Service Bulletin No:	**27-005**	**Ref No:**	**223**
Modification No:	**EC-18-0310**	**ATA Chapter:**	**27**

FLIGHT CONTROLS - FLAPS - FLAP ACTUATOR - PUSHROD ASSY
INSPECTION FOR INCORRECTLY INSTALLED TAPER PINS AND POSSIBLE REWORK

1. Planning Information

A. Effectivity

All PC-6 aircraft equipped with mechanically operated flaps.

All LH and RH flap actuator assemblies (P/N 6132.0039.51 and 6132.0039.52) and pushrod assemblies (P/N 6132.0040.00) stored as spares.

B. Concurrent Requirements

None.

C. Reason

(1) Problem

During a recent PC-6 overhaul two new flap actuators were found to have the taper pins incorrectly installed (not swaged). The taper pins were retained by friction but can potentially become loose due to not being swaged (no form-fit locking).

(2) Cause

The taper pins were not correctly swaged in position during manufacture.

(3) Solution

The LH and RH pushrod assemblies must be removed from the aircraft and be inspected for incorrect taper pin installation. Each flap actuator and pushrod assy stored as a spare must also be inspected. Each pushrod assy that fails the inspection must have the taper pins swaged in position in accordance with the accomplishment instructions of this Service Bulletin.

D. Description

This Service Bulletin gives the data and instructions to do the inspection and rework as follows:

- Remove the pushrod assemblies and inspect the taper pins for incorrect installation.
- Swage the tapered pins in position on the pushrod assemblies (if necessary).
- Install the pushrod assemblies.
- Inspect and swage (if necessary) each flap actuator and pushrod assy stored as a spare.

E. Compliance

Mandatory.

Accomplishment of this Service Bulletin is necessary at or before the next scheduled maintenance (100 Hour Inspection or Annual Inspection) and within 12 months from the issue date of this Service Bulletin.

For spare parts in stores, accomplishment of this Service Bulletin is necessary at or before installation on an aircraft and within 12 months from the issue date of this Service Bulletin.

F. Approval

The technical content of this Service Bulletin is approved under the authority of DOA No. EASA. 21J. 357.

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

G. Copyright and Legal Statements

H. Manpower

	Total
Preparation	**1.0**
Modification	**10.0**
Close Up	**1.0**
TOTAL MAN-HOURS	***12.0***

NOTE: Man-hours figures do not include the time required to cure sealants, paints and adhesives.

I. Weight and Balance

(1) Weight Change

Not affected.

(2) Moment Change

Not affected.

J. Electrical Load Data

Not changed.

K. Software

Not changed.

L. References

Aircraft Maintenance Manual (AMM): 27-50-00, 27-52-11.

Illustrated Parts Catalogue (IPC): 27-52-11.

M. Publications Affected

None.

N. Interchangeability of Parts

Not applicable.

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 → contact us.

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.

B. Warranty

Not applicable.

C. Material Necessary for Each Aircraft

(1) Material to be Procured

Not applicable.

(2) Operator Supplied Parts

PART NO.	DESCRIPTION	QTY	REMARKS
940.17.00.343	PIN, COTTER (DIN94/1.6*16)	AR	
940.29.09.411	PIN, TAPER (VSM12770A/VST-5*40)	AR	ONLY FOR DAMAGED/MISSING TAPER PIN REPLACEMENT
940.29.09.379	PIN, TAPER (ALTERNATIVE) (VSM12770A/VST-5*45)	AR	LONGER FOR WHEN OUTSIDE OF PROTRUSION LIMITS

NOTE: Operators are to supply the expendable parts listed in the referenced procedures (Ref. Para. 1.L.) in addition to the parts listed above.

(3) Operator Supplied Materials (Ref. the Consumable Materials List AMM, 20-31-00)

MATERIAL NO.	DESCRIPTION	QTY	REMARKS
P01-008	SOLVENT	AR	
P02-031	ABSORBENT PAPER	AR	
P04-006	GREASE	AR	
P04-039	CORROSION PREVENTATIVE, CA1000	AR	
P07-007	PRIMER, EPOXY	AR	
P10-013	CORROSION PREVENTATIVE COMPOUND (CPC)	AR	

NOTE: Operators are to supply the consumable materials listed in the referenced procedures (Ref. Para. 1.L.) in addition to the materials listed above.

D. Material Necessary for Each Spare

PART NO.	DESCRIPTION	QTY	REMARKS
940.29.09.411	PIN, TAPER (VSM12770A/VST-5*40)	AR	ONLY FOR DAMAGED/MISSING TAPER PIN REPLACEMENT
940.29.09.379	PIN, TAPER (ALTERNATIVE) (VSM12770A/VST-5*45)	AR	LONGER FOR WHEN OUTSIDE OF PROTRUSION LIMITS

E. Reidentified Parts

Not applicable.

F. Tooling - Cost and Availability:

PART NO.	DESCRIPTION	QTY	REMARKS
-	WARNING SIGN	1	DO NOT OPERATE FLIGHT CONTROLS
-	ANVIL	1	LOCAL SUPPLY
-	ENGINEER'S HAMMER	1	LOCAL SUPPLY
-	SUPPORT BLOCK (WOODEN OR PLASTIC)	1	LOCAL SUPPLY (WITH SUITABLE CLEARANCE HOLE)
-	PIN PUNCH	1	LOCAL SUPPLY

3. Accomplishment Instructions - Part 1 - On Aircraft

WARNING: BE CAREFUL WHEN YOU USE THE CONSUMABLE MATERIALS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS.

CAUTION: DURING THE ACCOMPLISHMENT OF THIS SERVICE BULLETIN, THE PUSHROD ASSEMBLIES ONLY ARE REMOVED. THE FLAP ACTUATION SYSTEM DOES NOT NEED TO BE REMOVED (THE CHAINS, THE SPROCKET ASSEMBLIES, THE GUIDES AND THE PLATES STAY INSTALLED). YOU MUST MAKE SURE THAT:

- WHEN THE PUSHROD ASSEMBLIES ARE REMOVED, THE CHAIN AND THE SPROCKET ASSEMBLIES DO NOT GET TURNED UNTIL THE PUSHROD ASSEMBLIES ARE INSTALLED AGAIN.

IF THE CHAIN OR THE SPROCKET ASSEMBLIES GET TURNED WHEN THE PUSHROD ASSMBLIES ARE REOMVED:

- YOU MUST DO THE MECHANICALLY OPERATED FLAPS - ADJUSTMENT/TEST PROCEDURE (REF. AMM 27-50-00 CONFIG 2, PAGE BLOCK 501) BEFORE STEP 3.E. CLOSE UP.

NOTE: AMM references given are applicable for holders of AMM Doc. 01975.

A. Preparation (Ref. Fig. 1)

(1) Extend the flaps.

(2) Move the handle of the drive assy back until you hear one or two audible clicks. This is to release the spring load of the flap chain. This is necessary to remove the pushrod assy (7) only (without removal of the full flap actuator assy).

(3) Put a warning notice in the cockpit to tell persons not to operate the flight controls.

(4) Remove the access panels LB6, RB6, LB7, RB7 and LB8.

(5) Support the LH flap.

(6) Record the details that follow. They are needed for when you install the pushrod assy (7) again:

(a) Measure Dimension X (the distance between the stop (8) and the guide).

(b) Make a note of the angular position of the head of the screw (12).

(c) Make a note of the angular position of the head of the screws (6).

(7) On the LH flap actuator, remove the cotter pin (1), the nut (14), the washers (2) and (4) and the bolt (5).

(8) Remove the nut (10), the washer (9) and the screw (12).

(9) On the LH wing only, remove the flap position indicator (11).

(10) Remove the stop (8).

(11) Turn the pushrod assy (7) counter clockwise and remove it from the rear of the wing. You must make a note of the angular position of the head of the screw (6) immediately:

- As the screw jack of the pushrod assy (7) is released from the sprocket assy (13).

(12) Do Steps 3.A.(5) thru (11) for the RH wing.

B. Inspect the Tapered Pins of the Flap Actuator for Incorrect Installation (Ref. Fig. 2)

(1) Fully clean the spindle, the stop and taper pin heads with absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-008) on each pushrod assy.

(2) Examine the two taper pins installed in each pushrod assy:

(a) Damaged or unserviceable taper pins must be replaced. If necessary, cut or drill out the swaged end to remove the damaged taper pin and swage a new taper pin in position (refer to Step 3.C.).

(b) Do a check that the thin end of each taper pin has been swaged.

(c) If necessary, measure the diameter of the thin end of each taper pin (Ref. Fig. 2, Sections A-A and B-B):

- The minimum diameter is 5,15 mm (0.203 in.)
- If the diameter is less than 5,15 mm (0.203 in.) the tapered pin has not been swaged correctly. You must do the taper pin swage procedure, refer to Step 3.C.

(3) Install the pushrod assemblies, Ref. Step 3.D.

C. Swage the Taper Pin into the Pushrod Assy (Ref. Fig. 2)

(1) You must only do this procedure for each taper pin that has failed the inspection procedure 3.B.

(2) Measure the protrusion of the taper pin at each end (Ref. Fig. 2, Views C and D):

- The thick end (un-swaged) must protrude between 0,7 mm (0.028 in.) and 3 mm (0.118 in.).
- The thin end (to be swaged) must protrude between 1,0 mm (0.039 in.) and 2,5 mm (0.098 in.).

(3) If necessary, remove the taper pin (cut or drill out the swaged end) and install the longer alternative taper pin (P/N 940.29.09.379) and do Step 3.C.(2) again.

(4) Do the applicable work steps as follows if a taper pin is still outside of the protrusion limits given in Step 3.C.(2):

(a) Thin End Under-size

CAUTION: MAKE SURE THAT YOU DO NOT DAMAGE THE STOP OR THE SPINDLE. YOU MUST USE A SUITABLE SUPPORT BLOCK (WOODEN OR PLASTIC) WITH A LARGE ENOUGH CLEARANCE HOLE FOR THE TAPER PIN TO PREVENT DAMAGE.

1 Put the support block in position on the anvil.

2 Put the pushrod assy on the support block with only the stop or the spindle (as applicable) in contact with it.

3 Make sure that the taper pin is in alignment over the clearance hole and is not in contact with the support block.

4 Lightly tap the thick end of the taper pin with the hammer to drive the taper pin into the pushrod assy.

5 If the taper pin protrusion is still outside of the limits given in Step 3.C.(2):

- Lightly tap the thick end of the taper pin again one more time only.
- Do the check again to see if the protrusion is within the limits.

6 Remove the support block from the anvil.

(b) Thin End Oversize

1 Mark a line on the thin end of the taper pin 2,5 mm (0.098 in.) from the surface of the stop or spindle.

2 Cut or grind down the thin end of the taper pin to the marked line.

3 Deburr the end of the taper pin.

4 Make absorbent paper (Material No. P02-031) moist with solvent (Material No. P01-008) and fully clean the taper pin.

(5) If you cannot get the taper pin protrusion within the limits given in Step 3.C.(2) you must contact Pilatus Aircraft Ltd:

- Give details of which pin is outside of the limits and the length of the protrusion at each end.

(6) Apply corrosion preventative (Material No. P04-039) to the conical bores of the push rod assy and the shaft of the taper pin.

(7) Make sure that the taper pin is installed tightly in the conical bore of the pushrod assy.

CAUTION: MAKE SURE THAT YOU DO NOT DAMAGE THE SPINDLE OR THE STOP DURING THIS PROCEDURE. ONLY THE TAPER PINS MUST TOUCH THE ANVIL.

(8) Hold the pushrod assy tightly with the thick end of the taper pin in position on the anvil (Ref. Fig. 2, Sheet 3).

(9) Use the hammer and the pin punch to swage the thin end of the taper pin as follows:

(a) Swage the thin end of the taper pin equally around the circumference to form a slight shroud (Ref. Fig. 2, Sheet 3).

(b) Swage the thin end of the taper pin until you get a diameter of between 5,15 and 5,3 mm (0.203 and 0.209 in.). This is to make sure that there is sufficient locking (Ref. Fig. 2, Sections A-A and B-B).

NOTE: The original diameter of the thin end of the taper pin is 5,0 mm (0.197 in.).

(10) Remove any unwanted corrosion preventative from both ends of the taper pin with absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-008).

(11) Apply epoxy primer (Material No. P07-007) (in accordance with the manufacturer's instructions) to the end of the taper pin if it was cut or ground down in length.

(12) Apply corrosion preventative compound (Material No. P10-013) to both ends of the taper pin in accordance with the manufacturer's instructions.

(13) Install the pushrod assy, Ref. Step 3.D.

D. Install the Pushrod Assy (Ref. Fig. 1)

(1) Apply grease (Material No. P04-006) to the spindle threads of the of the pushrod assy (7).

(2) Support the LH flap.

(3) On the LH wing, install the pushrod assy (7) into the wing from the rear.

(4) Hold the pushrod assy (7) with the head of the screw (6) at the same angular position as you recorded during Step 3.A.(11).

(5) Turn the pushrod assy (7) clockwise to engage it with the sprocket assy (13) until you can install the stop (8).

(6) Put the stop (8) and the screw (12) into position on the pushrod (7).

(7) On the LH wing only, put the flap position indicator (11) into position.

(8) Install the washer (9) and the nut (10).

(9) Turn the pushrod assy (7) until the distance between the stop (8) and the guide is the same as Dimension X recorded during Step 3.A.(6)(a).

(10) Make sure that the end plate (3) of the pushrod assy (7) is vertically aligned with the fasteners horizontally aligned as shown in Fig. 1.

(11) Make sure that the heads of the screw (6) and the screw (12) of the pushrod assy (7) are at the same angular position that you recorded during Step 3.A.(6)(b) and (c). If not, you must proceed as follows:

(a) Remove the nut (10), the washer (9), the screw (12) and the flap position indicator (11) (LH wing only) and the stop (8).

(b) Turn the pushrod assy (7) counter clockwise until it disengages from the sprocket assy (13).

(c) Turn the pushrod assy (7) through 180°.

(d) Do Step 3.D.(5) thru 3.D.(11) again to install the pushrod assy (7).

(12) Move the flap so that the end plate (3) of the pushrod assy (7) can be connected.

(13) Install the bolt (5), the washers (2) and (4), and the nut (14).

(14) Safety the nut (14) with a new cotter pin (1).

(15) Do Steps 3.D.(1) thru (14) for the RH wing.

(16) Temporarily remove the warning notice from the cockpit and retract the flaps.

(17) Make sure that both flaps are in the correct position (fully up).

(18) Put the warning notice back in the cockpit to tell persons not to operate the flight controls.

E. Close Up

(1) Remove all tools and materials. Make sure the work areas are clean.

(2) Install the access panels LB6, RB6, LB7, RB7 and LB8.

(3) Remove the warning notice from the cockpit.

F. Documentation

Make an entry in the Aircraft Logbook that this Service Bulletin has been accomplished.

4. Accomplishment Instructions - Part 2 - Spare Parts held in Stores

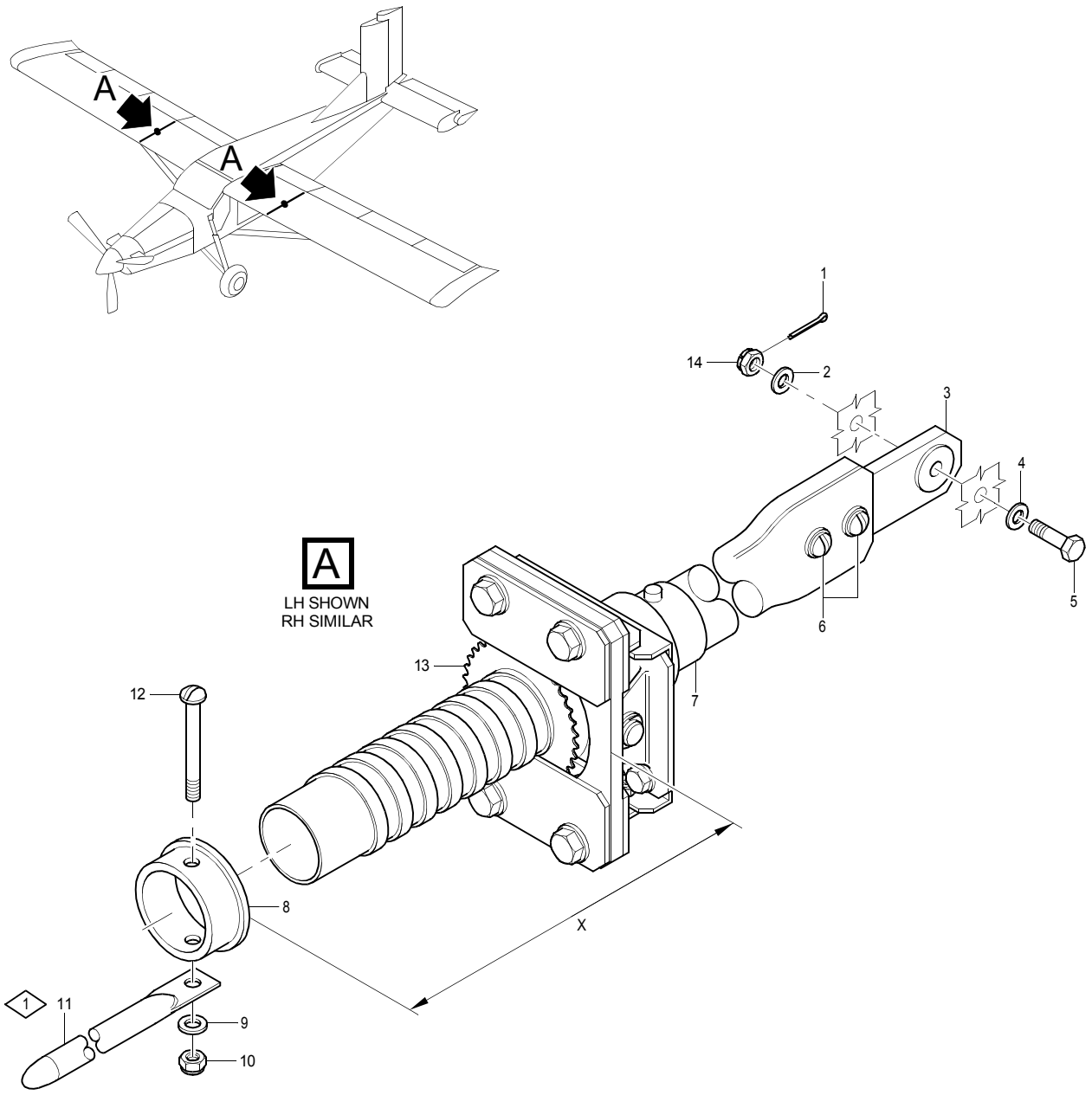
WARNING: BE CAREFUL WHEN YOU USE THE CONSUMABLE MATERIALS. OBEY THE MANUFACTURER'S HEALTH AND SAFETY INSTRUCTIONS.

A. Inspect the Tapered Pins of the Flap Actuator for Incorrect Installation and Do the Possible Rework (Ref. Fig. 2)

(1) Do the inspection procedure given in Steps 3.B.(2)(a) thru 3.B.(2)(c) and if necessary the swage procedure given in Steps 3.C.(1) thru 3.C.(9).

B. Documentation

Make an entry on the serviceable label (attached to the part) that this Service Bulletin has been accomplished.

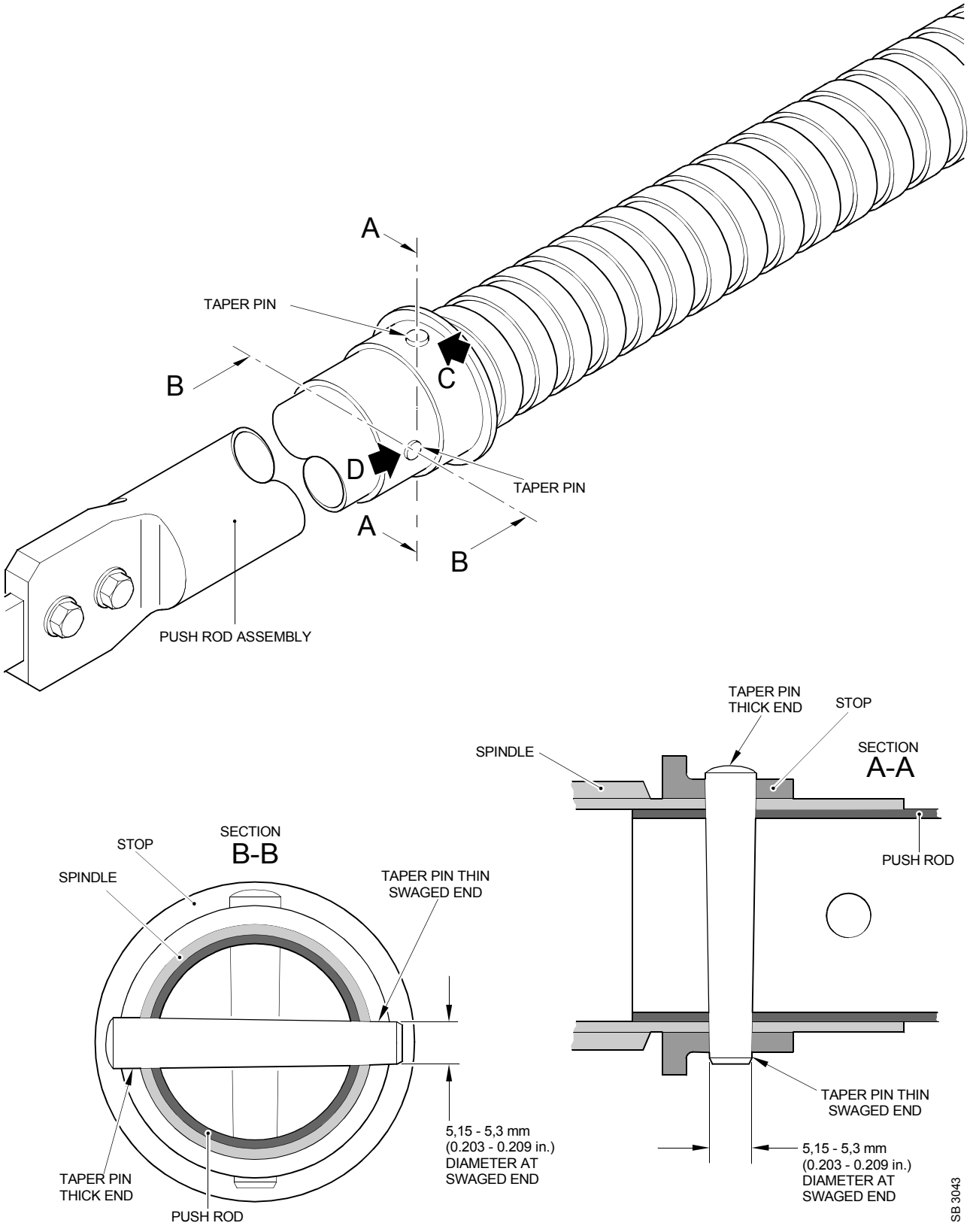


NOTE:

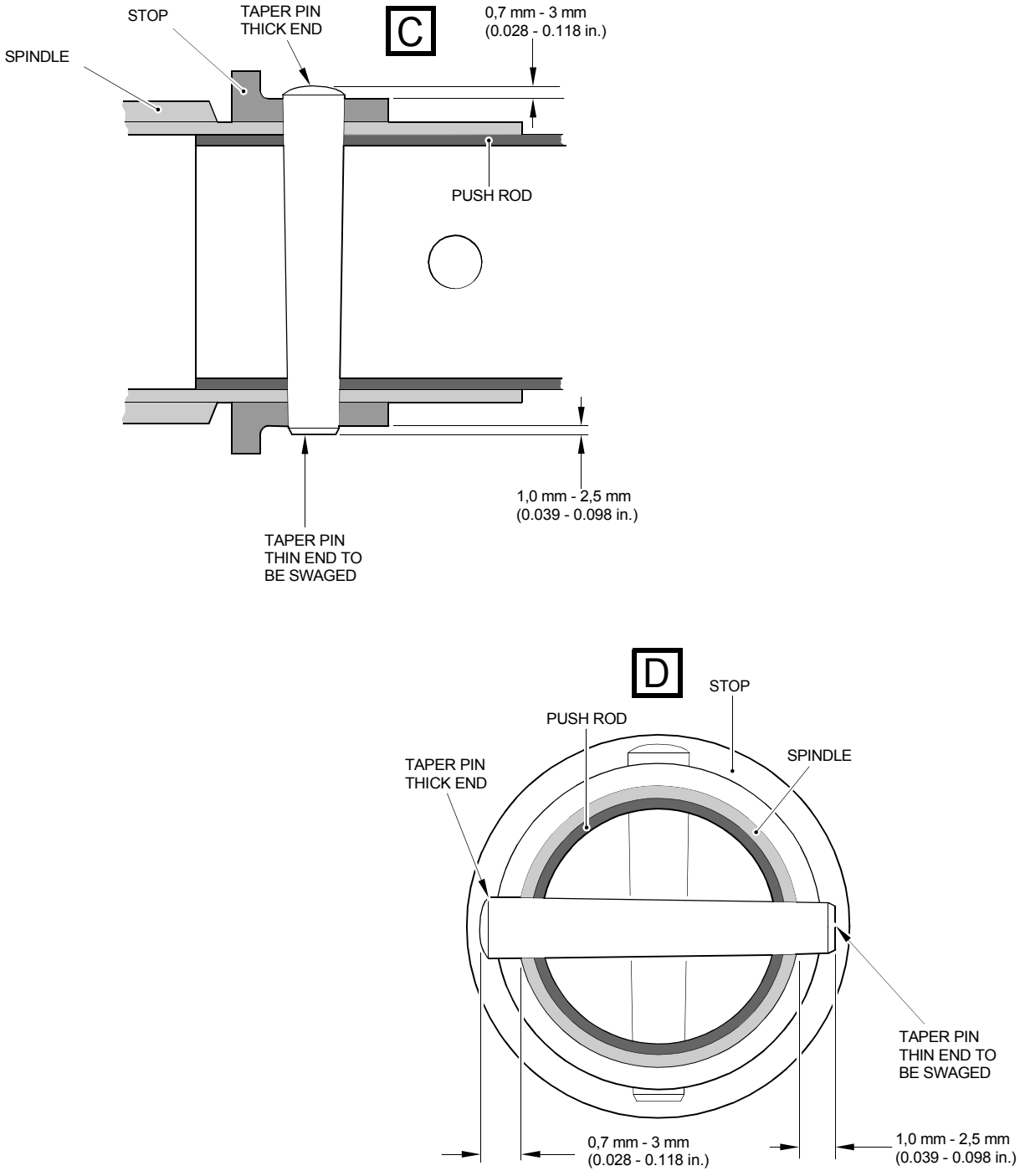
<1> LH WING ONLY.
DIMENSION X IS MEASURED FROM THE AFT SURFACE OF THE STOP (8)
TO THE FORWARD SURFACE OF THE GUIDE PLATE BEFORE THE STOP (8)
IS REMOVED FROM THE PUSHROD ASSY (7).

SB 3068

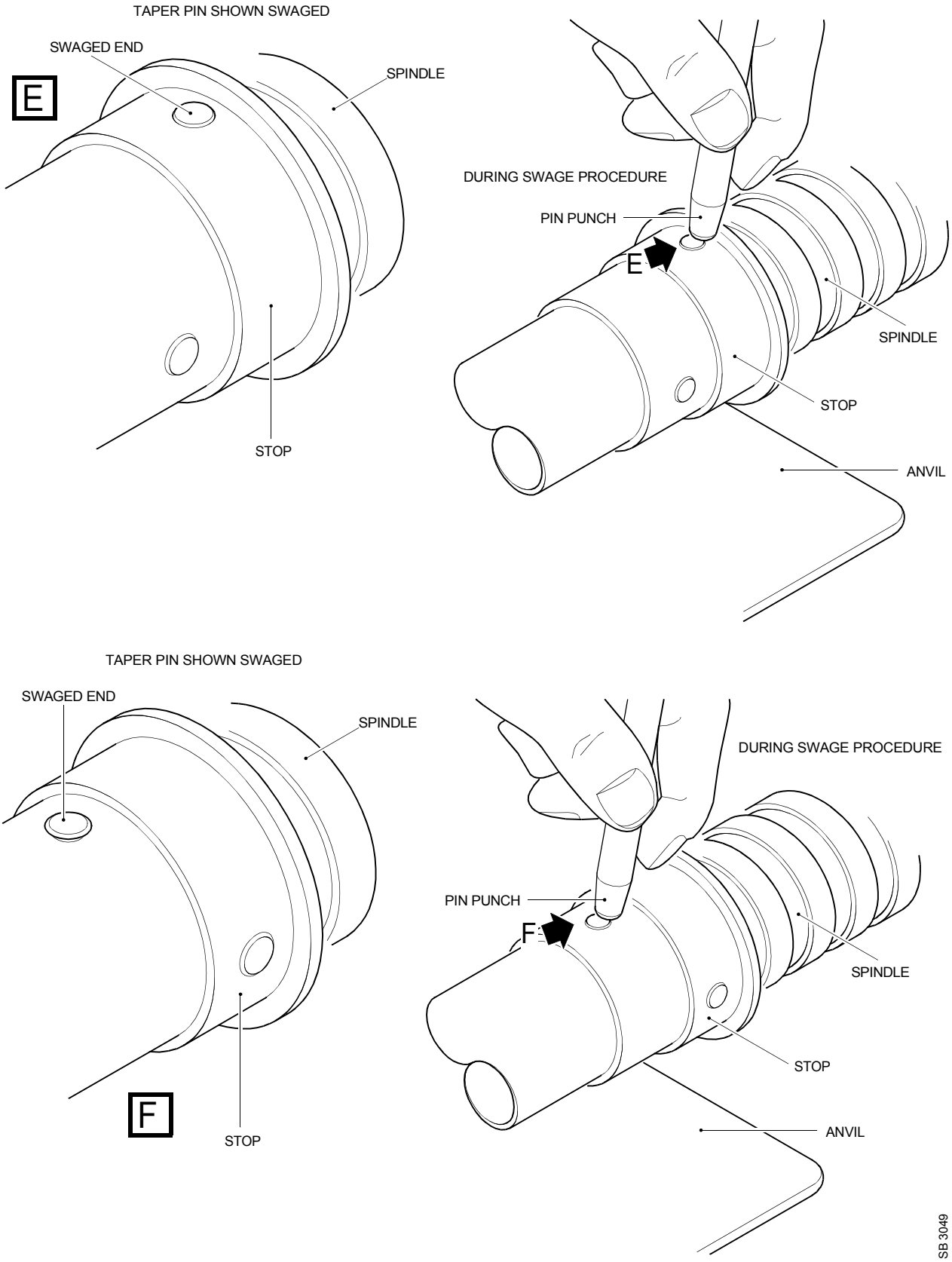
Pushrod Assy - Removal and Installation
Figure 1



Pushrod Assy - Inspection and Rework of Taper Pin Installation
Figure 2 (Sheet 1 of 3)



Pushrod Assy - Inspection and Rework of Taper Pin Installation
Figure 2 (Sheet 2 of 3)



Pushrod Assy - Inspection and Rework of Taper Pin Installation
Figure 2 (Sheet 3 of 3)

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The purpose of this Evaluation Form is to allow you, the customer, to comment on this Service Bulletin. Your comments will be used to further improve our Service Bulletin program.

SERVICE BULLETIN EVALUATION FOR SB No. 27-005			
Title	**FLIGHT CONTROLS - FLAPS - FLAP ACTUATOR - PUSHROD ASSY INSPECTION FOR INCORRECTLY INSTALLED TAPER PINS AND POSSIBLE REWORK**		
Aircraft MSN		**Total Airframe Hours**	
Owner			
Operator			
Service center			
Please Tick as appropriate			
❑	We will embody/accomplish this SB	❑	Fully
❑	We have embodied/accomplished this SB	❑	Partially
❑	We will not embody/accomplish this SB	❑	Our experience does not justify embodiment
❑	Decision deferred (please explain)	❑	Other (please explain)
Comments (procedure, kit quality, suggested improvements, etc.)			

Please forward this form to:

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CH-6371 Stans, Switzerland. FAX +41 41 619 73 11
Email: supportpc12@pilatus-aircraft.com

Date:
Name: **Signature:**