AVIATION RULEMAKING ADVISORY COMMITTEE (ARAC)

Air Carrier and General Aviation Maintenance Issues

Meeting Minutes

DATE: January 31, 2002

TIME: 9:00 a.m. to 5:00 p.m.

PLACE: General Aviation Manufacturers Association, Washington, DC.

The Assistant Chair, Ms. Sarah MacLeod, called the meeting to order at 9:20 a.m.

Agendas were distributed (Attachment 1) and an attendance sheet was circulated (Attachment 2). Mr. David Cann, Assistant Executive Director, read instructions governing the conduct of the meeting.

Ms. MacLeod welcomed everyone and asked that they introduce themselves. Ms MacLeod distributed an issue paper prepared by Mr. Tim Boyle, Teamsters, that gave a brief overview of the current system of ratings and classes for repair stations and the Federal Aviation Administration's (FAA's) system of ratings and classes proposed in 1999 (Attachment 3).

Ms. MacLeod noted that at the December 11, 2002, meeting, the committee determined that each member organization would send out a survey to its members inquiring about their understanding of the privileges and limitations of each rating and class. Complied survey results from Aerospace Industries Association (Attachment 4), National Air Transportation Association (Attachment 5), and Boeing (Attachment 6) were distributed. The FAA also distributed survey result from FAA inspectors (Attachment 7).

Discussion of the Airframe Rating

While discussing the survey responses pertaining to class 1 and class 2 airframe ratings, the committee found that many people interpret the word "composite" differently. Some survey responses indicated that composite means the aircraft complied of various materials (dope, fabric, wood, metal, etc.) as opposed to the aircraft being made of "composite material."

The committee continued to discuss the privileges and limitations of the airframe rating. They determined that a repair station with an airframe rating has the privilege of performing a 100 hour inspection, which includes an inspection of the engine. The committee ensued on a lengthy discussion of whether or not the repair station would need a powerplant rating to perform this work. According to some members, the 100 hour inspection is an inspection of the engine installation as it is attached to the

airframe, and not the engine itself. Therefore, a powerplant rating is not necessary. Other members indicated that the 100 hour inspection does not distinguish whether it consists of an inspection of the installation or the engine itself.

Finally, the committee briefly discussed the definition of airframe and how it differs from the definition of aircraft. The committee reviewed the definition of "airframe" and "aircraft" in the Federal Aviation Regulations and noted that the term "airframe" does not refer to the entire "aircraft."

Before moving to a discussion of the powerplant rating, Ms. MacLeod asked the committee to establish why repair stations are rated. What is the intent of requiring ratings? The committee responded with three reasons:

1. To establish a basis for FAA inspection. To establish a relationship between the FAA and the repair station and tell inspectors what type of housing, facilities, equipment, personnel and data to inspect.
2. To inform customers of the type of work the repair station performs. To tell customers where to go to get work done.
3. To tell the FAA what work a repair station intends to perform at the time of initial application for certification.

One member commented that part 43 of Title 14, Code of Federal Regulations (14 CFR), really defines what work a repair station can or cannot perform. Another member commented that ratings are a good sales point because they ensure that the repair station has certain tools and equipment. Another member commented that there is no value to class rating beyond the commercial use of providing customers with a sense of security in the stability of the repair station.

Returning to the discussion about the airframe rating, the committee briefly discussed whether there is a need to distinguish between fixed wing aircraft and rotorcraft. The purpose of this discussion was to determine if it is necessary to create a new class for rotorcraft.

Finally, the committee discussed the overall usefulness of classes within the airframe rating. The committee determined that class ratings are not useful for the following reasons:

- Class ratings do not really limit the work that a repair stations is capable of performing. The repair stations tooling, equipment, etc., actually set the limitations.

- Weight is no longer the best way to distinguish aircraft ratings.

<u>Discussion of the Powerplant Rating</u>

The committee determined that the powerplant rating is useful. Many members asserted that it continues to be useful to distinguish between reciprocating and turbine engines; however, there is no need to specify horsepower. Additionally, the committee considered changing the name of the rating from "powerplant" to "engine." That proposal lead to a discussion pertaining to auxiliary power units. In conclusion, the committee decided to (1) maintain the term "powerplant," (2) distinguish between reciprocating and turbine engines, and (3) eliminate the horsepower distinction.

Discussion of the Propeller Rating

The committee determined that the propeller rating is useful; however, it is not necessary to break up the rating into classes because almost all propeller shops have the capability of working on all propellers.

Discussion of the Radio Rating

The committee determined that the radio rating is useful; however, it is not necessary to separate communication and navigation equipment. Some members also felt that it is not necessary to separate radar equipment. However, one member asserted that the distinction is necessary because general aviation aircraft do not have radar equipment. However, another member maintained that air carrier aircraft have multifunction equipment; therefore, the repair station should have one rating that covers communication, navigation, and radar equipment.

Discussion of the Instrument Rating

The committee found that based on the definition of instrument, most of the radio equipment are considered instruments. Therefore, the committee determined that radio equipment and instruments should fall under one rating.

Discussion of the Accessory Rating

The committee briefly discussed this rating and determined that the general rating is useful; however, the classes are not.

Discussion of the Limited Rating

The committee determined that limited ratings are not useful if the work falls under another rating. For example, a limited rating to perform work on landing gear is not necessary if the work can be performed under an airframe rating or an accessory rating. Repair stations performing work on

landing gear could receive an airframe rating limited to landing gear, therefore listing limited ratings was redundant.

Finally, the committee discussed whether or not repair stations should have a rating for specialized services for processes rather than a limited rating for specialized services.

After the committee discussed all of the ratings, the committee reviewed the task. Then, they proceeded to discuss issues raised earlier in the meeting, some possible solutions, and options for rating repair stations. The committee discussed the following options for ratings.

1. Progressive Ratings: Should the rating system be progressive? For example, if a repair station had an aircraft rating, would it be able to perform work on all of the components of the aircraft?
2. Ratings Paralleled with 14 CFR part 65: Should repair station ratings parallel part 65. A repair station with an airframe rating would be able to perform the same work that an airframe rated mechanic can perform. A repair station with a powerplant rating would be able to perform the same work that a powerplant rated mechanic can perform. And an airframe and powerplant rated repair station would be able to perform the same work that an airframe and powerplant rated mechanic can perform.

After a lengthy discussion of the options, the committee identified the following six ratings for repair stations:

1. Aircraft Rating
2. Powerplant Rating
3. Propeller Rating
4. Avionics Rating
5. Component Rating
6. Specialized Services Rating

The committee proceeded to discuss the privileges and limitations of each rating and any challenges or problems associated with the rating. The committee recognized that no matter what rating system was chosen, the problem distinguishing exactly what work a repair station was allowed to perform would continue to be a problem. The guiding principle for any rating system should be to ensure the repair station had the housing, facilities, equipment, trained personnel and data to perform the scope of work approved for return to service. The committee made the following observations regarding each type of rating:

Aircraft Rating: This rating would allow a repair station to perform maintenance, preventative maintenance, or alterations on the entire aircraft, excluding powerplants, avionics, and propellers. This rating

would also allow repair stations to remove and replace powerplants and propellers.

Powerplant Rating: This rating would cover all maintenance, preventative maintenance, or alterations performed in the propulsion system for the aircraft and all components necessary for the propulsion system to work. This rating would include auxillary power units. It would also allow repair stations to remove and replace powerplants and propellers.

Propeller Rating: This rating would allow repair stations to perform maintenance, preventative maintenance, or alterations on propellers (as defined in 14 CFR part 1). This rating would also allow the repair station to remove and replace components attached to the propeller and the propeller from the aircraft engine.

Avionics Rating: This rating would cover maintenance, preventive maintenance, or alterations performed on communications equipment, navigation equipment, radar equipment, instruments, and all other electronic equipment found on the aircraft, including in-flight entertainment units or other electronic units not covered elsewhere. It would allow the repair station to remove and replace the avionics equipment on the aircraft.

Component Rating: This rating would cover maintenance, preventive maintenance, or alterations performed on individual components, such as described in the current accessory rating and limited ratings such as landing gear.

Specialized Services: This rating would cover processes, such as heat-treating, nondestructive testing and inspection, welding, plasma, and plating.

Ms. MacLeod adjourned the meeting at 5:00 p.m.

Future Meetings, Dates, and Locations

The next committee meeting will be held February 20-21, 2002, at General Aviation Manufacturers Association, Washington, DC.

Attendance

The January 31, 2002, meeting of the ARAC to address Air Carrier/General Aviation Maintenance issues was attended by 18 people, including committee members, alternates, government employees, and members of the general public.

Public Notification

An announcement of the meeting was published in the Federal Register on January 22, 2002 (67 FR 2946).

Approval

I certify that the above minutes are accurate.

/s/Ms. Sarah MacLeod,

Assistant Chair for ARAC Air Carrier/General Aviation Maintenance Issues

Issued: June 1, 2002.

7 Attachments

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

GENERAL AVIATION MANUFACTURERS ASSOCIATION
1400 K STREET, NW., SUITE 801
WASHINGTON, DC 20005

MEETING AGENDA

JANUARY 31, 2002

- Opening remarks and committee administration
- Discussion of aeronautical repair station ratings and classes and survey results
- Lunch
- Discussion of aeronautical repair station ratings and classes and survey results
- Discussion of future meeting dates and locations
- Adjourn

Attachment 2

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

JANUARY 31, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
M	Jim Gess	IPA	770-306-1367 770-306-1311	jgess@ipapilot.org
M	TOM WILES	NATA / NFS	419-865-2311 419-866-7994	TOMWILES@NATIONALFLIGHT.COM
M	JOE SIRICO	AIA / UTC	860-565-6233 755-4538	jsirico@pwch.com
M	ROSE SCOONES	BOEING	425-237-7716 425-237-9866	Rosita.M.Scoones@Boeing.com
N	CHAD BIERMAN	AVIATION SUPPLIERS ASSN	202-478-5424 202-478-5426 Fax	Chad.Bierman@WashingtonAviation.com
M	RICHARD PERI	AIRCRAFT ELECT ASSOC	202-589-1144	ricp@AEA.net
M	DAVID SCHOBER	PAMA	202 730-0264	DSCHOBER@PAMA.org
N	DIANA L FROHN	FAA	202-267-7027	diana.frohn@faa.gov
M	WALTER DESROSIER	GAMA	202 393 1500	WDESROSIER@GENERALAVIATION.ORG
	DAVE CANN	FAA	202 267 3546	DAVE.CANN@FAA.GOV
M	SARAH MACLEOD	ARAC / ARSA	202-739-9543 / 9488	sarahsays@arsa.org

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

JANUARY 31, 2002

MEMBER (M) NON-MEMBER (N)	NAME	AFFILIATION	TELEPHONE/ FAX NUMBER	E-MAIL ADDRESS
N	RALPH MALCOLM	AVIATION CONSULTING	703-354-1672	NYRM@STARPOWER.NET
N	Robert D. Moten	FAA	202-267-3813	Robert Moten @ FAA.GOV
N	Steve Serdikoff	PAI	202-898-1410	
N	Christa Brolley	PAI	202-898-1410	cabrolley@compuserve.com or Christa.CTR.Brolley@faa.gov
N	Vanessa Wilkins	FAA	202-267-8029	Vanessa.wilkins@faa.gov

Federal Aviation Administration
Aviation Rulemaking Advisory Committee

January 31, 2002

Re: 145.59 Ratings and Classes

I find the FAA's proposed changes to the Part 145 ratings and classes to be appropriate and concur with the FAA's explanation for the changes with the following exceptions;

Powerplant Rating
Although the APU is not used for propulsion, APU's based on gas turbine technology are designed to provide pneumatic and electrical power, and should be classified as powerplants rather than accessories. Similar to other Powerplants, APU's also have an accessory gearbox housing components such as generators, oil pumps, fuel pumps, starter motor's, etc. that should be appropriately classified as accessories.

Avionics Rating
Computer Systems, to include Aircraft, Avionics and Powerplant should be classified under the Avionics Rating rather than a separate rating for Computers. Although their may be differences with some Computers the technology should be similar not requiring separate classifications for Aircraft, Avionics and Powerplant Computers.

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.

Attachment 3

CURRENT RATING	PROPOSED RATING
	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.
	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.
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	Class 3; Computer Systems to include Aircraft, Powerplant and Avionics.
Instrument Rating	**Instrument Rating**
Class 1: Mechanical.	Class 1: Mechanical.
Class 2: Electrical.	Class 2: Electrical.
Class 3: Gyroscopic.	Class 3: Gyroscopic.
Class 4: Electronic.	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 1: Mechanical accessories that depend on friction, hydraulics, mechanical linkage, or pneumatic pressure for operation.

CURRENT RATING	PROPOSED RATING
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 2: Electrical accessories that depend on or produce electrical energy.
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 3: Electronic accessories that depend on transistors; lasers; fiber optics; solid-state, integrated circuits; vacuum tubes; or similar devices.
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	**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.

Timothy P. Boyle
Teamsters, Local 2727

cc: Joe Darmento

FAR 145 Repair Station Rating System Review Survey

General Commentary Received Outside the Survey Form (All from Repair Stations)

1. Reticence to comment (fill out the form) lest the PMI find out. Names were removed in this compilation.

2. Obtaining a revised rating is normally not an issue however it depends upon the local PMI. There is a belief, and some factual evidence to support that belief, that ratings are more difficult to obtain in some regions than others. In discussions, there are strong indications that there is no national / international FAA standard for ratings.

3. Changes in PMI's, without other changes in the repair station's operations, sometimes result as challenges to or changes of ratings that may adversely affect the repair stations.

4. PMIs use the ratings systems in conjunction with Appendix A to insist that a repair station have within the repair station (not just have access to) all the equipment and materials for the job functions of Appendix A. For example, a PMI has taken the position that unless a Repair Station has, within the repair station, all the equipment and materials in Appendix A for all the job functions (even those with an asterisk), all that can be issued is a limited rating with operations specifications. One example was given of a PMI who wanted to limit a rating because the repair station intended to offload a function to another certificated station to reduce a developing backlog.

5. There is the ambiguity about the scope of limited ratings. For example, the regulations say: "Limited Ratings are issued for – ...(2) Engines of a particular make and model." This is very close to a Class 3 Powerplant rating.

6. Although 14 CFR 145.2 appears to hold a repair station to meeting the requirements of 14 CFR 121 Subpart L and this would indicate that the other 145 requirements apply, including ratings, there is a position that says the shop is not working under 145 when working for a 121. The position continues that no certification and definitely no rating are necessary for shops working for 14 CFR 121 air carriers. This interpretation is based on HBAW 96-05CW, particularly the 3rd paragraph of Section 6.F: "In addition, the inspections described herein should not be designed to determine compliance with any provisions of 14 CFR part 145." In other words, 145 compliance does not matter to a 121. The maintenance requirements for 121 operators derive from and are controlled by Subpart L. Also, It may also be significant to note that 14 CFR section 121.709 requires the signature of an authorized certificated mechanic to sign the air carrier airworthiness release. There is no provision for a repair station to sign the airworthiness release.

Attachment 4

FAR 145 Repair Station Rating System Review Survey

INSTRUCTIONS: The current Part 145 rating system is outlined in the table below. Please provide **your** perspective on the scope, usefulness, and issues associated with each rating. Only complete those sections with which you have experience or familiarity. Do not submit more than one survey.

Aviation Affiliation (*e.g.*, FAA, Repair Station, Maintenance Technician, Customer): AIA

Name and Contact Information (optional): Joe Sirico; Skip Jones

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
AIRFRAME			
Airframe Class 1: Composite Construction Small Aircraft			
Airframe Class 2: Composite Construction Large Aircraft			
Airframe Class 3: All-metal Construction Small Aircraft	Maintenance of US. registered small (< 12,500 Lb. GWT.) all metal aircraft of any manufacturer, make, or model for which maintenance data, tools and trained personnel are available. Our repair station has used this rating for many years.	This rating is very useful, allowing maintenance to be performed on a broad range of aircraft without additional applications.	
Airframe Class 4: All-metal Construction	Maintenance of US. registered large (> 12,500 Lb. GWT.) all metal aircraft of any manufacturer, make, or model for which maintenance data, tools and trained personnel are available.		Several years ago I was told by my local FSDO that there was no way a this rating could be obtained by a small shop, and was doubtful for even a very large one (if this is true, what is the necessity of this rating).
Limited: Airframes of a particular make and model	Allows repair/ overhaul of all components associated with a particular make and model of aircraft.	This rating is necessary it gives the OEM latitude to repair entire aircraft or single component.	Have had some confusion with what can be off-loaded to in accordance with appendix A with the ASI.
	Maintenance of particular make and model of aircraft, US. registered only as listed on the repair station limitations. Our repair station has used this rating for many years for working on large aircraft.	This rating is cumbersome, requiring frequent update and revisions as new projects (aircraft) are obtained and old ones are completed.	None
	Essential to our business for the type of aircraft visiting this R/S The limitations are acceptable.	Yes – This R/S does not manufacture aircraft.	None
POWERPLANT			
Powerplant Class 1: Reciprocating engines of 400 HP or less			

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FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
Powerplant Class 2: Reciprocating engines of more than 400 HP			
Powerplant Class 3: Turbine Engines			
Limited: Engines of a particular make and model	Essential to our business for the type of aircraft visiting this R/S The limitations are acceptable.	Yes – Limited capabilities of R/S	None
	Privileges: Competitors should not be provided work without providing the FAA with evidence proving capabilities. Limitations: Duplication of procedures, on-site audits, records, etc. when attempting to add additional models of similar components to capabilities list. Ex.: although particular airseals in a particular engine differ only by a few physical characteristics, the process methods, equipment (with the possible exception of fixturing), training, etc. are identical. Due to one PMI's lack of familiarity, each airseal of each engine model must be reviewed and added to the certificate individually rather than looking at the broader picture – a repair shop wholly owned by the OEM with OEM Tech Data and tooling working on similar engine components using identical processes.	Definitely - if applied appropriately (see Limitations in Scope) and fairly (all PMI's follow the same practice at all facilities).	Extreme variance of ratings assessment and approval among PMI's.
	Maintenance of particular make and model of aircraft engine, only as listed on the repair station limitations. Our repair station has used this rating on a limited basis for years.	This rating has worked well only because it has a very limited use in this repair station.	
PROPELLER			
Propeller Class 1: All fixed pitch& ground adjustable propellers of wood, metal, or composite construction			
Propeller Class 2: All other propellers, by make			
Limited: Propellers of a particular make and model			
RADIO			
Radio Class 1: Communication			

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FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
Equipment			
Radio Class 2: Navigational equipment			
Radio Class 3: Radar equipment			
Limited: Radio equipment of a particular make and model	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH, and put in this category by managing office.	Necessity.	Question need for this rating once facility is found to be creditable in one of the classes. The current FAA audit function is seen as better tool to monitor capability on additional products and compliance to requirements.
	Maintenance of particular make and model of aircraft radio, only as listed on the repair station limitations.	The rating is used by this R/S for installation, functional testing and line maintenance (excluding component repair) of aircraft radio systems. **	
INSTRUMENT	INSTRUMENT		
Instrument Class 1: Mechanical			
Instrument Class 2: Electrical			
Instrument Class 3: Gyroscopic			
Instrument Class 4: Electronic			
Limited: Instruments of a particular make and model	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH, and put in this category by managing office.	Necessity.	Question need for this rating once facility is found to be creditable in one of the classes. The current FAA audit function is seen as better tool to monitor capability on additional products and compliance to requirements.
	Allowed to perform maintenance on all instruments of a particular model and make.	Yes only if this is all you are limited to.	ASI made R/S change limited airframe rating to include this rating.
	Maintenance of particular make and model of aircraft instrument, only as listed on the repair station limitations.	The rating is used by this repair station for installation, functional testing and line maintenance (excluding component repair) of aircraft instrument systems. **	

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FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
ACCESSORY			
Accessory Class 1: Mechanical	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH.	Necessity.	No issue.
Accessory Class 2: Electrical	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH.	Necessity.	No issue.
Accessory Class 3: Electronic	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH.	Necessity.	No issue.
Limited: Accessories of a particular make and model	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH, and put in this category by managing office.	Necessity.	Question need for this rating once facility is found to be creditable in one of the classes. The current FAA audit function is seen as better tool to monitor capability on additional products and compliance to requirements.
	Allowed to perform maintenance on all accessories of a particular model and make.	Yes only if this is all you are limited to.	ASI made R/S change limited airframe rating to include this rating.
LIMITED	**(other than those listed above)**		
Limited Landing Gear Components			
Limited Floats, by make			
Limited Nondestructive inspection, testing and processing	Maintenance of products designed and manufactured by OEM as a Production Approval Holder, PAH.	Necessity.	No issue.
Limited Emergency Equipment			
Limited Rotor blades, by make and model			
Limited Aircraft fabric work			
Limited: Any other purpose as determined by the Administrator	Privilege: enables R/S to incorporate new services/businesses	YES, enables specific activities Yes – Limited capabilities of RS	Currently expanding coatings capability and customers demand certificate.
	Essential to our business for the type of aircraft visiting this R/S The limitations are acceptable.		None
Limited specialized service	It allows us to offer customers maintenance services of products designed and manufactured by OEM as a Production Approval Holder, PAH.	Necessity.	No issue.
	Performance of specialized tests and / or inspections of aircraft, aircraft engines, or components thereof as listed on the repair station limitations.	The rating was used by this repair station for the testing of Pitot Static systems and Transponder Systems (91.411 & 91.413).	

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FAR 145 Repair Station Rating System Review Survey

** This repair station is almost exclusive for the purpose of supporting a Designated Alteration Station (DAS) for the installation and certification of Avionics Systems in a broad range of Part 23, 25, and 27 aircraft (ranging from small single engine aircraft to wide bodied transports to small helicopters).

As currently written, repair station limitations (FAR § 145 Appendix A) do not support the installation of avionics systems, but appear to only apply to circuitry inside the avionics appliances (which we do not repair).

For the purpose of avionics installations only, the FSDO has required this repair station to maintain: limited instrument, Radio – Communications, Radio – Navigation and Radio – other, ratings (as well as Airframe class 3 and Airframe limited ratings).

This repair station does not repair appliances (only install them), yet the limitations we work under are all geared for the internal maintenance of avionics appliances.

It would not be prudent to discard all limitations, but there is a definite need for repair stations to customized their limitations to the actual work they have the capability to accomplish, not a generic list of functions that may have little relevance to actual field conditions.

Return by January 18, 2002

FAR 145 Repair Station Rating System Review Survey

PURPOSE: The Aviation Rulemaking Advisory Committee (ARAC) was tasked by FAA to recommend a system to rate aeronautical repair stations that mitigates problems associated with the existing system of ratings and accommodates the growth of the aviation industry. The purpose of this survey is to collect information regarding **YOUR** understanding and ideas on the current Part 145 ratings.

INSTRUCTIONS: The current Part 145 rating system is outlined in the table below. Please provide **your** perspective on the scope, usefulness, and issues associated with each rating. Only complete those sections with which you have experience or familiarity. Do not submit more than one survey.

Attachment 5

Aviation Affiliation (*e.g.*, FAA, Repair Station, Maintenance Technician, Customer): National Air Transportation Association (Compiled Results)

Name and Contact Information (optional): Eric Byer, ebyer@nata-online.org

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
AIRFRAME			
Airframe Class 1: Composite Construction Small Aircraft	-Repair, alter, and/or inspect any aircraft 12500 pds or less, that is of composite construction. Also repair, alter, and/or inspect any parts thereof installed or to be installed on the aircraft to be released as part of the aircraft. (release aircraft, not individual part). - For all aircraft under 12,500 lbs. gross weight that are not all metal, that the Repair Station has manuals, trained people, and required tooling for that will fit into your facility.	-No, no one has all requirements for all airframes. We therefore have always been required to ensure we have the housing, equip, personnel, etc. to perform any work. Since this is our responsibility and the limitation as to our qualification is determined by us, the rating is meaningless. - Yes, it is a group of aircraft that can be worked on that are the same in scope but you do not have to list each one by make and model.	-No aircraft is all composite construction and we have never been able to get a clear determination as to what constitutes "composite construction". We can repair a component (example: wheel assy.) and install it and release the aircraft, but cannot release the wheel assy as a component. This serves no purpose and we must sub out component work or get additional ratings for work we are otherwise qualified to perform.
Airframe Class 2: Composite Construction Large Aircraft	-Repair, alter, and/or inspect any aircraft over 12500 pds, that is of composite construction. Also repair, alter, and/or inspect any parts thereof installed or to be installed on the aircraft to be released as part of the aircraft. (release aircraft, not individual part).		
Airframe Class 3: All-metal Construction Small Aircraft	-Repair, alter, and/or inspect any aircraft 12500 pds or less, that is of all metal construction. Also repair, alter, and/or inspect any parts thereof installed or to be installed on the aircraft to be released as part of the aircraft. (release aircraft, not individual part). - For all aircraft under 12,500 lbs. gross weight that are all metal, that the Repair Station has manuals, trained people, and required tooling for that will fit into your facility.	-Yes, it is a group of aircraft that can be worked on that are the same in scope but you do not have to list each one by make and model.	-Many aircraft are not "all metal construction", yet are accepted under this rating. This will get more complicated with newer aircraft that are made up of composite structures and other structures of metal construction. Clear definition is required if the rating system is to be continued. We can repair a component (example: wheel assy.) and install it and release

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FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
			the aircraft, but cannot release the wheel assy as a component. This serves no purpose and we must sub out component work or get additional rateings for work we are otherwise qualified to perform.
Airframe Class 4: All-metal Construction	-Authority to work on any aircraft 12,500# max certificated take off weight of all metal construction provided the housing, personnel, tools & equipment and tech data requirements are met. -Repair, alter, and/or inspect any aircraft over 12500 pds, that is of all metal construction. Also repair, alter, and/or inspect any parts thereof installed or to be installed on the aircraft to be released as part of the aircraft. (release aircraft, not individual part).	-No. There are no Repair Stations that work on every 'all metal' aircraft over 12,500#. FAA usually requires a capability list (by aircraft make and model) anyway.	-FAA inspectors inspect the Repair Station in terms of being able to work on all aircraft in the class. - Many aircraft are not "all metal construction", yet are accepted under this rating. This will get more complicated with newer aircraft that are made up of composite structures and other structures of metal construction. Clear definition is required if the rating system is to be continued. We can repair a component (example: wheel assy.) and install it and release the aircraft, but cannot release the wheel assy as a component. This serves no purpose and we must sub out component work or get additional ratings for work we are otherwise qualified to perform.
Limited: Airframes of a particular make and model	-To work on a particular make and model -Authority to work on any aircraft listed on the Repair Station Ops Specs. Housing, personnel, tools & equipment and tech data requirements still apply. -Repair, alter, and/or inspect any aircraft over 12500 pds, that is listed on the R/S OPS Specs. Also repair, alter, and/or inspect any parts thereof installed or to be installed on the aircraft to be released as part of the aircraft. (release aircraft, not individual part). -For all aircraft that the Repair Station has manuals, trained people, and required tooling for, that will fit into your facility	-Yes, Works great for us because we are very airframe specific by choice which minimizes equipment investments -Yes. A business operating under the authority of FAR 145 should be able to decide what constitutes the make up of that business. -Although the aircraft for which we are rated our now defined, we must still ensure that we have the housing, equip, personnel, etc. to perform any work. Since this is our responsibility and the limitation as to our qualification is determined by us, the rating is meaningless. -Yes, it is a group of aircraft that can be worked on that, as a repair station, you have the manuals, trained personnel, and required	-This system works very well with the scope of the service center network we operate. - We can repair a component (example: wheel assy.) and install it and release the aircraft, but cannot release the wheel assy as a component. This serves no purpose and we must sub out component work or get additional ratings for work we are otherwise qualified to perform. - Yes, some FSDO's want each make and models listed instead of make and model series by Type Certificate

FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
		tooling required to perform maintenance on listed each one by make and model.	
POWERPLANT			
Powerplant Class 1: Reciprocating engines of 400 HP or less	-Repair, alter, inspect and/or overhaul all engines and any part thereof including components/accessories supplied with the engine (recip 400 HP or less), installed or to be installed on the engine to be released as part of the engine. (release engine, not individual part).	-No, no one has all requirements for all engines. We therefore have always been required to ensure we have the housing, equip, personnel, etc. to perform any work. Since this is our responsibility and the limitation as to our qualification is determined by us, the rating is meaningless.	-We can repair a component (example: magneto.) and install it and release the engine, but cannot release the magneto as a component. This serves no purpose and we must sub out component work or get additional ratings for work we are otherwise qualified to perform.
Powerplant Class 2: Reciprocating engines of more than 400 HP	-Repair, alter, inspect and/or overhaul all engines and any part thereof including components/accessories supplied with the engine (recip 400 HP or less), installed or to be installed on the engine to be released as part of the engine. (release engine, not individual part).	Same as above	Same as above
Powerplant Class 3: Turbine Engines	-Repair, alter, inspect and/or overhaul turbine engines and any part thereof including components/accessories supplied with the engine, installed or to be installed on the engine to be released as part of the engine. (release engine, not individual part).	Same as above	Same as above
Limited: Engines of a particular make and model	-Authority to work only on engines installed on the airplanes for which the Repair Station is rated and listed on the Repair Station Ops Specs. -Repair, alter, inspect and/or overhaul engines as listed on OPS Specs, and any part thereof including components/accessories supplied with the engine, installed or to be installed on the engine to be released as part of the engine. (release engine, not individual part). -For all engines that the Repair Station has manuals, trained people, and required tooling for, that will fit into your facility.	-Yes. This rating provides for the scope of the work authorized to be carried out on the engine. It provides the level to which a Repair Station may provide maintenance. -Although the engine for which we are rated our now defined, we must still ensure that we have the housing, equip, personnel, etc. to perform any work. Since this is our responsibility and the limitation as to our qualification is determined by us, the rating is meaningless. -Yes, it is a group of engines that can be worked on that, as a repair station, you have the manuals, trained personnel, and required tooling required to perform maintenance on listed each one by make and model.	-Although restrictive in some cases, this rating provides for the exact privileges and limitations a Repair Station needs in order to define its capabilities. -Yes, some FSDO's want each make and models listed instead of make and model series by Type Certificate.
PROPELLER			
Propeller Class 1: All fixed pitch& ground adjustable propellers of wood, metal, or composite construction			

FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
Propeller Class 2: All other propellers, by make	-For all propellers by manufacturer that the Repair Station has manuals, trained people, and required tooling for that will fit into your facility such as Hartzell and McCaulley.	-Yes, it is a group of propellers that can be worked on that are the same in scope but you do not have to list each one by model.	
Limited: Propellers of a particular make and model	-For all propellers that the Repair Station has manuals, trained people, and required tooling for, that will fit into your facility.	-Yes, it is a group of propellers that can be worked on that, as a repair station, you have the manuals, trained personnel, and required tooling required to perform maintenance on listed each one by make and model.	-Yes, some FSDO's want each make and models listed instead of make and model series by Type Certificate.
RADIO			
Radio Class 1: Communication Equipment	-To work on any Comm as long as you have the data, required test equipment and training (specific or by similarity) for that product -Authority to work on all equipment defined by this class -Repair, alter, inspect and/or overhaul components as listed by regulation (not clear, see issues), and any part thereof and release components as rated. -For all communication equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-One can never tell what aircraft may have what installed. The class rating allows us to meet the customers requirements. - No. There are no Repair Stations that work on all equipment in this class. FAA usually requires a capability list (by make and model) anyway. - No, no one has all requirements for all class 1 radio. We therefore have always been required to ensure we have the housing, equip, personnel, etc. to perform any work. Since this is our responsibility and the limitation as to our qualification is determined by us, the rating is meaningless. - Yes, it is a group of communication equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all equipment in the class. - Many components are multi functional (nav/com, etc.) and therefore require more than one rating. -Although FAR 145 Appendix A lists that the rating allows for many inspections/checks etc. of the airframe system that the equipment is installed in, many FSDOs require the aircraft to be listed in the OPS Specs, or at least a statement that the component can be installed and tested. I agree that Appendix A should be eliminated, but additional confusion will be created if the rating is not clearly defined. - Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating. Some FSDO's require a limited airframe rating instead of requiring qualified personnel. An applicant should not be required to meet all the Limited Airframe requirements to simply install a Communication radio upgrade. A licensed airframe mechanic on staff with structural experience should be sufficient.
Radio Class 2: Navigational equipment	-Authority to work on all equipment defined by this class -For all navigational equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-No. There are no Repair Stations that work on all equipment in this class. FAA usually requires a capability list (by make and model) anyway.	-FAA inspectors inspect the Repair Station in terms of being able to work on all equipment in the class. -Yes, the question of what is a

FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
		-Yes, it is a group of navigational equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	substantial amount of the class can be a problem on whether or not to allow the rating.
Radio Class 3: Radar equipment	-Authority to work on all equipment defined by this class -For radar equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-No. There are no Repair Stations that work on all equipment in this class. FAA usually requires a capability list (by make and model) anyway. -Yes, it is a group of radar equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all equipment in the class. -Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Limited: Radio equipment of a particular make and model	-Authority to work on any radio equipment listed on the Repair Station Ops Specs. Housing, personnel, tools & equipment and tech data requirements still apply. - Not needed if you have a class rating for what you work on.	-Yes. A business operating under the authority of FAR 145 should be able to decide what constitutes the make up of that business. - Yes, it is a group of radio equipment that can be worked on that, as a repair station, you have the manuals, trained personnel, and required tooling required to perform	-Yes, some FSDO's want each make and models listed instead of make and model series
INSTRUMENT			
Instrument Class 1: Mechanical	-To work on any Instrument as long as you have the data, required test equipment and training (specific or by similarity) for that product -Authority to work on all instruments defined by this class -For all mechanical equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-One can never tell what aircraft may have what installed. The class rating allows us to meet the customers requirements. - No. There are no Repair Stations that work on all equipment in this class. FAA usually requires a capability list (by make and model) anyway. -Yes, it is a group of mechanical equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all instruments in the class. - Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Instrument Class 2: Electrical	-Authority to work on all instruments defined by this class -For all electrical equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-No. There are no Repair Stations that work on all equipment in this class. FAA usually requires a capability list (by make and model) anyway. -Yes, it is a group of electrical equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all instruments in the class. -Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Instrument Class 3:	-Authority to work on all instruments defined by this class	-No. There are no Repair Stations that work	-FAA inspectors inspect the Repair

FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
Gyroscopic	-For all gyroscopic equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	on all equipment in this class. FAA usually requires a capability list (by make and model) anyway. -Yes, it is a group of gyroscopic equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	Station in terms of being able to work on all instruments in the class. -Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Instrument Class 4: Electronic	-Authority to work on all instruments defined by this class -For all electronic equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-No. There are no Repair Stations that work on all equipment in this class. FAA usually requires a capability list (by make and model) anyway. -Yes, it is a group of electronic equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all instruments in the class. -Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Limited: Instruments of a particular make and model	-Authority to work on any instruments listed on the Repair Station Ops Specs. Housing, personnel, tools & equipment and tech data requirements still apply.	-Yes. A business operating under the authority of FAR 145 should be able to decide what constitutes the make up of that business. -Yes, it is a group of instrument equipment that can be worked on that, as a repair station, you have the manuals, trained personnel, and required tooling required to perform maintenance on listed each one by make and model if you don't work on a sufficient amount to receive a class rating.	-Yes, some FSDO's want each make and models listed instead of make and model series.
ACCESSORY			
Accessory Class 1: Mechanical	-To work on any Accessory as long as you have the data, required test equipment and training (specific or by similarity) for that product -Authority to work on all accessories defined by this class -For all mechanical equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-One can never tell what aircraft may have what installed. The class rating allows us to meet the customers requirements. - No. There are no Repair Stations that work on all accessories in this class. FAA usually requires a capability list (by make and model) anyway. - Yes, it is a group of mechanical equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all accessories in the class. -Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Accessory Class 2: Electrical	-Authority to work on all accessories defined by this class -For all electrical equipment that the Repair Station has manuals, trained people, and required tooling when they can work on a large portion of the class.	-No. There are no Repair Stations that work on all accessories in this class. -FAA usually requires a capability list (by make and model) anyway.	-FAA inspectors inspect the Repair Station in terms of being able to work on all accessories in the class. - Yes, the question of what is a

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FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
		-Yes, it is a group of electrical equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	substantial amount of the class can be a problem on whether or not to allow the rating.
Accessory Class 3: Electronic	-Authority to work on all accessories defined by this class -For all electronic equipment that the Repair Station has manuals, trained people, and required tooling for that when they can work on a large portion of the class.	-No. There are no Repair Stations that work on all accessories in this class. -FAA usually requires a capability list (by make and model) anyway. -Yes, it is a group of electronic equipment that can be worked on that are the same in scope but you do not have to list each one by make and model.	-FAA inspectors inspect the Repair Station in terms of being able to work on all accessories in the class. -Yes, the question of what is a substantial amount of the class can be a problem on whether or not to allow the rating.
Limited: Accessories of a particular make and model	-Authority to work on any accessories listed on the Repair Station accessory capability list. Housing, personnel, tools & equipment and tech data requirements still apply.	-Yes for a manufacture of a particular product only -Yes. A business operating under the authority of FAR 145 should be able to decide what constitutes the make up of that business. -Yes, it is a group of accessory equipment that can be worked on that, as a repair station, you have the manuals, trained personnel, and required tooling required to perform maintenance on listed each one by make and model if you don't work on a sufficient amount to receive a class rating.	-Yes, some FSDO's want each make and models listed instead of make and model series.
LIMITED	**(other than those listed above)**		
Limited Landing Gear Components		-Yes, it is a group of accessory equipment that can be worked on that, as a repair station, you have the manuals, trained personnel, and required tooling required to perform maintenance on listed each one by make and model if you don't work on a sufficient amount to receive a class rating.	-This applies to all limited ratings below. There is considerable variation in the way components are listed from FSDO to FSDO. Some by description, i.e., landing gear strut. Some by make and model. Some by finite part number including dash number. This makes it hard to compete with, audit, etc.
Limited Floats, by make			
Limited Nondestructive inspection, testing and processing	-Authority to perform NDI services for aviation customers. The service is not limited to NDI functions on an aircraft under the control of the Repair Station. Subject to housing, personnel, tools & equipment and tech data requirements -For all NDT work that the Repair Station has manuals, trained people, and required tooling per discipline	-Yes. A business operating under the authority of FAR 145 should be able to decide what constitutes the make up of that business. -Yes, when you have the expertise and training to perform these functions because they do not fit the class or limited rating	-This rating accommodates the desire of a business to specialize in certain areas of expertise. - Yes, some FSDO's want to force limited airframe ratings on this rating as well. This usually makes it so expensive that they just don't become certified and

FAR 145 Repair Station Rating System Review Survey

Rating	Scope What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Please explain.	Issues State any issues that you have experienced with the rating.
		system.	perform this as a mechanic or IA. If you have a NDT level certification, you do not need an airframe rating to fix the entire aircraft!
Limited Emergency Equipment	-For all emergency equipment that the Repair Station has manuals, trained people, and required tooling.	-Yes, because these items do not fit into an accessory class rating and you have the manuals, trained personnel, and required tooling to perform this work.	-Yes, some FSDO's want each make and models listed instead of make and model series.
Limited Rotor blades, by make and model			
Limited Aircraft fabric work			
Limited: Any other purpose as determined by the Administrator	-Authority to perform services for aviation customers for any purpose for which the company may be in business and that requires an Air Agency Certificate	-Yes. A business operating under the authority of FAR 145 should be able to decide what constitutes the make up of that business.	-The FAA could require a FAA approved process specification depending on the privilege being requested. It conflicts with the Specialized Service rating.
Limited specialized service	-Authority to perform a specialized service in accordance with a FAA approved process specification. -For all processes that are FAA Approved outside of the above class or limited ratings that the Repair Station has manuals, trained people, and required tooling.	-No. This rating could be combined in the Limited Rating concept -When you have the trained personnel, manuals or processes, and required tooling to perform processes that do not fall under other ratings. This is very important for small-specialized repair stations that do not qualify for other ratings.	-Some FSDOs believe that a R/S with this rating cannot approve a component for which it is rated to perform a specific task on, for return to service. They should be able to approve it for return to service for the work performed. If they are not rated to release the article then there is no reason for a rating. - Yes, some FSDO's want to force limited airframe ratings on this rating as well. This usually makes it so expensive that they just don't become certified and perform this as a mechanic or IA. If you have an acceptable process, you do not need an airframe rating to fix the entire aircraft!

Rating System Review Survey

The purpose of this document is to collect information regarding **YOUR** understanding and ideas on the current Part 145 ratings. Please complete only those sections with which you have experience or familiarity. **Do not submit more than one survey.**

Aviation Affiliation (e.g., FAA, Repair Station, Repair Station Customer, Maintenance Technician):

Name and Contact Information (optional): Rose Scoones, rosita.m.scoones@boeing.com

Rating	Perspective What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Why or why not?	Issues State any issues that you have experienced with the rating.
Airframe Class 1: Composite Construction Small Aircraft	Privileges: May perform maintenance and alterations of airframes [airframe – fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines) and landing gear of an aircraft and their accessories and controls.] 12,500 Lbs (maximum certificated takeoff weight, MTOW) or less that are primarily constructed of composite materials. Approve for return to service any article for which it is rated after it has been maintained or altered. Perform 100-hour, annual or progressive inspections, and return the aircraft to service. Maintain or alter any article for which it is rated at a place other than the repair station in accordance with FAR 145.51 (d), (1) (2) (3). **Limitations All Ratings:** May not maintain or alter any article for which it is rated if it requires special technical data, equipment, or facilities that are not available to it. May not approve for return to service any aircraft, airframe after major repair or major alteration unless the work was done in accordance with technical data approved by the Administrator.	No. The requirement for a Repair Station is to have the tools, equipment, facilities, data, and personnel available to perform the task. If you are not set up for Composite Repair then you could not perform the task anyway.	Not sure what composite is or isn't. What portion of airplane content has to be composite before it is considered a composite airplane? All commercial aircraft produced are a combination of composite and metal materials. One rating for aircraft is sufficient. We do not agree with the rating breakdown at 12500 Lbs. Example: a DC-3 is classed as a large aircraft, but is not anywhere nearly as complicated a design (structures or systems) as a Learjet. Differentiation might be for Rotorcraft / Fixed Wing as they are entirely different in concept and requirements. Summary: The rating systems should be based on capabilities not weight or construction.
Airframe Class 2: Composite Construction Large Aircraft	Privilege: May perform maintenance and alterations of airframes, over 12,500 Lbs (MTOW) that are primarily constructed of composite materials. Approve for return to service any article for which it is rated after it has been maintained or altered. Perform 100-hour, annual or progressive inspections, and return the aircraft to service. Maintain or alter any article for which it is rated at a place other than the repair station in accordance with FAR 145.51 (d), (1) (2) (3).	Same comment as for Class 1 above.	Same comment as for Class 1 above.

Rating	Perspective What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Why or why not?	Issues State any issues that you have experienced with the rating.
Airframe Class 3: All-metal Construction Small Aircraft	Privilege: May perform maintenance and alteration of all-metal construction of small airframes 12,500 Lbs or less, MTOW. Approve for return to service any article for which it is rated after it has been maintained or altered. Perform 100-hour, annual or progressive inspections, and return the aircraft to service. Maintain or alter any article for which it is rated at a place other than the repair station in accordance with FAR 145.51 (d), (1) (2) (3).	Same comment as for Class 1 above.	Same basic comments as for Class 1.
Airframe Class 4: All-metal Construction	Privilege: May perform maintenance and alteration of All-metal construction of large airframes over 12,500 Lbs, MTOW. Approve for return to service any article for which it is rated after it has been maintained or altered. Perform 100-hour, annual or progressive inspections, and return the aircraft to service. Maintain or alter any article for which it is rated at a place other than the repair station in accordance with FAR 145.51 (d), (1) (2) (3).	Same comment as for Class 1 above.	Same basic comments as for Class 1. In addition, an Airframe rating includes maintenance and alteration of airframes as described above for Class 1, yet in accordance with current regulatory interpretation a repair station must hold an additional rating, i.e., Accessory to perform that same work on accessories/landing gear etc., if the work comes into the repair station independent of the aircraft. Furthermore, for like work, i.e., battery maintenance, that would fall under a class 4 airframe rating, if the work were to be performed on a part (battery) from an aircraft rated as class 3, again an additional rating would be required.
Limited Airframe	Privilege: May maintain or alter particular makes and models of airframe. Limitation: Airframes by make and model	Yes, allows a repair station to be rated even for a single airplane/airframe rather than the "class" of airplanes.	

Attachment 4

Rating	Perspective What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Why or why not?	Issues State any issues that you have experienced with the rating.
Powerplant Class 1: Reciprocating engines of 400 HP or less	Privilege: May perform Maintenance and Alteration of Reciprocating engines of 400 HP or less.	No, the horsepower rating is a moot point. Piston Engine Overhaul is Piston Engine Overhaul. There should be a Turbine Engine and a Piston Engine Rating.	
Powerplant Class 2: Reciprocating engines of more than 400 HP	Privilege: Same as Class 1 except for Reciprocating engines over 400 HP	See above comment.	
Powerplant Class 3: Turbine Engines	Privilege: Maintenance and Alteration of Turbojet, Turboprop, or Turbofan Engines	Yes, Turbine Engines are entirely different with much different requirements that Piston Engines.	
Limited Powerplant	Privilege: May perform Maintenance and Alteration of engines of a particular make and model.	Yes, allows a repair station to be rated for a prescribed amount of work rather than the "class" of Powerplant work.	
Propeller Class 1: All fixed pitch& ground adjustable propellers of wood, metal, or composite construction	Privilege: May perform Maintenance and Alteration Fixed Pitch or Ground Adjustable Propellers (Used primarily on smaller aircraft)	Yes. The difference between a Macauley fixed pitch and a Ham Standard Full Feathering Prop is large. The requirements for the more complex propellers are much more and a separate rating is advisable.	
Propeller Class 2: All other propellers, by make	Privilege: May perform Maintenance and Alteration of all other Propellers not addressed by Propeller Class 1	See above comment.	
Limited Propeller	Privilege: May perform Maintenance and Alteration of a specific make and model of Propellers	Yes, useful for Specialized Shops.	
Radio Class 1: Communication Equipment	Privilege: May perform Maintenance and Alteration of Communication Equipment: any radio transmitting or receiving equipment used to send or receive communications in flight including auxiliary and related aircraft interphone systems, amplifier systems, electrical or electronic inter-crew signaling devices, and similar equipment.	No. The type of facility, training and equipment required to perform maintenance of this type of equipment is very similar. Therefore what reason is there to have the different ratings? If a station wants to just maintain Radar Equipment, for example, let them use the limited class.	
Radio Class 2: Navigational equipment	Privilege: May perform maintenance and alteration of Navigational Equipment: Any radio system used in aircraft for en route or approach navigation, except equipment operated on radar or pulsed radio frequency principles, but not including equipment for measuring altitude or terrain clearance or other distance equipment operated on radar or pulsed radio frequency principles	See above	

Rating	Perspective What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Why or why not?	Issues State any issues that you have experienced with the rating.
Radio Class 3: Radar equipment	Privilege: May perform maintenance, preventive maintenance and alteration Radar equipment: Any aircraft electronic system operated on radar or pulsed radio frequency principles (Applicable equipment defined in FAR 145.31.)	See above	
Limited Radio	Privilege: May perform maintenance and alterations of Radio Equipment of a particular make and model.	Yes, see above useful for Specialized Shops	
Instrument Class 1: Mechanical	Privilege: May perform maintenance and alteration of Mechanical Instruments: Any diaphragm, bourdon tube, aneroid, optical, or mechanically driven centrifugal instrument that is used on aircraft or to operate aircraft, including tachometers, airspeed indicators, pressure gauges drift sights, magnetic compasses, altimeters, or similar mechanical instruments.	No. The type of facility, training and equipment required to perform maintenance of this type of equipment is very similar. Therefore what reason is there to have the different ratings? If a station wants to just maintain Gyro's for example, let them use the limited class.	
Instrument Class 2: Electrical	Privilege: May perform maintenance and alteration of Electrical instruments: Any self-synchronous and electrical indicating instruments and systems, including remote indicating instruments, cylinder head temperature gauges, or similar electrical instruments.	See above	
Instrument Class 3: Gyroscopic	Privilege: May perform maintenance and alteration of Gyroscopic Instruments: Any instrument or system using gyroscopic principles and motivated by air pressure or electrical energy, including automatic pilot control units, turn and bank indicators, directional gyros, and their parts, and flux gate and gyrosyn compasses.	See above	
Instrument Class 4: Electronic	Privilege: May perform maintenance and alteration of Electronic Instruments: Any instruments whose operation depends on electron tubes, transistors, or similar devices including capacitance type quantity gauges, system amplifiers, and engine analyzers.	See above	
Limited Instrument	Privilege: May perform maintenance, preventive maintenance, and alteration of a particular make and model Instrument.	Yes, useful for Specialized Shops	
Accessory Class 1: Mechanical	Privilege: May perform maintenance and alteration of Mechanical accessories: 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.		

Rating	Perspective What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Why or why not?	Issues State any issues that you have experienced with the rating.
Accessory Class 2: Electrical	Privilege: May perform maintenance and alterations of Electrical Accessories that depend on electrical energy for their operation, and generators, including starters, voltage regulators, electric motors, electrically driven fuel pumps magnetos, or similar electrical accessories.		Class 2 and 3 Accessory ratings cover similar types of equipment, could be combined into One Class. Example: We test/repair a lot of wiring panels made up of lamps and wiring which are rated as Class 2 Accessories. We also have several wiring panels that have components installed such as resistors, diodes, transistors, etc. these could these fall under Class 2 or Class 3.
Accessory Class 3: Electronic	Privilege: May perform maintenance and alterations of Electronic Accessories: Accessories that depend on the use of an electron tube transistor, or similar device, including supercharger, temperature, air conditioning controls, or similar electronic controls.		
Limited Accessory	Privilege: May perform maintenance and alterations of particular makes and models of Accessories.	Yes, useful for Specialized Shops.	
Limited Landing Gear			
Limited Floats, by make			
Limited Nondestructive inspection, testing and processing	Privilege: May perform Nondestructive inspection, testing and processing as defined on Air Agency Operations Specifications.	Yes, allows us to maintain separate rated personnel for specialized inspections.	NDI can be performed under an Airframe rating, interpretation varies as to if a repair station must also have limited rating to perform this.
Limited Emergency Equipment	Privilege: May only perform maintenance, preventive maintenance, and alterations of particular makes and models Emergency Equipment.	Disagree, if you have the Personnel, Facilities, equipment and documentation to maintain one type of Escape Slide, Life Raft or Life Vest. You will have the system in place to maintain them all! The Repair Stations should not be levied to a particular make or model. But a general class rating like exists today.	
Limited Rotor blades, by make and model			
Limited Aircraft fabric work			
Limited: Any other purpose			

Rating	Perspective What do you think are the privileges and limitations of this rating?	Usefulness Is this rating necessary? (Yes/No) Why or why not?	Issues State any issues that you have experienced with the rating.
Limited specialized service	Privilege: May perform a special maintenance requiring equipment and/or skills not ordinarily found in a regular repair station Limitation: The repair station's operations specifications must contain the specification, either civil or military used by industry and approved by the Administrator or one developed by the repair station and approved by the Administrator, used in performing the specialized service.	Yes, useful for Specialized Shops.	

General comment: I'm sure that there are many pieces of hardware that could fall into any one of these ratings. I think you have to keep it general. There are many units that function in several systems. To try and isolate it down to a specific system would be very difficult and be open for interpretation.

FAA Aviation Safety Inspector
Survey Results

1. **General Rating Issues**
   a. Better definition of each rating and class
   b. Improved and more inclusive guidance—both for ASIs and industry
   c. Train ASIs in current/latest technologies and techniques
   d. In-Flight Entertainment systems not addressed in any category or rating
   e. Less labor-intensive rating system
   f. Add the development and use of capability lists to the rule
   g. When to use limited ratings is confusing—better guidance and definitions needed
   h. Need a rating/system to address aircraft computer/EFIS systems
   i. Cumbersome OpSpecs system

2. **Airframe Issues**
   a. Composite vs. Metal aircraft construction (hybrid aircraft)
      i. Which class/category to place them in?
      ii. How much metal/composite requires one category vs. another?
      iii. Definition of composite material?
      iv. Many ASIs lack training and experience in complex composite repairs
   b. Eliminate class ratings altogether and use limited ratings with a mandatory capability list
   c. Eliminate class 2 and 4 ratings and replace with limited ratings
      i. Use capability list to control growth when lacking other 145 requirements (tools, personnel, etc.)
      ii. Identify aircraft on capability list by make and model
   d. Class 3 ratings should not be issued to perform only NDT
      i. Guidance problem
      ii. Should be rated as a limited specialized service
   e. Improve guidance to distinguish between limited airframe and accessory ratings
   f. Class 4 rating too broad and vague
      i. Too many varying aircraft sizes fit into this category
      ii. Does not meet industry use of corporate/commercial aircraft
      iii. Repair stations sometimes work outside of rating
      iv. Combine either by smaller sizes/categories and/or materials
   g. Corporate aircraft—or that size aircraft—should have its own rating
   h. Combine airframe and powerplant ratings to allow avionics CRS to remove and re-install components
   i. Confusion exists when determining what rating to use for performing landing gear maintenance
      i. Limited airframe for landing gear or is it part of the airframe class rating?
      ii. Should be limited airframe with a current capability list?

Attachment 7

3. **Powerplant Issues**
   a. Separate turbine engines by type—turboprops, turbojets, etc.
      i. Turbine rating too broad—need classes or categories
      ii. Use capability list to determine compliance with 145 requirements using make and model of powerplants
   b. Combine reciprocating engine ratings
   c. Decide on common terminology—aircraft engines **or** powerplants
      i. Define term and include in Part 1
      ii. Where do APUs fit in? Include in definition
   d. Limited powerplant should be components on a capability list—not an engine
   e. Add an APU rating

4. **Propeller Issues**
   a. Use a single propeller rating with a capability list by make and model

5. **Radio Rating Issues**
   a. Radio CRS should not need a separate limited airframe for installations and modifications
   b. Rating should be divided by communications/navigation and all others
   c. Better definition of what is included in this rating/class
   d. Better definition of what constitutes navigation/communication equipment

6. **Instrument Rating Issues**
   a. Class 2 too vague—should be limited by make and model
   b. Better definition of what is included in this rating/class
   c. Have a separate rating for LRU replacement items without performing "in-shop" repair or testing

7. **Accessory Rating Issues**
   a. Eliminate the accessory ratings altogether
   b. Need a better definition of accessories—mechanical, electrical, etc.
   c. Rating and guidance doesn't capture all modern aircraft accessories
   d. Does the accessory class 1 rating also include APUs?

8. **Limited Rating Issues**
   a. Eliminate limited landing gear, floats, emergency equipment, aircraft fabric, and all other aircraft "structural" components
   b. Limited accessory should be any component that is not a part of the primary aircraft structure
9. **Limited Specialized Service Rating Issues**
   a. Need a better definition of what belongs in this category
      i. Rule language to clearly define when it should be used
      ii. Better guidance to ascertain what needs to go on the OpSpecs
   b. Define what constitutes a process specification and how it should be annotated in the OpSpecs