CHAPTER 7 — BONDING

CONTENTS — MAINTENANCE PROCEDURES

TABLES

BONDING

7-1. GENERAL RULES

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-305	Aliphatic Naphtha
C-306	Toluene
C-309	MEK
C-423	Abrasive Cloth or Paper

1. Material, which may be bonded in accordance with these procedures are metal, plastic polycarbonate, silicone and rubber parts. Fluorocarbons (Teflon) may be bonded but may require special surface treatment prior to bonding. Refer to special instruction in specific manual.

2. The adhesives shall be stored and controlled as specified by the manufacturer.

3. Testing of bonded joints will include tapping and visual inspection for a continuous edge bond and quality.

4. The mating surfaces of detail parts shall be prefitted prior to cleaning and bonding. The fitted surfaces shall have good contact over the area to be bonded, and shall be free of waves, burrs, and other surface imperfections.

5. Surface preparation.

a. Cleanliness shall be carefully controlled through all phases of preparation and bonding. Clean, dry, white gloves shall be worn when handling processed parts and during the bonding operation. The gloves shall be changed when they become soiled. Contact with grease or mold release agents shall be avoided.

b. When necessary to mark detail parts or the location of bond areas prior to bonding, felt tip metal marking pens with nonpermanent ink shall be used.

CAUTION

DO NOT USE METAL SCRIBES OR LEAD PENCILS FOR MARKING IN AREAS TO BE BONDED.

c. Surfaces to be bonded shall be clean, dry, and free from oil or grease. Faying surfaces shall be cleaned for bonding as follows:

(1) Metals, when possible, shall be chemically cleaned, or abraded lightly with 400 grit abrasive cloth or paper (C-423), then cleaned with aliphatic naphtha (C-305) or MEK (C-309). Any component, or parts, that does not lend itself to cleaning by abrading, shall be cleaned with suitable solvents to ensure adequate bond adhesion can be achieved.

NOTE

The integrity of this type bonded joint shall be qualified by proofload, when required by maintenance instructions.

(2) Rubber surfaces shall be wiped clean with aliphatic naphtha (C-305), toluene (C-306), or MEK (C-309); abraded with a wire brush or with No, 80 grit abrasive cloth or paper (C-423), and wiped with solvent. The parts shall be wiped dry with dry cloths.

(3) Silicone rubber shall be prepared in accordance with paragraph 7-6.

(4) Acrylic shall be prepared in accordance with paragraph 7-7.

(5) Materials such as fabrics, foams etc. shall be clean and dry.

(6) Painted surfaces shall have the faying area wiped with a clean cloth moistened with aliphatic naphtha (C-305). The paint shall be removed in the faying area by sanding lightly with 400 grit abrasive cloth or paper (C-423). Remove sanding residue with a cloth moistened with aliphatic naphtha. The parts shall be wiped dry with a clean, dry cloth before the naphtha evaporates. After bonding is complete, all

exposed bare metal surfaces shall be refinished the same as the surrounding painted areas.

d. Details that have been cleaned for bonding shall be protected or stored so as not to become contaminated during lag periods.

7-2. BONDING PROCEDURE

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-309	MEK

1. Two part epoxy are mixed by weight. Refer to table 7-1 for specific mixing ratio.

2. Mixed adhesive pot life at room temperature are specified in table 7-1.

3. After thoroughly mixing, the adhesive may be applied by spatula, knife coat, notched trowel, wood applicator, or by flowing into place. Adhesive shall be applied to all faying surfaces. In order to ensure a minimum cured adhesive thickness of 3 to 8 mils, spacers can be used. To control the minimum bondline thickness, place 4 mil glass yarn thread in the bondline approximately 1.0 inch apart. Fabric may be used in lieu of thread. Threads or fabric shall be spaced so edge of bond surface is supported. When threads or fabric are used for spacing, they shall not extend past the bond edge.

4. Potting insert adhesive shall be forced to fill the cavity with pressure gun, potting syringes or other suitable methods. Lower the viscosity of the mixed adhesive for easier injection. The adhesive may be heated to 125° to 130°F (52° to 54°C) and used within 10 minutes.

5. Detail and part joining shall occur while adhesive is within its pot life time. Ensure proper alignment and avoid trapping air within bondlines. Remove excessive adhesive squeeze-out prior to curing. Clean off adhesive that may have collected on surfaces outside bond regions using cheesecloth moistened with MEK (C-309). Observe safety precautions.

6. Curing procedure.

a. The cure temperature cycles and time exposure should be as specified in table 7-1.

b. Bondline pressure. The bondline pressure, as stated in table 7-1, shall be distributed over the full bond region throughout the cure cycle. Bonding pressure shall not be used for springback or form retention on rigid or semi-rigid parts. When adhesive is used for filleting or is injected into a cavity, pressure is not a requirement.

7. Accelerate curing.

NOTE

Vacuum and heat generating blankets (or similar equipment) may be used to accelerate adhesive cure in structural repairs. Not withstanding, bonding should not be considered equivalent in strength to a factory controlled hot bond.

a. Accomplish accelerated bonding in conjunction with bonding procedure set forth in appropriate Structural Repair Manual for individual BHT approved procedure.

CAUTION

DO NOT EXCEED TEMPERATURE SET FORTH IN TABLE.

b. Temperature, time exposure and pressure shall be as defined in the alternate cure cycle procedures listed in table 7-1.

8. Refer to applicable Structural Repair Manual for appropriate structural cold bonding procedures.

9. Refer to paragraphs 7-3 and 7-4 for polycarbonate part bonding procedures.

10. Refer to paragraph 7-5 for non-structural bonding procedures using rubber base cement as an adhesive.

11. Refer to paragraph 7-6 for silicone parts bonding procedures.

12. Refer to paragraphs 7-7 and 7-8 for acrylic window and windshield inspection and repair.

13. Refer to paragraph 7-9 for Kydex and Royalite repair procedures.

Table 7-1. Expoxy Adhesive, Mixing Ratio, Pot Life, and Curing Schedule

ADHESIVE	ACTIVATOR HARDENER, OR CATALYST	CONSUMABLE ITEM NO.	MIX RATIO BY WEIGHT	POT LIFE (MINUTES	CURE CYCLE			ALTERNATE CURE CYCLE		
					TIME MINIMUM (HOURS)	PRESSURE PSI	TEMP. °F (°C)	TIME MINIMUM (MINUTES)	PRESSURE PSI	TEMP. °F (°C)
Metalset A-4	Part "B"	313	Equal parts "A" and "B"	30 to 40	24	Firm Contact	70 to 95 (21 to 35)	30	145 to 180 Firm Contact	145 to 180 (63 to 82)
EA 9340	Part "B"	313	Equal parts "A" and "B"	30 to 40	24	Firm Contact	70 to 95 (21 to 35)	30	Firm Contact	145 to 180 (63 to 82)
RP 1258	Part "B"	313	Equal parts "A" and "B"	30 to 40	24	Firm Contact	70 to 95 (21 to 35)	30	Firm Contact	145 to 180 (63 to 82)
EA 9309	Part "B"	331	100 parts "A" 23 parts "B"	30 to 45	24 (Refer to Note 2)	Firm Contact to 10	70 to 95 (21 to 35)	60	Firm Contact to 10	175 to 185 (79 to 85)
EPON 934	Part "B"	317	100 parts "A" 33 parts "B"	30 to 50	24 (Refer to Note 3)	Firm Contact to 10	70 to 95 (21 to 35)	60	Firm Contact to 10	175 to 190 (79 to 88)
Epibond 8510	Part "B"	317	100 parts "A" 30 parts "B"	40	24 (Refer to Note 3)	Firm Contact	70 to 95 (21 to 35)	60	Firm Contact to 10	175 to 190 (79 to 88)
Film Adhesive		332	None	7 days	1	10 to 50	260 to 280 (127 to 138)	120	10 to 50	220 to 260 (104 to 127)
EC 2216	Part "A" (Refer to Note 1)	322	100 parts "B" 140 parts "A"	110 to 130	24 (Refer to Note 3)	Firm Contact	70 to 95 (21 to 35)	120	Firm Contact to 10	145 to 155 (63 to 68)
EPON 828	DTA	219 (828) 220 (DTA)	100 parts (828) 8 to 12 parts (DTA)	20 to 30	24 (Refer to Note 3)	Firm Contact	70 to 95 (21 to 35)	120	Firm Contact	175 to 190 (79 to 88)

NOTES:. (1) For EC 2216 Part "A" (gray) is the catalyst or hardener, Part "B" (white) is the base resin.
(2) Maximum strength is obtained in 72 hours.
(3) Maximum strength is obtained in 6 to 7 day

7-3. POLYCARBONATE PARTS

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-301	Adhesive
C-305	Aliphatic Naphtha
C-406	Aluminum Oxide, Cloth
C-423	Abrasive Cloth

NOTE

This procedure shall be used for bonding polycarbonates together, not repairs. For repairs refer to paragraph 7-4. This procedure outlines the requirements for bonding polycarbonate plastic with a liquid type urethane adhesive.

1. Urethane adhesives are two component systems capable of producing high strength bonds to polycarbonate. Typical bonding strength at room temperature on polycarbonate surfaces are 500 psi strength and 20 psi peel strength.

2. Urethane adhesives, when properly cured at room or elevated temperature, are non-volatile and will not crack or craze polycarbonate surface. The

materials remain flexible after curing and retain high shear and peel strengths when bonded to polycarbonate or other materials. These adhesives will not sag or run when applied to a vertical surface; they remain flexible at –67°F (–55°C) and retain normal strengths to 180° F (82° C) with a service temperature range of –67°F (–55°C) to 250°F (121°C).

3. The various materials which can be bonded together or in combination are as follows: polycarbonate, acrylic, urethane rubber, steels, and all wrought aluminum alloys.

4. Urethane adhesives may be stored for six months at 60° to 80°F (16° to 27°C) when not being used. Urethane adhesives are highly susceptible to moisture, and containers must be kept air tight when not in use.

5. Surface Preparation.

a. Cleanliness shall be carefully controlled through all phases of preparation and bonding operations. The drying and storage of surface treated parts to be bonded through their assembly for final bonding shall be conducted in an area that is dust free to the extent that bonding operations are not affected. In order to assure consistently high bond strength, the following shall be accomplished:

(1) Cover work benches and shelves with clean wrapping paper, when soiled, to reduce contamination of bond surface.

(2) The processed parts shall be wrapped in clean paper until ready for use and shall be protected during lag periods.

(3) Wear clean dry white cotton gloves while handling processed parts. Change gloves as they become soiled.

(4) Avoid contact with all mold release agents such as silicone, wax, oil, grease, talc, etc.

b. Metal surfaces. Abrade lightly with 400 grit aluminum oxide cloth (C-406), or abrasive cloth or paper (C-423) and clean with aliphatic naphtha (C-305).

CAUTION

DO NOT USE ANY SOLVENTS ON POLYCARBONATE SURFACES.

c. Polycarbonate and acrylic surfaces. Lightly sandblast and remove blasting residue with a soft brush or wet abrasive blast and rinse with clean water. Blot excess water from the surface and allow to air dry. Light hand sanding with fine abrasive cloth or paper (C-423) may be used.

d. Urethane rubber. Lightly sand surface with fine abrasive cloth or paper (C-423) prior to bonding.

6. Apply urethane adhesive (C-301) with a brush or spatula. Maximum strengths are obtained with a bondline thickness of approximately 10 mils. No voids are permitted.

7. Cure urethane adhesives in accordance with manufacturers recommendations. Refer to table 7-2.

7-4. POLYCARBONATE PARTS REPAIR

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-301	Adhesive
C-403	Glass Cloth
C-423	Abrasive Cloth

NOTE

This procedure is for repairs to polycarbonates. For bonding polycarbonates together, refer to paragraph 7-3.

1. Repair of cracks in polycarbonate.

Table 7-2. Urethane Adhesives, Mixing Ratio, Potlife, and Curing Schedule

ADHESIVES	CONSUMABLE ITEM NO.	MIX RATIO BY WEIGHT	POT LIFE AT ROOM TEMP. (MIN.)	CURE PRESSURE	ROOM TEMP. CURE		ALTERNATE CURE	
					TEMP°F (C)	TIME (DAYS)	MINIMUM TEMP. °F (°C)	MINIMUM TIME (HRS)
Organocerams #4-3011 (Amber)	301	2 parts "A" to 1 part "B"	30 to 40	5 to 20 psi (firm contact)	70 to 80 (21 to 27)	2	160 (71)	2
Organocerams #4-3011-1 (Black)	301	2 parts "A" to 1 part "B"	30 to 40	5 to 20 psi (firm contact)	70 to 80 (21 to 27)	2	160 (71)	2
Dapcotac #3013 (Amber to Black)	301	2 parts "A" to 1 part "B"	30 to 40	5 to 20 psi (firm contact)	70 to 80 (21 to 27)	2	160 (71)	2
Uralane 5738 A/BX (Amber or Black)	301	100 parts "A" to 50 parts "B"	20 to 30	5 to 20 psi (firm contact)	70 to 80 (21 to 27)	7	160 (71)	2

a. Stop drill crack at each end of crack with No. 40 (0.098 inch) drill bit.

b. Lightly sand area to be repaired with 400 grit abrasive cloth or paper (C-423). Wipe area clean to remove sanding residue.

c. Mix urethane adhesive (C-301) in accordance with manufacturers instructions. Refer to table 7-2.

d. Apply urethane adhesive (C-301) to repair area using a brush or spatula.

e. Allow part to cure for 2 days at 70° to 80°F (21° to 27°C). If an accelerated cure is required, increase temperature to 160°F (71°C) with a heat lamp and allow to cure for 3 hours (2 hours minimum).

2. Repair of breaks or tears in polycarbonate.

a. Prepare area around damage as described in step 1.a. and 1.b. Stop drill cracks in damaged area using a No. 40 (0.098 inch) drill bit.

b. Cut a section of 120 to 127 weave glass cloth (C-403) to overlap damaged area a minimum of 0.5 inch.

c. Apply one brush coat of urethane adhesive (C-301) to repair area.

d. Lay fiberglass cloth over repair area and rub lightly to provide proper contact between cloth and surface of part.

e. Apply a second brush coat of urethane adhesive over fiberglass cloth and repair area.

f. Cure repair as described in step 1.e.

7-5. NONSTRUCTURAL BONDING WITH RUBBER BASE CEMENT

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-305	Aliphatic Naphtha
C-306	Toluene
C-309	MEK
C-423	Abrasive Cloth

General purpose, rubber base cements are generally solvent release type adhesives. These cements are applied to a clear surface and their solvents are allowed to evaporate.

1. Process.

a. Cleanliness shall be carefully controlled through all phases of preparation and bonding. Contact with grease or mold release agents shall be avoided.

b. Faying surfaces must be cut, formed, or machined so as to join accurately, prior to cleaning and bonding.

2. Surfaces must be clean, dry, and free from oil or grease. Faying surfaces shall be cleaned for cementing as follows:

a. For metal surfaces, abrade lightly with 400 grit abrasive cloth or paper (C-423). Remove the sanding residue with aliphatic naphtha (C-305), toluene (C-306), or MEK (C-309).

b. For rubber surfaces, the area to be bonded shall be abraded with a wire brush or coarse 80 grit abrasive cloth or paper (C-423) and wiped with toluene (C-306) or MEK (C-309). The parts shall be wiped dry with clean, dry cloths.

c. For plastic surfaces, lightly abrade the faying surfaces with 400 grit abrasive cloth or paper (C-423). Remove sanding residue with a dry air blast or a dry, clean, soft cloth. Faying surfaces shall be clean and dry.

d. Fabrics, foams, etc., shall be clean and dry.

e. Painted surfaces shall have the faying area wiped with aliphatic naphtha (C-305). Wipe the area dry with a clean, dry cloth.

f. Where additional bond strength is desired, remove paint by sanding lightly with 400 grit abrasive cloth or paper (C-423). Remove sanding residue with aliphatic naphtha (C-305) or MEK (C-309).

3. Protection of surfaces cleaned for bonding shall be protected by wrapping or storing so as not to become contaminated during waiting periods.

4. Cementing Methods.

a. Solvent Reactivation.

(1) Apply a thin, even coat of cement to each surface (more than one coat may be necessary on very porous materials).

(2) Allow cement to dry tack free.

(3) Wipe the surfaces with a clean cloth dampened in solvent.

(4) Align parts and start at one edge and roll or press firmly together to ensure intimate contact.

(5) Allow bond to set 4 hours minimum.

b. Heat Reactivation.

(1) Apply cement as specified in step a., above.

(2) Allow cement to dry tack free.

(3) Align parts and hold with firm contact pressure.

(4) Heat as required.

CAUTION

DO NOT USE SPRAY ADHESIVES DIRECTLY ON ACRYLIC OR POLYCARBONATE SURFACE.

c. Spray Adhesive Application.

(1) Spray adhesive shall be applied to vinyl, felt, foam, or rubber surfaces only.

(2) Spray distance shall be 6 to 8 inches.

(3) Allow adhesive to air dry for a minimum of one minute before joining.

(4) Join while the adhesive is in an aggressively tacky state (evidenced by the adhering, but not transferring to finger when touched.)

(5) Press firmly together to ensure intimate contact.

(6) Allow bond to set 15 minutes at room temperature.

7-6. SILICONE BONDING

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-305	Aliphatic Naphtha
C-306	Toluene

MATERIALS REQUIRED (Cont)

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-307	Adhesive
C-314	Adhesive
C-346	Adhesive
C-347	Xylene
C-423	Abrasive Cloth

1. Adhesives for silicone elastomers are of two general categories according to cure mechanism:

a. Two component systems composed of a silicone resin and catalyst.

b. Single component systems in which no catalyst addition is required to affect a cure. These two general categories can be divided further according to their resistance to temperature, oil, and fuel. Typical temperature ranges for silicone adhesives are –67°F (–55°C) to 500°F (260°C) in continuous exposure. Oil and fuel resistance is obtained by using fluorinated silicones. Single component systems would not be used in lap joints over 1.0 inch in width (single component adhesive systems are unable to affect a cure in large, closed area bonds).

2. The silicone adhesives described in this paragraph are used in bonding silicones or silicone coated materials to themselves, to metals, or to fiberglass laminates. There are no specific physical properties when bonding as described in this paragraph.

3. Surface Preparation.

a. Silicone rubber.

(1) Abrade the rubber with 80 grit abrasive cloth or paper (C-423).

(2) Clean the abraded area with a toluene (C-306) or xylene (C-347) wetted cloth.

(3) Wipe the area dry with a clean, dry cloth.

b. Unpainted metals and fiberglass laminates.

(1) Abrade the surface with 80 grit abrasive cloth or paper (C-423).

(2) Clean the abraded area with a toluene (C-306) or xylene (C-347) wetted cloth.

(3) Wipe the area dry with a clean, dry cloth.

c. Painted surfaces.

NOTE

For ultimate bond strength, remove the paint to bare metal.

(1) Clean the area to be bonded by wiping with a cloth wetted with aliphatic naphtha (C-305).

(2) Wipe the area dry with a clean, dry cloth.

d. Plastics, polycarbonate, acrylic or other plastic groups.

(1) Abrade surface lightly with 400 grit abrasive cloth or paper (C-423) or lightly dry sand blast.

(2) Clean abraded area by wiping with a clean dry cloth or dry air blast.

(3) The surface to be bonded shall be clean, dry, and free from oils, grease, masking materials, etc.

4. Application of Adhesives.

a. RTV adhesives adhesive (C-307) and adhesive (C-314) may be one or two component adhesives. Single component adhesives do not require a catalyst. These adhesives may be used with or without a primed surfaces. (5 to 10 mil bondline is acceptable on silicone rubber to silicone rubber bonds.)

(1) Without primer.

(a) Brush apply a 10 to 15 mil coating of the adhesive to both surfaces. (A 5 to 10 mil bondline is acceptable on silicone rubber to silicone rubber bonds.)

(b) Press the two coated surfaces together. Apply firm pressure until cured.

(2) With primer.

(a) Brush the applicable primer to be used to the metallic surfaces only. Refer to table 7-3.

(b) Air dry the primer for 30 minutes.

(c) Brush a 10 to 15 mil coating of the proper adhesive to each surface to be bonded.

(d) Press the two coated surfaces together. Apply a firm pressure until cured.

Table 7-3. Silicone Adhesives Classification and Properties

ADHESIVE — PROCUREMENT SPECIFICATION, PART NO., AND CONSUMABLE ITEM NO.	SYSTEM	COLOR	PRIMER (WHEN REQUIRED)	REMARKS
Type I, 299-947-152 Class 1, Dapcotac 3300 (C-300)	Two Part	Colorless	S-2260	△3 △4 △6 △8
	One Part	Translucent	—	△1 △3 △4 △6
Class 2, RTV 108 (C-307)	One Part	White, Black or	—	△1 △3 △4 △6
Class 2, RTV 732 (C-307)		Clear	(C-337)	
Type II, 299-947-152 RTV 106 (C-346)	One Part	Red	SS-4004	△1 △3 △4 △7
RTV 156 (C-346)	One Part	Red	SS-4004	△1 △2 △3 △4 △7
RTV 92-024 (C-346)	One Part	Gray	1200 (C-337)	△1 △2 △3 △4 △7
Type III, 299-947-152 RTV 20-046 (C-314)	One Part	Gray	1200	△1 △3 △5 △7
FRV 1106 (C-314)	One Part	Red	(C-337)	△1 △3 △5 △7

NOTES:

△1 These adhesives are to be used in applications where lap joint is not over 1.0 inch (25.4 mm) in width.

△2 Higher strength adhesives.

△3 Primer is recommended for metallic surfaces in order to improve adhesion and improve water, heat, and weather resistance.

△4 Oil and fuel resistance — No.

△5 Oil and fuel resistance — Yes.

△6 Continuous temperature range -67°F (-55°C) to 300°F (149°C).

△7 Continuous temperature range -67°F (-055°C) to 500°F (260°C).

△8 Mix 100 parts "A" to 10 parts "B". Pot life 2 to 4 hours.

(3) Handling strength (50 percent of maximum strength) is obtained in 24 hours (table 7-3, Note 1). Maximum cure is obtained in 3 to 5 days.

b. Cure procedures.

(1) Room temperature cure. The cure time for full strength is 4 to 7 days at room temperature of 70° to 80°F (21° to 27°C). The bondline holding strength cure time is 24 hours at room temperature (50 percent of full strength is obtainable).

(2) Heat temperature cure. Cure the adhesive at 150°F (66°C) in an air circulating oven for 18 hours.

(3) RTV adhesive (C-307) and adhesive (C-346). Single component RTV adhesive (RTV's 108, 732, 106, 156, 92-024, 20-046, and 94-002) do not require a catalyst. These adhesives may be used with or without a primer system.

(4) Without primer.

(a) Brush apply a 10 to 15 mil coating of the adhesive to both surfaces. (5 to 10 mil bondline is acceptable on silicone rubber to silicone rubber bonds.)

(b) Press the two coated surfaces together. Apply firm pressure until cured.

(5) With primer.

(a) Brush the applicable primer to be used to the metallic surfaces only. Refer to table 7-3.

(b) Air dry the primer for 30 minutes.

(c) Brush a 10 to 15 mil coating of the proper adhesive to each surface to be bonded.

(d) Press the two coated surfaces together. Apply a firm pressure until cured.

(6) Cure procedures. Handling strength (50 percent of maximum strength) is obtained in 24 hours. Refer to table 7-3, Note 1. Maximum cure is obtained in 3 to 5 days.

7-7. ACRYLIC WINDOWS AND WINDSHIELDS

7-8. INSPECTION AND REPAIR ACRYLIC WINDOWS AND WINDSHIELDS

MATERIALS REQUIRED

Refer to chapter 13 for specification and source.

NUMBER	NOMENCLATURE
C-303	Adhesive

1. Small scratches and minor abrasions on acrylic plastic panels may be considered negligible provided they do not impair or distort the pilots vision or show signs of developing cracks. Minor scratches, nicks and nonpuncturing dents in frame assemblies may be considered negligible provided such damage does not affect transparent panels.

2. Inspect windshields and windows to damage limits described in paragraph 1.

3. Tears, holes, and cracks in acrylic plastic panels less than 4.0 inches in length can be repaired provided the damage does not interfere with the pilots vision. Use acrylic adhesive (C-303).

4. Refer to FAA Advisory Circular 43.13-1 Aircraft Inspection and Repair, for repair instructions and procedures for acrylic plastics.

7-9. KYDEX AND ROYALITE TRIM PARTS

Kydex and Royalite trim panels may be bonded and repaired by procedures described for polycarbonates in paragraphs 7-3 and 7-4.