Administrator before taking action on this proposed rulemaking. Comments filed late will be considered as far as possible without incurring expense or delay. The proposals in this document may be changed in light of the comments received.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this document must include a pre-addressed, stamped postcard with those comments on which the following statement is made: "Comments to Docket No. FAA-1999-5836." The postcard will be date stamped and mailed to the commenter.

Availability of NPRMs

An electronic copy of this document may be downloaded using a modem and suitable communications software from the FAA regulations section of the FedWorld electronic bulletin board service (telephone: (703) 321-3339), the Government Printing Office (GPO)'s electronic bulletin board service (telephone: (202) 512-1661), or, if applicable, the FAA's Aviation Rulemaking Advisory Committee bulletin board service (telephone: (800) 322-2722 or (202) 267-5948).

Internet users may reach the FAA's web page at <http://www.faa.gov/avr/arm/nprm/nprm.htm> or the GPO's web page at <http://www.access.gpo.gov/nara> access to recently published rulemaking documents.

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue SW., Washington, DC 20591, or by calling

(202) 267-9680. Communications must identify the notice number or docket number of this NPRM.

Persons interested in being placed on the mailing list for future rulemaking documents should request from the above office a copy of Advisory Circular No. 11-2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

Background*Statement of the Problem*

Aircraft, powerplants, maintenance, alteration concepts, and technology have progressed substantially in the past three decades. However, the current repair station regulations are based primarily on concepts that were developed during the infancy of the aviation industry. Very few substantive changes have been made to those repair station rules since they were recodified in the Federal Aviation Regulations (27 FR 6662, July 13, 1962).

Portions of Title 14 Code of Federal Regulations (14 CFR) part 145 are no longer appropriate or have become increasingly difficult to administer. Other portions of the rule no longer make a significant contribution to aviation safety or do not warrant the associated administrative costs. The FAA and the aviation industry have had to change the character and method of operations to keep pace with state-of-the-art aviation maintenance practices. Also, the FAA has granted exemptions and created other special administrative procedures to handle situations not provided for adequately in the regulations. To ensure that the regulations are appropriate for today's repair station industry, the FAA has determined that part 145 should be completely revised.

History

In 1975, the FAA and industry participants in the FAA's First Biennial Operations Review recommended that specific and substantial requirements of part 145 be revised. Although minor amendments to part 145 were subsequently adopted, no major revision was made. However, a significant amendment to part 145 was adopted on November 22, 1988 (Amendment No. 145-21, 53 FR 47376), which expanded the scope of work that foreign repair stations (i.e., those U.S.-certificated repair stations located outside the United States) are authorized to perform, and permitted certain repair stations to contract maintenance functions to noncertificated repair organizations/facilities under specific conditions.

As part of a regulatory review of 14 CFR part 43; 14 CFR part 65, subpart E; and part 145, the FAA held several public meetings. These meetings provided a forum for the public to offer comments concerning the possible revision of the rules governing repair stations. More than 500 representatives of repair stations, airlines, unions, manufacturers, foreign governments, industry organizations, and individuals attended the meetings.

The goal of the meetings was to gather enough factual information from the public to determine whether the repair station regulations should be revised, and if so, to determine what revisions should be made.

In preparation for the meetings, the FAA identified several areas of the repair station rules as areas that might need revision. These areas were: organization and format; ratings and classes; operations and inspection procedures; manufacturers' maintenance facilities; contracting of maintenance by repair stations; repair station privileges; facility, housing, and equipment requirements; recordkeeping and report requirements; and management, inspection personnel, and repairmen qualifications. Participants discussed the issues at the FAA public meetings and submitted written comments to Docket No. 25965, which was established for this regulatory review. Responses from participants at the meetings and the comments received in the docket indicate a need to revise and update the repair station regulations.

During the review of the repair station rules, the FAA examined various documents and related rulemaking actions. These documents included FAA Order 8300.10, *Airworthiness Inspector's Handbook*; advisory circulars that relate to repair stations, such as AC No. 145-3, *Guide for Developing and Evaluating Repair Station Inspection Procedures Manuals*; AC No. 145-4, *Inspection, Retread, Repair and Alterations of Aircraft Tires*; AC No. 145-5, *Repair Station Internal Evaluation Programs*; and 145-6, *Repair Stations for Composite and Bonded Aircraft Structure*; and previous petitions for exemption from part 145. The FAA also reviewed Joint Aviation Requirement (JAR) 145: Approved Maintenance Organizations, established by the Joint Aviation Authorities (JAA), an organization of European Civil Aviation Authorities. This NPRM includes efforts toward harmonizing the U.S. repair station regulations with those of the JAA.

General Discussion of the Proposals

Based on the public meetings, comments to Docket No. 25965, and the FAA's review of related documents, the FAA is proposing to revise part 145 completely. The FAA has decided not to include part 43 or part 65, subpart E, in this notice, even though these parts were included in the original regulatory review. Notice No. 94-27, Revision of Certification Requirements: Mechanics and Repairmen (63 FR 37172, July 9, 1998), proposes revisions to part 65, subpart E. Any revisions to part 43 would be addressed in a separate rulemaking action.

The FAA also considered establishing regulations, which were discussed at the public meetings, that would permit certain repair stations to manage the maintenance program of an operator certificated under part 121 or part 135. However, the FAA decided not to address such regulations in this NPRM. Any proposal to permit certain repair stations to manage the maintenance program of a part 121 or part 135 operator would be addressed in a separate rulemaking action.

The FAA's discussion of the proposed revisions to part 145 is organized as follows: organization and format of part 145, manufacturers' maintenance facilities, deviation authority, ratings and classes, implementation of the proposed ratings and classes, manual requirements, quality assurance, capability list, contract maintenance, job functions, training, line station maintenance, and recordkeeping and reporting. Following these discussions is a section-by-section discussion comparing the proposed rule to the current rule.

Organization and Format

Currently, part 145 separates the requirements for domestic repair stations, foreign repair stations, and repair facilities with a limited rating for manufacturers. However, the FAA's analysis of current part 145 revealed that, with few exceptions, no basic distinction exists between the regulations governing operations of domestic repair stations and those governing operations of foreign repair stations. Therefore, the FAA proposes to remove the distinction between domestic and foreign repair stations, except for a few instances where differences exist. (The limited rating for manufacturers is discussed under "Manufacturers Maintenance Facilities.")

The FAA proposes to revise the organization and format of part 145 to combine current similar requirements of

domestic and foreign repair stations under the same subpart and section. Proposed part 145 would separate requirements according to subject matter in the following way: General; Certification; Facilities, Equipment, Materials, and Housing; Personnel; Operating Rules; and Job Functions. The proposed reorganization would eliminate many of the redundancies found in the current rule.

Manufacturers' Maintenance Facilities

The limited rating for manufacturers was established in 1966 by Amendment No. 145-4 (31 FR 5248). The amendment enabled manufacturers to obtain a repair station certificate with a limited rating under part 145 so they could perform maintenance or preventive maintenance on articles manufactured by them without meeting certain repair station requirements that other nonmanufacturer organizations were required to meet. The amendment also broadened the manufacturers' rebuilding and alteration authority to include appliances and parts manufactured under an FAA Parts Manufacturer Approval. Facilities that obtain such a rating are referred to as manufacturers' maintenance facilities (MMFs).

Currently, the FAA issues repair station certificates with limited ratings for manufacturers to the holder or licensee of a Type Certificate, the holder of a Production Certificate, the holder of a Technical Standard Order authorization, or any person who meets the requirements of current 14 CFR 21.303 and who has the prescribed fabrication inspection system.

The FAA proposes to eliminate the limited ratings for manufacturers and require that these facilities obtain the appropriate repair station certificate. Although MMFs' systems for inspection, recordkeeping, and quality control vary considerably from those used by repair stations, MMF repair operations do not differ substantially from the operations of other certificated repair stations. Because maintenance practices and aircraft technologies have evolved since the establishment of limited ratings for manufacturers, the FAA has determined that all repair facilities' systems for inspection, recordkeeping, and quality control should be consistent, and that the issuance of limited ratings for manufacturers is no longer appropriate. In granting certification for a manufacturer's repair station, however, the FAA proposes that full consideration be given to the quality control system established by the manufacturer that the manufacturer uses to comply with the pertinent provisions

of 14 CFR part 21. The manufacturer's repair station must operate, however, in compliance with the maintenance rules set forth in parts 43 and 145.

Deviation Authority

The FAA proposes to include deviation authority to provide flexibility to operations subject to part 145 that may be safely or satisfactorily conducted as an alternative means of compliance with portions of part 145. The FAA envisions that limited deviation would be sought from only a few specific sections, and that Letters of Deviation Authority would likely be limited in scope.

Requests for deviation authority would be made in a form and manner acceptable to the Administrator, and the FAA would review the circumstances of each operator requesting a deviation,

during the determination process. If a deviation were warranted, the FAA would require that operations be conducted subject to certain conditions and limitations. These would be placed in the Operations Specifications of an operator certificated under part 145. Consistency in granting deviation authority would be achieved by the provision that only the Associate Administrator for Regulation and Certification (AVR-1) could issue letters of deviation authority. The FAA is requesting public comments on the practicality of deviation authority in the proposed rule, as well as situations under which deviation authority may be appropriate.

In addition, the public also is invited to comment on alternative means of compliance for any section of the proposal. Where appropriate, alternative

means of compliance will be incorporated in the final rule, if adopted.

Ratings and Classes

The FAA proposes to revise the ratings and classes that can be issued to certificated repair stations. Although the proposed ratings and classes are based on those discussed at the public meetings mentioned earlier, the FAA also considered basing the ratings and classes strictly on certification standards (i.e., 14 CFR parts 21, 23, 25, 27, 29, 33, and 35). The FAA requests that commenters specifically address whether the proposed system of ratings and classes should be prescribed in a separate new regulation. A comparison of the proposed ratings to the current ratings follows.

Current rating	Proposed rating
Airframe Rating	Aircraft Rating
Class 1: Composite construction of small aircraft	Class 6: Aircraft composed primarily of composite material, of 12,500 pounds maximum certificated takeoff weight or less.
Class 2: Composite construction of large aircraft	Class 7: Aircraft composed primarily of composite material, over 12,500 pounds maximum certificated takeoff weight.
Class 3: All-metal construction of small aircraft	Class 1: Aircraft (other than rotorcraft and aircraft composed primarily of composite material) of 12,500 pounds maximum certificated takeoff weight or less.
	Class 4: Rotorcraft (other than rotorcraft composed primarily of composite material) of 6,000 pounds maximum certificated takeoff weight or less.
	Class 5: Rotorcraft (other than rotorcraft composed primarily of composite material) over 6,000 pounds maximum certificated takeoff weight.
Class 4: All-metal construction of large aircraft	Class 2: Aircraft (other than rotorcraft and aircraft composed primarily of composite material) over 12,500 pounds maximum certificated takeoff weight and up to, and including, 75,000 pounds maximum certificated takeoff weight.
	Class 3: Aircraft, by make and model, (other than rotorcraft and aircraft composed primarily of composite material) over 75,000 pounds maximum certificated takeoff weight.
Powerplant Rating	Powerplant Rating
Class 1: Reciprocating engines of 400 horsepower or less	Class 1: Reciprocating engines.
Class 2: Reciprocating engines of more than 400 horsepower	Class 1: Reciprocating engines.
Class 3: Turbine engines	Class 2: Turbopropeller and turboshaft engines.
	Class 3: Turbojet and turbofan engines.
Propeller Rating	Propeller Rating
Class 1: All fixed-pitch and ground-adjustable propellers of wood, metal, or composite construction.	Class 1: Fixed-pitch and ground-adjustable propellers.
Class 2: All other propellers, by make	Class 2: Variable-pitch propellers.
Radio Rating	Avionics Rating
Class 1: Communication equipment	Class 1: Communication equipment.
Class 2: Navigational equipment	Class 2: Navigational equipment.
Class 3: Radar equipment	Class 3: Pulsed equipment.
No Equivalent Current Rating	Computer Systems Rating
	Class 1: Aircraft computer systems.
	Class 2: Powerplant computer systems.
	Class 3: Avionics computer systems.

Current rating	Proposed rating
Instrument Rating	Instrument Rating
Class 1: Mechanical Class 2: Electrical Class 3: Gyroscopic Class 4: Electronic	Class 1: Mechanical. Class 2: Electrical. Class 3: Gyroscopic. Class 4: Electronic.
Accessory Rating	Accessory Rating
Class 1: Mechanical accessories that depend on friction, hydraulics, mechanical linkage, or pneumatic pressure for operation, including aircraft wheel brakes, mechanically driven pumps, carburetors, aircraft wheel assemblies, shock absorber struts, and hydraulic servo units. Class 2: Electrical accessories that depend on electrical energy for their operation, and generators, including starters, voltage regulators, electric motors, or similar electrical accessories. Class 3: Electronic accessories that depend on an electron tube, transistor, or similar device, including supercharger, temperature, air conditioning controls, or similar electronic controls.	Class 1: Mechanical accessories that depend on friction, hydraulics, mechanical linkage, or pneumatic pressure for operation. Class 2: Electrical accessories that depend on or produce electrical energy. Class 3: Electronic accessories that depend on transistors; lasers; fiber optics; solid-state, integrated circuits; vacuum tubes; or similar devices. Class 4: Auxiliary power units (APUs) that may be installed on aircraft as self-contained units to supplement the aircraft's engines as a source of hydraulic, pneumatic, or electrical power.
Limited Rating	Limited Rating
For airframes; engines; propellers; instruments; radio equipment; accessories; landing gear; components; floats; nondestructive inspection, testing, and processing; emergency equipment; rotor blades by make and model; aircraft fabric work; and other purposes.	For aircraft, airframes, powerplants, propellers, avionics, computer systems, instruments, and accessories by make and model.
Limited Rating for Specialized Service	Specialized Service Rating
For example, landing gear components; nondestructive inspection, testing, and processing; emergency equipment; aircraft fabric work; and any other specialized service the Administrator finds appropriate for this rating.	For any specialized service the Administrator finds appropriate for this rating.
Limited Rating for Manufacturers	No Equivalent Rating in Proposed Rule
To holder or licensee of Type Certificate or to holder of Production Certificate, Parts Manufacturer Approval, or Technical Standard Order.	

Aircraft Class Rating

Currently, the FAA issues an airframe rating with any of four separate class ratings to repair stations: Classes 1, 2, 3, and 4. Under the proposal, the FAA would eliminate the airframe rating and its associated class ratings and establish an aircraft rating with seven associated class ratings.

Under the current system, airframe class ratings are based on aircraft weight (large or small as defined in current 14 CFR 1.1) and construction (composite or all-metal). Many modern aircraft have an airframe that is constructed of metal and composite materials; the airframe structure is metal and certain portions, such as control surfaces and fairings, are manufactured from composite materials. The FAA proposes to continue to separate ratings based on weight and construction; however, to accurately reflect modern aircraft construction, aircraft ratings would be separated by whether the aircraft is constructed primarily of metal or composite

material. Those aircraft on which significant amounts of the structure is constructed of composite materials, such as the fuselage, empennage, wings, or structure that the manufacturer has designated as a primary structure or principal structural element, would be considered primarily constructed of composite materials. Those aircraft with a metal structure and small composite pieces such as fairings, radomes, and so forth would be considered not composed primarily of composite materials. For repair stations that intend to perform work on aircraft that have significant structural components of both metal and composite material, certification under Class 2 and Class 7 may be necessary.

For repair stations that want to perform maintenance, preventive maintenance, or alterations on all aircraft, including rotorcraft that are primarily composed of composite materials, the FAA proposes to establish the Class 6 and Class 7 aircraft ratings.

The Class 6 rating would be for small aircraft, and the Class 7 rating would be for large aircraft.

As noted above, current airframe ratings are based on aircraft weight. The current Class 2 and Class 4 airframe ratings apply to "large" aircraft (those of more than 12,500 pounds maximum certificated takeoff weight). Because today's large aircraft vary significantly in complexity, the FAA proposes to establish three aircraft class ratings to separate them: Classes 2, 3, and 7.

The proposed Class 2 and Class 7 aircraft ratings would apply to large aircraft, other than rotorcraft, based on the aircraft's construction (Class 2: not composed primarily of composite materials; or Class 7: composed primarily of composite materials). The proposed Class 3 aircraft rating would apply to aircraft (other than rotorcraft or aircraft composed primarily of composite material) over 75,000 pounds maximum certificated takeoff weight and would be granted only by make and

model. The FAA chose to establish the proposed Class 3 rating because these aircraft are usually more complex than other aircraft and are transport category airplanes.

Currently, a repair station with an airframe rating that wants to perform maintenance on powerplants must obtain a powerplant rating; however, a repair station that meets the requirements of the proposed aircraft rating would be permitted to perform maintenance, preventive maintenance, and alterations to each aircraft's associated powerplant(s) up to, but not including, an "overhaul." Because overhauls require additional training, data, facilities, housing, and equipment, a repair station that wants to overhaul powerplants would continue to be required to obtain a powerplant rating with an appropriate class rating. Those repair stations that meet the requirements for performing maintenance, preventive maintenance, or alterations on airframes, but do not want to, or cannot, perform any work on powerplants, would be certificated with a limited rating for airframes.

Under the current rating system, separate class ratings do not exist for rotorcraft. However, a repair station that performs maintenance, preventive maintenance, or alterations on rotorcraft must meet certain requirements. The requirements to perform work on rotorcraft are unique enough to require separate class ratings for rotorcraft. Therefore, the FAA proposes to establish the Class 4 and Class 5 aircraft ratings for rotorcraft, excluding those composed primarily of composite material. (Composite rotorcraft would be included in either the proposed Class 6 or Class 7 rating.) The 6,000 pound division used in rotorcraft certification would be maintained as the dividing line between the proposed Class 4 and Class 5 aircraft ratings. Rotorcraft with a maximum certificated takeoff weight of 6,000 pounds or less are certificated under 14 CFR part 27, Airworthiness standards: normal category rotorcraft. Rotorcraft with a maximum certificated takeoff weight of greater than 6,000 pounds are certificated under 14 CFR part 29, Airworthiness standards: transport category rotorcraft. Transport category rotorcraft certificated under part 29 must meet more stringent certification requirements; therefore, repair stations that wish to perform work on these aircraft may require different tooling, equipment, personnel, and so forth from those repair stations performing work on normal category rotorcraft certificated under part 27.

The FAA considered establishing separate aircraft class ratings for free

balloons, airships, and gliders. Many repair stations that perform maintenance, preventive maintenance, or alterations on these aircraft currently hold a limited rating. However, the FAA does not choose to establish separate aircraft class ratings for these aircraft because these aircraft are less common than airplanes and rotorcraft. As proposed, repair stations that want to perform work only on these aircraft would continue to apply for a limited rating.

Powerplant Rating

The current regulations define three classes that are associated with a powerplant rating: Class 1 Reciprocating engines of 400 horsepower or less, Class 2 Reciprocating engines of more than 400 horsepower, and Class 3 Turbine engines. The FAA proposes to revise the powerplant ratings by combining all reciprocating engine ratings into the same class and dividing the turbine engine rating into two ratings.

When the current powerplant ratings were established, reciprocating engines of more than 400 horsepower were common. Today, these reciprocating engines usually are found on older aircraft and are less common. Therefore, the FAA has determined that a separate class rating for reciprocating engines of more than 400 horsepower is no longer necessary.

Conversely, when the current powerplant ratings were established, turbine engines were just beginning to be used on civil aircraft. Today, turbine engines are the most commonly used engines on transport category aircraft. In addition, more types of turbine engines exist today with technological differences between each type. Therefore, establishing two turbine class ratings is appropriate. Because turbopropeller and turboshaft engines have many technological similarities, the Class 2 powerplant rating has been proposed for these engines. The proposed Class 3 powerplant rating would be used for turbojet and turbofan engines because of the technological similarities of these types of engines.

Propeller Rating

Under the current regulations, a repair station that holds a propeller rating with a Class 1 rating is permitted to perform maintenance, preventive maintenance, or alterations on all fixed-pitch and ground-adjustable propellers of wood, metal, or composite construction. A repair station that holds a propeller rating with a Class 2 rating is permitted to perform maintenance, preventive maintenance, or alterations on all other propellers, by make.

Because of advances in propeller construction technologies, the current propeller class ratings would be revised. Proposed § 145.59(c) would revise the current Class 1 rating by eliminating the references to the types of materials of which fixed-pitch and ground-adjustable propellers are constructed. The proposed Class 2 propeller rating would no longer require propellers to be designated by make and would permit a repair station to perform maintenance, preventive maintenance, or alterations on any variable-pitch propellers regardless of make.

Avionics Rating

The FAA proposes to replace the current radio rating with an avionics rating to address more appropriately today's avionics technology. The current radio class ratings are: Class 1 Communication equipment, Class 2 Navigation equipment, and Class 3 Radar equipment. The FAA proposes the following avionics class ratings: Class 1 Communication equipment, Class 2 Navigation equipment, and Class 3 Pulsed equipment.

The proposed Class 1 avionics rating would be unchanged from the current radio class rating (communication equipment) and would apply to radio transmitting equipment and receiving equipment used in aircraft to send or receive communications, regardless of carrier frequency or type of modulation used.

The proposed Class 2 avionics rating would apply to any system used in aircraft for en route or approach procedures, except navigation equipment operated on pulsed radio frequency principles. This proposed class differs from the current Class 2 radio rating, which includes equipment operated on pulsed radio principles. (Pulsed frequency equipment would be included in the proposed Class 3 avionics rating.) Under the proposal, a repair station with a Class 2 avionics rating would be permitted to perform maintenance on the following equipment: very high frequency omnirange (VOR), automatic direction finder (ADF), localizer, glide slope, marker beacon, loran C, omega, inertial navigation system, microwave landing system (MLS), global positioning system (GPS), and similar devices.

The FAA proposes to replace the current Class 3 radio rating for radar equipment with a Class 3 avionics rating for pulsed equipment. The proposed rating would include aircraft electronic systems operated on pulsed radio frequency principles. A repair station with a Class 3 avionics rating would be permitted to perform maintenance on

distance measuring equipment (DME), transponders, weather radar, radar altimeters, ground proximity warning systems (GPWS), and similar devices.

Computer Systems Rating

The FAA proposes to establish a new rating for computer systems to include technology that was not used in aircraft when the current rating system was instituted. Under the proposal, three classes for the computer rating would be established: Class 1 Aircraft computer systems such as flight management and flight control systems, Class 2 Powerplant computer systems such as fuel control and electronic engine control systems, and Class 3 Avionics computer systems such as traffic alert and collision avoidance systems (TCAS) and electronic flight instrument systems (EFIS).

Participants at the public meetings expressed concern that confusion could exist about whether accessories, instruments, and avionics equipment that may include a computer system would fall under the proposed computer rating. The FAA recognizes that maintenance, preventive maintenance, or alterations on such articles should not be performed under the proposed computer rating. The proposed computer rating would apply to self-contained, separate computer systems that can be removed as a unit from an aircraft for maintenance, preventive maintenance, or alteration. For example, a fuel control unit can be removed from an aircraft, but its internal computer system is a portion of the fuel control unit. In this case, the computer system is not a self-contained, separate system that can be removed as a unit from the aircraft. Under the proposed ratings, a repair station still would require an accessory rating to perform work on a fuel control unit. Possessing an accessory rating would include the capability to maintain the computer portion of the fuel control unit.

Instrument Rating

Currently, the class ratings associated with an instrument rating are: Class 1 Mechanical, Class 2 Electrical, Class 3 Gyroscopic, and Class 4 Electronic. The FAA proposes that these ratings be retained except for a change to the description of the Class 4 instrument rating. The description would be revised by adding references to lasers, fiber optics, and solid-state, integrated circuits.

Accessory Rating

Currently, there are three class ratings associated with accessories: Class 1 Mechanical accessories that depend on

friction, hydraulics, mechanical linkage, or pneumatic pressure for operation; Class 2 Electrical accessories that depend on electrical energy for their operation and generators; and Class 3 Electronic accessories that depend on the use of an electron tube, transistor, or similar devices. Under the proposal, these class ratings basically would remain unchanged; however, the current practice of including auxiliary power units (APUs) in the Class 1 rating would be discontinued. The proposal would establish a new accessory rating (Class 4) for APUs.

Because APUs were not widely used when current part 145 was established, no provisions for them were specifically included in the regulations. Repair stations that currently work on APUs perform that work under a Class 1 accessory rating for lack of a more appropriate rating under part 145. Because APUs are similar in many respects to aircraft engines, facilities wishing to approve them for return to service should meet specific requirements before receiving authorization to do so. Repair stations meeting these requirements would operate under the proposed Class 4 accessory rating.

The scope of work that currently may be performed by a repair station that holds an accessory rating with either a Class 2 or Class 3 rating would not be revised; however, the FAA proposes to revise the descriptions for each to include more modern accessories. A Class 2 rating would consist of electrical accessories that depend on or produce electrical energy, and a Class 3 rating would consist of electronic accessories that depend on the use of transistors; lasers; fiber optics; solid-state, integrated circuits; vacuum tubes; and other similar electronic devices.

Limited and Specialized Service Ratings

Currently, the FAA issues limited ratings to repair stations to perform maintenance, preventive maintenance, or alterations to airframes, engines, propellers, instruments, radio equipment, accessories, landing gear components, emergency equipment, rotor blades, and floats. In addition, limited ratings are issued to perform nondestructive testing, inspection and processing, aircraft fabric work, and for other purposes. The FAA proposes to revise this list by changing the term "engines" to "powerplants" and "radio equipment" to "avionics equipment", respectively; adding aircraft and computer systems; and deleting rotor blades, landing gear components, and floats. Current limited ratings for rotor blades, landing gear components, and

floats would be included in the proposed limited rating for an airframe, because airframe as defined in current § 1.1 includes those items.

In addition, the FAA currently issues (as a subset of limited ratings) limited ratings for specialized services such as nondestructive inspection, testing, and processing; servicing of emergency equipment; aircraft fabric work; and any other purposes for which the Administrator finds the applicant's request appropriate. The FAA proposes to replace the current limited rating for a specialized service with the proposed specialized service rating.

The proposed specialized service rating would apply to specific equipment or processes. The rating would permit a repair station to perform maintenance, preventive maintenance, or alterations on items such as emergency equipment or audiovisual and nonessential equipment (e.g., in-flight telephones or television and movie equipment). This proposed rating also would permit a repair station to perform specific types of work, such as nondestructive inspection and testing, plating and machining, aircraft and engine welding, and oxygen equipment servicing.

Under this proposal, a holder of a specialized service rating would continue to be required to state in its Operations Specifications the specification or standards used for performing the specialized service. The specification could be a civilian or military specification that is currently used by industry and approved by the Administrator or a specification developed by the repair station and approved by the Administrator.

Implementation of the Proposed Ratings and Classes

The FAA proposes to establish a new § 145.61, "Transition to new system of ratings." This proposed section would require all repair stations to meet the requirements in this proposal within specified periods of time. The transition process and the deadlines for compliance with the proposed regulation would be dictated by one of three possible cases as described below.

The first case involves a repair station (to include an MMF) that makes no changes to its certificates between the effective date of this rule, if adopted, and the proposed 2-year compliance date. Under proposed § 145.61(a), a repair station that takes no action to affect its certificate (such as adding or deleting a class rating) would be permitted to continue meeting only the requirements of current part 145 for up to 2 years. However, repair stations in

this situation would not be required to wait until the end of the 2-year period to make the transition to operations under the proposed rule. These repair stations would be encouraged to apply for their new certificate well before the end of the 2-year transition period to avoid any potential administrative delays.

The second case involves a repair station (to include an MMF) that wishes to make a change to its repair station certificate during the 2-year transition period. Proposed § 145.61(b) would require a repair station that desires to amend, revise, or add a rating to its certificate to obtain a completely new repair station certificate and meet all new applicable requirements as set forth in proposed part 145. The new repair station certificate would reflect each of the new ratings under which the repair station is authorized to either begin or continue exercising privileges. The following example illustrates this case: A repair station currently holds a repair station certificate with an airframe Class 3 rating and instrument Class 1 and 2 ratings, and decides to apply for an accessory Class 1 rating. At the time of its application, this repair station would be required to meet the new requirements and apply for all of the ratings for which it wishes to exercise privileges. Therefore, the repair station would apply for instrument Class 1 and 2 ratings, the accessory Class 1 rating, and the aircraft Class 1 rating. The repair station would not be permitted to continue to exercise the privileges of its old airframe Class 3 rating following the change to its certificate.

The third case involves a repair station (to include an MMF) that is sold, leased, or otherwise conveyed following the adoption of this proposal. Regardless of whether the repair station is operating under the old or new system of ratings and classes, at the time of such conveyance, the receiving entity would be required to meet proposed part 145 and apply for and receive a new repair station certificate. Transfers such as these would be conducted in the same manner as under the current rule, except the receiving entity would not be able to apply for a certificate under the old system of ratings and classes. As under the current rule, the conveying entity's repair station certificate would expire at the time of asset transfer.

The FAA recognizes the administrative burden of applying for a new repair station certificate as well as the complexity of the proposed transition to the new system of ratings and classes. The FAA also recognizes the potential burden on its own personnel and the potential

administrative backlog if, in the interest of their own advertising efforts, many repair stations quickly attempt to transition to the new system. Therefore, the FAA is requesting public comments on alternative methods for achieving a smooth transition from the current system to the new system.

Establishment of the Repair Station Manual

Currently, a repair station must maintain an Inspection Procedures Manual (IPM) describing the repair station's inspection system. Repair stations also must meet requirements in part 145 that currently are not required to be documented in the IPM (e.g., recordkeeping and personnel). Because of the complexity of many repair stations' operations, the repair stations should document additional aspects of their operations and not limit the manual to a description of the inspection system.

The FAA proposes to eliminate the requirement that repair stations maintain an IPM and, as proposed in § 145.205, replace it with a requirement that repair stations maintain an approved repair station manual that covers all of the repair station's technical operations. The proposed manual would cover items currently described as acceptable in AC No. 145-3, *Guide for Developing and Evaluating Repair Station Inspection Procedures Manuals*, which are proposed as repair station manual requirements in this NPRM. The proposed manual would be required to include the repair station's procedures and policies that cover the operation of the repair station. All repair station personnel would be required to follow the manual while conducting operations. Repair stations with non-English speaking personnel may therefore have to translate all or certain portions of the proposed manual into the native language of personnel using the manual. Specific requirements for the repair station manual are described throughout the section-by-section discussion and listed in the proposed rule.

Current § 145.45(f) requires a repair station to provide each of its supervisory and inspection personnel with a copy of the IPM and to make the IPM available to its other personnel. The requirement for all repair stations' supervisory and inspection personnel to each have a copy of the manual is unnecessarily burdensome. The FAA has granted numerous exemptions from this requirement that allow repair stations to maintain a master copy of the IPM and one shop copy for use by all personnel. Proposed § 145.205(e) would

require only that the proposed repair station manual be readily available to all repair station personnel. This provision would permit a repair station to have shop copies or electronic versions of the proposed manual and would reduce the burden of updating multiple copies of the manual.

Under proposed § 145.205(f), a repair station would be required to provide a current copy of the manual to the FAA certificate holding district office (CHDO). If a repair station uses a repair station manual that is in an electronic format, the repair station would be required to provide the FAA with either a current paper copy or the means (hardware, software, etc.) to access the current manual at the CHDO.

Quality Assurance

Current part 145 does not require a repair station to establish and use a quality assurance system that monitors the effectiveness of the certificate holders' procedures, training, and inspection; however, many repair stations and air carriers have implemented and use such quality assurance systems. In addition, the JAA requires each JAA-approved maintenance organization (which includes some U.S. repair stations) to establish an independent quality system that monitors compliance with and adequacy of the procedures used to ensure good maintenance practices and airworthy aircraft and aircraft components.

After reviewing the success of quality assurance and quality monitoring systems, the FAA has determined that quality assurance systems are necessary to ensure that maintenance, preventive maintenance, or alterations (including the maintenance and alterations performed by a repair station's contractors) are consistently performed in accordance with all applicable requirements. Thus, proposed § 145.201 would require that each repair station establish a quality assurance system acceptable to the Administrator. A description of the entire quality assurance system would be included in the proposed repair station manual. Guidance on the establishment of effective quality assurance systems would be provided in advisory material published concurrently with this rule, if adopted.

The size of an acceptable quality assurance system would be based on the repair station's size and type of operations. The FAA recognizes that many certificated repair stations have few employees. Consequently, the FAA would consider a repair station's size and complexity and the repair station's

designation of persons who perform quality assurance functions in reviewing a quality assurance system. For example, the FAA would permit smaller repair stations to assign individuals to quality assurance on a part-time basis.

Capability List

Currently, § 145.11(a)(4) requires that applicants for a propeller Class 2 rating or any accessory rating prepare a list, by type or make, as applicable, of each propeller or accessory for which the repair station seeks approval. Many repair stations use these lists and the limits of their Operations Specifications as marketing tools that describe their capabilities. One constraint related to this practice is that revisions to the current capability list require FAA approval, which makes timely revisions cumbersome in the dynamic aviation maintenance marketing environment.

The FAA proposes to revise part 145 to provide for a capability list for each repair station. The capability list would specify all articles on which the repair station is capable of performing work; the articles would be listed by make and model. The repair station's Operations Specifications would continue to prescribe the ratings and classes under which the repair station is approved to operate.

Under the proposal, prior to working on an article, a repair station would be required to conduct a self-evaluation, described in the quality assurance system in its repair station manual, to ensure that the repair station has the required facilities, equipment, materials, technical data, processes, housing, and trained personnel in place to properly perform the work on the article. Self-evaluations of this nature are consistent with other internal evaluation programs currently encouraged by the FAA.

After the self-evaluation, the article would be added to the repair station's capability list. Procedures would be defined in the repair station manual to require the repair station to inform the FAA CHDO of the revision to the capability list.

For example, if a repair station holds the proposed aircraft Class 1 rating and the repair station's Operations Specifications limit the repair station to performing work on reciprocating engine-powered aircraft, the repair station would not be able to add any turbine engine-powered aircraft to its capability list without an FAA-approved revision to its Operations Specifications. However, the repair station would be able to add other reciprocating engine-powered aircraft to its capability list after the capability list revision

procedures in its repair station manual are followed.

Contract Maintenance

Notwithstanding concerns expressed by certain industry groups during the public meetings, contracting out maintenance under the current regulations has proven safe for more than 40 years. In an effort to harmonize part 145 with JAR 145, the FAA proposes to continue permitting repair stations to contract out maintenance and alteration of components of a type-certificated product as is permitted under current § 145.47. However, the proposal would permit any repair station to contract out such work on any article for which it is rated (other than a complete type-certificated product), provided certain conditions are met. Current § 145.47 includes equipment and material requirements and a description of contract maintenance requirements. Proposed § 145.213 would include these current contract maintenance requirements.

In addition, a list of those functions that a repair station would be permitted to contract to an outside facility would be required to be specified by the repair station in its manual under proposed § 145.207(h). Under that paragraph, the repair station would have to list the names of those facilities to which it contracts work, along with their certificates and ratings, if any. The repair station manual would have to include procedures for qualifying and surveilling the facilities. It would also have to include procedures to accept the maintenance, preventive maintenance, or alterations performed by a facility to which work was contracted.

The provisions of the repair station's quality control system specified in proposed § 145.201(a)(2) and § 145.209(c)(2) would require it to inspect articles and materials on which contract maintenance was performed. This mandatory inspection process would ensure that the requisite high level of safety is maintained when job functions are contracted either to certificated or noncertificated sources.

Current § 145.47(c) states that a repair station may contract maintenance and alteration of components of a type-certificated product to a noncertificated source provided: (1) The repair station is the manufacturer who originally manufactured the product for which it holds a U.S. type certificate; (2) the contracted component is included as part of the type-certificated product; (3) the component maintenance is done by the original component manufacturer or its manufacturing licensee; and (4) before the component is approved for

return to service, the repair station ensures that it is being approved for return to service in accordance with the repair station's approved quality control system.

Under the proposal, contracting to noncertificated sources would not be restricted to type certificate holders. Proposed § 145.213 would permit a certificated repair station to contract maintenance or alteration of any article for which it is rated to a noncertificated person provided the job function is contracted in accordance with procedures set forth in the certificated repair station's approved repair station manual.

In addition, the certificated repair station would be required to supervise or otherwise remain directly in charge of a shop that performs maintenance, preventive maintenance, or alterations. The term "directly in charge" is defined in proposed § 145.3, Definition of terms, and specifies that a person who is directly in charge need not physically observe and direct each worker constantly but must be available for consultation and decision on matters requiring instruction or decision from higher authority than that of the persons performing the work. This definition is taken from 14 CFR 121.378(b). The certificated repair station would also be required to verify by test and/or inspection that the job function has been satisfactorily performed by the noncertificated person before the certificated repair station approves the article for return to service.

The proposed limits on contracting maintenance would be that contracting of complete, assembled, type-certificated products would not be permitted and a certificated repair station also would not be allowed to only provide approval for return to service for a product after contract maintenance is performed, thereby prohibiting "paper only" repair stations.

The proposed rule also would revise the list of certain job functions in appendix A to part 145 that can be contracted out by a certificated repair station. Current § 145.47 requires that an applicant for a repair station certificate must be equipped to perform the functions listed in appendix A to part 145 that are appropriate to the ratings sought. Current appendix A to part 145 describes the equipment and material requirements for each of the ratings and classes under which a repair station can receive approval to operate. Job functions marked with an asterisk (*) in the current appendix are those for which the repair station may obtain the services of a contractor in lieu of having the appropriate equipment and

materials on the premises for the specific job function. Under the proposal, § 145.111 would require that the repair station be equipped to perform the maintenance, preventive maintenance, or alterations appropriate to the rating(s) held as prescribed by proposed appendix A. Under the proposed rule, functions that could be contracted out by a repair station to another facility (items currently marked with an asterisk) would no longer be included in the appendix. The proposed appendix would reflect the revisions and modifications to repair station ratings and classes found in proposed § 145.59; however, all contracted maintenance functions would be required to be listed in the proposed repair station manual.

The FAA specifically solicits comments to provisions in this notice regarding contracting of work and especially to proposed provisions regarding the contracting of work to noncertificated sources where the certificated repair station has final approval for return to service authority.

Job Functions

The proposed appendix A, Job Functions, includes many significant revisions to current appendix A. In addition to removing those functions for which a contractor may be used, the FAA has excluded much of the advisory material in the proposed appendix. For example, the proposed appendix would retain "Repair and replace alloy members and components," but this would not be followed by "* * * such as tubes, channels, cowlings, fittings, attach angles, etc." The proposed appendix also would reduce current repetition by providing a list of functions that apply to all classes under a rating at the beginning of the rating's discussion. Therefore, subsequent class requirement discussions would state, "In addition to having the capability to perform the appropriate functions as required for a Class 'X' rating, a repair station holding a Class 'Y' or Class 'Z' rating must have * * *." The proposed appendix also adds new job functions for turbine engines and nondestructive testing; however, the most significant revision is the removal of functions that can be contracted out to another facility. This proposed change takes an approach toward contracting out that is similar to the one being developed by the JAA. The FAA requests that, during the comment period, commenters specifically address the equipment and material requirements for the various repair station ratings as well as the deletion from appendix A of those functions that may be contracted out by

a repair station. Based on such comments, the FAA may revise this notice to accommodate specific comments.

Training Program

Current §§ 121.375 and 135.433 require that each certificate holder, under part 121, and pursuant to § 135.411(a)(2), respectively, or person performing maintenance or preventive maintenance functions for these certificate holders, have a training program. This training program must ensure that each person who determines the adequacy of work performed is fully informed about procedures, techniques, and new equipment in use, and is able to perform all associated duties. Current § 145.2(a) requires that repair stations supporting operations under part 121 comply with the provisions of current § 121.375. Therefore, repair stations that now perform maintenance or preventive maintenance for part 121 operators are required to have a training program. In some cases, only a portion of a repair station's personnel accomplish work for part 121 operators. Consequently, only those individuals are included in the training program.

Under the proposal, § 145.159 would require that each repair station establish and maintain a documented training program for all employees who perform work under the repair station's ratings and classes. The proposed training program would enhance aviation safety by ensuring that each employee who works for the repair station is fully capable of performing that work, and it would ensure a level of safety equivalent to that of maintenance performed under part 121 or part 135. Because the FAA recognizes that repair stations vary in size, the repair station or any other organization such as a school or manufacturer could provide the training, provided the program is approved by the Administrator. The training program would be described in the repair station manual as set forth in proposed § 145.207(e).

The proposed training would be required to consist of initial and recurrent training for aviation maintenance personnel, be based on each individual's assignment, and ensure that each individual is capable of performing the assigned task. A person who is certificated or rated to perform particular duties, but is not currently assigned to perform those duties at the repair station, would not be required to participate in recurrent training for all of the tasks for which the person is certificated or rated until such time as that person is assigned to those duties.

Because repair stations' activities vary greatly, information about the specific training needed to satisfy the requirements of the proposed rule would be published in advisory material that would be issued with this rulemaking.

Line Station Maintenance

Current FAA policy permits an operator certificated under part 121 or part 135 to contract line maintenance to a repair station located in the United States. A certificated repair station with a limited rating for line maintenance may perform such line maintenance, provided that the repair station holds the appropriate ratings and the operator's particular aircraft are identified in that repair station's Operations Specifications.

Many repair stations located at airports have requested that they be permitted to perform line maintenance for part 121 or part 135 operators without meeting all of the requirements of part 145. Currently, to receive the appropriate ratings or have an operator's aircraft added to the repair station's Operations Specifications, the repair station must meet the current part 145 requirements that exceed those necessary to perform the line maintenance. Proposed § 145.7(e) would permit a repair station to perform line maintenance functions for an operator without meeting all of the part 145 requirements necessary to either obtain a rating or add an aircraft to the repair station's Operations Specifications. Repair stations could provide this service for operators certificated under part 121 or part 135 or for operators of U.S.-registered aircraft under part 129. Consistent with current practice, a repair station's Operations Specifications would state the job functions performed as line maintenance for each operator. The job functions would be based on the aircraft operator's manual or approved program. Also, the repair station would be required to have the necessary equipment, trained personnel, and technical data to perform the line maintenance.

Recordkeeping and Reporting Requirements

Currently, § 145.61 requires each repair station to maintain adequate records of all maintenance, preventive maintenance, or alterations performed. The records must include the name of the certificated mechanic or repairman who performed or supervised the work and the name of the individual who inspected the work. Repair stations are required to retain these records for at

least 2 years after the work is completed.

The FAA proposes to revise the current recordkeeping and reporting requirements. Proposed § 145.217 would require a repair station's records and reports to include the make, model, identification number, and serial number (when applicable) of the aircraft, airframe, aircraft engine, propeller, appliance, or component part of the article worked on, and a copy of the maintenance release. The repair station would be permitted to use as the maintenance release the record that it completes to comply with current §§ 43.9 and 43.11.

A repair station would continue to be required to retain records for 2 years. Records could be retained in the form of actual work documents or copies thereof, or by an automated data processing system acceptable to the Administrator.

The record retention period would be based on the date that article was approved for return to service as opposed to the date maintenance, preventive maintenance, or alteration was completed. In some instances, different work may have been completed on the same article on different dates before the article is approved for return to service. Therefore, the date an article is approved for return to service would be easier for a repair station to monitor.

Under current industry practice, the owner or operator of an aircraft, airframe, aircraft engine, propeller, appliance, component, or part on which work is performed receives the maintenance release. This practice would continue and be reflected in proposed § 145.217(b). The proposed rule specifies that the maintenance release would be required to be retrievable in English.

Repair Stations Located Outside the United States

As can be seen from the above discussion, the thrust of this proposal is to reduce the differences between the treatment of "domestic" and "foreign" repair stations. Many of the requirements that would be imposed in this rulemaking are designed to ensure that maintenance functions are performed safely. For example, as discussed below, supervisors of any maintenance function at a repair station, regardless of where it is located, would be required to have at least 18 months of practical experience in the maintenance function the individual is supervising.

Nevertheless, we are mindful of concerns by some that repair stations

located outside the United States pose special issues with respect to oversight and safety. Therefore, the FAA is considering the establishment of further measures to ensure that the proposed repair station requirements are implemented safely and effectively. For example, the FAA is considering authorizing an advisory panel or some other partnership to provide feedback to the Administrator on the effects of our rules on the safe operation of repair stations. Such a panel would provide a forum in which industry and labor representatives could discuss concerns and relay information on the real world effects of the repair station rules, including identifying any deficiencies or inequities.

Comments are invited on this or any other idea to ensure the continuing safety and effectiveness of the proposed rule. The FAA will determine, at the time a Final Rule is adopted, whether an advisory panel, or some other plan recommended by commenters would be the best method of achieving this goal.

Section-by-Section Analysis

Special Federal Aviation Regulation No. 36

The proposal would revise paragraph 2(c) of this regulation by replacing the reference to current § 145.51 with a reference to proposed § 145.215(b)(2), and by replacing the references to "domestic repair station certificate under 14 CFR part 145" with "repair station certificate under 14 CFR part 145 that is located in the United States".

Section 11.101 OMB Control Numbers Assigned Pursuant to the Paperwork Reduction Act

This section would be revised by replacing the reference to current § 145.63 with a reference to proposed § 145.219.

Section 91.411 Altimeter System and Altitude Reporting Equipment Tests and Inspections

Paragraph (b)(2)(iii) would be revised by replacing "limited rating" with "specialized service rating". Paragraph (b)(2)(iv) would be revised by replacing "airframe rating" with "aircraft rating". Paragraph (b)(2)(v), which refers to a limited rating for manufacturers, would be deleted.

Section 91.413 ATC Transponder Tests and Inspections

Paragraphs (c)(1)(i) and (c)(1)(ii) would be revised by changing the term "radio" to "avionics" and by replacing the reference to "Class III" with "Class 3" in paragraph (c)(1)(i). Paragraph (c)(1)(iii) would be revised by replacing

the reference to "limited rating" with "specialized service rating". Paragraph (c)(1)(iv), which refers to a limited rating for manufacturers, would be deleted.

Part 91, Appendix A Category II Operations: Manual, Instruments, Equipment, and Maintenance

Paragraph (4)(b)(1)(ii) would be revised by changing the term "radio" to "avionics". Paragraph 4(b)(1)(iii), which refers to ratings issued under subpart D of part 145 (limited ratings for manufacturers), would be deleted.

Section 121.378 Certificate Requirements

This section would be revised by replacing "repair stations certificated under the provisions of subpart C of part 145" in paragraph (a) with "a certificated repair station that is located outside the United States" and by changing the reference to "alteration", the singular, to "alterations", the plural.

Section 121.709 Airworthiness Release or Aircraft Log Entry

This section would be revised by replacing "a repair station certificated under the provisions of subpart C of part 145" in the concluding text of paragraph (b) with "a certificated repair station that is located outside the United States".

Section 135.435 Certificate Requirements

This section would be revised by replacing "repair stations certificated under the provisions of subpart C of part 145" in paragraph (a) with "a certificated repair station that is located outside the United States".

Section 135.443 Airworthiness Release or Aircraft Maintenance Log Entry

This section would be revised by replacing "a repair station certificated under the provisions of subpart C of part 145" in the concluding text of paragraph (b) with "a certificated repair station that is located outside the United States".

Subpart A General

Section 145.1 Applicability

The proposed section is based on current § 145.1 and describes the applicability of new part 145 with respect to obtaining repair station certificates and the general rules under which certificated repair stations must operate. Proposed § 145.1 would revise current § 145.1(a) by adding the term "preventive maintenance" and by changing the current reference pertaining to "airframes, powerplants,

propellers, and appliances" to "any aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof". Current § 145.1(b) and (c) would be deleted because it addresses foreign repair stations and manufacturers' maintenance facilities, respectively. As noted previously, the FAA is proposing, for the most part, to remove the distinction between domestic and foreign repair stations and to eliminate the limited ratings for manufacturers. The proposed changes differ in scope from the applicability section of current part 43 (maintenance rules), in that repair station privileges would be expanded to include foreign-manufactured and -certificated equipment, as well as equipment that has been issued an experimental airworthiness certificate.

Section 145.2 Certificate Issued to a Person in a Country Outside the United States; Certificate Issued to a Person in a Country With Which the U.S. Has a Bilateral Aviation Safety Agreement

As of the issuance of this notice, the U.S. is in the process of signing bilateral aviation safety agreements (BASAs) with several foreign countries; those agreements cover multiple areas of FAA safety regulation, including maintenance to be performed on U.S. registered aircraft and parts thereof. Consistent with those agreements, the FAA will be establishing maintenance implementation procedures (MIPs) with the national (civil) aviation authorities (NAAs) of the respective countries. Each BASA and MIP will provide that the FAA may issue a part 145 certificate to an applicant located in the country with which the U.S. has the BASA, based on a certification from the NAA of that country that the applicant complies with part 145. Each MIP will provide the procedures whereby that certification can be made. New § 145.2(b) is proposed to incorporate that process into part 145; in this regard, it would parallel the process in 14 CFR 21.29 for the certification of aircraft and other type certificated products.

New § 145.2(a) would state, generally, that the FAA may issue a part 145 certificate to an applicant in a foreign country if the FAA finds that the applicant complies with part 145. While that general proposition obviously would not be a change from the existing rule, it is included to clarify that the certification by the foreign authority in proposed paragraph (b) is that the applicant complies with part 145. Thus, the certification in paragraph (b) could be based on a finding that the applicant complies with the repair station requirements of the foreign country,

plus all additional requirements necessary to establish compliance with part 145.

Section 145.3 Definition of Terms

For purposes of this part, the proposed section would define: accountable manager, actual work documents, approve for return to service, approved data, article, certificated, CHDO, composite, computer system, consortium, directly in charge, facility, housing, maintenance release, overhauled, and signature.

Section 145.5 Certificate and Operations Specifications Requirements

The proposed section would retain the requirement found in current § 145.3 that no person may operate as a certificated repair station without, or in violation of, a repair station certificate. Specifically, it would state that a repair station may perform work only for which it is rated within the limitations of its Operations Specifications. Proposed paragraph (d) specifies the contents of the Operations Specifications that would be issued to each certificated repair station. The contents would include the repair station's certificate number; class ratings; limited ratings, to include makes, models, or parts; specialized service ratings, to include the specification used; the air carrier's geographic authorization, for repair stations located outside of the United States; and any other items the Administrator may require or allow to meet a particular situation.

Proposed § 145.5 would revise the requirement found in current § 145.19 that a repair station display its repair station certificate at a place normally accessible to the public and that is not obscured. The proposal would require only that a repair station have its certificate available, but not necessarily visible, for inspection by the public. A repair station would continue to be required to have its certificate available on the premises for inspection by the Administrator.

Section 145.7 Performance of Maintenance, Preventive Maintenance, Alterations, and Required Inspections for Certificate Holders Under Parts 121, 125, and 135, and for Foreign Air Carriers or Foreign Persons Operating a U.S.-Registered Aircraft in Common Carriage Under Part 129

The proposed section would combine the requirements of current §§ 145.2 and 145.73 and describe special conditions related to the issuance of a repair station certificate. Proposed paragraph (a)(1) would retain the current requirements

for a repair station performing maintenance, preventive maintenance, or alterations for a part 121 operator having a continuous airworthiness maintenance program to conform with the provisions of those parts pertaining to such a program. The proposal, however, would revise the current rule by specifically listing those sections for which compliance is required. Proposed paragraph (a)(2) would revise the current rule by requiring a certificated repair station performing work for an air carrier or commercial operator having a continuous airworthiness maintenance program under part 135 to comply with the sections of that chapter pertaining to the performance of that work.

Proposed paragraph (b) would retain the current requirement that work performed by a repair station for an air carrier or commercial operator having a continuous airworthiness maintenance program be performed in accordance with the air carrier's or commercial operator's manual.

Proposed paragraph (c) retains the requirements of current § 145.2(b) relating to the performance of inspections on airplanes operated pursuant to part 125.

Proposed paragraph (d) would establish a new requirement that a repair station performing work for any person operating an aircraft pursuant to part 129 perform that work in accordance with a program approved by the Administrator.

Proposed paragraph (e) would establish new provisions that would permit a repair station located at a line station for an air carrier certificated under part 121 or part 135, or at a line station for a foreign air carrier or foreign person operating a U.S.-registered aircraft in common carriage, to perform, under certain circumstances, line maintenance on any aircraft of that air carrier or person.

Section 145.9 Advertising

The proposed section includes the requirement of current § 145.3 prohibiting a repair station from advertising as a certificated repair station until the issuance of a certificate. It also includes the requirements of current § 145.25 specifying that the advertisement clearly state the repair station's certificate number. The proposed section also adds an additional requirement that prohibits a repair station from making false statements, either orally or in writing, designed to mislead any person.

Section 145.11 Deviation Authority

Current regulations pertaining to manufacturers and some classes of

operators permit them to apply for a deviation from particular requirements of the FAA regulations. Similar provisions do not currently exist for certificated repair stations. The proposed section would establish new procedures for repair stations similar to those used by manufacturers and operators to apply for deviation authority from the regulations. The proposed regulations permit a repair station to apply for a letter of deviation from any sections of part 145. Consistency in granting deviation authority would be enhanced by the provision that only the Associate Administrator for Aviation Standards could issue letters of deviation authority.

Subpart B Certification

Section 145.51 Application for Certificate

This proposed section is based on current §§ 145.11, 145.13, and 145.71. Proposed paragraph (a) is similar to current application requirements but separates the application requirements for the initial issuance of a certificate or rating from the requirements for a change or renewal of a certificate. Applicants for a change or renewal of a certificate would be required to provide only that information necessary to substantiate the change or renewal, and such applications would be addressed in proposed § 145.51(e).

Additionally, the proposal revises the list of items that an applicant would be required to submit to the FAA with the application. The proposal would require that the applicant submit a copy of the repair station's manual to the Administrator for approval. (Current § 145.11 refers to a repair station's IPM.) The proposal also would require that the applicant submit a list by type, make, or model, as appropriate, of the aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof for which an application is made. Current § 145.11 requires this information on applications only for a propeller rating (Class 2) or any accessory rating (Class 1, 2, or 3). Applicants also would be required to include a statement signed by the accountable manager (as defined in proposed § 145.3) that the procedures described in the repair station manual are in place and meet the requirements of the applicable regulations. A list of maintenance functions performed under contract by another repair facility would continue to be required and to be included in the proposed repair station manual. Provisions of current § 145.13, which require an applicant for a foreign

repair station certificate to submit an organizational chart containing the names and titles of managing and supervisory personnel and a description of the repair station's facilities, would be expanded to apply to all applicants for a repair station certificate; however, submission of a suitably bound brochure and photographs of the facilities would no longer be required of any applicant. The proposal also would no longer require duplicate copies of all required information. For example, under the proposal, only one copy of the applicant's repair station manual would be required to be submitted.

Proposed paragraph (b) establishes a new requirement that the equipment, facilities, and housing required for the certificate and rating be in place at the time of certification by the Administrator.

Current §§ 121.153(c) and 135.25(d) permit operators to use foreign-registered civil aircraft. Current § 43.1(a) prescribes the rules under which these aircraft must be maintained. Proposed § 145.51(c) expands the scope of current § 145.71 by permitting an applicant located outside the United States to obtain a repair station certificate if it maintains foreign-registered aircraft operated under the provisions of part 121 or part 135, or aircraft engines, propellers, appliances, components, or parts thereof for use on such aircraft.

Proposed § 145.51(c)(2) retains the current requirement that the applicant for a repair station certificate located outside the United States provide evidence that the fee prescribed by the Administrator has been paid; however, the current reference to part 187 has been deleted. Proposed § 145.51(c)(3) would codify the FAA's existing practice of requiring that a repair station located outside the United States complete an application for a repair station certificate in English.

Under current regulations, a repair station that consists of numerous units and partners functioning as a single entity with regard to quality control and quality assurance (i.e., a consortium) is not permitted to operate under a single repair station certificate, unless it is granted an exemption from current § 145.35. Airbus Industrie (Airbus) is an example of such a consortium. Airbus holds an exemption from current § 145.35 to the extent necessary to permit the production units of the members and associated partners of the Airbus consortium to be collectively certificated as a U.S. foreign repair station to support maintenance of U.S.-registered A300, A310, A320, A321, A330, and A340 series aircraft. In its petition for exemption, Airbus

contended that the exemption was necessary to permit it to function as an FAA-approved repair station without having a central maintenance facility. In granting the exemption, the FAA stated that a properly structured quality system, operating in a number of facilities under the direct responsibility of a central quality manager, using personnel that are properly trained, qualified, and authorized, and using a uniform system of documentation, can provide an acceptable substitute for the requirements of § 145.35. The exemption was predicated on each Airbus production unit demonstrating its compliance with the applicable housing and facility requirements of the regulations. To exercise its enforcement obligations, the FAA required that Airbus retain certificate responsibility for the implementation and revision (as necessary) of the manual and the quality control procedures used by the Airbus production units and partners. This was achieved through the certification of the Airbus consortium as a foreign repair station. The maintenance, preventive maintenance, and alteration that may be performed in accordance with the Airbus exemption is limited to that necessary to support the operation of U.S.-registered airplanes. To preclude the requirements to obtain an exemption for similar operations in the future, proposed § 145.51(d) would permit all consortiums that function as a single entity with regard to quality control and quality assurance functions, that hold an approved type certificate, and that perform maintenance, preventive maintenance, or alterations of that type-certificated product and components thereof to apply for a repair station certificate under this section.

Section 145.53 Issue of Certificate

The proposed section is based on current §§ 145.11(b) and 145.71, which address the issuance of a repair station certificate. The section retains current regulatory language with no substantive changes.

Section 145.55 Duration and Renewal of Certificate

This section is similar to current §§ 145.15 and 145.17 but deletes the current provision in § 145.17(b) that a certificate or rating for a repair station located outside of the United States expires at the end of 12 months after the date on which it was issued. Instead, the certificate or rating will expire after 24 months.

Proposed paragraphs (a) and (b) retain current certificate duration requirements. The conditions for a

return of a certificate are described in paragraph (c).

Proposed paragraph (d) modifies the current requirement for certificate renewal by specifying that a repair station located outside the United States must submit its request for renewal no later than 90 days before its current certificate expires. Current § 145.15(c) permits this application to be made within 30 days of the current certificate's expiration.

Section 145.57 Amendment to or Transfer of Certificate

This section is based on current § 145.15 and would continue to require that a repair station desiring to amend, revise, or add a new rating to its certificate apply on a form and in a manner prescribed by the Administrator. The current prohibition on the transfer of repair station certificate privileges upon conveyance of the repair station would be retained in proposed paragraph (b). Whereas current § 145.15(b) states that, in the event of a sale or transfer of a repair station's assets, the new owner must apply for an amended certificate, proposed § 145.57(b) clarifies the substance of the requirement by stating explicitly that the privileges of the certificate cannot be transferred if the repair station is sold, leased, or otherwise conveyed. Accordingly, to obtain a repair station certificate, a new owner or transferee of a repair station's assets would have to apply for a new certificate under the provision of proposed § 145.51.

Section 145.59 Ratings and Classes

The proposed section would completely revise the current system of ratings and classes specified in current §§ 145.31 and 145.33. This revised system of ratings and classes is described earlier in this document under the heading "Ratings and classes."

Section 145.61 Transition to New System of Ratings

The proposed section describes the FAA's procedure for phasing in the new system of ratings and classes specified in proposed § 145.59. The manner in which the transition to this new system would be accomplished is described earlier in this document under the heading "Implementation of the proposed ratings and classes."

Subpart C Facilities, Equipment, Materials, and Housing

Section 145.101 General

This section is based on current § 145.55 (Maintenance of personnel,

facilities, equipment, and materials) with no substantive differences.

Section 145.103 Facility and Housing Requirements

Proposed § 145.103(a) is based on current § 145.35 and retains many of the general facility and housing requirements currently found in that section for an applicant of a repair station certificate. The proposal would revise the current rule by expanding the applicability of these requirements to all repair stations, as opposed to applicants for repair station certificates or ratings. Proposed paragraph (a) retains the requirements of current § 145.35. It eliminates the current specific requirement of § 145.35(b)(3) to segregate machines and equipment whenever fabric work is done in an area where there is grease and oil. This type of work is not performed as often as in the past, and more general requirements to have facilities for the proper protection of parts and subassemblies, and segregation of certain operations, are included in the proposal.

Proposed § 145.103(b) describes the facility and housing requirements currently found in § 145.37; however, it would establish new requirements for repair stations that perform maintenance, preventive maintenance, or alterations on articles constructed of composite materials and repair stations with the proposed computer systems rating.

Proposed § 145.103(b)(1) would require housing only for the largest type and model of aircraft on which a repair station performs maintenance, preventive maintenance, or alteration. For example, if a repair station with a proposed aircraft Class 3 rating is authorized to work only on Boeing 737s, that repair station would be required to provide housing for at least one Boeing 737, even though larger aircraft, such as a Boeing 747, could be included in an aircraft Class 3 rating.

Current § 145.37(b) addresses the use of permanent work docks and the performance of work outside, where permitted by climatic conditions. During preparation of this proposal, the FAA considered eliminating that portion of § 145.37(b) that specifically permits the use of permanent work docks. The FAA contends that the elimination of this provision would simplify the requirements for all repair stations and help achieve uniform interpretation of the regulations. The FAA also is concerned that some geographical areas exist that are not truly free of rain, sand, dust, or some other environmental element or are affected by high or low temperatures

that could have an adverse effect on worker efficiency during the performance of maintenance by the repair station. Repair station work, such as the performance of a detailed visual inspection or certain nondestructive inspection, of an airframe must be accomplished in an environment free of adverse environmental conditions to ensure the work process is not negatively affected by such conditions. In the interest of safety, the FAA contends that the elimination of the work dock provisions would address current situations in which some repair facilities may not provide adequate protection from environmental elements for aircraft, equipment, or personnel as required by § 145.35(a).

However, the FAA notes that currently available data do not permit the FAA to determine the number of repair stations that would be affected or to quantify the potential costs to the repair station industry if the use of work docks were no longer permitted. Therefore, provisions permitting the use of work docks have been retained in this proposal.

During the comment period, the FAA requests that the public specifically address the potential costs that would be incurred by the repair station industry if provisions for permitting work outside were eliminated. In addition, the FAA is requesting that the comments submitted include a detailed discussion of the potential safety benefits that could be realized if such provisions were eliminated. Based on the input received and the data presented during the comment period, the FAA may eliminate the work dock provisions in the final rule.

Proposed § 145.103(b)(3) establishes new provisions that would require a repair station that performs maintenance, preventive maintenance, or alterations on any article of composite construction to meet acceptable process requirements. These process requirements would be based on the manufacturer's recommendations or other processes acceptable to the Administrator.

Proposed § 145.103 (b)(4) through (b)(7) revises current requirements so that they are applicable to the proposed system of certificates and ratings. Proposed § 145.103 (b)(4) and (b)(6) is based on current § 145.37 (c) and (e) with no substantive differences. Proposed § 145.103(b)(5) would require repair stations with a propeller rating to have suitable stands, racks, and fixtures, not only for the proper storage of the propellers, but also for the performance of work on these articles. Proposed § 145.103(b)(7) would establish

requirements for holders of an avionics, instrument, or computer system rating by requiring those holders to have a shop and assembly area that meets the standards for environmental control and protection from contaminants specified by the equipment or system manufacturer.

Proposed § 145.103(b)(8) specifically would establish a requirement for a repair station to meet any special facilities requirements determined by the manufacturer and approved by the Administrator for an article or system on which maintenance, preventive maintenance, or alteration is performed.

Currently, § 145.51(d) permits a repair station to maintain and alter any article for which it is rated at a place other than its fixed location if certain conditions are met. Proposed § 145.103(c) would specify that a repair station is permitted to perform certain job functions on an aircraft at a place other than its fixed location because of a special circumstance as determined by the Administrator (e.g., an aircraft on the ground at an isolated airport requiring repairs to allow it to be flown safely to the operator's main base, a repair station, or in preparation for a ferry flight). The proposed repair station manual would be required to describe the procedures for the performance of work at a place other than the repair station's fixed location.

Section 145.105 Change of Location, Housing, or Facilities

The proposed section is based on current § 145.21 and specifies the types of changes requiring approval by the Administrator. The proposal would include the current requirement that any change to the location or facilities of a repair station be approved in advance. The proposal would specifically indicate that no operation by a repair station at a new location be authorized until approved.

Section 145.107 Satellite Repair Stations

Under current § 145.51(d), a domestic repair station may maintain or alter any article for which it is rated at a place other than the repair station, provided certain conditions are met. This work is normally performed on a case-by-case or as-needed basis. Under the proposal, repair stations would be permitted to establish satellite repair stations to perform work on a permanent basis at a place other than the repair station's primary facility. Proposed § 145.107(a) would define "satellite repair station" and specify the requirements for the certification of these facilities. A satellite repair station would continue to be considered a separate repair

station and would be required to meet the requirements (personnel, facilities, housing, etc.) for each rating it holds. A satellite repair station also would be required to prepare a manual consistent with the manual of the parent repair station. The manual would be required to be approved by the FAA CHDO.

Proposed paragraph (b) would permit the cross-utilization of personnel and equipment from the parent repair station necessary to perform maintenance, preventive maintenance, or alterations. However, the FAA could specify when equipment and personnel could not be cross-utilized.

Additionally, proposed paragraphs (c) and (d) would codify the current practice that a repair station located within the United States would not be permitted to have a satellite repair station located outside the United States and that a repair station located outside the United States would not be permitted to have a satellite repair station located within the United States.

Section 145.109 Maintenance, Preventive Maintenance, and Alterations Conducted at Satellite Repair Stations

This proposed section would specify the conditions under which a repair station may perform work at a satellite repair station rather than at the repair station's primary facility and would establish inspection personnel requirements for the facility. The proposed section is based on § 141.91, which prescribes requirements for pilot school satellite bases.

Section 145.111 Equipment and Material Requirements

The proposed requirements are based on those requirements found in current §§ 145.47 and 145.49. The proposed section sets forth the requirements that would apply to all repair stations and those additional requirements that would apply to repair stations with specialized service ratings and those with ratings other than specialized service ratings. Additionally, the proposed regulation sets forth requirements for certificated repair stations, whereas the current regulation sets forth requirements for an applicant for a domestic repair station certificate.

The proposed section retains the requirements of current §§ 145.47(a) and (b), and 145.49(a); however, the proposal would require that tools used to accomplish work be those recommended by the manufacturer or equivalent to the manufacturer's recommendation and acceptable to the Administrator. The proposal also would require tools used for product acceptance and/or for making a finding

of airworthiness be calibrated to a standard acceptable to the Administrator.

The proposal would delete the specific equipment requirements for an applicant for a rating for specialized services or techniques issued under the current regulation; however, under the proposed rule, a certificated repair station with a specialized service rating would be required to have the appropriate equipment, materials, and technical data prescribed and approved for performing work under that rating.

Subpart D Personnel

The FAA proposes to organize all part 145 repair station personnel requirements into a separate subpart of part 145. The proposed subpart would include current personnel requirements and new requirements relating to training, personnel records, designation of an accountable manager, and the recommendation of persons for certification as repairmen. Personnel requirements for repair stations located within and outside the United States would be standardized; however, repair stations located outside the United States would continue to be able to employ persons not certificated under part 65.

Section 145.151 Personnel Requirements

This proposed section for personnel requirements is based on current §§ 145.39 and 145.75 but does not include requirements for supervisory and inspection personnel. These requirements are found in proposed § 145.153.

Proposed § 145.151 would establish the same general personnel requirements for repair stations located within and outside the United States. It would ensure that personnel employed at any repair station, regardless of its location, are competent to perform assigned tasks.

Proposed § 141.51 would include a new requirement that each certificated repair station designate an individual as the accountable manager. The section would continue to require that a repair station have a sufficient number of personnel to perform the work for which it is rated. The proposed section would specify that it is applicable to all repair stations, whereas current equivalent sections apply to applicants for certificates. The proposal deletes language in current § 145.39(a) requiring officials of the station to consider carefully the justifications and abilities of their employees. This current provision is addressed by the proposed

training requirements. Language in current § 145.39(b) requiring an applicant to have enough properly qualified employees to keep up with the volume of work in progress is addressed in proposed § 145.151(a)(2).

Section 145.153 Supervisory and Inspection Personnel Requirements

This proposed section is based on the supervisory and inspection personnel requirements found in current §§ 145.39 and 145.75. The proposal would retain the requirements of these sections, codify minimum practical experience and training requirements for supervisory and inspection personnel employed at repair stations located outside the United States, and expand the Administrator's ability to determine the competence of all supervisory and inspection personnel.

Proposed paragraphs (a), (b), and (c) are based on current § 145.39(c). These sections would apply to all repair stations.

Proposed paragraph (d) is based on current § 145.39(d). It would contain identical requirements for supervisory and inspection personnel at repair stations located within and outside the United States, with the exception that personnel at repair stations located outside the United States would not be required to be certificated under part 65.

Proposed paragraph (d)(1) retains the current requirement that only those individuals who supervise a maintenance function in a repair station located in the United States be certificated as a mechanic or repairman under part 65. Although the FAA will not require the certification of supervisory personnel at repair stations outside the United States, proposed paragraphs (d)(2) and (d)(3) would apply the practical experience and training requirements currently found in § 145.39(d) to all supervisory personnel regardless of where they perform their duties. Proposed paragraph (d)(2) would require all individuals who supervise a maintenance function at a repair station to have at least 18 months of practical experience in the maintenance function the individual is supervising. Proposed paragraph (d)(3) would require all supervisory personnel to be adequately trained on the maintenance of the article on which work is performed and to be familiar with the procedures, practices, inspection methods, materials, tools, and equipment used in the maintenance, preventive maintenance, or alterations for which the repair station is rated.

The current prohibition found in § 145.39(d) on the use of experience gained as an apprentice or student

mechanic has been deleted because the FAA has determined that such experience is acceptable. In addition, the current requirement that at least one of the persons directly in charge of the maintenance functions of a repair station with an airframe rating must have had experience in approving aircraft for return to service after 100-hour, annual, and progressive inspections has been broadened. Current language specifying inspection types has been replaced by a reference to the inspections required by current § 91.409.

Proposed paragraph (e) is based on current § 145.39(d) and would apply to all repair stations with no substantive changes.

Proposed § 145.153(f) imposes additional requirements on repair stations located outside the United States. These requirements are based on the requirements for supervisory and inspection personnel at foreign repair stations specified in current § 145.75. Repair stations located outside the United States would be required to possess a sufficient number of supervisors and inspectors who understand FAA regulations, FAA Airworthiness Directives, and the manufacturers' maintenance and service instructions for the articles on which the repair station performs work. These personnel would also be required to understand, read, and write the English language.

The changes proposed in paragraphs (d)(2) and (d)(3), together with the provisions of proposed paragraph (f), would ensure that repair stations located outside the United States possess a sufficient number of supervisory and inspection personnel who are as well qualified as their domestic counterparts certificated under part 65.

Current references to determining the abilities of supervisory personnel by either the repair station or the Administrator have been included and expanded on in proposed paragraph (g). Current § 145.39(c) provides that the Administrator may inspect the employment and experience records of all supervisory personnel and also may determine further the abilities of supervisors by administering a personal test; however, the current regulation does not provide for the evaluation of inspection personnel located at a repair station in the United States through use of a personal test. In addition to providing that the Administrator may review the employment and experience records of supervisors and inspection personnel, proposed § 145.153(g) would permit the Administrator to use oral or

practical tests to evaluate the ability of supervisory and of inspection personnel to perform the tasks for which they are assigned. The procedures the FAA would use to evaluate the technical competency of all repair station personnel would ensure that they possess a uniform level of competency, regardless of individual certification requirements.

Section 145.155 Recommendation of Persons for Certification as Repairmen

The proposal is based on current § 145.41; however, the proposal would require a repair station to recommend a sufficient number of repairmen to meet all applicable requirements of this part if the repair station chooses to use repairmen to satisfy these requirements. The current rule requires only the recommendation of at least one repairman. The proposal would delete the provisions of current § 145.41(b), which require that each person recommended must be at or above the level of shop foreman or department head or be responsible for supervising the work performed by the repair station, and would permit a repair station to recommend any employee who meets the requirements of current § 65.101 for certification as a repairman. The FAA has decided that this proposal would recognize the level of professional expertise of maintenance personnel currently employed at repair stations. The proposal also would enable repair stations to be more flexible in their hiring and placement practices. This proposal is consistent with current § 65.101, which does not require that an individual be employed in a supervisory position at a repair station to meet the eligibility requirements for a repairman certificate.

Consistent with proposed § 145.153(g), proposed § 145.155(b) also would permit the Administrator to evaluate any repairman's ability by inspecting employment and experience records and/or by administering an oral or practical test.

Section 145.157 Records of Management, Supervisory, and Inspection Personnel

This proposed section is based on current § 145.43. The FAA would continue to require a repair station to retain a roster of supervisory (including management) personnel and inspection personnel. Proposed paragraph (a)(3) would establish a new requirement for a repair station to retain a roster of those certificated personnel authorized to sign a maintenance release for approval for return to service of an altered or repaired article.

The proposal would retain current requirements relating to the retention of information indicating compliance with experience requirements; however, the record of total years of experience for an individual would not need to pertain solely to the type of work the individual is performing but only to maintenance work in general. The proposal would modify the current rule by requiring that these rosters be kept current but would not list the specific instances under which they would be required to be modified. Although the proposal does not retain the language of current § 145.43(d), these records would continue to be subject to inspection by the Administrator, as proposed in § 145.221. Because records would be required to be maintained for all management personnel, the language of current § 145.43(e) has not been retained.

Section 145.159 Training Requirements

This section would create a new requirement for each certificated repair station to establish a training program approved by the Administrator that consists of initial and recurrent training for employees assigned to perform maintenance, preventive maintenance, or alteration job functions. The proposal would require that records of this training be documented by the repair station in a form acceptable to the Administrator and that these records be retained for the duration of each individual's employment.

Subpart E Operating Rules

Section 145.201 Quality Assurance and Quality Control Systems

This proposed section is based on certain requirements in current §§ 145.45, 145.57, and 145.105. Proposed § 145.201(a)(1) would set forth a new requirement for a repair station to establish a quality assurance system. Section 145.201(a)(2) would continue to require a repair station to have a quality control and inspection system but would expand the scope of these systems to include the quality control of any work performed by a contractor. The proposal also would require these systems to be described in the repair station's manual.

Proposed § 145.201(b) continues to require repair stations to perform maintenance and alterations in accordance with part 43, which includes the applicable provisions of an approved maintenance program. The proposal also expands the scope of current § 145.57 to include preventive maintenance.

Current § 145.57(a) requires that each repair station maintain, in current condition, all manufacturers' maintenance manuals, instructions, and service bulletins that relate to the articles that it maintains or alters. To standardize language relating to aviation maintenance, the FAA proposes in paragraph (c) to replace the term "instructions" with "Instructions for Continued Airworthiness". Also, the FAA has determined that, because Airworthiness Directives (ADs) disseminate critical information about aviation safety, repair stations should possess all ADs that apply to an article on which that repair station performs maintenance, preventive maintenance, or alterations. Therefore, in proposed § 145.201(c), the FAA would require that each repair station maintain and keep current all ADs, Instructions for Continued Airworthiness, and service bulletins that relate to articles that it includes on its capability list.

Current § 145.57(a) requires a repair station to retain current manufacturer's service manuals for each article that it maintains or alters. The FAA has received petitions for rulemaking requesting that the FAA permit repair stations to have a manufacturer's customized aircraft maintenance manuals only when necessary, instead of continuously maintaining such manuals. The FAA recognizes that difficulties with this requirement frequently occur because manufacturers are reluctant to release proprietary information or are unwilling to provide maintenance manuals for their products when a repair station is not a party to a licensing agreement. Therefore, repair stations are able to receive the manufacturer's maintenance manual for a particular aircraft or article only when the aircraft or article is delivered to the repair station for maintenance. During certification, repair stations would be required to have standard maintenance manuals for the equipment on which they intend to perform maintenance, preventive maintenance, or alterations; however, the FAA proposes in § 145.201(d) to require repair stations to possess article-specific manufacturers' maintenance manuals only when required.

Section 145.203 Capability List

This new section would require repair stations to prepare and retain a current capability list that would contain a list of the articles on which it performs maintenance, preventive maintenance, or alterations. The proposal would require that these articles be identified by make and model, part number, or other nomenclature designated by the

article's manufacturer. Before revising the capabilities list, a repair station would be required to complete a self-evaluation to ensure that it meets all of the requirements for the proposed operations.

Section 145.205 Repair Station Manual

The proposed section would establish a new requirement for a repair station to maintain and use a current approved repair station manual that would set forth the procedures and policies for the repair station's operation. It also would set forth requirements specifying the availability of the repair station manual to repair station personnel. Repair stations would be required to provide the CHDO with a current copy of the manual. Repair stations that provide electronic versions of their manual would be required to provide the FAA with the means to access the manual at the CHDO. In addition, except for revisions to the capability list, each revision to the repair station manual must be submitted to the Administrator for approval.

Section 145.207 Repair Station Manual Contents

This section would outline the minimum requirements for the proposed repair station manual. The information specified includes the majority of those items now described as acceptable by AC No. 145-3 for inclusion in the current IPM. The proposed manual would be required to include an organizational chart of management personnel, a roster of inspection personnel, a description of the facility's operations, an explanation of its quality assurance system, a description of its training program, procedures for performing work at a location other than the facility, procedures for self-evaluations, maintenance functions contracted to an outside certificated facility or noncertificated person, procedures for conducting work under § 145.7, a description of the facility's recordkeeping system, the repair station's capability list, procedures for updating the capability list, manual revision procedures, procedures for changes in location and facilities of the repair station, and other information required by the Administrator.

Section 145.209 Quality Control System and Procedures

This proposed section is based on current § 145.45. The proposal retains the basic requirements of that section and modifies certain provisions relating to the use of inspection devices and the

conduct of inspection procedures. It modifies the current rule by requiring inspection personnel to be skilled in operating inspection equipment and to be able to interpret defects indicated by the equipment at times when not just magnetic, fluorescent, or other mechanical inspection devices are used, but when any inspection device is used.

The proposed section would require that a repair station establish specific procedures for the inspection of incoming raw materials and articles, as well as inspection procedures for articles on which contract maintenance or alterations are performed. Current § 145.45(f) requires that an applicant for a repair station certificate provide a manual containing inspection procedures. The manual must explain in detail the repair station's inspection system, including the continuity of inspection responsibility. Although the proposed manual requirements are included in proposed § 145.207, proposed § 145.209(e) includes the inspection continuity requirements by requiring (under the quality control system and procedures) that the repair station ensure the continuity of inspection responsibility for the facility. The repair station's inspection system and procedures are part of its quality assurance system that would be described in the proposed repair station manual.

Section 145.211 Inspection of Maintenance, Preventive Maintenance, or Alterations Performed

This proposed section on inspection of maintenance, preventive maintenance, or alteration is based on current § 145.59 with no substantive differences, but it has been expanded to address repair stations located outside of the United States. It includes current restrictions placed on repair stations located outside the United States and on the supervisory and inspection personnel employed by these repair stations.

Section 145.213 Contract Maintenance

The proposed section is based on current § 145.47(c) and establishes new requirements for a repair station when contracting for services. These new requirements are described in detail under the heading "Contract Maintenance."

Section 145.215 Privileges and Limitations of Certificate

The proposed section is based on current § 145.51 and generally retains the requirements of the current rule, except as noted. Proposed § 145.215(a) modifies current § 145.51 (a) and (b) to

include references to preventive maintenance and to describe more accurately the articles on which work can be performed. The proposed section also would permit a repair station to arrange for the maintenance, preventive maintenance, or alteration of any article for which it is rated at another organization under its quality control system. The proposal deletes the current references to the performance of 100-hour, annual, or progressive inspections found in current § 145.51(c). This language has been removed because inspection is included in the current § 1.1 definition of maintenance. Because the current general airframe rating would be eliminated under the proposal (limited ratings would still remain available), a repair station with an aircraft rating would be permitted to perform a 100-hour, annual, or progressive inspection and approve an aircraft for return to service.

In addition, because the applicability section of the proposed rule would permit a repair station to perform maintenance, preventive maintenance, or alterations on any type of article, § 145.215(b)(3) would describe the method and technical data requirements for major repairs or major alterations performed on experimental aircraft.

Section 145.217 Recordkeeping

This proposed section is based on current §§ 145.61 and 145.79. Proposed paragraph (a)(1) modifies the current rule by requiring all repair stations to retain detailed records showing the make, model, identification number, and serial number (when applicable) of the article on which work was performed. The current 2-year record retention requirement would be retained in paragraph (a)(2); however, the proposal would specify that the period from which this time would be measured would commence on the date on which the article was approved for return to service, instead of the date on which the work was performed.

Proposed paragraph (a)(3) would require these records to include a copy of the maintenance release. Proposed paragraph (a)(4) would permit these records to be retained as actual work documents or copies thereof, or through the use of an automated data processing system protected from unauthorized use and access. Proposed paragraph (b) would require that the repair station provide a copy of an article's maintenance release, which must be retrievable in English, to the owner or operator. Under the proposed rule, the repair station could use as the maintenance release the record that it

completes to comply with §§ 43.9 and 43.11 of this chapter.

Similar to current requirements of §§ 91.417(c), 121.380(c), and 135.439(c), proposed § 145.217(c) would require that a repair station make available to the Administrator or any authorized representative of the National Transportation Safety Board (NTSB) all maintenance records required to be kept by proposed § 145.217. The proposed paragraph specifies that the records would be required to be provided in English. The records would be required to be provided either in paper format or, if in other than paper format, with the means necessary to create a paper copy of the record.

Proposed paragraph (d) would specify those recordkeeping requirements that apply to repair stations located outside the United States.

Section 145.219 Reports of Defects or Unairworthy Conditions

Under current § 145.63 or § 145.79, repair stations are required to submit reports of defects or unairworthy conditions to the FAA. The FAA proposes to standardize the type of data reported under the service difficulty reporting (SDR) system by specifically listing in proposed § 145.219(b) the information required when a repair station submits a report. The required information would be consistent with the type of service difficulty information that air carriers operating under parts 121 and 135 are required to submit. To avoid a duplication of reporting requirements, the repair station still would not be required to submit this information to the FAA if the information has been provided as a result of other regulatory requirements.

Current § 145.63(b) states that in cases where filing a report of defects or unairworthy conditions might prejudice the repair station, the repair station shall refer the matter to the FAA for a determination as to whether a report is necessary. Because such a condition does not appear in other parts of the regulations requiring such reports, the FAA proposes to eliminate this condition from the proposed rule.

Section 145.221 FAA Inspections

This proposed section is based on current § 145.23 but is expanded so that the FAA would be able to inspect repair stations' contract maintenance providers. The proposal also would require that arrangements for contractors' services include provisions for inspection of the contractor by the FAA. The proposed rule would remove the statement found in the current rule specifying that after an inspection the

repair station is notified in writing of any defects found during the inspection. This is common FAA practice and need not be specified in regulatory language.

Appendix A Job Functions

Appendix A would continue to set forth the job functions and the equipment requirements for repair stations except for those job functions that are contracted out. The proposed appendix A is updated and revised in accordance with the proposed ratings and classes for repair stations. The deletion of those functions that may be contracted out to another facility is described in detail above under the heading "Job Functions."

Paperwork Reduction Act

An agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. Information collection requirements in this proposed rule previously have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (Public Law 96-511) and have been assigned OMB Control Numbers 2120-0003 and 2120-0010.

Regulatory Evaluation Summary

Proposed changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic effect of regulatory changes on small entities. Third, the Office of Management and Budget directs agencies to assess the effect of regulatory changes on international trade. In conducting these analyses, the FAA has determined that this proposal: (1) would generate benefits that justify its costs and is a significant regulatory action as defined by Executive Order 12866 and DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979) because there has been considerable public interest in this subject; (2) would not have a significant impact on a substantial number of small entities; and (3) would not constitute a barrier to international trade. These analyses, available in the docket, are summarized below.

Costs

The estimated net cost of compliance after subtracting cost savings with the proposed amendment would be approximately \$33.3 million (net of cost savings) in 1996 dollars, discounted at 7 percent, over 11 years. The most costly requirement, which is in § 145.201, relates to operations and inspection procedures for quality assurance and quality control systems and would result in repair stations incurring discounted costs of \$80.9 million. The most cost-saving requirement, which is in § 145.201, relates to a reduction in the number of manuals that a repair station would be required to maintain and would result in repair stations saving about \$76.1 million discounted.

Benefits

The estimated quantifiable safety benefits of the proposed amendment are approximately \$54.9 million in 1996 dollars, discounted at 7 percent, over 11 years. On an annual basis, an average of 6.9 total accidents would be avoided, preventing 2.2 fatalities, 1.7 serious injuries, and 2.7 minor injuries. The avoidance of 6.9 accidents would avert at a minimum the destruction of at least 4.7 general aviation aircraft and would avert substantial damage to 1.4 general aviation aircraft. Property damage to other types of aircraft would also be averted.

International Trade Impact Statement

This proposed rule would not constitute a barrier to international trade, including the export of U.S. goods and services to foreign countries and the import of foreign goods and services into the United States. The proposal affects repair stations located both within and outside the United States. There are approximately 522 repair stations listed in AC No. 140-7I that are located outside the United States; they would be required to comply with each of the provisions applicable to repair stations located within the United States. However, repair stations located outside the United States would continue to be permitted to employ individuals not certificated under part 65.

The proposal is not expected to affect trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States. Furthermore, the proposal is consistent with the terms of several trade agreements to which the United States is a signatory, such as the Trade Agreements Act of 1979 (19 U.S.C. 2501 *et seq.*), incorporating the Agreement on

Trade in Civil Aircraft (31 U.S.C. 619) and the Agreement on Technical Barriers to Trade (Standards) (19 U.S.C. 2531). Aircraft repair and maintenance services are subject to general obligations and specific U.S. market access commitments under the General Agreement on Trade in Services (GATS) administered by the World Trade Organization (WTO). The proposed rule is fully consistent with United States' obligations and commitments under this treaty. The proposed revision to part 145 also is consistent with 49 U.S.C. 40105, formerly § 1102(a) of the Federal Aviation Act of 1958, as amended, which requires the FAA to exercise and perform its powers and duties consistently with any obligation assumed by the United States in any agreement that may be in force between the United States and any foreign country or countries.

Unfunded Mandates Reform Act Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), codified in 2 U.S.C. 1501-1571, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate in a proposed or final agency rule that may result in the expenditures by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more (adjusted annually for inflation) in any one year. Section 204(a) of the Act, 2 U.S.C. 1534(a), requires the Federal agency to develop an effective process to permit timely input by elected officers (or their designees) of State, local, and tribal governments on a proposed "significant intergovernmental mandate." A "significant intergovernmental mandate" under the Act is any provision in a Federal agency regulation that would impose an enforceable duty upon State, local, and tribal governments, in the aggregate, of \$100 million (adjusted annually for inflation) in any one year. Section 203 of the Act, 2 U.S.C. 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity to provide input in the development of regulatory proposals.

This proposed rule does not meet the cost thresholds described above. Furthermore, this proposed rule would not impose a significant cost on small

governments and would not uniquely affect those small governments. Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

Initial Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) establishes as a principle of regulatory issuance that agencies shall endeavor, consistent with the objective of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the business, organizations, and governmental jurisdictions subject to regulation. To achieve that principle, the Act requires agencies to solicit and consider flexible regulatory proposals and to explain the rationale for their actions. The Act covers a wide-range of small entities, including small businesses, not-for-profit organizations and small governmental jurisdictions.

Agencies must perform a review to determine whether a proposed or final rule will have a significant economic impact on a substantial number of small entities. If the determination is that it will, the agency must prepare a regulatory flexibility analysis as described in the Act.

However, if an agency determines that a proposed or final rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the 1980 act provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this

determination, and the reasoning should be clear.

The initial determination is that the annual costs associated with compliance with the proposed revision of part 145 would be less than \$5,000 per repair station and each affected manufacturer. For the type of business entities covered by this proposed rule, these annual costs are negligible. Therefore, the FAA certifies that the proposed revision of part 145, would not have a significant economic impact, negative or positive, on the repair stations or MMFs considered to be small entities under the rule.

Federalism Implications

The regulations proposed herein would not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

International Compatibility

In keeping with the U.S. obligation under the Convention of International Civil Aviation, it is the FAA's policy to comply with the Standards and Recommended Practices of the International Civil Aviation Organization to the maximum extent practicable. For this notice, the FAA has determined that this proposal, if adopted, would not present any differences.

This proposed rule would provide nearly uniform requirements by the

FAA and the JAA for maintenance facilities that perform maintenance, preventive maintenance, and alterations on aircraft, airframes, aircraft engines, propellers, appliances, components, and parts. Exceptions to these nearly uniform requirements are the FAA's requirements for major repairs and major alterations to be performed in accordance with technical data approved by the FAA, and the JAA's requirements for each approved maintenance organization to designate an accountable manager.

Environmental Analysis

FAA Order 1050.1D defines FAA actions that may be categorically excluded from preparation of a National Environmental Policy Act (NEPA) environmental assessment or environmental impact statement. In accordance with FAA Order 1050.1D, appendix 4, paragraph 4(j), this rulemaking action qualifies for a categorical exclusion.

Energy Impact

The energy impact of the proposed rule has been assessed in accordance with the Energy Policy and Conservation Act (EPCA) and Public Law 94-163, as amended (42 U.S.C. 6362). It has been determined that it is not a major regulatory action under the provisions of the EPCA.

Cross Reference

To illustrate how the current regulations have been revised, and to identify how the proposed rule relates to the current rule, the following cross-reference tables are provided.

CROSS-REFERENCE TABLE

Old section	New section(s)
145.1	145.1
145.2	145.7
145.3	145.5 and 145.9
145.11	145.51 and 145.53
145.13	145.51
145.15	145.57 and 145.105
145.17	145.55
145.19	145.5
145.21	145.105
145.23	145.221
145.25	145.9
145.31	145.59
145.33	145.59
145.35	145.103
145.37	145.103
145.39	145.151 and 145.153
145.41	145.155
145.43	145.157
145.45	145.201, 145.207, and 145.209
145.47	145.111 and 145.213
145.49	145.111
145.51	145.107 and 145.215

CROSS-REFERENCE TABLE—Continued

Old section	New section(s)
145.53	145.5 and 145.215
145.55	145.101
145.57	145.103 and 145.201
145.59	145.211
145.61	145.217
145.63	145.219
145.71	145.51
145.73	145.5 and 145.215
145.75	145.151 and 145.153
145.77	Deleted
145.79	145.217 and 145.219
145.101	Deleted
145.103	Deleted
145.105	145.201
Appendix A	Appendix A.

CROSS-REFERENCE TABLE

New section	Old section(s)
145.1	145.1
145.2	New
145.3	New
145.5	145.3, 145.19, and 145.53
145.7	145.2
145.9	145.3 and 145.25
145.11	New
145.51	145.11, 145.13, and 145.71
145.53	145.11 and 145.71
145.55	145.15 and 145.17
145.57	145.15
145.59	145.31 and 145.33
145.61	New
145.101	145.55
145.103	145.35, 145.37, and 145.57
145.105	145.21
145.107	145.51
145.109	New
145.111	145.47 and 145.49
145.151	145.39 and 145.75
145.153	145.39 and 145.75
145.155	145.41
145.157	145.43
145.159	New
145.201	145.45, 145.57, and 145.105
145.203	New
145.205	New
145.207	145.45
145.209	145.45
145.211	145.59
145.213	145.47
145.215	145.51 and 145.73
145.217	145.61 and 145.79
145.219	145.63 and 145.79
145.221	145.23
Appendix A	Appendix A

List of Subjects

14 CFR Part 11

Aircraft, Airmen, Aviation safety, Safety.

14 CFR Part 91

Aircraft, Airworthiness directives and standards, Aviation safety, Safety.

14 CFR Part 121

Aircraft, Airmen, Airplanes, Airworthiness directives and standards, Aviation safety, Safety.

14 CFR Part 135

Aircraft, Airplanes, Airworthiness, Airmen, Helicopters, Aviation safety, Safety.

14 CFR Part 145

Air carriers, Air transportation, Aircraft, Aviation safety, Recordkeeping and reporting, Safety.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend parts 11, 91, 121, 135, and 145 of the Federal Aviation

Regulations (14 CFR parts 11, 91, 121, 135, and 145) as follows:

PART 11—GENERAL RULEMAKING PROCEDURES

1. The authority citation for part 11 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40101, 40103, 40105, 40109, 40113, 44110, 44502, 44701, 44702, 44711, 46102.

§ 11.101 [Amended]

2. Section § 11.101(b) is amended by replacing the reference to § 145.63 in the chart with a reference to § 145.219.

PART 91—GENERAL OPERATING AND FLIGHT RULES

3. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40103, 40113, 40120, 44101, 44111, 44701, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46502, 46504, 46506, 46507, 47122, 47508, 47528, 47531.

4. Section 91.411 is amended by revising paragraphs (b)(2)(iii) and (b)(2)(iv) and by removing paragraph (b)(2)(v) to read as follows:

§ 91.411 Altimeter system and altitude reporting equipment tests and inspections.

* * * * *

(b) * * *

(2) * * *

(iii) A specialized service rating appropriate to the test to be performed; or

(iv) An aircraft rating appropriate to the airplane or helicopter to be tested; or

* * * * *

5. Section 91.413 is amended by revising paragraphs (c)(1)(i), (c)(1)(ii), and (c)(1)(iii) and by removing paragraph (c)(1)(iv) to read as follows:

§ 91.413 ATC transponder tests and inspections.

* * * * *

(c) * * *

(1) * * *

(i) An avionics rating, Class 3; (ii) A limited avionics rating appropriate to the make and model transponder to be tested;

(iii) A specialized service rating appropriate to the test to be performed; or

* * * * *

6. Appendix A to part 91 is amended by revising section 4 paragraph (b)(1)(ii) and by removing section 4 paragraph (b)(1)(iii) to read as follows:

Appendix A to Part 91 Category II Operations: Manual, Instruments, Equipment, and Maintenance

* * * * *

- (4) * * *
 - (b) * * *
 - (1) * * *
 - (ii) An avionics rating.
- * * * * *

PART 121—CERTIFICATION AND OPERATIONS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

7. The authority citation for part 121 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 40119, 44101, 44701, 44702, 44705, 44709, 44711, 44713, 44716, 44717, 44722, 44901, 44903, 44904, 44912, 46105.

8. Special Federal Aviation Regulation No. 36 is amended by revising paragraph (2)(c) to read as follows:

SFAR No. 36

* * * * *

(2) * * *

(c) Contrary provisions of § 145.215(b)(2) of the Federal Aviation Regulations notwithstanding, the holder of a repair station certificate under 14 CFR part 145 that is located in the United States may perform a major repair on an article for which it is rated using technical data not approved by the Administrator and approve that article for return to service, if authorized in accordance with this Special Federal Aviation Regulation. If the certificate holder holds a rating limited to a component of a product or article, the holder may not, by virtue of this Special Federal Aviation Regulation, approve that product or article for return to service.

* * * * *

9. Section 121.378 is amended by revising paragraph (a) to read as follows:

§ 121.378 Certificate requirements.

(a) Except for maintenance, preventive maintenance, alterations, and required inspections performed by a certificated repair station that is located outside the United States, each person who is directly in charge of maintenance, preventive maintenance, or alterations, and each person performing required inspections must hold an appropriate airman certificate.

* * * * *

10. Section 121.709 is amended by removing the concluding text of paragraph (b); redesignating paragraphs (c) and (d) as paragraphs (d) and (e), respectively, and adding a new paragraph (c) to read as follows:

§ 121.709 Airworthiness release or aircraft log entry.

* * * * *

(c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations

performed by a repair station that is located outside the United States, the airworthiness release or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

* * * * *

PART 135—OPERATING REQUIREMENTS: COMMUTER AND ON-DEMAND OPERATIONS

11. The authority citation for part 135 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44705, 44709, 44711, 44713, 44715, 44717, 44722.

12. Section 135.435 is amended by revising paragraph (a) to read as follows:

§ 135.435 Certificate requirements.

(a) Except for maintenance, preventive maintenance, alterations, and required inspections performed by a certificated repair station that is located outside the United States, each person who is directly in charge of maintenance, preventive maintenance, or alterations, and each person performing required inspections must hold an appropriate airman certificate.

* * * * *

13. Section 135.443 is amended by redesignating paragraph (c) as paragraph (d) and revising it; and redesignating the concluding text of paragraph (b) as paragraph (c) and revising it to read as follows:

§ 135.443 Airworthiness release or aircraft maintenance log entry.

* * * * *

(c) Notwithstanding paragraph (b)(3) of this section, after maintenance, preventive maintenance, or alterations performed by a repair station that is located outside the United States, the airworthiness release or log entry required by paragraph (a) of this section may be signed by a person authorized by that repair station.

(d) Instead of restating each of the conditions of the certification required by paragraphs (b) and (c) of this section, the certificate holder may state in its manual that the signature of an authorized certificated mechanic or repairman constitutes that certification.

14. Part 145 is revised to read as follows:

PART 145—REPAIR STATIONS

Special Federal Aviation Regulations SFAR No. 36 [Note]

Subpart A—General

- Sec.
 145.1 Applicability.
 145.2 Certificate issued to a person in a country outside the United States; certificate issued to a person in a country with which the U.S. has a bilateral aviation safety agreement.
 145.3 Definition of terms.
 145.5 Certificate and operations specifications requirements.
 145.7 Performance of maintenance, preventive maintenance, alterations, and required inspections for certificate holders under parts 121, 125, and 135; and for foreign air carriers or foreign persons operating a U.S.-registered aircraft in common carriage under part 129.
 145.9 Advertising.
 145.11 Deviation authority.

Subpart B—Certification

- 145.51 Application for certificate.
 145.53 Issue of certificate.
 145.55 Duration and renewal of certificate.
 145.57 Amendment to or transfer of certificate.
 145.59 Ratings and classes.
 145.61 Transition to new system of ratings.

Subpart C—Facilities, Equipment, Materials, and Housing

- 145.101 General.
 145.103 Facility and housing requirements.
 145.105 Change of location, housing, or facilities.
 145.107 Satellite repair stations.
 145.109 Maintenance, preventive maintenance, and alterations performed at satellite repair stations.
 145.111 Equipment and material requirements.

Subpart D—Personnel

- 145.151 Personnel requirements.
 145.153 Supervisory and inspection personnel requirements.
 145.155 Recommendation of persons for certification as repairmen.
 145.157 Records of management, supervisory, and inspection personnel.
 145.159 Training requirements.

Subpart E—Operating Rules

- 145.201 Quality assurance and quality control systems.
 145.203 Capability list.
 145.205 Repair station manual.
 145.207 Repair station manual contents.
 145.209 Quality control system and procedures.
 145.211 Inspection of maintenance, preventive maintenance, or alterations performed.
 145.213 Contract maintenance.
 145.215 Privileges and limitations of certificate.
 145.217 Recordkeeping.
 145.219 Reports of defects or unairworthy conditions.
 145.221 FAA inspections.

Appendix A to Part 145—Job Functions

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44707, 44717.

Special Federal Aviation Regulation SFAR No. 36

Editorial Note: For the text of SFAR No. 36, see part 121 of this chapter.

Subpart A—General**§ 145.1 Applicability.**

This part prescribes the rules governing the certification of, and associated ratings and general operating rules for, repair stations that perform maintenance, preventive maintenance, or alteration of any aircraft, airframe, aircraft engine, propeller, appliance, or component part thereof.

§ 145.2 Certificate issued to a person in a country outside the United States; certificate issued to a person in a country with which the U.S. has a bilateral aviation safety agreement.

(a) The Administrator may issue a repair station certificate to a person in a country outside the U.S., if the Administrator finds that the person complies with the requirements of this part.

(b) If the person is located in a country with which the U.S. has a bilateral aviation safety agreement, the Administrator may base the finding that the person complies with this part on a certification from the civil aviation authority of that country; such certification must be made in accordance with implementation procedures signed by the Administrator or the Administrator's designee.

§ 145.3 Definition of terms.

For the purposes of this part, the following definitions apply:

(a) *Accountable manager* means the manager who has the corporate authority for ensuring that all maintenance, preventive maintenance, and alteration is carried out to the standards required by the Administrator.

(b) *Actual work documents* means records that provide a detailed description of the maintenance, preventive maintenance, and alteration steps and procedures actually accomplished on a particular aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof, and that are signed by the individual performing or approving the work.

(c) *Approve for return to service* means certification by a certificated repair station representative that the maintenance, preventive maintenance, or alteration performed on an aircraft, airframe, aircraft engine, propeller, appliance, or component part thereof was accomplished using the methods, techniques, and practices prescribed in

the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or by using other methods, techniques, and practices acceptable to the Administrator.

(d) *Approved data* means technical information approved by the Administrator.

(e) *Article* means any item, including but not limited to, an aircraft, airframe, aircraft engine, propeller, appliance, accessory, assembly, subassembly, system, subsystem, module, component, unit, product, or part.

(f) *Certificated* means certificated by the Administrator.

(g) *Certificate holding district office* means the Flight Standards District Office that has responsibility for administering the certificate and is charged with the overall inspection of the certificate holder's operation.

(h) *Composite* means structural materials made of substances, including, but not limited to, wood, metal, ceramic, plastic, fiber-reinforced materials, graphite, boron, or epoxy, with built-in strengthening agents that may be in the form of filaments, foils, powders, or flakes of a different material.

(i) *Computer system* means any electronic or automated system capable of receiving, storing, and processing external data, and transmitting and presenting such data in a usable form for the accomplishment of a specific function.

(j) *Consortium* means the holder of a type certificate that forms a combination or group of separate certificated repair stations to perform maintenance, preventive maintenance, or alterations of that type-certificated product and components thereof, and functions under a single unified quality control and quality assurance system.

(k) *Directly in charge*. A person who is directly in charge is assigned to a position in which he or she is responsible for the work of a shop that performs maintenance, preventive maintenance, alterations, or other functions affecting aircraft airworthiness. A person who is directly in charge need not physically observe and direct each worker constantly but must be available for consultation and decision on matters requiring instruction or decision from higher authority than that of the persons performing the work.

(l) *Facility* means a physical plant, including land, buildings, and equipment, that provides the means for the performance of maintenance, preventive maintenance, or alteration of any article.

(m) *Housing* means buildings, hangars, and other structures to accommodate the necessary equipment and materials of a repair station that

(1) Provide working space for the performance of the maintenance, preventive maintenance, or alterations for which the repair station is certificated and rated; and

(2) Provide structures for the proper protection of aircraft, airframes, aircraft engines, appliances, components, parts, and subassemblies thereof during disassembly, cleaning, inspection, repair, alteration, assembly, and testing; and for the proper storage, segregation, and protection of materials, parts, and supplies.

(n) *Maintenance release* means a repair station document signed by an authorized repair station representative that states that the article worked on is approved for return to service for the maintenance, preventive maintenance, or alterations performed.

(o) *Overhauled*. An article can be properly described as "overhauled" if, by using methods, techniques, and practices acceptable to the Administrator, the article has been disassembled, cleaned, inspected, repaired as necessary, and reassembled, and it has been tested in accordance with approved standards and technical data or in accordance with current standards and technical data acceptable to the Administrator that have been developed and documented by the holder of the type certificate, supplemental type certificate, or a material, part, process, or appliance approval under 14 CFR 21.305 of this chapter.

(p) *Signature* means an individual's unique identification used as a means of authenticating a maintenance record entry or maintenance record. A signature may be handwritten, electronic, or any other form acceptable to the Administrator.

§ 145.5 Certificate and operations specifications requirements.

(a) No person may operate as a certificated repair station without, or in violation of, a repair station certificate or Operations Specifications issued under this part.

(b) A certificated repair station may perform maintenance, preventive maintenance, or alterations on an aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof only for which it is rated and within the limitations placed in its Operations Specifications.

(c) The certificate issued to each certificated repair station must be

available on the premises for inspection by the public and the Administrator.

(d) Operations Specifications issued to each certificated repair station contain the following:

- (1) The repair station certificate number;
- (2) Class ratings;
- (3) Limited ratings, to include makes, models, or parts;
- (4) Specialized service ratings, to include the specification used;
- (5) The air carrier's geographic authorization for repair stations located outside of the United States; and
- (6) Any other items the Administrator may require or allow to meet a particular situation.

§ 145.7 Performance of maintenance, preventive maintenance, alterations, and required inspections for certificate holders under parts 121, 125, and 135; and for foreign air carriers or foreign persons operating a U.S.-registered aircraft in common carriage under part 129.

(a) Each certificated repair station that performs maintenance, preventive maintenance, or alterations for an air carrier or commercial operator having a continuous airworthiness maintenance program under part 121 or part 135 of this chapter must, as applicable, comply with

- (1) Sections 121.361, 121.365, 121.367, 121.371, 121.375, 121.377, 121.378, and 121.380 of this chapter as the part 121 certificate holder is required to comply; or
- (2) Sections 135.2, 135.411, 135.419, 135.421, 135.423, 135.425, 135.429, 135.433, 135.435, and 135.439 of this chapter as the part 135 certificate holder is required to comply.

(b) Each certificated repair station that performs maintenance, preventive maintenance, or alterations under paragraph (a) of this section must perform that work in accordance with the applicable portions of the air carrier's or commercial operator's manual.

(c) Each certificated repair station that performs inspections on airplanes under part 125 of this chapter must perform those inspections in accordance with the approved inspection program for the operator of the airplane.

(d) Each certificated repair station that performs maintenance, preventive maintenance, or alterations for a foreign air carrier or foreign person operating a U.S.-registered aircraft in common carriage under part 129 of this chapter must perform that work in accordance with a program approved by the Administrator.

(e) Notwithstanding the facility and housing requirements of § 145.103, the

Administrator may grant approval for a certificated repair station that is located at a line station for an air carrier certificated under part 121 or part 135 of this chapter, or at a line station for a foreign air carrier or foreign person operating a U.S.-registered aircraft in common carriage under part 129 of this chapter to perform line maintenance on any aircraft of that air carrier or person, provided

- (1) The repair station performs such line maintenance in accordance with the operator's manual or approved program;
- (2) The repair station has the necessary equipment, trained personnel, and technical data to perform such line maintenance; and
- (3) The repair station's Operations Specifications includes an authorization to perform line maintenance.

§ 145.9 Advertising.

(a) No repair facility may advertise as a certificated repair station until a repair station certificate has been issued to that facility.

(b) No certificated repair station may make any statement, either in writing or orally, about itself that is false or is designed to mislead any person.

(c) Whenever the advertising of a repair station indicates that it is certificated, the advertisement must clearly state the repair station's certificate number.

§ 145.11 Deviation authority.

(a) The Administrator may, upon consideration of the circumstances of a particular repair station, issue a deviation providing relief from specified sections of this part, provided the Administrator finds that the circumstances presented warrant the deviation and that a level of safety will be maintained equal to that provided by the rule from which the deviation is sought. This deviation authority will be issued as a Letter of Deviation Authority.

(b) A Letter of Deviation Authority may be terminated or amended at any time by the Administrator.

(c) A request for deviation authority must be made in a form and manner acceptable to the Administrator and submitted to the FAA, Associate Administrator for Regulation and Certification, 800 Independence Avenue SW., Washington, DC 20591, at least 60 days before the date the deviation from specified sections in this part is necessary for the intended maintenance, preventive maintenance, or alteration. A request for deviation authority must contain a complete statement of the circumstances and justification for the

deviation requested, and show that a level of safety will be maintained equal to that provided by the rule from which the deviation is sought.

Subpart B—Certification

§ 145.51 Application for certificate.

(a) An application for a repair station certificate and rating must be made on a form and in a manner prescribed by the Administrator, and must include

(1) A copy of the applicant's repair station manual required by § 145.205 for approval by the Administrator;

(2) A list by type, make, or model, as appropriate, of the aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof, for which application is made;

(3) A statement signed by the accountable manager confirming that the procedures described in the repair station manual are in place and meet the requirements of the applicable Federal Aviation Regulations;

(4) An organizational chart of the repair station and a list of the names and titles of managing and supervisory personnel;

(5) A description of the applicant's facilities, including the physical address; and

(6) A list of the maintenance functions to be performed for the repair station, under contract, by another repair organization/facility under § 145.213.

(b) The equipment, personnel, technical data, and housing and facilities required for the certificate and rating for which the repair station has applied, or for an additional rating, must be in place for inspection at the time of certification by the Administrator.

(c) In addition to meeting the other applicable requirements for a repair station certificate and rating, an applicant for a repair station certificate and rating that is located outside the United States must meet the requirements of this paragraph.

(1) The applicant must show that the repair station certificate and/or rating is necessary for maintaining or altering:

(i) U.S.-registered aircraft, and aircraft engines, propellers, appliances, components, or parts thereof for use on U.S.-registered aircraft; or

(ii) Foreign-registered aircraft operated under the provisions of part 121 or part 135 of this chapter, and aircraft engines, propellers, appliances, components, or parts thereof for use on these aircraft.

(2) The applicant must furnish evidence that the fee prescribed by the Administrator has been paid.

(3) The applicant must submit the documentation required by this section in English.

(d) An applicant for a repair station certificate operated by a consortium, which functions as a single organization with regard to quality control and quality assurance, holds an approved type certificate, and performs maintenance, preventive maintenance, and alterations of that type-certificated product and components thereof, must have the consortium's quality control and quality assurance systems in place at each of its facilities.

(e) An application for an additional rating or renewal of a repair station certificate must be made on a form and in a manner prescribed by the Administrator. The application need include only that information necessary to substantiate the change or renewal of the certificate.

§ 145.53 Issue of certificate.

An organization is entitled to a repair station certificate with appropriate ratings prescribing such Operations Specifications and limitations as are necessary in the interest of safety when the Administrator determines that the organization meets the applicable requirements of this part.

§ 145.55 Duration and renewal of certificate.

(a) A certificate or rating issued to a repair station located in the United States is effective from the date of issue until the repair station surrenders it or the Administrator suspends or revokes it.

(b) A certificate or rating issued to a repair station located outside the United States is effective from the date of issue until

(1) The last day of the 24th month after the date of issue,

(2) The repair station surrenders the certificate, or

(3) The Administrator suspends or revokes the certificate.

(c) The holder of a certificate that expires or is surrendered, suspended, or revoked by the Administrator must return it to the Administrator.

(d) A certificated repair station located outside the United States that applies for a renewal of its repair station certificate must:

(1) Submit its request for renewal no later than 90 days before the repair station's current certificate expires. If a request for renewal is not made within this period, the repair station must follow the application procedure prescribed by the Administrator.

(2) Send its request for renewal to the FAA office that has jurisdiction over the station.

§ 145.57 Amendment to or transfer of certificate.

(a) If a repair station desires to amend, revise, or add a rating to its certificate, it must apply for a change in its repair station certificate on a form and in a manner prescribed by the Administrator.

(b) The privileges of a repair station certificate cannot be transferred if the repair station is sold, leased, or otherwise conveyed.

§ 145.59 Ratings and classes.

(a) *Aircraft ratings.* An aircraft rating on a repair station certificate permits that repair station to perform maintenance, preventive maintenance, or alterations on an aircraft, including work on the powerplant(s) of that aircraft up to, but not including, overhaul as that term is defined in § 145.3 under the following classes:

(1) Class 1: Aircraft (other than rotorcraft and aircraft composed primarily of composite material) of 12,500 pounds maximum certificated takeoff weight or less.

(2) Class 2: Aircraft (other than rotorcraft and aircraft composed primarily of composite material) over 12,500 pounds maximum certificated takeoff weight and up to and including 75,000 pounds maximum certificated takeoff weight.

(3) Class 3: Aircraft (other than rotorcraft and aircraft composed primarily of composite material) over 75,000 pounds maximum certificated takeoff weight.

(4) Class 4: Rotorcraft (other than rotorcraft composed primarily of composite material) of 6,000 pounds maximum certificated takeoff weight or less.

(5) Class 5: Rotorcraft (other than rotorcraft composed primarily of composite material) over 6,000 pounds maximum certificated takeoff weight.

(6) Class 6: Aircraft composed primarily of composite material of 12,500 pounds maximum certificated takeoff weight or less.

(7) Class 7: Aircraft composed primarily of composite material over 12,500 pounds maximum certificated takeoff weight.

(b) *Powerplant ratings.* A powerplant rating on a repair station certificate permits that repair station to perform maintenance, preventive maintenance, or alterations of powerplants under the following classes:

(1) Class 1: Reciprocating engines.

(2) Class 2: Turbopropeller and turboshaft engines.

(3) Class 3: Turbojet and turbofan engines.

(c) *Propeller ratings.* A propeller rating on a repair station certificate

permits that repair station to perform maintenance, preventive maintenance, or alterations of propellers under the following classes:

(1) Class 1: Fixed-pitch and ground-adjustable propellers.

(2) Class 2: Variable-pitch propellers.

(d) *Avionics ratings.* An avionics rating on a repair station certificate permits that repair station to perform maintenance, preventive maintenance, or alterations of avionics equipment under the following classes:

(1) Class 1: Communication equipment. Any radio transmitting or receiving equipment, or both, used in aircraft to send or receive communications, regardless of carrier frequency or type of modulation used.

(2) Class 2: Navigational equipment. Any system used in aircraft for navigation except equipment operated on pulsed radio frequency principles.

(3) Class 3: Pulsed equipment. Any aircraft electronic system operated on pulsed radio frequency principles.

(e) *Computer systems ratings.* A computer systems rating on a repair station certificate permits that repair station to perform maintenance, preventive maintenance, or alterations of digital computer systems and components thereof, that have the function of receiving external data, processing such data, and transmitting and presenting the processed data under the following classes:

(1) Class 1: Aircraft computer systems: Flight management, flight control, and similar systems.

(2) Class 2: Powerplant computer systems:

Fuel control, electronic engine control, and similar systems.

(3) Class 3: Avionics computer systems: Electronic flight instrument, navigation management, and similar systems.

(f) *Instrument ratings.* An instrument rating on a repair station certificate permits that repair station to perform maintenance, preventive maintenance, or alterations of instruments under the following classes:

(1) Class 1: Mechanical: Any diaphragm, bourdon tube, aneroid, or optical or mechanically driven centrifugal instrument.

(2) Class 2: Electrical: Any self-synchronous and electrical indicating instruments and systems.

(3) Class 3: Gyroscopic: Any instrument or system using gyroscopic principles and motivated by air pressure or electrical energy.

(4) Class 4: Electronic: Any instrument whose operation depends on transistors; lasers; fiber optics; solid-state, integrated circuits; vacuum tubes; or similar devices.

(g) *Accessory ratings.* An accessory rating on a repair station certificate permits that repair station to perform maintenance, preventive maintenance, or alterations of accessory equipment under the following classes:

(1) Class 1: Mechanical accessories that depend on friction, hydraulics, mechanical linkage, or pneumatic pressure for operation.

(2) Class 2: Electrical accessories that depend on or produce electrical energy.

(3) Class 3: Electronic accessories that depend on the use of transistors; lasers; fiber optics; solid-state, integrated circuits; vacuum tubes; or similar devices.

(4) Class 4: Auxiliary power units (APUs) that may be installed on an aircraft as self-contained units to supplement the aircraft's engines as a source of hydraulic, pneumatic, or electrical power.

(h) *Limited ratings.* Whenever deemed appropriate by the Administrator, a repair station may be issued a limited rating for the performance of maintenance, preventive maintenance, or alterations of a particular make and model, or part thereof, of any of the following articles:

- (1) Aircraft,
- (2) Airframes,
- (3) Powerplants,
- (4) Propellers,
- (5) Avionics equipment,
- (6) Computer systems,
- (7) Instruments, and
- (8) Accessories.

(i) *Specialized service ratings.* A specialized service rating may be issued to a repair station to perform specific maintenance or processes. The Operations Specifications of the repair station must identify the specification used in performing that specialized service.

The specification may be

- (1) A civil or military specification that is currently used by industry and approved by the Administrator; or
- (2) A specification developed by the repair station and approved by the Administrator.

§ 145.61 Transition to new system of ratings.

(a) Except as provided in paragraph (b) of this section, a certificated repair station with a certificate issued before [effective date of the final rule], may exercise the privileges of that certificate until [2 years after the effective date of the final rule].

(b) A certificated repair station with a certificate issued before [effective date of the final rule] that makes an application to change any portion of that certificate under § 145.57 must

meet all the applicable requirements of this part and apply for and receive approval for each rating under which the repair station desires to exercise privileges.

Subpart C—Facilities, Equipment, Materials, and Housing

§ 145.101 General.

A certificated repair station must provide personnel, facilities, equipment, and materials in quantity and quality that meet the standards required for the issuance of the certificate and ratings that the repair station holds.

§ 145.103 Facility and housing requirements.

(a) Each certificated repair station must provide suitable facilities and housing so that the maintenance, preventive maintenance, or alteration being performed is protected from weather elements, dust, and heat; such facilities must include the following:

(1) Housing for the repair station's necessary equipment and material.

(2) Space for the maintenance, preventive maintenance, or alterations that the repair station performs under its rating.

(3) Facilities for properly storing, segregating, and protecting materials, parts, and supplies.

(4) Facilities for properly protecting parts and subassemblies during disassembly, cleaning, inspection, repair, alteration, and assembly.

(5) Shop space where machine tools and equipment are kept and where the largest amount of bench work is done. The shop space need not be partitioned, but machines and equipment must be segregated whenever

(i) Machine or woodwork is performed near an assembly area where chips or other material might inadvertently fall into assembled or partially assembled work;

(ii) Unpartitioned cleaning units for parts are near other operations;

(iii) Painting or spraying is performed in an area arranged so that paint or paint dust could fall on assembled or partially assembled work;

(iv) Paint spraying, cleaning, or machine operations are performed near testing operations so that the precision of test equipment might be affected; or

(v) Determined necessary by the Administrator.

(6) Assembly space in an enclosed structure where the largest amount of assembly work is done. The assembly space must be large enough for the largest article on which work is to be performed.

(7) Storage facilities used exclusively for properly storing and protecting parts

and raw materials, separated from shop and working space so that

(i) Only acceptable parts and supplies are used; and

(ii) Parts being assembled or disassembled or awaiting assembly or disassembly will be stored and protected so as to minimize the possibility of damage.

(8) Ventilation for the repair shop and the assembly and storage areas so that the physical capability of workers is not impaired.

(9) Lighting for work being performed that does not adversely affect the quality of work.

(10) Control of the temperature of the shop and assembly area so that the quality of work is not affected. Whenever special maintenance operations are being performed, the temperature and humidity control must be adequate to ensure the airworthiness of the article being maintained.

(b) A certificated repair station must meet the additional special facility and housing requirements of this paragraph that apply to each rating held by that repair station.

(1) Except as provided in paragraph (b)(2) of this section, a repair station with an aircraft rating must provide suitable, permanent housing to enclose the largest type and model of aircraft for which it is rated.

(2) If a repair station is located where climatic conditions allow the repair station to perform maintenance, preventive maintenance, or alterations on aircraft outside, the repair station may use permanent work docks if they meet the requirements of § 145.103(a). These permanent work docks must be acceptable to the Administrator.

(3) A repair station that performs maintenance, preventive maintenance, or alterations on any article of composite construction must meet acceptable process requirements.

(4) A repair station with either a powerplant or accessory rating must

(i) Provide suitable trays, racks, or stands to separate complete engine or accessory assemblies from each other during assembly and disassembly; and

(ii) Ensure that parts are protected to prevent contaminants from entering into or falling on such parts either before or during assembly.

(5) A repair station with a propeller rating must provide suitable stands, racks, or other fixtures to perform the maintenance, preventive maintenance, or alteration, and to store propellers properly.

(6) A repair station with an avionics rating must provide suitable storage facilities to ensure that parts and units

that might deteriorate from dampness or moisture are protected.

(7) A repair station with an avionics, instrument, or computer system rating must provide a facility that meets the standards for environmental control and protection from contaminants specified by the equipment or system manufacturer.

(8) A repair station must meet any special facilities requirements determined by the manufacturer and approved by the Administrator for an article or system on which maintenance, preventive maintenance, or alteration is performed.

(c) A certificated repair station may temporarily transport material, equipment, and technical personnel that are necessary to perform maintenance, preventive maintenance, alteration, or a certain specialized service on an aircraft at a place other than that repair station's fixed location, if the following requirements are met:

(1) The work is necessary due to a special circumstance, for example, aircraft on ground, or preparation for a ferry flight, as determined by the Administrator; and

(2) The repair station's manual includes the manner and procedures for accomplishing maintenance, preventive maintenance, alteration, or a specialized service at a place other than the repair station's fixed location.

§ 145.105 Change of location, housing, or facilities.

(a) A certificated repair station may not make any change in its location or any change, deletion, or addition to its housing or facilities, whether the change is a new location, is a substantial rearrangement of space within the present location, or involves moving any of the housing or facilities that are required by § 145.103, unless the change is approved by the Administrator.

(b) The Administrator may prescribe the conditions, including any limitations, under which a certificated repair station may operate while it is changing its location, housing, or facilities.

(c) A certificated repair station may not operate at a new location until approved by the Administrator.

§ 145.107 Satellite repair stations.

(a) A satellite repair station is a repair station with its certificate issued by the Administrator that operates under the managerial control of a parent certificated repair station. A satellite repair station must

(1) Meet the requirements for each rating held by the satellite repair station; and

(2) Prepare a repair station manual required by § 145.205 that is:

(i) Consistent with the parent certificated repair station's manual; and

(ii) Approved by the FAA certificate holding district office.

(b) Unless the Administrator indicates otherwise, personnel and equipment from a certificated repair station and from each of the repair station's independent satellite repair stations may be cross-utilized by the parent repair station or by any of its satellite repair stations.

(c) A repair station located within the United States may not have a satellite repair station located outside the United States.

(d) A repair station located outside of the United States may not have a satellite repair station located within the United States.

§ 145.109 Maintenance, preventive maintenance, and alterations performed at satellite repair stations.

The holder of a repair station certificate may perform maintenance, preventive maintenance, or alterations at a satellite repair station if a chief inspector or assistant chief inspector is designated for each satellite repair station. That inspector must be available at the satellite repair station or, if away from the premises, by telephone, radio, or other electronic means.

§ 145.111 Equipment and material requirements.

(a) Except when work is being performed at an authorized satellite facility, a certificated repair station must have, located on the premises and under its full control, the equipment and material necessary to perform the maintenance, preventive maintenance, or alterations appropriate to the rating held by the repair station as set forth in appendix A to this part. Such equipment and material must be acceptable to the Administrator.

(b) A certificated repair station must ensure that all inspection and test equipment used for product acceptance and/or for making a finding of airworthiness is tested at regular intervals to ensure correct calibration to a standard acceptable to the Administrator.

(c) Each certificated repair station performing work under a rating other than a specialized service rating must have suitable tools and equipment for the functions set forth in appendix A to this part, as appropriate, for each rating held by the repair station. Repair stations with limited ratings and specialized service ratings must be equipped to perform the functions

applicable to the make and model of the article on which maintenance, preventive maintenance, or alteration is performed. The tools and equipment must be those recommended by the manufacturer of the article on which the repair station performs maintenance, preventive maintenance, or alteration, or tools and equipment that are equivalent to the manufacturer's recommendation and acceptable to the Administrator.

(d) A certificated repair station performing work under a specialized service rating must have the appropriate technical data prescribed by the specification or manufacturer for performing the maintenance or alterations permitted by the specialized service rating. Such data must be approved by the Administrator.

Subpart D—Personnel

§ 145.151 Personnel requirements.

(a) Each certificated repair station must:

- (1) Designate an individual as the accountable manager;
- (2) Have a sufficient number of personnel to plan and perform the maintenance, preventive maintenance, or alterations for which the repair station is rated; and
- (3) Determine the abilities of its noncertificated employees to perform maintenance operations, based on practical tests or employment records.

(b) Each certificated repair station is responsible for ensuring the satisfactory performance of work by its maintenance employees.

(c) Each certificated repair station must have a sufficient number of employees who have detailed knowledge of the particular maintenance function or technique for which the repair station is rated, based on satisfactory training or applicable technical experience with the article or technique involved.

§ 145.153 Supervisory and inspection personnel requirements.

(a) Each certificated repair station must provide a sufficient number of trained personnel who can supervise and inspect the maintenance, preventive maintenance, or alterations for which the station is rated.

(b) Each supervisor must have direct supervision over working groups but does not need to be experienced in supervision at the management level.

(c) Whenever apprentices or students are used in working groups, the repair station must provide at least 1 supervisor for each 10 apprentices or students, unless the apprentices or

students are integrated into groups of experienced workers.

(d) Each individual who is supervising a maintenance function in a repair station must:

(1) Be appropriately certificated as a mechanic or repairman under part 65 of this chapter when supervising a maintenance function in a repair station located within the United States;

(2) Have had at least 18 months of practical experience in the maintenance function that the individual is supervising; and

(3) Be adequately trained on maintenance of the article upon which work is performed and be familiar with the procedures, practices, inspection methods, materials, tools, and equipment used in the maintenance, preventive maintenance, or alterations for which the repair station is rated.

(e) At least one of the individuals in charge of maintenance functions for a repair station with an aircraft rating must have experience in the methods and procedures prescribed by the Administrator for approving aircraft for return to service after inspections required by § 91.409 of this chapter.

(f) A certificated repair station that is located outside the United States must have a sufficient number of supervisors and inspectors who understand the regulations in this chapter, the FAA Airworthiness Directives, and the manufacturers' maintenance and service instructions for the articles on which the repair station performs maintenance, preventive maintenance, or alterations. These supervisors and inspectors:

(1) Are not required to have U.S. airman certificates issued under this chapter;

(2) Are not considered to be airmen within the meaning of Title 49, United States Code, with respect to work performed in connection with their employment by such a repair station; and

(3) Must understand, read, and write the English language.

(g) The Administrator may evaluate the ability of any certificated repair station supervisory or inspection personnel to meet the requirements of this section by

(1) Inspecting that person's employment and experience records;

(2) Conducting an oral or practical test; or

(3) Any other method the Administrator elects.

§ 145.155 Recommendation of persons for certification as repairmen.

(a) An applicant for a repair station certificate or for an additional rating on a current and valid repair station

certificate who chooses to use repairmen to satisfy the personnel requirements of this part must:

(1) Recommend at least the required number of individuals for certification as repairmen to meet the applicable requirements;

(2) Certify that each person recommended is employed by the repair station and meets the requirements of § 65.101 of this chapter; and

(3) Certify that each person recommended has the necessary training and practical experience to perform the repair station work functions for which repairman certification is required.

(b) The Administrator may evaluate any repairman's ability to meet this section's requirements by:

(1) Inspecting that person's employment and experience records;

(2) Conducting an oral or practical test; or

(3) Any other method the Administrator elects.

§ 145.157 Records of management, supervisory, and inspection personnel.

(a) Each certificated repair station must maintain the following:

(1) A roster of management and supervisory personnel, including the names of the repair station officials who are responsible for its management and the names of its technical supervisors;

(2) A roster with the names of all inspection personnel, including the chief inspector;

(3) A roster of personnel authorized to sign a maintenance release for approving an altered or repaired article for return to service;

(4) A summary of the employment of each individual whose name is on the management, supervisory, and inspection personnel roster. The summary must contain enough information on each individual listed on the roster to show compliance with the experience requirements of this part, including:

(i) Present title;

(ii) Total years of experience in type of maintenance work;

(iii) Past employment record with names of places and periods of employment by month and year;

(iv) Scope of present employment; and

(v) If applicable, the type of mechanic or repairman certificate held and the ratings on that certificate.

(b) The rosters required by this section must be kept current and reflect changes caused by termination, reassignment, change in duties or scope of assignment, or addition of personnel.

§ 145.159 Training requirements.

(a) Each certificated repair station must have an employee training program that consists of initial and recurrent training and is approved by the Administrator.

(b) The training program must ensure that each employee assigned to perform maintenance, preventive maintenance, or alterations, and each employee assigned to perform inspection functions is capable of performing the assigned task.

(c) Each certificated repair station must document in a form acceptable to the Administrator programs pertaining to individual employee training. Individual training records for those employees who require training under the requirements in paragraph (b) of this section must be retained for the duration of each individual's employment.

Subpart E—Operating Rules**§ 145.201 Quality assurance and quality control systems.**

(a) Each certificated repair station must:

(1) Establish and maintain a quality assurance system acceptable to the Administrator;

(2) Establish and maintain a quality control and inspection system that ensures the airworthiness of the articles on which the repair station or any of its contractors performs maintenance, preventive maintenance, or alterations; and

(3) Describe the systems required by this paragraph in the repair station's manual.

(b) Each certificated repair station must maintain and keep current Airworthiness Directives, Instructions for Continued Airworthiness, and service bulletins that relate to the articles on which that repair station performs maintenance, preventive maintenance, or alterations.

(c) Each certificated repair station must possess all current manufacturers' maintenance manuals relating to an article when that repair station performs maintenance or alteration on the article.

§ 145.203 Capability list.

(a) Each certificated repair station must prepare and retain a current capability list acceptable to the Administrator. The repair station may not perform maintenance, preventive maintenance, or alterations on an article until the article has been listed on the capability list in accordance with this section and § 145.207(g).

(b) The capability list must identify each article by make and model, part

number, or other nomenclature designated by the article's manufacturer.

(c) An article may be listed on the capability list only if the article is within the scope of the ratings and classes of the repair station's certificate, and only after the repair station has performed a self-evaluation in accordance with § 145.207(g). The repair station must perform the self-evaluation described in this paragraph to determine that the repair station has all of the facilities, equipment, material, technical data, processes, housing, and trained personnel in place to perform the work on the article as required by part 145. If the repair station makes that determination, it may list the article on the capability list.

(d) The document of the evaluation described in paragraph (c) of this section must be signed by the accountable manager and must be retained on file by the repair station.

(e) Upon listing an additional article on its capability list, the repair station must send a copy of the list to its certificate holding district office.

§ 145.205 Repair station manual.

(a) Each certificated repair station must prepare, keep current, and follow an approved repair station manual for the ratings authorized that is consistent with the size and complexity of the repair station.

(b) The certificated repair station manual must:

(1) Set forth the procedures and policies approved by the Administrator for the repair station's operation in accordance with the requirements of this part; and

(2) Be followed by the repair station's personnel while conducting station operations.

(c) Each certificated repair station must maintain at least one copy of its current manual at its facility.

(d) A copy of the repair station's current manual must be made readily available to repair station personnel required by subpart D of this part.

(e) The repair station must provide to the certificate holding district office:

(1) A current paper copy of the repair station manual; or

(2) A current electronic copy of the repair station manual that is accompanied by the means to access the electronic copy.

(f) Except for changes to the capability list, each revision to the repair station manual must be submitted to the Administrator for approval.

§ 145.207 Repair station manual contents.

Each certificated repair station's manual must include the following:

(a) An organizational chart containing the name of each management employee who is authorized to act for the repair station, the employee's assigned area of responsibility, and the employee's duties, responsibilities, and authority;

(b) A roster of authorized inspection personnel who may approve an article for return to service;

(c) A description of the certificated repair station's operations, including a description of the facilities, equipment, material, and housing as required by subpart C of this part;

(d) An explanation of the certificated repair station's quality assurance system, including:

(1) The quality control system;

(2) References, where applicable, to the manufacturer's inspection standards for a particular article, including reference to any data specified by that manufacturer;

(3) A sample copy of the inspection forms and instructions for completing such forms or a reference to a separate forms manual;

(4) Procedures for updating the capability list required by § 145.203, including notification of the certificate holding district office; and

(5) Procedures for the implementation of corrective actions for any discrepancies found by the quality assurance system;

(e) A description of the training program required by § 145.159;

(f) Procedures to govern maintenance, preventive maintenance, or alterations performed in accordance with § 145.103(c);

(g) Procedures for self-evaluations, including methods and frequency of such evaluations, and procedures for reporting results to the accountable manager for review and action;

(h) A list of the maintenance functions contracted to an outside facility with:

(1) The name of the facility;

(2) The type of certificate and ratings, if any, held by such facility; and

(3) Procedures for qualifying and surveilling the facility and for accepting maintenance, preventive maintenance, or alterations performed by the facility;

(i) Procedures for maintenance, preventive maintenance, or alterations performed under § 145.7;

(j) A description of the required records and the recordkeeping system used to obtain, store, and retrieve the required records;

(k) The repair station's capability list;

(l) Procedures necessary for revising the repair station's manual to include the names of persons authorized to approve such revisions before submitting the revision to the Administrator for approval;

(m) The date of the latest revision on each page;

(n) A list of effective pages;

(o) A table of contents and list of revisions to the repair station manual with the date of each revision; and

(p) The procedures for changes in location and facilities of the repair station.

§ 145.209 Quality control system and procedures.

(a) The inspection personnel for each certificated repair station must be thoroughly familiar with all inspection methods, techniques, and equipment used to determine the airworthiness of an article on which the repair station performs maintenance, preventive maintenance, or alterations.

(b) A certificated repair station's inspection personnel must:

(1) Maintain proficiency with the inspection aids used;

(2) Have available and understand FAA Airworthiness Directives, service bulletins, and current specifications involving inspection tolerances, limitations, and procedures established by the manufacturer for the article the individual inspects; and

(3) In cases where maintenance inspection equipment is used, be skilled in operating that equipment and be able to interpret defects indicated by that equipment.

(c) Each certificated repair station must provide a satisfactory method of inspecting incoming articles and materials. This system must provide for:

(1) Inspection of raw materials and articles to ensure acceptable quality and, where applicable, conformity with type design data;

(2) Inspection of those articles on which contract maintenance or alterations were performed as provided for in § 145.213 to ensure that before such an article is placed in stock or installed in an aircraft or part thereof, the article is in a good state of preservation, is free from apparent defects or damage, is in conformity with type design data, and is in condition for safe operation;

(3) A preliminary inspection system for all articles on which the repair station performs maintenance, preventive maintenance, or alterations to determine the state of preservation, locate defects, and to ensure that any required records are present; and

(4) Entering the results of each inspection on the appropriate form as set forth in the repair station's manual.

(d) Each certificated repair station must provide a system so that any aircraft, airframe, aircraft engine, propeller, appliance, component, or part

thereof that has been involved in an accident is inspected thoroughly for hidden damage before maintenance, preventive maintenance, or alteration is performed. The repair station must enter the results of this inspection on the inspection form required by paragraph (c)(4) of this section.

(e) Each certificated repair station must ensure the continuity of inspection responsibility for its facility.

§ 145.211 Inspection of maintenance, preventive maintenance, or alterations performed.

(a) A certificated repair station must inspect each aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof upon which it has performed maintenance, preventive maintenance, or alterations as described in paragraphs (b) and (c) of this section before approving that article for return to service.

(b) Each repair station must certify on an article's maintenance release that the article is airworthy with respect to the maintenance, preventive maintenance, or alterations performed after:

(1) The repair station performs work on the article; and

(2) A qualified inspector inspects the article on which the repair station has performed work and determines it to be airworthy.

(c) For the purposes of paragraphs (a) and (b) of this section, the qualified inspector must:

(1) Be a certificated repair station designated employee who has shown by experience an understanding of the inspection methods, techniques, and equipment used to determine the airworthiness of the article concerned;

(2) Be proficient in using the various types of maintenance and visual inspection aids appropriate for the article being inspected; and

(3) If the certificated repair station is located outside the United States, the inspector must meet the requirements of § 145.153(f).

(d) Except for individuals employed by a repair station located outside the United States, only a certificated employee is authorized to sign off on final inspections and maintenance releases for the repair station.

§ 145.213 Contract maintenance.

(a) A certificated repair station may not contract a job function to another certificated repair station unless:

(1) The contracting repair station meets the quality control and inspection system requirements of 145.201(a)(2) and 145.209(c)(2), and

(2) The contracting repair station's approved repair station manual contains

the information and procedures specified in 145.207(h).

(b) A certificated repair station may not contract a job function to a noncertificated person unless:

(1) The certificated repair station meets the quality control and inspection system requirements of 145.201(a)(2) and 145.209(c)(2);

(2) The certificated repair station's approved repair station manual contains the information and procedures specified in 145.207(h);

(3) The certificated repair station supervises or otherwise remains directly in charge of the job function; and

(4) The certificated repair station verifies, by test and/or inspection, that the job function has been satisfactorily performed by the noncertificated person prior to approving the article for return to service.

(c) A certificated repair station may not contract the maintenance, preventive maintenance, or alteration of a complete type-certificated product, and it may not provide only approval for return to service of any article following contract maintenance.

§ 145.215 Privileges and limitations of certificate.

(a) A certificated repair station may:

(1) Perform maintenance, preventive maintenance, or alterations only on any aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof for which it is rated;

(2) Arrange for the maintenance, preventive maintenance, or alteration of any article for which it is rated at another organization only if that organization is under the quality control system of the repair station, as prescribed by § 145.201(a); and

(3) Approve for return to service only an article or component of an article for which it is rated after maintenance, preventive maintenance, or alteration has been performed.

(b) A certificated repair station may not approve for return to service:

(1) Any aircraft, airframe, aircraft engine, propeller, appliance, component, or part thereof unless the maintenance, preventive maintenance, or alteration was performed in accordance with approved technical data or data acceptable to the Administrator;

(2) Any aircraft, airframe, aircraft engine, propeller, or appliance after a major repair or a major alteration unless the major repair or major alteration was performed in accordance with approved technical data; and

(3) Any experimental aircraft after a major repair or major alteration unless the major repair or major alteration was

performed in accordance with methods and technical data acceptable to the Administrator.

§ 145.217 Recordkeeping.

(a) Each certificated repair station located inside the United States must retain adequate records and reports of maintenance, preventive maintenance, and alterations performed on any aircraft, airframe, aircraft engine, propeller, appliance, or component part. The records and reports retained by a repair station must:

(1) Be sufficiently detailed to show the make, model, identification number, and serial number (when applicable) of the article involved;

(2) Be retained for a minimum of 2 years from the date on which the article was approved for return to service;

(3) Include a copy of the maintenance release; and

(4) Be kept in the form of the actual work documents, or copies thereof, or by means of an automated data processing system that is protected from unauthorized use and access and that is acceptable to the Administrator.

(b) Each certificated repair station must give a copy of the maintenance release to the owner or operator of the article on which maintenance, preventive maintenance, or alteration was performed. The maintenance release given to the owner or operator must be retrievable in English. The repair station may use as the maintenance release the record that it completes to comply with §§ 43.9 and 43.11 of this chapter.

(c) Each certificated repair station must make all maintenance records required to be kept by this section available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board. The record must be provided in English, either in paper format or, if provided in other than paper format, with the means necessary to create a paper copy of the record.

(d) Certificated repair stations located outside the United States must:

(1) Retain such records and reports as described in paragraph (a)(1) through (4) of this section for at least 2 years with respect to—

(i) U.S.-registered aircraft and aircraft engines, propellers, appliances, or component parts for use on U.S.-registered aircraft; and

(ii) Foreign-registered aircraft operated under the provisions of part 121 or part 135 of this chapter and aircraft engines, propellers, appliances, or component parts for use on these foreign-registered aircraft; and

(2) Meet the requirements of Appendixes A and B to part 43 of this chapter, in the case of major repairs or major alterations.

§ 145.219 Reports of defects or unairworthy conditions.

(a) Each certificated repair station must meet the requirements of paragraph (b) of this section within 72 hours after discovering any serious defect in, or other recurring unairworthy condition of, any aircraft, airframe, aircraft engine, propeller, appliance, or component part on which the repair station performs maintenance, preventive maintenance, or alterations under this part.

(b) Each repair station must report the defect or unairworthy condition it discovers to the Administrator on a form and in a manner prescribed by the Administrator. The report must include as much of the following information as is available:

(1) Type, make, and model of the aircraft, airframe, aircraft engine, propeller, appliance, or component part;

(2) Name and address of the operator;

(3) Date of the discovery of the serious defect or other recurring unairworthy condition;

(4) Nature of the failure, malfunction, or defect;

(5) Identification of the article or system involved, including available information on type designation of the article and time since last overhaul;

(6) Apparent cause of the failure, malfunction, or defect (e.g., wear, crack, design deficiency, or personnel error); and

(7) Other pertinent information that is necessary for more complete identification, determination of seriousness, or corrective action.

(c) The holder of a repair station certificate who is also the holder of a part 121, 125, or 135 Certificate, Type Certificate (including a Supplemental Type Certificate), Parts Manufacturer Approval (PMA), or Technical Standard Order (TSO) authorization, or who is the licensee of a Type Certificate holder, does not need to report a failure, malfunction, or defect under this section if the failure, malfunction, or defect has been reported under §§ 21.3, 121.703, 125.409, or 135.415 of this chapter.

§ 145.221 FAA inspections.

Each certificated repair station must allow the Administrator to inspect that repair station and any of its contract maintenance facilities at any time to determine compliance with this chapter. Arrangements for maintenance, preventive maintenance, or alterations

by a contractor must include provisions for inspections of the contractor by the Administrator.

Appendix A to Part 145—Job Functions

Except for job functions that are contracted out, each certificated repair station must provide equipment and material so that the job functions listed in this appendix, as appropriate to the class or limited rating held or applied for, can be performed as required. The job functions are as follows:

(a) For an aircraft rating:

(1) Classes 1, 2, 3, 4, and 5:

(i) Metal skin and structural components:

(A) Repair and replace steel tubes and fittings using the proper welding techniques, when appropriate.

(B) Apply anticorrosion treatment to the interior and exterior of parts.

(C) Perform simple machine operations.

(D) Fabricate steel fittings.

(E) Repair and replace metal skin.

(F) Repair and replace alloy members and components.

(G) Assemble and align components using jigs or fixtures.

(H) Make up forming blocks or dies.

(I) Repair or replace ribs.

(ii) Wood structure:

(A) Splice wood spars.

(B) Repair ribs and spars.

(C) Align interior of wings.

(D) Repair or replace plywood skin.

(E) Apply treatment against wood decay.

(iii) Fabric covering:

Repair fabric surfaces.

(iv) Aircraft control systems:

(A) Repair and replace control cables.

(B) Rig complete control system.

(C) Replace and repair all control system components.

(D) Remove and install control system units and components.

(v) Aircraft systems:

(A) Replace and repair landing gear hinge-point components and attachments.

(B) Maintain elastic shock absorber units.

(C) Conduct landing gear retraction cycle tests.

(D) Maintain electrical position-indicating and -warning systems.

(E) Repair and fabricate fuel, pneumatic, hydraulic, and oil lines.

(F) Diagnose electrical and electronic malfunctions.

(G) Repair or replace electrical wiring and electronic data transmission lines.

(H) Install electrical and electronic equipment.

(I) Perform bench check of electrical and electronic components. (This check is not to be confused with the more complex functional test after overhaul.)

(vi) Assembly operations:

(A) Assemble aircraft components or parts, such as landing gear, wings, and controls.

(B) Rig and align aircraft components, including the complete aircraft and control system.

(C) Install powerplants.

(D) Install instruments and accessories.

(E) Assemble and install cowlings, fairings, and panels.

(F) Maintain and install windshields and windows.

(G) Jack or hoist complete aircraft.
 (H) Balance flight control surfaces.
 (vii) Nondestructive inspection and testing using dye penetrants and magnetic, ultrasonic, radiographic, fluorescent, or holographic inspection techniques.

(viii) Inspection of metal structures:

Inspect metal structures using appropriate inspection equipment to perform the inspections required on an aircraft under this chapter.

(2) Classes 6 and 7:

(i) In addition to having the capability to perform the appropriate functions set forth for Class 1, 2, 3, 4, or 5 aircraft ratings, a repair station holding a Class 6 or Class 7 aircraft rating for composite aircraft must have the following equipment:

(A) Autoclave capable of providing positive pressure and temperature consistent with materials used.

(B) Air circulating oven with vacuum capability.

(C) Storage equipment such as freezer, refrigerator, and temperature-control cabinets or other definitive storage areas.

(D) Honeycomb core cutters.

(E) Nondestructive inspection equipment such as x-ray, ultrasonic, or other types of acoustic test equipment as recommended by the manufacturer.

(F) Cutting tools, such as diamond or carbide saws or router bits, suitable for cutting and trimming composite structures.

(G) Scales adequate to ensure proper proportioning by weight of epoxy adhesive and resins.

(H) Mechanical pressure equipment such as vacuum bagging or sand bags, as appropriate.

(I) Thermocouple probes necessary to monitor cure temperatures.

(J) Hardness testing equipment using heat guns that are thermostatically controlled for curing repairs.

(ii) Appropriate inspection equipment to perform inspection of composite structures as recommended by the manufacturer and as required for inspection of an aircraft under this chapter.

(b) Powerplant rating:

(1) Class 1:

(i) Maintain and alter powerplants, including replacement of parts:

(A) Perform chemical and mechanical cleaning.

(B) Perform disassembly operations.

(C) Replace bushings, bearings, pins, and inserts.

(D) Perform heating operations that may involve the use of recommended techniques that require controlled heating facilities.

(E) Perform chilling or shrinking operations.

(F) Remove and replace studs.

(G) Inscribe or affix identification information.

(H) Paint powerplants and components.

(I) Apply anticorrosion treatment for parts.
 (ii) Inspect all parts, using appropriate inspection aids:

(A) Determine precise clearances and tolerances of all parts.

(B) Inspect alignment of connecting rods, crankshafts, and impeller shafts.

(C) Inspect valve springs.

(iii) Accomplish routine machine work:

(A) Ream inserts, bushings, bearings, and other similar components.

(B) Reface valves.

(iv) Accomplish assembly operations:

(A) Perform valve-and ignition-timing operations.

(B) Fabricate and test ignition harnesses.

(C) Fabricate and test rigid and flexible fluid lines.

(D) Prepare engines for long-or short-term storage.

(E) Hoist engines by mechanical means.

(2) Classes 2 and 3:

(i) In addition to having the capability to perform the appropriate functions as required for a Class 1 powerplant rating, a repair station holding a Class 2 or a Class 3 powerplant rating must have the following equipment:

(A) Testing equipment.

(B) Surface treatment antigallant equipment.

(ii) Functional and equipment requirements recommended by the manufacturer; and

(iii) Appropriate inspection equipment.

(c) Propeller rating:

(1) Class 1:

(i) Remove and install propellers.

(ii) Maintain and alter propellers, including installation and replacement of parts:

(A) Replace blade tipping.

(B) Refinish wood propellers.

(C) Make wood inlays.

(D) Refinish plastic blades.

(E) Straighten bent blades within repairable tolerances.

(F) Modify blade diameter and profile.

(G) Polish and buff.

(H) Perform painting operations.

(iii) Inspect components using appropriate inspection aids:

(A) Inspect propellers for conformity with manufacturer's drawings and specifications.

(B) Inspect hubs and blades for failures and defects using all visual aids, including the etching of parts.

(C) Inspect hubs for wear of splines or keyways or any other defect.

(iv) Balance propellers:

(A) Test for proper track on aircraft.

(B) Test for horizontal and vertical unbalance using precision equipment.

(2) Class 2:

(i) Remove and install aircraft propellers, which may include installation and replacement of parts.

(A) Perform all functions listed under Class 1 propellers when applicable to the make and model propeller in this class.

(B) Properly lubricate moving parts.

(C) Assemble complete propeller and subassemblies using special tools when required.

(ii) Inspect components using appropriate inspection aids for those functions listed for Class 1 propellers under paragraph (c)(1)(iii) of this appendix when applicable to the make and model of the propeller being worked on:

(iii) Repair or replace components or parts:
 (A) Replace blades, hubs, or any of their components.

(B) Repair or replace anti-icing devices.

(C) Remove nicks or scratches from metal blades.

(D) Repair or replace electrical propeller components.

(iv) Balance propellers, including those functions listed for Class 1 propellers under paragraph (c)(1)(iv) of this appendix when applicable to the make and model of the propeller being worked on.

(v) Test propeller pitch-changing mechanism:

(A) Test hydraulically operated propellers and components.

(B) Test electrically operated propellers and components.

(d) Avionics rating:

(1) Classes 1, 2, and 3:

(i) Perform physical inspection of avionics systems and components by visual and mechanical methods.

(ii) Perform electrical inspection of avionics systems and components by means of appropriate electrical and/or electronic test instruments.

(iii) Check aircraft wiring, antennas, connectors, relays, and other associated avionics components to detect installation faults.

(iv) Check engine ignition systems and aircraft accessories to determine sources of electrical interference.

(v) Check aircraft power supplies for adequacy and proper functioning.

(vi) Remove, repair, and replace aircraft antennas.

(vii) Measure transmission-line attenuation.

(viii) Measure audio and radio frequencies to appropriate tolerances and perform calibration necessary for proper operation, as appropriate.

(ix) Measure avionics component values such as inductance, capacitance, and resistance.

(x) Determine wave forms and phase in avionics equipment when applicable.

(xi) Determine proper aircraft avionics antenna, lead-in, and transmission-line characteristics and determine proper locations for type of avionics equipment to which the antenna is connected.

(xii) Determine the operational condition of avionics equipment installed in aircraft by using appropriate portable test apparatus.

(xiii) Test all types of transistors; solid-state, integrated circuits; or similar devices in equipment appropriate to the class rating.

(2) Class 1:

In addition to having the capability to perform the job functions listed in paragraph (d)(1):

(i) Test and repair headsets, speakers, and microphones.

(ii) Measure radio transmitter power output.

(iii) Measure modulation values, noise, and distortion in communication equipment.

(3) Class 2:

In addition to having the capability to perform the job functions listed in paragraph (d)(1):

(i) Test and repair headsets.

(ii) Test speakers.

(iii) Measure loop antenna sensitivity by appropriate methods.

(iv) Calibrate to approved performance standards any radio navigational equipment, en route and approach aids, or similar equipment, as appropriate to this rating.

- (4) Class 3:
 (i) In addition to having the capability to perform the job functions listed in paragraph (d)(1):
 (ii) Measure transmitter power output.
 (e) Computer systems rating:
 (1) Classes 1, 2, and 3:
 (i) Maintain computer systems in accordance with manufacturer's specifications, test requirements, and recommendations.
 (ii) Remove, maintain, and replace computer systems in aircraft.
 (iii) Inspect, test, and calibrate computer system equipment, including software.
 (2) [Reserved].
 (f) Instrument rating:
 (1) Class 1:
 (i) Diagnose instrument malfunctions of the following instruments:
 (A) Rate-of-climb indicators.
 (B) Altimeters.
 (C) Airspeed indicators.
 (D) Vacuum indicators.
 (E) Oil pressure gauges.
 (F) Fuel pressure gauges.
 (G) Hydraulic pressure gauges.
 (H) Deicing pressure gauges.
 (I) Pitot-static tube.
 (J) Direct indicating compasses.
 (K) Accelerometer.
 (L) Direct indicating tachometers.
 (M) Direct reading fuel quantity gauges.
- (ii) Inspect, test, and calibrate the instruments listed under paragraph (f)(1)(i) of this appendix on and off the aircraft, as appropriate.
 (2) Class 2:
 (i) Diagnose instrument malfunctions of the following instruments:
 (A) Tachometers.
 (B) Synchroscope.
 (C) Electric temperature indicators.
 (D) Electric resistance-type indicators.
 (E) Moving magnet-type indicators.
 (F) Resistance-type fuel indicators.
 (G) Warning units (oil and fuel).
 (H) Selsyn systems and indicators.
 (I) Self-synchronous systems and indicators.
 (J) Remote indicating compasses.
 (K) Quantity indicators.
 (L) Avionics indicators.
 (M) Ammeters.
 (N) Voltmeters.
 (O) Frequency meters.
 (ii) Inspect, test, and calibrate instruments listed under paragraph (f)(2)(i) of this appendix on and off the aircraft, as appropriate.
 (3) Class 3:
 (i) Diagnose instrument malfunctions of the following instruments:
 (A) Turn and bank indicators.
 (B) Directional gyros.
 (C) Horizon gyros.
- (ii) Inspect, test, and calibrate instruments listed under paragraph (f)(3)(i) of this appendix on and off the aircraft, as appropriate.
 (4) Class 4:
 (i) Diagnose instrument malfunctions of the following instruments:
 (A) Capacitance-type quantity gauge.
 (B) Laser gyros.
 (C) Other electronic instruments.
 (ii) Inspect, test, and calibrate instruments listed under paragraph (f)(4)(i) of this appendix on and off the aircraft, as appropriate.
 (g) Accessory rating:
 (1) Classes 1, 2, 3, and 4:
 (i) Perform the following functions in accordance with the manufacturers specifications and recommendations:
 (A) Diagnose accessory malfunctions.
 (B) Maintain and alter accessories, including installing and replacing parts.
 (C) Inspect, test, and calibrate accessories on and off the aircraft, as appropriate.
 (ii) [Reserved].
 (2) [Reserved].
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- L. Nicholas Lacey,**
Director, Flight Standards Service.
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