BOMBARDIER
Toronto Site
PROPRIETARY INFORMATION

PPS 10.12

PRODUCTION PROCESS STANDARD

POTTING OF AIRCRAFT PARTS AND ASSEMBLIES

Issue 7
- This standard supersedes PPS 10.12, Issue 6.
- Vertical lines in the left hand margin indicate changes over the previous issue.
- Direct PPS related questions to christie.chung@aero.bombardier.com or (416) 375-7641.
- This PPS is effective as of the distribution date.

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TABLE OF CONTENTS

Sections **Page**

1 SCOPE

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for potting or setting of aircraft parts and assemblies (other than electrical connectors) in epoxy resin.

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

1.2 Refer to PPS 9.05 for potting of electrical connectors.

2 HAZARDOUS MATERIALS

2.1 Before receipt at Bombardier Toronto, all materials shall be approved and assigned Material Safety Data Sheet (MSDS) numbers by the Bombardier Toronto 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 Environment, Health and Safety Department.

3 REFERENCES

3.1 PPS 9.05 - Potting Electrical Connectors.

3.2 PPS 13.23 - Preparation & Use of DHMS P1.30 Resin.

3.3 PPS 13.26 - General Subcontractor Provisions.

3.4 PPS 13.39 - Bombardier Toronto Engineering Process Manual.

3.5 PPS 31.17 - Solvent Usage.

4 MATERIALS, EQUIPMENT AND FACILITIES

4.1 Materials

4.1.1 Epoxy resin, DHMS P1.30, Grade 2, Grade 2A and Grade 3.

4.1.2 Lint free cotton wiping cloths (e.g., DSC 378-2).

4.2 Equipment

4.2.1 Spatula or scraper.

4.3 Facilities

4.3.1 This PPS has been categorized as a “Controlled Special Process” according to PPS 13.39 and as such only facilities specifically approved according to PPS 13.39 are authorized to perform potting or setting of aircraft parts and assemblies (other than electrical connectors) in epoxy resin according to this PPS.

4.3.2 Bombardier subcontractors shall direct requests for approval to Bombardier Aerospace Supplier Quality Management. Bombardier Aerospace facilities shall direct requests for approval to the appropriate internal Quality Manager.

4.3.3 Facility approval shall be based on a facility report, a facility survey and completion of a qualification test program, if required. The facility report shall detail the materials and equipment to be used, the process sequence to be followed and the laboratory facilities used to show compliance with the requirements of this PPS. Any deviation from the procedure or requirements of this PPS shall be detailed in the facility report. Based upon the facility report, Bombardier Toronto Materials Technology may identify additional qualification and/or process control test requirements. During the facility survey, the facility requesting qualification shall be prepared to demonstrate their capability. Once approved, no changes to subcontractor facilities may be made without prior written approval from Bombardier Aerospace Supplier Quality Management.

4.3.3.1 For approval of subcontractor facilities to perform potting or setting of aircraft parts and assemblies (other than electrical connectors) in epoxy resin according to this PPS, completion of a test program and submission of suitable test samples representative of production parts is required. Test samples shall meet the requirements specified in section 6.

5 PROCEDURE

5.1 Preparation of Parts

5.1.1 Accomplish all manufacturing operations (i.e., drilling and pre-fitting) before preparing or setting up the parts for potting.

5.1.2 Immediately before potting, solvent brush or wipe the contacting surfaces of the parts to be potted and the part cavity or recess into which the parts are to be fitted according to PPS 31.17.

5.2 Preparation of Potting Compounds

5.2.1 Prepare DHMS P1.30 Grade 2, Grade 2A or Grade 3 epoxy resin according to PPS 13.23.

5.2.2 Mix only sufficient material for the job on hand or which will be used up within the expected pot life of the material. Discard excess material upon expiration of the pot life or immediately after the material becomes too stiff to apply readily.

5.3 Potting and Setting

5.3.1 Pour a sufficient quantity of mixed resin, into the part cavity or recess, so that when the part is inserted and pressed in, a small amount of the compound will be extruded around the edges.

5.3.1.1 If the compound does not extrude around the edges, remove the part and add more resin.

5.3.2 If possible, carry out bolting and riveting immediately after parts have been set in place.

5.3.3 Remove excess compound extruded around the edges of parts using a suitable spatula or scraper and a cloth dampened with the solvent specified by PPS 31.17.

5.4 Curing

5.4.1 Parts or assemblies which are riveted or bolted in place may be handled after 8 hours but must be allowed to full cure according to PPS 13.23 before further working.

5.4.2 Parts which are not bolted, riveted or otherwise secured in place, must be allowed to cure in the potting position for the time specified in PPS 13.23 before further handling or working.

5.5 Clean-Up

5.5.1 Excess potting compound may be removed from tools and work area by solvent cleaning according to PPS 31.17.

6 REQUIREMENTS

6.1 Potting assemblies must be substantially free of voids and air pockets.

6.2 The hardness of the catalyzed resin after 24 hours cure at 75 ± 5°F, must be Shore D 50-60.

7 SAFETY PRECAUTIONS

7.1 Observe standard plant safety precautions when performing the procedure specified herein.

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

7.3 Keep resins away from fires and other sources of ignition.

7.4 Ensure sufficient ventilation is provided when using resins in confined areas.

7.5 Avoid skin contact with resin. Do not use protective hand cream as it may cause contamination of cleaned surfaces.

8 PERSONNEL REQUIREMENTS

8.1 This PPS has been categorized as a “Controlled Special Process” according to PPS 13.39. Refer to PPS 13.39 for personnel requirements.

9 STORAGE

9.1 Store solvents according to PPS 31.17.

9.2 Store resins according to PPS 13.23.