

CHAPTER

51

**STANDARD
PRACTICES AND
STRUCTURES**



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202	Jan 05/2015		51-00-57			51-03-00		
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404	Sep 05/2017		209	May 05/2017		707	May 05/2018	
405	Sep 05/2017		210	May 05/2017		708	May 05/2018	
406	BLANK		211	May 05/2017		709	May 05/2018	
51-03-01			212	May 05/2017		710	May 05/2018	
601	Jan 05/2015		213	May 05/2017		711	May 05/2018	
602	BLANK		214	BLANK		712	May 05/2018	
51-03-02			51-10-00			713	May 05/2018	
701	May 05/2015		601	Jul 25/2018		714	May 05/2018	
702	Jan 05/2015		602	Jul 25/2018		715	May 05/2018	
703	Sep 05/2017		603	Jan 05/2015		716	May 05/2018	
704	Sep 05/2017		604	May 05/2017		717	May 05/2018	
51-03-03			605	Jan 05/2015		718	May 05/2018	
701	May 05/2015		606	May 05/2017		719	May 05/2018	
702	Jan 05/2015		607	Jan 05/2015		720	May 05/2018	
703	Sep 05/2017		608	May 05/2017		721	May 05/2018	
704	Sep 05/2017		609	May 05/2017		722	May 05/2018	
705	Sep 05/2017		610	Jan 05/2015		723	May 05/2018	
706	Sep 05/2017		611	May 05/2015		724	May 05/2018	
707	Sep 05/2017		612	Jan 05/2015		725	May 05/2018	
708	BLANK		51-11-00			726	May 05/2018	
51-03-04			601	Sep 05/2017		727	May 05/2018	
701	May 05/2015		602	Sep 05/2017		728	May 05/2018	
702	Jan 05/2015		603	Sep 05/2017		729	May 05/2018	
703	Sep 05/2017		604	Sep 05/2017		730	May 05/2018	
704	Sep 05/2017		605	Jan 05/2015		731	May 05/2018	
705	Sep 05/2017		606	BLANK		732	May 05/2018	
706	Sep 05/2017		51-21-00			733	May 05/2018	
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203	May 05/2017		701	May 05/2018		737	May 05/2018	
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741	May 05/2018		716	Sep 05/2017		709	Sep 05/2017	
742	May 05/2018		717	Sep 05/2016		710	Sep 05/2017	
743	May 05/2018		718	Sep 05/2017		711	Sep 05/2017	
744	May 05/2018		719	Sep 05/2017		712	Sep 05/2017	
745	May 05/2018		720	BLANK		713	Sep 05/2017	
746	May 05/2018		51-21-03			714	Sep 05/2017	
747	Jan 05/2017		701	May 05/2015		715	Sep 05/2017	
748	Jan 05/2017		702	Jan 05/2015		716	Sep 05/2017	
749	Jan 05/2017		703	Sep 05/2017		717	Sep 05/2017	
750	Jan 05/2017		704	Sep 05/2017		718	May 05/2016	
751	Jan 05/2017		705	Sep 05/2017		719	Jan 05/2015	
752	Jan 05/2017		706	Sep 05/2017		720	Jan 05/2015	
753	Jan 05/2017		707	Sep 05/2017		721	Jan 05/2015	
754	Jan 05/2017		708	Sep 05/2017		722	Jan 05/2016	
755	Jan 05/2017		709	Sep 05/2017		723	Jan 05/2016	
756	Jan 05/2017		710	BLANK		724	May 05/2016	
757	Jan 05/2017		51-21-04			725	Jan 05/2015	
758	May 05/2017		701	Jul 25/2018		726	Jan 05/2015	
759	May 05/2017		702	Sep 05/2016		727	Jan 05/2015	
760	May 05/2017		703	Jul 25/2018		728	May 05/2016	
51-21-02			704	Jul 25/2018		729	May 05/2017	
701	Jan 05/2017		705	Jul 25/2018		730	Jan 05/2015	
702	Sep 05/2017		706	Sep 05/2017		731	Jan 05/2015	
703	Sep 05/2017		707	Sep 05/2017		732	Jan 05/2015	
704	Sep 05/2017		708	Sep 05/2017		51-21-11		
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706	Sep 05/2017		710	Jan 05/2018		702	Sep 05/2017	
707	May 05/2017		51-21-10			703	Sep 05/2017	
708	Jan 05/2017		701	Jan 05/2015		704	Sep 05/2017	
709	Sep 05/2017		702	Sep 05/2017		705	Sep 05/2017	
710	Sep 05/2017		703	Sep 05/2017		706	Sep 05/2017	
711	Sep 05/2017		704	Sep 05/2017		707	May 05/2017	
712	Sep 05/2017		705	Sep 05/2017		708	BLANK	
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703	Sep 05/2017		701	Sep 05/2017		716	Jan 05/2015	
704	Sep 05/2017		702	Sep 05/2017		717	Jan 05/2016	
705	May 05/2017		703	Sep 05/2017		718	Sep 05/2016	
706	May 05/2017		704	Sep 05/2017		719	May 05/2016	
51-24-01			705	Sep 05/2017		720	Jan 05/2015	
701	Sep 05/2015		706	Sep 05/2017		721	Jan 05/2016	
702	Sep 05/2017		51-24-07			722	Jan 05/2016	
703	Jan 05/2015		701	Sep 05/2017		51-24-11		
704	BLANK		702	Sep 05/2017		701	Sep 05/2016	
51-24-02			703	Sep 05/2017		702	Sep 05/2016	
701	Sep 05/2017		704	Sep 05/2017		703	Jan 05/2015	
702	Sep 05/2017		51-24-09			704	Jan 05/2015	
703	Sep 05/2017		701	May 05/2015		705	Jan 05/2015	
704	May 05/2015		702	Sep 05/2017		706	Jan 05/2015	
705	May 05/2015		703	Sep 05/2017		707	Jan 05/2015	
706	Sep 05/2017		704	Sep 05/2017		708	Jan 05/2015	
707	Sep 05/2017		705	Sep 05/2017		709	Jan 05/2015	
708	Sep 05/2017		706	Sep 05/2017		710	Sep 05/2016	
709	Sep 05/2017		707	Sep 05/2017		711	Sep 05/2016	
710	Sep 05/2017		708	Sep 05/2017		712	Sep 05/2016	
711	Sep 05/2017		51-24-10			713	Jan 05/2016	
712	Sep 05/2017		701	Jan 05/2018		714	Jan 05/2015	
713	Sep 05/2017		702	Jan 05/2015		715	Jan 05/2016	
714	Sep 05/2017		703	Jan 05/2015		716	Jan 05/2015	
715	Sep 05/2017		704	May 05/2016		717	Jan 05/2016	
716	Sep 05/2017		705	Jan 05/2015		718	Jan 05/2016	
717	Sep 05/2017		706	Jan 05/2018		719	Jan 05/2015	
718	Sep 05/2017		707	Jan 05/2016		720	Jan 05/2015	
51-24-04			708	Jan 05/2015		721	Jan 05/2015	
701	Sep 05/2015		709	Jan 05/2015		722	Jan 05/2015	
702	Sep 05/2015		710	May 05/2017		723	Jan 05/2015	
703	Sep 05/2017		711	Jan 05/2016		724	Sep 05/2016	
704	Sep 05/2017		712	Sep 05/2017		725	Sep 05/2016	
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728	BLANK		802	Sep 05/2017		227	Sep 05/2017	
51-24-13			803	Sep 05/2017		228	Sep 05/2017	
701	May 05/2018		804	Sep 05/2017		229	Sep 05/2017	
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704	Sep 05/2017		807	Sep 05/2017		232	Sep 05/2017	
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803	Sep 05/2017		202	May 05/2018		238	Sep 05/2017	
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806	Sep 05/2017		205	May 05/2017		241	May 05/2018	
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805	Sep 05/2017		211	Sep 05/2017		402	Jan 05/2015	
806	May 05/2018		212	Sep 05/2017		403	May 05/2017	
807	Sep 05/2017		213	May 05/2017		404	May 05/2017	
808	Sep 05/2017		214	May 05/2015		405	May 05/2017	
809	May 05/2018		215	May 05/2017		406	BLANK	
810	Sep 05/2017		216	May 05/2015				
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813	Sep 05/2017		219	Sep 05/2017				
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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 touchup 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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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). Because corrosion is a problem that will not go away, 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) DOORS - STRUCTURAL INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 52-05-03/201
 - (b) FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-01/201
 - (c) NACELLES/PYLONS - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 54-05-01/201
 - (d) STABILIZERS - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 55-05-01/201
 - (e) WINDOWS, CHAPTER 56
 - (f) WINGS - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 57-05-01/201
- (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.
 - 1) Mercury.
 - a) 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 - MAINTENANCE PRACTICES, PAGEBLOCK 05-51-21/201.
 - 2) Livestock and fish cargo.
 - a) 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 - MAINTENANCE PRACTICES, PAGEBLOCK 51-00-60/201 and TRANSPORTATION OF FISH - MAINTENANCE PRACTICES, PAGEBLOCK 51-00-62/201.
- (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.



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- (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, 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 General Ultrasonic, 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, 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, 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 Eurasian 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. Filiform corrosion occurs on clad aluminum surfaces under paint when the relative humidity of the air is between 78 and 90 percent and when the surface is slightly acidic. 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. Filiform corrosion occurs on clad aluminum surfaces under paint when the relative humidity of the air is between 78 and 90 percent and when the surface is slightly acidic.
- B. To establish a corrosion prevention program to meet the operator's individual requirement, it must first be ascertained how severe the operating environment is geographically, and then establish frequencies of inspection and prevention procedures to suit the route structure. Three categories of operating environment have been established as follows:
 - (1) Severe - Areas in which there is a marine atmosphere or industrial atmosphere containing contaminants. Hot, humid tropical areas also come within the severe category.
 - (2) Moderate - Temperate regions with other than marine or industrially polluted atmospheres.
 - (3) 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.



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- C. The operating environment is defined as being equivalent to the worst area of operation on the route structure on which the airplane is being used. Thus, an airplane starting in a mild location but flying to a severe area would be considered as operating in a severe environment.

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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. Refer to par. 7 for general data about these procedures. Refer to par. 8 and on for details for the different metals.

2. Safety Procedures

NOTE: Refer to par. B. for emergency safety procedures.

- A. General Safety Precautions. Obey these safety precautions when you use solvents, special cleaning compounds, paint strippers (strong alkalis 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 rainhats when you clean, strip, etch, or apply conversion coating to overhead surfaces.
 - (6) When you mix alkalis 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:

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Methyl alcohol	Xylene
Methyl ethyl ketone	Petroleum naphthas
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.

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- 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.
- 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 10-power magnifying glass 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 Dial Depth Gage. The method for taking measurements with a dial depth gage is outlined below:
 - (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 as shown in Figure 202.
 - (2) Position the depth gage and determine the measurement reading.

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- (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 gage the use of impression materials is recommended.
 - (1) Clay. 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 remove 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 NORMAL PARKING - MAINTENANCE PRACTICES, PAGEBLOCK 10-11-01/201.
 - (3) Removed or disconnect airplane batteries as required.
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.
 - (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 STANDARD PRACTICES AND STRUCTURES, CHAPTER 51. Special cleaning procedures may be required in some cases. Precautions necessary when working with cleaning chemicals are noted in par. 2.

6. Paint Removal

- A. For general procedures, refer to PAINT STRIPPING - CLEANING/PAINTING, PAGEBLOCK 51-21-01/701. For special removal procedures, refer to the appropriate sections. For safety precautions when you use paint removal chemicals, refer to par. 2. above.

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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 from Figure 204.
 - (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 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 Figure 207.
 - (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 Figure 202.
- 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. For details for the different metals, refer to par. 8 and on.
 - (2) Wire Brushing. 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 per par. 5.
 - (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:
- Protect adjacent components from scale, chips, corrosion products and chemical agents.
 - If you find grease or dirt, clean the area per par. 5.
 - 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.
- 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
 - In-cabinet Blasting. In-cabinet blasting is preferred. External gun blasting may be used if adequate confinement and recovery are provided for the abrasives.
 - For the abrasive, use glass beads (150 mesh or finer).
 - 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.
 - If you find grease or dirt, clean the area per par. 5.
 - Give protection from the blast to such close tolerance surfaces as bushings, bearings, close tolerance shafts and threads.
 - Remove only the corrosion products by abrasive blasting with glass beads.
 - 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:
 - Remove any heavy soils with alkaline emulsion cleaner.
 - Strip the protective finish (both enamel and primer).
 - Mechanically remove the filiform corrosion by blasting with glass beads (approximately 150 mesh).
 - 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.
 - 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) Figure 208.
 - The unit weighs 7 pounds and includes an abrasive reservoir (which holds up to 4 lb (1814 g) 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 one-inch 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) a 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 per par. 5.
- (d) Remove paint per par. 6, if applicable.
- (e) Measure the amount of damage per par. 3.
- (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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- 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. Refer to par. 7.E. for procedures. On nonclad anodized surfaces, be careful not to damage the anodized surface adjacent to the corrosion area.
- 5) Dry abrasive blasting with glass beads (par. 7.E.(3)) 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 per par. 7.C.
- (i) Clean the repaired area.
- (j) Measure the depth of the blends per par. 7.D., to be sure that they are within repair limits.
- (k) Treat the repaired area per PREPAINT CLEANING AND TREATMENT - CLEANING/ PAINTING, PAGEBLOCK 51-21-02/701.
- (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.

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- (f) Repeat steps 3 through 6 if any corrosion remains.
- (g) Fair depressions resulting from rework per par. 7.C., and surface finish with 400 or 600 grit abrasive paper. Select proper abrasive Figure 204.
- (h) Clean reworked area.
- (i) Determine depth of fared depression per par. 7.D., to ensure that rework depth limits have not been exceeded.
- (j) Treat reworked surface as indicated in PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701.

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 paragraphs.

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 per par. 5.
- (d) Strip paint per par. 6, if applicable.
- (e) Determine extent of damage per par. 3.
- (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 in Figure 204, or:
 - 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. Refer to par. 7.E., for procedures. 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. Refer to par. 7.E. 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, refer to par. 9.C.(4), and wash thoroughly with clean water.
- (i) Fair depressions resulting from rework per par. 7.C., and surface finish with 400 or 600 grit abrasive paper. Select appropriate abrasive material Figure 204.
- (j) Clean reworked area.
- (k) Determine depth of fared depression per par. 7.D., to ensure that depth rework Limits have not been exceeded.
- (l) Treat reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/ PAINTING, PAGEBLOCK 51-21-02/701

(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.

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- 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.

- <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 per par. 7.C.
- <11> Surface treatment after corrosion removal per 20-50-00.

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 per par. 5.
- (d) Strip paint per par. 6, if applicable.

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- (e) Corrosion removal on steels heat-treated to 220,000 psi and above shall be accomplished by dry abrasive blasting as outlined in par. 7.E., with blasting pressure ranging from 40 psi (276 kPa) to 70 psi (483 kPa) or hand tools described in par. 7.E.
 - (f) Mechanically remove all corrosion from steel parts heat-treated below 220,000 psi as follows:
 - 1) Remove heavy corrosion products using stainless steel hand brush. Use dry abrasive blasting per 7.E., 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 as outlined in par. 7.E. Select appropriate abrasives Figure 204.
 - (g) Make visual check through a 10-power magnifying glass to ensure that all corrosion is removed.
 - (h) Fair depressions resulting from reworked per par. 7.C., and surface finish with 400 grit abrasive paper selected from Figure 204.
 - (i) Clean reworked area.
 - (j) Determine depth of fared depression per par. 7.D., to ensure that rework depth limits have not been exceeded.
 - (k) Treat reworked area as indicated in PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701 immediately upon finish of rework.
- (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 per par. 5.
 - <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 per par. 7.C.
 - <10> Determine depth of fared depressions per par. 7.D., to ensure that rework limits have not been exceeded.

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<11> Treat surface of reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701 immediately upon finish of rework.

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 per par. 5.
- <3> Remove heavy rust by chipping an/or wire brushing with stainless steel wire brush.
- <4> Prepare the acid mixture per step (1)(e).
- <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 per par. 7.C.
- <10> Determine depth of fared depression per par. 7.D., to ensure that rework depth limits have not been exceeded.
- <11> Treat surface of reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701 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 per par. 5.
- <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 per par. 7.C.
- <11> Determine depth of fared depression per par. 7.D., to ensure that rework depth limits have not been exceeded.

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<12> Treat surface of reworked area per PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701 immediately upon finish of rework.

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 per par. 5.
 - (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 51-21-02/701.
 - (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

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- (1) Protect adjacent areas from contaminants during corrosion removal.
 - (2) If grease or soil is present, clean area per par. 5.
 - (3) If corrosion appears only on the plated surfaces, rework as follows:
 - (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 51-21-02/701.
- 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 per par. 5.
 - (3) Remove heavy corrosion by mechanical method per par. 7.E.
 - (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 51-21-02/701.
- 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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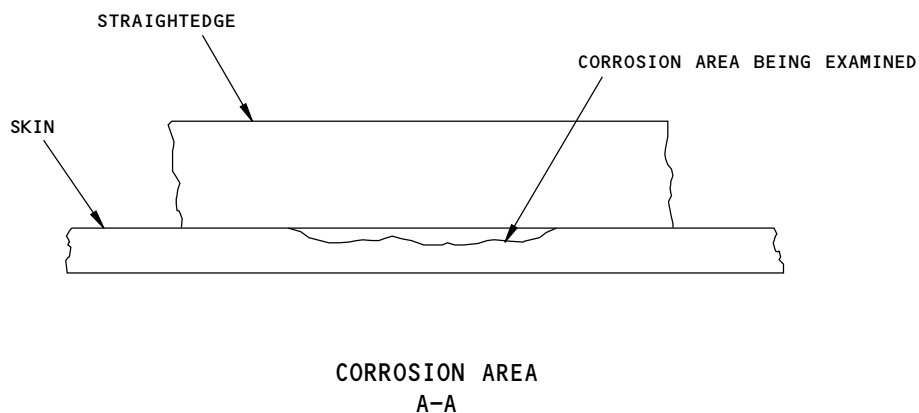
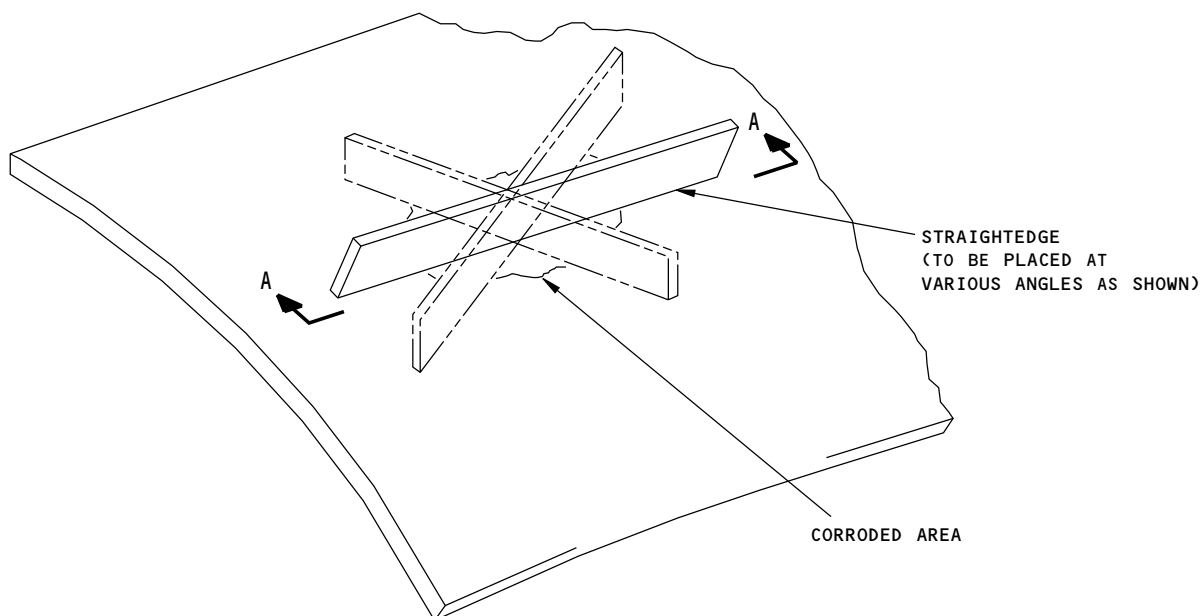
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Usage of Straight Edge in Determining Depth of Corrosion
Figure 201/51-00-53-990-801

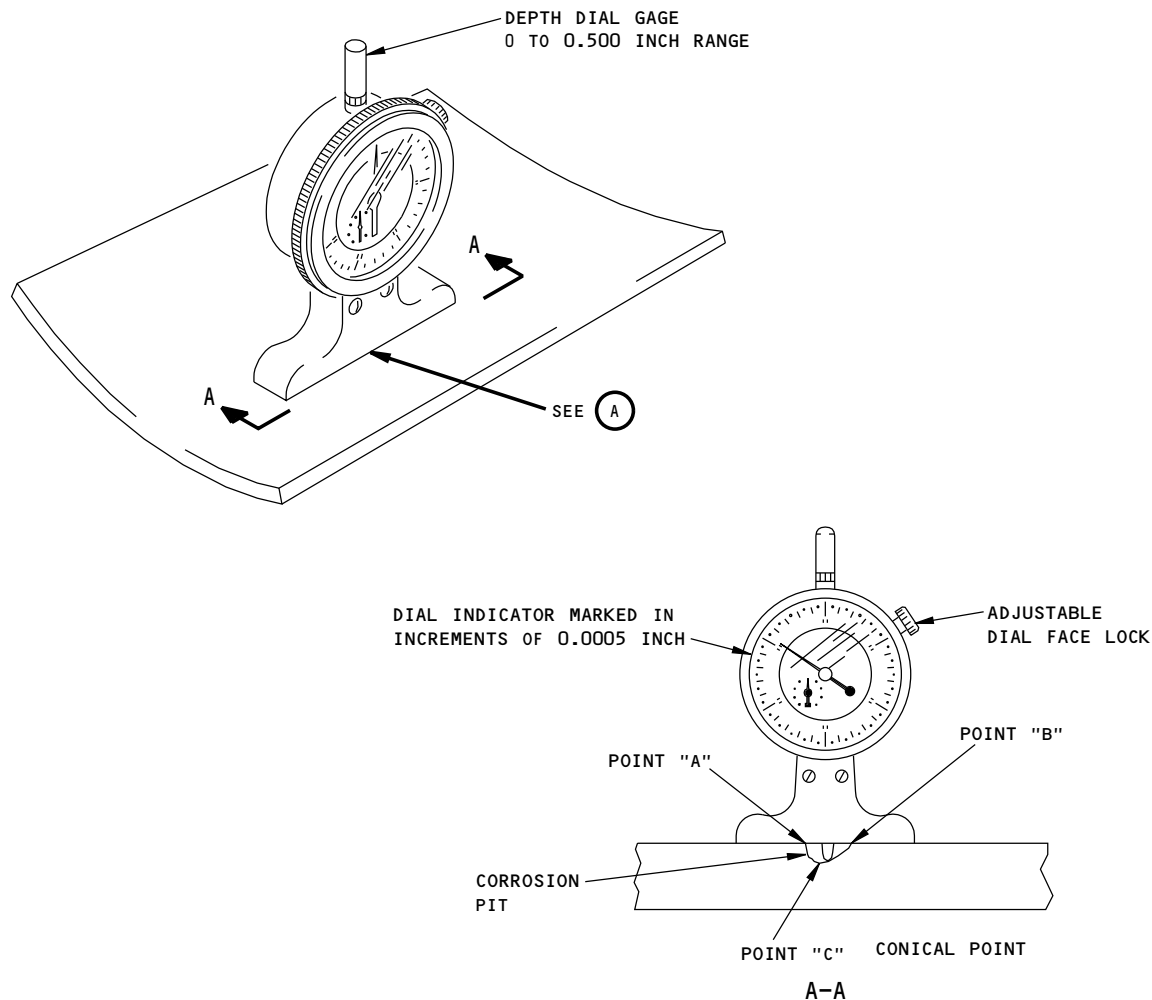
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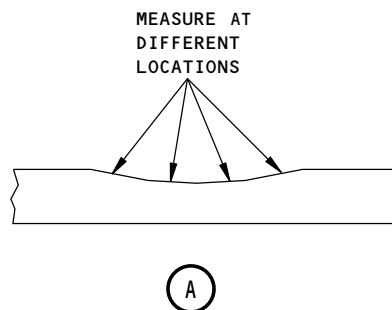
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CORROSION DEPTH MEASUREMENT

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

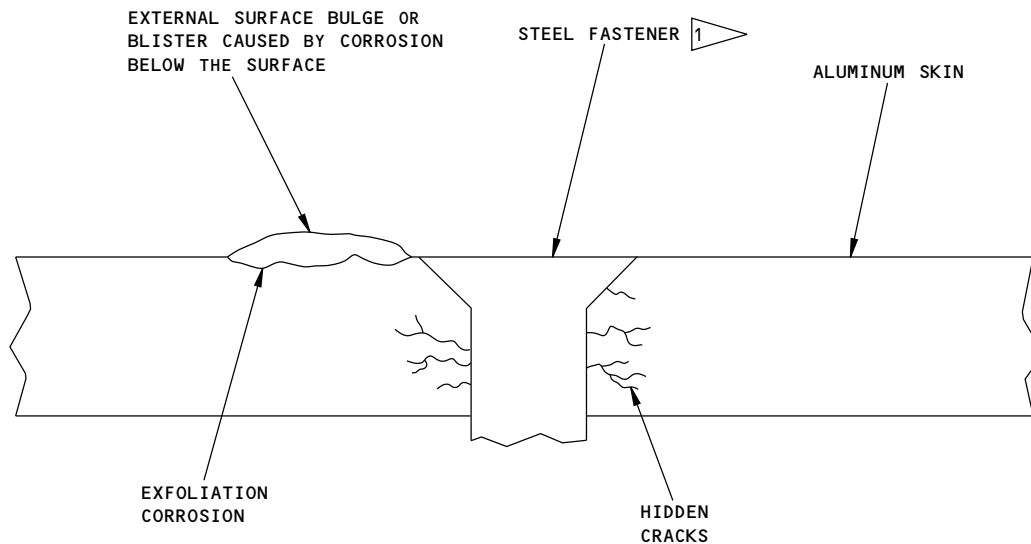
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1 FASTENERS NEAR OR IN THE AREA OF CORROSION MUST BE REMOVED. CORROSION REMOVAL ON THE EXTERNAL SURFACE WITHOUT FASTENER REMOVAL WILL NOT STOP CORROSION UNDER THE FASTENER HEAD OR IN THE HOLE.

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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)**

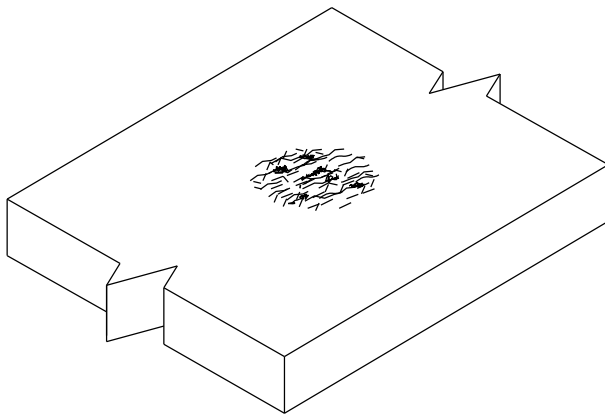
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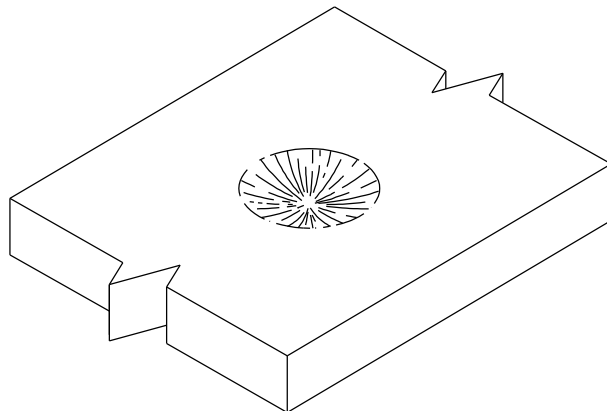
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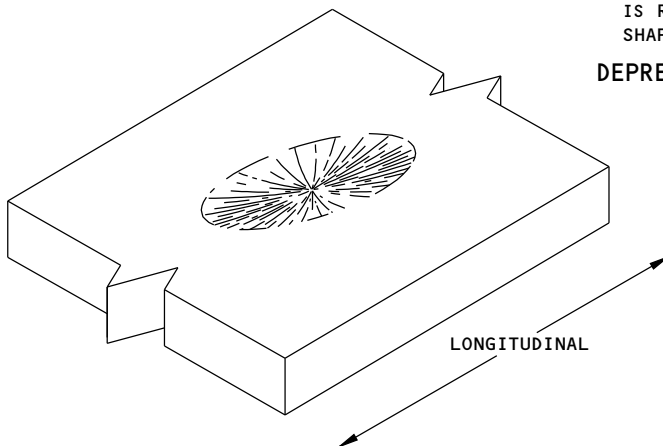
NOTE: ALL LOOSE CORROSION PRODUCTS
ARE REMOVED FROM THE PIT.

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

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

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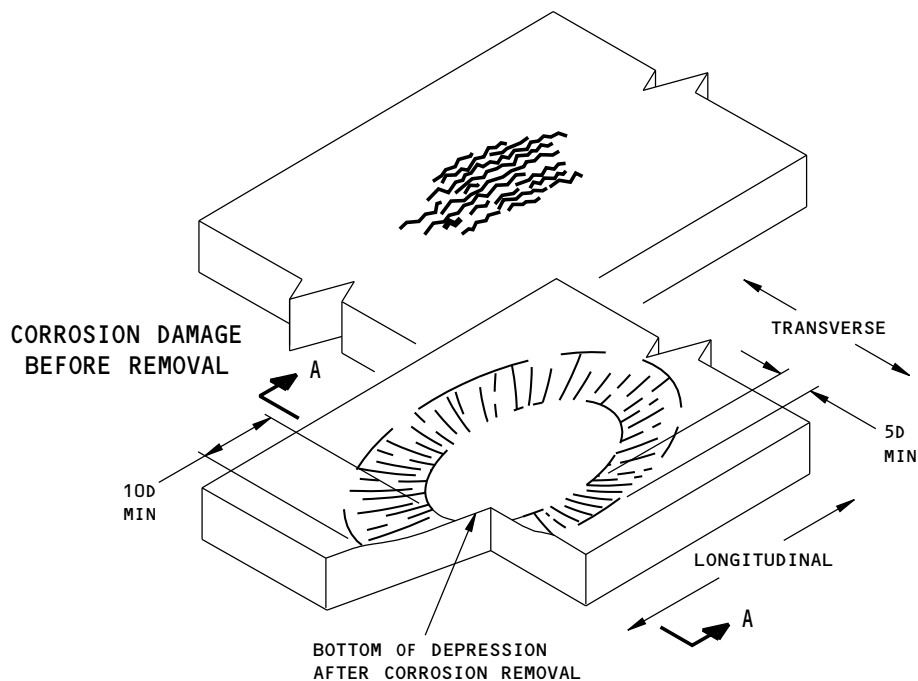
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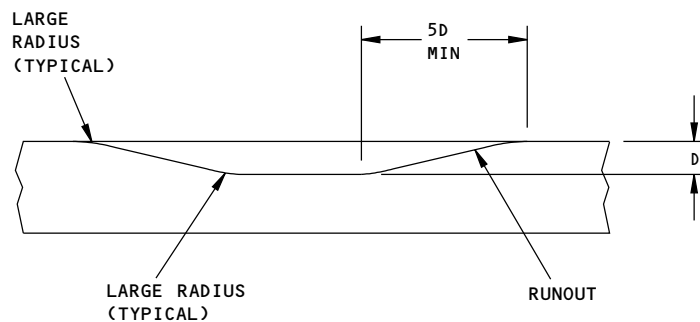
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DAMAGE REMOVED AND SURFACE IS SMOOTH
WITH SHALLOW ELLIPTICAL BLENDOUT



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

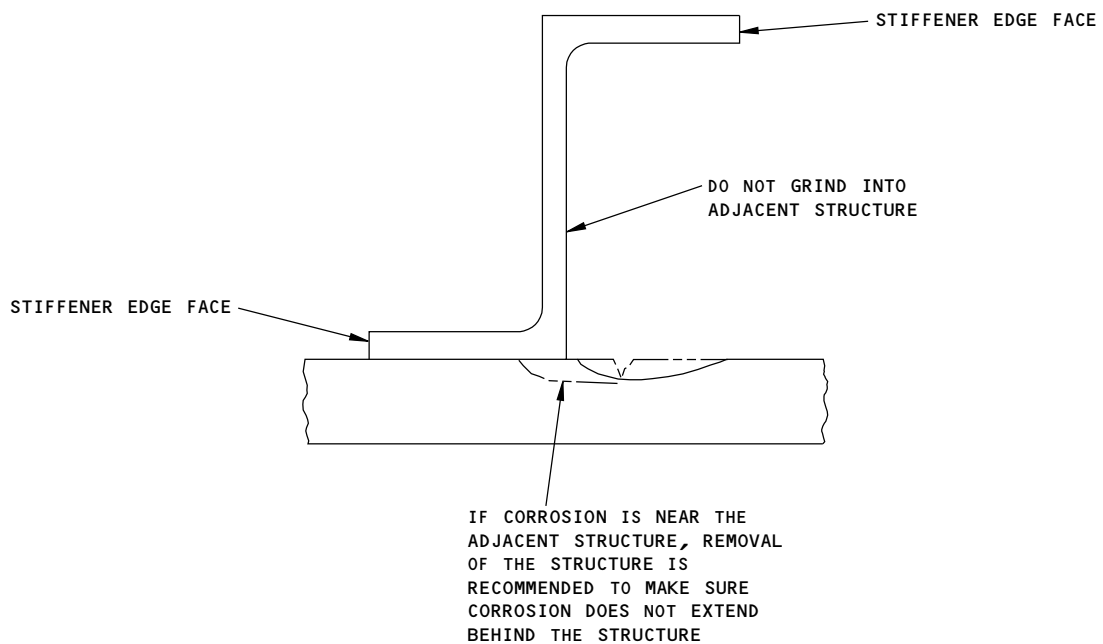
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Corrosion in Limited Clearance Areas
Figure 207/51-00-53-990-807

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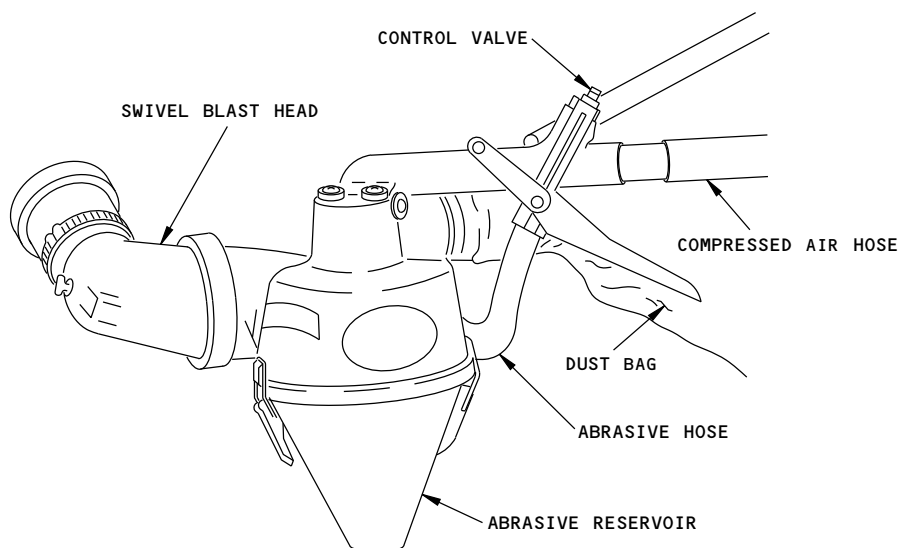
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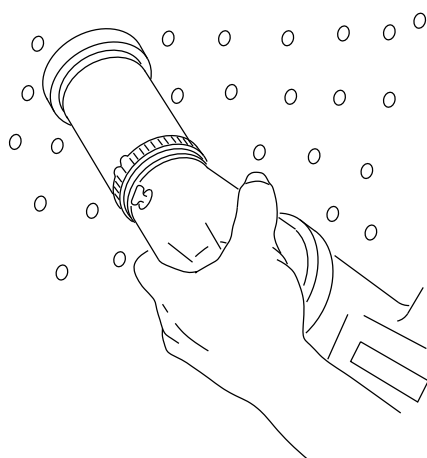
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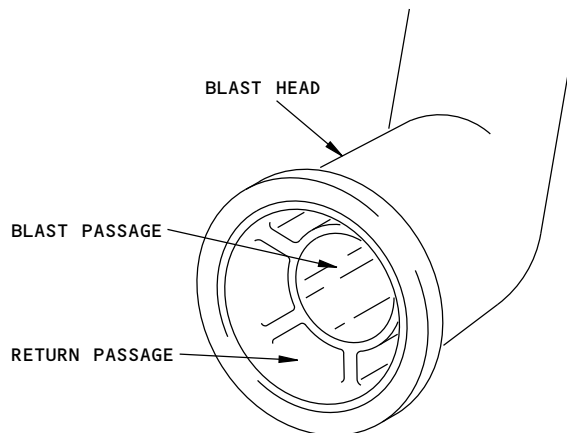
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PORTABLE ABRASIVE BLASTER COMPONENTS
(CLEMCO MODEL E-10A UNIT IS SHOWN)



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 HEADS AGAINST THE CORRODED SURFACE AND THE OUTER PASSAGE RETRIEVES BEADS AND DUST.

D97222 S00061412075_V1

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

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PROCEDURE 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 - MAINTENANCE PRACTICES, PAGEBLOCK 05-51-21/201 on the procedures on the removal of mercury.

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PROCEDURE 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 rather 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
51-21-02 P/B 701	PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING
51-24-09	CORROSION-INHIBITING COMPOUND
53-05-01 P/B 201	FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES
NDT Part 6, 51-00-08	Inspection of Heat Damage to Aluminum Structure

B. Consumable Materials

Reference	Description	Specification
B00081	Solvent - Trichloroethylene	BMS11-6, ASTM D4080
B01000	Solvent - General Cleaning Of Metal	

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

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

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- (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 51-00-55-030-001

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

NOTE: Use Inspection of Heat Damage to Aluminum Structure, NDT Part 6, 51-00-08 to determine any change in heat-treat of any suspect structure.



DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings, and other contamination.

SUBTASK 51-00-55-100-001

- (4) Remove soot by washing affected areas with Series 80 solvent, B01000solvent, 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 51-00-55-280-001

- (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, nutplates.

SUBTASK 51-00-55-200-002

- (7) After removal of contamination, do the steps in FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-01/201 when corrosion is found.

SUBTASK 51-00-55-370-001

- (8) When corrosion is removed, do the steps in PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701.

SUBTASK 51-00-55-600-001

- (9) To apply the corrosion inhibiting compound, do the steps in CORROSION-INHIBITING COMPOUND, SUBJECT 51-24-09.

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SUBTASK 51-00-55-741-001

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

———— **END OF TASK** ————

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PROCEDURE AFTER ALKALINE SPILLS - MAINTENANCE PRACTICES

1. General

- A. This procedure has these two 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
25-52-00-100-801	Cargo Compartment Cleaning (P/B 701)
51-21-02 P/B 701	PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING
51-24-09	CORROSION-INHIBITING COMPOUND

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 51-00-56-913-001

- (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 51-00-56-561-001

- (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 51-00-56-350-001

- (4) After removal of contamination, do the steps in Cargo Compartment Cleaning, TASK 25-52-00-100-801 when corrosion is found.

SUBTASK 51-00-56-370-001

- (5) When corrosion is removed, do the steps in PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701, 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, SUBJECT 51-24-09.

SUBTASK 51-00-56-741-001

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

———— **END OF TASK** ————

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PROCEDURE AFTER ACID SPILLS (INCLUDING VACUUM WASTE SYSTEM SPILLS/LEAKS) - MAINTENANCE PRACTICES

1. General

- A. This procedure has these two 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 alkaline 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. Tools/Equipment

Reference	Description
STD-419	Gloves - Rubber, Elbow Length
STD-421	Goggles - Eye Protection
STD-774	Respirator - Full-Face, Air Purifying (with filters/cartridges)
STD-1392	Shield - Facial Protection
STD-1393	Aprons
STD-1394	Boots
STD-1395	Head Gear
STD-3904	Goggles - Safety

B. Consumable Materials

Reference	Description	Specification
G50305	Sheeting - Plastic, Polyethylene	

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C. Procedure

SUBTASK 51-00-57-910-002



DO NOT LET THE ACIDS TOUCH YOU. YOU MUST WEAR CLOTHING THAT SUPPLIES PROTECTION. YOU MUST WEAR GLOVES AND A FACE SHIELD. THE ACIDS ARE POISONOUS AND CAN CAUSE INJURIES TO PERSONS. IF THE ACID GETS INTO YOUR EYES, FLUSH YOUR EYES WITH COOL WATER. GET MEDICAL AID IMMEDIATELY.

- (1) Take these precautions when you work with an acid spill or vacuum waste system spills/leaks condition:
 - (a) Adequate protective clothing (rubber or plastic gloves, goggles, face shields, aprons, boots, head gear, etc.) should be worn when handling or working in acid contaminated areas.
 - 1) elbow length rubber gloves, STD-419
 - 2) safety goggles, STD-3904 or eye protection goggles, STD-421
 - 3) face shield, STD-1392 or full-face respirator, STD-774
 - 4) aprons, STD-1393
 - 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 51-00-57-211-001

- (2) 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

- (3) 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.
 - (c) Consider protecting uncontaminated areas by taping down protective material such as plastic sheeting, G50305.

————— **END OF TASK** —————

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TASK 51-00-57-100-801

3. Acid Spillage Cleanup

A. References

Reference	Title
25-52-00-100-801	Cargo Compartment Cleaning (P/B 701)
51-21-02 P/B 701	PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING
51-24-09	CORROSION-INHIBITING COMPOUND

B. Tools/Equipment

Reference	Description
STD-419	Gloves - Rubber, Elbow Length
STD-421	Goggles - Eye Protection
STD-774	Respirator - Full-Face, Air Purifying (with filters/cartridges)
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
B00334	Cleaner - Sodium Bicarbonate	ASTM D928, or commercially available product
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 LET THE ACIDS TOUCH YOU. YOU MUST WEAR CLOTHING THAT SUPPLIES PROTECTION. YOU MUST WEAR GLOVES AND A FACE SHIELD. THE ACIDS ARE POISONOUS AND CAN CAUSE INJURIES TO PERSONS. IF THE ACID GETS INTO YOUR EYES, FLUSH YOUR EYES WITH COOL WATER. GET MEDICAL AID IMMEDIATELY.

- (1) Take these precautions when you work with an acid spill or vacuum waste system spills/leaks condition:
 - (a) Adequate protective clothing (rubber or plastic gloves, goggles, face shields, aprons, boots, head gear, etc.) should be worn when handling or working in acid contaminated areas.
 - 1) elbow length rubber gloves, STD-419
 - 2) safety goggles, STD-3904 or eye protection goggles, STD-421
 - 3) face shield, STD-1392 or full-face respirator, STD-774

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- 4) aprons, STD-1393
- 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 51-00-57-913-001

- (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 51-00-57-561-001

- (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 sodium bicarbonate cleaner, B00334 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 51-00-57-350-001

- (5) After removal of contamination, do the steps in Cargo Compartment Cleaning, TASK 25-52-00-100-801 when corrosion is found.

SUBTASK 51-00-57-370-001

- (6) When corrosion is removed, do the steps in PREPAINT CLEANING AND TREATMENT - CLEANING/PAINTING, PAGEBLOCK 51-21-02/701, if necessary.

SUBTASK 51-00-57-600-001

- (7) To apply the corrosion inhibiting compound, do the steps in CORROSION-INHIBITING COMPOUND, SUBJECT 51-24-09.

SUBTASK 51-00-57-741-001

- (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. Corrosion Prevention. 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. Refer to the applicable sections of Volume 2.

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 FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-01/201 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 1200 and 1200S solutions for immersion application in accordance with proportions and control shown in Fig. 1, Sheet 1.
- (5) Prepare Alodine 1000, 1000L and 1500 solutions for immersion applications in accordance with proportions and control shown in Fig. 1, Sheet 2.
- (6) Prepare Alodine solutions for manual application in accordance with instructions in Fig. 2.

E. Alodine Surface Treatment

- (1) Wipe with dry clean cheesecloth to remove base particles and residue from the treatment area.
- (2) Wipe with cheesecloth dampened (not saturated) with solvent, series 88 (Ref. SOPM 20-30-88). Repeat using clean cheesecloth until no visible residue transfers to the cheesecloth.
- (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) Immersion Application. 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.

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- (1) The chemicals used in the Iridite treatment are:
 - (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 in accordance with proportions and control shown in Fig. 3.
 - (b) Iridite Surface Treatment
 - 1) Wipe with dry clean cheesecloth to remove loose particles and residue from the treatment area.
 - 2) Wipe with cheesecloth dampened (not saturated) with solvent, series 88. Repeat using clean cheesecloth until no visible residue transfers to the cheesecloth.
 - 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 FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-01/201 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
 - b) Calcium Sulfate
- 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 cheesecloth to remove loose particles and residue.
- 2) Wipe with cheesecloth dampened (not saturated) with solvent, series 88. Repeat using clean cheesecloth until no visible residue transfers to the cheesecloth.
- 3) Allow to dry for a minimum of 15 minutes. Refer to para.2.C.(2)(c) for water break test to determine cleanliness.

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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. Refer to par. 7 for plated 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. Refer to par. 7 for plated alloys.

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. If cadmium plating is broken, plate per par. A. before coating.

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Alodine Solution Preparation for Immersion Method

Material	Variable	Make-Up ^{*[1]}		Control	
Alodine 1000 Powder ^{*[2]}	Concentration	Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
		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)			
Alodine 1000 Liquid ^{*[4]}	Concentration	Per 1 Gallon	Per 1 Liter	Per 1 Gallon	Per 1 Liter
		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			
	Temperature	60°F (16°C) to 100°F (38°C)			
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]}			
	Temperature	60°F (16°C) to 100°F (38°C)			
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]}			
	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.

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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.
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 BMS 10-11 type 1 or BMS 10-79 type 2.
 - (3) Install removable steel or titanium fasteners dry.
 - (4) Install permanent fasteners with wet primer or BMS 5-95 sealant.
- 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 BMS 10-11 type 1 or BMS 10-79 type 2.
 - (3) Apply BMS 5-95 fay surface sealant on mating surfaces.
 - (4) Install fasteners with wet BMS 5-95 sealant.

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- (5) 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.
 - (2) On countersinks and in holes, apply primer BMS 10-11 type 1 or BMS 10-79 type 2.
 - (3) Install removable fasteners with wet BMS 10-11 type 1 or BMS 10-79 type 2 primer.
 - (4) Install permanent fasteners with wet primer or BMS 5-95 sealant.

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STANDARD PREVENTIVE MAINTENANCE PRACTICES

1. General

- A. The data contained in this subject is general. For system and model specific preventive maintenance procedures, refer to Volume 2.

2. Airplane Washing

- A. Wet washing helps decrease corrosion as well as maintain the appearance of the airplane. Procedures for airplane washing are in Chapter 12 of the Maintenance Manual.
- B. Wet 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 3-23,3-26,3-29 or 3-35. 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 earliest convenient 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 CORROSION-INHIBITING COMPOUND - CLEANING/PAINTING, PAGEBLOCK 51-24-09/701 before you apply the paint.
- C. Examples of finish systems are shown in 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. BMS 3-29 is being introduced into Boeing production lines as shown.

- (1) For standardization, operators are encouraged to evaluate using BMS 3-35 (preferred) and BMS 3-29 as a replacement for both BMS 3-23 (optional) and the "dual coat" consisting of BMS 3-23 and BMS 3-26. However, BMS 3-23 and BMS 3-26 are still acceptable. Refer to the discussion of the new heavy duty CIC BMS 3-35 (paragraph 4.E.).

- B. BMS 3-23 (optional) Water Displacing Corrosion Inhibiting Compound

- (1) General

NOTE: Boeing prefers the use of BMS 3-35 (preferred) in place of BMS 3-23 (optional), when available.

- (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. Refer to the Maintenance Planning Document for details. Type of BMS 3-23 are listed below.

- 1) Type II - A colored film which is readily detected by the unaided eye.

- (2) Materials qualified under BMS 3-23:

- (a) Refer to the latest version of the Qualified Products List (QPL) for BMS 3-23.

- (3) 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 rubber-lined clamps for tubing or wiring. Hydraulic seals may also be affected, so these corrosion inhibitors are not suitable for use on actuator rods.

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- (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, SECTION 25-80 for instructions.
 - (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.
- (4) 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.
- (5) 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.
- (6) Application of BMS 3-23
- (a) Obey the precautions given in step (4) 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) Static ground the airplane per NORMAL PARKING, SUBJECT 10-11-01.
 - (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. Refer to step (8) for details of spraying equipment and procedures. 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.



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- (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 Structural Repair Manual.
 - 2) Chemical treat all bare aluminum surfaces.
 - 3) Apply one coat BMS 10-11, type 1 green primer.
 - 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.
- (7) 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). Suitable spray equipment is available from the following suppliers:
 - a) Nordson Corporation, V07036 or V2R369
 - b) The DeVilbiss Company, V17431
 - c) Binks Manufacturing Company, V07334
 - d) Graco Incorporated, V25980
 - 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.
- (8) Removal of Water-Displacing Corrosion Inhibiting Compounds

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- (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)
 - (b) When you use solvents to remove water-displacing corrosion inhibiting compounds, give the area a good flow of air until the solvents evaporate.
- (9) 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 Chapter 20 of the Maintenance Manual.
- C. BMS 3-26 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:
 - 1) Makes a continuous layer of medium thickness with a drop melting point of 140°F (60°C) minimum.
 - (b) Type II:
 - 1) Makes a continuous thick layer with a drop melting point of 200°F (93°C) minimum.
 - (3) Materials qualified under BMS 3-26
 - (a) Refer to the latest version of the Qualified Products List (QPL) for BMS 3-26.
 - (4) Precautions for Use of BMS 3-26

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- (a) Use the same precautions for BMS 3-26 that we list for BMS 3-23 water displacing compound (Ref par. 4.B(3)).
- (5) 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.
- (6) 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.
- (7) Methods of Application of BMS 3-26
 - (a) You can use the same application procedures for BMS 3-26 that we list for BMS 3-23 water displacing compound (Ref par. 4.B.(7),(8)), with the differences noted in steps (b) and (c) 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.
- (8) Removal BMS 3-26
 - (a) You can use the same solvents water displacing compound these solvents: for BMS 3-26 that we list for BMS 3-23 (Ref par. 4.B.(8)).
 - (b) You may use also:

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

- (9) 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.

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- (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 Chapter 20 of the Maintenance Manual.

D. BMS 3-29 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.
- (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) Materials qualified under BMS 3-29

- (a) Refer to the latest version of the Qualified Products List (QPL) for BMS 3-29.

(3) Precautions for Use of BMS 3-29

- (a) Use the same precautions for BMS 3-29 that we list for BMS 3-23 water displacing compound (Ref par. 4.B.(3)).

(4) 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.

(5) 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.

(6) Methods of Application of BMS 3-29

- (a) You can use the same application procedures for BMS 3-29 that we list for BMS 3-23 water displacing compound (Ref par. 4.B.(7),(8)), with the differences noted in steps (b) and (c) below.
- (b) Let the BMS 3-29 compound dry. Do not wipe up puddles after 60 minutes.

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- (c) If the coated surface will touch another surface (such as insulation blankets), let the coating dry tack-free.
- (7) Removal of BMS 3-29
 - (a) You can use the same solvents for BMS 3-29 that we list for BMS 3-23 water displacing compound (Ref par. 4.B.(8)). Also, use these solvents:

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
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

- (8) 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 (preferred) Corrosion Inhibiting Compound
 - (1) General
 - (a) A new heavy duty CIC, BMS 3-35 (preferred) has been developed. Although BMS 3-35 provides crevice penetration close to that achieved with BMS 3-23 (optional), 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) Materials qualified under BMS 3-35
 - (a) Refer to the latest version of the Qualified Products List (QPL) for BMS 3-35.
 - (3) Precautions or use of BMS 3-35.
 - (a) Use the same precautions of BMS 3-35 as we list for BMS 3-23 (Ref par. 4.B.(3)).
 - (4) Compatibility of BMS 3-35
 - (a) BMS 3-35 are compatible with all Boeing approved CIC's.
 - (5) Cleaning before application of BMS 3-35

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- (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.
- (6) 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 51-24-09/701 for additional CIC application details.
- F. MIL-PRF-16173 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-C-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.
 - (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 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 we use 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 we list for water displacing corrosion inhibiting compounds (Ref par. 4.B.(3)).
 - (5) Compatibility 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

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- (a) You can use the same application procedures for MIL-PRF-16173 that we list for BMS 3-23 water displacing compound (Ref par. 4.B.(7), (8)), with the differences noted in steps (b)(c) 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
- (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.
 - (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) Refer to the Qualified Products List of MIL-C-11796 for a complete listing of approved material part numbers and vendors for all grades.
 - (4) Precautions for Use MIL-C-11796
 - (a) The Boeing Company suggests using the same precautions for MIL-C-11796 for water-displacing corrosion inhibiting compounds (Ref par. 4.B.(3)).
 - (5) 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.
 - (6) 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.
 - (7) Application of MIL-C-11796
 - (a) These compounds are applied as hot liquids. During application, keep the compounds in the following temperature ranges:



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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 51-24-09/701.
- (8) 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 P-D-680 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 51-00-60-200-801

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 cabin linings and insulation blankets are removed.

B. References

Reference	Title
25-52-00-100-801	Cargo Compartment Cleaning (P/B 701)
25-80-00 P/B 401	INSULATION - REMOVAL/INSTALLATION
51-03	DRAINAGE
51-24-09	CORROSION-INHIBITING COMPOUND
53-05-01 P/B 201	FUSELAGE - CORROSION 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 25-52-00-100-801.

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, (INSULATION - REMOVAL/INSTALLATION, PAGEBLOCK 25-80-00/401):
- (a) If blankets are dry and no indication of liquid is observed, then restore airplane.
 - (b) If blankets contain liquid then continue with further inspection:
 - 1) Check the inner skin surface and fuselage structure for signs of corrosion, refer to FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-01/201 for more details.
 - 2) Make sure that all drains are unobstructed and that there are no trapped liquids (DRAINAGE, SECTION 51-03).
 - 3) Replace contaminated insulation blankets (INSULATION - 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 (CORROSION-INHIBITING COMPOUND, SUBJECT 51-24-09) as necessary.
NOTE: In the fuselage crown area, airplanes used for livestock transportation will require and receive more frequent preventive maintenance to prevent corrosion.
 - (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 these tasks:

TASK 51-00-62-200-801

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 cabin lining and insulation blankets it also provides an excellent opportunity to perform corrosion preventive maintenance.

B. References

Reference	Title
25-52-00-100-801	Cargo Compartment Cleaning (P/B 701)
25-80-00	INSULATION
51-03	DRAINAGE
51-24-09	CORROSION-INHIBITING COMPOUND
53-01-03-100-801	Seat Track Cleaning (P/B 701)
53-05-01 P/B 201	FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES

C. Procedure

SUBTASK 51-00-62-100-001

- (1) When known spills have occurred, do this task: Cargo Compartment Cleaning, TASK 25-52-00-100-801.

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: Seat Track Cleaning, TASK 53-01-03-100-801.

SUBTASK 51-00-62-160-001

- (3) As necessary, inspect:
 - (a) The inner skin surface and fuselage structure for signs of corrosion, refer to FUSELAGE - CORROSION INSPECTIONS - MAINTENANCE PRACTICES, PAGEBLOCK 53-05-01/201 for more details.
 - (b) Make sure that all drains are unobstructed and that there are no trapped liquids (DRAINAGE, SECTION 51-03).
 - (c) Condition of insulation blankets (INSULATION, SUBJECT 25-80-00).
 - 1) Replace soaked insulation blankets.

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 (CORROSION-INHIBITING COMPOUND, SUBJECT 51-24-09) as necessary.
 - (b) Install the equipment that you removed.

————— **END OF TASK** —————

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DRAINAGE - REPAIRS

1. General

- A. This procedure has this task:
 - (1) A repair of the self leveling compound.
- B. The leveling compound and limber holes permit the fluids in the airplane to move to the external drain holes.
- C. The leveling compound is in many areas of the airplane.

TASK 51-03-00-300-801

2. Leveling Compound Repair

(Figure 801)

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	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
STD-123	Brush - Soft Bristle

B. Consumable Materials

Reference	Description	Specification
A50428	Compound - Self-Leveling, For Fluid Drainage, Flexible, Fire-Retarded	BMS5-125 Type IV
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I

C. Location Zones

Zone	Area
100	Lower Half of Fuselage

D. Procedure

SUBTASK 51-03-00-160-001

- (1) Remove the old leveling compound as follows:

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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.

- (a) Remove damaged leveling compound with a sealant removal tool, COM-2481.
- (b) Remove all the loose pieces of the leveling compound with a soft bristle brush, STD-123.
- (c) Clean the structure and the remaining leveling compound with solvent, B00184.

SUBTASK 51-03-00-840-001

- (2) Prepare the surface as follows:

- (a) Apply primer, C00259 to areas where the primer is damaged.
- (b) Make sure the primer is tack-free before you apply the leveling compound.



AIRPLANE MUST BE IN A LEVEL OR TAXI ATTITUDE DURING THE POURING AND THE GEL TIME OF THE COMPOUND. IF THE AIRPLANE IS NOT LEVEL, THE COMPOUND CAN ENTER AND BLOCK THE INTERNAL DRAIN PATHS. THIS WILL CAUSE FLUID TO COLLECT. CORROSION AND STRUCTURAL DAMAGE CAN RESULT.

- (c) Make sure the airplane is in a level attitude or a taxi attitude (1/2 degree nose down).

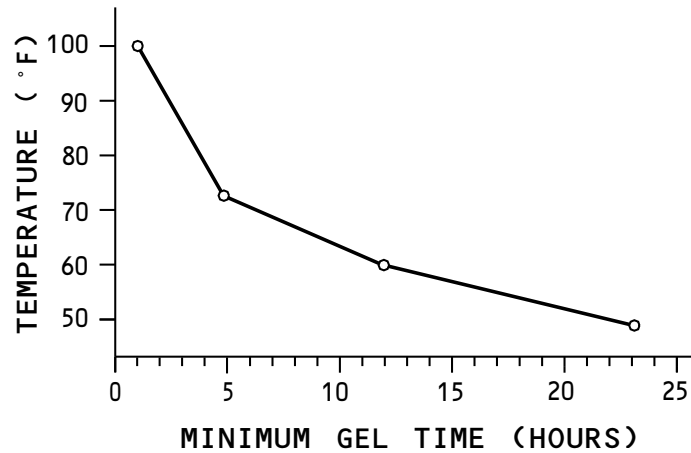
SUBTASK 51-03-00-910-001

- (3) Apply the compound, A50428 as follows:

- (a) Obey the manufacturer's instructions to mix the base and the curing agents.
- (b) Pour the leveling compound until it is level with the bottom of the drain hole or clearance.
- (c) Use the graph in (Figure 801) to calculate the minimum gel time.
- (d) Let the compound dry for the minimum gel time before you do these operations:
 - 1) move the airplane or assembly
 - 2) apply top coat or primer.
- (e) The leveling compound will dry fully as follows:
 - 1) 7 days at 72 $\pm$ 5 $^{\circ}$ F.
 - 2) 24 hours at 72 $\pm$ 5 $^{\circ}$ F then 2 hours at 140 $\pm$ 10 $^{\circ}$ F.

———— **END OF TASK** ————

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BMS 5-125 Type III Gel Time vs Temperature
Figure 801/51-03-00-990-801

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DRAIN VALVE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) Removal of the drain valves.
 - (2) Installation of the drain valves.

TASK 51-03-01-000-801

2. Drain Valve Removal

(Figure 401)

A. General

- (1) Remove and install the drain valve from outside the airplane.
- (2) Pressurized drain valves are located in these areas:
 - (a) Along the bottom centerline of the fuselage at BL=0
 - (b) On both sides of the nose wheel well doors
 - (c) In the bottom corners of the cargo doors
 - (d) In the forward access door
 - (e) In the E/E Bay access door.

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
SPL-1975	Adapter, Fuselage Drain Valve Part #: J51005-7 Supplier: 81205 Opt Part #: J51005-1 Supplier: 81205

C. Location Zones

Zone	Area
100	Lower Half of Fuselage

D. Removal

SUBTASK 51-03-01-980-001

- (1) Find the applicable drain valve [3] from outside of the airplane.

SUBTASK 51-03-01-020-002

- (2) Remove the drain mast (if installed).
 - (a) Two holes drain mast.
 - 1) Remove the two setscrews.
 - 2) Remove the mast.
 - (b) Single hole drain mast.
 - 1) Remove the setscrew.
 - 2) Remove the mast.

SUBTASK 51-03-01-400-001

- (3) Put the drain valve adapter, SPL-1975 in the drain valve [3].

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SUBTASK 51-03-01-020-001

- (4) Use the drain valve adapter, SPL-1975 to remove the drain valve [3].

SUBTASK 51-03-01-970-001

- (5) Make a note of the color of the valve plunger [4] and the valve's location on the airplane.

NOTE: Valves with yellow plungers have shorter parts. Valves with red plungers have longer parts because they are installed in areas that have thicker skin.

————— **END OF TASK** —————

TASK 51-03-01-400-801

3. Drain Valve Installation

(Figure 401)

A. General

- (1) Remove and install the drain valve from the outside of the airplane.
- (2) Pressurized drain valves are located in these areas:
 - (a) Along the bottom centerline of the fuselage at BL=0
 - (b) On the two sides of the nose wheel well doors
 - (c) In the bottom corners of the cargo doors
 - (d) In the forward access door
 - (e) In the E/E Bay access door.

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
SPL-1975	Adapter, Fuselage Drain Valve Part #: J51005-7 Supplier: 81205 Opt Part #: J51005-1 Supplier: 81205

C. Location Zones

Zone	Area
100	Lower Half of Fuselage

D. Installation

SUBTASK 51-03-01-840-001

- (1) Prepare to install the drain valve [3] as follows:
 - (a) Find the applicable drain valve location.
 - (b) Use a drain valve [3] that is the correct dimension.

NOTE: Valves with yellow, red, green or blue plungers have different length parts because they are installed in areas that have different thickness of the skin.
 - (c) Push the plunger [4] to make sure that the drain valve [3] is serviceable.
 - (d) Make sure that the retainer [2] and the area around the retainer in the fuselage [1] is free of unwanted material.

SUBTASK 51-03-01-420-001

- (2) Install the drain valve [3] as follows (Figure 401):

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- (a) Put the drain valve [3] through the hole in the skin and the retainer [2].
- (b) Carefully turn the drain valve [3] until its threads correctly attach with the threads on the retainer [2] in the airplane.



CAUTION

DO NOT USE MORE THAN 25 IN-LB (2.8 N·M) OF TORQUE. YOU CAN BREAK THE FLANGE OF THE DRAIN VALVE [3].

- (c) Use the drain valve adapter, SPL-1975 to tighten the drain valve [3] to a maximum of 25 in-lb (2.8 N·m).
- (d) Do not apply paint to the drain valve [3].

SUBTASK 51-03-01-410-001

- (3) Install the drain mast (if removed).
 - (a) Two hole drain mast.
 - 1) Install the drain mast into the base plate.
 - 2) Install the two setscrews.
 - a) Torque the setscrews from 15 in-lb (2 N·m) to 17 in-lb (2 N·m).
 - (b) One hole drain mast.
 - 1) Install the drain mast into the base plate.
 - 2) Install the setscrew.
 - a) Torque the setscrew from 15 in-lb (2 N·m) to 17 in-lb (2 N·m).

———— **END OF TASK** ————

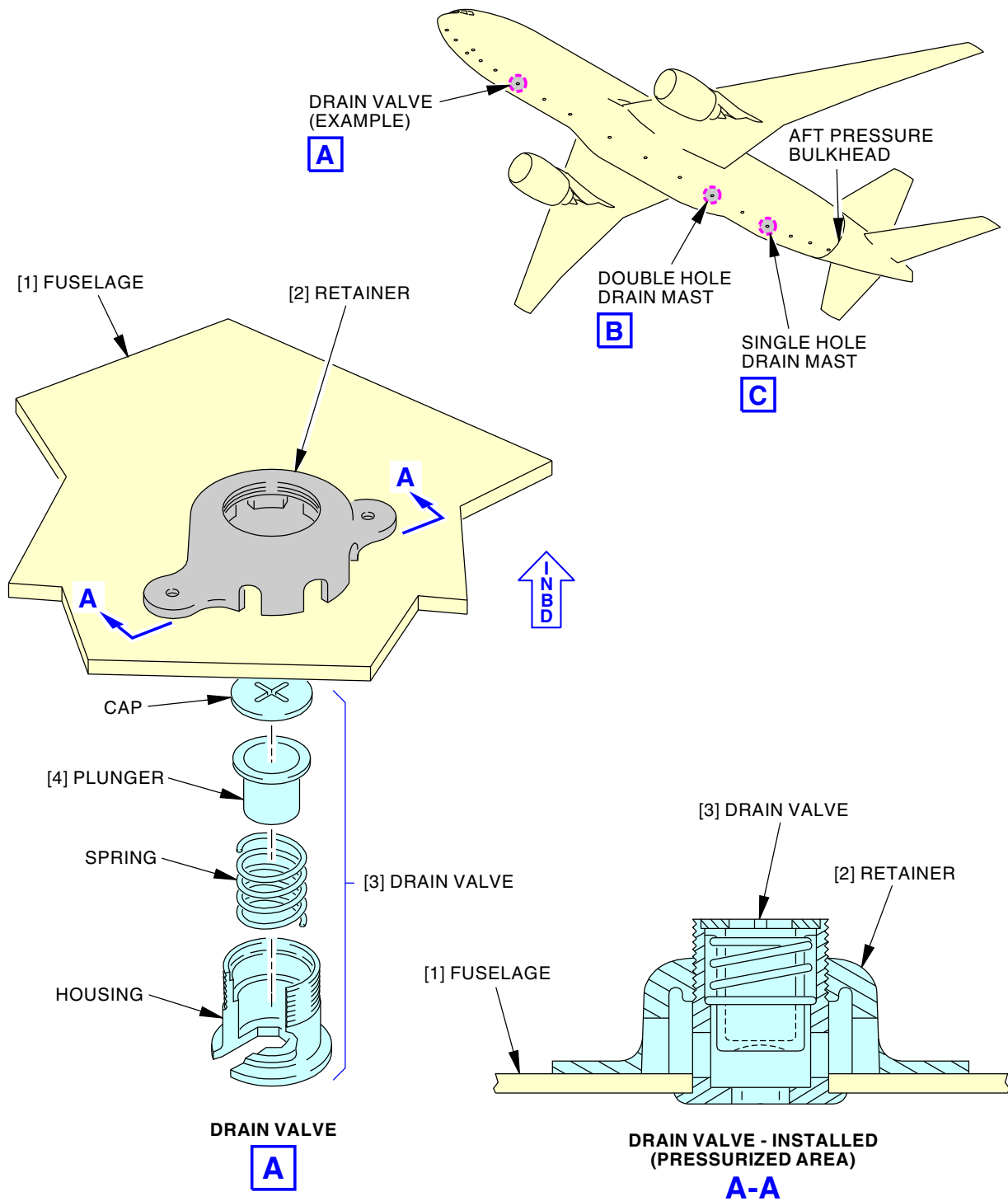
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**Drain Valve Installation
Figure 401/51-03-01-990-801 (Sheet 1 of 2)**

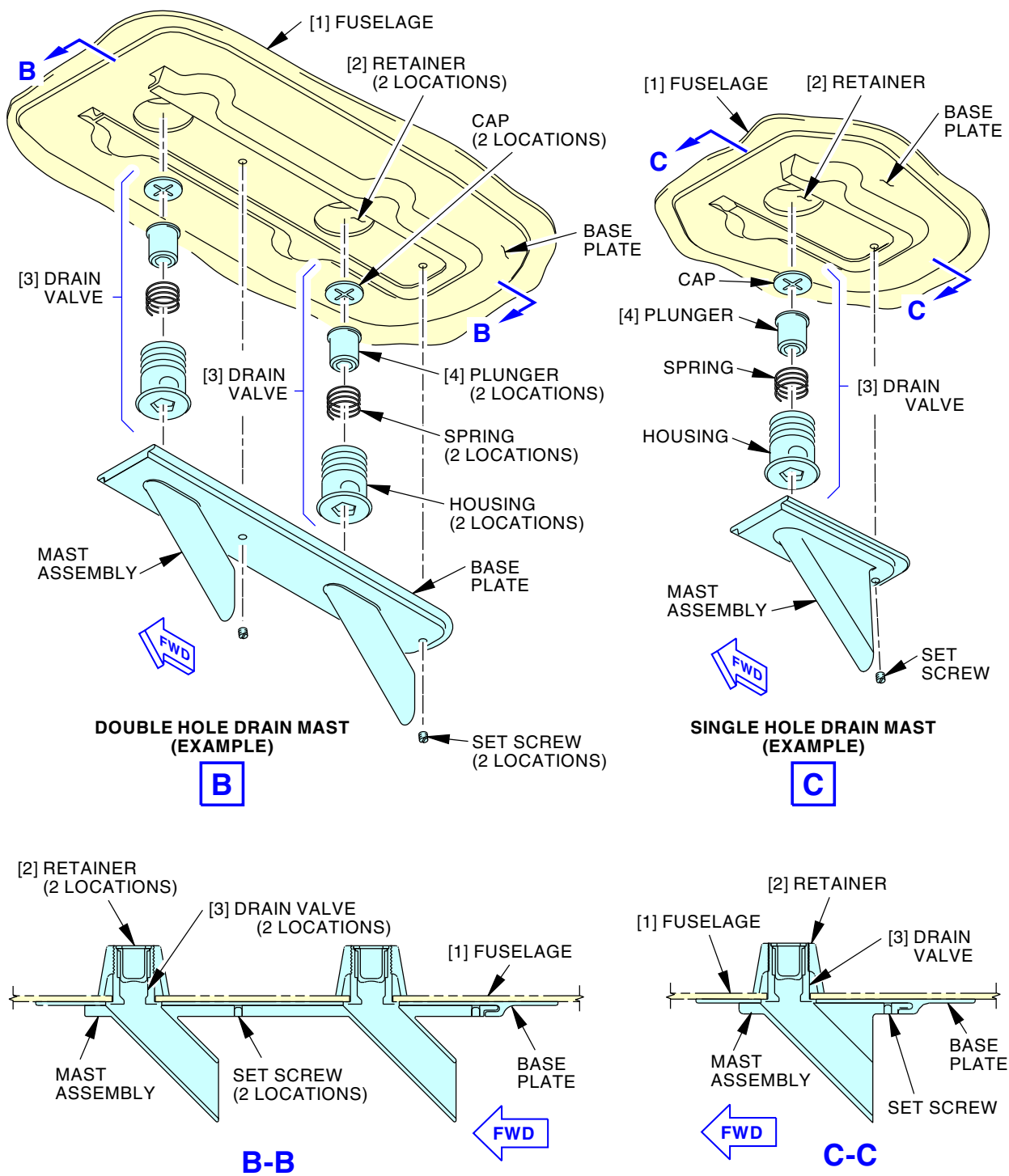
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Drain Valve Installation
Figure 401/51-03-01-990-801 (Sheet 2 of 2)

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DRAIN VALVE - INSPECTION/CHECK

1. General

- A. This procedure has this task:
- (1) An inspection of the drain valves.
- B. Drain valves are used to drain water overboard in areas that are pressurized.

TASK 51-03-01-200-801

2. Drain Valve Inspection

A. References

Reference	Title
51-03-02-100-801	Fuselage Drainage Cleaning (P/B 701)

B. Location Zones

Zone	Area
100	Lower Half of Fuselage

C. Procedure

SUBTASK 51-03-01-840-002

- (1) Find the drains from outside the airplane in these areas:
- (a) along the bottom of the fuselage centerline at BL=0
 - (b) on both sides of the nose wheel well doors
 - (c) in the bottom corners of the cargo doors
 - (d) in the E/E bay access door.

SUBTASK 51-03-01-210-001

- (2) Inspect each drain valve as follows:
- (a) Make sure the drain valve is open when the airplane is not pressurized.
 - (b) Make sure the drain valve opens and closes freely.
 - (c) Look for dirt or blockage.
 - (d) If you find dirt or blockage, do this task: (Fuselage Drainage Cleaning, TASK 51-03-02-100-801).

———— **END OF TASK** ————

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FUSELAGE DRAINAGE - CLEANING/PAINTING

1. General

- A. This procedure has this task:
- (1) Fuselage drainage cleaning.

TASK 51-03-02-100-801

2. Fuselage Drainage Cleaning

(Figure 701, Figure 702)

A. General

- (1) The fuselage drainage system has these components:
 - (a) drain paths
 - (b) drains (unpressurized areas)
 - (c) drain valves (pressurized areas).
- (2) Passenger doors, access doors, and cargo doors have these components also.
- (3) Water moves along the drain paths to the drains.
- (4) The water goes out the airplane through the drains.

B. References

Reference	Title
51-03-01-000-801	Drain Valve Removal (P/B 401)

C. Consumable Materials

Reference	Description	Specification
B00003	Cleaner - Emulsion Alkaline - GMC 528B	
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
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Location Zones

Zone	Area
100	Lower Half of Fuselage

E. Procedure

SUBTASK 51-03-02-160-001

- (1) Examine and clean each drain from outside the airplane as follows:

NOTE: This procedure is also used to clean the aft drains in the non-pressurized area.

 - (a) Do these steps to clean the drain valve;
 - 1) Do this task: (Drain Valve Removal, TASK 51-03-01-000-801).
 - 2) Clean the drain valve with a water-cleaner solution if it is dirty.
 - (b) Make sure the drain hole does not have blockage.
 - (c) Remove the blockage.

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- (d) Look for dirt.
- (e) Remove the dirt with a cotton wiper, G00034 wet with water and a mild GMC 528B cleaner, B00003, cleaner, B00402, Cee Bee 280 cleaner, B00005, Oakite 204 cleaner, B00008 or Calla 301A cleaner, B00015.

SUBTASK 51-03-02-160-002

- (2) Examine and clean the sloping pressure deck above the wing center section as follows if it is necessary:

NOTE: It is recommended that the sloping pressure deck above the wing center section be cleaned if the applicable fuselage drains become clogged.

- (a) Get access to the pressure deck through the floor panels.
- (b) Make sure these areas do not have blockage:
 - 1) drain paths
 - 2) drain gutter
 - 3) drain tube.
- (c) Remove the blockage.

———— **END OF TASK** ————

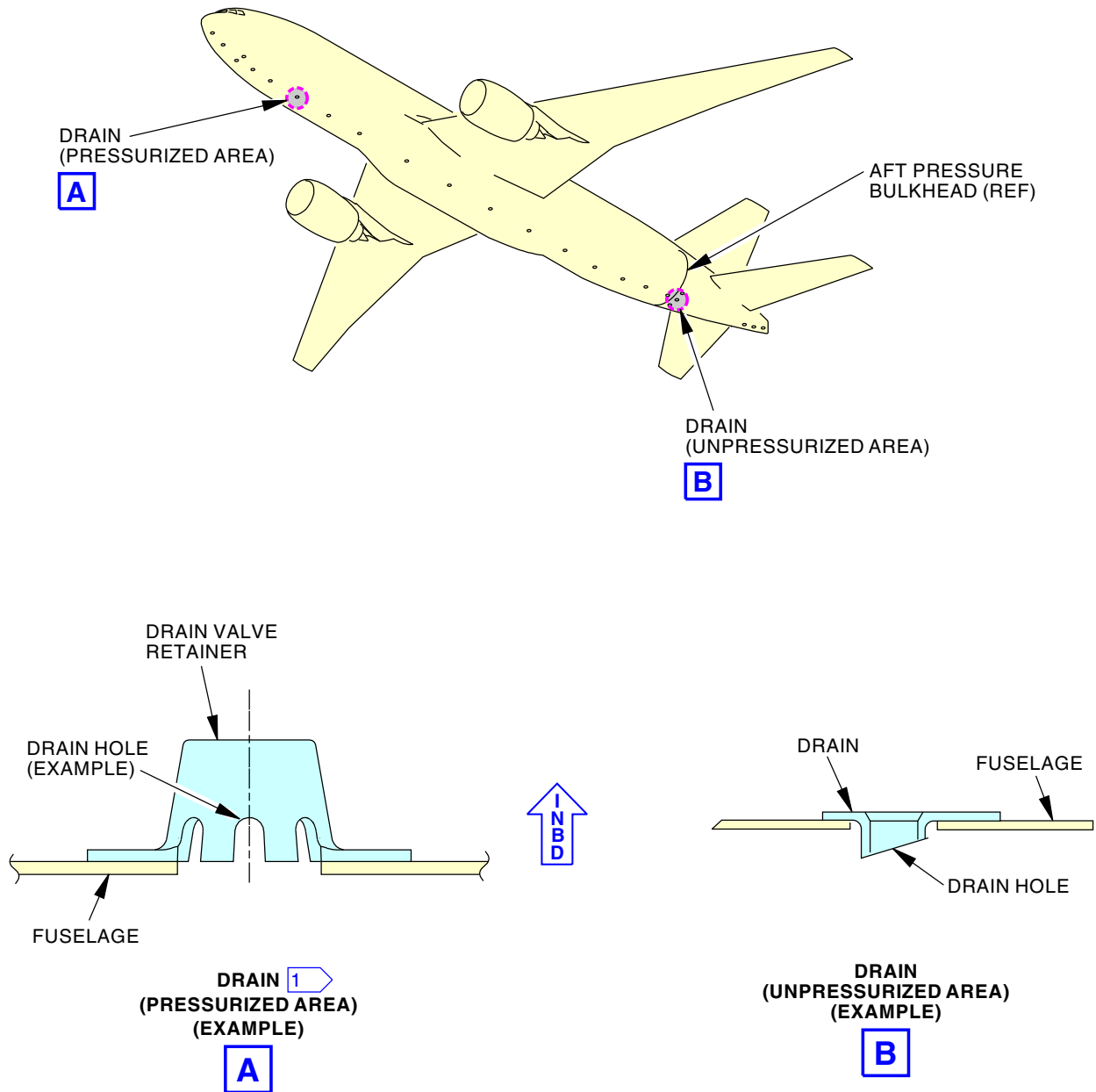
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1 SHOWN WITHOUT THE DRAIN VALVE.

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Fuselage Drains
Figure 701/51-03-02-990-801

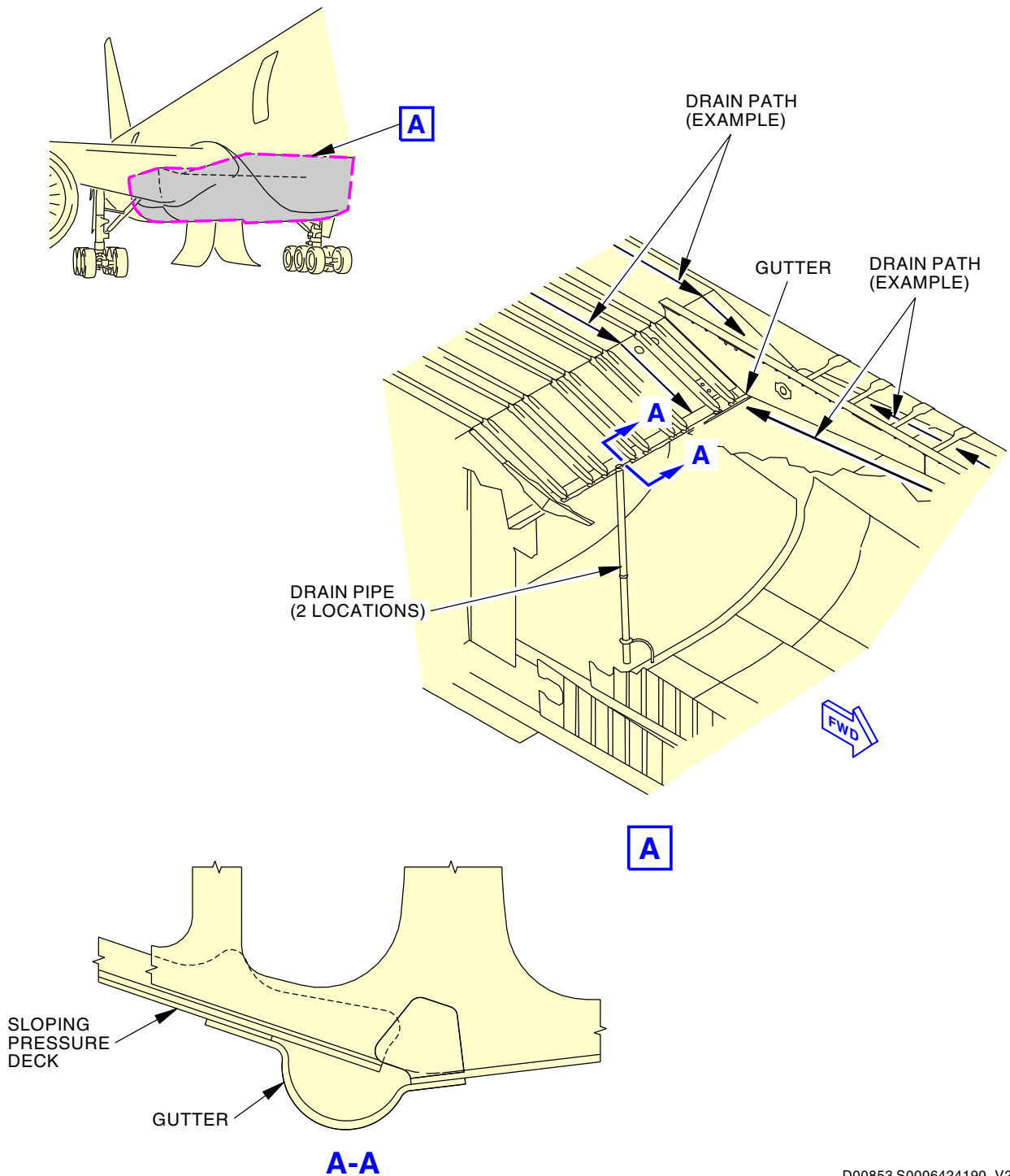
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Sloping Pressure Deck Drainage
Figure 702/51-03-02-990-802

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WING DRAINAGE - CLEANING/PAINTING

1. General

- A. This procedure has one task:
- (1) Wing drainage cleaning

TASK 51-03-03-100-801

2. Wing Drainage Cleaning

(Figure 701, Figure 702, Figure 703, Figure 704)

A. General

- (1) The wing drainage system has these components:
 - (a) drain paths
 - (b) drain holes
- (2) Drain paths allow water to drain to the lowest part of the wing section.
- (3) The drain paths are located on the underside of the wing surface.
- (4) In the main box area, the water flow is as follows:
 - (a) The water drains inboard until it reaches the end of the section.
 - (b) At the end of the section, the water drains forward and aft to reach the drain hole.
- (5) At the leading and trailing edges, the water flow is as follows:
 - (a) The water drains inboard along the edge of the front and rear spars.
 - (b) The water drains to drain holes that are drilled through many of the leading and trailing edge panels.
- (6) The water goes out the airplane through the drain holes.

B. Consumable Materials

Reference	Description	Specification
B00003	Cleaner - Emulsion Alkaline - GMC 528B	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

C. Location Zones

Zone	Area
500	Left Wing
600	Right Wing

D. Procedure

SUBTASK 51-03-03-160-001

- (1) Examine and clean each drain hole from outside the wing as follows:
 - (a) Find the drain holes from outside the wing.

NOTE: Figure 701 gives a summary of the drain hole locations.
 - (b) Make sure each drain hole does not have blockage.
 - (c) Remove the blockage.
 - (d) Look for dirt.
 - (e) Remove the dirt with a cotton wiper, G00034 wet with water and a mild GMC 528B cleaner, B00003.

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SUBTASK 51-03-03-100-001

(2) Examine and clean the drain paths as follows:

(a) Get access to the drain paths.

NOTE: (Figure 701) gives a summary of the drain path locations.

(b) Make sure the drain paths do not have blockage.

(c) Remove the blockage.

————— **END OF TASK** —————

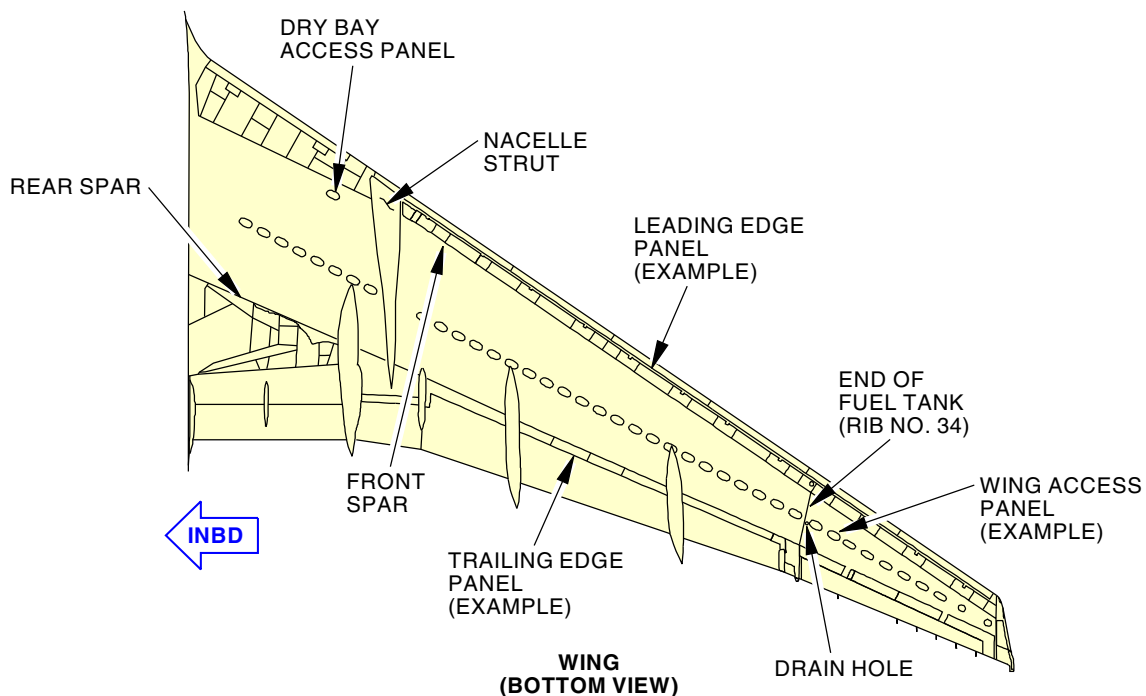
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LOCATION ON THE WING		TYPE OF DRAINAGE	ACCESS
LEADING EDGE	ALONG THE FRONT SPAR, INBOARD OF THE NACELLE STRUT.	DRAIN PATH	LEADING EDGE PANELS
	ALONG THE FRONT SPAR, OUTBOARD OF THE NACELLE STRUT.	DRAIN PATH	LEADING EDGE PANELS
	IN THE LEADING EDGE PANELS	DRAIN HOLE	OUTSIDE OF THE WING
MAIN BOX	DRY BAY	DRAIN PATH	DRY BAY ACCESS PANEL
	DRY BAY	DRAIN HOLE	OUTSIDE OF THE WING
	DRY BAY ACCESS PANEL	DRAIN HOLE	OUTSIDE OF THE WING
	OUTBOARD OF THE FUEL TANK	DRAIN HOLE	OUTSIDE OF THE WING
	OUTBOARD OF THE FUEL TANK	DRAIN PATH	WING ACCESS PANELS
TRAILING EDGE	ALONG THE AFT SPAR, INBOARD OF THE NACELLE STRUT.	DRAIN PATH	TRAILING EDGE PANELS
	ALONG THE AFT SPAR, OUTBOARD OF THE NACELLE STRUT.	DRAIN PATH	TRAILING EDGE PANELS
	IN THE TRAILING EDGE PANELS	DRAIN HOLE	OUTSIDE OF THE WING

D13130 S0006424194_V2

**Wing Drainage Summary
Figure 701/51-03-03-990-801**

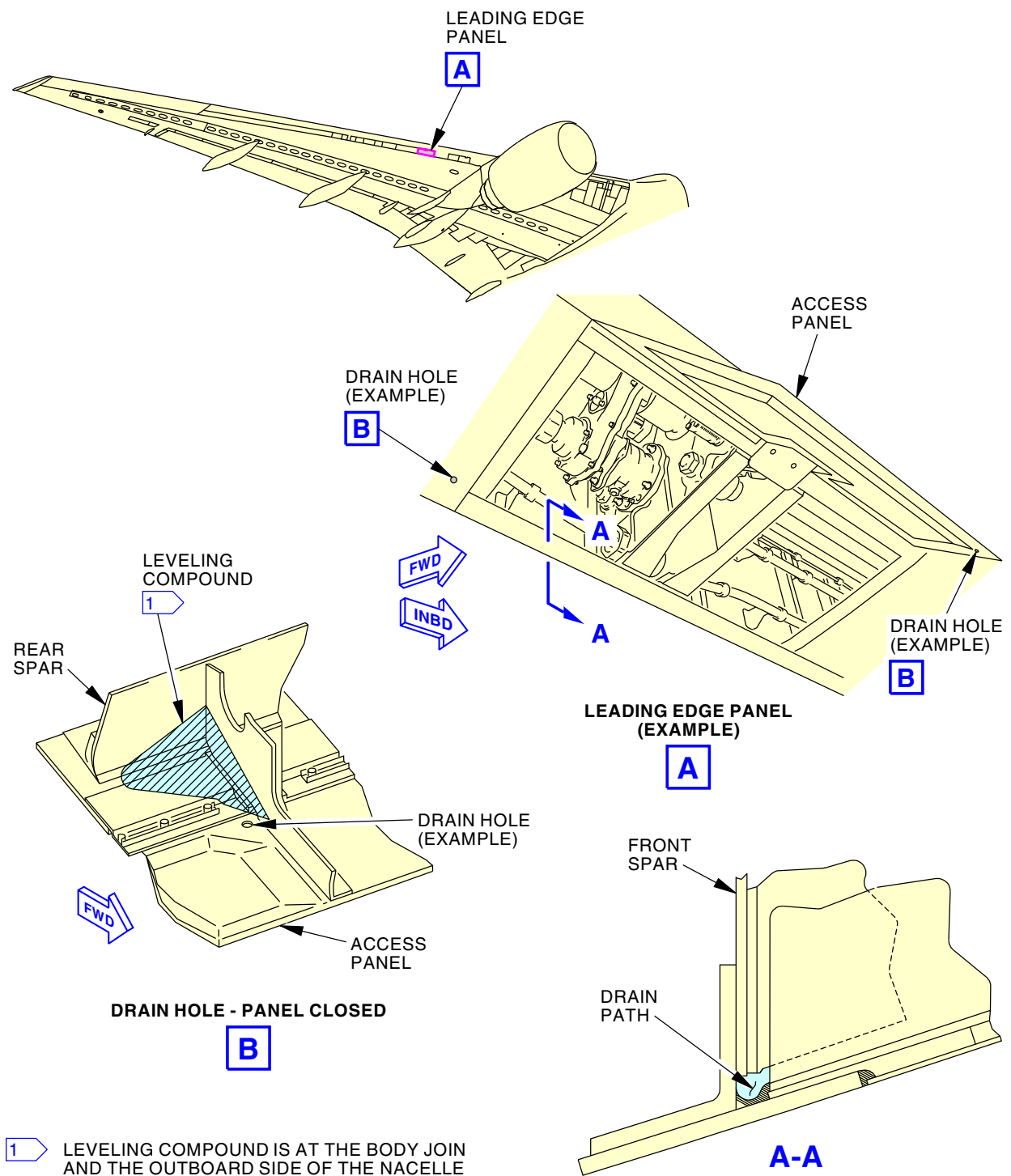
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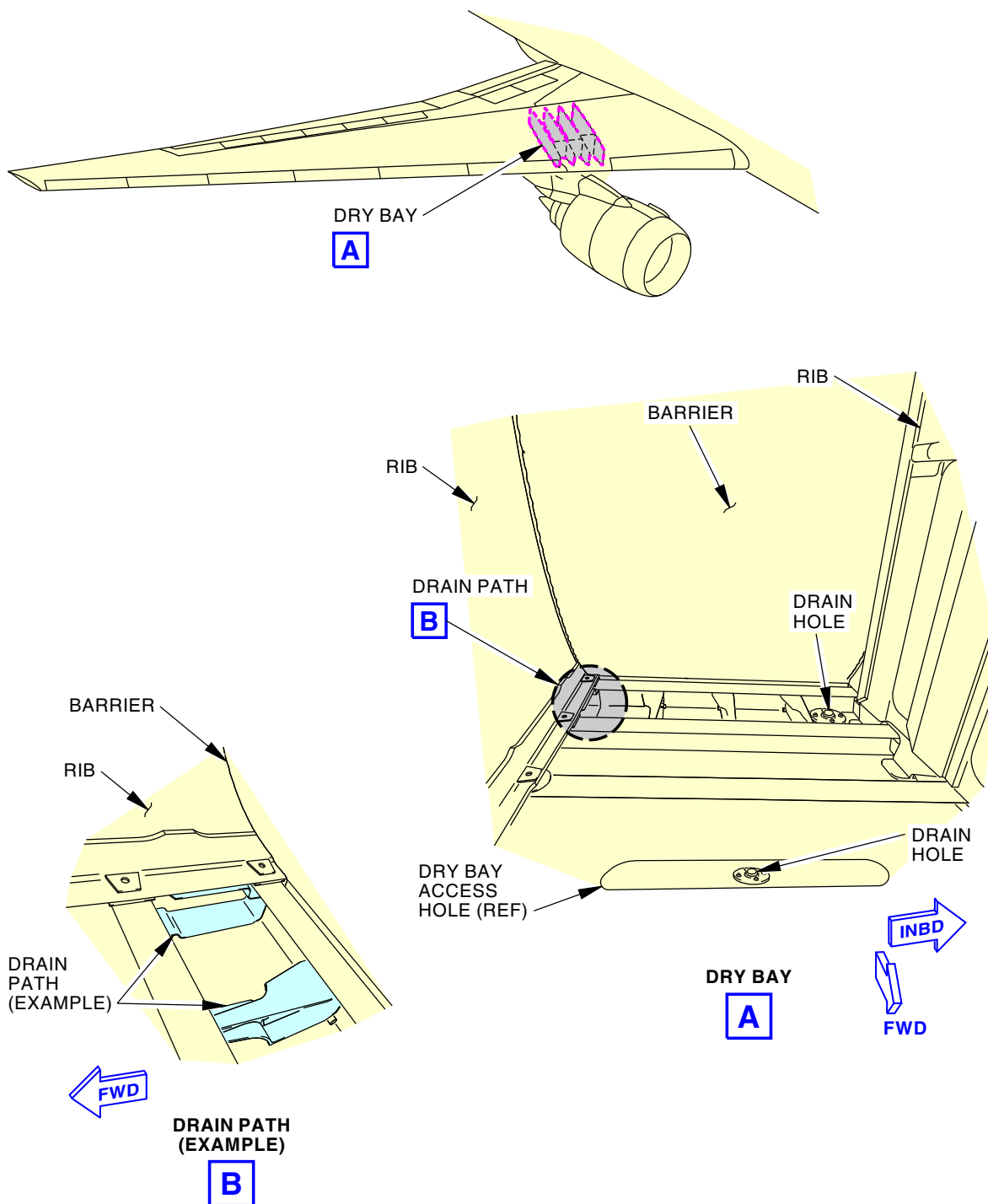
Leading Edge Drainage
Figure 702/51-03-03-990-802

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D12856 S0006424196_V2

Wing Main Box Drainage
Figure 703/51-03-03-990-803 (Sheet 1 of 2)

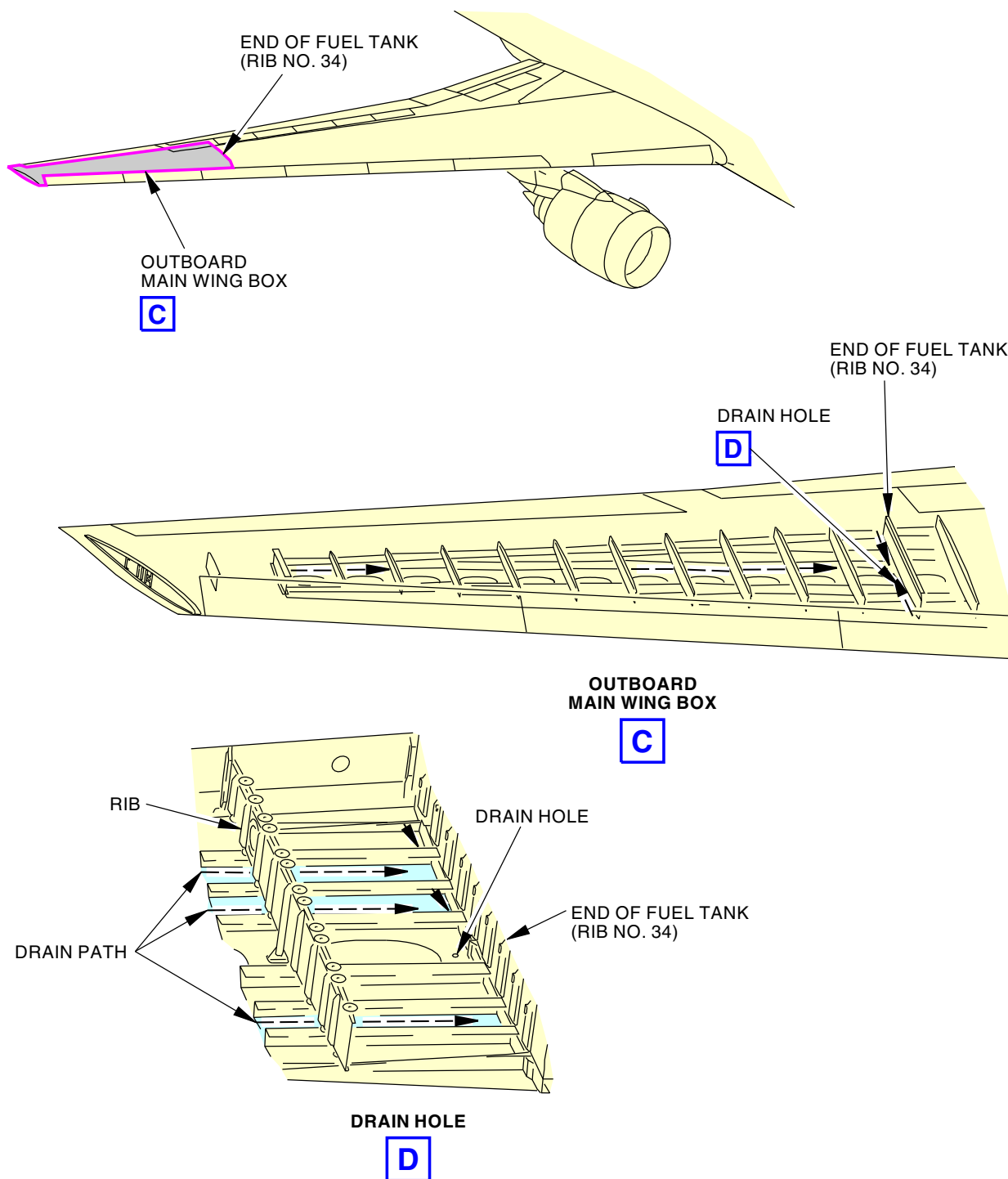
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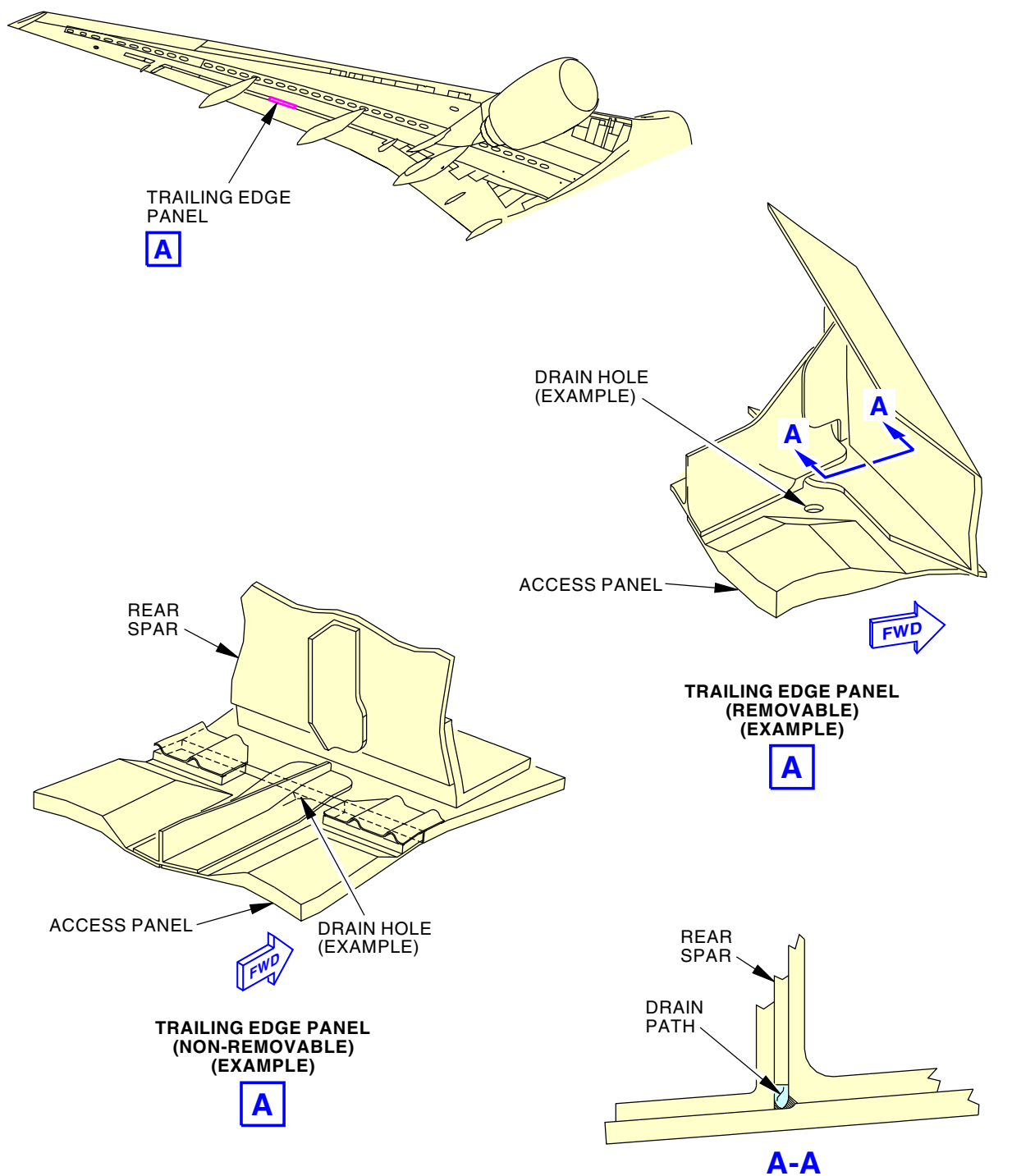
**Wing Main Box Drainage
Figure 703/51-03-03-990-803 (Sheet 2 of 2)**

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D11953 S0006424198_V2

**Trailing Edge Drainage
Figure 704/51-03-03-990-804**

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EMPENNAGE DRAINAGE - CLEANING/PAINTING

1. General

- A. This procedure has one task:
- (1) Empennage drainage cleaning.

TASK 51-03-04-100-801

2. Empennage Drainage Cleaning

(Figure 701, Figure 702)

A. **General**

- (1) The empennage drainage system has these components:
 - (a) drain paths
 - (b) drain holes
- (2) Drain paths allow water to drain to the lowest part of the horizontal and vertical stabilizers.
- (3) The water goes out the airplane through the drain holes.

B. **Consumable Materials**

Reference	Description	Specification
B00003	Cleaner - Emulsion Alkaline - GMC 528B	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

C. **Location Zones**

Zone	Area
313	Stabilizer Torsion Box Compartment, Left
314	Stabilizer Torsion Box Compartment, Right
320	Subzone 320 - Vertical Stabilizer and Rudder
330	Subzone 330 - Left Horizontal Stabilizer and Elevator
340	Subzone 340 - Right Horizontal Stabilizer and Elevator

D. **Procedure**

SUBTASK 51-03-04-210-001

- (1) Make sure these parts of the drainage system in the vertical tail do not have blockage:
 - (a) overboard drains at the bottom of the stabilizer, rudder, and tab,
 - (b) drain holes in each hinge rib,
 - (c) drain holes in the rudder leading edge,
 - (d) drain holes in the rudder tab leading edge.

SUBTASK 51-03-04-210-002

- (2) Make sure these parts of the drainage system in the horizontal tail do not have blockage:
 - (a) drain paths at these locations:
 - 1) along the rear spar at the trailing edge,
 - 2) along the front spar at the leading edge.
 - (b) drain holes at these locations:
 - 1) at BL=0 in the stabilizer torsion box compartment,
 - 2) in the leading and trailing edge panels,

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- 3) at the tip,
- 4) at the inboard edge of the stabilizer,
- 5) in the elevator.

SUBTASK 51-03-04-100-001

- (3) Do these steps when you find blockage of the drainage system:
 - (a) Remove the blockage.
 - (b) Look for dirt.
 - (c) Remove the dirt with a cotton wiper, G00034 wet with water and a mild GMC 528B cleaner, B00003.

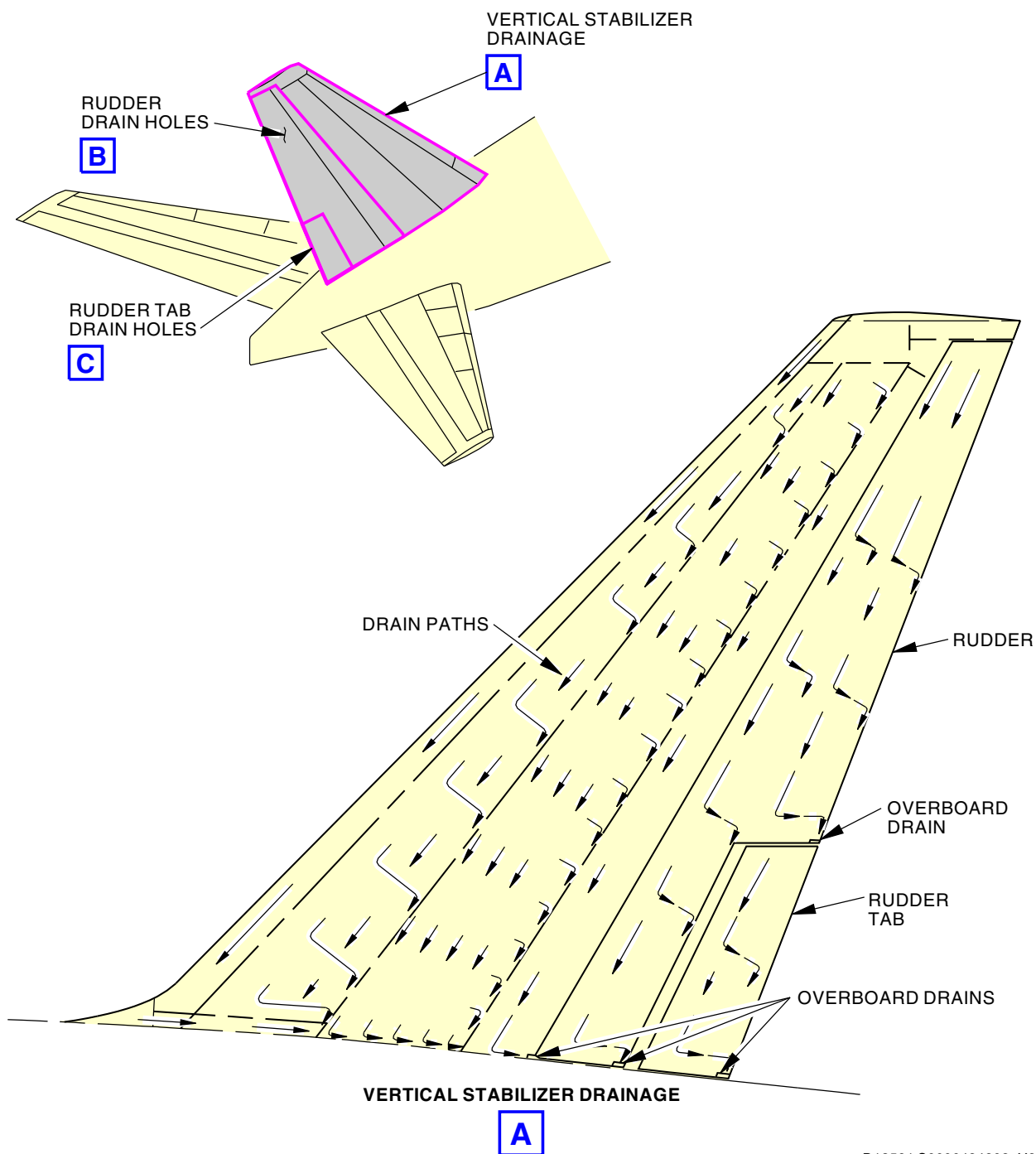
———— **END OF TASK** ————

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Vertical Stabilizer Drainage
Figure 701/51-03-04-990-801 (Sheet 1 of 2)

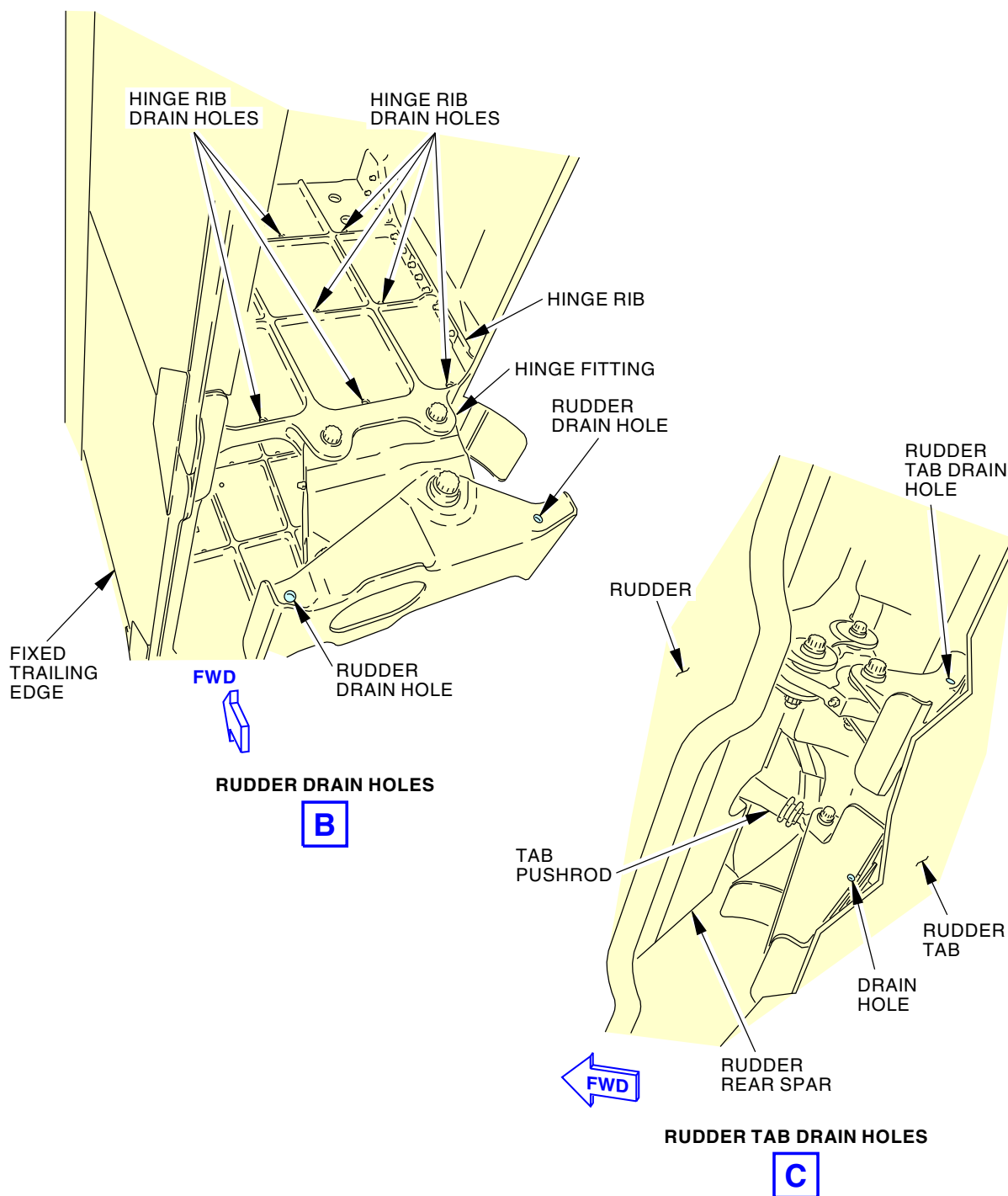
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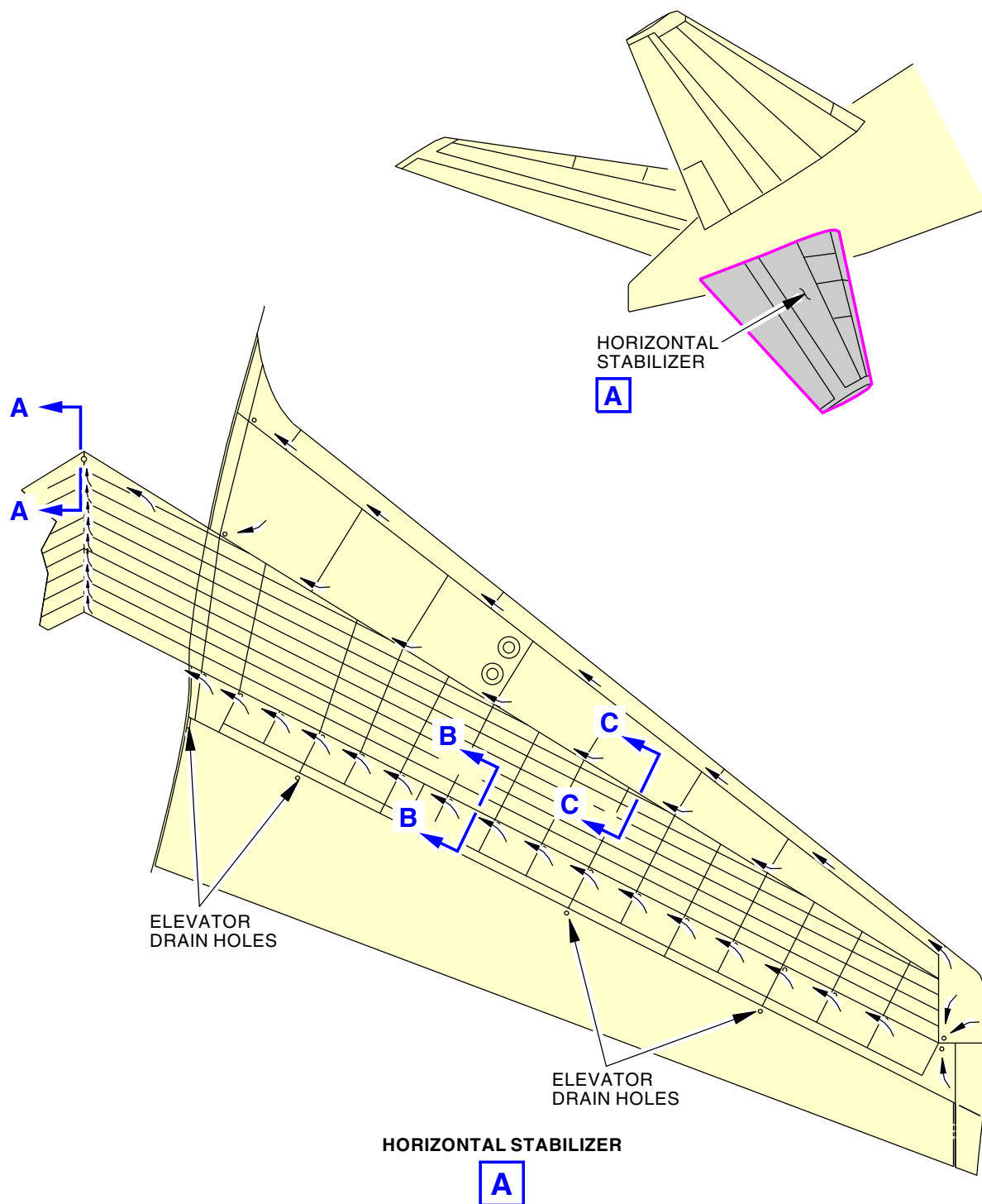
Vertical Stabilizer Drainage
Figure 701/51-03-04-990-801 (Sheet 2 of 2)

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**Horizontal Stabilizer Drainage
Figure 702/51-03-04-990-802 (Sheet 1 of 2)**

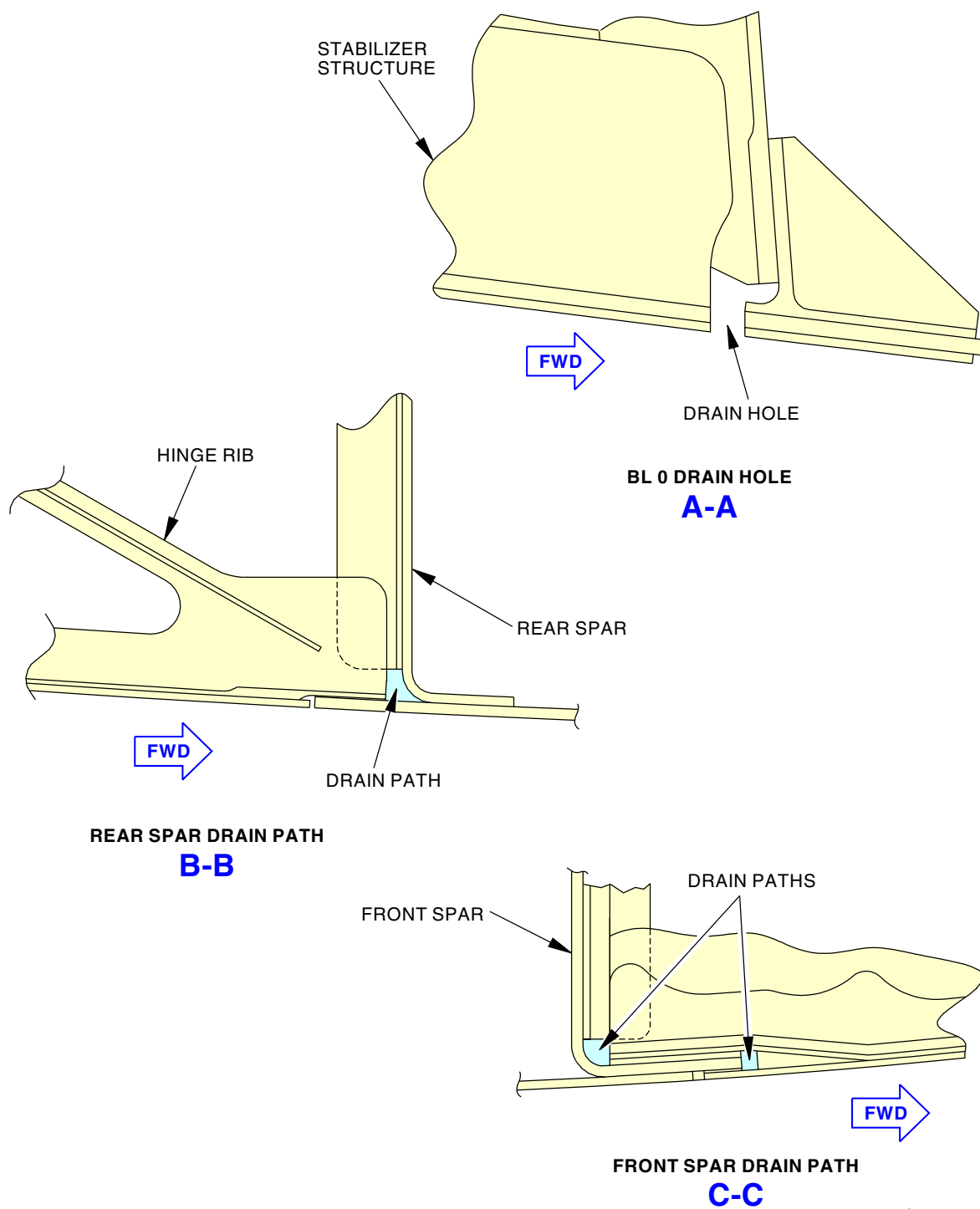
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Horizontal Stabilizer Drainage
Figure 702/51-03-04-990-802 (Sheet 2 of 2)

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CORROSION INSPECTIONS - MAINTENANCE PRACTICES

1. General

- A. This procedure contains MSG-3 task card data.

TASK 51-05-01-210-801

2. 777 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-57 P/B 201	PROCEDURE AFTER ACID SPILLS (INCLUDING VACUUM WASTE SYSTEM SPILLS/LEAKS) - MAINTENANCE PRACTICES
51-00-58	CORROSION STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C50148	Compound - Corrosion Preventative, Ardrex AV 30 (Formally Dinitrol AV 30)	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G50071	Compound - Corrosion Inhibiting, Heavy Duty	BMS3-35

C. CPCP Basic Task

NOTE: Corrosion that was the result of a vacuum waste system spill/leak or other acidic spill, must be cleaned and neutralized (refer to PROCEDURE AFTER ACID SPILLS (INCLUDING VACUUM WASTE SYSTEM SPILLS/LEAKS) - MAINTENANCE PRACTICES, PAGEBLOCK 51-00-57/201) in all areas where the spill/leak has made contact with the structure. Make sure to clean and neutralize regions where the material can penetrate into structural joints. Also, make sure that the cause of the spill/leak is corrected.

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 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-003

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

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- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
- (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
 - 1) Verify that the cause of the spill/leak has been corrected.

SUBTASK 51-05-01-210-005

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

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

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.

NOTE: (Optional: Procedures for applying these compounds are given in Boeing CPM D6-82560)

- 1) Minimum Requirement for all areas (except as noted in a3) is single coat of water displacing/anti-corrosion compound that penetrates faying surfaces and displaces moisture, E.g. use a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for 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 (Basic Task Item 6) should not be applied:

Water displacing/anti-corrosion compounds required by item 6) of the Basic Task should not be applied in the following areas (see below CPM D6-82560, for additional supporting information):

- 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).

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- 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 51-05-01-210-007

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

————— END OF TASK —————

TASK 51-05-01-210-802

3. 777 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-58	CORROSION STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00755	Compound - Organic Corrosion Inhibiting, Heavy Duty	BMS3-26
C50148	Compound - Corrosion Preventative, Ardrex AV 30 (Formally Dinitrol AV 30)	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G50071	Compound - Corrosion Inhibiting, Heavy Duty	BMS3-35

C. CPCP Basic Task

SUBTASK 51-05-01-210-008

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

- Remove all systems, equipment and interior furnishings, etc. (E.g. toilets, galleys, linings, installations) as necessary to accomplish 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:

- Prior to inspection clean the area as required to accomplish 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-010

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

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- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
- (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
 - 1) Verify that the cause of the spill/leak has been corrected.

SUBTASK 51-05-01-210-012

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

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

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.

NOTE: (Optional: Procedures for applying these compounds are given in Boeing CPM D6-82560)

- 1) Minimum Requirement for all areas (except as noted in a3) is single coat of water displacing/anti-corrosion compound that penetrates faying surfaces and displaces moisture, E.g. use a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
- 2) In areas with high potential for severe corrosion, where the initial or previous coat has been disturbed or removed, the application of water displacing/anti-corrosion compound(s) that penetrates faying surfaces, displaces moisture and forms a durable barrier after drying is recommended (but optional). This can be achieved by applying a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for corrosion inhibiting compound, G00009, covered with a top coat per compound, C00755 BMS 3-26 type II.
- 3) List of areas/items where water displacing/anti-corrosion compounds (Basic Task Item 6) should not be applied:

Water displacing/anti-corrosion compounds required by item 6) of the Basic Task should not be applied in the following areas (see below CPM D6-82560, for additional supporting information):

- Cables, pulleys, wiring, plastics, elastomers, oxygen systems.

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- 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 51-05-01-210-014

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

————— **END OF TASK** —————

TASK 51-05-01-210-803

4. 777 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-58	CORROSION STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00755	Compound - Organic Corrosion Inhibiting, Heavy Duty	BMS3-26
C50148	Compound - Corrosion Preventative, Ardrex AV 30 (Formally Dinitrol AV 30)	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23
G50071	Compound - Corrosion Inhibiting, Heavy Duty	BMS3-35

C. 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, installations) as necessary to accomplish 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:

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- (a) Prior to inspection clean the area as required to accomplish 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-017

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

- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 6).

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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
- (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
 - 1) Verify that the cause of the spill/leak has been corrected.

SUBTASK 51-05-01-210-019

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

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

SUBTASK 51-05-01-210-020

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

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

NOTE: (Optional: Procedures for applying these compounds are given in Boeing CPM D6-82560)

- 1) Minimum Requirement for all areas (except as noted in a3) is single coat of water displacing/anti-corrosion compound that penetrates faying surfaces and displaces moisture, E.g. use a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.

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- 2) In areas with high potential for severe corrosion, where the initial or previous coat has been disturbed or removed, the application of water displacing/anti-corrosion compound(s) that penetrates faying surfaces, displaces moisture and forms a durable barrier after drying is recommended (but optional). This can be achieved by applying a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for corrosion inhibiting compound, G00009, covered with a top coat per compound, C00755 BMS 3-26 type II.
- 3) List of areas/items where water displacing/anti-corrosion compounds (Basic Task Item 6) should not be applied:

Water displacing/anti-corrosion compounds required by item 6) of the Basic Task should not be applied in the following areas (see below CPM D6-82560, for additional supporting information):

- 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 51-05-01-210-021

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

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

————— **END OF TASK** —————

TASK 51-05-01-210-804

5. 777 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-58	CORROSION STANDARD TREATMENT METHODS

B. Consumable Materials

Reference	Description	Specification
C00174	Compound - Corrosion Preventive, Solvent Cutback, Cold Application	MIL-PRF-16173 (Supersedes MIL-C-16173)
C00755	Compound - Organic Corrosion Inhibiting, Heavy Duty	BMS3-26
C50148	Compound - Corrosion Preventative, Ardrex AV 30 (Formally Dinitrol AV 30)	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

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(Continued)

Reference	Description	Specification
G50071	Compound - Corrosion Inhibiting, Heavy Duty	BMS3-35

C. CPCP Basic Task

SUBTASK 51-05-01-210-022

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

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 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-024

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

- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
- (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
- 1) Verify that the cause of the spill/leak has been corrected.

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.

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.

NOTE: (Optional: Procedures for applying these compounds are given in Boeing CPM D6-82560)

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- 1) Minimum Requirement for all areas (except as noted in a3) is single coat of water displacing/anti-corrosion compound that penetrates faying surfaces and displaces moisture, E.g. use a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for corrosion inhibiting compound, G00009, where the initial or previous coat has been disturbed or removed.
- 2) In areas with high potential for severe corrosion, where the initial or previous coat has been disturbed or removed, the application of water displacing/anti-corrosion compound(s) that penetrates faying surfaces, displaces moisture and forms a durable barrier after drying is recommended (but optional). This can be achieved by applying a single coat of compound, G50071 (preferred) or Ardrex AV 30 compound, C50148, as a replacement for corrosion inhibiting compound, G00009, covered with a top coat per compound, C00755 BMS 3-26 type II.
- 3) List of areas/items where water displacing/anti-corrosion compounds (Basic Task Item 6) should not be applied:

Water displacing/anti-corrosion compounds required by item 6) of the Basic Task should not be applied in the following areas (see below CPM D6-82560, for additional supporting information):

- 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 51-05-01-210-028

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

————— END OF TASK —————

TASK 51-05-01-210-805

6. 777 Basic Task Description

A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-58	CORROSION 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, installations) as necessary to accomplish 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.

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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 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-031

- (3) Do the CPCP Basic Task Item 3 as follows:
- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
 - (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
 - 1) Verify that the cause of the spill/leak has been corrected.

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.

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 all wet insulation blankets prior to re-installing, or replace with new.

————— **END OF TASK** —————

TASK 51-05-01-210-806

7. 777 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

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A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-58	CORROSION STANDARD TREATMENT METHODS

B. CPCP Basic Task

SUBTASK 51-05-01-210-036

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

- (a) Remove all systems, equipment and interior furnishings, etc. (E.g. toilets, galleys, linings, installations) as necessary to accomplish 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 51-05-01-210-037

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

- (a) Prior to inspection clean the area as required to accomplish 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-038

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

- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
- (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
 - 1) Verify that the cause of the spill/leak has been corrected.

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.

SUBTASK 51-05-01-210-041

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

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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. 777 Basic Task Description

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
05-51-57-000-802	Corrosion Removal After Acid Spills (P/B 201)
51-00-58	CORROSION STANDARD TREATMENT METHODS

B. CPCP Basic Task Description

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 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 [see 3)]. 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 [See 3].

SUBTASK 51-05-01-210-045

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

- (a) Visually inspect all structure listed in the baseline program from a distance considered necessary to detect early stages of corrosion or indications of other discrepancies such as cracking (E.g. General Visual Inspection). 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 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 CORROSION STANDARD TREATMENT METHODS, SUBJECT 51-00-58, or 777 Structural Repair Manual (SRM) D6-82560, or related service bulletin, as appropriate. Surface oxidation of ferrous metal fasteners may be handled by normal or existing maintenance practices.
- (b) If corrosion was caused by a vacuum waste system spill/leak or other acidic spill, neutralize the area where the spill/leak has contacted the structure. Make sure that you neutralize regions where the material can penetrate into structural joints. Do this task: Corrosion Removal After Acid Spills, TASK 05-51-57-000-802.
 - 1) Verify that the cause of the spill/leak has been corrected.

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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.

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** ————

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REDUCED VERTICAL SEPARATION MINIMUM (RVSM) - INSPECTION/CHECK

1. General

- A. RVSM will permit the airplane to be separated by 1000 feet vertically from FL290 to FL410, instead of the current 2000 feet. RVSM will make more available route assignments and give benefits to operators through better route assignments and reduced schedule delays.
- B. This procedure contains these tasks:
 - (1) Examine the Skin Waviness at the Static Ports.
 - (2) Examine the Step Height of the Static Ports.

NOTE: The cabin pressure static ports do not need to be checked.

 - (3) RVSM Reporting

TASK 51-10-00-200-801

2. Examine the Skin Waviness at the Static Ports

(Figure 601, Figure 602)

A. References

Reference	Title
SRM 51-10-01	Structural Repair Manual
SRM 51-10-03	Structural Repair Manual
SRM 53-00-01	Structural Repair Manual

B. Tools/Equipment

Reference	Description
STD-757	Steel Scale - 6 in (152.4 mm)

C. Location Zones

Zone	Area
100	Lower Half of Fuselage

D. Procedure

SUBTASK 51-10-00-210-001

- (1) Visually examine the "Extra Critical Area", (Figure 601), near each static pressure port (left, right, and center) for damage, (SRM 51-10-03).

NOTE: Some examples of damage are scratches, lightning strikes, and dents.

- (a) If damage is found, refer to (SRM 53-00-01) and (SRM 51-10-01).

SUBTASK 51-10-00-200-001

- (2) Examine the skin waviness for the area within a 3 in. (76 mm) radius around the static ports (left, right, and center) for irregularities.

- (a) If you see damage on one side of the fuselage, you must do skin waviness measurements on both sides of the fuselage.

NOTE: If you are doing this inspection after doing a structural repair (for example, after finding damage from the lightning strike conditional inspection), you only need to do the skin waviness inspection on the side of the aircraft with damage to the static ports. If both sides of the aircraft show damage at the static ports, the skin waviness inspection must be done on both sides of the aircraft.

- (b) The areas should be smooth and free of any noticeable foreign material or roughness.

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- (c) Put a scale, 6 in (152.4 mm), STD-757 on edge, approximately 0.2 in. (5.1 mm) above and below each static pressure port along a waterline, as shown in (Figure 601).

SUBTASK 51-10-00-210-002

- (3) Determine if the waviness at the port is a rounded "bulge", a flat "bulge" or a "dip" (Figure 601).
- (a) If there is a gap under the center of the scale, there is a "dip" condition.
- (b) If there is a gap under the ends of the scale, there is a "bulge" condition.
- 1) There are two possible types of "bulges", (Figure 601):
- a) A "bulge" can be rounded on the top.
- NOTE: In this case, the scale will move back and forth on a rounded "bulge" in the skin. When one end of the scale touches the skin, the other end of the scale does not touch the skin.
- b) A "bulge" can be flat on the top.
- NOTE: In this case, the scale will rest on a flat surface and the two scale ends will not touch the skin.

SUBTASK 51-10-00-220-001

- (4) Measure the amount of waviness on both sides of the airplane by using a feeler gage.
- NOTE: If the waviness is a "dip" record the measurement as a negative number. If it is a "bulge" record it as a positive number. For rounded "bulges" the end of the scale that has the largest observed gap is the recorded value. (This value represents twice the actual rounded "bulge" height).
- (a) Record measurement data on a worksheet, (Figure 601).

SUBTASK 51-10-00-220-002

- (5) Analyze the data to see if the waviness passes or fails. The calculation for each port is as follows:
- (a) If the two measurements for a port are rounded "bulges" then use this calculation: Average Port Waviness = $0.25 \times \{\text{bulge upper} + \text{bulge lower}\}$.
- (b) If the two measurements for a port are flat "bulges" then use this calculation: Average Port Waviness = $0.5 \times \{\text{bulge upper} + \text{bulge lower}\}$.
- (c) If one of the measurements is a rounded "bulge" and the other is a "dip" then use this calculation: Average Port Waviness = $0.50 \times \{(0.50 \times \text{bulge}) + \text{dip}\}$.
- (d) If one of the measurements is a flat "bulge" and the other is a "dip" then use this calculation: Average Port Waviness = $0.50 \times \{\text{bulge} + \text{dip}\}$.
- (e) If the two measurements are "dips" then use this calculation: Average Port Waviness = $0.50 \times \{\text{dip upper} + \text{dip lower}\}$.

SUBTASK 51-10-00-220-003

- (6) Make sure each static pressure port (left, right, and center) passes the inspection.
- NOTE: If the Average Port Waviness is between -0.010 in. (-0.254 mm) and 0.010 in. (0.254 mm), the port has passed the inspection. If the Average Port Waviness is outside this range, the port fails the inspection.

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SUBTASK 51-10-00-970-001

- (7) Make a permanent record of the measurements you take.

NOTE: Operators with airplanes that fail this inspection can supply the results to Boeing. Although individual ports and "certain" skin areas may fail an operator's inspection, Boeing may find that the static pressure system as a whole is acceptable for RVSM operation. This is possible since Boeing can examine the entire static pressure system (left and right side of the airplane) at the same time. For this reason, an airplane which failed this dimensional check can still have skin waviness within the limits necessary for RVSM operation.

NOTE: If the analysis shows the skin waviness is within the limits necessary for RVSM, Boeing will provide the appropriate documentation.

NOTE: If the analysis shows that the skin waviness is not within the limits for RVSM, Boeing can supply corrective action as necessary.

————— **END OF TASK** —————

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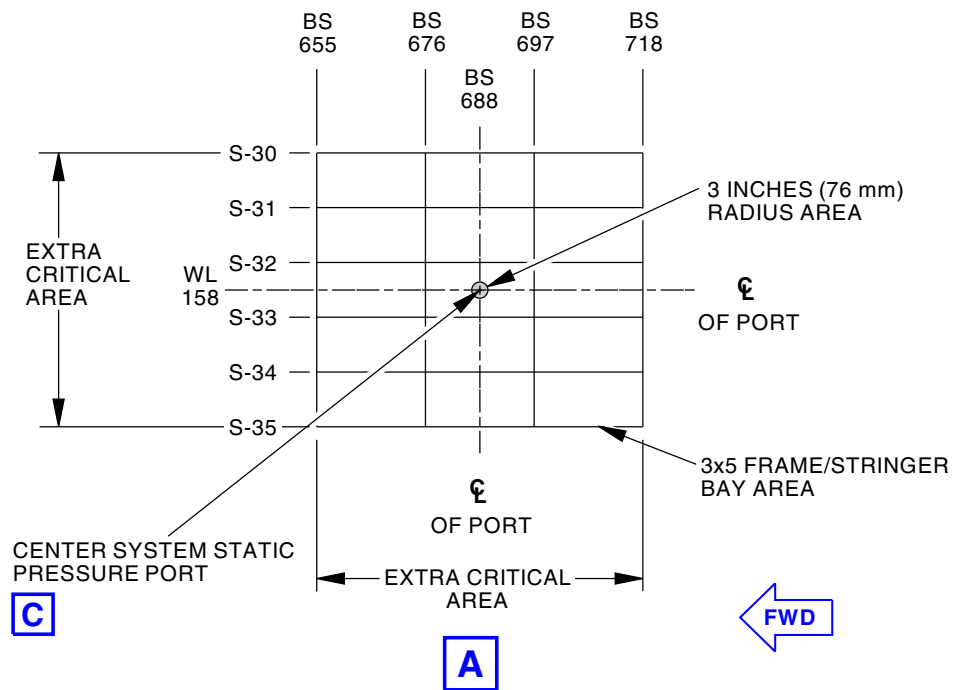
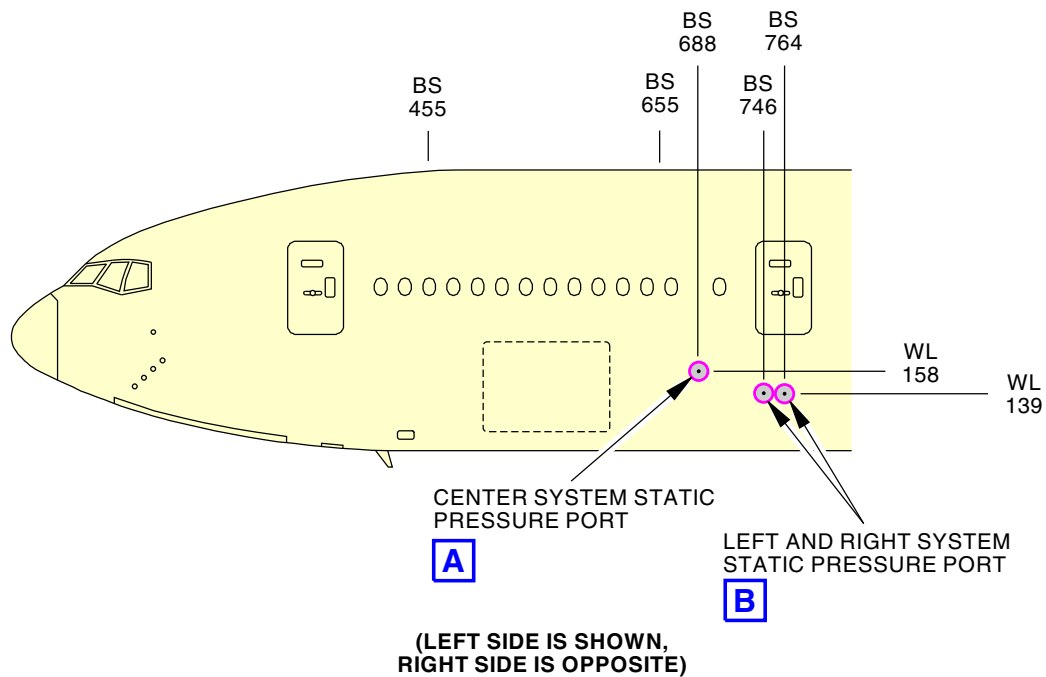
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Skin Waviness Inspection for Reduced Vertical Separation Minimum (RVSM) Operation Figure 601/51-10-00-990-801 (Sheet 1 of 4)

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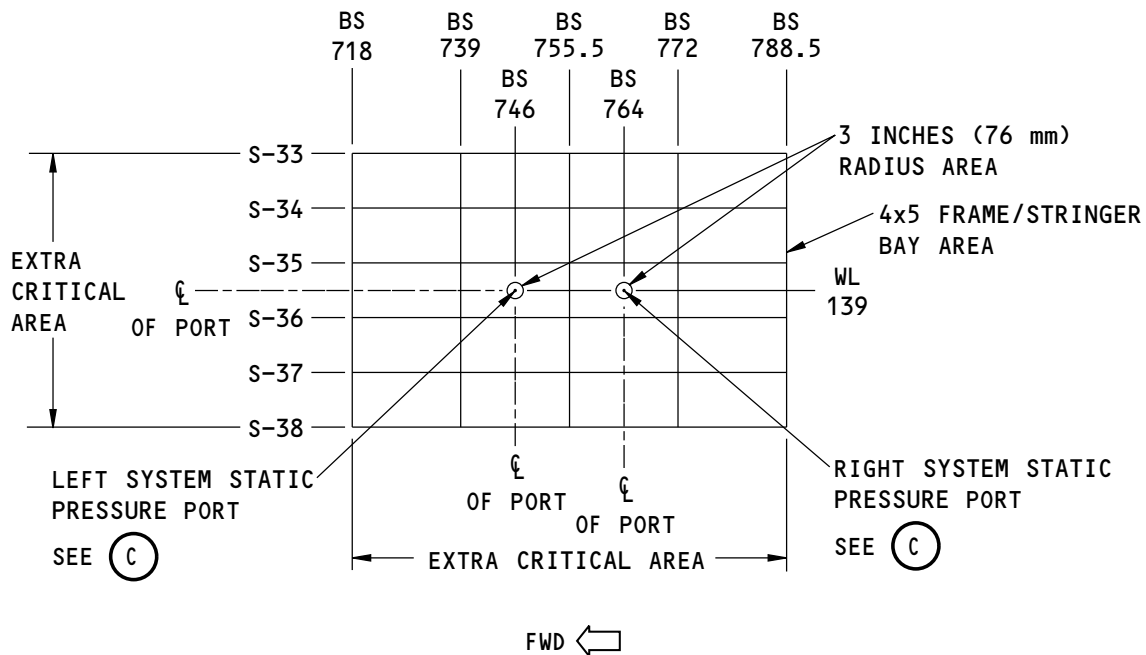
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(B)

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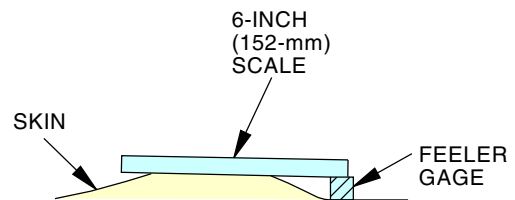
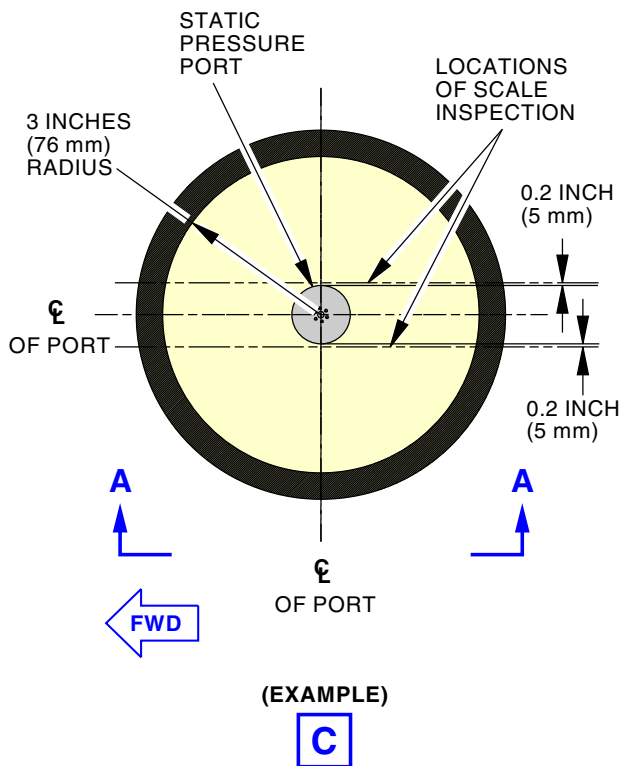
Skin Waviness Inspection for Reduced Vertical Separation Minimum (RVSM) Operation
Figure 601/51-10-00-990-801 (Sheet 2 of 4)

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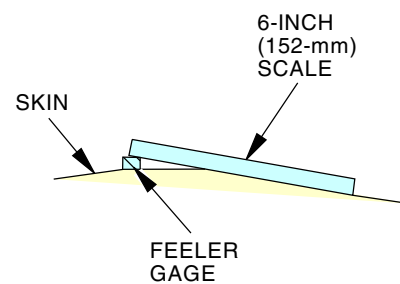
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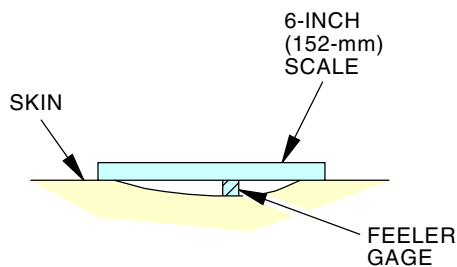
**FLAT BULGE IN SKIN
(EXAMPLE)**

A-A



**ROUNDED BULGE IN SKIN
(EXAMPLE)**

A-A



**DIP IN SKIN
(EXAMPLE)**

A-A

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**Skin Waviness Inspection for Reduced Vertical Separation Minimum (RVSM) Operation
Figure 601/51-10-00-990-801 (Sheet 3 of 4)**

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AIRPLANE: _____

DATE: _____

777 SKIN WAVINESS ANALYSIS WORKSHEET

LEFT SIDE OF AIRPLANE	MEASUREMENT POINTS	DIP	ROUNDED BULGE			FLAT BULGE		
		MAX	FWD	AFT	MAX	FWD	AFT	MAX
LEFT PORT	UPPER							
	LOWER							
RIGHT PORT	UPPER							
	LOWER							
	AVERAGE							
CENTER PORT	UPPER							
	LOWER							
	AVERAGE							

RIGHT SIDE OF AIRPLANE	MEASUREMENT POINTS	DIP	ROUNDED BULGE			FLAT BULGE		
		MAX	FWD	AFT	MAX	FWD	AFT	MAX
LEFT PORT	UPPER							
	LOWER							
RIGHT PORT	UPPER							
	LOWER							
	AVERAGE							
CENTER PORT	UPPER							
	LOWER							
	AVERAGE							

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Skin waviness inspection for reduced vertical separation minimum (RVSM) operation
Figure 601/51-10-00-990-801 (Sheet 4 of 4)

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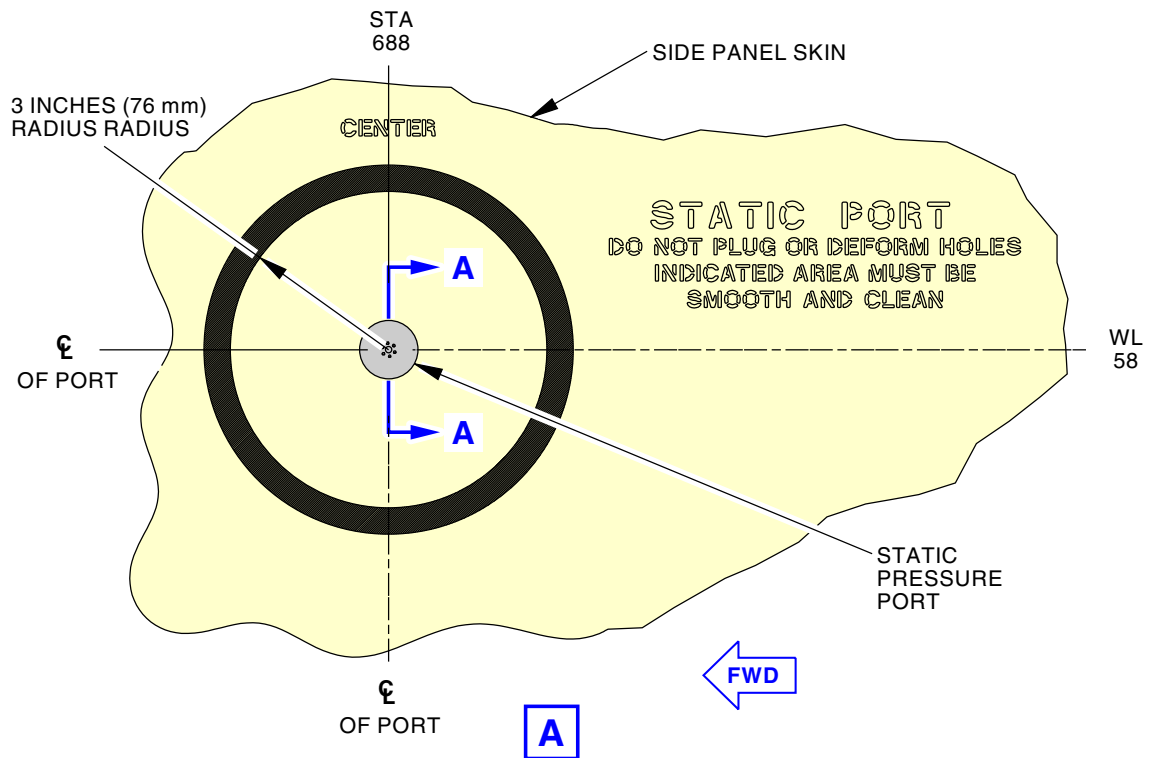
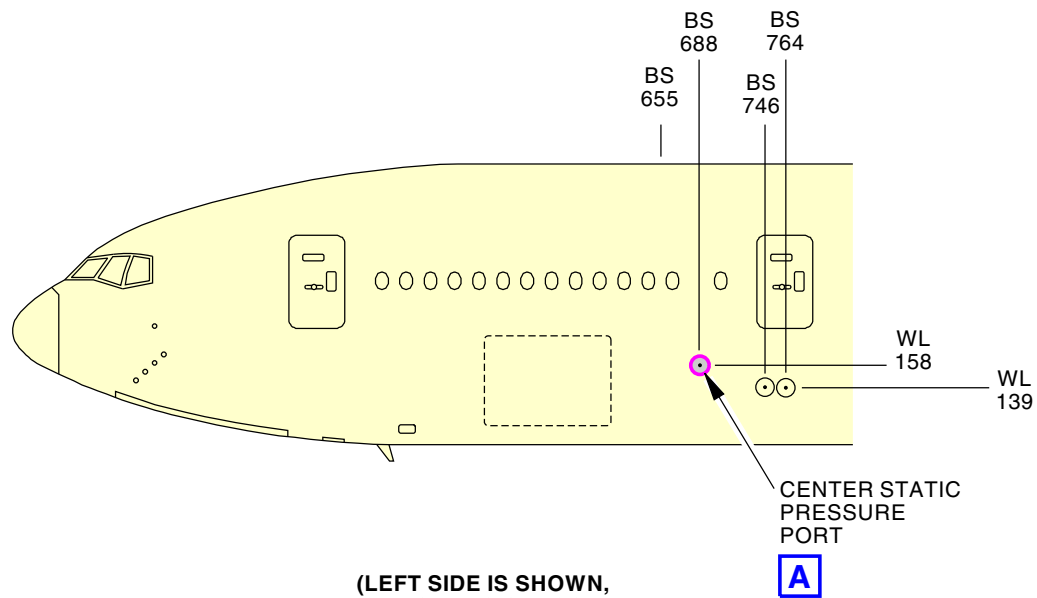
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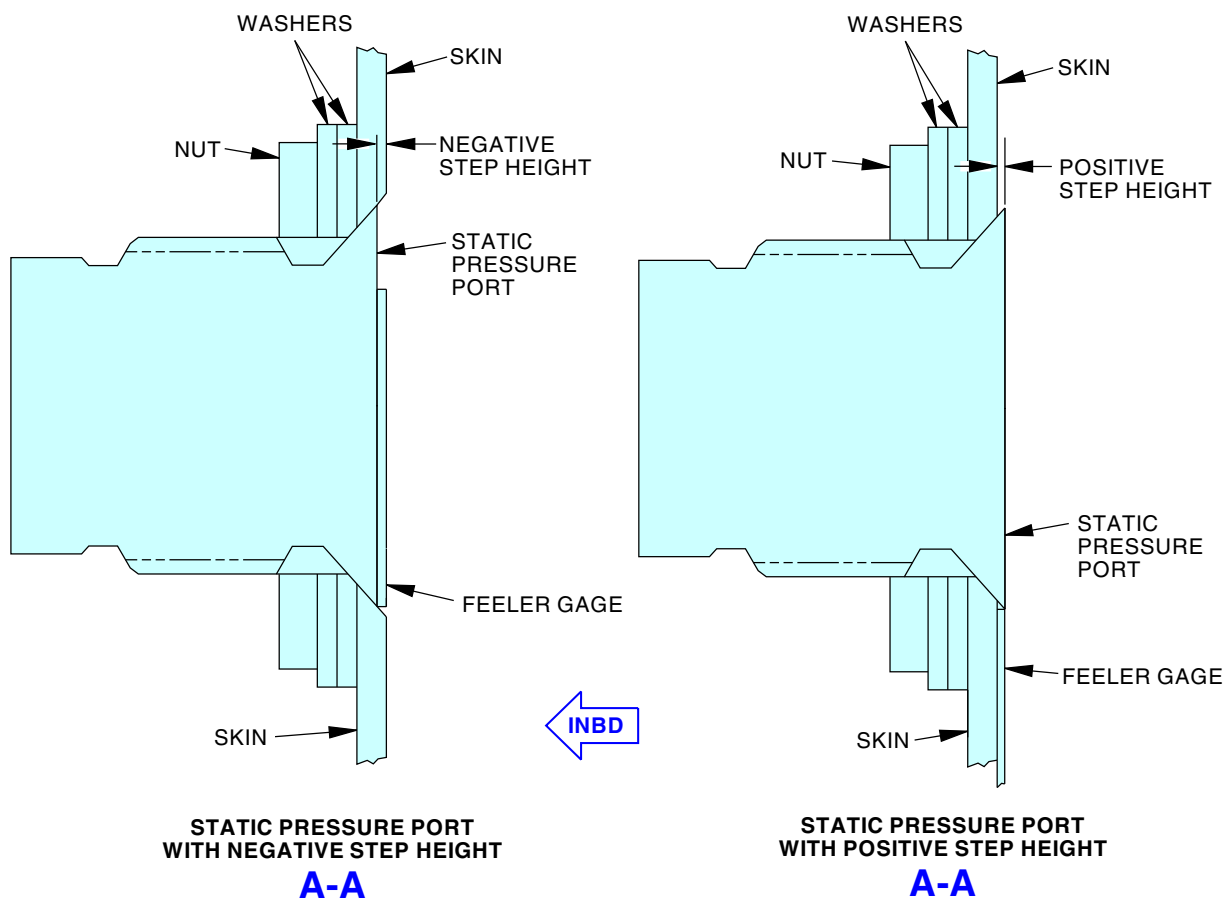
Port Step Height Inspection for Reduced Vertical Separation Minimum (RVSM) Operation (Example)
Figure 602/51-10-00-990-802 (Sheet 1 of 2)

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Port Step Height Inspection for Reduced Vertical Separation Minimum (RVSM) Operation (Example)
Figure 602/51-10-00-990-802 (Sheet 2 of 2)

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TASK 51-10-00-200-804

3. Examine the Paint Thickness at the Static Port

(Figure 601, Figure 602)

A. References

Reference	Title
51-21-10-250-801	Decorative Exterior Paint System Thickness Measurement (Eddy Current Testing Method) (P/B 701)
51-21-10-270-801	Decorative Exterior Paint System Thickness Measurement (Ultrasonic Testing Method) (P/B 701)
SRM 51-10-01	Structural Repair Manual
SRM 51-10-03	Structural Repair Manual
SRM 53-00-01	Structural Repair Manual

B. Location Zones

Zone	Area
100	Lower Half of Fuselage

C. Procedure

SUBTASK 51-10-00-210-004

- (1) Visually examine the "Extra Critical Area", (Figure 601), near each static pressure port (left, right, and center) for paint.
 - (a) The 3 in. (76 mm) radius area (bare aluminum) around the static port should not be painted.
 - (b) Between the 3 in. (76 mm) radius and a 10 in. (254 mm) radius from the static ports, the paint thickness including markings and other finishes should not exceed 0.013 in. (0.330 mm) and the paint should not be loose or peeling.
 - (c) Outside the 10 in. (254 mm) radius area around the static ports, the paint thickness including markings and other finishes should not exceed 0.033 in. (0.838 mm).

NOTE: This limit applies to all paint including touch ups applied by brush, roller, and spray methods.
 - (d) If paint exceeding the limits is found or loose or peeling paint is found, remove it.
 - (e) If necessary, use one of the tasks that follow to measure paint thickness in the following areas:
 - 1) Decorative Exterior Paint System Thickness Measurement (Eddy Current Testing Method), TASK 51-21-10-250-801.
 - 2) Decorative Exterior Paint System Thickness Measurement (Ultrasonic Testing Method), TASK 51-21-10-270-801.

SUBTASK 51-10-00-210-005

- (2) Visually examine the "Extra Critical Area", (Figure 601), near each static pressure port (left, right, and center) for damage, (SRM 51-10-03).

NOTE: Some examples of damage are scratches, lightning strikes, and dents.

 - (a) If damage is found, refer to (SRM 53-00-01) and (SRM 51-10-01).

———— **END OF TASK** ————

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TASK 51-10-00-200-802

4. Examine the Step Height of the Static Ports

(Figure 601, Figure 602)

A. References

Reference	Title
34-11-02-200-801	Static Port Inspection (P/B 601)

B. Tools/Equipment

Reference	Description
STD-1107	Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th

C. Location Zones

Zone	Area
100	Lower Half of Fuselage

D. Procedure

SUBTASK 51-10-00-220-004

- (1) Use a 0.0 - 0.5 Inch feeler gauge, STD-1107 to do this task: Static Port Inspection, TASK 34-11-02-200-801(Figure 602).

NOTE: For inspections, the port height must be within -0.002 inch to +0.006 inch (-0.051 mm to +0.152 mm) of the skin along the center waterline of the static port.

————— **END OF TASK** —————

TASK 51-10-00-970-801

5. RVSM Reporting

A. Location Zones

Zone	Area
100	Lower Half of Fuselage

B. Procedure

NOTE: Boeing requests operators use the following Reduced Vertical Separation Minimum (RVSM) Reporting System to tell Boeing about airplanes that fail the skin waviness inspection.

SUBTASK 51-10-00-970-002

- (1) If you find a problem, send a copy of all information to Boeing with this heading: "ATTENTION - RVSM DISCREPANCY".

- (a) Include the following information:

- 1) The airplane serial number.
- 2) The number of flight cycles and hours on the airplane.

- (b) Send a copy of the skin waviness data for all ports to Boeing through the Field Service Representative or directly to the Boeing Commercial Airplane Group.

NOTE: Address:

Boeing Commercial Airplane Group
PO Box 3707
Seattle, Washington 98124
Attn: Manager, Airline Technical Support

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Org. M-7250, Mail Stop 04-34

———— **END OF TASK** ————

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WINDOW LEAKS - INSPECTION/CHECK

1. General

- A. This procedure has this task:
- (1) Leak Check of the No. 2 Openable Window

TASK 51-11-00-790-801

2. Leak Check of the No. 2 Window

(Figure 601)

A. **General**

- (1) This task is for the right and left No. 2 openable windows.

NOTE: The No. 2 window leak test is the recommended best procedure. The No. 2 window leak test task is not a mandatory requirement for the dispatch of the aircraft after the No. 2 window replacement.

B. **References**

Reference	Title
30-41-00-710-801	Window Heat Control System - Operational Test (P/B 501)
56-11-02-700-801	No. 2 Window Bracket Adjustments (P/B 501)
56-11-02-820-801	No. 2 Window Adjustments (P/B 501)
56-11-03-710-801	No. 2 Window Indication System - Operational Test (P/B 501)

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
SPL-1473	Probe - Kit, Ultrasonic Leak Part #: ST6760A-1 Supplier: 81205
SPL-13875	Vacuum Generator and Bag Kit Part #: J51004-1 Supplier: 81205

D. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. **Procedure**

SUBTASK 51-11-00-200-001

- (1) Do a visual check of the No. 2 openable window seal for rips, tears, cuts, or other types of damage.

SUBTASK 51-11-00-940-001

- (2) Do the steps that follow to prepare for a leak check of the No. 2 openable window:

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WARNING

DISARM THE WINDOW HEAT SYSTEM BEFORE YOU CHECK THE WINDOWS. IF THE WINDOW POWER IS ON, YOU CAN GET AN ELECTRICAL SHOCK WHEN YOU TOUCH THE WINDOW. THE SHOCK CAN CAUSE INJURY TO PERSONS.

- (a) Move these switches on the pilot's overhead panel to the OFF position and attach DO-NOT-OPERATE tags:
 - 1) WINDOW HEAT L SIDE
 - 2) WINDOW HEAT R SIDE.
- (b) Make sure the SIDE L and SIDE R WINDOW HEAT lights are OFF.
- (c) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	16	C30416	WDO HT 2R
M	26	C30613	WHCU BITE L

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C23605	OPAS 3
D	6	C23603	OPAS 1
G	20	C23602	OPAS 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C30417	WDO HT 2L
L	8	C30616	WHCU BITE R

- (d) Remove the window padding from the window, as follows:
 - 1) Remove the latch handle cover.
 - 2) Remove the covers from all sides of the window.
- (e) Remove any protective tape around the window opening.
- (f) Loosen the protective tape in the corners of the window.
- (g) Plug the window interior lining holes in the No. 2 openable window frame.
- (h) Plug the window fluid drain line on the airplane structure at the lower aft side of the No. 2 openable window.
- (i) Make sure that the window is closed.
- (j) Install the window vacuum air bag from the vacuum generator and bag kits, SPL-13875.

SUBTASK 51-11-00-480-001

- (3) Install the vacuum bag, vacuum generator and bag kits, SPL-13875, over the No. 2 openable window (Figure 601).
 - (a) Place the vacuum port over the lower aft outside corner of the window.
 - (b) Make sure the vacuum bag, vacuum generator and bag kits, SPL-13875, covers the entire window and the gap between the window and the fuselage.
 - (c) Remove all bubbles and creases in the vacuum bag vacuum generator and bag kits, SPL-13875.

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- (d) Make sure that the vacuum gauge indicates 18 to 20 inch (HG) of vacuum after you attach the window bag assembly, SPL-13875 to the window.

SUBTASK 51-11-00-280-005

- (4) Do a check of the noise levels around the interior of the No. 2 openable window.
 - (a) Install the 6-inch rubber focusing cone to the ultrasonic probe detector, ultrasonic leak probe, SPL-1473.
 - (b) Pull the trigger on the ultrasonic probe detector and point the cone near the testing area.
 - 1) Make sure to keep the tip of the ultrasonic probe detector 1 in. (25 mm) to 2 in. (51 mm) from the testing area.
 - (c) Move the ultrasonic probe detector around the entire edge of the window.
 - (d) Make sure that the noise levels do not exceed 40dB.

SUBTASK 51-11-00-280-002

- (5) If the noise levels exceed 40dB do the steps that follow:
 - (a) Determine the exact location of the noise with a stethoscope.
 - (b) Remove the vacuum bag from the window.
 - (c) Do this task: No. 2 Window Adjustments, TASK 56-11-02-820-801. or do this task: No. 2 Window Bracket Adjustments, TASK 56-11-02-700-801 to adjust the No. 2 openable window.
 - (d) Install the vacuum bag vacuum generator and bag kits, SPL-13875 again and check for leaks.

NOTE: You will have to repeat the installation of the vacuum bag to make sure you have fixed all of the leaks.

SUBTASK 51-11-00-940-003

- (6) Put the airplane back to its usual condition:
 - (a) Remove the vacuum bag.
 - (b) Install the window padding as follows:

NOTE: You must install the window padding to hold the window sensor terminals in their correct position.

 - 1) Install the covers on all sides of the window.
 - 2) Install the latch handle cover.
 - (c) Do this task: No. 2 Window Indication System - Operational Test, TASK 56-11-03-710-801.
 - (d) Do this task: Window Heat Control System - Operational Test, TASK 30-41-00-710-801.
 - (e) Remove the safety tags and close these circuit breakers:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	16	C30416	WDO HT 2R
M	26	C30613	WHCU BITE L

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C23605	OPAS 3
D	6	C23603	OPAS 1

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Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
G	20	C23602	OPAS 2

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	11	C30417	WDO HT 2L
L	8	C30616	WHCU BITE R

- (f) Move these switches on the pilots overhead panel to the ON position and remove the DO-NOT-OPERATE tags:
- 1) WINDOW HEAT L SIDE
 - 2) WINDOW HEAT R SIDE.
- (g) Make sure the SIDE L and SIDE R WINDOW HEAT INOP lights are OFF.

———— **END OF TASK** ————

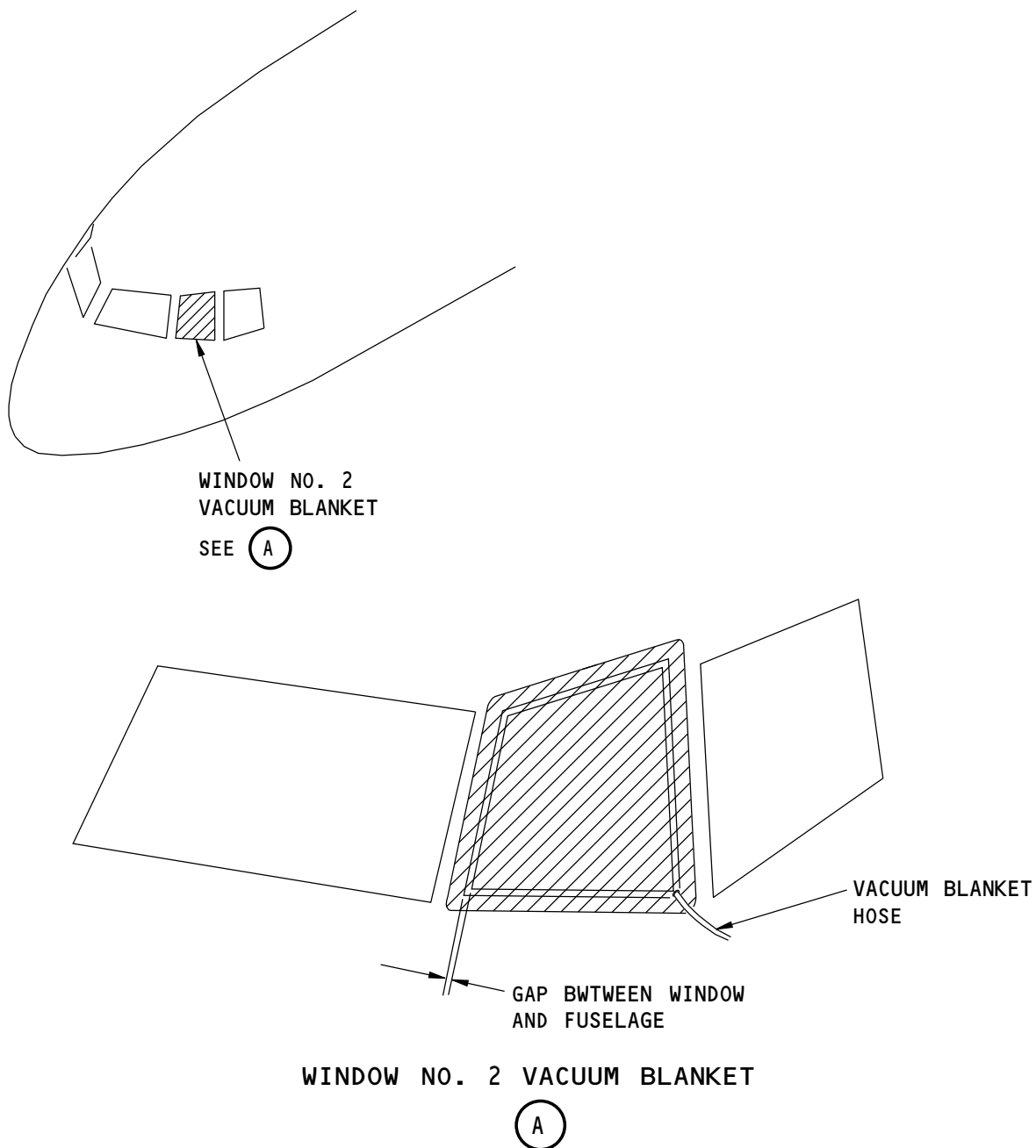
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NOTE: THE VACUUM BLANKET COVERS THE ENTIRE WINDOW AND THE GAP BETWEEN THE WINDOW AND THE FUSELAGE.

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Window No. 2 Vacuum Blanket Check
Figure 601/51-11-00-990-801

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INTERIOR AND EXTERIOR FINISHES - CLEANING/PAINTING

1. General

A. This procedure has one task:

- (1) Airplane surface preparation for application of finish.

TASK 51-21-00-100-801

2. Airplane Surface Preparation for Application of Finish

A. References

Reference	Title
51-21-01-150-801	Paint Stripping (P/B 701)
51-21-03-100-801	Corrosion Removal and Control (P/B 701)
SRM 51-70-14	Structural Repair Manual

B. Consumable Materials

Reference	Description	Specification
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. IF YOU USE PAINT STRIPPERS ON COMPOSITE MATERIALS, THE COMPOSITE MATERIALS WILL BE STRUCTURALLY DAMAGED.

- (a) To remove the damaged finish, do this task: (Paint Stripping, TASK 51-21-01-150-801).
 - 1) Use approved compounds to remove the damaged finishes.
 - a) Solvents are used to remove paint from small areas.
 - b) Stripping Compounds are used to remove paint from large areas or disassembled parts.
 - c) Mechanical Strippers are used to remove paint from composite materials.
- (b) To Remove the corrosion, do this task: (Corrosion Removal and Control, TASK 51-21-03-100-801).
 - 1) Listed below are more than one approved method of corrosion removal: .
 - a) chemical treatments
 - b) hand sanding with abrasive paper or metal wool
 - c) mechanical sanding with abrasive mats
 - d) dry abrasive blasting.
 - 2) The procedures you use must agree with the type of material and the quantity of the corrosion.

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- (c) Clean the surface with one or more of these approved methods.

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

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



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) Manual abrade with 150 grit or finer abrasive, G02088.

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 51-70-14).

———— **END OF TASK** ————

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PAINT STRIPPING - CLEANING/PAINTING

1. General

- A. This procedure has these tasks:
- (1) Paint stripping.
 - (2) Ferrous Alloys - Paint Stripping.
 - (3) Titanium - Paint Stripping.
 - (4) Titanium Alloys - Paint Stripping.
 - (5) Titanium-Cadmium - Paint Stripping.
 - (6) Nickel - Paint Stripping.
 - (7) Nickel Alloys - Paint Stripping.
 - (8) Magnesium Alloys - Paint Stripping.
 - (9) Magnesium - Paint Stripping.
 - (10) Aluminum Alloys - Paint Stripping.
 - (11) Cadmium - Paint Stripping.
 - (12) Zinc-Nickel - Paint Stripping.
 - (13) Chromium - Paint Stripping.
 - (14) Copper-Plating - Paint Stripping.
 - (15) Composite Parts - Paint Stripping.

TASK 51-21-01-150-801

2. Paint Stripping

(Table 701)

A. General

- (1) This task gives instructions for the following.
 - (a) Prepare for stripping
 - (b) Brush-On or Paint-On Paint Stripping
 - (c) Remove the Epoxy Adhesives and Adhesive Primers
 - (d) Remove Rain Erosion Coating from Fiberglass
 - (e) Selection of Paint Strippers



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.

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- (a) 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.



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) Strippers should meet the requirements of Standard Overhaul Practices Manual (SOPM) 20-30-02. IN addition to this procedure, 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.
 - (i) You can usually use a solvent to remove small quantities of paint.
 - (j) Do not use paint strippers on the surfaces that follow.

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) 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.



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

- (a) Use dry abrasive methods to remove the paint from the composite surfaces.
- 1) 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.

B. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (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-1519	Cover - Protective, Total Air Temperature Probe Part #: FTC102 Supplier: 0P9C7
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
COM-2497	Cover - Probe, Pitot Static Part #: KPC3-825-8 Supplier: 0P9C7
COM-2499	Cover - Vane, Angle of Attack Part #: R/C-AOAC-2 Supplier: 0P9C7
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 Supplier: F6892 Part #: SHN0272 Supplier: \$0856 Part #: SHR0272-T Supplier: 1DWR5 Part #: SHW0215 Supplier: \$0856
SPL-1513	Cover - Probe, Ice Detector Part #: 0061BN1 Supplier: 59885
SPL-14189	Protective Cover - AOA Vane Part #: C10004-1 Supplier: 81205
STD-447	Gun - Pressure Sprayer

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Reference	Description
STD-1080	Brush - Paint

D. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00153	Solvent - Toluene, Nitration	JAN-T-171 Grade A
B00344	Solvent - Xylene, Nitration Grade	ASTM D843
B01004	Solvent - Final Cleaning Of Metal Prior To Painting - Series 84	
B01007	Solvent - Final Cleaning Of Composites Prior To Painting - Series 87	
E00002	Stripper - Paint - Turco 5351	BAC5725
E50007	Eldorado PR-5044 peroxide stripper	BAC5725, D6-17487
E50009	Stripper - Turco EA Stripper 6930	
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
E50016	Stripper - Paint - Cee-Bee E-3000	BAC5725
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G02428	Abrasive - Aluminum Oxide Paper, 150 grit	A-A-1048
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	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I
G51215	Tag - Red Paper, "ANGLE OF ATTACK COVERED" - 3 Inches (76.2 Mm) Wide, 6 Inches (152.4 Mm) Long	

E. Brush-on or Spray Paint Stripping

SUBTASK 51-21-01-150-001



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.

- (1) Do the paint stripping (see Table 701 for the approved stripping materials).

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

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- (a) If existing paint comes to within 2 in. (5 cm) of the pane, make sure that you double strip the area around the window.
- (b) Fully mix the strippers.

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

- (c) Apply large quantities of the stripper on the paint.

NOTE: Keep the surface wet with the stripper.

- 1) Put the stripper on with a natural bristle paint brush, STD-1080 or a non-atomizing spray.
 - 2) Add more layers of the stripper if it is necessary.
- (d) Let the stripper stay on the surface a sufficient time for the finish to become soft and become wrinkled.



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.

- (e) Remove the loosened material with a bristle paint brush, STD-1080, or sealant removal tool, COM-2481 with sealant removal tool handle, COM-4746 before the stripper becomes dry.

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 777-53A0043.

- (f) Apply the stripper again, if it is necessary, to remove all unwanted adhesive or the primer.
- (g) Rinse the surface with a sponge, G00116 that is soaked with clean water.



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. 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 Series 84 solvent, B01004 to clean the surface.
- (h) Dry the surface with a cotton wiper, G00034.
 - 1) Make sure the surface is fully dry.

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F. Remove the Epoxy Adhesives and Adhesive Primers

SUBTASK 51-21-01-150-002



MAKE SURE THAT YOU REFER TO THE MANUFACTURER 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.

- (1) Do the epoxy adhesive and adhesive primer stripping (see Table 701 for the approved stripping materials).

- (a) Fully mix the strippers.

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

- (b) Apply a small quantity of stripper on the adhesive or the primer with a paint brush, STD-1080.

- (c) Let the stripper absorb the adhesive or the primer for not more than 30 minutes.

NOTE: Do not let the stripper touch or fall on aluminum surfaces.



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.

- (d) Remove the stripper and loosened adhesive, or the primer with a cotton wiper, G00034, or 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 777-53A0043.

- (e) Apply the stripper again, if it is necessary, to remove all unwanted adhesive or the primer.
(f) Rinse the surface with a sponge, G00116 that is soaked with clean water.

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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.

- 1) As an alternative to water, you can use Series 84 solvent, B01004 (TASK 20-30-84-910-801) to clean the surface.

- (g) Dry the surface fully with a clean dry cotton wiper, G00034.

G. Remove the Rain Erosion Coating from Fiberglass

SUBTASK 51-21-01-150-005

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



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

- (a) Put clean cloths that are moist with solvent, B00153 on the rain erosion coating.



MAKE SURE 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.

- (b) If it is necessary, add more solvent, B00153 to keep the cloths moist.
 - 1) Permit sufficient time to loosen the coating from the fiberglass (20 minutes to 1 hour).



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.

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(CAUTION PRECEDES)



ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.

- (c) Remove the loosened rain erosion coating with a bristle brush, sealant removal tool, COM-2481 with sealant removal tool handle, COM-4746 before the solvent, B00153 dries.

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 777-53A0043.

- (d) Lightly abrade (sand) the surface with 240 grit (minimum) abrasive cloth, B00102 paper.
(e) Clean the area with solvent, B00344.
(f) Dry the surface fully with a clean, dry cotton wiper, G00034.

H. Selection of Strippers

SUBTASK 51-21-01-150-006

- (1) Find the appropriate stripper in (Table 701).

Table 701/51-21-01-993-802 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-256A (MIL-R-81294D)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Turco 5351 stripper, 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 5469 (MIL-R-81294)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Turco 6840S		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 701/51-21-01-993-802 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER ^{*[1]}	APPROVED RESTRICTED USE STRIPPER ^{*[1]}	OPERATING TEMPERATURE
		PR-5044 stripper, E50007 ^{*[2]*[5]}		Recommended: 75°F (24°C) to 85°F (29°C) Alternative: 60°F (16°C) to 100°F (38°C)
		Turco EA Stripper 6930, E50009 ^{*[2]*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Socostrip A-0103N ^{*[2]*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Plane Naked 5765 ^{*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		DeKote ^{*[2]*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		RemovAll 1012 ^{*[2]*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Ardrox 2871 ^{*[2]*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
			Turco EA6776LO ^{*[3]}	
			Cee Bee E-1004J ^{*[3]}	
			Turco 6813-E ^{*[3]}	
		Cee-Bee E-3000 stripper, 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-256A (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 701/51-21-01-993-802 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER ^{*[1]}	APPROVED RESTRICTED USE STRIPPER ^{*[1]}	OPERATING TEMPERATURE
		Turco 5351 stripper, 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)
		Cee Bee A-306A		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Turco 5469 (MIL-R-81294)		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Turco 5873		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Turco 6840S		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		PR-5044 stripper, E50007 ^{*[2][5]}		Recommended: 75°F (24°C) to 85°F (29°C) Alternative: 60°F (16°C) to 100°F (38°C)
		Turco EA Stripper 6930, E50009 ^{*[2][5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		SocoStrip A-0103N ^{*[2][5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Plane Naked ^{*[5]}		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		DeKote ^{*[2][5]}		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 701/51-21-01-993-802 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER * ^[1]	APPROVED RESTRICTED USE STRIPPER * ^[1]	OPERATING TEMPERATURE
		RemovAll 1012* ^[2] * ^[5]		Recommended: 65°F (18°C) to 85°F (29°C) Alternative: 50°F (10°C) to 100°F (38°C)
		Ardrox 2871* ^[2] * ^[5]		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	Series 84 solvent, B01004		
	Titanium	Series 84 solvent, B01004		
	Titanium Alloys	Series 84 solvent, B01004		
	Titanium-Cadmium	Series 84 solvent, B01004		
	Nickel	Series 84 solvent, B01004		
	Nickel Alloys	Series 84 solvent, B01004		
	Magnesium Alloys	Series 84 solvent, B01004		
	Magnesium	Series 84 solvent, B01004		
	Aluminum alloys	Series 84 solvent, B01004		
	Cadmium	Series 84 solvent, B01004		
	Zinc-Nickel	Series 84 solvent, B01004		
	Chromium	Series 84 solvent, B01004		
	Copper-Plating	Series 84 solvent, B01004		
	Composite Parts	Series 87 solvent, B01007		

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Table 701/51-21-01-993-802 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER *^[1]	APPROVED RESTRICTED USE STRIPPER *^[1]	OPERATING TEMPERATURE
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		
	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		

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Table 701/51-21-01-993-802 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER ^{*[1]}	APPROVED RESTRICTED USE STRIPPER ^{*[1]}	OPERATING TEMPERATURE
	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		
	Nanocomposite Blasting ^{*[8]} 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 ^{*[6]} , Magic 2 Nanocomposite Abrasive Media ^{*[6]} , Magic 3 Nanocomposite Abrasive Media ^{*[6]}		

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Table 701/51-21-01-993-802 SELECTION OF STRIPPERS (Continued)

ORGANIC MATERIAL TO BE REMOVED	SUBSTRATE MATERIAL	APPROVED STRIPPER ^{*[1]}	APPROVED RESTRICTED USE STRIPPER ^{*[1]}	OPERATING TEMPERATURE
Bonding adhesives, adhesive primers for bonding	Aluminum Titanium All Stainless Steels	Turco 5351 stripper, 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)
		Turco 5469 - Thin (MIL-R-81294)		Recommended: 65°F (18°C) to 80°F (27°C) Alternative: 50°F (10°C) to 100°F (38°C)
		ES-1 Stripper ^{*[7]}		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.

2) If drums of paint stripper are mixed via recirculation using existing pump and hose(s), it is recommended that a dedicated pump and hose(s) per paint stripper type (e.g. acid-activated, peroxide-activated) are utilized. Do not use the same pumps and hose(s) when mixing (via recirculation) drums of different paint strippers.

3) 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] Not for use on high-strength steel or magnesium parts. Make sure that all high-strength steel and magnesium parts are masked. Acid strippers are not compatible with high-strength steel and magnesium. The maximum cumulative dwell time is 10 hours. The restricted use strippers are allowed to be reapplied only once during each stripping process on the fuselage skins. Acid strippers are not allowed on inspar wing surfaces. Acid strippers will discolor clad aluminum.

*[4] Maximum of five paint stripping cycles are allowed during the life of the airplane.

*[5] This paint stripper has not been fully tested on polysulfides (for example, sealants). Its effectiveness on polysulfides is unknown.

*[6] 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.

*[7] 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.

*[8] Maximum of four paint stripping cycles are allowed during the life of the airplane.

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I. Put the Airplane Back In Its Usual Condition

SUBTASK 51-21-01-840-005



WHEN THERE ARE COVERS ON THE STATIC PORTS, MAKE SURE THAT PERSONNEL CAN SEE THE CONDITION FROM THE GROUND. COVERS ON STATIC PORTS CAN CAUSE LARGE ERRORS IN AIRSPEED AND ALTITUDE SIGNALS. THIS IS DANGEROUS DURING FLIGHT.



REMOVE THE PROTECTION COVERS FROM ALL OPENINGS. DAMAGE TO THE ENGINE CAN OCCUR.

(1) Remove covers from the following components:

- pitot static probe cover, COM-2497
- probe cover, COM-1519
- angle of attack vane cover, COM-2499 (recommended) or AOA vane protective cover, SPL-14189 (optional)
- probe cover, SPL-1513
- static ports

SUBTASK 51-21-01-840-006

(2) Remove the "PITOT PROBES COVERED" tag, G02447, from the left control wheel in the flight deck.

SUBTASK 51-21-01-840-007

(3) Remove the "ANGLE OF ATTACK COVERED" tag, G51215, from the left control wheel in the flight deck.

SUBTASK 51-21-01-840-008

(4) Remove the "STATIC PORTS COVERED" tag, G02444, from the left control wheel in the flight deck.

————— **END OF TASK** —————

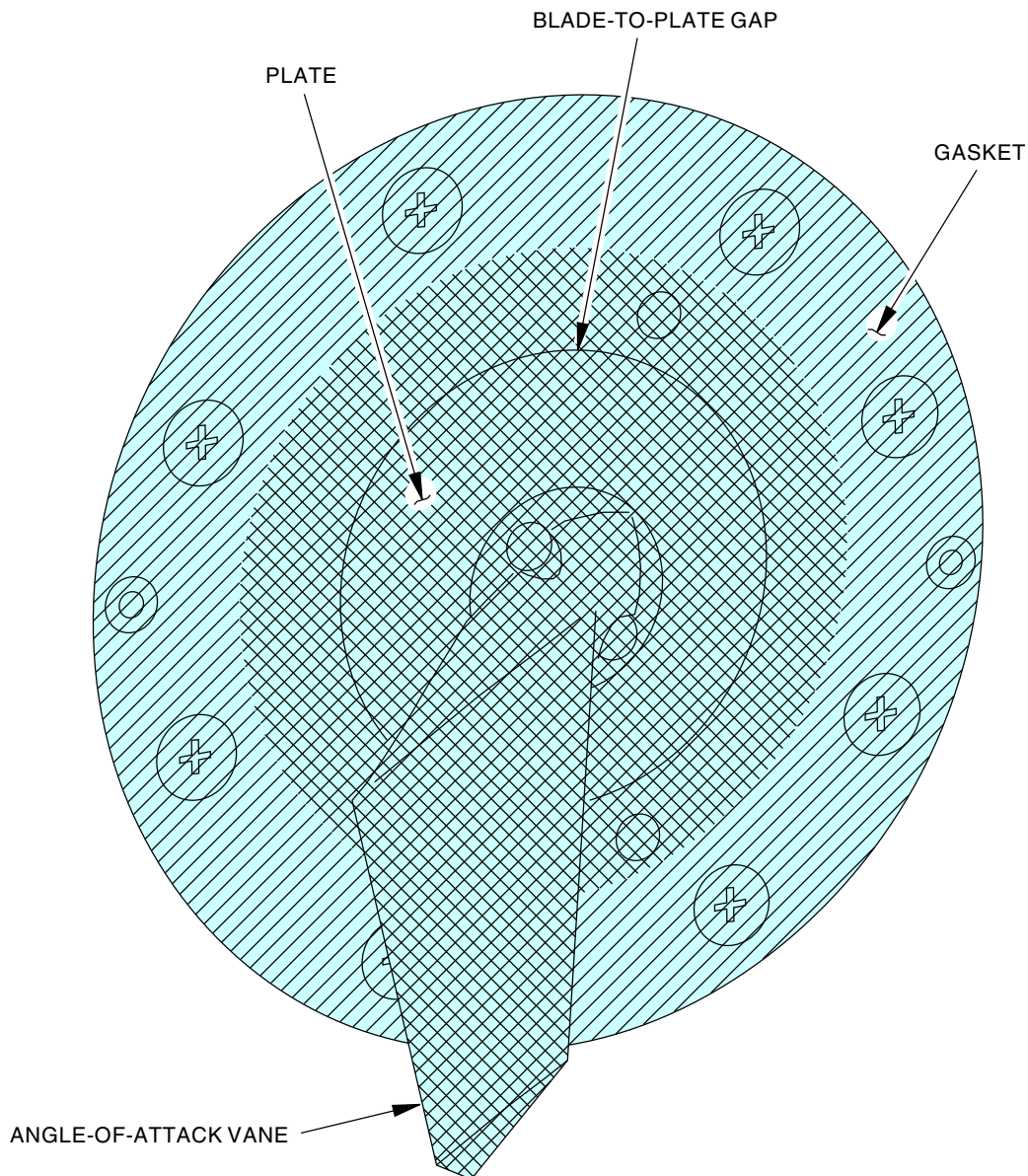
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MASK AREA FOR TEMPORARY PROTECTIVE COATING REMOVAL, FUSELAGE CLEANING AND APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.



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

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**Angle-of-Attack Vane Tape Application Area
Figure 701/51-21-01-990-801**

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TASK 51-21-01-150-802

3. Ferrous Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Conventional Abrasive Blasting Method
 - (b) Plastic Media Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

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B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-002

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-002

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-003

- (3) Do the steps that follow to clean the area:

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- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.
NOTE: Be careful not to put solvent on a larger area than it is necessary.
- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
- (d) Remove all unwanted solvent.
- (e) Let the surface dry.

SUBTASK 51-21-01-110-004

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Conventional Abrasive Blasting Method

SUBTASK 51-21-01-150-007

- (1) Do the stripping to the ferrous alloy substrates.
 - (a) Make sure the pressure is 95 ± 5 psi (655.0 ± 34.5 kPa) and at 6 in. (15.2 cm) from the surface.
 - (b) Remove the enamel or topcoat using apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.
 - 1) Abrade the topcoat equally down to the primer surface.
NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.
 - (c) Blow clean with air, if necessary.

G. Plastic Media Blasting Method

SUBTASK 51-21-01-150-008

- (1) Do the stripping to the ferrous alloy substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.
NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

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H. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-009

- (1) Do the stripping to the ferrous alloy substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE:** It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

I. Selection of Strippers

SUBTASK 51-21-01-150-010

- (1) Find the appropriate stripper in Table 701.

————— **END OF TASK** —————

TASK 51-21-01-150-815

4. Titanium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Plastic Media Blasting Method
 - (b) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.

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- (j) Apply tape on the pressurized drain valves.
- (k) Make sure that the paint strippers do not fall on the joints.
- (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-003

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-003

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.

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

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-005

- (3) Do the steps that follow to clean the area:
 - (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

SUBTASK 51-21-01-110-006

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-011

- (1) Do the stripping to the titanium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.

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- 1) Abrade the topcoat equally down to the primer surface.

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

G. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-012

- (1) Do the stripping to the titanium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.

- 1) Abrade the topcoat equally down to the primer surface.

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

H. Selection of Strippers

SUBTASK 51-21-01-150-013

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-814

5. Titanium Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Conventional Abrasive Blasting Method
 - (b) Plastic Media Blasting Method
 - (c) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.

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- (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).
NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

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E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-004

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-004

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-007

- (3) Do the steps that follow to clean the area:
 - (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

SUBTASK 51-21-01-110-008

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

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F. Conventional Abrasive Blasting Method

SUBTASK 51-21-01-150-014

- (1) Do the stripping to the titanium alloy substrates.
 - (a) Make sure the pressure is 95 ± 5 psi (655.0 ± 34.5 kPa) and at 6 in. (15.2 cm) from the surface.
 - (b) Remove the enamel or topcoat using apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.
 - 1) Abrade the topcoat equally down to the primer surface.

NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.
 - (c) Blow clean with air, if necessary.

G. Plastic Media Blasting Method

SUBTASK 51-21-01-150-015

- (1) Do the stripping to the titanium alloy substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.

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

H. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-016

- (1) Do the stripping to the titanium alloy substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the noust get topcoat equally down to the primer surface.

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

I. Selection of Strippers

SUBTASK 51-21-01-150-017

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-813

6. Titanium-Cadmium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following method:
 - (a) Plastic Media Blasting Method

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- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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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
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-005

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-005

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.

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

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

- 1) Use the applicable material below to protect the surface:

- a) Paper masking tape.
- b) Plastic coated paper.
- c) Plastic sheeting.
- d) Wrapping paper, chemically neutral.

- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.

- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-009

- (3) Do the steps that follow to clean the area:

- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.

- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.

- 1) Rub the surface with a clean cotton wiper, G00034.

- (d) Remove all unwanted solvent.

- (e) Let the surface dry.

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SUBTASK 51-21-01-110-010

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-018

- (1) Do the stripping to the titanium-cadmium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

G. Selection of Strippers

SUBTASK 51-21-01-150-019

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-812

7. Nickel - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following method:
 - (a) Plastic Media Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.

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- (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).
NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
E50011	Media - Plastic Media For Removal Of Organic Coatings (20/30 Mesh)	MIL-P-85891
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

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E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-006

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-007

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.

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

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

- 1) Use the applicable material below to protect the surface:

- a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.

- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.

- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-011

- (3) Do the steps that follow to clean the area:

- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.

- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.

- 1) Rub the surface with a clean cotton wiper, G00034.

- (d) Remove all unwanted solvent.

- (e) Let the surface dry.

SUBTASK 51-21-01-110-012

- (4) Do the steps that follow to clean the area again:

- (a) Use a spray bottle to apply the solvent, B00083 on the surface.

- (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.

- 1) Use a soft bristle brush to clean the surface, if it is necessary.

- (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.

- 1) Make sure that you do not let drops of solvent dry on the surface.

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F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-020

- (1) Do the stripping to the nickel substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.

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

G. Selection of Strippers

SUBTASK 51-21-01-150-021

- (1) Find the appropriate stripper in Table 701.

————— **END OF TASK** —————

TASK 51-21-01-150-811

8. Nickel Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following method:
 - (a) Conventional Abrasive Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.

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- (k) Make sure that the paint strippers do not fall on the joints.
- (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-007

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-006

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.

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- b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.
NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-013

- (3) Do the steps that follow to clean the area:
- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.
NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

SUBTASK 51-21-01-110-014

- (4) Do the steps that follow to clean the area again:
- (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Conventional Abrasive Blasting Method

SUBTASK 51-21-01-150-022

- (1) Do the stripping to the nickel alloy substrates.
- (a) Make sure the pressure is 95 $\pm$ 5 psi (655.0 $\pm$ 34.5 kPa) and at 6 in. (15.2 cm) from the surface.
 - (b) Remove the enamel or topcoat using apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.
 - 1) Abrade the topcoat equally down to the primer surface.
NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.
 - (c) Blow clean with air, if necessary.

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G. Selection of Strippers

SUBTASK 51-21-01-150-023

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-810

9. Magnesium Alloys - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following method:
 - (a) Conventional Abrasive Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.

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- 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	
G50822	Abrasive - Walnut Shells	A-A-1722 Type II
G50823	Abrasive - Apricot Pit Shells	A-A-1722 Type I

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-008

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-008

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
- (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:

- a) Paper masking tape.
- b) Plastic coated paper.
- c) Plastic sheeting.
- d) Wrapping paper, chemically neutral.

- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.

- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-021

- (3) Do the steps that follow to clean the area:

- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.

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- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
- (d) Remove all unwanted solvent.
- (e) Let the surface dry.

SUBTASK 51-21-01-110-022

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Conventional Abrasive Blasting Method

SUBTASK 51-21-01-150-033

- (1) Do the stripping to the magnesium alloy substrates.
 - (a) Make sure the pressure is 95 ± 5 psi (655.0 ± 34.5 kPa) and at 6 in. (15.2 cm) from the surface.
 - (b) Remove the enamel or topcoat using apricot pit shell abrasive, G50823 or walnut shells abrasive, G50822.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.
- (c) Blow clean with air, if necessary.

G. Selection of Strippers

SUBTASK 51-21-01-150-034

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-809

10. Magnesium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Plastic Media Blasting Method
 - (b) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:

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- 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
- (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
- 1) Apply the tape to the areas that are adjacent to the area being stripped.
- (c) Apply tape on the drain holes and vents.
- (d) Mask the pitot static probes and ports.
- (e) Apply tape on the cargo door and entry door hinges and thresholds.
- (f) Mask the cooling air exhaust duct.
- (g) Cover the tires.
- (h) Mask the ram air inlets.
- (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
- (k) Make sure that the paint strippers do not fall on the joints.
- (l) 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).
NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

D. Consumable Materials

Reference	Description	Specification
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)

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(Continued)

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-009

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-009

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:

- a) Paper masking tape.
- b) Plastic coated paper.
- c) Plastic sheeting.
- d) Wrapping paper, chemically neutral.

- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.

- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-023

- (3) Do the steps that follow to clean the area:
 - (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

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SUBTASK 51-21-01-110-024

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-035

- (1) Do the stripping to the magnesium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

G. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-036

- (1) Do the stripping to the magnesium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

H. Selection of Strippers

SUBTASK 51-21-01-150-037

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-808

11. Aluminum Alloys - 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 non-clad (bare) aluminum alloys with a gage thickness of 0.125 in. (3.175 mm).

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- (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 facesheets 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 facesheets 0.012 in. (0.305 mm) thick or greater.
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.

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- 3) Degreasing solvents.
- 4) Vapor degreasers.
- (4) 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, see Paint Stripping, TASK 51-21-01-150-801

NOTE: 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. If a condition is not satisfactory, then refer to the SRM for instruction.

- (a) You can usually use a solvent to remove small quantities of paint.
- (b) Do not use paint strippers on the surfaces that follow.

NOTE: Only use approved solvents on these materials.

- 1) Plastic laminates.
- 2) Fiberglass.
- 3) Aerodynamic smoother.
- 4) Edges of metal bonds.
- 5) Rubber parts.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to Strip the Surface

SUBTASK 51-21-01-150-046

- (1) Prepare to strip the surface, do this task: Paint Stripping, TASK 51-21-01-150-801.

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SUBTASK 51-21-01-860-010

- (2) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-010

- (3) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.

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

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

- 1) Use the applicable material below to protect the surface:

- a) Paper masking tape.
- b) Plastic coated paper.
- c) Plastic sheeting.
- d) Wrapping paper, chemically neutral.

- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.

- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-025

- (4) Do the steps that follow to clean the area:

- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.

- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that is moist with solvent, B00074 or solvent, B00083.

NOTE: You can use a spray gun to help clean the surface.

- (c) Clean the surface with clean solvent, B00074 or solvent, B00083.

- 1) Rub the surface with a clean cotton wiper, G00034.

- (d) Remove all unwanted solvent.

- (e) Let the surface dry.

SUBTASK 51-21-01-110-026

- (5) Do the steps that follow to clean the area again:

- (a) Use a spray bottle to apply the solvent, B00083 on the surface.

- (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.

- 1) Use a soft bristle brush to clean the surface, if it is necessary.

- (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.

- 1) Make sure that you do not let drops of solvent dry on the surface.

F. Paint Stripping - Plastic Media Blasting

SUBTASK 51-21-01-950-017

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

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SUBTASK 51-21-01-160-002

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

SUBTASK 51-21-01-120-002

- (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 51-21-01-160-005

- (4) Clean the surface.

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

G. Paint Stripping - Wheat Starch Blasting Method

SUBTASK 51-21-01-950-018

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

SUBTASK 51-21-01-160-003

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

SUBTASK 51-21-01-150-038

- (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, as necessary.
 - (e) If the plating was removed, inspect the plating.
 - 1) Make sure that the plating meets the requirements and re-finish, as necessary.

SUBTASK 51-21-01-160-004

- (4) Clean the surface.

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

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H. Paint Stripping - Nanocomposite Blasting Method

SUBTASK 51-21-01-950-016

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

SUBTASK 51-21-01-160-001

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

SUBTASK 51-21-01-120-001

- (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.

I. Selection of Strippers

SUBTASK 51-21-01-150-039

- (1) Find the appropriate stripper in Table 701.

————— **END OF TASK** —————

TASK 51-21-01-150-807

12. Cadmium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Plastic Media Blasting Method
 - (b) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.
 - (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.

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- (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).
NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

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E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-014

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-014

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-027

- (3) Do the steps that follow to clean the area:
 - (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

SUBTASK 51-21-01-110-028

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.
 - (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
 - (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

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F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-040

- (1) Do the stripping to the cadmium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.

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

G. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-041

- (1) Do the stripping to the cadmium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the topcoat equally down to the primer surface.

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

H. Selection of Strippers

SUBTASK 51-21-01-150-042

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-806

13. Zinc-Nickel - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Plastic Media Blasting Method
 - (b) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.
 - 6) Metal bonded edges.
 - 7) Composite parts.

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- (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
 - (c) Apply tape on the drain holes and vents.
 - (d) Mask the pitot static probes and ports.
 - (e) Apply tape on the cargo door and entry door hinges and thresholds.
 - (f) Mask the cooling air exhaust duct.
 - (g) Cover the tires.
 - (h) Mask the ram air inlets.
 - (i) Mask the engines and the APU inlets and exhausts.
 - (j) Apply tape on the pressurized drain valves.
 - (k) Make sure that the paint strippers do not fall on the joints.
 - (l) 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).
NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	

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Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-015

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-015

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
- (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.
- NOTE: You can use equivalent plastic sheeting which is resistant to paint strippers.
- 1) Use the applicable material below to protect the surface:
- Paper masking tape.
 - Plastic coated paper.
 - Plastic sheeting.
 - Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.
- NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-029

- (3) Do the steps that follow to clean the area:
- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.
- NOTE: Be careful not to put solvent on a larger area than it is necessary.
- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
- 1) Rub the surface with a clean cotton wiper, G00034.
- (d) Remove all unwanted solvent.
- (e) Let the surface dry.

SUBTASK 51-21-01-110-030

- (4) Do the steps that follow to clean the area again:
- (a) Use a spray bottle to apply the solvent, B00083 on the surface.
- (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
- 1) Use a soft bristle brush to clean the surface, if it is necessary.
- (c) Clean the surface again until no signs of the dirt are found on a clean cotton wiper, G00034.

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- (d) Dry the area with a clean dry cotton wiper, G00034.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-043

- (1) Do the stripping to the zinc-nickel substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.

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

G. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-044

- (1) Do the stripping to the zinc-nickel substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the topcoat equally down to the primer surface.

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

H. Selection of Strippers

SUBTASK 51-21-01-150-045

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-805

14. Chromium - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Plastic Media Blasting Method
 - (b) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.
 - 4) Fiberglass surfaces or parts.
 - 5) Aerodynamic smoothers.

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- 6) Metal bonded edges.
- 7) Composite parts.
- (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
- (c) Apply tape on the drain holes and vents.
- (d) Mask the pitot static probes and ports.
- (e) Apply tape on the cargo door and entry door hinges and thresholds.
- (f) Mask the cooling air exhaust duct.
- (g) Cover the tires.
- (h) Mask the ram air inlets.
- (i) Mask the engines and the APU inlets and exhausts.
- (j) Apply tape on the pressurized drain valves.
- (k) Make sure that the paint strippers do not fall on the joints.
- (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A

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Reference	Description	Specification
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-013

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-013

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:

- a) Paper masking tape.
- b) Plastic coated paper.
- c) Plastic sheeting.
- d) Wrapping paper, chemically neutral.

- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.

- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-015

- (3) Do the steps that follow to clean the area:

- (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.

- (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.

- 1) Rub the surface with a clean cotton wiper, G00034.

- (d) Remove all unwanted solvent.

- (e) Let the surface dry.

SUBTASK 51-21-01-110-016

- (4) Do the steps that follow to clean the area again:

- (a) Use a spray bottle to apply the solvent, B00083 on the surface.

- (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.

- 1) Use a soft bristle brush to clean the surface, 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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-024

- (1) Do the stripping to the chromium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

G. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-025

- (1) Do the stripping to the chromium substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

H. Selection of Strippers

SUBTASK 51-21-01-150-026

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-804

15. Copper-Plating - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Plastic Media Blasting Method
 - (b) Nanocomposite Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.
 - 2) Rubber parts.
 - 3) Laminated plastic surfaces or parts.

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- 4) Fiberglass surfaces or parts.
- 5) Aerodynamic smoothers.
- 6) Metal bonded edges.
- 7) Composite parts.
- (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
- (c) Apply tape on the drain holes and vents.
- (d) Mask the pitot static probes and ports.
- (e) Apply tape on the cargo door and entry door hinges and thresholds.
- (f) Mask the cooling air exhaust duct.
- (g) Cover the tires.
- (h) Mask the ram air inlets.
- (i) Mask the engines and the APU inlets and exhausts.
- (j) Apply tape on the pressurized drain valves.
- (k) Make sure that the paint strippers do not fall on the joints.
- (l) 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).

NOTE: Do not use the stripping procedure in hot or wet weather.
 - (b) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

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
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)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-012

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-012

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-017

- (3) Do the steps that follow to clean the area:
 - (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

SUBTASK 51-21-01-110-020

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.

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- (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
- (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Plastic Media Blasting Method

SUBTASK 51-21-01-150-027

- (1) Do the stripping to the copper-plated substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 30 ± 10 psig (206.8 ± 69.0 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using plastic media, E50011.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

G. Nanocomposite Blasting Method

SUBTASK 51-21-01-150-028

- (1) Do the stripping to the copper-plated substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is at a maximum of 32 psig (220.6 kPa) and at a minimum of 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using Magic II Composite Blast Media, E50012.
 - 1) Abrade the topcoat equally down to the primer surface.
- NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.

H. Selection of Strippers

SUBTASK 51-21-01-150-029

- (1) Find the appropriate stripper in Table 701.

————— END OF TASK —————

TASK 51-21-01-150-803

16. Composite Parts - Paint Stripping

A. General

- (1) This task gives paint stripping instructions using the following methods:
 - (a) Conventional Abrasive Method
 - (b) Wheat Starch Blasting Method
- (2) Before you clean, you must protect the surfaces and parts which are easily damaged by paint strippers.
 - (a) Put the applicable tape or covers on the following:
 - 1) Lubricated parts.

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- 2) Rubber parts.
- 3) Laminated plastic surfaces or parts.
- 4) Fiberglass surfaces or parts.
- 5) Aerodynamic smoothers.
- 6) Metal bonded edges.
- (b) Apply not less than 1 in. (25 mm) of tape to all adjacent access doors, fairings, and wing leading and trailing edges.
 - 1) Apply the tape to the areas that are adjacent to the area being stripped.
- (c) Apply tape on the drain holes and vents.
- (d) Mask the pitot static probes and ports.
- (e) Apply tape on the cargo door and entry door hinges and thresholds.
- (f) Mask the cooling air exhaust duct.
- (g) Cover the tires.
- (h) Mask the ram air inlets.
- (i) Mask the engines and the APU inlets and exhausts.
- (j) Apply tape on the pressurized drain valves.
- (k) Make sure that the paint strippers do not fall on the joints.
- (3) Before you remove the paint with the stripping procedure, make sure that the surface is clean and dry.
 - (a) Use the materials that follow to clean the surface before it is stripped.
 - 1) Alkaline solvent.
 - 2) Emulsion cleaning agents.
 - 3) Degreasing solvents.
 - 4) Vapor degreasers.

B. References

Reference	Title
20-41-00 P/B 201	AIRPLANE GROUNDING - MAINTENANCE PRACTICES

C. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

D. Consumable Materials

Reference	Description	Specification
B00015	Cleaner - Heavy Duty, Multipurpose - Calla 301A	BAC5744, AMS 1526-A, AMS 1550-A
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
E50010	Media - EnviroStrip 12/30 Wheat Starch Media	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

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Reference	Description	Specification
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00365	Paper	
G02428	Abrasive - Aluminum Oxide Paper, 150 grit	A-A-1048
G50077	Abrasive - Aluminum Oxide Paper, 240 grit or finer	

E. Prepare to do the Paint Stripping

SUBTASK 51-21-01-860-011

- (1) Ground the airplane (AIRPLANE GROUNDING - MAINTENANCE PRACTICES, PAGEBLOCK 20-41-00/201).

SUBTASK 51-21-01-950-011

- (2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the areas that you will not strip, or to the areas that will be damaged by the stripper.
 - (a) Put applicable plastic coated paper, G00365 covers on areas which are easily damaged by the strippers.

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

- 1) Use the applicable material below to protect the surface:
 - a) Paper masking tape.
 - b) Plastic coated paper.
 - c) Plastic sheeting.
 - d) Wrapping paper, chemically neutral.
- (b) Mask all gaps containing mechanical (silicone rubber) seals.

NOTE: This is to prevent seal degradation.
- (c) Mask unsealed Section 48 seams and other open joints that cannot be thoroughly rinsed.

SUBTASK 51-21-01-110-018

- (3) Do the steps that follow to clean the area:
 - (a) Remove the loose dirt, grease, and oil with solvent, B00074 or solvent, B00083.

NOTE: Be careful not to put solvent on a larger area than it is necessary.
 - (b) Clean the surface with a cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cotton wiper, G00034.
 - (d) Remove all unwanted solvent.
 - (e) Let the surface dry.

SUBTASK 51-21-01-110-019

- (4) Do the steps that follow to clean the area again:
 - (a) Use a spray bottle to apply the solvent, B00083 on the surface.

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- (b) Clean the surface with a clean cotton wiper, G00034 until you remove all large pieces of dirt.
 - 1) Use a soft bristle brush to clean the surface, if it is necessary.
- (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.
 - 1) Make sure that you do not let drops of solvent dry on the surface.

F. Conventional Abrasive Method

SUBTASK 51-21-01-150-030

- (1) Do the stripping to the composite substrates.
 - (a) Remove the enamel or topcoat with 150 grit abrasive paper, G02428 or finer.
 - 1) Abrade (sand) the topcoat equally down to the primer surface.
NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.
 - (b) Abrade (sand) and feather the primer and enamel layers with 240 grit or finer abrasive paper, G50077.
NOTE: Do not damage the fiber of the composite substrate.
NOTE: If the substrate has a conductive coating, abrade (sand) off all of the layers in the area to be repainted. This is to get a constant conductivity after the paint touch-up.

G. Wheat Starch Blasting Method

SUBTASK 51-21-01-150-031

- (1) Do the stripping to the composite substrates.
 - (a) Make sure parts are clean, dry and free of metal shavings prior to stripping.
 - (b) Make sure the pressure is 20 ± 2 psi (137.9 ± 13.8 kPa) and at a distance of 2 in. (5.1 cm) to 6 in. (15.2 cm) from the surface.
 - (c) Remove the enamel or topcoat using EnviroStrip 12/30 wheat starch media, E50010.
 - 1) Abrade the topcoat equally down to the primer surface.
NOTE: It is not necessary to remove the primers for the reapplication of primer, enamels, or a topcoat.
 - (d) Remove dust using dry compressed air.
NOTE: Dry compressed air should not exceed 30 psi (207 kPa).
 - (e) Clean with Calla 301A cleaner, B00015.

H. Selection of Strippers

SUBTASK 51-21-01-150-032

- (1) Find the appropriate stripper in Table 701.

————— 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 51-21-02-100-801

2. Clean the Surface to be Painted

A. References

Reference	Title
51-21-01-150-801	Paint Stripping (P/B 701)
51-31-01-160-801	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-2497	Cover - Probe, Pitot Static Part #: KPC3-825-8 Supplier: 0P9C7
COM-2499	Cover - Vane, Angle of Attack Part #: R/C-AOAC-2 Supplier: 0P9C7
SPL-14189	Protective Cover - AOA Vane Part #: C10004-1 Supplier: 81205
STD-1080	Brush - Paint
STD-1220	Brush - Tampico

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
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7
B00666	Solvent - Methyl Propyl Ketone	BMS11-9

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Reference	Description	Specification
B01026	Solvent - FCC-55	
B01054	Solvent - Methyl Ethyl Ketone and sec-Butyl Alcohol Blend - (MEK:secButyl Alcohol - 42:58 Percent)	BAC5750, ASTM D740/ASTM D1007
B01055	Solvent - Methyl Ethyl Ketone and Toluene Blend - (MEK:Toluene - 1:1)	BAC5750, ASTM D740/A-A-59107
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, Scotch 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	
G51215	Tag - Red Paper, "ANGLE OF ATTACK COVERED" - 3 Inches (76.2 Mm) Wide, 6 Inches (152.4 Mm) Long	

D. Clean the Surface

SUBTASK 51-21-02-400-001



WHEN THERE ARE COVERS ON THE STATIC PORTS, MAKE SURE THAT PERSONNEL CAN SEE THE CONDITION FROM THE GROUND. COVERS ON STATIC PORTS CAN CAUSE LARGE ERRORS IN AIRSPEED AND ALTITUDE SIGNALS. THIS IS DANGEROUS DURING FLIGHT.



MAKE SURE YOU REMOVE ALL PITOT-PROBE, STATIC-PORT, AND OTHER COVERS BEFORE YOU OPERATE THE ENGINES. IF THE COVERS ARE NOT REMOVED, THEY CAN COME OFF AND CAUSE DAMAGE TO THE ENGINES.

- (1) Make sure to cover the areas adjacent to the area that is cleaned.

NOTE: This is to prevent contamination to the adjacent areas.

- (a) Put pitot static probe cover, COM-2497 on the pitot probes.
 - 1) Attach a "PITOT PROBES COVERED" tag, G02447, to the left control wheel in the flight deck with wire.
- (b) Do the steps that follow to cover the angle-of-attack (AOA) sensors.

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- 1) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape.
 - a) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 701).
NOTE: This is to allow easier removal of 3M 425 aluminum tape.
- 2) Cover the PG-777 solvent-resistant masking tape with Scotch 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.
- 3) Put angle of attack vane cover, COM-2499 (recommended) or AOA vane protective cover, SPL-14189 (optional) on the angle-of-attack (AOA) sensors.
 - a) Attach an "ANGLE OF ATTACK COVERED" tag, G51215, to the left control wheel in the flight deck with wire.
- 4) Scotch Brand No.471 tape, G02219 and
- 5) barricade tape, G02443 for static ports
 - a) Attach a "STATIC PORTS COVERED" tag, G02444, to the top of the left control wheel in the flight deck with wire.

SUBTASK 51-21-02-110-001

- (2) Do the steps that follow to clean the surface:

NOTE: Use solvent, B00083 or solvent, B00074 for this step.



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

- (a) Remove the loose dirt, grease, and oil with a cheese cotton wiper, G00034 that is moist with solvent, B00074 or solvent, B00083.
NOTE: Be careful not to put solvent on an area that is larger than it is necessary.
- (b) Clean the surface with a cheesecloth cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that 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.
 - 1) Rub the surface with a clean cheesecloth cotton wiper, G00034 to remove all of the dirt.
- (d) Remove all unwanted solvent.
- (e) Let the surface dry.

SUBTASK 51-21-02-110-002

- (3) Do the steps that follow to clean the area again:

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



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 cheesecloth cotton wiper, G00034 until all large pieces of dirt are removed.
NOTE: Use a soft bristle brush to clean if it is necessary.
- (c) Clean the surface again until no signs of the dirt are found on a clean cheesecloth cotton wiper, G00034.
- (d) Dry the area with a clean dry cheesecloth cotton wiper, G00034.
NOTE: Do not let drops of solvent dry on the surface.

E. Removal of the Temporary Finishes

SUBTASK 51-21-02-950-001

- (1) Prepare to remove the temporary finishes.



DO NOT LET PAINT STRIPPERS FALL ON FIBERGLASS, ALUMINUM, ACRYLIC WINDOWS, OR FILLET SURFACES. THE CHEMICAL COMPOUNDS IN THE PAINT STRIPPERS CAN CAUSE DAMAGE TO THESE SURFACES.

- (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) Install the pitot static probe cover, COM-2497, on the pitot probes.

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- (d) Use Scotch Brand No.471 tape, G02219 and barricade tape, G02443 to cover the static ports.

SUBTASK 51-21-02-150-001

- (2) Remove the applicable temporary finishes if it is necessary, do this task: Paint Stripping, TASK 51-21-01-150-801.

SUBTASK 51-21-02-100-008



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 MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.



FOLLOW THE NECESSARY PRECAUTIONS WHEN YOU CLEAN AROUND FASTENERS, SEAMS, AND LAP JOINTS. IF YOU ARE NOT CAREFUL, DAMAGE TO THE FASTENERS, SEAMS, AND LAP JOINTS CAN OCCUR.

- (3) Use a rigid bristle brush, STD-1220 that is moist with solvent, B00184, CDG-110, CDG-211, FCC-55 solvent, B01026, solvent, B01054, solvent, B01055, solvent, B00148, solvent, B00666, MIBK:MEK 3:2, Turco 4460 BK, or Turco 6709 to clean around fasteners, seams, and lap joints.

NOTE: You can isolate the sealant fillet from the skin when you clean with a MEK/Toluene solution. Do not test the bond of the fillet with your fingernail or with a knife. Do only a visual inspection of the interface between the fillet and the skin.

SUBTASK 51-21-02-390-001

- (4) Repair all damaged sealant, do this task: Prepare For Sealing, TASK 51-31-01-160-801.



DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.

F. Put the Airplane Back In Its Usual Condition

SUBTASK 51-21-02-840-001



WHEN THERE ARE COVERS ON THE STATIC PORTS, MAKE SURE THAT PERSONNEL CAN SEE THE CONDITION FROM THE GROUND. COVERS ON STATIC PORTS CAN CAUSE LARGE ERRORS IN AIRSPEED AND ALTITUDE SIGNALS. THIS IS DANGEROUS DURING FLIGHT.

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(WARNING PRECEDES)



CAUTION

REMOVE THE PROTECTION COVERS FROM ALL OPENINGS. DAMAGE TO THE ENGINE CAN OCCUR.

(1) Remove covers from the following components:

- pitot static probe cover, COM-2497
- angle of attack vane cover, COM-2499 (recommended) or AOA vane protective cover, SPL-14189 (optional)
- static ports

SUBTASK 51-21-02-840-002

(2) Remove the "PITOT PROBES COVERED" tag, G02447, from the left control wheel in the flight deck.

SUBTASK 51-21-02-840-003

(3) Remove the "ANGLE OF ATTACK COVERED" tag, G51215, from the left control wheel in the flight deck.

SUBTASK 51-21-02-840-004

(4) Remove the "STATIC PORTS COVERED" tag, G02444, from the left control wheel in the flight deck.

————— END OF TASK —————

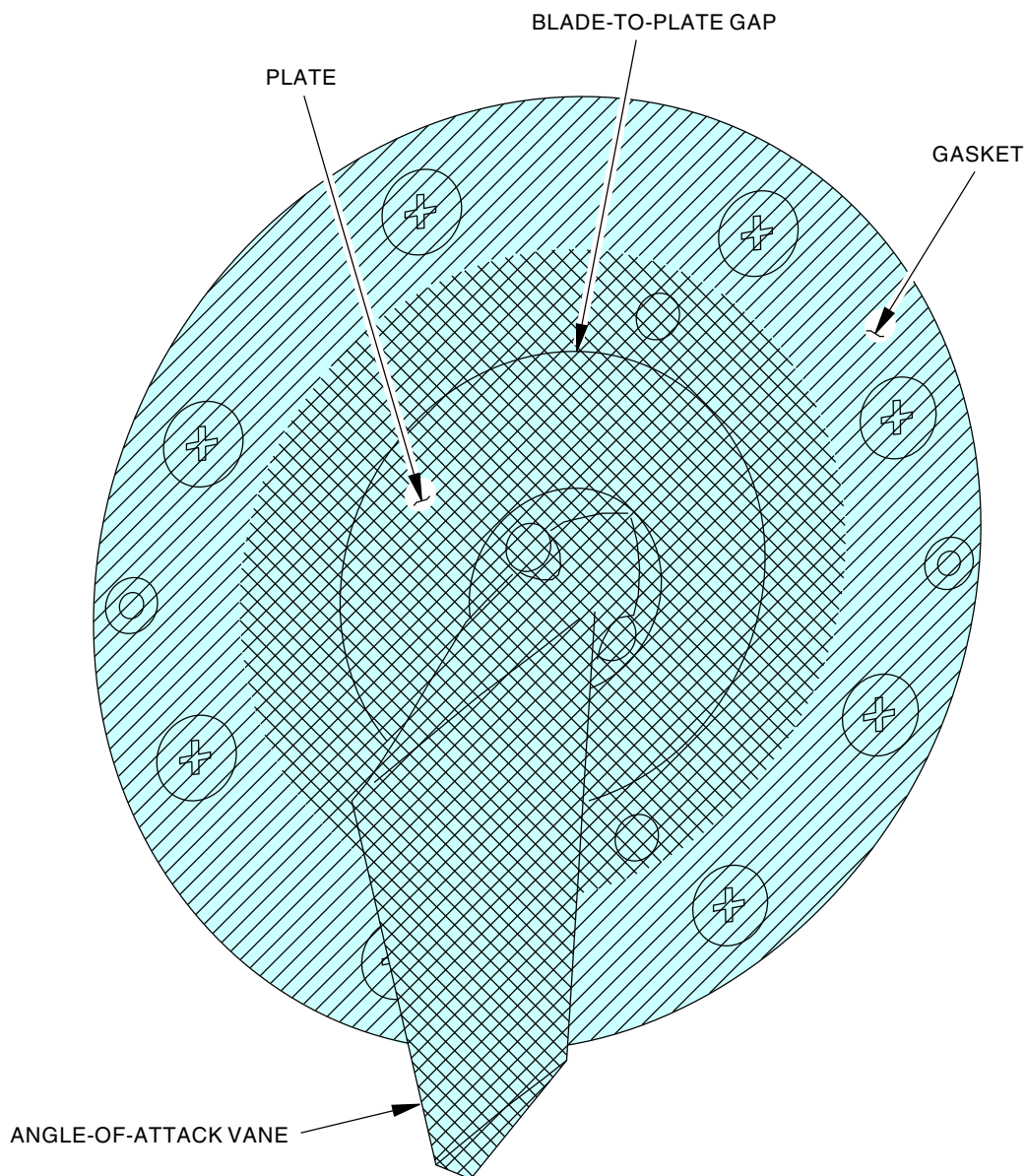
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MASK AREA FOR TEMPORARY PROTECTIVE COATING REMOVAL, FUSELAGE CLEANING AND APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.



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

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**Tape Application Area
Figure 701/51-21-02-990-801**

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TASK 51-21-02-370-801

3. Prepare the Surface to be Painted

A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
20-30-85-910-801	Final Cleaning of Solvent Sensitive Organic Coatings Prior to Painting (Series 85) (P/B 201)
20-30-86-910-801	Final Cleaning of Solvent Resistant Coatings Prior to Painting (Series 86) (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1080	Brush - Paint

C. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00153	Solvent - Toluene, Nitration	JAN-T-171 Grade A
B00314	Compound - Aircraft Surface Cleaning	MIL-C-43616
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
B00635	Solvent - Cleaning Compound, Mixtures	A-A-59281
B01004	Solvent - Final Cleaning Of Metal Prior To Painting - Series 84	
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
B01006	Solvent - Final Cleaning Of Solvent Resistant Organic Coatings Before Painting - Series 86	
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	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
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II
C00321	Coating - Corrosion Preventive Coating For Aircraft Integral Fuel Tanks	AMS-C-27725 (Supersedes MIL-C-27725)
C00346	Primer - Corrosion Inhibiting, Chemical & Solvent Resistant Epoxy, High Solids	MIL-PRF-23377
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054

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D. Prepare the Surface to be Painted

SUBTASK 51-21-02-110-003

- (1) Prepare the metal surfaces to be painted as follows:
 - (a) The recommended procedure in this Task is to prepare the surfaces of the following metals:
 - 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) Clean with solvent, the surfaces that are dirty.



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- b) Clean with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
- (b) Use this optional procedure to prepare the surfaces of the following metals:
 - 1) Titanium.
 - 2) Corrosion resistant Steel (CRES).
 - 3) Steel (except CRES).
 - 4) Copper.
 - 5) Nickel and Cobalt Alloys.
 - a) Abrasive blast clean the metal with an approved abrasive for the type of material.

SUBTASK 51-21-02-110-004

- (2) Prepare these other materials for painting.
 - (a) Adhesive (except adhesive primers and adhesives flashes).
 - (b) Sealant - Cured to its full hardness.



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- 1) Solvent clean with Series 85 solvent, B01005 (TASK 20-30-85-910-801).

SUBTASK 51-21-02-370-001

- (3) Epoxy Coatings (primer, C00259, coating, C00260, coating, C00307, primer, C00346, primer, C00319 or primer, C00175) that have dried for less than 48 hours, do the steps that follow:

NOTE: Dry less than 24 hours for primer, C00319 or primer, C00175.

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- (a) Clean with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (b) Abrade (sand) the surface when it is necessary with 240 grit or finer abrasive cloth, B00102.

SUBTASK 51-21-02-100-001

- (4) Epoxy Coatings (primer, C00259, coating, C00260, coating, C00307, primer, C00346, primer, C00319 or primer, C00175) that have dried for more than 48 hours, do the procedures 1 or 2 that follow:

NOTE: Dried more than 24 hours for primer, C00319 or primer, C00175.

- (a) Do the Procedure 1 as follows:

- 1) Manual solvent clean the surface.
- 2) Abrasive clean with 320 grit or finer aluminum oxide abrasive paper abrasive cloth, B00102.

NOTE: Make sure you do not cause the substrate to show.



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- 3) Manually clean the surface with Series 86 solvent, B01006 (TASK 20-30-86-910-801).

- (b) Do the Procedure 2 as follows:

NOTE: Use the cleaners compound, B00314 or cleaner, B00402. Dilute the cleaners to 1 part cleaner to 10 parts of water by volume.

- 1) Clean the surface with a cheesecloth cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that is moist with cleaners 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 maximum).

- a) Apply the water by pressure spray if it is applicable.
- b) Flush the area a minimum of 3 times.

- 4) Make sure 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.

- 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.

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- 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.



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- 7) Manually clean the surface with Series 86 solvent, B01006 (TASK 20-30-86-910-801).

NOTE: Blue stains from the leak detection paint do not have to be totally removed.

- 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) Thoroughly rinse the surface with clean water before the solvent evaporates.
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.

- 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.

- 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 you flush all unwanted material from the joints and fasteners.

- 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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SUBTASK 51-21-02-100-002

- (5) Prepare the urethane coatings (primer, C00319, BMS10-101, and coating, C00321) for painting.
- (a) For less than 8 hours of the application time to the original Urethane coating do the steps that follows:
- 1) Refer to the applicable specification to apply the urethane coating.
- (b) After the application time of the coating expires but before the full cure do the steps that follow:
- 1) Abrade (sand) the surface lightly with 240 grit or finer aluminum oxide abrasive paper abrasive cloth, B00102 or scotch-brite pads.
 - 2) Manually clean the surface with Tolulene solvent, B00153.
- NOTE:** The degree of solvent cleaning must not cause the removal of large amounts of coating. Non-tacky staining of the cloth is permitted.
- (c) After the coating has a full cure, do the steps that follow:
- 1) Abrade (sand) the surface lightly with 240 grit or finer aluminum oxide abrasive paper abrasive cloth, B00102 or scotch-brite pads abrasive mat, G00251 to remove the gloss, stains, and the discoloration.
 - 2) Manually clean the surface with a 1 to 1 solution (by volume) of Desoto 020x338 Oxsolv and water (or an applicable equivalent).

SUBTASK 51-21-02-100-003

- (6) 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 paper abrasive cloth, B00102.

NOTE: Make sure you do not cause the substrate to show.



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- 3) Manually clean the surface with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (b) Do the Procedure 2 as follows:
- NOTE:** Use the cleaners MIL-C-43616 or MIL-C-87936. Dilute the cleaners with 1 part cleaner and 10 parts of water by volume.
- 1) Clean the surface with a cheesecloth cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that is moist with cleaners compound, B00314 or cleaner, B00402.

NOTE: Do not clean too large an area at one time.

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- 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 maximum).

- a) Apply the water by pressure spray if it is applicable.
- b) Flush the area a minimum of 3 times.

- 4) Make sure 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.

- 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.



WARNING

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 MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- 7) Clean the surface with Series 85 solvent, B01005 (TASK 20-30-85-910-801).

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) Thoroughly rinse the surface with clean water before the solvent evaporates.

- 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:

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- 1) Clean the surface.

NOTE: Abrasive pads (Scotch-brite) are recommended as an aid to remove stubborn dirt.

- 2) Clean the surface with abrasive pads abrasive cloth, B00102 that are moist with cleaners compound, B00314 or cleaner, B00402 to make the surface rough.

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 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.

SUBTASK 51-21-02-100-004

- (7) Prepare the adhesive flashes with one of the two procedures that follow.

- (a) Do the Procedure 1 as follows:

NOTE: Use the cleaners compound, B00314 or cleaner, B00402. Dilute the cleaners with 1 part cleaner and 10 parts of water by volume.

- 1) Clean the surface with a cheesecloth cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that is moist with cleaners 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 maximum).

- a) Apply the water by pressure spray if it is applicable.
- b) Flush the area a minimum of 3 times.

- 4) Make sure 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.

- 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.

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- 7) Clean the surface with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
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) Thoroughly rinse the surface with clean water before the solvent becomes dry.
- 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.
- (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) Manually clean the surface with Series 85 solvent, B01005 (TASK 20-30-85-910-801).

SUBTASK 51-21-02-100-005

- (8) Prepare the surface that have leak detection paints on them with one of the two procedures that follow:
 - (a) Do the Procedure 1 as follows:
NOTE: Use the cleaners MIL-C-43616 or MIL-C-87936. Dilute the cleaners with 1 part cleaner and 10 parts of water by volume.
 - 1) Clean the surface with a cheesecloth cotton wiper, G00034, soft paint brush, STD-1080, or a sponge, G00116 that is moist with cleaners compound, B00314 or cleaner, B00402.
NOTE: Do not clean too large an area at one time.

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- 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 maximum).

- a) Apply the water by pressure spray if it is applicable.
- b) Flush the area a minimum of 3 times.

- 4) Make sure 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.

- 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.



WARNING

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- 7) Clean the surface with Series 85 solvent, B01005 (TASK 20-30-85-910-801).

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) Thoroughly rinse the surface with clean water before the solvent becomes dry.

- 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.

- 11) Blow dry the surface with filtered compressed air.

- (b) Do the Procedure 2 as follows:

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- 1) Clean the surface.

NOTE: Abrasive pads (Scotch-brite) are recommended as an aid to remove stubborn dirt.

- 2) Clean the surface with abrasive pads abrasive cloth, B00102 that are moist with cleaners compound, B00314 or cleaner, B00402 to make the surface rough.

NOTE: Dilute the cleaners with 1 part cleaner and 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 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) Dry the surface thoroughly before it is painted.

————— **END OF TASK** —————

TASK 51-21-02-100-802

4. Cleaning and Preparation of Internal and External Plastic Surfaces

A. References

Reference	Title
20-30-87-910-801	Final Cleaning of Composites Prior to Painting (Series 87) (P/B 201)
51-21-10-300-801	Decorative Exterior Paint System Repair (P/B 701)

B. 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)
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
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
B01007	Solvent - Final Cleaning Of Composites Prior To Painting - Series 87	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

C. Cleaning and Preparation of External Plastic Surfaces

SUBTASK 51-21-02-100-006

- (1) Prepare the Carbon Epoxy and Fiberglass/Epoxy surfaces for paint.

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- (a) Clean the surface with a clean cheesecloth cotton wiper, G00034 that is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).
- (b) Abrade (sand) the surface with one of the steps that follow:
 - 1) Manually abrade (sand) the surface with 150 grit or finer abrasive paper abrasive cloth, B00102.



YOU MUST BE CAREFUL WHEN YOU ABRAD (SAND) THE SURFACE. YOU CAN CAUSE DAMAGE TO FIBERGLASS, ARAMID, OR CARBON FIBERS COMPONENTS OR SURFACES. IF YOU CAUSE DAMAGE TO THESE PARTS, THEY MUST BE REJECTED.

- 2) Abrade (sand) the surface with an air-driven orbital sander with 150 grit or finer abrasive paper abrasive cloth, B00102.
- (c) Remove the sanding residue with one of the steps that follow:



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- 1) Clean the surface with a clean cheesecloth cotton wiper, G00034 that is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).
 - 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 cheesecloth cotton wiper, G00034 before the solvent becomes dry.
- (d) Examine the surface to determine if a surfacer is necessary.
- (e) 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.

- (f) If it is necessary, apply Primer-Surfacer 825X466 (or an applicable equivalent) or Surfacer adhesive, A00028 to fill the following:

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) Other minor depressions that cannot be filled with the pinhole fillers.

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- (g) Do the final cleaning of the surface with a clean cheesecloth cotton wiper, G00034 that is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).
 - 1) Fully dry the surface with a clean cheesecloth cotton wiper, G00034 before the solvent becomes dry.
- (h) Do this task: (Decorative Exterior Paint System Repair, TASK 51-21-10-300-801).
NOTE: Do this before a maximum time of 24 hours.

D. Cleaning and Preparation of Internal Plastic Surfaces

SUBTASK 51-21-02-100-007

- (1) Solvent clean the internal plastic surfaces.
 - (a) Clean the surface with a clean cheesecloth cotton wiper, G00034 that is moist with solvent, B00148, alcohol, B00130, or alcohol, B00068.
 - 1) Clean BMS8-317 surfaces with presealing cleaning solvent, B00184.

SUBTASK 51-21-02-370-002

- (2) Prepare the internal decorative surfaces for paint.
 - (a) Manually abrade (sand) the internal decorative surfaces with 150 grit or finer abrasive paper abrasive cloth, B00102.
 - (b) Remove the sanding residue with the step that follows:
 - 1) Clean the surface with a clean cheesecloth cotton wiper, G00034 that is moist with solvent, B00148 or solvent, B00062.
 - (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 the following:
NOTE: The surfacers are to be used only in the area of the pits in the surface of depressions. Usually, surfacers are not used on the full part.
 - 1) Pits in the surface.
 - 2) Areas with resin missing.
 - 3) Other minor depressions that cannot be filled with the pinhole fillers.
 - (f) Do the final cleaning of the surface with a clean cheesecloth cotton wiper, G00034 that is moist with solvent, B00148, solvent, B00062, alcohol, B00130, or alcohol, B00068.
 - (g) Fully dry the surface with a clean cheesecloth cotton wiper, G00034 before the cleaner becomes dry.

———— **END OF TASK** ————

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CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING

1. General

- A. Carefully examine all structural parts where corrosion can occur. Repair corroded parts when you find them if it is possible. Replace the corroded parts if it is necessary. Apply a finish that gives protection on the part or surface. If it is not possible to remove the defective part, do the applicable procedure to control and remove corrosion.
- B. 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.
- C. This procedure has these tasks:
 - (1) Aluminum Alloy Corrosion Removal and Control
 - (2) Corrosion Removal and Control
 - (3) Corrosion Preventative Paint Application.

TASK 51-21-03-100-802

2. Aluminum Alloy Corrosion Removal and Control

A. References

Reference	Title
51-21-04-620-801	Alodine 600, 1000, 1200, and 1200S Coating Application (P/B 701)
51-24-09-620-801	Prepare the Surface to Apply the Corrosion Inhibiting Compound (P/B 701)

B. Tools/Equipment

Reference	Description
STD-765	Scraper - Plastic
STD-1064	Scraper - Phenolic, Hard Resin

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)
G00116	Sponge - Synthetic	
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G00268	Brush - Soft Bristle, Paint	
G00291	Tape - Aluminum Foil, Scotch 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	

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Reference	Description	Specification
G50590	Metallic Wool - Aluminum	

D. Prepare For The Removal Of Corrosion

SUBTASK 51-21-03-160-001

- (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: Prepare the Surface to Apply the Corrosion Inhibiting Compound, TASK 51-24-09-620-801.

E. Procedure (Chemical Method)

SUBTASK 51-21-03-913-001

- (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 quickly.
 - (b) Apply Scotch 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 Scotch 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 51-21-03-150-001

- (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.
 - 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 Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801.

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SUBTASK 51-21-03-150-002

- (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.



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.
- (c) Apply corrosion remover phosphoric acid, B00046 on the surface.
- (d) Fully flush all of the prepared area and the adjacent areas, with water.

NOTE: Make sure that you flush out all the phosphoric acid

corrosion remover from the areas that follow: the skin seams, and all openings or holes on the surface.

- (e) Do again this procedure to remove more corrosion, if necessary.
- (f) Dry the treated surface and do the steps in Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801.

F. Procedure (Mechanical Method)

SUBTASK 51-21-03-913-002

- (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 quickly.
- (b) Apply Scotch 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 Scotch 425 Aluminum Foil Tape, G00291 to areas of magnesium, steel and cadmium plated parts.

SUBTASK 51-21-03-160-002

- (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 a abrasive mat, G00251 to rub away corrosion.
- (b) Use a 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.
- 1) Remove the corrosion with a linear motion; do not crosshatch. This will unnecessarily damage the surface.

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- 2) After wire brushing soft metal (such as aluminum or magnesium) the surface areas must be polished with a 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) After drying, the pumice abrasive, B00166 powder is wiped off.
- (g) Scrapers are used primarily for the initial removal of heavy corrosion deposits in corners and crevices that cannot be reached with other equipment.

NOTE: Scrapers may be locally manufactured from phenolic plastic, fiberglass composites, or aluminum.

- 1) plastic scraper, STD-765 or hard resin phenolic scraper, STD-1064 may be used on any metal surface.
- 2) Aluminum scrapers shall be used only on aluminum or magnesium surfaces.
- 3) Steel scrapers shall be used only on steel surfaces.

SUBTASK 51-21-03-160-003

- (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 Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801.

————— **END OF TASK** —————

TASK 51-21-03-100-801

3. Corrosion Removal and Control

A. General

- (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: Prepare the Surface to Apply the Corrosion Inhibiting Compound, TASK 51-24-09-620-801.

B. References

Reference	Title
51-24-09-620-801	Prepare the Surface to Apply the Corrosion Inhibiting Compound (P/B 701)

C. Consumable Materials

Reference	Description	Specification
B00046	Acid - Corrosion Removing, Metal Conditioning, Phosphoric	MIL-C-10578
B00074	Solvent - Degreasing	MIL-PRF-680 (Supersedes P-D-680)
B00102	Abrasive - Aluminum Oxide Coated Cloth	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

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Reference	Description	Specification
G02222	Abrasive - Dry, Blasting	BAC5748

D. Procedure

SUBTASK 51-21-03-120-001

- (1) Do the subsequent steps to remove corrosion from steel (steel parts heat-treated to 180 ksi or less):



CAUTION

WHEN THE HEAT-TREAT VALUE OF A PART IS UNKNOWN, PREPARE THE PART AS IF IT WAS HEAT-TREATED OVER 180 KSI. DO NOT APPLY ACID SOLUTIONS TO THE PART. MAKE SURE THAT ALL ADJACENT AREAS HAVE PROTECTION DURING THE REMOVAL OF CORROSION. DAMAGE TO THE PART CAN OCCUR IF THERE IS NO PROTECTION FROM THE ACID SOLUTIONS.

- (a) Remove all loose corrosion with the items that follow:

- 1) stainless steel wool
- 2) wire brush



CAUTION

BE CAREFUL TO APPLY THE ACID SOLUTION ONLY ON THE AREAS OF CORROSION. LET THE ACID SOLUTION STAY ON THE SURFACE UNTIL YOU CAN SEE A GRAY COATING. WHEN YOU DO NOT FOLLOW THESE INSTRUCTIONS, DAMAGE TO THE ADJACENT AREA CAN OCCUR.



CAUTION

MAKE SURE YOU DO NOT ADD WATER TO ACID. ALWAYS ADD ACID TO WATER. ACID IS EXPLOSIVE WHEN ADDED TO WATER. IF YOU ADD WATER TO ACID, INJURY TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

- (b) Use a corrosion remover phosphoric acid, B00046 to remove the remaining corrosion from the surface.

NOTE: Add 1 part (by volume) of the corrosion remover phosphoric acid, B00046 to 3 parts (by volume) of water.

- (c) Fully flush the surface with clean water.
- (d) Clean the surface with a moist cotton wiper, G00034.
- (e) Let the surface dry.
 - 1) Use a machine to dry the surface if it is possible.
- (f) Immediately apply the finish that gives protection as applicable.

SUBTASK 51-21-03-120-002

- (2) Do the subsequent steps to remove steel corrosion (steel parts heat-treated over 180 ksi):

NOTE: This step is optional for parts less than 180 ksi.



CAUTION

MAKE SURE ALL THE ADJACENT AREAS HAVE PROTECTION DURING THE MANUAL REMOVAL OF CORROSION. DAMAGE CAN OCCUR IF THE ADJACENT AREAS DO NOT HAVE PROTECTION.

- (a) Use the materials that follow to remove the corrosion:
 - 1) 220 grit (maximum) abrasive cloth, B00102

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- 2) Apply a dry blast with abrasive, G02222 to the surface.
- (b) Use a solvent, B00074 to clean the surface.
- (c) Apply the finish that gives protection.

NOTE: Apply the primer coats before 1 hours time after you rub or dry-blast the surface.

SUBTASK 51-21-03-120-003

- (3) Do the subsequent steps to remove corrosion from the types of resistant steel that follow:
 - (a) nickel-base alloys
 - (b) titanium.



WARNING

SMALL PARTICLES OF TITANIUM ALLOY CAN EASILY CAUSE IGNITION. USE DRY TALC, CALCIUM CARBONATE, SAND, OR GRAPHITE TO EXTINGUISH A TITANIUM ALLOY FIRE. DO NOT USE WATER, CARBON DIOXIDE, CARBON TETRACHLORIDE, OR AN ORDINARY DRY CHEMICAL FIRE EXTINGUISHER TO EXTINGUISH A TITANIUM ALLOY FIRE. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR IF INCORRECT PROCEDURES ARE USED TO EXTINGUISH A TITANIUM ALLOY FIRE.



CAUTION

MAKE SURE THAT ALL ADJACENT AREAS HAVE PROTECTION WHEN YOU REMOVE CORROSION. DAMAGE CAN OCCUR IF THE ADJACENT AREAS DO NOT HAVE PROTECTION DURING THE CORROSION REMOVAL.

- (c) To remove corrosion, use the items that follow:

NOTE: Make sure that no particles of corrosion stay on the surface. Rub the surface until all corrosion is gone.

 - 1) stainless steel wool
 - 2) fine abrasive cloth, B00102
 - 3) wire brush
 - 4) dry blast with abrasive, G02222
- (d) Polish the surface with 400 grit abrasive cloth, B00102 to remove all scratches.
- (e) Remove the remaining particles with a solvent alkaline cleaner.
- (f) Fully flush the surface with water.
- (g) Air blast dry the surface.
- (h) Apply a finish that gives protection where it is necessary.

————— **END OF TASK** —————

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TASK 51-21-03-370-801

4. Corrosion Preventative Paint Application

A. General

- (1) The corrosion inhibiting finish is used on the in-spar surface area of the wing.
- (2) BMS10-100 is the material specification for Aeroflex and Ultraflex base coatings.

NOTE: BMS10-100 corrosion inhibiting finish is sensitive to fuel, hydraulic fluid and solvents.

The appearance of fluid stains or emulsification of the finish may occur when exposed to these materials. Matching the color and appearance of the repair area to the original application of BMS10-100 is very difficult. Some color and appearance mismatch is considered acceptable.

- (3) BMS10-100 is an option to the application of BMS10-60.

B. References

Reference	Title
51-21-02-100-801	Clean the Surface to be Painted (P/B 701)
51-21-02-370-801	Prepare the Surface to be Painted (P/B 701)
51-21-10-370-811	Decorative Exterior Paint System Application (P/B 701)

C. Consumable Materials

Reference	Description	Specification
B00094	Solvent - Toluene	A-A-59107
B00344	Solvent - Xylene, Nitration Grade	ASTM D843
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79 Type III
C00259	Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer	BMS10-11 Type I
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II
C00662	Thinner - C25/90S	
C50016	Coating - Flexible Corrosion Inhibiting Topcoat	BMS10-100
G00219	Cloth - Tack Rag	
G00834	Cloth - Lint-free Cotton	
G50020	Mat - Abrasive, Non-Woven, Aluminum Oxide, 280 - 400 grit	A-A-58054 Type I Grade A

D. Prepare to Apply the Paint

SUBTASK 51-21-03-350-001

- (1) Clean area to be painted, do this task: Clean the Surface to be Painted, TASK 51-21-02-100-801.

SUBTASK 51-21-03-370-004

- (2) Prepare surface to be painted, do this task: Prepare the Surface to be Painted, TASK 51-21-02-370-801.

E. Apply the BMS10-100 Corrosion Inhibiting Finish

SUBTASK 51-21-03-370-001

- (1) Prepare the BMS10-100 corrosion inhibiting finish.

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- (a) Fully mix coating, C50016 material per the manufacturers instruction for 10-15 minutes manually or use a power mixer.

NOTE: There must be no air bubbles while you mix the finish.

- (b) Make sure that the aluminum pigment is constant in the mixture.
- (c) Use C25/90S thinner, C00662 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 8 hours with no temperature limit.

SUBTASK 51-21-03-370-002

- (2) Apply the BMS10-100 corrosion inhibiting finish.

- (a) Apply primer, C00259, primer, C00319, or primer, C00175 on the surface, do this task: Decorative Exterior Paint System Application, TASK 51-21-10-370-811.

- (b) Let the primer dry 2 - 24 hours before you apply the finish.

- (c) Put the finish through a clean cloth or sieve.

- (d) Apply the finish 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, decrease the atomizing air pressure. You can also add the thinner to make the mixture thin as an alternative.

- (f) Dry the mixture at 65-85 °F (18.3-29.4 °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.

F. Apply the BMS10-60 Corrosion Inhibiting Finish

SUBTASK 51-21-03-370-005

- (1) Prepare the following materials for the coating operation according to the manufacturer's instructions:

- (a) BMS5-95, Type I, Class F sprayable sealant common to the front/rear spar fastener rows and splice stringer fastener rows on the wing lower surface.

- (b) BMS10-79, Type III primer.

- (c) BMS 10-60, Type II, Color BAC 707 gloss polyurethane enamel.

G. Repair and Rework

SUBTASK 51-21-03-350-002

- (1) Clean areas with small damages such as scratches and gouges.

- (a) Rub the areas smooth with 280 - 400 grit abrasive mat, G50020 (280 grit minimum).

- (b) Clean the areas with lint-free cloth, G00834 moist with solvent, B00094 or solvent, B00344.

- (c) Before solvent dries, wipe dry with a clean lint-free cloth, G00834 or clean with a cloth, G00219.

SUBTASK 51-21-03-370-003

- (2) Apply coating, C50016 to reworked area.

- (a) Feather all the edges.

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(b) Use a brush for small damages.

SUBTASK 51-21-03-220-002

(3) Make sure the repair and overlap thickness is not more than 5.0 mils.

NOTE: The color of the new BMS10-100 coating will not be the same as the adjacent surface.
Permit the coating to dry a minimum of 4 hours at 65-85 °F (18.3-29.4 °C).

———— **END OF TASK** ————

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CHEMICAL CONVERSION COATING - CLEANING/PAINTING

1. General

A. This procedure has three tasks:

- (1) Alodine 600, 1000, 1200, and 1200S coating application.
- (2) AC-131-CB coating application.
- (3) Alodine 1132 Coating Application.

TASK 51-21-04-620-801

2. Alodine 600, 1000, 1200, and 1200S Coating Application

A. General

- (1) Alodine is a protective coating and paint base.
- (2) The solutions used are as follows:
 - (a) Alodine 600, coating, C00064
 - (b) Alodine 1000, coating, C00064
 - (c) Alodine 1200, coating, C00064
 - (d) Alodine 1200S, coating, C00064.
- (3) In the areas where the Alodine will touch BMS 10-20 primer, only use Alodine 600, coating, C00064.

B. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
SRM 51-20-05	Structural Repair Manual

C. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle
STD-739	Respirator - Supplied Air
STD-1052	Container - Acid Resistant
STD-1086	Gloves - Rubber
STD-1104	Bottle - HDPE Polyethylene, Capacity 500ml, with LDPE Polyethylene Internal Plug and Self Seal Polypropylene Screw Cap
STD-1118	Container - Stainless Steel, 1 Gallon (4 Liter)

D. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding - Series 88	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
C00307	Coating - Corrosion Resistant Finish For Integral Fuel Tanks	BMS10-20 Type II

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Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00110	Sponge - Silicone Rubber, Closed-Cell, General Purpose, Non-Solvent Use	BMS1-23
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

E. Prepare the Surface Before the Alodine Application

SUBTASK 51-21-04-950-001

- (1) Apply Scotch Flatback Masking Tape 250, G00270 to all of the adjacent areas.

NOTE: You do not have to apply tape on anodized surfaces.

- (a) Do not let Alodine solution touch non-anodized surfaces that have no tape.

SUBTASK 51-21-04-910-001

- (2) Seal all holes, and clearances on honeycomb or foam plastic assemblies.

- (a) Use the following materials to prevent the entrance of Alodine solution:
 - 1) Sealing materials.
 - 2) Caulking materials.
 - 3) Rubber plugs.

SUBTASK 51-21-04-100-001

- (3) Clean the surface with cleaner, B00402.
 - (a) Use a clean soft bristle brush, STD-123 or rags.
 - (b) Dry the surface with one of the procedures that follow:
 - 1) Warm air.
 - 2) Rub the surface with cotton wiper, G00034.

SUBTASK 51-21-04-140-001

- (4) Remove organic finishes, inorganic finishes, and hydraulic fluid resistant from the repair surface.
 - (a) Use the materials that follow to remove the finishes:
 - 1) abrasive mat, G00251
 - 2) abrasive cloth, B00102 (400 grit)
 - (b) Remove all the organic and inorganic material from the area until you get a clean and shiny aluminum surface.

SUBTASK 51-21-04-140-002

- (5) 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 51-21-04-110-001



WARNING

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 MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (6) Clean the surface again until no remaining particles are found on the cheesecloth.
 - (a) Get a clean cotton wiper, G00034.
 - (b) Apply Series 88 solvent, B01008 (TASK 20-30-88-910-801) to the cheesecloth to make it moist (not soaked)
 - (c) Rub the surface with the cheesecloth.
 - (d) Let the surface dry for a minimum of 15 minutes.

SUBTASK 51-21-04-160-001

- (7) Remove all of the corrosion material found on the surface.

SUBTASK 51-21-04-100-002

- (8) Before you install the sealant in the integral fuel tanks, clean the structure and the components ((SRM 51-20-05)).

F. Alodine Solution Preparation

SUBTASK 51-21-04-620-001



WARNING

DO NOT GET THE ALODINE SOLUTION IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. MAKE SURE FRESH AIR FLOWS FREELY THROUGH THE WORK AREA. MAKE SURE YOU 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 PERSONS AND DAMAGE TO EQUIPMENT.

- (1) To prepare the Alodine 1000 solution (coating, C00064), do these steps:

NOTE: In areas where Alodine will touch coating, C00307, only use Alodine 600.

 - (a) Put on rubber glove, STD-1086.
 - (b) Put on a supplied air respirator, STD-739.
 - (c) For Alodine 1000 powder, add 0.4 ounces of Alodine 1000 powder to water for each gallon of the final solution.
 - (d) For Alodine 1000L, do the steps that follow:
 - 1) Put 6 parts (by volume) of water in a clean acid resistant container, STD-1052 or a stainless steel container (1 gal) (4 Liter), STD-1118.
 - 2) Add 4 parts (by volume) of Alodine 1000L liquid concentrate to the water.
 - 3) Fully mix the Alodine solution.

NOTE: Let the solution stay for an hour before it is used.

 - 4) Put the Alodine 1000L solution in a clean polyethylene bottle (500ml), STD-1104.

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- 5) Put a label on the bottles and write the date when the solution was mixed, and the date when the application time ends.

NOTE: The application time of the Alodine 1000L solution is 14 days.

NOTE: Because the Alodine 1000L solution is sensitive to all types of contamination, make sure all containers are fully clean before they are used.

SUBTASK 51-21-04-620-002



DO NOT GET THE ALODINE SOLUTION IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. MAKE SURE FRESH AIR FLOWS FREELY THROUGH THE WORK AREA. MAKE SURE YOU 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 PERSONS AND DAMAGE TO EQUIPMENT.

- (2) To prepare the Alodine 600, 1200, or 1200S solution, do these steps:

NOTE: In areas where Alodine will touch coating, C00307, use only Alodine 600.

- (a) Put on rubber glove, STD-1086.
- (b) Put on a supplied air respirator, STD-739.
- (c) Put the Alodine powder (Alodine 600, or the 1200, or the 1200S) on a piece of clean paper
- (d) Use a roller to make the powder smooth.
- (e) Put the necessary quantity of water in a acid resistant container, STD-1052 or a stainless steel container (1 gal) (4 Liter), STD-1118.
- NOTE: Do not use lead or glass containers.
- (f) For Alodine 600 or 1200, add 3 ounces of powder to one gallon of water to make one gallon of final solution.
- (g) For Alodine 1200S, add 2 ounces of powder to one gallon of water to make one gallon of final solution.
- (h) Fully mix the solution.
- (i) Let the solution stay for an hour before it is used.

NOTE: A dirty solution is unsatisfactory. Prepare the clean solution in small quantities and discard it when it is dirty.

NOTE: For Alodine 1200 or 1200S, when non-distilled water is used, add nitric acid to control the pH range from 1.50 to 2.00. Do a pH check with pHydration papers #60781. Do not add wetting agents or other materials to this solution.

NOTE: For Alodine 600, add 2 percent by volume of Alodine toner 22 to control the pH range from 1.50 to 2.00. Do a pH check with pHydration papers #60781. Do not add wetting agents or other materials to this solution.

G. Apply the Alodine Coating

NOTE: In areas where the Alodine will touch coating, C00307, use only Alodine 600.

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SUBTASK 51-21-04-160-002



DO NOT GET THE ALODINE SOLUTION IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. MAKE SURE FRESH AIR FLOWS FREELY THROUGH THE WORK AREA. MAKE SURE YOU 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 PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do these steps to apply the Alodine 1000 Solution:

- (a) Put on rubber glove, STD-1086.
- (b) Put on a supplied air respirator, STD-739.



DO NOT LET THE ALODINE 1000 SOLUTION DRY ON THE CHEEESE CLOTH. FLUSH THE CHEEESE CLOTH IMMEDIATELY WITH WATER AND SOAK IT IN A CONTAINER FILLED WITH WATER. A DRY CHEEESE CLOTH WITH ALODINE SOLUTION IS FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (c) Apply the Alodine 1000 solution with a clean cheesecloth cotton wiper, G00034.
NOTE: Keep the room temperature above 65 °F.
- (d) Keep the part wet with the Alodine 1000 solution for 30 seconds before color is produced.
NOTE: You must do a test piece to find the time it takes for the color to show.
- (e) Flush the part with water before the color shows.



DO NOT TOUCH THE PART UNTIL IT IS FULLY DRY. THE WET ALODINE SOLUTION IS EASILY DAMAGED.

- (f) Air dry the part.

NOTE: Dry at a temperature of 120 degrees F (optimum), 130 degrees F (maximum).

SUBTASK 51-21-04-620-003



DO NOT GET THE ALODINE SOLUTION IN YOUR MOUTH, IN YOUR EYES, ON YOUR SKIN, OR ON YOUR CLOTHES. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. MAKE SURE FRESH AIR FLOWS FREELY THROUGH THE WORK AREA. MAKE SURE YOU 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 PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do these steps to apply the Alodine 600, 1200 or 1200S Solution:

- (a) Put on rubber glove, STD-1086.
- (b) Put on a supplied air respirator, STD-739.

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WARNING

DO NOT LET THE ALODINE 600, OR 1200, OR 1200S SOLUTION DRY ON THE CHEESECLOTH. FLUSH THE CHEESECLOTH IMMEDIATELY WITH WATER AND SOAK IT IN A CONTAINER FILLED WITH WATER. A DRY CHEESECLOTH WITH ALODINE SOLUTION IS FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Apply Alodine the 600, or 1200, or the 1200S equally with the following:

- 1) A fiber brush soft bristle brush, STD-123.
- 2) A nylon brush soft bristle brush, STD-123.
- 3) A clean cheesecloth cotton wiper, G00034.

(d) Start the Alodine application at the bottom of the part.

(e) Keep the surface wet with the Alodine solution.

NOTE: Do not let the Alodine 600, 1200, or 1200S solution dry until the color of the surface changes.

- 1) Do this for 3 to 5 minutes, or until the color of the solution changes to a light golden-iridescent.



CAUTION

BE CAREFUL WHEN YOU FLUSH AND DRY THE PART. WET ALODINE 600, 1200 OR 1200S SOLUTION IS EASILY DAMAGED.

(f) Carefully flush the part with one of the steps that follow:

NOTE: Do not rub the surface of the part very hard because you will rub off the Alodine.

- 1) Flush the applicable area with water.
- 2) Rub the applicable area with a cheesecloth cotton wiper, G00034 that is moist with water.
- 3) Rub the applicable area with a sponge, G00110 that is soaked with water.

(g) Clean the part again if it is necessary.



CAUTION

DO NOT LET THE ALODINE SOLUTION DRY ON THE CHEESECLOTH. FLUSH THE CHEESECLOTH IMMEDIATELY WITH WATER AND SOAK IT IN A CONTAINER FILLED WITH WATER. A DRY CHEESECLOTH WITH ALODINE SOLUTION IS FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(h) Flush all cheesecloths with water and keep them in a container filled with water.

(i) Dry the surface with air that is a temperature of 120 degrees F (optimum), 130 degrees F (maximum).

NOTE: Do not touch the surface until the solution is dry.

————— END OF TASK —————

TASK 51-21-04-916-801

3. BMS10-128 Coating Application

A. References

Reference	Title
51-21-10-990-802	Figure: Angle-of-Attack Vane Tape Application Area (P/B 701)

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B. Tools/Equipment

Reference	Description
STD-623	Sprayer - Paint, High Volume/Low Pressure
STD-818	Sprayer - Pressure

C. Consumable Materials

Reference	Description	Specification
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
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)	BMS15-5 Class A
G00139	Tape - Protective, Protex 20V	
G00291	Tape - Aluminum Foil, Scotch 425	AMS-T-23397 / L-T-80
G50262	Wiper - Cleaning	BMS15-5
G50737	Tape - Aluminum Foil Tape with Easy-Release Liner, Scotch 427	

D. Prepare the coating.

SUBTASK 51-21-04-950-002

(1) Mask the area.

- (a) Apply solvent-resistant masking tape to the areas that follow.
 - 1) Pitot static probes
 - 2) Light lenses
 - 3) Door latches and hinges
 - 4) Instrument measuring openings
 - 5) Static dischargers
 - 6) Leading edges
 - 7) Other surfaces that are not to be painted

SUBTASK 51-21-04-950-003

(2) Do the steps that follow to cover the angle-of-attack (AOA) sensors.

- (a) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape.
 - 1) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 51-21-10-990-802).

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

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SUBTASK 51-21-04-950-004

- (3) Use one of the methods that follow to mask the windows.

NOTE: Glass windows do not have to be masked before cleaning or application of chemical conversion coating.

(a) Method 1

- 1) Apply Protex P-5 or Protex 20V tape, G00139 paper to the window.
 - a) Make sure that the window is fully covered and that the paper is not wrinkled.
- 2) Apply Scotch 425 Aluminum Foil Tape, G00291 or Scotch 427 Aluminum Foil Tape, G50737 to attach the paper.
 - a) Make sure that the tape extends onto the window forging or frame.

(b) Method 2

- 1) Solvent clean the area to be masked by hand.
 - a) Use a 70/30 mixture by volume of methyl propyl ketone solvent, B00666/methyl ethyl ketone solvent, B00148 with one of the materials that follow.
 - <1> Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide, 3M.
 - <2> Scotch-Brite Clean and Finish, very fine, grade a, aluminum oxide, 3M.
 - <3> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, Satin Gobain Abrasives, Inc.
 - <4> Doodlebug White Cleaning Pad 8440, 3M.
 - <5> Scotch-Brite Super Polish Sheet, 3M.
 - <6> wiper, G50262
 - b) Make sure that the very fine abrasive pad, cleaning pad, or wiper are saturated with solvent.
 - c) Wipe the surface with the very fine abrasive pad, cleaning pad, or wiper.
 - d) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <1> Make sure that the solvent does not dry on the surface.

NOTE: If solvent dries before it is removed from the surface, contamination may not be removed.

- 2) Apply BA BWG window mask film to the window.
 - a) Make sure that the window and frame are fully covered with the film.
 - b) Make sure that the mask film does not have any wrinkles when it is applied to the window and frame.

SUBTASK 51-21-04-620-004

- (4) Prepare the sol-gel coating, C50157 or AC-131-CB metal conversion coating, C50119 according to the manufacturer's kitting procedures.
- (a) The kit should be used within 1 year of the date of manufacture on the kit.
 - (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.

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- (d) Make sure 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 51-21-04-916-001

- (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 no water-breaks occur on the surface you are treating.



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) 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 51-21-04-916-002

- (2) Allow the coated surface to drain for 10 minutes.

SUBTASK 51-21-04-916-003

- (3) After the surface has drained, use filtered, compressed air to remove 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.

SUBTASK 51-21-04-916-004

- (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.

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- (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** —————

TASK 51-21-04-300-801

4. Alodine 1132 Coating Application

A. Consumable Materials

Reference	Description	Specification
C50079	Coating - Chemical Conversion - Bonderite M-CR 1132 Aero (Formerly Alodine 1132 Touch-N-Prep)	

B. Procedure

SUBTASK 51-21-04-370-001

- (1) Remove the cap of the Bonderite M-CR 1132 Aero coating, C50079, and hold the pen with the applicator tip downwards.

SUBTASK 51-21-04-840-001

- (2) Activate the 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 pen should take 30 to 45 seconds for the tip to be wet. When the tip is wet, release pressure. The pen is ready for use.

SUBTASK 51-21-04-210-001

- (3) Ensure that surface to be coated is dry before proceeding.

SUBTASK 51-21-04-370-002

- (4) Apply Alodine 1132 coating to the part surface in smooth even strokes. Fifty percent overlap of strokes usually gives proper coating weight. Do not allow the Alodine 1132 to puddle. Puddling will increase the time required for drying, and thick uneven areas in the coating cause performance failures.

SUBTASK 51-21-04-370-003

- (5) Wait until coating dries and repeat the application in a cross hatch pattern. Do not water rinse. Water rinse degrades corrosion resistance and paint adhesion.

SUBTASK 51-21-04-370-004

- (6) Ambient air dry or force air dry coating at 130°F (54°C) maximum sufficiently to evaporate water.

————— **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) Decorative Exterior Paint System Thickness Measurement (Eddy Current Testing Method).
- (4) Decorative Exterior Paint System Thickness Measurement (Ultrasonic Testing Method).

TASK 51-21-10-370-811

2. Decorative Exterior Paint System Application

A. General

- (1) Do not get paint or primer on the surfaces of the items that follow:
 - (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, one inch in width, around or on the pressure relief valve doors, or outflow valves
 - (f) Door operating mechanisms, hinge assemblies, or equivalent surfaces
 - (g) Pitot static probes, static ports, angle of attack (AOA) vanes, and total air temperature (TAT) probe.
 - (h) Antennas.
- (2) Do not allow solvents, cleaners, or overspray to contact polycarbafil plastic parts
- (3) Paint should meet the requirements and be listed on the qualified products list (QPL) of BMS 10-72 or AMS 3095. In addition to this procedure, Boeing specification D6-1816 provides procedures for decorative exterior paint system application.
- (4) For the application of paint to the nose radome refer to (NOSE RADOME - CLEANING/PAINTING, PAGEBLOCK 53-12-01/701).

B. References

Reference	Title
51-21-01-150-801	Paint Stripping (P/B 701)
51-21-02-100-801	Clean the Surface to be Painted (P/B 701)
51-21-02-370-801	Prepare the Surface to be Painted (P/B 701)
51-21-04-620-801	Alodine 600, 1000, 1200, and 1200S Coating Application (P/B 701)
51-21-04-916-801	BMS10-128 Coating Application (P/B 701)
53-12-01 P/B 701	NOSE RADOME - CLEANING/PAINTING

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C. Consumable Materials

Reference	Description	Specification
B50137	Cleaner - Alkaline, Thickened, acidic, heavy-duty oxidation remover and aluminum conditioner.	AMS 1640B
G50220	Pad - Abrasive, Scotch- Brite 7447	

D. Procedure

SUBTASK 51-21-10-150-001

- (1) If the airplane you are painting had paint peeling from the rivet heads, do these steps (and the steps after cleaning) to improve the paint adhesion.

NOTE: Some airplanes have experienced exterior decorative paint peeling from rivet heads on the fuselage and vertical stabilizer. This condition is known as "rivet rash".

- (a) Chemically strip the paint from the surface (Paint Stripping, TASK 51-21-01-150-801).



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.

- (b) Use an Scotch-Brite 7447 pad, G50220 to wet abrade each row of rivets.

- 1) Do not remove the cladding from the aluminum skin.

SUBTASK 51-21-10-100-001

- (2) Do this task: Clean the Surface to be Painted, TASK 51-21-02-100-801.

SUBTASK 51-21-10-840-001

- (3) Do this task: Prepare the Surface to be Painted, TASK 51-21-02-370-801.

SUBTASK 51-21-10-916-001

- (4) 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 the Cee-Bee Brightener B-55, B50137 by mixing it with water. Make the solution 10% Cee-Bee Brightener B-55, B50137 and 90% water by volume.
- 2) Apply the solution to the surface. Allow the solution to remain on the surface for 20–30 minutes. Do not allow the solution to remain on any part of the surface for more than 30 minutes.

NOTE: If you are applying the solution to the entire airplane, start at one end and work towards the other. Do not allow the solution to remain on any part of the airplane for more than 30 minutes.

- 3) Thoroughly rinse the surface to remove the Cee-Bee Brightener B-55, B50137.

- (b) Apply a chemical conversion coating to the rivet rows. Do one of these tasks:

- Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801
- BMS10-128 Coating Application, TASK 51-21-04-916-801

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SUBTASK 51-21-10-370-042



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 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.



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.

- (5) Apply the decorative exterior paint system as specified by the paint manufacturer's specifications and with the table, (Table 701).

Table 701/51-21-10-993-801 Decorative Exterior Paint System Application Specifications

Description	Coating Specification ^{*[1]}	Application Specification
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 AMS3095	D6-1816
Urethane Compatible Primer	BMS10-79	BAC 5882

*[1] Use only BAC7067 (white), BAC707 (Gray), or BAC70846 (white) color paints for the horizontal stabilizer.

- (a) Refer to SUBTASK 51-10-00-210-001 for a guide when painting near Reduced Vertical Separation Minimum (RVSM) Extra Critical Areas (ECAs).

————— **END OF TASK** —————

TASK 51-21-10-300-801

3. Decorative Exterior Paint System Repair

A. References

Reference	Title
20-30-85-910-801	Final Cleaning of Solvent Sensitive Organic Coatings Prior to Painting (Series 85) (P/B 201)
51-21-01-150-801	Paint Stripping (P/B 701)

B. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

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C. Procedure

SUBTASK 51-21-10-370-043

- (1) Repair areas with minor damage (no bare metal) as follows:



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (b) Rub the surface smooth with a 240 grit (minimum) wet or dry abrasive cloth, B00102 paper.
- (c) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (d) Dry the surface with a clean cotton wiper, G00034.
- (e) Apply the applicable primer and topcoats again, if necessary, as follows:
 - 1) Do this task: (Decorative Exterior Paint System Application, TASK 51-21-10-370-811).
- (f) Make sure you get a smooth continuous finish.

SUBTASK 51-21-10-370-044

- (2) Repair areas with large damage (bare metal) as follows:



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.



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.

- (b) Rub the surface smooth with abrasive cloth, B00102, or, do this task: (Paint Stripping, TASK 51-21-01-150-801).
- (c) Feather the edges of the adjacent area with a 240 grit (minimum) abrasive cloth, B00102 paper that is moist with water.

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- (d) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (e) Dry the surface with a clean cotton wiper, G00034.
- (f) Apply the applicable primer and topcoats as follows:
 - 1) Do this task: (Decorative Exterior Paint System Application, TASK 51-21-10-370-811).
- (g) Feather all the edges to get a smooth continuous finish.

SUBTASK 51-21-10-370-045

- (3) Repair areas with defective paint layers as follows:



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (b) Rub the surface with a 240 grit (minimum) wet or dry abrasive cloth, B00102 paper to remove defects.
- (c) Feather the edges into the adjacent areas.
- (d) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (e) Dry the surface with a clean cotton wiper, G00034.
- (f) Apply the applicable topcoats per manufacturer's specifications and Table 701.
- (g) Feather the edges to get a smooth continuous finish.

————— **END OF TASK** —————

TASK 51-21-10-300-802

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
 - (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 Aluminum Surfaces for Overcoating
 - (f) Apply the Chemical Conversion Coating
 - (g) Apply BMS10-72, Type IX, Primer
 - (h) Apply Computer Generated Premasks
 - (i) Apply Aerodur 3001 Basecoat

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- (j) Apply the Nonmetallic Special Visual Effects Coating
 - (k) Apply Stencils
 - (l) Apply BMS10-26 Markings
 - (m) Apply BMS10-127, Type I, Grade F, Chemical Reactivator
 - (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 thoroughly before priming.
- (7) Definitions
- (a) Water-Break-Free Surface
 - 1) If the surface is clean and free from oily residue, water will adhere to the surface in an unbroken film and sheet off. If the surface is not clean, water will bead on the surface (adhere 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
20-10-12-400-801	Pressure-Sensitive Decal Installation (P/B 401)
20-10-15-400-801	Stencil Markings Installation (P/B 401)
51-21-04-916-801	BMS10-128 Coating Application (P/B 701)

C. Consumable Materials

Reference	Description	Specification
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
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

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Reference	Description	Specification
G00291	Tape - Aluminum Foil, Scotch 425	AMS-T-23397 / L-T-80
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	
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

D. Prepare for the Repair of the Basecoat/Clearcoat Paint System

SUBTASK 51-21-10-280-001

- (1) Make sure that the temperature of the repair surface is at least 35°F (2°C).

SUBTASK 51-21-10-211-001

- (2) Make sure that the repair surface is free from moisture, condensation, and rain.

E. Repair the Aerodur 3001 Basecoat Surface with Damage or Defects

SUBTASK 51-21-10-370-049

- (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.
 - 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 General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - b) Scotch-Brite Clean and Finish, very fine grade a, aluminum oxide.
 - c) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (c) Remove contaminants, if necessary.
 - 1) Solvent wipe the area.
 - 2) Power abrade with one of the very fine abrasive pads that follow.

NOTE: This is to remove solvent streaks.

 - a) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - b) Scotch-Brite Clean and Finish, very fine grade a, aluminum oxide.
 - c) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (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 BMS10-72, Type IX primer coating, C50085, if necessary.

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- (g) Re-apply the computer generated premasks, if necessary.
- (h) Re-apply the Aerodur 3001 Basecoat.
 - 1) Make sure that the Aerodur 3001 Basecoat completely covers the primer and primer overspray.

F. Repair the Aerodur 3002 Clearcoat Surface with Damage or Defects

SUBTASK 51-21-10-370-050

- (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 may 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 13084 White, Easy Clean Up (3M) with Finesse-It Natural Buffing Pad 81470 (3 inch, 3M) or Perfect-It-Wool Compounding Pad (9 inch, 3M).
 - 2) For the final buffing step, use Finesse-It Polish 51056 (purple, 3M) with Finesse-It-Pad 02627 (3 3/4 inch, orange foam, 3M) or Perfect-It-Foam Polishing Pad 05707 (8 inch, 3M).

SUBTASK 51-21-10-370-051

- (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.
 - a) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - b) Scotch-Brite Clean and Finish, very fine grade a, aluminum oxide.
 - c) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (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 General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - b) Scotch-Brite Clean and Finish, very fine grade a, aluminum oxide.
 - c) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (c) Remove sanding dust.
 - 1) Wipe the surface with a wiper, G50262 wet with water or a tack rag, G50123 or G99R17-82 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.

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- 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.

G. Prepare the CRES and Titanium Surfaces for Overcoating

SUBTASK 51-21-10-950-001

- (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 P-5 20V paper, 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 tape 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 51-21-10-300-003

- (2) Abrade the surface.

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- (a) Use progressively finer Bear Tex silicon carbide abrasive discs (or equivalent) or one of the abrasive pads that follow.
 - 1) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - 2) Scotch-Brite Clean and Finish, very fine grade a, aluminum oxide.
 - 3) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
- (b) Finish abrading with 220 grit or finer Bear Tex 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 oxide.
 - 3) Norton Bear-Tex 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.
 - <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.

H. Prepare Aluminum Surfaces for Overcoating

SUBTASK 51-21-10-300-004

- (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.

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- 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.

I. Apply the Chemical Conversion Coating

SUBTASK 51-21-10-950-002

- (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.
 - 7) Rubber.
 - 8) Windows.
 - a) Cover the windows with Protex P-5 10V paper, Protex P-5 20V paper, 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 tape 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).

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SUBTASK 51-21-10-950-003

- (2) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - (a) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape.
 - 1) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 702).

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

SUBTASK 51-21-10-910-001

- (3) Prepare the chemical conversion coating using the manufacturer's instructions.

SUBTASK 51-21-10-800-001

- (4) Make sure that the surface temperature is warmer than 55°F (13°C).

SUBTASK 51-21-10-800-002

- (5) Use one of the materials that follow.
 - (a) AC-131-CB metal conversion coating, C50119
 - (b) sol-gel coating, C50157

SUBTASK 51-21-10-800-003

- (6) Make sure that the application surface is dry.

SUBTASK 51-21-10-370-052

- (7) Apply the chemical conversion coating, do this task: BMS10-128 Coating Application, TASK 51-21-04-916-801.

SUBTASK 51-21-10-950-004

- (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.

J. Apply BMS10-72, Type IX, Primer

SUBTASK 51-21-10-950-005

- (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 P-5 20V paper, or 8216-2L masking material.

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- <1> Make sure that the cover extends over the forging.
- b) Use Tape - Masking, G50509, Scotch Brand No.471 tape, G02219, or PG-777 tape 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 51-21-10-950-006

- (2) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - (a) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape.
 - 1) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 702).
NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - (b) Cover the PG-777 solvent-resistant masking tape with Scotch 425 Aluminum Foil Tape, G00291.
 - 1) Shingle the aluminum tape from the plate up to the the blade tip until all of the masking tape is covered.
 - (c) Cover the gasket with PG-777 masking tape from the blade-to-plate gap to the edge of the gasket.

SUBTASK 51-21-10-800-004

- (3) Make sure that the temperature is between 65°F (18°C) and 95°F (35°C).

SUBTASK 51-21-10-800-005

- (4) Make sure that the relative humidity is less than 70%.

SUBTASK 51-21-10-800-006

- (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 drips 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 51-21-10-800-007

- (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 51-21-10-910-002

- (7) Mix the primer using the manufacturer's instructions.

SUBTASK 51-21-10-370-053

- (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.

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(c) Make sure that the dry film thickness of the non-chrome primer is 0.3 to 1.0 mil.

SUBTASK 51-21-10-800-008

(9) Dry the primer (BMS10-72, Type IX, Primer Dry Times/Table 702.

Table 702/51-21-10-993-816

MATERIAL DESIGNATION	DRY TIME TO RECOAT OR OVERCOAT ^{*[1]}		TIME	RECOMMENDED DRY TIME TO TAPE ^{*[2]}	
	Recoat/Overcoat Material	TEMPERATURE		TEMPERATURE	TIME
Akzo Nobel BMS10-72, Type IX, 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
PRC-DeSoto BMS10-72, Type IX, Composition NC ^{*[4]} Base: CA7502A Curing Solution: CA7502B Thinner: CA7502C	Topcoat and Aerodur 3001 Basecoat	65°F (18°C) to 89°F (32°C)	2-24 hours	77°F (25°C)	2.5 hours
		90°F (32°C) to 120°F (49°C)	1.5-24 hours		
	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]}		

*[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 the 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.

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- 2) Sand the surface.
 - a) Use a 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 General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - <d> Scotch-Brite Clean and Finish, very fine, grade a, aluminum oxide.
 - <e> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - <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> 100 grit or finer wet or dry type aluminum oxide paper.
 - 100 grit or finer Bear Tex silicon carbide abrasive disc.
 - <c> Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - <d> Scotch-Brite Clean and Finish, very fine, grade a, aluminum oxide.
 - <e> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - <f> 100 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 51-21-10-200-001

- (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.

K. Apply Computer Generated Premasks

SUBTASK 51-21-10-950-007

- (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.

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- 6) Sealant.
- 7) Rubber.
- 8) Windows.
 - a) Cover the windows with Protex P-5 10V paper, Protex P-5 20V paper, 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 tape 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 51-21-10-400-001

- (2) Apply the computer generated premasks.

L. Apply Aerodur 3001 Basecoat

SUBTASK 51-21-10-950-008

- (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 P-5 20V paper, 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 tape 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.

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- 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 51-21-10-950-009

- (2) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
- (a) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape.
 - 1) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 702).

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

SUBTASK 51-21-10-910-003

- (3) Mix the Aerodur 3001 Basecoat using the manufacturer's instructions.

SUBTASK 51-21-10-370-054

- (4) Apply the Aerodur 3001 Basecoat.
- (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 51-21-10-200-002

- (5) Make sure that the primer and Aerodur 3001 Basecoat thickness is less than 3.5 mils average thickness.
- (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 Basecoat is 6.0 mils.

SUBTASK 51-21-10-800-009

- (6) Cure the Aerodur 3001 Basecoat.
- (a) See Table 703 for recommended dry times.

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Table 703/51-21-10-993-807

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, Grade 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 maximum		
		> 100°F (38°C)	--	4 hours maximum		

*[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 51-21-10-400-002

- (7) If you will apply stencils or BMS10-26, Type IX or Type 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 Type XIII, markings can be applied before the application of Aerodur 3002 Clearcoat.

Table 704/51-21-10-993-808

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 Type XIII	65°F (18°C) to 95°F (35°C)	4 to 44 hours

M. Apply the Nonmetallic Special Visual Effects Coating

SUBTASK 51-21-10-950-010

- (1) Mask the areas adjacent to the work surface.
(a) Mask the areas that follow if they are adjacent to the work surface.

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- 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 P-5 20V paper, 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 tape 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 51-21-10-800-010

- (2) Make sure that the Aerodur 3001 Basecoat has cured for 10 minutes to 48 hours.

SUBTASK 51-21-10-910-004

- (3) Mix the ECL-G Series Nonmetallic Special Visual Effect coating using the manufacturer's instructions.

SUBTASK 51-21-10-800-011

- (4) Use electrostatic air 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 51-21-10-370-055

- (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 Topcoat).

NOTE: The dry film thickness measurement does not include primer thickness or thickness of the previously applied coatings.

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SUBTASK 51-21-10-800-012

- (6) Cure the ECL-G Series Nonmetallic Special Visual Effect coating.
 - (a) Use Table 705 for recommended dry times.

Table 705/51-21-10-993-809

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

N. Apply Stencils

SUBTASK 51-21-10-400-003

- (1) Apply stencils over the ECL-G Series Nonmetallic Special Visual Effect coating or over the Aerodur 3001 Basecoat.

SUBTASK 51-21-10-400-004

- (2) As an option, apply stencils to Aerodur 3001 Basecoat or to the Aerodur 3002 Clearcoat.

SUBTASK 51-21-10-800-013

- (3) Make sure that you do not use Aerodur 3001 Basecoat as a stencil over the Aerodur 3002 Clearcoat.

SUBTASK 51-21-10-400-005

- (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 51-21-10-400-006

- (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 706/51-21-10-993-810

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 can 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 51-21-10-400-007

- (6) Apply the stencils, do this task: Stencil Markings Installation, TASK 20-10-15-400-801.

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O. Apply BMS10-26 Markings

SUBTASK 51-21-10-400-008

- (1) As an option, apply BMS10-26 markings to Aerodur 3001 Basecoat or Aerodur 3002 Clearcoat.
 - (a) If you apply the BMS10-26 markings to Aerodur 3001 Basecoat, use BMS10-26, Type IX or Type XIII markings only.

SUBTASK 51-21-10-400-009

- (2) Apply the BMS10-26 decal markings as necessary, do this task: Pressure-Sensitive Decal Installation, TASK 20-10-12-400-801.

P. Apply BMS10-127, Type I, Grade F, Chemical Reactivator

SUBTASK 51-21-10-800-014

- (1) Make sure that the ECL-G Series Nonmetallic Special Visual Effect coating has dried for a minimum of 2 hours.

SUBTASK 51-21-10-950-011

- (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.
 - 7) Rubber.
 - 8) Windows.
 - a) Cover the windows with Protex P-5 10V paper, Protex P-5 20V paper, 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 tape 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 51-21-10-910-005

- (3) Mix the BMS10-127, Type I, Grade F, using the manufacturer's instructions.

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SUBTASK 51-21-10-800-015

- (4) Make sure that the application temperature and relative humidity are within the application limits in Figure 701.

SUBTASK 51-21-10-370-056

- (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.

SUBTASK 51-21-10-200-003

- (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 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 wet with methyl propyl ketone (MPK) solvent, B00666 or a 70/30 by volume MPK solvent, B00666/methyl ethyl ketone (MEK) solvent, B00148 mixture.
 - 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.

SUBTASK 51-21-10-800-016

- (7) Dry the BMS10-127, Type I, Grade F.
- (a) Use Table 707 for recommended dry times.

Table 707/51-21-10-993-815 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 24 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 51-21-10-800-017

- (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.

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- 1) Use a wiper wet with methyl propyl ketone (MPK) solvent, B00666 or a 70/30 by volume MPK solvent, B00666/methyl ethyl ketone (MEK) solvent, B00148 mixture.
- (b) Use a tack rag, G50123 or G99R17-22 tack rag, if necessary.
- (c) Re-apply the BMS10-127, Type I, Grade F.

Q. Apply Aerodur 3002 Clearcoat

SUBTASK 51-21-10-800-018

- (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 51-21-10-950-012

- (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.
 - a) Cover the windows with Protex P-5 10V paper, Protex P-5 20V paper, 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 tape 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 51-21-10-950-013

- (3) Do the steps that follow to cover the angle-of-attack (AOA) sensors.
 - (a) Cover the angle-of-attack sensors with PG-777 solvent-resistant masking tape.
 - 1) Apply PG-777 over the blade, plate, and blade-to-plate gap (Figure 702).

NOTE: This is to allow easier removal of 3M 425 aluminum tape.
 - (b) Cover the PG-777 solvent-resistant masking tape with Scotch 425 Aluminum Foil Tape, G00291.

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- 1) Shingle the aluminum tape 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 from the blade-to-plate gap to the edge of the gasket.

SUBTASK 51-21-10-910-006

- (4) Mix the Aerodur 3002 Clearcoat using the manufacturer's instructions.

SUBTASK 51-21-10-370-057

- (5) 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 to 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 of Aerodur 3002 Clearcoat thickness 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 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 A9056 activator to achieve good appearance.
 - 4) If you do the repair in cold weather or outdoors, use A9050 for small area application.
 - a) See Table 708 for the recommended dry time to tape.

SUBTASK 51-21-10-200-004

- (6) 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 followed 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 51-21-10-800-019

- (7) Dry and cure the Aerodur 3002 Clearcoat.

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(a) See Table 708 for the recommended dry times.

Table 708/51-21-10-993-811

MATERIAL DESIGNATION	DRY TIME TO OVERCOAT			RECOMMENDED DRY TIME TO TAPE ^[1]			
	MATERIAL	TEMPERATURE	TIME	MATERIAL	TEMPERATURE	RELATIVE HUMIDITY	TIME
Akzo Nobel Clearcoat Base: 3002G002 Curing Solution: CS6003 Activator Composition: A9055, A9056 ^[2] A9052 ^[3] A9050 ^[4]	ECL-G Series 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) 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 5 hours
					75 ±5°F (24 ±3°C)	--	11 hours
		Heat Cure with A9055: T > 100°F (38°C) 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 had no visible effects 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 of HVLP spray gun.

*[4] Use A9050 for outdoor rework only.

*[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 to 6 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 709/51-21-10-993-812

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]

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Table 709/51-21-10-993-812 (Continued)

CLEARCOAT/CLEARCOAT ACTIVATOR	CLEARCOAT CURE TIME BEFORE FLIGHT (HOURS)		
Aerodur 3002G00002/A9055 Clearcoat	48	--	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 710/51-21-10-993-813

COATING MATERIAL	TEMPERATURE	TIME *[1]
A9052	120°F (49°C)	4-24 hours
A9056		4-24 hours
A9055		6-24 hours

*[1] The maximum allowable cure time to stencil over Aerodur 3002 Clearcoat can be increased from 24 hours to 48 hours if you apply BMS10-127, Type I, Grade F, over the Aerodur 3002 Clearcoat.

(d) See Table 711 for the recommended cure times before decal application.

Table 711/51-21-10-993-814

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
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.

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R. Final Appearance Requirements

SUBTASK 51-21-10-200-005

- (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 51-21-10-700-001

- (2) Make sure that you do not do cohesion tests on the Aerodur 3001 Basecoat layer. Do adhesion test on the Aerodur 3002 Clearcoat layer.

SUBTASK 51-21-10-200-006

- (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 51-21-10-200-007

- (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** —————

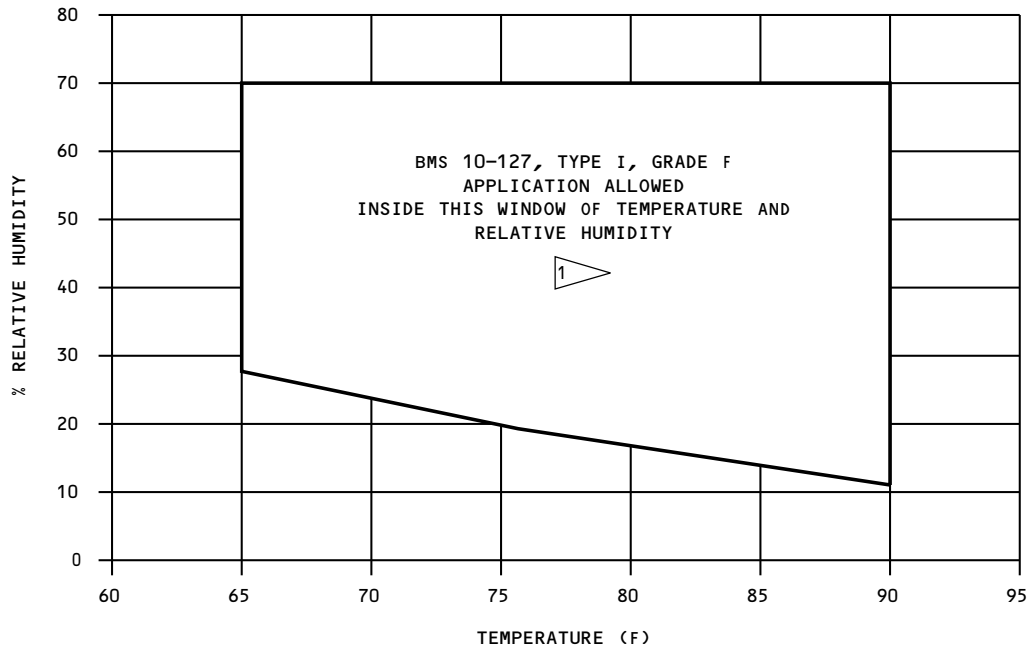
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BMS 10-127, TYPE I, GRADE F APPLICATION WINDOW

 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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BMS10-127, Type I, Grade F, Application Window
Figure 701/51-21-10-990-801

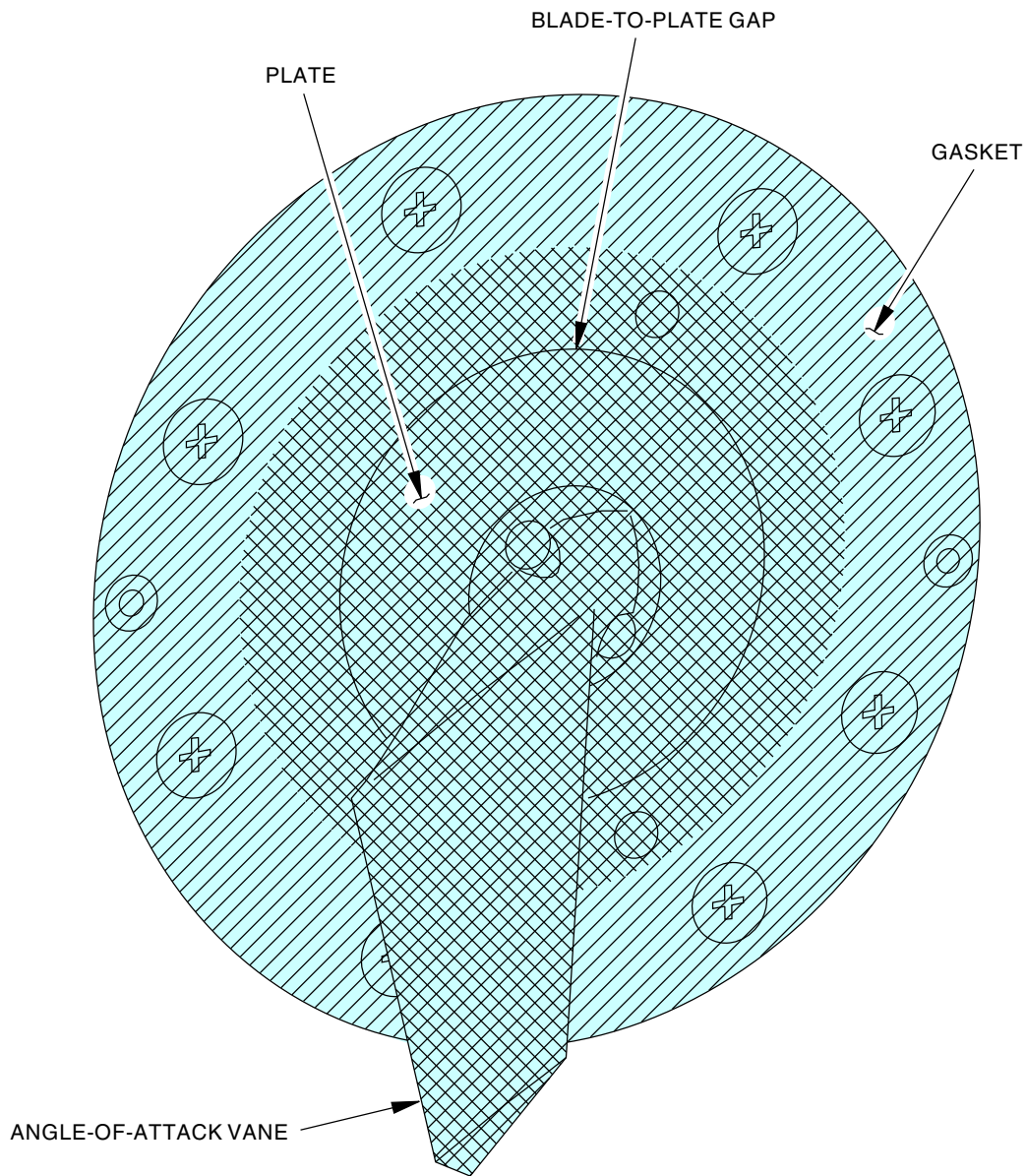
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MASK AREA FOR TEMPORARY PROTECTIVE COATING REMOVAL, FUSELAGE CLEANING AND APPLICATION OF CHEMICAL CONVERSION COATING, PRIMER, AND PAINT.



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

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Angle-of-Attack Vane Tape Application Area
Figure 702/51-21-10-990-802

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TASK 51-21-10-250-801

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 51-21-10-100-002

(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 51-21-10-820-001

(2) Calibrate the Instrument.

NOTE: Different test equipment manufacturers follow different methods of calibration or adjustment. Verify 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 verify calibration or test blocks bearing calibrated nonconductive coatings that are traceable to a suitable National Institute of Standards and Technology (NIST) or similar 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 covering the expected range of coating thickness.

NOTE: Verify the test equipment at regular intervals to prevent an inaccurate reading.

SUBTASK 51-21-10-250-001

(3) Measure the paint thickness as follows:

- (a) Inspect the test equipment probe and area to be measured are clean and free of debris.
- (b) Take multiple readings on the 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 structure and the curvature limit that would cause an abnormal measurement change.

NOTE: This prevents incorrect indications on the test equipment.

- (d) Take multiple readings on the on the coated surface to establish the paint thickness measurement.

SUBTASK 51-21-10-970-001

(4) Report the information as follows (if necessary):

- (a) Instrument used, serial number.
- (b) Range, mean average of the thickness indications.

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- (c) Record each indication if necessary.

————— END OF TASK —————

TASK 51-21-10-270-801

6. Decorative Exterior Paint System Thickness Measurement (Ultrasonic Testing Method)

A. Procedure (Ultrasonic Method)

SUBTASK 51-21-10-100-003

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. Thus the area must be smooth.

SUBTASK 51-21-10-840-002

- (2) Calibrate the Instrument.

NOTE: Different test equipment manufacturers follow different methods of calibration or adjustment. Verify 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 regarding 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 may be used.
- (b) Use nonconductive thickness shims to verify calibration or test blocks bearing calibrated nonconductive coatings that are traceable to a suitable National Institute of Standards and Technology (NIST) or similar 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.

NOTE: Verify the test equipment at regular intervals to prevent an inaccurate reading.

SUBTASK 51-21-10-270-001

- (3) Measure the paint thickness as follows:
- (a) Inspect the test equipment probe and area to be measured are clean and free of debris.
 - (b) Apply couplant to the area.
 - (c) Place the instrument's probe flat on the surface and apply constant pressure. Hold the probe steady during the measurement.
 - (d) Take multiple readings on the on the bare surface (areas free from paint) to establish the base reference.

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- (e) Identify the minimum distance the test equipment must be from edges, fasteners, ridges or other structure and the curvature limit that would cause an abnormal measurement change.

NOTE: This prevents incorrect indications on the test equipment.

- (f) Take multiple readings on the on the coated surface to establish the paint thickness measurement.
- (g) Remove the couplant used in the process.

SUBTASK 51-21-10-970-002

- (4) Report the information 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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HEAT AND CORROSION RESISTANT FINISH - CLEANING/PAINTING

1. General

- A. This procedure has these tasks:
- (1) Repair the Heat and Corrosion Resistant Coating BMS14-4, TYPE I
 - (2) Repair the Heat and Corrosion Resistant Coating BMS14-4, TYPE II
 - (3) Repair the Heat and Corrosion Resistant Coating BMS14-4, TYPE III
- 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 51-21-11-370-801

2. Repair the BMS14-4 Type I Corrosion Resistant Coating

A. References

Reference	Title
51-21-10-300-801	Decorative Exterior Paint System Repair (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
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
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
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
C00250	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Elevated Temperature Cure)	BMS14-4 Type I
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054
G02222	Abrasive - Dry, Blasting	BAC5748

D. Prepare the Surface

SUBTASK 51-21-11-120-001

- (1) Dry abrasive blast the damaged area to bare, clean metal with a clean (preferable new) 80,

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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.
- (c) Put covers on 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 51-21-11-120-002

- (2) Use abrasive cloth, B00102 or abrasive mat, G00251 to abrade (sand) the area to feather the edges of the damaged coating.
 - (a) Also this is to scuff an area approximately 1/2 inch in width around the edge of the bare metal.

SUBTASK 51-21-11-100-002



DO NOT GET SOLVENTS IN YOUR MOUTH, OR 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, FLAMES, AND TEMPERATURES ABOVE THE FLASH POINT. SOLVENTS ARE A POISONOUS AND FLAMMABLE MATERIAL WHICH CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (3) Clean the surface with one of these applicable solvents:
 - (a) solvent, B00083.
 - (b) solvent, B00148.
 - (c) solvent, B00074.
 - (d) alcohol, B00068.
 - (e) alcohol, B00130.

E. Apply the coating, C00250

NOTE: Use continuously stirred spray painting equipment which is free from organic contaminants. Coat the parts with the BMS14-4, Type I material until you get a equal, smooth, wet coating.

SUBTASK 51-21-11-390-001

- (1) Apply the coating, C00250 with a spray paint spray gun with interchangeable nozzles, STD-1133 or a paint brush, STD-1080.

- (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) Apply the coating to the areas of the part that are not easy to spray paint with a stencil gun, or an airbrush, or a hand brush.
 - 1) Follow this immediately by spray coating the remaining areas of the part with the spray gun.

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- (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.
- (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.
 - 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.
 - 4) You must see no lumps or runs in the cured coating.
 - 5) The total coating must be 0.0015 to 0.0035 inches 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 Repair, TASK 51-21-10-300-801).

————— END OF TASK —————

TASK 51-21-11-370-802

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
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
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
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
C00251	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Room Temperature Catalytic Cure)	BMS14-4 Type II

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C. Prepare the Surface

SUBTASK 51-21-11-120-003

- (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 51-21-11-100-001



CAUTION

DO NOT GET SOLVENTS IN YOUR MOUTH, OR 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, FLAMES, AND TEMPERATURES ABOVE THE FLASH POINT. SOLVENTS ARE A POISONOUS AND FLAMMABLE MATERIAL WHICH CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Clean the surface with one of these applicable solvents:
 - (a) solvent, B00083.
 - (b) solvent, B00148.
 - (c) solvent, B00074.
 - (d) alcohol, B00068.
 - (e) alcohol, B00130.

D. Apply the coating, C00251

SUBTASK 51-21-11-390-002

- (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.

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- 2) You must see no lumps or runs in the cured coating.
- 3) The total coating must be 0.0015 to 0.0035 inches thick.

NOTE: When is not at the specified thickness, you must apply more coats to get the specified thickness.

————— **END OF TASK** —————

TASK 51-21-11-370-803

4. Repair the BMS14-4 Type III Corrosion Resistant Coating

A. References

Reference	Title
51-21-10-300-801	Decorative Exterior Paint System Repair (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
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
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
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
C00250	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Elevated Temperature Cure)	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 51-21-11-120-004

- (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.

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SUBTASK 51-21-11-120-005

- (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 1/2 inch in width around the edge of the bare metal.

SUBTASK 51-21-11-100-003



CAUTION

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- (3) Clean the surface with one of these applicable solvents:
 - (a) solvent, B00083.
 - (b) solvent, B00148.
 - (c) solvent, B00074.
 - (d) alcohol, B00068.
 - (e) alcohol, B00130.

E. Apply the coating, C00939

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 51-21-11-390-003

- (1) Apply the uncatalyzed coating, C00939 with a spray paint spray gun with interchangeable nozzles, STD-1133 or a paint brush, STD-1080.
 - (a) Apply the coating to the surface with one of the steps that follow:
 - 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) Apply the coating to the areas of the part that are not easy to spray paint with a stencil gun, an airbrush, or a hand brush.
 - 1) Follow this immediately by spray coating the remaining areas of the part with the spray gun.
 - (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.

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(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.
- 4) You must see no lumps or runs in the cured coating.
- 5) The total coating must be 0.0015 to 0.0035 inches 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.

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 Repair, TASK 51-21-10-300-801).

———— **END OF TASK** ————

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MOISTURE-RESISTANT SURFACE TREATMENT - CLEANING/PAINTING

1. General

- A. This procedure has this task:
 - (1) Apply the Moisture Resistant Surface Finish.
- B. This procedure is for the inspar skin panels only.
 - (1) The surfaces of these panels are cleaned, sealed, primed, and the teflon coat applied to prevent damage from moisture.
- C. Apply the moisture resistant surface finish on the panels while they are on the airplane.
 - (1) It is recommended that you do this surface treatment procedure in a hangar.
- D. There are four steps in the procedure to apply the finish.
 - (1) Prepare the surface to apply the finish.
 - (2) Apply the sealant, A00247.
 - (3) Apply the primer, C00175.
 - (4) Apply the coating, C00304.

TASK 51-21-12-390-801

2. Apply the Moisture Resistant Surface Finish

(Figure 701)

A. References

Reference	Title
20-30-87-910-801	Final Cleaning of Composites Prior to Painting (Series 87) (P/B 201)
20-30-98-910-801	Cleaning of Specific Polymerics (Series 98) (P/B 201)
51-21-10-300-801	Decorative Exterior Paint System Repair (P/B 701)
51-24-13-370-801	Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I (P/B 701)

B. Tools/Equipment

Reference	Description
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00153	Solvent - Toluene, Nitration	JAN-T-171 Grade A
B01007	Solvent - Final Cleaning Of Composites Prior To Painting - Series 87	
B01018	Solvent - Cleaning Of Specific Polymerics - Series 98	
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79 Type III

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(Continued)

Reference	Description	Specification
C00304	Coating - Teflon Filled, Non Decorative, Sprayable Material	BMS10-86 Type I
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

D. Prepare the Surface

SUBTASK 51-21-12-370-001

- (1) Do the steps that follow to prepare carbon epoxy and fiberglass/epoxy surfaces that have the teflon coating:
 - (a) For the panels that have water in the panel material, but without damage, do the step that follows:
 - 1) Apply thermal blankets or heat lamps at 125 °F (maximum) to dry the panels.



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- (b) Clean the panel surface with a cheesecloth cotton wiper, G00034 that is moist with Series 98 solvent, B01018 (Cleaning of Specific Polymeric (Series 98), TASK 20-30-98-910-801).
- (c) Abrade (sand) the area to feather the edges of the damaged coating with abrasive cloth, B00102 320 grit or finer.

NOTE: Make sure the substrate of the panel does not show.

- 1) Make sure you remove the gloss from the panel surface.



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- (d) Clean the panel surface again with a clean cheesecloth cotton wiper, G00034 that is moist with Series 98 solvent, B01018 (Cleaning of Specific Polymeric (Series 98), TASK 20-30-98-910-801).
 - 1) Fully dry the panel surface with a dry cheesecloth cotton wiper, G00034.
- (e) Apply masking Scotch Flatback Masking Tape 250, G00270 on the adjacent areas.

NOTE: Make sure the surface temperature is between 60-80 °F before you apply the moisture resistant surface finish.

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SUBTASK 51-21-12-370-002

- (2) Do the steps that follow to prepare bare carbon epoxy and fiberglass/epoxy panels without the teflon coating:



WARNING

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- (a) Clean the surface with a cheesecloth cotton wiper, G00034 that is moist with Series 87 solvent, B01007 (TASK 20-30-87-910-801).
- (b) Abrade (sand) the surface with abrasive cloth, B00102 150 grit or finer.



WARNING

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- (c) Wipe the surface again with a cheesecloth cotton wiper, G00034 that is damp with a specified solvent.
 - 1) Continue to clean the area with a clean cheese cotton wiper, G00034 until there is no sign of the items that follow on the cheesecloth:

NOTE: Make sure the surface is clean and dry.

 - a) grease.
 - b) oil.
 - c) dirt.
 - d) other contamination.
- (d) Do the steps that follow to clean the area immediately before you apply the sealant.

NOTE: Make sure you clean an area that is larger than the area necessary to apply the sealant.

 - 1) Make sure you use a clean cheese cotton wiper, G00034 that is moist with the specified solvent.

NOTE: Before the solvent dries, wipe the area again with a clean, dry cheesecloth.
 - 2) Make sure all of the solvent is removed from the area with a dry, clean cheesecloth cotton wiper, G00034 before the solvent dries.

SUBTASK 51-21-12-390-001

- (3) Apply sealant, A00247 with the steps that follow:
- (a) Follow the manufactures specifications to mix the BMS5-95.

NOTE: The application time of the mixed BMS5-95 is approximately 1-1/2 hours at 75 °F.
 - (b) Thin the mixedsealant, A00247 for spraying as follows:

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- 1) Add a 20 to 30 percent by volume of a solution of 1 part to 1 part solvent, B00148 and solvent, B00153 to the mixed sealant, A00247.

- a) Fully mix thesealant, A00247 and the specified thinning solvent solution together.

- c) Use a spray paint spray gun with interchangeable nozzles, STD-1133 at 50 psig (minimum) to apply two layers of sealant to the external surface of the panel.

NOTE: Apply the 2 layers with continuous passes of the spray gun.

NOTE: The two layers of the sealant must have a dry thickness of 2-3 mils (0.002 to 0.003 inches).

- d) Let the sealant dry for 2 hours minimum at a temperature of 60 °F to 80 °F before the primer is applied.

SUBTASK 51-21-12-370-003

- (4) To apply the primer, C00175, do this task: (Decorative Exterior Paint System Repair, TASK 51-21-10-300-801).

SUBTASK 51-21-12-370-004

- (5) To apply the coating, C00304, do this task: (Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I, TASK 51-24-13-370-801).

SUBTASK 51-21-12-950-001

- (6) Remove the masking tape from the adjacent surfaces.

———— **END OF TASK** ————

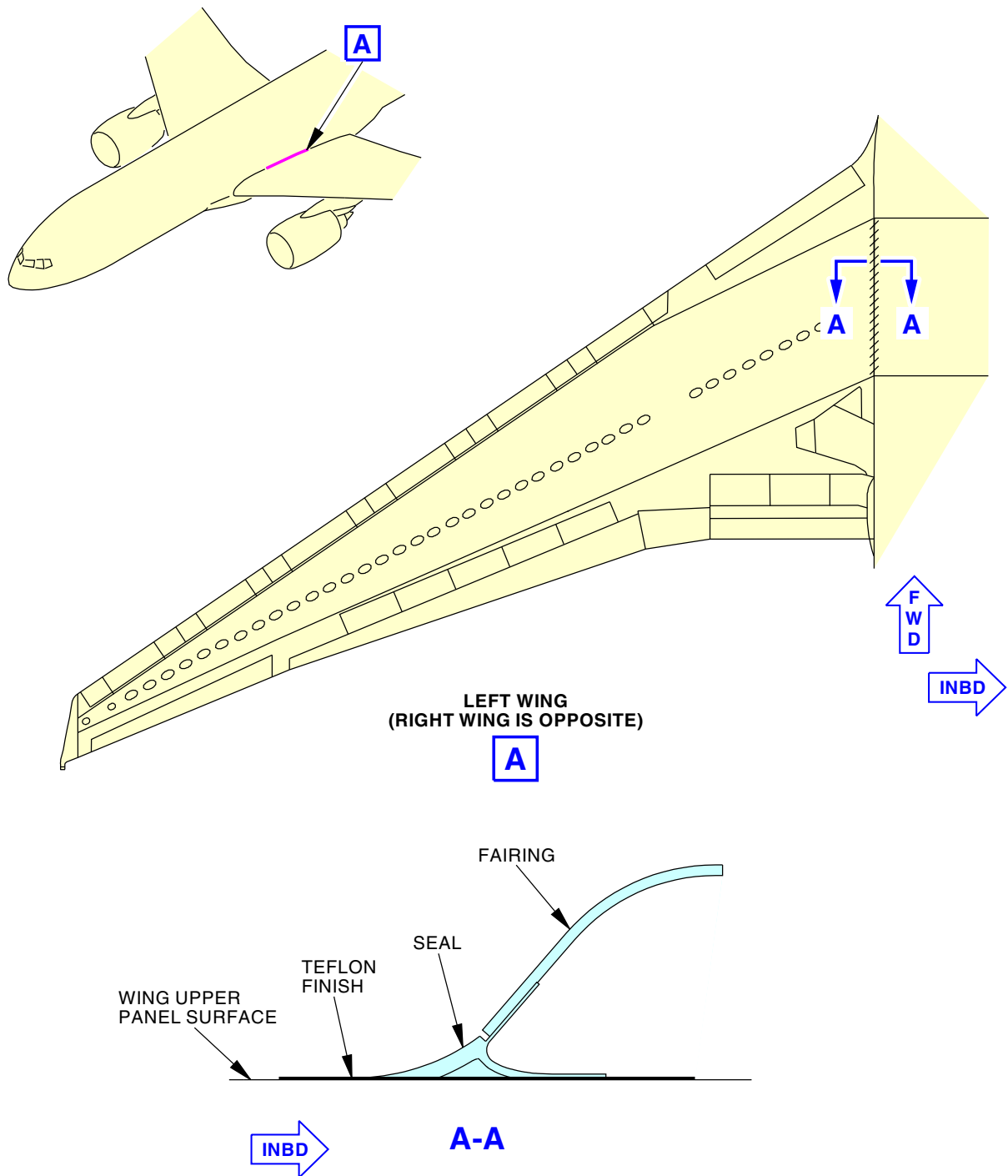
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Moisture-Resistant Surface Treatment
Figure 701/51-21-12-990-801 (Sheet 1 of 2)

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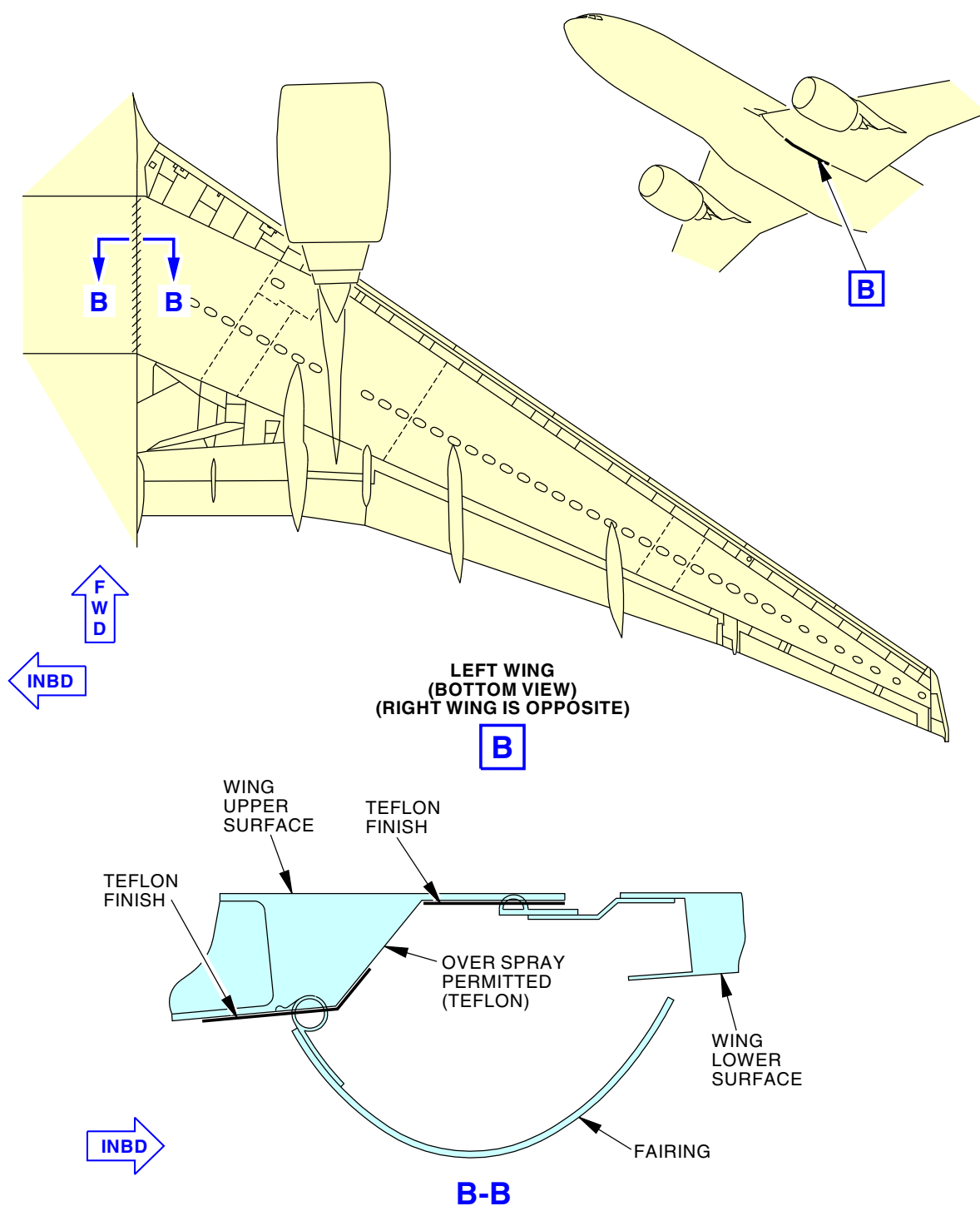
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Moisture-Resistant Surface Treatment
Figure 701/51-21-12-990-801 (Sheet 2 of 2)

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HYDRAULIC-FLUID-RESISTANT FINISH - CLEANING/PAINTING

1. General

A. This procedure has one task:

- (1) Hydraulic-fluid-resistant finish application

TASK 51-24-01-390-801

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 an application time, and gives general information about the catalyst and base compound.

B. **Consumable Materials**

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
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)	BMS15-5 Class A
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054

C. **Prepare the Surface**

SUBTASK 51-24-01-120-001

- (1) Rub the high gloss plastic or painted surface lightly with abrasive mat, G00251 or abrasive cloth, B00102.

NOTE: Do not rub the painted surface around decals when the hydraulic fluid resistant coating is used to seal the edges.

SUBTASK 51-24-01-140-001

- (2) Clean the surface as follows:
 - (a) For decals, placards, and stencils, apply cleaner, B00402 with a cotton wiper, G00034.
 - 1) Rub the area until it is clean.
 - 2) Dry the area with a clean cotton wiper, G00034.

NOTE: Make sure the area is clean.

 - 3) Fully clean the area again if it is necessary. - (b) For plastic (thermoplastic) surfaces, apply a cleaner with a cotton wiper, G00034.

NOTE: When a solvent is necessary, use only a solvent that is approved for plastics.

 - 1) Rub the area until it is fully clean.
 - 2) Dry the area with a clean cotton wiper, G00034.

NOTE: Make sure the area is clean.

 - 3) Clean the area again if it is not fully clean.
- (c) For all other surfaces:

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- 1) Fully clean the surface with a clean cotton wiper, G00034 that is moist with solvent, B00184.
- 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 51-24-01-350-001

- (3) Repair all the damaged hydraulic fluid resistant finish coating, B00571.



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (b) Fully clean the area again.

D. Prepare (Mix) the Hydraulic Fluid Resistant Finish

SUBTASK 51-24-01-390-001



CAUTION

USE CLEAN SOLVENT RESISTANT CONTAINERS WHEN YOU MIX THE HYDRAULIC FLUID RESISTANT FINISH. RECOMMENDED CONTAINERS ARE METAL, POLYETHYLENE AND POLYPROPYLENE. 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 to 2 parts (by volume) of the base.
 - (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 an 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.

NOTE: Keep the materials that were not mixed, at a temperature between 40°F (4.4°C) and 90°F (32.2°C). You can keep the materials that were not mixed for 12 months from the date of manufacture.

- 1) Write the date and the hour when the compound was mixed,
- 2) Write the date and hour when the application time ends.

E. Apply the Hydraulic Fluid Resistant Finish

SUBTASK 51-24-01-350-002

- (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.

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- (c) Apply the hydraulic fluid resistant finish with a spray gun or brush until the finish is 1 mil (0.001 in.) to 2 mils (0.002 in.) thick.

NOTE: 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 0.25 in. (0.64 cm) overlap of sealant to the decal.
a) A 0.25 in. (0.64 cm) 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 51-24-01-390-002

- (2) Air dry the coating for 14 days minimum at 70°F (21.1°C) to 90°F (32.2°C) to achieve a full cure condition.
- (3) The minimum time prior to outdoor exposure shall be as follows:
- (a) When the 683-3-2 base component is used, the minimum time prior to outdoor exposure is 4 hours at 70°F (21.1°C) to 90°F (32.2°C).
- (b) When the 683-3-20 base component is used, the minimum time prior to outdoor exposure is 30 minutes at 70°F (21.1°C) to 90°F (32.2°C).

———— **END OF TASK** ————

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CONDUCTIVE COATING FOR EXTERNAL SURFACES - CLEANING/PAINTING

1. General

- A. This procedure has this task.
- (1) Apply conductive coating to specified external surfaces.
 - (2) There are separate procedures given for three Types of BMS10-21. Be sure to choose the correct type for your application.
- 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 51-24-02-370-802

2. Apply The BMS 10-21 Type II Conductive Coating To Specified External Surfaces

A. References

Reference	Title
51-21-02-100-802	Cleaning and Preparation of Internal and External Plastic Surfaces (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 #: 260 Supplier: 55026 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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(Continued)

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	
C00841	Coating - Anti-Static Coating	BMS10-21 Type II
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class 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 51-24-02-100-002



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: (Cleaning and Preparation of Internal and External Plastic Surfaces, TASK 51-21-02-100-802).

SUBTASK 51-24-02-370-005

- (2) Prepare the BMS 10–21 Type II 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 51-24-02-370-006

- (3) Apply the BMS 10–21 Type II 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 preferred 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 51-24-02-370-007

- (4) Cure the BMS 10–21 Type II 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.
 - 1) The flash-off time necessary before the higher temperature cure is 15 minutes minimum at 75 ±15°F (24 ±8°C).

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- 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).

SUBTASK 51-24-02-700-004

- (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 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 1.00 ±0.25 in. (25.40 ±6.35 mm) apart as shown in (Figure 702).
 - 3) Make a record of the value of the resistivity shown on the multimeter.
 - a) The minimum permitted resistivity is no less than 1 Megohm/square.
 - b) The maximum permitted resistivity is 100 Megohms/square.

SUBTASK 51-24-02-700-005

- (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 less than 1 Megohm/square or more than 100 Megohms/square.

- (a) Make sure 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) The minimum permitted resistivity is no less than 1 Megohm/square.
 - 2) The maximum permitted resistivity is 100 Megohms/square.
- (f) Remove the temporary fasteners from the surface.

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SUBTASK 51-24-02-700-006

- (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 surface resistivity measurement probe 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 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) The measured value multiplied by 10 gives the value of resistivity in ohms/square.
 - 6) Remove the 3M 1181 copper foil tape, G50630 from the surface.

SUBTASK 51-24-02-370-008

- (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.
- (e) Do the steps to cure the conductive coating.
- (f) Do the steps to measure the resistivity of the new layer of conductive coating.

SUBTASK 51-24-02-370-009

- (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 resistivity.
 - (c) If the resistivity is more then 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.
 - 5) Do the steps to cure the conductive coating.
 - 6) Do the steps to measure the resistivity of the new layer of conductive coating.

————— END OF TASK —————

TASK 51-24-02-370-801

3. Apply The BMS 10-21 Type III Conductive Coating to Specified External Surfaces

A. References

Reference	Title
51-21-02-100-802	Cleaning and Preparation of Internal and External Plastic Surfaces (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 #: 260 Supplier: 55026 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)	BMS15-5 Class 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)	

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D. Procedure

SUBTASK 51-24-02-100-001



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: (Cleaning and Preparation of Internal and External Plastic Surfaces, TASK 51-21-02-100-802).

SUBTASK 51-24-02-370-001



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 BMS 10-21 Type III 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 51-24-02-370-002

- (3) Apply the BMS 10-21 Type III 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 preferred 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 51-24-02-370-003

- (4) Cure the BMS 10-21 Type III 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).

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- (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.

- 1) The flash-off time necessary before the higher temperature cure is 15 minutes minimum at 75 ±15°F (24 ±8°C).
- 2) The cool-off time necessary before subsequent processing the cure is 15 minutes minimum at 75 ±15°F (24 ±8°C).

SUBTASK 51-24-02-700-001

- (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 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 1.00 ±0.25 in. (25.40 ±6.35 mm) apart as shown in (Figure 702).
 - 3) Make a record of the value of the resistivity shown on the multimeter.
 - a) The maximum permitted resistivity is 300,000 Ohms/Square.

SUBTASK 51-24-02-700-002

- (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 more than 300,000 ohms/square.

- (a) Make sure 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) The maximum permitted resistivity is 300,000 Ohms/Square.
- (f) Remove the temporary fasteners from the surface.

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SUBTASK 51-24-02-700-003

- (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 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) The measured value multiplied by 10 gives the value of resistivity in ohms/square.
- 6) Remove the 3M 1181 copper foil tape, G50630 from the surface.

SUBTASK 51-24-02-370-004

- (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 alternate.

- (b) Remove the remaining particles with a clean cotton wiper, G00034 that is moist with solvent, B00083.

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- (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.
- (e) Do the steps to cure the conductive coating.
- (f) Do the steps to measure the resistivity of the new layer of conductive coating.

———— **END OF TASK** ————

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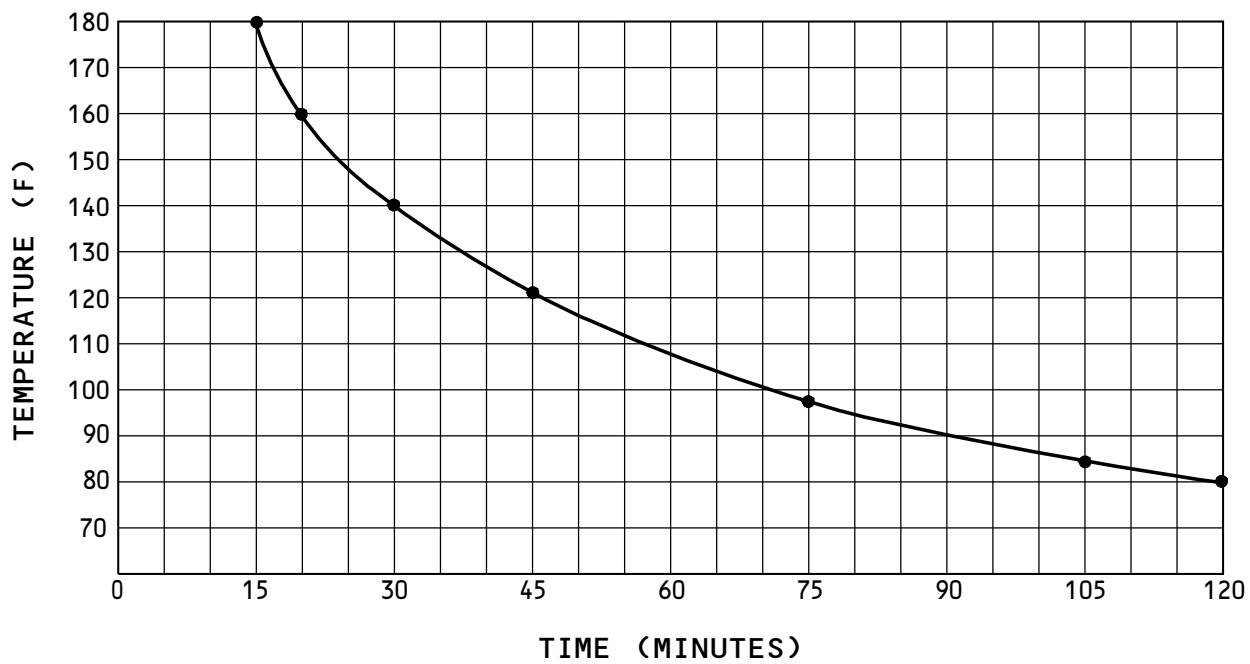
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E55596 S0006424266_V1

Conductive Coating Increased Cure Times
Figure 701/51-24-02-990-801

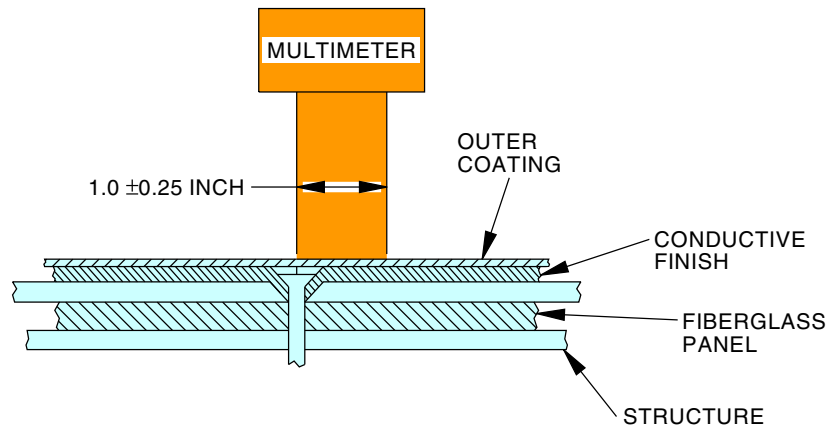
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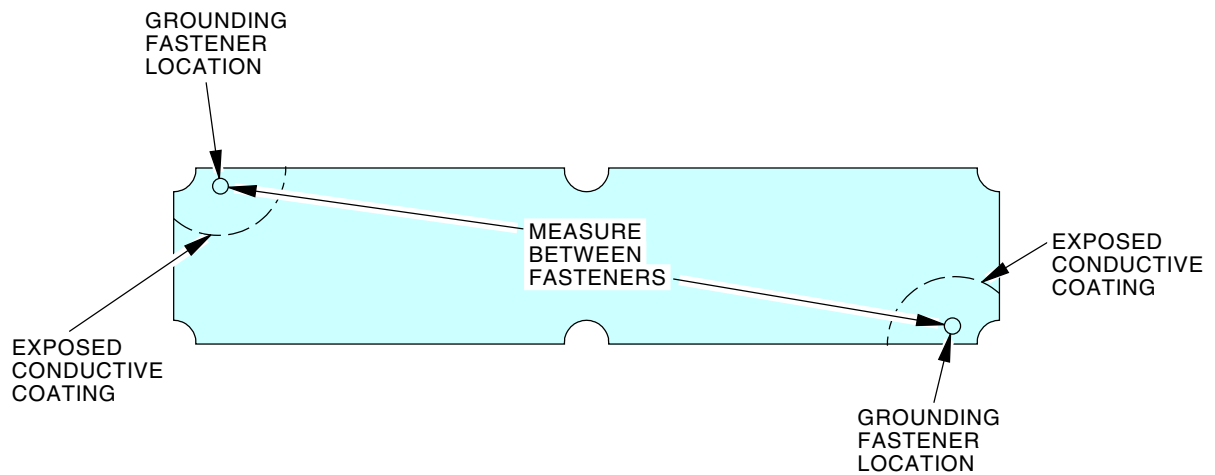
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**RESISTANCE MEASUREMENT
OF CONDUCTIVE FINISH**



**RESISTANCE MEASUREMENT
OF CONDUCTIVE FINISH
WITH EXPOSED FASTENERS**

E54521 S0006424267_V2

Resistance Measurement of Conductive Finish
Figure 702/51-24-02-990-802

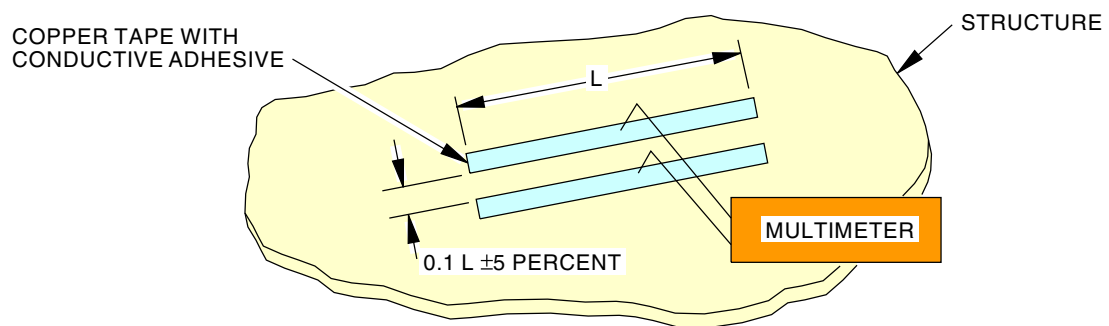
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E55630 S0006424268_V3

Measuring Resistance of Conductive Finish by the Ohms Per Square Procedure
Figure 703/51-24-02-990-803

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TASK 51-24-02-370-803

4. Apply The BMS 10-21 Type IV Conductive Coating To Specified External Surfaces

A. References

Reference	Title
51-21-02-100-802	Cleaning and Preparation of Internal and External Plastic Surfaces (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 #: 260 Supplier: 55026 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)	BMS15-5 Class 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)	

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D. Procedure

SUBTASK 51-24-02-100-003

 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: (Cleaning and Preparation of Internal and External Plastic Surfaces, TASK 51-21-02-100-802).

SUBTASK 51-24-02-370-010

- (2) Prepare the BMS 10-21 Type IV 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 51-24-02-370-011

- (3) Apply the BMS 10-21 Type IV 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 preferred 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 51-24-02-370-012

- (4) Cure the BMS 10-21 Type IV 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).

SUBTASK 51-24-02-700-007

- (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.

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- (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 1.00 $\pm$ 0.25 in. (25.40 $\pm$ 6.35 mm) apart as shown in (Figure 702).
 - 3) Make a record of the value of the resistivity shown on the multimeter.
 - a) The minimum permitted resistivity is no less than 1 Megohm/square.
 - b) The maximum permitted resistivity is 100 Megohms/square.

SUBTASK 51-24-02-700-008

- (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 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) The minimum permitted resistivity is no less than 1 Megohm/square.
 - 2) The maximum permitted resistivity is 100 Megohms/square.
 - (f) Remove the temporary fasteners from the surface.

SUBTASK 51-24-02-700-009

- (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).
- (a) If the surface resistivity measurement probe, SPL-7885 surface resistivity measurement probe 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 the digital/analog multimeter, COM-1793.

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- 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) The measured value multiplied by 10 gives the value of resistivity in ohms/square.
- 6) Remove the 3M 1181 copper foil tape, G50630 from the surface.

SUBTASK 51-24-02-370-013

- (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 alternate.

- (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.
- (e) Do the steps to cure the conductive coating.
- (f) Do the steps to measure the resistivity of the new layer of conductive coating.

SUBTASK 51-24-02-370-014

- (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 resistivity.
- (c) If the resistivity is more then 100 Megohms/Square, do the steps that follow:

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- 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.
- 5) Do the steps to cure the conductive coating.
- 6) Do the steps to measure the resistivity of the new layer of conductive coating.

———— **END OF TASK** ————

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NON-REFLECTIVE COATING - CLEANING/PAINTING

1. General

A. This procedure has two tasks:

- (1) Apply the Non-Reflective Coating for localized repair.
- (2) Apply the Non-Reflective Coating (Non-Glare Finish) per BAC5755, Type 16.

TASK 51-24-04-370-803

2. Non-Reflective Coating Localized Repair

A. References

Reference	Title
20-30-85 P/B 201	AIRPLANE STRUCTURE CLEANING SOLVENTS (Series 85) - MAINTENANCE PRACTICES
51-21-02-100-801	Clean the Surface to be Painted (P/B 701)

B. Consumable Materials

Reference	Description	Specification
C50143	Coating - Topcoat, Alexit Suede 404-74	BAC5755 Type 16
G02408	Abrasive - Paper, #50 to #400 grit	

C. Location Zones

Zone	Area
200	Upper Half of Fuselage

D. Procedure

SUBTASK 51-24-04-370-012

- (1) Solvent wipe the surface AMM PAGEBLOCK 20-30-85/201.
- (2) Use #50 to #400 grit abrasive paper, G02408 to remove the shiny finish.
NOTE: Use a 240 grit or finer abrasive paper.
- (3) Do this task: Clean the Surface to be Painted, TASK 51-21-02-100-801

SUBTASK 51-24-04-370-009

- (4) 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).
 - (c) Add thinner (62) - 0.5 to 1.5 parts (by volume).
NOTE: If the topcoat is 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 51-24-04-370-010

- (5) Apply the Alexit Suede 404-74 Topcoat coating, C50143.
NOTE: To prevent overspray you can mask adjacent surfaces.

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- (a) Apply Topcoat coating 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.

- (b) Optional-apply Topcoat coating with a brush.

SUBTASK 51-24-04-370-011

- (6) 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** —————

TASK 51-24-04-370-802

3. Non-Reflective Coating Application (Figure 701)

A. References

Reference	Title
51-21-02-100-801	Clean the Surface to be Painted (P/B 701)

B. Consumable Materials

Reference	Description	Specification
B00094	Solvent - Toluene	A-A-59107
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00151	Solvent - Methyl Isobutyl Ketone	ASTM D1153
C50117	911-P4 primer	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 51-24-04-160-001

- (1) Do this task: (Clean the Surface to be Painted, TASK 51-21-02-100-801).

SUBTASK 51-24-04-370-003

- (2) Mix the primer, C50117.
(a) Base - 2 parts (by volume)

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- (b) Thinner - 1 part (by volume)

NOTE: Use a mixture of two solvents to make the base thin. The mixture must have an equal quantity of each solvent. solvent, B00151, solvent, B00094, and solvent, B00148 are satisfactory solvents. solvent, B00094 has the longest flash time and solvent, B00151 has the shortest flash time.

SUBTASK 51-24-04-370-004

- (3) Apply primer, C50117 on the surface with a spray gun.

NOTE: For rivet and screw heads, brush apply primer and avoid application to surfaces with topcoat.

SUBTASK 51-24-04-370-005

- (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 51-24-04-370-006

- (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)
- (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 51-24-04-370-007

- (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.



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SUBTASK 51-24-04-370-008

- (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** ————

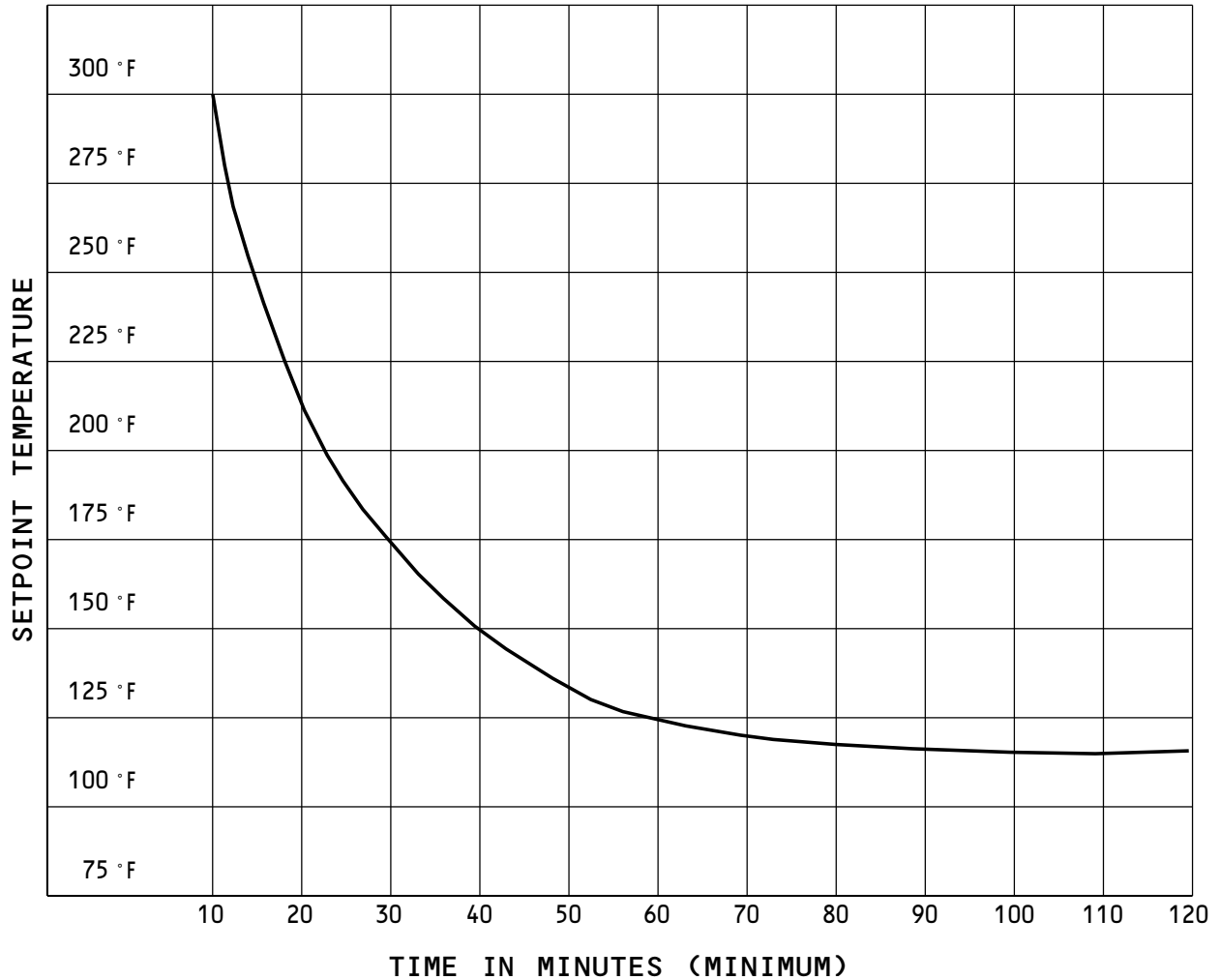
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Topcoat Cure Chart - BAC5755
Figure 701/51-24-04-990-802

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NON-SKID FINISH - CLEANING/PAINTING

1. General

- A. This procedure contains these 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.
 - (4) BMS10-79.
- C. Before the Non-Skid surface is applied, clean the surface and reactivate it.
- D. The total dry layer weight of the finish must be 4 to 6 ounces per square yard, which includes the primer.
- E. Some of the recommended equipment that can be used to apply the Overwing Emergency Walkway Coating is as follows. You can get equivalent equipment.
 - (1) High Volume Low Pressure (HLVP) employing gravity feed or pressure assist cup spray gun with a 0.070 inch fluid nozzle or larger.
- F. Some of the recommended equipment that can be used to apply the Epoxy Walkway Coating 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.
- G. 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.
- H. Do not mix resin materials that are almost the same, or materials from different suppliers.
- I. The preferred temperature to apply the non-skid material is 50 °F to 100 °F at a relative humidity less than 85 percent.

TASK 51-24-05-370-802

2. Apply the Overwing Emergency Walkway Coating

A. References

Reference	Title
20-30-85-910-801	Final Cleaning of Solvent Sensitive Organic Coatings Prior to Painting (Series 85) (P/B 201)
51-21-02-370-801	Prepare the Surface to be Painted (P/B 701)

B. Tools/Equipment

Reference	Description
STD-1133	Gun - Spray, Paint, with Interchangeable Nozzles

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C. Consumable Materials

Reference	Description	Specification
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	
B00151	Solvent - Methyl Isobutyl Ketone	ASTM D1153
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
C50018	Coating - Semigloss, Urethane, White (Desothane HS) - CA8022/B7022	BAC5705 Type 1
C50019	Coating - Flat, Urethane, Black (Desothane HS) - CA8012/B701	BAC5705 Type 1
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class 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	

D. Prepare the Surface

SUBTASK 51-24-05-110-001



WARNING

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- (1) Do this step 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 a tack rag, G50123.

SUBTASK 51-24-05-100-001

- (2) Do this step 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.
 - (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 a tack rag, G50123 to remove remaining particles.

SUBTASK 51-24-05-370-008

- (3) If the primer is removed and aluminum shows, do this task: do this task: (Prepare the Surface to be Painted, TASK 51-21-02-370-801).

SUBTASK 51-24-05-950-001

- (4) Apply Scotch Flatback Masking Tape 250, G00270 on the adjacent areas.

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E. Apply the Non-Skid Finish

SUBTASK 51-24-05-370-009

- (1) Prepare the non-skid finish.
 - (a) Mix the 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 (0.28-0.32) pounds (13 (12-14) kilograms of Navajo Brand compound, G50124 to one gallon (3.8 liters) of mixed coating.

NOTE: Addition of pumice to the black coating is optional when the black coating is applied directly over the white coating containing pumice.
 - (c) Hand swirl mixture just before application.
 - 1) This is to make sure the mixture is applied evenly.

SUBTASK 51-24-05-370-010

- (2) Apply the pumice and enamel mixture with a spray paint spray gun with interchangeable nozzles, STD-1133 as follows:
 - (a) Apply one or more layers of the nonskid finish making sure that the dry thickness is between 0.005 to 0.007 inches (0.127-0.177 mm) (6 to 8 ounces (0.170-0.226 kg) for each square yard (8361 centimeters square).

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 or 10 minutes at 70 °F or more.



CAUTION

ANY MASKING TAPE ADJACENT TO THE OVERWING EMERGENCY EXIT WALKWAY COATING EDGE SHOULD BE PULLED BEFORE THE COATING IS THOROUGHLY DRY SO THAT REMOVAL OF THE COATING IS AVOIDED.

- (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.

F. Repair the Nonskid Surface (Small Damaged Areas)

SUBTASK 51-24-05-160-002

- (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. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (d) Clean the surface with a clean cotton wiper, G00034 that is moist with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (e) Use a clean cotton wiper, G00034 to make sure the surface is fully dry.
- (f) Use a tack rag, G50123 if it is necessary to remove unwanted materials.

SUBTASK 51-24-05-370-011

- (2) To apply nonskid finish, do this task: Apply the Overwing Emergency Walkway Coating.

END OF TASK

TASK 51-24-05-370-801

3. Apply the Epoxy Walkway Coating to the Bulk Cargo Entryway

A. References

Reference	Title
20-30-85-910-801	Final Cleaning of Solvent Sensitive Organic Coatings Prior to Painting (Series 85) (P/B 201)
51-21-02-370-801	Prepare the Surface to be Painted (P/B 701)
51-21-10-300-801	Decorative Exterior Paint System Repair (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	
B00166	Abrasive - pumice	
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
C00260	Coating - Chemical And Solvent Resistant Finish, Epoxy Resin Enamel	BMS10-11 Type II
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50123	Rag - Epoxy Coated Tack Rag - C-60	

D. Prepare the Surface

SUBTASK 51-24-05-370-001

- (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 51-21-02-370-801).
 - (a) Clean and reactivate the primer.

E. Apply the Non-Skid Finish (Recommended Procedure)

SUBTASK 51-24-05-370-002

- (1) Prepare the non-skid finish.

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- (a) Mix the enamel coating, C00260 with the catalyst, do this task: (Decorative Exterior Paint System Repair, TASK 51-21-10-300-801).

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 one pound of No. 1-1/2 pumice abrasive, B00166 to one gallon 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 it stays mixed while it is being applied to the surface.

SUBTASK 51-24-05-370-003

- (2) Apply the pumice and enamel mixture with a spray paint spray gun with interchangeable nozzles, STD-1133 as follows:

NOTE: The dry film weight must be 4 to 6 ounces per square yard.

- (a) Apply a cross coat of one layer of the pumice and enamel mixture.

NOTE: Make sure 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 the (coating, C00260 epoxy enamel (without pumice) with the applicable spray equipment.
- 1) Let the layers of enamel dry for 24 hours (minimum) 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 ±5 °F.

- (c) Carefully remove the masking tape before the layers are fully dry.

F. Apply the non-skid finish (Optional Procedure)

SUBTASK 51-24-05-370-004

- (1) Prepare the non-skid finish, do this task: (Prepare the Surface to be Painted, TASK 51-21-02-370-801).

- (a) Clean and reactivate the primer.

SUBTASK 51-24-05-370-005

- (2) Mix the enamel coating, C00260 with the catalyst, do this task: (Decorative Exterior Paint System Repair, TASK 51-21-10-300-801).

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 the coating, C00260 with a spray gun 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 grit pumice abrasive, B00166 with an abrasive blast gun.
- (e) Remove the loose pumice.

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- 1) Tilt the panel, if it is possible, to let the loose pumice fall off or use compressed air (10 psi maximum pressure).
- (f) Apply 2 wet layers of the coating, C00260 epoxy enamel on the pumice grit with a spray paint spray gun with interchangeable nozzles, STD-1133.
 - 1) Air dry at a minimum of 50 F (or 10 C) for a minimum of 30 minutes prior to recoating.
 - 2) Air dry at a minimum of 70 F (or 18 C) for a minimum of 24 hours prior to service.

NOTE: Any masking tape adjacent to the coating edge should be removed before the coating is ready for service to prevent removal of the coating.

G. Repair the Nonskid Surface (Small Damaged Areas)

SUBTASK 51-24-05-160-003

- (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.



WARNING

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. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (d) Clean the surface with a clean cotton wiper, G00034 that is moist with Series 85 solvent, B01005 (TASK 20-30-85-910-801).
- (e) Use a clean cotton wiper, G00034 to make sure the surface is fully dry.
- (f) Use a tack rag, G50123 if it is necessary to remove unwanted materials.

SUBTASK 51-24-05-370-007

- (2) To apply the nonskid finish, do this task: Apply the Epoxy Walkway Coating to the Bulk Cargo Entryway.

————— END OF TASK —————

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HIGH-TEMPERATURE COATING (TITANIUM) - CLEANING/PAINTING

1. General

- A. This procedure contains two tasks:
- (1) Apply B2000 high temperature coating (titanium)
 - (2) Apply BMS 10-82 coating.

TASK 51-24-07-300-801

2. Apply B2000 High Temperature Coating

A. Consumable Materials

Reference	Description	Specification
B00007	Cleaner - Oakite 61B	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G01061	Water - Distilled	
G02418	Water - De-ionized	

B. Prepare the Titanium Parts

NOTE: You can clean the titanium part, with the sand blast equipment, while the parts are installed on the airplane. If the titanium parts are removed from the airplane, you can use paint strippers to clean the parts.

SUBTASK 51-24-07-150-001



DO NOT SAND BLAST TITANIUM DUCTS. IF YOU SANDBLAST THE TITANIUM DUCTING, YOU CAN CAUSE PERMANENT DAMAGE.

- (1) Use the sand blast equipment to remove contamination and high temperature finish from the titanium parts.
 - (a) Make sure that no sand particles get on the adjacent surfaces.

SUBTASK 51-24-07-900-001

- (2) Replace all parts that have metal corrosion.

NOTE: An etched metallic surface is a sign that the surface is corroded.

SUBTASK 51-24-07-000-001

- (3) If you must use strippers to remove the high temperature finishes from the titanium parts, remove the titanium parts from the airplane.

SUBTASK 51-24-07-150-002

- (4) Do these steps to remove hydraulic fluid contamination from the titanium parts:

NOTE: A light glossy brown layer, a black layer that is not shiny, or a bare surface are signs of Skydrol contamination. Titanium parts in areas with possible contamination to hydraulic fluid are covered with a flat, black inorganic finish. Make sure you know the difference between the black inorganic finish and the matt black layer.

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- (a) Clean the parts with a cotton wiper, G00034 or an aluminum wool that is moist with Oakite 61B cleaner, B00007.

NOTE: If you use the aluminum wool, make sure it is sufficiently coarse to make the surface not shiny. Do not clean a shiny or polished surface.

- (b) Flush the parts with water. Use a sponge, G00116 to remove unwanted material.
- (c) Dry the parts with a clean dry cotton wiper, G00034.
- (d) Clean the parts again until you get a water-break-free surface.

NOTE: A water break-free surface will have a continuous layer of water for 30 seconds.

SUBTASK 51-24-07-000-002

- (5) Do these steps to remove all the remaining unwanted material:

- (a) Fully flush the area with water.

NOTE: Flush the area with high pressure water if it is possible.

- (b) Clean the area with a cotton wiper, G00034 that is moist with Stoddard solvent.
 - (c) Flush the area with water until you get a water-break-free surface.

NOTE: A water break-free surface will have a continuous layer of water for 30 seconds.

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

SUBTASK 51-24-07-000-003

- (6) Do these steps to remove high temperature finish and contamination from titanium parts that were removed from the airplane (stripping procedure):



WARNING

DO NOT TOUCH OR HOLD TURCO 4338 WITHOUT THE NECESSARY PROTECTION. WEAR GOGGLES AND HEAVY RUBBER GLOVES. USE MILD STEEL CONTAINERS TO KEEP THE TURCO 4338. IF TURCO 4338 POWDER IS MIXED WITH ORGANIC SOLVENTS SUCH AS ACETONE OR METHYL ETHYL KETONE, AN EXPLOSION CAN OCCUR.

- (a) Refer to the manufacturer's instruction to prepare the Turco 4338 stripper.
 - (b) Put the parts in the stripper solution for 30 to 40 minutes.
 - (c) Remove the parts from the stripper solution and fully flush them with water.
 - (d) Use an air water spray to remove all unwanted material.
 - (e) Clean the parts again until the black finish is removed.
 - (f) Replace the parts that have metal corrosion.

C. Apply B-2000 High Temperature Coating

SUBTASK 51-24-07-370-001



CAUTION

DO NOT SHAKE THE HIGH TEMPERATURE FINISH. IF YOU SHAKE THE HIGH TEMPERATURE FINISH, AIR BUBBLES CAN OCCUR IN THE FINISH AND CAUSE DAMAGE TO THE FINISH WHEN IT IS APPLIED.

- (1) Slowly add distilled water, G01061, or de-ionized water, G02418 to the high temperature finish. Refer to the manufacturer's instructions. Mix the mixture continuously when you add distilled water, G01061, or de-ionized water, G02418.

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SUBTASK 51-24-07-370-005



CAUTION

DO NOT APPLY B-2000 COATING WHERE THERE ARE OTHER SOLVENTS IN THE AIR. IT WILL CAUSE FILM CRATERING AND AN UNSATISFACTORY BOND.

- (2) Use a brush or spray gun to apply the high temperature coating.

NOTE: Use brushes that have soft, high quality bristles.

SUBTASK 51-24-07-750-001

- (3) Make sure the finish is 0.8 to 1.2 mils (0.0008 to 0.0012 inch) thick when it is dry.

SUBTASK 51-24-07-370-006

- (4) Let the finish dry for 1 hour (minimum) at 70 °F to 90 °F.

SUBTASK 51-24-07-880-001

- (5) Put the parts in an oven for 1 hour (minimum) at 350 ± 25 °F.

NOTE: If the finish is not fully dry when you put the parts in the oven, damage to the finish can occur. Let the finish dry for more time if it is necessary.

— END OF TASK —

TASK 51-24-07-300-802

3. BMS10-82 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

B. Prepare the Titanium Parts

SUBTASK 51-24-07-840-001



CAUTION

MAKE SURE THAT THE TITANIUM SURFACE IS CLEAN. DO NOT LET SALT DEPOSITS FALL ON THE SURFACE. DO NOT TOUCH THE SURFACE. USE CLEAN WHITE COTTON GLOVES. SALT DEPOSITS AND FINGERPRINTS CAN CAUSE DAMAGE TO THE SURFACE.

- (1) Make sure you use clean gloves when you hold the titanium parts.

SUBTASK 51-24-07-160-001

- (2) Examine all the parts for hydraulic fluid contamination.

SUBTASK 51-24-07-160-002

- (3) Use a Scotch-Brite sheet that is moist with solvent, B00184, or solvent, B00094 to remove unwanted material.

NOTE: You must clean and dry the parts before you apply the coating, C00314.

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C. Apply BMS 10-82 Coating

SUBTASK 51-24-07-370-002



DO NOT GET BMS 10-82 AND SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR 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 HEAT. THESE MATERIALS ARE POISONOUS AND FLAMMABLE AND CAUSE INJURY OR DAMAGE.

- (1) Fully mix the coating, C00314 manually.

SUBTASK 51-24-07-370-003

- (2) Use a spray gun to apply the coating.

NOTE: Apply sufficient coats to produce a transparent red, smooth, layer of film that is free from sags, runs and wrinkles. Let each layer of finish dry for 5 to 10 minutes. Recommended air atomizing pressure is 10 to 25 pounds.

SUBTASK 51-24-07-370-004

- (3) Bake the parts in an oven for 15 minutes at a temperature of $880 \pm 40^{\circ}\text{F}$ ($471 \pm 22^{\circ}\text{C}$).

NOTE: Use a well ventilated oven to permit removal of smoke and fumes. The coating after baking must be a tightly adherent yellow gold film which is smooth, uniform and free from runs, sags, blisters, pinholes, wrinkles, or other unsatisfactory surface.

SUBTASK 51-24-07-550-001

- (4) Prevent the parts from damage and contamination until installation.

———— **END OF TASK** ————

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CORROSION-INHIBITING COMPOUND - CLEANING/PAINTING

1. General

- A. This procedure contains these five tasks:
- (1) Prepare the Surface to Apply the Corrosion Inhibiting Compound
 - (2) Apply the Corrosion Inhibiting Compound
 - (3) Cure the Corrosion Inhibiting Compound
 - (4) Repair the Corrosion Inhibiting Compound
 - (5) Removal of the Corrosion Inhibiting Compound
- B. The function of the BMS3-23 Corrosion Inhibiting Compound is to go into the mating structure to make sure a thin layer stays. This film displaces moisture for corrosion prevention. The application of BMS3-23 to open areas is not as important. When available, Boeing prefers the use of BMS3-35 over BMS3-23.
- C. The function of the BMS3-26 Corrosion Inhibiting Compound is used in areas of the airframe subject to severe corrosive environments. It can be applied to painted and unpainted surfaces.
- D. The function of the BMS3-29 Corrosion Inhibiting Compound is to go into the mated structures and to make a protective overcoat on open areas. The primary purpose of BMS3-29 is for use in areas of high surface moisture (i.e. bilge areas).
- E. The function of the BMS3-35 Corrosion Inhibiting Compound combines good penetration properties into inaccessible areas and provides a tack free film. The primary purpose of BMS3-35 is for touch up of areas and general corrosion prevention. When available, Boeing prefers the use of BMS3-35 over BMS3-23.
- F. Corrosion inhibiting compound is translucent in nature and gives superior protection from corrosion when it is applied in the specification limits.
- G. Corrosion inhibiting compound is not necessary in the areas where titanium structures and aluminum structures touch (interface).
- H. Electrical connectors must be taped with masking tape to prevent contamination of electrical contacts. Overspray is permitted on joined connectors.
- (1) Do not apply corrosion inhibiting compound directly to electrical components (i.e. electrical motors or switches).
- I. Make sure you do not apply too much corrosion inhibiting compound. Too much compound will make it not easy for in-service inspections of the surface structures below the compound.

TASK 51-24-09-620-801

2. Prepare the Surface to Apply the 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
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

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Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G50305	Sheeting - Plastic, Polyethylene	

B. Procedure

SUBTASK 51-24-09-620-001

- (1) Prepare the surface to apply the corrosion inhibiting compound.
 - (a) Clean the surface with one of the steps that follow:
 - 1) Clean the surface with a vacuum cleaner.
 - 2) Use a cloth (cotton wiper, G00034) to wipe the surface to remove moisture or other foreign materials.



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, B00316.
 - 2) solvent, B00074.
 - 3) solvent, B00093.

SUBTASK 51-24-09-600-001

- (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 51-24-09-600-002



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 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.

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SUBTASK 51-24-09-280-001

(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 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.

- 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 51-24-09-600-003

(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.



DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- 1) Make sure that airplane electrical wires are protected from damage by drills, metal shavings and other contamination.
- (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.

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- (k) High visual items such as doorways, hatches, and window frames.

— END OF TASK —

TASK 51-24-09-620-802

3. Apply the Corrosion Inhibiting Compound

(Table 702, Table 701)

A. General



WARNING

THE BMS3-23, BMS3-26, BMS3-29 AND BMS3-35 ARE POISONOUS 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 POISONOUS, 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.



WARNING

ALIPHATIC NAPHTHA IS THE RECOMMENDED SOLVENT AND IS ALSO TOXIC. WHEN NAPHTHA IS USED 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 these water-displacing corrosion preventive compounds. It is recommended that you apply the compound regularly.

NOTE: Each airline must know its aircraft's environment, the corrosion inhibiting compound 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.



CAUTION

KEEP BMS3-23 AWAY FROM SURFACES THAT CAN BE 150°F (66°C) OR MORE DURING USE. THE DRY FILM FLASH POINT IS 500°F (260°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
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
C00755	Compound - Organic Corrosion Inhibiting, Heavy Duty	BMS3-26
C00915	Compound - Organic Corrosion Inhibiting, Advanced	BMS3-29
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

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(Continued)

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50071	Compound - Corrosion Inhibiting, Heavy Duty	BMS3-35
G50346	Compound - Corrosion Preventive	BMS3-26 Type 2

C. Procedure

SUBTASK 51-24-09-620-002

- (1) Apply the corrosion inhibiting compound.

NOTE: BMS 3-35 is the preferred corrosion inhibiting compound in place of BMS 3-23, when available.

- (a) Clean surface with solvent, B00316.
(b) Apply the corrosion inhibiting compound to a thickness as shown in (Table 701).

Table 701/51-24-09-993-801 Coating Thickness

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, BMS3-29, and BMS3-26 Type I 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 and 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 protection coat.
- (i) When BMS3-29 is specified as an optional material to BMS3-23, use the same specifications as for the BMS3-29.

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- (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 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. This is 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.
- 3) Do not remove the masking tape or applicable covers until the corrosion inhibiting compound has dried sufficiently. This will make sure 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.

- 1) If contamination occurs along a seam, the blanket must be replaced.
- 2) For contamination in all other areas, remove the corrosion inhibiting compound with solvent, B00316 or Limonene solvent, B00634.

NOTE: When you cannot remove the contamination, you must replace the blanket.

————— **END OF TASK** —————

TASK 51-24-09-620-803

4. Cure the 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 the Corrosion Inhibiting Compound

SUBTASK 51-24-09-620-003

- (1) Sufficiently cure the corrosion inhibiting compound.

NOTE: This is to make sure 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.

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- 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 702) that follows will give you the approximate cure times.

NOTE: Follow the manufacturers instruction for the applicable cure times.

Table 702/51-24-09-993-802 Approximate Cure Times

Approximate Cure Times	
Compound	Time
BMS3-23 ^{*[1]}	1 Hour
BMS3-26, Type I	6 Hours
BMS3-26, Type II	6 Hours
BMS3-29	3 Hours
BMS3-35	1 Hour

*[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 51-24-09-620-804

5. Repair of the Corrosion Inhibiting Compound

A. General

- (1) The limits of the damage or bubbles in the BMS3-23, BMS3-26 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 BMS3-26, 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 permitted will be the same as that necessary for the 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 51-24-09-620-004

- (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.

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- (b) Apply the applicable corrosion inhibiting compound, do this task: (Apply the Corrosion Inhibiting Compound, TASK 51-24-09-620-802).
- (c) Cure the corrosion inhibiting compound, do this task: (Cure the Corrosion Inhibiting Compound, TASK 51-24-09-620-803).

———— **END OF TASK** ————

TASK 51-24-09-160-801

6. Removal of the 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)	BMS15-5 Class A

B. Procedure

SUBTASK 51-24-09-620-005



WARNING

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 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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PRIMER - CLEANING/PAINTING

TASK 51-24-10-370-801

1. BMS10-79 Primer Application

A. General

- (1) This procedure has steps to do the following.
 - (a) Prepare to apply BMS10-79 primer.
 - (b) Apply BMS10-79 primer.
 - (c) Minor rework.
 - (d) Major rework.
- (2) Boeing recommends that you apply BMS10-79 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 BMS10-79 primer outside the recommended temperature range.

B. References

Reference	Title
51-21-02-100-802	Cleaning and Preparation of Internal and External Plastic Surfaces (P/B 701)
51-21-04 P/B 701	CHEMICAL CONVERSION COATING - CLEANING/PAINTING
51-21-04-620-801	Alodine 600, 1000, 1200, and 1200S Coating Application (P/B 701)

C. Consumable Materials

Reference	Description	Specification
B01004	Solvent - Final Cleaning Of Metal Prior To Painting - Series 84	
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
B01007	Solvent - Final Cleaning Of Composites Prior To Painting - Series 87	
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	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)	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50262	Wiper - Cleaning	BMS15-5

D. Prepare to Apply the BMS10-79 Primer

SUBTASK 51-24-10-370-001

- (1) Prepare unsealed anodized aluminum with the steps that follow.
 - (a) Remove small amounts of non-oily contamination with the steps that follow.
 - 1) Use a wiper, G50262 wet with water.
 - 2) Dry the surface with a clean, dry wiper, G50262.
 - (b) Remove small amounts of oily contamination with the steps that follow.

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- 1) Solvent clean the surface.
 - a) Use a wiper, G50262 wet with Series 84 solvent, B01004.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
- <1> Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-10-370-002

- (2) 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 Series 84 solvent, B01004.
 - 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 51-24-10-370-003

- (3) Prepare surfaces with BMS10-79, Grade D that was applied in the last 12 hours, do the steps that follow.
 - (a) If the surface is contaminated, solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediate wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-10-370-004

- (4) Prepare surfaces with BMS10-79, Grade D that was applied more than 12 hours ago, do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediate wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
 - (b) Sand the surface to remove gloss with a 220-grit or finer silicone-free abrasive paper.
 - (c) Solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediate wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-10-370-005

- (5) Prepare surfaces coated with BMS10-11 Type I, Grade A or E; BMS10-20 Type II, Grade A or D; BMS10-79 Type II or Type III, Grade A; or BMS10-103 Type I Grade A or E in the last 48 hours; or surfaces coated with BMS10-11 Type I, Grade B in the last 24 hours.
 - (a) Solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediate wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-10-370-006

- (6) Prepare surfaces coated with BMS10-11 Type I, Grade A or E; BMS10-20 Type II, Grade A or D; BMS10-79 Type II or Type III Grade A; or BMS10-103 Type I Grade A or E more than 48 hours ago; or surfaces coated with BMS10-11 Type I, Grade B more than 24 hours ago.

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- (a) Solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediate wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
- (b) Sand the surface with 320-grit or finer, silicone-free abrasive paper.
- (c) Solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediate wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-10-950-001

- (7) Mask all areas that will not be coated with BMS10-79 primer.

E. Apply the BMS10-79 Primer

SUBTASK 51-24-10-370-007

- (1) Mix the BMS10-79 Type II primer, C00319 or BMS10-79 Type III primer, C00175 using the manufacturer's instructions.

SUBTASK 51-24-10-370-008

- (2) If you use thinned primer, spray apply the primer, C00319 or primer, C00175.

NOTE: Un-thinned primer can be applied with brush application but it is limited to small surface areas.

SUBTASK 51-24-10-200-001

- (3) Make sure that the dry film thickness is in accordance with Table 701.

Table 701/51-24-10-993-801

SUBSTRATE	NUMBER OF COATS	MINIMUM (mil)	MAXIMUM (mil)	MAXIMUM FOR LOCALIZED AREAS OF REWORK, OVERLAP, AND OVERSPRAY (mil)
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.

- (a) If the dry film thickness exceeds the limits in Table 701, do the steps that follow.
 - 1) Sand the areas where the dry film thickness exceeds the limits in Table 701 with one of the abrasives that follow.
 - a) 220-grit or finer, silicone-free abrasive.
 - b) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - c) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - d) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - e) Sand the surface until the thickness is within the limits in Table 701.
 - 2) Solvent clean the area.

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- a) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - b) Immediately wipe the surface with a clean, dry wiper, G50262.
- <1> Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-10-580-002

- (4) Cure the primer, see Table 702.

Table 702/51-24-10-993-802 BMS10-79 Cure Requirements

MATERIAL	MINIMUM DRY TIME BEFORE RECOATING OR OVERCOATING		MINIMUM DRY TIME BEFORE MASKING		MINIMUM DRY TIME BEFORE HANDLING		MAXIMUM DRY TIME BEFORE RECOATING OR OVERCOATING	
	TEMP	TIME	TEMP	TIME	TEMP	TIME	TEMP	TIME
BMS10-79, Type II, Grade A	70°F (21°C) to 100°F (38°C)	2 hours	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)	48 hours*[2]
BMS10-79 Type II and Type III, Grade D	60°F (16°C) to 100°F (38°C)	60 minutes	See Figure 702	See Figure 702	See Figure 702	See Figure 702	60°F (16°C) to 120°F (49°C)*[1]	12 hours*[2]
BMS10-79, Type III, Grade A	60°F (16°C) to 100°F (38°C)	15 minutes	See Figure 701	See Figure 701	See Figure 701	See Figure 701	60°F (16°C) to 100°F (38°C)	48 hours*[2]
							101°F (38°C) to 140°F (60°C)	60 minutes*[2]
							141°F (61°C) to 180°F (82°C)	30 minutes*[2]

*[1] If the primer is exposed un-topcoated to temperatures warmer than 120°F (49°C), reactivate the primer.

*[2] If the maximum dry time has been exceeded, reactivate the primer.

F. Minor Rework

SUBTASK 51-24-10-370-009

- (1) For areas that have minor damage and the substrate is not exposed, do the steps that follow.
 - (a) Solvent clean the area.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - 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, silicone-free abrasive.
 - 2) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - 3) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - 4) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (c) Solvent clean the area to remove sanding dust.

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- 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
- 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - 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 51-24-10-370-010

- (2) For areas with minor damage and the composite or plastic substrate is exposed, do the steps that follow.
 - (a) Solvent clean the area.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - 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, silicone-free abrasive.
 - 2) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - 3) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - 4) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (c) Solvent clean the area to remove sanding dust.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - 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 51-24-10-370-011

- (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) Solvent clean the area.
 - a) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <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, silicone-free abrasive.
 - b) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - c) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - d) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - 3) Solvent clean the area to remove sanding dust.
 - a) Use a wiper, G50262 wet with Series 85 solvent, B01005.

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- b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <1> Make sure that the solvent does not dry on the surface.
- 4) Apply the conversion coating (CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-04/701).
- 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.
- (b) For anodized areas that are less than 5% of the required coating area for the part, do the steps that follow.
 - 1) Solvent clean the area.
 - a) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <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, silicone-free abrasive.
 - b) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - c) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - d) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - 3) Solvent clean the area to remove sanding dust.
 - a) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <1> Make sure that the solvent does not dry on the surface.
 - 4) Apply Bonderite M-CR 600 Aero coating, C00862 to bare areas (Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801).
 - 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.

G. Major Rework

SUBTASK 51-24-10-370-012

- (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, silicone-free abrasive.
 - 2) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - 3) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - 4) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
- (b) Solvent clean the area.
 - 1) Use a wiper, G50262 wet with Series 87 solvent, B01007.

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- 2) Immediately wipe the surface with a clean, dry wiper, G50262.
 - 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 51-21-02-100-802).
- (d) Immediately before applying the primer, wipe the surface with a tack rag, G50123.
- (e) Apply the primer.
- (f) Dry and cure the primer.

SUBTASK 51-24-10-370-013

- (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, silicone-free abrasive.
 - 2) Scotch-Brite General Purpose Hand Pad 7447, very fine, aluminum oxide.
 - 3) Scotch-Brite Clean and Finish, very fine, Grade A, aluminum oxide.
 - 4) Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - (b) Solvent clean the area.
 - 1) Use a wiper, G50262 wet with Series 84 solvent, B01004.
 - 2) Immediately wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
 - (c) Prepare the surface, if necessary.
 - (d) Immediately before applying the primer, wipe the surface with a tack rag, G50123.
 - (e) Apply the primer.
 - (f) Dry and cure the primer.

———— **END OF TASK** ————

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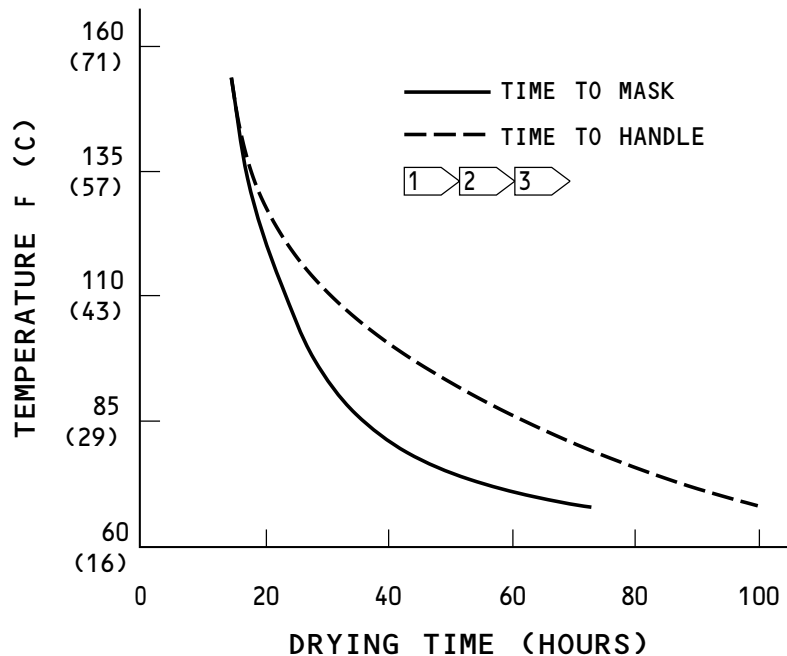
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- 1 ALLOW A MINIMUM OF 30 MINUTES FOR SOLVENT EVAPORATION PRIOR TO FORCE DRYING.
- 2 FL 2 WITH THE EXCEPTION OF BONDED ASSEMBLIES, THE PRIMER MAY BE FORCE DRIED AT A TEMPERATURE BETWEEN 160 F (71 C) AND 200 F (93 C) FOR A MINIMUM OF 15 MINUTES PRIOR TO MASKING OR HANDLING.
- 3 FL 3 FOR BONDED ASSEMBLIES, THE PRIMER MAY BE FORCE DRIED AT A TEMPERATURE BETWEEN 160 F (OR 71 C) AND 180 F (OR 82 C) FOR A MINIMUM OF 15 MINUTES PRIOR TO MASKING OR HANDLING.

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Drying Conditions for BMS10-79 Type III Grade A Primer
Figure 701/51-24-10-990-801

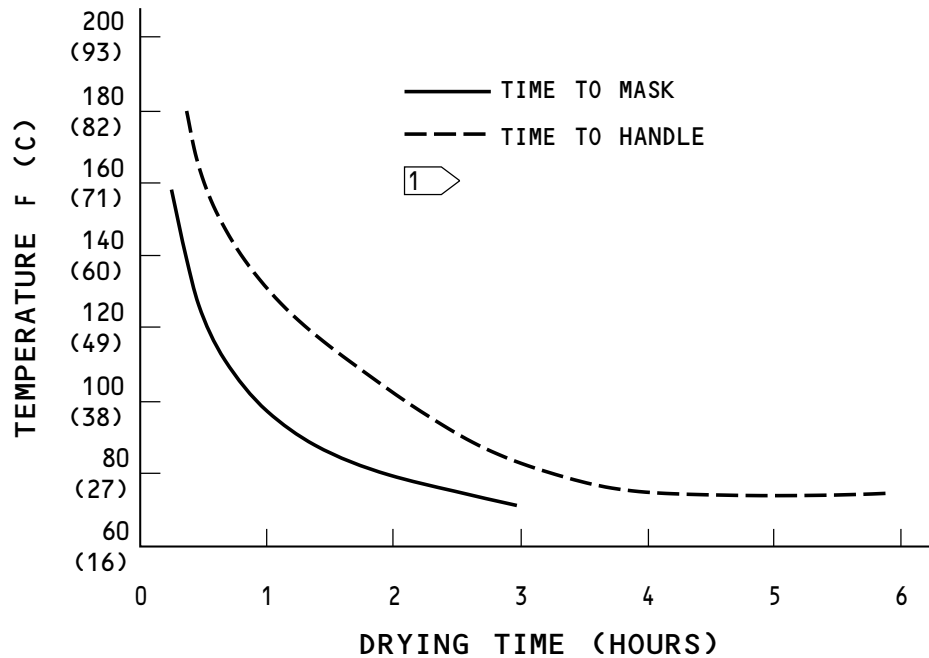
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DRYING CONDITIONS FOR BMS10-79, TYPES II AND III, GRADE D PRIMER

- 1 ALLOW A MINIMUM OF 30 MINUTES FOR SOLVENT EVAPORATION PRIOR TO FORCE DRYING.

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Drying Conditions for BMS10-79 Type II and Type III, Grade D Primer
Figure 702/51-24-10-990-802

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TASK 51-24-10-370-802

2. BMS10-103 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
51-21-04 P/B 701	CHEMICAL CONVERSION COATING - CLEANING/PAINTING

C. Consumable Materials

Reference	Description	Specification
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B01001	Solvent - General Cleaning Of All Organic Coatings - Series 81	
B01003	Solvent - General Cleaning Of Composites - Series 83	
B01004	Solvent - Final Cleaning Of Metal Prior To Painting - Series 84	
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
B01007	Solvent - Final Cleaning Of Composites Prior To Painting - Series 87	
B50073	Alcohol - Isopropyl	ASTM D 770
B50268	Solvent - General Cleaning of Metals	
C00766	Primer - Nonchromated Primer For Composites	BMS10-103 Type I
G00215	Brush - Soft Bristle Fiber	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5

D. Prepare to Apply the BMS10-103, Type 1, Primer

SUBTASK 51-24-10-950-002

- (1) Mask all areas that will not be coated with the primer.

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SUBTASK 51-24-10-160-001

- (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.

- (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) Norton Bear-Tex 747 General Purpose Hand Pad, 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.
 - a) Wet a wiper, G50262 or soft bristle brush with a Series 87 solvent, B01007 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 51-24-10-160-002

- (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.
 - a) Wet a wiper, G50262 with Series 85 solvent, B01005 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

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- <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 51-24-10-160-003

- (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 Series 81 solvent, B01001 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.
 - b) Use one of the methods that follow to solvent clean 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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - 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 Series 85 solvent, B01005 and wipe the surface.
- b) Use one of the methods that follow to solvent clean the surface.
 - <1> Wet a wiper, G50262 or brush, G00215 with Series 85 solvent, B01005 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

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- 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 51-21-04/701).

NOTE: It is acceptable if the conversion coating touches the adjacent surfaces.

E. Apply the BMS10-103, Type 1, Primer

SUBTASK 51-24-10-160-004

- (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 51-24-10-370-014

- (2) Apply the BMS10-103, Type 1, primer, C00766 in a continuous coat that is free of runs, wrinkles, and pinholes.

SUBTASK 51-24-10-370-015

- (3) Dry the BMS10-103, Grade A primer using Table 703.
 - (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 703/51-24-10-993-808 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
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

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Table 703/51-24-10-993-808 BMS10-103, Grade A Dry Times (Continued)

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 51-24-10-370-016

(4) Dry the BMS10-103, Grade E, primer using Table 704.

(a) Air dry the BMS10-103, Grade E primer for a minimum of 30 minutes at a minimum of 65°F (18°C).

Table 704/51-24-10-993-809 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) ^{*[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.

*[7] Force drying for more than the maximum time increases the degradation of the composite substrate and can reduce its strength.

SUBTASK 51-24-10-220-001

(5) Make sure that the dry film thickness is within the limits in Table 705.

(a) Measure the dry film thickness after the coating has dried beyond the minimum time before masking (Table 703, Table 704).

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Table 705/51-24-10-993-810 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

F. Minor Re-Work for Composite Surfaces (Substrate Exposed)

SUBTASK 51-24-10-110-001

- (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 Series 83 solvent, B01003 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 51-24-10-120-001

- (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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-24-10-110-002

- (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 Series 87 solvent, B01007 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 51-24-10-160-005

- (4) Immediately before applying the primer, use a tack rag, G50123 or compressed air.

NOTE: This is to remove particulate contamination.

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SUBTASK 51-24-10-160-006

- (5) Prepare the surface.

SUBTASK 51-24-10-370-017

- (6) Apply the primer to the damaged area.

G. Minor Re-Work for Titanium and CRES Surfaces (Substrate Exposed)

SUBTASK 51-24-10-110-003

- (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 Series 80 solvent, B50268 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 51-24-10-120-002

- (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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-24-10-110-004

- (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 Series 84 solvent, B01004 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 51-24-10-370-018

- (4) Apply the conversion coating (CHEMICAL CONVERSION COATING - CLEANING/PAINTING, PAGEBLOCK 51-21-04/701).

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SUBTASK 51-24-10-160-007

- (5) Immediately before applying the primer, use a tack rag, G50123 or compressed air.

NOTE: This is to remove particulate contamination.

SUBTASK 51-24-10-370-019

- (6) Apply the BMS10-103, Type 1, primer, C00766 to the damaged area.

SUBTASK 51-24-10-370-020

- (7) Dry and cure the primer.

H. Major Re-Work for Composite Surfaces

SUBTASK 51-24-10-120-003

- (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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
 - (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-24-10-110-005

- (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 Series 87 solvent, B01007 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 51-24-10-160-008

- (3) Immediately before applying the primer, wipe the surface with a new tack rag, G50123 or use compressed air.

SUBTASK 51-24-10-370-021

- (4) Apply the BMS10-103, Type 1, primer, C00766.

SUBTASK 51-24-10-370-022

- (5) Dry and cure the primer.

I. Major Re-Work for Titanium and CRES Surfaces

SUBTASK 51-24-10-120-004

- (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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide

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- (d) An abrasive cloth, B00102, 100-grit or finer, wet or dry

SUBTASK 51-24-10-110-006

- (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 Series 84 solvent, B01004 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 51-24-10-160-009

- (3) Immediately before applying the primer, wipe the surface with a new tack rag, G50123 or use compressed air.

SUBTASK 51-24-10-370-023

- (4) Apply the BMS10-103, Type 1, primer, C00766.

SUBTASK 51-24-10-370-024

- (5) Dry and cure the primer.

————— END OF TASK —————

TASK 51-24-10-370-803

3. BMS10-72 Primer Application

A. General

- (1) This procedure has steps to do the following.
- (a) Prepare to apply the BMS10-72 primer.
- (b) Apply the BMS10-72 primer.
- (2) Boeing recommends that you apply the 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 the BMS10-72 outside the recommended temperature range.
- (3) Boeing recommends that you apply the BMS10-72 primer when the relative humidity is less than 70%.
- (a) Contact the paint manufacturer for guidance if you will apply the BMS10-72 when the relative humidity is more than 70%.

B. Consumable Materials

Reference	Description	Specification
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	

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Reference	Description	Specification
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
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5

C. Prepare to Apply the BMS10-72 Primer

SUBTASK 51-24-10-370-025

- (1) Mix the BMS10-72 Type VIII primer coating, C50084 or BMS10-72 Type IX primer coating, C50085 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, primer has a base component, curing solution component, and thinner component.

Table 706/51-24-10-993-806 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-De-Soto 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]
Akzo Nobel BMS10-72, Type IX Base: 10P20-44M Curing Solution: EC-291 Thinner: TR-114	2 1 1	None	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).

- (a) Add the curing solution component with the steps that follow (Table 706).

- 1) Add the curing solution component while continuously stirring.
- 2) Add the curing solution component at a rate less than 15 seconds per gallon.

- (b) If you are mixing BMS10-72, Type IX primer, do the steps that follow.

- 1) Immediately after adding the curing solution component, add the thinner component (Table 706).
 - a) Add the thinner component while continuously stirring.

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- 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 solution.

D. Apply the BMS10-72 Primer

SUBTASK 51-24-10-370-026

- (1) Spray apply the BMS10-72, Type VIII primer coating, C50084 or BMS10-72, Type IX primer coating, C50085.

SUBTASK 51-24-10-370-027

- (2) Cure the primer in accordance with Table 707.

Table 707/51-24-10-993-807 BMS10-72 Primer Curing Temperatures and Times

MATERIAL DESIGNATION	DRY TIME TO RECOAT OR OVERCOAT*[2]	RECOMMENDED DRY TIME TO TAPE*[1]
PRC-De-Soto 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)
PRC-De-Soto 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 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)*[3]	2 hours and 30 minutes at 77°F (25°C)

*[1] Dry-to-tape time values are approximate. Tape after removal shall have had no visible effects on the primer film.

*[2] If the maximum dry time is exceeded, reactivation of the surface is required.

*[3] If the primer is dried at temperatures warmer than 120°F (49°C), reactivation of the surface is required.

*[4] Cure primer at a minimum temperature of 95°F (35°C) for at least 60 minutes within 2 hours of primer application.

- (a) Within 2 hours of the application of the 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 707, do the steps that follow to reactivate the surface.
 - 1) Solvent clean the surface, if necessary to remove contamination.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <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.
 - <1> Aluminum oxide/zirconium oxide abrasive paper, stearate-free, 100-grit to 220-grit

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- <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> 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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 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
- c) Make sure that all the topcoat is removed.
- 3) Solvent clean the surface.

NOTE: This is to remove sanding dust.

 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <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, to the surface.
- (c) If the temperature for drying to recoat or overcoat is warmer than 120°F (49°C), do the steps that follow to reactivate the surface
 - 1) Solvent clean the surface, if necessary to remove contamination.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <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> 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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 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
- c) Make sure that all the topcoat is removed.
- 3) Solvent clean the surface.
- NOTE:** This is to remove sanding dust.
- a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
- <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.
- b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
- <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, to the surface.

———— **END OF TASK** ————

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TOPCOAT - CLEANING/PAINTING

TASK 51-24-11-370-801

1. BMS10-60, Type II, Polyurethane Topcoat Application

A. General

- (1) This procedure has one task. This task gives instructions to apply BMS10-60, Type II.
- (2) Boeing recommends that you apply the BMS10-60, Type II, topcoat 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, Type II, topcoat when the relative humidity is less than 70%.
 - (a) If the relative humidity is more than 70%, force cure the coating at temperatures between 120°F (49°C) and 160°F (71°C).

B. References

Reference	Title
51-24-10 P/B 701	PRIMER - CLEANING/PAINTING

C. Consumable Materials

Reference	Description	Specification
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
C00033	Coating - Protective Enamel, Flexibility Use	BMS10-60 Type II
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II
C00766	Primer - Nonchromated Primer For Composites	BMS10-103 Type I
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5

D. Prepare the Surface

SUBTASK 51-24-11-370-001

- (1) If the BMS10-79, Type II or Type III, Grade A was applied in the last 48 hours, or if the BMS10-79, Type II or Type III, Grade D was applied in the last 12 hours, do the steps that follow.
 - (a) If the surface is not contaminated, no surface preparation is necessary.
 - (b) If the surface is contaminated, do the steps that follow.
 - 1) Solvent clean the surface.
 - a) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - b) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - c) Immediately wipe the surface dry with a clean, dry wiper, G50262.
<1> Make sure that the solvent does not dry on the surface.
 - d) Repeat the solvent cleaning, if necessary.
 - 2) Sand the surface with one of the abrasives that follow, if necessary.

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- a) Abrasive paper, 220-grit or finer, aluminum oxide.
 - b) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - c) Aluminum oxide paper, very fine.
 - d) Scotch-Brite pad, very fine, aluminum oxide.
- 3) Solvent clean the surface.
- a) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - b) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - c) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 <1> Make sure that the solvent does not dry on the surface.
 - d) Repeat the solvent cleaning, if necessary.

SUBTASK 51-24-11-370-002

- (2) If the BMS10-103, Type I, was applied in the last 48 hours and was dried in accordance with Table 701, do the steps that follow.

Table 701/51-24-11-993-801

TEMPERATURE	TIME
Air Drying	48 hours
120°F (49°C) force drying	4 hours
140°F (60°C) force drying	2 hours
160°F (71°C) force drying	1 hour
180°F (82°C) force drying	45 minutes
200°F (93°C) force drying	30 minutes

- (a) Solvent clean the surface.
- 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follows.
- 1) Abrasive paper, 220-grit or finer, aluminum oxide.
 - 2) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - 3) Aluminum oxide paper, very fine.
 - 4) Scotch-Brite pad, very fine, aluminum oxide.
- (c) Solvent clean the surface.
- 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 a) Make sure that the solvent does not dry on the surface.

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SUBTASK 51-24-11-370-003

- (3) If the BMS10-79 Type II or Type III, Grade A was applied more than 48 hours ago, do the steps that follow.
- (a) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follow.
 - 1) Make sure that you do not sand the substrate.
 - 2) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - 3) Scotch-Brite 7447 pad, G50220.
 - 4) Scotch-Brite Clean and Finish, very fine, aluminum oxide.
 - 5) Aluminum oxide abrasive paper or cloth, stearate-free, 240-grit or finer.
 - (c) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
 - (d) Apply one coat of the BMS10-103, Type I, primer, C00766 (preferred) or BMS10-79, Type II, primer, C00319 (PRIMER - CLEANING/PAINTING, PAGEBLOCK 51-24-10/701).

SUBTASK 51-24-11-370-004

- (4) If the BMS10-103, Type I, was applied more than 48 hours ago or was not dried in accordance with Table 701, do the steps that follow.
- (a) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follow.
 - 1) Make sure that you do not sand the substrate.
 - 2) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
 - 3) Scotch-Brite 7447 pad, G50220.
 - 4) Scotch-Brite Clean and Finish, very fine, aluminum oxide.
 - 5) Aluminum oxide abrasive paper or cloth, stearate-free, 240-grit or finer.
 - (c) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

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- (d) Apply one coat of the BMS10-103, Type I, primer, C00766 (preferred) or BMS10-79, Type II, primer, C00319 (alternate) (PRIMER - CLEANING/PAINTING, PAGEBLOCK 51-24-10/701).

SUBTASK 51-24-11-370-005

- (5) If the BMS10-79, Type II or Type III, Grade D was applied more than 12 hours ago, do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follows.
 - 1) Abrasive paper, 220-grit or finer, aluminum oxide.
 - 2) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - 3) Aluminum oxide paper, very fine.
 - 4) Scotch-Brite pad, very fine, aluminum oxide.
 - (c) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.
 - (d) Apply one coat of the BMS10-103, Type I, primer, C00766 (preferred) or BMS10-79, Type II, primer, C00319 (alternate) (PRIMER - CLEANING/PAINTING, PAGEBLOCK 51-24-10/701).

SUBTASK 51-24-11-370-006

- (6) If the BMS10-79, Type II or Type III, Grade A or Grade D was applied less than 72 hours ago, do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follows.
 - 1) Abrasive paper, 220-grit or finer, aluminum oxide.
 - 2) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - 3) Aluminum oxide paper, very fine.
 - 4) Scotch-Brite pad, very fine, aluminum oxide.
 - (c) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.

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- a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-11-370-007

- (7) If the BMS10-79, Type II or Type III, Grade A or Grade D was applied more than 72 hours ago, do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follows.
 - 1) Abrasive paper, 220-grit or finer, aluminum oxide.
 - 2) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - 3) Aluminum oxide paper, very fine.
 - 4) Scotch-Brite pad, very fine, aluminum oxide.
 - (c) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-11-370-008

- (8) If the surface was coated with BMS10-60, Type II, topcoat in the past 48 hours, do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 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) Sand the surface with one of the abrasives that follows.
 - 1) Abrasive paper, 220-grit or finer, aluminum oxide.
 - 2) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - 3) Aluminum oxide paper, very fine.
 - 4) Scotch-Brite pad, very fine, aluminum oxide.
 - (c) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-11-370-009

- (9) If the surface was coated with BMS10-60, Type II, topcoat more than 48 hours ago, do the steps that follow.

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- (a) Sand the surface with one of the abrasives that follows.
 - 1) Abrasive paper, 220-grit or finer, aluminum oxide.
 - 2) Aluminum oxide abrasive, 240-grit or finer, stearate-free.
 - 3) Aluminum oxide paper, very fine.
 - 4) Scotch-Brite pad, very fine, aluminum oxide.
- (b) Solvent clean the surface.
 - 1) Remove loose soil, excess grease, hydraulic fluid, or oil.
 - 2) Use a Series 85 solvent, B01005 solvent and wiper, G50262 to clean the surface.
 - 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

E. Apply the BMS10-60 Type II

SUBTASK 51-24-11-580-001

- (1) Mix the BMS10-60, Type II, coating, C00033 using the manufacturer's instructions.

SUBTASK 51-24-11-950-001

- (2) Mask the areas adjacent to the area where you will apply BMS10-60, Type II.

SUBTASK 51-24-11-370-010

- (3) To spray apply the BMS10-60, Type II, coating, C00033, 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
 - 4) High Volume Low Pressure (HVLP) gun
 - (b) Spray each single coat by cross-coating.

SUBTASK 51-24-11-370-011

- (4) To brush apply the BMS10-60, Type II, coating, C00033, 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 51-24-11-370-012

- (5) Cure the BMS10-60, Type II, enamel coating 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 702.

Table 702/51-24-11-993-802

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 701.

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- (d) For the minimum cure time to overcoat for other BMS10-60, Type, II materials, see Table 703.

Table 703/51-24-11-993-803

MATERIAL	TEMPERATURE	TIME TO RECOAT/OVERCOAT^{*[1]}
Akzo Nobel 24-F20-101	See Figure 701	See Figure 701
Desothane HS Series 13-79-xxx	75 ±5°F (24 ±3°C)	20 minutes to 48 hours
Akzo Nobel Eclipse Series 16-78-3-xxx 16-78-2-xxx 16-78-1-xxx 17-78-3-xxx 17-78-2-xxx 17-78-1-xxx	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-to-tape times, see Figure 702.

— END OF TASK —

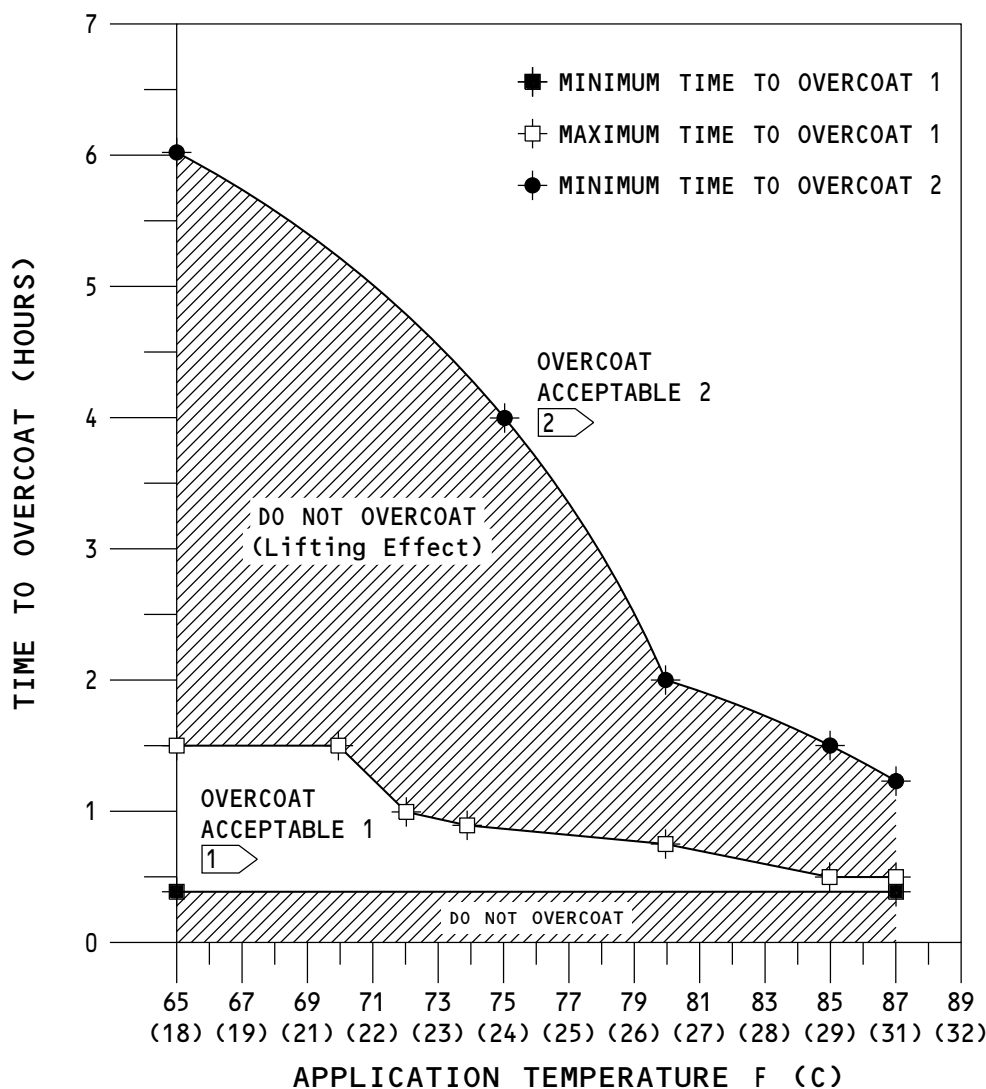
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- 1 ALLOW AT LEAST 25 MINUTES AS INDICATED BY "MINIMUM TIME TO OVERCOAT 1" AND NO MORE THAN THE TIME CORRESPONDING TO CURRENT TEMPERATURE CONDITIONS AS INDICATED BY THE "MAXIMUM TIME TO OVERCOAT 1", FROM THE START OF THE FIRST TO OVERCOAT.
- 2 IF "MAXIMUM 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 701/51-24-11-990-801**

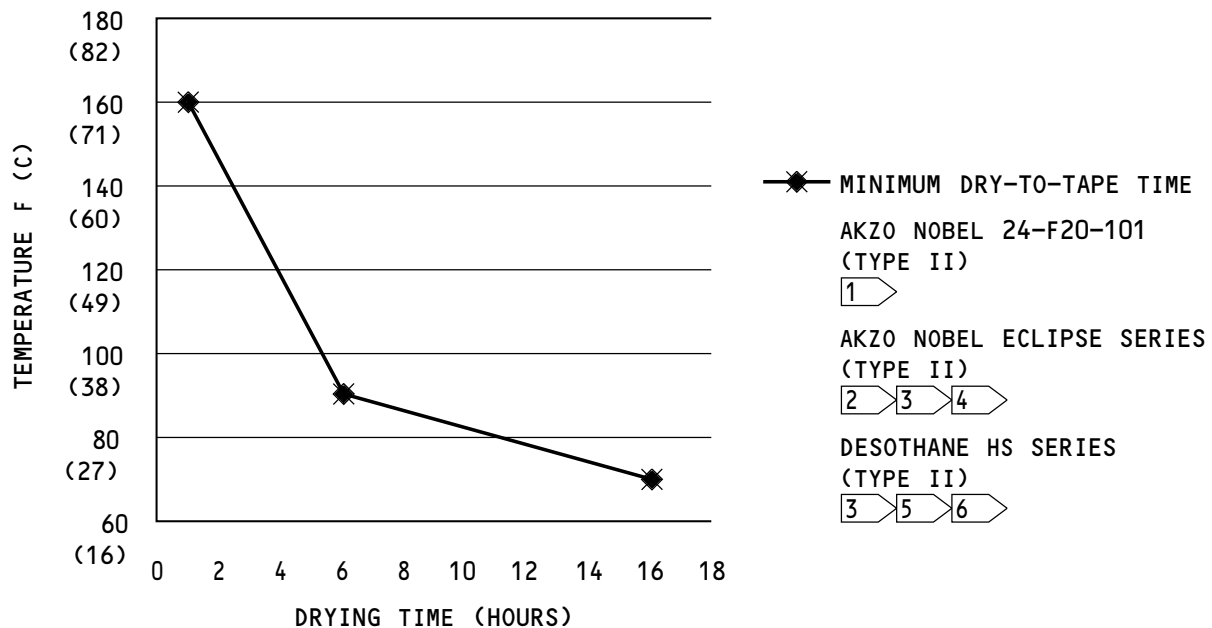
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- 1 FOR AKZO NOBEL 24-F20-101, FOLLOW FIGURE 5 FOR TIME TO OVERCOAT.
- 2 TIME TO RECOAT OR OVERCOAT AT 75 ±5 °F (24 ±3 °C): 10 MINUTES TO 48 HOURS.
- 3 THESE ARE MINIMUM DRY-TO-TAPE TIMES AND MINIMUM TIMES TO HANDLE AND STACK - ADDITIONAL DRYING TIME 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 BOEING 16-78-3-XXX, 16-78-2-XXX, 16-78-1-XXX, 17-78-3-XXX, 17-78-2-XXX, AND 17-78-1-XXX 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 DRYING TIME REQUIREMENTS FOR BOEING 13-79-XXXX ARE THE SAME AS THOSE FOR DESOTHANE HS SERIES.

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BMS10-60 Type II Minimum Dry-to-Tape Times
Figure 702/51-24-11-990-802

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TASK 51-24-11-370-802

2. BMS10-72 Topcoat Application

A. General

- (1) This task has steps to do the following.
 - (a) Prepare to apply BMS10-72 topcoat.
 - (b) Apply BMS10-72 topcoat.
- (2) Boeing recommends that you apply BMS10-72 topcoat 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 that you apply BMS10-72 topcoat 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
51-24-10-370-802	BMS10-103 Primer Application (P/B 701)
51-24-10-370-803	BMS10-72 Primer Application (P/B 701)

C. Consumable Materials

Reference	Description	Specification
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
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
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5

D. Prepare to Apply BMS10-72 Topcoat

SUBTASK 51-24-11-160-001

- (1) If the surface has been coated with BMS10-72, Type VIII primer or BMS10-72, Type IX primer, 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 topcoat coating, C50084, or BMS10-72, Type IX topcoat coating, C50085, will be applied immediately and there is no surface contamination, no surface preparation is necessary.
 - (b) If there is contamination on the surface, solvent clean the surface.
 - 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - a) Scotch-Brite 7447 pad, G50220

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- b) Scotch-Brite Clean and Finish, very fine, aluminum oxide.
- c) 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.

SUBTASK 51-24-11-160-002

- (2) If the surface has been coated with BMS10-72, Type VIII primer, or BMS10-72, Type IX primer, 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) Solvent clean the surface, if necessary to remove contamination.
 - 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - 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.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - 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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 220-grit or finer
 - 3) Make sure that all the topcoat is removed.
 - (c) Solvent clean the surface.
- NOTE:** This is to remove sanding dust.
- 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - 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.
 - 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

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- (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 51-24-10-370-803).

SUBTASK 51-24-11-160-003

- (3) If the surface is coated with BMS10-103, Type I primer, do the steps that follow.

Table 704/51-24-11-993-807 BMS10-103 Primer Maximum Dry Times and Temperatures

TEMPERATURE	MAXIMUM DRY TIME
Air dry	48 hours
120°F (49°C) force dry	4 hours
140°F (60°C) force dry	2 hours
160°F (71°C) force dry	1 hour
180°F (82°C) force dry	45 minutes
200°F (93°C) force dry	30 minutes

- (a) If the primer was dried in accordance with Table 704, do the steps that follow.
 - 1) If the BMS10-72 will be applied immediately and there is no surface contamination, no surface preparation is necessary.
 - 2) If there is surface contamination, do the steps that follow.
 - a) Solvent clean the surface.
 - <1> Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <a> Scotch-Brite 7447 pad, G50220
 - Scotch-Brite Clean and Finish, very fine, aluminum oxide.
 - <c> Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide.
- (b) If the primer was dried outside the limits in Table 704, do the steps that follow.
 - 1) Solvent clean the surface.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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) 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
 - <3> Scotch-Brite Clean and Finish, very fine, aluminum oxide, 100-grit to 220-grit

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- <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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 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
- c) Make sure that all the topcoat is removed.
- 3) Solvent clean the surface.

NOTE: This is to remove sanding dust.

 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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.
 - b) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - <1> Make sure that the solvent does not dry on the surface.
- 4) Wipe the surface with a tack rag, G50123.
- 5) Apply one coat of BMS10-103, Type I primer to the surface (BMS10-103 Primer Application, TASK 51-24-10-370-802).

SUBTASK 51-24-11-160-004

- (4) If the surface has BMS10-72 topcoat that was mixed/thinned and cured in accordance with Table 705 or Table 706, do the steps that follow.

Table 705/51-24-11-993-804

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

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Table 705/51-24-11-993-804 (Continued)

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 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 706/51-24-11-993-806 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 CA8000C2 or four parts of CA8000C.

^{*[2]} The volume of TR-112 thinner used shall not exceed one part of TR-112 to four parts of 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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 220-grit or finer
- 2) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - 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.
- 3) Immediately wipe the surface dry with a clean, dry wiper, G50262.
- 4) Apply Sur-Prep AP-1 (Chemical Reactivator Application, TASK 51-24-11-370-803).

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SUBTASK 51-24-11-160-005

- (5) If the surface was coated with BMS10-72, Type VIII topcoat, BMS10-72, Type IX topcoat, or BMS10-60, Type II topcoat, 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) Solvent clean the surface.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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) 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
 - <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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 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
 - c) Make sure that all the topcoat is removed.
 - 2) Solvent clean the surface.

NOTE: This is to remove sanding dust.

 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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.
 - 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) Wipe the surface with a tack rag, G50123.

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- 5) To apply BMS10-60, Type II topcoat, do this task: BMS10-60, Type II, Polyurethane Topcoat Application, TASK 51-24-11-370-801.
- (b) If the topcoat has dried for less than the dry-to-tape time, do the steps that follow.
 - 1) If the topcoat will be applied immediately and there is no surface contamination, no surface preparation is necessary.
 - 2) Solvent clean the surface.
 - a) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - <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.

SUBTASK 51-24-11-160-006

- (6) If the surface was coated with BMS10-72, Type VIII topcoat, BMS10-72, Type IX topcoat, or BMS10-60, Type II topcoat, and has dried for less than 4 hours at temperatures colder than 120°F (49°C), do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - 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.
 - (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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 220-grit or finer
 - 3) Make sure that all the topcoat is removed.
 - (c) Solvent clean the surface.

NOTE: This is to remove sanding dust.

 - 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.

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- 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.
- 2) Immediately wipe the surface dry with a clean, dry wiper, G50262.
 - 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, Type II topcoat, do this task: BMS10-60, Type II, Polyurethane Topcoat Application, TASK 51-24-11-370-801.

SUBTASK 51-24-11-160-007

- (7) If the surface was coated with BMS10-72, Type VIII topcoat, BMS10-72, Type IX topcoat, or BMS10-60, Type II topcoat, and has dried for more than 48 hours at temperatures colder than 110°F (43°C), or if it has dried for more than 4 hours at temperatures colder than 120°F (49°C), or if you do not know how long the surface has dried or at what temperature, do the steps that follow.
 - (a) Solvent clean the surface.
 - 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - 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.
 - (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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 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, Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - c) Scotch-Brite Clean and Finish, very fine, aluminum oxide, 220-grit or finer
 - d) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide, 220-grit or finer
 - 3) Make sure that all the topcoat is removed.
 - (c) Solvent clean the surface.
- NOTE:** This is to remove sanding dust.
- 1) Use a wiper, G50262 or one of the abrasives that follow wet with Series 85 solvent, B01005.
 - a) Scotch-Brite 7447 pad, G50220
 - b) Scotch-Brite Clean and Finish, very fine, aluminum oxide.

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- c) 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.
- (d) Wipe the surface with a tack rag, G50123.

SUBTASK 51-24-11-370-019

- (8) Apply the BMS10-72 primer, if necessary (BMS10-72 Primer Application, TASK 51-24-10-370-803).

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.

E. Apply the BMS10-72 Topcoat

SUBTASK 51-24-11-370-020

- (1) Mix the BMS10-72 coating, C00921 using the manufacturer's instructions.

SUBTASK 51-24-11-370-021

- (2) Apply BMS10-72 coating, C00921 to the thickness specified in Table 707.

Table 707/51-24-11-993-805

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

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Table 707/51-24-11-993-805 (Continued)

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, 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
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

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Table 707/51-24-11-993-805 (Continued)

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, 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
High Solids, Gloss, Clear Akzo Nobel BMS10-72, Type IX Base: ECL-G-7 Curing Solution: PC-233 Thinner Component: 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 coating 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 stripes, door bands, and outdoor work areas.

*[6] CA8000C4 or CA8000C5 may be substitute 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 51-24-11-950-002

- (3) After the final coat of BMS10-72 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.

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(a) See Table 707 for recommended dry times.

SUBTASK 51-24-11-370-022

(4) See Figure 703 for additional information on recommended dry-to-tape times for BMS10-72, Type VIII.

SUBTASK 51-24-11-370-023

(5) See Figure 704 for additional information on recommended dry-to-tape times for BMS10-72, Type IX.

———— **END OF TASK** ————

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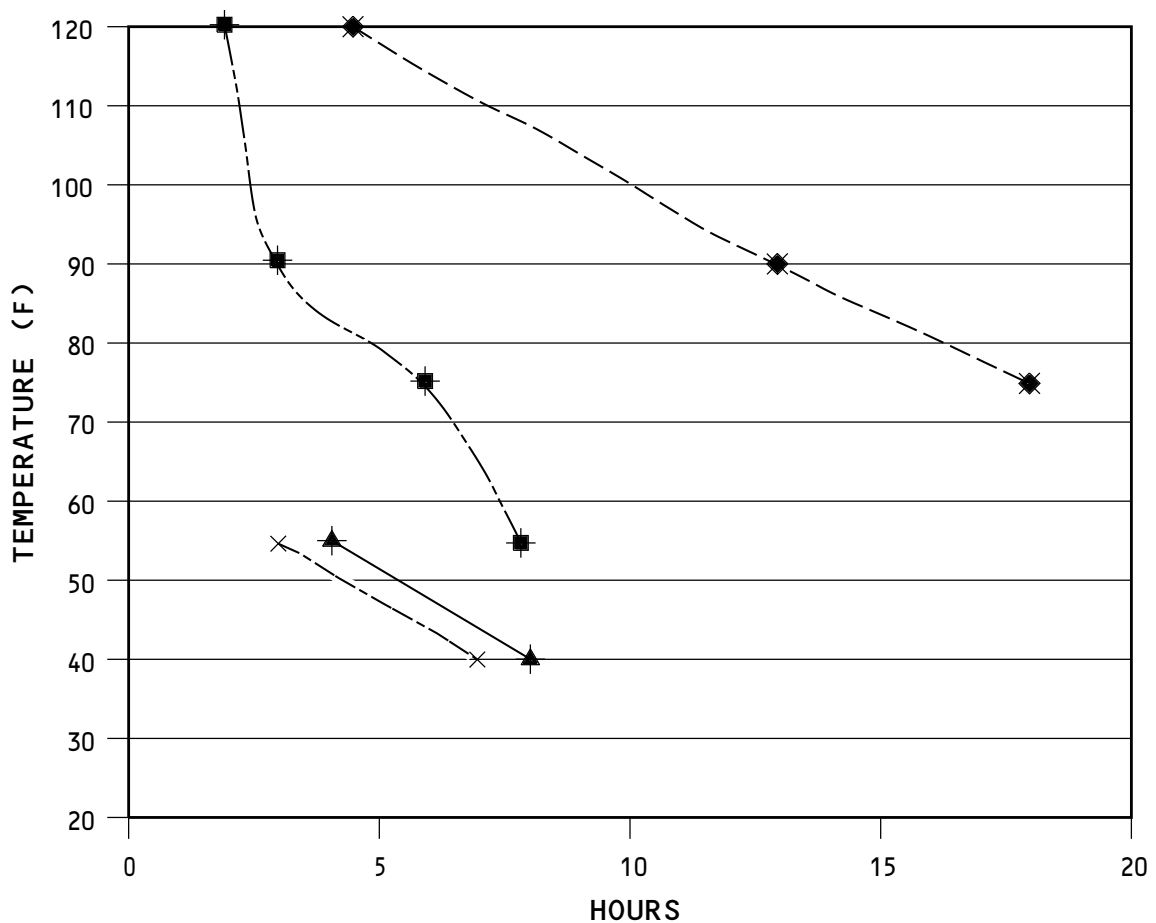
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LEGEND:

- *--- BMS 10-72 TY VIII WITH CA8000C THINNER
- BMS 10-72 TY VIII WITH CA8000C2 THINNER
- ▲--- BMS 10-72 TY VIII WITH CA8000C4 THINNER
- ×--- BMS 10-72 TY VIII WITH CA8000C5 THINNER

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BMS10-72, Type VIII, Recommended Dry-to-Tape Times
Figure 703/51-24-11-990-803

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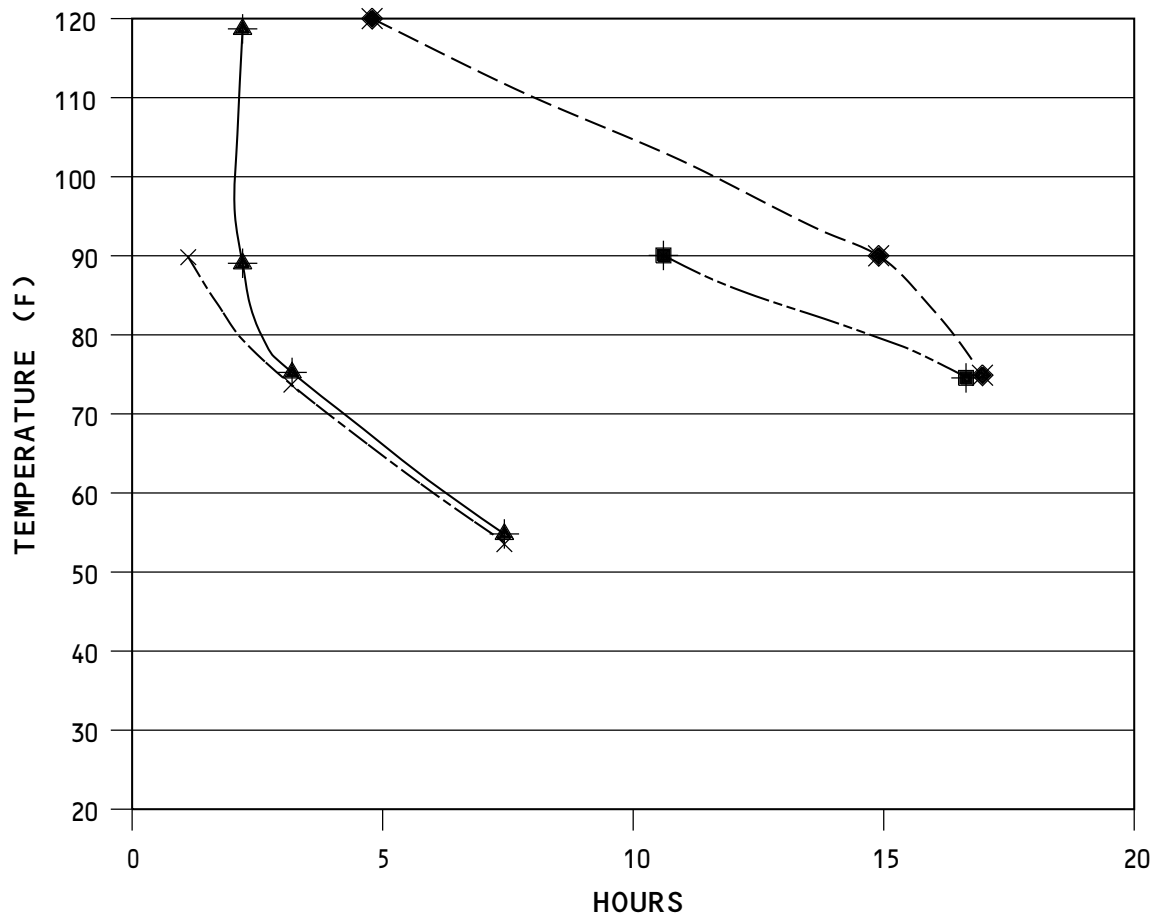
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LEGEND:

- *--- 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 704/51-24-11-990-804

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TASK 51-24-11-370-803

3. Chemical Reactivator Application

A. General

- (1) This procedure has steps for the following.
 - (a) Prepare to apply Sur-Prep AP-1 chemical reactivator.
 - (b) Apply Sur-Prep AP-1 chemical reactivator.
- (2) Boeing recommends that you apply Sur-Prep AP-1 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 Sur-Prep AP-1 outside the recommended temperature range.
- (3) Boeing recommends that you apply Sur-Prep AP-1 when the relative humidity is less than 70%.
 - (a) Contact the paint manufacturer for guidance if you will apply Sur-Prep AP-1 when the relative humidity is more than 70%.
- (4) Do not apply Sur-Prep AP-1 when the relative humidity at the application temperature is below that in Figure 705.

B. Tools/Equipment

Reference	Description
STD-623	Sprayer - Paint, High Volume/Low Pressure

C. Consumable Materials

Reference	Description	Specification
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01005	Solvent - Final Cleaning Of All Organic Coatings Prior To Painting - Series 85	
G50123	Rag - Epoxy Coated Tack Rag - C-60	
G50220	Pad - Abrasive, Scotch- Brite 7447	
G50262	Wiper - Cleaning	BMS15-5

D. Prepare to Apply Sur-Prep AP-1 Chemical Reactivator

SUBTASK 51-24-11-370-013

- (1) Mix the Sur-Prep AP-1 using the manufacturer's instructions.
 - (a) Make sure that the ambient 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.

NOTE: Liquid water or moisture mixed with the chemical reactivator can cause a white precipitate and can affect the bond between topcoats.

SUBTASK 51-24-11-950-003

- (2) Mask the areas that will not be coated with Sur-Prep AP-1.

SUBTASK 51-24-11-160-008

- (3) If there is surface contamination, do the steps that follow to clean the surface.
 - (a) Solvent clean the surface.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediately wipe the surface with a clean, dry wiper, G50262.

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- a) Make sure that the solvent does not dry on the surface.
- (b) Sand the surface, if necessary to remove contamination.
 - 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) Norton Bear-Tex 747 General Purpose Hand Pad, very fine, aluminum oxide
- (c) If you sand the surface, solvent clean the surface to remove sanding dust.
 - 1) Use a wiper, G50262 wet with Series 85 solvent, B01005.
 - 2) Immediately wipe the surface with a clean, dry wiper, G50262.
 - a) Make sure that the solvent does not dry on the surface.

SUBTASK 51-24-11-370-014

- (4) Make sure that the conditions in Figure 705 are met.

E. Apply the Sur-Prep AP-1 Chemical Reactivator

SUBTASK 51-24-11-370-015

- (1) Spray apply the Sur-Prep AP-1 using one of the tools that follow.
 - (a) high volume, low pressure paint sprayer, STD-623 gun
 - (b) Air assisted airless spray gun
 - (c) Electrostatic spray equipment

SUBTASK 51-24-11-370-016

- (2) Make sure that all necessary areas are coated with a thin, wet film.
 - (a) If there is overspray of Sur-Prep AP-1 onto surfaces that do not need to be reactivated and that have not been masked, do the steps that follow.
 - 1) Use a wiper, G50262 or one of the abrasives that follow wet 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) 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.

SUBTASK 51-24-11-370-017

- (3) Keep the Sur-Prep AP-1 on the surface for 30 minutes to 24 hours in the conditions in Figure 705 before applying topcoat.
 - (a) If the Sur-Prep AP-1 is not dry after 30 minutes, let the Sur-Prep AP-1 dry for a longer time.

SUBTASK 51-24-11-160-009

- (4) If the chemical reactivator has runs or if there are very wet areas after you apply the Sur-Prep AP-1, do the steps that follow.
 - (a) Dry the defect area with clean, compressed air.
 - (b) Solvent clean the defect area.

NOTE: This is to remove the dried powder.

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- 1) Use a wiper, G50262 or one of the abrasives that follow 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.
 - 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 Sur-Prep AP-1.

SUBTASK 51-24-11-370-018

- (5) If the Sur-Prep AP-1 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 Sur-Prep AP-1.
 - 1) Use a wiper, G50262 or one of the abrasives that follow wet 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) 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) Wipe the surface with a tack rag, G50123.
 - 4) Re-apply the Sur-Prep AP-1.

———— **END OF TASK** ————

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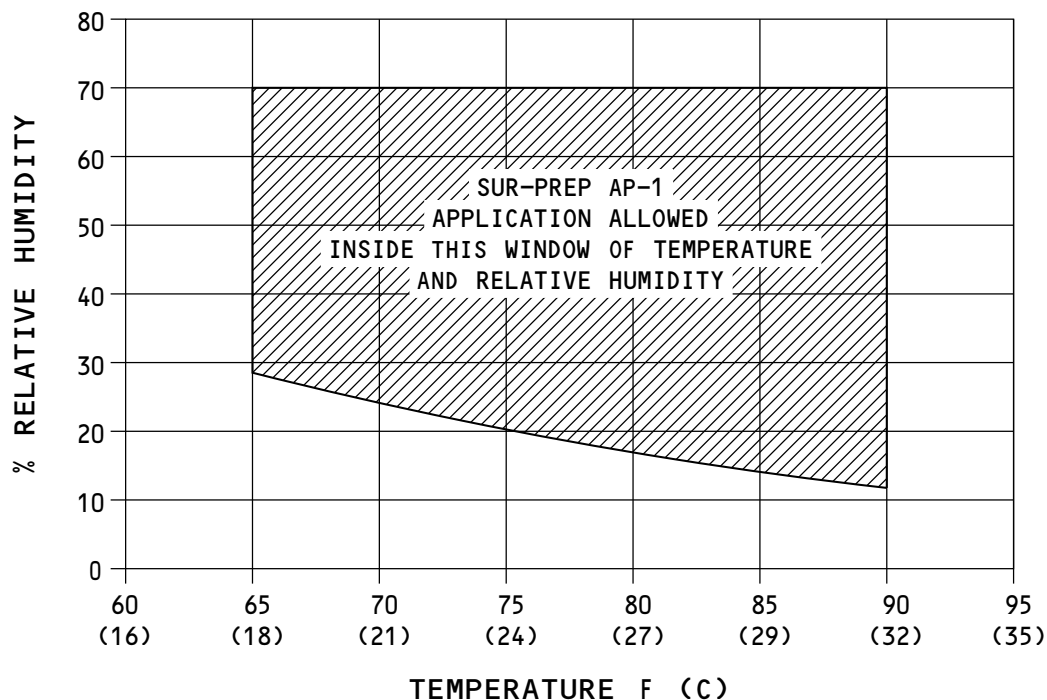
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NOTE: THE TEMPERATURE AND HUMIDITY RANGES SHOWN ARE THE LIMITS FOR APPLICATION TO ASSURE OVERCOAT TOPCOAT ADHESION. THESE LIMITS DO NOT TAKE INTO ACCOUNT EQUIPMENT CONTROL TOLERANCES. DEPENDING ON EQUIPMENT SET POINT ACCURACY, IT MAY BE NECESSARY TO SET CONTROL LIMITS INSIDE THE LIMITS SHOWN IN THIS FIGURE.

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Conditions for Application of Sur-Prep AP-1
Figure 705/51-24-11-990-805

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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.
 - (3) Application of the BMS 10-86 Type II Coating.
 - (4) Application of the BMS 10-86 Type III Coating.

TASK 51-24-13-100-801

2. Prepare the Surface to be Finished

A. References

Reference	Title
51-00-53	CORROSION REMOVAL
51-21-02-100-802	Cleaning and Preparation of Internal and External Plastic Surfaces (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	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 Supplier: F6892 Part #: SHN0272 Supplier: \$0856 Part #: SHR0272-T Supplier: 1DWR5 Part #: SHW0215 Supplier: \$0856

C. Consumable Materials

Reference	Description	Specification
B00068	Alcohol - Denatured, Ethyl (Ethanol)	AMS 3002, MIL-E-51454 Type II
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00130	Alcohol - Isopropyl	TT-I-735
B00666	Solvent - Methyl Propyl Ketone	BMS11-9

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(Continued)

Reference	Description	Specification
B01055	Solvent - Methyl Ethyl Ketone and Toluene Blend - (MEK:Toluene - 1:1)	BAC5750, ASTM D740/A-A-59107
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00251	Abrasive - Mat, Non-Woven, Non-Metallic	A-A-58054

D. Procedure – Prepare The Surface

SUBTASK 51-24-13-120-005

(1) Do these steps to prepare 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. 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.

- (a) Clean the surface with a clean cotton wiper, G00034 that is moist with one of the following solvents:
 - 1) alcohol, B00068
 - 2) alcohol, B00130
 - 3) solvent, B00666.
- (b) Dry the surface with a clean cotton wiper, G00034 before the solvent dries.



CAUTION

ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.



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.

- (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: 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 777-53A0043.

NOTE: An abrasive mat, G00251 or abrasive cloth, B00102 may be used instead of the scraper.

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- (d) If necessary, do the approved procedure for cleaning each type of metal surface (CORROSION REMOVAL, SUBJECT 51-00-53)
- (e) If necessary, do the procedure for cleaning plastic surface (Cleaning and Preparation of Internal and External Plastic Surfaces, TASK 51-21-02-100-802).
- (f) Clean the surface again with a cotton wiper, G00034 that is moist with the solvent, B01055.
- (g) Dry the surface with a clean cotton wiper, G00034 before the solvent, B01055 dries.

————— **END OF TASK** —————

TASK 51-24-13-370-801

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 51-24-13-370-004

- (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 application time 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** —————

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TASK 51-24-13-370-802

4. Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type II

A. Tools/Equipment

Reference	Description
STD-9077	Spray Gun

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 51-24-13-370-008

- (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 51-24-13-370-009

- (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.

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- (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.
- (j) Remove the Scotch Flatback Masking Tape 250, G00270.

———— **END OF TASK** ————

TASK 51-24-13-370-803

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 51-24-13-370-010

- (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 III coating, C50150.
- (j) Remove the Scotch Flatback Masking Tape 250, G00270.

———— **END OF TASK** ————

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ABRASION-RESISTANT TEFLON FINISH - REPAIRS

1. General

- A. This procedure has one task:
(1) Abrasion resistant teflon finish repair.

TASK 51-24-13-390-802

2. Abrasion Resistant Teflon Finish Repair

A. General

- (1) This task tells you how to prepare and clean the surface, and how to repair the abrasion resistant Teflon finish.

B. References

Reference	Title
51-24-13-370-801	Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5

D. Consumable Materials

Reference	Description	Specification
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G02088	Abrasive - Silicon Carbide, Waterproof Paper	

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E. Do the repair of scratches, gouges, or other damage to all type of surfaces with no substrate shown.

SUBTASK 51-24-13-160-001



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (1) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (2) Clean the surface as follows:
 - (a) For decals, placards, and stencils, apply an alkaline cleaner with a cotton wiper, G00034.
 - 1) Rub the area until it is clean.
 - 2) Dry the area with a clean cotton wiper, G00034.

NOTE: Make sure the area is clean.
 - 3) Fully clean the area again if it is necessary.
 - (b) For plastic (thermoplastic) surfaces, apply an alkaline cleaner with a cotton wiper, G00034.

NOTE: When a solvent is necessary, use only a solvent that is approved for plastics.

 - 1) Rub the area until it is fully clean.
 - 2) Dry the area with a clean cotton wiper, G00034.

NOTE: Make sure the area is clean.
 - 3) 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.
 - 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 51-24-13-120-002



CAUTION

YOU MUST BE CAREFUL WHEN YOU DO THE SANDING OF THE SURFACE. DO NOT RUB THE SURFACE TOO HARD BECAUSE YOU WILL SHOW OR CAUSE DAMAGE TO THE FIBERGLASS, ARIMID, OR THE GRAPHITE FIBERS.

- (3) Prepare the Surface of the damaged area.
 - (a) Apply Scotch Flatback Masking Tape 250, G00270 around the damaged area.
 - (b) Do the initial sanding of the surface.
 - 1) Do the sanding of the damaged area with 180 grit minimum (or finer) abrasive paper.
 - (c) Complete the sanding procedure.

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- 1) Do the sanding of the damaged area with 280-grit minimum (or finer) abrasive, G02088 abrasive paper.
- (d) To make the sharp edges of the repair area smooth, do the steps that follow:
 - 1) Lightly sand the all edges with 280 grit (or finer) abrasive, G02088 abrasive paper.
NOTE: Make sure you do not cause the substrate to show.



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- 2) Remove the sanding residue with a cotton wiper, G00034 that is moist with Methyl Ethyl Ketone (MEK) solvent, B00148 or an appropriate solvent.
- 3) Clean the surface with a dry clean cotton wiper, G00034 before the solvent becomes dry.

SUBTASK 51-24-13-370-001

- (4) Apply the applicable primer if it is necessary.

SUBTASK 51-24-13-390-003

- (5) To apply the abrasion resistant Teflon finish, do this task: (Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I, TASK 51-24-13-370-801).

SUBTASK 51-24-13-950-001

- (6) Remove the Scotch Flatback Masking Tape 250, G00270.

F. Do the repair of scratches, gouges, or other damage to non-metal parts with the substrate shown.

SUBTASK 51-24-13-120-003

- (1) Clean the surface as follows:
 - (a) For decals, placards, and stencils, apply an alkaline cleaner with a cotton wiper, G00034.
 - 1) Rub the area until it is clean.
 - 2) Dry the area with a clean cotton wiper, G00034.
NOTE: Make sure the area is clean.
 - 3) Fully clean the area again if it is necessary.
 - (b) For plastic (thermoplastic) surfaces, apply an alkaline cleaner with a cotton wiper, G00034.
NOTE: When a solvent is necessary, use only a solvent that is approved for plastics.
 - 1) Rub the area until it is fully clean.
 - 2) Dry the area with a clean cotton wiper, G00034.
NOTE: Make sure the area is clean.
 - 3) Clean the area again if it is not fully clean.
 - (c) For all other surfaces:

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- 1) Fully clean the surface with a clean cotton wiper, G00034 that is moist with MEK solvent, B00148 or an appropriate solvent.
- 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 51-24-13-120-004



YOU MUST BE CAREFUL WHEN YOU DO THE SANDING OF THE SURFACE. DO NOT RUB THE SURFACE TOO HARD BECAUSE YOU WILL SHOW OR CAUSE DAMAGE TO THE FIBERGLASS, ARIMID, OR THE GRAPHITE FIBERS.

- (2) Prepare the damaged area.
 - (a) Apply Scotch Flatback Masking Tape 250, G00270 around the damaged area.
 - (b) Do the initial sanding of the surface.
 - 1) Do the sanding of the damaged area with 180 grit minimum (or finer) abrasive paper.
 - (c) Complete the sanding procedure.
 - 1) Do the sanding of the damaged area with 280-grit minimum (or finer) abrasive, G02088 abrasive paper.
 - (d) To make the sharp edges of the repair area smooth, do the steps that follow:
 - 1) Lightly sand the all edges with 280 grit (or finer) abrasive, G02088 abrasive paper.
- NOTE: Make sure you do not cause the substrate to show.



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- 2) Remove the sanding residue with a cotton wiper, G00034 that is moist with Methyl Ethyl Ketone (MEK) solvent, B00148 or an appropriate solvent.
- 3) Clean the surface with a dry clean cotton wiper, G00034 before the solvent becomes dry.

SUBTASK 51-24-13-370-002

- (3) Apply the applicable primer if it is necessary.

SUBTASK 51-24-13-390-004

- (4) To apply the abrasion resistant Teflon finish, do this task: (Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I, TASK 51-24-13-370-801).

SUBTASK 51-24-13-950-002

- (5) Remove the Scotch Flatback Masking Tape 250, G00270.

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G. Do the repair of metal parts with the substrate shown.

SUBTASK 51-24-13-150-001

- (1) Remove the damaged surface.
 - (a) Clean the area.



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- 1) Fully clean the surface with a clean cotton wiper, G00034 that is moist with MEK solvent, B00148 or an appropriate solvent..
 - 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.
- (b) Dry the area.
 - (c) Apply Scotch Flatback Masking Tape 250, G00270 to the affected area.
 - (d) Apply the stripper in large quantities with a natural bristle brush or a non-atomizing spray.

NOTE: Put the stripper only on an area that can be worked at one time.

NOTE: You can use the approved strippers in a temperature range of a minimum 50 °F to a maximum of 100 °F. The usual temperature range is 65 °F to 85 °F.

- 1) Keep the area wet with the stripper.
- 2) Add more coats of the stripper if it is necessary.
- 3) Allow sufficient time for the finish to become soft and wrinkled.



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.

- (e) Remove the loosened material with a sealant removal tool, COM-2481.
- (f) Remove the remaining stripper and loose finish with a large quantity of water.

NOTE: You can spray or wipe on the water.
- (g) Thoroughly dry the area that was stripped.

SUBTASK 51-24-13-350-001

- (2) To make the sharp edges of the repair area smooth, do the steps that follow:
 - (a) Lightly sand the all edges with 280 grit (or finer) abrasive, G02088 abrasive paper.

NOTE: Make sure the substrate does show.

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- (b) Remove the sanding residue with a cotton wiper, G00034 that is moist with MEK solvent, B00148 or an appropriate solvent.
- (c) Clean the surface with a dry clean cotton wiper, G00034 before the solvent becomes dry.

SUBTASK 51-24-13-370-003

- (3) Apply the applicable primer if it is necessary.

SUBTASK 51-24-13-390-005

- (4) To apply the abrasion resistant Teflon finish, do this task: (Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I, TASK 51-24-13-370-801).

SUBTASK 51-24-13-950-003

- (5) Remove the Scotch Flatback Masking Tape 250, G00270.

———— **END OF TASK** ————

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BONDED RUB PADS - MAINTENANCE PRACTICES

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 51-25-01-340-801

2. Bonded Phenolic or Stainless Steel Rub Pad Repair (Heat Source Available)

A. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
20-30-98-910-802	Cleaning of Phenolics or Nylon (Series 98-1) (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
STD-1086	Gloves - Rubber

C. Consumable Materials

Reference	Description	Specification
A00142	Sealant - Temperature Resistant, Fuel Pressure, And Weather Sealant	BMS5-44
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00102	Abrasive - Aluminum Oxide Coated Cloth	
B00148	Solvent - Methyl Ethyl Ketone (MEK)	ASTM D740
B00184	Solvent - Presealing, Cleaning Solvent	BMS11-7

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(Continued)

Reference	Description	Specification
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding - Series 88	
B01051	Solvent - Cleaning Of Phenolics Or Nylon - Series 98-1	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Procedure

SUBTASK 51-25-01-100-001

(1) Do these steps to prepare the mating surface:

- (a) Make sure you put on 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.



WARNING

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- 2) Clean the surface with a cotton wiper, G00034 that is moist with Series 98-1 solvent, B01051 (TASK 20-30-98-910-802).
- 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 the gloss is removed from all edges and corners of the pads.
- 5) Remove all remaining 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 Series 98-1 solvent, B01051 (TASK 20-30-98-910-802).
- 7) Clean the surface again if it is necessary.
- (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 cheesecloth (cotton wiper, G00034) that is moist with Series 88 solvent, B01008 (TASK 20-30-88-910-801).
 - 3) Immediately dry the surface with a clean dry cheesecloth (cotton wiper, G00034).
 - 4) Lightly rub the clad surface with abrasive paper sheets (abrasive cloth, B00102) until the mating surface is not shiny.

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- 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 BMS 10-11 primer 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 51-25-01-910-001

- (2) Do the steps that follow to apply the adhesive on the mating surface:

- (a) The surfaces must be cleaned and dry for less than one hour before you apply the adhesive.



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.

- (b) Remove the rub pads with a sealant removal tool, COM-2481.

- (c) Use heat lamps (250 Watts, commercially available) to make the adhesive soft.

NOTE: Do not apply heat at a temperature of 190 °F or more. Use a thermocouple to measure the temperature.

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- (d) Remove the remaining adhesive from the surface with a sealant removal tool, COM-2481.



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- (e) Clean the area with a clean cotton wiper, G00034 that is moist with solvent, B00148 or an appropriate solvent.
- (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 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) The application time for sealant, A00142 or sealant, A00247 Class B-2 mixed sealant by temperature is as follows:
 - a) At a temperature of 70 °F, the sealant has an application time of 2 hours.
 - b) At a temperature between 20 and 30 °F, the sealant has an application time of 7 days .
 - c) At a temperature between -30 and -40 °F, the sealant has an application time of 10 days.
 - d) At a temperature below -40 °F, the sealant has an application time of 14 days.
- 5) The application time for sealant, A00142 or sealant, A00247 Class B-1/2 mixed sealant by temperature is as follows:
 - a) At a temperature of 70 °F, the adhesive has an application time of 1/2 hour .
 - b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
 - c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
 - d) At a temperature below -40 °F, the adhesive has an application time of 14 days.

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CAUTION

DO NOT APPLY ADHESIVE IF THE TEMPERATURE OF THE STRUCTURE IS BELOW 50 °F. AT TEMPERATURES BELOW 50 °F, THE PERFORMANCE OF THE ADHESIVE IS UNSATISFACTORY.

- (h) Apply a thin layer of the adhesive (approximately 50 grams for each square foot) fully on each mating surface.

NOTE: Use a spreader that has serrations to apply the adhesive on a large mating surface.

- (i) Make sure 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 51-25-01-340-001

- (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 cheesecloth 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, B00148 or an appropriate solvent.

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 to 14 pounds per square inch (psi). Refer to (Table 801).

Table 801/51-25-01-993-803 Adhesive Cure Times

Curing Temperature (degrees F)	Hours After You Apply the Cure Pressure	
	Adhesive Class B-1/2	Adhesive Class B-2
77 +/-5	45	72
72 +/-5	68	108
67 +/-5	90	144
62 +/-5	135	216
115 +/-5 ^{*[1]}	12 ^{*[1]}	18 ^{*[1]}
185 +/-5 ^{*[2]}	0.75 ^{*[2]}	0.75 ^{*[2]}

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Table 801/51-25-01-993-803 Adhesive Cure Times (Continued)

Curing Temperature (degrees F)	Hours After You Apply the Cure Pressure	
	Adhesive Class B-1/2	Adhesive Class B-2
Bond Line Temperature Below Cure Pressure		

*[1] Optional cure temperature and time. You can use the optional cure temperature and time only with Pro Seal 890.

*[2] More time on the cure pressure is necessary to heat the adhesive from 70 to 180 degrees F.



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- (b) Remove the unwanted adhesive with a sealant removal tool, COM-2481.
- (c) Remove the remaining adhesive from the surface with a clean cheesecloth (cotton wiper, G00034) that is moist with Series 98-1 solvent, B01051 (TASK 20-30-98-910-802).

————— END OF TASK —————

TASK 51-25-01-340-802

3. Bonded Phenolic or Stainless Steel Rub Pad Repair (No Heat Source Available)

A. References

Reference	Title
20-30-98-910-802	Cleaning of Phenolics or Nylon (Series 98-1) (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5

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C. Consumable Materials

Reference	Description	Specification
A00767	Sealant - Fuel Tank	BMS5-45
B01051	Solvent - Cleaning Of Phenolics Or Nylon - Series 98-1	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

D. Procedure

NOTE: This procedure is recommended for a field repair of the bonded rub strips when a short cure time is necessary.

SUBTASK 51-25-01-910-002

- (1) Do the steps that follow to apply the adhesive on the mating surface:
 - (a) The surfaces must be cleaned and dry for less than one hour before you apply the adhesive.



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.

- (b) Remove the rub pads with a sealant removal tool, COM-2481.
- (c) Use heat lamps (250 Watts, commercially available) to make the adhesive soft.

NOTE: Do not apply heat at a temperature of 190 °F or more. Use a thermocouple to measure the temperature.



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.

- (d) Remove the remaining adhesive from the surface with a sealant removal tool, COM-2481.



WARNING

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 MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (e) Clean the area with a clean cotton wiper, G00034 that is moist with Series 98-1 solvent, B01051 (TASK 20-30-98-910-802).

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- (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 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) The application time for sealant, A00767 Class B-2 mixed adhesive by temperature is as follows:
 - a) At a temperature of 70 °F, the adhesive has an application time of 2 hours.
 - b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
 - c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
 - d) At a temperature below -40 °F, the adhesive has an application time of 14 days.
- 5) The application time for sealant, A00767 Class B-1/2 mixed adhesive by temperature is as follows:
 - a) At a temperature of 70 °F, the adhesive has an application time of 1/2 hour.
 - b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
 - c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
 - d) At a temperature below -40 °F, the adhesive has an application time of 14 days.



DO NOT APPLY ADHESIVE IF THE TEMPERATURE OF THE STRUCTURE IS BELOW 50 °F. AT TEMPERATURES BELOW 50 °F, THE PERFORMANCE OF THE ADHESIVE IS UNSATISFACTORY.

- (h) Apply a thin continuous layer of the adhesive (approximately 50 grams for each square foot) fully on each mating surface.

NOTE: Use a spreader that has serrations to apply the adhesive on a large mating surface.

- (i) Make sure 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 51-25-01-340-002

- (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 the mating surfaces are clean.
 - 2) Apply a thin layer of the adhesive (approximately 50 grams for each square foot) fully on each mating surface.

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- 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 inch, 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.
- (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 you have a continuous bead of adhesive at the bond line to get a satisfactory bond between the mating surfaces.
 - 3) Apply can more pressure to remove air pockets in the bond line during the first 3 hours after the parts are assembled.

————— **END OF TASK** —————

TASK 51-25-01-340-803

4. Bonded Phenolic or Stainless Steel Rub Pad (Field repair with a heat source)

A. References

Reference	Title
20-30-98-910-802	Cleaning of Phenolics or Nylon (Series 98-1) (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5

C. Consumable Materials

Reference	Description	Specification
A00767	Sealant - Fuel Tank	BMS5-45
B01051	Solvent - Cleaning Of Phenolics Or Nylon - Series 98-1	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

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D. Procedure

SUBTASK 51-25-01-910-003

- (1) Do the steps that follow to apply the adhesive on the mating surface:
- (a) The surfaces must be cleaned and dry for less than one hour before you apply the adhesive.



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.

- (b) Remove the rub pads with a sealant removal tool, COM-2481.
- (c) Use heat lamps (250 Watts, commercially available) to make the adhesive soft.

NOTE: Do not apply heat at a temperature of 190 °F or more. Use a thermocouple to measure the temperature.



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.

- (d) Remove the remaining adhesive from the surface with a sealant removal tool, COM-2481.



WARNING

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 MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (e) Clean the area with a clean cotton wiper, G00034 that is moist with Series 98-1 solvent, B01051 (TASK 20-30-98-910-802).
- (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 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.

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- 4) The application time for sealant, A00767 Class B-2 mixed adhesive by temperature is as follows:
 - a) At a temperature of 70 °F, the adhesive has an application time of 2 hours.
 - b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
 - c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
 - d) At a temperature below -40 °F, the adhesive has an application time of 14 days.
- 5) The application time for sealant, A00767 Class B-1/2 mixed adhesive by temperature is as follows:
 - a) At a temperature of 70 °F, the adhesive has an application time of 1/2 hour.
 - b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
 - c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
 - d) At a temperature below -40 °F, the adhesive has an application time of 14 days.



CAUTION

DO NOT APPLY ADHESIVE IF THE TEMPERATURE OF THE STRUCTURE IS BELOW 50 °F. AT TEMPERATURES BELOW 50 °F, THE PERFORMANCE OF THE ADHESIVE IS UNSATISFACTORY.

- (h) Apply a thin layer of the adhesive (approximately 50 grams for each square foot) fully on each mating surface.

NOTE: Use a spreader that has serrations to apply the adhesive on a large mating surface.

- (i) Make sure 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 51-25-01-340-003

- (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 the mating surfaces are clean.
- 2) Apply a thin layer of adhesive (approximately 50 grams on each square foot) 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 inch, apply a light pressure with a clean roller to get a smaller clearance.

- (b) To cure the assembly, do these steps:

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- 1) Use two heat lamps, 250 watts each, as a heat source.
 - a) Put the lamps 9 inches apart and 6 inches from the rub strip.

NOTE: Make sure the heat lamps point down on the rub strip.
 - 2) Apply heat on the assembly at a temperature of 90 (±5) °F.

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 to 120 °F.

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:
- 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 51-25-01-340-804

5. Bonded Teflon Rub Pad Repair

(Table 802)

A. General



DO NOT GET TEFLON ETCHING MATERIAL IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES OR MIST FROM TEFLON ETCHING MATERIAL. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE TEFLON ETCHING MATERIAL. DO NOT LET TEFLON ETCHING MATERIAL CONTACT YOUR SKIN, EYES, OR YOUR CLOTHES. TEFLON ETCHING MATERIAL IS CORROSIVE, TOXIC, FLAMMABLE, AND EXPLOSIVE. TEFLON ETCHING 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.

NOTE: Liquid anhydrous ammonia is available only in sealed cylinders.

 - 1) Sodium metal will have a dangerous reaction with water or a water solution (such as aqueous ammonia NH₄OH solution).

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DO NOT GET ANHYDROUS AMMONIA IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM ANHYDROUS AMMONIA. PUT ON A RESPIRATOR, PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE ANHYDROUS AMMONIA. KEEP ANHYDROUS AMMONIA AWAY FROM SPARKS, FLAME AND TEMPERATURES ABOVE THE FLASHPOINT BECAUSE ANHYDROUS AMMONIA CAN EXPLODE. ANHYDROUS AMMONIA IS A POISONOUS AND FLAMMABLE MATERIAL WHICH CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (d) Anhydrous ammonia gas is very poisonous.
- 1) Do not breathe anhydrous ammonia gas. Injury to your nose, throat and lungs can occur.
 - 2) Do not let anhydrous ammonia gas touch your skin or your eyes because bad burns can occur.
 - 3) A mixture of 15 to 28% (by volume) of anhydrous ammonia can explode.

B. References

Reference	Title
20-30-98-910-801	Cleaning of Specific Polymeric (Series 98) (P/B 201)

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)
B00066	Solvent - Anhydrous Ammonia	O-A-445
B00342	Alcohol - N-Butyl (Butanol)	ASTM D304
B01018	Solvent - Cleaning Of Specific Polymeric - Series 98	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

D. Prepare the mating surfaces.

SUBTASK 51-25-01-110-001

- (1) Do the steps that follow to prepare the mating surface:



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- (a) Use a cloth that is moist with Series 98 solvent, B01018 (TASK 20-30-98-910-801) to clean the mating surface.

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- (b) Use a cloth that is moist with solvent, B00062 to clean the mating surface of the teflon pad.
- (c) 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 51-25-01-110-002



WARNING

DO NOT GET TEFLON ETCHING MATERIAL IN YOUR MOUTH, YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES OR MIST FROM TEFLON ETCHING MATERIAL. PUT ON PROTECTIVE SPLASH GOGGLES AND GLOVES WHEN YOU USE TEFLON ETCHING MATERIAL. DO NOT LET TEFLON ETCHING MATERIAL CONTACT YOUR SKIN, EYES, OR YOUR CLOTHES. TEFLON ETCHING MATERIAL IS CORROSIVE, TOXIC, FLAMMABLE, AND EXPLOSIVE. TEFLON ETCHING MATERIAL CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Do the Etching Method I (FluoroBond or Tetra-Etch) that follows:
 - (a) Put the part in the etchant solution for a minimum of 30 seconds and a maximum of 60 seconds.
 - (b) 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.
 - (c) Immediately clean the part when the etching is completed.
 - 1) Use a 3 to 5 percent solution (by volume) of water in butyl alcohol, B00342 to remove all of the etchant from the part.
 - (d) Wash the part in clean water.
 - (e) Remove the Scotch Flatback Masking Tape 250, G00270.
 - (f) Clean the surface that had the Scotch Flatback Masking Tape 250, G00270 with a clean cotton wiper, G00034 that is wet with solvent, B00062.

SUBTASK 51-25-01-110-003

- (2) Do the Etching Method II (Sodium-ammonia) that follows:
 - (a) Do the steps that follow to mix the etchant solution:
 - 1) Mix the etchant solution in a clean, dry container.

NOTE: The container must be made of either polyethylene or stainless steel.
 - 2) Put the anhydrous ammonia solvent, B00066 into the container.

NOTE: You can use a rubber or Tygon tube to put the liquid ammonia into the container.

NOTE: Make sure the part will be fully covered by the ammonia.
 - 3) Add 10 grams of sodium metal chips to each liter of anhydrous ammonia.
 - 4) Mix the solution with a rod made of glass or polyethylene.

NOTE: Make sure all of the sodium is mixed into the ammonia.

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- 5) The sodium-ammonia solution can be neutralized with water in butyl alcohol, B00342.

NOTE: You can neutralize the solution with one of the methods that follow:

1. Add a 3 to 5 percent solution (by volume) of water in butyl alcohol to the etchant solution until the solution has no color.
2. Let the etchant solution become dry. Rinse the container with a 3 to 5 percent solution (by volume) of water in butyl alcohol. Add the rinse solution until no color remains. As a last step, flush the container with water.

- (b) Put the rub pad in the solution for 10 to 20 seconds.

NOTE: Make sure the part to be etched is completely covered by the solution.

NOTE: If it is necessary, make one end of the pad wet and then wet the other end of the pad.

- (c) The pad must have a dark brown color after a maximum of 20 seconds in the solution.

NOTE: If the pad is not dark brown after 20 seconds in the solution, add 10 more grams of the sodium metal to the solution for each liter of ammonia in the solution.

- (d) Immediately clean the part.

- 1) Use a 3 to 5 percent solution (by volume) of water in butyl alcohol, B00342 to remove all of the etchant from the part.

- (e) Wash the part in clean water.

- (f) Remove the Scotch Flatback Masking Tape 250, G00270.

- (g) Clean the surface that had the Scotch Flatback Masking Tape 250, G00270, with a clean cotton wiper, G00034 that is wet with solvent, B00062.

- (h) Use a clean cotton wiper, G00034 that is moist with Series 98 solvent, B01018 (TASK 20-30-98-910-801) to clean the surface of the teflon pad.

SUBTASK 51-25-01-340-004

- (3) 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 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) The application time for sealant, A00767, sealant, A00247 Class B-2 mixed adhesive by temperature is as follows:
 - a) At a temperature of 70 °F, the adhesive has an application time of 2 hours.
 - b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
 - c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
 - d) At a temperature below -40 °F, the adhesive has an application time of 14 days.

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- 6) The application time for sealant, A00767, sealant, A00247 Class B-1/2 mixed sealant by temperature is as follows:

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.

- a) At a temperature of 70 °F, the adhesive has an application time of 1/2 hour.
- b) At a temperature between 20 and 30 °F, the adhesive has an application time of 7 days.
- c) At a temperature between -30 and -40 °F, the adhesive has an application time of 10 days.
- d) At a temperature below -40 °F, the adhesive has an application time of 14 days.

SUBTASK 51-25-01-400-001

- (4) Do the steps that follow to apply a new pad:

- (a) To install the new rub strip on the assembly, do these steps:

- 1) Make sure the mating surfaces are clean.
- 2) Apply a thin layer of adhesive (approximately 50 grams on each square foot) 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 inch, apply a light pressure with a clean roller to get a smaller clearance.

- (b) Do the steps that follow to cure the assembly:

- 1) Use two heat lamps, 250 watts each, as a heat source.
 - a) Put the lamps 9 inches apart and 6 inches from the rub strip.

NOTE: Make sure the heat lamps point down on the rub strip.
- 2) Apply heat on the assembly at a temperature of 90 (±5) °F.

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 to 120 °F.

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.

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- 6) Cure the pad at 75 to 80 °F. The cure time to handling strength is shown in (Table 802).

NOTE: The time to a full cure is one week or more.

NOTE: You can apply more heat to increase the speed of the cure time, up to a temperature of 120 °F. The cure time will be reduced by 50 percent for each 20 °F rise in temperature. Temperatures below 75 °F will increase the cure time.

Table 802/51-25-01-993-802 Cure time 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** ————

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BONDED ALUMINUM FOIL TAPE - REPAIRS

1. General

- A. This procedure contains these tasks:
- (1) Aluminum foil tape repair
 - (2) Aluminum foil tape - floor panel repair

TASK 51-27-01-340-801

2. Aluminum Foil Tape Repair

A. General

- (1) The protection is given to the electrical/electronic wiring in the surface of the nonmetallic skins and to composite parts with aluminum foil tape.
- (2) The tape does these dual functions:
 - (a) The tape prevents a possible direct lightning strike to the wires below the tape.
 - 1) The tape is used to provide a continuous, electrically conductive surface to composite structures.
 - a) This tape surface is to reduce the effect of lightning-induced transient electrical impulses on electrical wiring under composite structures.
 - (b) The tape gives the electromagnetic shielding from the fields set up by a lightning strike.
- (3) Tears, cuts, or breaks in the aluminum foil that stop the electrical conductivity must be repaired.
- (4) If the cut or break does not cause a disbond, the repair must be made with an electrical conductive splice.
- (5) If the foil is disbanded from the underlying glass fabric and within the limits of Table III, it can be cemented down.
- (6) If the foil is disbanded from the underlying glass fabric and outside the limits of the Table III, it must be trimmed.
 - (a) Trim the foil to where it is bonded and repair it as shown in this procedure.

B. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
51-21-04-620-801	Alodine 600, 1000, 1200, and 1200S Coating Application (P/B 701)

C. Consumable Materials

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010 Type 70 (BMS5-92 Type 1)
A00253	Adhesive - Room Temperature Curing Two Part Epoxy	BMS5-109 Type II Class 2
B00083	Solvent - VM&P Naphthas	TT-N-95 Type II, ASTM D-3735 Type III
B00093	Solvent - Tetrachloroethylene (Perchloroethylene)	ASTM D4081
B00102	Abrasive - Aluminum Oxide Coated Cloth	

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Reference	Description	Specification
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding - Series 88	
C00064	Coating - Aluminum Chemical Conversion	BAC5719 Type II Class A (MIL-DTL-5541 Class 1A)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00116	Sponge - Synthetic	
G00316	Fabric - Woven Glass Reinforcements For Laminating Plastics	BMS9-3
G02145	Tape - Aluminum Foil	BMS8-289

D. Do the Bonded Aluminum Foil Tape Repair Procedure

SUBTASK 51-27-01-110-001



DO NOT GET THE ADHESIVES, FINISHES, CLEANERS, THINNERS, AND SOLVENTS IN YOUR MOUTH, OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THESE MATERIALS. PUT ON RESPIRATOR, PROTECTIVE SPLASH GOGGLES, AND PROTECTIVE GLOVES WHEN YOU USE THESE MATERIALS. KEEP THESE MATERIALS AWAY FROM SPARKS, FLAME, AND HEAT. THESE MATERIALS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.



DO NOT LET THE SOLVENTS TOUCH THE PLASTICS, CONTROL CABLES, LUBRICATED AREAS, PLASTIC DECALS, OR PAINTS OR MARKS WHICH ARE RESISTANT TO HYDRAULIC FLUID.

- (1) Clean the area to be repaired as follows:
 - (a) Clean the surfaces with a cheesecloth (cotton wiper, G00034) that is moist with aliphatic naphtha (solvent, B00083) or tetrachloroethylene (solvent, B00093).
 - 1) Remove all visible oil, dirt, grease, etc.
 - (b) Apply metallic foil masking tape around the area to be alodined.
 - 1) Put the tape 3 inches out from the bonded faying surface.
 - (c) Abrade the faying surface to a water break free surface with Scotch-Brite aluminum oxide pads or wheels (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 MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (d) Wipe the area with a clean cheesecloth (cotton wiper, G00034) moist with solvent Series 88 solvent, B01008 (TASK 20-30-88-910-801).

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SUBTASK 51-27-01-370-001

- (2) Apply the alodine (do this task: Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801) to the repair area as follows:
- (a) Apply Alodine 1200 or 1200S (coating, C00064) fully and equally with a fiber or nylon brush, clean cheesecloth (cotton wiper, G00034), or a cellulose sponge (sponge, G00116).
 - 1) Let the Alodine solution stay 3 to 4 minutes for 1200 and 1 to 3 minutes for 1200S to form a bronze or golden layer.
 - a) Carefully touch the area with a cheesecloth or cellulose sponge moist with alodine to keep the treated area from drying.
 - 2) Flush the area with clean water by carefully touching the treated surface with a clean cheesecloth moist with water.
 - a) Touch dry the surface for 1 to 2 minutes.
 - b) Flush the area again.
- NOTE: Make sure you do not scratch or remove the new layer.
- 3) Carefully touch the surface with a clean dry cheesecloth to remove the unwanted liquid.
 - a) Touch dry the surface again if it is necessary.
 - 4) Do a check of the crevices with blue litmus paper for possible acid contamination.
 - a) If you find acid (litmus paper will turn to a red color), flush the area again until the litmus paper stays blue.

SUBTASK 51-27-01-370-002

- (3) Apply a primer to the repair area as follows:
- NOTE: Make sure the surfaces are thoroughly dry before you apply the primer.
- (a) Apply a thin uniform layer of primer to a thickness of 0.002 to 0.008 inches dry film thickness.
 - 1) When a second layer of primer is necessary, let the first layer air dry for a minimum of one hour.
 - (b) Let the primer air dry at 75 ° ±5 °F for 60 minutes before you apply the adhesive.
 - (c) Do the applicable instructions that follow when you apply the primer:
 - 1) Keep the primered faying surface dry.
 - 2) Keep the primered faying surface free of contamination.
 - 3) Do not let the surface be open to Ultra-Violet (UV) light.
 - 4) Do not store the primered faying surfaces more than 7 days before it is bonded.
 - 5) Do not rub the primered faying surfaces with solvent before it is bonded.

SUBTASK 51-27-01-350-001

- (4) Repair the loose foil as follows:
- (a) If loose foil edges are present, use the adhesive (adhesive, A00253) or (adhesive, A00028) to brush under the loose foil edges.
 - 1) Push the loose foil back in to position.

NOTE: Use your fingers to push the tape tightly into its position.
 - 2) Put a layer of the adhesive on the full foil area.

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- (b) If there are no loose foil edges, apply a layer of adhesive (adhesive, A00253) or (adhesive, A00028) on the repair area.
- (c) Cure the adhesive with contact pressure as follows:
 - 1) Cure times for adhesive (adhesive, A00253).

Table 801/51-27-01-993-801

TABLE I ADHESIVE CURE TIMES	
CURE TEMPERATURE	CURE TIME (MINIMUM)
60 TO 100 °F	7 Days
120 ± 10 °F	25 Hours
160 ± 10 °F	9 Hours
200 ± 10 °F	1 Hour

- 2) Cure times for adhesive (adhesive, A00028).

Table 802/51-27-01-993-802

TABLE II ADHESIVE CURE TIMES	
CURE TEMPERATURE	CURE TIME (MINIMUM)
65 TO 100 °F	24 Hours
120 ± 10 °F	180 ± 10 Min.
160 ± 10 °F	130 ± 10 Min.
250 ± 10 °F	20 to 60 Min.

SUBTASK 51-27-01-350-002

- (5) Repair damaged or torn foil without electrical continuity.



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (b) Do the primary repair.
 - 1) Remove the damaged foil but do not damage the understructure.
 - 2) Cut the new aluminum foil tape (tape, G02145) to fit with a 0.5 inch to 1.0 inch overlap.

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- 3) If it is necessary, apply alodine to the aluminum surface that the adhesive side of the foil tape will touch in the overlap area (do this task: Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801).
 - 4) Apply primer to the aluminum surface that the adhesive side of the foil tape will touch in the overlap area.
 - 5) Let the area air dry for 5 to 15 minutes before you apply the aluminum foil tape.
 - 6) Apply the aluminum foil tape.
 - 7) Apply the adhesive (adhesive, A00253) or (adhesive, A00028).
 - 8) Apply a vacuum and cure the repaired area at 250 ± 10 °F for a minimum of 90 minutes.
- (c) Do the optional Repair A as follows:
- 1) Remove the damaged foil but do not damage the understructure.
 - 2) If it is necessary, apply alodine (coating, C00064) to the aluminum surface that the adhesive side of the foil tape will touch in the overlap area (do this task: Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801).
 - 3) Cut a piece of glass fabric (fabric, G00316) to fit 0.5 inches to 1.0 inches overlap.
 - 4) Apply the fabric to the repair area.
 - 5) Soak the glass fabric with the adhesive (adhesive, A00028).
 - 6) Cure the repaired area (see Table 2).

SUBTASK 51-27-01-350-003

- (6) Repair the damaged or torn foil with an electrical continuity splice.



CAUTION

DO NOT CUT, CAUSE NICKS, OR CAUSE OTHER DAMAGE TO THE CABLES, WIRES, METAL-BRAIDED SHIELD, OR OVERBRAID. DAMAGE TO THESE COMPONENTS CAN CAUSE MALFUNCTIONS, OR DAMAGE TO OTHER EQUIPMENT.



CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (b) Remove the damaged foil but do not damage the understructure.
 - 1) Cut the aluminum foil tape (tape, G02145) to fit as a butt joint with a maximum gap of 0.25 inches (do not overlap the foil).
 - 2) Apply masking tape to the area 0.500 inch larger than the repair area.
 - 3) Apply alodine to the foil tape (tape, G02145) to a width of 3.5 ± 0.5 inches on each side of the butt joint.
 - 4) Put an aluminum foil tape (tape, G02145) splice strip, adhesive side up, to overlap the aluminum surfaces.
 - a) Make sure the splice strip is 1.25 ± 0.25 inch each side of the splice line and end 1.0 ± 0.125 inch from the part edge or laminated edge band.
 - 5) Put another strip of aluminum foil tape (tape, G02145) adhesive side down, to provide a 1.0 ± 0.25 inch overlap on all sides of the previous strip.

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- 6) Apply a vacuum and cure the repaired area at 250 ±10 °F for a minimum of 90 minutes.

SUBTASK 51-27-01-350-004

- (7) Find the values in the table that follows.

Table 803/51-27-01-993-803

TABLE III BMS8-289 DISCREPANCY, ACCEPTANCE AND REPAIR CRITERIA			
DISCREPANCY	PERMITTED LIMITS	REPAIR LIMITS	REPAIR PROCEDURE
A - FOIL DAMAGE			
(1) Tears, cuts, or breaks	None are permitted (all must be corrected)	4.0-inch maximum length, and only one in any 12 by 12 inch area	Use the applicable repair procedure in this section.
		Greater than 4.0 inch length, and frequency unlimited	Use the applicable repair procedure in this section and do a splice.
(2) Disbonded or damaged foil ^{*[1]}	None are permitted (all must be corrected)	1 sq. in. maximum area, and only one in any 12 by 12 inch area	Remove the damage and use this section to do the repair.
		Greater than 1 sq. in. area, and frequency unlimited	Remove the damage and use this section to repair for electrical continuity.
(3) Foil joint gaps	0.25-inch maximum gap, 4.0-inch maximum length, and only one in any 12 by 12 inch area	All	Use the applicable repair procedure in this section.
B - DISBOND AT MACHINED EDGES			
	All foil disbonds up to 0.06-inch from machined edge or drilled holes	Foil disbond more than 0.06-inch	Use the applicable repair procedure in this section.
C - FOIL WRINKLES			
(2) Faying Surfaces	0.005-inch maximum height	Above 0.005-inch not containing reinforcement fibers ^{*[2]}	Reduce wrinkle height by grinding or sanding to 0.005 inch or less; then use the applicable repair procedure in this section.
(3) Non-faying Surfaces	0.100-inch maximum height	Above 0.100-inch not containing reinforcement fibers ^{*[2]}	Reduce wrinkle height by grinding or sanding to 0.100 inch or less; then use the applicable repair procedure in this section.

*[1] If the disbonded foil can be trimmed to where it is bonded and within the acceptance limits for foil joint gaps, no rework is required. If it exceeds these limits, it will be reworked using this section.

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- *[2] Verification that wrinkles do not contain reinforcement fibers can be done by grinding the foil away up to a maximum length of 4 inches and a maximum of 0.25-inches wide.

END OF TASK

TASK 51-27-01-300-801

3. Aluminum Foil Tape - Floor Panel Repair

(Figure 801)

A. General

- (1) The aluminum foil on the floor panels gives some electromagnetic protection for electronic equipment against the Effects of High Intensity Radiated Fields (HIRF).
- (2) The foil is not electrically bonded to the airplane.

B. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
SRM 51-70-14/201	Structural Repair Manual

C. Consumable Materials

Reference	Description	Specification
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding - Series 88	
G02145	Tape - Aluminum Foil	BMS8-289
G02329	Tape - Aluminum Foil, Pressure Sensitive - Vibration Damping Tape 434	

D. Do the bonded aluminum foil floor panel repair procedure.

SUBTASK 51-27-01-350-005

- (1) All damage to the floor panel foil must be repaired.
 - (a) Repair all tears, cuts, breaks, and holes.

SUBTASK 51-27-01-350-006

- (2) Repair as follows:



CAUTION

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CAUTION

MAKE SURE THAT YOU REMOVE ALL TOOLS, LOOSE PARTS AND UNWANTED MATERIAL FROM THE AREA WHEN YOU COMPLETE MAINTENANCE. DAMAGE TO EQUIPMENT COULD OCCUR.

- (a) Make sure that airplane electrical wires and structures are protected from damage by drills, metal shavings and other contamination.
- (b) Remove loose or damaged foil that is not bonded to the floor panel.
- (c) Cut the foil to where it is bonded.

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DO NOT LET THE SOLVENTS TOUCH THE PLASTICS, CONTROL CABLES, LUBRICATED AREAS, PLASTIC DECALS, OR MARKS WHICH ARE RESISTANT TO HYDRAULIC FLUID.

- (d) Clean the area to be repaired with solvent Series 88 solvent, B01008, do this task: Final Cleaning of Metal Prior to Non-structural Bonding (Series 88), TASK 20-30-88-910-801.
- (e) Apply Vibration Damping Tape 434 tape, G02329.
 - 1) The aluminum foil tape must have an overlap of 1 inch or more on all sides of the damaged foil.
 - 2) Large damaged areas can use more than one piece of tape.

SUBTASK 51-27-01-350-007

- (3) Optional repair A as follows:
 - (a) Remove loose or damaged foil that is not bonded to the floor panel.
 - (b) Cut the foil to where it is bonded.



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DO NOT LET THE SOLVENTS TOUCH THE PLASTICS, CONTROL CABLES, LUBRICATED AREAS, PLASTIC DECALS, OR MARKS WHICH ARE RESISTANT TO HYDRAULIC FLUID.

- (c) Clean the area to be repaired with solvent Series 88 solvent, B01008, do this task: Final Cleaning of Metal Prior to Non-structural Bonding (Series 88), TASK 20-30-88-910-801.
- (d) Make a patch from tape, G02145 to fit removed damage.
- (e) Apply Vibration Damping Tape 434 tape, G02329 around the edges of the foil patch.
 - 1) The aluminum foil tape must have an overlap of 1 inch or more on all sides of the damaged foil.
 - 2) More than one piece of tape can be used.

SUBTASK 51-27-01-350-008

- (4) Optional repair B as follows:
 - (a) Refer to Repair 3, Category A (SRM 51-70-14/201).

————— **END OF TASK** —————

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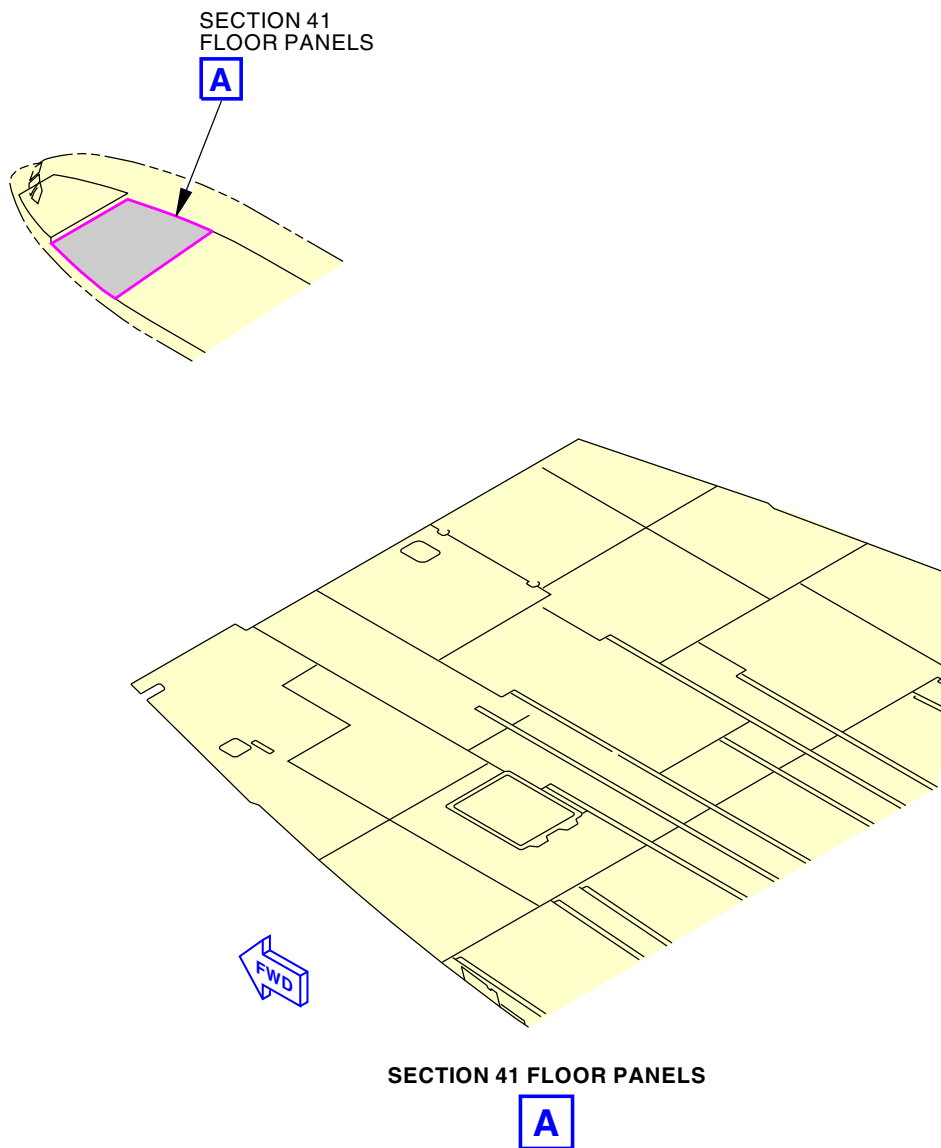
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NOTE:

FLOOR PANELS SHOWN HERE ARE FOR REFERENCE ONLY. FOIL IS LOCATED ON THE BOTTOM SURFACE.

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**Location of Section 41 Floor Panels Bonded Aluminum Foil (BMS 8-289)
Figure 801/51-27-01-990-801**

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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) Injection Seals Application
 - (5) Hole and Slot Seals Application
 - (6) Fillet Seals Application
 - (7) Fastener Seals Application
 - (8) Aerodynamic Smoother Application
 - (9) Electrical Fitting seals Application
 - (10) Fuel Seals Application
 - (11) Protection for Sealing Materials
 - (12) Accelerate Curing
 - (13) Chemical Sealant Removal
 - (14) Excess Sealant Removal
 - (15) 3M SR Cutter Sealant Removal.
 - (16) BMS5-95 Sprayable Sealant Application
- 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.
- D. For information on types of sealant, see the chapter on Adhesives, Cements, and Sealers (TASK 20-30-01-910-801).

TASK 51-31-01-160-801

2. Prepare For Sealing

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208Figure 201)

A. **References**

Reference	Title
20-30-01-910-801	Structure Adhesives, Cements, and Sealants (P/B 201)
20-30-92-910-801	Final Cleaning Prior to General Sealing (Series 92) (P/B 201)

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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	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 Supplier: F6892 Part #: SHN0272 Supplier: \$0856 Part #: SHR0272-T Supplier: 1DWR5 Part #: SHW0215 Supplier: \$0856
COM-4747	Pneumatic Scraper Sharpener Part #: 501/1 Supplier: F6892 Opt Part #: 309/3 Supplier: F6892
STD-123	Brush - Soft Bristle

C. 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	
B01012	Solvent - Final Cleaning Prior To General Sealing - Series 92	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
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

D. Procedure

SUBTASK 51-31-01-350-001

- (1) If structural repair is necessary on the airplane structure, refer to the Structural Repair Manual (SRM).

SUBTASK 51-31-01-210-001

- (2) Examine the seal in the area where there is a leak.

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- (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 AND CAUSE AN UNSATISFACTORY BOND.

- (c) Identify the type of sealant that is used in the damaged area (TASK 20-30-01-910-801).

SUBTASK 51-31-01-160-001



CAUTION

ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.



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.

- (3) Remove all of the sealant from the damaged area:

- (a) Remove the loose pieces of the sealant from the damaged areas with an approved sealant removal tool, COM-2481 and sealant removal tool handle, COM-4746 (Figure 201).

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 777-53A0043.

- 1) If necessary, do these steps to sharpen the sealant removal tool, COM-2481:
- Sharpen the sealant removal tool, COM-2481 with sandpaper, G50260 or finer by hand or by metal sharpening wheel (scraper sharpener, COM-4747).
 - If you sharpen the sealant removal tool, COM-2481 by hand, rub the sharpened sealant removal tool, COM-2481 on a wiper, G50262 to remove loose sanding particles.
 - If you use a metal sharpening wheel, rub the sharpened sealant removal tool, COM-2481 on sandpaper, G50261 or finer aluminum oxide paper to remove debris, and then rub it on wiper, G50262 to remove loose sanding particles.

SUBTASK 51-31-01-160-002

- (4) Do the steps that follow to clean the area before you apply the sealant:

- (a) Remove the shavings, chips, and all other loose materials with a vacuum cleaner.

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- (b) Remove any grease, oil, dirt, and any other contamination with a cotton wiper, G00034 or a soft bristle brush, STD-123 wet with Series 92 solvent, B01012, do this task: (Final Cleaning Prior to General Sealing (Series 92), TASK 20-30-92-910-801).

NOTE: Make sure you use only solvent, B00083 to clean on or around acrylic surfaces.

NOTE: Make sure you clean an area that is larger than the area to be sealed.

- (c) Do the step that follows 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 step that follows to clean composite laminate surfaces that are unpainted:

- 1) Clean the surface with a cotton wiper, G00034 that is moist with Series 92 solvent, B01012, do this task: Final Cleaning Prior to General Sealing (Series 92), TASK 20-30-92-910-801.
- 2) Abrade (sand) the surface with 150 grit (or finer) abrasive, B00137.
- 3) Wipe the surface with cotton wiper, G00034 that is damp with Series 92 solvent, B01012, do this task: Final Cleaning Prior to General Sealing (Series 92), TASK 20-30-92-910-801.

NOTE: Make sure 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 you clean an area that is larger than the area necessary to apply the sealant.
- 2) Make sure you use a clean cotton wiper, G00034 that is moist with Series 92 solvent, B01012, do this task: Final Cleaning Prior to General Sealing (Series 92), TASK 20-30-92-910-801.

NOTE: Before the solvent dries, wipe the area again with a clean, dry cotton wiper, G00034 cheesecloth.

- 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 the solvent is removed from the area with a dry, clean cotton wiper, G00034 before the solvent dries.
- 5) Make sure the sealant is removed completely to expose the surface.

- (f) If a large quantity of primer was accidentally removed from the area, do the step that follows:

- 1) Apply more primer to the area after you apply the sealant.

———— **END OF TASK** ————

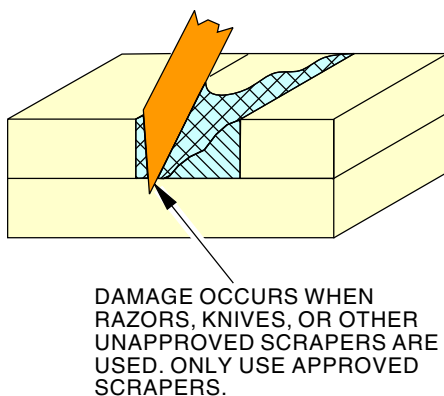
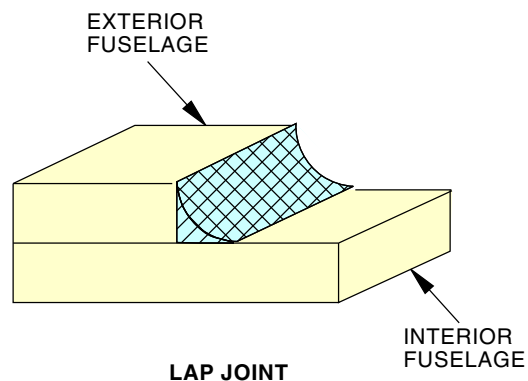
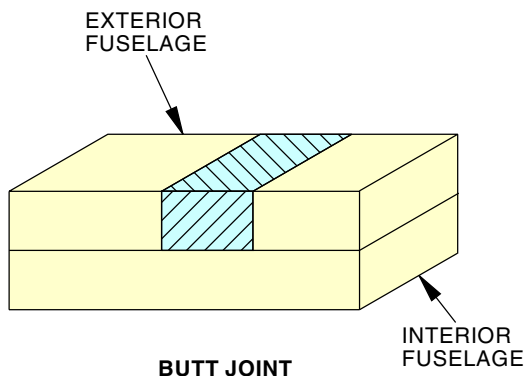
EFFECTIVITY
ARO ALL

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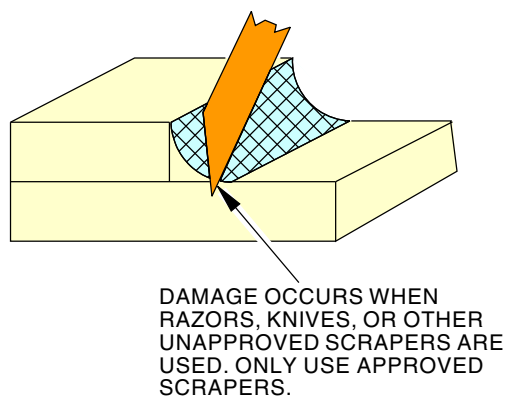
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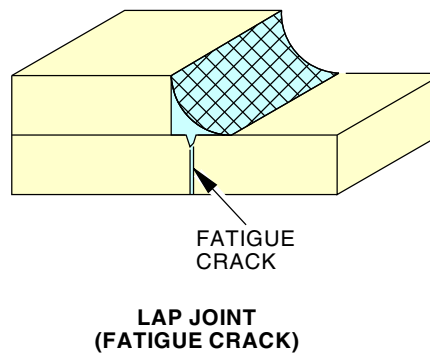
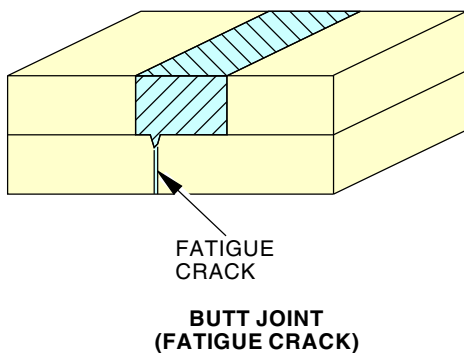
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**BUTT JOINT
(UNAPPROVED SCRAPERS)**



**LAP JOINT
(UNAPPROVED SCRAPERS)**



1470099 S0000267614_V2

**Unapproved Scraper Damage
Figure 201/51-31-01-990-808**

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ARO ALL

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TASK 51-31-01-390-801

3. Non-Removable Faying (Mated) Surface Seal Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

A. General

- (1) Make sure 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.

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	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
STD-812	Spatula - Nonmetallic
STD-6657	Gun - Sealing

C. Procedure

SUBTASK 51-31-01-160-003

- (1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-001

- (2) Apply the sealant with the basic method that follows:



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 CORROSION TO THE STRUCTURE, OR A FIRE IF THE FLUIDS ARE FLAMMABLE.

- (a) Apply the sealant to one of the faying (mated) surfaces with a sealing gun, STD-6657 or nonmetallic spatula, STD-812.

NOTE: A roller is the recommended method to get an equal thickness.

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- (b) Make sure you apply the sealing compound on the full area of the faying (mated) surface (Figure 202).

NOTE: Normally, approximately 0.005 in. (0.127 mm) of sealant is sufficient. However, about 0.010 in. (0.254 mm) to 0.030 in. (0.762 mm) thickness of sealant may be necessary depending upon fit-up of parts.

- 1) The thickness of the sealant applied must be the minimum quantity necessary to fill the assembled faying (mated) surfaces.

NOTE: The sealant must show with a continuous and equal squeeze-out.

- (c) A small bead of the same sealant can be applied near the edge of one of the two faying surfaces (Figure 202).

NOTE: This is to make sure there is a positive squeeze-out of the sealant.

SUBTASK 51-31-01-390-002

- (3) Put the component parts together.

- (a) Install fasteners to keep the surfaces together using one of the steps that follow:

- (b) Install permanent fasteners in every hole.

- 1) If you cannot install permanent fasteners in every hole, 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.

- (c) Install the permanent fasteners with new sealant as follows:

- 1) Apply the sealant on the fastener or in the hole.

- 2) Make sure you apply clamps to squeeze the sealant to show a continuous and equal squeeze-out.

- 3) Make sure the faying (mated) surface is smooth and the squeeze out is approximately 0.06 inch along the joint.

- 4) When you remove the temporary fasteners before the sealant is dry (cured) make sure you apply clamps.

NOTE: Apply the clamps to hold the faying (mated) surface to make sure they will not move apart.

- (d) Remove the unwanted sealant with an approved sealant removal tool, COM-2481.

———— **END OF TASK** ————

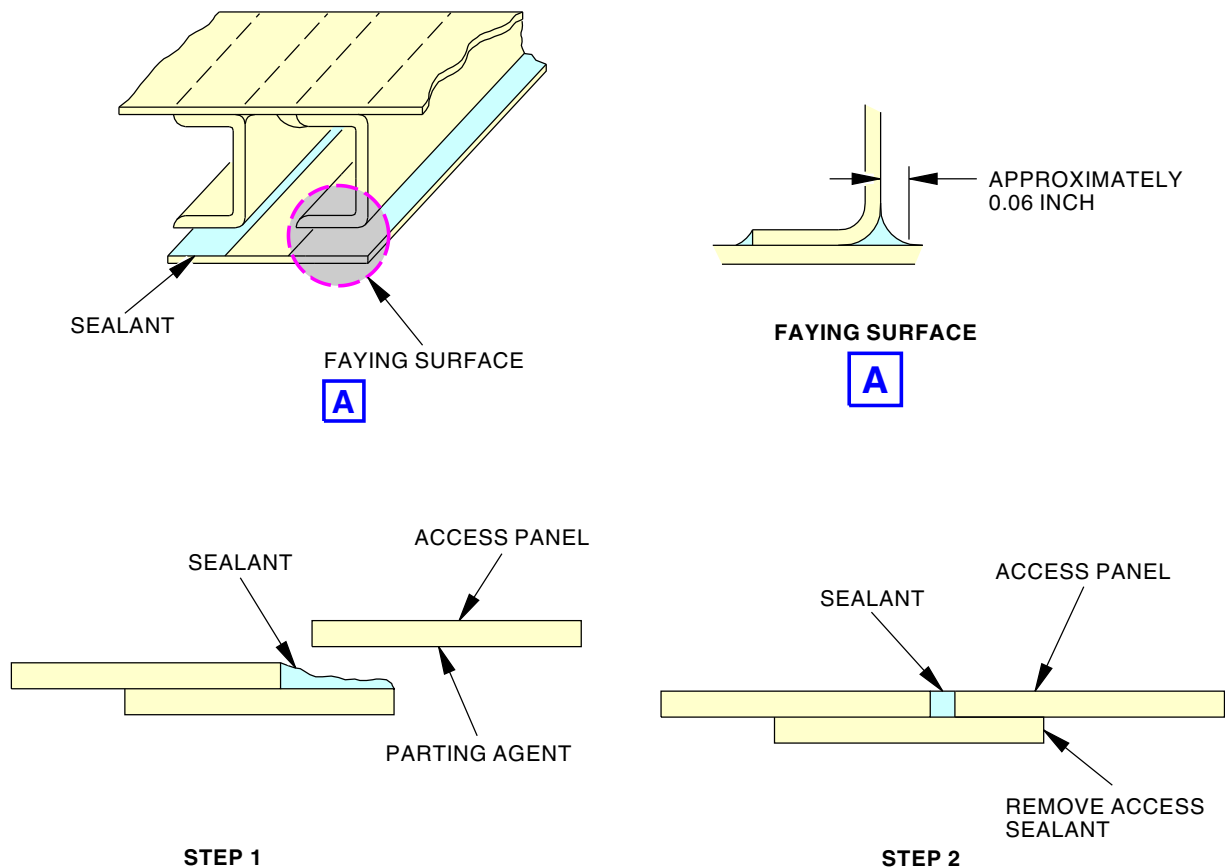
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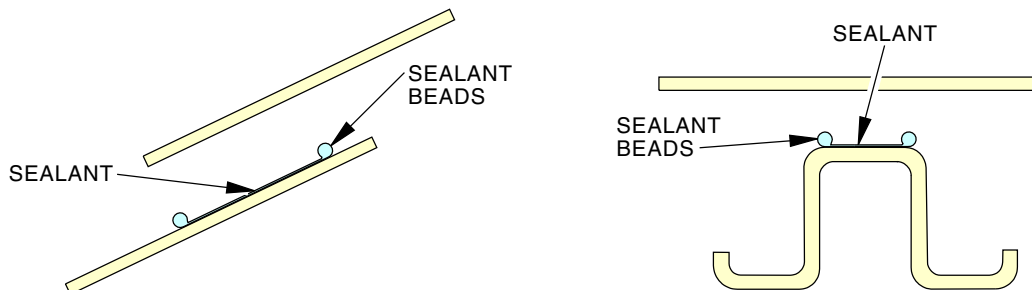
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**REMOVABLE SEALS
(THE SEAL IS APPLIED IMMEDIATELY BEFORE THE
ACCESS PANEL IS INSTALLED)**



FAYING SURFACE SEALANT WITH SEALING BEADS ADDED

E23749 S0006424322_V2

**Faying Surface Seal
Figure 202/51-31-01-990-801 (Sheet 1 of 2)**

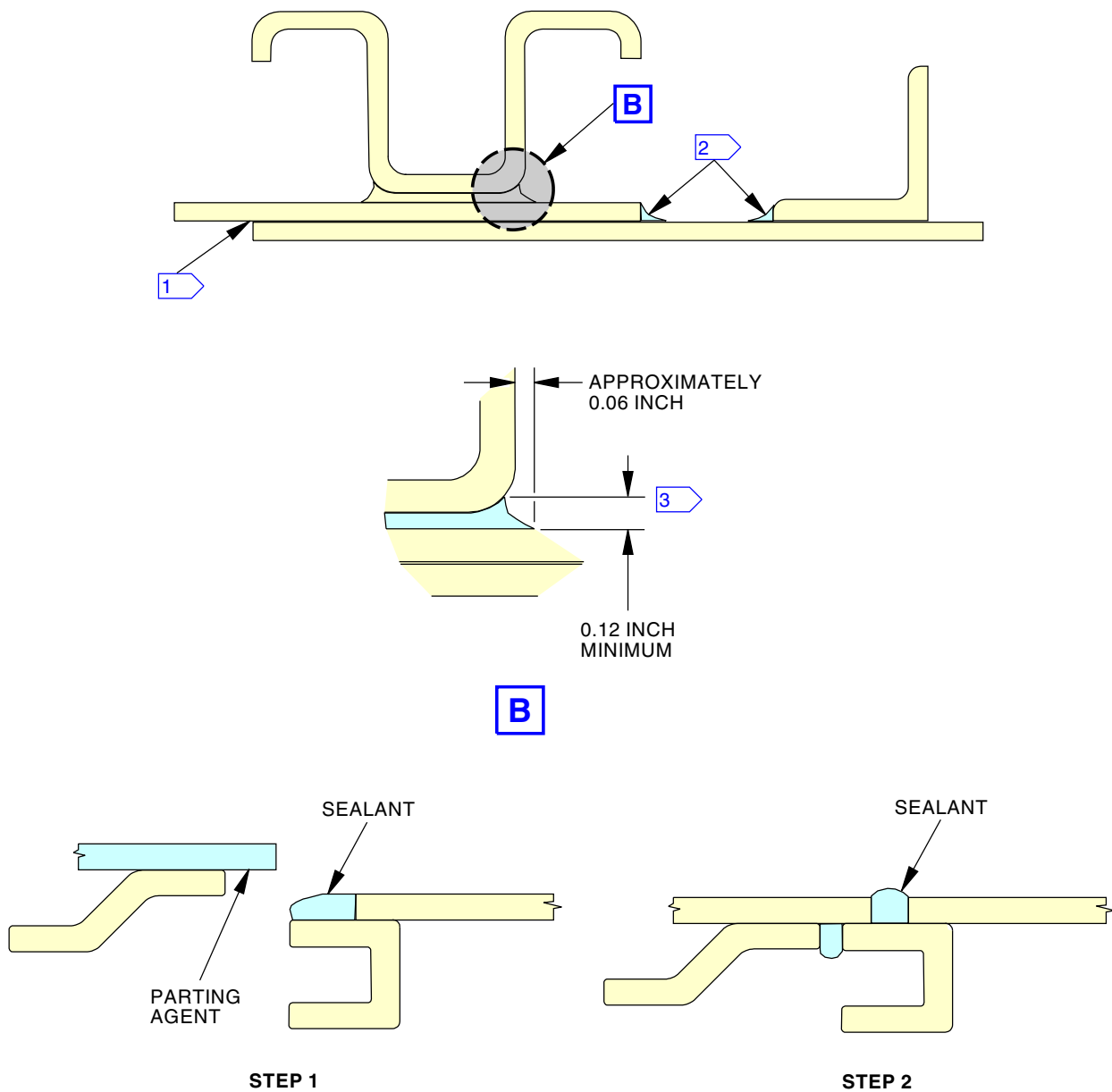
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- 1** EXTERNAL BODY SECTION AND FUEL SIDE OF WING SPAR.
- 2** MAKE SURE THE FAIRED-OUT EXTRUDED SEALANT IS APPROXIMATELY AS SHOWN.
- 3** THIS SHOWS SEALANT EXTRUDED AFTER THE ASSEMBLY AND FAIRED WITH A FAIRING TOOL.

E23758 S0006424323_V2

**Faying Surface Seal
Figure 202/51-31-01-990-801 (Sheet 2 of 2)**

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TASK 51-31-01-390-810

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
G02185	Agent - Peelable Parting (Valspar - 4A-183 Green Strippable Coating)Manufacturing discontinued, use stock until depleted	
G50365	Agent - Peelable Parting (AC Products - AC962-73C) Production discontinued, use stock until depleted.	BAC5000
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 51-31-01-100-001

- (1) Do this task: Prepare For Sealing, TASK 51-31-01-160-801.

SUBTASK 51-31-01-370-002



DO NOT LET WET PARTING AGENT TOUCH AN ACRYLIC SURFACE. IF A WET PARTING AGENT DOES TOUCH AN ACRYLIC SURFACE, DAMAGE MAY OCCUR.

- (2) Apply one of the parting agents listed to one of the mating surfaces. If one of the surfaces is acrylic, apply the parting agent to the non-acrylic surface.
 - (a) AC962-73C peelable parting agent, G50365
 - (b) AZ 634-2 peelable parting agent, G50367
 - (c) Rexco Partall Coverall Film peelable parting agent, G50368
 - (d) temporary coating, G50369
 - (e) Valspar 4A-183 green strippable coating, G02185

SUBTASK 51-31-01-390-014

- (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 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.

- (a) Apply the sealing compound to one surface with a sealant gun, spatula, brush, roller, smooth or serrated scraper, or spray gun.

NOTE: A roller is the recommended method to get an equal thickness.

- 1) Make sure you apply the sealing compound on the full area of the faying (mated) surface.

NOTE: Normally, approximately 0.005 in. (0.127 mm) of sealant is sufficient.

However, about 0.010 in. (0.254 mm) to 0.030 in. (0.762 mm) thickness of sealant may be necessary depending upon fit-up of parts.

- 2) The thickness of the sealant applied shall be the minimum amount required to fill the assembled faying surface and to give a continuous and visible squeeze-out.
- 3) If necessary, apply a small bead of the same sealant at the inboard edge of the faying surface.

NOTE: This procedure helps in the positive squeeze out of sealant.

SUBTASK 51-31-01-390-015

- (4) Put the component parts together.

- (a) Install fasteners to keep the surfaces together using one of the steps that follow:

- (b) Install permanent fasteners in every hole.

- 1) If you cannot install permanent fasteners in every hole, 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.

- (c) Install the permanent fasteners with new sealant.

- (d) Apply the sealant on the fastener or in the hole.

- (e) Make sure you apply clamps to squeeze the sealant to show a continuous and equal squeeze-out.

- (f) Make sure the faying (mated) surface is smooth and the squeeze-out is approximately 0.060 in. (1.524 mm) along the joint.

— END OF TASK —

TASK 51-31-01-390-802

5. Injection Seal Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

A. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

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B. Procedure

SUBTASK 51-31-01-160-004

(1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-004



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.

(a) When a continuous seal is necessary, do the steps that follow:

- 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 (Figure 203).

NOTE: This is to make sure the sealant fully flows out of the other holes.

SUBTASK 51-31-01-390-016



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.

(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 you fill the slot.
 - 1) Make sure there is a continuous seal at the bottom and sides of the slot.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

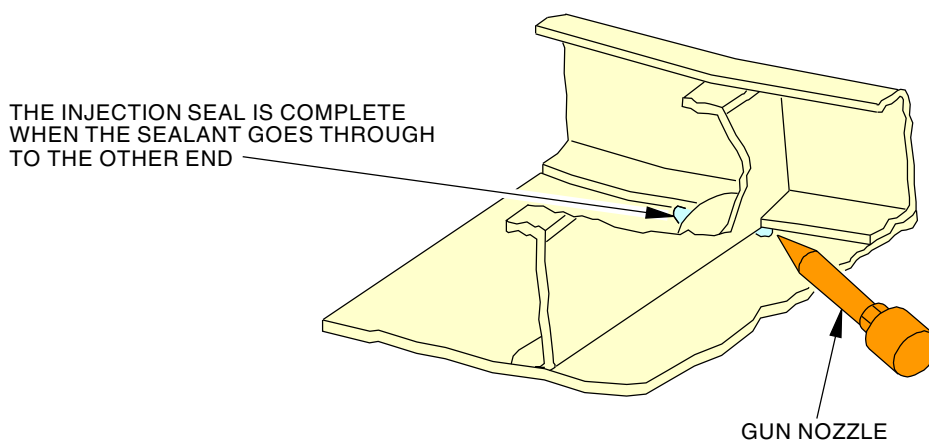
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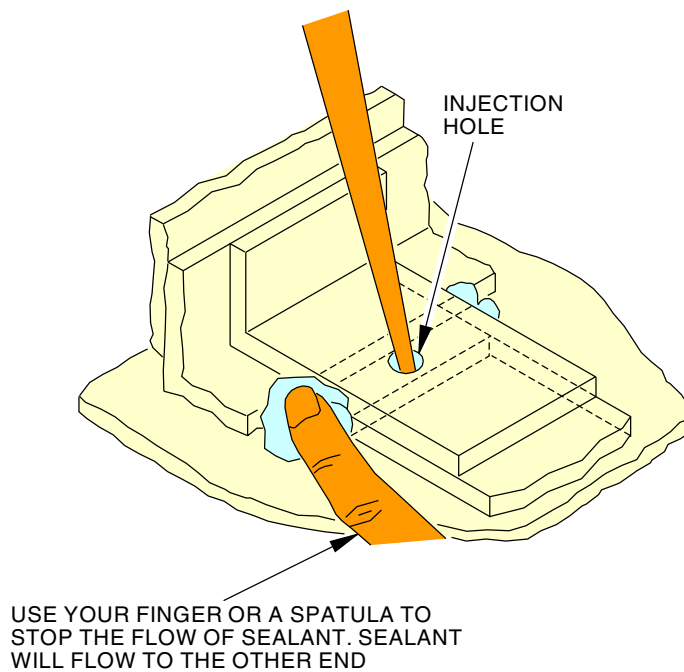
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INJECTION SEAL



INJECTION SEAL
(BLOCK OFF)

E23798 S0006424326_V2

Injection Seal
Figure 203/51-31-01-990-802

EFFECTIVITY
ARO ALL

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TASK 51-31-01-390-803

6. Hole and Slot Seal Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

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 51-31-01-160-005

- (1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-005

- (2) Apply the sealant (Figure 204).

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 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 all sides of the sealant are feathered on all of the adjacent surfaces.

——— **END OF TASK** ———

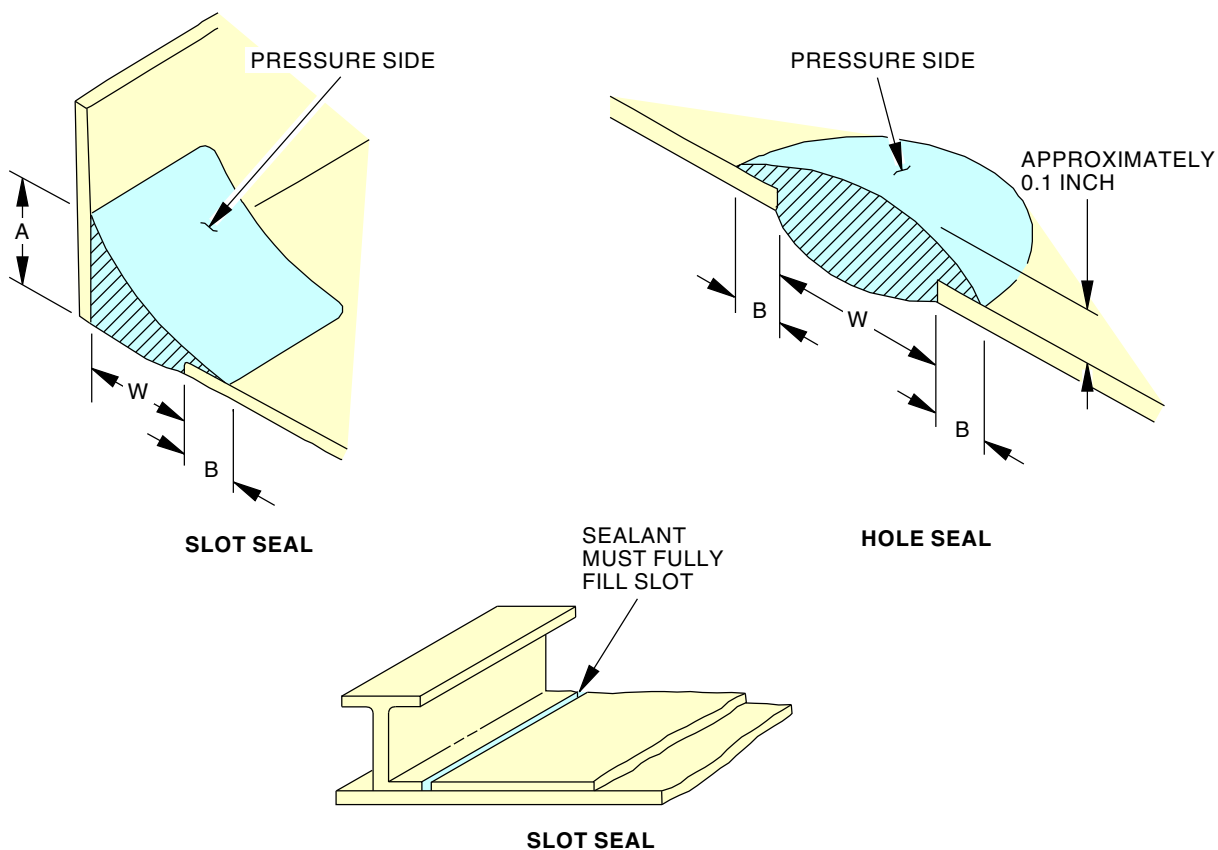
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ARO ALL

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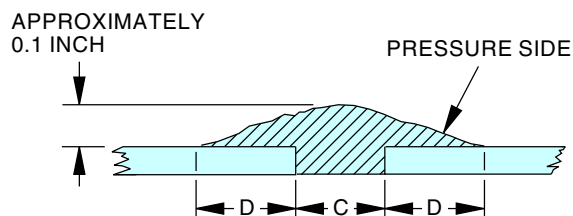
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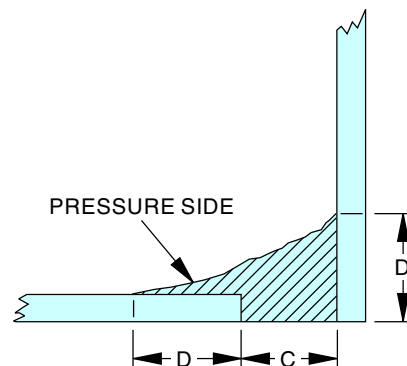
A = 0.25 INCH MINIMUM AND NOT LESS THAN W
W = 0.25 INCH MAXIMUM FOR DUCT AND PRESSURE SEAL
W = 0.50 INCH MAXIMUM FOR WEATHER AND FUEL SEAL
B = 0.25 INCH MINIMUM
IF W IS 0.1 INCH OR LESS, NO COMPOUND IS NECESSARY



NOTE:

D = 0.25 INCH MINIMUM BUT NOT LESS THAN W
C = 0.50 INCH MAXIMUM

HOLE FILLING



HOLE FILLING

E23926 S0006424328_V2

**Hole and Slot Seal
Figure 204/51-31-01-990-803**

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TASK 51-31-01-390-804

7. Fillet Seal Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

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 51-31-01-160-006

- (1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-006

- (2) 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 noncontaminating 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 the sealant is applied in a straight line (Figure 205).
- (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 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 the seal is smooth.
- (h) Make sure there are no air bubbles in the seal.
- (i) Make sure the bead has the shape of a faired fillet, after the work is completed.

————— **END OF TASK** —————

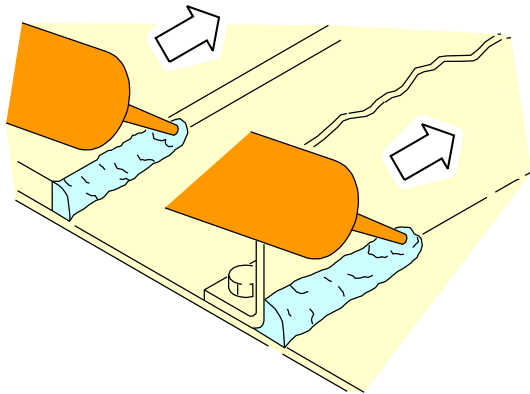
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ARO ALL

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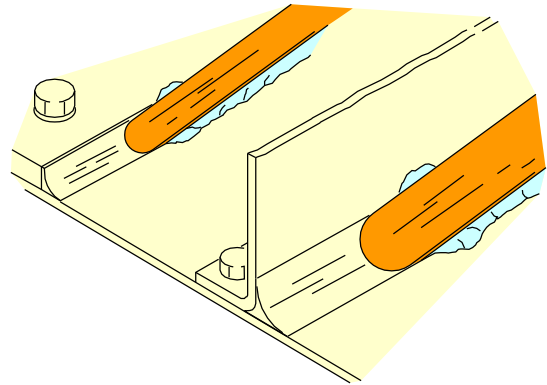
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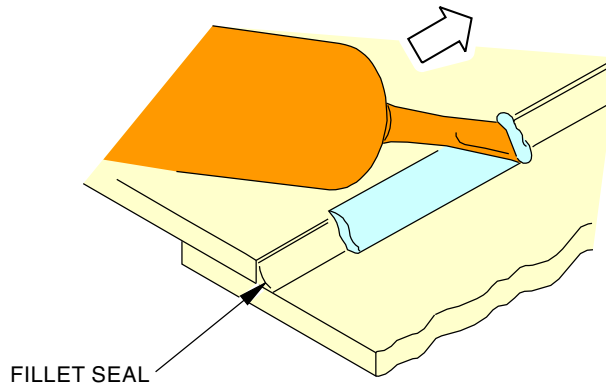


STEP 1 1
(APPLICATION)



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

E24006 S0006424330_V2

Fillet Seal
Figure 205/51-31-01-990-804 (Sheet 1 of 2)

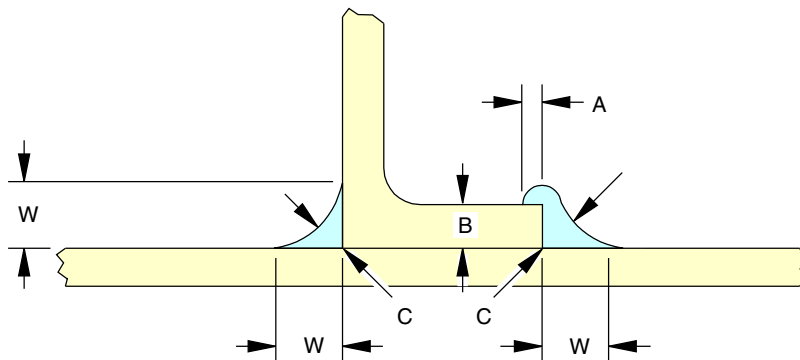
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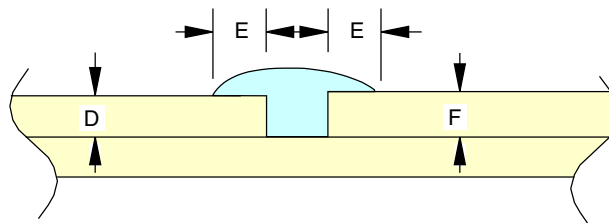
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C = 0.08 INCH MINIMUM
W = 0.15 TO 0.25 INCH
A+B = W EXCEPT A = 0 WHEN B = 0.15 INCH OR MORE



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

E24028 S0006424331_V2

**Fillet Seal
Figure 205/51-31-01-990-804 (Sheet 2 of 2)**

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TASK 51-31-01-390-805

8. 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 prevention.

NOTE: When a procedure is not specified, use procedure 1.

B. Fastener Sealing

SUBTASK 51-31-01-160-007

- (1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-007



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) Use one of the steps that follow to seal the fasteners that are installed through the faying (mated) surface (Figure 206):

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 Prevention

SUBTASK 51-31-01-160-010

- (1) Clean surface, do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

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SUBTASK 51-31-01-390-017

- (2) Procedure 1 - corrosion protection below the head area of the fasteners:
- (a) Apply sealant to all surfaces and countersinks below the fastener head.
 - (b) Install fastener.
 - (c) A continuous extrusion of sealant is necessary around the fastener.
 - (d) Clean off unwanted sealant.

SUBTASK 51-31-01-390-018

- (3) Procedure 2 - corrosion protection below the head area and shank of the fasteners:
- (a) Apply sealant to the entire shank and thread of the fastener.
NOTE: Apply sealant to shank only for fasteners which will use self-sealing nuts or collars.
 - (b) Install fastener and nut or collar.
 - (c) Clean off unwanted sealant.

SUBTASK 51-31-01-390-019

- (4) Procedure 3 - corrosion protection below the head area and shank of the fasteners and the bottom attaching hardware:
- (a) Apply sealant to the entire shank and thread of the fastener.
 - (b) Install the fastener.
 - 1) 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.
 - (c) Install the nut or collar.
 - (d) A continuous extrusion of sealant is necessary around the fastener head, the bottom of the nut or collar, and the washer (if used).
 - (e) Clean off unwanted sealant.

SUBTASK 51-31-01-390-020

- (5) Apply fillet-seal to the installed fastener.
- (a) 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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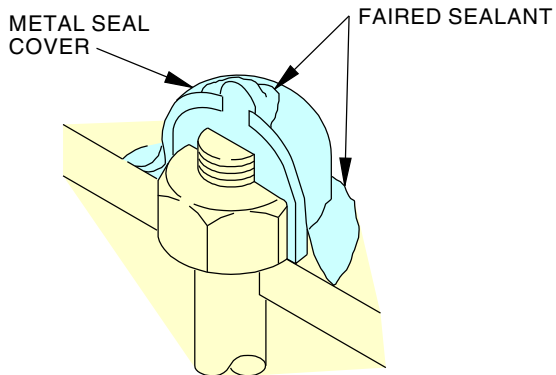
E24134 S0006424333_V2

Fastener Seal
Figure 206/51-31-01-990-805 (Sheet 1 of 5)

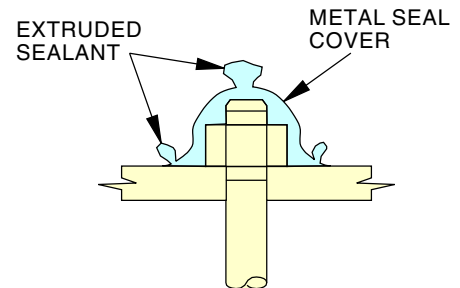
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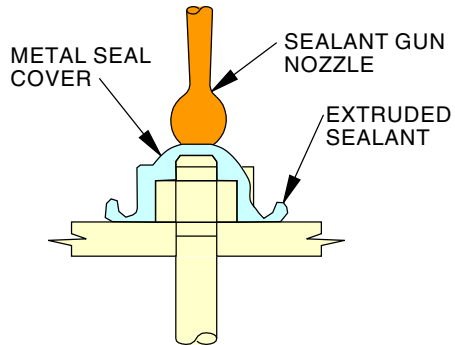
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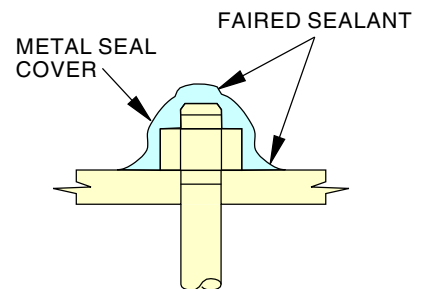
**FAIRING SEAL AT THE
METAL SEAL COVER**



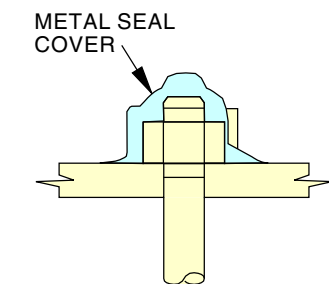
**SEAL COVER AFTER
AFTER INJECTION**



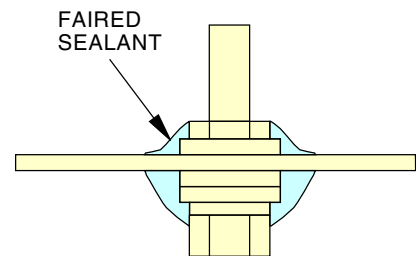
**INJECTING SEALING
SELF-CENTERING SEAL COVER**



**SEAL COVER
AFTER FAIRING**



**AFTER FAIRING
SELF-CENTERING SEAL COVER**



**SEALING OF STANDARD
GROUND STUD**

E24533 S0006424334_V2

**Fastener Seal
Figure 206/51-31-01-990-805 (Sheet 2 of 5)**

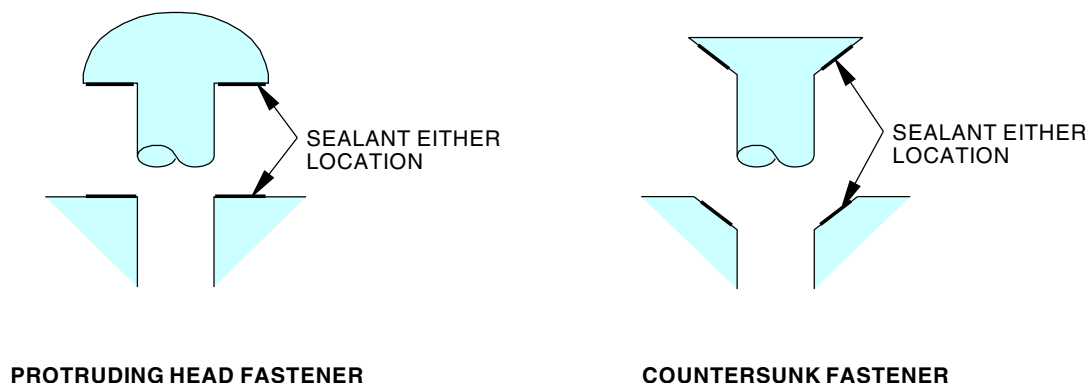
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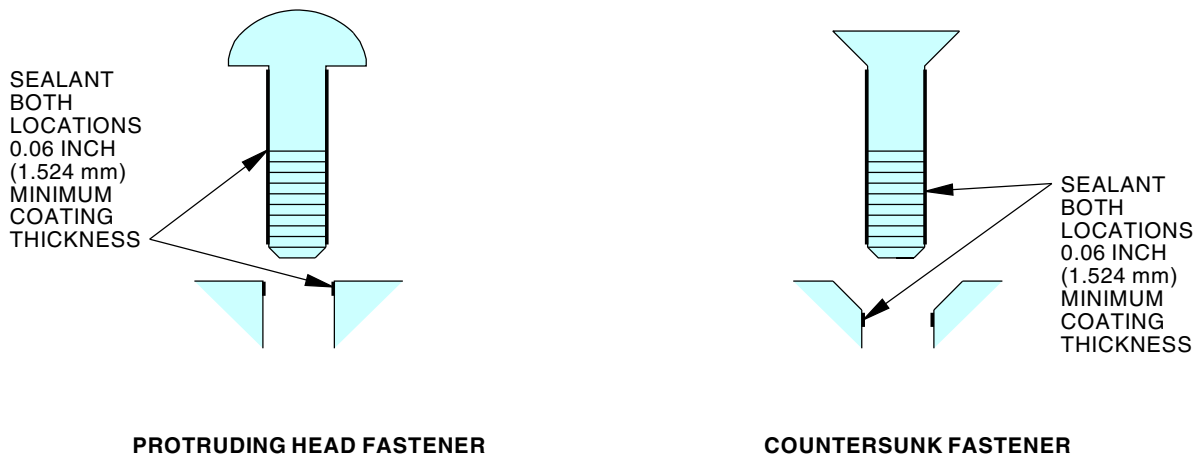
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PROCEDURE 1



PROCEDURE 2

TYPICAL FASTENER SEALING FOR CORROSION PROTECTION

M15742 S0006424335_V2

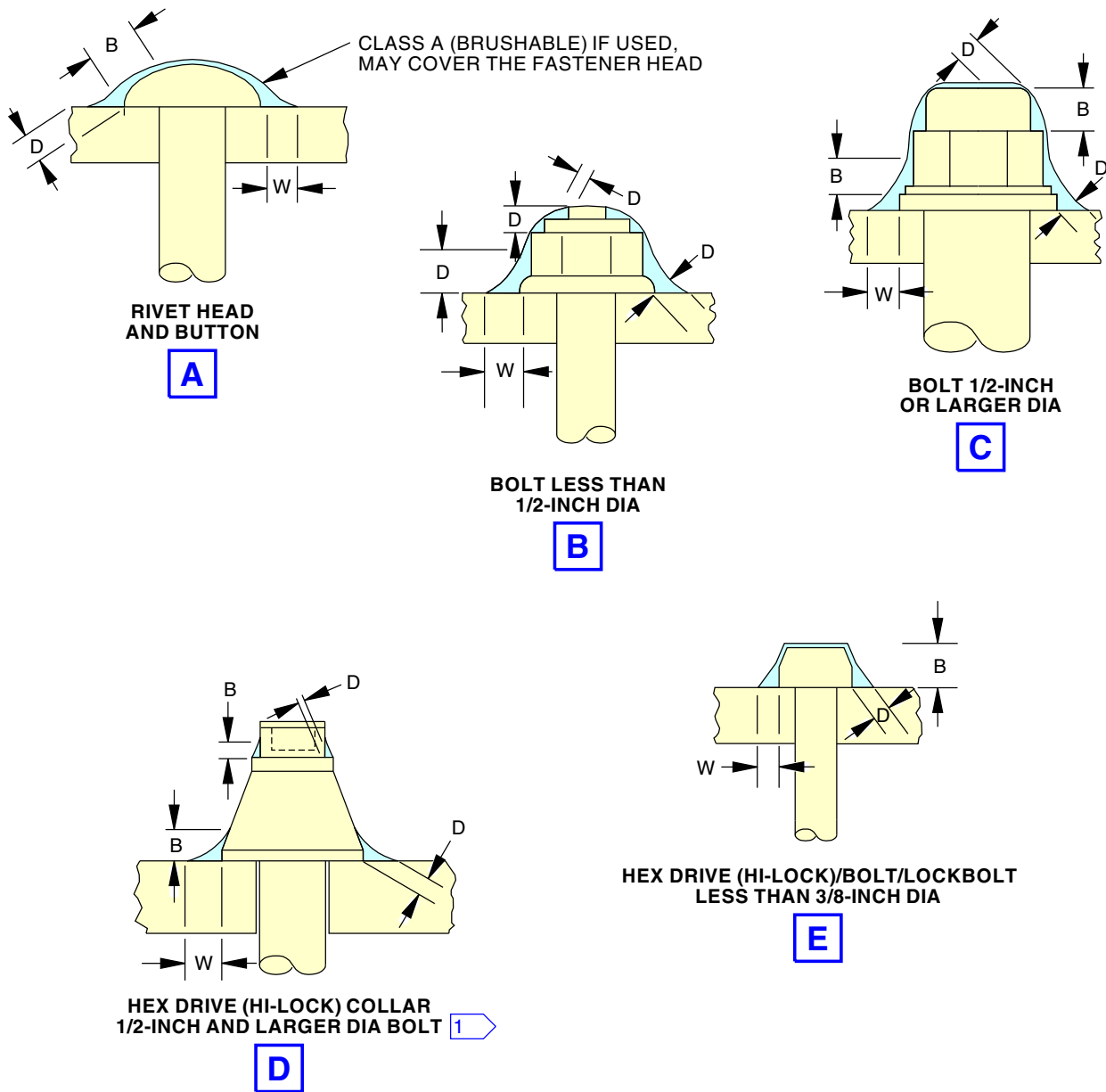
Fastener Seal
Figure 206/51-31-01-990-805 (Sheet 3 of 5)

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TYPICAL FILLET SEALING DIMENSIONS FOR CORROSION PROTECTION

M15806 S0006424336_V2

**Fastener Seal
Figure 206/51-31-01-990-805 (Sheet 4 of 5)**

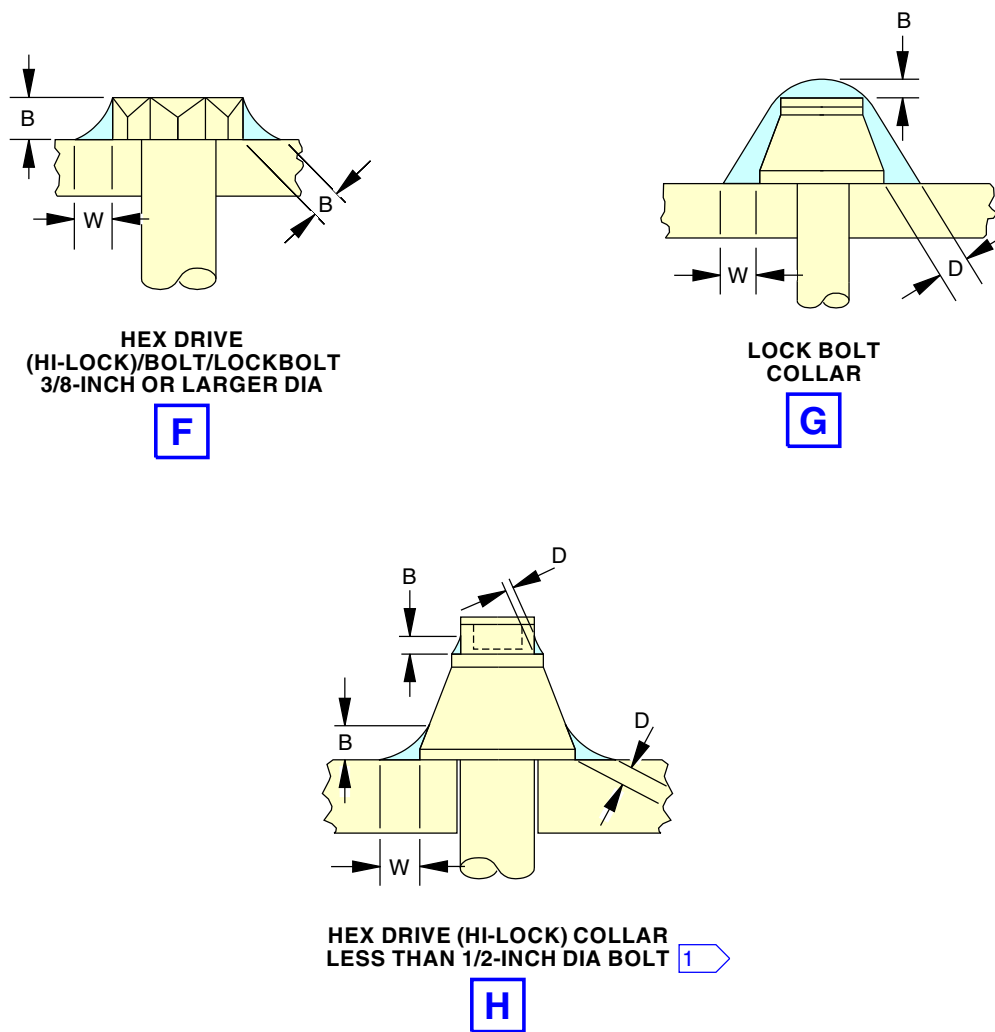
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TYPICAL FILLET SEALING DIMENSIONS FOR CORROSION PROTECTION

- 1** 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

M18784 S0006424337_V2

**Fastener Seal
Figure 206/51-31-01-990-805 (Sheet 5 of 5)**

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TASK 51-31-01-390-806

9. Aerodynamic Smoother Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

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. Procedure

SUBTASK 51-31-01-160-008

- (1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-008

- (2) Apply the aerodynamic smoother as follows (Figure 207):
 - (a) Apply the 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 CORROSION TO THE STRUCTURE, OR A FIRE IF THE FLUIDS ARE FLAMMABLE.



CAUTION

WHEN YOU APPLY THE AERODYNAMIC SMOOTHER TO THE WING-TO-BODY FAIRINGS, YOU MUST LIMIT YOUR APPLICATIONS TO THE LOCATIONS SHOWN IN AMM 51-03-00. THE CLEARANCES BETWEEN THE FAIRING PANELS ARE MADE TO LET THE FLUIDS IN THE FAIRING TO DRAIN SUFFICIENTLY OVERBOARD.

- (b) Apply the aerodynamic smoother with a sealant gun, STD-449 or a hardwood or plastic fillet smoothing spatula, STD-810.

NOTE: Make sure there are no air bubbles when you apply the aerodynamic smoother.
- (c) When it is necessary, apply more of the aerodynamic smoother to make the edges around the seal smooth.

NOTE: Because of sealant shrinkage, you must apply the aerodynamic smoother 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 the Scotch Flatback Masking Tape 250, G00270.
- (e) Remove the Scotch Flatback Masking Tape 250, G00270 after the sealant is smooth and dry.
- (f) Make the edges of the seal smooth.

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- 1) Remove all the unwanted compound with an approved sealant removal tool listed in this task: Prepare For Sealing, TASK 51-31-01-160-801.

———— **END OF TASK** ————

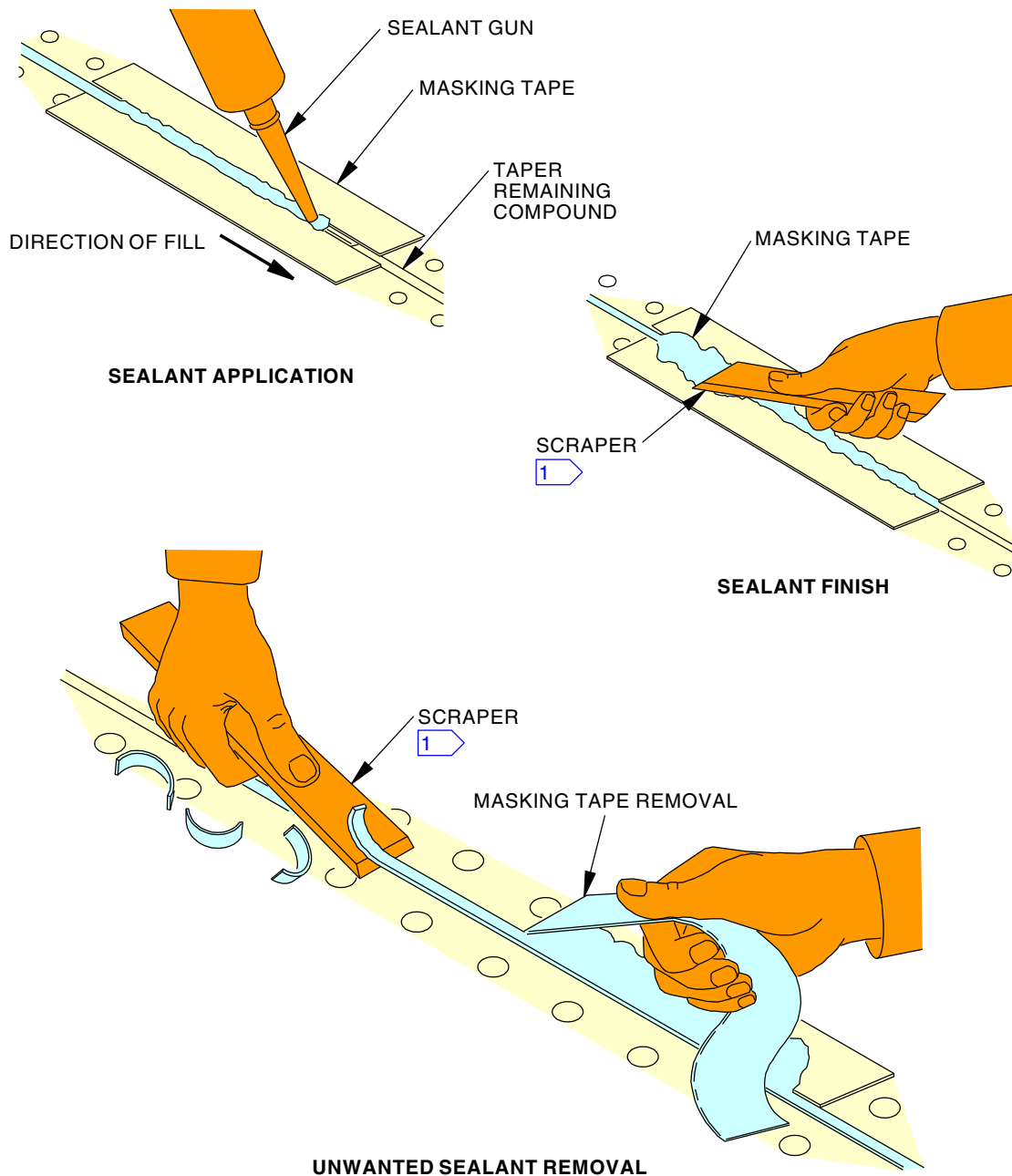
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1 USE AN APPROVED NON METALLIC SEALANT REMOVAL TOOL TO REMOVE UNWANTED SEALANT AFTER THE SEALANT HAS CURED.

E24571 S0006424339_V4

Aerodynamic Seal
Figure 207/51-31-01-990-806 (Sheet 1 of 2)

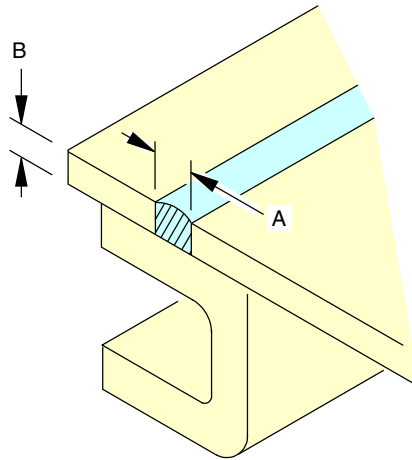
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WIDTH B (INCHES)	WIDTH A (INCHES)
0.10 MAXIMUM	0.02-0.03
0.25 MAXIMUM	0.03-0.05
0.50 MAXIMUM	0.05-0.10
0.75 MAXIMUM	0.10-0.15

SLOT WIDTH AND DEPTH

E24575 S0006424340_V2

Aerodynamic Seal
Figure 207/51-31-01-990-806 (Sheet 2 of 2)

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TASK 51-31-01-390-807

10. Electrical Fitting Seal Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

A. General

- (1) 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) sealant, A00767, and sealant, A00247 sealants will do the same function as the 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

(Figure 208)

SUBTASK 51-31-01-160-009

- (1) Do this task: (Prepare For Sealing, TASK 51-31-01-160-801).

SUBTASK 51-31-01-390-009

- (2) 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 the flange of the fitting is on the pressurized side of the airplane.

NOTE: A fitting is made of two halves.

- (e) Make sure 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.

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- (g) Wind three turns of 1 1/2-inch wide Scotch Flatback Masking Tape 250, G00270 around the fitting.
- (h) Crimp the 1 1/2-inch wide Scotch Flatback Masking Tape 250, G00270 around the bulkhead fitting.
NOTE: Make sure 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 wide Scotch Flatback Masking Tape 250, G00270 around the 1 1/2-inch 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 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 51-31-01-390-010

- (3) 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 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 long string against the bulkhead fitting and parallel with the wires.
- (e) Wind three turns of 1 1/2-inch wide Scotch Flatback Masking Tape 250, G00270 around the fitting.
- (f) Crimp the 1 1/2-inch wide Scotch Flatback Masking Tape 250, G00270 around the bulkhead fitting.
NOTE: Make sure 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 wide Scotch Flatback Masking Tape 250, G00270 around the 1 1/2-inch 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 wide Scotch Flatback Masking Tape 250, G00270 at an applicable location.
- (k) Use the sealant gun, STD-449 to apply the sealant.

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- 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.
- (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 51-31-01-390-011

- (4) 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 the flange of the fitting is on the pressurized side of the airplane.

NOTE: A fitting is made of two halves.

- (e) Make sure 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 wide Scotch Flatback Masking Tape 250, G00270 around the fitting.
- (h) Crimp the 1 1/2-inch wide Scotch Flatback Masking Tape 250, G00270 around the bulkhead fitting.

NOTE: Make sure 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 wide Scotch Flatback Masking Tape 250, G00270 around the 1 1/2-inch 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 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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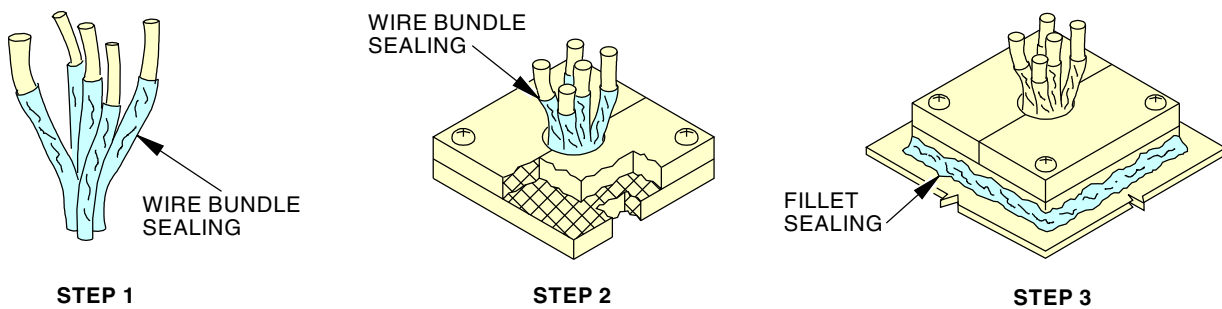
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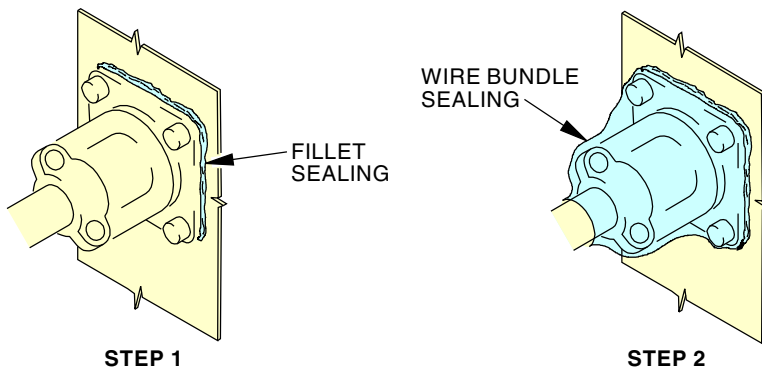
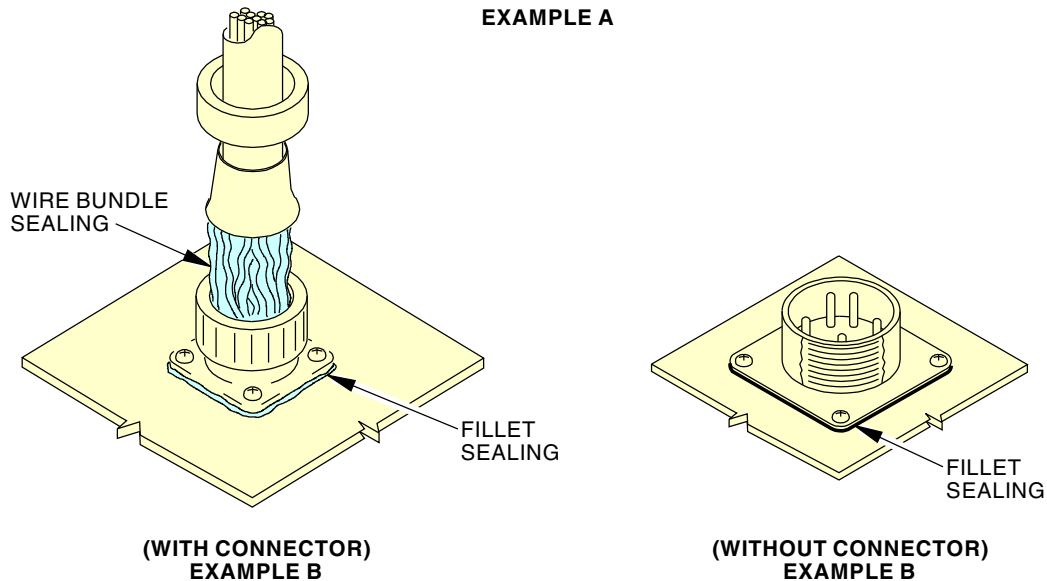
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EXAMPLE A



EXAMPLE C

WIRE BUNDLE SEALING

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**Electrical Fitting Seal
Figure 208/51-31-01-990-807 (Sheet 1 of 3)**

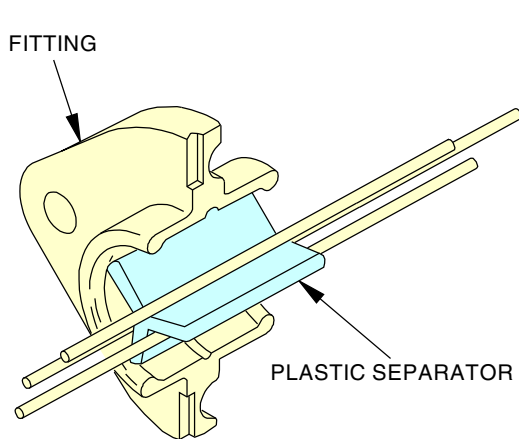
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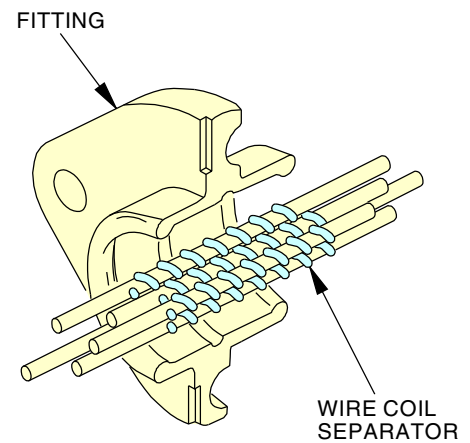
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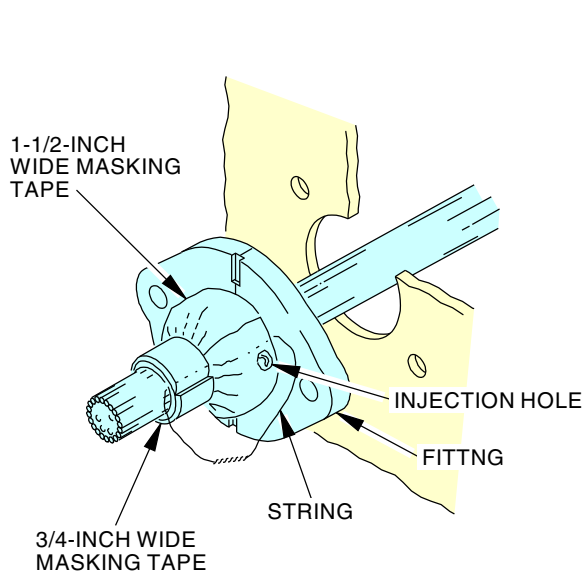
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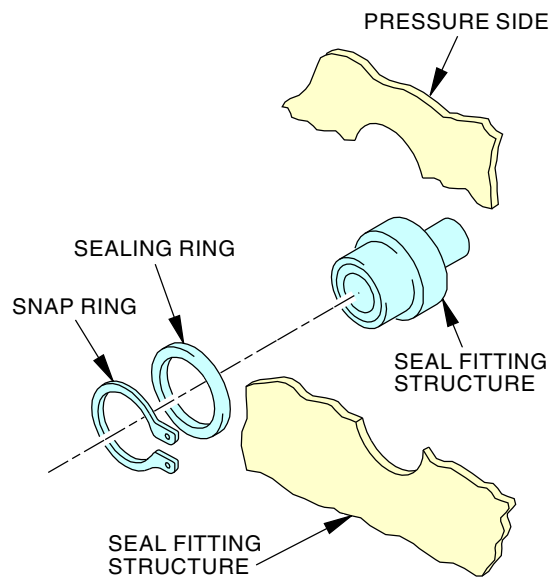
**PLASTIC SEPARATOR
INSTALLATION**



**WIRE COIL SEPARATOR
INSTALLATION**



**BULKHEAD FITTING
(BACS45A)**



**BULKHEAD FITTING
(BACS45B)**

E24818 S0006424343_V2

**Electrical Fitting Seal
Figure 208/51-31-01-990-807 (Sheet 2 of 3)**

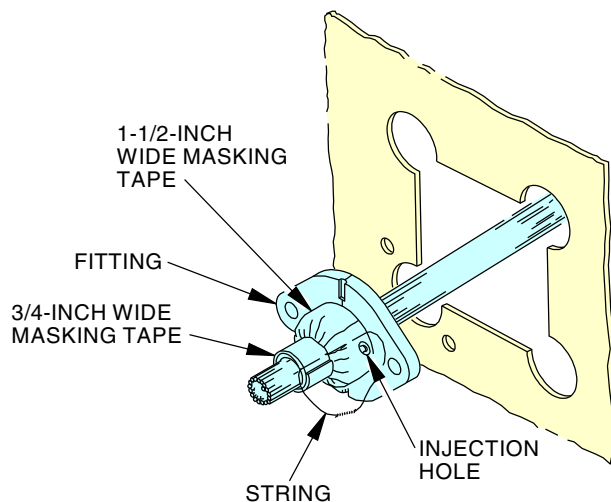
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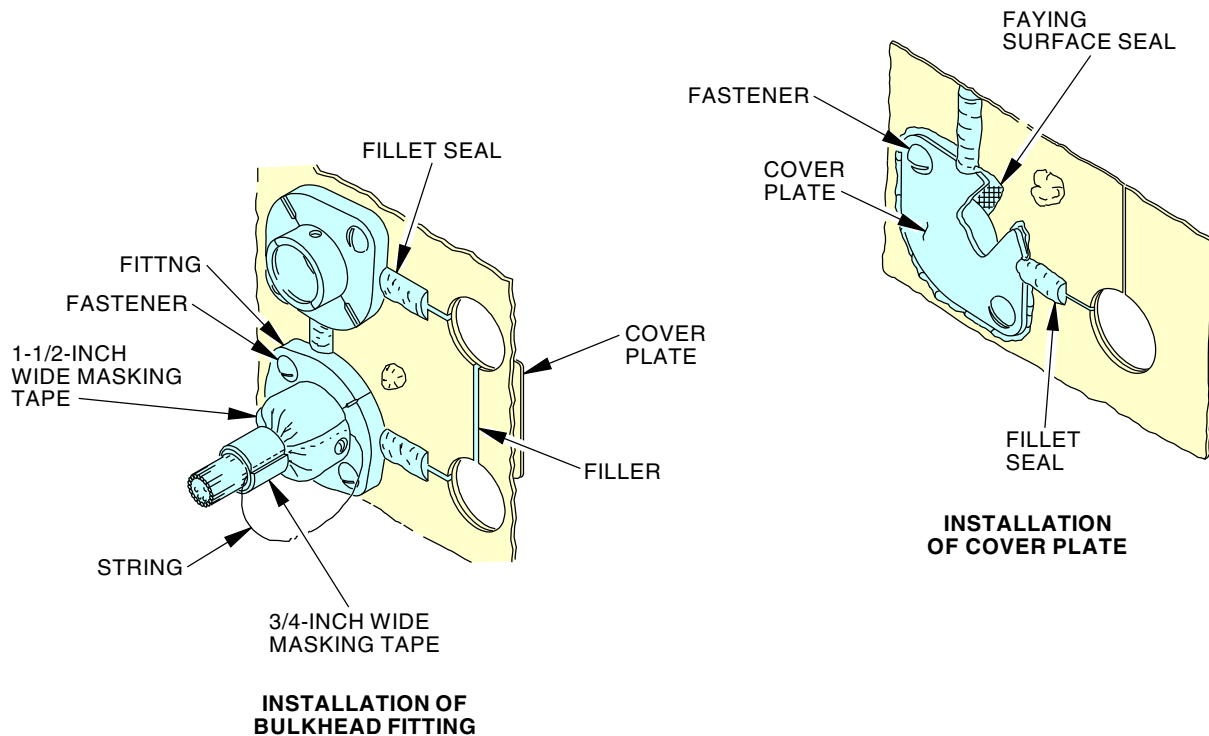
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ASSEMBLY OF BULKHEAD FITTING



E24928 S0006424344_V2

**Electrical Fitting Seal
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TASK 51-31-01-390-808

11. Fuel Seal Application

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

A. References

Reference	Title
28-11-00-300-803	Repair of the Secondary Fuel Barrier Sealant (P/B 801)

B. Procedure

SUBTASK 51-31-01-390-012

- (1) Seal the integral fuel tanks (do this task: Repair of the Secondary Fuel Barrier Sealant, TASK 28-11-00-300-803).

NOTE: The dry bay access panels are sealed with the "Fillet Seal Application" and "Fastener Seal Application" tasks.

————— END OF TASK —————

TASK 51-31-01-370-801

12. Protection of Sealant Materials

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

A. Procedure

SUBTASK 51-31-01-620-001

- (1) Keep the sealant materials away from grease, oil, dirt, metal particles and all unwanted materials.

SUBTASK 51-31-01-370-001

- (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 the table that follows:

Table 201/51-31-01-993-801 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 —————

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TASK 51-31-01-390-809

13. Accelerated Curing

(Figure 202, Figure 203, Figure 204, Figure 205, Figure 206, Figure 207, Figure 208)

A. Tools/Equipment

Reference	Description
STD-1125	Heater - Blower, Explosion Proof

B. Procedure

SUBTASK 51-31-01-390-013

(1) Use one of the steps that follow to accelerate the cure:



CAUTION

MAKE SURE THE TEMPERATURE IS BELOW 120 °F. IF THE TEMPERATURE IS ABOVE 120 ° F, BUBBLES WILL OCCUR ON THE SEALANT.

- (a) Use explosion proof heater, STD-1125 or heat lamps to apply heat to the sealant.
- (b) Make the airplane structure warm after you apply the sealant.

————— **END OF TASK** —————

TASK 51-31-01-100-801

14. Chemical Sealant Removal

A. References

Reference	Title
20-30-02-910-801	Structure Cleaners and Polishes (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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 Supplier: F6892 Part #: SHN0272 Supplier: \$0856 Part #: SHR0272-T Supplier: 1DWR5 Part #: SHW0215 Supplier: \$0856
STD-4406	Brush - Bristle, Soft, Natural

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C. Consumable Materials

Reference	Description	Specification
E00002	Stripper - Paint - Turco 5351	BAC5725
E50004	Cee-Bee E-1058 polysulfide sealant and paint stripper	
E50005	Skykleen 2000 polysulfide sealant removal paste	BAC5750 PSD 6-80, PSD 9-22
E50006	Naftosolv FN polysulfide sealant removal stripper	
E50007	Eldorado PR-5044 peroxide stripper	BAC5725, D6-17487
E50008	Skyrestore (thick) sealant stripper	
G50256	Water, Regular	
G50262	Wiper - Cleaning	BMS15-5

D. Procedure

SUBTASK 51-31-01-140-001



ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.



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 sealant fillet with a sealant removal tool handle, COM-4746 and an approved sealant removal tool, COM-2481.

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 777-53A0043.

SUBTASK 51-31-01-950-001

- (2) Mask surrounding areas as necessary to prevent contact with chemical strippers.

NOTE: Do not allow chemical strippers to contact substrates other than aluminum.

NOTE: Do not use chemical strippers on reverse lap joints.

NOTE: Chemical strippers will soften and remove paint.

SUBTASK 51-31-01-940-001

- (3) Use one of the following chemical strippers to remove the sealant:

- Turco 5351 stripper, E00002
- Cee-Bee E-1058 stripper, E50004
- Skykleen 2000 stripper, E50005
- Naftoslov FN stripper, E50006
- Eldorado PR-5044 PR-5044 stripper, E50007
- Skyrestore (thick) stripper, E50008.

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SUBTASK 51-31-01-110-001



CAUTION

ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN, AND CAUSE FATIGUE CRACKS.



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.

- (4) Chemically strip any sealant remaining on the surface as follows:
- (a) Using a natural bristle brush, STD-4406, apply a thin coating of chemical stripper on the sealant.
 - 1) Do not apply excessive chemical stripper.
 - a) 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 softened sealant with clean dry wiper, G50262.
 - a) Approved scrapers may be used to facilitate removal.

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 777-53A0043.

SUBTASK 51-31-01-160-011

- (5) After chemical stripping is complete, remove stripper by thoroughly washing with a water-based alkaline cleaner (Ref Structure Cleaners and Polishes, TASK 20-30-02-910-801).

SUBTASK 51-31-01-160-012

- (6) Rinse area thoroughly with water, G50256.

————— **END OF TASK** —————

TASK 51-31-01-100-802

15. Excess 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-11852	Rapid Desealer System Part #: RDS001 Supplier: 4K2P3

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B. Consumable Materials

Reference	Description	Specification
B01013	Solvent - Final Cleaning Prior To Fuel Tank Sealing - Series 93	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A

C. General

SUBTASK 51-31-01-160-015

- (1) This task and rapid descaler, COM-11852 are used for the following areas:
 - (a) fuel tank
 - (b) painted structure
 - (c) unpainted structure except for unpainted clad aluminum on the exterior fuselage of the aircraft.

SUBTASK 51-31-01-840-001

- (2) Make sure to 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).

SUBTASK 51-31-01-840-002

- (3) During the procedure, record the equipment property numbers for traceability.

D. Prepare to Remove Excess Sealant

SUBTASK 51-31-01-210-002

- (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.

SUBTASK 51-31-01-930-001

- (2) Mark the area of work with a visible or reflecting pen or pencil.

E. Procedure

SUBTASK 51-31-01-160-013

- (1) Scrape the excess sealant with the rapid descaler, COM-11852.

NOTE: Read the instructions in the Rapid De-sealing System (RDS) users guide before you remove the sealant.

- (a) Insert and tighten appropriate size blade in the pneumatic RDS tool.
- (b) Align sealant removal blade flat on the 30 degree attack angle.



USE THE SCRAPER CAREFULLY. DO NOT USE TOO MUCH FORCE. IF YOU DO NOT USE THE SCRAPER CAREFULLY, DAMAGE TO THE SURFACE CAN OCCUR.

- (c) Start the sealant removal tool.
 - 1) Push with even pressure; do not push hard.

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- 2) Move the direction of the blade to remove the necessary sealant.
- (d) If blade becomes dull, sharpen it either by hand or auto sander.
- (e) Replace blade if it is too small to sand.

SUBTASK 51-31-01-160-014

- (2) Clean the foreign object damage and waste sealant with a vacuum.

SUBTASK 51-31-01-110-002

- (3) Clean the area with a cotton wiper, G00034 wet with Series 93 solvent, B01013.
 - (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 51-31-01-100-804

16. 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: 3M SR Cutter is not recommended to perform excess sealant removal. SR cutter is designed to remove sealant around protruding fasteners heads.

- (2) Do not exceed 850 RPM.

NOTE: There is potential for the operator to lose control of the SR Cutter, resulting in the SR Cutter "running away". It is recommended that operators are trained on the proper use of the SR Cutter. As part of the training, operators should practice using the SR Cutter on test panels or test parts to develop their skills to an acceptable 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	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5
COM-4746	Handle - Sealant Removal Tool Part #: 310/1 Supplier: F6892 Part #: SHN0272 Supplier: \$0856 Part #: SHR0272-T Supplier: 1DWR5 Part #: SHW0215 Supplier: \$0856

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C. Procedure

SUBTASK 51-31-01-140-002

- (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 SR cutter speed at less than 850 rpm.
- (b) Use the 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

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.

- (c) To remove residual sealant, use an approved sealant removal tool, COM-2481 with sealant removal tool handle, COM-4746 and/or BMS15-5 Class A wipers or natural bristle brushes saturated with solvent.

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 777-53A0043.

- (d) Use only the following cutters: No. 3 (00-48011-30096-2; 0.4 in. (10.2 mm) diameter) and No. 8 (00-4801130095-5; 0.83 in. (21.1 mm) diameter).
 - 1) Inspect cutters before and periodically during use and discard if broken tips, nicks and other damage are observed.

————— **END OF TASK** —————

TASK 51-31-01-370-802

17. BMS5-95 Sprayable Sealant Application

A. General

- (1) This procedure has instructions to apply BMS5-95 Sprayable Sealant to the airplane.
- (2) For the wing in-spar lower skin, the application areas for the BMS5-95 option are:
 - (a) Front spar

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- (b) Rear spar
- (c) Splice stringer

B. Consumable Materials

Reference	Description	Specification
A50193	Sealant - Pressure And Environmental-Chromate (For Spray Application As A Primer)	BMS5-95 Type I Class F

C. Apply BMS5-95 Sprayable Sealant

SUBTASK 51-31-01-370-003

- (1) Mix the BMS5-95 sealant, A50193 using the manufacturer's instructions.

SUBTASK 51-31-01-370-004

- (2) Spray apply the BMS5-95 sealant, A50193 to a dry film thickness of 2.0-3.0 mils.

SUBTASK 51-31-01-370-005

- (3) For full cure, do one of the steps that follows.
 - (a) Air dry the BMS5-95 sealant, A50193 for 72 hours at a minimum of 70°F (21°C) to 90°F (32°C).
 - (b) Air dry for at least 30 minutes at 70°F (21°C) to 90°F (32°C) followed by force dry for at least 45 minutes at 180°F (82°C).

SUBTASK 51-31-01-370-006

- (4) For cure before overcoating, air dry the coating for a minimum of 2 hours.

———— **END OF TASK** ————

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CARGO COMPARTMENT CEILING LINER STANDOFF - REMOVAL/INSTALLATION

1. General

- A. This procedure has two tasks
- (1) Ceiling Liner Standoff Removal
 - (2) Ceiling Liner Standoff Installation

TASK 51-41-01-000-801

2. Ceiling Liner Standoff Removal

(Figure 401)

A. General

- (1) There are six different sizes of standoffs used, as shown in (Figure 401):
 - (a) 3.20 in. (8.13 cm) high with a flange thickness of 0.2500 in. (0.6350 cm)
 - (b) 3.20 in. (8.13 cm) high with a flange thickness of 0.5000 in. (1.270 cm)
 - (c) 3.70 in. (9.40 cm) high with a flange thickness of 0.2480 in. (0.6299 cm)
 - (d) 3.70 in. (9.40 cm) high with a flange thickness of 0.3610 in. (0.9169 cm)
 - (e) 3.70 in. (9.40 cm) high with a flange thickness of 0.5000 in. (1.270 cm)
 - (f) 4.25 in. (10.79 cm) high with a flange thickness of 0.3610 in. (0.9169 cm)
- (2) The standoff size depends upon the location of the floorbeam the standoff is fastened to.

B. References

Reference	Title
25-52-09-000-801	Ceiling Liner Removal (P/B 401)

C. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right
151	Aft Cargo Compartment, Left
152	Aft Cargo Compartment, Right

D. Procedure

SUBTASK 51-41-01-010-001

- (1) Do this task: (Ceiling Liner Removal, TASK 25-52-09-000-801).

NOTE: Ceiling liners which sag usually have broken standoffs.

SUBTASK 51-41-01-020-001

- (2) Remove any wire runs from the standoffs.

NOTE: On some floor beams, wire runs are attached to the standoff with a clamp.

SUBTASK 51-41-01-020-002

- (3) Remove the two bolts that hold the standoff to the floor beam web.

SUBTASK 51-41-01-200-001

- (4) Do a check of the floor beam holes for damage.

———— **END OF TASK** ————

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TASK 51-41-01-400-801

3. Ceiling Liner Standoff Installation

(Figure 401)

A. References

Reference	Title
25-52-09-400-801	Ceiling Liner - Installation (P/B 401)

B. Location Zones

Zone	Area
121	Forward Cargo Compartment, Left
122	Forward Cargo Compartment, Right
151	Aft Cargo Compartment, Left
152	Aft Cargo Compartment, Right

C. Procedure

SUBTASK 51-41-01-420-001

- (1) Install the proper size standoff to the floor beam web with the fasteners that follow:
 - (a) two BACB30XH*K* titanium Eddie bolts and two BACC30CG* collars,
 - (b) two BACB30VT*K* bolts and two BACC30BLP collars,
 - (c) two BACN30NX*K* bolts and two BACC30AB* collars,
 - (d) two CB1915PCS3-4 retainer studs and two CB1915PCS3 self locking collars, or
 - (e) two CB1915PCS3-5 retainer studs and two CB1915PCS3 self locking collars.

NOTE: Use new bolts to install the standoffs.

SUBTASK 51-41-01-420-002

- (2) Attach wires to the standoff with the appropriate clamp as necessary.

SUBTASK 51-41-01-410-001

- (3) Do this task: (Ceiling Liner - Installation, TASK 25-52-09-400-801).

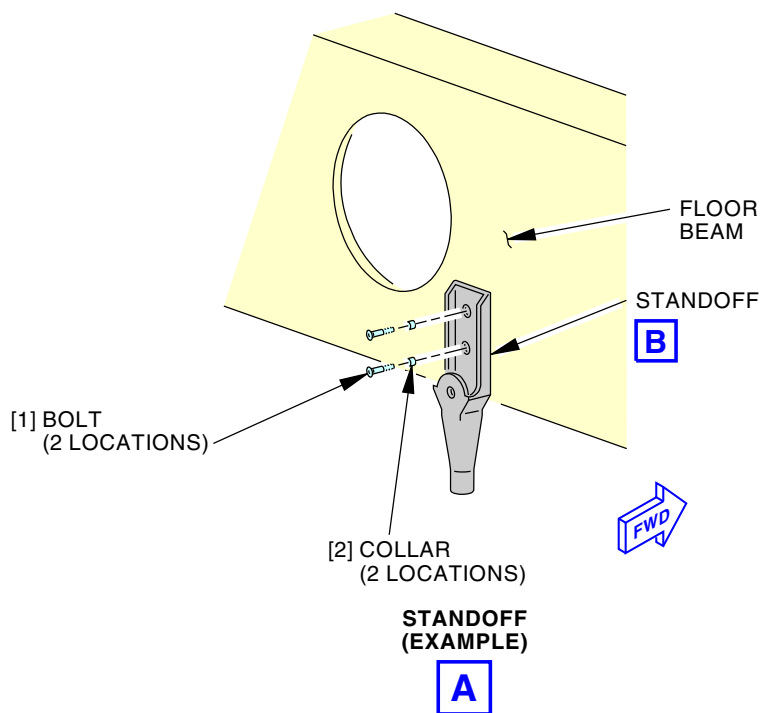
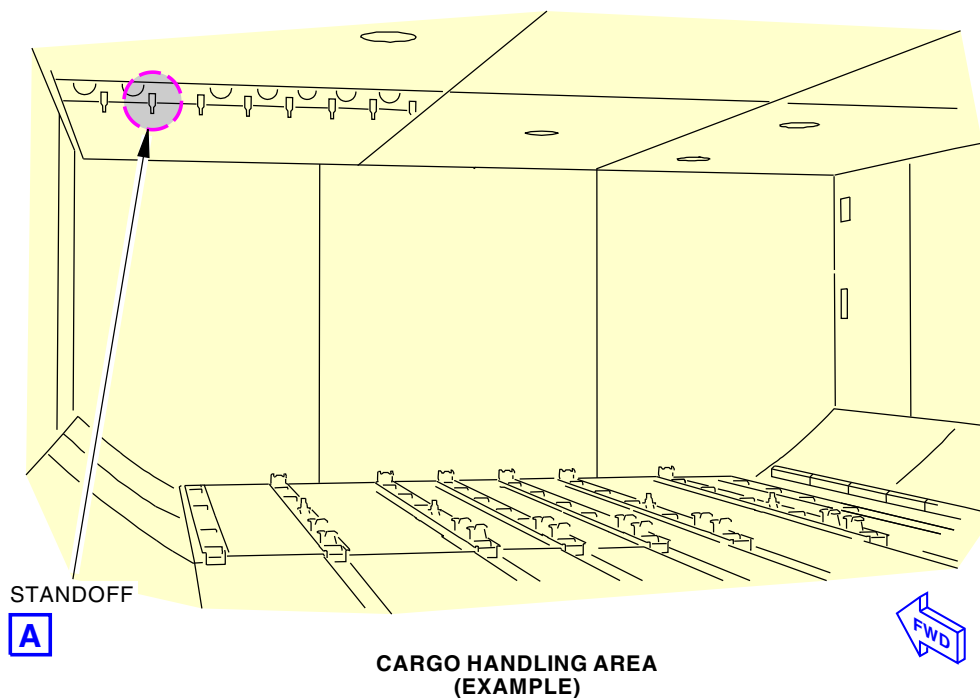
———— **END OF TASK** ————

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**Cargo Compartment Ceiling Liner Standoff Installation
Figure 401/51-41-01-990-801 (Sheet 1 of 3)**

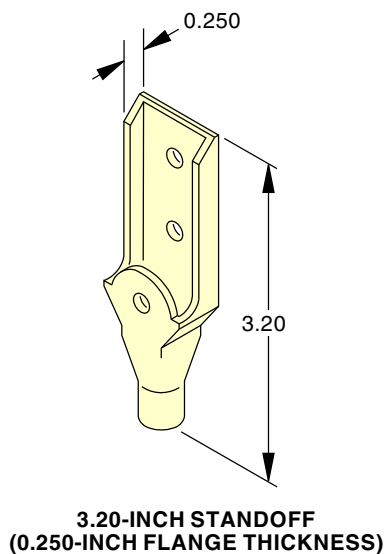
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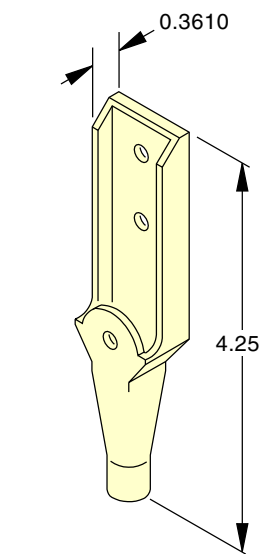
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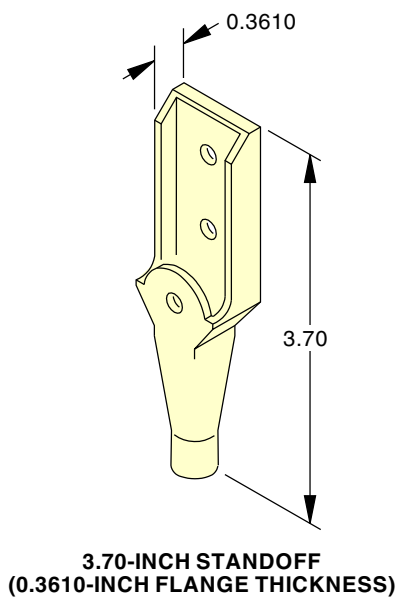
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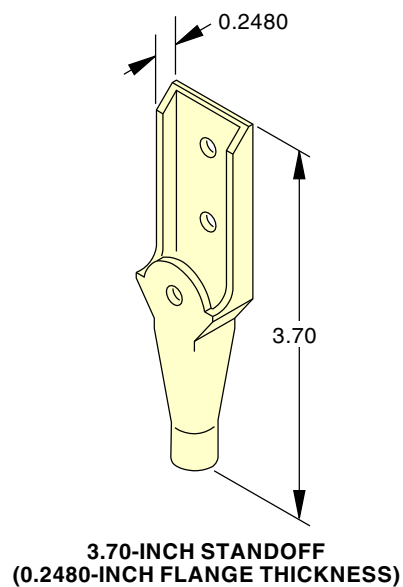
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NOTE:
ALL DIMENSIONS ARE IN INCHES.

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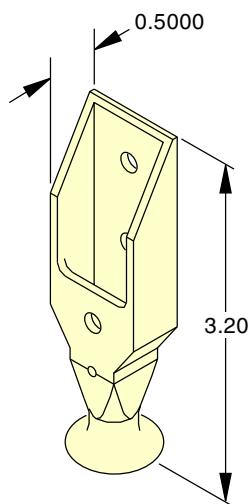
**Cargo Compartment Ceiling Liner Standoff Installation
Figure 401/51-41-01-990-801 (Sheet 2 of 3)**

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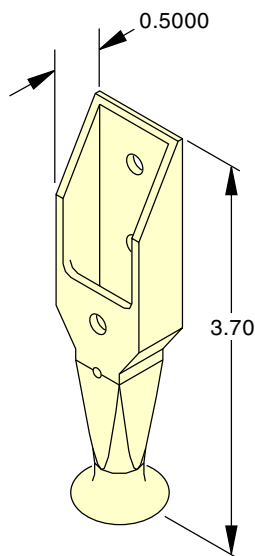
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**3.20-INCH STANDOFF
(0.5000-INCH FLANGE THICKNESS)**

B



**3.70-INCH STANDOFF
(0.5000-INCH FLANGE THICKNESS)**

B

NOTE:
ALL DIMENSIONS ARE IN INCHES.

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Cargo Compartment Ceiling Liner Standoff Installation Figure 401/51-41-01-990-801 (Sheet 3 of 3)

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