

Service Bulletin No: 57-015
Modification No: INSPECTION

Ref No: 136
ATA Chapter: 57

**WING - AILERON INSTALLATION
INSPECTION OF THE AILERON OUTBOARD-BEARING SUPPORT**

1. Planning Information

A. Effectivity

PC-7 aircraft MSN 101 thru MSN 618.

NOTE: If a modification to the aileron outboard-bearing support attachment-structure in the wing has been carried out, please contact Pilatus at the address given in Para. 2.A.

B. Concurrent Requirements

None.

C. Reason

(1) Problem

An operator reported that one of his aircraft had a partial in-flight separation of the aileron outboard-bearing support.

(2) Cause

The aileron outboard-bearing supports are attached with two forward attachment bolts and two aft attachment bolts. The forward attachment bolts are approximately 3.2 mm (0.125 in.) longer than the aft attachment bolts.

In the case of the reported incident, the longer bolts were installed in the rear attachment points. This, most probably, damaged the threads in the rear attachment anchor nuts. If the bolts are removed and installed again and again, this can also cause damage to the threads of the nuts.

(3) Solution

(a) If there is evidence in the aircraft maintenance log book, that the aileron outboard-bearing supports have been removed during the life of the aircraft, do a one time inspection to make sure:

- 1 The bolts are installed in the correct positions.
- 2 The threads of the anchor nuts are in a good condition.

(b) If necessary, replace the attachment hardware.

D. Description

This Service Bulletin gives the instructions and data necessary to:

- Do a check of the aircraft maintenance documentation for an entry that required the removal of the left and/or right aileron outboard-bearing support.
- If there is evidence that the aileron outboard-bearing supports have been removed, do an inspection of the left and right attachment hardware of the aileron outboard-bearing support.
- Do the repair procedure if the aircraft fails the inspection criteria.

Revision No. 1 is issued to change the title of Para. 2.C and to add a requirement that if no “run-down torque” is felt, the repair procedure is to be done.

Operators who have accomplished this Service Bulletin to the initial issue must either:

- Confirm that, during accomplishment of this Service Bulletin, normal self locking resistance was felt when the bolts (Ref. Fig. 1, items 2 and 3) were installed.
- Do Para. 3.B.(1)(k) again for the bolts (Ref. Fig. 1, items 2 and 3). Only remove one bolt at a time.

E. Compliance

Mandatory.

Accomplishment required not later than one month after the effective date of this Service Bulletin.

F. Approval

The technical content of this Service Bulletin is approved under the authority of letter of DOA Acceptance ref. FOCA.21J.002.

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 Information

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H. Manpower

	Total (Inspection)	Total (Repair)
Preparation	0.25	-
Inspection	1.50	-
Repair	-	25.00
Close-Up	0.25	-
TOTAL MAN-HOURS	2.00	25.00

NOTE: Man-hours figures do not include the time required to cure sealants 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), 20-31-00, 27-10-01.

Structural Repair Manual (SRM), 51-00-04, 51-00-07.

M. Publications Affected

None.

N. Interchangeability of Parts

Not applicable.

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

No modification kit is necessary to do this Service Bulletin.

Operators who require more information should contact:

PILATUS AIRCRAFT LTD,
CUSTOMER LIAISON MANAGER,
CH 6371 STANS, Tel: +41 41 619 62 26 (Government)
SWITZERLAND Fax: +41 41 619 61 70

Operators are requested to advise Pilatus Aircraft Ltd. of the Manufacturer's Serial Number (MSN), the flying hours and landings of aircraft which are allocated for this Service Bulletin using the Service Bulletin Evaluation Form.

B. Material Necessary for Each Aircraft (Inspection)**(1) Material to be Procured**

No modification kit is necessary to do this Service Bulletin.

(2) Operator Supplied Materials (Ref. AMM, 20-31-00):

MATERIAL NO.	DESCRIPTION	QTY	REMARK
P01-010	Solvent	A/R	Or suitable alternative
P02-031	Absorbent Paper	A/R	
P04-012	Corrosion Preventative (Mastinox 6856H)	A/R	
-	Ear sticks	A/R	Or suitable alternative (Local Supply)

C. Material Necessary for Each Side of an Aircraft (Repair)
(1) Material to be Procured:

PART NO.	DESCRIPTION	QTY	FIG	ITEM
938.42.68.013	Nut Plate MS21047-3	2	2	1
938.41.33.235	Nut Plate MS21051-3	2	2	2
932.19.60.421	Bolt AN173C6A	2	2	9
932.19.60.422	Bolt AN173C7A	2	2	10
938.77.61.013	Washer NAS1149C0363R	4	2	8 11
939.19.86.101	Rivet CR3223-4-1 - Cherrymax	65	3	1
939.31.86.102	Rivet CR3222-4-2 - Cherrymax	6	3	2
939.31.86.300	Rivet CR3214-4-1 - Cherrymax	30	3	3
939.17.81.XXX See Note 1	Rivet MS20470-AD3 – Solid	32	3	4
939.30.81.XXX See Note 2	Rivet MS20426-AD3 – 100° CSK	8	-	-

NOTE 1: XXX = Rivet length to be determined on installation.

NOTE 2: XXX = Rivet length to be determined on installation.
For the attachment of the new anchor nuts.

(2) Operator Supplied Materials (Ref. AMM, 20-31-00):

MATERIAL NO.	DESCRIPTION	QTY	REMARK
P01-010	Solvent	A/R	Or suitable alternative
P02-031	Absorbent Paper	A/R	
P04-012	Corrosion Preventative (Mastinox 6856H)	A/R	
P07-007	Primer	A/R	
P07-021	Alodine 1132	A/R	

D. Re-identified Parts

Not applicable.

E. Tools and Equipment:

PART NO.	DESCRIPTION	REMARKS
-	Borescope	Local Supply
-	Warnings sign (Qty 2)	DO NOT OPERATE THE FLIGHT CONTROLS
-	Reamer 4,9 mm	Tolerance: - 0,0 + 0,012 mm
-	Reamer 5,0 mm	Tolerance: - 0,0 + 0,012 mm
110.88.07.065	Safety clip (Qty 1)	Circuit breaker hold open

3. Accomplishment Instructions**A. Preparation**

- (1) Do a check of the aircraft maintenance log book for an entry that requires the removal of the left or right aileron outboard-bearing support.

NOTE: Removal of the aileron outboard-bearing support can be for, but not limited to, these reasons:

- Repainting of the aircraft
 - Repainting of the wing in the area of the aileron outboard-bearing support
 - Replacement of the bearing in the outer support bearing
 - Shimming of the aileron outboard-bearing support.
- (a) If an entry is found that the aileron outboard-bearing support has been removed, continue with the Service Bulletin from Para. 3.A.(2).
- (b) If you are not sure if the aileron outboard-bearing support has been removed, continue with the Service Bulletin from Para. 3.A(2).
- (c) If you are sure that the aileron outboard-bearing support has **NOT** been removed, continue with the Service Bulletin from Para. 3.E.
- (2) Put warning signs (DO NOT OPERATE THE FLIGHT CONTROLS) in the front and rear cockpits.
- (3) Open and install the safety clip to this circuit breaker:

CONTROLS - TRIM - AIL/ELEV.

B. Inspection (Ref. Fig. 1)

- (1) Do a check of the bolts and related anchor nuts.

WARNING: IF A BOLT (2 OR 3) IS **NOT** THE CORRECT LENGTH AND/OR THE THREAD OF THE ANCHOR NUT IS **NOT** IN A GOOD CONDITION, ALL THE ATTACHMENT BOLTS AND ANCHOR NUTS MUST BE REPLACED (REF. PARA. 3.C. OF THIS SERVICE BULLETIN) BEFORE THE NEXT FLIGHT.

CAUTION: DURING THE STEPS THAT FOLLOW, ONLY REMOVE ONE BOLT AT TIME.

- (a) Remove the bolt (3) and the washer (4) from the forward inboard attachment point of the aileron outboard-bearing support (1).
- (b) Clean the bolt (3) with the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010).
- (c) Measure the length of the bolt (3). If the bolt (3) is installed in the correct position, the length will be 23,02 mm (0.906 in.) (Ref Detail on Fig. 1).

- (d) If the length of the bolt (3) is correct, continue with this Service Bulletin from Para. 3.B.(1)(f).
 - (e) If the length of the bolt (3) is **NOT** correct, continue with this Service Bulletin from Para. 3.C.
 - (f) Clean the bolt hole and the threads of the anchor nut with an ear stick (or alternative) made moist with the solvent (Material No. P01-010).
 - (g) Examine the anchor nut with the borescope. Make sure the thread of the anchor nut is in a good condition.
 - (h) If the thread of the anchor nut is in a good condition, continue with this Service Bulletin from Para. 3.B.(1)(j).
 - (i) If the thread of the anchor nut is **NOT** in a good condition, continue with this Service Bulletin from Para. 3.C.
 - (j) Apply a layer of the corrosion preventative (Material No. P04-012) to the plain shank of the bolt (3).
 - (k) Install the bolt:
 - 1 Put the washer (4) on the bolt (3).
 - 2 Put the bolt (3) into the hole and turn the bolt (3) with your fingers until you can feel some resistance as it engages the thread of the nut. If you do not feel the normal self locking resistance, continue with this Service Bulletin from Para. 3.C.
 - 3 Continue to turn the bolt (3) with a torque wrench and measure the torque necessary to turn the bolt (3).
NOTE: This is known as the “run-down torque”.
 - 4 Add the run-down torque calculated in Para. 3.B.(1)(k)3 to 2.3 and 2.9 Nm (20 and 25 lb in.).
 - 5 Torque the bolt (3) to the torque calculated in Para. 3.B.(1)(k)4.
 - (l) If no damage is found to the first bolt (3) or its related anchor nut, do Para. 3.B.(1)(a) thru (k) again for the forward outboard attachment bolt (3) of the aileron outboard-bearing support (1).
 - (m) If no damage is found to the two bolts (3), do Para. 3.B.(1)(a) thru (k) again for the aft attachment bolts (2) of the aileron outboard-bearing support (1).
NOTE: If the bolt (2) is installed in the correct position, the length of the bolt will be 19,84 mm (0.781 in.) (Ref Detail on Fig. 1).
- (2) Do Para. 3.B.(1) for the other aileron outboard-bearing support (1).
 - (3) Remove all tools and materials. Make sure the work areas are clean.

C. Repair (Ref. Fig. 2 and Fig. 3)

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

CAUTION: BE CAREFUL WHEN YOU CUT OR DRILL THE COMPONENTS. ALWAYS USE PIECES OF 0,5 MM (0.02 IN.) STEEL SHEET (OR EQUIVALENT MATERIAL) TO GIVE PROTECTION TO THE ADJACENT STRUCTURE.

NOTE: This procedure is applicable to the left and right aileron outboard-bearing supports.

(1) Preparation

Remove the aileron (Ref. AMM, 27-10-01, Page Block 401).

(2) Disassembly (Ref. Fig. 2 and Fig. 3)

(a) Remove the aileron outboard-bearing support:

- 1 Remove the bolts (9), the washers (8) and, if necessary, the bonding strap (7).
- 2 Discard the bolts (9) and the washers (8).
- 3 Remove and discard the bolts (10) and the washers (11).
- 4 Remove the aileron outboard-bearing support (6) and the aileron trim shims (if installed).

NOTE: Make a note of the position of the aileron trim shims (if installed).

- (b) Use the applicable diameter drill and remove the rivets (Ref. Table 1 and Ref. Fig. 3) (Ref. SRM, 51-00-04) from the wing lower-outer skin (4) to get access to the outer anchor nuts (1 and 2) installed on Rib 23 (3).
- (c) Use the applicable diameter drill and remove the rivets (Ref. Table 1 and Ref. Fig. 3) (Ref. SRM, 51-00-04) from the wing lower-inner skin, (5) to get access to inner anchor nuts (1 and 2) installed adjacent to Rib 23 (3).
- (d) Clean the work area with absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010).

(3) Replacement (Ref. Fig. 2)

- (a) Use the applicable diameter drill (Ref. SRM, 51-00-04) and remove and discard the anchor nuts (1 and 2).
- (b) Put the wing lower-outer skin (4) and the wing lower-inner skin (5) in position.
- (c) Use gripper pins (or equivalent) to hold the wing lower-outer skin (4) and the wing lower-inner skin (5) in position.
- (d) Put the aileron outboard-bearing support (6) and aileron trim shims (if installed) in position on the wing.

- (e) Use gripper pins (or equivalent) to hold the aileron outboard-bearing support (6) and aileron trim shims (if installed) in position.

NOTE: Make sure you install the aileron trim shims in the positions noted in Para. 3.C.(2)(a)4.

- (f) Ream the attachment holes of the forward and aft aileron outboard-bearing support with the 4,9 mm (tolerance: - 0,0 + 0,012 mm) reamer.

NOTE: Do not remove more than one gripper pin (or equivalent) at a time.

- (g) Ream the FWD aileron outboard-bearing support attachment holes with the 5,0 mm (tolerance: - 0,0 + 0,012 mm) reamer.

NOTE: Do not remove more than one gripper pin (or equivalent) at a time.

- (h) Remove the gripper pins (or equivalent) from the aileron outboard-bearing support (6) and remove the outboard-bearing support and shims (if installed).

- (i) Ream the attachment holes (in the aircraft structure only) of the AFT aileron outboard-bearing support with the 5,0 mm (tolerance: - 0,0 + 0,012 mm) reamer.

NOTE: Do not remove more than one gripper pin (or equivalent) at a time.

- (j) Remove the gripper pins (or equivalent) from the wing lower-outer skin (4) and the wing lower-inner skin (5).

- (k) Clean the work area with absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010).

- (l) Apply a layer of the Alodine 1132 (Material No. P07-021) to all the bare metal surfaces.

NOTE: Do not apply Alodine 1132 (Material No. P07-021) to the surfaces of the attachment holes in the forward and aft aileron outboard-bearing support.

- (m) When the Alodine 1132 (Material No. P07-021) is dry, apply a layer of the primer (Material No. P07-007) to the Alodine 1132 (Material No. P07-021).

- (n) Install the anchor nuts (1 and 2) with the rivets (MS20426AD3) (Ref. SRM, 51-00-04).

NOTE: Rivet length to be determined on installation.

- (o) Remove all the tools and materials from the work area.

(4) Assembly (Ref. Fig. 2 and Fig. 3)

- (a) Put the wing lower-outer skin (4) and the wing lower-inner skin (5) in position.
- (b) Use gripper pins (or equivalent) to hold the wing lower-outer skin (4) and the wing lower-inner skin (5) in position.

- (c) Install the rivets (refer to Table 1 and Figure 3 for the rivet installation data).

IDENT	DESCRIPTION	Qty	REMARKS
1	Rivet - Cherrymax (CR3223-4-1)	65	Pilatus P/N 939.19.86.101
2	Rivet – Cherrymax (CR3222-4-2)	6	Pilatus P/N 939.31.86.102
3	Rivet – Cherrymax (CR3214-4-1)	30	Pilatus P/N 939.31.86.300
4	Rivet – Solid Univ HD (MS20470-AD3)	32	Rivet length to be determined on installation

Table 1 - Rivet Installation Data

- (d) Apply a layer of the corrosion preventative (Material No. P04-012) to the plain shanks of the bolts (9 and 10).
- (e) Install the aileron outboard-bearing support:
- 1 Put the aileron outboard-bearing support (6) and aileron trim shims (if installed) in position.

NOTE: Make sure you install the aileron trim shims in the positions noted in Para. 3.C.(2)(a)4.
 - 2 Install the bolts:
 - a Put the washers (8) and, if applicable, the bonding strap (7) on the bolts (9).
 - b Put the bolts (9) into the hole and turn the bolts (9) with your fingers until you can feel it has engaged the thread of the anchor nut (2).
 - c Continue to turn the bolts (9) with a torque wrench and measure the torque necessary to turn the bolts (9).

NOTE: This is known as the “run-down torque”.
 - d Add the run-down torque calculated in Para. 3.C.(4)(e)2c to 2.3 and 2.9 Nm (20 and 25 lb in.).
 - e Torque the bolts (9) to the torque calculated in Para. 3.C.(4)(e)2d.
 - f Put the washers (11) on the bolts (10).
 - g Put the bolts (10) into the hole and turn the bolts (10) with your fingers until you can feel it has engaged the thread of the anchor nuts (1).
 - h Continue to turn the bolts (10) with a torque wrench and measure the torque necessary to turn the bolts (10).

NOTE: This is known as the “run-down torque”.
 - i Add the run-down torque calculated in Para. 3.C.(4)(e)2h to 2.3 and 2.9 Nm (20 and 25 lb in.).

j Torque the bolts (10) to the torque calculated in Para. 3.C.(4)(e)2i.

- (f) Clean the work area with absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010).
- (g) Apply a layer of the primer (Material No. P07-007) to all the rivet heads (Ref. SRM, 51-00-07).
- (h) Repair the aircraft paint finish (Ref. SRM, 51-00-07).

(5) Close Up

- (a) Install the aileron (Ref. AMM, 27-10-01, Page Block 401).
- (b) Remove all the tools, materials and equipment from the work area. Make sure the work areas are clean.

D. Close up

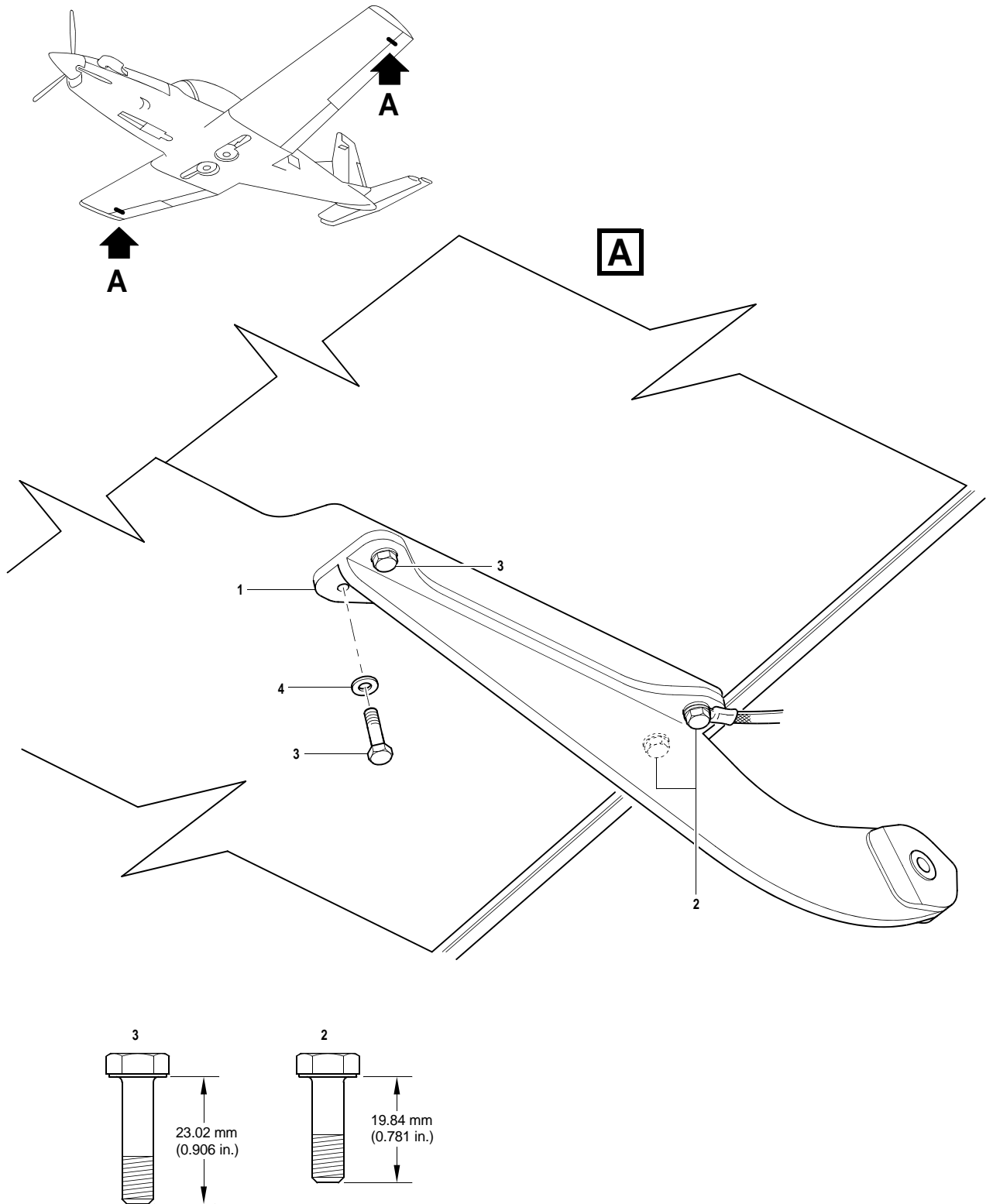
- (1) Remove the safety clips and close these circuit breakers:

CONTROLS - TRIM - AIL/ELEV.

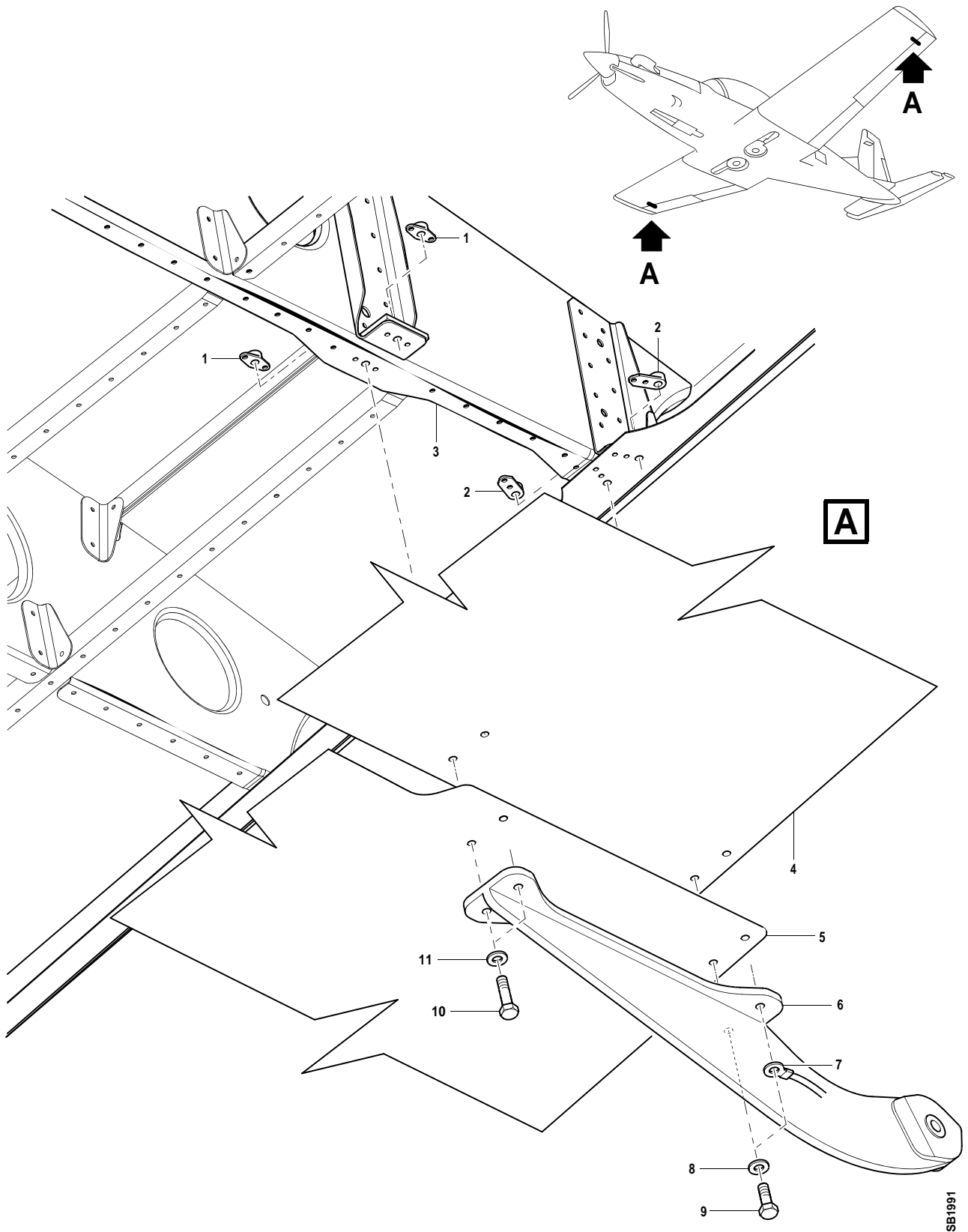
- (2) Remove the warning signs from the front and rear cockpits.

E. Documentation

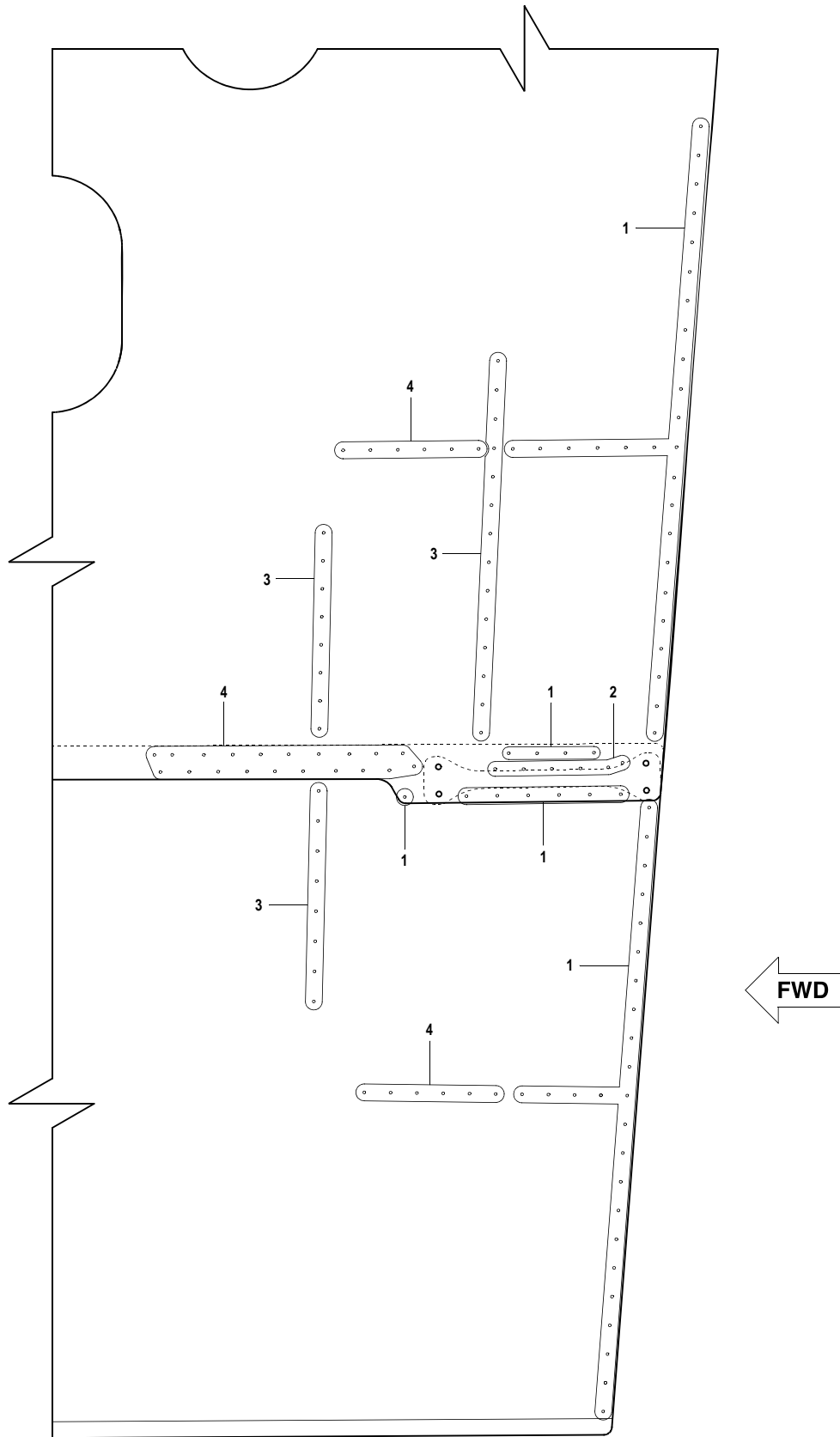
- (1) Make an entry in the Aircraft Logbook that this Service Bulletin has been incorporated.
- (2) Use the Service Bulletin Evaluation Sheet to report your results and the serial number of the modified aircraft to PILATUS.



Inspection of the Attachment Bolts and Anchor Nuts
Figure 1



Repair - Replacement of the Attachment Bolts and Anchor Nuts
Figure 2



Rivet Installation Data
Figure 3

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SERVICE BULLETIN EVALUATION SHEET FOR SB No. 57-0151.			
Title	Wing - Aileron Installation Inspection of the Aileron Outboard-Bearing Support		
Customer			
Service Center			
EMBODIMENT REPORTING			
This SB has been embodied:		<input type="checkbox"/>	On the entire fleet
		<input type="checkbox"/>	Only partially
Provide embodiment details per aircraft (use additional copies of this table, if necessary)			
MSN	Flying Hours	MSN	Flying Hours
Additional embodiment comments/findings			
EDITORIAL COMMENTS (procedure, kit quality, suggested improvements, etc.)			
Name	Signature	Date	
Please complete and forward this form to: Pilatus Aircraft LTD, Customer Technical Support (MCC), P.O. BOX 992, 6371 Stans, Switzerland Fax: +41 (0)41 619 6773 Email: Techsupport@pilatus-aircraft.com			

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