BOMBARDIER
Toronto (de Havilland)
PROPRIETARY INFORMATION

PPS 34.06

PRODUCTION PROCESS STANDARD

Primer Coating (F17) for Magnesium Parts

Issue 12
- This standard supersedes PPS 34.06, Issue 11.
- Vertical lines in the left hand margin indicate technical changes over the previous issue.
- Direct PPS 34.06 related questions to michael.wright@aero.bombardier.com.
- This PPS is effective as of the distribution date.

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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 the application of F17 polyester base primer coating to magnesium alloy parts.

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.

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 BAERD GEN-007 - Quality Control of Heat Treating Equipment and Hot Forming Equipment.

3.2 BAERD GEN-023 - Contamination control for compressed air.

3.3 BAPS 138-055 - Accelerated Curing of Organic Compounds.

3.4 PPS 13.13 - Personal Protective Respiratory Equipment.

3.5 PPS 13.26 - General Subcontractor Provisions.

3.6 PPS 13.28 - Storage Life of Adhesives, Sealants, Paints and Composite Products.

3.7 PPS 17.02 - Abrasive Blasting.

3.8 PPS 31.07 - Cleaning and Stripping of Painted Surfaces.

3.9 PPS 31.17 - Solvent Usage.

3.10 PPS 32.07 - Corrosion Protection of Magnesium Alloys.

3.11 QDI-09-02 - Process Control - *Bombardier Toronto (de Havilland) internal Quality procedure*.

4 Materials and Equipment

4.1 Materials

4.1.1 XIM Flash Bond #300 polyester base primer from XIM Products Canada Limited. Do not use primer which shows any signs of skinning, lumping, gelation, or other deterioration.

4.1.2 Compressed air for use with spray guns. Compressed air used with spray application equipment must meet the requirements of BAERD GEN-023.

4.2 Equipment

4.2.1 Spray-application equipment. After use, promptly clean all equipment after use to prevent primer from remaining on or in the equipment using the solvent specified in PPS 31.17.

4.2.2 Lint free cheesecloth or filter mesh.

4.2.3 Tack rags (e.g., DSC 375-1).

4.2.4 Abrasive paper, 180 - 200 grit aluminum oxide.

4.2.5 Spray guns and associated equipment (e.g., HVLP, air electrostatic, high pressure air assist, etc.) capable of applying coatings to the dry film thicknesses specified herein without unacceptable defects as specified in section 6. Operate spray guns and associated equipment according to the equipment manufacturers instructions.

4.2.6 Cure oven or area (conventional or infrared (IR)) capable of maintaining a temperature of 250°F ± 10°F (121°C ± 5°C), qualified according to BAPS 138-055 (including temperature uniformity survey according to BAERD GEN-007).

5 Procedure

5.1 General

5.1.1 XIM Flash Bond #300 primer is a one part primer.

5.1.2 Perform priming only when the temperature is at least 60°F (16°C) and the relative humidity is less than 80% in the application area. Monitor and record temperature and humidity (e.g., according to QDI-09-02) using calibrated indicators.

5.2 Preparation of Primer

5.2.1 Prepare primer according to the manufacturer's instructions, or as follows:

Step 1. Thoroughly hand mix the primer so that the properties are uniform throughout.

Step 2. Strain the primer through a clean, lint free cheesecloth or filter mesh.

5.3 Preparation of Parts

5.3.1 Keep handling of cleaned parts to a minimum. Wear clean cotton gloves for any necessary handling.

5.3.2 Prepare parts for priming as follows:

Step 1. Apply dichromate treatment (C4) to all magnesium alloy parts according to PPS 32.07.

Step 2. Touch up abraded areas with selenious acid according to PPS 32.07.

Step 3. Mask off any areas of the part which are not to be primed.

Step 4. If necessary, tack rag the surface immediately before priming.

5.4 Application of Primer

5.4.1 Apply primer as follows:

Step 1. Apply an even mist coat of primer to obtain a dry film thickness of 0.0002" to 0.0003". Ensure that complete and uniform coverage is obtained and keep overlap onto surrounding areas to a minimum.

Step 2. After 2 to 3 minutes, check that the coating has dried to a glossy sheen. This indicates proper surface adhesion.

5.4.2 It is acceptable to touch-up damaged primer in non-appearance areas with a soft-bristle brush if spray application is unsuitable.

5.5 Curing of Primer

5.5.1 Cure the primer as follows:

Step 1. Remove any masking material from the parts.

Step 2. Bake the parts at 240°F - 260°F (116°C - 127°C) for 30 minutes.

Step 3. Remove the parts from the oven and allow them to cool. Do not stack parts on top of each other while cooling.

5.5.1.1 Cure ovens or areas (conventional or infrared (IR)) must be qualified according to BAPS 138-055 (including temperature uniformity survey according to BAERD GEN-007).

5.6 Rework of Damaged or Unacceptable Coatings

5.6.1 Rework coatings with minor defects in appearance areas as follows:

Step 1. Completely strip the unacceptable coating using chemical stripper according to PPS 31.07 or by abrasive blasting according to PPS 17.02.

Step 2. Use abrasive paper to sand the existing finish adjacent to the stripped area to produce a “feather edge”. Do not use steel wool or brushes on any primed parts.

Step 3. Wipe the sanded and stripped areas with a tack rag.

Step 4. If necessary, touch-up the pre-treatment coating with selenious acid according to PPS 32.07. Slightly overlap the existing finish.

Step 5. Prime the affected area as specified in paragraph 5.4.1.

5.6.2 Rework coatings with minor defects in non-appearance areas by solvent cleaning as specified in PPS 31.17 and touching up as specified in paragraph 5.4.2.

6 Requirements

6.1 Primer coatings with blushes, runs, sags, excessive orange peel, glossy areas, dried overspray, imperfections, blisters, or other irregularities are not acceptable. Rework minor defects in coatings according to section 5.6. Refer extensive defects to Bombardier Toronto (de Havilland) MRB or Bombardier Toronto (de Havilland) delegated MRB for disposition.

6.2 The film thickness of the primer coating shall be 0.0002" to 0.0003" thick. Check the dry film thickness at random points using an Isoscope thickness gauge or suitable micrometer. Coatings which fail to meet the thickness requirements are not acceptable.

6.2.1 In small repair areas touched up by brush application, it is acceptable to vary from the dry film thickness limitations provided that complete coverage is visually verified. Take care to avoid application of an excessively thick or thin coating beyond the dry film thickness limitations specified.

7 Safety Precautions

7.1 The safety precautions specified herein are specific to Bombardier Toronto to meet Canadian Federal and Provincial government environmental, health and safety regulations. It is recommended that other facilities consider these safety precautions; however, suppliers, subcontractors and partners are responsible for ensuring that their own environmental, health and safety precautions satisfy the appropriate local government regulations.

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

7.3 Do not smoke or eat in areas where spraying is being conducted.

7.4 Wear protective respiratory equipment according to PPS 13.13 when working in areas where spraying is being conducted.

7.5 Spray booths and spray rooms shall be equipped with a suitable exhaust system.

7.6 Do not have open flames or naked lights in areas where painting operations are carried out. Do not use infra-red or other heat lamps in the paint booths (i.e. any area where paint is being applied).

7.7 Soak used rags with water and keep them in the containers provided.

8 Personnel Requirements

8.1 Personnel responsible for the application of F17 polyester base primer coating to magnesium alloy parts must have a good working knowledge of the procedure and requirements as specified herein and shall have exhibited their competency to their supervisor.

9 Storage of Primer

9.1 Store primer in a dry area. It is acceptable to store primer at a temperature of 40°F - 100°F (4°C - 38°C); however, for optimum storage life, a temperature of 60°F - 80°F (16°C - 27°C) is recommended. Keep containers in which primer is being stored tightly closed at all times. Refer to PPS 13.28 for the storage life of F17 primer.