

Service Bulletin No: 53-018

Ref No: 112

Modification No: Inspection

ATA Chapter: 53

**FUSELAGE - MAIN FRAMES****DO A CHECK OF THE MATERIAL SPECIFICATION OF THE FRAME 11 FITTINGS AND, IF NECESSARY, DO A CHECK FOR CRACKS****1. Planning Information****A. Effectivity**

MSN 605 and MSN 617 thru MSN 670.

All FR 11 left fittings P/N 112.35.07.489 and right fittings P/N 112.35.07.490, held as spare or in stock.

**B. Concurrent Requirements**

None.

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

An operator reported Stress Corrosion Cracking (SCC) on the FR 11 left fitting P/N 112.35.07.489 and right fitting P/N 112.35.07.490 (known hereafter as "fittings").

**(2) Cause**

Initially the material specification of the parts was AA2024-T351.

**(3) Solution**

Do a one time inspection of the fittings to:

- (a) Check the material specification of the fittings.
- (b) If the fittings are made from AA2124-T851, make an entry in the aircraft logbook as required in paragraph 3.F.(3).
- (c) If the fittings are made from AA2024-T351, do a one time inspection with a borescope for cracks.
- (d) If cracks are found, do the recovery procedure.

**NOTE:** Mandatory inspections will be added to Chapter 5 of the Aircraft Maintenance Manual (AMM). The inspections will give instructions on how to examine the fittings for cracks. The inspections will only be applicable to parts made from AA2024-T351.

**NOTE:** Service Bulletin 53-019 gives instructions and data on how to replace the parts made from AA2024-T351. The new parts are made from AA2124-T851. Parts that are replaced with those made from AA2124-T851 will cancel the requirement for the mandatory repetitive inspections.

#### **D. Description**

This Service Bulletin gives the data and instructions necessary to:

- (1) Check the material specification of the FR 11 left and right fittings (P/N 112.35.07.489 and P/N 112.35.07.490).
- (2) If the fittings are made from AA2124-T851, make an entry in the aircraft logbook of the new part number.
- (3) If the fittings are made from AA2024-T351, do a one time inspection for cracks with a borescope and / or with eddy current equipment.

#### **E. Compliance**

Mandatory.

Accomplishment required not later than 120 days 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 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**

	<b>Man-Hours Material Specification</b>	<b>Man-Hours Borescope Inspection</b>	<b>Man-Hours Eddy Current Inspection</b>
Preparation	1.0		
Do the Test to Find the Material Specification	0.5		
Do the Crack Inspection with the Borescope		2.0	-
If necessary, do the Crack Inspection with the Eddy Current Equipment (Inc Removal / Installation of the Horizontal Stabilizer)			9.0
Report the Inspection Results	0.5		
Close-Up	1.0		
<b>TOTAL MAN-HOURS</b>	<b>3.0</b>	<b>2.0</b>	<b>9.0</b>

**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): 06-20-00, 20-31-00, 25-10-00, 55-10-00.

**M. Publications Affected**

AMM: 05-05-01, 05-12-01, 53-10-09.

Structural Repair Manual (SRM): 53-10-02.

**N. Interchangeability of Parts**

Not applicable.

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

Kit No. 500.60.09.146 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:** Kit No. 500.60.09.146 is the kit for the reference plates used to help identify the material specification of the suspect parts. One kit is required for each fleet of aircraft.

**NOTE:** This is the same kit used for the accomplishment of Service Bulletins 51-001 and 53-012. If you have the plates from that kit, you do not need to procure the kit again.

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

Kit No. 500.60.09.146 has these parts:

PART No.	DESCRIPTION	QTY	REMARKS
513.57.09.149	AA2024-T351 REFERENCE PLATE	1	
513.57.09.150	AA2124-T851 REFERENCE PLATE	1	

**NOTE:** One kit is required for each fleet of aircraft.

**(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
P04-039	CORROSION PREVENTATIVE COMPOUND (CPC)	A/R	If necessary
938.07.68.303	NUT	1	IPC Ref 27-30-01, Fig 02, If necessary
938.07.68.305	NUT	2	IPC Ref 27-30-01, Fig 02, If necessary

**C. Material Necessary for Each Spare**

Refer to Para. 4.

**D. Re-identified Parts**

If the fittings, either installed on the aircraft or held as spare, are made from AA2124-T851, their part numbers will change as follows:

DESCRIPTION	OLD PART NUMBER	RE-IDENTIFIED PART NUMBER
FRAME 11 LEFT FITTING	112.35.07.489	553.10.09.869
FRAME 11 RIGHT FITTING	112.35.07.490	553.10.09.870

**E. Tooling - Cost and Availability**

PART No.	DESCRIPTION	QTY	REMARKS
-	EDDY-CURRENT EQUIPMENT WITH CONDUCTIVITY MEASUREMENT PROBE OR	1	Local supply
-	CONDUCTIVITY MEASUREMENT EQUIPMENT	1	Local supply
-	BORESCOPE (MINIMUM X 10)	1	Local supply

**NOTE:** Because of the difficult access, Pilatus recommends that the maximum diameter of the measurement probe is 3,15 mm (0.124 in.).

**3. Accomplishment Instructions - On Aircraft**

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

**WARNING:** READ AND OBEY THE MANUFACTURERS HEALTH INSTRUCTIONS BEFORE YOU USE THE CONSUMABLE MATERIALS.

**A. Preparation**

- (1) Remove the access panels F13 and F14 (Ref. AMM, 06-20-00, Page Block 1).
- (2) Put a warning sign "DO NOT OPERATE THE FLIGHT CONTROLS" in the front and rear cockpits.
- (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).
- (4) Obey the manufacturer's operating instructions and calibrate the conductivity measurement equipment.
- (5) Put the eddy current probe in position on the reference plates (P/N 513.57.09.149 and P/N 513.57.09.150).
- (6) Record the value shown on the test equipment.

**NOTE:** The temperature of these parts must be approximately the same:

- The left fitting (P/N 112.35.07.489)
- The right fitting (P/N 112.35.07.490)
- The reference plates (P/N 513.57.09.149 and P/N 513.57.09.150).

**B. Do the Test to Find the Material Specification (Ref. Fig. 2)**

**NOTE:** Only personnel that are qualified and authorized by their delegated Airworthiness Authorities are allowed to do this test.

**NOTE:** Because of the access, Pilatus recommends that the conductivity probe has a maximum diameter of approximately 3,15 mm (0.124 in.).

(1) For the left fitting (1) (P/N 112.35.07.489):

(a) Remove the dirt and grease from the test area with the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010).

**NOTE:** It is not necessary to remove the layers of surface protection (including paint) to do the test.

**NOTE:** The temperature of the fittings must be approximately the same as the reference plates (P/N 513.57.09.149 and P/N 513.57.09.150).

(b) Put the eddy current probe in position on the left fitting (1) (P/N 112.35.07.489).

**NOTE:** Do this through the hole on FR11. Use a torch and mirror to make sure the eddy current probe is in the correct position.

(c) Record the value shown on the test equipment.

(d) Compare the value recorded above with the values recorded in Step 3.A.(6) and determine if the fitting is manufactured from AA2024-T351 or AA2124-T851.

(e) Do Steps 3.B(1)(b) thru (d) again to make sure the result is the same.

(f) Make a note of the type of material that the left fitting (1) (P/N 112.35.07.489) is made from.

(2) Do Step 3.B.(1) of this Service Bulletin again on the right fitting (2) (P/N 112.35.07.490).

(3) If you find a left or right fitting made from AA2024-T351, continue this Service Bulletin from Step 3.C.

(4) If the left and right fittings are made from AA2124-T851, continue this Service Bulletin from Step 3.D.

**C. Do an Inspection to Find Cracks with the Borescope and / or Eddy Current (Ref. Fig. 3)**

**NOTE:** Step 3.C. is only applicable to fittings made from AA2024-T351.

**NOTE:** Only personnel that are qualified and authorized by their delegated Airworthiness Authorities are allowed to do this test.

**NOTE:** If you find cracks, you must replace the fitting before the next flight (Ref. Service Bulletin 53-019).

(1) Obey the manufacturer's instructions and use a borescope to examine the fitting from inside FR11 (looking AFT) for cracks (Ref. Fig. 3).

**NOTE:** Make sure you examine all the visible faces of the fittings.

- (2) If you find cracks, you must replace the fitting before the next flight (Ref. Service Bulletin 53-019). Make a copy of the Inspection Report Form (Ref. Fig. 4).
- (3) If you do not find cracks in the area examined in Step 3.C.(1):
  - (a) Remove the horizontal stabilizer (Ref. AMM, 55-10-00, Page Block 401).

**NOTE:** If you must remove the horizontal stabilizer (Ref. AMM, 55-10-00, Page Block 401), you could replace the fittings (Ref. SB 53-019). This will negate the repeat inspections (and removal of the horizontal stabilizer) every year.
  - (b) Obey the manufacturer's operating instructions and calibrate the eddy current equipment.
  - (c) Examine the area shown in Fig. 3 with the eddy current equipment.
- (4) If you find cracks, you must replace the fitting before the next flight (Ref. Service Bulletin 53-019). Make a copy of the Inspection Report Form (Ref. Fig. 4).
- (5) If you do not find cracks in the area examined in Steps 3.C.(1) and Step 3.C.(3), make a report of the inspection results, refer Step 3.D.

**D. Report the Inspection Results**

- (1) Make a copy of the Inspection Report Form (Ref. Fig. 4).
- (2) Complete the Inspection Report Form:
  - Give the date of the inspection.
  - Give the aircraft details.
  - Show the location(s) and dimensions of the crack(s) found (if applicable).
  - Add any comments.

**NOTE:** If there are no crack indications, use the Inspection Report Form to tell Pilatus Aircraft Ltd the aircraft details.
- (3) Add the part number of the fittings to the final column of the Status of Parts Form (Ref. Fig. 5).

**NOTE:** If the fittings are made from AA2024-T351, the part number will be the same as that entered in column 3. If the fittings are made from AA2124-T851, the part number will change as shown in Para. 2.D.
- (4) Send or fax the completed form(s) and a copy of the Status of Parts Form (Ref. Fig. 5) to Pilatus Customer Support.



**E. Job Close-Up**

- (1) Remove all equipment, materials and tools from the work area. Make sure that the work area is clean.
- (2) If necessary, install the horizontal stabilizer (Ref. AMM, 55-10-00, Page Block 401).
- (3) 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).
- (4) If necessary, install the access panels F13 and F14 (Ref. AMM, 06-20-00, Page Block 1).
- (5) Remove the warning signs from the front and rear cockpits.

**F. 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) Put the Status of Parts Form (Ref. Fig 5) in the Aircraft Logbook.

**NOTE:** If the fittings are made from AA2024-T351 but have no cracks, you will need to do repetitive inspections (Ref. AMM, Chapter 05). You will need this Form (Ref. Fig. 5) to tell you which fittings require the inspection.

**4. Accomplishment Instructions - FR11 Fittings Held as Spare or in Stock**

**NOTE:** This procedure is applicable to all fittings (P/N 112.35.07.489 and P/N 112.35.07.490) held as spare or in stock.

**A. Preparation**

- (1) Obey the manufacturer's operating instructions and calibrate the conductivity measurement equipment.
- (2) Put the eddy current probe in position on the reference plates (P/N 513.57.09.149 and P/N 513.57.09.150).
- (3) Record the value shown on the test equipment.

**NOTE:** The temperature of the fittings (P/N 112.35.07.489 and P/N 112.35.07.490) and the reference plates (P/N 513.57.09.149 and P/N 513.57.09.150) must be approximately the same.

**B. Do the Test to Find the Material Specification**

**NOTE:** Only personnel that are qualified and authorized by their delegated Airworthiness Authorities are allowed to do this test.

- (1) For a fitting (P/N 112.35.07.489 or P/N 112.35.07.490):

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

- (a) Remove the grease from the test area with the absorbent paper (Material No. P02-031) made moist with the solvent (Material No. P01-010).

**NOTE:** It is not necessary to remove the layers of surface protection (including paint) to do the test.

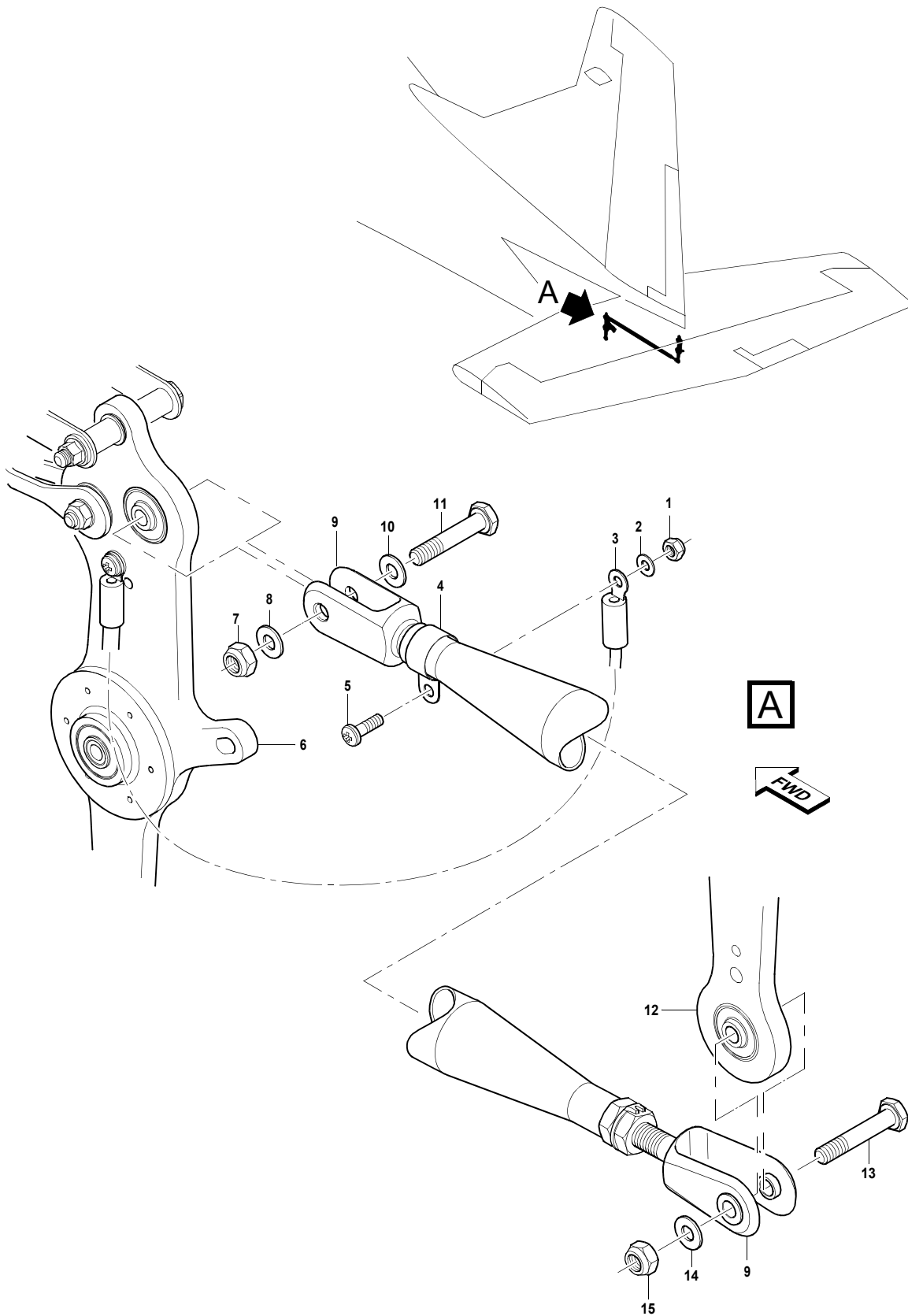
- (b) Put the eddy current probe in position on the fitting (P/N 112.35.07.489 or P/N 112.35.07.490).
- (c) Record the value shown on the test equipment.
- (d) Compare the value recorded above with the values recorded in Section 4.A.(3) and determine if the fitting (P/N 112.35.07.489 or P/N 112.35.07.490) is made from AA2024-T351 or AA2124-T851.
- (e) Do Steps 4.B(1)(b) thru (d) again to make sure the result is the same.
- (f) If the fitting (P/N 112.35.07.489 or P/N 112.35.07.490) is made from AA2024-T351, send it to Pilatus Customer Support. Pilatus will send a replacement fitting (P/N 553.10.09.689 or P/N 553.10.09.690) made from AA2124-T851.
- (g) If the fitting (P/N 112.35.07.489 or P/N 112.35.07.490) is made from AA2124-T851, re-identify the fitting (Ref. Para. 2.D.) with a permanent marker pen (or equivalent).

**C. Job Close-Up**

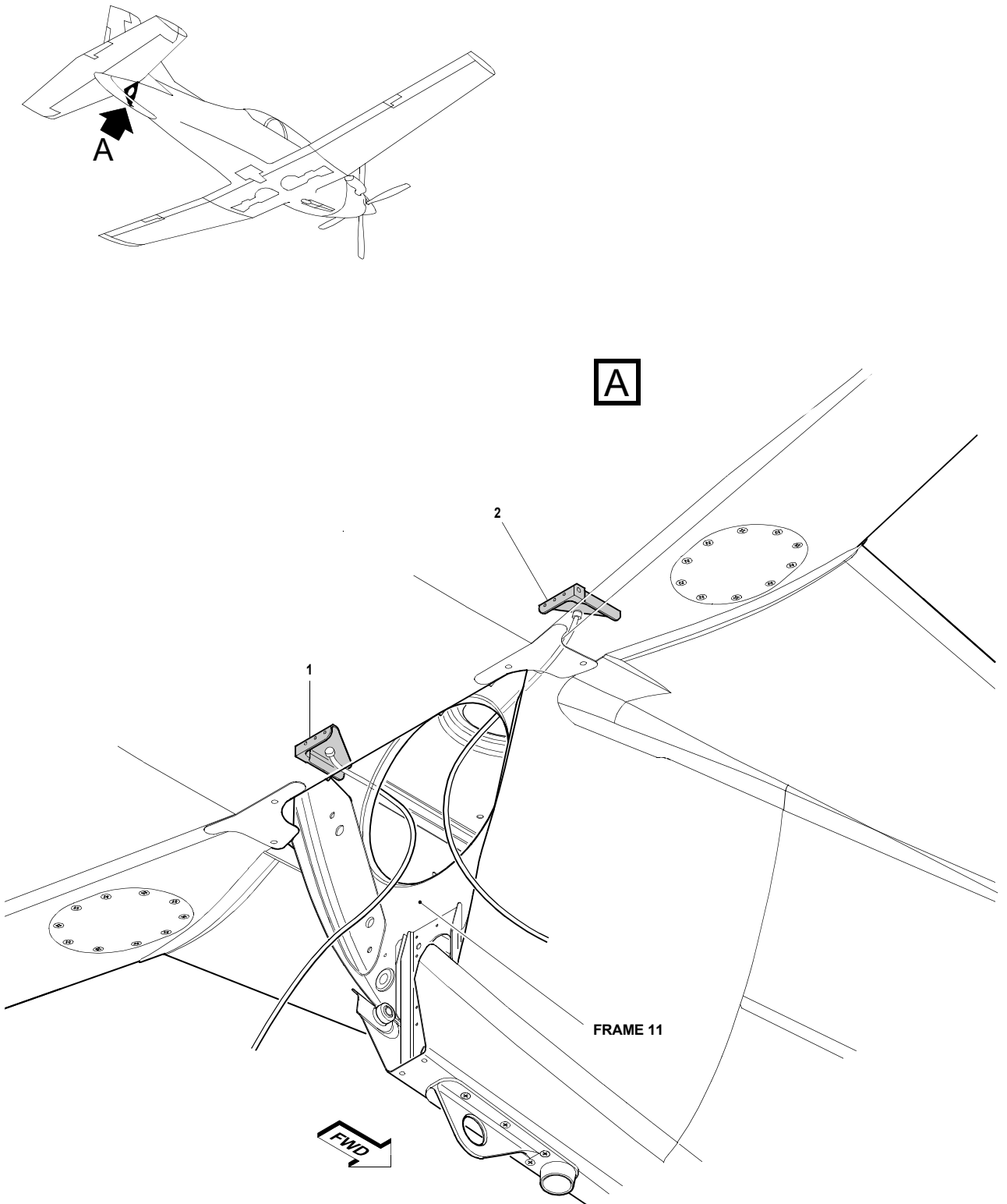
- (1) Return the fittings to stores.
- (2) Make sure the part number is correct and either:
  - P/N 553.10.09.689 (New) or P/N 553.10.09.869 (Re-identified)
  - P/N 553.10.09.690 (New) or P/N 553.10.09.870 (Re-identified).

**D. Documentation**

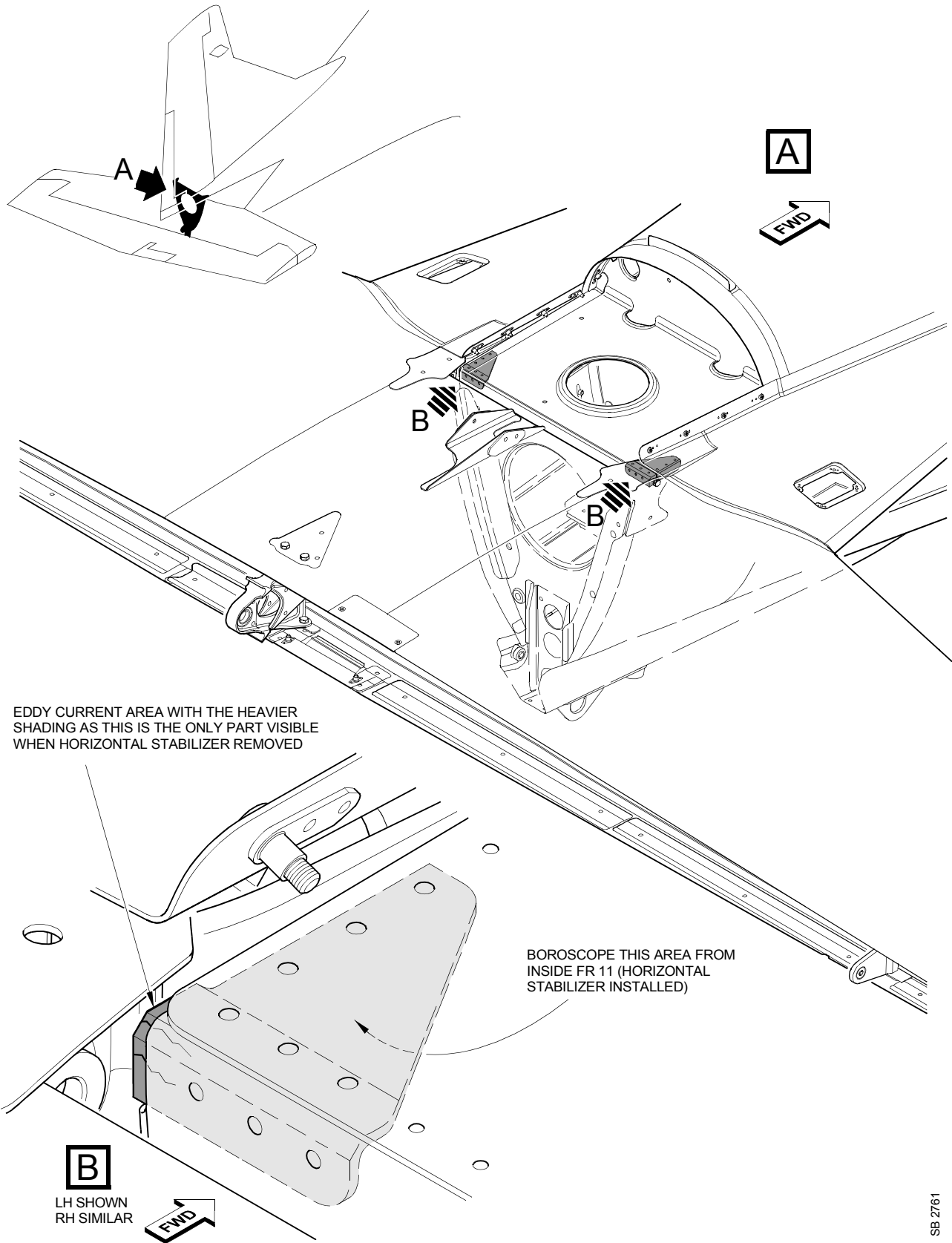
- (1) Make an entry on the serviceable label (attached to the fitting) that this Service Bulletin has been incorporated.
- (2) Use the Service Bulletin Evaluation Sheet and report your results to Pilatus.



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

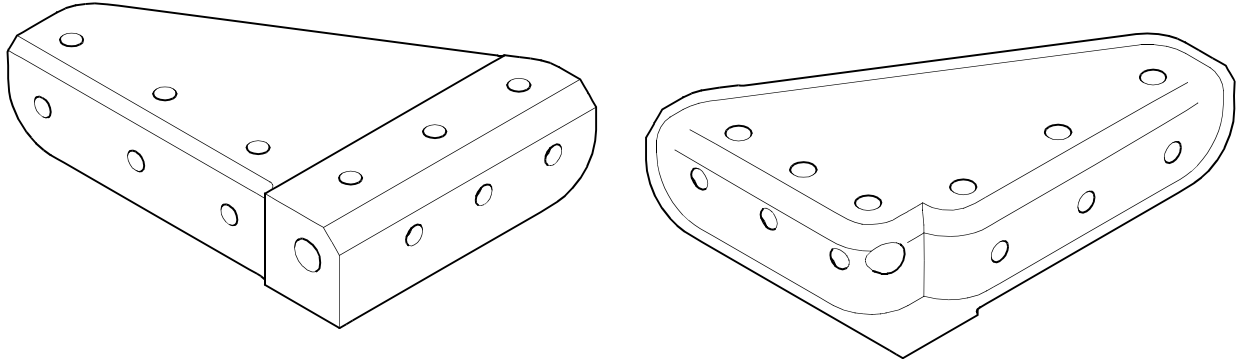


Check of the Material Specification  
Figure 2



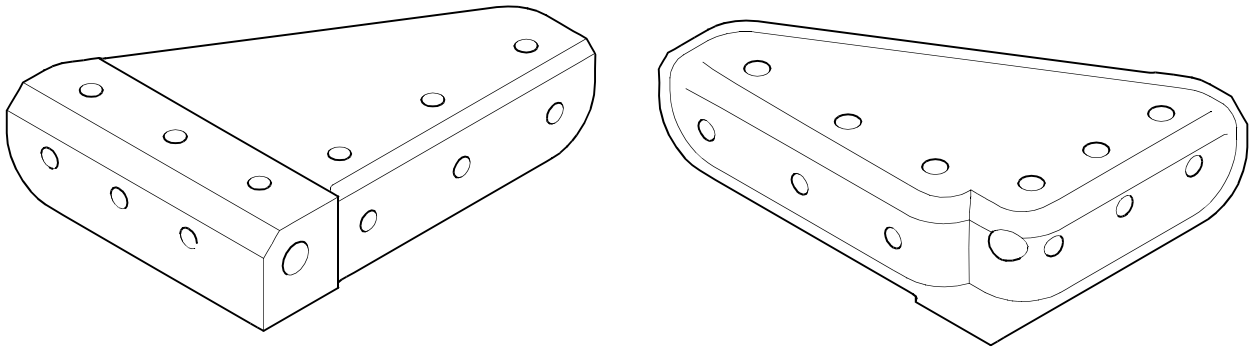
SB 2761

Fittings - Crack Inspection (If Necessary)  
Figure 3



FRAME 11 LEFT FITTING

DATE:	AIRCRAFT MSN:	FLYING HOURS:	LANDINGS:
CRACK 1 LENGTH	mm	ADDITIONAL COMMENTS	
CRACK 2 LENGTH	mm		
CRACK 3 LENGTH	mm		
CRACK 4 LENGTH	mm		



FRAME 11 RIGHT FITTING

DATE:	AIRCRAFT MSN:	FLYING HOURS:	LANDINGS:
CRACK 1 LENGTH	mm	ADDITIONAL COMMENTS	
CRACK 2 LENGTH	mm		
CRACK 3 LENGTH	mm		
CRACK 4 LENGTH	mm		

SB 2747

Left and Right Fittings - Inspection Form  
Figure 4

Line No.	Component	Part Number	Material, after accomplishment of this Service Bulletin	Part Number, after accomplishment of this Service Bulletin
1	The FR11 left fitting	112.35.07.489		
2	The FR11 right fitting	112.35.07.490		

Status of Parts Form  
Figure 5



<b>SERVICE BULLETIN EVALUATION SHEET FOR SB No. 53-018</b>			
<b>Title</b>	<b>Fuselage - Main Frames</b> <b>Do a Check of the Material Specification of the Frame 11 Fittings and, If Necessary, Do a Check for Cracks</b>		
<b>Customer</b>			
<b>Service Center</b>			
<b>EMBODIMENT REPORTING</b>			
<b>This SB has been embodied:</b>		<input type="checkbox"/>	<b>On the entire fleet</b>
		<input type="checkbox"/>	<b>Only partially</b>
<b>Provide embodiment details per aircraft (use additional copies of this table, if necessary)</b>			
<b>MSN</b>	<b>Flying Hours</b>	<b>MSN</b>	<b>Flying Hours</b>
<b>Additional embodiment comments/findings</b>			
<b>EDITORIAL COMMENTS</b>			
<b>(procedure, kit quality, suggested improvements, etc.)</b>			
<b>Name</b>	<b>Signature</b>	<b>Date</b>	
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: <a href="mailto:Techsupport@pilatus-aircraft.com">Techsupport@pilatus-aircraft.com</a>			

**SERVICE BULLETIN EVALUATION SHEET**

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