

Service Bulletin No: 32-030

Ref No: 447

Modification No: EC-21-0377, EC-21-0378

ATA Chapter: 32

**LANDING GEAR - EXTENSION AND RETRACTION  
ELECTRO-MECHANICAL ACTUATOR CORROSION PROTECTION****1. Planning Information****A. Effectivity**

PC-12/47E aircraft MSN 1300 and 1451 thru 2202, 2204 and 2206 with:

- Main Landing Gear (MLG) electro-mechanical actuators P/N 959.56.01.823 or P/N 959.56.01.845
- Nose Landing Gear (NLG) electro-mechanical actuators P/N 959.56.01.824 or P/N 959.56.01.844.

MLG and NLG electro-mechanical actuators P/N 959.56.01.823, 959.56.01.824, 959.56.01.844 and 959.56.01.845 held as spare.

**B. Concurrent Requirements**

Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision).

**C. Reason****(1) Problem**

Reports have been received of corrosion found on the MLG and the NLG actuator attachment lugs, underneath the anti-rotation pads. This corrosion can result in failure of the affected attachment lug.

**(2) Cause**

Extension and retraction of the landing gear results in fretting between the anti-rotation pads and the actuator attachment lugs. Over time this can damage the surface protection and lead to corrosion of the attachment lug areas underneath the anti-rotation pads. Crack initiation at corrosion spots followed by crack growth can then result in fracture of the attachment lug.

**(3) Solution**

Remove the actuators and the anti-rotation pads. Inspect, repair as necessary and rework the actuators. If an actuator is out of limits as per Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision), contact Pilatus Tech Support and provide the measured values of minimal lug thickness (t1 and t2) and of minimum lug width (w), as described in SB21-0001, Section 3.C.(6) and Section 3.C.(7) respectively.

**D. Description**

This Service Bulletin gives the data and instructions to inspect and rework the main and nose landing gear actuators and to repair or replace the actuator as necessary.

Revision No. 2 of this Service Bulletin is issued to:

- Revise the effectivity paragraph
- Revise the compliance statement.

For Operators that have accomplished this Service Bulletin at a previous Issue/Revision, no further action is necessary.

**E. Compliance**

Mandatory.

PC-12/47E aircraft MSN 1300 and 1451 thru 1663:

- Embody this Service Bulletin within three months of the issue date of the initial Issue of this Service Bulletin on aircraft operating in moderate and severe corrosion environments as detailed in AMM 12-B-20-40-00-00A-901A-A (Corrosion Control).

- Embody this Service Bulletin within six months of the issue date of the initial Issue of this Service Bulletin or at the next 300 FH or 12 month inspection, whichever comes first on aircraft operating in mild corrosion environments as detailed in AMM 12B-20-40-00-00A-901A-A (Corrosion Control).

PC-12/47E aircraft MSN 1664 thru 1719, 1721 thru 1942:

- Embody this Service Bulletin at the next 300 FH or 12 month inspection, whichever comes first after publication of the SB 32-030 Revision 2.

PC-12/47E aircraft MSN 1720, 2001 thru 2202, 2204 and 2206:

- Embody this Service Bulletin at the next 600 FH or 12 month inspection, whichever comes first after publication of the SB 32-030 Revision 2.

Actuators held as spare - embody this Service Bulletin within six months of the initial Issue of this Service Bulletin.

**F. Approval**

The technical content of this document is approved under the authority of the DOA ref. EASA. 21J. 357.

PILATUS advises Operators/Owners to check with their designated Airworthiness Authority for any changes, local regulations or sanctions that may affect the embodiment of this Service Bulletin.

**G. Copyright and Legal Statement**

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**H. Manpower**

Aircraft

<b>Description</b>	<b>Man hours</b>
Preparation	3.0
Modification	3.0
Close up	7.5
<b>TOTAL MAN-HOURS</b>	<b>13.5</b>

## Repair per Unit

<b>Description</b>	<b>Man hours</b>
Repair per actuator	2.0
<b>TOTAL MAN-HOURS</b>	<b>2.0</b>

## Unit held as Spare

<b>Description</b>	<b>Man hours</b>
Modification per actuator	1.0
<b>TOTAL MAN-HOURS</b>	<b>1.0</b>

**NOTE:** Man hours do not include the drying time for primer, sealant or paints.

**I. Weight and Balance**

Not changed.

**J. Electrical Load Change Data**

Not changed.

**K. Software**

Not changed.

**L. References**

Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision).

Aircraft Maintenance Manual (AMM):

12-B-20-31-00-00A-070A-A	12-B-20-40-00-00A-901A-A
12-B-20-40-10-00A-901A-A	12-B-32-00-00-00A-901B-A
12-B-32-30-00-00A-903B-A	12-B-32-30-01-00A-920B-A
12-B-32-30-02-00A-920B-A	

**M. Publications Affected**

Illustrated Parts Data (IPD)

Aircraft Maintenance Manual (AMM).

**N. Interchangeability of Parts**

One way interchangeable.

A pre-Service Bulletin 32-030 actuator must not be installed on a post Service Bulletin 32-030 aircraft.

**2. Material Information****A. Material - Price and Availability**

Operators that require additional information and/or Service Bulletin Material should contact their authorized Pilatus Service Center, or Pilatus Customer Support on [www.pilatus-aircraft.com](http://www.pilatus-aircraft.com) → contact us.

<b>Modification Kit Number</b>	<b>Price</b>	<b>Availability</b>
500.51.12.086 Kit NLG x 1	Contact above	Approximately 4 months
500.51.12.087 Kit MLG x 2		

**NOTE:** Part Numbers given in this Service Bulletin are correct at the time of approval. Pilatus Aircraft Ltd reserves the right to change the part numbers as necessary. Part numbers of items delivered with a kit are correct when the kit is dispatched. This could lead to differences between those part numbers quoted in a Service Bulletin and the kit if parts are superseded. Operators are requested to check the IPD for delivered parts which differ from those listed in the Service Bulletin Materials Kit List.

**B. Warranty**

Credit will be issued for parts and labour for all affected aircraft on approval of a warranty claim, provided:

- The work is accomplished by an authorized Service Center within the compliance time given in Para 1.E. of this Service Bulletin
- The completed feedback sheet including pre and post blend photographs has been sent to [techsupport.ch@pilatus-aircraft.com](mailto:techsupport.ch@pilatus-aircraft.com)
- If applicable, the unserviceable actuator has been returned to Pilatus Aircraft Ltd., Rotables & Repairs PC-12, Pilatusstrasse 1, 6371 Stans, Switzerland.

**C. Material Necessary for Each Aircraft****(1) Material Kits to be Ordered**

<b>New Part No.</b>	<b>Description</b>	<b>Old Part No.</b>	<b>Qty</b>	<b>Disp. Code</b>	<b>Fig</b>	<b>Item</b>
500.51.12.086	KIT, NLG	-	1	N	-	-
500.51.12.087	KIT, MLG	-	2	N	-	-

Disposition Codes: D - Discard / N - New / R - Return to Pilatus

**(2) Material to be ordered if an Actuator is Unserviceable.**

<b>New Part No.</b>	<b>Description</b>	<b>Old Part No.</b>	<b>Qty</b>	<b>Disp. Code</b>	<b>Fig</b>	<b>Item</b>
959.56.01.853	ACTUATOR, MLG	959.56.01.823 959.56.01.845	AR	R	-	-
959.56.01.852	ACTUATOR, NLG	959.56.01.824 959.56.01.844	AR	R	-	-

Disposition Codes: D - Discard / N - New / R - Return to Pilatus

**D. Material Necessary for NLG Actuator**
**(1) Modification Kit Number 500.51.12.086**

New Part No.	Description	Old Part No.	Qty	Disp. Code	Fig	Item
959.56.01.849	NLG ANTI ROTATION PAD	959.56.01.834	4	D	-	-
959.56.01.850	WASHER	959.56.01.835	4	D	-	-
959.56.01.851	SCREW	959.56.01.836	4	D	-	-
959.56.01.855	INSERT, HELICOIL	-	4	D	-	-
959.56.01.856	MARKING, REVISION (ACTUATOR .824)	-	1	N	-	-
959.56.01.857	MARKING, REVISION (ACTUATOR .844)	-	1	N	-	-

Disposition Codes: D - Discard / N - New / R - Return to Pilatus

**E. Material Necessary for each MLG Actuator**
**(1) Modification Kit Number 500.51.12.087**

New Part No.	Description	Old Part No.	Qty	Disp. Code	Fig	Item
959.56.01.847	MLG ANTI ROTATION PAD, SHORT	959.56.01.832	3	D	-	-
959.56.01.848	MLG ANTI ROTATION PAD, LONG	959.56.01.833	1	D	-	-
959.56.01.850	WASHER	959.56.01.835	3	D	-	-
959.56.01.851	SCREW	959.56.01.836	3	D	-	-
959.56.01.854	SCREW, SHORT	959.56.01.836	1	D	-	-
959.56.01.855	INSERT, HELICOIL	-	4	D	-	-
959.56.01.858	MARKING, REVISION (ACTUATOR .823)	-	1	N	-	-
959.56.01.859	MARKING, REVISION (ACTUATOR .845)	-	1	N	-	-

Disposition Codes: D - Discard / N - New / R - Return to Pilatus

**F. Operator Supplied Material**

Refer to Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision).

**G. Tooling - Cost and Availability**

None.



**3. Accomplishment Instructions**

**NOTE:** Actuators installed on aircraft - do the Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision) to all three actuators.

**A. Preparation**

- (1) Obey the safety instructions given in Landing Gear Maintenance Practices, refer to AMM 12-B-32-00-00-00A-901B-A.
- (2) Remove the MLG actuators and/or the NLG actuator, refer to AMM 12-B-32-30-01-00A-920B-A and 12-B-32-30-02-00A-920B-A.

**B. Modification**

**NOTE:** Take high quality photographs of any corrosion found (after cleaning) and again after blending. For identification clearly mark the photographs with the actuator serial number and before/after blending. Send the photographs and the feedback sheets to techsupport.ch@pilatus-aircraft.com.

**NOTE:** If a repair to the actuator is required, make sure to remove only minimal material in order to remove all the corrosion on the actuator lugs.

- (1) Carry out Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision).

**NOTE:** For Chemical Conversion Coating (CCC) application refer to AMM 12-B-20-40-10-00A-901A-A.

**NOTE:** For epoxy primer application, you can use a hot air blower to reduce the cure time. Apply a maximum temperature of 50 degrees C (122 degrees F) in accordance with the manufacturer's instructions.

**NOTE:** Mix only the amount of conductive sealant as necessary to comply with the Service Bulletin. The mixing ratio can be found on the sealant data sheet.

- (2) Use an indelible pen and mark next to the actuator identification P/N marking "POST SB 32-030".
- (3) If an actuator is out of limit as per Tamagawa Seiki Co. Ltd. Service Bulletin SB21-0001 (latest revision), the actuator might still be repairable.

Continue the blending procedure until all the corrosion is removed, contact Pilatus Tech Support and provide the measured values of minimal lug thickness (t1 and t2) and of minimum lug width (w), as described in SB21-0001, Section 3.C.(6) and Section 3.C.(7) respectively.

- (4) If the Pilatus decision is that the actuator is unserviceable, install a serviceable Post SB 32-030 Actuator or a new actuator (MLG Actuator P/N 959.56.01.853, NLG Actuator P/N 959.56.01.852).

**C. Close Up**

- (1) Install the MLG and/or the NLG actuator, refer to AMM 12-B-32-30-01-00A-920B-A and/or 12-B-32-30-02-00A-920B-A.

- (2) Remove all the equipment, tools and materials from the work area. Make sure that the work area is clean.

**D. Documentation**

- (1) Make an entry in the Aircraft Logbook that this Service Bulletin is incorporated.
- (2) Make sure that the Aircraft Logbook shows any new Pilatus Part Number(s) and/or Serial Number(s), as applicable.
- (3) Make an entry in the Pilot's Operating Handbook, Document No. 02277 or 02406 to record the incorporation of this Service Bulletin.
- (4) Inform CAMP of the incorporation of this Service Bulletin and any new Pilatus Part Number(s) and/or Serial Number(s), as applicable. Send all the completed feedback sheets, including pre and post blend photographs to: [techsupport.ch@pilatus-aircraft.com](mailto:techsupport.ch@pilatus-aircraft.com). Return unserviceable actuators to Pilatus Aircraft Ltd, Rotables & Repairs PC-12, Pilatusstrasse 1, 6371 Stans, Switzerland.

**Feedback sheet for accomplishment of SB 32-030**

<input type="checkbox"/> We have embodied/accomplished this SB				<input type="checkbox"/> Inspection and rework i.a.w. SB21-0001							
Service Center:				<input type="checkbox"/> Inspection, repair and rework i.a.w. SB21-0001							
A/C MSN		Hrs		Cycles		Corrosion Severity Zone: <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe (refer to 12-B-20-40-00-00A-901A-A)					
Pictures of impacted actuators: <input type="checkbox"/> Pre-SB <input type="checkbox"/> Post-SB (Provide pictures as attachment of this feedback sheet)											
Left-Hand MLG Actuator Lugs				Right-Hand MLG Actuator Lugs				NLG Actuator Lugs			
<input type="checkbox"/> 959.56.01.823		S/N		<input type="checkbox"/> 959.56.01.823		S/N		<input type="checkbox"/> 959.56.01.824		S/N	
<input type="checkbox"/> 959.56.01.845				<input type="checkbox"/> 959.56.01.845				<input type="checkbox"/> 959.56.01.844			
Hours		Cycles		Hours		Cycles		Hours		Cycles	
Slide Head Corroded?		Gear Housing Corroded?		Slide Head Corroded?		Gear Housing Corroded?		Slide Head Corroded?		Gear Housing Corroded?	
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Minimum thickness (t) after blend		Minimum thickness (t) after blend		Minimum thickness (t) after blend		Minimum thickness (t) after blend		Minimum thickness (t) after blend		Minimum thickness (t) after blend	
Minimum width (w) after blend		Minimum width (w) after blend		Minimum width (w) after blend		Minimum width (w) after blend		Minimum width (w) after blend		Minimum width (w) after blend	
<b>The undersigned confirms that the information provided is correct</b>											
Date of accomplishment				Name				Signature			
<b>Comments (procedure, kit quality, suggested improvements, etc.)</b>											

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## SERVICE BULLETIN

DOCUMENT:	Inspection of Actuator, Nose Landing Gear and Actuator, Main Landing Gear
NUMBER:	SB21-0001
ISSUE STATUS:	03
ISSUE DATE:	25/August/2022
FILENAME:	SB21-0001_03.docx

TAMAGAWA SEIKI APPROVAL			
	NAME:	DATE:	
PREPARED:	T Ichinose	25/Aug./2022	<i>Toshimitsu Ichinose</i>
REVIEWD:	M Nakata	25/Aug./2022	<i>Masashi Nakata</i>
APPROVED:	M Nakata	25/Aug./2022	<i>Masashi Nakata</i>

DOA	
NAME:	Pilatus Aircraft Ltd.
ADDRESS:	Ennetbuergerstrasse 101,6371 Stans, SWITZERLAND
SPECIFICATION:	TRD-12-00432/04 (ECM-12-TRD-09-001/4)

DOA AGREEMENT / APPROVAL			
DEPARTMENT:	NAME:	DATE:	SIGNATURE



REVISION TRANSMITTAL SHEET

<b>Issue</b>	<b>Date</b>	<b>Pages Affected</b>	<b>DESCRIPTION OF CHANGE</b>
NC	09/Feb./2022	All	First issue.
01	14/Mar./2022	All	Clarification of repair procedure. Addition of tables for repair measurements.
02	31/Mar./2022	6, 8	Addition of repair procedure.
03	25/Aug./2022	§3.C.(6), §3.C.(7)	Update serviceability condition



INSPECTION OF ACTUATOR, NOSE LANDING GEAR AND ACTUATOR, MAIN LANDING GEAR

1. Planning information

A. Effectivity

All PC-12/47E Nose Landing Gear (NLG) electromechanical actuators P/N 959.56.01.824.

All PC-12/47E Nose Landing Gear (NLG) electromechanical actuators P/N 959.56.01.844.

All PC-12/47E Main Landing Gear (MLG) electromechanical actuators P/N 959.56.01.823.

All PC-12/47E Main Landing Gear (MLG) electromechanical actuators P/N 959.56.01.845.

B. Description

This Service Bulletin provides notification for an inspection and a rework of the actuator lugs and the anti-rotation pads that interface with the aircraft structure in order to enhance the corrosion protection of the actuator.

C. Compliance

Actuators with part numbers listed in this Service Bulletin shall be reworked in accordance with this Service Bulletin (SB21-0001) and in conjunction with Pilatus Service Bulletin 32-030

D. Concurrent requirements

For actuators that are being reworked, Pilatus Service Bulletin 32-030 is a concurrent requirement.

E. Reason

(1) Objective

This service bulletin defines the inspection and the rework application of means to enhance corrosion protection of the actuator lugs and the anti-rotation pads.

(2) Condition

All the actuators regardless of their serial number delivered under the following part numbers have been identified with a corrosion protection issue:

- ACTUATOR, NOSE LANDING GEAR, Tamagawa TA6552N<sub>4</sub>, Pilatus 959.56.01.824
- ACTUATOR, NOSE LANDING GEAR, Tamagawa TA6552N<sub>5</sub>, Pilatus 959.56.01.844
- ACTUATOR, MAIN LANDING GEAR, TamagawaTA6553N<sub>4</sub>, Pilatus 959.56.01.823
- ACTUATOR, MAIN LANDING GEAR, Tamagawa TA6553N<sub>5</sub>, Pilatus 959.56.01.845

(3) Cause

Retraction and extension of the landing gears results in fretting between the Anti-Rotation Pads and the actuator



attachment lugs. Over time, this can damage the surface protection and lead to corrosion of the attachment lug areas below the Anti-Rotation Pads. Crack initiation at corrosion spots followed by crack growth can then result in fracture of the attachment lugs.

(4) Improvement

- Inspection for evidence of corrosion on the actuator lug surface
- If corrosion is found, removal of the corrosion in accordance with a maximum blending limit
- Replacement of the anti-rotation pad. The replacement part incorporates a new design and an enhanced corrosion protection coating
- Replacement of screw and washer. The replacement parts incorporate an enhanced corrosion protection coating
- Installation of the anti-rotation pad, the washer and the screw with interfay and filet sealant.

(5) Substantiation

Rework in accordance with this service bulletin will enhance the corrosion protection of the actuator.

F. Approval

Pilatus had reviewed and approved the changes in this service bulletin

G. Manpower

Refer to Pilatus Service Bulletin: SB32-030.

H. Weight and balance

Not affected

I. Reference

The data used to prepare this service bulletin include TSC engineering documents and drawings as follows:

Drawing Nose Landing Gear Actuator: OTD003423Woo\_R12

Drawing Nose Landing Gear Actuator: OTD011835Woo\_R02

Drawing Main Landing Gear Actuator: OTD003424Woo\_R10

Drawing Main Landing Gear Actuator: OTD011836Woo\_R03

Chromate Conversion Coating: in accordance with manufacturer's instruction Installation drawing

Pilatus Service Bulletin: SB32-030

J. Publications affected

Not applicable.

K. Interchangeability





One way interchangeable.

A pre-service bulletin (SB21-0001) actuator must not be installed in a post-service bulletin (SB21-0001) aircraft.

L. Software accomplishment summary

Not applicable

2. Material information

A. Material and availability

Item	PIL No.	Description	QUANTITY	AVAILABILITY
Mat-01	P01-35	ISOPROPYL ALCOHOL	AS REQUIRED	COMMERCIALY
Mat-02	P02-002	ALUMINUM WOOL	AS REQUIRED	COMMERCIALY
Mat-03	P02-011	ABRASIVE CLOTH, GRADE 240	AS REQUIRED	COMMERCIALY
Mat-04	P02-031	ABRASIVE CLOTH, GRADE 320	AS REQUIRED	COMMERCIALY
Mat-05	P02-016	ABRASIVE PADS, 3M SCOTCH- BRITE (VERY FINE GRADE)	AS REQUIRED	COMMERCIALY
Mat-06	P02-041	LINT-FREE CLEANING CLOTH	AS REQUIRED	COMMERCIALY
Mat-07	P07-001	CCC SOLUTION (BONDERITE M- CR 1200S AERO)	AS REQUIRED	COMMERCIALY
Mat-08	P07-007	EPOXY PRIMER	AS REQUIRED	COMMERCIALY
Mat-09	P07-021	CCC TOUCH-UP TOUCH-N-PREP PEN (BONDERITE M-CR 1132 AERO)	AS REQUIRED	COMMERCIALY
Mat-10	P08-046	ELECTRICALLY CONDUCTIVE SEALANT (PR-1764)	AS REQUIRED	COMMERCIALY
Mat-11	P08-095	FILET SEALANT (MC238)	AS REQUIRED	COMMERCIALY
Mat-12	N/A	TAPE, ADHESIVE	AS REQUIRED	COMMERCIALY

B. Support equipment

Item	Description	QUANTITY	AVAILABILITY
Sup-01	Remover for helicoil insert (Preferable P/N: KRTV-06/KATO)	1	COMMERCIALY
Sup-02	Installer for NAS1130 (Preferable P/N: 2KPHC-06/KATO)	1	COMMERCIALY

C. Industry support information

Not applicable

D. Configuration chart

There is no change to the actuator part number.

E. Disposition of parts

Actuators installed on aircraft shall be reworked in accordance with this service bulletin

F. Tooling – price and availability

None

3. Accomplishment instructions

A. Preparation

**NOTE:** This preparation procedure applies to all four anti-rotation pads to be installed on the actuator.

(1) Remove and discard the anti-rotation pad, the washer and the screw from the actuator, refer to Figure 5 and to Figure 6.

(2) Use a cloth (Mat. No. 06) and isopropyl alcohol (Mat. No. 01) to clean the areas on the actuator lugs where the anti-rotation pads were installed (grey shaded areas shown in Figure 2). If necessary, use a non-metallic bristle brush to help remove surface contamination in small radii.

**NOTE:** Remove all dirt, grease, oil and other unwanted contaminants to get a clean surface. Keep cleaning until the cloth stays clean when you wipe the surface.

(3) Use a clean cloth (Mat. No.06) to dry the surface.

(4) Use adhesive tape (Mat. No. 12) to cover the actuator spherical bearing and the gap between the sliding head lug and the actuator housing to prevent particle ingress, refer to Figure 1.

B. Visual inspection:

(1) Visually inspect the actuator lugs at the contact surfaces for the anti-rotation pads and at the holes for the anti-rotation pad attachment screws (grey shaded areas shown in Figure 2).

(2) If you find corrosion, take pictures of the corroded surfaces.

(3) If no indication of corrosion is found, go to para (3.D).

C. Repair

**NOTE:** The repair procedure must be performed for each of the areas underneath the anti-rotation pad where corrosion is found, on the MLG actuator and/or on the NLG actuator.

**NOTE:** Start the repair procedure with the area that has the most corrosion.

**NOTE:** Tables for each actuator lug are provided at the end of this service bulletin to facilitate the recording of measurements and verifying of the repair. Study the tables before starting the repair procedure. To be able to calculate all necessary dimensions, it is important that the measured values are filled in the table before grinding, after grinding the first pad area, and after grinding the second pad area.

(1) Use the calipers to measure the initial lug width ( $w$ ), refer to Figure 2.



- (2) Remove the helicoil insert (with support equipment Sup-01).
  
- (3) Remove any sign of wear and corrosion with abrasive cloth (Mat. No. 03 or 04) or aluminum wool (Mat. No. 02) or abrasive pads (Mat. No. 05). Use the material dry, or make it moist with clean water or isopropyl alcohol (Mat. No. 01). You can also use a rotary tool with a suitable grinding insert.  
**NOTE:** Wrapping abrasive cloth around a barrette file of suitable shape (or a similar tool) helps to remove corrosion at the radii.  
**NOTE:** Keep as much as possible the shape of the bulge on the flange of the lug.  
**CAUTION:** Use only the tools and materials given in this procedure to remove material. Use of the incorrect abrasive materials can cause cross-contamination with embedded particles. This can cause corrosion.  
**WARNING:** Do not use steel, copper or silicon carbide tools or materials. These materials could cause corrosion and further damage to aluminum components.
  
- (4) Use gradually finer abrasive tools to obtain a surface comparable in roughness to the area surrounding the blend. Make sure all reworked areas have a smooth contour. No sharp edges or scratches deeper than at the surrounding areas are permitted.
  
- (5) Remove all unwanted particles with a vacuum cleaner.

**SAFETY WARNING:** Use protective goggles or glasses when handling compressed air.

- a. Use compressed air to clean the holes for the anti-rotation pad attachment screws.
  
- b. Use a clean cloth (Mat. No. 06) and isopropyl alcohol (Mat. No. 01) to clean the blend area. Keep cleaning until the moist cloth stays clean when you wipe the surface.
  
- c. Use a clean cloth (Mat. No. 06) to dry the surface.
  
- d. Use a bright light source and magnifying glass to examine the blended area surface for corrosion spots and cracks. None are permitted.

Refer to Figure 2.

- (6) Use the calipers to measure and record the minimal lug thickness ( $t_1$  and  $t_2$ ), refer to Figure 2. Contact the Pilatus Tech Support if the actuator is outside these limits:
  - MLG actuator: minimum thickness must be equal to or larger than 8.80 mm (0.346 in)
  - NLG actuator: minimum thickness must be equal to or larger than 5.80 mm (0.228 in).

(7) Use the calipers to measure and record the minimum lug width (w), refer to Figure 2. Contact the Pilatus Tech Support if the actuator is outside these limits:

- MLG actuator:

- Each side of the slide head lug width must be reduced by less than 1.5 mm (0.059 in).
- The slide head lug minimum width must be equal to or larger than 44.4 mm (1.75 in).
- Each side of the gear housing lug width must be reduced by less than 1.5 mm (0.059 in).
- The gear housing lug minimum width must be equal to or larger than 41.4 mm (1.63 in).

- NLG actuator:

- Each side of the slide head lug width must be reduced by less than 1.5 mm (0.059 in).
- Each side of the gear housing lug width must be reduced to less than 1.5 mm (0.059 in).
- The minimum width must be equal to or larger than 36.2 mm (1.43 in).

**NOTE:** If the actuator is not serviceable, it must be removed from service and returned to Pilatus.

(8) Use a clean cloth (Mat. No. 06) to dry the surface.

(9) If the lug width (w) has been reduced to remove the corrosion:

Refer to Figure 3.

- a. Slide a new anti-rotation pad onto the lug.
- b. If there is a gap (g) between the anti-rotation pad and the lug, modify the anti-rotation pad as follows:
  - i. Shorten the 2 legs of the anti-rotation pad.
  - ii. Add a 1mm chamfer to the inner edges of the anti-rotation pad legs.
  - iii. If a gap remains, go back to Step (9)a.
  - iv. Deburr any sharp edges introduced by shortening the pad.
  - v. Apply a layer of epoxy primer (Mat. No. 08) on the reworked areas. Let the primer cure for 72 hours.

(10) Use a clean cloth (Mat. No. 06) and isopropyl alcohol (Mat. No. 01) to clean the modified anti-rotation pad.

(11) Use a clean cloth (Mat. No. 06) and isopropyl alcohol (Mat. No. 01) to clean the lug again.

(12) Use sealant (Mat. No. 11) to install a new helicoil insert (with support equipment Sup-02) with a quarter of a turn below the surface of the lug.

(13) Make sure that no scratches have been made during the measurement process. If scratches are found go back to the repair procedure para (3.C).

(14) Apply a layer of CCC solution (Mat. No. 07) to all bare aluminum surfaces (or alternatively use Alodine 1132 (Mat. No. 09)). Let the CCC solution dry.

(15) No later than 12 hours (recommended 6 hours) after you apply the CCC solution, apply a layer of epoxy primer (Mat. No. 08) to the treated areas. Let the primer cure for 72 hours.

**WARNING:** Do not apply epoxy primer at the contact area with anti-rotation pad 4 (See Figure 6, Item 4). Epoxy primer being non-conductive, the proper bonding of this surface to the anti-rotation pad and the bonding strap will be lost.

**NOTE:** You can use a hot air blower to reduce the cure time. Apply a maximum temperature of 50 degrees C (122 degrees F) in accordance with the manufacturer's instructions.

#### D. Rework

Refer to Figure 4, Figure 5 and Figure 6.

**NOTE:** This rework procedure uses the new anti-rotation pads, the new washers and the new screws.

(1) On the MLG actuator,

**NOTE:** The same procedure applies to all four anti-rotation pads to be installed on the MLG actuator.

- a. Use sealant (Mat. No. 11) to cover the complete contact area between the anti-rotation pad and the actuator lug.

**NOTE:** Make sure the sealant does not fill the screw hole.

- b. Install the anti-rotation pads onto the actuator lugs.
- c. Make sure that the sealant is squeezed out all around the edge of the anti-rotation pads. If necessary, remove the anti-rotation pads to apply additional sealant.
- d. Install the screws and the washers to hold the anti-rotation pads, refer to Figure 5:

- i. Install the shorter screw (2) to hold the anti-rotation pad (3) on the actuator (1).

**NOTE:** On the MLG actuator, no washer is used for screw (2). All other screws have washers.

- ii. Install the screw (6) and the washer (5) to hold the anti-rotation pad (4).

- iii. Install the screw (7) and the washer (8) to hold the anti-rotation pad (9).

- iv. Install the screw (12) and the washer (11) to hold the anti-rotation pad (10).

e. Torque tighten the screws to 1.3 Nm  $\pm$ 0.13 Nm (11.5 lbf in  $\pm$ 1.15 lbf in).

f. Remove excess sealant while it is still soft with a non-metallic scraper.

g. Apply a fillet of sealant (Mat. No. 11) around the edge of the anti-rotation pads and around the screw heads and washers.

(2) On the NLG actuator,

**NOTE:** The Step a. applies only to the anti-rotation pad (Figure 6, item 4) to be installed on the NLG actuator, Slide Head connector side.

- a. Use sealant (Mat. No. 10) to cover the complete contact area between the anti-rotation pad and the actuator lug.

**NOTE:** The Step b. applies to the three other anti-rotation pads (Figure 6, item 5, item 10 and item 11) to be installed on the NLG

- b. Use sealant (Mat. No. 11) to cover the complete contact area between the anti-rotation pad and the actuator lug.

**NOTE:** Make sure the sealant does not fill the screw hole.

- c. Install the anti-rotation pads onto the actuator lugs.
- d. Make sure that the sealant is squeezed out all around the edge of the anti-rotation pads. If necessary, remove the anti-rotation pad to apply additional sealant.
- e. install the screws and the washers to hold the anti-rotation pads, refer to Figure 6:
  - i. Install the screw (2), the washer (3) and bonding strap (14) [PN: 523.60.09.074] to hold the anti-rotation pad (4) on the actuator (1).

**NOTE:** The bonding strap must be installed with an angle of 45° from the centreline of the actuator.

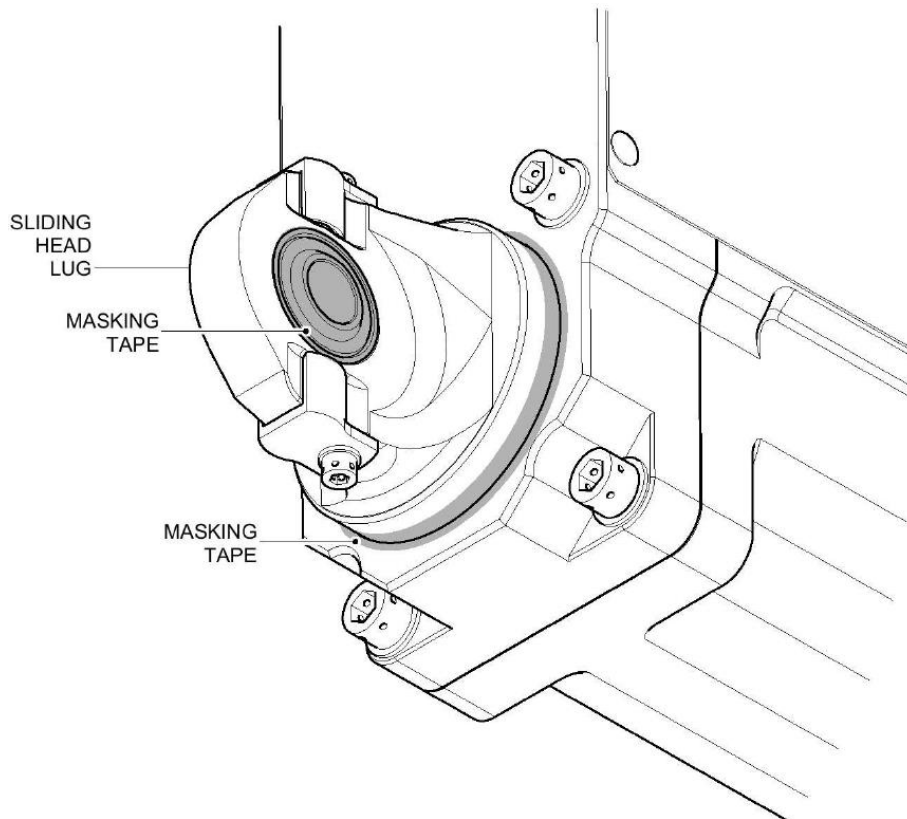
- ii. Install the screw (7) and the washer (6) to hold the anti-rotation pad (5).
  - iii. Install the screw (8) and the washer (9) to hold the anti-rotation pad (10).
  - iv. Install the screw (13) and the washer (12) to hold the anti-rotation pad (11).
- f. Torque tighten the screws to 1.3 Nm  $\pm$  0.13 Nm (11.5 lbf in  $\pm$  1.15 lbf in).
- g. Remove excess sealant while it is still soft with a non-metallic scraper.
- h. Apply a fillet of sealant (Mat. No. 11) around the edge of the anti-rotation pads, around the screw heads and washers and around the bonding strap.

(3) To each NLG and MLG actuator, apply the revision ID marking, refer to Figure 7:

- a. Use a Lint free cleaning cloth (Mat. No. 06) moist with isopropyl alcohol (Mat. No. 01) and clean the surface of the identification marking where the revision ID marking (1) is to be applied.
- b. Remove the backing paper from the revision ID marking (1). Press the revision ID marking (1) tightly onto the cleaned surface of the identification marking.

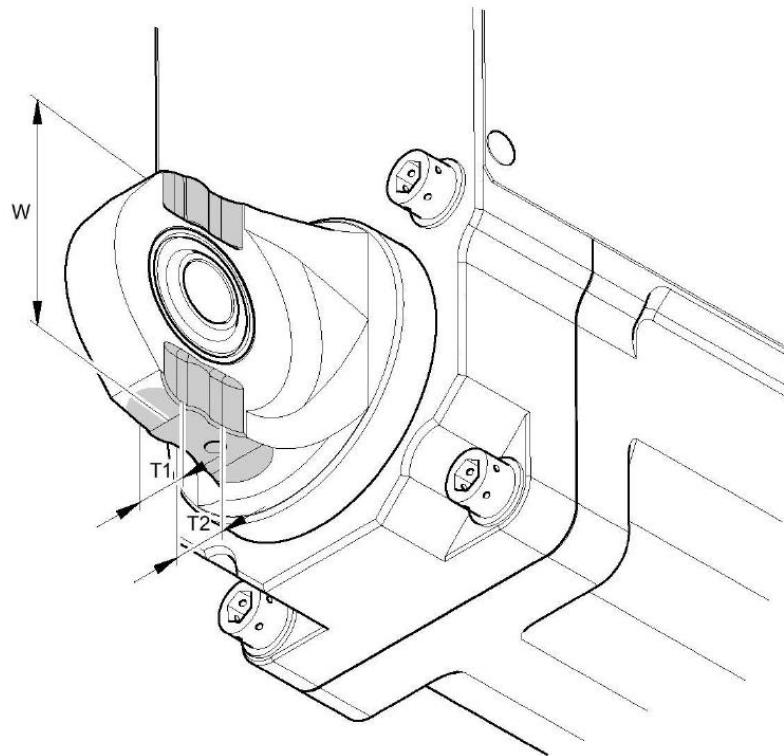
Pilatus P/N	Tamagawa P/N	Revision ID Marking (Description)
959.56.01.824	TA6552N4	/OTD003423Woo Rev.12
959.56.01.844	TA6552N5	/OTD011835Woo Rev.02
959.56.01.823	TA6553N4	/OTD003424Woo Rev.10
959.56.01.845	TA6553N5	/OTD011836Woo Rev.03

(4) Remove the adhesive tape (Mat. No. 12), refer to Figure 1.



Mask the Actuator Lugs

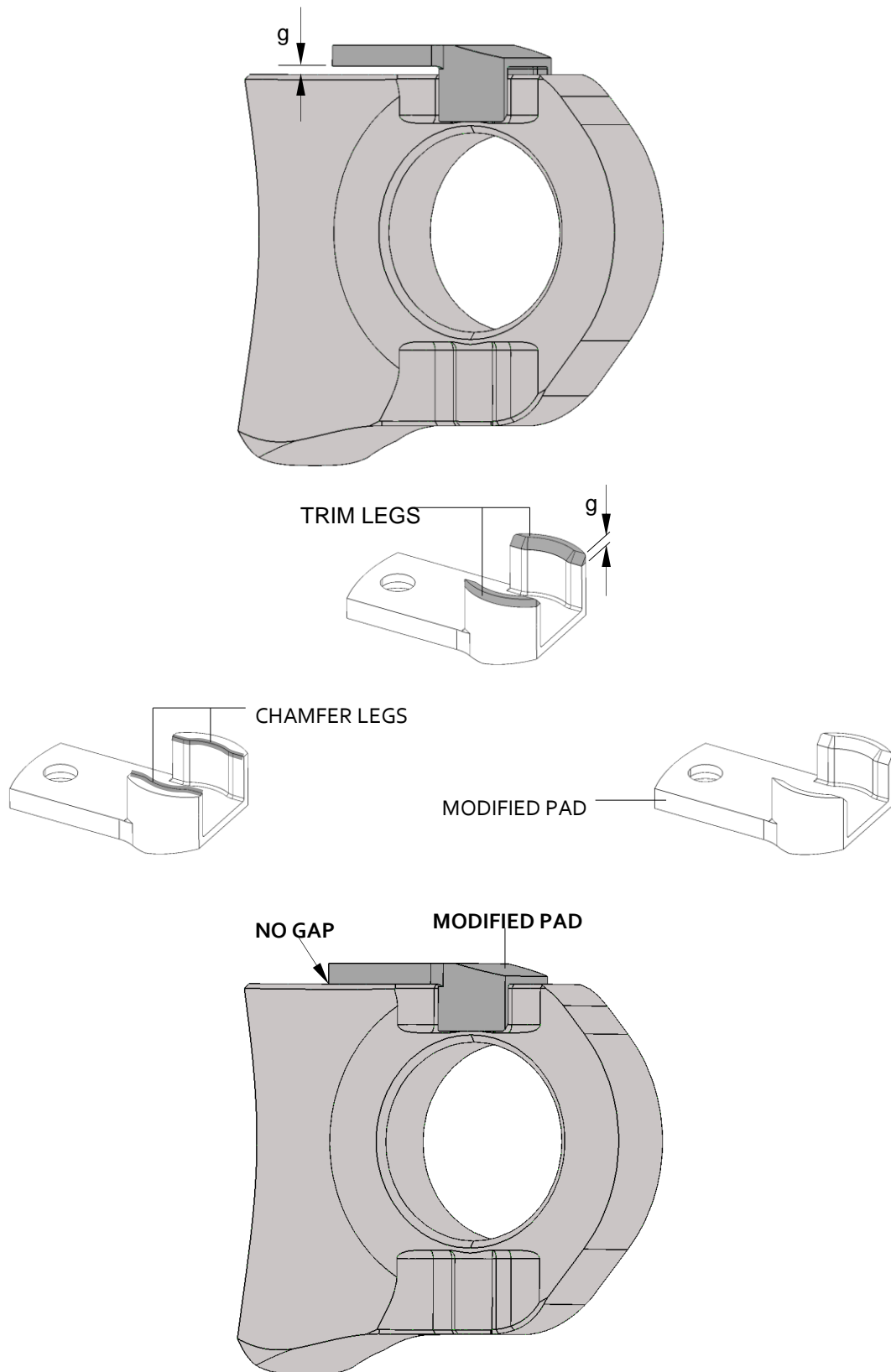
Figure 1



Measure the Actuator Lugs

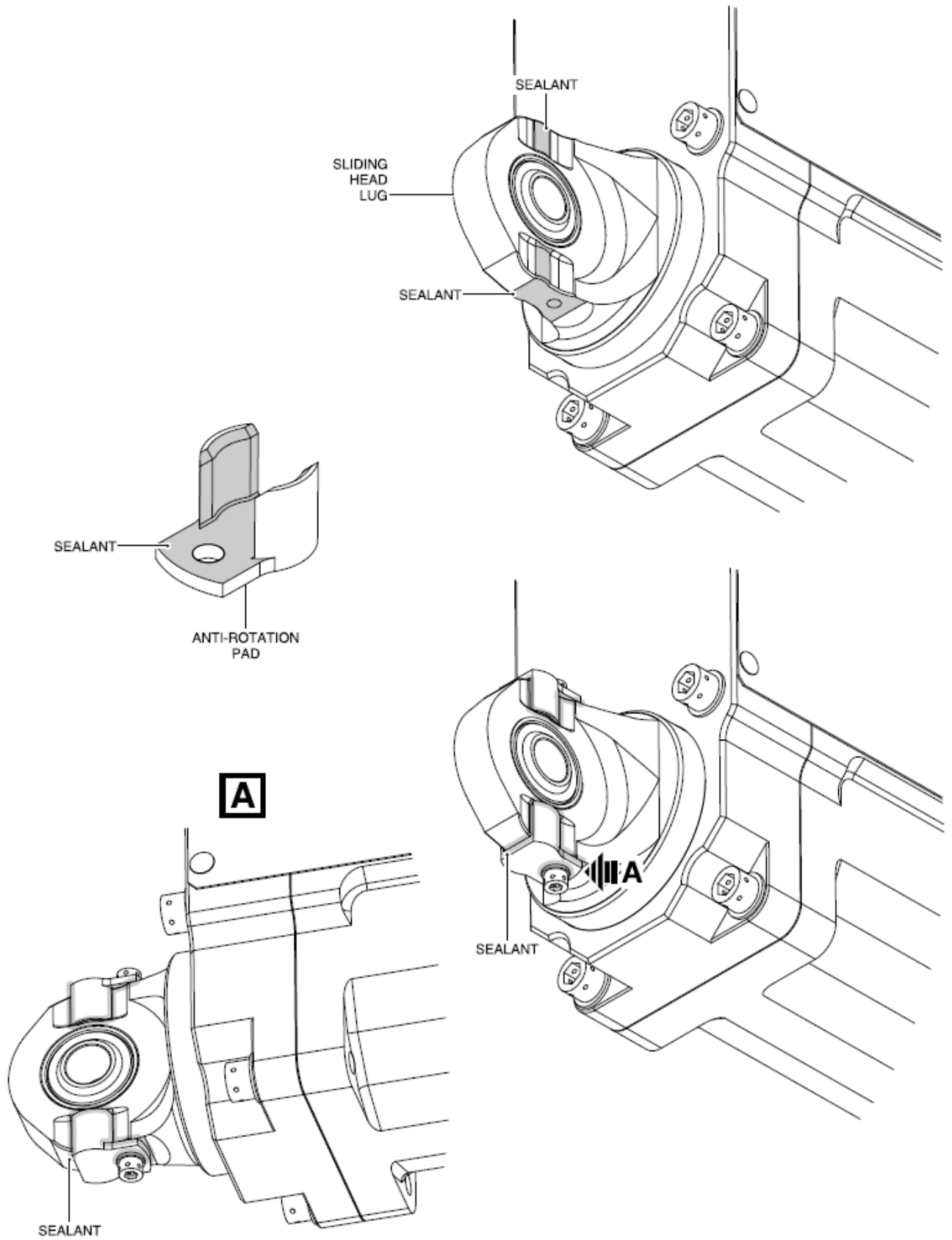
Figure 2





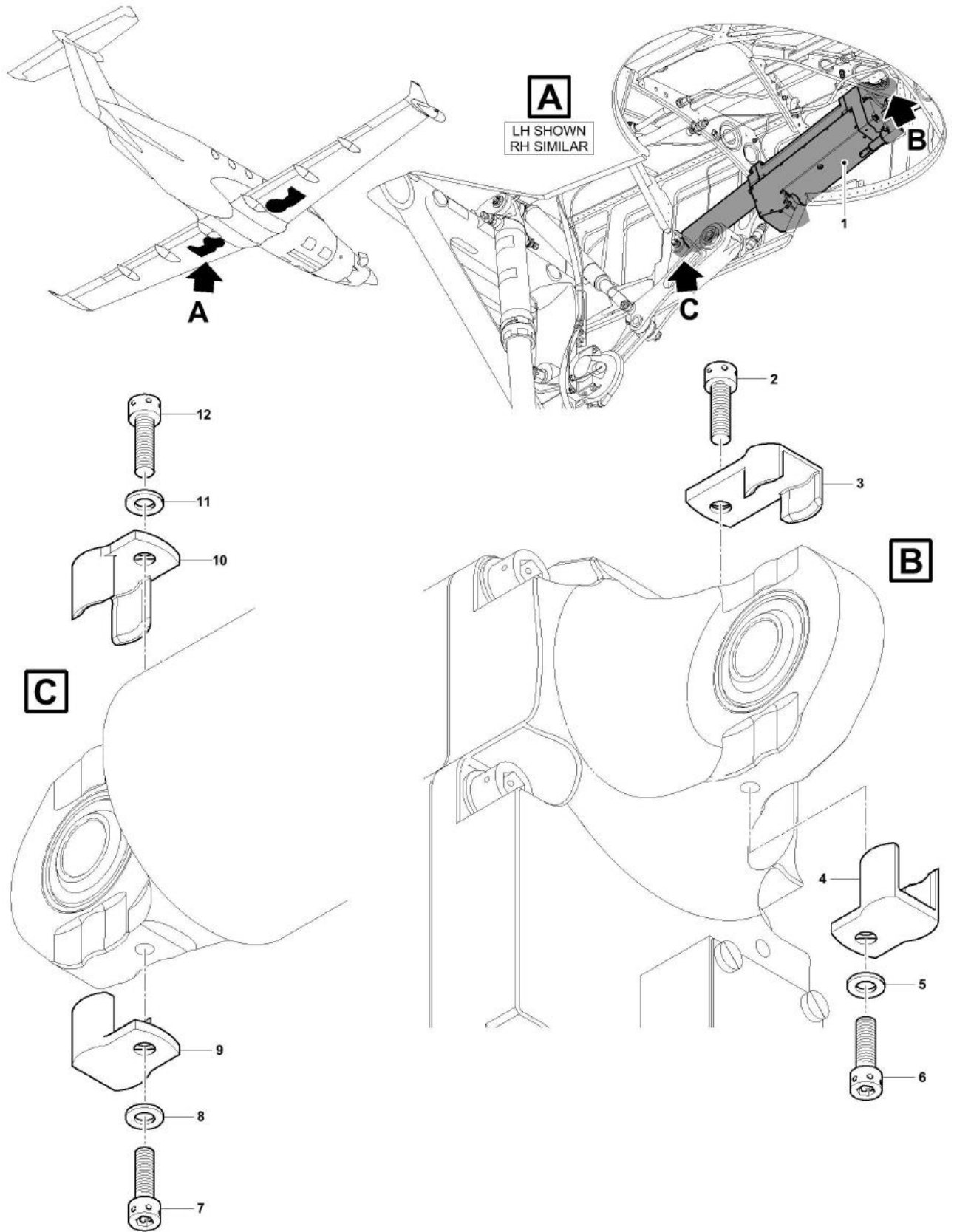
Modify the Anti-Rotation Pad

Figure 3



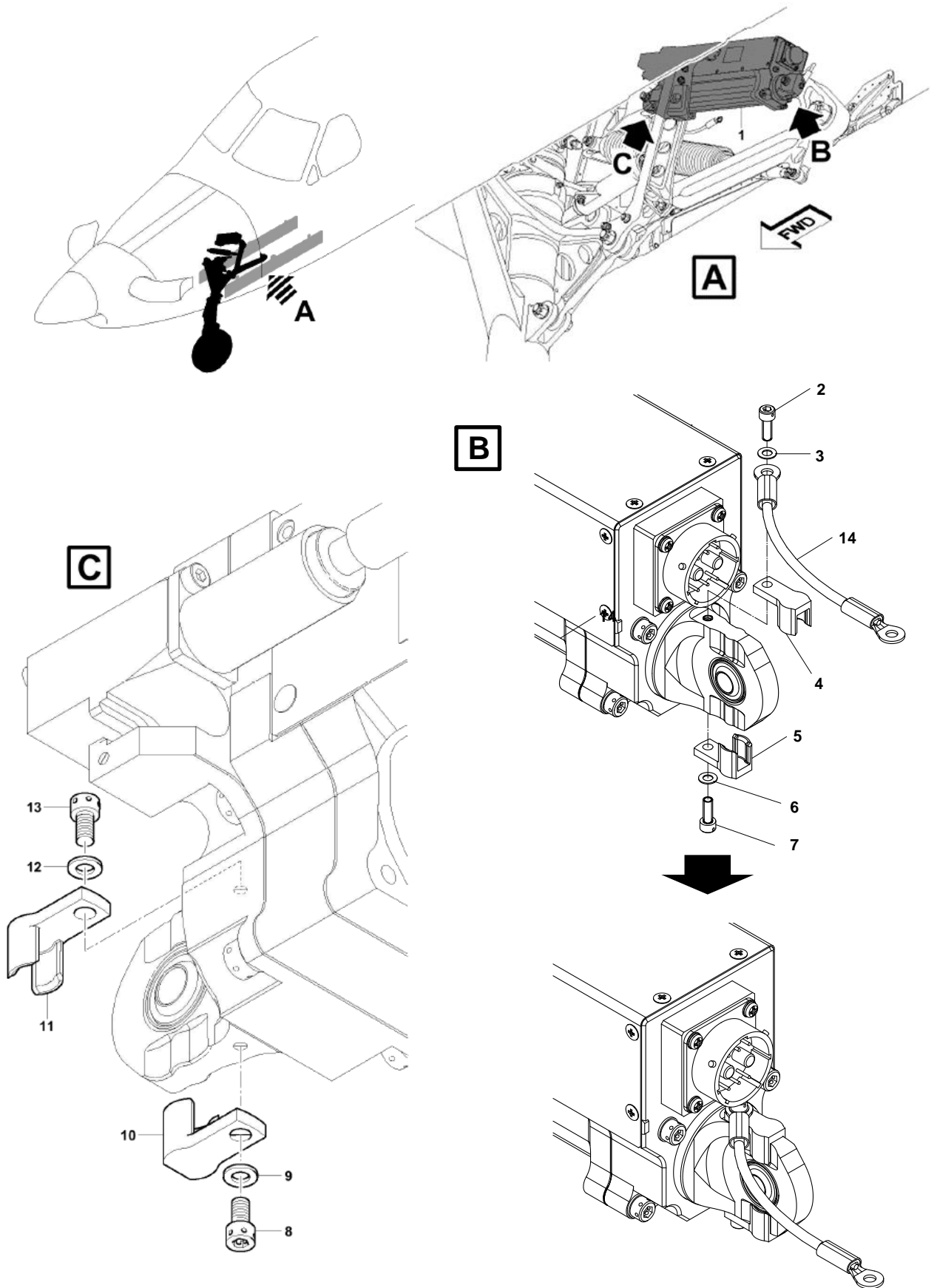
Apply Sealant to the Anti-Rotation Pads

Figure 4



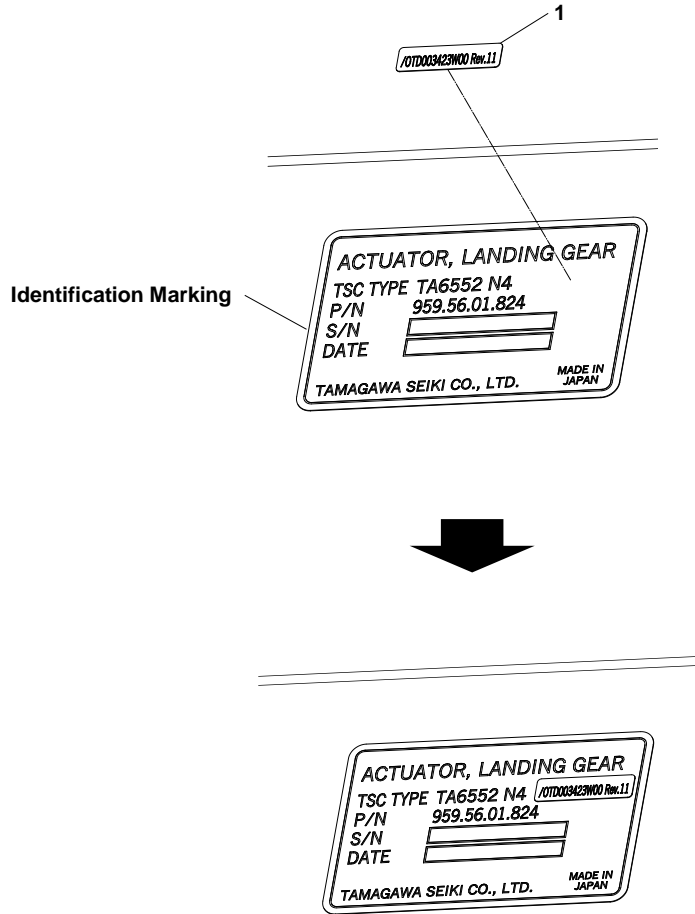
Main Landing Gear Actuator Anti-Rotation Pads

Figure 5



Nose Landing Gear Actuator Anti-Rotation Pads & Bonding Strap

Figure 6



Landing Gear Actuator Revision ID Marking

Figure 7

<b>LH MLG Actuator</b> <b>Slide Head Lug</b>			
Before grinding	Minimum width (w)	CELL 1  CALIPER MEASUREMENT	X
After grinding first pad area	Minimum thickness (t) at first pad area	CELL 2  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 3  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 44.4\text{mm}$ $< 44.4\text{mm}$ $\geq 1.75\text{in}$ $< 1.75\text{in}$
	Material removed in width direction at first pad area	CELL 4  = CELL 1 – CELL 3	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$
After grinding second pad area	Minimum thickness (t) at second pad area	CELL 5  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 6  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 44.4\text{mm}$ $< 44.4\text{mm}$ $\geq 1.75\text{in}$ $< 1.75\text{in}$
	Material removed in width direction at second pad area	CELL 7  = CELL 3 – CELL 6	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$

<b>LH MLG Actuator</b> <b>Gear Housing Lug</b>			
Before grinding	Minimum width (w)	CELL 1  CALIPER MEASUREMENT	X
After grinding first pad area	Minimum thickness (t) at first pad area	CELL 2  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 3  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 41.4\text{mm}$ $< 41.4\text{mm}$ $\geq 1.63\text{in}$ $< 1.63\text{in}$
	Material removed in width direction at first pad area	CELL 4  = CELL 1 – CELL 3	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$
After grinding second pad area	Minimum thickness (t) at second pad area	CELL 5  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 6  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 41.4\text{mm}$ $< 41.4\text{mm}$ $\geq 1.63\text{in}$ $< 1.63\text{in}$
	Material removed in width direction at second pad area	CELL 7  = CELL 3 – CELL 6	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$

\* The actuator might still be repairable. Contact Pilatus Tech Support for further instructions.

<b>RH MLG Actuator</b> <b>Slide Head Lug</b>			
Before grinding	Minimum width (w)	CELL 1  CALIPER MEASUREMENT	X
After grinding first pad area	Minimum thickness (t) at first pad area	CELL 2  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 3  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 44.4\text{mm}$ $< 44.4\text{mm}$ $\geq 1.75\text{in}$ $< 1.75\text{in}$
	Material removed in width direction at first pad area	CELL 4  = CELL 1 – CELL 3	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$
After grinding second pad area	Minimum thickness (t) at second pad area	CELL 5  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 6  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 44.4\text{mm}$ $< 44.4\text{mm}$ $\geq 1.75\text{in}$ $< 1.75\text{in}$
	Material removed in width direction at second pad area	CELL 7  = CELL 3 – CELL 6	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$

<b>RH MLG Actuator</b> <b>Gear Housing Lug</b>			
Before grinding	Minimum width (w)	CELL 1  CALIPER MEASUREMENT	X
After grinding first pad area	Minimum thickness (t) at first pad area	CELL 2  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 3  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 41.4\text{mm}$ $< 41.4\text{mm}$ $\geq 1.63\text{in}$ $< 1.63\text{in}$
	Material removed in width direction at first pad area	CELL 4  = CELL 1 – CELL 3	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$
After grinding second pad area	Minimum thickness (t) at second pad area	CELL 5  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 8.80\text{mm}$ $< 8.80\text{mm}$ $\geq 0.346\text{in}$ $< 0.346\text{in}$
	Minimum width (w)	CELL 6  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 41.4\text{mm}$ $< 41.4\text{mm}$ $\geq 1.63\text{in}$ $< 1.63\text{in}$
	Material removed in width direction at second pad area	CELL 7  = CELL 3 – CELL 6	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$

\* The actuator might still be repairable. Contact Pilatus Tech Support for further instructions.

<b>NLG Actuator</b> <b>Slide Head Lug</b>			
Before grinding	Minimum width (w)	CELL 1  CALIPER MEASUREMENT	X
After grinding first pad area	Minimum thickness (t) at first pad area	CELL 2  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 5.80\text{mm}$ $< 5.80\text{mm}$ $\geq 0.228\text{in}$ $< 0.228\text{in}$
	Minimum width (w)	CELL 3  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 36.2\text{mm}$ $< 36.2\text{mm}$ $\geq 1.43\text{in}$ $< 1.43\text{in}$
	Material removed in width direction at first pad area	CELL 4  = CELL 1 – CELL 3	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$
After grinding second pad area	Minimum thickness (t) at second pad area	CELL 5  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 5.80\text{mm}$ $< 5.80\text{mm}$ $\geq 0.228\text{in}$ $< 0.228\text{in}$
	Minimum width (w)	CELL 6  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 36.2\text{mm}$ $< 36.2\text{mm}$ $\geq 1.43\text{in}$ $< 1.43\text{in}$
	Material removed in width direction at second pad area	CELL 7  = CELL 3 – CELL 6	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$

<b>NLG Actuator</b> <b>Gear Housing Lug</b>			
Before grinding	Minimum width (w)	CELL 1  CALIPER MEASUREMENT	X
After grinding first pad area	Minimum thickness (t) at first pad area	CELL 2  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 5.80\text{mm}$ $< 5.80\text{mm}$ $\geq 0.228\text{in}$ $< 0.228\text{in}$
	Minimum width (w)	CELL 3  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 36.2\text{mm}$ $< 36.2\text{mm}$ $\geq 1.43\text{in}$ $< 1.43\text{in}$
	Material removed in width direction at first pad area	CELL 4  = CELL 1 – CELL 3	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$
After grinding second pad area	Minimum thickness (t) at second pad area	CELL 5  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 5.80\text{mm}$ $< 5.80\text{mm}$ $\geq 0.228\text{in}$ $< 0.228\text{in}$
	Minimum width (w)	CELL 6  CALIPER MEASUREMENT	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\geq 36.2\text{mm}$ $< 36.2\text{mm}$ $\geq 1.43\text{in}$ $< 1.43\text{in}$
	Material removed in width direction at second pad area	CELL 7  = CELL 3 – CELL 6	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL * $\leq 1.50\text{mm}$ $> 1.50\text{mm}$ $\leq 0.059\text{in}$ $> 0.059\text{in}$

\* The actuator might still be repairable. Contact Pilatus Tech Support for further instructions.