BOMBARDIER
Toronto (de Havilland)
PROPRIETARY INFORMATION

PPS 2.21

PRODUCTION PROCESS STANDARD

Installation of Snapslide Fasteners

Issue 4
- This standard supersedes PPS 2.21, Issue 3.
- Vertical lines in the left hand margin indicate changes over the previous issue.
- Direct PPS related questions to PPS.Group@aero.bombardier.com or (416) 375-4365.
- This PPS is effective as of the distribution date.

Prepared By:	(Michael Wright)	July 9, 2012
	Production Process Standards (PPS)	
Approved By:	(L.K. John)	July 9, 2012
	Materials Technology	
	(B. DeVreede)	July 10, 2012
	Quality	

Table of Contents

Sections **Page**

Figures

1 Scope

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for the installation of snapslide fasteners.

1.1.1 This PPS complements the engineering drawings that specify its use as an authorized instruction and the procedure specified must be followed to ensure compliance with all applicable specifications. In general, if this PPS conflicts with the engineering drawing, follow the engineering drawing. The requirements specified in this PPS are necessary to fulfil the engineering design and reliability objectives.

1.1.2 Refer to PPS 13.26 for the subcontractor provisions applicable to this PPS.

1.1.3 Procedure or requirements specified in a Bombardier BAPS, MPS, LES or P. Spec. **do not** supersede the procedure or requirements specified in this PPS. Similarly, the procedure and requirements specified in this PPS are not applicable when use of a BAPS, MPS, LES or P. Spec. is specified.

2 Hazardous Materials

2.1 Before receipt at Bombardier Toronto (de Havilland), all materials must be approved and assigned Material Safety Data Sheet (MSDS) numbers by the Bombardier Toronto (de Havilland) Environment, Health and Safety Department. Refer to the manufacturer's MSDS for specific safety data on any of the materials specified in this PPS. If the MSDS is not available, contact the Bombardier Toronto (de Havilland) Environment, Health and Safety Department.

3 References

3.1 PPS 1.09 - Drilling and Reaming.

3.2 PPS 13.26 - General Subcontractor Provisions.

3.3 PPS 18.01 - Limitations on Shearing and Punching Aluminum Alloy Sheet.

3.4 PPS 25.23 - Bonding Using DHMS A6.11 Type I Class 1 Adhesive.

3.5 PPS 27.02 - Edge Finishing Aluminum Alloy Parts.

4 Materials and Equipment

4.1 Materials

4.1.1 Snapslide fasteners as specified on the engineering drawing. Refer to Figure 1 for a general description of a snapslide fastener.

4.1.2 Neoprene rubber, 0.032" to MIL-R-6855, Class 2.

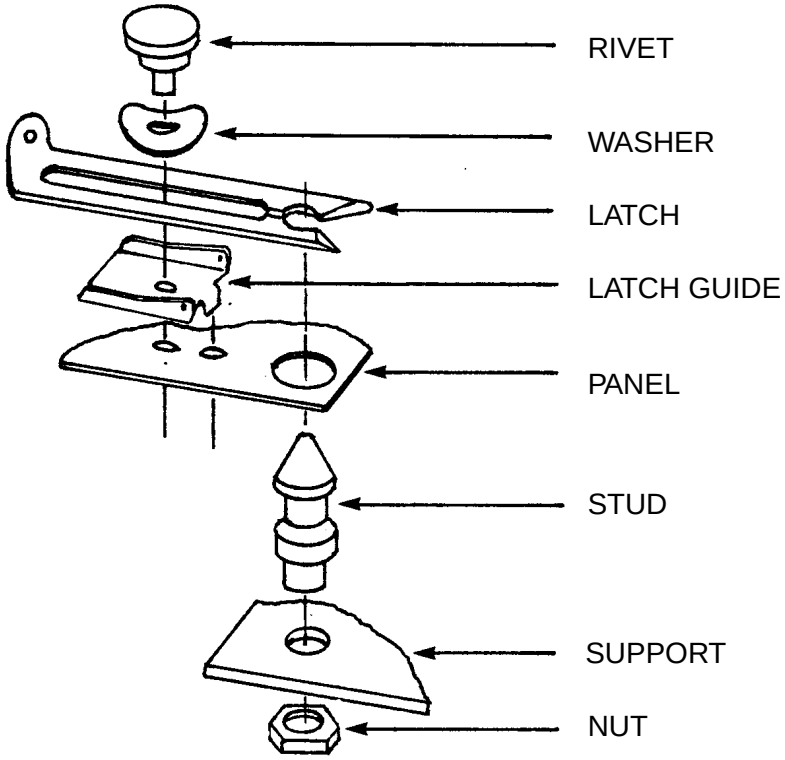


Figure 1 - General Description of a Snapslide Fastener

4.2 Equipment

4.2.1 Countersinking tools, 60° and 90° included angle.

4.2.2 Centre punch, 60° included angle.

4.2.3 Portable squeeze rivet gun.

4.2.4 Drill jig (e.g., SD8884).

4.2.5 Bombardier approved safety glasses.

5 Procedure

5.1 General

5.1.1 Snapslide fasteners are quick release fasteners used for attaching panels and access covers to consoles, etc.

5.1.2 For the purposes of this PPS, the part of the assembly in which the stud is installed is termed the support and the part to which the snapslide fastener assembly is riveted is termed the panel. It is acceptable to use drill sizes other than those specified in this PPS provided that the final hole size requirements are met.

5.1.3 Perform drilling of holes according to PPS 1.09.

5.1.4 Perform punching of holes according to PPS 18.01.

5.1.5 After final drilling or punching, deburr holes according to PPS 27.02.

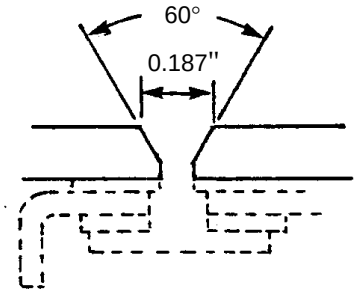
5.2 Preparation of Parts

5.2.1 Prepare the panel and support as follows:

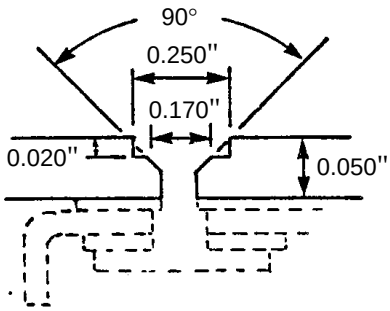
Step 1. Pre-drill the stud hole in the panel using a #30 (0.1285") drill. If possible, drill the pilot hole for the stud through the panel and support simultaneously in order to ensure correct hole alignment.

Step 2. Using the a suitable drill jig (e.g., SD8884), locate and pre-drill the rivet hole in the panel using a #40 (0.0980") drill and drill the retaining hole to 0.128" - 0.133" using a #30 (0.1285") drill.

Step 3. Countersink the rivet hole to the diameter and angle specified below. If counterboring of the rivet hole is specified on the engineering drawing, counterbore to the depth and diameter specified below.



MS21332-21 WITH 2R078 RIVET



MS21332-21 WITH MS21332-31 RIVET

Step 4. Open the rivet hole to 0.128" - 0.133" using a #30 (0.1285") drill.

Step 5. Open the pre-drilled stud hole in the panel to final size. For an MS21332-21 fastener with a 2R078 rivet, open the stud hole to a final size of 0.375" - 0.381" using a 3/8" (0.3750") drill. For an MS21332-21 fastener with a MS21332-31 rivet, open the stud hole to a final size of 0.328" - 0.334" using a 21/64" (0.3281") drill.

Step 6. Open the stud hole in the support to the final size. If installing a 2-H-10-090-437 stud, open the pre-drilled stud hole to a final size of 0.191" - 0.196" using a #11 (0.1910") drill. If installing a MS21326-2 stud, open the pre-drilled stud hole to a final size of 0.166" - 0.171" using a #19 (0.1660") drill.

5.3 Installation of Snapslide Fasteners

5.3.0.1 Attach the slide assembly with a 2R078 rivet as follows (see Figure 2):

Step 1. Assemble the slide assembly according to Figure 1.

Step 2. Insert the rivet into the slide assembly and the prepared rivet hole as shown in Figure 2-A. Ensure that the tang of the latch guide engages into the retaining hole.

Step 3. Support the head of the rivet with a flat block.

Step 4. Firmly hold a 60° centre punch against the rivet shank as shown in Figure 2-B.

Step 5. Using a suitable hammer strike the punch with sufficient force to flare the shop head into the countersink (see Figure 2-C).

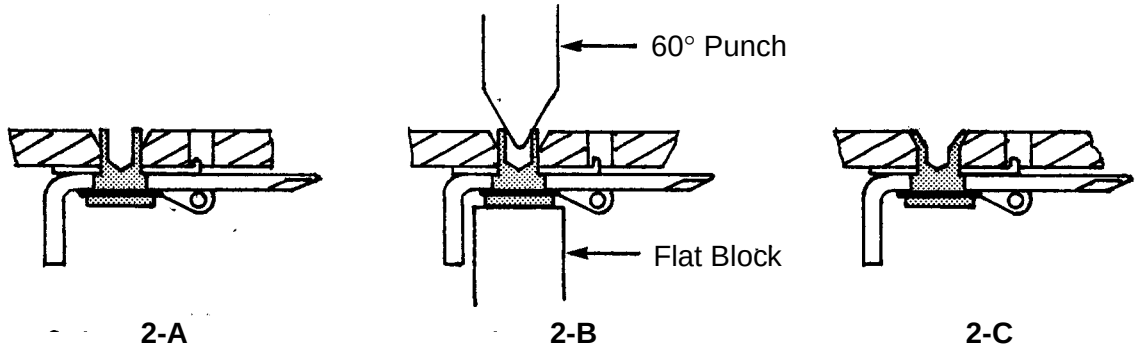


Figure 2 - Installation of Slide Assembly with a 2R078 Rivet

5.3.1 Attach the slide assembly with a MS21332-31 rivet as follows (see Figure 3):

Step 1. Assemble the slide assembly according to Figure 1.

Step 2. Insert the rivet into the slide assembly and the prepared rivet hole as shown in Figure 3-A.

Step 3. Ensure that the tang of the latch guide engages into the retaining hole.

Step 4. Clinch the rivet using a squeeze riveter with a TS91-4-30 MK2 riveting tool and flat rivet snap (see Figure 3-B and Figure 3-C).

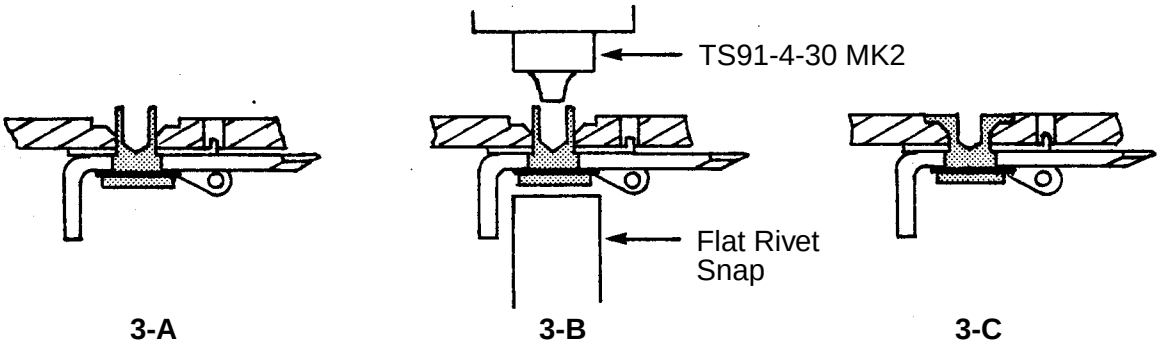


Figure 3 - Installation of Slide Assembly with a MS21332-31 Rivet

5.4 Bonding of Neoprene Packing

5.4.1 Bond neoprene packing as follows:

Step 1. Unless otherwise specified on the engineering drawing, cut the neoprene packing to size according to Figure 4.

Step 2. Locate and bond the packing to the panel, as shown in Figure 4, according to PPS 25.23.

Step 3. If the packing projects beyond the edges of the panel, trim it flush with the edge of the panel.

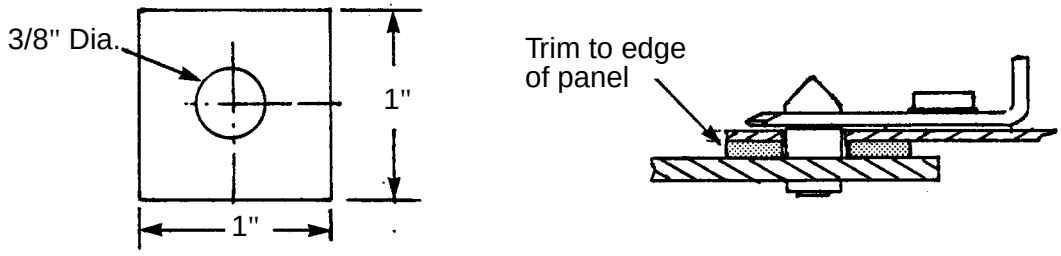


Figure 4 - Neoprene Packing

5.5 Installation of Stud

5.5.1 Install the stud as follows:

Step 1. Insert the stud into the prepared hole in the support so that the head of the stud is on the side of the support which is to mate with the panel.

Step 2. Thread the retaining nut onto the stud and tighten (using a suitable wrench) until the head of the stud and the base of the nut rest against the support and resistance increases sharply; then apply a quarter turn.

6 Requirements

6.1 Ensure that the fastener is located as specified on the engineering drawing.

6.2 Ensure that the fastener, stud and rivet type and size are as specified on the engineering drawing.

6.3 Ensure that the latch fully engages the stud without undue force.

6.4 Ensure that there is no evidence of looseness in the snapslide fastener in the locked position.

6.5 Ensure that studs and rivets are seated tightly.

6.6 Cracks in the shop head of the rivet are acceptable provided there are no pieces that are loose or broken away.

7 Safety Precautions

7.1 Observe general shop safety precautions when performing the procedure specified herein.

7.2 Refer to PPS 1.09 for the safety precautions when drilling.

8 Personnel Requirements

8.1 Personnel responsible for installation of snapslide fasteners must have a good working knowledge of the procedure and requirements as specified herein and must have exhibited their competency to their supervisor.