COMPONENT MAINTENANCE MANUAL

MISCELLANEOUS AIRPLANE-INTERIOR

PART NUMBER NONE

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

COMPONENT MAINTENANCE MANUAL

Revision No. 15
Jul 01/2009

To: All holders of MISCELLANEOUS AIRPLANE-INTERIOR 25-00-66.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE 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.

Pages replaced or made obsolete by this revision should be removed and destroyed.

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Location of Change	Description of Change
25-00-66	
REPAIR-GENERAL	Changed consumable from ''DC3145 adhesive, A00281'' to ''Dow Corning 3145 RTV adhesive, A00281''
REPAIR 6-1	Changed consumable from ''DC3145 adhesive, A00281'' to ''Dow Corning 3145 RTV adhesive, A00281''

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

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

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

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All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing.
When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

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INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

REPAIR OF MISCELLANEOUS AIRPLANE INTERIOR COMPONENTS-DESCRIPTION AND OPERATION

1. Description and Operation

A. This manual gives procedures for repair of the surfaces of certain airplane-interior components. These procedures are to help you make sure the repaired parts will continue to agree with the fireworthiness rules for airplane interiors. The rules give the persons in the airplane more protection from the sudden flames that come when materials become heated to their flash point temperature.

(NOT APPLICABLE)

(NOT APPLICABLE)

(NOT APPLICABLE)

CHECK

1. General

A. This procedure contains the data necessary to find defects in the material of different parts.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

2. Check

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION
767 NDT Part 1, 51-01-01	Inspection of Repairs to Composite Structures
767 NDT Part 2, 51-00-01	Water Detection in Honeycomb Structure
767 NDT Part 9, 51-00-01	Inspection for Ice or Water in Honeycomb Parts

B. Procedure

(1) Use standard industry procedures to do a visual check of all visible parts for cracks, defects or damage. It is necessary to do more checks on the parts that you think are damaged.

(2) Refer to the applicable Component Maintenance Manual to identify if the parts can be examined with magnetic particles as specified in SOPM 20-20-01 or with liquid penetrant as specified in SOPM 20-20-02.

(3) If applicable, do a check of all the composite structure:

(a) Do a check of the honeycomb and the bonded parts for internal water, scratches, and contour damage. Do a check of the bonded parts for delaminations.

1) If you see delaminations or contour damage, do an ultrasonic check or a tap test to find all of the damage.

NOTE: Refer to 767 NDT Part 1, 51-01-01 as a guide.

2) Examine areas that you think contain water radiographically as specified in 767 NDT Part 2, 51-00-01, or by thermography as specified in 767 NDT Part 9, 51-00-01, of the applicable Nondestructive Test Manual.

(4) If applicable, do a check of decorative surfaces for scratches, dents or marks.

REPAIR

1. Content

A. Repair, refinish and replacement procedures are included in separate repair sections as follows:

Table 601:

P/N	NAME	REPAIR
- - - -	SANDWICH AND LAMINATE PANELS	1-1, 1-2
- - - -	DECORATIVE SURFACES	2-1
- - - -	THERMOPLASTICS	3-1
- - - -	TEXTILES	4-1
- - - -	SHEET AND MAT MOLDED PARTS	5-1
- - - -	SILICONE FOAM AND SPONGE	6-1
- - - -	SILICONE RUBBER	7-1
- - - -	POTTED INSERT REPLACEMENT	8-1
- - - -	INSULATION	9-1
- - - -	COMMON PROCEDURES FOR PACKBOARDS	10-1

2. Standard Practices and References

A. Refer to the following standard practices, as applicable, for details of procedures in individual repairs.

(1) SOPM 20-30-03 General Cleaning Procedures

(2) SOPM 20-30-91 Solvents for Final Cleaning of Composites Before Non-Structural Bonding (Series 91)

(3) SOPM 20-41-05 Application of Corrosion Inhibiting Compounds

(4) SOPM 20-50-12 Application of Adhesives

(5) SOPM 20-60-01 Cleaning Materials

(6) SOPM 20-60-02 Finishing Materials

(7) SOPM 20-60-04 Miscellaneous Materials

(8) DOCUMENT D6-7127 Cleaning Interiors of Commercial Transport Aircraft

3. Materials

A. Abrasive Paper

(1) #80 to #120 grit abrasive paper, G50038

(2) paper - abrasive 120 -220 grit, G50482

(3) 240 grit or finer abrasive paper, G50077

(4) 320 grit or finer abrasive paper, G50078

(5) 400 grit abrasive paper, G50340

(6) 600 grit abrasive paper, G50339

B. Adhesives (SOPM 20-50-12)

(1) BAC5010 Type 48 adhesive, A50060.

(2) BAC5010 Type 50 (Permabond 102) adhesive, A00155 or adhesive, A00272

(3) BAC5010 Type 60 adhesive, A50057.

(4) BAC5010 Type 70 adhesive, A00028.

(5) BAC5010 Type 72 adhesive, A50141

(6) BAC5010 Type 79 Dow Corning 3145 RTV adhesive, A00281.

(7) BAC5010 Type 99 adhesive, A50186

C. Buffing Wheel – cotton cloth buffer wheel, STD-1205

D. Buffing Compound – Learok 119 compound, B00026 (supercedes Learok S-30) or Learok 884E compound, B00027 (supercedes Learok 888), V75554

E. Catalysts

(1) Benzoyl peroxide in tricresyl phosphate base

(a) Garo x BZP, V22401

(b) Luperox ATC50 Catalyst, G50686 or Luperox AFR40 Catalyst, G50687, V0B1N6

(2) Methyl ethyl ketone peroxide, 60 percent in dimethyl phthalate liquid

(a) Luperox DDM-9 Catalyst, G50685, V0B1N6

F. Cheesecloth, lint free – BMS 15-5 cotton wiper, G00034

G. Coating – Krylon No. 1311 coating, C50127, V87187

H. Filler – BMS 5-136 compound, D00147

I. Foam – BMS 8-133 foam, G00077

J. Glass Fabric – BMS 9-3, fabric, G00316; BMS 9-3, Type H fabric, G50172; BMS 9-3, Type H-2 fabric, G50593; BMS 9-3, Type H-3 fabric, G50173

K. Honeycomb Core – BMS 8-124 nonmetalic panels, G00278

L. Ink – BMS 10-73 ink, C00063; BMS 10-107 ink, G02310

M. Laminate, Tedlar – BAC5596, Type 13 laminate, G02446; Type 14 material, G02316

N. Potting Compound – BMS 5-28

(1) Type 9 compound, A00218

(2) Type 15 compound, A50078

(3) Type 16 compound, A00216

(4) Type 17 compound, A50079

(5) Type 18 compound, A01021

(6) Type 19 compound, A50042

(7) Type 28 compound, A01018

O. Primer – Sherwin Williams E61WC40 coating, C50029, V54636

P. Release Film – FEP solid parting film, G50104, V18873

Q. Resins

(1) BMS 8-201 Type IV resin, G50400

(2) Hetron 92 resin, G02137 (V29672, V60016, or V70304)

(3) Hysol TE1005 resin, A01053 with Hysol 3561 hardener, A00112, V1JB33

R. Solvents

(1) Butyl Carbitol solvent, B01027, V36346

(2) Solvents or cleaners per DOCUMENT D6-7127 for interior painted and plastic surfaces (SOPM 20-30-03)

(3) Series 91 solvent, B01011 (SOPM 20-30-91)

(4) Methyl Isobutyl Ketone solvent, B00151

S. Tape, Insulation – OT-6, OT-26, OT-26B tape, G50352, V60815

T. Tape – masking tape, G50314 (SOPM 20-60-04)

U. For FAR 25.856(a) and 121.312(e)(1) Flammability Resistant Repair Materials see REPAIR-GENERAL, Table 602

Table 602: REPAIR MATERIALS FAR 25.856(a) and 121.312(e)(1) FLAMMABILITY RESISTANT

DESCRIPTION	CURRENT MATERIAL	NEW MATERIAL - OPTIONS
Cover film	BMS 8-142, Type XI, Class 00	BMS 8-377 fabric, G50330, Type 1, Class 00
Cover film	BMS 8-142, Type XI or XII, Class 1, 2 or 3	BMS 8-377 fabric, G50330, Type 1 or II, Class 1, (Class 00 an option in non-heat sealed applications)
Fabric, polymer coated	BMS 8-115, Type 1	BMS 8-370 fabric, G50328, Type 1
Cover material, high mass	BMS 8-47, Type 1	BMS 8-374 fabric, G50329, Type I; or Cover BMS 8-47 fabric, G00060 with felt, G50334 Type I, Class 1 or Cover fabric, G00060 with fabric, G50328, Type I
Cover material, high mass	BMS 8-47, Type III	cargo liner, G50664 or Cover BMS 8-47, Type III with fabric, G50328, Type I
Cover material, high mass	BMS 8-47, Type IV	2 layers fabric, G50328 around felt, G50334, Type I, Class 1 or 4-5 layers of fabric, G50328 or cover fabric, G50660 with fabric, G50328, Type I
Blanket tape	BMS 5-149, Class 00, 1, 2 or 3	tape, G50327
Hook and Loop	BMS 8-285, Type IV, Class 1	tape, G50333, Type I
Hook and Loop	BMS 8-285, Type IV, Class 2	tape, G50333, Type II
Foam tape	BMS 8-283, Type I (RBX R326V)	foam, G50408, Type 1A
Foam tape	BMS 8-39 Foam	foam, G50408
Foam tape	1305-01 or 1305-02	No change is necessary if water diverter or foam, G50408
PVF tape	#838	BMS 5-157
Hi temp insulation	BMS 8-104	BMS 8-300, Type V

Table 602: REPAIR MATERIALS FAR 25.856(a) and 121.312(e)(1) FLAMMABILITY RESISTANT (Continued)

DESCRIPTION	CURRENT MATERIAL	NEW MATERIAL - OPTIONS
ECS duct insulation	BMS 8-300, Type II	Cover the BMS 8-300, Type II with BMS 5-157 or DMS1984 tape
Duct insulation	KB14/AC-550	BMS 8-300, Type II covered with BMS 5-157 or DMS1984 tape
Sewing thread (T40), Strip machine thread (T-60)	Cotton, Polyester, Cotton / Poly, or Fiberglass thread	thread, G50341

4. Vendors

A. For materials vendors see REPAIR-GENERAL, Table 603.

Table 603: Vendors

V0B1N6	ATOFINA PETROCHEMICALS INC 15619 HFJ BKVD HOUSTON, TEXAS 77267
V1JB33	DEXTER CORPORATION, THE HYSOL DIVISION 1 DEXTER DRIVE SEABROOK, NEW HAMPSHIRE 03874
V22401	RAM CHEMICAL DIV OF WHITTAKER CORP 210 EAST ALONDRA BOULEVARD GARDENA, CALIFORNIA 90248-2808
V29672	ASHLAND CHEMICAL CO., INDUSTRIAL CHEMICALS AND SOLVENTS DIV 8901 OLD GALVESTON ROAD, PO BOX 34567 HOUSTON, TEXAS 77034-3939
V36346	UNION CARBIDE CORPORATION, LINDE DIVISION 39 OLD RIDGEBURY ROAD DANBURY, CONNECTICUT 06817-0001
V54636	SHERWIN-WILLIAMS CO 101 PROSPECT AVENUE NORTH WEST CLEVELAND, OHIO 44115-1042
V60016	ASHLAND OIL, INC, ASHLAND CHEMICAL CO DIV 831 FIFTH AVE SOUTH KENT, WASHINGTON 98031
V60815	ORCON CORPORATION 1570 ATLANTIC STREET UNION CITY, CALIFORNIA 94587-2006
V70304	ASHLAND CHEMICAL CO GENERAL POLYMERS DIV 11524 WEST ADDISON STREET FRANKLIN PARK, ILLINOIS 60131
V75554	JASON INC., JACKSONLEA UNIT 75 PROGRESS LANE WATERBURY, CONNECTICUT 06705

Table 603: Vendors (Continued)

V87187	BORDEN INC CHEMICAL DIV KRYLON DEPT 630 EAST WASHINGTON PO BOX 390 NORRISTOWN, PENNSYLVANIA 19404

SANDWICH AND LAMINATE PANELS - REPAIR 1-1

1. General

A. Use these procedures to repair structural damage to the sandwich or laminate panels. Then repair the decorative surface per REPAIR 2-1.

B. Because decorative surfaces on complex contoured and acoustic panels cannot be repaired, be sure to make an analysis of all of the necessary repairs to the part before you start to repair it.

C. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

D. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Small Dents and Scratches

NOTE: This procedure is for damage that does not go through the skins, with the scratches or dents less than 0.005 inch deep.

A. Clean off contamination and moisture from the surface.

B. Wipe the area with Butyl Carbitol solvent, B01027.

C. Repair the damaged surface with compound, D00147 per REPAIR 1-2.

3. Small Holes and Gouges

NOTE: This procedure is for damage less than 0.5 square inch which goes through the skin, and core damage less than 0.5 square inch.

A. Remove contamination and unwanted skin and core material from the damaged area with a knife and 240 grit or finer abrasive paper, G50077.

B. Clean the area with cotton wiper, G00034 wet with Butyl Carbitol solvent, B01027.

C. Dry the area with clean cotton wiper, G00034.

D. Fill the damaged area with potting compound. In order of preference, use compound, A01018, compound, A00218, compound, A01021, compound, A50078, compound, A00216, or compound, A50079. Cure for 7 days at 75-79°F. Repair the damaged area with compound, D00147 per REPAIR 1-2.

E. Repair the damaged area with compound, D00147 per REPAIR 1-2.

4. Large Holes and Gouges in Laminates (REPAIR 1-1, Figure 601)

NOTE: This procedure is for damaged areas larger than 0.5 square inch but smaller than 100 square inches.

A. Remove damaged plies from the area.

B. Sand the edges of the damaged area to an angle as shown.

C. Clean all of the area with cotton wiper, G00034 wet with Butyl Carbitol solvent, B01027.

D. Dry with clean cotton wiper, G00034.

E. Cut plies of fabric, G00316 to fit the prepared area, with allowance for overlaps as shown. For each ply, use the same type of fabric, G00316 as the plies to be replaced in the damaged area. If exact replacement is not possible, use fabric, G50172, fabric, G50593, or fabric, G50173 as applicable.

F. Brush resin, G50400 on the prepared edges and also on the smallest ply. Install the smallest ply on the repair area. Then continue with each larger ply until each ply is replaced.

G. Apply solid parting film, G50104 to the repair area. Apply a pressure of 10 pounds per square inch of repair area. Cure the resin at 70-80°F for 8 hours.

H. Repair the surface with compound, D00147 per REPAIR 1-2.

5. Large Holes and Gouges in Sandwich Panels (REPAIR 1-1, Figure 601)

NOTE: This procedure is for damaged areas larger than 0.5 square inch, but smaller than 100 square inches.

A. Remove the damaged skins from the area, and more skin to expose 0.5 inch of serviceable core around the edge of the damaged core.

B. Remove the damaged core material. With sandpaper, blend out the damaged area 2 inches all around the edges into the serviceable core material.

C. Clean all of this area with cotton wiper, G00034 wet with Butyl Carbitol solvent, B01027.

D. Dry with clean cotton wiper, G00034.

E. Cut and install a piece of core material to agree with the removed core. As applicable, use nonmetalic panels, G00278 or foam, G00077. If the piece is larger than 3 inches diameter, make the ribbon direction agree with that of the repair area and install the piece with adhesive, A00028.

F. Cut plies of fabric, G00316 to fit the prepared area, with allowance for a minimum of 0.5 inch overlap around the edges. For each ply, use the same type of fabric, G00316 as the plies to be replaced in the damaged area. If exact replacement is not possible, use fabric, G50172, fabric, G50593, or fabric, G50173 as applicable.

G. Brush resin, G50400 on the repair area and also on the smallest ply. Install the smallest ply on the repair area. Then continue with each larger ply until all plies are replaced.

H. Apply solid parting film, G50104 to the repair area. Apply a pressure of 10 pounds per square inch of repaired area. Core the resin at 70-80°F for 8 hours.

I. Repair the surface with compound, D00147 per REPAIR 1-2.

6. Separation Between Plies or Skins

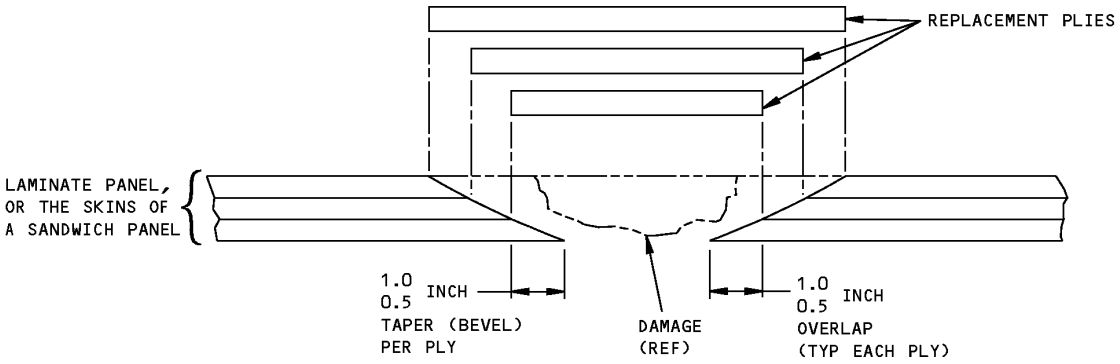
NOTE: This procedure is for damaged areas smaller than 4 square inches. For areas larger than 4 square inches, use the procedure for large holes and gouges in laminates, REPAIR 1-1, Paragraph 4..

A. Make a small hole into the damaged area. If the damaged area is not at the edge of the panel, also make an air vent hole.

B. Inject resin, G50400 into the damaged area through the hole.

C. Apply solid parting film, G50104 to the area. Apply a pressure of 10 pounds per square inch of repaired area. Cure the resin at 70-80°F for 8 hours.

D. Repair the surface with compound, D00147 per REPAIR 1-2.



Hole Preparation and Ply Replacement
Figure 601

SURFACE REPAIR - REPAIR 1-2

1. General

A. Use this procedure to repair the surface of the panel with compound, D00147.

B. If heat and smoke release regulations are applicable, do not use this procedure if the width of the filler will be more than 3 inches, or if the total amount of filler will be more than 100 square inches on one panel. If the panel cannot be repaired within these limits, then apply decorative laminate, G02446 over the repair, or discard the panel and use a replacement panel.

C. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

D. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Surface Repair

A. If the surface has a layer of enamel coating, C00260, remove the gloss with abrasive paper or equivalent.

B. Clean the surface with Butyl Carbitol solvent, B01027. Remove wet solvent with a cotton wiper, G00034.

C. Prepare compound, D00147 by the manufacturer's instructions.

D. Apply the compound, D00147 with a hardwood or plastic fillet smoothing spatula, STD-810 or an extrusion gun. Be careful not to catch air under the filler. Immediately remove unwanted filler.

E. Give protection to adjacent areas with tape, G50271 per SOPM 20-44-02.

F. Let the compound, D00147 cure 20-40 minutes at 65-85°F.

G. With aluminum oxide sandpaper only, sand to the correct dimensions and surface roughness. Use #80 to #120 grit abrasive paper, G50038 for rough sanding, then use 240 grit or finer abrasive paper, G50077 for final sanding. Be careful not to sand through primer or decorative layers, or more repair will be necessary.

H. Remove masking tape.

DECORATIVE SURFACES - REPAIR 2-1

1. General

A. Use these procedures to repair structural damage to the decorative surfaces.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Scuff Marks and Light Scratches

NOTE: This procedure is for damage less than 0.250 inch in diameter and less than 0.005 inch deep.

A. Clean the damaged area with cotton wiper, G00034 wet with Butyl Carbitol solvent, B01027.

B. Remove scratches and marks with a cotton cloth buffer wheel, STD-1205 and Learok 119 compound, B00026 (Superceds Learock S-30) or Learok 884E compound, B00027.

C. Blend out the edges of the repair until you get a continuous glossy surface.

D. If necessary, apply ink, C00063 or ink, G02310, or enamel coating, C00923, of the correct color. Let this air dry for 15 minutes.

E. If necessary, polish the area again per REPAIR 2-1, Paragraph 2.B..

3. Small Holes and Gouges in Nonacoustic Decorative Laminates

NOTE: This procedure is for panels which are flat or have easy contours, and when damage to skin and core was repaired per REPAIR 1-1.

A. Remove trim strips from the panel.

B. Sand the surface with #80 to #120 grit abrasive paper, G50038 to remove the gloss.

C. Clean all of the surface with cotton wiper, G00034 wet with Butyl Carbitol solvent, B01027.

D. Dry with clean cotton wiper, G00034.

E. We recommend you use laminate, G02446 and Type 72 adhesive, A50141 unless a pressure sensitive adhesive is necessary. Then use material, G02316 laminates and adhesive, A00016material, G02316.

F. Remove the release paper from the laminate, G02446 immediately before use.

CAUTION: MAKE SURE YOU PUT THE PATTERN IN THE CORRECT DIRECTION BEFORE YOU APPLY THE LAMINATE. SEE THAT THE REPLACEMENT PATTERN AGREES WITH THE PATTERN ON THE PANEL.

G. Apply the laminate, G02446 to the surface. Be careful not to catch air under the laminate. As you rub the laminate on, you can use heat to help the laminate touch all of the surface. Do not get the laminate get hotter than 200°F, or the laminate texture could change or go away.

H. Vacuum form laminate, G02446 for 30 minutes at 180°F. For material, G02316, the vacuum and heat cure is not necessary, but is recommended when possible.

I. If you use vacuum, let the panel cool to below 90°F before you remove the vacuum.

J. Cut the edges of the laminate, G02446 to the correct size. Install the trim strips.

4. **Small Holes and Gouges in Painted Surfaces**

   NOTE: Damage to skins or core must be repaired per REPAIR 1-1 before you you repair the painted surface.

   The paint layer after repair must not be thicker than 0.036 inch (3.6 mils) on sandwich panels, or 0.018 inch (1.8 mils) on laminate panels.

   A. Remove trim strips from the panels.

   B. With sandpaper, remove contamination from the damaged area.

   C. As necessary, repair the surface with compound, D00147 per REPAIR 1-2.

   D. Apply E61WC40 coating, C50029 to the area.

   E. Apply the topcoat of the correct color.

   F. Install the trim strips.

5. **Small Holes and Gouges in Glass Reinforced Decorative Laminates**

   A. If there is damage to the glass skins or laminate, repair the damage per REPAIR 1-1.

   B. Repair the damaged decorative surface per REPAIR 2-1, Paragraph 3..

6. **Particles Under Decorative Laminates**

   NOTE: The particle size must be smaller than 0.0625-inch diameter.

   A. Method 1 (Preferred)

      (1) Solvent clean the damaged area per SOPM 20-30-03.

      (2) Put a piece of clean mylar sheet, G00111 over the particle.

      (3) Carefully push the particle into the panel. Be careful not to damage the Tedlar surface.

   B. Method 2 (Optional)

      (1) Solvent clean the damaged area per SOPM 20-30-03.

      (2) Make a small cut into the laminate

      (3) Lift the laminate back and remove the particle.

      (4) Apply adhesive, A00155 or adhesive, A00272 to the two mating surfaces per SOPM 20-50-12, Type 50.

      (5) Put the mating surface together. Apply pressure to make sure the surfaces fully touch. Do not make air pockets or wrinkles.

      (6) Wipe off unwanted adhesive. Sand the area smooth with abrasive paper, G50339.

      (7) Apply ink, C00063, ink, G02310, or coating, C00923 paint of the correct color to the area. Cab-O-Sil M-5 Silica Powder, G50694 can be added to the ink or paint as a filler if necessary.

      (8) Spray a light layer of coating, C50127 to control the surface gloss, as necessary.

7. **Dents**

   NOTE: The dent must be less than 0.250 inch diameter.

   A. Solvent clean the damaged area per SOPM 20-30-03.

   B. Apply heat with a heat gun, STD-6554, 6-8 inches above the decorative surface, for approximately 30 seconds in a circular pattern.

   C. Repair the damaged decorative area with compound, D00147 per REPAIR 1-2.

D. Lightly sand the area with paper - abrasive 120 -220 grit, G50482.

E. Wipe the area with solvent to remove sand and unwanted material.

F. Apply ink, C00063, ink, G02310, or coating, C00923 of the correct color to the damaged area with foam, G50025. Cab-o-sil can be added to this ink or paint as a filler if necessary.

G. Apply one more layer of ink or paint without Cab-o-sil.

H. Spray a light layer of coating, C50127 to control surface gloss as necessary.

THERMOPLASTICS - REPAIR 3-1

1. General

A. Use these procedures to repair structural damage to the thermoplastic panels.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Badly - Drilled Holes

NOTE: This procedure is for bad holes less than 0.5 inch diameter which cannot be seen when the part is installed in the airplane.

A. Fill the hole with potting compound. In order of preference, use compound, A01018, compound, A00218, compound, A01021, compound, A50078, compound, A00216, or compound, A50079. Cure for 7 days at 75-79°F or 5 hours at 120-130°F. Or as an alternative fill the hole with adhesive, A00028 per SOPM 20-50-12.

B. Repair the surface with compound, D00147 per REPAIR 1-2.

C. Repair the decorative surface per REPAIR 2-1.

3. Scratches and Small Cracks

NOTE: This procedure is for damage less than 0.005 inch deep on other than textured surfaces.

A. Fill the damage with potting compound. In order of preference, use Type compound, A01018, compound, A00218, compound, A01021, compound, A50078, compound, A00216, or compound, A50079. Cure for 7 days at 75-79°F or 5 hours at 120-130°F.

B. Repair the surface with compound, D00147 per REPAIR 1-2.

C. Repair the decorative surface per REPAIR 2-1.

4. Cracks

NOTE: This procedure is for cracks more than 0.005 inch deep which cannot be seen when the panel is installed in the airplane. The total area of the fiberglass must be no larger than 100 square inches.

A. Repair the blind (rear) side of the panel with fiberglass fabric and with Hysol resin mix as follows:

(1) On polycarbonate, polysulfone, or polyetherimide plastics, use Super Bee 210 cleaner, B50114 to clean the area per SOPM 20-30-03. Sand the surface to remove all gloss with #80 to #120 grit abrasive paper, G50038. Then use Super Bee 210 cleaner, B50114 to clean the surface again.

(2) On polyetherketone ketone plastics, use Super Bee 210 cleaner, B50114 to clean the area per SOPM 20-30-03. In a ventilated booth or hood, apply a thin layer of adhesive, A50141 as a primer. Let this primer dry in the ventilated booth or hood.

(3) Cut a piece of fiberglass fabric to fit the damaged area. Use fabric, G50172, fabric, G50593, or fabric, G50173, classes 3, 4, or 7, as applicable.

(4) Mix 100 parts by weight of Hysol TE1005 resin, A01053 with 15-17 parts by weight of Hysol 3561 hardener, A00112. The pot life of this resin mix is 100 minutes maximum.

(5) Apply a layer of the mixed resin to the prepared surface. Then apply one ply of the fiberglass fabric, and apply one more layer of mixed resin on the fiberglass fabric. Carefully work the the resin into the fabric to fully wet the fabric and remove caught air. As an alternative, you can put the resin into the fiberglass fabric before you apply the fabric to the surface.

(6) On polycarbonate or polysulfone plastics, add more layers of fiberglass fabric and resin, if necessary. On polyetherimide and polyetherketone ketone plastics, only one layer of fiberglass is permitted.

(7) Cure the resin-repaired area for 24 hours minimum at 67°F minimum. As an alternative, polyetherketone ketone parts can be cured for 3 hours minimum at 140-160°F.

B. Repair the other (front) surface of the panel with compound, D00147 per REPAIR 1-2.

C. Repair the decorative surface per REPAIR 2-1.

TEXTILES - REPAIR 4-1

1. General

   A. If damage to textiles can be cleaned away, clean by the usual procedures.

   B. Replace the item if damage cannot be repaired by cleaning.

SHEET AND MAT MOLDED PARTS - REPAIR 5-1

1. General

A. Use these procedures to repair structural damage to the sheet and mat molded parts.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Cracks in Ribs

NOTE: This procedure is for cracks as much as 1 inch long.

A. Solvent clean the area with Butyl Carbitol solvent, B01027.

B. With paper - abrasive 120 -220 grit, G50482, sand the area of the defect and 1 inch or more around it. Also include all surfaces which will be covered with a patch.

C. Remove sand and unwanted matter with a dry cotton wiper, G00034 or high quality paper towel, G50141.

D. Cut a piece of fabric, G50172 to a size that covers the defect and a minimum of 0.5 inch more on each side, and which will cover the two sides of the rib down to the flat surface of the panel.

E. Prepare adhesive, A00028 per SOPM 20-50-12, but use 58 parts resin to 42 parts catalyst. Apply a thick layer of the mixed adhesive to the top edge and the two sides of the rib. Push the fiberglass cloth into position while the adhesive is soft.

F. Apply a minimum of 20 inches Hg vacuum.

G. Cure the adhesive 24 hours at 65-85°F.

3. Edge Cracks and Holes

NOTE: This procedure is for cracks as much as 0.75 inch long and holes as large as 0.75 inch diameter.

A. Drill stop holes at the ends of the cracks.

B. Remove the damaged material. Bevel cracks 15-45° with the surface of the panel. Bevel holes approximately three times the hole diameter.

C. Sand an area 1-2 inches out from the edges of the bevels.

D. Mix 67 parts by weight of Hetron 92 resin, G02137 with 33 parts by weight of fiberglass cloth cut into 0.5 inch squares. Mix in 0.625 part by weight (that is, only 0.625 weight percent) of MEK peroxide. The pot life of this is 60 minutes.

E. With a small trowel, STD-1410, push the mix into the hole or crack.

F. Apply solid parting film, G50104 to the rear surface of the repair, and then put an aluminum sheet down on the film. Then apply a pressure of 10 pounds per square inch of repaired area.

G. Cure the resin 24 hours at 60-95°F.

4. Void, Resin-Starved Areas and Porosity

NOTE: This procedure is for voids no more than 0.020 inch deep, resin-starved areas 0.125 square inch or smaller, and porosity no more than 0.020 inch deep on no more than 5% of the surface. But these defects must be only on nondecorative parts. Such defects on textured decorative surfaces cannot be repaired.

A. Solvent clean the area with Butyl Carbitol solvent, B01027.

B. Make the area rough with paper - abrasive 120 -220 grit, G50482.

C. Remove sand and unwanted matter with a dry cotton wiper, G00034.

D. Mix the two components of compound, D00147 by the manufacturer's instructions until the color is constant.

E. Fill the defective area with the mixed filler. Cure 20-40 minutes at 65-85°F.

F. Sand the cured filler smooth with the adjacent surface.

SILICONE FOAM AND SPONGE - REPAIR 6-1

1. General

NOTE: These repairs are for BMS 1-60, BMS 1-68 and 1-69 material.

A. Use these procedures to repair structural damage to the silicone foam and sponge parts.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Cuts and Tears

NOTE: This procedure is for damage 1 inch maximum, and no more than 1 cut in each foot of material, in areas that cannot be seen when the item is installed in the airplane.

A. Solvent clean the area with Butyl Carbitol solvent, B01027.

B. Apply a continuous layer of adhesive, A50057 or Dow Corning 3145 RTV adhesive, A00281 to one or two mating surfaces.

C. Push the surfaces together to make a good bond, with a bondline thickness of 0.015 inch (15 mils).

3. Scuffs or Marks

A. These defects cannot be repaired. Replace the part.

4. Swelling

A. Replace the part if the swelling does not go away in 30 minutes.

SILICONE RUBBER - REPAIR 7-1

1. **General**

   NOTE: These repairs are for BMS 1-59 and 1-63 material.

   A. Use these procedures to repair structural damage to the silicone rubber parts.

   B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

   C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. **Cuts and Tears, Scuffs**

   A. These defects cannot be repaired. Replace the part.

3. **Marks**

   A. Clean the part with Butyl Carbitol solvent, B01027 or soap, B50026 and water, G50256.

   B. If this does not remove the marks, replace the part.

4. **Swelling**

   A. Replace the part if the swelling does not go away in 30 minutes.

5. **Silicone Ducts**

   A. Defective flexible and semi-rigid air ducts with silicone coating per BMS 8-17 or 8-250 cannot be repaired. Silicone ducts are low cost parts. Replace the part if it is necessary.

POTTED INSERT REPLACEMENT - REPAIR 8-1

1. General

A. Use these procedures to repair the potted inserts.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Hole Preparation

A. Method 1 – Skin Damaged

(1) Cut around the insert from the back side with a hole saw or equivalent. Heat the insert to make the adhesive soft. Remove the insert.

(2) Repair the core and the skin to put a new surface where the hole was. Refer to applicable sections of REPAIR.

(3) Make a new hole for the insert at the correct location. For a blind insert, make the hole approximately 0.040 inch deeper than the length of the insert.

(4) Install a good insert per REPAIR 8-1, Paragraph 3..

B. Method 2 – Skin Not Damaged

(1) Heat the insert to make the adhesive soft. Remove the insert.

(2) Remove old adhesive from the hole. Clean the hole with solvent. On nondecorative surfaces, use a Series 91 solvent, B01011. On decorative surfaces, use Butyl Carbitol solvent, B01027.

(3) Install a good insert per REPAIR 8-1, Paragraph 3..

3. Insert Installation

A. Remove loose particles and dust with clean dry air, G50321 or a vacuum method.

B. Use masking tape, G50314 to give protection to adjacent decorative surfaces.

C. Prepare compound, A01021 or compound, A50042 as specified in the manufacturer's instructions.

D. If the hole goes all the way through the panel but the insert does not, be sure to block off the hole at the rear side of the panel (REPAIR 8-1, Figure 601).

E. If the insert has a shoulder that goes in past the top skin of the panel, put all of the required potting compound into the hole. If the insert does not have this shoulder, you can either fill the hole with 60-90% of the required potting compound, or put the insert in first without the compound. (Most of these inserts have tabs.)

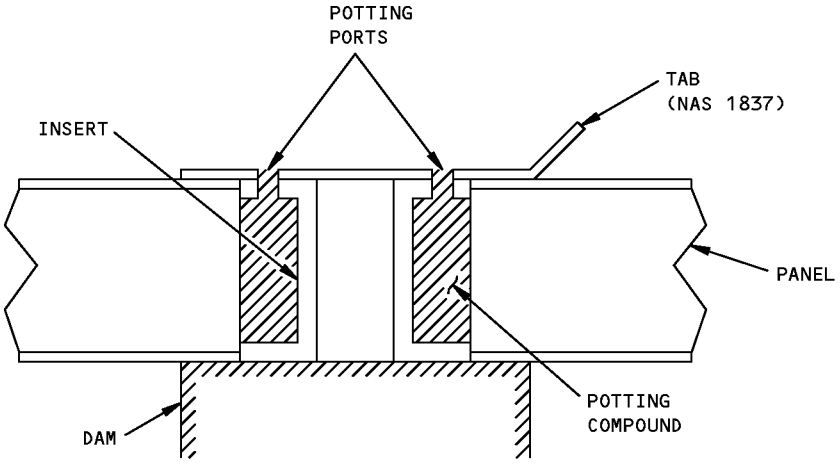
F. Install the insert into the prepared hole. For inserts without the shoulder per REPAIR 8-1, Paragraph 3.E., inject compound, A01021 or compound, A50042 into the hole at one alignment tab until the compound comes out the hole at the other alignment tab.

G. Remove unwanted potting compound with a cotton wiper, G00034 wet with solvent. On nondecorative surfaces, use a Series 91 solvent, B01011. On decorative surfaces, use Butyl Carbitol solvent, B01027.

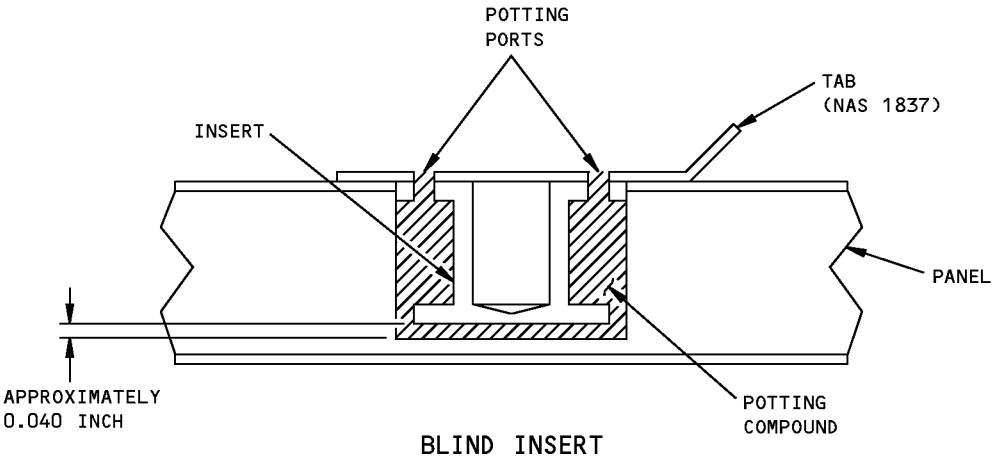
H. Cure the potting compound, A01021 or compound, A50042 for a minimum of 5 hours at 120-130°F, or 7 days at 75-79°F.

I. After the cure, remove alignment tabs and protective materials. But do not put any load on the inserts for at least 24 hours after installation.

J. Examine the insert for correct installation. If the insert is at an angle or not smooth with the face of the panel, remove the insert and do the replacement procedure again.



THROUGH INSERT



BLIND INSERT

Typical Insert Installations
Figure 601

INSULATION - REPAIR 9-1

1. General

A. Use these procedures to repair structural damage to the insulation.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

2. Small Punctures and Tears

NOTE: This procedure is for defect smaller than 25 percent of the total area of the blanket, for insulation materials fiberglass batting insulation, G00086, fabric, G02308, or fabric, G00087.

CAUTION: IF THE INSULATION BLANKET HAS CONTAMINATION BY CORROSION INHIBITING COMPOUNDS, IT MUST BE CLEANED PER SOPM 20-41-05, OR REPLACED.

A. If there is damage to the fiberglass batting, replace the damaged batting with new batting before you repair the cover.

B. Method 1 – Cover Repair with a piece of fiberglass batting insulation, G00086, fabric, G02308, or fabric, G00087.

(1) Solvent clean the damaged area with Butyl Carbitol solvent, B01027.

(2) Cut a piece of fiberglass batting insulation, G00086, fabric, G02308, or fabric, G00087 of equivalent material to make a patch for the damaged cover. Make the patch dimensions 1 inch or larger in all directions than the area of the defect.

(3) Apply adhesive, A50060 to the mating surfaces of the patch and the cover.

(4) Install the patch on the defect. Push down to make a good bond.

C. Method 2 – Repair of fabric, G00087 blankets with tape (Optional)

(1) As an alternative to Method 1 repair, repair the damaged area with tape, G50352.

COMMON PROCEDURES FOR PACKBOARDS - REPAIR 10-1

1. General

A. This section contains repairs for graphite packboards. This section describes repairs made using room temperature/150°F (66°C) cure materials (wet layup).

NOTE: The repairs called for in this section are wet layup repairs. These repairs require rapid use of catalyzed resin materials. Room temperature wet layup repairs will not return the structure to its original strength or durability. A periodic inspection plan for the repaired area may be required. For size and limits of such repairs, see applicable repair section.

The repairs in this section are room temperature repairs, the cure of which may be accelerated by the application of heat as specified herein. To obtain maximum properties, cure repair at 150°F (66°C).

B. For index of subjects in REPAIR 10-1, Paragraph 3. and REPAIR 10-1, Paragraph 4., see REPAIR 10-1, Table 601.

Table 601: Index of Subjects

Paragraph	Subject
See REPAIR 10-1, Paragraph 3..	Common Procedures for Packboard Repairs
See REPAIR 10-1, Paragraph 3.A..	Determine Damage
See REPAIR 10-1, Paragraph 3.B..	Remove Water from Damaged Area
See REPAIR 10-1, Paragraph 3.C..	Remove and Prepare Damaged Area
See REPAIR 10-1, Paragraph 3.D..	Fabricate, Clean, and Install Honeycomb Replacement Core Plug
See REPAIR 10-1, Paragraph 3.E..	Prepare and Apply Repair Plies
See REPAIR 10-1, Paragraph 3.F..	Layup/Bagging Procedures (REPAIR 10-1, Figure 607)
See REPAIR 10-1, Paragraph 3.G..	Cure the Repair
See REPAIR 10-1, Paragraph 3.H..	Refinish after Repair
See REPAIR 10-1, Paragraph 3.I..	Perform Post-Repair Requirements
See REPAIR 10-1, Paragraph 4..	Typical Packboard Repairs
See REPAIR 10-1, Paragraph 4.A..	Repair of Delaminations Between Plies
See REPAIR 10-1, Paragraph 4.B..	Repair of Puncture, 0.50-inch Diameter or Less, in Honeycomb Panel (REPAIR 10-1, Figure 612)

Table 601: Index of Subjects (Continued)

Paragraph	Subject
See REPAIR 10-1, Paragraph 4.C..	Repair of Damage to One Skin and Honeycomb Core using Replacement Core Plug, Punctures Greater than 0.50-inch Diameter (REPAIR 10-1, Figure 605)
See REPAIR 10-1, Paragraph 4.D..	Repair of Large Puncture through Internal and External Surface of Panel including Core Damage (REPAIR 10-1, Figure 606)
See REPAIR 10-1, Paragraph 4.E..	150°F (66°C) cure (wet layup) Repair of Damaged Panel Attach Holes in Honeycomb Panel Edgebands or along Edges of Laminated Panels (REPAIR 10-1, Figure 610)
See REPAIR 10-1, Paragraph 4.F..	Repair of Surface Dents (REPAIR 10-1, Figure 613)
See REPAIR 10-1, Paragraph 4.G..	Repair of Resin Crack in One Skin (REPAIR 10-1, Figure 614)

2. General

WARNING: HEAT, FIRE, OR SPARKS CAN CAUSE AN EXPLOSION. USE EXPLOSION PROOF EQUIPMENT WHEN PERFORMING THESE REPAIRS. NON COMPLIANCE COULD CAUSE PERSONNEL INJURY.

BREATHING VAPORS OR ALLOWING SOLVENT TO CONTACT SKIN OR EYES IS HAZARDOUS. WEAR NEOPRENE GLOVES WITH COTTON LINERS, PROTECTIVE CLOTHING, AND EYE GOGGLES. IF CHEMICAL CONTACT OCCURS. WASH THOROUGHLY WITH WATER. IF CHEMICAL SHOULD SPLASH INTO EYES, FLUSH EYES WITH LARGE QUANTITIES OF WATER AND SEEK MEDICAL AID. USE MECHANICAL VENTILATION OR RESPIRATORY PROTECTION WHEN WORKING IN A CONFINED SPACE OR AREA.

CAUTION: WHEN FASTENERS ARE USED IN GRAPHITE COMPOSITE STRUCTURE THEY MUST BE TITANIUM OR CORROSION RESISTANT STEEL. THEY CAN BE BARE, ALUMINUM COATED, OR, -IN THE CASE OF CRES -CADMIUM PLATED. ALUMINUM OR ALLOY STEEL FASTENERS ARE NOT ALLOWED IN GRAPHITE COMPOSITE STRUCTURE.

WHEN REINSTALLING ALUMINUM FITTINGS ON GRAPHITE COMPOSITE STRUCTURE, MAKE SURE THAT THE ORIGINAL CORROSION PROTECTIVE TREATMENT, FAYING SURFACE SEAL, IS APPLIED. SEALANT, A00436 IN FUEL TANK AREAS, AND SEALANT, A00247 IN ALL OTHER AREAS.

A. Use suitable holding fixtures for large repairs to prevent distortion of the structure.

B. Perform the repair procedures specified herein only in areas of reasonable cleanliness. Areas containing oil mist, exhaust fumes, gases, soot, rain, dust, or other particulate matter are specifically prohibited.

C. Protect surfaces from contamination. Do not touch cleaned parts or adhesive with bare hands. Use clean white cotton gloves, STD-420 when handling parts.

D. See REPAIR 10-1, Figure 601 for resin mixes and potting compound data.

3. Common Procedures for Packboard

A. Determine Damage

CAUTION: CHEMICAL PAINT STRIPPERS WILL ATTACK RESIN SYSTEMS, AND SHOULD NOT BE USED TO REMOVE PAINT BEFORE MAKING DAMAGE EVALUATIONS.

(1) Examine visually for extent of damage.

(2) Check panel in vicinity of damage for entry of water, oil, fuel, dirt or other foreign matter. Water can be detected by radiographic methods. Remove contaminants as required.

(3) Check for delamination and/or disbonding from core around the damage.

NOTE: Post repair inspection is recommended. Examples of inspection procedures are given in 767 NDT Part 1, 51-01-01.

B. Remove Water From Damaged Area

(1) Remove water from honeycomb sandwich (REPAIR 10-1, Figure 602).

(a) Remove damaged skin plies to open up honeycomb area in the damaged area. Remove standing water using vacuum or oil-free air source, STD-6638.

(b) Sand the core to remove the adhesive. Removal of adhesive fillets on core is not required.

(c) Apply a fiberglass or a metal fine mesh screen over the exposed core.

(d) Apply a thermocouple, STD-925 to the center of the screen.

(e) Apply a layer of glass fabric bleeder cloth over the screen and hold in place with masking tape, G50314.

(f) Place a vacuum source, STD-6887 on the edge of the bleeder cloth and hold in place with masking tape, G50314.

(g) Apply a thermocouple, STD-925 and surface heater blanket, STD-105 to the far side of the honeycomb sandwich panel.

(h) Place extruded sealing compound around the entire area and seal the area with vacuum bag material.

(i) Evacuate the layup to a minimum 22 inches of mercury vacuum.

(j) Heat the area for 1 hour minimum at 150°F (66°C) to 170°F (77°C). The rate of temperature rise must not exceed 5°F (3°C) per minute.

(k) Remove layup materials and proceed with repair procedure.

(2) Remove water from solid laminate.

(a) Remove damage and/or delamination. Remove standing water using vacuum source, STD-6887 and air source, STD-6638.

(b) Heat the area for 1 hour minimum at 150°F (66°C) to 170°F (77°C). The rate of temperature rise must not exceed 5°F (3°C) per minute.

C. Remove and Prepare Damaged Area

(1) Damage Removal

(a) Trim out the damaged lamination to a smooth shape with rounded corners, or a circular or oval shape. Take care not to damage the undamaged plies, core or surrounding material.

NOTE: Remove only damaged plies, damaged doublers and damaged fillers.

(b) When the core is also damaged, remove the core by trimming to the same outline as the skin.

NOTE: When a potted core repair is to be made, removal of damaged core is not required.

(c) In areas, where contamination cannot be removed by cleaning or drying, remove the contaminated structure along with the other damage.

(d) When opposite inner skin is also damaged, trim out the damage to a smooth rounded shape.

(e) When core is removed from the inner surface of opposite skin, carefully smooth core down to adhesive film.

(f) Inspect cut out area to ensure that all damage has been removed.

CAUTION: SANDING FOR ADHESION OR FINISH REMOVAL MUST NOT EXPOSE OR DAMAGE FILAMENTS IN THE UNTAPERED SURFACE REPAIR AREA.

SANDING MUST NOT EXPOSE OR DAMAGE FILAMENTS IN EACH PLY WHEN STEP SANDING OR IN THE PLY BONDED TO THE CORE (REPAIR 10-1, FIGURE 603).

LOSS OF STRUCTURAL STRENGTH OF THE COMPONENT WILL OCCUR IF THESE CAUTIONS ARE NOT OBSERVED.

DO NOT USE PAINT STRIPPERS FOR THE REMOVAL OF FINISH. DAMAGE TO THE ADHESIVE RESIN SYSTEM WILL OCCUR.

(2) Preparation of Damaged Area (REPAIR 10-1, Figure 603)

(a) Determine the number of plies that have been cut. Mask off the area around the cleaned up damage allowing 0.5 inch overlap for each ply replacement, plus 0.5 inch extra for each extra ply and ensure that the existing top ply is completely covered by the repair.

NOTE: Where the number of plies is not apparent, refer to the component drawing.

WARNING: SANDING GIVES OFF A FINE DUST THAT MAY CAUSE SKIN IRRITATIONS. BREATHING OF AN EXCESSIVE AMOUNT OF THIS DUST MAY BE INJURIOUS. OBSERVE PRECAUTIONS FOR SKIN AND RESPIRATION PROTECTION.

EXPLOSIONPROOF EQUIPMENT MUST BE USED WHERE THE POSSIBILITY OF VAPOR IGNITION EXISTS. NONCOMPLIANCE COULD CAUSE PERSONNEL INJURY.

(b) Surface of Panel

1) Taper sand each ply or simply abrade the surface around the cleaned up damage a minimum of 0.5 inch per ply. See REPAIR 10-1, Figure 603.

2) Abrade surfaces around repair using No. 240 or finer abrasive mat, G00251.

3) Remove exterior finishes, including enamel finish and conductive coating from the surface of the 1.0 border using 150 grit abrasive paper, G02428 or finer.

(c) Cleaning of repair area.

1) Remove all sanding dust by applying oil-free air source, STD-6638 and use a vacuum cleaner, STD-183.

WARNING: BREATHING VAPORS OR ALLOWING SOLVENT TO CONTACT SKIN OR EYES IS HAZARDOUS. HEAT, FIRE OR SPARKS CAN CAUSE AN EXPLOSION. USE MECHANICAL VENTILATION OR RESPIRATORY PROTECTION WHEN WORKING IN A CONFINED SPACE OR AREA. AVOID CONTACT WITH SKIN EYES AND CLOTHING. WEAR EYE PROTECTION. KEEP AWAY FROM SOURCES OF HEAT, FIRE OR SPARKS.

CAUTION: DO NOT IMMERSE PARTS IN SOLVENT OR ALLOW STANDING SOLVENT ON PART. DAMAGE TO PART WILL OCCUR.

2) Wipe surfaces with a clean cotton wiper, G00034 moistened with Series 99 solvent, B01019 (SOPM 20-30-99). Allow solvent to evaporate before proceeding with the repair.

D. Fabricate, Clean, and Install Honeycomb Replacement Core Plug

(1) Fabricate core plug.

(a) Fabricate core plug. Refer to the packboard shell drawing to determine type, class, and grade of the original core.

(b) For butt-splicing, the honeycomb core plug should fit flush with original core and with ribbon direction the same as in original core. The replacement core must overlap to make contact with the cell walls of surrounding core material.

(c) For crush splicing, the honeycomb core plug should be made one to three cells (0.4 inch maximum) larger than the repair cavity (REPAIR 10-1, Figure 604). The replacement core plug must be made from core material which is at least two grades denser than the original core.

(d) Trim core plug to full or partial depth of original core (REPAIR 10-1, Paragraph 3.C.(1)(b)) (REPAIR 10-1, Figure 605).

NOTE: Depth of core plug should allow for shrinkage during cure and for thickness of extra plies of fabric cloth between core plug and undamaged core or skin.

(2) Clean core plug.

WARNING: BREATHING VAPORS OR ALLOWING SOLVENT TO CONTACT SKIN OR EYES IS HAZARDOUS. HEAT, FIRE OR SPARKS CAN CAUSE AN EXPLOSION. USE MECHANICAL VENTILATION OR RESPIRATORY PROTECTION WHEN WORKING IN A CONFINED SPACE OR AREA. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. WEAR EYE PROTECTION. KEEP AWAY FROM SOURCES OF HEAT, FIRE OR SPARKS.

CAUTION: DO NOT EXCEED IMMERSION CRITERIA. FAILURE TO COMPLY WILL DAMAGE CORE MATERIAL.

DO NOT IMMERSE PARTS IN SOLVENT OR ALLOW STANDING SOLVENT ON PART. DAMAGE TO PART WILL OCCUR.

(a) Clean visually contaminated core by dipping (a maximum of four times) in an solvent, B00062 or solvent, B00148 bath for 60 seconds.

(b) Locally contaminated areas can be washed with solvent, B00151, solvent, B00062, or solvent, B00148.

(c) The core must be completely dry, clean and free of evidence of solvents before installation.

(3) Install core plug (REPAIR 10-1, Figure 604, REPAIR 10-1, Figure 605, REPAIR 10-1, Figure 606, REPAIR 10-1, Figure 607).

(a) If one skin is undamaged, cut 2 plies of woven fabric that will fit on the inside surface of the undamaged skin (REPAIR 10-1, Figure 604 and REPAIR 10-1, Figure 605). Saturate the plies with Resin Mix 1, prepared as shown in REPAIR 10-1, Figure 601, then position in core cavity.

(b) If both skins are damaged, apply a caul plate against the exterior surface of far side skin and tape in place.

(c) For butt splicing, spread Resin Mix 2, compound, A00217 with micro-balloons on the sides of the replacement core and the undamaged core that will mate when the plug is installed. Orient ribbon in the direction of original core ribbon.

(d) For crush splicing, prepare and install the core plug per REPAIR 10-1, Figure 604. Orient ribbon in the direction of original core ribbon.

(e) Put the layup materials and equipment in place per REPAIR 10-1, Figure 607, (Sheet 2).

(f) Evacuate the repair area to a minimum of 22 inches of mercury vacuum.

(g) Cure per REPAIR 10-1, Figure 601.

(h) Sand repair core plug approximately flush with surrounding material, making allowance for film adhesive and slight core crush during cure.

(i) Remove sanding residue from core cells using vacuum cleaner, STD-183.

NOTE: The above procedure is based on the core plug installation being cured separately from the repair plies. As an option, core plug installation and repair plies may be cured at the same time.

E. Prepare and Apply Repair Plies

NOTE: Refer to the following applicable paragraphs for preparation of glass and graphite fabrics.

CAUTION: USE OF PRECURED PATCHES IS NOT RECOMMENDED.

(1) Prepare glass fabric repair plies (fabric, G00316).

(a) Refer to the packboard shell drawing to determine number, style, and orientation of glass fabric used in original structure. Repair existing Style 1543 plies with Type fabric, G50659. Repair existing Style 1581 plies with fabric, G50593 plies. Repair existing Style 7781 plies with fabric, G50173 plies (REPAIR 10-1, Figure 608). Refer to specific structural component repair section for extra repair ply requirements (REPAIR 10-1, Figure 609).

(b) From each type of material required, cut a piece that is large enough for cutting the required number of plies for the repair patch. Use one repair ply of glass fabric in the patch for each damaged glass ply of the original laminate.

NOTE: If extra plies are required, use materials listed in REPAIR 10-1, Figure 609.

(c) Substitution of repair ply fabrics (REPAIR 10-1, Figure 608).

(d) Impregnate repair plies with resin per REPAIR 10-1, Paragraph 3.E.(3).

(2) Prepare graphite fabric repair plies (graphite fabric, G00335).

(a) Refer to the packboard shell drawing to determine number, style, and orientation of graphite fabric used in original structure.

(b) From each type of material required, cut a piece that is large enough for cutting the required number of plies for the repair patch. Use one repair ply for each damaged ply of the original laminate. Each repair ply must be of equivalent thickness and the same orientation as the original plies.

NOTE: If extra plies are required, use the materials listed in REPAIR 10-1, Figure 609.

(c) No substitutes are permitted for graphite repair plies. However, two plies of graphite fabric, G00335 may be used as a substitute for graphite tape.

(3) Impregnate repair plies with resin.

(a) Cut two pieces of solid parting film, G50104 approximately 3.0 inches larger all around than the fabric. Tape one piece to a smooth surface.

NOTE: Use teflon tape, G50357 or solid parting film, G50104.

(b) Lay fabric onto solid parting film, G50104.

(c) Spread Resin Mix 1, prepared as shown in REPAIR 10-1, Figure 601, to adequately cover fabric evenly.

(d) Cover the fabric on the parting film with the second piece of solid parting film, G50104.

(e) Press the resin through the fabric by working over the solid parting film, G50104 with a plastic squeegee, STD-821 or hard rubber roller, STD-745, in order to impregnate the fabric and to remove entrapped air.

(f) Work excess resin to edges of fabric such that fabric weave is barely visible.

NOTE: Resin content of the impregnated fabric shall be 55 ±5 percent by weight.

(g) Cut the impregnated fabric to the required sizes for each individual ply of the patch. The solid parting film, G50104 on both sides of the fabric decreases fraying of the edges while cutting the fabric.

NOTE: Refer to REPAIR 10-1, Figure 603 for required overlap of repair plies. The repair plies must be installed with the same orientation as that of the original plies being repaired. The filler ply over an exposed honeycomb core must be installed with the same orientation as the original surface ply. Other extra repair plies must be installed as specified in individual structural component repair sections.

(4) Apply repair plies (REPAIR 10-1, Figure 605, REPAIR 10-1, Figure 606, REPAIR 10-1, Figure 607, REPAIR 10-1, Figure 609, REPAIR 10-1, Figure 610, REPAIR 10-1, Figure 611, REPAIR 10-1, Figure 612, REPAIR 10-1, Figure 613, REPAIR 10-1, Figure 614).

NOTE: Where the damage has occurred at a lap joint in the original laminates, it is not necessary to make a comparable lap in the repair plies. Where the original core was undamaged and was provided with a recess to match the lap joint, the recess should be filled with filler plies before application of the repair plies.

CAUTION: ENSURE THAT PARTING FILM IS REMOVED FROM REPAIR PLIES PRIOR TO LAYUP AND CURING. NONCOMPLIANCE WILL RESULT IN A RUINED REPAIR.

(a) Apply a coat of Resin Mix 1, prepared as shown in REPAIR 10-1, Figure 601, over the repair area.

(b) Remove parting film from one side of the smallest ply of the patch and place the exposed face against the repair area with orientation as in original structure.

(c) Use a plastic squeegee, STD-821 over the parting film that covers the patch to remove wrinkles and entrapped air. Do not apply excessive pressure. Excessive pressure will produce a patch deficient in resin.

(d) After removing parting film from the contact faces, place the next larger size ply of the impregnated patch over the ply on the repair area with proper orientation and with overlap all around per REPAIR 10-1, Figure 603.

(e) Place succeeding plies of the patch as described in REPAIR 10-1, Paragraph 3.E.(4)(c) and REPAIR 10-1, Paragraph 3.E.(4)(d).

(f) Proceed to REPAIR 10-1, Paragraph 3.F..

F. Layup/Bagging Procedure (REPAIR 10-1, Figure 607)

(1) Place a layer of dry peel ply over the wet layup repair patch. Cut the peel ply so it is large enough to contact the edge bleeder or surface bleeder.

(2) Place a layer of perforated parting film, G50103 (1 mil thick) over the layup. Cut the perforated parting film, G50103 so that the edges extend 3 inches beyond the edge of the repair.

(3) Secure three thermocouples (spaced evenly around repair) to the edge of the largest repair ply and connect them to the appropriate recorders.

(4) Place a layer of dry peel ply or fabric, G00320 (or equivalent thickness glass fabric) over the repair as a surface bleeder. Cut the surface bleeder so the edges extend 2.0 beyond the edge of the perforated parting film, G50103.

(5) Place a layer of solid parting film, G50104 (1 mil thick) over the surface bleeder. Cut the solid parting film, G50104 so the edges are even with the edge of the perforated parting film, G50103.

(6) Place an optional metal caul plate (such as 0.016-inch thick aluminum) over the fiberglass bleeder. Make the caul plate slightly smaller than the bleeder. Omit this step if layup is for applying pressure for cure of core plug installation only.

(7) Place a surface heater blanket, STD-105 on the layup if heat blanket is used as heat source. The surface heater blanket, STD-105 must extend a minimum of 2 inches beyond the repair patch edges.

(8) Place on the layup several plies of glass fabric Airweave N-10 mat, G50107 for each ply in the repair. The Airweave N-10 mat, G50107 must extend beyond the parting film, and also must extend beyond the heat blanket and caul plate (if they are used). The Airweave N-10 mat, G50107 must also make contact with the surface bleeder cloth.

(9) Apply extruded sealing compound around the entire area, approximately 2 to 6 inches outside the heating blanket edge.

(10) Secure the vacuum outlet to the surface breather cloth (outside of the repair ply area).

NOTE: Completely enclose the entire packboard in a vacuum bag, STD-94.

CAUTION: DO NOT ATTACH VACUUM BAG, STD-94 TO ONE SIDE OF COMPONENT ONLY. IF YOU CANNOT COMPLETELY ENCLOSE THE PACKBOARD IN A VACUUM BAG, ATTACH SEPARATE VACUUM BAGS TO EACH SIDE TO ENSURE THAT ATMOSPHERIC PRESSURE IS MAINTAINED INSIDE OF COMPONENT DURING REPAIR (REPAIR 10-1, FIGURE 615).

(11) Lay a piece of vacuum bag, STD-94 material over the entire repair area, sealing the edge with the extruded sealing compound. Pleat the vacuum bag, STD-94 where needed to prevent bridging of bag material and subsequent bag breakage. Pad all sharp objects and corners to prevent bag breakage.

NOTE: The entire repair surface must be vacuum bagged and restrained in place to prevent delamination and distortion when the repair area exceeds 15 percent of panel area. Regardless of the method of heat application, restraining devices that maintain the contour and support the part must be used.

(12) Evacuate the space under the vacuum bag, STD-94 and maintain a minimum of 22 inches of mercury vacuum.

NOTE: Maintain vacuum of 22 inches of mercury minimum during entire cure cycle.

(13) Check the vacuum bag, STD-94 and ensure that there are no leaks.

G. Cure the Repair

NOTE: Determination of the temperature must be made by using thermocouples placed at edge of patch.

The gel and cure times of the potting and laminating resins are based on ambient temperature (70 to 80°F; 21 to 27°C); elevated temperatures will advance the reactions and lower temperatures will retard the reactions.

An infrared heat lamp, STD-554 (250-watt), surface heater blanket, STD-105 or equivalent source may be used to accelerate the cure. The graph shown in REPAIR 10-1, Figure 616 indicates the temperature obtained on the patch surface when the heat lamp, STD-554 is a certain height. Monitor temperature by thermocouples.

WARNING: USE EXPLOSIONPROOF HEAT LAMP OR HEAT BLANKETS FOR ACCELERATE CURE. NONCOMPLIANCE COULD CAUSE PERSONNEL INJURY.

CAUTION: SURFACE TEMPERATURE MUST NOT EXCEED 170°F (77°C). DAMAGE OR DISTORTION OF STRUCTURE MAY OCCUR IF TEMPERATURE EXCEEDS 170°F (77°C).

(1) Cure of wet layup.

(a) Cure of the repair may be accomplished at room temperature (70 to 80°F; 21 to 27°C) or can be accelerated by the use of heat. See REPAIR 10-1, Figure 601 and graph in REPAIR 10-1, Figure 616 for time at temperature requirements.

NOTE: Cure time does not include the time required for the mold and part to heat up to temeprature. Cure time is the period after the part has reached that temperature.

(b) Maintain vacuum of 22 inches of mercury minimum during entire cure cycle.

(c) Remove bagging and parting film after curing.

(d) The patch should be free from pits, blisters, starved areas, and excess resin deposits.

H. Refinish After Repair

CAUTION: DO NOT SAND INTO ORIGINAL STRUCTURE. FAILURE TO COMPLY WILL REDUCE THE STRENGTH OF THE COMPONENT.

(1) Lightly sand edge of topmost repair ply as necessary to fair the edge. Sand surface of repair to produce a smooth finish without damaging fibers.

I. Do the Post-Repair Procedures

(1) Do an inspection of the repair to make sure that it is satisfactory. Make sure that there are no empty spaces between plies or defective bonds. The inspection must include the area that was hot plus 2 inches minimum all around.

CAUTION: MAKE SURE THAT REPAIRS MADE TO CONTROL SURFACES AND/OR ADJACENT STRUCTURE DO NOT INTERFERE WITH THE DESIGNED OPERATION OF THE CONTROL SURFACES. DAMAGE TO THE AIRPLANES STRUCTURE CAN BE THE RESULT.

(2) If you find the repair to be unsatisfactory, you must remove it and install the repair again.

NOTE: The post-repair inspection is recommended. Examples of the inspection procedures are specified in 767 NDT Part 1, 51-01-01. Other inspection procedures that have been found to be satisfactory by the airline can be used.

4. Typical Packboard Repairs

A. Repair of Delaminations Between Plies

(1) Delamination of plies over core area of panel (REPAIR 10-1, Figure 611).

(a) Determine extent of damage. Ensure that water and other contaminations are removed.

(b) Cut away delaminated plies and prepare damaged area per REPAIR 10-1, Paragraph 3.C..

(c) Complete repair per REPAIR 10-1, Paragraph 3.E. thru REPAIR 10-1, Paragraph 3.I.

(2) Repair of delaminations between plies of panel edgeband (REPAIR 10-1, Figure 617).

CAUTION: DELAMINATION MUST NOT REACH DEEPER THAN 0.5 INTO PANEL EDGEBAND OR EXTEND TO WITHIN 0.5 OF HONEYCOMB CORE (REPAIR 10-1, FIGURE 617). IF SO, REPAIR PER DAMAGED PLY METHOD.

(a) Determine extent of damage.

(b) Remove all contaminants and water from damaged area. Area must be completely dried out.

(c) Force Resin Mix 1 (REPAIR 10-1, Figure 601) into delaminated area.

(d) Clamp plies together and remove excess resin.

(e) Cure according to REPAIR 10-1, Paragraph 3.G., maintaining pressure until cured. Vacuum pressure is not required for this repair.

(f) Refinish surface as required.

(g) Perform applicable post-repair requirements per REPAIR 10-1, Paragraph 3.I. before returning the repaired component to flight service.

B. Repair of Puncture, 0.50-inch Diameter or Less, in Honeycomb Panel (REPAIR 10-1, Figure 612)

(1) Dry out structure around puncture per REPAIR 10-1, Paragraph 3.B..

(2) Remove loose fragments and other contamination from the hole. Clean up damaged area to a smooth and rounded shape per REPAIR 10-1, Paragraph 3.C..

(3) Clean repair area per REPAIR 10-1, Paragraph 3.C.(2)(c).

(4) Prepare Resin Mix 1, or Resin Mix 2, according to REPAIR 10-1, Figure 601.

(5) Work resin into the hole filling as much as possible.

(6) Cure according to REPAIR 10-1, Paragraph 3.G..

(7) Carefully sand any projecting material to fair with surrounding surface within ±0.010 inch.

NOTE: A 0.010-inch thick aluminum template may be used to protect surrounding surface while sanding.

(8) Abrade surfaces around repair using No. 240, or finer scotch brite, G50481 abrasive.

(9) Clean repair area per REPAIR 10-1, Paragraph 3.C.(2)(c).

(10) Prepare and apply two fabric cover plies and complete repair per REPAIR 10-1, Paragraph 3.E. thru REPAIR 10-1, Paragraph 3.I..

C. Repair of Damage to One Skin and Honeycomb Core Using Replacement Core Plug, Punctures Greater than 0.50-inch Diameter (REPAIR 10-1, Figure 605).

(1) Determine extent of damage per REPAIR 10-1, Paragraph 3.A..

(2) Remove all contamination and water from damaged area per REPAIR 10-1, Paragraph 3.B.. Area must be completely dried out.

(3) Remove damage and prepare area according to REPAIR 10-1, Paragraph 3.C..

(4) Fabricate, clean, and install honeycomb replacement core plug per REPAIR 10-1, Paragraph 3.D..

(5) Clean surface according to REPAIR 10-1, Paragraph 3.C.(2)(c).

(6) Complete repair per REPAIR 10-1, Paragraph 3.E. thru REPAIR 10-1, Paragraph 3.I..

D. Repair of Large Puncture Through Internal and External Surface of Panel Including Core Damage (REPAIR 10-1, Figure 606).

(1) Determine extent of damage per REPAIR 10-1, Paragraph 3.A..

(2) Remove all contamination and water from damaged area per REPAIR 10-1, Paragraph 3.B.. Area must be completely dried out.

(3) Remove damage and prepare area according to REPAIR 10-1, Paragraph 3.C..

(4) Cut, clean, and install honeycomb replacement core plug per REPAIR 10-1, Paragraph 3.D., except it is not necessary to vacuum bag, STD-94 the core plug installation at this time.

(5) Prepare and apply repair plies to one surface of the panel according to REPAIR 10-1, Paragraph 3.E.. A caul plate may be used to restrain the core plug in place.

(6) Bag and apply vacuum and cure according to REPAIR 10-1, Paragraph 3.F. and REPAIR 10-1, Paragraph 3.G.. Ensure that temperature is approximately equal on both sides of panel.

(7) Sand core plug flush with surrounding material.

(8) Prepare and apply repair plies to the other surface of the panel and complete repair per REPAIR 10-1, Paragraph 3.E. thru REPAIR 10-1, Paragraph 3.I..

NOTE: The above two-stage cure procedure is recommended. As an option, a three-stage cure procedure may be used wherein the core plug installation and the repair plies on each side may be cured separately.

E. 150°F (66°C) Cure Wet Layup Repair of Damaged Panel Attach Holes in Honeycomb Panel Edgebands or Along Edges of Laminated Panels (REPAIR 10-1, Figure 610)

(1) Determine the extent of damage per REPAIR 10-1, Paragraph 3.A..

(2) Remove all contamination and water from damaged area per REPAIR 10-1, Paragraph 3.B.. Area must be completely dried out. Any structure in the repair area that cannot be dried out must be removed along with the other damage.

(3) Taper sand around the hole to remove damage according to REPAIR 10-1, Figure 610.

(4) Clean area according to REPAIR 10-1, Paragraph 3.C.(2)(c).

CAUTION: ON HYBRID PANELS, ENSURE THAT GRAPHITE REPAIR PLIES DO NOT EXTEND INTO AREAS OF FASTENER HOLES. ELECTROLYSIS BETWEEN METAL FASTENERS, SUPPORT STRUCTURE AND GRAPHITE MAY OCCUR CAUSING CORROSION TO ALUMINUM STRUCTURE.

(5) Complete the repair as given in REPAIR 10-1, Figure 610 and as given in REPAIR 10-1, Paragraph 3.E. thru REPAIR 10-1, Paragraph 3.H., but cure only at 150°F (66°C).

(6) Drill and countersink fastener holes. Refer to 767 SRM 51-70-16 for drilling in composites.

F. Repair of Surface Dents (REPAIR 10-1, Figure 613)

(1) Check for delamination and broken fibers per REPAIR 10-1, Paragraph 3.A..

(2) If delamination is found, repair per REPAIR 10-1, Paragraph 4.A..

(3) If broken fibers are found, repair per REPAIR 10-1, Paragraph 4.B. or REPAIR 10-1, Paragraph 4.C..

(4) If no delamination or broken fibers are found, mark off damaged area allowing 1.0 inch of overlap for the repair ply.

(5) Clean damaged area according to REPAIR 10-1, Paragraph 3.C.(2)(c).

(6) Mask area for repair with masking tape, G50314.

(7) Pot dent flush or slightly higher than surrounding surface with Resin Mix 2 potting compound.

(8) Cure per REPAIR 10-1, Paragraph 3.G..

CAUTION: DO NOT SAND INTO FIBERS IN THE AREA SURROUNDING DENT.

(9) Sand flush using 150 grit abrasive paper, G02428 or finer sandpaper.

(10) Clean area according to REPAIR 10-1, Paragraph 3.C.(2)(c).

(11) Prepare and apply one ply layer of fabric, G50593 or fabric, G50173 according to REPAIR 10-1, Paragraph 3.E.. The ply layer is to be 2.0 inches larger than the potted area (REPAIR 10-1, Figure 613).

(12) Complete repair per REPAIR 10-1, Paragraph 3.F. thru REPAIR 10-1, Paragraph 3.H..

G. Repair of Resin Crack in One Skin (REPAIR 10-1, Figure 614)

(1) Determine the extent of damage per REPAIR 10-1, Paragraph 3.A..

(2) Repair as shown in REPAIR 10-1, Paragraph 4.C..

RESIN, PREPREG, OR ADHESIVE TYPE	COMPONENTS	PARTS BY WEIGHT	OPEN TIME BEFORE USE, OR POT LIFE OF MIXTURE	CURE TIME 1
RESIN MIX 1 (LAMINATING RESIN) (BMS 8-301, CLASS 2)	FR 7020 RESIN - PART A HARDENER - PART B EY 3804 RESIN - PART A HARDENER - PART B	 100 ±2 58 ±0.5 100 66	APPROX 30 MINUTES AT 75°F (24°C)	30 MINUTES AT 150°F (66°C) 6 HOURS MIN AT ROOM TEMPERATURE 65°F MIN (19°C) CURE FOR 180 MINUTES AT 150°F (66°C)
RESIN MIX 2 (POTTING RESIN) (BMS 5-28, TYPE 7)	CG-1305 RESIN CG-1305 HARDENER	100 22	60 MINUTES AT 70°F (21°C)	12 HRS AT 65°F MIN (19°C) 2 HRS AT 125°F (52°C) 2
	FR 7162 RESIN FR 7162 HARDENER	100 ±5 40 ±2		
RESIN MIX 3 (POTTING RESIN)	RESIN MIX 2 MICROBALLOONS	100 5	SAME AS RESIN MIX 2	SAME AS RESIN MIX 2

WARNING: THESE CHEMICALS CONTAIN TOXIC INGREDIENTS. PROVIDE ADEQUATE VENTILATION AND PROTECT THE SKIN AND EYES FROM CONTACT WITH UNCURED RESINS OR CURING AGENT. WEAR RUBBER GLOVES OVER COTTON GLOVES FOR PROTECTION OF HANDS. IF SKIN IS EXPOSED TO DIRECT CONTACT WITH UNCURED RESINS OR CURING AGENT, WASH WITH WARM WATER OR SOAP. AVOID THE USE OF SOLVENTS FOR CLEANING THE SKIN.

CAUTION: TO PREVENT CONTAMINATION OF THE RESIN, DO NOT USE WAXED CONTAINERS FOR MIXING.

	MIXING PROCEDURE
RESIN MIX 1 RESIN MIX 2	ADD HARDENER TO RESIN AND MIX THOROUGHLY.
RESIN MIX 3	1. ADD PHENOLIC MICROBALLOONS TO RESIN AND MIX THOROUGHLY. 2. ADD HARDENER AND MIX THOROUGHLY.

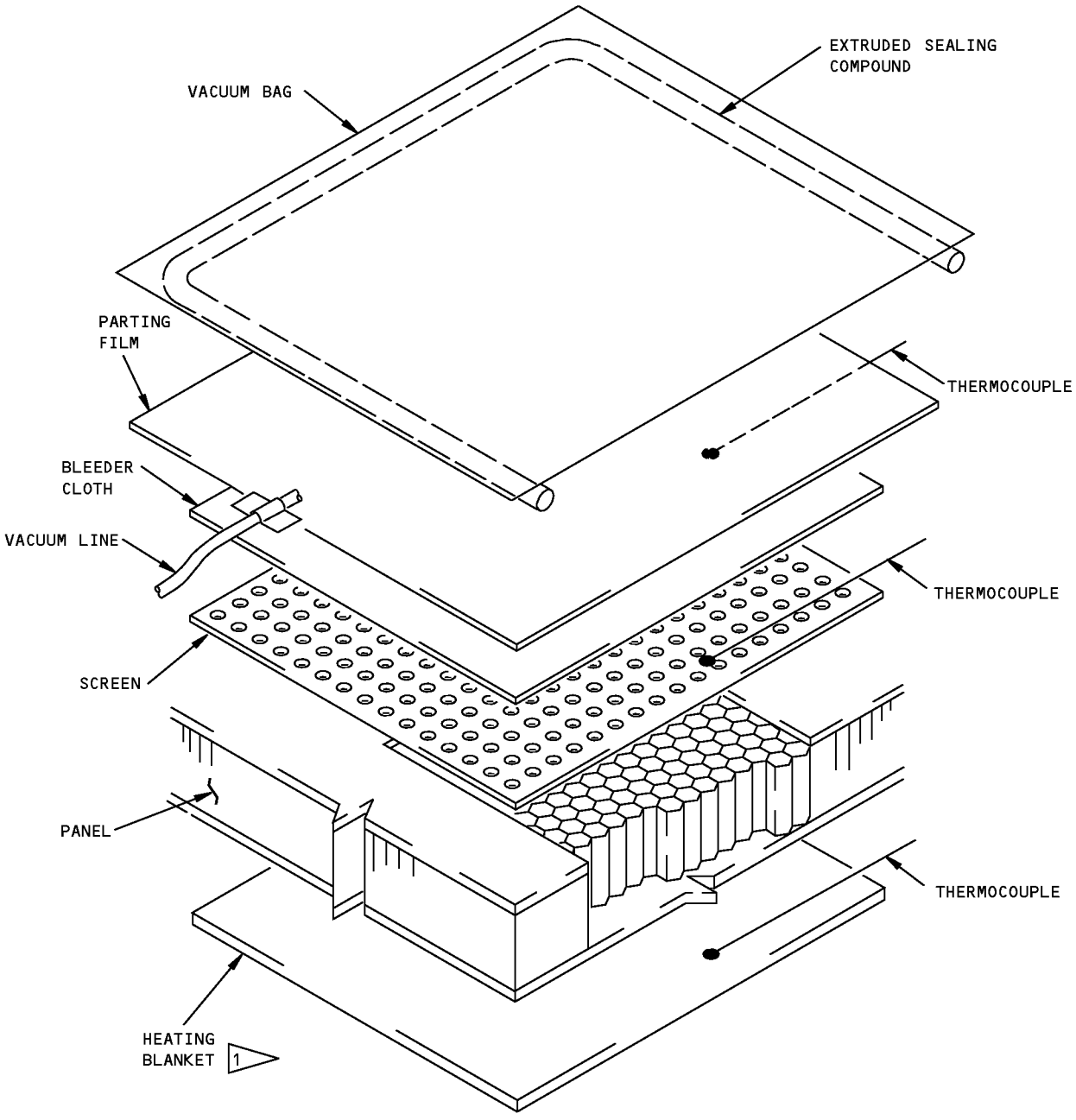
NOTE: MATERIALS MUST GEL AT ROOM TEMPERATURE PRIOR TO HEATING. RATE OF HEAT RISE MUST BE NO GREATER THAN 7°F (4°C) PER MINUTE.

REFER TO SRM 51-30-03 FOR SOURCES OF MATERIALS.

1 UNLESS SPECIFIED DIFFERENTLY, CURE TIME IS THE MINIMUM TIME NECESSARY TO CURE PRIOR TO HANDLING, DRILLING, OR SANDING

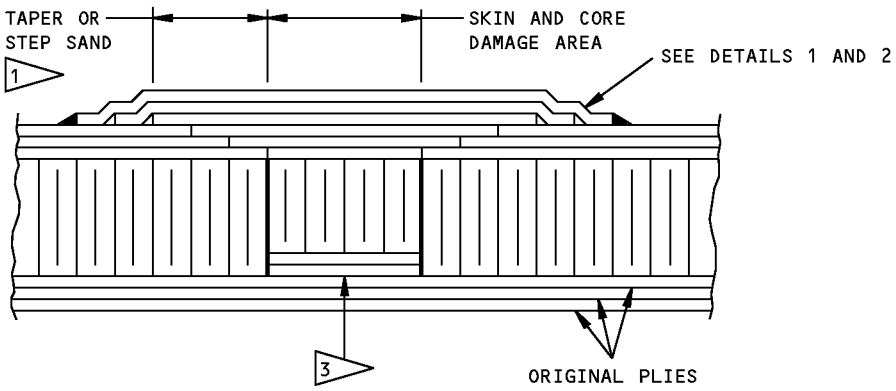
2 FOR OPTIMUM PROPERTIES, CURE 7 DAYS AT 65°F (19°C) OR 5 HOURS AT 125°F (52°C)

Resin Specifications and Mixing Procedure
Figure 601

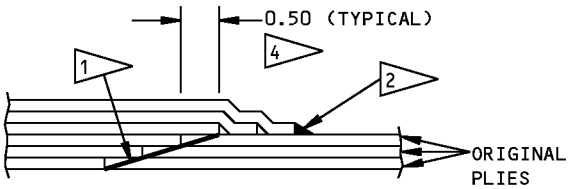


1 THE PREFERRED LOCATION OF THE HEATING BLANKET IS OPPOSITE THE OPEN CELLS IN THE CORE

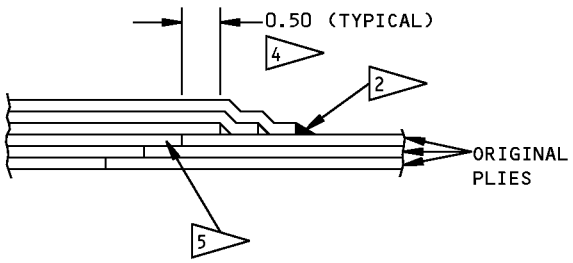
Water Removal From Honeycomb Sandwich
Figure 602



SECTION THROUGH TYPICAL REPAIR
(WET LAYUP ONLY)



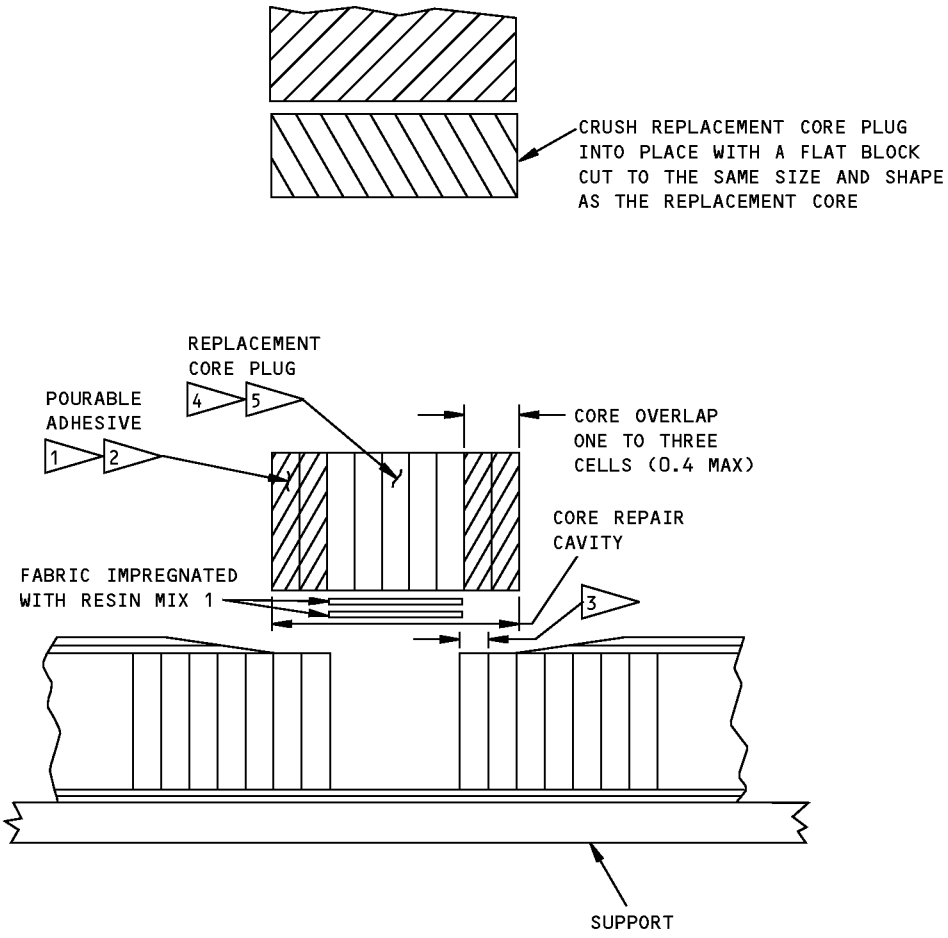
TAPER SANDED SKIN
DETAIL 1



STEP SANDED SKIN
DETAIL 2

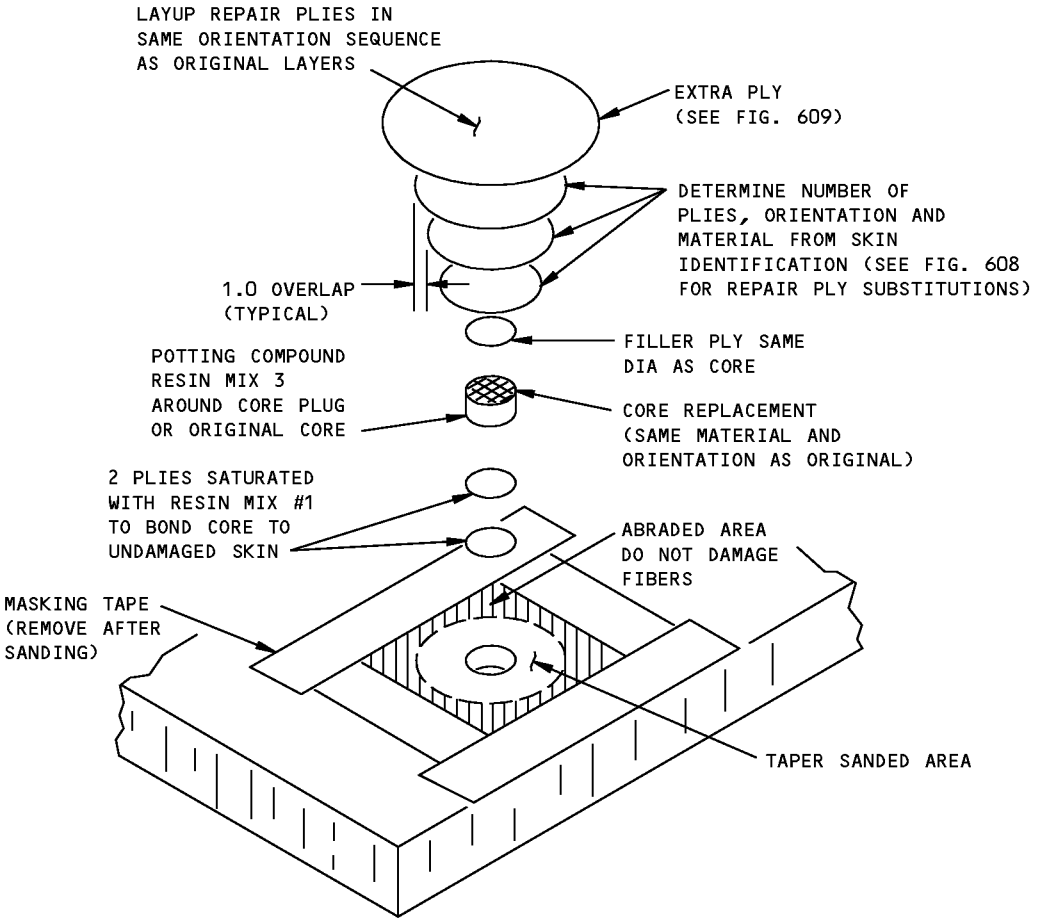
1. TAPER SAND OR STEP SAND EXISTING PLIES AROUND REPAIR AREA A MINIMUM OF 0.50 INCH FOR EACH EXISTING PLY
2. DO NOT EXPOSE OR DAMAGE FILAMENTS IN UNTAPERED AREA WHEN SANDING
3. SANDING MUST NOT EXPOSE OR DAMAGE THE FILAMENTS IN BOND PLY (PLY BONDED TO CORE)
4. EACH PLY MUST OVERLAP AT LEAST 0.50 INCH PAST EDGE OF PRECEDING PLY
5. REMOVE DAMAGED PLIES IN STEPS

Sanding and Overlap Requirements
Figure 603

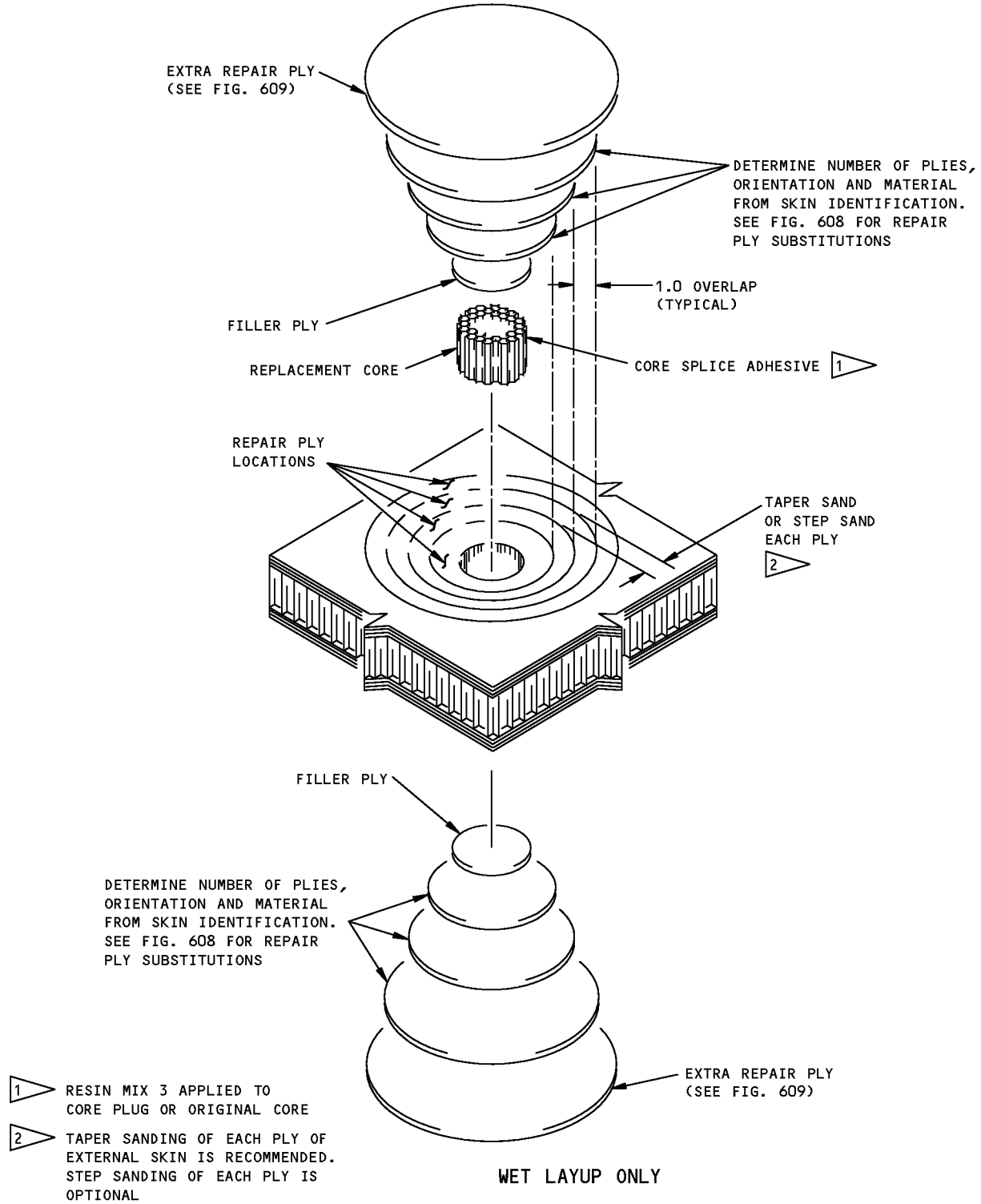


1. BEFORE SPLICING, DIP PERIPHERY OF CORE PLUG INTO RESIN MIX 3 TO A DEPTH OF ONE TO THREE CELLS (0.4 INCH MAX)
2. AFTER SPLICING, POUR ADDITIONAL ADHESIVE INTO SPLICED CELLS
3. WHEN PREPARING REPAIR AREA LEAVE ONE TO THREE CELLS (0.4 INCH MAX) VISIBLE BETWEEN CORE REPAIR CAVITY AND SKIN TO MATCH CORE OVERLAP
4. ALIGN HONECOMB CELLS OF REPAIR PLUG WITH ORIGINAL CORE
5. REPLACEMENT CORE PLUG MUST BE MADE FROM CORE MATERIAL AT LEAST TWO GRADES DENSER THAN THE ORIGINAL CORE

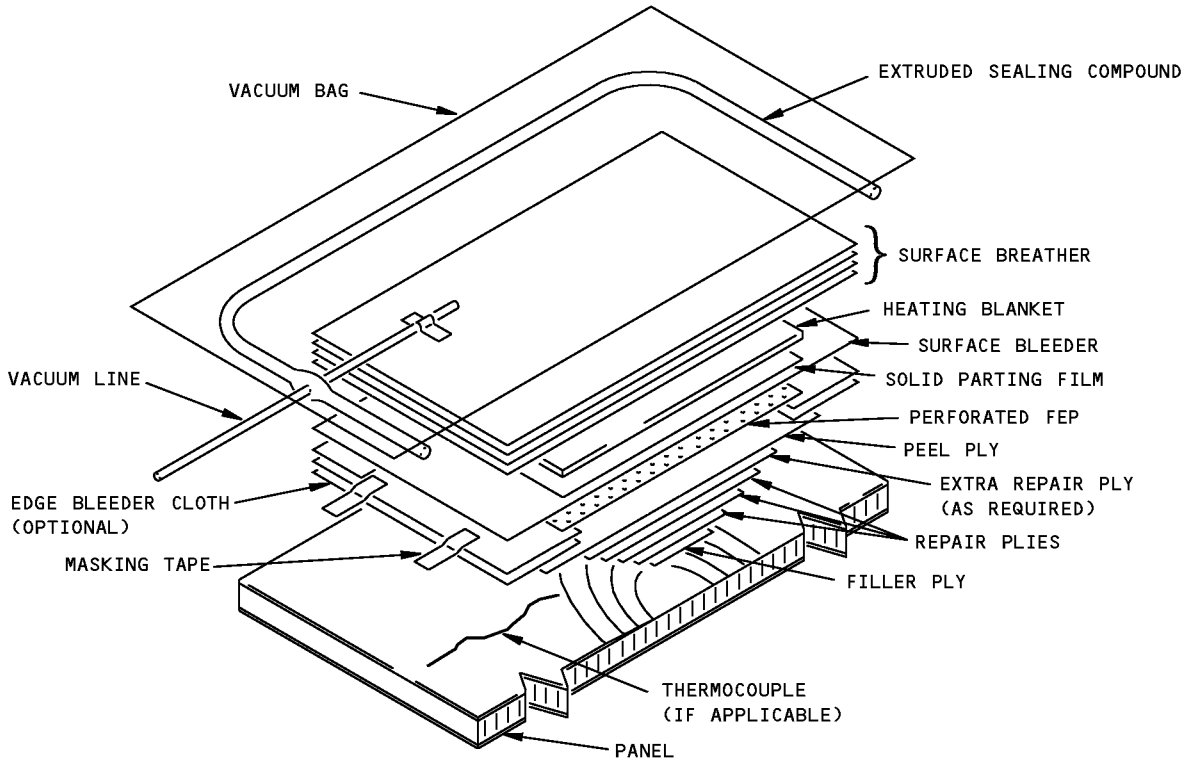
Core Crush Splicing Requirements - Wet Layup
Figure 604



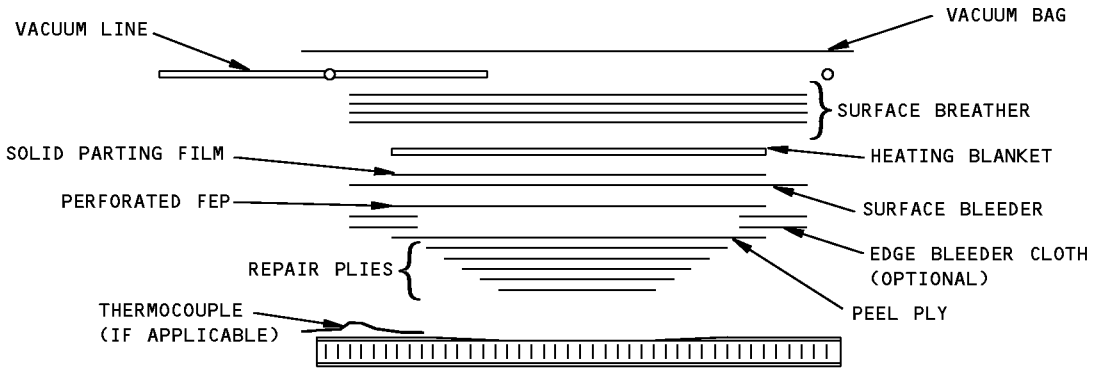
Repair of Large Punctures Thru One Skin of a Sandwich Structure Including Core Damage - Wet Layup
Figure 605



Repair of Large Punctures Through Both Skins of a Sandwich Panel Including Core Damage - Wet Layup
Figure 606

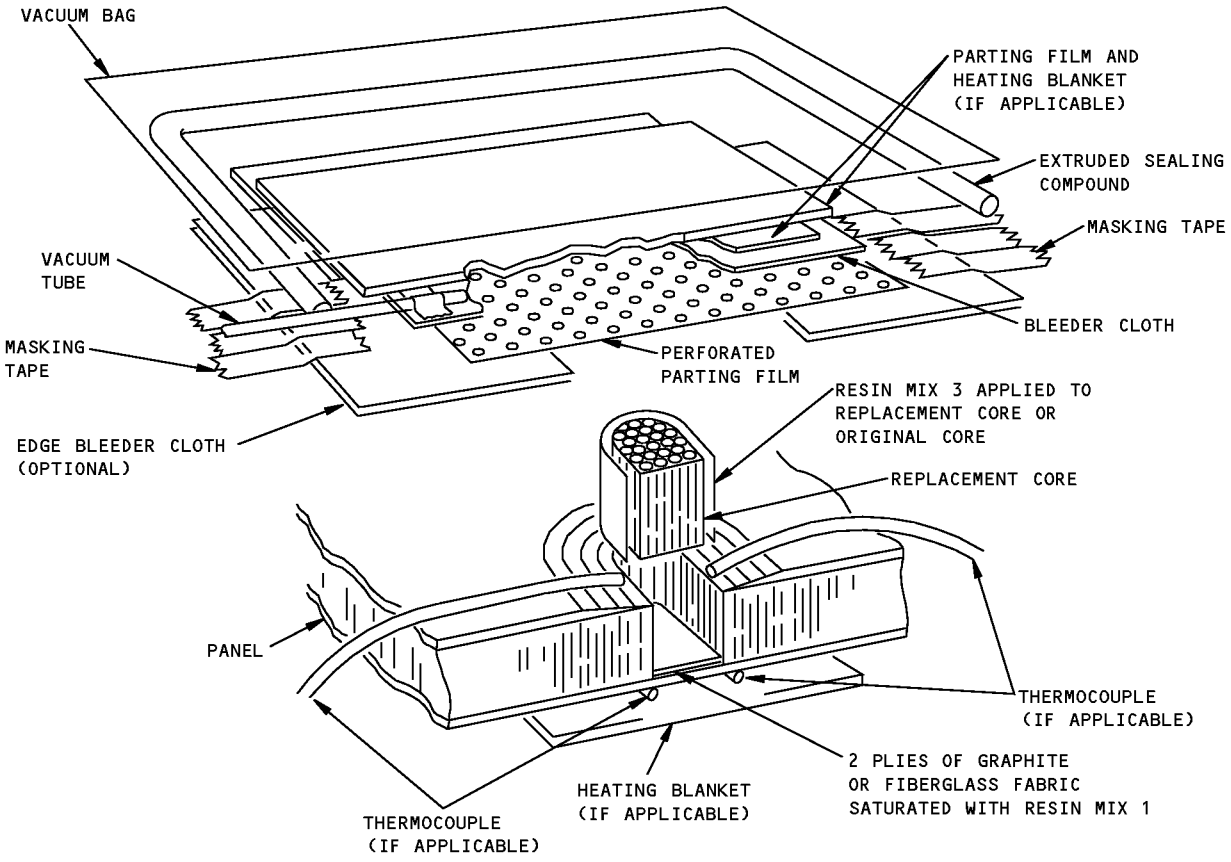


CUTAWAY VIEW OF
BAGGING SEQUENCE FOR SKIN PLY REPAIR
(WET LAYUP)

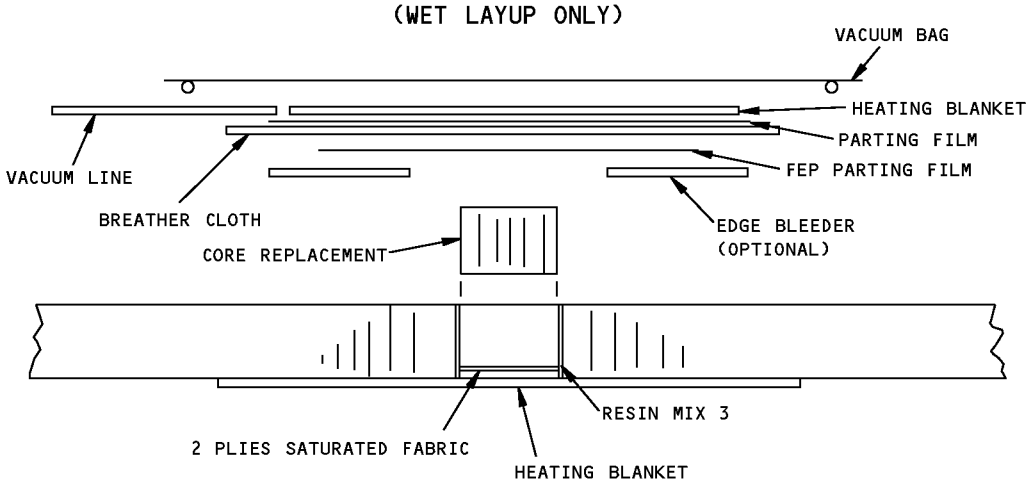


SECTION THRU LAYUP FOR SKIN PLY REPAIR
(WET LAYUP)

Application of Pressure During Cure - Wet Layup
Figure 607 (Sheet 1 of 2)



BAGGING SEQUENCE FOR CORE REPLACEMENT
(WET LAYUP ONLY)



SECTION THRU LAYUP FOR CORE REPLACEMENT
(WET LAYUP ONLY)

Application of Pressure During Cure - Wet Layup
Figure 607 (Sheet 2 of 2)

ORIGINAL PLY MATERIAL		REPAIR PLY MATERIAL	REPAIR PLY SUBSTITUTE MATERIAL
GLASS FABRIC	BMS 8-79, STYLE 1543	BMS 9-3, TYPE F-2 BMS 9-3, TYPE H-2 1 BMS 9-3, TYPE H-3	NONE
	STYLE 1581		
	STYLE 7781		
	BMS 8-151, TYPE III	BMS 9-3, TYPE H-2 OR H-S 1	NONE
ARAMID FABRIC	BMS 8-219, STYLE 285	BMS 9-3, TYPE H-2 OR H-3 (GLASS FABRIC) 1	BMS 9-3, TYPE D 2
GRAPHITE TAPE	BMS 8-168, TYPE II, CLASS 1, ALL GRADES	BMS 9-8, TYPE I, CLASS 2. STYLE 3K-70-P (GRAPHITE FABRIC) 3	NONE
	BMS 8-212, TYPE III, CLASS 1, ALL GRADES		
GRAPHITE FABRIC	BMS 8-168, TYPE II, CLASS 2, STYLE 3K-70-PW	BMS 9-8, TYPE I, CLASS 2, STYLE 3K-70-P	2 PLIES BMS 9-3, TYPE H-2 OR H-3

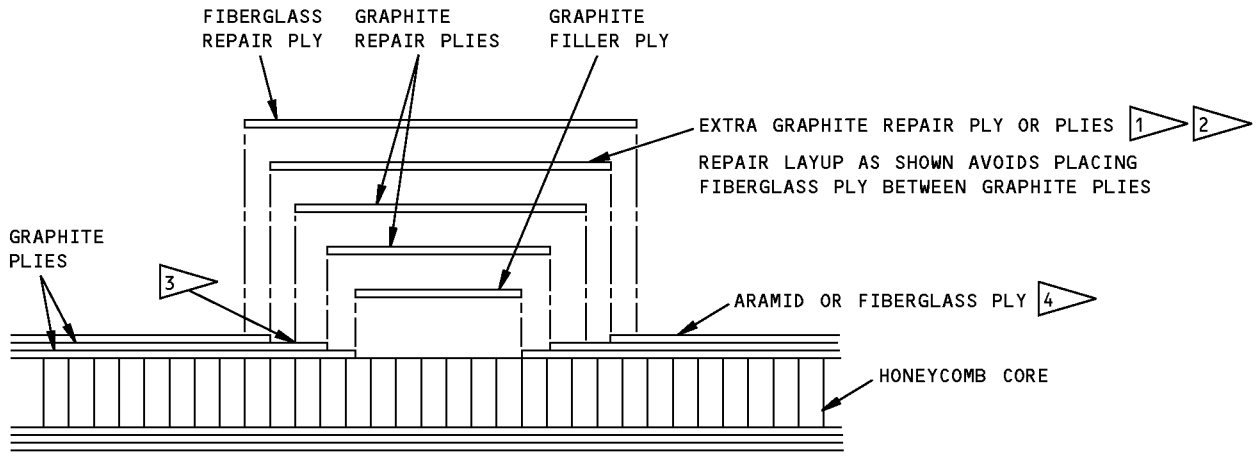
1 BMS 9-3, CLASSES 2, 5 THRU 13, 16 THRU 19 CAN BE USED. CLASS 7 IS RECOMMENDED BECAUSE IT IS KNOWN TO HAVE GOOD STORAGE LIFE

2 USE TWO PLIES OF TYPE D IN PLACE OF ONE PLY OF TYPE H-2 OR H-3

3 USE TWO REPAIR PLIES, AT THE ORIGINAL PLY ANGLE, TO REPLACE EACH PLY OF ORIGINAL MATERIAL

Repair Ply Materials
Figure 608

COMPONENT MATERIAL	EXTRA PLY MATERIAL 2
GRAPHITE FABRIC	GRAPHITE FABRIC, STYLE 3K-70-P
GRAPHITE/ARAMID/GLASS	GRAPHITE FABRIC, STYLE 3K-70-P 1
ARAMID	GLASS FABRIC, TYPE H-2 OR H-3
GLASS FABRIC	GLASS FABRIC, TYPE H-2 OR H-3



SECTION THRU HONEYCOMB SANDWICH
DETAIL 1

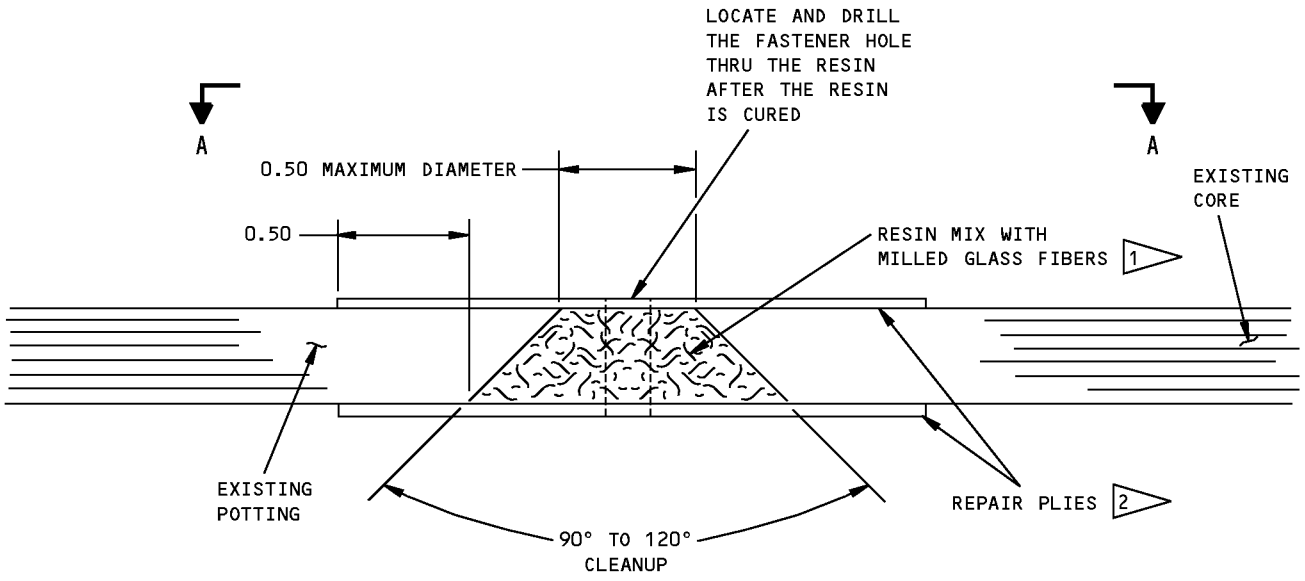
1 ON HYBRID PANELS, GRAPHITE EXTRA PLIES MUST BE BONDED TO GRAPHITE PLY. SEE DETAIL 1

2 THE ORIENTATIONS OF THE EXTRA REPAIR PLIES MUST REPEAT THE ORIENTATIONS OF THE EXISTING PLIES IN THE ORIGINAL LAMINATE STARTING WITH THE OUTERMOST PLY

3 WHEN EXTRA GRAPHITE REPAIR PLY OR PLIES ARE REQUIRED, THE EXISTING OUTER PLY OF FIBERGLASS MUST BE SANDED TO ALLOW AN OVERLAP OF 1.00 FOR EACH EXTRA REPAIR PLY.

4 CONDUCTIVE COATING, REFER TO SRM 51-70-04, SRM 51-70-05, OR SRM 51-70-14 AS APPLICABLE FOR REPAIR OF THE CONDUCTIVE COATING

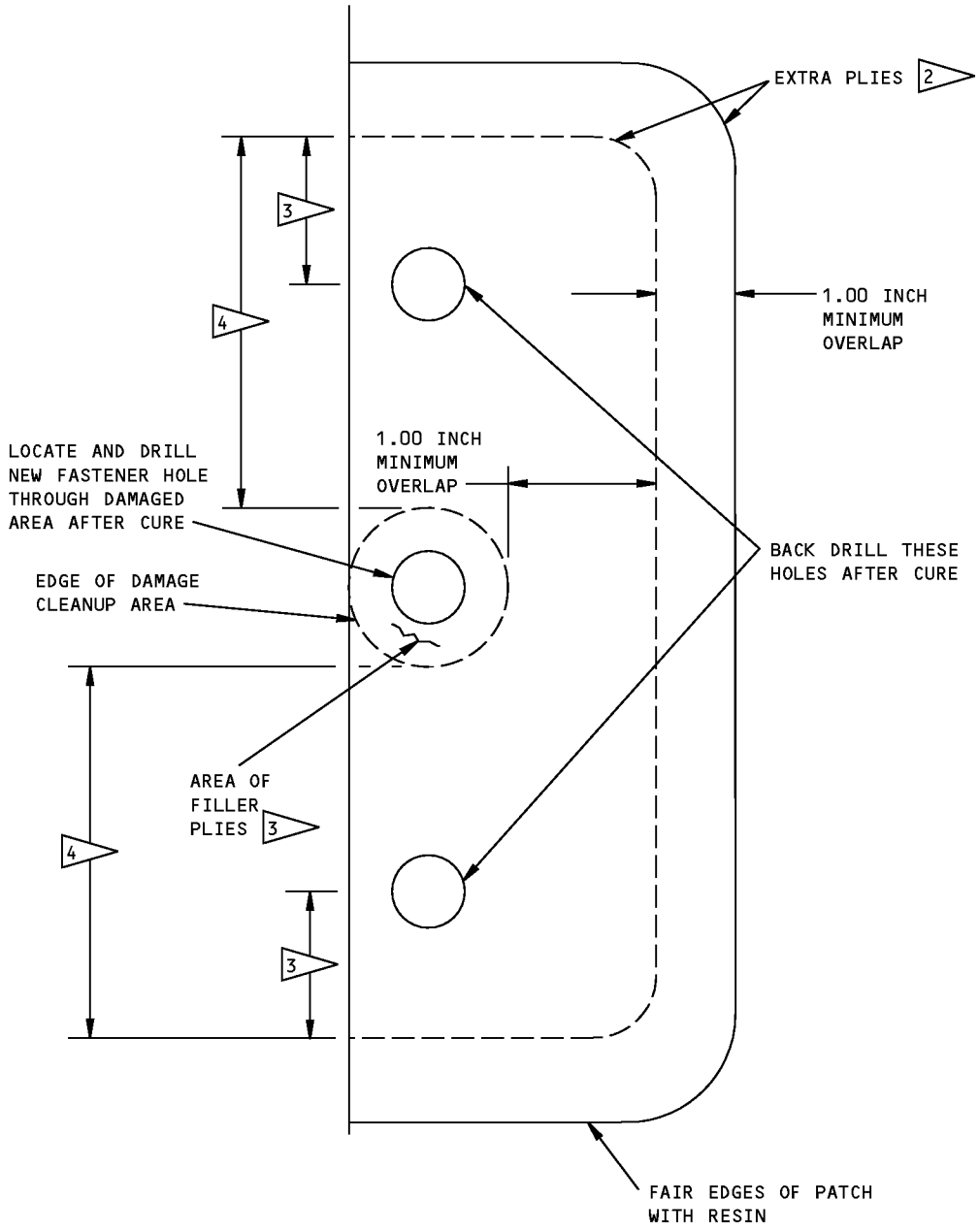
Extra Repair Ply Materials
Figure 609



DETAIL I

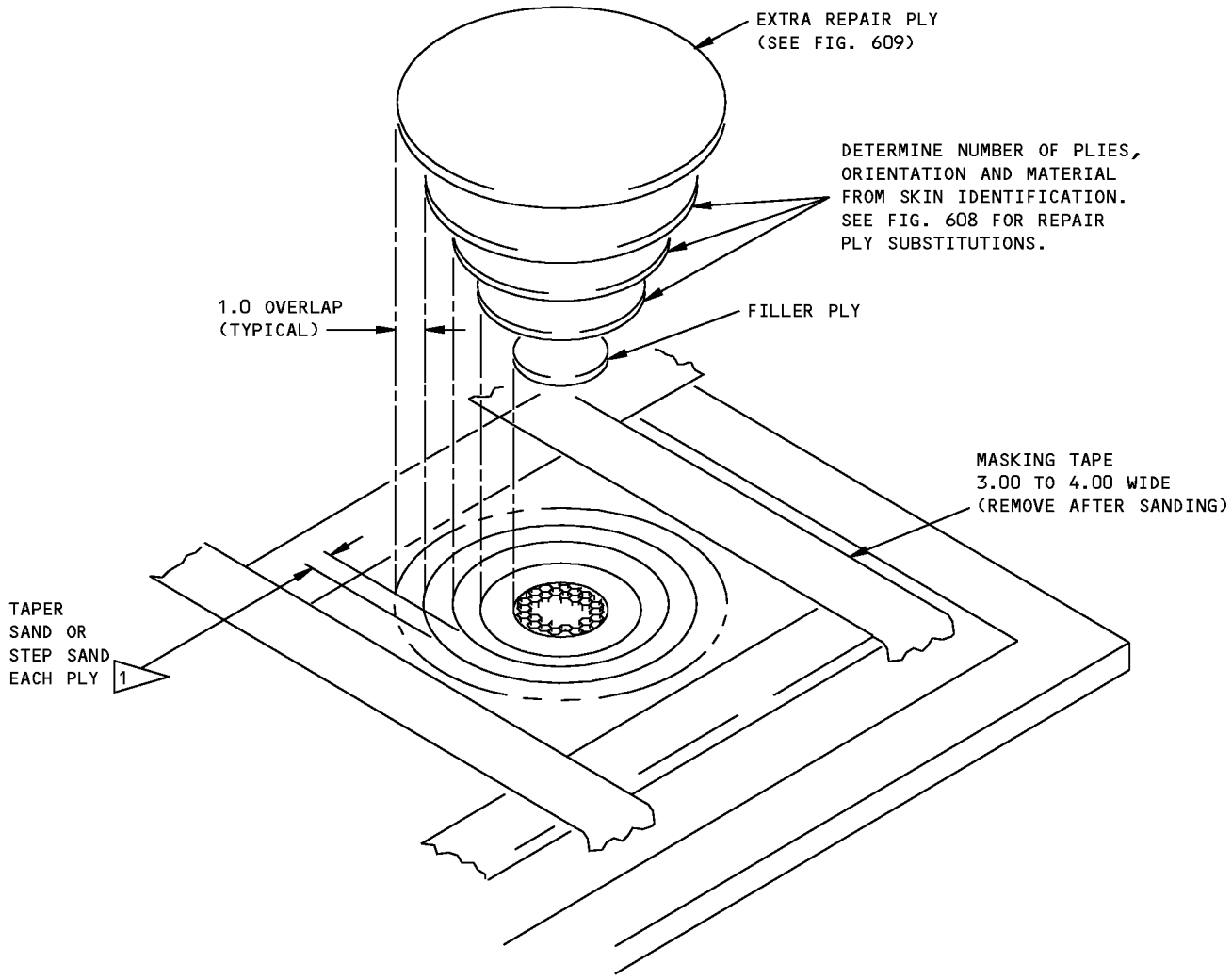
1. USE RESIN MIX 1 WITH 42% MILLED GLASS FIBERS ADDED OR BMS 5-28, TYPE 6 (REFER TO RESIN MIX 3, FIGURE 601)
2. ALIGN THE REPAIR PLIES IN THE SAME DIRECTION AS THE ORIGINAL OUTER LAYER
3. INSTLL AN EXTRA REPAIR PLY TO EXTEND AT LEAST 2D (D = HOLE DIAMETER) BEYOND EACH EDGE OF THE REPAIRED HOLE
4. INSTALL AN EXTRA REPAIR PLY TO EXTEND AT LEAST 1 INCH BEYOND THE EDGE OF THE REPAIRED AREA

Repair of Damaged Panel Attach Hole - 150 Degrees Fahrenheit (66 Degrees Celsius) Cure Wet Layup
Figure 610 (Sheet 1 of 2)



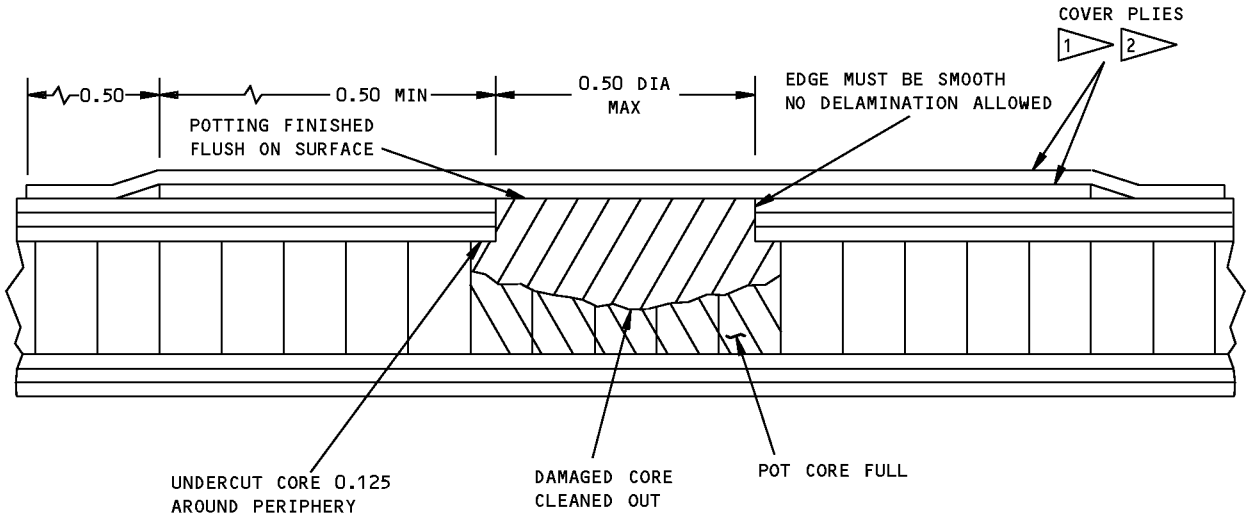
A–A

Repair of Damaged Panel Attach Hole - 150 Degrees Fahrenheit (66 Degrees Celsius) Cure Wet Layup
Figure 610 (Sheet 2 of 2)



1 TAPER SANDING OF EACH PLY OF EXTERNAL SKIN IS RECOMMENDED. STEP SANDING OF EACH PLY OF INTERNAL SKIN IS OPTIONAL

Repair of Damaged Skins of a Sandwich Panel - Wet Layup
Figure 611



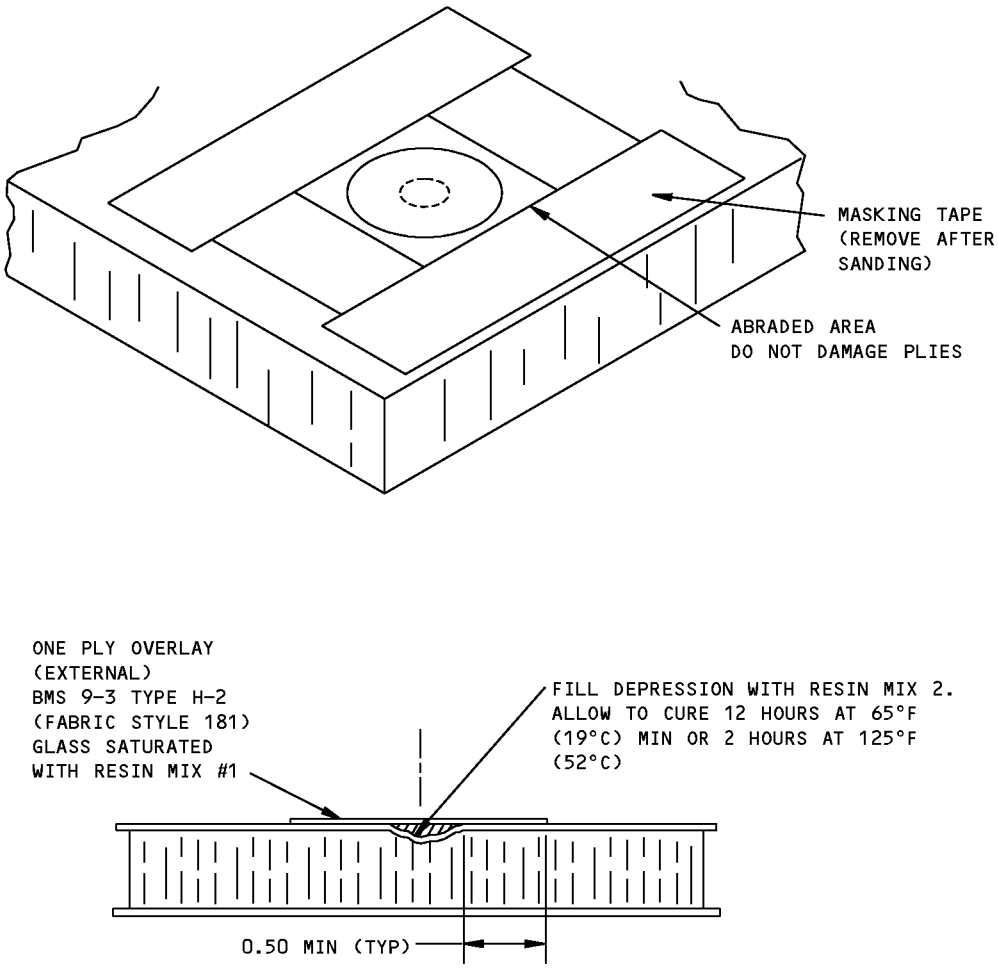
TYPICAL SECTION

NOTE: OVERLAP COVER PLIES PER FIG. 603.
DO NOT TAPER SAND OR STEP SAND ANY PLIES.

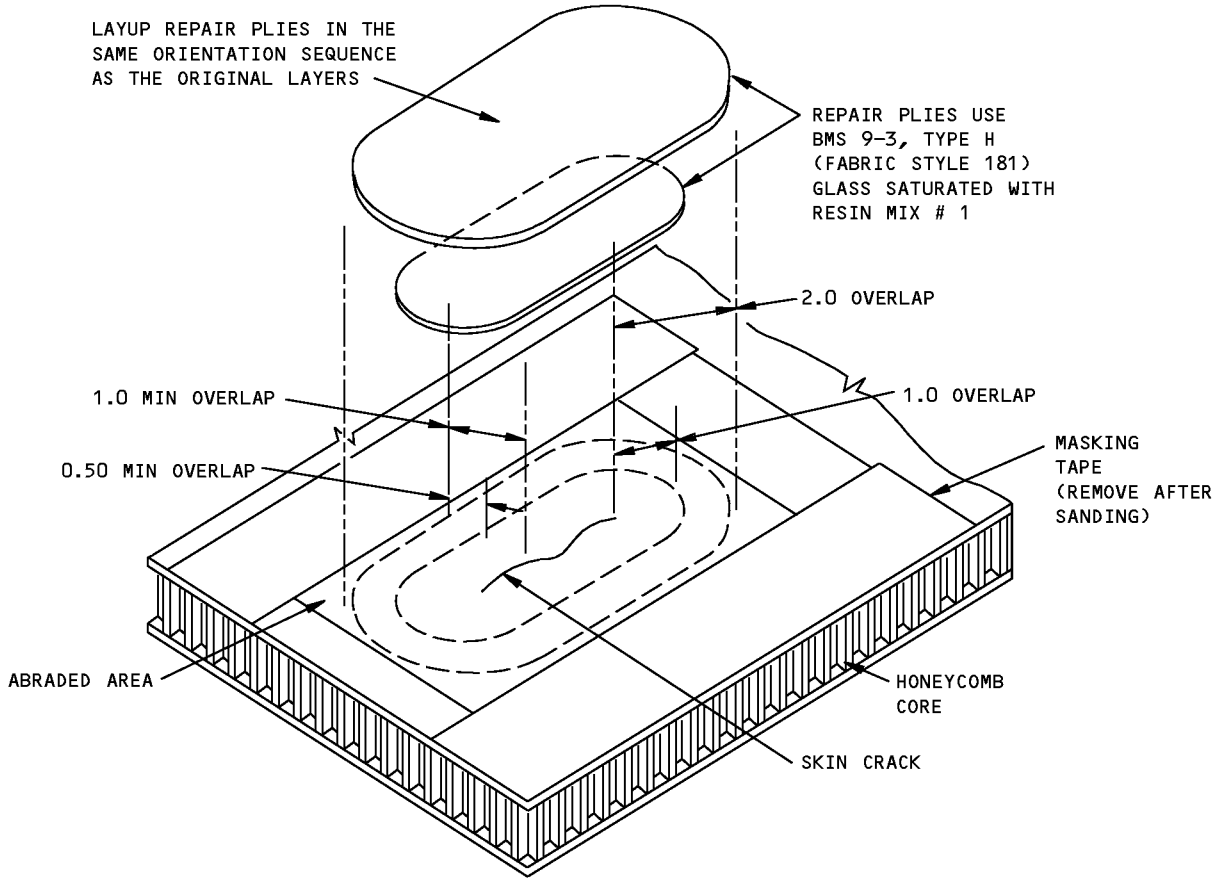
1 ORIENT COVER PLIES IN THE SAME DIRECTION AS THE ORIGINAL OUTER LAYER

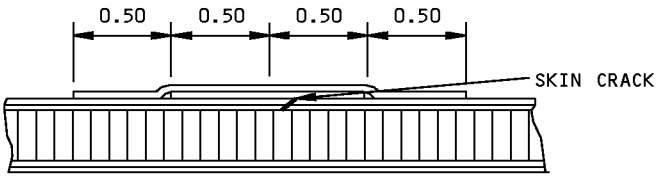
2 PREPARE AND APPLY TWO GLASS FABRIC COVER PLIES PER PAR. 3.E, EXCEPT USE TYPE H-2 OR H-3 PLIES ONLY

Typical Puncture Repair, 0.50 - Inch Diameter or Less - Wet Layup
Figure 612



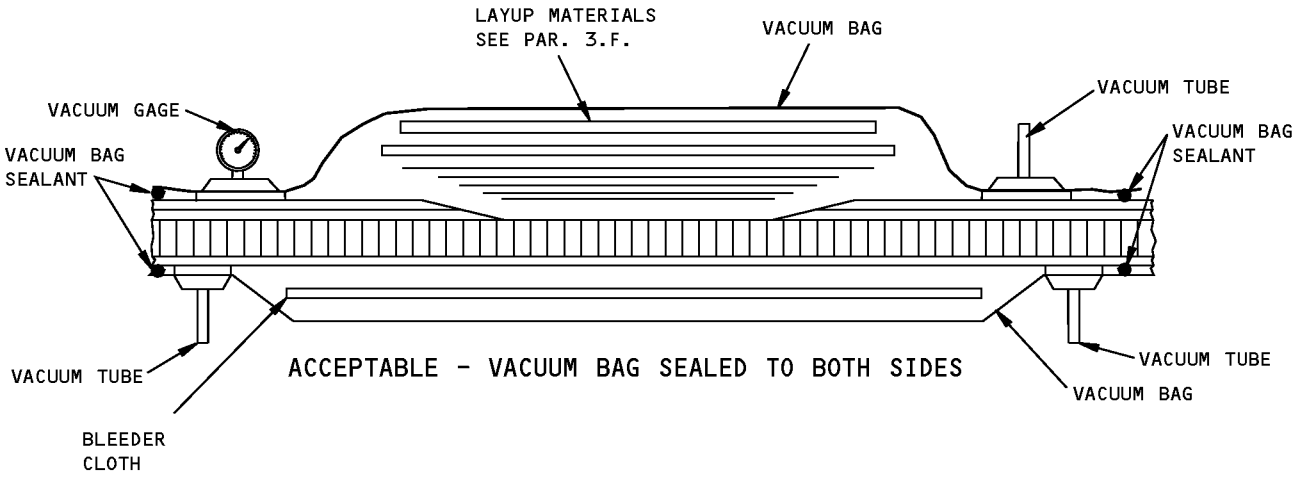
Typical Repair for Dents - Wet Layup
Figure 613



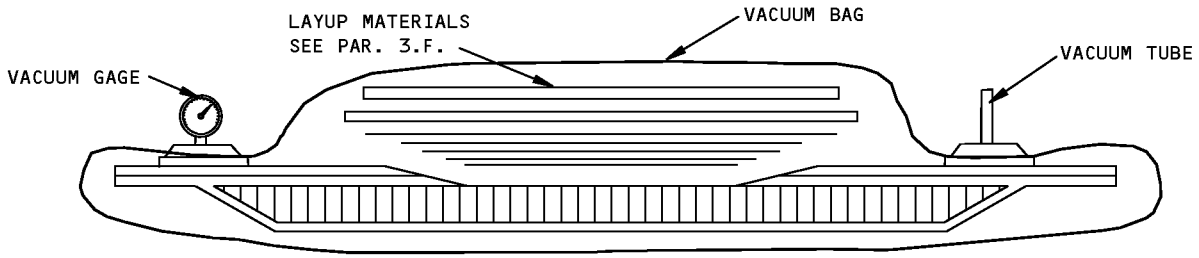


SECTION VIEW

Repair of Small Damage to One Skin
Figure 614



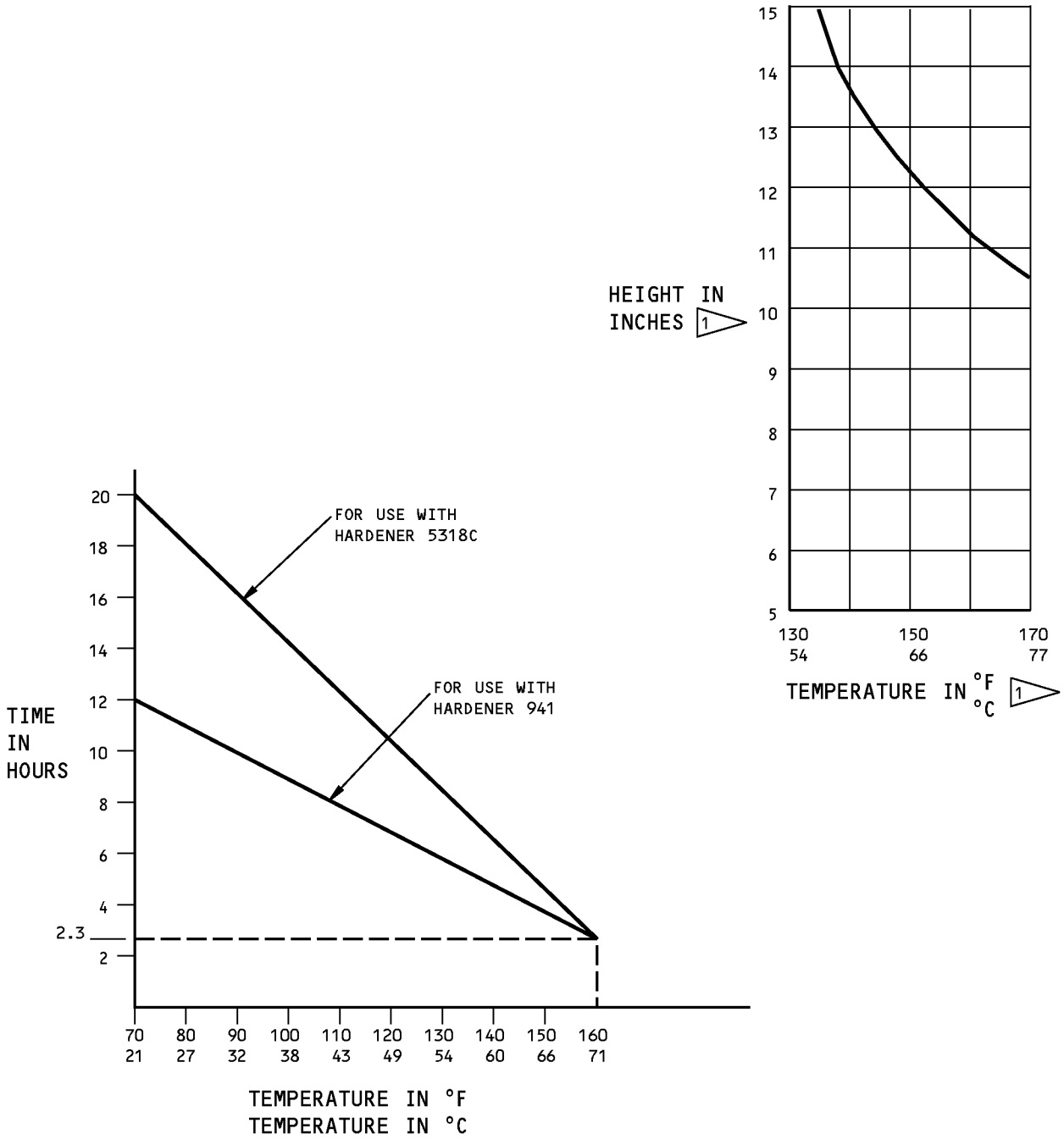
ACCEPTABLE - VACUUM BAG SEALED TO BOTH SIDES



ACCEPTABLE - VACUUM BAG SEALED AROUND ENTIRE PART

NOTE: REFER TO PAR. 3.F FOR LAYUP AND BAGGING PROCEDURES.

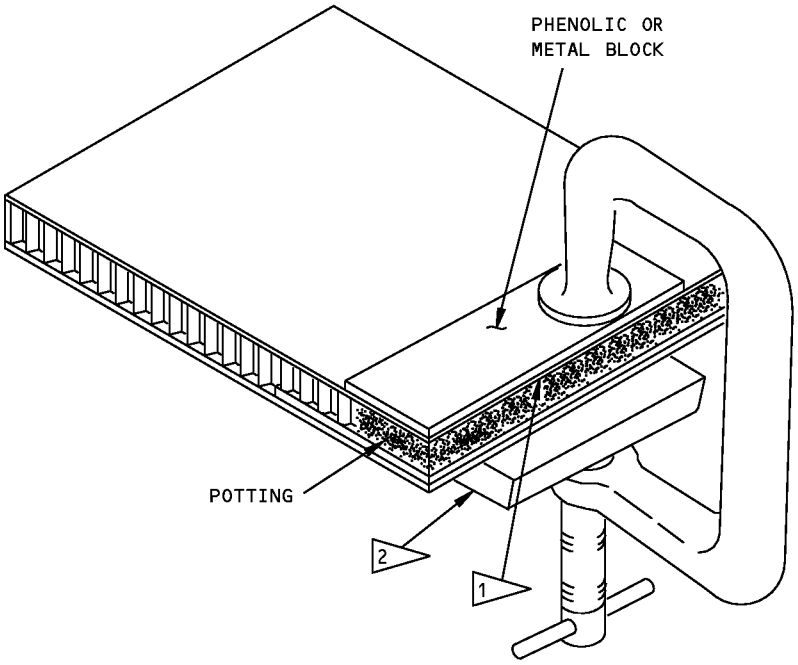
Vacuum Bagging Restrictions
Figure 615



NOTE: USE THERMOCOUPLES TO MONITOR TEMPERATURE.

1 THE HEIGHT IN INCHES OF 250 WATT HEAT LAMP FROM THE SURFACES OF THE PATCH VS TEMPERATURE AT SURFACE OF PART

Potting and Laminating Resin Cure Temperature
Figure 616



NOTE: REFER TO PARAGRAPH 4.A.(2) FOR
THE COMPLETE REPAIR INSTRUCTIONS.

1 FORCE RESIN MIX 1 INTO DELAMINATED AREA

2 CLAMP PLIES TOGETHER AND CURE

Repair of Delaminations Between Plies of Panel Edgeband
Figure 617

COMPONENT MAINTENANCE MANUAL

ASSEMBLY

(NOT APPLICABLE)

BOEING®

COMPONENT MAINTENANCE MANUAL

FITS AND CLEARANCES

(NOT APPLICABLE)

(NOT APPLICABLE)

BOEING®

COMPONENT MAINTENANCE MANUAL

ILLUSTRATED PARTS LIST

(NOT APPLICABLE)