Aerolineas Argentinas

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CHAPTER 51 - STRUCTURES

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CHAPTER 51 - STRUCTURES

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STRUCTURES - DESCRIPTION AND OPERATION

1. General
   A. The structure of the airplane (figure 1) is designed to provide maximum strength with minimum weight. This object has been achieved by designing alternate load paths into the structure, so that a failure of one segment cannot endanger the airplane, and also by the use of appropriately selected materials. The materials most commonly used throughout the structure are aluminum, steel and magnesium alloys. Of these the most extensively used are certain aluminum alloys, which are selected according to the particular type of load they are best suited to withstand.
   B. Aluminum and fiberglass honeycomb core material is used extensively on secondary areas of structures and many of the flight surfaces.
   C. Maintenance practices concerning blowout doors and panels are covered in applicable chapters on structures. See figure 4 for a comprehensive illustration of blowout doors and panels on the airplane.
2. Fuselage
   A. The fuselage is a semimonocoque structure with the skin reinforced by circumferential frames and longitudinal stringers. It is composed of four sections: body sections 41, 43, 46 and 48, of which the forward three together extend from body station 178 to body station 1016 and contain all the passenger, crew, and cargo accommodations. The fourth section of the fuselage is at the aft end and provides support for the empennage. Refer to figure 2.
   B. The entire shell of the fuselage between body stations 178 and 1016 is pressurized with the exception of the cavity enclosing the nose gear wheel well, and the large cutout which accommodates the center wing box and main landing gear well. Structural continuity is provided across this latter area by a keel beam which passes beneath the center wing box and connects to a beam across the main landing gear wheel well. The whole pressurized portion of the fuselage is provided with a floor consisting of horizontal transverse beams attached to the fuselage frames and surmounted by longitudinal seat tracks and floor panels. Local variations in this floor structure include the area over the center wing box, and the main landing gear wheel well across which the floor beams run longitudinally, and the control cabin where the floor structure has to accommodate control gear and other special equipment. The forward airstairs are installed below the floor of body section 41. The fuselage frames at body stations 540 and 664 incorporate points at which the fuselage is attached to the wing front and rear spars. The connection between the inboard end of the landing gear support beam and the fuselage is a swinging link fitting attached to the frames at body stations 695 and 706.

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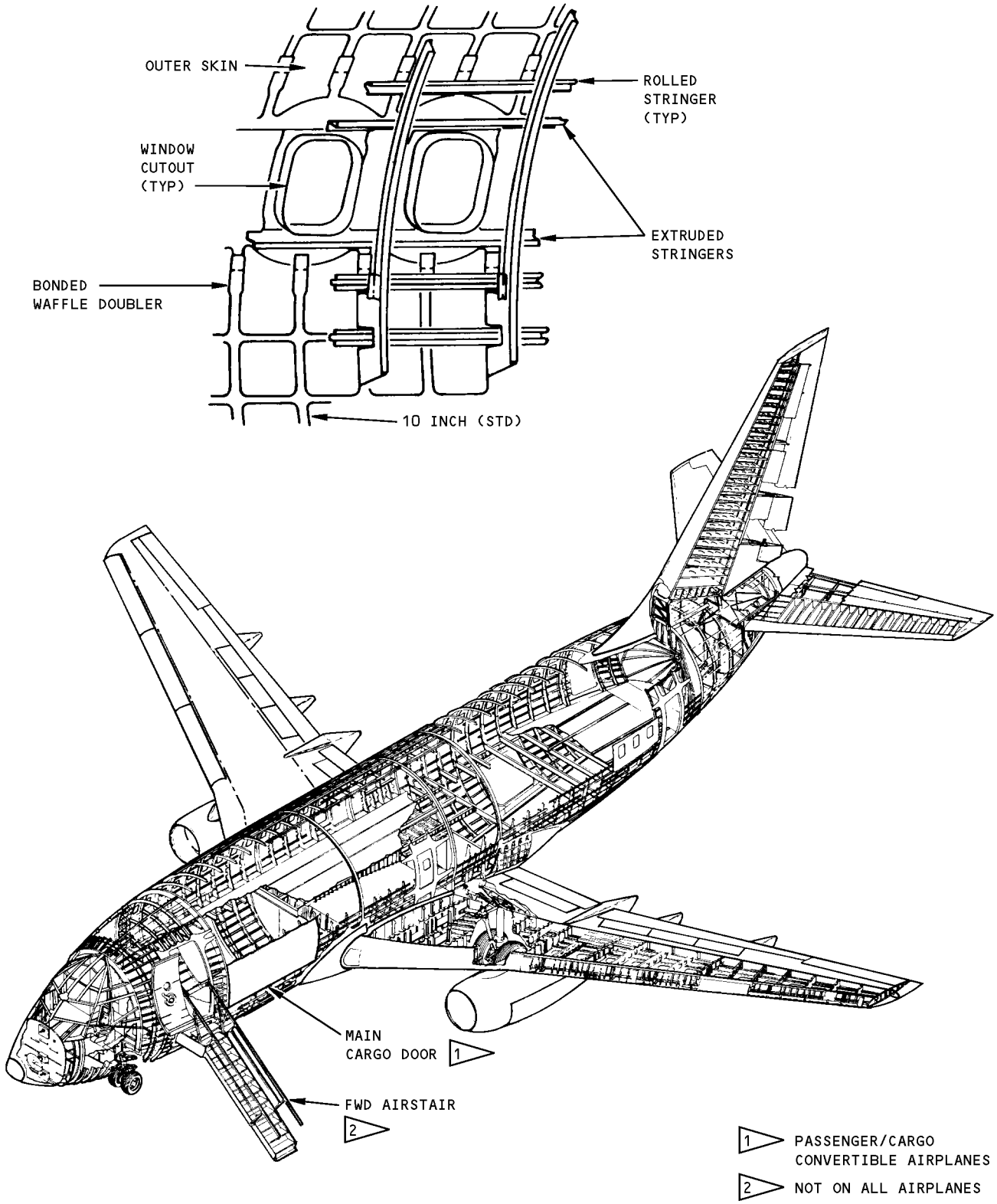

Typical Basic Structure
Figure 1

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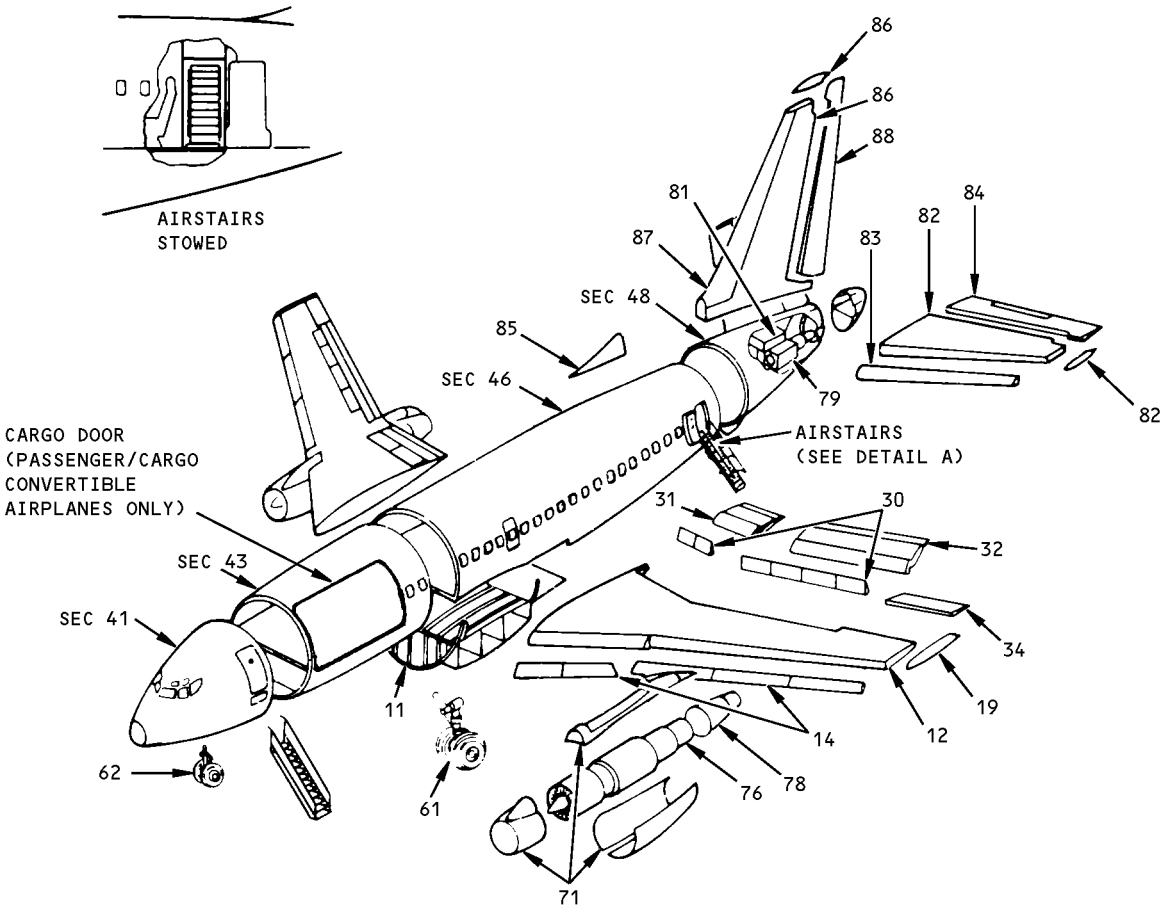

STRUCT	NONSTRUCT	TITLE	STRUCT	NONSTRUCT	TITLE
	09	TOTAL AIRPLANE	60	65	LANDING GEAR
10	20	WING	61	66	MAIN GEAR
11	21	WING STUB	62	67	NOSE GEAR
12	22	WING, OUTBOARD	70	75	POWERPLANT
14	24	SLATS AND FLAPS, L.E.	71		COWLING
19	29	WING TIP		76	ENGINE
30	35	SPOILERS	78	78	THRUST REVERSER, TAIL PIPE
31	36	FLAP, INBOARD	79	79	AUXILIARY POWER UNIT
32	37	FLAP, OUTBOARD	80	90	EMPENNAGE
34	39	AILERON	81		STABILIZER CENTER SECTION
35		FLAP, CENTER	82	91	STABILIZER
40	50	BODY	83	91	STABILIZER L.E.
41	51	SECTION 41	84	91	STABILIZER ELEVATOR
43	53	SECTION 43	85		DORSAL FIN
46	56	SECTION 46	86	92	FIN
48	58	SECTION 48	86		FIN TIP
			87	92	FIN L.E.
			88	92	RUDDER
				93, 94	PASSENGER ACCOMODATIONS

Airplane Section Numbers
Figure 2

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C. Body section 48 of the fuselage is not pressurized and extends aft from the rear pressure bulkhead at body station 1016. The vertical fin structure and the horizontal stabilizer structure are supported by the 48 section. The APU is installed in a fireproof compartment below the horizontal stabilizer.

3. Wings

A. The structure of the wing, between left and right tips, consists basically of the left wing box, the center wing box, and the right wing box. The left and right wing boxes are cantilevered from the center wing box which carries, and is enclosed within, the fuselage. The thickness and chord of each wing tapers down towards the tip and, in plane view, both wings sweep back from the center wing box.

B. The surfaces of the left and right wing boxes consist of upper and lower skin panels and front and rear spars. Throughout the left, center and right wing boxes, the skin panels are reinforced by spanwise stringers, and the spars by vertical stiffeners. The left and right wing boxes are reinforced by a series of chordwise ribs, and are sealed to serve as fuel tanks. The center wing box is reinforced by spanwise beams. The left and right wing boxes are attached to the center wing box by splice plates and chords. (See figure 3.) Another connection is by means of four fittings described in Chapter 57, Wing Terminal Fittings. These different types of connection make the wing structure fail-safe. The chords are four longitudinal members running between the bulkheads at stations 540 and 664, and at body buttock line 70.85 along the upper and lower edges of the wing. The two upper chords have six flanges to which the fuselage skin, the wing box skin and stringers, the center wing box skin and stringers, and the wing root ribs all attach. The two lower chords are T-sections. The wing root ribs attach to the webs of these chords and heavy splice plates attach to the flanges. The skins of the center wing box and the wing boxes attach to the splice plates. The stringers attach, on both sides of the web of the T-section, to the splice plates by means of fittings. There is no connection of the fuselage skin to the lower chords.

C. On each wing, the leading edge structure is cantilevered forward from the wing front spar. The trailing edge structure is cantilevered aft from the wing rear spar and supported additionally, at the inboard end of the wing, by the landing gear support beam. This beam is attached at its inboard end to the fuselage frame at body stations 695 and 706 and at its outboard end to the rear face of the wing rear spar. A bearing approximately midway along the landing gear support beam, together with one forward of it attached to the wing rear spar, form the axis of main landing gear rotation and are the points at which landing loads are transmitted to the wing structure.

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D. Five control surfaces are supported by the leading edge structure of each wing: two flaps are hinged from the inboard one-third of the win g span, and along the outboard two-thirds three extendable slats are installed. The control surfaces along the trailing edge of each wing consist of inboard and outboard flaps, an aileron and a total of four spoilers.

4. Wing to Fuselage Attachment
   A. A connection exists between the wing and the fuselage by means of six flanged chords running between the bulkheads at stations 540 and 664, and at buttock line 70.85 along the upper edges of the wing. Refer to figure 3.
   B. The bulkhead at body station 540 and the center wing box front spar are integrated into one piece and the bulkhead at body station 664 and the center wing box rear spar are also integrated into on e piece.
   C. A connection exists between the lower surface of the center wing box and the fuselage keel beam which passes beneath it.
   D. Other points of attachment between the fuselage and the wings include the main landing gear support beams, the longitudinal floor beams, and the wing to body fairings. The wing to body fairings are attached to the fuselage and to the left and right wing upper surfaces.
5. Empennage
   A. The empennage comprises a dorsal fin, a vertical fin, an adjustable horizontal stabilizer, rudder and elevators.
   B. Left and right horizontal stabilizers are removable from the adjustable center section truss located within the fuselage. This center section is movable, pivoting on two hinge joints attached to a bulkhead in the fuselage. Each stabilizer consists of two spars with interconnecting ribs and skin. The leading edge is removable.
   C. The elevators are skin covered, spar and rib structures, containing balance panels, stabilizer actuated elevator tab and elevator control tab.
   D. The vertical fin is composed of front and rear spars, interconnecting ribs and skin. The leading edge is removable. The fin and rudder may be removed.
   E. The rudder is a skin covered, spar and rib structure.
6. Engine Fairing
   A. The engines, one on each wing, are supported from fittings attached to wing structure. The engine fairing covers the area between the engine nacelle and the wing.

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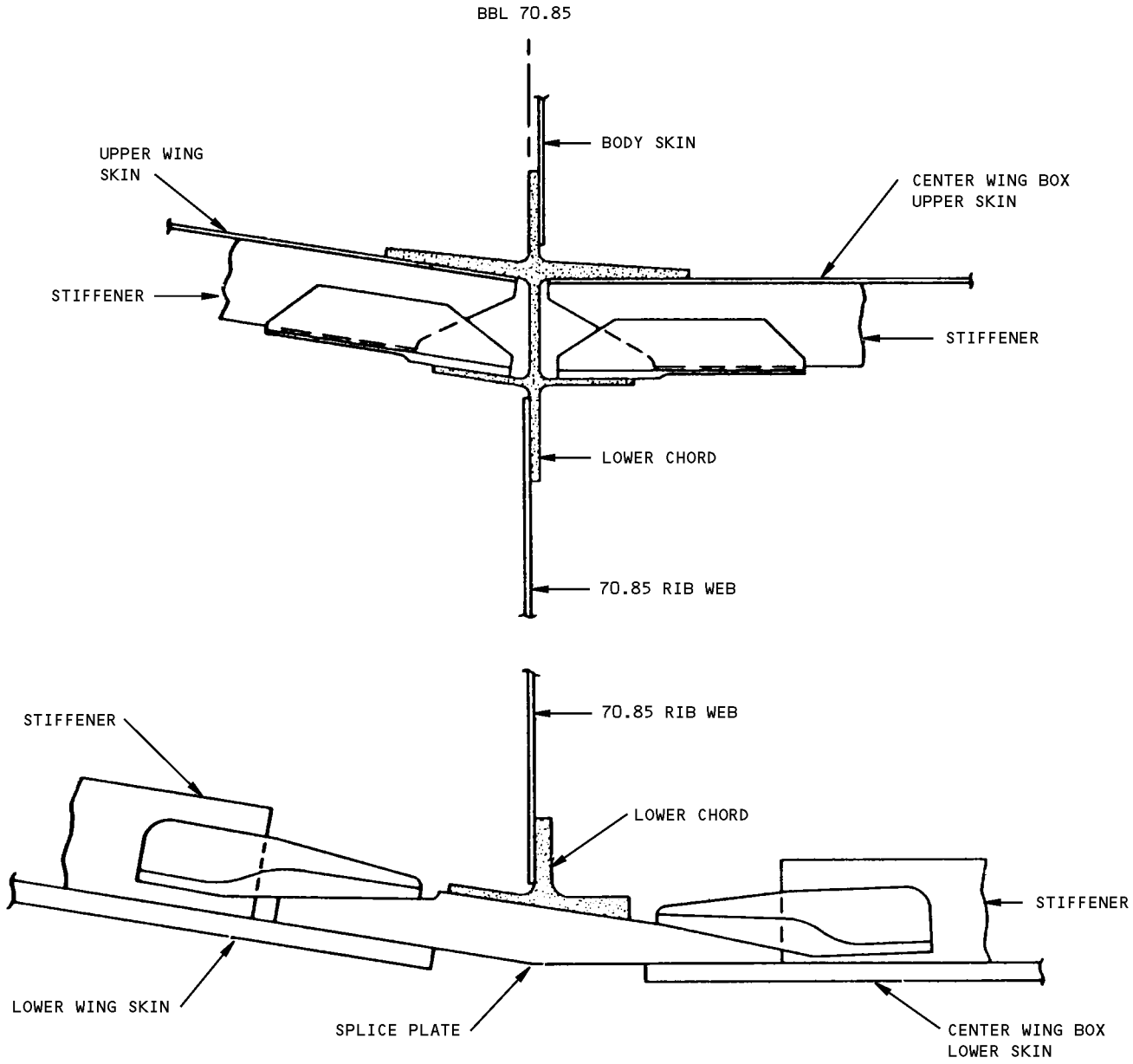

Wing to Fuselage Attachment
Figure 3

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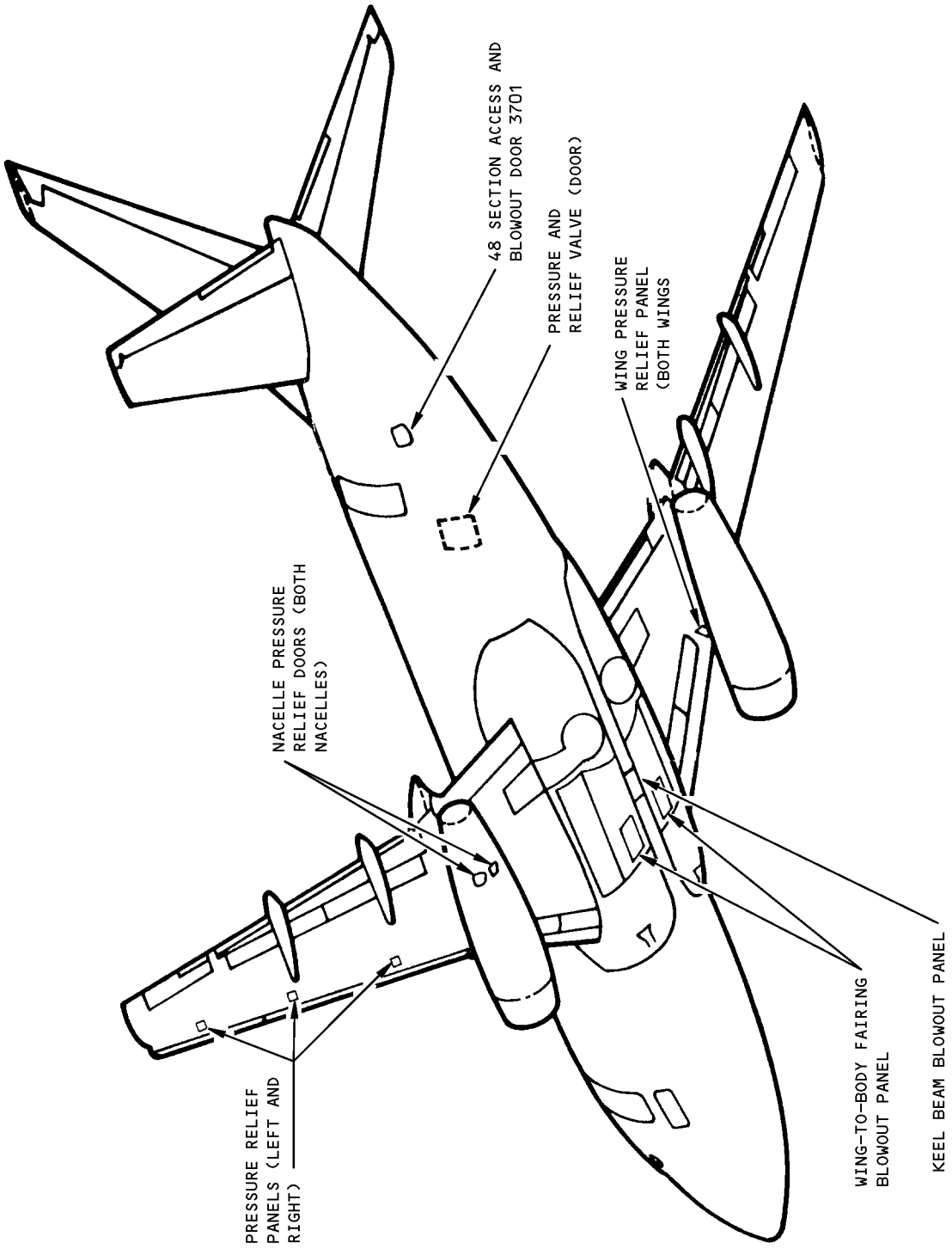

Blowout Doors and Panels
Figure 4

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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 makes more available route assignments and gives benefits to operators through better route assignments and reduced schedule delays.
   B. This procedure contains two tasks. One task is to visually examine the airplane skin for smoothness in the area of the pitot-static ports. The second task is to measure the skin waviness in the area of the pitot-static ports.
2. Examine the Airplane Skin
   A. Equipment
      (1) C51003-1 - Skin Waviness Measurement Tool
   B. Access
      (1) Location Zone
          100 Fuselage - Lower Half
3. Part 1 - Visual Skin Inspection
   A. Procedure
      (1) Do a visual inspection of the pitot-static probes for obvious damage (Ref AMM 34-11-11).
      (2) Replace any damaged pitot-static probes (Ref AMM 34-11-11).
      (3) Do a visual inspection of the fuselage skin around the pitot-static probes on the left and right sides of the airplane in Section 41, Fig. 601.

          NOTE: Look for damage or previous repairs.

      (4) If there is damage other than dents or bulges, then:
          (a) For 737-200 airplanes built between Line Numbers 1 thru 330, do a repair as shown in Service Bulletin 737-53-1111 and drawing 65C33596, or contact Boeing.
          (b) For 737-200 airplanes built after Line Number 330, contact Boeing.
      (5) If there are dents or bulges within the inspection area, see if you have one of the following conditions:
          (a) There is a dent or bulge that is beyond the limits shown in the 737 SRM, Section 51-70, Fig. 5.
          (b) The total number of dents and bulges on the airplane is greater than 2. You can have a total of two dents or bulges on one side of the airplane or you can have one dent or bulge on both sides of the airplane.

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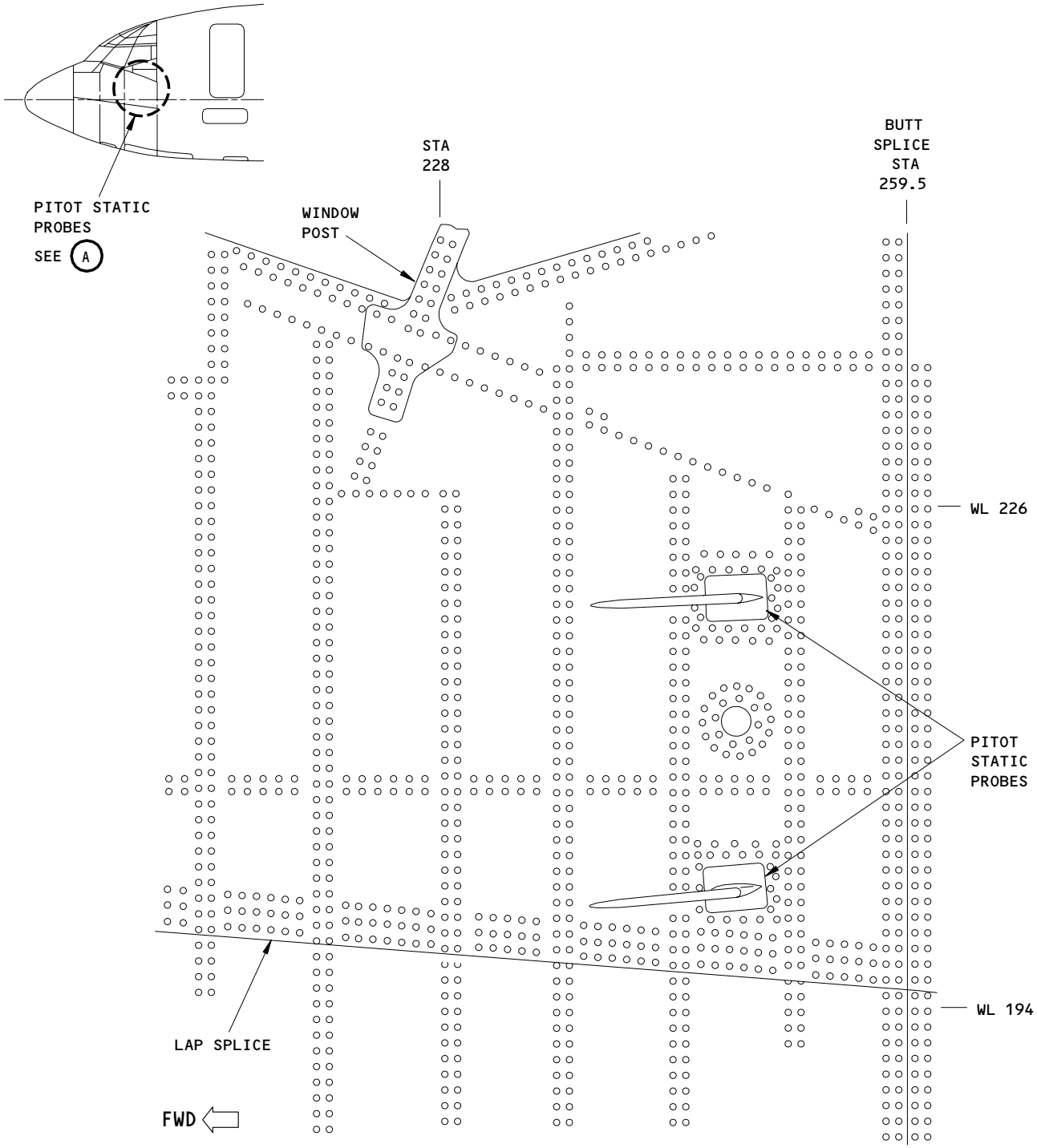

PITOT STATIC PROBES
(LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE)

A

Skin Inspection Area
Figure 601

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(6) If you have any of the conditions in Step 3.A.(5) above, then:
   (a) For 737-200 airplanes built between Line Numbers 1 thru 330, do a repair as shown in Service Bulletin 737-53-1111 and drawing 65C33596, or contact Boeing with details of the dents/bulges for disposition.
   (b) For 737-200 airplanes build after Line Number 330, contact Boeing with details of the dents/bulges for disposition.
   (c) If you contact Boeing for disposition, you should give Boeing the following information:
      1) the location of the damage
      2) the shape of the damage
      3) the orientation of the damage
      4) the height or depth of the damage

      NOTE: You should measure the skin on the left and right sides of the airplane as shown in Part II, Skin Measurement. To get the measuring tool, contact Boeing. When you contact Boeing, you should also submit a purchase order for a Technical Service Agreement (TSA). With a TSA, Boeing will analyze the measurements and determine if the skin is within the limits necessary for RVSM. If the analysis determines that the skin waviness is within the limits necessary for RVSM, Boeing will give an FAA form 8110-3 recommending approval.

(7) If there is a repair or modification, then:
   (a) For 737-200 airplanes built between Line Numbers 1 thru 330, verify that the repair or modification is the repair or modification shown in Service Bulletin 737-53-1111 and drawing 65C33596 (repair) or 65C33642 (modification). If it is not, remove the repair and install a repair or modification as shown in Service Bulletin 737-53-1111, or contact Boeing with details of the repair/modification for disposition.
   (b) For 737-200 airplanes built after Line Number 330, contact Boeing with details of the repair/modification for disposition.
   (c) If you contact Boeing for disposition, you should give Boeing the following information:
      1) the location of the repair/modification
      2) the shape of the repair/modification
      3) the orientation of the repair/modification
      4) the thicknesses of the repair/modification parts

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5) the fastener types, sizes, and locations.

NOTE: You should measure the skin on the left and right sides of the airplane as shown in Part II, Skin Measurement. To get the measuring tool, contact Boeing. When you contact Boeing, you should also submit a purchase order for a Technical Service Agreement (TSA). With a TSA, Boeing will analyze the measurements and determine if the skin is within the limits necessary for RVSM. If the analysis determines that the skin waviness is within the limits necessary for RVSM, Boeing will give an FAA form 8110-3 recommending approval.

(d) For all 737-200 airplanes, there must be no more than two repairs or modifications that are within, or extend into, the inspection area. You can have a total of two repairs or modifications on one side of the airplane, or you can have one repair or modification on both sides of the airplane. Also, for all 737-200 airplanes, if you have an external repair, it must be within the limits shown in the 737 SRM, Section 51-70, Fig. 9.

(8) If the skin around the pitot-static probes has no unrepaired damage, is within the SRM smoothness limits shown in Step E, and has no more than two Boeing-approved repairs that are within the repair limits shown in the 737 SRM, Section 51-70, Fig. 9, then no more action is necessary.

NOTE: If, after an airplane is qualified for RVSM flight, you find new damage or new repairs in the vicinity of the pitot-static probes, refer to the 737 SRM, Section 51-70, Fig. 5 and Fig. 9, and make sure the damage or the repairs are within smoothness requirements. If the skin is not within smoothness requirements, refer to 737 AMM 51-10-00 for information on how to measure the skin, and contact Boeing.

4. Part II - Skin Measurement

A. Procedure

WARNING: DO NOT MEASURE THE AIRPLANE WHILE THE PITOT-STATIC PROBES ARE HOT. INJURY TO PERSONNEL CAN OCCUR.

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(1) Open these circuit breakers on the P18-3 panel and attach "DO NOT OPERATE" flags on them:
   (a) C00523 ..... UPPER LEFT CAPT PITOT STATIC
   (b) C00524 ..... LOWR RT CAPT PITOT STATIC
   (c) C00525 ..... UPPER RT F/O PITOT STATIC
   (d) C00522 ..... UPPER LEFT F/O PITOT STATIC
   (e) ..... ANGLE OF AIRFLOW SENSOR - RIGHT

       NOTE: Some airplanes do not have an angle-of-airflow (AOA) sensor on the right side elevator tab of the plane.

   (f) C00238 ..... ANGLE OF AIRFLOW SENSOR - LEFT
(2) Install mylar tapes on the skin (Fig. 602).
(3) Measure the skin on the right and left sides of the airplane (Fig. 603).

    NOTE: If many people move around inside the cabin of the airplane, it is possible that the airplane will rock and you will not get accurate measurements.

(4) Record your measurements on a copy of the table (Fig. 604, Fig. 605).
(5) After you take all of the measurements, place the tool on the skin at WL 230.0 and measure the skin at position 1 again. Record this measurement at the bottom of the worksheet in the space indicated.
(6) Remove the mylar tapes.
(7) Send the information to Boeing.
(8) Put the airplane back to its usual condition.
   (a) After you have measured 10 airplanes, recalibrate the measuring tool as follows:
      1) Place the tool on a flat level surface.
      2) Lower the stem onto the flat level surface by lowering the lever.
      3) If the dial does not read 0.500 ± 0.003 inches, rotate the face of the dial until the large needle points at 0. The small needle should be pointing at 0.500.
      4) Lock the dial in place.
      5) Take two other measurements along the flat level surface to verify that the tool is within tolerance.

B. RVSM Reporting:

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.

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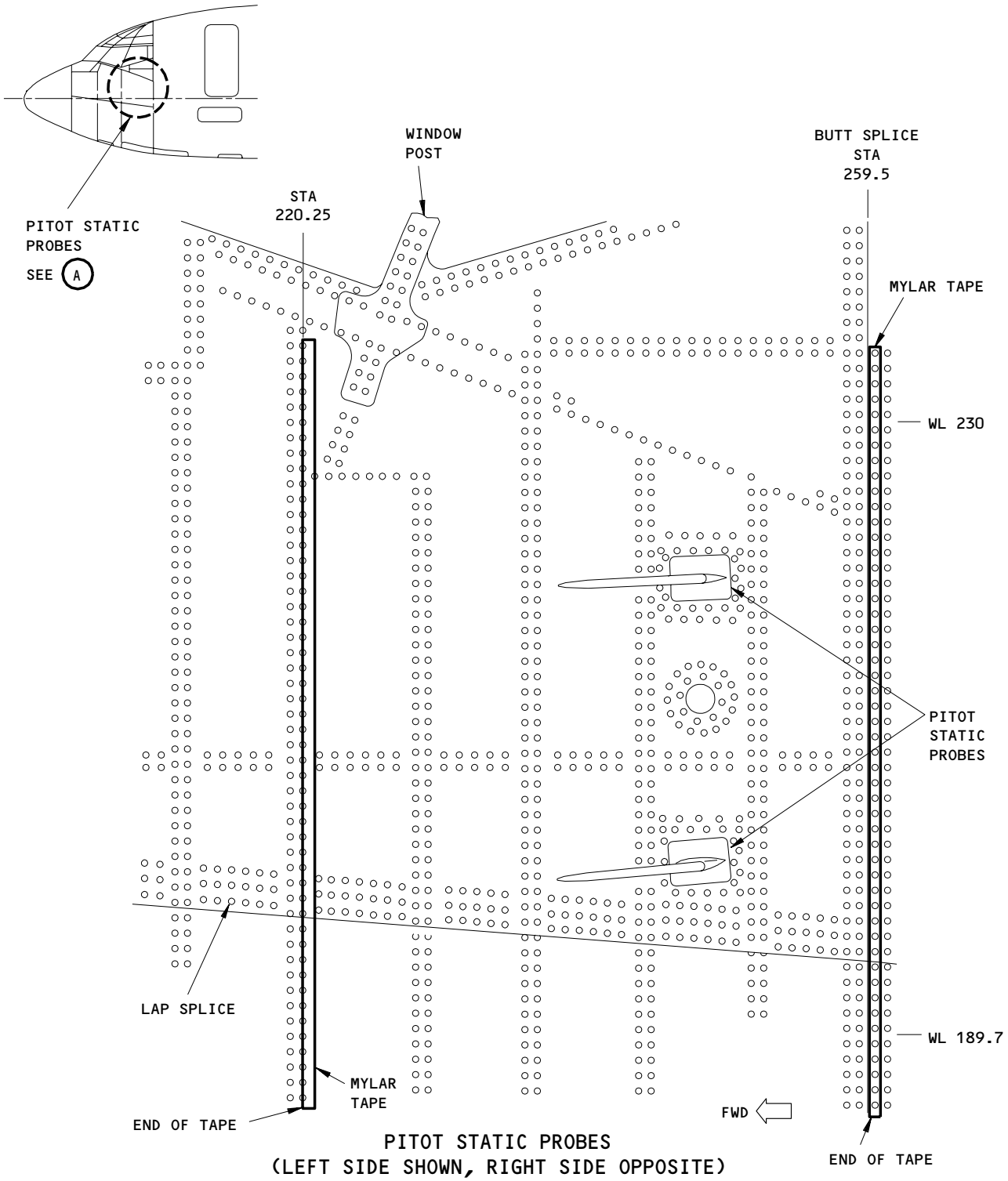

PITOT STATIC PROBES
(LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE)

A

Mylar Tape Installation
Figure 602

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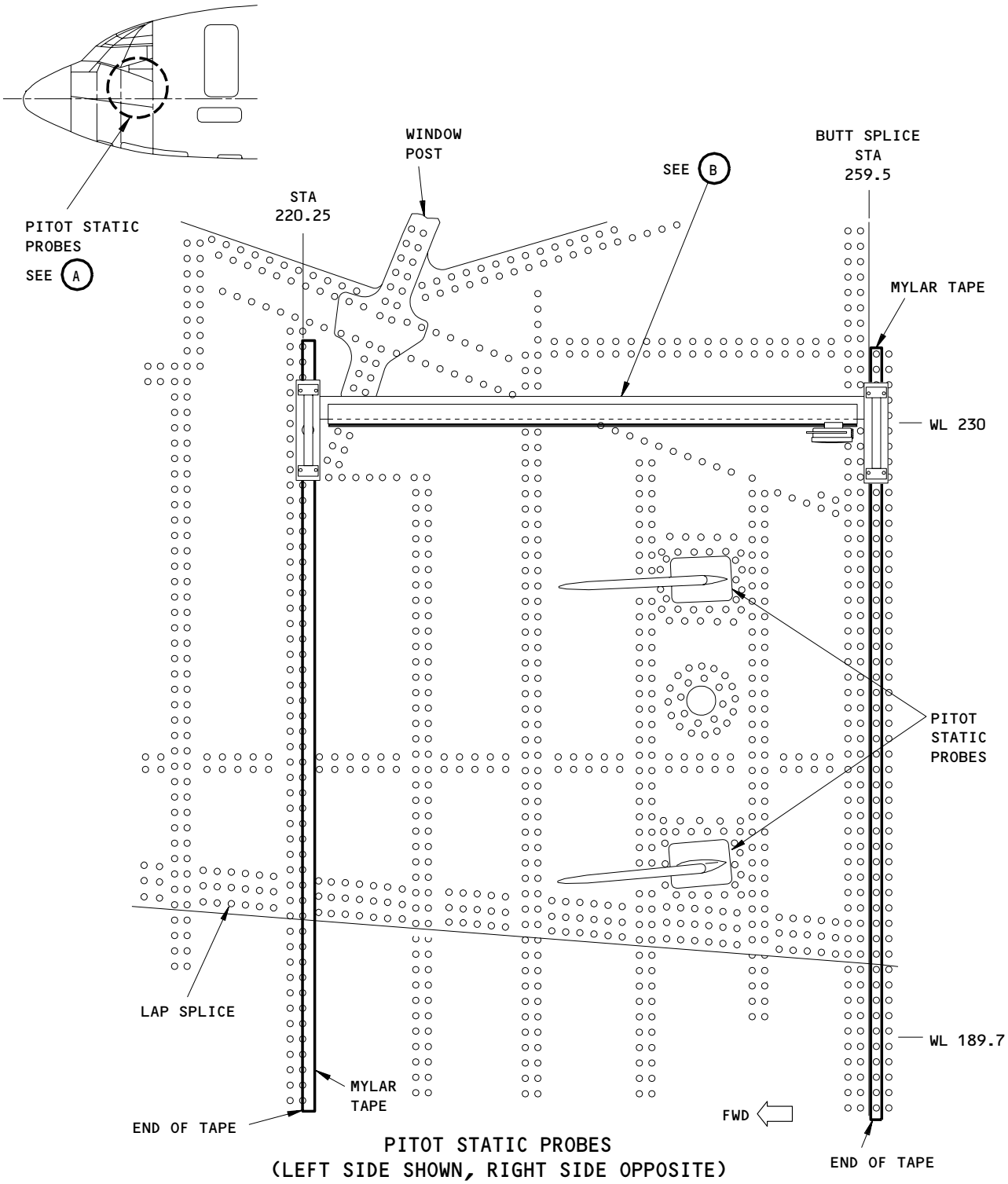

PITOT STATIC PROBES
(LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE)

A

Skin Measurement
Figure 603 (Sheet 1)

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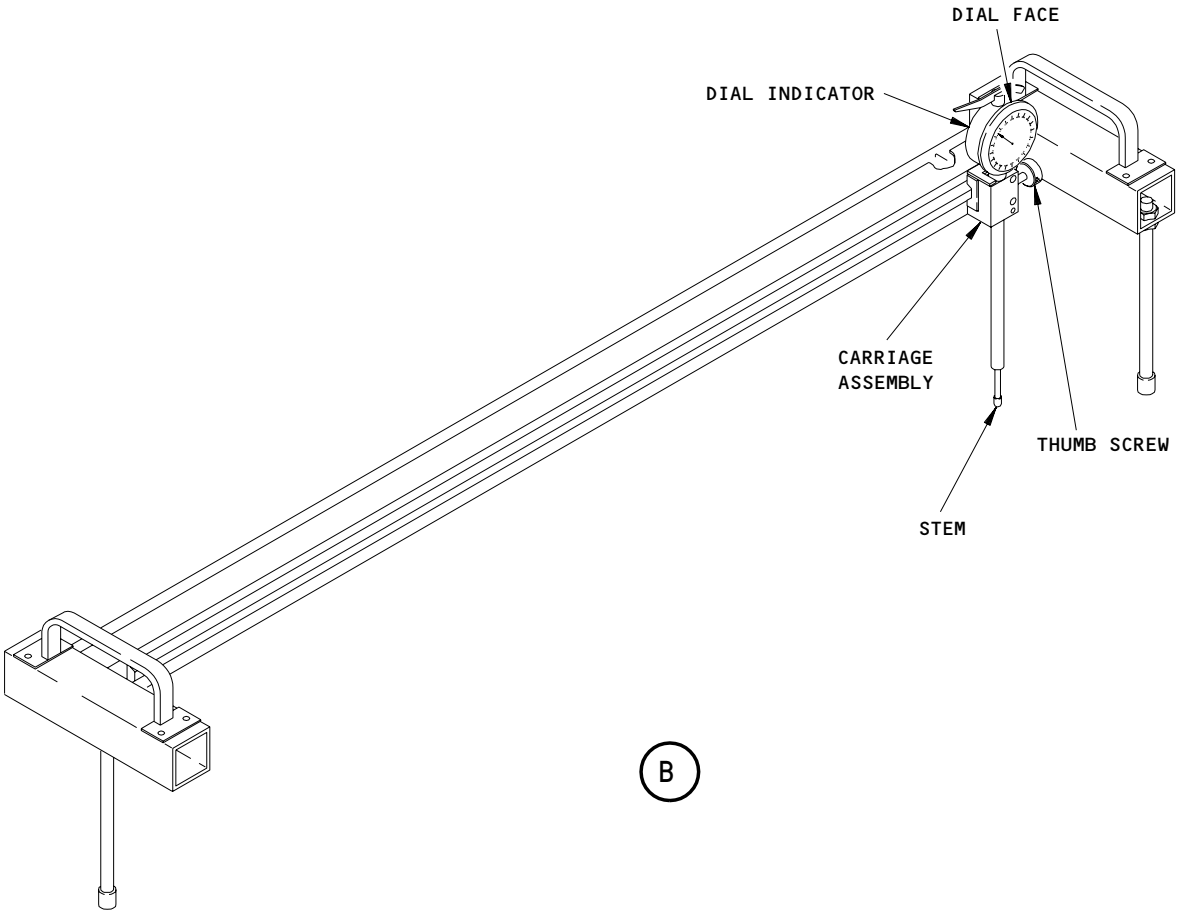

Skin Measurement
Figure 603 (Sheet 2)

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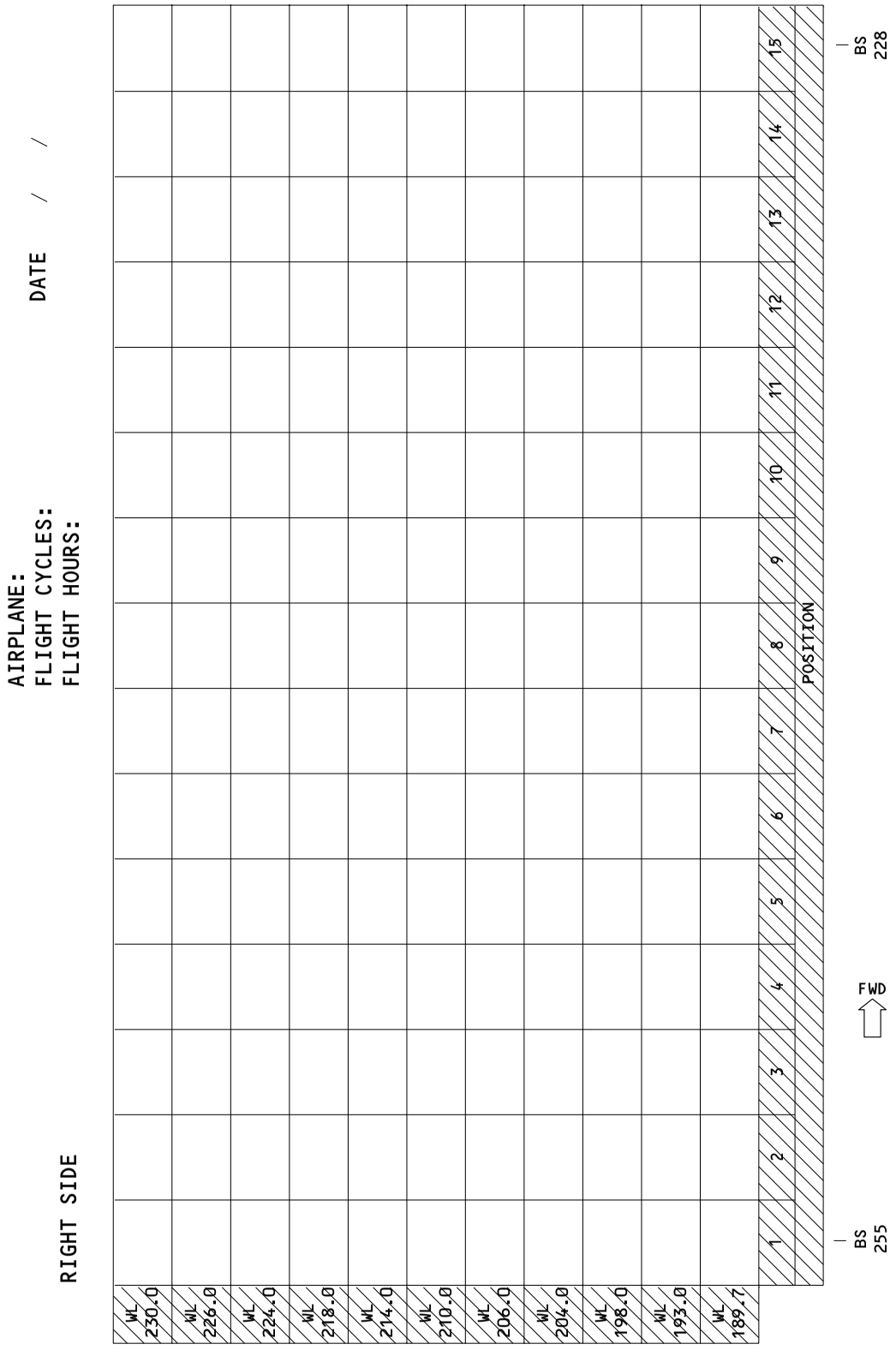

Skin Waviness Analysis Worksheet - Right Side
Figure 604

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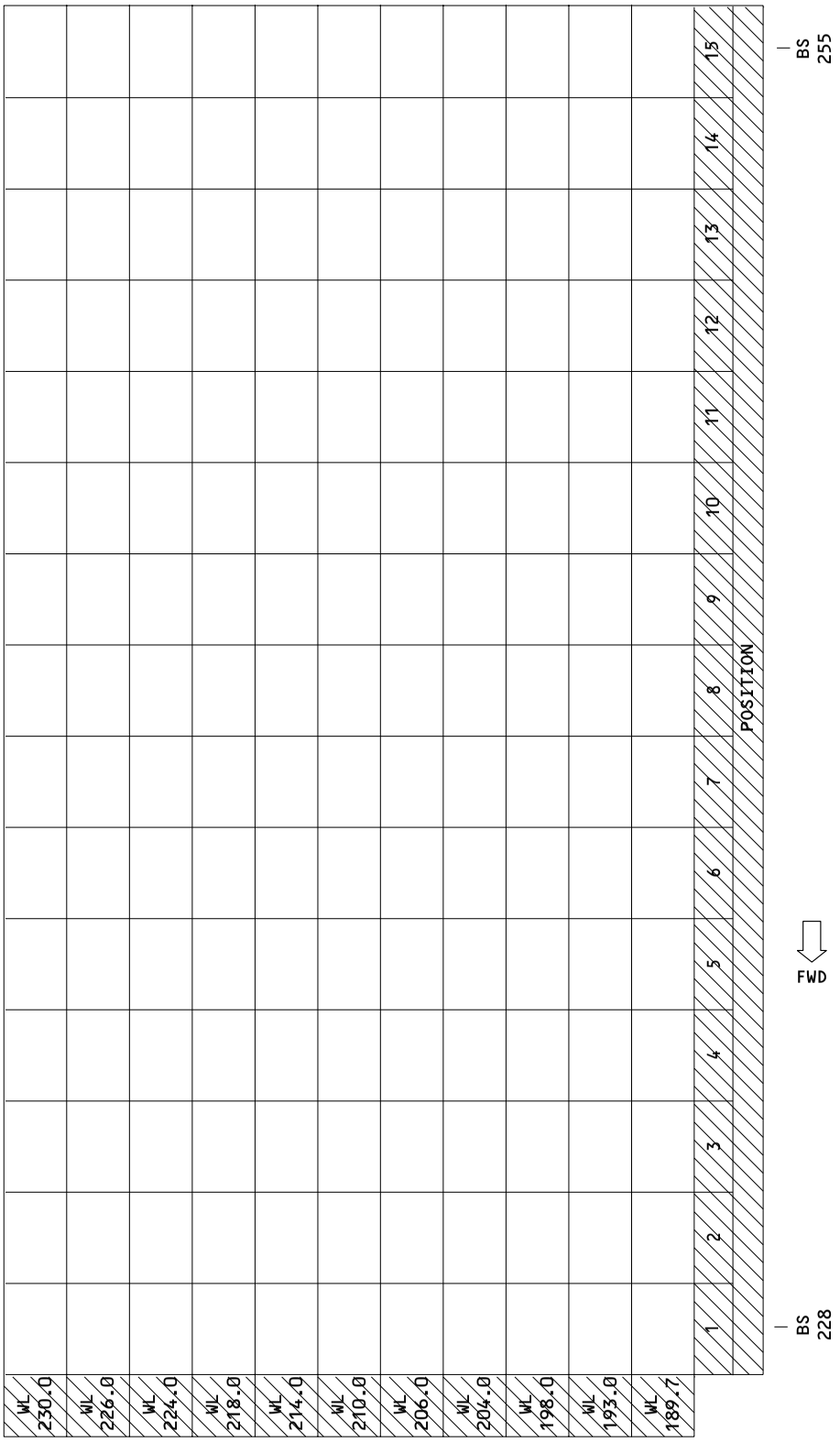
AIRPLANE:
FLIGHT CYCLES:
FLIGHT HOURS:

DATE / /



LEFT SIDE

AFTER THE TABLE IS FILLED OUT, MEASURE THE SKIN AT WL 230 AT POSITION 1. ENTER THE MEASUREMENT HERE:_____

Skin Waviness Analysis Worksheet - Left Side
Figure 605

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(1) If you find a problem, send duplicates of all information to Boeing with this heading:
   (a) ATTENTION - RVSM DISCREPANCY - SERVICE BULLETIN RELATED
   (b) Include the following information:
      1) The service bulletin number
      2) The airplane line number, variable number, or registration number
      3) The number of flight cycles and hours on the airplane
      4) The tables with the skin measurements for the right and left sides of the airplane
      5) Detailed descriptions of any dents, bulges, or repairs such as: location, shape, orientation, and depth or height
      6) Any other information about the skin that you think is important
   (c) If you can, take the following measurements while the airplane is flying at cruise speed:
      1) The pilot's altimeter reading
      2) The copilot's altimeter reading
      3) The mach number or the indicated airspeed of the airplane when the altimeters were read
   (d) Send the data and reports of the skin waviness and RVSM to Boeing thru the Field Service Representative or directly to:
      1) Boeing Commercial Airplane Group
         P.O. Box 3707 Seattle, Washington 98124

         Attn: Director, 707/727/737/757 Customer Support
         Engineering Org. M-7271, Mail Stop 2H-84
   (e) Wait for a disposition from Boeing.

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PROTECTIVE FINISHES - DESCRIPTION AND OPERATION

1. General
   A. Structure of the airplane is protected from corrosion by application of various finishes. The finish applied depends upon the parent material and upon whether the surface is an interior or exterior surface. The following finishes are applied to new airplanes and recommended for refinishing of all.
   B. Interior surfaces requiring special protective finishes.
      (1) BMS 10-11, TY-I primer and BMS 10-11, TY-II white enamel on areas near and below the battery, galley and toilet for corrosion protection.
      (2) BMS 10-11, TY-I primer and BMS 10-11, TY-II white enamel on fuselage bilge areas and electronic compartments for protection and to provide better visibility for maintenance purposes.

          NOTE: For in-service repairs to the interior finish where appearance is not of concern, it is acceptable to use two coats of BMS 10-11, Type 1 primer instead of the BMS 10-11 primer plus white enamel. Tests have shown that two coats of primer is as effective as the primer plus enamel for protection against corrosion.

      (3) Fuel tank coating in integral fuel tanks (Ref Chapter 28, Fuel).
      (4) BMS 5-89 corrosion inhibiting adhesive primer (CIAP) is required production primer for all structural bonded assemblies. The structural bonded assembly receives a subsequent coating of BMS 10-11 or BMS 10-79 primer on top of CIAP where added corrosion protection is specified. In many instances, coat of CIAP becomes the final protective coating for non-bonded surfaces where added corrosion protection is not specified. Coating with BMS 10-11 or BMS 10-79 primer is recommended because they provide equal or better corrosion protection and their coloring makes it obvious that desired coverage is obtained.
   C. Exterior surfaces requiring special protective finishes.
      (1) Yellow primer and gray enamel on critical corrosion areas including wing and empennage spar cavities, cove areas, and wheel wells.
      (2) Yellow primer and Corogard on wing upper inspar skins and other selective areas.
      (3) BMS 10-79 primer and BMS 10-60 flexible polyurethane enamel on wing lower inspar skins, and leading and trailing edge panels of wing, fin and stabilizer. This finish system is also recommended for structure surrounding the emergency exit hatches, outboard flap track fairings and skate angles for flap track and engine nacelle to wing fairings.

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2. Hydraulic Fluid Contamination Areas
   A. Certain areas on the airplane are subject to contamination by hydraulic fluid. See Fig. 1 for the locations of the possible hydraulic fluid contamination areas.
3. Exterior Decorative Markings
   A. Exterior decorative marking drawing is listed on the following Boeing drawing 65-61373.

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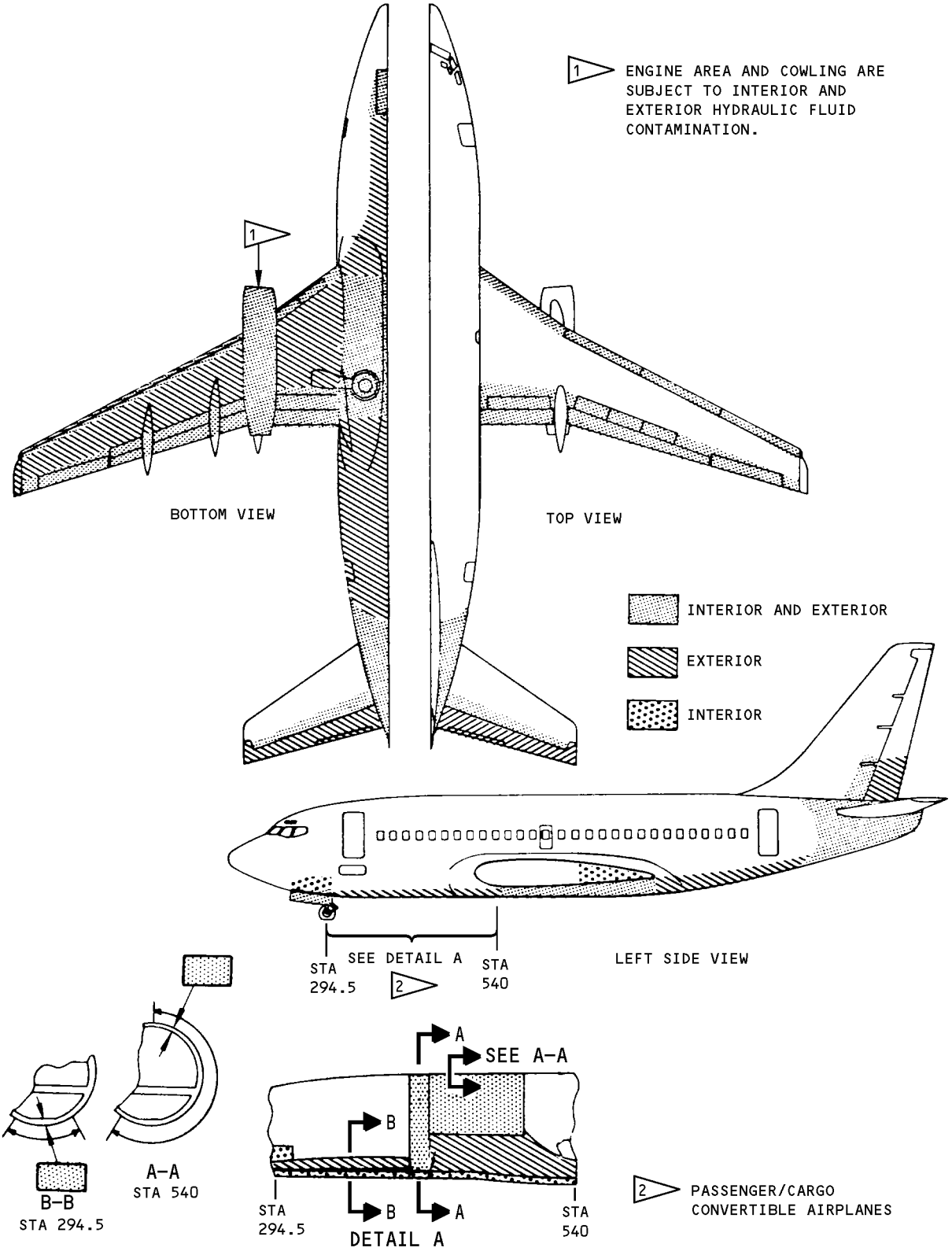

Hydraulic Fluid Contamination Areas
Figure 1

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PROTECTIVE FINISHES - CLEANING/PAINTING

1. General
   A. Protective and exterior decorative finishes maintenance practices are covered in the following sections.
   B. Certain processes, requiring the use of a powder in which some form of chromic acid is present, can constitute a fire hazard unless proper precautions are taken. Alodine powder is such a substance and it can ignite if it is allowed to make physical contact with organic solvents or combustible solid materials such as paper or rags. Other processes which, though not described in this manual, use similarly hazardous powder, include chromic acid anodizing, chromium plating, Dow 17 magnesium coating and Iridite, which is an aluminum corrosion coating, MIL-C-5541, alternative to alodizing.
   C. Before paint is applied to any surface on the airplane the surface must be prepared to receive the paint. The surface must be dry and free of any dust or oily residue. Therefore, it is essential that the processes required for the preparation of metal surfaces be strictly adhered to if a durable paint application is to be made. The particular paint stripping compounds specified will provide maximum efficiency for ordinary field work and care must be taken when other strippers are used as they may be corrosive towards aluminum, magnesium, cadmium and steel. Where the surface conversion coating has been damaged or penetrated during corrosion removal, brush alodizing is to be applied to provide a receptive surface for painting and to protect the base metal. The Alodine 1200S coating may have a golden iridescent color which may vary with different alloys and processing conditions. The Alodine 1000 is a clear coating for use on clad aluminum alloy parts and is not recommended for use on magnesium or magnesium alloys. All magnesium is to be treated with Dow 19.
   D. The following safety precautions shall be taken when applying solvents, cleaners, strippers, etchants or conversion coatings.
      (1) Avoid prolonged breathing of solvent vapors. Solvents must not be used in confined spaces without adequate ventilation or approved respiratory protection.
      (2) Avoid prolonged or repeated contact of solvents, cleaners, etchants, or conversion coating materials with skin. Rubber or plastic gloves should be worn when using solvents or cleaners and shall be worn when using paint strippers, etchants or conversion coating materials. Goggles or plastic face shields, rubber raincoats and rain hats shall be worn when cleaning, stripping, etching or conversion coating overhead surfaces.
      (3) Any paint stripper, etchant or conversion coating material on the skin should be washed off immediately with water.
      (4) Materials splashed in the eyes must be flushed out promptly with water and the injured person sent for medical attention.

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E. For application of flame sprayed aluminum, refer to Chapter 51 of the Structural Repair Manual.

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PAINT STRIPPING - CLEANING/PAINTING

1. General

A. Paint may be removed by the application of strippers or solvents. Paint applied to any metal surface may be removed by any of the specified strippers. No paint stripper may be used, however, to remove paint from plastic laminates, composite, fiberglass (bare or metalized), or the edges of metal bonded structure, or rubber parts. Paint should be removed from these parts by abrasive cleaning.

WARNING: MANY ORGANIC-FINISH STRIPPERS ARE FLAMMABLE, TOXIC OR CORROSIVE. CONSULT THE APPROPRIATE FIRE, INDUSTRIAL HYGIENE AND SAFETY ORGANIZATIONS ON FACILITIES, EQUIPMENT AND PROCEDURES REQUIRED FOR SAFE OPERATION WITH THESE MATERIALS. AVOID PROLONGED OR REPEATED BREATHING OF SOLVENT AND STRIPPER VAPORS. THESE MATERIALS MUST NOT BE USED IN CONFINED SPACES WITHOUT ADEQUATE VENTILATION. AVOID PROLONGED OR REPEATED CONTACT OF STRIPPERS WITH SKIN. CHEMICALLY RESISTANT GLOVES SHALL BE WORN WHEN USING PAINT STRIPPERS. GOGGLES OR PLASTIC FACE SHIELDS AND CHEMICALLY RESISTANT COATS AND HATS SHALL BE WORN WHEN STRIPPING OVERHEAD SURFACES OR OTHER SURFACES WHERE SPLASHING MAY RESULT. ANY STRIPPER ON SKIN SHOULD BE WASHED OFF IMMEDIATELY WITH WATER. ANY MATERIALS SPLASHED IN THE EYES MUST BE FLUSHED OUT PROMPTLY WITH WATER AND THE AFFECTED PERSON SHALL REPORT TO THE MEDICAL SECTION.

B. Paint stripping of metal detail parts may be done by immersion or by application of a stripper by brush or spray. Because of its convenience in field work, the brush-on method is the one described in the following procedures. Surfaces to be stripped should be dry and the temperature should be between 50 and 100°F. Stripping should not be done in hot sun or rain. If the surface to be stripped is excessively soiled it can be cleaned by application of the appropriate solvent alkaline or solvent emulsion cleaning agents or by solvent degreasing. Refer to Chapter 12, Cleaning and Washing. The stripper should be thoroughly mixed within its container before use, and it is advisable to keep the container covered when not in use, to avoid losses by evaporation.

CAUTION: DO NOT USE PAINT STRIPPERS ON COMPOSITE PANELS. PAINT STRIPPERS WILL STRUCTURALLY DAMAGE COMPOSITE PANELS.

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C. Critical areas subject to damage by strippers must be protected by proper masking, using polyethylene film and aluminum adhesive tape. Areas which must be protected from strippers include lubricated parts, rubber parts, laminated plastics, fiberglass (bare or metalized), and metal bonded edges. Drain holes and vents should be plugged.

CAUTION: PAINT STRIPPERS SHOULD NOT BE ALLOWED TO COME IN CONTACT WITH TEFLON LINED SELF-LUBRICATED BEARINGS, ELECTRICAL TERMINAL PLUGS, NYLON-COATED WIRES AND NYLON BUSHINGS. CHEMICALS IN THESE MATERIALS WILL ATTACK THE COMPONENTS.

2. Equipment and Materials
   A. Polyethylene film and suitable adhesive tape for masking
   B. B00102, Abrasive - Aluminum Oxide Coated Cloth, ANSI B74.18
   C. Paint strippers - all purpose and qualified for use on metal parts, including steel parts heat treated above 180,000 psi.
      (1) Turco 5351 (thick), Turco Products, Inc., P.O. Box 1055, Wilmington, California
      (2) Nuvite 631-3A, Nuvite Chemical Compounds Corp., 213 Freeman Street, Brooklyn 22, New York
      (3) Del Chem EZ Strip 19AC, Pennsalt Chemicals Corporation, Del Chem Division, 2700 South Eastern Avenue, Los Angeles, 22, California

      NOTE: The above materials are preferred for removal of epoxy and urethane finishes.

      (4) DuBois R2134, DuBois Chemicals, Inc., Broadway at Seventh, Cincinnati 2, Ohio
      (5) DuBow 1800 Sure-Strip, DuBow Chemical Corp., 39 Hanse Avenue, Freeport, L. I., New York
      (6) Cee Bee A290, Cee Bee Chemical Company, Inc., Downey, California
      (7) Ardrox 204, Brent Chemical Products, Ltd., Brentford, Middlesex, England

      NOTE: The order of stripping efficiency for other strippers listed has not been accurately determined. The user should check stripping efficiency on a given paint system, prior to large scale use.

      (8) Turco 5292B, Turco Products, Inc., P. O. Box 1055, Wilmington, California
   D. Solvents
      (1) Xylene - TT-X-916, flash point 81°F
      (2) Toulene - TT-T-548 (JAN T-171 Grade A optional) flash point 40°F

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(3) B00062, solvent - acetone ASTM D329
(4) B00666 - MPK (Methyl Propyl Ketone), BMS11-9

E. Miscellaneous tools including brush or nonatomizing spray, stiff bristled brush, clean cloths, squeegee or plastic scraper (See AMM 51-31-0/201 for approved scrapers) and proper protective clothing.

3. Application of Stripper

A. Brush or spray liberal amounts of well-mixed stripper on painted surface. If using brush, apply in one direction only instead of brushing back and forth. If spraying, use nonatomizing spray.

NOTE: The surface should be kept moist with stripper and the area being stripped should not be larger than can be reasonably worked.

B. Allow stripper to set undisturbed, but kept moist, until paint is completely loosened.

NOTE: This process may take between fifteen minutes and two hours, according to the type of paint being stripped. Usually the paint will wrinkle when loosened, but some paints do not wrinkle and should be tested for looseness by scraping very gently with an approved scraper. Care should be taken to avoid damage to the skin while doing this.

CAUTION: MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

CAUTION: DO NOT USE ABRASIVE PADS (SCOTCH-BRITE) OR PAPER ON THE ALUMINUM SURFACE UNLESS THE SCRIBE LINE INSPECTIONS WERE MADE. ABRASIVE PADS CAN SMOOTH THE ALUMINUM SURFACE AND HIDE SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE 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 737-53A1262.

C. Remove old paint and examine surface.

NOTE: If stripping is incomplete, fresh stripper should be reapplied and the surface kept moist with stripper while stubborn areas are scrubbed with a stiff bristled brush. Stripper should only be applied to a surface that is free of water.

D. Remove all excess stripper and loosened paint with squeegee or cloths.
E. Apply pressure water rinse followed by solvent alkaline cleaning.

NOTE: Residual soils may be cleaned with butyl cellusolve solvent.

F. Apply proper surface treatment in preparation for finish to be applied.

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4. Solvent Stripping MIL-C-7439 and MIL-C-27315 Rain Erosion Coating from Fiberglass
   A. Moisten cloths in toluene and place over coating, allowing to stand until coating wrinkles. Apply more toluene to keep cloths moist if necessary.
   B. Peel coating off.

      CAUTION: DO NO ALLOW TOLUENE TO CONTACT FIBERGLASS AREAS FOR LONGER THAN 2 HOURS.

   C. Lightly sand surface with abrasive paper (240 grit or finer) and solvent clean with xylene.
5. Dry Abrasive Stripping of Composites
   A. Do the stripping to the composite substrates.
      (1) Remove the enamel or topcoat with 150 grit or finer abrasive, B00102 paper.
         (a) 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.

      (2) Abrade (sand) and feather the primer and enamel layers with 240 grit or finer abrasive, B00102 paper.

         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.

6. Wheat Starch Blasting Finish Removal Process
   A. This procedure is to remove the finish from the composite substrate using wheat starch media blasting.
      (1) Thoroughly clean all parts to be blasted with acetone, B00062 or MPK (methyl propyl ketone), B00666.

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(2) Identify the substrate of parts to be blasted and the coatings to be blasted. Ensure compliance with Table A requirements.
(3) After each complete finish removal process, record the blast cycle number on the non-decorative area of the part.

CAUTION: MAKE SURE THAT ALL AREAS OF THE PART, ASSEMBLY AND AIRCRAFT THAT ARE NOT INTENDED FOR MEDIA BLASTING ARE MASKED OFF BEFORE BLASTING. MEDIA BLASTING CAN DAMAGE AREAS OF THE PART, ASSEMBLY AND/ OR AIRCRAFT THAT ARE NOT INTENDED FOR BLASTING.

(4) Mask off all areas of the part, assembly and aircraft not intended for blasting.
    (a) These areas include but are not limited to antennas, probes, lenses, windows, engines, door seams, access ports and wheel wells.

CAUTION: OPERATOR SHOULD ONLY DWELL ON ANY REGION OF THE SUBSTRATE LONG ENOUGH TO REMOVE COATINGS. EXCESSIVE DWELL TIME ON THE SUBSTRATE MAY INDUCE DAMAGE TO THE OUTERMOST STRUCTURAL PLIES OF THE PART. THE USE OF PROCESS PARAMETERS OUTSIDE THE RANGES LISTED IN TABLE 2 MAY RESULT IN DAMAGE TO THE PART SUBSTRATE.

(5) Remove all coatings in accordance with the process parameters in Table B.
(6) Remove the media dust from parts using clean, dry compressed air (not to exceed 30 psi), prior to removing the parts from the blast equipment.
(7) Alkaline clean parts in accordance with BAC 5744, method 1.

NOTE: Immersion rinse of low pressure liquid flush only.

(8) Inspect parts for possible damage.
    (a) Composite parts shall not exhibit broken, exposed or damaged fibers when inspected at 10X magnification.
    (b) For parts with lightning strike protection, no distortion of wire mesh or removal of aluminum flame coating is allowed.
    (c) Re-finish parts in accordance with the applicable drawings.

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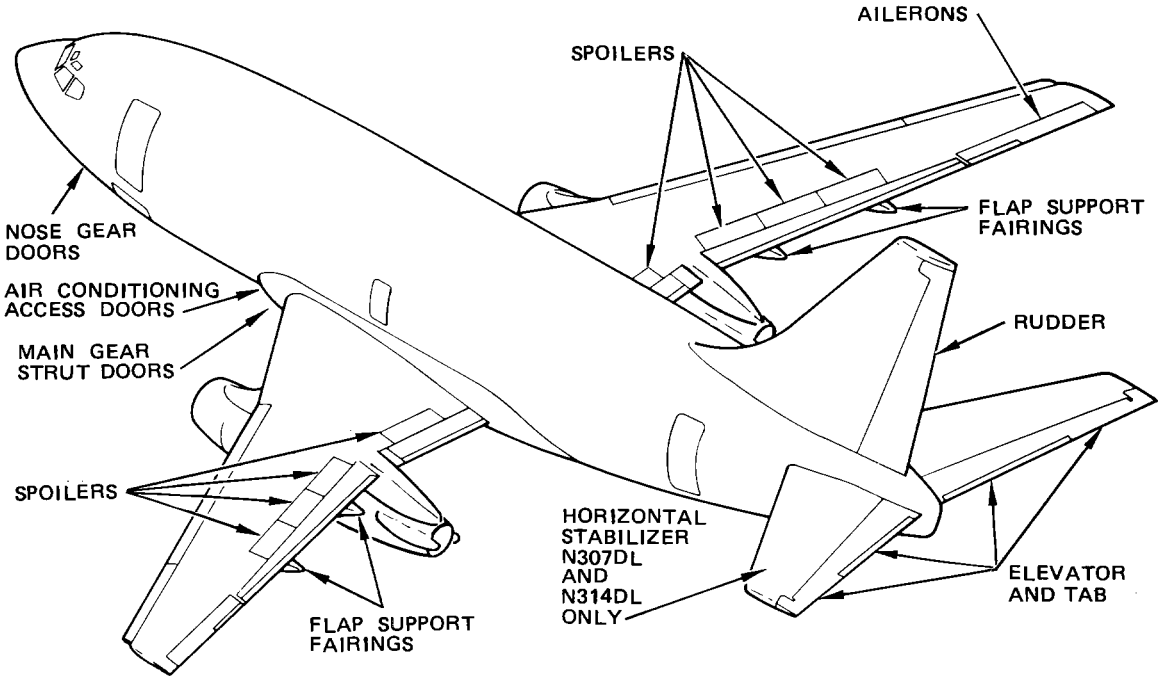
NOTE: COMPOSITE PANELS/SURFACES
ARE INSTALLED THESE LOCATIONS



Composite Material Location
Figure 701

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SUBSTRATE TYPE	BOEING MATERIAL SPECIFICATION	SELECTIVE FINISH REMOVAL CYCLES	COMPLETE FINISH REMOVAL CYCLES
FIBERGLASS 250 F CURE	BMS 8-79	UNLIMITED	TWO
FIBERGLASS 350 F CURE	BMS 8-139 BMS 8-331	UNLIMITED	FIVE
CFRP (CARBON/EPOXY) 250 F CURE	BMS 8-168	UNLIMITED	TWO
CFRP (CARBON/EPOXY) 350 F CURE	BMS 8-212 BMS 8-256 BMS 8-276	UNLIMITED	FIVE
ARAMID (KEVLAR/EPOXY)	BMS 8-218 BMS 8-219	UNLIMITED	NONE
WIRE MESH LIGHTNING STRIKE PROTECTION	BMS 8-336	UNLIMITED	NONE
ALUMINUM FLAME-SPRAY COATING	BAC 5056	UNLIMITED	NONE

SUBSTRATES APPROVED FOR WHEAT STARCH MEDIA BLASTING
TABLE A

SUBSTRATE TYPE	PROCESS PARAMETERS FOR	SELECTIVE STRIPPING	COMPLETE STRIPPING
FIBERGLASS 250 F CURE	ANGLE OF ATTACK NOZZLE PRESSURE MEDIA FLOW RATE NOZZLE TYPE NOZZLE DIAMETER STANDOFF DIST.	15 TO 25 DEG. 18 TO 22 PSI. 3 TO 6 LB/MIN. DOUBLE VENTURI 0.375 INCH NOMINAL 2 TO 6 INCHES	45 TO 60 DEG. 18 TO 22 PSI. 3 TO 6 LB/MIN. DOUBLE VENTURI 0.375 INCH NOMINAL 2 TO 6 INCHES
WIRE MESH FOIL, ALUMINUM FLAME-SPRAY	ANGLE OF ATTACK NOZZLE PRESSURE MEDIA FLOW RATE NOZZLE TYPE NOZZLE DIAMETER STANDOFF DIST.	15 TO 25 DEG. 18 TO 22 PSI. 3 TO 6 LB/MIN. DOUBLE VENTURI 0.375 INCH NOMINAL 2 TO 6 INCHES	NOT ALLOWED
ARAMID/EPOXY)	ANGLE OF ATTACK NOZZLE PRESSURE MEDIA FLOW RATE NOZZLE TYPE NOZZLE DIAMETER STANDOFF DIST.	15 TO 25 DEG. 18 TO 22 PSI. 3 TO 6 LB/MIN. DOUBLE VENTURI 0.5 INCH NOMINAL 2 TO 6 INCHES	NOT ALLOWED

PROCESS PARAMETERS FOR COATING REMOVAL OF SELECTED SUBSTRATES
TABLE B

Wheat Starch Media Blasting Parameters
Figure 702

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PREPAINT CLEANING AND PRETREATMENT - CLEANING/PAINTING

1. General
   A. This section describes airplane surface preparation prior to application of exterior decorative finishes. The specific paint system section governs sequencing and selection of procedures in this section.

      WARNING: STRIPPERS, CLEANERS, AND SOLVENTS USED IN THIS SUBJECT CONTAIN TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS AND MIST. USE WITH ADEQUATE VENTILATION. PROVIDE APPROVED RESPIRATORY PROTECTION AS REQUIRED. DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP FLAMMABLE MATERIALS AWAY FROM SOURCES OF IGNITION.

2. Equipment and Materials
   A. Solvents
      (1) Solvent - Final Cleaning of Metal Prior to Painting (Series 84) (Ref AMM 20-30-84)
   B. Stripper (Ref 51-21-11, Paint Stripping)
   C. Cheesecloth
   D. Abrasives (Ref 20-30-51)
      (1) Silicone carbide paper - 180 to 320 grit
      (2) Scotchbrite pads
      (3) Plastic scrapers (See AMM 51-31-0/201 for approved scrapers)
      (4) Aluminum oxide abrasive paper - 150 grit or finer, 240 grit or finer, 400 grit or finer
   E. Alodine 1000 or Alodine 1200 (Ref 20-30-41)
   F. Tack rags
   G. Static Conditioner - 28-C-1 (Ref 20-30-41)
   H. Surfacer - 8-W-5 (Ref 20-30-41)
      (1) Hardener - 50-C-3 or 10-C-32
      (2) Reducer - 66-C-28
3. Prepaint Cleaning
   A. Mask or protectively cover all areas not to be contacted by solvents, cleaners and Alodine.
   B. Do not abrasive clean anodized surfaces that are not to be painted.
   C. Remove temporary protective coatings, if applied.
   D. Remove residual coatings according to 51-21-11, Paint Stripping. If necessary, use approved plastic scrapers, sandpaper or Scotchbrite pads as aids in removing the contaminants. Do not allow paint strippers to contact fiberglass, aluminized fiberglass, acrylic windows or sealant fillets.

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CAUTION: MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

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 SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE 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 737-53A1262.

E. Remove stripper residue, loose dust and water soluble contaminants by spraying with hot water, 135 to 145°F, 10 to 20 gpm per station. Refer to 51-21-11, Paint Stripping, also.
F. Scrub around fasteners, seams and lap joints with a stiff-bristle brush wet with solvent, Series 84 (Ref AMM 20-30-84).
G. Clean the surface to be painted using solvent, Series 84 (AMM/20-30-84) until no visible residue appears on cheesecloths used to wipe the surface dry.
H. Abrade stainless steel and titanium surfaces with 180 to 320 grit silicon carbide paper.

CAUTION: SEALANTS AND SMOOTHER CAN BE DAMAGED DURING PREPAINT CLEANING OPERATIONS. DAMAGE IS DEFINED AS VISIBLE SEPARATION OR LIFTING FROM THE EDGE OF THE SEALANT. DAMAGED SEALANT/SMOOTHER WILL NOT READHERE AND MUST BE REMOVED.

(1) Separation confined to the thin edge of the sealant fillet, not extending to the body of the fillet, shall be removed by abrasion with Scotchbrite pads.
(2) If separation occurs between the body of the sealant fillet and the airplane skin, remove the damaged (separated) part of fillet.

NOTE: The sealant fillet can be separated from the skin during cleaning with solvent. Do not do a test of the sealant bead bond with your fingernail or with a knife. Only do a visual inspection of the interface between the sealant bead and the skin.

(a) Repair sealant as required (Ref 51-31-0, Seals and Sealing).

CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REPAIR THE SEALANT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

I. Do not abrade aluminum flame sprayed fiberglass. Alodine 1200 treated surfaces need not be abraded nor realodined.

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4. Surface Pretreatment

CAUTION: MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

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 SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE 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 737-53A1262.

A. Pretreatment Method I (prior to application of a wash primer system): Thorough Scotchbriting

CAUTION: DO NOT DAMAGE SEALANT FILLETS IN BONDED LAP JOINTS. IF DAMAGED, REPLACE.

(1) Wet abrade thoroughly to an overall satin finish using Scotchbrite pads and solvent, Series 84 (Ref AMM 20-30-84).
(2) Solvent wipe with solvent, Series 84 (Ref AMM 20-30-84) to remove all residues, wiping dry before the solvent evaporates. Repeat as necessary to remove all sanding residues.
(3) Allow the airplane surfaces seams and lap joints to dry thoroughly prior to priming.
(4) Apply wash primer (Ref 51-21-171, Decorative Paint System).

CAUTION: MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

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 SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE 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 737-53A1262.

B. Pretreatment Method II (prior to application of an epoxy primer system) Alodine 1000, or Alodine 1200 (Alodine 1200 is preferred):

CAUTION: DO NOT DAMAGE SEALANT FILLETS IN BONDED LAP JOINTS. IF DAMAGED, REPLACE.

(1) Wet abrade thoroughly to an overall satin finish using Scotchbrite pads and solvent.
(2) Wipe the surface using cheesecloth and solvent. Repeat as necessary to remove all sanding residue.

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(3) Flood the surface with clean water until a water break free surface is obtained. A water break free surface will maintain a continuous flow of water for 30 seconds. If a water break free surface is not obtained, repeat wet abrasion and rinsing.
(4) Prepare, or store if required, Alodine 1000 or Alodine 1200 solution per 51-21-41, Alodizing.
(5) Apply Alodine 1000 or Alodine 1200 solution per 51-21-41, Alodizing.
(6) Allow the airplane surfaces, seams and lap joints to dry thoroughly prior to priming.
(7) Apply BMS 10-11 primer to interior surfaces (mask exterior surfaces) (Ref 51-21-171, Decorative Paint System).
(8) Apply BMS 10-79 primer to exterior surfaces (Ref 51-21-171, Decorative Paint System).
(a) Previously Painted Surfaces
(9) Epoxy primed surfaces
(a) Sand with 400 grit or finer aluminum oxide abrasive paper as required to remove surface roughness and loose soils. Just prior to over-coating, wipe with tack rags to remove dust and lint.

NOTE: Rough surfaces such as castings, forgings, etc., which cannot be sanded without exposing the base metal shall either be tack ragged or solvent cleaned, whichever is applicable. Sanding such surfaces should be avoided.

(10) Prestec radome coating less than 12 hours old
(a) No treatment necessary.
(11) Prestec radome coating greater than 12 hours old
(a) Treat per step 4A (2) except use naphtha in place of solvent.

5. Detailed Instructions for Prepaint Cleaning and Pretreatment of Plastic Surfaces
A. Unpainted plastic surfaces with surface porosity (i.e., pinholes)
(1) Remove greases and other contaminants from surface to be coated by scrubbing with a clean cheesecloth saturated with toluene. Wipe the surface dry with clean cheesecloth.
(2) Structural and Nonstructural Laminates
(a) Hand-sand the surface with 240 grit or finer abrasive paper to remove any glossy finish of the laminate. In sanding, do not abrade the glass fiber reinforcement. Remove sanding dust by wiping the surface with a tack rag or clean cheesecloth wet with solvent. Before solvent evaporates, wipe surface dry with a clean dry cheesecloth.
(3) Optional - For Nonstructural Laminates Only:
(a) Uniformly lightly abrade by wet or dry blasting the laminate surface. Do not allow blasting to abrade the glass fiber reinforcement. Remove blasting residue by wiping with a clean cheesecloth wet with solvent. Before solvent evaporates, wipe surface dry with a clean, dry cheesecloth.

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(4) Treat the surface porosity by the following method: (Ref AMM 51-21-71 for additional surfaces and fillers as applicable.)

CAUTION: THE USE OF FILLERS, PUTTIES, AND SURFACES ARE EXCELLENT FOR PROVIDING SMOOTH SURFACES, HOWEVER, APPLYING EXCESSIVE AMOUNTS OF THOSE MAY CONTRIBUTE TO LONG-TERM POINT CHECKING.

(a) Surface Conditioner System

1) This system consists of static conditioner which shall be used to treat pinholes and surfacer which shall be used as required to treat larger surface defects than pinholes. In general, treatment is to allow paint to wet the surface and not to provide a surface flush with the surrounding area. Apply the static conditioner prior to application of the surfacer. Static conditioner, surfacer and conductive coating or primer are intended to be applied in a sequence of continuous process steps.

2) Static Conditioner

a) Apply the static conditioner without thinning, using a clean cheesecloth and sufficient pressure to force the filler into the minute pinholes of the laminate. Use a circular, overlapping, wiping motion.

b) Allow the conditioner to dry for approximately 30 minutes at room temperature or higher (until it turns white) then wipe the excess material from the laminate surface using a clean, dry cheesecloth.

c) The laminate shall be coated with subsequent material as soon as practicable after dried excess static conditioner has been wiped off. If surface becomes soiled after conditioner is applied, solvent clean using toluene or naphtha and reapply static conditioner.

3) Surfacer

CAUTION: THIS MATERIAL IS NOT TO BE USED AS A FAIRING COMPOUND OR CONTOURING MATERIAL.

a) Prepare the surfacer by mixing 4 parts by volume of surfacer with 1 part by volume hardener 50-C-3 or 10-C-32. Blend thoroughly and allow to digest for 15 minutes prior to application, thin with 1 part by volume reducer. The pot life of the mixed material is 6 hours at 70°F. Do not use material over 6 hours old.

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b) Apply surfacer by brush, spray, cloth or squeegee, and allow to dry for 1 to 4 hours. Sand to desired smoothness using 150 grit or finer, abrasive paper.

NOTE: After 5-hour cure, the surfacer is extremely hard and difficult to sand. Therefore, complete all necessary sanding prior to 5-hour cure.

c) Remove sanding residue with clean cheesecloth wet with naphtha. Should any pinholes appear in the surfacer, treat with static conditioner after the surfacer has been sanded and solvent cleaned. Apply subsequent coating to filled surfacer as soon as practicable.

B. Unpainted plastic surfaces without surface porosity.

CAUTION: MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

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 SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE 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 737-53A1262.

(1) Clean and treat per step A.(1) and A.(2) or A.(3) prior to applying the organic finish.

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CORROSION REMOVAL AND CONTROL - CLEANING/PAINTING

1. General
   A. Any structural part that has been subject to corrosive action must be carefully examined to determine its structural integrity. Corroded parts should be removed and if salvageable reworked. The same type of protective finish, which was previously on the part, should be reapplied. If it is not possible to remove the structurally sound part, specific treatments according to the type of material and degree of corrosion are to be applied.

      WARNING: MANY MATERIALS USED TO IMPLEMENT THIS PROCEDURE ARE TOXIC, FLAMMABLE OR IRRITATING. AVOID BREATHING SOLVENT MISTS. PROVIDE ADEQUATE VENTILATION. AVOID PROLONGED CONTACT OF MATERIALS WITH THE SKIN. DO NOT GET IN EYES. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP SOLVENTS AWAY FROM ALL SOURCES OF IGNITION.

      CAUTION: ACID BRIGHTENERS AND PHOSPHORIC ACID CORROSION REMOVERS SHOULD NOT BE ALLOWED TO COME IN CONTACT WITH TEFLON LINED SELF-LUBRICATED BEARINGS OR ELECTRICAL TERMINAL PLUGS. CHEMICALS IN THESE MATERIALS WILL ATTACK COMPONENTS.

   B. Corrosion removal and control procedures listed in this section are applicable to all areas except the wing upper inspar surface as defined in 51-21-131, Skin and Fastener Corrosion Control. Procedures apply only to light corrosion. For severe corrosion removal, refer to Structural Repair Manual.
   C. In removing corrosion products it is of utmost importance for the removal to be complete. Failure to remove all residues permits corrosion action to start again after affected areas are refinished. For limits of corrosion removal, refer to Structural Repair Manual.
   D. Areas to be treated for corrosion must be free of oil, grease, dirt, and paint.
   E. Acid brighteners for aluminum have significant activity in not only removing corrosion but also the metallic surface and should therefore be used infrequently and only as required. Phosphoric acid type corrosion removers, on the other hand, are milder and while not effective in removing heavy corrosion do not appreciably attack the metallic surface.
2. Equipment and Materials
   A. Cheesecloth or new rags
   B. Cleaning brushes - nylon and wire
   C. Aluminum wool and steel wool
   D. Aluminum oxide paper - 220 and 400 grit
   E. Polish per QPL-6888 - Under MIL-P-6888

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F. Acid brighteners for aluminum

NOTE: The following materials must be diluted with three parts water prior to use.

(1) Kelite L-203- Kelite Products, Inc., Chicago, Illinois
(2) Metal Glo No. 2 - Turco Products Inc., Los Angeles, California

G. Phosphoric acid type corrosion removers for aluminum
(1) Kelite "Process K" - Kelite Products, Inc., Chicago, Illinois

NOTE: Before use, dilute with 8 parts water.

(2) Oakite 36 - Oakite Products, Inc., New York

NOTE: Before use, dilute with 4 parts water.

(3) Turco "W.O. No. 1" - Turco Products, Inc., Los Angeles, California

NOTE: Before use, dilute with 6 parts water.

H. Phosphoric acid type corrosion removers for steel

NOTE: The following materials must be diluted with 3 parts water before use.

(1) GMC 801 - Greater Mountain Chemical Co., Salt Lake City, Utah
(2) Kelite "Process K" - Kelite Products, Inc., Chicago, Illinois
(3) Oakite 31 - Oakite Products, Inc., New York
(4) Turco "Prepaint" - Turco Products, Inc., Los Angeles, California

I. Nitric Acid Concentrated - Federal Specification O-A-88
J. Alodine 1000 and 1200S
K. Dow 1 and 19 solutions
L. Sodium dichromate or potassium dichromate
M. Chromic acid
N. Powdered calcium sulphate
O. Primer - BMS 10-79
P. Enamel - BMS 10-60

3. Aluminum Corrosion Removal
A. General Exterior Skin Corrosion (brightening of aluminum)
(1) Place the airplane in a suitable location, which will allow rapid and thorough rinsing of all surfaces.
(2) Remove grease, oil and loose paint (Ref Chapter 12, Cleaning, and 51-21-11, Paint Stripping).
(3) Dilute acid aluminum brighteners per list in equipment and materials paragraph.

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(4) Apply liberally to small areas starting from lower surfaces and working upwards so that there will be no runs to cause streaks.

CAUTION: KEEP SOLUTION OFF NONCLAD ALUMINUM ALLOYS, STEELS HEAT TREATED OVER 180,000 PSI, MAGNESIUM, FABRIC AND PLASTIC. IT IS NOT NECESSARY TO MASK FABRIC OR PLASTIC SURFACES, BUT THE BRIGHTENING SOLUTION SHOULD BE WASHED OFF PROMPTLY AND NOT ALLOWED TO DRY.

(5) Leave solution on surface for 5 to 30 minutes, depending on the temperature and amount of corrosion present.

NOTE: Avoid corrosion removal at temperatures above 100°F and below 45°F.

CAUTION: DO NOT LEAVE ON LONGER THAN NECESSARY TO DISSOLVE CORROSION, AND IN NO CASE LONGER THAN 30 MINUTES.

(6) Agitate solution occasionally with a brush, preferably nylon.
(7) Keep surface wet with solution.
(8) Apply a light water spray during final brush agitation, unless there is no danger of solution drying and causing streaking.
(9) Follow with a very thorough high-pressure water rinse.
(10) Repeat steps (3) thru (9) on remaining portions of the airplane, working upwards so as to minimize streaking.

NOTE: Select small enough working areas so that the solution does not have chance to dry. Overlapping will not cause streaks unless solution dries.

(11) Rinse treated area plus adjacent areas to assure complete and overlapping rinsing.

NOTE: Intensive hosing is to be applied in wheel well areas, skin seams and other cavities where solution may have entered.

(12) Brush alodize (Alodine 1200S) areas of clad and nonclad aluminum, which are to be painted.

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(13) Brush alodize (Alodine 1000) areas of clad aluminum, which are not to be painted.

NOTE: After corrosion removal, all nonclad areas must be refinished using Alodine 1200S plus either two coats primer or one coat primer followed by one coat enamel to match surrounding surface.

B. Light Skin Corrosion (aluminum)

NOTE: Optional to par. A.

(1) Preferably remove corrosion mechanically with an approved aircraft polish.
(2) After polishing, remove residues from surface, recesses and corrosion pits by means of solvent, or by use of a solvent alkaline or emulsion cleaner followed by a thorough water rinse (Ref Chapter 12, Cleaning and Washing).
(3) Apply phosphoric acid corrosion remover, suitably diluted with water.
(4) Rinse as in step A.(11).

4. Magnesium Corrosion Removal
A. Remove most of the corrosion with aluminum wool and a stiff-fiber brush, or if necessary use aluminum oxide abrasive, 220 grit or finer. Do not use silicon carbide abrasive.
B. Mask off other materials and parts, especially bearings and cast or pressed-in inserts, against contact with the treating solution or its fumes.
C. Dissolve corrosion from pits with Dow 1 solution as follows:
(1) Brush on generous quantities of a freshly prepared Dow 1 solution containing 1-1/2 pounds of sodium dichromate and 1-1/2 pints of concentrated nitric acid per gallon.
(2) Wipe dry, rinse with clean water, and again wipe dry.
D. Treat with Dow 19 solution as follows:
(1) Prepare solution in clean glass or plastic container by adding in order given: 1-1/3 ounces Chromic Acid (CrO_3), 1 ounce powered Calcium Sulfate ($CaSO_4$, $2H_2O$), and 1 gallon of water. Stir for at least 15 minutes then allow to settle. Prior to use, the clear solution is poured off and must be free of suspended material when applied.
(2) Apply solution by swabbing until the surface becomes dull golden to dark brown in color. Use caution in applying the solution, as severe rubbing of the wet surface will damage the coating.
(3) Rinse with clean water.
(4) Dry with circulating air, 180°F max temp or by a mild blast of filtered compressed air.

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E. Apply following protective finish as soon as possible to avoid soiling, scuffing or initiation of new corrosion:
   (1) Apply two coats primer.
   (2) Apply one coat enamel if part is located on airplane exterior.

5. Steel Corrosion Removal (Steel Parts Heat-Treated to 180 ksi or less)

   NOTE: When heat-treat of a specific part is unknown or doubtful, treat as though over 180 ksi per par. 6 and do not treat with acidic materials.

   A. Remove loose rust with steel wool and a wire brush.
   B. Dissolve the remainder of the rust with Kelite Process K, Greater Mountain Chemical 801, Oakite 31 or Turco Prepaint, diluted one part to three parts of water.

      CAUTION: CONFINE THE SOLUTION TO THE VICINITY OF THE RUSTED AREA AND ALLOW TO REMAIN SEVERAL MINUTES OR UNTIL A GRAY COATING IS OBSERVED.

   C. Rinse with clean water.
   D. Wipe with a damp cloth, and allow to dry. Force dry if possible.
   E. Apply protective finish without unnecessary delay as follows:
      (1) Apply one coat of primer.
      (2) Apply one coat of enamel.

6. Steel Corrosion Removal (Mandatory for Parts Heat-Treated over 180 ksi, Optional for Parts Less than 180 ksi)
   A. Remove corrosion by abrading with 220 or finer abrasive paper or dry abrasive blast.
   B. Solvent clean.
   C. Apply protective finish as follows:

      NOTE: Metal is quite reactive after blasting. Primer coats must be applied within 1 hour after sanding or blasting.

      (1) Apply one coat of primer.
      (2) Apply one coat of enamel.

7. Corrosion Removal from Corrosion Resisting Steels (all types), Nickel-Base Alloys, and Titanium
   A. Remove corrosion by abrading with stainless steel wool, stainless steel wire brush, fine abrasive paper or abrasive blasting.

      NOTE: Abrade slightly beyond the point of removal of visible corrosion to ensure that no corrosion products remain.

   B. Polish with 400 grit aluminum oxide paper to remove scratches.
   C. Remove residues with solvent alkaline cleaner followed by water rinse and dry air blast.

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D. Apply one coat of primer.

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ALODIZING - CLEANING/PAINTING

1. General
   A. Alodine is a registered trade name of a proprietary process, marketed by the American Chemical Paint Company, Ambler, Pennsylvania. It is approved under Specification MIL-C-5541, QPL-5541 for the production of chemical films on aluminum alloys. The film is softer than the anodic coating but is acceptable as a protective coating and a paint base. The solutions used for producing the chemical film are Alodine 600, 1000 and Alodine 1200S. Alodine 600 is used in the fuel tank next to BMS 10-20 primer.

      WARNING: ALL ALODINE SOLUTIONS ARE TO BE HANDLED WITH THE USUAL PRECAUTIONS FOR CORROSIVE CHEMICALS. RESPIRATORS AND RUBBER OR NEOPRENE GLOVES ARE TO BE WORN WHEN HANDLING THE POWDER AND APPLYING THE SOLUTION. ADEQUATE PROTECTIVE MEASURES ARE TO BE TAKEN TO ASSURE REASONABLE SPLASH PROTECTION AND AVOIDANCE OF CONTACT WITH THE SOLUTION. ANY SOLUTION ON THE SKIN MUST BE WASHED OFF IMMEDIATELY. SOLUTION SPLASHED IN THE EYES MUST BE WASHED OUT WITH WATER FOLLOWED BY AN EYEWASH OF BORIC ACID SOLUTION. OBTAIN MEDICAL AID IMMEDIATELY.

      NOTE: Materials and procedures approved under MIL-C-5541, QPL 5541, are optional to Alodine.

   B. Swabs, or paper used for applying or removing the solution should not be allowed to dry out. They constitute a fire hazard when dried. Immediately after use they should be thoroughly soaked in water before discarding.
2. Equipment and Materials
   A. Respirators
   B. Neoprene or rubber gloves
   C. Soft-bristle brush (nylon)
   D. Cellulose sponge
   E. Stainless steel or acid resistant container (not lead or glass, preferably polyethylene)
   F. Alodine (1000) liquid (American Chemical Paint Co., Niles, California)
   G. Alodine 600 or 1200S powder (American Chemical Paint Co., Niles, California) or Alocrom 1200 (B.A.L.M)
   H. Tycro wheels, Type 3A, very fine aluminum oxide wheels, Scotchbrite Pad, Type A, very fine aluminum oxide pads or 400 grit aluminum oxide paper
   I. Cheesecloth or new rags
   J. Solvent - General Cleaning of Metal (Series 80) (Ref AMM 20-30-80).

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3. Preparation and Storage of Alodine 1000 Solution
   A. To 6 volumes of water in a clean polyethylene container add 4 volumes of Alodine 1000 liquid concentrate and stir thoroughly. Transfer the Alodine 1000 solution to small clean polyethylene bottles. These small polyethylene bottles shall be date stamped with the date of mixing and the solution shall be discarded 14 calendar days after making if not used. Alodine 1000 solutions are sensitive to all types of contamination; consequently the mixing and storage containers must be thoroughly clean.
4. Apply Alodine 1000 Solution
   A. Apply Alodine 1000 solution using clean cheesecloth. The room temperature must be above 65°F. Wipe on additional Alodine as needed to keep surfaces wetted for 2 to 5 minutes. Rinse thoroughly. Air dry. Do not touch parts until dry as fresh Alodine films are easily damaged.

      WARNING: CLOTHS USED FOR APPLYING OR REMOVING ALODINE 1000 SOLUTIONS SHOULD NOT BE ALLOWED TO DRY OUT SINCE THEY ARE A FIRE HAZARD WHEN DRY. IMMEDIATELY AFTER USING THEY SHALL BE THOROUGHLY RINSED IN WATER, THEN IMMERSED IN WATER-FILLED STEEL DRUMS FOR SALVAGE OR SCRAP.

5. Preparation, Storage and Application of Alodine 600 or 1200
   A. Prepare brush Alodine 600 or 1200 solution.
      (1) Mix the contents of each container of Alodine 600 or 1200 powder thoroughly prior to use.
      (2) Add 3 ounces of Alodine 600 or 1200 powder for each gallon of water used.
      (3) Mix in stainless steel or acid-resistant container. (Do not use lead or glass).
      (4) Stir well until powder is dissolved.

         NOTE: Compliance with mixing procedure is required for a satisfactory solution. A small amount of material that may settle out of solution can be disregarded.

      (5) Allow the solution to stand at least 1 hour before use.

         NOTE: A dirty solution is unsatisfactory. Prepare in small quantities and discard when old or dirty. If nondistilled water is used, control pH range of from 1.50 to 2.00 by addition of nitric acid for Alodine 1200. For Alodine 600 add 2 percent by volume of Alodine Toner 22 and stir to adjust the pH to between 1.5 and 2.0. Check range by the use of pHydrion papers #60781. Add no wetting agents or other materials to this solution.

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B. Prepare the surface for alodizing.
   (1) Mask all surfaces likely to be affected by running, dripping, or splashing of the solution. Painted or previously alodined surfaces need not be masked.
   (2) Seal or plug all holes, gaps and inlets to assemblies containing honeycomb or foam plastic with suitable sealing or caulking material or rubber plugs to prevent entry of any solution.
   (3) Clean area to be alodized with a liquid solvent degreaser by using clean brush or rags. Dry with warm air or wipe dry.
   (4) Remove the existing organic and inorganic finish from the repair area. Remove the hydraulic fluid resistant finish at the same time the inorganic coating is stripped. Strip or manually abrade the inorganic coatings such as anodize or alodine mechanically with Tycro, Type 3A, very fine aluminum oxide unitized wheels attached to a drill motor, Scotchbrite Pad, Type A, or 400 grit aluminum oxide paper. Clean all signs of organic and inorganic coatings until a uniform, bright, shiny aluminum surface is obtained.
   (5) Wipe with dry clean cheesecloth to remove loose particles and residue from the abraded area.
   (6) Wipe with cheesecloth dampened (not saturated) with solvent. Repeat using clean cheesecloth until no visible residue transfers to the cheesecloth.
   (7) Allow to dry for a minimum of 15 minutes.
   (8) Remove any corrosion present per (1) thru (7) above.
   (9) See Chapter 57 of the Structural Repair Manual for cleaning structure and repair parts prior to the installation of sealant in integral fuel tanks.

C. Apply Alodine 600 or 1200 solution.
   (1) Apply Alodine 600 or 1200 evenly and liberally with a fiber or nylon brush or clean cheesecloth.
   (2) Allow the solution to remain for 3 to 4 minutes to form a coating. Keep the area from drying during this period by gently blotting with cheesecloth moistened with the solution.
   (3) Rinse with clean water by gently contacting the surface with wet (not saturated) clean cheesecloth. Contact for 1 to 2 minutes and repeat with clean cheesecloth.

      CAUTION: EXERCISE CARE WHEN RINSING AND DRYING TO AVOID SCRATCHING OR REMOVING THE COATING, WHICH IS TENDER WHEN FRESHLY FORMED.

   (4) Gently contact the surface with clean dry cheesecloth to absorb excess liquid. Repeat as required.
   (5) Air dry thoroughly. Filtered hot air (160°F maximum) for 15 minutes is recommended.

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(6) Apply final finish or commence adhesive bonding in accordance with Chapter 51 of the Structural Repair Manual as soon as possible after drying. Handle parts with clean gloves and keep parts clean and dry to avoid surface contamination.

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CHEMICAL AND SOLVENT RESISTANT FINISH - CLEANING/PAINTING

1. General

WARNING: FINISHES AND SOLVENTS USED IN THIS SUBJECT ARE TOXIC AND FLAMMABLE. USE ONLY IN WELL-VENTILATED AREA. AVOID BREATHING VAPORS. WHEN FINISHES OR SOLVENTS ARE SPATTERED IN EYES FLUSH WITH WATER FOR 15 MINUTES AND REPORT TO MEDICAL SECTION IMMEDIATELY. WHEN SPATTERED ON THE SKIN, WASH WITH PLENTY OF WATER.

A. An adequate ventilation system should be employed for all mixing and application of all finishes and for the solvent cleaning required prior to application of these finishes. If such facilities are not available, the use of full-face air respirators approved by the U.S. Bureau of Mines or an equivalent approved source shall be used.

B. All containers and mixing equipment must be clean and resistant to BMS 10-11 materials. Do not use wax lined containers. Dixie cup #2336 or any polyethylene-lined cup is satisfactory for distribution of mixed material for touchup painting.

C. Clean equipment immediately after mixing. Clean up any spillage immediately.

D. The use of protective clothing shall be determined by the appropriate safety organization.

2. Equipment and Materials

A. Chemical and Solvent Resistant Finish (Fig. 701)
   (1) Primer - BMS 10-79
   (2) Enamel - BMS 10-60

B. Strainer - 60-90 mesh

C. Spray paint equipment (Fig. 702)

D. Natural bristle brush

E. Alkaline Cleaner - GMC 528B, or equivalent

F. Abrasive paper 320 grit or finer aluminum oxide

G. Abrasive disks (grit very fine), Scotchbrite or Behr-Manning

H. Solvent
   (1) Solvent - Final Cleaning of Metal Prior to Painting (Series 84) (AMM 20-30-84)
   (2) Solvent - Final Cleaning Of All Organic Coatings Prior to Painting (Series 85) (AMM 20-30-85)
   (3) Naphtha

3. Prepare for Painting

A. Metal
   (1) With Pretreatment: Aluminum (alodined or anodized), metal-sprayed aluminum (alodined), magnesium (Dow treated), titanium (treated with phosphate fluoride), carbon and low alloy steel (plated or phosphated).
      (a) Inspect for visual evidence of soil.

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(b) Proceed to paint parts not soiled or contaminated.
(c) Parts soiled or contaminated may be cleaned by any of the following methods.
1) Solvent-clean using any referenced solvent.
2) Alkaline clean. Do not use soak period longer than 20 minutes. Do not use on cadmium or cadmium-titanium plated parts.
3) Vapor degrease.
(d) Proceed to paint parts.
(2) Without Pretreatment
(a) Abrasive-clean titanium, stainless steel, low alloy steel, and copper.
(b) Solvent-clean using specified solvents. Paint stainless steel and low alloy steel within 4 hours of blasting.
(c) Proceed to paint parts.
B. Nonmetals: Plastic, wood, adhesive, and sealant
(1) Solvent clean with naphtha.
(2) Proceed to paint parts.
C. Previously Painted Surfaces
(1) Surfaces with BMS 10-11, types 1 and 2
(a) Less than 48 hours old: solvent clean with solvent, Series 85 (AMM 20-30-85), or sand when necessary with 320 or finer grit paper, apply BMS 10-11, type 1 for touchup, as necessary, proceed to paint parts.
(b) Greater than 48 hours old. Reactivate by reactivation methods 1 or 2, apply BMS 10-11, type 1, as necessary, proceed to paint parts.
D. Reactivation
(1) Method 1
(a) Manual solvent clean with toluene.
(b) Abrasive clean with aluminum oxide abrasive discs or paper.
(c) Manual solvent clean with MIBK.
(2) Method 2
(a) Alkaline clean with GMC 528B diluted 1 part to 3 parts water using one of the following methods:
1) Manual clean
2) Pressure clean with nonatomizing spray gun. Minimum impingement time of 5 seconds with maximum stand time of 15 minutes.
(b) Remove cleaner with clean water.
(c) Wipe and blow surface dry with filtered compressed air.
(d) Remove visible soil by solvent cleaning with specified solvents.
(e) Within 48 hours of step (a) clean with Tec 902 using one of the following methods:
1) Manual solvent clean.

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2) Pressure clean with nonatomizing spray gun. Minimum impingement time is 5 seconds with minimum stand time of 2 minutes.

(f) Thoroughly rinse with water before Tec 902 evaporates.

(g) Within 12 hours of cleaning with Tec 902 and within 6 hours before painting clean with solvent, using one of the following methods:

1) Manual solvent clean

2) Pressure clean with nonatomizing spray gun. Minimum impingement time of 5 seconds.

(h) Blow dry with filtered compressed air.

E. Mixing and Thinning of Primer or Enamel (Fig. 701)

CAUTION: DO NOT USE ANY PAINT MATERIAL OR CATALYST THAT IS GELLED, SKINNED, CLOUDY OR SETTLED.

(1) Mix base, catalyst or thinner components according to Fig. 701.

CAUTION: DO NOT MIX BASE, CONVERTER OR CATALYST OR THINNER COMPONENTS OF DIFFERENT MANUFACTURERS SYSTEMS. THEY ARE NOT INTERCHANGEABLE.

(2) Agitate each component separately.

(3) Add catalyst or converter to base material slowly while agitating.

(4) Add necessary thinner and take viscosity.

(5) Strain through a 60-90-mesh paint strainer or several layers of clean gauze.

(6) Allow to stand 1/2 hour before using.

(7) Label container with date, hour of mixing, name of workman, time of expiration of pot life.

Pot Life	
Below 80°F	16 hours
80-85°F	12 hours
Above 85°F	8 hours

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(8) Scrap mixed material whose pot life has expired.

F. Choice of Primers
(1) BMS 10-11, type 1, green primer
(2) BMS 10-11, type 1, yellow primer

4. Paint Airplane

A. Spray or brush apply primer to a film thickness of 0.003 to 0.008 inch each coat. See Fig. 702 for spray equipment.

B. Spray apply enamel using the suitable combination of spray equipment, or brush apply enamel using a natural bristle brush, to a film thickness of 0.001 to 0.002 inch. See Fig. 702 for spray equipment.

NOTE: Brush application should be made without addition of solvent to catalyzed enamel.

5. Restore Airplane to Normal

A. The drying times listed in parts I and II of Fig. 703 do not constitute full cure of the coatings. Full cure will vary depending on film thickness, temperature, humidity and in the case of enamel, color. Optimum cure based on 75 ±5°F before exposing to weather or putting into services is 7 days regardless of whether the coatings have been forced dried at higher temperatures or not. When necessary, the minimum drying time prior to service use is 48 hours when cured under 75°F and 24 additional hours at 75-160°F.

B. Parts I and II of Fig. 703 are based on one coat film thickness and should be increased proportionately for thicker films.
(1) Flash-off time before higher cure temperatures, 15 minutes at room temperature.
(2) Before applying sealants, dry primer tack-free. To determine tack-free, a slight downward pressure on the film with the finger shal1 not leave a mark.

C. The drying times listed in part III of Fig. 703 are given to facilitate infrared curing and do not constitute full cure of the coating. A flash-off of 1 minute minimum at room temperature is required when infrared is used to accelerate drying.

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BMS AND TYPE	VENDOR'S DESIGNATION AND MATERIALS	MIXING RATIO BY VOLUME	RECOMMENDED SPRAY VISCOSITY AT 77 (± 2)°F
10-11 Type 1 (Green)	DeSoto Chemical Coatings 1910091 Primer Base 6108148A Primer Converter 6108189 Primer Thinner	 1 part 1 part 1/2 part max.	 31-40 Sec. No. 1 Zahn
	DeSoto Chemical Coatings 1904062A or B Primer Base 6108188 Primer Converter 6108189 Primer Thinner	 4 parts 1 part 3 parts max.	 31-40 Sec. No. 1 Zahn
	DeSoto Chemical Coatings 515-706 Primer Base 910-012 Primer Converter 6108189 Primer Thinner	 1 part 1 part 1/2 part max.	 31-40 Sec. No. 1 Zahn
	Finch Paint & Chemical 463-4-4 Primer Base X-301 Primer Converter TL-52 Primer Thinner	 3 parts 1 part 3 parts max. 1 part max. above 85°F	 31-40 Sec. No. 1 Zahn or 31 Sec. Max. above 85°F No. 1 Zahn
	Finch Paint and Chemical 463-6-3 Primer Base X-306 Primer Converter TL-52 Primer Thinner	 3 parts 1 part 4/5 part max. 2 parts max. above 85°F	 31-40 Sec. No. 1 Zahn or 28-37 Sec. above 85°F No. 1 Zahn
	Finch Paint and Chemical 463-6-2 Primer Base X-305 Primer Converter TL-52 Primer Thinner	 3 parts 1 part 4/5 part max. 1 part max. above 85°F	 31-40 Sec. No. 1 Zahn or 28-37 Sec. above 85°F No. 1 Zahn

Mixing Proportions
Figure 701 (Sheet 1)

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BMS AND TYPE	VENDOR'S DESIGNATION AND MATERIALS	MIXING RATIO BY VOLUME	RECOMMENDED SPRAY VISCOSITY AT 77 (± 2)°F
(Yellow) 10-11 Type 1	DeSoto Chemical Coatings 513-705 Primer Base 910-012 Primer Converter 6108189 Primer Thinner	 1 part 1 part 1/2 part max.	 31-40 Sec. No. 1 Zahn
	DeSoto Chemical Coatings 1910102 Primer Base 6108148A Primer Converter 6108189 Primer Thinner	 1 part 1 part 1/2 part max.	 31-40 Sec. No. 1 Zahn
	Finch Paint and Chemical 463-6-5 Primer Base X-306 Primer Converter TL-52 Primer Thinner TL-82 Retarder	 3 parts 1 part 4/5 part max.	 31-40 Sec. No. 1 Zahn
10-11 Type 2	Andrew Brown - Gloss Colors A-423 Series Enamel Base T-261 Enamel Catalyst T-262A Enamel Thinner	 4 parts 1 part 3 parts max.	 17-19 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	Andrew Brown - Semigloss Colors A-423 Series Enamel Base T-380 Semigloss Enamel Catalyst T-262A Enamel Thinner	 1 part 1 part 1 part max.	 18-20 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	A-423 Series Semigloss Enamel Base T-261 Enamel Catalyst T-262A Enamel Thinner	4 parts 1 part 3 parts max.	18-20 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	Andrew Brown - Flat Colors A-423 Series Flat Enamel Base T-381 Flat Enamel Catalyst T-262A Enamel Thinner	 1 part 1 part 1 part max.	22-23 Sec. No. 2 Zahn or 44-47 Sec. No. 1 Zahn

Mixing Proportions
Figure 701 (Sheet 2)

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BMS AND TYPE	VENDOR'S DESIGNATION AND MATERIALS	MIXING RATIO BY VOLUME	RECOMMENDED SPRAY VISCOSITY AT 77 (± 2)°F
10-35	Finch Paint and Chemical Gloss Colors 443-3 Series Enamel Base X-304 Enamel Catalyst TL-29 Enamel Thinner	 3 parts 1 part 2 parts max.	 18-20 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	Finch Paint and Chemical Semigloss Colors 453-3 Series Enamel Base X-304 Catalyst TL-29 Thinner	 4 parts 1 part 3 parts max.	 18-20 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	Finch Paint and Chemical Flat Colors 463-3 Series Enamel Base X-304 Catalyst TL-29 Thinner	 4 parts 1 part 3 parts max.	 18-20 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	DeSoto Chemical Coatings Gloss Colors Enamel Base 011 311 Catalyst 020-013 Thinner	 4 parts 1 part 3 parts max.	 18-20 Sec. No. 2 Zahn or 36-39 Sec. No. 1 Zahn
	Sherwin-Williams E42AP6 Enamel Base V66KP10 Enamel Catalyst R7KP36 Enamel Thinner or R7KP42 Enamel Retarder	 4 parts 1 part 3 parts max.	 25-35 Sec. No. 1 Zahn
	W. P. Fuller 173-H-73 Enamel Base 75-C-700 Enamel Catalyst 75-C-701 Enamel Thinner	 4 parts 1 parts 3 parts max.	 25-35 Sec. No. 1 Zahn

Mixing Proportions
Figure 701 (Sheet 3)

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SPRAY GUN		PRESSURE FEED		SUCTION FEED	
MFG.	MODEL	AIR CAP	FLUID TIP AND NEEDLE	AIR CAP	FLUID TIP AND NEEDLE
DeVilbiss	MBC	765 or 704	FX	30 or 36	EX or FF
DeVilbiss	JGA	765 or 704	FF	30 or 36	EX, FF or FX
DeVilbiss	CM	37	FF	37	E
Binks	7	33 PE	33	35 SC	35
Binks	7	33 PR	33	36 SC	36
Binks	7	33 PM	33	--	--
Binks	18	63 PB	63 Tip and 63A Needle	66 SC	66 Tip 65 Needle
Binks	18	66 PE	63 Tip and 63A Needle	66 SE	66 Tip 65 Needle
Binks	19	63 PB	63 Tip and 63A Needle	66 SE	66 Tip 15 Needle
Binks	19	66 PE	63 Tip and 63A Needle	66 SC	66 Tip 15 Needle
Binks	19	--	--	67 SA	67A Tip 18 Needle

Set pressure as follows:

Atomizing pressure . . . . . 40-50 PSI at the filter with up to 25 feet hose.

Fluid pressure . . . . . 5-6 PSI for each 5 feet that the gun is elevated above pressure pot gage.

Adjust gun controls to produce a uniform wet film.

Spray Paint Equipment
Figure 702

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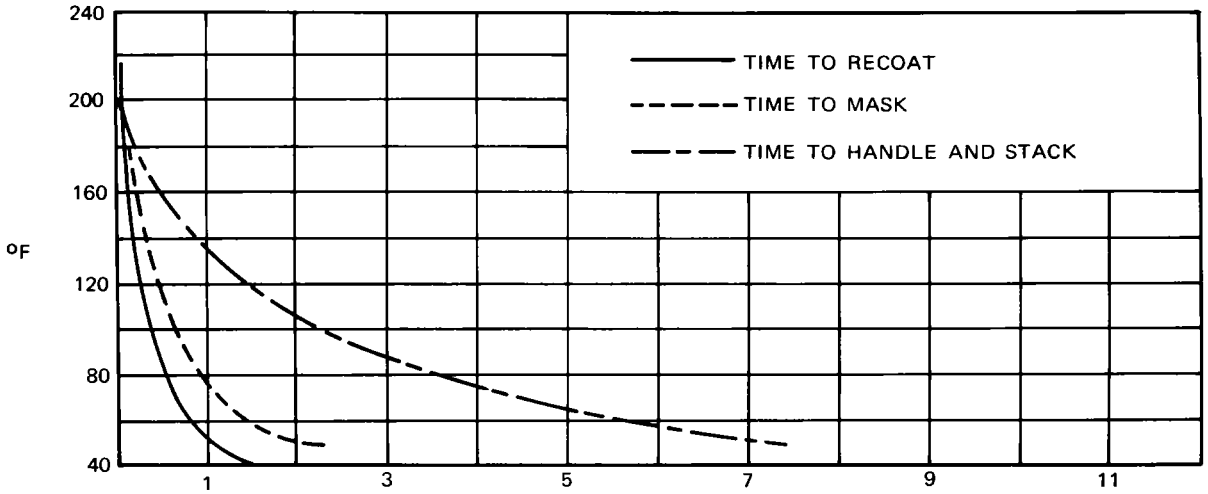
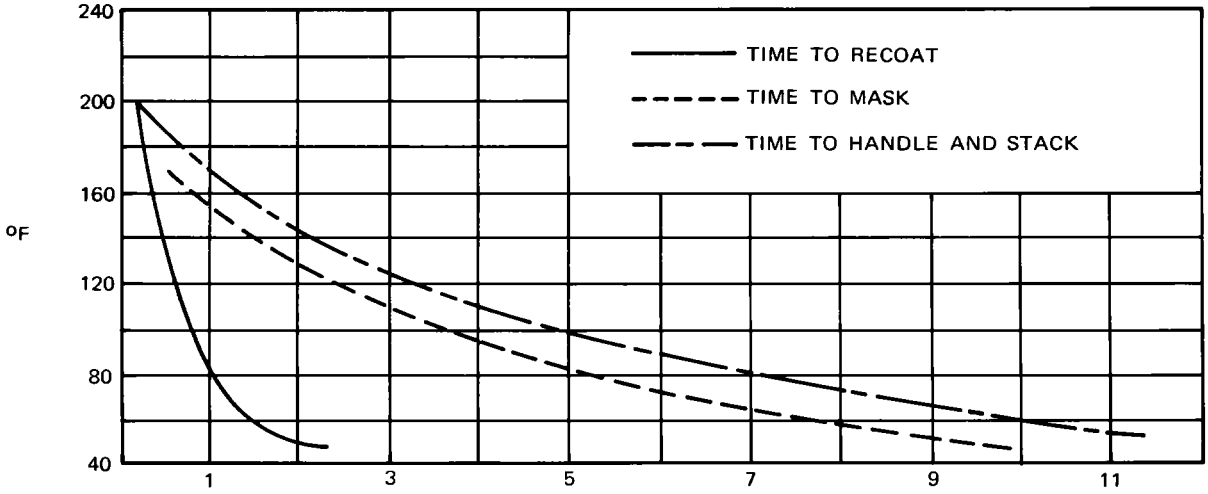
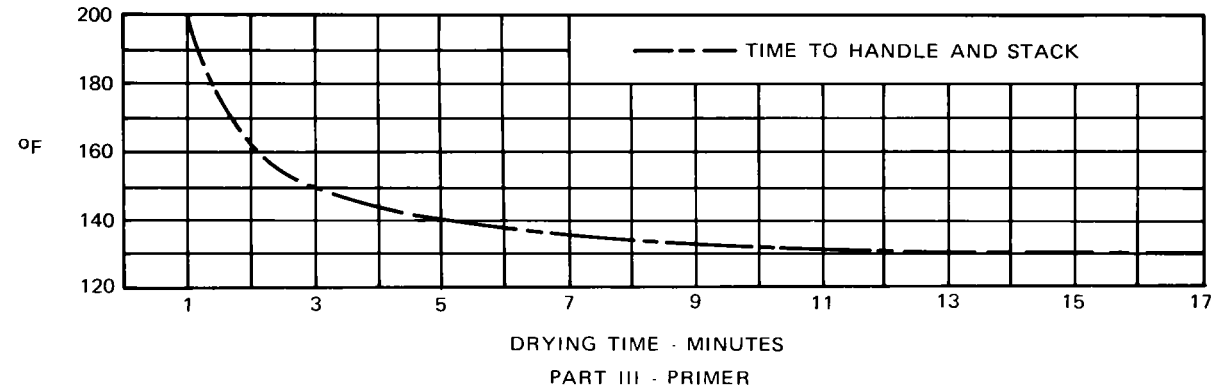


PART I – PRIMER



PART II – ENAMEL



PART III - PRIMER

Curing Times
Figure 703

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CLEAR HYDRAULIC FLUID RESISTANT OVERCOAT - CLEANING/PAINTING

1. Equipment and Materials

WARNING: THESE FINISHES, CLEANERS, AND SOLVENTS CONTAIN TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS AND MIST. USE WITH ADEQUATE VENTILATION. PROVIDE APPROVED RESPIRATORY PROTECTION AS REQUIRED. DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP FLAMMABLE MATERIALS AWAY FROM SOURCES OF IGNITION.

A. BMS 3-2, solvent, or aliphatic naphtha TT-N-95
B. Manual alkaline cleaner. Refer to Chapter 12, Cleaning and Washing.
C. Cheesecloth, or equivalent
D. Grade A Coating
   (1) Finch 683-3-2
   (2) X-310A Catalyst

2. Surface Preparation
   A. Hand sand high gloss plastic surfaces and painted surfaces with 280 grit or finer abrasive paper to remove gloss. Then clean per step B. Do not sand painted surfaces around decals when clear hydraulic fluid resistant coating is used as an edge sealer.
   B. Clean Surface
      (1) Scrub surface with clean cheesecloth moistened with solvent or manual alkaline cleaner.
      (2) Before solvent evaporates, wipe surface with clean, dry cheesecloth.
      (3) Repeat steps (1) and (2) until no visible signs of soil are evident on a clean cloth.

3. Preparation of Coatings
   A. Mixing of Materials
      (1) Mix base component with catalyst as follows:

NOTE: Use clean containers for mixing. Do not use containers lined with organic coatings.

(a) Use 1 part of X-310A with 2 parts 683-3-2 by volume, adding catalyst to base while stirring base component.
(b) Mix thoroughly to ensure uniform distribution.

      (2) Immediately after mixing affix a label to the container, stating date and hour of mixing, and date and hour of pot life expiration. See paragraph 3.B.

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B. Handling and Storage

(1) Catalyzed coating material has a shop (usable) pot life of 4 hours at 70°F. Scrap any catalyzed coating material whose shop life has expired. Use of coating, which has exceeded its shop pot life, will seriously affect its performance in service, although this is not readily apparent at the time it is applied. Store uncatalyzed coating at a temperature of between 40°F and 90°F. Shelf life of uncatalyzed coating is 12 months from date of manufacture.

4. Application of Coating

A. Clean all surfaces in accordance with paragraph 2, prior to coating application.

B. Apply coatings in a well-ventilated area maintained at a temperature above 65°F and with a relative humidity of less than 85%. Brush or spray apply to a thickness of 1 to 2 mils (0.001 to 0.002 inches).

C. Apply coating on surface to be coated and overlap a minimum of 1/4 inch to ensure a fluid-tight barrier. For edge sealing decals apply coating to cover 1/4 inch of both decal and adjacent surface.

5. Cure of Coatings

A. Cure for four hours at 65°F (minimum) prior to outdoor exposure.

B. Complete cure requires 14 days at 65°F (minimum).

6. Rework and Repair

A. Damaged coatings shall be cleaned and coated per paragraphs 2., 3., 4., and 5.

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CONDUCTIVE COATING SYSTEM FOR EXTERIOR REINFORCED PLASTIC SURFACES - CLEANING/PAINTING

1. Equipment and Materials
   A. Conductive Coating - BMS 10-21
   B. Abrasive paper - 240 grit or finer
   C. Cheesecloth
   D. Tape - Masking, aluminum foil adhesive and polyethylene film
   E. Probe - Film resistance measuring F70328-1 (for fasteners)
   F. Probe - Surface resistively measuring ST895A-3
   G. Multimeter - COM-0591
   H. Solvent - Aliphatic naphtha
   I. DC meter (500,000 ohms maximum)
   J. Aluminum foil strips (at least two)
2. Apply Conductive Coating

   WARNING: SOLVENTS AND PAINT MATERIALS CONTAIN TOXIC AND/OR FLAMMABLE INGREDIENTS. CONSULT INDUSTRIAL HYGIENE, FIRE, AND/OR SAFETY ORGANIZATIONS ON FACILITIES, EQUIPMENT, VENTILATION, AND OTHER REQUIREMENTS FOR SAFE SOLVENT CLEANING OPERATIONS.

   A. Clean and prepare surface (Ref 51-21-21).
   B. Agitate each conductive coating component thoroughly prior to mixing to ensure homogeneity.

      NOTE: Conductive coating is supplied in two-component kits consisting of base and catalyst.

   C. Mix conductive coating per manufacturer's instructions.

      NOTE: Stamp containers with time and date. Mixed material has a usable pot life from time of mixing of 4 ± 0.5 hours at 75 ± 5°F. Do not use material whose pot life has expired.

   D. Allow mixed material to stand undisturbed for at least 1/2 hour.
   E. Mask all areas not to be coated with conductive coating.

      WARNING: DO NOT USE PAINT SYSTEM OR PAINT CONTAINING METALLIC PARTICLES ON ANTENNA FAIRINGS. ANTENNA PERFORMANCE WILL BE IMPAIRED.

   F. Apply conductive coating by spray or brush to dry film thickness of 0.6 ± 0.2 mil.
   G. Cure conductive coating.
      (1) Allow coating applied to countersunk areas to dry at least 20 minutes before installation of fasteners.

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(2) Allow coating to dry per Fig. 701 before taking resistance measurements.

H. Measure the conductive coating resistance.

(1) Examine the mating surfaces of the structure and the fairing panel.

(a) Make sure all mating surfaces are clean and free of any contamination or painting.

(2) Apply the corrosion preventative compound to all of the mating surfaces of the airplane structure that touch the wing-to-body fairing panels.

(3) Examine the fasteners and the area round the fastener holes to make sure they are cleaned free of any contamination.

NOTE: Stainless steel fasteners are usually located at four locations per panel, one at each corner.

(4) Use aliphatic naphtha to clean the fasteners and area on the fairing panel around the fastener holes.

(5) Remove any paint or primer covering the conductive surface of the panel in the are of the dimple washers.

(6) Prepare the surface for the anti-static coating.

(a) Apply anti-static coating over the exposed areas.

(b) Install the fasteners (stainless steel bolts and dimple washers).

1) Install the stainless steel bolts and dimple washers in the same locations on the fairing panel, as they were when you removed the panel.

NOTE: If you install different hardware in these locations you can get an acceptable electrical bond.

(c) Measure the electrical bonding resistance between the conductive fasteners and the conductive surface of the fairing panel.

NOTE: You should make the resistance measurement before you paint the panel and the mounting hardware. If the fairing panel and bolts have been covered with paint, you may not get a correct measurement. In this case, use two sharp probes and make sure the probes contact the conductive surface of the panel and the structure. Then, measure the resistance.

1) Make sure the maximum resistance is not more than 300,000 ohms.

(7) Touch up the finish.

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(8) Measure the resistance with aluminum foil strips.
  (a) Press two parallel metal strips of the same length L, separated by 0.1 of the length, firmly against the coating.
  (b) Measure the resistance with a multimeter.
  (c) Maximum resistance between the two strips is 10,000 ohms.

I. If resistance of conductive coating exceeds maximum allowable value per step H.
  (1) Sand conductive coating using 240 grit or finer abrasive paper.
  (2) Remove sanding residue by wiping with clean cheesecloth wet with aliphatic naphtha. Wipe dry with clean cheesecloth.
  (3) Reapply conductive coating per steps B thru G.
  (4) Recheck resistance per step H.

J. Immediately prior to applying any required overcoat, wipe surface with clean cheesecloth wet with aliphatic naphtha. Wipe dry with clean cheesecloth.

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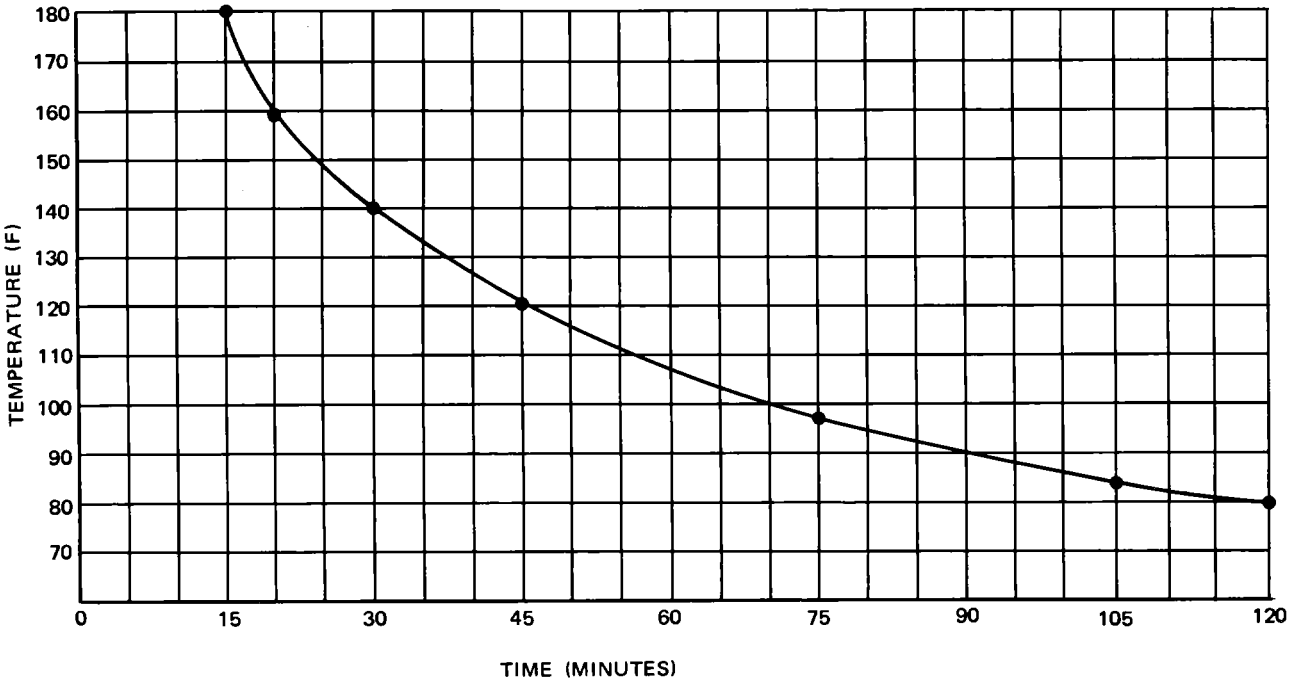

Cure Time
Figure 701

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ABRASION-RESISTANT TEFLON FINISH - APPLICATION

1. General
   A. This section describes the surface preparation required and application of a sprayable and brushable, abrasion, chemical and solvent-resistant finish to chafing surfaces.
   B. Apply the abrasion resistant Teflon coating over BMS 10-79 or BMS 10-11 Type 1 primer. Apply 5 to 10 mils (0.005 to 0.010 inches) dry film. Total dry film thickness of 20 mils (0.020 inch) maximum may be applied.
   C. The sprayable material systems are to be used for spray application.
   D. Use the brushable materials for those areas where spraying is not practical, and where dry to handle times of from 1 to 2 hours are required. Spray application is permitted where a 45-minute pot life can be tolerated.
   E. Clean and proper equipment shall be used.
   F. The spray-applied coatings shall be uniform, free of skins, lumps, gelled or coarse particles. Brush marks, sags, and runs on brush-applied surfaces are acceptable.
   G. All spray painting of airplanes should be limited to areas having good general ventilation. All painting of small parts should be confined to a paint spray booth having adequate exhaust ventilation. Respirators should be worn when proper exhaust ventilation is not available.

      WARNING: TEFLON FINISH CONTAINS TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. ALWAYS WASH HANDS BEFORE EATING OR SMOKING.

   H. Material shall be properly mixed.
   I. Material whose pot life has been exceeded shall be scrapped and not used.
   J. Material whose shelf life (1 year) has expired shall be rejected. Shelf life of the Teflon coating is 1 year from date of manufacture.
   K. Stripper (AMM 51-21-11, Paint Stripping)
2. Equipment and Materials
   A. Teflon Coating - BMS 10-86

      NOTE: A laminar X-500 teflon coating kit, color W or G is available consisting of:

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(1) Color W (White)

	SPRAY	BRUSH
Resin component	7-W-27	7-W-27FC
Hardener	10-C-81	10-C-81

(2) Color G (Gray)

	SPRAY	BRUSH
Resin component	7-X-74	7-X-74FC
Hardener	10-C-81	10-C-81

B. Reducer (For color W and G) 66-C-28 and 66-C-20
C. Toluene - TT-T-548 (JAN-T-171, Grade A, optional)
D. Methyl Isobutyl Ketone - TT-M-268
E. Cleaning Solvent - General Purpose BMS 3-2, optional: Aliphatic Naphtha, TT-N-95
F. Cheesecloth
G. Solvent - Final Cleaning of Metal Prior to Painting (Series 84) (AMM 20-30-84)
H. Scotch Brite Sheet - Finishing Type A (containing aluminum oxide abrasive), Minnesota Mining and Manufacturing Company, Optional: Bear Tex Aluminum Oxide Abrasive Disks, Behr-Manning Company, Troy, New York
I. Alodine 1000 - Amchem Products, Inc., Ambler, Pennsylvania
J. Stiff-Bristle Brush
K. Plastic Scrapers (See AMM 51-31-0/201 for approved scrapers) or sandpaper
L. Silicon Carbide Abrasive Paper - 180 to 325-grit

3. Surface Preparation
A. Unpainted Metal Surfaces
(1) Pretreat and prime surfaces with primer (AMM 51-21-51, Chemical and Solvent-Resistant Finish).
B. Previously Painted Surfaces
(1) Clean and reactivate per AMM 51-21-51, Chemical and Solvent-Resistant Finish (use Method 1 for epoxy primer films force dried).
C. Plastic Laminate Surfaces
(1) Prepare surfaces per AMM 51-21-21, Prepaint Cleaning and Pretreatment.

4. Mixing and Application of Abrasion-Resistant Teflon Finish (Spray Application)
A. The abrasion-resistant teflon coating is supplied in two component kits of resin component 7-W-27 for color W and 7-X-74 for color G, and hardener 10-C-81. If thinning is desired, use thinner-reducer 66-C-28.

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B. Mask off those areas adjacent to the areas which are to be coated with abrasion-resistant Teflon coating.
C. Mixing of the resin-pigment component should be by stirring only (shaking is not effective).
D. Mix the coating as follows:

Spray Application	Parts by Weight
Resin Component 7-W-27 or 7-X-74	3
Hardener 10-C-81	1

E. Mix these two components together by stirring only; do not shake. If thinning is required, up to one part by volume 66-C-28 may be added. If thinner is added, thoroughly mix the thinner into the 3:1 mixture by stirring only. Do not shake. Allow the mixed material to stand at least 5 minutes before use.

NOTE: Shaking will entrap air bubbles in the mixture producing an uneven coating.

F. At a temperature of 70°F the mixed material has a usable pot life of about l-1/2 hours. The pot life of a mixed material decreases approximately half for every 20 degrees rise in temperature. Material whose pot life has expired shall be scrapped. Do not mix more materials than will be used during the time listed above. Clean equipment prior to expiration of pot life.
G. Spray apply enough coats of Teflon coating to achieve the required dry film thickness. Where extremely difficult or impossible to spray, use brush application. If no thickness is specified, apply 5 to 10 mils (0.005 to 0.010 inch). Apply four to five wet cross passes per coat. Allow solvent to flash off 5 to 10 minutes between coats.
H. Prior to handling, allow the coating to dry tack free (at least 2 hours at 70 ±5°F. Allow a minimum cure of 12 hours at ambient conditions prior to outdoor exposure.

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I. Prior to assembly or in-service use, allow the last coat to air dry 1 hour followed by curing under the time-temperature conditions given in Fig. 701.

J. Feather all sharp paint edges by tapering with a hardwood stick, light sanding with 180 grit or finer, or spraying with paint thinned as required. Exercise caution when feathering to prevent damage to aluminum skins.

5. Mixing and Application of Abrasion-Resistant Teflon Finish (Brush Application)

A. The abrasion-resistant brushable Teflon coating is supplied in two component kits of resin component 7-W-27 FC (white) or 7-X-74 FC (gray) with hardener component 10-C-81. The solvent reducer is 66-C-20.

B. Mix the coating as follows:

Brush Application	Parts by Volume
Resin Component 7-W-27 FC (white) or Resin Component 7-X-74 FC (gray)	3
Hardener Component	1

C. If additional thinning is desired, thin mixed material to a maximum of 20% by volume with solvent-reducer 66-C-20.

D. Mix the components together thoroughly by stirring only. Do not shake.

E. Use 5 to 10 minutes after mixing. Usable pot life is 45 minutes at 70°F.

F. Apply by brushing in one direction to cover the required area to a thickness of 6 to 8 mils (0.006 to 0.008 inch) dry film thickness. Allow 30 minutes between brush coats.

G. Prior to service allow the last topcoat to air dry 8 hours at 70°F.

NOTE: Applying heat at 140°F for 2 hours will accelerate curing and dry coating sufficiently to allow operation of airplane.

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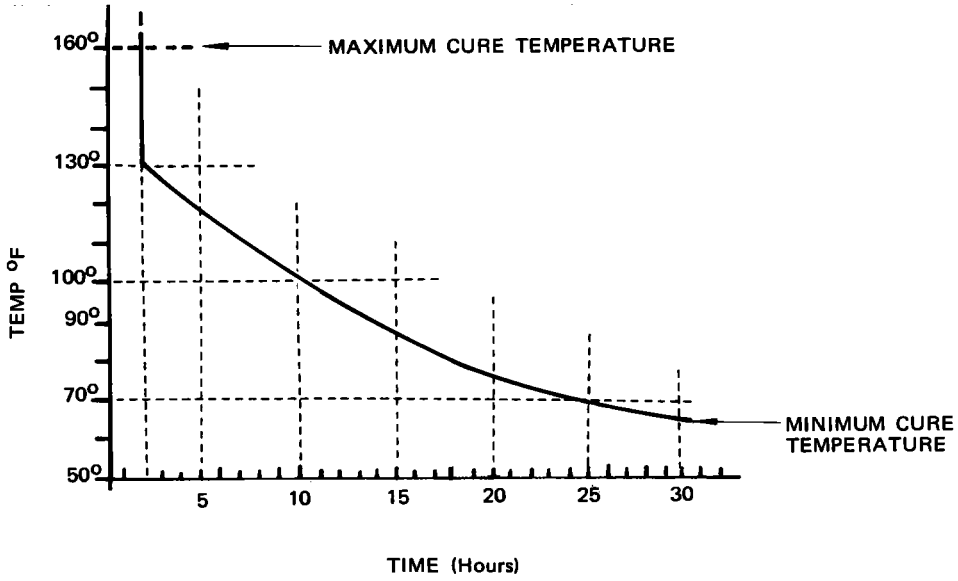

Abrasion Resistant Finish Curing Conditions
Figure 701

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WATER DISPLACING CORROSION INHIBITING COMPOUND - CLEANING/PAINTING

1. General

A. This procedure provides information on application of water displacing corrosion inhibiting compound. If used, it is recommended to reapply water displacing corrosion-inhibiting compound periodically.

WARNING: WATER DISPLACING CORROSION INHIBITING COMPOUND IS APPROXIMATELY EQUAL TO KEROSENE OR ALIPHATIC NAPHTHA IN TOXICITY. TO PROTECT SKIN, USE SAME PRECAUTIONS FOR WATER DISPLACING CORROSION INHIBITING COMPOUND AS FOR KEROSENE. WHEN SPAYING WATER DISPLACING CORROSION INHIBITING COMPOUND IN AN ENCLOSED AREA SUCH AS LOWER FUSELAGE, A VAPOR CONCENTRATION OF 500 PARTS PER MILLION IS THE MAXIMUM COMFORTABLE WORKING LIMIT. AT THIS CONCENTRATION, A PERSON CAN WORK AN 8-HOUR SHIFT. VAPOR LEVELS EXCEEDING 500 PPM ARE NOT DIRECTLY TOXIC, BUT FORCED VENTILATION MAY BE NECESSARY TO MAINTAIN A COFORTABLE LEVEL. PERCHLOROETHYLENE IS PREFERRED SOLVENT AS IT IS NONFLAMMABLE. PERCHLOROETHYLENE IS TOXIC. IF USED ON EXTREMELY CONFINED AREAS, MECHANICAL VENTILATION IS MANDATORY. RESPIRATORY AND SKIN PROTECTION MAY BE NECESSARY.

NOTE: Each operator should evaluate his airplanes environment, the inhibitor used, and the application schedule to ensure adequate corrosion protection.

B. Water displacing corrosion inhibiting compound contains wax compounds and is not suitable on surfaces that will exceed 150°F (65°C).

CAUTION: AS A FIRE SAFETY PRECAUTION WATER DISPLACING CORROSION INHIBITING COMPOUND SHOULD BE KEPT AWAY FROM SURFACES WHICH MAY ATTAIN 300°F (148°C) OR MORE DURING SERVICE. DRY FILM FLASH POINT IS 500°F (260°C).

C. Application of additional finishes, such as paint or primer, may be difficult due to penetrating qualities of water displacing corrosion inhibiting compound and possibility of bleedout from faying surfaces.

D. Allow primer and/or enamel to dry for 8 hours minimum before applying water displacing corrosion-inhibiting compound .

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E. Boeing recommends application of water displacing corrosion inhibiting compound in the following areas:

DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-INHIBITING COMPOUND
LANDING GEAR	
MAIN GEAR OUTER CYLINDER MAIN GEAR INNER CYLINDER TRUNNION LINK SIDE STRUT ACTUATOR BEAM NOSE GEAR OUTER CYLINDER NOSE GEAR STEERING CYLINDERS WHEEL WELL AREAS	APPLY TO ALL AREAS OF DAMAGED PAINT OR PLATING AND TO INSIDE SURFACES OF INACCESSIBLE MEMBERS OFASSEMBLED GEAR EXPOSED TO ATMOSPHERE. SPRAY ALL ATTACHMENT LUGS WITH PARTICULAR ATTENTION GIVEN TO LUG FACES AND CONNECTING PINS. DO NOT APPLY TO CHROMED PISTON OR STRUT INNER CYLINDER. APPLY GREASE TO GREASE FITTINGS AFTER APPLICATION OF WATER DISPLACING CORROSION INHIBITING COMPOUND.
	COVER PRESSURE SIDE OF NOSE WHEEL WELL APPROXIMATELY 3 INCHES UP EACH SIDEWALL. APPLY IN MAIN WHEEL WELL CAVITY, AFT FACE OF WING CENTER SECTION REAR SPAR, LOWER SURFACE OF PRESSURE DECK, FORWARD FACE OF STA 727 BULKHEAD, EXTERIOR OF KEEL BEAM FROM REAR SPAR TO STA 727 BULKHEAD, AND ALL WHEEL WELL FAIRING AND STRUCTURE.
MAIN LANDING GEAR TRUNNION SUPPORT SUPPORT BEAM (REF SB 57-119)	APPLY TO ALL SURFACES OF THE SUPPORT BEAM, TO ALL CONNECTION POINTS INCLUDING INBOARD AND OUTBOARD TEFLON BUSHED CONNECTION POINTS.
ENGINE COWL	APPLY TO SURFACE OF NOSE COWL COVERED BY FORWARD FAIRING.

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-INHIBITING COMPOUND
DOORS	
ENTRY, GALLEY AND CARGO DOORS	SPRAY DOOR & FUSELAGE HINGE AREAS, PARTICULARLY AT CONNECTION POINTS AND UNDER ENTRY AND SERVICE DOOR SCUFF PLATES. APPLY TO LOWER 3 TO 4 INCHES OF DOOR INTERIORS.
AIRSTAIR	APPLY TO INTERNAL SURFACE OF FORWARD AIRSTAIR DOOR.
ALL EMERGENCY DOORS AND EXIT HATCHES	SPRAY INTERNAL STRUCTURE AND CONNECTION POINTS.
EMERGENCY EXIT HATCHES AND LOWER CARGO DOORS	SPRAY SURFACES OF HATCHES OR DOORS AND FUSELAGE FRAMES THAT ARE CONCEALED WHEN HATCHES OR DOORS ARE SECURED. SPRAY UNDER CARGO DOOR SCUFF PLATES. APPLY TO LOWER 3 TO 4 INCHES OF LOWER CARGO DOORS.
FUSELAGE DOOR OPENINGS, SILLS, ETC.	SPRAY INTO SKIN AND DOUBLER FAYING SURFACE CRACKS AT ALL DOOR OPENINGS AND UNDER DOORSILLS.
FUSELAGE EXTERNAL SKIN AND STRUCTURE	APPLY TO PAINTED SURFACES ONLY TO PREVENT FILIFORM CORROSION. SPRAY RIVET HEADS AND PANEL EDGES WHERE PAINT HAS CRACKED OR FLAKED. WIPE OFF EXCESS. STRUCTURE COVERED BY WING-TO-BODY FAIRING INCLUDING RAM AIR INLET.
FUSELAGE LAP JOINTS EXTERNAL	SPRAY INTO LAP JOINTS AND ON LAP JOINT RIVET HEADS. LEAVE ON FOR 30 MINUTES, THEN CLEAN OFF EXCESS WITH SOLVENT.
KEEL BEAM	APPLY WATER DISPLACING CORROSION-INHIBITING COMPOUND TO ENTIRE FORWARD AND AFT RING CHORD COMMON TO BODY SKIN

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-INHIBITING COMPOUND
STA 360 FRAME	APPLY WATER DISPLACING CORROSION-INHIBITING COMPOUND TO ENTIRE FORWARD AND AFT RING CHORD COMMON TO BODY SKIN

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-HIBITING COMPOUND APPLICATION
FUSELAGE LAP JOINTS INTERNAL	APPLY TO INTERNAL EDGE OF LAP JOINTS, RIVETS AND STRINGER SKIN FAYING SURFACE
	WARNING ALLOW SOLVENT TO EVAPORATE BEFORE REAPPLYING INSULATION BLANKETS. WATER DISPLACING CORROSION-INHIBITING COMPOUND SOAKED INSULATION BLANKETS ARE A POTENTIAL FIRE HAZARD.
STRINGERS, FRAMES AND FUSELAGE SKIN IN CROWN (STRINGER 10 AND ABOVE)	REMOVE INSULATION BLANKETS (REF 25-52-141). MASK OXYGEN LINES AND SPRAY ALL EXPOSED STRUCTURE.
	WARNING WATER DISPLACING CORROSION INHIBITING COMPOUND SHOULD NOT BE SPRAYED ON OXYGEN LINES OR FITTINGS. ALLOW SOLVENT TO EVAPORATE BEFORE RE-INSTALLING BLANKETS. WATER DISPLACING CORROSION-INHIBITING COMPOUND SOAKED INSULATION BLANKETS ARE A POTENTIAL FIRE HAZARD.
ALL STRINGERS, FRAMES AND FUSELAGE SKIN BELOW CARGO COMPARTMENT FLOORS	REMOVE INSULATION BLANKETS (REF 25-52-141). SPRAY ALL EXPOSED STRUCTURE.
	WARNING ALLOW SOLVENT TO EVAPORATE BEFORE RE-INSTALLING INSULATION BLANKETS. WATER DISPLACING CORROSION-INHIBITING COMPOUND SOAKED INSULATION BLANKETS ARE A POTENTIAL FIRE HAZARD.
	WHEN RE-INSTALLING INSULATION BLANKETS, PROVIDE GAP BETWEEN BLANKET AND SKIN (AMM 25-52-141). INSPECT CONDITION OF BONDED DOUBLERS WHILE AREA IS EXPOSED.
BODY UPPER LOBE	APPLY TO BODY UPPER LOBE ABOVE WL 208.1 BETWEEN STA 260 AND STA 1016, INCLUDING FORWARD FACE OF STA 1016 BULKHEAD.

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-HIBITING COMPOUND APPLICATION
FUSELAGE INTERNAL PRESSURE AREA	APPLY TO STRUCTURE LEFT AND RIGHT HAND SIDE BETWEEN WL 208.1 AND CARGO DECK, STA 363 TO STA 520 AND STA 727 TO STA 907 INCLUDING FORWARD SIDE OF STA 907 FRAME.
	APPLY TO PRESSURE SIDE OF BODY SKIN BETWEEN BODY STA 227.8 AND BODY STA 270 BELOW WL 208.1.
	APPLY TO SKIN AND STRINGERS BETWEEN BODY STA 1040 AND BODY STA 1088 INCLUDING THE FORWARD FACE OF STA 1088 BULKHEAD.
ELECTRONIC COMPARTMENT	SPRAY FUSELAGE SKIN, FRAMES, AND STRINGERS IN BELLY. SPRAY ELECTRONIC BAY DOOR AND DOOR FRAME.
	NOTE: INSULATION BLANKETS MUST BE LIFTED.
	WARNING ALLOW SOLVENT TO EVAPORATE BEFORE RE-INSTALLING INSULATION BLANKETS. WATER DISLACING CORROSION-INHIBITING COMPOUND SOAKED INSULATION BLANKETS ARE A POTENTIAL FIRE HAZARD.
	SPACE BLANKETS AWAY FROM SKIN (AMM 25-52-141).
AIR CONDITIONING BAY	APPLY TO ENTIRE SURFACE OF FRONT SPAR, FUSELAGE SKIN, STRINGERS AND FRAMES. DO NOT APPLY TO DUCTING. COVER ALL STRUCTURE BELOW WL 208 BETWEEN STA 520 AND 540.
FLOOR BEAMS, PASSENGER DECK	MASK OXYGEN LINES AND APPLY WATER DISPLACING CORROSION-INHIBITING COMPOUND TO FACES AND FLANGES OF FLOOR BEAMS UNDER GALLEYS, TOILETS AND ENTRY DOORS.
	WARNING WATER DISPLACING CORROSION-INHIBITING COMPOUND MUST NOT BE SPRAYED ON OXYGEN LINES OR FITTINGS, AS MIXTURE IS POTENTIALLY EXPLOSIVE.
TOILET AND GALLEY AREAS	SPRAY STRUCTURE BELOW TOILET AND GALLEY AREAS INCLUDING TOILET COMPARTMENT PANS. SPRAY INSIDE SURFACE OF AFT PRESSURE BULKHEAD.

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-HIBITING COMPOUND APPLICATION
AFT PRESSURE BULKHEAD	SPRAY ENTIRE AFT FACE OF STA 1016 PRESSURE BULKHEAD AND TO ALL SKIN AND STRINGERS BETWEEN BODY STA 1016 AND 1040.
SEAT TRACKS	MASK CARPETS AND APPLY WATER DISPLACING CORROSION-INHIBITING COMPOUND TO INSIDE AND UPPER SURFACES OF SEAT TRACK INCLUDING TRACK UNDER GALLEYS.
	APPLY TO CAVITY OF ALL SEAT TRACKS BETWEEN STA 344 AND STA 947.
EMPENNAGE EXTERNAL SKIN - PAINTED SURFACES ONLY	TO PREVENT OR RETARD FILIFORM CORROSION, APPLY TO RIVET HEADS AND PANEL EDGES WHERE THE PAINT SYSTEM HAS CRACKED OR FLAKED. WIPE OFF EXCESS.
HORIZONTAL STABILIZER CENTER SECTION	APPLY TO ENTIRE TRUSS STRUCTURE.
HORIZONTAL STABILIZER	APPLY TO ALL INSPAR STRUCTURE OF HORIZONTAL STABILIZER FROM ROOT TO TIP.
HORIZONTAL STABILIZER REAR SPAR	SPRAY FORWARD SIDE OF REAR SPAR WITH PARTICULAR ATTENTION TO UPPER AND LOWER SPAR CHORD. ACCESS IS THROUGH FRONT SPAR AFTER REMOVING LEADING EDGE (AMM 27-41-21). REQUIRES EXTENSION TUBE FOR SPRAYING.
REAR SIDE AFT SPAR	APPLY TO ENTIRE REAR SPAR CAVITY WITH PARTICULAR ATTENTION TO ATTACHMENT POINTS AND FAYING SURFACES. INCLUDE ACTUATOR CAVITY.
ELEVATORS	APPLY TO ATTACHMENT POINTS AND EXPOSED PORTIONS OF FRONT SPAR AND REAR SPAR. APPLY TO BALANCE PANELS.
HORIZONTAL STABILIZER SKIN AT REAR SPAR	APPLY TO FASTENER HEADS AND SKIN JOINT AT REAR SPAR - UPPER AND LOWER SURFACES. WIPE OFF EXCESS.

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-HIBITING COMPOUND APPLICATION
VERTICAL STABILIZER	APPLY TO REAR SPAR CAVITY WITH PARTICULAR ATTENTION TO RUDDER HINGE POINTS AND FAYING SURFACES. REMOVE ACCESS PANELS AT BASE OF VERTICAL FIN (AMM 12-31-51) AND APPLY TO CLOSEOUT PANEL AND FORWARD AND AFT FIN ATTACHMENT FITTINGS. APPLY TO ALL INSPAR STRUCTURE OF VERTICAL STABILIZER FROM ROOT TO TIP.
	APPLY TO AREA BETWEEN CLOSURE ANGLES OF FIN TO BODY INTERSECTION.
RUDDERS	APPLY TO EXPOSED PORTIONS OF FRONT SPAR AND RUDDER HINGE POINTS.
RAM AIR DUCTS (SEE BBL 70.5 BELOW)	APPLY LIGHT SPRAY OF WATER DISPLACING CORROSION-INHIBITING COMPOUND TO LOWER WING SKIN SURFACE WITH PARTICULAR ATTENTION TO FASTENER, HEADS AND SKIN JOINTS. WIPE OFF EXCESS.
	CAUTION APPLICATION SHOULD BE KEPT TO A MINIMUM SO THAT WATER DISPACING CORROSION-INHIBITING COMPOUND IS NOT FORCED INTO THE HEAT EXCHANGER.
UPPER AND LOWER WING JOINTS AT BBL 70.5	REMOVE FAIRINGS. APPLY LIBERALLY TO ALL SURFACES WITH PARTICULAR ATTENTION TO FASTENER HEADS AND FAYING SURFACES.
	OPEN ACCESS DOOR ON INBOARD SIDE OF BBL 70.5 JOINT AND SPRAY ALL METAL SURFACES IN CAVITY CONTAINING RAM AIR DUCT.

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-HIBITING COMPOUND APPLICATION
WING	
REAR SPAR	SPRAY ENTIRE REAR SPAR AREA WITH PARTICULAR ATTENTION TO SPAR CHORDS TO WEB JOINT AND OTHER FAYING SURFACES.
FRONT SPAR	APPLY TO ENTIRE FRONT SPAR AREA WITH PARTICULAR ATTENTION TO SPAR CHORDS TO WEB JOINT AND OTHER FAYING SURFACES. LOCALLY SHIELD DUCTING AND WIRING WHILE WATER DISPLACING CORROSION-INHIBITING COMPOUND IS BEING APPLIED.
DRY BAY AREAS (INSPAR)	SPRAY DRY BAY AREAS (INSPAR) INCLUDING INSPAR AREA OUTBOARD OF SURGE TANK.
WING SKIN UPPER AND LOWER SURFACES & STRUCTURE	APPLY LOCALLY TO DETERIORATED PAINT THAT EXHIBITS CORROSION AROUND FASTENER HEADS. PERMIT WATER DISPLACING CORROSION-INHIBITING COMPOUND TO PENETRATE AROUND FASTENER HEADS FOR APPROXIMATELY 30 MINUTES, THEN WIPE OFF EXCESS WITH SOLVENT.
	STRUCTURE COVERED BY WING TO BODY FAIRING EXCEPT UPPER AND LOWER WING/BODY SPLICE AREAS.
WING CENTER SECTION UPPER AND LOWER SURFACES	APPLY TO UPPER AND LOWER SURFACES WITH PARTICULAR ATTENTION TO FASTENER HEADS, JOINTS AND FAYING SURFACES.
FUEL TANK	APPLY TO ENTIRE SURFACE.
FLAP TRACKS	SPRAY FLAP TRACK FASTENERS AND CONNECTION POINTS.

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DESCRIPTION OF AREA	METHOD OF WATER DISPLACING CORROSION-HIBITING COMPOUND APPLICATION
FLAP TRACK FITTINGS	APPLY TO EXTERIOR OF FLAP TRACK SUPPORT FITTINGS AT WBL 254 AND WBL 353, LH AND RH, INCLUDING EDGE OF FAYING SURFACE.
ENGINE FITTINGS	APPLY TO EXTERIOR OF ENGINE THRUST FITTING AT WBL 183, WBL 199 AND ENGINE MOUNT FITTING AT WBL 183, LH AND RH INCLUDING EDGE OF FAYING SURFACE.
	CAUTION AS A FIRE SAFETY PRECAUTION, THE MATERIAL SHOULD BE KEPT AWAY FROM SURFACES THAT WILL ATTAIN 300°F (148°C) OR MORE IN SERVICE. DRY FILM FLASH POINT IS 500°F (260°C).
FLAPS	REMOVE ACCESS PANELS (REF CHAPTER 12) ON TOP OF MIDFLAPS THAT EXPOSE THE FLAP CARRIAGE SPINDLE. APPLY WATER DISPLACING CORROSION-INHIBITING COMPOUND TO THE SPINDLE BEARINGS AND SURROUNDING STRUCTURE.
	SPRAY TRACK WELLS IN AFT EDGE OF MID FLAP.
	SPRAY FULL INTERIOR SURFACE OF FLAP TRACKS.
ANTENNAS	APPLY WATER DISPLACING CORROSION-INHIBITING COMPOUND BETWEEN ANTENNAS AND STRUCTURE UPON INSTALLATION OF ANTENNAS.
OUTBD WING CAVITY	SPRAY ENTIRE INTERIOR SURFACE OF WING CAVITY AFT OF REAR SPAR BETWEEN WBL 525 AND WBL 546.
NACELLE	APPLY TO NOSE COWL COVERED BY FORWARD FAIRING.
	APPLY TO INNER SURFACE OF FORWARD FAIRING.

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2. Equipment and Materials
   A. Water Displacing Corrosion Inhibiting Compound (AMM 20-30-21)
   B. Masking Tape (AMM 20-30-51)
   C. Perchloroethylene, Technical - O-T-236 (AMM 20-30-31)
   D. Solvent - P-D-680 (AMM 20-30-31)
   E. Cheesecloth (AMM 20-30-51)
   F. Protective caps and closure for exposed oxygen system tubing
3. Surface Preparation
   A. Remove external power and place battery switch in OFF position.
   B. Statically ground airplane (AMM 20-40-11, Static Grounding).
   C. Vacuum surfaces as necessary to remove excess foreign matter.
   D. Clean surface with perchloroethylene.

      NOTE: Cleaning is required to enhance entry of corrosion inhibiting compound into surface to be treated and into faying surfaces.

   E. Mask area not to be treated using masking tape and paper or plastic film.
   F. Mask disconnected electrical connector to prevent contamination of electrical contacts.
   G. Do not apply water displacing corrosion inhibiting to actuator rods. Water displacing corrosion inhibiting compound or any hydrocarbon may cause seals used with Skydrol to swell.
   H. Use caution when applying water displacing corrosion inhibiting compound in vicinity of silicone rubber seals or rubber lined clamps such as door and emergency exit hatch seals, grease seals in bearings, liners in hydraulic line or wire clamps.
   I. Oxygen system components must be shielded and protected from direct and indirect contact during application of water displacing corrosion inhibiting compound on adjacent structure.

      WARNING: CORROSION-INHIBITING COMPOUND MUST NOT GET INTO OXYGEN SYSTEM AS MIXTURE IS POTENTIALLY EXPLOSIVE.

   J. Shield (do not mask) control cables, pulleys, teflon bearings and lubricated surfaces from direct application of corrosion-inhibiting compound.
4. Corrosion Inhibiting Compound Application
   A. Provide mechanical ventilation of enclosed areas such as spar cavities and cargo compartments.
   B. Spray or brush a wet continuous coating of corrosion-inhibiting compound on the cleaned surfaces to be treated.
   C. Allow material to remain on surface for a minimum of 30 minutes to aid penetration into faying surfaces.
   D. Allow coating to remain on surface for a minimum of 30 minutes to aid penetration into faying surfaces.

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E. Remove excess material from treated surface using clean wipers. Only a light film is necessary.

NOTE: Excess material will not aid in additional corrosion protection but is detrimental because of dirt pickup.

F. Remove all masking tape and protective paper or plastic film installed.
G. Allow ventilation of enclosed areas to continue until evaporation of volatile solvents is complete before enclosing area.

5. Cure the Corrosion-Inhibiting Compound

A. General
(1) This procedure to cure the corrosion-inhibiting compound is not necessary when the insulation blankets will not be touched by the compound.

B. Consumable Materials
(1) Cloth, Process Cleaning Absorbent Wiper - BMS 15-5 (AMM 20-30-51)
(2) Solvent, Aliphatic Naphtha - TT-N-95 (AMM 20-30-21)
(3) Material, Plastic Sheeting (polyethylene) - L-P-512 (AMM 20-30-51)

C. Procedure
(1) If required, perform the following test to determine acceptable cure in contact areas:

NOTE: This is to make sure the compound does not move from the surface if it is touched by the insulation blankets.

(a) Obtain a sample polyethylene film, 0.002 inch (0.051 mm) to 0.006 inch (0.152 mm) in thickness.
(b) Press the polyethylene film against the compound with light finger preassure.
(c) Make a check to see if the corrosion inhibiting compound has moved to the polyethylene film of lifted from the structure.

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(2) Table 701 that follows will give you the approximate cure times.

NOTE: Follow the manufacturers instruction for the applicable cure times.

Table 701
Approximate Cure Times

Compound	Time
BMS 3-23	1 Hour
BMS 3-26 Type I	6 Hours
BMS 3-26 Type II	6 Hours
BMS 3-29	3 Hours
BMS 3-35	1 Hour

NOTE: BMS 3-23 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. BMS 3-23 does not cure to a tack-free coating.

6. Corrosion Inhibiting Compound Removal

A. Consumable Materials

(1) Solvent, Degreasing - MIL-PRF-680 (AMM 20-30-21)
(2) Solvent, Aliphatic Naphtha - TT-N-95 (AMM 20-30-21)
(3) Solvent, Trichloroethane 1.1.1 - MIL-T-81533 (AMM 20-30-21)
(4) Solvent, Tetrachloroethylene (Perchloroethylene) - O-T-236 (AMM 20-30-21)
(5) Cloth, Process Cleaning Absorbent Wiper (cheesecloth, guaze) - BMS 15-5 (AMM 20-30-51)

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B. Procedure

(1) Corrosion-inhibiting compound may bleed through skin fasteners and appear on the airplane exterior as a brown discoloration. The exterior discoloration of excess corrosion compound found elsewhere may be removed by any of the following solvents: Perchlorethylene, Trichlorethane, Naphtha or Stoddard solvent (AMM 20-30-31).

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. SOLVENTS ARE HAZARDOUS MATERIALS. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

NOTE: Methyl Ethyl Ketone (MEK) or Acetone is not recommended.

(2) Remove the unwanted corrosion inhibiting compound with a cloth moist with solvent.

NOTE: Make sure you use the applicable safety precautions when you apply solvent to remove unwanted compound.

C. Ventilation requirements stipulated in par. 4 must be adhered to while removing corrosion-inhibiting compound.

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FLOOR TRACK CORROSION PREVENTION - MAINTENANCE PRACTICES

1. General
   A. This procedure describes steps required to protect floor tracks against corrosion under the galleys, galley work areas, or other limited lengths of track in corrosion prone areas.
2. Equipment and Materials
   A. Sealant - BMS 5-95, Class B Pressure, Environmental, and Fuel Cavity replaced by BMS 5-125 Type I, Compound, Self Leveling, for fluid drainage (Ref 20-30-11)
   B. Corrosion Preventive Compound - MIL -C-11796, Class 2 (Ref 20-30-21)
   C. Conversion Coating - MIL-C-5541 (Alodine 1200) (Ref 20-30-41)
   D. Tape - Permacel 306 (Ref 20-30-51)
   E. Fiberglass Strip - BMS 8-2 type 35 (Conolite) .035 inch thick, 1.5 inch wide, length as required (Ref 20-30-51)
3. Protect Floor Tracks Against Corrosion (Fig. 401)
   A. Clean tracks of all contaminants and corrosion products by mechanical means (Ref 20-40-00, Corrosion Prevention Manual).
   B. Brush Alodine 1200 and apply BMS 10-11 epoxy primer on all cleaned exposed areas of track.
   C. Apply leveling compound or sealant on fastener heads if present in cleaned areas of floor track.
   D. Use leveling compound or sealant to make dams in floor tracks at end of cleaned areas and approximately 6 inches apart at galley tie-down wel1 locations.
   E. Cut non-metallic filler to length to fit between dams in floor track except at galley tie-down well locations.

      NOTE: Filler may be made from BAC1522-148 extrusion, or square section of plastic, rubber or wood.

   F. Melt grease to liquid state and partially fill track between dams.

      NOTE: Grease may be melted in container of water heated above 150°F.

   G. Insert filler to bring grease to top of track. Wipe off excess.

      NOTE: Cold application of grease will leave unprotected voids in track and is not recommended.

   H. Apply 1.5 inch wide strip of fiberglass over track to provide protective cover in walkway areas only. Bond strip to floor track with sealant.
   I. Fill floor track with grease in galley tie-down well locations.
   J. Apply plastic water barrier of permacel tape or mylar sheet over entire exposed area (Ref 53-21-11).

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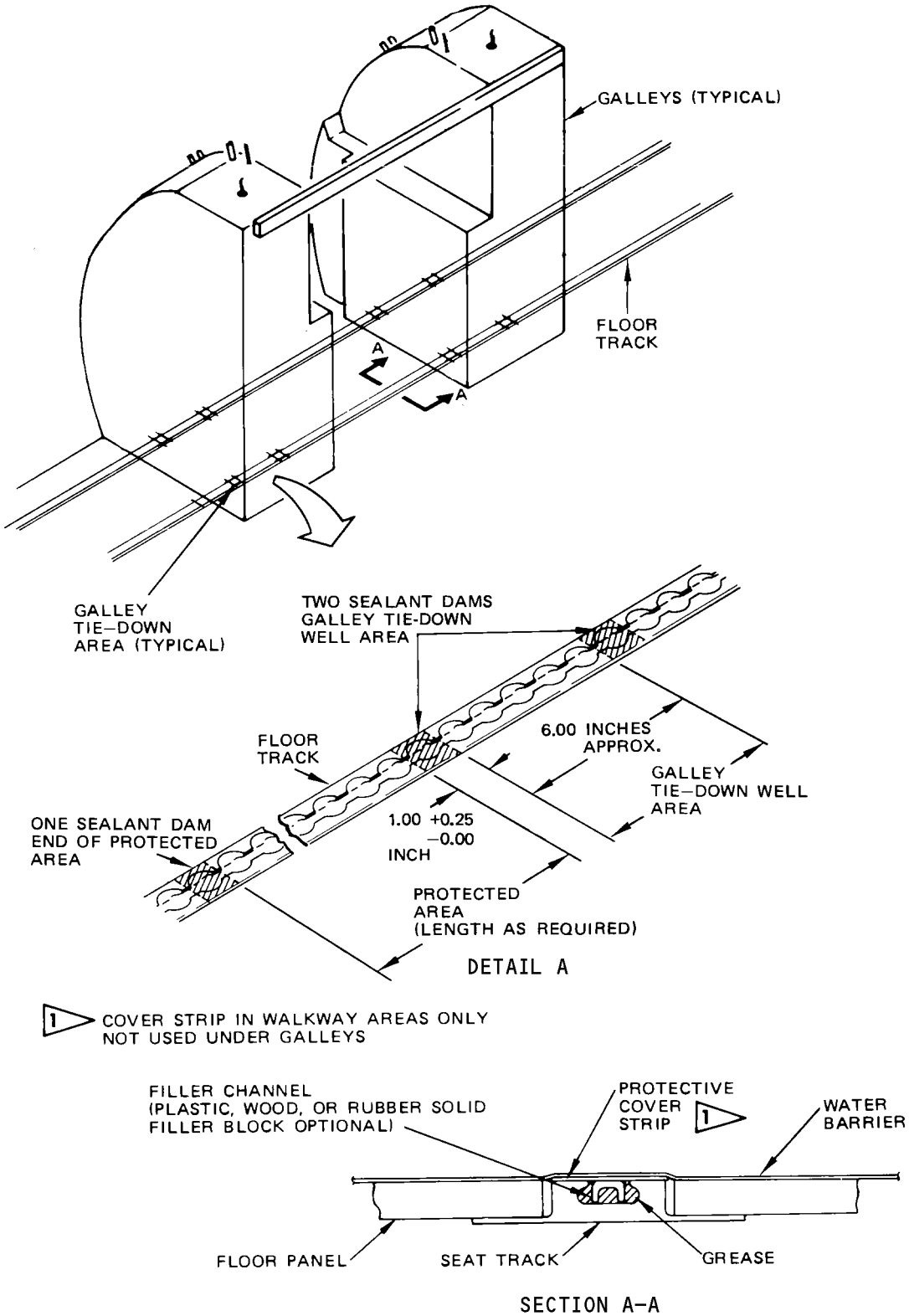

Floor-Track Corrosion Prevention
Figure 201

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VELVET COATING FOR NONGLARE AREAS - CLEANING/PAINTING

1. Equipment and Materials

WARNING: THESE FINISHES AND SOLVENTS CONTAIN TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS AND MIST. USE WITH ADEQUATE VENTILATION PROVIDE APPROVED RESPIRATORY PROTECTION AS REQUIRED. DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP FLAMMABLE MATERIALS AWAY FROM SOURCES OF IGNITION.

A. Non-Reflecting Coating - BAC 5710 Type 35 (Ref 20-30-41)
B. Masking Tape - 3M #214
C. Solvent
   (1) Naphtha
   (2) Xylene TT-X-916 (Ref 20-30-31)

2. Surface Preparation for Velvet Coating
   A. Refer to 51-21-21, Prepaint Cleaning and Pretreatment.

3. Velvet Coating Application
   A. Mix the coating thoroughly prior to use.
   B. Thin the coating if necessary to proper spray viscosity of 21-26 seconds (No. 2 Zahn).
   C. Spray apply one coat, 2.0 to 2.5 mil thickness by overlapping passes while previous spray pass is still wet. Do not apply more than one coat.
   D. Coating may be taped and masked after approximately 12 hours. Determine tape time by spraying test panels at the same time the airplane is painted, and taping on panel using 3M #214 tape.

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ABRASION-RESISTANT MOLYBDENUM DISULFIDE FINISH - CLEANING/PAINTING

1. General
   A. This section describes the preparation and application of a brushable or sprayable and hydraulic fluid resistant finish to chafing surfaces.

      WARNING: FINISHES, CLEANERS, THINNERS, AND SOLVENTS USED IN THIS SUBJECT CONTAIN TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS AND MIST. USE WITH ADEQUATE VENTILATION. PROVIDE APPROVED RESPIRATORY PROTECTION AS REQUIRED. DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP FLAMMABLE MATERIALS AWAY FROM SOURCES OF IGNITION.

   B. The following requirements must be observed:
      (1) Material shall be properly mixed.
      (2) Material whose pot life has been exceeded shall be scrapped and not used.
      (3) The BMS 10-11, Type 1, primers shall be properly cured before topcoating with Tereco 155.
      (4) Clean and proper equipment shall be used.
      (5) Use high quality bristle brushes with firmly attached bristles for brush application.
      (6) The coating materials shall be uniform, free of skins, lumps, gelled or coarse particles.
2. Equipment and Materials
   A. Tereco 155 - Consisting of base material (part A) and accelerator (part B), Technical Research Co., Seattle
   B. Solvents and Thinners
      (1) Toluene - TT-T-548 of JAN-T-171, Grade A
      (2) Xylene - TT-X-916, Grade A
      (3) Methyl Isobutyl Ketone - TT-M-268
   C. Cheesecloth, or equivalent
   D. Aluminum Oxide Abrasive Paper - 320 grit or finer, and 280 grit or finer
3. Surface Preparation
   A. Aluminum Surfaces
      (1) Prior to application of Tereco 155 all aluminum surfaces shall have a conversion coating (chromic acid anodizing or alodizing) and a prime coat of BMS 10-11, Type 1, epoxy primer.
      (2) Allow above primers to dry a minimum of 1 hour at room temperature or 15 minutes at 150 ±15°F prior to overcoating with the abrasion-resistant finish.

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B. Previously Painted Surfaces
(1) BMS 10-11 epoxy films shall be cleaned and activated as follows prior to topcoating:
(a) Epoxy films not over 48 hours old:
1) Wipe with a clean cheesecloth moistened with toluene. Wipe dry before solvent evaporates.
(b) Epoxy films over 48 hours old:
1) Wipe using toluene or MIBK followed by light sanding with 320 grit or finer abrasive paper. Remove all sanding residue by wiping with methyl isobutyl ketone wetted cheesecloth.

C. Steel Surfaces
(1) Prepare surface and apply one coat of BMS 10-11, Type 1 primer.

4. Mixing and Application of Abrasion-Resistant Finish

WARNING: AVOID CONTACT WITH SKIN BECAUSE TERECO 155 CONTAINS TOXIC INGREDIENTS.

NOTE: The abrasion-resistant coating is supplied in two-component kits consisting of Tereco 155, base material (part A) and Tereco 155, accelerator (part B).

A. Stir each component thoroughly prior to mixing.
B. Mix the coating as follows:

	Brush Application	Spray Application
Part B/Part A (parts by weight)	25/100	25/100
	Thin with 9 parts by weight of Toluene or Xylene per 125 parts of coating mixture.	Thin with 20-30 parts by weight of toluene or Xylene per 125 parts of coating mixture.

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C. Thinner should be added to part B prior to mixing parts A and B. Allow the mixed material to stand at least 5 minutes before using.

D. Pot life of Tereco 155 is shown in Fig. 701. Material whose pot life has expired shall be scrapped. Do not mix more materials than will be used during time-temperature conditions noted in Fig. 701.

E. Mask off the areas adjacent to the area being coated.

F. Apply one or more coats of Tereco 155 to a continuous film with a dry film thickness of 0.003 inch minimum, regardless of application method. Allow excess solvent to flash off between coats. Dry film thickness not to exceed 0.020 inch.

G. Prior to handling, allow the coating to dry tack free (at least 8 hours at 70 ±5°F). Prior to outdoor exposure, allow the coating to cure at least 12 hours.

H. Prior to assembly, allow coating to cure under the time-temperature conditions shown on curve A in Fig. 702.

I. Prior to functional movement of parts allow coating to cure under the time-temperature conditions shown on B curve in Fig. 702.

J. Feather all sharp paint edges with a hardwood stick or other suitable tool. Exercise caution to prevent damage to aluminum skins when using sharp feathering tools.

NOTE: The shelf life if Tereco 155 is six (6) months from date of manufacture.

5. Rework and Repair

A. Clean the areas to be reworked per par. 3. and apply Tereco 155. Feather edge all spot painting.

B. Sand surfaces where the abrasive resistant coating has worn out with 280 or finer grit abrasive paper. Clean the area using cheesecloth wetted with toluene and apply Tereco 155 coating. If BMS 10-11, Type 1, primer becomes scratched in the sanding operation, rework per 3.A.(1) (omitting conversion treatment) and 3.A.(2). If aluminum becomes scratched, rework per par. 3. and 4.

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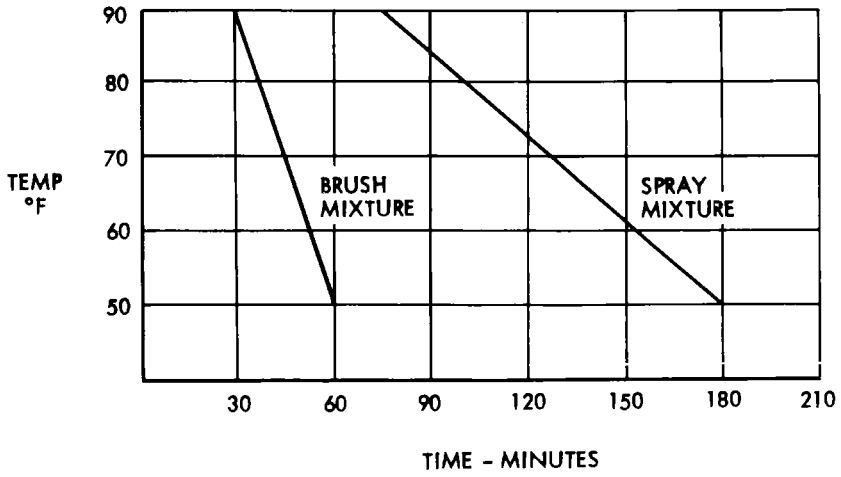

Pot Life of Tereco 155
Figure 701

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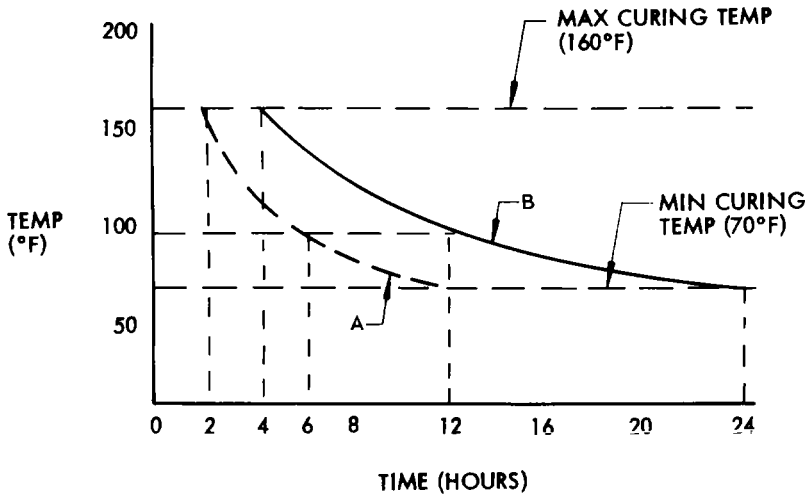

Cure of Tereco 155
Figure 702

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SKIN AND FASTENER CORROSION CONTROL - CLEANING/PAINTING

1. General
   A. The following skin and fastener corrosion control procedures are applicable to the wing upper inspar surface and beavertail areas as shown in Fig. 701 (AMM 51-21-31, Corrosion Removal and Control, for general corrosion removal procedures).

      WARNING: FINISHES, CLEANERS, THINNERS, AND SOLVENTS USED IN THIS SUBJECT CONTAIN TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS AND MIST. USE WITH ADEQUATE VENTILATION. PROVIDE APPROVED RESPIRATORY PROTECTION AS REQUIRED. DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP FLAMMABLE MATERIALS AWAY FROM SOURCES OF IGNITION.

      NOTE: The corrosion-preventive paint application procedures are applicable in general to airplane exterior, if required.

   B. Airplanes, as delivered, have either one of two primer systems. Earlier airplanes were primed with MIL-C-8514 wash primer coated with MIL-P-8585 zinc chromate primer. Later airplanes were primed with BMS 10-11, type 1 and BMS 10-20 (epoxy) primer.
      (1) MIL-C-8514 wash primer and MIL-P-8585 zinc chromate primer can be readily stripped to bare metal with chemical paint strippers per AMM 51-21-11, Paint Stripping.
      (2) BMS 10-11, type 1 and BMS 10-20 primers cannot be readily stripped with chemical strippers. However, it is not necessary to strip these epoxy base primers down to bare metal prior to application of finish coating.
   C. Refer to Structural Repair Manual for limits concerning corrosion removal.
2. Inspection/Check
   A. Check for steel fastener head rusting and for discoloration of adjacent anodized skin, indicating skin corrosion. If corrosion exists, accomplish repair per par. 3.
3. Approved Repairs
   A. Rust and Corrosion Removal
      (1) Equipment and Materials
         (a) Scraper (AMM 51-31-0/201 for approved scrapers)
         (b) Solvent - Final Cleaning Prior to Fuel Tank Sealing (Series 93) (AMM 20-30-93)
         (c) Portable Blaster - Educ-O-Matic E10A, Clementina Ltd., San Francisco, California, or equivalent
         (d) Aluminum Oxide Grit - No. 154 (600-4F mesh)

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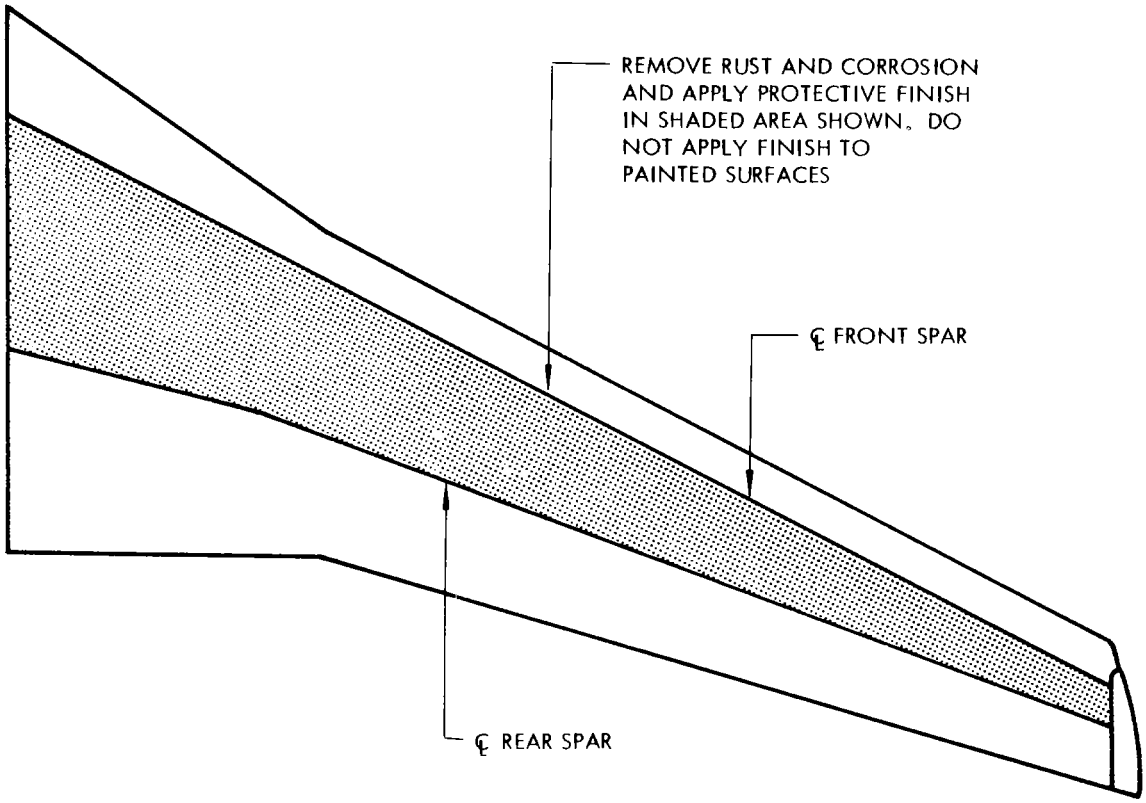

NOTE: PLAN VIEW OF RIGHT WING (LEFT OPPOSITE)

WING PLAN VIEW

Skin and Fastener Corrosion Control Location
Figure 701

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(e) Aluminum Oxide Paper or Cloth - 240 grit
(f) Magnifying Glass - 5 to 10X magnification

(2) Remove Rust and Corrosion
(a) Remove previously applied corrosion preventive paint in corroded area (AMM 51-21-11, Paint Stripping).
(b) Paint strippers per AMM 51-21-11 will not remove BMS 10-11, type 1 or BMS 10-20 primers. If primer does not readily remove, lightly sand area immediately adjacent to corroded area to smoothly blend primer into base metal.
(c) Remove previously applied fastener sealant with an approved scraper and solvent, Series 93 (AMM 20-30-93).

CAUTION: MAKE SURE THAT YOU ONLY USE APPROVED SCRAPERS ON THE AIRPLANE SKIN. SCRAPERS THAT ARE NOT APPROVED CAN MAKE SCRATCHES ON THE SKIN AND CAUSE FATIGUE CRACKS.

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 SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE PAINT OR PRIMER BEFORE YOU DO THE SCRIBE LINE INSPECTIONS, YOU CAN BE REQUIRED TO DO REPEAT INSPECTIONS BASED ON THE SCRIBE LINE INSPECTION SB 737-53A1262.

(d) Grit blast rusted fastener heads and limited surrounding skin area. If skin corrosion is noted, grit blast to remove corrosion to approved depth per SRM Chapter 57. Avoid blasting of larger skin area than required to remove corrosion.

NOTE: Mask all openings to fuel tank to prevent entry of grit into tank. As an option, rust and corrosion may be removed with 240 grit aluminum oxide paper or cloth.

(e) After removing rust and skin corrosion, inspect countersunk area surrounding fastener heads for corrosion, using a 5 to 10X magnifying glass.
(f) If corrosion in the countersunk area is detected, remove the affected fasteners and remove the corrosion by approved method and to approved depth given in SRM Chapter 57.

CAUTION: TO PREVENT SKIN SHIFTING, REMOVE ONLY ONE ROW OF RIVETS AT A TIME IN A MULTIPLE ROW FASTENER CONFIGURATION AND REPLACE THE FASTENERS BEFORE REMOVING THE NEXT ROW. IN A SINGLE ROW CONFIGURATION, REMOVE AND RE-INSTALL ALTERNATE FASTENERS.

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B. Cleaning Skin Prior to Alodine Treatment

NOTE: Only areas where the skin or fasteners were exposed to base metal while removing rust and corrosion need be cleaned for alodine treatment.

(1) Equipment and Materials
  (a) Solvent Alkaline Cleaner (Wyandotte Aerowash A, Cee Bee Alumiloy P, GMC 528B)
  (b) Water (no more than 150 ppm totally dissolved solids)
  (c) BMS 3-2, Type I Solvent (TT-N-95 naphtha or 100°F flash Stoddard solvent)
  (d) Soft-bristled brushes
(2) Clean Skin
  (a) An effective Alodine treatment can be achieved only on a properly cleaned surface. It is therefore mandatory to follow the cleaning procedures exactly.
    1) Solution preparation:
      a) Prepare the cleaning solution by using one part, by volume, solvent alkaline cleaner to two parts water and five to six parts BMS 3-2, Type I solvent.
  (b) Environment
    1) Park aircraft in shade and electrically ground (AMM Chapter 20, Static Grounding).
  (c) Application
    1) Apply cleaner and allow to soak for a minimum of 10 minutes. Re-apply cleaner as necessary to prevent drying of the solution on the skins. After the soak period scrub vigorously with soft bristled brushes. Special attention shall be directed to scrubbing the countersink areas and around rivet heads. Rinse thoroughly with water. Use high-pressure rinse if possible. Check for water breaks. If water breaks are observed, repeat cleaning cycle.

      NOTE: A water break free surface is defined as a surface which when wetted with rinse water (100°F maximum) either by immersion or spraying, will maintain a continuous film of water for a minimum of 30 seconds. Sharp breaks in the water film or evidence of residue registers failure of the test and an unclean surface.

C. Brush Alodine Treatment
  (1) Alodine 1200 or 1200S (interchangeable) treatment shall be applied to all reworked steel fastener heads and the surrounding bare aluminum skin surfaces (AMM 51-21-31, Alodizing).
D. Fastener Sealant Application
  (1) General
    (a) Sealant shall be used to build up reworked areas flush with aluminum skin and under heads of newly installed fasteners. An extremely clean alodized surface is required for adhesion.

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(2) Equipment and Materials
  (a) Solvent - Final Cleaning Prior to General Sealing (Series 92) (AMM 20-30-92)
  (b) Clean cloths
  (c) Sealant - PR 1422 Class A, Parts A and B
  (d) Sealant - PR 1422 Class B, Parts A and B
  (e) Sealant - PR 1432, Parts A and B
  (f) Extrusion gun or spatula
  (g) Fairing tool - Plastic scraper (AMM 51-31-0/201 for approved scrapers) or duckbill nozzle
  (h) Knife made from 2024 sheet with a beveled cutting edge
  (i) Pressure spray equipment - Standard type
  (j) Thinner - Toluene, TT-T-266a
  (k) Fine sandpaper
  (l) Aluminum oxide grit cloth
  (m) Gum rubber buffing wheel
(3) Apply Fastener Sealant
  (a) Cleaning for sealant adhesion
    1) Fasteners
      a) Remove lubricant from new fasteners prior to installation with solvent, Series 92 (AMM 20-30-92)
    2) Countersinks and other reworked areas
      a) Remove lubricant and other soil from countersinks and other reworked areas by wiping lightly with clean cloths dampened with solvent, Series 92 (AMM 20-30-92). Wipe surfaces dry with clean cloths before fastener and sealant installation.
  (b) Sealant application
    1) Mixing
      a) Thoroughly mix the sealants per the manufacturer's instructions. The mixing ratios by weight are as follows:

        NOTE: The PR 1422 Class A and Class B can be obtained with a working life of either 1/2 or 2 hours. The PR 1432 has a working life of 1 hour. Mix only the quantity which can be used within the application time of the sealant.

        1. PR 1422 Class A - 1 part A (accelerator) to 10 parts B (base)

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2. PR 1422 Class B - 1 part A (accelerator) to 7-1/2 parts B (base)

3. PR 1432 - 1 part A (accelerator) to 15 parts B (base)

2) Fastener application
   a) Apply a small bead of mixed PR 1422, Class B sealant to either the countersink area or underhead side of head of fastener and install the fastener immediately. Remove excess sealant with cloths dampened with solvent, Series 92 (AMM 20-30-92).
3) Application to reworked areas
   a) Apply a brushcoat of mixed PR 1422, Class A sealant to the reworked area. Brush well into the crevice around the fasteners. A continuous coat is required on the reworked surface.
   b) Apply a mixed PR 1422, Class B sealant over Class A sealant with an extrusion gun or spatula. Fair out the sealant with a fairing tool, an approved plastic scraper or duckbill nozzle so that the surface of the sealant is slightly below the surface of the adjacent wing skin. Use a spatula or fairing tool to work out air bubbles in the sealant.

      NOTE: If difficulty is experienced in spreading and fairing out the B type sealant, the following alternate method may be used. Apply the PR 1422, Class B sealant thickly and well above the contour of the wing surface, allow to cure, then pare it off to wing surface with a knife made from 2024 sheet with a beveled cutting edge.

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c) For extensive cavities only, apply mixed PR 1432 by spray until the reworked area is completely filled with the sealant extending over the edge of the reworked area and feathered.

NOTE: The PR 1432 sealant can be sprayed with standard type pressure spray equipment. An external mix spray gun with an orifice diameter of at least 0.085 is recommended. An atomizing pressure of approximately 35 psig is required to provide proper breakup of the coating. The pressure in this range should be adjusted by the applicator in order to obtain the most favorable pressure. If difficulty is experienced in spraying the PR 1432 sealant, it may be thinned by adding 10% toluene by volume to base material. Mix and then add accelerator. Keep mix agitated and cut spray life down to 1/4 hour. Keep remaining 1-hour life mix in cold box at 50°F.

4) Cure
a) Allow the sealant to cure as follows:

Temperature	Relative Humidity	Time
75°F	50%	72 Hours
120°F	50%	18 Hours

5) Sanding
a) The cured sealant can be faired out and irregularities smoothed by sanding lightly with a fine sandpaper, cloth (aluminum oxide grit) or with a gum rubber buffing wheel. Any alodine coating that is damaged by sanding shall be repaired.

E. Corrosion-Preventive Paint Application
(1) General
(a) The corrosion control treatment consists of the application of primer and aluminized coating EC-843 or EC-843S Corogard.
(b) Surfaces that were stripped to bare metal with paint stripper should be primed with MIL-C-8514 wash primer and MIL-P-8585 zinc chromate primer, color Y, prior to application of Corogard coating.
(c) Surfaces with primer that could not be stripped to bare metal with paint stripper should be reactivated and touched up with BMS 10-11, type 1 primer prior to application of Corogard coating.
(2) Equipment and Materials
(a) Wash Primer - MIL-C-8514

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(b) Zinc Chromate Primer - MIL-P-8585, color Y
(c) Primer - BMS 10-11, type 1 (AMM 13-1-4, Finishing Materials)
(d) Aluminized Coating
1) EC-843 Corogard with EC-1101 aluminum powder (12.5 oz of powder per gallon of resin) (preferred)
2) EC-843S Corogard with EC-1101 aluminum powder (9.0 oz of powder per gallon of resin) (preferred)
3) G12E25 Aeroflex Finish (optional)
(e) Thinners and Solvents
1) Ethyl Alcohol - MIL-A-6091, or OE-760B, Grade 2
2) Butyl Alcohol - TT-B-846
3) Toluene - TT-T-548
4) Methyl Isobutyl Ketone - TT-M-268
5) BMS 3-2 Solvent, optional: TT-N-95 Naphtha
6) Normal Butyl Acetate - TT-B-838
7) Lacquer Thinner - TT-T-266a
8) Solvent - Final Cleaning of Metal Prior to Painting (Series 84) (AMM 20-30-84)
(f) Clean, lintless cloth
(g) Stainless steel pressure pot liners and mixing equipment
(h) Varnish or linseed oil type tack rags
(i) Abrasive paper - 400 grit or finer and 280 grit or finer
(j) Metal sieve, 60-80 mesh
(k) Corogard Paint Application Equipment
1) For EC-843, use a DeVilbiss MBC or JGA gun, EX needle and tip, 30 or 36 air cap, or Binks No. 18 gun 66 x 66, SD nozzle assembly. Fluid pressure 10 to 20 psi and 60 to 70 psi atomization air.
2) For EC-843S, use a DeVilbiss MBC or JGA gun, FX needle and tip, 704 or 765 air cap, or Binks No. 18 gun 63 x 63, PB nozzle assembly. Fluid pressure 10 to 15 psi and 50 to 55 psi atomization air.

(3) Apply Corrosion-Preventive Paint
(a) Surface preparation
1) On surfaces that are stripped to bare metal, immediately prior to application of wash primer, remove all loose dirt, dust, and lint by wiping surface to be painted with a clean, lintless cloth, wet with solvent, Series 84 (AMM 20-30-84) and squeezed to remove excess solvent. Change to a clean cloth as soon as soil appears on cloth. Wipe dry with a clean, dry cloth before solvent evaporates.
2) On surfaces coated with BMS 10-11 and BMS 10-20 primer (did not strip), reactivate per AMM 51-2-51/701, Chemical and Solvent-Resistant Finish, prior to touching up with BMS 10-11 primer.

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(b) Mixing and application

1) Wash primer MIL-C-8514 (apply to completely stripped surfaces).

NOTE: The wash primer is supplied in a two-component kit consisting of a resin base material (4 parts by volume) and an acid accelerator (1 part by volume).

a) The wash primer base material and acid accelerator must be thoroughly and vigorously agitated just prior to mixing.

b) Mix the wash primer by adding small amounts of acid accelerator to the base material with constant stirring. Do not add base material to accelerator. Immediately after mixing, the containers should be time and date stamped. Allow the mixed wash primer to stand for 15 minutes minimum before using.

NOTE: Mixed material has a usable pot life of 4 hours below 90°F and 2 hours above 90°F.

c) Thin the mixed wash primer to spraying consistency with 50-50 mixture of ethyl and butyl alcohol. The volume of ethyl/butyl alcohol mixture added must not exceed twice the volume if acid accelerator used.

NOTE: The spray equipment used for wash primer must be clean before use and should be flushed out with alcohol before and after use. Pressure pot liners and mixing equipment made of stainless steel will resist attack by the acid present in the wash primer.

d) Spray apply the wash primer in a continuous film to a dry film thickness of 0.2 to 0.4 mil. A single wet spray pass should provide this thickness. Do not attempt to obtain full color hiding.

NOTE: Too thick a film must be removed with alcohol immediately and replaced with a properly applied film.

e) Allow the wash primer to dry not less than 45 minutes and not more than 4 hours at 65 to 85°F before over-coating with zinc chromate primer.

NOTE: Primer films over 4 hours old should be stripped with butyl alcohol or paint stripper and reapplied.

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f) Primer films that are soiled from dust, dirt, or paint over-spray should be carefully cleaned immediately prior to over-coating. Use varnish or linseed oil type tack rags or rags lightly wetted with butyl alcohol.

CAUTION: BUTYL ALCOHOL WILL REMOVE THE PRIMER IF IMPROPERLY HANDLED.

g) The dry wash primer may be hand scuffed lightly with 400 grit or finer abrasive paper to obtain a smooth surface for over-coating. Use extreme care to prevent removal of wash primer to bare metal. If sanding is done, clean surface per step f) prior to over-coating.

2) Zinc chromate primer MIL-P-8585 (apply to surfaces coated with wash primer)
   a) Agitate the zinc chromate primer vigorously prior to thinning and application.
   b) Thin the zinc chromate primer with 2 to 2.5 parts, by volume, of toluene to 1 part of primer to obtain spray consistency. Add the thinner to the paint slowly with good agitation.
   c) Spray apply the zinc chromate primer to a dry film thickness of 0.2 to 0.4 mils.
   d) Allow the zinc chromate primer to dry at 65 to 85°F for not less than 45 minutes and not more than 72 hours before over-coating.
   e) The dry zinc chromate primer may be hand scuffed lightly with 400 grit or finer abrasive paper to obtain a smooth surface for over-coating.
   f) Zinc chromate primer, which is more than 72 hours old shall be removed and reapplied just prior to over-coating. Since stripping removes both wash primer and zinc chromate primer, reapplication of both is required.
   g) Just prior to over-coating, lightly wipe the painted surfaces with a clean, lintless cloth wet with BMS 3-2 solvent or naphtha and squeezed to remove the excess solvent.
3) BMS 10-11, type 1 primer (apply to surfaces that were previously treated with epoxy primer and did not remove with paint stripper).
   a) Apply primer per AMM 51-21-51/701, Chemical and Solvent Resistant Finish.
   b) Allow primer to dry per AMM 51-21-51 prior to application of Corogard coating.

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4) Aluminized coating (EC-843 or EC-843S Corogard)

NOTE: These materials are furnished in two component kits consisting of a resin component and an aluminum powder component (12.5 oz aluminum powder EC-1101 per gallon of resin EC-843 or 9.0 oz aluminum powder EC-1101 per gallon of resin EC-843S).

a) Strain the resin component through a 60-80 mesh metal sieve into a pressure pot or mixer.
b) Place the aluminum powder in a separate container and pre-wet the powder by slowly adding sufficient methyl isobutyl ketone or resin component to form a uniform suspension.
c) Strain the aluminum powder suspension through the 60-80 mesh metal sieve into the pressure pot or mixer.
d) Agitate the mixture thoroughly by hand or a power mixer to a smooth even blend.
e) Thin the strained mixture to spraying consistency with methyl isobutyl ketone, butyl acetate or a mixture of these two solvents. The suggested thinner is a mixture of 5 parts methyl isobutyl ketone and 3 parts butyl acetate (by volume). The volume of thinner added should not exceed 20% of the base material. See Fig. 702 for viscosity charts for thinning EC-843 and EC-843S Corogard.
f) The usable pot life of this material is 16 hours (no temperature restrictions necessary).

WARNING: EC-843 AND EC-843S REACT CHEMICALLY WITH THE ALUMINUM POWDER LIBERATING FLAMMABLE HYDROGEN GAS. IF THIS MATERIAL IS STORED AT ANY TIME DURING THE 16 HOURS, IT MUST BE STORED IN AN OPEN CONTAINER OR A CLOSED CONTAINER WHICH HAS SEVERAL HOLES IN THE LID.

g) Spray one wet cross coat of EC-843 or EC-843S Corogard.

NOTE: Frequently agitate paint in pot.

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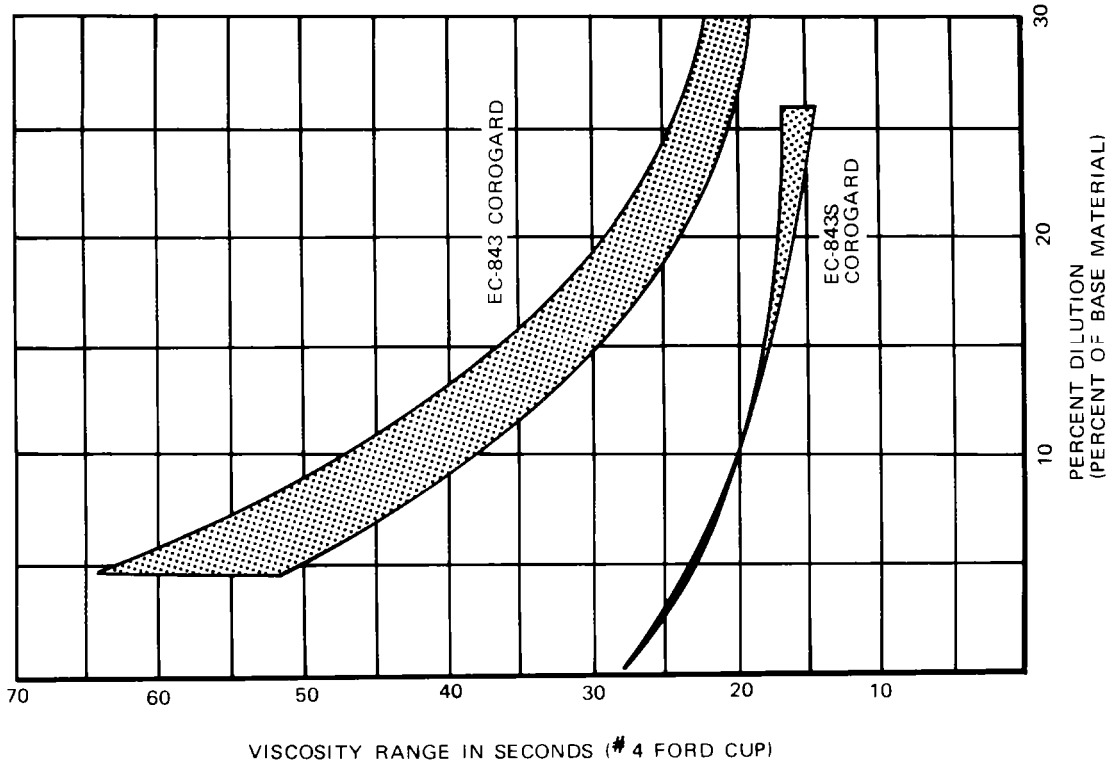

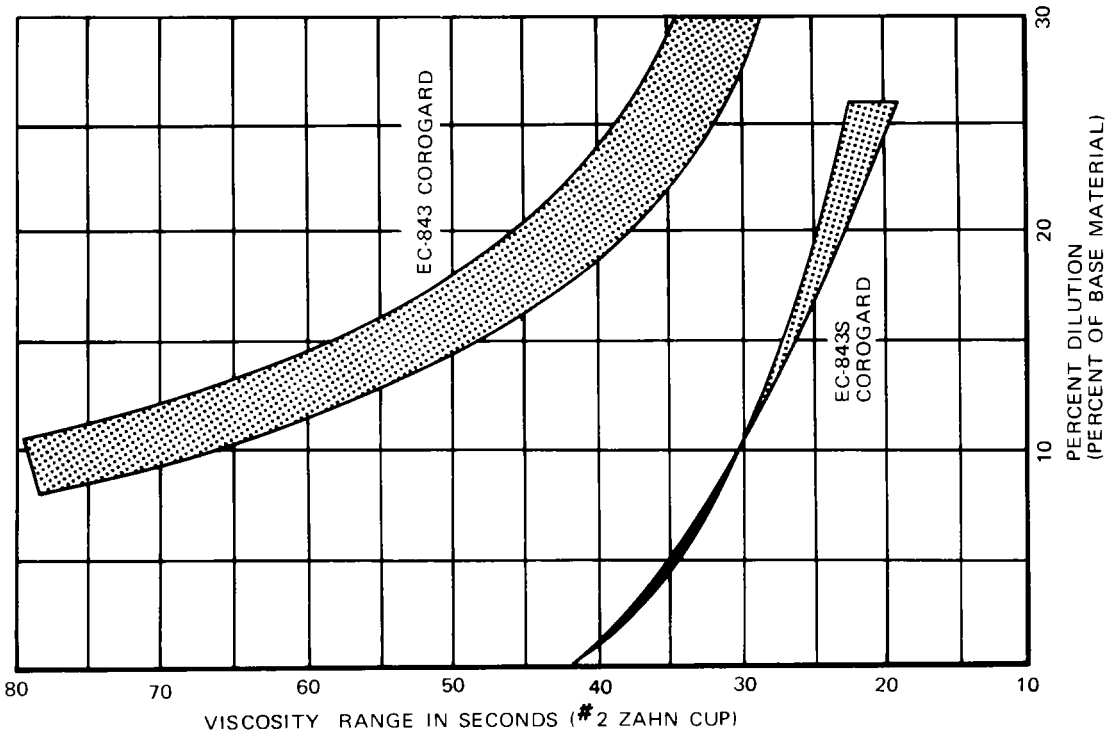

Corogard Viscosity
Figure 702

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h) Allow a minimum of 30 minutes between first and subsequent cross spray coats.

NOTE: On horizontal surfaces where there is no danger of runs or sags, this drying time between coats may be omitted.

i) Apply sufficient cross spray coats to obtain a total dry film thickness of 2 to 3 mils.

NOTE: The EC-843 and EC-843S Corogard material will be slightly over-pigmented to reduce effect of bronzing; therefore, some rub off of excess aluminum pigment may occur but is not detrimental to quality.

j) Allow topcoat to air dry a minimum of 24 hours at 65 to 85°F.

NOTE: Cure may be accelerated by heating the surface to 125 ±5°F for 2 hours.

5) Aluminized Coating Aeroflex G12E25

a) Agitate the material thoroughly by hand or power mixer for 10 to 15 minutes until the aluminum pigment is uniformly dispersed.

NOTE: Avoid entrapment of air bubbles due to mixing. Thinning is not usually required for airspray if thinning is required, use C25/90S thinner up to 20% by volume of the base. For airspray (suction cup) thin 20% (maximum) by volume of the base.

The useable pot life of this material is 4 hours (no temperature restrictions necessary).

b) Reactivate and touch up surfaces coated with BMS 10-11 and BMS 10-20 primer per AMM 51-21-51. Allow primer to dry per AMM 51-21-51 prior to application of corrosion inhibiting coating.

c) Strain the "ready to spray" mixture through clean cloth or a sieve prior to using.

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d) Spray surface with sufficient cross coats to obtain a total dry film thickness of 2 to 3 mils.

NOTE: If dry spray occurs when using Aeroflex G12E25, reduce atomizing air pressure or thin slightly with C25/90S thinner.

e) Allow topcoat to dry, air dry at 65 to 85°F a minimum or 4 hours before outdoor exposure and 24 hours before service.

NOTE: Cure may be accelerated by heating the surface to 125 ±5°F for 2 hours.

(c) Repair and rework

1) Areas with minor damage such as scratches and gouges should be sanded smooth with 280 grit or finer abrasive paper and cleaned with clean rags wetted with toluene or xylene.
2) Apply primer and Corogard or Aeroflex overcoat per par. E. Featheredge all spot painting. For minor touchup, brush application is recommended.
3) Aged areas of EC-843 or EC-843S Corogard or Aeroflex to be over-coated shall be thoroughly solvent cleaned with toluene or xylene followed by sanding with 280 grit or finer abrasive paper. Remove sanding residue by wiping with clean cloth wetted with toluene or xylene. Before the solvent evaporates wipe dry with clean cloth.
4) Repair and overlap areas shall not exceed a total dry film thickness of 5.0 mils.

NOTE: Newly applied EC-843 and EC-843S Corogard will not match color of adjacent Corogard finishes surface. The repaired area will match adjacent color in approximately 60 days. Allow to dry 4 hours minimum at 65 to 85°F prior to service use.

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HIGH TEMPERATURE COATING FOR TITANIUM

1. General
   A. This subject contains application procedures for Andrew Brown B-2000 coating and BMS 10-82 coating. Either coating may be used. Application of BMS 10-82 requires removal of part. B-2000 and BMS 10-82 coatings are not compatible.
2. Application of B-2000 Coating
   A. General
      (1) This coating prevents hydraulic fluid damage to titanium parts exposed to temperatures of 250°F or higher.

          CAUTION: TO PREVENT CORROSION, CARE MUST BE TAKEN TO AVOID ANY SALT DEPOSITS, INCLUDING FINGERPRINTS, ON AN UNPREPARED TITANIUM SURFACE. HANDLE TITANIUM WITH CLEAN WHITE COTTON GLOVES.

   B. Equipment and Materials

      WARNING: SUBSTANCES LISTED BELOW MAY BE TOXIC OR FLAMMABLE. USE WITH ADEQUATE PRECAUTIONS.

      (1) Solvents
          (a) Stoddard solvent or equivalent
          (b) BMS 3-2 (Optional: TT-T-95, aliphatic naphtha)
      (2) Stripper
          (a) Turco 4338

              WARNING: THIS IS AN ALKALINE, STRONGLY OXIDIZING AGENT. USE CLEAN MILD STEEL CONTAINERS AND AVOID ALL CONTACT WITH EYES, SKIN, OR CLOTHES. WEAR HEAVY RUBBER GLOVES AND GOGGLES. CONTACT OF THE POWDER WITH ORGANIC SOLVENTS SUCH AS ACETONE OR MEK MAY RESULT IN AN EXPLOSION.

      (3) Cleaners
          (a) Oakite 204, or Cee Bee 280, or equivalent MIL-C-25769, Type I or Type II cleaner
          (b) Oakite 61 (Optional: Wyandotte Altrex or equivalent aluminum type alkaline cleaner)
          (c) Isopropyl Alcohol - Federal Specification TT-I-735, or equivalent
          (d) Distilled or deionized water
      (4) Rubber gloves and clean white cotton gloves
      (5) Cheesecloth
      (6) (Optional: coarse aluminum wool)

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(7) Brushes or cellulose sponges
(8) Soft, high quality bristle brushes
(9) Mild steel tanks and handling equipment (for Turco 4338 solution)
(10) Coating: Andrew Brown Company B-2000
(11) Spraying equipment
(12) Sandblasting equipment as required
(13) Abrasives - 100 to 250 (Tyler Series) Mesh Silica, Alumina or Silicon Carbide

C. Prepare for Coating Application

(1) Sand blast surfaces to be coated to remove all contamination and previous coating.

CAUTION: IF SANDBLASTING EQUIPMENT IS USED INSIDE OF AIRPLANE, INSURE THAT NO PARTICLES ABRADE INTERIOR SURFACES NOT BEING TREATED. DO NOT SANDBLAST TITANIUM DUCTS. IF YOU SANDBLAST THE TITANIUM DUCTING, YOU CAN CAUSE PERMANENT DAMAGE.

(a) For extensive applications remove titanium parts from airplane (Ref Chapter 21, Air Conditioning, or Chapter 30, Ice and Rain Protection).

(2) (Optional) Proceed as follows:

(a) Remove titanium parts from airplane.

CAUTION: CHEMICALS USED FOR PRETREATMENT ARE VERY CORROSIVE TO AIRPLANE STRUCTURE. IF PARTS ARE NOT REMOVED FROM AIRPLANE, TAKE STRICT PRECAUTIONS TO ENSURE NO SOLUTION CONTACTS OTHER COMPONENTS OR STRUCTURE.

(b) Replace parts showing metal deterioration.

NOTE: A bright metallic surface with etching is evidence of deterioration.

(c) Clean hydraulic fluid.

NOTE: A light glossy brown film, a dull black residue, or a bare surface, are evidence of hydraulic fluid contamination.

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1) Scrub with cheesecloth or aluminum wool dampened with Oakite 61 or equivalent.

NOTE: If aluminum wool is used, it should be sufficiently coarse to produce a dull surface. Avoid a shiny or polished surface.

2) Swab rinse.
3) Remove excess moisture with cheesecloth.
4) Repeat steps 1), 2), and 3) until a water-break-free surface is obtained.

(d) Clean any remaining foreign matter.
1) Use minimum amount of Stoddard solvent or equivalent to moisten cheesecloth.
2) Rinse thoroughly with water. Use high-pressure rinse if possible.
3) Repeat steps 1) and 2) until a water-break-free surface is obtained.
4) Dry

(e) Remove previous coating.
1) Prepare Turco 4338 stripper per directions on container.

WARNING: ALKALINE, STRONGLY OXIDIZING. USED AT 200°F. WEAR GOGGLES AND HEAVY RUBBER GLOVES AND AVOID ALL CONTACT. USE MILD STEEL CONTAINERS AND HANDLING EQUIPMENT.

2) Immerse parts in stripper 30 to 40 minutes.
3) Water rinse.
4) Wash with air water spray.
5) Repeat steps 2), 3) and 4) until black coating is removed.

(3) If further chemical pretreatment is required, contact Boeing for procedure.

D. Apply Coating

CAUTION: DO NOT APPLY B-2000 COATING IN AN ATMOSPHERE CONTAINING OTHER SOLVENTS, AS THIS CAUSES FILM CRATERING AND POOR ADHESION.

(1) Slowly add distilled or deionized water to B-2000 coating per container instructions, while slowly agitating mixture.

CAUTION: AVOID SHAKING TO PREVENT AIR FROM BECOMING ENTRAPPED.

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(2) Brush or spray apply the mixed B-2000 coating to a dry film thickness of 0.8 to 1.2 mils (0.0008 to 0.0012 inch).

NOTE: If used, brushes must be of soft, high quality bristles.

(3) Allow to air dry a minimum of 1 hour at 70°F to 90°F.
(4) Bake coating at 350 ± 25°F a minimum of 1 hour.

NOTE: Coating must be dry before baking. If blistering occurs during baking, air-drying time should be increased. When treating air conditioning and thermal anti-icing ducts, if they are treated without removing from airplane, baking will be accomplished in place during operation of the above mentioned systems.

3. Application of BMS 10-82 Coating

A. General

(1) This procedure contains the application of a low emissivity gold coating to titanium.
(2) The gold coating is produced by spray applying a solution of gold salt in an organic vehicle and baking at high temperature to burn off the vehicle and reduce the salt to a thin gold film.

B. Equipment and Materials

WARNING: SUBSTANCES LISTED BELOW MAY BE TOXIC OR FLAMMABLE. USE WITH ADEQUATE PRECAUTIONS.

(1) Low Emissivity Gold Coating - BMS 10-82 (Storage 40-80°F)
(2) Solvent - Toluene, TT-T-548 or JAN-T-171
(3) Scotchbrite Sheet, Finishing Type A (aluminum oxide grit)

C. Prepare for Coating Application

(1) Protect parts as required and handle with clean gloves to prevent contamination. Remove previous protective coating.

CAUTION: TO PREVENT CORROSION, CARE MUST BE TAKEN TO AVOID ANY SALT DEPOSITS, INCLUDING FINGERPRINTS, ON AN UNPREPARED TITANIUM SURFACE. HANDLE TITANIUM WITH CLEAN WHITE COTTON GLOVES.

(2) Inspect for visual evidence of soil. Remove soil by cleaning with TT-T-548 solvent. Scotchbrite sheet may be used prior to solvent cleaning to aid in soil and stain removal. Parts must be clean and dry when coating is applied.

D. Apply Coating

(1) Stir or shake BMS 10-82 until homogeneous.

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(2) Spray apply. Apply sufficient coats to produce a transparent red, uniform film, free of sags, runs and wrinkles. Allow 5 to 10 minutes between coats. Recommended air atomizing pressure is 10 to 25 pounds.
(3) Bake as soon as possible after application. Keep wet film free of contamination.
(4) Bake coated parts at a part temperature of 825 (± 25)°F for 10 to 15 minutes. Use a well-ventilated oven to allow 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 surface imperfections.
(5) Protect parts until installation to avoid rework and repair.

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NONSKID SURFACE - CLEANING/PAINTING

1. General
   A. The nonskid finish is applied to a specified area of each wing surface to make the overwing emergency exit walkway.
   B. The overwing emergency exit walkway is made from one of two nonskid finishes. One of these nonskid finishes is preferred. The preferred nonskid finish is DeSoto series P1000 and pumice grit. The alternate nonskid finish is Watson Traffictred.
   C. The preferred and the alternate nonskid finishes cannot both be used on the same wing surface. The nonskid finishes cannot be used together.
   D. If you change from one nonskid finish to the other, the old nonskid finish must be removed from the wing surface completely.
   E. This procedure contains two tasks:
      (1) The first task is to refinish the overwing emergency exit walkway with DeSoto P1000 and pumice grit (preferred).
      (2) The second task is to refinish the overwing emergency exit walkway with the Watson Traffictred (alternate).
2. Refinish the Overwing Emergency Exit Walkway with DeSoto P1000 and Grit
   A. Equipment
      (1) Spray equipment
         (a) Binks Mach 1 Plus, with Model 82-760 Mach 1 Agit Cup. Agitated pressure pot can also be used.
         (b) Air cap No. 97
         (c) Fluid tip No. 97
         (d) Fluid pressure: 3-5 psi
         (e) Option: To reduce over-spray, a DeVilbiss touch up gun or equivalent can be used to apply the black arrow.
   B. Consumable Materials
      (1) White polyurethane walkway finish:
         (a) DeSoto series P1000, semi-gloss, BAC7022 white
         (b) Pumice Grit No. 1/2, American Pumice Company, P.O. Box 4305, Santa Fe, NM 87502, or Gallade Chemical, Inc., 1230 East Saint Gertrude Pl., Santa Ana, CA 92707 - Distributor
      (2) Black polyurethane walkway finish:
         (a) DeSoto series P1000, flat, BAC701 black
         (b) Pumice Grit No. 1/2, American Pumice Company, P.O. Box 4305, Santa Fe, NM 87502, or Gallade Chemical, Inc., 1230 East Saint Gertrude Pl., Santa Ana, CA 92707 - Distributor
      (3) Solvents
         (a) Methyl Isobutyl Ketone (MIBK), TT-M-268
         (b) Acetone, Technical, O-A-51
      (4) Paint strippers (any listed below or equivalent)
         (a) CEE BEE A-228D, McGean Chemical Company
         (b) Turco 5351, Turco Products
         (c) Pennwalt E-Z strip 19E, Pennwalt Corp.

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(5) Primers
  (a) BMS 10-79 Type III (preferred primer)

    NOTE: Type III is preferred because it is not strippable and has better corrosion resistance than Type II.

  (b) BMS 10-79, Type II (alternate primer)
(6) Enamel base coat
  (a) BMS 10-60, Type II, semi-gloss white color, BAC7022
(7) Alodine 600
(8) Abrasive Paper - Aluminum Oxide, 320-grit (minimum)
(9) Abrasive Pad - Scotchbrite, very fine, color - red/garnet
(10) Brush - with applicable bristle material
(11) Roller - short nap, smooth texture
(12) Tape - masking

C. References
(1) 51-21-41/701, Alodizing

D. Procedure

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.

(1) Remove the existing nonskid finish with paint stripper.
(2) Do this step to prepare the surfaces that have a coat of primer less than 48 hours old:
  (a) Clean the surface with solvent.
(3) Do these steps to prepare the surfaces that have a coat of primer more than 48 hours old:
  (a) Clean the surface with solvent.
  (b) Rub the surface lightly with 320-grit (minimum) aluminum oxide abrasive paper.
  (c) Clean the surface again with solvent.
  (d) Apply the BMS 10-79, Type III primer.
(4) If the primer is removed and aluminum shows, do the steps that follow:
  (a) Clean the exposed surface with solvent.
  (b) Abrade surface with Scotchbrite abrasive pad to remove surface oxide.
  (c) Clean the exposed surface with solvent.
  (d) Apply Alodine 600 (Ref 51-21-41/701).
  (e) Apply the BMS 10-79, Type III primer.
  (f) Stir the base while you add the catalyst.

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(5) Apply BMS 10-60, Type II base coat over the entire walkway. The base coat dry film must be 0.002 to 0.005 inches thick.

NOTE: Apply the walkway coating within 48 hours of the base coat application.

(6) Allow the base coat to dry for 6 hours at 70°F.

(7) Apply masking for walkway stripes and arrows (Fig. 701).

(8) To mix the preferred finish, use the ratio that follows:

CAUTION: THE PREFERRED (DESOTO P1000 AND GRIT) AND THE ALTERNATE (TRAFFICTRED) FINISHES CANNOT BE USED TOGETHER. ONLY BY OBSERVING THE WHITE FINISH, CAN THE DIFFERENCE BETWEEN THE PREFERRED AND THE ALTERNATE BE SEEN. THE PREFERRED WHITE FINISH IS A SEMIGLOSS, WITH GRIT ADDED. THE ALTERNATE WHITE FINISH IS A FLAT WHITE, WITH NO GRIT. THE SAME FINISH TYPE MUST BE USED FOR TOUCH UP.

DeSoto Made Colors		Boeing Made Colors		
Black	White	Black	White	
2 parts	2 parts	4 parts	3 parts	Base Component - DeSoto series P1000, semigloss, BAC7022, white or BAC701 black, flat
1 part	1 part	1 part	1 part	Curing Solution - DeSoto series P1000, curing solution, 910X946
1 part	1 part	1 part	1 part	Flow Control - DeSoto, Inc., 020X541
				Grit - American Pumice, pumice grade 1/2. Use 0.30 lbs per gallon of mixed finish
				Accelerator - DeSoto 920X348 Polyurethane accelerator. Use 2-4 ml per gallon of base material

(9) Shake the base material thoroughly before you add the catalyst.

(10) Mix the nonskid finish as follows:

(a) Add the catalyst to the base at a rate no faster than 15 seconds per gallon.

Overwing Emergency Exit Walkway
Figure 701 (Sheet 1)

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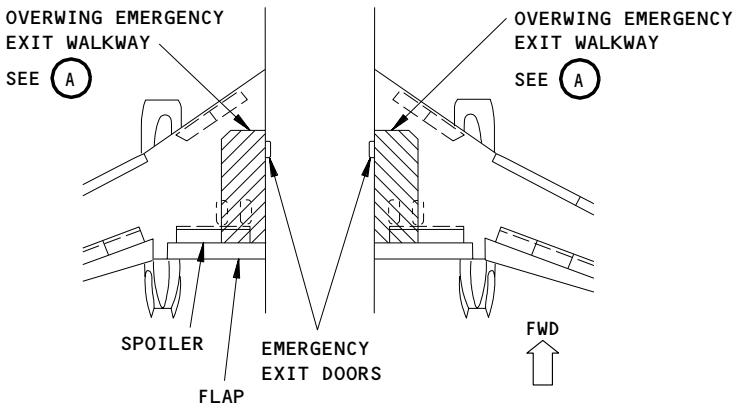

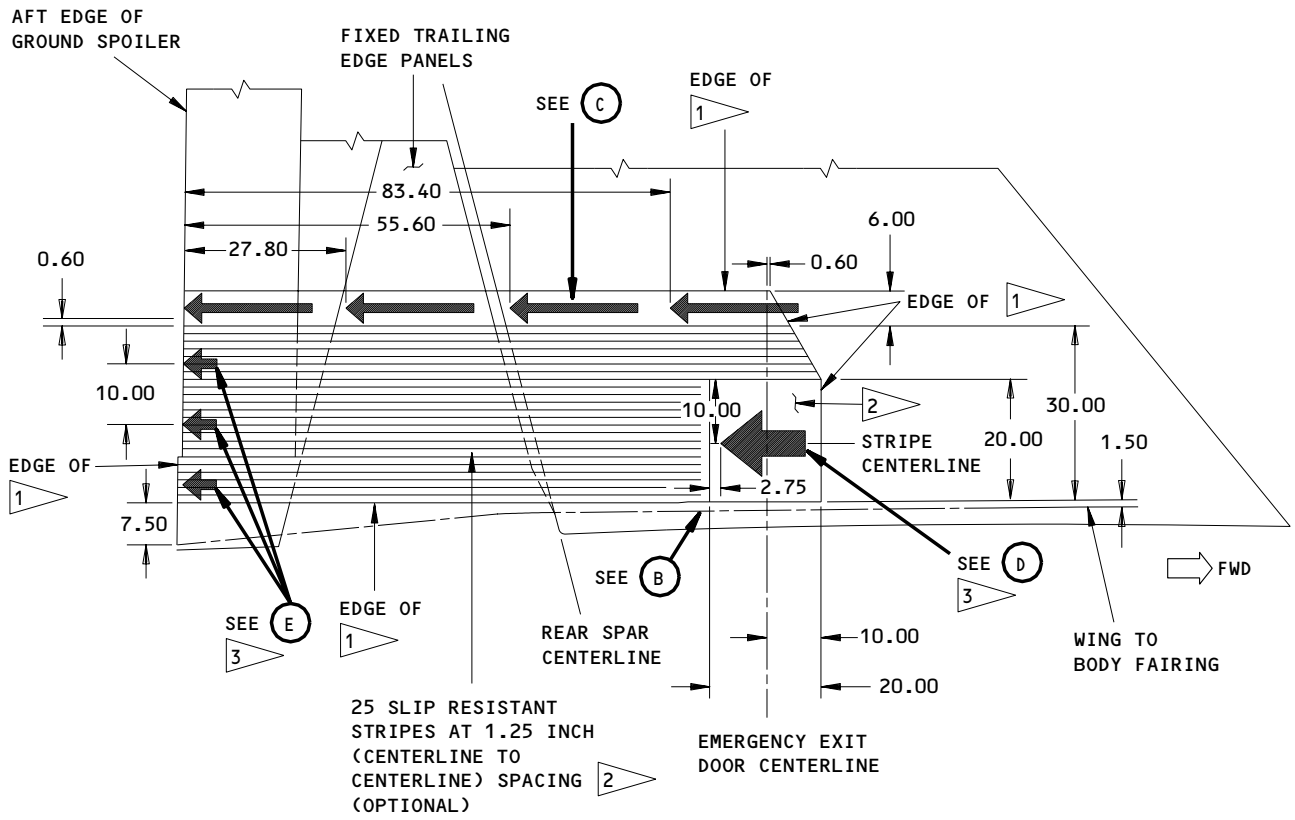

ALL DIMENSIONS ARE IN INCHES

1 APPLY BMS 10-79 TYPE III PRIMER AND BMS 10-60 TYPE II WHITE BASECOAT OVER ENTIRE WALKWAY SURFACE

2 APPLY WHITE WALKWAY FINISH

3 APPLY BLACK WALKWAY FINISH

OVERWING EMERGENCY EXIT WALKWAY
(LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE)

(A)

Overwing Emergency Exit Walkway
Figure 701 (Sheet 2)

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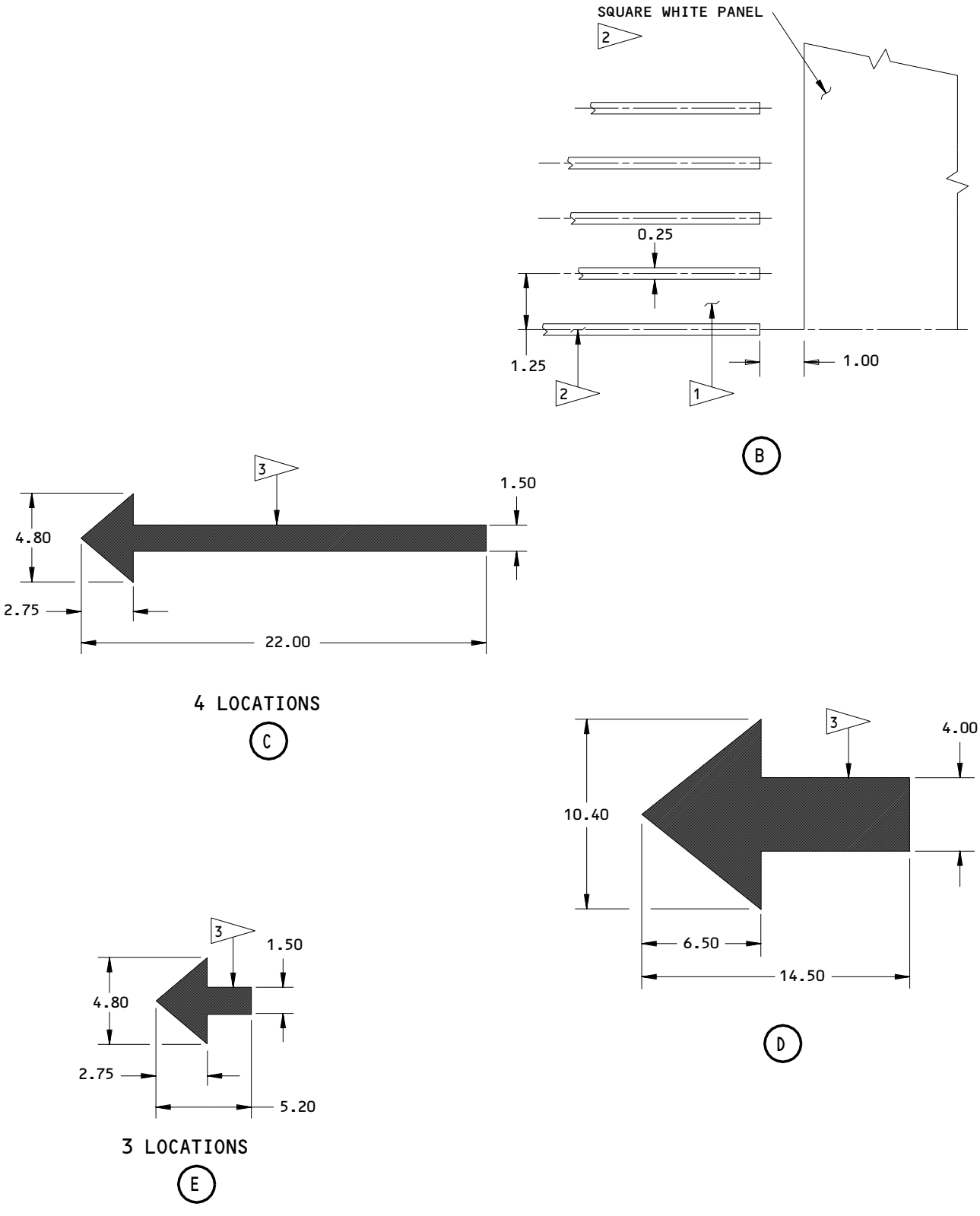

Overwing Emergency Exit Walkway
Figure 701 (Sheet 3)

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(g) Add the flow control to the mixture at a rate no faster than 15 seconds per gallon.
(h) If it is necessary, add the accelerator to the mixture.

NOTE: The pot life for the mixture is 4 hours for white mixtures and 3 hours for black mixtures.

(i) Stir the mixture continuously while you add the grit.

(5) Spray one to two coats of the nonskid finish mixture to cover the base coat.

NOTE: Application with a brush or roller is acceptable for touch up work.

(6) Let each layer of nonskid finish dry for 30 minutes before you apply the next coat.
(7) Apply one or more coats to get a dry film thickness of 0.003 to 0.005 inches (6 to 8 ounces per square yard).

NOTE: Do not paint over seals.

(8) Mask and apply the flat black DeSoto P1000 paint (arrows).

NOTE: It is not necessary to mix the black paint with grit if it is being applied on top of white paint mixed with grit. The black paint (with or without grit) can be sprayed, brushed, or rolled on. Make sure the finished arrows are solid black.

(9) Let the nonskid finish dry for 24 hours at 70°F.

NOTE: You must remove the masking tape before the finish is fully dry.

3. Refinish the Overwing Emergency Exit Walkway with Watson Traffictred
   A. Equipment
      (1) Spray equipment (use either one)
         (a) DeVilbiss MBCX or P-MBC-510 spray gun with #62CS (#62 air cap, AS needle and CS fluid tip) and special heavy fluid spring
         (b) Binks #62 spray gun with #68 nozzle assembly (#68 air cap, 368 needle and 69 fluid tip)
      (2) Material Pressure Tank - 100 psi pressure with a mechanism to stir fluid for agitation during application
      (3) Fluid hose - of sufficient diameter to give correct pressure
   B. Consumable Materials
      (1) White walkway finish - Watson Standard Company A862 Traffictred
      (2) Black walkway finish - Watson Standard Company A 419A Traffictred

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(3) Thinner
  (a) Aliphatic Naphtha TT-N-95, Type II
(4) Solvents
  (a) Methyl Isobutyl Ketone (MIBK), TT-M-268
  (b) Acetone, Technical, O-A-51
(5) Paint Strippers (any listed below or equivalent)
  (a) CEE BEE A-228D, McGean Chemical Company
  (b) Turco 5351, Turco Products
  (c) Pennwalt E-Z Strip 19E, Pennwalt Corp.
(6) Primers
  (a) BMS 10-79 Type III (preferred primer)

    NOTE: Type III is preferred because it is not strippable and has better corrosion resistance than Type II.

  (b) BMS 10-79 Type II (alternate primer)
(7) Enamel base coat
  (a) BMS 10-60, Type II, semi-gloss white color, BAC 7022
(8) Alodine 600
(9) Abrasive Paper - Aluminum Oxide, 320-grit (minimum)
(10) Abrasive Pad - Scotchbrite very fine, color - red/garnet
(11) Tape - masking
(12) G00033 Cheesecloth - BMS15-5, Class A
(13) G50123 Rag, Epoxy Coat Tack

C. References
(1) 51-21-41/701, Alodizing
(2) BAC 5705 Application of Floor Covering Materials

D. Procedure

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.

(1) Remove the existing nonskid finish with paint stripper.
(2) Do this step to prepare the surfaces that have a coat of primer less than 48 hours old:
  (a) Clean the surface with solvent.
    1) If the surface has particle contamination only, clean with a tack rag.
(3) Do these steps to prepare the surfaces that have a coat of primer more than 48 hours old:
  (a) Clean the surface with solvent.
  (b) Rub the surface lightly with 320-grit (minimum) aluminum oxide abrasive paper.
  (c) Clean the surface again with solvent.
  (d) Apply the BMS 10-79 Type III primer.
(4) If the primer is removed and the aluminum shows, do the steps that follow:
  (a) Clean the exposed surface with solvent.

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(b) Abrade surface with Scotchbrite abrasive pad to remove surface oxide.
(c) Clean the exposed surface with solvent.
(d) Apply the Alodine 600 (Ref 51-21-41/701).
(e) Apply the BMS 10-79, Type III primer.

(5) Apply BMS 10-60, Type II base coat over the entire walkway. The base coat dry film must be 0.002 to 0.005 inches thick.

NOTE: Apply the walkway coating within 48 hours of the base coat application.

(6) Allow the base coat to dry for 6 hours at 70°F.
(7) Apply masking for walkway stripes and arrows (Fig. 701).
(8) Use the Watson Traffictred as supplied by the manufacturer.

CAUTION: THE PREFERRED (DESOTO P1000 AND GRIT) AND THE ALTERNATE (TRAFFICTRED) FINISHES CANNOT BE USED TOGETHER. ONLY BY OBSERVING THE WHITE FINISH, CAN THE DIFFERENCE BETWEEN THE PREFERRED AND THE ALTERNATE BE SEEN. THE PREFERRED WHITE FINISH IS A SEMIGLOSS, WITH GRIT ADDED. THE ALTERNATE WHITE FINISH IS A FLAT WHITE, WITH NO GRIT. THE SAME FINISH TYPE MUST BE USED FOR TOUCH UP.

(9) If thinning is required, use aliphatic naphtha.
(10) Let each layer of nonskid finish dry for 30 minutes before you apply the next coat.
(11) Spray, brush, or roll one or more coats to get a dry film thickness of 0.005 to 0.007 inches (6 to 8 ounces per square yard).

NOTE: Do not paint over seals

(12) Spray, brush, or roll on the black Traffictred (arrows). Make sure the finished arrows are solid black.
(13) Let the nonskid finish dry for 24 hours at 70°F.

NOTE: You must remove the masking tape before the finish is fully dry.

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HEAT, WEATHER AND OIL RESISTANT INORGANIC PROTECTIVE COATING - CLEANING/PAINTING

1. General
   A. This section outlines the requirements for application of weather, fuel, oil, solvent and heat resistant protective coatings. The coatings afford corrosion protection to 900°F.

      WARNING: FINISHES, CLEANERS, STRIPPERS, AND SOLVENTS USED IN THIS SUBJECT CONTAIN TOXIC AND FLAMMABLE COMPONENTS. AVOID BREATHING VAPORS AND MIST. USE WITH ADEQUATE VENTILATION. PROVIDE APPROVED RESPIRATORY PROTECTION AS REQUIRED. DO NOT GET IN EYES. AVOID CONTACT WITH SKIN AND CLOTHING. USE PROTECTIVE EQUIPMENT AS REQUIRED. KEEP FLAMMABLE MATERIALS AWAY FROM SOURCES OF IGNITION.

2. Equipment and Materials
   A. Turco 4181, or equivalent
   B. Solvent - BMS 3-2, Type 1 or 2, or Aliphatic Naphtha TT-N-95
   C. Abrasives - 100 to 250 (Tyler Series) Mesh Silica, Alumina or Silicon Carbide
   D. Compressed air
   E. Gloves - clean, white cotton or disposable polyethylene gloves
   F. Standard spray painting equipment, or electrostatic spray painting equipment
   G. Sermetel 249 and Sermetel 273 Catalyst
   H. Buffing equipment - stiff-bristle brush, or soft brass wire brush, or soft cloth buffing wheel
3. Stripping
   A. Immerse parts in Turco 4181 (1-2 pounds per gallon of solution) or equivalent at 190 to 210°F until coating is completely removed.
   B. Water rinse.
   C. Oven dry at 200 (± 25)°F.
   D. Prepare surfaces and re-coat per paragraph 4.

      NOTE: The use of chlorinated solvents on titanium is prohibited.

4. Application
   A. Solvent clean as follows:
      (1) Parts made from titanium or its alloys: Solvent clean with non-chlorinated solvent.
      (2) Parts made from ferrous alloys: Vapor degrease or solvent clean.
   B. Dry grit blast with clean 100 to 250 (Tyler Series) mesh silica, alumina or silicon carbide.

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C. Clean with compressed air to remove residual grit and any contaminants. Do not handle parts with bare hands following the cleaning operation. Clean, white cotton gloves or disposable polyethylene gloves must be used to avoid contamination of the cleaned parts.

D. Cover or enclose grit blasted parts until coating. Apply coating within 4 hours.

E. Using standard, continuously stirred spray painting equipment or electrostatic spray painting equipment, coat the parts with Sermetel 249 until a uniform gray coating is obtained. Ensure that the material is thoroughly mixed before use.

F. Dry the coated parts 30 minutes at ambient temperature. The coating shall have a uniform smooth gray color after drying. Apply one coat of Sermetel 273 catalyst to the coated area and allow to cure for 16 hours or 4 hours at 300 (± 50)°F. Mask all adjacent finishes to prevent contact with the catalyst. There shall be no lumps or runs visible in the cured coating.

NOTE: Do not mix the coating with the catalyst.

G. The final coating shall be 0.002 to 0.003 inch thick. Repeat steps E and F to meet thickness requirements.

5. Polishing and Buffing

A. Cured coatings may be brought to a high metallic polish by burnishing with a stiff-bristle brush, with a very soft brass wire brush or with a soft cloth buffing wheel.

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DECORATIVE PAINT SYSTEM - CLEANING/PAINTING

1. General
   A. This subject contains procedures for all approved BMS 10-72 decorative paint system; refer to par. 3 for a listing.

      NOTE: For re-painting of airplanes already in service, Boeing recognizes and supports the use of paint systems that are tested to and meet the AMS3095 or Boeing Specs.

   B. Procedures are also given for paint systems not described by BMS 10-72. Refer to par. 4.
2. Equipment and Materials
   A. Finishes (Ref 20-30-41)
      (1) Primer - BMS 10-11, Type 1 (yellow and green)
      (2) Primer - BMS 10-79
      (3) Exterior Decorative Paint System - BMS 10-72 (AMS3095)
      (4) Exterior Decorative Enamel - BMS 10-60, type II
   B. Spray equipment
   C. Abrasives (Ref 20-30-51)
      (1) Scotchbrite pads
      (2) Abrasive paper, 400 grit or finer, and 280 grit or finer
   D. Tack rags
   E. Cheesecloth
   F. Solvents - Final Cleaning of Metal Prior to Painting (Series 84) (Ref AMM 20-30-84); Final Cleaning of Solvent Resistant Organic Coatings Prior to Painting (Series 86) (Ref AMM 20-30-86)
   G. Masking tape (Ref 20-30-51)
   H. Stripper - Turco 5351 (Ref 20-30-31)
3. BMS 10-72 Decorative Paint Systems

   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.

   A. BMS 10-72, Type 1, (Bastic Finch Wash Primer, Intermediate Primer and Enamel)
      (1) Prepaint clean and pretreat surface (Method 1)(Ref 51-21-21 Cleaning/Painting)
      (2) Apply decal markings as necessary.
      (3) Apply wash primer 364-1 per par. 5 and 6.
      (4) Apply intermediate primer 463-6-5 per par. 5 and 6.
      (5) Apply enamel topcoat 463-3 and 643-3 per par. 7 and 8. For 683-3 metallic enamel colors, refer to par. 9.
   B. BMS 10-72, Type I (U.S. Paint Wash Primer, Intermediate Primer and Enamel)
      (1) Prepaint clean and pretreat surface (Method 1)(Ref 51-21-21, Cleaning/Painting).

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(2) Apply decal markings as necessary.
(3) Apply wash primer C22Y-7245 per par. 5 and 6.
(4) Apply intermediate primer AA92-I-6 per par. 5 and 6.
(5) Apply enamel topcoat AA92 per par. 7 and 8. For metallic enamel colors, refer to par. 9.

C. BMS 10-72, Type I (U.S. Paint Wash Primer, U.S. Paint Intermediate Primer and Finch Enamel)
(1) Prepaint clean and pretreat surface (Method I) (Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply wash primer C22Y-7245 per par. 5 and 6.
(4) Apply intermediate primer AA92-I-6 per par. 5 and 6.
(5) Apply enamel topcoat 643-3 and 663-3 per par. 7 and 8. For 683-3 metallic enamel colors, refer to par. 9.

D. BMS 10-72, Type I (Sterling Wash Primer, Intermediate Primer and Enamel)
(1) Prepaint clean and pretreat surface (Method I) (Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply wash primer M3225 per par. 5 and 6.
(4) Apply intermediate primer U-1000 per par. 5 and 6.
(5) Apply enamel topcoat U-10XX-3 per par. 7 and 8. For metallic enamel colors, refer to par.
(6) 9.

E. BMS 10-72, Type II (Alodine 1000 or 1200, BMS 10-11 Primer and Finch Enamel)
(1) Prepaint clean and pretreat surface (Method II) (Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply BMS 10-11 primer, Finch 463-6-5, per par. 5 and 6.
(4) Apply enamel topcoat 643-3 and 663-3 per par. 7 and 8. For 683-3 metallic enamel colors, refer to par. 9.

F. BMS 10-72, Type III (Alodine 1000 or 1200, BMS 10-79, Type II Primer and Finch Enamel)
(1) Prepaint clean and pretreat surface (Method II) (Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply BMS 10-79, Type II primer, DeSoto 513-329 per par. 5 and 6.
(4) Apply enamel topcoat 643-3 and 663-3 per par. 7 and 8. For 683-3 metallic enamel colors, refer to par. 9.

G. BMS 10-72, Type III (Alodine 1000 or 1200, BMS 10-79, Type II Primer and U.S. Paint Enamel)
(1) Prepaint clean and pretreat surface (Method II) (Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply BMS 10-79, Type II primer, DeSoto 513-329, per par. 5 and 6.
(4) Apply enamel topcoat AA92 per par. 7 and 8. For metallic enamel colors, refer to par. 9.

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H. BMS 10-72, Type III (Alodine 1000 or 1200, BMS 10-79, Type II Primer and Sterling Enamel)
(1) Prepaint clean and pretreat surface (Method II)(Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply BMS 10-79, Type II primer, DeSoto 513-329, per par. 5 and 6.
(4) Apply enamel topcoat U-10XX per par. 7 and 8. For metallic enamel colors, refer to par. 9.

4. Decorative Paint System (Not Described by BMS 10-72)
A. BMS 10-60, Type II (Alodine 1000 or 1200, BMS 10-79, AMS3095, Type II Primer and DeSoto Enamel)

NOTE: For re-painting of airplanes already in service, Boeing recognizes and supports the use of paint systems that are tested to and meet the AMS3095 or Boeing Specs.

(1) Prepaint clean and pretreat surface (Method II)(Ref 51-21-21, Cleaning/Painting).
(2) Apply decal markings as necessary.
(3) Apply BMS 10-79, Type II primer, DeSoto 513-329, per par. 5 and 6.
(4) Apply enamel topcoat 822-T-203 per par. 7 and 8. For metallic enamel colors, refer to par.
(5) 9.

5. Primer Mixing
A. The primer consists of a two-component kit containing resin base and curing agent. Thinner is supplied separately when required.
B. Agitate the primer base material and curing agent thoroughly just prior to mixing. Agitate sufficiently to incorporate all solids that may have settled out during storage.
C. Catalyze the primer by adding the proper amount of curing agent to resin base according to Fig. 701. Stir the base continuously while adding the curing agent. Immediately after catalyzing, thin the primer with the proper amount of reducer required for spray viscosity according to Fig. 701.
D. Label the container with the date and hour of mixing and the date and hour the pot life expires.
E. Spray equipment used for wash prime r must be clean. Flush out with alcohol before and after using.

CAUTION: PRESSURE POT LINERS AND EQUIPMENT OF STAINLESS STEEL WILL RESIST ATTACK BY THE ACID IN THE WASH PRIMER. DO NOT USE ALUMINUM LINERS.

F. Spray equipment used for application of other primers shall be thoroughly flushed with methyl ethyl ketone (MEK) or methyl isobutyl ketone (MIBK) and dried before and after use.

6. Primer Application
A. Do not apply wash primer over previously painted surfaces.
B. Wash primer films that are too thick or that have cured over 4 hours shall be stripped according to 51-21-21, Paint Stripping, and reapplied.

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Primers
Figure 701 (Sheet 1)

PRIMERS							
Material Designation per BMS 10-72	Mixing Ratio Parts by Volume	Induction Period	Pot Life	Mils Dry Film	Dry Time to Recoat	Dry Time to Tape *[2]	Spray Viscosity #2 Zahn
BOSTIK-FINCH wash primer Base: 364-2-1 Catalyst: CA-122 Thinner: T-31	 1 1 1 max	15 min	4 hrs below 90°F	0.2 to 0.4	45 min to 4 hrs	N/A	15 to 18 sec
U.S. Paint wash primer Base: C22Y-7245 Catalyst: 66-C-72755 Thinner: None req'd	 1 1 -	15 min	4 hrs below 90°F	0.2 to 0.4	45 min to 4 hrs	N/A	15 to 18 sec
Sterling wash primer Base: M3225 Catalyst: M3226 Thinner: U-1014 or Reducer: U-1275	 1 1 1/2 max	15 min	4 hrs below 90°F	0.2 to 0.4	45 min to 4 hrs	N/A	15 to 18 sec
BOSTIK-FINCH BMS 10-11 epoxy primer (Intermediate) Base: 463-6-5 Catalyst: X-306 Thinner: TL-52 Retarder: tl-82	 3 1 4/5 max 4/5 max	30 min	16 hrs	0.5 to 0.7	2 to 96 hrs *[1]	45 min at 75°F	18 to 20 sec

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PRIMERS							
Material Designation per BMS 10-72	Mixing Ratio Parts by Volume	Induction Period	Pot Life	Mils Dry Film	Dry Time to Recoat	Dry Time to Tape *[2]	Spray Viscosity #2 Zahn
U.S. Paint urethane primer (Intermediate)							
Base: AA92-I-6	2	30 min.	8 hrs	0.5 to 0.8	2 to 96 hrs *[1]	2.75 hrs at 90°F	18 to 20 sec
Catalyst: AA92-C-33	1						
Thinner: T-888	as req'd						
Sterling urethane primer (Intermediate)							
Base: U-1000	2	30 min.	8 hrs	0.5 to 0.8	2 to 48 hrs *[1]	2.75 hrs at 90°F	18 to 20 sec
Catalyst: U-1000	1						
Thinner: U-1014 or Reducer: U-1275	25%						
DeSoto BMS 10-79 epoxy primer							
TYPE I							
Base: 513-731	1	30 min.	8 hrs	0.5 to 1.0	1 to 48 hrs *[1]	1 hr at 75°F	18 to 20 sec
Catalyst: 910-709	1						
Thinner: None req'd	-						
TYPE II							
Base: 513X329	1	30 min.	8 hrs	0.4 to 1.0	1 to 24 hrs *[1]	2 hrs at 75°F	18 to 20 sec
Catalyst: 910X456	1						
Thinner: None Req'd	-						

*[1] Where these maximum dry times are exceeded, reactivation by sanding and solvent cleaning is required according to 51-20-2, Prepaint Cleaning and Pretreatment (Previously Painted Surfaces).

*[2] Dry to tape time values are approximate. Tape after removal shall have had no visible effects on the primer film.

Primers
Figure 701 (Sheet 2)

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Enamel Topcoats
Figure 702 (Sheet 1)

ENAMELS, TOPCOAT						
Material Designation per BMS 10-72	Mixing Ratio Parts by Volume	Induction Period	Pot Life	Mils Dry Film	Dry Time to Tape *[1]	Spray Viscosity #2 Zahn
<u>Enamel, Gloss</u>						
BOSTIK-FINCH						
Base: 643-3 Catalyst: X-310A Thinner: TL-59	3 1 as req'd	30 min	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 23 sec
U.S. Paint						
Base: AA92-XX Catalyst: AA92-C-49 Thinner: T-816	1 1 1/4 max	30 min	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 23 sec
Sterling						
Base: U-10XX-3 Catalyst: U-1001-3 Thinner: U-1014 or Reducer: U-1275	1 1 25%	none req'd	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	18 to 20 sec
DeSoto						
Base: 822-T-203 or 800 Series Catalyst: 910X331A Thinner: None	2 1 0	none	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 18 sec

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Enamel Topcoats
Figure 702 (Sheet 2)

ENAMELS, TOPCOAT						
Material Designation per BMS 10-72	Mixing Ratio Parts by Volume	Induction Period	Pot Life	Mils Dry Film	Dry Time to Tape *[1]	Spray Viscosity #2 Zahn
Enamel, Flat						
BOSTIK-FINCH						
Base: 663-3 flat Catalyst: X310A Thinner: TL-59	4 1 as req'd	30 min	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 23 sec
U.S. Paint						
Base: AA92-XX Catalyst: AA92-C-49 Thinner: T-816 or T-295	2 1 1 max	30 min	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 23 sec
Sterling						
Base: U-10XX-3 Catalyst: U-1146 Thinner: U-1014 or Reducer: U-1275	2 1 as req'd	30 min	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 23 sec
BMS 10-60 Type II Enamel						
Gloss, semi-gloss, flat, clear and metallic						
DeSoto						
Base: 822-T-203 or 800 Series Catalyst: 910-152 Thinner: 020X310	2 1 1 max	none	3 to 4 hrs	1.8 to 4.8	4 hrs at 90°F	17 to 18 sec

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Enamel Topcoats
Figure 702 (Sheet 3)

ENAMELS, TOPCOAT						
Material Designation per BMS 10-72	Mixing Ratio Parts by Volume	Induction Period	Pot Life	Mils Dry Film	Dry Time to Tape *[1]	Spray Viscosity #2 Zahn
Enamel, Metallic						
BOSTIK-FINCH						
Base: 683-3 clear + gold	3	5 min	1 hr	Metallic & Clear 1.8 to 4.8	2 hrs at 70 to 100°F before clear topcoat	15 to 20 sec
Catalyst: X-310A	1					
Thinner: TL-59	as req'd					
Clear Overcoat						
Base: 683-3	3	30 min	3 to 4 hrs	Metallic & Clear 1.8 to 4.8	4 hrs at 90°F	15 to 20 sec
Catalyst: X-310A	1					
Thinner: TL-59	as req'd					
U.S. Paint						
Base: AA92-C-45 clear + gold	1	5 min	1 hr	Metallic & Clear 1.8 to 4.8	2 hrs at 70 to 100°F before clear topcoat	15 to 20 sec
Catalyst: AA92-C-31	1					
Thinner: T-816	as req'd					

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Enamel Topcoats
Figure 702 (Sheet 4)

ENAMELS, TOPCOAT						
Material Designation per BMS 10-72	Mixing Ratio Parts by Volume	Induction Period	Pot Life	Mils Dry Film	Dry Time to Tape *[1]	Spray Viscosity #2 Zahn
Clear Overcoat						
Base: AA92-C-45 Catalyst: AA92-C-31 Thinner: T-816	1 1 as req'd	30 min	3 to 4 hrs	Metallic & Clear 1.8 to 4.8	4 hrs at 90°F	15 to 20 sec
Sterling						
Base: U-10XX-3 clear + gold Catalyst: U-1001-3 Thinner: U-1014 or Reducer: U-1275	1 1 as req'd	5 min	1 hr	Metallic & Clear 1.8 to 4.8	2 hrs at 70 to 100°F before clear topcoat	15 to 20 sec
Clear Overcoat						
Base: U-10XX-3 Catalyst: U-1001-3 Thinner: U-1014 or Reducer: U-1275	1 1 as req'd	30 min	3 to 4 hrs	Metallic & Clear 1.8 to 4.8	4 hrs at 90°F	15 to 20 sec

*[1] Dry to tape time values are approximate. Tape after removal shall have had no visible effects on the primer film.

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C. The primer dry-to-tape time is dependent on temperature and humidity and is given in Fig. 701 as a guide only. This time may be shortened or lengthened as need be, providing the tape after removal has had no visible effects on the primer film.

D. If over-spray or other surface roughness of the primer film is apparent, lightly hand-sand the dry primer with 400 or finer grit abrasive paper or Scotchbrite pads. Use extreme care to prevent removal of the primer to substrate. If this occurs, repair per par. 9.

E. Primer films that are soiled from dust, dirt and /or paint over-spray, or that have been sanded shall be carefully cleaned immediately prior to over-coating by wiping with a tack rag.

7. Enamel Mixing

A. Enamel consists of a two-component kit containing resin base and catalyst. Thinner is supplied separately.

B. Agitate the enamel base material thoroughly just prior to mixing. Agitate sufficiently to incorporate all solids that may have settled out during storage.

C. Catalyze the enamel by adding the proper amount of catalyst to resin base according to Fig. 702. Stir the base continuously while adding the curing agent. Immediately after catalyzing, thin the enamel with the proper amount of reducer required for spray application (Fig. 702).

NOTE: Failure to thin Sterling enamel immediately may result in a shorter pot life.

D. Label container with date and hour of mixing and date and hour the pot life expires.

8. Enamel Application

A. General

(1) Where enamel colors are applied over white the total enamel thickness is not to exceed 4.8 mils (0.0048 inch).

(2) The dry-to-tape time at 90°F is approximately 4 hours. This drying time is dependent on temperature and humidity and is given here as a guide only. The time may be varied providing the tape after removal has had no visible effects on the enamel film. The exact time can best be determined on practice panels under shop conditions identical to those under which the airplane is painted.

(3) Cure 8 hours minimum before exposing the paint to rain or outdoor temperatures below 70°F.

CAUTION: PAINT DOES NOT DEVELOP MAXIMUM REISTANCE TO HYDRAULIC FLUID FOR APPROXIMATELY 7 DAYS AT 70°F OR ABOVE.

(4) Cure paint used for touchup on fasteners, rivet heads, scratches, etc (not to exceed 36 square inches) for a minimum of 8 hours at temperatures above 70°F.

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B. The recommended procedure for application of enamel is to apply two to three coats with 15 to 20 minutes dry time between coats.

9. Metallic Enamel

A. General

(1) This paragraph describes surface preparation, mixing, application, and cure of the decorative metallic paint system. This system consists of an exterior metallic color coat plus an exterior clear overcoat.

NOTE: The application instructions for the clear overcoat apply for its use over all colors.

(a) Apply the total BMS 10-72 system specified on the drawing.

NOTE: Enamel barrier coat is not required for use on fiberglass nor under aluminum pigmented metallic paints.

(b) Mask as required to isolate the area to be overcoated with metallic paint.

(c) Apply BMS 10-72 metallic enamel according to par. 8.C.

B. Metallic Enamel Mixing

(1) The exterior metallic color coat consists of a three-component kit containing component A, clear resin base, component B, catalyst and component C, metallic powder, component D, thinner is supplied separately.

(2) Mix the materials in clean containers without organic liners.

(3) Add approximately 1/3 by volume of component A, resin base, to component C, powder, and stir into a smooth paste. Mix thoroughly. Add the remainder of the resin base, while stirring. Slowly add the catalyst to the powder-resin mixture while stirring. Shake for 3 to 5 minutes, then let stand for 5 minutes without agitation. Label the container with the time of mixing and time the pot life expires (4 hours for aluminum powder pigmented systems and 1 hour for gold powder pigmented systems). Do not use material whose pot life has expired.

(4) Hand-stir for 3 to 5 minutes and strain through cheesecloth or an equivalent strainer. Just prior to application, thin as required for spray consistency with component D thinner.

(5) Mix clear enamel overcoat according to enamel mixing instructions of par. 6 and Fig. 702.

(6) Clean spray gun equipment with toluene.

C. Metallic Enamel Application

(1) Apply one light coat and allow to dry until it begins to lose tackiness, then apply a wet cross coat to obtain uniform flowout without producing runs or sags.

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(2) Cure 8 hours at 70°F or higher before exposure to rain or outdoor temperatures below 75°F.

10. In Process Correction
    A. Surfaces with Minor Damage (Not to Bare Metal)
        (1) Sand smooth with 280 grit or finer wet or dry abrasive paper.
        (2) Remove sanding dust with a clean cheesecloth saturated with solvent, Series 86 (Ref AMM 20-30-86); wipe dry with clean cheesecloth.
        (3) Reprime if necessary masking surrounding areas. Feather the edges of the dry primer with Scotchbrite pads to make a smooth finish.
        (4) Remove masking and repaint enamel. Spray overlap to make a continuous unblemished surface.
    B. Areas with Extensive Damage (Bare Metal Exposed)
        (1) Strip paint film from the damaged area per 51-2-21, Paint Stripping (use Turco 5351 only) or sand to a smooth surface taking care not to sand to bare metal. Feather the edges of the adjacent area with 280 grit or finer abrasive paper wet with water.

            CAUTION: DO NOT ALLOW PAINT STRIPPER TO CONTACT FIBERGLASS OR SEAMS OF ADHESIVE BONDED PARTS.

        (2) Remove sanding dust with clean cheesecloth saturated with solvent, Series 86 (Ref AMM 20-30-86). Wipe dry with clean cheesecloth.
        (3) Reapply appropriate primer systems and topcoats as required. Feather all edges to make a continuous smooth finish.
    C. Areas with Defective Paint Films (Sags, Runs, Drips or Orange Peel)
        (1) Sand area to the degree necessary to correct defects using 280 or finer wet or dry abrasive paper. Feather the edges into surrounding area.
        (2) Wipe sanding residue from area with cheesecloth dampened with solvent, Series 86 (Ref AMM 20-30-86).
        (3) Touch up with appropriate enamel.
11. Paint Exterior Decorative Finishes
    A. Do not paint pressure relief valve or outflow valve. Paint may prevent pressure relief valve or outflow valve from proper operation. No paint should be applied for a one-inch wide circular band around or on the pressure relief valve doors or outflow valve.

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SEALS AND SEALING - DESCRIPTION AND OPERATION

1. General
   A. Certain portions of the airplane structure are sealed to prevent the passage of gases or liquids through the many small gaps which normally exist at joints in fabricated structures (Fig. 1 and 2). Sealing is accomplished by the application of sealing compounds to the crevices, edges and joints through which a fluid might pass. The specification of the sealant used depends upon such factors as its required resistance to the effects of certain fluids and temperatures. In addition to sealing requirements contained in this section, installation drawings for specific items may require more extensive sealing.
   B. Most of the structural sealing on the airplane contributes to the formation of three large separate chambers: the pressurized zone of the fuselage and the integral fuel tank of each wing.
   C. Several other local areas of structure are sealed to provide protection from, and proper drainage of, certain fluids. Examples of this are the areas below the toilets, galley, access doors, and battery stowage.

      CAUTION: TO PREVENT STRUCTURAL CORROSION, CARE MUST BE TAKEN TO ENSURE STRUCTURE DRAIN HOLES AND DRAIN PATHS ARE NOT INADVERTENTLY COVERED OR FILLED WITH SEALING COMPOUND DURING SEALING OPERATIONS.

   D. In the area of the engines, sealant is used to prevent possible penetration of flammable or hot gases into the wing.
   E. Sealing compounds are used to obtain aerodynamic smoothness on exterior surfaces of the fuselage, wing and empennage.

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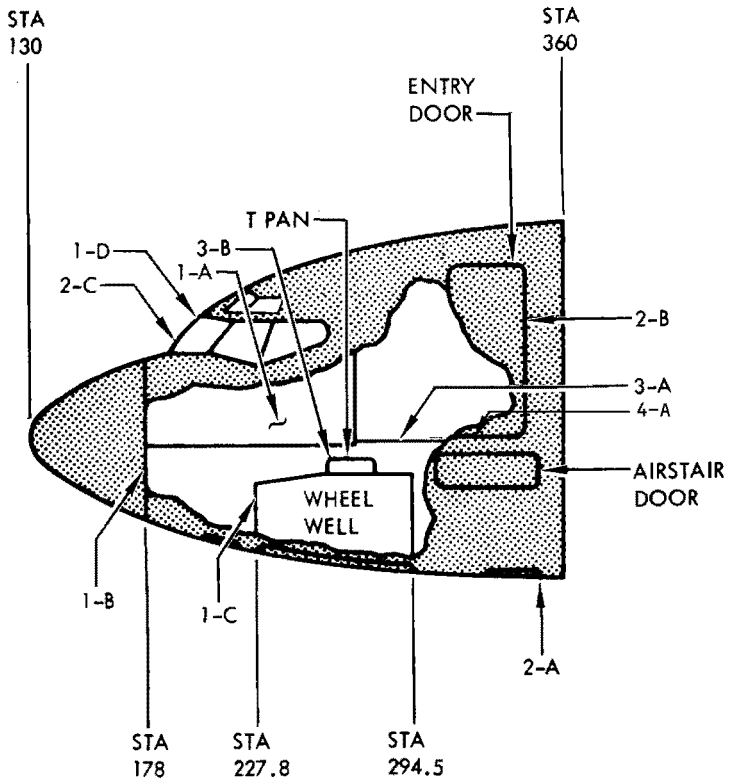

41 SECTION REQUIREMENTS

PRESSURE SEAL (PRESSURE SEALANT)

1-A (EXTENSIVE) - INSIDE CONTOUR OF APL

1-B (EXTENSIVE) - AFT SURFACE OF STA 178 BHD

1-C (EXTENSIVE) - APL SIDE OF WHEEL WELL

1-D (EXTENSIVE) - CAB WINDOWS SEALED PER BAC5505 PER WINDOW INSTL DWGS

WEATHER SEAL (PRO-SEAL 898 B8)

2-A (INTERMEDIATE) - ALL EXTERNAL NONBONDED SEAMS & GAPS

2-B (LIMITED) - ALL GAPS IN EDGES OF STRUCTURE AT DOOR CUTOUTS

2-C (LIMITED) - CAB WINDOW GAPS SEALED PER BAC5505 PER WINDOW INSTL DWGS

LIQUID SEAL (PRESSURE SEALANT EXCEPT AS NOTED)

3-A (ABSOLUTE) - TOP SURFACE OF FLOORS IN TOILET, GALLEY & ENTRYWAY

3-B (ABSOLUTE) - TOILET SERVICE PAN (R SIDE)

FAYING SURFACE (REMOVABLE SEAL) PER BAC5000

4-A GALLEY DOOR AND ENTRY DOOR SCUFF PLATE

Seals and Sealing - Description
Figure 1 (Sheet 1)

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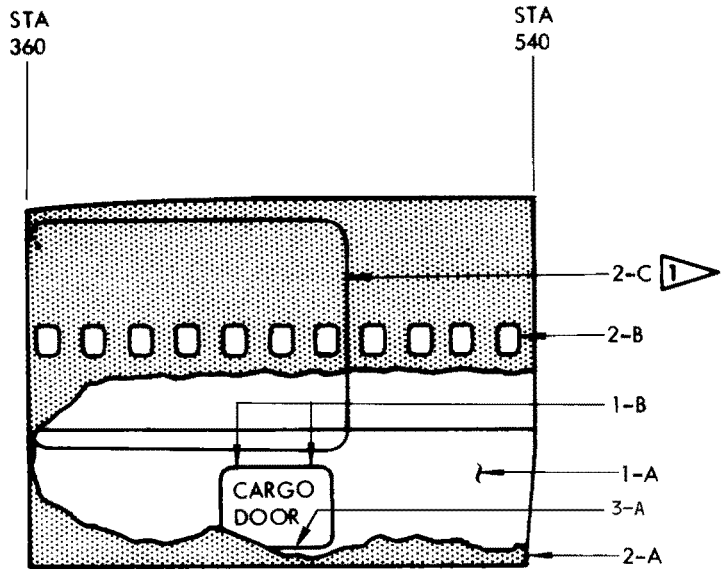

43 SECTION REQUIREMENTS

PRESSURE SEAL (PRESSURE SEALANT)

1-A (EXTENSIVE) - INSIDE CONTOUR OF APL

1-B (LIMITED) - CARGO DOOR HINGE BOXES (BETWEEN BODY FRAMES)

WEATHER SEAL (PRO-SEAL 898 B8 EXCEPT AS NOTED)

2-A (INTERMEDIATE) - ALL EXTERNAL NONBONDED SEAMS & GAPS

2-B (LIMITED) - GAPS BETWEEN WINDOW FTGS & BODY SKIN (AERO-SMOOTHER)

2-C (LIMITED) - ALL GAPS IN EDGES OF STRUCTURE AT DOOR CUTOUTS

FAYING SURFACE (REMOVABLE SEAL) PER BAC5000

3-A CARGO DOOR SCUFF PLATE

1 PASSENGER/CARGO CONVERTIBLE AIRPLANES

Seals and Sealing - Description
Figure 1 (Sheet 2)

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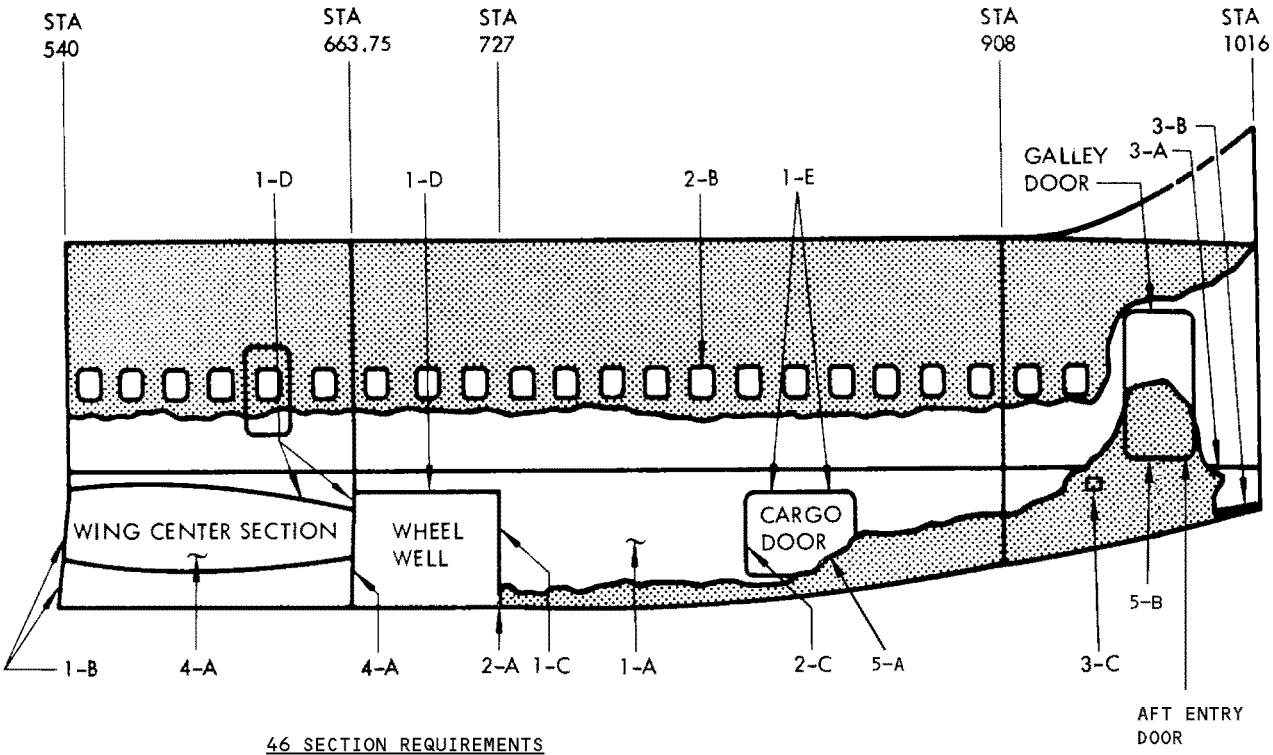

46 SECTION REQUIREMENTS

PRESSURE SEAL (PRESSURE SEALANT)

1-A (EXTENSIVE) - INSIDE CONTOUR OF APL

1-B (EXTENSIVE) - FWD SURFACE OF FRONT SPAR BHD

1-C (EXTENSIVE) - AFT SURFACE OF STA 727 BHD

1-D SEALED PER 65-47801 (REF) WING SEALING DWG

1-E (LIMITED) - CARGO DOOR HINGE BOXES (BETWEEN BODY FRAMES)

WEATHER SEAL (PRO-SEAL 898 B8 EXCEPT AS NOTED)

2-A (INTERMEDIATE) - EXTERNAL NONBONDED SEAMS & GAPS

2-B (LIMITED) - GAP BETWEEN WINDOW FTGS & SKIN INSTL (AERO-SMOOTHER)

2-C (LIMITED) - ALL GAPS IN EDGES OF STRUCTURE AT DOOR CUTOUTS

LIQUID SEAL (PRESSURE SEALANT EXCEPT AS NOTED)

3-A (ABSOLUTE) - TOP SURFACE OF FLOORS IN TOILET, GALLELY, & ENTRYWAY AREAS

3-B (ABSOLUTE) - TOILET SERVICE PAN (R SIDE)

3-C (INTERMEDIATE) - VACUUM RELIEF VALVE STANDPIPE

FUEL SEAL (FUEL SEALANT)

4-A SEALED PER 65-47801 (REF) WING SEALING DWG

FAYING SURFACE (REMOVABLE SEAL) PER BAC5000

5-A CARGO DOOR SCUFF PLATE

5-B AFT ENTRY DOOR (AND AFT GALLEY DOOR) SCUFF PLATE

Seals and Sealing - Description
Figure 1 (Sheet 3)

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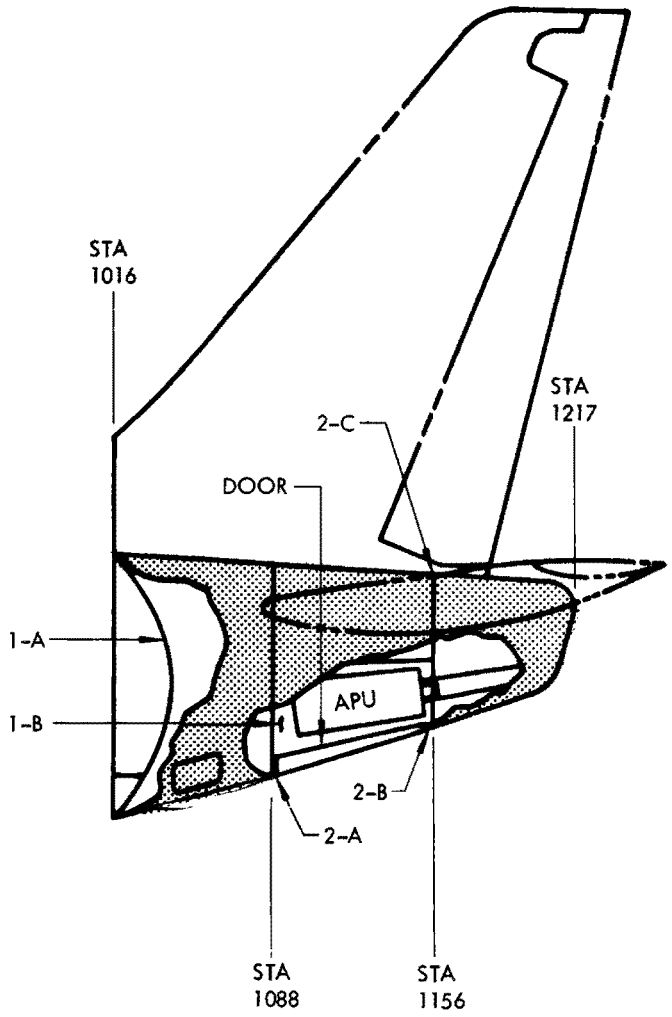

48 SECTION REQUIREMENTS

PRESSURE SEAL (PRESSURE SEALANT)

1-A (EXTENSIVE) - FWD SIDE OF STA 1016 BHD

1-B (EXTENSIVE) - PLENUM (R SIDE)

WEATHER SEAL (PRO-SEAL 898 B8)

2-A (INTERMEDIATE) - ALL EXTERNAL SEAMS & GAPS (ENTIRE PERIPHERY) (PRO-SEAL 895 OPTL FOR EXTERNAL GAPS)

2-B (LIMITED) - ALL GAPS IN EDGES OF STRUCTURE AT DOOR CUTOUTS

2-C (LIMITED) - ALL HOLES INTO 48 SECT, FROM OUTSIDE APL

Seals and Sealing - Description
Figure 1 (Sheet 4)

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APL SEC	DRAWING	TITLE
	65-43902	SEAL APPLICATION - FLOOR PANEL 2
	65-46901	SEAL APPLICATION - FLOOR PANELS 1
	65-46900	SEAL INSTL - CORROSION PROTECTION, BODY
48	65-76727	SEAL APPLICATION - STA 1016 BHD
48	65-46980	SEAL APPLICATION - SECTION 48
46	65-76725	SEAL APPLICATION - DOOR, AFT ENTRY
46	65-76724	SEAL APPLICATION - DOOR, AFT GALLEY
46	65-76723	SEAL APPLICATION - DOOR, AFT CARGO
46	65-76722	SEAL APPLICATION - STA 727 BHD
46	65-76721	SEAL APPLICATION - STA 540 BHD
46	65-76720	SEAL APPLICATION - PRESSURE AREA
46	50-9794	SEAL APPLICATION - EMERG EXIT DOOR
46	65-46964	SEAL APPLICATION - AFT ENTRY DOOR AIRSTAIR
43	65-76719	SEAL APPLICATION - DOOR, FWD CARGO
43	65-76718	SEAL APPLICATION - PRESSURE AREA
41	65-76717	SEAL APPLICATION - STA 178 BHD
41	65-76716	SEAL APPLICATION - DOOR, FWD GALLEY
41	65-76715	SEAL APPLICATION - ACCESS HATCHES
41	65-76714	SEAL APPLICATION - NOSE WHEEL WELL
41	65-76713	SEAL APPLICATION - PRESSURE AREA
41	65-22412	SEAL APPLICATION - FWD AIRSTAIRS DOOR
41	50-9799	SEAL APPLICATION - ENTRY DOOR
41	65-46912	SEAL APPLICATION - CAB
41	65-75577	DRAIN VALVE & SEALANT INSTL, FWD AIRSTAIRS SUMP - KIT 1
41	65-51268	FLOOR PANEL INSTALLATION 1
43	65-46819	FLOOR PANEL INSTALLATION 1
46	65-46820	FLOOR PANEL INSTALLATION 1
41	65-62190	FLOOR PANEL INSTALLATION 2
43	65-62119	FLOOR PANEL INSTALLATION 2
46	65-54887	FLOOR PANEL INSTALLATION 2
43	65-46932	SEAL APPLICATION - MAIN CARGO DOOR 2

SEALING NOTES

THIS FIGURE IS NOT AUTHORITY FOR APPLYING SEALANT. SEE SEAL DWGS NOTED, FOR SEALING INFORMATION AND ACTUAL SEAL COMPOUND TO BE USED.

EXCEPTION: OPTIONAL SEALANT NOTES ARE AUTHORITY TO USE OPTIONAL SEALANTS UNTIL APPLICABLE SEAL DRAWING IS CHANGED TO REFLECT OPTION.

OPTIONAL SEALANTS

PROSEAL 898 B8 IS THE REPLACING DESIGNATION FOR PROSEAL 890 B8 AND MAY BE PURCHASED AND USED UNDER THIS CALLOUT WHEN DRAWINGS CALL FOR PROSEAL 890 B8. PROSEAL 890 CLASS B OR C (BMS 5-44) IS OPTIONAL TO PROSEAL 898 B8

1 STANDARD PASSENGER AIRPLANES

2 PASSENGER/CARGO CONVERTIBLE AIRPLANES

Seals and Sealing - Description
Figure 1 (Sheet 5)

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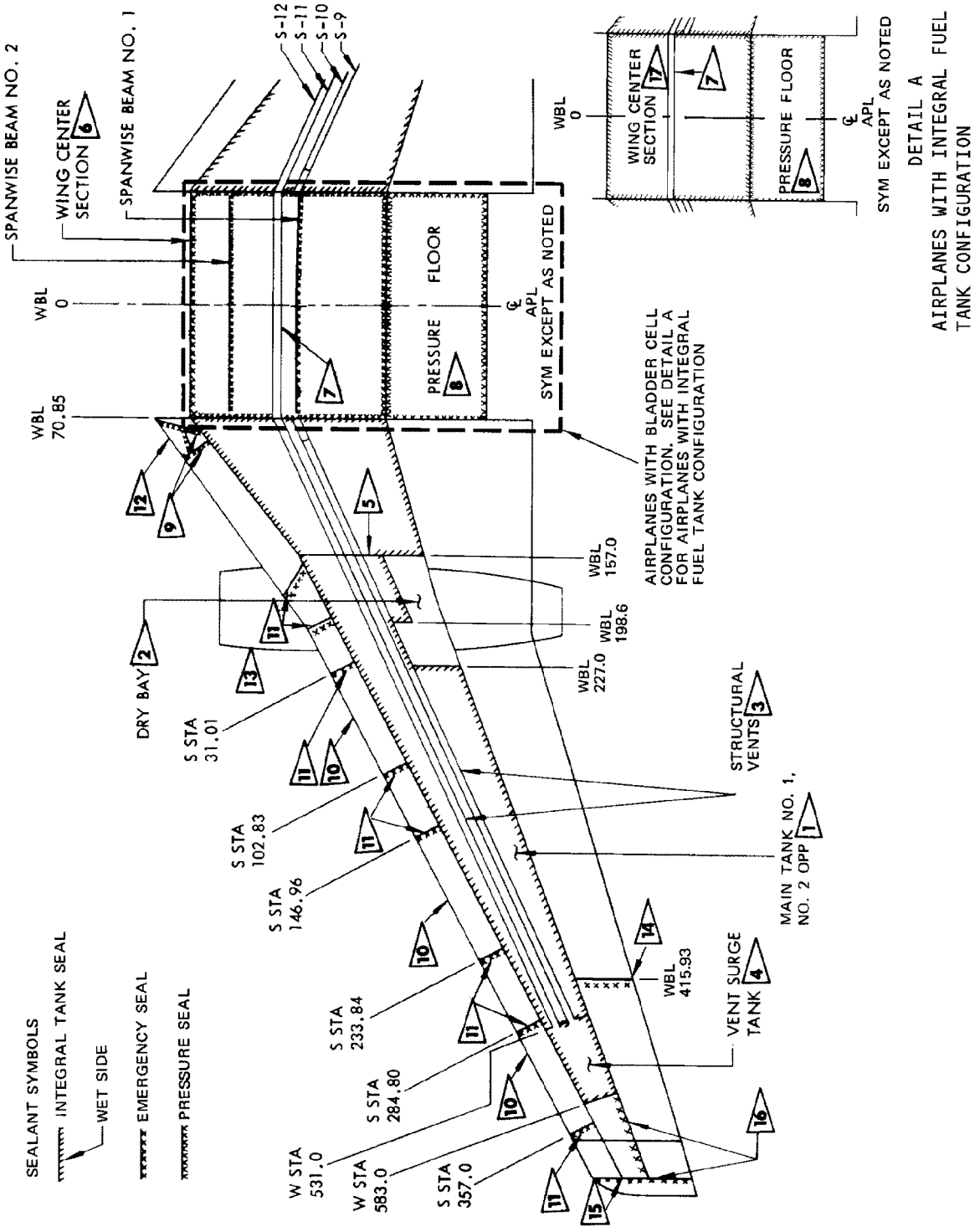

Seals and Sealing - Description
Figure 1 (Sheet 6)

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REQUIREMENTS

GENERAL

1. DO NOT PLUG DRAIN OR LIMBER HOLES.
2. ALL DOME TYPE NUTPLATES OR BOLTS WHICH PENETRATE THE INTERIOR OF THE TANK SEAL PLANE SHALL BE SEALED.
3. EALANT MAY BE APPLIED ON CORROSION PROTECTIVE COATING (BAC5793), WITH THE EXCEPTION OF THE DRY BAY, ONLY IN AREAS WHERE THE SEALANT BARRIER IS USED TO PREVENT AN INTANK LEAK, OR AS AN ISOLATION SEAL.
4. FUNCTIONAL LEAK TEST WING PER D6-17554.
5. IN AREAS OF THE VENTS & RIBS BETWEEN TANKS WHERE THE MANUFACTURED HEADS OF RIVETS MUST SEAL, THE SEALANT MAY BE OMITTED AS LONG AS THE HEADS HAVE BEEN MECHANICALLY SEALED PER D6-8777 OR BACR158D (SLUG) RIVET. THE RIVETS MUST FULFILL ALL FUNCTIONAL TEST REQUIREMENTS.
6. ALL MANUFACTURED HEADS OF RIVETS WHICH ATTACH VENT STIFFENERS (S-11 & S-12) TO UPPER SKIN OF THE WING CENTER SECTION SHALL BE SEALED PER BAC5504.

1 MAIN TANK #1, #2 OPPOSITE.

ABSOLUTE FUEL SEAL PER BAC5504 REQUIRED ON ALL INTERNAL BOUNDARIES OF TANK. ISOLATION FUEL SEAL PER BAC5504 REQUIRED AT INTERVALS ALONG ALL SEALED SEAMS.

2 DRY BAY (WBL 157 - WBL 227)

ABSOLUTE FUEL SEAL PER BAC5504 REQUIRED ON ALL INTERNAL & EXTERNAL BOUNDARIES. (DOES NOT APPLY TO REAR SPAR. SEE 65-47809). SEALANT MAY BE APPLIED OVER BMS 10-20 TYPE 1 ONLY ON EXTERNAL BOUNDARIES OF INTEGRRAL FUEL TANK (INSIDE OF DRY BAY) EXCEPT ON FIBERGLASS TANK WALLS.

SEALANT MAY BE APPLIED OVER BMS 10-20 TYPE 2 (FINCH PRIMER) ON INTERNAL AND EXTERNAL BOUNDARIES.

Seals and Sealing - Description
Figure 1 (Sheet 7)

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3 STRUCTURAL VENTS (INTEGRAL TANK)

ABSOLUTE FUEL SEAL PER BAC5504 ON INTERNAL AND EXTERNAL BOUNDARIES OF VENTS. SEE CORROSION PROTECTION REQUIREMENTS FOR INFORMATION ON SEALING OVER CORROSION PROTECTIVE COATING AND USE OF MECHANICALLY SEALED MANUFACTURED HEADS OF RIVETS.

4 VENT SURGE TANK

ABSOLUTE FUEL SEAL PER BAC5504 REQUIRED ON ALL INTERNAL BOUNDARIES OF TANK.

NOTE: IN THE AREAS OF AN ABSOLUTE FUEL SEAL IT IS NOT NECESSARY TO SEAL WHERE AN ABSOLUTE FUEL SEAL IS PROVIDED ON THE OPPOSITE SIDE.

5 BAFFLE RIB (WBL 157)

INTERMEDIATE FUEL SEAL PER BAC5504 REQUIRED ON RIB CHORD FLANGES COMMON TO THE SKINS.

6 WING CENTER SECTION (BLADDER CELL CONFIGURATION)

ABSOLUTE FUEL SEAL PER BAC5000 ENTIRE INTERIOR OF LOWER SURFACE.

ABSOLUTE FUEL SEAL PER BAC5000 3.0 INCHES UP FROM INTERIOR LOWER SURFACE ON ALL INTERNAL BOUNDARIES AND AFT SIDE OF BOTH SPANWISE BEAMS.

NOTE: IN THE AREAS OF AN ABSOLUTE FUEL SEAL IT IS NOT NECESSARY TO SEAL WHERE AN ABSOLUTE FUEL SEAL IS PROVIDED ON THE OPPOSITE SIDE.

INTERMEDIATE FUEL SEAL PER BAC5000, ALL INTERNAL BOUNDARIES OF TANK ABOVE ABSOLUTE FUEL SEAL.

NOTE: IN THE AREAS OF AN INTERMEDIATE FUEL SEAL IT IS NOT NECESSARY TO SEAL WHERE AN ABSOLUTE FUEL SEAL OF AN EXTENSIVE PRESSURE SEAL IS PROVIDED ON THE OPPOSITE SIDE.

EXTENSIVE PRESSURE SEAL, PER BAC5000, ENTIRE EXTERIOR UPPER SURFACE.

7 STRUCTURAL VENT (WING CENTER SECTION)

ABSOLUTE FUEL SEAL PER BAC5504 ON INTERNAL AND EXTERNAL BOUNDARIES OF VENT. A SECOND FUEL BARRIER SHALL BE LOCATED BETWEEN THE VENT AREA AND THE CABIN PRESSURE AREA BY DOUBLE SEALING ALL FASTENERS AND SEAMS WHICH ARE COMMON TO BOTH AREAS. SEALING APPLICATION FOR SECONDARY FUEL BARRIER SHALL BE PER BAC5000.

Seals and Sealing - Description
Figure 1 (Sheet 8)

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8 PRESSURE FLOOR

EXTENSIVE PRESSURE SEAL PER BAC5000 REQUIRED ON ENTIRE UPPER SURFACE OF PRESSURE FLOOR FROM B STA 664 TO B STA 727 AND FORWARD SURFACE OF VERTICAL WEB FROM WL 193.86 TO WL 202.6.

9 LEADING EDGE RIB AND BOOST PUMP CAVITY

ABSOLUTE FUEL SEAL PER BAC5000 APPLIED TO LEADING EDGE RIBS, FRONT SPAR AND BOOST PUMP CAVITY. SEE 65-47812 FOR SEALING INFORMATION.

10 THERMAL ANTI-ICING

LIMITED SEAL PER BAC5000 REQUIRED FOR LEADING EDGE SLATS.

11 LEADING EDGE RIB ISOLATION SEAL DAMS.

ISOLATION FUEL SEAL PER BAC5000 TO PROVIDE DAMS.

12 LANDING LIGHT

ABSOLUTE WEATHER SEAL PER BAC5000 ALL LIGHT COMPARTMENT BOUNDARIES AGAINST OUTSIDE ELEMENTS.

13 FIREWALL (NACELLE TO WING FAIRING)

INTERMEDIATE AND LIMITED SEAL PER BAC5000.

14 TRAILING EDGE RIB

LIMITED VAPOR SEAL PER BAC5000

15 WINGTIP (EMERGENCY SEAL)

LIMITED VAPOR SEAL PER BAC5000

16 CLOSURE RIB AND REAR SPAR, OUTBOARD OF VENT SURGE TANK

INTERMEDIATE SEAL PER BAC5000 (SEE 65-47812).

17 WING CENTER SECTION (INTEGRAL FUEL TANK CONFIGURATION)

1. ABSOLUTE FUEL SEAL REQUIRED ON ALL INTERNAL BOUNDARIES OF TANK PER BAC5504.

2. SEALANT REQUIRED AT ALL EXTERIOR MEMBERS ATTACHMENT BRACKETS, PROTRUDING HEAD FASTENERS, ETC., WHICH ARE FASTENED TO THE UPPER PANEL AND FRONT SPAR. THIS SEALANT PROVIDES A SMOOTH SURFACE FOR THE SECONDARY BARRIER COATING.

3. SECONDARY BARRIER COATING PER BAC5527 - VAPOR AND FUEL LEAK ISOLATION SEAL ON EXTERIOR SURFACE OF UPPER PANEL AND FRONT SPAR EXPOSED TO PRESSURIZED COMPARTMENTS OF THE AIRPLANE.

Seals and Sealing - Description
Figure 1 (Sheet 9)

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CORROSION PROTECTION REQUIREMENTS

APPLY CORROSION PROTECTIVE COATING F12.23 (BMS 10-20 PER BAC5793) TO INTEGRAL FUEL TANK AREAS AS FOLLOWS:

1. THE ENTIRE INTERIOR BOTTOM SURFACE AND FASTENERS, INCLUDING DETAILED PARTS WHICH HAVE PREVIOUSLY BEEN COATED WITH F12.23.

2. ALL INSTRUCTURE UP TO 2.5 INCHES ABOVE THE INTERIOR BOTTOM SURFACE WITH OPTIONAL COATING ON BAFFLES, ATTACH CLIPS, AND THE LOWER SURFACE OF THE STIFFENER UPPER FLANGES AS SHOWN:

COATING OPTIONAL

THIS TOP COATING SHALL INCLUDE PARTS WHICH WERE PREVIOUSLY COATED WITH F12.23, BUT EXCLUDE O-RING SEAL SURFACES

VENT STRINGER REWORK - CORROSION PROTECTION

ALL INTERIOR SURFACES OF STRUCTURAL VENTS (OPTIONAL USE OF EC776SR, APPLIED PER BAC5741, FOR FINISH TOUCH-UP ON INTERIOR SURFACES OF THE STRUCTURAL VENTS ONLY)

SPARS - CORROSION PROTECTION

APPLY CORROSION PREVENTIVE FILLET SEALING TO EXTERIOR SURFACES OF FRONT AND REAR SPARS PER 65-47802, 65-47803, 65-47812

Seals and Sealing - Description
Figure 1 (Sheet 10)

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REFERENCE SPECIFICATIONS

SEALING, GENERAL	BAC5000
FLUID TIGHT FASTENER INSTALLATION	BAC5047
MARKINGS IN INTEGRAL FUEL TANK AREAS	BAC5307
INTEGRAL FUEL TANK STRUCTURE SEALING	BAC5504
SEALING, GENERAL (F.S. AT BBL 70.85)(ADV 737)	BAC5510
SECONDARY FUEL BARRIER SEALANT	BAC5527
APPLICATION OF BUNA N TYPE COATING TO INTEGRAL FUEL TANK	BAC5741
CORROSION PROTECTION IN INTEGRAL FUEL TANKS	BAC5793

APL SEC	DRAWING	NOMENCLATURE
71	65-59637	SEAL APPLICATION - FIREWALL, NACELLE TO WING FAIRING
10 & 11	65-47814	SEAL APPLICATION - INBD FAIRING
12 & 14	65-47812	SEAL APPLICATION - LEADING EDGE & TRAILING EDGE
11	65-47811	SEAL APPLICATION - PRESSURE FLOOR
11	65-47810	SEAL APPLICATION - CENTER SECTION
12	65-47809	SEAL APPLICATION - DRY BAY WBL 157 - WBL 227
12	65-47808	SEAL APPLICATION - TANK END RIB W STA 583
12	65-47807	SEAL APPLICATION - TANK END RIB W STA 531
12	65-47806	SEAL APPLICATION - TANK END RIB WBL 70.85
12	65-47805	SEAL APPLICATION - LOWER PANEL
12	65-47804	SEAL APPLICATION - UPPER PANEL
12	65-47803	SEAL APPLICATION - REAR SPAR
12	65-47802	SEAL APPLICATION - FRONT SPAR
11	65-45411	STRUCTURE ASSY - WING CENTER SECTION
10	65-79938	SEAL APPLICATION - INBD LE WING (ADV 737)

Seals and Sealing - Description
Figure 1 (Sheet 11)

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2. Definitions of Levels of Sealing -
   A. Definitions for Figure 1, Body Sealing Index and Requirements.
      (1) Absolute Seal (no leakage allowed)
         (a) All holes, slots, joggles and seams in the seal plane shall be sealed. All fasteners require sealing.
      (2) Extensive Seal
         (a) All holes, slots, joggles and seams in the seal plane shall be sealed. Fasteners do not require sealing except for bolts and screws in class II or larger holes. Dome 0-ring type nutplates do not require sealing.
      (3) Intermediate Seal
         (a) All holes, slots, joggles and seams in the seal plane require sealing. Fasteners do not require sealing.
      (4) Limited Seal
         (a) All holes, slots and joggles shall be sealed. Seems and fasteners do not require sealing.
      (5) Special Seal
         (a) Seal per DWG.
   B. Definitions for Figure 2, Wing Sealing Index and Requirements.
      (1) Absolute Sealing
         (a) All seams, holes, slots, joggles and instructure fastened to the seal plane shall be sealed (except instructure attached with self-sealing fasteners). All fasteners require sealing except self-sealing fasteners which must be oriented correctly.
      (2) Extensive Sealing
         (a) A-11 seams, holes, slots, and joggles in the seal plane must be sealed. Fasteners in class II holes or larger in the seal plane must be sealed.
      (3) Intermediate Sealing
         (a) same as extensive sealing except fasteners do not require sealing.

Seals and Sealing - Description
Figure 1 (Sheet 12)

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(4) Limited Sealing
  (a) Same as extensive sealing except seams and fasteners do not require sealing.
(5) Emergency Sealing
  (a) A seal, which backs up a primary seal so as to become functional when primary seal failure occurs, and safely controls leakage. Bladder cells are considered primary seals.
(6) Isolation Sealing
  (a) A seal which limits traveling of fuel to facilitate leak detection.
(7) Secondary Barrier Coating
  (a) A fuel tank exterior coating for vapor and fuel protection on surfaces exposed to pressurized compartments of the airplane.

Seals and Sealing - Description
Figure 1 (Sheet 13)

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SEALS AND SEALING - MAINTENANCE PRACTICES

1. General
   A. During the course of structural or component inspection seals are to be examined for deterioration of compound and non-adherence. Any air leakage throughout the pressurized fuselage can normally be detected aurally when carrying out a fuselage pressure check. Fluid leakage can be detected by presence of fluid or fluid stains on the dry side of structural members. For detailed information of fuel leak detection and repair procedure, refer to Chapter 28, Fuel.

      WARNING: AVOID PROLONGED OR REPEATED SKIN CONTACT WITH SEALING COMPOUNDS. USE RUBBER GLOVES WHEN WORKING WITH SEALING COMPOUNDS.

2. Equipment and Materials
   A. General
      (1) All equipment used for application of sealing compound must be kept clean at all times. All equipment must be cleaned thoroughly after completing each job. Two part sealing compounds, which have been mixed with an activator, will harden and make cleaning of equipment difficult if not removed before they cure. Do not mix tools used with silicone with tools used with non-silicone materials.
         (a) Aluminum Oxide Papers - 250-grit
         (b) Aluminum Oxide Papers - 400-grit
         (c) Qualified Wipers
         (d) Cotton coveralls (no pockets, no metal buttons, etc.)
         (e) Thermal socks
         (f) Pencil brushes No. 3
         (g) Varnish brushes, 1 inch and 2 inch
         (h) Neoprene rubber gloves
         (i) Unsterilized gauze sponges, (all material shall contain less than 0.75 percent oil - by carbon tetrachloride extraction)
         (j) Pipe cleaners
         (k) Medicine dropper
         (l) Polyethylene wash bottles
         (m) Inspection mirrors - large
         (n) Flashlight - explosion proof
         (o) Fillet Fairing Tools - ST 982, A, B, and C

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(p) Sealant Removal Tools

NOTE: The tools listed below are approved tools to be used for removal of cured sealant from unpainted clad aluminum surfaces on the exterior of the fuselage including the outboard exposed surfaces of butt and circumferential splice surfaces.

Tools used for the removal of cured sealant from surfaces other than unpainted clad aluminum on the exterior fuselage shall not scratch those surfaces and shall not contain silicon, PTFE (polytetrafluoroethylene) or other material known to interfere with the adhesion of paint or sealant.

It is preferable that part numbers of approved sealant removal tools are permanently attached to those tools.

Sealant removal tools can also be used during cleaning and paint stripping.

1) Handle - P/N SHR 0272-T, AC Tech, Garden Grove, CA (use with P/N TS1275-4 scraper)
2) Handle - Rubber, Skyholder, P/N 310/1 Elixair International Limited, Dorchester DT2 8LY, UK (use with P/N 311 scraper)
3) Handle - Plastic, P/N SHN0272, PnJ Machining, Inc., Puyallup, WA (use with P/N DFD5019, P/N SCD5019, P/N SFD7519, or P/N DAD5013 scraper)
4) Handle - Wooden, P/N SHW0215, PnJ Machining, Inc., Puyallup, WA (use with P/N DFD5019, P/N SCD5019, P/N SFD7519, or P/N DAD5013 scraper)
5) Handle - Metal, P/N SHR0272, PnJ Machining, Inc., Puyallup, WA (use with P/N DFD5019, P/N SCD5019, P/N SFD7519, or P/N DAD5013 scraper)
6) Plastic Scraper (Use one of these plastic scrapers):

NOTE: Handles are available for some scrapers and can be purchased separately with the scrapers as listed above.

a) 6" length - rectangular with one end sharpened, P/N TS1275-4, AC Tech, Garden Grove, CA

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b) 9" length - tapered with both ends sharpened, P/N 1-6390-A, Bomatic, Inc., Ontario, CA
c) 6" length - rectangular with one end sharpened - 20 or 40 mm wide, P/N 10810, Custom Components LTD, Unit 3, Feltrim Business Park, Swords Co., Dublin
d) 5" length - rectangular with one end sharpened - 3, 23, 34, 38 mm widths and 4, 6 mm thicknesses and the other end designed to fit handle, P/N 311, Elixair International Limited, Dorchester DT2 8LY, UK
e) 9" length - rectangular with both ends sharpened, P/N ST982LF, General Tool & Supply, Tukwila, WA
f) 6" length - rectangular with one end sharpened, P/N 411B60, Jus N Type Tooling, Fallbrook, CA
g) 9" length - tapered with both ends sharpened, P/N 411B90, Jus N Type Tooling, Fallbrook, CA
h) 5" and 9" lengths - three widths: 1/2, 3/4, 1 (additional scrapers available from same material), P/N DFD5019, P/N SCD5019, P/N SFD7519, or P/N DAD5013, PnJ Machining, Inc., Puyallup, WA
i) 6" length - rectangular with one end sharpened, P/N 234350, PPG Aerospace, Semco Division

7) Skymill & Skybag - Pneumatic sharpener with bag, P/N 309/3 and P/N 310/3B, Elixair International Limited, Dorchester DT2 8LY, UK

NOTE: This pneumatic scraper sharpener can be used with most scrapers.

8) Squeegee - 4" length - rectangular, P/N J5-0275-2010, Cascade Plastics Co. Inc., Fife, WA

(q) Sealant Removal Strippers (Use one of these sealant removal strippers (AMM 20-30-31/201)):
1) Cee-Bee E-1058, McGean-Rohco, Inc. Atlanta GA
2) Eldorado PR-5044, Eldorado Chemical Company, Inc. San Antonio TX

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3) Elixair - Skyrestore (Thick), Elixair International Limited, Dorchester, England
4) Naftosolv FN, Chemetall GMBH, Frankfurt, Germany
5) Skycleen 2000 Aviation Cleaner, Solutia Inc. St Louis, MO
6) Turco 5351, Henkel Corporation, Madison Heights, MI

(r) Semco sealing gun, (6 inches length cartridge) Semco Research Inc., Inglewood, California
(s) Semco polyethylene nozzles - No. 254, 420, 600E, 620, 640, and 643
(t) Semco polyethylene cartridges - No. 250C6
(u) Semco Polyethylene Plungers - No. 240P
(v) Solvent - Final Cleaning Prior to General Sealing (Series 92) (AMM 20-30-92/201).
(w) Methyl isobutyl ketone (Ref 20-30-31)
(x) Tape - Permacel Tape No. 70 or 85, or American Tuck Tape No. 210 (Ref 20-30-51)
(y) Solvent - Final Cleaning Prior to Aerodynamic Smoothing and Fairing (Series 95) (Ref AMM 20-30-95)

3. Prepare for Sealing

A. Determine whether any structural repair is necessary and if so, refer to Structural Repair Manual.

CAUTION: AVOID BLOCKING OF EXTERIOR DRAIN HOLES AND INTERIOR DRAINAGE PATHS WITH SEALANT.

B. Examine sealing in area of leakage. Determine the seal level and seal plane in adjacent structure.

NOTE: The seal plane is defined as being the boundary plane through any assembly of structural items which presents a continuous barrier to flow of fluids or gases.

C. Identify type of sealant used in area of defect.
D. Determine type of seal; fillet, faying surface, etc.; which will be required to carry out repair.

NOTE: Do not interchange sealing compounds. The material originally used has been found to be the most efficient for sealing the area.

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E. Completely remove or notch sealant in affected area to produce a solid residual material:

CAUTION: MAKE SURE THAT YOU USE APPROVED SEALANT REMOVAL TOOLS TO REMOVE THE SEALANT. DO NOT USE METAL CUTTING TOOLS. METAL CUTTING TOOLS CAN CAUSE DAMAGE TO THE AIRPLANE SURFACE.

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 SCRIBE LINE MARKS. IF YOU USE ABRASIVE PADS TO REMOVE 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 737-53A1262.

(1) Remove the sealant with an approved sealant removal tool listed in the Equipment list, dry wiper, or clean cloth dampened with solvent.
   (a) If necessary, do these steps to sharpen the scraper:
      1) Sharpen the scraper with 220-grit or fine aluminum oxide paper by hand or by metal sharpening wheel.
      2) If you sharpen the scraper by hand, rub the sharpened scraper on qualified wiper to remove loose sanding particles.
      3) If you use a metal sharpening wheel, rub the sharpened scraper on 400-grit or finer aluminum oxide paper to remove debris, and then rub it on qualified wiper to remove loose sanding particles.

F. Examine rework area for clean cuts and adequate notching and for access. Loose chunks or flaps of sealant on cut areas shall be removed.
   (1) Make sure the sealant is removed completely to expose the surface.

G. Remove grease, oil, dirt, and chips, immediately prior to sealant application, from all surfaces to which sealing compound is to be applied.

NOTE: The importance of proper cleaning before application of a sealing compound cannot be too highly emphasized. Sealing compound will not stick to a dirty greasy surface. The entire purpose of applying the sealing compound is defeated if it falls off after application.

H. Do these two steps until no visible soil remains on the wiping cloth:
   (1) Clean only with unused, expendable gauze sponges, or equivalent absorbent materials, using clean solvent, Series 92 (AMM 20-30-92/201) from dispensers.

NOTE: Too much solvent will not make the surface cleaner, and it will remove more primer.

   (2) Wipe off all solvent while wet with a clean cloth.
      (a) If you fully remove primer from an area, apply primer after you complete all of the sealing.

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I. Clean an area wider than the width of the finally applied sealant.
J. Remove all solvent from assembled faying surfaces by blast of oil-free and water-free air.
K. Make a final cleaning with a cloth just damp with solvent and wipe dry.

NOTE: Use of grease or wax base markings shall not be allowed in areas to be sealed. Any such markings inadvertently occurring shall be removed prior to sealing by cleaning with cleaning solvent. Successive applications of solvent and wiping shall be made until no visible trace of the marking remains on final wiping cloth.

L. Apply sealing compound. Refer to the applicable paragraph for the procedure:
(1) Faying surface seals
(2) Injection seals
(3) Hole and slot seals
(4) Fillet seals
(5) Fastener sealing
(6) Aerodynamic smoother
(7) Installation and sealing of electrical seal fittings
(8) Fuel sealing
(9) Special sealing method for corrosion protection
(10) Protection of sealing materials
(11) Accelerated curing

4. Apply Faying Surface Seal
A. Apply Permanent Seal
(1) The sealant shall be uniformly applied to one faying surface with a tool that will not contaminate the faying surface or the sealant (such as a roller). The sealant shall be spread to cover the entire surface. Sealant shall be applied thick enough to completely mask surface underneath, yet thin enough to minimize size of the continuous bead required by par. (2). Recommended thickness range is 0.005 to 0.015 inch. Normally, approximately 0.005 inches of sealant is sufficient. However, about 0.010 to 0.030 inch thickness of sealant may be necessary depending upon fit-up of parts. In addition, a small bead of the same sealant may be applied near the edge of either faying surface to ensure positive squeeze-out of sealant.
(2) Sufficient sealant shall be applied so the space between the assembled faying surfaces is completely filled and a small excess is extruded continuously along the joint. Extruded sealant shall then be faired with a fairing tool so that a continuous, smooth fillet of approximately 0.06-inch depth is formed along the joint (Detail A, Fig. 201). This small fillet is necessary to assure adequate sealant contact with later applied fillet seals.

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(3) If possible, installation of all permanent fasteners shall be completed within the application time or squeeze-out life of sealant. If permanent fasteners cannot be installed within required time, temporary fasteners (e.g. wing-nuts, clecos, or bolts) shall be used in each fastener hole to hold parts firmly together until permanent fasteners can be installed. Removal of each individual temporary fastener shall be immediately followed by installation of a permanent fastener. If the drawing requires fastener to be sealed, fresh sealant shall be applied per par. 8. Maximum allowable separation of faying surfaces at shank of all permanent fasteners is 0.004 inch.

B. Apply Removable Seal

(1) Apply parting agent, Delchem X-769, or one part by weight of MIL-I-7444, vinyl tubing dissolved in four parts cyclohexonone, to one of the faying surfaces.

(2) Apply BMS 5-95 sealant to opposite faying surface. See step A.(1).

(3) Assemble parts when parting agent is dry to touch. See steps A.(2) and A.(3).

(4) If one faying surface is acrylic, apply parting agent to nonacrylic surface (Fig. 201).

CAUTION: WET PARTING AGENT REACTS WITH ACRYLIC AND MUST NOT BE APPLIED TO CONTACT ANY ACRYLIC SURFACE IN THE WET STATE.

5. Apply Injection Seal

A. Completely fill, with sealant, holes and joggles that require continuity of seal or block-off seals.

B. Inject sealant into one end of the cavity or injection hole if provided, with a Semco type flow gun, or equivalent, until sealant emerges from all other openings (Fig. 202).

CAUTION: TO PREVENT INCLUSION OF AIR IN SEALANT, NEVER COMPLETELY EMPTY A FLOW GUN. NEVER SEAL FROM BOTH ENDS OF CAVITY AS THIS TENDS TO CREATE AIR POCKETS AND POSSIBLE LEAKS WITHIN SEAL.

NOTE: When an opening is to be closed only for support of sealant, it is not necessary to inject the entire depth of the opening.

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C. When a seal is made at the bottom of a slot, apply the sealant so as to fill and have continuous contact with the bottom and sides of the slot (Fig. 202).

6. Apply Hole and Slot Seal
   A. Seal all tool and coordination holes that are not plugged with soft rivets because of inaccessibility.
   B. Overcoat rivets in absolute sealed areas with the appropriate sealant.
   C. Apply hole filling compound to the pressure side of the hole (Fig. 203).
   D. Back large slots and holes with masking tape.
   E. Remove the tape after the sealant is formed.
   F. Apply compound to the pressure side of the hole with spatula or suitable tool.
   G. Pack compound firmly into space being filled.
   H. Smooth the applied compound and feather into all contacting surfaces.
7. Apply Fillet Seal
   A. Apply sealant with a Semco-type flow gun, or equivalent.
   B. Point nozzle tip into the seam and maintain the line of travel.
   C. Force a bead of sealant ahead of the nozzle tip (Fig. 203).
   D. Press sealant firmly into place with a fairing tool to obtain a shaped and smooth fillet (Fig. 203).
   E. Apply second application of sealant to produce a full bodied fillet (Fig. 203). Second application of sealant is required only for integral fuel tank sealing.

      NOTE: The nozzle tip may be cut and shaped to give a full bodied seal contour. For typical finished fillet dimensions see Fig. 203.

   F. Obtain final configuration by forming the fillet with a fairing tool.
   G. Press tool against the sealant and move parallel to the bead.

      NOTE: Care must be exercised so that folds, flaps and entrapped air are not created during working. Any evident air bubbles must be worked out. At completion of working, which must occur before end of work life, bead should have the shape of a faired fillet of approximately the proper size and be quite smooth.

8. Apply Fastener Seal

   NOTE: Fasteners installed through a faying surface seal within the work life of the sealant need no further sealing.

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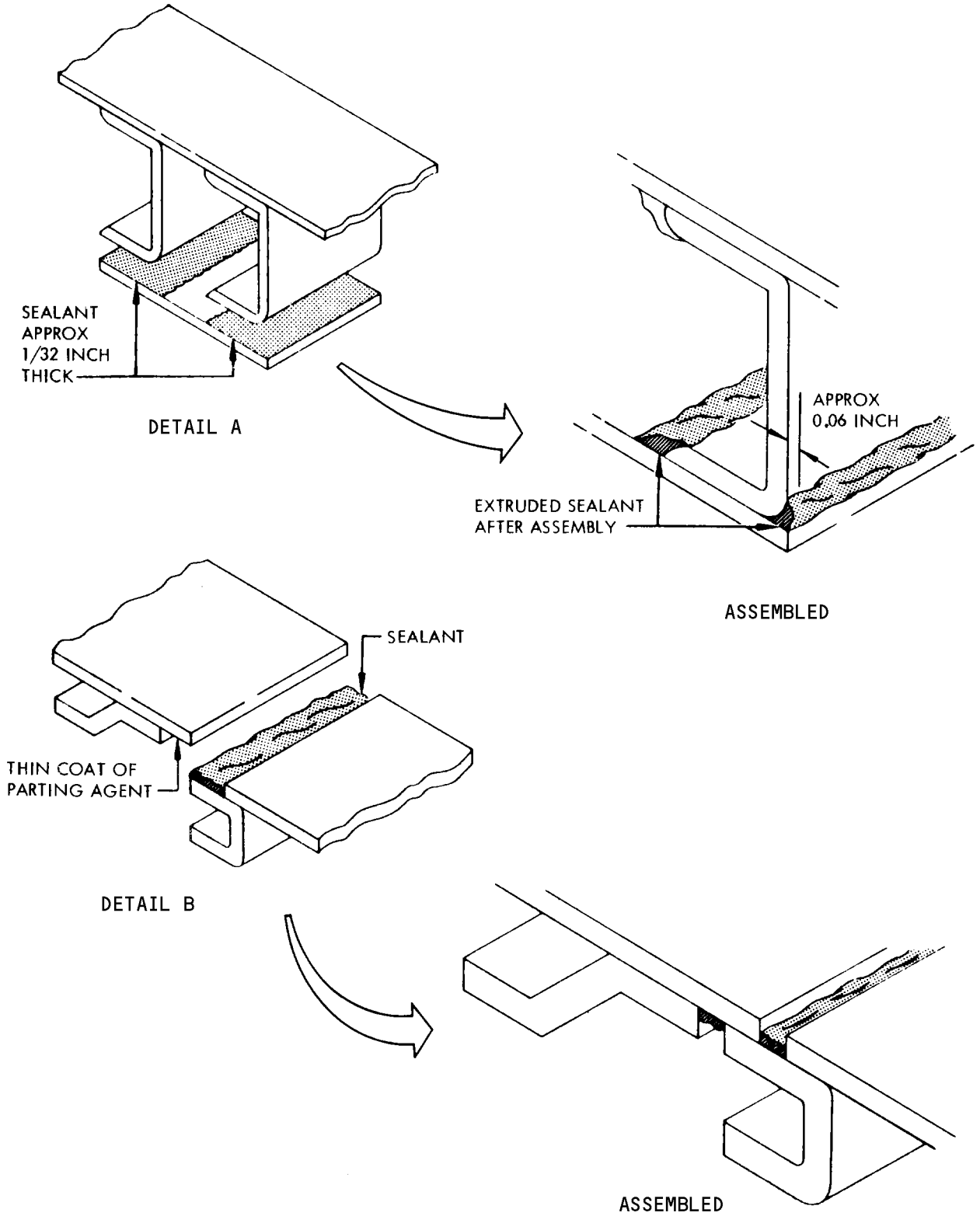

Application of Faying Surface Seal
Figure 201

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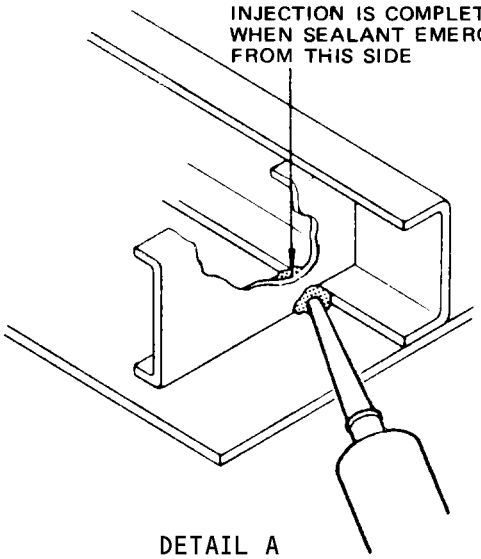
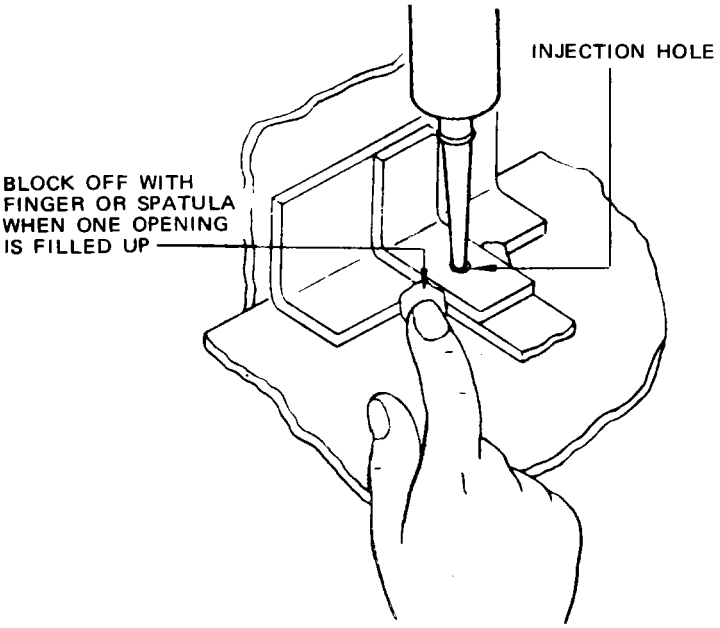
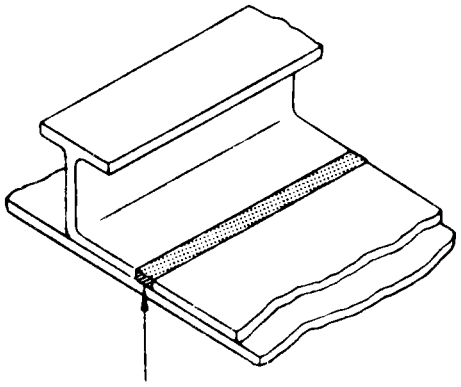


DETAIL A



DETAIL B



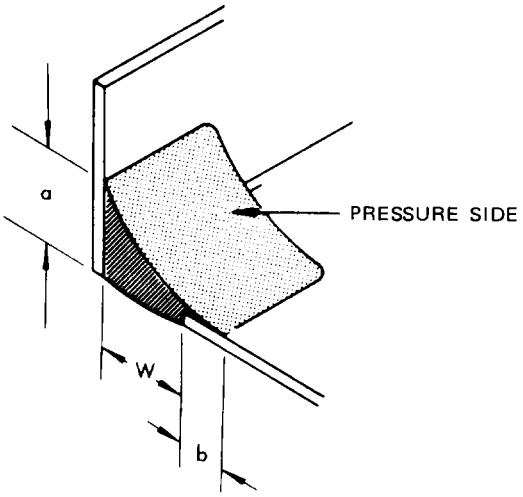
a = 0.25 INCH MINIMUM AND NOT LESS THAN W

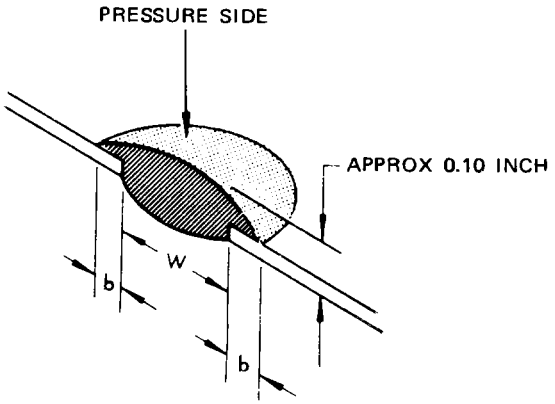
MAX W IS 0.25 INCH FOR DUCT AND PRESSURE SEALING

MAX W IS 0.50 INCH FOR WEATHER AND FUEL SEALING

b = 0.25 INCH MINIMUM

IF W IS 0.10 INCH OR LESS, HOLE FILLING COMPOUND IS NOT REQUIRED





Application of Injection Seal
Figure 202

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A. Seal all fasteners installed through a faying surface seal after the sealant work life has been exceeded, and fasteners installed through a seal plane where no faying surface sealant is used, by one of the following methods:
   (1) Install 5056 aluminum rivets wet with sealant only in aluminum structure. Extruded sealant shall be continuously evident to indicate adequate sealing (Fig. 204).

       NOTE: Install all other rivets dry unless you are told differently.

   (2) Applying the sealant to the fastener after installation (Fig. 204).
   (3) Filleting around fastener after installation (Fig. 204).

B. Sealing of fasteners with metal seal covers.
   (1) Fill cover 1/2 to 2/3 full of sealant and press cover down over fastener until flange contacts structure.
   (2) Remove excess sealant from top of seal cover.
   (3) Fair out sealant around base of cover (Fig. 204).

       NOTE: Sealant must be extruded continuously around the bottom of the seal cap. Avoid an excess of material around the cap.

9. Apply Aerodynamic Smoother
   A. Remove all defective compound from the repair area and taper the remaining compound in order to produce a scarf joint (Fig. 205).
   B. Clean thoroughly surface and recess to which compound is to be applied. Cleaning must be accomplished in accordance with par 3, with solvent, Series 95 (AMM 20-30-95 201).
   C. Cover the skin adjacent to the recess with masking tape (Fig. 205).
   D. Apply the compound with a flow gun, or a spatula.

      NOTE: Make certain no air is trapped in the recess during the filling procedure. Overfill the recess to allow for smoothing and leveling. Because of compound shrinkage, spot faced recess may require two fillings approximately eight hours apart to bring them level.

   E. Using a spatula, smooth the compound level with the masking tape (Fig. 205).
   F. Remove the tape immediately after smoothing or leave in place for the curing period.
   G. Smooth down the edges of the compound which tend to lift the tape, and remove excess compound with a wooden or plastic tool (Fig. 205).

      NOTE: Smoothing, fairing, and sealing materials shall not be applied over zinc chromate primer until primer has become hard and tough.

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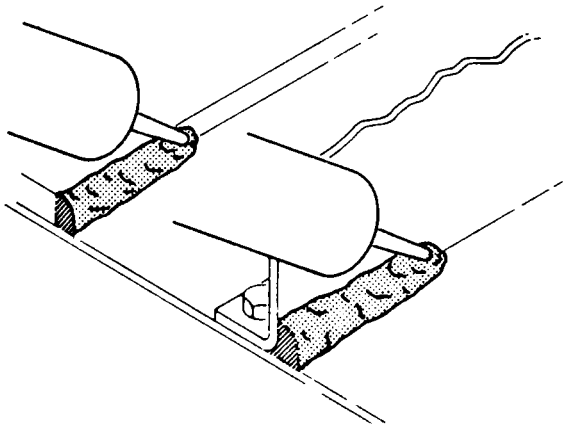
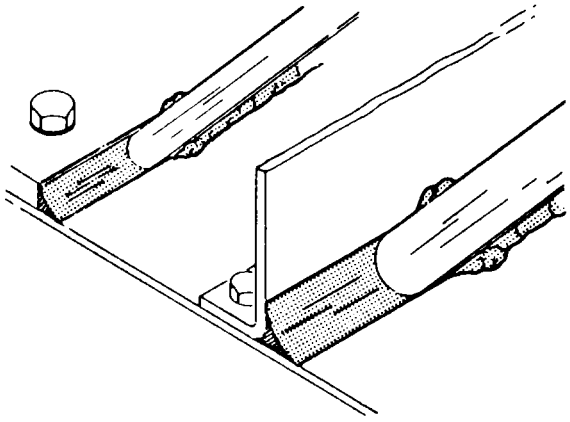
APPLY SEALANT WITH FLOW GUN



APPLICATION OF FILLET SEAL

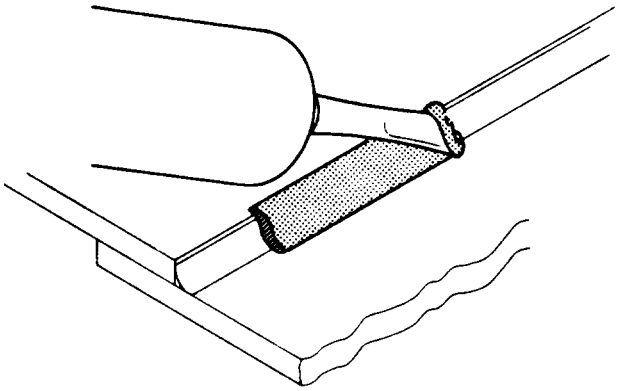
DETAIL A

PRESS SEALANT INTO PLACE
WITH AN UNLUBRICATED FAIRING TOOL



FORMING OF FILLET SEAL

DETAIL B



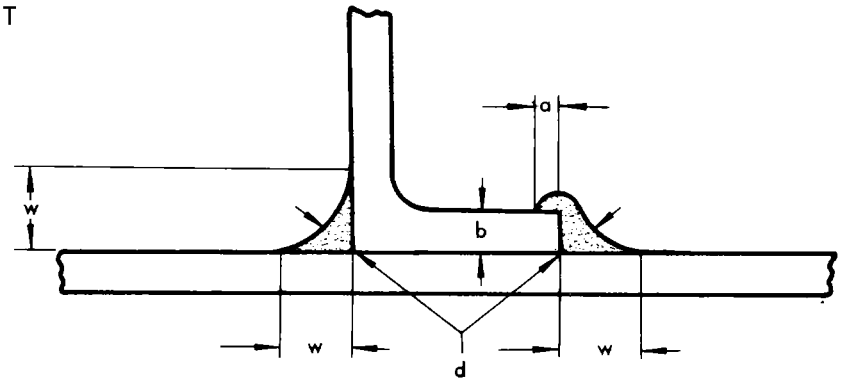
APPLICATION OF FILLET
FULL BODIED SEAL

DETAIL C

a = 0.04 TO 0.12 INCH EXCEPT a = 0 WHEN
b = 0.12 INCH OR MORE

d = 0.08 TO 0.13 INCH

w = 0.12 TO 0.18 INCH



FILLET SEAL FINISHED DIMENSIONS

DETAIL D

Application of Fillet Seal
Figure 203

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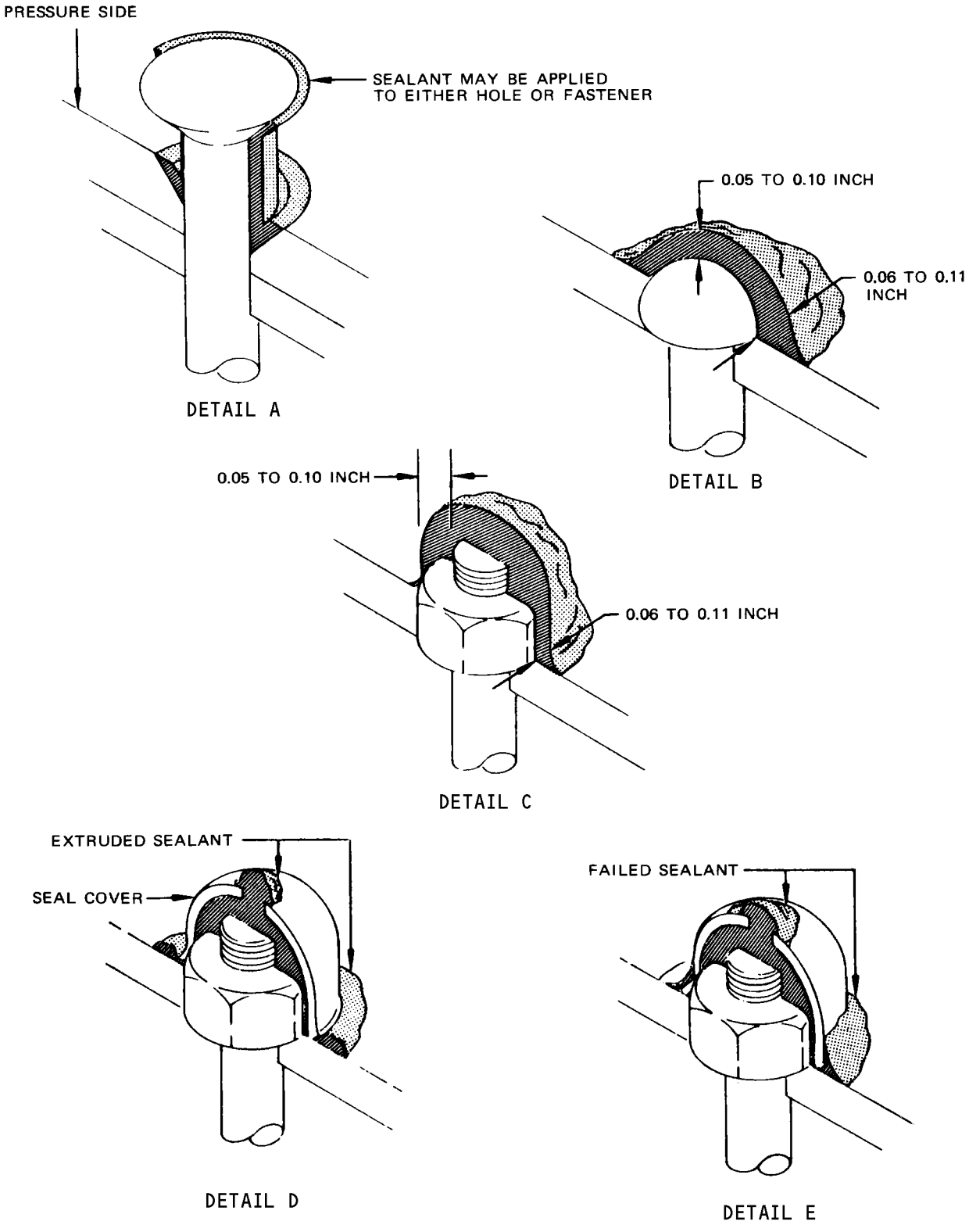

Application of Fastener Seal
Figure 204

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10. Apply Electrical Fitting Seal
    A. Multiple Cutout
        (1) Absolute or Extensive Sealing Areas
            (a) Clean the area where seal fittings will seal (par. 3).
            (b) Pass wire bundle through the cutout provided.
            (c) Encircle each individual wire in the bundle with coiled spacers.
                1) Coil spacers two to four turns on each wire.
                2) Position spacers on the wires so as to be completely enveloped by the seal assembly when it is secured in the cutout (Detail A, Fig. 206).

                NOTE: Three wires or less can be separated by solid plastic wire separators. Four or more wires must be separated by wire coil separators.

            (d) Place seal fitting halves around wires in the bundle with flanges on the on-pressure side.
            (e) Position fitting so that wire separators are entirely within fitting.
            (f) Place a strong piece of string about 8 inches long against the seal assembly parallel with the wires.
            (g) Wrap fitting halves with three turns of 1-1/2 inch wide masking tape (Permacel Tape No. 70 or No. 85, American Tuck Tape No. 210, or equivalent) (Fig. 206).
            (h) Crimp the 1-1/2 inch wide masking tape around the seal assembly ends so as to center the wire bundle.
            (i) Wrap crimped end with three turns of 3/4 inch masking tape (Fig. 206).
            (j) Position seal plate and filler on off-pressure side and secure seal assembly in place (Fig. 206).
            (k) Puncture paper masking tape over the most convenient injection hole in seal fitting.
            (l) Inject sealant, using a sealant gun at a pressure of approximately 100 psi until sealant without visible evidence of entrapped air emerges from both notches in the outer periphery of the seal assembly mounting flanges.
            (m) Apply fillets of sealant along joints of the filler and seal over the fasteners in the center of the filler.

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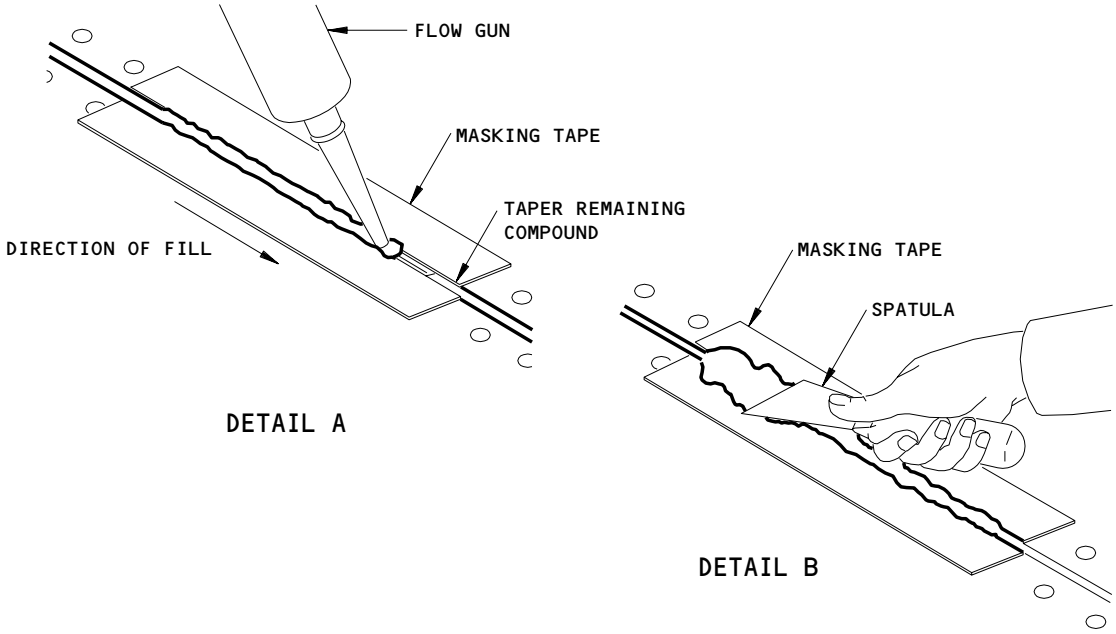

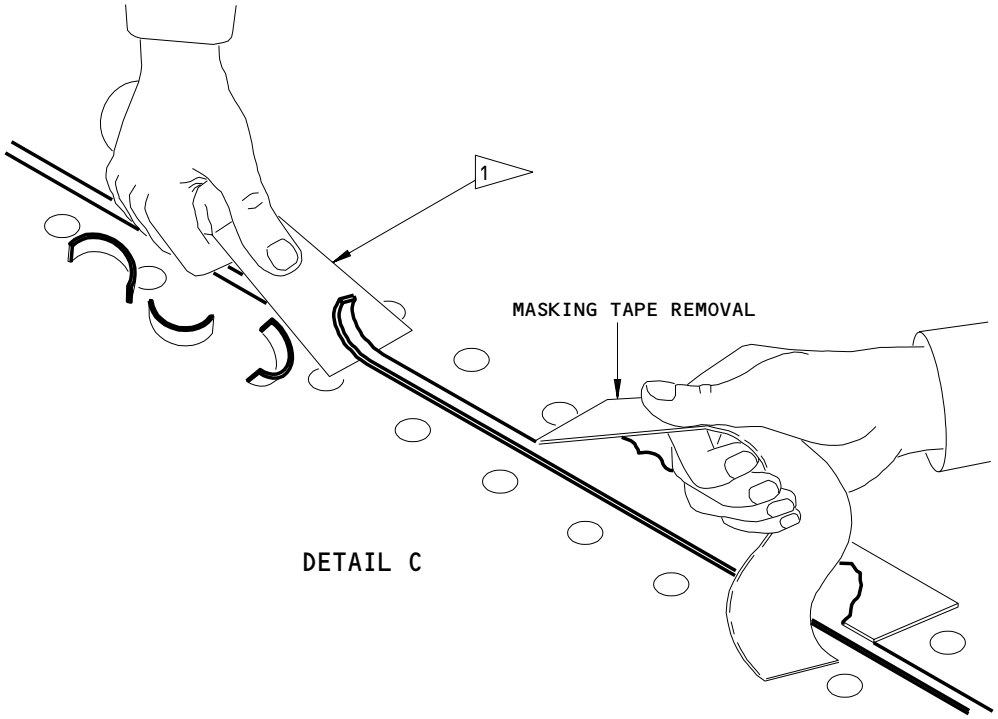

1 USE AN APPROVED SEALANT REMOVAL TOOL TO REMOVE UNWANTED SEALANT AFTER THE SEALANT HAS CURED

Application of Aerodynamic Smoother
Figure 205

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(n) Remove tape after sealant has cured (16 to 24 hours) by pulling rip string and unwinding.
(o) Where a coverplate is used to cover an unused opening, apply a faying surface seal between plate and structure (Fig. 206).

(2) Intermediate Sealing Area

NOTE: In fuel vapor barrier areas the same procedure of installation as outlined in par. 10.A.(1) is followed except the coil spacers are not used.

B. Single Cutout
(1) Absolute or Extensive Sealing Area

NOTE: Procedure is identical as outlined for multiple cutout except no seal plate or filler is involved.

(2) Intermediate Sealing Area

NOTE: Procedure is identical as outlined for multiple cutout, except no seal plate or filler is involved.

11. Apply Fuel Seal
A. For information on integral fuel tank sealing, refer to Chapter 28, Fuel.
12. Special Sealing Method for Corrosion Protection
A. Faying Surface Seal (Ref par. 4.A.)
B. Apply removable seal (Ref par. 4.B.)
C. Injection Seal (Ref par. 5)
D. Fillet Seal (Ref par. 7)
E. Fastener Seal
(1) Seal around fasteners (Fig. 207).
13. Protection of Sealing Materials
A. Sealing materials shall be kept free of contamination by grease, oil, dirt, metal chips, etc.
B. Operations subsequent to sealing may be performed immediately after sealing if care is taken to prevent the sealing from being dislodged, contaminated or damaged. Masking with some removable material may be used to provide protection after sealant is tack-free.

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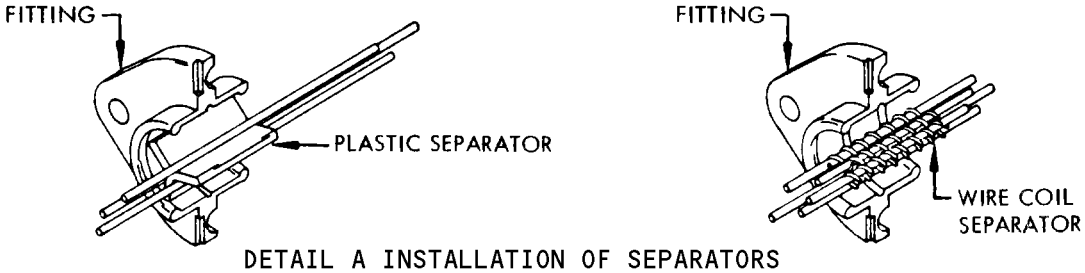
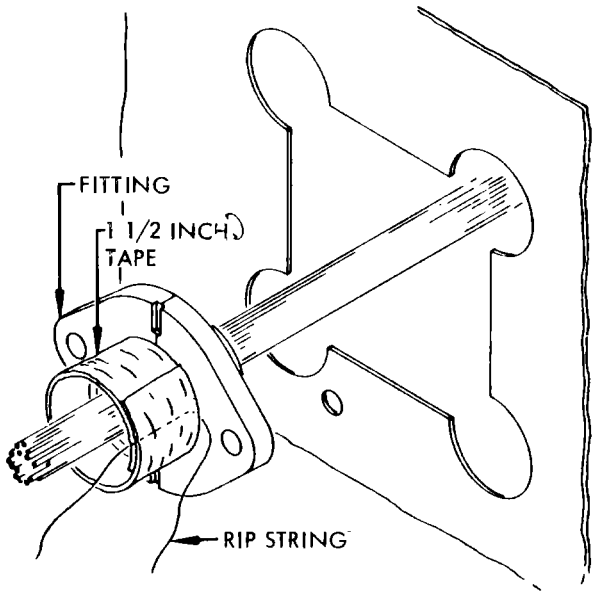
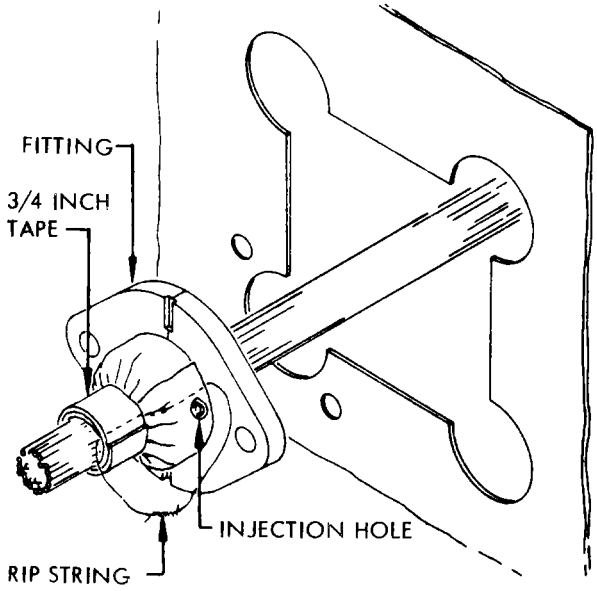


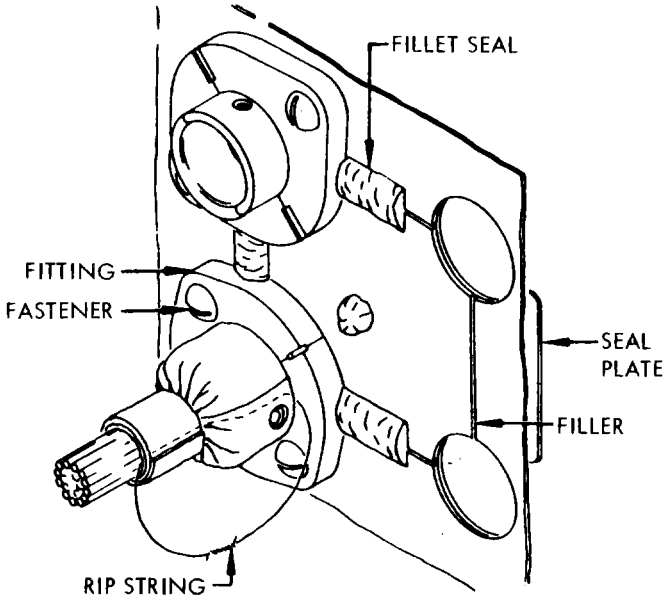
DETAIL A INSTALLATION OF SEPARATORS



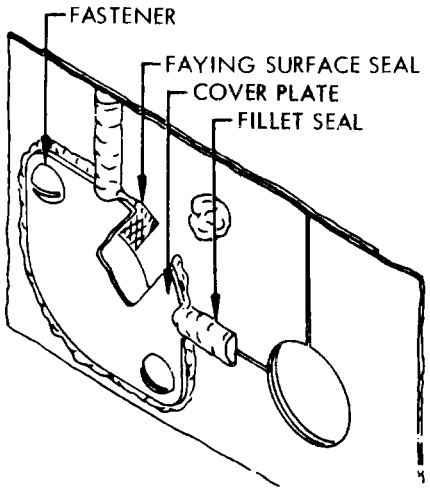
DETAIL B ASSEMBLY OF BULKHEAD FITTING



DETAIL C TAPING OF BULKHEAD FITTING



DETAIL D INSTALLATION OF BULKHEAD FITTING



DETAIL E INSTALLATION OF COVER PLATE

Installation and Sealing of Electrical Seal Fittings
Figure 206

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14. Accelerating Curing
    A. Curing of two part materials is greatly retarded by temperatures below 60°F and/or relative humidities below 40%. The curing may be accelerated by one of the following methods:
        (1) External curing (application of heat may be used to accelerate the cure of sealant already applied. Heat may be furnished by the use of hot air blower, heat lamps, etc.) or prewarning the structure.

            CAUTION: IF THE TEMPERATURE OF THE SEALANT IS MORE THAN 120°F, BUBBLES WILL OCCUR. THIS CAN MAKE THE SEALANT UNSERVICEABLE, OR DECREASE THE LIFE OF THE SEALANT.

15. Chemical Sealant Removal
    A. Remove sealant fillet with an approved scraper in paragraph 2, above.
    B. Chemically strip any sealant remaining on the surface as follows:
        (1) 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.

        (2) Using a natural bristle brush, apply a thin coating of chemical stripper on the sealant.
            (a) Do not apply excessive chemical stripper.
                1) Stripper should hang and not flow.
            (b) Let the stripper dwell until the sealant can be easily removed by dry wiping, but do not exceed 40 minutes.
            (c) Remove softened sealant with clean dry wipers.
                1) Approved scrapers (paragraph 2) may be used to facilitate removal.

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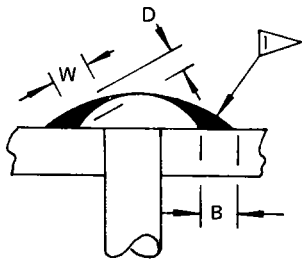
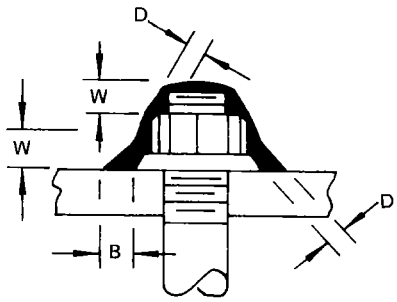
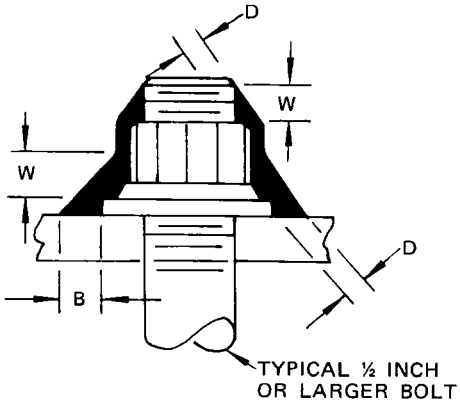


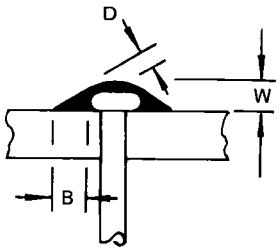
DETAIL A



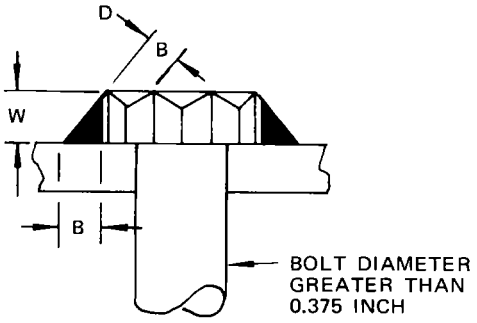
DETAIL B



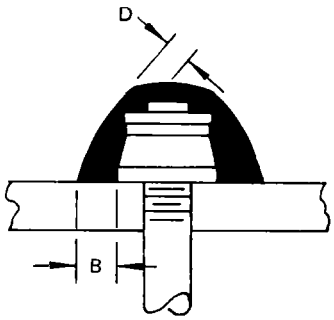
DETAIL C



DETAIL D



DETAIL E



DETAIL F

i CLASS A SEALANT MAY COVER THE FASTENER HEAD

D = 0.02 INCH MIN., B = 0.10 TO 0.20 INCH
W = 0.10 INCH MIN. EXCEPT 0.20 INCH MAX. FOR DETAILS C AND E

Fastener Sealing for Corrosion Protection
Figure 207

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(3) After chemical stripping is complete, remove stripper by thoroughly washing with a water-based alkaline cleaner (AMM 20-30-31/201).
(4) Rinse area thoroughly with water.

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AIRFRAME DRAINAGE - DESCRIPTION AND OPERATION

1. General
   A. External drain holes and internal drain paths are provided to prevent water and other fluids from collecting within the airplane which could become a possible fire or corrosion hazard. Drain paths and drain holes must be inspected periodically to ensure they are clear of obstructions.
   B. In the electronics compartment, moisture shroud panels on all airplanes and waterproof fabric moisture shields on some airplanes protect equipment on the electronic equipment racks.
2. External Drains (Fig. 1)
   A. Drain ports are located on exterior surfaces of body, wing, and empennage to dump fluids overboard. Leveling compound is used to ensure proper drainage in sloping areas. Rubber flapper seals are used in pressurized areas. The seals close off parts when the airplane is pressurized and allow ports to remain open when the airplane is not pressurized. Drain ports in non-pressurized areas are always open.
3. Internal Drain Paths and Drain Holes
   A. Internal structure is provided with tubes, channels, dams, and drain holes, to direct the flow of fluids toward external drainage points.
      (1) Primary body drain paths are provided in the forward lower body area, in the overwing and wheel well area, and in the aft lower body area.
      (2) Secondary body drain paths are provided to all stringer splice locations. Drain ports in the floor permit fluids to flow to the lower body skin where they drain overboard.

      CAUTION: IF STRUCTURAL REPAIR IS ACCOMPLISHED, ENSURE DRAIN HOLES AND DRAIN PATHWAYS ARE NOT INADVERTENTLY BLOCKED WITH SEALANT.

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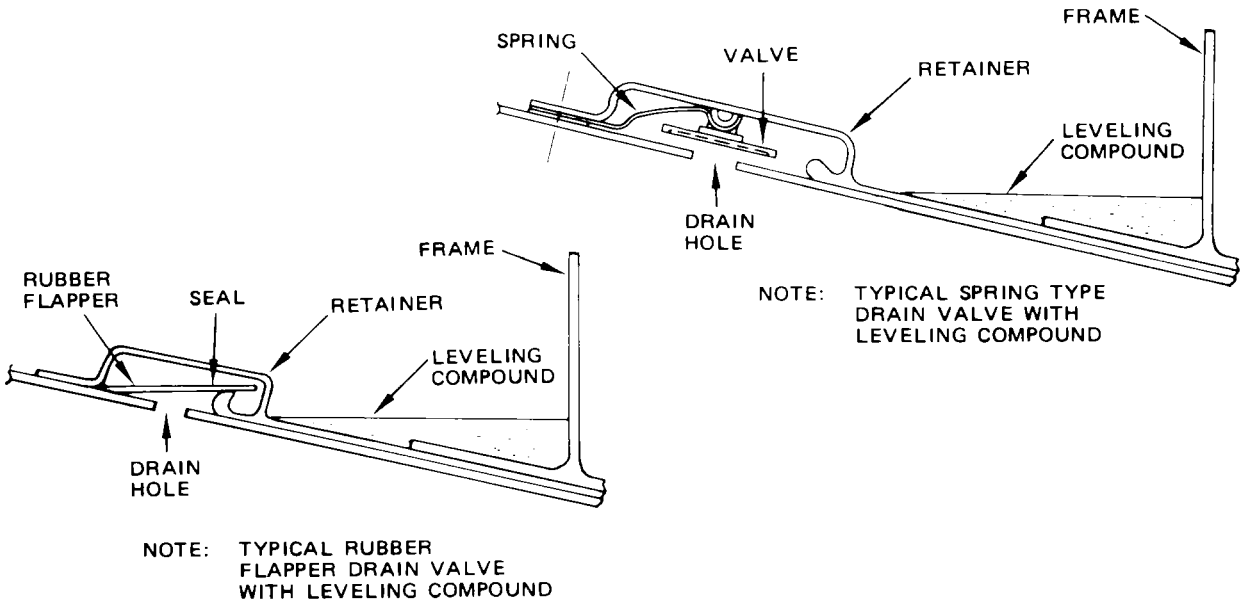

External Airframe Drainage Section 41
Figure 1

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EXTERNAL DRAINAGE - INSPECTION/CHECK

1. General
   A. All external drains must be checked at regular intervals to ensure proper drainage and prevent a possible fire or corrosion hazard.
2. Equipment and Materials
   A. Wiping cloths
   B. Mild Cleaner - GMC 528B (Ref 20-30-31)
3. Check External Drains (Fig. 601)
   A. Check external drains frequently and keep free from obstructions. If required, clean drains per par. B. Repair leveling compound.
      (1) Check drain holes with and without valves in areas of body, wing, empennage, nacelle, and control surfaces.
   B. Clean Drains
      (1) Using cloth moistened in water-cleaner solution, if required for set soils, remove all soils and obstructions from drains.
      (2) Carefully raise rubber seals or valves from drain ports in pressurized areas and remove soils and other obstructions. Replace defective or deteriorating seals or valves.

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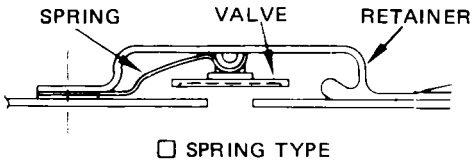
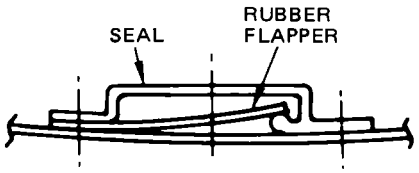


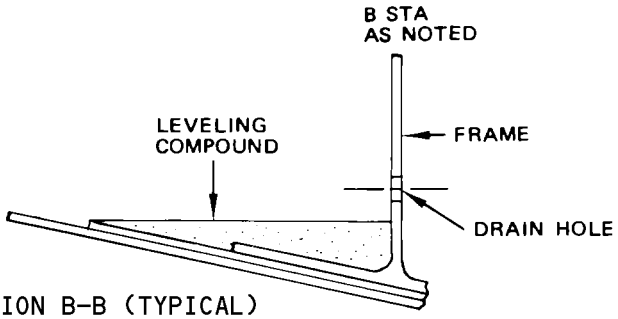
☐ SPRING TYPE DRAIN VALVE



☐ RUBBER FLAPPER TYPE DRAIN VALVE

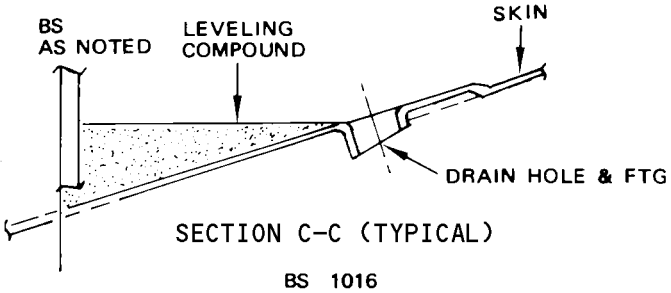
SECTION A-A (TYPICAL)

BS 201	BS 381	BS 458
BS 227	BS 385	BS 518
BS 293	BS 398	BS 520
BS 322	BS 418	BS 524
BS 358	BS 438	BS 530
BS 376	BS 452	BS 728
		BS 948



SECTION B-B (TYPICAL)

BS 188
BS 196
BS 219



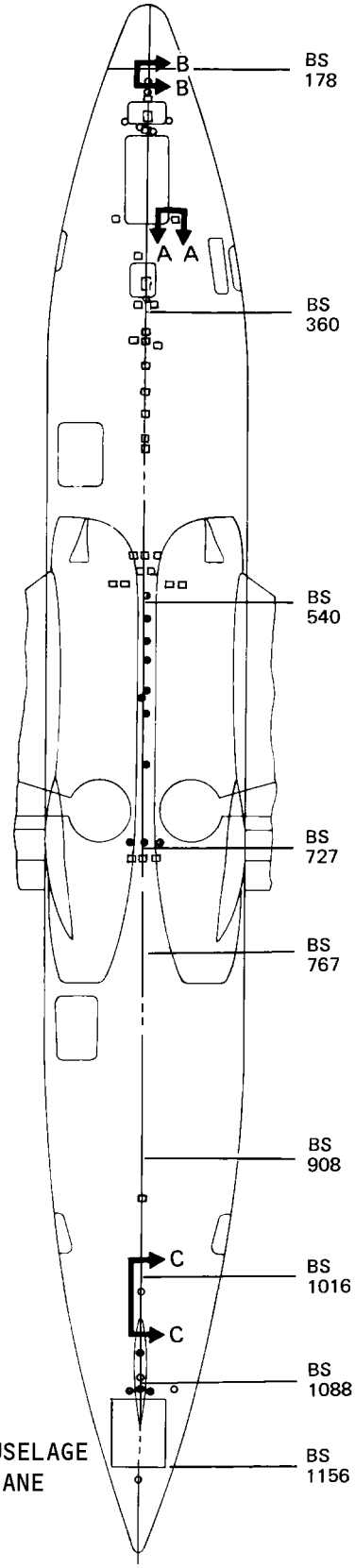
SECTION C-C (TYPICAL)

BS 1016
BS 1088
BS 1156

NOTE:

O SPECIAL TYPE DRAIN HOLE AS SHOWN

● OPEN DRAIN HOLE



BOTTOM VIEW - FUSELAGE
737-200 AIRPLANE

Airframe Drainage - Fuselage
Figure 601

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EXTERNAL DRAINAGE - APPROVED REPAIRS

1. General

   A. A drainage-leveling compound is used throughout the airplane and may be repaired using the procedure described in this subject.

2. Equipment and Materials
   A. Hardwood tool
   B. Stiff-bristle brush
   C. Solvent - General Cleaning of Metal (Series 80) (Ref AMM 20-30-80)
   D. Adhesive - Epon 815 (Ref 20-30-11)
   E. Curing Agent - T (Ref 20-30-11)
   F. Compound - Self Leveling for Body - BMS 5-125A (Ref 20-30-11)

3. Repair Drainage Leveling Compound
   A. With a hardwood tool, loosen and/or remove chipped or damaged leveling compound.
   B. Remove all loose pieces of leveling compound with stiff bristle brush.
   C. Thoroughly clean structure and remaining leveling compound with solvent.
   D. Mix adhesive and curing agent.
   E. Mix leveling compound and catalyst.

      NOTE: Deleted

   F. Mix compounds from steps D and E into final leveling compound.

      NOTE: Potting compound and catalyst may be used without step D compound if top surface of compound can be kept on waterline level.

   G. Pour leveling compound. Compound must be level with bottom of drain hole or within 0.06 inch of rubber flapper contact area, whichever is applicable.

      NOTE: Leveling compound must not enter rubber seal contact area. Airplane must be either in a level or taxi attitude when compound is poured.

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INTERNAL DRAINAGE - INSPECTION/CHECK

1. General
   A. All internal drains must be checked at regular intervals to ensure proper drainage and prevent a possible fire or corrosion hazard.
2. Equipment and Materials
   A. Wiping cloths
   B. Mild Cleaner - GMC 528B
3. Check Internal Drains
   A. Check internal drains frequently and keep free from obstructions. If required, clean drains per par. B.
      (1) Gain access to upper surface of wing center section by removing floor panels as required (Ref 53-21-0, Removal/Installation).
      (2) Check drain openings through aft lower corner of ribs at pressure deck beam.
   B. Clean Drains
      (1) Using cloth moistened in water-cleaner solution, if required for set soils, remove all soils and obstructions from drains.
      (2) Check and clean horizontal drain hole (Fig. 601).

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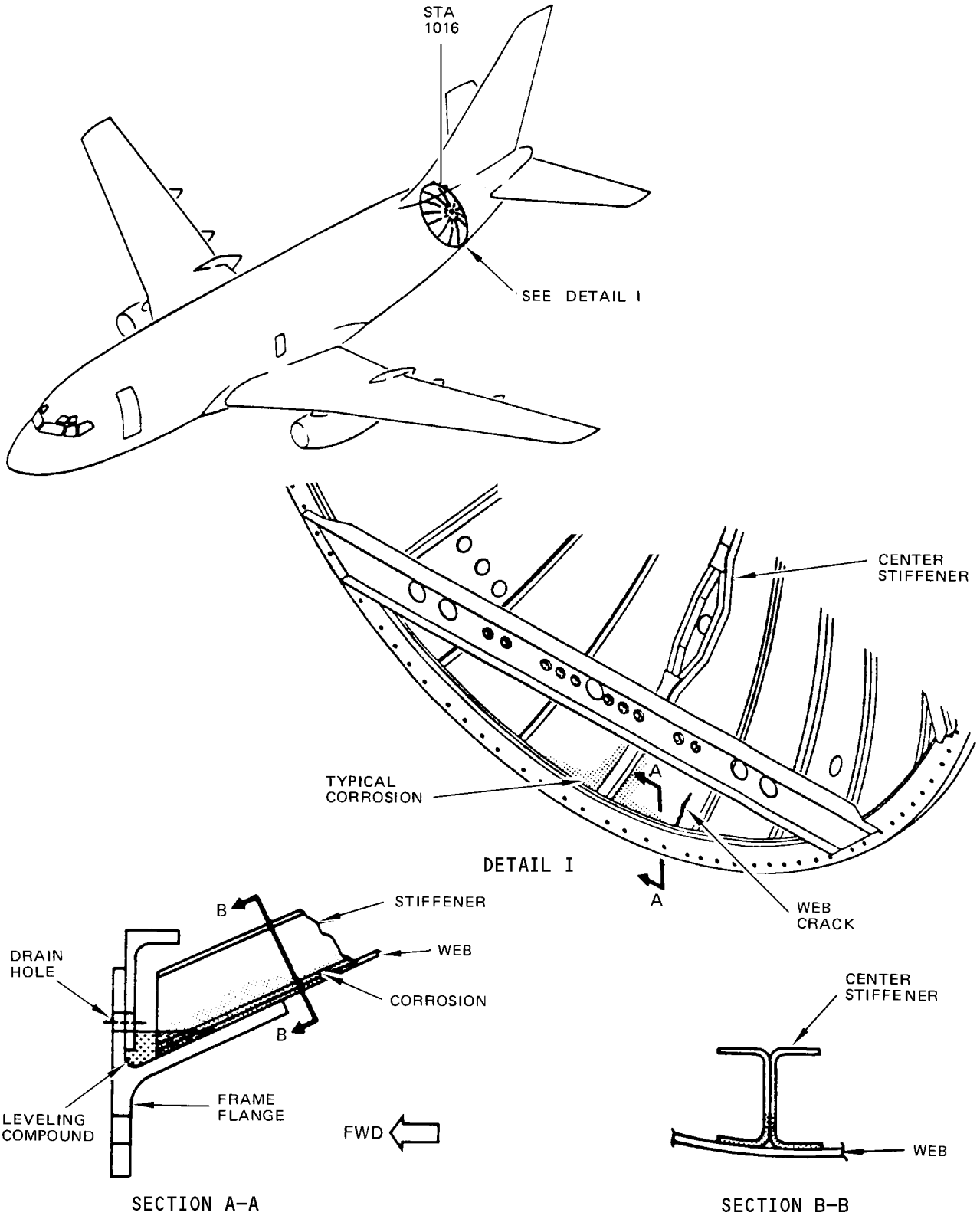

Internal Drainage
Figure 601

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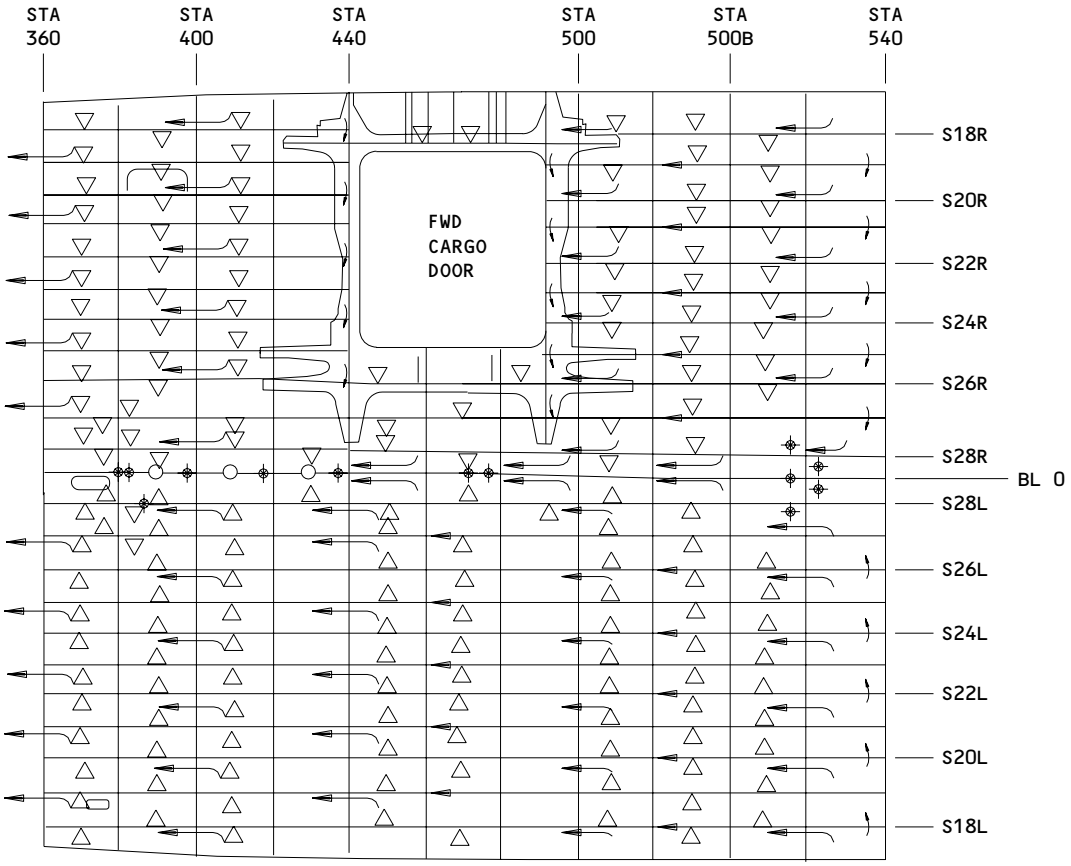

SECTION 43

LEGEND

△ STRINGER AND FRAME DRAIN HOLE LOCATION AND FLOW DIRECTION

⌖ DRAIN VALVE

⟵ FLOW DIRECTION

Internal Drain Paths
Figure 602 (Sheet 1)

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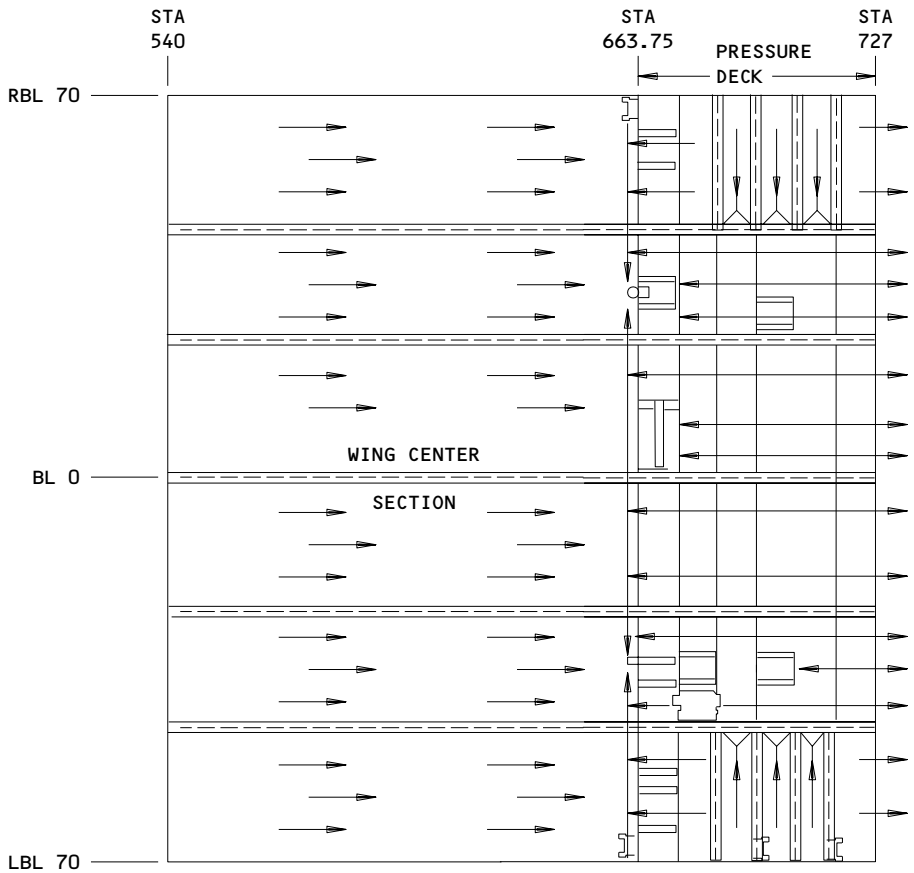
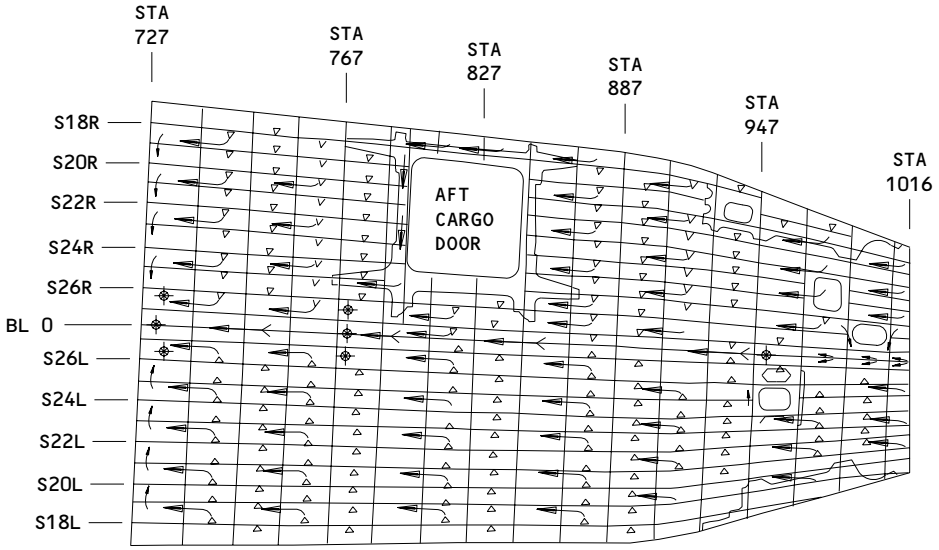


SECTION 46



SECTION 46 (AFT)

Internal Drain Paths
Figure 602 (Sheet 2)

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1. Removal Fuselage Drain Valve
   A. Use installation tool to loosen valve assembly.

      CAUTION: USE OF STEEL WRENCH MAY DAMAGE VALVE.

   B. Remove valve assembly from retainer.
2. Install Fuselage Drain Valve
   A. Clean the valve in a mild detergent solution.
   B. Put valve assembly into fuselage hole.
   C. Engage thread of valve assembly in retainer and tighten with installation tool.

FUSELAGE DRAIN VALVE - REMOVAL/INSTALLATION

3. General
   A. Removal and installation of fuselage drain valve is done from outside the airplane.
4. Special Tools and Materials
   A. Special Tools
      (1) Installation Tool 2024 (Stewart Industries Inc., 5210 14th Avenue Northwest, Seattle, WA 98107-3795).

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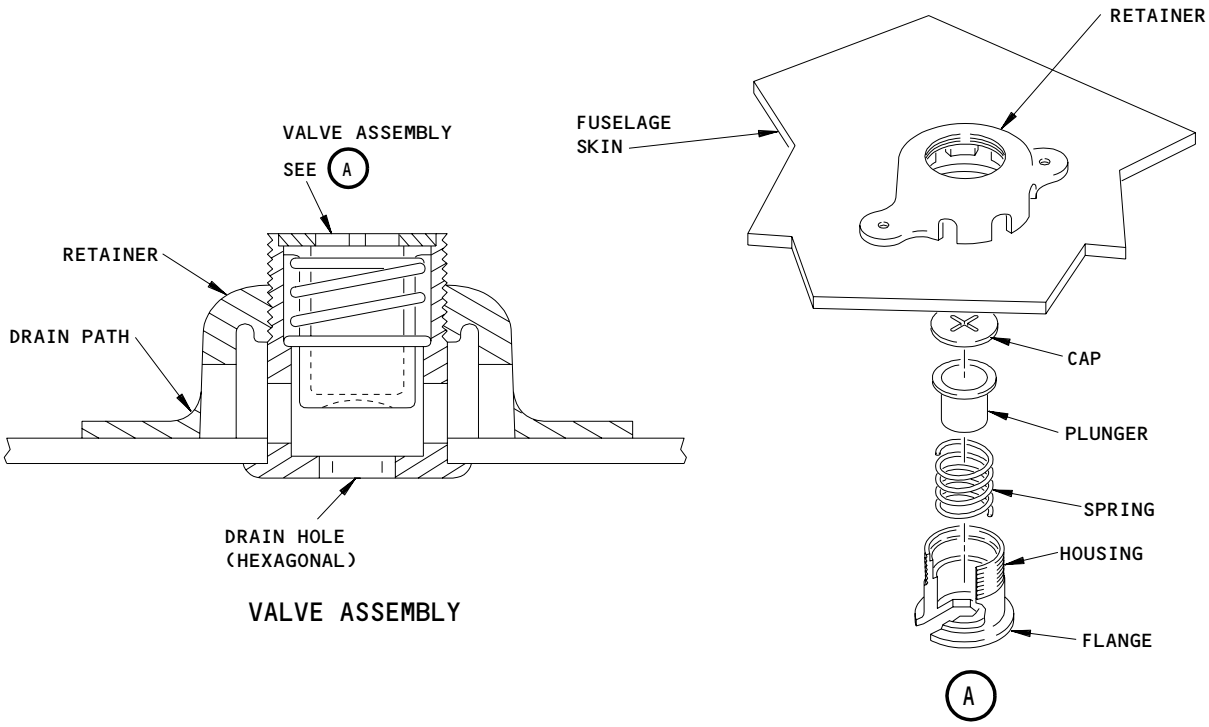

VALVE ASSEMBLY

Drain Valve Installation
Figure 401

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PHENOLIC AND STAINLESS STEEL RUB PADS - APPROVED REPAIRS

1. General
   A. This document describes the process to be used for bonding laminated phenolic or stainless steel rub pads to the airplane structure.
   B. Use the manufacturer's instructions to store, mix and apply the sealant.
   C. Use the manufacturer's instructions for the cure times of the sealant.
2. Repair Bonded Rub Pads to Design Standards
   A. Equipment and Materials
      (1) Adhesive - BMS 5-45, Class B-1/2 (optional, B-2)
      (2) Clean cloth - gauze, cheesecloth
      (3) Solvent
         (a) Naphtha - Toluene
         (b) Solvent - Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (AMM/SOPM 20-30-88)
      (4) Abrasives
         (a) Paper, 100 grit size or finer
         (b) Scotch-Brite aluminum oxide, very fine, type A
      (5) Cotton or rubber gloves
      (6) Soft-bristle brush
      (7) Serrated spreader
      (8) Clean roller
      (9) Hardwood or plastic wedge
   B. Preparation of Faying Surfaces
      (1) Cleaning of Laminated Phenolic Rub Pads
         (a) Precleaning
            1) Remove any loose soil, excess grease or oil by wiping with a clean cloth. Care should be taken not to smear soils over any larger surface than necessary.
               a) Solvent clean the surface by wiping with a cloth dampened with naphtha. Wipe off solvent with a clean dry cloth while the surface is still wet.
            2) Light sanding (100 grit size or finger) is required to remove the gloss from the faying surface. Care should be taken to make sure the gloss is completely removed from all edges and corners. Sand with circular overlapping strokes or with a combination of lengthwise and crosswise strokes. Remove the dust by wiping with a clean cloth.

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(b) Hand Cleaning
1) Apply naphtha solvent to surface by dispensing from squirt or squeeze type bottles. Do not dip the cloth in the solvent containers.
2) Rub the surface with gauze or cheesecloth until the major portion of soil is removed.
3) Exchange soiled cloths for clean ones frequently. Use clean cotton or rubber gloves.
4) Wipe off solvent with a clean, dry cloth while the surface is still wet.
5) Repeat above operations until cleaning cloths show neither soil nor yellow discoloration from the phenolic. This procedure shall be performed no more than 1 hour prior to the application of the adhesive.

(2) Cleaning of Unprimed Stainless Steel Rub Pads
(a) Remove any loose soil, excess grease or oil by wiping with a clean cloth. Care should be taken not to smear oils over any larger surface than necessary.
(b) Solvent clean the surface by wiping with gauze or cheesecloth dampened solvent, Series 88 (AMM/SOPM 20-30-88).
(c) Exchange soiled cloths for clean ones frequently. Use clean cotton or rubber gloves.
(d) Wipe off solvent, Series 88 (AMM/SOPM 20-30-88) with a clean, dry cloth while the surface is still wet.
(e) Repeat above operations until cleaning cloths show no soil. This procedure shall be performed no more than 1 hour prior to the application of the adhesive.

(3) Cleaning of Unprimed Clad Aluminum
(a) Pre-cleaning
1) Remove any loose soil, excess grease or oil by wiping with a clean cloth. Care should be taken not to smear soils over any larger surface than necessary.
2) Solvent clean the surface by wiping with a cloth dampened with solvent, Series 88 (AMM/SOPM 20-30-88). Wipe off solvent with a clean, dry cloth while the surface is still wet.

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3) The following abrading requirement may be omitted when Pro Seal 890 material is used and the aluminum shows no sign of grease, wax, or oily substance after the above pre-cleaning operation. The clad aluminum faying surface shall be lightly abraded with Scotchbrite aluminum oxide material until the bright clad faying surface is uniformly dulled. Do not use soiled or ragged Scotchbrite material. Remove the dust by wiping with clean cloth.

(b) Hand Cleaning

1) Apply solvent, Series 88 (AMM/SOPM 20-30-88) to surface by dispensing from squirt or squeeze type bottles. Do not dip the cloth in the solvent container.

2) Rub the surface with gauze or cheesecloth until the major portion of soil is removed. Scrub with a soft-bristle brush if necessary to remove difficult soils.

3) Exchange soiled cloths for clean ones frequently. Use clean cotton or rubber gloves.

4) Wipe off solvent with a clean dry cloth while the surface is still wet.

5) Repeat above operations until cleaning cloths show no soil. This procedure shall be performed no more than 1 hour prior to the application of the adhesive.

(4) Cleaning of BMS 10-11 Primed Metal

(a) BMS 10-11 primed metal need not be cleaned if it is to be bonded within 1 to 6 hours after primer application. Primed metal 6 to 48 hours old shall be cleaned per par. (3)(b) except that naphtha or toluene shall be used. Primed parts over 4 hours old shall be cleaned per par. (3)(b).

(5) The cleaned faying surfaces shall not be touched with bare hands at any time up to and including assembly for bonding. It is essential that the bond areas are not contaminated in any manner.

C. Preparation and Application of Adhesive

(1) The base component shall be mixed thoroughly with the manufacturer's recommended amount of matched curing component (marked with the batch number of base component with which it is to be used) so that the mixture is homogeneous. Care must be taken to minimize entrapment of air in the sealant during mixing.

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(2) The material shall not be applied when the temperature of the structure is below 50°F.

(3) Apply a thin uniform coating of 50 ±10 grams per square foot of mixed material to each faying surface. A serrated edge spreader such as that shown in Fig. 801 is recommended for spreading the adhesive on large faying surfaces. For spreading a relatively high viscosity batch of the adhesive, a spreader with finer serrations is recommended. Spread adhesive must have sufficient thickness to produce adhesive flash around the edges of the rub pads when the curing pressure is applied.

(4) The parts shall be assembled within the time specified in Fig. 802.
   (a) Lay the coated rub pads down carefully so that the edges are aligned with the panel edge and with one another, not overlapping. When the pads are laid in place, smooth the surface with a roll of gauze or cheesecloth or with a clean roller in order to squeeze out all entrapped air. Avoid using excess smoothing pressure, which would squeeze adhesive out on the bond line, resulting in an adhesive starved joint.
   (b) Excess adhesive may be removed by wiping with a clean gauze moistened slightly with methyl ethyl ketone. Take care not to allow methyl ethyl ketone to seep into the bond line. If methyl ethyl ketone is used, allow 10 minutes drying time to evaporate any residual methyl ethyl ketone before applying curing pressure.

(5) Curing pressure shall be uniformly applied to the part within the time specified in Fig. 802.
   (a) All holding devices shall exert a reasonably uniform pressure to the bonded area sufficient to extrude a continuous adhesive flash at the bondline.
   (b) When vacuum pressure is used, take care to ensure a constant, uniform pressure of 5 to 14 psi. A vacuum pressure gauge must be used periodically to check pressure uniformity and consistency.

(6) Use the manufacturer's instruction for the cure times of the sealant.

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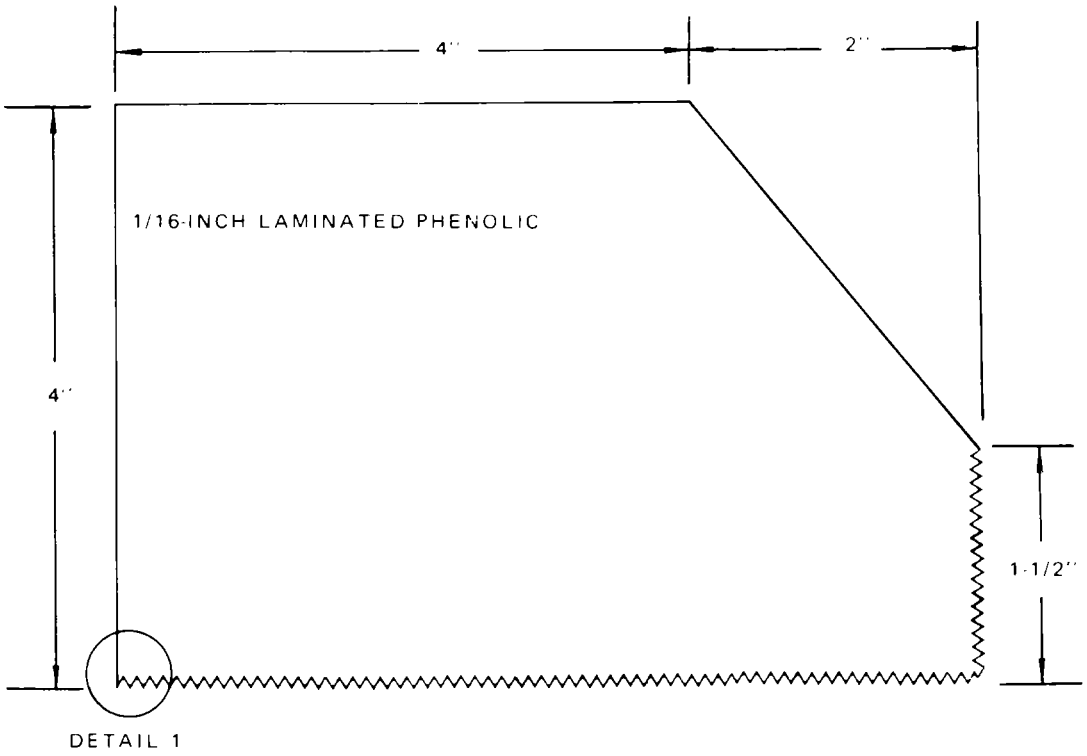
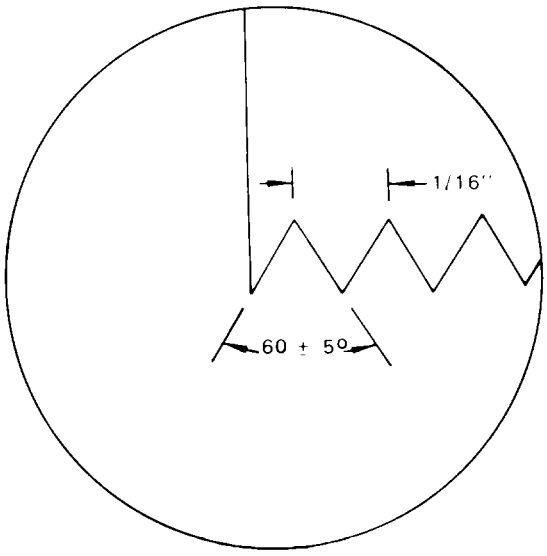


DETAIL 1



DETAIL I

NOTE: REMOVE MACHINED BURRS PRIOR TO USAGE

Serrated Adhesive Spreader
Figure 801

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(7) Laminated phenolic to aluminum bonds shall be cured under constant pressure (5-14 psi) per step (5) for not less than the time and temperature specified in Fig. 802.

(8) Curing may be hastened by curing at 115 ±5°F under constant pressure for not less than the optional time specified in Fig. 802.

(9) Stainless steel to aluminum bonds shall be cured under a constant pressure of 10 to 14 psi for not less than the time and temperature specified in Fig. 802.

(10) Cured excess adhesive may be removed by the following method: (excess adhesive includes extruded adhesive extending higher than the plane of the rub pad and more than 1/4 inch beyond the edge of the rub pad unless otherwise specified).

(a) With a hardwood or plastic wedge, scrape away the excess adhesive.

(b) Clean residual adhesive from the aluminum by rubbing the area with a clean gauze moistened slightly with methyl ethyl ketone.

3. Field Repair of Bonded Rub Pads with No Heat Source Available

A. General

(1) The following process is recommended for a field repair of bonded rub strips when a short cure time is necessary.

B. Repair Bonded Rub Pads

(1) The rubstrip to be repaired may be reworked per par. 2.D. with the following exceptions:

(a) Pro Seal 890 B-2 shall be used as the adhesive.

(b) The ratio of activator component to the base component shall be 22 ±2 parts by weight of activator to 100 parts by weight of base.

(c) The new rubstrip shall be prefitted on the assembly after the faying surfaces are cleaned and before the adhesive is applied. The rubstrip shall lay flat against the assembly surface without the aid of holding or clamping devices. The gap between the mating faying surfaces of the prefitted rubstrip and the assembly shall be a maximum distance of 1/8 inch. The new rubstrip may be rolled out with a clean roller against a smooth surface to improve the prefit.

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(d) The parts shall be assembled within 25 minutes after adhesive mixing.
(e) The cure time and temperature shall be a minimum time of 6 hours at a minimum temperature of 64°F.
(f) The following method of applying curing pressure shall be optional to the process in par. 2.C.:
1) During the first 3 hours after the parts are assembled, smoothing pressure shall be applied to the rubstrip at intervals of no more than 15 minutes.
2) The method of smoothing shall be in accordance with that in par. 2.C. A continuous bead of extruded adhesive at the bondline is desirable because it indicates proper contact of the faying surfaces. As the adhesive cures during the first 3 hours after the parts are assembled, increasingly greater smoothing pressure is required to squeeze out any air pockets forming in the bondline.

4. Field Repair of Bonded Rub Pads with Heat Source Available

A. General
(1) The following process is recommended for a field repair of bonded rubstrips when a heat source is available to provide an adhesive cure temperature within the range 85 to 120°F.

B. Repair Bonded Rub Pads
(1) The rubstrip to be repaired shall be reworked per par. 2.C. with the following exceptions:
(a) A new rubstrip shall be prefitted on the assembly after the faying surfaces are cleaned and before the adhesive is applied. The rubstrip shall be laid flat against the assembly surface without the aid of holding or clamping devices. The gap between the mating surfaces of the prefitted rubstrip and the assembly shall be a maximum distance of 1/8 inch. The rubstrip may be rolled out flat with a clean roller against a smooth surface to improve the prefit.
(b) Pro Seal 890 B-2 shall be used as the adhesive.
(c) The ratio of activator component to the base component shall be 22 ±2 parts by weight of activator to 100 parts by weight of activator to 100 parts by weight of base.
(d) The parts shall be assembled within 25 minutes after adhesive mixing.

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(e) The cure schedule shall consist of the following steps:

1) Warm the assembly to the cure temperature of 90 ±5°F. No less than 1.5 hours shall elapse from the time of adhesive mixing to the time when the cure period shall begin.

2) Cure the assembly for a period of 2 hours, minimum at 85 to 120°F.

NOTE: The temperature sensing device shall be embedded in the adhesive flash next to the bondline.

3) Do not stress the assembly for 20 minutes, minimum, following the cure period.

NOTE: Two heat lamps, 250 watts each, may be used as a heat source. The lamps should be mounted 9 inches apart on a rod, aimed downward 6 inches from the rubstrip.

(f) The following method of applying curing pressure shall be optional to the process in par. 2.C.

1) During the first 2 hours after the parts are assembled, smoothing pressure shall be applied to the rubstrip at intervals of no more than 15 minutes.

2) The method of smoothing shall be in accordance with that in par. 2.C. A continuous bead of extruded adhesive at the bondline is desirable because it indicates proper contact of the faying surfaces. As the adhesive cures in the assembly, increasingly greater smoothing pressure is required to squeeze out any air pockets forming in the bondline.

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TEFLON RUB PADS - APPROVED REPAIRS

1. General
   A. This section describes the process to be used for bonding teflon rub pads (TFE plastic) to the airplane structure.
2. Equipment and Materials
   A. Teflon Rub Pad (AMS 3651 Polytetrafluoroethylene)
   B. Solvent - Final Cleaning of Solvent-Resistant Organic Coatings Prior to Non-structural Bonding (Series 90) (AMM 20-30-90).
   C. Etching solutions
      (1) FluoroBond
      (2) Tetra-Etch
      (3) Sodium ammonia solution
         (a) Anhydrous ammonia
         (b) Sodium metal (technical grade)
   D. Containers (polyethylene or stainless steel)
   E. Tubing (rubber or Tygon)
   F. Rod, glass or polyethylene
   G. N-Butyl alcohol (technical grade)
   H. Adhesive - RIV-154
   I. Masking tape
3. Prepare for Repair
   A. Clean airplane faying surface thoroughly with solvent, Series 90 (AMM 20-30-90).
   B. Clean teflon pad faying surface thoroughly with acetone.
   C. Mask opposite side of teflon pad faying surface.
   D. Etch teflon pad faying surface as follows:
      (1) Etching Method I (FluoroBond or Tetra-Etch)
         (a) Immerse the part in the etching solution for a minimum of 30 seconds and a maximum of 60 seconds.
         (b) If the part does not attain a dark brown color in 60 seconds, the etchant has lost effectiveness and the part shall be re-treated with fresh solution.
         (c) The treated part shall be immediately washed with a 3-5% solution by volume of water in n-butyl alcohol to neutralize the excess etchant.
         (d) Wash the part in clean water, remove maskant, follow with acetone wash, and dry with a clean cloth.
      (2) Etching Method II (Sodium ammonia)
         (a) Mix the solution in the container to be used for dipping. The container must be clean and dry, and may be either polyethylene or stainless steel.

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(b) Place the ammonia bottle on its side or in an inverted position so that liquid ammonia may be drawn off. Fill the dipping container to the level required for the part to be treated. Rubber or Tygon tubing may be used for piping the liquid ammonia.
(c) Add metallic sodium chips to the ammonia in a ratio of 10 grams of sodium per liter of ammonia.
(d) Stir the solution with a polyethylene or glass rod until all of the sodium is dissolved. The solution will have a dark blue color.

NOTE: The solution may be deactivated or neutralized by either of the following methods:

Add a 3-5% solution by volume of water in n-butyl alcohol to the etchant until the etchant is colorless or neutral.

Allow the ammonia to evaporate. Thoroughly rinse the container with a 3-5% solution by volume of water in n-butyl alcohol. Keep adding rinse solution until no traces of color remain. Finally, rinse with water.

(e) Dip the part to be treated in the solution for 10 to 20 seconds. If the part is not completely covered by the solution, reverse the ends and re-dip for 10 to 20 seconds.
(f) If the part does not attain a dark brown color after a 20-second dip, the solution is weak. Add 10 grams of sodium per liter of ammonia to reactivate the solution.
(g) Wash the part per steps (1)(c) and (1)(d).

E. Wipe the etched surface of the teflon pad lightly with clean cloth saturated with MEK.

4. Repair Teflon Rub Pad
A. Apply approximately 2 or 3 mils thick film of adhesive to etched surface of teflon pad.

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B. Adhere teflon pad to airplane surface. Press or roll down pad and wipe off excess adhesive along edges.

5. Restore Airplane to Normal

A. Allow adhesive to cure for a minimum of 8 hours at room temperature.

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