STANDARD OVERHAUL PRACTICES MANUAL

APPLICATION OF ADHESIVES

PART NUMBER
NONE

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA
A DIVISION OF THE BOEING COMPANY
PAGE DATE: Jul 01/2009

STANDARD OVERHAUL PRACTICES MANUAL

Revision No. 47
Jul 01/2009

To: All holders of APPLICATION OF ADHESIVES 20-50-12.

Attached is the current revision to this STANDARD OVERHAUL PRACTICES MANUAL

The STANDARD OVERHAUL PRACTICES MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

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Location of Change	Description of Change
20-50-12	
PGBLK 20-50-12-0	Added clarifications and updated callouts.

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

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 32137	APR 01/72
	20-2	PRR 75496	OCT 01/73
	20-3		OCT 01/73
	20-4		OCT 01/73

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Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

Revision		Filed		Revision		Filed	
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INTRODUCTION

1. General

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

B. This manual is divided into separate sections:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) Effective Pages

(5) Contents

(6) Revision Record

(7) Record of Temporary Revisions

(8) Introduction

(9) Procedures

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

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

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

APPLICATION OF ADHESIVES

1. INTRODUCTION

A. Other than the procedures in Paragraph 7. and Paragraph 8., the data in this subject comes from Boeing Process Specification BAC5010. The airline has a copy of the Boeing Process Specification Manual.

B. The procedure about vinyl placards in Paragraph 7. comes from Document D6-2862, Fabrication and Inspection Requirements for Adhesive Bonding of Decorative Interior Materials.

C. The procedure about retaining compounds in Paragraph 8. comes from Boeing Process Specification BAC5011, Application of Retaining Compounds.

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

2. EQUIPMENT

A. You can use any equipment to mix the adhesive if it will make a smooth, mixture without lumps or air pockets.

B. Use containers of metal, glass, polyethylene, Teflon, or polyethylene-lined paper or cardboard for blended adhesive. Do not use waxed or porous paper containers.

C. Use only containers and mixing equipment which are clean and dry. Clean the equipment at least daily, and when the application procedure is stopped for a long time, when you are done with the task, and when you change adhesives. Dry all equipment before you use it. When continuous-operation equipment is used, remove the mixed adhesive from the blending head at least once every 8 hours and at the end of intermittent periods of operation. To clean the head, you can put one of the adhesive components through it, or disassemble the head and solvent clean it. When you use all of the supply of a batch of adhesive, you can add a new supply of the adhesive materials to the supply tanks without removal of the remaining quantity of the adhesive, but the new materials must be of the same specification and from the same supplier as that of the old materials.

D. If the containers and equipment were used for silicone adhesives, do not use them for nonsilicone adhesives. These adhesives are silicone: Types 60, 62, 68, 74, 77, 79, 80, 84, 98, 109 and 119.

E. Silicone and nonsilicone materials in their original unopened containers can be stored together. Opened containers of each material must not be stored in the same cabinet.

F. Equipment used to weigh or measure by volume must have an accuracy of ± 2.5%.

3. PREPARATION OF ADHESIVES

WARNING: THE ADHESIVES, PRIMERS, SURFACE TREATMENT MATERIALS, AND SOLVENTS CONTAIN POISONOUS, FLAMMABLE COMPONENTS. DO NOT BREATHE VAPORS, MIST, OR DUST. MIX AND APPLY ADHESIVES AND PRIMERS IN AN AREA WITH A GOOD FLOW OF AIR. KEEP LIQUID ADHESIVES AND PRIMERS AWAY FROM SKIN AND EYES. USE APPROVED RESPIRATORS WHEN YOU USE THESE MATERIALS IN CONFINED AREAS. USE PROTECTIVE CLOTHING AND GLOVES AS NECESSARY. KEEP LIQUID ADHESIVES, PRIMERS, AND SOLVENTS AWAY FROM SOURCES OF IGNITION. OBEY THE SPECIFIC PRECAUTIONS IN THE INDIVIDUAL APPLICATION PROCEDURES.

A. If the adhesives or individual components were in storage at a temperature below 65°F, let them warm to room temperature (65°F minimum) in the unopened containers before you mix, weigh, or use them. Wipe all visible moisture from external surfaces of the containers before you open them.

B. Use the ingredients and procedures as specified to mix and apply the materials. Do not use different ingredients or procedures. Do not use thinner in adhesives or in components unless specified. Weigh components to an accuracy of ± 2.5%.

C. When you use thinner, do not stir quickly, beat or shake the adhesives which could cause foam. When there is air in mixed adhesive, give sufficient time for it to be released. Deaeration is recommended for the high viscosity adhesives.

D. Do not use undated or expired materials.

E. Identify containers of mixed adhesive with this data:

(1) BAC5010 Type number, or manufacturer's designation, and BMS number if applicable

(2) Date and time that the mixture will be expired

(3) Identification of the person that made the mixture

WARNING: MAKE SURE YOU INCLUDE THE REQUIRED SAFETY PRECAUTIONS WHEN YOU MAKE THE NEW LABELS.

F. When you put adhesives into smaller containers, give the same information on the smaller container labels as on the original. Before you move the contents between the containers, mix it until it is smoothly mixed.

G. High temperature and humidity or a large amount of adhesive will decrease pot life. Low temperature or a small amount of adhesive will increase pot life. If possible, mix only the required amount of adhesive immediately before you use it.

H. Mix the adhesives or primers in their original containers or in containers of clean metal, glass, Teflon, polyethylene or polyethylene-lined. Do not use waxed or porous paper containers. When you mix by hand, use only clean stirrers such as metal spatulas. Do not use metal containers that have rust on the inside.

I. Unless the procedure specifies differently, mix or shake each component by itself first. This will make sure its ingredients are mixed smoothly together. Then mix the components together as specified.

4. PREPARATION OF SURFACES

A. Make sure the mating surfaces are a good fit. Make sure only light pressure (1-2 psi) is necessary for the mating surfaces to fully touch.

B. Clean surfaces are necessary to make strong adhesive bonds. All unwanted materials such as oils, greases, waxes, or powders must be removed before the adhesive is applied.

C. Unless shown differently, solvent clean all mating surfaces by the General Cleaning and Final Cleaning procedures of SOPM 20-30-03. Use BMS 15-5 wipers and the solvents as specified.

D. Apply the primers or adhesives immediately after you prepare the mating surfaces. Be very careful to keep dust and unwanted materials off the surfaces. Do not touch the cleaned or primed surfaces unless you use clean gloves.

E. When you bond adjacent to decorative areas, use masking materials per BAC5034 (SOPM 20-44-02) as necessary to keep adhesive from those areas.

F. On nondecorative parts, clean (and apply the primer, if applicable) on an area larger than that which will be bonded or touch the adhesive.

G. Fabrics

(1) Try the solvent on a small piece before you clean a large area. If the solvent damages the fabric, refer to the manufacturer for more instructions.

(2) Fabric newly removed from a roll or pack can be used without more cleaning.

(3) Clean dirty fabric by the solvent clean procedure of SOPM 20-30-03. Dry fabric until the odor of solvent is gone.

H. Coated Fabrics

(1) Clean per Paragraph 4.I. and Paragraph 4.K. unless it is waterproof coated nylon cloth per MIL-C-20696, used to cover insulation blankets.

(2) If there is a parting agent on the vinyl surface, be sure to remove it before you bond.

I. Calendered, Extruded, or Molded Rubber Parts

(1) The parting agent on such parts is usually embedded in the rubber. Sand the parts to remove the parting agent. Solvent clean to remove the sanding debris.

(2) Wipe ethylene-propylene rubber with solvent per SOPM 20-30-03 and dry. Treat with sulfuric acid-dichromate solution per Table 1 for 10-15 minutes at room temperature. Remove and rinse under running water for at least 3 minutes, then dry.

J. Thermosetting Plastics

(1) General procedure for all bonding surfaces.

(a) Lightly sand the surface to remove the gloss, unless this is a polyester or epoxy laminate or panel (such as BMS 4-20 or BMS 4-23) with a peel ply which is removed before you bond.

(b) Solvent clean by the Final Cleaning procedures of SOPM 20-30-03.

(2) Optional procedure for local cleaning of bonding surfaces.

(a) Solvent clean by the Final Cleaning procedures of SOPM 20-30-02.

(b) Lightly sand the surface with 180 grit or finer abrasive paper until the gloss and contamination is removed. Use only clean abrasive paper. Wipe clean with a dry wiper.

K. Thermoplastic Surfaces – See Table 1.

Table 1: Thermoplastic Cleaning

Plastic Surface	Cleaning Procedure
Acetals (Detrin)	Method 1: Wipe with solvent, sand, wipe with a clean, dry wiper, wipe with solvent, again, then dry. Method 2: Wipe with solvent and treat with sulfuric acid-dichromate solution *[1] for 1 to 2 seconds, remove, wash with water, and allow to air dry.
Acrylics and Vinyls	Wipe with solvent, sand unless used for optical or decorative application. Wipe the sanded surfaces with solvent again, then dry.
Celluosics Polyamides (Nylon) Polystyrenes Polysulfones Polyurethanes	Wipe with solvent, sand, wipe with a clean dry wiper. Wipe with solvent again, then dry.
Polytetrafluorethylene (PTFE-Teflon)	Unetched Teflon must be surface treated per BAC5481 (see Paragraph 4.Z.) or BAC5550 before you bond them.

Table 1: Thermoplastic Cleaning (Continued)

Plastic Surface	Cleaning Procedure
Polyolefins (Polyethylene, Polypropylene)	Wipe with solvent. Treat with sulfuric acid-dichromate solution *[1] for 1 hour at room temperature. Remove and rinse fully under running tap water for at least 3 minutes, then dry. Do not wipe the surface during or after treatment.
Polyvinylfluoride (PVR-Tedlar), Bondable (BMS 8-98)	Lightly wipe with solvent and dry. Do not sand.
Polyetherimides (Ultem and PEI blends) Polyphenylsulfones (Radel) Polycarbonates (Lexan) BMS 8-270 (Rotomold Nylon)	Method 1: Wipe with solvent. Sand. Wipe with a clean dry wiper. Wipe with solvent again, then dry. Method 2: Wipe with solvent. Wipe with a clean, dry wiper. Apply BMS 5-127, Type 1 adhesive as a primer by the Type 99 procedure.
Polyetherketoneketone (PEKK, Declar)	Wipe with solvent. Wipe with a clean wiper. Apply BMS 5-127, Type 1 adhesive as a primer as shown in Type 99 procedure.
CAUTION: DO NOT ADD CONCENTRATED SULFURIC ACID TOO QUICKLY TO THE SOLUTION. STIR WELL AFTER EACH SMALL ADDITION. THE SOLUTION WILL GET VERY HOT.	

*[1] Preparation of sulfuric acid-dichromate solution: Dissolve 50 parts by weight of potassium dichromate ($K_2 Cr_2 O_7$) in 80 parts by weight of clean tap water. Then add 1000 parts by weight of concentrated sulfuric acid (H_2SO_4 specific gravity 1.84) in increments of about 100 to 150 parts, stirring after each addition. Control the solution at minimum 1.9 oz/gal of Cr^{+6}, and minimum 1.76 specific gravity with small amounts of concentrated sulfuric acid.
Do not add concentrated sulfuric acid too quickly to the solution. Add it in small quantities and stir it in completely before you add more. The solution will get very hot.

L. TT-P-1757 Zinc Chromate Primed Surfaces

(1) Remove the zinc chromate primer before you bond to the surface, unless parts are held in position at all times by something other than the adhesive, unless batts, lining materials, paper, or felt are to be bonded to the primed surface, or unless adhesive is used only to make assembly easier.

(2) Before you bond, clean the surface by the Final Cleaning procedure of SOPM 20-30-03.

(3) Zinc chromate primer must be sufficiently cured before it can be used as an adhesive bond surface. To see if it is cured, wipe with a clean cloth wet with methyl ethyl ketone. Cure is sufficient when many wipes are necessary for removal. If the primer is easily removed with methyl ethyl ketone, remove all of the primer before you bond to the surface.

(4) Cured zinc chromate primer can be removed with paint and lacquer remover TT-R-248. Apply the remover with a brush only to the area which will be bonded. When primer is wrinkled or softened, remove it with a clean wiper. After removal of primer, solvent clean by the Final Cleaning procedure of SOPM 20-30-03. Make sure all of this area gets the protection of the adhesive. Or apply more primer after the bond procedure. Make sure there are no bare magnesium surfaces.

M. BMS 10-11, Type 1 Primed Surfaces

(1) This primer can stay on the surfaces. But the primer must be permitted to dry as follows before you bond to it.

(a) For adhesive Types 38, 52, 54, 70 and 71, make sure this primer dried for 7 hours at 50°F, 4 hours at 75°F, 15 minutes at 140-160°F, or 5 minutes at 190-210°F.

(b) For all adhesive other types, make sure this primer dried a minimum of 24 hours at 75°F.

(2) Clean these surfaces, before you bond to them, by the Final Cleaning procedure of SOPM 20-30-03.

N. Aluminum without surface treatment

(1) Solvent clean by the General Cleaning procedure of SOPM 20-30-03.

(2) Sand the surface with aluminum wool or aluminum oxide or silicon carbide abrasive.

(3) Solvent clean by the Final Cleaning procedure of SOPM 20-30-03.

O. Aluminum with Surface Treatment (Alodine, Anodize, etc.)

(1) Do not sand the surface.

(2) Solvent clean the surface by the Final Cleaning procedure of SOPM 20-30-03.

P. Steel without plating

(1) Solvent clean by the General Cleaning procedure of SOPM 20-30-03.

(2) Sand the surface with 180 grit or finer abrasive.

(3) Solvent clean by the Final Cleaning procedure of SOPM 20-30-03.

Q. Steel (such as zinc or cadmium).

(1) Do not sand the surface.

(2) Solvent clean the surface by the Final Cleaning procedure of SOPM 20-30-03.

R. Titanium

CAUTION: TO PREVENT HYDROGEN EMBRITTLEMENT, DO NOT USE CHLORINATED SOLVENTS ON TITANIUM WHICH WILL BE IN TEMPERATURES ABOVE 600°F (316°C) ON THE AIRPLANE OR IN SUBSEQUENT PROCEDURES SUCH AS STRESS RELIEVING, ANNEALING, OR WELDING

(1) Solvent clean by the General Cleaning procedure of SOPM 20-30-03. Do not use chlorinated solvents.

(2) Sand the surface with 180 grit or finer abrasive.

(3) Solvent clean by the Final Cleaning procedure of SOPM 20-30-03.

S. BMS 10-11, Type 2, BMS 10-60, BMS 10-83, and MIL-C-83286 Polyurethane Enamels

(1) Abrade or lightly sand the cured enamel surfaces to remove all surface gloss.

(2) Solvent clean the surface by the Final Cleaning procedure of SOPM 20-30-03.

T. Paper, Felt, Cork, Leather – Remove dust and surface contamination with a clean wiper.

U. Tin and Lead Plated Surfaces

(1) Solvent clean by the General Cleaning procedure of SOPM 20-30-03. Do not use chlorinated solvents.

(2) Sand the surface with abrasive fabric or pads.

(3) Solvent clean by the Final Cleaning procedure of SOPM 20-30-03.

V. BMS 5-89, BMS 5-137 and MIL-P-23377 Epoxy Primers

(1) Do not sand the cured primer surface.

(2) Solvent clean by the Final Cleaning procedure of SOPM 20-30-03.

W. Chemglaze II A276 or Chemglaze Z306 Polyurethane Enamels

(1) Lightly sand the area with 320-grit or finer aluminum oxide or silicon carbide sandpaper, to remove surface gloss. Do not go through the enamel layer.

(2) Remove the sand and dust with a clean wiper wet with solvent. Immediately wipe dry with a clean, dry wiper.

X. Wood

(1) Sand along the grain to fully clean the faying surfaces. This is not necessary on a clean cut surface.

(2) Remove sand and dust with a clean wiper, a clean, soft-bristled brush, or a vacuum cleaner.

Y. Alkyd Enamel, Acrylic Enamel, Vinyl Paint, Nitrocellulose Lacquers

(1) You must not bond to surfaces that have these finishes. Remove them per SOPM 20-30-02 from the area which will get the adhesive.

(2) If the removal process damages the primer layers, remove all of the primer also.

Z. BMS 10-20 Coating

(1) Lightly sand the surface to remove the gloss.

(2) Solvent clean by the Final Cleaning procedure of SOPM 20-30-03.

(3) If you must repair the coating, use the procedures of BAC5793 with an elevated temperature cure.

AA. Unetched polytetrafluoroethylene (TFE) (Teflon) (Ref BAC5481):

(1) Clean with a Series 98 solvent (SOPM 20-30-98) and dry with a clean wiper.

(2) Lightly make the surface rough with Scotch-Brite, or aluminum oxide sandpaper or cloth, 250 grit or finer.

(3) Clean again per Paragraph 4.AA.(1).

(4) With masking tape, mask off the surfaces not to be bonded.

(5) Clean again if necessary per Paragraph 4.AA.(1).

(6) Put the part in a TFE etchant for 15-60 seconds until the surface becomes brown. The time will increase with the age of the solution. It is not possible to etch too much. The brown color is applicable only to materials without pigment. If the parts are not etched after 60 seconds, the etchant is worn out and must be replaced.

(7) Wash immediately in n-butyl alcohol to remove remaining etchant.

(8) Rise in hot water until you get a water break free surface. You can add a liquid detergent to the rinse water to help clean the surface.

(9) Let the parts dry and remove all maskants. Do not touch the etched surfaces.

(10) If the parts will not be bonded within 48 hours, give the parts protection from sunlight. The etched surface will be good to bond to for 6 months if given protection from abrasion and light.

AB. BMS 10-103, Type 1 Primer

(1) Removal of the primer is not necessary. Make sure the primer dried for the Minimum Time Prior to Handling as specified in BAC5325.

(2) Solvent clean the primed surfaces by the Final Cleaning Method (SOPM 20-30-03).

AC. Inspection after Cleaning

(1) Wipe the surface with a clean, lint-free cloth. Clean the surface again if you see contamination or discoloration on the cloth.

(2) Examine the surface with reflected light across the cleaned area. Clean the surface again if you find dirt, corrosion, oil, grease, or other contamination.

(3) Examine adjacent surfaces and crevices for contamination by dirt removed from the bond area or by solvent. Clean these areas as necessary.

5. QUALITY CONTROL

A. Make sure the parts are correctly aligned. Reject bonds if the bond strength is reduced, as when the parts were aligned after they were put together.

B. A serviceable bond will be continuous along the edges of all mating surfaces. Reject bonds with loose edges or corners or if adjacent laminations come apart.

C. Reject bonds if you find gaps, blisters, or cracks along the bond line.

D. Adhesives that cure, as compared to adhesives that become tacky as their solvents dry, come out as a bead when the parts are put together. Make sure this bead is continuous along all edges and at the corners.

E. Do not try to pull apart the bonded parts as a test of the bond unless this is a specimen in a test procedure.

F. Look for unwanted adhesive that comes out of the joint, or contamination of adjacent areas by adhesive. Nonsolvent-curing adhesive can have a fillet, if this does not cause a problem with appearance or the fit of subsequent mating parts.

G. If you removed primer to apply the adhesive, make sure this surface has the protection of the adhesive. If it does not, then apply primer on the area that does not have protection.

H. During the adhesive cure, keep the bonding pressure on the parts as constant and continuous as possible over the bond line or area.

I. The cure time specified for the individual adhesive types is the minimum time necessary at the specified temperature for sufficient bond strength to let you move the parts. But the bond could possibly not get to full strength until 7 days at 65°F. If stress could be put in the new bond because of the part size, shape, or subsequent assembly operations, give the bond more time to cure than specified.

J. Make sure the temperature of the part stays above 65°F during the adhesive cure. If the part becomes colder than 65°F, increase the part temperature to a minimum of 65°F to continue the cure. The time that the part is colder than 65°F cannot be included in the cure time. If you use an elevated temperature cure, the cure time starts when the bondline gets to the specified temperature range.

K. If the adhesive components come in a unit which has two syringes operated together, put the unit into an applicator gun and attach a mixing nozzle. When you start to operate the gun to apply the adhesive, make sure the two syringes flow equally and freely. Before you apply the adhesive to the parts, release and discard a bead of adhesive approximately equal to the length and diameter of the mixing nozzle.

6. APPLICATION PROCEDURES

NOTE: Refer to Paragraph 9. for the list of materials and vendors.

A. Type 5 (Deleted) (Superseded by Type 58)

B. Type 9 (Deleted)

C. Type 12

(1) Material – BMS 5-55 Adhesive

(2) Clean the mating surfaces per Paragraph 4.

(3) BMS 5-55 adhesive will settle and must be mixed fully before you use it, and at intervals while you use it.

CAUTION: UNLESS KEPT IN AIRTIGHT CONTAINERS AND CONTINUOUSLY SHAKEN, THINNED ADHESIVE MUST BE USED WITHIN 4 HOURS.

(4) No thinner is necessary to apply BMS 5-55 with a brush. To spray the adhesive, use one part of BMS 5-55 with up to 3 parts by volume of aliphatic naphtha.

(5) For nonporous surfaces, apply a continuous brush layer or three to four spray layers, one after the other to each surface. On porous surfaces, apply two brush layers or four to five spray layers one after the other. Let each layer dry 20 to 30 minutes. Let 10 to 20 minutes for the last coat of adhesive to become tacky, but not to get on your knuckle when touched lightly.

(6) When the bonding area is large, let the last coat of adhesive dry tack-free. Then lightly wipe one surface with clean cheesecloth wet with aliphatic naphtha.

(7) Push or roll the parts together. Apply sufficient pressure to make the surfaces touch completely. Do not make air pockets.

(8) Do not heat cure BMS 5-55 adhesive above 125°F. Assemblies can be moved immediately.

(9) Clean equipment with aliphatic naphtha.

D. Type 17 (Deleted)

E. Type 19

(1) Materials

WARNING: BECAUSE THIS ADHESIVE CONTAINS FORMALDEHYDE, IT COULD CAUSE SKIN IRRITATION. USE PROTECTIVE CREAMS AND FREQUENTLY WASH WITH SOAP AND HOT WATER TO HELP PREVENT SKIN IRRITATION.

(a) Adhesive – MMM-A-181, Type 1, Grade B

(b) Primer – Bostik L1007M

(2) Method 1 – Wood Flyaway Application

(a) Make a check of the wood parts to be bonded for a good mechanical fit. Smoothly machine or sand the surfaces in the direction of the grain within one day before you bond them.

(b) The moisture content of the wood must be between 8 and 12%. Control the temperature and humidity of the work rooms to keep the moisture content of the wood in this range. Keep continuous inspection records of temperature and humidity. Calculate the moisture content of the wood as follows:

1) Make test specimens of the material to be bonded. Make the length of the test specimen approximately 1 inch in the direction of the grain. The specimen must include the full cross section of the piece. Cut the specimens at least 12 inches from the end to be sure that the moisture content is not of a dried end.
2) Remove all loose splinters. Weigh the test specimen immediately after you cut it before the moisture content changes.
3) Put the specimens in a drying oven and dry at 212° to 221°F until the weight becomes constant. This will occur after about 24 hours. Put specimens in the oven to let each piece have free access to the hot air.
4) Weigh the test specimen immediately after removal from the oven.
5) Calculate the moisture content:

   Percent moisture content = W-D/W X 100

   where W = original weight (before drying)

   D = oven-dry weight

(c) Fully mix the individual ingredients. Mix the catalyst with the base resin in a ratio of 25 parts catalyst per 100 parts resin by weight. If the adhesive was refrigerated, let it warm to room temperature, not below 65°F, before you mix it. Do not use a thinner.

(d) The pot life of the mixed adhesive is approximately 2 hours below 100°F.

(e) Make sure the temperature of the adhesive and the parts is not lower than 65°F.

(f) With a brush, apply the adhesive to each surface. Put on not less than 0.5 ounce per square foot on each surface.

(g) Wait for this interval after you apply the adhesive and before you apply pressure:

1) Open assembly (surfaces glued but not assembled): 5-15 minutes.
2) Closed assembly (surface glued and immediately assembled but no pressure applied): 15-60 minutes.
3) Open-closed assembly (surface glued, not assembled for an interval, and then assembled): 15 minutes minimum; maximum period can be calculated as follows: For each minute of open assembly, decrease the closed assembly period maximum (60 minutes) by 4 minutes.
4) For each 5-degree increase in temperature above 70°F, decrease the permitted open assembly time by 1 minute, and the closed assembly time by 2-1/2 minutes.

(h) Use these pressures, if permitted by the shape and nature of the part:

200-250 psi Birch, Maple, Hickory, Oak

150-200 psi Douglas Fir, Walnut, Mahogany

100-150 psi Spruce, Cedar and other low density woods

(i) Keep the pressure on for 8 hours at 65°F minimum. If the glue line is stressed, keep the pressure on for a minimum of 12 hours. Heat can be used to make the cure faster. The pressure and heat can be removed after 2 hours at 100°-120°F or after 1 hour at 130°-150°F.

(j) Let the assembly cure a minimum of 24 hours before you apply more stress or machine on it.

(k) Do not use a thinner with this adhesive. Equipment can be cleaned with denatured alcohol or water before the adhesive is cured.

(3) Method 2 - Bonding Wood and Buna-N Rubber to Metals

(a) Fully mix the individual components. Then mix together the catalyst with the base resin in a ratio of 25 parts catalyst per 100 parts resin. If the adhesive was refrigerated, let it warm to 65-80°F before you mix it. Do not use a thinner.

(b) Clean the mating surfaces per Paragraph 4..

(c) With a brush, apply one layer of Bostik L1007M primer to metal surfaces. Let this dry for a minimum of 30 minutes. Mix the Bostik L1007M until smooth. Do not use a thinner.

(d) With a brush, apply a layer of the mixed adhesive to the mating surfaces. Air dry at least 10 minutes before assembly, but do not let the adhesive to dry until tack-free.

(e) Press the parts together and hold sufficient pressure to make sure all of the mating surfaces touch. Cure under pressure for a minimum of 8 hours at 65-80°F, 2 hours at 90-110°F or to 1 hour at 120-140°F.

(f) Let the assembly cure for a minimum of 24 hours at room temperature before you apply stress to the bonds.

(g) Equipment can be cleaned with denatured alcohol before the adhesive is cured.

F. Type 30

(1) Material – Duco Cement

(2) Clean the mating surfaces per Paragraph 4.

(3) Nonporous materials - Apply one layer of the adhesive on each surface and clamp together until dry (about 4 hours).

(4) Porous materials such as wood and textiles – Two layers are necessary. The first coat must be a complete seal and must be dry before you apply the second layer. After you apply the second layer, clamp the parts together until dry (about 4 hours).

(5) When the area covered is large, you can reactivate the adhesive. Lightly wipe one surface with clean cheesecloth wet with methyl ethyl ketone.

G. Type 34 (Deleted)

H. Type 38

(1) Materials

(a) Adhesives

NOTE: BMS 5-29 was superseded by BMS 5-126.

1) BMS 5-126, Type 2, Class 1 – A liquid, two-part, natural-colored adhesive

2) BMS 5-126, Type 3, Class 1 – A liquid, two-part, natural-colored adhesive thickened with 6 percent Cab-O-Sil

3) BMS 5-126, Type 4, Class 1 – A two-part, flame-retardant paste adhesive with 10 15 minute pot life

4) BMS 5-126, Type 4, Class 1 or 4 – A two-part, flame-retardant paste adhesive with 20 30 minute pot life. Class 4 material is resistant to ultraviolet light.

(b) Primers – EC776 or MIL-S-4383

(2) Clean the mating surfaces per Paragraph 4.

(3) Prepare the adhesive as follows:

NOTE: The pot life of the BMS 5-126, Type 2 and 3 adhesives is approximately 1.5 hours if below 100°F. But small batches of mixed adhesive (not more than 60 grams) can be used a maximum of 20 days later if refrigerated, below -40°F, immediately after they are mixed. After you thaw this adhesive, do not refrigerate it again. Keep these batches in sealed moisture-proof containers marked per par. Paragraph 3.E.

(a) Immediately before you use them, fully mix each individual component. Then fully mix the components together as shown below.

(b) BMS 5-126, Type 2, Class 1 – Mix equal parts by weight of component A with component B.

(c) BMS 5-126, Type 3, Class 1 – Mix equal parts by weight of modified component A with component B.

(d) BMS 5-126, Type 4, Class 1 or 4 – Mix the components by the vendor's instructions.

(4) Apply adhesive as follows:

(a) Standard Method (to be used when Type 38 is specified without modification)

1) Apply a thin, continuous smooth layer of the mixed adhesive to each mating surface. As an alternative, you can apply the adhesive to only one of the surfaces if the surface is smooth, the mating surfaces fit with a maximum gap of 0.010 inch, and sufficient adhesive is applied to make sure the other surface will be completely touched by the adhesive.

2) Assemble the parts and apply continuous pressure to make sure the surfaces touch completely. Remove unwanted adhesive, before it cures, with a clean cloth wet with solvent. Do not let solvent flow into the bond line.

3) Cure under pressure at a time and temperature per Figure 1. After the adhesive is cured, let the parts cool below 100°F before you remove pressure. Parts bonded with BMS 5-126, Type 4, Class 2 or 4 adhesive can be moved after you cure them a minimum of 45 minutes at a minimum bondline temperature of 130°F and then cooled below 100°F before removal of pressure.

(b) Special Method I – Bonds to Metal Surfaces

1) Apply a thin, continuous smooth layer of one of the Type 38 primers to the metal faying surfaces. Dry not less than 3 hours at 60-70°F, 2 hours at 70-80°F, or 1 hour at 80-90°F.

2) Do the procedure of the Standard Method.

(c) Special Method II – Nonstructural Metal-to-Metal Bonds With Glass Scrim

1) Apply a thin, continuous smooth layer of one of the Type 38 primers to each metal mating surface. Dry not less than 3 hours at 60-70°F, 2 hours at 70-80°F, or 1 hour at 80-90°F.

2) Cut glass scrim to the applicable dimensions.

3) Apply a continuous smooth layer of the adhesive to one of the mating surfaces. Push the glass scrim down into the adhesive.

4) Apply a continuous smooth layer of the adhesive to the remaining metal surface.

5) Assemble the parts and apply sufficient pressure to make the mating surfaces touch the scrim cloth and to push out the unwanted adhesive.

6) Remove the unwanted adhesive before it is cured, with a clean cloth wet with solvent. Do not let the solvent flow into the bond line.

7) Cure at a time and temperature per Figure 1. Then cool the parts to below 100°F before you remove the pressure.

(d) Optional Method II – Bonds of Scrim Cloth to Adhesive Primer by Heat Reactivation

1) Apply a thin, smooth layer of one of the Type 38 primers to the mating surfaces. Dry a minimum of 3 hours at 60-70°F, 2 hours at 70-80°F, or 1 hour at 80-90°F. Parts with primed surfaces can be kept in storage as long as 1 week if they are given protection from contamination.

2) Cut the scrim cloth to the applicable dimension.

WARNING: THE IRON IS NOT A VAPOR-TIGHT UNIT AND COULD BE AN IGNITION SOURCE FOR SOLVENTS, ADHESIVES AND PRIMER. USE ONLY AN APPROVED IRON.

3) Put the scrim cloth on the primed surface and tack it in position with pressure from a hot iron (such as a heat sealing iron, or an ordinary household electric iron).

NOTE: Surface temperature of the iron must be 300-425°F. Less than 10 seconds of pressure time is necessary if you push down sufficiently. A longer contact time will make the faying surface too hot. Use a clean iron to prevent contamination of the fabric. The complete fabric area, or as small an area as is necessary, can be heat-reactivated. Parts with scrim cloth attached may also be kept in storage as long as 1 week if given protection from contamination.

4) Do the procedure of the Standard Method.

(e) Special Method III – Bonds to Metal or Nonmetal Surfaces With Glass Scrim

1) Clean all aluminum mating surfaces as specified below. Clean all other mating surfaces per Paragraph 4.

a) Solvent clean by the General Cleaning procedure of SOPM 20-30-03.

b) Abrasive grit blast (aluminum oxide 180 grit or finer) per SOPM 20-30-03. Use only new clean grit.

c) Solvent clean to remove the grit and contamination by the Final Cleaning procedures of SOPM 20-30-03.

2) Cut the glass scrim to the approximate applicable dimensions, but larger to let you adjust its size after assembly.

3) Prepare the adhesive per Paragraph 6.H.(3)

4) Apply a continuous smooth layer of the adhesive to one of the cleaned mating surfaces. Push the glass scrim down into the adhesive.

5) Apply a continuous smooth layer of the adhesive to the remaining mating surface.

6) Assemble the parts. Apply and keep a sufficient pressure to make the surfaces touch the glass scrim and push out the unwanted adhesive. Be sure to keep the pressure on. If you let the pressure be decreased or released after you start, you must disassemble the parts and start all over again.

7) Cut the edges of the glass scrim to align them with the edges of the bond line.

8) Wipe off the unwanted adhesive before it cures, with a clean cloth wet with methyl ethyl ketone, methyl propyl ketone, isopropyl alcohol or denatured alcohol. Do not let the solvent flow into the adhesive bond line.

9) Keep the pressure on and cure with a time and temperature per Figure 1. Then cool the part below 100°F before you remove the pressure.

I. Type 40

(1) Material – BMS 5-14 adhesive

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix the adhesive fully before you use it. Do not use adhesive which is too thick or became a gel. When you use a thinner, as for spray application, use up to 3 parts by volume of methyl ethyl ketone with one part adhesive. Use this thinned adhesive within 4 hours unless you keep it in airtight containers and continuously shaken.

(4) On nonporous surfaces, apply a layer by brush or three or four spray layers, one after the other, of the adhesive to each mating surface.

(5) On porous surfaces such as textiles and soft woods, seal the surfaces with two adhesive layers by brush or four to five spray adhesive layers, one after the other. The first brush layer must fully seal the surface and be dried for 20-30 minutes before you apply the second layer.

(6) Let the final layer of adhesive dry until it is tacky, but will not get on your knuckle, when you lightly touch it. This will be after 10-20 minutes at approximately 70°F.

(7) When the adhesive area is large, or if the mating surfaces have no pores, caught solvent becomes a problem. Then let the surfaces dry until they are not tacky. Then lightly wipe one surface with clean cheesecloth wet with methyl ethyl ketone to reactivate the adhesive.

(8) Put the mating surfaces together while the adhesive is tacky. Apply sufficient pressure to make sure the surfaces fully touch.

(9) The assembly can be moved immediately.

(10) Remove unwanted adhesive with solvent. Do not let the solvent flow into the bond line.

(11) For a faster cure and better bond strength, cure at a maximum of 200°F for 1-6 hours. Let the heat cured bonds cool to 70-80°F before you apply stress.

J. Type 44

(1) Material:

(a) You can use any of these materials.

1) BMS 5-44, Class B

2) BMS 5-45, Class B (Pro-Seal 890 only)

(b) Use the adhesive with a work life which is best for the task (Table 2). The dash number of the class letter is the same as the work life in hours, at temperatures below 100°F.

Table 2: Type 44 Adhesive Work Life and Cure Time

Adhesive	Work Life	Minimum Cure Time at 72-82°F
BMS 5-44, Class B-1/2	1/2 hour	24 hours
BMS 5-44, Class B-2	2 hours	48 hours
BMS 5-45, Class B-1/2	1/2 hour	12 hours

Table 2: Type 44 Adhesive Work Life and Cure Time (Continued)

Adhesive	Work Life	Minimum Cure Time at 72-82°F
BMS 5-45, Class B-2	2 hours	48 hours

(2) Clean the mating surfaces per Paragraph 4.

(3) Before you use them, fully mix the individual components. Then mix the base compound with its activator by the manufacturer's instructions. Do not use a thinner.

(4) Apply a thin, continuous, smooth layer of the mixed adhesive to the mating surfaces. As an alternative, you can apply the adhesive to only one of the surfaces if the surface is smooth, the mating surfaces fit with a maximum gap of 0.010 inch, and sufficient adhesive is applied to make sure the other surface will be completely touched by the adhesive. On large surfaces, you can use a phenolic spreader approximately 4 inches wide with one edge beveled and notched approximately every 1/8 inch with notches approximately 1/32 inch wide.

(5) Put the mating surfaces together immediately, and apply sufficient pressure to make sure the parts fully touch. Look for a continuous bead of pushed out adhesive.

(6) Cure at room temperature below 100°F per Table 2, until squeezed-out adhesive cannot be removed with a Pink Pearl eraser (or equivalent). A reading of 30 on a Rex Model A Durometer (preferred) or a reading of 20 on a Shore A durometer will tell you the bond is sufficiently strong to let you move the unit.

(7) For a faster cure, you can apply heat for a maximum bond line temperature of 140°F. This can decrease the cure time approximately 50% for each 20°F increase in temperature. But a cure at temperatures below 75°F will be much slower than shown in Table 2.

K. Type 45 (Superseded by Type 68)

L. Type 46 (Superseded by Type 77)

M. Type 47 (Deleted)

N. Type 48

NOTE: Detailed procedures for bonding Velcro Tape and Duracote Corporation EF foam to anodized aluminum grills are contained in Boeing Process Document D6-2862.

(1) Material – BMS 5-30 adhesive

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix the adhesive fully before you use it. Do not use adhesive which is too thick or became a gel. When you use a thinner, as for spray application, use up to 3 parts by volume of methyl ethyl ketone with one part adhesive. Use this thinned adhesive within 4 hours unless you keep it in airtight containers and continuously shaken.

(4) On nonporous surfaces, apply to each mating surface a medium to heavy smooth layer of the adhesive with a brush, or three to four spray layers, one after the other.

(5) On porous surfaces, such as textiles and soft woods, apply two layers of adhesive by brush, or spray on four to five layers of adhesive, one after the other. The first brush layer must fully seal the surface and be dried for 20 to 30 minutes before you apply the layer. (As an option, and only when you bond foam, felt, or honeycomb to metal, apply one layer of adhesive to the metal and let it dry until tacky. Then apply one more layer of adhesive to the metal and apply the felt, foam or honeycomb while the adhesive layer is wet.)

(6) Let the final layer of adhesive dry until it is tacky but will not get on your knuckle when you touch it lightly. This will be after 10-20 minutes at approximately 70°F.

(7) When the adhesive area is large, or if the mating surfaces have no pores, caught solvent becomes a problem. Then let the surfaces dry until they are not tacky. Then lightly wipe one surface with a clean wiper wet with methyl ethyl ketone to reactivate the adhesive.

(8) Put the mating surfaces together while the adhesive is tacky, or immediately after you wiped with methyl ethyl ketone. Apply sufficient pressure to make sure the parts fully touch. Do not make air pockets.

(9) Parts can be moved immediately, but do not put stress on the bond for 24 hours. Maximum strength comes in 5 to 7 days at 65 to 80°F.

(10) Remove unwanted adhesive with solvent. Do not let the solvent flow into the bond line.

O. Type 49 (Superseded by Type 38.)

P. Type 50

WARNING: BE VERY CAREFUL WHEN YOU USE BMS 5-36 ADHESIVE. THIS ADHESIVE MAKES AN ALMOST IMMEDIATE, VERY STRONG BOND. APPLY IT ONLY TO SURFACES TO BE BONDED. THIS ADHESIVE IS AN EYE IRRITANT AND BONDS SKIN IN SECONDS. USE GOGGLES OR SAFETY GLASSES AND POLYETHYLENE GLOVES. DO NOT USE RUBBER OR CLOTH GLOVES. RUBBER WILL BOND WHEN IT TOUCHES THIS ADHESIVE. CLOTH WILL SOAK UP THE ADHESIVE AND THEN BOND TO THE SKIN. IF THIS ADHESIVE GETS IN THE EYES OR INTERNALLY, GET MEDICAL ATTENTION. IF THIS ADHESIVE GETS ON THE SKIN, FLUSH THE SKIN WITH WATER IMMEDIATELY.

CAUTION: THIS ADHESIVE SOAKS UP WATER VERY EASILY AND CURES WITH MOISTURE. BECAUSE OF THIS, THE ADHESIVE MUST BE KEPT IN SEALED CONTAINERS. OPEN THE CONTAINER ONLY FOR THE SHORTEST POSSIBLE TIME. TO HELP PREVENT CONTAMINATION BY APPLICATORS AND TO DECREASE THE RISK OF CONTAMINATION, ONLY THE SMALL TUBES OR SMALL POLYETHYLENE CONTAINER-APPLICATOR COMBINATIONS ARE RECOMMENDED.

(1) Material – BMS 5-36 Adhesive

(2) Method I – General Applications

(a) Clean the mating surfaces per Paragraph 4.

(b) Apply the BMS 5-36 adhesive to one mating surface. Apply the adhesive directly from the container with a medicine dropper or directly from the container-applicator. Apply the adhesive in as thin a layer as possible with a glass rod or equivalent tool.

(c) Assemble the parts immediately. Final adjustment must be made within seconds after the parts touch, because the adhesive cures that quickly. Apply some pressure by had, by clamps, or by something equivalent to make sure the mating surfaces stay together tightly until the bond cures. The time for this is different for each material to be bonded. Usually it is some seconds, but it could be as much as 3 to 5 minutes.

(d) The parts can be moved after the 1 hour cure at 65-100°F.

(3) Method II – Primer Application Only

NOTE: This procedure is used to bond thin rubber gaskets, parts with unusual properties or details, and when one surface has much plastic in or on it.

(a) Clean the mating surfaces per Paragraph 4.

(b) Apply a thin, continuous, smooth layer of the adhesive to the surface that has the plastic. Refer to Paragraph 6.P.(2)(b) above for details.

(c) Air dry for a minimum of 5 minutes or until the adhesive is dry to the touch.

(d) Bond the parts together with BMS 5-14 adhesive by the Type 40 procedure.

(4) Cleanup of Spilled Adhesive

(a) If you spill large quantities of adhesive, immediately flood the area with water. This will cure the adhesive which can then be scraped from the surface.

(b) Do not use rags or tissues to wipe up spills. The fabric will cause a chemical reaction, and the adhesive will make heat during the cure, with smoke and strong, irritating vapors.

Q. Type 51

(1) Materials – BMS 5-31 adhesive, which includes base and accelerator.

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix each component in its container before you mix them together. Immediately before you use it, mix 30 parts by weight of accelerator with 100 parts by weight of base resin. Pot life of the mixture is approximately 20 minutes below 100°F. Do not use a thinner.

(4) Apply a thin, smooth layer of the mixed adhesive to the mating surfaces. As an alternative, you can apply the adhesive to only one of the surfaces if the surface is smooth, the mating surfaces fit with a maximum gap of 0.010 inch, and sufficient adhesive is applied to make sure the other surface will be completely touched by the adhesive.

(5) Put the surfaces together and apply sufficient pressure to make sure the surfaces fully touch and the unwanted adhesive comes out. Use only sufficient pressure to hold the parts together.

(6) Remove the unwanted adhesive before it cures, with a clean cloth wet with solvent. Do not let the solvent flow into the bond line.

(7) Cure at one of these minimum times before you move or use the part. The bond will get to full strength after 48 hours.

(a) 10.5 hours at 55-64°F

(b) 8.5 hours at 65-72°F

(c) 6.5 hours at 73-84°F

(d) 4.5 hours at 85-90°F

R. Type 52

(1) Adhesive – BMS 5-60, which has two components, a base and a hardener

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix the individual components. Then mix the two components of BMS 5-60 in the ratio of 25 parts by weight of hardener to 100 parts by weight of base resin.

(4) The pot life of the mixed adhesive is 45 minutes below 100°F. But the mixed adhesive can be kept in refrigerated storage at -20°F or colder for 7 days, or -40°F or colder for 10 days. If you do this, be sure to put a label on the container which gives the name of the adhesive, the date it was mixed, and the date it will expire.

(5) Apply the adhesive to the mating surfaces.

(6) Assemble the parts, and apply only sufficient pressure to make sure the mating surfaces fully touch.

(7) Wipe off the unwanted adhesive, before it cures, with a clean cloth wet with solvent. Do not let the solvent flow into the bond line.

(8) Cure under constant pressure for 12 hours at 65-80°F, a minimum of 2 hours at 115-135°F, or 55-65 minutes at 190-210°F. This adhesive will not cure satisfactorily below 65°F.

S. Type 53 (Superseded by Type 58, BMS 5-7, Type 2)

T. Type 54

(1) Materials

(a) BMS 5-25, Type 2, Grade 1

(b) Thickening agent – Cab-O-Sil, Type M-5 or HS-5

NOTE: This adhesive is usually cured at 60-80°F, but a faster cure can be used as indicated below.

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix each component. Then mix the components together by the vendor's instructions. The pot life of the mixed adhesive is approximately 1 hour. Do not use a thinner. For a cure at higher temperatures, you can add a maximum of 1 part by weight of thickening agent to 49 parts adhesive.

(4) Apply a thin layer of the mixed adhesive to each faying surface.

(5) Assemble the parts and apply sufficient pressure to make sure all of the surfaces touch completely. A continuous bead of adhesive that comes out usually indicates that the surfaces touched completely.

(6) Remove unwanted adhesive before it cures. Use a clean cloth wet with solvent. Do not let the solvent get into the bond line.

(7) Cure under constant pressure, for a minimum of 12 hours at 65-100°F, or 2 hours minimum at 115-135°F, or 55-65 minutes at 190-210°F. This adhesive will not cure satisfactorily below 65°F.

U. Type 55

(1) Material – Chemlock 220 Adhesive

(2) Make the metal mating surfaces rough with sandpaper or sandblast them.

(3) Clean the metal mating surfaces per Paragraph 4.

(4) Fully mix the adhesive until smooth and continuous.

(5) Apply the adhesive to the metal faying surfaces and let it air dry for 30 minutes at 65-100°F.

(6) Put the uncured Butyl rubber in position on the cleaned metal part(s) and apply sufficient pressure to form the rubber. Mechanical and/or vacuum pressure can be used.

(7) Use the same cure time and temperature as that of the Butyl rubber used. A typical cure time and temperature for Butyl rubber is 45 minutes at 290-310°F.

V. Type 56

(1) Materials

(a) Adhesive – Epon 828

(b) Catalyst – Pyromellitic dianhydride (PMDA) or 946 Hardener

(2) Clean the mating surfaces per Paragraph 4. If the surfaces are unetched Teflon, be sure to etch them per Paragraph 4.AA..

(3) Before you use them, thoroughly mix the individual components. Then mix 100 parts by weight of Epon 828 with 40 parts by weight of PMDA or 20 parts by weight of 946 hardener. Pot life below 100°F is approximately 24 hours for the mixture with PMDA, or 10-15 minutes for the mixture with 946 hardener.

(4) Apply a thin, continuous, smooth layer of adhesive to each mating surface and assemble the components.

(5) Remove unwanted adhesive before it cures. Use a clean cloth wet with solvent. Do not let the solvent get into the bond line.

(6) Cure under pressure of 5-15 psi for 25-30 minutes at 340-360°F. Cure time starts when the bond line reaches the specified temperature.

(7) If the overhaul instructions specify a primer layer of Type 56 to bond Teflon, apply a thin layer of this adhesive to treated Teflon surfaces and cure without pressure for 25-35 minutes at 340-360°F as above.

(8) Parts can be used immediately after the cure.

W. Type 58

(1) Adhesive – BMS 5-7, Type 1 or Type 2

NOTE: When the BMS 5-7 type is not specified, use Type 1.

(a) Clean the mating surfaces per Paragraph 4.

(b) Mix the adhesive fully before you use it. Do not use adhesive which is too thick, or became a gel. Do not use a thinner with this adhesive.

(c) Apply two thin, continuous, smooth layers by brush or spray to each mating surface. On porous surfaces, two or more layers of adhesive could be necessary to fully seal the surface. Let each layer dry at 65-100°F.

(d) Let the last coat adhesive dry until it is tacky, but will not get on your knuckle when you touch it lightly.

(e) As an alternative to Paragraph 6.W.(1)(d), let the adhesive dry tack free and, to reactivate, lightly wipe one surface with clean wiper wet with methyl ethyl ketone or naphtha. This is a good alternative when the adhesive area is large or the mating surfaces have no pores to let caught solvent get out.

(f) Put the mating surfaces together while the adhesive is tacky, and apply sufficient pressure to make sure the parts fully touch. Do not make air pockets.

(g) The assembly can be moved immediately.

(h) Remove unwanted adhesive with the solvent you used to prepare the surface per Paragraph 4. Do not let the solvent get into the bond line.

X. Type 59 (Superseded by Type 70)

Y. Type 60

(1) Adhesives

(a) Grade 1 (white) – RTV 102, IS 802, Q3-7063

(b) Grade 2 (translucent) – RTV 108

(c) Grade 3 (gray) – RTV 157

(d) Grade 4 (beige) – CRTV 9405

(e) Grade 5 (white) – RTV 108

(2) Primer – DC 1200 (red or clear) or DC 1204

(3) Standard Method. Use this method to bond parts or when the overhaul instructions do not fill gaps or spaces with this adhesive.

(a) Clean the mating surfaces per Paragraph 4..

(b) When adhesive primer is specified, apply DC 1200 or DC 1204 primer to all surfaces to be bonded unless they are silicone rubber. By brush or spray, apply a thin layer of this primer, red or clear. Do not use a thinner with this primer. Use this primer as supplied. Do not use primer which is cloudy or milky. Let this primer dry 30 minutes to 4 hours at 65-100°F.

(c) If the overhaul instructions specify Type 60 without a grade, you can use any grade, as to agree with the color of the surfaces.

(d) Apply a smooth layer of the adhesive on one or each surface to be bonded. Be very careful not to apply the adhesive outside of the bond area if the surfaces will be subsequently finished.

(e) Put the surfaces together as quickly as possible after you apply the adhesive, because after a few minutes the adhesive layer will get a skin which will prevent a good bond.

(f) Apply sufficient pressure to make sure the surfaces fully touch, but not to squeeze out too much adhesive. A bond line thickness of at least 0.015 inch gives best results.

(g) To cure, this adhesive must absorb moisture from the air. Thus the bondline must be open to the air. No location in the bond can be more than 1/2 inch from an outer edge unless the material of the parts has pores.

(h) Cure under pressure for a minimum of 24 hours at 65-100°F and a minimum of 20% relative humidity. There will be the odor of acetic acid until the cure is complete. For a faster cure, cure the parts at 6 hours minimum at 100°F minimum, with a minimum of 60% relative humidity inside the oven.

(4) Gap-Filling Method. Use this method when the overhaul instructions fill gaps with this adhesive.

(a) Clean the mating surfaces per Paragraph 4..

(b) Apply sufficient adhesive to fully fill the gap. Remove unwanted adhesive. Do not let too much adhesive get on adjacent surfaces because removal will be necessary if the surfaces will be refinished. If the overhaul instructions do not specify the color, you can use any grade to agree with the color of the part.

(c) Before you touch or move the parts, let the adhesive make a skin that is tack-free. Do not touch the adhesive until it is fully cured. The adhesives will become tack free in these approximate times:

1) RTV 102, RTV 108: 20 minutes

2) RTV 157, Q3-7063: 45 minutes

3) CRTV 9405: 60 minutes

Z. Type 61

(1) Materials

(a) Adhesive – PR-1710

(b) Catalyst – PR-1710 Accelerator

(c) Primer – PR-1711

(2) Standard Method

NOTE: This method is to be used when the overhaul instructions specify Type 61 without the method.

(a) Clean the mating surfaces per Paragraph 4..

CAUTION: PR-1711 PRIMER WILL ABSORB WATER AND MUST BE KEPT AWAY FROM MOISTURE. WHEN PR-1711 BECOMES CLOUDY, IT MUST BE DISCARDED

(b) Brush one continuous layer of PR-1711 primer on nonrubber surfaces to be bonded. Allow to air dry for 30 minutes at 65 to 100°F.

(c) Fully mix the individual components. Then mix 20 parts by weight of PR-1710 base with 1 part of accelerator. Pot life of the mixed adhesive is approximately 24 hours below 100°F if kept in a sealed container.

(d) Bond the parts.

1) To bond a rubber surface to a nonrubber surface, apply a thin, continuous layer of mixed PR-1710 adhesive on the rubber surface with a brush or other method that will fully cover it. Let this air dry for 30 minutes to 1 hour. Apply a equivalent layer on the primed nonrubber surfaces. Let this air dry until tacky. Then put the surfaces together with sufficient pressure to make sure they fully touch.

2) To bond rubber to rubber, apply a thin, continuous, coat of mixed PR-1710 adhesive to each surfaces with a brush or other method that will ensure complete coverage fully cover the surfaces. Let these layers air dry for 30 minutes to 1 hour. Then apply a second layer of adhesive to one of the surfaces. Let this layer air dry until tacky. Then put the surfaces together with sufficient pressure to make sure they fully touch.

CAUTION: KEEP SOLVENTS AWAY FROM MATERIALS OR SURFACES ON WHICH IT WILL CAUSE DETERIORATION.

3) Optional Method:

a) With a brush, apply a continuous layer of mixed PR-1710 adhesive to each of the prepared surfaces. Let this air dry 30 minutes to 1 hour.

b) Put the adhesive surfaces at an angle, then quickly apply methyl ethyl ketone from a clean squirt bottle onto the adhesive surfaces.

c) Carefully put the wet surfaces together, in the exact position they must be. Do not try to align the surfaces after they touch.

d) Immediately apply sufficient pressure to make sure the surfaces fully touch. Shot bags are recommended to apply pressure on large parts. Weights or clamps can be used on small parts.

e) Seal the edges of the bondlines with a continuous layer of the adhesive, applied with a brush.

(e) For all of these methods, let the adhesive cure under pressure for 16 hours minimum at 65 to 100°F before you move the assembly.

(3) Special Method 1

(a) Clean nonmetal surfaces per Paragraph 4.. Dry abrasive clean metal surfaces, then solvent them by the Final Cleaning method of SOPM 20-30-03.

(b) Do steps (b) thru (e) of the standard method.

AA. Type 62

(1) Materials

(a) Adhesive – Q4-2817

(b) Primer – DC 1200 (red or clear)

(2) Clean the mating surfaces per Paragraph 4.

CAUTION: KEEP SOLVENTS AWAY FROM MATERIALS OR SURFACES ON WHICH IT WILL CAUSE DETERIORATION.

(3) Apply primer to all bonding surfaces unless they are fluorosilicone rubber. Use a brush or spray, and apply a good coat of primer. Do not thin the primer. Air dry for 30 minutes minimum and 4 hours maximum at 65 to 100°F.

(4) Apply a smooth layer of the adhesive on each surface to be bonded. Be very careful not to apply the adhesive outside of the bond area if the surfaces will be subsequently finished.

(5) Put the surfaces together as quickly as possible after you apply the adhesive, because after a few minutes the adhesive layer will get a skin which will prevent a good bond.

(6) Apply sufficient pressure to make sure the surfaces fully touch, but not to squeeze out too much adhesive. A 10- to 30-mil bond line thickness gives best results.

(7) To cure, this adhesive must absorb moisture from the air. Thus the bondline must be open to the air. No location in the bond can be more than 1/2 inch from an outer edge unless the material of the parts has pores.

(8) Cure under pressure for 3-4 days at 65-100°F and a minimum of 20% relative humidity.

AB. Type 63 (Superseded by Type 82)

AC. Type 65 (Deleted)

AD. Type 66

(1) Materials

(a) Adhesive – Part A of S-1005, S-1006, or S-1009

(b) Catalyst – Part B of S-1005, S-1006, or S-1009

(2) Sand the bonding surfaces of the heat-shrinkable parts lightly with 240-grit aluminum oxide cloth. (This is not necessary on internal surfaces of heat-shrinkable sleeving, boots, or transitions with ID less than 0.25 inch.) Clean the sanded surfaces with a wiper with solvent and wipe dry immediately with a clean wiper. Be careful not to put contamination on cleaned areas.

(a) Prepare inner bonding surfaces of heat-shrinkable boots and transitions before you shrink them.

(b) Prepare outer bonding surfaces of heat-shrinkable sleeves after you shrink them. The sanded area must be larger than the bond area by 1/4 inch minimum.

(3) Clean the bonding surfaces of connectors with a wiper wet with solvent and wipe dry immediately with a clean wiper. Be careful not to put contamination on cleaned areas.

(4) Mix these adhesive components together for approximately 3 minutes.

(a) S-1005 or S-1006: Mix 33-37 parts by weight of Component A with 62-68 parts by weight of Component B.

(b) S-1009: Mix 48-52 parts by weight of Component A with 48-52 parts by weight of Component B.

(5) The pot life of the mixed adhesive is approximately 1 hour at 60-80°F. But small quantities of the mixed adhesive, not more than 25 grams each, can be kept up to a maximum of 20 days in refrigerated storage, colder than -40°F, immediately after they are mixed. If you do this, be sure to put a label on each container which gives the data of Paragraph 3.E. When you thaw such units, do not put them back into refrigerated storage again.

(6) Apply a thin, continuous layer of adhesive to all surfaces to be bonded.

(7) Put boots and transitions in position and shrink them per BAC5155 (SOPM 20-11-03 or SOPM 20-12-01).

(8) Immediately after you shrink the boots and transitions, wipe off the unwanted adhesive at the joints with a wiper wet with naphtha or BMS 11-7 solvent. Do not let fillets of adhesive be at joints.

(9) Do not bend or stress the bonded joints during the cure. Cure the adhesives as follows:

(a) Cure adhesives S-1005 and S-1006 for 1 hour minimum at 180°F or for 24 hours minimum at 65-100°F.

(b) Cure adhesive S-1009 for 1 hour minimum at 250°F, 2 hours minimum at 200°F, or 4 days at 60-100°F.

AE. Type 67 (Deleted)

AF. Type 68

(1) Materials

(a) 93-076 Adhesive

1) 93-076 Base

2) 93-076-2 Catalyst

3) 1204 Primer

4) Thermolite 12 or Fascat 4202 Primer

(b) RTV 430 Adhesive

1) RTV 430 Base

2) Beta 5 or Beta 11D1 Catalyst

3) SS4155 Primer

(2) Clean the mating surfaces per Paragraph 4. Lightly sand silicone rubber surfaces first, then clean them per Paragraph 4.

(3) Apply a thin, continuous layer of primer to the surfaces to be bonded. Use a brush, spray, or wipe the primer on.

(a) For 93-076 adhesive, apply 1204 primer to the surfaces that are not silicone rubber. Let the primer dry for 1-24 hours before adhesive application. For silicone rubber surfaces, mix equal parts of Thermolite 12 primer and methyl ethyl ketone. Apply this as the primer, and let dry for 10 minutes and a maximum of 24 hours before adhesive application.

(b) For RTV 430 adhesive, apply SS4155 primer to the surfaces which are not silicone rubber. Let the primer dry a minimum of 60 minutes before adhesive application. The primer layer will have a chalky appearance when dry. Primer is not necessary on silicone rubber surfaces.

(4) Fully mix 10 parts by weight of catalyst with 100 parts by weight of base component. Mix by hand 2 to 5 minutes or 60 cycles in a mechanical mixer. Deaeration is recommended.

(a) For 93-076 adhesive, the pot life of the mixture is approximately 2 hours below 80°F. If open to too much moisture, the catalyst could get a surface crust. Removal of this crust is recommended. The remaining catalyst is serviceable. Discard material that becomes crystallized or grainy.

(b) For RTV 430 adhesive, use the correct catalyst for the application. Beta 5 (red) catalyzed material has a total pot life of approximately 80 minutes at 77°F. Beta 11D1 (blue) catalyzed material has a pot life of approximately 60 minutes at 77°F.

(5) Apply a continuous layer of mixed adhesive to one or, better, each mating surface. Adhesive can be applied by hand or from a sealant gun and the layer made with a spatula or equivalent tool. Be careful not to apply the adhesive outside of the bond area if the surface will be subsequently finished.

(6) Put the parts together and apply sufficient pressure to push out air pockets. Do not apply too much pressure, because a bond line minimum thickness of 0.020 inch is necessary for a strong bond.

(7) Let the adhesive to cure under pressure for 24 hours at 65-179°F before you move the parts. Alternative cures are 4 hours at 180-199°F or 2 hours at 200-260°F.

AG. Type 69

(1) Adhesive – BMS 5-72, Type 4, which has two components, Part A and Part B.

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix equal parts by weight of Part A and Part B until the color is the same. Pot life of the mixture is 60 minutes.

(4) Apply a layer of the adhesive to the mating surfaces with a spatula.

(5) Assemble the parts and apply sufficient finger pressure to make sure the mating surfaces fully touch. Look for a continuous bead of adhesive around the edges as a sign the mating surfaces did fully touch.

(6) Remove unwanted adhesive before it cures, with a clean wiper wet with solvent.

(7) Cure for 1/2 hour minimum at 140-160°F, or for at least 5 hours below 100°F.

AH. Type 70

(1) Materials

(a) Adhesive – BMS 5-92, Type 1 or 3, which has two parts, catalyst A and base B.

(b) Thickening agent – Cab-O-Sil Type M-5 or HS-5.

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix the individual components. Then mix the components in the proportions shown below. For a cure at higher temperatures, you can add maximum of 1 part by weight of thickening agent to 49 parts adhesive.

Parts by Weight			
Adhesive	**Part A**	**Part B**	**Pot Life Below 100°F**
BMS 5-92 Type 1	140	100	2 hours
BMS 5-92 Type 3	100	33	1 hour

(4) Apply a thin continuous layer of the mixed adhesive to each faying surface. As an alternative, you can apply the adhesive to only one of the surfaces if the surface is smooth, the mating surfaces fit with a maximum gap of 0.010 inch, and sufficient adhesive is applied to make sure the other surface will be completely touched by the adhesive. One-surface application is permitted for long narrow surfaces if the width is not more than 1 inch and the adhesive comes out all around the edges.

(5) Assemble the parts and apply a strong, constant pressure to make sure all of the faying surfaces touch completely.

(6) Remove the unwanted adhesive before it cures. Use a clean cloth, or cotton-tipped swabs, wet with solvent. Do not let the solvent get into the bond line.

(7) Cure the adhesive under pressure at a time and temperature from Figure 2. Then let the parts cool below 120°F before you remove the pressure.

AI. Type 71

(1) Adhesive – BMS 5-123, which has two components, Part A and Part B.

(2) Clean the mating surfaces per Paragraph 4.

(3) Preparation of adhesive.

(a) Fully mix equal parts by weight of Part A and Part B. Or squeeze a length of Part A on a mixing surface, with constant pressure for an even bead. Parallel to this bead of Part A, squeeze an equal-length bead of Part B. Mix quickly and fully, not more than 1 minute, until the two colors change into a smooth, uniform colored paste. Use the mixed adhesive immediately.

(b) Pot life of the mixed adhesive is 3 to 4 minutes below 100°F.

(4) Apply a thin, continuous layer of the mixed adhesive to each mating surface and assemble immediately after application of adhesive. As an alternative, you can apply the adhesive to only one surface. But you must make sure the other surface will be fully wet by the adhesive, and that the adhesive makes a continuous bead around the edges. If you use this alternative, we recommend you apply the adhesive to the aluminum surface.

(5) Apply strong, constant pressure for 4-5 minutes to make sure all of the mating surfaces touch completely. Cure for 20-40 minutes at 65-100°F.

(6) Remove the unwanted adhesive before it cures. Use a clean cloth or cotton-tipped swabs wet with solvent. Do not let the solvent get into the bond line.

AJ. Type 72

WARNING: DO NOT LET THIS ADHESIVE TOUCH THE SKIN. DO NOT BREATHE THE VAPORS. MIX AND USE THIS ADHESIVE ONLY IN AREAS THAT HAVE SUFFICIENT LOCAL EXHAUST VENTILATION.

(1) Adhesive – BMS 5-127, Type 2 or 3, Class 2, which has two components, adhesive and catalyst.

(2) Clean the mating surfaces per Paragraph 4.

(3) Preparation of adhesive.

(a) Fully mix 1 part by volume of Boscodur 24T with 16 parts by volume of Bostik 7132R. Pot life of activated adhesive is approximately 8 hours below 100°F, if kept in a sealed container. Set the mixed adhesive aside for 2 minutes before you use it.

(b) If you apply the adhesive by brush, no thinner is necessary, but be sure to stir the adhesive.

(c) If you spray the adhesive, add an equal part by volume of methyl ethyl ketone. Toluene can be used when methyl ethyl ketone is not available, but methyl ethyl ketone is preferred.

(4) On nonporous surfaces, apply a medium to heavy layer by brush, or two to three layers by spray, one after the other, to each surface. On porous surfaces, one more layer to seal the surface could be necessary. Let the brushed-on adhesive dry 15-20 minutes between each layer.

(5) Let the last layer of adhesive dry until it becomes tacky, but will not get on your knuckle if you touch it lightly. Let the adhesive become tack free, then lightly wipe one surface with clean wipers wet with methyl ethyl ketone to reactivate the layer.

(6) Put the mating surfaces together while the adhesive is tacky. Apply sufficient pressure to make sure the surfaces fully touch. Do not make air pockets.

(7) The assembly can be moved immediately.

(8) Unwanted adhesive can be removed with solvent.

AK. Type 73 (Superseded by Type 58)

AL. Type 74

(1) Materials

(a) Adhesive – RTV 106

(b) Primer – SS4004P

(2) Clean the mating surfaces per Paragraph 4.

(3) Apply primer to all bonding surfaces unless they are silicone rubber. Put primer on a clean wiper to fully wet it but not let it drip, and wipe the primer on the surface in a thin smooth layer. Dry for 1-72 hours at 65-100°F. Give the primed surfaces protection from contamination at all times.

(4) Apply a continuous layer of adhesive to one or each surface to be bonded.

(5) Put the surfaces together as quickly as possible after you apply the adhesive, because after a few minutes the adhesive layer will get a skin which will prevent a good bond.

(6) Apply sufficient pressure to make sure the surfaces fully touch but not to squeeze out too much adhesive. A bond line thickness of 0.015 inch gives best results.

(7) Cure under pressure for a minimum of 24 hours at 65°F minimum. There will be the odor of acetic acid until the cure is complete.

NOTE: For this cure time, the band of adhesive must be no more than 0.25 inch from the edge of the bond line. This adhesive will not cure more than 0.25 inch from the outside edge unless the substrate material has pores to let moisture through.

AM. Type 75

(1) Materials – Epibond 1526 A/B

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix 100 parts by weight of Epibond 1526A with 50 parts by weight of Epibond 1526B. The pot life of the mixture is 7-10 minutes below 100°F.

(4) Apply a thin continuous layer of the mixed adhesive to each mating surface and assemble immediately after application of adhesive.

(5) Apply strong, constant pressure to make sure the surfaces fully touch during the cure time. Cure 110-120 minutes at 65-100°F.

(6) Wipe off unwanted adhesive, before it cures, with a clean cloth wet with solvent. Do not let the solvent flow into the bond line.

AN. Type 76 (Deleted)

AO. Type 77

(1) Materials

(a) Resin – PSA-529

(b) Catalyst – SRC-18

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix 100 parts by weight of PSA-529 resin and 4.0 parts by weight of SRC-18 catalyst. The pot life of the mixed adhesive is approximately 2 days, if you keep it in a sealed container below 100°F. To make the mixture easier to apply, up to 25% by volume of toluene can be added as a thinner.

(4) Apply a thin continuous layer of the mixed adhesive to each of the faying surfaces. Mask adjacent areas if they will be subsequently finished.

(5) Air dry the adhesive layers for 10-30 minutes at 65-100°F.

(6) Assemble the parts and apply sufficient pressure to make sure the surfaces touch. Parts can be moved immediately, but do not put stress on the bond until the cure is complete.

(7) Cure at one of these conditions:

(a) 24 hours minimum at 65-100°F, then 5-10 minutes at 290-310°F. Cool below 100°F before removal of pressure.

(b) 1 hour minimum at 65-100°F, then 90 minutes at 145-155°F. Cool below 100°F before removal of pressure.

(c) 6 days minimum at 65-100°F.

AP. Type 79

(1) Materials

(a) Adhesive – DC 3145

(b) Primer – DC 1204 (for non-silicone surfaces)

(c) Primer – DC 1205 (for plastic surfaces)

(2) Clean the mating surfaces per Paragraph 4., unless they are polycarbonate surfaces. Sand the polycarbonate surfaces, but it is not necessary to solvent clean them before you apply the primer.

CAUTION: DETERIORATION OF SILICONE PRIMERS WILL OCCUR AFTER THEIR ORIGINAL CONTAINER IS OPENED UNLESS KEPT BELOW 90°F (32°C) IN STORAGE, OR IN DISPENSING CONTAINERS PURGED WITH DRY ARGON OR DRY NITROGEN.

(3) Apply primer to all bonding surfaces, unless they are silicone rubber. Apply a thin continuous layer of clear primer with a brush, spray, or clean gauze dipped in primer. Let the primer dry at 65-100°F for the time at 20% relative humidity minimum.

(4) Apply a continuous layer of adhesive to one or each surface to be bonded. If you apply the adhesive to only one surface, you can make the layer smooth with a serrated scraper.

(5) Put the surfaces together as quickly as possible after you apply the adhesive, because after a few minutes the adhesive layer will get a skin which will prevent a good bond.

(6) Apply sufficient pressure to make sure the surfaces touch, but not to squeeze out too much adhesive.

CAUTION: WHEN THIS ADHESIVE CURES, IT USES THE MOISTURE IN THE AIR, AND A MINIMUM OF 20 PERCENT RELATIVE HUMIDITY IS NECESSARY FOR IT TO CURE. THE MINIMUM CURE CONDITIONS WILL USUALLY GIVE SUFFICIENT BOND STRENGTH TO LET YOU MOVE THE PARTS. MORE CURE TIME COULD BE NECESSARY FOR LARGE BOND AREAS OR WHEN SUBSTRATES DO NOT LET ATMOSPHERIC MOISTURE EASILY COME THROUGH.

(7) Keep the pressure on the parts and cure the adhesive for a minimum of 24 hours at 65-100°F and at a minimum of 20% relative humidity. Bond strength will continue to increase for several days.

AQ. Type 80

(1) Materials

(a) Adhesive – Ablebond 877-1

(b) Primer – DC1204

(2) Clean the mating surfaces per Paragraph 4. On printed circuit assemblies, clean surfaces with acetone, aliphatic naphtha, or isopropyl alcohol only, and not an abrasive.

CAUTION: DETERIORATION OF SILICONE PRIMERS WILL OCCUR AFTER THEIR ORIGINAL CONTAINER IS OPENED UNLESS KEPT BELOW 90°F (32°C) IN STORAGE, OR IN DISPENSING CONTAINERS PURGED WITH DRY ARGON OR DRY NITROGEN.

(3) Apply a layer of primer to all mating surfaces, unless they are silicone rubber, with a brush, spray, or wiper. Use the primer as it is supplied. Do not use a thinner. Let the primer air dry for 60 minutes minimum. This layer of primer is not necessary when you bond parts to printed circuit boards unless the parts are larger than 0.30 inch in diameter or 0.75 inch long, or unless the primer is specified by the overhaul instructions.

(4) Apply a continuous layer or bead of adhesive to one or both each mating surface. When you bond parts to circuit boards, be sure to control the amount of the adhesive to help keep it away from adjacent termination areas.

(5) Put the surfaces together as quickly as possible after you apply the adhesive, because after a few minutes the adhesive layer will get a skin which will prevent a good bond.

(6) Apply sufficient pressure to make sure the parts touch. A bond line approximately 0.020 inch thick gives best results.

CAUTION: ATMOSPHERIC MOISTURE IS NECESSARY FOR THIS ADHESIVE TO CURE. DO NOT TRY TO USE THIS ADHESIVE IN VERY DRY AIR.

(7) While the parts are held in position, let the adhesive cure by the manufacturer's instructions or for a minimum of 48 hours at 65-100°F and a minimum of 50 percent relative humidity.

AR. Type 82

WARNING: THIS ADHESIVE CONTAINS ISOCYANATES. DO NOT LET THIS ADHESIVE TOUCH THE SKIN. DO NOT BREATHE THE VAPORS. MIX AND USE THIS ADHESIVE ONLY IN AREAS THAT HAVE SUFFICIENT LOCAL EXHAUST VENTILATION.

(1) Materials

(a) Adhesive – BMS 5-105, Type 5 or 6

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix the base resin and catalyst by the manufacturer's instructions.

(4) Pot life of the mixed adhesive is approximately 10-12 minutes below 100°F. If you chill both adhesive components at 40-50°F before you mix them, the work life will be 35-45 minutes longer. Do not chill them below the dew point.

(5) Apply a thin, continuous layer of the mixed adhesive to both faying surfaces by brush, spatula, or air-operated dispensing gun. As an alternative, you can apply the adhesive to only one of the surfaces if the surface is smooth, the mating surfaces fit with a maximum gap of 0.010 inch, and sufficient adhesive is applied to make sure the other surface will be completely touched by the adhesive.

(6) Put the surfaces together and apply light, constant pressure to make sure all of the surfaces touch completely.

(7) Wipe off the unwanted adhesive before it cures. Use a clean cloth wet with solvent. Do not let the solvent get into the bond line.

(8) Cure under sufficient pressure for 6 hours at 65-110°F, or 4 hours at 110-150°F, or 2 hours at 150-200°F.

AS. Type 84

(1) Materials – Adhesive DC 730 RTV with primer DC 1200, or adhesive GE FRV1106 with primer GE SS4179

(2) Clean the mating surfaces per Paragraph 4. unless they are polycarbonate surfaces. Sand the polycarbonate surfaces, but it is not necessary to solvent clean them before you apply the primer.

CAUTION: DETERIORATION OF SILICONE PRIMERS WILL OCCUR AFTER THEIR ORIGINAL CONTAINER IS OPENED UNLESS KEPT BELOW 90°F (32°C) IN STORAGE, OR IN DISPENSING CONTAINERS PURGED WITH DRY ARGON OR DRY NITROGEN.

(3) Apply primer to all mating surfaces, unless they are fluorosilicone or silicone rubber. Use a brush, spray, or a wiper. Use the primer as it is supplied. Do not use a thinner. Let the primer air dry 1-4 hours.

(4) Apply a continuous layer of adhesive to one or each mating surface. When you apply the adhesive to only one surface, you can make the layer with a serrated scraper.

(5) Put the surfaces together as quickly as possible after you apply the adhesive, because after a few minutes the adhesive will get a skin which will prevent a good bond.

(6) Apply sufficient pressure to make sure the surfaces touch, but not to squeeze out too much adhesive. A bond line approximately 0.020 inch thick gives best results.

CAUTION: ATMOSPHERIC MOISTURE IS NECESSARY FOR THIS ADHESIVE TO CURE. THE AIR MUST HAVE A MINIMUM RELATIVE HUMIDITY OF 30 PERCENT.

(7) While the parts are held in position, let the adhesive cure by the manufacturer's instructions or for a minimum of 24 hours at the usual room conditions, approximately 75°F and 50 percent relative humidity. Higher humidities and temperatures will make the cure faster. Lower humidities and temperatures will make the cure slower.

AT. Type 85

(1) Materials

(a) Adhesive – Delta Bond 152

(b) Catalyst – Hardener A

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix 100 parts by weight of adhesive and 7.5 parts by weight of hardener A. Pot life of the mixed adhesive is approximately 45 minutes below 100°F.

(4) Apply a thin continuous layer of the mixed adhesive to each of the mating surfaces and put the parts together within 5 minutes you apply the adhesive.

(5) Apply sufficient pressure to make sure the surfaces touch. Keep the pressure on during the cure.

(6) Wipe off unwanted adhesive before it cures, with a clean wiper wet with denatured alcohol. Do not let the alcohol flow into the bond line.

(7) Cure at 77°F minimum for a minimum of 8 hours, 150°F minimum for a minimum of 45 minutes, or 250°F minimum for a minimum of 20 minutes.

AU. Type 86

(1) Materials

(a) Adhesive – Delta Bond 152

(b) Catalyst – Hardener B

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix 100 parts by weight of adhesive and 3.5 parts by weight of hardener B. Pot life of the mixed adhesive is approximately 30 minutes below 100°F.

(4) Apply a thin continuous layer of the mixed adhesive to each of the mating surfaces and put the parts together within 5 minutes after you apply the adhesive.

(5) Apply sufficient pressure to make sure the surfaces touch. Keep the pressure on during the cure.

(6) Wipe off unwanted adhesive before it cures, with a clean wiper wet with denatured alcohol. Do not let the alcohol to flow into the bond line.

(7) Cure at 77°F minimum for a minimum of 6 hours, 150°F minimum for a minimum of 30 minutes, or 250°F minimum for a minimum of 15 minutes.

AV. Type 87

(1) Materials

(a) Adhesive – Delta Bond 152

(b) Catalyst – Hardener C

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix 100 parts by weight of adhesive and 4.5 parts by weight of hardener C. Pot life of the mixed adhesive is approximately 4 hours below 100°F.

(4) Apply a thin continuous layer of the mixed adhesive to each of the mating surfaces and put the parts together within 5 minutes after you apply the adhesive.

(5) Apply sufficient pressure to make sure the surfaces touch. Keep the pressure on during the cure.

(6) Wipe off unwanted adhesive, before it cures, with a clean wiper wet with denatured alcohol. Do not let the alcohol flow into the bond line.

(7) Cure at 77°F minimum for a minimum of 36 hours, 150°F minimum for a minimum of 16 hours, or 250°F minimum for a minimum of 2 hours.

AW. Type 88

(1) Materials

(a) Adhesive – Delta Bond 152

(b) Catalyst – Hardener D

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix 100 parts by weight of adhesive and 2.3 parts by weight of hardener D. Pot life of the mixed adhesive is approximately 24 hours below 100°F.

(4) Apply a thin continuous layer of the mixed adhesive to each of the faying surfaces and put the parts together within 5 minutes after you apply the adhesive.

(5) Apply sufficient pressure to make sure the surfaces touch. Keep the pressure on during the cure.

(6) Wipe off unwanted adhesive, before it cures, with a clean wiper wet with denatured alcohol. Do not let the alcohol flow into the bond line.

(7) Cure at 77°F minimum for a minimum of 3 months, 150°F minimum for a minimum of 72 hours, or 250°F minimum for a minimum of 45 minutes.

AX. Type 89

WARNING: THIS ADHESIVE CONTAINS ISOCYANATES. DO NOT LET THIS ADHESIVE TOUCH THE SKIN. DO NOT BREATHE THE VAPORS. MIX AND USE THIS ADHESIVE ONLY IN AREAS THAT HAVE SUFFICIENT LOCAL EXHAUST VENTILATION.

(1) Adhesive – BMS 5-105, Type 2, Class 1, 2, or 3

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix parts A and B by the manufacturer's instructions. Useful work life of the mixed adhesive at 70-80°F is approximately as follows:

(a) Class 1: 5-15 minutes

(b) Class 2: 15-70 minutes

(c) Class 3: approximately 1 minute

NOTE: Work life can be decreased by material age or other factors. Work life can be increased if both components are chilled before they are mixed. But do not chill them below the dew point.

(4) Apply a thin continuous layer of the mixed adhesive to each mating surface by brush, spatula, or dispensing gun. You can apply the adhesive to only one surface in these cases.

(a) Case 1

1) The two mating surfaces are smooth

2) The contact area is less than 12 square inches

3) The surfaces have a tight fit

(b) Case 2

1) One surface is smooth (such as thermoplastic), long, and narrow (2.0 inches wide or less)

2) The other surface is porous (such as honeycomb core or open-weave crushed core panel)

3) The mixed adhesive is applied to the smooth surface

4) The mating surfaces have a tight fit

(c) Case 3

1) One surface is long and narrow (2.0 inches wide or less)

2) The two mating surfaces are porous (such as honeycomb core or open-weave crushed core panel)

3) The mixed adhesive is applied to the less porous surface

4) The mating surfaces have a tight fit

(5) Put the surfaces together and apply pressure to make sure all of the surfaces touch completely.

(6) Remove the unwanted adhesive before it cures. Use a clean wiper wet with solvent. Do not let the solvent get into the bond line.

(7) Cure as follows:

Adhesive	Cure Temperature	Parts Can Be Moved After	Minimum Time for Full Cure
Class 1	65°F minimum	3 hours	24 hours
	130-150°F	20 minutes	2 hours
Class 2	65°F minimum	16 hours	7 days
Class 3	65°F minimum	50 hours	8 hours

NOTE: The time for the full cure is that necessary before the parts can get in-service stress. The parts can be removed from the fixtures after the time shown, but this must not give stress to the bond or move the faying surfaces against each other during the remaining cure time period.

AY. Type 90 (Superseded by Type 12)

AZ. Type 91

WARNING: DO NOT LET THIS ADHESIVE TOUCH THE EYES OR SKIN. DO NOT BREATHE THE VAPORS. USE THIS ADHESIVE ONLY IN AREAS THAT HAVE A GOOD FLOW OF AIR. KEEP THE CONTAINER TIGHTLY CLOSED WHEN IT IS NOT USED.

(1) Materials

(a) Adhesive – M890 Success

(b) Catalyst – Activator A

(2) Clean mating surfaces per Paragraph 4.

(3) Apply a thin continuous layer of adhesive to one faying surface. Apply a thin continuous layer of activator to the other surface.

NOTE: The correct quantity of activator is a thin layer that is only sufficient to be continuous, but which does not show the amber color of the activator. To do this, apply the activator with a sponge or other porous pad that will absorb the unwanted activator.

(4) Immediately put the parts together. Be sure to put the parts together carefully. You have only 15 seconds to adjust the position of the parts after you touch the surfaces together.

(5) With clamps or the equivalent, apply pressure of 5-20 psi to hold the parts together. Keep the pressure on for 5 minutes if the bond does not have a load, or 30 minutes if the bond does have a load. After you apply the pressure, do not move the parts or change the pressure until after the above time.

(6) After the adhesive is cured, remove unwanted activator with a clean wiper wet with solvent.

BA. Type 92

WARNING: DO NOT LET THIS ADHESIVE TOUCH THE SKIN. DO NOT BREATHE THE VAPORS. MIX AND USE THIS ADHESIVE ONLY IN AREAS THAT HAVE SUFFICIENT LOCAL EXHAUST VENTILATION.

(1) Adhesive – BMS 5-127, Type 2, Class 2, which has two components, adhesive and catalyst.

(2) Clean the mating surfaces per Paragraph 4.

(3) Preparation of adhesive.

(a) Shake the individual components for 5 minutes.

(b) Mix the components together. Use one of these ratios:

		Adhesive	Curing Agent
Blend Ratio 1	By Volume	16	1
	By Weight	18	1
Blend Ratio 2	By Volume	8	1
	By Weight	9	1

(c) Pot life of activated adhesive is approximately 8 hours at or below 75°F, if kept in a sealed container. Set the mixed adhesive aside for a minimum of 2 minutes before you use it.

(d) If you apply the adhesive by brush, no thinner is necessary, but be sure to stir the adhesive.

(e) If you spray the adhesive, add an equal part by volume of methyl ethyl ketone. Toluene can be used when methyl ethyl ketone is not available, but methyl ethyl ketone is preferred.

(4) Apply a continuous layer to the indicated surface by brush or spray to a dry film value of 2.0-3.0 grams per square foot.

(5) Let the adhesive dry until it is not tacky, or approximately 5-10 minutes.

(6) Within 8 hours, wipe the adhesive layer with a clean wiper. Then bond the mating surfaces with heat as specified by the applicable overhaul instructions.

(7) The assembly can be moved immediately.

BB. Type 93

(1) Adhesive – BMS 5-95, Class B, a sealant that has two parts, base and activator

(2) Clean the mating surfaces per Paragraph 4.

(3) If the overhaul instructions do not give the class with a dash number, use the class with the work life which is best for your conditions. The dash number of the class indicates the work life in hours at 72-82°F and 45-55% relative humidity.

Adhesive	Work Life	Cure Time at 60-80°F
BMS 5-95 Class B-1/2	1/2 hour	20 hours
BMS 5-95 Class B-2	2 hours	48 hours
BMS 5-95 Class B-4	4 hours	84 hours

(4) Fully mix the base compound with its activator by the manufacturer's instructions. Do not use a thinner.

(5) Apply a thin, continuous smooth layer of the mixed adhesive to each mating surfaces. As an alternative, you can apply the adhesive to only one of the surfaces if the surface is smooth, the mating surfaces fit with a maximum gap of 0.010 inch, and sufficient adhesive is applied to make sure the other surface will be completely touched by the adhesive. On large surfaces, you can use a phenolic spreader approximately 4 inches wide with one edge beveled and notched every 1/8 inch with notches approximately 1/32 inch wide.

(6) Assemble the parts immediately and apply sufficient pressure to make sure the mating surfaces touch. Look for a continuous bead of adhesive at the edges.

(7) Cure by the table in step (3) above.

(a) The adhesive is usually cured when the hardness becomes 30 Model A Durometer Points (Shore A or Rex A).

(b) The cure can be made faster with heat. Do not let the bond line become hotter than 140°F. Cure time will be decreased by approximately half for each 20°F increase in temperature. Temperatures colder than 75°F will much increase the required cure time.

(c) After the cure time shown, the parts can be moved.

BC. Type 94

(1) Adhesive – BMS 5-109, Type 2, Class 2

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix each component before you mix them together. Then mix Part A and Part B in the proportions shown below. The pot life is approximately 40 minutes at 75°F.

Material	Parts by Weight	
	Part A	Part B
EA 934NA	97-103	32-34
EA 9394	97-103	16.5-17.5

(4) Apply a continuous layer of the mixed adhesive to each faying surface.

(5) Assemble the parts and apply strong, constant pressure to make sure all of the mating surfaces touch completely.

(6) Remove unwanted adhesive before it cures. Use a clean wiper wet with solvent. Do not let solvent get into the bond line.

(7) Cure under pressure as follows:

(a) 7 days minimum at 60-100°F. Parts can be moved after 24 hours.

(b) 25 hours minimum at 110-130°F. Parts can be moved after 8 hours.

(c) 9 hours minimum at 150-170°F. Then parts can be moved.

(d) 1 hour minimum at 190-210°F. Then parts can be moved.

BD. Type 95

CAUTION: DO NOT USE THIS ADHESIVE ON ALUMINUM PARTS. THIS ADHESIVE WILL CAUSE BAD CORROSION OF THE ALUMINUM.

(1) Materials

(a) BMS 5-35, Type 1, Grade A

(b) Dayton-Granger 16307

(c) Hysol KS 4008

(d) Atacs 5016

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix each part by itself. Then fully mix parts A and B until smooth, approximately 4-5 minutes. Use these proportions by weight:

(a) BMS 5-35 – 100 of Part A to 6.3 of Part B.

(b) 16307 – 10 of Part A to 1 of Part B.

(c) KS4008 and 5016 – 17 of Part A to 1 of Part B.

(4) Pot life of mixed BMS 5-35 adhesive is 30 minutes below 80°F. For the other Type 95 adhesives, it is 60 minutes below 80°F.

(5) Apply a continuous layer of mixed adhesive, approximately 0.020 inch thick, to each faying surface.

(6) Put the parts together and apply strong, continuous pressure to make the mating surfaces touch. The space between the mating surfaces must be filled with adhesive to be sure of good electrical conductivity.

(7) Remove unwanted adhesive before it cures. Use a clean wiper wet with solvent. Do not let solvent get into the bond line.

(8) Cure under pressure as follows:

(a) 48 hours minimum at 55-65°F

(b) 24 hours minimum at 70-80°F

(c) 3 hours minimum at 125-135°F

(d) 1 hour minimum at 145-155°F

(e) 45 minutes minimum at 155-165°F

BE. Type 96

WARNING: THIS ADHESIVE CONTAINS ISOCYANATES. DO NOT LET THIS ADHESIVE TOUCH THE SKIN. DO NOT BREATHE THE VAPORS. MIX AND USE THIS ADHESIVE ONLY IN AREAS THAT HAVE SUFFICIENT LOCAL EXHAUST VENTILATION.

(1) Material – Adhesive – BMS 5-105, Type 3 Adhesive

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix the base resin and catalyst by the manufacturer's instructions. In a container, the pot life is approximately 3-4 minutes at 70-80°F.

(4) Apply a thin, continuous layer of the mixed adhesive to each mating surface by brush, spatula, or automatic mix and dispense spray equipment.

(5) Put the parts together and apply sufficient pressure to make sure all of the mating surfaces touch completely. Let the adhesive come out at the edges.

(6) Remove unwanted adhesive before it cures. Use a clean wiper wet with solvent. Do not let solvent get into the bond line.

(7) Cure under pressure for 15 minutes minimum at 70-80°F or 7 minutes at 95-150°F before you remove the pressure and move the parts. Let the cure continue for 24 hours at 70-80°F or 4 hours at 150-170°F before you put stress on the bond or move the faying surfaces against each other.

BF. Type 97

WARNING: THIS ADHESIVE CONTAINS CHLORINATED SOLVENTS. DO NOT BREATHE THE VAPORS. USE ONLY IN AREAS THAT HAVE SUFFICIENT EXHAUST VENTILATION. KEEP THE CONTAINER TIGHTLY CLOSED WHEN IT IS NOT USED.

(1) Material – Scotch Grip 4550 or Aerosol Spray Adhesive 74

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix Scotch Grip 4550 adhesive before you use it. A thinner is not necessary to brush or spray this adhesive. If a thinner is necessary, use naphtha.

(4) Apply a thin, smooth layer of adhesive to each mating surface by brush, roller, or spray and let dry until tacky, 15-30 seconds. To spray this adhesive, use Aerosol Spray Adhesive 74, or use low pressure spray equipment to apply Scotch Grip 4550. Only 2-5 psi fluid pressure and 10-15 psi atomization pressure is necessary.

(5) In 4 minutes or less after you apply the adhesive, push the parts tightly together.

(6) The parts can be moved immediately, but do not put stress on the bond for 24 hours.

(7) Remove unwanted adhesive with methyl ethyl ketone, denatured alcohol or naphtha. Do not let the solvent get into the bond line.

(8) Adhesive can be quickly removed from your fingers with a good waterless hand cleaner.

BG. Type 98

(1) Material – GE RTV 133

(2) Clean the mating surfaces per Paragraph 4.

(3) Apply a continuous layer of adhesive to one or each mating surface. Be careful not to apply the adhesive outside the bond area if the area will be subsequently finished.

(4) Put the parts together in 2 hours or less, because after that time the adhesive layer will get a skin which will prevent a good bond.

(5) Apply sufficient pressure to make sure the surfaces touch, but not to let too much adhesive come out. A bond line thickness of at least 0.015 inch gives best results.

(6) Let the adhesive cure under pressure for a minimum of 24 hours at 65-100°F with 20 percent minimum relative humidity.

BH. Type 99

WARNING: THIS ADHESIVE CONTAINS ISOCYANATES AND CHLORINATED SOLVENTS. KEEP AWAY FROM SKIN. DO NOT BREATHE THE VAPORS. MIX AND USE THIS ADHESIVE ONLY IN AREAS WITH SUFFICIENT LOCAL EXHAUST VENTILATION. BECAUSE THIS ADHESIVE ABSORBS MOISTURE, KEEP THE CONTAINER TIGHTLY CLOSED WHEN IT IS NOT USED.

(1) Material – BMS 5-127, Type 1.

(2) Clean the mating surfaces per Paragraph 4.

(3) Fully mix adhesive before you use it. Do not use adhesive which is too thick or becomes a gel. If a thinner is necessary, use dry methylene chloride solvent.

NOTE: Type 99 material can be used as a primer for thermoplastics, or as an adhesive.

CAUTION: THE METHYLENE CHLORIDE IN THIS ADHESIVE WILL MIX WITH MOISTURE TO CAUSE CORROSION OF ALUMINUM. USE ONLY SPRAY EQUIPMENT MADE OF OR LINED WITH STAINLESS STEEL, NYLON, OR POLYPROPYLENE. DO NOT APPLY THIS ADHESIVE TO ALUMINUM SURFACES.

(4) As a primer for thermoplastics.

(a) Brush application

1) Apply one wet, continuous layer. On polyetherketoneketone (Declar) surfaces, make sure the layer stays wet for a minimum of 5 seconds.

2) Let the layer dry for a minimum of 2 minutes (or until it is dry when touched) before you continue with the procedure to bond the parts.

(b) Spray application

1) Adjust the spray gun to make a continuous, fine spray pattern at the lowest possible air pressure and volume.

2) Apply one wet layer with a slow continuous movement of the gun. A light layer is sufficient. On polyetherketoneketone surfaces, make sure the layer stays wet for a minimum of 5 seconds.

3) Let the layer dry for a minimum of 2 minutes (or until it is dry when touched) before you continue with the procedure to bond the parts.

(c) Layer test for polyetherketoneketone (Declar) surfaces.

1) As a check on your procedure, apply the Type 99 material to a specimen piece of this plastic by the brush or spray procedure given above. Let the layer dry as indicated.

2) Do the scribe tape test per BSS 7225, Type 1, Class 4:

a) With a sharp metal stylus, make 4 parallel lines 0.12 inch apart, in an area of the layer. Then make 4 more parallel lines 0.12 inch apart at an 85-95° angle to the first set of lines.

b) Apply a piece of masking tape to the area. Push down on the tape with the roll of tape, or use a hand roller.

c) Remove the tape with a quick, sudden movement. Pull it perpendicular to the surface.

d) Look at the tape and the plastic surface for removed Type 99 adhesive. Look at the lines on the plastic surface. The edges of the lines must not be lifted.

(5) As an adhesive.

(a) Adhesive can be applied by brush or spray. For large area bonds, spray application is recommended. It is important to apply a smooth, continuous layer of adhesive.

(b) Apply a smooth, continuous layer of adhesive to one mating surface with a dry film coverage of 3-5 grams per square foot.

(c) Let the layer dry at room temperature for 2-4 minutes, then put the parts together.

(d) Cure at 170-300°F for 3-10 minutes with a minimum of 20 inches of mercury vacuum.

(e) The assembly can be moved immediately after this cure.

BI. Type 100

WARNING: THIS ADHESIVE CAN CAUSE RESPIRATORY, EYE, AND SKIN IRRITATION. USE POSITIVE FRESH AIR VENTILATION, AIR-SUPPLIED HOOD, OR A CHEMICAL CANISTER FACE MASK. DO NOT BREATHE THE VAPORS. KEEP THE ADHESIVE AWAY FROM EYES, SKIN OR CLOTHING. IF THIS ADHESIVE GETS ON THE SKIN OR IN THE EYES, IMMEDIATELY FLUSH THE SKIN OR EYES WITH WATER FOR AT LEAST 15 MINUTES. IF THE ADHESIVE GOT INTO THE EYES, GET MEDICAL ATTENTION.

(1) Materials

(a) Adhesive – Versilock 202

(b) Catalyst – Accelerator No. 4

(2) Clean the mating surfaces per Paragraph 4.

(3) Brush apply a very thin coat of catalyst to each mating surface. If a thinner is necessary, mix 2 parts catalyst with 1 part methylene chloride.

(4) Let this layer fully dry. A minimum of 1 minute is necessary.

(5) With a brush, quickly apply a 0.010-0.020 inch thick layer of adhesive to one mating surface. You must do this quickly because the cure starts immediately when the adhesive touches the catalyst.

(6) Immediately put the parts together. Hold them together with tape, or light pressure, for a minimum of 5 minutes.

(7) Cure for 24 hours minimum to get the best results.

(8) Uncured beads of adhesive can be removed with a dry wiper. If you let these beads stay, apply catalyst on the beads with a brush to cure them.

BJ. Type 101

(1) Adhesive – Parabond M-4277

(2) Clean the mating surfaces per Paragraph 4.

(3) With a brush or roller, apply continuous layer of adhesive to each mating surface.

(4) Let the adhesive dry until it becomes tacky, but will not get on your knuckle when you touch it lightly to the adhesive layer.

(5) Put the parts together and apply sufficient pressure to make sure the surfaces fully touch. Do not make air pockets.

(6) Wipe off unwanted adhesive with a clean wiper. If necessary, wet the wiper with water. Do not let water get into the bond line.

(7) Cure under pressure for a minimum of 1 hour at 65-100°F before you move the parts. Full bond strength will come in 24 hours.

(8) Clean the adhesive from tools, clothing, or carpet with soapy water then wipe them with a rag wet with chlorinated solvent.

BK. Type 102

(1) Materials

(a) Base – 515 X 346

(b) Catalyst - 910 X 520

(c) Solvent reducer – 020 - 702

(2) Clean the aluminum surfaces per BAC5010 par. 8.1.3.17, which uses a special surface treatment with hydrogen fluoride and an Alodine 1200 or 1200S chemical conversion coating.

(3) Before you use the materials, fully mix the base component in its container. Then mix the three components together in the proportions of 4 parts base, 1 part catalyst, and 4 parts solvent reducer.

(4) Let the mixed primer wait 30 minutes before you use it. Pot life of the mixed primer is 8 hours at 77°F.

(5) Spray apply a thin smooth layer of the mixed primer to give a dry layer thickness of 0.0002-0.0008 inch. If a second layer is necessary, let the first layer dry a minimum of 1 hour.

(6) Let the primer layer air dry 60 minutes minimum at 67-75°F before you apply adhesive. Keep the primer layer surfaces dry and give them protection from contamination and ultraviolet light. Be sure to apply the adhesive in 7 days or less. Do not wipe the primer layer with solvent before you bond the parts.

(7) Bond the parts with adhesive by the applicable overhaul instructions.

BL. Type 103

(1) Adhesive – Armstrong 520

(2) Clean the mating surfaces per Paragraph 4. Make sure the air temperature is above 40°F.

(3) Fully mix the adhesive.

(4) With a brush, apply a thin, smooth layer of the adhesive on each mating surface.

(5) Let the adhesive air dry until it is dry when touched, but tacky under light pressure. Approximately 3-10 minutes will be necessary. Do not let the layers dry more than 20 minutes.

(6) Because this adhesive bonds immediately when the layers touch, make sure the mating surfaces are correctly aligned before you put the surfaces together. Put the faying surfaces together tightly, and make sure all of the surfaces touch completely.

(7) The assembly can be moved immediately.

BM. Type 104

(1) Adhesive – BMS 5-30, Type 2

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix the adhesive as follows:

(a) Fully mix the adhesive in its container before you use it. Do not use the adhesive if it is too thick or became a gel.

CAUTION: UNLESS KEPT IN AIRTIGHT CONTAINERS AND CONTINUOUSLY SHAKEN, THINNED ADHESIVE MUST BE USED WITHIN 4 HOURS.

(b) If a thinner is necessary, use methyl ethyl ketone. For brush application, use no more than 1 volume part of thinner per volume part of adhesive mixture. For spray application, use no more than 3 volume parts of thinner per volume part of adhesive mixture.

(4) On nonporous surfaces, apply a medium to heavy continuous brushed layer, or 3-4 sprayed layers one after the other, to each mating surface.

(5) On porous surfaces such as textiles and soft woods, apply 2 brushed layers, or 4-5 sprayed layers one after the other. The first brushed layer must completely seal the surface. Let this layer dry 20-30 minutes before you apply the second layer.

(6) Let the last layer of adhesive dry until it is tacky but does not get on the knuckle when touched lightly. At approximately 70°F, 10-20 minutes is necessary. If the area of the layer is large, or if both faying surfaces are nonporous and could catch solvent, let the adhesive dry until it is not tacky. Then make one of the surfaces tacky again with light wipes of clean wipers wet with the applicable thinner.

(7) Put the mating surfaces together while the adhesive is tacky. Apply sufficient pressure to make sure all of the surfaces touch completely. Be careful not to make air pockets in the bond line.

(8) The assembly can be moved immediately, but do not put stress on the bond for 24 hours.

(9) Unwanted adhesive can be removed with solvent. Do not let the solvent get into the bond line.

BN. Type 105

(1) Adhesive – Isochem S-100LV

(2) Clean the mating surfaces per Paragraph 4.

(3) Apply a thin layer of adhesive to each mating surface.

(4) Align the mating surfaces and put them together. Apply light, continuous pressure with clamps or other such tools. Do not use too much pressure on ferrite-core material, or it could break.

(5) Cure with constant pressure for a minimum of 1 hour at 290-310°F. Keep the pressure on the bond line until the assembly cools to 60-80°F.

(6) Wipe off unwanted adhesive before it cures. Use a clean wiper wet with solvent. Do not let the solvent get into the bond line.

BO. Type 106

(1) Adhesive – BMS 5-109, Type 1, Class 1, Grade B

(2) Clean the mating surface as follows:

(a) If the surface has BMS 5-89 primer on it, rub with wipers wet with methyl ethyl ketone or methyl propyl ketone. Immediately wipe dry with a clean, dry wiper. Do not let the solvent air dry. Do this procedure one more time.

(b) Clean all other mating surfaces per Paragraph 4.

(3) Mix each component of the adhesive by itself. Then mix together 96-104 weight parts of Part A with 21-25 weight parts of Part B. Pot life of the mixed adhesive is 30 minutes at 75°F.

(4) Apply a continuous, smooth layer of mixed adhesive to each mating surface.

(5) Put the parts together. Hold them together with pressure of 5-10 psi to make sure all of the mating surfaces touch completely.

(6) Cure with this pressure for one of these minimum times before you move or use the assembly.

(a) 72 hours at 60-90°F

(b) 24 hours at 110-130°F

(c) 12 hours at 140-160°F

(d) 2 hours at 190-210°F

(7) Wipe off unwanted adhesive before it cures. Use a clean wiper wet with solvent. Do not let the solvent get into the bond line.

BP. Type 109

NOTE: This adhesive will not bond to heat cured (peroxide cured) rubber, such as BMS 1-54, 1-57, 1-59 (obsolete), 1-63.

(1) Adhesive

(a) Grade 1 – RTV 6702

(b) Grade 2 – RTV 6703

(c) Grade 3 – RTV 6708

(2) Clean the mating surfaces per Paragraph 4.

(3) Apply a continuous layer of the adhesive to one or each surfaces to be bonded. Do not let the adhesive get outside of the bond area if the surface will subsequently be finished.

(4) Put the faying surfaces together as quickly as possible after you apply the adhesive. If the adhesive is open to the air for more than a few minutes, it will get a skin on it which will prevent a good bond.

(5) Apply sufficient pressure to make sure the faying surfaces touch, but not too much, or too much adhesive will come out. A bond line thickness of at least 15 mils (0.015 inch) gives the best results.

CAUTION: THIS ADHESIVE MUST ABSORB MOISTURE FROM THE AIR FOR THE CURE. THE BOND LINE MUST NOT BE KEPT AWAY FROM THE AIR. IF THE SURFACE DOES NOT LET MOISTURE THROUGH, ALL POINTS IN THE BOND MUST BE 1/2 INCH OR LESS FROM AN OUTER EDGE.

(6) Cure with this pressure for 24 hours minimum at 65-100°F. A minimum of 20% relative humidity is necessary.

BQ. Type 110

(1) Material – MIL-S-83474 Adhesive

NOTE: Types 2 and 3 must be kept in refrigerated storage below -40°F.

(a) Type 1 – 2-component paste

(b) Type 2 – Pre-catalyzed sheets (0.03, 0.06 or 0.10 inch thick)

(c) Type 3 – Pre-catalyzed tubes

(2) Temporarily put the parts together to see how much joint filler could be necessary.

(3) Disassemble the parts and remove burrs from holes.

(4) Clean the mating surfaces per Paragraph 4.

(5) Apply parting agent to surfaces as specified by the overhaul instructions. If the instructions tell you to use a parting agent but do not give the material or the cure, use Frekote 710NC parting agent and let it cure for 20 minutes minimum at 60-100°F.

(6) Prepare the adhesive.

(a) Type 1 – Heat the base component to 95-115°F. Then mix 100 weight parts of base with 2.2 weight parts of catalyst.

(b) Types 2, 3 – Let the adhesive thaw. You can put the adhesive in 110-130°F water for 8-10 minutes. It is not necessary to mix the adhesive material before you use it.

(7) Apply the adhesive.

(a) Types 1, 3–Use a sealant gun and nozzle or a spatula. Be careful not to make air bubbles.

(b) Type 2 – Apply the sheet material in layers as necessary. You can use a spatula to push the adhesive into the part contours.

(c) Use methyl ethyl ketone as necessary to keep the tools clean.

(8) Put the parts together and clamps or equivalent tools for a correct fit. Fasteners can be tightened to approximately one-half of the final torque value if this will not bend areas without fasteners.

(9) Cure the unit for 36 hours minimum at 70-100°F, or 3 hours minimum at 150-180°F.

(10) Drill holes for fasteners as necessary.

(11) If you used a parting agent, clean the surfaces as follows:

(a) Surfaces with Type 60 adhesive primer less than 7 days old

1) If the surfaces were kept clean and free from contamination, it is not necessary to clean them more.

2) If the surfaces have contamination, let them cure a minimum of 7 days and do the procedure of step (b).

(b) Surfaces with Type 60 adhesive primer more than 7 days old.

1) Do not use an abrasive on the surface.

2) Solvent clean the surfaces by the Final Cleaning procedure of SOPM 20-30-03.

(12) Disassemble the parts. Remove burrs from holes and cut off unwanted adhesive as necessary.

(13) Put the parts back together, if necessary, and tighten all fasteners as specified by the overhaul instructions.

BR. Type 111

(1) Material – BMS 5-141 adhesive, which comes in two parts, Part A, a gray paste, and Part B, a black liquid.

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix each component of the adhesive until smooth. Then mix 97-103 weight parts of Part A with 16.5-17.5 weight parts of Part B. As an option, when bond thickness control is used, you can mix up to 1 percent by weight glass beads with Part B before you mix Parts A and B together.

(4) Apply a smooth, continuous layer of mixed adhesive to each mating surface. If the surface is carbon composite or porous, remove unwanted adhesive with a scraper, apply it again to the surface, and work it into the surface. Do this until the surface is completely covered by the adhesive.

(5) Put the surfaces together and apply pressure of 5-10 psi to make sure the surfaces fully touch. Look for a continuous bead of adhesive on the outer edges of the joint.

(6) Remove unwanted adhesive, before it cures, with a clean wiper wet with solvent. Do not let the solvent get into the bond line.

(7) Examine the bond and fill voids or undercuts with adhesive.

(8) Cure under pressure for 16 hours minimum at 60-100°F before you move the parts. Full cure of the adhesive comes after a minimum of 7 days at 67-87°F, or 1 hour at 190-210°F.

BS. Type 112

(1) Material – Bostik 8657 adhesive

(2) Clean the mating surfaces per Paragraph 4.

(3) Apply a continuous layer of adhesive to each mating surface with a brush or roller.

(4) Let the adhesive layer dry until it is tacky, but will not get on your knuckle when you touch it lightly to the layer.

(5) Put the surfaces together while the adhesive is tacky, and apply sufficient pressure to make sure the surfaces fully touch. Do not make air pockets.

(6) Remove unwanted adhesive with a clean wiper, wet with water if necessary. Do not let water get into the bond line. Adhesive can be removed from tools and carpet nap with soap and water solution followed by a rag wet with a chlorinated solvent.

(7) Cure at 65-100°F for 1 hour minimum before you do more work on the parts. Full bond strength will come in 24 hours.

(8) Refer to BAC5010 for procedures about tests for heat release and smoke generation.

BT. Type 113

(1) Material – EA9396 adhesive, which has a base and a catalyst.

(2) Clean the mating surfaces per Paragraph 4.

(3) Prepare the adhesive.

(a) Remove the adhesive from refrigerated storage, but do not open the containers until they warm to room temperature.

CAUTION: DO NOT MIX THE BASE WITH THE CATALYST IN QUANTITIES LARGER THAN 250 GRAMS, OR HEAT BUILDUP WILL CAUSE UNCONTROLLED DECOMPOSITION OF THE MIXED ADHESIVE.

(b) Mix 100 weight parts base with 30 weight parts catalyst in a container you can discard. Pot life of the mixed adhesive is 60 minutes at 70-80°F.

(4) Apply a continuous layer of mixed adhesive to each mating surface.

(5) Put the surfaces together and apply strong, constant pressure to make sure the surfaces fully touch. If possible, use clamps or equivalent devices to keep the pressure constant. When you bond two surfaces, look for a continuous bead of adhesive at all outer edges of the bond joint. If you see voids or gaps along the edges of the joint, fill them with adhesive until they are flush.

(6) Remove unwanted adhesive, before it cures, with a clean wiper wet with solvent. Do not let the solvent get into the bond line.

(7) Cure for 5-7 days at 67-87°F, or 1 hour minimum at 150-180°F.

BU. Type 116

(1) Material – BMS 5-142, Class B-2 adhesive.

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix the base with the activator by the manufacturer's instructions. Do not use a thinner. Pot life of the mixed adhesive is 2 hours at 72-82°F.

(4) Apply a thin, continuous layer of the mixed adhesive to each mating surface. On large surfaces, you use a phenolic spreader approximately 4 inches wide with one edge beveled and notched approximately every 1/8 inch with notches approximately 1/32 inch wide.

(5) Put the parts together immediately, and apply sufficient pressure to make sure the surfaces fully touch. Look for a continuous bead of adhesive along the outer edges of the joint.

(6) Cure at 60-80°F

(a) The parts can be moved after 48 hours minimum.

(b) The adhesive is usually cured when the hardness becomes 30 Model A durometer Points (Shore A or Rex A).

(c) The cure can be made faster with heat. Do not let the bond line become hotter than 140°F. Cure time will be decreased by approximately half for each 20°F increase in temperature.

BV. Type 117

(1) Material – BMS 5-92, Type 5 adhesive

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix 49 weight parts of Part A with 100 weight parts of Part B until the color is continuous. Pot life of mixed Class 1 adhesive is 20 minutes at 60-80°F. Pot life of mixed Class 2 adhesive is 60 minutes at 60-80°F, but this can be extended to approximately 2 hours at 60-80°F if the adhesive is applied from dual plastic cartridges and immediately made into a thin layer on the surface of the part. As an option, to make the adhesive easier to apply, you can warm the cartridges of adhesive components at 125°F maximum for 8 hours maximum, before you mix them together. The pot life of this mixed adhesive is 2 hours maximum. Then a thin layer of the mixed adhesive must be applied on each mating surface, and the parts must be assembled within two hours.

(4) Apply a thick continuous layer of the mixed adhesive to each mating surface. You can apply this adhesive to only one surface if

(a) the surfaces are smooth, have an area of less than 12 square inches, and fit tightly together without voids in the bond area, or

(b) the surfaces are long and narrow (maximum of 1 inch wide) and you can get the adhesive to come out all around the edges.

(5) Put the parts together and apply strong, constant pressure to make sure the surfaces fully touch.

(6) Remove unwanted adhesive, before it cures, with a clean wiper or cotton-tipped swab wet with solvent. Do not let solvent get into the bond line.

(7) Cure under pressure as follows:

(a) Class 1 adhesives: 3 hours minimum of 70-100°F, or 2 hours minimum at 120-130°F.

(b) Class 2 adhesive: 7 hours minimum at 70-100°F.

BW. Type 118

(1) Material – PR1764, Class B-2

(2) Clean the mating surfaces per Paragraph 4.

(3) Mix each component until smooth and continuous. Then mix 13-17 weight parts of Part A with 96-104 weight parts of Part B. Pot life of the mixed adhesive is approximately 0.5-2.0 hours at 75°F.

(4) Apply a smooth, continuous layer of mixed adhesive to each mating surface.

(5) Put the parts together and apply 5-10 psi pressure to make sure the surfaces fully touch. Look for a continuous bead of adhesive along all outer edges of the joint.

(6) Remove unwanted adhesive, before it cures, with a clean wiper wet with solvent. Do not let solvent get into the bond line.

(7) Examine the outer edges of the joint. Fill all voids or undercuts with adhesive.

(8) Cure under pressure for 24 hours minimum at 60-100°F before you move the parts. Full cure of the adhesive comes after 7 days at 67-87°F.

BX. Type 119

(1) Materials

(a) Adhesive – DC 5-8733

(b) Primer – DC 1200

(2) Clean the mating surfaces per Paragraph 4.

(3) Abrasive clean the surfaces to remove the gloss.

(4) Apply a thin, continuous layer of primer with a brush or a wiper. Let the primer dry for 30 minutes to 2 1/2 hours. When cured, the primer layer will be a very light pink color.

(5) Apply a continuous layer of adhesive to each mating surface.

(6) Put the surfaces together as quickly as possible, because after a few minutes the adhesive layer will get a skin which will prevent a good bond.

(7) Apply sufficient pressure to make sure the surfaces fully touch.

(8) Cure under pressure for 72 hours minimum at 65-100°F and a minimum relative humidity of 20%. The cure time can be decreased to 48 hours if you heat the bond line to 110-150°F and apply wipers wet with water to the bond line.

BY. Type 120

(1) Material

(a) Adhesive – BMS 10-102, Type 2

(b) Primer – DC 1200 Red

(2) Clean the mating surfaces per Paragraph 3. Lightly sand silicone rubber surfaces, then clean them per Paragraph 3.

(3) Apply primer

(a) Apply flash tape to areas not to get primer or adhesive.

(b) Apply a thin, continuous layer of primer by brush or spray to all surfaces to get the adhesive. Make the primer layer as thin as possible, only sufficient to wet the surface and make a continuous pink color when dry.

(c) Let the primer layer cure 30 minutes to 12 hours.

(4) Prepare the adhesive (sealant)

(a) Stir the base to make sure it is smooth and continuous.

(b) Make your selection of catalyst from Table 3 for the adhesive properties necessary for the task.

(c) Add the catalyst to the base and mix until smooth and continuous

(d) If a thinner is necessary, use up to 30 volume percent aliphatic naphtha.

Table 3: Type 120 Catalyst Proportions and Adhesive Properties

Catalyst	Use Only With Base	Weight Parts Catalyst Per 100 Parts Base	Drops of Catalyst Per 100 Grams Base *[1]	At 70-85°F		
				Pot Life, Hours	Tack Free Time, Hours	Full Cure Time, Hours
Catalyst A (dibutyl tin dilaurate)	RTV 60	0.10	5	4-6	10-12	36-40
		0.30	15	2-3.5	5-7	26-30
		0.50	25	1-1.5	1.5-2.5	16-24
Catalyst B (tin octoate) *[2]	RTV 60	0.10	4	0.5	Not Applicable	4-5
		0.30	12	0.25		2-3
		0.50	20	0.1		0.5-1.0
Catalyst C or S (dibutyl tin dilaurate in silicone oil)	DC 3120	10.0	Not Applicable	4.0	Not Applicable	22-26

*[1] As made with a typical medicine dropper

*[2] Use this catalyst for repairs only

(5) Apply a thin, continuous layer of adhesive to the surfaces which have the primer you applied in step (3) above. Make the adhesive layer approximately 0.001 inch thick. If the surface is insulation, do not let more adhesive soak into the insulation core.

(6) Put the mating surfaces together and apply a pressure of approximately 20 pounds per square foot (equivalent to 0.139 psi or 2.2 ounces per square inch). Be careful not to make air pockets in the bond line.

(7) Cure as indicated in Table 4 for the catalyst and amount used. Do not move the parts until the adhesive is tack-free.

BZ. Type 121

(1) Adhesive – PR 2701

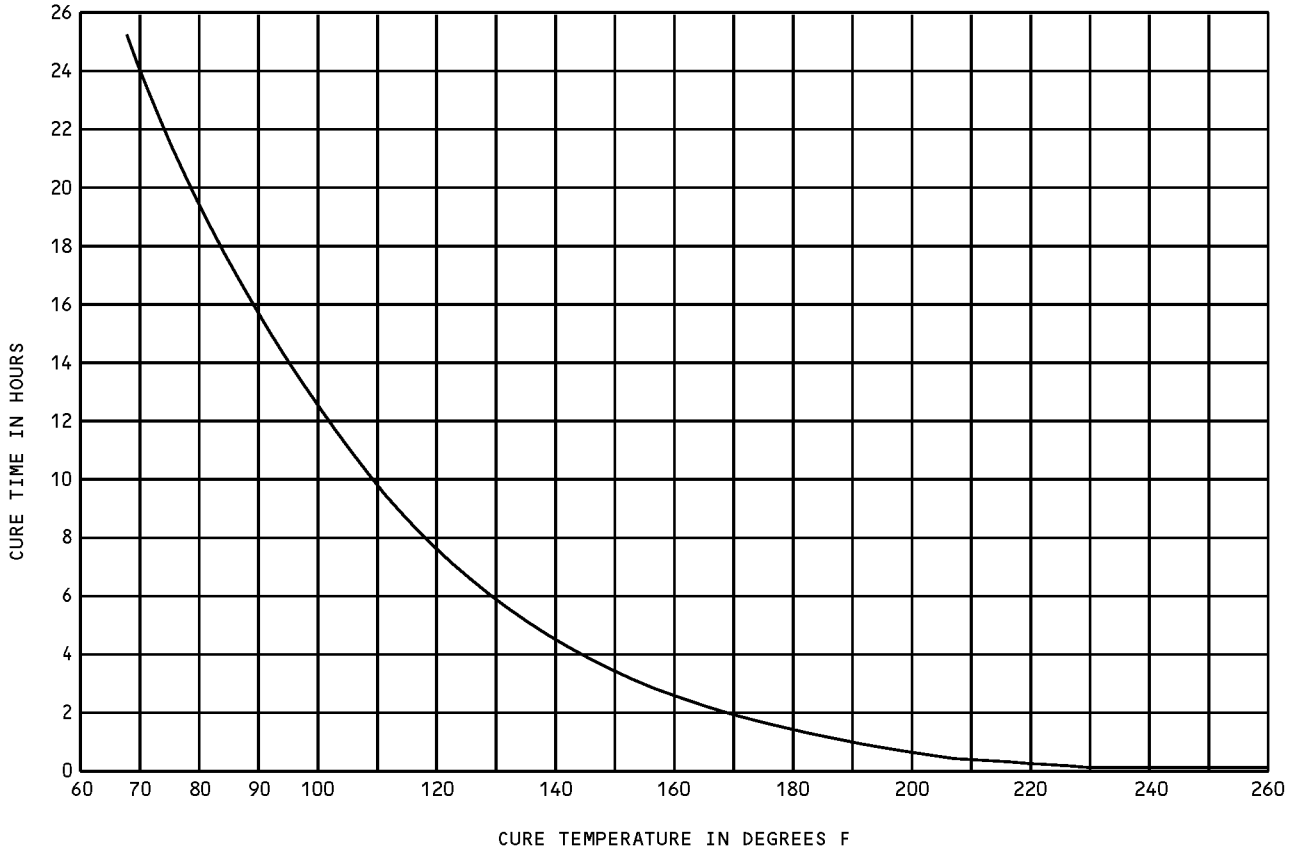
(2) Clean the mating surfaces per Paragraph 3.

(3) Mix the base compound with its accelerator by the vendor's instructions. The pot life of the mixed adhesive is approximately 10 minutes at 70-80°F and 45-55% relative humidity. Do not thin the adhesive.

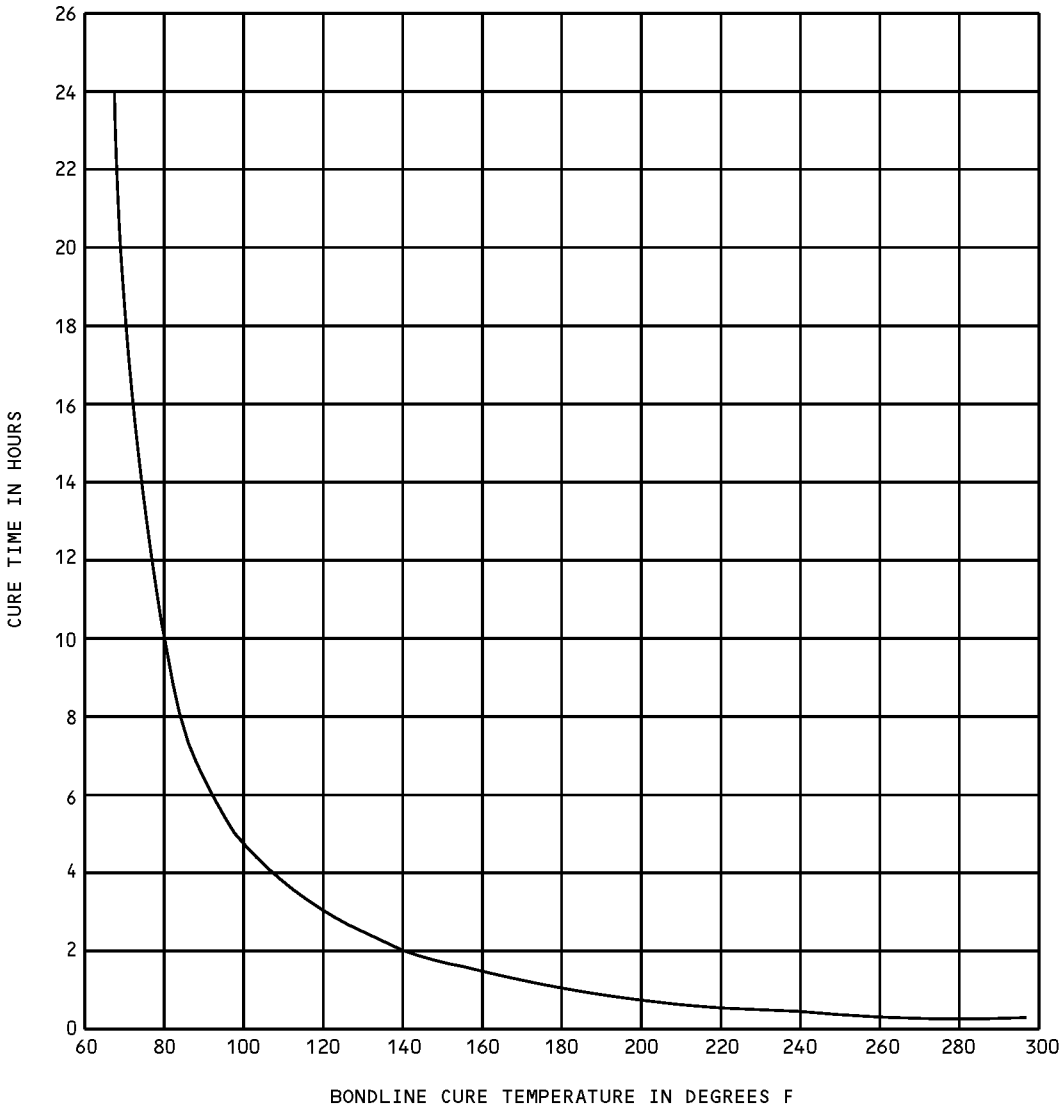
(4) Apply a thin, continuous layer of adhesive to each mating surface. As an alternative, you can apply the adhesive to only one of the mating surfaces if the surfaces fit together with a maximum gap of 0.010 inch, and you apply sufficient adhesive to be sure the adhesive will get on all of the opposite surface.

(5) Put the parts together immediately. Apply sufficient pressure to make sure the mating surfaces fully touch. Make sure there is a continuous bead of adhesive along the bond line.

(6) Cure the adhesive for 2 hours minimum of 65-85°F.



Type 38 Adhesive Cure Time and Temperature
Figure 1



Type 70 Adhesive Cure Time and Temperature
Figure 2

7. APPLICATION OF ADHESIVE FILM TO VINYL PLACARDS

A. If the placard has no adhesive applied to the back surface, prepare the placard as follows:

(1) Roughen back surface of placard with sandpaper.

(2) Clean the placard with naphtha.

(3) Apply BMS 5-91, Type 2 film adhesive to the back of the placard and trim the excess.

(4) Laminate the adhesive to the placard with a roll laminator at 140°F or warm the placard not more than 140°F and firmly rub the release paper with cheesecloth.

B. If the back of the placard has an adhesive different than BMS 5-91, Type 2, prepare the placard as follows:

(1) Remove the release paper from the back of the placard.

(2) Apply BMS 5-91, Type 2 film adhesive to the back of the placard and trim the excess.

(3) Laminate the adhesive to the placard with a roll laminator or firmly rub the release paper with cheesecloth.

8. APPLICATION OF RETAINING COMPOUNDS

A. This procedure tells how to apply retaining compounds MIL-R-46082, MIL-S-22473 and MIL-S-46163. It comes from BAC5011.

B. Surface preparation

(1) Make sure the surfaces have no unwanted matter.

(2) If the parts must be baked above 350°F for other procedures, be sure to do that before you apply the retaining compounds.

(3) Unless the overhaul instructions are different, sand the mating surfaces to remove gloss if the surfaces are nickel or chrome plated or are reinforced plastic.

C. Application and Cure

(1) Apply a layer of primer or activator to the surface. Use MIL-S-22473, Grade T primer for MIL-S-22473 and MIL-R-46082 compounds. Use MIL-S-46163, Grade F primer for MIL-S-46163 compounds.

(2) Let the primer/activator air dry for a minimum of 5 minutes. If necessary, parts with this primer can be put into storage in polyethylene bags up to 24 hours before you apply the retaining compound.

(3) Apply retaining compound to the mating surfaces and put the parts together. Make sure there is a continuous fillet at the assembled joint. (All grades of retaining compound contain fluorescent dye to permit inspection with ultraviolet light). Remove unwanted material as necessary.

(4) Cure the assembly for 72 hours at 40-70°F, or 1 hour at 70°F and warmer. These materials do not cure sufficiently at temperatures colder than 40°F. Be careful not to move, vibrate, or hit the parts until after the cure is complete.

D. Rework

(1) After disassembly, remove loose particles of cured compound before you apply new primer or compound.

(2) If you cannot disassemble the parts at room temperatures, the parts must be rejected.

(3) Discard threaded fasteners if the overhaul instructions specified a torque or preload value for them.

9. MATERIALS

A. Adhesives – See Table 4 for the materials for each BAC5010 type.

B. Retaining compounds and primers/activators

(1) MIL-R-46082

(2) MIL-S-22473

(3) MIL-S-46163

(4) Primer/activator – MIL-S-22473, Grade T or MIL-S-46163, Grade F

C. Solvents (SOPM 20-60-01)

(1) Acetone, technical – O-A-51 or JIS-K-1503

(2) Ammonia, anhydrous – O-A-445

(3) Ethyl acetate – ASTM D 4614

(4) Ethyl alcohol, denatured – O-E-760 or JIS-K-1505

(5) Isopropyl alcohol – TT-I-735

(6) Methylene chloride, technical – ASTM D 4701

(7) Methyl ethyl ketone, TT-M-261

(8) Methyl isobutyl ketone – JIS-K-8903

(9) Methyl propyl ketone – Eastman Chemical product

(10) n-Butyl alcohol (butanol) – ASTM D 304

(11) Naphtha, aliphatic – TT-N-95, Type 2

(12) Paint and lacquer remover – TT-R-248

(13) Series 98 (SOPM 20-30-98)

(14) Toluene – TT-T-548 or JAN-T-171, Grade A

D. Teflon etchants

(1) FluoroEtch, V18078

(2) Tetra-Etch, V17217 or V60622

(3) Tetra-Thin (thinner for Tetra-Etch), V17217 or V60622

E. Miscellaneous

(1) Glass beads

(a) 0.005-inch diameter, Unispheres, Class 5, Type A, V22306

(b) 0.0041-0.0050-inch diameter, P-0060, V07852

(2) Glass scrim

(a) Thalco No. 1659, V00250

(b) Style 1620, V88730

(c) Style 1620, V95746

(3) Gloves, knitted, cotton or nylon

(4) Gloves, latex rubber

(5) Masking tape – Permacel P-733 (SOPM 20-60-04)

(6) Parting agent– Frekote 710NC (SOPM 20-60-04)

(7) Swabs, cotton-tipped (SOPM 20-60-04)

(8) Wipers – BMS 15-5, Class A or B (SOPM 20-60-04)

Table 4: Materials by Type

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
5	Superseded by Type 58				
9	Deleted				
12	BMS 5-55		Adhesive	EC 1870 (Replaces EC 1128)	V76381
17	Deleted				
19	MMM-A-181	Type 1 Grade B	Resin Catalyst	RS-216 FM-316M	V86142
			Resin Catalyst	Weldwood 228 Weldwood 228	V16882
	None		Primer	Bostik L1007M	V70707
30	None		Adhesive	Duco Cement	V18873
34	Deleted				

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
38	BMS 5-126	Type 2 Class 1 Grade B	Adhesive	Epibond 1534 A/B	V99384
		Type 3 Class 1 Grade B	Adhesive	Epibond 1536 A/B	V99384
		Type 4 Class 1 Grade B	Adhesive	Epibond 1544 A/B	V99384
		Type 4 Class 4 Grade B	Adhesive	Epibond 1544 A71/D Epibond 1544 A42/D Epibond 1544 A82/D	V99384
	None		Primer	EC 776 EC 776R (Also called EC 1309) EC-776SR (Obsolete)	V04963
	MIL-S-4383		Primer	EC 776SR (No longer available)	V04963
				GC-3001	V04011
				PR-1005L	V83574
				444R	V83527
				833-5	V02104
40	BMS 5-14		Adhesive	Bostik 4145	V70707
44	BMS 5-44	Class B	Sealant	Pro-Seal 890 B	V83527
	BMS 5-45	Class B	Sealant	PR-1776	V83574
45	Superseded by Type 68				
46	Superseded by Type 77				
47	Deleted				
48	BMS 5-30	Type 1	Cement	EC 1458	V76381
				Bostik 4145	V70707

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
49	(Superseded by Type 38)				
50	BMS 5-36	Type 1	Adhesive	IS 06	VU0406
				IS 430	VU0406
				Loctite 430	V05972
				M-100	V62530
				Permabond 910	V61078
				1702N	V60859
				1703	V60859
		Type 2	Adhesive	E-40	V62530
				E-100	V62530
				Loctite 414	V05972
				Loctite 416	V05972
				Loctite 916	V05972
				Permabond 102	V61078
				Scotchweld CA-8	V76381
51	BMS 5-31		Adhesive	Pro-Seal 501	V83527
52	BMS 5-60		Adhesive Hardener	RE - 2038 3475	V12405
53	Superseded by Type 58 (BMS 5-7 Type 2)				
54	BMS 5-25	Type 2 Grade 1	Adhesive	Epibond 1539 A/B	V99384
			Component A Component B	EA901 NA B-1	V33564
55	None		Adhesive	Chemlock 220	V76005
56	None		Adhesive	Epon 828	V33564
			Catalyst	PMDA 946 Hardener	V18873 V99384
58	BMS 5-7	Type 1	Adhesive	1300-L	V76381
		Type 2	Adhesive	EC-4419 (Replaces EC-2155)	V76381

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
59	Superseded by Type 70				
60	None	Grade 1	Adhesive	RTV 102 IS-802 Q3-7063	V01139 V01139 V01139 V71984
		Grade 2	Adhesive	RTV 108	V01139
		Grade 3	Adhesive	RTV 157	V01139
		Grade 4	Adhesive	CRTV 9405	V01139
		Grade 5	Adhesive	RTV 108 white	V01139
			Primer	DC 1200	V71984
			Primer	DC 1204	V71984
61	None		Adhesive	PR-1710	V83574
			Catalyst	PR-1710 Accelerator	
			Primer	PR-1711	
62	None		Adhesive	Q4-2817	V71984
			Primer	DC 1200	
63	Superseded by Type 82				
65	Deleted				
66	None		Adhesive Catalyst Adhesive Catalyst Adhesive Catalyst	S-1005 A S-1005 B S-1006 A S-1006 B S-1009 A S-1009 B	V06090
67	Deleted				
68	None		Adhesive Catalyst Primer	93-076 93-076-2 DC-1204	V71984
			Primer	Thermolite 12 or Fascat 4204	V99384
			Adhesive Catalyst Primer	RTV 430 Beta 5 or 11D1 SS4155	V01139

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
69	BMS 5-72	Type 4	Adhesive Catalyst	Metre Grip 303 Part A Metre Grip 303 Part B	V18604
70	BMS 5-92	Type 1 or 3	Adhesive Catalyst	EC-2216B (Base) EC-2216A (Accelerator)	V76381
		Type 3 (only)	Adhesive Catalyst	EA-9330 Part A EA-9330 Part B	V33564
71	BMS 5-123	Type 1 Class 1	Adhesive	Atacs 4103	V61426
		Type 1 Class 2	Adhesive Adhesive Adhesive	Atacs 5103 Epoxy Patch 608 Epoxy Patch 615	V61426 V04347 V04347
		Type 1 Class 3	Adhesive Catalyst	Epibond 8543A Epibond 8543B	V99384
72	BMS 5-127	Type 2 or 3 Class 2	Adhesive Catalyst	Bostik 7132R Boscodur 24T	V70707
73	Superseded by Type 58				
74	None		Adhesive Primer	RTV 106 SS4004P	V01139
75	None		Adhesive Catalyst	Epibond 1526A Epibond 1526B	V99384
76	Deleted				
77	None		Resin Catalyst	PSA-529 SRC-18 (Replaces SC-3900)	V01139
79	None		Adhesive	DC 3145	V71984
			Primer for Non-Silicone Surfaces	DC 1204	V71984
			Primer for Plastic Surfaces	DC 1205	V71984
80	None		Adhesive	Ablebond 877-1	V21109
			Primer	DC 1204	V71984
82	BMS 5-105	Type 5 (Replaces Type 1)	Adhesive Catalyst	5774A 5774B	V54636

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
		Type 6	Adhesive	5779A/B 5779A40/B 5779A80/B	V54636
84	None		Adhesive Primer	DC 730 DC 1200 Red or clear	V71984
			Adhesive Primer	FRV 1106 SS4179	V01139
85	None		Adhesive Catalyst	Delta Bond 152 Hardener A	V90372
86	None		Adhesive Catalyst	Delta Bond 152 Hardener B	V90372
87	None		Adhesive Catalyst	Delta Bond 152 Hardener C	V90372
88	None		Adhesive Catalyst	Delta Bond 152 Hardener D	V90372
89	BMS 5-105	Type 2 Class 1	Adhesive Catalyst	EC 3532 Part A EC 3532 Part B	V76381
		Type 2 Class 2	Adhesive Catalyst	EC 3549 Part A EC 3549 Part B	V76381
		Type 2 Class 3	Adhesive Catalyst	EC 3535 Part A EC 3535 Part B	V76381
90	Superseded by Type 12				
91	None		Adhesive	M890	V70707
			Catalyst	Activator A	
92	BMS 5-127	Type 2	Adhesive Catalyst	Bostik 7132R Boscodur 24T	V70707
93	BMS 5-95	Class B-1/2	Sealant	Pro-Seal 870 B-1/2	V83527
		Class B-2	Sealant	Pro-Seal 870 B-2	V83527
94	BMS 5-109	Type 2 Class 2	Adhesive Catalyst	EA 934NA Part A EA 934NA Part B	V33564
			Adhesive Catalyst	EA 9394 Part A EA 9394 Part B	V33564
			Adhesive kit	EA 9394S	V33564
95	BMS 5-35	Type 1 Grade A	Adhesive Catalyst	584-29 Part A 584-29 Part B	V18565

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
			Adhesive	Ecobond 56C	V04552
			Adhesive	72-90005	V53217
	None		Adhesive Catalyst	16307 Part A 16307 Part B	V55635
			Adhesive Catalyst	KS4008 Part A KS4008 Part A	V04347
			Adhesive Catalyst	Atacs 5016 Part A Atacs 5016 Part A	V61426
96	BMS 5-105	Type 3	Adhesive	5759 Part C	V99384
			Catalyst	5759 Part D	V99384
97	None		Adhesive	Scotch Grip 4550	V76381
				Aerosol Spray Adhesive No. 74	V76381
98	None		Adhesive	RTV 133	V01139
99	BMS 5-127	Type 1	Adhesive	EC 4927	V76381
100	None		Adhesive	Versilock 202	V30676
			Catalyst	Accelerator No. 4	V30676
101	None		Adhesive	Parabond M-4277	V15934
102	None		Primer Catalyst Solvent	515 X 346 910 X 520 020 - 702	V04347
103	None		Adhesive	Armstrong 520	V5N513
104	BMS 5-30		Adhesive	EC 1458 FR Bostik 4145 FR	V76381 V70707
105	None		Adhesive	S-100LV	V09183
106	BMS 5-109	Type 1 Class 1 Grade B	Adhesive	EA 9309.3NA Part A	V33564
			Catalyst	EA 9309.3NA Part B	V33564
109	None	Grade 1	Adhesive	RTV-6702	V01139
		Grade 2	Adhesive	RTV-6703	V01139
		Grade 3	Adhesive	RTV-6708	V01139
110	MIL-S-83474		Adhesive	MS-26	V30256
111	BMS 5-141		Adhesive Catalyst	EA 9394 Part A EA 9394 Part B	V33564

Table 4: Materials by Type (Continued)

Type	Specification	Modification	Nomenclature	Manufacturer's Identification	Manufacturer
			Adhesive Kit	EA 9394S	V33564
112	None		Adhesive	Bostik 8657	V70707
113	MMM-A-132	Type 1 Class 3 Form P Group 1	Adhesive	EA 9396	V33564
116	BMS 5-142	Class B-2	Adhesive	P/S 875	V83574
117	BMS 5-92	Type 5 Class 1	Adhesive Adhesive	EC 3333 A/B EC 2615 A/B	V76381
		Type 5 Class 2	Adhesive Adhesive	EC 2615 A/B DP 460 A/B	
118	None		Adhesive Catalyst	PR 1764 Part A PR 1764 Part B	V83574
119	None		Adhesive Primer	DC 5-8733 DC 1200 Red	V71984
120	BMS 10-102	Type 2	Adhesive	RTV 60	V01139
	None		Adhesive	DC 3120	V71984
	None		Primer	DC 1200 Red	V71984
121	None	Class A	Adhesive	PR 2701	V83574