Circular No.3-026

# Handling of Repair Design Data Approved by the U.S. Federal Aviation Administration

Revision History

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| June 30, 2011 | First issue |
| June 30, 2011 | Amended |
| January 26, 2018 | Amended |

Airworthiness Division, Aviation Safety and Security Department
Japan Civil Aviation Bureau
Ministry of Land, Infrastructure, Transport and Tourism

(translated on November 1, 2018)

Circular No.3-026

June 30, 2011 First issue (KOKU-KU-KI-269)
June 30, 2011 Amended (KOKU-KU-KI-282)
January 26, 2018 Amended (KOKU-KU-KI-2006)

Circular

Director of the Airworthiness Division
Aviation Safety and Security Department,
Civil Aviation Bureau,
Ministry of Land, Infrastructure, Transport and Tourism

Subject: Handling of Repair Design Data Approved by the U.S. Federal Aviation Administration

1. Background

Based on the Implementation Procedures for Airworthiness (hereinafter referred to as "IPA") in the Bilateral Aviation Safety Agreement (hereinafter referred to as "BASA") concluded between the government of Japan and the federal government of the United States, the Japanese government has, at this time, decided to accept the repair design data approved by the U.S. Federal Aviation Administration (hereinafter referred to as "FAA") involved in the repair of aircraft, engines, propellers, and other components (hereinafter referred to as "aircraft or components, etc.") or by a person with a certain level of authority delegated by the FAA (hereinafter referred to as "FAA repair design data"). The term "a person with a certain level of authority delegated by the FAA" in this Circular means a person recognized under the FAA's Designated Engineering Representatives (DER) system or a person accredited under the Organization Designation Authorization (ODA) system; the person is granted authority to approve the repair design data of aircraft or components, etc. within the scope accredited by the FAA.

This Circular is intended to stipulate the inspection policies of the authorities concerned when repairing and equipping aircraft or components, etc. under FAA repair design data without using a method designated by the designer of the aircraft or components, etc., including those who have received approval of supplemental type design; hereinafter referred to as "designer, etc." (manuals, service bulletins, etc. designated by a designer, etc.; hereinafter referred to as "method designated by the designer, etc.").

2. Relevant Circulars

No.1-001 General Policy and Procedures for Certification / Inspection

No.2-001 General Policies for Approved Organization

No.4-016 Handling of Engineering Orders Issued by Air Carriers

No.7-001 Bilateral Aviation Safety Agreement with Foreign Nations

3. Systems in the United States

Under the systems in the United States, the criteria for approval of repairing aircraft and components, etc. are stipulated in Part 43 of the U.S. Federal Aviation Regulations (FAR). The approval procedures for design data of repairs in the "Major Repair" category without using a method designated by the designer are specified in FAA Order 8110.4, "Type Certification"; FAA Order 8110.37, "Designated Engineering Representative (DER) Handbook"; Order 8100.15, "Organization Designation Authorization (ODA) Procedures"; FAA Order 8900.1, "Flight Standards Information Management System"; and other FAA Orders. The FAA or a person with a certain level of authority delegated by the FAA may approve the repair design data.

When the FAA or a person with a certain level of authority delegated by the FAA has approved repair design data, Form 8110-3, Form 8100-9, and Form 337 (Block 3) are issued.

Form 8110-3 is a document to be issued when a DER approves or recommends approving the repair design that conforms to the FAR criteria. With regard to the scope of the DER's approval, the category (structural, power plant, radio, etc.) and the certificate content (static analysis, safety analysis, etc.) are limited per DER. For a repair design within the scope of the DER's approval, "Approve these data" in the "Certification" column in Form 8110-3 is selected, which means that the repair design is deemed to have been approved by the FAA. On the other hand, for a repair design outside the scope of DER's approval, "Recommend approval of these data" in the "Certification" column in Form 8110-3 is selected. In this case, the repair design is not deemed to have been approved by the FAA only with the Form 8110-3; additional documents indicating the FAA's approval will be required. Details of the system of design approval by the DER are specified in Order 8110.37, "Designated Engineering Representative Guidance Handbook."

Form 8100-9 is a document to be issued when an ODA approves or recommends approving the repair design that conforms to the FAR criteria. With regard to the scope of ODA's approval, the category (structural, power plant, radio, etc.) and the content of the certificate (static analysis, safety analysis, etc.) are limited per ODA. For a repair design within the scope of the ODA's approval, "Approve these data" in the "Certification" column in Form 8100-9 is selected, which means that the repair design is deemed to have been approved by the FAA. On the other hand, for a repair design outside the scope of the ODA's approval, "Recommend approval of these data" in the "Certification" column in Form 8100-9 is selected. In this case, the repair design is not deemed to have been approved by the FAA only with the Form 8100-9; additional documents indicating FAA's approval will be

required. Details of the system of design approval by ODA are specified in Order 8110.15, "Organization Designation Authorization Procedures."

Form 337 is a document to be issued when a U.S.-based aircraft has been repaired. If a repair is performed based on data not approved by the FAA, an FAA inspector's signature is required on Block 3 in Form 337.

4. Handling of FAA Repair Design Data in Japan

A repair of aircraft and components, etc. in Japan is required to undergo an Inspection of Repair or Alteration and other inspections conducted by the government or is required to be confirmed by an approved organization or a certified maintenance technician (hereinafter referred to as "approved organization, etc.") in order to determine whether or not the repair plan and process and the condition after completion of the repair work conform to the criteria in Article 10, paragraph (4) of the Civil Aeronautics Act.

We accept FAA repair design data in accordance with the IPA in the BASA in April 2009, it has become permissible to omit an inspection of the design part in a repair plan, in principle, for repairs based on FAA repair design data. However, the repair process and the condition after completion of repair work still need to be inspected or confirmed by the government or an approved organization, etc. to secure the capabilities to perform repair

Formerly, when performing repair of an aircraft used for air transport services based on FAA repair design data without using the method designated by the designer, etc., an air carrier was obliged to obtain approval under technical orders based on Circular No.4-016 for the purpose of examining the conformity to the criteria in Article 10, paragraph (4) of the Civil Aeronautics Act; however, there were also several problems, including difficulty for applicants to obtain technical data from repair stations in the United States.

Based on the above, when an aircraft user repairs aircraft or components, etc. and install them based on FAA repair design data by any method other than that designated by the designer, etc., the user must perform the following matters.

However, repair work for aircraft or components, etc. approved under technical orders prior to issuance of this Circular may be performed continuously by the person who obtained the approval under technical orders based on those technical orders.

(1) The repair work must be performed at either of the following.

a. A repair station approved by the FAA that satisfies the following requirements:

・Approved by the FAA for performing repair of aircraft or components, etc. based on the FAA repair design data;

・Approved for its "capabilities to perform maintenance or alteration on aircraft" set forth in Article 20, paragraph (1), item (iv) or its "capabilities to perform repair or alteration on

components" set forth in Article 20, paragraph (1), item (vii) of the Civil Aeronautics Act. In this case, the approved organization that performs the repair work must obtain permission of the AOE or of changes thereto prescribed in Section 5. before performing the repair work.

b. A maintenance organization approved by Transport Canada Civil Aviation (TCCA) that satisfies the following requirements:

・Approved by Transport Canada Civil Aviation (TCCA) for performing repair of aircraft or components, etc. based on the FAA repair design data;

・Approved by Transport Canada Civil Aviation (TCCA) as satisfying special conditions of the Civil Aviation Bureau prescribed in the "Technical Arrangement for Maintenance between the Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism of Japan and the Transport Canada Civil Aviation" (see Circular No.7-001 titled "Bilateral Agreements or Equivalent arrangements on Aviation Safety with Foreign Countries").

(2) When an aircraft used for air transport services having a maximum take-off weight exceeding 5.7 tons is repaired based on FAA repair design data or is equipped with components, etc. repaired based on FAA repair design data, the air carrier operating the aircraft performs trend monitoring in the Reliability Program method; if a component, etc. is removed from the aircraft earlier than usual due to a failure in the repaired part, the air carrier promptly reports it to the Air Carrier Airworthiness Engineer of the Air Transport Safety Unit, Aviation Safety and Security Department, Civil Aviation Bureau, or to the Air Carrier Airworthiness Engineer of the Security Department, Regional Civil Aviation Bureau. The Civil Aviation Bureau contacts the FAA for confirmation, as necessary. The fact that repair performed for a component was through a repair method based on FAA repair design data other than the method designated by the designer, etc. can be identified by checking the remarks column in the Authorized Release Certificate.

After the issuance of this Circular, the Civil Aviation Bureau will not approve any repair work based on FAA repair design data by approving the relevant air carrier's technical orders based on Circular No.4-016.

Additionally, the Civil Aviation Bureau will not conduct an inspection for spare part certification for components repaired based on FAA repair design data by an organization that has not obtained approval in Japan.

5. Details of Matters and Checking Stipulated in the AOE for Approved Organizations

Details of matters and checking that need to be stipulated in the AOE for permission of the AOE or of changes thereto for approved organizations mentioned in Section 4.(1) above are as follows::

(1) Matters Stipulated in the AOE for Approved Organizations

When new work based on FAA repair design data is established or predetermined work is changed as an operation conducted by an approved organization mentioned in Section 4.(1)(a) (a repair station approved by the FAA) under the approval of the Civil Aviation Bureau, it is necessary to stipulate the following matters in the AOE and obtain permission:

a. List of work based on FAA repair design data (including manufacturer, model, repair parts, document number of Repair Specification, and work content)
b. Description, in the "Method by Means Other Than the Method Designated by the Designer, etc." Section, that work based on the FAA repair design data is conducted as an approved operation
c. Description, in the remarks column in an Authorized Release Certificate to be issued, that work conducted based on FAA repair design data can be objectively traced by specifying the document number, etc. of the Repair Specification
d. Methods of submitting necessary materials to the Civil Aviation Bureau (methods of submitting materials are to be stipulated through consultation among the approved business operator, the FAA supervising the approved business operator, and the Civil Aviation Bureau)

(2) Checking of the AOE

Materials to be submitted for checking of the AOE are as follows. If the FAA repair design data affect the Environmental Compatibility Requirements (Article 10, paragraph (4), item (ii), "noise standards," and item (iii), "engine emissions requirements," of the Civil Aeronautics Act) or the special requirements in Japan (setting of placards written in Japanese, etc.), the applicant is required to prove compatibility with these requirements to the Civil Aviation Bureau.

a. Documents including Form 8110-3, Form 8100-9, and Form 337 (Block 3) that prove the repair design data approved by the FAA or a person with a certain level of authority delegated by the FAA
b. Summary materials of repair design (Summary Sheet, etc.)
c. Work procedures (Repair Specification)

When the Civil Aviation Bureau finds it necessary after the repair based on the FAA repair design data, the Civil Aviation Bureau may request the FAA for detailed data proving that the design conforms to the criteria (such as a conformity inspection table, drawings, analysis document and test report), in accordance with the IPA in the BASA (excluding the case where the approved organization agrees to voluntarily submit such data to the Civil Aviation Bureau).

Supplementary Provisions

1. This Circular shall be enforced on June 30, 2011.
2. As a transitional measure for the Note in Section 4.(1), during the period of 24 months after the application of this Circular, only when an urgent change is made for repair work of aircraft or components, etc. that have been approved under technical orders prior to issuance of this Circular, an air carrier may file an application for approval under technical orders based on Circular No.4-016.

Supplementary Provisions (June 30, 2011)

1. This Circular shall be enforced on July 1, 2011.

Supplementary Provisions (January 26, 2018)

1. This Circular shall be enforced on February 3, 2018.

For farther questions or comments regarding this circular, please contact the following:

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