DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

EPOXY PLASTIC AUTOMOTIVE BODY REPAIR: ALL WHEELED VEHICLES

Headquarters, Department of the Army, Washington 25, D.C.
25 October 1962

SECTION I

GENERAL

1. **Purpose**. This bulletin provides Ordnance metal body repairmen with instructions and procedures in using Epoxy Plastic Auto-body Type I, Repair Kit, FSN 8010-615-5370.

2. **Scope**. *a.* Use of plastics for repairs of damaged automotive bodies and fenders has largely superseded previous practices.

b. Epoxy plastic-type adhesives are suitable for repairs of automotive bodies and fenders as well as aluminum, magnesium and stainless steel items. Epoxy plastic is especially applicable to repairs of double-wall bodies such as ambulances and the numerous van-type vehicles and trailers because no open flame is necessary. Heat lamps may be used.

c. Epoxy plastic should not be confused with autobody glazing putties.

d. Epoxy resin paste is a compound with filler material and is readily mixed with hardener paste. The resin paste is one color, the hardener another, and when thoroughly mixed together will blend into one color indicating materials have been thoroughly mixed.

TAGO 6810-A-650576 October-62

This copy is a reprint which includes current pages from Changes [1]

*e. E*poxy plastics provide a superior repair for areas subject to vibration, mechanical shock and abrasion.

3. General. *a.* All plastic repairs will be accomplished at 3d echelon or higher.

Caution*:* Adequate, ventilation must be provided. Gloves, eye shield and respirator must be used. Silicosis could result from continued breathing of glass dust particles. Wash hands thoroughly after working with Epoxy plastic

b. Necessary tools are contained in the "Metal Body Repairman" basic tool set 5180-357-7731 or 5180-754-0643.

c. Auto body and fender repairing calls for a high degree of skill and proficiency with hand tools on the part of the body repairman (MOS040-201

SECTION II

PROCEDURE

4. Prepare the Surface. a. Bump out metal in damaged area (fig. 1) with body hammer and hand dolly block.

b. Remove all paint and rust from damaged area. Using a rotary grinder (fig. 2) with No. 36 grit disc, clean and roughen damaged area to the bare metal.

c. File damaged area (using vixen blade) (fig. 3), bring up and align all defects except those sharp dings that will be filled with Epoxy plastic.

d. Large holes (greater than /4i inch in any dimension) should be welded **(TM 9-237**) or inserts in form of metal backing secured with metal screws should be used. Heads of metal screws must be below original contour of area being repaired.

5. Preparing Epoxy Plastic. *a.* Different colors in resin and hardener are incorporated to help attain a thorough mixture of the two materials. When thoroughly mixed, the mixture will have a uniform color. Improper mixture will cause soft spots, stains and irregular curing of Epoxy plastic.

b. Mix resin and hardener on clean non-absorbent surface (fig. 4).

(1) Always use equal amounts of the resin and hardener.

(2) Due to the short pot-life (approximately 2 hours) of the mixed Epoxy plastic, mix only enough of the resin and hardener to complete repair of the damaged area.

(3) Care should be used in mixing to prevent air entrapment (bubbles). When thoroughly mixed Epoxy plastic will not flow when applied to a vertical surface.

***Caution*: Do not add solvents of any type to Epoxy plastic. Keep cans closed tight when not in use. Always wear gloves when using Epoxy plastic. Epoxy plastic that sets on fingers or skin may lead to dermatitis. Removal is difficult and may have to wear off. Do not use solvent or stripper.**

6. Preheat Surface Area. *a.* Warming the damaged area metal prior to application of Epoxy plastic eases application and improves adhesion.

b. Two methods of heat application may be used.

(1) Heat lamps (fig. 5) 10-12 inches from repair area; time approximately 5 minutes. This is the preferred method.

***Note.* Always sand and clean the repair area of rust, dust, and oil residue before either warming method is utilized.**

(2) "Flashing" the repair area with a torch (fig. 6) for approximately 1015 seconds. This method should be used only when heat lamps are not available. Never use this method on any van-type bodies.

***Warning*: Due to possibility of explosive fumes accumulating between the walls of a double-wall van-body this method will not be used.**

7. Application of Epoxy Plastic. *a.* Apply Epoxy plastic mixture with a putty knife (fig. 7) or rubber squeegee. Apply in thin layers,

D E P A R T M E N T O F T H E A R M Y T E C H N I C A L B U L L E T I N

E P O X Y P L A S T I C A U T O M O T I V E B O D Y R E P A I R : A L L W H E E L E D V E H I C L E S

Headquarters, Department of the Army, Washington, D.C.
13 ,August 1965

TB 92300-25830, 25 October 1962, is changed as follows:

Page 2

3. General. *a.* All plastic repairs * * * echelon or higher.

Caution: **Adequate ventilation must be provided. Gloves and eye shield must be used. Wash hands thoroughly after working with Epoxy plastic.**

* * * * * * * * * * * *

By Order of the Secretary of the Army:

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Major General, United States Army,
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Br Svc Sch (2) except
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SVAD (5)
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UMAD (3)
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USACDCARTYA (6)
Ord PG (10)
POE (2)
USA Tml Comd (2)
Army Tml(2)
Arsenals (5) except
Frankford (10)
Joliet (4)
LEAD (2)
Springfield Armory (2)
Proc Dist (1) except
Cleveland (2)
New York (3)
Philadelphia (4)
St. Louis (3)
Ord Plants (5) except
Radford (1
Lake City (2)
Kingsbury (none.)
Ravenna (1)
Pantex (none)
MI! Man (1)
MAAG (2)
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9-9
9-12
9-76
9-127
9-137
9197
9-357
9-00 (CA-OB)
29-55

NG: State AG (3); Units--same as Active Army except allowance is on copy.
USAR: None.
For explanation of abbreviations used, see AR 32050.

squeezing it up and in repair area, Work the mixture back and forth to bond it to surface and shape to contour of repair area allowing a slight hump for finishing purposes.

b. Each 1/ inch thickness must be set or cured with heat before adding more Epoxy plastic.

***Note*. Do not save unused mixture (par. 5).**

8. Cure the Repair. Three methods for curing Epoxy plastic may be used. The time required for curing each 1/ inch thick layer to a sandable hardness is as follows:

a. Heat lamps at a distance of 10-12 inches (fig. 8) from the repaired area; time 7 minutes. This is the preferred method. Heat lamps set closer than 10-12 inches may generate air bubbles resulting in pitting in the repair area

b. Propane type torch, or equal; cool flame played uniformly over the repaired area; time 60 seconds only (fig. 9). This method should be used only when heat lamps are not available, and never used on any van-type bodies.

c. Epoxy plastic may be cured in 720 air temperature; time 2 hours for each 1/4 inch thickness.

d. Care must be exercised in both heat methods of curing. Overheating results in overcuring and weakens the adhesive bond of the Epoxy plastic. Testing during curing may be accomplished by lightly scratching with a sharp instrument. A deep scratch indicates that the material in the repair area is not completely cured.

9. **Rough Finish After Curing**. Rough finish repaired area to metal contour using either an 9-tooth vixen blade body file or disc grinder (fig. 10) with 60 grit abrasive.

***Caution*: When using disc, care should be exercised so as not to "dig out" plastic causing a low spot.**

It is recommended that repair area be drawfiled to blend contour of area.

10. Final Metal Finish. Using a vibrator sander (fig. 11) with 80 grit paper, sand the repair area feathering the edges to surrounding contours. All repaired sections must be smooth as all blemishes and irregularities are emphasized when painted.

11. Area Clean Up. Acetone or Methyl-Ketone solvents can be used to remove uncured Epoxy plastic; they can also be used for cleaning the equipment used.

12. Painting. Sanded Epoxy plastic surfaces provide non-bleeding base for standard automotive paint finishes. Clean, prime and paint in accordance with TM 9-2851 If possible, the underneath surface of the damaged area should be painted and/or undercoated after repair is completed.

13. Additional Uses. *a*. Radiator leaks can be repaired by external application of the plastic without removal of the radiator.

b. Repairs to castings, casings or other containers are easily and permanently accomplished with Epoxy plastic. Care should be exercised however to limit the use of Epoxy plastic for repairs in which the Epoxy would be subjected to stresses or temperatures which are beyond its capacity

14. Supply. Repair Kit, Epoxy Plastic, Auto Body-Type I, FSN 8010-6155370 can be requisitioned through normal supply channels.

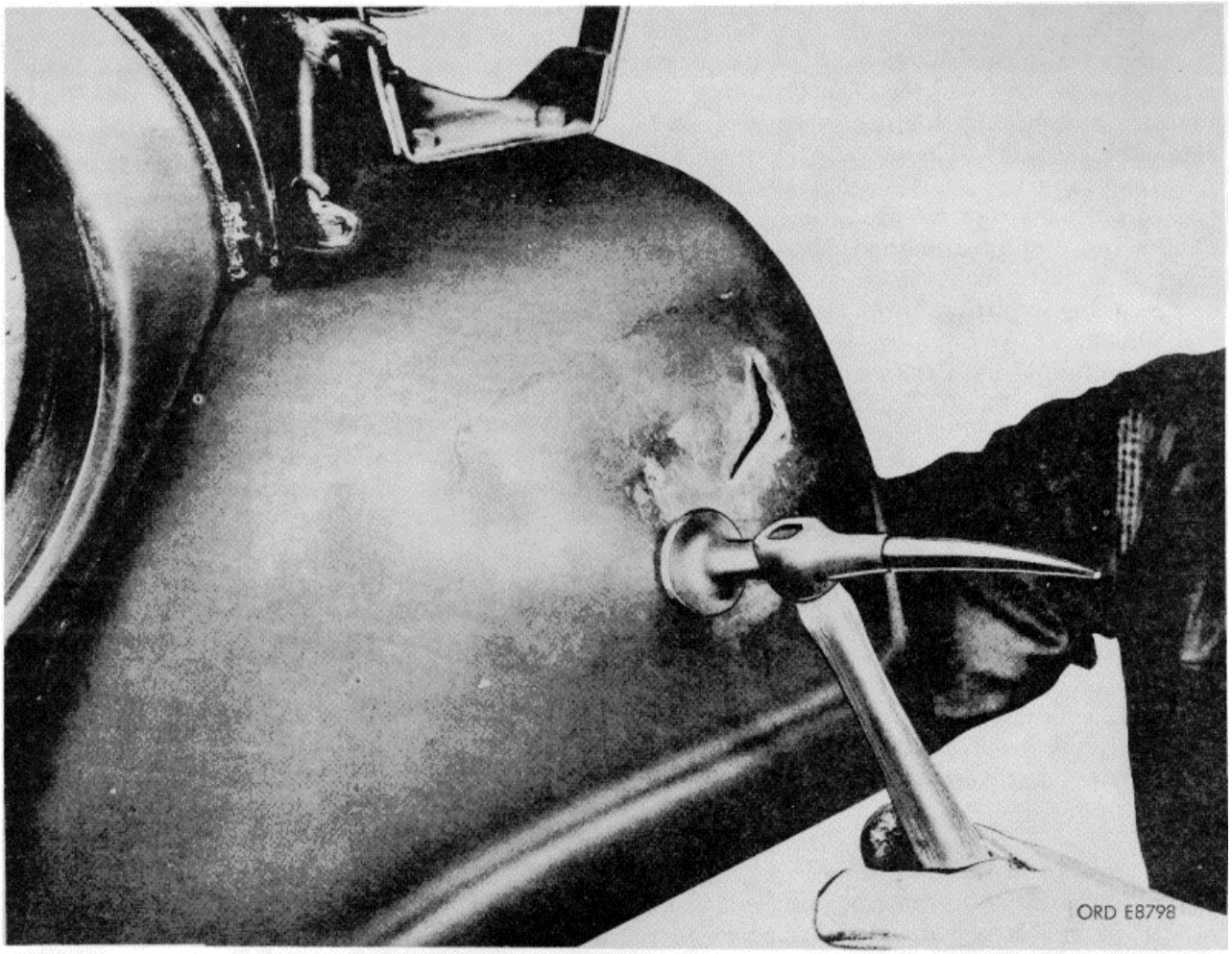

Figure 1. Preparing the damaged area.

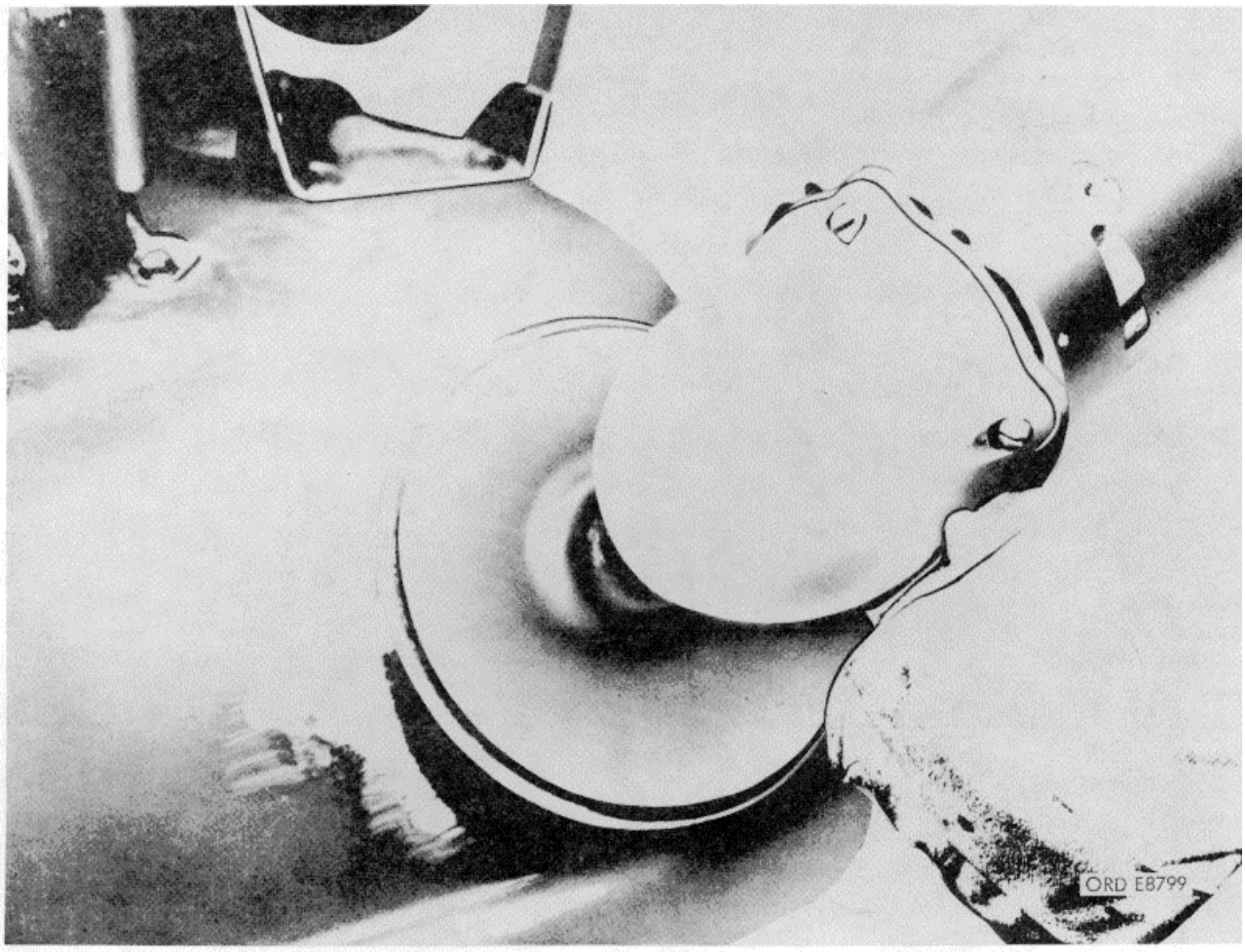

Figure 2. Rough sanding of damaged area.

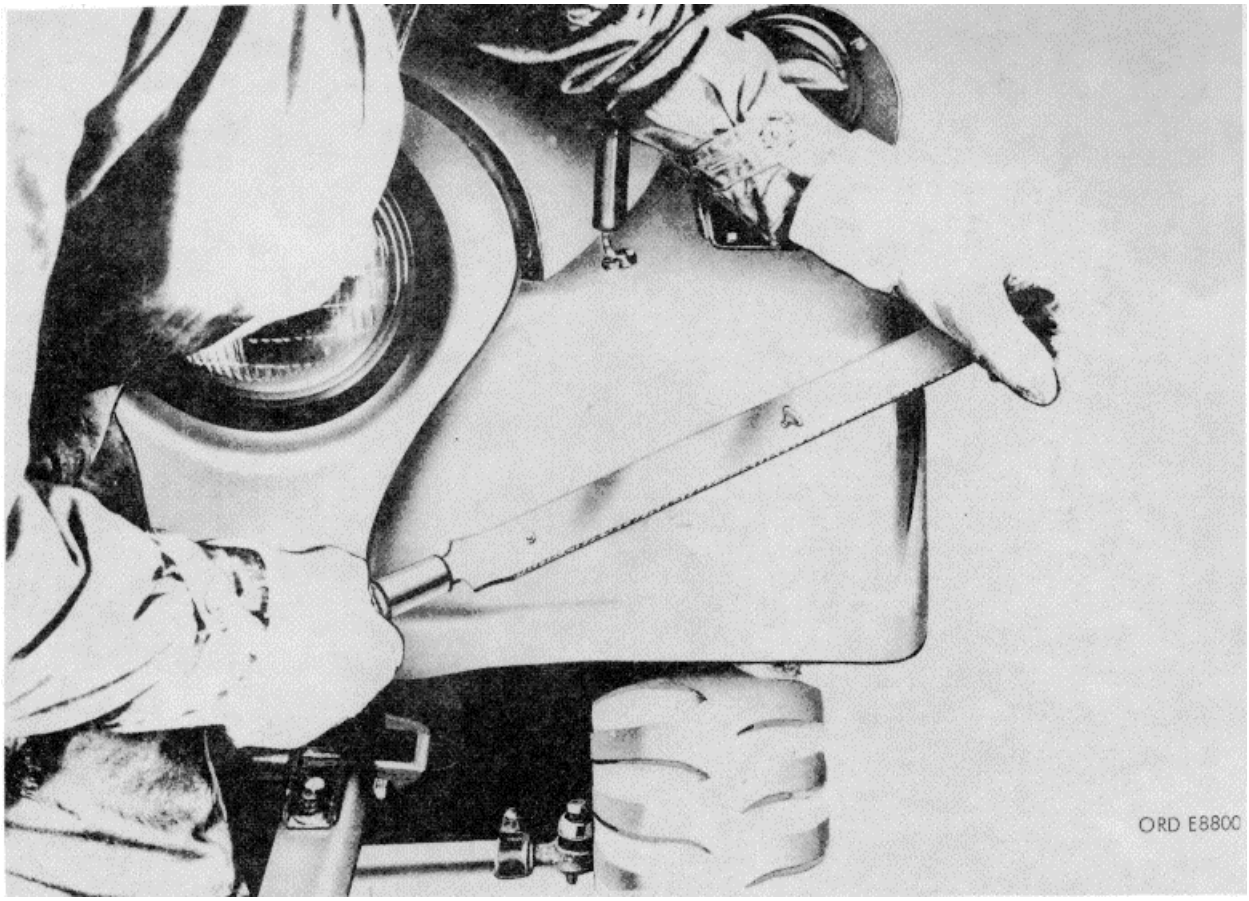

Figure 3. preparing damaged area using vixen body file

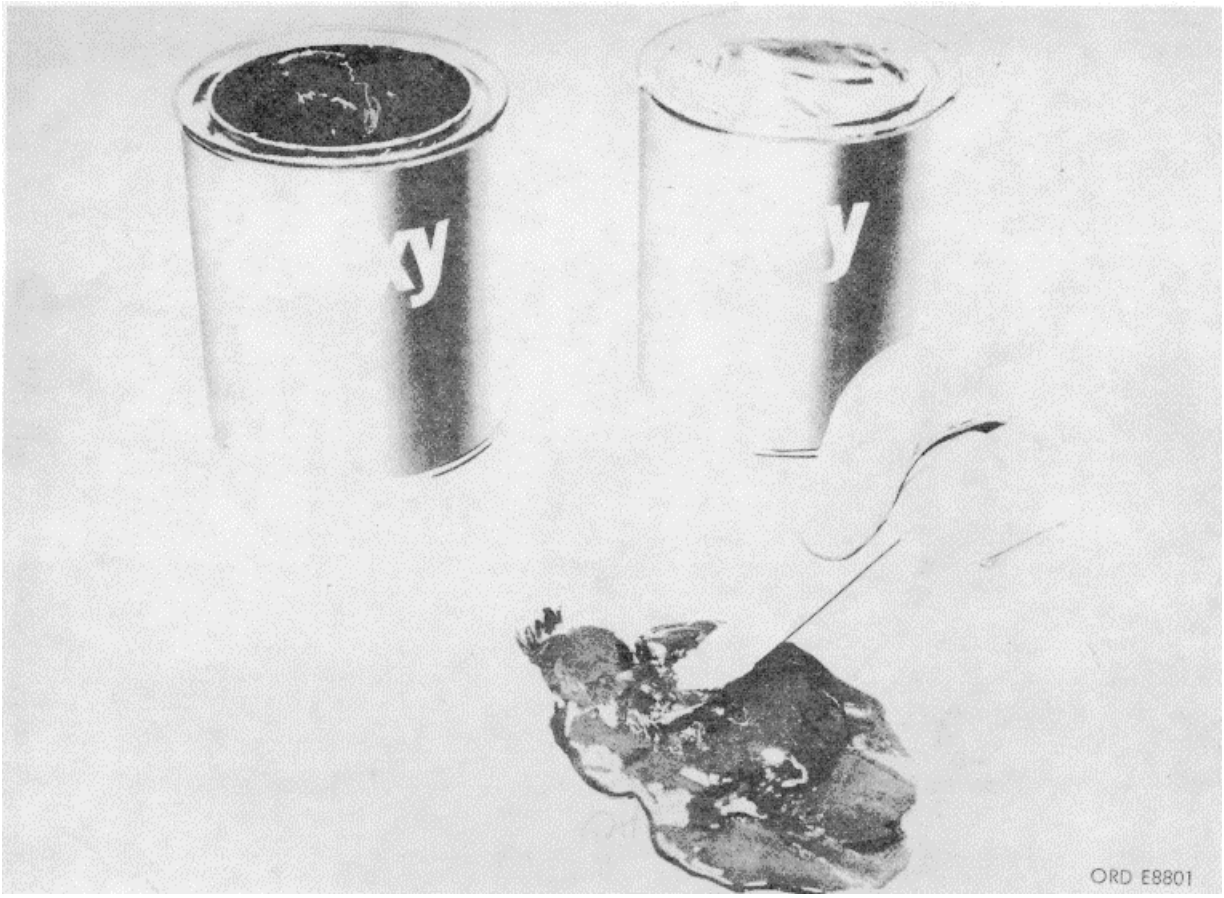

Figure 4. Mixing Empty resin and hardener

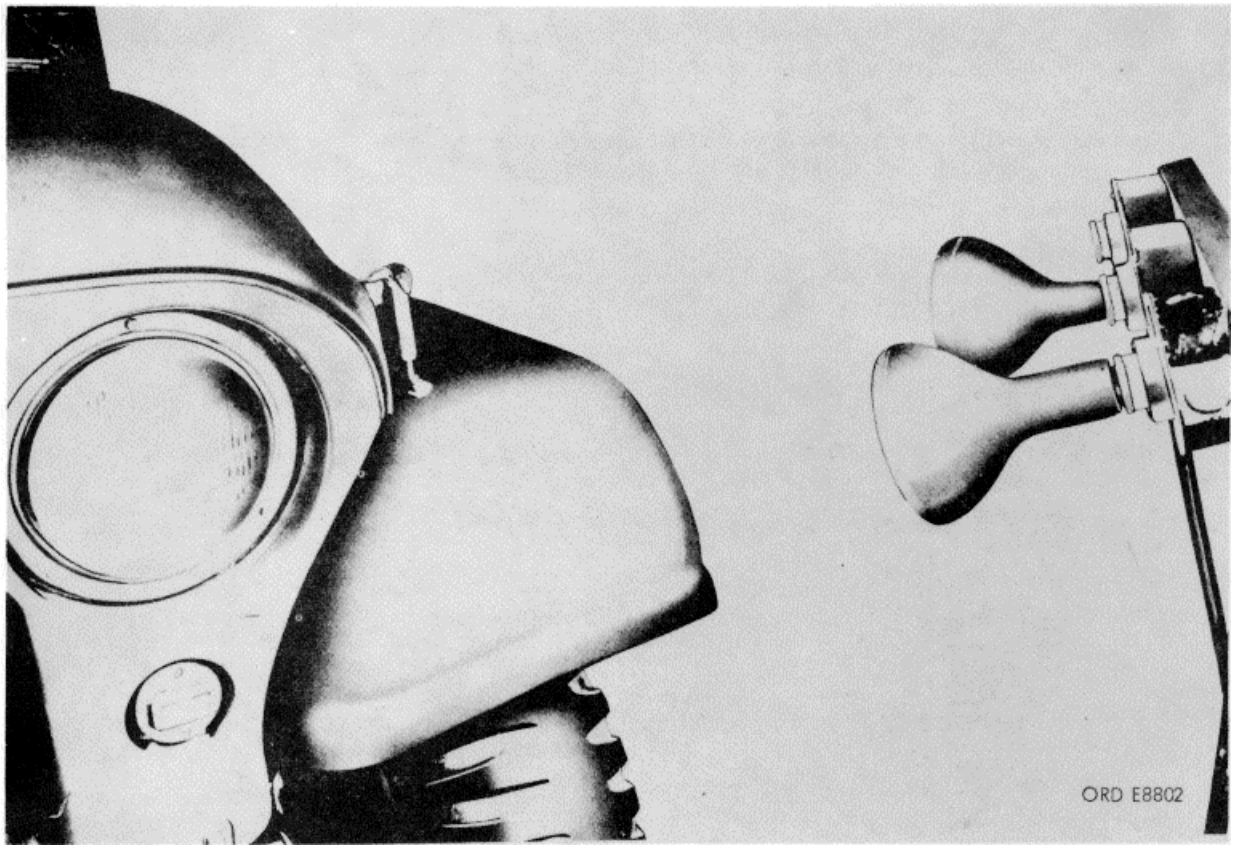

Figure 5. Heat lamps wearing method.

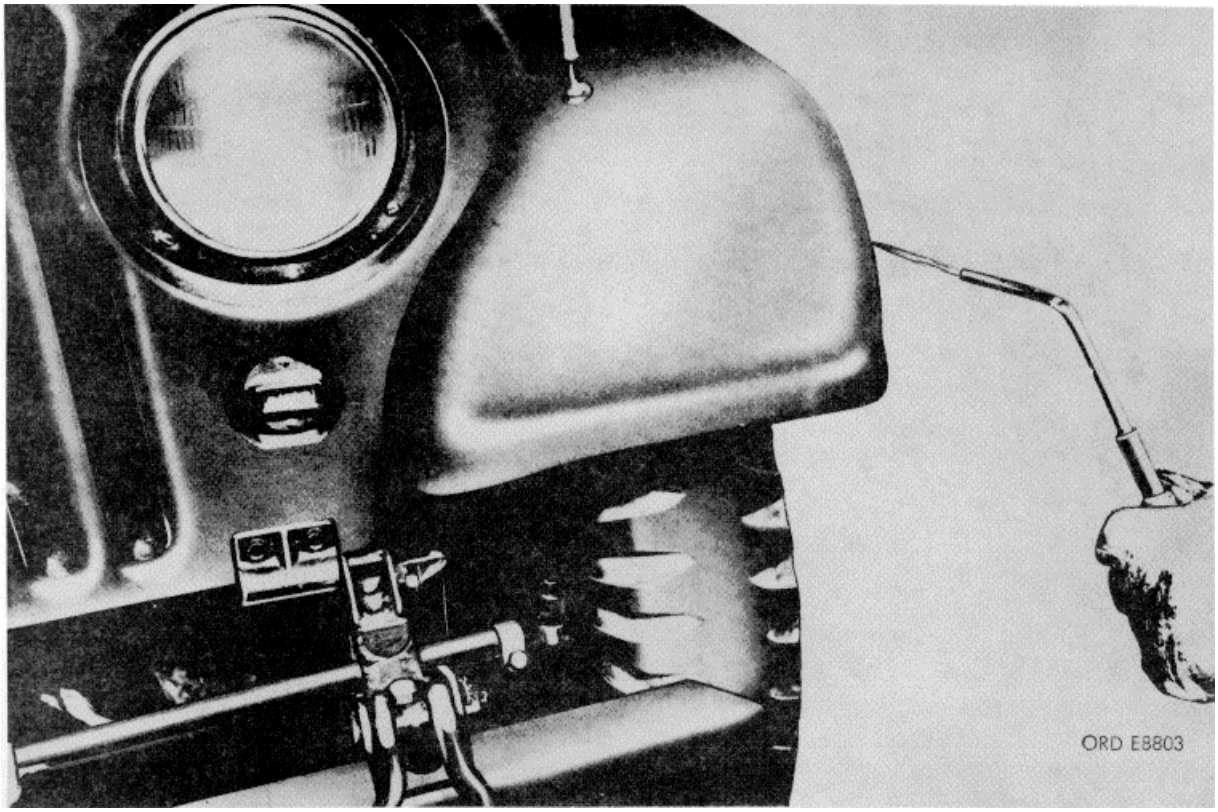

Figure 6. Warming area by flushing with a torch.

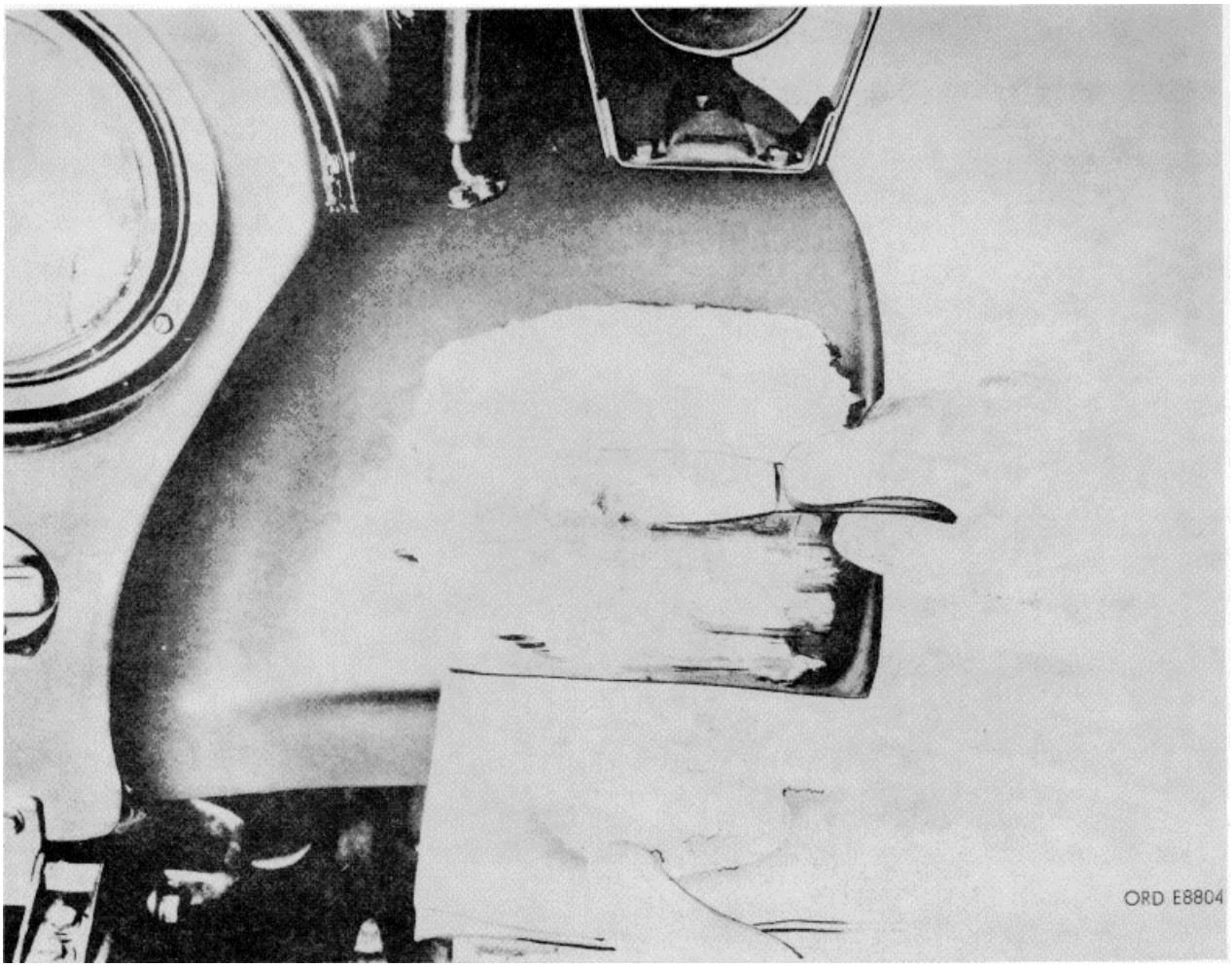

Figure 7. Applying Epoxy plastic to repair area

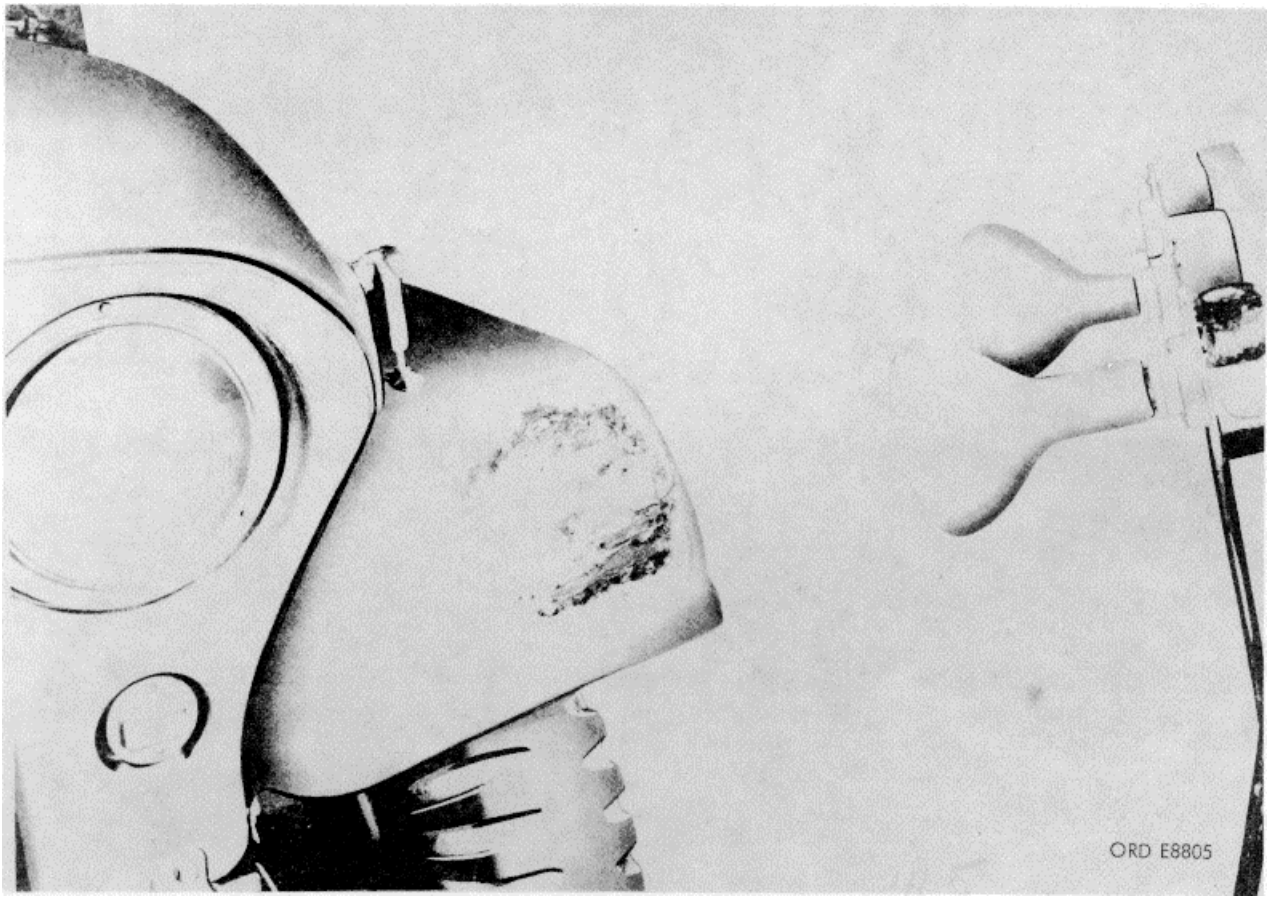

Figure 8. Heat lamps curing Epoxy plastic.

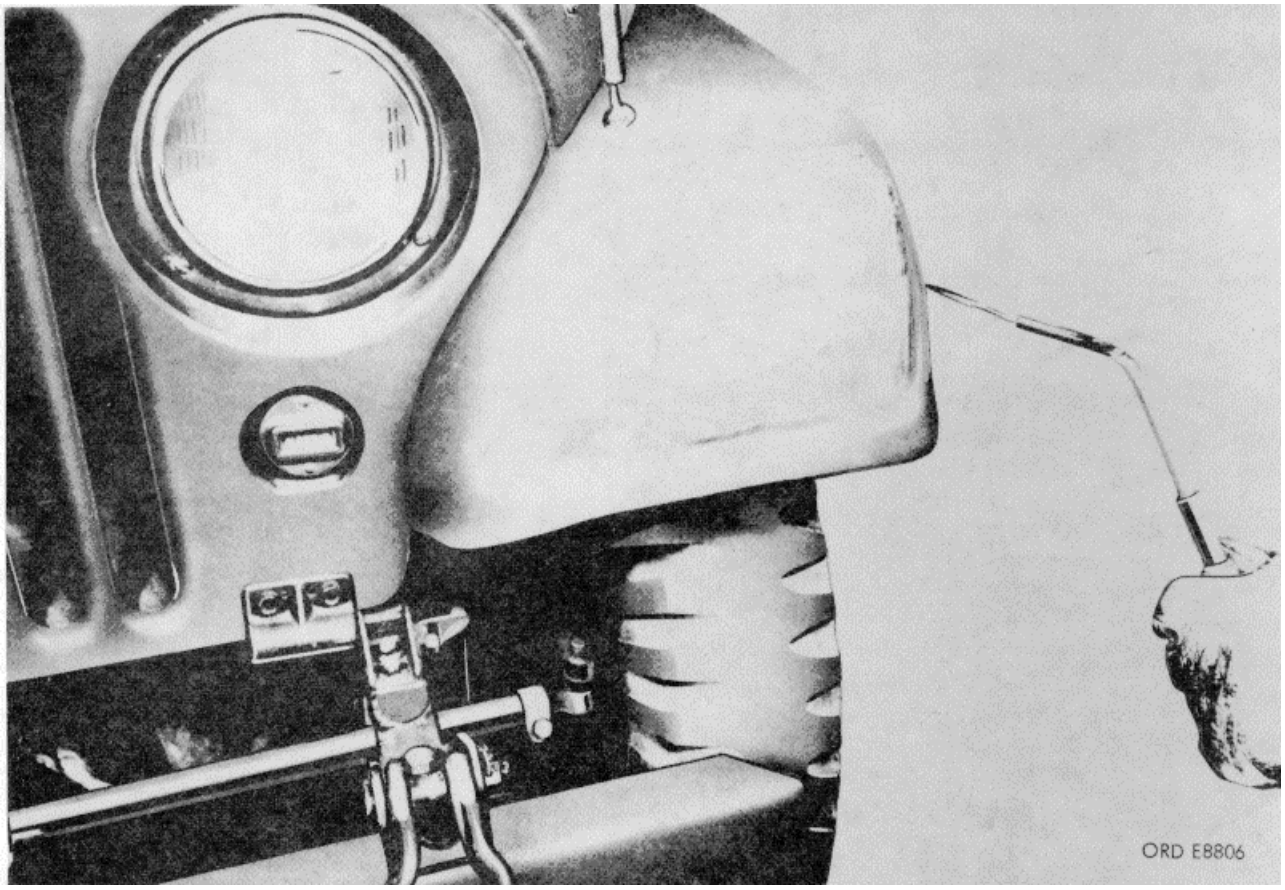

Figure 9. Propane torch curing Epoxy plastic.

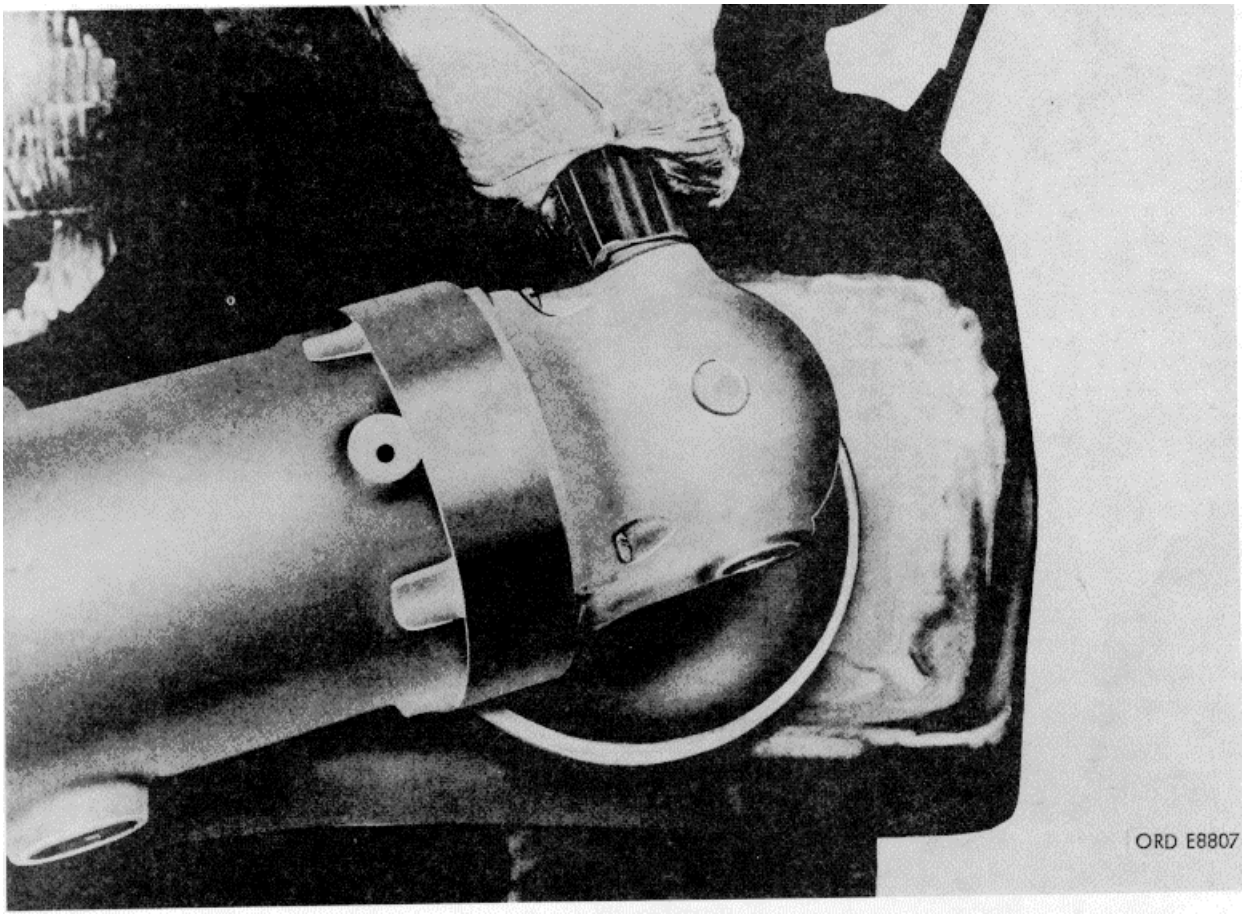

Figure 10. Disc grinder cough finishing repair area.

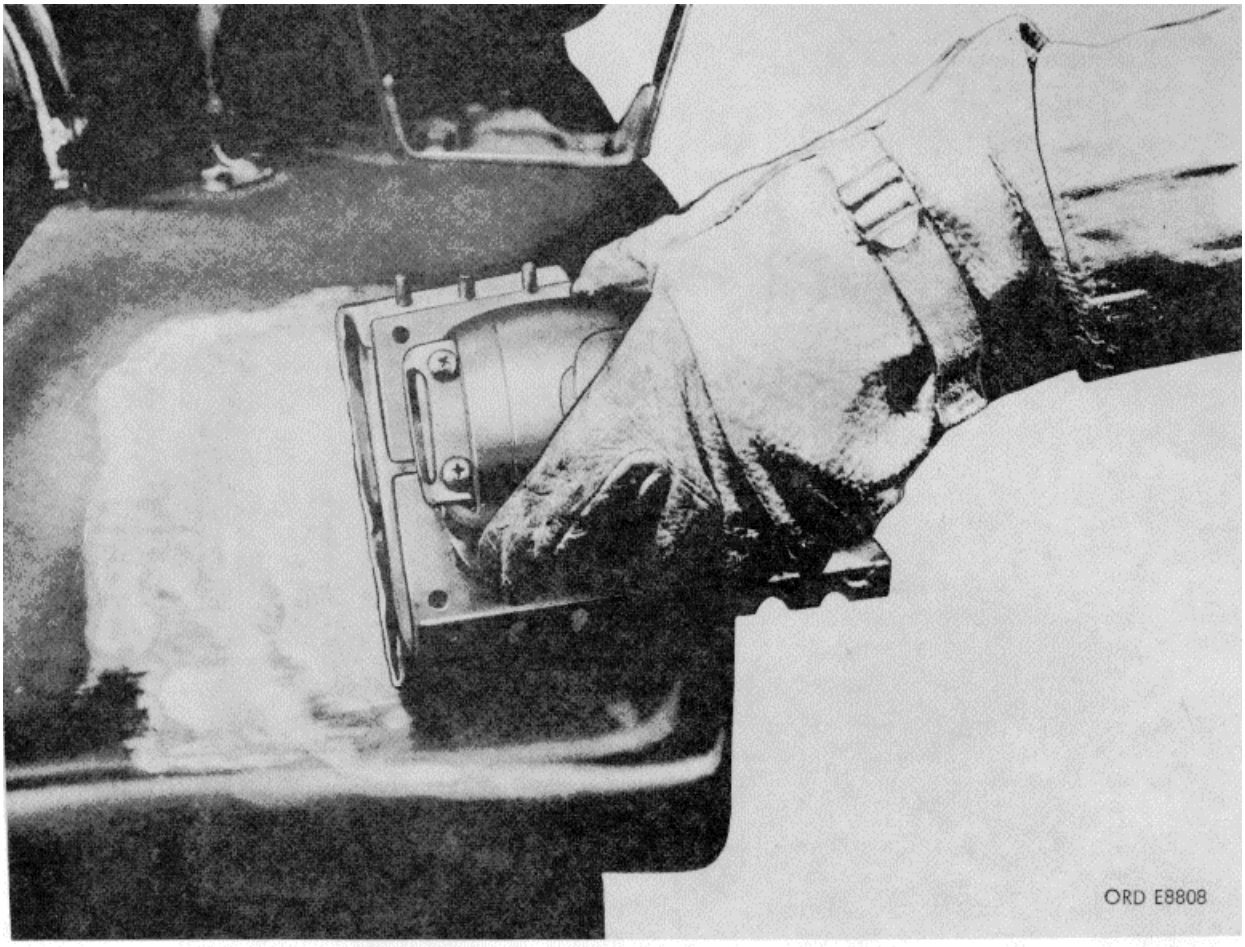

Figure 11. Final sanding with vibrator sander.

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Radford (1) Ravenna (1)
Pantex (none)
Mil MSN (1)
Cen (2)
Units org under fol. TOE:
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9-76
9-127
9-137
9-167
9-197
9-357
9-500 CA,CB
29-55

NG: State AG (3); units - same as active Army except allowance is one copy to each unit.
USAR: Same as active Army except allowance is one copy to each unit except Cen none.
For explanation of abbreviations used, see AR 320-50.

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