BOMBARDIER
Toronto (de Havilland)
PROPRIETARY INFORMATION

PPS 36.05

PRODUCTION PROCESS STANDARD

ADHESIVE FIXTURING ALUMINUM AND MAGNESIUM ALLOYS FOR ROUTING

Issue 5
- This standard supersedes PPS 36.05, Issue 4.
- Vertical lines in the left hand margin indicate changes over the previous issue.

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This PPS is effective as of the distribution date specified on the accompanying distribution notice.

Direct any PPS related questions to the PPS Group (416) 375-7641.

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1 SCOPE

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for adhesive fixturing aluminum and magnesium alloys for routing.

1.1.1 This PPS complements the engineering drawings that specify its use as an authorized instruction. The procedure specified in this PPS 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 31.04 - Degreasing Processes.

3.3 PPS 31.17 - Solvent Usage.

4 MATERIALS AND EQUIPMENT

4.1 Materials

4.1.1 Aluminum or magnesium alloy sheet or plate as specified on the engineering drawing.

4.1.2 Two sided tape, #927, 3M Co.

4.2 Equipment

4.2.1 Aluminum holding fixtures as called up on the manufacturing document (e.g., Process Sheet or Shop Order).

4.2.2 Suitable platen press capable of applying a pressure of 45 psi to the surface of the bonded material.

4.2.3 Rubber or stitch roller.

5 PROCEDURE

5.1 General

5.1.1 Adhesive fixturing (bonding) for routing as specified herein consists of bonding a sheet or plate of material to a holding fixture to provide a base for clamping or bolting to the machine table during the machining operation. After machining, the material is de-bonded from the holding fixture and cleaned.

5.2 Preparation of Sheets

5.2.1 Solvent clean the bonding area of the holding fixture and material to be bonded according to PPS 31.17 or degrease according to PPS 31.04.

5.3 Bonding

5.3.1 Bond the sheet or plate to holding fixture as follows:

Step 1. Apply two sided tape to the bonding surface of the holding fixture.

Step 2. Smooth out the surface of the two sided tape using a rubber or stitch roller.

Step 3. Remove the backing from the two sided tape.

Step 4. Carefully position the sheet or plate on the holding fixture in the correct alignment and press the parts firmly together and roll down with a rubber or stitch roller to ensure intimate contact throughout. The sheet or plate must be carefully positioned initially as the bond must not be broken and re-positioned.

Step 5. Immediately after assembling the sheet or plate to the holding fixture, load the assembly into a platen press and apply a pressure of 45 ± 5 psi to the entire bonded surface for approximately 30 seconds.

5.3.2 The bonded assembly may be drilled or routed immediately after bonding.

5.4 Clean-Up

5.4.1 Remove excess tape adhesive from tools using the solvent specified in PPS 31.17.

5.5 De-Bonding

5.5.1 De-bond the sheet or plate from the holding fixture as follows:

Step 1. Degrease the assembly according to PPS 31.04 until the tape adhesive has sufficiently softened to allow manual separation.

Step 2. After separation, scrape away the bulk of the adhesive with a scraper that will not score the sheet or plate (e.g., polycarbonate scraper).

Step 3. Suitably rack the sheet or plate and holding fixture to prevent contact with one another and degrease according to PPS 31.04 to remove all traces of tape adhesive.

6 REQUIREMENTS

6.1 Bonded sheets must not exhibit bulges, warp or separation from the holding fixture.

6.2 After cleaning, the sheet and holding fixture must be completely free of tape adhesive residue.

7 SAFETY PRECAUTIONS

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

7.2 Refer to PPS 31.17 for the safety precautions for handling and using solvents.

8 PERSONNEL REQUIREMENTS

8.1 Personnel responsible for adhesive fixturing aluminum and magnesium alloys for routing must have a basic understanding of the procedure and requirements as specified herein and must have exhibited their familiarity to their supervisor.