BOMBARDIER

Toronto Site

PROPRIETARY INFORMATION

PPS 16.20

PRODUCTION PROCESS STANDARD

TEMPORARY CORROSION PROTECTION OF CARBON AND LOW ALLOY STEEL PARTS

Issue 5
- This standard supersedes PPS 16.20, Issue 4.
- 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) 375-7641.
- This PPS is effective as of the distribution date.

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1 SCOPE

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for oil coating carbon and low alloy steel parts and assemblies as temporary protection from corrosion. This process is not applicable to the following parts:

- Do not oil coat parts which have been phosphate treated, cadmium plated, primed or painted.
- Do not oil coat welded assemblies, or other assemblies likely to entrap oil between faying surfaces, which are to be Ivadized (M2) according to PPS 24.02 or F28 powder coated according to PPS 34.35.

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.

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 13.26 - General Subcontractor Provisions.

3.2 PPS 24.02 - Ion Vapour Deposited Aluminum Coatings (M2).

3.3 PPS 31.04 - Degreasing Processes.

3.4 PPS 31.17 - Solvent Usage.

3.5 PPS 34.35 - Application of Powder Coatings (F28).

4 MATERIALS AND EQUIPMENT

4.1 Materials

4.1.1 Adhesive tape (e.g., 2" wide duct tape).

4.1.2 Corrosion preventive lubricant:

- MIL-L-7870 (e.g., PENRECO Petrotect 7870A or Aeroshell Fluid #3)
- MIL-C-16173 (e.g., LPS 2 or LPS 3)
- MIL-PRF-32033

4.1.3 Polyethylene bags (e.g., 3 mil thick).

4.2 Equipment

4.2.1 Oil dip tank, wood frame construction with steel liner and steel cover.

4.2.2 Bristle brush (e.g., 2" wide paint brush).

4.2.3 Neoprene rubber gloves (e.g., DSC 422-5).

5 PROCEDURE

5.1 General

5.1.1 Temporary corrosion protection of carbon and low alloy steel parts basically consists of coating all interior and exterior surfaces of the parts with a continuous film of corrosive preventive lubricant (see paragraph 4.1.2) to prevent surface corrosion during transit to and from subcontractors and during long term storage at Bombardier Toronto. For the purposes of this PPS, consider long term storage as being six months or longer.

5.2 Preparation of Parts

5.2.1 Before oil coating, degrease parts according to PPS 31.04 or solvent clean according to PPS 31.17 to remove soil, dirt, oil, grease and machining chips.

5.3 Application of Oil Coating

5.3.1 Wherever possible, oil coat parts by complete immersion in the oil tank (see paragraph 4.2.1).

5.3.2 Small parts may be placed in a suitable wire mesh or wire screen basket to facilitate batch dipping.

5.3.3 Open-ended tubular parts which are too long to be completely immersed in the oil tank, but are less than twice as long as the oil tank depth (24" to 27"), shall be dipped one end at a time to provide complete internal immersion of the tubes.

5.3.4 Internally coat open-ended tubular parts which are more than twice as long as the oil tank depth by closing off one end with adhesive tape (see paragraph 4.1.1) or with suitable plastic or rubber plugs, filling the tube with oil and draining the oil back into the tank. Coat the exterior of the part by brushing (see paragraph 4.2.2) with oil or wiping with an oil-soaked cloth.

5.3.5 Large tubular parts and assemblies which cannot be filled and drained may be coated internally by swabbing the insides with an oil-soaked cloth securely tied to a suitable wooden or steel wire ramrod. Take care not to damage parts or assemblies. Oil-soaked cloths shall be dripping with oil. Take care when swabbing or wiping parts to ensure complete coverage of all surfaces.

5.3.6 After oil dipping or coating, allow all parts to drain over the oil tank or over a suitable catch tray until the dripping stops. Up-end and drain parts or assemblies which contain pockets or recesses, which are likely to hold oil, to ensure complete drainage from such pockets or recesses. Immediately upon completion of the draining operation, return drained oil in catch trays to the oil dip tank.

5.4 Wrapping

5.4.1 Except as noted below, individually wrap all oil coated parts in Kraft paper for shipment or storage:

- Small parts may be bagged as batches in suitable polyethylene bags (see paragraph 4.1.3) and taped closed with masking tape.
- Parts and assemblies which are to be shipped or stored in specially designed shipping boxes or transport dollies may be placed directly into such boxes without protective wrapping.

5.5 Removal of Oil Coating

5.5.1 Before carrying out further fabrication operations, degrease oil coated parts according to PPS 31.04 or solvent clean according to PPS 31.17 to remove all traces of the protective oil coating.

6 REQUIREMENTS

6.1 Oil coated parts shall have a continuous film of oil on all internal and external surfaces.

6.2 All parts shall be wrapped, bagged or boxed according to section 5.4 before shipping or long term storing.

7 SAFETY PRECAUTIONS

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

7.2 Ensure adequate ventilation in locations where oil coating is being carried out.

7.3 Keep oil away from fire and other sources of ignition.

7.4 Wear neoprene rubber gloves (see paragraph 4.2.3), neoprene rubber aprons and Bombardier approved chemical splash goggles at all times when oil treating parts.

7.5 Clean up oil spills on floors or walkways immediately.

7.6 Cover the oil dip tank with a suitable metal cover when not in use. Return oil drained into catch trays to the oil dip tank immediately upon completion of the draining operation.

7.7 After processing parts according to this PPS, thoroughly wash hands with soap and water before eating or smoking.

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

8 PERSONNEL REQUIREMENTS

8.1 Personnel responsible for oil coating carbon and low alloy steel parts and assemblies as temporary protection from corrosion shall have a good working knowledge of the applicable procedure and requirements as specified herein and shall have exhibited their competency to their supervisor.