Sirico, Joseph J.

From: Sirico, Joseph J.
Sent: Thursday, March 07, 2002 5:18 PM
To: 'Sarah MacLeod'; Alain Gross; Alan Darrow; Andrew Werking; Angelynn C. Hall; Art Luby; Brian Finnegan (E-mail); Brian Whitehead; Captain David R. Smith; Captain Robert M. Miller; Carolyn Williamson; Chad Bierman (E-mail); Charles W. White; Christa Brolley; Christine Leonard; Curtis Gelber; David Cann; David Lotterer (E-mail); David Schober; David Smith; David W. Smith; Debbie Bruce; Diana Frohn; Don Collier; Don Sherritt; Doug Macnair; Dr. Marvin Curtiss; Edmond Boullay; Edward R. Gagnon; Edward Scott; Elias Cotti; Eric Byer; George Paul; Gerald R.Mack; Gert Litterscheidt; Glenn Rizner; James Ballough; James T. Varsel; Jason A. Dickstein (E-mail); Jerry Stahl; Jim Gess; Joe Corrao (E-mail); Joe Sirico; Joesph Buttner, Jr.; John Greier; John S. Hoff, Esquire; L.P. Burke; Lance Nuckolls; Maniatis Janice (E-mail); Marshall S. Filler (E-mail); Michele Dickstein (E-mail); Mike Leibrecht; Morris E. Flater; Norman Joseph; Page McGirr; Paul C. Fiduccia; Paul Thompson; Ralph Malcolm; Ray Benning; Ric Anderson; Ric Peri; Robert E. Robeson, Jr.; Robert Hall; Robert Moten; Ron Priddy; Rosita M. Scoones; Scott Peterson; Skip Averman; Skip Jones; Stephen A. Alterman; Steve Fier; Steve Serdikoff; Stuart Schwartzberg; Susanne Johnson; Tim Boyle; Vanessa Wilkins (E-mail); Walter Desrosier; William Downs; William H. Schultz
Cc: Gonzalez, Thomas
Subject: Suggestions for changes to the ARAC draft and a concern about the concept

ARAC Ratings Technical Reportj...

Attached in "Track Changes Format" are some suggested changes/clarifications/thoughts for the technical report for your consideration. Our compacted schedule has made our task difficult and I am not sure that we will be able to finish the ratings task next week.

After reading the technical report draft, I have become more concerned about having no sub-classifications and relying on "capabilities". The concern is that we do not yet know whether the capabilities lists will be categorical (broad) or topical(narrowly defined). If the capabilities lists become topical, then we have actually produced the equivalent of the FAA inspectors suggested "eliminate class ratings and issue just limited ratings based on make and model of the part". We felt that this approach was too restrictive. Yet we may be heading there.

If the intent is to just state one of the 6 modified class-ratings without some form of Operations Specification, then we really have not provided any relevant certainty about what the shop actually does. For example, if the certificate just says Powerplant and the shop only does cold section inner airseals, what would a PMI or potential customer think that the shop could do? If we make the capabilities list into an Operations Specification, then we get locked back down into repetitive certification revision actions.

After reading the technical report, it seems like some form of subclasses are necessary unless we lock into the capabilities as part of the ratings. I offer this as a thought prior to the meeting even though it appears not to be on the track discussed. Reading the words tends to crystallize issues, at least for me.

Changing the subject to our other task of a Quality Assurance system, there was some question (at least on my part) as to whether internal audit findings could be subject to FOIA and whether they would be in an excluded class. There is a FOIA exception for "trade secrets and commercial or financial information" - 5 U.S.C. § 552(b)(4). It could be argued that audit findings are commercial information however this is more probably contestable than concrete. As part of another study, an attorney from the FAA Chief Counsel's office provided some insight. The following was reported in accepted meeting minutes:

Ms. LeAnne Faulkner from the Office of the Chief Counsel provided the Committee with some background information about the treatment of proprietary information that would be subject to the Freedom of Information Act (FOIA). Proprietary information includes trade

Attachment 3

secrets or confidential business information that, if made available, could cause competitive harm. ... Any information [including business/financial information -edit by jjs] in the FAA's possession would be subject to public disclosure. The normal process is for the FAA, if requested, to contact the person who wishes to protect the information to obtain their argument for not releasing it. The FAA then makes an independent determination of whether the information should be treated as an exception to the FOIA requirements for releasing information in the Government's possession.

Therefore, it appears that internal audit records could be released to potential customers and competitors. Thus, unless there is some way to guarantee that the records can't be released, we need to consider this area very carefully and I would be against making the internal audit process mandatory.

Here's the ratings "redraft" which is of course open to discussion:

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-----Original Message-----
From: Sarah MacLeod [mailto:sarahsays@arsa.org]
Sent: Monday, March 04, 2002 9:42 AM
To: Alain Gross; Alan Darrow; Andrew Werking; Angelynn C. Hall; Art Luby; Brian Finnegan (E-mail); Brian Whitehead; Captain David R. Smith; Captain Robert M. Miller; Carolyn Williamson; Chad Bierman (E-mail); Charles W. White; Christa Brolley; Christine Leonard; Curtis Gelber; David Cann; David Lotterer (E-mail); David Schober; David Smith; David W. Smith; Debbie Bruce; Diana Frohn; Don Collier; Don Sherritt; Doug Macnair; Dr. Marvin Curtiss; Edmond Boullay; Edward R. Gagnon; Edward Scott; Elias Cotti; Eric Byer; George Paul; Gerald R.Mack; Gert Litterscheidt; Glenn Rizner; James Ballough; James T. Varsel; Jason A. Dickstein (E-mail); Jerry Stahl; Jim Gess; Joe Corrao (E-mail); Joe Sirico; Joesph Buttner, Jr.; John Greier; John S. Hoff, Esquire; L.P. Burke; Lance Nuckolls; Maniatis Janice (E-mail); Marshall S. Filler (E-mail); Michele Dickstein (E-mail); Mike Leibrecht; Morris E. Flater; Norman Joseph; Page McGirr; Paul C. Fiduccia; Paul Thompson; Ralph Malcolm; Ray Benning; Ric Anderson; Ric Peri; Robert E. Robeson, Jr.; Robert Hall; Robert Moten; Ron Priddy; Rosita M. Scoones; Scott Peterson; Skip Averman; Skip Jones; Stephen A. Alterman; Steve Fier; Steve Serdikoff; Stuart Schwartzberg; Susanne Johnson; Tim Boyle; Vanessa Wilkins (E-mail); Walter Desrosier; William Downs; William H. Schultz
Subject: ARAC Meeting on March 11-12

Please find attached the first draft Technical Report on Part 145 rating system. The next meeting will concentrate on fully defining the privileges and limitations of each of the six proposed ratings.

I have also attached the pdf version of the meeting announcement from this morning's Federal Register. The meeting will take place at the Helicopter Association International (HAI), 1635 Prince Street, Alexandria, Virginia.
The closest hotel is Embassy Suites, 1900 Diagonal Road in Alexandria at 703-684-5900 (three or four blocks away); there is a Holiday Inn at 480 King Street in Old Towne Alexandria at 703-549-6080 (about 10 blocks away).

I will be out of the office until Thursday, March 7th. If anyone has any questions that can't wait until I get back, please contact Vanessa

R. Wilkins by telephone at (202) 267-8029, by facsimile at (202) 267-5075 or by e-mail at vanessa.wilkins@faa.gov.

Your Servant,

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<<R Technical Report.doc>> <<031102 FR meeting notice.pdf>>

WORKING DRAFT
February 27, 2002

AVIATION RULEMAKING ADVISORY COMMITTEE

Repair Station Ratings and Classifications Technical Report

A report on proposed rule changes
to part 145, §31 and 33 of Title 14, Code of Federal Regulations

February 2002

INTRODUCTION

The Federal Aviation Administration (FAA) issued notice No. 99–09, Part 145 Review: Repair Stations; Notice of Proposed Rulemaking (64 FR 33141, June 21, 1999), proposing changes to part 145 of Title 14, Code of Federal Regulations (14 CFR). The proposal included changes to the ratings and classifications system. These proposed changes included the addition of two new ratings and new classifications within existing ratings. The FAA stated that it intended the proposed ratings and classifications system to better reflect the demands of modern aircraft technology. The FAA received numerous comments opposing the proposed ratings and classifications system. Several commenters believed that the proposed ratings and classifications system was more restrictive and complicated than the old system. Many commenters expressed a belief that the current and proposed part 145 ratings and classifications systems are "outmoded" and need to be completely rewritten. In Amendment No. 145–27, Final Rule With Request for Comment and Direct Final Rule With Request for Comments; (~~XX~~ 66 FR ~~XXXXX, XXX XX, XXXX~~41087 of August 6, 2001), the FAA retained the current system pending full consideration of the comments received on the proposed ratings and classifications system. In Aviation Rulemaking Advisory Committee; Transport Airplane and Engine Issues – New Task; (66 FR 53281, October 19, 2001), the FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) Air Carrier and General Aviation Maintenance Issues ~~area~~ with producing a technical report that reviews the current system and recommends, if appropriate, a preferred system of ratings and classes.

Because nearly every aspect of aviation technology has changed since 1962, the system needs to be reevaluated. Airframes and aircraft skins have benefited from advances in metallurgy and the invention of exotic composite materials. Engine technology has become predominantly reliant on turbine power, while the role of the reciprocating engine has been almost completely relegated to general aviation duty. Also, navigational equipment has changed to such a degree that some devices barely would be recognizable to a pilot from the 1960s. In addition, new technologies such as Global Positioning System (GPS) have simplified navigation while simultaneously complicating avionics repair. From comments received from ARAC members and from the results of a survey taken of FAA repair station inspectors, the committee determined that these advances have affected the way maintenance is performed on all the articles included under the regulatory definition of aircraft. Therefore, the committee has proposed a new system of ratings and classifications it believes better captures modern repair station business and maintenance practices and accommodates the new technology present in the aviation industry.

THE CURRENT RATINGS AND CLASSIFICATIONS SYSTEM

The current part 145 repair station ratings and classifications system is based on regulations promulgated by the FAA in 1962. The part 145 ratings and classifications system is divided into two categories: (1) ratings under § 145.31 (hereinafter referred to as "class-ratings" or "class-rated") and (2) limited ratings under § 145.~~31~~33. There are six class ratings: (1) airframe, (2) powerplant, (3) propeller, (4) radio, (5) instrument, and (6) accessory. Each rating is further broken down into subsequent classes. Limited ratings under § 145.33(a) are issued for a particular make and model. Section 145.33(b) lists the 12 limited ratings that may be issued. Section 145.33(c) allows limited ratings to be issued for specialized service using military or civil specifications or by applicant specified services approved by the FAA.

[Note: A matrix of the current ratings and classifications system will be included here in final report.]

ISSUES WITH THE CURRENT RATINGS AND CLASSIFICATIONS SYSTEM

The committee identified two general issues with the present ratings and classifications system. First, the system does not reflect the present technology and practices of the aviation industry; second, the system is confusing, open to wide interpretation and lacks flexibility. The committee noted that the basic framework used in the present system ~~may~~ might still be appropriate, but it needs to be brought in step with current practices/technologies and the rapidly evolving and expanding aviation industry.

THE NEED FOR A MORE MODERN RATINGS AND CLASSIFICATIONS SYSTEM

The committee finds that throughout the ratings and classifications system, extensive breakdowns by class exist for components that, while still in use on many aircraft, have long since become almost nonexistent on modern aircraft. Likewise, technologies that were in their infancy when part 145 was promulgated are grouped together, ignoring differences that became important as the technology advanced. These situations have resulted in varying, and sometimes conflicting interpretations by the FAA inspectors and/or aviation industry, as each individual seeks to apply outdated distinctions to current applications. These technological advances have created a need for a ~~more modern~~ ratings and classifications system that meets current requirements and is flexible enough to cover future changes.

AIRFRAME

In 1962, composite materials were limited mostly to dope and fabric, and sometimes plywood, used in the construction of airframes. However, today the term "composite materials" usually refers to more advanced materials, such as fiberglass, carbon-carbon, and advanced polymers. Thus, the committee finds that it is unclear precisely which materials are properly considered composite under part 145.

In addition, the FAA and the aviation industry are confused over how much of an aircraft must be composed of composite materials for the airframe to be classified as composite under part 145. Conversely, few aircraft are actually of all metal construction. Because few aircraft are made up entirely of composite materials or all metal construction, most repair stations work on aircraft of a hybrid construction, that do not fit neatly within the current rating system.

The committee also finds that the 12,500 pound weight class division is no longer appropriate. In 1962, there was a greater distinction between small and large aircraft. Today, the sophistication of all aircraft is not dictated by weigh class, therefore the current rating system is not appropriate for modern technology.

POWERPLANT

The committee also finds that dividing powerplants into two reciprocating classes and one turbine class is no longer ~~valid~~particularly useful. When the ratings and classifications system was written in 1962, most large aircraft were powered by radial reciprocating engines producing large amounts of horsepower. These engines differed substantially from the smaller, horizontally opposed, small reciprocating engines found in general aviation aircraft. Because of the variety of reciprocating engines being used, dividing the reciprocating powerplant rating into classes based on horsepower was logical at that time. Today, however, most large aircraft and even many small aircraft are turbine-driven. ~~The diversity of turbine engines is far greater today than the diversity of reciprocating engines~~The majority of the technology and maintenance practices and processes for turbine engines that a repair station must address are quite similar. ~~However,~~ Thus it makes sense to the committee that all turbine engines, whether turboprops, turbojets, or turbofans are still grouped in one class, while retaining two classes for reciprocating engines ~~are broken into two classes~~is not necessary.

PROPELLER

The committee finds that dividing propellers into two classes, (1) fixed pitch or ground adjustable and (2) all other was no longer particularly useful.

INSTRUMENT AND RADIO

The committee noted that the instrument and radio ratings have generated a great deal of controversy since the advent of integrated avionics units that incorporate devices that fall under both ratings, and often under multiple classes within each rating. For example, modern Flight Management Systems (FMS) incorporate items that fall under both the radio and instrument ratings in the current part 145 ratings and classifications system. Under the current system, a repair station that intends to work on an FMS must maintain both an instrument and a radio rating. Additionally, the committee wishes to address the ability of an instrument or radio rated repair station to remove and replace those items on an aircraft, particularly with regard to general aviation.

ACCESSORY

The committee noted that some of the components covered by this rating, such as those relying on electron tubes and transistors, were more closely aligned with the skills and equipment found in instrument and radio rated repair stations while many of the mechanical accessories were more closely aligned with skills and equipment found in aircraft or powerplant rated repair stations. Additionally, the committee wishes to address the ability of an accessory rated repair station to remove and replace those items on an aircraft, particularly with regard to general aviation

THE NEED FOR GREATER FLEXIBILITY

The committee finds that the ratings and classifications system is confusing and so open to interpretation that it becomes inflexible because the FAA inspectors and individuals in the aviation industry might differ on interpretations. As a result of these differing interpretations, inflexible positions are taken by the FAA. It is difficult for a repair station to determine ~~exactly~~ with certainty what maintenance it is rated to perform on what articles. A repair station may have the expertise to perform work that it may not be rated to perform under the various interpretations of the current rating system.

The committee also determined that the needs of repair station customers must be met. The committee finds that customers, particularly those in general aviation, are interested in having the necessary repairs performed on the whole aircraft. It is often a logistical necessity to have all the work on the aircraft done in one place. Some ~~manufacturer's~~manufacturers require that their associated repair stations maintain a limited rating to ~~establish~~ more specifically define their capabilities. Air carrier customers, on the other hand, are more attracted to class-rated repair stations for the breadth of maintenance that may be accomplished within the class-rating. The committee is of the opinion that ~~Ultimately~~ultimately, repair stations should be able to obtain their ratings based on whether they have the facilities, equipment, tools, materials, personnel, and data to return to service the workscope requested on an article.

OPTIONS FOR A NEW RATINGS AND CLASSIFICATIONS SYSTEM

The committee agrees that the ratings and classifications system should meet two needs. It should allow FAA inspectors to understand the kind of work a repair station intends to perform, and it should create the same expectations for customers on the work they can expect the repair station to perform. Meeting ~~These~~ these two needs guided the deliberations and focused the options the committee considered for a new ratings and classifications system. These ~~committee's~~ options varied from the complete elimination of the existing system of ratings and classes to a modified version of the current system. After considering several options, the committee concludes that a revised class based system of ratings and classifications is beneficial to both the FAA and aviation industry and completely abandoning such a ~~ratings and classifications~~ system does not address the issues identified with the current ratings and classifications system.

The committee finds that a ratings and classifications system that makes use of ~~general~~ class-ratings ~~categories~~ is necessary so that the FAA, repair station customers, and repair stations all have an understanding of the work a facility may perform. If the system groups similar required capabilities, training, technologies, processes, fixturing and tooling concepts, and facilities together, FAA inspectors can easily discern what work a repair station intends to perform. This would allow them to know what to examine when auditing the repair station's personnel, facilities, tools, equipment, materials, and data. Shifting the focus of the present system from a rigid system of exclusive ratings and classifications to a flexible system of broader class-ratings ~~categories~~ allows the work performed by repair stations with different ratings to logically overlap provided the requisite capabilities cited above are present.

ELIMINATION OF RATINGS

[Note: A more extensive discussion of FAA inspector survey results will be included in the final report.]

One option the committee considered was to eliminate all of the class-ratings and classifications. Under such a system, the FAA would only issue limited ratings based on the make and model of the aircraft part. The FAA inspectors surveyed considered this the most appropriate system to adopt because it would eliminate the need for attempting to define broad categories of aircraft with similar qualities. It also would help eliminate some of the confusion over exact definitions within each rating and class. The committee determined that completely doing away with class-ratings would be problematic and would place large administrative and bureaucratic stresses on the system. As each model was modified or new model introduced, it would require action by both the FAA and repair stations to generate an additional limited rating. It would ignore the practical synergies and realities incumbent in a class-rated system. Without class-ratings, it would be difficult for FAA inspectors and repair station customers to discern what work a repair

station intends to perform. The committee finds that it should improve and clarify the existing system rather than eliminate it altogether.

PROGRESSIVE RATINGS AND CLASSIFICATIONS SYSTEM

Another option the committee considered was a progressive ratings and classifications system. Under this system, a range of ratings would be available, with each rating being progressively larger in the scope of work that could be performed under that rating. The lowest rating would only allow a repair station to perform maintenance on one specific aircraft item, and the highest rating would allow a repair station to perform maintenance on the entire aircraft, including every system and part of the aircraft. The committee determined that while this ratings and classifications system would help alleviate some of the inflexibility in the current system, it ~~may~~ might create even more confusion. It could lead to customized ratings depending on the specific current capabilities of each repair station applying for the rating and require a new rating each time the capability of the shop changed. The committee felt that the issue could be resolved just as effectively by using ratings that allow for overlap in the work that can be performed under each rating.

[Note: An analysis of a third option will be included in the final report. This option would be to eliminate all ratings and classes except for limited ratings with capabilities lists.]

MODIFICATION OF THE PRESENT SYSTEM

After reviewing these options, the committee finds that the best option for revising the ratings and classifications system includes retaining a system of ~~mutually exclusive~~class-ratings, using clearer definitions, and retaining classifications, but with less rigidity in their application. This system would further allow some logical overlap between related ratings based on the requisite capabilities of the repair station. For examples:

- Allowing powerplant class-rated repair stations to perform maintenance on nacelles/cowlings and other articles that are attached to the powerplant and interconnect to the airframe without requiring the current limited airframe rating.
- Allowing instrument class-rated (or the proposed avionics-class rated) repair stations to install instrumentation into the airframe without requiring the current limited airframe rating.

The obvious benefit of this option is that it minimizes how much of the current system must be completely changed. The elimination of ratings and classifications or the creation of a progressive ratings and classifications system would restructure the present system at the most basic level. It would require changes in certification, enforcement, and inspection. The committee determined that these options also would have a greater economic impact on the aviation industry and would require a repair station to conform to a completely new system. The committee determined that retaining elements of the present system would allow much of the current industry culture to remain intact, while permitting the FAA to refine the system to more accurately reflect current industry

practice. In addition, the preferred system would enable the repair stations to deal with ongoing changes in the aviation industry.

PREFERRED RATINGS AND CLASSIFICATIONS SYSTEM

The committee's preferred ratings and classifications system would incorporate two major changes. First, the preferred system would create a more flexible class-ratings and classifications system. Second, the preferred system would redefine and restructure the ratings and classes to reflect changes that have occurred in aviation and repair technology. However, this proposal also would allow elements of the present system to remain while still addressing the issues of inflexibility and disconnect from current industry practice.

The preferred new class-ratings and classifications system would be structured so that the broad capabilities of the repair station would be the determining factor in how the repair station would be rated. The individual ratings would be flexible enough to allow repair stations to perform a wide variety of work within each class-rating and allow FAA inspectors to have a clear understanding of the work the facility intends to perform. The committee notes that its proposal addresses an important goal of the ratings and classifications system, that ratings are to be a means of communication whereby a repair station tells the FAA and its customers ~~what~~ the scope of work it ~~intends to~~can and could perform.

The preferred system would depart from the existing class-ratings and classifications system, which intends to create discrete classes but rather has lead to varying and conflicting interpretations of what is contained in each class; thereby, causing the inflexibility cited above. Instead, the new system is intended to create class-ratings that broadly define the ~~basic~~ work a repair station is capable of performing. However, the class-ratings and classifications system would not be so restrictive that it would prevent a repair station from working within its capabilities. The committee believes that its preferred system would establish a natural correlation between the work a repair station performs and the class-rating under which that work is performed. This would allow the new class-ratings and classifications system to better reflect typical industry practice, which is capability based.

~~Because the demands within each rating are less burdensome with respect to the facilities required to obtain the rating, a further benefit of the preferred ratings and classifications system would be that there would be incentives to acquire additional ratings.~~ The rating would be based upon ~~the workscope requested and~~ the repair station's establishing that it had the housing, facilities, equipment, trained personnel and data to accomplish the tasks and workscopes generally required by the aviation industry for those classes of work. The committee believes that the new class-ratings and classifications system will encourage a repair station to perform maintenance it has the technical capabilities to perform without necessarily increasing overhead. The new ratings would allow the FAA to better examine the intentions of each repair station and allow customers to have realistic expectations as to what work the repair station can perform.

Under the preferred system, there would be six repair station class-ratings: (1) aircraft, (2) powerplant, (3) avionics/instruments, (4) propellers, (5) components, and (6) specialized ~~processes~~services. Under each class-rating, a repair station would be allowed to perform all maintenance on any item within the rating it holds. The repair station also would be allowed, provided it had all the necessary capabilities, to remove and replace ~~components~~ those items included in other ratings and perform limited maintenance on those attaching and interconnected parts/components. For example, a repair station with an aircraft rating would be permitted to work on any item attached to the aircraft, except propellers, powerplants, and avionics, unless such were covered in the aircraft maintenance or structural repair manual and the repair station had the necessary capabilities. However, this aircraft-rated repair station could remove and replace any item within these classes to complete its work on the aircraft. Some aviation industry representatives have noted that this practice is already common within the current ratings and classifications system although in some cases limited ratings had to be obtained; however, the preferred class-ratings and classifications system would make this practice expressly permissible. The definitions of all of the terms used in this preferred class-ratings and classifications system are included in appendix A. **[Note: Appendix A will be added in the final draft.]**

AIRCRAFT

The aircraft rating is intended to be the broadest class-rating in the preferred system. This rating would allow a repair station to perform all maintenance on an entire aircraft, excluding powerplants, avionics, and propellers except for that specifically indicated in the aircraft maintenance manual or structural repair manual, provided that the repair station had the proper capabilities. Specifically, the aircraft rating would allow work to be performed on the airframe, including the fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces, and their accessories and controls. In addition, a repair station would not have to have a powerplant or propeller rating to remove and replace powerplants or propellers. Additionally, it would allow an aircraft class-rated facility to perform incidental powerplant work without having a powerplant rating on interconnecting parts and for those tasks specifically indicated in the aircraft maintenance manual or structural repair manual, provided that the repair station had the proper capabilities.

An aircraft rating would permit a repair station to work on all of the components attached to an aircraft, provided they do not fall under the powerplant, avionics, propeller, or specialized service ratings, except as above mentioned.

[Question for committee: Would this rating allow a repair station to work on items covered by this rating if they are not attached to the aircraft? For example, an aircraft-rated repair station could work on landing gear attached to the aircraft. Could they work on landing gear from the same aircraft if they were sent to the repair station separately? YES, if it was capable]

The committee notes that the preferred aircraft class-rating addresses the tendency of repair stations to repair whole aircraft and would alleviate the need for acquiring a separate rating (sometimes class and sometimes limited under the current system) for each individual component it works on. By expanding the scope of this class-rating to include all aircraft items, except those under propeller, powerplant, or avionics ratings, the ratings and classifications system would more accurately reflect the way repair stations currently maintain aircraft.

POWERPLANT

The powerplant class-rating, which would also include auxiliary power units (APUs), would cover all ~~work~~ maintenance performed on the propulsion system for the aircraft and all components necessary for the propulsion system to ~~work~~properly perform its intended purpose. Included within the powerplant class-rating would be~~, such as~~ ducts, nacelles, turbosuperchargers, and gearboxes as well as parts interconnecting the powerplant to the aircraft, propeller, or other component. This rating would not allow for maintenance to be performed on the ~~propellers~~aircraft, propeller, or component proper except as cited above; however, it would permit the removal and replacement of the propellers and components, as necessary to perform powerplant ~~repairs~~maintenance. Nacelles and fairings also may be removed, and replaced because most engine work cannot be performed unless these items are removed.

[Question for committee: Are auxiliary power units (APU) included under this rating? YES]

PROPELLER

A propeller rating would allow maintenance to be performed on propellers (as they are defined in 14 CFR § 1.1). A propeller also would include the components normally supplied by the propeller manufacturer but would not include the ~~main and auxiliary~~ rotors or rotating airfoils of engines. For example, the fan ~~sections~~ blades and associated attachment parts of turbofan engines would be included within the powerplant class-rating, and possibly the aircraft class rating depending on the aircraft maintenance manual. In addition, a repair station with a propeller rating would be permitted to remove and install components that are included in other ratings, as necessary, to gain access to the propeller. This rating also would allow a repair station to remove and replace components attached to the propeller and to remove the propeller from the aircraft.

AVIONICS/INSTRUMENTS

A new rating category would be created with the preferred avionics/instruments class-rating. This rating mainly would focus on those components related to aircraft communication, navigation, and instruments that assist in aircraft navigation, communication, and operation, including radar units. The committee states that the purpose behind creating this class-rating is to group together those components that

operate electrically or electronically and that require a unique set of skills not found in other ratings, most of which are primarily larger and usually mechanical in nature. The class would also include instrumentation that operates by mechanical, optical, pneumatic, vacuum, bourdon tube, aneroid and similar principles. These devices tend to be of similar size and purpose requiring a similar cleanliness of facility and the maintenance capability may be expected by customers to be found in the similar facilities.

An avionics/instrument class-rating would permit a repair station to perform work on communications equipment, navigational 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. Under the existing system, no radio or instrument rating or classification clearly encompasses in-flight entertainment electronics. Even though these devices typically are not thought of as avionics, the committee intends to include them with other electronic devices that require similar repair skills.

This rating also would permit the removal and replacement of other components, as necessary, to complete work on the avionics/instruments provided that it had the capabilities to do so including all relevant technical data which might include technical data for interconnected or inter-related avionics/instruments or other components. For example, a repair station could remove or replace parts of the airframe to allow it access to the avionics.

[Question for committee: Are antennas included in this rating? Is the intent to allow both avionics-rated repair stations and aircraft-rated repair stations to work on antennas? YES]

COMPONENTS

The component rating would allow a repair station to work on individual ~~components~~ items that are brought in separate from a whole aircraft. It would include ~~components~~ items that may be repaired under an aircraft rating. The committee notes that this separate class-rating would allow a repair station that does not want an aircraft rating to work on separate components, such as landing gear, starters, air conditioning units, and superchargers. This rating would include all components that are not included in the propeller, powerplant, and avionics ratings, and is intended as a "catchall" rating. The committee points out that a repair station with an aircraft rating would not need a separate component rating to work on components attached to an aircraft. There will be substantial overlap between this category and the aircraft category.

DISAGREE: I BELIEVE THAT THE QUESTION OF WHETHER COMPONENT SHOPS WOULD ONLY BE USED FOR "AIRCRAFT PIECE PARTS" WAS NOT FINALIZED. I view this category as similar to the limited categories now and as intended for repair stations which cannot do complete aircraft, powerplants, propellers. It would seem overly broad to give a turbine blade repair facility a powerplant class-rating. For example, take a repair station specializing in machining that does engine cases, small

gearbox housings, and aircraft slat-tracks. I would view this as a component repair station and not one rated for aircraft, powerplant and propeller. I believe that this needs more discussion

SPECIALIZED SERVICES

The specialized service rating is intended for only those repair stations that would deal with specific processes for a product and not complete maintenance of said product.~~components~~devices or structures. Each process, such as heat-treating, nondestructive inspection and testing, welding, plasma, and plating, would be ~~defined by a standard series of steps~~listed. This rating would be substantially the same as the existing specialized service rating~~, but would include more guidance and clarity in defining the rating~~. The processes would be more categorical in their identification. A repair station that had and used such a process in its usual maintenance activities would not require this rating. For example, if a repair station performed x-ray inspection as part of the maintenance it performed, it would not be required to also have an "X-ray Inspection Specialized Services" rating, even if it accepted subcontract x-ray work from another repair station.

GUIDANCE AND INTERPRETATION ISSUES

The committee is aware that clear definitions,~~ and~~ guidance, and standardized interpretation would be key in a new ratings and classifications system. Regardless of how the new ratings are structured, most of the existing definitions would have to be clarified. Much of the concern expressed about the present ratings and classifications system was directed at issues of guidance and uniformity of interpretation of such guidance, as much as the overall structure of the ratings and classifications system. This aspect of the new system would be especially important when it finally is implemented. Both the FAA and the aviation industry are in agreement that the single biggest hurdle faced by the preferred ratings and classifications system will be reeducating inspectors, repair station operators, and the aviation industry in general about the new regulatory scheme. Without strong guidance and consistent, enforced interpretation, the transition will be more difficult and may not allow the preferred ratings and classifications system to fulfil its intended goals.

APPENDIX A: DEFINITIONS

[To be inserted.]

APPENDIX B: RESULTS OF FAA INSPECTOR SURVEY

[To be inserted.]

APPENDIX C: RESULTS OF INDUSTRY SURVEY

[To be inserted.]

Unfortunately, neither Mike nor I can make it to the meeting on March 11-12, but I wanted to take the opportunity to repeat the comments I made earlier.

I am assuming that the purpose of a rating system is two-fold: It provides a means for the regulator to limit the scope of privileges in a predictable, enforceable and easily understood manner, and it serves as a means for potential clients to readily identify the organization's capabilities, and is therefore a useful marketing tool.

Based on the above, I see no purpose in having separating airframe and powerplant ratings for regular aircraft maintenance (as opposed to specialized "shop" type work such as engine overhaul or major structural repairs). I suggest that the "aircraft" ratings include the privilege of on-aircraft maintenance of engines, propellers, and avionics systems. Where necessary, the company manual can provide specific limitations. This would recognize that most maintenance organizations deal with the whole airplane. Engine, propeller and avionics ratings could then be reserved for specialized organizations that are equipped to undertake complete overhauls and other work of similar scope.

Once again, on the assumption that most maintenance organizations deal with the whole airplane, there is no point in separating aircraft ratings according to the kind of structure (i.e., composite vs. sheet metal). That could result in a repair station being prevented from performing systems related work, such as scheduled inspections and trouble shooting, just because they were not qualified to do structural repairs on the particular materials employed. Also, given that many ostensibly metal aircraft incorporate varying amounts of composite materials, there is also a potential problem in identifying at what point an aircraft becomes "composite."

If it is really felt necessary to address structural materials in the rating system, it may be worth considering the introduction of a structures rating, to permit the performance of "major" repairs to primary structure. Such a rating category could well be subdivided into sheet metal composite, steel tube and wooden ratings, for example, if desired.

I hope the above comments may be of some value.

Have a good meeting.

Brian Whitehead
Chief, Policy Development
Aircraft Maintenance & Manufacturing

Attachment 4

AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

Attachment 6

SIGN-IN SHEET

MARCH 12, 2002

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AVIATION RULEMAKING ADVISORY COMMITTEE ON AIR CARRIER AND GENERAL AVIATION MAINTENANCE

SIGN-IN SHEET

MARCH 12, 2002

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Appendix 1 Organisations Approval Class and Rating System

Date: April 1, 2001

1. Except as stated otherwise for the smallest organisation in paragraph 13, Table 1 outlines the full extent of approval possible under JAR-145 in a standardised form. An organisation may be granted an approval ranging from a single class and rating with limitations to all classes and ratings with limitations.

2. In addition to table 1 the JAR-145 approved maintenance organisation is required by JAR 145.20 to indicate scope of work in the maintenance organisation exposition. JAR 145.70(a)(8) also refers to the same scope of work and it should be noted that a capability list is deemed to be one form of scope of work. See also paragraph 11.

3. Within the approval class(es) and rating(s) granted by the JAA full member Authority, the scope of work specified in the maintenance organisation exposition defines the exact limits of approval. It is therefore essential that the approval class(es) and rating(s) and the organisations scope of work are compatible.

4. A category A class rating means that the JAR-145 approved maintenance organisation may carry out maintenance on the aircraft and any component (including engines/APUs) only whilst such components are fitted to the aircraft except that such components can be temporarily removed for maintenance when such removal is expressly permitted by the aircraft maintenance manual to improve access for maintenance subject to a control procedure in the maintenance organisation exposition acceptable to the JAA full member Authority The limitation section will specify the scope of such maintenance thereby indicating the extent of approval.

5. A category B class rating means that the JAR-145 approved maintenance organisation may carry out maintenance on the uninstalled engine/APU and engine/APU components only whilst such components are fitted to the engine/APU except that such components can be temporarily removed for maintenance when such removal is expressly permitted by the engine/APU manual to improve access for maintenance. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval. A JAR-145 approved maintenance organisation with a category B class rating may also carry out maintenance on an installed engine during 'base' and 'line' maintenance subject to a control procedure in the maintenance organisation exposition acceptable to the JAA full member Authority. The maintenance organisation exposition paragraph 1.8 scope of work should reflect such activity where permitted by the JAA full member Authority.

6. A category C class rating means that the JAR-145 approved maintenance organisation may carry out maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval. A JAR-145 approved maintenance organisation with a category C class rating may also carry out maintenance on an installed component during base and line maintenance or at an engine/APU maintenance facility subject to a control procedure in the maintenance organisation exposition acceptable to the JAA full member Authority. The maintenance organisation exposition paragraph 1.8 scope of work should reflect such activity where permitted by the JAA full member Authority.

7. A category D class rating is a self contained class rating not necessarily related to a specific aircraft, engine or other component. The D1--Non Destructive [Testing (NDT)] rating is only necessary for a JAR-145 approved maintenance organisation that carries out [NDT] as a particular task for another organisation. A JAR-145 approved maintenance organisation with a class rating in A or B or C category may carry out [NDT] on products it is maintaining subject to the maintenance organisation exposition containing [NDT] procedures, without the need for a D1 class rating.

8. Category A class ratings are subdivided into 'Base' or 'Line' maintenance. A JAR 145 approved maintenance organisation may be approved for either 'Base' or 'Line' maintenance or both. It should be noted that a 'Line' facility located at a main base facility requires a 'Line' maintenance approval.

9. The 'limitation' section is intended to give the JAA full member Authority maximum flexibility to customise the approval to a particular organisation. Table 1 specifies the types of limitation possible and whilst maintenance is listed last in each class rating it is acceptable to stress the maintenance task rather than the aircraft or engine type or manufacturer, if this is more appropriate to the organisation. An example could be avionic systems installations and maintenance.

10. Table 1 makes reference to series, type and group in the limitation section of class A and B. Series means a

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specific type series such as Airbus 300 or 310 or 319 or Boeing 737-300 series or RB211-524 series etc. Type means a specific type or model such as Airbus 310 - 240 type or RB 211 - 524 B4 type etc. Any number of series or types may be quoted. Group means for example Cessna single piston engined aircraft or Lycoming non-supercharged piston engines etc.

11. When a lengthy capability list is used which could be subject to frequent amendment, then such amendment should be in accordance with a procedure acceptable to the JAA full member Authority and included in the maintenance organisation exposition. The procedure should address the issues of who is responsible for capability list amendment control and the actions that need to be taken for amendment. Such actions include ensuring compliance with JAR-145 for products or services added to the list.

12. Table 2 identifies the ATA specification 100 chapter for the category C component rating.

13. A JAR-145 approved maintenance organisation which employs only one person to both plan and carry out all maintenance can only hold a limited scope of approval rating. The maximum permissible limits are:--

CLASS AIRCRAFT	RATING A2 AEROPLANES	PISTON ENGINED LINE & BASE 5700 KG AND BELOW
CLASS AIRCRAFT	RATING A2 AEROPLANES	TURBINE ENGINED LINE 5700 KG AND BELOW
CLASS AIRCRAFT	RATING A3 HELICOPTERS	SINGLE ENGINED LINE & BASE LESS THAN 2730 KG
CLASS ENGINES	RATING B2 PISTON	LESS THAN 450 HP
CLASS COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	RATING C1 TO C20	AS PER CAPABILITY LIST
CLASS SPECIALISED D1 [NDT]		[NDT METHOD(S)] TO BE SPECIFIED

It should be noted that such an organisation may be further limited by the JAA full member Authority in the scope of approval dependant upon the capability of the particular organisation.

TABLE 1

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes/airships above 5700 kg	Will state aeroplane/airship		

		series or type and/or the maintenance task(s).
	A2 Aeroplanes/airships 5700 kg and below	Will state aeroplane/airship manufacturer or group or series or type and/or the maintenance tasks
	A3 Helicopters	Will state helicopter manufacturer or group or series or type and/or the maintenance task(s)
ENGINES	B1 Turbine	Will state engine series or type and/or the maintenance task(s)
	B2 Piston	Will state engine manufacturer or group or series or type and/or the maintenance task(s)
	B3 APU	Will state engine manufacturer or series or type and/or the maintenance task(s)

COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond & Press	Will state aircraft type or aircraft manufacturer or component manufacturer or the particular component and/or cross refer to a capability list in the exposition and/or the maintenance task(s).
	C2 Auto Flight	
	C3 Comms and Nav	
	C4 Doors--Hatches	
	C5 Electrical Power	
	C6 Equipment	
	C7 Engine--APU	
	C8 Flight Controls	
	C9 Fuel--Airframe	
	C10 Helicopter--Rotors	
	C11 Helicopter--Trans	
	C12 Hydraulic	
	C13 Instruments	
	C14 Landing Gear	
	C15 Oxygen	
	C16 Propellers	

- Committee agreed to these 6 ratings
- FAA would issue ratings for the work that the RS is CAPABLE of performing
- FAA would only add limitations if the repair station performed a specific type of work.

Aircraft

- Aircraft rating means RS can maintain and alter anything on the aircraft that is not powerplant, propeller or avionics, which is limited to removal and installation.
- Includes the definitions of aircraft and airframe in part 1.
- Can't work on the engine at all, even if it is in the manual.
- Limitation is indicated on the OpsSpecs.
- "Permanent apability list at the time of certification
- Consider listing by make and model, or series on capabilities list.
    - Problems/considerations associated with this—
        - Customer may request work on aircraft not listed on capability list
        - What does series mean?
        - RS will go through checklist, determine capabilities, but will not have to add aircraft to capabilities list.
        - Doesn't tell the customer up front what are the RS capabilities.
        - Use to determine if RS has the facilities, housing, and equipment to perform the work.
    - Example:
        - Aircraft Rating: Limited to ...

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- Aircraft Rating: Limited to do the alteration (because the installation is considered an alteration to the aircraft)
- Propeller Rating

Avionics

- Avionics rating means RS can maintain and alter any communication, pulsed (radar), inflight entertainment or navigation equipment, or instrument, installed or removed from an aircraft, or removed from a powerplant or propeller.
- Includes the ability to maintain or alter a communication, pulsed (radar), inflight entertainment or navigation equipment, or instrument system in the aircraft.
- Capability list would be maintained by broad categories, listed by manufacturer and model:
  - Communication equipment
  - Navigation equipment
  - Pulsed (radar) equipment
  - Mechical instruments
  - Electric instruments
  - Gyroscopic instruments
  - Electronic instruments
  - (This needs work—Rick P.)
- Includes the definition of instrument in part 1.
- Example: To install a communication, navigation, or instrument system in an aircraft, the RS would need—
  - Aircraft Rating: Limited - To alter the fuselage of the aircraft.
  - Avionics Rating

Component

- Every article that is not a completed aircraft, powerplant, propeller or avionic equipment.
- Capability list categorized and listed by manufacturer and model.
- Capability list categories:
  - Part family or general nomenclature (pump)
    - Manufacturer (Vickers)
    - Model or series or part number*

*Must be able to identify it to a level that will allow determination of equipment and/or data necessary to perform the work.

Specialized Service

- Specialized services are individual processes.
- Examples:
  - NDI/NDT
  - Welding
  - Heat Treating
  - Plating
  - Plasma
- For any other purpose the Administrator finds appropriate.

What about:

- Weight and balance
- Painting

If there is a link between the work task and the aircraft, powerplant, avionics, or propeller, then RS would be issued a limitation to the appropriate rating.

- Example: If RS is painting aircraft, would it need—
  - Aircraft Rating: Limited to painting

    OR
  - Specialized Services Rating: Limited to painting???

- Example: If RS is performing NDI, would it need—
  - Specialized Services Rating: Limited to NDI????