

CHAPTER

51

**STANDARD
PRACTICES AND
STRUCTURES**



737-7/8/8200/9/10
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 51
STANDARD PRACTICES AND STRUCTURES

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3	Jan 15/2023		214	Sep 15/2021		208	Sep 15/2021	
4	Jan 15/2023		215	Sep 15/2021		51-00-59		
5	Jan 15/2023		216	Sep 15/2021		201	Sep 15/2021	
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7	Jan 15/2022		218	Sep 15/2021		203	Sep 15/2021	
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206	Sep 15/2021		51-00-55			202	Sep 15/2021	
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202	Sep 15/2021		201	Sep 15/2021		202	BLANK	
203	Sep 15/2021		202	Sep 15/2021		51-05-01		
204	BLANK		203	Sep 15/2021		201	Sep 15/2021	
51-00-53			204	BLANK		202	Sep 15/2021	
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202	Sep 15/2021		201	Jan 15/2023		204	Sep 15/2021	
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205	Sep 15/2021		204	BLANK		207	Sep 15/2021	
206	Sep 15/2021		51-00-58			208	Sep 15/2021	
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212	Sep 15/2021		719	Jan 15/2023		755	Jan 15/2023	
213	Sep 15/2021		720	Jan 15/2023		756	Jan 15/2023	
214	Sep 15/2021		721	Jan 15/2023		757	Jan 15/2023	
215	Sep 15/2021		722	Jan 15/2023		758	Jan 15/2023	
216	Sep 15/2021		723	Jan 15/2023		759	Jan 15/2023	
217	Sep 15/2021		724	Jan 15/2023		760	Jan 15/2023	
218	Sep 15/2021		725	Jan 15/2023		761	Jan 15/2023	
219	Sep 15/2021		726	Jan 15/2023		762	Jan 15/2023	
220	BLANK		727	Jan 15/2023		763	Jan 15/2023	
51-21-00			728	Jan 15/2023		764	Jan 15/2023	
701	Sep 15/2021		729	Jan 15/2023		765	Jan 15/2023	
702	Sep 15/2021		730	Jan 15/2023		766	Jan 15/2023	
703	Jan 15/2022		731	Jan 15/2023		767	Jan 15/2023	
704	Sep 15/2022		732	Jan 15/2023		768	Jan 15/2023	
705	Sep 15/2022		733	Jan 15/2023		51-21-12		
706	Sep 15/2022		734	Jan 15/2023		701	Sep 15/2021	
707	Jan 15/2022		735	Jan 15/2023		702	Sep 15/2021	
708	Jan 15/2022		736	Jan 15/2023		703	Sep 15/2021	
51-21-11			737	Jan 15/2023		704	Sep 15/2021	
701	Sep 15/2021		738	Jan 15/2023		705	Sep 15/2021	
702	Sep 15/2022		739	Jan 15/2023		706	Sep 15/2021	
703	Jan 15/2022		740	Jan 15/2023		51-21-21		
704	Jan 15/2022		741	Jan 15/2023		701	Sep 15/2021	
705	Jan 15/2022		742	Jan 15/2023		702	Sep 15/2022	
706	Jan 15/2022		743	Jan 15/2023		703	Jan 15/2022	
707	Jan 15/2022		744	Jan 15/2023		704	Sep 15/2021	
708	Jan 15/2022		745	Jan 15/2023		705	Sep 15/2021	
709	Jan 15/2022		746	Jan 15/2023		706	Sep 15/2022	
710	Jan 15/2022		747	Jan 15/2023		707	Jan 15/2022	
711	Jan 15/2022		748	Jan 15/2023		708	Jan 15/2022	
712	Jan 15/2022		749	Jan 15/2023		709	Jan 15/2022	
713	Jan 15/2022		750	Jan 15/2023		710	Jan 15/2022	
714	May 15/2023		751	Jan 15/2023		711	Jan 15/2022	
715	Jan 15/2023		752	Jan 15/2023		712	Jan 15/2022	
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716	Jan 15/2022		704	BLANK		712	Sep 15/2021	
717	Jan 15/2022		51-21-61			713	Jan 15/2023	
718	BLANK		701	Sep 15/2022		714	Sep 15/2021	
51-21-31			702	Jan 15/2022		715	Sep 15/2021	
701	Jan 15/2023		703	Sep 15/2021		716	Sep 15/2021	
702	May 15/2023		704	Sep 15/2021		717	Jan 15/2023	
703	May 15/2022		51-21-71			718	Jan 15/2023	
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705	May 15/2022		702	Sep 15/2022		720	Jan 15/2023	
706	Jan 15/2023		703	Jan 15/2022		721	Jan 15/2023	
707	Sep 15/2021		704	Jan 15/2022		722	Jan 15/2023	
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709	Sep 15/2021		706	Sep 15/2022		724	Jan 15/2023	
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715	Sep 15/2021		712	Sep 15/2021		730	Sep 15/2021	
716	Sep 15/2021		713	Sep 15/2021		731	Sep 15/2021	
51-21-41			714	Sep 15/2022		732	Sep 15/2021	
701	Jan 15/2023		715	Jan 15/2022		733	Sep 15/2021	
702	Jan 15/2023		716	Jan 15/2022		734	Sep 15/2021	
703	Jan 15/2023		717	Jan 15/2022		735	Sep 15/2021	
704	Jan 15/2023		718	Jan 15/2022		736	BLANK	
705	Jan 15/2023		51-21-72			51-21-73		
706	Jan 15/2023		701	Jan 15/2023		701	Sep 15/2021	
707	Jan 15/2023		702	Sep 15/2022		702	Sep 15/2021	
708	Jan 15/2023		703	Sep 15/2022		703	Sep 15/2021	
709	Sep 15/2021		704	Sep 15/2021		704	Sep 15/2021	
710	Jan 15/2023		705	Sep 15/2021		705	Sep 15/2021	
711	Jan 15/2023		706	Sep 15/2021		706	Sep 15/2021	
712	Jan 15/2023		707	Sep 15/2021		707	Sep 15/2021	
51-21-51			708	Sep 15/2021		708	Sep 15/2021	
701	Sep 15/2022		709	Jan 15/2023		709	Sep 15/2021	
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711	Sep 15/2021		704	Sep 15/2022		715	Sep 15/2022	
712	Sep 15/2021		705	Jan 15/2022		716	Sep 15/2022	
713	Sep 15/2021		706	Jan 15/2022		717	Sep 15/2022	
714	Sep 15/2021		707	Jan 15/2022		718	Sep 15/2022	
715	Sep 15/2021		708	Sep 15/2022		719	Sep 15/2021	
716	Sep 15/2021		51-21-92			720	Sep 15/2021	
717	Sep 15/2021		201	Sep 15/2021		721	Sep 15/2021	
718	Sep 15/2021		202	Sep 15/2021		722	Sep 15/2021	
719	Sep 15/2021		203	Sep 15/2021		723	Sep 15/2021	
720	Sep 15/2021		204	BLANK		724	BLANK	
721	Sep 15/2021		51-21-93			51-21-96		
722	Sep 15/2021		701	Sep 15/2021		701	Sep 15/2022	
723	Sep 15/2021		702	Sep 15/2021		702	Jan 15/2022	
724	Sep 15/2021		703	Sep 15/2021		703	Sep 15/2022	
725	Sep 15/2021		704	BLANK		704	Jan 15/2022	
726	Sep 15/2021		51-21-94			51-21-97		
727	Sep 15/2021		701	May 15/2023		701	Sep 15/2021	
728	Sep 15/2021		702	Sep 15/2022		702	Sep 15/2022	
729	Sep 15/2021		703	Sep 15/2021		703	Jan 15/2022	
730	Sep 15/2021		704	Sep 15/2021		704	Jan 15/2022	
731	Sep 15/2021		705	Sep 15/2021		705	Jan 15/2022	
732	Sep 15/2021		706	Sep 15/2021		706	Jan 15/2022	
733	Sep 15/2021		51-21-95			707	Sep 15/2022	
734	Sep 15/2021		701	Sep 15/2021		708	Jan 15/2022	
735	Sep 15/2021		702	May 15/2023		709	Jan 15/2022	
736	Sep 15/2021		703	Sep 15/2021		710	BLANK	
51-21-81			704	Sep 15/2021		51-21-98		
701	May 15/2023		705	Sep 15/2022		R 701	Sep 15/2023	
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703	Jan 15/2022		707	Sep 15/2021		51-21-99		
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705	Jan 15/2022		709	Sep 15/2022		702	Jan 15/2023	
706	BLANK		710	Sep 15/2022		703	Jan 15/2023	
51-21-91			711	Sep 15/2022		704	Jan 15/2023	
701	Sep 15/2022		712	Sep 15/2022		705	Sep 15/2021	
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708	Sep 15/2021		209	Jan 15/2022		245	May 15/2023	
709	Sep 15/2021		210	Jan 15/2022		246	May 15/2023	
710	Sep 15/2021		211	Jan 15/2022		247	May 15/2023	
711	Sep 15/2021		212	Jan 15/2022		248	May 15/2023	
712	Sep 15/2021		213	Jan 15/2022		249	May 15/2023	
713	Sep 15/2021		214	Jan 15/2022		250	May 15/2023	
714	Sep 15/2021		215	Jan 15/2022		51-71-00		
715	Sep 15/2021		216	Jan 15/2022		801	May 15/2023	
716	Sep 15/2021		217	Jan 15/2022		802	Sep 15/2022	
717	Sep 15/2021		218	Jan 15/2022		803	Jan 15/2022	
718	Sep 15/2021		219	May 15/2023		804	Sep 15/2021	
719	Sep 15/2021		220	May 15/2022		805	Sep 15/2021	
720	Sep 15/2021		221	May 15/2022		806	May 15/2023	
721	Sep 15/2021		222	Jan 15/2022		807	Jan 15/2022	
722	Sep 15/2021		223	Jan 15/2022		808	Jan 15/2022	
723	Sep 15/2021		224	May 15/2023		809	May 15/2023	
724	Sep 15/2021		225	Jan 15/2022		810	Jan 15/2022	
725	Sep 15/2021		226	Jan 15/2022		811	Sep 15/2021	
726	Sep 15/2021		227	Jan 15/2022		812	Sep 15/2022	
727	Sep 15/2021		228	Jan 15/2022		813	Jan 15/2022	
728	Sep 15/2021		229	Jan 15/2022		814	Jan 15/2022	
729	Sep 15/2021		230	Jan 15/2022		815	Jan 15/2022	
730	Sep 15/2021		231	Jan 15/2022		816	BLANK	
731	Sep 15/2021		232	Jan 15/2022				
732	Sep 15/2021		233	Sep 15/2022				
733	Sep 15/2021		234	Sep 15/2022				
734	BLANK		235	Sep 15/2022				
51-22-00			236	Sep 15/2022				
201	Sep 15/2022		237	Sep 15/2022				
202	May 15/2023		238	Sep 15/2022				
203	Jan 15/2022		239	Sep 15/2022				
204	Jan 15/2022		240	Sep 15/2022				
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CORROSION IDENTIFICATION - TYPES AND CAUSES - MAINTENANCE PRACTICES

1. General

The ability to recognize corrosion in its early stages is important, and required, in order for corrective action to be taken, and before costly repairs or replacements become necessary.

2. Identification

A. MAGNESIUM ALLOYS

- (1) Magnesium alloys are the lightest structural metals used for aircraft. Corrosion of magnesium alloys can be greatly diminished by the use of the proper protective finish, such as magnesium conversion coating and paint. Coatings of this type are thicker than those applied by immersion or brush on conversion coating. Anodized finishes cannot be restored in the field. Care should be taken to minimize removal of these coatings.
 - (a) These alloys are highly susceptible to corrosion, which appears as white, powdery mounds or spots when the metal surface is exposed to the environment without a protective finish.
 - (b) The normal oxide-carbonate film formed on magnesium alloys does not provide sufficient corrosion protection even in the mildest environment.
 - (c) The rate of corrosion of a magnesium alloy increases when the alloy is immersed in water or periodically subjected to moisture
 - (d) Corrosion may also be accelerated by dissimilar metal couples and when conductive contaminants are dissolved in the water.

B. ALUMINUM ALLOYS

- (1) Aluminum and alloys of aluminum are the most widely used materials for aircraft construction. Aluminum is highly anodic as evidenced by its position in the galvanic series table. However, the formation of a tightly adhering oxide film offers increased resistance under mild corrosive conditions. Therefore, it is necessary to clean and protect aluminum and its alloys against corrosion. Since pure aluminum is more corrosion resistant than most alloys, aluminum sheet stock is often covered with a thin layer of nearly pure aluminum called cladding or alclad. Cladding is easily removed by harsh treatment with abrasives and tooling, exposing a more corrodible surface. In such areas, chemical conversion coat, paints and corrosion preventive compounds are especially important. However, in a marine environment, all aluminum surfaces require protection.
 - (a) The corrosion product of aluminum is a white to gray powdery material (aluminum oxide or hydroxide) which can be removed by mechanical polishing or brushing with abrasives.
 - (b) It is anodic to most other metals, and, when in contact with them, galvanic corrosion of the aluminum will occur.
 - (c) Aluminum alloys are subject to pitting, intergranular corrosion, and intergranular stress corrosion cracking. In some cases, the corrosion products of a metal in contact with aluminum are corrosive to aluminum.
 - (d) The whitish-powdery deposits also form at discontinuities in the protective coatings and may spread under painted areas, causing blistering and or flaking of the paint. Filiform corrosion forms a wormlike trace of corrosion products beneath the paint film on clad aluminum surfaces.
 - (e) Swelling or bulging of skin material, pulled or popped rivets are often visual indications or corrosion.

C. TITANIUM

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- (1) Titanium and titanium alloys find numerous uses in aircraft at temperatures up to 1000°F (538°C). Above 1000°F (538°C), titanium readily absorbs gases from the surrounding air becoming very brittle. Even at temperatures approaching 1000°F (538°C), titanium retains its strength and corrosion resistance.
 - (a) Titanium and its alloys are highly corrosion resistant, because an oxide film forms on their surfaces almost immediately upon contact with air, which is extremely adherent to the surfaces and thus provides a protective barrier. This is identical to the way aluminum forms a protective oxide film on its surface.
 - (b) When titanium is heated, different oxides having different colors form on the surface:
NOTE: These are protective discolorations and should not be removed.
 - 1) A blue oxide coating will form at 700°F (371°C) to 800°F (427°C).
 - 2) A purple oxide will form at 800°F (427°C) to 950°F (510°C).
 - 3) A gray or black oxide will form at 1000°F (538°C) or higher.
 - (c) Titanium is the less active member (cathodic) of most dissimilar metal couples, but can greatly accelerate corrosion of a dissimilar metal coupled to it.
 - 1) Electrical insulation between titanium and other metals is necessary to prevent galvanic corrosion of the other metal.
 - 2) Frequent inspection of such areas is required to insure that insulation failure has not allowed corrosion to begin.
 - (d) Under certain conditions, chlorides and some chlorinated solvents may induce stress corrosion cracking of certain titanium alloys.

D. COPPER

- (1) Copper and copper alloys are quite corrosion resistant with corrosion usually limited to staining and tarnish. Generally, such changes in surface conditions are not dangerous and should ordinarily have no effect on the part. Protective coatings are seldom required because of the inherent resistance of the metal. When coupled with most metals used in aircraft construction, copper is the less active metal and greatly accelerates corrosion of the other metals. This is especially true in copper/aluminum couples. Examples are usually found in electrical components and in areas where copper bonding strips or wires are fastened to an aluminum chassis or structural components.
 - (a) Copper corrosion is evidenced by the accumulation of blue or blue-green corrosion products on the corroded part.
 - 1) The green patina is merely a thin coating consisting mainly of basic copper sulfate and perhaps hydrated copper carbonate.
 - 2) The patina in the thin, firmly adhering state actually offers increased corrosion protection to the base metal, but the patina in a rough or frosted state should be removed.

E. CADMIUM

- (1) Cadmium is used as a coating to protect metal parts and to provide a compatible surface when a part is in contact with other materials. Metal parts are plated either to increase the corrosion resistance of the parts or to develop certain physical properties on the surface of the parts, such as abrasion (wear) resistance and high temperature oxidation resistance. The cadmium plate on iron or steel continues to protect until such time as actual iron rust appears.
 - (a) Corrosion on cadmium is evidenced by brown to black mottling of the surface or as white powdery corrosion products.



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- (b) When cadmium shows mottling and isolated voids or cracks in the coating, the plating is still performing its protective function.
- (c) Any mechanical removal of corrosion products should be limited to metal surfaces from which the cadmium has been depleted.

F. ALLOY AND CARBON STEELS

- (1) Ferrous (Iron) alloys are used to manufacture many aircraft components. If unprotected, ferrous alloy surfaces (with the exception stainless steels) are easily corroded in the presence of moisture. Ferrous alloy surfaces of structures or assemblies are normally painted or electroplated to prevent corrosion.
 - (a) Corrosion of steel is easily recognized because the corrosion product is red rust.
 - 1) When ferrous alloys corrode, a dark corrosion product usually forms first.
 - 2) When moisture is present, this coating is converted to red rust, which will promote further attack by absorbing moisture from the air.

G. CORROSION RESISTANT STEELS

- (1) Basically, stainless steels, or corrosion resistant steels, as they are more properly described, are alloys of iron with chromium. Many other elements, such as nickel, sulfur, molybdenum, vanadium, cobalt, columbium, titanium, and aluminum are added in various amounts and combinations to develop special characteristics. Stainless steels are much more resistant to common rusting, chemical action, and high temperature oxidation than ordinary steels, due to the formation of an invisible oxide film or passive layer on the surface of these alloys.
 - (a) Stainless steels are highly susceptible to crevice/concentration cell corrosion and stress corrosion cracking in moist, salt laden environments and can cause galvanic corrosion of almost any other metal with which they are in contact if proper techniques of sealing and protective coating are ignored.

H. NICKEL AND CHROMIUM

- (1) Nickel and chromium are used as protective platings. Chromium plating is also used to provide a smooth, wear-resistant surface and to reclaim worn parts. Where corrosion resistance in a marine environment is required, a nickel under-coat is used. The degree of protection is dependent upon plating thickness. Both of these metals form continuous oxide coatings that can be polished to a high luster and still protect not only themselves but any underlying metal.
 - (a) Chromium coatings contain cracks, and corrosion originates at the base metal below these separations.

I. SILVER, PLATINUM, AND GOLD.

- (1) These metals do not corrode in the ordinary sense, although silver tarnishes in the presence of sulfur.
 - (a) Silver tarnish is a brown-to-black film.
 - (b) Gold tarnish is very thin and shows up as a darkening of reflecting surfaces.

J. GRAPHITE/CARBON FIBER COMPOSITES.

- (1) Graphite or carbon fiber composites are materials which consist of reinforcing fibers in a matrix made of organic resin, usually epoxy. They are an important class of aviation materials because of their high strength to weight ratios and high stiffness.
 - (a) Carbon is the least active metal in the galvanic series, it will accelerate the corrosion of any aircraft metal to which it is coupled.
 - (b) Insulation between graphite or carbon epoxy composites and other metals is necessary to prevent dissimilar metal attack on the attached part.

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Corrosion of Metals - Type of Attack and Appearance of Corrosion Products

Alloys	Type of Attack to Which Alloy Is Susceptible	Appearance of Corrosion Product
Magnesium Alloy	Highly susceptible to pitting	White, powdery, snowlike mounds, and white spots on surface
Low Alloy Steel (4000-8000 series)	Surface oxidation and pitting; surface and intergranular corrosion	Reddish-brown oxide (rust)
Aluminum Alloy	Surface pitting, intergranular, exfoliation, stress corrosion and fatigue cracking, and fretting	White to gray powder
Titanium Alloy	Highly corrosion resistant; extended or repeated contact with chlorinated solvents may result in degradation of the metal's structural properties	No visible corrosion products at low temperature. Colored surface oxides develop above 700°F (371°C)
Cadmium (used as a protective plating for steel)	Uniform surface corrosion; used as sacrificial plating to protect steel	From white powdery deposit to brown or black mottling of the surface.
Stainless Steels (300-400 series)	Crevice/concentration cell corrosion; some pitting in marine environments; corrosion cracking; intergranular corrosion (300 series); surface corrosion (400 series)	Rough surface; sometimes a red, brown, or black stain.
Nickel-base Alloy (Inconel, Monel)	Generally has good corrosion resistant qualities; susceptible to pitting in sea water	Green powdery deposit
Copper-base Alloy, Brass, Bronze	Surface and intergranular corrosion	Blue or blue-green powdery deposit
Chromium (plate)	Pitting (promotes rusting of steel where pits occur in plate)	No visible corrosion products; blistering of plating due to rusting and lifting.

3. **Types**

- A. The terminology used in describing corrosion is based on either the appearance of the corrosion attack, or the mechanism associated with its formation. Frequently, several types of corrosion will occur simultaneously and it becomes difficult to determine the specific cause.
- B. The following types of corrosion are those most commonly encountered on airplanes:
- (1) **UNIFORM SURFACE CORROSION**
 - (a) Uniform surface corrosion results from a direct chemical attack on a metal surface and involves only the metal surface. On a polished surface, this type of corrosion is first seen as a general dulling or etching of the surface and, if the attack is allowed to continue, the surface becomes rough and possibly frosted in appearance. This type of corrosion appears uniform because the anodes and cathodes are very small and constantly shift from one area of the surface to another. An example is the etching of metals by acids. The discoloration or general dulling of metal created by exposure to elevated temperatures is not considered to be uniform surface corrosion.
 - (2) **GALVANIC**

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- (a) Galvanic corrosion occurs when different metals are in contact with each other and an electrolyte, such as salt water. It is usually recognizable by the presence of a buildup of corrosion at the joint between the metals. For example, aluminum skin panels and stainless steel doublers, riveted together in an aircraft structure, form a galvanic couple if moisture and contamination are present.
- (3) **PITTING**
 - (a) The most common corrosion on aluminum and magnesium alloys is called pitting. It is first noticeable as a white or gray powdery deposit, similar to dust, which blotches the surface. When the deposit is cleaned away, tiny pits or holes can be seen in the surface. Pitting corrosion can also occur in other types of alloys. The combination of small active anodes to large passive cathodes cause severe pitting.
- (4) **FILIFORM**
 - (a) Filiform corrosion is a special form of oxygen concentration cell corrosion or crevice corrosion which occurs on metal surfaces having an organic coating system. It is recognized by its characteristic wormlike trace of corrosion products beneath the paint film. Filiform occurs when the relative humidity of the air is between 78 and 90 percent and when the surface is slightly acidic. It starts at breaks in the coating system, such as scratches and cracks around fasteners and seams, and proceeds underneath the coating, due to the diffusion of water vapor and oxygen from the air through the coating. Filiform corrosion can attack steel, magnesium, and aluminum surfaces and may lead to more serious corrosion in some locations. Filiform corrosion can be prevented by storing equipment and aircraft in an environment with a relative humidity below 70 percent, by using coating systems having a low rate of diffusion for oxygen and water vapors, by maintaining coatings in good condition, and by washing equipment and aircraft to remove acidic contaminants from the surface (such as those created by pollutants in the air). Maintain coatings in good condition (prompt touch up around fasteners) and apply corrosion preventive compounds (CPC's) when paint is damaged.
- (5) **STRESS CORROSION CRACKING**
 - (a) Stress corrosion cracking is the inter-granular or transgranular cracking of a metal caused by the combined effects of constant tensile stress (internal or applied) and corrosion. Internal or residual stresses are produced by cold working, forming, and heat treatment operations during manufacture of a part and remain concealed in the part unless stress relief operations are used. Other hidden stresses are induced in parts when press or shrink fits are used and when slightly mismatched parts are clamped together with rivets and bolts. All these stresses add to those caused by applying normal loads to parts in operation. Metals have threshold stresses below which stress corrosion cracking will not occur. This threshold stress varies from metal to metal, is different for different tempers of the same metal, and is different for each of the three directions in which stress can be applied.
- (6) **FRETTING**



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- (a) This is a special form of concentration cell corrosion, which occurs in combination with surface wear. The corrosion products increase the wear of the surface and the wear exposes more bare metal surface to be corroded. The overall effect is greater than the single effects of corrosion and wear added together. It has the general appearance of galling, in which chunks of metal are torn from the surface with corrosion at the torn areas or ragged pits. This type of corrosion occurs on faying surfaces of close tolerance and on parts under high pressure in a corrosive environment when there is slight relative movement of the parts, such as that caused by vibration. Fretting corrosion is normally encountered in heavily loaded static joints which are subject to vibration and are not and/or cannot be sealed to prevent moisture entry, such as landing gear component attachment areas having lug holes with slight press fits or slip fit bushings with very close tolerance bolts passing through the bushings. Another area is wing root access panels or wing to body fairings, which are generally not tightly secured and cannot be sealed in faying surfaces.
- (7) INNER-GRANULAR
 - (a) Intergranular corrosion is an attack on the grain boundaries of the metal. A highly magnified cross section of any commercial alloy shows the granular structure of the metal. It consists of quantities of individual grains, each having a clearly defined boundary, which chemically differs from the metal within the grain. Frequently the grain boundaries are anodic (tend to corrode more easily) to the metal within the grain. When in contact with an electrolyte, rapid corrosion occurs at the grain boundaries.
- (8) EXFOLIATION
 - (a) Exfoliation is an advanced form of intergranular corrosion where the surface grains of a metal are lifted up by the force of expanding corrosion products occurring at the grain boundaries. The lifting up or swelling is visible evidence of exfoliation corrosion. Exfoliation occurs on extruded, rolled, wrought, and forged high strength aluminum and magnesium parts.
- (9) MICROBIOLOGICAL
 - (a) Slimes, molds, fungi, and other living organisms (some microscopic) can grow on damp surfaces. Once they are well established, the area tends to remain damp, increasing the possibility of corrosion. Their presence can cause the areas they occupy to have different oxygen and electrolyte concentrations. In addition, corrosive wastes are secreted, which cause corrosion. This type of corrosion can occur in integral fuel tanks. It is caused by the presence of bacteria and in jet fuel. The fungus grows at the fuel/water interface and the metabolic products formed, corrode the metallic structure.

4. DEGRADATION OF NON-METALS.

- A. Non-metallic materials (plastics, elastomers, paints and adhesives) are not subject to electrochemical corrosion, since ions are not easily formed from non-metallic materials and since the electrical conductivity of non-metals is extremely low. In general, aircraft non-metallic materials are selected for their obvious performance properties (flexibility, transparency, strength, electrical resistance, etc.) as well as their resistance to heat, impact, abrasion, ultraviolet radiation, moisture, ozone and other detrimental gases as well as operational fluids such as hydraulic fluid, lubrication oil, cleaners, deicing fluids and others.
 - (1) The degradation of non-metals depends on the chemical makeup of the material and the nature of the environment.
 - (2) The use of unauthorized maintenance chemicals and procedures can accelerate degradation and ultimately lead to material failure resulting in leakage, corrosion, electrical shorts, crazing, and/or mechanical failure.

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CORROSION INSPECTION AND DETECTION - MAINTENANCE PRACTICES

1. Inspection for Corrosion

A. General

- (1) The regular maintenance program should include inspection for corrosion followed by correct treatment of affected areas. The areas should be inspected for not only actual corrosion damage but also for conditions that could cause corrosion (such as damaged finishes or blockage of drain holes). Frequent inspection of the problem areas is recommended. Unusual environmental conditions in some geographical locations could make changes necessary to the frequency of inspections. Refer to these references for more details:
 - (a) STRUCTURES - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 51-05-01/201
 - (b) DOORS - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 52-05-03/201
 - (c) FUSELAGE - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-03/201
 - (d) NACELLES/PYLONS - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 54-05-03/201
 - (e) STABILIZER - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 55-05-03/201
 - (f) PASSENGER CABIN WINDOWS - MAINTENANCE PRACTICES, PAGEBLOCK 56-21-00/201
 - (g) WINGS - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 57-05-03/201
- (2) Special Inspections.
 - (a) In instances where loading of nonstandard cargo (i.e. livestock or fish) or cargo spillage of harmful products (i.e., mercury) occur, specific inspection requirements are initiated.
 - (b) Mercury.
 - 1) After a reported mercury spill in the cargo hold area, maintenance personnel are instructed to remove the spillage as rapidly as possible due to the damaging effect mercury has with aluminum structures. Visual inspections of mercury penetration into aluminum metals should be noted and reported. Detailed procedures for mercury spillage are given in MERCURY SPILLAGE CONDITION, SUBJECT 05-51-14.
 - (c) Livestock and fish cargo.
 - 1) Subsequent to livestock or fish hauling on an airplane, specific areas should be inspected for signs of contaminants that cause corrosion. Detailed procedures are given in TRANSPORTATION OF LIVE ANIMALS, SUBJECT 51-00-60 and TRANSPORTATION OF FISH, SUBJECT 51-00-62.

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- (3) Methods of Inspection. Visual or nondestructive inspection (NDI) procedures are used for identifying the existence of corrosion. For general inspection, the visual means aided by magnifying glasses, borescopes, etc., is used extensively. The NDI techniques have limited capability to locate or detect corrosion because of complexity of instrumentation, complexity of areas being inspected and time consumed to make the inspection. In specific localized areas where inspection by visual means is impossible or where extent of corrosion has to be determined after visual detection, the NDI technique may be used. The following NDI techniques are used to inspect the localized areas; however, the method employed should be at the judgment of the NDI technician.
- (a) Eddy current.
 - 1) Eddy current can be used to locate corrosion in skin, doubler and spar areas. The method is also used to determine if corrosion visible by corrosion products, skin bulging or joint dislocation has generated microcracks. Refer to Eddy Current, 737 NDT Part 1, 51-06-00 for more details.
 - (b) Ultrasonic.
 - 1) Ultrasonic inspection technique is used for flaw detection in honeycomb sandwich constructions or bonded panels. Corrosion can be detected by measurement of panel thickness by ultrasonic means. Refer to Ultrasonic, 737 NDT Part 1, 51-04-00 for more details.
 - (c) Radiographic.
 - 1) Radiography (X-ray) is used for flaw detection in areas not accessible for visual inspection without major disassembly. This method is also used for backup method to other NDI techniques (i.e., detect core corrosion in sandwich panels located by the ultrasonic method). Severe corrosion can be detected by radiographic means if the depth or metal loss is 20 percent of the panel thickness or greater. Refer to X-Ray, General Radiographic Practices, 737 NDT Part 1, 51-02-00 for more details.
 - (d) Penetrant.
 - 1) Penetrant examination uses the property of a liquid to go into a defect that is open at the surface of the part. The liquid is applied to the surface and permitted to soak in. Unwanted liquid is removed from the surface, but some liquid stays in the defect. A developer is applied to pull the liquid out of the defect so it can be seen. Visible penetrants are examined under white light. Fluorescent penetrants are examined under ultraviolet light. This technique is also used to detect surface and intergranular corrosion.
 - (e) Magnetic particle.
 - 1) Magnetic particle examination can be done only on materials with ferromagnetic properties, usually low alloy steels and heat-treatable stainless steels. It is a sensitive nondestructive procedure to find surface and near-surface cracks and discontinuities.



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ENVIRONMENTAL EFFECTS - MAINTENANCE PRACTICES

1. General

- A. The probability of encountering corrosion damage to an airplane is dependent on a number of factors such as the degree of protection afforded during manufacture, the maintenance of the protection during service life, and the environment in which the airplane is operated.
- B. Some environmental factors are within the control of the manufacturer or the operator such as the Location of battery compartments or the prevention of spillage from galleys and lavatories. In these instances, recommended inspection frequencies or requirements for preventive maintenance can be established which are not dependent on the operator's route structure.

2. Corrosive Environments

- A. Corrosion of aviation equipment is caused by both natural and man-made environments. Natural conditions which affect the corrosion process are moisture, temperature, salt atmospheres, ozone, sand, dust, solar radiation, insects and birds, and microorganisms. Man-made conditions, which also affect the corrosion process, are industrial pollution, manufacturing operations, storage conditions, and shipment. By understanding these conditions, maintenance personnel will be better able to prevent aircraft damage.

(1) MOISTURE

- (a) Moisture is present in air as a gas (water vapor) or as finely divided droplets of liquid (mist or fog) and often contains contaminants such as chlorides, sulfates, and nitrates, which increase its corrosive effects. Moisture enters all areas of an aircraft that air can enter. Moisture will condense out of air when the air becomes too cool to hold all of the moisture in it.
 - 1) Condensed moisture.
 - a) Condensed moisture will usually evaporate as surrounding air warms but will leave its contaminants (residues), including salts, behind. This can result in the build-up of soils and salt contamination. Condensed moisture and its contaminants can also be trapped in close fitting wettable joints, such as faying surfaces. Moisture can accumulate in such areas through successive cycles of warming and cooling. In addition, moisture can be drawn along poor bond lines by capillary action (wicking).
 - b) All non-metals absorb some moisture which may cause changes in dimensional stability, dielectric strengths, ignition voltages, and volume insulation resistances. In general, organic matrix composites are adversely affected by moisture and may suffer a loss of strength and stiffness from exposure.

(2) TEMPERATURE

- (a) Temperatures at the high end of the range for which equipment is designed may result in either improvement or degradation of equipment, depending on conditions. Some electronic equipment may not function properly at high temperatures. Mold and bacteria growth are also inhibited by temperatures above 104°F (40°C). Temperatures at the low end of the design range generally reduce the rate of corrosion.
 - 1) Generally, corrosion and other harmful processes (such as the degradation of non metallic materials) increase as temperatures rise, but in some instances, moderate increases in temperature may serve to reduce corrosion by preventing condensation
 - 2) Mold and bacteria growth are also inhibited by temperatures above 104°F (40°C).

(3) SALT ATMOSPHERE

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- (a) When dissolved in water, salt particles form strong electrolytes. The ocean, which carries from 3.5 to 3.9 percent salt, is the world's primary source of salt. Normal sea winds carry from one to ten grams of sea salt per cubic meter of air. Since dissolved salts are strong electrolytes, it is easy to understand why coastal environments are highly corrosive.
- (4) **OZONE**
 - (a) Ozone is a particularly active form of oxygen which is formed naturally during thunderstorms and by photo-chemical reactions in smog.
 - 1) When ozone is absorbed by electrolyte solutions in contact with metals, it increases the rate of corrosion.
 - 2) It also oxidizes many nonmetallic materials, being particularly harmful to natural and certain types of synthetic rubber.
- (5) **OTHER INDUSTRIAL POLLUTANTS**
 - (a) Carbon (from internal combustion engine exhaust), nitrates (from agricultural fertilizers), ozone (from electrical motors and welding operations), sulfur dioxide (from engine exhaust and industrial and ship smoke stacks), and sulfates (from automobile exhaust) are important airborne pollutants. The combination of these pollutants contributes to the deterioration of non-metallic materials and severe corrosion of metals.
- (6) **SAND, DUST AND VOLCANIC ASH.**
 - (a) Sand, dust, and volcanic ash are present in many areas, but particularly in industrial areas where they often contain a number of tar products, ashes, and soot. Dust is also found in the tropic zones during times of little or no rainfall. Sand and dust are extreme problems in the deserts, since dry, powdery sand and dust are carried by wind. During sandstorms, they can penetrate sealed equipment as well as many internal areas of airframes. In arid regions such as deserts, small sand particles are often blown as high as 10,000 ft (3 km) by the wind.
 - 1) Sand, dust and volcanic ash are hygroscopic and, when present on internal or external surfaces of aircraft or electronic parts, can absorb and hold moisture.
 - 2) The presence of sand, dust and volcanic ash may also effect the operation of electrical contacts, prevent proper action of rotating motor-drive devices, and cause malfunctions of indicating instruments.
 - 3) Dust from volcanic areas contain chlorides and sulfates, which are extremely corrosive in the presence of moisture. Although small amounts of sand or dust may be unnoticed by operating personnel, they may be sufficient to promote corrosion.
- (7) **SOLAR RADIATION**
 - (a) The two ranges of solar radiation most damaging to materials are:
 - 1) Ultraviolet, the range that causes sunburn
 - 2) Infrared, the range that makes sunlight feel warm.
 - (b) On earth, maximum solar radiation occurs in the tropics and equatorial regions, but considerable damage occurs in the temperate zones as a result of solar heating, photochemical effects, and combinations of these two phenomena.
 - 1) Non-metals, especially organic and synthetic materials, are strongly affected by sunlight. Both natural and synthetic rubber deteriorate rapidly under sunlight.
 - 2) After extended exposure, plastics darken, paints lose their protective characteristics, polymers undergo marked decreases in strength and toughness, and colors fade.
- (8) **CLIMATE**

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- (a) Actual assessments of environmental conditions have to be made Locally by the operator. The environment is a combination of many factors and some of those which should be considered are as follows:
- 1) Desert
 - a) The hot, wind-swept desert creates a severe maintenance problem because powdery dust can penetrate even supposedly sealed components. High daytime temperatures, high humidities (in areas such as the Persian Gulf) ultraviolet radiation, and fine dust are the four most serious, destructive elements of the desert climate. Nonmetallic materials suffer the most damage from the hot desert climates where air temperature during the day may reach 124°F (51°C). Temperatures inside closed containers may be 100°F (38°C) higher than external air temperatures.
 - 2) Temperate zones.
 - a) The temperate or intermediate climate zone encompasses most of the North American and European continents. These areas at various times of the year may approximate the extremes of polar, desert, or tropical temperatures and humidity. The temperate zone temperatures range from -25°F (-32°C) to 59°F (15°C) in the winter and from 59°F (15°C) to 125°F (52°C) in summer. The most critical areas are coastal locations, during the warm periods of the year in which the relative humidity approaches 100 percent at night and the air has high concentrations of salt. Moisture from this salt-laden air can condense on equipment during early evening and morning hours, thereby causing serious corrosion. Because of its relatively mild temperatures, the temperate zone is also the most heavily populated. Consequently, the smoke, smog, ozone, and corrosive fumes associated with heavy industry are also found there.
 - 3) Tropics
 - a) Even though they encompass only a small portion of the earth's land area, the tropics demand the greatest amount of consideration from the stand point of corrosion treatment and control. Relative humidities of up to 100 percent at ambient air temperatures of 85°F (29°C) and dewpoints approaching 85°F (29°C) pose formidable threats of corrosion. When high humidity and temperature conditions are combined with salt-laden air, the corrosive environment becomes extremely severe.

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CORROSION REMOVAL - MAINTENANCE PRACTICES

1. General

- A. When you remove corrosion, complete removal is most important. If all of the corrosion is not removed, the corrosion will continue. For example, if you find corrosion around fastener locations, you must remove the fastener and look for corrosion under the fastener heads and in the holes. Corrosion removal around such fasteners without fastener removal will not stop the corrosion under the fasteners (Figure 203).
- B. Complete removal of corrosion products is also necessary, or the corrosion could come back. Carefully examine all of the area to make sure all corrosion products and other contamination are gone.
- C. Dye penetrant inspection will not show if all of the corrosion products were removed from an area. The area must be visually examined to be sure.
- D. The area must be clean, without paint, oil or grease, before you can treat it for corrosion.
- E. Corrosion can be removed by mechanical procedures or chemical procedures. The details and the selection decision will be different for different amounts of corrosion and different types of metal.

2. Safety Procedures

- A. General Safety Precautions. Obey these safety precautions when you use solvents, special cleaning compounds, paint strippers (strong alkalies or acids), etchants (corrosion removers that contain acids) or conversion coating chemicals.
 - (1) Do not breathe solvent or acid vapors. Do not use solvents or acids in confined spaces without sufficient ventilation or approved respiratory protection.
 - (2) Do not add water to acid. Always add acid to water. Water added to acid will boil at an explosively rapid rate.
 - (3) Do not mix chemicals unless as given in the procedures.
 - (4) Make sure water for emergencies is available at the work area before work is started.
 - (5) Do not let your skin touch solvents, cleaners, acid etchants, or conversion coating material. Put on rubber plastic gloves when you use these materials. Put on goggles or plastic face shields and rubber raincoats and rain hats when you clean, strip, etch, or apply conversion coating to overhead surfaces.
 - (6) When you mix alkalies with water or other agents, use containers which are resistant to the heat that will result.
 - (7) Wash your skin or clothing immediately after it touches paint stripper, etchant or conversion coating material.
 - (8) If material gets in the eyes, quickly flush it out with water. Then send the injured person to the medical department for further treatment.
 - (9) Do not eat or keep food in areas where it could absorb poisons. Always wash your hands before you eat or smoke.
 - (10) Clean all equipment after work is completed.
- B. Emergency Safety Procedures. Know these emergency safety procedures before you use materials which refer to an emergency safety procedure.
 - (1) If touched by the following materials, treat as shown below:

Methyl alcohol	Xylene
Methyl ethyl ketone	Petroleum naphthas

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Methyl isobutyl ketone	Chromates
Toluene	Dichromates
Trichloroethylene	Acetates
Epoxy resin	Cyclohexanone
Methylene chloride	Cellosolve
Brush alodine	Carbon tetrachloride

- (a) If splashed into eyes, do not rub. Flush eyes immediately with water for at least 15 minutes. Lift upper and lower lids frequently to ensure complete washing.
- (b) If splashed on clothing or large areas, immediately remove contaminated clothing and wash body with plenty of soap and water. Wash clothing before you put it back on.
- (c) If splashed onto an easily accessible part of the body, immediately wash with soap and water.
- (d) If suffering headache or other obvious symptom resulting from overexposure, move to fresh air immediately.
- (e) If vapors are inhaled and breathing has slowed down or stopped, remove person from exposure and start artificial respiration at once. Call ambulance and continue this treatment until ambulance arrives.

(2) If exposed to physical contact with any of the following materials:

Hydrofluoric acid	Phenol
Nitric acid	Cresols
Phosphoric acid	Tricresyl phosphate

- (a) Eyes: If splashed into eyes, do not rub, flush immediately with water for at least 15 minutes. Lift upper and lower eyelids frequently to ensure complete washing. Call Medical immediately.
- (b) Exposed skin: If splashed on skin, wash affected area with large amounts of water for at least 15 minutes. Report to Medical.
- (c) Clothing: If splashed on clothing or large area of body, remove contaminated clothing and wash body under a shower for at least 15 minutes. Wash clothing before reuse. Report to Medical.
- (d) Inhalation: If vapors are inhaled, removed worker to fresh air and apply artificial respiration if necessary. Call Medical.

NOTE: Tricresyl phosphate is not considered an inhalation hazard.

(e) Internally proceed as follows:

- 1) Worker unconscious: Do not give any liquid. Begin artificial respiration and have someone call Medical immediately. Worker conscious:
 - a) Phenols and Cresols: Do not attempt to induce vomiting. Encourage victim to wash out mouth with large quantities of water. Call Medical immediately.
 - b) Phosphoric Acid: Do not induce vomiting. Call Medical immediately.
 - c) Hydrofluoric Acid: Drink water to dilute acid, then cause vomiting by placing finger in the back of throat. Repeat. Wash out mouth repeatedly. Call Medical immediately.

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- d) Nitric Acid: Do not induce vomiting. Drink large quantities of water, if possible. Call Medical immediately.
- e) Tricresyl Phosphate: Cause vomiting by placing finger in the back of throat. If necessary, have victim drink water, then use finger to induce vomiting. Call Medical Immediately.

3. Corrosion Damage and Rework Limits

- A. Corrosion evaluation will be required after initial inspection and cleaning to determine nature and extent of repair or rework. It is difficult to establish a distinct and specific dividing line between various conditions, consequently, the first requirement for evaluation is good and sound maintenance judgment. Evaluate corrosion as follows:
 - (1) Light corrosion.
 - (a) Characterized by discoloration or pitting to a depth of approximately 0.001 in. (0.025 mm) maximum. This type of damage will normally be removed by light hand sanding or a minimum of chemical treatment.
 - (2) Moderate Corrosion.
 - (a) Appears similar to light corrosion except there may be some blisters or evidence of scaling and flaking. Pitting depths may be as deep as 0.010 in. (0.254 mm). This type of damage will normally be removed by extensive hand or mechanical sanding.
 - (3) Heavy (severe) Corrosion.
 - (a) General appearance may be similar to moderate corrosion with severe blistering exfoliation and scaling or flaking. Pitting depths will be deeper than 0.010 in. (0.254 mm). This type of damage will normally be removed by extensive mechanical sanding or grinding.
- B. Degree of Corrosion Damage. A preliminary assessment of corrosion damage is sometimes advisable before cleanup to determine whether there is any chance of reclaiming the part. Where damage is obviously in excess of allowable limits, repair or replacement action should be initiated.
- C. Previously Reworked Areas. Allowable damage data is normally based on a loss of material thickness, however, this must also include any loss in thickness due to previous rework. Previous rework can be ignored if the actual thickness remaining after corrosion cleanup is measured. Suitable NDT equipment (such as eddy-current or ultrasonic instruments) is recommended both for crack detection and thickness measurement.
- D. Depth Measurement Using Straightedge. Depth measurement is often possible using a straightedge and a 10x magnifying lens, STD-562 as shown in Figure 201. The straightedge should be placed at various angles to ensure that incorrect measurements are not recorded due to local surface irregularities.
- E. Measuring Corrosion Damage with a depth gauge, STD-1162. The method for taking measurements with a dial depth gauge is outlined below: (Figure 202)
 - (1) Remove corroded material and blend out the damage.
NOTE: The base of the depth gage shall be flat against the undamaged surface on each side of the corrosion. When taking measurements on concave or convex surfaces, place the base perpendicular to the radius of curvature of the surface.
 - (2) Position the depth gage and determine the measurement reading.
 - (3) Take several additional depth readings.
 - (4) Select the deepest reading as the depth of the corrosion damage.
- F. Measuring Corrosion Damage with Impression Materials. In the event the corrosion area is inaccessible for use of the dial depth gauge the use of impression materials is recommended.

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- (1) Modeling clay or similar materials may be used for making impressions of the corrosion damage. Accurate measurements of the depth of corrosion damage can be made by a comparator or other accurate measurement means.
 - (2) Silicone flexible mold compound rubber RTV 630A and RTV 630B from General Electric Co. (V01139) may be used to make impressions of corrosion damage and will be more permanent than the clay impressions. Measurements can be made by comparator or other accurate measurement means.
- G. Rework Limits. The maximum rework limitations should be determined from the criteria referenced in the Structural Repair Manual (SRM). If no criteria are available and the damage is on primary structure, consult The Boeing Company. To ensure that allowable limits are not exceeded, an accurate measurement of the material removed or material remaining in the reworked area after fairing should be made. If the corrosion damage is in a previously worked area, the material removed must include the thickness removed during previous rework.

4. Corrosion Rework Preparations:

- A. Prior to starting any corrosion rework the airplane and the affected corrosion area must be prepared as outlined in the procedures below. Personnel performing these procedures shall observe all safety precautions for handling the materials used.
- (1) Position airplane in wash rack or provide apparatus which will permit rapid rinsing of all affected surfaces of the airplane.
 - (2) Statically ground the airplane. Do this task: Static Grounding, TASK 20-40-11-910-801.
 - (3) Removed or disconnect airplane batteries as required. (Battery Removal, TASK 24-31-11-000-801-002)
- NOTE: Some preventive maintenance procedures also require large quantities of water to be used, such as paint removal and alodizing. In these instances, disconnecting batteries is also prudent if there is electrical equipment in the area.
- (4) Protect the pitot-static openings, louvers, air scoops, engine openings, Landing gear, wheels, tires, magnesium skin panels, and airplane interior from moisture and chemical brightening agent. (Clean (Wet Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-801 or Clean (Waterless Wash) the External Surfaces of the Airplane, TASK 12-40-00-100-802)
 - (5) Protect surfaces, joints and seams adjacent to rework areas from chemical paint strippers, corrosion removers, and surface treatments.

5. Cleaning, General

- A. Prior to paint stripping and corrosion removal, if the corroded area or part is soiled by grease, dirt or other foreign material, the area should be cleaned. For general cleaning procedures refer to SOPM 20-30-03. Special cleaning procedures may be required in some cases.

6. Paint Removal

- A. For general procedures, refer to SOPM 20-30-02. For special removal procedures, refer to the appropriate sections.

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7. Corrosion Removal Procedures

- A. Corrosion can be removed by mechanical or chemical procedures. Examples of mechanical procedures are hand sanding with abrasive paper or metal wool, power sanding or buffing with abrasive mats, grinding wheels or rubber mats, and abrasive blasting, which includes abrasive blasting with glass beads. The selection decision is different for different metals, different amounts of corrosion or the access to the area or part. In most corrosion removal operations, the mechanical procedures are recommended. The chemicals used in the chemical removal procedure can also cause corrosion and must not be permitted to flow into joints or seams or on highly stressed steel parts.
- B. If the area of corrosion includes or is near fasteners, remove the fasteners before you start to remove the corrosion. There could be corrosion under the fastener heads or in the holes. Corrosion removal around such fasteners without fastener removal will not stop the corrosion under the fasteners (Figure 203). Also, metal from the fastener heads will be rubbed into the adjacent metal surface during the corrosion removal procedure, and can cause subsequent galvanic corrosion.
- C. Blending Repaired Areas. After corrosion removal, blend all depressions with the adjacent surface to keep stress concentrations to a minimum.
 - (1) Remove rough edges and all corrosion from the damaged area. Make selection of the applicable abrasive.
 - (2) Repair depressions to make smooth, elliptical blend-outs as shown in Figure 205. In areas with multiple pits close together, remove the material in between to keep surface irregularities or waviness to a minimum as shown in Figure 206.
 - (3) In areas where sufficient clearance does not permit the elliptical shape as specified in Figure 205 and Figure 206, blend as nearly as possible to these dimensions and make the remaining area smoothly continuous, with no sharp or sudden changes.
 - (4) Remove all surface defects. Use the correct abrasive to get the necessary surface finish.
- D. Repair Depth Measurement. After you remove the corrosion and blend out the area, make depth measurements to be sure that the blend is not deeper than the repair limit. A dial depth gage or impression materials can be used to find the depth.
- E. Corrosion Removal - Mechanical.
 - (1) The mechanical corrosion removal procedure is recommended for most cases of corrosion damage. Some examples of this procedure are: hand sanding with abrasive paper or metal wool, power sanding with abrasive mats, grinding wheels, wire brushes or rubber mats, carbide tipped scrapers and abrasive blasting. For general procedures, refer to the steps below.
 - (2) Wire Brush. Wire brushing is a mechanical abrasive operation unusually done with a hand wire brush or a wire brush mounted on a motor-driven wheel. By using brushes of various lengths and gages of wire, a wide range of abrasive action is possible. Wire brushing is used to remove heavy corrosion and paint or dirt, especially where chemical treatment is impractical. A typical wire brushing procedure follows:
 - (a) Protect adjacent components from scale, chips, corrosion products and chemical agents.
 - (b) If you find grease or dirt, clean the area.
 - (c) Remove any loose corrosion with a hand scraper.
 - (d) Wire brush area to a firm metal substrate.

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MAKE SURE THAT THE FINISH OF THE REPAIR AREA IS 63 RMS OR BETTER. SCRAPERS WITH CARBIDE TIPS AND GRINDING WHEELS CAN CAUSE SCRIBE MARKS. IF THE FINISH IS NOT 63 RMS OR BETTER, FATIGUE CRACKS CAN OCCUR.

- (3) Grinding. Grinding is a method of removing heavy corrosion by means of motorized grinding wheels or abrasive belts. Part of the base metal is ground away with the corrosion. A typical grinding procedure follows:
- (a) Protect adjacent components from scale, chips, corrosion products and chemical agents.
 - (b) If you find grease or dirt, clean the area.
 - (c) Remove paint and corrosion by grinding until a firm corrosion free surface is reached. Continue grinding to remove coarse irregularities. Use fine abrasive paper to polish the surface to the desired finish.
- (4) Glass Bead Abrasive Blasting.
- (a) Abrasive blasting is used to clean or finish metals and other materials. It hits the surface with a stream of abrasive particles. For corrosion removal, use glass bead abrasive blasting to remove only filiform corrosion. Do not use it to remove other types of corrosion that extend below the surface. Use standard blasting procedures and these special details.
 - 1) For the abrasive, use glass beads (150 mesh or finer).
 - 2) If possible, remove the part from the component. If this is not possible, give areas adjacent to the part protection from scale, chips, corrosion products and the abrasive blast.
 - 3) If you find grease or dirt, clean the area.
 - 4) Give protection from the blast to such close tolerance surfaces as bushings, bearings, close tolerance shafts and threads.
 - 5) Remove only the corrosion products by abrasive blasting with glass beads.
 - (c) External Gun Blasting. The frequency of occurrence of filiform corrosion has led to the development of portable abrasive blasters. A typical external gun blasting procedure for removing filiform corrosion on aluminum skin follows (Figure 208):
 - 1) Remove any heavy soils with alkaline emulsion cleaner.
 - 2) Strip the protective finish (both enamel and primer).
 - 3) Mechanically remove the filiform corrosion by blasting with glass beads (approximately 150 mesh).
 - 4) After blasting, remove any enamel or primer that may remain in the corrosion cleanup area. Flush with water and clean the surface in preparation for surface treatment.
 - (d) Portable Abrasive Blaster. Filiform corrosion can be quickly removed by use of a portable abrasive blaster. An example is the Model E-10A Clemco Eductomatic Portable Blast Cleaner (Clemco Industries, V86192).
 - 1) The unit weighs 7 lb (3.2 kg) and includes an abrasive reservoir (which holds up to 4 lb (1.8 kg) of glass beads) suction abrasive pickup, swivel blast nozzle and vacuum abrasive return.



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- 2) The blast head has a concentric arrangement. The inner tube blasts the glass beads against the airplane surface, and the outer passage retrieves the beads and dust and separates them. A double-acting control valve regulates both the blast and the suction. The blast head is connected by a swivel joint to the body of the unit. This feature lets you turn the blast in any direction and keep the main body of the machine vertical.
- 3) During operation, control the air source to 80 psi (552 kPa) pressure maximum. Hold the blast nozzle on the surface to remove corrosion in an approximate 1 in. (25 mm) diameter path. Try the equipment on a test panel to get to know the procedure.
- 4) The glass beads quickly remove corrosion (about 36 in. (914 mm) per minute) but almost none of the cladding on the aluminum surface.

F. Corrosion Removal - Chemical.

- (1) The chemical corrosion removal procedure can be used on the airplane where chemical flow can be controlled and the area can be fully washed with water. Because the chemicals used for corrosion removal can also cause corrosion, you must not let the chemicals become caught in such locations as lap joints, faying surfaces, or splices. On parts removed from the airplane, the chemical removal procedure could be better. The chemical agents used in corrosion removal are of the acid type. Because the chemicals are different for each metal details of the procedures are given in the applicable paragraphs that follow.

8. Corrosion Removal Procedures for Aluminum and Aluminum Alloys

A. General.

- (1) Aluminum and its alloys are the most frequently used materials in commercial airplanes. The metal is not toxic, not magnetic and because it can absorb large amounts of energy, it will not spark when hit by other metals. Although aluminum is high in the electrochemical series, it makes a tightly bonded anodic oxide film on the surface that gives more resistance to mild corrosive conditions. One sign of corrosion is a whitish deposit of corrosion products. General etching, pitting or roughness of the surface gives an indication of the start of corrosion damage.

B. Corrosion Removal

(1) Mechanical

- (a) Make sure the metal is aluminum.
- (b) Give adjacent areas protection to prevent more damage from corrosion products removed during mechanical removal.
- (c) If you find grease or dirt, clean the area.
- (d) Remove paint, if applicable.
- (e) Measure the amount of damage.
- (f) Remove corrosion by one of the following:
 - 1) Remove light corrosion by light hand sanding with abrasive paper (Figure 204).
 - 2) As an alternative, remove light corrosion and stains with pumice paste. Mix pumice powder with water to make a slurry paste. Apply with a clean, soft cloth and rub gently. When paste is dried to a white powder, wipe off with a clean, dry, soft cloth. Remove remaining corrosion and corrosion products with No. 600 grit wet or dry abrasive paper and water.
 - 3) Remove heavy corrosion products by hand with any of the following items:

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MAKE SURE THAT THE FINISH OF THE REPAIR AREA IS 63 RMS OR BETTER. SCRAPERS WITH CARBIDE TIPS AND GRINDING WHEELS CAN CAUSE SCRIBE MARKS. IF THE FINISH IS NOT 63 RMS OR BETTER, FATIGUE CRACKS CAN OCCUR.

- a) Carbide-tipped scraper
- b) Fine fluted rotary file
- c) 400 grit aluminum oxide (alumina) abrasive paper
- d) Stainless steel brush (with bristles no larger than 0.010 in. (0.254 mm) in diameter)
 - <1> After you use the stainless steel brush or file, polish the surface with 400 grit alumina abrasive paper, and then with 600 grit alumina abrasive paper.
- 4) Mechanically remove moderate or bad corrosion by stainless steel wire brush (with bristles no larger than 0.010 in. (0.254 mm) in diameter), grinding, or, only for filiform corrosion, abrasive blasting with glass beads. Do not use glass bead abrasive blasting to remove other types of corrosion that extend below the surface. On nonclad anodized surfaces, be careful not to damage the anodized surface adjacent to the corrosion area.
- 5) Dry abrasive blasting with glass beads is approved to remove only filiform corrosion from aluminum alloys. Do not use glass bead abrasive blasting to remove other types of corrosion that extend below the surface. Use air pressures of 40 psi (276 kPa) to 80 psi (552 kPa). The higher pressure removes corrosion more quickly.
- (g) After you remove all corrosion that can be seen through a 10-power magnifying glass, remove 0.002 in. (0.051 mm) more material to be sure you removed all the corrosion products.
- (h) Blend repaired areas.
 - (i) Clean the repaired area.
 - (j) Measure the depth of the blends, to be sure that they are within repair limits.
- (k) Treat the repaired area per PREPAINT CLEANING AND TREATMENT - CLEANING/ PAINTING, PAGEBLOCK 51-21-21/701.
- (2) Chemical
 - (a) Dilute the phosphoric acid base corrosion removing compound according to manufacturer's instructions. Mix the compound in wood, plastic or plastic lined containers. Do not add water to acid; always add acid to water.
 - (b) Apply diluted solution to corroded areas by spraying or with a sponge or brush. Apply with a circular motion, starting from lower surfaces and working upward to minimize runs and streaks.
 - (c) Leave the solution on from 5 to 30 minutes, depending on the temperature and the amount of corrosion present. Agitate occasionally with short fiber acid resistant brush. Do not allow solution to dry on the surface, as streaking will result.
 - (d) Rinse with a stream of water or wipe off with clean, moist cloth frequently rinsing the cloth in clear water.
 - (e) Dry area with clean, dry cloth and inspect area for corrosion.
 - (f) Repeat steps if any corrosion remains.

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- (g) Fair depressions resulting from rework, and surface finish with 400 or 600 grit abrasive paper. Select proper abrasive.
- (h) Clean reworked area.
- (i) Determine depth of faired depression, to ensure that rework depth limits have not been exceeded.
- (j) Treat reworked surface as indicated in PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701.

9. Corrosion Removal Procedures for Magnesium Alloys

A. Magnesium is lightweight, but is the most chemically active metal. It is highly susceptible to corrosion when failure of the protective coating has occurred. To preclude serious structural damage, early detection and prompt corrective action must be taken. The beginning of corrosion is indicated by a lifting of the paint film and white spots on the surface, which rapidly develop into snow-like mounds or whiskers. Procedures for corrosion removal by either mechanical or chemical methods are provided in the following steps:

B. Corrosion Removal

(1) Mechanical

- (a) Positively identify the metal as magnesium.
- (b) Protect adjacent area to prevent additional corrosion damage from corrosion products removed during mechanical removal.
- (c) If grease or soil is present, clean the rework area.
- (d) Strip paint, if applicable.
- (e) Determine extent of damage.
- (f) Remove loose corrosion products with aluminum wool.
- (g) Remove corrosion by one of the following:
 - 1) Light corrosion shall be removed by light hand sanding, selecting abrasive paper indicated.
 - 2) Light corrosion and stains may be removed with pumice paste. Prepare pumice paste by mixing pumice powder with water to form a slurry paste. Apply to stain, using a clean, soft cloth and rub gently. When paste has dried to a white powder, wipe off with a clean, dry, soft cloth. If corrosion products still exist, use No. 600 grit wet or dry abrasive paper and water to remove the remaining corrosion.
 - 3) Remove heavy corrosion products by hand scraping with any of the following items:



MAKE SURE THAT THE FINISH OF THE REPAIR AREA IS 63 RMS OR BETTER. SCRAPERS WITH CARBIDE TIPS AND GRINDING WHEELS CAN CAUSE SCRIBE MARKS. IF THE FINISH IS NOT 63 RMS OR BETTER, FATIGUE CRACKS CAN OCCUR.

- a) Carbide-tipped scraper
- b) Fine fluted rotary file
- c) 400 grit alumina abrasive paper
- d) Stainless steel brush (bristles of the brush not to exceed 0.010 in. (0.254 mm) in diameter)

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<1> After use of the stainless steel brush or file, surface shall be polished with 400 grit alumina abrasive paper, then with 600 grit alumina abrasive paper.

- 4) Mechanically remove moderate or severe corrosion by stainless steel wire brush or abrasive blasting. Select appropriate abrasives from Figure 204.

NOTE: Bristles of stainless steel wire brush should not exceed 0.010 in. (0.254 mm) in diameter.

- 5) Dry abrasive blasting is an approved method for corrosion removal from magnesium alloys. Air pressures of 10 psi (69 kPa) to 35 psi (241 kPa) shall be used on magnesium alloy surfaces.

- (h) After removing all corrosion visible through a 10-power magnifying glass, apply corrosion treating solution and wash thoroughly with clean water.
- (i) Fair depressions resulting from rework and surface finish with 400 or 600 grit abrasive paper. Select appropriate abrasive material.
- (j) Clean reworked area.
- (k) Determine depth of faired depression to ensure that depth rework Limits have not been exceeded.
- (l) Treat reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/ PAINTING, PAGEBLOCK 51-21-21/701.

(2) Chemical.

- (a) Chromic acid solution may be used to remove surface oxidation and light corrosion products from magnesium surfaces. This method is not adequate where deep pitting or heavy corrosion have occurred which require mechanical methods of removal. If properly used, the chemical method causes less reduction in section thickness. Parts containing copper-based inserts shall not be treated with this method unless properly masked off. Excessive amounts of fluorides, sulfates, or chlorides must not be allowed to build up in the solution as these compounds tend to coat and etch the metal rather than clean the surface.

- 1) Positively identify the metal as magnesium.
- 2) Remove loose corrosion products with aluminum wool.
- 3) Mask off other materials and parts, especially rubber parts, bearings, cast or pressed inserts, and plated steel to prevent contact with the treating solution or its fumes.
- 4) Prepare corrosion treating solution. Two chemical preparations are available. To prepare the solutions, proceed as follows:

a) Chromium trioxide preparation

<1> To make 1.00 gal (3.79 l) of solution, add 24 oz (680 g) of chromium trioxide to water in a mixing container of lead lined steel, stainless steel or 1100 aluminum. Reaction time is 1 to 15 minutes when heated to 190°F (88°C) to 202°F (94°C). Longer reaction time is required when mixed at room temperature.

- b) Sodium Dichromate/Nitric Acid Preparation. Prepare solution in the following portions: 1.5 lb (680.4 g) of sodium dichromate, 1.5 pt (709.8 ml) of concentrated nitric acid per 1.00 gal (3785.41 ml) of water. Mix as follows:

NOTE: The solution shall be prepared and stored in clean polyethylene or glass containers.

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- <1> Fill a suitable container with a volume of water equal to approximately 25 percent the desired total quantity of solution.
- <2> Add full quantity of sodium dichromate in proportions indicated above and agitate until the chemical is dissolved.
- <3> Add another volume of water until quantity of solution is equal to 66 percent the total desired quantity.
- <4> Slowly add total volume of nitric acid to solution and mix thoroughly.
- <5> Add water until total desired quantity of solution is reached and stir until entire solution concentration is equal.
- <6> Remove corrosion by carefully applying the chromic acid solution to the corroded area with acid resistant brush.
- <7> Allow the solution to remain on the surface approximately 15 minutes; agitate surface with brush. Wipe dry.
- <8> Rinse thoroughly with water while scrubbing the brush and wipe dry.
- <9> Repeat the preceding sequence as necessary until all corrosion products have been removed and a bright metallic color of the metal appears.
- <10> Fair depressions resulting from the rework.
- <11> Surface treatment after corrosion removal per STANDARD PRACTICES AND STRUCTURES, SECTION 51-00.

10. Corrosion Removal Procedures for Carbon Steel

- A. Carbon steel in its heat-treated form is used in areas where high structural or aerodynamic loads occur on the airplane. Landing gear, flap tracks, structural splices, terminal fittings and miscellaneous brackets are some of the typical parts made from heat-treated carbon steel. Red iron rust is one of the most familiar kinds of corrosion on carbon steel and generally caused from formation of ferrous oxides due to atmospheric exposure. Some surface metal oxides are purposely used to protect the underlying base metal. Red iron rust is not one of these and actually attracts moisture from the air and promotes additional corrosion. The red rust first shows on unprotected airplane hardware such as bolts, nuts and exposed fittings. Slight corrosion damage on highly stressed steel parts becomes potentially dangerous and the rust shall be removed and controlled. Corroded steel parts should be removed from the airplane for treatment if possible. The general procedures for corrosion removal are provided in the following paragraphs.
- B. Corrosion Removal
 - (1) Mechanical
 - (a) Positively identify the metal as steel and determine its heat-treat value.
 - (b) Protect adjacent area to prevent additional corrosion damage from corrosion products removed during mechanical removal.
 - (c) If grease or soil is present, clean the rework area.
 - (d) Strip paint, if applicable.
 - (e) Corrosion removal on steels heat-treated to 220 ksi and above shall be accomplished by dry abrasive blasting with blasting pressure ranging from 40 psi (276 kPa) to 70 psi (483 kPa) or hand tools.
 - (f) Mechanically remove all corrosion from steel parts heat-treated below 220 ksi as follows:

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- 1) Remove heavy corrosion products using stainless steel hand brush. Use dry abrasive blasting as an alternate method with blasting pressures ranging from 40 psi (276 kPa) to 70 psi (483 kPa).
- 2) Remove residual corrosion by hand sanding or with approved hand operated power tool. Select appropriate abrasives.
- (g) Make visual check through a 10-power magnifying glass to ensure that all corrosion is removed.
- (h) Fair depressions resulting from reworked and surface finish with 400 grit abrasive paper selected.
- (i) Clean reworked area.
- (j) Determine depth of faired depression to ensure that rework depth limits have not been exceeded.
- (k) Treat reworked area as indicated in surface treatment for carbon steels immediately upon finish of rework (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).
- (2) Chemical.
 - (a) Chemical rust removers are of either the acid or alkaline type. The acid type is intended for use in removing the rust or black oxide formations by either immersion or brush application of the chemical. The alkaline type is intended for use in removing red rust by immersion treatment. Procedures for the use of both types of rust removers are provided below.
 - 1) Inhibited Phosphoric Acid Base Rust Remover.
 - a) Brush-on Method
 - <1> Positively identify the metal as steel.
 - <2> Protect adjacent area to prevent additional damage from the chemical agents.
 - <3> If grease or soil is present, clean the corrosion area.
 - <4> Remove heavy rust by chipping an/or wire brushing with stainless steel bristle brush.
 - <5> Dilute the concentrated acid according to manufacturer's instructions in acid resistant mixing container. Do not add water to acid; always add acid to water.
 - <6> Apply the acid mixture to corroded area with acid-resistant brush. Allow to remain long enough to loosen rust (2 to 10 minutes) and rinse completely with clean water.
 - <7> Examine corroded area visually with 10-power magnifying glass.
 - <8> If corrosion is still evident, repeat application and rinse thoroughly
 - <9> After removal is complete, blend or fair area affected.
 - <10> Determine depth of faired depressions to ensure that rework limits have not been exceeded.
 - <11> Treat surface of reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701 immediately upon finish of rework.

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b) Immersion Method

NOTE: This method is to be used for removing heavy rust from parts removed from the airplane and where the corroded area can be completely immersed.

- <1> Positively identify the metal as steel.
- <2> If grease or soil is present, clean the corrosion area.
- <3> Remove heavy rust by chipping an/or wire brushing with stainless steel wire brush.
- <4> Prepare the acid mixture.
- <5> Immerse the parts in acid solution only long enough to loosen the rust. The solution may be heated to a maximum of 104°F (40°C) to increase the removal rate. Agitation will also help.
- <6> Rinse in continuously flowing cold water rinse tank or flood with clean water.
- <7> Visually examine the corrosion area with 10-power magnifying glass.
- <8> If corrosion still exists, repeat immersion steps.
- <9> After removal is complete, fair or blend the reworked area.
- <10> Determine depth of faired depression to ensure that rework depth limits have not been exceeded.
- <11> Treat surface of reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701 immediately upon finish of rework.

c) Alkali Type Rust Remover

- <1> Positively identify the metal as steel.
- <2> Protect adjacent components to prevent damage from the chemical agents, chips, scales or corrosion products.
- <3> Remove grease and soil from corrosion damage area.
- <4> Remove heavy rust by chipping and/or wire brushing with stainless steel bristle brush.
- <5> Prepare alkali base rust remover solution per manufacturer's instruction. Carbon steel or corrosion resistant steel tanks may be used.
- <6> Immerse parts in rust remover solution. Temperature up to the boiling point of the solution may be used to increase the rate of removal.
- <7> Rinse thoroughly in clean water.
- <8> Visually examine for complete corrosion removal with a 10-power magnifying glass.
- <9> If corrosion still exists, repeat immersion procedure above.
- <10> Dry thoroughly and fair or blend depressions from corrosion removal.
- <11> Determine depth of faired depression to ensure that rework depth limits have not been exceeded.
- <12> Treat surface of reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701 immediately upon finish of rework.

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11. Corrosion Removal Procedure for Stainless Steel and Nickel-Chromium Alloys

- A. Stainless steel and nickel-chromium alloys are used where corrosion resistance is one of the major considerations in the design of the component or system. In most applications, these steels will have no other surface protection except for matching color schemes of the surrounding structure or dissimilar metal organic coatings. Stainless steel and nickel chromium steels, however, are not free from corrosion attack. Corrosion usually appears as pits usually black in color. The existence of corrosion products prevents a passivated environment at the stainless steel surfaces and creates an active/passive corrosion cell (CORROSION IDENTIFICATION - TYPES AND CAUSES, SUBJECT 51-00-50). It is, therefore, necessary that the corrosion removal is complete.
- B. Corrosion Removal
 - (1) Mechanical
 - (a) Use the same general procedures as for carbon steel.
 - (2) Chemical.
 - (a) In severely corroded areas and where chemical agents will not be trapped in cracks, crevices, lap joints, etc., the chemical removal methods described for carbon steel are applicable.

12. Corrosion Removal Procedure for Titanium Alloys

- A. Titanium alloys are used in several locations in the airplane, particularly in high-temperature areas and in areas where high-strength members are exposed to corrosive environment. Exposure of the titanium surface to fire resistant hydraulic fluids such as BMS 3-11 causes hydrogen embrittlement subsequently leading to pitting of the surface. The alloy is generally corrosion resistant. Corrosion, however, does appear as white or black color oxides. Corrosion removal shall be accomplished per the following procedures:
- B. Corrosion Removal
 - (1) Mechanical
 - (a) If grease or soil is present, clean the area.
 - (b) Hand polish with aluminum polish with a soft cloth until all traces of corrosion or surface deposits are removed.
 - (c) Remove the polish with soft cloth.
 - (d) Treat reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/ PAINTING, PAGEBLOCK 51-21-21/701.
 - (2) Chemical
 - (a) Because titanium is susceptible to hydrogen embrittlement when exposed to acid solutions, chemical corrosion removers are not permitted.

13. Corrosion Removal Procedures for Plated or Phosphated Surfaces

- A. Metal parts are plated either to provide a smooth surface for wear resistance or to provide a sacrificial metal to protect the base metal. Phosphate treatments on metal surfaces provides a good adhesion surface for organic finishes and provides good wear and corrosion resistance when used with oil or corrosion preventive compounds. Cadmium plating corrosion will appear as a dull gray product. Phosphate treated surfaces will appear as a red-black part darker than common rust when corroded.
- B. Corrosion Removal from Cadmium Plated Surfaces
 - (1) Protect adjacent areas from contaminants during corrosion removal.
 - (2) If grease or soil is present, clean area.
 - (3) If corrosion appears only on the plated surfaces, rework as follows:

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- (a) Remove corrosion products by rubbing lightly with stainless steel wool. Limit rework area to a minimum so that plating material in adjacent area is preserved.
- (b) Apply chromic acid solution to the corroded area and allow to remain on surface for 30 to 60 seconds. The solution strength shall be 4 oz (113 g) of chromium trioxide to 1.00 gal (3.79 l) of water.
- (c) Rinse with clean water and air dry.
- (4) If corrosion has penetrated to the base metal, rework as follows:
 - (a) Determine from SRM if part shall be reworked or replaced.
 - (b) If part can be reworked, identify the base metal and remove corrosion per applicable procedures.
- (5) Treat rework surface per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701.
- C. Corrosion Removal from Plated Surfaces (Except Cadmium Plated Surfaces)
 - (1) Protect adjacent areas from contaminants during corrosion removal.
 - (2) If grease or soil is present, clean area.
 - (3) Remove heavy corrosion by mechanical method.
 - (4) Remove remaining corrosion using phosphoric acid base rust remover (mixed on a 1:1 ratio). Allow acid solution to remain only long enough to remove the corrosion.
 - (5) Thoroughly rinse the acid from the surface with clean water.
 - (6) Air dry and treat the reworked surface per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701.
- D. Corrosion Removal from Phosphated Surfaces
 - (1) Phosphated cadmium surfaces shall be treated per procedures for cadmium plated surfaces.
 - (2) Phosphated ferrous alloys shall be treated per procedures for carbon steel.

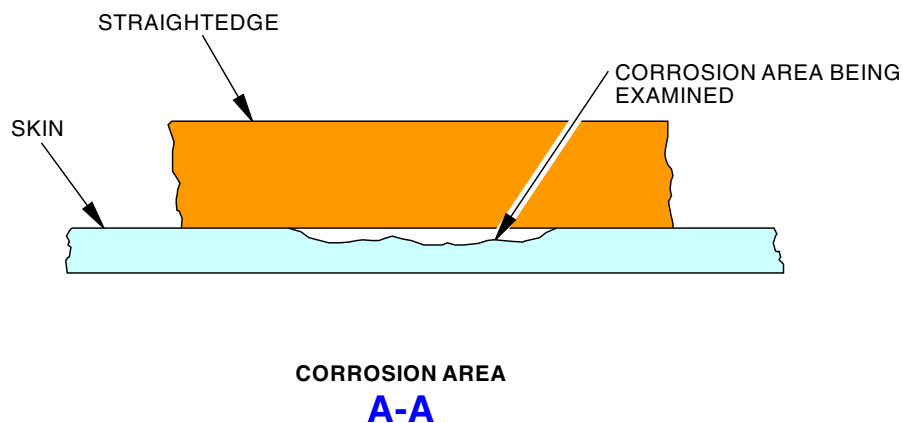
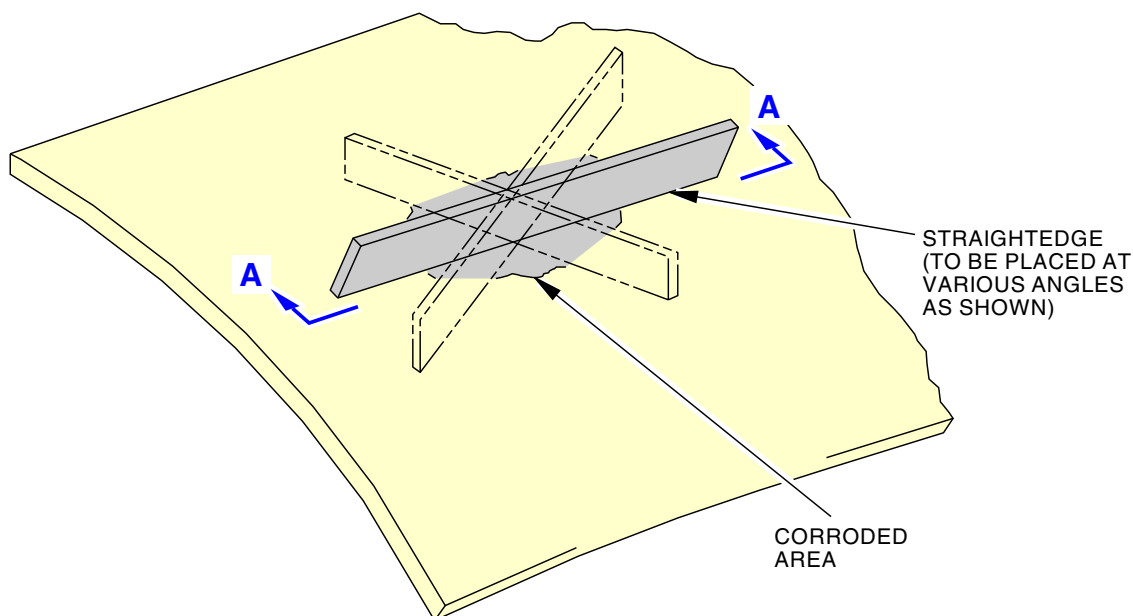
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Usage of Straight Edge in Determining Depth of Corrosion
Figure 201/51-00-53-990-801

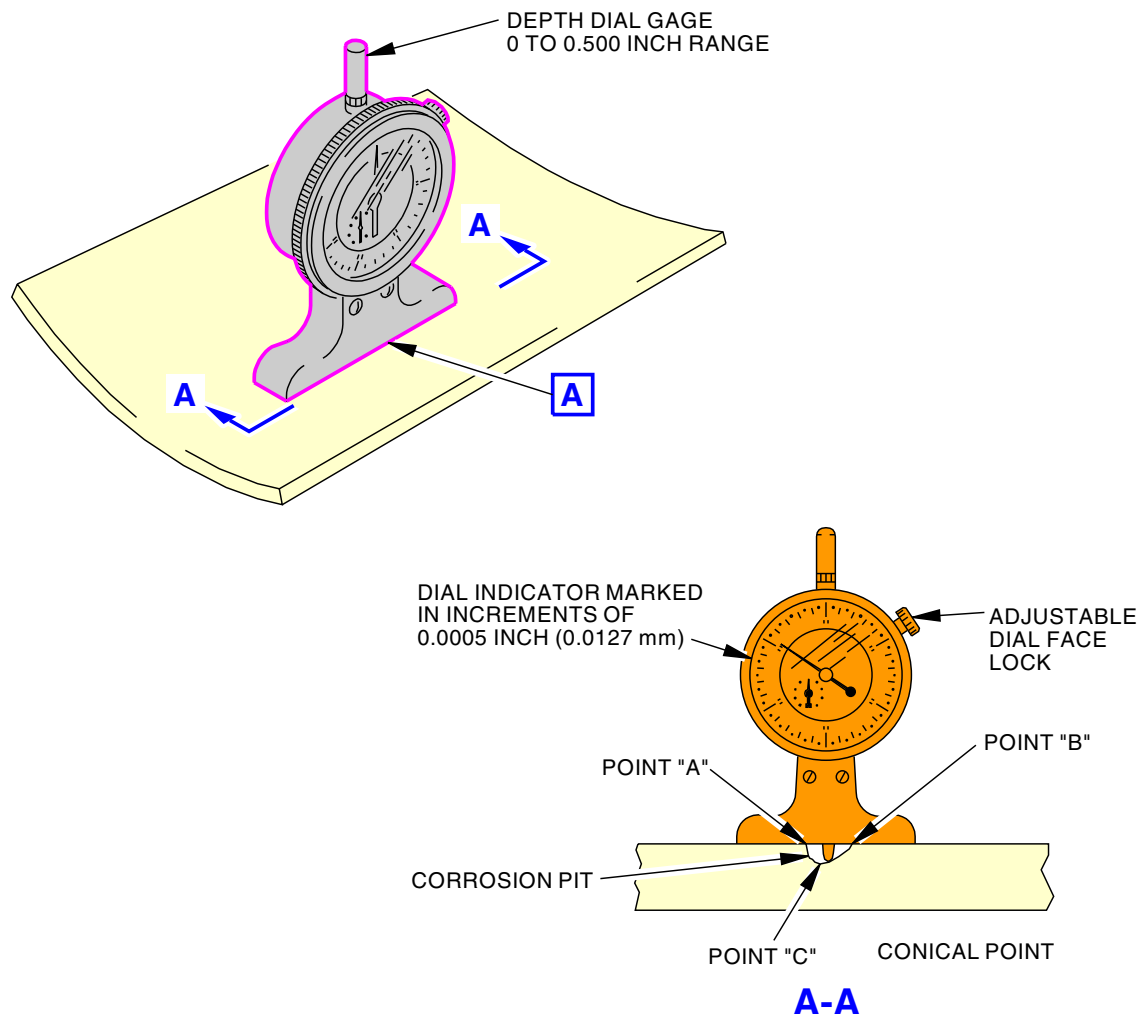
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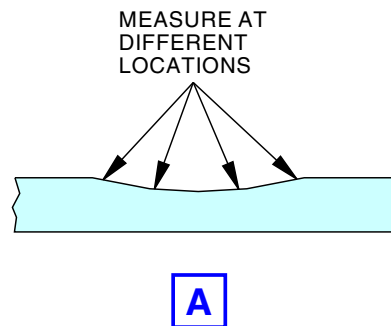
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CORROSION DEPTH MEASUREMENT

1. MEASURE THE DEPTH PERPENDICULAR TO THE RADIUS OF CONCAVE OR CONVEX SURFACES. SEE THE MAIN VIEW.
2. MEASURE THE DEPTH ON EDGES ADJACENT TO CORROSION DAMAGE OR BLENDED DEPRESSION (POINTS "A" AND "B"). DO THIS NEAR THE CENTER OF CORROSION DAMAGE OR BLEND DEPRESSION (SEE VIEW A) AND USE THE DEEPEST VALUE AS POINT "C". CALCULATE THE DEPTH AS FOLLOWS:

$$\text{DEPTH} = C - \frac{(A + B)}{2}$$



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Corrosion Damage and Repair Depth Measurement with a Depth Dial Gage
Figure 202/51-00-53-990-802

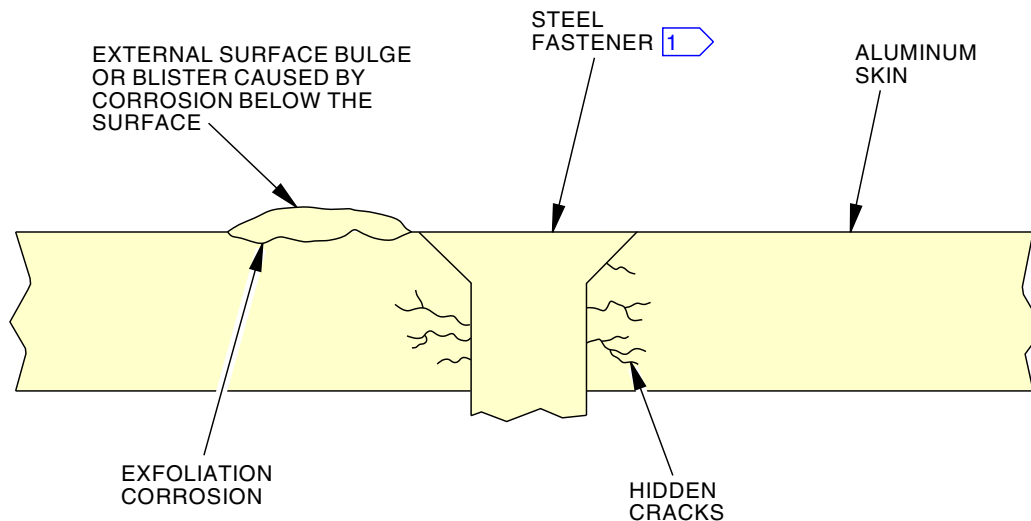
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1 FASTENERS NEAR OR IN THE AREA OF CORROSION MUST BE REMOVED. CORROSION REMOVAL ON THE EXTERNAL SURFACE WITHOUT FASTENER REMOVAL WILL NOT STOP CORROSION UNDER THE FASTENER HEAD OR IN THE HOLE.

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Corrosion at Fasteners
Figure 203/51-00-53-990-803

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METALS OR MATERIALS TO BE PROCESSED	RESTRICTIONS	OPERATION	ABRASIVE PAPER OR CLOTH		
			ALUMINUM OXIDE	SILICON CARBIDE	GARNET
FERROUS ALLOYS HEAT TREATED 220 KSI OR HIGHER	DO NOT USE ACID BASE RUST REMOVERS. DO NOT USE HANDHELD POWER TOOLS.	CORROSION REMOVAL AND BLENDS	150-FINER	150-FINER	
		FINISHING	400		
FERROUS ALLOYS	DOES NOT APPLY TO STEEL HEAT TREATED 220 KSI OR HIGHER	CORROSION REMOVAL AND BLENDS	150-FINER	180-FINER	
		FINISHING	400		
ALUMINUM ALLOYS EXCEPT CLAD ALUMINUM	DO NOT USE SILICON CARBIDE ABRASIVE	CORROSION REMOVAL AND BLENDS	150-FINER		7/0-FINER
		FINISHING	400		
CLAD ALUMINUM	SANDING LIMITED TO THE REMOVAL OF MINOR SCRATCHES	CORROSION REMOVAL AND BLENDS	240-FINER		7/0-FINER
		FINISHING	400		
MAGNESIUM ALLOYS		CORROSION REMOVAL AND BLENDS	240-FINER		
		FINISHING	400		
TITANIUM		CLEANING AND FINISHING	150-FINER	180-FINER	
PLATED OR PHOSPHATED SURFACES		REFER TO THE APPLICABLE BASE METAL FOR CORROSION REMOVAL			

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**Abrasives for Corrosion Removal
Figure 204/51-00-53-990-804 (Sheet 1 of 2)**

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METALS OR MATERIALS TO BE PROCESSED	RESTRICTIONS	OPERATION	ABRASIVE FABRIC OR PAD	WOOL		PUMICE 350 MESH OR FINER	ABRASIVE WHEEL
				ALU-MINUM	STAIN-LESS STEEL		
FERROUS ALLOYS HEAT TREATED 220 KSI OR HIGHER	DO NOT USE ACID BASE RUST REMOVERS. DO NOT USE HANDHELD POWER TOOLS.	CORROSION REMOVAL AND BLENDS	FINE TO ULTRA-FINE	X	X	X	
		FINISHING		X	X	X	
FERROUS ALLOYS	DOES NOT APPLY TO STEEL HEAT TREATED 220 KSI OR HIGHER	CORROSION REMOVAL AND BLENDS	FINE TO ULTRA-FINE	X	X	X	X
		FINISHING		X	X	X	
ALUMINUM ALLOYS EXCEPT CLAD ALUMINUM	DO NOT USE SILICON CARBIDE ABRASIVE	CORROSION REMOVAL AND BLENDS	VERY FINE TO ULTRA-FINE	X		X	X
		FINISHING		X		X	
CLAD ALUMINUM	SANDING LIMITED TO THE REMOVAL OF MINOR SCRATCHES	CORROSION REMOVAL AND BLENDS	VERY FINE TO ULTRA-FINE			X	X
		FINISHING				X	
MAGNESIUM ALLOYS		CORROSION REMOVAL AND BLENDS	VERY FINE TO ULTRA-FINE	X		X	
		FINISHING		X		X	
TITANIUM		CLEANING AND FINISHING			X	X	X
PLATED OR PHOSPHATED SURFACES		REFER TO THE APPLICABLE BASE METAL FOR CORROSION REMOVAL			X		

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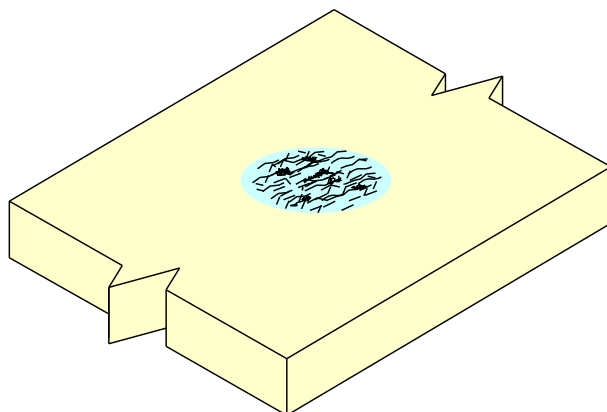
**Abrasives for Corrosion Removal
Figure 204/51-00-53-990-804 (Sheet 2 of 2)**

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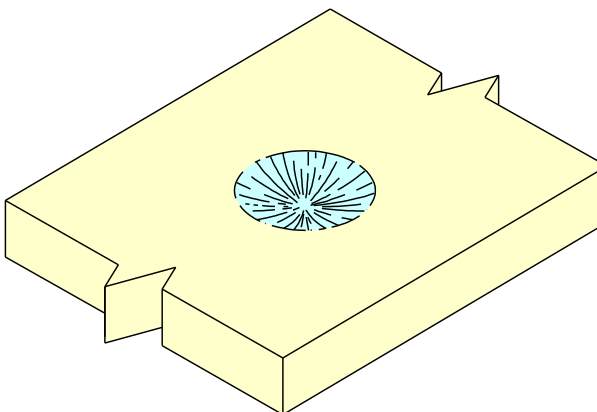
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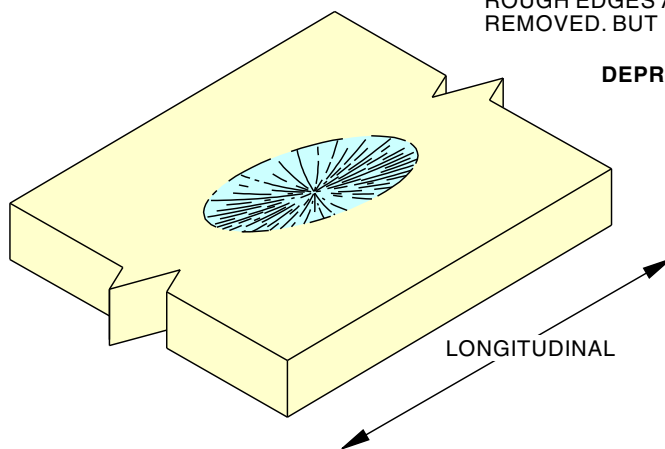
NOTE:
ALL LOOSE CORROSION PRODUCTS ARE
REMOVED FROM THE PIT.

CORROSION DAMAGE BEFORE REPAIR



NOTE:
ROUGH EDGES ARE SMOOTH AND ALL CORROSION IS
REMOVED. BUT DEPRESSION IS NOT CORRECTLY SHAPED.

DEPRESSION AFTER CORROSION REMOVAL



NOTE:
THE BLEND NOW HAS THE RATIO
AND DIRECTION SHOWN IN FIG. 206.

BLENDOUT COMPLETE

2524262 S0000594027_V1

Single Depression Blends
Figure 205/51-00-53-990-805

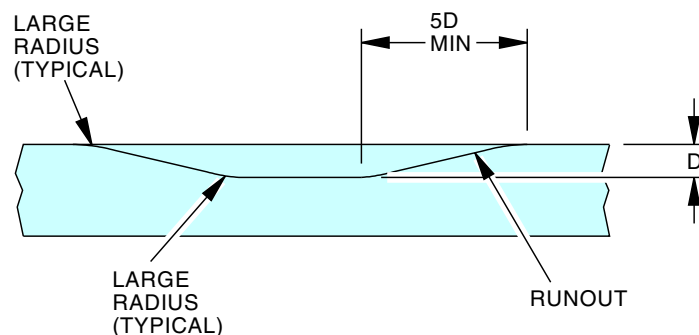
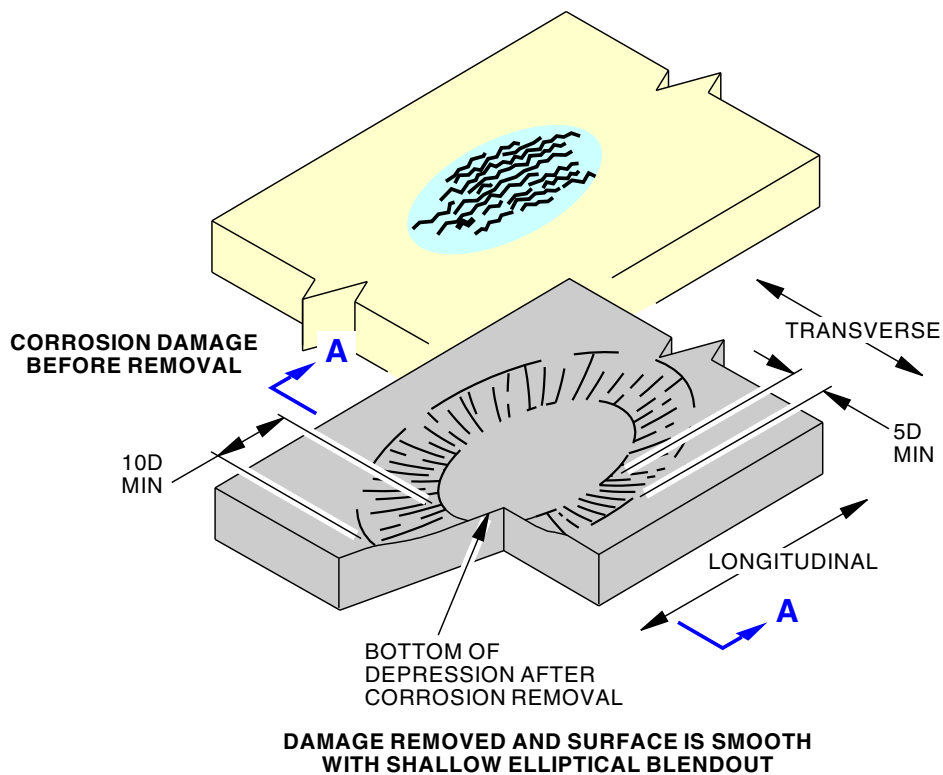
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EXAMPLE OF 1:5 BLEND RATIO

A-A

NOTE:

D = DEPTH OF DEPRESSION

1. SEE SPECIFIC REPAIR FOR MAXIMUM DEPTH
2. BECAUSE THE MAXIMUM DEPTH IS DIFFERENT AT DIFFERENT LOCATIONS, MAXIMUM SIZE OF BLENDOUT WILL ALSO BE DIFFERENT
3. USE THE SAME BLEND RATIO AT ALL TIMES UNLESS THE REPAIR INSTRUCTIONS ARE DIFFERENT

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Multiple Depression Blends
Figure 206/51-00-53-990-806

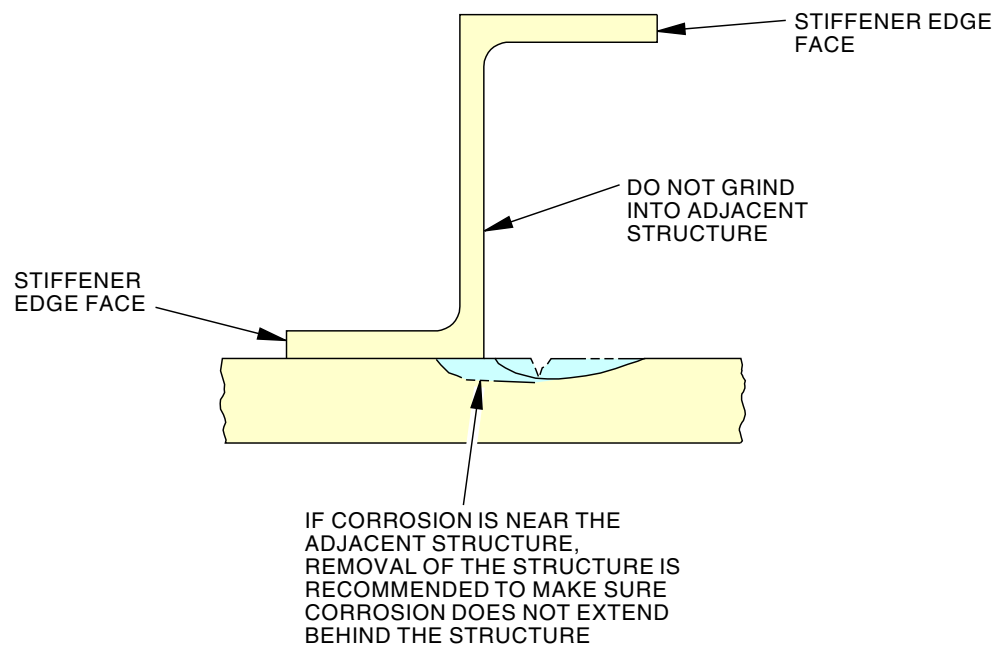
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Corrosion in Limited Clearance Areas
Figure 207/51-00-53-990-807

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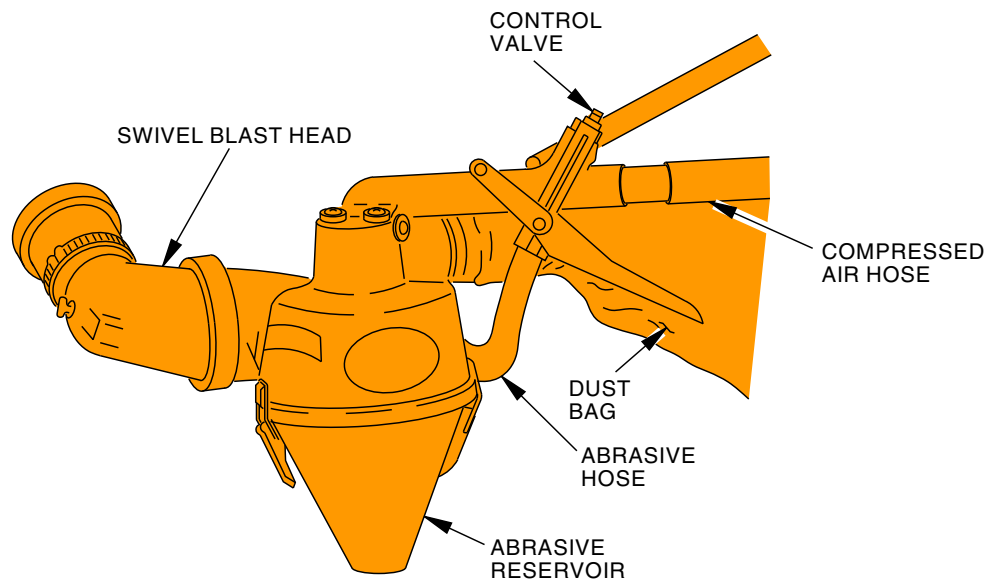
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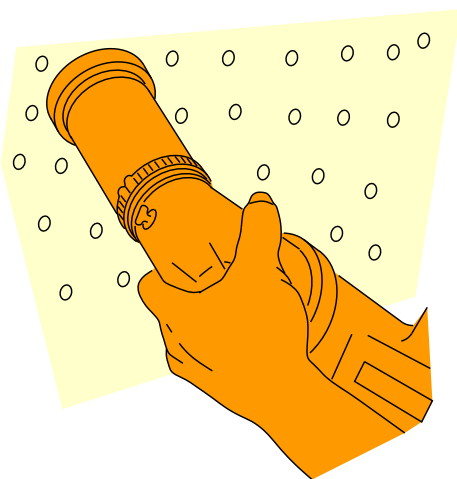
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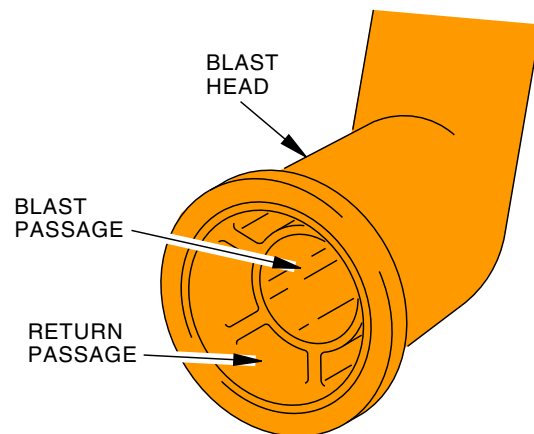
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PORTABLE ABRASIVE BLASTER COMPONENTS
(CLEMCO MODEL E-10A UNIT IS SHOWN)



BLAST NOZZLE ON WORK SURFACE



BLAST HEAD

NOTE:

FOR BEST RESULTS, THE BLAST NOZZLE SHOULD BE HELD ON THE SURFACE SO THAT IT REMOVES CORROSION IN AN APPROXIMATE 1-INCH DIAMETER PATH.

THE BLAST HEAD OF THE CLEMCO PORTABLE BLAST CLEANER HAS A CONCENTRIC ARRANGEMENT. THE INNER BLASTS THE GLASS BEADS AGAINST THE CORRODED SURFACE AND THE OUTER PASSAGE RETRIEVES BEADS AND DUST.

2524265 S0000594030_V1

Portable Abrasive Blaster
Figure 208/51-00-53-990-808

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CORROSION REMOVAL AFTER MERCURY SPILLAGE - MAINTENANCE PRACTICES

1. General

- A. The corrosive action of mercury is very rapid; consequently, immediate action must be taken when mercury spillage has been discovered.
- B. Mercury amalgamates readily with aluminum alloys at room temperature if the oxide film on the aluminum has been scratched or damaged. Once a small area of aluminum has been amalgamated, corrosion occurs. This process is accelerated by moisture and particularly by salt water.
- C. The amalgamation of stressed aluminum structure may also result in rapid cracking similar to stress corrosion cracking.
- D. Mercury is not consumed in the amalgamation process. As the aluminum oxidizes, it separates from the amalgam and the mercury continues to attack fresh aluminum.
- E. The presence of organic finishes, greases or a thick continuous oxide layer retards the amalgamation process.
- F. Do the steps in MERCURY SPILLAGE CONDITION - MAINTENANCE PRACTICES (CONDITIONAL INSPECTION), PAGEBLOCK 05-51-14/201 on the procedures on the removal of mercury

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CORROSION REMOVAL AFTER FIRE DAMAGE - MAINTENANCE PRACTICES

1. General

- A. Service experience has indicated that corrosion problems can occur if fire damaged areas are not immediately cleaned. The sooty deposits resulting from burning organic materials and the residue from the use of dry powder type fire extinguishers are the sources of contaminants that may initiate corrosion in metal systems and structure.
- B. The dry powder type fire extinguishers are considered very effective in combatting airplane fires. The powder from extinguishers of this type is decomposed by heat to form carbon dioxide. The residual deposit, however, is hygroscopic and forms sodium hydroxide when moisture is absorbed from the air or mixed with water from airplane flushing. Sodium hydroxide is alkaline and can cause corrosion damage to aluminum structure, electrical components, etc. Use large quantities of water for flushing in every compartment, crevice and corner, and behind electrical panels to eliminate all traces of this insoluble white powder.
- C. BCF and similar halogen type fire extinguishers normally leave no chemical residue to corrode parts or surfaces. However, when subjected to flame or hot surfaces, halogenated agents can decompose to produce small amounts of halogen acids.

TASK 51-00-55-200-801

2. Preventive Maintenance

A. References

Reference	Title
51-21-11 P/B 701	PAINT STRIPPING - CLEANING/PAINTING
51-21-31 P/B 701	CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING
51-21-91 P/B 701	CORROSION INHIBITING COMPOUND - CLEANING/PAINTING
737 NDT Part 6, 51-00-00, Procedure 3	Investigation of Fire Damage on Aircraft Structure

B. Consumable Materials

Reference	Description	Specification
B00081	Solvent - Trichloroethylene	ASTM D4080
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7

C. Procedure

SUBTASK 51-00-55-020-001

- (1) After the fire is out, do these steps:
 - (a) Remove fire damaged interiors to expose structure. This includes interior trim, seats, passenger service units, linings, insulations, galleys, etc. Removal of tubing, cables, electrical wiring, etc., is not necessary if they are unaffected.
 - (b) Screen or mask off areas not affected.
 - (c) Open all drains, hatches and doors for drainage and ventilation. Use compressed air to blow dry all hidden recesses.

SUBTASK 51-00-55-200-001

- (2) Examine the structure for these items:
 - (a) Heat damage, soot, fire extinguishing material residue and corrosion.

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- (b) Paint discoloration indicates temperature had exceeded 350°F (177°C).

NOTE: Structural analysis required if temperature exceeds 350°F (177°C).

- (c) Look for acid contamination of the structure, control cables and wire bundles with litmus paper.

NOTE: Products of combustion or decomposed fire extinguishants may combine with moisture to form corrosive chemicals.

- (d) Flush the structure with water when necessary to remove contamination.

SUBTASK 51-00-55-960-001

- (3) Remove and replace structure damaged beyond repair.

NOTE: Use Investigation of Fire Damage on Aircraft Structure, 737 NDT Part 6, 51-00-00, Procedure 3 to determine any change in heat-treat of any suspect structure.

SUBTASK 51-00-55-100-001



DO NOT GET SOLVENTS IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE SOLVENTS. KEEP SOLVENTS AWAY FROM SPARKS, FLAME, AND TEMPERATURES ABOVE THE FLASH POINT. SOLVENTS ARE A POISONOUS AND FLAMMABLE MATERIAL WHICH CAN CAUSE INJURY PERSONS AND DAMAGE TO EQUIPMENT.

- (4) Remove soot by washing affected areas with solvent, B00184 or solvent, B00081. Pressure gun application is suggested for flushing fay surface joints, such as stringers to body skins. An absorbent cloth held beneath the area will catch the contaminated solvent.

SUBTASK 51-00-55-100-002

- (5) Inhibit corrosion that could be caused by residue from the dry powder fire extinguisher by washing affected areas with a 10-percent-by-weight solution of sodium dichromate. The dichromate solution acts as a mild corrosion inhibitor. Thoroughly dry all treated surfaces before continuing with any other treatment. Repeat rinse and inhibition treatment if any white residue shows.

NOTE: Any remaining liquid dichromate solution will weep through seams and fastener holes during cabin pressurization and could subsequently discolor the exterior paint finish. Forced hot air used to dry the area may be necessary before further flight if humidity is high.

SUBTASK 51-00-55-211-001

- (6) Look for remaining contamination behind clips, brackets, and nutplates.

SUBTASK 51-00-55-840-001

- (7) After removal of contamination, do the steps in CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING, PAGEBLOCK 51-21-31/701 when corrosion is found.

SUBTASK 51-00-55-370-001

- (8) When corrosion is removed, do the steps in PAINT STRIPPING - CLEANING/PAINTING, PAGEBLOCK 51-21-11/701.

SUBTASK 51-00-55-600-001

- (9) To apply the corrosion inhibiting compound, do the steps in CORROSION INHIBITING COMPOUND - CLEANING/PAINTING, PAGEBLOCK 51-21-91/701.

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SUBTASK 51-00-55-840-002

(10) Put the Airplane Back to Its Usual Condition.

————— **END OF TASK** —————

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CORROSION REMOVAL AFTER ALKALINE SPILLS - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
 - (1) Detection and isolation of alkaline contaminated area
 - (2) Alkaline spillage cleanup.
- B. Alkaline spills are caustic and can cause corrosive damage to airplane structure unless neutralized.
- C. The primary source of alkaline spillage is in the battery compartments where alkaline electrolytes may overflow during charging or spill during battery servicing.
- D. Alkali-based corrosion removal compounds and airplane cleaners are used quite extensively during routine maintenance operations. Without thorough neutralizing and/or rinsing, a spilled alkaline compound can produce corrosion damage.
- E. Containers of alkaline compounds may be part of a cargo and may be broken during loading or unloading. Spillage from such sources are usually larger in scale than battery electrolyte spills. It is therefore recommended that the neutralization of the alkaline be accomplished as soon as possible.

TASK 51-00-56-211-801

2. Detection and Isolation of Alkaline Contaminated Area

A. **Consumable Materials**

Reference	Description	Specification
G50305	Sheeting - Plastic, Polyethylene	

B. **Procedure**

SUBTASK 51-00-56-211-001

- (1) Do this step for detection of alkaline contamination:
 - (a) Alkalines are clear and are not color detectable.
 - 1) A white powdery deposit (aluminum oxide) would indicate corrosion on aluminum structure.

NOTE: Around the top of nickel-cadmium battery cells, the alkaline electrolyte that has overflowed the vent caps reacts with the carbon dioxide in the air and produce a white powdery deposit. This white deposit is not corrosive and otherwise harmless but is an indication that electrolyte has spilled or otherwise escaped.

SUBTASK 51-00-56-160-001

- (2) On discovery of alkaline spills, steps should be taken to contain the contaminated area. The following precautions are advised:
 - (a) Do not allow alkaline spills to spread to adjacent areas that will not be cleaned.
 - (b) In battery areas, protection of equipment beneath using plastic sheeting, G50305 is advised. If equipment is operating, venting should be maintained.
 - (c) Consider protecting uncontaminated areas by taping down protective material such as plastic sheeting, G50305.

———— **END OF TASK** ————

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TASK 51-00-56-100-801

3. Alkaline Spillage Cleanup

A. References

Reference	Title
51-21-11 P/B 701	PAINT STRIPPING - CLEANING/PAINTING
51-21-31 P/B 701	CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING
51-21-91 P/B 701	CORROSION INHIBITING COMPOUND - CLEANING/PAINTING

B. Consumable Materials

Reference	Description	Specification
B00636	Acid, Acetic (Vinegar) (5%-10% Acetic Acid)	Commercially available product
G00116	Sponge - Synthetic	
G00215	Brush - Soft Bristle Fiber	
G01659	Swab - Cotton Or Rayon, (Disposable)	
G50256	Water, Regular	
G50305	Sheeting - Plastic, Polyethylene	
G50316	Cloth - Clean, Dry, Lint-free, White, Cotton	

C. Procedure

SUBTASK 51-00-56-910-001

- (1) If equipment is adjacent to the treatment area, use plastic sheeting, G50305 to cover the equipment to prevent inadvertent splashing of alkalines or treatment fluids.

SUBTASK 51-00-56-100-001

- (2) Wipe up excess fluids with cotton cloth, G50316 and discard cloth into plastic container for disposal.

SUBTASK 51-00-56-110-001

- (3) Do these steps to neutralize alkaline contamination:
- (a) Neutralize the treatment area with a 5 percent acid, B00636 solution or full strength household vinegar applied with a brush, G00215, cotton cloth, G50316 or swab, G01659.
 - (b) Continue to apply the solution until bubbles cease. Then allow the solution to remain on the surface for an additional 5 minutes.
 - (c) Remove the neutralized mixture with a cotton cloth, G50316 or sponge, G00116.
 - (d) Rinse the affected area with generous quantities of clean water, G50256. Occasionally agitate the surface with a brush, G00215.
 - (e) Neutralization of the alkaline fluid should be determined with litmus paper.
 - (f) Wipe dry with clean cotton cloth, G50316.

SUBTASK 51-00-56-840-001

- (4) After removal of contamination, do the steps in CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING, PAGEBLOCK 51-21-31/701 when corrosion is found.

SUBTASK 51-00-56-370-001

- (5) When corrosion is removed, do the steps in PAINT STRIPPING - CLEANING/PAINTING, PAGEBLOCK 51-21-11/701, if necessary.

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SUBTASK 51-00-56-600-001

- (6) To apply the corrosion inhibiting compound, do the steps in CORROSION INHIBITING COMPOUND - CLEANING/PAINTING, PAGEBLOCK 51-21-91/701.

SUBTASK 51-00-56-840-002

- (7) Put the Airplane Back to Its Usual Condition.

———— **END OF TASK** ————

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CORROSION REMOVAL AFTER ACID SPILLS - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
 - (1) Detection and isolation of acid contaminated area
 - (2) Acid spillage cleanup.
- B. Acid spills, unless neutralized, can rapidly corrode metallic structure.
- C. The primary source of acid spillage is in the battery compartments where acid electrolytes may overflow during charging or spill during battery servicing.
- D. Acid-based corrosion removal compounds and airplane cleaners are used quite extensively during routine maintenance and repair. Spills do occur at times and thorough neutralizing and/or rinsing is necessary to preclude corrosion damage.
- E. Containers of acid concentrates or acid based chemicals may be part of a cargo and may be broken during loading or unloading. Spillage from such sources are usually larger in scale than battery electrolyte or maintenance servicing chemical spills mentioned in par. B and C. It is, therefore, advisable that the acid spillage be neutralized as soon as possible.
- F. Operators should also be aware of the fact that acids may deteriorate nonmetallic materials such as fabrics, wood, leather, etc.
- G. The FAA has required the removal of all lithium sulfur dioxide batteries from all U.S. civil aircraft. This is due to the fact that many incidents have been reported in which lithium sulfur dioxide batteries have burned or vented violently. Some batteries have also leaked sulfur dioxide gas, which combines with moisture to form extremely corrosive sulfurous acid.

TASK 51-00-57-211-801

2. Detection and Isolation of Acid Contaminated Area

A. **Consumable Materials**

Reference	Description	Specification
G50305	Sheeting - Plastic, Polyethylene	

B. **Procedure**

SUBTASK 51-00-57-211-001

- (1) Do this step for detection of acid contamination:
 - (a) Examine for discoloration the surface for acid contamination.
 - 1) Black, white, yellow and brown are predominant chemical reaction precipitate colors.
- NOTE: Precipitate colors depend on the acid and the material on which the acid is spilled

SUBTASK 51-00-57-160-001

- (2) On discovery of acid spills, steps should be taken to contain the contaminated area. The following precautions are advised:
 - (a) Do not allow acid spills to spread to adjacent areas that will not be cleaned.
 - (b) In battery areas, protection of equipment beneath using plastic sheeting, G50305 is advised. If equipment is operating, venting should be maintained.

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- (c) Consider protecting uncontaminated areas by taping down protective material such as plastic sheeting, G50305.

————— **END OF TASK** —————

TASK 51-00-57-100-801

3. Acid Spillage Cleanup

A. References

Reference	Title
51-21-11 P/B 701	PAINT STRIPPING - CLEANING/PAINTING
51-21-31 P/B 701	CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING
51-21-91 P/B 701	CORROSION INHIBITING COMPOUND - CLEANING/PAINTING

B. Tools/Equipment

Reference	Description
STD-419	Gloves - Rubber, Elbow Length
STD-1392	Shield - Facial Protection
STD-1393	Aprons
STD-1394	Boots
STD-1395	Head Gear
STD-3904	Goggles - Safety

C. Consumable Materials

Reference	Description	Specification
B00095	Compound - Sodium Bicarbonate	ASTM D928
G00116	Sponge - Synthetic	
G00215	Brush - Soft Bristle Fiber	
G50256	Water, Regular	
G50305	Sheeting - Plastic, Polyethylene	
G50316	Cloth - Clean, Dry, Lint-free, White, Cotton	

D. Procedure

SUBTASK 51-00-57-910-001



DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. PUT ON EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION) AND GLOVES WHEN YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) Take these precautions when you work with an acid spill condition:
- (a) Adequate protective clothing should be worn when handling or working in acid contaminated areas.
- 1) elbow length rubber gloves, STD-419
 - 2) safety goggles, STD-3904
 - 3) face shield, STD-1392
 - 4) aprons, STD-1393

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- 5) boots, STD-1394
- 6) head gear, STD-1395
- (b) Wash hands after using acid neutralizing treatment solution and/or materials before eating or smoking.
- (c) Waste materials, solvents, chemical solutions, wiping rags, masking materials, etc., shall be collected and disposed of safely.

SUBTASK 51-00-57-910-002

- (2) If equipment is adjacent to the treatment area, use plastic sheeting, G50305 to cover the equipment to prevent inadvertent splashing of acids or treatment fluids.

SUBTASK 51-00-57-100-001

- (3) Wipe up excess fluids with cotton cloth, G50316 and discard cloth into plastic container for disposal.

SUBTASK 51-00-57-110-001

- (4) Do these steps to neutralize acid contamination:
 - (a) Neutralize the treatment area with a 20 percent sodium bicarbonate solution applied with a brush or cloth swab. Particular attention should be given to faying surface joints. Pressure application may be required to flush the joint thoroughly.
NOTE: 16 oz (454 g) of compound, B00095 in 1.00 gal (3.79 l) of water, G50256 will give the desired mixture.
 - (b) Continue to apply the solution until bubbles cease. Then allow the solution to remain on the surface for an additional 5 minutes.
 - (c) Remove the neutralized mixture with a cotton cloth, G50316 or sponge, G00116.
 - (d) Rinse the affected area with generous quantities of clean water, G50256. Occasionally agitate the surface with a brush, G00215.
 - (e) Neutralization of the acidic fluid should be determined with litmus paper.
 - (f) Wipe dry with clean cotton cloth, G50316.

SUBTASK 51-00-57-840-001

- (5) After removal of contamination, do the steps in CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING, PAGEBLOCK 51-21-31/701 when corrosion is found.

SUBTASK 51-00-57-370-001

- (6) When corrosion is removed, do the steps in PAINT STRIPPING - CLEANING/PAINTING, PAGEBLOCK 51-21-11/701, if necessary.

SUBTASK 51-00-57-600-001

- (7) To apply the corrosion inhibiting compound, do the steps in CORROSION INHIBITING COMPOUND - CLEANING/PAINTING, PAGEBLOCK 51-21-91/701.

SUBTASK 51-00-57-840-002

- (8) Put the Airplane Back to Its Usual Condition.

———— **END OF TASK** ————

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STANDARD TREATMENT METHODS - MAINTENANCE PRACTICES

1. General

- A. In order to preclude the occurrence or recurrence of corrosion after corrosion removal or corrosion damage repair, the exposed surfaces of most metals must be immediately treated after rework. These treatments include conversion coating, plating or the application of thin protective film, i.e., oil or primer, over the base metal. The conversion coatings and primer application also enhance the surface adhesion qualities for painting, if required. Some metals, such as stainless steel and titanium, which are basically corrosion resistant do not require surface protection except for painting to match the surrounding structure, or in dissimilar metal applications when plating, painting or sealing becomes necessary.
- B. Although the surface finish has been restored by the treatment methods in this section to minimize the recurrence of corrosion, service experience indicates it would be advantageous to apply a corrosion inhibiting compound over the surface finish in the more susceptible areas.

2. Surface Treatment for Aluminum and Aluminum Alloys

A. General.

- (1) Aluminum and its alloys quickly forms an invisible protective oxide film on the surface when exposed to atmosphere. The oxide will provide corrosion protection in mild environment, but since the reworked area is in a corrosion prone area, further protection is required.

B. Surface Treatment.

- (1) All aluminum surfaces that have been reworked per STRUCTURES - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 51-05-01/201 or should be cleaned and have a conversion coating applied. The coating materials chemically convert the aluminum surface into a very thin 0.00001 in. (0.00025 mm) to 0.00005 in. (0.00127 mm) non-metallic chromate film as an integral part of the metal. This film is resistant to corrosion and an excellent adherent for subsequent priming. The conversion coating can be applied by alodizing or by Iridite treatment. Solutions used in both treatments are proprietary but are readily available through most sources handling chemicals. There are several alodizing chemicals and the treatment procedure for each is presented below. The treatment procedure for Iridite is also included.

C. Alodizing.

- (1) The alodizing chemicals used for treatment are:
- (a) Alodine 1200 or 1200S (colored film)
 - (b) Alodine 1000, 1000L or 1500 (clear film)
 - (c) Nitric Acid
- (2) The colored film of parts treated with Alodine 1200 or 1200S will vary from light golden iridescent to gold-brown. Parts treated with Alodine 1000, 1000L or 1500 will have no color. For most applications Alodine 1200 or 1200S is recommended. (If the parts have BMS 10-20 primer, use only Alodine 600 because other coating materials, such as Alodine 1200 or 1200S, can cause a powdery coating if applied on cured BMS 10-20 primer. Treatment of reworked areas may be accomplished either by immersion where parts are removed from the airplane or by manual coating methods.

D. Solution Preparation.

- (1) All solutions except Alodine 1000 or 1000L shall be made up in and contained in stainless steel tanks or in tanks lined with acid resistant plastic or rubber. Alodine 1000 and 1000L solutions may be made up in and contained in mild steel tanks.

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- (2) The cleaned tank shall be half filled with make-up water. Sprinkle the powder chemicals uniformly over the surface or pour the liquid chemicals along the length of the tank, stir the solution until chemicals are completely dissolved or liquids are completely mixed, then add water to volume.
- (3) For large, long tanks, longitudinal agitation is recommended to keep solution concentrations uniform.
- (4) Prepare Alodine solutions for immersion or manual application.

NOTE: See table Alodine Solution Preparation for Immersion Method or Alodine Solution Preparation for Manual Application.

E. Alodine Surface Treatment.

- (1) Wipe with dry, clean cotton wiper, G00034 to remove base particles and residue from the treatment area.
- (2) Wipe with cotton wiper, G00034 dampened (not saturated) with solvent, B00062 or solvent, B00184. Repeat using clean cotton wiper, G00034 until no visible residue transfers to the cotton wiper, G00034.
- (3) Allow to dry for a minimum of 15 minutes.

NOTE: Water break test may be used to determine cleanliness. In this method a mist of distilled water is atomized on the surface to be coated. If the water gathers and forms into droplets within 25 seconds the surface shall be considered as failing the test. If the water forms a continuous film by flashing out suddenly over a large area the surface shall also be considered as having failed the cleanliness test because of impurities on the surface. If the water drops coalesce into a continuous film of water without a sudden flash and forms a lens, then the surface shall be considered as having satisfactorily passed the water break test.

- (4) Mask off dissimilar metal inserts, except chromium, nickel, corrosion resistant steel, or titanium.
- (5) Immerse part in alodine-solution for 2 to 6 minutes. Use a test sample to find the correct immersion time.
- (6) Manual Application
 - (a) Apply the alodine solution to the cleaned metal surface by brush, swab, swatches of saturated blotting paper, or a clean cellulose sponge.
 - (b) Allow solution to act on surface 1 to 5 minutes until coating is formed. Coating time will depend on temperature of the part. Maintain a continuous wet film on surface of work area.
 - (c) Where difficulty is experienced in the formation of the coating, lightly abrading with a fine or very fine aluminum oxide nylon mat soaked with the solution will help.
 - (d) Dirty surfaces may not take coating and will require rinsing off the solution, cleaning and reapplication.
 - (e) Areas with powdery coating shall be recoated with fresh solution.
- (7) Remove excess alodine by thoroughly flushing with clean water, then allow to dry at ambient temperature. Force air dry if possible.
- (8) Apply original finish.
- (9) Remove masking and protective covering.

F. Iridite Treatment.

- (1) The chemicals used in the Iridite treatment are:

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- (a) Iridite 14
 - (b) Iridite 14-2
 - (c) Nitric Acid.
- (2) Iridite treating can be controlled by length of time solution is applied to give a yellow or a clear coating. Treatment of reworked areas may be accomplished either by immersion or by manual coating methods.
- (a) Solution Preparation
 - 1) All compressed air used for solution agitation or for drying parts shall be filtered to remove oils and solid particles.
 - 2) All containers for Iridite solution shall be fabricated from or lined with stainless steel or plastic. Some suitable plastic materials are polyethylene, Koroseal, Tygon, Lucoflex and Lucite.
 - 3) Slowly add the Iridite powder to room temperature water by required concentration. Agitate the solution (clean filtered air is satisfactory) until all soluble material is dissolved.
 - 4) Prepare Iridite 14 and Iridite 14-2 solutions for immersion or manual applications.
NOTE: See table for Iridite Solution Preparation.
 - (b) Iridite Surface Treatment
 - 1) Wipe with dry, clean cotton wiper, G00034 to remove loose particles and residue from the treatment area.
 - 2) Wipe with cotton wiper, G00034 dampened (not saturated) with solvent, B00062 or solvent, B00184. Repeat using clean cotton wiper, G00034 until no visible residue transfers to the cotton wiper, G00034.
 - 3) Allow to dry for a minimum of 15 minutes.
NOTE: The water break test may be used to determine cleanliness. In this method a mist of distilled water is atomized on the surface to be coated. If the water gathers and forms into droplets within 25 seconds the surface shall be considered as failing the test. If the water forms a continuous film by flashing out suddenly over a large area the surface shall also be considered as having failed the cleanliness test because of impurities on the surface. If the water drops coalesce into a continuous film of water without a sudden flash and forms a lens, then the surface shall be considered as having satisfactorily passed the water break test.
 - 4) Mask off dissimilar metal inserts, except chromium, nickel, corrosion resistant steel, or titanium.
 - 5) Immersion Application. Immerse part in Iridite solution for 1 to 6 minutes until the desired coating is obtained. The use of test sample is recommended to ascertain the correct immersion time.
NOTE: The Iridite solution will accumulate sludge. In no case shall the depth of the sludge be allowed to reach a point where it touches the work.
 - 6) Manual Application.
 - a) Apply the Iridite solution liberally and evenly with a nylon brush, cotton swab, cellulose sponge or white blotting paper.
 - b) Maintain a continuous wet film for 3 to 6 minutes if a yellow coating is required and from 30 seconds to 3 minutes if a clear coating is required.

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- 7) Remove excess Iridite by thoroughly flushing with clean water, then allow to dry at ambient temperature. Force air dry if possible.
- 8) All powder visible on parts after treatment shall be wiped off the dry parts with clean dry rags.
- 9) Apply original finish.
- 10) Remove masking and protective covering.

3. Surface Treatment for Magnesium Alloys

A. General

- (1) Magnesium alloys are highly susceptible to corrosion when the metal surface is exposed without a protective finish. An oxide-carbonate film will normally form on an exposed magnesium alloy surface but this surface provides very little protection against corrosion. A proper protective finish is therefore required.

B. Surface Treatment.

- (1) All magnesium alloy surfaces that have been reworked per STRUCTURES - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 51-05-01/201 or applicable methods shall be cleaned and treated with a conversion coating. The coating materials convert the magnesium alloy surface into an inhibitive passive layer on the base metal that resists corrosion. This coating is applied using the brush-on technique.

(a) Solution Preparation

- 1) The chemicals used for the solution are:
 - a) Chromic Acid (CrO_3)
 - b) Calcium Sulfate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$)
- 2) The solution shall be prepared and stored in polyethylene or glass containers.
- 3) Prepare the solution using the following proportions and control. The chemicals shall be added to the water in the order given below.
 - a) Chromic Acid 1.3 oz/gal
 - b) Calcium Sulfate 1 oz/gal
 - c) Distilled Water to make 1 gal
 - d) pH 1.2-1.6

NOTE: Adjust pH with additions of sodium hydroxide or sulfuric acid as required.

- 4) Vigorously stir for 15 minutes to ensure that the solution is saturated with calcium sulfate.
- 5) Let solution stand for 15 minutes to allow undissolved calcium sulfate to settle on the bottom of the container.
- 6) Decant into another container without transferring undissolved calcium sulfate.

(b) Conversion Coating Application

- 1) Wipe treatment area with dry, clean cotton wiper, G00034 to remove loose particles and residue.
- 2) Wipe with cotton wiper, G00034 dampened (not saturated) with solvent, B00062 or solvent, B00184. Repeat using clean cotton wiper, G00034 until no visible residue transfers to the cotton wiper, G00034.
- 3) Allow to dry for a minimum of 15 minutes.

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- 4) Mask off dissimilar metal inserts, except chromium, nickel, corrosion resistant steel, or titanium.
- 5) Apply solution by swabbing with brush, swab, swatches, cellulose sponge or white blotting paper. Maintain a continuous wet film until metal surface becomes dull golden to dark brown in color.
- 6) Rinse with clean cold water.
- 7) Allow to dry at ambient temperature. Force air dry if possible.
- 8) Apply original finish.
- 9) Remove masking and protective covering.

4. Surface Treatment for Carbon Steels

A. General.

- (1) Bare surfaces of carbon (alloy) steels are highly reactive when exposed to the environment. Carbon steel is either cadmium or cadmium titanium plated after machining and heat treatment. Steel parts absorb hydrogen during processing operations and in service when hydrogen may be produced and diffused into the metal. Hydrogen absorption, can cause crack initiation and propagation and result in delayed brittle fracture when the part is under sustained tensile strength. The susceptibility of steel parts to hydrogen embrittlement increases as hardness and strength increases.

B. Surface Treatment.

- (1) Steel parts heat-treated to 180 ksi and below are not considered susceptible to hydrogen embrittlement while steel parts heat treated to 220 ksi and above are highly susceptible to hydrogen embrittlement and must be plated by Low embrittlement processes. In order to preclude the use of conventional plating process, reworked surfaces of all carbon steel parts shall be cadmium plated by low hydrogen embrittlement cadmium plating processes.

5. Surface Treatment for Stainless Steels and Nickel-Chromium Alloys

- A.** No surface treatment is required after rework on stainless steel and nickel-chromium alloys. Stainless steel requires passivation after rework.

6. Surface Treatment for Titanium Alloys

- A.** No surface treatment is required after rework on titanium alloys. Apply original finish.

7. Surface Treatment for Cadmium Plated or Phosphated Metals

- A.** Rework of cadmium plated surfaces indicates a break in the plated surface and exposure of the base metal. Surface treatment should therefore be replating of the base metal. Use low hydrogen embrittlement stylus cadmium plating. Major rework requires stripping and replating.
- B.** Phosphate coating is applied to the cadmium plating on alloy steels heat treated to 180 ksi and above that are partially cadmium plated. Surface treatment involves use of phosphoric acid to the cadmium plating.

Alodine Solution Preparation for Immersion Method

Material	Variable	Make-Up ^{*[1]}		Control	
		Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
Alodine 1000 Powder ^{*[2]}	Concentration	0.15 ounces	35.3 milligrams	0.14 to 0.18 ounces	32.8 to 42.4 milligrams
	pH	below 4.5 ^{*[3]}			
	Temperature	140°F (60°C) to 150°F (66°C)			

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Alodine Solution Preparation for Immersion Method (Continued)

Material	Variable	Make-Up ^{*[1]}		Control	
		Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
Alodine 1000 Liquid ^{*[4]}	Concentration	19.20 fluid ounces as Alodine 1000L	33.8 milliliters as Alodine 1000L	17.9 to 23.0 fluid ounces as Alodine 1000L	31.4 to 40.6 milliliters as Alodine 1000L
	pH	below 4.5 ^{*[3]}			
	Temperature	140°F (60°C) to 150°F (66°C)			
Alodine 1200	Concentration	Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
		1.2 ounces	35.3 milligrams	1.0 to 3.0 ounces	29.3 to 105.9 milligrams
	pH	1.5 to 2.1			
Alodine 1200S	Concentration	Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
		1.2 ounces	35.3 milligrams	1.0 to 3.0 ounces	29.3 to 105.9 milligrams
	pH	1.3 to 1.8 ^{*[5]}			
Alodine 1500	Concentration	Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
		1.28 fluid ounces	33.8 milliliters	1.10 to 1.46 fluid ounces	29.1 to 38.5 milliliters
	pH	below 4.0 ^{*[3]}			
Alodine 1500	Temperature	150°F (66°C) to 160°F (71°C)			

- ^{*[1]} After make-up, allow the solution to set undisturbed for 24 hours before using. The small amount of precipitate which forms will not bother the coating process.
- ^{*[2]} Where powder is used, allow solution to set undisturbed 24 hours before use. The small amount of precipitation which forms will not bother the coating process.
- ^{*[3]} The pH may be lowered by additions of the Alodine until the top of the concentration range is reached. Discard the solution when the pH reaches the maximum value. Do not attempt control by adding acid.
- ^{*[4]} Alodine 1000L is a liquid concentrate. One gallon of concentrate is equivalent to 1 ounce of Alodine 1000 powder.
- ^{*[5]} Higher concentrations will tend to have lower pH values, which will rise with age or use, generally leveling off with the ranges stated. The pH may be lowered by additions of Alodine powder, nitric acid, or both. Where hard water is used, small additions of Alodine toner may be used.

Alodine Solution Preparation for Manual Application

Material	Preparation Instructions
1000	Add 0.4 oz (11.3 g) of powder to water for each gallon of final solution. Stir well until the powder is dissolved. Disregard any small amount of settle-out insoluble material. Allow to stand at least one hour before use.
1000L	Dilute 4 volumes of the Alodine 1000L with 6 volumes of water and stir well to produce a final concentration of 0.4 ounce of Alodine 1000 per gallon of solution.

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Alodine Solution Preparation for Manual Application (Continued)

Material	Preparation Instructions
1200	Add 3 oz (85 g) of powder to water for each gallon of final solution. Stir well until the powder is dissolved. Disregard any small amount of settled-out insoluble material. Allow to stand at least one hour before use. A pH range of 1.50 to 1.90 is required and adjusted by addition of nitric acid.
1200S	Add 2 oz (57 g) of powder to water for each gallon of final solution. Stir well until the powder is dissolved. Disregard any small amount of settled-out insoluble material. Allow to stand at least one hour before use.
1500	Add 8 fl-oz (237 ml) of Alodine 1500 to water for each gallon of final solution. Stir to get a uniform mixture.

NOTE: When a water-break free surface cannot be obtained, Ridosol 501 wetting agent (same source as Alodine) may be added to the solution. Add 0.10 to 0.50% by volume, i.e. 0.128 to 0.64 fluid ounces per gallon.

Iridite Solution Preparation

Material	Variable	Make-Up ^{*[1]}	Control
Iridite 14	Concentration		2.7 to 3.3 oz/gal
	pH		1.0 to 1.7 ^{*[2]}
	Temperature		Room temp to 95°F (35°C)
Iridite 14-2	Concentration	1.45 oz/gal	1.25 to 2.25 oz/ gal
	pH		1.1 to 16 ^{*[2]}
	Temperature		Room temp to 95°F (35°C)

^{*[1]} After make-up, allow the solution to set undisturbed for 24 hours before using. The small amount of precipitate which forms will not bother the coating process.

^{*[2]} Adjust the pH with nitric acid until a distinctly yellow adherent film is obtained within the 5 minute immersion time on bare 2024 aluminum alloy.

8. Treatment of Fasteners and Fastener Holes in Composites for Repairs

- A. Graphite panel installed on graphite structural component.
 - (1) Remove fasteners, if loose.
 - (2) On countersinks and in holes, apply primer, C00259 (BMS10–11 Type I) or primer, C00319 (BMS10-79 Type II).
 - (3) Install removable steel or titanium fasteners dry.
 - (4) Install permanent fasteners with wet primer or sealant, A00247 (BMS 5-95).
- B. Graphite panel installed on aluminum structure, or aluminum repair plates on graphite panels.
 - (1) Remove fasteners, if loose.
 - (2) On countersinks and in holes, apply primer, C00259 (BMS10–11 Type I) or primer, C00319 (BMS10-79 Type II).
 - (3) Apply sealant, A00247 (BMS 5-95) face surface sealant on mating surfaces.
 - (4) Install fasteners with sealant, A00247 (BMS 5-95).
 - (5) Fillet seal protruding fastener heads and nuts/washers.
- C. Armada or fiberglass or graphite panels, installed in any combination.
 - (1) Remove fasteners, if loose.

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- (2) On countersinks and in holes, apply primer, C00259 (BMS10–11 Type I) or primer, C00319 (BMS10-79 Type II).
- (3) Install removable fasteners with wet primer, C00259 (BMS10–11 Type I) or primer, C00319 (BMS10-79 Type II).
- (4) Install permanent fasteners with wet primer or sealant, A00247 (BMS 5-95).

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STANDARD PREVENTIVE MAINTENANCE PROCEDURES - MAINTENANCE PRACTICES

1. General

- A. The data contained in this subject is general.

2. Airplane Washing

- A. Washing helps decrease corrosion as well as maintain the appearance of the airplane (AIRPLANE CLEANING AND POLISHING, SECTION 12-40).
- B. Washing removes corrosive deposits that collect on airplane surfaces. Dirt collects moisture that then causes corrosion. But other factors are important in a washing program:
- (1) Washing and in particular high-pressure water or steam can get moisture into areas not usually contaminated.
 - (2) The detergents used for washing can cause corrosion if they are not fully rinsed off. Rinsing can be a problem if high-pressure hoses pushed the washing solution into small cavities.
 - (3) Any washing solution that removes unwanted grease and oil will also remove the grease and oil that must stay for lubrication. Lubrication again after airplane washing will then be necessary.
 - (4) Frequent washing will in time remove corrosion inhibiting compounds, such as BMS 3-23 (corrosion inhibiting compound, G00009), BMS 3-26 (compound, C00755), BMS 3-29 (compound, C00915) or BMS 3-35 (compound, G50071). The time is a function of the frequency of washing and the strength of the detergent.
 - (5) Too much polishing of unpainted aluminum surfaces can wear away the clad surfaces.
- C. The washing frequency must agree with the operating environment and external appearance of the airplane. Wet washing procedures help decrease the onset of filiform corrosion under paint on clad aluminum surfaces. As a guide these frequencies are recommended:
- (1) Mild Zones--90 days
 - (a) Mild - Warm arid zones or areas subject to extremely Low temperatures. However, the use of chemicals on runways and taxiways to prevent ice formation may transfer cold zones to the severe category.
 - (2) Moderate Zones--45 days
 - (a) Moderate - Temperate regions with other than marine or industrially polluted atmospheres.
 - (3) Severe Zones--15 days
 - (a) Severe - Areas in which there is a marine atmosphere or industrial atmosphere containing contaminants. Hot, humid tropical areas also come within the severe category.
- D. Polishes can be used on unpainted surfaces but possibly only once every 18 months or 2 years.

3. Protective Finish

- A. Maintenance of the surface finish is important to prevent corrosion problems. Damage to paint or other surface coatings should be repaired at the next maintenance opportunity. Until you can repair the finish, use a corrosion inhibitor to minimize the risk of corrosion.
- B. Where damage to the finish is not confined to the paint, and on surfaces without paint, treat the metal per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-21/701 before you apply the paint.
- C. Refer to INTERIOR AND EXTERIOR FINISHES, SECTION 51-21 for details of how to remove and apply finishes.

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4. Corrosion Inhibitors

- A. Corrosion inhibitors are used with finish systems and to prevent or stop corrosion when the finish system is damaged. Many can get into small cavities to push out water. Thus, they can go in between faying surfaces or between fasteners and holes, where the finish is broken.

NOTE: Make an analysis of your airplane's environment, the inhibitor used, and the application schedule to be sure of sufficient corrosion protection. Other water displacing corrosion inhibiting compounds could be satisfactory.

- (1) For standardization, operators are encouraged to evaluate using BMS 3-29 (compound, C00915) as a replacement for both BMS 3-23 (corrosion inhibiting compound, G00009) and the "dual coat" consisting of BMS 3-23 (corrosion inhibiting compound, G00009) and BMS 3-26 (compound, C00755). However, BMS 3-23 (corrosion inhibiting compound, G00009) and BMS 3-26 (compound, C00755) are still acceptable.
- B. BMS 3-23 (corrosion inhibiting compound, G00009) Water Displacing Corrosion Inhibiting Compound
- (1) General
- (a) This is an organic compound of nonvolatile base materials in solvents to make a fluid. It does not contain silicones. Dipping, brushing, or spraying can apply this compound. The liquid carrier evaporates quickly to put a thin layer of wax-like material on the surface. The coating is not easily rubbed or worn off, but must be applied again if the surface is washed frequently.
- (b) BMS 3-23 compound stays tacky and thus will collect unwanted material. The areas where it is applied must be regularly cleaned and then more of the corrosion inhibitor must be applied. The time between applications of the compound will change with the location in the airplane.
- (2) Precautions for Use of BMS 3-23
- (a) As these are hydrocarbons, these compounds can be dangerous when mixed with oxygen. Oxygen system components must be shielded to protect them from direct or indirect contamination.
- (b) Precautions must be taken when using these materials which can constitute a fire hazard when subjected to high temperature.
- (c) Mask electrical connectors where there is a possibility of contamination of electrical contacts.
- (d) The use of corrosion inhibiting compounds on control cables is not considered a suitable substitute for the cleaning and corrosion protective procedures in the airplane maintenance manual. Direct application of these compounds on control cables, pulleys, teflon-lined bearings, and lubricated surfaces should be avoided.
- (e) Be careful when you apply corrosion-inhibiting compound near door or emergency hatch seals, grease seals in bearing assemblies or rubberlined clamps for tubing or wiring. Hydraulic seals may also be affected, so these corrosion inhibitors are not suitable for use on actuator rods.
- (f) Do not apply corrosion inhibiting compounds on grease joints or sealed bearings. These compounds dissolve greases and other lubricants. They are penetrating compounds and can get around the seals and into the bearings.
- (g) Do not apply or let corrosion inhibiting compounds get on insulation blankets. These compounds decrease the water-repellent quality and increase flammable quality of the blankets. If corrosion inhibiting compounds get on blankets, refer to INSULATION BLANKET - REMOVAL/INSTALLATION, PAGEBLOCK 25-80-00/401 for instructions.

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- (h) Do not apply these compounds on interior materials such as cargo liners. The compounds change the flammable quality of these materials.
 - (i) Do not apply these compounds near engines, cowling, or related areas of high temperature or where firewall sealant is used. The high temperature can cause deterioration of the compounds. Corrosion inhibiting compounds can cause damage to the sealant.
 - (j) Some corrosion inhibiting compounds dry tack-free and may cause increased friction or sluggish operation between moving parts. Do not spray these compounds on areas, such as exposed actuator rods, that will come in contact with other surfaces.
- (3) Compatibility of BMS 3-23
- (a) As these materials are all usually hydrocarbons, you can apply a different compound over existent corrosion inhibitors without bad effects.
 - (b) The compound can be used on fiberglass fairings and ducts if the temperature of the duct is not hotter than 220°F (104°C).
 - (c) The compound can be used on bladder fuel tanks and fuel vapor barriers.
- (4) Cleaning before application of BMS 3-23
- (a) The surface does not have to be extremely clear before you apply these compounds. But you will get better joint penetration if you clean the area first before application. Vacuum or wipe away loose dirt or other unwanted matter. Then you can clean the surfaces where necessary, with the usual airplane cleaning agents or solvents.
- (5) Application of BMS 3-23
- (a) Obey the precautions given above and use masks or shields to give protection to components. Do not apply corrosion inhibiting compounds to areas which will subsequently be painted or sealed.
 - (b) Statically ground the airplane per Static Grounding, TASK 20-40-11-910-801.
 - (c) Before you apply corrosion inhibitor near batteries, electrical contacts, electrical connectors, or other components where there could be a fire hazard, remove external power and put the battery switch in the off position.
 - (d) Let all primers or enamels cure for a minimum of 8 hours.
 - (e) Apply a continuous wet coat to permit joint penetration by capillary action. An application rate by spraying of 1.000 gal (3.785 l) per hour at a coverage rate of 15.000 ft² (1.394 m²) to 20.000 ft² (1.858 m²) per minute will produce a film thickness of 0.0003 in. (0.0076 mm). Or these materials may be brushed. The use of pressure equipment that applies these compounds under pressure directly to a joint or lap will improve the penetration. A soak period of 60 minutes is required before excess compound is removed to ensure maximum penetration.
 - (f) Wipe up puddles with clean gauze or rags after the 60 minute minimum soak time.
 - (g) Give the area a good flow of air until the volatile solvents are gone. Then remove the masks or shields from the area treated.
 - (h) Do not use corrosion inhibiting compounds near oxygen system components. If you find corrosion near oxygen system components:
 - 1) Clean away corrosion products and repair per the Structures/ SRM PROCEDURE 51-00-00-0G-0.
 - 2) Chemical treat all bare aluminum surfaces.
 - 3) Apply one coat BMS 10-11, type 1 green primer.

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- 4) Apply one coat BMS 10-11, type 1 yellow primer.
- 5) Apply BMS 10-11, type 2 epoxy or BMS 10-60 polyurethane enamel.
- (6) Methods of Application of BMS 3-23
 - (a) Spray Application
 - 1) Aerosol cans can be used with plastic nozzle extensions but they are not generally recommended due to cost and the amount of overspray generated.
 - 2) The preferred application method is with standard pressure pot equipment using an airless spray gun operated at low pressure 45 psi (310 kPa).
 - 3) Greater accessibility will be provided with the use of accessories such as spray gun extension kits and swivel adapters for variable nozzle positioning.
 - 4) Standard air atomizing equipment (siphon or pressure pot) may be used when access is sufficient to allow application of a wet coat. A spray nozzle-to-surface distance of no more than 12 in. (30 cm) is required for wet application. When spray is operated with a pressure pot, a suitable extension may be made as follows:
 - a) Remove and retain air cap.
 - b) Remove fluid tip, and solder or braze 0.125 in. (3.175 mm) annealed copper tubing of desired length on end of tip.
 - c) Make nozzle at the end of the tubing by clamping tube around a 0.010 in. (0.254 mm) diameter wire.
 - d) Do not connect air hose to spray gun.
 - e) Use 25 $\pm$ 5 psi (172 $\pm$ 35 kPa) pot pressure for spraying.
 - (b) Brush Application
 - 1) Brush application may be accomplished using an ordinary paintbrush or a clean cloth. This method is most appropriate for small confined areas or where caution is necessary to prevent corrosion inhibiting compound from getting on surrounding equipment.
 - 2) For large areas or where confinement is not a problem, spray application is the effective method to use.
- (7) Removal of Water-Displacing Corrosion Inhibiting Compounds
 - (a) Complete removal of corrosion inhibiting compounds is required before repainting is attempted. Solvent cleaning is also required before penetrant inspection. The following solvents have been successfully used to remove these compounds:
 - 1) Perchloroethylene
 - 2) Trichloroethylene
 - 3) Trichloroethane
 - 4) Naphtha
 - 5) Magnaflux Corp. solvent (V37636)
 - 6) Dry cleaning solvent, P-D-680 (Not recommended for use in lower lobe cargo compartment)

NOTE: Use of methyl ethyl ketone (MEK) or acetone is not recommended.

 - 7) Biogenic SE377C cleaner (V13092)(Preferred for removal of BMS 3-23 compound from areas with faying surfaces)
 - 8) Citra Safe (VOK209)

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- (b) When you use solvents to remove water-displacing corrosion inhibiting compounds, give the area a good flow of air until the solvents evaporate.
- (8) Exterior Discoloration by BMS-23
 - (a) Liberal use of water displacing corrosion inhibiting compounds on the internal surfaces of the airplane can lead to discoloration of the external surface. Because of the excellent penetrating properties of these materials, a bleed-through can be expected at fasteners that are not fluid-tight. This is normal and does not indicate a requirement to replace or redrive the fasteners. The tiny passages should seal themselves within a short time.
 - (b) You can remove these compounds from the exterior surface with one of the solvents listed. These solvents will not stain or damage the exterior of the airplane or decorative finish. A noticeable difference in oxidation of the exterior surfaces can occur between those areas, which have been coated with the compound, and areas that have not. If you see this difference in color, you can buff it out with the materials listed in STANDARD PRACTICES - AIRFRAME, CHAPTER 20.
- C. BMS 3-26 (compound, C00755, compound, G50346) Corrosion Inhibiting Compound
 - (1) General
 - (a) This is an organic compound of nonvolatile base materials in solvents to make a fluid. It does not contain silicones. This compound can be dipped, brushed, or sprayed. After it dries, it makes a transparent but visible protective layer.
 - (b) Coated surfaces become dry to the touch after 24 hours. The layer is not easily rubbed or worn off, but must be applied again if the surface is washed frequently.
 - (2) Types of BMS 3-26
 - (a) Type I (compound, C00755):
 - 1) Makes a continuous layer of medium thickness with a drop melting point of 140°F (60°C) minimum.
 - (b) Type II (compound, G50346):
 - 1) Makes a continuous thick layer with a drop melting point of 200°F (93°C) minimum.
 - (3) Precautions for Use of BMS 3-26
 - (a) Use the same precautions for BMS 3-26 that were listed for BMS 3-23 water displacing compound.
 - (4) Compatibility of BMS 3-26
 - (a) As these materials are usually hydrocarbons, you can apply a different compound over existent corrosion inhibitors without bad effects.
 - (5) Cleaning before Application of BMS 3-26
 - (a) The surface does not need to be extremely clean before you apply these compounds. Vacuum or wipe away loose dirt or other unwanted matter. Then you can clean the surfaces, where necessary, with the usual airplane cleaning agents or solvents.
 - (6) Methods of Application of BMS 3-26
 - (a) You can use the same application procedures for BMS 3-26 that were listed for BMS 3-23 water displacing compound, with the differences noted in steps below.
 - (b) Let the BMS 3-26 compound dry. Do not wipe up puddles after 60 minutes.
 - (c) If the coated surface will touch another surface (such as insulation blankets), let the coating dry tack-free.
 - (7) Removal BMS 3-26

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- (a) You can use the same solvents for BMS 3-26 that were listed for BMS 3-23 water displacing compound.
- (b) You may also use:

Use on BMS 3- 26 Type	Material	Vendor
I	Varsol No. 1	Exxon Company, USA, V29700
	Shell-Sol 345	Shell Petrochemical, V86961
	Skellysolve-S	Getty Oil Co., V8H761
	Chevron 325	Chevron USA, Inc., V4H372
	Union No. 5 Thinner	Union Oil Company of California, V79003 or V8F610
	S-76 Cleaning Solvent	Union Oil Company of California, V79003 or V8F610
	Klenzine	Atlantic Richfield Company, V1E874
	Sikkens 96.126	Sikkens, VH0951
II	Skellysolve V	Getty Oil Co., V8H761
	Standard 265 Thinner	Chevron USA, Inc., V4H372
	Sikkens 96.131	Sikkens, VH0951

(8) Exterior Discoloration by BMS 3-26

- (a) Liberal use of these corrosion-inhibiting compounds on the internal surface of the airplane can lead to discoloration of the external surface. Because of the excellent penetrant properties of these materials, a "bleed through" can be expected at fasteners that are not fluid-tight. This is normal and does not indicate a requirement to replace or redrive the fasteners. The tiny passages should seal themselves within a short time.
- (b) You can remove these compounds from the exterior surface with one of the solvents listed. These solvents will not stain or damage the exterior of the airplane or decorative finish. But a noticeable difference in oxidation of the exterior surfaces can occur between those areas, which have been coated with the compound, and areas that have not. If you see this difference in color, you can buff it out with the materials listed in STANDARD PRACTICES - AIRFRAME, CHAPTER 20.

D. BMS 3-29 (compound, C00915) Corrosion Inhibiting Compound

(1) General

- (a) This is an organic compound of nonvolatile base materials in solvents to make a fluid. It does not contain silicones. This compound can be dipped, brushed or sprayed. After it dries, it makes a transparent but visible protective layer. Coated surfaces become dry to the touch after 24 hours. The layer is not easily rubbed or worn off, but must be applied again if the surface is washed frequently.

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- (b) BMS 3-29 specifies an advanced corrosion-inhibiting compound that has the penetration characteristics of BMS 3-23 and the durability of BMS 3-26. BMS 3-29 may be used in lieu of a single coat of BMS 3-23 or the two-coat system (dualcoat) of BMS 3-23 and BMS 3-26.

NOTE: Dinol AV-30 (BMS 3-29) weighs over 3 times as much as Dinol AV-8 (BMS 3-23) and could produce a significant weight increase when used on all areas where a single coat of corrosion inhibiting compound is recommended. This is based on the dry film weights of AV-30 compared to AV-8 when applied at the recommended thickness. Once the coating has cured, a weight increase of approximately 1.10 lb (500.00 g) per 0.264 gal (1.000 l) of AV-30 used or 0.18 lb (80.00 g) per 10.76 ft² (1.00 m²) of surface area covered will be realized. The weight increase from AV-8 is approximately 0.73 lb (330.00 g) per 0.264 gal (1.000 l) and 0.06 lb (25.00 g) per 10.76 ft² (1.00 m²). A decrease in coating weight of approximately 40% would be realized if AV-30 is used in lieu of the BMS 3-23/BMS 3-26 dualcoat (0.31 lb (140.00 g) per 10.76 ft² (1.00 m²)). All weights are approximations and will vary depending on actual dry film thickness.

- (2) Precautions for Use of BMS 3-29
- (a) Use the same precautions for BMS 3-29 that were listed for BMS 3-23 water displacing compound.
- (3) Compatibility of BMS 3-29
- (a) As these materials are usually hydrocarbons, you can apply a different compound over existent corrosion inhibitors without bad effects.
- (4) Cleaning before application of BMS 3-29
- (a) The surface does not need to be extremely clean before you apply these compounds. But you will get better joint penetration if you clean the area first. Vacuum or wipe away loose dirt or other unwanted matter. Then you can clean the surfaces, where necessary, with usual airplane cleaning agents or solvents.
- (5) Methods of Application of BMS 3-29
- (a) You can use the same application procedures for BMS 3-29 that were listed for BMS 3-23 water displacing compound, with the differences noted in steps below.
- (b) Let the BMS 3-29 compound dry. Do not wipe up puddles after 60 minutes.
- (c) If the coated surface will touch another surface (such as insulation blankets), let the coating dry tack-free.
- (6) Removal of BMS 3-29
- (a) You can use the same solvents for BMS 3-29 that were listed for BMS 3-23 water displacing compound.
- (b) You may also use:

Material	Vendor
Varsol No. 1	Exxon Company, USA, V29700
Shell-Sol 345	Shell Petrochemical, V86961
Skellysolve-S	Getty Oil Co., V8H761
Chevron 325	Chevron USA, Inc., V4H372
Union No. 5 Thinner	Union Oil Company of California, V79003 or V8F610
S-76 Cleaning Solvent	Union Oil Company of California, V79003 or V8F610

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Material	Vendor
Klenzine	Atlantic Richfield Company, V1E874
Sikkens 96.126	Sikkens, VH0951
Skellysolve V	Getty Oil Co., V8H761
Standard 265 Thinner	Chevron USA, Inc., V4H372
Sikkens 96.131	Sikkens, VH0951

(7) Exterior Discoloration by BMS 3-29

- (a) Liberal use of these corrosion-inhibiting compounds on the internal surface of the airplane can lead to discoloration of the external surface. Because of the excellent penetrant properties of these materials, a "bleed through" can be expected at fasteners that are not fluid-tight. This is normal and does not indicate a requirement to replace or redrive the fasteners.
- (b) You can remove these compounds from the exterior surface with one of the solvents listed. These solvents will not stain or damage the exterior of the airplane or decorative finish. But a noticeable difference in oxidation of the exterior surfaces can occur between those areas which have been coated with the compound and areas that have not.

E. BMS 3-35 (compound, G50071) Corrosion Inhibiting Compound

(1) General

- (a) A new heavy duty CIC, BMS 3-35 has been developed. Although BMS 3-35 provides crevice penetration close to that achieved with BMS 3-23, it meets the same 1500 hour salt spray corrosion protection requirement as BMS 3-29. BMS 3-35 is approved for use on all Boeing commercial model airplanes including those no longer in production.

(2) Precautions or use of BMS 3-35.

- (a) Use the same precautions of BMS 3-35 as were listed for BMS 3-23.

(3) Compatibility of BMS 3-35

- (a) BMS 3-35 are compatible with all Boeing approved CIC's.

(4) Cleaning before application of BMS 3-35

- (a) The surface does not need to be extremely clean before you apply BMS 3-35 but better joint penetration will be obtained if you clean the area first.

(5) Methods of Application of BMS 3-35

- (a) The application hardware and processes for BMS 3-35 are the same as applying other heavy duty CIC products. Refer to CORROSION INHIBITING COMPOUND - CLEANING/PAINTING, PAGEBLOCK 51-21-91/701 for additional CIC application details.

F. MIL-PRF-16173 (compound, C00174) Corrosion Preventive Compound

- (1) Although the water-displacing corrosion inhibiting compounds are the primary corrosion inhibitors used in airplane manufacture, in certain applications where a more durable surface protection is required, solvent-dispersed corrosion inhibiting compounds per MIL-PRF-16173, Grade 1 are used. These materials are volatile liquids which may be sprayed or brushed on the surfaces to be treated. The liquid carrier evaporates and leaves a residue (hard grease in appearance) which will become sufficiently dry to permit handling after approximately 4 hours. The Grade 1 compound provides a hard film, but does not have the penetrating or water displacing qualities of the BMS 3-23 or similar corrosion inhibiting compounds. Applications should be limited to areas where a specific callout of this inhibitor is made.

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- (2) Types of MIL-PRF-16173
 - (a) Grade 1 compounds form a hard film like a hard grease. This coating is dry enough to touch in 4 hours. But it does not penetrate crevices or displace water.
 - (b) Grade 2 compounds form a film which stays soft after it dries. This coating does not displace water.
 - (c) Grade 3 compounds form a film which stays soft after it dries. This compound will displace water.
 - (d) Grade 4 compounds form a transparent film. This coating is dry enough to touch in 4 hours, and is non-tacky after 24 hours.
 - (e) Grade 5 compounds form a film which stays soft after it dries. The coating can be removed with low pressure steam. This compound will displace water.
 - (3) Grade 1 (compound, C00174) is the most common type of MIL-PRF-16173 compound used for corrosion prevention. Cosmoline 1058 (V73277), referred to as Cosmoline in this manual, is the MIL-PRF-16173 Grade 1 material that is used in production. Refer to the Qualified Products List of MIL-PRF-16173 for a complete listing of approved material part numbers and vendors, for all grades.
 - (4) Precautions for Use of MIL-PRF-16173
 - (a) Use the same precautions for MIL-PRF-16173 that were listed for water displacing corrosion inhibiting compounds.
 - (5) Compatability of MIL-PRF-16173
 - (a) As these materials are all usually hydrocarbons, you can apply new applications of a different compound over existing corrosion inhibitors without bad effects.
 - (6) Cleaning Before Application of MIL-PRF-16173
 - (a) The surface does not need to be extremely clean before you apply these compounds. But you will get a better continuous film if you clean the area first. Vacuum or wipe away loose dirt or other unwanted matter. Then you can clean the surfaces, where necessary, with the usual airplane cleaning agents or solvents.
 - (7) Application of MIL-PRF-16173
 - (a) You can use the same application procedures for MIL-C-16173 that were listed for BMS 3-23 water displacing compound, with the differences noted in steps below.
 - (b) Let the MIL-PRF-16173 compound dry. Do not wipe up puddles after 60 minutes.
 - (c) If the coated surface will touch another surface (such as insulation blankets), let the coating dry tack-free. (Use only grades 1, 4, or 5. Grades 2 and 3 form soft films which would be damaged by such contact.)
 - (8) Removal of MIL-PRF-16173
 - (a) You need to remove all of the compound before you try to paint the surface. Solvent cleaning is also required before penetrant inspection.
 - (b) Naptha can remove these compounds. Methyl Ethyl Ketone (MEK) or acetone is not recommended.
 - (c) When you use solvents to remove corrosion inhibitors, give the area a good flow of air until the solvents evaporate.
- G. MIL-C-11796 (corrosion preventive compound, C00308) Corrosion-Preventive compound
- (1) This is a petrolatum-base compound, which is applied as a hot liquid. The compound can be applied with a brush or a swab. Small parts can be dipped in the liquid. The internal surfaces of tubes or other hollow parts can be coated by a fill and drain method.

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- (2) Types of MIL-C-11796
- (a) Grade 1 compounds form a hard film. They can penetrate 0.125 in. (3.175 mm) to 0.312 in. (7.925 mm) and have a melting point of 155°F (68°C) or higher.
 - (b) Grade 1A compounds are similar to Class 1 compounds, but will not cause an oil slick on water.
 - (c) Class 2 compounds form a medium film, and can penetrate 0.354 in. (9.000 mm) to 0.591 in. (15.000 mm) and have a melting point of 150°F (66°C).
 - (d) Class 3 compounds form a soft film that can be applied and easily removed at room temperature. They can penetrate 0.9 ±0.1 in. (22.5 ±2.5 mm) and have a melting point of 135°F (57°C). These compounds can mix with lubricating oil.
- (3) Precautions for Use MIL-C-11796
- (a) Use the same precautions for MIL-C-11796 that were listed for water displacing corrosion inhibiting compounds.
- (4) Compatibility of MIL-C-11796
- (a) As these materials are all usually hydrocarbons, you can apply new applications of a different compound over existent corrosion inhibitors without bad effects.
- (5) Compatibility of MIL-C-11796
- (a) The surface does not need to be extremely clean before you apply these compounds. But you will get better continuous film if you clean the area first. Vacuum or wipe away loose dirt or other unwanted matter. Then you can clean the surfaces, where necessary, with the usual airplane cleaning agents or solvents.
- (6) Application of MIL-C-11796
- (a) These compounds are applied as hot liquids. During application, keep the compounds in the following temperature ranges:

Application Temperatures	
MIL-C-11796	Temperature
Class 1 or 1A	170°F (77°C) to 200°F (93°C)
Class 2	160°F (71°C) to 190°F (88°C)
Class 3	45°F (7°C) to 180°F (82°C)

- (b) Apply the compound to the surface with a brush or swab.
 - (c) To apply the compound to the internal surfaces of hollow parts, refer to CORROSION INHIBITING COMPOUND - CLEANING/PAINTING, PAGEBLOCK 51-21-91/701.
- (7) Removal of MIL-C-11796
- (a) You need to remove the entire compound before you try to paint the surface. Solvent cleaning is also required before penetrant inspection.
 - (b) Dry cleaning solvent MIL-PRF-680 (degreasing solvent, B50126) can remove these compounds. Methyl Ethyl Ketone (MEK) or acetone is not recommended.
 - (c) When you use solvents to remove the compound, give the area a good flow of air until the solvents evaporate.

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TRANSPORTATION OF LIVE ANIMALS - MAINTENANCE PRACTICES

1. General

- A. Problems associated with the occasional transportation of small animals in cargo compartment are negligible, but the bulk transportation of large animals makes it advisable to ensure that adequate precautionary measures against corrosion are taken. Corrosion problems arising from the transportation of live animals occur from two main sources. One is derived from animal wastes which are corrosive. Because the effects of waste products are so well known, adequate steps are usually taken to ensure that the airplane does not become contaminated. The second problem source is the increase in humidity inside the airplane.
- B. Animal Wastes
- (1) It is the usual practice to dehydrate animals before transportation to minimize the amount of waste products generated.
 - (2) The bulk transportation of animals necessitates the use of absorbent floor coverings to contain the waste. Solids are removed after every flight and replaced with clean wood shavings. After two-round trips the floor covering is replaced.
- C. Humidity
- (1) Animals generate more heat than humans consequently there is a greater possibility of moisture buildup in the airplane.
 - (2) To permit the maximum possible circulation of air from the cabin air conditioning system the use of pens with open areas in the sidewalls is recommended.
 - (3) To reduce the effect of high ground temperatures it is recommended that fans be used to circulate air through the cabin while the airplane is on the ground.

TASK 51-00-60-100-801

2. Preventive Maintenance

A. General

- (1) The use of airplanes for bulk shipment of live animals necessitates periodic cleaning and deodorizing of the airplane. This provides an excellent opportunity to perform preventative maintenance because the cargo linings and insulation blankets are removed.

B. References

Reference	Title
25-80-00 P/B 401	INSULATION BLANKET - REMOVAL/INSTALLATION
50-10-00 P/B 601	CARGO COMPARTMENT - INSPECTION/CHECK
50-10-00-100-801	Cargo Compartment Cleaning (P/B 701)
51-21-91-620-802	Application of Corrosion Inhibiting Compound (P/B 701)
53-05-03 P/B 201	FUSELAGE - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES

C. Procedure

SUBTASK 51-00-60-100-001

- (1) When known animal waste spills have occurred, do this task: Cargo Compartment Cleaning, TASK 50-10-00-100-801.

NOTE: Avoid spreading the spilled fluids through floor clearances.

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SUBTASK 51-00-60-160-001

- (2) As necessary and when known spills have occurred, inspect the insulation blankets for indication of liquid in the area of the spill, (CARGO COMPARTMENT - INSPECTION/CHECK, PAGEBLOCK 50-10-00/601):
- (a) If blankets are dry and no indication of liquid is observed, then restore the airplane.
 - (b) If blankets contain liquid then continue with further inspections:
 - 1) Check the inner skin surface and fuselage structure for signs of corrosion, refer to FUSELAGE - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-03/201 for more details.
 - 2) Make sure that all drains are unobstructed and that there are no trapped liquids.
 - 3) Replace contaminated insulation blankets (INSULATION BLANKET - REMOVAL/INSTALLATION, PAGEBLOCK 25-80-00/401).

SUBTASK 51-00-60-600-001

- (3) After the airplane has been cleaned and deodorized, do these steps:
- (a) Apply corrosion inhibiting compound to the inner skin surface and structure as necessary. Do this task: Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802.
NOTE: In the fuselage crown area, airplanes used for livestock transportation will require and receive more frequent preventive maintenance.
 - (b) Install the equipment that you removed.

———— **END OF TASK** ————

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MICROBIAL GROWTH IN INTEGRAL FUEL TANKS - MAINTENANCE PRACTICES

1. General

- A. Corrosion of integral fuel tanks has been encountered due to microbial growth. Microorganisms enter the tank with the fuel. Airplane fuel tanks also frequently contain some water which either enters the tank with the fuel or is the result of condensation within the tank. The microbes thrive at the water/fuel interface and multiply rapidly forming a slime or matted growth within the tank. This matted growth traps water so that it cannot be removed by normal slumping procedures. Corrosion is produced when the protective finishes on the lower surfaces of the fuel tank eventually break down under continuous exposure to water soaked microbial growth mats and the by-products of microbial growth.

- (1) Refer to STORAGE - MAINTENANCE PRACTICES, PAGEBLOCK 28-10-00/201 for detection of microbial contamination and treatment procedures.

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TRANSPORTATION OF FISH - MAINTENANCE PRACTICES

1. **General**

- A. This information is about the corrosion problems arising from the transportation of fish that occur from spillage from the containers.
- B. This procedure has this task:

TASK 51-00-62-100-801

2. **Preventive Maintenance**

A. General

- (1) The use of airplanes for shipment of fish requires periodic cleaning and deodorizing of the airplane using locally available supplies. As this requires removal of cargo lining and insulation blankets it also provides an excellent opportunity to perform corrosion preventive maintenance.

B. References

Reference	Title
25-80-00 P/B 401	INSULATION BLANKET - REMOVAL/INSTALLATION
50-10-00-100-801	Cargo Compartment Cleaning (P/B 701)
51-05-01 P/B 201	STRUCTURES - CORROSION INSPECTIONS - MAINTENANCE PRACTICES
51-21-91-620-802	Application of Corrosion Inhibiting Compound (P/B 701)
53-42-11-100-801	Clean the Passenger Cabin and Cargo Compartment Track (P/B 701)

C. Procedure

SUBTASK 51-00-62-100-001

- (1) When known spills have occurred, do this task: Cargo Compartment Cleaning, TASK 50-10-00-100-801.

NOTE: Avoid spreading the spilled fluids through floor clearances.

SUBTASK 51-00-62-100-002

- (2) Do this task to clean spills on seat tracks: Clean the Passenger Cabin and Cargo Compartment Track, TASK 53-42-11-100-801.

SUBTASK 51-00-62-160-001

- (3) As necessary, do the steps that follow:
 - (a) Inspect the inner skin surface and fuselage structure for signs of corrosion, refer to STRUCTURES - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 51-05-01/201 for more details.
 - (b) Make sure that all drains are unobstructed and that there are no trapped liquids.
 - (c) Replace contaminated insulation blankets (INSULATION BLANKET - REMOVAL/INSTALLATION, PAGEBLOCK 25-80-00/401).

SUBTASK 51-00-62-600-001

- (4) After the airplane has been cleaned and deodorized, do these steps:
 - (a) Apply corrosion inhibiting compound to the inner skin surface and structure as necessary. Do this task: Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802.
 - (b) Install the equipment that you removed.

————— **END OF TASK** —————

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STRUCTURES - CORROSION INSPECTIONS - MAINTENANCE PRACTICES

1. **General**

- A. This procedure contains scheduled maintenance task data.

TASK 51-05-01-210-801

2. **737-7/8/8200/9 Basic Task Description**

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

C. CPCP Basic Task

SUBTASK 51-05-01-210-001

- (1) CPCP Basic Task Item 1 is not applicable.

SUBTASK 51-05-01-210-002

- (2) Do the CPCP Basic Task Item 2 as follows:
- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-003

- (3) Do the CPCP Basic Task Item 3 as follows:
- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-004

- (4) Do the CPCP Basic Task item 4 as follows:
- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

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SUBTASK 51-05-01-210-005

(5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-006

(6) Do the CPCP Basic Task item 6 as follows:

(a) Apply suitable approved water displacing / anti-corrosion compound as necessary.

- 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 or corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
- 2) Not applicable
- 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:

Water displacing / anti-corrosion compounds should not be applied in the following areas:

- Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
- Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
- Over compound, C00174 (or Equivalent MIL-PRF-16173, Grade 1).
- Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
- Areas with electrical arc potential.
- Interior materials, including cargo liners (change of flammability properties).
- Fiber-glass ducts where temperature exceeds 220°F (104°C).
- Selected areas noted in baseline program.

SUBTASK 51-05-01-210-007

(7) CPCP Basic Task Item 7 is not applicable.

————— **END OF TASK** —————

TASK 51-05-01-210-802

3. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

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C. CPCP Basic Task

SUBTASK 51-05-01-210-008

(1) Do the CPCP Basic Task Item 1 as follows:

- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-009

(2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-010

(3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-011

(4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-012

(5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-013

(6) Do the CPCP Basic Task item 6 as follows:

- (a) Apply suitable approved water displacing / anti-corrosion compound as necessary.
 - 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 or corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
 - 2) Not applicable
 - 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:
Water displacing / anti-corrosion compounds should not be applied in the following areas:

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- Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
- Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
- Over compound, C00174 (or Equivalent MIL-PRF-16173, Grade 1).
- Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
- Areas with electrical arc potential.
- Interior materials, including cargo liners (change of flammability properties).
- Fiber-glass ducts where temperature exceeds 220°F (104°C).
- Selected areas noted in baseline program.

SUBTASK 51-05-01-210-014

(7) CPCP Basic Task Item 7 is not applicable.

————— END OF TASK —————

TASK 51-05-01-210-803

4. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. CPCP Basic Task

SUBTASK 51-05-01-210-015

(1) Do the CPCP Basic Task Item 1 as follows:

- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-016

(2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-017

(3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

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SUBTASK 51-05-01-210-018

- (4) Do the CPCP Basic Task item 4 as follows:
- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-019

- (5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-020

- (6) CPCP Basic Task Item 6 is not applicable.

SUBTASK 51-05-01-210-021

- (7) CPCP Basic Task Item 7 is not applicable.

————— END OF TASK —————

TASK 51-05-01-210-804

5. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

C. CPCP Basic Task

SUBTASK 51-05-01-210-022

- (1) Do the CPCP Basic Task Item 1 as follows:
- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-023

- (2) Do the CPCP Basic Task Item 2 as follows:
- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

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SUBTASK 51-05-01-210-024

(3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-025

(4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-026

(5) Do the CPCP Basic Task Item 5 as follows:

- (a) Clear any blocked holes or gaps that may hinder drainage, as applicable.

SUBTASK 51-05-01-210-027

(6) Do the CPCP Basic Task item 6 as follows:

- (a) Apply suitable approved water displacing / anti-corrosion compound as necessary.
 - 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 or corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
 - 2) Not applicable
 - 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:

Water displacing / anti-corrosion compounds should not be applied in the following areas:

 - Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
 - Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
 - Over compound, C00174 (or Equivalent MIL-PRF-16173, Grade 1).
 - Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
 - Areas with electrical arc potential.
 - Interior materials, including cargo liners (change of flammability properties).
 - Fiber-glass ducts where temperature exceeds 220°F (104°C).
 - Selected areas noted in baseline program.

SUBTASK 51-05-01-210-028

(7) CPCP Basic Task Item 7 is not applicable.

————— **END OF TASK** —————

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TASK 51-05-01-210-805

6. 737-7/8/8200/9 Basic Task Description

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. CPCP Basic Task

SUBTASK 51-05-01-210-029

(1) Do the CPCP Basic Task Item 1 as follows:

- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-030

(2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-031

(3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-032

(4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-033

(5) Do the CPCP Basic Task Item 5 as follows:

- (a) Clear any blocked holes or gaps that may hinder drainage, as applicable.

SUBTASK 51-05-01-210-034

(6) CPCP Basic Task Item 6 is not applicable.

SUBTASK 51-05-01-210-035

(7) Do the CPCP Basic Task Item 7 as follows:

- (a) Dry wet insulation blankets prior to re-installing, or replace with new, as applicable.

END OF TASK

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TASK 51-05-01-210-806

7. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

C. CPCP Basic Task

SUBTASK 51-05-01-210-036

- (1) CPCP Basic Task Item 1 is not applicable.

SUBTASK 51-05-01-210-037

- (2) Do the CPCP Basic Task Item 2 as follows:
- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-038

- (3) Do the CPCP Basic Task Item 3 as follows:
- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-039

- (4) Do the CPCP Basic Task item 4 as follows:
- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-040

- (5) Do the CPCP Basic Task Item 5 as follows:
- (a) Clear any blocked holes or gaps that may hinder drainage, as applicable.

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SUBTASK 51-05-01-210-041

(6) Do the CPCP Basic Task item 6 as follows:

(a) Apply suitable approved water displacing / anti-corrosion compound as necessary.

- 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 or corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
- 2) Not applicable
- 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:

Water displacing / anti-corrosion compounds should not be applied in the following areas:

- Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
- Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
- Over compound, C00174 (or Equivalent MIL-PRF-16173, Grade 1).
- Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
- Areas with electrical arc potential.
- Interior materials, including cargo liners (change of flammability properties).
- Fiber-glass ducts where temperature exceeds 220°F (104°C).
- Selected areas noted in baseline program.

SUBTASK 51-05-01-210-042

(7) CPCP Basic Task Item 7 is not applicable.

————— **END OF TASK** —————

TASK 51-05-01-210-807

8. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. CPCP Basic Task

SUBTASK 51-05-01-210-043

(1) CPCP Basic Task Item 1 is not applicable.

SUBTASK 51-05-01-210-044

(2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

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SUBTASK 51-05-01-210-045

(3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-046

(4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-047

(5) Do the CPCP Basic Task Item 5 as follows:

- (a) Clear any blocked holes or gaps that may hinder drainage, as applicable.

SUBTASK 51-05-01-210-048

(6) CPCP Basic Task Item 6 is not applicable.

SUBTASK 51-05-01-210-049

(7) CPCP Basic Task Item 7 is not applicable.

————— END OF TASK —————

TASK 51-05-01-210-808

9. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

C. CPCP Basic Task

SUBTASK 51-05-01-210-050

(1) Do the CPCP Basic Task Item 1 as follows:

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- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-051

- (2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-052

- (3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-053

- (4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-054

- (5) Do the CPCP Basic Task Item 5 as follows:

- (a) Clear any blocked holes or gaps that may hinder drainage, as applicable.

SUBTASK 51-05-01-210-055

- (6) Do the CPCP Basic Task item 6 as follows:

- (a) Apply suitable approved water displacing / anti-corrosion compound as necessary.
- 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 or corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
 - 2) Not applicable
 - 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:
Water displacing / anti-corrosion compounds should not be applied in the following areas:
 - Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
 - Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).

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- Over compound, C00174 (or Equivalent MIL-PRF-16173, Grade 1).
- Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
- Areas with electrical arc potential.
- Interior materials, including cargo liners (change of flammability properties).
- Fiber-glass ducts where temperature exceeds 220°F (104°C).
- Selected areas noted in baseline program.

SUBTASK 51-05-01-210-056

(7) Do the CPCP Basic Task Item 7 as follows:

- (a) Dry wet insulation blankets prior to re-installing, or replace with new, as applicable.

————— **END OF TASK** —————

TASK 51-05-01-210-809

10. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

C. CPCP Basic Task

SUBTASK 51-05-01-210-057

- (1) CPCP Basic Task Item 1 is not applicable.

SUBTASK 51-05-01-210-058

- (2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-059

- (3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-060

- (4) Do the CPCP Basic Task item 4 as follows:

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- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-061

- (5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-062

- (6) CPCP Basic Task Item 6 is not applicable.

SUBTASK 51-05-01-210-063

- (7) CPCP Basic Task Item 7 is not applicable.

————— END OF TASK —————

TASK 51-05-01-210-810

11. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

C. CPCP Basic Task

SUBTASK 51-05-01-210-064

- (1) Do the CPCP Basic Task Item 1 as follows:

- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-065

- (2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-066

- (3) Do the CPCP Basic Task Item 3 as follows:

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- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-067

- (4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-068

- (5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-069

- (6) Do the CPCP Basic Task item 6 as follows:

- (a) Apply suitable approved water displacing / anti-corrosion compound as necessary.
- 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 or corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
 - 2) Not applicable
 - 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:
Water displacing / anti-corrosion compounds should not be applied in the following areas:
 - Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
 - Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
 - Over compound, C00174 (or Equivalent MIL-PRF-16173, Grade 1).
 - Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
 - Areas with electrical arc potential.
 - Interior materials, including cargo liners (change of flammability properties).
 - Fiber-glass ducts where temperature exceeds 220°F (104°C).
 - Selected areas noted in baseline program.

SUBTASK 51-05-01-210-070

- (7) Do the CPCP Basic Task Item 7 as follows:

- (a) Dry wet insulation blankets prior to re-installing, or replace with new, as applicable.

END OF TASK

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TASK 51-05-01-210-811

12. 737-7/8/8200/9 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS

B. CPCP Basic Task

SUBTASK 51-05-01-210-071

(1) Do the CPCP Basic Task Item 1 as follows:

- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-072

(2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection, clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-073

(3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-074

(4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-075

(5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-076

(6) CPCP Basic Task Item 6 is not applicable.

SUBTASK 51-05-01-210-077

(7) Do the CPCP Basic Task Item 7 as follows:

- (a) Dry wet insulation blankets prior to re-installing, or replace with new, as applicable.

END OF TASK

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TASK 51-05-01-210-812

13. 737-7/8/8200/9 Basic Task Description

A. A. General

- (1) This procedure is a scheduled maintenance task.

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

C. CPCP Basic Task

SUBTASK 51-05-01-210-078

- (1) CPCP Basic Task Item 1 is not applicable.

SUBTASK 51-05-01-210-079

- (2) Do the CPCP Basic Task Item 2 as follows:

- (a) Prior to inspection clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-080

- (3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-081

- (4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, AMM SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-082

- (5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-083

- (6) Do the CPCP Basic Task item 6 as follows:

- (a) Apply suitable approved water displacing / anti-corrosion compound as necessary.

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- 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 BMS 3-29 or corrosion inhibiting compound, G00009 BMS 3-23, where the initial or previous coat has been disturbed or removed.
- 2) Not applicable
- 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:

Water displacing / anti-corrosion compounds should not be applied in the following areas:

- Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
- Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
- Over compound, C00174 Cosmoline 1058 (or Equivalent per MIL-C-16173 Grade 1).
- Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
- Areas with electrical arc potential.
- Interior materials, including cargo liners (change of flammability properties).
- Fiber-glass ducts where temperature exceeds 220 degrees F.
- Selected areas noted in baseline program.

SUBTASK 51-05-01-210-084

- (7) CPCP Basic Task Item 7 is not applicable.

————— **END OF TASK** —————

TASK 51-05-01-210-813

14. 737-7/8/8200/9 Basic Task Description

A. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

B. CPCP Basic Task

SUBTASK 51-05-01-210-085

- (1) Do the CPCP Basic Task Item 1 as follows:
- (a) Remove all systems, equipment and interior furnishings, etc. (e.g. toilets, galleys, linings, installation) as necessary to accomplish CPCP Basic Task Item 3. It is not necessary to remove bushings unless specified in the Task Description, or if there is an indication of corrosion, or that the bushing has migrated.

SUBTASK 51-05-01-210-086

- (2) Do the CPCP Basic Task Item 2 as follows:

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- (a) Prior to inspection clean the area as required to accomplish CPCP Basic Task Item 3. It is not necessary to remove normal amounts of sealant/leveling compound unless it has deteriorated to the point where moisture can penetrate down to the metal. A light uniform film of Corrosion Inhibiting Compound (CIC) that has not accumulated dirt or debris, will normally allow adequate inspection of the structure without removal. CIC may require removal if there are multiple layers and/or accumulations of dirt or debris.

SUBTASK 51-05-01-210-087

- (3) Do the CPCP Basic Task Item 3 as follows:

- (a) Visually inspect all structure listed in the task description. The inspection method is as specified in each task description. Use Additional non-destructive inspections or visual inspections following partial disassembly if there are indications of hidden corrosion, such as bulging skins or corrosion running into splices, or under fittings, etc. In the task area, check the integrity of any sealant/leveling compound to determine if removal is required, and any corrosion inhibiting compound, particularly at faying surfaces, to determine if additional application is required per CPCP Basic Task Item 6.

SUBTASK 51-05-01-210-088

- (4) Do the CPCP Basic Task item 4 as follows:

- (a) Remove all corrosion, evaluate damage and repair or replace all discrepant structure as required, including application of protective finishes per STANDARD TREATMENT METHODS, AMM SUBJECT 51-00-58 or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.

SUBTASK 51-05-01-210-089

- (5) CPCP Basic Task Item 5 is not applicable.

SUBTASK 51-05-01-210-090

- (6) Do the CPCP Basic Task item 6 as follows:

- (a) Apply suitable approved water displacing / anti-corrosion compound as necessary.
- 1) The minimum requirement for all areas (except as noted in CPCP Basic Task 6 (a) 3)) is single coat of water displacing / anti-corrosion compound that penetrates faying surfaces and displaces moisture, e.g. a single coat of compound, C00915 BMS 3-29 or corrosion inhibiting compound, G00009 BMS 3-23, where the initial or previous coat has been disturbed or removed.
 - 2) Not applicable
 - 3) List of areas / items where water displacing/anti-corrosion compounds should not be applied:
Water displacing / anti-corrosion compounds should not be applied in the following areas:
 - Cables, pulleys, wiring, plastics, elastomers, oxygen systems.
 - Lubricated or Teflon surfaces (E.g. greased joints, sealed bearings).
 - Over compound, C00174 Cosmoline 1058 (or Equivalent per MIL-C-16173 Grade 1).
 - Adjacent to tears / holes in insulation blankets (water repelling characteristics are diminished).
 - Areas with electrical arc potential.
 - Interior materials, including cargo liners (change of flammability properties).

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- Fiber-glass ducts where temperature exceeds 220 degrees F.
- Selected areas noted in baseline program.

SUBTASK 51-05-01-210-091

(7) CPCP Basic Task Item 7 is not applicable.

———— **END OF TASK** ————

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INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING

1. General

A. This procedure has these tasks:

- (1) Airplane surface preparation for application of finish.
- (2) Surface preparation of aluminum bonding surfaces for antenna installations.
- (3) Surface preparation of flame sprayed skin panel bonding surfaces for antenna installations.
- (4) Surface preparation of skin panel with BMS 8-336 expanded aluminum foil bonding surfaces for antenna installations.

TASK 51-21-00-100-801

2. Airplane Surface Preparation for Application of Finish

A. **References**

Reference	Title
51-21-11-150-801	Paint Stripping (P/B 701)
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)
51-21-31-350-802	Removal and Control of Corrosion for Magnesium Alloys (P/B 701)
51-21-31-350-803	Removal and Control of Corrosion for Carbon Steel (P/B 701)
51-21-31-350-804	Removal and Control of Corrosion for Stainless Steel and Nickel-Chromium Alloys (P/B 701)
51-21-31-350-805	Removal and Control of Corrosion for Titanium Alloys (P/B 701)
51-21-31-350-806	Removal and Control of Corrosion for Plated or Phosphated Surfaces (P/B 701)
SRM 51-70-14	STRUCTURES WITH ALUMINUM COATINGS AND FOILS

B. **Consumable Materials**

Reference	Description	Specification
B00005	Cleaner - Alkaline - Cee Bee 280	
B00008	Cleaner - Alkaline - Oakite 204	
B00015	Cleaner - Heavy Duty, Multipurpose - Calla 301A	BAC5744, AMS 1526-A, AMS 1550-A
B00166	Abrasive - pumice	
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
G02088	Abrasive - Silicon Carbide, Waterproof Paper	
G02222	Abrasive - Dry, Blasting	BAC5748

C. **Prepare the surface**

SUBTASK 51-21-00-100-001

- (1) Before you apply finish to a surface, you must correctly prepare the surface, as follows:



CAUTION

DO NOT USE PAINT STRIPPER ON COMPOSITE MATERIALS. PAINT STRIPPERS CAN CAUSE DAMAGE TO THE STRUCTURE OF THE PART.

- (a) To remove the damaged finish, do this task: Paint Stripping, TASK 51-21-11-150-801.

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- 1) Use approved compounds to remove the damaged finishes.
 - a) Use solvents to remove paint from small areas.
 - b) Use stripping compounds to remove paint from large areas or disassembled parts.
 - c) Use mechanical strippers to remove paint from composite materials.
- (b) If necessary, remove the corrosion.
 - 1) The procedures you use must agree with the type of material and the quantity of the corrosion.
 - 2) These are the approved procedures to remove and control the corrosion:
 - a) chemical treatments.
 - b) hand sanding with abrasive paper or metal wool.
 - c) mechanical sanding with abrasive mats.
 - d) dry abrasive blasting.
 - 3) To remove the corrosion, do one of these tasks:
 - a) For aluminum and aluminum alloy, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.
 - b) For magnesium alloy, do this task: Removal and Control of Corrosion for Magnesium Alloys, TASK 51-21-31-350-802.
 - c) For carbon steel, do this task: Removal and Control of Corrosion for Carbon Steel, TASK 51-21-31-350-803.
 - d) For stainless steel and nickel-chromium alloy, do this task: Removal and Control of Corrosion for Stainless Steel and Nickel-Chromium Alloys, TASK 51-21-31-350-804.
 - e) For titanium alloy, do this task: Removal and Control of Corrosion for Titanium Alloys, TASK 51-21-31-350-805.
 - f) For plated or phosphated surfaces, do this task: Removal and Control of Corrosion for Plated or Phosphated Surfaces, TASK 51-21-31-350-806.
- (c) Clean the surface with one or more of these approved procedures:

NOTE: To get satisfactory results, you must make sure that the surface is fully clean before you apply paints or finishes.

- 1) Use solvent, B00184, or
- 2) Use cleaner, B00402, or

NOTE: These cleaners are optional to cleaner, B00402: Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.

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BE CAREFUL WHEN YOU USE ABRADING MATERIAL. ABRADING MATERIAL CAN EXPOSE OR DAMAGE FIBERGLASS, ARAMID, OR GRAPHITE FIBERS. DAMAGED OR EXPOSED FIBERS WILL CAUSE THE COMPONENT TO BE REJECTED.

- 3) Use 150 grit or finer abrasive, G02088 by hand.

NOTE: You can also do dry abrasive blasting with abrasive, G02222, if necessary.

NOTE: For composites, the recommended abrasive is No. 240 Scotch-Brite. Use of alternative media blasting procedures for finish removal is structurally satisfactory. The procedure must agree with the requirements given in D6-55564, "Requirements for Alternative Paint Stripping Processes" or SAE MA4872 "Paint Stripping of Commercial Aircraft - Evaluation of Materials and Processes." Refer to SOPM 20-30-02, or BAC5725 "Stripping Organic Materials" for more information on paint stripping with blast media.

- 4) Scrub the area thoroughly with a slurry of pumice abrasive, B00166 powder 4F and water.

- (d) Apply a conversion coating (on some surfaces).

- 1) Some conversion coatings are applied to make a protective layer on metal surfaces to prevent damage.
- 2) The layer is formed by a chemical procedure which will change the surface metal into an oxide layer.
- 3) Different conversion coating applications are used with different metals.
- 4) Chromic acid or an equivalent oxidizing agent will make a thin tight layer and prevent corrosion.

SUBTASK 51-21-00-380-001

- (2) To apply flame-sprayed aluminum, refer to SRM SUBJECT 51-70-14.

————— **END OF TASK** —————

TASK 51-21-00-160-801

3. Surface Preparation Of Aluminum Bonding Surfaces For Antenna Installations

A. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00067	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002 (Supersedes O-E-760)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
B50085	Solvent - Skykleen 1000	BAC5750

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Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	

B. Procedure

SUBTASK 51-21-00-210-001

- (1) Examine the condition of the aluminum surface.
 - (a) Make sure that all areas that will be electrically bonded are clean.
 - (b) Remove the oil, grease, dirt, and paint from the surface.
 - (c) Make sure that you remove all corrosion material from the surfaces or parts, if necessary.
 - 1) If you do not remove all corrosion material, then corrosion can start again.
 - 2) For limits of the corrosion removal, refer to the Structural Repair Manual.

SUBTASK 51-21-00-160-001

- (2) Do the abrasive cleaning for the aluminum surface as follows:
 - (a) Use one of these abrasive materials:
 - 1) abrasive mat, G00251
 - 2) abrasive cloth, B00102
 - 3) 240 grit or finer abrasive paper, G50077



CAUTION

DO NOT ABRASIVE INTO THE FIBERS. DAMAGE TO THE STRUCTURE WILL OCCUR.

- (b) Sand the surface with the abrasive material in a circular motion.
 - 1) Sand the surface until you remove all surface finishes.
 - 2) Sand the surface until you can see a bright aluminum bonding surface in the necessary areas.

SUBTASK 51-21-00-160-002

- (3) Do the final solvent cleaning for the aluminum bonding surface as follows:
 - (a) Use one of these solvents:
 - 1) alcohol, B00067
 - 2) solvent, B00148
 - 3) solvent, B00062
 - 4) solvent, B00666
 - 5) solvent, B00184
 - 6) alcohol, B00130
 - 7) solvent, B01054
 - 8) solvent, B50085

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- (b) Add the solvent to a cotton wiper, G00034.
- (c) Rub the surface to be cleaned with the solvent-soaked wiper.
 - 1) Replace the dirty wiper for a clean one if necessary.
- (d) Immediately wipe dry with a clean, dry wiper.
 - 1) Do not let the solvent evaporate until it is dry.

NOTE: It may be necessary to remove the remaining solvent with a second dry wipe when you use slow-evaporating solvents.

- (e) Do the steps again until the wiper shows no soil.

———— **END OF TASK** ————

TASK 51-21-00-160-802

4. Surface Preparation Of Flame Sprayed Skin Panel Bonding Surfaces For Antenna Installations

A. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00067	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002 (Supersedes O-E-760)
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
B50085	Solvent - Skykleen 1000	BAC5750
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

B. Procedure

SUBTASK 51-21-00-210-002

- (1) Examine the condition of the aluminum flame sprayed surface.
 - (a) Make sure that all areas that will be electrically bonded are clean.
 - (b) Remove the oil, grease, dirt, and paint from the surface.
 - (c) Make sure that you remove all corrosion material from the surfaces or parts, if necessary.
 - 1) If you do not remove all corrosion material, then corrosion can start again.
 - 2) For limits of the corrosion removal, refer to the Structural Repair Manual.

SUBTASK 51-21-00-160-003

- (2) Do the final solvent cleaning for the flame sprayed aluminum surface as follows:
 - (a) Use one of these solvents::
 - 1) alcohol, B00067
 - 2) solvent, B00148

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- 3) solvent, B00062
 - 4) solvent, B00666
 - 5) solvent, B00184.
 - 6) alcohol, B00130
 - 7) solvent, B01054
 - 8) solvent, B50085
- (b) Add the solvent to a cotton wiper, G00034.
- (c) Rub the surface to be cleaned with the solvent-soaked wiper.
- 1) Replace the dirty wiper for a clean one if necessary.
- (d) Immediately wipe dry with a clean, dry wiper.
- 1) Do not let the solvent evaporate until it is dry.
- NOTE: It may be necessary to remove the remaining solvent with a second dry wipe when you use slow-evaporating solvents.
- (e) Do the steps again until the wiper shows no soil.

———— **END OF TASK** ————

TASK 51-21-00-160-803

5. Surface Preparation Of Skin Panel With BMS 8–336 Expanded Aluminum Foil Bonding Surfaces For Antenna Installations

A. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00067	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002 (Supersedes O-E-760)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
B50085	Solvent - Skykleen 1000	BAC5750
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50598	Foil - Expanded Metal for Lightning Strike Protection of Composite Parts	BMS8-336

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B. Procedure

SUBTASK 51-21-00-210-003

- (1) Examine the condition of the metal foil, G50598, expanded aluminum foil surface.
 - (a) Make sure that all areas that will be electrically bonded are clean.
 - (b) Remove the oil, grease, dirt, and paint from the surface.
 - (c) Make sure that you remove all corrosion material from the surfaces or parts, if necessary.
 - 1) If you do not remove all corrosion material, then corrosion can start again.
 - 2) For limits of the corrosion removal, refer to the Structural Repair Manual.

SUBTASK 51-21-00-160-004

- (2) Do the abrasive cleaning for the aluminum surface as follows:
 - (a) Use one of these abrasive materials:
 - 1) abrasive mat, G00251
 - 2) abrasive cloth, B00102
 - 3) 240 grit or finer abrasive paper, G50077



DO NOT ABRASE THE EXPANDED ALUMINUM FOIL (EAF) PANEL. IF YOU CAUSE DAMAGE TO THE EAF, THE ANTENNA WILL NOT ELECTRICALLY BOND WITH THE AIRPLANE SKIN.

- (b) Sand the surface with the abrasive material in a circular motion.
 - 1) Sand the surface until you remove all surface finishes.
 - 2) Sand the surface until you can see the expanded aluminum foil in the necessary areas.

SUBTASK 51-21-00-160-005

- (3) Do the final solvent cleaning for the expanded aluminum foil surface as follows:
 - (a) Use one of these solvents:
 - 1) alcohol, B00067
 - 2) solvent, B00148
 - 3) solvent, B00062
 - 4) solvent, B00666
 - 5) solvent, B00184
 - 6) alcohol, B00130
 - 7) solvent, B01054
 - 8) solvent, B50085
 - (b) Add the solvent to a cotton wiper, G00034.
 - (c) Rub the surface to be cleaned with the solvent-soaked wiper.
 - 1) Replace the dirty wiper for a clean one if necessary.
 - (d) Immediately wipe dry with a clean, dry wiper.
 - 1) Do not let the solvent evaporate until it is dry.

NOTE: It may be necessary to remove the remaining solvent with a second dry wipe when you use slow-evaporating solvents.

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- (e) Do the steps again until the wiper shows no soil.

———— **END OF TASK** ————

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PAINT STRIPPING - CLEANING/PAINTING

1. General

A. This procedure has these tasks:

- (1) Prepare for Paint Stripping
- (2) Paint Stripping
- (3) Ferrous Alloys - Paint Stripping
- (4) Titanium - Paint Stripping
- (5) Titanium Alloys - Paint Stripping
- (6) Titanium-Cadmium - Paint Stripping
- (7) Nickel - Paint Stripping
- (8) Nickel Alloys - Paint Stripping
- (9) Magnesium Alloys - Paint Stripping
- (10) Magnesium - Paint Stripping
- (11) Aluminum Alloys - Paint Stripping
- (12) Cadmium - Paint Stripping
- (13) Zinc-Nickel - Paint Stripping
- (14) Chromium - Paint Stripping
- (15) Copper-Plating - Paint Stripping
- (16) Composite Parts - Paint Stripping

B. Paint strippers or solvents are used to remove small quantities of paint on metal surfaces. Do not use paint stripper on plastic laminations, fiberglass, aerodynamic smoother, edges of metal bonds, or rubber parts. Use only approved solvents for these materials.



DO NOT USE PAINT STRIPPER ON COMPOSITE MATERIALS. PAINT STRIPPERS CAN CAUSE DAMAGE TO THE STRUCTURE OF THE PART.

- (1) Use dry abrasive methods to remove the paint from the composite surfaces.
 - (a) For composites, the recommended abrasive is No. 240 Scotch-Brite. Use of alternative blasting procedures for finish removal is structurally satisfactory. The procedure must agree with the requirements given in SAE MA4872, "Paint Stripping of Commercial Aircraft - Evaluation of Materials and Processes". Refer to SOPM 20-30-02, or BAC5725, "Stripping Organic Materials" for more information on paint stripping with blast media.

TASK 51-21-11-370-801

2. Prepare for Paint Stripping

A. General

- (1) The purpose of alkaline cleaning is to prepare the painted surfaces of the aircraft for paint stripping. Paint strippers can be more effective if the aircraft surface is cleaned prior to paint stripping.

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DO NOT USE RESTRICTED-USE PAINT STRIPPERS ON HIGH-STRENGTH STEEL, OR MAGNESIUM COMPONENTS. THESE STRIPPERS WILL CAUSE DAMAGE TO COMPONENTS WITH THESE MATERIALS.

- (2) Restricted-use paint strippers are for removing organic finishes from metallic substrates but cannot be used on high-strength steel or magnesium.

B. References

Reference	Title
20-40-11 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2499	Cover - Vane, Angle of Attack Part #: R/C-AOAC-2 Supplier: 0P9C7
SPL-14189	Protective Cover - AOA Vane Part #: AOA100 Supplier: 3BSK6 Part #: C10004-1 Supplier: 81205
STD-1080	Brush - Paint
STD-10211	Applicator - Hand Series Squeegee(P/N: PA -1 used to remove oil, grease, or plasticizer contamination)

D. Consumable Materials

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00116	Sponge - Synthetic	
G00139	Tape - Protective, Protex 20V	
G00215	Brush - Soft Bristle Fiber	
G00252	Film - Polyethylene Film And Sheeting	ASTM D2103 (Supersedes L-P-512)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G00365	Paper	
G02321	Tape - Vinyl	BAC5034-4 Type VII Class 1

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Reference	Description	Specification
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50394	Tape - Protective - Protex 10VS	
G50737	Tape - Aluminum Foil Tape with Easy-Release Liner, Scotch 427	
G51270	Tape - Masking, Intertape PG777	

E. Prepare for Paint Stripping

SUBTASK 51-21-11-580-001

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-40-11/201).

SUBTASK 51-21-11-020-001

- (2) Remove windshield wipers, as required.

SUBTASK 51-21-11-950-001

- (3) Apply Scotch Flatback Masking Tape 250, G00270 to areas that you will not strip, or to areas that can be damaged easily by the paint strippers.
- (a) Pitot static probes and ports.
 - 1) Attach a "PITOT PROBES COVERED" tag, G02447 and "STATIC PORTS COVERED" tag, G02444 to the left control wheel in the flight deck.
 - (b) Total air temperature (TAT) probe.
 - (c) Cooling air exhaust duct.
 - (d) Windshield wiper mounts.
 - (e) Cargo door and entry door hinges and thresholds.
 - (f) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
 - (g) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.
 - (h) Put the applicable tape or covers on lubricated parts, rubber parts, laminated plastics, fiberglass, aerodynamic smoother, and metal-bonded edges.
 - (i) Apply tape a minimum of 1 in. (25 mm) wide on the skin to all access doors, fairings, wing leading edges and trailing edges.
 - (j) Apply tape on the drain holes and vents.
 - (k) Apply tape on the pressurized drain valves.
 - (l) Acrylic parts.
 - (m) Glass parts.

SUBTASK 51-21-11-950-002

- (4) If you will use restricted strippers (Table 701), do the steps that follow.
- (a) Mask beyond the areas of sealant that follow.

NOTE: This is to prevent penetration to the joint.

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- 1) Lap joint sealant.
- 2) Circumferential joint sealant.
- 3) Aerodynamic window sealants.
- (b) Double-mask windows, high-strength steel cargo doors and hinges.
 - 1) Apply a second layer of aluminum tape that is offset from the initial application of tape by 50%.

SUBTASK 51-21-11-840-001

- (5) Install the (AOA) sensor angle of attack vane cover, COM-2499 (recommended) or AOA vane protective cover, SPL-14189 (alternate).

SUBTASK 51-21-11-950-003

- (6) Mask the angle-of-attack (AOA) sensors.
 - (a) Attach a red tag with wire to the left control wheel in the flight deck.
 - 1) Write "AOA SENSORS COVERED" on the tag.
 - (b) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape, G51270.
 - 1) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 703).

NOTE: This is to allow easier removal of 3M 425 Aluminum Foil Tape, G00291.
 - 2) Cover the PG-777 solvent-resistant masking tape with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.

SUBTASK 51-21-11-950-004

- (7) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by strippers.

NOTE: You can use equivalent plastic sheeting that is resistant to paint strippers.

- (a) Use the applicable material below to protect the surface.
 - 1) Paper masking tape.
 - 2) Plastic-coated paper.
 - 3) Plastic sheeting.
 - 4) Wrapping paper, chemically neutral.
- (b) Cover the areas that follow with the applicable cover.
 - 1) Wings.
 - a) Put the flaps in the full up position (Retract the Trailing Edge Flaps, TASK 27-51-00-860-804, Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804).
 - 2) Tires.
 - 3) Engine and APU inlets and exhaust.
 - 4) Ram air inlets.

SUBTASK 51-21-11-950-005

- (8) Cover the passenger and flight deck windows with the steps that follow (Figure 702).
 - (a) Use Protex 10VS tape, G50394, Protex 20V tape, G00139, pre-cut plastic adhesive window mask paper (8216-2L), or Polyethylene-coated Kraft paper.

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- 1) Make sure that the polyethylene-coated Kraft paper is at least 0.001 in. (0.025 mm) thick.
- 2) Make sure that the polyethylene side is exposed.
- (b) Use tape, G02321 to attach the paper to the airplane surface.
 - 1) Use a hand series squeegee applicator, STD-10211 to make sure the tape adheres to the surface.
- (c) Apply Scotch 427 Aluminum Foil Tape, G50737 over the masking tape.
 - 1) Make sure that the aluminum foil tape extends beyond the window onto the frame or forging.
 - 2) Use a hand series squeegee applicator, STD-10211 to make sure the tape adheres to the surface.
- (d) Apply an aluminum cover to the windows.
 - 1) Make sure that the aluminum cover is 0.01 in. (0.25 mm) to 0.04 in. (1.02 mm) thick.
 - 2) Use 2 in. (51 mm) thick masking tape (PG-777) to attach the aluminum cover.
 - a) Apply the masking tape in strips that are shingled (bottom to top in overlapping layers, see Figure 702).

NOTE: This will help to stop fluids from seeping under the tape.

 - 3) Put Scotch 427 Aluminum Foil Tape, G50737 on top of the masking tape.
- (e) If you will strip paint in an area within 2 in. (51 mm) of a window pane, or if you will use a restricted use paint stripper, do the steps that follow.
 - 1) Double-mask the windows.
 - 2) Do the paint stripping procedure twice.
 - 3) See Paint Stripping, TASK 51-21-11-150-801 for a list of restricted use paint strippers.

SUBTASK 51-21-11-950-006



DO NOT USE RESTRICTED-USE PAINT STRIPPERS ON HIGH-STRENGTH STEEL, OR MAGNESIUM COMPONENTS. THESE STRIPPERS WILL CAUSE DAMAGE TO COMPONENTS WITH THESE MATERIALS.

- (9) Drape-mask landing gear and wheel wells.
- NOTE:** Make sure to lay down the polyethylene before you roll the airplane into the hangar. This will make sure the entire wheels and tires are masked.

- (a) Use polyethylene film, G00252.
- (b) Use PG-777 masking tape, G51270 to attach the polyethylene film.
 - 1) Make sure that the Polyken tape does not come into contact with the aircraft.
- (c) Use Scotch 427 Aluminum Foil Tape, G50737 on top of the masking tape and Polyken tape.
 - 1) Make sure that the aluminum tape is 2 in. (51 mm) thick.
- (d) Use a hand series squeegee applicator, STD-10211 to make sure that the tape adheres to the surface.

SUBTASK 51-21-11-950-007

- (10) Mask the composite areas listed below using the steps that follow if they will not be stripped of paint.

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- (a) Composite surfaces (Figure 701).
 - 1) Nose radome
 - 2) All antennas
 - 3) Nose landing gear doors
 - 4) Thrust reversers
 - 5) Strut fairings
 - 6) Wing-to-body fairings
 - 7) Flap track canoe fairings
 - 8) Strakelet and wing leading edge panels
 - 9) Wing trailing edge panels
 - 10) Spoilers
 - 11) Flaps
 - 12) Ailerons
 - 13) Winglets
 - 14) Dorsal fin
 - 15) Vertical fin tip and close-out panels rudder
 - 16) Stabilizer tip and panels
 - 17) Elevators
 - 18) Tail cone
- (b) Cover the composite surface with Polyethylene Coated Kraft paper.
 - 1) Make sure that the paper is at least 0.001 in. (0.025 mm) thick.
 - 2) Make sure you put the paper such that the polyethylene side is exposed.
 - 3) Use masking tape, G51270 (PG-777) to attach the paper to the airplane surface.
 - a) Use a hand series squeegee applicator, STD-10211 to make sure the tape adheres to the surface.
- (c) Cover the polyethylene-coated Kraft paper with polyethylene film, G00252.
 - 1) Use masking tape, G51270 (PG-777) to attach the film to the polyethylene-coated Kraft paper.
 - a) Use a hand series squeegee applicator, STD-10211 to make sure the tape adheres to the surface.
- (d) Use Scotch 427 Aluminum Foil Tape, G50737 or 3M 425 Aluminum Foil Tape, G00291 over the second layer of tape, G02321.
 - 1) Make sure that the aluminum tape is at least 2 in. (51 mm) wide.
 - 2) Use a hand series squeegee applicator, STD-10211 to make sure the tape adheres to the surface.
 - 3) Make sure the aluminum tape completely covers the masking tape.

NOTE: This is to protect it from chemical paint strippers.

 - a) Extend the aluminum tape over the masking tape to protect it from chemical paint strippers.

SUBTASK 51-21-11-950-008

- (11) Mask the lights and light bases listed below using the steps that follow.

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- (a) Directional and warning fuselage lights.
- (b) Logo illumination lights.
- (c) Cover the lights and light bases with Scotch 427 Aluminum Foil Tape, G50737 or 3M 425 Aluminum Foil Tape, G00291.
 - 1) Use a hand series squeegee applicator, STD-10211 to make sure the tape adheres to the surface.
- (d) If the light is larger than the width of the aluminum foil tape, do the steps that follow.
 - 1) Cover the surface with polyethylene film.
 - a) Make sure that the polyethylene film is 4.0 mils (0.1 mm) to 7.0 mils (0.2 mm) thick and fire retardant.
 - 2) Use Scotch 427 Aluminum Foil Tape, G50737 or 3M 425 Aluminum Foil Tape, G00291 to attach the film to the surface.

SUBTASK 51-21-11-160-001

- (12) Do the steps that follow to clean the area.
 - (a) Remove the loose dirt, grease, and oil with MIL-PRF-680 degreasing solvent, B00074 or aliphatic naphtha solvent, B00083.

NOTE: Be careful to not put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, paint brush, STD-1080, or a sponge, G00116 that is moist with MIL-PRF-680 degreasing solvent, B00074 or aliphatic naphtha solvent, B00083.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (c) Remove all unwanted solvent.
 - (d) Let the surface dry.

SUBTASK 51-21-11-160-002

- (13) Do the steps that follow to clean the surface again.
 - (a) Use a spray bottle to apply the aliphatic naphtha solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of soil.
 - 1) Use a soft bristle brush, G00215 to clean the surface, if it is necessary.
 - (c) Clean the surface again with a new cotton wiper, G00034 until you can see no signs of soil on the cheesecloth.

NOTE: It will be necessary to change the cheesecloth frequently when you clean the surface.
 - (d) Dry the area with a clean cotton wiper, G00034.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

SUBTASK 51-21-11-580-002

- (14) Dry the aircraft.
 - (a) If actuator components or bearings were cleaned, lubricate those components as necessary.

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- 1) Make sure to lubricate the actuator components or bearings outside the paint hangar.

NOTE: This is to avoid paint contamination.

———— **END OF TASK** ————

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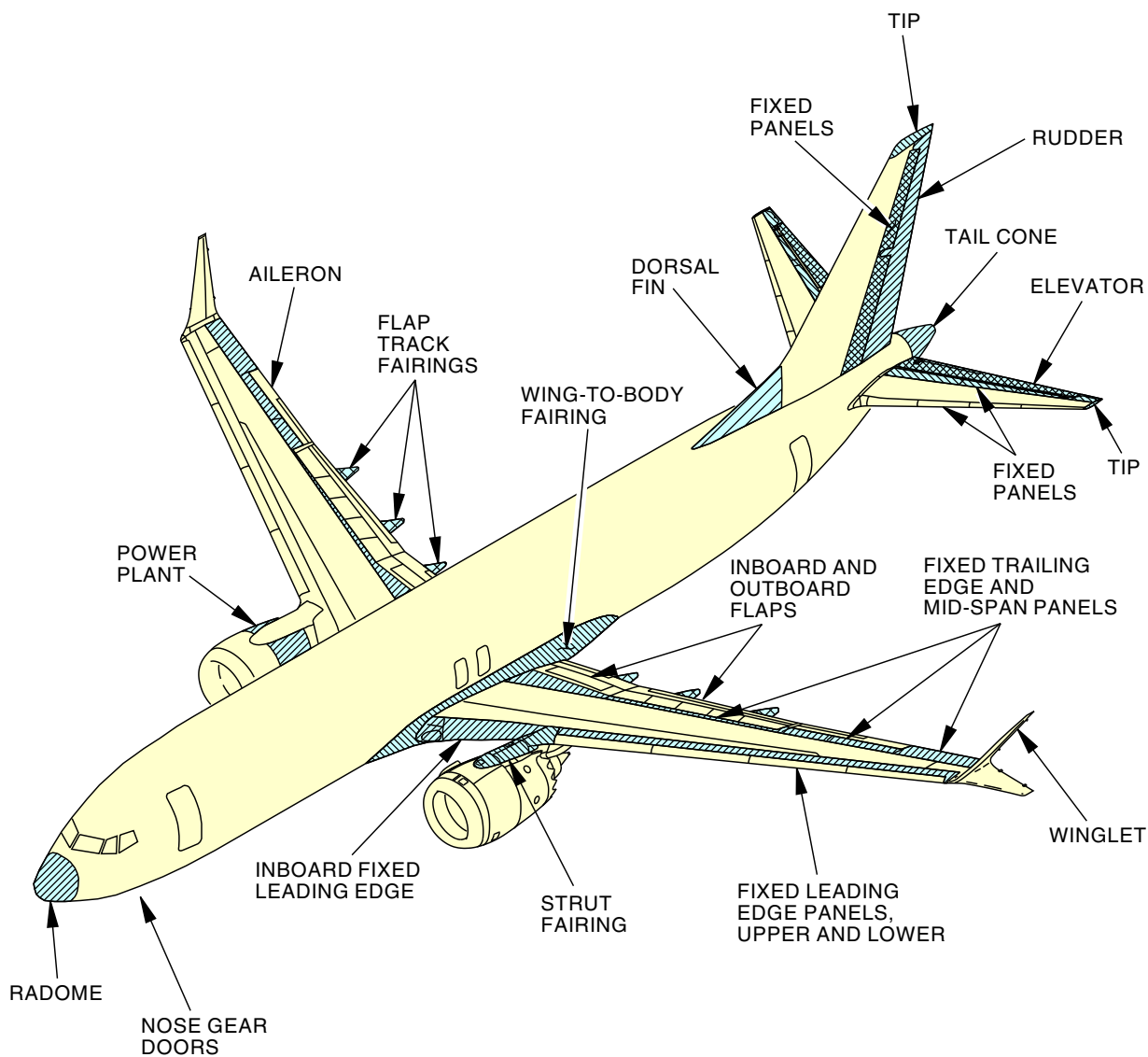
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Composite Material Locations
Figure 701/51-21-11-990-801

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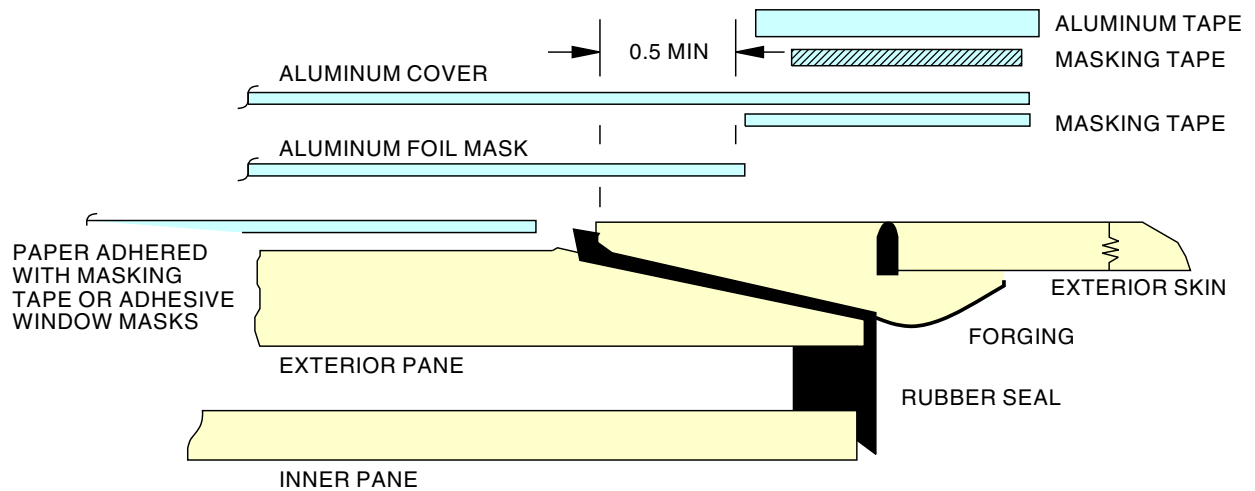
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Window Masking Application
Figure 702/51-21-11-990-802

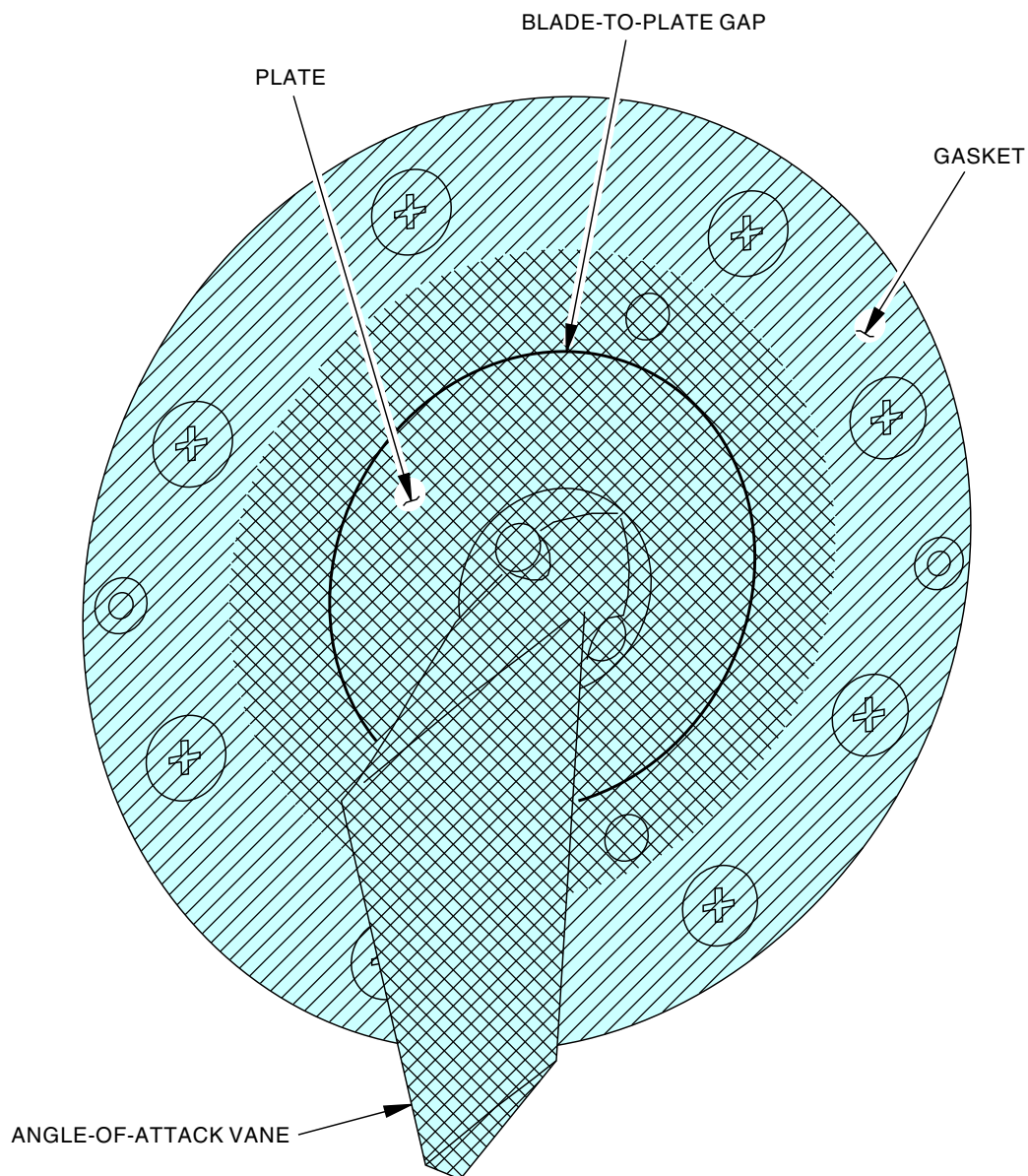
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MASK AREA FOR TEMPORARY PROTECTIVE COATING REMOVAL, FUSELAGE CLEANING AND APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.



ADDITIONAL MASK AREA FOR APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.

2415606 S00061538391_V1

Angle-of-Attack Tape Application Area
Figure 703/51-21-11-990-803

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TASK 51-21-11-150-801

3. Paint Stripping

A. General

- (1) This task has the following steps:
 - (a) Brush-on or paint-on paint stripping
 - (b) A removal of the epoxy adhesives and adhesive primers
 - (c) A removal of the rain erosion coating from fiberglass
 - (d) Selection of paint strippers.



CAUTION

DO NOT LET PAINT STRIPPERS TOUCH FIBREGLASS, ACRYLIC WINDOWS, SEALANT FILLETS, TEFLON LINED SELF-LUBRICATED BEARINGS, ELECTRICAL TERMINAL PLUGS, NYLON COATED WIRES AND NYLON BUSHINGS. THE CHEMICAL COMPOUNDS IN THE PAINT STRIPPERS WILL CAUSE DAMAGE TO THE COMPONENTS.

- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Make sure that the paint strippers do not fall on the joints.
 - (b) Do not use paint strippers in the fuel tanks.
- (3) Before you remove the paint with the stripping procedure, make sure that the surface is clean and dry.
 - (a) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - 1) Do not use the stripping procedure in hot or wet weather.



CAUTION

DO NOT USE PAINT STRIPPER ON COMPOSITE MATERIALS. PAINT STRIPPERS CAN CAUSE DAMAGE TO THE STRUCTURE OF THE PART.

- (4) Brush-on or spray-on stripping methods with paint strippers or solvents can be used on metal surfaces.
 - (a) You can use a pressure sprayer gun, STD-447, or a brush to apply the paint strippers.
 - 1) The brush-on procedure is frequently used for line maintenance.
 - (b) Make sure that the components in the paint stripper are fully mixed.
 - 1) Keep the container of paint stripper fully closed when it is not being used.
 - (c) Do not mix strippers of different manufacturers.
 - (d) Strippers that you apply with a brush or with a spray gun contain agents that make a solution thick.
 - 1) Apply these strippers on the vertical and horizontal surfaces.
 - (e) Strippers that you apply with a cloth are used to remove temporary finishes, waxes, and oversprays.
 - (f) Boeing specifications BAC5725 and BAC5771 provide procedures for paint stripping.
 - (g) Restricted strippers are not compatible with high-strength steel and magnesium. When you use restricted strippers, make sure that all high-strength steel and magnesium parts are masked.
 - (h) Acid strippers will discolor clad aluminum.

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- (i) You can usually use a solvent to remove small quantities of paint.
- (j) Do not use paint strippers on the following surfaces:

NOTE: Only use approved solvents on these materials.

- 1) Plastic laminates
- 2) Fiberglass
- 3) Aerodynamic smoother
- 4) Edges of metal bonds
- 5) Rubber parts
- 6) Lubricated parts
- 7) Composite surfaces or parts.

- (5) Abrasive stripping methods can be used on the following surfaces:

- (a) Ferrous Alloys
- (b) Titanium
- (c) Titanium Alloys
- (d) Titanium-Cadmium
- (e) Nickel
- (f) Nickel Alloys
- (g) Magnesium Alloys
- (h) Magnesium
- (i) Aluminum Alloys
- (j) Cadmium
- (k) Zinc-Nickel
- (l) Chromium
- (m) Copper-Plating
- (n) Composite Parts.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt.", which stands for Optional.

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Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
STD-133	Brush - Stiff Bristle, Non-metallic
STD-447	Gun - Pressure Sprayer
STD-1080	Brush - Paint

C. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00094	Solvent - Toluene	A-A-59107
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00344	Solvent - Xylene, Nitration Grade	ASTM D843
E00002	Stripper - Paint - BONDERITE S-ST 5351 AERO	BAC5725, MIL-R-81294
E50007	Stripper - Eldorado PR-5044 peroxide stripper	BAC5725
E50009	Stripper - Paint - BONDERITE S-ST 6930 AERO	
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891

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Reference	Description	Specification
E50016	Stripper - Paint - Cee-Bee E-3000	BAC5725
E50021	Stripper - Paint - Cee Bee R-256	MIL-R-81294
E50022	Stripper - Paint - Socostrip A-0103N	
E50023	Stripper - Paint - Ardrex 2871	
E50024	Stripper - Paint - BONDERITE S-ST 6776 LO AERO	
E50025	Stripper - Paint - BONDERITE S-ST 6813E AERO	
E50026	Stripper - Paint - BONDERITE S-ST 6840S AERO	
E50027	Stripper - Paint - ES-1 Stripper	
E50028	Stripper - Paint - Turco 5873	
E50029	Stripper - Paint - Cee Bee E-1004J	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00116	Sponge - Synthetic	
G02428	Abrasive - Aluminum Oxide Paper, 150 grit	A-A-1048
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

D. Brush-on or Spray Paint Stripping

SUBTASK 51-21-11-150-001

- (1) Prepare the surface for the paint stripping, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

NOTE: The purpose of alkaline cleaning is to prepare the painted surfaces of the aircraft for paint stripping. Washing the aircraft may mitigate interactions between chemical strippers and environmental contaminants such as salt. Paint strippers will be more effective if the aircraft surface is cleaned prior to paint stripping.

SUBTASK 51-21-11-150-002



WARNING

MANY ORGANIC FINISH STRIPPERS ARE FLAMMABLE, TOXIC OR CORROSIVE. REVIEW THE RELEVANT FIRE, INDUSTRIAL, HYGIENE, AND SAFETY PROCEDURES FOR SAFE OPERATION. AVOID PROLONGED OR REPEATED BREATHING OF THE STRIPPER AND SOLVENT VAPORS. WEAR PROTECTIVE CLOTHING AND GOGGLES OR PLASTIC FACE SHIELDS. AVOID CONTACT WITH SKIN AND EYES. WASH IMMEDIATELY WITH WATER AND SEEK MEDICAL ATTENTION.

- (2) Do the paint stripping.

NOTE: Strip only an area that can be worked at one time.

- (a) Refer to Table 701 for the approved stripping materials.
(b) Make sure that you double-strip windows.
(c) Fully mix the strippers.

NOTE: Refer to the manufacturer's instructions to mix the paint stripper.

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- (d) Apply large quantities of the stripper on the paint.
 - 1) Keep the surface wet with the stripper.
 - 2) Put the stripper on with a natural bristle paint brush, STD-1080, or a non-atomizing spray.
 - 3) If it is necessary, add more layers of the stripper.
- (e) Let the stripper stay on the surface a sufficient time for the finish to become soft and become wrinkled.
- (f) Remove the loosened material with a bristle paint brush, STD-1080, or with a sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746, before the stripper becomes dry.
- (g) If it is necessary, apply the stripper again to remove all unwanted adhesive or primer.
- (h) Rinse the surface with sponge, G00116, that is soaked with clean water.



DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE. OBEY THE MATERIAL SAFETY DATA SHEETS (MSDS) FOR SOLVENTS. OBEY LOCAL REGULATIONS FOR THE CORRECT PROCEDURES TO USE OR DISCARD SOLVENTS. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- 1) As an alternative to water, you can use solvent, B00062, or solvent, B00184, to clean the surface.
- (i) Dry the surface with cotton wiper, G00034.
 - 1) Make sure that the surface is fully dry.

E. Epoxy Adhesives and Adhesive Primers Removal

SUBTASK 51-21-11-150-003

- (1) Prepare the surface for the paint stripping, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-150-004



MAKE SURE THAT YOU REFER TO THE MANUFACTURER'S INSTRUCTIONS WHEN YOU APPLY THE STRIPPER THE SURFACE. IF YOU DO NOT FOLLOW THE MANUFACTURER'S INSTRUCTIONS, DAMAGE CAN OCCUR TO THE SURFACE.



MAKE SURE THAT THE STRIPPER DOES NOT TOUCH THE SURFACE FOR MORE THAN 2 HOURS. DAMAGE TO THE SURFACE CAN OCCUR IF THE STRIPPER TOUCHES THE SURFACE FOR A LONG TIME.

- (2) Do the epoxy adhesive and adhesive primer stripping.
 - (a) Refer to Table 701 for the approved stripping materials.
 - (b) Fully mix the strippers.

NOTE: Refer to the manufacturer's instructions to mix the adhesive stripper.
 - (c) Apply a small quantity of stripper on the adhesive or the primer with a paint brush, STD-1080.

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- 1) Keep the surface wet with stripper.
 - 2) Let the stripper absorb the adhesive or primer for not more than 30 minutes.
 - 3) Make sure that the stripper does not touch or fall on aluminum surfaces.
- (d) Remove the stripper and loosened adhesive, or primer with cotton wiper, G00034, or a sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746.
- (e) If it is necessary, apply the stripper again to remove all unwanted adhesive or the primer.
- (f) Rinse the surface with sponge, G00116, that is soaked with clean water.



DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE. OBEY THE MATERIAL SAFETY DATA SHEETS (MSDS) FOR SOLVENTS. OBEY LOCAL REGULATIONS FOR THE CORRECT PROCEDURES TO USE OR DISCARD SOLVENTS. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- 1) As an alternative to water, you can use solvent, B00062, or solvent, B00184, to clean the surface.
- (g) Dry the surface fully with clean dry cotton wiper, G00034.

F. Removal of the Rain Erosion Coating from Fiberglass

SUBTASK 51-21-11-150-005

- (1) Prepare the surface for the paint stripping, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-150-006

- (2) Do the stripping to remove the rain erosion coating.



TOLUENE THINNER IS AN AGENT THAT IS FLAMMABLE, EXPLOSIVE, POISONOUS, AND AN IRRITANT. MAKE SURE ALL PERSONS OBEY ALL OF THE PRECAUTIONS WHEN TOLUENE THINNER IS USED.

- GAS/AIR MIXTURES MORE THAN THE LOWER EXPLOSIVE LIMIT (LEL) CAN CAUSE AN EXPLOSION IF HIGH HEAT, SPARKS, OR FLAMES SUPPLY IGNITION.
- USE IN AN AREA OPEN TO THE AIR.
- CLOSE THE CONTAINER WHEN NOT USED.
- DO NOT GET TOLUENE THINNER IN THE EYES, ON THE SKIN, OR ON YOUR CLOTHES.
- DO NOT BREATHE THE GAS.

- (a) Put on the following protection before use solvent, B00094:
- 1) Protective splash goggles
 - 2) Gloves.
- (b) Put clean cloths that are moist with toluene solvent, B00094, on the rain erosion coating.

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CAUTION

MAKE SURE THAT THE TOLUENE DOES NOT STAY ON THE FIBERGLASS FOR MORE THAN 2 HOURS. DAMAGE TO THE SURFACE CAN OCCUR IF THE STRIPPER STAYS ON THE SURFACE FOR MORE THAN 2 HOURS.

- (c) If it is necessary, add more toluene solvent, B00094, to keep the cloths moist.
 - 1) Permit sufficient time to loosen the coating from the fiberglass (20 minutes to 1 hour).
 - a) Make sure that the toluene does not stay on the fiberglass surface for more than 2 hours.
- (d) Remove the loosened rain erosion coating with a bristle brush, STD-133, or a sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746, before toluene solvent, B00094, dries.
- (e) Lightly abrade (sand) the surface with abrasive cloth, B00102, or minimum 240 grit abrasive paper.
- (f) Clean the area with xylene solvent, B00344.
- (g) Dry the surface fully with clean dry cotton wiper, G00034.

G. Strippers Selection

SUBTASK 51-21-11-150-007



CAUTION

DO NOT USE THE SAME PUMPS AND HOSES WHEN MIXING DRUMS OF DIFFERENT PAINT STRIPPERS THROUGH RECIRCULATION. MIXING AND CROSS-CONTAMINATION CAN BE HIGHLY CORROSIVE TO METAL SURFACES. THIS CAN CAUSE SKIN PITTING DAMAGE.



CAUTION

DO NOT APPLY ACID-ACTIVATED STRIPPER ONTO ANY AIRPLANE SURFACE THAT HAS NOT HAD THE PEROXIDE-ACTIVATED STRIPPER COMPLETELY AND THOROUGHLY RINSED OFF WITH WATER AND VICE-VERSA. IF YOU MIX AND CROSS-CONTAMINATE, IT CAN BE HIGHLY CORROSIVE TO METAL SURFACES. THIS CAN CAUSE SKIN PITTING DAMAGE.

- (1) Find the appropriate stripper in the table below.

Table 701/51-21-11-993-801 SELECTION OF STRIPPERS

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER * ^[1]	APPROVED RESTRICTED USE STRIPPER * ^[1]	OPERATING TEMPERATURE
Epoxy primers, topcoats Polyurethanes Alkyds Polysulfides Other Coatings Primers, Topcoats	Alloy Steels - above 220 ksi Aluminum and Aluminum Alloys Corrosion Resistant Alloys Nickel/Cobalt Based Alloys Titanium and Titanium Alloys Magnesium Alloys	Cee Bee R-256 (methylene chloride), E50021(MIL-R-81294D)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)

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Table 701/51-21-11-993-801 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER*[1]	APPROVED RESTRICTED USE STRIPPER*[1]	OPERATING TEMPERATURE
		BONDERITE S-ST 5351 AERO stripper (methylene chloride), E00002 - Thick (T.O. 1-1-8)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		PR-5044 stripper (hydrogen peroxide activated), E50007*[2] *[3]		Recommended: 75°F (24°C) to 85°F (29°C) Alternative: 60°F (16°C) to 100°F (38°C)
		BONDERITE S-ST 6930 AERO (hydrogen peroxide activated), E50009*[2] *[3]		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Socostrip A-0103N (hydrogen peroxide activated), E50022*[2] *[3]		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Ardrox 2871 (hydrogen peroxide activated), E50023*[2] *[3]		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
			BONDERITE S-ST 6776 LO AERO (acid activated), E50024	
			Cee Bee E-1004J (acid activated), E50029	
			BONDERITE S-ST 6813E AERO (alkaline activated), E50025	
		Cee-Bee E-3000 stripper (hydrogen peroxide activated), E50016		Recommended: 75°F (24°C) to 87°F (31°C) Alternative: 50°F (10°C) to 100°F (38°C)
	Alloy Steels - Below 220 ksi	Cee Bee R-256 (methylene chloride), E50021 (MIL-R-81294D)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)

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ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER ^{*[1]}	APPROVED RESTRICTED USE STRIPPER ^{*[1]}	OPERATING TEMPERATURE
		BONDERITE S-ST 5351 AERO stripper (methylene chloride), E00002 - Thick (T.O. 1-1-8)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Turco 5873 (methylene chloride), E50028		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		BONDERITE S-ST 6840S AERO (alkaline activated), E50026		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		PR-5044 stripper (hydrogen peroxide activated), E50007 ^{*[2]} ^{*[3]}		Recommended: 75°F (24°C) to 85°F (29°C) Alternative: 60°F (16°C) to 100°F (38°C)
		BONDERITE S-ST 6930 AERO (hydrogen peroxide activated), E50009 ^{*[2]} ^{*[3]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Socostrip A-0103N (hydrogen peroxide activated), E50022 ^{*[2]} ^{*[3]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Ardrox 2871 (hydrogen peroxide activated), E50023 ^{*[2]} ^{*[3]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
Temporary markings, temporary coatings, waxes, and uncured overspray	Ferrous Alloys	solvent, B00062 or solvent, B00184		
	Titanium	solvent, B00062 or solvent, B00184		
	Titanium Alloys	solvent, B00062 or solvent, B00184		
	Titanium-Cadmium	solvent, B00062 or solvent, B00184		
	Nickel	solvent, B00062 or solvent, B00184		

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Table 701/51-21-11-993-801 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER*[1]	APPROVED RESTRICTED USE STRIPPER*[1]	OPERATING TEMPERATURE
	Nickel Alloys	solvent, B00062 or solvent, B00184		
	Magnesium Alloys	solvent, B00062 or solvent, B00184		
	Magnesium	solvent, B00062 or solvent, B00184		
	Aluminum alloys	solvent, B00062 or solvent, B00184		
	Cadmium	solvent, B00062 or solvent, B00184		
	Zinc-Nickel	solvent, B00062 or solvent, B00184		
	Chromium	solvent, B00062 or solvent, B00184		
	Copper-Plating	solvent, B00062 or solvent, B00184		
	Composite Parts	solvent, B00062 or solvent, B00184		
All epoxies, alkyds, polyurethanes, other coatings, primers, topcoats	Dry Abrasive apricot pit shell abrasive, G50823Stripping Ferrous Alloys Titanium Alloys Nickel Alloys Magnesium Alloys	apricot pit shell abrasive, G50823 walnut shells abrasive, G50822		
	Dry Abrasive Stripping Composites	150 grit abrasive paper, G02428		
		EnviroStrip 12/30 wheat starch media, E50010		

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Table 701/51-21-11-993-801 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER*[1]	APPROVED RESTRICTED USE STRIPPER*[1]	OPERATING TEMPERATURE
	Plastic Media Blasting Non-clad (bare) aluminum alloys of gage thickness of 0.125 in. (3.175 mm) and greater Ferrous Alloys Titanium and Titanium Alloys Titanium-Cadmium, Cadmium, Nickel, Zinc-Nickel, Chromium, and Copper-plated parts Chemically treated or anodized magnesium (not bare magnesium)	MIL-P-85891, Type V, Grade A, 20/30 Mesh plastic media, E50011		
	Wheat Starch Blasting*[4] Aluminum alloys with gage thickness of 0.032 in. (0.813 mm) or greater Bonded aluminum honeycomb sandwich parts with facesheets 0.012 in. (0.305 mm) thick and greater All other metals, including plated surfaces Composite parts	EnviroStrip 12/30 wheat starch media, E50010		

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ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER ^{*[1]}	APPROVED RESTRICTED USE STRIPPER ^{*[1]}	OPERATING TEMPERATURE
	Nanocomposite Blasting Aluminum alloys with a gage thickness of 0.040 in. (1.016 mm) or greater Bonded aluminum honeycomb sandwich parts with facesheets 0.012 in. (0.305 mm)thick or greater Ferrous alloys Titanium and Titanium alloys Titanium-Cadmium, cadmium, nickel, zinc-nickel, chromium, and copper-plated parts Chemically treated or anodized magnesium	Magic 1 Nanocomposite Abrasive Media ^{*[5]} , Magic 2 Nanocomposite Abrasive Media ^{*[5]} , Magic 3 Nanocomposite Abrasive Media ^{*[5]}		
Bonding adhesives, adhesive primers for bonding	Aluminum Titanium All Stainless Steels	BONDERITE S-ST 5351 AERO stripper (methylene chloride), E00002 - Thick (T.O. 1-1-8)		Recommended: 65°F (18°C) to 80°F (27°C) Alternative: 50°F (10°C) to 100°F (38°C)
		ES-1 Stripper (methylene chloride), E50027 ^{*[6]}		Recommended: 65°F (18°C) to 85°F (29°C)Alternative: 50°F (10°C) to 80°F (27°C)

- ^{*[1]} Mixing or cross-contamination of acid-activated strippers with hydrogen peroxide-activated strippers can be highly corrosive to metal surfaces. Before applying any paint strippers, special attention must be taken to:
- 1) Thoroughly clean paint stripping equipment (spray guns, pots, pumps, pressure hoses, etc.) of any chemical residue from prior usage per equipment manufacturer's instructions. It is recommended to recirculate water through the pump, hose, and spray gun at least 5x the volume of the hose and pump. After recirculation, check the pH of the rinsate to verify it is the same pH as the water source. Scrub clean ID of pump/hose/gun from any material buildup and thoroughly clean OD of spray gun. Clean squeegees and all tools contacting airplane surface.
 - 2) Ensure stripper is homogenous by agitating material for a minimum of 30 minutes ^{**} (e.g. with a drum roller or recirculating material with cleaned pump/hose/gun.) ^{**} this depends on if using a 55 gallon drum or a large tote.
 - 3) Prior to applying stripper airplane, it is recommended to apply stripper from each lot (agitated per step 2) to abraded 2024-T3 clad panels. Allow the stripper to dwell and wipe off stripper at 4 and 8 hours. Use various sources of lighting and magnification to inspect the panel for pitting. This is intended to identify any issues with stripper material or equipment contamination prior to stripping the aircraft.

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4) If one type of paint stripper (e.g. peroxide-activated) is used on an aircraft and it is determined that a different type of stripper is required (e.g. acid-activated), then the aircraft must be completely and thoroughly rinsed down with water to remove all residue of the initial paint stripper. Do not apply acid-activated stripper onto any aircraft surface that has not had the peroxide-activated stripper completely and thoroughly rinsed off with water.

- *[2] Do not allow these peroxide-based strippers to come in contact directly with unpainted steel alloys. A thin layer of these paint strippers can cause corrosion. In using these strippers, expose paint chips and spent strippers to a fine spray of soap during clean-up after stripping, or rinse paint chips with water to remove paint stripper prior to packaging in vented containers before disposal. Dispense the stripper through plastic or stainless steel equipment. Collecting wastes in rusty drums, mixing conversion coating rise water with stripper residues, or throwing rags, gloves, or other fabrics into the waste drum may cause combustion. Used material contaminated with paint flakes and organic materials may undergo spontaneous pressurization. The paint stripper produces water and oxygen during the paint removal process. This process will continue after the stripper is removed from the aircraft. To prevent pressure from building up in waste containers, do not cap containers for 24 hours after collecting the stripper residue and paint chips.
- *[3] Do not use this stripper on polysulfides. An example of a polysulfide is sealants.
- *[4] Maximum of five paint stripping cycles are allowed during the life of the airplane.
- *[5] Complete removal of organic materials by abrasive methods damages conversion coatings and may remove plating. Strip conversion coatings and re-finish. Inspect plating (except chrome) for compliance with requirements and supplementary chromate treatment requirements and re-finish as required.
- *[6] This solution damages plating and conversion coating (for example, Alodine and anodized). Rinse as soon as possible after stripping to stop etching. Plating and conversion coating exposed to the stripper shall be stripped and refinished.

————— END OF TASK —————

TASK 51-21-11-150-802

4. Ferrous Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Conventional Abrasive Blasting Method
 - (b) Plastic Media Blasting Method
 - (c) Wheat Starch Blasting Method
 - (d) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents

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- (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-008

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-110-001

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

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D. Paint Stripping - Conventional Abrasive Blasting Method

SUBTASK 51-21-11-950-009

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-110-002

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-001

- (3) Abrasive blast the area to be stripped with apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.

- (a) Make sure that the nozzle air pressure is 90 psig (621 kPa) to 100 psig (689 kPa).
- (b) Make sure that the nozzle is approximately 6 in. (152 mm) from the surface.
- (c) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-003

- (4) Clean the surface using clean, compressed air.

E. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-010

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-004

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-002

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.

- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.

- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).
- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.
- (d) Make sure that the angle of the nozzle is at 45° to the surface.
- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-005

- (4) Clean the surface.

- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-011

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-006

- (2) Make sure that the areas that will be stripped are clean and dry.

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SUBTASK 51-21-11-120-003

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-007

- (4) Clean the surface.

- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034.

G. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-012

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-008

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-004

- (3) Strip the surface using one of the nanocomposite abrasives that follow.

- (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
- (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
- (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
- (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
- (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
- (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-009

- (4) Clean the surface.

- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034

————— **END OF TASK** —————

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TASK 51-21-11-150-803

5. Titanium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Plastic Media Blasting Method
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891

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Reference	Description	Specification
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-009

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-010

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-013

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-011

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-005

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.
- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.
 - (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).
 - (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.
 - (d) Make sure that the angle of the nozzle is at 45° to the surface.
 - (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-012

- (4) Clean the surface.
- (a) Rinse the surface with water.

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- (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-014

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-013

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-006

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-014

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-015

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-015

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-007

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-016

- (4) Clean the surface.
 - (a) Rinse the surface with water.

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- (b) Dry the surface with a clean, cotton wiper, G00034

————— END OF TASK —————

TASK 51-21-11-150-804

6. Titanium Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Conventional Abrasive Blasting Method
 - (b) Plastic Media Blasting Method
 - (c) Wheat Starch Blasting Method
 - (d) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)

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Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-010

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-017

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Conventional Abrasive Blasting Method

SUBTASK 51-21-11-950-016

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-018

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-008

- (3) Abrasive blast the area to be stripped with apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.
- (a) Make sure that the nozzle air pressure is 90 psig (621 kPa) to 100 psig (689 kPa).
 - (b) Make sure that the nozzle is approximately 6 in. (152 mm) from the surface.
 - (c) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

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SUBTASK 51-21-11-160-019

- (4) Clean the surface using clean, compressed air.

E. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-017

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-020

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-009

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.

- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.

- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).

- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.

- (d) Make sure that the angle of the nozzle is at 45° to the surface.

- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-021

- (4) Clean the surface.

- (a) Rinse the surface with water.

- (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-018

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-022

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-010

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).

- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.

- (c) Make sure that the nozzle angle is 20° to 60° from the surface.

- (d) If the conversion coating was damaged, remove the remaining coating and reapply.

- (e) If the plating was removed, inspect the plating.

- 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-023

- (4) Clean the surface.

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- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034.

G. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-019

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-024

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-011

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-025

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

———— **END OF TASK** ————

TASK 51-21-11-150-805

7. Titanium-Cadmium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Conventional Abrasive Blasting Method
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts

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- (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-011

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-026

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.

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- (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-020

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-027

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-012

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.

- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.

- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).

- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.

- (d) Make sure that the angle of the nozzle is at 45° to the surface.

- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-028

- (4) Clean the surface.

- (a) Rinse the surface with water.

- (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-021

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-029

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-013

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).

- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.

- (c) Make sure that the nozzle angle is 20° to 60° from the surface.

- (d) If the conversion coating was damaged, remove the remaining coating and reapply.

- (e) If the plating was removed, inspect the plating.

- 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-030

- (4) Clean the surface.

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- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-022

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-031

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-014

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-032

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

———— **END OF TASK** ————

TASK 51-21-11-150-806

8. Nickel - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Plastic Media Blasting Method
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts

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- (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-012

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-033

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.

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- (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-023

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-034

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-015

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.

- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.

- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).

- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.

- (d) Make sure that the angle of the nozzle is at 45° to the surface.

- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-035

- (4) Clean the surface.

- (a) Rinse the surface with water.

- (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-024

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-036

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-016

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).

- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.

- (c) Make sure that the nozzle angle is 20° to 60° from the surface.

- (d) If the conversion coating was damaged, remove the remaining coating and reapply.

- (e) If the plating was removed, inspect the plating.

- 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-037

- (4) Clean the surface.

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- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-025

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-038

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-017

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-039

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

———— **END OF TASK** ————

TASK 51-21-11-150-807

9. Nickel Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Conventional Abrasive Blasting Method
 - (b) Wheat Starch Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts

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- (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-013

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-040

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

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D. Paint Stripping - Conventional Abrasive Blasting Method

SUBTASK 51-21-11-950-026

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-041

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-018

- (3) Abrasive blast the area to be stripped with apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.

- (a) Make sure that the nozzle air pressure is 90 psig (621 kPa) to 100 psig (689 kPa).
- (b) Make sure that the nozzle is approximately 6 in. (152 mm) from the surface.
- (c) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-042

- (4) Clean the surface using clean, compressed air.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-027

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-043

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-019

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-044

- (4) Clean the surface.

- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034.

———— **END OF TASK** ————

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TASK 51-21-11-150-808

10. **Magnesium Alloys - Paint Stripping**

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Conventional Abrasive Blasting Method
 - (b) Wheat Starch Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).

NOTE: Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

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Reference	Description	Specification
G00215	Brush - Soft Bristle Fiber	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-014

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-045

- (2) Clean the surface.
 - (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, unwanted grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Conventional Abrasive Blasting Method

SUBTASK 51-21-11-950-028

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-046

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-020

- (3) Abrasive blast the area to be stripped with apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.
 - (a) Make sure that the nozzle air pressure is 90 psig (621 kPa) to 100 psig (689 kPa).
 - (b) Make sure that the nozzle is approximately 6 in. (152 mm) from the surface.
 - (c) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-047

- (4) Clean the surface using clean, compressed air.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-029

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-048

- (2) Make sure that the areas that will be stripped are clean and dry.

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SUBTASK 51-21-11-120-021

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-049

- (4) Clean the surface.

- (a) Flush the surface with water.
- (b) Dry the surface with a clean cotton wiper, G00034.

————— **END OF TASK** —————

TASK 51-21-11-150-809

11. **Magnesium - Paint Stripping**

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Plastic Media Blasting Method
 - 1) This method is applicable to chemically treated or anodized magnesium surfaces only.
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
 - 1) This method is applicable to chemically treated or anodized magnesium surfaces only.
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped

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- (j) Drain holes and vents
 - (k) Pitot static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-015

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-050

- (2) Clean the surface.
- (a) Remove loose soil, excess grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

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D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-030

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-051

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-022

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.

- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.

- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).

- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.

- (d) Make sure that the angle of the nozzle is at 45° to the surface.

- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-052

- (4) Clean the surface.

- (a) Rinse the surface with water.

- (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-031

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-053

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-023

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).

- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.

- (c) Make sure that the nozzle angle is 20° to 60° from the surface.

- (d) If the conversion coating was damaged, remove the remaining coating and reapply.

- (e) If the plating was removed, inspect the plating.

- 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-054

- (4) Clean the surface.

- (a) Rinse the surface with water.

- (b) Dry the surface with a clean, cotton wiper, G00034.

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F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-032

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-055

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-024

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
- (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-056

- (4) Clean the surface.
- (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

———— **END OF TASK** ————

TASK 51-21-11-150-810

12. Aluminum Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions with the abrasive stripping methods that follow.
- (a) Plastic Media Blasting Method
 - 1) This method is applicable to non-clad (bare) aluminum alloys with a gage thickness of 0.125 in. (3.175 mm).
 - (b) Wheat Starch Blasting Method
 - 1) This method is applicable to the following.
 - a) Aluminum alloys with a gage thickness of 0.032 in. (0.813 mm) or greater, including both clad and non-clad (bare) alloys.
 - b) Bonded honeycomb sandwich parts with aluminum face sheets 0.012 in. (0.305 mm) thick or greater.
 - (c) Nanocomposite Blasting Method
 - 1) This method is applicable to the following.
 - a) Aluminum alloys with a gage thickness of 0.040 in. (1.016 mm) or greater.
 - b) Bonded honeycomb sandwich parts with aluminum face sheets 0.012 in. (0.305 mm) thick or greater.

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- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
 - (a) Abrasions and scratches are satisfactory if a fingernail does not catch while pulled across the abrasion or scratch, and the abrasion or scratch is not less than 0.10 in. (0.25 cm) from a lap joint.
 - 1) It is not necessary to do supplemental inspections or to record the location of the damage.
 - (b) If the abrasion or scratch catches the fingernail at the two worst areas, make sure that the clad exists. If the clad exists, it is not required to do additional inspection or to record the location of the damage.
 - (c) If the abrasion or scratch is not satisfactory, then refer to the SRM for instruction.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot-static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891

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Reference	Description	Specification
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-016

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-057

- (2) Clean the surface.
- (a) Remove loose soil, unwanted grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface with a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, unwanted grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-033

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-058

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-025

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.
- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.
 - (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).
 - (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.
 - (d) Make sure that the angle of the nozzle is at 45° to the surface.
 - (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-059

- (4) Clean the surface.
- (a) Rinse the surface with water.

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- (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-034

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-060

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-026

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-061

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-035

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-062

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-027

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-063

- (4) Clean the surface.
 - (a) Rinse the surface with water.

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(b) Dry the surface with a clean, cotton wiper, G00034

— END OF TASK —

TASK 51-21-11-150-811

13. Cadmium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Plastic Media Blasting Method
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot-static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	

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Reference	Description	Specification
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-017

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-064

- (2) Clean the surface.
- (a) Remove loose soil, unwanted grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, unwanted grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-036

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-065

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-028

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.
- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.
 - (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).
 - (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.
 - (d) Make sure that the angle of the nozzle is at 45° to the surface.
 - (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

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SUBTASK 51-21-11-160-066

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-037

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-067

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-029

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-068

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-038

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-069

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-030

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
 - (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

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SUBTASK 51-21-11-160-070

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

———— **END OF TASK** ————

TASK 51-21-11-150-812

14. Zinc-Nickel - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Plastic Media Blasting Method
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot-static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - (a) Do not use the stripping procedure in hot or wet weather.

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B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-018

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-071

- (2) Clean the surface.
- (a) Remove loose soil, unwanted grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.
 - (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
 - (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
 - (d) Clean the surface again until the surface is free from all soil, unwanted grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-039

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-072

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-031

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.
- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.

NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.
 - (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).
 - (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.
 - (d) Make sure that the angle of the nozzle is at 45° to the surface.

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- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-073

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-040

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-074

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-032

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-075

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-041

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-076

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-033

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
 - (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.

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- (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-077

- (4) Clean the surface.
- (a) Rinse the surface with water.
- (b) Dry the surface with a clean, cotton wiper, G00034

————— **END OF TASK** —————

TASK 51-21-11-150-813

15. Chromium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
- (a) Plastic Media Blasting Method
- (b) Wheat Starch Blasting Method
- (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
- (a) Lubricated parts
- (b) Rubber parts
- (c) Laminated plastic surfaces or parts
- (d) Fiberglass surfaces or parts
- (e) Aerodynamic smoothers
- (f) Metal bonded parts
- (g) Composite parts
- (h) Adjacent access doors, fairings, and wing leading and trailing edges
- (i) All areas adjacent to the area being stripped
- (j) Drain holes and vents
- (k) Pitot-static probes and ports
- (l) Angle-of-attack vanes
- (m) Cargo door and entry door hinges and thresholds
- (n) Cooling air exhaust duct
- (o) Tires
- (p) Ram air inlets
- (q) Engines and the APU inlets and exhausts
- (r) Pressurized drain valves
- (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).

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- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-019

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-078

- (2) Clean the surface.
- (a) Remove loose soil, unwanted grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
- 1) Use an oil absorbing wiper to remove oil, if necessary.
- (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
- (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
- 1) Make sure that the solvent does not dry on the surface.
- (d) Clean the surface again until the surface is free from all soil, excess grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-042

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-079

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-034

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.
- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.
- NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.
- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).
- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.

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- (d) Make sure that the angle of the nozzle is at 45° to the surface.
- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-080

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-043

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-081

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-035

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-082

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-044

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-083

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-036

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.
 - (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
 - (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.

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- (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
- (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-084

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

———— **END OF TASK** ————

TASK 51-21-11-150-814

16. Copper-Plating - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Plastic Media Blasting Method
 - (b) Wheat Starch Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot-static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves
 - (s) Joints

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- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
- (a) Do not use the stripping procedure in hot or wet weather.

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50012	Media - Magic II 30/60 Composite Blast Media (Type VIII)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00215	Brush - Soft Bristle Fiber	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-020

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-085

- (2) Clean the surface.
- (a) Remove loose soil, unwanted grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
- 1) Use an oil absorbing wiper to remove oil, if necessary.
- (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
- (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
- 1) Make sure that the solvent does not dry on the surface.
- (d) Clean the surface again until the surface is free from all soil, unwanted grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Plastic Media Blasting Method

SUBTASK 51-21-11-950-045

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-086

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-037

- (3) Plastic media blast using plastic media, E50011, Type V, Grade A to strip the paint.
- (a) Screen the plastic media, E50011 to remove undersized media and contaminants.
- NOTE: Examples of contaminants are paint flakes, metallic particles, and degraded media.
- (b) Make sure that the nozzle air pressure is 20 psig (138 kPa) to 40 psig (276 kPa).

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- (c) Make sure that the nozzle is approximately 6 in. (152 mm) or more away from the surface.
- (d) Make sure that the angle of the nozzle is at 45° to the surface.
- (e) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-087

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-046

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-088

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-038

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.

NOTE: Complete removal of organic coatings by wheat starch media blasting can damage surface treatments on the base metal (for example: chemical conversion coating and anodized coating) and may remove plating.

- (a) Make sure that the nozzle air pressure is between 30 psig (207 kPa) and 50 psig (345 kPa).
- (b) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (c) Make sure that the nozzle angle is 20° to 60° from the surface.
- (d) If the conversion coating was damaged, remove the remaining coating and reapply.
- (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-11-160-089

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034.

F. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-11-950-047

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-090

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-039

- (3) Strip the surface using one of the nanocomposite abrasives that follow.
 - (a) For general purpose stripping, use Magic 1 Nanocomposite Abrasive Media, 30/60 Mesh.
 - (b) For an increased strip rate, use Magic II Composite Blast Media, E50012.
 - (c) To remove cured sealant, use Magic 3 Nanocomposite Abrasive Media, 10/60 Mesh.

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- (d) Make sure that the nozzle air pressure is less than 32 psig (221 kPa).
- (e) Make sure that the nozzle is at least 6 in. (152 mm) from the surface.
- (f) Make sure that the angle of the nozzle is 40° to 60° to the surface.
- (g) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-160-091

- (4) Clean the surface.
 - (a) Rinse the surface with water.
 - (b) Dry the surface with a clean, cotton wiper, G00034

————— **END OF TASK** —————

TASK 51-21-11-150-815

17. Composite Parts - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the abrasive stripping methods that follow.
 - (a) Conventional Abrasive Blasting Method
 - (b) Wheat Starch Blasting Method
- (2) For metal surfaces, you can remove paint by abrasive stripping, or by brush-on or paint-on with paint strippers or solvents. For procedures to remove paint with paint strippers or solvents, see Paint Stripping, TASK 51-21-11-150-801.
- (3) Make sure that the areas that follow are covered.
 - (a) Lubricated parts
 - (b) Rubber parts
 - (c) Laminated plastic surfaces or parts
 - (d) Fiberglass surfaces or parts
 - (e) Aerodynamic smoothers
 - (f) Metal bonded parts
 - (g) Composite parts
 - (h) Adjacent access doors, fairings, and wing leading and trailing edges
 - (i) All areas adjacent to the area being stripped
 - (j) Drain holes and vents
 - (k) Pitot-static probes and ports
 - (l) Angle-of-attack vanes
 - (m) Cargo door and entry door hinges and thresholds
 - (n) Cooling air exhaust duct
 - (o) Tires
 - (p) Ram air inlets
 - (q) Engines and the APU inlets and exhausts
 - (r) Pressurized drain valves

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- (s) Joints
- (4) Make sure that the ambient temperature is between 50°F (10°C) and 100°F (38°C).
 - (a) Do not use the stripping procedure in hot or wet weather.
- (5) Definitions:
 - (a) Light Soils: atmospheric soils and dust
 - (b) Moderate Soils: drawing or cutting oil and dust
 - (c) Heavy soils: grease or the soil on areas subjected to exhaust blast

B. Consumable Materials

Reference	Description	Specification
B00003	Cleaner - Emulsion Alkaline - GMC 528B (use until stock depleted)	
B00005	Cleaner - Alkaline - Cee Bee 280	
B00012	Cleaner - Alkaline - Turco Jet Clean C	
B00013	Cleaner - Alkaline - Dubois C-1102	
B00014	Cleaner - Zip-Chem Products Calla 301 Heavy Duty Cleaner	
B00017	Cleaner - Alkaline - Pace B-82 (Formerly Pacific B-82)	BMS11-12
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00314	Compound - Aircraft Surface Cleaning	MIL-C-43616
B00325	Cleaner - Alkaline - Turco Jet Clean E	
B00432	Solvent - Alkaline - Cee Bee A-410B	
B00433	Solvent - Alkaline - Hydrex 09	
B00434	Solvent - Alkaline - Metaclean AC	
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00215	Brush - Soft Bristle Fiber	
G02428	Abrasive - Aluminum Oxide Paper, 150 grit	A-A-1048
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	

C. Prepare to Strip the Surface

SUBTASK 51-21-11-150-021

- (1) Prepare to strip the surface, do this task: Prepare for Paint Stripping, TASK 51-21-11-370-801.

SUBTASK 51-21-11-160-092

- (2) Clean the surface.
 - (a) Remove loose soil, unwanted grease, hydraulic fluid, oil, and metal shavings using a cotton wiper, G00034.
 - 1) Use an oil absorbing wiper to remove oil, if necessary.

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- (b) Clean the surface with a cotton wiper, G00034 or brush, G00215 wet with a solvent, B00062 or solvent, B00184.
- (c) Immediately wipe the solvent from the surface using a clean, dry cotton wiper, G00034.
 - 1) Make sure that the solvent does not dry on the surface.
- (d) Clean the surface again until the surface is free from all soil, unwanted grease, hydraulic fluid, oil, and metal shavings.

D. Paint Stripping - Conventional Abrasive Blasting Method

SUBTASK 51-21-11-950-048

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-093

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-040

- (3) Abrade the area to be stripped with 150 grit abrasive paper, G02428 or finer.
 - (a) Abrade the surface equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or topcoat.

SUBTASK 51-21-11-120-041

- (4) Abrade the area to be stripped with 240 grit or finer abrasive paper, G50077.
 - (a) Make sure that you feather the primer and topcoat.
 - (b) Make sure that you do not damage the fibers of the composite surface.
 - (c) If the surface has conductive coating, do the steps that follow.
 - 1) Remove all of the conductive coating.

NOTE: This is to obtain uniform conductivity after re-application.
 - 2) Re-apply the conductive coating.

SUBTASK 51-21-11-160-094

- (5) Clean the surface using clean, compressed air.

E. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-11-950-049

- (1) Make sure that the areas that will not be stripped are masked.

SUBTASK 51-21-11-160-095

- (2) Make sure that the areas that will be stripped are clean and dry.

SUBTASK 51-21-11-120-042

- (3) Strip the surface using EnviroStrip 12/30 wheat starch media, E50010.
 - (a) Make sure that the nozzle air pressure is between 18 psi (124 kPa) to 22 psi (152 kPa).
 - (b) Make sure that the nozzle is between 2 in. (51 mm) and 6 in. (152 mm) from the surface.
 - (c) Make sure that the nozzle angle is 15°arc (0.26 rad) to 25°arc (0.44 rad) from the surface.

SUBTASK 51-21-11-160-096

- (4) Clean the surface with clean, dry, compressed air.
 - (a) Make sure that the pressure of the compressed air is not more than 30 psi (207 kPa).

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SUBTASK 51-21-11-110-003

(5) Clean the surface with a general alkaline cleaner specified in Table 702.

Table 702/51-21-11-993-802 Waterbase Alkaline Cleaner Dilution Ratios

CLEANER	NUMBER OF VOLUMES OF WATER ADDED TO ONE VOLUME OF CLEANER - LIGHT SOIL	NUMBER OF VOLUMES OF WATER ADDED TO ONE VOLUME OF CLEANER - MEDIUM SOIL	NUMBER OF VOLUMES OF WATER ADDED TO ONE VOLUME OF CLEANER - HEAVY SOIL
Calla 301 cleaner, B00014	10	4	3
Cee Bee 280 cleaner, B00005	10	4	2
Cee Bee A-410B solvent, B00432*[2]		Use without dilution	
Cee Bee R682	9	4	1
Dubois C-1102 cleaner, B00013	10	4	3
Formula 28*[4]	10	4	3
GMC 528B cleaner, B00003*[1]*[4]	10	4	2
Hydrex 09 solvent, B00433	10	6	3
Intex 8201	20	10	5
Intex 8239	20	10	Use without dilution
Metaclean AC solvent, B00434	10	4	2
NV 427*[3]	10	2	Use without dilution
Pace B-82 alkaline cleaner, B00017	7	3	2
MIL-C-43616compound, B00314, Class 1A	10	4	2
MIL-C-87937, Type II and Type II materials	10	5	3
Super Bee 300LF	10	4	2
Turco Jet Clean C cleaner, B00012	20	5	3
Turco Jet Clean E cleaner, B00325	10	5	3
Turco 6783-10*[5]	Use without dilution		

*[1] This cleaner should not be used on exterior decorative areas painted with BMS10-4 enamel.

*[2] Should not be used on surfaces painted with EC-843.

*[3] Solution should not be allowed to contact acrylic plastics - crazing may occur.

*[4] These products may be used undiluted for cleaning prior to manual alodine treatment.

*[5] Turco 6783-10 is a general cleaner only. Do not use it on acrylic windows.

- (a) Apply the alkaline cleaning solution using a clean cotton wiper, G00034 or brush, G00215.

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- 1) Make sure that you only clean one area at a time.
- (b) Allow the cleaning solution to soak for approximately 5 minutes.
 - 1) Make sure that the cleaning solution does not dry on the surface.
- (c) Rinse the surface with large amounts of clean water.
 - 1) Rinse the surface at least three (3) times.
- (d) Clean the surface again until the surface is clean.
- (e) Dry the surface with a clean, dry cotton wiper, G00034.

SUBTASK 51-21-11-150-022

- (6) If the conversion coating was damaged, remove the remaining coating and reapply, as necessary.

SUBTASK 51-21-11-220-001

- (7) If the plating was removed, inspect the plating.
 - (a) Make sure that the plating meets the requirements and re-finish, as necessary.

———— **END OF TASK** ————

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HEAT AND CORROSION RESISTANT FINISH - CLEANING/PAINTING

1. **General**

- A. This section contains three procedures:
- (1) Repair of Heat and Corrosion Resistant Coating BMS14-4, TYPE I (coating, C00250)
 - (2) Repair of Heat and Corrosion Resistant Coating BMS14-4, TYPE II (coating, C00251)
 - (3) Repair of Heat and Corrosion Resistant Coating BMS14-4, TYPE III (coating, C00939)
- B. The coating, C00251 is a silicate base water dispersed coating pigmented with aluminum - zinc powder. It is a catalyzed coating which cures at ambient temperature.
- C. You must shake the coating, C00251 for a long time before you use the material to keep it from settling and clumping.
- D. While you apply the coating, C00251, you must continuously shake the material to keep it from settling and clumping.
- E. The relative humidity must be between 35 and 65 percent when you apply the coating, C00251.
- F. Make sure you follow the manufacturers instruction to apply the coating, C00251.

TASK 51-21-12-370-801

2. **Repair the BMS14-4 Type I Corrosion Resistant Coating**

A. **References**

Reference	Title
51-21-99-300-801	Decorative Exterior Paint System Application (P/B 701)

B. **Tools/Equipment**

Reference	Description
STD-1080	Brush - Paint
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

C. **Consumable Materials**

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00250	Coating - Aluminum, Corrosion and Heat Resistant ,Thermosetting, Inorganic Binder	AMS3126 (Supersedes BMS14-4 Type I)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G02222	Abrasive - Dry, Blasting	BAC5748

D. **Prepare the Surface**

SUBTASK 51-21-12-120-001

- (1) Dry abrasive blast the damaged area to bare, clean metal with a clean (preferably new) 80, 100, or 120 grit aluminum oxide abrasive, G02222.
 - (a) Blow the area with clean dry air to remove the remaining abrasive material.
 - (b) Do not touch the clean parts with your bare hands to prevent contamination of the surface.

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- (c) Protect the parts that were abrasive blasted until the parts are coated with coating, C00250.

NOTE: The BMS14-4 Type I must be applied in less than four hours after the dry abrasive blast.

SUBTASK 51-21-12-120-002

- (2) Use abrasive cloth, B00102 or abrasive mat, G00251 to abrade (sand) the area to feather the edges of the damaged coating.
 - (a) Scuff an area approximately ½ in. (13 mm) in width around the edge of the bare metal.

SUBTASK 51-21-12-100-001

 WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON A RESPIRATOR, PROTECTIVE SPLASH GOGGLES, AND GLOVES WHEN YOU USE SOLVENTS. KEEP THE SOLVENTS AWAY FROM SPARKS, FLAME, AND HEAT. SOLVENTS ARE POISONOUS AND FLAMMABLE. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (3) Clean the surface with solvent, B00062 or solvent, B00184.

E. Apply the coating, BMS14-4, Type I

NOTE: Use spray painting equipment that continuously stirs the material to be sprayed and which is free from organic contaminants. Coat the parts with the BMS14-4, Type I material to get an equal, smooth, wet coating.

SUBTASK 51-21-12-390-001

- (1) Apply the coating, C00250 with a spray paint spray gun with interchangeable nozzles, STD-1133 or a paint brush, STD-1080 as follows:

- (a) Apply the coating to the surface with one of the steps that follow:

- 1) Apply the coating with one pass of the spray gun.
 - 2) Apply two or three thin coats in 1 to 5 minutes of the other, at right angles to the previous pass.

NOTE: This is necessary to prevent cracks or sags, and to keep the orange peel to a minimum.

- (b) The coating may be applied to the areas of the part that are not easy to spray paint with the items listed below followed immediately by spray coating the remaining areas of the part with the spray gun.

- 1) stencil gun
 - 2) airbrush
 - 3) hand brush.

- (c) Do not apply too much of the coating, C00250 because it will cause, runs, beads, drips, or curtains.

- 1) The conditions above can cause blistering, pitting, flaking, glazing, or heavy green discoloration during curing.

- (d) Make sure the coating is not too dry when it is applied because it will give a rough or sandy texture.

- 1) These rough areas are porous and can cause decreased corrosion protection and a decrease in the coating bond.

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- (e) Dry the parts coated with coating, C00250 for at least 15 minutes and then dry for 15 to 30 minutes at 175 ±25°F (79 ±14°C).
- 1) The coating must be smooth and not have any fish eyes.
 - 2) The coating must have a smooth grey color after it is dry.
 - 3) Cure the coating for 4 hours at 300 ±50°F (149 ±28°C).
 - 4) You must see no lumps or runs in the cured coating.
 - 5) The total coating must be 0.0015 in. (0.0381 mm) to 0.0035 in. (0.0889 mm) thick.
- NOTE: When is not at this specified thickness, you must apply more coats of the BMS14-4 Type I to get the specified thickness.
- (f) To apply the specified overcoat systems, do this task: Decorative Exterior Paint System Application, TASK 51-21-99-300-801.

————— **END OF TASK** —————

TASK 51-21-12-370-802

3. Repair the BMS14-4 Type II Heat and Corrosion Resistant Coating

A. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

B. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00251	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Room Temperature Catalytic Cure)	BMS14-4 Type II

C. Prepare the Surface

SUBTASK 51-21-12-120-003

- (1) Use aluminum oxide abrasive cloth, B00102 to abrade (sand) the damaged area to bare, clean metal with 180 grit or finer.
- (a) Abrade (sand) the area if it is necessary to feather the edges of the not damaged coating.

SUBTASK 51-21-12-100-002

 WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON A RESPIRATOR, PROTECTIVE SPLASH GOGGLES, AND GLOVES WHEN YOU USE SOLVENTS. KEEP THE SOLVENTS AWAY FROM SPARKS, FLAME, AND HEAT. SOLVENTS ARE POISONOUS AND FLAMMABLE. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (2) Clean the surface with solvent, B00062 or solvent, B00184.

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D. Apply the coating, BMS14-4, Type II

SUBTASK 51-21-12-390-002

- (1) Apply the coating, C00251 with a spray paint spray gun with interchangeable nozzles, STD-1133 or a paint brush, STD-1080 as follows:
 - (a) Areas of the part that are not easy to spray paint can be done with a stencil gun, airbrush, or hand brush first.
 - 1) Follow this immediately by spray coating the remaining areas of the part with a spray gun.
 - (b) Do not apply too much of the coating, C00251 because it will cause, runs, beads, drips, or curtains.
 - 1) The conditions above can cause blistering, pitting, flaking, glazing, or heavy green discoloration during curing.
 - (c) Make sure the coating is not too dry when it is applied because it will produce a rough or sandy texture.
 - 1) These rough areas are porous and can cause decreased corrosion protection and a decrease in the coating bond.
 - (d) Dry the coated parts for 30 to 45 minutes at ambient temperature.
 - 1) The coating must be smooth and not have any fish eyes.
 - 2) The coating must have a equal gray color after it is dry.
 - (e) Apply one coat of coating, C00251 catalyst to the coated area.
 - 1) Let the catalyst cure for a minimum of 16 hours at ambient temperature.

NOTE: Do not pre-mix the coating with the catalyst, and do not let the catalyst touch the adjacent surfaces.

 - a) As an alternative, you can cure the catalyst for 4 hours at 300 ±50°F (149 ±28°C).
 - 2) You must see no lumps or runs in the cured coating.
 - 3) The total coating must be 0.0015 in. (0.0381 mm) to 0.0035 in. (0.0889 mm) thick.

NOTE: When is not at the specified thickness, you must apply more coats to get the specified thickness.

————— END OF TASK —————

TASK 51-21-12-370-803

4. Repair the BMS14-4 Type III Corrosion Resistant Coating

A. References

Reference	Title
51-21-99-300-801	Decorative Exterior Paint System Application (P/B 701)

B. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

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C. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00250	Coating - Aluminum, Corrosion and Heat Resistant, Thermosetting, Inorganic Binder	AMS3126 (Supersedes BMS14-4 Type I)
C00939	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (375F Catalytic Cure)	BMS14-4 Type III
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G02222	Abrasive - Dry, Blasting	BAC5748

D. Prepare the Surface

SUBTASK 51-21-12-120-004

- (1) Dry abrasive blast the damaged area to bare, clean metal with a clean (preferable new) 80, 100, or 120 grit aluminum oxide abrasive, G02222.
 - (a) Blow the area with clean dry air to remove the remaining abrasive material.
 - (b) Do not touch the clean parts with your bare hands because you can contaminate the surface.
 - (c) Put covers on the parts that were abrasive blasted until the parts are coated with coating, C00250 or coating, C00939.

NOTE: The BMS14-4 Type I must be applied in less than four hours after the dry abrasive blast.

SUBTASK 51-21-12-120-005

- (2) Use abrasive cloth, B00102 or abrasive mat, G00251 to abrade (sand) the area to feather the edges of the damaged coating.
 - (a) Also this is to scuff an area approximately ½ in. (13 mm) in width around the edge of the bare metal.

SUBTASK 51-21-12-100-003

 WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON A RESPIRATOR, PROTECTIVE SPLASH GOGGLES, AND GLOVES WHEN YOU USE SOLVENTS. KEEP THE SOLVENTS AWAY FROM SPARKS, FLAME, AND HEAT. SOLVENTS ARE POISONOUS AND FLAMMABLE. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (3) Clean the surface with solvent, B00062 or solvent, B00184.

E. Apply the coating, BMS14-4, Type III

NOTE: Use continuously stirred spray painting equipment which is free from organic contaminants. Coat the parts with the BMS14-4, Type III material until a equal, smooth, wet coating is obtained.

SUBTASK 51-21-12-390-003

- (1) Apply the uncatalyzed coating, C00939 with a spray paint spray gun with interchangeable nozzles, STD-1133 or a paint brush, STD-1080 as follows:
 - (a) Apply the coating to the surface with one of the steps that follow:

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- 1) Apply the coating with a single pass of the spray gun.
- 2) Apply two or three thin coats in 1 to 5 minutes of each other, at right angles to each other.

NOTE: This is necessary to prevent cracks or sags, and to keep the orange peel to a minimum.

- (b) The coating may be applied to the areas of the part that are not easy to spray paint with the items listed below followed immediately by spray coating the remaining areas of the part with the spray gun.
 - 1) stencil gun
 - 2) airbrush
 - 3) hand brush.
- (c) Do not apply too much of the coating, C00939 because it will cause, runs, beads, drips, or curtains.
 - 1) The conditions above can cause blistering, pitting, flaking, glazing, or heavy green discoloration during curing.
- (d) Make sure the coating is not too dry when it is applied because it will produce a rough or sandy texture.
 - 1) These rough areas are porous and can cause decreased corrosion protection and a decrease in the coating bond.
- (e) Dry the parts coated with coating, C00939 for at least 15 minutes at ambient temperature.
 - 1) The coating must be smooth and not have any fish eyes.
 - 2) The coating must have a smooth grey color after it is dry.
 - 3) Cure the coating for 1 hour at 375 ±25°F (191 ±14°C).
 - 4) You must see no lumps or runs in the cured coating.
 - 5) The total coating must be 0.0015 in. (0.0381 mm) to 0.0035 in. (0.0889 mm) thick.

NOTE: When is not at this specified thickness, you must apply more coats of the BMS14-4 Type III to get the specified thickness.

- (f) Apply one coat of coating, C00939 catalyst to the coated area.
- (g) Dry the parts coated with coating, C00939 for at least 15 minutes at ambient temperature.
 - 1) The coating must be smooth and not have any fish eyes.
 - 2) The coating must have a smooth grey color after it is dry.
 - 3) Let the catalyst cure for a minimum of 1 hour at 375 ±25°F (191 ±14°C).

NOTE: Do not pre-mix the coating with the catalyst, and do not let the catalyst touch the adjacent surfaces.

- (h) To apply the specified overcoat systems, do this task: Decorative Exterior Paint System Application, TASK 51-21-99-300-801.

———— **END OF TASK** ————

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PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING

1. General

- A. This procedure has these tasks:
- (1) Clean the Surface to be Painted
 - (2) Prepare the Surface to be Painted
 - (3) Cleaning and Preparation of Internal and External Plastic Surfaces.
- B. The surface preparations in this document have different preparation procedures, and cleaning materials for the different types of surface materials.
- C. All airplane surfaces must be cleaned and correctly prepared before you apply the paint.
- D. The initial abrade (sanding) of laminates that are not covered with Tedlar is to provide a slight roughening of the surface.
- NOTE: Do not abrade (sand) the laminate to make the surface smooth; but, apply a surface primer before you paint and then do the sanding.
- (1) The rough surface is to provide for a better bonding of the paint.

TASK 51-21-21-100-801

2. Clean the Surface to be Painted

A. **References**

Reference	Title
51-21-11-150-801	Paint Stripping (P/B 701)
51-22-00-160-801	Prepare For Sealing (P/B 201)

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205
STD-1080	Brush - Paint

C. **Consumable Materials**

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III

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Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G00365	Paper	
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	
G02443	Tape - Barricade, Non-Adhesive, Orange, 3 (76 mm) Inches Wide, 4 mils (0.102 mm) Thick, "REMOVE BEFORE FLIGHT"	
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G51270	Tape - Masking, Intertape PG777	

D. Clean the Surface

SUBTASK 51-21-21-110-001



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.



MAKE SURE THAT YOU READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE MATERIALS YOU WILL USE, AND WEAR THE PROTECTIVE CLOTHING AND EQUIPMENT IF IT IS SPECIFIED. REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

- (1) Do the steps that follow to clean the surface:

NOTE: Use solvent, B00083, or solvent, B00074, for this step.

- (a) Remove the loose dirt, grease, and oil with cotton wiper, G00034, which is moist with solvent, B00074, or solvent, B00083.

NOTE: Be careful not to put solvent on an area that is larger than is necessary.

- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116, which is moist with solvent, B00074, or solvent, B00083.

NOTE: You can use a spray gun to help clean the surface.

- (c) Flush the surface with clean solvent, B00074, or solvent, B00083.

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- 1) Rub the surface with a clean cotton wiper, G00034, to remove all of the dirt.
- (d) Remove all unwanted solvent.
- (e) Let the surface dry.
- (f) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
- (g) Use pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
- (h) Apply Scotch Flatback Masking Tape 250, G00270, to the static ports.
- (i) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent-resistant masking tape, G51270.
 - a) Apply masking tape, G51270, over the blade, plate, and blade-to-plate gap.
NOTE: This is to allow easier removal of 3M 425 Aluminum Foil Tape, G00291.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.

SUBTASK 51-21-21-110-002



WARNING

MAKE SURE THAT YOU READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE MATERIALS YOU WILL USE, AND WEAR THE PROTECTIVE CLOTHING AND EQUIPMENT IF IT IS SPECIFIED. REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.



WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (2) Do the steps that follow to clean the area again:



CAUTION

YOU MUST FULLY CLEAN THE SURFACE BEFORE YOU APPLY PAINTS OR ADHESIVES. USE ALIPHATIC NAPHTHA IN THE LAST STEP OF THE PROCEDURE TO CLEAN THE SURFACE. DO NOT USE P-D-680 TYPE I FOR THE LAST STEP OF THE PROCEDURE TO CLEAN THE SURFACE. DAMAGE TO THE SURFACE CAN OCCUR IF P-D-680 TYPE I IS USED IN THE LAST STEP.

- (a) Use a spray bottle to apply the Aliphatic Naphtha solvent, B00083, to the surface.
- (b) Clean the surface with a clean cotton wiper, G00034, until all large pieces of dirt are removed.

NOTE: Use a soft bristle brush to clean if it is necessary.

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- (c) Clean the surface again until no signs of the dirt are found on a clean cotton wiper, G00034.
- (d) Dry the area with a clean dry cotton wiper, G00034.

NOTE: Do not let drops of solvent dry on the surface.

E. Removal of the Temporary Finishes

SUBTASK 51-21-21-150-001

- (1) Prepare to remove the temporary finishes.



DO NOT USE PAINT STRIPPER ON COMPOSITE MATERIALS. PAINT STRIPPERS CAN CAUSE DAMAGE TO THE STRUCTURE OF THE PART.

- (a) Apply masking Scotch Flatback Masking Tape 250, G00270, to the areas that will not have the stripper applied.
NOTE: Put masking tape also on the areas that will be damaged by the paint stripper.
- (b) Put applicable covers plastic coated paper, G00365, on areas which are easily damaged by the strippers.
NOTE: You can use equivalent plastic sheeting which is resistant to paint strippers.
 - 1) Use some of the materials that follow to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (c) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
- (d) Use pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
- (e) Use Scotch Brand No.471 tape, G02219, and barricade tape, G02443, to cover the static ports.
- (f) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent-resistant masking tape, G51270.
 - a) Apply masking tape, G51270, over the blade, plate, and blade-to-plate gap.
NOTE: This is to allow easier removal of 3M 425 Aluminum Foil Tape, G00291.
 - 2) Cover the solvent-resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.

SUBTASK 51-21-21-150-002

- (2) Remove the applicable temporary finishes if it is necessary, do this task: Paint Stripping, TASK 51-21-11-150-801.

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SUBTASK 51-21-21-390-001

(3) Repair all damaged sealant, do this task: Prepare For Sealing, TASK 51-22-00-160-801.

END OF TASK

TASK 51-21-21-370-801

3. Prepare the Surface to be Painted

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
COM-2499	Cover - Vane, Angle of Attack Part #: R/C-AOAC-2 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205
STD-1080	Brush - Paint

B. Consumable Materials

Reference	Description	Specification
B00005	Cleaner - Alkaline - Cee Bee 280	
B00008	Cleaner - Alkaline - Oakite 204	
B00015	Cleaner - Heavy Duty, Multipurpose - Calla 301A	BAC5744, AMS 1526-A, AMS 1550-A
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00314	Compound - Aircraft Surface Cleaning	MIL-C-43616
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
B00635	Solvent - Cleaning Compound, Mixtures	A-A-59281
C00175	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C00260	Coating - Chemical And Solvent Resistant Finish, Epoxy Resin Enamel	BMS10-11 Type II
C00307	Coating - Corrosion Resistant Finish For Integral Fuel Tanks	BMS10-20 Type II

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Reference	Description	Specification
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II
C00346	Primer - Corrosion Inhibiting, Chemical & Solvent Resistant Epoxy, High Solids	MIL-PRF-23377
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	

C. Prepare the Surface to be Painted

SUBTASK 51-21-21-420-001

- (1) Make sure that the areas adjacent to the area to be cleaned are covered.
 - (a) Make sure that covers are put on the components that follow:
 - 1) Use a pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - a) Attach a "PITOT PROBES COVERED" tag, G02447, to the left control wheel in the flight deck.
 - 2) angle of attack vane cover, COM-2499.
 - a) Attach a red tag with wire to the left control wheel in the flight deck.
<1> Write "AOA SENSORS COVERED" on the tag.
 - 3) Apply Scotch Flatback Masking Tape 250, G00270, to the static ports.
 - a) Attach a "STATIC PORTS COVERED" tag, G02444, to the left control wheel in the flight deck.

SUBTASK 51-21-21-110-003



MAKE SURE THAT YOU READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE MATERIALS YOU WILL USE, AND WEAR THE PROTECTIVE CLOTHING AND EQUIPMENT IF IT IS SPECIFIED. REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.

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(WARNING PRECEDES)



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (2) Prepare the metal surfaces to be painted as follows:
- (a) The recommended procedure to prepare the metals surfaces listed below is to solvent clean:
 - 1) Aluminum - Anodized or chemical treated
 - 2) Aluminum (metal sprayed) - chemical treated
 - 3) Magnesium - Dow treated
 - 4) Titanium - Phosphate fluoride treated
 - 5) Steel (except CRES) - plated or phosphated
 - a) Solvent clean with solvent, B00062 or solvent, B00184.
 - (b) Use this optional procedure to prepare the metal surfaces below:
 - 1) Titanium
 - 2) Corrosion resistant Steel (CRES)
 - 3) Copper
 - 4) Nickel and Cobalt Alloys
 - a) Abrasive blast clean the metal with an approved abrasive for the type of material.

SUBTASK 51-21-21-110-004



MAKE SURE THAT YOU READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE MATERIALS YOU WILL USE, AND WEAR THE PROTECTIVE CLOTHING AND EQUIPMENT IF IT IS SPECIFIED. REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (3) Prepare the materials listed below for painting by solvent clean:
- (a) Adhesive (except adhesive primers and adhesives flashes)
 - (b) Sealant - Cured to its full hardness
 - 1) Solvent clean with alcohol, B00130 or solvent, B00184.
 - a) solvent, B00184

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MAKE SURE THAT YOU READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE MATERIALS YOU WILL USE, AND WEAR THE PROTECTIVE CLOTHING AND EQUIPMENT IF IT IS SPECIFIED. REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.



DO NOT GET EPOXY PAINT IN YOUR MOUTH, EYES, OR ON YOUR SKIN. IT CAN CAUSE AN INJURY.



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (4) Epoxy Coatings listed below that have dried for less than 48 hours, do the procedures 1 or 2:
- (a) primer, C00259
 - (b) coating, C00260
 - (c) coating, C00307
 - (d) primer, C00346
 - (e) primer, C00319
 - (f) primer, C00175
 - (g) Do the Procedure 1 as follows:
 - 1) Manual solvent clean the surface.
 - 2) Use abrasive cloth, B00102, 240 grit or finer, to abrade (sand) the surface when it is necessary.
NOTE: Make sure you do not cause the substrate to show.
 - 3) Manually solvent clean the surface with alcohol, B00130 or solvent, B00184.
 - (h) Do the Procedure 2 as follows:
NOTE: Use the cleaner's compound, B00314, or cleaner, B00402. Dilute the cleaners to 1 part cleaner to 10 parts of water by volume.
NOTE: The following cleaners are optional for cleaner, B00402: Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.
 - 1) Clean the surface with cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116, which is moist with cleaner's compound, B00314, or cleaner, B00402.
NOTE: Do not clean too large an area at one time.
 - 2) Let the cleaner soak for approximately 5 minutes.
NOTE: Do not let the cleaner dry on the surface because it can cause the surface to be stained.
 - 3) Flush the area thoroughly with clean warm water (120°F (49°C) maximum).

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- a) Apply the water by pressure spray if it is available.
- b) Flush the area to remove cleaner residue.
- 4) Make sure that all of the cleaner is removed.
- 5) Reclean the area if it is necessary to make sure that all of the dirt has been removed.
 - a) Pressure clean with a non-atomizing spray gun.
NOTE: You must use a minimum impingement time of 5 seconds, with a maximum stand time of 15 minutes.
NOTE: Do not let the cleaner dry on the surface.
- 6) Flush the surface thoroughly with clean water (hot water preferred) to remove all of the cleaner residues.
NOTE: Pressure spray or an air-water rinse is recommended.
 - a) Make sure that all of the cleaner has been removed with a check of the run-off with pH paper.
NOTE: The pH must be the same as tap water.
- 7) Manual solvent clean the surface with alcohol, B00130 or solvent, B00184.
- 8) Less than 48 hours after you have cleaned the surface with alkaline cleaners, clean the surface with one of the steps that follow:
NOTE: Use a 1 to 1 solution of De Soto Oxsolv and water (or an applicable equivalent).
 - a) Manually clean the surface.
 - b) Pressure clean the surface with a non-atomizing spray gun.
NOTE: You must use a minimum impingement time of 5 seconds, with a maximum stand time of 2 minutes.
NOTE: Do not let the cleaner dry on the surface.
- 9) Use cotton wiper, G00034, to remove wet solvent.
- 10) Solvent clean with PR-148 (clear) Adhesion Promoter solvent, B00635, with one of the steps that follow:
 - a) Manually clean the surface.
 - b) Pressure clean the surface with a non-atomizing spray gun.
NOTE: You must use a minimum impingement time of 5 seconds, with a maximum stand time of 2 minutes.
- 11) Blow dry the surface with filtered compressed air.
- (i) Do the Procedure 3 as follows:
 - 1) Clean the surface.
NOTE: Abrasive pads (Scotch-brite) are recommended as an aid to remove stubborn dirt.
 - a) Flush the surface with water until you get a water break-free surface.
NOTE: A water break-free surface will let a continuous layer of water stay on the surface for 30 seconds.
 - b) Make sure that you flush all unwanted material from the joints and fasteners.



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- 2) Thoroughly flush the surface with clean water to remove all remaining sanded and cleaner material.

NOTE: If you do not get a water-break-free surface, clean the surface again.

- 3) If the substrate shows, use the applicable specifications to apply a new surface layer.
- 4) Thoroughly dry the surface before it is painted.

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- (5) Prepare all adhesive primers with one of the three procedures that follow:

- (a) Do the Procedure 1.

- 1) Manually solvent clean the surface.
- 2) Abrasive clean with 320 grit or finer aluminum oxide abrasive cloth, B00102.

NOTE: Make sure that you do not cause the substrate to show.

 WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- 3) Manual solvent clean the surface with alcohol, B00130 or solvent, B00184.

- (b) Do the Procedure 2 as follows:

NOTE: Use the cleaners MIL-C-43616 or cleaner, B00402. Dilute the cleaners with 1 part cleaner and 10 parts of water by volume.

NOTE: The following cleaners are optional for cleaner, B00402: Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.

- 1) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116, which is moist with cleaner compound, B00314, or cleaner, B00402.

NOTE: Do not clean too large an area at one time.

- 2) Let the cleaner soak for approximately 5 minutes.

NOTE: Do not let the cleaner dry on the surface because it can cause the surface to be stained.

- 3) Flush the area thoroughly with clean warm water (120°F (49°C) maximum).

- a) Apply the water by pressure spray if it is applicable.
- b) Flush the area a minimum of 3 times.

- 4) Make sure that all of the cleaner is removed.

- 5) Reclean the area if it is necessary to make sure all of the dirt has been removed.

- a) Pressure clean with a non-atomizing spray gun.

NOTE: You must use a minimum impingement time of 5 seconds, with a maximum stand time of 15 minutes.

NOTE: Do not let the cleaner dry on the surface.

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- 6) Flush the surface thoroughly with clean water (hot water preferred) to remove all of the cleaner residues.

NOTE: Pressure spray or an air-water rinse is recommended.

- a) Make sure that all of the cleaner has been removed with a check of the run-off with pH paper.

NOTE: The pH must be the same as tap water.

- 7) Solvent clean the surface with alcohol, B00130 or solvent, B00184.

NOTE: Blue stains from the leak detection paint do not have to be totally removed.

- 8) Less than 48 hours after you cleaned the surface with alkaline cleaners, clean the surface with one of the procedures that follow:

NOTE: Use a 1 to 1 solution of De Soto Oxsolv and water (or an applicable equivalent).

- a) Manually clean the surface.
- b) Pressure clean the surface with a non-atomizing spray gun.

NOTE: You must use a minimum impingement time of 5 seconds, with a maximum stand time of 2 minutes.

NOTE: Do not let the cleaner dry on the surface.

- 9) Use cotton wiper, G00034, to remove wet solvent.

- 10) Solvent clean with PR-148 (clear) Adhesion Promoter solvent, B00635, with one of the steps that follow:

- a) Manual clean the surface.
- b) Pressure clean the surface with a non-atomizing spray gun.

- 11) Blow dry the surface with filtered compressed air.

- (c) Do the Procedure 3 as follows:

- 1) Clean the surface.

NOTE: Abrasive pads (Scotch-brite) are recommended as an aid to remove stubborn dirt.

- 2) Clean the surface with abrasive cloth, B00102, which are moist with cleaner compound, B00314, or cleaner, B00402, to make the surface rough.

NOTE: The following cleaners are optional for cleaner, B00402: Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.

NOTE: Dilute the cleaners with 1 part cleaner with 10 parts of water by volume.

- a) Flush the surface with water until you get a water break-free surface.

NOTE: A water break-free surface will let a continuous layer of water stay on the surface for 30 seconds.

- b) Make sure that you flush all unwanted material from the joints and fasteners.

- 3) Thoroughly flush the surface with clean water to remove all remaining sanding and cleaner material.

NOTE: If you do not get a water-break-free surface, clean the surface again.

- 4) If the substrate shows, use the applicable specification to apply a new surface layer.
- 5) Thoroughly dry the surface before it is painted.

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SUBTASK 51-21-21-100-003



MAKE SURE THAT YOU READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE MATERIALS YOU WILL USE, AND WEAR THE PROTECTIVE CLOTHING AND EQUIPMENT IF IT IS SPECIFIED. REFER TO THE APPLICABLE MANUFACTURER'S OR SUPPLIER'S MSDS FOR TALK WITH THE LOCAL SAFETY DEPARTMENT OR AUTHORITIES FOR THE PROCEDURES TO DISCARD THIS HAZARDOUS AGENT.



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (6) Prepare the adhesive flashes with one of the two procedures that follow.
- (a) Do the Procedure 1 as follows:
- 1) Solvent clean the surface with alcohol, B00130 or solvent, B00184.
 - 2) Less than 48 hours after you cleaned the surface with alkaline cleaners, clean the surface with one of the procedures that follow:
NOTE: Use a 1 to 1 solution of De Soto Oxsolv and water (or an applicable equivalent).
 - a) Manually clean the surface.
 - b) Pressure clean the surface with a non-atomizing spray gun.
NOTE: You must use a minimum impingement time of 5 seconds, with a maximum stand time of 2 minutes.
NOTE: Do not let the cleaner dry on the surface.
 - 3) Use cotton wiper, G00034, to remove wet solvent.
 - 4) Solvent clean with PR-148 (clear) Adhesion Promoter solvent, B00635, with one of the steps that follow:
 - a) Manual clean the surface.
 - b) Pressure clean the surface with a non-atomizing spray gun.
 - 5) Blow dry the surface with filtered compressed air.
- (b) Do the Procedure 2 as follows:
- 1) Abrade (sand) the surface with 240 grit or finer abrasive cloth, B00102.



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- 2) Manual solvent clean the surface with alcohol, B00130 or solvent, B00184.

————— **END OF TASK** —————

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TASK 51-21-21-100-802

4. Cleaning and Preparation of Internal and External Plastic Surfaces

A. References

Reference	Title
51-21-99-300-801	Decorative Exterior Paint System Application (P/B 701)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010 Type 70 (BMS5-92 Type 1)
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G51270	Tape - Masking, Intertape PG777	

D. Cleaning and Preparation of External Plastic Surfaces

SUBTASK 51-21-21-100-004

- (1) Prepare the Carbon Epoxy and Fiberglass/Epoxy surfaces for paint.

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- (a) Mask the areas adjacent to the area that will be painted.
- 1) Attach the tags that follow to the left control wheel in the flight deck.
 - a) "PITOT PROBES COVERED" tag, G02447
 - b) "STATIC PORTS COVERED" tag, G02444
 - c) A red tag labeled "AOA SENSORS COVERED"
 - 2) Use a pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - 3) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - 4) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - a) Cover the angle-of-attack sensors with solvent-resistant masking tape, G51270.
 - <1> Apply masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 Aluminum Foil Tape, G00291.
 - b) Cover the solvent-resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - <1> Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.



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DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (b) Clean the surface with a clean solvent, B00184 or solvent, B00062.
- (c) Abrade (sand) the surface with one of the steps that follow:



IF YOU USE COARSE GRIT ABRASIVES, IT CAN CAUSE DAMAGE TO THE SUBSTRATE FIBERS WHEN THE GRIT COMES IN CONTACT WITH THE RESIN COATING OF THE COMPOSITE SUBSTRATE. TO REDUCE THE POSSIBILITY OF DAMAGE TO THE COMPOSITE SUBSTRATE, ONCE THE TOPCOAT IS REMOVED, USE PROGRESSIVELY FINER GRITS TO OBTAIN THE REQUIRED SURFACE FINISH.

- 1) Manually abrade (sand) the surface with 150 grit or finer abrasive cloth, B00102.

NOTE: It is optional to use coarse grit abrasives for expedient cleaning and material removal to the first paint topcoat layer.

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- 2) Abrade (sand) the surface with an air-driven orbital sander with 150 grit or finer abrasive cloth, B00102.

NOTE: It is optional to use coarse grit abrasives for expedient cleaning and material removal to the first paint topcoat layer.

- (d) Remove the sanding residues with one of the steps that follow:



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- 1) Clean the surface with a clean cotton wiper, G00034, which is moist with solvent, B00184 or solvent, B00062.
 - a) Use compressed air to help remove the remaining loose material before the final cleaning.
 - 2) Clean the surface again if it is necessary.
 - 3) Dry the surface with a clean cotton wiper, G00034, before the solvent becomes dry.
- (e) Examine the surface to determine if a pin hole filler or surfacer is necessary.
 - (f) Apply the Static Conditioner Filler 28-C-1 (or an applicable equivalent) to fill the pinholes if it is necessary.

NOTE: You must use Static Conditioner Filler 28-C-1 (or an applicable equivalent) only to fill the pinholes. Do not apply a continuous layer of pinhole filler because it will cause an unsatisfactory paint bond.

- (g) If it is necessary, apply Primer-Surfacer 825X466 (or an applicable equivalent) or Surfacer adhesive, A00028, to fill:

NOTE: The surfacers are to be used only in the area of the pits in the surface or depressions. The surfacers are usually not used on the full part.

- 1) pits in the surface,
- 2) areas with resin missing
- 3) minor depressions that cannot be filled with the pinhole fillers.



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- (h) Do the final cleaning of the surface with a clean cotton wiper, G00034, which is moist with solvent, B00184 or solvent, B00062.
 - 1) Fully dry the surface with a clean cotton wiper, G00034, before the solvent becomes dry.
- (i) Do this task: Decorative Exterior Paint System Application, TASK 51-21-99-300-801.

NOTE: Do this before a maximum time of 24 hours.



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E. Cleaning and Preparation of Internal Plastic Surfaces

SUBTASK 51-21-21-100-005

- (1) Solvent clean the internal plastic surfaces.
 - (a) Clean the surface with a clean cotton wiper, G00034, which is moist with solvent, B00148, solvent, B00062, or alcohol.
 - 1) Clean BMS8-317 surfaces with presealing cleaning solvent, B00184.

SUBTASK 51-21-21-370-001

- (2) Prepare the internal decorative surfaces for paint.
 - (a) Manually abrade (sand) the internal decorative surfaces with 150 grit or finer abrasive cloth, B00102.
 - (b) Remove the sanding residues with the step that follows:
 - 1) Clean the surface with a clean cotton wiper, G00034, which is moist with solvent, B00148, solvent, B00062, or alcohol.
 - (c) Examine the surface to determine if a surfacer is necessary.
 - (d) Apply the Static Conditioner Filler 28-C-1 (or an applicable equivalent) to fill the pinholes if it is necessary.

NOTE: You must use Static Conditioner Filler 28-C-1 (or an applicable equivalent) only to fill the pinholes. Do not apply a continuous layer of pinhole filler because it will cause an unsatisfactory paint bond.
 - (e) If it is necessary, apply Primer-Surfacer 825X466 (or an applicable equivalent) or Surfacer adhesive, A00028, to fill:

NOTE: The surfacers are to be used only in the area of the pits in the surface or depressions. Usually, surfacers are not used on the full part.

 - 1) pits in the surface,
 - 2) areas with resin missing
 - 3) minor depressions that cannot be filled with the pinhole fillers.
 - (f) Do the final cleaning of the surface with a clean cotton wiper, G00034, which is moist with solvent, B00148, solvent, B00062, or alcohol.
 - (g) Fully dry the surface with a clean cotton wiper, G00034, before the cleaner becomes dry.

SUBTASK 51-21-21-370-002

- (3) Prepare the internal non-decorative surfaces for paint.
 - (a) Manually abrade (sand) the internal non-decorative surfaces with 150 grit or finer abrasive cloth, B00102.
 - (b) Remove the sanding residue with the step that follows:
 - 1) Clean the surface with a clean cotton wiper, G00034, which is moist with solvent, B00148, solvent, B00062, or alcohol.
 - (c) Examine the surface to determine if a surfacer is necessary.
 - (d) Apply the Static Conditioner Filler 28-C-1 (or an applicable equivalent) to fill the pinholes if it is necessary.

NOTE: You must use Static Conditioner Filler 28-C-1 (or an applicable equivalent) only to fill the pinholes. Do not apply a continuous layer of pinhole filler because it will cause an unsatisfactory paint bond.

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- (e) If it is necessary, apply Primer-Surfacer 825X466 (or an applicable equivalent) or Surfacer adhesive, A00028, to fill:

NOTE: The surfacers are to be used only in the area of the pits in the surface or depression. Usually, surfacers are not used on the full part.

- 1) pits in the surface,
 - 2) areas with resin missing
 - 3) minor depressions that cannot be filled with the pinhole fillers.
- (f) Do the final cleaning of the surface with a clean cotton wiper, G00034, which is moist with solvent, B00148.
- (g) Fully dry the surface with a clean cotton wiper, G00034, before the cleaner becomes dry.

———— **END OF TASK** ————

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CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING

1. General

- A. This procedure contains these tasks:
 - (1) Corrosion Removal and Control for Aluminum and Aluminum Alloys
 - (2) Corrosion Removal and Control for Magnesium Alloys
 - (3) Corrosion Removal and Control for Carbon Steel
 - (4) Corrosion Removal and Control for Stainless Steel and Chromium Alloys
 - (5) Corrosion Removal and Control for Titanium Alloys
 - (6) Corrosion Removal and Control for Plated or Phosphated Surfaces
 - (7) Corrosion Removal and Control - After Mercury Spillage
- B. Graphite panels installed on graphite panels or on graphite structural components must use CRES or titanium fasteners. Using aluminum fasteners in graphite or hybrid aramid/graphite structures may result in corrosion.
- C. Carefully examine all structural parts where corrosion can occur.
- D. Complete removal of corrosion is important. If it is allowed to remain, corrosion will continue. Repair corroded parts when you find them if it is possible. Replace the corroded parts if it is necessary. For limits of corrosion removal, refer to the Structural Repair Manual.
- E. Corrosion can be removed by mechanical or chemical procedures. The specific procedure changes with the type and amount of corrosion. In most cases of corrosion damage, mechanical procedures are recommended.
- F. Corrosion removal and control procedures are applicable to all areas. Use these procedures only for small quantities of corrosion. To remove large quantities of corrosion, refer to the Structural Repair Manual.
- G. Make the regular inspection to prevent or find the start of corrosion. Missing fasteners, white powdery, or other corrosion deposits are signs of corrosion. Initiate the corrosion prevention practices to decrease the occurrence of corrosion.
- H. Following cleaning of suspected areas, a visual inspection using bright lighting and mirror is effective for finding corrosion.
- I. Periodic inspection is required in areas identified as susceptible to corrosion and should be consistent to the schedules specified in the Maintenance Planning Document. Operators must be aware of reported problems and areas of occurrences.
- J. If you cannot immediately remove corrosion from an area, prepare the area with corrosion inhibiting compound, G00009 or compound, C00915, (TASK 51-21-91-620-802). The corrosion inhibiting compound, G00009 or compound, C00915 is used to inhibit corrosion.
- K. Remove oil, grease, dirt, and paint from the surface or the part before corrosion removal.
- L. Remove any nearby fasteners before removing corrosion.

TASK 51-21-31-350-801

2. Removal and Control of Corrosion for Aluminum and Aluminum Alloys

(Table 701, Table 702)

A. References

Reference	Title
51-21-41 P/B 701	CHEMICAL CONVERSION COATING - CLEANING/PAINTING

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Reference	Title
51-21-91-620-801	Surface Preparation for Corrosion Inhibiting Compound (P/B 701)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
COM-4747	Pneumatic Scraper Sharpener Part #: 501/1 Supplier: F6892 Opt Part #: 309/3 Supplier: F6892

C. Consumable Materials

Reference	Description	Specification
B00046	Acid - Corrosion Removing, Metal Conditioning, Phosphoric	MIL-C-10578
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00166	Abrasive - pumice	
E50003	Compound - Corrosion Removal	AMS 1640B (Replaces MIL-C-38334)

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Reference	Description	Specification
G00116	Sponge - Synthetic	
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G00268	Brush - Soft Bristle, Paint	
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G00834	Cloth - Lint-free Cotton	
G02414	Brush - Stainless Steel	
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50138	Cloth - Soft Cotton	
G50256	Water, Regular	
G50260	Sandpaper - Aluminum Oxide, 220 Grit	
G50261	Sandpaper - Aluminum Oxide, 400 Grit	BAC5000
G50262	Wiper - Cleaning	BMS15-5
G50590	Metallic Wool - Aluminum	

D. Prepare For The Removal Of Corrosion

SUBTASK 51-21-31-160-001

- (1) Make sure that all areas that are prepared for corrosion inhibiting compounds are clean.
- (2) Remove oil, grease, dirt, and paint from the surface or the part.
- (3) Make sure you remove all corrosion material from the surfaces or parts. Failure to remove all corrosion material can permit corrosion to start again. For limits of corrosion removal, refer to the Structural Repair Manual.
- (4) If you cannot immediately remove corrosion from an area, do this task: Surface Preparation for Corrosion Inhibiting Compound, TASK 51-21-91-620-801.

E. Procedure (Chemical)

SUBTASK 51-21-31-910-001

- (1) Do the steps that follow to prepare the airplane for chemical corrosion removal from the external surface of the airplane:
 - (a) If necessary, put the airplane in an area where you can fully flush all the surfaces with water, G50256 quickly.
 - (b) Apply 3M 425 Aluminum Foil Tape, G00291 tape to hinges, mating surfaces, access doors and other openings that can allow the corrosion removing compound, E50003 to damage other metal types.

NOTE: This can be the pitot static probes, static ports, angle of attack (AOA) vanes, and total air temperature (TAT) probe.
 - (c) Apply 3M 425 Aluminum Foil Tape, G00291 to areas of magnesium, steel and cadmium plated parts.

NOTE: This will prevent the accidental corrosion of different metal types.

SUBTASK 51-21-31-150-001

- (2) Do the steps that follow to remove aluminum corrosion from the external surface of the airplane with corrosion removing compound, E50003:
 - (a) Apply corrosion removing compound, E50003 with any of the items that follow:
 - 1) Use a brush, G00268 to apply the compound.

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- 2) Use a sponge, G00116 to apply the compound.
- 3) Use a lint-free cloth, G00834 to apply the compound.
- (b) Apply the compound at the lowest area and work up into a circular movement.
NOTE: This will give a good layer and dwell time for the compound on the surface.
- (c) Let the compound to stay on the surface for approximately 12 minutes and do the step that follows:
NOTE: Compound applied warm (140°F (60°C) maximum temperature) on the surface gives better results.
 - 1) Rinse with water, G50256.
 - 2) Do again this procedure to remove more corrosion, if necessary.
 - 3) Dry the treated surface and do the steps in CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-41/701.

SUBTASK 51-21-31-150-002

- (3) Do the steps that follow, to remove small quantities of aluminum corrosion from the external surface of the airplane with acid, B00046:

NOTE: This procedure is optional.

- (a) Fully flush the surface with water, G50256.



WARNING

DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER. ACID IS EXPLOSIVE WHEN WATER IS ADDED TO IT. IF YOU ADD WATER TO ACID, INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Add 1 part (by volume) of the corrosion remover, phosphoric acid, B00046 to 3 parts (by volume) of water, G50256.
- (c) Apply corrosion remover phosphoric acid, B00046 on the surface.
- (d) Fully flush all of the prepared area and the adjacent areas, with water, G50256.
NOTE: Make sure that you flush out all of the phosphoric acid corrosion remover from the areas that follow: the skin seams, and all openings or holes on the surface.
- (e) Do this procedure again to remove more corrosion, if necessary.
- (f) Dry the treated surface and do the steps in CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-41/701.

F. Procedure (Mechanical Method)

SUBTASK 51-21-31-910-002

- (1) Do the steps that follow to prepare the airplane for mechanical corrosion removal from the external surface of the airplane:
 - (a) If necessary, put the airplane in an area where you can fully flush all the surfaces with water, G50256 quickly.
 - (b) Apply 3M 425 Aluminum Foil Tape, G00291 tape to hinges, mating surfaces, access doors and other openings that can allow the corrosion by-products to damage other metal types.
 - (c) Apply 3M 425 Aluminum Foil Tape, G00291 to areas of magnesium, steel and cadmium plated parts.

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SUBTASK 51-21-31-160-002

(2) Do any of the steps that follow to remove aluminum corrosion from the external surface of the airplane (Non-powered tools and materials):

- (a) Use an abrasive mat, G00251 to rub away corrosion.
- (b) Use an abrasive cloth, B00102 to rub away corrosion.
- (c) Use a 240 grit or finer abrasive paper, G50077 to rub away corrosion.
- (d) Use aluminum wool, G50590 to rub away corrosion.

NOTE: Metallic wools are available in five grades, ranging from very fine to extra coarse.

- (e) Use a brush, G02414 to brush away corrosion.



CAUTION

DO NOT USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE UNLESS THE SCRIBE LINE INSPECTIONS WERE MADE. ABRASIVE PADS CAN SMOOTH THE ALUMINUM SURFACE AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE THE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE LINE INSPECTIONS, YOU CAN BE REQUIRED TO DO REPEAT INSPECTIONS BASED ON THE SCRIBE LINE INSPECTION SERVICE BULLETIN.

- 1) Remove the corrosion with a linear motion; do not crosshatch. This will unnecessarily damage the surface.
 - 2) After wire brushing soft metal (such as aluminum or magnesium) the surface areas must be polished with an abrasive mat, G00251 or abrasive cloth, B00102.
- (f) Use pumice abrasive, B00166 to brush away corrosion.
- 1) Mix with water, G50256 and rub over the area with a soft cotton cloth, G50138.
 - 2) Allow the pumice abrasive, B00166 to dry.
 - 3) Clean the pumice abrasive, B00166 powder off.



CAUTION

DO NOT USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE UNLESS THE SCRIBE LINE INSPECTIONS WERE MADE. ABRASIVE PADS CAN SMOOTH THE ALUMINUM SURFACE AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE THE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE LINE INSPECTIONS, YOU CAN BE REQUIRED TO DO REPEAT INSPECTIONS BASED ON THE SCRIBE LINE INSPECTION SERVICE BULLETIN.



CAUTION

ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- (g) Scrapers are used primarily for the initial removal of heavy corrosion deposits in corners and crevices that cannot be reached with other equipment.
- 1) A sealant removal tool, COM-2481 and sealant removal tool handle, COM-4746 may be used on any metal surface.
 - a) If necessary, do these steps to sharpen the scraper:

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- <1> Sharpen the scraper with sandpaper, G50260 or finer by hand or by metal sharpening wheel (scraper sharpener, COM-4747).
 - <2> If you sharpen the scraper by hand, rub the sharpened scraper on the wiper, G50262 to remove loose sanding particles.
 - <3> If you use a metal sharpening wheel, rub the sharpened scraper on the sandpaper, G50261 or finer aluminum oxide paper to remove debris, and then rub it on the wiper, G50262 to remove loose sanding particles.
- 2) Aluminum scrapers shall be used only on aluminum or magnesium surfaces.
 - 3) Steel scrapers shall be used only on steel surfaces.

SUBTASK 51-21-31-160-003

- (3) After the removal of the corrosion, do the steps that follow:
 - (a) Rinse with water, G50256.
 - (b) Dry the treated surface and do the steps in CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-41/701.

————— **END OF TASK** —————

TASK 51-21-31-350-802

3. Removal and Control of Corrosion for Magnesium Alloys

(Table 701, Table 702)

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)
SRM 51-10-02	INSPECTION AND REMOVAL OF DAMAGE

B. Tools/Equipment

Reference	Description
STD-3911	Brush - Bristle, Medium Nylon
STD-14068	Aluminum Wool

C. Consumable Materials

Reference	Description	Specification
B00047	Acid - Technical Grade, Nitric (61%-68.2% Purity)	A-A-59105
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00137	Abrasive - Garnet Coated Paper	
B00166	Abrasive - pumice	
C00167	Acid, Chromic (Chromium Trioxide)	A-A-55827
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G02222	Abrasive - Dry, Blasting	BAC5748
G02414	Brush - Stainless Steel	
G50256	Water, Regular	

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D. Procedure

SUBTASK 51-21-31-350-001



KEEP SURFACES AWAY FROM FIRE OR SOURCES OF IGNITION. SMALL PARTICLES AND SMALL SHAVINGS OF MAGNESIUM START FIRES EASILY AND ARE VERY FLAMMABLE. MAGNESIUM DUST CAN CAUSE EXPLOSIONS. MAGNESIUM FIRES CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.



WHEN MAGNESIUM BURNS, DO NOT USE WATER TO IT PUT OUT. WHEN MAGNESIUM BURNS, CONTACT WITH WATER CAN CAUSE A STEAM EXPLOSION. DO NOT USE FOAM, WATER, CARBON TETRACHLORIDE, OR CARBON DIOXIDE TO EXTINGUISH FIRES OF MAGNESIUM. EXTINGUISH FIRES WITH VERY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. APPLY THE POWDER TO A DEPTH OF 1/2 INCH OR MORE ON THE HOT METAL. IF YOU DO NOT FOLLOW THESE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Do these steps to mechanically remove magnesium alloy corrosion from the airplane:
 - (a) Make sure the metal is a magnesium alloy.
 - (b) During the removal process, protect the surrounding area from the corrosion dust.
 - (c) Remove any grease, oil, or paint from the area; do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
 - (d) Measure the corroded area to find the amount of corrosion damage.

NOTE: Light corrosion will measure a maximum depth of 0.001 in. (0.025 mm).
Moderate corrosion will measure a maximum depth of 0.010 in. (0.254 mm).
Heavy corrosion will measure deeper than 0.010 in. (0.254 mm).
 - (e) Remove loose corrosion with Aluminum Wool, STD-14068.
 - (f) Remove the corrosion, based on the amount of damage:



DO NOT USE A CARBON STEEL BRUSH OR STEEL WOOL OR SILICON CARBIDE ABRASIVE ON MAGNESIUM SURFACES. IF YOU DO NOT OBEY, METAL PARTICLES CAN BOND TO THE SURFACE. THIS CAN CAUSE MORE CORROSION.

- 1) Remove light corrosion by hand sanding with an aluminum oxide abrasive cloth, B00102 or a garnet abrasive, B00137.
- 2) Remove light corrosion with pumice abrasive, B00166 paste.
 - a) Mix the pumice abrasive, B00166 with water, G50256 to make the paste.
 - b) Use a clean cotton wiper, G00034 to apply and gently rub the pumice paste on the surface.
 - c) When the pumice abrasive, B00166 is a dry, white powder, wipe off with a clean, dry cotton wiper, G00034.
 - d) Remove the remaining corrosion with #600 grit abrasive cloth, B00102 and water, G50256.

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DO NOT RUB TOO MUCH. HEAVY, CONTINUOUS RUBBING (WITH POWER-DRIVEN WIRE BRUSHES) CAN MAKE SUFFICIENT HEAT TO CAUSE CHANGES IN METAL PROPERTIES. CHANGES IN METAL PROPERTIES CAN CAUSE MORE CORROSION.

3) Use one of these steps to remove moderate and heavy corrosion :

- a) #400 grit abrasive cloth, B00102
- b) Use a brush, G02414 with bristles no more than 0.003 in. (0.076 mm) diameter and no less than 1.0 in. (25.4 mm) long.

NOTE: After using the brush, polish the surface with #400 grit abrasive cloth, B00102 and then #600 grit abrasive cloth, B00102.



DO NOT USE TOO MUCH PRESSURE FOR ABRASIVE BLASTING. AIR PRESSURE FOR ABRASIVE BLASTING ON MAGNESIUM ALLOYS MUST BE 10 TO 35 PSI (69-241 KPA). TOO MUCH PRESSURE CAN CAUSE DAMAGE TO PARTS.

- c) Glass bead dry blasting abrasive, G02222 (170 to 400 grit).



DO NOT GET ACID IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. PUT ON AN APRON, SPLASH GOGGLES, AND GLOVES WHEN YOU USE ACID. ACID CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.



DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER AND MIX WITH FORCE. IF YOU ADD WATER TO ACID, YOU CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (g) After removing all corrosion that can be seen, apply a corrosion treating solution of chromium trioxide acid, C00167 or sodium dichromate with nitric acid, B00047, (SOPM 20-43-02).
- (h) Rinse the part well with clean water, G50256.
- (i) Smooth out repaired areas using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).
- (j) Clean the repaired area.
- (k) Measure the depth of the blends using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).
- (l) Treat the repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

SUBTASK 51-21-31-350-002

- (2) Do the following steps to chemically remove the magnesium alloy corrosion from the external surface of the airplane:
 - (a) Make sure the metal is a magnesium alloy.
 - (b) Remove any grease, oil, and loose paint from the area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
 - (c) Protect the areas surrounding the corroded area.

NOTE: Protect rubber parts, bearings, cast or pressed inserts, cracks, and plated steel.

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WARNING

DO NOT GET ACID IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. PUT ON AN APRON, SPLASH GOGGLES, AND GLOVES WHEN YOU USE ACID. ACID CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.



WARNING

DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER AND MIX WITH FORCE. IF YOU ADD WATER TO ACID, YOU CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Prepare one of these chromic acid solutions according to manufacturer's directions, (SOPM 20-43-02):
 - 1) Chromium trioxide acid, C00167, or
 - 2) Sodium dichromate with nitric acid, B00047.
- (e) Apply with acid resistant medium nylon bristle brush, STD-3911.
NOTE: Start from the lower surfaces and work upward to prevent runs and streaks. Apply with circular movement.
- (f) Keep the solution on the surface for 15 minutes. Wipe dry.
NOTE: While the solution is on the surface, continue to brush over the surface again with a short fiber brush to prevent the solution from drying and streaking.
- (g) Rinse with water, G50256 while scrubbing with brush. Wipe dry.
NOTE: Repeat this sequence until the bright metallic color of the metal is shown.
- (h) Smooth out repaired areas using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).
- (i) Measure the depth of the repaired area using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).
- (j) Treat the repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

————— **END OF TASK** —————

TASK 51-21-31-350-803

4. Removal and Control of Corrosion for Carbon Steel

(Table 701, Table 702)

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)
SRM 51-10-02	INSPECTION AND REMOVAL OF DAMAGE

B. Consumable Materials

Reference	Description	Specification
B00046	Acid - Corrosion Removing, Metal Conditioning, Phosphoric	MIL-C-10578
B00102	Abrasive - Aluminum Oxide Coated Cloth	
G02222	Abrasive - Dry, Blasting	BAC5748
G02414	Brush - Stainless Steel	

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C. Procedure

SUBTASK 51-21-31-350-003

- (1) Do these steps to mechanically remove corrosion from carbon steel parts of the airplane:

NOTE: When the heat-treat value of a part is unknown, repair the part as if it was heat-treated over 220,000 psi (1,516,847 kPa).

- (a) Make sure the metal is carbon steel and find its heat treat value.
- (b) During the removal process, protect the surrounding area from the corrosion dust.
- (c) Remove any grease, oil, and loose paint from the area; do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.



WARNING

BE VERY CAREFUL WHEN YOU USE TOOLS ON HIGH-STRENGTH-STEEL. STEEL SURFACES CAN BECOME HOT. HOT STEEL CAN CAUSE INJURY TO PERSONS.

- (d) Remove corrosion by any of these methods:

NOTE: Hand-held power tools must not be used on high strength steels heat-treated to 220,000 psi (1,516,847 kPa) and above.

- 1) Use a brush, G02414 with bristles no larger than 0.010 in. (0.254 mm) in diameter,

NOTE: After using the brush, polish the surface with #400 grit abrasive cloth, B00102 and then #600 grit abrasive cloth, B00102.

- 2) Grinding with an abrasive wheel,



CAUTION

BE CAREFUL WHEN YOU DO AN ABRASIVE BLAST. AIR PRESSURE MUST BE 40 PSI (276 KPA) TO 70 PSI (483 KPA) FOR WHEN YOU DO AN ABRASIVE BLAST ON CARBON STEEL HEAT-TREATED TO 220,000 PSI (1,516,847 KPA) AND ABOVE. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

- 3) Glass bead dry blasting abrasive, G02222, or

- 4) Motor-driven wire brush.

- (e) Make sure all corrosion is removed.

- (f) Smooth out repaired areas using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).

- (g) Measure the depth of the repaired areas using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).

- (h) Treat the repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

SUBTASK 51-21-31-350-004

- (2) Do the following steps to chemically remove corrosion from carbon steel parts of the airplane:

NOTE: When the heat-treat value of a part is unknown, repair the part as if it was heat-treated over 220,000 psi (1,516,847 kPa).

NOTE: The use of acid can cause hydrogen embrittlement on steel parts heat-treated above 220,000 psi (1,516,847 kPa). The use of acid is not allowed on steel parts heat-treated above 220,000 psi (1,516,847 kPa).

- (a) Make sure the metal is carbon steel and find its heat treat value.
- (b) During the removal process, protect the surrounding area from the corrosion dust.

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- (c) Remove any grease, oil, and loose paint from the area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
- (d) Remove heavy rust by hand using a chipper or a brush, G02414.



WARNING

DO NOT GET ACID IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. PUT ON AN APRON, SPLASH GOGGLES, AND GLOVES WHEN YOU USE ACID. ACID CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.



WARNING

DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER AND MIX WITH FORCE. IF YOU ADD WATER TO ACID, YOU CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (e) Use one of the following methods for chemical removal of corrosion:
 - 1) Inhibited phosphoric acid, B00046 - (Brush-on Method)
NOTE: Acid type removers are used for removing rust or black oxide.
 - 2) Inhibited phosphoric acid, B00046 - (Soak-in Method)
NOTE: Acid type removers are used for removing rust or black oxide.
NOTE: This method is used for removing heavy rust from parts removed from the airplane and where the corroded area can be put fully into the acid base.



WARNING

WEAR RUBBER-GLOVES, APRONS, AND GOGGLES WHEN YOU WORK WITH ALKALI-RUST-REMOVER. MAKE SURE THAT THE AREA HAS AIRFLOW. DO NOT BREATHE THE FUMES. THE ALKALI-RUST-REMOVER IS VERY ALKALINE AND DANGEROUS TO SKIN AND EYES. ALKALI-RUST-REMOVER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- 3) Alkali Type Rust Remover - (Soak-in Method)
NOTE: Alkali type removers are used for removing red rust.
- (f) If there is any remaining corrosion, do the rust removing method again.
- (g) Smooth out repaired areas using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).
- (h) Measure the depth of the repaired areas using Corrosion Damage and Rework Limits (SRM SUBJECT 51-10-02).
- (i) Treat the repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

———— **END OF TASK** ————

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TASK 51-21-31-350-804

5. Removal and Control of Corrosion for Stainless Steel and Nickel-Chromium Alloys

(Table 701, Table 702)

A. Procedure

SUBTASK 51-21-31-350-005



DO NOT USE ABRASIVE BLASTING OR GRINDING ON THIN WALL TUBES OR THIN WEBS LESS THAN 0.0625 IN (1.5875 MM) THICK. DAMAGE TO THE STRUCTURE CAN OCCUR.

- (1) Remove corrosion mechanically by using the same general procedures as for carbon steel. Do this task: Removal and Control of Corrosion for Carbon Steel, TASK 51-21-31-350-803.

SUBTASK 51-21-31-350-006

- (2) Remove corrosion chemically by using the same general procedures as for carbon steel. Do this task: Removal and Control of Corrosion for Carbon Steel, TASK 51-21-31-350-803.

NOTE: Only use chemical removers on stainless steel and nickel-chromium alloys in very corroded areas and where the chemicals will not be trapped in cracks, lap joints, crevices, and other such areas.

————— END OF TASK —————

TASK 51-21-31-350-805

6. Removal and Control of Corrosion for Titanium Alloys

(Table 701, Table 702)

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)

B. Consumable Materials

Reference	Description	Specification
B00700	Polish - Aluminum, Met-All	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

C. Procedure

SUBTASK 51-21-31-350-007



SMALL CHIPS OR SLIVERS OF A TITANIUM ALLOY, CAUSED BY A MACHINING PROCESS ARE VERY FLAMMABLE. EXTINGUISH THESE FIRES WITH VERY DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE. DO NOT USE WATER, CARBON DIOXIDE, CARBON TETRACHLORIDE OR THE ORDINARY CHEMICAL FIRE EXTINGUISHER. TITANIUM FIRES CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Remove corrosion mechanically from a titanium alloy by these steps:
- (a) Make sure that the metal is a titanium alloy.

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- (b) Remove any grease, oil, or paint from the area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
- (c) Apply Met-All polish, B00700 by hand with a cotton wiper, G00034. Do this until all corrosion is removed.
- (d) Remove the polish with a clean cotton wiper, G00034.
- (e) Treat repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

SUBTASK 51-21-31-350-008

- (2) Removal of corrosion by chemicals is not allowed on titanium alloys.

NOTE: Titanium can become brittle when exposed to acid solutions. Chemical removers are not allowed.

————— END OF TASK —————

TASK 51-21-31-350-806

7. Removal and Control of Corrosion for Plated or Phosphated Surfaces

(Table 701, Table 702)

A. References

Reference	Title
51-00-58	STANDARD TREATMENT METHODS
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)

B. Consumable Materials

Reference	Description	Specification
B00046	Acid - Corrosion Removing, Metal Conditioning, Phosphoric	MIL-C-10578
C00167	Acid, Chromic (Chromium Trioxide)	A-A-55827
G02414	Brush - Stainless Steel	

C. Procedure

SUBTASK 51-21-31-350-009

- (1) Remove corrosion from cadmium plated surfaces by the following steps:
 - (a) During the removal process, protect the surrounding area from the corrosion dust and contamination.
 - (b) Remove any grease, oil, or paint from the area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
 - (c) If corrosion is only on the plated surface, repair as follows (if corrosion has gone through the plated surface, refer to steps below):
 - 1) Rub gently with stainless steel wool.

NOTE: Removal work on plated surfaces should be kept to a minimum. This will make sure of the preservation of the adjacent plating.



WARNING

DO NOT GET ACID IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. PUT ON AN APRON, SPLASH GOGGLES, AND GLOVES WHEN YOU USE ACID. ACID CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)



DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER AND MIX WITH FORCE. IF YOU ADD WATER TO ACID, YOU CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- 2) Apply the solution of chromic acid, C00167 and allow to stay on the corroded surface for 30 to 60 seconds.

NOTE: The solution strength shall be 4.0 fl-oz (0.12 l) of chromium trioxide to 1.0 gal (3.8 l) of water.

- 3) Rinse part with clean water and air dry.
- (d) If corrosion has gone through the plated surface, repair as follows:
- 1) Decide if the part should be repaired or replaced.
 - 2) If the part can be repaired, identify the base metal and remove corrosion according to the base metal's applicable procedure.
- (e) Treat repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

SUBTASK 51-21-31-350-010

- (2) Remove corrosion from plated surfaces (that are NOT cadmium plated) by the following steps:
- (a) During the removal process, protect the surrounding area from the contaminants.
 - (b) Remove any grease, oil, and loose paint from the area, do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
 - (c) Remove heavy rust by hand using a chipper or a brush, G02414.



DO NOT GET ACID IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. PUT ON AN APRON, SPLASH GOGGLES, AND GLOVES WHEN YOU USE ACID. ACID CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.



DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER AND MIX WITH FORCE. IF YOU ADD WATER TO ACID, YOU CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Apply solution of phosphoric acid, B00046 to corroded area.
- NOTE: Allow the acid solution to stay on the corroded surface only long enough to remove the corrosion.
- NOTE: The acid solution strength shall be a 1:1 ratio.
- (e) Rinse the part with clean water and air dry.
- (f) Treat repaired area using Standard Treatment Methods (STANDARD TREATMENT METHODS, SUBJECT 51-00-58).

SUBTASK 51-21-31-350-011

- (3) To repair phosphated cadmium surfaces refer to the procedures for cadmium plated surfaces.

SUBTASK 51-21-31-350-012

- (4) To repair phosphated ferrous alloy surfaces refer to the procedures for carbon steel (Removal and Control of Corrosion for Carbon Steel, TASK 51-21-31-350-803).

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Table 701/51-21-31-993-801 Abrasive Paper or Cloth Use for Corrosion Removal

Metals or Materials to be Processed	Restrictions	Operation	Abrasive Paper or Cloth		
			Aluminum Oxide	Silicon Carbide	Garnet
Ferrous Alloys Heat Treated 220 ksi or Higher	Do not use acid base rust removers. Do not use handheld power tools.	Corrosion Removal and Smooth-out	150-Finer	150-Finer	
		Finishing	400		
Ferrous Alloys	Does not apply to steel heat treated to strengths 220 ksi or higher	Corrosion Removal and Smooth-out	150-Finer	180-Finer	
		Finishing	400		
Aluminum Alloys Except Clad Aluminum	Do not use silicon carbide abrasive	Corrosion Removal and Smooth-out	150-Finer		7/0-Finer
		Finishing	400		
Clad Aluminum	Sanding limited to the removal of minor scratches	Corrosion Removal and Smooth-out	240-Finer		7/0-Finer
		Finishing	400		
Magnesium Alloys		Corrosion Removal and Smooth-out	240-Finer		
		Finishing	400		
Titanium		Cleaning and Finishing	150-Finer	180-Finer	
Plated or Phosphated Surfaces		Refer to the applicable base metal for removal method			

Table 702/51-21-31-993-802 More Abrasives and Abrasive Wheel Use for Corrosion Removal

Metals or Materials Processed to be Processed	Restrictions	Operation	Abrasive Fabric or Pad	Wool		Pumice 350 Mesh or Finer	Abrasive Wheel
				Aluminum	Stainless Steel		
Ferrous Alloys Heat Treated 220 ksi or Higher	Do not use acid base rust removers. Do not use handheld tools.	Corrosion Removal & Smooth-out	Fine to ultra-fine	X	X	X	
		Finishing		X	X	X	
Ferrous Alloys	Does not apply to steel heat treated to strengths 220 ksi or higher.	Corrosion Removal & Smooth-out	Fine to ultra-fine	X	X	X	X
		Finishing		X	X	X	

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**Table 702/51-21-31-993-802 More Abrasives and Abrasive Wheel Use for Corrosion Removal
(Continued)**

Metals or Materials Processed to be Processed	Restrictions	Operation	Abrasive Fabric or Pad	Wool		Pumice 350 Mesh or Finer	Abrasive Wheel
				Aluminum	Stainless Steel		
Aluminum Alloys Except Clad Aluminum	Do not use silicon carbide abrasive.	Corrosion Removal & Smooth-out	Very fine & ultra-fine	X		X	X
		Finishing		X		X	
Clad Aluminum	Sanding limited to the removal of minor scratches.	Corrosion Removal & Smooth-out	Very fine & ultra-fine			X	X
		Finishing				X	
Magnesium Alloys		Corrosion Removal & Smooth-out	Very fine & ultra-fine	X		X	
		Finishing		X		X	
Titanium		Cleaning and Finishing			X	X	X
Plated or Phosphated Surfaces		Refer to the applicable base metal for removal method.			X		

————— **END OF TASK** —————

TASK 51-21-31-350-807

8. Cleanup After Mercury Spillage

A. References

Reference	Title
05-51-14-210-801	Mercury Spillage Conditional Inspection (P/B 201)

B. Procedure

SUBTASK 51-21-31-160-004

- (1) For corrosion clean-up and control after mercury spills, do this task: Mercury Spillage Conditional Inspection, TASK 05-51-14-210-801.

————— **END OF TASK** —————

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CHEMICAL CONVERSION COATING - CLEANING/PAINTING

1. General

A. This procedure contains these tasks:

- (1) Mix and apply Bonderite M-CR 1001 Aero coating, C50015.
- (2) Apply Bonderite M-CR 600 Aero coating, C00862, Bonderite M-CR 1200S Aero coating, C50005, or Bonderite M-CR ALCRM1200 Aero coating, C50357.
- (3) Apply Bonderite M-CR 1132 Aero coating, C50079.
- (4) BMS10-128 sol-gel coating, C50157.

B. Chemical conversion coatings are used for corrosion protection on aluminum and to improve paint adhesion. Bonderite M-CR ALCRM1200 Aero coating, C50357, and Bonderite M-CR 600 Aero coating, C00862, are supplied as powders. Bonderite M-CR 1201 Aero coating, C50355, Bonderite M-CR 1001 Aero coating, C50015, and Bonderite M-CR 600RTU Aero coating, C50356, are provided in liquid form.

- (1) The Bonderite M-CR 1001 Aero coating, C50015, finish is clear and is used to retain the silver-white aluminum finish. Bonderite M-CR 1001 Aero coating, C50015, is provided in liquid form and can be used in a spray immersion or brush application.
- (2) Bonderite M-CR 1200S Aero coating, C50005, Bonderite M-CR ALCRM1200 Aero coating, C50357, and Bonderite M-CR 600 Aero coating, C00862, are supplied as powders. Bonderite M-CR 1201 Aero coating, C50355, and Bonderite M-CR 600RTU Aero coating, C50356, are provided in liquid form. These chemical conversion coatings leave a colored finish on the aluminum.

C. In areas where chemical conversion coatings may come in contact with BMS 10-20 primer only Bonderite M-CR 600 Aero coating, C00862, should be used. BMS 10-20 is typically used on the fuel tank wing structure.

D. When you use Bonderite M-CR 600 Aero coating, C00862, Bonderite M-CR 1001 Aero coating, C50015, Bonderite M-CR ALCRM1200 Aero coating, C50357, Bonderite M-CR 1200S Aero coating, C50005, and Bonderite M-CR 1132 Aero coating, C50079, obey the precautions for chemicals that can cause corrosion. Wear respirators and rubber or neoprene gloves when you mix and apply chemical conversion coatings. Follow the necessary precautions and do not get chemical conversion coatings on your skin.

E. Do not let the papers or cloths dry after you apply chemical conversion coatings. They can cause a fire when they are dry. After you use the cloths or paper, soak them in water before you discard them.

F. Use Bonderite M-CR 1132 Aero coating, C50079, for touch-up and rework of anodized, chemical conversion coated or painted parts and assemblies except those to be painted or previously painted with BMS10-20 fuel tank coating and those parts and assemblies to be sealed with BMS5-26 or BMS5-45 sealant.

TASK 51-21-41-370-801

2. Apply Bonderite M-CR 1001 Aero Solution

A. **References**

Reference	Title
SRM 51-20-05	REPAIR SEALING

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B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205
STD-123	Brush - Soft Bristle
STD-1117	Container - Clear, Plastic or Glass, 1 Gallon (4 Liter)

C. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00151	Solvent - Methyl Isobutyl Ketone	ASTM D1153
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00862	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
C50015	Coating - Chemical Conversion - Bonderite M-CR 1001 Aero (Formerly Alodine 1000)	BAC5719 Class B, MIL-DTL-81706 Type I Class 3
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50256	Water, Regular	
G51270	Tape - Masking, Intertape PG777	

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D. Prepare the Surface for Coating

SUBTASK 51-21-41-950-001

- (1) Apply Scotch Flatback Masking Tape 250, G00270, to all adjacent areas.

NOTE: You do not have to apply tape on anodized surfaces.

- (a) Do not let the chemical conversion coating fall on the surfaces that have no tape.

- (b) Attach the tags that follow to the left control wheel in the flight deck.

1) "PITOT PROBES COVERED" tag, G02447

2) "STATIC PORTS COVERED" tag, G02444

3) A red tag labeled: AOA SENSORS COVERED

- (c) Use a pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.

- (d) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.

- (e) Do the steps that follow to cover the angle-of-attack (AOA) sensors:

- 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.

- a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to permit easier removal of the 3M 425 Aluminum Foil Tape, G00291.

- 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.

- a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-41-390-001

- (2) Seal all holes and clearances on assemblies that have honeycomb or foam plastic.

- (a) Use the applicable sealing or caulking material or use rubber plugs to prevent entrance of the Bonderite M-CR 1001 Aero coating, C50015, solution.

SUBTASK 51-21-41-140-001

- (3) Clean the surface with a liquid solvent grease remover.

- (a) Use a clean soft bristle brush, STD-123, or cotton wiper, G00034.

- (b) Dry the surface with warm air or rub it.

SUBTASK 51-21-41-140-002

- (4) Remove the organic, inorganic and hydraulic fluid resistant finishes from the repair area with an abrasive mat, G00251, or abrasive cloth, B00102.

SUBTASK 51-21-41-140-003

- (5) Remove all the material (organic, inorganic) from the area until you get a clean and shiny aluminum surface.

SUBTASK 51-21-41-140-004

- (6) Clean the surface with a dry, clean cotton wiper, G00034, to remove all loose and remaining particles from the area.

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SUBTASK 51-21-41-110-001



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (7) Rub the surface with a cotton wiper, G00034.
 - (a) Make sure that the cotton wiper, G00034, is moist (not soaked) with solvent, B00062, or solvent, B00184, or with solvent, B00151.
 - (b) Clean the surface with a clean cotton wiper, G00034, until no remaining particles are found.

SUBTASK 51-21-41-910-001

- (8) Let the surface dry for a minimum of 15 minutes.

SUBTASK 51-21-41-100-001

- (9) Remove all corrosion material found on the surface.

SUBTASK 51-21-41-100-002

- (10) For information on the installation of sealant in the integral fuel tanks (SRM SUBJECT 51-20-05).

E. Prepare Coating Solution

NOTE: In the areas where the coating may come in contact with BMS 10-20 primer, only Bonderite M-CR 600 Aero coating, C00862, should be used.

SUBTASK 51-21-41-370-001



DO NOT GET THE CHEMICAL COVERSION COATING IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. AIR MUST FLOW FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) To prepare the Bonderite M-CR 1001 Aero coating, C50015, solution, put 4 parts (by volume) Bonderite M-CR 1001 Aero coating, C50015, to 6 parts (by volume) water, G50256 in a 1 gal (4 l) plastic or glass, clear container, STD-1117.

F. Procedure - Apply Bonderite M-CR 1001 Solution

NOTE: In areas where the chemical conversion coating may come in contact with BMS 10-20 primer, only Bonderite M-CR 600 Aero coating, C00862, should be used.

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SUBTASK 51-21-41-370-002



DO NOT GET THE CHEMICAL COVERSION COATING IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. AIR MUST FLOW FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) Apply Bonderite M-CR 1001 Aero coating, C50015, solution with a clean cotton wiper, G00034, or other non-contaminating application material capable of keeping the part surface wet.

NOTE: Keep the room temperature above 65°F (18°C).

SUBTASK 51-21-41-370-003

- (2) Keep the part wet with the Bonderite M-CR 1001 Aero coating, C50015, solution for 3 to 5 minutes.

NOTE: Do not let the papers or cloths dry after you apply Bonderite M-CR 1001 Aero coating, C50015, solution. They can cause a fire when they are dry. After you use the cloths or paper soak them in water before you discard them.

SUBTASK 51-21-41-170-001

- (3) Flush the surface with water.

SUBTASK 51-21-41-910-002



DO NOT TOUCH THE PART UNTIL IT IS FULLY DRY. THE WET CHEMICAL CONVERSION COATING SOLUTION IS EASILY DAMAGED.

- (4) Dry the surface with air that is a temperature of 120°F (49°C) (recommended) with a maximum of 130°F (54°C) (maximum).

————— END OF TASK —————

TASK 51-21-41-370-802

3. Apply Bonderite M-CR 600, Bonderite M-CR 1200, Bonderite M-CR 600RTU, or Bonderite M-CR 1200S Solution

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7

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Reference	Description
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205
STD-1052	Container - Acid Resistant
STD-1086	Gloves - Rubber
STD-1118	Container - Stainless Steel, 1 Gallon (4 Liter)
STD-3911	Brush - Bristle, Medium Nylon

B. Consumable Materials

Reference	Description	Specification
C00862	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
C50005	Coating - Chemical Conversion - Bonderite M-CR 1200S Aero (Formerly Alodine 1200S)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
C50355	Coating - Chemical Conversion - Bonderite M-CR 1201 Aero (Formerly Alodine 1201)	MIL-DTL-81706 Type I Class 1A
C50356	Coating - Chemical Conversion - Bonderite M-CR 600RTU Aero (Formerly Alodine 600RTU)	MIL-DTL-81706 Type I Class 1A or 3
C50358	Surface Treatment - Bonderite M-AD 22 Toner Aero (Formerly ALODINE 22 TONER)	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G51270	Tape - Masking, Intertape PG777	

C. Prepare the Surface for Coating

SUBTASK 51-21-41-950-002

- (1) Apply Scotch Flatback Masking Tape 250, G00270, to all adjacent areas. Do not let the chemical conversion coating fall on surfaces that have no tape.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"

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- (b) Use the pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
- (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
- (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.
NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

D. Prepare Coating

NOTE: In areas where the chemical conversion coating may come in contact with BMS 10-20 primer, only Bonderite M-CR 600 Aero coating, C00862, should be used.

SUBTASK 51-21-41-370-005



DO NOT GET THE CHEMICAL COVERSION COATING IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. AIR MUST FLOW FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) Mix the solution in a stainless steel container (1 gal) (4 Liter), STD-1118 or acid resistant container, STD-1052.

NOTE: Do not use lead or glass.

SUBTASK 51-21-41-370-006

- (2) For Bonderite M-CR 600 Aero coating, C00862, add 3 oz (85 g) of powder for 1 gal (3.8 l) of final solution.

SUBTASK 51-21-41-370-007

- (3) For Bonderite M-CR 1200S Aero coating, C50005, add 2 oz (57 g) of powder for 1 gal (3.8 l) of final solution.

SUBTASK 51-21-41-370-008

- (4) Fully mix the Bonderite M-CR 600 Aero coating, C00862, or Bonderite M-CR 1200S Aero coating, C50005, solution.

SUBTASK 51-21-41-910-003

- (5) Do not move the solution for a minimum of 1 hour.

NOTE: A dirty solution is unsatisfactory. Prepare the solution in small quantities and discard it when it is dirty. If water that is not distilled is used, add nitric acid to control the pH range from 1.50 to 2.00 for Bonderite M-CR 1200S Aero coating, C50005. For Bonderite M-CR 600 Aero coating, C00862, add 2 percent by volume of Bonderite M-AD 22 Toner Aero surface treatment, C50358, and stir to adjust the pH to between 1.5 and 2.0. Do a pH check. Use pHydron paper #60781. Do not add wetting agents or other materials to this solution.

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E. Procedure - Apply Bonderite M-CR 600 Aero, Bonderite M-CR 1200S Aero , Bonderite M-CR 1201 Aero, or Bonderite M-CR 600RTU Aero solution

NOTE: In areas where the chemical conversion coating may come in contact with BMS 10-20 primer, only Bonderite M-CR 600 Aero coating, C00862, should be used.

SUBTASK 51-21-41-370-009



DO NOT GET THE CHEMICAL COVERSON COATING IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. AIR MUST FLOW FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) Apply Bonderite M-CR 600 Aero coating, C00862, Bonderite M-CR 1200S Aero coating, C50005, Bonderite M-CR 1201 Aero coating, C50355, or Bonderite M-CR 600RTU Aero coating, C50356, equally with a medium nylon bristle brush, STD-3911, or a clean cotton wiper, G00034. Start from the bottom.

SUBTASK 51-21-41-370-010

- (2) Let the solution stay on the surface until a given color is found. Keep the area wet. Apply small quantities of solution with a cotton wiper, G00034 or other non-contaminating application material capable of keeping the part surface wet.

NOTE: Do not let the Bonderite M-CR 600 Aero coating, C00862, Bonderite M-CR 1200S Aero coating, C50005, Bonderite M-CR 600RTU Aero coating, C50356 or Bonderite M-CR 1201 Aero coating, C50355, solution dry until the color of the surface changes.

SUBTASK 51-21-41-140-005

- (3) Carefully flush the surface with water. Start from the bottom.

SUBTASK 51-21-41-910-004

- (4) Dry the surface with air that is a temperature of 120°F (49°C) (recommended) with a maximum of 130°F (54°C) (maximum).

NOTE: The solution must be fully dry before you can touch the surface.

SUBTASK 51-21-41-370-011

- (5) Apply the last finish or start adhesive bonding (Chapter 51 of the Structural Repair Manual). Touch the parts or surface with clean rubber glove, STD-1086, and keep the parts or surface dry and clean to prevent surface contamination.

————— END OF TASK —————

TASK 51-21-41-370-803

4. Apply Bonderite M-CR 1132 Aero Coating

A. Consumable Materials

Reference	Description	Specification
C50079	Coating - Chemical Conversion - Bonderite M-CR 1132 Aero (Formerly Alodine 1132 Touch-N-Prep)	BAC5719 Class F, MIL-DTL-81706 Type I Class 1A or 3

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B. Procedure

SUBTASK 51-21-41-370-012

- (1) Remove the cap of the Bonderite M-CR 1132 Aero coating, C50079, pen and hold it with the applicator tip downwards.

SUBTASK 51-21-41-840-001

- (2) Activate the Bonderite M-CR 1132 Aero coating, C50079, pen by pressing the applicator tip against a firm surface. This will open the valve allowing the premixed solution to flow to the applicator tip. A new Bonderite M-CR 1132 Aero coating, C50079, pen should take 30 to 45 seconds for the tip to be wet. When the tip is wet, release the pressure. The pen is ready for use.

SUBTASK 51-21-41-200-001

- (3) Make sure that the surface to be coated is dry before applying Bonderite M-CR 1132 Aero coating, C50079.

SUBTASK 51-21-41-370-013

- (4) Apply Bonderite M-CR 1132 Aero coating, C50079, to the part surface in smooth and even strokes. Fifty percent of overlapped strokes usually give the proper coating weight. Do not allow the Bonderite M-CR 1132 Aero coating, C50079, to puddle. The puddle will increase the time required for drying. Also, thick or uneven areas in the coating cause performance failures.

SUBTASK 51-21-41-370-014

- (5) Wait until the Bonderite M-CR 1132 Aero coating, C50079, dries and repeat the application in a cross hatch pattern. Do not water rinse. Water rinse degrades corrosion resistance and paint adhesion.

SUBTASK 51-21-41-370-015

- (6) Ambient air dry or force air dry Bonderite M-CR 1132 Aero coating, C50079, at a maximum temperature of 130°F (54°C) to sufficiently evaporate the water.

————— END OF TASK —————

TASK 51-21-41-370-804

5. BMS10-128 Coating Application

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205
STD-623	Sprayer - Paint, High Volume/Low Pressure
STD-818	Sprayer - Pressure

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B. Consumable Materials

Reference	Description	Specification
C50119	Coating - Metal Conversion Coating (AC-131-CB, 2-Part Clear)	BMS10-128 Type I Class A
C50157	Coating - Sol-Gel (Solution Gelation) Conversion Coating for Paint Application	BMS10-128
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G51270	Tape - Masking, Intertape PG777	

C. Prepare the Surface for Coating

SUBTASK 51-21-41-950-003

- (1) Apply Scotch Flatback Masking Tape 250, G00270, to all adjacent areas. Do not let the chemical conversion coating fall on surfaces that have no tape.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

D. Prepare the coating.

SUBTASK 51-21-41-370-016

- (1) Prepare the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, according to the manufacturer's procedures.
 - (a) The kit should be used within 1 year of the date of manufacture on the kit.

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- (b) Do not treat surfaces with the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, before the 30-minute indication time.
- (c) Do not treat surfaces with the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, after the 10-hour application time has expired.
- (d) Make sure that the temperature of the surface you will be treating and the air temperature are at least 65°F (18°C).

E. Apply the coating.

SUBTASK 51-21-41-370-017

- (1) Use a high volume, low pressure paint sprayer, STD-623, or pressure sprayer, STD-818, to apply the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119.

NOTE: Once the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, has been applied and dried, primer should be applied to the airplane within 24 hours.

- (a) Start at the bottom of the area you will be treating. Apply sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, from the bottom to the top of the surface.
- (b) Continue to apply sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, as necessary to keep the surface wet for 2 minutes.
- (c) Make sure that no water-breaks occur on the surface you are treating.



DO NOT USE ABRASIVE ALUMINUM PADS OR ABRASIVE PAPER ON THE ALUMINUM SURFACE BEFORE THE SCRIBE-LINE INSPECTIONS. ABRASIVE PADS CAN MAKE A SMOOTH ALUMINUM SURFACE BUT HIDE THE SCRIBE-LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE THE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE-LINE INSPECTIONS, YOU COULD HAVE TO DO THE INSPECTIONS AGAIN. REFER TO THE SCRIBE-LINE-INSPECTION SERVICE BULLETIN. IF YOU HIDE THE SCRIBE LINES, YOU CAN CAUSE DAMAGE.

- 1) If water-breaks occur, use an abrasive pad (Scotch-Brite) to rework the area. Clean the area and re-apply the sol-gel coating, C50157 or AC-131-CB metal conversion coating, C50119.

SUBTASK 51-21-41-370-018

- (2) Allow the coated surface to drain for 10 minutes.

SUBTASK 51-21-41-370-019

- (3) After the surface has drained, use filtered, compressed air to remove the surplus sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, that accumulated in crevices, pockets, drip edges, or fastener holes.
 - (a) If necessary, a cotton wiper, G00034, can be used to soak up the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119. Do not rub the wiper on the surface.



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SUBTASK 51-21-41-370-020

- (4) Allow the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, to dry for 60 minutes.

NOTE: Until it cures and hardens, sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, can be damaged by contact such as touching, wiping, and rubbing and by such means as water rinsing, solvent flushing, and masking tape application. Depending on the cure conditions, the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, can cure for more than six hours.

- (a) Do not apply masking tape to surfaces treated with sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119.
- (b) Do not expose surfaces treated with sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, to temperatures above 100°F (38°C) before applying primer.
- (c) Make sure sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, has fully dried before applying primer.

NOTE: Uneven drying of the sol-gel coating, C50157, or AC-131-CB metal conversion coating, C50119, can leave dark areas on the surface. The dark areas are acceptable.

———— **END OF TASK** ————

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MAGNESIUM - CLEANING/PAINTING

1. General

A. This procedure has one task:

- (1) Application of touch up conversion coating to magnesium parts.

TASK 51-21-51-100-801

2. Airplane Surface Finish Application



CLEANING AND CONVERSION COATING SOLUTIONS CONTAIN HAZARDOUS AND FLAMMABLE MATERIALS. THESE SOLUTIONS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

A. **Tools/Equipment**

Reference	Description
STD-123	Brush - Soft Bristle
STD-1069	Container - Glass, Sealable
STD-1332	Container - Polyethylene or Polypropylene

B. **Consumable Materials**

Reference	Description	Specification
B00015	Cleaner - Heavy Duty, Multipurpose - Calla 301A	BAC5744, AMS 1526-A, AMS 1550-A
B50314	Oxide - Magnesium	A-A-59302, Section 2.1
C00167	Acid, Chromic (Chromium Trioxide)	A-A-55827
C50335	Sulfate - Calcium, Dihydrate	
C50336	Acid - Sulfuric	A-A-55828 Type I, Class 2
C50337	Hydroxide - Sodium	ASTM D 456
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00116	Sponge - Synthetic	
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50256	Water, Regular	
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	

C. **Apply the Conversion Coating**

SUBTASK 51-21-51-120-001



KEEP THE SURFACE AWAY FROM FIRE OR IGNITION SOURCES. MAGNESIUM POWDER CAN CAUSE A FIRE. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

- (1) Feather the edges of the surrounding undamaged finishes with a 240 grit or finer abrasive paper, G50077, abrasive hand pad, G51193, or equivalent material.

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SUBTASK 51-21-51-100-001

(2) Clean the surface as follows:

- (a) Remove all loose particles from the surface with a soft bristle brush, STD-123 or rub the surface with clean cotton wiper, G00034



CAUTION

SURFACES THAT YOU DO NOT CLEAN REQUIRE PROTECTION. CLEANER CAN CAUSE DAMAGE TO CADMIUM OR ALUMINUM FINISHES.

- (b) Apply protection to all areas that you do not want to clean.

NOTE: Use a material that will resist cleaning and conversion coating solutions.

- (c) Prepare a light soil cleaning solution of 10 volumes of water, G50256 for each 1 volume of Calla 301A cleaner, B00015.



CAUTION

DO NOT LET THE CLEANING SOLUTION INTO MATING SURFACES. YOU CAN CAUSE DAMAGE THE MATING SURFACES IF YOU LET THE CLEANING SOLUTION STAY ON THE SURFACE.

- (d) Apply the cleaning solution to the surface using a cotton wiper, G00034, soft bristle brush, STD-123, or a sponge, G00116

NOTE: Let the solution dwell for five minutes.

NOTE: Do not let the cleaner dry on the surface.

- (e) Thoroughly flush the surface with a clean wet sponge, G00116 or cotton wiper, G00034 to completely remove cleaner residue.

- (f) Apply a thin film of water, G50256 to part surface and inspect for a water break-free surface.

NOTE: A water break-free surface will have an unbroken layer of water for 30 seconds.

- (g) If water break continues, hand scrub the surface with a slurry of Magnesium Oxide, B50314 and water, G50256 to remove the water break.

- (h) Flush the surface again with a clean wet cotton wiper, G00034 or sponge, G00116 and water, G50256.

SUBTASK 51-21-51-110-001

(3) Mix the Dow 19 conversion coating as follows:

- (a) In a clean 1.0 gal (3.8 l) sealable glass container, STD-1069 or polyethylene or polypropylene container, STD-1332:

- 1) add 9/10 gal (3.4 l) water, G50256,
- 2) add 1 1/3 oz (37.80 g) chromic acid, C00167,
- 3) add 1.0 oz (28.35 g) calcium sulfate, C50335, and
- 4) add water, G50256 to fill the container to the 1.0 gal (3.8 l) level.

- (b) Mix the solution with force for a minimum of 15 minutes.

NOTE: Let the particles in the solution go to the bottom of the container.

NOTE: The solution must be free of all particles when it is applied.

- (c) Measure the 'pH' of the solution and check that it is between 1.2 and 1.6.

- (d) If the 'pH' is not correct, do the following:

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- 1) Use sulfuric acid, C50336 to lower the 'pH'.
- 2) Use sodium hydroxide, C50337 to increase the 'pH'.

SUBTASK 51-21-51-110-002



DISCARD THE RUN-OFF SOLUTION AS APPLICABLE HAZARDOUS WASTE PROCEDURES DIRECT. TAKE CARE TO STOP THE RUN-OFF SOLUTION FROM DRAINING DOWN THE FLOOR OR SINK DRAIN. DAMAGE TO EQUIPMENT CAN OCCUR.

- (4) Apply the conversion coating solution.
 - (a) Apply a sufficient quantity of the solution to wet the metal surface until the surface is dull golden to dark brown in color.
 - 1) Frequent reapplication of large quantities of new full-strength conversion coating solution is necessary.
 - (b) Flush the surface with clean cold water, G50256.
 - (c) Dry the surface with air that is no more than 180.0°F (82.2°C) or compressed air.
 - (d) Make sure that all of the surface is coated.
 - (e) Make sure there are no scratches, powder or lines on the surface.
 - (f) If there is any scratches or powder on the surface do the following:
 - 1) Rub the surface with a clean cotton wiper, G00034 and apply the conversion coating again.

SUBTASK 51-21-51-370-001

- (5) As soon as possible, apply the correct protective finish to prevent contamination of the surface or the start of corrosion.

———— **END OF TASK** ————

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AIRCRAFT MAINTENANCE MANUAL

HYDRAULIC-FLUID-RESISTANT FINISH - CLEANING/PAINTING

1. General

A. This procedure has one task:

- (1) Hydraulic-fluid-resistant finish application

TASK 51-21-61-390-801

2. Hydraulic Fluid Resistant Finish Application

A. **General**

- (1) This task tells how to prepare and clean the surface, and how to apply the hydraulic fluid resistant finish.
- (2) This task also tells how to mix the material, establish a application time, and gives general information about the catalyst and base compound.

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. **Consumable Materials**

Reference	Description	Specification
B00005	Cleaner - Alkaline - Cee Bee 280	
B00008	Cleaner - Alkaline - Oakite 204	
B00015	Cleaner - Heavy Duty, Multipurpose - Calla 301A	BAC5744, AMS 1526-A, AMS 1550-A
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
B00571	Coating - Clear Skydrol Resistant Topcoating	BAC5710 Type 41
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

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Reference	Description	Specification
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G51270	Tape - Masking, Intertape PG777	

D. Prepare the Surface

SUBTASK 51-21-61-120-001

- (1) Rub the high gloss plastic or painted surface lightly with abrasive mat, G00251 or abrasive cloth, B00102.
 - (a) Do not rub the painted surface around decals when the hydraulic fluid resistant coating is used to seal the edges.

SUBTASK 51-21-61-140-001

- (2) Clean the surface as follows:
 - (a) For decals, placards, and stencils, apply cleaner, B00402 with a cotton wiper, G00034.

NOTE: The following cleaners are optional to cleaner, B00402: Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008 and Calla 301A cleaner, B00015.

 - 1) Rub the area until it is clean.
 - 2) Dry the area with a clean cotton wiper, G00034.
 - 3) Make sure the area is clean. Fully clean the area again if it is necessary.
 - (b) For plastic (thermoplastic) surfaces, apply Cee Bee 280 cleaner, B00005 with a cotton wiper, G00034, using alcohol, B00130 or solvent, B00184 when a solvent is necessary.

NOTE: The following cleaners are optional to Cee Bee 280 cleaner, B00005: cleaner, B00402, Oakite 204 cleaner, B00008, and Calla 301A cleaner, B00015.

 - 1) Rub the area until it is fully clean.
 - 2) Dry the area with a clean cotton wiper, G00034.
 - 3) Make sure the area is clean. Clean the area again if it is not fully clean.
 - (c) For all other surfaces:
 - 1) Fully clean the surface with a clean cotton wiper, G00034 that is moist with solvent, B00083.
 - 2) Before the solvent dries, rub dry the surface with a clean dry cotton wiper, G00034.
 - 3) Clean the area again if it is not fully clean.

SUBTASK 51-21-61-350-001

- (3) Repair all the damaged hydraulic fluid resistant finish.
 - (a) Fully clean the area again.

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SUBTASK 51-21-61-950-001

- (4) Apply Scotch Flatback Masking Tape 250, G00270 to all adjacent areas. Do not let the Alodine solution fall on surfaces that have no tape.

NOTE: You do not have to apply tape on anodized surfaces.

- (a) Attach the tags that follow to the left control wheel in the flight deck.
- 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
- (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
- (c) Apply Scotch Flatback Masking Tape 250, G00270 on the static ports.
- (d) Do the steps that follow to cover the Angle of Attack (AOA) sensors.
- 1) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape, G51270.
 - a) Apply masking tape, G51270 over the blade, plate, and blade-to-plate gap.
- NOTE:** This is to allow easier removal of 3M 425 aluminum tape.
- 2) Cover the PG-777 solvent-resistant masking tape, G51270 with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.

E. Prepare (Mix) the Hydraulic Fluid Resistant Finish

SUBTASK 51-21-61-390-001



USE CLEAN SOLVENT-RESISTANT CONTAINERS WHEN YOU MIX THE HYDRAULIC-FLUID-RESISTANT FINISH. DO NOT USE CONTAINERS THAT CONTAIN ORGANIC COATINGS. DIRTY CONTAINERS AND ORGANIC COATINGS CAN CAUSE CONTAMINATION OF THE MIXTURE.

- (1) Fully mix 1 part (by volume) of the Catalyst (X-310) to 2 parts (by volume) of the base (683-3-2) in a clean solvent-resistant container to make coating, B00571.

NOTE: Recommended containers are metal, polyethylene, and polypropylene. Do not use containers that contain organic coatings.

- (a) Mix the base component continuously when you add the catalyst.
- (b) Immediately after you mix the compound, identify the container with a label.

NOTE: The compound has a application time of 4 hours at 70°F (21.1°C). Do not use the compound when its application time has ended. The use of the compound when its application time has ended will decrease its performance.

- 1) Write the date and the hour when the compound was mixed,
 - 2) Write the date and hour when the application time ends.
- (c) Keep the materials that were not mixed at a temperature between 40°F (4.4°C) – 90°F (32.2°C).

NOTE: You can keep the materials that were not mixed for 12 months from the date of manufacture.

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F. Apply the Hydraulic Fluid Resistant Finish

SUBTASK 51-21-61-350-002

- (1) Do the steps that follow to apply the hydraulic fluid resistant finish:
 - (a) Before you apply the hydraulic fluid resistant finish on sealants, permit the sealant to become fully dry.
 - (b) Make sure the surface is fully clean before you apply the hydraulic fluid resistant finish.
 - (c) Apply the hydraulic fluid resistant finish with a spray gun or brush until the finish is 1 mil (0.025 mm) – 2 mils (0.051 mm) thick.
 - 1) The temperature must be more than 65°F (18.3°C) and the relative humidity must be less than 85 percent for best results.
 - (d) Apply the hydraulic fluid resistant finish on the decals.
 - 1) Make sure you apply a ¼ in. (6.35 mm) overlap of sealant to the decal.
 - a) A ¼ in. (6.35 mm) overlap of sealant to the decal will seal the edges of the decal.
 - (e) Make sure the hydraulic fluid resistant finish is bonded to all applicable surfaces.

SUBTASK 51-21-61-390-002

- (2) Let the hydraulic fluid resistant finish dry for 4 hours at 65°F (18.3°C) (minimum), before you move the airplane to an open area.

NOTE: A time of 14 days at 65°F (18.3°C) (minimum) is necessary before the hydraulic fluid resistant finish is fully cured.

———— **END OF TASK** ————

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CONDUCTIVE COATING FOR EXTERNAL SURFACES - CLEANING/PAINTING

1. General

- A. This procedure has these tasks:
- (1) Apply BMS 10-21 Type II Conductive Coating to Specified External Surfaces.
 - (2) Apply BMS 10-21 Type III Conductive Coating to Specified External Surfaces.
 - (3) Apply BMS 10-21 Type IV Conductive Coating to Specified External Surfaces.
- B. When you apply conductive coatings to non-conductive, external airplane surfaces, it is to:
- (1) Help discharge static electrical charges to the primary airplane structure, and
 - (2) Help the positive grounding of the static electrical charges to the airplane structure.
- C. You can only use BMS10-21, Type II or IV for the Radome or HF antenna fiberglass panel. If you use BMS10-21, Type III, the weather radar system or HF communication system will not operate correctly.

TASK 51-21-71-370-801

2. Apply BMS 10-21 Type II Conductive Coating To Specified External Surfaces

A. References

Reference	Title
51-21-00-100-801	Airplane Surface Preparation for Application of Finish (P/B 701)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
SPL-7885	Probe - Surface Resistivity Measurement Part #: ST895A-3-1 Supplier: 81205
SPL-10361	Probe - Film Resistance Measure Part #: F70328-1 Supplier: 81205 Opt Part #: ST895A-1 Supplier: 81205
STD-1080	Brush - Paint

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Reference	Description
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

C. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
C00767	Coating - Anti-Static Coating	BMS10-21 Type III
C00841	Coating - Anti-Static Coating	BMS10-21 Type II
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50630	Tape - Copper Foil With Conductive Adhesive (3M 1181 Tape)	

D. Procedure

SUBTASK 51-21-71-100-001

 WARNING	DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. CLEAN BARE SKIN FULLY AFTER YOU USE THIS MATERIAL. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) Do this task: Airplane Surface Preparation for Application of Finish, TASK 51-21-00-100-801.

SUBTASK 51-21-71-370-001

- (2) Prepare the conductive coating, C00841, with the steps as follows:
- (a) Refer to the manufacturer's instructions to mix the conductive coating.
 - (b) Fully shake each conductive coating component before you mix it.
- NOTE: The conductive coating is supplied in two component kits. The kits have a base component and a catalyst.

SUBTASK 51-21-71-370-002

- (3) Apply the conductive coating, C00841, compound with a paint spray gun with interchangeable nozzles, STD-1133, or paint brush, STD-1080.
- (a) Be sure that the temperature for the application of the coating, C00841, must be 40°F (4°C) to 100°F (38°C). The recommended temperature is 50°F (10°C) to 90°F (32°C).
 - (b) The dry film thickness after it has been cured must be 0.0008 ±0.0002 in. (0.0203 ±0.0051 mm).

SUBTASK 51-21-71-370-003

- (4) Cure the conductive coating, C00841, with the steps that follow:
- (a) Allow the conductive coating that is in fastener holes cure for at least 20 minutes at 70°F (21°C) to 90°F (32°C) before you install the fasteners.
 - (b) Heat-cure the anti-static coating before taking resistivity measurements or overcoating.

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- 1) The flash-off time necessary before the higher temperature cure is 15 minutes minimum at $75 \pm 15^{\circ}\text{F}$ ($24 \pm 8^{\circ}\text{C}$).
- 2) Apply heat to cure the conductive coating before you do the resistivity measurements as shown in (Figure 701).
NOTE: The increased drying time as shown in Figure 701 is not a full cure.
 - a) Do not cure above 160°F (71°C).
 - b) Do not cure at temperatures of 120°F (49°C) or above for longer than 2 hours.
- 3) The cool-off time necessary before subsequent processing the cure is 15 minutes minimum at $75 \pm 15^{\circ}\text{F}$ ($24 \pm 8^{\circ}\text{C}$).

SUBTASK 51-21-71-700-001

- (5) Do the steps that follow to measure the resistivity of the conductive coating (Fastener-to-Conductive Surface Test Method):

NOTE: The resistivity of the conductive coating after it is cured must be no less than 1 Megohm/square or more than 100 Megohms/square.

NOTE: Let the conductive coat cure for the specified time as shown in Figure 701 before you measure the conductivity.

- (a) If the bonding surface and the head of the fastener are covered with a finish, (Figure 702) do the steps as follows:
- 1) Remove a sufficient quantity of the outer coating or paint to let the probes touch the conductive finish.
NOTE: If it is necessary, you can push the probes through the outer coating.
 - 2) Put the digital/analog multimeter, COM-1793, with the film resistance measure probe, SPL-10361, in direct contact with the bonding fastener and the conductive finish.
 - a) Put the film resistance measure probe, SPL-10361, as shown in Figure 702.
 - 3) Record the value of the resistivity shown on the multimeter.
 - a) Make sure that the resistivity is no less than 1 Megohm/square.
 - b) Make sure that the resistivity is no more than 100 Megohms/square.

SUBTASK 51-21-71-700-002

- (6) Do the steps that follow to measure the resistivity of the conductive coating on uninstalled panels (Fastener-to-Fastener Test Method):

NOTE: The resistivity of the conductive coating after it is cured must be no less than 1 Megohm/square or more than 100 Megohms/square.

- (a) Make sure that the conductive coating shows in the fastener location.
- (b) Clean the area with solvent, B00083.
- (c) Install one temporary fastener at each fastener location to be measured (Figure 702).
NOTE: This procedure can be used for measuring electrical resistance of panels with covered (painted) conductive coatings when the ground fastener locations show.
- (d) Connect the digital/analog multimeter, COM-1793, probes at the two fastener locations as shown in Figure 702.
- (e) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - 1) Make sure that the resistivity is no less than 1 Megohm/square.
 - 2) Make sure that the resistivity is no more than 100 Megohms/square.

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- (f) Remove the temporary fasteners from the surface.

SUBTASK 51-21-71-700-003

- (7) Use one of the procedures follow to measure the resistivity of the conductive coating (Square Test Method): (Figure 703)

NOTE: The term ohms/square is used to give the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: Do not use this procedure to measure the resistivity of conductive finishes when the surface is covered (painted).

- (a) If the surface resistivity measurement probe, SPL-7885, is used on the conductive coating surface, do the steps that follow:

- 1) Put the digital/analog multimeter, COM-1793, with the surface resistivity measurement probe, SPL-7885, in direct contact with the conductive coating surface.
- 2) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - a) The measured value multiplied by 10 gives the value of resistance in ohms/square.

NOTE: The term ohms/square is used because it gives the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: The minimum resistance is no less than 1 Megohm/square or a maximum resistance of 100 Megohms/square.

- (b) If the 3M 1181 copper foil tape, G50630, is used on the conductive coating surface, do the steps that follow:

- 1) Put two pieces of 3M 1181 copper foil tape, G50630, (of equal length (L)) parallel to each other on the conductive coating surface.
- 2) The two strips of 3M 1181 copper foil tape, G50630, must be put parallel to each other a distance of one tenth the length of the two strips (0.1L $\pm$ 5 percent).
- 3) Push the two strips of 3M 1181 copper foil tape, G50630, against the conductive coating.
- 4) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - a) The measured value multiplied by 10 gives the value of resistivity in ohms/square.

NOTE: The term ohms/square is used because it gives the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: The minimum resistivity is no less than 1 Megohm/square or a maximum resistance of 100 Megohms/square.

- 5) Remove the 3M 1181 copper foil tape, G50630, from the surface.

SUBTASK 51-21-71-370-004

- (8) Do the steps that follow if the resistivity of the conductive coating is less than 1 Megohm/square:

- (a) Use 240 grit or finer abrasive cloth, B00102, paper to remove the conductive coating.

NOTE: If the abrasive cloth, B00102, is not available, use a abrasive mat, G00251, or 240 grit or finer abrasive paper, G50077, as an alternate.

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- (b) Remove the remaining particles with a clean cotton wiper, G00034, that is moist with solvent, B00083.
- (c) Dry the surface with a clean cotton wiper, G00034, before the solvent is dry.
- (d) Do the steps to apply a new layer of conductive coating, C00767.
- (e) Do the steps to cure the conductive coating, C00767.
- (f) Do the steps to measure the resistivity of the new layer of conductive coating.

SUBTASK 51-21-71-370-005

- (9) Do the steps that follow if the resistivity of the conductive coating is more than 100 Megohms/square:
 - (a) Cure at 140°F (60°C) to 160°F (71°C) for 60 to 70 minutes.
 - (b) Remeasure the resistivity.
 - (c) If the resistivity is more than 100 Megohms/Square, do the steps that follow:
 - 1) Use 240 grit or finer abrasive cloth, B00102, paper to remove the conductive coating.
NOTE: If the abrasive cloth, B00102, is not available, use a abrasive mat, G00251, or 240 grit or finer abrasive paper, G50077, as an alternate.
 - 2) Remove the remaining particles with a clean cotton wiper, G00034, that is moist with solvent, B00083.
 - 3) Dry the surface with a clean cotton wiper, G00034, before the solvent is dry.
 - 4) Do the steps to apply a new layer of conductive coating, C00767.
 - 5) Do the steps to cure the conductive coating, C00767.
 - 6) Do the steps to measure the resistivity of the new layer of conductive coating.

———— **END OF TASK** ————

TASK 51-21-71-370-802

3. Apply BMS 10-21 Type III Conductive Coating to Specified External Surfaces

A. References

Reference	Title
51-21-00-100-801	Airplane Surface Preparation for Application of Finish (P/B 701)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
SPL-7885	Probe - Surface Resistivity Measurement Part #: ST895A-3-1 Supplier: 81205
SPL-10361	Probe - Film Resistance Measure Part #: F70328-1 Supplier: 81205 Opt Part #: ST895A-1 Supplier: 81205
STD-1080	Brush - Paint
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

C. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
C00767	Coating - Anti-Static Coating	BMS10-21 Type III
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50630	Tape - Copper Foil With Conductive Adhesive (3M 1181 Tape)	

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D. Procedure

SUBTASK 51-21-71-100-002



WARNING

DO NOT GET PAINT MATERIALS AND SOLVENTS IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. MAKE SURE THE AIR FLOWS FREELY THROUGH THE WORK AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND TEMPERATURES ABOVE THE FLASH POINT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Do this task: Airplane Surface Preparation for Application of Finish, TASK 51-21-00-100-801.

SUBTASK 51-21-71-370-006



CAUTION

DO NOT USE BMS10-21, TYPE III ON THE RADOME OR THE FIBERGLASS PANEL FOR THE HF ANTENNA. YOU CAN ONLY USE BMS10-21, TYPE II OR IV ON THESE. IF YOU USE BMS10-21, TYPE III, THE WEATHER RADAR SYSTEM, AND THE HF COMMUNICATION SYSTEM WILL NOT OPERATE CORRECTLY.

- (2) Prepare the conductive coating, C00767, with the steps as follows:
- (a) Refer to the manufacturer's instructions to mix the conductive coating.
 - (b) Fully shake each conductive coating component before you mix it.
NOTE: The conductive coating is supplied in two component kits. The kits have a base component and a catalyst.
 - (c) Put a label on the container with, the data that follows, immediately after it is mixed:
 - 1) The date and time it was mixed,
 - 2) The application time expiration time is as follows:
 - a) 4 hours if the temperature is less than 81°F (27°C)
 - b) 2 hours if the temperature is 81°F (27°C) to 100°F (38°C).
 - (d) Do not use the conductive coating for a minimum of 30 minutes after it is mixed.

SUBTASK 51-21-71-370-007

- (3) Apply the conductive coating, C00767, compound with a paint spray gun with interchangeable nozzles, STD-1133, or paint brush, STD-1080.
- (a) Be sure that the temperature for the application of the coating, C00767, must be 40°F (4°C) to 100°F (38°C). The recommended temperature is 50°F (10°C) to 90°F (32°C).
 - (b) The dry film thickness after it has been cured must be 0.0006 ±0.0002 in. (0.0152 ±0.0051 mm).

SUBTASK 51-21-71-370-008

- (4) Cure the conductive coating, C00767, with one of the steps that follow:
- (a) Let the conductive coating that is in fastener holes cure for at least 20 minutes at 70°F (21°C) to 90°F (32°C) before you install the fasteners.
 - (b) Air dry the surface of the conductive coating for 2 hours at 60°F (16°C).
 - (c) To cure the conductive coating quickly, apply a minimum temperature of 140°F (60°C) before you do the resistivity measurements (Figure 701).

NOTE: The increased drying time as shown in Figure 701 is not a full cure.

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- 1) The flash-off time necessary before the higher temperature cure is 15 minutes minimum at $75 \pm 15^{\circ}\text{F}$ ($24 \pm 8^{\circ}\text{C}$).
- 2) The cool-off time necessary before subsequent processing the cure is 15 minutes minimum at $75 \pm 15^{\circ}\text{F}$ ($24 \pm 8^{\circ}\text{C}$).

SUBTASK 51-21-71-700-004

- (5) Do the steps that follow to measure the resistivity of the conductive coating (Fastener-to-Conductive Surface Test Method):

NOTE: The resistivity of the conductive coating after it is cured must be no more than 300,000 ohms/square.

NOTE: Let the conductive coat cure for the specified time as shown in Figure 701 before you measure the conductivity.

- (a) If the bonding surface and the head of the fastener are covered with a finish, (Figure 702) do the steps as follows:
- 1) Remove a sufficient quantity of the outer coating or paint to let the probes touch the conductive finish.
NOTE: If it is necessary, you can push the probes through the outer coating.
 - 2) Put the digital/analog multimeter, COM-1793, with the film resistance measure probe, SPL-10361, in direct contact with the bonding fastener and the conductive finish.
 - a) Put the film resistance measure probe, SPL-10361, as shown in Figure 702.
 - 3) Record the value of the resistivity shown on the multimeter.
 - a) Make sure that the resistivity is no more than 300,000 ohms/square.

SUBTASK 51-21-71-700-005

- (6) Do the steps that follow to measure the resistivity of the conductive coating on uninstalled panels (Fastener-to-Fastener Test Method):

NOTE: The resistivity of the conductive coating after it is cured must be no more than 300,000 ohms/square

- (a) Make sure that the conductive coating shows in the fastener location.
- (b) Clean the area with solvent, B00083.
- (c) Install one temporary fastener at each fastener location to be measured (Figure 702).
NOTE: This procedure can be used for measuring electrical resistivity of panels with covered (painted) conductive coatings when the ground fastener locations show.
- (d) Connect the digital/analog multimeter, COM-1793, probes at the two fastener locations as shown in Figure 702.
- (e) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - 1) Make sure that the resistivity is no more than 300,000 ohms/square.
- (f) Remove the temporary fasteners from the surface.



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SUBTASK 51-21-71-700-006

- (7) Use one of the procedures that follow to measure the resistivity of the conductive coating (Square Test Method): (Figure 703)

NOTE: The term ohms/square is used to give the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: Do not use this procedure to measure the resistivity of conductive finishes when the surface is covered (painted).

- (a) If the surface resistivity measurement probe, SPL-7885, is used on the conductive coating surface, do the steps that follow:

- 1) Put the digital/analog multimeter, COM-1793, with the surface resistivity measurement probe, SPL-7885, in direct contact with the conductive coating surface.
- 2) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - a) The measured value multiplied by 10 gives the value of resistivity in ohms/square.

NOTE: The term ohms/square is used because it gives the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: The maximum permitted resistivity is 300,000 ohms/square.

- (b) If the 3M 1181 copper foil tape, G50630, is used on the conductive coating surface, do the steps that follow:

- 1) Put two pieces of 3M 1181 copper foil tape, G50630, (of equal length (L)) parallel to each other on the conductive coating surface.
- 2) The two strips of 3M 1181 copper foil tape, G50630, must be put parallel to each other a distance of one tenth the length of the two strips ($0.1L \pm 5$ percent).
- 3) Push the two strips of 3M 1181 copper foil tape, G50630, against the conductive coating.
- 4) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - a) The measured value multiplied by 10 gives the value of resistivity in ohms/square.

NOTE: The term ohms/square is used because it gives the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: The maximum permitted resistivity is 300,000 ohms/square.

- 5) Remove the 3M 1181 copper foil tape, G50630, from the surface.

SUBTASK 51-21-71-370-009

- (8) Do the steps that follow if the resistivity of the conductive coating is more than 300,000 ohms/square:

- (a) Use 240 grit or finer abrasive cloth, B00102, paper to remove the conductive coating.

NOTE: If the abrasive cloth, B00102, is not available, use a abrasive mat, G00251, or 240 grit or finer abrasive paper, G50077, as an alternative.

- (b) Remove the remaining particles with a clean cotton wiper, G00034, that is moist with solvent, B00083.

- (c) Dry the surface with a clean cotton wiper, G00034, before the solvent is dry.

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- (d) Do the steps to apply a new layer of conductive coating, C00767.
- (e) Do the steps to cure the conductive coating, C00767.
- (f) Do the steps to measure the resistivity of the new layer of conductive coating.

———— **END OF TASK** ————

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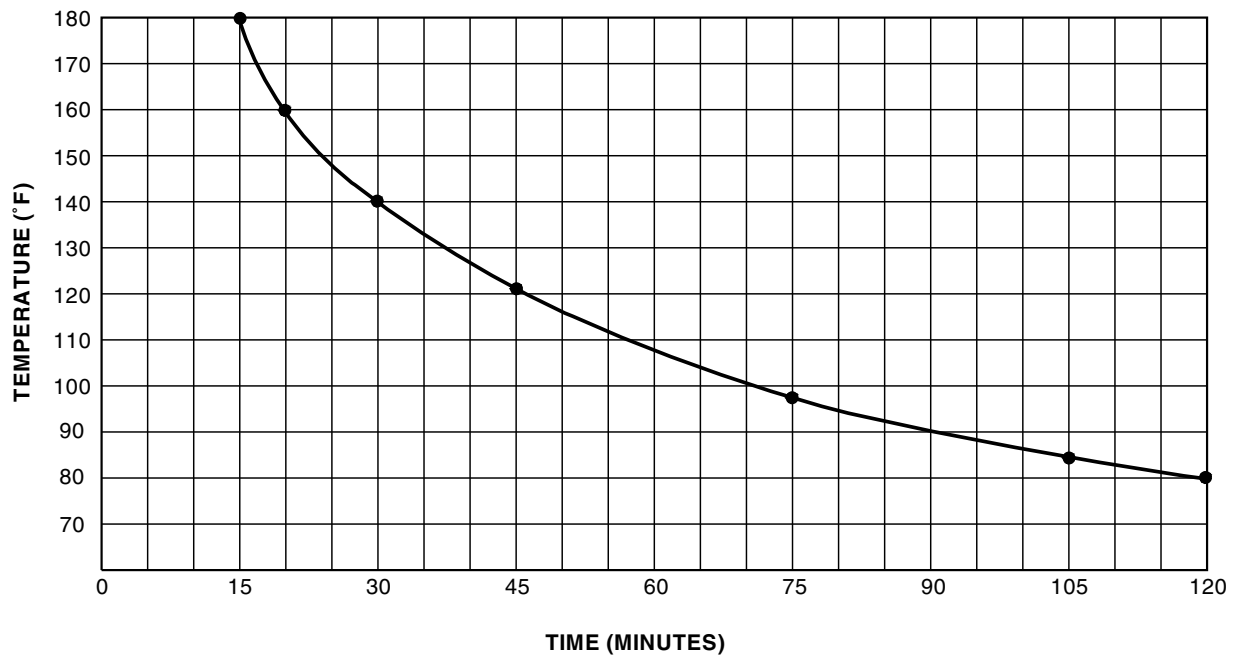
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2415607 S00061538442_V1

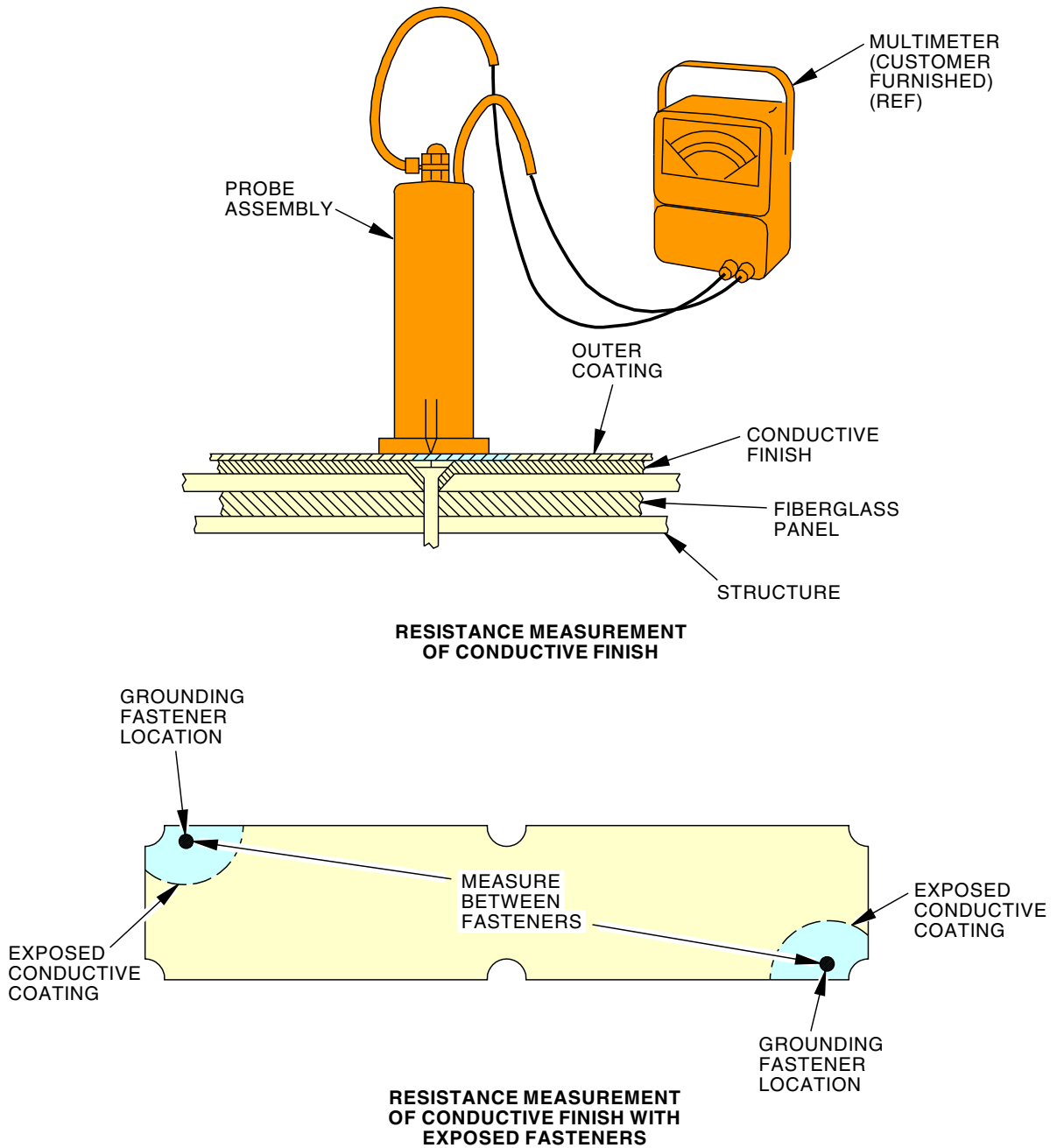
Conductive Coating Increased Cure Times
Figure 701/51-21-71-990-801

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2415608 S00061538443_V2

Resistance Measurement of Conductive Finish
Figure 702/51-21-71-990-802

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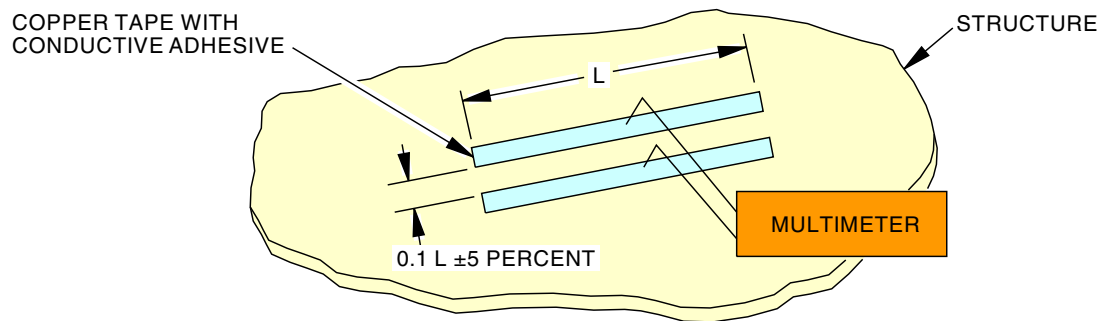
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2415609 S00061538444_V1

Measuring Resistance of Conductive Finish by the Ohms Per Square Procedure
Figure 703/51-21-71-990-803

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TASK 51-21-71-370-803

4. Apply BMS 10-21 Type IV Conductive Coating To Specified External Surfaces

A. References

Reference	Title
51-21-00-100-801	Airplane Surface Preparation for Application of Finish (P/B 701)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1793	Multimeter - Digital/Analog (or equivalent meter meets task requirements) Part #: 117 Supplier: 89536 Part #: 260-8XPI Supplier: 55026 Part #: 287 Supplier: 89536 Part #: 289 Supplier: 89536 Part #: 87V Supplier: 89536 Part #: FLUKE 27 II Supplier: 89536 Part #: FLUKE-77-4 Supplier: 89536 Opt Part #: 187 Supplier: 89536 Opt Part #: 189 Supplier: 89536 Opt Part #: 21 Supplier: 89536 Opt Part #: 27 Supplier: 89536 Opt Part #: 77 SERIES III Supplier: 89536 Opt Part #: 87 Supplier: 89536 Opt Part #: FLUKE 27 Supplier: 89536 Opt Part #: MODEL 27 Supplier: 89536
SPL-7885	Probe - Surface Resistivity Measurement Part #: ST895A-3-1 Supplier: 81205
SPL-10361	Probe - Film Resistance Measure Part #: F70328-1 Supplier: 81205 Opt Part #: ST895A-1 Supplier: 81205
STD-1080	Brush - Paint
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

C. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
C50219	Coating - Anti-Static Coating	BMS10-21 Type IV
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	

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(Continued)

Reference	Description	Specification
G50630	Tape - Copper Foil With Conductive Adhesive (3M 1181 Tape)	

D. Procedure

SUBTASK 51-21-71-100-003

 WARNING	DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. CLEAN BARE SKIN FULLY AFTER YOU USE THIS MATERIAL. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

- (1) Do this task: Airplane Surface Preparation for Application of Finish, TASK 51-21-00-100-801.

SUBTASK 51-21-71-370-010

- (2) Prepare the conductive coating, C50219, with the steps as follows:

- (a) Refer to the manufacturer's instructions to mix the conductive coating.
- (b) Fully shake each conductive coating component before you mix it.

NOTE: The conductive coating is supplied in two component kits. The kits have a base component and a catalyst.

SUBTASK 51-21-71-370-011

- (3) Apply the conductive coating, C50219, compound with a paint spray gun with interchangeable nozzles, STD-1133, or paint brush, STD-1080.

- (a) Be sure that the temperature for the application of the coating, C50219, must be 40°F (4°C) to 100°F (38°C). The recommended temperature is 50°F (10°C) to 90°F (32°C).
- (b) The dry film thickness after it has been cured must be 0.0008 ±0.0002 in. (0.0203 ±0.0051 mm).

SUBTASK 51-21-71-370-012

- (4) Cure the conductive coating, C50219, with the steps that follow:

- (a) Allow the conductive coating that is in fastener holes cure for at least 20 minutes at 70°F (21°C) to 90°F (32°C) before you install the fasteners.
- (b) Heat-cure the anti-static coating before taking resistivity measurements or overcoating.
 - 1) The flash-off time necessary before the higher temperature cure is 15 minutes minimum at 75 ±15°F (24 ±8°C).
 - 2) Apply heat to cure the conductive coating before you do the resistivity measurements as shown in (Figure 701).

NOTE: The increased drying time as shown in Figure 701 is not a full cure.

- a) Do not cure above 160°F (71°C).
 - b) Do not cure at temperatures of 120°F (49°C) or above for longer than 2 hours.
- 3) The cool-off time necessary before subsequent processing the cure is 15 minutes minimum at 75 ±15°F (24 ±8°C).

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SUBTASK 51-21-71-700-007

- (5) Do the steps that follow to measure the resistivity of the conductive coating (Fastener-to-Conductive Surface Test Method):

NOTE: The resistivity of the conductive coating after it is cured must be no less than 1 Megohm/square or more than 100 Megohms/square.

NOTE: Let the conductive coat cure for the specified time as shown in Figure 701 before you measure the conductivity.

- (a) If the bonding surface and the head of the fastener are covered with a finish, (Figure 702) do the steps as follows:
- 1) Remove a sufficient quantity of the outer coating or paint to let the probes touch the conductive finish.
NOTE: If it is necessary, you can push the probes through the outer coating.
 - 2) Put the digital/analog multimeter, COM-1793, with the film resistance measure probe, SPL-10361, in direct contact with the bonding fastener and the conductive finish.
 - a) Put the film resistance measure probe, SPL-10361, as shown in Figure 702.
 - 3) Record the value of the resistivity shown on the multimeter.
 - a) Make sure that the resistivity is no less than 1 Megohm/square.
 - b) Make sure that the resistivity is no more than 100 Megohms/square.

SUBTASK 51-21-71-700-008

- (6) Do the steps that follow to measure the resistivity of the conductive coating on uninstalled panels (Fastener-to-Fastener Test Method):

NOTE: The resistivity of the conductive coating after it is cured must be no less than 1 Megohm/square or more than 100 Megohms/square.

- (a) Make sure that the conductive coating shows in the fastener location.
- (b) Clean the area with solvent, B00083.
- (c) Install one temporary fastener at each fastener location to be measured (Figure 702).
NOTE: This procedure can be used for measuring electrical resistivity of panels with covered (painted) conductive coatings when the ground fastener locations show.
- (d) Connect the digital/analog multimeter, COM-1793, probes at the two fastener locations as shown in Figure 702.
- (e) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - 1) Make sure that the resistivity is no less than 1 Megohm/square.
 - 2) Make sure that the resistivity is no more than 100 Megohms/square.
- (f) Remove the temporary fasteners from the surface.

SUBTASK 51-21-71-700-009

- (7) Use one of the procedures that follow to measure the resistivity of the conductive coating (Square Test Method): (Figure 703)

NOTE: The term ohms/square is used to give the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.

NOTE: Do not use this procedure to measure the resistivity of conductive finishes when the surface is covered (painted).



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- (a) If the surface resistivity measurement probe, SPL-7885, is used on the conductive coating surface, do the steps that follow:
- 1) Put the digital/analog multimeter, COM-1793, with the surface resistivity measurement probe, SPL-7885, in direct contact with the conductive coating surface.
 - 2) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - a) The measured value multiplied by 10 gives the value of resistivity in ohms/square.
- NOTE: The term ohms/square is used because it gives the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.
- NOTE: The minimum resistivity is no less than 1 Megohm/square or a maximum resistivity of 100 Megohms/square.
- (b) If the 3M 1181 copper foil tape, G50630, is used on the conductive coating surface, do the steps that follow:
- 1) Put two pieces of 3M 1181 copper foil tape, G50630, (of equal length (L)) parallel to each other on the conductive coating surface.
 - 2) The two strips of 3M 1181 copper foil tape, G50630, must be put parallel to each other a distance of one tenth the length of the two strips (0.1L $\pm$ 5 percent).
 - 3) Push the two strips of 3M 1181 copper foil tape, G50630, against the conductive coating.
 - 4) Measure the resistivity with the digital/analog multimeter, COM-1793.
 - a) The measured value multiplied by 10 gives the value of resistivity in ohms/square.
- NOTE: The term ohms/square is used because it gives the resistance in ohms of current passing from one side of a square region to the opposite side, regardless of the size of the square.
- NOTE: The minimum resistivity is no less than 1 Megohm/square or a maximum resistivity of 100 Megohms/square.
- 5) Remove the 3M 1181 copper foil tape, G50630, from the surface.

SUBTASK 51-21-71-370-013

- (8) Do the steps that follow if the resistivity of the conductive coating is less than 1 Megohm/square:
- (a) Use 240 grit or finer abrasive cloth, B00102, paper to remove the conductive coating.

NOTE: If the abrasive cloth, B00102, is not available, use a abrasive mat, G00251, or 240 grit or finer abrasive paper, G50077, as an alternative.
 - (b) Remove the remaining particles with a clean cotton wiper, G00034, that is moist with solvent, B00083.
 - (c) Dry the surface with a clean cotton wiper, G00034, before the solvent is dry.
 - (d) Do the steps to apply a new layer of conductive coating, C50219.
 - (e) Do the steps to cure the conductive coating, C50219.
 - (f) Do the steps to measure the resistivity of the new layer of conductive coating.

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SUBTASK 51-21-71-370-014

- (9) Do the steps that follow if the resistivity of the conductive coating is more than 100 Megohms/square:
- (a) Cure at 140°F (60°C) to 160°F (71°C) for 60 to 70 minutes.
 - (b) Remeasure the resistivity.
 - (c) If the resistivity is more than 100 Megohms/square, do the steps that follow:
 - 1) Use 240 grit or finer abrasive cloth, B00102, paper to remove the conductive coating.
NOTE: If the abrasive cloth, B00102, is not available, use a abrasive mat, G00251, or 240 grit or finer abrasive paper, G50077, as an alternative.
 - 2) Remove the remaining particles with a clean cotton wiper, G00034, that is moist with solvent, B00083.
 - 3) Dry the surface with a clean cotton wiper, G00034, before the solvent is dry.
 - 4) Do the steps to apply a new layer of conductive coating, C50219.
 - 5) Do the steps to cure the conductive coating, C50219.
 - 6) Do the steps to measure the resistivity of the new layer of conductive coating.

———— **END OF TASK** ————

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PRIMER - CLEANING/PAINTING

1. General

- A. This procedure has the tasks below to apply primer.
- (1) BMS10-79, Type II and Type III, Primer - Application
 - (2) BMS10-103, Type 1, Primer - Application
 - (3) BMS10-72 Primer - Application
 - (4) BMS10-11 Primer - Application

TASK 51-21-72-370-801

2. BMS10-79 Primer - Application

A. **General**

- (1) This procedure has steps to do the following.
 - (a) Prepare to apply the BMS10-79 urethane-compatible, corrosion-resistant primer, C50080
 - (b) Apply the BMS10-79 urethane-compatible, corrosion-resistant primer, C50080
 - (c) Minor rework
 - (d) Major rework
- (2) Boeing recommends that the ambient air temperature between 50°F (10°C) and 90°F (32°C) while applying BMS10-79 urethane-compatible, corrosion-resistant primer, C50080.
 - (a) Contact the paint manufacturer for guidance if you will apply the paint outside the recommended temperature range.

B. **References**

Reference	Title
51-21-21-100-802	Cleaning and Preparation of Internal and External Plastic Surfaces (P/B 701)
51-21-41-370-802	Apply Bonderite M-CR 600, Bonderite M-CR 1200, Bonderite M-CR 600RTU, or Bonderite M-CR 1200S Solution (P/B 701)

C. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

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D. Consumable Materials

Reference	Description	Specification
B00017	Cleaner - Alkaline - Pace B-82 (Formerly Pacific B-82)	BMS11-12
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B50052	Cleaner - Alkaline - Ridoline 909	
B50172	Cleaner - Alkaline - Pace MF-30	
B50240	Cleaner - Turco 4215 NC-LT Alkaline Cleaner	
C00175	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type III
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II
C00862	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
C50080	Primer - Urethane-compatible, Corrosion-resistant	BMS10-79 Type I
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50078	Abrasive - Aluminum Oxide Paper, 320 grit or finer	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50260	Sandpaper - Aluminum Oxide, 220 Grit	
G50262	Wiper - Cleaning	BMS15-5
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51270	Tape - Masking, Intertape PG777	

E. Prepare to Apply the BMS10-79 Primer

SUBTASK 51-21-72-950-001

- (1) Mask all areas that will not be coated with BMS10-79 urethane-compatible, corrosion-resistant primer, C50080.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444

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- 3) A red tag labeled "AOA SENSORS COVERED"
- (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
- (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
- (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-72-160-001

- (2) Prepare unsealed anodized aluminum with the steps that follow.
 - (a) Remove small amounts of oily contamination with the steps that follow.
 - 1) Use a wiper, G50262, wet with water to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - (b) Remove small amounts of oily contamination with the steps that follow.
 - 1) Wipe clean the surface with solvent.
 - a) Use a wiper, G50262, wet with solvent, B00062 or solvent, B00184, to wipe the surface.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
- <1> Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-002

- (3) Prepare sealed anodized aluminum with the steps that follow.
 - (a) If the surface becomes contaminated, solvent clean the surface.
 - 1) Use a wiper, G50262, wet with solvent, B00062 or solvent, B00184, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-003

- (4) Prepare surfaces with paint with one of the methods listed in Table 701.

Table 701/51-21-72-993-801 Surface Preparation Methods Before Application of BMS10-79

SURFACE COATING	DRY TIME	DRY TEMPERATURE	PREPARATION METHOD
BMS10-79, Grade D	≤ 12 hours	Air Dry	Method 1
BMS10-79, Grade D	> 12 hours	Air Dry	Method 2
BMS10-11, Type I, Grade A or E	< 48 hours	Air Dry	Method 1

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Table 701/51-21-72-993-801 Surface Preparation Methods Before Application of BMS10-79 (Continued)

BMS10-11, Type I, Grade A or E	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-20, Type II, Grade A or D	< 48 hours	Air Dry	Method 1
BMS10-20, Type II, Grade A or D	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-79, Type II or Type III, Grade A	< 48 hours	Air Dry	Method 1
BMS10-79, Type II or Type III, Grade A	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-103, Type I, Grade A or E	< 48 hours	Air Dry	Method 1
BMS10-103, Type I, Grade A or E	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-11, Type I, Grade B	< 24 hours	Air Dry	Method 1
BMS10-11, Type I, Grade B	> 24 hours	Air Dry	Method 3 or Method 4
BMS5-89	--	--	Method 3 or Method 4

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(5) Use one of the methods that follow to prepare the surface (Table 701).

(a) Method 1

- 1) If the contamination is only particulate, blow the surface with clean, compressed air or wipe the surface with a tack rag, G50123.
- 2) Wipe clean the surface with solvent, if necessary.
 - a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

<1> Make sure that the solvent does not dry on the surface.

(b) Method 2

- 1) Wipe clean the surface with solvent.
 - a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

<1> Make sure that the solvent does not dry on the surface.
- 2) Sand the surface to remove gloss with 220-grit or finer sandpaper, G50260, silicone-free abrasive.
- 3) Wipe clean the surface with solvent to remove sanding dust.
 - a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

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<1> Make sure that the solvent does not dry on the surface.

(c) Method 3

1) Wipe clean the surface with solvent.

- a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
- b) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

<1> Make sure that the solvent does not dry on the surface.

2) Sand the surface with 320 grit or finer abrasive paper, G50078.

3) Wipe clean the surface with solvent to remove sanding dust.

- a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
- b) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

<1> Make sure that the solvent does not dry on the surface.

(d) Method 4

1) Wipe clean the surface with solvent.

- a) Use one of the abrasives that is wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
- b) Scotch-Brite 7447 pad, G50220
- c) Scotch-Brite Clean and Finish, very fine, aluminum oxide
- d) A very fine, aluminum oxide abrasive hand pad, G51193
- e) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

<1> Make sure that the solvent does not dry on the surface.

2) Alkaline clean the surface with an abrasive pad wet with one of the cleaners that follow, diluted with seven parts water, by volume.

- a) Ardrex 160-B
- b) Pace B-82 alkaline cleaner, B00017
- c) Pace MF-30 cleaner, B50172
- d) Turco 4215 NC-LT alkaline cleaner, B50240
- e) Ridoline 909, B50052
- f) Super Bee 300LF

3) Rinse the surface with large amounts of water.

4) Check for a water-break-free surface.

- a) If water breaks occur, alkaline clean the surface again and rinse with more water.

5) Dry the surface.

SUBTASK 51-21-72-370-001

(6) Mix the primer using the manufacturer's instructions.

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F. Apply the BMS10-79 Primer

SUBTASK 51-21-72-370-002

(1) Apply the BMS10-79 Type II primer, C00319, or BMS10-79 Type III primer, C00175.

(a) Spray or brush apply the primer.

SUBTASK 51-21-72-370-003

(2) Cure the primer, see Table 702.

Table 702/51-21-72-993-802 BMS10-79, Type II and Type III, Primer Cure Times and Temperatures

PRIMER	BEFORE RECOATING OR OVERCOATING		BEFORE MASKING		BEFORE HANDLING	
	Time	Temperature	Time	Temperature	Time	Temperature
BMS10-79, Type II, Grade A	2 hours minimum 4 hours maximum	70°F (21°C) to 100°F (38°C)	2 hours	70°F (21°C) to 100°F (38°C)	4 hours	70°F (21°C) to 100°F (38°C)
BMS10-79, Type II and Type III, Grade D	1 hour minimum 12 hours maximum	60°F (16°C) to 100°F (38°C) 60°F (16°C) to 120°F (49°C)	Figure 701	Figure 701	Figure 701	Figure 701
BMS10-79, Type III, Grade A	15 minutes 48 hours maximum	60°F (16°C) to 100°F (38°C) 70°F (21°C) to 100°F (38°C)	Figure 702	Figure 702	Figure 702	Figure 702

SUBTASK 51-21-72-370-004

(3) If you use thinned primer, spray or brush apply the BMS10-79 Type II primer, C00319, or BMS10-79 Type III primer, C00175, to a thickness in Table 703.

NOTE: Un-thinned primer can be applied with brush application, but it is limited to small surface areas.

(a) Measure the dry film thickness after the minimum dry time to tape (Table 702).

Table 703/51-21-72-993-803 BMS10-79, Type II and Type III, Primer Dry Film Thickness Requirements

SUBSTRATE	NUMBER OF COATS	MINIMUM DRY FILM THICKNESS (MILS)	MAXIMUM DRY FILM THICKNESS (MILS)	MAXIMUM DRY FILM THICKNESS FOR LOCALIZED AREAS OF REWORK, OVERLAP, AND OVERSPRAY (MILS)
Metal	1	0.5	1.0	2.0
	2	1.1	2.1	3.0
Composite or Plastic	1	0.3*[1]	0.8	--
	2	0.7*[1]	1.7	--

*[1] For optimum coating performance, the recommended target thickness for one coat is 0.3 mil.

1) If the dry film thickness exceeds the limits in Table 703, do the steps that follow.

a) Sand the areas where the dry film thickness exceeds the limits in Table 703 with one of the steps that follow.

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- <1> 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - <2> Scotch-Brite 7447 pad, G50220, very fine, aluminum oxide
 - <3> Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193
 - <5> Sand the surface until the thickness is within the limits in Table 703.
- b) Wipe clean the surface with solvent.
- <1> Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - <2> Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.
 - <a> Make sure that the solvent does not dry on the surface.

G. Minor Rework

SUBTASK 51-21-72-160-005

- (1) For areas that have minor damage and the substrate is not exposed, do the steps that follow.
- (a) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (b) Sand the surface where the area is damaged with one of the abrasive materials that follow.
 - 1) 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - 2) Scotch-Brite 7447 pad, G50220
 - 3) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide
 - 4) A very fine, aluminum oxide abrasive hand pad, G51193
 - (c) Wipe clean the surface with solvent to remove sanding dust.
 - 1) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (d) Apply the primer to the area.
 - (e) Dry and cure the primer.

SUBTASK 51-21-72-160-006

- (2) For areas with minor damage and the composite or plastic substrate is exposed, do the steps that follow.
- (a) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.

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- a) Make sure that the solvent does not dry on the surface.
- (b) Sand the surface where the area is damaged with one of the abrasive materials that follow.
 - 1) 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - 2) Scotch-Brite 7447 pad, G50220
 - 3) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide
 - 4) A very fine, aluminum oxide abrasive hand pad, G51193
- (c) Wipe clean the surface with solvent to remove sanding dust.
 - 1) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
- a) Make sure that the solvent does not dry on the surface.
- (d) Apply the primer to the area.
- (e) Dry and cure the primer.

SUBTASK 51-21-72-160-007

- (3) For areas with minor damage and the metal substrate is exposed, do the steps that follow.
 - (a) For pretreated Titanium or CRES surfaces, and aluminum surfaces with chemical conversion coating, do the steps that follow.
 - 1) Wipe clean the surface with solvent.
 - a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 2) Sand the surface where the area is damaged with one of the abrasive materials that follow.
 - a) 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - b) Scotch-Brite 7447 pad, G50220
 - c) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide
 - d) A very fine, aluminum oxide abrasive hand pad, G51193
 - 3) Solvent clean the area to remove sanding dust.
 - a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 4) Apply the primer.
 - 5) Dry and cure the primer.
- (b) For anodized areas that are less than 5% of the required coating area for the part, do the steps that follow.
 - 1) Wipe clean the surface with solvent.

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- a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to clean the surface.
- b) Immediately wipe the surface dry with a clean wiper, G50262, to remove excess solvent.
 <1> Make sure that the solvent does not dry on the surface.
- 2) Sand the surface where the area is damaged with one of the abrasive materials that follow.
 - a) 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - b) Scotch-Brite 7447 pad, G50220
 - c) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide
 - d) A very fine, aluminum oxide abrasive hand pad, G51193
- 3) Wipe clean the surface with solvent to remove sanding dust.
 - a) Use a wiper, G50262, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 <1> Make sure that the solvent does not dry on the surface.
- 4) Apply Bonderite M-CR 600 Aero coating, C00862, to bare areas (Apply Bonderite M-CR 600, Bonderite M-CR 1200, Bonderite M-CR 600RTU, or Bonderite M-CR 1200S Solution, TASK 51-21-41-370-802).
- 5) Immediately before applying the primer, wipe the surface with a new tack rag, G50123.
- 6) Apply the primer.
- 7) Dry and cure the primer.

H. Major Rework

SUBTASK 51-21-72-160-008

- (1) For major rework of composite or plastic surfaces, do the steps that follow.

NOTE: Major rework requires the removal of the primer.

- (a) Sand the surface to remove the primer with one of the abrasive materials that follow.
 - 1) 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - 2) Scotch-Brite 7447 pad, G50220
 - 3) Scotch-Brite Clean and Finish, very fine, Grade a, aluminum oxide
 - 4) A very fine, aluminum oxide abrasive hand pad, G51193
- (b) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, wet with solvent, B00184 or solvent, B00062, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 a) Make sure that the solvent does not dry on the surface.
- (c) Prepare the surface, if necessary (Cleaning and Preparation of Internal and External Plastic Surfaces, TASK 51-21-21-100-802).
- (d) Immediately before applying the primer, wipe the surface with a new tack rag, G50123.

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- (e) Apply the primer.
- (f) Dry and cure the primer.

SUBTASK 51-21-72-160-009

- (2) For major rework of metal parts, do the steps that follow.
 - (a) Sand the surface to remove the primer with one of the abrasive materials that follow.
 - 1) 220-grit or finer sandpaper, G50260, silicone-free abrasive
 - 2) Scotch-Brite 7447 pad, G50220
 - 3) Scotch-Brite Clean and Finish, very fine, Grade a, aluminum oxide
 - 4) A very fine, aluminum oxide abrasive hand pad, G51193
 - (b) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, wet with solvent, B00184 or solvent, B00062, to wipe the surface.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (c) Prepare the surface, if necessary (Cleaning and Preparation of Internal and External Plastic Surfaces, TASK 51-21-21-100-802).
 - (d) Immediately before applying the primer, wipe the surface with a new tack rag, G50123.
 - (e) Apply the primer.
 - (f) Dry and cure the primer.

———— **END OF TASK** ————

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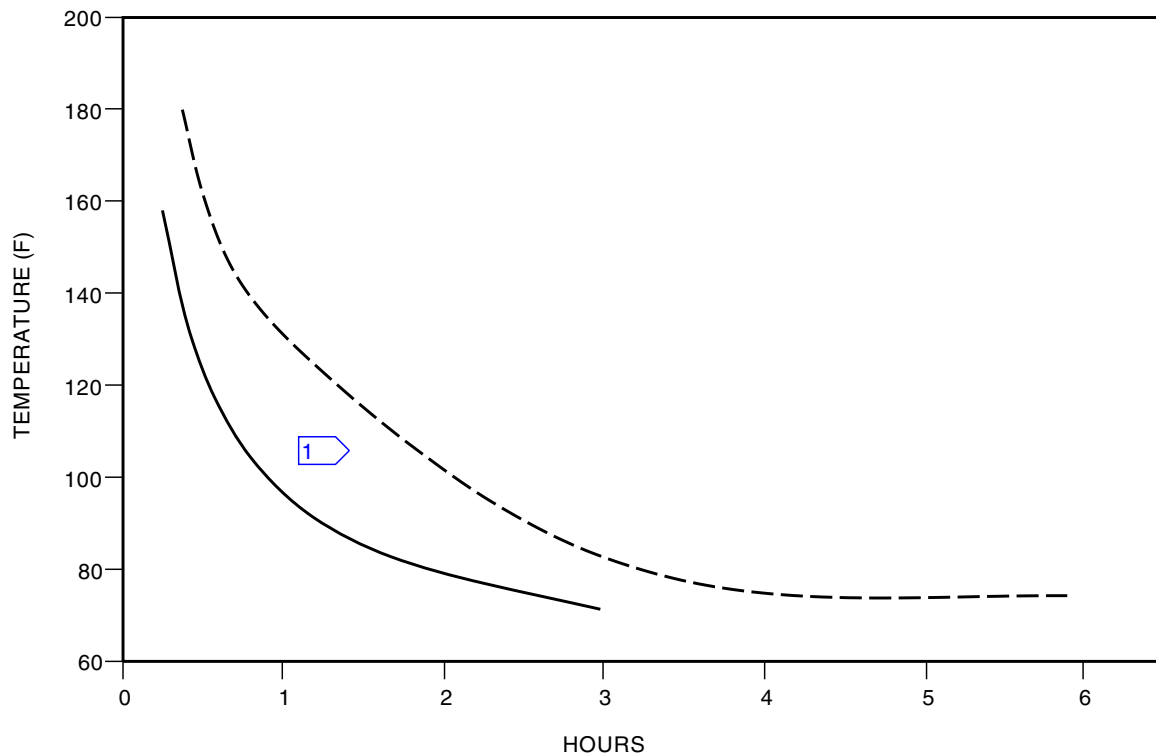
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LEGEND:

——— TIME TO MASK
- - - - TIME TO HANDLE

1 ALLOW A MINIMUM OF 30 MINUTES FOR SOLVENT EVAPORATION PRIOR TO FORCE DRYING.

2415610 S00061538449_V1

Curing for BMS10-79, Type II, Grade D Primer
Figure 701/51-21-72-990-801

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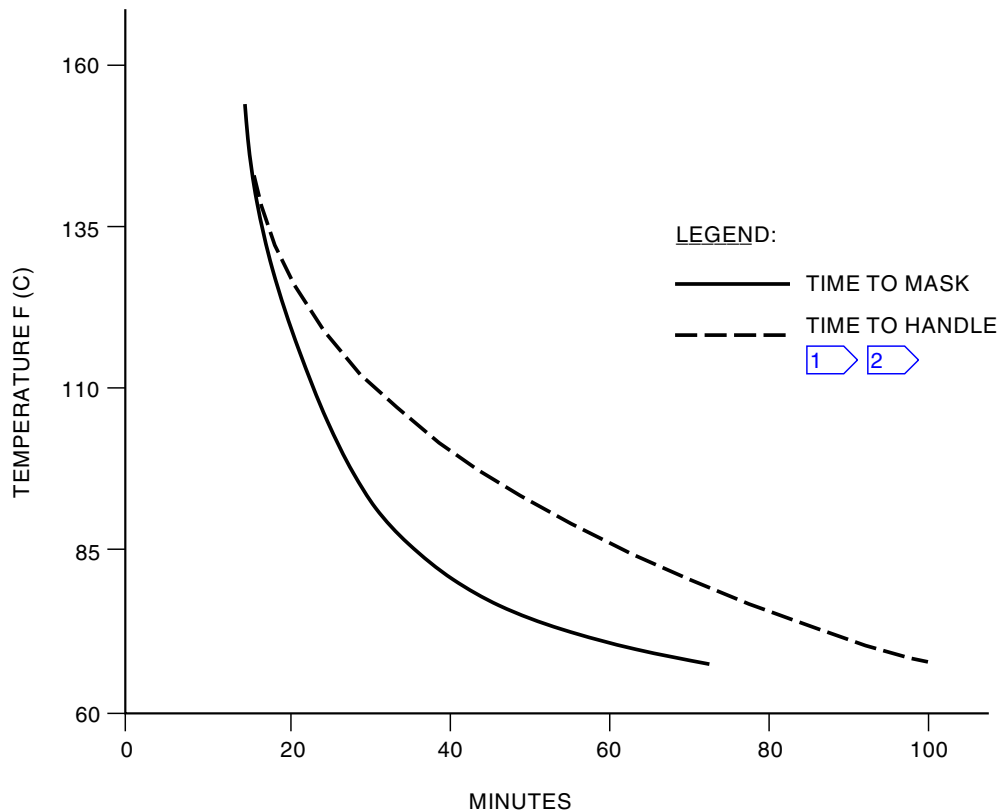
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- 1 ALLOW A MINIMUM OF 30 MINUTES FOR SOLVENT EVAPORATION PRIOR TO FORCE DRYING.
- 2 THE PRIMER MAY BE FORCE DRIED AT A TEMPERATURE BETWEEN 160 F (OR 71 C) AND 200 F (OR 93 C) FOR A MINIMUM OF 15 MINUTES PRIOR TO MASKING OR HANDLING.

2415611 S00061538450_V1

Curing for BMS10-79, Type III, Grade A Primer
Figure 702/51-21-72-990-802

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TASK 51-21-72-370-802

3. BMS10-103, Type 1, Primer - Application

A. General

- (1) This procedure has steps to do the following.
 - (a) Prepare to apply the BMS10-103, Type 1, Primer
 - (b) Apply the BMS10-103, Type 1, Primer
 - (c) Minor re-work for composite surfaces (substrate exposed)
 - (d) Minor re-work for titanium and CRES surfaces (substrate exposed)
 - (e) Major re-work for composite surfaces
 - (f) Major re-work for titanium and CRES surfaces
- (2) Boeing recommends you apply the BMS10-103, Type 1, primer when the ambient air temperature is between 40°F (4°C) and 100°F (38°C).
 - (a) Contact the paint manufacturer for guidance if you will apply the paint outside the recommended temperature range.

B. References

Reference	Title
51-21-41 P/B 701	CHEMICAL CONVERSION COATING - CLEANING/PAINTING

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00067	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002 (Supersedes O-E-760)
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7

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Reference	Description	Specification
B50073	Alcohol - Isopropyl	ASTM D 770
C00766	Primer - Nonchromated Primer For Composites	BMS10-103 Type I
G00215	Brush - Soft Bristle Fiber	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51270	Tape - Masking, Intertape PG777	

E. Prepare to Apply the BMS10-103, Type 1, Primer

SUBTASK 51-21-72-370-005

- (1) Mask all areas that will not be coated with the primer.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-72-160-010

- (2) For bare exterior composite or plastic surfaces, do the steps that follow.

NOTE: These steps are not applicable to BMS8-267 or BMS8-341, Type II, Form 2, surfaces.

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- (a) Abrade the surface with 100-grit or finer aluminum oxide, silicone free, abrasive paper or cloth.
 - 1) Use a pneumatic sander to abrade the surface.
- (b) Abrade the surface with one of the abrasive pads that follow and a pneumatic sander.
 - 1) Scotch-Brite 7447 pad, G50220
 - 2) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - 3) A very fine, aluminum oxide abrasive hand pad, G51193, very fine, aluminum oxide
- (c) Remove sanding residue with compressed air, if necessary.
- (d) Solvent clean the surface.
 - 1) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil, if necessary.
 - 2) Use one of the methods that follow to solvent clean the surface.

 WARNING	DO NOT GET SOLVENTS IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE DANGEROUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR CAUSE DAMAGE TO THE ENVIRONMENT. REFER TO THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE LOCAL SAFETY PRECAUTIONS.

- a) Wet a wiper, G50262, or soft bristle brush with a solvent, B00062 or solvent, B00184, and wipe the surface.
- b) Wipe the surface with a pre-saturated wiper wet with one of the solvents that follow.

NOTE: Pre-saturated wipers are only approved if you will paint after final cleaning.

 - <1> BSMS-88-001, Type 1, Class 4
 - <2> BSMS-88-001, Type 2, Class 4
 - <3> BSMS-88-001, Type 3, Class 4
 - <4> BSMS-88-001, Type 5, Class 4
 - <5> BSMS-88-001, Type 6, Class 4
- c) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-011

- (3) For BMS10-79 or BMS10-103 primed surfaces that have dried for less than 48 hours, do the steps that follow.
 - (a) If the surface becomes contaminated, solvent clean the area.

NOTE: If the contamination is particulate, you can use clean, compressed air or a new tack rag, G50123.

 - 1) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil, if necessary.
 - 2) Use one of the methods that follow to solvent clean the surface.

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- a) Wet a wiper, G50262, with solvent, B00184 or alcohol, B00130, and wipe the surface.
- b) Wipe the surface with one of the pre-saturated wipers that follow.
 - <1> BSMS-88-001, Type 1, Class 4
 - <2> BSMS-88-001, Type 2, Class 4
 - <3> BSMS-88-001, Type 3, Class 4
 - <4> BSMS-88-001, Type 5, Class 4
 - <5> BSMS-88-001, Type 6, Class 4
- c) Wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-012

- (4) For BMS10-79 or BMS10-103 primed surfaces that have dried for more than 48 hours, or if the primer has been force-dried for any amount of time, use one of the methods that follow.

(a) Method 1: BMS10-79 or BMS10-103

- 1) Solvent clean the surface.
 - a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - b) Use one of the methods that follow to solvent clean the surface.
 - <1> Wet a wiper, G50262, with alcohol, B00068 or alcohol, B00130, and wipe the surface.
 - <2> Wipe the surface with one of the pre-saturated wipers that follow.
 - <a> BSMS-88-001, Type 1, Class 4
 - BSMS-88-001, Type 2, Class 4
 - <c> BSMS-88-001, Type 3, Class 4
 - <d> BSMS-88-001, Type 5, Class 4
 - <e> BSMS-88-001, Type 6, Class 4
 - <3> Wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.
 - <a> Make sure that the solvent does not dry on the surface.
- 2) Sand the surface with one of the abrasive pads or abrasive paper that follow.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - d) An abrasive cloth, B00102, 100-grit or finer, wet or dry.
- 3) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil, if necessary.
- 4) Use one of the methods that follow to solvent clean the surface.

NOTE: This is to remove sanding dust.

 - a) Wet a wiper, G50262, or brush, G00215, with solvent, B00184 or alcohol, B00130, and wipe the surface.
 - b) Use one of the methods that follow to solvent clean the surface.

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<1> Wet a wiper, G50262, or brush, G00215, with solvent, B00184 or alcohol, B00130, and wipe the surface.

<2> Wipe the surface with one of the pre-saturated wipers that follow.

NOTE: Pre-saturated wipers are only approved if you will paint after final cleaning.

<a> BSMS-88-001, Type 1, Class 4

 BSMS-88-001, Type 2, Class 4

<c> BSMS-88-001, Type 3, Class 4

<d> BSMS-88-001, Type 5, Class 4

<e> BSMS-88-001, Type 6, Class 4

<3> Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.

<a> Make sure that the solvent does not dry on the surface.

5) Use compressed air or a new tack rag, G50123, if necessary.

6) If the assembly has bare titanium fastener heads or bare CRES fastener heads, to the steps that follow.

a) Wipe the surface with a wiper, G50262, wet with alcohol, B50073 (ASTM D770).

b) Wipe the surface with a clean wiper, G50262.

c) Apply conversion coating to the bare fastener heads (CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-41/701).

NOTE: It is acceptable if the conversion coating touches the adjacent surfaces.

F. Apply the BMS10-103, Type 1, Primer

SUBTASK 51-21-72-160-013

(1) Immediately before applying the primer, wipe the surface with a new tack rag, G50123, or use clean, compressed air.

NOTE: This is to remove any particulate contamination.

SUBTASK 51-21-72-370-006

(2) Apply the BMS10-103, Type 1, primer, C00766, in a continuous coat that is free of runs, wrinkles, and pinholes.

SUBTASK 51-21-72-370-007

(3) Dry the BMS10-103, Grade A primer using Table 704.

(a) Air dry the BMS10-103, Grade A primer for a minimum of 30 minutes at a minimum of 65°F (18°C) before over-coating or re-coating.

Table 704/51-21-72-993-804 BMS10-103, Grade A, Dry Times

TEMPERATURE	MINIMUM DRY TIME BEFORE MASKING	MINIMUM DRY TIME BEFORE HANDLING	MAXIMUM FORCE DRYING TIME
65°F (18°C) minimum air dry	2 hours	6 hours	N/A
75°F (24°C) minimum air dry	2 hours	4 hours	N/A

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Table 704/51-21-72-993-804 BMS10-103, Grade A, Dry Times (Continued)

120°F (49°C) force dry ^{*[1]*[2]}	20 minutes	75 minutes	N/A
140°F (60°C) force dry ^{*[1]*[2]*[3]}	15 minutes	40 minutes	N/A
160°F (71°C) force dry ^{*[1]*[2]*[4]}	10 minutes	20 minutes	N/A
180°F (82°C) force dry ^{*[1]*[2]*[4]}	10 minutes	15 minutes	45 minutes ^{*[1]*[6]}
200°F (93°C) force dry ^{*[1]*[2]*[5]}	10 minutes	10 minutes	30 minutes ^{*[6]}

*[1] Oven set-point temperature.

*[2] Air dry at a minimum of 65°F (18°C) for a minimum of 15 minutes before force drying.

*[3] This option is not applicable to parts where there is corrosion inhibiting compound in the assembly.

*[4] This option is not applicable to parts where there is corrosion inhibiting compound or sealant in the assembly.

*[5] This option is only allowed for BMS8-267 parts and BMS8-267 assemblies where there is no corrosion inhibiting compound or sealant in the part or assembly.

*[6] Force drying for a time greater than the maximum time will increase the risk of degradation of the composite substrate and can result in a reduction of its strength.

SUBTASK 51-21-72-370-008

(4) Dry the BMS10-103, Grade E, primer using Table 705.

(a) Air dry the BMS10-103, Grade E primer for a minimum of 30 minutes at a minimum of 65°F (18°C).

Table 705/51-21-72-993-805 BMS10-103, Grade E, Dry Times

TEMPERATURE	MINIMUM DRY TIME BEFORE MASKING	MINIMUM DRY TIME BEFORE HANDLING	MAXIMUM FORCE DRYING TIME
65°F (18°C) minimum air dry	5 hours	7.5 hours	N/A
75°F (24°C) minimum air dry	3 hours	5 hours	N/A
120°F (49°C) force dry ^{*[1]*[2]}	40 minutes	2 hours	150 minutes ^{*[6]}
140°F (60°C) force dry ^{*[1]*[2]*[3]}	30 minutes	60 minutes	90 minutes ^{*[6]}
160°F (71°C) force dry ^{*[1]*[2]*[4]}	30 minutes	30 minutes	60 minutes ^{*[6]}
180°F (82°C) force dry ^{*[1]*[2]*[4]}	15 minutes	15 minutes	45 minutes ^{*[6]*[7]}
200°F (93°C) force dry ^{*[1]*[2]*[5]}	10 minutes	10 minutes	30 minutes ^{*[6]*[7]}

*[1] Oven set-point temperature.

*[2] Air dry at a minimum of 65°F (18°C) for a minimum of 15 minutes before force drying.

*[3] This option is not applicable to assemblies with corrosion inhibiting compound in the assembly.

*[4] This option is not applicable to assemblies with corrosion inhibiting compound or sealant in the assembly.

*[5] This option is applicable to BMS8-267 parts and BMS8-267 assemblies with no corrosion inhibiting compound or sealant in the part or assembly.

*[6] Force drying for more than the maximum time increases paint cracking.

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*[7] Force drying for more than the maximum time increases the degradation of the composite substrate and can reduce its strength.

SUBTASK 51-21-72-370-009

- (5) Make sure that the dry film thickness is within the limits in Table 706.
- (a) Measure the dry film thickness after the coating has dried beyond the minimum time before masking (Table 704, Table 705).

Table 706/51-21-72-993-806 BMS10-103, Type I, Primer Dry Film Thickness Requirements

NUMBER OF COATS	MINIMUM DRY FILM THICKNESS (MILS)	MAXIMUM DRY FILM THICKNESS (MILS)
1	0.3	0.8
2	0.8	1.6

G. Minor Re-Work for Composite Surfaces (Substrate Exposed)

SUBTASK 51-21-72-110-001

- (1) Solvent clean the damaged area.
 - (a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - (b) Use one of the methods that follow to solvent clean the surface.
 - 1) Wet a wiper, G50262, wet with solvent, B00062 or solvent, B00184, and wipe the surface.
 - 2) Wipe the surface with one of the pre-saturated wipers that follow.
 - a) BSMS-88-001, Type 1, Class 4
 - b) BSMS-88-001, Type 2, Class 4
 - c) BSMS-88-001, Type 3, Class 4
 - d) BSMS-88-001, Type 5, Class 4
 - e) BSMS-88-001, Type 6, Class 4
 - 3) Wipe the surface with a clean, dry wiper, G50262, to remove excess sealant.

SUBTASK 51-21-72-120-001

- (2) Sand the solvent with one of the abrasives that follow.
 - (a) Scotch-Brite 7447 pad, G50220
 - (b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - (c) A very find, aluminum oxide abrasive hand pad, G51193
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-21-72-110-002

- (3) Solvent clean the surface to remove sanding dust.
 - (a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - (b) Use one of the methods that follow to solvent clean the surface.
 - 1) Wet a wiper, G50262, wet with solvent, B00062 or solvent, B00184, and wipe the surface.
 - 2) Wipe the surface with one of the pre-saturated wipers that follow.
 - a) BSMS-88-001, Type 1, Class 4
 - b) BSMS-88-001, Type 2, Class 4

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- c) BSMS-88-001, Type 3, Class 4
 - d) BSMS-88-001, Type 5, Class 4
 - e) BSMS-88-001, Type 6, Class 4
- 3) Wipe the surface with a clean, dry wiper, G50262, to remove excess sealant.
- a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-014

- (4) Immediately before applying the primer, use a tack rag, G50123, or compressed air.

NOTE: This is to remove particulate contamination.

SUBTASK 51-21-72-370-010

- (5) Prepare the surface.

SUBTASK 51-21-72-370-011

- (6) Apply the primer to the damaged area.

H. Minor Re-Work for Titanium and CRES Surfaces (Substrate Exposed)

SUBTASK 51-21-72-110-003

- (1) Solvent clean the damaged area.
- (a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - (b) Use one of the methods that follow to solvent clean the surface.
 - 1) Wet a wiper, G50262, wet with solvent, B00184 or solvent, B00062, and wipe the surface.
 - 2) Wipe the surface with one of the pre-saturated wipers that follow.
 - a) BSMS-88-001, Type 1, Class 4
 - b) BSMS-88-001, Type 2, Class 4
 - c) BSMS-88-001, Type 3, Class 4
 - d) BSMS-88-001, Type 5, Class 4
 - e) BSMS-88-001, Type 6, Class 4
 - 3) Wipe the surface with a clean, dry wiper, G50262, to remove excess sealant.

SUBTASK 51-21-72-120-002

- (2) Sand the solvent with one of the abrasives that follow.
- (a) Scotch-Brite 7447 pad, G50220
 - (b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - (c) A very fine, aluminum oxide abrasive hand pad, G51193
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-21-72-110-004

- (3) Solvent clean the surface to remove sanding dust.
- (a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - (b) Use one of the methods that follow to solvent clean the surface.
 - 1) Wet a wiper, G50262, wet with solvent, B00062 or solvent, B00184, and wipe the surface.
 - 2) Wipe the surface with one of the pre-saturated wipers that follow.
 - a) BSMS-88-001, Type 1, Class 4

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- b) BSMS-88-001, Type 2, Class 4
 - c) BSMS-88-001, Type 3, Class 4
 - d) BSMS-88-001, Type 5, Class 4
 - e) BSMS-88-001, Type 6, Class 4
- 3) Wipe the surface with a clean, dry wiper, G50262, to remove excess sealant.
- a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-370-012

- (4) Apply the conversion coating (CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-41/701).

SUBTASK 51-21-72-160-015

- (5) Immediately before applying the primer, use a tack rag, G50123, or compressed air.

NOTE: This is to remove particulate contamination.

SUBTASK 51-21-72-370-013

- (6) Apply the BMS10-103, Type 1, primer, C00766, to the damaged area.

SUBTASK 51-21-72-370-014

- (7) Dry and cure the primer.

I. Major Re-Work for Composite Surfaces

SUBTASK 51-21-72-120-003

- (1) Sand the solvent with one of the abrasives that follow.
- (a) Scotch-Brite 7447 pad, G50220
 - (b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - (c) A very fine, aluminum oxide abrasive hand pad, G51193
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-21-72-110-005

- (2) Solvent clean the surface or use compressed air or a tack rag, G50123.
- (a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - (b) Use one of the methods that follow to solvent clean the surface.
 - 1) Wet a wiper, G50262, wet with alcohol, B00067 or solvent, B00184, and wipe the surface.
 - 2) Wipe the surface with one of the pre-saturated wipers that follow.
 - a) BSMS-88-001, Type 1, Class 4
 - b) BSMS-88-001, Type 2, Class 4
 - c) BSMS-88-001, Type 3, Class 4
 - d) BSMS-88-001, Type 5, Class 4
 - e) BSMS-88-001, Type 6, Class 4
 - 3) Wipe the surface with a clean, dry wiper, G50262, to remove excess sealant.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-016

- (3) Immediately before applying the primer, wipe the surface with a new tack rag, G50123, or use compressed air.

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SUBTASK 51-21-72-370-015

- (4) Apply the BMS10-103, Type 1, primer, C00766.

SUBTASK 51-21-72-370-016

- (5) Dry and cure the primer.

J. Major Re-Work for Titanium and CRES Surfaces

SUBTASK 51-21-72-120-004

- (1) Sand the solvent with one of the abrasives that follow.
 - (a) Scotch-Brite 7447 pad, G50220
 - (b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - (c) A very fine, aluminum oxide abrasive hand pad, G51193
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-21-72-110-006

- (2) Solvent clean the surface or use compressed air or a tack rag, G50123.
 - (a) Wipe the surface to remove loose soil, excess grease, hydraulic fluid, or oil.
 - (b) Use one of the methods that follow to solvent clean the surface.
 - 1) Wet a wiper, G50262, wet with solvent, B00062 or solvent, B00184, and wipe the surface.
 - 2) Wipe the surface with one of the pre-saturated wipers that follow.
 - a) BSMS-88-001, Type 1, Class 4
 - b) BSMS-88-001, Type 2, Class 4
 - c) BSMS-88-001, Type 3, Class 4
 - d) BSMS-88-001, Type 5, Class 4
 - e) BSMS-88-001, Type 6, Class 4
 - 3) Wipe the surface with a clean, dry wiper, G50262, to remove excess sealant.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-72-160-017

- (3) Immediately before applying the primer, wipe the surface with a new tack rag, G50123, or use compressed air.

SUBTASK 51-21-72-370-017

- (4) Apply the BMS10-103, Type 1, primer, C00766.

SUBTASK 51-21-72-370-018

- (5) Dry and cure the primer.

————— END OF TASK —————

TASK 51-21-72-370-803

4. BMS10-72 Primer - Application

A. General

- (1) This procedure has steps to do the following:
 - (a) Prepare to apply BMS10-72 primer.
 - (b) Apply BMS10-72 primer.

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- (2) Boeing recommends that you apply BMS10-72 primer when the ambient air temperature is between 65°F (18°C) and 95°F (35°C).
 - (a) Contact the paint manufacturer for guidance if you will apply BMS10-72 primer outside the recommended temperature range.
- (3) Boeing recommends that you apply BMS10-72 primer when the relative humidity is less than 70%.
 - (a) Contact the paint manufacturer for guidance if you will apply BMS10-72 primer when the relative humidity is more than 70%.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C50084	Coating - Exterior Decorative Paint, high solids, strippable, filiform corrosion, rain erosion resistant, sprayable	BMS10-72 Type VIII
C50085	Coating - Exterior Decorative Paint, high solids, strippable, filiform corrosion, rain erosion resistant, sprayable	BMS10-72 Type IX
C50318	Coating - Exterior Decorative Paint System, Basecoat and Clearcoat	BMS10-72 Type X
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	

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Reference	Description	Specification
G50262	Wiper - Cleaning	BMS15-5
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51270	Tape - Masking, Intertape PG777	

D. Prepare to the BMS10-72 Primer Application

SUBTASK 51-21-72-950-002

- (1) Mask the surface adjacent to the area you will apply primer.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent-resistant masking tape, G51270.
 - a) Apply solvent-resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-72-370-019

- (2) Mix the BMS10-72, Type VIII primer coating, C50084, or BMS10-72, Type IX primer coating, C50085, or BMS10-72, Type X primer coating, C50318, using the manufacturer's instructions.

NOTE: The BMS10-72, Type VIII primer has a base component and a curing solution component.

NOTE: The BMS10-72, Type IX and Type X primers has a base component, a curing solution component, and a thinner component.

Table 707/51-21-72-993-807 BMS10-72 Primer Mixing

MATERIAL DESIGNATION	RATIO PARTS BY VOLUME	INDUCTION PERIOD	POT LIFE
PRC-DeSoto BMS10-72, Type VIII Base: CA7700AX Curing Solution: CA7700BE	1 1*[1]	60 minutes at T ≥ 65°F (18°C) 90 minutes at T ≤ 65°F (18°C)	3 hours at T ≤ 80°F (27°C)*[2]
PRC-DeSoto BMS10-72, Type VIII Base: CA7700AX Curing Solution: CA7700BX	1 1*[1]	60 minutes at T ≥ 65°F (18°C) 90 minutes at T ≤ 65°F (18°C)	4 hours at T ≤ 80°F (27°C)*[3]

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Table 707/51-21-72-993-807 BMS10-72 Primer Mixing (Continued)

Akzo Nobel BMS10-72, Type IX and Type X Base: 10P20-44M Curing Solution: EC-291 Thinner: TR-114	2 1 1	None	4 hours at T ≤ 80°F (27°C)* ^[3]
PRC-DeSoto BMS10-72, Type VIII, Type IX and Type X, Composition NC Base: CA 7502A Curing Solution: CA 7502B Thinner: CA 7502C	4 4 1	60 minutes at T ≥ 69°F (21°C) 120 minutes at T ≤ 69°F (21°C)	4 hours at T ≤ 80°F (27°C)* ^[3]
Akzo Nobel BMS10-72, Type X, Composition NC2* ^[4] Base: 2111P001 Curing Solution: CS6018 Thinner: TR-114	2 1 1	15 minutes	4 hours at T ≤ 80°F (27°C)* ^[3]

*[1] Use entire kits when mixing.

*[2] The pot life is 1.5 hours when the temperature is between 81°F (27°C) and 95°F (35°C).

*[3] The pot life is 2 hours when the temperature is between 81°F (27°C) and 95°F (35°C).

*[4] Approved for use only under the basecoat clearcoat paint system.

(a) Add the curing solution component (Table 707).

- 1) Add the curing solution component while continuously mixing.
- 2) Add the curing solution component at a rate less than 15 seconds per gallon.

(b) If you are mixing BMS10-72, Type IX or Type X primer, do these steps:

- 1) Immediately after adding the curing solution component, add the thinner component (Table 707).
 - a) Add the thinner component while continuously stirring.
 - b) Add the thinner component at a rate less than 15 seconds per gallon.

(c) Mix the primer solution every 30 minutes before you apply the primer.

E. BMS10-72 Primer Application

SUBTASK 51-21-72-370-020

- (1) Spray apply the BMS10-72, Type VIII primer coating, C50084, or BMS10-72, Type IX primer coating, C50085, or BMS10-72, Type X primer coating, C50318, to the surface.

SUBTASK 51-21-72-370-021

- (2) Cure the primer in accordance with Table 708.

Table 708/51-21-72-993-808 BMS10-72 Primer Curing Temperatures and Times

MATERIAL DESIGNATION	DRY TIME TO RECOAT OR OVERCOAT* ^[2]	RECOMMENDED DRY TIME TO TAPE* ^[1]
PRC-DeSoto BMS10-72, Type VIII Base: CA7700AX Curing Solution: CA7700BE	2 hours minimum to 48 hours maximum* ^[3] * ^[4]	2 hours and 30 minutes at 77°F (25°C)

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Table 708/51-21-72-993-808 BMS10-72 Primer Curing Temperatures and Times (Continued)

PRC-DeSoto BMS10-72, Type VIII Base: CA7700AX Curing Solution: CA7700BX	2 hours minimum to 48 hours maximum ^{*[3]*[4]}	2 hours and 30 minutes at 77°F (25°C)
Akzo Nobel BMS10-72, Type IX and Type X, Composition C Base: 10P20-44M Curing Solution: EC-291 Thinner: TR-114	2 hours minimum to 48 hours maximum between 75°F (24°C) and 120°F (49°C)	2 hours and 30 minutes at 77°F (25°C)
PRC-DeSoto BMS10-72, Type VIII, Type IX and Type X, Composition NC Base: CA 7502A Curing solution: CA 7502B Thinner: CA 7502C Curing Solution: CA 7502B Thinner: CA 7502C	2 hours minimum to 24 hours maximum between 65°F (18°C) and 89°F (32°C) ^{*[5]*[6]}	2 hours and 30 minutes at 77°F (25°C)
Akzo Nobel BMS10-72, Type X, Composition NC2 Base: 2111P001 Curing Solution: CS6018 Thinner: TR-114	2 hours minimum to 48 hours maximum between 75°F (24°C) and 120°F (49°C)	2 hours and 30 minutes at 77°F (25°C)

*[1] Dry-to-tape times are approximate. Tape after removal shall have no visible effects on the primer film.

*[2] If the maximum dry time is exceeded, reactivate the surface.

*[3] If the primer is dried at temperatures warmer than 120°F (49°C), reactivate the surface.

*[4] Cure primer at a minimum temperature of 95°F (35°C) for at least 60 minutes within 2 hours of primer application.

*[5] The overcoat time can be reduced to 30 minutes at 65°F (18°C) to 95°F (35°C) for small areas.

*[6] If the primer has been dried for more than 60 minutes at temperatures 90°F (32°C) to 104°F (40°C), then the overcoat time is 1.5 to 24 hours.

If monocoat is to be applied, and the primer has been dried for 1 to 4 hours at 105°F (41°C) to 120°F (49°C), then the total time allowed at temperatures 65°F (18°C) to 89°F (32°C) is 12 hours.

If basecoat is to be applied, and the primer has been dried for 1 to 2 hours at 105°F (41°C) to 120°F (49°C), then the total time allowed at temperatures 65°F (18°C) to 89°F (32°C) is 24 hours.

- (a) Within 2 hours of the application of primer, cure the primer at a minimum of 95°F (35°C) for a minimum of 60 minutes.
- (b) If the dry time to recoat or overcoat is more than the requirements in Table 708, then reactivate the surface, do these steps:
 - 1) Wipe clean the surface with solvent, if necessary to remove contamination.
 - a) Use a wiper, G50262, or one of the abrasives that follow wet with solvent, B00184 or alcohol, B00130.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> A very fine, aluminum oxide abrasive hand pad, G51193.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 2) Sand the surface.
 - a) Start sanding with one of the abrasives that follow.

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- <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - <2> Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193, 100-grit to 220-grit.
 - b) Finish sanding with one of the abrasives that follow.
 - <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - <2> Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer.
 - 3) Wipe clean the surface with solvent, if necessary, to remove contamination.

NOTE: This is to remove sanding dust.

 - a) Use a wiper, G50262, wet with solvent, B00184, or alcohol, B00130, to wipe the surface.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> A very fine, aluminum oxide abrasive hand pad, G51193.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 4) Wipe the surface with a tack rag, G50123.
 - 5) Apply a coat of BMS10-72, Type VIII primer coating, C50084, or BMS10-72, Type IX primer coating, C50085, or BMS10-72, Type X primer coating, C50318, to the surface.
- (c) If the temperature for drying to re-coat or overcoat is warmer than 120°F (49°C), then reactivate the surface, do these steps:
- 1) Wipe clean the surface with solvent, if necessary, to remove contamination.
 - a) Use a wiper, G50262, wet with solvent, B00184, or alcohol, B00130, to wipe the surface.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> A very fine, aluminum oxide abrasive hand pad, G51193.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 2) Sand the surface.
 - a) Start sanding the surface with one of the abrasives that follow.

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- <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - <2> Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193, 100-grit to 220-grit.
- b) Finish sanding with one of the abrasives that follow.
- <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - <2> Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer.
- 3) Wipe clean the surface with solvent, if necessary, to remove contamination.
- NOTE: This is to remove sanding dust.
- a) Use a wiper, G50262, or one of the abrasives that follow wet with solvent, B00184, or alcohol, B00130.
- <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer.
- b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
- <1> Make sure that the solvent does not dry on the surface.
- 4) Wipe the surface with a tack rag, G50123.
- 5) Apply a coat of BMS10-72, Type VIII primer coating, C50084, or BMS10-72, Type IX primer coating, C50085, or BMS10-72, Type X primer coating, C50318, to the surface.

———— **END OF TASK** ————

TASK 51-21-72-370-804

5. BMS10-11 Primer - Application

A. General

- (1) This task gives instructions to do the following.
 - (a) Prepare to Apply the BMS10-11 Primer
 - (b) Apply the BMS10-11 Primer
- (2) Boeing recommends that you apply the BMS10-11 chemical and solvent resistant finish when the finish temperature is warmer than 50°F (10°C).
 - (a) Contact the paint manufacturer for guidance if the finish temperature is colder than 50°F (10°C).

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- (3) Boeing recommends that you apply the BMS10-11 chemical and solvent resistant finish when the relative humidity is less than 85%.

(a) Contact the paint manufacturer for guidance if the relative humidity is more than 85%.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt.", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B00017	Cleaner - Alkaline - Pace B-82 (Formerly Pacific B-82)	BMS11-12
B50052	Cleaner - Alkaline - Ridoline 909	
B50172	Cleaner - Alkaline - Pace MF-30	
B50240	Cleaner - Turco 4215 NC-LT Alkaline Cleaner	
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G51270	Tape - Masking, Intertape PG777	

D. Prepare to Apply the BMS10-11 Primer

SUBTASK 51-21-72-950-003

- (1) Mask the surface adjacent to the area you will apply primer.
- (a) Attach the tags that follow to the left control wheel in the flight deck.
- 1) "PITOT PROBES COVERED" tag, G02447

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- 2) "STATIC PORTS COVERED" tag, G02444
- 3) A red tag labeled "AOA SENSORS COVERED"
- (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
- (c) Apply Scotch Flatback Masking Tape 250, G00270 on the static ports.
- (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-72-370-022

- (2) Determine which method to use to prepare the surface (Table 709).

Table 709/51-21-72-993-809 Surface Preparation Methods Before Application of BMS10-11

SURFACE COATING	DRY TEMPERATURE	DRY TIME	SURFACE PREPARATION METHOD
BMS10-11, Type I, Grade A or E	Air Dry	≤ 48 hours	Method 1
BMS10-11, Type I, Grade A or E	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-11, Type I, Grade B	Air Dry (T < 120°F (49°C))	≤ 24 hours	Method 1
BMS10-11, Type I, Grade A or E	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-11, Type I, Grade B	Any	> 24 hours	Method 2 or Method 3
BMS10-11, Type II	Air Dry	≤ 48 hours	Method 1
BMS10-11, Type II	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-20	Air Dry	≤ 48 hours	Method 1
BMS10-20	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-20	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-79, Type II or Type III, Grade A	Air Dry	≤ 48 hours	Method 1
BMS10-79, Type II or Type III, Grade A	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-79, Type II or Type III, Grade A	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-79, Type II or Type III, Grade D	Air Dry (T < 120°F (49°C))	< 12 hours	Method 1

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Table 709/51-21-72-993-809 Surface Preparation Methods Before Application of BMS10-11 (Continued)

SURFACE COATING	DRY TEMPERATURE	DRY TIME	SURFACE PREPARATION METHOD
BMS10-79, Type II or Type III, Grade D	T < 120°F (49°C)	> 12 hours	Method 2 or Method 2
BMS10-79, Type II or Type III, Grade D	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-103	Air Dry	≤ 48 hours	Method 1
BMS10-103	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-103	Force Dry	Any Length of Time	Method 2 or Method 3

SUBTASK 51-21-72-370-023

(3) Use one of the methods that follow to prepare the surface.

(a) Method 1

- 1) Solvent clean the surface.
- 2) Sand the surface with 240 grit or finer abrasive paper, G50077, if necessary to clean the surface.
- 3) Solvent clean the surface to remove sanding dust.

(b) Method 2

- 1) Solvent clean the surface.
- 2) Sand the surface with one of the abrasives that follow.
 - a) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - b) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - d) 240 grit or finer abrasive paper, G50077
 - e) Make sure that you do not sand the substrate.
- 3) Solvent clean the surface to remove sanding dust.
- 4) Use compressed air or a tack rag, G50123 to remove sanding dust, if necessary.

(c) Method 3

- 1) Solvent clean the surface.
 - a) Use a Scotch-Brite General Purpose Hand Pad 7447 (very fine, aluminum oxide) or a Scotch-Brite Clean and Finish (very fine, aluminum oxide), if necessary.
- 2) Alkaline clean the surface.
 - a) Use a Scotch-Brite General Purpose Hand Pad 7447 (very fine, aluminum oxide) or a Scotch-Brite Clean and Finish (very fine, aluminum oxide) wet with alkaline cleaner that is diluted with three parts of water, by volume.
 - b) Make sure that you do not sand the substrate.
 - c) Use one of the alkaline cleaners that follow.
 - <1> Ardrex 160-B
 - <2> Pace B-82 alkaline cleaner, B00017
 - <3> Pace MF-30 cleaner, B50172

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- <4> Ridoline 909, B50052
 - <5> Super Bee 300LF
 - <6> Turco 4215 NC-LT alkaline cleaner, B50240
- 3) Rinse the surface with large amounts of water.
 - 4) Do a check for a water-break-free surface.
 - a) If water breaks occur, alkaline clean the surface again and rinse with more water.

SUBTASK 51-21-72-370-024

- (4) Mix the BMS10-11 primer, C00259, using the manufacturer's instructions.

E. Apply the BMS10-11 Primer

SUBTASK 51-21-72-160-018

- (1) Immediately before you apply the BMS10-11 primer, C00259, use a tack rag, G50123, to remove loose dust and lint.

SUBTASK 51-21-72-370-025

- (2) Spray or brush apply the BMS10-11 primer, C00259.
 - (a) Apply the finish in a continuous coat.
 - (b) Make sure that the coat is free of solids, runs, sags, fish eyes, blisters, and non-adherent overspray.

SUBTASK 51-21-72-370-026

- (3) Cure the primer.
 - (a) If the primer is applied to surfaces other than tungsten base metal, use Table 710, and Figure 703 to cure the primer.

Table 710/51-21-72-993-810 BMS10-11 Primer Dry Times and Conditions

DRY/CURE	FINISH SYSTEM	TIMES AND CONDITIONS* ^[1]
Flash off before accelerated dry/cure	BMS10-11, Type I, Grade A	3 minutes minimum at room temperature before convective force drying
Flash off before accelerated dry/cure	BMS10-11, Type I, Grade B	3 minutes minimum at room temperature
Flash off before accelerated dry/cure	BMS10-11, Type I, Grade E	15 minutes minimum at room temperature
Flash off in fastener holes before fastener installation with corrosion preventive compounds or sealants	BMS10-11, Type I, Grade A	5 minutes minimum
Flash off in fastener holes before fastener installation with corrosion preventive compounds or sealants	Grade E (water reduction step is optional)	15 minutes minimum without water reduction; 20 minutes minimum with water reduction
Flash off between coats	BMS10-11, Type I	No flash-off time is required between coats of BMS10-11, Type I primer. Make sure there are no visual defects (blisters, runs, sags) in the film.
Before masking	BMS10-11, Type I	Figure 703

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Table 710/51-21-72-993-810 BMS10-11 Primer Dry Times and Conditions (Continued)

Flash off before wet fastener installation	All	5 minutes minimum
Before service where fluid-resistance and moisture-resistance is required	All	Minimum Cure: 48 hours at 65°F (18°C) to 75°F (24°C) plus 24 hours at 75°F (24°C) to 160°F (71°C) Optimum Cure: 7 days at 75 ±5°F (24 ±3°C)

*[1] These conditions are for one coat film thicknesses and should be increased for thicker films.

(b) If the primer is applied to surfaces that are tungsten base metal, use the steps that follow to cure the primer.

- 1) Air dry for 30 to 60 minutes at temperatures between 68°F (20°C) and 75°F (24°C).
- 2) Force dry for 6 hours minimum at an oven set-point temperature of 140°F (60°C).

SUBTASK 51-21-72-220-001

(4) Measure the dry film thickness (Table 711).

Table 711/51-21-72-993-811 BMS10-11 Primer Dry Film Thicknesses

NUMBER OF COATS	DRY FILM THICKNESS
1	0.3-0.8 mils
2	0.8-1.6 mils

————— END OF TASK —————

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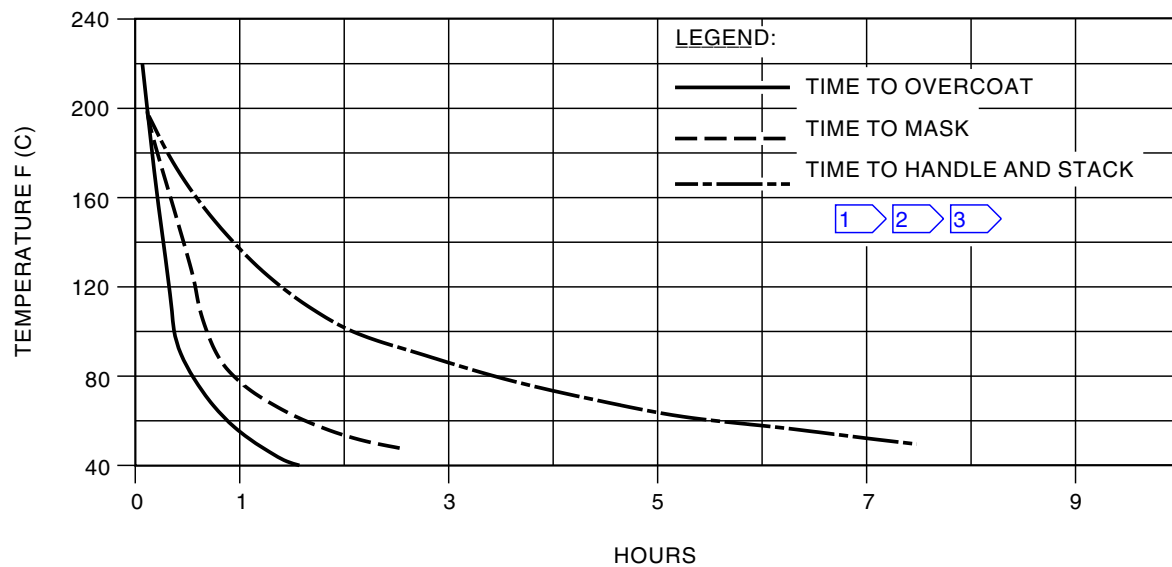
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- 1 DO NOT FORCE DRY BONDED ASSEMBLIES OVER 180 F (82 C).
- 2 DO NOT FORCE DRY SHOT PEENED ALUMINUM PARTS OVER 200 F (93 C).
- 3 DO NOT FORCE DRY ALUMINUM PARTS OVER 250 F (121 C).

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Drying of BMS10-11 Primer
Figure 703/51-21-72-990-803 (Sheet 1 of 2)

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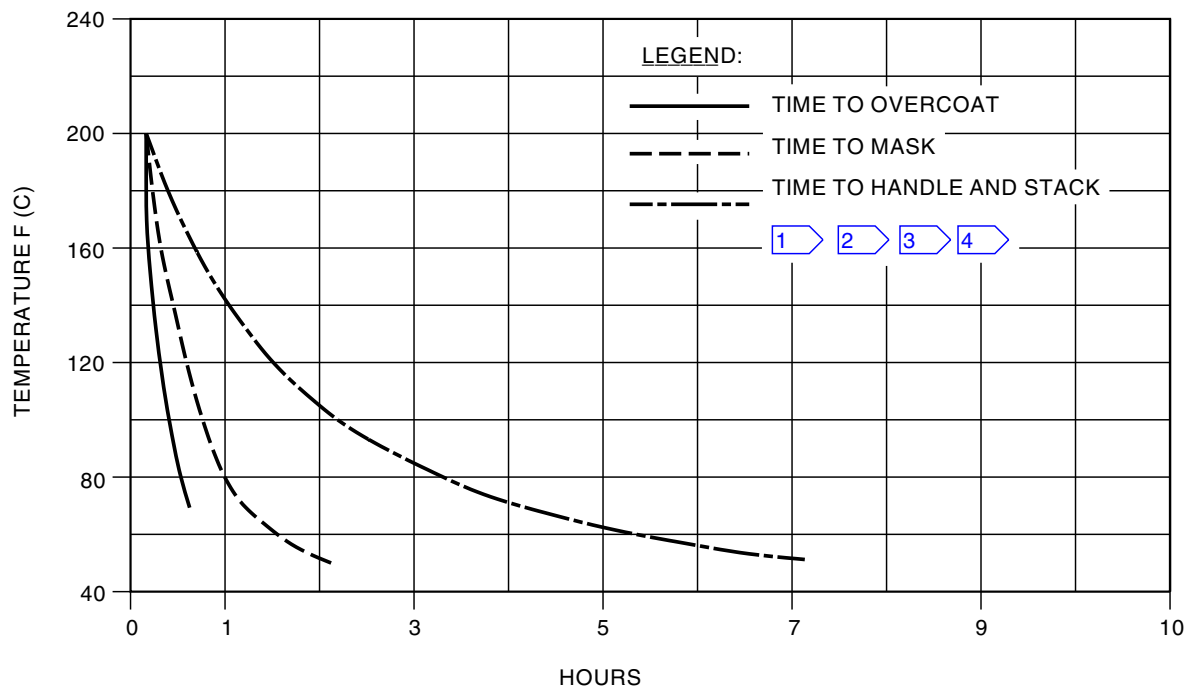
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- 1 DO NOT FORCE CURE BONDED ASSEMBLIES OVER 180 F (82 C).
- 2 DO NOT FORCE DRY SHOT PEENED ALUMINUM PARTS OVER 200 F (93 C).
- 3 DO NOT FORCE DRY ALUMINUM PARTS OVER 250 F (121 C).
- 4 THE TIME TO OVERCOAT CURVE IS APPLICABLE WHEN OVERCOATING WITH BMS 10-11, TYPE I, AND BMS 10-79, TYPE III PRIMERS, BMS 10-11, TYPE II, CLASS B, GRADE D, AND BMS 10-60, TYPE I TOPCOATS AND BMS 10-83 SYSTEMS. FOR BMS 10-86 AND BMS 10-11, TYPE II, CLASS A, GRADE A APPLICATION, OVERCOAT WITH THE FOLLOWING SCHEDULE.

TOPCOAT
BMS 10-11, TYPE II
CLASS A, GRADE A

MANUFACTURER
AKZONOBEL
AEROSPACE COATINGS

TIME TO OVERCOAT, HOURS
2 HOURS MINIMUM AT 70 TO 90 F (21 TO 32 C). FOR ELEVATED TEMPERATURES FOLLOW FIGURE 5 FOR OVERCOATING.

BMS 10-86, TYPES I
AND II

2 HOURS MINIMUM AT 70 TO 90 F (21 TO 32 C). FOLLOW FIGURES 5 FOR OVERCOATING IF PRIMER IS BAKED AT 120 TO 200 F (49 TO 93 C).

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Drying of BMS10-11 Primer
Figure 703/51-21-72-990-803 (Sheet 2 of 2)

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TOPCOAT - CLEANING/PAINTING

1. General

A. This procedure has instructions for the following.

- (1) BMS10-72 Topcoat Application
- (2) BMS10-60 Topcoat Application
- (3) BMS10-11 Topcoat Application
- (4) Chemical Reactivator Application

TASK 51-21-73-370-801

2. BMS10-72 Topcoat Application

A. General

- (1) This task has steps to do the following.
 - (a) Prepare to apply BMS10-72 coating, C00921
 - (b) Apply BMS10-72coating, C00921
- (2) Boeing recommends you apply the BMS10-72 coating, C00921, when the ambient air temperature is between 65°F (18°C) and 95°F (35°C).
 - (a) Contact the paint manufacturer for guidance if you will apply the paint outside the recommended temperature range.
- (3) Boeing recommends you apply the BMS10-72 coating, C00921, when the relative humidity is less than 70%.
 - (a) Contact the paint manufacturer for guidance if you will apply the paint when the relative humidity is greater than 70%.

B. References

Reference	Title
51-21-72-370-803	BMS10-72 Primer - Application (P/B 701)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

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D. Consumable Materials

Reference	Description	Specification
B00017	Cleaner - Alkaline - Pace B-82 (Formerly Pacific B-82)	BMS11-12
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B50052	Cleaner - Alkaline - Ridoline 909	
B50172	Cleaner - Alkaline - Pace MF-30	
C00032	Coating - Protective Enamel, General Use	BMS10-60 Type I
C00921	Coating - Exterior Decorative Paint	BMS10-72
C50084	Coating - Exterior Decorative Paint, high solids, strippable, filiform corrosion, rain erosion resistant, sprayable	BMS10-72 Type VIII
C50085	Coating - Exterior Decorative Paint, high solids, strippable, filiform corrosion, rain erosion resistant, sprayable	BMS10-72 Type IX
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51270	Tape - Masking, Intertape PG777	

E. Prepare to Apply the BMS10-72 Topcoat

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- (1) Mask the surface adjacent to the area you will apply topcoat.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.

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- (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
- 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-73-160-001

- (2) Determine which method to use to prepare the surface (Table 701).

Table 701/51-21-73-993-801 Surface Preparation Methods Before Application of BMS10-72

SURFACE COATING	DRY TIME	DRY TEMPERATURE	PREPARATION METHOD
BMS10-72, Type VIII Primer	< 48 hours	< 120°F (49°C)	Method 1
BMS10-72, Type VIII Primer	> 48 hours	--	Method 2
BMS10-72, Type VIII Primer	Any Length of Time	> 120°F (49°C)	Method 2
BMS10-72, Type IX Primer	< 48 hours	< 120°F (49°C)	Method 1
BMS10-72, Type IX Primer	> 48 hours	--	Method 2
BMS10-72, Type IX Primer	Any Length of Time	> 120°F (49°C)	Method 2
BMS10-72 Topcoat	< 4 hours	< 120°F (49°C)	Method 2, Method 3, or Method 4
BMS10-72 Topcoat	< 48 hours	< 110°F (43°C)	Method 1
BMS10-72 Topcoat	> 4 hours	< 120°F (49°C)	Method 3 or Method 4
BMS10-72 Topcoat	> 48 hours	< 110°F (43°C)	Method 3 or Method 4
BMS10-72 Topcoat	Unknown	--	Method 3 or Method 4
BMS10-72 Topcoat	In accordance with TABLE	In accordance with TABLE	Method 3
BMS10-60 Topcoat	< 48 hours	< 110°F (43°C)	Method 1
BMS10-60 Topcoat	< 4 hours	< 120°F (49°C)	Method 2
BMS10-60 Topcoat	> 48 hours	< 110°F (43°C)	Method 2
BMS10-60 Topcoat	> 4 hours	< 120°F (49°C)	Method 2
BMS10-60 Topcoat	Unknown	--	Method 2
BMS10-103 Primer	< 48 hours	Air Drying	Method 1 ^[1]
BMS10-103 Primer	< 4 hours	< 120°F (49°C)	Method 1 ^[1]
BMS10-103 Primer	< 2 hours	< 140°F (60°C)	Method 1 ^[1]
BMS10-103 Primer	< 1 hour	< 160°F (71°C)	Method 1 ^[1]
BMS10-103 Primer	< 45 minutes	< 180°F (82°C)	Method 1 ^[1]
BMS10-103 Primer	< 30 minutes	< 200°F (93°C)	Method 1 ^[1]

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Table 701/51-21-73-993-801 Surface Preparation Methods Before Application of BMS10-72 (Continued)

BMS10-79, Type II and Type III, Grade D Primer	< 48 hours	< 120°F (49°C)	Method 1 ^{*[2]}
BMS10-79, Type II, Grade A Primer	< 4 hours	< 100°F (38°C)	Method 1 ^{*[2]}
BMS10-79, Type III, Grade A Primer	< 48 hours	< 100°F (38°C)	Method 1 ^{*[2]}
BMS10-79, Type III, Grade A Primer	< 60 minutes	101°F (38°C) < T < 140°F (60°C)	Method 1 ^{*[2]}
BMS10-79, Type III, Grade A Primer	< 30 minutes	141°F (61°C) < T < 180°F (82°C)	Method 1 ^{*[2]}

*[1] If the BMS10-103 primer has dried outside these limits, prepare the surface using Method 2 or Method 4.

*[2] If the BMS10-79 primer has dried outside these limits, prepare the surface using Method 2.

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(3) Use one of the methods that follow to prepare the surface (TABLE).

(a) Method 1

- 1) If there is no surface contamination and the primer will be applied immediately, no surface preparation is necessary.
- 2) If there is surface contamination, solvent clean the surface.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with alcohol, B00130 or solvent, B00184.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
- 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

(b) Method 2

- 1) Solvent clean the surface.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with alcohol, B00130 or solvent, B00184.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
- 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
- 3) Sand the surface.
 - a) Start sanding with one of the abrasives that follow.
 - <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - <2> Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit

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- <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - <4> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 100-grit to 220-grit
 - b) Finish sanding with one of the abrasives that follow.
 - <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - <2> Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - <4> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 220-grit or finer
 - 4) Solvent clean the surface to remove sanding dust.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with alcohol, B00130 or solvent, B00184.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - 5) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
- (c) Method 3
- 1) If the surface is contaminated, do the steps that follow.
 - a) Sand the surface.
 - <1> Start sanding with aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit.
 - <2> Finish sanding with one of the abrasives that follow.
 - <a> Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - <c> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 220-grit or finer
 - <d> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - b) Use a wiper, G50262 or one of the abrasives that follow wet with alcohol, B00130 or solvent, B00184.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - c) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - d) Apply Sur-Prep AP-1 (Chemical Reactivator Application, TASK 51-21-73-370-804).

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- (d) Method 4
- 1) Solvent clean the surface.
 - a) Use a one of the abrasives that follow wet with aliphatic naphtha solvent, B00083 or a 70/30 mixture by volume of methyl propyl ketone solvent, B00666/methyl ethyl ketone solvent, B00148.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - 2) Alkaline clean the surface with an abrasive pad with one of the cleaners that follow, diluted with seven parts water, by volume.
 - a) Ardrox 160-B
 - b) Pace B-82 alkaline cleaner, B00017
 - c) Pace MF-30 cleaner, B50172
 - d) Turco 4215
 - e) Ridoline 909, B50052
 - f) Super Bee 300LF
 - 3) Rinse the surface with large amounts of water.
 - 4) Check for a water-break-free surface.
 - a) If water breaks occur, alkaline clean the surface again and rinse with more water.
 - 5) Dry the surface.

SUBTASK 51-21-73-160-003

- (4) If the surface has been coated with BMS10-72 , Type VIII coating, C50084, or BMS10-72, Type IX coating, C50085, and has dried for less than 48 hours at temperatures colder than 120°F (49°C), do the steps that follow.
- (a) If the BMS10-72, Type VIII coating, C50084, or BMS10-72, Type IX coating, C50085, will be applied immediately and there is no surface contamination, no surface preparation is necessary.
 - (b) Wipe clean the surface with solvent if there is contamination on the surface.
 - 1) Use a wiper, G50262, or one of the abrasives, wet with solvent, B00184 or alcohol, B00130.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-73-160-004

- (5) If the surface has been coated with BMS10-72, Type VIII primer coating, C50084, or BMS10-72, Type IX primer coating, C50085, and has dried for more than 48 hours or has dried at temperatures warmer than 120°F (49°C) for any length of time, do the steps that follow.
- (a) Wipe clean the surface with solvent.

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- 1) Use a wiper, G50262, or one of the abrasives, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
- 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- (b) Sand the surface.
 - 1) Start sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - b) Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - d) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Finish sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - b) Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer
- (c) Solvent clean the surface.

NOTE: This is to remove sanding dust.

 - 1) Use a wiper, G50262, or one of the abrasives, wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- (d) Wipe the surface with a tack rag, G50123.
- (e) Apply a coat of BMS10-72, Type VIII primer coating, C50084, or BMS10-72, Type IX primer coating, C50085, to the surface (BMS10-72 Primer - Application, TASK 51-21-72-370-803).

SUBTASK 51-21-73-160-005

- (6) If the surface has been coated with BMS10-72, Type VIII primer coating, C50084, BMS10-72, Type IX primer coating, C50085, or BMS10-60 coating, C00032, and has dried for less than 48 hours at temperatures colder than 110°F (43°C), do the steps that follow.
 - (a) If the topcoat has dried for longer than the dry-to-tape time, do the steps that follow.
 - 1) Wipe clean the surface with solvent.
 - a) Use a wiper, G50262, or one of the abrasives and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.

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- <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> A very fine, aluminum oxide abrasive hand pad, G51193
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 2) Sand the surface with one of the abrasives that follow.
 - a) Start sanding with one of the abrasives that follow.
 - <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - <2> Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193, 100-grit to 220-grit
 - b) Finish sanding with one of the abrasives that follow.
 - <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - <2> Scotch-Brite 7447 pad, G50220, 1220-grit or finer
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - <4> A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer
 - 3) Wipe clean the surface with solvent.

NOTE: This is to remove sanding dust.

 - a) Use a wiper, G50262, or one of the abrasives and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> A very fine, aluminum oxide abrasive hand pad, G51193
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - <1> Make sure that the solvent does not dry on the surface.
 - 4) Wipe the surface with a tack rag, G50123.
 - 5) To apply BMS10-60 coating, C00032, do this task: BMS10-60 Topcoat Application, TASK 51-21-73-370-802.
- (b) If the topcoat has dried for less than the dry-to-tape time, do the steps that follow.
- 1) If there is surface contamination, wipe clean the surface with solvent.
 - a) Use a wiper, G50262, or one of the abrasives and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide

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- <3> A very fine, aluminum oxide abrasive hand pad, G51193
- b) Immediately wipe the surface dry with a clean, dry wiper, G50262, to excess solvent.
- <1> Make sure that the solvent does not dry on the surface.

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- (7) If the surface has been coated with the BMS10-72, Type VIII coating, C50084, BMS10-72, Type IX coating, C50085, or BMS10-60 coating, C00032, and has dried for less than 4 hours at temperatures colder than 120°F (49°C), do the steps that follow.
 - (a) If there is contamination on the surface, wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, or one of the abrasives and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (b) Sand the surface.
 - 1) Start sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - b) Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 100-grit to 220-grit
 - 2) Finish sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - b) Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer
 - 3) Make sure that all the topcoat is removed.
 - (c) Use a wiper, G50262, or one of the abrasives and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - 1) Scotch-Brite 7447 pad, G50220
 - 2) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - 3) A very fine, aluminum oxide abrasive hand pad, G51193
 - (d) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - 1) Make sure that the solvent does not dry on the surface.
 - (e) Wipe the surface with a tack rag, G50123.
 - (f) To apply BMS10-60 coating, C00032, do this task: BMS10-60 Topcoat Application, TASK 51-21-73-370-802.

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SUBTASK 51-21-73-160-007

- (8) If the surface was coated with BMS10-72, Type VIII coating, C50084, BMS10-72, Type IX coating, C50085, or BMS10-60 coating, C00032, and has dried for more than 48 hours at temperatures colder than 110°F (43°C), do the steps that follow.
- (a) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262 or one of the abrasives and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (b) Sand the surface.
 - 1) Start sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - b) Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 100-grit to 220-grit
 - 2) Finish sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - b) Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer
 - 3) Make sure that all the topcoat is removed.
 - (c) Wipe clean the surface with solvent.

NOTE: This is to remove sanding dust.

 - 1) Use a wiper, G50262, or one of the abrasives that follow and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (d) Wipe the surface with a tack rag, G50123.
 - (e) To apply BMS10-60 coating, C00032, do this task: BMS10-60 Topcoat Application, TASK 51-21-73-370-802.

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- (9) If the surface was coated with BMS10-72, Type VIII coating, C50084, BMS10-72, Type IX coating, C50085, or BMS10-60 coating, C00032, and has dried for an amount of time that is not known, do the steps that follow.
- (a) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, or one of the abrasives that follow and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (b) Sand the surface.
 - 1) Start sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit
 - b) Scotch-Brite 7447 pad, G50220, 100-grit to 220-grit
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 100-grit to 220-grit
 - 2) Finish sanding with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - b) Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer
 - 3) Make sure that all the topcoat is removed.
 - (c) Wipe clean the surface with solvent.

NOTE: This is to remove sanding dust.

 - 1) Use a wiper, G50262, or one of the abrasives that follow and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
 - (d) Wipe the surface with a tack rag, G50123.
 - (e) To apply BMS10-60 coating, C00032, do this task: BMS10-60 Topcoat Application, TASK 51-21-73-370-802.

SUBTASK 51-21-73-160-009

- (10) If the surface has BMS10-72 topcoat that was mixed or thinned and cured in accordance with Table 702 or Table 703, do the steps that follow.

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Table 702/51-21-73-993-802 BMS10-72, Type VIII and Type IX Mixing and Curing

TOPCOAT BASE AND CURING SOLUTION COMPONENT	PREVIOUSLY APPLIED TOPCOAT	PREVIOUSLY APPLIED TOPCOAT THINNER COMPONENT	MAXIMUM CURE LIMITS AT T > 90°F (32°C) OF PREVIOUSLY APPLIED TOPCOAT	NEW TOPCOAT APPLICATION
BMS10-72, Type VIII (CA8000)	All colors	CA8000C or CA8000C2 ^{*[1]}	12 hours - cure not to exceed 120°F (49°C)	All colors and clears
BMS10-72, Type IX (Eclipse)	All colors and clears	TR-109	12 hours - cure not to exceed 105°F (41°C)	All Colors
			8 hours - cure exceeds 105°F (41°C) but not to exceed 120°F (49°C)	
		TR-109 or TR-112 ^{*[2]}	8 hours - cure not to exceed 105°F (41°C)	

*[1] The volume of CA8000C2 thinner used shall not exceed one part CA8000C2 to four parts CA8000C.

*[2] The volume of TR-112 thinner used shall not exceed one part of TR-112 to four parts TR-109.

Table 703/51-21-73-993-803 Topcoats that Can be Chemically Reactivated

TOPCOAT BASE AND CURING SOLUTION COMPONENT	PREVIOUSLY APPLIED TOPCOAT	PREVIOUSLY APPLIED TOPCOAT THINNER	CURE TEMPERATURE AND TIME	SUBSEQUENTLY APPLIED TOPCOAT
BMS10-72, Type VIII (CA8000)	All colors	CA8000C or CA8000C2 ^{*[1]}	65°F (18°C) ≥ T ≤ 90°F (32°C) for less than 72 hours	All colors or clears
BMS10-72, Type IX (Eclipse)	All colors or clears	TR-109 or TR-112 ^{*[2]}	65°F (18°C) ≥ T ≤ 90°F (32°C) for less than 72 hours	All colors

*[1] The volume of CA8000C2 thinner used shall not exceed one part of CA8000B2 to four parts CA8000C.

*[2] The volume of TR-112 thinner used shall not exceed one part of TR-112 to four parts TR-109.

(a) If the surface is contaminated, do the steps that follow.

- 1) Sand the surface with one of the abrasives that follow.
 - a) Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 220-grit or finer
 - b) Scotch-Brite 7447 pad, G50220, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) A very fine, aluminum oxide abrasive hand pad, G51193, 220-grit or finer
- 2) Use a wiper, G50262, or one of the abrasives that follow and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
- 3) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.

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4) Apply Sur-Prep AP-1 (Chemical Reactivator Application, TASK 51-21-73-370-804).

SUBTASK 51-21-73-370-001

(11) Apply the BMS10-72 primer, if necessary (BMS10-72 Primer - Application, TASK 51-21-72-370-803).

NOTE: Application of BMS10-72, Type VIII or BMS10-72, Type IX primer is optional before the application of the corresponding BMS10-72, Type VIII or BMS10-72, Type IX topcoat.

F. Apply the BMS10-72 Topcoat

SUBTASK 51-21-73-370-002

(1) Mix the BMS10-72 coating, C00921, using the manufacturer's instructions.

SUBTASK 51-21-73-370-003

(2) Apply BMS10-72 coating, C00921, to the thickness specified in Table 704.

Table 704/51-21-73-993-804 BMS10-72 Recommended Application

MATERIAL DESIGNATION	DRY FILM THICKNESS (MILS)* ^[4]	DRY TIME TO RECOAT OR OVERCOAT* ^{[2]*[3]}	RECOMMENDED DRY TIME TO TAPE* ^[1]	RECOMMENDED DRY TIME OF FINAL COAT BEFORE FLIGHT
High Solids, Gloss PRC-DeSoto BMS10-72, Type VIII Base: Desothane HS CA8000/BXXXXX Curing Solution: CA8000B Thinner: CA8000C or CA8000C1* ^[5] , CA8000C2* ^[5] , CA8000C4* ^[6] , CA8000C5* ^[6]	2.0 to 5.0	20 minutes minimum to 48 hours maximum	4.5 hours at 125°F (52°C)	1.5 times the dry-to- tape time
High Solids, Flat PRC-DeSoto BMS10-72, Type VIII Base: Desothane HS CA8000/BXXXXXF Curing Solution: CA8000B	2.0 to 5.0	10 minutes minimum to 48 hours maximum	2.0 hours at 77°F (25°C)	1.5 times the dry-to- tape time
High Solids, Nonmetallic Special Visual Effect PRC-DeSoto BMS10-72, Type VIII Base: Desothane HS CA8000/BXXXXX Curing Solution: CA8000B Thinner: CA8000C	2.0 to 5.0	10 minutes minimum to 48 hours maximum	4.5 hours at 125°F (52°C)	1.5 times the dry-to- tape time

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Table 704/51-21-73-993-804 BMS10-72 Recommended Application (Continued)

High Solids, Gloss, Clear PRC-DeSoto BMS10-72, Type VIII Base: Desothane HS CA8000/B900A Curing Solution: CA8000B	1.5 to 2.0	30 minutes minimum to 48 hours maximum	8 hours at 75°F (24°C)	1.5 times the dry-to- tape time
High Solids, Gloss Akzo Nobel BMS10-72, Type IX Base: ECL-G Series Curing Solution: PC-233 Thinner: TR-109 (standard) or TR-111 (alternate) ^{*[7]} , TR-112 (alternate) ^{*[7]} , TR-113 (alternate) ^{*[7]} , TR-128 (alternate) ^{*[7]} , TR-141 (alternate) ^{*[10]}	2.0 to 5.0	30 minutes minimum to 48 hours maximum ^{*[8][9]}	9 hours to 11 hours at 75°F (24°C)	1.5 times the dry-to- tape time
High Solids, Flat Akzo Nobel BMS10-72, Type IX Base: ECL-F Series Curing Solution: PC-233	2.0 to 5.0	30 minutes minimum to 48 hours maximum	6 hours at 90°F (32°C)	1.5 times the dry-to- tape time
High Solids, Nonmetallic Special Visual Effect Akzo Nobel BMS10-72, Type IX Base: ECL-G Series Curing Solution: PC-233	1.0 to 2.0	10 minutes minimum to 48 hours maximum	6 hours at 90°F (32°C)	1.5 times the dry-to- tape time
High Solids, Gloss, Clear Akzo Nobel BMS10-72, Type IX Base: ECL-G-2 Curing Solution: PC-233 Thinner Component: TR-109	1.5 to 2.0	30 minutes minimum to 48 hours maximum	6 hours at 90°F (32°C)	1.5 times the dry-to- tape time

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Table 704/51-21-73-993-804 BMS10-72 Recommended Application (Continued)

High Solids, Gloss, Clear Akzo Nobel BMS10-72, Type IX Base: ECL-G-7 Curing Solution: PC-233 Thinner: TR-109	1.5 to 2.0	30 minutes minimum to 48 hours maximum	4.5 hours at 120°F (49°C)	1.5 times the dry-to- tape time

- *[1] Dry-to-tape times are approximate. Tape after removal shall have no visible effects on the film.
- *[2] When maximum dry times are exceeded, or if topcoat has been heat cured at temperatures warmer than 110°F (43°C), reactivate the surface.
- *[3] Some colors may require longer or shorter overcoat time due to cure characteristics, temperature, and humidity.
- *[4] Measurement does not include primer thickness.
- *[5] CA8000C1 or CA8000C2 may be substituted for CA8000C for accelerated curing. The thinner blend in the paint mix must not contain both CA8000C1 and CA8000C2 at the same time. Use of thinners containing CA8000C1 or CA8000C2 thinner may only be used on areas where the reduced wet edge and time between coats does not adversely affect the final appearance of the topcoat, including but not limited to rotation areas, speed strippers, door bands, and outdoor work areas.
- *[6] CA8000C4 or CA8000C5 may be substituted 1:1 for CA8000C for accelerated curing. CA8000C4 or CA8000C5 may only be used for outdoor touch-up or repair. CA8000C4 and CA8000C5 may not be used if the outside air temperature is warmer than 60°F (16°C).
- *[7] TR-111, TR-112, TR-113, or TR-128 may be substituted for TR-109 for accelerated curing. The thinner blend in the paint mix must not simultaneously contain some combination of TR-111, TR-112, TR-113, and TR-128. Thinners containing TR-111, TR-112, TR-113, or TR-128 thinner may only be used on areas where the reduced wet edge and time between coats does not adversely affect the final appearance of the topcoat, including but not limited to rotation areas, speed stripes, door bands, and outdoor work areas.
- *[8] Paint mixed with TR-128 may be heat cured at 90°F (32°C) for 4 hours if subsequent colors are to be applied over the base coat.
- *[9] TR-109 may be blended with TR-112 to achieve a 4-6 hour cure at 90°F (32°C).
- *[10] TR-141 alternate thinner may be substituted 1:1 for TR-109 standard thinner. It is intended to increase wet edge time when the ambient air temperature is 85°F (29°C) to 100°F (38°C).

SUBTASK 51-21-73-950-002

- (3) After the final coat of BMS10-72 coating, C00921, is applied, but while the enamel is still wet, remove the masking tape from the edge of the bottom paint line.

NOTE: This is to reduce the sharp paint edge and build-up which can be more easily corroded.

- (4) See Table 704 for recommended dry times.

SUBTASK 51-21-73-370-004

- (5) See Figure 701 for additional information on recommended dry-to-tape times for BMS10-72, Type VIII.

SUBTASK 51-21-73-370-005

- (6) See Figure 702 for additional information on recommended dry-to-tape times for BMS10-72, Type IX.

————— END OF TASK —————

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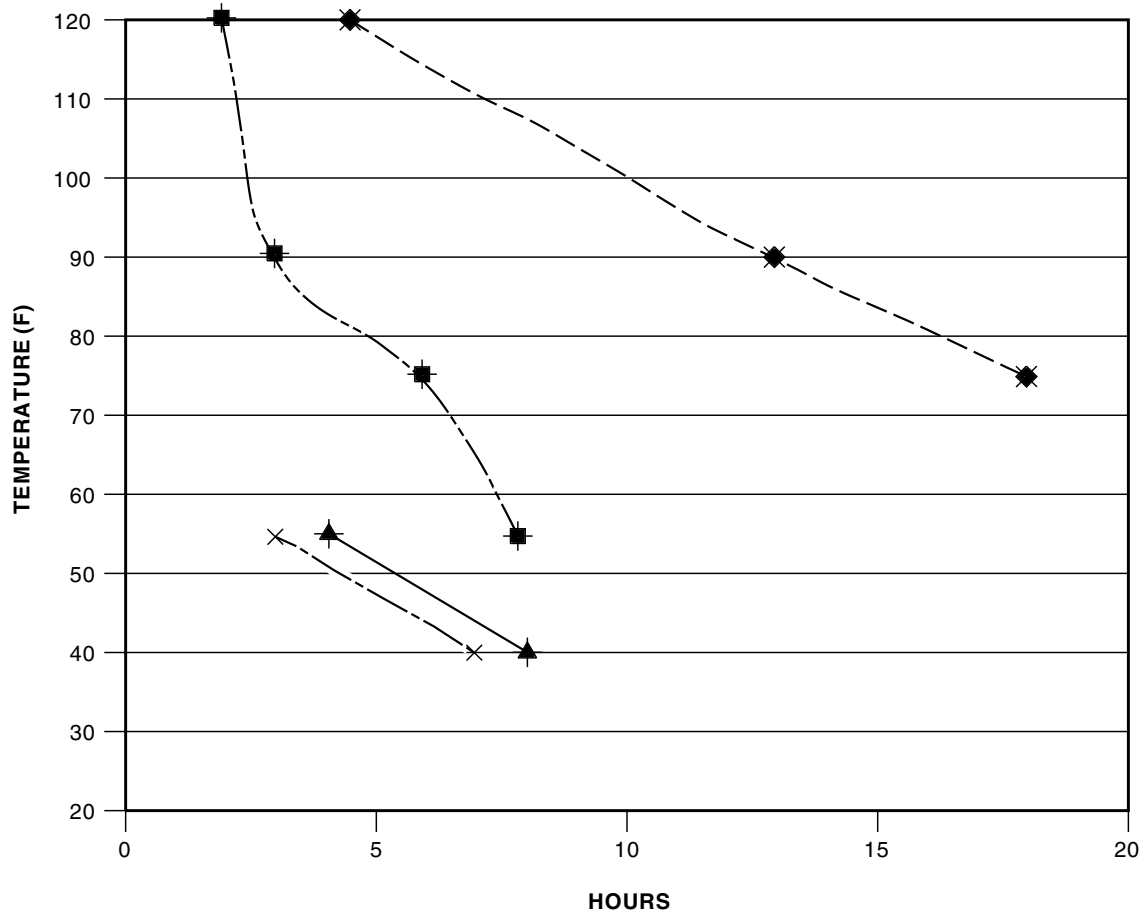
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LEGEND:

- *--- BMS 10-72 TY VIII WITH CA8000C THINNER
- BMS 10-72 TY VIII WITH CA8000C2 THINNER
- ▲--- BMS 10-72 TY VIII WITH CA8000C4 THINNER
- x--- BMS 10-72 TY VIII WITH CA8000C5 THINNER

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BMS10-72, Type VIII, Recommended Dry-to-Tape Times
Figure 701/51-21-73-990-801

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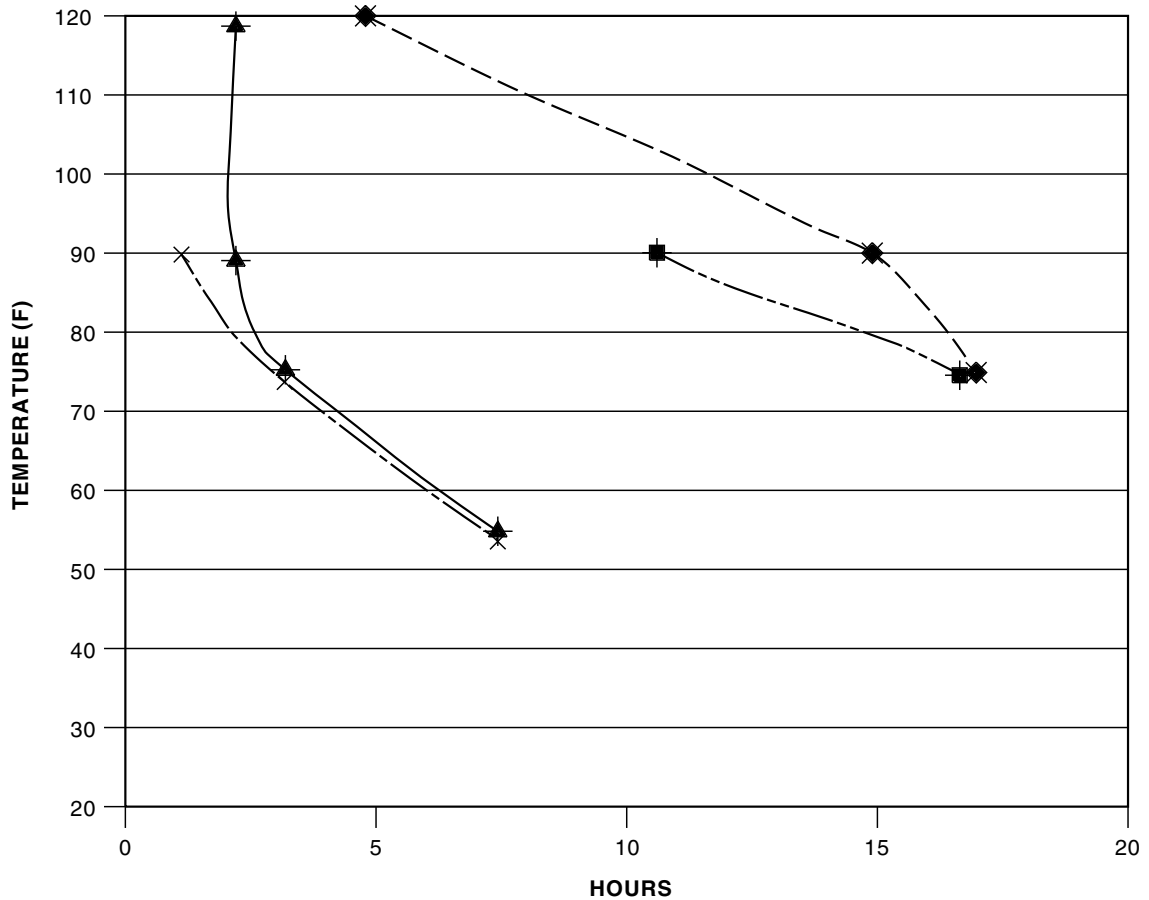
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LEGEND:

- *--- BMS 10-72 TY IX WITH TR-109 THINNER
- BMS 10-72 TY IX WITH TR-128 THINNER
- ▲--- BMS 10-72 TY IX WITH TR-112 THINNER
- x--- BMS 10-72 TY IX WITH TR-113 THINNER

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BMS10-72, Type IX, Recommended Dry-to-Tape Times
Figure 702/51-21-73-990-802

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TASK 51-21-73-370-802

3. BMS10-60 Topcoat Application

A. General

- (1) This procedure has steps for the following.
 - (a) Prepare the surface
 - (b) Apply BMS10-60 coating, C00032
- (2) Boeing recommends that you apply the BMS10-60 coating, C00032 when the outside air temperature is between 65°F (18°C) and 95°F (35°C).
 - (a) Contact the paint manufacturer for guidance if you will apply the paint outside the recommended temperature range.
- (3) Boeing recommends you apply the BMS10-60 coating, C00032 when the relative humidity is less than 70%.
 - (a) If the relative humidity is more than 70%, you can force cure the coating at temperatures between 120°F (49°C) and 160°F (71°C).

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00032	Coating - Protective Enamel, General Use	BMS10-60 Type I
C00033	Coating - Protective Enamel, Flexibility Use	BMS10-60 Type II
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	

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Reference	Description	Specification
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50260	Sandpaper - Aluminum Oxide, 220 Grit	
G50262	Wiper - Cleaning	BMS15-5
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51270	Tape - Masking, Intertape PG777	

D. Prepare the Surface

SUBTASK 51-21-73-950-003

- (1) Mask the surface adjacent to the area you will apply topcoat.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.
NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-73-370-006

- (2) Determine the method you will use to prepare the surface (TABLE, Table 705).

Table 705/51-21-73-993-805

SURFACE COATING	DRY TIME	DRY TEMPERATURE	PREPARATION METHOD
BMS10-79, Type II, Grade A	≤ 48 hours	Any	Method 1
BMS10-79, Type II, Grade A	> 48 hours	Any	Method 2
BMS10-79, Type II, Grade D	≤ 12 hours	Any	Method 1
BMS10-79, Type II, Grade D	> 12 hours	Any	Method 2
BMS10-103, Type I	≤ 48 hours	According to Table 706	Method 1
BMS10-103, Type I	> 48 hours or not according to Table 706	--	Method 2

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Table 705/51-21-73-993-805 (Continued)

SURFACE COATING	DRY TIME	DRY TEMPERATURE	PREPARATION METHOD
BMS10-60, Type II	≤ 48 hours	Any	Method 1
BMS10-60, Type II	> 48 hours	Any	Method 3

Table 706/51-21-73-993-806 BMS10-103, Type I, Dry Times and Temperatures

TEMPERATURE	TIME
Air drying	48 hours
120°F (49°C)	4 hours
140°F (60°C)	2 hours
160°F (71°C)	1 hour
180°F (82°C)	45 minutes
200°F (93°C)	30 minutes

SUBTASK 51-21-73-370-007

(3) Prepare the surface with one of the methods that follow:

(a) Method 1

- 1) Solvent clean the surface using a wiper, G50262, or one of the abrasives that follow and wet it with solvent, B00184 or alcohol, B00130.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
- 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to wipe excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- 3) Sand the surface with one of the abrasives that follow.
 - a) 220-grit or finer sandpaper, G50260
 - b) 240 grit or finer abrasive paper, G50077
 - c) Aluminum oxide abrasive paper, very fine
 - d) Scotch-Brite 7447 pad, G50220
 - e) Scotch-Brite Clean and Finish, very fine, aluminum oxide
- 4) Solvent clean the surface using a wiper, G50262, and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.
- 5) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- 6) Repeat the solvent cleaning, if necessary.

(b) Method 2

- 1) Solvent clean the surface using a wiper, G50262, or one of the abrasives that follow and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - a) Scotch-Brite 7447 pad, G50220

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- b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
- c) A very fine, aluminum oxide abrasive hand pad, G51193
- 2) Sand the surface with one of the abrasives that follow.
 - a) 220-grit or finer sandpaper, G50260
 - b) 240 grit or finer abrasive paper, G50077
 - c) Aluminum oxide abrasive paper, very fine
 - d) Scotch-Brite 7447 pad, G50220
 - e) Scotch-Brite Clean and Finish, very fine, aluminum oxide
- 3) Solvent clean the surface using a wiper, G50262, and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
- 4) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- 5) Repeat the solvent cleaning, if necessary.
- 6) Apply one coat of the applicable primer.

NOTE: This is the reactivation coat.

(c) Method 3

- 1) Sand the surface with one of the abrasives that follow.
 - a) 220-grit or finer sandpaper, G50260
 - b) 240 grit or finer abrasive paper, G50077
 - c) Aluminum oxide abrasive paper, very fine
 - d) Scotch-Brite 7447 pad, G50220
 - e) Scotch-Brite Clean and Finish, very fine, aluminum oxide
- 2) Solvent clean the surface using a wiper, G50262, and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
- 3) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- 4) Repeat the solvent cleaning, if necessary.

E. Apply the BMS10-60 Topcoat

SUBTASK 51-21-73-370-008

- (1) Mix the BMS10-60, Type I coating, C00032 or Type II, coating, C00033 using the manufacturer's instructions.

SUBTASK 51-21-73-950-004

- (2) Mask the areas adjacent to the area where you will apply BMS10-60 coating, C00032.

SUBTASK 51-21-73-370-009

- (3) To spray apply the BMS10-60 coating, C00032, do the steps that follow.
 - (a) Use one of the tools that follow to spray-apply the enamel coating.
 - 1) Air gun
 - 2) Airless gun
 - 3) Air-assisted airless gun

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- 4) High volume low pressure (HVLP) gun
- (b) Spray each single coat by cross-coating.

SUBTASK 51-21-73-370-010

- (4) To brush apply the BMS10-60 coating, C00032, do the steps that follow.
 - (a) Apply the coating using a natural bristle paint brush.
 - (b) Apply the coating in one direction.
 - (c) Apply the coating with light pressure on the brush.
 - (d) Make sure that the coating is applied in an even, continuous coat.

SUBTASK 51-21-73-370-011

- (5) Cure the BMS10-60 coating, C00032, using the steps that follow.
 - (a) Make sure that the maximum temperature of the coating is less than 250°F (121°C).
 - (b) For curing before service, see Table 707.

Table 707/51-21-73-993-807 Cure BMS10-60, Type I or II, Topcoat Before Service

TEMPERATURE	MINIMUM CURE TIME
T < 75°F (24°C)	48 hours
75°F (24°C) < T < 160°F (71°C)	24 hours

- (c) For the minimum cure time to overcoat for Akzo Nobel 24-F20-101, see Figure 703.
- (d) For the minimum cure time to overcoat for other BMS10-60 materials, see Table 708.

Table 708/51-21-73-993-808 Cure BMS10-60, Type I or II, for Recoat/Overcoat

MATERIAL	TEMPERATURE	TIME TO RECOAT/OVERCOAT ^{*[1]}
Akzo Nobel 24-F20-101	See FIGURE	See FIGURE
Desothane HS Series	75 ±5°F (24 ±3°C)	20 minutes to 48 hours
Akzo Nobel Eclipse Series	75 ±5°F (24 ±3°C)	10 minutes to 48 hours

^{*[1]} These times are minimum recommended times to recoat/overcoat for one application of BMS10-60. Additional drying time should be allowed for higher film thicknesses.

- (e) For the minimum dry time to handle, see Figure 704.

SUBTASK 51-21-73-220-001

- (6) Measure the dry film thickness of the BMS10-60 coating, C00032.
 - (a) Measure the dry film thickness after the minimum dry to tape time (Figure 704).
 - (b) Make sure that the dry film thickness is in the range in Table 709.

Table 709/51-21-73-993-809 BMS10-60, Type I or II, Dry Film Thickness

NUMBER OF COATS	MINIMUM DRY FILM THICKNESS (MILS)	MAXIMUM DRY FILM THICKNESS (MILS)	MAXIMUM DRY FILM THICKNESS FOR LOCALIZED AREAS OF REWORK, OVERLAP, AND OVERSPRAY (MILS)
1	0.7	1.2	2.4
2 ^{*[1]}	1.4 ^{*[1]}	2.4 ^{*[1]}	3.6 ^{*[1]}

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*[1] This is applicable to BMS10-60 topcoats except gloss metallics.

———— **END OF TASK** ————

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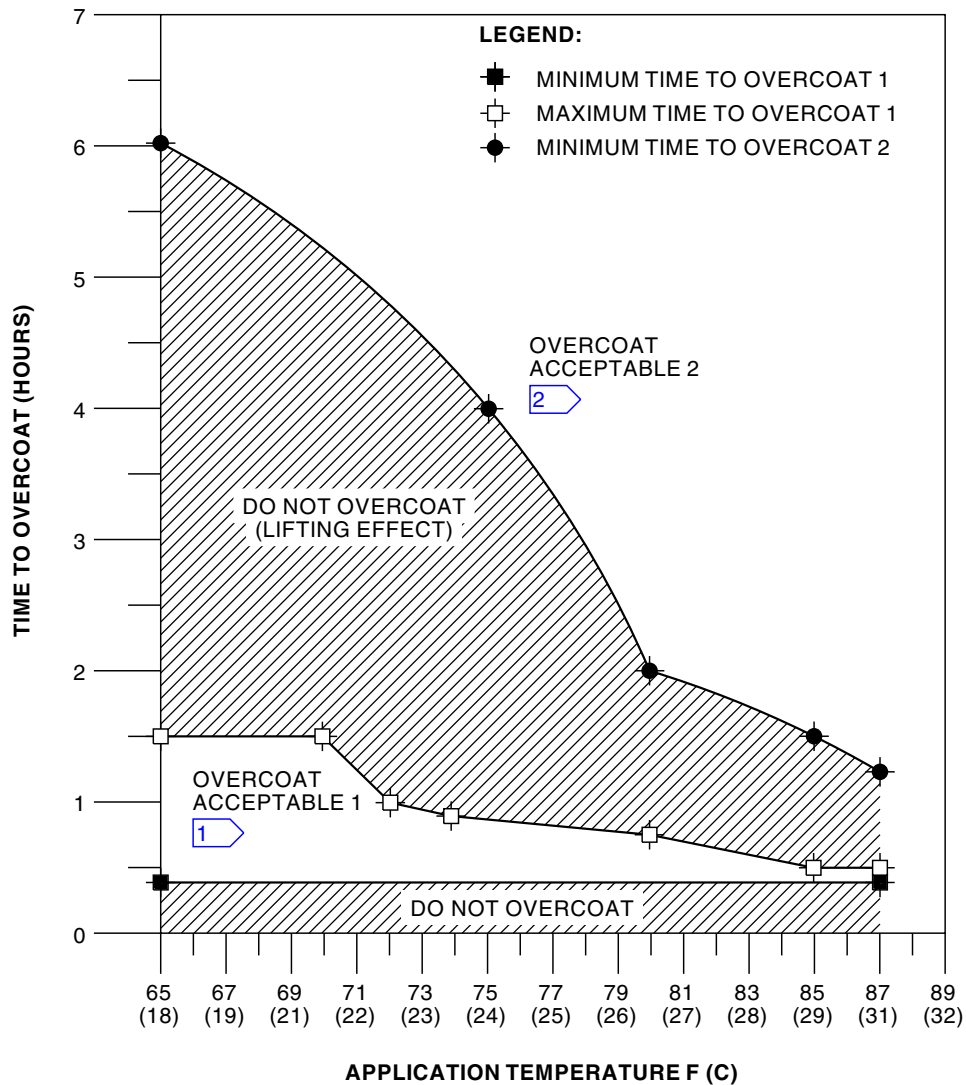
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- 1 ALLOW AT LEAST 25 MINUTES AS INDICATED BY "MINIMUM TIME TO OVERCOAT 1" AND NO MORE THAN THE TIME CORRESPONDING TO CURRENT TEMPERATURE CONDITIONS AS INDICATED BY THE "MAXIMUM TIME TO OVERCOAT 1", FROM THE START OF THE FIRST TO OVERCOAT.
- 2 IF "MAXIMUM TIME TO OVERCOAT 1" HAS BEEN EXCEEDED FOR ANY REASON, ALLOW AT LEAST THE TIME CORRESPONDING TO CURRENT TEMPERATURE CONDITIONS AS INDICATED BY "MINIMUM TIME TO OVERCOAT 2" AND NO MORE THAN 48 HOURS FROM THE START OF THE FIRST COAT TO OVERCOAT.

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Akzo Nobel 24-F20-101 Time to Overcoat
Figure 703/51-21-73-990-803

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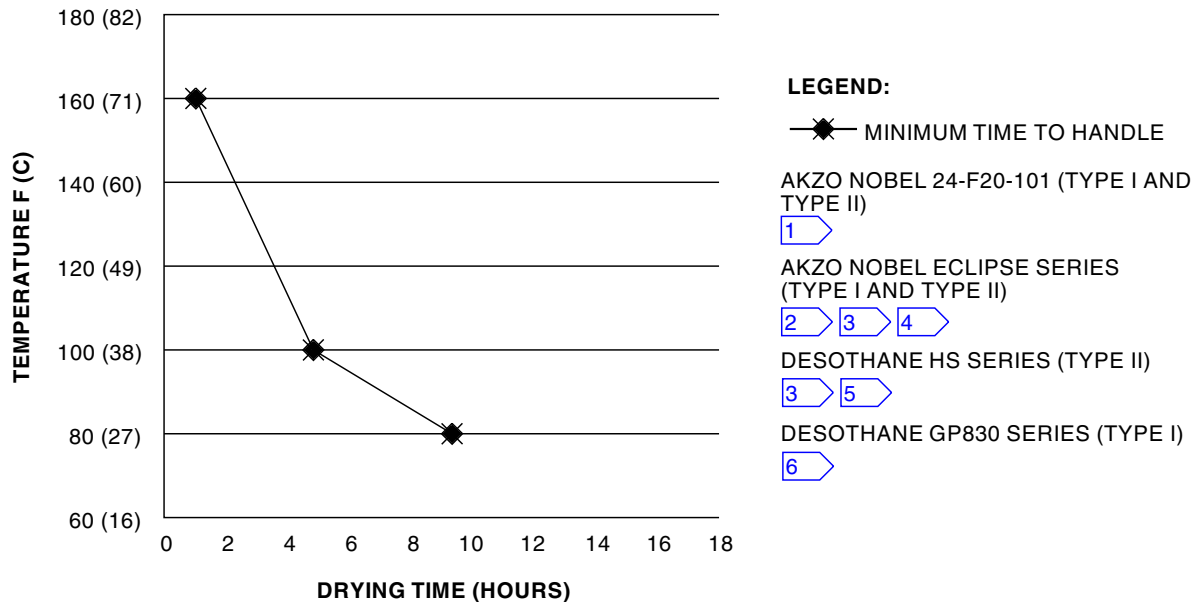
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- 1 FOR AKZO NOBEL 24-F20-101, FOLLOW FIGURE 1 FOR TIME TO OVERCOAT.
- 2 TIME TO RECOAT OR OVERCOAT AT 75 ±5°F (24 ±3°C): 10 MINUTES TO 48 HOURS.
- 3 THESE ARE MINIMUM TIMES TO HANDLE AND STACK - ADDITIONAL DRYING TIME SHOULD BE ALLOWED FOR HIGHER FILM THICKNESS. NOTE FL 3, FL 4 AND FL 5 IN TABLE I FOR ACCELERATED CURE.
- 4 DRYING TIME REQUIREMENTS FOR AKZO NOBEL 24F20B-101 ARE THE SAME AS THOSE FOR AKZO NOBEL ECLIPSE SERIES.
- 5 TIME TO RECOAT OR OVERCOAT AT 75 ±5°F (24 ±3°C): 20 MINUTES TO 48 HOURS.
- 6 ALLOW A MINIMUM OF 25 MINUTES BETWEEN COATS. AT FILM THICKNESSES OF LESS THAN OR EQUAL TO 3.0 MILS, 45 MINUTES MINIMUM FLASH-OFF TIME BETWEEN COATS IS REQUIRED.

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BMS10-60, Type II, Minimum Dry Time to Tape
Figure 704/51-21-73-990-804

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TASK 51-21-73-370-803

4. BMS10-11 Topcoat Application

A. General

- (1) This task gives instructions to do the following.
 - (a) Prepare to Apply the BMS10-11 coating, C00260
 - (b) Apply the BMS10-11 coating, C00260
- (2) Boeing recommends that you apply the BMS10-11 coating, C00260, chemical-resistant and solvent-resistant finish when the finish temperature is warmer than 50°F (10°C).
 - (a) Contact the paint manufacturer for guidance if the finish temperature is colder than 50°F (10°C).
- (3) Boeing recommends that you apply the BMS10-11 coating, C00260, chemical-resistant and solvent-resistant finish when the relative humidity is less than 85%.
 - (a) Contact the paint manufacturer for guidance if the relative humidity is more than 85%.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B00017	Cleaner - Alkaline - Pace B-82 (Formerly Pacific B-82)	BMS11-12
B50052	Cleaner - Alkaline - Ridoline 909	
B50172	Cleaner - Alkaline - Pace MF-30	
B50240	Cleaner - Turco 4215 NC-LT Alkaline Cleaner	
C00260	Coating - Chemical And Solvent Resistant Finish, Epoxy Resin Enamel	BMS10-11 Type II
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	

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Reference	Description	Specification
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G51270	Tape - Masking, Intertape PG777	

D. Prepare to Apply the BMS10-11 Topcoat

SUBTASK 51-21-73-950-005

- (1) Mask the surface adjacent to the area you will apply topcoat.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-73-370-012

- (2) Determine which method to use to prepare the surface (Table 710).

Table 710/51-21-73-993-810 Surface Preparation Methods Before Application of BMS10-11

SURFACE COATING	DRY TEMPERATURE	DRY TIME	SURFACE PREPARATION METHOD
BMS10-11, Type I, Grade A or E	Air Dry	≤ 48 hours	Method 1
BMS10-11, Type I, Grade A or E	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-11, Type I, Grade B	Air Dry (T < 120°F (49°C))	≤ 24 hours	Method 1
BMS10-11, Type I, Grade A or E	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-11, Type I, Grade B	Any	> 24 hours	Method 2 or Method 3
BMS10-11, Type II	Air Dry	≤ 48 hours	Method 1

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Table 710/51-21-73-993-810 Surface Preparation Methods Before Application of BMS10-11 (Continued)

SURFACE COATING	DRY TEMPERATURE	DRY TIME	SURFACE PREPARATION METHOD
BMS10-11, Type II	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-20	Air Dry	≤ 48 hours	Method 1
BMS10-20	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-20	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-79, Type II or Type III, Grade A	Air Dry	≤ 48 hours	Method 1
BMS10-79, Type II or Type III, Grade A	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-79, Type II or Type III, Grade A	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-79, Type II or Type III, Grade D	Air Dry (T < 120°F (49°C))	< 12 hours	Method 1
BMS10-79, Type II or Type III, Grade D	T < 120°F (49°C)	> 12 hours	Method 2 or Method 2
BMS10-79, Type II or Type III, Grade D	Force Dry	Any Length of Time	Method 2 or Method 3
BMS10-103	Air Dry	≤ 48 hours	Method 1
BMS10-103	Air Dry	> 48 hours	Method 2 or Method 3
BMS10-103	Force Dry	Any Length of Time	Method 2 or Method 3

SUBTASK 51-21-73-370-013

(3) Use one of the methods that follow to prepare the surface.

(a) Method 1

- 1) Solvent clean the surface.
- 2) Sand the surface with 240 grit or finer abrasive paper, G50077, if necessary to clean the surface.
- 3) Solvent clean the surface to remove sanding dust.

(b) Method 2

- 1) Solvent clean the surface.
- 2) Sand the surface with one of the abrasives that follow.
 - a) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - b) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - d) 240 grit or finer abrasive paper, G50077
 - e) Make sure that you do not sand the substrate.
- 3) Solvent clean the surface to remove sanding dust.
- 4) Use compressed air or a tack rag, G50123 to remove sanding dust, if necessary.

(c) Method 3

- 1) Solvent clean the surface.

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- a) Use a Scotch-Brite General Purpose Hand Pad 7447 (very fine, aluminum oxide) or a Scotch-Brite Clean and Finish (very fine, aluminum oxide), if necessary.
- 2) Alkaline clean the surface.
 - a) Use a Scotch-Brite General Purpose Hand Pad 7447 (very fine, aluminum oxide) or a Scotch-Brite Clean and Finish (very fine, aluminum oxide) wet with alkaline cleaner that is diluted with three parts of water, by volume.
 - b) Make sure that you do not sand the substrate.
 - c) Use one of the alkaline cleaners that follow.
 - <1> Ardrox 160-B
 - <2> Pace B-82 alkaline cleaner, B00017
 - <3> Pace MF-30 cleaner, B50172
 - <4> Ridoline 909, B50052
 - <5> Super Bee 300LF
 - <6> Turco 4215 NC-LT alkaline cleaner, B50240
- 3) Rinse the surface with large amounts of water.
- 4) Do a check for a water-break-free surface.
 - a) If water breaks occur, alkaline clean the surface again and rinse with more water.

SUBTASK 51-21-73-370-014

- (4) Mix the BMS10-11 coating, C00260, using the manufacturer's instructions.

E. Apply the BMS10-11 Topcoat

SUBTASK 51-21-73-370-015

- (1) Immediately before you apply the BMS10-11 coating, C00260, use a tack rag, G50123 to remove loose dust and lint.

SUBTASK 51-21-73-370-016

- (2) Apply the BMS10-11 coating, C00260, by spray or brush.
 - (a) Apply the finish in a continuous coat.
 - (b) Make sure that the coat is free of solids, runs, sags, fish eyes, blisters, and non-adherent overspray.

SUBTASK 51-21-73-370-017

- (3) Cure the topcoat.
 - (a) See Table 711 and Figure 705 to cure the primer.

Table 711/51-21-73-993-811

DRY/CURE	FINISH SYSTEM	TIMES AND CONDITIONS ^{*[1]}
Flash off before accelerated dry/cure	BMS10-11, Type II, all Grades	10 minutes minimum at room temperature
Before masking	BMS10-11, Type II	Figure 705
Flash off before wet fastener installation	All	5 minutes minimum

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Table 711/51-21-73-993-811 (Continued)

DRY/CURE	FINISH SYSTEM	TIMES AND CONDITIONS ^{*[1]}
Before service where fluid-resistance and moisture-resistance is required	All	Minimum Cure: 48 hours at 65°F (18°C) to 75°F (24°C) plus 24 hours at 75°F (24°C) to 160°F (71°C) Optimum Cure: 7 days at 75 ±5°F (24 ±3°C)

*[1] These conditions are for one coat film thicknesses and should be increased for thicker films.

SUBTASK 51-21-73-370-018

- (4) Measure the dry film thickness.
- (a) Make sure that the dry film thickness is between 1.0 mil (0.025 mm) and 2.0 mils (0.051 mm).

————— END OF TASK —————

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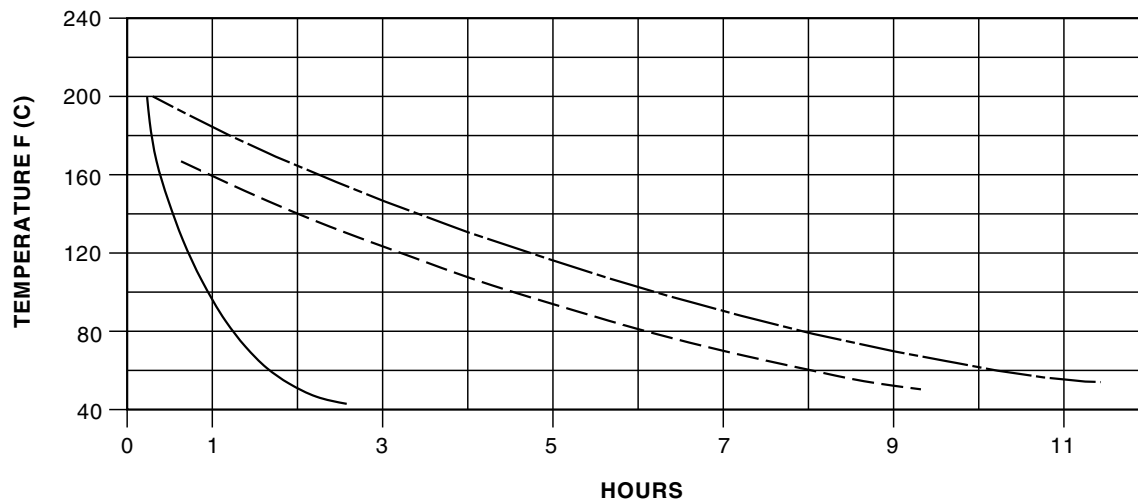
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LEGEND:

- TIME TO OVERCOAT
- - - - TIME TO MASK
- . - . - TIME TO HANDLE AND STACK
1 2 3

- 1 DO NOT FORCE DRY BONDED ASSEMBLIES OVER 180 F (82 C).
2 DO NOT FORCE DRY SHOT PEENED ALUMINUM PARTS OVER 200 F (93 C).
3 DO NOT FORCE DRY ALUMINUM PARTS OVER 250 F (121 C).

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Drying of BMS10-11, Type II, Topcoat
Figure 705/51-21-73-990-805

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TASK 51-21-73-370-804

5. Chemical Reactivator Application

A. General

- (1) This procedure has steps for the following.
 - (a) Prepare to apply the chemical reactivator, G51418.
 - (b) Apply the chemical reactivator, G51418.
- (2) Boeing recommends that you apply chemical reactivator, G51418, when the ambient air temperature is between 65°F (18°C) and 90°F (32°C).
 - (a) Contact the paint manufacturer for guidance if you will apply chemical reactivator, G51418, outside the recommended temperature range.
- (3) Boeing recommends that you apply chemical reactivator, G51418, when the relative humidity is less than 70%.
 - (a) Contact the paint manufacturer for guidance if you will apply chemical reactivator, G51418, when the relative humidity is more than 70%.
- (4) Do not apply chemical reactivator, G51418, when the relative humidity at the application temperature is below that in Figure 706.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	

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(Continued)

Reference	Description	Specification
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51270	Tape - Masking, Intertape PG777	
G51418	Reactivator - Chemical, Sur-Prep AP-1	BMS10-127

D. Prepare to Apply the Sur-Prep AP-1 Chemical Reactivator

SUBTASK 51-21-73-370-019

- (1) Mix the chemical reactivator, G51418, using the manufacturer's instructions.
 - (a) Make sure that the ambient air temperature is between 65°F (18°C) and 90°F (32°C).
 - (b) Make sure that no liquid water or moisture mixes with the chemical reactivator, G51418.

NOTE: Liquid water or moisture mixed with the chemical reactivator, G51418, can cause a white precipitate and can affect the bond between topcoats.

SUBTASK 51-21-73-950-006

- (2) Mask the areas that will not be coated with chemical reactivator, G51418.
 - (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED"
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498 to install the pitot probe cover, COM-1503 on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with solvent resistant masking tape, G51270.
 - a) Apply solvent resistant masking tape, G51270, over the blade, plate, and blade-to-plate gap.

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the solvent resistant masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the aluminum foil tape from the blade-to-plate gap up to the blade tip until all of the masking tape, G51270, is covered.

SUBTASK 51-21-73-160-010

- (3) To clean the surface, do these steps:
 - (a) Wipe clean the surface with solvent.
 - 1) Use a wiper, G50262, and wet with solvent, B00184 or alcohol, B00130, to wipe the surface.

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- 2) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.
- (b) Sand the surface, if necessary to remove contamination, do these steps:
 - 1) Use one of the abrasives that follow.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
- (c) If you sand the surface, solvent clean the surface to remove sanding dust.
 - 1) Use a wiper, G50262, and wet it with solvent, B00184 or alcohol, B00130, to wipe the surface.
 - 2) Immediately wipe the surface with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-73-370-020

- (4) Make sure that the conditions in Figure 706 are met.

E. Apply the Sur-Prep AP-1 Chemical Reactivator

SUBTASK 51-21-73-370-021

- (1) Spray apply the chemical reactivator, G51418, using one of the tools that follow.
 - (a) High volume, low pressure (HVLP) gun
 - (b) Air assisted airless spray gun
 - (c) Electrostatic spray equipment

SUBTASK 51-21-73-370-022

- (2) Make sure that all necessary areas are coated with a thin, wet film.
 - (a) If there is overspray of chemical reactivator, G51418, onto surfaces that do not need to be reactivated and that have not been masked, do these steps:
 - 1) Use a wiper, G50262, or one of the abrasives that follow and wet it with methyl propyl ketone (MPK) solvent, B00666, a 70/30 mixture of MPK solvent, B00666 or methyl ethyl ketone (MEK) solvent, B00148.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess solvent.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-73-370-023

- (3) Keep the chemical reactivator, G51418, on the surface for 30 minutes to 24 hours in the conditions in Figure 706 before applying topcoat.
 - (a) If the chemical reactivator, G51418, is not dry after 30 minutes, let the chemical reactivator, G51418, dry for a longer time.

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SUBTASK 51-21-73-160-011

- (4) If the chemical reactivator, G51418, has runs or if there are very wet areas after you apply the chemical reactivator, G51418, do these steps:

- (a) Dry the defect area with clean, compressed air.
- (b) Solvent clean the defect area.

NOTE: This is to remove the dried powder.

- 1) Use a wiper, G50262, or one of the abrasives that follow and wet it with methyl propyl ketone (MPK) solvent, B00666, or a 70/30 mixture, by volume, of MPK solvent, B00666, or methyl ethyl ketone (MEK) solvent, B00148.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
- (c) Re-apply the chemical reactivator, G51418.

SUBTASK 51-21-73-370-024

- (5) If the chemical reactivator, G51418, is on the surface for more than 24 hours or if there is contamination, debris, contact with water, or rubbing with materials, do the steps that follow.

- (a) Remove the chemical reactivator, G51418.
 - 1) Use a wiper, G50262, or one of the abrasives that follow and wet it with methyl propyl ketone (MPK) solvent, B00666, or a 70/30 mixture of MPK solvent, B00666/methyl ethyl ketone (MEK) solvent, B00148.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - c) A very fine, aluminum oxide abrasive hand pad, G51193
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262, to remove excess.
 - a) Make sure that the solvent does not dry on the surface.
 - 3) Wipe the surface with a tack rag, G50123.
 - 4) Re-apply the chemical reactivator, G51418.

———— **END OF TASK** ————

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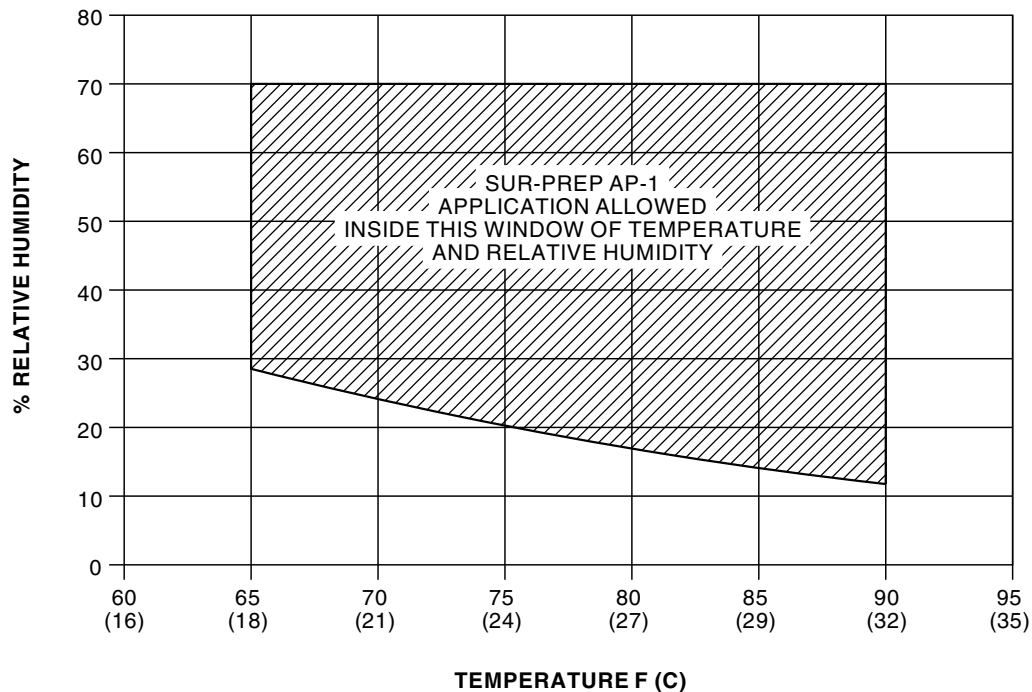
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NOTE:

THE TEMPERATURE AND HUMIDITY RANGES SHOWN ARE THE LIMITS FOR APPLICATION TO ASSURE OVERCOAT TOPCOAT ADHESION. THESE LIMITS DO NOT TAKE INTO ACCOUNT EQUIPMENT CONTROL TOLERANCES. DEPENDING ON EQUIPMENT SET POINT ACCURACY, IT MAY BE NECESSARY TO SET CONTROL LIMITS INSIDE THE LIMITS SHOWN IN THIS FIGURE.

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Conditions for Application of Chemical Reactivator
Figure 706/51-21-73-990-806

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ABRASION-RESISTANT TEFLON FINISH - CLEANING/PAINTING

1. General

A. This procedure contains several tasks as follows:

- (1) Preparation of the surface to be finished.
- (2) Application of the BMS 10-86 Type I coating, C00304.
- (3) Application of the BMS 10-86 Type II coating, C50149.
- (4) Application of the BMS 10-86 Type III coating, C50150.

TASK 51-21-81-100-801

2. Prepare the Surface to be Finished

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2

B. Consumable Materials

Reference	Description	Specification
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II

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Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054

C. Procedure

SUBTASK 51-21-81-120-001

- (1) Prepare the Surface to be Finished.



DO NOT GET SOLVENTS IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE SOLVENTS. KEEP SOLVENTS AWAY FROM SPARKS, FLAME, AND TEMPERATURES ABOVE THE FLASH POINT. SOLVENTS ARE A POISONOUS AND FLAMMABLE MATERIAL WHICH CAN CAUSE INJURY PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Clean the surface with a clean cotton wiper, G00034, which is moist with one of the solvents as follows:
- 1) alcohol, B00068
 - 2) alcohol, B00130
 - 3) solvent, B00666
- (b) Dry the surface with a clean cotton wiper, G00034, before the solvent dries.



MAKE SURE THAT YOU USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.



MAKE SURE THAT THE SCRIBE LINE INSPECTIONS ARE DONE BEFORE YOU USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE. ABRASIVE PADS CAN MAKE THE ALUMINUM SURFACE SMOOTH AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS OR PRIMER TO REMOVE THE PAINT BEFORE INSPECTIONS, IT CAN CAUSE MORE WORK. THE SCRIBE-LINE INSPECTION SERVICE BULLETIN CAN REQUIRE YOU TO DO REPEAT INSPECTIONS.

- (c) Remove all unwanted material from the surface. Use an approved sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746, to clean around fasteners, seams, and lap joints.
- NOTE:** An abrasive mat, G00251, or abrasive cloth, B00102, may be used instead of the scraper.
- (d) Clean the surface again with a cotton wiper, G00034, which is moist with the solvent.

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- (e) Dry the surface with a clean cotton wiper, G00034, before the solvent dries.

————— END OF TASK —————

TASK 51-21-81-370-801

3. Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I

A. Tools/Equipment

Reference	Description
STD-9077	Spray Gun

B. Consumable Materials

Reference	Description	Specification
C00304	Coating - Teflon Filled, Non Decorative, Sprayable Material	BMS10-86 Type I
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Procedure

SUBTASK 51-21-81-370-001

- (1) Do these steps to apply the BMS 10–86 Type I coating, C00304:

NOTE: BMS 10-86, Type I is a non-decorative, sprayable material with a minimum pot life of 2 hours.

- (a) Clean all equipment before you mix the contents of the BMS 10–86, Type I coating, C00304.
- (b) Follow the manufacturer's instructions to mix the contents of the BMS 10–86 Type I coating, C00304.
- (c) Follow the manufacturer's instructions to achieve the required viscosity of the BMS 10–86 Type I coating, C00304.
- (d) Apply Scotch Flatback Masking Tape 250, G00270, on all adjacent areas.
- (e) Use a spray gun, STD-9077, to apply the BMS 10-86 Type I coating, C00304.
- (f) Let each layer of BMS 10–86 Type I coating, C00304, dry for 5 minutes.
- (g) Apply a total of four or five layers.
- (h) Follow the manufacturer's instructions before you touch the surface.
- (i) Follow the manufacturer's instructions to cure the BMS 10–86 Type I coating, C00304.
- (j) Remove the Scotch Flatback Masking Tape 250, G00270.

————— END OF TASK —————

TASK 51-21-81-370-802

4. Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type II

A. Tools/Equipment

Reference	Description
STD-9077	Spray Gun

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B. Consumable Materials

Reference	Description	Specification
C50149	Coating - Teflon Filled, Non Decorative, Brushable or Sprayable Material	BMS10-86 Type II
G00268	Brush - Soft Bristle, Paint	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Procedure

SUBTASK 51-21-81-370-002

- (1) Do these steps to apply the BMS 10–86, Type II coating, C50149, with a brush, G00268 (Brushable Method):

NOTE: BMS 10-86, Type II is a non-decorative, brushable or sprayable material with a minimum application time of 30 minutes.

- (a) Clean all equipment before you mix the contents of the BMS 10–86, Type II coating, C50149.
- (b) Follow the manufacturer's instructions to mix the contents of the BMS 10–86, Type II coating, C50149.
- (c) Follow the manufacturer's instructions to achieve the required viscosity of the BMS 10–86, Type II coating, C50149.
- (d) Apply Scotch Flatback Masking Tape 250, G00270, on all adjacent areas.
- (e) Apply the BMS 10–86, Type II coating, C50149, with a brush, G00268, in only one direction.
- (f) Follow the manufacturer's instructions before you touch the surface.
- (g) Follow the manufacturer's instructions to cure the coating, C50149.
- (h) Remove the Scotch Flatback Masking Tape 250, G00270.

SUBTASK 51-21-81-370-003

- (2) Do these steps to apply the BMS 10–86, Type II coating, C50149, with a spray gun, STD-9077 (Sprayable Method):

NOTE: BMS 10-86, Type II is a non-decorative, brushable or sprayable material with a minimum application time of 30 minutes.

- (a) Clean all equipment before you mix the contents of the BMS 10–86, Type II coating, C50149.
- (b) Follow the manufacturer's instructions to mix the contents of the BMS 10–86, Type II coating, C50149.
- (c) Follow the manufacturer's instructions to achieve the required viscosity of the BMS 10–86, Type II coating, C50149.
- (d) Apply Scotch Flatback Masking Tape 250, G00270, on all adjacent areas.
- (e) Apply the BMS 10–86, Type II coating, C50149, with a spray gun, STD-9077.
- (f) Let each layer of BMS 10-86 Type II sprayable coating dry for 5 minutes.
- (g) Apply a total of four or five layers.
- (h) Follow the manufacturer's instructions before you touch the surface.
- (i) Follow the manufacturer's instructions to cure the BMS 10–86 Type II coating, C50149.

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- (j) Remove the Scotch Flatback Masking Tape 250, G00270.

————— END OF TASK —————

TASK 51-21-81-370-803

5. Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type III

A. Tools/Equipment

Reference	Description
STD-9077	Spray Gun

B. Consumable Materials

Reference	Description	Specification
C50150	Coating - Teflon Filled, Decorative, Sprayable Material	BMS10-86 Type III
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Procedure

SUBTASK 51-21-81-370-004

- (1) Do these steps to apply the BMS 10–86 Type III coating, C50150:

NOTE: BMS 10-86, Type III is a decorative, sprayable material with a minimum application time of 3 hours.

- (a) Clean all equipment before you mix the contents of the BMS 10–86, Type III coating, C50150.
- (b) Follow the manufacturer's instructions to mix the contents of the BMS 10–86, Type III coating, C50150.
- (c) Follow the manufacturer's instructions to achieve the required viscosity of the BMS 10–86, Type III coating, C50150.
- (d) Apply Scotch Flatback Masking Tape 250, G00270, on all adjacent areas.
- (e) Use a spray gun, STD-9077, to apply a layer of the BMS 10–86, Type III coating, C50150.
- (f) Let each layer of BMS 10–86, Type III coating, C50150, dry for 5 minutes.
- (g) Apply a total of four or five layers.
- (h) Follow the manufacturer's instructions before you touch the surface.
- (i) Follow the manufacturer's instructions to cure the BMS 10–86, Type IIIcoating, C50150.
- (j) Remove the Scotch Flatback Masking Tape 250, G00270.

————— END OF TASK —————

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CORROSION INHIBITING COMPOUND - CLEANING/PAINTING

1. General

A. This procedure contains these tasks:

- (1) Surface Preparation for Corrosion Inhibiting Compound
- (2) Application of Corrosion Inhibiting Compound
- (3) Cure of Corrosion Inhibiting Compound
- (4) Repair of Corrosion Inhibiting Compound Coating
- (5) Removal of Excess Corrosion Inhibiting Compound

TASK 51-21-91-620-801

2. Surface Preparation for Corrosion Inhibiting Compound

A. **Consumable Materials**

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
B00093	Solvent - Tetrachloroethylene (Perchloroethylene)	ASTM D4081
B00316	Solvent - Aliphatic Naphtha (For Organic Coatings)	TT-N-95 Type I, ASTM D-3735 Type I
B00634	Solvent - Stabilized Limonene Cleaner	BMS11-10 Type 1, 2, or 3
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G50305	Sheeting - Plastic, Polyethylene	

B. **Procedure**

SUBTASK 51-21-91-620-001

- (1) Do these steps to prepare the surface for the corrosion inhibiting compound.
 - (a) Do these steps to clean the surfaces:
 - 1) Vacuum the surfaces to remove moisture and other unwanted material.
 - 2) Clean the surfaces with a cotton wiper, G00034 to remove moisture or other unwanted materials.

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DO NOT GET THE SOLVENT IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE IN THE FUMES FROM THE SOLVENT. MAKE SURE TO PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN USING THE SOLVENT. KEEP THE SOLVENT AWAY FROM SPARKS, FLAMES AND HEAT. THE SOLVENT IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE IF NOT HANDLED PROPERLY.

- (b) When the area is very dirty, clean the surface with one of these applicable solvents:

NOTE: You must fully clean the surface to help the corrosion inhibiting compound get on the surface and in the mating surfaces.

- 1) solvent, B00074
- 2) solvent, B00093
- 3) solvent, B00316
- 4) Limonene solvent, B00634

SUBTASK 51-21-91-600-001

- (2) Apply Scotch Flatback Masking Tape 250, G00270 and plastic sheeting, G50305 to the area where you will not apply the corrosion preventive compound.

SUBTASK 51-21-91-600-002



DO NOT APPLY THE CORROSION-INHIBITING COMPOUNDS IN THE AREAS THAT HAVE OXYGEN SYSTEM COMPONENTS. THE MIXTURE OF CORROSION-INHIBITING COMPOUNDS, AND OXYGEN CAN CAUSE AN EXPLOSION. AN EXPLOSION CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

- (3) Make sure that you keep all corrosion inhibiting compounds out of the oxygen system components that follow:

NOTE: Masking tape is not sufficient. Use plastic sheets or equivalent covers to fully seal these components from the compound.

- (a) Bottles
- (b) Pressure metering equipment
- (c) Indicating equipment
- (d) Connections

SUBTASK 51-21-91-280-001

- (4) Do not apply corrosion inhibiting compound to the areas that follow:

- (a) Near the engines
- (b) Cowlings
- (c) Areas of high temperature or where firewall sealant is used

NOTE: High temperature causes deterioration in corrosion preventive compounds.

- (d) Electrical ground strap/surface interfaces to make sure that you have a sufficient ground path.
- (e) Bare surfaces that get a layer of primer and paint.

NOTE: It is not easy to apply a primer and paint on the corrosion preventive compound. The corrosion preventive compound gets in the surface and can bleed-out. This can cause the primer and paint to have a unsatisfactory bond.

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- 1) Let the primer and enamel dry for a minimum of 8 hours before you apply the corrosion preventive compound.
- (f) Sliding pins and other mechanical joints in a sliding surface contact.
- (g) Actuator rods.

NOTE: Corrosion preventive compound such as BMS 3-23 or all other hydrocarbons can cause damage to the seals that are used with BMS 3-11 hydraulic fluid.

SUBTASK 51-21-91-600-003

- (5) The areas that follow must be shielded or protected to make sure the corrosion inhibiting compound is not applied:
 - (a) Control cables and pulleys
 - (b) Wire bundles, coax connectors
 - (c) Mechanical silicone seals
 - (d) Insulation blankets
 - (e) Bushing and bearings
 - (f) Cam surfaces
 - (g) Lubricated components
 - (h) Pneumatic ducts with surface temperatures that are more than 200°F (93°C) during normal operations
 - (i) Applicable drain valves
 - (j) Areas that will be painted or sealed
 - (k) High visual items such as doorways, hatches, and window frames

————— **END OF TASK** —————

TASK 51-21-91-620-802

3. Application of Corrosion Inhibiting Compound

A. General



THE BMS3-23 AND BMS3-29 ARE HAZARDOUS MATERIALS. WHEN YOU SPRAY THESE COMPOUNDS IN A CLOSED AREA, A GAS CONCENTRATION OF 500 PPM (PARTS PER MILLION) IS THE MAXIMUM COMFORTABLE AND SAFE WORKING LIMIT. AT THIS CONCENTRATION, A PERSON CAN WORK FOR 8 HOURS. GAS LEVELS MORE THAN 500 PPM ARE NOT FULLY HAZARDOUS, BUT YOU MUST SUPPLY A FLOW OF AIR TO KEEP THE AREA COMFORTABLE AND SAFE. IF YOU DO NOT FOLLOW THESE INSTRUCTIONS, INJURY TO PERSONS CAN OCCUR.

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(WARNING PRECEDES)



ALIPHATIC NAPHTHA IS THE RECOMMENDED SOLVENT AND IS ALSO POISONOUS. IF YOU USE NAPHTHA IN A CONFINED SPACE, MECHANICAL VENTILATION IS MANDATORY. RESPIRATORY DEVICES AND SKIN PROTECTION ARE NECESSARY. IF YOU DO NOT FOLLOW THESE INSTRUCTIONS, INJURY TO PERSONS CAN OCCUR.

- (1) This procedure gives instructions to apply the water-displacing corrosion preventive compound. We recommended that you apply the compound periodically.

NOTE: Each airline must know it's aircraft's environment, the corrosion inhibiting compounds they use, and when it was applied. If not, the corrosion protection can be unsatisfactory. Boeing recommends BMS3-23, BMS3-26, BMS3-29, and BMS3-35 and has made them a standard for organic corrosion inhibitors. But, there are other water-displacing corrosion inhibiting compounds that are satisfactory for use.



KEEP BMS3-23 AWAY FROM SURFACES THAT CAN BE 150 DEGREES F (66 DEGREES C) OR MORE DURING USE. THE DRY FILM FLASH POINT IS 500 DEGREES F(260 DEGREES C). THE BMS 3-23 CAN CAUSE A FIRE OR AN EXPLOSION.

- (2) The corrosion preventive compound is not satisfactory for surfaces that can be more than 150°F (66°C) because it contains wax compounds.

B. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B50226	Solvent - Citra-Safe	
C00755	Compound - Organic Corrosion Inhibiting, Heavy Duty	BMS3-26
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G50071	Compound - Corrosion Inhibiting, Heavy Duty	BMS3-35
G50346	Compound - Corrosion Preventive	BMS3-26 Type II

C. Procedure

SUBTASK 51-21-91-620-002

- (1) Apply the corrosion inhibiting compound.
- (a) Clean surface with solvent, B00083, or citra-safe solvent, B50226.
- (b) Apply the corrosion inhibiting compound to a thickness as shown in Table 701.

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Table 701/51-21-91-993-801

COATING THICKNESS RANGES		
Corrosion Inhibiting Compound	Coating Thickness Dry	Coating Thickness Wet
corrosion inhibiting compound, G00009 (BMS3-23)	Continuous Coat, No Minimum Thickness	Continuous Coat, No Minimum Thickness
compound, C00755 (BMS3-26, Type I)	0.002 ±0.001 in. (0.051 ±0.026 mm)	0.004 ±0.002 in. (0.102 ±0.051 mm)
compound, G50346 (BMS3-26, Type II)	0.005 ±0.001 in. (0.127 ±0.025 mm)	0.010 ±0.002 in. (0.254 ±0.051 mm)
compound, C00915 (BMS3-29)	0.004 ±0.001 in. (0.102 ±0.026 mm)	0.008 ±0.002 in. (0.203 ±0.051 mm)
compound, G50071 (BMS3-35)	0.002 ±0.001 in. (0.051 ±0.026 mm)	0.004 ±0.002 in. (0.102 ±0.051 mm)

- (c) The application temperature for BMS3-23, BMS3-26 Type I, and BMS3-29, must be between 40°F (4°C) and 100°F (38°C).
- (d) The application temperature for BMS3-26 Type II must be between 50°F (10°C) and 100°F (38°C).
- (e) The application temperature for BMS3-35 must be between 32°F (0°C) and 86°F (30°C).
- (f) Spray or brush the BMS3-23 compound to get a continuous coat.
- (g) Spray or brush either the BMS3-26, BMS3-29, or BMS3-35 compound to get a bubble free coat (after it is dry), with a wet or dry thickness as specified in Table 701.

NOTE: When the BMS3-26, BMS3-29, and BMS3-35 compound is not sprayed, shake or mix the compound before it is used.

- (h) When the compound is applied to parts where it cannot be sprayed or brushed (e.g. slotted tracks), do the step that follows:
 - 1) Fill the area with the compound, and then drain the compound which will give a protective coat.
- (i) When BMS3-29 is specified as an optional material to BMS3-23, use the same specifications as for the BMS3-29.
- (j) Use a cloth (cotton wiper, G00034) to remove the puddles of too much of the compound if the puddles cause a blockage to the drain holes or cross drains.
- (k) Make sure that you have a good flow of air in the areas where the corrosion inhibiting compound was applied, as follows:

NOTE: The air flow times are recommended minimum times. A longer air flow time to get a satisfactory evaporation is recommended for lower temperatures, high humidity, and when too much of the compound is applied.

NOTE: You must keep the temperature within the application limits for the material used.

- 1) After you apply the BMS3-23 in enclosed areas, apply a good air flow to the area for a minimum of one hour before you close-up the area.

NOTE: The one hour will let the volatile solvents in the compound to evaporate.

- 2) After you apply the BMS3-26, BMS3-29, or the BMS3-35 in enclosed areas, apply a good air flow to the area for a minimum of four hours before you close-up the area.

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- 3) Do not remove the masking tape or applicable covers until the corrosion inhibiting compound has dried sufficiently. This will make sure that the compound will not rub off or move to another surface.
 - a) When the masking tape or covers have been removed, do a touch-up of the corrosion inhibiting compound where it is necessary to prevent corrosion in the areas of a structural interface.
 - (l) Do not contaminate the insulation blankets with the corrosion inhibiting compound.
- NOTE: These compounds can decrease the ability of the insulation blankets to repel water.

 WARNING	DO NOT USE DETERGENTS OR SOLVENTS TO CLEAN THE INSULATION BLANKET. IT CAN REMOVE FLAME RETARDANTS AND CAUSE FLAMMABLE RESIDUES ON THE INSULATION BLANKET WHICH INCREASES THE RISK OF FIRE.

- 1) If contamination occurs, the blanket must be replaced.

————— **END OF TASK** —————

TASK 51-21-91-620-803

4. Cure of Corrosion Inhibiting Compound

A. General

- (1) This task to cure the corrosion inhibiting compound is not necessary when the insulation blankets will not be touched by the compound.
- (2) Cure the corrosion inhibiting compound at the specified application temperature.

B. Consumable Materials

Reference	Description	Specification
G00252	Film - Polyethylene Film And Sheeting	ASTM D2103 (Supersedes L-P-512)

C. Cure of Corrosion Inhibiting Compound

SUBTASK 51-21-91-620-003

- (1) Sufficiently cure the corrosion inhibiting compound.

NOTE: This is to make sure that the compound does not move from the surface if it is touched by the insulation blankets.

- (a) The test that follows will tell you if the compound is fully cured.
 - 1) Get some polyethylene film, G00252, 0.002 in. (0.051 mm) to 0.006 in. (0.152 mm) in thickness.
 - 2) Push the polyethylene film, G00252 against the corrosion inhibiting compound with a light finger pressure.
 - 3) Make a check to see if the corrosion inhibiting compound has moved to the polyethylene film, G00252 or lifted from the structure.
- (b) The table that follows will give you the approximate cure times.

NOTE: Follow the manufacturers instruction for the applicable cure times.

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Table 702/51-21-91-993-802

Approximate Cure Times	
Compound	Time
BMS3-23 ^{*[1]}	1 Hour
BMS3-26, Type I	6 Hours
BMS3-26, Type II	6 Hours
BMS3-29	4 Hours
BMS3-35	2 Hours

*[1] BMS3-23 Class 1, will not cure in 1 hour, however, this is a sufficient amount of time to allow solvents to flash off prior to installation of insulation blankets. BMS3-23 Class 1, does not cure to a tack free coating.

————— END OF TASK —————

TASK 51-21-91-620-804

5. Repair of Corrosion Inhibiting Compound Coating

A. General

- (1) The limits of the damage or bubbles in the BMS3-23, BMS3-26, BMS3-29 or BMS3-35 corrosion inhibiting compound in the cured coating is as follows and must be repaired:
 - (a) The coating damage dimension is more than 1 percent of a given 1 ft² (929 cm²).
 - (b) The coating damage dimension is larger than 1 in² (6 cm²).
- (2) All damage or bubbles in the cured BMS3-23, BMS3-26, BMS3-29 and BMS3-35 coating must be repaired.

NOTE: When BMS3-29 or BMS3-35 is specified as optional to BMS3-23, the damage allowed will be the same as BMS3-23.

B. Consumable Materials

Reference	Description	Specification
B00316	Solvent - Aliphatic Naphtha (For Organic Coatings)	TT-N-95 Type I, ASTM D-3735 Type I
B00634	Solvent - Stabilized Limonene Cleaner	BMS11-10 Type 1, 2, or 3

C. Procedure

SUBTASK 51-21-91-620-004

- (1) Do the steps that follow to repair the damaged or contaminated corrosion inhibiting compound.
 - (a) Clean the damaged area with solvent, B00316 or Limonene solvent, B00634.
 - (b) Apply the applicable corrosion inhibiting compound. (TASK 51-21-91-620-802)
 - (c) Cure the corrosion inhibiting compound. (TASK 51-21-91-620-803)

————— END OF TASK —————

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TASK 51-21-91-160-801

6. Removal of Excess Corrosion Inhibiting Compound

A. Consumable Materials

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
B00090	Solvent - Inhibited Trichloroethane 1,1,1	MIL-T-81533
B00093	Solvent - Tetrachloroethylene (Perchloroethylene)	ASTM D4081
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00316	Solvent - Aliphatic Naphtha (For Organic Coatings)	TT-N-95 Type I, ASTM D-3735 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

B. Procedure

SUBTASK 51-21-91-620-005



DO NOT GET THE SOLVENT IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE IN THE FUMES FROM THE SOLVENT. MAKE SURE TO PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN USING THE SOLVENT. KEEP THE SOLVENT AWAY FROM SPARKS, FLAMES AND HEAT. THE SOLVENT IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE IF NOT HANDLED PROPERLY.

- (1) Remove the unwanted corrosion inhibiting compound with a cotton wiper, G00034 that is moist with one of these applicable solvents:

NOTE: Make sure that you use the applicable safety precautions when you apply solvent to remove the unwanted corrosion inhibiting compound.

- (a) solvent, B00316
- (b) solvent, B00148
- (c) solvent, B00074
- (d) solvent, B00090
- (e) solvent, B00093

————— END OF TASK —————

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FLOOR TRACK CORROSION PREVENTION - MAINTENANCE PRACTICES

1. General

- A. This procedure has this task:
- (1) Apply Filler in the seat tracks.

TASK 51-21-92-600-801

2. Seat Track Filler Application

(Figure 201, Figure 202)

A. General

- (1) Seat track filler prevents corrosion in wet areas of the passenger compartment.
- (2) You can cut and remove parts of the seat track fillers when you remove and install galleys, lavs, and tie down fittings.

B. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796
G02304	Tape - Moisture Barrier, Adhesive One-side	BMS8-346

C. Location Zones

Zone	Area
200	Upper Half of Fuselage

D. Procedure

SUBTASK 51-21-92-620-001

- (1) Apply filler sealant, A02315 in the seat tracks [3] as follows:
 - (a) Find the seat track [3] locations in the wet areas of the airplane.
 - (b) Cut the seat track filler [1] to fit in the seat tracks [3].

NOTE: The seat track filler is pre- formed and commercially available.

NOTE: A gap of 0.25 in. (6.35 mm) is permitted at the skin splice areas.
 - (c) Install the seat track filler [1] in the seat track [3].
 - (d) Fill the seat track [3] with corrosion preventive compound, C00308.
 - (e) Install approximately 2.0 in. (5.1 cm) of sealant, A02315 at the end of the compound filled area to contain the compound.
 - (f) Make sure the top surface of the seat track [3] is clean and free of compound.
 - (g) Install moisture barrier tape, G02304 [2] on the compound filled seat track [3].

————— **END OF TASK** —————

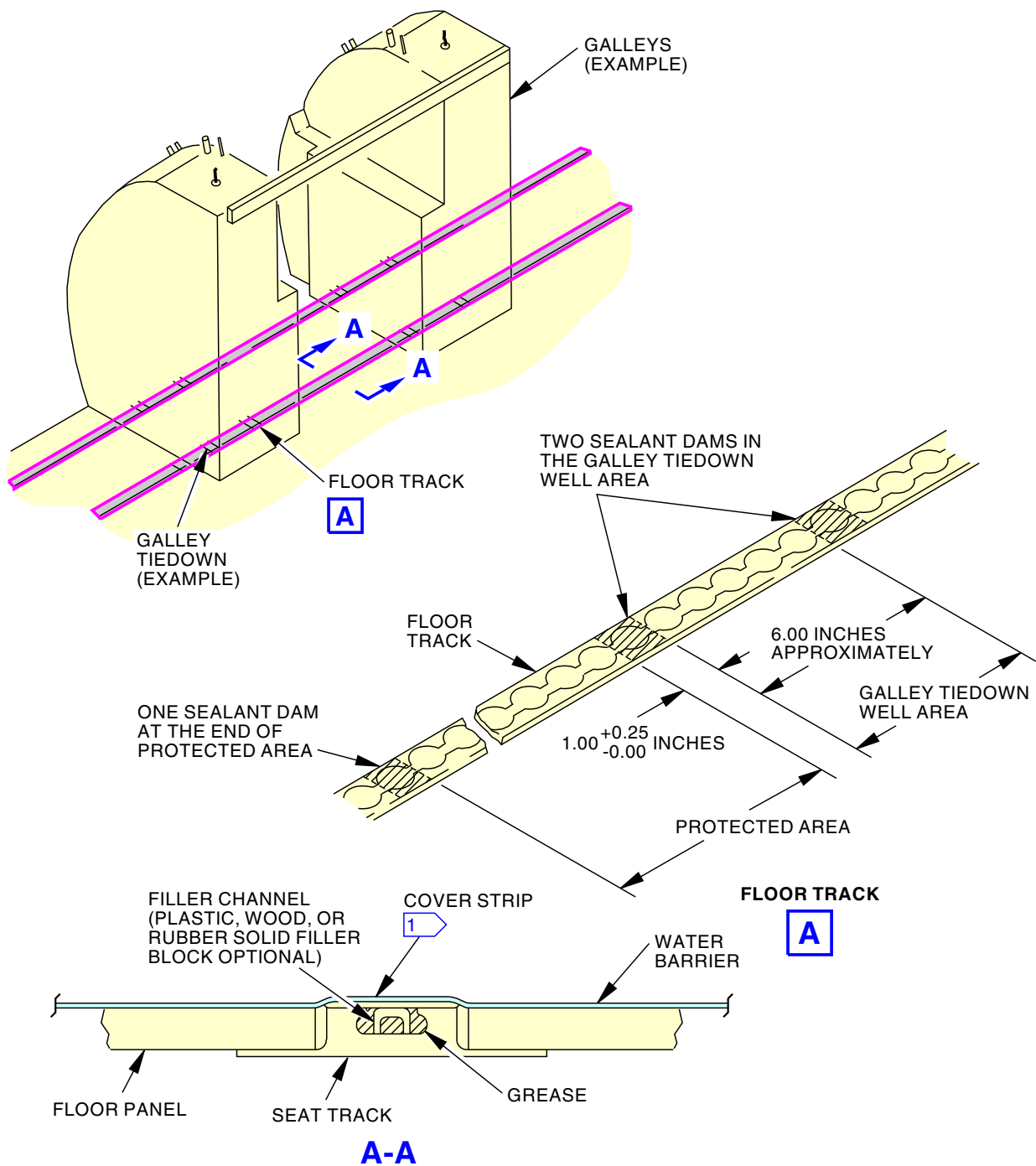
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1 THE COVER STRIP IN THE WALKWAY AREAS ONLY NOT USED BELOW THE GALLEYS.

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Floor-Track Corrosion Prevention
Figure 201/51-21-92-990-801

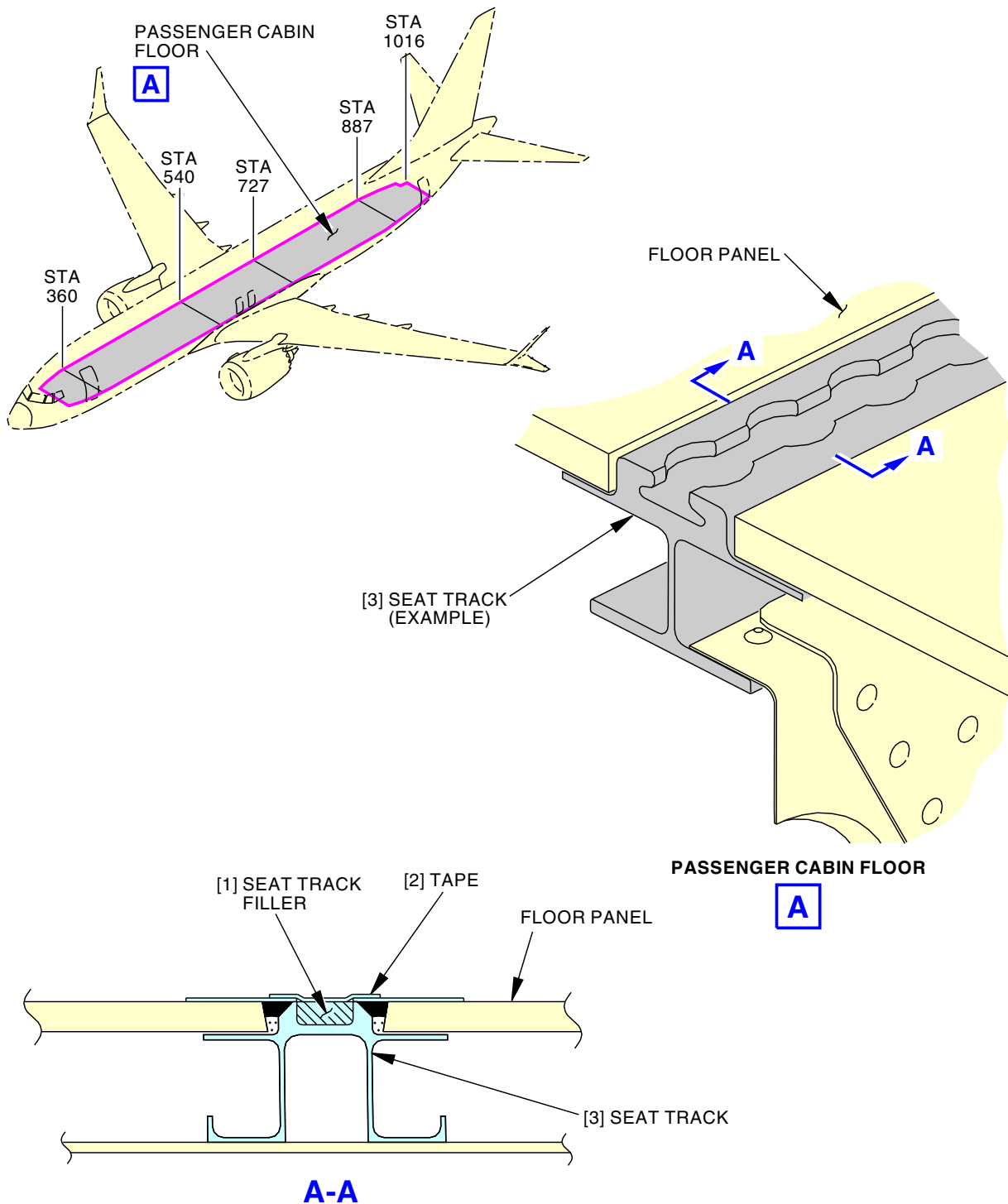
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**Seat Track Filler Application
Figure 202/51-21-92-990-802**

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NON-REFLECTIVE COATING - CLEANING/PAINTING

1. General

- A. This procedure has one task to apply the Non-Reflective Coating (Non-Glare Finish) per BAC5755, Type 16.

TASK 51-21-93-370-801

2. Non-Reflective Coating Application

(Figure 701)

A. **References**

Reference	Title
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)

B. **Consumable Materials**

Reference	Description	Specification
C00039	Primer - Interior Decorative Urethane, White	BMS10-83 Type I
C50117	911-P4 primer (use until stock depleted)	BAC5755 Type 16
C50143	Coating - Topcoat, Alexit Suede 404-74	BAC5755 Type 16

C. **Location Zones**

Zone	Area
200	Upper Half of Fuselage

D. **Procedure**

SUBTASK 51-21-93-160-001

- (1) Do this task: (Clean the Surface to be Painted, TASK 51-21-21-100-801).

SUBTASK 51-21-93-370-001



DO NOT GET SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON A RESPIRATOR, PROTECTIVE SPLASH GOGGLES, AND GLOVES WHEN YOU USE SOLVENTS. KEEP THE SOLVENTS AWAY FROM SPARKS, FLAME, AND HEAT. SOLVENTS ARE POISONOUS AND FLAMMABLE. SOLVENTS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (2) Mix the primer, C00039, or primer, C50117, per manufacturer's instructions.

SUBTASK 51-21-93-370-002

- (3) Apply primer, C00039, or primer, C50117, on the surface with a spray gun.
- (a) For rivet and screw heads, brush apply primer and avoid application to surfaces with topcoat.

SUBTASK 51-21-93-370-003

- (4) Let the primer dry (minimum of 10 minutes and maximum of 60 minutes) at 70°F (21°C) to 90°F (32°C) before you apply the Alexit Suede 404-74 Topcoat coating, C50143.

SUBTASK 51-21-93-370-004

- (5) Mix the Alexit Suede 404-74 Topcoat coating, C50143, components as follows:
- (a) Pour desired amount of Alexit Suede 404-74 Topcoat coating, C50143, - 1 part (by volume).
- (b) Add base component I (405-28) - 8 parts (by volume).

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- (c) Add thinner (62) - 0.5 to 1.5 parts (by volume).

NOTE: If the topcoat is to be applied to rivet and screw heads add 8 parts of thinner (by volume).

- (d) Identify the container with a label. Write the date and the hour when the mixture was mixed. Also, write the date and hour when the application time ends.

NOTE: Potlife is 6 hours at 60°F (16°C) to 85°F (29°C) after mixing.

SUBTASK 51-21-93-370-005

- (6) Apply the Alexit Suede 404-74 Topcoat coating, C50143, on the primed surface with a spray gun.

NOTE: Avoid dry spray. Dry spray will result in a rough surface. Additionally, heavy coats may result in color deviation (depending on pigmentation/color), runs/sagging and cracking of the dry film. In addition, varying amounts of thinner may cause color deviation.

NOTE: For application of topcoat to rivet heads and screw heads, place stencil flush to the painted surface having a hole in it equal to the rivet or screw head being painted. Using an airbrush (or equivalent), spray apply the topcoat through the hole in the stencil until the dry finish matches the rest of the panel.

SUBTASK 51-21-93-370-006

- (7) Cure the Alexit Suede 404-74 Topcoat coating, C50143. Refer to (Figure 701) for the cure times.

NOTE: Curing at 70°F (21°C) (minimum) is 4 hrs. (minimum).

———— **END OF TASK** ————

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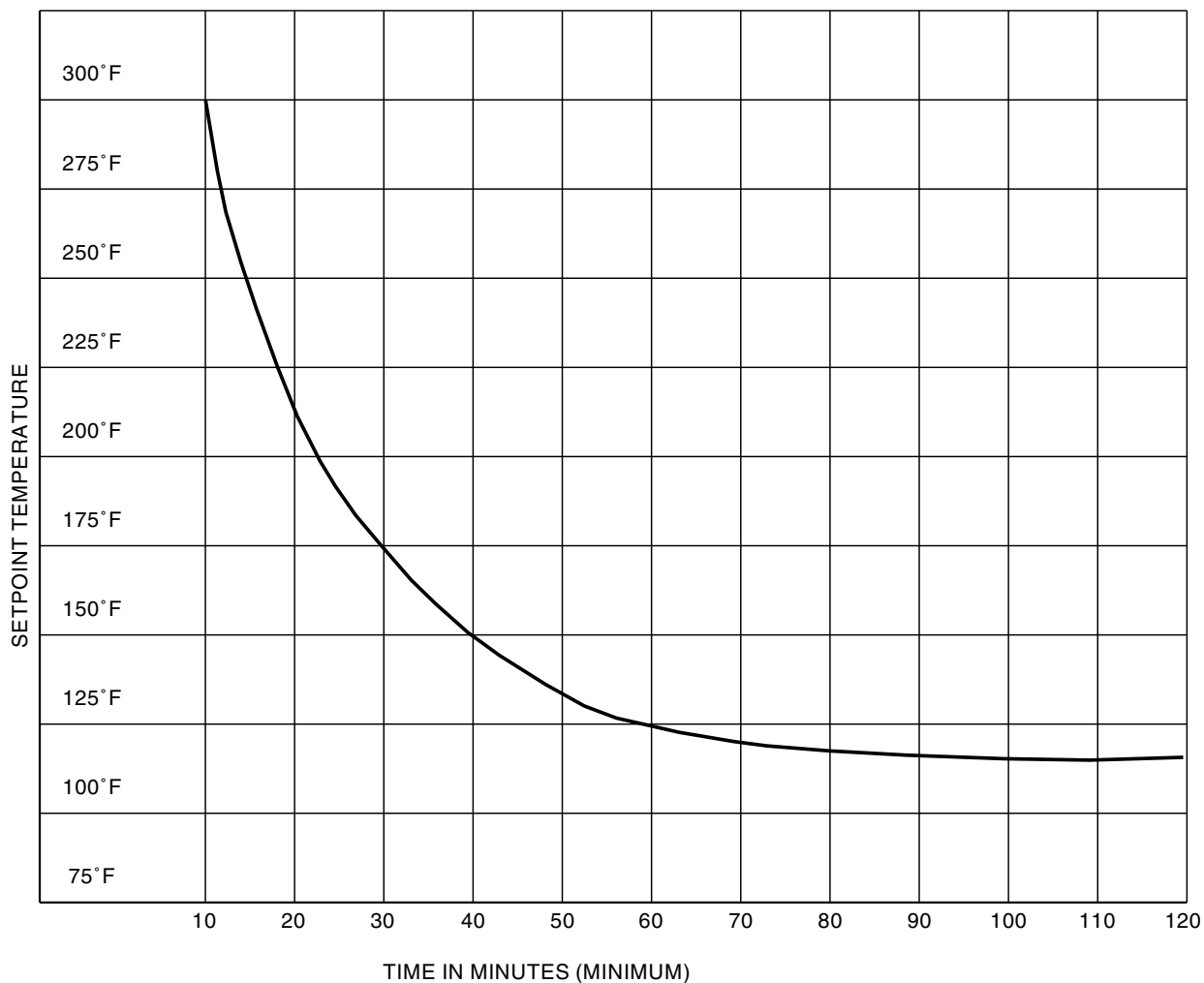
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Topcoat Cure Chart - BAC5755
Figure 701/51-21-93-990-801

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ABRASION RESISTANT MOLYBDENUM DISULFIDE FINISH - CLEANING/PAINTING

1. General

- A. This procedure contains the task to apply the abrasion resistant molybdenum disulfide finish. The procedure has these parts:
- (1) The preparation of the painted surfaces
 - (2) The preparation of the abrasion resistant finish
 - (3) The application of the abrasion resistant finish
 - (4) The repair of the damaged surfaces.

TASK 51-21-94-300-801

2. Abrasion Resistant Molybdenum Disulfide Finish Application

(Figure 701, Figure 702)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles
STD-3911	Brush - Bristle, Medium Nylon

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B. Consumable Materials

Reference	Description	Specification
B00094	Solvent - Toluene	A-A-59107
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00151	Solvent - Methyl Isobutyl Ketone	ASTM D1153
B00344	Solvent - Xylene, Nitration Grade	ASTM D843
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

C. Prepare the Surface

SUBTASK 51-21-94-180-001

- (1) Prepare the aluminum surfaces.
 - (a) Apply a layer of chromic acid anodizing or alodizing to all aluminum surfaces.
 - (b) Apply a layer of primer, C00259, epoxy primer.
 - (c) Let the primers dry before you apply the abrasion resistant finish.
 - 1) Let the primers dry for a minimum of 1 hour at room temperature or 15 minutes at 150° ±15°F (65.6° ± 8.3°C).

SUBTASK 51-21-94-180-002

- (2) Prepare the painted surfaces.
 - (a) If it is less than 48 hours since you applied the BMS 10-11 epoxy primer:
 - 1) Clean the surface with solvent, B00094.
 - 2) Dry the surface with a clean, dry cotton wiper, G00034.
 - (b) If it is more than 48 hours since you applied the BMS 10-11 epoxy primer:
 - 1) Clean the surface with solvent, B00094 or solvent, B00151.
 - 2) Rub the surface with 320-grit (minimum) abrasive cloth, B00102 aluminum oxide paper.
 - 3) Clean the surface again with Methyl Isobutyl Ketone.

SUBTASK 51-21-94-100-001

- (3) Prepare the steel surfaces.
 - (a) Apply one layer of primer, C00259, epoxy primer on the surface.

D. Apply the Abrasion Resistant Finish

SUBTASK 51-21-94-370-001



DO NOT GET THE FINISHES, CLEANERS, THINNERS AND SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN OR CLOTHES. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. MAKE SURE THAT THE AIR FLOWS FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE.

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(WARNING PRECEDES)



WARNING

DO NOT GET TEREKO 155 ON YOUR SKIN. TEREKO 155 CONTAINS DANGEROUS COMPOUNDS THAT CAN CAUSE INJURY.

- (1) Mix the abrasion resistant finish.

NOTE: The abrasion resistant finish has Tereco 155 base material (part A) and Tereco 155 accelerator (part B). Mix each component fully before you mix parts A and B together.

- (a) If you apply the finish with a medium nylon bristle brush, STD-3911:

- 1) Add 25 parts (by weight) of part B to 100 parts (by weight) of part A.
- 2) To make the solution thin, add 9 parts (by weight) of solvent, B00094, toluene or solvent, B00344, xylene for each 125 parts (by weight) of the finish mixture.

NOTE: The thinner is added to part B before you mix part A and B.

- (b) If you apply the finish with a spray paint spray gun with interchangeable nozzles, STD-1133:

- 1) Add 25 parts (by weight) of part B to 100 parts (by weight) of part A.
- 2) To make the solution thin, add 20 to 30 parts (by weight) of the toluene or xylene for each 125 parts (by weight) of the finish mixture.

NOTE: The thinner is added to part B before you mix part A and B.

- (c) Do not touch or move the mixture for a minimum of 5 minutes before you use it.
- (d) Do not use Tereco 155 with the expired application time (Figure 701).
- (e) Remove material with the expired application time.
- (f) Do not mix more Tereco 155 than you can use (Figure 701).

SUBTASK 51-21-94-950-001

- (2) Apply tape or covers on areas adjacent to the work area.

SUBTASK 51-21-94-370-002

- (3) Apply the abrasion resistant finish.

- (a) Apply one or more layers of Tereco 155 with a brush or a spray gun.
- (b) Let the finish dry between each layer.
- (c) Make sure the dry layer is 0.003-0.020 inch (0.076-0.508 mm) thick.
- (d) Let the finish dry for a minimum of 8 hours at 70° ±5°F (21.1° 2.8°C) before you touch the surface or part.
- (e) Let the finish dry for a minimum of 12 hours before flight.
- (f) Before assembly, use the time-temperature conditions shown in Curve A to dry the finish (Figure 702).
- (g) Before functional movement of parts, use the time-temperature conditions shown in Curve B to dry the finish (Figure 702).

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MAKE SURE THAT THE SCRIBE LINE INSPECTIONS ARE DONE BEFORE YOU USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE. ABRASIVE PADS CAN MAKE THE ALUMINUM SURFACE SMOOTH AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS OR PRIMER TO REMOVE THE PAINT BEFORE INSPECTIONS, IT CAN CAUSE MORE WORK. THE SCRIBE-LINE INSPECTION SERVICE BULLETIN CAN REQUIRE YOU TO DO REPEAT INSPECTIONS.



MAKE SURE THAT YOU USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

- (h) Remove all of the sharp paint edges with a sealant removal tool, COM-2481 with sealant removal tool handle, COM-4746.

NOTE: The shelf life of Tereco 155 is 6 months from the manufacture date.

NOTE: If you use abrasive pads before you do scribe line inspections, you can be required to do repeat inspections based on the scribe line inspection Service Bulletin 737-53A1289.

- (i) Make sure not to cause damage to the aluminum skin.

E. Repair and Rework Damaged Surfaces

SUBTASK 51-21-94-350-001

- (1) Rework areas where it is necessary.
- (a) Clean the surfaces (Refer to SUBTASK 51-21-94-180-001, SUBTASK 51-21-94-180-002, or SUBTASK 51-21-94-100-001).
 - (b) Apply the abrasion resistant finish (Refer to SUBTASK 51-21-94-370-001, SUBTASK 51-21-94-950-001, and SUBTASK 51-21-94-370-002).
 - (c) Remove all of the sharp paint edges with sealant removal tool, COM-2481 or other applicable tool.

SUBTASK 51-21-94-350-002

- (2) Repair the damaged areas of the abrasion resistant finish.
- (a) Rub the surface with 280-grit (minimum) abrasive cloth, B00102 aluminum oxide paper.
 - 1) If primer, C00259, has scratches after this step, apply the primer again.
 - 2) Repair the aluminum surfaces that have scratches (Refer to SUBTASK 51-21-94-370-001, SUBTASK 51-21-94-950-001, SUBTASK 51-21-94-370-002, SUBTASK 51-21-94-350-001, and SUBTASK 51-21-94-350-002)
 - (b) Clean the area with a wet cheesecloth that is moist with toluene.
 - (c) Apply abrasion resistant finish (Refer to SUBTASK 51-21-94-370-001, SUBTASK 51-21-94-950-001, and SUBTASK 51-21-94-370-002).

————— END OF TASK —————

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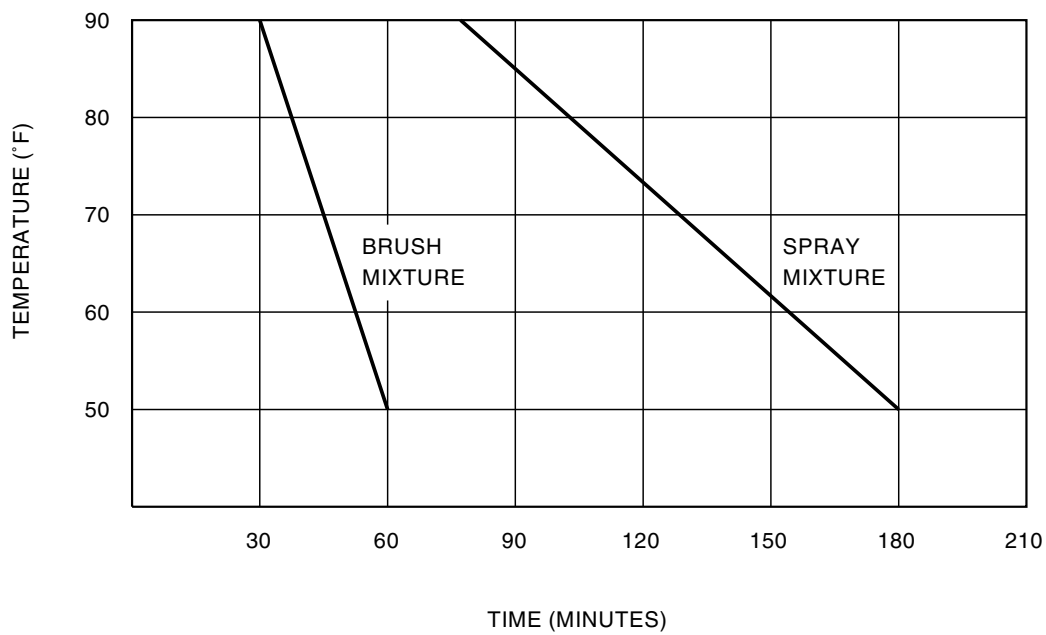
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Application Time Tereco 115
Figure 701/51-21-94-990-801

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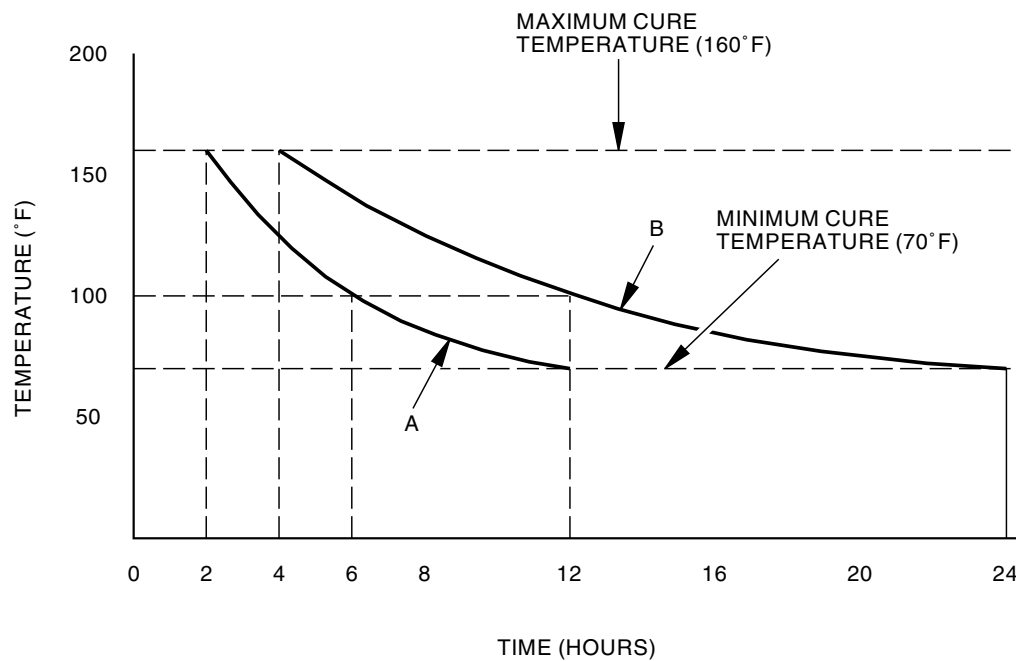
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Cure of Tereco 155
Figure 702/51-21-94-990-802

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SKIN AND FASTENER CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING

1. General

- A. This procedure contains four tasks. The tasks are as follows:
- (1) The removal of rust and corrosion
 - (2) The alodine treatment
 - (3) The application of the fastener sealant
 - (4) The application of the corrosion preventive paint.
- B. The skin and the fastener corrosion control procedures are applicable to the areas that follow (Figure 701):
- (1) The wing upper inspar surface
 - (2) The wing-to-body splice areas (upper and lower) that include the fasteners and the splice plates
 - (3) The lower skin of the wing center section that is a wall of the ram air plenum chamber.
- C. There are two primer systems. The first system is the coating, C00638 wash primer with the MIL-P-8585 zinc chromate primer. The second system is the primer, C00259, and the coating, C00307 (epoxy) primer.
- (1) Chemical paint strippers can remove the coating, C00638 wash primer and MIL-P-8585 zinc chromate primer to bare metal.
 - (2) Chemical paint strippers cannot remove the primer, C00259 and coating, C00307 primers. But, it is not necessary to remove these epoxy primers to bare metal before you can apply the finish coating.

TASK 51-21-95-100-801

2. Rust and Corrosion Removal

(Figure 701)

A. **References**

Reference	Title
51-21-11 P/B 701	PAINT STRIPPING - CLEANING/PAINTING

B. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt.", which stands for Optional.

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Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2

C. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C00307	Coating - Corrosion Resistant Finish For Integral Fuel Tanks	BMS10-20 Type II
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80

D. Procedure

SUBTASK 51-21-95-110-001

- (1) Remove corrosion preventative paint in the area where there is corrosion (PAINT STRIPPING - CLEANING/PAINTING, PAGEBLOCK 51-21-11/701).

SUBTASK 51-21-95-110-002

- (2) Remove primer, C00259 or coating, C00307 primers.
 - (a) Lightly rub the primer smooth with abrasive cloth, B00102 to the area immediately adjacent to the corrosion.

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SUBTASK 51-21-95-140-001



DO NOT USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE UNLESS THE SCRIBE LINE INSPECTIONS WERE MADE. ABRASIVE PADS CAN SMOOTH THE ALUMINUM SURFACE AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE THE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE LINE INSPECTIONS, YOU CAN BE REQUIRED TO DO REPEAT INSPECTIONS BASED ON THE SCRIBE LINE INSPECTION SERVICE BULLETIN.



ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- (3) Remove the fastener sealant with a sealant removal tool, COM-2481 with sealant removal tool handle, COM-4746.

NOTE: If you use abrasive pads before you do scribe line inspections, you can be required to do repeat inspections based on the scribe line inspection Service Bulletin 737-53A1289.

SUBTASK 51-21-95-110-003



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (4) Remove fastener sealant with solvent, B00666.

SUBTASK 51-21-95-950-001

- (5) Apply 3M 425 Aluminum Foil Tape, G00291 to all fuel tank openings to prevent entry of grit.

SUBTASK 51-21-95-160-001

- (6) Remove rust and corrosion.
- (a) Use a portable blaster to remove rust from fastener heads and adjacent skin area.
 - (b) Use a portable blaster to remove corrosion from the skin to an approved depth.
 - (c) As an alternative, remove rust and corrosion with a 240-grit aluminum oxide abrasive cloth, B00102 paper or cloth.
 - (d) Use a 5 to 10X magnifying glass to examine the countersunk area around the fastener heads for corrosion.



MAKE SURE TO REMOVE ONLY ONE ROW OF RIVETS AT A TIME IN A MORE-THAN-ONE ROW FASTENER CONFIGURATION. REPLACE THESE FASTENERS BEFORE YOU REMOVE THE FASTENERS FROM THE NEXT ROW TO PREVENT SKIN MOVEMENT. IN A ONE ROW CONFIGURATION, REMOVE AND INSTALL EACH SECOND FASTENERS.

- (e) Remove the fasteners with corrosion in the countersunk area.
- (f) Remove the corrosion from the fastener to an approved depth.

————— END OF TASK —————

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TASK 51-21-95-300-801

3. Alodine Treatment Application

A. References

Reference	Title
20-40-11 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES
51-21-31-350-801	Removal and Control of Corrosion for Aluminum and Aluminum Alloys (P/B 701)

B. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle

C. Consumable Materials

Reference	Description	Specification
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)

D. Prepare the Surface for treatment

NOTE: Use coating, C00064.

NOTE: It is not necessary to clean all areas for alodine treatment. Only clean the areas where skin or fasteners are open to the base metal during the removal of rust and corrosion.

SUBTASK 51-21-95-580-001

- (1) Park the airplane away from the sun and electrically ground (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-40-11/201).

SUBTASK 51-21-95-160-002

- (2) Clean the surface correctly to get a satisfactory coating, C00064 treatment.



DO NOT GET THE FINISHES, CLEANERS, THINNERS AND SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN OR CLOTHES. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. MAKE SURE THAT THE AIR FLOWS FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE.

- (a) Prepare the solution as follows:
 - 1) Use one part (by volume) solvent alkaline cleaner to two parts water and five to six parts BMS 3-2 Type I solvent.
- (b) Apply the cleaner solution and let it soak for a minimum of 10 minutes.

NOTE: The solution must be wet on the skins. Apply the cleaner again if it is necessary.
- (c) Clean the skins with a soft bristle brush, STD-123.
 - 1) Make sure to clean the countersunk areas and around the rivet heads.
- (d) Flush the surface with water (100°F maximum) (37.8°C) at high pressure.
- (e) Examine the surface for water breaks.

NOTE: A surface with no water breaks has a continuous layer of water for a minimum of 30 seconds.
- (f) Clean the skin again if there are water breaks.

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E. Apply the coating treatment

NOTE: Use coating, C00064.

SUBTASK 51-21-95-370-001

- (1) Apply the coating, C00064 treatment with a soft bristle brush, STD-123.
 - (a) Apply the coating, C00064 treatment to all steel fastener heads and adjacent bare aluminum skin surfaces, do this task: Removal and Control of Corrosion for Aluminum and Aluminum Alloys, TASK 51-21-31-350-801.

————— **END OF TASK** —————

TASK 51-21-95-300-802

4. Fastener Sealant Application

A. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic
STD-1053	Knife - Putty, Broad Blade

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45
B00090	Solvent - Inhibited Trichloroethane 1,1,1	MIL-T-81533
B00094	Solvent - Toluene	A-A-59107
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00363	Abrasive - Coated Cloth, Crocus	

C. Location Zones

Zone	Area
100	Lower Half of Fuselage
200	Upper Half of Fuselage

D. Fastener Sealant Application

SUBTASK 51-21-95-110-004

- (1) Clean the fasteners.
 - (a) Remove the lubricant before the application of solvent, B00148, or solvent, B00090.

SUBTASK 51-21-95-110-005

- (2) Clean the countersunk and other rework areas.

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DO NOT GET THE FINISHES, CLEANERS, THINNERS AND SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN OR CLOTHES. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. MAKE SURE THAT THE AIR FLOWS FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE.

- (a) Remove the lubricant and other soil with a clean, moist cotton wiper, G00034, that contains solvent, B00184.
- (b) Dry the surfaces before the fastener and sealant installation.

SUBTASK 51-21-95-390-001

- (3) Prepare the sealant.

- (a) Refer to the manufacturer's instructions to mix the sealant.
- (b) Mix the sealants.

NOTE: The life of P/S 890 Class A and Class B is 1/2 or 2 hours. The life of PR 1432 is 1 hour. Mix only the quantity that you can use during the life of the sealant.

- 1) sealant, A00767 - 1 part A (accelerator) to 10 parts B (base).
- 2) sealant, A00767 - 1 part A (accelerator) to 7-1/2 parts B (base).
- 3) sealant, A00247 - 1 part A (accelerator) to 15 parts B (base).

SUBTASK 51-21-95-390-002

- (4) Apply sealant, A00767.

- (a) Apply a small drop of the mixture to the countersunk area or below the head of the fastener.
- (b) Install the fastener immediately.



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (c) Remove all unwanted sealant with clean cotton wiper, G00034, that is wet with solvent, B00184, or solvent, B00148.

SUBTASK 51-21-95-390-003

- (5) Apply sealant, A00767.

- (a) Use a brush to apply the sealant, A00767, mixture to the rework area.
- (b) Make sure that you apply the sealant, A00767, into the cracks around the fastener.

NOTE: It is necessary to have a continuous layer of sealant on the rework surface.

SUBTASK 51-21-95-390-004

- (6) Apply sealant, A00767, on top of the sealant, A00767.

- (a) Use a sealant gun, STD-449, or a hardwood or plastic fillet smoothing spatula, STD-810, to apply the sealant to the rework areas.
- (b) If the sealant, A00767, is easy to apply, do these steps:

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- 1) Apply the sealant, A00767, until the surface of the sealant is not far below the surface of the adjacent wing.
 - 2) Use a hardwood or plastic fillet smoothing spatula, STD-810, or a duckbill nozzle to remove the unwanted sealant.
 - 3) Use a hardwood or plastic fillet smoothing spatula, STD-810, to get the air bubbles out of the sealant.
- (c) If sealant, A00767, is not easy to apply, do these steps:
- 1) Apply a thick layer of sealant, A00767.
 - 2) Make sure that the sealant surface is above the contour of the wing surface.
 - 3) Let the sealant dry.
 - 4) Use a broad blade putty knife, STD-1053, to remove the unwanted sealant that is above the wing surface.

SUBTASK 51-21-95-390-005

- (7) Apply sealant, A00247.

NOTE: Use PR 1432 sealant only for areas with many holes.

- (a) Use a usual spray equipment to apply the sealant, A00247.

NOTE: For a best result, use a spray gun with an orifice diameter of 0.085 in. (2.159 mm) minimum.

- (b) Use atomizing pressure of approximately 35 psig (241 kPa).
- (c) Fully fill the rework areas with sealant, A00247, until the sealant extends higher than the edge.
- (d) Feather the surface.
- (e) If sealant, A00247, is not easy to apply, do these steps:
- 1) Add 10 percent of solvent, B00094, (by volume), to the base material.
 - 2) Mix the solution.
 - 3) Add the accelerator.
 - 4) Constantly mix the base and the accelerator to decrease the spray life to 1/4 hour.
 - 5) Keep the remaining life mixture of 1 hour in a cold box at 50°F (10°C).

SUBTASK 51-21-95-390-006

- (8) Let the sealant dry:

Table 701/51-21-95-993-801

Temperature	Relative Humidity	Time
75°F (24°C)	50%	72 Hours
120°F (49°C)	50%	18 Hours

SUBTASK 51-21-95-140-002

- (9) Lightly rub the sealant smooth with a fine abrasive cloth, B00102, abrasive cloth, G00363 (aluminum oxide grit), or a gum rubber buffing wheel.

SUBTASK 51-21-95-350-001

- (10) If it is necessary, repair the damaged coating, C00064.

— END OF TASK —

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TASK 51-21-95-300-803

5. Corrosion Preventive Paint Application

(Figure 702)

A. General

- (1) The corrosion control treatment contains the steps to apply the primer before you apply the EC-843 or EC-843S Corogard or Aeroflex.
- (2) On surfaces that paint stripper can remove to bare metal, apply primer, C00259 or primer, C00319.
- (3) On surfaces that paint stripper cannot remove to bare metal, apply primer, C00259.
- (4) This task includes these instructions:
 - (a) Prepare the Surface
 - (b) Apply the Wash Primer
 - (c) Apply Zinc chromate primer MIL-P-8585
 - (d) Apply the BMS 10-11, Type 1 primer
 - (e) Apply the Corogard EC-843 or EC-843S
 - (f) Apply the Aeroflex G12E25 Coating
 - (g) Repair and Rework
 - (h) Upper Wing Skin Finish
 - (i) Lower Wing Skin Finish

B. References

Reference	Title
20-40-11 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)
51-21-21-370-801	Prepare the Surface to be Painted (P/B 701)
51-21-73-370-802	BMS10-60 Topcoat Application (P/B 701)
51-21-99-300-802	Decorative Exterior Paint System Repair (P/B 701)

C. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle
STD-1052	Container - Acid Resistant
STD-1086	Gloves - Rubber
STD-1118	Container - Stainless Steel, 1 Gallon (4 Liter)
STD-3911	Brush - Bristle, Medium Nylon

D. Consumable Materials

Reference	Description	Specification
B00017	Cleaner - Alkaline - Pace B-82 (Formerly Pacific B-82)	BMS11-12
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II

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Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00342	Alcohol - N-Butyl (Butanol)	ASTM D304
B50052	Cleaner - Alkaline - Ridoline 909	
B50172	Cleaner - Alkaline - Pace MF-30	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00175	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C00307	Coating - Corrosion Resistant Finish For Integral Fuel Tanks	BMS10-20 Type II
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II
C00662	Thinner - C25/90S	
C00862	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
C50075	Coating - Protective Enamel (BAC 707 Gray Color)	BMS10-60 Type II
C50104	Coating - Chemical Conversion - Bonderite M-CR 600 Aero (Formerly Alodine 600)	BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3
C50155	Coating - Corrosion Resistant Finish For Integral Fuel Tanks	BMS10-20 Type II Class A Grade A
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G50078	Abrasive - Aluminum Oxide Paper, 320 grit or finer	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50260	Sandpaper - Aluminum Oxide, 220 Grit	
G50262	Wiper - Cleaning	BMS15-5

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E. Prepare the Surface

SUBTASK 51-21-95-370-002

- (1) On surfaces that paint stripper can remove to bare metal, do these steps immediately before you apply the primer:



WARNING

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- (a) Use a clean cotton wiper, G00034, that is moist with solvent, B00062 or solvent, B00184.
- (b) When the cotton wiper, G00034, gets dirty, change to a clean cotton wiper, G00034.
- (c) Dry the surface with a clean, dry cotton wiper, G00034.

SUBTASK 51-21-95-390-007

- (2) On surfaces with primer, C00259, and coating, C00307, primer (cannot remove with paint stripper), prepare the surface:
 - (a) Do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.
 - (b) Do this task: Prepare the Surface to be Painted, TASK 51-21-21-370-801.

F. Apply the Wash Primer (Apply to Bare Surfaces)

NOTE: Use primer, C00259, or primer, C00319.

SUBTASK 51-21-95-370-003



WARNING

DO NOT GET THE FINISHES, CLEANERS, THINNERS AND SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN OR CLOTHES. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. MAKE SURE THAT THE AIR FLOWS FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE.

- (1) Mix the wash primer.
 - (a) Shake the base material and the acid accelerator fully before you mix the primer solution.

NOTE: The wash primer has two components, a resin base material (4 parts by volume) and an acid accelerator (1 part by volume).
 - (b) Slowly add a small quantity of the acid accelerator to the base material.

NOTE: Do not add the base material to the acid accelerator.
 - (c) Fully mix the mixture manually.
 - (d) Continuously mix the mixture when you add the remaining quantity of the acid accelerator.
 - (e) Identify the container with a label.
 - 1) Write the date and hour when the mixture was mixed and when the application time comes to an end.

NOTE: The wash primer mixture has a application time of 4 hours less than 90°F (32.2°C) and 2 hours more than 90°F (32.2°C).
 - (f) Do not touch the wash primer mixture for a minimum of 15 minutes before you use it.

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- (g) Use equal quantity of alcohol, B00068, and alcohol, B00342, alcohol to make the wash primer mixture thin.

NOTE: The volume of ethyl/butyl alcohol mixture must not be more than two times the volume of the acid accelerator used.

SUBTASK 51-21-95-370-004

- (2) Apply primer, C00259, or primer, C00319.
- (a) Clean the spray equipment before you use it.
 - (b) Make sure to flush the equipment with alcohol before and after you use it.
 - (c) Apply one layer of primer, C00259, or primer, C00319, with the spray equipment.
 - (d) Make sure the continuous thickness of the layer is 0.2-0.4 mils.
 - 1) If the layer is too thick, do these steps:
 - a) Immediately remove the primer with alcohol.
 - b) Apply primer, C00259, or primer, C00319, again to get the correct thickness.
 - (e) Let the primer, C00259, or primer, C00319, dry for not less than 45 minutes and not more than 4 hours at 65°F (18°C) - 85°F (29°C).
 - 1) If you let the primer dry for more than 4 hours, do these steps:
 - a) Remove the primer with alcohol, B00342, or paint stripper.
 - b) Apply a new layer of primer.



CAUTION

BUTYL ALCOHOL WILL REMOVE PRIMER FILM IF IMPROPERLY HANDLED.

- (f) Use varnish or linseed oil rags, or a lightly wet rags with alcohol, B00342, to clean the primer.
- (g) Carefully remove dust, dirt or unwanted paint from the primer.
- (h) Rub a 400-grit abrasive cloth, B00102 (minimum) on the wash primer to get a smooth surface.

NOTE: Be careful not to remove the wash primer.

G. Apply Zinc Chromate Primer MIL-P-8585 (Apply to Surfaces With Wash Primer)

SUBTASK 51-21-95-370-005

- (1) Mix the zinc chromate primer.
- (a) Add thinner to the primer to make the mixture smooth and constant.
 - 1) Slowly add 2 to 2.5 parts (by volume) of toluene to 1 part (by volume) of primer.

SUBTASK 51-21-95-370-006

- (2) Apply the zinc chromate primer.
- (a) Apply the zinc chromate primer with a spray gun until the thickness of the layer is 0.2-0.4 mils.
 - (b) Let the zinc chromate primer dry at 65°F (18°C) - 85°F (29°C) for not less than 45 minutes and not more than 72 hours.
 - 1) If after 72 hours and you do not apply the Corogard or Aeroflex, do these steps:
 - a) Remove the primer.

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- b) Apply a new layer of the wash primer and the zinc chromate primer to the surface.
- (c) Rub the dry zinc chromate primer lightly with a 400 grit (minimum) abrasive cloth, B00102, paper to get a smooth surface.
- (d) Clean the surface with a clean cotton wiper, G00034, that is moist with BMS 3-2 solvent and solvent, B00083.

H. Apply the BMS 10-11, Type 1 Primer (Apply to Surfaces with Epoxy Primer and Not Removed with Paint Stripper).

SUBTASK 51-21-95-370-007

- (1) Apply primer, C00259.
 - (a) Do this task: Decorative Exterior Paint System Repair, TASK 51-21-99-300-802.

SUBTASK 51-21-95-370-008

- (2) Let the primer, C00259, dry before you apply Corogard or Aeroflex.

I. Apply the Corogard EC-843 or EC-843S (Optional)

SUBTASK 51-21-95-370-009



IF YOU DO NOT USE IT IMMEDIATELY, MAKE SURE THAT YOU KEEP THE MIXTURE OF COROGARD AND ALUMINUM POWDER IN THE CORRECT CONTAINER. WHEN YOU MIX THE COROGARD WITH THE ALUMINUM POWDER, IT RELEASES FLAMMABLE HYDROGEN GAS. KEEP THE MIXTURE IN AN OPEN CONTAINER OR A CONTAINER WITH OPENINGS ON THE COVER. IF YOU DO NOT DO THIS, IT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Prepare the Corogard EC-843 and EC-843-S.

NOTE: Corogard EC-843 and EC-843-S have two components, the resin component and the aluminum powder component (12.5 ounces (0.37 liter) aluminum powder EC-1101 for each gallon (3.8 liters) of resin EC-843, or 9.0 ounces (0.27 liter) aluminum powder EC-1101 for each gallon (3.8 liters) of resin EC-843-S).

- (a) Put the resin component through a 60-80 mesh metal sieve into a pressure pot or a mixer.
- (b) Put the aluminum powder component in a different container from the resin component.
- (c) Slowly add the methyl isobutyl ketone or the butyl acetate to make the mixture smooth and constant.
- (d) Put the aluminum powder through the 60-80 mesh metal sieve into the pressure pot or mixer.
- (e) Fully mix the mixture manually or with a power mixer.
- (f) Make sure the mixture is smooth and constant.
- (g) Use one of these materials to make the mixture thin for airspray:

NOTE: The thinner must not be more than 20 percent (by volume) of the base material.

- 1) Methyl isobutyl ketone
- 2) Butyl acetate
- 3) Five parts methyl isobutyl ketone (by volume) to three parts butyl acetate (by volume)
- 4) One part methyl isobutyl ketone (by volume) to one part butyl acetate (by volume).

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- (h) The application time of this material is 16 hours with no temperature limit.

SUBTASK 51-21-95-370-010

- (2) Apply the Corogard EC-843 or EC-843S.

- (a) Apply one layer of the EC-843 or EC-843S Corogard mixture with a spray gun.

1) Frequently shake the mixture in the pot.

- (b) Between the first and subsequent layers, stop for a minimum of 30 minutes before you apply a new layer.

NOTE: On some surfaces, it is not necessary to let the mixture dry before you can apply a second layer. For example, horizontal surfaces where there is no runs or sags.

- (c) Apply sufficient layers to get a total dry thickness of 2-3 mils.

NOTE: To decrease the effect of bronzing, the Corogard EC-843 and EC-843-S material has more pigments than usually necessary. The aluminum pigments can rub off but the quality of the Corogard EC-843 and EC-843-S does not decrease.

- (d) Dry the mixture for a minimum of 24 hours at 65 to 85°F (18.3-29.4°C).

NOTE: The dry time can decrease if you apply heat on the surface at 125 (± 5)°F (51.7 ± 2.8°C) for 2 hours.

J. Apply the Aeroflex G12E25 Coating (Recommended)

SUBTASK 51-21-95-370-011

- (1) Prepare the aluminized coating Aeroflex G12E25.

- (a) Fully mix the Aeroflex G12E25 material for 10-15 minutes manually or use a power mixer.

NOTE: There must be no air bubbles while you mix the Aeroflex.

- (b) Make sure that the aluminum pigment is constant in the mixture.

- (c) Use the Aeroflex thinner to make the mixture thin.

NOTE: The thinner must not be more than 20 percent (by volume) of the base material.

- (d) The application time of this mixture is 4 hours with no temperature limit.

SUBTASK 51-21-95-370-012

- (2) Apply the Aeroflex G12E25.

- (a) Apply primer, C00259, and coating, C00307, on the surface.

- (b) Let the primer dry before you apply the mixture.

- (c) Put the Aeroflex mixture through a clean cloth or sieve.

- (d) Apply the Corogard mixture with a spray gun.

- (e) Add sufficient layers to get a total dry thickness of 2-3 mils (0.002 to 0.003 inch) (0.051-0.076 mm).

NOTE: If the mixture becomes dry when you use Aeroflex G12E25, decrease the atomizing air pressure. You can also add the C25/90S thinner, C00662 to make the mixture thin as an alternative.

- (f) Dry the mixture at 65°F (18°C) - 85°F (29°C) for a minimum of 4 hours before you move the airplane to an open area.

- (g) Dry the mixture for 24 hours before flight.

NOTE: The dry time can decrease if you apply heat on the surface at 125 ± 5°F (51.7 ± 2.8°C) for 2 hours.

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K. Repair and Rework

SUBTASK 51-21-95-350-002

- (1) Clean areas with small damages such as scratches and gouges.
 - (a) Rub the areas smooth with 280 grit (minimum) abrasive paper.
 - (b) Clean the areas with clean rags moist with toluene or xylene.

SUBTASK 51-21-95-370-013

- (2) Apply the primer and Aeroflex or Corogard.
 - (a) Feather all the edges.
 - (b) Use a brush for small damages.

SUBTASK 51-21-95-350-003

- (3) Clean areas with EC-843 or EC-843S Corogard or Aeroflex applied.
 - (a) Fully clean the areas with toluene or xylene.
 - (b) Rub the areas smooth with 280 grit (minimum) abrasive paper.
 - (c) Clean the areas again with rags that are moist with toluene or xylene.
 - (d) Rub the surface dry with a clean cloth.

SUBTASK 51-21-95-220-001

- (4) Make sure the repair and overlap thickness is not more than 5.0 mils.

NOTE: The color of the new EC-843 and EC-843S Corogard coating will not be the same as the adjacent surface. The color will become the same in approximately 60 days. Permit the coating to dry a minimum of 4 hours at 65-85°F (18.3-29.4°C).

L. Upper Wing Skin Finish

SUBTASK 51-21-95-370-014

- (1) Park the airplane away from the sun and electrically ground (PAGEBLOCK 20-40-11/201).

SUBTASK 51-21-95-370-015



DO NOT GET CLEANING SOLVENT IN YOUR MOUTH OR EYES OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE CLEANING SOLVENT. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE CLEANING SOLVENT. KEEP THE CLEANING SOLVENT AWAY FROM SPARKS, FLAME AND HEAT. THE CLEANING SOLVENT IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Before you apply Alodine 600, clean the surface correctly to get a satisfactory coating, C00064, treatment, do the steps that follow:

NOTE: It is not necessary to clean all areas for Alodine treatment. The Alodine is for shaved rivet heads and exposed aluminum.

- (a) Use one part (by volume) solvent alkaline cleaner to two parts water and five to six parts solvent, B00083.
- (b) Apply the cleaner solution and let it soak for a minimum of 10 minutes.

NOTE: The solution must be wet on the skins. Apply the cleaner again if it is necessary.
- (c) Clean the skins with a soft bristle brush, STD-123.
 - 1) Make sure to clean the countersunk areas and around the rivet heads.
- (d) Flush the surface with water (100°F (37.8°C)) at high pressure.

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- (e) Examine the surface for water breaks.

NOTE: A surface with no water breaks has a continuous layer of water for a minimum of 30 seconds.

- (f) Clean the skin again if there are water breaks.

- (g) Apply Scotch Flatback Masking Tape 250, G00270, to all adjacent areas.

NOTE: The surface must be free from dirt, dust, grease, oil or moisture before you apply the tape.

SUBTASK 51-21-95-370-016

- (3) Prepare Alodine 600 solution:

NOTE: In areas where the Alodine may come into contact with coating, C50155, only Bonderite M-CR 600 Aero coating, C50104, should be used.

- (a) Use clean rubber glove, STD-1086 and keep the parts or surface dry and clean to prevent surface contamination.



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- (b) Put Bonderite M-CR 600 Aero coating, C50104 on paper and use a roller to make the powder smooth.

- (c) Mix the solution in a stainless steel container (1 gal) (4 Liter), STD-1118 or acid resistant container, STD-1052.

NOTE: Do not use lead or glass.

- (d) For Bonderite M-CR 600 Aero coating, C50104, add 3 oz (85 g) of powder for each 1 gal (3.8 l) of final solution.

- (e) Fully mix the solution.

- (f) Do not move the solution for a minimum of 1 hour.

NOTE: A dirty solution is unsatisfactory. Prepare the solution in small quantities and discard it when it is dirty. For Alodine 600 add 2 percent by volume of Alodine Toner 22 and stir to adjust the pH to between 1.5 and 2.0 Do a pH check. Use pHydron paper #60781. Do not add wetting agents or other materials to this solution.

SUBTASK 51-21-95-370-017



DO NOT GET ALODINE IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM ALODINE. PUT ON GOGGLES AND GLOVES WHEN YOU USE ALODINE. KEEP ALODINE AWAY FROM SPARKS, FLAME, AND HEAT. ALODINE IS POISONOUS AND FLAMMABLE, AND CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) Apply Alodine 600 solution:

NOTE: In areas where the Alodine may come into contact with coating, C50155, only Bonderite M-CR 600 Aero coating, C50104 should be used.

- (a) Use clean rubber glove, STD-1086 and keep the parts or surface dry and clean to prevent surface contamination.

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- (b) Apply Bonderite M-CR 600 Aero coating, C00862, equally with a medium nylon bristle brush, STD-3911, or a cotton wiper, G00034.

1) Start from the bottom.

- (c) Let the solution stay on the surface until a given color is found. Keep the area wet. Apply small quantities of solution with a cotton wiper, G00034.

NOTE: Do not let the Bonderite M-CR 600 Aero coating, C00862 dry until the color of the surface changes.

- (d) Lightly rub the surface with a clean dry cotton wiper, G00034, to remove unwanted liquid. Rub the surface until the liquid is gone.

- (e) Immediately after use, fully clean the cloths in water and keep them in a container filled with water.

- (f) Air dry the surface.

NOTE: Dry at 120°F (49°C) (optimum), 130°F (54°C) (maximum).

SUBTASK 51-21-95-370-018

- (5) Clean the surface before application of BMS 10-79 Primer

NOTE: Only BMS 10-79 type 3 class A or B and grade A or D are applicable.

- (a) Prepare unsealed anodized aluminum:

- 1) Remove small amounts contamination that is not oily with the steps that follow:

- a) Use a wiper, G50262, wet with water.

<1> Dry the surface with a clean dry wiper, G50262.

- 2) Remove small amounts of oily contamination with the steps that follow:

- a) Use a wiper, G50262, wet with solvent, B00062 or solvent, B00184.

- b) Immediately wipe the surface dry with a clean, dry wiper, G50262.

<1> Make sure that the solvent does not dry on the surface

- 3) Prepare sealed anodized aluminum with the steps that follow:

- a) If the surface becomes contaminated, solvent clean the surface.

<1> Use a wiper, G50262, wet with solvent, B00062 or solvent, B00184.

<2> Immediately wipe the surface dry with a clean, dry wiper, G50262.

<a> Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-95-370-019

- (6) Prepare the surface before application of BMS 10-79 Primer

- (a) Prepare surfaces with paint with one of the methods listed in Table 702.

Table 702/51-21-95-993-802 Surface Preparation Methods Before Application of BMS10-79

SURFACE COATING	DRY TIME	DRY TEMPERATURE	PREPARATION METHOD
BMS10-79, Grade D	≤ 12 hours	Air Dry	Method 1
BMS10-79, Grade D	> 12 hours	Air Dry	Method 2
BMS10-11, Type I, Grade A or E	< 48 hours	Air Dry	Method 1
BMS10-11, Type I, Grade A or E	> 48 hours	Air Dry	Method 3 or Method 4

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Table 702/51-21-95-993-802 Surface Preparation Methods Before Application of BMS10-79 (Continued)

BMS10-20, Type II, Grade A or D	< 48 hours	Air Dry	Method 1
BMS10-20, Type II, Grade A or D	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-79, Type II or Type III, Grade A	< 48 hours	Air Dry	Method 1
BMS10-79, Type II or Type III, Grade A	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-103, Type I, Grade A or E	< 48 hours	Air Dry	Method 1
BMS10-103, Type I, Grade A or E	> 48 hours	Air Dry	Method 3 or Method 4
BMS10-11, Type I, Grade B	< 24 hours	Air Dry	Method 1
BMS10-11, Type I, Grade B	> 24 hours	Air Dry	Method 3 or Method 4
BMS5-89	--	--	Method 3 or Method 4

(b) Method 1

- 1) If the contamination is only particulate, blow the surface with clean, compressed air or wipe the surface with a tack rag, G50123.
- 2) Solvent clean the surface, if necessary.
 - a) Use a wiper, G50262, wet with alcohol, B00130 or solvent, B00184.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262.

<1> Make sure that the solvent does not dry on the surface.

(c) Method 2

- 1) Solvent clean the surface.
 - a) Use a wiper, G50262, wet with alcohol, B00130 or solvent, B00184.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262.

<1> Make sure that the solvent does not dry on the surface.
- 2) Sand the surface to remove gloss with 220-grit or finer sandpaper, G50260, silicone-free abrasive.
- 3) Solvent clean the surface to remove sanding dust.
 - a) Use a wiper, G50262, wet with alcohol, B00130 or solvent, B00184.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262.

<1> Make sure that the solvent does not dry on the surface.

(d) Method 3

- 1) Solvent clean the surface.
 - a) Use a wiper, G50262, wet with alcohol, B00130 or solvent, B00184.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262.

<1> Make sure that the solvent does not dry on the surface.
- 2) Sand the surface with 320 grit or finer abrasive paper, G50078.
- 3) Solvent clean the surface to remove sanding dust.

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- a) Use a wiper, G50262, wet with alcohol, B00130 or solvent, B00184.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262.
 - <1> Make sure that the solvent does not dry on the surface.
- (e) Method 4
- 1) Solvent clean the surface.
 - a) Use one of the abrasives that follow wet with alcohol, B00130 or solvent, B00184.
 - <1> Scotch-Brite 7447 pad, G50220
 - <2> Scotch-Brite Clean and Finish, very fine, aluminum oxide
 - <3> Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - <4> Immediately wipe the surface with a clean, dry wiper, G50262
 - <a> Make sure that the solvent does not dry on the surface.
 - 2) Alkaline clean the surface with an abrasive pad wet with one of the cleaners that follow, diluted with seven parts water, by volume.
 - a) Ardrox 160-B
 - b) Pace B-82 alkaline cleaner, B00017
 - c) Pace MF-30 cleaner, B50172
 - d) Turco 4215
 - e) Ridoline 909, B50052
 - f) Super Bee 300LF
 - 3) Rinse the surface with large amounts of water.
 - 4) Check for a water-break-free surface.
 - a) If water breaks occur, alkaline clean the surface again and rinse with more water.
 - 5) Dry the surface.

SUBTASK 51-21-95-370-020

(7) Mix BMS 10-79 Primer:

- (a) Mix the primer using the manufacturer's instructions.

SUBTASK 51-21-95-370-021

(8) Apply the BMS 10-79 Primer:

- (a) Apply one coat of BMS10-79 Type III primer, C00175.

- 1) Spray or brush to apply the primer (spray is preferred).

NOTE: The preferred temperature for spray application is between 50°F (10°C) and 90°F (32°C)

- (b) Apply the mixed and thinned (as applicable) materials to get a dry film thickness of 0.5 mil (0.013 mm) - 1 mil (0.025 mm).

SUBTASK 51-21-95-370-022

(9) Drying or Curing of BMS 10-79 Primer:

- (a) Cure the primer using the manufacturers instructions.

SUBTASK 51-21-95-370-023

- (10) Apply coating, C50075, to the upper wing skin (TASK 51-21-73-370-802).

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M. Lower Wing Skin Finish

SUBTASK 51-21-95-370-024

- (1) Park the airplane away from the sun and electrically ground (PAGEBLOCK 20-40-11/201).

SUBTASK 51-21-95-370-025



WARNING

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- (2) Before application of Alodine 600, clean the surface correctly to get a satisfactory coating, C00064, treatment, do the steps that follow:
- (a) Use one part (by volume) solvent alkaline cleaner to two parts water and five to six parts solvent, B00083.
 - (b) Apply the cleaner solution and let it soak for a minimum of 10 minutes.
NOTE: The solution must be wet on the skins. Apply the cleaner again if it is necessary.
 - (c) Clean the skins with a soft bristle brush, STD-123.
 - 1) Make sure to clean the countersunk areas and around the rivet heads.
 - (d) Flush the surface with water (100°F (37.8°C)) at high pressure.
 - (e) Examine the surface for water breaks.
NOTE: A surface with no water breaks has a continuous layer of water for a minimum of 30 seconds.
 - (f) Clean the skin again if there are water breaks.
 - (g) Apply Scotch Flatback Masking Tape 250, G00270 to all adjacent areas.
NOTE: The surface must be free from dirt, dust, grease, oil or moisture before you apply the tape.

SUBTASK 51-21-95-370-026

- (3) Prepare Alodine 600 solution:

NOTE: In areas where the Alodine may come into contact with coating, C50155, only Bonderite M-CR 600 Aero coating, C50104 should be used.

- (a) Use clean rubber glove, STD-1086, and keep the parts or surface dry and clean to prevent surface contamination.



WARNING

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- (b) Put Bonderite M-CR 600 Aero coating, C50104, on paper and use a roller to make the powder smooth.

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- (c) Mix the solution in a stainless steel container (1 gal) (4 Liter), STD-1118, or acid resistant container, STD-1052.

NOTE: Do not use lead or glass.

- (d) For Bonderite M-CR 600 Aero coating, C50104, add 3 oz (85 g) of powder for each 1 gal (3.8 l) of final solution.
- (e) Fully mix the solution.
- (f) Do not move the solution for a minimum of 1 hour.

NOTE: A dirty solution is unsatisfactory. Prepare the solution in small quantities and discard it when it is dirty. For Alodine 600 add 2 percent by volume of Alodine Toner 22 and stir to adjust the pH to between 1.5 and 2.0 Do a pH check. Use pHDrion paper #60781. Do not add wetting agents or other materials to this solution.

SUBTASK 51-21-95-370-027



DO NOT GET ALODINE IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM ALODINE. PUT ON GOGGLES AND GLOVES WHEN YOU USE ALODINE. KEEP ALODINE AWAY FROM SPARKS, FLAME, AND HEAT. ALODINE IS POISONOUS AND FLAMMABLE, AND CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) Apply Alodine 600 solution:

NOTE: In areas where the Alodine may come into contact with coating, C50155, only Bonderite M-CR 600 Aero coating, C50104, should be used.

- (a) Use clean rubber glove, STD-1086, and keep the parts or surface dry and clean to prevent surface contamination.
- (b) Apply Bonderite M-CR 600 Aero coating, C00862, equally with a medium nylon bristle brush, STD-3911, or a cotton wiper, G00034.
- 1) Start from the bottom.
- (c) Let the solution stay on the surface until a given color is found. Keep the area wet. Apply small quantities of solution with a cotton wiper, G00034.
- NOTE: Do not let the Bonderite M-CR 600 Aero coating, C00862, dry until the color of the surface changes.
- (d) Lightly rub the surface with a clean dry cotton wiper, G00034, to remove unwanted liquid.
- 1) Rub the surface until the liquid is gone.
- (e) Immediately after use, fully clean the cloths in water and keep them in a container filled with water.
- (f) Air dry the surface.

NOTE: Dry at 120°F (49°C) (optimum), 130°F (54°C) (maximum).

SUBTASK 51-21-95-370-028

- (5) Clean the surface before application of BMS 5-95 Primer

- (a) Prepare unsealed anodized aluminum:
- 1) Remove small amounts of contamination that is not oily with the steps that follow:
- a) Use a wiper, G50262, wet with water.
- b) Dry the surface with a clean dry wiper, G50262.
- 2) Remove small amounts of oily contamination with the steps that follow:

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- a) Use a wiper, G50262, wet with solvent, B00062 or solvent, B00184.
- b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <1> Make sure that the solvent does not dry on the surface.
- 3) Prepare sealed anodized aluminum with the steps that follow:
 - a) If the surface becomes contaminated, solvent clean the surface.
 - <1> Use a wiper, G50262, wet with solvent, B00062 or solvent, B00184.
 - <2> Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <a> Make sure that the solvent does not dry on the surface.

SUBTASK 51-21-95-370-029

(6) Mix BMS 5-95 Primer:

- (a) Mix the primer using the manufacturer's instructions.

SUBTASK 51-21-95-370-030

(7) Apply the BMS 5-95 Primer:

- (a) Use a brush, roller or spray to apply a dry layer thickness of 2.0 mils (0.05 mm) to 3.0 mils (0.08 mm). Apply the primer in less than the given pot life as follows:
 - 1) The pot life is 90 minutes at temperatures at or below 75°F (24°C).
 - 2) The pot life is 45 minutes at temperatures of 76°F (24°C) to 85°F (29°C).

SUBTASK 51-21-95-370-031

(8) Drying or Curing of BMS 5-95:

- (a) Air dry the layer for 72 hours minimum at 70°F (21°C) to 90°F (32°C) to get a full cure condition.

NOTE: The layer will be tack-free after approximately 8 hours at 70°F (21°C) to 90°F (32°C).

- (b) Add one more layer after you air dry the layer for 2 hours maximum.

SUBTASK 51-21-95-370-032

- (9) Apply coating, C50075 to the upper wing skin. Do this task: BMS10-60 Topcoat Application, TASK 51-21-73-370-802.

———— **END OF TASK** ————

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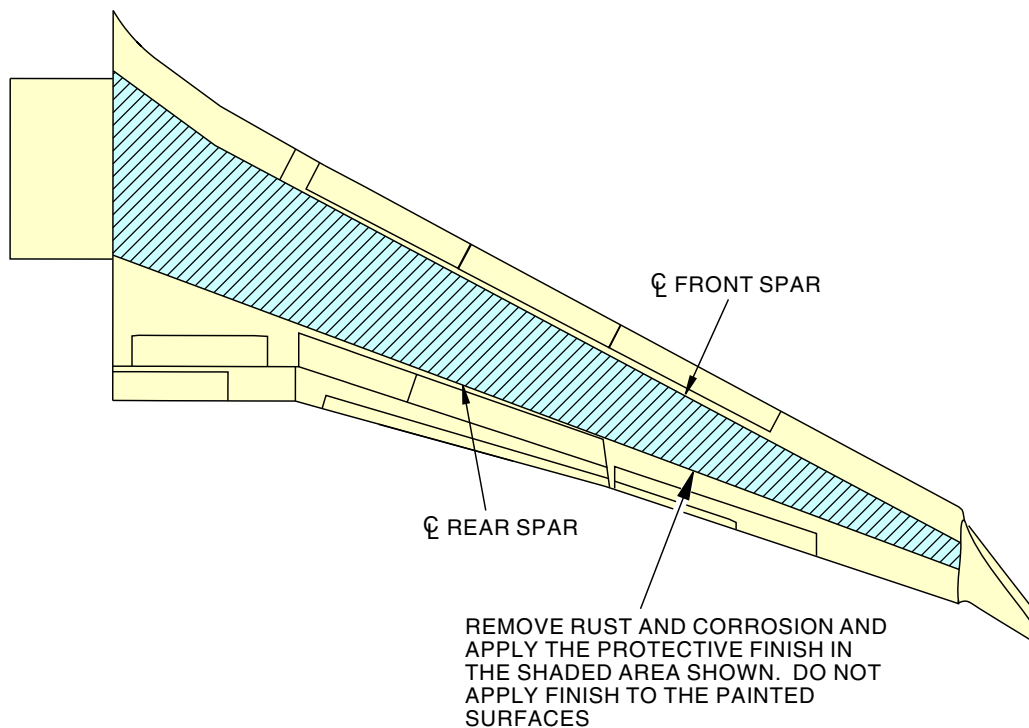
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WING PLAN VIEW

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Skin and Fastener Corrosion Control Location
Figure 701/51-21-95-990-801

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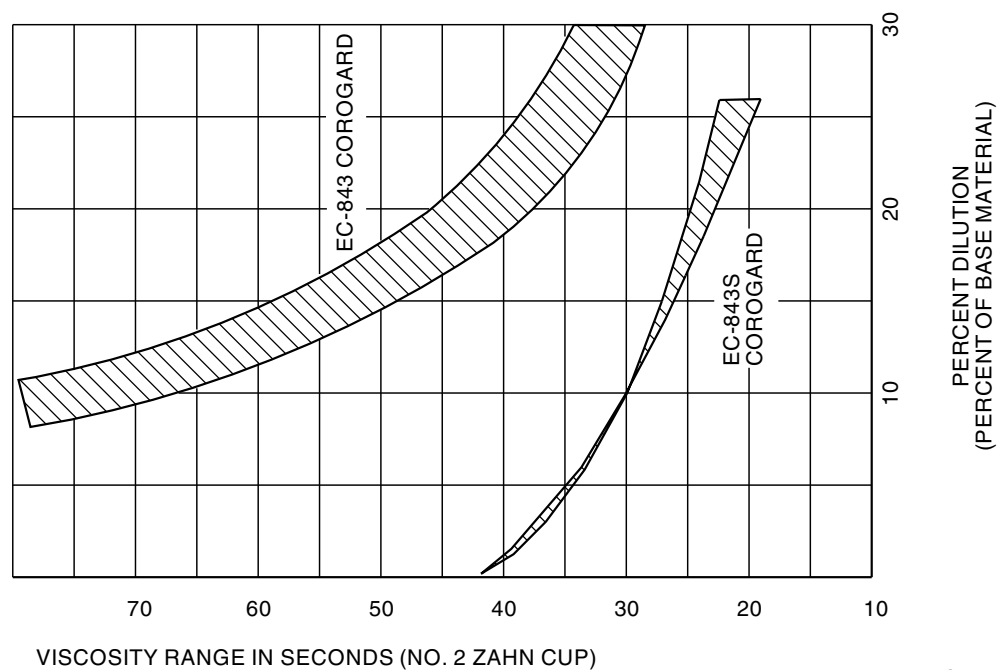
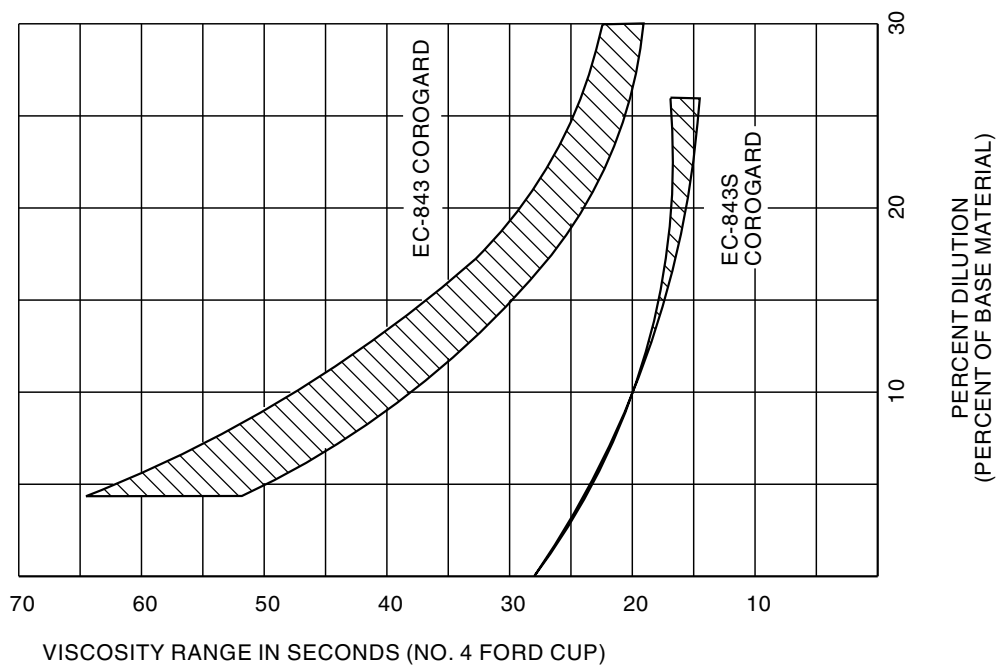
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Corogard Viscosity
Figure 702/51-21-95-990-802

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HIGH TEMPERATURE COATING (TITANIUM) - CLEANING/PAINTING

1. General

- A. This procedure contains two tasks. The first task is to apply the high temperature (titanium) coating (B2000 paint, C00018). The second task is to apply the BMS 10-82 coating, C00314.

TASK 51-21-96-300-801

2. High Temperature (Titanium) Coating

A. **Consumable Materials**

Reference	Description	Specification
B00007	Cleaner - Oakite 61B	
B00722	Solvent - Stoddard	MIL-PRF-680 Type I or II (Supersedes P-D-680 Type I or II)
E00003	Stripper - Paint - Turco 4338	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

B. **Prepare the Surface**

SUBTASK 51-21-96-150-001



DO NOT SAND BLAST TITANIUM DUCTS. IF YOU SAND BLAST THE TITANIUM DUCTING, YOU CAN CAUSE PERMANENT DAMAGE.

- (1) Use sand blast equipment to remove contamination and high temperature coating from parts that are on the airplane.
- (a) Make sure that no sand particles get on the adjacent surfaces.

SUBTASK 51-21-96-950-001

- (2) Remove the titanium parts from the airplane if you use paint strippers to remove the high temperature coating.

SUBTASK 51-21-96-960-001

- (3) Replace all parts that have metal corrosion.

SUBTASK 51-21-96-150-002

- (4) Remove the hydraulic fluid contamination:

NOTE: A light glossy brown layer, a black layer that is not shiny, or a bare surface, are signs of hydraulic fluid (Skydrol) contamination. A flat, black inorganic finish supplies protection for titanium parts in areas with possible contamination to hydraulic fluid. Make sure that you know the difference between the black inorganic finish and the hydraulic fluid contamination.

- (a) Clean the parts with a cotton wiper, G00034 or an aluminum wool that is moist with Oakite 61B cleaner, B00007.

NOTE: The aluminum wool must be sufficiently rough to get a surface that is not shiny.

- (b) Flush the parts with water.
- (c) Dry the parts with a clean dry cotton wiper, G00034.

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- (d) Clean the parts again until you get a surface with no water breaks.

SUBTASK 51-21-96-110-001

- (5) Remove all the remaining unwanted material:

- (a) Fully flush the area with water.

NOTE: If it is possible, use high pressure water to flush the area.

- (b) Clean the area with solvent, B00722.
(c) Flush the area with water until you get a surface with no water breaks.
(d) Dry the surface with a clean dry cotton wiper, G00034.

SUBTASK 51-21-96-150-003

- (6) Remove the high temperature coating:



WARNING

DO NOT TOUCH OR HOLD TURCO 4338 WITHOUT THE NECESSARY PROTECTION. WEAR GOGGLES AND HEAVY GLOVES MADE OF RUBBER. KEEP THE TURCO 4338 IN STEEL CONTAINERS. DO NOT MIX TURCO 4338 POWDER WITH ACETONE OR METHYL-ETHYL-KETONE. A MIXTURE OF TURCO 4338 WITH THE ORGANIC SOLVENTS CAN CAUSE AN EXPLOSION AND CAUSE INJURY. DAMAGE TO EQUIPMENT CAN OCCUR.

- (a) Refer to the manufacturer's instructions to prepare the Turco 4338 stripper, E00003 solution.
(b) Put the parts in the stripper solution for 30 to 40 minutes.
(c) Remove the parts from the stripper solution.
(d) Fully flush the parts with water.
(e) Use an air water spray to remove all unwanted materials.
(f) Clean the parts again until you remove the black coating.

C. Apply the High Temperature Coating

SUBTASK 51-21-96-370-001



CAUTION

DO NOT APPLY THE HIGH-TEMPERATURE COATING IN AN AREA THAT CONTAINS OTHER SOLVENTS IN THE AIR. THESE OTHER SOLVENTS CAN CAUSE AN UNSATISFACTORY BOND FOR THE HIGH-TEMPERATURE COATING. THIS CAN CAUSE PART DAMAGE.



CAUTION

DO NOT SHAKE THE HIGH-TEMPERATURE COATING. IF YOU SHAKE THE HIGH-TEMPERATURE LAYER, THE LAYER WILL HAVE UNWANTED AIR BUBBLES.

- (1) Slowly add distilled or deionized water to the high temperature coating.

SUBTASK 51-21-96-370-002

- (2) Continuously mix the mixture while you add the distilled or deionized water.

SUBTASK 51-21-96-370-003

- (3) Apply the high temperature coating with a brush or a spray gun.

- (a) Make sure that the coating is 0.8 mil (0.0008 in.) to 1.2 mils (0.0012 in.) or 0.8 mil (0.0203 mm) to 1.2 mils (0.0305 mm) thick when it is dry.

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SUBTASK 51-21-96-370-004

- (4) Let the coating dry for 1 hour (minimum) at 70°F (21.1°C)–90°F (32.2°C).

SUBTASK 51-21-96-370-005

- (5) Put the parts in an oven for 1 hour (minimum) at 350 ±25°F (176.7 ±13.9°C).

NOTE: If damage to the coating occur while it is in the oven, increase the dry time of the coating.

————— **END OF TASK** —————

TASK 51-21-96-300-802

3. **BMS 10-82 Coating Application**

A. Consumable Materials

Reference	Description	Specification
B00094	Solvent - Toluene	A-A-59107
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00314	Coating - Low Emissivity Gold Coating	BMS10-82 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G01306	Gloves - Lint-free	

B. Prepare for the Coating Application

SUBTASK 51-21-96-150-004



MAKE SURE THAT THE TITANIUM SURFACE IS CLEAN. DO NOT LET SALT FALL ON THE SURFACE. DO NOT TOUCH THE SURFACE. USE CLEAN WHITE COTTON GLOVES. SALT AND FINGERPRINTS CAN CAUSE CORROSION ON THE SURFACE.

- (1) Use clean lint-free gloves, G01306, to hold the parts to prevent contamination.

SUBTASK 51-21-96-150-005

- (2) Remove the protective coating from the parts.

SUBTASK 51-21-96-210-001

- (3) Examine all the parts for hydraulic fluid contamination.
- (a) Use a abrasive mat, G00251, sheet to remove soil and stain.
 - (b) Remove unwanted material with solvent, B00184, or solvent, B00094.

SUBTASK 51-21-96-100-001

- (4) Dry the parts with a clean dry cotton wiper, G00034.

C. BMS 10-82 Coating Application

SUBTASK 51-21-96-370-006

- (1) Apply the coating, C00314.
- (a) Fully mix the coating, C00314, manually.
 - (b) Use a spray gun to apply the coating, C00314.
 - 1) Use an atomizing pressure of 10 lbf (44 N) - 25 lbf (111 N).

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- (c) Let each layer of the coating dry for 5 to 10 minutes.
- (d) Apply the coating, C00314, until you get a red, transparent, constant layer with no runs or sags.
- (e) Put the parts in an oven immediately after you apply the coating, C00314.
- (f) Keep the parts in the oven for 10 to 15 minutes at a temperature of $880 \pm 40^{\circ}\text{F}$ ($471 \pm 22^{\circ}\text{C}$).

NOTE: The oven must have an opening to let out smoke and fumes.

- (g) Make sure that the coating has a tightly bonded yellow gold layer that is smooth and constant.

SUBTASK 51-21-96-550-001

- (2) Prevent the parts from damage and contamination until installation.

———— **END OF TASK** ————

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NON-SKID FINISH - CLEANING/PAINTING

1. General

- A. This procedure contains two tasks:
 - (1) Apply the Overwing Emergency Walkway Coating.
 - (2) Apply the Epoxy Walkway Coating to the Bulk Cargo Entryway.
- B. The Non-Skid finish can be applied to the epoxy primers that follow:
 - (1) BMS5-89,
 - (2) BMS10-11,
 - (3) BMS10-20, or
 - (4) BMS10-79.
- C. Before the Non-Skid surface is applied, clean the surface and reactivate it.
- D. Some of the recommended equipment that can be used to apply the Overwing Emergency Walkway Coating (Spray Application) finish is as follows. You can get equivalent equipment.
 - (1) High Volume Low Pressure (HLVP) gravity feed or pressure assist cup spray gun with a 0.070 inch fluid nozzle or larger.
- E. Some of the recommended equipment that can be used to apply the Epoxy Walkway Coating finish is as follows. You can get equivalent equipment.
 - (1) Preferred - Binks model 7 spray gun with a No. 38-PD air cap, No. 38 fluid tip, and No. 38 needle (for grit-containing material only).
 - (2) Optional - Binks Model 18 spray gun with a No. 60 or 65 fluid tip.
 - (3) Equipment for spraying the dry pumice only - Binks Model 171 spray gun with a No. 58-11 tip.
- F. Use clean, solvent resistant container for mixing. Metal, polyethylene, and polypropylene containers are recommended. Do not use containers (i.e. coated and uncoated paper cups) which will contaminate the paint.
- G. Do not mix resin materials that are almost the same, or materials from different suppliers.
- H. The preferred temperature to apply the non-skid material is 50°F (10°C) to 100°F (38°C) and relative humidity less than 85 percent.

TASK 51-21-97-370-801

2. Apply the Overwing Emergency Walkway Coating

A. References

Reference	Title
51-21-99-300-802	Decorative Exterior Paint System Repair (P/B 701)

B. Tools/Equipment

Reference	Description
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles
STD-14527	Roller - Paint, 9 Inch, 1/2 Inch Nap

C. Consumable Materials

Reference	Description	Specification
A50193	Sealant - Pressure And Environmental-Chromate (For Spray Application As A Primer)	BMS5-95 Type I Class F

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Reference	Description	Specification
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00094	Solvent - Toluene	A-A-59107
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00151	Solvent - Methyl Isobutyl Ketone	ASTM D1153
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C50018	Coating - Semigloss, Urethane, White (Desothane HS) - CA8022/B7022	BAC5705 Type 1
C50019	Coating - Flat, Urethane, Black (Desothane HS) - CA8012/B701	BAC5705 Type 1
C50313	Coating - Walkway, Roll-On Application	BMS10-141
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50124	Compound - Pumice, Grade 1/2 - Navajo Brand	
G50314	Tape - Masking	BAC5034-4 Type VII Class 2

D. Prepare the Surface

SUBTASK 51-21-97-110-001



DO NOT GET SOLVENTS IN YOUR MOUTH, IN YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE SOLVENTS. KEEP SOLVENTS AWAY FROM SPARKS, FLAME, AND TEMPERATURES ABOVE THE FLASH POINT. SOLVENTS ARE A POISONOUS AND FLAMMABLE MATERIAL WHICH CAN CAUSE INJURY PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do these steps to prepare the surfaces that have a coat of primer less than 48 hours old:
 - (a) Clean the surface with clean cotton wiper, G00034, moist with solvent, B00083, or solvent, B00094.
 - (b) If the surface has particle contamination only, clean with tack rag, G50123.

SUBTASK 51-21-97-100-001

- (2) Do these steps to prepare the surfaces that have a coat of primer more than 48 hours old:
 - (a) Clean the surface with clean cotton wiper, G00034, moist with solvent, B00151.
 - (b) Rub the surface lightly with abrasive cloth, B00102, 100-grit minimum.

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- (c) Clean the surface with clean cotton wiper, G00034, moist with solvent, B00083, or solvent, B00094, to remove sanding particles.
- (d) Clean the surface with tack rag, G50123, to remove remaining particles.

SUBTASK 51-21-97-370-001

- (3) If the primer is removed and aluminum shows, do this task: Decorative Exterior Paint System Repair, TASK 51-21-99-300-802.

SUBTASK 51-21-97-950-001

- (4) Apply Scotch Flatback Masking Tape 250, G00270, on the adjacent areas.

E. Mix the Materials (Spray Application)

SUBTASK 51-21-97-390-001

- (1) Make sure that the container used for mixing is clean and solvent-resistant.

SUBTASK 51-21-97-370-015

- (2) Agitate sealant, A50193, base material prior to thinning or catalyzing.
 - (a) The mix ratio (by volume) is 100/6.9.
 - 1) The maximum allowable deviation from the ratio is +/- 5 percent.

SUBTASK 51-21-97-370-016

- (3) Slowly add the catalyst.
 - (a) Agitate the base material while adding the catalyst.

SUBTASK 51-21-97-370-017

- (4) If the material needs to be thinned, slowly add the thinner.
 - (a) Agitate the mixture while adding the thinner.
 - (b) Thin the spray by adding 20 to 30 percent solvent, B00184, or alcohol, B00068.

SUBTASK 51-21-97-370-018

- (5) Immediately apply the mixture.

SUBTASK 51-21-97-370-019

- (6) Use the High Volume Low Pressure (HVLP) spray gun.

NOTE: Catalyzed Type 46 mixture has a application time of 1.5 hours at 75°F (24°C). If the material has exceeded this limit, discard the mixture.

- (a) Make sure that the material has the following properties:
 - 1) Homogenous
 - 2) Free of skins
 - 3) Free of lumps
 - 4) Free of gelled or coarse particles.
- (b) Allow it to dry for a minimum of 2 hours before overcoating.
- (c) Make sure that the dry film thickness is 2 mils (0.051 mm) to 3 mils (0.076 mm) thick.

F. Apply the Non-Skid Finish by Spray Application

SUBTASK 51-21-97-370-002

- (1) Prepare the non-skid finish.

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- (a) Mix CA8022/B7022 coating, C50018, or CA8012/B701 coating, C50019, according to the manufacturers instruction.

NOTE: The application time for the mixture is 3.5 hours for the white mixture and 2.5 hours for the black mixture.

- (b) While continuing mixing the coating, add 0.30 lb (0.14 kg) of Navajo Brand compound, G50124, to 1 gal (3.8 l) of mixed coating.

NOTE: Addition of Navajo Brand compound, G50124, to the black coating is optional when the black coating is applied directly over the white coating containing pumice.

- (c) Hand swirl mixture immediately before application.

- 1) Make sure that the mixture is applied evenly.

SUBTASK 51-21-97-370-003

- (2) Apply the pumice and enamel mixture with a paint spray gun with interchangeable nozzles, STD-1133, as follows:

- (a) Apply one or more layers of the nonskid finish to make sure that the dry thickness is between 0.005 in. (0.127 mm) - 0.007 in. (0.178 mm) (6 oz (0.170 kg) - 8 oz (0.227 kg)) for 1 yd² (8361 cm²).

NOTE: The dry thickness is the distance from the primer to the external surface.

- 1) Let each layer of coating dry for 15 minutes (minimum) at 50°F (10°C) or 10 minutes at 70°F (21°C) or more.



PULL OFF THE MASKING TAPE ADJACENT TO THE OVERWING EMERGENCY EXIT WALKWAY COATING EDGE BEFORE THE COATING IS FULLY DRY. THIS PREVENTS LAYERS FROM COMING OFF.

- (b) Carefully remove the masking tape before the layers are fully dry.
- 1) Let the coating air dry for a minimum of 2 hours before removing the masking tape.
- (c) Air dry the coating for 4 hours (minimum) of 90°F (32°C) before walking on the surface.
- (d) Air dry the coating for 24 hours at 70°F (21°C) before service.

G. Mix the Materials (Roll-on Application)

SUBTASK 51-21-97-370-004

- (1) Mix walkway coating, C50313, as follows:

NOTE: A walkway coating, C50313, kit consists of:

- Base component: CA 9032/B7022 (White), CA 9032/B701 (Black), or CA 9032/B3494 (Yellow), Quantity 1qt (32 fl-oz (946 ml)).
- Curing solution component: CA 9032B, Quantity 1qt (32 fl-oz (946 ml)).
- Reactive thinner component: CA 9032C, Quantity 0.5pt (8 fl-oz (237 ml)).
- Pumice component (for white color only): 920K059, Quantity 0.18 lb (81.65 g).

NOTE: If the components are sourced individually, use the following mixture ratio (by volume):

- Base component - 4 parts
- Activator Component - 4 parts
- Reactivator/thinner component - 1 part

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- Pumice component (for white color only) - 1.235 oz (35 g) for each quart (32 fl-oz (946 ml)) of mixed paint.
- (a) Make sure that the container is clean and solvent resistant.
- (b) Put all of the fully mixed base component into a clean and solvent resistant container.
- (c) While continuously mixing the base component, slowly add all the curing solution component.
- (d) While continuously mixing the base and curing solution components, slowly add all the reactive thinner component.
- (e) While continuously mixing the base, curing solution and reactive thinner components, add all of the pumice.
- (f) Apply walkway coating, C50313, in 4 hours or less.

H. Apply the Non-Skid Finish by Roll-on Application

NOTE: Roll-on application is not applicable for use with CA8022/B7022 coating, C50018, or CA8012/B701 coating, C50019.

SUBTASK 51-21-97-370-005

- (1) Prepare the non-skid finish:
 - (a) Mix walkway coating, C50313, according to the manufacturers instructions.

NOTE: The application time for the mixture is 4 hours.

SUBTASK 51-21-97-370-006

- (2) Prepare the roller, as follows:
 - (a) Use the paint roller, STD-14527.
 - (b) Remove lint from the roller with 2 inch wide masking tape, G50314, or an equivalent, as follows:
 - 1) Attach the end of the tape to a counter top.
 - 2) Remove approximately 4 ft (1.22 m) of the tape from the roll.
 - 3) With the roller installed on the handle, remove lint from the roller by rolling the nap across the adhesive side of the tape making sure to move the roller side to side so that all of the roller surface has been treated.

SUBTASK 51-21-97-370-007

- (3) Apply walkway coating, C50313, with the paint roller, STD-14527, as follows:
 - (a) Put the mixed white walkway coating, C50313, into a paint roller pan.
 - (b) Soak the roller with the coating and roll across the roller pan ribs to remove unwanted coating.
 - (c) Apply approximately 10 ft² (0.93 m²) of the coating before returning to the roller pan for additional material.
 - 1) Use a paint stick to shake the paint in the roller pan to keep the pumice fully dispersed.
 - (d) Apply one or more layers of the nonskid finish to make sure that the dry thickness is between 5 mils (0.127 mm) to 7 mils (0.1778 mm).
- NOTE:** The dry thickness is the distance from the primer to the external surface.
- 1) Let each layer of coating dry for 10 minutes (minimum) at 50°F (10°C) or 5 minutes (minimum) at 70°F (21°C).

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- (e) Remove the masking tape adjacent to the walkway before the coating becomes dry.

NOTE: If the coating is fully dry, some coating will come off with the masking tape.

- 1) Let the coating air dry at a minimum of 70°F (21°C) for 2 hours (minimum) before removing the masking tape.
- (f) Air dry the coating at a minimum of 70°F (21°C) for 2 hours (minimum) before walking on the surface.
- (g) Air dry the coating at a minimum of 70°F (21°C) for 2 hours (minimum) before service.

I. Repair the Nonskid Surface (Small Damaged Areas)

SUBTASK 51-21-97-160-001

- (1) Prepare the area to be repaired, as follows:

NOTE: Repair of damages that are less than 10 percent of the coated area.

- (a) Remove loose material.
- (b) Rub the surface smooth with 100-grit or finer abrasive cloth, B00102.
- (c) Smooth and feather the paint edges with 100-grit or finer abrasive cloth, B00102.



DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR DANGEROUS TO THE ENVIRONMENT. REFER TO MATERIAL-SAFETY-DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR CORRECT HANDLING PROCEDURES.

- (d) Clean the surface with clean cotton wiper, G00034, that is moist with solvent, B00184, or alcohol, B00130.
- (e) Use clean cotton wiper, G00034, to make sure that the surface is fully dry.
- (f) Use tack rag, G50123, if it is necessary to remove unwanted materials.

SUBTASK 51-21-97-370-008

- (2) To apply nonskid finish, do the steps above titled Apply the Non-Skid Finish by Spray Application or Apply the Non-Skid Finish by Roll-on Application.

————— **END OF TASK** —————

TASK 51-21-97-370-802

3. Apply the Epoxy Walkway Coating to the Bulk Cargo Entryway

A. References

Reference	Title
51-21-21-370-801	Prepare the Surface to be Painted (P/B 701)

B. Tools/Equipment

Reference	Description
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

C. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00166	Abrasive - pumice	

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Reference	Description	Specification
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00260	Coating - Chemical And Solvent Resistant Finish, Epoxy Resin Enamel	BMS10-11 Type II
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G50123	Rag - Epoxy Coated Tack Rag - C-60	

D. Prepare the Surface

SUBTASK 51-21-97-370-009

- (1) Prepare the upper surface of the scuff plate assembly to apply the non-skid finish, do this task: Prepare the Surface to be Painted, TASK 51-21-21-370-801.
 - (a) Clean and reactivate the primer.

E. Apply the Non-Skid Finish (Recommended Procedure)

SUBTASK 51-21-97-370-010

- (1) Prepare the non-skid finish.
 - (a) Mix the coating, C00260 with the catalyst.

NOTE: Follow the manufacturers instructions to mix the enamel.

 - 1) Add the thinner if it is necessary to get the proper paint viscosity.
 - (b) Add 1 lb (0.45 kg) of No. 1-1/2 grit pumice abrasive, B00166 to 1 gal (3.8 l) of mixed, ready-to-spray coating, C00260 enamel.
 - 1) Let the mixture stay for one hour from the time you added the catalyst.
 - (c) Before and during the process, continue to shake the mixture of pumice and enamel.
 - 1) This is to make sure that it stays mixed while it is being applied to the surface.

SUBTASK 51-21-97-370-011

- (2) Apply the pumice and enamel mixture with a paint spray gun with interchangeable nozzles, STD-1133 as follows:
 - (a) Apply a cross coat of one layer of the pumice and enamel mixture.

NOTE: Make sure that the surface of the layer is smooth.

 - 1) Let the enamel/pumice dry for 60 minutes (minimum) at 70°F or more.
 - (b) Apply 1-1/2 cross coats (i.e. three wet passes) of coating, C00260 epoxy enamel (without pumice) with the applicable spray equipment.
 - 1) Let the layers of enamel dry for 24 hours (minimum) at 70°F before you move or touch the surface.
 - 2) The layers of enamel must dry for 7 days (minimum) before you walk on the surface.

NOTE: You can make the drying of the last layer shorter when you increase the temperature. This is after it has dried for a minimum of one hour at 70°F (21°C).
 - (c) Carefully remove the masking tape before the layers are fully dry.

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F. Apply the non-skid finish (Optional Procedure)

SUBTASK 51-21-97-370-012

- (1) Prepare the non-skid finish, do this task: Prepare the Surface to be Painted, TASK 51-21-21-370-801.

- (a) Clean and reactivate the primer.

SUBTASK 51-21-97-370-013

- (2) Mix the coating, C00260 with the catalyst.

NOTE: Follow the manufacturers instructions to mix the enamel.

- (a) Add the thinner if it is necessary to get the correct paint spray viscosity.
 - (b) Let the mixed enamel stay for one hour from the time you added the catalyst.
 - (c) Apply the one wet layer of coating, C00260 with a paint spray gun with interchangeable nozzles, STD-1133.
 - (d) Immediately apply the dry No.1-1/2 pumice abrasive, B00166 to a heavy and equal layer.
 - 1) You can apply the dry pumice grit pumice abrasive, B00166 with a Binks No. 171 spray gun with a No. 58-11 tip, or its equivalent.
 - (e) Remove the loose pumice.
 - 1) Tilt the panel, if it is possible, to let the loose pumice fall off.
 - 2) Use compressed air with 10 psi or less pressure.
 - (f) Apply 2 wet layers of coating, C00260 epoxy enamel on the pumice grit with a paint spray gun with interchangeable nozzles, STD-1133.
 - 1) Let the layers of the enamel dry for 24 hours (minimum) at 70°F (21°C) before you move or touch the surface.
 - 2) The layers of enamel must dry for 7 days (minimum) at 70°F (21°C) before you walk on the surface.

NOTE: You can make the drying of the last layer shorter when you increase the temperature. This is after it has dried for a minimum of one hour at 70°F (21°C).

- (g) Make sure that you carefully remove the masking tape before the layers are fully dry.

G. Repair the Nonskid Surface (Small Damaged Areas)

SUBTASK 51-21-97-160-002

- (1) Prepare the area to be repaired as follows:

NOTE: Repair of damages that are less than 10 percent of the coated area.

- (a) Remove loose material.
 - (b) Rub the surface smooth with 100-grit or finer abrasive cloth, B00102.
 - (c) Smooth and feather the paint edges with 100-grit or finer abrasive cloth, B00102.

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DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS CAN BE FLAMMABLE OR DANGEROUS TO THE ENVIRONMENT. REFER TO MATERIAL-SAFETY-DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR CORRECT HANDLING PROCEDURES.

- (d) Clean the surface with a clean cotton wiper, G00034 that is moist with solvent, B00184 or alcohol, B00130.
- (e) Use a clean cotton wiper, G00034 to make sure that the surface is fully dry.
- (f) Use a tack rag, G50123 if it is necessary to remove unwanted materials.

SUBTASK 51-21-97-370-014

- (2) To apply nonskid finish, do the steps above titled Apply the Non-Skid Finish.

———— **END OF TASK** ————

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HEAT, WEATHER AND OIL RESISTANT INORGANIC PROTECTIVE COATING - CLEANING/PAINTING

1. General

- A. This procedure contains the task to apply the inorganic protective coating. This coating gives corrosion protection at a maximum temperature of 900°F (482.2°C).

TASK 51-21-98-300-801

2. Heat, Weather and Oil Resistant Inorganic Protective Coating Application

A. **Consumable Materials**

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00211	Cleaner - Titanium, Bonderite C-AK 4181 Aero (Formerly Turco 4181)	
C00251	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Room Temperature Catalytic Cure)	BMS14-4 Type II

B. **Prepare the Parts**

SUBTASK 51-21-98-150-001



DO NOT GET THE FINISHES, CLEANERS, THINNERS AND SOLVENTS IN YOUR MOUTH OR EYES, OR ON YOUR SKIN OR CLOTHES. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. MAKE SURE THAT THE AIR FLOWS FREELY THROUGH THE WORK-AREA. USE THE NECESSARY RESPIRATORY PROTECTION. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME AND HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY OR DAMAGE.

- (1) Remove the coating.
- (a) Soak the parts fully in Bonderite C-AK 4181 Aero cleaner, B00211 (1-2 pounds (0.5-0.9 kilogram) for each gallon (3.8 liters) of the solution) at 190 to 210°F (87.8-98.9°C) until there is no more coating on the parts.
- (b) Flush the parts with water.
- (c) Put the parts in an oven at 200 (± 25)°F (93.3 ± 13.9°C) to dry.

SUBTASK 51-21-98-110-001

- (2) Clean the parts with solvent.
- (a) For parts made from titanium or its alloys, clean with nonchlorinated solvent.
NOTE: Do not use chlorinated solvent on titanium.
- (b) For parts made from ferrous alloys, clean with solvent or clean by vapor degreasing.

SUBTASK 51-21-98-140-001

- (3) Remove grit with a clean 100 to 250 grit abrasive cloth, B00102 paper.

SUBTASK 51-21-98-160-001

- (4) Clean the parts with compressed air to remove dirt and other contamination.
NOTE: After you clean the parts, do not touch the parts with your bare hands. Use clean, white cotton gloves when you touch the parts.

SUBTASK 51-21-98-950-001

- (5) Put a cover on the parts until you apply the coating.

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- (a) Make sure you apply the coating in 4 hours.

C. Procedure

SUBTASK 51-21-98-370-001

- (1) Apply the inorganic protective coating.
 - (a) Fully mix the material before you use it.
 - (b) Use a spray equipment or an electrostatic spray equipment to apply the coating, C00251 coating.
 - (c) Apply the coating, C00251 until you get a constant, smooth, gray layer.
 - (d) Let the parts dry for 30 minutes at ambient temperature.
 - (e) Put covers on the adjacent areas.
 - (f) Apply one layer of the coating, C00251 catalyst to the surface.
NOTE: Do not mix the coating with the catalyst.
 - (g) Let the surface dry for 16 hours, or 4 hours at 300 (± 50)°F (148.9 ± 27.8 °C).
 - (h) Make sure you can see no bubbles or runs on the dry surface.
 - (i) Make sure the coating is 0.002 to 0.003 inch (0.051-0.076 mm) thick.

SUBTASK 51-21-98-140-002

- (2) Rub the surface with a rigid bristle brush or a soft cloth buffing wheel until you get a smooth, shiny finish.

———— **END OF TASK** ————

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DECORATIVE EXTERIOR PAINT SYSTEM - CLEANING/PAINTING

1. General

- A. This procedure contains these tasks:
- (1) Decorative Exterior Paint System Application
 - (2) Decorative Exterior Paint System Repair
 - (3) Basecoat/Clearcoat Paint System Repair
 - (4) Decorative Exterior Paint System Thickness Measurement (Eddy Current Testing Method).
 - (5) Decorative Exterior Paint System Thickness Measurement (Ultrasonic Testing Method).
- B. A flight test may be necessary after paint of the flight control surfaces. Examine the requirements in the "General" sections of either Elevator Power-Off Flight Test, TASK 27-31-00-710-803 or Flight Test to Find and Correct Asymmetrical Flight Control Forces, TASK 27-11-00-750-801, as applicable. Refer to the SRM 51-60 to find if the re-balance of the control surfaces is necessary.

TASK 51-21-99-300-801

2. Decorative Exterior Paint System Application

A. General

- (1) Do not get paint or primer on the surfaces of these items:
 - (a) Decoupled static dischargers or retainers on the wing and empennage
 - (b) Rain repellent nozzles that are forward of the windshields
 - (c) Rubber mohair seals, rub strips made of stainless steel, anodized handles and door handle pans, or silicone rubber sealant
 - (d) Pressure relief valves or outflow valves
 - (e) Circular bands, 1 in. (25.4 mm) in width, around or on the pressure relief valve doors, or outflow valves
 - (f) Door operating mechanisms, hinge assemblies, and equivalent surfaces
 - (g) Flight deck and main cabin windows
 - (h) Pitot-static probes, static ports, Angle of Attack (AOA) vanes, and Total Air Temperature (TAT) probe
 - (i) Exterior Light Lens Covers.
- (2) Do not let solvents, cleaners, or overspray touch polycarbafil plastic parts.
- (3) Paint should meet the requirements and be in the approved products list (QPL) of BMS10-72 or AMS3095. In addition to this procedure, Boeing specification BAC 5075 provides procedures for decorative exterior paint system application.

B. References

Reference	Title
51-21-21-100-801	Clean the Surface to be Painted (P/B 701)
51-21-21-370-801	Prepare the Surface to be Painted (P/B 701)
51-21-41 P/B 701	CHEMICAL CONVERSION COATING - CLEANING/PAINTING
53-52-00-370-801	Nose Radome Cleaning and Painting (P/B 701)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
B50137	Cleaner - Alkaline, Thickened, acidic, heavy-duty oxidation remover and aluminum conditioner.	AMS 1640B
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G51270	Tape - Masking, Intertape PG777	

E. Decorative Exterior Paint System Application

SUBTASK 51-21-99-500-001

- (1) Put covers on these components:
 - (a) Decoupled static dischargers or retainers on the wing and empennage.
 - (b) Rain repellent nozzles that are forward of the windshields.
 - (c) Rubber mohair seals, rub strips made of stainless steel, anodized handles and door handle pans, or silicone rubber sealant.
 - (d) Pressure relief valves or outflow valves.
 - (e) Circular bands, 1 in. (25.4 mm) in width, around or on the pressure relief valve doors, or outflow valves.
 - (f) Door operating mechanisms, hinge assemblies, and equivalent surfaces.
 - (g) Flight deck on main cabin windows.
 - (h) Pitot-static probes, static ports, AOA vanes, and TAT probe.
 - 1) Attach the tags that follow to the left control wheel in the flight deck.
 - a) "PITOT PROBES COVERED" tag, G02447

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- b) "STATIC PORTS COVERED" tag, G02444
- c) A red tag labeled "AOA SENSORS COVERED".
- 2) Use the pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
- 3) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
- 4) Apply Scotch Flatback Masking Tape 250, G00270, on the TAT probe.
- 5) Do these steps to cover the AOA sensors:
 - a) Cover the angle-of-attack sensors with PG-777 masking tape, G51270.
 - <1> Apply PG-777 masking tape, G51270, over the blade, plate, and blade-to-plate gap.
NOTE: This is for easier removal of 3M 425 aluminum tape.
 - b) Cover the PG-777 masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - <1> Shingle 3M 425 Aluminum Foil Tape, G00291, from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.
- (i) Exterior light lenses.
- (j) Engine inlet, fan exhaust, and turbine exhaust.
- (k) Brakes.
- (l) Tires.

SUBTASK 51-21-99-370-001

- (2) Do this task: Nose Radome Cleaning and Painting, TASK 53-52-00-370-801.

SUBTASK 51-21-99-100-001

- (3) Do this task: Clean the Surface to be Painted, TASK 51-21-21-100-801.

SUBTASK 51-21-99-840-001

- (4) Do this task: Prepare the Surface to be Painted, TASK 51-21-21-370-801.

SUBTASK 51-21-99-370-002

- (5) If the airplane you are painting had paint peeling from the rivet heads, do these steps to improve the paint adhesion:
NOTE: This condition is known as "rivet rash".
 - (a) Use Cee-Bee Brightener B-55, B50137, to chemically etch the clad aluminum skin.
 - 1) Dilute Cee-Bee Brightener B-55, B50137, by mixing it with water.
 - a) Make the solution 10% Cee-Bee Brightener B-55, B50137, and 90% water, by volume.
 - 2) Apply the solution to the surface.
NOTE: If you apply the solution on all of the airplane, start at one end and work to the other.
 - a) Allow the solution to stay on the surface from 20-30 minutes.
NOTE: Do not let the solution stay on any part of the airplane for more than 30 minutes.
 - 3) Rinse the surface with large amounts of water to remove Cee-Bee Brightener B-55, B50137.
 - (b) Apply a chemical conversion coating to the rivet rows (PAGEBLOCK 51-21-41/701).

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SUBTASK 51-21-99-370-003



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USE ONLY APPROVED TRANSPARENT MATERIALS ON THE ACRYLIC WINDOW PANES. PAINT, MATERIALS THAT ARE NOT TRANSPARENT, AND TRANSPARENT MATERIALS THAT ARE NOT APPROVED CAN PREVENT DETECTION OF DAMAGE. THESE MATERIALS CAN ALSO CAUSE DAMAGE TO THE STRUCTURE OF ACRYLIC WINDOWS. THIS CAN MAKE FLIGHT DANGEROUS.

- (6) Apply the decorative exterior paint system as specified by the paint manufacturer's specifications and with the table (Table 701).

Table 701/51-21-99-993-801 Decorative Exterior Paint System Application Specifications

Description	Coating Specification	Application Specification (per manufacturer's instructions)
Chemical & Solvent Resistant Finishes	BMS10-11	BAC 5736
Corrosion Resistant Finish for Integral Fuel Tanks	BMS10-20	BAC 5793
Polyurethane Enamel	BMS10-60	BAC 5845
Exterior Decorative Paint	BMS10-72 or AMS3095	BAC 5075
Urethane Compatible Primer	BMS10-79	BAC 5882

————— **END OF TASK** —————

TASK 51-21-99-300-802

3. Decorative Exterior Paint System Repair

A. References

Reference	Title
51-21-11-150-801	Paint Stripping (P/B 701)

B. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

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C. Procedure

SUBTASK 51-21-99-370-004

- (1) Repair areas with minor damage (no bare metal) as follows:
 - (a) Rub the surface smooth with a 240 grit (minimum) wet or dry abrasive cloth, B00102 paper.
 - (b) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with solvent, B00184 or alcohol, B00130.
 - (c) Dry the surface with a clean cotton wiper, G00034.
 - (d) Apply the applicable primer and topcoats again, if necessary (TASK 51-21-99-300-801).
 - (e) Make sure that you get a smooth continuous surface.

SUBTASK 51-21-99-370-005

- (2) Repair areas with large damage (bare metal) as follows:



CAUTION

DO NOT LET THE PAINT STRIPPER TOUCH FIBERGLASS OR SEAMS OF ADHESIVE BONDED PARTS. THE PAINT STRIPPER CAN CAUSE DAMAGE TO FIBERGLASS OR SEAMS OF ADHESIVE BONDED PARTS.

- (a) Rub the surface smooth with abrasive cloth, B00102, or, do this task: Paint Stripping, TASK 51-21-11-150-801.
- (b) Feather the edges of the adjacent area with a 240 grit (minimum) abrasive cloth, B00102 paper that is moist with water.
- (c) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with solvent, B00184 or alcohol, B00130.
- (d) Dry the surface with a clean cotton wiper, G00034.
- (e) Apply the applicable primer and topcoats (TASK 51-21-99-300-801).
- (f) Feather all the edges to get a smooth continuous finish.

SUBTASK 51-21-99-370-006

- (3) Repair areas with defective paint layers as follows:
 - (a) Rub the surface with a 240 grit (minimum) wet or dry abrasive cloth, B00102 paper to remove defects.
 - (b) Feather the edges into the adjacent areas.
 - (c) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with solvent, B00184 or alcohol, B00130.
 - (d) Dry the surface with a clean cotton wiper, G00034.
 - (e) Apply the applicable topcoats per manufacturer's specifications and Table 701.
 - (f) Feather the edges to get a smooth continuous finish.

————— END OF TASK —————

TASK 51-21-99-370-801

4. Basecoat/Clearcoat Paint System - Repair

A. General

- (1) This task has the procedures that follow:
 - (a) Prepare for the Repair of the Basecoat/Clearcoat Paint System

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- (b) Repair the Aerodur 3001 Basecoat Surface with Damage or Defects
 - (c) Repair the Aerodur 3002 Clearcoat Surface with Damage or Defects
 - (d) Prepare the CRES and Titanium Surfaces for Overcoating
 - (e) Prepare the Aluminum Surfaces for Overcoating
 - (f) Apply the Chemical Conversion Coating
 - (g) Primer BMS10-72, Application
 - (h) Apply Computer Generated Premasks
 - (i) Apply Aerodur 3001 Basecoat
 - (j) Apply the Nonmetallic Special Visual Effects Coating
 - (k) Apply Stencils
 - (l) Apply BMS10-26 Markings
 - (m) Apply BMS10-127, Type I, Grade F
 - (n) Apply Aerodur 3002 Clearcoat
 - (o) Final Appearance Requirements
- (2) The repair surface must be free from moisture, condensation, and rain from surface preparation through Dry-to-Tape time of the final coat of the clearcoat.
- (3) Tack rags may be used as soon as the conversion coating has dried or 15 minutes has elapsed, whichever is greater.
- (4) One hour after application of the conversion coating, or when dry to the touch (whichever is greater), masking materials and markers may be used on the surfaces treated with the conversion coating.
- (5) Primer may be applied to surfaces treated with the conversion coating as soon as the coating has dried or 15 minutes has elapsed, whichever is greater.
- (6) Conversion coating-treated surfaces can be overcoated with primer for up to 168 hours for any combination of ambient or elevated temperature conditions between 55°F (13°C) and 120°F (49°C).
- (a) Surfaces treated with the conversion coating with applied masking tape may be exposed to higher temperatures.
 - (b) Dry all airplane surfaces fully before priming.
- (7) Definitions
- (a) Water-Break-Free Surface
 - 1) If the surface is clean and free from oil, water will lay on the surface in an unbroken film and sheet off. If the surface is not clean, water will bead on the surface (lay on the surface in droplets) or appear as patchy and non-uniform.
 - 2) The surface is considered free of water breaks if the continuous film of water is maintained for approximately 30 seconds.

B. References

Reference	Title
20-10-11-400-801	Pressure-Sensitive Decal Installation (P/B 401)
20-10-61-400-801	Stencil Markings Installation (P/B 401)
51-21-41-370-804	BMS10-128 Coating Application (P/B 701)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1503	Cover - Probe, Pitot Part #: B737-415 Supplier: 1LE67 Part #: KPC3-480-325 Supplier: 0P9C7 Part #: PC737 Supplier: 3BSK6 Part #: PC757-01SB Supplier: 38002 Part #: PCDH8-400 Supplier: 3BSK6 Opt Part #: KPC4-480-325 Supplier: 0P9C7
SPL-2498	Pole - Removal/Installation, Pitot Static Probe Cover Part #: A10002-9 Supplier: 81205 Part #: IP100 Supplier: 0P9C7 Opt Part #: A10002-7 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B50283	Polish - Finishing, Purple, 3M Finesse-It, 51056	
B50284	Polish - Finishing, White, 3M Finesse-It, 13084	
C50085	Coating - Exterior Decorative Paint, high solids, strippable, filiform corrosion, rain erosion resistant, sprayable	BMS10-72 Type IX
C50119	Coating - Metal Conversion Coating (AC-131-CB, 2-Part Clear)	BMS10-128 Type I Class A
C50157	Coating - Sol-Gel (Solution Gelation) Conversion Coating for Paint Application	BMS10-128
G00139	Tape - Protective, Protex 20V	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, 3M 425	AMS-T-23397 / L-T-80
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	
G02444	Tag - Red Paper, "STATIC PORTS COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50262	Wiper - Cleaning	BMS15-5
G50509	Tape - Masking (3M Scotch Fine Line Tape 218)	AMS-T-21595

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Reference	Description	Specification
G51193	Pad - General Purpose, Abrasive Hand Pad, Maroon, Very Fine Grade. (Norton Bear-Tex 747)	
G51224	Pad - Abrasive, Scotch-Brite, Very Fine, Maroon 7447	A-A-58054 Type I Grade A
G51270	Tape - Masking, Intertape PG777	
G51316	Compounding Pad - Wool, Perfect-It 05753	
G51319	Abrasive - Aluminum Oxide, Very Fine, Grade A, Maroon, Non-Woven, Resin Bonded, Scotch-Brite Clean and Finish	

E. Prepare for the Repair of the Basecoat/Clearcoat Paint System

SUBTASK 51-21-99-280-001

- (1) Make sure that the temperature of the repair surface is minimum 35°F (2°C).

SUBTASK 51-21-99-200-001

- (2) Make sure that the repair surface is free from moisture, condensation and rain.

SUBTASK 51-21-99-950-001

- (3) Mask the surface adjacent to the area you will apply the Basecoat/Clearcoat paint system.
- (a) Attach the tags that follow to the left control wheel in the flight deck.
 - 1) "PITOT PROBES COVERED" tag, G02447
 - 2) "STATIC PORTS COVERED" tag, G02444
 - 3) A red tag labeled "AOA SENSORS COVERED".
 - (b) Use the pitot static probe cover removal/installation pole, SPL-2498, to install the pitot probe cover, COM-1503, on the pitot probes.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270, on the static ports.
 - (d) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - 1) Cover the angle-of-attack sensors with PG-777 masking tape, G51270.
 - a) Apply PG-777 masking tape, G51270, over the blade, plate, and blade-to-plate gap.
NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - 2) Cover the PG-777 masking tape, G51270, with 3M 425 Aluminum Foil Tape, G00291.
 - a) Shingle the 3M 425 Aluminum Foil Tape, G00291, from the blade-to-plate gap up to the blade tip until all of the masking tape is covered.

F. Repair the Aerodur 3001 Basecoat Surface with Damage or Defects

SUBTASK 51-21-99-370-007

- (1) If the damage or defect area is small or if there is a small area of overspray, do the steps that follow.
- (a) If it has been less than 2 hours since the application, wipe the damage or defect area with isopropyl alcohol (IPA), methyl propyl ketone (MPK) solvent, B00666, or a 70/30 mixture by volume of MPK solvent, B00666/methyl ethyl ketone (MEK) solvent, B00148.
 - (b) If it has been more than 2 hours since application of Aerodur 3001 Basecoat, or if the damage or defect cannot be removed by wiping the area, do the steps that follow.

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- 1) Sand the area with 180 to 320 grit aluminum oxide/zirconium oxide (stearate-free) abrasive paper.
- 2) Finish sanding with 220 to 320 grit aluminum oxide/zirconium oxide abrasive paper then one of the very fine abrasive pads that follow.
 - a) Scotch-Brite 7447 pad, G51224.
 - b) Scotch-Brite abrasive pad, G51319.
 - c) Norton Bear-Tex 747 abrasive hand pad, G51193.
- (c) Remove contaminants, if necessary.
 - 1) Solvent wipe the area.
 - 2) Power abrade with one of the fine abrasive pads that follow.

NOTE: This is to remove solvent streaks.

 - a) Scotch-Brite 7447 pad, G51224.
 - b) Scotch-Brite abrasive pad, G51319.
 - c) Norton Bear-Tex 747 abrasive hand pad, G51193.
- (d) Remove sanding dust.
 - 1) Wipe the surface with a wiper, G50262, wet with water.
 - 2) Wipe the surface with a clean wiper, G50262.
- (e) Wipe the surface with a tack rag, G50123, or G99R17-22 tack rag.
- (f) Re-apply the primer coating, C50085.
- (g) Re-apply the computer generated premasks, if necessary.
- (h) Re-apply the Aerodur 3001 Basecoat.
 - 1) Make sure that the Aerodur 3001 Basecoat fully covers the primer and the primer overspray.

G. Repair the Aerodur 3002 Clearcoat Surface with Damage or Defects

SUBTASK 51-21-99-370-008

- (1) If the defect can be corrected by buffing, do the steps that follow.
 - (a) Make sure that the Aerodur 3002 Clearcoat has cured for a minimum of 6 hours at temperatures warmer than 110°F (43°C).
 - (b) Buff the Aerodur 3002 Clearcoat with one of the materials that follow.

NOTE: Any abrasive pad, buffing compound, or buffing pads can be used that do not detract from the overall appearance of the surface after buffing.

 - 1) For the first buffing step, use Finesse-It finishing material, B50284, with Finesse-It Natural Buffing Pad 81470 (3 inch, 3M) or Perfect-It compounding pad, G51316.
 - 2) For the final buffing step, use Finesse-It polish, B50283, with Finesse-It Pad 02627 (3 3/4 inch, orange foam, 3M) or Perfect-It Foam Polishing Pad 05707 (8 inch, 3M) for the final buffing step.

SUBTASK 51-21-99-370-009

- (2) If the defect cannot be corrected by buffing, do the steps that follow.
 - (a) Remove the damage or defect.
 - 1) Sand the area with 180 to 240 grit aluminum oxide/zirconium oxide abrasive paper.
 - 2) Finish sanding the area with one of the very fine abrasive pads that follow.

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- a) Scotch-Brite 7447 pad, G51224.
 - b) Scotch-Brite abrasive pad, G51319.
 - c) Norton Bear-Tex 747 abrasive hand pad, G51193.
- (b) Remove contaminants, if necessary.
- 1) Use solvent on a very fine abrasive pad, white cleaning pad, or wiper, G50262.
 - 2) Make sure that the solvent does not dry on the surface.
 - 3) Immediately wipe the area dry with a clean, dry wiper, G50262.
 - 4) Power abrade with one of the very fine abrasive pads that follow.
- NOTE: This is to remove solvent streaks.
- a) Scotch-Brite 7447 pad, G51224.
 - b) Scotch-Brite abrasive pad, G51319.
 - c) Norton Bear-Tex 747 abrasive hand pad, G51193.
- (c) Remove sanding dust.
- 1) Wipe the surface with a wiper, G50262, wet with water or a tack rag, G50123, or G99R17-22 tack rag.
- (d) Prepare the surface for overcoating, if necessary.
- 1) See the procedures for preparing CRES and Titanium surfaces or Aluminum surfaces.
- (e) If the sanding broke into the primer, do the steps that follow.
- 1) Apply the coating, C50085, to the area with no primer.
 - 2) Apply computer generated premasks, if necessary.
 - 3) Apply the Aerodur 3001 Basecoat.
 - a) Make sure to completely cover the primer and primer overspray.
- NOTE: If you do not completely cover the primer and primer overspray, a yellow edge will show through the Aerodur 3002 Clearcoat.
- 4) Apply Nonmetallic Special Visual Effects coating, if necessary.
 - 5) Apply stencils and BMS10-26 markings, if necessary.
 - 6) Apply the BMS10-127, Type I, Grade F, if necessary.
 - 7) Apply the Aerodur 3002 Clearcoat.
 - 8) Apply BMS10-26 markings, if necessary.

H. Prepare the CRES and Titanium Surfaces for Overcoating

SUBTASK 51-21-99-950-002

- (1) Mask the areas adjacent to the work surface.
- (a) Mask the areas that follow if they are adjacent to the work surface.
- 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant

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- 7) Rubber
- 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
- 9) Radomes
- 10) Antenna
- 11) High strength steels
- 12) Gaskets
- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-370-010

(2) Abrade the surface.

- (a) Use progressively finer Bear-Text silicon carbide abrasive discs (or equivalent) or one of the abrasive pads that follow.
 - 1) Scotch-Brite 7447 pad, G51224.
 - 2) Scotch-Brite abrasive pad, G51319.
 - 3) Norton Bear-Text 747 abrasive hand pad, G51193.
- (b) Finish abrading with 220 grit or finer Bear-Text silicon carbide abrasive discs (or equivalent) or one of the abrasive pads that follow.
 - 1) Scotch-Brite General Purpose Hand Pad 7447, 220 grit or finer, aluminum oxide.
 - 2) Scotch-Brite Clean and Finish, 220 grit or finer grade a, aluminum carbide.
 - 3) Norton Bear-Text 747 General Purpose Hand Pad, 220 grit or finer, aluminum oxide.
- (c) Clean the surface using one of the methods that follow.
 - 1) Solvent Clean Method
 - a) Use solvent on a very fine abrasive pad, white cleaning pad, or wiper, G50262.
 - b) Make sure that the solvent does not dry on the surface.
 - c) Immediately wipe the surface dry with a clean, dry wiper.
 - 2) Alkaline Clean Method
 - a) Use one part alkaline cleaner with seven parts water, by volume.
 - b) Clean the surface with alkaline cleaner and very fine abrasive pads or white cleaning pads.
 - c) Make sure that the alkaline cleaner solution does not dry on the surface.
 - d) Rinse the surface with a large quantity of water.

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- <1> Make sure that there is no alkaline cleaner or abrasive residue in the joint and fastener joints.
- e) Check the pH of the surface.
 - <1> Make sure that the pH is between 4.5 and 8.5.
 - <2> If the pH is not between 4.5 and 8.5, continue to rinse the surface with large quantities of water.
- (d) Check for water breaks on the surface.
 - 1) If water breaks occur, do the steps to prepare the CRES and Titanium surfaces again.

I. Prepare Aluminum Surfaces for Overcoating

SUBTASK 51-21-99-370-011

- (1) Deoxidize the surface.
 - (a) Power wet abrade or hand wet abrade the surface with abrasive pads and water.
 - 1) Make sure that the surface ahead of the power abrader is wet with water.
 - 2) Make sure that the surface does not dry before rinsing with water.
 - (b) Rinse the surface with a large quantity of water.
 - (c) If the surface will not be alkaline cleaned, check for water breaks on all surfaces.
 - 1) If there are water breaks on the surface, do the wet abrade procedure again.
 - (d) Alkaline clean the surface (optional).
 - 1) Use one part alkaline cleaner with seven parts water, by volume.
 - 2) Manually clean the surface with very fine abrasive pads or white cleaning pads.
 - 3) Make sure that the alkaline cleaner does not dry on the surface.
 - 4) Rinse the surface with a large quantity of water.
 - a) Make sure that the surface is clean of all alkaline cleaner and abrasive residues.
 - b) Make sure that all joints and fastener areas are clean of all alkaline cleaner and abrasive residues.
 - 5) Check the pH of the surface.
 - a) Make sure that the pH is between 4.5 and 8.5.
 - b) If the pH is not between 4.5 and 8.5, continue to rinse the surface with large quantities of water.
 - 6) Check for water breaks on the surface.
 - a) If there are water breaks on the surface, repeat the alkaline cleaning procedure.

J. Apply the Chemical Conversion Coating

SUBTASK 51-21-99-950-003

- (1) Mask the areas adjacent to the work surface.
 - (a) Mask the areas that follow if they are adjacent to the work surface.
 - 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped

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- 4) Plastic
- 5) Fiberglass
- 6) Sealant
- 7) Rubber
- 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
- 9) Radomes
- 10) Antenna
- 11) High strength steels
- 12) Gaskets
- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-950-004

- (2) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - (a) Cover the angle-of-attack sensors with PG-777 masking tape, G51270.
 - 1) Apply PG-777 masking tape, G51270 over the blade, plate, and blade-to-tape gap (Figure 702).

NOTE: This is to allow easier removal of 3M 425 Aluminum Foil Tape, G00291.
 - (b) Cover the PG-777 masking tape, G51270 with 3M 425 Aluminum Foil Tape, G00291.
 - 1) Shingle the 3M 425 Aluminum Foil Tape, G00291 from the plate up to the blade tip until all of the masking tape is covered.
 - (c) Cover the gasket with PG-777 masking tape, G51270 from the blade-to-tape gap to the outer edge of the gasket.

SUBTASK 51-21-99-370-012

- (3) Prepare the chemical conversion coating using the manufacturer's instructions.

SUBTASK 51-21-99-370-013

- (4) Make sure that the surface temperature is warmer than 55°F (13°C).

SUBTASK 51-21-99-370-014

- (5) Use one of the materials that follow.
 - (a) AC-131-CB metal conversion coating, C50119
 - (b) sol-gel coating, C50157.

SUBTASK 51-21-99-200-002

- (6) Make sure that the application surface is dry.

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SUBTASK 51-21-99-370-015

- (7) Apply the chemical conversion coating (TASK 51-21-41-370-804).

SUBTASK 51-21-99-950-005

- (8) Mask or mark the surface, if necessary.
- (a) Make sure to wait at least one hour after application of the chemical conversion coating, or until the surface is dry to the touch, whichever is greater.

K. Primer BMS10-72, Application

SUBTASK 51-21-99-950-006

- (1) Mask the areas adjacent to the work surface.
- (a) Mask the areas that follow if they are adjacent to the work surface.
- 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant
 - 7) Rubber
 - 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
 - 9) Radomes
 - 10) Antenna
 - 11) High strength steels
 - 12) Gaskets
- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-950-007

- (2) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
- (a) Cover the angle-of-attack sensors with PG-777 masking tape, G51270.
- 1) Apply PG-777 masking tape, G51270 over the blade, plate, and blade-to-tape gap (Figure 702).
- NOTE:** This is to allow easier removal of 3M 425 Aluminum Foil Tape, G00291.
- (b) Cover the PG-777 masking tape, G51270 with 3M 425 Aluminum Foil Tape, G00291.

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- 1) Shingle the 3M 425 Aluminum Foil Tape, G00291 from the plate up to the blade tip until all of the masking tape is covered.
- (c) Cover the gasket with PG-777 masking tape, G51270 from the blade-to-tape gap to the outer edge of the gasket.

SUBTASK 51-21-99-370-016

- (3) Make sure that the temperature is between 65°F (18°C) and 95°F (35°C).

SUBTASK 51-21-99-370-017

- (4) Make sure that the relative humidity is less than 70%.

SUBTASK 51-21-99-370-018

- (5) Make sure to wait at least 15 minutes after the application of the chemical conversion coating, or until the surface is dry to the touch (whichever is greater) before applying the primer.

NOTE: Dark areas, streaks, and drops caused by draining and uneven drying of the chemical conversion coating are acceptable if the final topcoat meets the appearance requirements in the Final Appearance Requirements section.

SUBTASK 51-21-99-370-019

- (6) Make sure that the tools that will be used to apply the primer are flushed with a large quantity of solvent and are dry.

SUBTASK 51-21-99-370-020

- (7) Mix the primer using the manufacturer's instructions.

SUBTASK 51-21-99-370-021

- (8) Apply the primer.
 - (a) Make sure that there is a continuous layer of primer.
 - (b) Make sure that the dry film thickness of the chrome primer is 0.4 to 1.0 mil.
 - (c) Make sure that the dry film thickness of the non-chrome primer is 0.3 to 1.0 mil.

SUBTASK 51-21-99-370-022

- (9) Dry the primer (Table 702).

Table 702/51-21-99-993-802 BMS10-72, Primer Dry Times

MATERIAL DESIGNATION	DRY TIME TO RECOAT OR OVERCOAT ^{*[1]}			RECOMMENDED DRY TIME TO TAPE ^{*[2]}	
	RECOAT/ OVERCOAT MATERIAL	TEMPERATURE	TIME	TEMPERATURE	TIME
Akzo Nobel BMS10-72, Type IX and Type X, Composition C or NC ^{*[4]} Base: 10P20-44M or 10P20-44MNF Curing Solution: EC-291 Thinner: TR-114	--	75°F (24°C) to 120°F (49°C) ^{*[3]}	2 to 48 hours ^{*[5]}	77°F (25°C)	2.5 hours

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Table 702/51-21-99-993-802 BMS10-72, Primer Dry Times (Continued)

MATERIAL DESIGNATION	DRY TIME TO RECOAT OR OVERCOAT ^{*[1]}			RECOMMENDED DRY TIME TO TAPE ^{*[2]}	
	Topcoat and Aerodur 3001 Basecoat	65°F (18°C) to 89°F (32°C) 90°F (32°C) to 120°F (49°C)	2-24 hours 1.5-24 hours	77°F (25°C)	2.5 hours
PRC-DeSoto BMS10-72, Type VIII, Type IX and Type X, Composition NC Base: CA7502A Curing Solution: CA7502B Thinner: CA7502C	Topcoat	105°F (41°C) to 120°F (49°C) followed by 65°F (18°C) to 90°F (32°C)	1-4 hours followed by 12 hours maximum ^{*[6]}		
	Aerodur 3001 Basecoat	105°F (41°C) to 120°F (49°C) followed by 65°F (18°C) to 90°F (32°C)	1-2 hours followed by 24 hours maximum ^{*[6]}		
Akzo Nobel BMS10-72, Type X, composition NC 2 Base: 2111P001 Curing Solution: CS6018 Thinner: TR-114	--	75°F (24°C) to 120°F (49°C) ^{*[3]}	2 to 48 hours	77°F (25°C)	2.5 hours

*[1] If the maximum dry time is exceeded, reactivate the surface.

*[2] Dry-to-tape times are approximate. When you remove the tape, there should be no visible effects on the primer film.

*[3] If the temperature is warmer than 120°F (49°C), reactivate the surface.

*[4] If no composition is specified, use Composition C.

*[5] If BMS10-72, Type IX, Composition C (chromated) primers are to be overcoated with BMS10-72, Type IX, Composition NC (non-chromated) primer, allow the chromated primer to air dry for a minimum of 15 minutes.

*[6] For small area application or small area rework where the risk of appearance problem is low (6 ft² (1 m²) or smaller), a minimum overcoat time of 30 minutes at ambient conditions is allowed.

(a) If the dry time to recoat or overcoat surface is greater than 48 hours, or if the temperature is warmer than 120°F (49°C), reactivate the surface with the steps that follow.

- 1) If there are contaminants on the surface, solvent clean the area.
 - a) Use solvent on a very fine abrasive pad, white cleaning pad, or wiper, G50262.
 - b) Make sure that the solvent does not dry on the surface.
 - c) Immediately wipe the surface dry with a clean, dry wiper, G50262.
- 2) Sand the surface.
 - a) Use progressively finer abrasive paper or very fine abrasive pad.
 - <1> Use one of the materials that follow.
 - <a> 100 grit or finer wet or dry type aluminum oxide paper.
 - 100 grit or finer Bear Tex silicon carbide abrasive disc.
 - <c> Scotch-Brite 7447 pad, G51224.

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- <d> Scotch-Brite abrasive pad, G51319.
- <e> Norton Bear-Tex 747 abrasive hand pad, G51193.
- <f> 100 grit or finer aluminum oxide/zirconium oxide abrasive paper.
- <2> If you use a very fine abrasive pad, use a pneumatic sander.
- b) Finish sanding with 220 grit or finer abrasive paper or a very fine abrasive pad.
 - <1> Use one of the materials that follow.
 - <a> 220 grit or finer wet or dry type aluminum oxide paper.
 - 220 grit or finer Bear Tex silicon carbide abrasive disc.
 - <c> Scotch-Brite 7447 pad, G51224.
 - <d> Scotch-Brite abrasive pad, G51319.
 - <e> Norton Bear-Tex 747 abrasive hand pad, G51193.
 - <f> 220 grit or finer aluminum oxide/zirconium oxide abrasive paper.
 - <2> If you use a very fine abrasive pad, use a pneumatic sander.
- 3) Solvent clean the surface.
 - a) Use solvent on a very fine abrasive pad, white cleaning pad, or wiper, G50262.
 - b) Make sure that the solvent does not dry on the surface.
 - c) Immediately wipe the surface dry with a clean, dry wiper, G50262.

SUBTASK 51-21-99-200-003

- (10) Make sure that the primed surface is free from voids and pinholes when examined at different angles without magnification at a distance less than 10 ft (3 m) away.

L. Apply Computer Generated Premasks

SUBTASK 51-21-99-950-008

- (1) Mask the areas adjacent to the work surface.
 - (a) Mask the areas that follow if they are adjacent to the work surface.
 - 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant
 - 7) Rubber
 - 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.

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- 9) Radomes
- 10) Antenna
- 11) High strength steels
- 12) Gaskets
- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-370-023

- (2) Apply the computer generated premasks.

M. Apply Aerodur 3001 Basecoat

SUBTASK 51-21-99-950-009

- (1) Mask the areas adjacent to the work surface.
 - (a) Mask the areas that follow if they are adjacent to the work surface.
 - 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant
 - 7) Rubber
 - 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
 - 9) Radomes
 - 10) Antenna
 - 11) High strength steels
 - 12) Gaskets
 - (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-370-024

- (2) Mix the Aerodur 3001 Basecoat using the manufacturer's instructions.

SUBTASK 51-21-99-370-025

- (3) Apply the Aerodur 3001 Basecoat.

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- (a) Continue to apply the Aerodur 3001 Basecoat until the dry film thickness is 1.0-2.5 mils.

NOTE: The Aerodur 3001 Basecoat is designed to be applied in a single box or cross coat to a dry film thickness of 2 mils maximum.

NOTE: This measurement does not include primer thickness or thickness of the previously applied coatings.

NOTE: Film thickness may be exceeded for low hiding colors, striping, lettering, logos, or other patterns applied over Aerodur 3001 Basecoat. For these conditions, the maximum average allowable thickness is 9 mils for the total thickness of paint (primer, Aerodur 3001 Basecoat, Aerodur 3002 Clearcoat).

NOTE: There is no minimum time to recoat when you apply multiple coats of the same color.

- 1) The maximum time to recoat is 60 hours for whites and 48 hours for colors.

SUBTASK 51-21-99-200-004

- (4) Make sure that the primer and Aerodur 3001 Basecoat thickness is less than 2.5 mils average.

- (a) Take at least 5 measurements at different locations on a single color layer.
(b) If there are low-hiding colors, striping, lettering, logos, or other patterns applied over the Aerodur 3001 Basecoat, the maximum average allowable thickness for the primer and Aerodur 3001 Basecoat is 6.0 mils.

SUBTASK 51-21-99-370-026

- (5) Cure the Aerodur 3001 Basecoat.

- (a) See Table 703 for recommended dry times.

Table 703/51-21-99-993-803 Aerodur 3001 Basecoat Recommended Dry Times

MATERIAL DESIGNATION	OVERCOAT MATERIAL	DRY TIME TO OVERCOAT			RECOMMENDED DRY TIME TO TAPE ^{*[1]}	
		TEMPERATURE	RELATIVE HUMIDITY	TIME	TEMPERATURE	TIME
Akzo Nobel Base: 3001G Series, Whites Curing Solution: CS6000 Activator Composition: A9002 or A9004	Aerodur 3001 or ECL-G Series over Aerodur 3001	65°F (18°C) to 95°F (35°C)	30-70%	2-48 hours	75 ±5°F (24 ±3°C)	3 hours
		> 100°F (38°C)	--	8 hours maximum		
	BMS10-127, Type I, Grad F/Aerodur 3002 over Aerodur 3001 ^{*[2][3][4]}	65°F (18°C) to 95°F (35°C)	30-70%	2-60 hours		
		> 100°F (38°C)	--	4 hours maximum		
Akzo Nobel Base: 3001G Series, Other than Whites Curing Solution: CS6000 Activator Composition: A9002 or A9004	Aerodur 3001 or ECL-G Series over Aerodur 3001	65°F (18°C) to 95°F (35°C)	30-70%	2-48 hours	75 ±5°F (24 ±3°C)	3 hours
		> 100°F (38°C)	--	8 hours maximum		
	BMS10-127, Type I, Grade F/Aerodur 3002 over Aerodur 3001 ^{*[2][3][4]}	65°F (18°C) to 95°F (35°C)	30-70%	2-48 hours		
		> 100°F (38°C)	--	4 hours maximum		

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- *[1] Dry to tape times are approximate. Tape after removal should not have a visible effect on the film.
- *[2] The time between applications of the Aerodur 3001 Basecoat and Aerodur 3002 Clearcoat can be reduced to 30 minutes for small areas (approximately 6 ft² (1 m²) or less) if the risk of appearance defect is low.
- *[3] If the relative humidity is less than 30% for 8 hours or more after application of the Aerodur 3001 Basecoat, the overcoat window is reduced to 24 hours maximum.
- *[4] Application of BMS10-127, Type I, Grade F, over Aerodur 3001 Basecoat is optional if the time between the application of Aerodur 3002 Clearcoat and Aerodur 3001 Basecoat is less than 16 hours.

SUBTASK 51-21-99-370-027

- (6) If you will apply stencils or BMS10-26, Type IX or XIII, markings directly to the Aerodur 3001 Basecoat, see Table 704 for time between application of Aerodur 3001 Basecoat and application of stencils.

NOTE: Only BMS10-26, Type IX and XIII, markings can be applied before the application of Aerodur 3002 Clearcoat.

Table 704/51-21-99-993-804 Aerodur 3001 Dry Time before Stencil Application

STENCIL/MARKING	TEMPERATURE	TIME BETWEEN APPLICATIONS
Stencil	65°F (18°C) to 95°F (35°C)	2 to 44 hours
BMS10-26, Type IX or XIII		4 to 44 hours

N. Apply the Nonmetallic Special Visual Effects Coating

SUBTASK 51-21-99-950-010

- (1) Mask the areas adjacent to the work surface.
 - (a) Mask the areas that follow if they are adjacent to the work surface.
 - 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant
 - 7) Rubber
 - 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
 - 9) Radomes
 - 10) Antenna
 - 11) High strength steels
 - 12) Gaskets

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- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-370-028

- (2) Make sure that the Aerodur 3001 Basecoat has cured for 10 minutes to 48 hours.

SUBTASK 51-21-99-370-029

- (3) Mix the ECL-G Series Nonmetallic Special Visual Effect coating using the manufacturer's instructions.

SUBTASK 51-21-99-370-030

- (4) Use electrostatic spray equipment with the specifications that follow.

- (a) 1.5 mm fluid nozzle or larger.
(b) Fluid flow rate is 250-350 cc/minute.

SUBTASK 51-21-99-370-031

- (5) Apply the ECL-G Series Nonmetallic Special Visual Effect coating.

- (a) Make sure that the dry film thickness is 1.0-2.0 mils.

NOTE: Film thickness limits may be exceeded for low hiding colors, striping, lettering, logos, or other patterns applied over Aerodur 3001 Basecoat. For these conditions, the maximum average allowable thickness should not be more than 9 mils for the total stack-up of paint (primer, Aerodur 3001 Basecoat, Aerodur 3002 Clearcoat).

NOTE: The dry film thickness measurement does not include primer thickness or thickness of the previously applied coatings.

SUBTASK 51-21-99-370-032

- (6) Cure the ECL-G Series Nonmetallic Special Visual Effect coating.

- (a) Use Table 705 for recommended dry times.

Table 705/51-21-99-993-805 ECL-G Series Nonmetallic Special Visual Effect Coating Dry Times

MATERIAL DESIGNATION	DRY TIME TO OVERCOAT		RECOMMENDED DRY TIME TO TAPE	
	TEMPERATURE	TIME	TEMPERATURE	TIME
Akzo Nobel Base: ECL-G Series Curing Solution: PC-233	65°F (18°C) to 95°F (35°C)	2 to 24 hours	90°F (32°C)	6 hours

O. Apply Stencils

SUBTASK 51-21-99-370-033

- (1) Apply stencils over the ECL-G Series Nonmetallic Special Visual Effect coating or over the Aerodur 3001 Basecoat.

SUBTASK 51-21-99-370-034

- (2) As an option, apply stencils to Aerodur 3001 Basecoat or to the Aerodur 3002 Clearcoat.

SUBTASK 51-21-99-370-035

- (3) Make sure that you do not use Aerodur 3001 Basecoat as a stencil over the Aerodur 3002 Clearcoat.

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SUBTASK 51-21-99-370-036

- (4) If the stencil location is not in an area where speedlines and other decorative markings will be applied, apply stencils when you apply additional colors to the surface.

SUBTASK 51-21-99-370-037

- (5) If you apply stencils over the Aerodur 3002 Clearcoat, make sure that the conditions that follow occur.
- (a) Use coating, C50085 for stencils over Aerodur 3002 Clearcoat.
 - (b) Make sure that the Aerodur 3002 Clearcoat has cured (Table 706).

Table 706/51-21-99-993-806 Aerodur 3002 Clearcoat Cure Times to Stencil

PAINT TYPE/DECAL TYPE	CURE TIME TO STENCIL		MAXIMUM TIME TO STENCIL AFTER HEAT CURE ^{*[1]*[2]}
	TEMPERATURE	TIME	
Aerodur 3002/A9052 Aerodur 3002/A9056	120°F (49°C)	4 hours minimum	24 hours
Aerodur 3002/A9055	120°F (49°C)	6 hours minimum	24 hours

*[1] Stencils must be applied within 24 hours of heat cure at 120°F (49°C).

*[2] Stencils must be applied within 48 hours after heat cure at 120°F (49°C) if BMS10-127, Type I, Grade F, is applied over the Aerodur 3002 Clearcoat.

- (c) Make sure that you apply stencils within 24 hours of heat cure.

SUBTASK 51-21-99-370-038

- (6) Apply the stencils (TASK 20-10-61-400-801).

P. Apply BMS10-26 Markings

SUBTASK 51-21-99-370-039

- (1) As an option, apply BMS10-26 markings to Aerodur 3001 Basecoat or Aerodur 3002 Clearcoat.
- (a) If you apply the BM10-26 markings to Aerodur 3001 Basecoat, use BMS10-26, Type IX or Type XIII, markings only.

SUBTASK 51-21-99-370-040

- (2) Apply the BMS10-26 decal markings as necessary (TASK 20-10-11-400-801).

Q. Apply BMS10-127, Type I, Grade F

SUBTASK 51-21-99-200-005

- (1) Make sure that the ECL-G Series Nonmetallic Special Visual Effect coating has dried for a minimum of 2 hours.

SUBTASK 51-21-99-950-011

- (2) Mask the areas adjacent to the work surface.
- (a) Mask the areas that follow if they are adjacent to the work surface.
 - 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant

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- 7) Rubber
- 8) Windows
 - a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
 - b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
- 9) Radomes
- 10) Antenna
- 11) High strength steels
- 12) Gaskets
- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-370-041

- (3) Mix the BMS10-127, Type I, Grade F, using the manufacturer's instructions.

SUBTASK 51-21-99-370-042

- (4) Make sure that the application temperatures and relative humidity are within the application limits in Figure 701.

SUBTASK 51-21-99-370-043

- (5) Apply BMS10-127, Type I, Grade F.
 - (a) Use one of the tools that follow to apply the BMS10-127, Type I, Grade F.
 - 1) HVLP guns.
 - 2) Air-assisted airless spray guns.
 - 3) Electrostatic spray equipment.
 - (b) Flush all the paint lines and spray guns with solvent.
 - (c) Spray apply the BMS10-127, Type I, Grade F, in a thin, wet film.

SUBTASK 51-21-99-200-006

- (6) If there are defects in the BMS10-127, Type I, Grade F layer, do the steps that follow.
 - (a) Dry the area with clean, compressed air.
 - 1) Make sure that the air is free of oil, moisture, and particulate matter.
 - (b) Remove the dry powder from the defect area with one of the steps that follow.
 - 1) Use a wiper, G50262 wet with methyl propyl ketone (MPK) solvent, B00666 or a 70/30 mixture by volume of MPK solvent, B00666/methyl ethyl ketone (MEK) solvent, B00148.
 - 2) Use a tack rag, G50123 or G99R17-22 tack rag.
 - (c) Re-apply a thin, wet film of BMS10-127, Type I, Grade F.

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SUBTASK 51-21-99-370-044

- (7) Dry the BMS10-127, Type I, Grade F.
- (a) Use Table 707 for recommended dry times.

Table 707/51-21-99-993-807 BMS10-127, Type I, Grade F Recommended Dry Times

MATERIAL DESIGNATION	DRY TIME TO OVERCOAT WITH AERODUR 3002 CLEARCOAT	
	TEMPERATURE	TIME
BMS10-127, Type I, Grade F	Figure 701	30 minutes to 4 hours

- 1) Make sure that the BMS10-127, Type I, Grade F, is dry before you apply Aerodur 3002 Clearcoat.
- 2) The maximum dry time to overcoat with Aerodur 3002 Clearcoat is 24 hours if the conditions that follow are met.
 - a) There are no heat cycles at temperatures warmer than 90°F (32°C).
 - b) There is no contamination, debris, or water on the surface that is coated with BMS10-127, Type I, Grade F.
 - c) There is no contact to the surface with objects that will rub the surface.

NOTE: Examples of objects that can rub the surface are gloves and tack rags.

SUBTASK 51-21-99-200-007

- (8) If you go longer than the maximum dry time to overcoat with Aerodur 3002 Clearcoat, or if there is contamination on the surface, do the steps that follow.
- (a) Remove the BMS10-127, Type I, Grade F.
- 1) Use a wiper, G50262 wet with methyl propyl ketone (MPK) solvent, B00666 or a 70/30 mixture by volume of MPK solvent, B00666/methyl ethyl ketone (MEK) solvent, B00148.
 - (b) Use a tack rag, G50123 or G99R17-22 tack rag, if necessary.
 - (c) Re-apply the BMS10-127, Type I, Grade F.

R. Apply Aerodur 3002 Clearcoat

SUBTASK 51-21-99-370-045

- (1) If you did not apply BMS10-127, Type I, Grade F, make sure that the ECL-G Series Nonmetallic Special Visual Effect coating has dried for a minimum of 30 minutes.

SUBTASK 51-21-99-950-012

- (2) Mask the areas adjacent to the work surface.
- (a) Mask the areas that follow if they are adjacent to the work surface.
- 1) Areas that will not be painted
 - 2) Previously painted surfaces
 - 3) Openings where liquids can be trapped
 - 4) Plastic
 - 5) Fiberglass
 - 6) Sealant
 - 7) Rubber
 - 8) Windows

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- a) Cover the windows with Protex P-5 10V paper, Protex 20V tape, G00139, or 8216-2L masking material.
 - <1> Make sure that the cover extends over the forging.
- b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 masking tape, G51270 to seal the edge of the paper or film to the outer edge of the forging.
 - <1> Make sure that the tape is at least 1 in. (25 mm) wide.
 - <2> Use a squeegee to make sure that the tape does not lift from the forging.
- 9) Radomes
- 10) Antenna
- 11) High strength steels
- 12) Gaskets
- (b) If you will mask surfaces coated with chemical conversion coating, make sure that it has been 1 hour since the chemical conversion coating was applied or that the surface is dry to the touch (whichever is greater).

SUBTASK 51-21-99-370-046

- (3) Mix the Aerodur 3002 Clearcoat using the manufacturer's instructions.

SUBTASK 51-21-99-370-047

- (4) Apply the Aerodur 3002 Clearcoat.
 - (a) Make sure to apply the Aerodur 3002 Clearcoat in a continuous coat.

NOTE: A non-continuous layer of Aerodur 3002 Clearcoat may lead to decreased fluid resistance and paint failure.
 - (b) Make sure that the dry film thickness is 1.2.-2.0 mils.

NOTE: A dry film of Aerodur 3002 Clearcoat below the minimum dry film thickness may lead to decreased fluid resistance and paint failure.

NOTE: If the dry film thickness of Aerodur 3002 Clearcoat is greater than 2.0 mils, the clearcoat may result in micro-blistering or form tear drops or drips from the tape lines and paint edge.
 - (c) If you apply more than one layer of Aerodur 3002 Clearcoat, the minimum time between coats at a temperature of 73°F (23°C) is as follows.
 - 1) When A9052 activator is used: 10 minutes.

NOTE: Two coats of Aerodur 3002 Clearcoat can be applied. Use the A9052 activator to achieve good appearance.
 - 2) When A9055 activator is used: 30 minutes.

NOTE: Two coats of Aerodur 3002 Clearcoat can be applied. Use the A9055 activator to achieve good appearance.
 - 3) When A9056 activator is used: 20 minutes.

NOTE: Two coats of Aerodur 3002 Clearcoat can be applied. Use the A9056 activator to achieve good appearance.
 - 4) If you do the repair in cold weather or outdoors, use A9050 activator for small area application.
 - a) See Table 708 for the recommended dry time to tape.

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SUBTASK 51-21-99-200-008

- (5) Make sure that the thickness of the Aerodur Basecoat/Clearcoat Paint System, including the primer, Aerodur 3001 Basecoat, BMS10-127, Type I, Grade F, and Aerodur 3002 Clearcoat is 6.0 mils maximum.

- (a) Take measurements at a minimum of 5 different locations on a single color.
- (b) If low hiding colors were used, make sure that the dry film thickness is 9.0 mils average maximum.

NOTE: The dry film thickness may be greater than 6.0 mils if the items that follow were applied on top of the Aerodur 3001 Basecoat: low hiding colors, striping, lettering, logos, other patterns.

- 1) Take measurements at a minimum of 5 different locations on a single color.

SUBTASK 51-21-99-370-048

- (6) Dry and cure the Aerodur 3002 Clearcoat.
- (a) See Table 708 for the recommended dry times.

Table 708/51-21-99-993-808 Aerodur 3002 Clearcoat Recommended Dry Times

MATERIAL DESIGNATION	DRY TIME TO OVERCOAT			RECOMMENDED DRY TIME TO TAPE ^{*[1]}			
	Overcoat Material	Temperature	Time	Material	Temperature	Relative Humidity	Time
Akzo Nobel Clearcoat Base: 3002G002 Curing Solution: CS6003 Activator Composition: A9055, ^[2] A9056 ^[3] , A9052 ^[3] , A9050 ^[4]	ECL-G Series or Aerodur (38°C) ^[5] or Aerodur 3001 or Aerodur 3002 over Aerodur 3002	Ambient cure at 65°F (18°C) to 95°F (35°C) ^[5]	10–24 hours	A9052	120 ±10°F (49 ±6°C)	13% ± 5%	4 hours
					75 ±5°F (24 ±3°C)	--	10 hours
		Heat Cure with A9052 and A9056: T > 100°F (38°C) ^[5] ^[6] followed by T < 85°F (29°C) ^[5] ^[6]	4 hours followed by 8 hours maximum	A9056	120 ±10°F (49 ±6°C)	13% ± 5%	4 to 50 hours
					75 ±5°F (24 ±3°C)	--	11 hours
		Heat Cure with A9055 T > 100°F (38°C) ^[5] ^[7] followed by T < 85°F (29°C) ^[5] ^[7]	6 hours followed by 8 hours maximum	A9055	120 ±10°F (49 ±6°C)	13% ± 5%	6 hours
					75 ±5°F (24 ±3°C)	--	16 hours
				A9050	65°F (18°C) to 75°F (24°C)	--	2 hours
					35°F (2°C) to 50°F (10°C)	--	8 hours

*[1] Dry-to-tape times are approximate. Tape after removal should have no visible effect on the film.

*[2] Use A9056 Clearcoat activator with an air spray gun or HVLP spray gun.

*[3] Use A9052 Clearcoat activator for small part application or with an air spray gun or HVLP spray gun.

*[4] Use A9050 for outdoor rework only.

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- *[5] When BMS10-72, Type IX, is applied as a stencil paint over Aerodur 3002 Clearcoat, the overcoat window may be extended to 24 hours (or 48 hours by applying BMS10-127, Type I, Grade F, over the Aerodur 3002 Clearcoat prior to application of the BMS10-72, Type IX, stencil paint). The overcoat window timeframe is applicable if the temperature has not exceeded 100°F (38°C) for more than 6 hours during the overcoat time. If the temperature has exceeded 100°F (38°C) for more than 6 hours, the surface must be abraded before application of stencil paint.
- *[6] For A9052 or A9056, heat cure at temperatures warmer than 100°F (38°C) for 4 hours, followed by curing at temperatures colder than 85°F (29°C) for 8 hours maximum.
- *[7] For A9055, heat cure at temperatures warmer than 100°F (38°C) for 6 hours followed by curing at temperatures colder than 85°F (29°C) for 8 hours maximum.

(b) See Table 709 for the recommended cure times before flight.

Table 709/51-21-99-993-809 Aerodur 3002 Clearcoat Cure Times Before Flight

CLEARCOAT/CLEARCOAT ACTIVATOR	CLEARCOAT CURE TIME BEFORE FLIGHT (HOURS)		
	Cure Time After the Application of Clearcoat, 65°F (18°C) to 95°F (35°C)	Cure Time After the Application of Clearcoat, 50°F (10°C) or Colder	Additional Ambient Cure Time after One Heat Cycle*[1]
Aerodur 3002G00002/A9055 Clearcoat	45	--	36
Aerodur 3002G00002/A9056 Clearcoat	36	--	24
Aerodur 3002G00002/A9052 Clearcoat	24	--	0
Aerodur 3002G00002/A9050 Clearcoat	4	36	--

*[1] One heat cycle for Aerodur 3002 Clearcoat with A9052 is 4 hours at 120°F (49°C), with A9056 is 4 hours, and with A9055 is 6 hours.

(c) See Table 710 for the recommended cure times before stencil application.

Table 710/51-21-99-993-810 Cure Times before Stencil Application

COATING MATERIAL	TEMPERATURE	TIME
A9052	120°F (49°C)	4-24 hours
A9056		4-24 hours
A9055		6-24 hours

(d) See Table 711 for the recommended cure times before decal application.

Table 711/51-21-99-993-811 Cure Times Before Decal Application

PAINT TYPE/DECAL TYPE		CLEARCOAT CURE TIME PRIOR TO DECAL APPLICATION (HOURS)	
		Ambient Cure Time After the Application of Aerodur 3002 Clearcoat	Additional Ambient Cure Time After One Heat Cycle*[1]
Aerodur 3002G00002/A9052 Clearcoat	All decals, excluding BMS10-26, Type XIII	24	24
	BMS10-26, Type XIII	24	0

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Table 711/51-21-99-993-811 Cure Times Before Decal Application (Continued)

PAINT TYPE/DECAL TYPE		CLEARCOAT CURE TIME PRIOR TO DECAL APPLICATION (HOURS)	
Aerodur 3002G00002/A9056 Clearcoat	All decals, excluding BMS10-26, TYPe XIII	48	48
	BMS10-26, Type XIII	30	4
Aerodur 3002G00002/A9055 Clearcoat	All decals, excluding BMS10-26, TYPe XIII	72	64
	BMS10-26, Type XIII	36	0

*[1] One heat cycle for Aerodur 3002 Clearcoat with A9052 is 4 hours at 120°F (49°C), with A9056 is 4 hours, and with A9055 is 6 hours.

S. Final Appearance Requirements

SUBTASK 51-21-99-200-009

- (1) If there are visible defects (dry spray, overspray) in the Aerodur 3001 Basecoat, they are acceptable if they are not visible after you apply Aerodur 3002 Clearcoat.

SUBTASK 51-21-99-700-001

- (2) Make sure that you do not do cohesion tests on the Aerodur 3001 Basecoat layer. Do adhesion tests on the Aerodur 3002 Clearcoat layer.

SUBTASK 51-21-99-200-010

- (3) To determine the Aerodur 3001 Basecoat thickness, take the difference between the total inspection thickness allowed and the average primer thickness that is measured.

SUBTASK 51-21-99-200-011

- (4) To determine the Aerodur 3002 Clearcoat thickness, take the difference between the total inspection thickness allowed and the sum of the primer thickness and the Aerodur 3001 Basecoat thickness.

————— **END OF TASK** —————

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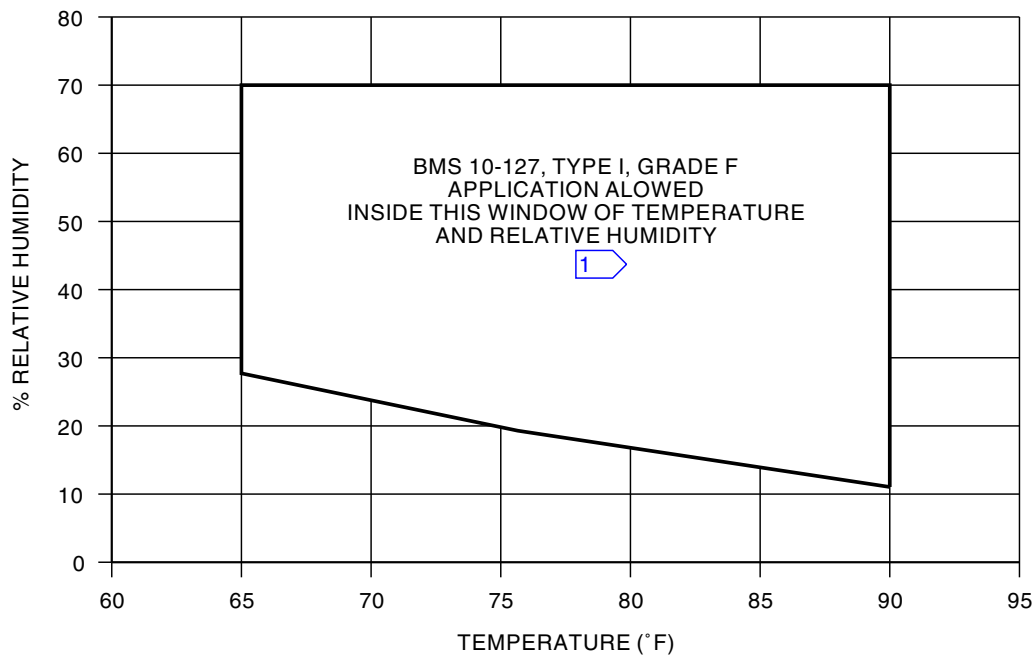
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BMS 10-127, TYPE I, GRADE F APPLICATION WINDOW

1 THE TEMPERATURE AND HUMIDITY RANGES SHOWN REPRESENT THE LIMITS FOR THE APPLICATION TO ASSURE OVERCOAT TOPCOAT ADHESION. THESE LIMITS DO NOT TAKE INTO ACCOUNT EQUIPMENT CONTROL TOLERANCES. DEPENDING ON EQUIPMENT SET POINT ACCURACY, IT MAY BE NECESSARY TO SET CONTROL LIMITS INSIDE THE LIMITS SHOWN.

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10-127, Type I, Grade F, Application Window
Figure 701/51-21-99-990-801

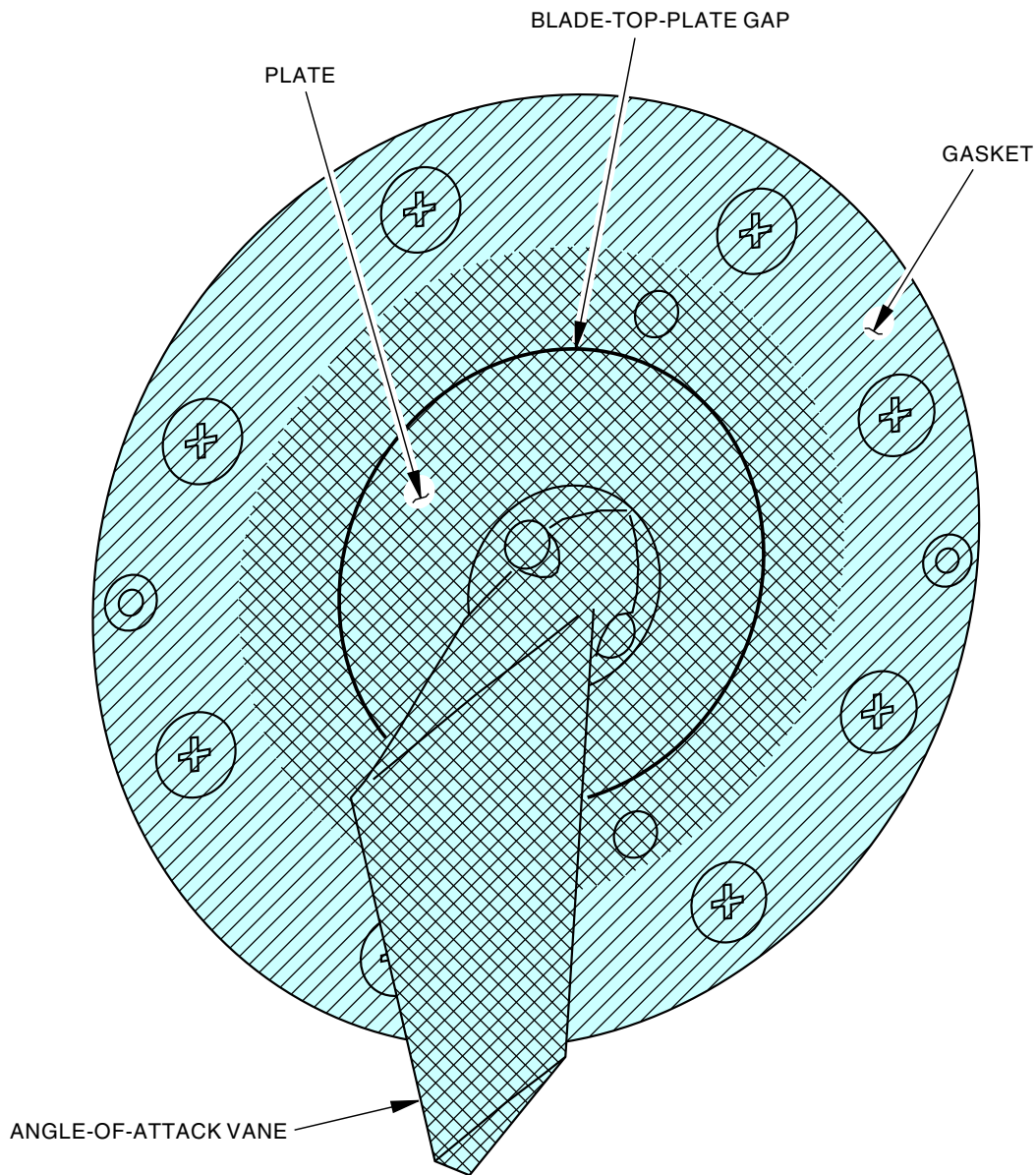
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MASK AREA FOR TEMPORARY PROTECTIVE COATING REMOVAL, FUSELAGE CLEANING AND APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.



ADDITIONAL MASK AREA FOR APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.

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Angle-of-Attack Vane Tape Application Area
Figure 702/51-21-99-990-802

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TASK 51-21-99-250-801

5. Decorative Exterior Paint System Thickness Measurement (Eddy Current Testing Method).

A. Procedure (Eddy Current Method)

NOTE: This task is intended to supplement test equipment manufacturers' instructions for the manual operation of the test equipment, and is not intended to replace them.

SUBTASK 51-21-99-100-002

(1) Prepare for the Inspection.

- (a) Get access to the inspection area.
- (b) Remove loose paint, dirt and sealant from the surface of the part to be examined.
- (c) Make sure that the temperature in the area where the material will be examined is between 40°F (4°C) and 90°F (32°C) and will not change during the test. Do not do a test of the material in direct sunlight or in a cool airflow.

NOTE: Changes in material temperature will change the conductivity.

SUBTASK 51-21-99-820-001

(2) Calibrate the Instrument.

NOTE: Different test equipment manufacturers follow different procedures of calibration or adjustment. Check calibration according to manufacturer's instructions.

- (a) To decrease the risk of errors caused by temperature, put the instrument, probe, reference standards, and the material to be examined at the location where the inspection will be done.
- (b) Use nonconductive thickness shims to check calibration or test blocks bearing calibrated nonconductive coatings that are traceable to a suitable National Institute of Standards and Technology (NIST) or equivalent regional standards authority.
- (c) Make sure that the instrument, probe, reference standards, and the material to be examined are at the same temperature.
- (d) Measure the thickness of a series of non conductive shims with the possible range of coating thickness.
 - 1) Examine the test equipment at regular intervals to prevent an inaccurate reading.

SUBTASK 51-21-99-250-001

(3) Measure the paint thickness as follows:

- (a) Make sure that the test equipment probe and area to be measured are clean and free of unwanted material.
- (b) Get multiple readings on the bare surface (areas free from paint) to establish the base reference.
- (c) Identify the minimum distance the test equipment must be from edges, fasteners, ridges or other structures and the curvature limit that can cause an abnormal measurement change.

NOTE: This prevents incorrect indications on the test equipment.

- (d) Get multiple readings on the coated surface to establish the paint thickness measurement.

SUBTASK 51-21-99-970-001

(4) Report the data as follows (if necessary):

- (a) Instrument used, serial number.

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- (b) Range, mean average of the thickness indications.
- (c) Record each indication if necessary.

————— **END OF TASK** —————

TASK 51-21-99-270-801

6. Decorative Exterior Paint System Thickness Measurement (Ultrasonic Testing Method).

A. Procedure (Ultrasonic Method)

SUBTASK 51-21-99-100-003

NOTE: This task is intended to supplement test equipment manufacturers' instructions for the manual operation of the test equipment, and is not intended to replace them.

- (1) Prepare for the Inspection.
 - (a) Get access to the inspection area.
 - (b) Remove loose paint, dirt and sealant from the surface of the part to be examined.

NOTE: Rough surfaces can give incorrect indications. The area must be smooth.

SUBTASK 51-21-99-820-002

- (2) Calibrate the Instrument.

NOTE: Different test equipment manufacturers follow different procedures of calibration or adjustment. Check calibration according to manufacturer's instructions.

- (a) A couplant is necessary to transmit the ultrasonic pulse from the test equipment's probe into the coating. The couplants that follow can possibly be used with the test equipment:

NOTE: For specific information on the use of couplants, refer to the test equipment's instructions.

- 1) Water.
 - a) Ideal for smooth, thin coatings.
- 2) Glycol gel.
 - a) For rough coatings, provided it is not a contaminant for the coating to be measured.
- 3) Other liquids such as liquid soap can be used.
- (b) Use nonconductive thickness shims to check calibration or test blocks bearing calibrated nonconductive coatings that are traceable to a suitable National Institute of Standards and Technology (NIST) or equivalent regional standards authority.
- (c) Although most ultrasonic instruments are pre-calibrated, accuracy should be verified by measuring a known thickness of the coating (reference standard) as determined by:
 - 1) A thickness equal to or more than the coating thickness range to be measured.
 - a) Check the test equipment at regular intervals to prevent an inaccurate reading.

SUBTASK 51-21-99-270-001

- (3) Measure the paint thickness as follows:
 - (a) Make sure that the test equipment probe and area to be measured are clean and free of unwanted material.
 - (b) Apply couplant to the area.
 - (c) Put the instrument's probe flat on the surface and apply constant pressure. Hold the probe steady during the measurement.

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- (d) Get multiple readings on the bare surface (areas free from paint) to establish the base reference.
- (e) Identify the minimum distance the test equipment must be from edges, fasteners, ridges or other structures and the curvature limit that can cause an abnormal measurement change.

NOTE: This prevents incorrect indications on the test equipment.

- (f) Get multiple readings on the coated surface to establish the paint thickness measurement.
- (g) Remove the couplant used in the procedure.

SUBTASK 51-21-99-970-002

- (4) Report the data as follows (if necessary):
 - (a) Instrument used, serial number.
 - (b) Type of base material.
 - (c) Type of coating.
 - (d) Range, mean average of the thickness indications.
 - (e) Record each indication if necessary.

———— **END OF TASK** ————

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SEALS AND SEALING - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) Prepare for sealing
- (2) Non-removable faying (mated) surface seal application
- (3) Removable faying (mated) surface seal application
- (4) Repair of insufficient faying (mated) sealant squeeze out at shear tie and stringer locations
- (5) Injection seal application
- (6) Hole and slot seal application
- (7) Fillet seal application
- (8) Fillet seals repair
- (9) Transition seal application
- (10) Transition seal repair
- (11) Fastener seal application
- (12) Aerodynamic smoother application
- (13) Electrical fitting seal application
- (14) Fuel seal application
- (15) Protection for sealant materials
- (16) Accelerate curing
- (17) Chemical sealant removal
- (18) Excess sealant removal
- (19) 3M SR cutter sealant removal.
- (20) Bron Aerotech cutter sealant removal

B. Sealant prevents leakage of fluids and gases.

- (1) Listen for an air leak during a fuselage pressure check to help you find the location of the air leakage.
- (2) Look for fluids or stains that are on the dry side of the structural members to help you find the location of the fluid leakage.

C. Do not cause blockage to the drain holes when you apply the sealant.

- (1) There are drain (limber) holes in the fuselage stringers and fuselage frames.
 - (a) The drain holes permit fluids and condensation to drain down to the external (overboard) drains that are on the bottom of the airplane.

TASK 51-22-00-160-801

2. Prepare For Sealing

(Figure 201, Figure 202, Figure 203, Figure 204, Figure 206, Figure 207, Figure 208)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
COM-4747	Pneumatic Scraper Sharpener Part #: 501/1 Supplier: F6892 Opt Part #: 309/3 Supplier: F6892

B. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00137	Abrasive - Garnet Coated Paper	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G50260	Sandpaper - Aluminum Oxide, 220 Grit	
G50261	Sandpaper - Aluminum Oxide, 400 Grit	BAC5000
G50262	Wiper - Cleaning	BMS15-5

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C. Procedure

SUBTASK 51-22-00-350-001

- (1) If structural repair is necessary on the airplane structure, refer to the Structural Repair Manual (SRM).

SUBTASK 51-22-00-210-001

- (2) Examine the seal in the area where there is a leak.
 - (a) Identify the seal surface and the seal plane in the adjacent structure.

NOTE: The seal plane is the limit plane through the assembly of Structural Items where you find a continuous flow of fluids or gases.
 - (b) Identify the type of seal necessary to do the repair.



CAUTION

DO NOT MIX THE SEALING MATERIALS. THE SEALING MATERIALS CAN CONTAMINATE EACH OTHER. THIS CAN CAUSE AN UNSATISFACTORY BOND AND DAMAGE TO EQUIPMENT.

- (c) Identify the type of sealant that is used in the damaged area.

SUBTASK 51-22-00-160-001



CAUTION

ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- (3) Remove all of the sealant from the damaged area.
 - (a) Remove the loose pieces of the sealant from the damaged areas.
 - (b) Use a sealant removal tool, COM-2481, and sealant removal tool handle, COM-4746.
 - (c) If necessary, do these steps to sharpen the scraper.
 - 1) Sharpen the scraper with sandpaper, G50260, or finer by hand or by metal sharpening wheel (scraper sharpener, COM-4747).
 - 2) If you sharpen the scraper by hand, rub the sharpened scraper on a wiper, G50262, to remove loose sanding particles.
 - 3) If you use a metal sharpening wheel, rub the sharpened scraper on sandpaper, G50261, or finer aluminum oxide paper to remove debris, and then rub it on wiper, G50262, to remove loose sanding particles.

SUBTASK 51-22-00-160-002

- (4) Clean the area before you apply the sealant:
 - (a) Remove shavings, chips, and other loose materials with a vacuum cleaner.



WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (b) Remove the grease, oil, dirt, and other contamination with a cotton wiper, G00034 or a moist with solvent, B00184 or solvent, B00148.

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- 1) Make sure that you use only solvent, B00083, to clean on or around acrylic surfaces.

NOTE: Make sure that you clean an area that is larger than the area to be sealed.

- (c) Do these steps to clean enamel painted surfaces.

- 1) Abrade (sand) the surface with a abrasive mat, G00251, (100 grit or finer) to remove the gloss of the paint.

NOTE: Do not abrade (sand) through the paint.

- (d) Do the steps that follow to clean composite laminate surfaces that are unpainted.

- 1) Clean the surface with a cotton wiper, G00034, that is wet with solvent, B00184 or solvent, B00148.

- 2) Abrade (sand) the surface with a 150 grit (or finer) abrasive, B00137.

- 3) Wipe the surface with a cotton wiper, G00034, that is damp with solvent.

- a) Make sure that the surface is clean and dry.

- (e) Do the steps that follow to clean the area immediately before you apply the sealant.

NOTE: These steps apply to composite laminate surfaces that are painted.

- 1) Make sure that you clean an area that is larger than the area necessary to apply the sealant.

- 2) Make sure that you use a clean cotton wiper, G00034, that is moist with solvent, B00184 or solvent, B00148.

NOTE: Before the solvent dries, wipe the area again with a clean, dry cotton wiper, G00034.

- 3) Continue to clean the area with a clean cotton wiper, G00034, until there is no sign of grease, oil, dirt, or other contamination.

NOTE: There can be signs of primer on the wiper cloth because primer is not a sign of contamination.

- 4) Make sure that the solvent is removed from the area with a dry, clean cotton wiper, G00034, before the solvent dries.

- 5) If a large quantity of primer was accidentally removed from the area, apply more primer to the area after you apply the sealant .

- 6) Make sure that the sealant is removed completely to expose the surface.

————— **END OF TASK** —————

TASK 51-22-00-390-801

3. Non-Removable Faying (Mated) Surface Seal Application

(Figure 201)

A. General

- (1) Make sure that the area is clean before you apply the sealant.
- (2) Prepare the tools and equipment that are necessary to apply the sealant.
- (3) Do not mix the tools you use for silicone with the tools you use for the non-silicone materials.
- (4) Do not apply the materials, which are used to smooth, fair, and seal, on the zinc chromate primer until the primer is hard and strong.

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B. Procedure

SUBTASK 51-22-00-840-001

- (1) Do this task: Prepare For Sealing, TASK 51-22-00-160-801.

SUBTASK 51-22-00-390-001



DO NOT CAUSE A BLOCKAGE WHEN YOU APPLY SEALANT NEAR OR AROUND THE FUSELAGE DRAIN HOLES, TUBES, OR PATHS. THE FUNCTION OF THE DRAIN HOLES IS TO DRAIN CONDENSATION AND FLUIDS OVERBOARD. IF YOU CAUSE A BLOCKAGE, FLUIDS WILL COLLECT IN THE AIRPLANE. THE FLUIDS CAN CAUSE CORROSION TO THE STRUCTURE, OR A FIRE IF THE FLUIDS ARE FLAMMABLE.

- (2) Apply the sealant to one surface with a sealant gun, spatula (Boeing Tool Number ST982 for example), brush, roller, smooth or serrated paper, or spray gun.

NOTE: A roller is the recommended procedure to get an equal thickness.

- (a) Make sure that you apply the sealing compound on the full area of the faying (mated) surface.

NOTE: The thickness of the sealing compound must be 0.005 in. (0.127 mm). If necessary, the sealing compound thickness can be between 0.010 in. (0.254 mm) and 0.030 in. (0.762 mm) depending on fit-up of parts.

SUBTASK 51-22-00-390-002

- (3) Put the component parts together.

- (a) Install fasteners to keep the surfaces together using one of the steps that follow.

- 1) Install permanent fasteners in all holes.
- 2) If you cannot install permanent fasteners in all holes, install temporary fasteners.
 - a) Make sure that the temporary fasteners are installed until the sealant is fully cured.
 - b) Install permanent fasteners where the temporary fasteners were installed.

SUBTASK 51-22-00-390-003

- (4) If you will seal the fasteners, make sure that you install them during the application time of the sealing compound.

SUBTASK 51-22-00-390-004

- (5) If you cannot install the permanent fasteners before the application time of the sealing compound ends, use temporary fasteners to hold the parts together until the sealing compound dries.

SUBTASK 51-22-00-390-005

- (6) Install the permanent fasteners with the new sealant.

SUBTASK 51-22-00-390-006

- (7) Apply the sealant on the fastener or in the hole.

SUBTASK 51-22-00-390-007

- (8) Make sure that you apply clamps to squeeze the beads of sealant to show a continuous and equal squeeze-out.

SUBTASK 51-22-00-390-008

- (9) Make sure that the faying (mated) surface is smooth and the squeeze out is approximately 0.06 in. (1.52 mm) along the joint.

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- (a) If the squeeze out is insufficient at shear tie and stringer locations of the fuselage, do this task: Repair of Insufficient Faying (Mated) Sealant Squeeze Out at Fuselage Shear Tie and Stringer Locations, TASK 51-22-00-390-803.

———— **END OF TASK** ————

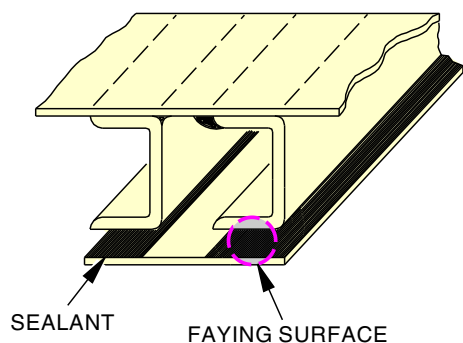
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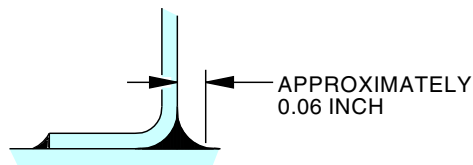
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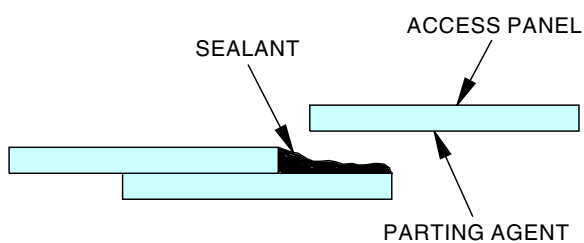


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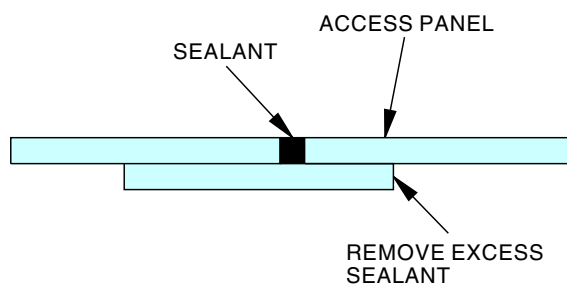


FAYING SURFACE

A

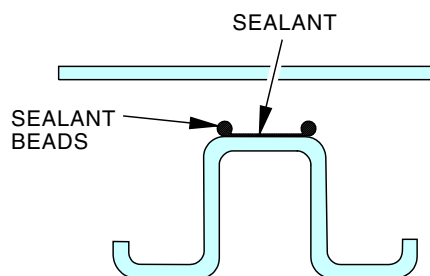
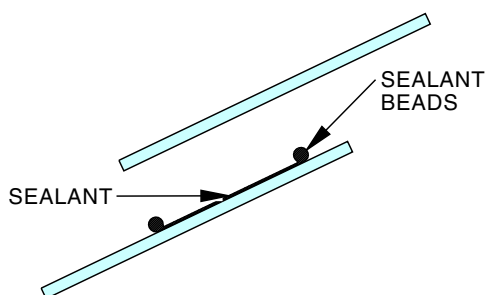


STEP 1



STEP 2

**REMOVABLE SEALS
(THE SEAL IS APPLIED IMMEDIATELY BEFORE THE
ACCESS PANEL IS INSTALLED)**



FAYING SURFACE SEALANT WITH SEALING BEADS ADDED

2415629 S00061538528_V1

Faying Surface Seal
Figure 201/51-22-00-990-801 (Sheet 1 of 2)

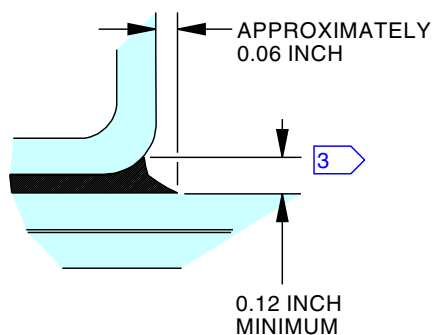
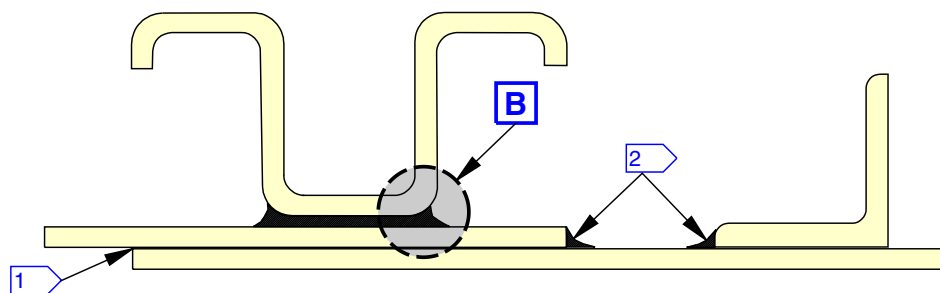
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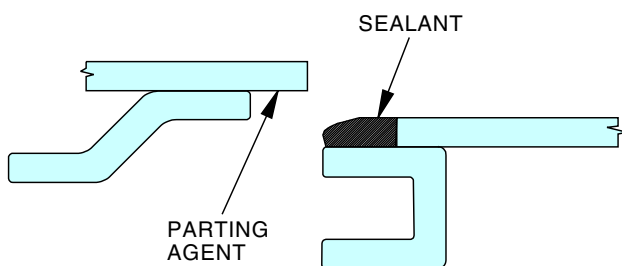
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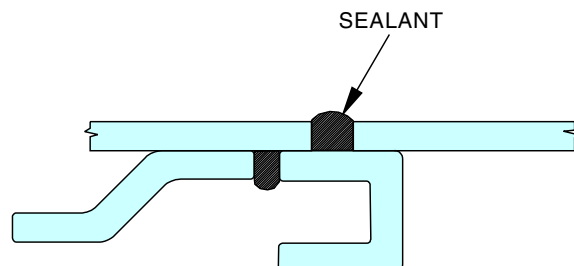
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B



STEP 1



STEP 2

- 1 EXTERNAL BODY SECTION AND FUEL SIDE OF WING SPAR.
- 2 MAKE SURE THE FAIRED-OUT EXTRUDED SEALANT IS APPROXIMATELY AS SHOWN.
- 3 THIS SHOWS SEALANT EXTRUDED AFTER THE ASSEMBLY AND FAIRED WITH A FAIRING TOOL.

2415630 S00061538529_V1

Faying Surface Seal
Figure 201/51-22-00-990-801 (Sheet 2 of 2)

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TASK 51-22-00-390-802

4. Removable Faying (Mated) Surface Seal Application

A. General

- (1) You must clean all of the equipment before and after you apply the sealing compound.
- (2) When sealing compounds are used with an activator, you must clean the equipment before the compounds become hard.
- (3) Do not mix the tools that you use for silicone with the tools you use for non-silicone materials.
- (4) Do not apply the smoothing, fairing, and sealing materials on the zinc chromate primer until the primer is hard and strong.

B. Consumable Materials

Reference	Description	Specification
G50365	Agent - Peelable Parting (AC Products - AC962-73C) Production discontinued, use stock until depleted.	BAC5000
G50366	Agent - Parting, Peelable, AZ 534-2B (0A3C8 - Aztec Chemical, Inc., El Monte, CA)	BAC5000, PSD 6-187
G50367	Agent - Peelable Parting (Aztec Chemical AZ 634-2)	MIL-PRF-6799, BAC5000
G50368	Agent - Peelable Parting (Rexco Chemical Company - Partall Coverall Film)	BAC5000
G50369	Coating - Alkaline Removable, Water Resistant	BMS15-12 Type I Class 1

C. Procedure

SUBTASK 51-22-00-940-001

- (1) Do this task: Prepare For Sealing, TASK 51-22-00-160-801.

SUBTASK 51-22-00-390-009

 CAUTION	DO NOT LET WET PARTING AGENT TOUCH AN ACRYLIC SURFACE. IF A WET PARTING AGENT DOES TOUCH AN ACRYLIC SURFACE, DAMAGE CAN OCCUR.

- (2) Apply one of the parting agents listed to one of the mating surfaces. If one of the mating surfaces is acrylic, apply the parting agent to the non acrylic surface.
 - (a) AC962-73C peelable parting agent, G50365
 - (b) peelable parting agent, G50366
 - (c) AZ 634-2 peelable parting agent, G50367
 - (d) Rexco Partall Coverall Film peelable parting agent, G50368
 - (e) temporary coating, G50369

SUBTASK 51-22-00-390-010

- (3) When the parting agent is dry to touch, apply the sealant to the opposite surface.

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DO NOT CAUSE A BLOCKAGE WHEN YOU APPLY SEALANT NEAR OR AROUND THE FUSELAGE DRAIN HOLES, TUBES, OR PATHS. THE FUNCTION OF THE DRAIN HOLES IS TO DRAIN CONDENSATION AND FLUIDS OVERBOARD. IF YOU CAUSE A BLOCKAGE, FLUIDS WILL COLLECT IN THE AIRPLANE. THE FLUIDS CAN CAUSE DAMAGE TO THE STRUCTURE OR A FIRE IF THE FLUIDS ARE FLAMMABLE.

- (a) Apply the sealing compound to one surface with a sealant gun, spatula (Boeing Tool Number ST982 for example), brush, roller, smooth or serrated scraper, or spray gun.

NOTE: A roller is the recommended procedure to get an equal thickness.

- 1) Make sure that you apply the sealing compound on the full area of the faying (mated) surface.

NOTE: The thickness of the sealing compound must be 1/32 in. (0.8 mm).

SUBTASK 51-22-00-420-001

- (4) Put the component parts together.

SUBTASK 51-22-00-420-002

- (5) Install the necessary fasteners.

SUBTASK 51-22-00-390-011

- (6) If you will seal the fasteners, make sure that you install them during the application time of the sealing compound.

SUBTASK 51-22-00-390-012

- (7) If you cannot install the permanent fasteners before the application time of the sealing compound ends, use temporary fasteners to hold the parts together until the sealing compound dries.

SUBTASK 51-22-00-390-013

- (8) Install the permanent fasteners with the new sealant.

SUBTASK 51-22-00-390-014

- (9) Apply the sealant on the fastener or in the hole.

SUBTASK 51-22-00-390-015

- (10) Make sure that you apply clamps to squeeze the beads of sealant to show a continuous and equal squeeze-out.

SUBTASK 51-22-00-390-016

- (11) Make sure that the faying (mated) surface is smooth and the squeeze out is approximately 0.06 in. (1.52 mm) along the joint.

————— END OF TASK —————

TASK 51-22-00-390-803

5. Repair of Insufficient Faying (Mated) Sealant Squeeze Out at Fuselage Shear Tie and Stringer Locations

A. General

- (1) Do this task if the faying surfaces show not sufficient sealant squeeze out at shear tie and stringer locations and no fillet is present inside the fuselage.
- (2) Refer to Fillet Seals Repair, TASK 51-22-00-390-807 to repair damaged sealant in the areas where a fillet is present.

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B. References

Reference	Title
51-21-91-620-802	Application of Corrosion Inhibiting Compound (P/B 701)

C. Procedure

SUBTASK 51-22-00-390-017

- (1) Do these steps if the faying surface sealant does not have the required squeeze out as specified in Non-Removable Faying (Mated) Surface Seal Application, TASK 51-22-00-390-801, and the corrosion inhibiting compound has not been previously applied.
 - (a) Remove the faying surfaces.
 - (b) Do this task to clean the area: Prepare For Sealing, TASK 51-22-00-160-801.
 - (c) Do this task to re-apply the sealant and install the faying surfaces: Non-Removable Faying (Mated) Surface Seal Application, TASK 51-22-00-390-801.

SUBTASK 51-22-00-390-018

- (2) Do these steps if the faying surface sealant does not have the required squeeze out as specified in Non-Removable Faying (Mated) Surface Seal Application, TASK 51-22-00-390-801, and the corrosion inhibiting compound has been previously applied.
 - (a) Fill all voids in the areas that do not meet the requirements of Non-Removable Faying (Mated) Surface Seal Application, TASK 51-22-00-390-801 by brushing or spraying additional corrosion inhibiting compound as shown in Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802.

NOTE: Refer to Application of Corrosion Inhibiting Compound, TASK 51-21-91-620-802 for the proper thickness of corrosion inhibiting compound coating.

———— **END OF TASK** ————

TASK 51-22-00-390-804

6. Injection Seal Application

(Figure 202)

A. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

B. Procedure

SUBTASK 51-22-00-160-003

- (1) Do this task: Prepare For Sealing, TASK 51-22-00-160-801.

SUBTASK 51-22-00-390-019

 CAUTION	DO NOT CAUSE A BLOCKAGE WHEN YOU APPLY SEALANT NEAR OR AROUND THE FUSELAGE DRAIN HOLES, TUBES, OR PATHS. THE FUNCTION OF THE DRAIN HOLES IS TO DRAIN CONDENSATION AND FLUIDS OVERBOARD. IF YOU CAUSE A BLOCKAGE, FLUIDS WILL COLLECT IN THE AIRPLANE. THE FLUIDS CAN CAUSE DAMAGE TO THE STRUCTURE OR A FIRE IF THE FLUIDS ARE FLAMMABLE.

- (2) Apply the sealant.
 - (a) When a continuous seal is necessary, do the steps that follow.

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- 1) Put the sealant into one end of the hole with a sealant gun, STD-449.
 - a) Put the sealant into the hole until the sealant comes out of one of the other openings.
- 2) Put a finger or a hardwood or plastic fillet smoothing spatula, STD-810, on the first opening that is filled.

NOTE: This is to make sure that the sealant fully flows out of the other holes.

SUBTASK 51-22-00-390-020



DO NOT FULLY EMPTY A SEALANT GUN. ALWAYS APPLY THE SEALANT FROM ONE DIRECTION. DO NOT SEAL A SURFACE FROM THE TWO ENDS OF A HOLE. AIR POCKETS AND POSSIBLE LEAKS IN THE SEAL CAN OCCUR AND CAUSE DAMAGE TO THE EQUIPMENT.

- (3) Put the sealant into one end of the hole until the sealant comes out from all other openings.

NOTE: When you apply sealant for the back-up of a fillet, it is not necessary to apply the sealant to the full depth of the opening.

- (a) When you apply the sealant at the bottom of the slot, make sure that you fill the slot.
 - 1) Make sure that there is a continuous seal at the bottom and sides of the slot.

———— **END OF TASK** ————

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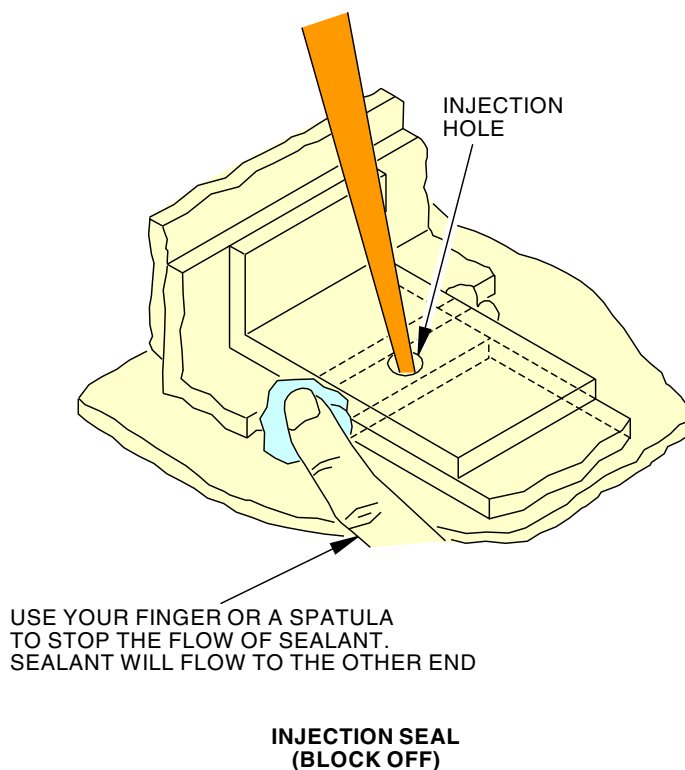
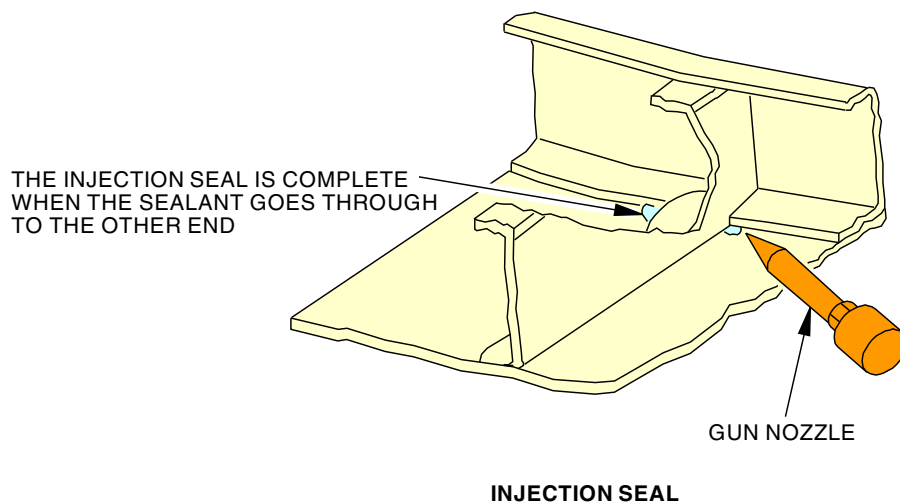
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2415631 S00061538533_V1

Injection Seal
Figure 202/51-22-00-990-802

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TASK 51-22-00-390-805

7. Hole and Slot Seal Application

(Figure 203)

A. Tools/Equipment

Reference	Description
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

B. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Procedure

SUBTASK 51-22-00-390-021

(1) Apply the sealant.

NOTE: You can put Scotch Flatback Masking Tape 250, G00270 behind the large slots and holes to prevent too much extrusion of the sealant.

NOTE: Make sure that the Scotch Flatback Masking Tape 250, G00270 and residue are removed after the sealing is cured.

(a) Put sealant into all the tool and coordination holes that are not sealed with soft rivets.

1) In fully sealed areas, apply the sealant to the soft rivets.

(b) Put the sealant compound on the pressure side of the hole as follows:

1) Apply the compound to the pressure side of the hole with a hardwood or plastic fillet smoothing spatula, STD-810 or applicable tool.

2) Apply the sealant compound tightly into the hole or the slot.

3) Make sure that the sealant edges are feathered on all of the adjacent surfaces.

————— END OF TASK —————

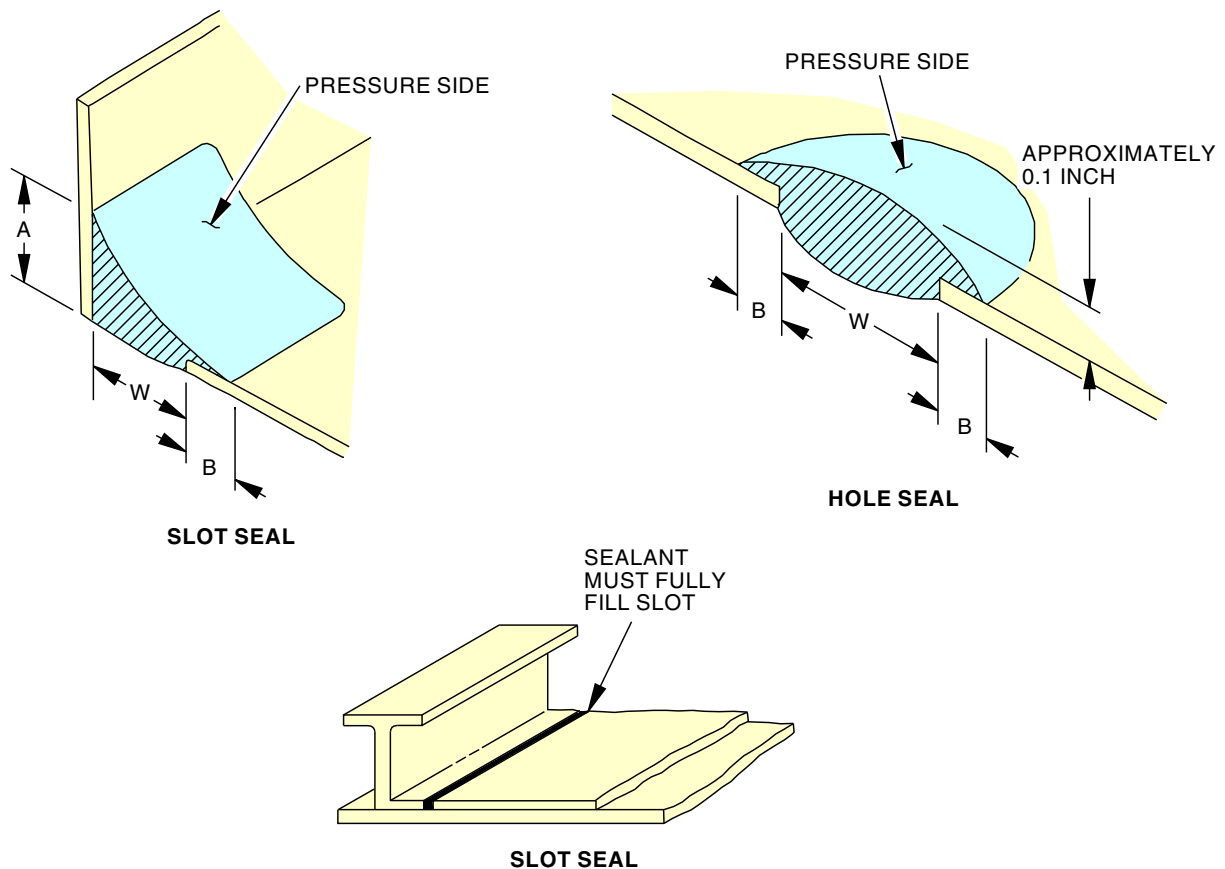
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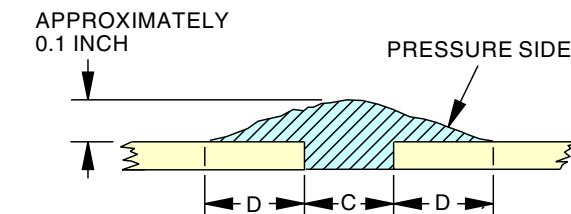
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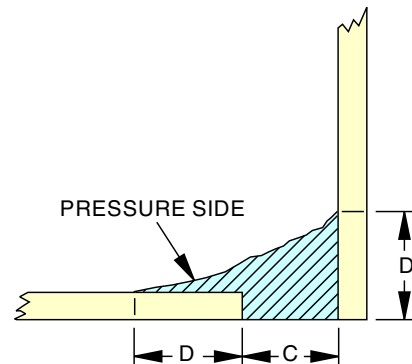


A = 0.25 INCH MINIMUM AND NOT LESS THAN W
W = 0.25 INCH MAXIMUM FOR DUCT AND PRESSURE SEAL
W = 0.50 INCH MAXIMUM FOR WEATHER AND FUEL SEAL
B = 0.25 INCH MINIMUM
IF W IS 0.1 INCH OR LESS, NO COMPOUND IS NECESSARY



NOTE:
D = 0.25 INCH MINIMUM BUT NOT LESS THAN W
C = 0.50 INCH MAXIMUM

HOLE FILLING



HOLE FILLING

2415632 S00061538535_V1

Hole and Slot Seal
Figure 203/51-22-00-990-803

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TASK 51-22-00-390-806

8. Fillet Seal Application

(Figure 204)

A. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

B. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
G01061	Water - Distilled	

C. Procedure

SUBTASK 51-22-00-390-022

- (1) Apply the sealant with a sealant gun, STD-449.

NOTE: To keep the sealant from bonding to the tools, make the tool wet with a non-contaminating solution. Use a solution of one part (by volume) alcohol, B00130 and 5 parts (by volume) distilled water, G01061.

- (a) Point the nozzle tip into the seam.
- (b) Keep the tip vertical to the line of travel.
- (c) Make sure that the sealant is applied in a straight line.
- (d) Push the bead of the sealant forward of the nozzle head.
- (e) Push the sealant tightly into position with the hardwood or plastic fillet smoothing spatula, STD-810.

NOTE: Make sure that you get a smooth fillet.

- (f) Apply the sealant again to get a full body fillet.

NOTE: A second application of the sealant is necessary only for integral fuel tanks. You can cut the nozzle tip to give the full body seal some contour.

- (g) Use a hardwood or plastic fillet smoothing spatula, STD-810 to get the last shape of the fillet.
 - 1) Push the hardwood or plastic fillet smoothing spatula, STD-810 against the sealant and move the hardwood or plastic fillet smoothing spatula, STD-810 parallel to the bead.
 - 2) Make sure that the seal is smooth.
- (h) Make sure that there are no air bubbles in the seal.
- (i) Make sure that the bead has the shape of a flared fillet, after the work is completed.

————— END OF TASK —————

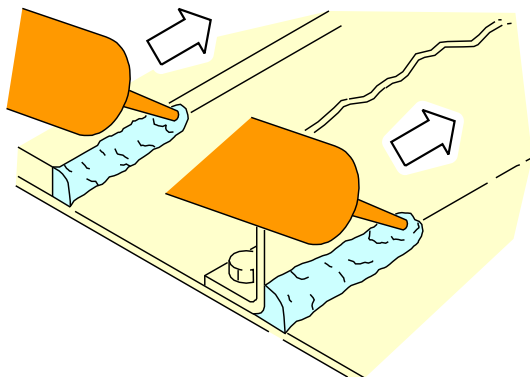
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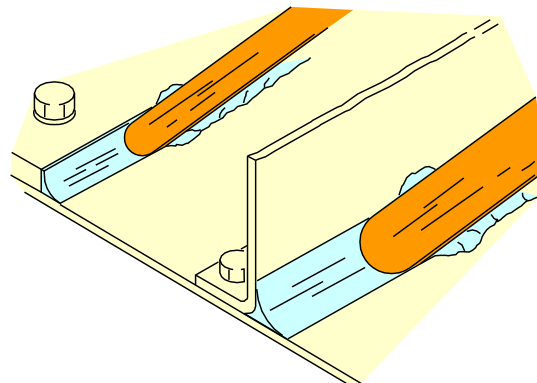
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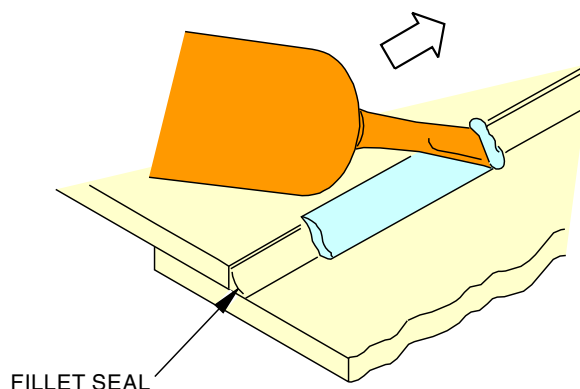


STEP 1 1
(APPLICATION)



STEP 2 2
(FINISH)

FILLET SEAL



**APPLICATION OF FILLET
FULL BODY SEAL**

- 1 APPLY THE SEALANT WITH A SEALANT GUN
- 2 USE A FAIRING TOOL THAT IS NOT LUBRICATED TO PUSH THE SEALANT INTO POSITION

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Fillet Seal
Figure 204/51-22-00-990-804 (Sheet 1 of 2)

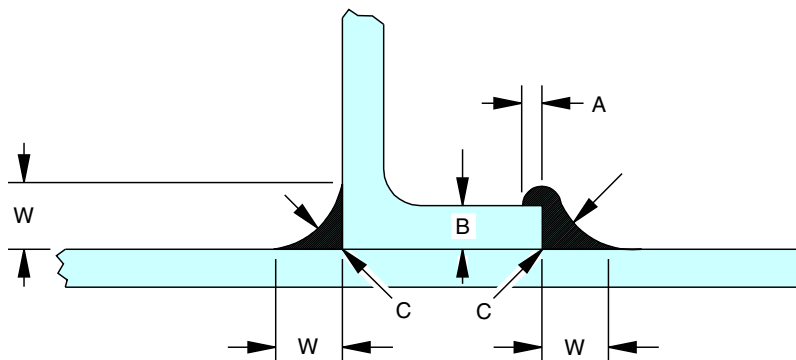
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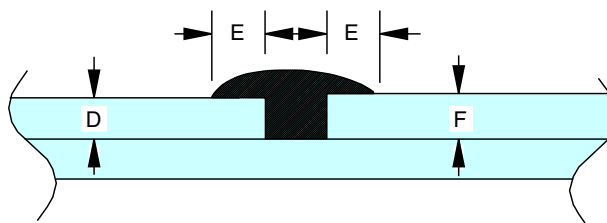
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C = 0.08 INCH MINIMUM
W = 0.15 TO 0.25 INCH
A+B = W EXCEPT A = 0 WHEN B = 0.15 INCH OR MORE



E+D (OR F) = 0.15 TO 0.25 INCH EXCEPT E = 0
WHEN THE ADJACENT D OR F IS 0.15 INCH OR MORE

SEALANT FILLETS

2415634 S00061538538_V1

Fillet Seal
Figure 204/51-22-00-990-804 (Sheet 2 of 2)

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TASK 51-22-00-390-807

9. Fillet Seals Repair

A. General

- (1) Do this task to repair the damaged fillet sealant. There are steps for repairing sealant before and after the application time expires.
- (2) Refer to Repair of Insufficient Faying (Mated) Sealant Squeeze Out at Fuselage Shear Tie and Stringer Locations, TASK 51-22-00-390-803 to repair sealant in the areas where too small or no fillet is present.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2

C. Procedure

SUBTASK 51-22-00-390-023

- (1) Do these steps to repair the fillet sealant before the sealant application time expires:
 - (a) Remove the damaged fillets
 - (b) Do this task to apply new sealant: Fillet Seal Application, TASK 51-22-00-390-806

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SUBTASK 51-22-00-390-024

- (2) Do these steps to repair the fillet sealant after the sealant application time has expired:
- (a) Remove the fillet sealant completely or cut out the bad areas to let solid sealant stay.



DO NOT USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE UNLESS THE SCRIBE LINE INSPECTIONS WERE MADE. ABRASIVE PADS CAN SMOOTH THE ALUMINUM SURFACE AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE THE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE LINE INSPECTIONS, YOU CAN BE REQUIRED TO DO REPEAT INSPECTIONS BASED ON THE SCRIBE LINE INSPECTION SERVICE BULLETIN.



ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- 1) Use an approved sealant removal tool, COM-2481 with sealant removal tool handle, COM-4746.
- NOTE: This will prevent possible damage to the surface of the part.
- a) Make sure that the cuts are clean and include notches for access.
- (b) Remove loose chunks or flaps of sealant from the cut area.
- (c) Do this task to clean the area: Prepare For Sealing, TASK 51-22-00-160-801.
- (d) Do this task to apply new sealant: Fillet Seal Application, TASK 51-22-00-390-806

————— **END OF TASK** —————

TASK 51-22-00-390-814

10. Transition Seal Application (Figure 205)

A. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

B. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
G01061	Water - Distilled	

C. General

SUBTASK 51-22-00-390-033

- (1) Apply transition seal only when specified.

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SUBTASK 51-22-00-390-034

- (2) For parts with a height of more than 1 in. (2.54 cm), apply a fillet seal, do this task: Fillet Seal Application, TASK 51-22-00-390-806.

NOTE: The secondary fuel barrier has a height of approximately 1 in. (2.54 cm). When the part height is more than 1 in. (2.54 cm) high, a fillet seal is only necessary at the bottom of the part (joint).

SUBTASK 51-22-00-390-035

- (3) For parts with a height of 1 in. (2.54 cm) or less, apply a transition seal.

NOTE: The minimum height of the transition seal must be the height of the part. The transition seal can extend a maximum of 0.15 in. (0.38 cm) above the part. The transition seal can extend a maximum of 0.25 in. (0.64 cm) onto the top of the part.

D. Transition Seal Application

SUBTASK 51-22-00-390-036

- (1) Apply the sealant with a sealant gun, STD-449.

NOTE: To keep the sealant from bonding to the tools, make the tool wet with a non contaminating solution. Use a solution of one part (by volume) alcohol, B00130, and 5 parts (by volume) distilled water, G01061.

- (a) Put the nozzle tip into the seam.
- (b) Keep the tip vertical to the line of travel.
- (c) Make sure that the sealant is applied in a straight line.
- (d) Push the bead of the sealant forward of the nozzle head.
- (e) If it is necessary, cut the hardwood or plastic fillet smoothing spatula, STD-810, to shape.
- (f) Push the sealant tightly into position with the hardwood or plastic fillet smoothing spatula, STD-810.
 - 1) Make sure that you get a smooth transitional seal.
- (g) If it is necessary, apply the sealant again to complete the transitional seal.

NOTE: You can cut the nozzle tip to give the full body seal some contour.
- (h) Use a hardwood or plastic fillet smoothing spatula, STD-810, to get the last shape of the transition seal.
 - 1) Push the hardwood or plastic fillet smoothing spatula, STD-810, against the sealant and move the hardwood or plastic fillet smoothing spatula, STD-810, parallel to the bead.
 - 2) Make sure that the seal is smooth.
- (i) Make sure that there are no air bubbles in the seal.
- (j) Make sure that the bead has the shape of a faired seal, after the work is completed.

————— END OF TASK —————

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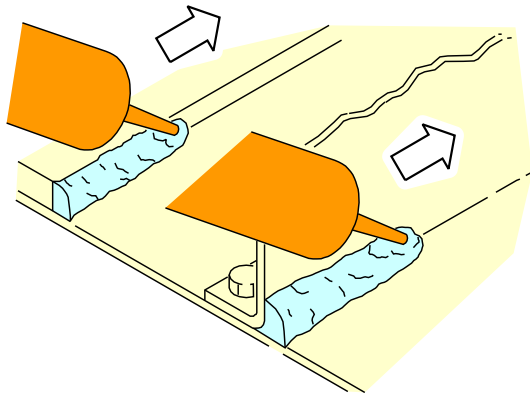
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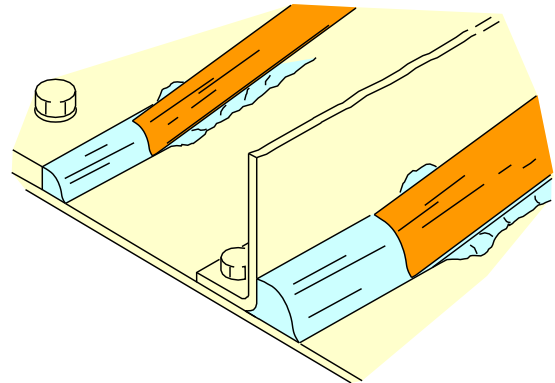
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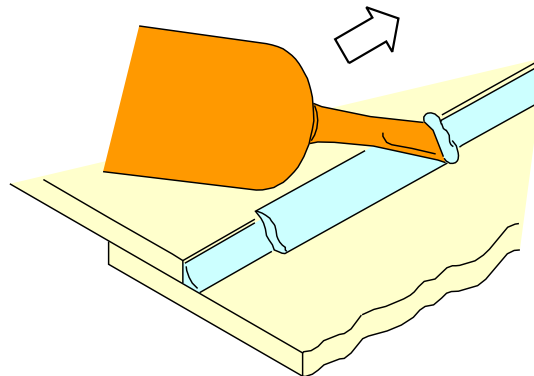


STEP 1 1
(APPLICATION)



STEP 2 2
(FINISH)

TRANSITION SEAL



STEP 2
(FINISH)

- 1 APPLY THE SEALANT WITH A SEALANT GUN
- 2 USE A FAIRING TOOL THAT IS NOT LUBRICATED TO PUSH THE SEALANT INTO POSITION

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Transition Seal Application
Figure 205/51-22-00-990-808 (Sheet 1 of 2)

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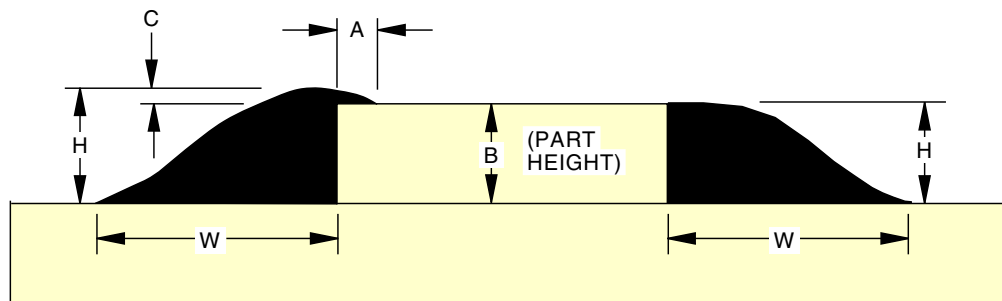
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B = PART HEIGHT.
H = SEALANT HEIGHT.
FLUSH IS WHEN H = B.
W = 0.30 TO 0.50 INCHES WHEN B IS 0.25 INCHES OR LESS.
W = 0.50 TO 1.00 INCH WHEN B IS 0.25 INCHES OR MORE.
A = 0.25 INCHES (MAXIMUM) WHEN B IS 1 INCH OR LESS.
C = 0.15 INCHES (MAXIMUM) WHEN B IS 1 INCH OR LESS.

2974551 S0000753513_V1

Transition Seal Application
Figure 205/51-22-00-990-808 (Sheet 2 of 2)

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TASK 51-22-00-390-815

11. Transition Seal Repair

A. General

- (1) Do this task to repair the damaged transition sealant. There are steps for repairing the sealant before and after the application time expires.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2

C. Transition Seal Repair

SUBTASK 51-22-00-390-037

- (1) Do these steps to repair the transition sealant before the sealant application time expires:
- (a) Remove the damaged transition sealant.
 - (b) Apply new sealant, do this task: Transition Seal Application, TASK 51-22-00-390-814.

SUBTASK 51-22-00-390-038

- (2) Do these steps to repair the transition sealant after the sealant application time expires:
- (a) Remove the transition sealant completely or cut out the bad areas to let solid sealant stay.

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DO NOT USE ABRASIVE PADS (SCOTCH-BRITE), OR ABRASIVE PAPER ON THE ALUMINUM SURFACE UNLESS THE SCRIBE LINE INSPECTIONS WERE MADE. ABRASIVE PADS CAN SMOOTH THE ALUMINUM SURFACE AND HIDE THE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE THE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE LINE INSPECTIONS, YOU CAN BE REQUIRED TO DO REPEAT INSPECTIONS BASED ON THE SCRIBE LINE INSPECTION SERVICE BULLETIN.



ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- 1) Use an approved sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746.

NOTE: This will help to prevent damages of the surface of the part.

- a) Make sure that the cuts are clean and include notches for access.
- b) Remove loose chunks or flaps of sealant from the cut area.
- c) Clean the area, do this task: Prepare For Sealing, TASK 51-22-00-160-801.
- d) Apply new sealant, do this task: Transition Seal Application, TASK 51-22-00-390-814.

————— **END OF TASK** —————

TASK 51-22-00-390-808

12. Fastener Seal Application

(Figure 206)

A. General

- (1) If the fasteners were installed during the application time of the sealant, sealing is not necessary.
- (2) Install rivets dry, unless you are told differently.

NOTE: Install 5056 aluminum rivets wet with sealant in an aluminum structure. Install 5056 aluminum rivets dry in a magnesium structure.

- (3) Use the specified procedure for fastener sealing for corrosion protection.

NOTE: When a procedure is not specified, use procedure 1.

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B. Fastener Sealing

SUBTASK 51-22-00-390-025



DO NOT CAUSE A BLOCKAGE WHEN YOU APPLY SEALANT NEAR OR AROUND THE FUSELAGE DRAIN HOLES, TUBES, OR PATHS. THE FUNCTION OF THE DRAIN HOLES IS TO DRAIN CONDENSATION AND FLUIDS OVERBOARD. IF YOU CAUSE A BLOCKAGE, FLUIDS WILL COLLECT IN THE AIRPLANE. THE FLUIDS CAN CAUSE CORROSION TO THE STRUCTURE, OR A FIRE IF THE FLUIDS ARE FLAMMABLE.

- (1) Use one of the steps that follow to seal the fasteners that are installed through the faying (mated) surface:

NOTE: These steps apply when the sealant application time has ended or when no faying (mated) surface sealant is used.

- (a) Apply the sealant to the fastener or hole at the installation of the fastener.
 - 1) The extruded sealant must be continuous to show the area is sealed.
- (b) Apply the sealant to the fastener after it was installed.
 - 1) Make the sealant smooth around the fastener after it was installed.
- (c) Put on the metal seal covers (filled with sealant) to seal fasteners as follows:

NOTE: Metal seal covers must not touch the structure that is made with graphite fiber. This is to prevent corrosion.

NOTE: Fill the metal cover between 1/2 to 2/3 full of the sealant.

- 1) Put the metal seal on the fasteners until the flange touches the structure.

NOTE: The sealant must extrude out of the openings.

- 2) Remove the unwanted sealant from the top of the metal cover
- 3) Make the sealant smooth around the base of the metal cover.

C. Fastener Sealing for Corrosion Protection

SUBTASK 51-22-00-160-004

- (1) Clean the surface, do this task, do this task: Prepare For Sealing, TASK 51-22-00-160-801.

SUBTASK 51-22-00-390-026

- (2) Use one of the procedures that follow to seal fasteners for corrosion protection:

- (a) Procedure 1 - corrosion protection below the head area of the fastener.
 - 1) Apply sealant to all surfaces and countersinks below the fastener head.
 - 2) Install fastener.
 - 3) A continuous extrusion of sealant is necessary around the fastener.
 - 4) Clean off unwanted sealant.
- (b) Procedure 2 - corrosion protection below the head area and shank of the fastener.

- 1) Apply sealant to the entire shank and thread of the fastener.

NOTE: Apply sealant to the shank only for fasteners which will use self-sealing nuts or collars.

- 2) Install fastener and nut or collar.
- 3) Clean off unwanted sealant.

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- (c) Procedure 3 - corrosion protection below the head area and shank of the fasteners and the bottom attaching hardware.
- 1) Apply sealant to the entire shank and thread of the fastener.
 - 2) Install the fastener.
 - a) A continuous extrusion of sealant is necessary around the base of the washer, if used under the fastener head.
- NOTE: More sealant can be applied to the shank of the installed fastener to get the necessary sealant extrusion.
- 3) Install the nut or collar.
 - 4) A continuous extrusion of sealant is necessary around the fastener head, the washer (if used), and the bottom of the nut or collar.
 - 5) Clean off unwanted sealant.
- (d) Apply fillet-seal to the installed fastener.
- 1) Use class A or class B (brushable) sealants.
- NOTE: Brush marks are permitted if the fillet-seal dimensions are met.

———— **END OF TASK** ————

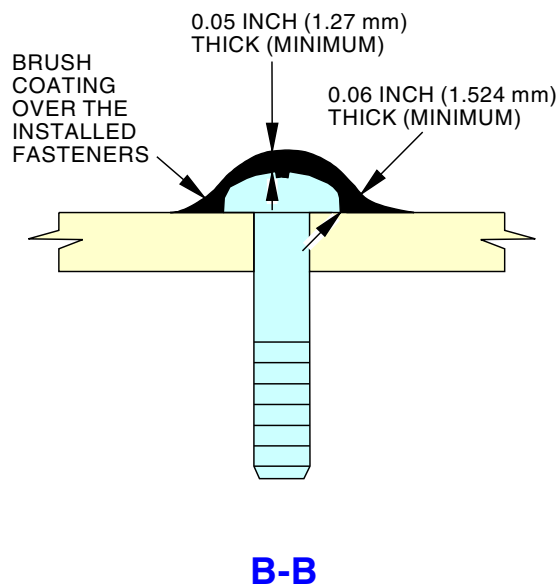
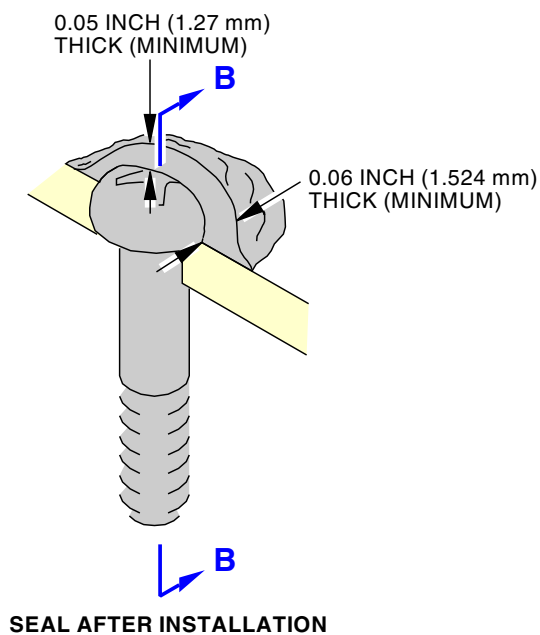
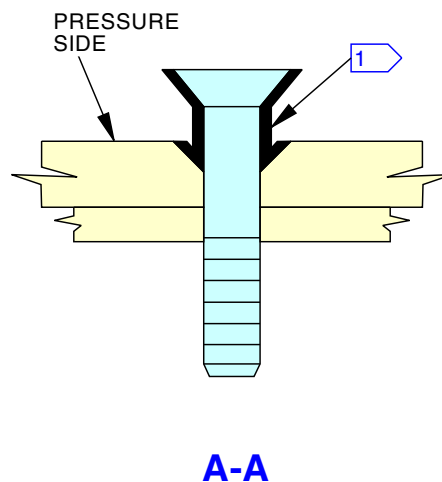
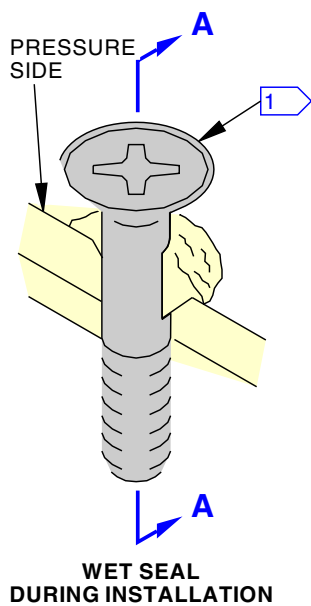
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SIA ALL

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1 YOU CAN APPLY SEALANT TO THE HOLE OR THE FASTENER

2415635 S00061538541_V1

Fastener Seal
Figure 206/51-22-00-990-805 (Sheet 1 of 5)

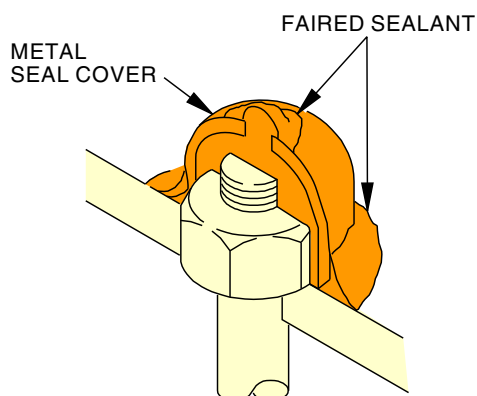
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SIA ALL

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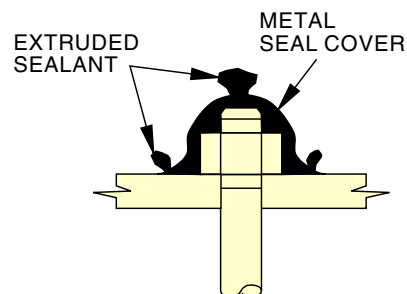
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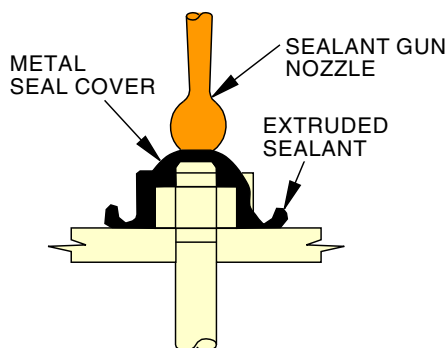
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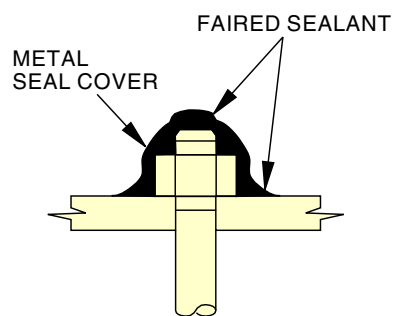
**FAIRING SEAL AT THE
METAL SEAL COVER**



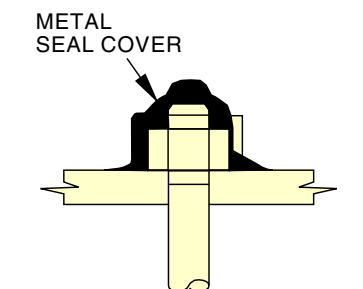
**SEAL COVER AFTER
AFTER INJECTION**



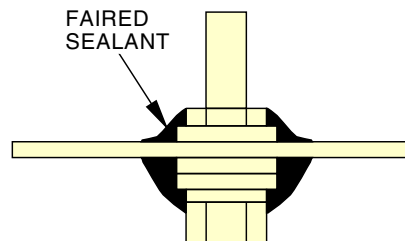
**INJECTING SEALING
SELF-CENTERING SEAL COVER**



**SEAL COVER
AFTER FAIRING**



**AFTER FAIRING
SELF-CENTERING SEAL COVER**



**SEALING OF
STANDARD GROUND STUD**

2415636 S00061538542_V1

Fastener Seal
Figure 206/51-22-00-990-805 (Sheet 2 of 5)

EFFECTIVITY
SIA ALL

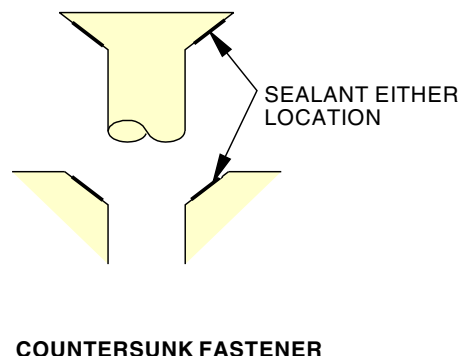
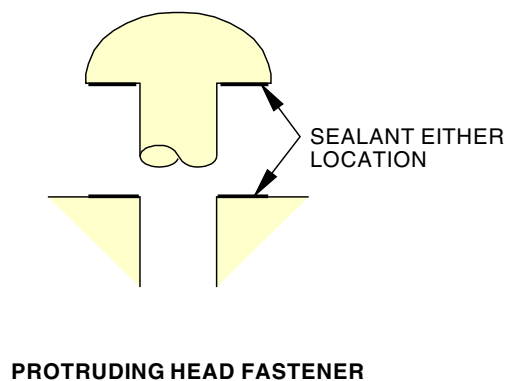
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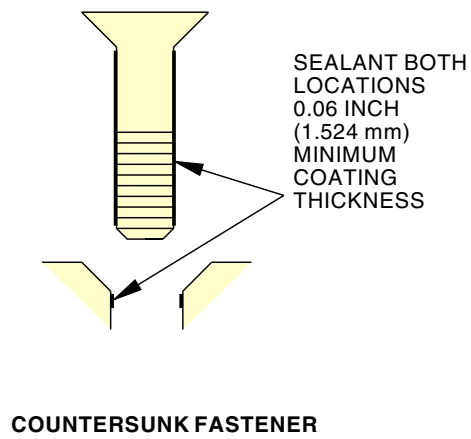
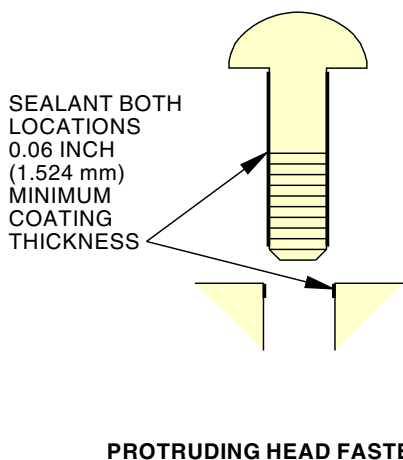
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PROCEDURE 1



PROCEDURE 2

TYPICAL FASTENER SEALING FOR CORROSION PROTECTION

2415637 S00061538543_V1

Fastener Seal
Figure 206/51-22-00-990-805 (Sheet 3 of 5)

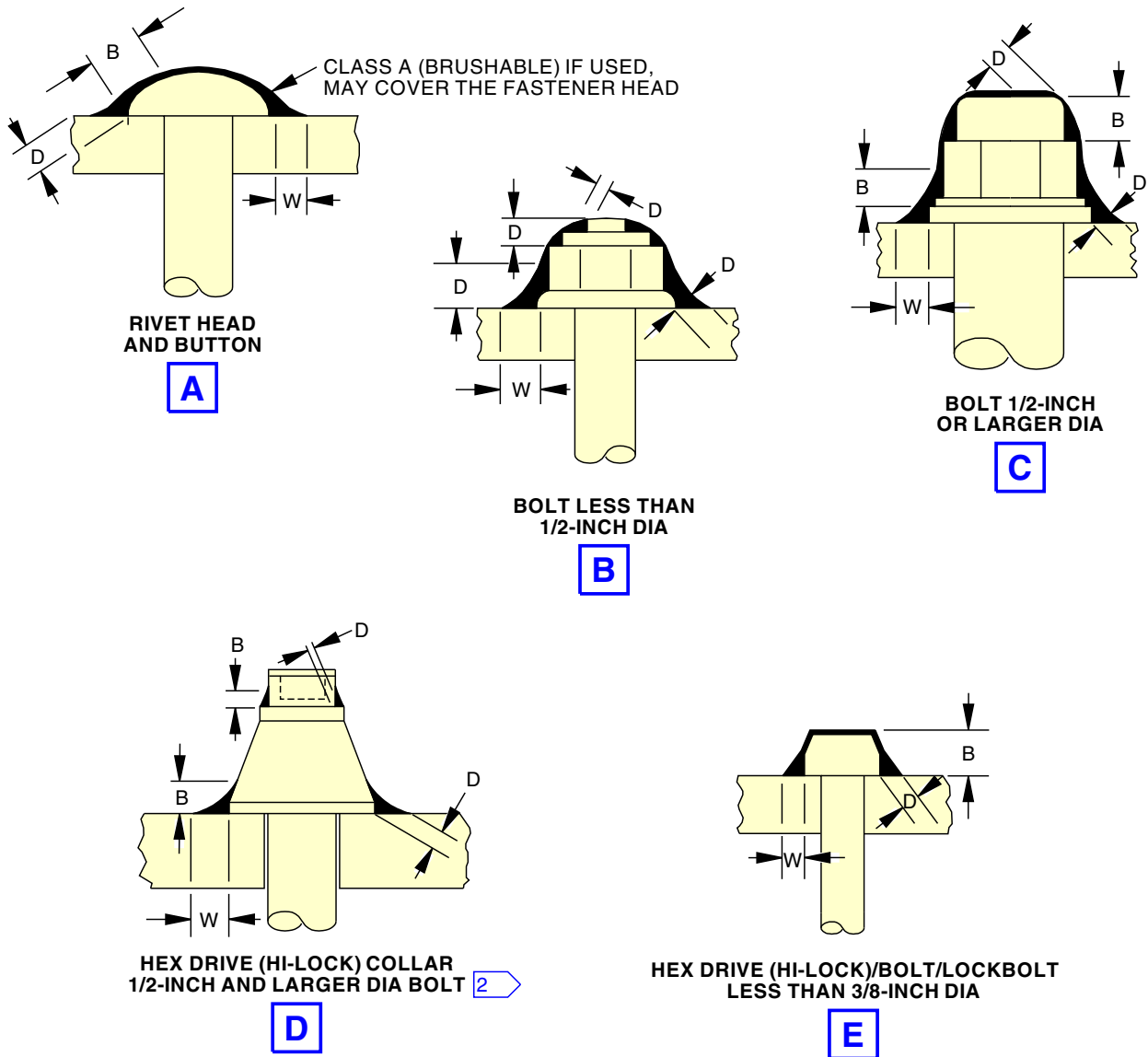
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TYPICAL FILLET SEALING DIMENSIONS FOR CORROSION PROTECTION

- 2** RECESSED AREA IN END OF HEX DRIVE PIN NEED NOT BE FILLED WITH SEALANT
D = 0.02 INCH (0.508 mm) MINIMUM
B = 0.10 INCH (2.54 mm) MINIMUM, EXCEPT 0.20 INCH (5.08 mm) MAXIMUM
FOR VIEWS C, D, AND F.
W = 0.10 INCH (2.54 mm) MINIMUM TO 0.20 INCH (5.08 mm) MAXIMUM

2415638 S00061538544_V1

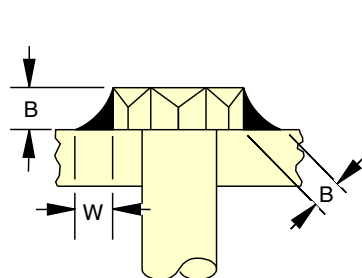
Fastener Seal
Figure 206/51-22-00-990-805 (Sheet 4 of 5)

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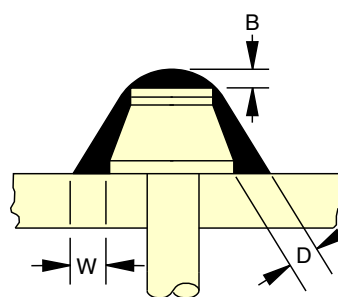
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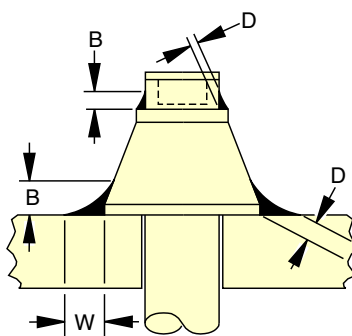
HEX DRIVE (HI-LOCK)/
BOLT/LOCKBOLT
3/8-INCH OR LARGER DIA

F



LOCK BOLT
COLLAR

G



HEX DRIVE (HI-LOCK) COLLAR
LESS THAN 1/2-INCH DIA BOLT 1

H

TYPICAL FILLET SEALING DIMENSIONS FOR CORROSION PROTECTION

1 YOU CAN APPLY SEALANT TO THE HOLE OR THE FASTENER

2415639 S00061538545_V1

Fastener Seal
Figure 206/51-22-00-990-805 (Sheet 5 of 5)

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TASK 51-22-00-390-809

13. Aerodynamic Smoother Application

(Figure 207)

A. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

B. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Aerodynamic Smoother Application

SUBTASK 51-22-00-160-005

(1) Do this task: Prepare For Sealing, TASK 51-22-00-160-801.

SUBTASK 51-22-00-390-027

(2) Apply the aerodynamic smoother as follows:

(a) Apply Scotch Flatback Masking Tape 250, G00270, to the surface that is adjacent to the damaged area.



CAUTION

DO NOT CAUSE A BLOCKAGE WHEN YOU APPLY SEALANT NEAR OR AROUND THE FUSELAGE DRAIN HOLES, TUBES, OR PATHS. THE FUNCTION OF THE DRAIN HOLES IS TO DRAIN CONDENSATION AND FLUIDS OVERBOARD. IF YOU CAUSE A BLOCKAGE, FLUIDS WILL COLLECT IN THE AIRPLANE. THE FLUIDS CAN CAUSE DAMAGE TO THE STRUCTURE OR A FIRE IF THE FLUIDS ARE FLAMMABLE.

(b) Apply the aerodynamic smoother with a sealant gun, STD-449, or hardwood or plastic fillet smoothing spatula, STD-810.

1) Make sure that there are no air bubbles when the aerodynamic smoother is applied.

(c) When it is necessary, apply more of the aerodynamic smoother to make the edges around the seal smooth.

NOTE: Because of sealant shrinkage, the aerodynamic smoother must be applied again.

Do this approximately 8 hours after the first application of the sealant.

(d) Use a hardwood or plastic fillet smoothing spatula, STD-810, to make the seal smooth with the edge of Scotch Flatback Masking Tape 250, G00270.

(e) Remove Scotch Flatback Masking Tape 250, G00270, after the sealant is smooth and dry.

(f) Make the edges of the seal smooth.

1) Remove all the unwanted compound with an approved sealant removal tool listed in this task: Prepare For Sealing, TASK 51-22-00-160-801.

————— **END OF TASK** —————

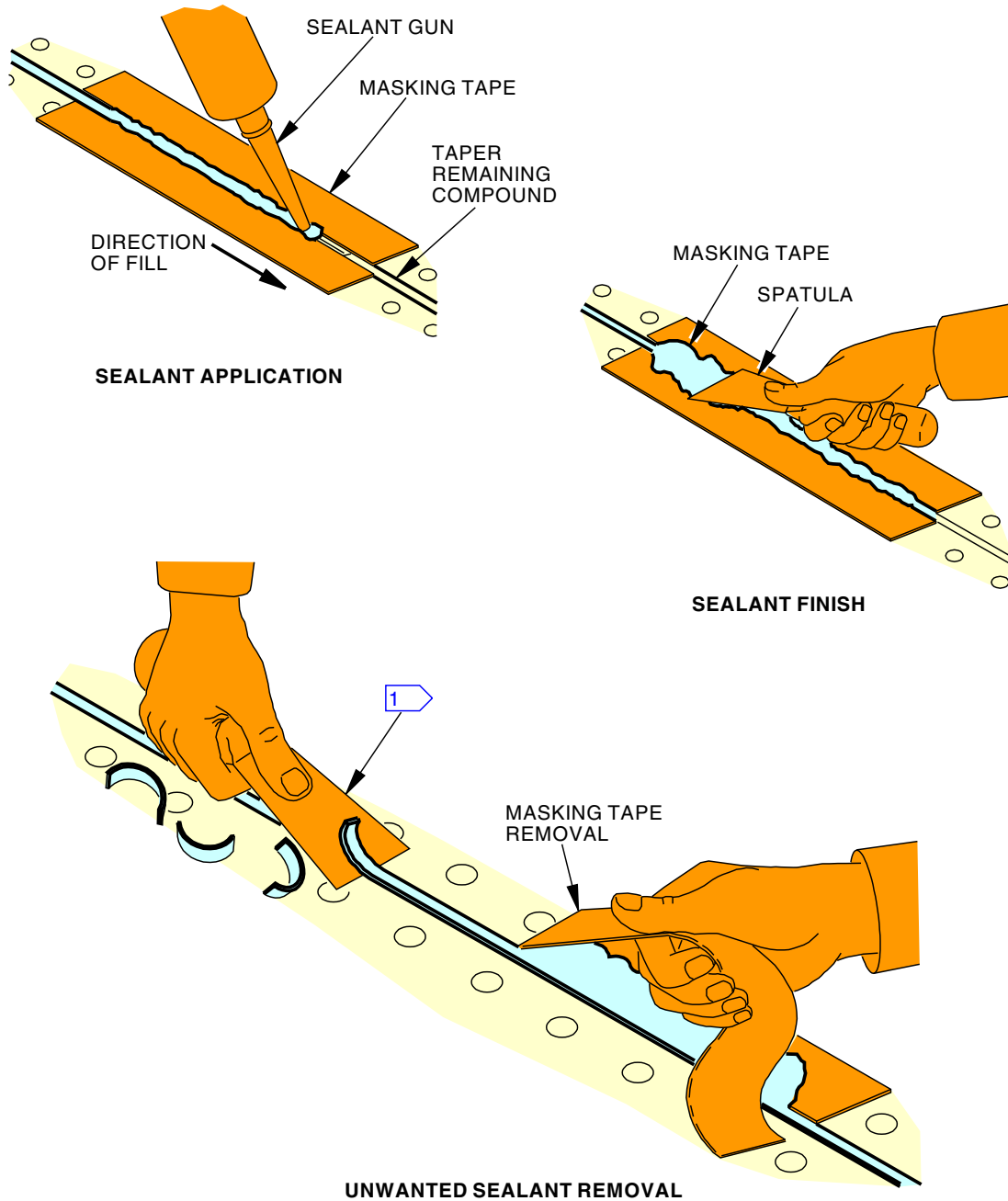
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1 USE AN APPROVED SEALANT REMOVAL TOOL TO REMOVE UNWANTED SEALANT AFTER THE SEALANT HAS CURED.

2415640 S00061538547_V1

Aerodynamic Seal
Figure 207/51-22-00-990-806 (Sheet 1 of 2)

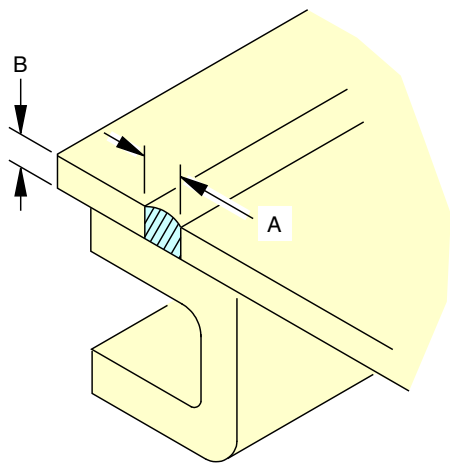
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WIDTH B (INCHES)	WIDTH A (INCHES)
0.10 MAXIMUM	0.02-0.03
0.25 MAXIMUM	0.03-0.05
0.50 MAXIMUM	0.05-0.10
0.75 MAXIMUM	0.10-0.15

SLOT WIDTH AND DEPTH

2415641 S00061538548_V1

Aerodynamic Seal
Figure 207/51-22-00-990-806 (Sheet 2 of 2)

EFFECTIVITY	
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TASK 51-22-00-390-810

14. Electrical Fitting Seal Application

(Figure 208)

A. General

- (1) Electrical Insulating Sealant, compound, A00230, is the recommended sealant for the electrical fittings seal.

NOTE: Use sealant, A00767 sealant only on Teflon insulated wire where compound, A00230 or sealant, A00247 are specified.

- (a) Fuel Tank Sealant, sealant, A00767, and Pressure and Environmental Sealant, sealant, A00247, will do the same function as the Electrical Insulating Sealant, compound, A00230, on wires that do not have a teflon coating.

NOTE: The compound, A00230, and sealant, A00247 are not the recommended sealants for wires with a teflon coating. These sealants will bond to electrical wires which do not have a teflon coating. It is not easy to do maintenance on electrical seal fittings that have sealant bonded to the electrical wires.

B. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant

C. Consumable Materials

Reference	Description	Specification
A00230	Compound - Electrical Insulating Coating	BMS5-37
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

D. Apply the Sealant to the Electrical Fittings.

SUBTASK 51-22-00-390-028

- (1) Seal the multiple cutouts in the primary sealing areas as follows:

- (a) Put the wire bundle through an available cutout.
- (b) Isolate the wires before you apply the seal.
- 1) If there are three or less wires, use the plastic separators to isolate the wires.
- 2) If there are four or more wires, use the wire coil separators to isolate the wires.

- (c) Wind the wire coil separators two to four turns around each wire.

- (d) Assemble the fitting together around the wires.

NOTE: Make sure that the flange of the fitting is on the pressurized side of the airplane.

NOTE: A fitting is made of two halves.

- (e) Make sure that the plastic separators or the wire coil separator is satisfactorily installed on the wires in the bulkhead fitting.

- (f) Put an 8-inch long string against the bulkhead fitting and parallel with the wires.

- (g) Wind three turns of 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 around the fitting.

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- (h) Crimp the 1 1/2-inch wide (3.8 cm) Scotch Flatback Masking Tape 250, G00270 around the bulkhead fitting.
NOTE: Make sure that the wires are in the center of the bulkhead fitting and the Scotch Flatback Masking Tape 250, G00270.
- (i) Wind three turns of 3/4-inch (1.9 cm) wide Scotch Flatback Masking Tape 250, G00270 around the 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270.
- (j) Put the bulkhead fitting, cover plate and the filler in position on the unpressurized side of the airplane.
- (k) Install the fasteners.
- (l) Make an injection hole in the 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 at an applicable location.
- (m) Use the sealant gun, STD-449 to apply the sealant.
 - 1) Apply the sealant until it comes out from the flange of the bulkhead fitting.
- (n) Apply the sealant to make a fillet seal on the filler.
- (o) Apply the sealant on the fastener that is in the center of the filler.
- (p) Let the sealant cure for a minimum of 16 to 24 hours.
- (q) Pull the string to remove the Scotch Flatback Masking Tape 250, G00270.

SUBTASK 51-22-00-390-029

- (2) Seal the multiple cutouts in the intermediate sealing areas.

NOTE: Do not use the coil spacers.

- (a) Put the wire bundle through an available cutout.
- (b) Isolate the wires before you apply the seal.
 - 1) If there are three or less wires, use the plastic separators to isolate the wires.
- (c) Assemble the fitting together around the wires.
NOTE: Make sure that the flange of the fitting is on the pressurized side of the airplane.
NOTE: A fitting is made of two halves.
- (d) Put an 8-inch (20 cm) long string against the bulkhead fitting and parallel with the wires.
- (e) Wind three turns of 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 around the fitting.
- (f) Crimp the 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 around the bulkhead fitting.
NOTE: Make sure that the wires are in the center of the bulkhead fitting and the Scotch Flatback Masking Tape 250, G00270.
- (g) Wind three turns of 3/4-inch (1.9 cm) wide Scotch Flatback Masking Tape 250, G00270 around the 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270.
- (h) Put the bulkhead fitting in position on the unpressurized side of the airplane.
- (i) Install the fasteners.
- (j) Make an injection hole in the 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 at an applicable location.
- (k) Use the sealant gun, STD-449 to apply the sealant.
 - 1) Apply the sealant until it comes out from the flange of the bulkhead fitting.
- (l) Apply the sealant to make a fillet seal on the filler.

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- (m) Apply the sealant on the fastener that is in the center of the filler.
- (n) Let the sealant cure for a minimum of 16 to 24 hours.
- (o) Pull the string to remove the Scotch Flatback Masking Tape 250, G00270.

SUBTASK 51-22-00-390-030

- (3) Seal the single cutouts in the primary or intermediate areas.

NOTE: Do not use the seal plate or filler.

- (a) Put the wire bundle through an available cutout.
- (b) Isolate the wires before you apply the seal:
 - 1) If there are three or less wires, use the plastic separators to isolate the wires.
 - 2) If there are four or more wires, use the wire coil separators to isolate the wires.

- (c) Wind the wire coil separators two to four turns around each wire.
- (d) Assemble the fitting together around the wires.

NOTE: Make sure that the flange of the fitting is on the pressurized side of the airplane.

NOTE: A fitting is made of two halves.

- (e) Make sure that the plastic separators or the wire coil separator is satisfactorily installed on the wires in the bulkhead fitting.
- (f) Put an 8-inch (20 cm) long string against the bulkhead fitting and parallel with the wires.
- (g) Wind three turns of 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 around the fitting.
- (h) Crimp the 1 1/2-inch (3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 around the bulkhead fitting.

NOTE: Make sure that the wires are in the center of the bulkhead fitting and the Scotch Flatback Masking Tape 250, G00270.

- (i) Wind three turns of 3/4-inch (1.9 cm) wide Scotch Flatback Masking Tape 250, G00270 around the 1 1/2-inch wide (3.8 cm) Scotch Flatback Masking Tape 250, G00270.
- (j) Put the bulkhead fitting, cover plate and the filler in position on the unpressurized side of the airplane.
- (k) Install the fasteners.
- (l) Make an injection hole in the 1 1/2-inch 3.8 cm) wide Scotch Flatback Masking Tape 250, G00270 at an applicable location.

- (m) Use the sealant gun, STD-449 to apply the sealant.
 - 1) Apply the sealant until it comes out from the flange of the bulkhead fitting.
- (n) Apply the sealant to make a fillet seal on the filler.
- (o) Apply the sealant on the fastener that is in the center of the filler.
- (p) Let the sealant cure for a minimum of 16 to 24 hours.
- (q) Pull the string to remove the Scotch Flatback Masking Tape 250, G00270.

———— **END OF TASK** ————

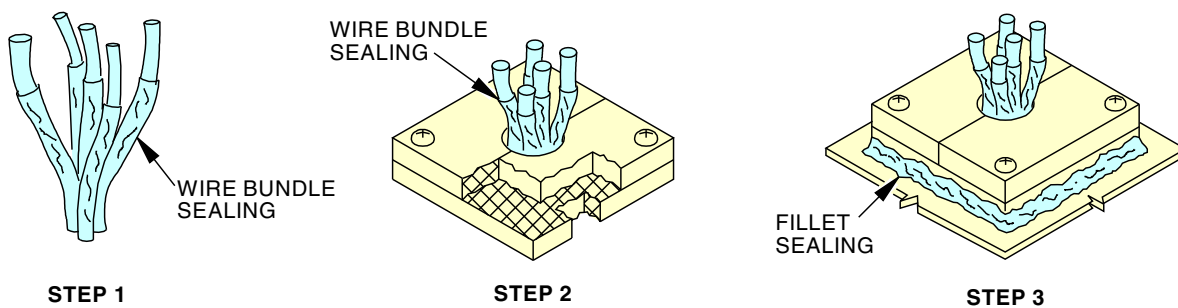
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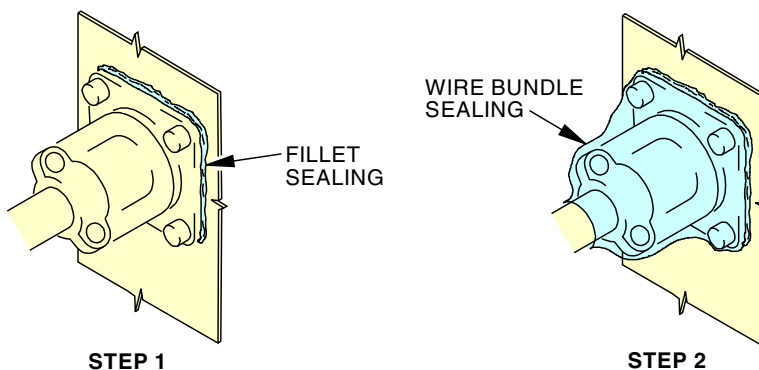
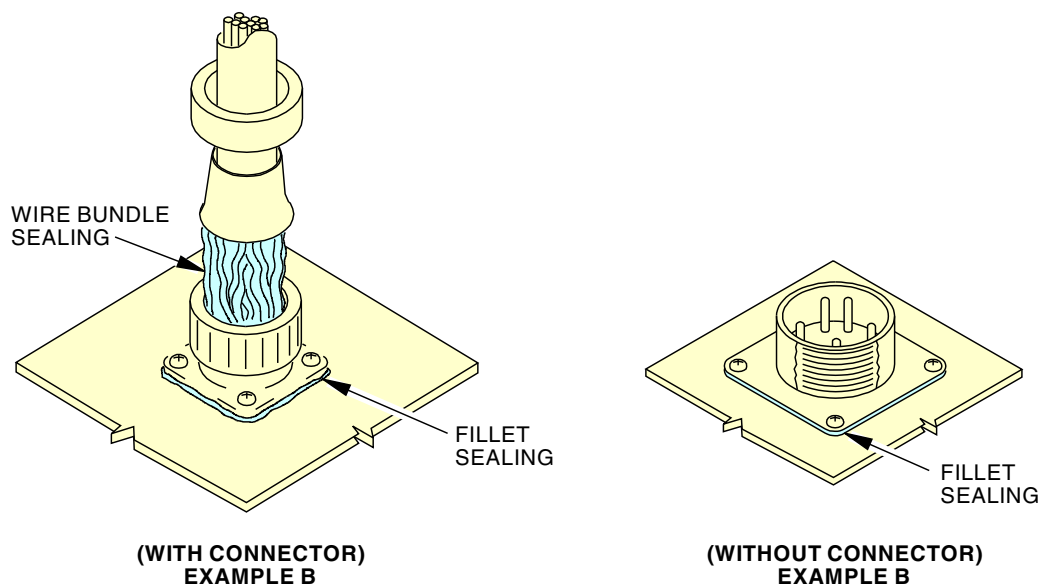
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EXAMPLE A



**EXAMPLE C
WIRE BUNDLE SEALING**

2415642 S00061538550_V1

Electrical Fitting Seal
Figure 208/51-22-00-990-807 (Sheet 1 of 3)

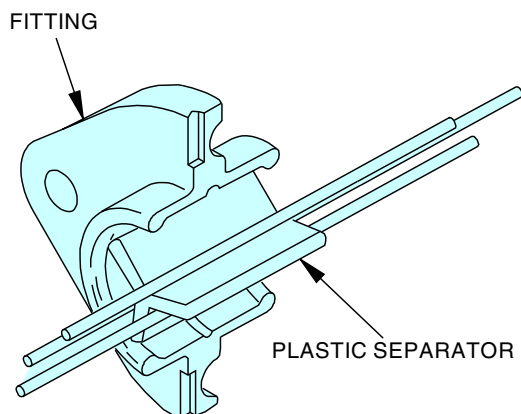
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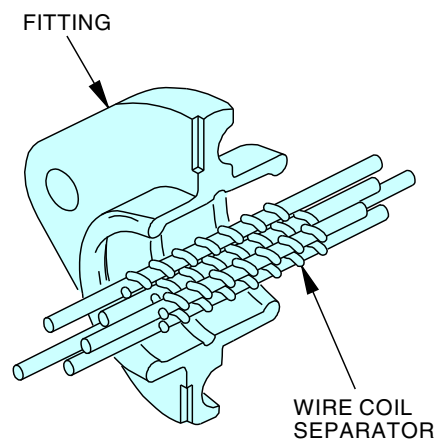
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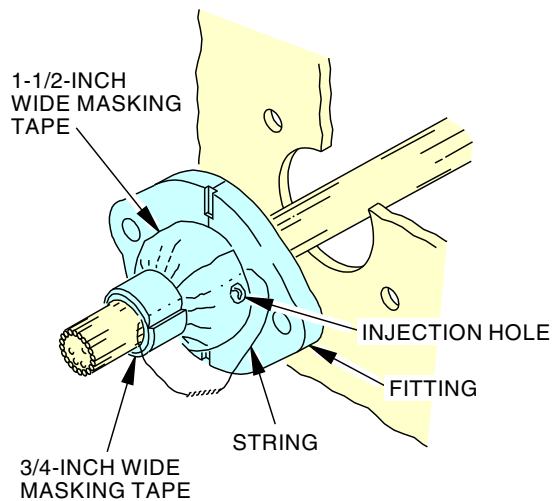
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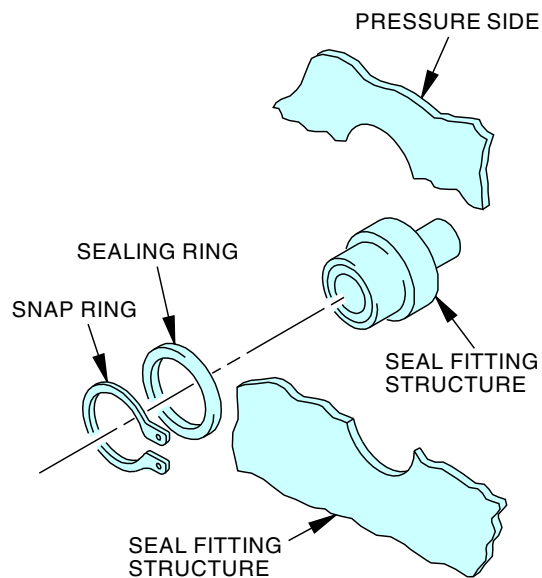
**PLASTIC SEPARATOR
INSTALLATION**



**WIRE COIL SEPARATOR
INSTALLATION**



**BULKHEAD FITTING
(BACS45A)**



**BULKHEAD FITTING
(BACS45B)**

2415643 S00061538551_V1

Electrical Fitting Seal
Figure 208/51-22-00-990-807 (Sheet 2 of 3)

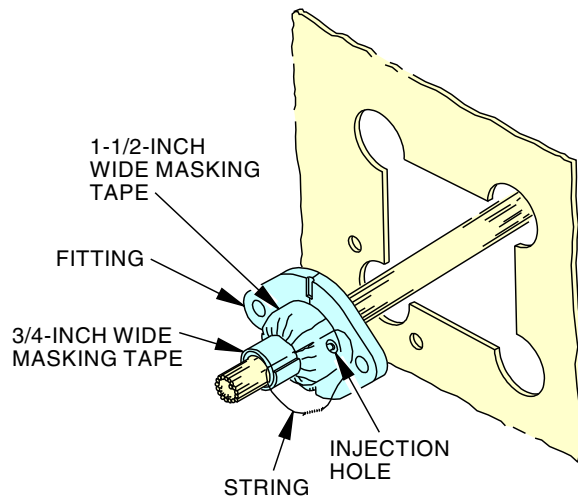
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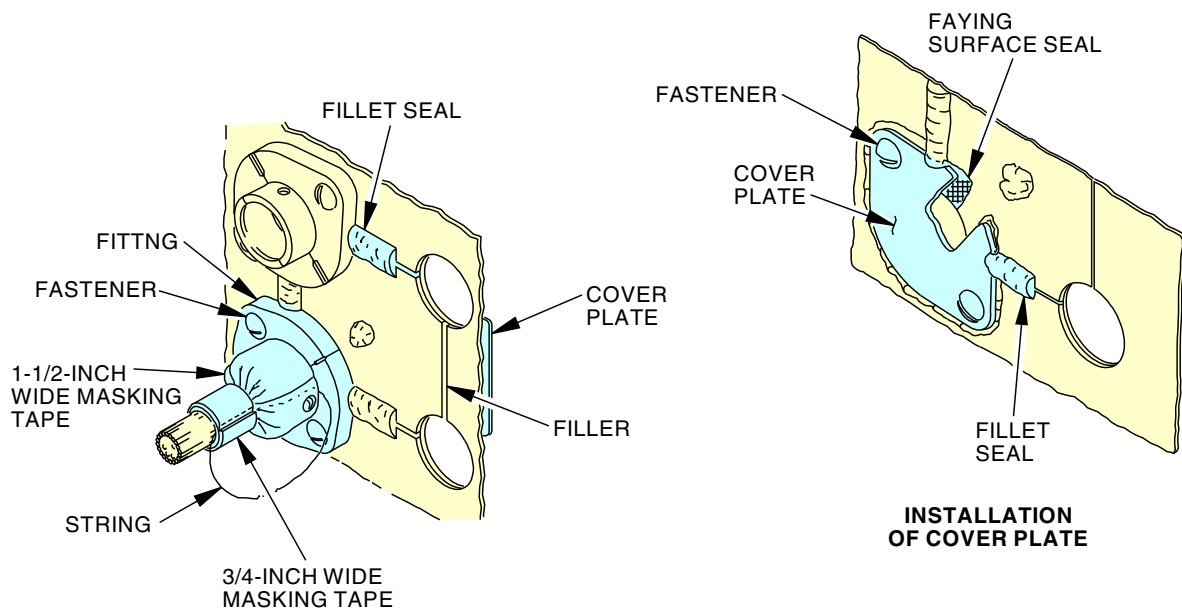
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ASSEMBLY OF BULKHEAD FITTING



**INSTALLATION OF
BULKHEAD FITTING**

**INSTALLATION
OF COVER PLATE**

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Electrical Fitting Seal
Figure 208/51-22-00-990-807 (Sheet 3 of 3)

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TASK 51-22-00-390-811

15. Fuel Seal Application

A. References

Reference	Title
28-11-00-300-804	Repair of the Secondary Fuel Barrier Sealant (P/B 801)

B. Procedure

SUBTASK 51-22-00-390-031

- (1) Do this task: Repair of the Secondary Fuel Barrier Sealant, TASK 28-11-00-300-804.

NOTE: The dry bay access panels are sealed with the "Fillet Seal Application" and "Fastener Seal Application" tasks.

————— END OF TASK —————

TASK 51-22-00-370-801

16. Protection of Sealant Materials

A. Procedure

SUBTASK 51-22-00-620-001

- (1) Keep the sealant materials away from grease, oil, dirt, metal particles and all unwanted materials.

SUBTASK 51-22-00-370-001

- (2) After the sealant is tack-free, put a protective cover on the sealing area for protection.

NOTE: Do not apply a primer to silicone sealants. The primer does not bond to silicone sealants.

- (a) Apply the primer as shown in Application of Protective Primers (Table 201).

Table 201/51-22-00-993-801 Application of Protective Primers

APPLICATION OF PROTECTIVE PRIMERS	
Sealant Class	Sealant Dry Time
Class A	When sealant is tack free
Class B and D	Immediately after application
Class C	Immediately after completion of assembly of the structure
Class E	4 hours minimum after application
Class G	Immediately after completion of assembly of the structure

————— END OF TASK —————

TASK 51-22-00-390-812

17. Accelerated Curing

(Figure 201, Figure 202, Figure 203, Figure 204, Figure 206, Figure 207, Figure 208)

A. Tools/Equipment

Reference	Description
STD-554	Lamp - Heat
STD-3925	Heater - Blower, Explosion Proof, Electric

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B. Accelerated Curing

SUBTASK 51-22-00-390-032



MAKE SURE THAT THE TEMPERATURE IS BELOW 120 DEGREES F (48.9 DEGREES C). IF THE TEMPERATURE IS ABOVE 120 DEGREES F (48.9 DEGREES C), BUBBLES WILL OCCUR ON THE SEALANT.

- (1) Use the explosion proof electric blower - heater, STD-3925, or heat lamps, STD-554, to apply heat to the sealant.
 - (a) Make the airplane structure warm after you apply the sealant.

————— END OF TASK —————

TASK 51-22-00-100-801

18. Chemical Sealant Removal

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
STD-4406	Brush - Bristle, Soft, Natural

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B. Consumable Materials

Reference	Description	Specification
E00002	Stripper - Paint - BONDERITE S-ST 5351 AERO	BAC5725, MIL-R-81294
E50004	Cee-Bee E-1058 polysulfide sealant and paint stripper	
E50005	Skykleen 2000 polysulfide sealant removal paste	BAC5750
E50006	Naftosolv FN polysulfide sealant removal stripper	
E50007	Stripper - Eldorado PR-5044 peroxide stripper	BAC5725
E50008	Skyrestore (thick) sealant stripper	
G50256	Water, Regular	
G50262	Wiper - Cleaning	BMS15-5

C. Procedure

SUBTASK 51-22-00-140-001

- (1) Remove sealant fillet with a sealant removal tool handle, COM-4746, and an approved sealant removal tool, COM-2481.

SUBTASK 51-22-00-950-001

- (2) Mask the adjacent areas as necessary to prevent contamination from chemical strippers.

NOTE: Do not let chemical strippers touch substrates other than aluminum.

NOTE: Do not use chemical strippers on reverse lap joints.

NOTE: Chemical strippers will soften and remove paint.

SUBTASK 51-22-00-940-002

- (3) Use one of the chemical strippers that follow to remove the sealant:
 - BONDERITE S-ST 5351 AERO stripper (methylene chloride), E00002
 - Cee-Bee E-1058 stripper, E50004
 - Skykleen 2000 stripper, E50005
 - Naftoslov FN stripper, E50006
 - Eldorado PR-5044 stripper (hydrogen peroxide activated), E50007
 - Skyrestore (thick) stripper, E50008.

SUBTASK 51-22-00-110-001



ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- (4) Use chemical strippers to remove sealants that stay on the surface as follows:
 - (a) Use a brush, STD-4406, to apply a thin layer of chemical stripper on the sealant.
 - 1) Do not apply excessive chemical stripper.
 - a) The stripper should hang and not flow.
 - 2) Let the stripper dwell until the sealant can be easily removed by dry wiping, but do not exceed 40 minutes.
 - 3) Remove the softened sealant with clean dry wiper, G50262.

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- a) Approved scrapers can be used to facilitate removal.

SUBTASK 51-22-00-160-006

- (5) After the chemical stripping is complete, remove the stripper by thoroughly washing with a water-based alkaline cleaner.

SUBTASK 51-22-00-160-007

- (6) Rinse the area thoroughly with water, G50256.

————— **END OF TASK** —————

TASK 51-22-00-100-802

19. Excess Sealant Removal

A. General

- (1) This procedure is for use in removing excess sealant on the areas and surfaces that follow.

- (a) Fuel tank
- (b) Painted structure
- (c) Unpainted structure except unpainted clad aluminum on the exterior of the aircraft.

- (2) Make sure that you use the correct size blade to remove the excess sealant.

NOTE: The size of the blade depends on the size of the NDI probes that are going to be used for inspection.

- (a) For an NDI pencil probe with a diameter of 0.13 in. (3.30 mm), use a blade with a width of 0.17 in. (4.32 mm).
- (b) For an NDI predator probe with a diameter of 0.30 in. (7.62 mm), use a blade with a width of 0.35 in. (8.89 mm).

- (3) During the procedure, record the equipment property numbers for traceability.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-11852	Rapid Desealer System Part #: RDS001 Supplier: 3FM31

C. Consumable Materials

Reference	Description	Specification
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

D. Prepare to Remove Excess Sealant

SUBTASK 51-22-00-210-002

- (1) Find the area of excess sealant that is necessary to remove for NDI inspection.

NOTE: This is to verify the correct area of work.

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SUBTASK 51-22-00-930-001

- (2) Mark the area of work with a visible or reflecting pen or pencil.

E. Procedure

SUBTASK 51-22-00-100-001

- (1) Scrape the excess sealant with the rapid desealer, COM-11852.

NOTE: Read the instructions in the Rapid De-sealing System (RDS) users manual before you remove the sealant.

- (a) The rapid desealer, COM-11852, is approved for use in the areas that follow.
 - 1) Fuel tank
 - 2) Painted structure
 - 3) Unpainted structure except for unpainted clad aluminum on the exterior fuselage of the aircraft.
- (b) Insert and tighten applicable size blade in the pneumatic RDS tool.
- (c) Align the sealant removal blade flat on the 30 degree attack angle.



CAUTION

USE THE SCRAPER CAREFULLY. DO NOT USE TOO MUCH FORCE. IF YOU DO NOT USE THE SCRAPER CAREFULLY, DAMAGE TO THE SURFACE CAN OCCUR.

- (d) Start the sealant removal tool.
 - 1) Push with even pressure; do not push hard.
 - 2) Move the direction of the blade to remove the necessary sealant.
- (e) If the blade becomes dull, sharpen it either by hand or auto sander.
- (f) Replace the blade if it is too small to sand.

SUBTASK 51-22-00-160-008

- (2) Clean the foreign object damage and waste sealant with a vacuum.

SUBTASK 51-22-00-110-002

- (3) Clean the area with a cotton wiper, G00034, moist with solvent, B00184 or solvent, B00148.
 - (a) Continue to clean the area with a new cotton wiper, G00034, as necessary until the cotton wiper has no remaining foreign object damage and waste sealant on it.

————— **END OF TASK** —————

TASK 51-22-00-100-803

20. 3M SR Cutter Sealant Removal

A. General

- (1) The 3M SR cutter can be used for removing cured sealant from painted metal or painted composite surfaces.

NOTE: The 3M SR cutter is not recommended to perform excess sealant removal. The 3M SR cutter is designed to remove sealant around protruding fasteners heads.

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- (2) Do not exceed 850 Revolutions Per Minute (RPM).

NOTE: There is potential for the operator to lose control of the 3M SR cutter, resulting in the 3M SR cutter "running away". It is recommended that operators are trained on the proper use of the 3M SR cutter. As part of the training, operators should practice using the 3M SR cutter on test panels or test parts to develop their skills to a satisfactory level.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
STD-4406	Brush - Bristle, Soft, Natural

C. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

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D. 3M SR Cutter Sealant Removal

SUBTASK 51-22-00-140-002

- (1) Remove the sealant with the 3M SR cutter.



CAUTION

OBEY THESE PRECAUTIONS. IF YOU IGNORE THESE PRECAUTIONS, DAMAGE TO EQUIPMENT WILL OCCUR.

- (a) Keep the 3M SR cutter speed at less than 850 RPM.
(b) Use the 3M SR cutter to remove the majority of the sealant.



CAUTION

DO NOT REMOVE RESIDUAL SEALANT FROM THE SURFACE WITH THE SR CUTTER. IF THE SR CUTTER TOUCHES AN UNPAINTED SURFACE, DAMAGE TO THE SEALED JOINT AND ADJACENT AREA CAN OCCUR.



CAUTION

ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- (c) Use the sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746, and/or cotton wipers, G00034, or natural bristle brushes, STD-4406, saturated with solvent to remove residual sealant.
(d) Use only the following 3M SR cutters:
 - No. 3 (Material ID 7100230888, 0.40 in. (10.2 mm) diameter)
 - No. 8 (Material ID 7100230887, 0.83 in. (21.1 mm) diameter).
 - 1) Inspect the 3M SR cutters before and periodically during use.
 - 2) If broken tips, nicks, and other damage are observed, then discard the 3M SR cutters.

————— END OF TASK —————

TASK 51-22-00-100-804

21. Bron Aerotech Cutter Sealant Removal

A. General

- (1) The Bron Aerotech BA 4100 Series CSR can be used for removing cured sealant from painted metal or composite surfaces as an alternative option to the 3M SR cutter.

NOTE: The BA 4100 Series CSR cutter is not recommended to perform excess sealant removal. The BA 4100 Series CSR cutter is designed to remove sealant around protruding fasteners heads.

- (2) Do not exceed 400 Revolutions Per Minute (RPM).

NOTE: Operation of the tool at high speed generates heat. Heat will accelerate wear on the tool and may generate undesirable odor from the sealant. It is recommended that operators are trained on the proper use of the BA 4100 Series CSR cutter. As part of the training, operators should practice using the BA 4100 Series CSR cutter on test panels or test parts to develop their skills to a satisfactory level.

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B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 (for SkyScraper) Supplier: F6892 Part #: SHR0272-T (for PnJ scraper) Supplier: 7RKH2 Part #: ST982LH-F-3 (for ST982LF-9) Supplier: 81205 Opt Part #: SHW0215 (for PnJ scraper) Supplier: 7RKH2
STD-4406	Brush - Bristle, Soft, Natural

C. Consumable Materials

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

D. Bron Aerotech BA 4100 Series Composite Sealant Remover (CSR)

SUBTASK 51-22-00-140-003

- (1) Remove the sealant with the BA 4100 Series CSR cutter.



OBEY THESE PRECAUTIONS. IF YOU IGNORE THESE PRECAUTIONS, DAMAGE TO EQUIPMENT WILL OCCUR.

- (a) Keep the BA 4100 Series CSR cutter speed at less than 400 RPM.

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- (b) Use the BA 4100 Series CSR cutter to remove the majority of the sealant.



CAUTION

DO NOT REMOVE REMAINING SEALANT FROM THE SURFACE WITH THE CSR CUTTER. IF THE CSR CUTTER TOUCHES A BARE SURFACE, DAMAGE TO THE SEALED JOINT AND ADJACENT AREA CAN OCCUR.



CAUTION

MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

- (c) use the sealant removal tool, COM-2481, with sealant removal tool handle, COM-4746, and/or cotton wiper, G00034, or natural bristle brush, STD-4406, saturated with the solvent to remove sealant.
- (d) Use only the following Bron Aerotech BA 4100 Series CSR:
- Bron Aerotech BA 4115
 - Bron Aerotech BA 4120
- 1) Inspect the BA 4100 Series CSR cutter before and periodically during use.
 - 2) If broken tips, nicks, and other damage are observed then discard the BA 4100 Series CSR cutter.

———— **END OF TASK** ————

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BONDED RUB PADS - REPAIRS

1. General

A. This procedure contains four tasks:

- (1) Bonded Phenolic or Stainless Steel Rub Pads (Heat source available)
- (2) Bonded Phenolic or Stainless Steel Rub Pads (No heat source available)
- (3) Bonded Phenolic or Stainless Steel Rub Pads (Field repair with a heat source)
- (4) Bonded Teflon Rub Pad Repair.

TASK 51-71-00-340-801

2. Bonded Phenolic or Stainless Steel Rub Pad Repair (Heat Source Available)

(Table 801, Table 802, Table 803)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
STD-1086	Gloves - Rubber
STD-13498	Infrared Heat Lamp, 250 Watts

B. Consumable Materials

Reference	Description	Specification
A00142	Sealant - Temperature Resistant, Fuel Pressure, And Weather Sealant	BMS5-44

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Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A)

C. Procedure

SUBTASK 51-71-00-100-001

- (1) Do these steps to prepare the mating surfaces.
 - (a) Make sure that you put on a clean cotton or rubber glove, STD-1086 when you clean the mating surfaces.
 - (b) To clean the phenolic rub pads, do these steps:
 - 1) Remove all loose dirt, grease, or oil from the surface with a clean cotton wiper, G00034.



DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- 2) Clean the surface with a cotton wiper, G00034 that is moist with solvent, B00062 or alcohol, B00130.
- 3) Immediately dry the surface with a clean dry cotton wiper, G00034.
- 4) Lightly rub the phenolic pad with abrasive cloth, B00102 paper until the gloss is removed.
 - a) Make sure that the gloss is removed from all edges and corners of the pads.
- 5) Remove all particles with a clean cotton wiper, G00034.

NOTE: Do not use solvent to remove the remaining particles.
- 6) Clean the surface with a clean cheesecloth.
 - a) Clean with a cotton wiper, G00034 that is moist with solvent, B00062 or alcohol, B00130 until all of the remaining particles are removed.
- 7) Clean the surface again if it is necessary.

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- (c) Do the steps that follow to clean the clad aluminum surfaces that do not have primer applied:

- 1) Remove all loose dirt, grease, or oil from the surface with a clean cotton wiper, G00034.
- 2) Clean the surface with a clean cotton wiper, G00034 that is moist with solvent, B00062 or solvent, B00184.
- 3) Immediately dry the surface with a clean dry cotton wiper, G00034.
- 4) Lightly rub the clad surface with abrasive cloth, B00102 sheets until the mating surface is not shiny.
- 5) Remove the remaining particles with a clean cotton wiper, G00034.

NOTE: Do not use solvent to remove the remaining particles.

- 6) Clean the surface with a cotton wiper, G00034 that is moist with solvent, B00184 until all the remaining particles are removed.
- 7) Immediately dry the surface with a clean cotton wiper, G00034.
- 8) Clean the surface again if it is necessary.

- (d) To clean the metal surfaces that have primer, C00259 applied, do the steps that follow:

NOTE: It is not necessary to clean the metal surfaces if the BMS 10-11 primer is new for less than 6 hours.

- 1) For surfaces with primer that is new for between 6 and 48 hours before it is cleaned, do the steps that follow:
 - a) Clean the surface with a cotton wiper, G00034 that is moist with solvent, B00083.
 - b) Immediately dry the surface with a clean cotton wiper, G00034.
- 2) For surfaces with primer that is new for more than 48 hours, do the steps that follow:
 - a) Clean the surface with a cotton wiper, G00034 that is moist with solvent, B00184.
 - b) Immediately dry the surface with a clean cotton wiper, G00034.
- 3) Clean the surface again if it is necessary.

SUBTASK 51-71-00-910-001

- (2) Do the steps that follow to apply the adhesive on the mating surfaces.

- (a) The surfaces must be cleaned and dry for less than one hour before you apply the adhesive.
- (b) Remove the rub pads with a sealant removal tool, COM-2481.
- (c) Use an infrared heat lamp, STD-13498 to make the adhesive soft.

NOTE: Do not apply heat at a temperature of 190°F (87.8°C) or more. Use a thermocouple to measure the temperature.

- (d) Remove the remaining adhesive from the surface with a sealant removal tool, COM-2481.

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WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, EYES, OR SKIN. DO NOT BREATHE FUMES FROM SOLVENTS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING. SOLVENTS ARE HAZARDOUS MATERIALS AND MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT.

- (e) Clean the area with a clean cotton wiper, G00034 that is moist with solvent, B00062 or solvent, B00184.
- (f) Immediately dry the area with a clean dry cotton wiper, G00034.
- (g) Mix the adhesive.

NOTE: Keep the components that were not mixed in clean, airtight metal containers.

NOTE: Keep the mixed components at -20°F (-28.9°C) or lower.

- 1) Refer to the manufacturer's instructions to mix the base component and the activator.
- 2) Make sure that the mixture is smooth and constant.
- 3) Keep air bubbles to a minimum when you mix the components.
- 4) Refer to (Table 801) for application time for sealant, A00142 or sealant, A00247, Class B-2 mixed sealant by temperature.

Table 801/51-71-00-993-801 Class B-2 Mixed Adhesive Application Time

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	2 Hours
-30 to -20 Degrees F (-34.4 to -28.9 Degrees C)	7 Days
-40 to -30 Degrees F (-40 to -34.4 Degrees C)	10 Days
Below -40 Degrees F (-40 Degrees C)	14 Days

- 5) Refer to (Table 802) for application time for sealant, A00767 or sealant, A00247, Class B-1/2 mixed sealant by temperature.

Table 802/51-71-00-993-802 Class B-1/2 Mixed Adhesive Application Time

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	1/2 Hours
-30 to -20 Degrees F (-34.4 to -28.9 Degrees C)	7 Days
-40 to -30 Degrees F (-40 to -34.4 Degrees C)	10 Days
Below -40 Degrees F (-40 Degrees C)	14 Days



CAUTION

DO NOT APPLY ADHESIVE IF THE TEMPERATURE OF THE STRUCTURE IS BELOW 50 DEGREES F (10 DEGREES C). AT TEMPERATURES BELOW 50 DEGREES F (10 DEGREES C), THE PERFORMANCE OF THE ADHESIVE IS UNSATISFACTORY AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (h) Apply a thin layer of the adhesive (approximately 1.75 oz (50 g) for each 1 ft² (0.1 m²)) fully on each mating surface.

NOTE: Use a spreader that has serrations to apply the adhesive on a large mating surface.

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- (i) Make sure that the adhesive has a sufficient thickness to let the adhesive flow around the edges of the rub pad.

NOTE: The adhesive will flow when the cure pressure is applied.

SUBTASK 51-71-00-340-001

- (3) Do the steps that follow to apply the new pad:

- (a) Do the steps that follow to assemble the parts:

NOTE: Assemble the part in less than 20 minutes after you mix the B-1/2 material.

NOTE: Assemble the part in less than 2 hours after you mix the B-2 material.

- 1) Put the rub pads in position.
- 2) Use a clean roller or rub the surface of the rub pad with a clean cotton wiper, G00034 to remove the air caught between the surfaces.
NOTE: Too much pressure can push too much adhesive out from the rub pads.
- 3) Remove the unwanted adhesive with a clean cotton wiper, G00034 that is moist with solvent, B00062 or alcohol, B00130.
NOTE: Do not let the solvent go into bond line.
- 4) Let the adhesive dry for 10 minutes before you apply the cure pressure.
- 5) Apply the cure pressure equally to the assembled part for the times that follow:
 - a) in less than 3.0 hours after you mix the B-2 material.
 - b) in less than 1.0 hour after you mix the B-1/2 material.
- 6) Cure the phenolic pads that are bonded to aluminum at constant pressure of 5 psi (34 kPa) to 14 psi (97 kPa). Refer to (Table 803):

Table 803/51-71-00-993-803 Curing Specifications

Curing Temperature degrees F (degrees C)	Hours After You Apply the Cure Pressure	
	Adhesive Class B-1/2	Adhesive Class B-2
77 +/-5 (25 +/-2.8)	45	72
72 +/-5 (22.2 +/-2.8)	68	108
67 +/-5 (19.4 +/-2.8)	90	144
62 +/-5 (16.7 +/-2.8)	135	216
115 +/-5 (46.1 +/-2.8) *[2]	12 *[2]	18 *[2]
185 +/-5 (85 +/-2.8) *[1]	0.75 *[1]	0.75 *[1]
Bond Line Temperature Below Cure Pressure		

*[1] More time on the cure pressure is necessary to heat the adhesive from 70 to 180 degrees F (21.1-82.2 degrees C).

*[2] Optional cure pressure and time. You can use the optional cure temperature and time only with Pro Seal 890.

- (b) Remove the unwanted adhesive with a sealant removal tool, COM-2481.
- (c) Remove the remaining adhesive from the surface with a clean cotton wiper, G00034 that is moist with solvent, B00062 or alcohol, B00130.

———— **END OF TASK** ————

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TASK 51-71-00-340-802

3. Bonded Phenolic or Stainless Steel Rub Pad Repair (No Heat Source Available)

(Table 804, Table 805)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
STD-13498	Infrared Heat Lamp, 250 Watts

B. Consumable Materials

Reference	Description	Specification
A00767	Sealant - Fuel Tank	BMS5-45
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00130	Alcohol - Isopropyl	TT-I-735
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

C. Procedure

NOTE: This procedure is recommended for a field repair of the bonded rub strips when a short cure time in necessary.

SUBTASK 51-71-00-910-002

(1) Do the steps that follow to apply the adhesive on the mating surfaces.

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- (a) The surfaces must be cleaned and dry for less than one hour before you apply the adhesive.
- (b) Remove the rub pads with a sealant removal tool, COM-2481.
- (c) Use a infrared heat lamp, STD-13498 to make the adhesive soft.
NOTE: Do not apply heat at a temperature of 190°F (87.8°C) or more. Use a thermocouple to measure the temperature.
- (d) Remove the remaining adhesive from the surface with a sealant removal tool, COM-2481.



WARNING

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- (e) Clean the area with a clean cotton wiper, G00034 that is moist with solvent, B00062 or alcohol, B00130.
- (f) Immediately dry the area with a clean dry cotton wiper, G00034.
- (g) Mix the adhesive.

NOTE: Keep the components that were not mixed in clean, airtight metal containers.

NOTE: Keep the mixed components at -20°F (-28.9°C) or lower.

- 1) Refer to the manufacturer's instructions to mix the base component and the activator.
- 2) Make sure that the mixture is smooth and constant.
- 3) Keep air bubbles to a minimum when you mix the components.
- 4) Refer to (Table 804) for application time for sealant, A00767 Class B-2 mixed adhesive by temperature.

Table 804/51-71-00-993-804 CLASS B-2 MIXED ADHESIVE APPLICATION TIME

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	2 hours
-20 to -30 Degrees F (-28.9 to -34.4 Deg. C)	7 days
-30 to -40 Degrees F (-34.4 to -40 Deg. C)	10 days
Below -40 Degrees F (Below -40 Degrees C)	14 days

- 5) Refer to (Table 805) for application time for sealant, A00767 Class B-1/2 mixed adhesive by temperature.

Table 805/51-71-00-993-805 CLASS B-1/2 MIXED ADHESIVE APPLICATION TIME

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	1/2 hours

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Table 805/51-71-00-993-805 CLASS B-1/2 MIXED ADHESIVE APPLICATION TIME (Continued)

Temperature	Application Time
-20 to -30 Degrees F (-28.9 to -34.4 Deg. C)	7 days
-30 to -40 Degrees F (-34.4 to -40 Deg. C)	10 days
Below -40 Degrees F (Below -40 Degrees C)	14 days



DO NOT APPLY ADHESIVE IF THE TEMPERATURE OF THE STRUCTURE IS BELOW 50 DEGREES F (10 DEGREES C). AT TEMPERATURES BELOW 50 DEGREES F (10 DEGREES C), THE PERFORMANCE OF THE ADHESIVE IS UNSATISFACTORY AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (h) Apply a thin continuous layer of the adhesive (approximately 1.75 oz (50 g) for each 1 ft² (0.1 m²)) fully on each mating surface.

NOTE: Use a spreader that has serrations to apply the adhesive on a large mating surface.

- (i) Make sure that the adhesive has a sufficient thickness to let the adhesive flow around the edges of the rub pad.

NOTE: The adhesive will flow when the cure pressure is applied.

SUBTASK 51-71-00-340-002

- (2) Do the steps that follow to apply a new pad:

- (a) Do the steps that follow to install the new rub strip on the assembly:

- 1) Make sure that the mating surfaces are clean.
- 2) Apply a thin layer of the adhesive (approximately 1.75 oz (50 g) 50 grams for each 1 ft² (0.1 m²)) fully on each mating surface.

- a) Assemble the parts in less than 25 minutes after you mix the adhesive.

- 3) Put the rub strip flat against the assembly surface.

NOTE: Do not hold or use a clamp on the rub strip.

NOTE: If the clearance between the mating surfaces of the rub strip and the assembly is greater than 0.125 in. (3.2 mm), apply a light pressure with a clean roller to get a smaller clearance.

- (b) Keep the minimum cure time at 6 hours and the temperature at 64°F (17.8°C).

- (c) To apply the cure pressure, do these steps:

- 1) Apply a smooth constant pressure to the rub strip each 15 minutes.

NOTE: Do this step during the first 3 hours after the parts are assembled.

- 2) Make sure that you have a continuous bead of adhesive at the bond line to get a satisfactory bond between the mating surfaces.

- 3) You can apply more pressure to remove air pockets in the bond line during the first 3 hours after the parts are assembled.

————— END OF TASK —————

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TASK 51-71-00-340-803

4. **Bonded Phenolic or Stainless Steel Rub Pad (Field repair with a heat source)**

(Table 807, Table 806)

A. **Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt.", which stands for Optional.

Reference	Description
COM-2481	Sealant Removal Tool (meets BSS7384 requirements) Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 10811 Supplier: \$0855 Part #: 10812 Supplier: \$0855 Part #: 234350 Supplier: 5HCF1 Part #: 235072 Supplier: 5HCF1 Part #: 235073 Supplier: 5HCF1 Part #: 235074 Supplier: 5HCF1 Part #: 235075 Supplier: 5HCF1 Part #: 235076 Supplier: 5HCF1 Part #: 311/03 Supplier: F6892 Part #: 311/14 Supplier: F6892 Part #: 311/25 Supplier: F6892 Part #: 311/37 Supplier: F6892 Part #: AS1 Supplier: \$1351 Part #: AS2 Supplier: \$1351 Part #: AS3 Supplier: \$1351 Part #: DAD5013 Supplier: 7RKH2 Part #: DFD5019 Supplier: 7RKH2 Part #: JNT411B60 Supplier: 3DN12 Part #: JNT411B90 Supplier: 3DN12 Part #: SCD5019 Supplier: 7RKH2 Part #: ST982LF-9 Supplier: 81205 Part #: TS1275-4 Supplier: 22975
STD-13498	Infrared Heat Lamp, 250 Watts

B. **Consumable Materials**

Reference	Description	Specification
A00767	Sealant - Fuel Tank	BMS5-45
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00130	Alcohol - Isopropyl	TT-I-735
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

C. **Procedure**

SUBTASK 51-71-00-910-003

- (1) Do the steps that follow to apply the adhesive on the mating surfaces.
 - (a) The surfaces must be cleaned and dry for less than one hour before you apply the adhesive.

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- (b) Remove the rub pads with a sealant removal tool, COM-2481.
- (c) Use a infrared heat lamp, STD-13498 to make the adhesive soft.
NOTE: Do not apply heat at a temperature of 190°F (87.8°C) or more. Use a thermocouple to measure the temperature.
- (d) Remove the remaining adhesive from the surface with a sealant removal tool, COM-2481.



WARNING

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- (e) Clean the area with a clean cotton wiper, G00034 that is moist with solvent, B00062 or alcohol, B00130.
- (f) Immediately dry the area with a clean dry cotton wiper, G00034.
- (g) Mix the adhesive.

NOTE: Keep the components that were not mixed in clean, airtight metal containers.

NOTE: Keep the mixed components at -20°F (-28.9°C) or lower.

- 1) Refer to the manufacturer's instructions to mix the base component and the activator.
- 2) Make sure that the mixture is smooth and constant.
- 3) Keep air bubbles to a minimum when you mix the components.
- 4) Refer to (Table 806) for application time for sealant, A00767 Class B-2 mixed adhesive by temperature.

Table 806/51-71-00-993-806 CLASS B-2 MIXED ADHESIVE APPLICATION TIME

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	2 hours
-20 to -30 Degrees F (-28.9 to -34.4 Deg. C)	7 days
-30 to -40 Degrees F (-34.4 to -40 Deg. C)	10 days
Below -40 Degrees F (Below -40 Degrees C)	14 days

- 5) Refer to (Table 807) for application time for sealant, A00767 Class B-1/2 mixed adhesive by temperature.

Table 807/51-71-00-993-807 CLASS B-1/2 MIXED ADHESIVE APPLICATION TIME

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	1/2 hours
-20 to -30 Degrees F (-28.9 to -34.4 Deg. C)	7 days

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Table 807/51-71-00-993-807 CLASS B-1/2 MIXED ADHESIVE APPLICATION TIME (Continued)

Temperature	Application Time
-30 to -40 Degrees F (-34.4 to -40 Deg. C)	10 days
Below -40 Degrees F (Below -40 Degrees C)	14 days



DO NOT APPLY ADHESIVE IF THE TEMPERATURE OF THE STRUCTURE IS BELOW 50 DEGREES F (10 DEGREES C). AT TEMPERATURES BELOW 50 DEGREES F (10 DEGREES C), THE PERFORMANCE OF THE ADHESIVE IS UNSATISFACTORY AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- (h) Apply a thin layer of the adhesive (approximately 1.75 oz (50 g) for each 1 ft² (0.1 m²)) fully on each mating surface.
- NOTE: Use a spreader that has serrations to apply the adhesive on a large mating surface.
- (i) Make sure that the adhesive has a sufficient thickness to let the adhesive flow around the edges of the rub pad.
- NOTE: The adhesive will flow when the cure pressure is applied.

SUBTASK 51-71-00-340-003

- (2) Do the steps that follow to apply a new pad:
- (a) Do the steps that follow to install the new rub pad on the assembly:
- 1) Make sure that the mating surfaces are clean.
 - 2) Apply a thin layer of adhesive (approximately 1.75 oz (50 g) for each 1 ft² (0.1 m²)) fully on each mating surface.
 - a) Assemble the parts in less than 25 minutes after you mix and apply the adhesive.
 - 3) Put the rub strip flat against the assembly surface.
- NOTE: Do not hold or use a clamp on the rub strip.
- NOTE: If the clearance between the mating surfaces of the rub strip and the assembly is greater than 0.125 in. (3.2 mm), apply a light pressure with a clean roller to get a smaller clearance.
- (b) To cure the assembly, do these steps:
- 1) Use two infrared heat lamp, STD-13498 as heat sources.
 - a) Put the lamps 9 in. (22.9 cm) apart and 6 in. (15.2 cm) from the rub strip.

NOTE: Make sure that the heat lamps point down on the rub strip.
 - 2) Apply heat on the assembly at a temperature of 90 ±5°F (32.2 ±2.8°C).

NOTE: Permit at least 1 1/2 hours from the time you mix the adhesive to the time you cure the adhesive.
 - 3) Cure the assembly for 2 hours minimum at 85°F (29.4°C) to 120°F (48.9°C).

NOTE: Use a thermocouple to measure the temperature.
 - 4) Let the assembly stay for at least 20 minutes before you apply the cure pressure.
- (c) To apply the cure pressure, do these steps:

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- 1) Apply a smooth constant pressure to the rub strip every 15 minutes during the first 2 hours after the parts are assembled.
- 2) Make sure a continuous bead of adhesive is at the bond line to get a satisfactory bond between the mating surfaces.
- 3) Apply more pressure to remove air pockets in the bond line as the adhesive cures in the assembly.

————— **END OF TASK** —————

TASK 51-71-00-340-804

5. Bonded Teflon Rub Pad Repair

(Table 809, Table 808, Table 810)

A. General



DO NOT GET TEFLON ETCH-MATERIAL IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATH FUMES FROM TEFLON ETCH-MATERIAL. DO NOT BREATH MIST FROM THE ETCH-MATERIAL. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE TEFLON ETCH MATERIAL. DO NOT LET TEFLON ETCH-MATERIAL TOUCH YOUR SKIN, EYES, OR YOUR CLOTHES. TEFLON ETCH-MATERIAL IS POISONOUS, FLAMMABLE, EXPLOSIVE, AND CAN CAUSE CORROSION. TEFLON ETCH-MATERIAL CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) You must do the safety procedures that follow during this task.
 - (a) Do not breath the fumes or mist from teflon etching material.
 - 1) You must etch the teflon rubstrips in a ventilated area.
 - 2) If it is possible, etch the teflon rubstrips under a ventilation hood.
 - (b) Keep all flammable material away from a source of ignition.
 - (c) Make sure you use anhydrous ammonia because anhydrous ammonia does not contain water.

B. Tools/Equipment

Reference	Description
STD-13498	Infrared Heat Lamp, 250 Watts

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00767	Sealant - Fuel Tank	BMS5-45
B00062	Solvent - Acetone (99.5% Grade)	ASTM D 329 (Supersedes O-A-51)
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00342	Alcohol - N-Butyl (Butanol)	ASTM D304
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CLA)

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Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

D. Prepare the mating surfaces.

SUBTASK 51-71-00-110-001

- (1) Do the steps that follow to prepare the mating surface:



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- Use a cloth that is moist with solvent, B00184 or solvent, B00062 to clean the mating surface.
- Use a cloth that is moist with solvent, B00062 to clean the mating surface of the teflon pad.
- Apply masking Scotch Flatback Masking Tape 250, G00270 to the opposite side of the teflon pad mating surface.

E. Etch the teflon pad mating surface as follows

NOTE: You can get teflon rub pads that are etched. This paragraph applies only to teflon pads that are not etched.

SUBTASK 51-71-00-110-002



DO NOT GET TEFLON ETCH-MATERIAL IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE FUMES FROM TEFLON ETCH-MATERIAL. DO NOT BREATHE MIST FROM THE ETCH-MATERIAL. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE TEFLON ETCH MATERIAL. DO NOT LET TEFLON ETCH-MATERIAL TOUCH YOUR SKIN, EYES, OR YOUR CLOTHES. TEFLON ETCH-MATERIAL IS POISONOUS, FLAMMABLE, EXPLOSIVE, AND CAN CAUSE CORROSION. TEFLON ETCH-MATERIAL CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the Etching Method I (FluoroBond or Tetra-Etch) that follows:
- Put the part in the etchant solution for a minimum of 30 seconds and a maximum of 60 seconds.
 - The part must have a dark brown color in 60 seconds.
NOTE: If the part is not dark brown in 60 seconds, the etchant solution must be replaced with new etchant solution.
 - Immediately clean the part when the etching is completed.
 - Use a 3 to 5 percent solution (by volume) of water in butyl alcohol, B00342 to remove all of the etchant from the part.
 - Wash the part in clean water.
 - Remove the Scotch Flatback Masking Tape 250, G00270.
 - Clean the surface that had the Scotch Flatback Masking Tape 250, G00270 with a clean cotton wiper, G00034 that is wet with solvent, B00062.

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SUBTASK 51-71-00-340-004

(2) Do the steps that follow to repair the teflon rub pads:

(a) Mix the adhesive.

NOTE: Keep the components that were not mixed in clean, airtight metal containers.

NOTE: Keep the mixed components at -20°F (-28.9°C) or lower.

- 1) Refer to the manufacturer's instructions to mix the base component and the activator.
- 2) Make sure the mixture is smooth and constant.
- 3) Keep air bubbles to a minimum when you mix the components.
- 4) Do not make the adhesive too thin.
- 5) Refer to (Table 808) for application time for sealant, A00767, sealant, A00247 Class B-2 mixed adhesive by temperature.

Table 808/51-71-00-993-808 CLASS B-2 MIXED ADHESIVE APPLICATION TIME

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	2 hours
-20 to -30 Degrees F (-28.9 to -34.4 Deg. C)	7 days
-30 to -40 Degrees F (-34.4 to -40 Deg. C)	10 days
Below -40 Degrees F (Below -40 Degrees C)	14 days

- 6) Refer to (Table 809) for application time for sealant, A00767, sealant, A00247 Class B-1/2 mixed sealant by temperature.

NOTE: Make sure you keep the mixture in sealant gun tubes or in aluminum toothpaste type tubes.

NOTE: Make a mark on each container with the material name and the expiration date.

Table 809/51-71-00-993-809 CLASS B-1/2 MIXED ADHESIVE APPLICATION TIME

Temperature	Application Time
70 Degrees F (21.1 Degrees C)	1/2 hours
-20 to -30 Degrees F (-28.9 to -34.4 Deg. C)	7 days
-30 to -40 Degrees F (-34.4 to -40 Deg. C)	10 days
Below -40 Degrees F (Below -40 Degrees C)	14 days

(b) Do the steps that follow to apply a new pad:

(c) To install the new rub strip on the assembly, do these steps:

- 1) Make sure the mating surfaces are clean.

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- 2) Apply a thin layer of adhesive (approximately 1.75 oz (50 g) for each 1 ft² (0.1 m²)) fully on each mating surface.

a) Assemble the parts in less than 25 minutes after you mix the adhesive.

- 3) Put the rub strip flat against the assembly surface.

NOTE: Do not hold or use a clamp on the rub strip.

NOTE: If the clearance between the mating surfaces of the rub strip and the assembly is greater than 0.125 in. (3.2 mm), apply a light pressure with a clean roller to get a smaller clearance.

- (d) Do the steps that follow to cure the assembly:

- 1) Use two infrared heat lamp, STD-13498 as heat sources.

NOTE: Put the lamps 9 inches (23 mm) apart and 6 inches (15 mm) from the rub strip. Make sure the heat lamps point down on the rub strip.

- 2) Apply heat on the assembly at a temperature of 90 ±5°F (32.2 ±2.8°C).

NOTE: Permit at least 1 1/2 hours from the time you mix the adhesive to the time you cure the adhesive.

- 3) Cure the assembly for 2 hours minimum at 85°F (29.4°C) to 120°F (48.9°C).

NOTE: Use a thermocouple to measure the temperature.

- 4) Let the assembly stay for at least 20 minutes before you apply the cure pressure.

- 5) Apply the cure pressure:

a) Apply a smooth constant pressure to the rub strip every 15 minutes during the first 2 hours after the parts are assembled.

b) Make sure a continuous bead of adhesive is at the bond line to get a satisfactory bond between the mating surfaces.

c) Apply more pressure to remove air pockets in the bond line as the adhesive cures in the assembly.

- 6) Cure the pad at 75°F (23.9°C) to 80°F (26.7°C). Refer to (Table 810) for cure times to handling strength.

NOTE: The time to a full cure is one week or more.

Table 810/51-71-00-993-810 CURE TIMES TO HANDLING STRENGTH

Adhesive	Handling time
BMS 5-45, Class B-2	48 hours
BMS 5-95, Class B-1/2	24 hours
Class B-2	48 hours

- 7) You can make a test of the cure strength with a Durometer. Before you touch the rub pad, the Rex Model A Durometer must read 30 and the Shore A Durometer must read 20.

———— **END OF TASK** ————

EFFECTIVITY
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