May 28, 2014

Delivered by email; read receipt requested: john.s.duncan@faa.gov
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John S. Duncan
Director
Flight Standards Service
Federal Aviation Administration
800 Independence Avenue, SW
Washington, D.C. 20553-0002

RE: Consistency and Standardization Initiative
Development of Work Instructions

Dear Mr. Duncan:

The Aeronautical Repair Station Association (ARSA) and Metal Improvement Company, LLC (MIC) jointly submit this letter under the Federal Aviation Administration's (FAA) Consistency and Standardization Initiative (CSI) due to the significant impact on the repair station industry.

(I) Issue

(A) Summary

(1) An appropriately certificated and rated repair station can (and, indeed, is expected to) develop its own work instructions based on manufacturer's maintenance data (*e.g.*, instructions for continued airworthiness, maintenance/overhaul manuals, Standard Practices Manuals and other technical standards incorporated by reference) and/or other methods, techniques and practices acceptable to the FAA.

(a) The repair station should have a written procedure describing how work instructions are developed. If these documents are used as maintenance records or forms, they will be developed and provided to the agency as required by parts 43 and 145.

(b) Work instructions containing methods, techniques and practices for performing maintenance, preventive maintenance or alteration functions can either:

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(i) Reference the manufacturer's maintenance information (or other approved or acceptable data), or

(ii) The repair station must be able to show that its instructions are in accord with, or equivalent to, the manufacturer's maintenance data (or other data approved by or acceptable to the agency) if requested by the FAA.

(c) The FAA does not need to approve or accept the repair station's work instructions.

(d) When performing a maintenance function in accordance with a repair station's work instructions, technical personnel are not required to have a physical copy of the manufacturer's maintenance data, rather it must be *accessible*.

(2) If the repair station's work instructions are different from the manufacturer's maintenance data in some minor respects (*e.g.*, if they are based on alternative methods, techniques and practices acceptable to the FAA, or accommodate customer-specific requirements under § 145.205), the FAA need not approve or accept the changes prior to the work instructions being used.

(B) FAA perspective on the issue

(1) The Miami Flight Standards District Office (FSDO) and the FAA Southern Region have found:

(a) Work instructions developed by a repair station are ***per se*** unacceptable to the FAA, even if the instructions' methods, techniques and practices result in a repair that complies with § 43.13(b). Rather, the FAA must approve or accept the work instructions before they can be used.

(b) Minor differences between manufacturer and repair station work instructions must be approved or accepted by the FAA prior to use.

(c) Repair station technical personnel must physically have the manufacturer's maintenance manual (or other incorporated technical references) while performing the work, even if the repair is being performed in accordance with the repair station's detailed work instructions.

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(2) MIC recently paid a civil penalty based on the above allegations. (*See* Exhibit 1.) The case was settled by payment of a reduced penalty and is not the subject of this CSI, except insofar as it potentially affects MIC's ability to do business prospectively.

(C) Certificate holder's perspective on the issue

(1) This CSI is necessary because findings in the final order expose the company and the entire industry to future allegations and violations. Specifically, with respect to the FAA's conclusions that:

(a) The repair station's procedure was unacceptable to the FAA, even though there was no evidence or allegation that the repair did not comply with § 43.13(b). Although not specifically stated, the FAA found the methods, techniques and practices in the MIC's work instructions unacceptable because they were not submitted to and approved or accepted by the FAA prior to use.

(b) Variations between the repair station's procedure and the manufacturer's maintenance information were unacceptable to the FAA unless approved by the agency prior to use.

(c) A repair station violates § 145.109(d) when personnel performing maintenance functions do not have *a physical copy* of the manufacturer's current data, even if it is accessible. Indeed, in this case, the manufacturer's data did not apply because the repair station's work instructions were to be used.

(2) The technical data supporting the manufacturer's manuals and instructions are approved by the FAA under part 21.

(3) The repair station's work instructions can be reflected in travelers, routers, inspection sheets, or other forms and documents that apply to a specific repair or to the sequence of work expected to be performed. Such work instructions are acceptable to the FAA if the work performed complies with §§ 43.13(b), 145.201 and 145.205. This is particularly true if the forms and instructions are developed and updated in accordance with §145.211.

(4) There can be minor differences between the repair station's work instructions and the manufacturer's maintenance data, provided those differences do not affect compliance with §§ 43.13(b) and 145.205.

These adjustments do not require FAA approval or prior acceptance unless they result in a major repair (or alteration).

(5) Repair station personnel are not required to use the manufacturer's manual when performing repairs in accordance with the repair station's detailed work instructions, provided the manufacturer's information is current and accessible, as required by § 145.109. The rule requires that the referenced data be maintained; it does not require that it be followed by maintenance personnel if other acceptable (or required) instructions are accessible and used.

(D) Industry perspective on the issue

(1) This CSI focuses only on the fact that the agency has found that:

(a) Repair station-developed work instructions are *per se* unacceptable.

(b) Minor differences between the manufacturer's manual and the repair station's work instructions have to be approved or accepted by the agency before use.

(c) Data required by § 145.109 must be in the physical possession of personnel rather than accessible and applicable to the particular maintenance function being performed.

(2) ARSA has both objective and subjective data that all repair stations develop some manner of internal documents that contain methods, techniques and practices for technicians. The documents (*e.g.*, travelers, routers and inspection forms) range from simple checklists with direct references to manufacturer's data to complex technical processing sheets. The development processes range from a quick review of manufacturer's maintenance data to update references to development and incorporation of "independent" major repairs or equivalent processes.

(3) This CSI does not request that the final order in the enforcement case be modified. The case was settled because the company concluded that the costs and distractions of litigation did not justify an appeal.

Indeed, this CSI is necessary because the case was not adjudicated and has no precedential value to the agency or the industry. That fact makes it essential that the industry obtain clarity from the FAA on the permissible scope of the stated practices. The fact that repair stations

are expected to develop and have developed work instructions using the same or similar processes described in paragraph (I)(C) makes this a critical issue for the entire maintenance industry.

(II) Information provided by MIC

(A) Types of review conducted between certificate holder and the FAA (telephone call, meeting, etc.)

FAA case no. 2011SO190128 arose following routine FAA surveillance and a letter of investigation to which the company responded. The FAA then issued a notice of proposed civil penalty, after which an informal conference was held. (*See* Exhibit 1.)

During settlement discussions, the alleged violation of § 43.13(a) was removed; however, the alleged violation of § 145.109(d)(5) remained.

(B) Summary of meetings or telephone calls between the agency and the certificate holder

See above.

(III) Applicable regulations and guidance

(A) Regulations

(1) Section 43.13(a) requires that maintenance be performed using methods, techniques and practices contained in a manufacturer's maintenance manual, Instructions for Continued Airworthiness or other methods, techniques and practices acceptable to the FAA.

(2) Section 43.13(b) requires that each person performing maintenance to do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly-altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).

(3) Section 145.201(a)(3) allows a repair station to approve for return to service any article for which it is rated after it has performed maintenance, preventive maintenance, or an alteration in accordance with part 43.

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(4) Section 145.109(d) requires a certificated repair station to maintain, in a format acceptable to the FAA, the documents and data required for the performance of maintenance, preventive maintenance, or alterations under its repair station certificate and operations specifications in accordance with part 43. The following documents and data must be current and accessible when the relevant work is being done:

— Airworthiness directives.

— Instructions for continued airworthiness

— Maintenance manuals.

— Overhaul manuals.

— Standard practice manuals.

— Service bulletins.

— Other applicable data acceptable to or approved by the FAA.

(5) Section 145.201(c)(2) requires major repairs and alterations be performed in accordance with technical data approved by the FAA.

(6) Sections 145.211(c)(3)–(4) requires the repair station's quality control manual to include samples of and instructions for completion of inspection and maintenance forms, as well as revision and agency notification procedures.

(7) Section 145.219(a) requires the repair station retain records in English that demonstrate compliance with part 43.[1] This rule is fulfilled with the help of the maintenance and inspection forms developed and used under § 145.211(c).

(B) Public guidance

(1) Advisory Circular (AC) 120-77 Maintenance and Alteration Data defines methods, techniques and practices as being acceptable to the FAA "if the certificate holder shows that the instructions will return the [article] to its original or properly altered condition." (*See* Exhibit 2.)

[1] See §§ 43.9 and 43.11 for the general recordkeeping requirements including ensure there is a description of the work (or inspection) performed, the names and/or certificate of the persons performing the work and approving it for return to service.

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(2) AC 120-77, paragraph 12(a) provides guidance regarding the evaluation that should take place when a maintenance provider uses work instructions that are different from those of the manufacturer.

Before a maintenance provider may change a repair, limit or other procedure in the manufacturer's maintenance data, the following three requirements must be met:

(a) The change must be processed in accordance with procedures in the maintenance provider's quality system.

(b) The change must be shown to comply with the relevant airworthiness standards. Compliance with these standards will establish that the article will be returned to its original or properly-altered condition in accordance with § 43.13(b).

(c) If the change is classified as "major," the technical data supporting the change must be approved before the article may be approved for return to service.[2] (*See* Exhibit 3.)

(3) AC 145-9, paragraph 4-6(c) establishes the expectation that a repair station will develop work instructions in the form of routers, travelers or other process documents. Specifically, the guidance states: "If the repair station transfers requirements from the air carrier or commercial operator to its maintenance personnel by special instructions on the work order or traveler, that section of the quality control system must clearly explain how this is accomplished." (*See* Exhibit 4.)

(C) <u>FAA internal guidance</u>

FAA Order 8900.1, volume 6, chapter 9, section 15 provides guidance to FAA inspectors for inspecting a repair station's maintenance processes. Paragraph 6-1933(D)(1) address methods, techniques and practices specifically.[3] (*See* Exhibit 5.)

Volume 6, chapter 11, section 2, paragraph 6-2177(B)(1) provides similar guidance for conducting a detailed process/task inspection. With respect to

[2] *See also* Letter from John M. Allen, Director of Flight Standards Service, Federal Aviation Administration to Chris Erickson, Director of Safety and Compliance, Erickson Air-Crane, Inc., paragraph 7 (Feb. 23, 2010). (Exhibit 7)

[3] Other subparagraphs address inspection systems, technical data, major repairs and alterations, materials/parts, tools and test equipment and additional considerations.

work instructions, the material set forth in italics below is essentially the same as that contained in volume 6, chapter 9, section 15:

Inspect/review the following as applicable:

Work instructions, to verify that:

- *Work instructions have been prepared for all processes;*
- *Work instructions reflect the technical data contained in appropriate maintenance manuals or other approved documents;*
- *Work instructions define accept/reject criteria, required tools, test equipment, inspection equipment, details of method of inspection to be performed, and tolerance limits, as applicable;*
- *Work instructions denote and detail the function to be performed, sequence of operations, and inspection points to verify proper handling of products from one station to another through all phases;*
- *Revisions to work instructions have been approved, controlled, and documented; and*
- *Traceability is maintained for the completion of all operations.*

(*See* Exhibit 6) (emphasis added).

(D) Legal interpretations and decisions

(1) FAA letter of February 23, 2010 to Erickson Air-Crane, Inc. (Erickson) pertaining to a Customer Service Initiative (CSI).[4] (*See* Exhibit 7.) In pertinent part, the FAA's letter confirms that:

(a) The work instructions contained in a manufacturer's maintenance data are based on technical data (*i.e.*, engineering information) approved by the FAA.

(b) Variations between a repair station's work instructions and the manufacturer's maintenance data do not require FAA approval of the technical data unless the changes result in a major repair (or alteration).

(2) FAA legal interpretation of August 13, 2010 to AWP-230 and the Sacramento FSDO regarding the meaning of the word "current" in §§ 43.13 and 145.109. (*See* Exhibit 8.) The interpretation also addressed the difference between maintaining current and accessible documents

[4] Now known as the Consistency and Standardization Initiative

under § 145.109, versus the work instructions that must be followed when performing a particular repair.

(3) October 15, 2012, FAA letter to ARSA in which the agency confirmed that modified manufacturers' maintenance instructions (MMI) developed by an EASA-Part 145 certificate holder under § 145.A.45(d)[5] are acceptable to the FAA under § 43.13(a). (*See* Exhibit 9.) Therefore, the practice of modifying the manufacturer's maintenance data in accordance with the above principles must also be acceptable to the FAA when it is done by a U.S.-based repair station.

(E) Ambiguities or inconsistencies in regulations, guidance or correspondence

The FAA's determinations in the MIC matter did not reflect the articulated policies in the referenced regulations, public guidance, legal interpretations and correspondence. (*See* paragraphs (III)(A), (B) and (D).)

However, the policies related to the relationship between a manufacturer's maintenance data and a repair station's internal work instructions are not fully or consistently integrated into the agency's internal guidance. Nor does the guidance contain the nuances established by the referenced legal interpretations and CSI responses, which are supported by the regulations set forth in paragraph (III)(A).

Specifically:

— While 14 CFR and FAA Order 8900.1 address the fact that a repair station may (and is expected to) develop its own acceptable work instructions under § 43.13(a) based on the methods, techniques and practices contained in a manufacturer's manual without prior FAA approval or acceptance, the final order in the MIC civil penalty case finds otherwise.

— The internal guidance states that revisions to work instructions must be "approved." We would agree if the FAA means approved by the repair station; however, the verbiage requires clarification so it is consistent with AC 120-77 and the FAA's letter of Feb. 23, 2010 in response to the Erickson CSI. Those documents comport with the regulations that only require the technical data supporting the differences that result in major repairs or alterations to be approved by the agency.

[5] This section authorizes the Part-145 certificate holder to modify the manufacturer's maintenance instructions when they are inaccurate, incomplete or ambiguous.

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— The principle set forth in AC 120-77 is not reflected in the MIC final order. The AC establishes that repair station work instructions that return the article to its original or properly-altered condition and which incorporate minor yet equivalent variations from the manufacturer's manual are ***per se*** acceptable to the FAA.

— Order 8900.1 does not contain the nuance contained in the FAA's legal interpretation of August 13, 2010. That document states that § 145.109(d) requires current manufacturer's data to be in the repair station's possession and accessible when the work is being performed. It also acknowledges that there are circumstances when the manufacturer's maintenance data will not be used to perform the work. Therefore, when maintenance personnel are following the repair station's own work instructions, which contain all of the elements for performing a repair in compliance with § 43.13, the manufacturer's maintenance data need not be on the floor and/or used during the operations.

(IV) MIC's Relationship with the FAA

(A) Prior FAA history with the certificate holder (issues, decisions, etc.)

This is the first time the FAA has raised these issues with MIC. The company has no history of other disputes or disagreements with the agency.

(B) Offices, regions or directorates that have dealt with this stakeholder on this or other issues

MIC has not dealt with any other FAA offices on this issue.

ARSA has previously assisted the FAA in clarifying the issues raised in this CSI.

(C) Precedent (prior FAA history or decisions with other stakeholders on this or similar issues)

The issues are addressed as indicated by the guidance referenced above.

(V) Conclusion

This CSI relates to a repair station's ability to develop and use internal work instructions without prior acceptance or approval by or from the FAA. When those documents contain methods, techniques or practices based on manufacturer's

maintenance data and other methods, techniques and practices acceptable to the FAA, the following regulatory principles apply:

- The manufacturer's manual and referenced documents are based on technical data approved under 14 CFR part 21 and, as such, requires no further approval or acceptance prior to use.

- A repair station may (and indeed is expected to) develop its own work instructions without prior approval or acceptance by the FAA. They can include or reference methods, techniques and practices acceptable to the FAA, *e.g.,* manufacturer maintenance data or other methods, techniques and practices developed by the repair station. Further:

  - If the work instructions are contained in forms or maintenance records, they will be developed under part 145.

  - These forms will be used to show compliance with part 43.

- Changes from the manufacturer's maintenance data must be evaluated by the repair station to ensure they will result in an airworthy repair. However, unless the changes result in a major repair or alteration, no prior FAA approval or acceptance of the technical data is required.

- The manufacturer's maintenance data must be current and/or applicable and *accessible* to repair station personnel; it does not have to be physically in their possession when performing maintenance in accordance with the repair station's detailed work instructions.

(VI) Recommendation

We recommend and request that the agency:

- Confirm that:

  - A repair station may create work instructions for its technical personnel.

  - Use of such documents are not *per se* unacceptable to the agency.

  - The maintenance data required by § 145.109(d) must be applicable (relevant) to the maintenance function and accessible when the relevant work is being performed. It need not be in the physical possession of the technician.

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— Issue an Advisory Circular on the development and use of work instructions based upon parts 21, 43 and 145.

— Review and revise information in the Flight Standards Information Management System for auditing maintenance data, including development and use of work instructions under part 145, to reflect the information contained in paragraphs (III)(A), (B) and (D).

We appreciate the FAA's prompt consideration of this request. Please let us know if you have any questions or desire additional information.

Sincerely,

Marshall S. Filler
Counsel for the Aeronautical Repair Station Association

Michael McEleney
Division Manager – Windsor, CT; Wakefield, MA; and Miami, FL
Metal Improvement Company, LLC

Exhibits:

1: FAA Order Assessing Civil Penalty, dated Nov. 5, 2013
2: Advisory Circular 120-77, Maintenance and Alteration Data, ¶ 5(n) (as of 10/7/02)
3: Advisory Circular 120-77, Maintenance and Alteration Data, ¶ 12(a) (as of 10/7/02)
4: Advisory Circular 145-9, Guide for Developing and Evaluating Repair Station and Quality Control Manuals, ¶ 4-6(c) (as of 7/3/03)
5: FAA Order 8900.1, Vol. 6, Ch. 9, Sec. 15 (as of 2/10/14)
6: FAA Order 8900.1, Vol. 6, Ch. 11, Sec. 2 (as of 4/15/13)
7: FAA CSI Response Letter to Erickson Air-Crane, Inc., dated Feb. 23, 2010
8: FAA Memorandum Re Legal Interpretation of "Current" as it Applies to §§ 43.13(a) and 145.109(d), dated Aug. 13, 2010
9: FAA Letter to ARSA Re Manufacturers' Maintenance Instructions Developed by EASA-Part 145 Certificate Holder Under §145.A.45(d), dated Oct. 15, 2012

cc: Steven Douglas, AFS-300 steven.w.douglas@faa.gov
Thomas Winston, ASO-200 thomas.winston@faa.gov

RE: Consistency and Standardization Initiative
Development of Work Instructions

Mark Bury, AGC-200 mark.bury@faa.gov

EXHIBIT 1

U.S. Department of Transportation
Federal Aviation Administration

Southern Region
Office of the Regional Counsel

~~P.O. Box 20636~~
Atlanta, Georgia 30320

(404) 305-5200
(404) 305-5223 FAX

NOV 5 2013

CERTIFIED - RETURN RECEIPT REQUESTED
& REGULAR MAIL

2011SO190128

Metal Improvement Company, LLC
1940 70th Ave.
Miami, FL 33126

ORDER ASSESSING CIVIL PENALTY

On September 3, 2013, you were advised through a Final Notice of Proposed Civil Penalty that the FAA proposed to assess a civil penalty in the amount of $12,000. We have considered the information submitted in response to this Final Notice.

After consideration of all of the available information in this matter, including the information submitted during and after the informal conference on February 20, 2013, it has been determined that:

1. At all times material herein Metal Improvement Company, LLC ("MIC") was and is now the holder of Air Agency Certificate No. MB4R356M (with a Limited Specialized Services Rating).

2. MIC's Air Agency Certificate No. MB4R356M (with a Limited Specialized Services Rating) includes a:
   a. Shot Peen Rating
   b. Shot and Glass Bead Specifications
   c. Limitation:

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

3. MIC's Air Agency Certificate No. MB4R356M (with a Limited Specialized Services Rating) includes a:
   a. Blast Cleaning Rating
   b. Grit and Glass Bead Specifications
   c. Limitation:

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

EXHIBIT 1

4. On or about March 8, 2011, the FAA conducted an inspection of MIC's facility located at 1940 70th Ave. in Miami, Florida.

5. At the time of the above-described inspection:

a. MIC was using its own internal shot peening process procedures data (MIC 160, Revision A) to perform shot-peening on parts.

b. MIC 160, Revision A contained information regarding the shot-peening of parts which was not found acceptable to the Administrator.

6. The above-described March 8, 2011 inspection also revealed the following:

a. The timer (613A) on a Peenamatic Machine was out of calibration.

b. The timer (613M) on a Peenamatic Machine was out of calibration.

c. The timer (613SLG) on a Peenamatic Machine was out of calibration.

d. The peenamatic machines did not have Hobbes Meters as required by SPOP 500.

e. Two grip assemblies that were in the process of shot peening did not use the "Delrin" protection material required by MIC 160, Revision A:

1. Part No. (PN): 204-011-121-113, SN IT0763
2. PN: 204-011-121-113, SN IT0777.

7. Using MIC 160, Revision A, MIC returned the following parts to service as airworthy:

a. MIC performed maintenance in the form of shot-peening a C-8 compressor disk under Job No. 223493 on or about October 25, 2010 and returned it to service as airworthy using a "Partial Maintenance Release" / Certificate of Shot Peening, dated, November 1, 2010.

b. MIC performed maintenance in the form of shot-peening a C-8 compressor disk under Job No. 224962 on or about April 4, 2011 and returned it to service as airworthy using a "Partial Maintenance Release" / Certificate of Shot Peening, dated, April 5, 2011.

8. On or about March 11, 2011, the FAA conducted another inspection of MIC's facility located at 1940 70th Ave. in Miami, Florida.

9. The above-described March 11, 2011 inspection revealed the following:

a. Calibration records for the previously inspected Peenamatic Machine timers revealed the timers were still out of calibration.

b. MIC had no training records for an employee (Mike Chapman) responsible for performing the in-house calibration of the previously inspected Peenamatic Machine timers.

As a result, MIC violated the following sections of the Federal Aviation Regulations (14 C.F.R. Section):

a. 145.109(b) in that a certificated repair station must ensure all test and inspection equipment and tools used to make airworthiness determinations on articles are calibrated to a standard acceptable to the FAA.

b. 145.109(d)(5) in that a certificated repair station must maintain, in a format acceptable to the FAA, the documents and data required for the performance of maintenance, preventive maintenance, or alterations under its repair station certificate and operations specifications in accordance with part 43. The following documents and data must be current and accessible when the relevant work is being done:

(1) Airworthiness directives,

(2) Instructions for continued airworthiness,

(3) Maintenance manuals,

(4) Overhaul manuals,

(5) Standard practice manuals,

(6) Service bulletins, and

(7) Other applicable data acceptable to or approved by the FAA.

NOW, THEREFORE, IT IS ORDERED, pursuant to 49 U.S.C. Sections 46301(a)-(d), that you be and hereby are assessed a civil penalty in the amount of $12,000.

You are hereby ordered to pay, immediately, the assessed amount by mailing or delivering a certified check or money order in the amount of $12,000, payable to the "Federal Aviation Administration," to:

FAA/AMZ-350
P.O. Box 25770
Oklahoma City, OK 73125

The amount of civil penalty assessed in this Order constitutes a debt owed to the United States. You have now exhausted your right to seek review of the validity or amount of this debt. If this debt is not paid in full within 30 days of your receipt of this letter, the debt is considered delinquent. For delinquent debts, federal regulation (49 C.F.R. §89.23) requires us to charge

EXHIBIT 1

interest, from the date of this Order, at a fixed annual rate of 1%, along with an administrative charge of $12.00 per month, representing our costs of administrative collection. Furthermore, if the full amount assessed is not paid in full within 90 days of your receipt of this letter, we are required to assess an additional penalty at an annual rate of 6%, accruing from the date of delinquency. Delinquent debts may be reported to consumer reporting agencies or commercial credit bureaus, which could adversely affect your credit rating. Non payment of this debt may ultimately result in a referral to a collection agency, the Internal Revenue Service, or to the United States Department of Justice for enforced collection.

RANDY ELLEN HYMAN
ACTING REGIONAL COUNSEL

BY: 
GERALD A. ELLIS
MANAGING ATTORNEY

EXHIBIT 1

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Order Assessing Civil Penalty has been mailed by Certified Mail & Regular Mail to:

Thomas Barden, Division Manager
Metal Improvement Company, LLC
1940 70th Ave.
Miami, FL 33126

Michael J. McEleny, Division Manager
Metal Improvement Company, LLC
1940 N.W. 70th Ave.
Miami, FL 33126

Jay McMurray
Vice-President of Quality and EHS
Metal Improvement Company, LLC
Corporate Office
80 Route 4 East, Suite 310
Paramus, NJ 07652

Sarah MacLeod, Esq.
Obadal, Filler, MacLeod, & Klein, P.L.C.
117 N. Henry St.
Alexandria, VA 22314-2903

Gerard A Jenney

NOV 5 2013

Dated

(2) An alteration that is not done according to accepted practices or cannot be done by elementary operations. (Reference Part 1, section 1.1.)

l. Major Repair.

(1) A repair that, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness, or

(2) A repair that is not done according to accepted practices or cannot be done by elementary operations. (Reference Part 1, section 1.1.)

m. Manufacturer's Service Documents. Publications by a design approval holder that provide acceptable methods, techniques, and practices for performing maintenance, preventive maintenance, and alterations. They include, but are not limited to, maintenance manuals, restoration/overhaul manuals, ICAs, Component Maintenance Manuals, Structural Repair Manuals, service bulletins, letters, or other similar information.

n. Methods, Techniques, and Practices. The step-by-step, "how-to" instructions for accomplishing maintenance, preventive maintenance, and alterations. These instructions are considered "acceptable to the Administrator" if the certificate holder shows that the instructions will return the aircraft, engine, or other article to its original or properly altered condition. (Reference sections 21.50(b), and 43.13(a).)

o. Minor Alteration. An alteration other than a major alteration. (Reference section 1.1.)

p. Minor Repair. A repair other than a major repair. (Reference section 1.1.)

q. Structural Repair Manuals (SRM). These typically provide repair instructions, material substitutions, and allowable damage limits for the aircraft's structure.

r. Substantiating Data. Technical data used to show that an article complies with the applicable airworthiness standards (e.g., Parts 25 or 33). Compliance may be shown by tests, analysis, experience, and/or computations appropriate to the maintenance, alteration, or continue-in-service condition of the article being evaluated. Substantiating data shown to comply with the applicable airworthiness standards is acceptable to the Administrator. This is because it establishes that the article meets the regulatory requirements and would be returned to its original or properly altered condition by use of this data. (Reference sections 21.31, 25.603, and 43.13(b).)

s. Supplemental Type Certificate (STC). A certificate issued by the Administrator approving a change in the type design of the product. (Reference section 21.117.)

t. Technical Data. Drawings and specifications, including a list of drawings and specifications, needed to define the configuration and design features of a particular article, repair, or alteration. Typically, this includes information on materials, dimensions, and processes necessary to define structural strength, any required airworthiness limitations, and any data necessary to determine the airworthiness, noise characteristics, fuel venting, and exhaust

If the FAA notifies a repair station that a particular change to its manual would not comply with 14 CFR, the repair station would be required to rescind the change.

(3) Like air carriers, repair stations are governed by section 43.13 when they perform work. They must use methods, techniques, and practices acceptable to the Administrator, which are normally those in the manufacturer's or air carrier's service documents. However, when they are working on behalf of non-air carrier customers, the regulations allow repair stations to use other methods, techniques, and practices that are acceptable to the Administrator for performing the work. Paragraph 12(a) describes the general requirements for demonstrating that a particular variation from an existing service document would be acceptable to the Administrator.

(4) Like air carriers, a repair station must also obtain FAA approval of the technical data supporting a major repair or major alteration.

12. EVALUATING PROPOSED CHANGES TO DATA IN SERVICE DOCUMENTS.

a. General. Before an air carrier or repair station may change a repair, limit, or other procedure in an SRM or other service document, the following three requirements must be met. First, the change must be processed in accordance with procedures in the air carrier's maintenance manual. Second, the change must be shown to comply with the relevant airworthiness standards. Compliance with these standards will establish that the article will be returned to its original or properly altered condition in accordance with section 43.13(b). Third, if the change is classified as "major" in accordance with the operator's procedures, the technical data supporting the change must be approved before the article may be approved for return to service.

b. Manual Procedures. The certificate holder's manual procedures should be sufficiently detailed, but flexible enough to allow it to classify a change. If required, it should be able to obtain FAA-approved data, apply the approved data to the aircraft, and approve the aircraft for return to service. To help accomplish this, the certificate holder may take advantage of the latest communication media (fax, electronic mail, video, telex, etc.). These media can also be used to collect and transmit substantiating data in support of a proposed change. A certificate holder should not rely only on verbal communications. This could interfere with the proper classification of the data required to determine airworthiness. If a certificate holder intends to use these media, it should have procedures in its manual that explain how the media will be used. Procedures should also provide for a continuous loop of timely information and communications among the certificate holder, FAA principal inspector, ACO, designees, and the manufacturer, as appropriate. The procedures to evaluate proposed changes to service documents should be included in the air carrier manual. The procedures should contain the following elements:

(1) A method of ensuring only appropriately qualified and experienced personnel will make the engineering determinations required.

(2) A method of determining whether the proposed change requires FAA approval because it affects an AD, CMR, Airworthiness Limitation, Minimum Equipment List (MEL), maintenance program tasks, intervals, etc., and if the change requires FAA approval, procedures for obtaining that approval.

(10) How does the facility ensure that each location stays in compliance with its manual and part 145?

> **NOTE 1: The rule does not allow continuous, uninterrupted operations at another location without applying for a repair station or satellite certificate at that location.**
>
> **NOTE 2: A combination of storing equipment, tools, parts, etc., and having repair station personnel permanently positioned at a site and performing maintenance on a daily basis away from its permanent fixed base indicates a continuous, uninterrupted operation. A repair station that operates in this fashion no longer meets the intent of § 145.203. If the repair station is to continue its operations in this manner, then it must apply for certification as a satellite or stand-alone repair station.**

d. Permanent Fixed Location. Additionally, work that is to be performed at another location does not include other authorizations, such as having a line maintenance authorization to perform work for an air carrier. Work performed at locations away from their fixed base allows repair stations the flexibility to meet industry needs and to be mobile when necessary. Repair stations must still maintain a permanent fixed location even if the majority of their work is done at another facility.

4-6. MAINTENANCE, PREVENTIVE MAINTENANCE, AND ALTERATIONS PERFORMED FOR AIR CARRIERS UNDER PARTS 121, 125, 129, AND 135.

a. Reference. Section 145.205.

b. Requirements. Some repair stations perform maintenance, preventive maintenance, or alterations for air carriers conducting operations under parts 121, 125, 129, and 135. In this case, this section of the manual must describe the procedures to ensure that maintenance is performed in accordance with the air carrier's program and maintenance manual. These procedures must ensure that the air carrier has provided the repair station with the information necessary to ensure compliance with this requirement. The air carrier may provide the repair station with the applicable sections of its maintenance program or manuals at the time the work is performed. On the other hand, the purchase order or other contractual documents from the air carrier could clearly state the source of the data (manufacturer's or air carrier's manual) used to perform the requested maintenance along with any other requirements of its program or maintenance manual. If the repair station performs an inspection for a certificate holder conducting operations under part 125, the manual must contain procedures to ensure the inspections are performed in accordance with the operator's approved inspection program. Again, the operator may provide the repair station with the applicable sections of its inspection program or clearly outline the requirements on the purchase order.

c. Identify Responsibilities. The procedures should identify who is responsible (by title) for keeping all of the operators' data current, and where these manuals/sections will be located if retained at the repair station. The procedures also must explain what air carrier or commercial operator information must be available to maintenance personnel when the work is performed.

Additional procedures will be required to ensure that purchase orders are thoroughly reviewed. This review will be necessary to ensure that the air carrier has clearly specified what technical data to use for performing the maintenance. Employees may need additional training to properly perform this review. The traveler or work-order system of the repair station may be used to integrate this information into the quality control system. If the repair station transfers requirements from the air carrier or commercial operator to its maintenance personnel by special instructions on the work order or traveler, that section of the quality control system must clearly explain how this is accomplished.

d. Organization. The repair station performing maintenance for an air carrier must have an organization adequate to perform the work. This includes the ability to distinguish the work performed for different operators. Additionally, if the repair station is performing RII inspections the organizational structure must provide separation of maintenance and inspection personnel. The air carrier, not the repair station, determines the maintenance actions that are RII. If the repair station's inspectors are authorized to perform RII for the air carrier, the air carrier must ensure that the inspectors are trained on the carrier's RII procedures, including how the inspection is performed and recorded.

(1) The inspectors performing RII for the carrier must be qualified and authorized by the carrier. This authorization is usually in written format, often a card carried by the inspector. The authorization may need to be renewed, depending on the air carrier's procedures. The procedures in the RSM should include who will maintain a list of current RII inspectors, how an inspector is added to the list, and where the list is located.

(2) The repair station should request information from the air carrier or commercial operator pertaining to at least the following issues:

(a) RII.

(b) Training requirements for the work being performed on the operator's behalf, including who will provide the training.

(c) Maintenance duty time requirements.

(d) Special maintenance or alteration instructions per engineering orders, build lists, and other methods, techniques, and practices in the operator's manual per part 43, § 43.13(c).

(e) Recordkeeping requirements, including who is responsible for maintaining the files.

e. Line Maintenance Authorization. The FAA may authorize a certificated repair station to perform line maintenance for an air carrier conducting operations under parts 121, 129, and 135, provided that:

(1) The repair station performs the maintenance in accordance with the operator's manual, if applicable, and approved maintenance program.

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CHAPTER 9 PART 145 INSPECTIONS

Section 15 Inspect a Part 145 Repair Station's Maintenance Process

6-1928 PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Maintenance: 3654.

B. Avionics: 5654.

6-1929 OBJECTIVE. This section provides guidance for conducting a detailed process or task inspection by analyzing the data, materials, and parts used in an aircraft maintenance and alteration process.

6-1930 GENERAL. A detailed process or task inspection is a surveillance activity examining specific tasks associated with the maintenance and alteration of an airframe, aircraft engine, propeller, appliances, or component parts.

6-1931 COORDINATION REQUIREMENTS. If the repair station has an assigned principal maintenance inspector (PMI) and a principal avionics inspector (PAI), both inspectors should coordinate this inspection between them.

6-1932 REFERENCES, FORMS, AND JOB AIDS.

A. References (current editions):

- Title 14 of the Code of Federal Regulations (14 CFR) Parts 43 and 145.
- Volume 2, Chapter 11, Section 1, Introduction.
- Volume 2, Chapter 11, Section 2, Procedures for Certificating Part 145 Repair Stations/Satellites Located Within the United States and Its Territories.
- Volume 2, Chapter 11, Section 3, International Field Office Procedures for Certificating/Renewing/Amending a Part 145 Repair Station Located Outside the United States and Its Territories and not under a Maintenance Implementation Procedure.
- Volume 2, Chapter 11, Section 4, Evaluate a Part 145 Repair Station Manual and Quality Control Manual or Revision.
- Volume 6, Chapter 11, Section 2, Conduct a Detailed Process/Task Inspection.
- Advisory Circular (AC) 145-9, Guide for Developing and Evaluating Repair Station and Quality Control Manuals.

B. Forms. None.

C. Job Aids. Part 145 Repair Station Inspection Checklist at http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs300/.

6-1933 PROCEDURES.

A. Review Applicable Information. Before inspecting, the aviation safety inspector (ASI) should carefully review:

1) Parts 43 and 145.

2) Repair Station Manual (RSM) or Quality Control Manual (QCM).

3) Operations specifications (OpSpecs).

4) The Safety Performance Analysis System (SPAS). For additional information on SPAS data, see Volume 6, Chapter 9, Section 1, Introduction to Repair Station Risk-Based Oversight System, paragraph 6-1630.

5) Enhanced Vital Information Database (eVID).

6) Certificate-holding district office (CHDO) file.

B. Identify the Process or Task to be Inspected.

1) The ASI should identify the process or task to be inspected, and identify those documents that will help the ASI verify the use of approved or accepted items, such as data, materials, and tools. Examples of these documents include travelers, task cards, work orders, and maintenance or component maintenance manuals.

2) Inform the appropriate management personnel about which process or task the aviation safety inspector (ASI) will observe during the inspection. Inform the person in authority of the inspection criteria and the areas the ASI will verify.

NOTE: During this inspection, the ASI should pay particular attention to deviations from approved data or procedures.

C. Conduct an In-Briefing. Brief the certificate holder on the purpose of the inspection. This in-brief may take place at the beginning of the inspection or at the beginning of each day. You can find detailed instructions for conducting this briefing in Volume 6, Chapter 9, Section 5, In-Depth Team Inspection of a Part 145 Repair Station.

D. Conduct the Process Review. The following steps serve as a guide to the ASI in performing a process or task inspection. Certain steps may not be appropriate, depending on the complexity of the repair station. Using the applicable section of the Repair Station Inspection Checklist at http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs300/, verify:

1) Procedures, Methods, and Systems. Determine if:

- The repair station has prepared these items for all processes.

- These items reflect the technical data contained in appropriate maintenance manuals or other approved documents.
- These items define - and accept or reject - criteria, required tools, test equipment, inspection equipment, details of method of inspection to be performed, and tolerance limits, as applicable.
- These items denote and detail a function to be performed, a sequence of operations, and inspection points that ensure proper handling of products from one station to another, through all phases.
- These items have been approved, controlled, and documented after the repair station makes revisions.
- These items maintain traceability after personnel complete all operations.

2) Inspection Systems. Determine that:

- The repair station maintains inspection records. These records should indicate the number of inspections made, conformance or nonconformance of products, and the action taken when a product is nonconforming.
- When required, repair station personnel conduct reinspections or retests following rework.
- Assemblies are inspected for conformity before closure.
- All required inspections and tests have been satisfactorily accomplished before final acceptance of completed products or parts.
- Personnel performing required inspection items inspections for an air carrier are identified and authorized by the carrier.
- Inspection personnel are not exceeding their area of authority.
- Internal audits are conducted to verify compliance with Federal Aviation Administration (FAA)-approved or acceptable data and appropriate procedures.

3) Technical Data. Confirm that the repair station:

- Provides its personnel with current technical data and changes.
- Has removed inapplicable, inappropriate, illegible, or obsolete data from areas of potential use.
- Has reviewed nondestructive inspection (NDI) processes for conformance with FAA-approved data.
- Has submitted process specification changes to the FAA for evaluation and approval.
- Uses controlled tags, forms, and other documents.

4) Major Repairs and Alterations. Verify that:

- The repair station uses FAA-approved data to accomplish the task, if the task is a major repair or major alteration,

- The repair station documents Designated Engineering Representative (DER)-approved data on FAA Form 8110-3, Statement of Compliance with Airworthiness Standards, with the correct revision level.
- The residing Aircraft Certification Office (ACO) has authorized the DER to approve the data.
- The major repair, alteration, and airworthiness (MRA) Organization Designation Authorization (ODA) indicates the appropriate function code to approve data for major repairs and alterations. In the current edition of FAA Order 8100.15, Organization Designation Authorization Procedures, Chapter 12, Section 12-3, Functions, lists available function codes.

NOTE: When a repair station procures FAA-approved data to use on 14 CFR part 121, 125, 129, or 135 aircraft, the data must agree with the air carrier's manual.

5) Materials and Parts. Determine if:

- The materials, test records, and standards used in an NDI are identified and controlled.
- When required, the repair station identifies special identification and controls for materials or parts and are in place before the materials or parts are used.
- When required, the repair station identifies and uses special handling and storage requirements for materials or parts.
- There is traceability of material or parts received from distributors. The repair station must retain the records of receiving inspection data. The records should list the distributor name, part number, quantity, and inspection results.

6) Tools and Test Equipment. Confirm that:

- When required, repair station personnel identify and test special tools and test equipment for an operation or process.
- The repair station maintains calibration records for all tools and test equipment requiring calibration. The ASI should inspect the record for evidence that measurements are traceable to a nationally- or internationally-recognized standard.
- The repair station has appropriately trained its personnel for work assignments.

7) Additional Considerations. Verify that:

- Shift turnover procedures are in place and personnel are complying with those procedures.
- The repair station maintains an adequate staff of personnel trained, qualified, and authorized to perform specific tasks throughout the maintenance process.
- As personnel route work through the repair station, the work flows through the process with no interruptions from personnel, facilities, or availability of parts or materials that might affect airworthiness.

E. Analyze Findings. After completing the inspection, record all deficiencies and determine appropriate corrective actions.

F. Conduct Debriefing. Brief the certificate holder on the inspection results. Discuss any deficiencies and possible corrective action. The ASI can find detailed instructions for conducting this briefing in Volume 6, Chapter 9, Section 5.

6-1934 TASK OUTCOMES.

A. Complete the PTRS Record.

1) Section IV of the PTRS Record. Enter an "E" in the Primary Area block. List all deficiencies, findings, and irregularities noted during the inspection, using the appropriate keywords in the drop-down menu of the Keyword block. For each keyword used, write a brief description of the concern in the Comment block.

2) PTRS Activity Code 3654/5654, Overall Subsystem Evaluation. In Section I, the Assessment block, select the appropriate word picture number 1 through 10 in the drop-down menu that best describes the condition of the repair station for the completed inspection. Activities closed with an assessment of less than "3" must be resolved using the "risk management process" (RMP). Guidance on the use of this tool can be found in Volume 6, Chapter 9, Section 2, Repair Station Risk Management Process.

B. Complete the Task. Completion of this task may result in:

- Sending a letter to the operator documenting all deficiencies and initiating an Enforcement Investigation Report (EIR), if necessary.
- An assessment rating on the PTRS record of 1 or 2, which will require initiating a RMP record.
- Opening the appropriate PTRS record to track deficiency corrective actions.
- A satisfactory inspection with no deficiencies.

C. Document the Task. Place all supporting paperwork in the certificate holder's office file, including the completed applicable section (3654/5654 Activity Code) of the Repair Station Inspection Checklist at http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs300/. This checklist must remain in the certificate holder's office file until an inspection of this activity code is repeated. Update eVID as required.

6-1935 FUTURE ACTIVITIES. Schedule and conduct followup inspections as applicable.

RESERVED. Paragraphs 6-1936 through 6-1949.

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CHAPTER 11 OTHER SURVEILLANCE

Section 2 Conduct a Detailed Process/Task Inspection

6-2171 PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODES.

A. Maintenance: 3651.

B. Avionics: 5651.

6-2172 OBJECTIVE. This section provides guidance for conducting a detailed process/task inspection by analyzing the data, materials, and parts used in the maintenance/alterations processes by air agencies and air operators.

6-2173 GENERAL. A detailed process/task inspection is a surveillance activity that will examine one or more specific tasks that are associated with the overhaul maintenance/alterations of a part or product. This inspection will evaluate the data, tooling, equipment, and processes used to complete one or more tasks.

6-2174 INSPECTOR RESPONSIBILITIES.

A. Preparation. Prior to performing an inspection, it is important that aviation safety inspectors (ASI) and air agencies are well prepared. ASIs should be familiar, when applicable, with the following:

- Operations specifications (OpSpecs) (including the ratings, the specifications listed for limited specialized services, and the process specifications);
- Maintenance documentation (including the required work cards, the inspection forms, and the sign-off sheets);
- Applicable maintenance manuals (including the inspection procedures manuals, the air carrier manuals, the overhaul manuals, the current revisions and dates, and the process specifications);
- Major repair, alteration, and airworthiness (MRA) Organization Designation Authorization (ODA);
- The current edition of Order 8100.15, Organization Designation Authorization Procedures;
- Engineering Orders (EO);
- Required Inspection Items (RII);
- Supplemental Type Certificates (STC) and Parts Manufacturer Approval (PMA);
- Federal Aviation Administration (FAA) Form 8110-3, Statement of Compliance with Airworthiness Standards; and
- FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance).

B. Coordination. A detailed process inspection will involve varying degrees of complexity. At times there may be a need for coordination with other offices (Aircraft Evaluation Group (AEG), Aircraft Certification Office (ACO), Flight Standards District Office (FSDO), etc.), for clarification of procedures and processes.

NOTE: Geographic units need to establish close coordination with their certificate-holding district office (CHDO).

6-2175 COORDINATION REQUIREMENTS. This task must be coordinated between an Airworthiness ASI and the operator.

6-2176 REFERENCES, FORMS, AND JOB AIDS.

A. References:

- OpSpecs.
- Process specifications, if applicable.
- Applicable maintenance manuals.

B. Forms:

- FAA Form 8110-3.
- FAA Form 337.

C. Job Aids. None.

6-2177 PROCEDURES.

A. Prepare for the Inspection. Accomplish the following:

- Identify the process/task to be inspected;
- Identify those documents, which will verify the use of approved or accepted data, materials, tools, etc;
- Inform the appropriate personnel as to what particular process/task will be observed during the inspection;
- Verify the inspection criteria to be used; and
- During this inspection, pay particular attention to any deviations from approved data or procedures. (Do not let them continue.)

B. Perform the Inspection. The following steps are to serve as a guide on performing a process/task inspection. Certain steps may not be appropriate, depending on the complexity of the repair station or operator. Inspect/review the following, as applicable:

1) Work instructions, to verify that:

- Work instructions have been prepared for all processes;

- Work instructions reflect the technical data contained in appropriate maintenance manuals or other approved documents;
- Work instructions define accept/reject criteria, required tools, test equipment, inspection equipment, details of method of inspection to be performed, and tolerance limits, as applicable;
- Work instructions denote and detail the function to be performed, sequence of operations, and inspection points to verify proper handling of products from one station to another through all phases;
- Revisions to work instructions have been approved, controlled, and documented; and
- Traceability is maintained for the completion of all operations.

2) Inspection instructions, to verify that:

- Inspection records, indicating the number of inspections made, conformance or nonconformance, and the action when the product is nonconforming, are maintained;
- When required, reinspections/retests are performed following additional maintenance;
- Assemblies are inspected for conformity before closure;
- All required inspections and tests have been satisfactorily accomplished prior to final acceptance of the completed products/parts;
- Personnel performing RII inspections for an air carrier are identified and authorized by the carrier; and
- Inspection personnel are not exceeding their area of authority.

3) Data, to verify that:

- Personnel are provided with current technical data and changes;
- Inapplicable, inappropriate, illegible, or obsolete data is removed from areas of potential use;
- Nondestructive inspection (NDI) processes are reviewed for conformance with FAA-approved data;
- Process specification changes are submitted to the FAA for evaluation and approval; and
- Tags, forms, and other documents used are controlled.

4) Major repairs and alterations, to verify that:

- If the task involved a major repair or major alteration, that FAA-approved data was used to accomplish the task;
- MRA ODA data used for major repairs has been approved by authorized individuals referenced in the operator's MRA ODA procedures manual;
- The scope of the MRA ODA authority has not been exceeded;
- The Designated Engineering Representative (DER)-approved data has been documented on FAA Form 8110-3; and

- The DER is authorized by the cognizant ACO to approve the data.

5) Materials/parts, to verify that:

- The materials, test records, and standards used in NDI are identified and controlled;
- When required, special identification and controls for materials or parts are identified and are in place prior to the materials/parts being used;
- When required, special handling and storage requirements for materials and parts are identified and being used; and
- There is traceability of material or parts received from distributors and that the records of receiving inspection data are retained and list the name, part number, quantity, and inspection results.

6) Tools and test equipment, to verify that:

- When required, special tools and test equipment are identified and used for an operation or process;
- Calibration records are maintained for all tools and test equipment requiring calibration; and
- The facility's personnel are trained appropriately for their assignments.

6-2178 TASK OUTCOMES.

A. Complete the PTRS Record.

B. Complete the Task. Successful completion of this task may result in the following:

- Satisfactory inspection, and/or
- Requirement for a followup inspection for a particular discrepancy.

C. Document the Task. Document the task, and file all supporting paperwork in the operator's office file.

6-2179 FUTURE ACTIVITIES. Normal surveillance.

RESERVED. Paragraphs 6-2180 through 6-2195.

EXHIBIT 7

U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S. W.
Washington, D.C. 20591

FEB 2 3 2010

Mr. Chris Erickson
Director of Safety and Compliance
Erickson Air-Crane, Inc.
3100 Willow Springs Road
P.O. Box 3247
Central Point, OR 97502-0010

Dear Mr. Erickson:

SUBJECT: Consistency and Standardization Initiative; Maintenance and Alteration Data

This is in response to your questions relating to the relationship between approved technical data and the methods, techniques, and practices used to perform maintenance, preventive maintenance, and alterations. It supplements the Federal Aviation Administration's (FAA) previous letters of September 17, October 8, and December 21, 2004, and March 15, 2005.

We apologize for the delay in responding to your inquiry and trust the following information will be useful in assessing compliance with the pertinent regulations.

1. What is technical data?

   A synonym for technical data is engineering information.[1] As stated in Title 14 Code of Federal Regulations (14 CFR) section 21.31[2] and Advisory Circular (AC) 120-77, Maintenance and Alteration Data, technical data include drawings and specifications, including a list of drawings and specifications, needed to define the configuration and design features of a particular article, repair, or alteration. Typically, these include information on materials, dimensions, and processes necessary to define structural strength, any required airworthiness limitations, and any data necessary to determine the airworthiness, noise characteristics, fuel venting, and exhaust emissions (as applicable) of the altered or repaired aircraft or other article. Technical data also include test data and engineering analyses and other engineering information, such as engineering handbooks or approved military or industry specifications. These may also include operational and service experience, maintenance and alteration experience, reliability data, and other documented factual information that can be shown to be directly applicable to the airworthiness of the article.

2. How does technical data become FAA-approved?

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[1] See, for example, 14 CFR section 183.29 relating to the privileges of a designated engineering representative (DER).
[2] All regulatory citations are to 14 CFR unless otherwise noted.

Technical data are approved under part 21, usually when the FAA issues a design approval. Design approvals include, but are not limited to, type certificates (TC), supplemental type certificates (STC), parts manufacturer approvals (PMA), and technical standard order authorizations (TSOA); other approvals can be issued under section 21.305. When changes to those designs are made in accordance with the regulatory framework described in item 3 below, those data are also considered approved.

Technical data can also be approved in support of repairs and alterations such as a field approval by an FAA inspector in block 3 of Form 337, by a DER on Form 8110-3, or pertinent organization designation authorization (ODA) on Form 8100-9.

a. How does the technical data remain FAA-approved as the design of an article changes over time?

   Design changes are classified as minor or major in accordance with section 21.93[3] and approved by the FAA.

   Pursuant to section 21.95, minor changes are approved in accordance with a method acceptable to the FAA. The minor change procedure does not have to be submitted to and reviewed by the FAA in order for it to be acceptable; however, it must comply with part 21. The approval of a minor change normally occurs before the data are submitted to the FAA. The vast majority of design changes made by a design approval holder (DAH) are minor.

   Major changes must be submitted to and approved by the FAA before they are implemented as required by section 21.97. For example, FAA approval of a major change to a type-certificated product occurs through the issuance of an amendment to an existing TC or STC or the issuance of a new STC.

b. Is part 21-approved data adequate for demonstrating compliance with the requirement in sections 65.95(d)(1), 121.379(b), 135.437(b), and 145.201(c) that major repairs and major alterations be performed in accordance with technical data approved by the FAA?

   Yes, but part 21-approved data may or may not contain the methods, techniques, and practices. They usually define a design configuration and may not contain the how-to instructions. These data would be sufficient to meet the intent of sections 65.95(d)(1), 121.379(b), and 145.201(c); however, it may not meet the performance standards of section 43.13(a). The methods, techniques, and practices generally contained in a manufacturer's maintenance manual or Instructions for Continued Airworthiness (ICA) may not be part of the technical data required by part 21.

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[3] Similar design change rules also appear in section 21.619 (TSOA) and new section 21.319 (PMA) as they relate to those articles.

3. When an authorized person performs a major repair or major alteration in accordance with a manufacturer's maintenance manual or other manufacturer's "service information," does this comply with the requirement that the work be accomplished in accordance with approved technical data?

   Yes, provided the manual or other manufacturer's service information is developed using FAA-approved technical data as described above. In the absence of a special circumstance such as an airworthiness directive (AD) or airworthiness limitation, there is no requirement in 14 CFR that a maintenance manual be FAA-approved. When performing a major repair or major alteration, only the technical data must be approved. Such data are initially approved upon issuance of a design approval for a product or article. Subsequently developed technical data are also FAA-approved when design changes are made in accordance with part 21. Following the methods, techniques, and practices contained in a manufacturer's maintenance manual or service information prepared using part 21-approved data would, therefore, comply with sections 43.13(a), 65.95(d)(1), 121.379(b), 135.437(b), and 145.201(c).

4. What does the term "manufacturer" mean for purposes of section 43.13(a)?

   The term "manufacturer" means a design or production approval holder. For example, a PMA or TSOA holder is a DAH. A PMA holder may issue a Component Maintenance Manual (CMM) or similarly named document. The methods, techniques, and practices contained in a CMM are developed using approved technical data.

   Design change procedures (on which manual revisions will often be based) vary depending on whether a PMA holder obtained its design approval on the basis of identicality through a licensing agreement with the TC or STC holder or by an independent showing that the design complied with the pertinent airworthiness standards (i.e., by test and computation). If through a licensing agreement with the TC or STC holder, the FAA requires that identicality be maintained by ensuring design changes are properly coordinated between the PMA holder and the TC holder. If the PMA design is issued based on test and computation, the PMA holder is authorized to implement design changes without coordinating with a TC or STC holder.

   In some cases, a supplier to a TC or STC holder does not hold a PMA but may be the actual designer and producer of an article as well as the issuer of a CMM. In this case, the TC holder (the DAH) will ensure the coordination of any design changes prior to its implementation in accordance with the supplier control procedures in the part 21-required quality manual (the DAH may, but is not required to, "bless" the CMM or any revisions thereto; only the technical data must be approved). In this event, the FAA would consider the DAH to be the manufacturer for purposes of section 43.13(a).

5. Must a manufacturer that develops and issues a maintenance manual also hold an FAA design and production approval for the article in question?

   No, provided the supplier has access to the DAH's approved data, and subsequent design changes which affect the maintenance manual are coordinated with the DAH. The DAH is ultimately responsible for regulatory compliance.

6. If a particular repair or alteration contained in a manufacturer's maintenance manual was major in accordance with part 1 and part 43, appendix A, would it comply with the requirement that the work be performed in accordance with approved technical data?

   Yes, because the technical data required to be provided during the certification process were approved as part of that certification. The manufacturer's maintenance manual (methods, techniques, and practices) was developed utilizing the manufacturer's technical data.

7. What if there was a deviation or change from the repair or alteration procedure contained in the manufacturer's manual?

   The deviation or change would need to be evaluated to determine whether it is major or minor.[4] If major, the technical data supporting the deviation would require FAA approval.

8. If a major repair or major alteration is performed in accordance with a manufacturer's manual, do the regulations require the submission of an FAA Form 337 or other authorized document in accordance with section 43.9(d) and part 43, appendix B?

   The recordkeeping regulations apply to all major repairs and alterations but will differ depending on what type of maintenance provider accomplishes the work. For example, a repair station accomplishing major repairs in accordance with a manufacturer's instructions need not submit an FAA Form 337, but a part 65 mechanic with inspection authorization would have to submit the form. In general, all major alterations are to be recorded on an FAA Form 337; air carriers may use another method for recording major alterations as specified in their maintenance manuals.

9. What is the regulatory significance when the FAA has approved a maintenance manual, such as a Structural Repair Manual (SRM)?

   It signifies that the FAA has approved the technical data supporting the methods, techniques, and practices described in the SRM. When performing a major repair or major alteration, only the technical data must be approved. Therefore, for purposes of compliance with sections 65.95(d)(1), 121.379(b), 135.437(b), and 145.201(c), the approval of an SRM or other maintenance manual has no added regulatory significance.

Please let me know if you have any questions.

Sincerely,

John M. Allen
Director, Flight Standards Service

[4] See paragraph 12 of AC 120-77.

EXHIBIT 8

Federal Aviation Administration

Memorandum

Date: AUG 13 2010

To: Manager, AWP-230
Manager, Sacramento FSDO

From: Assistant Chief Counsel for Regulations, AGC-200 by GHM

Prepared by: Edmund Averman, Staff Attorney, AGC-210

Subject: Legal Interpretation of "Current" as it Applies to Maintenance Manuals and Other Documents Referenced in 14 C.F.R. §§ 43.13(a) and 145.109(d).

This is in response to your February 19, 2009, request to the Regional Counsel for the FAA's Western-Pacific Region for a legal interpretation of the meaning of the word "current" as it is used in 14 C.F.R. § 43.13(a) and 14 C.F.R. § 145.109(d). Because your request specifically asked that the answer consider a previous interpretation (memorandum issued on December 5, 2008, by this office) addressing the meaning of "current" in the phrase "current inspection program" referenced in 14 C.F.R. § 91.409(f)(3), we are responding for the Regional Counsel.

Section 91.409(f) lists four types of inspection programs, one of which an operator of an aircraft specified in § 91.409(e) must select and follow. Section 91.409(f)(3), at issue in the December 5 interpretation, specified a "current inspection program recommended by the manufacturer." The interpretation addressed the question whether, if a manufacturer amends its maintenance inspection instructions, an aircraft operator who selects a program under 91.409(f)(3) is obliged to comply with the new instructions in order to comply with that section. For the reasons stated in the memorandum, we concluded that, absent a change required by the FAA, an operator is not so obliged. We stated: "[T]o comply with § 91.409(f)(3) an operator need only adopt a manufacturer's inspection program that is 'current' as of the time he adopts it, and that program remains 'current' unless the FAA mandates revisions to it." We also stated: "The legal conclusions below are equally pertinent to either type of document—*current maintenance instructions or current inspection program.*"

While § 91.409(f) applies to aircraft operators and dictates which inspection program they must select, § 43.13(a) applies to persons performing maintenance and sets forth performance rules those persons must follow. In pertinent part, § 43.13(a) states: "Each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness [ICA] prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator,

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except as noted in § 43.16." If a person uses the manufacturer's maintenance manual or ICA when performing aircraft maintenance, that person could use the most current version of the manual or ICA or, in many cases, a prior version (including one that was current at the date of manufacture) and not run afoul of the regulation. This is so because of the flexibility provided in the regulation. For example, § 43.13(a) provides that the person performing maintenance shall use the current manufacturer's maintenance manual or Instructions for Continued Airworthiness [ICA], "**or** *other methods, techniques, and practices acceptable to the Administrator* . . . ." (Emphasis added.) Thus, in a case in which a maintenance person is alleged to have violated that regulation because he or she used a "prior" version of the manual or ICA, the FAA would have to show how it was *unacceptable* for the person to have used that "prior" version. If the FAA could not show how the prior version is now unacceptable, the FAA could not prove the violation. For example, if the FAA had changed or invalidated the "prior" version by a rule, its use would not be acceptable, and the FAA should be able to prove the violation.

The obligation imposed by § 145.109(d) is different. That section requires that a repair station must maintain certain specified documents and data, and that the listed documents and data must be current and accessible when the relevant work is being performed. The items listed that must be so maintained include, *e.g.*, ICA, maintenance manuals, overhaul manuals, and service bulletins. As discussed in a similar context in the December 5 memorandum with regard to an air carrier's duty to keep a current FAA-approved Airplane Flight Manual under 14 C.F.R. § 121.141(a), this is essentially a paperwork requirement to keep the specified documents up to date. In the Part 145 context, a repair station would have to keep current (up-to-date) versions of the listed documents and data. Part 145, including the section at issue, was adopted through notice and comment procedures required by the Administrative Procedure Act (APA) (5 U.S.C. § 553), and the obligation incumbent on the regulated entities (repair stations) was determined at the time of adoption and does not change over time, unless amended by another notice and comment rulemaking process.

The above paragraph does not address the issue of which version of a manual or document must be followed by a repair station when it performs maintenance. In many cases the most recent revision of a manual would be the appropriate document to use. However, as articulated in the December 5 memorandum interpretation that addressed compliance with § 91.409(f)(3), and as explained above in the context of § 43.13(a), if a repair station customer had validly adopted a previous iteration of an inspection program that was "current" at the time of adoption and the repair station followed that program, the repair station would not be in violation of either regulation unless the FAA had invalidated it by rule or could otherwise show that it was not acceptable. Similarly, in the context of performing maintenance for a customer, if the repair station used a "prior" version of a manufacturer's maintenance manual that was applicable to the model of aircraft that was being maintained, and the FAA could not show how the prior version that was used was unacceptable, the repair station would not be in violation of § 43.13(a) or § 145.201 for following it.

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That reasoning notwithstanding, however, the choice of which maintenance manual a repair station should follow is a non-issue when air carrier work is being done. Repair stations must follow § 145.205 when performing such work. Accordingly:

(a) If a repair station performs maintenance for an air carrier or commercial operator that has a continuous airworthiness maintenance program under Part 121 or Part 135, it must follow that entity's program;

(b) If a repair station performs inspections for a certificate holder that conducts operations under Part 125, it must follow the operator's FAA-approved inspection program;

(c) If a repair station performs maintenance for a foreign air carrier or foreign person operating a U.S.-registered aircraft under Part 129, it must follow the operator's FAA-approved maintenance program.

Section 145.205 is silent as to a repair station performing inspections for a person holding an operating certificate issued under Part 135 and who is using an inspection program approved under § 135.419. Most likely the contractual arrangement between the operator and the repair station would specify that the repair station follow the operator's approved program. However, the obligation to use that approved program is on the operator. The repair station would be required, at a minimum, to follow § 43.13(a), and the discussion above would apply.

This response was prepared by Edmund Averman, an Attorney in the Regulations Division in the Office of the Chief Counsel, and coordinated with the Aircraft Maintenance Division (AFS-300) in the Office of Flight Standards If you have additional questions regarding this matter, please contact us at your convenience at (202) 267-3073.

Gary A. Mitchell

for Rebecca B. MacPherson

EXHIBIT 9

U.S. Department
of Transportation
**Federal Aviation
Administration**

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OCT 15 2012

RECEIVED
OCT 19 2012

Mr. Craig Fabian
Vice President Regulatory Affairs
& Assistant General Counsel
ARSA
121 North Henry Street
Alexandria, VA 22314-2903

Dear Mr. Fabian:

This letter is in response to your letter, dated October 4, 2012, requesting clarification on the use of Modified Maintenance Instructions (MMI). We agree with your interpretation and understanding of the requirements for developing the MMI's outlined in European Aviation Safety Agency (EASA) 145.A.45 (d) and the relating acceptable means of compliance (AMC).

The purpose of the Agreement between the United States and the European Community is to enable the reciprocal acceptance of regulatory cooperation and harmonization, as provided in the Annex 2 of the Agreement. The FAA and EASA have established the differences between EASA Part-145 and Title 14 CFR Part 145. These differences are listed as Special Conditions in the Maintenance Annex as agreed between the European Union (EU) and the US. As a result, an EU-based EASA Part 145 approved maintenance organization, when in compliance with published FAA maintenance special conditions complies with 14 CFR Part 145 and vice versa for a US-based FAA-certificated 14 CFR Part 145 repair station.

The FAA considers the EASA approved MMI's to satisfy and be equivalent to the requirements of 14 CFR Part 43.13 (a). The EASA approved MMI's can also be used by an EU based repair station just as the requirements of 14 CFR Part 43.13(a) apply to US-based repair stations.

Sincerely,

Steven W. Douglas
Manager, Aircraft Maintenance Division