

SERVICE INFORMATION LETTER

TO: All Pilatus PC-12 Operators

SUBJECT: Repair of De-bonded Outboard Fiberglass Strap on PC-12 Glass Main Windshields

APPLICABILITY: All Pilatus PC-12 Glass Main Windshields

REASON: Service induced environmental factors may cause the outboard strap to de-bond from the glass surface. If there is evidence that the outboard strap is obviously de-bonded and can be lifted with finger pressure, it should be repaired per the following instructions. If the outboard strap is de-bonded from the outboard glass surface, moisture can enter the glass-to-interlayer bond line and cause premature delamination of the windshield which could significantly reduce its normal service life. Repairing the de-bonded strap should extend the service life of the windshield.

APPROVALS



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Repair Procedure for De-Bonded Outer Fiberglass Strap

Note: It is recommended that this repair be performed with the windshield removed from the aircraft and accomplished in a dry environment with good lighting.

Note: PPG is not responsible for any damage caused while performing this repair.

1. Repair 1 – De-bonded Outboard Strap Removal

A. Materials, Tools, Fixture, and Equipment (Equivalent substitutes may be used for listed items)

- (1) Spatula
- (2) Razor Blades and Holder
- (3) Needle Nose Pliers
- (4) Isopropyl Alcohol

B. Outer Z-Strap Removal Procedure

- (1) Carefully check to determine the extent of the de-bonded area. Only the loose areas are to be removed. (See Figure 1)

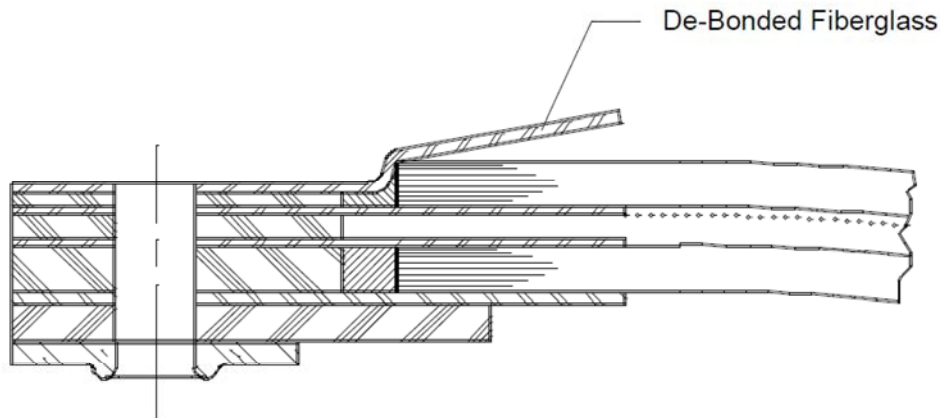


Figure 1 – Outboard Strap in Need of Repair

- (2) Mask off the outer glass surface of the window 1.0" (25mm) in from the step of the outboard fiberglass strap and 0.05" (1.3mm) out from the step of the outboard fiberglass strap. (See Figure 2)

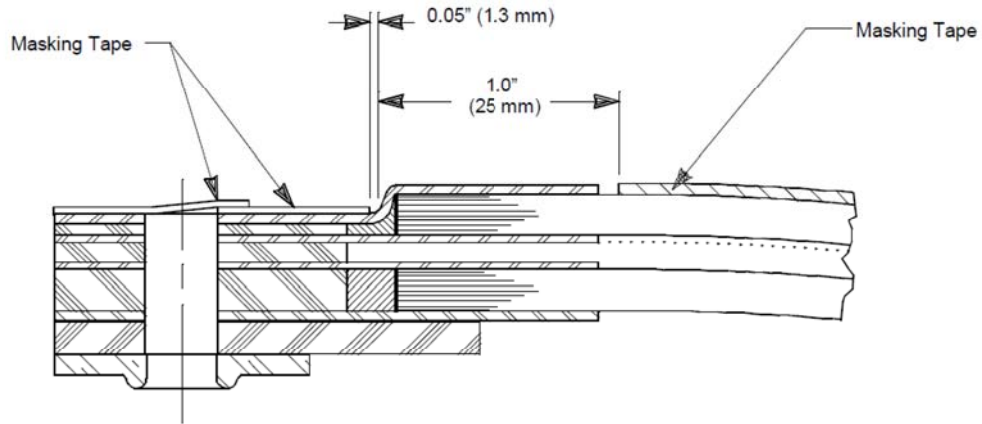


Figure 2 – Masked Windshield

- (3) Carefully slide the spatula under the loose portion of the strap.
- (4) Insert a razor blade into the razor blade holder and cut through the fiberglass strap on the top of the spatula (See Figure 4). Cut the strap all the way to the edge of the glass, but not beyond the vertical section of the of the fiberglass strap (See Figures 3).

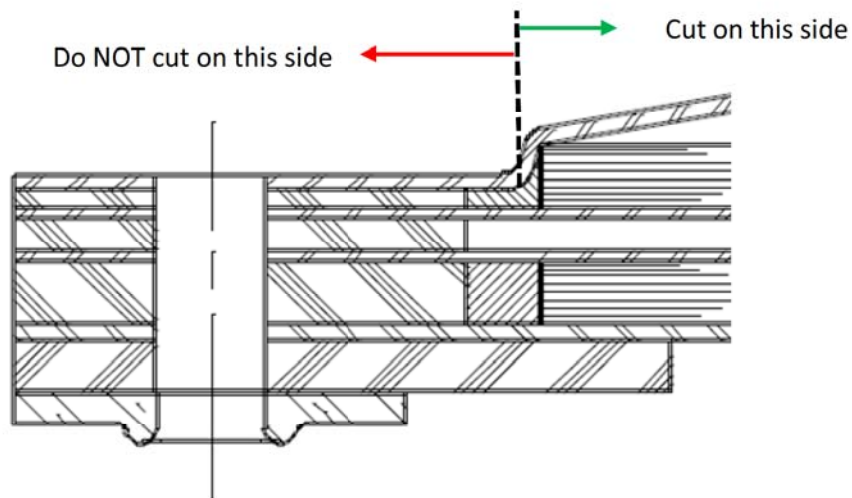


Figure 3 – Area of Allowable Repair

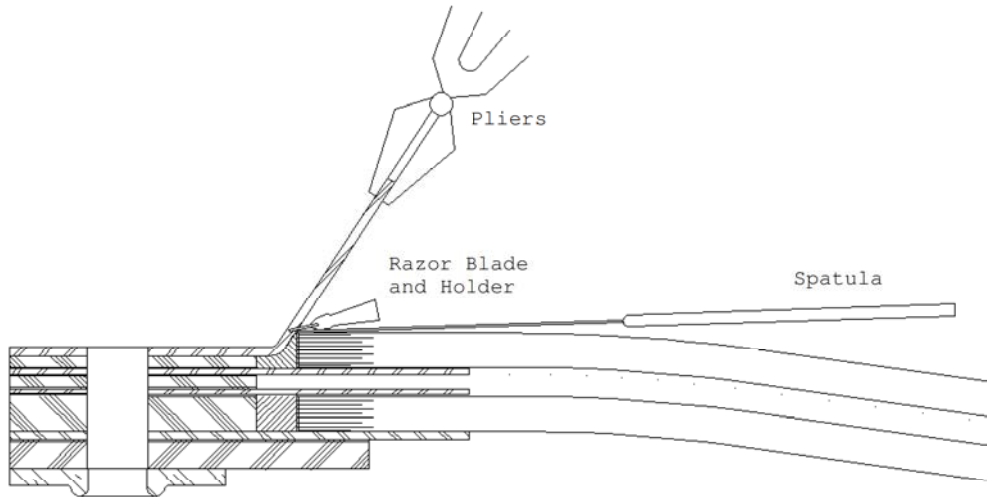


Figure 4 – Proper Cutting Technique

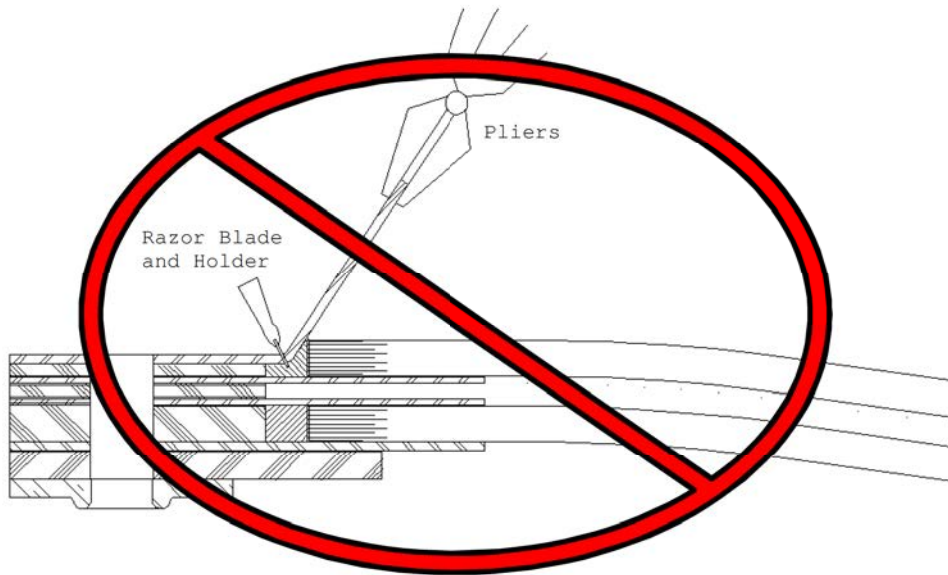


Figure 5 – Improper Cutting Technique

CAUTION 1: While cutting through the fiberglass strap, take extreme care not to cut through to the edge or surface of the glass. It may be useful to lift the Z-Strap away from the glass using needle nose pliers.

CAUTION 2: Improper removal of the strap as shown in Figure 5 can result in structural damage to the windshield and result in premature failure.

CAUTION 3: If the Z-Strap is loose along the top edge of the part, special precautions need to be taken to maintain the connection of the anti-static coating on the outboard glass surface to the heating mat ground wire. A strip of copper tape runs along the top edge of the part on the outboard glass surface, underneath the outboard fiberglass Z-strap. This copper tape is connected to the heating mat ground wire via a short piece of fine braid which is soldered to the tape at one end and the ground wire at the other end. This connection is made on the top edge of the part near the aft corner, and is visible through the fiberglass Z-strap. When cutting the de-bonded Z strap in the following steps, leave an area of the Z-strap uncut approximately 3/4" on either side of this wire connection point.

- (5) Carefully lift the cut portion of the strap with the spatula and grip the corner of the cut strap with the needle nose pliers.
- (6) Lift the strap with the needle nose pliers and then cut it at the glass edge with the razor blade. Continue to lift and apply tension on the strap with the needle nose pliers while cutting the strap free with the razor blade. Continue this process until the loose portion of the strap has been removed to the glass edge. (See Figure 1 for loose strap).

CAUTION: When cutting the Z-strap, take care to keep the razor blade flush against the glass surface to ensure the blade does not scratch the glass surface or damage the glass edge. Change razor blades frequently to prevent a worn or nicked blade from scratching the glass.

- (7) After the removal of the de-bonded areas of the Z-strap, repair per Repair 2 - Outer Moisture Seal Repair.

2. Repair 2 - Outer Moisture Seal Repair

A. Materials, Tools, Fixtures, and Equipment (Equivalent substitutes may be used for listed items)

- (1) Spatula
- (2) Masking Tape
- (3) Methyl Ethyl Ketone
- (4) Felt Block

- (5) Pumice or Cerium Oxide
- (6) De-ionized Water
- (7) Isopropyl Alcohol
- (8) Cotton Cloths
- (9) Paper Wipes - Scratch-Free, such as Kaydry®
- (10) PR-1425
- (11) PR-142 Primer
- (12) Moisture seal forming tool (See Figure 6)
- (13) Rubber gloves (powder free/undusted)
- (14) Gauze pads
- (15) Cellulose sponge
- (16) Conductive copper tape, 1/8 to 1/4 inch wide.

B. Windshield Surface Preparation

- (1) If masking has been damaged during strap removal, re-mask per step 1.B.(2). (See Figure 2)
- (2) Degrease the work area of the windshield with a suitable solvent (i.e. Methyl Ethyl Ketone) using a progressive cleaning procedure of cleaning a small area at a time with MEK followed by an isopropyl alcohol rinse to remove solvent residue and then dry with a clean cloth. Discard soiled cloths regularly to prevent re-deposit of contaminants.
- (3) Soak a block of clean felt with water. Use a slurry of either pumice or cerium oxide and water to polish by hand the exposed glass surface all around until observing a water-break free surface. A water-break free surface is present when the water completely “wets” or “sheets” over the glass surface with no sign of drawing up or receding into droplets showing dry areas in-between. Achieving the water-break free surface is critical to ensure adhesion of the sealant to the outer glass surface.
- (4) After a water-break free surface is obtained, clean the entire area with an 80% isopropyl alcohol and 20% water solution and wipe dry with a lint-free cloth or towel.
- (5) If the Z-Strap was de-bonded in the upper forward corner as described in step 1.B.(4) CAUTION 2, a reliable connection between the anti-static coating and the heating mat ground wire must

be verified or re-established. First, insure that the fine braid from the ground wire is still securely connected to the existing section of copper tape. Then, cut a 6 inch strip of conductive copper tape, carefully lift the remaining section of the Z-Strap containing the ground wire connection, apply copper tape to the existing copper tape under the Z-Strap and then loop the tape back, applying it to the glass surface. The anti-static film resistance from the outer glass surface to the retainer is to be less than 100 MΩ.

C. Outer Moisture Seal Application Procedure

NOTE: Exercise care not to touch or contaminate the previously cleaned work area. Wear powder-free/undusted clean rubber gloves during all cleaning operations and sealant applications to avoid contamination of the bonding surfaces and to prevent chemical contact with skin.

- (1) Follow all established safety rules and practices.
- (2) Read Material Safety Data Sheets for each material to be used.
- (3) Using a gauze pad, apply a thin coat (enough to cover without running or dripping) of the PR-142 Primer/Cleaner to the surface of the glass and exposed fiberglass strap. Allow the PR-142 to dry a minimum of 30 minutes.

NOTE: The primer must be applied to the windshield immediately after cleaning the windshield to prevent dust particles and other airborne contaminants from settling on the cleaned surfaces. Any contaminant on the surface can adversely affect the adhesion of the sealant to the substrate.

- (4) Mix PR-1425 Semkit per manufacturer's instructions.

NOTE: Complete mixing is essential. Be sure to follow the mixing instructions provided with the PR-1425 Semkit. Wear safety glasses and gloves while mixing.

- (5) Using a cartridge dispenser or a plastic spatula, apply the PR-1425 to the cleaned and primed surfaces.
- (6) Form the outboard moisture seal by pulling the moisture seal forming tool around the window. Allow the moisture seal tool to rest on the masking tape on both sides of the moisture seal area. (See Figure 6)

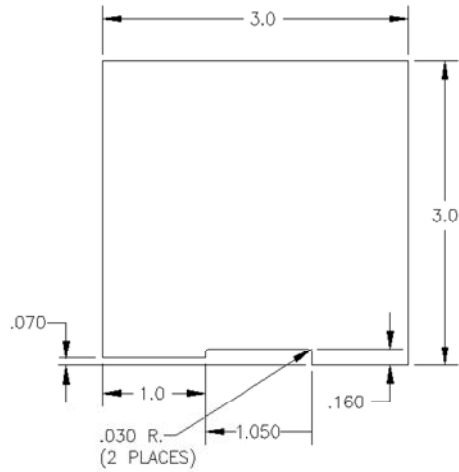


Figure 6 – Moisture Seal Forming Tool

- (7) Immediately remove the masking tape and smooth the surface of the wet sealant by rubbing the surface lightly and briskly with a cellulose sponge saturated with water or 100% isopropyl alcohol. You must use only light pressure for this step.
- (8) Allow the sealant to cure per manufacturer’s recommendations.
- (9) After sealant has cured, inspect for voids and repair as necessary. Finished repair should appear similar to Figure 7.

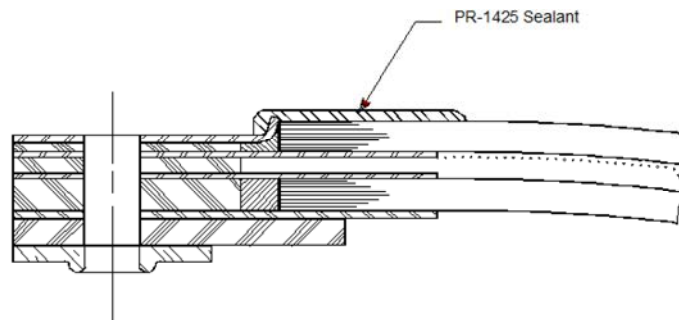


Figure 7 – After Repair of Strap and Addition of Sealant