

Service Bulletin No: 53-019

Ref No: 113

Modification No: EC-15-0854

ATA Chapter: 53

**FUSELAGE - MAIN FRAMES
REPLACE THE LEFT AND / OR RIGHT FRAME 11 FITTINGS****1. Planning Information****A. Effectivity**

MSN 605 and MSN 617 thru MSN 670.

B. Concurrent Requirements

None.

C. Reason**(1) Problem**

A mandatory crack inspection of the left and right FR11 fittings (known hereafter as "fittings"), P/N 112.35.07.489 and P/N 112.35.07.490, made from AA2024-T351 could require a replacement of the left and / or right FR11 fittings.

(2) Cause

The cause of the cracks is stress corrosion.

(3) Solution

Replace the fittings with new items made from material with an increased resistance to stress corrosion cracking.

NOTE: If you replace the left and / or right FR11 fittings in accordance with this Service Bulletin, the requirement for the repetitive mandatory inspections is cancelled.

D. Description

This Service Bulletin gives the data and instructions necessary to replace the fittings.

E. Compliance

Highly recommended.

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 designated 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
Preparation (Inc. Removal of Horizontal Stabilizer)	5.0
Replacement of the Fittings	7.0
Close up (Inc. Installation of Horizontal Stabilizer)	7.0
TOTAL MAN-HOURS	19.0

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

I. Weight and Balance**(1) Weight Change**

None.

(2) Moment Change

None.

J. Electrical Load Data

Not changed.

K. Software

Not changed.

L. References

Aircraft Maintenance Manual (AMM): 20-31-00, 25-10-00, 27-00-00, 27-30-00, 55-10-00.

Structural Repair Manual (SRM): 51-10-02, 51-40-00

M. Publications Affected

None.

N. Interchangeability of Parts

One way interchangeable. Pre Service Bulletin left and right FR11 fittings (P/N 112.35.07.489 and P/N 112.35.07.490) must not be installed on Post Service Bulletin aircraft.

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

Modification Kit 500.50.09.270 is necessary to do this Service Bulletin.

Operators who require further information on Price and Availability should contact their Customer Liaison Manager at:

Pilatus Aircraft Ltd,
6371 Stans,
Switzerland.

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.

NOTE: When you order the modification kit from Pilatus Aircraft Ltd, you will also get a parts list. Use the numbers in column 1 (Pos.) to identify the parts in the kit (Ref. Para. 2.B.(1), Column 1).

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

Modification Kit No. 500.50.09.270.

The table below lists the parts in the Modification Kit (Ref. Para. 2.A.) and the disposition of the replaced parts:

POS. NO.	DESCRIPTION	OLD PART NO.	QTY	DISP. CODE	FIG	ITEM
1	LEFT FITTING	112.35.07.489	1	D	1	4
2	RIGHT FITTING	112.35.07.490	1	D	1	3
3	BOLT	932.19.21.027	2	D	1	1 6
4	WASHER	938.77.11.112	2	D	1	2 5

Disposition Codes: D - Discard

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

MATERIAL NO.	DESCRIPTION	QTY	REMARKS
P01-010	SOLVENT	A/R	Or equivalent
P02-031	ABSORBENT PAPER	A/R	Or equivalent
P07-021	ALODINE 1132	A/R	Or equivalent
P08-071	SEALANT	A/R	Or equivalent

MATERIAL NO.	DESCRIPTION	QTY	REMARKS
P08-073	SEALANT	A/R	Or equivalent
939.19.80.100	RIVET (AD 42 SB)	A/R	Position to be determined on installation
939.19.80.101	RIVET (AD 44 SB)	A/R	Position to be determined on installation
938.07.68.305	NUT	A/R	Fig. 1, Items (7) and (15)
938.07.68.303	NUT	A/R	Fig. 1, Item (1)
-	PLASTIC SCRAPER	A/R	
-	RIVET (MS20470AD4)	A/R	Length to be determined on installation
-	RIVET (MS20470AD5)	A/R	Length to be determined on installation
-	CHERRYMAX RIVET (CR3223-5)	A/R	Length to be determined on installation

C. Material Necessary for Each Spare

None.

D. Re-identified Parts

None.

E. Tooling - Cost and Availability

None.

3. Accomplishment Instructions

WARNING: BEFORE YOU GO INTO THE COCKPIT, MAKE SURE THAT BOTH EJECTION SEATS HAVE THE SAFETY PINS INSTALLED IN THE SAFE FOR SERVICING LOCATIONS (REF. AMM, 25-10-00, PAGE BLOCK 201).

WARNING: OBEY THE SAFETY PRECAUTIONS GIVEN IN THE AMM, 27-00-00, PAGE BLOCK 201 WHEN YOU DO WORK ON THE FLIGHT CONTROL SYSTEM.

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

NOTE: Obey the manufacturer's instructions when you mix and use the consumable materials.

NOTE: The left and right FR11 fittings are referred to as "fittings".

A. Preparation

- (1) Put warning signs (DO NOT OPERATE THE FLIGHT CONTROLS) in the front and rear cockpits.
- (2) Remove the horizontal stabilizer (Ref. AMM, 55-10-00, Page Block 401).
- (3) For better access, you can remove the elevator rear control-rod as follows (Ref. Fig. 1):
 - (a) Remove the nut (1), the washer (2), the bonding strap (3) and the screw (5). Discard the nut (1).
 - (b) Disconnect the bonding strap (3) from the loop clamp (4).
 - (c) Move the bonding strap (3) clear of the elevator rear control-rod (9).
 - (d) Remove the nut (7), the washers (8) and (10) and the bolt (11). Discard the nut (7).
 - (e) Move the elevator-rear control-rod (9) clear of the rear lever assembly (6).
 - (f) Remove the nut (15), the washer (14) and bolt (13). Discard the nut (15).
 - (g) Move the elevator-rear control-rod (9) clear of the lever assembly (12).
 - (h) Remove the elevator-rear control-rod (9) from the aircraft.
 - (i) Use the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010) to clean:
 - The bolts (11) and (13)
 - The washers (8), (10) and (14).

B. Replacement of the Fittings (Ref. Fig. 2)**(1) Replace the Left Fitting**

NOTE: Replace the fitting if it was found to be made from AA2024-T351 during accomplishment of Service Bulletin 53-018. Those made from AA2124-T851 do not need to be replaced.

(a) General Procedure for the Removal of Rivets:

CAUTION: BE CAREFUL NOT TO CAUSE DAMAGE TO THE ADJACENT STRUCTURE WHEN RIVETS ARE REMOVED.

CAUTION: MAKE SURE YOU DRILL AT CENTER OF THE RIVET AND PERPENDICULAR TO THE SURFACE AT ALL TIMES.

- 1 Center punch the center of the manufactured rivet head with a center punch or equivalent.
- 2 Use a drill that is the sufficiently smaller than the diameter of the rivet shank but large enough to let the rivet head be broken-off.
- 3 Use a suitable size punch and break off the rivet head.
- 4 If there is access, support the upset head side of the structure, adjacent to the rivet.
- 5 Use a parallel punch, that you can easily install in the hole in the rivet, and remove the rivet.
- 6 If you cannot remove the rivet, use the next size smaller drill and drill 50% through the rivet.
- 7 Use a parallel punch, that you can easily install in the hole in the rivet, and remove the rivet.
- 8 If you cannot remove the rivet, use the drill (Ref. Step 3.B.(1)(a)6) and continue to drill approximately 70% through the rivet, then use the parallel punch (Ref. Step 3.B.(1)(a)7) to remove the rivet.

(b) Remove the horizontal strake:

- 1 Use the correct size diameter drill and carefully drill out all of the rivets that attach the horizontal strake to the fuselage skin (Ref. Step 3.B.(1)(a)).
- 2 Remove the horizontal strake.
- 3 Remove the swarf and the loose articles from the work area.
- 4 Remove the remaining adhesive from the horizontal strake and the fuselage skin.
- 5 Make sure that there is no damage to the paint finish of the fuselage skin. If necessary, repair the damage (Ref. SRM, 51-10-02).

- 6 Clean the surface areas with absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-010).
- (c) Use the correct size diameter drill and remove the twelve rivets that attach the fitting (4) to aircraft structure. Remove the rivets in this order:
- 1 Remove the rivets that attach the fitting (4) to the top panel.
 - 2 Remove the rivets that attach the fitting (4) to the side panel.
 - 3 Remove the rivets that attach the fitting (4) to FR11.
- (d) Give support to the fitting (4) and remove the bolt (6) and the washer (5).
- (e) Remove the fitting (4).
- (f) Use the plastic scraper, then the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010) to remove the old unwanted sealant.
- (g) Put the new fitting (4) (Pos. No. 1) in position and hold with the new bolt (6) (Pos. No. 3) and the new washer (5) (Pos. No. 4).
- (h) Make sure the new fitting (4) (Pos. No. 1) is a good fit in the aircraft structure.
- (i) Use clamps (or equivalent) to hold the new fitting (4) (Pos. No. 1) to the fuselage structure.
- (j) Drill 3,3 mm (0.13 in.) holes in the new fitting (4) (Pos. No. 1) for the rivets A. Do this through the holes in the side panel skin.
- NOTE:** Make sure the drill is perpendicular to the aircraft structure before you drill the holes.
- (k) Use a center punch and make marks in the new fitting (4) (Pos. No. 1) to show the center for the rivets B.
- (l) Remove the new bolt (6) (Pos. No. 3) and the new washer (5) (Pos. No. 4).
- (m) Remove the clamps (or equivalent).
- (n) Remove the new fitting (4) (Pos. No. 1).
- (o) Use a pillar drill (or equivalent) and a 4,1 mm (0.16 in.) drill to drill the holes in the new fitting (4) (Pos. No. 1) for the rivets B.
- NOTE:** Make sure the drill is perpendicular to the new fitting (4) (Pos. No. 1) before you drill the holes.
- (p) Deburr all the rivet holes in the new fitting (4) (Pos. No. 1) and the aircraft structure.
- (q) Apply a layer of the Alodine 1132 (Material No. P07-021) to the rivet holes in the new fitting (4) (Pos. No. 1) and the aircraft structure.
- (r) Apply a layer of sealant (Material No. P08-073) on the mating and top surfaces of the new fitting (4) (Pos. No. 1).

(s) Install the new fitting (4) (Pos. No. 1):

- 1 Put the new fitting (4) (Pos. No. 1) in position and hold with the new bolt (6) (Pos. No. 3) and the new washer (5) (Pos. No. 4). Use gripper pins (or equivalent) through the rivet holes in the aircraft structure to help hold the new fitting (4) (Pos. No. 1) in position.

Rivet	Description	Clearance Diameter	Drill No.
A	Rivet - Solid Universal (MS20470AD4)	3,3 mm (0.13 in.)	30
B	Rivet - Solid Universal (MS20470AD5)	4,1 mm (0.16 in.)	20
C	Rivet - Cherrymax (CR3223AD5)	4,1 mm (0.16 in.)	20

Table 1: Rivet Data

NOTE: Rivet lengths are to be determined during installation.

2 Install the rivets (Ref. SRM 51-40-00). Install the rivets in this order:

- a Install the rivets that attach the new fitting (4) (Pos. No. 1) to FR11.
- b Install the rivets that attach the new fitting (4) (Pos. No. 1) to the side panel.
- c Install the rivets that attach the new fitting (4) (Pos. No. 1) to the top panel.

NOTE: A Cherrymax rivet (CR3223AD5 - length are to be determined during installation) can be used for the most outboard rivet that attaches the new fitting (4) (Pos. No. 1) to the top panel, on the side of FR11 (Ref. Fig. 2).

- 3 Apply a layer of sealant (Material No. P08-073) on each rivet before you install it.
- 4 Use the unwanted sealant (Material No. P08-073) to make a fillet around the edges of the new fitting (4) (Pos. No. 1). If necessary, use more of the sealant (Material No. P08-073).
- 5 Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-010) to remove unwanted sealant.
- 6 Remove the unwanted material, the swarf and the old rivet tails from inside the rear fuselage.

(t) Install the horizontal strake:

- 1 Apply sealant (Material No. P08-073) to the mating surfaces of the horizontal strake and the fuselage skin.
- 2 Put the horizontal strake in position and hold it with gripper pins (or equivalent).
- 3 Apply a layer of sealant (Material No. P08-073) on each rivet before you install it.

- 4 Install the applicable rivets (P/N 939.19.80.100 and 939.19.80.101).

NOTE: Rivet length to be determined on installation.

- 5 Apply a bead of sealant (Material No. P08-071) to the edges of the horizontal strake.

- 6 Use the absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-010) and remove unwanted sealant.

(2) Replace the Right Fitting

NOTE: Replace the fitting if it was found to be made from AA2024-T351 during accomplishment of Service Bulletin 53-018. Those made from AA2124-T851 do not need to be replaced.

- (a) General Procedure for the Removal of Rivets:

CAUTION: BE CAREFUL NOT TO CAUSE DAMAGE TO THE ADJACENT STRUCTURE WHEN RIVETS ARE REMOVED.

CAUTION: MAKE SURE YOU DRILL AT CENTER OF THE RIVET AND PERPENDICULAR TO THE SURFACE AT ALL TIMES.

- 1 Center punch the center of the manufactured rivet head with a center punch or equivalent.
- 2 Use a drill that is the sufficiently smaller than the diameter of the rivet shank but large enough to let the rivet head be broken-off.
- 3 Use a suitable size punch and break off the rivet head.
- 4 If there is access, support the upset head side of the structure, adjacent to the rivet.
- 5 Use a parallel punch, that you can easily install in the hole in the rivet, and remove the rivet.
- 6 If you cannot remove the rivet, use the next size smaller drill and drill 50% through the rivet.
- 7 Use a parallel punch, that you can easily install in the hole in the rivet, and remove the rivet.
- 8 If you cannot remove the rivet, use the drill (Ref. Step 3.B.(2)(a)6) and continue to drill approximately 70% through the rivet, then use the parallel punch (Ref. Step 3.B.(2)(a)7) to remove the rivet.

- (b) Remove the horizontal strake:

- 1 Use the correct size diameter drill and carefully drill out all of the rivets that attach the horizontal strake to the fuselage skin (Ref. Step 3.B.(2)(a)).
- 2 Remove the horizontal strake.
- 3 Remove the swarf and the loose articles from the work area.

- 4 Remove the remaining adhesive from the horizontal strake and the fuselage skin.
 - 5 Make sure that there is no damage to the paint finish of the fuselage skin. If necessary, repair the damage (Ref. SRM, 51-10-02).
 - 6 Clean the surface areas with absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-010).
- (c) Use the correct size diameter drill and remove the twelve rivets that attach the fitting (3) to aircraft structure. Remove the rivets in this order:
- 1 Remove the rivets that attach the fitting (3) to the top panel.
 - 2 Remove the rivets that attach the fitting (3) to the side panel.
 - 3 Remove the rivets that attach the fitting (3) to FR11.
- (d) Give support to the fitting (3) and remove the bolt (1) and the washer (2).
- (e) Remove the fitting (3).
- (f) Use the plastic scraper, then the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010) to remove the old unwanted sealant.
- (g) Put the new fitting (3) (Pos. No. 2) in position and hold with the new bolt (1) (Pos. No. 3) and the new washer (2) (Pos. No. 4).
- (h) Make sure the new fitting (3) (Pos. No. 2) is a good fit in the aircraft structure.
- (i) Use clamps (or equivalent) to hold the new fitting (3) (Pos. No. 2) to the fuselage structure.
- (j) Drill 3,3 mm (0.13 in.) holes in the new fitting (3) (Pos. No. 2) for the rivets A. Do this through the holes in the side panel skin.
- NOTE:** Make sure the drill is perpendicular to the aircraft structure before you drill the holes.
- (k) Use a center punch and make marks in the new fitting (3) (Pos. No. 1) to show the center for the rivets B.
- (l) Remove the new bolt (1) (Pos. No. 3) and the new washer (2) (Pos. No. 4).
- (m) Remove the clamps (or equivalent).
- (n) Remove the new fitting (3) (Pos. No. 2).
- (o) Use a pillar drill (or equivalent) and a 4,1 mm (0.16 in.) drill to drill the holes in the new fitting (3) (Pos. No. 2) for the rivets B.
- NOTE:** Make sure the drill is perpendicular to the new fitting (3) (Pos. No. 2) before you drill the holes.
- (p) Deburr all the rivet holes in the new fitting (3) (Pos. No. 2) and the aircraft structure.

- (q) Apply a layer of the Alodine 1132 (Material No. P07-021) to the rivet holes in the new fitting (3) (Pos. No. 2) and the aircraft structure.
- (r) Apply a layer of sealant (Material No. P08-073) to the mating and top surfaces of the new fitting (3) (Pos. No. 2).
- (s) Install the new fitting (3) (Pos. No. 2):
 - 1 Put the new fitting (3) (Pos. No. 2) in position and hold with the new bolt (1) (Pos. No. 3) and the new washer (2) (Pos. No. 4). Use gripper pins (or equivalent) through the rivet holes in the aircraft structure to help hold the new fitting (3) (Pos. No. 2) in position.

Rivet	Description	Clearance Diameter	Drill No.
A	Rivet - Solid Universal (MS20470AD4)	3,3 mm (0.13 in.)	30
B	Rivet - Solid Universal (MS20470AD5)	4,1 mm (0.16 in.)	20
C	Rivet - Cherrymax (CR3223AD5)	4,1 mm (0.16 in.)	20

Table 1: Rivet Data

NOTE: Rivet lengths are to be determined during installation.

- 2 Install the rivets (Ref. SRM 51-40-00). Install the rivets in this order:
 - a Install the rivets that attach the new fitting (3) (Pos. No. 2) to FR11.
 - b Install the rivets that attach the new fitting (3) (Pos. No. 2) to the side panel.
 - c Install the rivets that attach the new fitting (3) (Pos. No. 2) to the top panel.

NOTE: A Cherrymax rivet (CR3223AD5 - length are to be determined during installation) can be used for the most outboard rivet that attaches the new fitting (3) (Pos. No. 2) to the top panel, on the side of FR11 (Ref. Fig. 2).
- 3 Apply a layer of sealant (Material No. P08-073) on each rivet before you install it.
- 4 Use the unwanted sealant (Material No. P08-073) to make a fillet around the edges of the new fitting (3) (Pos. No. 2). If necessary, use more of the sealant (Material No. P08-073).
- 5 Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-010) to remove unwanted sealant.
- 6 Remove the unwanted material, the swarf and the old rivet tails from inside the rear fuselage.
- (t) Install the horizontal strake:
 - 1 Apply sealant (Material No. P08-073) to the mating surfaces of the horizontal strake and the fuselage skin.

- 2 Put the horizontal strake in position and hold it with gripper pins (or equivalent).
- 3 Apply a layer of sealant (Material No. P08-073) on each rivet before you install it.
- 4 Install the applicable rivets (P/N 939.19.80.100 and 939.19.80.101).

NOTE: Rivet length to be determined on installation.

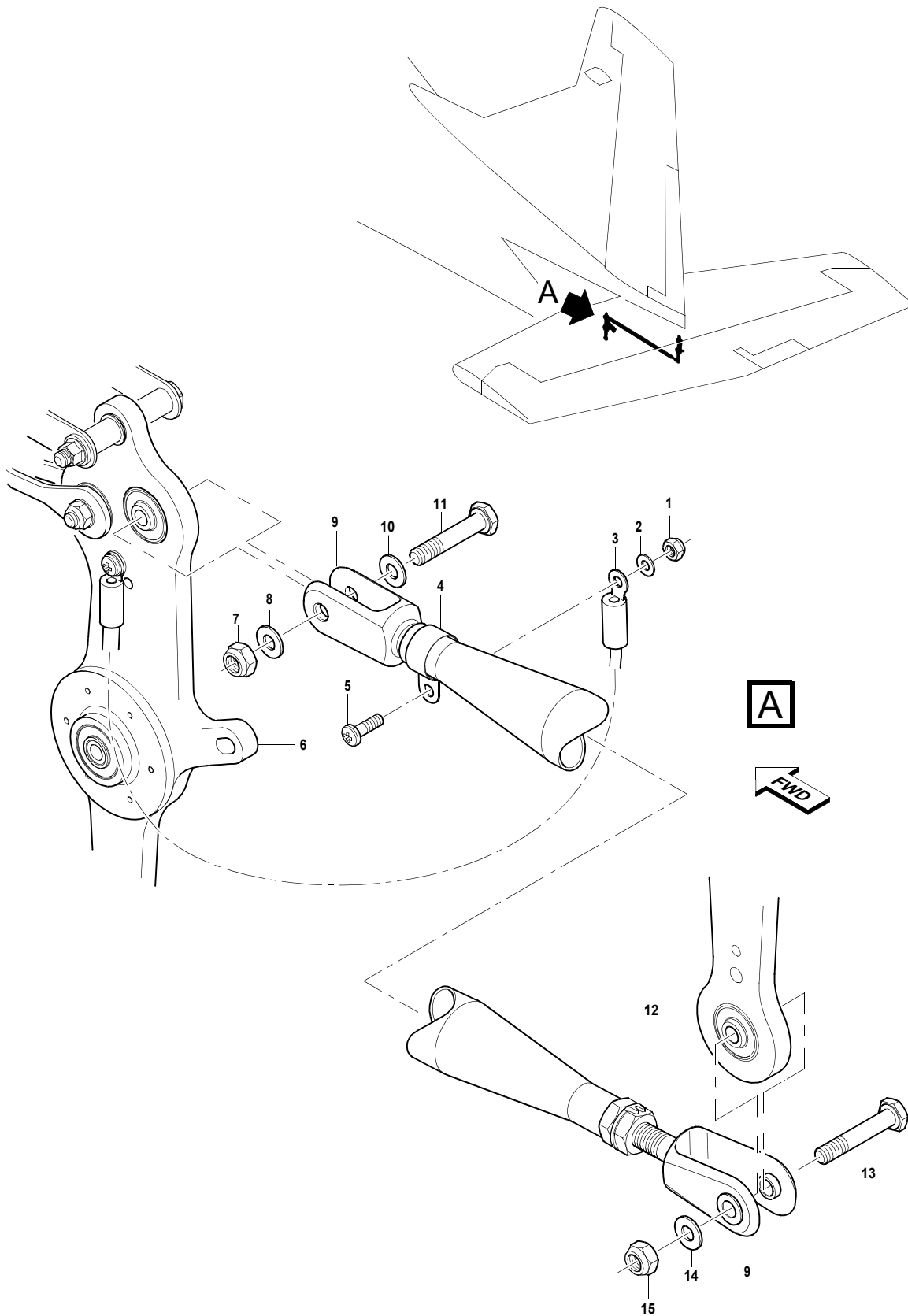
- 5 Apply a bead of sealant (Material No. P08-071) to the edges of the horizontal strake.
- 6 Use the absorbent paper (Material No. P02-031) made moist with solvent (Material No. P01-010) and remove unwanted sealant.

C. Job Close-Up

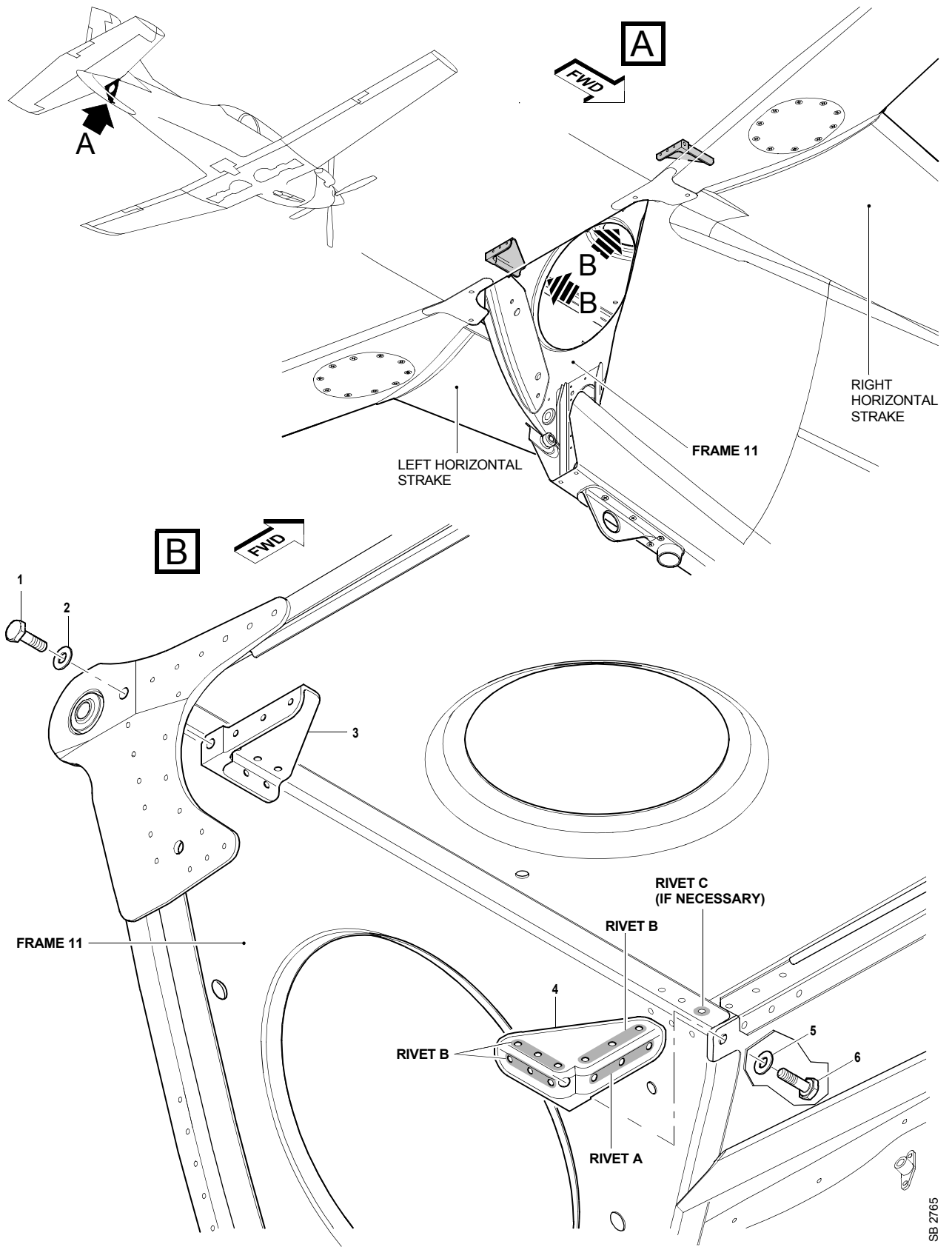
- (1) Remove all equipment, materials and tools from the work area. Make sure that the work area is clean.
- (2) Apply a layer of the primer (Material No. P07-007) to all rivet tails and heads and to parts where the surface finish has been removed.
- (3) When the primer (Material No. P07-007) is dry, apply a layer of the top coat paint (Material No. P07-022) to all rivet heads.
- (4) Install the horizontal stabilizer (Ref. AMM, 55-10-00, Page Block 401).
- (5) If necessary, install the elevator rear control-rod as follows (Ref. Fig. 1):
 - (a) Put the elevator rear control-rod (9) in position between the lever assemblies (6) and (12).
 - (b) Apply a layer of corrosion preventative (Material No. P04-039) to the shaft of the bolts (11) and (13).
 - (c) Install the bolt (13), the washer (14) and the new nut (15) (P/N 938.07.68.305).
 - (d) Install the bolt (11), the washers (10) and (8) and the new nut (7) (P/N 938.07.68.305).
 - (e) Put the screw (5) through the loop clamp (4).
 - (f) Put the bonding strap (3) and the washer (2) on the screw (5). Install the new nut (1) (P/N 938.07.68.303).
 - (g) Do the Adjustment /Test of the elevator controls (Ref. AMM, 27-30-00, Page Block 501).

D. Documentation

- (1) Make an entry in the Aircraft Logbook that this Service Bulletin has been incorporated.
- (2) Use the Service Bulletin Evaluation Sheet and report your results and the serial number of the aircraft to Pilatus.
- (3) On the Status of Parts Form in the Aircraft Logbook, write, in the last column, the new part number of the replaced FR11 fittings.



Removal / Installation of the Elevator-Rear Control-Rod
Figure 1



Frame 11 Fittings - Removal / Installation
Figure 2

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SERVICE BULLETIN EVALUATION SHEET FOR SB No. 53-019			
Title	Fuselage - Main Frames Replace the Left and / or Right Frame 11 Fittings		
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			

SERVICE BULLETIN EVALUATION SHEET

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