BOMBARDIER
Toronto (de Havilland)
PROPRIETARY INFORMATION

PPS 1.11

PRODUCTION PROCESS STANDARD

Notching and Bending of Aluminum Channel Edge Trim

Issue 3
- This standard supersedes PPS 1.11, Issue 2.
- 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.

Signed original on file. Validation of paper prints is the responsibility of the user.

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1 Scope

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for notching and bending of aluminum channel used as panel edge trim.

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 13.26 - General Subcontractor Provisions.

3.2 PPS 15.04 - Marking Aircraft Parts, Materials and Assemblies.

4 Materials and Equipment

4.1 Material

4.1.1 Aluminum channel as specified on the engineering drawings.

4.2 Equipment

4.2.1 SD6184 notching tool kit.

5 Procedure

5.1 General

5.1.1 Notching and bending of aluminum channel as specified herein basically consists of punching two “V” shaped notches in the channel flanges directly in line with one another and bending the channel on the notched “V” to form a closed angle with mitred corners.

5.2 Preparation of Work

5.2.1 Except for flange corners which are to be fusion welded after bending, complete application of decorative surface finish and/or protective treatments as specified on the engineering drawing before notching and forming of the channel section. For flange corners which are to be fusion welded after bending, do not apply decorative surface finishing and/or protective treatment until after welding.

5.2.2 Do **not** remove protective adhesive paper applied to the channel according to PPS 27.06 to facilitate notching and forming as specified herein.

5.3 Selection and Preparation of Tooling

5.3.1 The SD6184 notching tool kit consists of the hand operated notching tool and replaceable punch and die sets. Select the applicable punch and die set for the notch angle specified on the engineering drawing and assemble to the notch tool as follows:

Step 1. Attach the punch to the upper jaw of the notch tool using the 10-24 socket head cap screw.

Step 2. Assemble the die set and locator plate to the lower jaw using 10-24 socket head cap screws and wing nuts.

Step 3. Tighten all screws and nuts securely.

Step 4. Secure the notching tool in a bench vise by the rectangular (die set) tool handle approximately as shown in Figure 2.

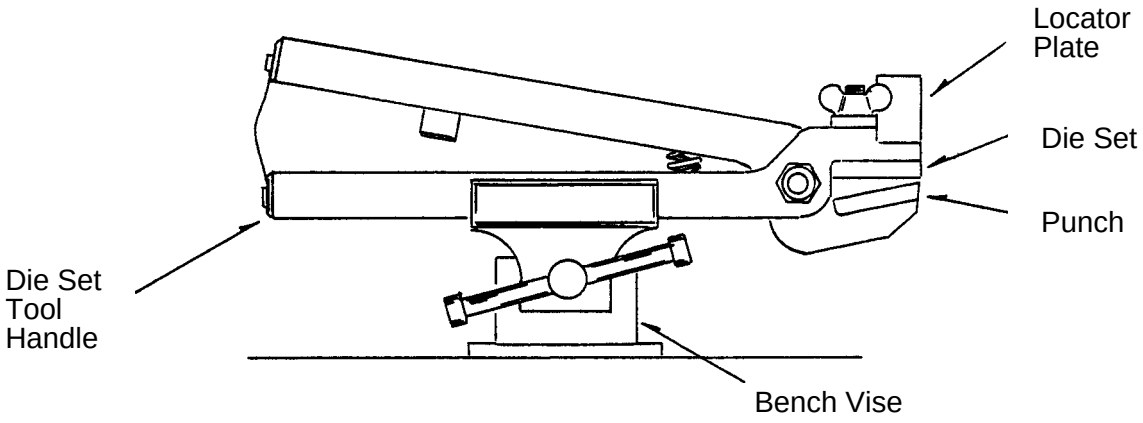


Figure 1 - General Description of Notching Tool Set-Up

5.4 Notching of Channel

5.4.1 Notch the channel as follows:

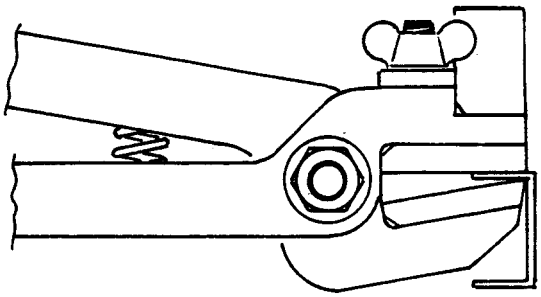
Step 1. Place the channel into the jaws of the notching tool as shown in Figure 2-A.

Step 2. Align the mark on the outside of the channel with the locator pointer on the tool to punch out the 1st notch in the channel flange. Ensure that channel is held firmly against the notching tool die set to make the notch square to the channel and full depth in the flange (i.e., notch radius is flush with the inside of the channel).

Step 3. Re-position the channel to place the locator plate into the 1st notch with the opposite flange between the punch and die as shown in Figure 2-B.

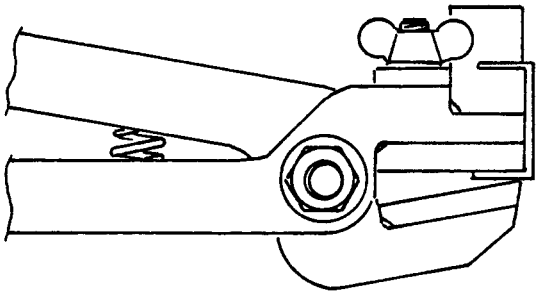
Step 4. With the channel held firmly against the notching tool die set, operate the tool to punch out the 2nd notch in the channel flange. Ensure that locator plate pointer is held in place at the root of the first notch and that the channel is held squarely in place to correctly position the 2nd notch in line with the 1st notch at 90° to the channel (ref. Figure 2-C).

Figure 2-A



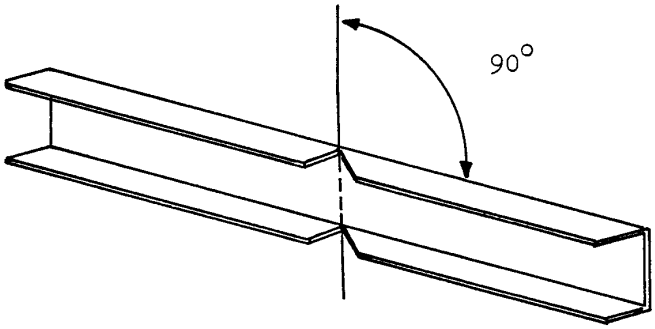
Place channel flange in notching die and punch out 1st notch.

Figure 2-B



Re-position channel to place locator plate into 1st notch and punch out 2nd notch.

Figure 2-C



Notches in channel flange punched full depth of flange and at 90° to the channel.

Figure 2 - Notching Channel

5.5 Bending of Channel

5.5.1 Bend the channel by hand to shape at the root of the notches so as to fully close the notch angle as shown in Figure 3.

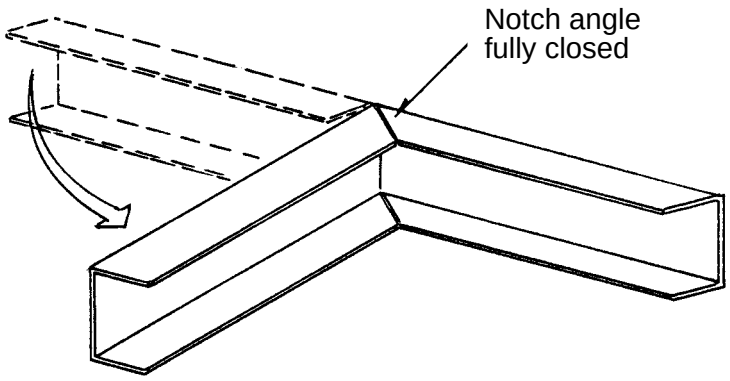


Figure 3 - Bending Notched Channel (Typ.)

6 Requirements

6.1 Ensure that the location and included angle of bend notches are as specified on the engineering drawing.

6.2 Ensure that notches are punched full depth in the channel flange so that the notch root is flush with the inside of the channel.

6.3 Ensure that notches in the upper and lower flanges are in line with each other and at right angles to the channel.

6.4 Ensure that trimmed bends are at right angles to the channel and cleanly defined. The notch angle must be fully closed with edges butting against each other to form a smooth mitred corner.

7 Safety Precautions

7.1 The procedure specified herein presents no specific safety hazards when performed according to accepted plant safety regulations.

8 Personnel Requirements

8.1 Personnel responsible for notching and bending of aluminum channel must have a good working knowledge of the procedure and requirements as specified herein and must have exhibited their familiarity to their supervisor.