STANDARD OVERHAUL PRACTICES MANUAL

APPLICATION OF CORROSION INHIBITING ADHESIVE PRIMER

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STANDARD OVERHAUL PRACTICES MANUAL

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To: All holders of APPLICATION OF CORROSION INHIBITING ADHESIVE PRIMER 20-50-14.

Attached is the current revision to this STANDARD OVERHAUL PRACTICES MANUAL

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Location of Change	Description of Change
	NO HIGHLIGHTS

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STANDARD OVERHAUL PRACTICES MANUAL

A = Added, R = Revised, D = Deleted, O = Overflow

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STANDARD OVERHAUL PRACTICES MANUAL

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INTRODUCTION

1. General

A. The instructions in this manual tell how to do standard shop procedures during maintenance functions from simple checks and replacement to complete shop-type repair.

B. This manual is divided into separate sections:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) Effective Pages

(5) Contents

(6) Revision Record

(7) Record of Temporary Revisions

(8) Introduction

(9) Procedures

C. Refer to SOPM 20-00-00 for a definition of standard industry practices, vendor names and addresses, and an explanation of the True Position Dimensioning symbols used.

D. The data is general. It is not about all situations or specific installations. Use it as a guide to help you write minimum standards.

E. If the component overhaul instructions are different from the data in this subject, use the component overhaul instructions.

APPLICATION OF CORROSION INHIBITING ADHESIVE PRIMER

1. INTRODUCTION

A. The data in this subject comes from Boeing Process Specification BAC5514-589. This airline has a copy of the Boeing Process Specification Manual.

B. The data is general. It is not about all situations or specific installations. Use this data to help you write minimum standards.

C. BMS 5-89 corrosion inhibiting adhesive primer is a solvent-based primer that gives a transparent but corrosion-resistant coating while it makes a good base for metal-to-metal adhesives. In a structural assembly where some surfaces are bonded together and others are not, this primer is applied to all surfaces. It then becomes the protection from corrosion for the complete structure, unless more protection is specified. Then a different primer, such as BMS 10-11 or BMS 10-79, can be applied on the BMS 5-89 layer.

D. The BMS 5-89 primer comes in one type with 2 grades. Type 1, the only current type, is a solvent-based, heat cured primer. Grade A is a one- or two-part primer with low solids content. Grade B is a one- or two-part primer with high solids contents.

E. Refer to SOPM 20-00-00 for a list of all the vendor names and addresses.

2. MATERIALS

NOTE: Equivalent substitutes can be used.

A. Corrosion inhibiting adhesive primer - BMS 5-89

(1) Type 1, Grade A

(2) Type 1, Grade B

B. Primer – BMS 10-11, Type 1, Color Y

C. Tape – Permacel P743, V99742

D. Polyethylene film – carbon-black filled, 0.006-inch minimum thickness, V95696

E. Mixture of 42 volume parts MEK with 58 volume parts sec-butyl alcohol

F. Film, moisture resistant laminated opaque – Dry Pack 3600, V1E893

3. PREPARATION

A. Preparation of the Surface

(1) BMS 5-89 primer is usually applied only on surfaces phosphoric anodized per BAC5555. If the surfaces have defects or waited too long after they were anodized, they must be stripped and anodized again. Refer to BAC5555 for details.

(2) Chromic acid anodize is not permitted as a surface preparation before application of BMS 5-89 primer.

B. Storage and Handling

(1) Store BMS 5-89 primer for these maximum times from date of shipment:

(a) One-part primer: 9 months at 0°F maximum or 2 months at 40°F maximum.

(b) Two-part primer: 9 months at 40°F maximum, or 6 months (Grade A), or 3 months (Grade B) at 90°F maximum.

(2) Type 1 Grade A or unmixed Type 1 Grade B material can be removed from refrigeration a maximum of 6 times. The maximum total time it can be out is 96 hours.

(3) When you remove BMS 5-89 primer from refrigeration, let it get back to 65-90°F before you open the container to be sure moisture does not condense on the material. Close the container before you put it back in refrigeration.

(4) See Figure 1 for time limits in the procedure for the application of the BMS 5-89 primer.

C. Mixing

WARNING: BMS 5-89 PRIMER IS VERY POISONOUS AND VERY FLAMMABLE. THE FLASH POINT IS VERY LOW (APPROXIMATELY 43°F (6°C). USE ONLY WITH ADEQUATE VENTILATION. DO NOT BREATHE THE MIST OR VAPOR. DO NOT LET THE PRIMER TOUCH EYES, SKIN, OR CLOTHING.

(1) One-part primer

(a) Immediately before you use it, fully mix each container on a vibrating paint mixer. Mix quart-size containers for a minimum of 5 minutes; mix gallon or larger containers for a minimum of 15 minutes.

(b) Spray equipment must include continuous agitation in the container and recirculation in the hose during operation. If the agitation stops, the material must be mixed again for a minimum of 2 minutes before you continue.

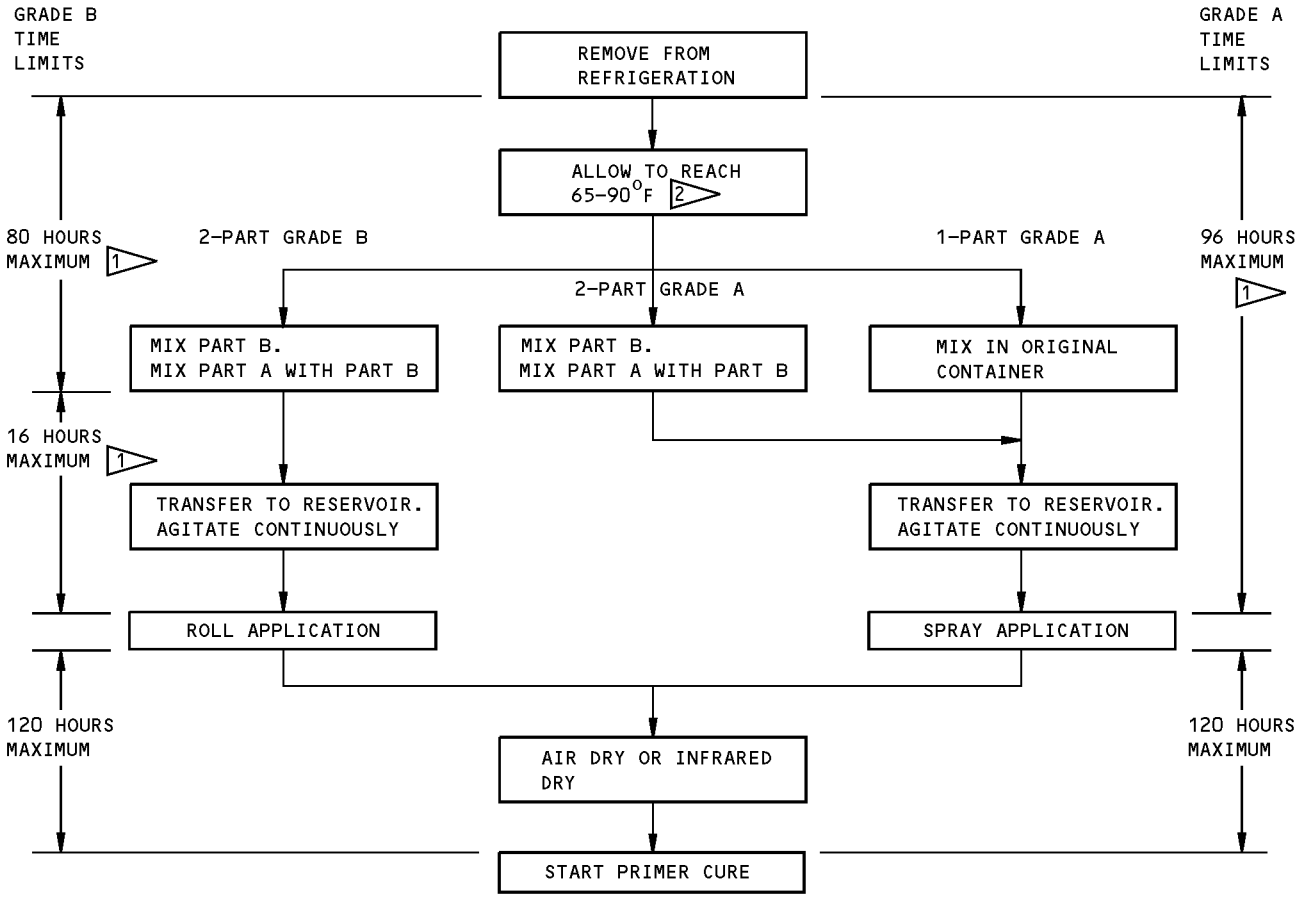
(2) Two-part primer

(a) Warm containers to 65-90°F. Shake the smaller volume container (Part B) on a paint mixer for 5 minutes minimum. Then add it to the larger volume component (Part A) within 5 minutes. Make sure that all solids in Part B were added to Part A.

(b) Shake the mixed parts A and B on a paint shaker for 15 more minutes minimum.

(c) Within 10 minutes after this mixing, put the mixed primer into the reservoir of the equipment and start agitation to prevent settling.

(d) Do not use material that has lumps or becomes a gel.



1 REJECT AND DISCARD PRIMER WHEN TIME IS MORE THAN THE LIMIT.

2 UNMIXED GRADE B AND 2-PART SPRAYABLE MATERIAL CAN BE RETURNED TO REFRIGERATION. REFER TO PAR. 3.B. FOR DETAILS.

Process Flow and Time Limits
Figure 1

4. APPLICATION

A. With spray equipment

(1) Apply the BMS 5-89 primer to make a cured film thickness of 0.00015-0.00040 inch (0.15-0.40 mil). See Table 1 for recommended equipment. Primed surfaces that will not be bonded must have a coating of 0.00015 inch minimum. There is no maximum thickness limit but no runs are permitted.

(a) Coating of edges is not necessary on parts with thicknesses up to 0.080 inch. Over-spray is permitted. Edges greater than 0.080-inch in thickness must be coated, unless these edges will be painted with BMS 10-11, Type 1 or BMS 10-79 primer.

(b) Coatings up to 0.0008-inch thick are permitted on areas within 1/4 inch of edges, 1/4 inch around holes, and 1/4 inch around areas touched by holding fixtures.

(c) If the BMS 5-89 primer layer is thinner than the minimum thickness (0.00015 inch), you can apply a second layer to increase the BMS 5-89 primer thickness to the minimum value before baking. But the two layers must be cured within 120 hours after you apply the first layer.

(d) Bare spots caused by contact points of part clamps must not be more than 3/32-inch diameter in any dimension, except that one contact point at each clamp can be 1/8-inch diameter.

Table 1: Recommended Equipment

DeVilbiss (V17431) Equipment				
Spray Gun	**Fluid Needle**	**Fluid Tip**	**Air Cap**	**Air Pressure**
MBC-510	MBC-444F	AV 15F	No. 36	40 psi
JGA-502	JGA-402EX	AV 15EX	No. 30	30 psi
PJGA-5402-1 -704-FX	JGA-402G	AV 601G	No. 704	40 psi

(2) Air dry the BMS 5-89 primer a minimum of 30 minutes, or dry with infrared lamps until tack free at 200°F maximum coating temperature. Within 120 hours after coating, cure the primer at 240-260°F coating temperature for 30-120 minutes. This primer can be cured in an oven outside the controlled contamination area, but the parts must have protection from airborne contamination and be outside the controlled area for no more than 30 minutes before they are put into the oven.

(3) Coated and cured parts can be bonded as-is, if they were kept in the controlled contamination area for less than 30 days.

(4) Parts with cured BMS 5-89 primer can be stored for 60 months maximum when they have the protection of one or more of these:

(a) Wrapped individually or in groups with clean oil-free kraft paper, paper bags, cardboard, or black carbon-filled polyethylene (0.006-inch minimum). (Rubber or vinyl film is not approved.)

(b) Stacked with the top part covered if all surfaces to be bonded have protection.

(c) Unstacked on covered shelves. The shelf covers must enclose the shelf and must be opaque to ultraviolet light.

(d) With P743 tape on the bond surfaces.

(5) Parts with cured BMS 5-89 primer that were bonded, stored more than 30 days, or stored outside the controlled contamination area must be cleaned before they are bonded again. Vapor degrease the parts per SOPM 20-30-03 or wipe them with a Series 97 solvent (Ref SOPM 20-30-97), wipe dry, wipe again with a Series 97 solvent (Ref SOPM 20-30-97) and again wipe dry. Do not let the parts air dry.

(6) For surfaces with cured BMS 5-89 primer which are not bonded, give the parts protection during storage and shipment per SOPM 20-44-02.

(7) Parts with cured BMS 5-89 primer can be stored 20 years from application date when given the protection of laminated, opaque moisture-resistant film and then vacuum sealed. Be sure to put the primer application date on the outside of the wrapper.

B. With Roll Coating Equipment

(1) The roll coating equipment used to apply Type 1, Grade B primer must include:

(a) Continuous agitation of the primer reservoir.

(b) Continuous circulation of primer between the rolls and the reservoir during coating.

(c) Continuous automatic viscosity control.

(2) More primer can be added to the system to replace material used during a coating run. But no primer can stay in the system more than 18 hours after the first addition to the reservoir. At the end of this 18-hour time or at the end of the coating run, whichever occurs first, discard all remaining primer and fully clean the equipment.

(3) Fully clean the equipment before you change from one supplier's material to another.

(4) Drying, curing film thickness, storage, and handling requirements for roll coated primer are the same as for spray primer. To apply primer to two sides of a part, dry the first coated surface tack free before you coat the second surface. Do not oven cure before you coat the second side. The oven cure for the part must start within 120 hours after the first surface is coated.

5. IN-PROCESS CORRECTION

A. Contamination before the primer cure

(1) Remove all of the primer with a Series 97 solvent (Ref SOPM 20-30-97).

(2) Prepare the surface per Paragraph 3. and apply the primer again per Paragraph 4.

B. Surface damage or shop dirt contamination of the cured primer layer

(1) For dirt contamination or damage such as scratches in the coating that do not go through to the bare metal, wipe with a Series 97 solvent (Ref SOPM 20-30-97) and cheesecloth. Wipe dry. Wipe again with a Series 97 solvent (Ref SOPM 20-30-97). Wipe dry.

(2) For surface damage in the primer layer that goes down to the bare metal:

(a) Areas to be bonded which were phosphoric anodized per BAC5555:

1) Areas bare because of anodize clamps are acceptable as in Paragraph 4.A.(1)(d).

2) Areas of damage 0.25 square inch or less, not nearer than 0.15 inch from an exposed bonded edge: Clean the surface and apply a primer by the procedure for treating multistage assemblies in BAC5514. Only one correction per square foot of bonded area is permitted. If the bonded area is less than 1 square foot, one correction is permitted.

3) Scratches and other defects on 0.3% of the total bonded area or less, not nearer than 0.15 inch from an exposed bonded edge: Wipe the damaged area two times with methyl ethyl ketone as in Paragraph 5.B.(1) above. Then touch up the area with a thin, manually-applied layer of BMS 5-89 primer. Let this air dry 30 minutes minimum. The touched-up area must not be more than 2% of the total area to be bonded.

(b) Unbonded areas – Colored chemical treat Type 2, Class A per SOPM 20-43-03. (This chemical treatment is optional on trimmed edges.) Then touch up with BMS 10-11, Type 1, Color Y per SOPM 20-41-02.

6. QUALITY CONTROL

A. Because of the aluminum alloy, surface condition, and the prebonding treatment, the color of a cured layer of BMS 5-89 primer can be from transparent to yellowish, or a light gold almost the same as Alodine 1200 chemical conversion coating. A correctly applied coating will be glossy.

B. BMS 5-89 primer coatings with scratches that go through to the bare metal in areas to be bonded are not acceptable.

7. REMOVAL OF CURED LAYERS

A. Remove cured BMS 5-89 primer per SOPM 20-30-02 by the same procedure as specified for BMS 10-11 primer.