| PROCESS SPECIFICATION DEPARTURE | ORIG M. Kim | PSD NUMBER 6–77 | PROCESS SPEC NO. BAC5725 |
|---|---|---|---|
| Implementation of this departure is:<br>[X] OPTIONAL–May be implemented at discretion of affected organization.<br>[ ] MANDATORY–Must be implemented as noted below. | SUPV C. O. Watts | PAGE 1 of 8 | |
| | MFG A. M. Pang | PROCESS SPEC TITLE: **STRIPPING ORGANIC MATERIALS** | |
| | QUAL R. J. Mulloy | | |
| REASON:<br>Add environmentally approved stripping method. | MAT'L A. M. Pang | | |
| | CUST. APPROVAL<br>ENGR APPROVAL R. A. Grove | 13–MAR–2003<br>REL'S DATE | |

| SUBCONTRACTOR(S) AFFECTED | ON MODELS | MFG DEPTS OF DIV BELOW AFFECTED |
|---|---|---|
| ALL | ALL COMMERCIAL AIRPLANES AND DERIVATIVES THEREOF | ALL BCAG AND SUPPORTING |

B C A G

THIS PSD SUPERSEDES PSDs 6–70 AND 6–72

**3 REFERENCES**

Add the following new References:

| | | |
|---|---|---|
| BAC5771 | – | Stripping Inorganic Finishes |
| D6–53993 | – | Wheat Starch Media Blasting for Removal of Finishes from Composite Parts |

**5 MATERIALS CONTROL**

5.6 MISCELLANEOUS MATERIALS

Delete Item i.

Add the following new Item:

x. Filter Paper, Fast, Course; Whatman #4, #31, #41, #54, #114, #591 or equivalent

Add the following new Section:

5.X ABRASIVE BLASTING MEDIA

a. Soft Abrasive Grain Media; A–A–1722, Types I and II

b. Plastic Abrasive Media: MIL–P–85891, Type V, Grade A, Acrylic Blasting Media, 20/30 Mesh, specific gravity 1.10 to 1.20

c. Wheat Starch, Envirostrip 12/30 Mesh or Finer, 99.98 percent minimum purity, ADM/Ogilvie

d. Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh, U.S. Technologies

e. Magic 2 Nanocomposite Abrasive Media, 30/60 Mesh, U.S. Technologies

f. Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh, U.S. Technologies

5.7 CORPORATE ADDRESSES – MATERIAL SUPPLIERS

Add the following new Items:

x. Whatman
9 Bridewell Place
Clifton, NJ 07014

y. ADM/Ogilvie
155 lberia
Candiac, Quebec, Canada J5A 3H1

z. U.S. Technologies
220 Seventh Street, S.E.
Canton, OH 44702

**8 MANUFACTURING CONTROL**

8.3 STRIPPING PROCEDURES

8.3.1 SELECTION OF STRIPPING METHOD

Revise Item d. to read as follows:

d. Dry abrasive stripping

(1) Conventional abrasive blasting or sanding

Conventional abrasive blasting or dry sanding may be used to remove organic materials from the following substrates:

(a) Ferrous alloys

(b) Titanium alloys

(c) Nickel alloys

(d) Magnesium alloys

(e) Non–production hardware (for example, part hangers and shop painting screens)

Metallic substrates shall be stripped in accordance with Section 8.3.4.1a. using soft abrasive grain media, A–A–1722, Type I or II (Section 5.Xa.).

Composite substrates shall be stripped by dry sanding in accordance with Section 8.3.4.2a.

(2) Plastic Media Blasting

Acrylic blasting media (Section 5.Xb.) may be used to remove organic materials from the following substrates:

(a) Non–clad (bare) aluminum alloys of gage thickness of 0.125 inch and greater

(b) Ferrous alloys

(c) Titanium and titanium alloys

(d) Ti–Cadmium, cadmium, nickel, zinc–nickel, chromium, and copper plated parts

(e) Chemically treated or anodized magnesium. Do not strip to bare magnesium.

Plastic media basting damages plating and surface treatments (for example, chemical conversion and anodized coatings). All plating (except chromium) and residual surface treatments require stripping in accordance with BAC5771.

Substrates shall be stripped in accordance with Section 8.3.4.1b.

8.3.1 SELECTION OF STRIPPING METHOD (Continued)

(3) Wheat Starch Blasting

Wheat starch abrasive media (Section 5.Xc.) may be used to remove organic materials from the following substrates:

(a) Aluminum alloys with a gage thickness of 0.032 inch or greater (this includes both clad and non–clad (bare) alloys)

(b) Bonded aluminum honeycomb sandwich parts with facesheets 0.012 inch thick and greater

(c) All other metals, including plated surfaces

(d) Composite parts

Metallic substrates shall be stripped in accordance with Section 8.3.4.1c. Complete removal of organic materials by wheat starch media blasting damages surface treatments on the base metal (for example, chemical conversion and anodized coatings), and may remove plating. Following a complete removal of organic finishes, the residual surface treatments should be removed in accordance with BAC5771.

Composite substrates shall be stripped in accordance with Section 8.3.4.2b.

(4) Nanocomposite Blasting

Nanocomposite blasting may be used to remove organic materials from the following substrates:

(a) Aluminum substrates with a gage thickness of 0.040 inch or greater

(b) Bonded aluminum honeycomb sandwich parts with facesheets 0.012 inch thick or greater

There are three different kinds of nanocomposite abrasive media. The following guidelines should be used in selecting the kind of media that should be used for a given application:

(a) Magic 1 (Section 5.Xd.) is used for general purpose stripping.

(b) Magic 2 (Section 5.Xe.) is used when an increased strip rate is desired

(c) Magic 3 (Section 5.Xf.) is used to remove cured sealant.

Maximum of four paint stripping cycles are allowed during the life of the airplane.

Aluminum substrates shall be stripped in accordance with Section 8.3.4.1d.

8.3.4 DRY ABRASIVE STRIPPING

Revise to read as follows:

8.3.4.1 Metal Substrates

Parts shall be processed as follows using a method and abrasive specified in Section 8.3.1d.

Complete removal of organic materials by abrasive methods damages surface treatments on substrate metals (for example, chemical conversion and anodized coatings) and may remove plating. Strip residual surface treatments in accordance with BAC5771. Inspect plating thickness (except chromium) for compliance with drawing requirements. Refinish part in accordance with the drawing requirements.

a. Conventional abrasive blasting and sanding.

If soft abrasive grain media (Section 5.Xa.) is used, process in accordance with BAC5748 except as follows:

(1) Nozzle air pressure: 90 to 100 psi

(2) Distance from nozzle to part: approximately 6 inches

b. Plastic Media Blasting

(1) Parts shall be clean, dry and free of metal shavings prior to stripping.

(2) Use only equipment dedicated to plastic media blasting.

(3) Blasting equipment shall utilize the following operating parameters:

(a) Nozzle air pressure: 20 to 40 psig

(b) Distance from nozzle to part: greater than or equal to 6 inches

(4) Adjust the nozzle to part angle as necessary to remove coating. An angle of approximately 45 degrees is good for general purpose stripping.

(5) Screen plastic media to remove undersized media and contaminants (such as paint flakes, metallic particles, and degraded media). The media shall be screened:

(a) Prior to the initial use of new media

(b) Prior to or continuously during (when deemed necessary) each reuse of the media

8.3.4.1 Metal Substrates (Continued)

(6) Plastic media used to strip production parts shall contain less than 0.5 percent, by weight of particles with a specific gravity greater than 1.20 when tested in accordance with Section 12.X.

(7) All components of the blasting and recovery systems shall be thoroughly cleaned prior to loading new plastic media into the system or prior to a change in the media being used.

c. Wheat Starch Blasting

(1) Parts shall be clean, dry, and free of metal shavings prior to stripping.

(2) Use only equipment dedicated to wheat starch blasting.

(3) Blasting equipment shall utilize the following operating parameters.

(a) Nozzle air pressure: 30 to 50 psig

(b) Distance from nozzle to part: 6 inches minimum

(c) Recommended nozzle to part angle: 20 to 60 degrees. When selectively stripping organic finishes (for example, stripping the topcoat but leaving the primer), small nozzle to part angles are required.

(4) Selective stripping is acceptable provided that the remaining material is fully adherent and in compliance with drawing requirements.

d. Nanocomposite Blasting

(1) Parts shall be clean, dry and, free of metal shavings prior to stripping.

(2) Use only equipment dedicated to nanocomposite blasting.

(3) Blasting equipment shall utilize the following operating parameters.

(a) Nozzle air pressure: 32 psig maximum

(b) Distance from nozzle to part: 6 inches minimum

(c) Recommended nozzle–to–part angle: 40 to 60 degrees. The lower angles are required when selectively stripping organic finishes (for example, removing a topcoat while leaving the underlying primer).

(4) Selective stripping is acceptable provided that remaining material is fully adherent and in compliance with drawing requirements.

8.3.4.2 Composite Substrates:

Use one of the following methods:

a. Dry sanding

(1) Use 150 grit or finer abrasive (Section 5.6f.) for removal of topcoat. Abrade topcoat evenly down to primer surface. It is not necessary to remove primers for the reapplication of primer, or topcoat, provided that the primer is adherent and in compliance with drawing requirements.

(2) Abrade and feather primer and topcoat using 240 grit or finer abrasive paper. Do not damage the fibers of the composite substrate.

(3) If substrate has a conductive coating, sand off all of the coating in area to be repainted to obtain uniform conductivity after touch–up.

b. Wheat starch media blasting shall be performed in accordance with D6–56993.

**12 TEST METHODS**

Add the following new Section:

12.X HEAVY PARTICULATE CONTAMINATION

a. Solution Preparation

Dissolve sufficient potassium bromide in deionized water to form a solution that has a specific gravity of 1.30. This solution is 0.1 greater than the maximum allowed specific gravity for acrylic plastic media (Section 5.Xb.). At room temperature, this solution will be approximately 34 percent by weight potassium bromide. The potassium bromide solution may be reused provided that is not diluted (see Section 12.Xb.(5)) with rinse water.

b. Heavy Particulates

(1) Pour approximately 250 ml of the prepared potassium bromide solution into a 500 ml or larger separatory funnel.

(2) Weigh out a 50 $\pm$ 1 gram sample of spent media to the nearest 0.001 gram. This is the Contaminated Sample Weight.

(3) Add the sample of spent plastic media to the solution. Stir the solution with a mixing rod for 2 minutes to thoroughly wet the media. Do not shake the solution. Let it set undisturbed for 10 minutes.

(4) Weigh a clean, dry sheet of coarse fast filter paper (Section 5.6x.) to the nearest 0.001 of a gram. This is the Filter Paper Tare Weight.

12.X HEAVY PARTICULATE CONTAMINATION (Continued)

(5) Drain the contents of the separatory funnel through the filter paper. The potassium bromide solution that passes through the filter at this stage can be set aside and used again in subsequent tests. If the solution is diluted by the addition of rinse water (see Section 12.Xb.(6)), the solution should be discarded or more potassium bromide should be added to it to bring to a specific gravity of 1.30 (see Section 12.Xa.).

(6) Rinse the separatory funnel with deionized water and run this liquid through the filter paper. Then thoroughly rinse the filter paper and the solid material on it with additional deionized water. Allow the liquid to completely drain from the filter paper.

(7) Dry the test specimen (the filter paper and solid residue) in an oven at 160 to 190 F for a minimum of 1 hour or until its weight remains constant. Record the final weight of the specimen to the nearest 0.001 gram. This is the Total Residual Weight.

(8) Calculate the Percentage of Heavy Particulate Contamination (HPC) using the following equation:

$$HPC = \frac{Total\ Residual\ Weight - Filter\ Paper\ Tare\ Weight}{Contaminated\ Sample\ Weight}\ X\ 100$$

(9) The Percentage of Heavy Particulate Contamination (HPC) in the plastic media used to strip production parts shall not exceed 0.5 percent, by weight (see Section 8.3.4.1b.(6).