

**Service Bulletin No:** 53-013  
**Modification No:** EC-09-0734

**Ref No:** 118  
**ATA Chapter:** 53

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**FUSELAGE - GENERAL  
INSPECTION OF THE FORWARD ELECTRICAL BONDING POINTS**

**1. Planning Information**

**A. Effectivity**

PC-9 aircraft MSNs 101 thru 248 and MSNs 501 thru 567.

**B. Concurrent Requirements**

None.

**C. Reason**

**(1) Problem**

Corrosion has been reported at the bonding strap connections on the left and right lower longerons between fuselage frames 1 and 1A.

**(2) Cause**

The contact faces of the longeron and bonding strap are susceptible to corrosion. The possibility of corrosion is increased because of the high electrical current flow between the tinned copper terminal lug of the bonding strap and the aluminum longeron.

**(3) Solution**

Do an inspection of the longeron in the specified areas and, if necessary, remove the corrosion. Apply to Pilatus for a repair scheme if the removal of corrosion decreases the metal thickness to less than the specified limits.

The Aircraft Maintenance Manual Chapter 05 will be revised to include repeat inspections.

**D. Description**

This Service Bulletin gives the data and instructions necessary to:

- (1) Remove the bonding straps from the longerons.
- (2) Examine the areas for corrosion.
- (3) Remove any corrosion found.
- (4) Install the bonding straps.

**E. Compliance**

Mandatory.

Required within the next 120 days after the effective date of this Service Bulletin.

**F. Approval**

The technical content of this Service Bulletin is approved under FOCA approved procedures.

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. Manpower**

	Total (No corrosion found)	Total (Corrosion found)
Preparation	1.5	1.5
Removal	0.25	0.25
Inspection	0.75	0.75
Repair	-	3.0
Installation	0.5	0.5
Close Up	1.5	1.5
<b>TOTAL MAN-HOURS</b>	<b>4.5</b>	<b>7.5</b>

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

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

No change.

**(2) Moment Change**

No change.

**I. Electrical Load Data**

Not affected.

**J. Software**

Not affected.

**K. References**

Aircraft Maintenance Manual (AMM), 06-20-00, 20-31-00, 20-40-10, 25-10-00, 25-10-01, 25-30-02.

**L. Publications Affected**

Aircraft Maintenance Manual (AMM), 05-05-01, 05-12-01.

**M. Interchangeability of Parts**

Not applicable.

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

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

Repair Kit Number	Price	Availability
500.50.09.074	Contact address above	Contact address above
500.50.09.075	Contact address above	Contact address above

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

**NOTE:** The kits are necessary only if a repair is required. The kits are for one forward bonding point. Each aircraft has two forward bonding points.

(a) Repair Kit No. 500.50.09.074 has these parts:

NEW PART NO.	DESCRIPTION	OLD PART NO.	QTY	DISP. CODE	FIG. NO.	ITEM NO.
932.19.21.227	BOLT, HEX HD, AN5-6A	932.19.21.227	1	D	1	5
938.07.68.306	NUT, SLFLKG, MS21045-5E	938.07.68.306	1	D	1	7
938.77.11.117	WASHER, FLAT, NAS1149F0563P	938.77.11.117	2	D	1	6
532.30.09.308	WASHER, SPECIAL	-	1	N	-	-

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

(b) Repair Kit No. 500.50.09.075 has these parts:

NEW PART NO.	DESCRIPTION	OLD PART NO.	QTY	DISP. CODE	FIG. NO.	ITEM NO.
119.40.07.344	BONDING STRAP	119.40.07.344	1	D	1	4

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

**(2) Operator Supplied Parts**

Part No.	Description	Qty	Remarks
938.77.11.117	WASHER, FLAT, NAS1149F0563P	A/R	Additional washers if required to install the bonding straps

**(3) Operator Supplied Materials (Ref. AMM 20-31-00)**

Material No.	Description	Qty	Remarks
P01-008	SOLVENT	A/R	
P02-001	LOCKWIRE	A/R	
P02-009	ABRASIVE CLOTH	A/R	Grade 120
P02-011	ABRASIVE CLOTH	A/R	Grade 240
P02-016	SCOTCH-BRITE	A/R	Very fine grade
P02-031	ABSORBENT PAPER	A/R	
P07-021	ALODINE 1132	A/R	Touch-N-Prep
P07-007	EPOXY PRIMER	A/R	
P10-013	CPC-HIGH T	A/R	
-	AA2024-T3 TEST PIECE (2 TO 3 MM THICK)	1	Small piece of AA2024-T3 sheet used to calibrate the ultrasonic thickness gage

**(4) Operator Supplied Tools**

Description	Remarks
NON-METALLIC SCRAPERS	-
BOROSCOPE	If required for the inspection
ULTRA VIOLET LIGHT	To do a check of the CPC-High T coating
OLYMPUS 35 SERIES THICKNESS GAGE EQUIPPED WITH M202H-RM PROBE	Or equivalent ultrasonic thickness gage capable of measuring the thickness of the longeron web at the forward bonding points

**C. Material Necessary for Each Spare**

Not applicable.

**D. Re-identified Parts**

Not applicable.

**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).

**A. Preparation**

- (1) Remove the front ejection seat (Ref. AMM 25-10-01, Page Block 401).
- (2) Remove the left and right front-lower side-panels from the cockpit (Ref. AMM 25-30-02, Page Block 401).
- (3) Open the fuel and hydraulic compartment access panels F4 and F6 (Ref. AMM 06-20-00, Page Block 1).

**CAUTION:** DO NOT SCORE OR DAMAGE THE AIRCRAFT SKIN OR LONGERON WHEN YOU CUT THE INSULATION.

- (4) In the cockpit, carefully cut and remove a small piece of the side insulation to get access to the bonding point as follows:
  - Cut immediately above the upper edge of the longeron where there is a gap between the insulation and the skin
  - Remove the insulation to approximately 50 mm (2 in.) aft of the bonding point
- (5) In the fuel and hydraulic compartments, if necessary:
  - Carefully cut and remove a small piece of the insulation to get access to the nut of the bonding point

**B. Remove the Bonding Strap (Ref. Fig. 1)**

**NOTE:** It is not necessary to completely remove the bonding strap unless you find it to be corroded during the inspection. This procedure is applicable to the left and right bonding strap connections.

- (1) If the bonding connection is oversealed, use a non-metallic scraper and solvent (Material No. P01-008) to remove the sealant.
- (2) Remove the nut (7) and the washers (6).

**NOTE:** Some aircraft can have only one washer (6) installed under the nut (7).

- (3) Remove the bolt (5) and washer (6) to disconnect the terminal lug of the bonding strap (4) from the longeron.

**C. Inspection (Ref. Fig. 1)**

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

**NOTE:** This procedure is applicable to the left and right bonding points.

(1) Examine the longeron:

- (a) Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-008) to clean:
  - the bore of the bolt hole
  - the top surface of the longeron around the bolt hole
- (b) Do a visual inspection for corrosion in the bore of the bolt hole and the area around the bolt hole. If necessary, use a borescope to do this.
- (c) If you find corrosion, do the Repair (Ref. Para. D.).

(2) Examine the terminal lug of the bonding strap:

- (a) Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-008) to clean the terminal lug of the bonding strap (4).
- (b) Examine the terminal lug for corrosion.
- (c) Remove all corrosion with Scotch-Brite (Material No. P02-016).
- (d) Examine the terminal lug again to make sure the protective tin coating is serviceable. If you can see the copper metal of the terminal lug, remove the bonding strap (4) as follows:

1 If the bonding connection on FR 1 is oversealed, use a non-metallic scraper and solvent (Material No. P01-008) to remove the sealant.

2 In the engine compartment, hold the head of the bolt (1).

**NOTE:** At the right connection, the bolt can have locking wire. If necessary, record the position, then cut and remove the locking wire.

3 Remove the nut (3) and washer (2).

4 Remove and discard the bonding strap (4).

(3) Examine the attaching parts:

- (a) Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-008) to clean the removed bolt (5), washers (6) and nut (7).
- (b) Examine the bolt, washers and nut for corrosion.
- (c) Discard all parts that are corroded.

**D. Repair**

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

**NOTE:** This procedure is applicable to the left and right bonding points.

- (1) Make a copy of the Report Form (Fig. 2).
- (2) If you found corrosion in the bolt hole:

**CAUTION:** BE CAREFUL WHEN YOU DRILL THE BOLT HOLE. DO NOT DAMAGE ADJACENT PIPES OR WIRES.

- (a) Enlarge the bolt hole with an 8,6 mm drill.

**NOTE:** Drill the bolt hole from below in the fuel or hydraulic compartment.

- (b) Deburr the hole and examine the bore for corrosion.
- (c) If you find corrosion, enlarge the bolt hole with a 9,0 mm drill.
- (d) Deburr the hole and examine the bore for corrosion.
- (e) If you find corrosion, stop the procedure and contact Pilatus for more repair information:

Pilatus Aircraft Ltd.,  
Customer Technical Support (MCC),  
P.O. Box 992,  
6371 Stans, Switzerland  
Tel: +41 (0)41 619 33 03  
Fax: +41 (0)41 619 67 73  
Email: Techsupport@pilatus-aircraft.com

- (3) If you found corrosion on the surface of the longeron:
  - (a) Use abrasive cloth (Material No. P02-009) to remove the corrosion.
  - (b) Use abrasive cloth (Material No. P02-011) to make the area smooth.
  - (c) Use Scotch-Brite (Material No. P02-016) to polish the area.
- (4) Use a vacuum cleaner to remove all dust and debris from the work area.
- (5) Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-008) to clean the repair area.
- (6) Make sure the contact area for the terminal lug of the bonding strap is flat.

**NOTE:** This is to make sure there is a good electrical contact between the terminal lug and the longeron.



**CAUTION:** APPLY THE ALODINE 1132 IMMEDIATELY AFTER YOU REMOVE THE CORROSION TO PREVENT THE BUILD UP OF OXIDES ON THE BARE METAL.

- (7) Read and obey the manufacturer's instructions and apply Alodine 1132 (Material No. P07-021) to the bare metal area (Ref. AMM 20-40-10, Page Block 201).
- (8) Calibrate the ultrasonic thickness gage:
  - (a) Use a micrometer or vernier caliper to measure the thickness of the AA2024-T3 test piece.
  - (b) Use the ultrasonic thickness gage to measure the thickness of the AA2024-T3 test piece and adjust the gage to get the value measured in Step (a).
- (9) Measure (with the ultrasonic thickness gage) and record this data on a copy of the Report Form (Fig. 2):
  - The minimum thickness of the metal in the repaired area(s). Use the grid on the Report Form to record the position of the measurement(s)
  - The shape and area(s) where you removed corrosion
- (10) If the thickness of the longeron at any position is less than 1,9 mm, stop the procedure and contact Pilatus for more repair information:

Pilatus Aircraft Ltd.,  
Customer Technical Support (MCC),  
P.O. Box 992,  
6371 Stans, Switzerland  
Tel: +41 (0)41 619 33 03  
Fax: +41 (0)41 619 67 73  
Email: Techsupport@pilatus-aircraft.com

- (11) Read and obey the manufacturer's instructions and apply epoxy primer (Material No. P07-007) on top of the Alodine 1132. Do not apply epoxy primer to the contact area for the terminal lug of the bonding strap
- (12) Restore the surface paint finish in the repair area as necessary. Do not apply paint to the contact area for the terminal lug of the bonding strap

#### **E. Install the Bonding Strap (Ref. Fig. 1)**

**NOTE:** This procedure is applicable to the left and right bonding strap connections.

- (1) If you re-connect the same bonding strap (4):
  - (a) If you found no corrosion on the longeron and did not apply Alodine to the bonding point:
    - 1 Use Scotch-Brite (Material No. P02-016) to remove the old Alodine from the contact area for the terminal lug of the bonding strap (4).
    - 2 Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-008) to clean the contact area for the terminal lug of the bonding strap (4).

3 Read and obey the manufacturer's instructions and apply Alodine 1132 (Material No. P07-021) to the bare metal area (Ref. AMM 20-40-10, Page Block 201).

(b) If you did not enlarge the bolt hole or discard corroded parts:

1 Connect the bonding strap (4) to the longeron with the bolt (5) the washers (6) and the nut (7).

**NOTE:** Install two washers (6) under the nut (7).

(c) If you enlarged the bolt hole or discarded corroded parts, use the new attaching parts from Kit No. 500.50.09.074.

1 Put the special washer (P/N 532.30.09.308) on the new bolt (5) in place of the washer (6). Make sure the chamfered edge of the special washer faces up.

2 Install the bolt (5) with the special washer through the bonding strap (4) and the longeron.

3 Install two new washers (6) and the new nut (7).

(d) Measure the run-down torque of the nut (7).

(e) Torque tighten the nut (7) to the measured run-down torque plus between 11 and 16 Nm (100 and 140 lb in.).

(2) If you install a new bonding strap (4):

**NOTE:** Use the new bonding strap from Kit No. 500.50.09.075.

(a) If you found no corrosion on the longeron and did not apply Alodine to the bonding point:

1 Use Scotch-Brite (Material No. P02-016) to remove the old Alodine from the contact area for the terminal lug of the bonding strap (4).

2 Use absorbent paper (Material No. P02-031) and solvent (Material No. P01-008) to clean the contact area for the terminal lug of the bonding strap (4).

3 Read and obey the manufacturer's instructions and apply Alodine 1132 (Material No. P07-021) to the bare metal area (Ref. AMM 20-40-10, Page Block 201).

(b) If you did not enlarge the bolt hole or discard corroded parts:

1 Connect the new bonding strap (4) (P/N 119.40.07.344) to the longeron with the bolt (5) the washers (6) and the nut (7).

**NOTE:** Install two washers (6) under the nut (7).

(c) If you enlarged the bolt hole or discarded corroded parts, use the new attaching parts from Kit No. 500.50.09.074.

1 Put the special washer (P/N 532.30.09.308) on the new bolt (5) in place of the washer (6). Make sure the chamfered edge of the special washer faces up.

- 2 Install the bolt (5) with the special washer through the new bonding strap (4) (P/N 119.40.07.344) and the longeron.
  - 3 Install two new washers (6) and loosely install the new nut (7).
- (d) Put the bonding strap (4) on the bolt (1) at FR 1 and loosely install the washer (2) and the nut (3).
  - (e) In the engine compartment, hold the head of the bolt (1) and measure the run-down torque of the nut (3).
  - (f) Measure the run-down torque of the nut (7).
  - (g) Torque tighten the nuts (3) and (7) to the measured run-down torque plus between 11 and 16 Nm (100 and 140 lb in.).
  - (h) If necessary, at the right connection, replace the lockwire (Material No. P02-001) to the bolt (1) as recorded in the removal procedure.
- (3) Record if you installed or did not install the special washer(s) (P/N 532.30.09.308) on the copy of the Report Form (Fig 2).

**F. Apply Corrosion Protection to the Bonding Points**

- (1) Apply CPC-high T (material No.P10-013) over the bonding points. When you do this, use the ultra violet light to make sure the:
  - Bolts/nuts, the terminal lugs of the bonding straps, and the areas of the longeron without primer and paint are fully covered
  - CPC-high T makes an overlap of not less than 4,0 mm (0.16 in.) at all locations around the components

**G. Close Up**

- (1) Close the fuel and hydraulic compartment access panels F4 and F6.
- (2) Install the left and right front-lower side-panels in the cockpit (Ref. AMM 25-30-02, Page Block 401).
- (3) Install the front ejection seat (Ref. AMM 25-10-01, Page Block 401).
- (4) Remove all tools and materials. Make sure the work area is clean.

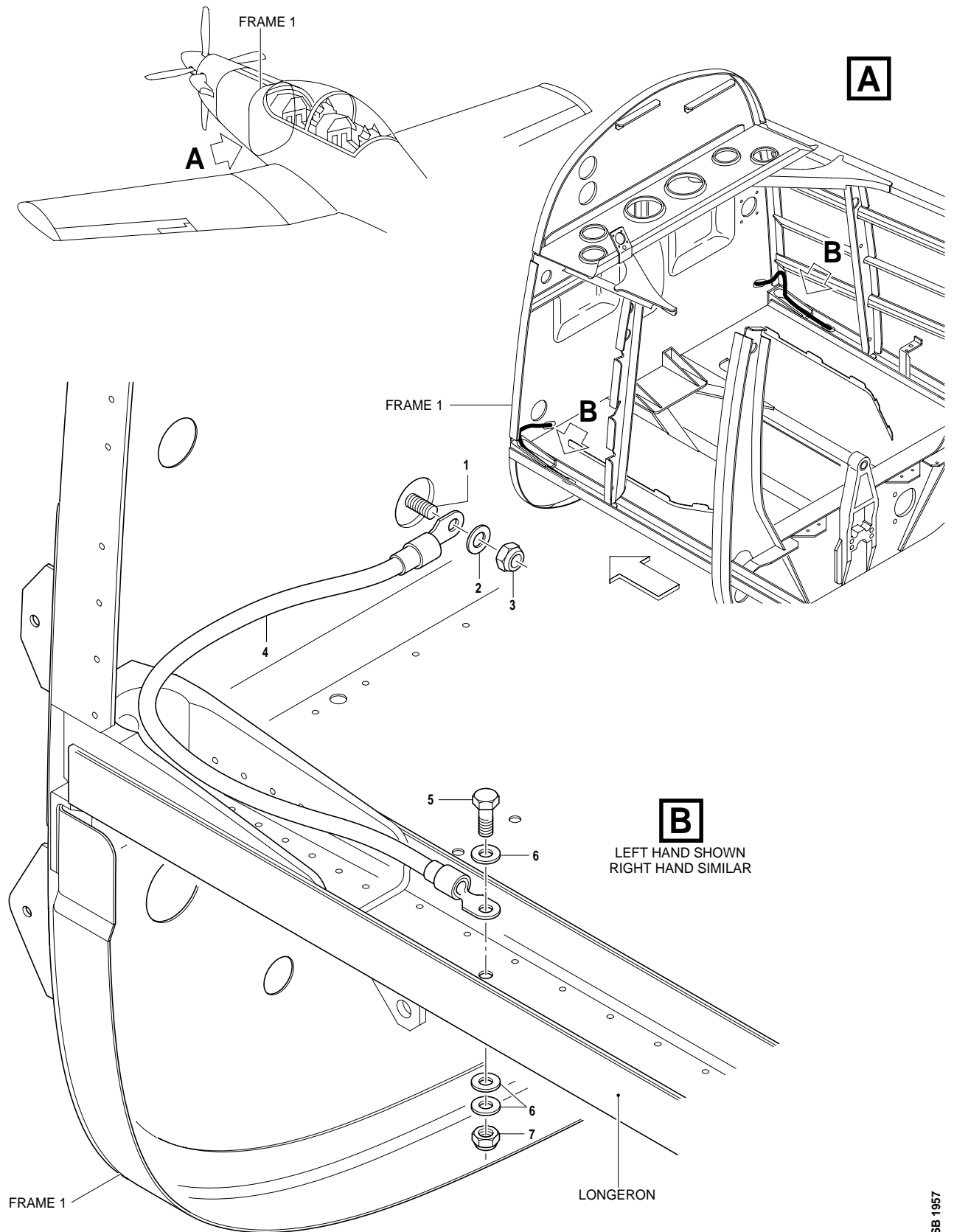
**H. Reporting Action**

- (1) Send the completed Report Form (Fig. 2) to:

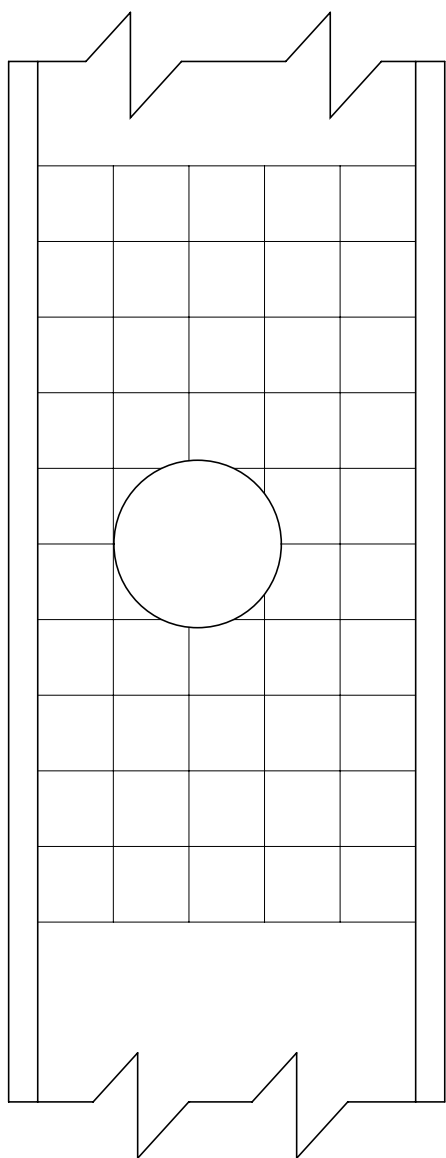
Pilatus Aircraft Ltd.,  
Customer Technical Support (MCC),  
P.O. Box 992,  
6371 Stans, Switzerland  
Tel: +41 (0)41 619 33 03  
Fax: +41 (0)41 619 67 73  
Email: Techsupport@pilatus-aircraft.com

**I. Documentation**

- (1) Make an entry in the Aircraft Logbook that this Service Bulletin has been incorporated.
- (2) Put a copy of the completed Report Form (Fig. 2) in the Aircraft Logbook.
- (3) Use the Service Bulletin Evaluation Sheet and report your results and the serial number(s) of the aircraft to Pilatus.

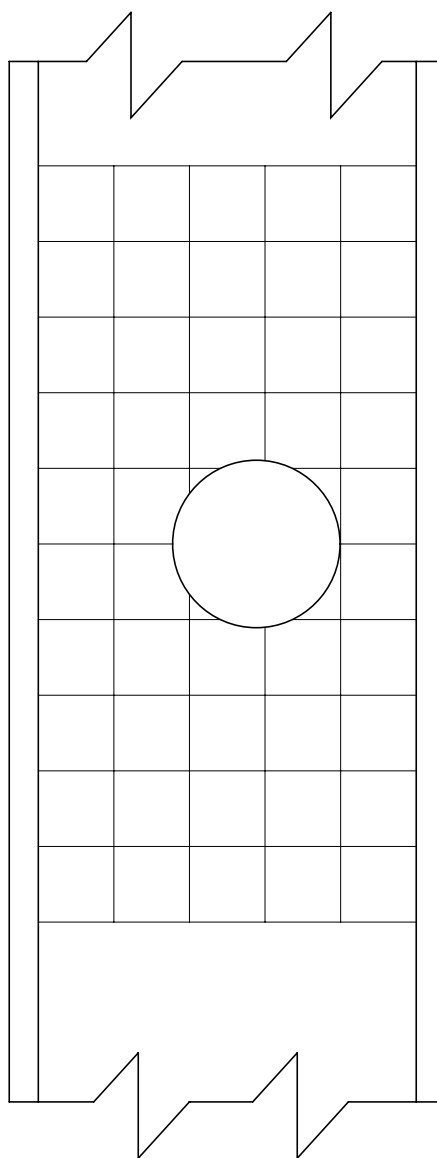


Bonding Strap - Removal/Installation  
Figure 1



VIEW ON TOP  
OF LEFT  
LONGERON

SPECIAL WASHER P/N 532.30.09.308  
INSTALLED ON LEFT SIDE. YES / NO



VIEW ON TOP  
OF RIGHT  
LONGERON

SPECIAL WASHER P/N 532.30.09.308  
INSTALLED ON RIGHT SIDE. YES / NO

MSN No. ....

TAIL No. ....

DATE .....

FLYING HOURS .....

LANDINGS .....

SB 1959

Report Form  
Figure 2

<b>SERVICE BULLETIN EVALUATION SHEET FOR SB No. 53-013</b>			
<b>Title</b>	<b>Fuselage - General Inspection of the Forward Electrical Bonding Points</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 (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: Techsupport@pilatus-aircraft.com			

**SERVICE BULLETIN EVALUATION SHEET**

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