

Circular No. 1-311

# Procedures for Manufacturing Process Inspection

September 30, 2005  
June 30, 2011

First issued  
Amended

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

(translated on July 11, 2016)

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September 30, 2005 First issued (KOKU-KU-KI-5029)

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JCAB Circular

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

Subject: Procedures for Manufacturing Process Inspection

1. Applicability

This Circular is about inspections for type certification, etc. of aircraft designed and manufactured in Japan and provides the policies on procedures for manufacturing process inspection of the aircraft.

This Circular applies to type certification for aircraft designed in Japan and type approval for products (engines and propellers) designed in Japan. With regard to the manufacturing process inspection to which this Circular applies and that are conducted in offices other than the Aircraft Engineering and Certification Center, reference to the Aircraft Engineering and Certification Center in this Circular shall be replaced by the government offices which conducts the inspection.

For the services concerning the inspection conducted by any person who is certified for the capability specified in item (i) or (v) under paragraph (1) of Article 20 of the Civil Aeronautics Act, except Section 10 of this Circular, reference to government offices shall be replaced by “approved design organizations,” and reference to government officials shall be replaced by “certifying staff for the services stipulated in the approved organization exposition.”

2. Purpose

This Circular aims to provide the policy on manufacturing process inspection which will be conducted in type certification process, etc. by specifying the relevant standards and procedures.

3. Relevant Documents

Circular No.1-003 “Procedures for Type Certification of Japanese Manufactured Aircraft”

Circular No.2-001 “General Policy for Approved Organizations”

Circular No.1-310 “Manuals for Employing a Deviation Sheet”

Circular No.1-312 “Guidelines for Evaluation of Quality Control for Manufacturing”

## 4. Overview

### 4-1 Process Inspection

The whole manufacturing process shall be subject to the process inspection, and the inspection shall be carried out by document review and onsite inspection.

In the process inspection, it shall be confirmed that the whole process is established from reception of materials to processing, assembly, inspection, and delivery, and the process conforms to the type design data as well as that the manufactured product will not be allowed to deviate from the design data when the process is applied.

Documents, etc. that stipulate manufacturing process are subject to inspection.

PIRs (Production Inspection Records), worksheets, and work orders, etc. are all regarded as documents that stipulate manufacturing process.

### 4-2 Confirmation of Current Condition

Confirmation of the current condition is intended to verify the adequacy of manufacturing process to be certified through type certification by confirming that the products manufactured through the manufacturing process conforms to the design data.

Confirmation of the current condition shall be carried out by means of onsite inspection to check the shape, structure, performance, functionality, etc. stipulated in the design data of the product.

### 4-3 Procedures for evaluating Quality Control

If the applicant is applying quality control, etc. for the manufacturing process that is subject to inspection, Circular No.1-312 “Guidelines for Evaluation of Quality Control for Manufacturing” shall be applied to the methods of managing the manufacturing process.

## 5. Inspection Planning

The applicant shall submit a manufacturing plan to Japan Civil Aviation Bureau, make sufficient explanations, coordinate, and get agreement in accordance with Circular No.1-003 “Procedures for Type Certification of Japanese Manufactured Aircraft.”

The Conformity Inspection Manager shall develop a plan on the manufacturing process inspection in accordance with the manufacturing plan.

### 5-1 Notification to Applicant

If an onsite inspection is included in the manufacturing process inspection, the Conformity Inspection Manager shall create a Notification of Onsite Inspection for Manufacturing Process (Form: JCAB FORM 1-311-1) for the item to be inspected and provide it to the applicant.

### 5-2 Instructions to JCAB Engineer for Conformity Inspection

With regard to the onsite inspection item listed in the preceding Section, the Conformity Inspection Manager shall create an Instruction of Onsite Inspection for Manufacturing Process (Form: JCAB FORM 1-311-2) and

provide instructions to the JCAB Engineer for Conformity Inspection (hereinafter referred to as “the responsible engineer”).

The responsible engineer who has received a notification from the Conformity Inspection Manager shall coordinate with the applicant for a specific inspection schedule.

### 5-3 Inspection Schedule

The applicant shall provide, well in advance, the responsible engineer with an explanation about necessary documents or management methods, etc. in consideration of the period of onsite inspection with regard to the notified inspection plan.

## 6. Inspection Methods

### 6-1 Document Review

All documents that stipulate the processes which is subject to inspection are regarded as documents to be inspected. Typical examples of documents that are subject to inspection include work instructions, such as PIRs and worksheets (hereinafter referred to as “worksheet, etc.”).

Inspection shall be performed by confirming the established conditions and the records of the manufactured product that is to be inspected. In principle, inspection of established conditions, including worksheet, etc., shall be conducted prior to the manufacturing. The responsible engineer shall put his/her signature on the worksheets, etc. if the worksheets, etc. are determined appropriate.

Examples of items to be confirmed are listed below.

#### (1) Confirmation of Adequacy of Established Worksheet, etc.

- Worksheet, etc. shall be prepared based on the design data.
- Processing, assembly, adjustment, and other necessary work and processes shall be established properly. If inspection is required for the conformity with the design data, the inspection shall be identified properly.
- Materials, parts, process specifications, etc. specified in the worksheet, etc. shall be based on the design data. If separate procedural documents for onsite use that describe work methods, these documents shall be confirmed as well.
- If a part of manufacturing process, etc. is performed by a contractor, the information on the contractor’s work shall be described in the worksheet, etc. In addition, when receiving an article to which a work has been performed by the contractor, necessary work and records shall be established. In particular, if work that is performed by a contractor is special process work, etc., the contractor shall have the ability to perform the manufacturing process, etc..
- For applicable items in the worksheet, etc., signature of the worker and other necessary records shall be provided.
- If it is premised that the quality control manuals stipulated by the applicant is applied to the conformity to the manufactured product’s design data to be inspected, the worksheet, etc. shall be based on the quality control system provided by the applicant.

## (2) Confirmation of Manufacturing Record Made after Manufacturing

- All records stipulated in the worksheet, etc. shall be entered.
- The person who puts his/her name or seal on the worksheet, etc. shall be the one who is suitable for the work, such as a qualified person in accordance with the quality control manual stipulated by the applicant.
- Materials or parts, etc. used for manufacturing shall be those that are required by the design data, etc.
- Measurement data, etc. recorded in the PIR shall not have any deviation from the design data.
- Facilities, equipment, etc. specified in the worksheet, etc. shall be used. In addition, if there is any instruction of calibration, etc. to those equipment, etc., the calibration shall be made at an appropriate time, and calibration data, etc. shall be appropriate.
- Work that is necessary to receive the work performed by a contractor shall have been completed. (e.g., the work shall be performed by approved persons and the inspection records shall be stored and managed properly in accordance with the quality control manual stipulated by the applicant.)
- With regard to the work performed by a contractor, the items listed above shall have been completed.

## 6-2 Procedures for Performing Onsite Inspection (including Inspection of Current Condition through Operational Test, etc.)

An onsite inspection shall be carried out at the actual manufacturing site. Examples of items to be inspected are listed below.

- Work shall be performed by using the worksheet, etc. that received evaluation.
- All work shall be performed in accordance with the procedures stipulated in the worksheet, etc.
- Workers and inspectors, etc. shall be persons who are suitable for the work and the inspection.
- Facilities, equipment, etc. specified in the worksheet, etc. shall be used. In addition, if there is any instruction of calibration, etc. to those equipment, etc., the calibration shall be made at an appropriate time, and calibration data, etc. shall be appropriate.
- Special process work, etc. shall be based on the design data, etc.
- The current condition of a finished product shall be based on the design data.
- Test, etc. stipulated in the process shall be within the specified allowance.

## 7. Handling of Deviated Items

With regard to a product that is subject to manufacturing process inspection, any deviation from the design data, etc. shall not be acceptable.

If a deviation from the design data at the time occurs during the process, in principle, the inspection shall be discontinued and resumed after receiving an evaluation and approval for the change of the design data. However, if it is deemed that it will not affect the compliance with the certification basis and the results of certification test can be acceptable, and particularly if the inspection needs to be continued, the inspection may be continued by issuing a Deviation Sheet. (Refer to Circular No.1-310 for the Manuals for Employing a Deviation Sheet.)

#### 8. Change of Design Data, etc.

If the Program Manager determines that the change of the design data, etc. will possibly affect the manufacturing process, he or she shall consult with the Conformity Inspection Manager. If the Conformity Inspection Manager found the possibility, in principle, he or she shall perform the manufacturing process inspection based on the changed design data, and if necessary, he or she shall change the manufacturing process inspection plan.

When an inspection plan has been changed, the Conformity Inspection Manager shall notify the change.

Any application of the manufacturing process that does not conform to the manufacturing process that underwent the inspection for type certification, etc. is regarded as the change of the manufacturing process. For the change of manufacturing process, the applicant shall apply for a change to type certification. However, the changes listed below shall not be regarded as changes of the manufacturing process.

- Change to the facility and equipment of the same specification or the same model
- If the applicant has applied the quality control, etc. that underwent evaluation to the manufacturing process, change of persons within the application of the quality control

#### 9. Inspection Record of Manufacturing Process

The responsible engineer shall describe the inspected items in the Report of Onsite Inspection for Manufacturing Process (Form: JCAB FORM 1-311-3) and submit the report to the Program Manager after it is confirmed by the Conformity Inspection Manager.

#### 10. Miscellaneous Provision

Regardless of the provisions in Sections 4 through 9 of this Circular, the manufacturing process inspection may be performed by other means when it is deemed necessary by the Director of the Aircraft Engineering and Certification Center.

#### Supplementary Provision

1. This Circular shall be enforced on October 1, 2005.

#### Supplementary Provision (June 30, 2011)

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

Contact the following for inquiries, opinions, etc. concerning this Circular.

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

Nagoya Airport, Toyoba, Toyoyama-cho, Nishi-kasugai-gun, Aichi Prefecture 480-0202

Tel.: +81-568-29-1985

Fax: +81-568-29-1990

<b>Notification of Onsite Inspection for Manufacturing Process</b>		Issue Number: (arbitrary number for each inspector's office and approved organization)
1. Aircraft Type		2. Name of Applicant
(Sample) Kokudo-Kotsu Model MLIT-1		(Sample) Kokudo-Kotsu Heavy Industries, Ltd.
3. Name of Item	(Sample) Manufacturing of LANDING GEAR STRUT ASSY	
4. Items to be confirmed in Manufacturing Process Inspection (With regard to inspection items, items to be inspected and inspection methods shall be clearly described.) (Sample)		
<ul style="list-style-type: none"> <li>• Confirmation of plating process to be performed according to Worksheet No. XXXXX (onsite inspection)</li> <li>• Confirmation of PIR No. XXXXX (document review)</li> <li>• Confirmation of operational test stipulated in PIR No. XXXXX (onsite inspection)</li> <li>• Confirmation of plating equipment (inspection of quality control system) (document review and onsite inspection)</li> </ul>		
5. Name of JCAB Engineer for Conformity Inspection (Name of Certifying Staff)	Ms. Minamiko Nishigawa Mr. Kitao Minamigawa	
<p>We will perform an inspection to the "Items to be confirmed in Manufacturing Process Inspection" described in Section 4 above. Please make necessary coordination with the JCAB Engineer for Conformity Inspection for details.</p> <p>Date:</p> <p style="text-align: center;">Aircraft Engineering and Certification Center, Japan Civil Aviation Bureau (Name of Approved Organization)</p> <p style="text-align: center;">Name of Conformity Inspection Manager <u>Ms. Nishiko Higashigawa</u> (Name of Certifying Staff)</p>		



<b>Instruction of Onsite Inspection for Manufacturing Process</b>		Issue Number: same as the Notification
1. Aircraft Type	2. Name of Applicant	
(Sample) Kokudo-Kotsu Model MLIT-1	(Sample) Kokudo-Kotsu Heavy Industries, Ltd.	
3. Name of Item	(Sample) Manufacturing of LANDING GEAR STRUT ASSY	
<p>4. Items to be confirmed in Manufacturing Process Inspection (with regard to inspection items, items to be inspected and inspection methods shall be clearly described.)</p> <p>(Sample)</p> <ul style="list-style-type: none"> <li>• Confirmation of plating process to be performed according to Worksheet No. XXXXX (onsite inspection)</li> <li>• Confirmation of PIR No. XXXXX (document review)</li> <li>• Confirmation of operational test stipulated in PIR No. XXXXX (onsite inspection)</li> <li>• Confirmation of plating equipment (inspection of quality control system) (document review and onsite inspection)</li> </ul>		
5. Name of JCAB Engineer for Conformity Inspection (Name of Certifying Staff)	Ms. Minamiko Nishigawa Mr. Kitao Minamigawa	
<p>Perform an inspection to the “Items to be confirmed in Manufacturing Process Inspection” described in Section 4 above. Make necessary coordination with the applicant for details.</p> <p>Date:</p> <p style="text-align: center;">Aircraft Engineering and Certification Center, Japan Civil Aviation Bureau (Name of Approved Organization)</p> <p style="text-align: center;">Name of Conformity Inspection Manager <u>Ms. Nishiko Higashigawa</u> (Name of Certifying Staff)</p>		

JCAB FORM 1-311-2(1106-R1.)

<b>Report of Onsite Inspection for Manufacturing Process</b>		Issue Number: same as the Notification
1. Aircraft Type	2. Name of Applicant	
(Sample) Kokudo-Kotsu Model MLIT-1	(Sample) Kokudo-Kotsu Heavy Industries, Ltd.	
3. Name of Item	(Sample) Manufacturing of LANDING GEAR STRUT ASSY	
<p>4. Items to be confirmed in Manufacturing Process Inspection</p> <p>(Sample)</p> <ul style="list-style-type: none"> <li>• Confirmation of plating process to be performed according to Worksheet No. XXXXX (onsite inspection)</li> <li>• Confirmation of PIR No. XXXXX (document review)</li> <li>• Confirmation of operational test stipulated in PIR No. XXXXX (onsite inspection)</li> <li>• Confirmation of plating equipment (inspection of quality control system) (document review and onsite inspection)</li> </ul>		
<p>We hereby report that we performed an inspection for the Items to be confirmed in Manufacturing Process Inspection” described in Section 4 above.</p> <p>Date:</p> <p style="padding-left: 40px;">Aircraft Engineering and Certification Center, Japan Civil Aviation Bureau (Name of Approved Organization)</p> <p style="padding-left: 40px;">Name of JCAB Engineer for Conformity Inspection <u>Ms. Minamiko Nishigawa and Mr. Kitao Minamigawa</u> (Name of Certifying Staff)</p>		
<p>We confirmed that the “Items to be confirmed in Manufacturing Process Inspection” described in Section 4 above were appropriate.</p> <p>Date:</p> <p style="padding-left: 40px;">Aircraft Engineering and Certification Center, Japan Civil Aviation Bureau (Name of Approved Organization)</p> <p style="padding-left: 40px;">Name of Conformity Inspection Manager <u>Ms. Nishiko Higashigawa</u> (Name of Certifying Staff)</p>		