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 M A N U A L

ORGANIZATIONAL MAINTENANCE MANUAL

SNOW REMOVAL UNIT, SELF-PROPELLED:

GASOLINE DRIVEN; ROTARY; WHEEL

MTD; WINTERIZED (FWD MODEL S-349-V)

SERIAL NUMBERS G30681 THROUGH G30690

AND G30750 THROUGH G30759

FSN 3825-810-7074

H E A D Q U A R T E R S , D E P A R T M E N T O F T H E A R M Y

2 4 J A N U A R Y 1 9 6 2

SAFETY PRECAUTIONS

Before Operation

Before starting the engines or operating any of the snow removal unit components, see that no loose bars, tools, or parts are lying in or on any part of the equipment, as they could cause serious damage to the equipment or bodily injury to personnel.

Never fill the fuel tank while the engines are running. Be sure there are no open flames which may ignite the fuel vapor while filling the tank. Always provide a metal-to-metal contact between the fuel container and fuel tank to avoid igniting the fuel vapors with static spark. The snowplow assembly must be lowered to ground, to ground the unit.

Keep walkway and decks free of grease, oil, ice, and mud to prevent slipping and falling.

Exercise care when servicing batteries to prevent electrolyte from splashing on skin or clothing. If electrolyte is spilled on skin or clothing wash the contaminated skin area and change clothing.

Make certain that all personnel are clear of the snow removal unit before starting plowing operation as serious injury or death could result.

When connecting battery cables to batteries be sure that all electrical switches are in the OFF position. Damage to wiring, lamps, and voltage regulator can be caused by flash current through the electrical system.

During Operation

Keep clear of moving machinery at all times to prevent bodily injury.

Stop all operation when cleaning, adjusting, or lubricating the components of the snow removal unit.

Use extreme care in removing the radiator cap from an overheated engine.

Never fill the fuel tank while the engines are running.

Ether is highly explosive and toxic. Handle ether capsules with extreme caution to prevent rupture until installed in capsule chamber to avoid explosion, fire, and personal injury.

After Operation

Stop the unit engines when cleaning, adjusting, or lubricating the components of the snow removal unit.

Never fill the fuel tank while the engine is running. Be sure there are no open flames which may ignite the fuel vapor while filling the fuel tank. Always provide a metal-to-metal contact between the fuel container and fuel tank to avoid igniting the fuel vapor with static spark. Be sure the plow assembly is touching the ground, to ground the snow removal unit.

Keep walkway and decks clear of grease, oil, ice, and mud to prevent slipping and falling. Use handrails.

Use extreme caution in removing radiator cap from an overheated engine.

CHANGE

NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., *14 July 1991*

ORGANIZATIONAL MAINTENANCE MANUAL

**SNOW REMOVAL UNIT, SELF-PROPELLED:
GASOLINE DRIVEN; ROTARY; WHEEL
MTD; WINTERIZED (FWD MODEL S-349-V)**

**SERIAL NUMBERS G30681 THROUGH G30690
AND G30750 THROUGH G30759
NSN 3825-00-810-7074**

TM 5-3825-213-20, 24 January 1962, is changed as follows:

Cover. The cover of the manual is changed to read as shown above.

Add the following WARNING to the *inside front cover* of the manual; preceding Item 8 of *Figure 8.1, page 3* of Change 1 to the manual; preceding Item 13 of *Figure 8.1*, *page 4* of Change 1 to the manual; and preceding paragraph 263*j, page 250*:

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:
PATRICIA P. HICKERSON
Colonel, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-25-E (Block No. 1637) Unit maintenance requirements for TM5-3825-213-20.

TECHNICAL MANUAL

Organizational Maintenance Manual

SNOW REMOVAL UNIT, SELF-PROPELLED: GASOLINE DRIVEN: ROTARY; WHEEL

MTD; WINTERIZED (FWD MODEL S-349-V) SERIAL NUMBERS G30681 THROUGH

G30690 AND G30750 THROUGH G30759 FSN 3825-810-7074

TM 5-3825-213-20
}
CHANGES No. 1

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *25 April 1963*

TM 5-3825-213-20, 24 January 1962, is changed as follows:

Page 3, paragraph 1*d*. Lines 4 and 5. Delete Engineer Maintenance Center, Corps of Engineers, and substitute Mobility Support Center, ATTN: SMOMS-MS, .

e. (Superseded) Report all equipment improvement recommendations as prescribed by TM 38-750.

Paragraph 2. After heading insert as follows:

DA Form 2258 Depreservation Guide of Engineer Equipment

Line 2. Delete 5-505 and substitute 38-750.

Page 16, paragraph 8b(1). Line 1. Delete before-operation and substitute daily preventive maintenance.

Page 21.

19. General

(Superseded)

To insure that the snow removal unit is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary Preventive Maintenance Services to be performed are listed and described in paragraph 20. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit shall be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded, together with the corrective action taken, on DA Form 2404 at the earliest possible opportunity.

20. Quarterly Preventive Maintenance Services

(Superseded)

a. This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by Organizational Maintenance personnel at quarterly intervals. A quarterly interval is equal to 3 calendar months or 250 hours of operation, whichever occurs first.

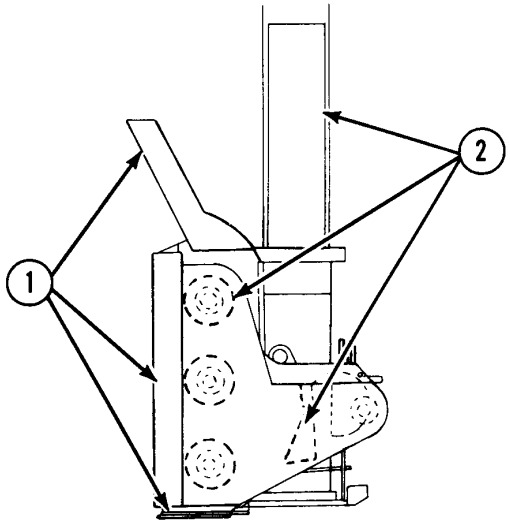
b. The item numbers are listed consecutively and indicate the sequence of minimum requirements. Refer to figure 8.1 for the Quarterly Preventive Maintenance Services.

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

TM 5-3825-213-20 SNOW REMOVAL UNIT

FWD MODEL S-349-V

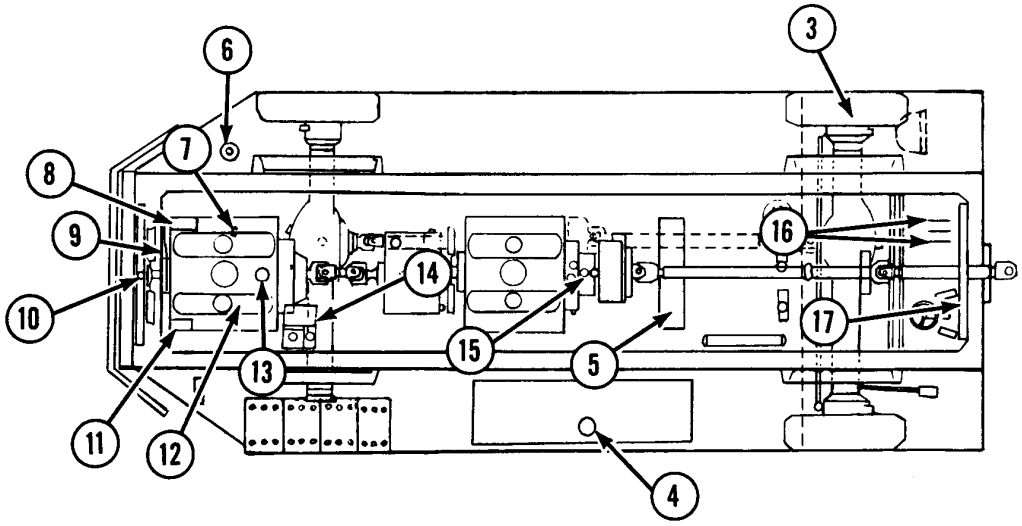


PLOW

LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR. REF
1	CUTTERS, CUTTING EDGES, AND PLOW SKATES. Inspect for breaks, improper alinement, excessive wear, and missing hardware. Tighten loose mounting hardware.	
2	AUGERS, CHUTE, AND FAN BLOWER. Inspect for breaks, improper alinement, excessive wear, and missing hardware. Tighten loose mounting hardware.	

Figure 8.1. (Added) Quarterly preventive maintenance services.



CARRIER

LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR. REF
3	TIRES. Inspect for excessive wear, breaks, cuts, and correct air pressure. Correct pressure is 90 psi.	
4	FUEL SYSTEM. Inspect for leaks and missing hardware. Tighten loose mounting hardware. Clean dirty filters, screens, and strainers. Check fuel level. Fuel pump pressure 2 to 5 psi at carburetor inlet.	
5	WINTERIZATION SYSTEM. Inspect for leaks and missing hardware. Tighten loose mounting hardware. Inspect for proper operation.	
6	FIRE EXTINGUISHER. Check for broken seal. Inspect for full charge. Tighten loose mounting hardware.	
7	LUBRICATION SYSTEM. Check engine oil level. Add oil to correct level. Correct lubricant leaks. Lubricate in accordance with current LO.	
8	AIR SYSTEM. Inspect for leaks. Tighten loose mounting hardware. Clean dirty breather. Service brake adjustment (1000 hours).	
9	BELTS. Inspect for fraying, improper alinement, wear, and out of adjustment. Depress 1/2 inch midway between pulleys for proper tension.	

Figure 8.1-Continued.

ITEM		PAR. REF
10	COOLING SYSTEM. Check coolant level, fill to 2 inches below filler neck. Check for correct. antifreeze solution. Clean radiator air passage and check shutters for proper operation. Correct coolant leaks.	
11	ELECTRICAL SYSTEM. Check the distributor point clearance (0.020-0.022 inch) and spark plug point clearance (0.025 to 0.028) (500 hours). Check the generator brushes (1000 hours). Check the starter for proper operation. Check battery electrolyte level and specific gravity. Fill to 3/8 inch above plates, in freezing weather run the engine one hour after adding water. Check for alinement and proper operation of lights. Tighten all loose connections, replace defective wiring.	
12	VALVE ADJUSTMENT AND COMPRESSION TEST. Check and adjust tappet clearances, intake - 0.015 inch, exhaust - 0.020 inch. (cold) Compression pressure 125 psi at 150 rpm. (1000 hours)	
13	AIR CLEANER. Inspect for leaks and missing hardware. Tighten loose hardware. Clean a dirty air cleaner.	
14	HYDRAULIC SYSTEM. Inspect for leaks and missing hardware. Tighten loose hardware. Check fluid levels. Fill to 3 inches from top of reservoir. (Plow lowered, chute retracted). Reference current LO.	
15	CLUTCH (PLOW ENGINE). Check for proper operation. Inspect for excessive wear and proper adjustment. (1000 hours)	
16	LEVERS AND CONTROLS. Inspect for out of adjustment and missing hardware. Tighten loose hardware. Check for proper operation.	
17	INSTRUMENTS. Tighten loose mounting hardware and cable connections. Inspect for breaks and missing hardware. With the units operating inspect for proper operation. Normal operating readings are as follows: CARRIER ENGINE: Air pressure - 85 to 103 psi, Coolant temperature - 180° to 200°F, Tachometer - 2, 600 rpm, Oil pressure - 40 to 60 psi, Battery generator indicator - in charge area, "IN" transmission oil pressure - 60 to 120 psi, at a maximum "OUT" temperature of 250°F. PLOW ENGINE: Coolant temperature - 180° to 200°F, Oil pressure - 40 to 60 psi, Tachometer - 2, 600 rpm, Manifold vacuum - 3 to 6 inches at FULL throttle position.	

Figure 8.1-Continued.

ITEM		PAR. REF
	NOTE 1. PLOW ENGINE. Items 7, 9, 10, 12, and 13 are checked in a similar manner.	
	NOTE 2. OPERATIONAL TEST. During operation check for unusual noise or vibration and proper operation.	

MSC 3825-213-20/8.1

Figure 8.1-Continued.

Page 249, paragraph 263b. Lines 4 through 6. Delete 464, Work Sheet for Preventive Maintenance and Technical Inspection of Engineer Equipment, and substitute 2404, Equipment Inspection and Maintenance Worksheet, as outlined in paragraphs 19 and 20, .

Page 251.

266. Inspection and Maintenance of Equipment in Storage

(Superseded)

a. Inspection. When equipment has been placed in storage, all scheduled preventive maintenance services, including inspection, shall be suspended and preventive maintenance inspection shall be performed as specified herein. Refer to AR 743-505.

b. Worksheet and Preventive Maintenance. DA Form 2258 (Depreservation Guide of Engineer Equipment) and applicable forms listed in TM 38-750 shall be prepared for each major item of equipment when initially placed in limited storage and every 90 days thereafter. Perform required maintenance promptly to make sure equipment is mechanically sound and ready for immediate use.

c. Exercising. Service equipment in limited storage every 90 days in accordance with paragraph 20. Operate equipment long enough to bring it up to operating temperature and insure complete lubrication of all bearings, gears, and the like. Represerve equipment after operation.

Page 253, paragraph 6. Delete AR 700-38 Unsatisfactory Equipment Report and AR 7505 Maintenance Responsibilities and Shop Operation. Add TM 38-750 The Army Equipment Records System and Procedures.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:
Active Army:

USASA (2)
DCSLOG (1)
CNGB (1)
TSG (1)
CofEngrs (3)
CSigO (1)
CofT (1)
USA Maint Bd (1)
USAARTYBD (2)
USAARMBD (2)
USAIB (2)
USARADBD (2)
USA Abn Elct & SPWAR Bd (2)
USAAVNBD (2)
USCO NARC (3)
USAMC (5)
OS Maj Comd (5) except
USARJ (10)
MDW (1)
Armies (2)
Corps (2)
USA Corps (1)
Div (2)
Engr Bde (1)
USMA (2)
Svc Colleges (2)
Br Svc Sch (2) except
USAES (100)
GENDEP (OS) (10)
Engr Dep (OS) (10)
Army Dep (2)
USA Trans Tml Comd (2)
Army Tml (1)
USAOSA (2)
Engr Dist (2)
Div Engr (2)
Engr Fld Maint Shops (2)
USAERDL (3)
Engr Cen (5)
AMS (3)
Chicago Engr Proc Ofe (10)
USA Mbl Spt Cen (36)
ESCO (10)
Fld Cord, DASA (8)
USACOMZEUR (2)
USAREUR Engr Sup Con Agcy (10)
USAREUR Engr Proc Cen (2)
MAAG (1)
JBUSMC (1)
Units org under fol TOE:
5-48 (2)
5-237 (5)
5-262 (5)
5-267 (1)
5-278 (5)
5-279 (2)
5-500 (EA, EB) (2)

NG: State AG (3).

USAR: Units-same as Active Army except allowance is one copy to each unit.

For explanation of abbreviations used see AR 320-50.

☆U. S. GOVERNMENT PRINTING OFFICE, 1963-650511

TECHNICAL MANUAL
No. 5-3825-213-20

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *24 January 1962*

Organizational Maintenance Manual

SNOW REMOVAL UNIT, SELF-PROPELLED: GASOLINE DRIVEN: ROTARY; WHEEL MTD; WINTERIZED (FWD MODEL S-349-V)

SERIAL NUMBERS G30681 THROUGH G30690 AND G30750

THROUGH G30759 FSN 3825-810-7074

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual is published for the use of the personnel to whom the FWD Model S-349-V Snow Removal Unit is issued. It contains information on organizational maintenance of the equipment, its accessories, and auxiliaries, and also includes instructions for shipment and limited storage.

b. Appendix I contains a list of publications applicable to this manual. Appendix II contains the maintenance allocation chart. The organizational maintenance repair parts and special tool lists are contained in TM 5-3825-213-20P.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. Report all deficiencies in this manual on DA Form 2028. Submit recommendations for changes, additions, or deletions to the Commanding Officer, U.S. Army Engineer Maintenance Center, Corps of Engineers, P.O. Box 119, Columbus 16, Ohio. Direct communication is authorized.

e. Report unsatisfactory equipment performance and suggestions for equipment improvement as specified in AR 700-38.

2. Record and Report Forms

For record and report forms applicable to organizational maintenance, refer to TM 5-505.

Note. **Applicable forms, excluding standard Form 46 which is carried by the operator, shall be kept in a canvas bag mounted on the equipment.**

Section II. DESCRIPTION AND DATA

3. Description

TM 5-3825-213-10 provides a general description of the snow removal unit; specific and detailed descriptions of the components of the snow removal unit are provided in the applicable maintenance paragraphs of this manual.

4. Identification and Tabulated Data

a. Identification. Descriptions and locations of major identification plates on the snow removal unit are listed in TM 5-3825-213-10. Thirty-two components of the unit carry identification and descriptive data in either plate or decal form.

(1) *Starter motor plate.* Located on the starter housing and shows the make, model, serial number, and voltage.

(2) *Alternator plate.* The alternator plate is located on the alternator housing and shows the make, model, serial number, type, and voltage.

(3) *Rectifier plate.* The rectifier plate is located on the rectifier housing and shows the make, type, voltage, and amperage.

(4) *Fuel pump.* The fuel pump data decal is located on the fuel pump housing shows the name of the manufacturer and type of pump.

(5) *Air cleaner plate.* The air cleaner plate is located on the air cleaner housing and shows the make, type, and serial number.

(6) *Governor.* The governor data is stamped on the housing and shows name of the manufacturer, model, and serial number.

(7) *Carburetor plate.* The carburetor data plate is located on the top cover of the

component and shows the model and serial number.

(8) *Alternator regulator plate*. The alternator regulator plate is located on the base of the regulator and shows the name of the manufacturer, model, voltage, and amperage.

(9) *Fuel filter (engine).* The fuel filter data decal, located on the filter case shows manufacturer's name and model number.

(10) *Distributor plate.* The distributor plate is located on the distributor housing and shows the name of manufacturer, model, and voltage rating.

(11) *Hydraulic pump*. The hydraulic pump data is located on the end cover, stamped into the casting, number of manufacturer, model, and serial number are specified.

(12) *Windshield wiper motor*. The windshield wiper motor data is stamped in the wiper housing and shows name of manufacturer and model number.

(13) *Personnel heater*. The personnel heater data is located on the heater body, in a decal form, shows the manufacturer's name, model number, and voltage rating.

(14) *Engine heater*. The engine heater is located on the control panel cover in a decal form, and shows the model number and voltage rating.

(15) *Oil filters*. The oil filter data decal is located on the oil filter body and shows the name of manufacturer, model, case number, and type.

(16) *Transmission heat exchanger plate.* The transmission heat exchanger plate is located on the heat exchanger body and shows the name of the manufacturer, serial number, part number and operating pressure.

(17) *Hydraulic line filter plate.* The hydraulic filter plate is located on the filter body and shows the name of manufacturer, model, and serial number.

(18) *Battery box temperature control plate.* The battery box temperature control plate on the temperature control housing shows the name of manufacturer, model, and serial number.

(19) *Torqmatic transmission plate.* The torqmatic transmission plate is located on the transmission housing and shows the manufacturer's name, model, and the serial and part numbers.

(20) *Torque converter plate.* The torque converter plate located on the converter housing shows the manufacturer's name, model, and the serial and part numbers.

(21) *Heater water pump plate.* The heater water pump plate on the pump housing shows the name of the manufacturer, model, and serial number.

(22) *Solenoid switch plate*. The solenoid switch plate, located on the solenoid housing shows the name of the manufacturer, model, and voltage.

(23) *Magnetic switch plate*. The magnetic switch plate is located on the switch housing and shows the name of the manufacturer and the model.

(24) *Steering cylinder plate*. The steering cylinder plate is located on the cylinder housing and shows the manufacturer's name, model, and serial number.

(25) *Steering valve plate*. The steering valve plate is located on the housing and shows the manufacturer's name, model, and serial number.

(26) *Defroster fan motor plate*. The defroster fan motor plate is located on the motor housing and shows the name of the manufacturer, serial number, revolutions per minute, horsepower, voltage, amperage, and winding of the motor.

(27) *Power cluster*. The power cluster data is stamped on the body of the power cluster and shows the name of the manufacturer and the model number.

(28) *Air compressor plate*. The air compressor plate is located on the air compressor housing and shows the manufacturer's name, type, and the serial and part numbers.

(29) *Transmission oil filter.* The transmission oil filter data decal is located on the body of the filter and shows the name of the manufacturer and type of filter.

(30) *Beacon warning light plate.* The beacon warning light plate is located on the base of the light and shows the name of manufacturer, serial number, model, and voltage.

(31) *Oil cooler plate.* The oil cooler plate is located on the oil cooler and shows the name of the manufacturer, model, and serial numbers, test, and working pressure.

b. Tabulated Data. The plow and carrier engines have identical components except for the accessories operated by the carrier engine. The accessories consist of an alternator, alternator regulator, rectifier, air compressor, plow and steering hydraulic pumps.

(1) *Engine.*

Manufacturer ---------- Waukesha Motor Company
Model ---------- TH 884
Number of cylinders -------- 8
Bore ---------- 5-3/8 in. (inch) (es)
Stroke ---------- 4-7/8 in.
Piston displacement -------- 884 cu in. (cubic inch) (es)
Compression ratio ---------- 7.6:.1
Governed speed:
No load ---------- 2,850 rpm (revolutions per minute)
Full load ---------- 2,600 rpm
Low idle ---------- 500 rpm
Maximum torque at --------- 780 ft-lb (foot-pound) (s) 1, 800 rpm.
Maximum horsepower ----- 330 at 2, 600 rpm.
Firing order ---------- 1-8-7-3-6-5-4-2

(2) *Starter motor.*

Manufacturer ---------- Delco-Remy Division of General Motors Corp.
Model ---------- 1113891
Drive ---------- Bendix
Volts ---------- 24

(3) *Alternator.*

Manufacturer ---------- Leece-Neville Company
Type ---------- 5300 GP
Ordnance number ---------- 7954720
Volts ---------- 28
Rotation ---------- Reversible

(4) *Alternator regulator.*

Manufacturer ---------- Leece-Neville Company
Model ---------- R001392-RP
Volts ---------- 28
Amperes ---------- 100

(5) *Batteries.*

Number ---------- 4
Cells ---------- 6
Voltage per battery --------- 12

(6) *Oil filters.*

Manufacturer ---------- Fram Corp.
Model ---------- F13-PL
Case number ---------- 5214
Type ---------- Replaceable element

(7) *Transmission oil cooler.*

Manufacturer ---------- Young Radiator Company
Part number ---------- F602EY
Operating pressure:
Shell side ---------- 125 psi (pounds per square inch)
Tube side ---------- 125 psi

(8) *Carburetor.*

Manufacturer ---------- Zenith Carburetor Division of Bendix Corp.
Model ---------- 12168A

(9) *Fuel pump.*

Manufacturer ---------- Bendix Aviation Company
Type ---------- Electric

(10) *Air cleaner.*

Manufacturer ---------- Donaldson Company
Model ---------- P15785
Type ---------- Dry-replaceable element

(11) *Engine speed governor.*

Manufacturer ---------- Zenith Carburetor Division of Bendix Corp.
Model ---------- B732-2
Type of mounting ---------- Flange
Type ---------- Combination mechanical and vacuum
Ratio to engine speed ----- 1/2

(12) *Fuel filter engine.*

Manufacturer ---------- Fram Corp.
Model ---------- FBM 1110 PLMIL
Type ---------- Replaceable element

(13) *Distributor.*

Manufacturer ---------- Delco-Remy Division of General Motors Corp.
Model ---------- 1111643
Volts ---------- 24

(14) *Spark plugs.*

Manufacturer ---------- Champion Spark Plug Company
Quantity ---------- 8 (per unit)
Model ---------- ORD-1A, Gasket N-672
Size and thread ---------- 14 mm (millimeter)
Gap ---------- 0.025 to 0.028 in.

(15) *Snowplow assembly.*
Manufacturer---------- Klauer Manufacturing Company
Model ---------- TU3
(16) *Tires and tubes.*
Manufacturer---------- Goodyear Tire and Rubber Company
Size ---------- 14:00 x 24
Rating---------- 20 ply
(17) *Hydraulic pump.*
Manufacturer---------- Vickers Pump Company
Model ---------- V210 11W 1CH6
(18) Hydraulic strainer and filter.
Manufacturer---------- Vickers Pump Company
Type---------- Replaceable element
(19) *Engine heater.*
Manufacturer---------- Perfection Industries, Inc.
Model ---------- MH60D1
Volts---------- 24
(20) *Personnel heater.*
Manufacturer---------- Perfection Industries, Inc.
Model ---------- M H60B2
Volts---------- 24
(21) *Windshield wiper motor.*
Manufacturer---------- Challenger Company
Model ---------- M1004
Type---------- Air
(22) *Hydraulic line filter.*
Manufacturer ---------- The Rosaen Company
Model ---------- 5-S-74
(23) *Battery box temperature control.*
Manufacturer---------- Perfection Industries, Inc.
Model ---------- EA-10-48
Calibration:
Open---------- 30° F. (degrees Fahrenheit)
Close ---------- 100° F.
(24) *Torqmatic Transmission.*
Manufacturer---------- Allison Division of General Motors Corp.
Model ---------- TG602
Part number---------- 6771725
(25) *Torque converter.*
Manufacturer---------- Allison Division of General Motors Corp.
Model ---------- TC544
Part number---------- 6771979
(26) *Heater water pumps.*
Manufacturer---------- Robbins and Myers, Inc.
Model ---------- CM201
(27) *Solenoid switch.*
Manufacturer ---------- Delco-Remy Division of General Motors Corp.
Model ---------- 1119843
Volts---------- 24
(28) *Magnetic switch.*
Manufacturer ---------- Delco-Remy Division of General Motors Corp.
Model ---------- 1119756
(29) *Steering cylinders.*
Manufacturer ---------- Vickers, Inc.
Model ---------- SC22 12818W10003
(30) *Steering valve.*
Manufacturer ---------- Vickers, Inc.
Model ---------- SV2 OB-2AAW1-10003
(31) *Defroster fan motor.*
Manufacturer ---------- Robbins and Myers, Inc.
RPM---------- 3, 150
HP (horsepower) ---------- 1/40
Volts---------- 24
Form ---------- BVM
Amperage---------- 1.7
Winding---------- Series
(32) *Power cluster*.
Manufacturer ---------- Wagner Lockhead Corp.
Model ---------- AE 836
(33) *Air compressor.*
Manufacturer ---------- Wagner Electric Corp.
Type---------- CRE12WB
Part number ---------- AF34004
(34) *Transmission oil filter.*
Manufacturer ---------- AC Division of General Motors Corp.
Type---------- PMD-B
Element---------- Replaceable
(35) *Beacon warning light.*
Manufacturer ---------- Federal Sign and Signal Corp.
Model ---------- 17
Volts---------- 24 de (direct current)
(36) *Rectifier.*
Manufacturer ---------- Leece-Neville Company
Type---------- C011029CP
Amperes---------- 100
Volts---------- 28
(37) *Oil cooler.*
Manufacturer ---------- Derfex Corp.
Model ---------- B-315-121
Test pressure:
Shell---------- 375 psi
Tube ---------- 225 psi

Working pressure:
Shell ----------250 psi
Tube ----------150 psi

(38) *Adjustments.*

Spark plugs:
Point gap ----------0.025-0.028 in.
Tappet clearances, cold:
Intake----------0.015 in.
Exhaust ----------0.020 in.
Distributor:
Side play----------0.005 in. max.(maximum)
End play ----------0.003-0.010 in.
Contact gap----------0.020-0.022 in.
Front and rear wheel fittings:
Caster ----------1-1/2° positive
Camber ----------2° positive
Toe-in ----------0 to 1/8 in.

Plow shoe:

Adjust plow shoe to equalize the weight of the plow assembly on the skate and shoe. Set shoe to allow approximately 1/4 in. of snow on working surface.

(39) *Nut and bolt torque data.*

Manifold studs ---------- 720 in. -lb (inch-pound) (s)
Spark plugs---------- 350 in. -lb

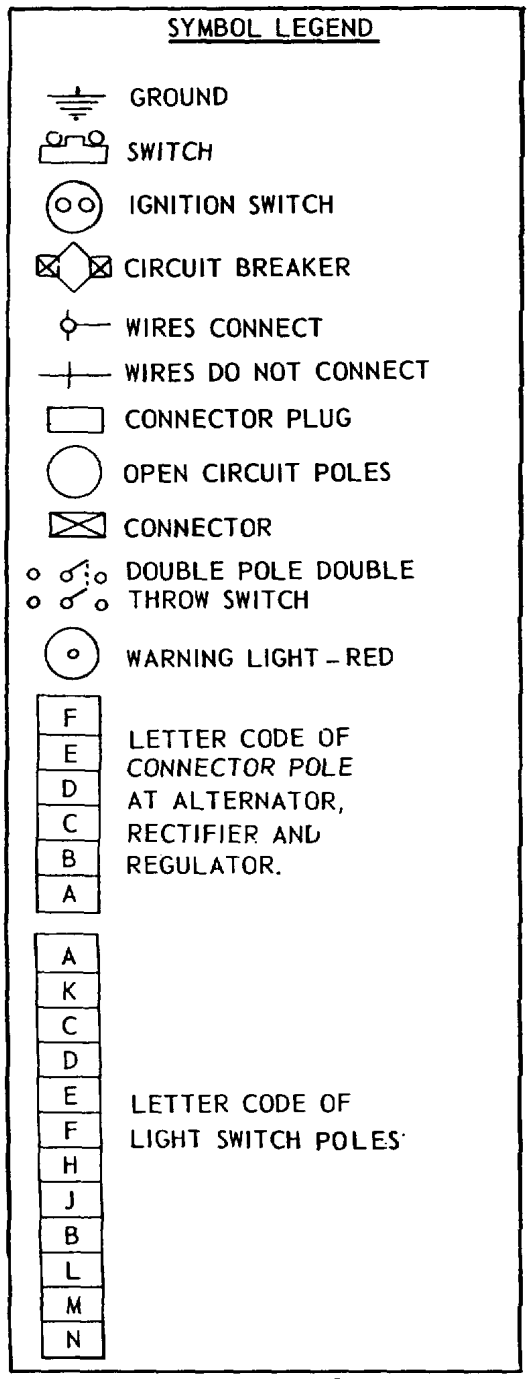
(40) *Carrier practical wiring diagram.* See figure 1.

Figure 1. Carrier practical wiring diagram.
(Located in back of manual)

(41) *Heater practical wiring diagram.* See figure 2.

5. Differences in Models

No known unit differences exist for the FWD Model S-349-V Snow Removal Unit covered in this manual.



DEVICE LEGEND

1 HARNESS-SERVICE RECEPTACLE
2 HARNESS-CIRCUIT BREAKER AUX. IGNITION SW.
3 HARNESS-CIRCUIT BREAKER
4 HARNESS-MICRO SW.
5 HARNESS-HEADLIGHT SW.
6 HARNESS-IGNITION SW. PLOW ENG.
7 HARNESS-IGNITION SW. CARRIER ENG.
8 HARNESS-CAB
9 HARNESS-RELAY
10 HARNESS-PANEL LIGHT
11 BATTERY CABLE
11B LEAD-IGNITION SWITCH TO CIRCUIT BREAKER
12 STARTER GROUND
13 STARTER GROUND
14 CABLE-STARTER SOLENOID PLOW ENG.
15 BATTERY GROUND-NEG.
16 CABLE-STARTER-SOLENOID CARRIER ENG.
17 BATTERY JUMPER CABLE-POSITIVE
18 HARNESS-DIRECTIONAL LIGHT RH
19 HARNESS-DIRECTIONAL LIGHT L H
20 HARNESS-WARNING BUZZER
21 HARNESS-REAR HOOD
22 HARNESS-CARRIER ENGINE
23 HARNESS-PLOW ENGINE
24 HARNESS-CHASSIS
25 FEED WIRE-AIR GAGE
26 FEED WIRE-BEACON LIGHT SW.
27 FEED WIRE-BEACON LIGHT
28 FEED WIRE-CIRCUIT BREAKER
30 FEED WIRE-CIRCUIT BREAKER
31 B.O. CLEARANCE LIGHTS-RED
32 B.O. CLEARANCE LIGHTS-AMBER
33 SERVICE CLEARANCE LIGHTS-AMBER
34 SERVICE CLEARANCE LIGHTS-RED
35 STOP, TAIL, & B.O. TAIL LIGHT
36 TURN SIGNAL KIT
37 REAR FLOOD LIGHTS
38 B.O. STOP LIGHT
39 WARNING LIGHT ASSY-GREEN
40 WARNING LIGHT ASSY-RED
41 WARNING LIGHT ASSY-AMBER
42 SERVICE HEAD LIGHT
43 FRONT MARKER LIGHT
44 B.O. HEADLIGHT
45 SPOTLIGHTS
46 ROTATING BEACON LIGHT-RED
47 DOME LIGHT
48 BATTERIES 6, TN
49 IGNITION UNIT
50 REGULATOR-100 AMP
51 ALTERNATOR-100 AMP
52 RECTIFIER-100 AMP
53 AIR HORN

CONTINUED ON FOLLOWING PAGE **EMC 3825-213-20/1(2)**

Figure 1-Continued.

CONTINUED FROM PRECEDING PAGE

54	CIRCUIT BREAKER-20 AMP
55	CIRCUIT BREAKER-15 AMP
56	FUEL PUMP
57	DEFROSTING MIRROR KIT
58	RHEOSTAT-PANEL LIGHTS
59	STOPLIGHT SW
60	LOW AIR PRESS. WARNING BUZZER
61	STARTING MOTORS
62	STARTER RELAY
66	SENDING UNIT TRANS. TEMP
67	TRANS. OIL TEMP. GAGE
68	SENDING UNIT-FUEL TANK
69	FUEL GAGE
70	SENDING UNIT-ENG. OIL PRESS
71	ENG. OIL PRESSURE GAGE
72	SENDING UNIT-WHEEL ANGLE IND.
73	WHEEL ANGLE INDICATOR
74	SENDING UNIT-TACHOMETER
75	TACHOMETER
76	SENDING UNIT-ENG. COOLANT TEMP.
77	ENGINE COOLANT TEMP. GAGE
78	SENDING UNIT-TRANS. OIL PRESS
79	TRANS. OIL PRESS. GAGE
82	AIR PRESSURE GAGE
83	BATTERY GENERATOR INDICATOR
84	HEADLIGHT SW.
85	DIMMER SW
86	IGNITION SW
87	TOGGLE SW.-S.P.S.T.
88	TOGGLE SW.-S.P.D.T.
89	MICRO SW.-S.P.S.T.
90	LOW PRESSURE SW.-ENG. OIL
91	HIGH TEMP. SW.-ENG. COOLANT
92	LOW PRESS. SW.-TRANS. OIL
93	HIGH TEMP. SW.-TRANS. OIL
94	LOW AIR PRESS. SW
95	HORN SW
96	CENTRIFUGAL SW.
97	SOLENOID VALVE
98	SLAVE RECEPTACLE
99	RECEPTACLE
100	RECEPTACLE
101	RECEPTACLE
105	STRAIGHT PLUG GROMMET NUT
107	PANEL LIGHT
111	CARRIER ENGINE WIRING HARNESS
111A	LEAD-IGNITION SWITCH TO CIRCUIT BREAKER
117	HARNESS-REGULATOR
118	HARNESS-RECTIFIER
119	HARNESS-ALTERNATOR
120	STOP LIGHT SW.
121	"Y" CONNECTOR
122	N.C. RELAY
123	PLUG
124	FEED WIRE-FUEL GAGE TO SELECTOR SW.
212	LEAD-IGNITION UNIT TO CARRIER ENGINE WIRING HARNESS
214	LEAD-STARTER BUTTON TO STARTER RELAY
228	LEAD-FUEL TANK SENDING UNIT TO FUEL TANK SWITCH AND GAGE
233	LEAD-COOLANT TEMPERATURE SENDING UNIT TO COOLANT TEMPERATURE GAGE
234	LEAD-LOW OIL PRESSURE SWITCH TO WARNING LIGHT
235	LEAD-HIGH TEMPERATURE SWITCH TO HIGH TEMPERATURE WARNING LIGHT
236	LEAD-OIL PRESSURE SENDING UNIT TO OIL PRESSURE GAGE
272	LEAD-TRANSMISSION LOW OIL PRESSURE SWITCH TO TRANSMISSION WARNING LIGHT
300	LEAD-LOW AIR PRESSURE SWITCH TO LOW AIR PRESSURE GAGE
321	LEAD-TRANSMISSION OIL PRESSURE SENDING UNIT TO TRANSMISSION OIL PRESSURE GAGE
324	LEAD-TRANSMISSION OIL TEMPERATURE SENDING UNIT TO TRANSMISSION OIL TEMPERATURE GAGE
325	LEAD-BEACON WARNING LIGHT SWITCH TO RELAY AND BEACON WARNING LIGHT
327	LEAD-TRANSMISSION OIL HIGH TEMPERA-TURE SWITCH TO TRANSMISSION OIL WAR-NING LIGHT
402	LEAD-PLOW ENGINE FUEL PUMP TO PLOW ENGINE IGNITION SWITCH
402A	LEAD-CARRIER ENGINE FUEL PUMP TO CARRIER ENGINE IGNITION SWITCH
427	LEAD-TACHOMETER SENDING UNIT TO TACHOMETER

CONTINUED ON FOLLOWING PAGE **EMC 3825-213-20/1(3)**

Figure 1-Continued.

CONTINUED FROM PRECEDING PAGE

428	LEAD-TACHOMETER SENDING UNIT TO TACHOMETER
429	LEAD-TACHOMETER SENDING UNIT TO TACHOMETER
438	LEAD-REARVIEW MIRROR TO CIRCUIT BREAKER
460	DIRECTIONAL LIGHT HARNESS
461	DIRECTIONAL LIGHT HARNESS
489	LEAD-LIGHT SWITCH TO CLEARANCE LIGHTS
490	LEAD-LIGHT SWITCH TO BLACKOUT CLEARANCE LIGHTS
491	LEAD-LIGHT SWITCH TO WARNING LIGHT
500-501	LEAD-IGNITION SWITCH TO ENGINE LOW OIL PRESSURE SWITCH
518	LEAD-SWITCH TO REAR FLOODLIGHTS
519	LEAD-REARVIEW MIRROR DEFROSTER SWITCH
520	HEATER CONTROL SWITCH TERMINAL BOARD
521	HEATER CONTROLS
762-765	LEAD-IGNITION SWITCH TO AIR SOLENOID VALVE AND CENTRIFUGAL SWITCH
764	LEAD-SENDING UNIT TO REAR WHEEL ANGLE INDICATOR

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Figure 1-Continued.

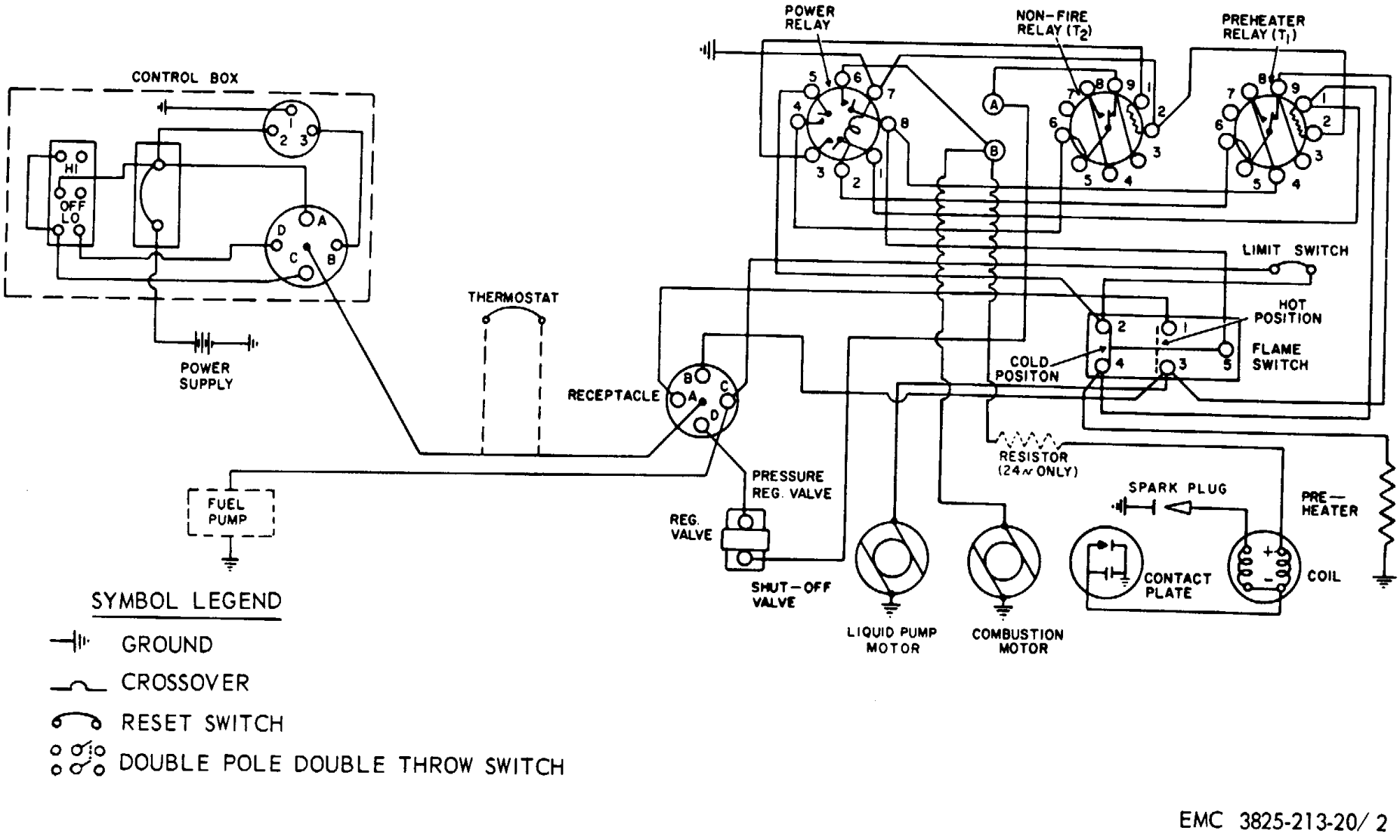


Figure 2. Heater practical wiring diagram.

CHAPTER 2
INSTALLATION AND OPERATION INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. Unloading Snow Removal Unit

a. *Blocking and Tiedown Removal*. Remove the blocking and tiedown straps as illustrated in figure 3.

Caution: **Before removing blocking and tiedown straps be sure the handbake is engaged.**

b. *Ramp Unloading.*

(1) Block flatcar wheels.

(2) Remove blocking and tiedown straps as illustrated in figure 3.

(3) Construct a suitable unloading ramp as illustrated in figure 4.

(4) Tow the snowplow from the flatcar.

c. *Lifting Snow Removal Unit*. Lift the snow removal unit from the flatcar as illustrated in figure 3.

Warning: **Use a lifting device with a capacity of no less than 60,000 pounds to lift snow removal unit from the flatcar. Do not allow the unit to swing back and forth when it is suspended in the air. Failure to observe this warning can result in damage to the snow removal unit and severe injury to personnel.**

7. Unpacking Equipment

a. *General.* The snow removal unit is shipped in three components; carrier, plow, and chute. The batteries, electrolyte, cutter bars, and three hydraulic lines are packed separately. The hydraulic lines are attached to the plow assembly.

b. *Removal of Protective Material and Devices.* For shipment of the snow removal unit, paper is taped over the windows, headlights, and radiators. The doors, hood, and toolbox are banded. Protective tape is on all breathers, hydraulic line openings, carburetors, and exhaust openings. Remove all protective tape, paper, and bands before removing snow removal unit from flatcar.

c. *Depreservation*. Prepare item for inspection and operation as outlined on DA Form 2258, attached on or near the operational controls.

d. *Electrolyte*. Remove the electrolyte containers from the crates.

***Warning*:** **Be sure containers are not damaged when removing crate top, or dropped during removal from crate. Electrolyte contains sulphuric acid which causes severe skin burns.**

e. *Batteries*. Remove the batteries from the crate.

Caution: **Use care in handling batteries and do not drop. The hard rubber case is easily cracked or broken.**

f. *Snow Chute Hydraulic Lines.* Remove banding and snow chute hydraulic lines from the plow assembly and install the lines on the hydraulic quick disconnect panel (par. 9).

g. *Cutter Bars*. Remove cutter bars from the toolbox and install on the plow assembly (TM 5-3825-213-10).

8. Inspection and Servicing Equipment

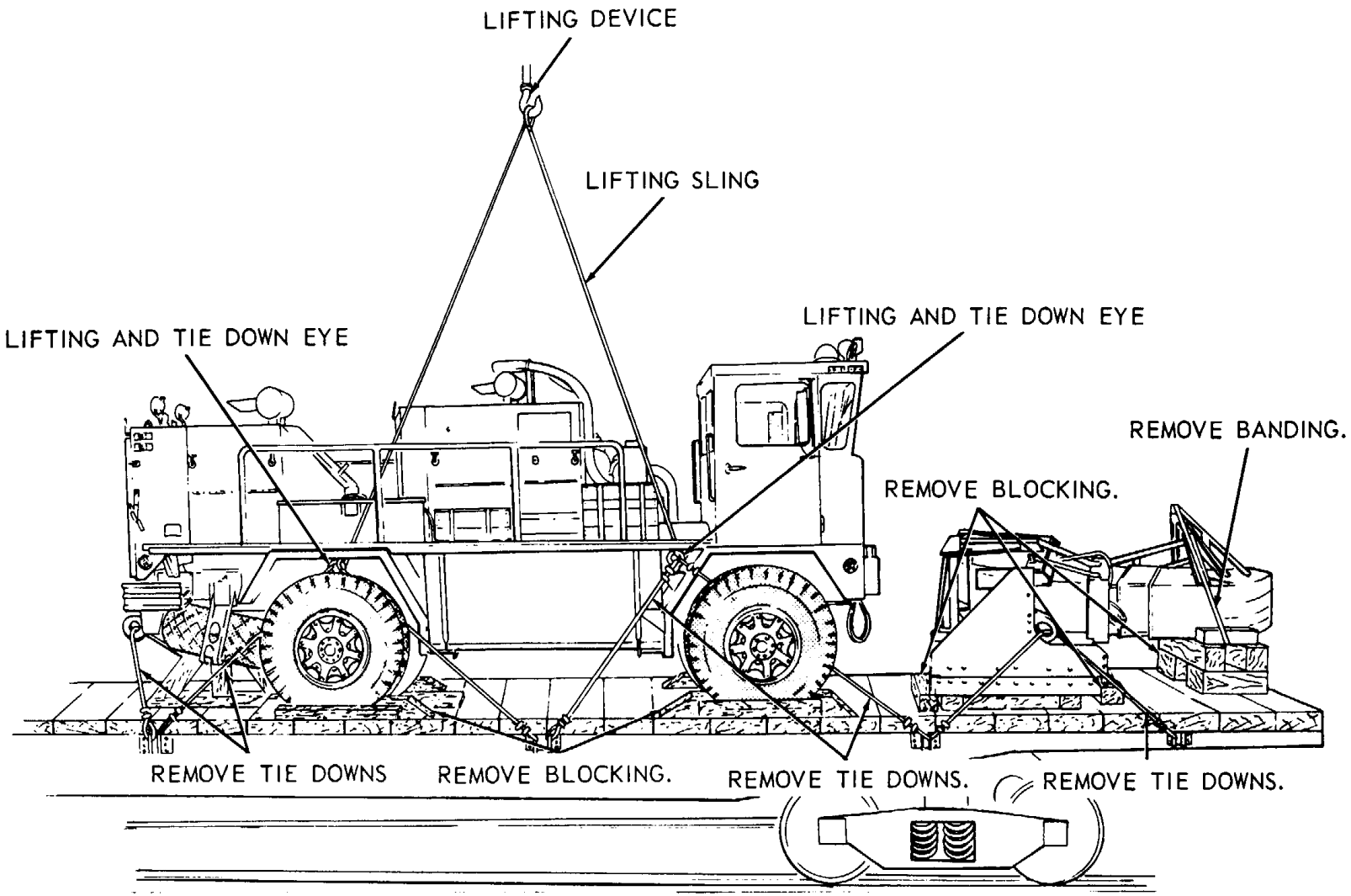
a. *Visual Inspection.*

(1) Make a complete visual inspection of the snowplow assembly for any damage or loss of parts which may have occurred during shipment.

(2) Inspect the engine assemblies and all accessories for damage or loss of parts.

(3) Inspect the carrier for damaged cab, doors, windows and lights.

(4) Inspect the tires for cuts, breaks, or low pressure.



NOTE:
PLACE BLOCKING ON PLOW RIGHT SIDE ONLY TO PREVENT DAMAGE TO AUGERS.

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Figure 3. Blocking and tiedown removal and lifting snow removal unit.

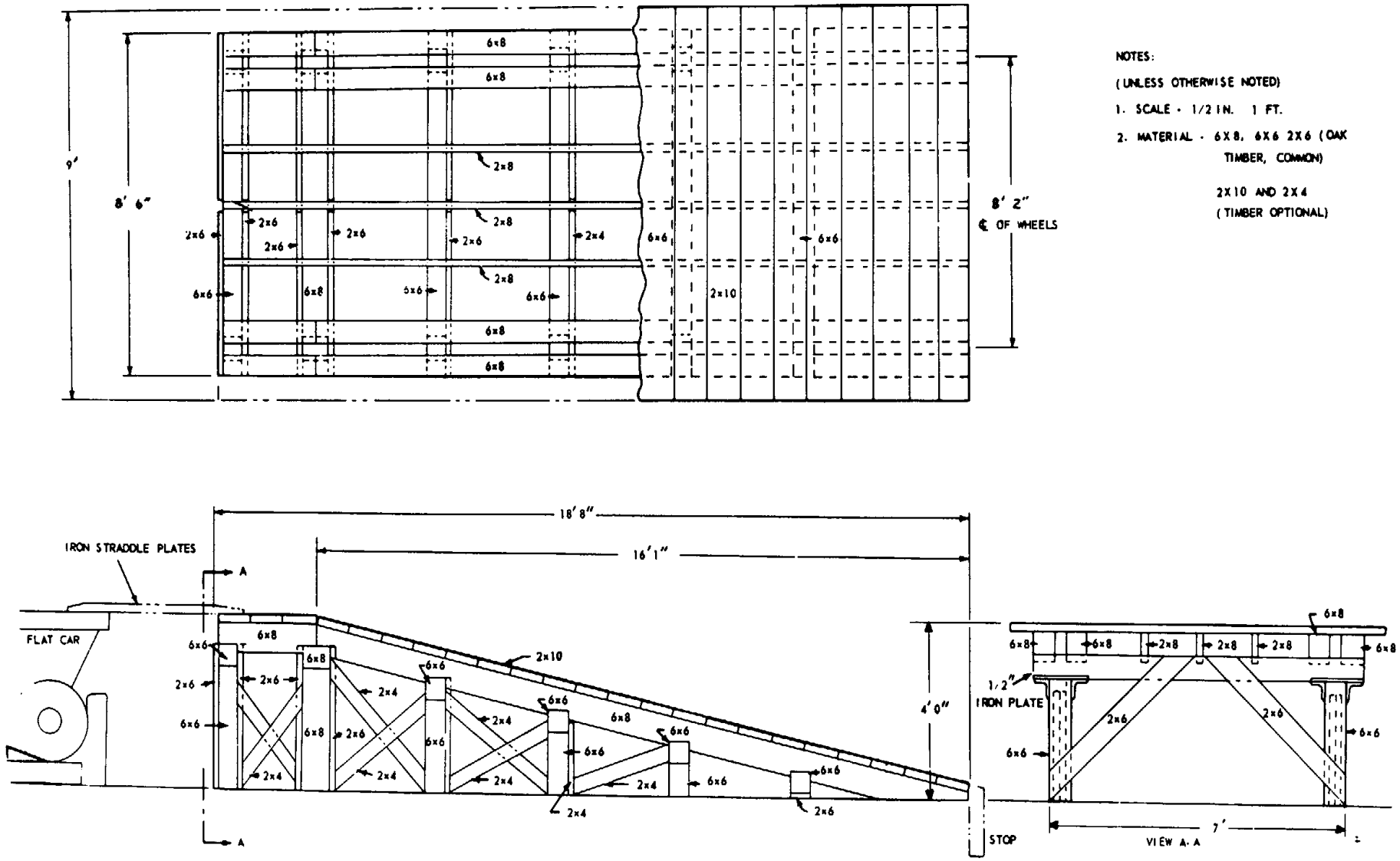

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Figure 4. Unloading ramp.

b. *Servicing.*

(1) Perform before-operation services (TM 5-3825-213-10).

(2) Inspect the crankcase oil level of both engines and fill with proper lubricant (LO 5-3825-213-20).

(3) Fill the batteries with electrolyte in accordance with table I and TM 9-6140-200-15.

***Warning*: Electrolyte contains sulphuric acid and causes severe skin burns. If electrolyte comes in contact with the skin or clothing wash the contaminated area immediately with clear water and change clothing.**

Table I. Specific Gravity Temperature Corrections

Available cranking power	-65° F.	-40° F.	-20° F.	10° F.	0° F	20° F.	40° F.	80° F.	100° F.	110° F.	120° F.
50%	1.277	1.267	1.259	1.255	1.251	1.243	1.236	1.220	1.213	1.209	1.205
58.3%	1.287	1.277	1.269	1.265	1.261	1.253	1.246	1.230	1.223	1.219	1.215
66.6%	1.297	1.287	1.279	1.275	1.271	1.263	1.256	1.240	1.233	1.229	1.225
75%	1:307	1.297	1.289	1.285	1.281	1.273	1.266	1.250	1.243	1.239	1.235
83.3%	1.317	1.307	1.299	1.295	1.291	1.283	1.276	1.260	1.252	1.248	1.245
91.6%	1.327	1.317	1.309	1.305	1.301	1.294	1.286	1.270	1.262	1.258	1.255
100%	1.338	1.328	1.320	1.316	1.312	1.304	1.296	1.280	1.272	1.268	1.265

(4) Install the battery cables as illustrated in figure 5.

(5) Inspect the cooling system for leaks and insecure mounting. Fill the system in accordance with table II. Refer to TM 9-207 for cold weather operation.

Table II. Freezing Points, Composition, and Specific Gravities of Military Antifreeze materials

Lowest expected ambient temp °F	Pints of inhibited glycol per gal of coolant[1]	Compound, Antifreeze Arctic[2]	Ethylene glycol coolant solution specific gravity at 68°F[3]
+20	1 1/2	Issued full strength and ready mixed for 0°F. to 65°F	1.022
+10	2	temperatures for both initial installation and re-	1.036
0	2 3/4	plenishment of losses	1.047
-10	3 1/4		1.055
-20	3 1/2		1.062
-30	4		1.067
-40	4 1/4		1.073
-50	Artic Anti-	DO NOT DH JTE WITH WATER OR ANY OTHER	
-60	freeze pre-	SUBSTANCE.	
-75	ferred		

1 Maximum protection is obtained at 60 percent by volume, that is 4.8 pints of ethylene glycol per gallon of solution.

2 Military Specification MIL-C 11755 Arctic type. nonvolatile antifreeze compound is intended for use in cooling system of liquid-cooled internal combustion engines for protection against freezing primarily in Arctic regions where the ambient temperature remains for extended periods of time close to -40 °F. or drops below, to as low as -90°F.

3 Use an accurate hydrometer. To test hydrometer, use 1 part ethylene glycol antifreeze to 2 parts water. This should produce a hydrometer reading of 0°F.

***Note.* Fasten a tag near the radiator fillercap indicating the type of antifreeze, and amount.**

9. Installation of Separately Packed Components

a. Install the chute (par. 73).

b. Install the snow chute hydraulic lines as illustrated in figure 6.

c. Install the plow (TM 5-3825-213-10).

d. Install the plow hydraulic lines from the carrier to the quick disconnect panel on the plow (fig. 6).

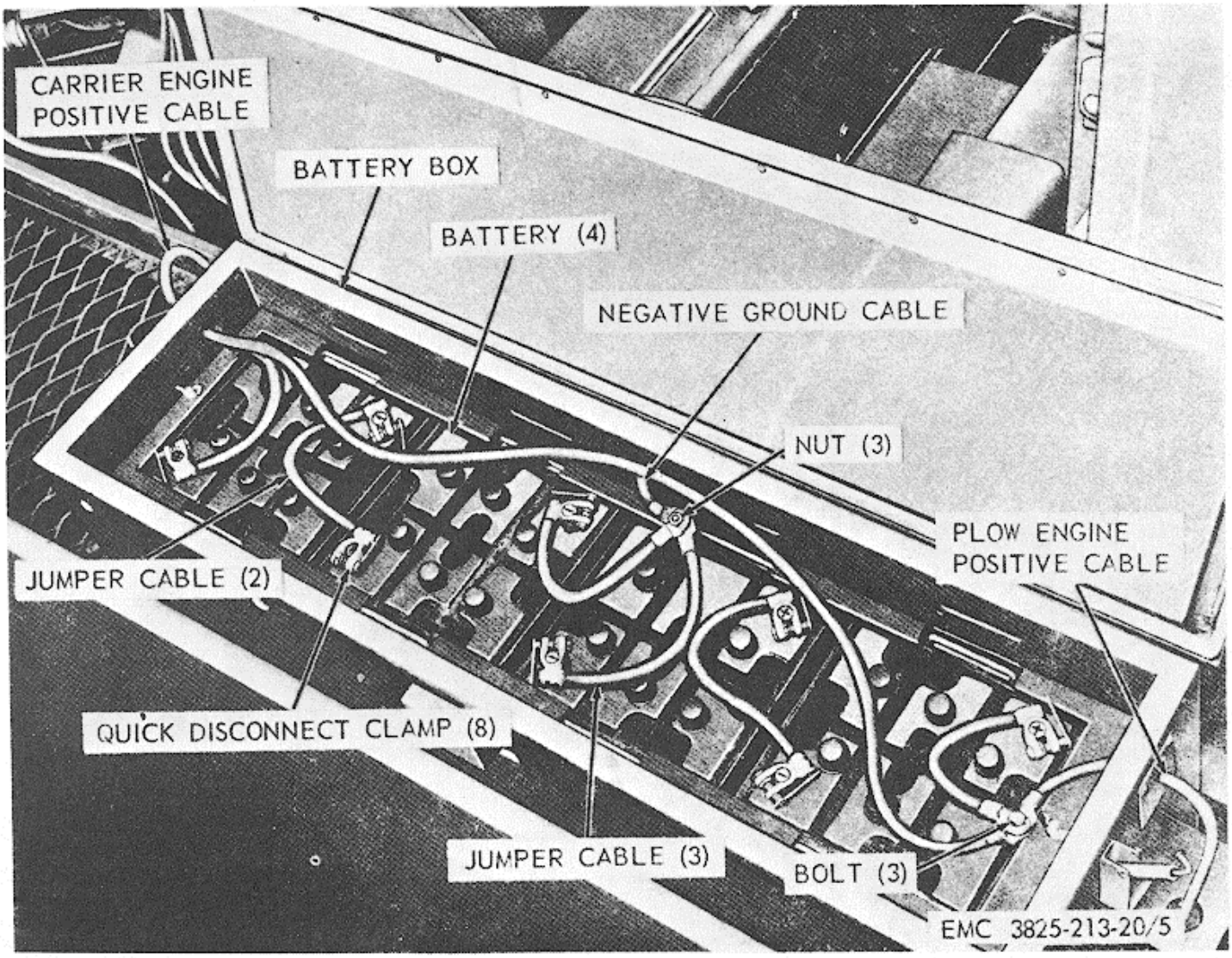


Figure 5. Battery cable installation.

10. Installation or Setting-Up Instructions

a. The snow removal unit is shipped fully equipped when transported on a low boy tractor trailer and no installation or setting-up procedures are necessary.

b. When the user receives the snow removal unit by railroad flatcar install the plow and chute assembly (TM 5-3825-213-10)

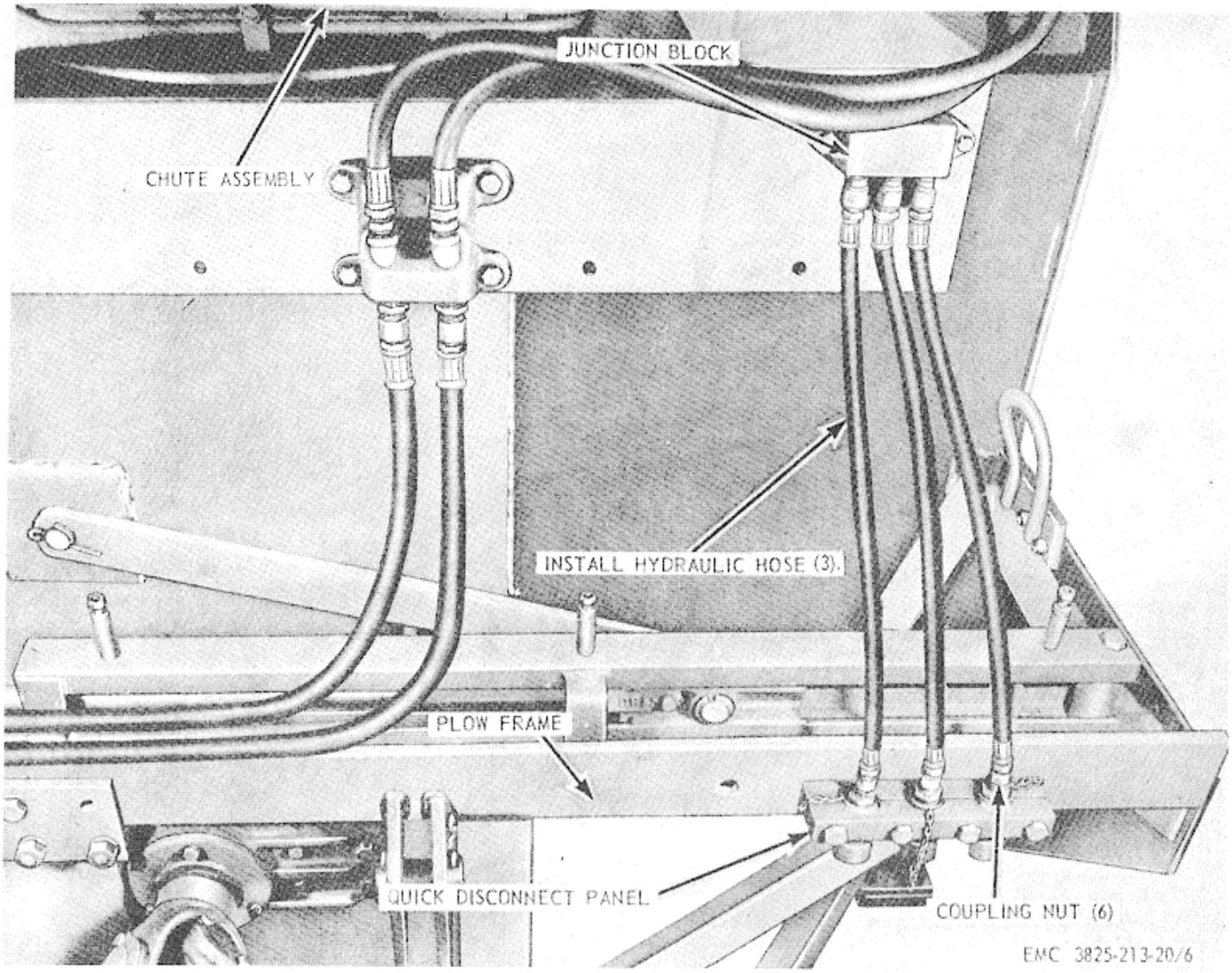


Figure 6. Hydraulic snow chute lines installation.

Section II. MOVEMENT TO A NEW WORKSITE

11. Dismantling for Movement

a. Lift snowplow to raised position and secure it with safety pins (TM 5-3825-213-10).

b. Drive snow removal unit to new worksite.

12. Reinstallation After Movement

Remove safety pins and lower snowplow to plow position (TM 5-3825-213-10).

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

13. Special Tools and Equipment

No special tools or equipment are required by organizational maintenance personnel to perform maintenance on the snow removal unit.

14. Organizational Maintenance Repair Parts

Organizational maintenance repair parts are listed and illustrated in TM 5-3825-213-20P.

Section II. LUBRICATION

15. General

This section contains instructions for the lubrication of the carrier and plow engines distributors, starter motors, and carrier wheel bearings. Refer to current lubrication order (LO 5-3825-213-20) for the proper time interval, type, and grade of lubricant to be used.

16. Engine Starter Motor

a. Remove the starter motor (par. 91).

b. Lubricate the starter motor as illustrated in figure 7.

c. Install the starter motor (par. 91).

17. Distributor Cam Assembly Lubrication

Lubricate the distributor cam as illustrated in figure 8.

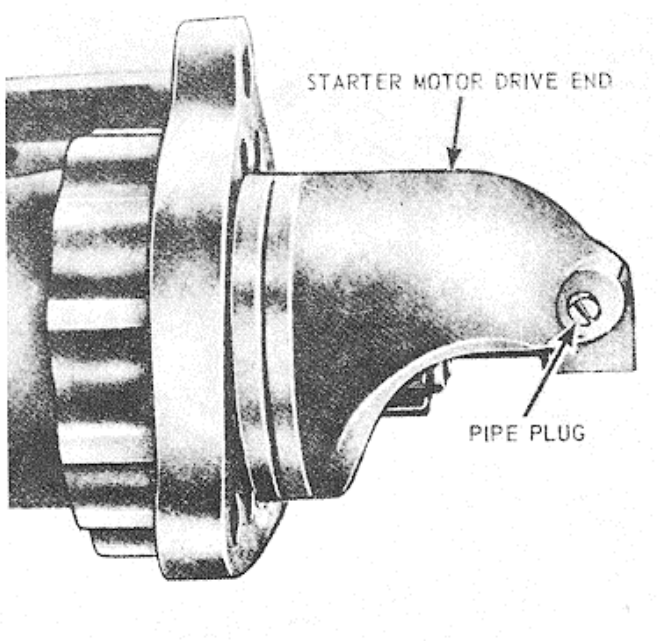
18. Lubricating Wheel Bearing Assemblies

a. Wheel Removal and Disassembly. For wheel removal and disassembly refer to paragraph 197.

b. Cleaning, Inspection, and Lubrication. Clean the wheels, hubs, and bearing assemblies with an approved cleaning solvent. Dry all parts thoroughly with a clean, lint-free cloth. Inspect all parts for wear or damage. Replace unserviceable parts. Pack the wheel bearing assemblies with a type of grease indicated on the current lubrication order.

c. Wheel Reassembly and Installation. For wheel reassembly and installation see paragraph 197.

Note. Do not remove the bearing cup or seal from hub to lubricate unless bearing and cup are damaged.



NOTE:
REMOVE PIPE PLUG AND LUBRICATE WICK (LO 5-3825-213-20). INSTALL PLUG. LUBRICATE OPPOSITE END BEARING IN A SIMILAR MANNER.

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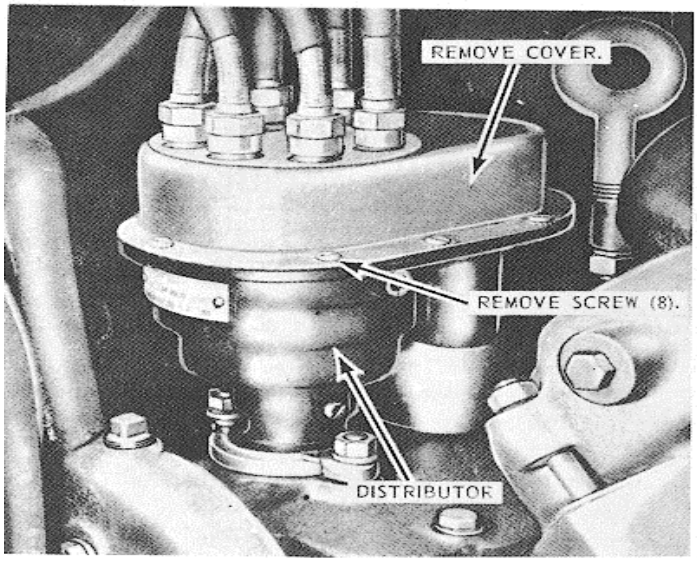
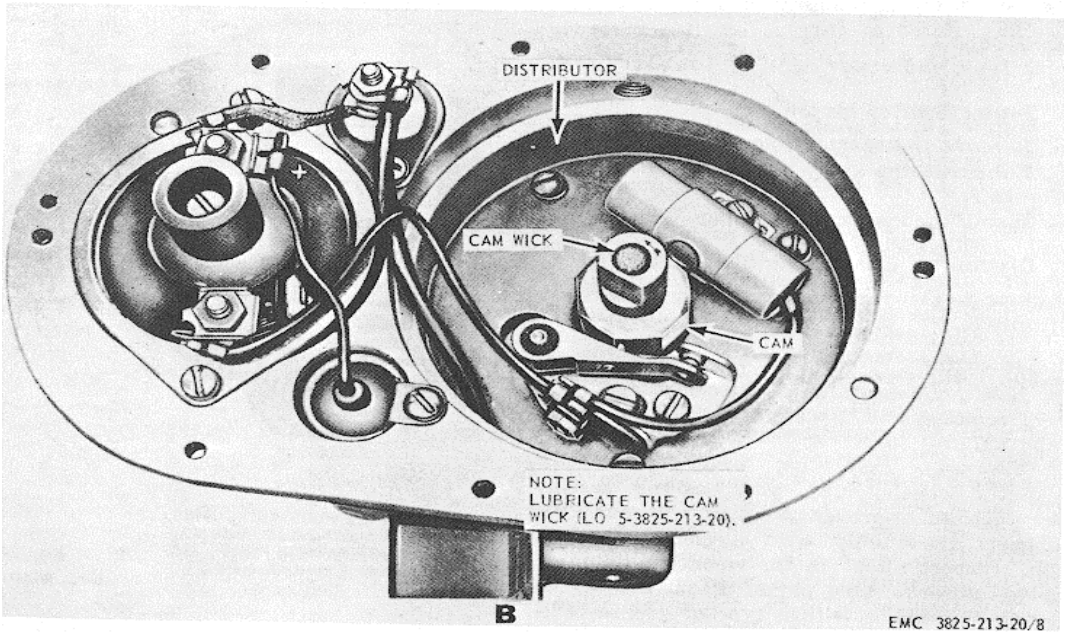
Figure 7. Starter motor lubrication points.



A



B

A. Cover removal

B. Cam lubrication

Figure 8. Distributor cover, removal and installation, and distributor cam lubrication.

Section III. PREVENTIVE MAINTENANCE SERVICES

19. General

a. Preventive maintenance is performed by organizational maintenance personnel at quarterly intervals. A quarterly interval is the equivalent to 3 calendar months of 250 hours of operation, whichever occurs first.

b. The preventive maintenance services to be performed at quarterly intervals are listed consecutively (starting with number 1) and are described in paragraph 20. The number listed under "inspection" indicates the minimum requirements for the equipment.

20. Quarterly Preventive Maintenance Services

Service		
Inspection	Quarterly	
		GENERAL
1	1	*Before-operating services.* Inspect and perform services listed in daily before-operation services (TM 5-3825-213-10).
2	2	*Lubrication.* Inspect the snow removal unit for missing or damaged lubrication fittings and lines. Inspect lubricant level in gearcases. Inspect for lubricant leaks from oil lines and gearcases, and for defective oil and grease seals.
	2	Lubricate the snow removal unit as specified in current lubrication order (LO 5-3825-213-20). Replace missing or damaged fittings.
3	3	*Tools and equipment.* Inspect condition of tools and equipment assigned to the unit. Inspect condition and mounting of toolbox or compartment.
	3	See that tools and equipment assigned to the snow removal unit are clean, serviceable, and properly stowed or mounted. See that toolbox or compartment is in good condition and closes and fastens properly.
4	4	*Fire extinguishers.* Inspect a carbon dioxide or carbon tetrachloride fire extinguisher for improper charge or damage. Weigh a monobromotrifluoromethane type fire extinguisher and replace cylinder if gross weight has decreased 4 ounces or more. Lubricate cylinder neck threads with 1 drop of OE 30 oil before reassembly.
	4	Replace a defective fire extinguisher.
5	5	*Publications.* See that a copy of TM 5-3825-213-10, current lubrication order, and Standard Form 91, or DA Form 285 are on or with the equipment and in serviceable condition.
6	6	*Appearance.* Inspect general appearance of the snow removal unit, paying special attention to cleanness, legibility of identification markings, and condition of paint.
	6	See that deficiencies are corrected or reported to field maintenance, 3d echelon.
7	7	*Modification.* See that all available modification work orders applying to the snow removal unit have been completed and recorded on DA Form 478 and DA Form 5-73A as applicable.
		ENGINE
8	8	*Cylinder head, manifold, muffler, exhaust pipe.* Inspect cylinder head, manifolds, and exhaust pipe for leaks, loose mounting bolts and nuts, and defective gaskets.
	8	Tighten loose manifolds and exhaust pipe mounting bolts and nuts. Replace defective gaskets (pars. 172 and 178).
9	9	*Valve mechanism.* If excessive tappet noise or loss of power is noticed, measure the valve clearance with engine cold. Correct clearance for the intake valve is 0.015 inch and 0.020 inch for the exhaust valve.
	9	Adjust the valve clearance, if necessary (par. 97).
10	10	*Crankcase and breathers.* Inspect the crankcase for leaks. Inspect crankcase breather for dirt and insecure mounting.
	10	Correct or report any leaks noticed to field maintenance, 3rd echelon. Clean breather if necessary (TM. 5-3825-213-10).
11	11	*Oil filters and oil cooler.* Inspect the oil filters and oil cooler for loose mountings, leaks, or damaged lines.

Service		
Inspection	Quarterly	
	11	Service the oil filters (TM 5-3825-213-10). Replace defective oil filters and lines (par. 122). Replace defective oil cooler (par. 168).
12	12	*Radiator.* Inspect the radiator and hose for leaks, damaged or clogged core. Inspect the shutter for secure mounting and proper operation.
	12	Replace defective hose (pars. 162 and 165). Clean clogged radiator core and report defective radiator to field maintenance, 3d echelon. Repair or replace defective shutter (par. 167).
13	13	*Water pump, fan and shroud.* Inspect the water pump for leaks and loose mounting. Inspect the shroud and fan for loose mounting, bends, or other damage.
	13	Replace defective shroud (par. 166) and fan (par. 164). Report defective water pump to field maintenance, 3d echelon.
14	14	*Belts and pulleys.* Inspect the fan, alternator, and air compressor drive belts for improper tension, fraying, and misalinement. Inspect the pulleys for insecure mounting and other damage.
	14	Replace defective fan belt (par. 163) and alternator drive belt (par. 100). Replace defective alternator and fan pulley (par. 101).
15	15	*Oil pump pressure relief valve.* Inspect the oil pressure relief valve on each engine for satisfactory operation, by observing the oil pressure gage after the engines are at normal operating temperature. The oil pressure at maximum governed speed of 2 600 rpm for each engine is 40 to 60 psi.
	15	Report oil pressure relief valves which show unsatisfactory operation to field maintenance, 3d echelon.
16	16	*Governor and linkage.* Inspect the governor on each engine for satisfactory operation. Inspect the vacuum line for leaks or other damage. Inspect the governor for loose mounting.
	16	Replace defective governor (par. 183).
17	17	*Primer.* Inspect the engines starting aid primers and lines for loose mounting and broken or damaged lines.
	17	Replace defective or damaged primers and lines (par. 177).
18	18	*Fuel pumps and housing.* Inspect the fuel pumps of each engine, engine heaters, and personnel heaters for leaks, loose mounting, damaged wiring, and broken lines.
	18	Tighten loose mountings, replace broken lines (par. 182) and defective fuel pumps (par. 176).
19	19	*Carburetors and linkage.* Inspect the carburetor for secure mounting, proper adjustment, and satisfactory operation. Inspect the linkage for loose connections or other damage.
	19	Adjust the carburetors (TM 5-3825-213-10) or replace defective carburetors or linkage (par. 174).
20	20	*Fuel filters.* Inspect the fuel filters for loose mounting, broken or damaged lines, and leaks.
	20	Tighten loose mountings and lines. Service the filters (TM 5-3825-213-10). Replace defective fuel filters and lines (pars. 175 and 182).
21	21	*Air cleaners.* Inspect the air cleaners of each engine for leaks or damage.
	21	Replace or repair defective air cleaners (par. 181). Tighten or replace leaking lines (par. 181).
22	22	*Tanks, caps, and gaskets.* Inspect the fuel tanks for loose mountings, and leaks. Inspect the breather holes for clogging. Inspect the valves and lines for leaks or damage.
	22	Replace defective valves and lines (par. 179). Tighten fuel tank loose mounting and report damaged fuel tank to field maintenance, 3rd echelon.
23	23	*Fuel lines.* Inspect the fuel lines for leaks and loose connections.
	23	Replace, repair, or tighten fuel lines and connections (par. 182).
24	24	*Spark plugs.* Inspect the spark plugs for loose mounting and loose terminal connection. Notice any irregular firing of the engines. The proper spark plug gap is 0.025 to 0.028 inch.
	24	Adjust, clean, or replace defective spark plugs (par. 94).
25	25	*Batteries.* Inspect the batteries for leaks, condition, electrolyte level, secure mounting, and amount of charge. Inspect the battery cables and connectors for damage and corrosion.

Service		
Inspection	Quarterly	
	25	Charge or replace batteries; clean or replace battery cables and connectors. Protect connectors from corrosion by coating lightly with cup grease (par. 250).
26	26	*Alternator, starters.* Inspect the alternator, starter motor, starter motor solenoid relay, and electrical connections of each engine for condition, loose mounting, and improper operation.
	26	Tighten loose mountings and connections. Replace defective alternator (par. 101), starter motor (par. 91), or starter solenoid relay (par. 92). Replace defective starter motor brushes (par. 91).
27	27	*Distributors.* Inspect the wiring of engine distributor for improper connection or damage. Inspect the distributors for damage to cap, points, and capacitor. Measure point gap. The proper gap is 0.020-0.022 inch.
	27	Tighten or replace wiring (par. 93). Adjust the distributor points (par. 95). Report damaged or defective distributor to field maintenance, 3d echelon.
28	28	*Coil, wiring, switches.* Inspect condition and appearance of the engine ignition systems. Inspect for loose wire connections, broken wire, and broken connecting terminal posts.
	28	Repair damaged wiring (par. 93).
29	29	*Alternator regulator.* Inspect the alternator regulator for loose mounting, defective terminal connections, and unsatisfactory operation.
	29	Replace defective alternator regulators (par. 102) and tighten loose wiring connections.
30	30	*Lights, wiring.* Inspect all lights, their mountings, switches, and wiring for damage and improper operation.
	30	Replace defective lamps, switches, and assemblies (pars. 105-120).
31	31	*Levers, pedals, linkage, cables.* Inspect the plow engine clutch, engine starters, throttles, chokes, accelerator, transmission shift lever, plow hydraulic control levers, handbrake, and power transfer shifter linkages for condition and adjustment.
	31	Adjust plow engine clutch (TM 5-3825-213-10). Replace defective or damaged throttle (par. 133), choke (par. 134),clutch linkage (par. 86), and hydraulic control levers and linkages (pars. 60 and 61).
32	32	*Frame.* Inspect the carrier frame and plow frame for damage or misalinement.
	32	Report any frame damage or misalinement to field maintenance, 3rd echelon.
33	33	*Hood, panels, doors.* Inspect the engine hoods and carrier cab doors for damage or misalinement. Inspect the fenders for damage.
	33	Replace or repair hoods (pars. 193 and 195), doors (pars. 248 and 249). seats (par. 247), and fenders (par. 257).
34	34	*Plow engine clutch.* Inspect the plow engine clutch for proper adjustment.
	34	Adjust the clutch if necessary. Report any unsatisfactory operation, which cannot be corrected by adjustment to field maintenance, 3d echelon.
35	35	*Gages.* Inspect all nonelectrical gages for satisfactory operation.
	35	Replace damaged or defective gages (pars. 127, 129, 137, 143, and 145).
36	36	*Meters.* Inspect all electrical gages, the tachometer, and the speedometer for satisfactory operation.
	36	Replace damaged or defective electrical gages (pars. 128, 132, 142, 149, and 153). Replace defective tachometer or speedometer (pars. 127 and 137).
37	37	*Steering gear assembly.* Inspect the steering gearbox lubricant level. Inspect steering play by moving steering wheel.
	37	Adjust steering gear (par. 259). Lubricate if necessary (LO 5-3825-213-20).
38	38	*Safety valve.* Inspect the safety valve for proper operation and secure mounting (fig. 129).
	38	Replace defective safety valve (fig. 129).
39	39	*Hydraulic pump, air compressor.* Inspect the plow and steering hydraulic pump for leaks and unsatisfactory operation. Inspect the air compressor for lubricant level, air or lubricant leaks and unsatisfactory operation.
	39	Replace defective hydraulic steering pump (par. 235) and plow hydraulic pump (par. 58). Report defective air compressor to field maintenance, 3d echelon.

Service		
Inspection	Quarterly	
40	40	*Value, Cylinders.* Inspect the hydraulic valves and cylinders for loose mounting, damaged fittings, and leaks.
	40	Replace defective or damaged hydraulic valves and cylinders (pars. 60, 62, 66, 236, and 238).
41	41	*Universal joints, ball joints.* Inspect the universal joints and propeller shaft for loose mounting and wear.
	41	Replace defective propeller shaft and universal joint (par. 87).
42	42	*Gear housing, cases.* Inspect the differential housings of both axles for lubricant level and leaks.
	42	Add lubricant to the axles (LO 5-3825-213-20). Report all leaks to field maintenance, 3d echelon.
43	43	*Gears and Pinions.* Inspect the axle gears and pinions for grinding or noise in operation.
	43	Report grinding or noisy operation to field maintenance, 3d echelon.
44	44	*Bearings and Shafts.* Inspect the propeller drive shaft bearings for loose mounting and damage.
	44	Replace defective bearings (pars. 87,)208, and 209).
45	45	*Tie rods, linkage.* Inspect the steering tie rods and linkage for binding and looseness.
	45	Replace defective tie rod (par. 260). Report any binding or looseness in the tie rods or steering linkage to field maintenance, 3d echelon.
46	46	*Booster, steering assembly.* Inspect the steering hydraulic cylinders on both axles, the front axle steering control valves, and the rear axle steering control valve for leaks and unsatisfactory operation.
	46	Tighten loose connections. Replace a defective steering valve (pars. 236-238).
47	47	*Hydraulic tanks.* Inspect the plow and steering hydraulic tanks for leaks and low fluid level.
	47	Add fluid if necessary. Replace defective plow or steering hydraulic tanks (pars. 57 and 234).
48	48	*Relief valves.* Inspect the steering mechanism for freeness and proper operation.
	48	Adjust the steering (par. 259) and report deficiencies not corrected by adjustment to field maintenance, 3d echelon.
49	49	*Front axle assembly, wheels.* Inspect the front axle assembly for solid mounting. Inspect wheels for damage.
	49	Tighten any loose U-bolts. Replace or repair damaged wheels (par. 197). Adjust toe-in (par. 260).
50	50	*Tires.* Inspect the tires for condition and proper inflation.
	50	Inflate all tires to proper pressure, 90 psi. Replace cut or bruised tires (par. 197).
51	51	*Rear axle assembly, wheels.* Inspect the rear axle assembly for solid mounting. Inspect the wheels for damage.
	51	Tighten any loose U-bolts. Replace damaged wheels (par. 132). Adjust toe-in (par. 260).
52	52	*Transmission, transfer case.* Inspect the carrier transmission for leaks, improper lubricant level, noise, and unsatisfactory operation. Inspect the power transfer unit for leaks, improper lubricant level, noise, and unsatisfactory operation.
	52	Add lubricant if necessary. Report any noise, leaks, or unsatisfactory operation to field maintenance, 3d echelon.
53	53	*Drive sprockets, chains, belts.* Inspect the plow drive chain and sprockets for condition, and the chain for proper tension.
	53	Report defective plow drive chain to field maintenance, 3d echelon.
54	54	*Springs.* Inspect the springs for loose shackles or brackets and broken leaves.
	54	Tighten loose shackles or brackets. Report broken spring leaves to field maintenance, 3d echelon.
55	55	*Service brake.* Inspect the service brakes for improper adjustment, improper operation, and worn linings. Inspect the brake wheel cylinders and master cylinder for improper operation. Inspect the brake hydraulic system for improper fluid level and leaks.
	55	Add fluid to the hydraulic system, or adjust the brakes (par. 206). Report any deficiencies beyond the scope of organizational maintenance to field maintenance, 3d echelon.

Service		
Inspection	Quarterly	
56	56	*Handbrake, brake lock.* Inspect the handbrake for unsatisfactory adjustment, unsatisfactory operation, and damage.
	56	Adjust the handbrake. Replace handbrake band, lever, or cable (par. 205).
57	57	*Air receiver tank.* Inspect the air receiver tank for leaks and insecure mounting.
	57	Tighten loose connections or tank mountings. Replace a defective air receiver tank (par. 214).
58	58	*Air breathers, hose and connection.* Inspect the air compressor breather and all air hose and connections for damage.
	58	Tighten loose connections, service air breather, or replace defective hose and connectors (par. 214).
59	59	*Heaters, personnel, engine.* Inspect the heaters for secure mounting, good condition and proper operation. Inspect the lines and connection for leaks or damage. Inspect the electrical connections for loose or broken terminals.
	59	Tighten loose mounting, lines, connection and electrical terminals. Replace or repair defective heaters (pars. 190 and 241).
60	60	*Moldboards, end bits.* Inspect the moldboards and end bits for wear or other damage.
	60	Replace worn or damaged moldboards blades and end bits (par. 88).
61	61	*Fan blower, chute.* Inspect the fan blower for unsatisfactory operation and condition. Inspect the chute for unsatisfactory condition and improper operation.
	61	Replace defective fan blower (par. 76). Replace or repair defective chute (par. 74).
62	62	*Side view mirror, heated.* Inspect the mirror for good condition and proper operation.
	62	Replace defective rearview mirrors (par. 244).
63	63	*Rotating beacon Eight, spotlight.* Inspect the rotating beacon light and spotlights for defective condition and unsatisfactory operation.
	63	Replace defective rotating beacon light (par. 112) or spotlight (par. 108).

Section IV. TROUBLESHOOTING

21. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the snow removal unit and its components. Each trouble symptom stated : is followed by a list of probable causes of trouble. The remedy recommended is described opposite the probable cause. Any operational trouble that is beyond the scope of organizational maintenance must be reported to field maintenance, 3d echelon.

22. Plow and Carrier Engine Hard To Start or Fails To Start

Probable cause	*Possible remedy*
Fouled or cracked spark plugs.	Clean, adjust, or replace spark plugs (par. 94).
Starter motor inoperative or operates improperly.	Replace starter motor (par. 91) or starter solenoid relay (par. 92).
Carburetor inoperative or operates improperly.	Adjust or replace carburetor (par. 174).
Fuel pump inoperative or operates improperly.	Replace fuel pump (par. 176).
Water or dirt in fuel supply.	Clean fuel tanks (par. 179) and refill.

23. Plow and Carrier Engine Exhaust Smoky

Probable cause	*Possible remedy*
Carburetor mixture too rich.	Adjust carburetor (TM 5-3825-213-10).
Ignition timing incorrect	Time ignition (par. 95).

24. Plow and Carrier Engine Misses, Runs Erratically

Probable cause	*Possible remedy*
Carburetor improperly adjusted	Adjust carburetor (TM 5-3825-213-10).
Intake manifold leaking	Replace manifold or gaskets (par. 178).
Distributor points not adjusted properly	Adjust distributor point gap (par. 95).

Probable cause	*Possible remedy*
Spark plugs pitted or burned	Clean and adjust or replace spark plugs (par. 94).
Fuel pump defective	Replace fuel pump (par. 176).
Governor defective	Replace governor (par. 183).

25. Plow and Carrier Engine Lacks Power

Probable cause	*Possible remedy*
Governor defective	Replace governor (par. 183).
Spark plugs cracked or burned	Replace defective spark plugs (par. 94).
Defective valves	Report to field maintenance, 3d echelon.
Low compression or de fective head gasket	Report to field maintenance, 3d echelon.

26. Plow and Carrier Engine Stops Suddenly

Probable cause	*Possible remedy*
Clogged fuel filter	Service or replace defective fuel filter (par. 175).
Defective ignition wiring or switch	Replace wiring (par. 93) or switch (pars. 131-157).
Defective fuel pump	Replace fuel pump (par. 176).

27. Plow and Carrier Engine Overheats

Probable cause	*Possible remedy*
Defective radiator	Report to field maintenance, 3d echelon.
Defective thermostat	Replace thermostat (par. 162).
Defective fan belts	Replace fan belts (par. 163).
Defective water pump	Report to field maintenance, 3d echelon.
Coolant level low	Add coolant (TM 5-3825-213-10).
Oil level low	Add oil to crankcase (LO 5-3825-213-20).

28. Plow and Carrier Engine Noisy

Probable cause	*Possible remedy*
Improper valve lash	Adjust valve lash (par. 97).
Defective connecting rod bearings	Report to field maintenance, 3d echelon.

29. Plow and Carrier Engine Oil Consumption High

Probable cause	*Possible remedy*
Oil cooler defective	Replace oil cooler (par. 168).
Oil filter leaking	Replace or repair oil filters (par. 195).
Defective piston rings or valves	Report to field maintenance, 3d echelon.

30. Plow and Carrier Engine Has Low or No Oil Pressure

Probable cause	*Possible remedy*
Defective oil pump	Report to field maintenance, 3d echelon.
Defective oil pressure gage	Replace oil pressure gage (pars. 145-155).
Insufficient oil supply	Fill crankcase (LO 5-3825-213-20).

31. Plow and Carrier Engine Starter Fails To Crank

Probable cause	*Possible remedy*
Defective batteries (carrier)	Charge or replace batteries (par. 250).
Defective starter solenoid relay	Replace solenoid relay (par. 92).
Starter defective	Replace starter (par. 91).

32. Alternator Fails To Charge Batteries (Carrier Engine)

Probable cause	*Possible remedy*
Loose terminal connections	Tighten terminal connection (par. 250).
Alternator defective	Replace alternator (par. 101).
Drive belts loose	Adjust drive belts (TM 5-3825-213-10).
Alternator regulator out of adjustment	Adjust alternator regulator (par. 102).

33. Alternator Regulator Inoperative (Carrier Engine)

Probable cause	*Possible remedy*
Alternator regulator improperly adjusted	Adjust regulator (par. 102).
Regulator defective	Replace regulator (par. 102).

34. Snowplow Fails or Is Slow To Raise or Lower

Probable cause	*Possible remedy*
Hydraulic control manifold valve defective	Replace hydraulic control manifold valve (par. 60).
Hydraulic cylinder defective	Report to field maintenance, 3d echelon.
Defective hydraulic hose	Replace hydraulic hose (par. 66).

35. Snow Exhaust Has Sudden Decrease

Probable cause	*Possible remedy*
Fan blower shear bolts broken	Replace shear bolts (TM 5-3825-213-10).
Plow engine governor Defective	Replace governor (par. 183).
Plow engine operates Erratically	Replace spark plugs (par. 94). Adjust or replace carburetor (par. 174).
Plow engine out of time	Time the plow engine (par. 95).

36. Plow Front Has Excessive Vibration

Probable cause	*Possible remedy*
Engine out of time	Report to field maintenance, 3d echelon.
Fan blower out of Balance	Replace fan blades (par. 76).

37. Fan Blower Assembly Fails To Rotate

Probable cause	*Possible remedy*
Shear bolts broken	Replace shear bolts (TM 5-3825-213-10).
Plow gearcase defective	Report to field maintenance, 3d echelon.

38. Rotating Chute Assembly Fails To Extend or Rotate

Probable cause	*Possible remedy*
Hydraulic hose or line damaged	Replace hydraulic hose or line (par. 67).
Plow hydraulic pump defective.	Replace pump (par. 58).

39. Personnel Heater Inoperative

Probable cause	*Possible remedy*
Heater control box defective	Replace or repair heater control box (par. 159).
Fuel pump defective	Replace fuel pump (par. 188).
Igniter defective	Replace igniter (par. 191).
Terminal connections loose or damaged	Tighten or replace terminal connections (par. 159).

40. Plow and Carrier Engine Heaters Inoperative

Probable cause	*Possible remedy*
Fuel pump defective	Replace fuel pump (par. 188).
Igniter defective	Replace igniter (par. 191).
Heater control box defective	Replace or repair heater control box (par. 159).
Terminal connections loose or damaged	Replace or repair terminal connections (par. 159).

41. Carrier Brakes Faulty

Probable cause	*Possible remedy*
Improper brake adjustment.	Adjust brakes (par. 206).
Worn brake lining	Report to field maintenance, 3d echelon.

42. Carrier Steers Hard

Probable cause	*Possible remedy*
Defective steering cylinder	Replace steering cylinder (par. 237).
Hydraulic pump defective	Replace hydraulic pump (par. 235).
Steering improperly adjusted.	Adjust steering (par. 260).

43. Windshield Wipe Inoperative

Probable cause	*Possible remedy*
Air line leaks or damaged	Tighten connection or replace line (par. 243).
Wiper air valve defective	Replace wiper air valve (par. 150).

44. Speedometer Inoperative

Probable cause	*Possible remedy*
Cable loose or broken	Connect or replace cable (par. 137).
Speedometer defective	Replace speedometer (par. 137).

Section V. FIELD EXPEDIENT REPAIRS

45. General

Organizational maintenance troubles may occur while the snow removal unit is operating in the field where supplies and repair parts are not available and normal remedial action cannot be performed. When this condition exists, the expedient remedies provided may be used. Field expedients will be used only during emergency condition.

46. Plow and Carrier Engine Oil Pressure Low

Trouble	*Expedient remedy*
Clogged oil filters	Remove lines and by-pass oil filters.

47. Engines Will Not Start

Trouble	*Expedient remedy*
Broken battery cable clamp	Wrap a strip of metal around battery post, reinstall battery cable clamp, inserting bolt through both clamp and metal strip.

48. Plow and Carrier Engine Runs Erratically

Trouble	*Expedient remedy*
Fuel filters clogged	Remove fuel filters and connect fuel lines direct to fuel pump.

49. Loss of Fuel

Trouble	*Expedient remedy*
Leaky fuel line coupling	Remove coupling. Wind a string around the line be, hind the flare. Slide nut over the strings and screw into its connections.

50. Engine Vibrates

Trouble	*Expedient remedy*
Broken fan blade	Cut off opposite fan blades.

51. Cooling System Stopped up

Trouble	*Expedient remedy*
Collapsed hose	Coil a piece of heavy wire the same diameter as the inside of the hose. Insert the coiled wire in the hose and replace the hose.

Section VI. RADIO INTERFERENCE SUPPRESSION

52. General Methods Used To Attain Proper Suppression

Essentially, suppression is attained by providing a low resistance path to ground for the stray currents. The methods used include shielding the ignition and high-frequency wires, grounding the frame with bonding straps, and using capacitors and resistors. For general information on radio interference suppression, see TM 11-483.

53. Interference Suppression Components

a. Primary Suppression Components.

(1) *Bonding straps*. The alternator regulator bonding straps, heater and distributor bonding straps are illustrated in figure 9.

(2) *Capacitors*. The distributor capacitor, fuel pump, and generator capacitors are illustrated in figure 9.

b. Secondary Suppression Components.

(1) *Tooth-type lockwashers.*

(a) The alternator regulator is mounted on the left side of the engine and is grounded by internal-toothed lockwashers.

(b) The distributor is mounted on the upper right side of the carrier engine block and is grounded by external-toothed lockwashers.

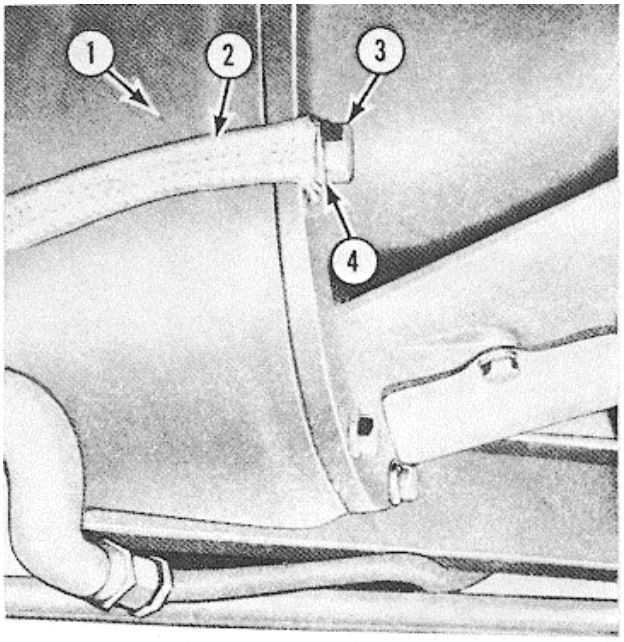
(c) The starter bonding strap is mounted on the right side of the engine and is grounded by internal-toothed lockwashers. Instruction for replacement of these components will be found in the applicable maintenance sections of this manual.

(2) *Shielded cables.*

(a) The ignition cables that connect the spark plugs to the distributor are of the shielded type.

(b) The alternator is equipped with a shielded cable connecting the alternator and the alternator regulator and bonding strap on fuel pump. Instructions for replacement of these components will be found in the applicable maintenance section of this manual.

***Note*. Do not pull on the cable or twist the braided shielding. Gently work the cable from side to side and free the rubber seal. Do not use sharp metal tools to install the rubber seal.**



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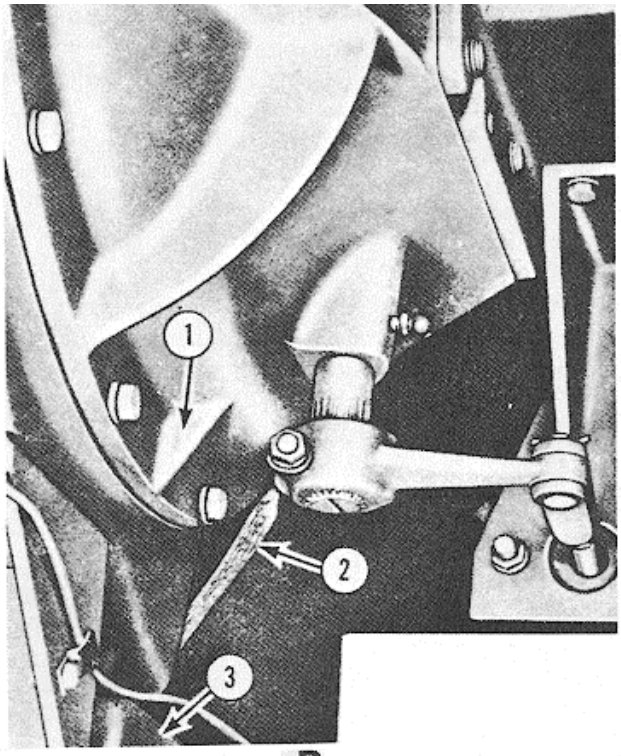

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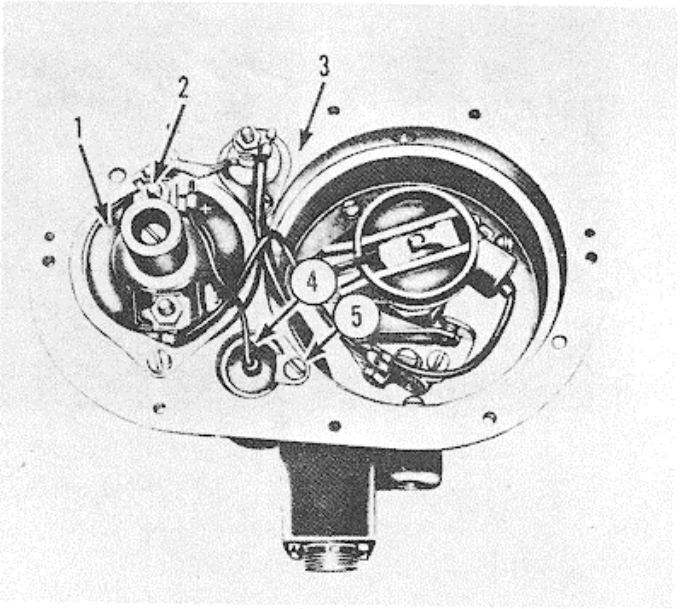

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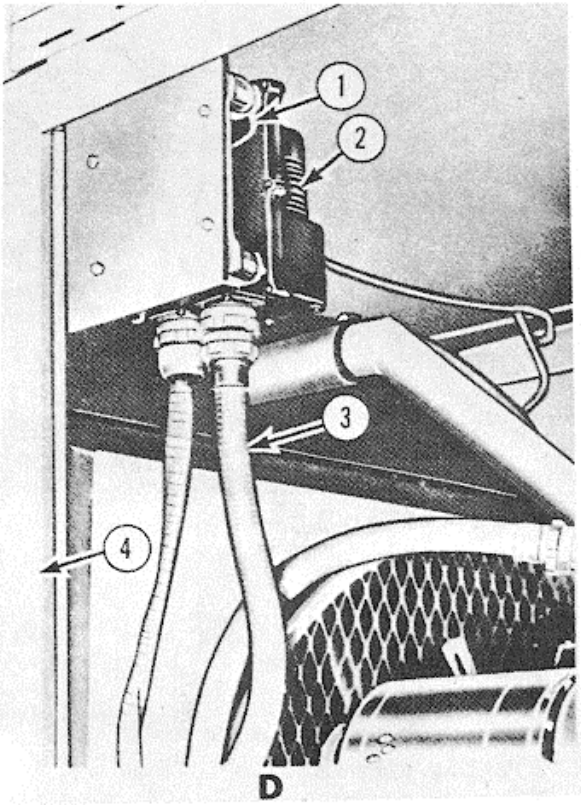

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Figure 9. Radio interference suppression components.

1 Clutch housing
2 Bonding strap
3 Screw, cap, 1/2-13 x 1/1/4 in.
4 Washer, lock, ET, 1/2 in.

A. Clutch housing bonding strap.

1 Clutch housing
2 Bonding strap
3 Frame

B. Clutch housing and frame bonding strap.

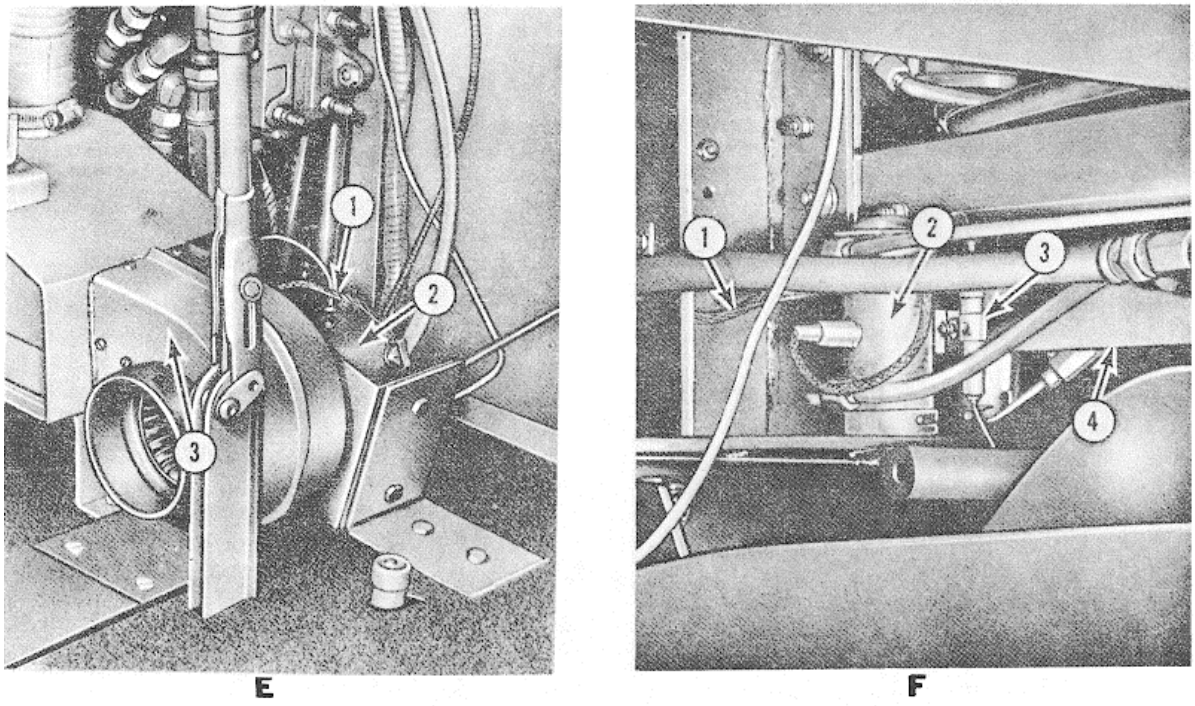
1 Coil
2 Nut, No. 10-32
3 Distributor
4 Capacitor
5 Screw, No. 8-32 x 3/8 in.

C. Distributor capacitor.

1 Bonding strap
2 Alternator regulator
3 Shielded cable
4 Hood

D. Alternator regulator bonding strap and shielded cable.

Figure 9-Continued.



1 Bonding strap
2 Defroster motor
3 Manifold

E. Defroster motor bonding strap.

1 Bonding strap
2 Fuel pump (7 rqr).q
3 Capacitor, 24-v dc, 0.10 uf (7 rqr)
4 Frame

F. Fuel pump bonding strap.

Figure 9-Continued.

54. Replacement of Suppression Components

a. *General.* Replacement suppression components must be identical to the original part. Capacitors must be the same size and have the same microfarad and voltage rating as the parts being replaced. Special care must be taken to be certain there is a good metal-to-metal contact with washers and bonding strap.

b. *Primary Suppression Components.*

(1) Bonding straps. Replace the bonding straps as instructed in figure 9.

(2) Capacitors. Replace the capacitors as instructed in figure 9.

c. *Secondary Suppression Components.*

(1) *Shielded cables.*

(a) Replace the shielded alternator-to- alternator regulator cable (pars. 101 and 102).

(b) Replace the shielded spark plug cables (par. 93).

(2) *Tooth-type lockwashers*

(a) Replace the alternator regulator mounting washers (par. 102).

(b) Replace the distributor mounting washers (par. 95).

(c) Replace the starting motor bonding strap mounting washers (par. 91).

(d) Replace the starting motor mounting washers (par. 91).

55. Testing of Radio Interference Suppression Components

Test the capacitors for leaks and shorts on a capacitor tester; replace defective capacitors. If test equipment is not available and interference is indicated, isolate the cause of interference by the trial-and-error method of replacing each capacitor in turn until the cause of the interference is located and eliminated.

CHAPTER 4
SNOWPLOW MAINTENANCE INSTRUCTIONS

Section I. PLOW HYDRAULIC SYSTEM

56. General

Hydraulic cylinders raise and lower the plow frames, move the discharge chutes up and down, and rotate the chutes. These operations are all controlled by a manifold control valve inside the carrier cab. Hydraulic pressure to operate these components is supplied by a hydraulic pump. Hydraulic hoses connect the pump and hydraulic reservoir to the valves, and connect the valves to the hydraulically operated components of the plow.

57. Plow Hydraulic Oil Reservoir

a. *Removal.*
   (1) Drain the hydraulic reservoir (TM 5-3285-213-10).
   (2) Remove the plow hydraulic oil reservoir as illustrated in figure 10.

b. *Cleaning and Inspection.*
   (1) Clean the reservoir with an approved cleaning solvent and dry thoroughly.
   (2) Inspect the reservoir for broken welds, damaged threads, and bends.
   (3) Replace a defective hydraulic reservoir.

c. *Installation.* Install the plow hydraulic oil reservoir as illustrated in figure 10.

58. Plow Hydraulic Pump Assembly

a. *Removal.* Remove the plow hydraulic pump assembly as illustrated in figure 11.

b. *Cleaning and Inspection.*
   (1) Clean the hydraulic pump with an approved cleaning solvent and dry thoroughly.
   (2) Inspect the pump for free rotation and damaged housing and threads.
   (3) Replace a defective hydraulic oil pump.

c. *Installation.* Install the plow hydraulic pump assembly as illustrated in figure 11.

59. Chute Hydraulic Oil Junction Block Assembly

a. *Removal.* Remove the chute hydraulic oil junction block assembly as illustrated in figure 12.

b. *Cleaning and Inspection.*
   (1) Clean the block assembly in an approved cleaning solvent and dry thoroughly.
   (2) Inspect the block for cracks or breaks and damaged threads.
   (3) Replace a defective block assembly.

c. *Installation.* Install the chute hydraulic oil junction block assembly as illustrated in figure 12.

60. Plow Hydraulic Control Manifold Assembly

a. *Removal.* Remove the plow hydraulic control manifold assembly as illustrated in figure 13.

b. *Disassembly.* Disassemble the plow hydraulic control manifold assembly as illustrated in figure 14.

c. *Cleaning, Inspection, and Repair.*
   (1) Clean all parts in an approved cleaning solvent and dry thoroughly.

***Caution*: When working on the hydraulic system be sure to cover openings and keep work area free of dust and dirt. Dust and dirt are a great contributor to the malfunction of the hydraulic system.**

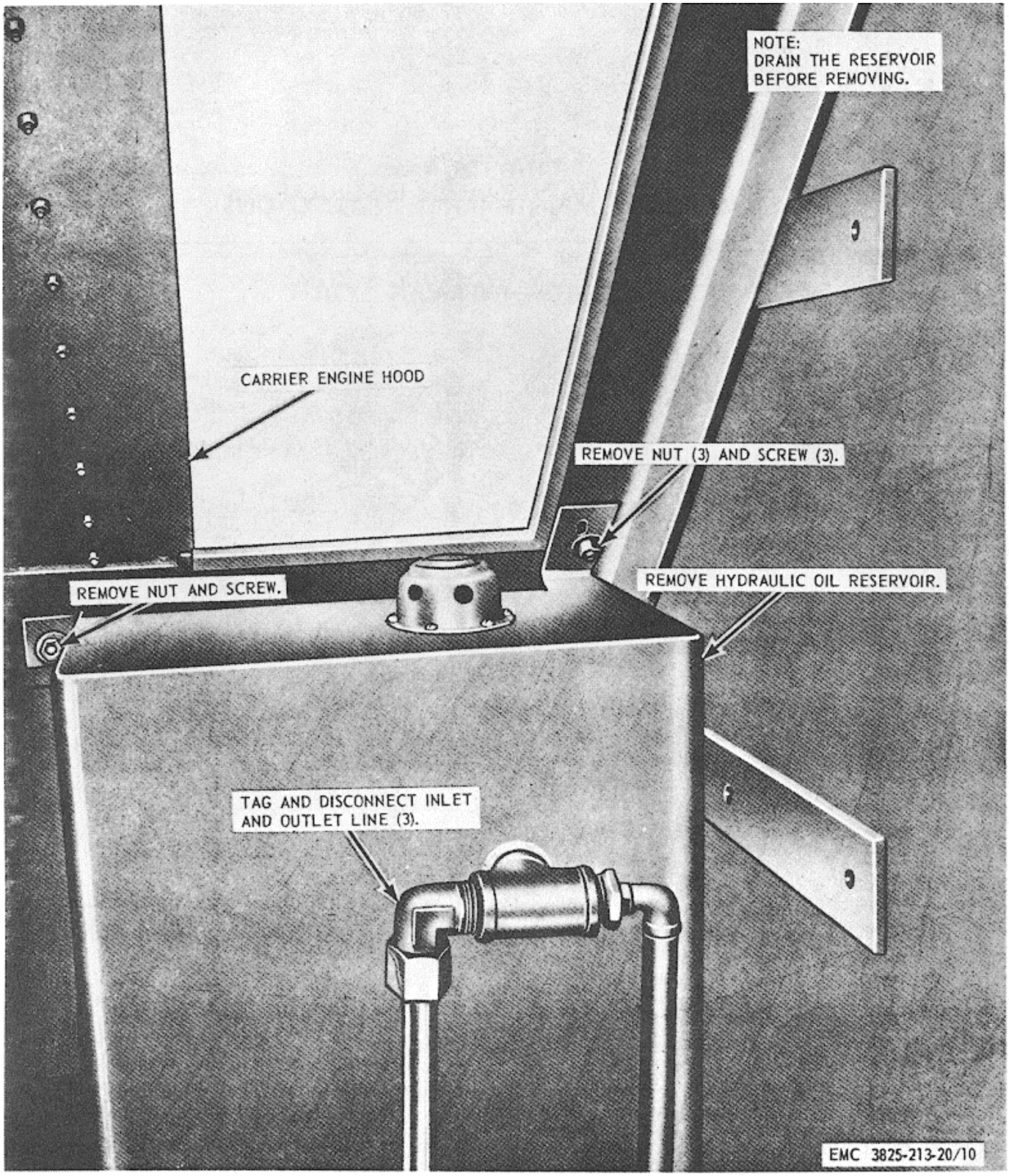


Figure 10. Plow hydraulic oil reservoir, removal and installation.

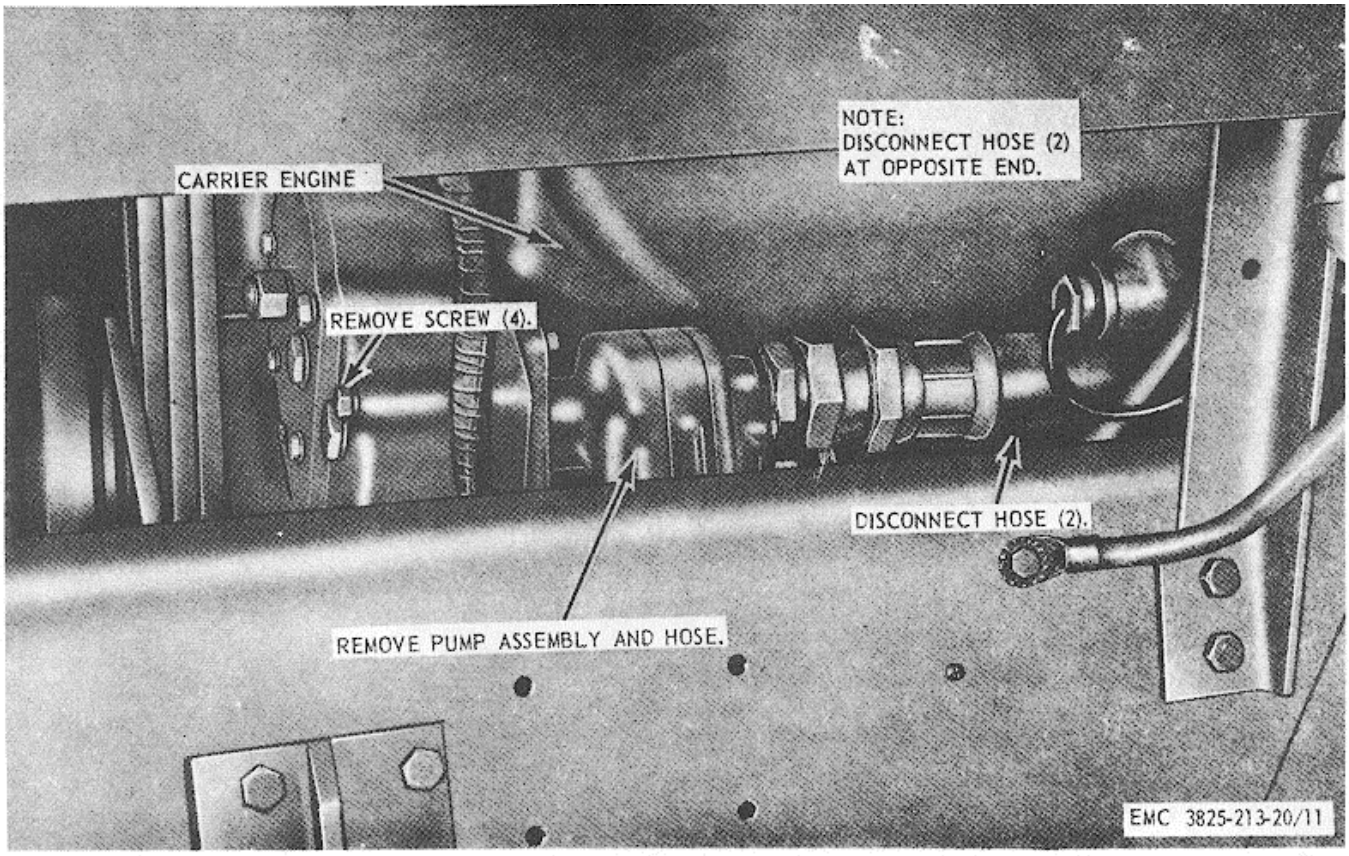


Figure 11. Plow hydraulic pump assembly, removal and installation.

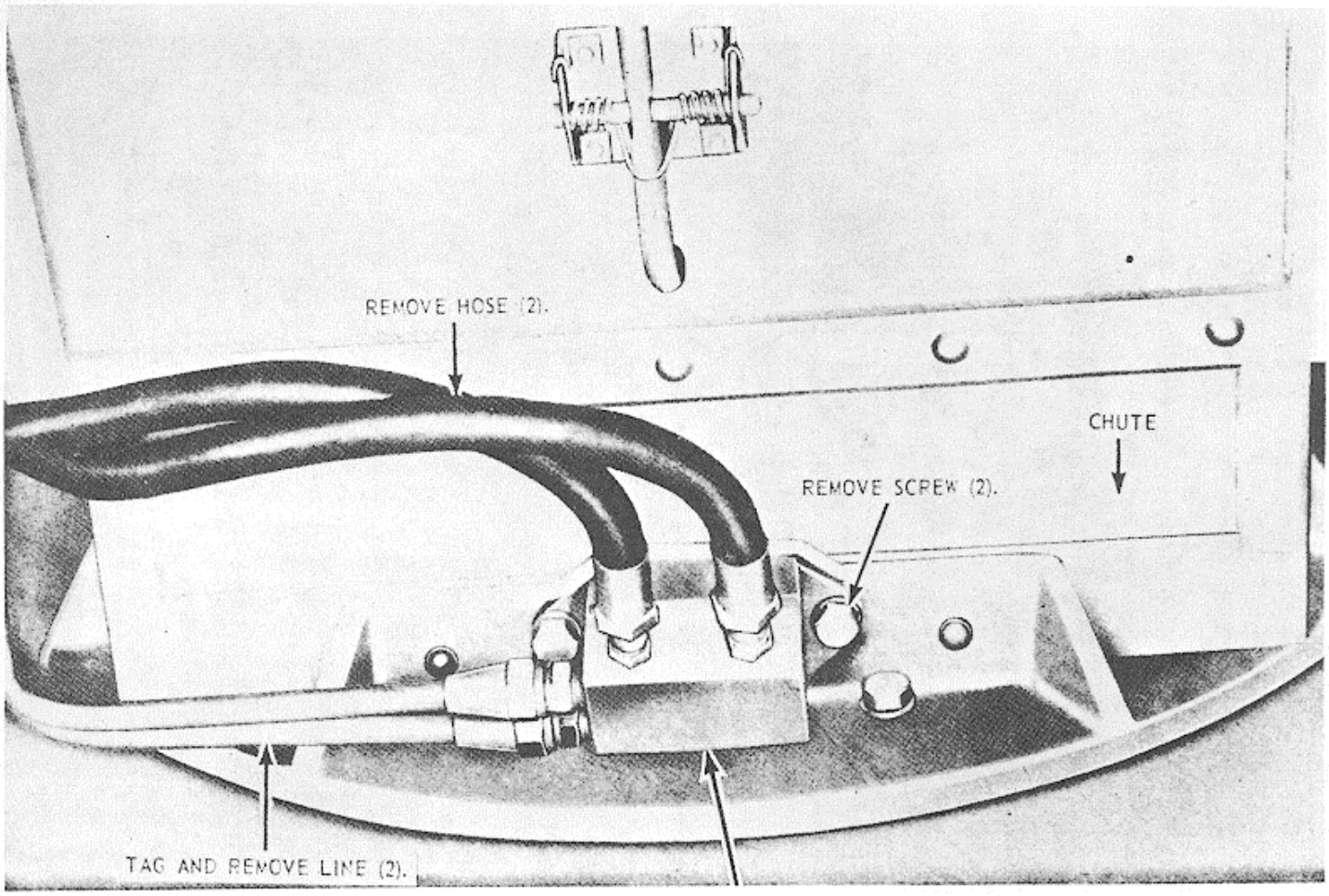


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Figure 12. Chute hydraulic oil junction block assembly, removal and installation.

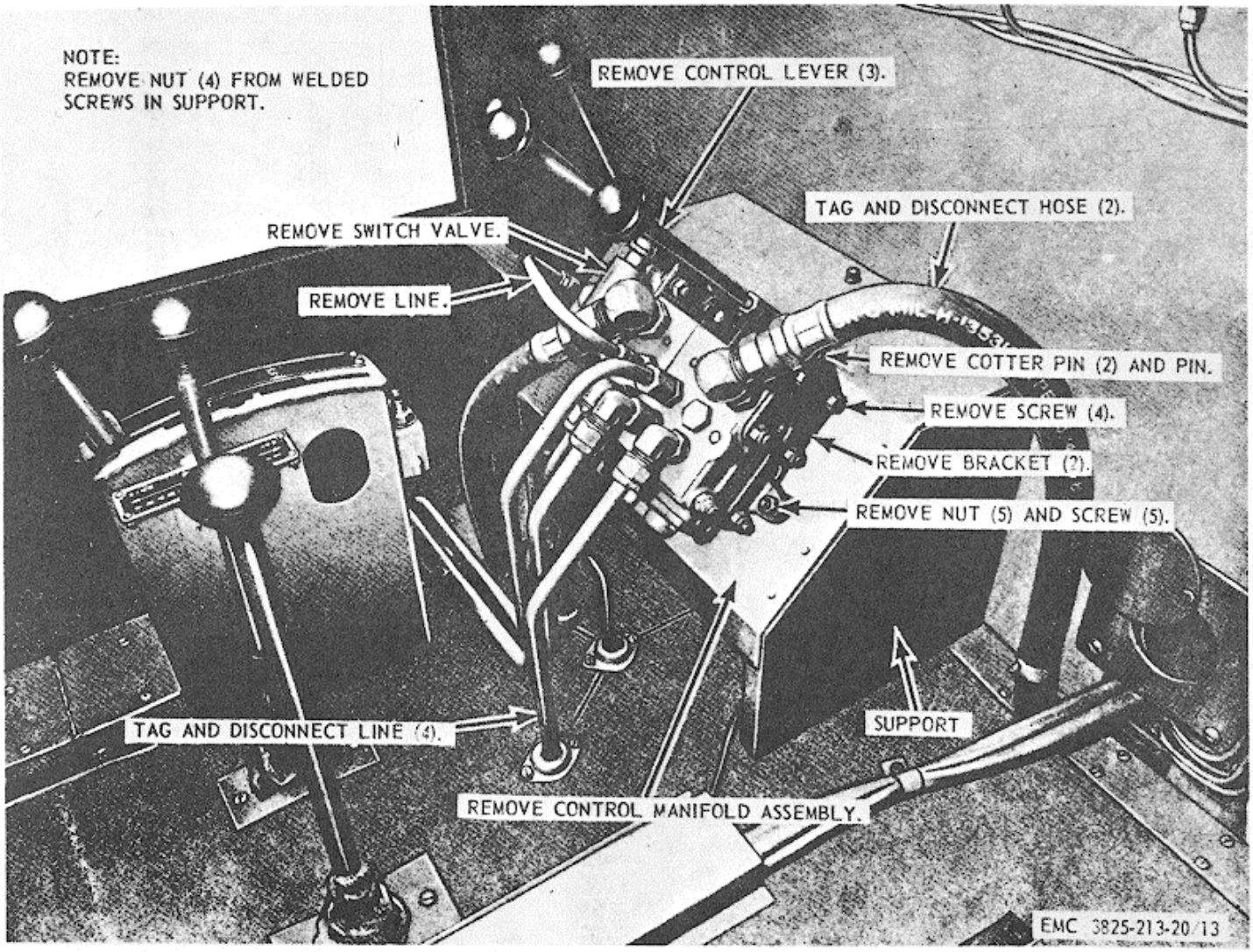
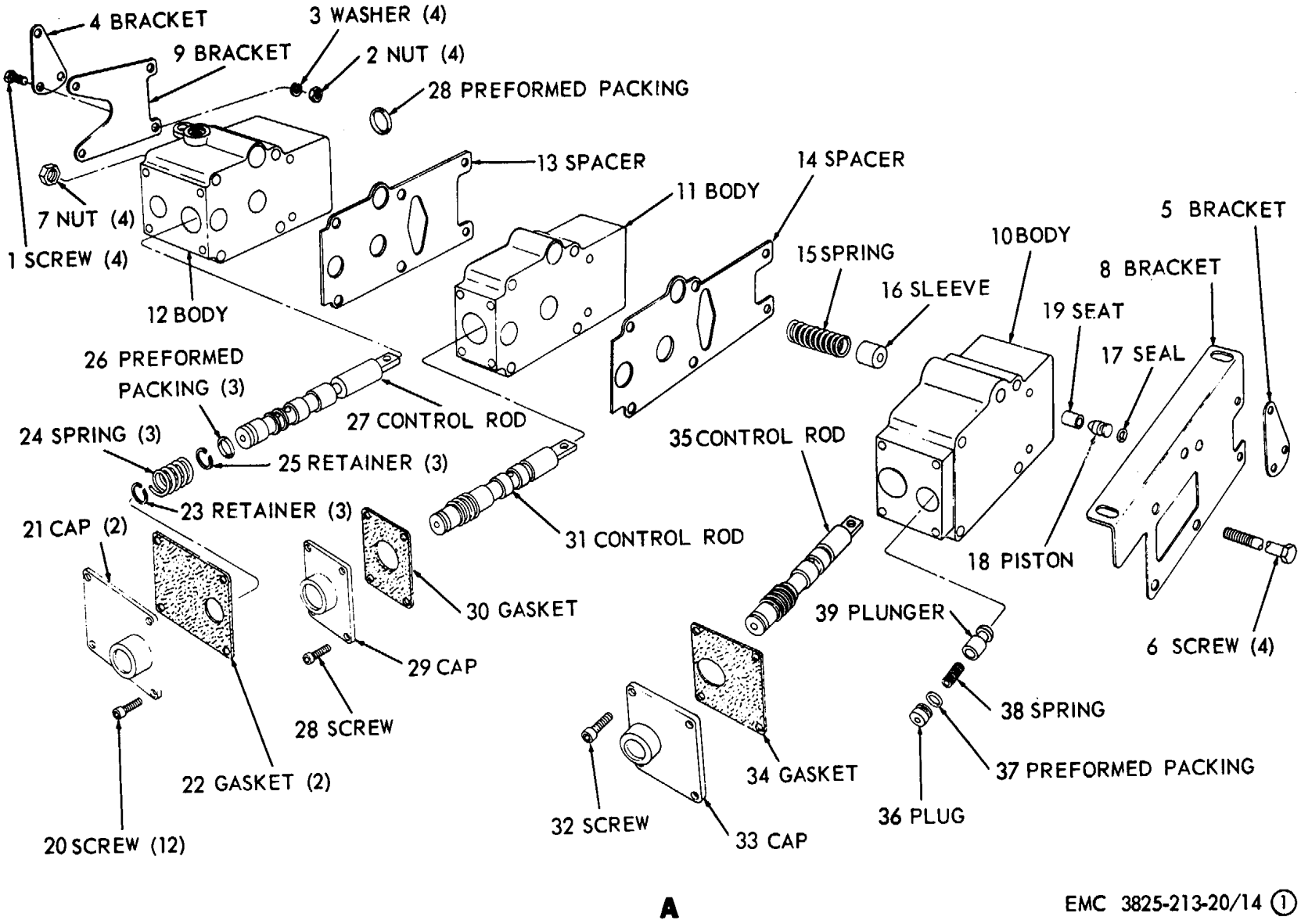
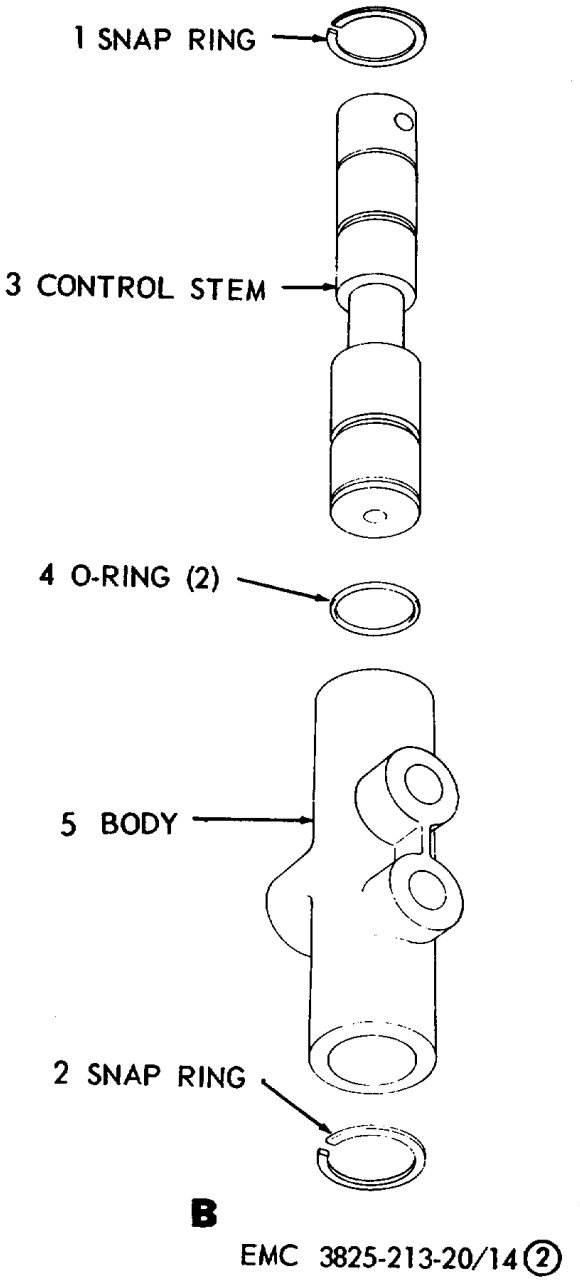


Figure 13. Plow hydraulic control manifold and switch valve assembly, removal and installation.



A. Control manifold assembly

Figure 14. Plow hydraulic control manifold and switch valve assembly, disassembly and reassembly, exploded view.



B. Switch valve assembly

Figure 14-Continued.

(2) Inspect the body for nicks burrs, or damaged threads.
(3) Inspect the spools for free operation in the body.
(4) Inspect the hardware for breaks or damaged threads.
(5) Replace defective parts as necessary.

d. *Reassembly.* Reassemble the plow hydraulic control manifold assembly as illustrated in figure 14.

e. *Installation.* Install the plow hydraulic control manifold assembly as illustrated in figure 13.

61. Switch Valve Assembly

a. *Removal.* Remove the switch valve assembly as illustrated in figure 13.

b. *Disassembly.* Disassemble the switch valve assembly as illustrated in figure 14.

c. *Cleaning, Inspection, and Repair.*
(1) Clean all parts with an approved cleaning solvent and dry thoroughly.
(2) Inspect all parts for damaged condition. Replace or repair worn, damaged, or defective parts.

d. *Reassembly.* Reassemble the switch valve assembly as illustrated in figure 14.

e. *Installation.* Install the switch valve assembly as illustrated in figure 13.

62. Chute Hydraulic Control Valve Assembly

a. *Removal.* Remove the hydraulic control valve assembly as illustrated in figure 15.

b. *Cleaning and Inspection.*
(1) Clean the control valve in an approved cleaning solvent and dry thoroughly.
(2) Inspect the control valve for condition and damage.

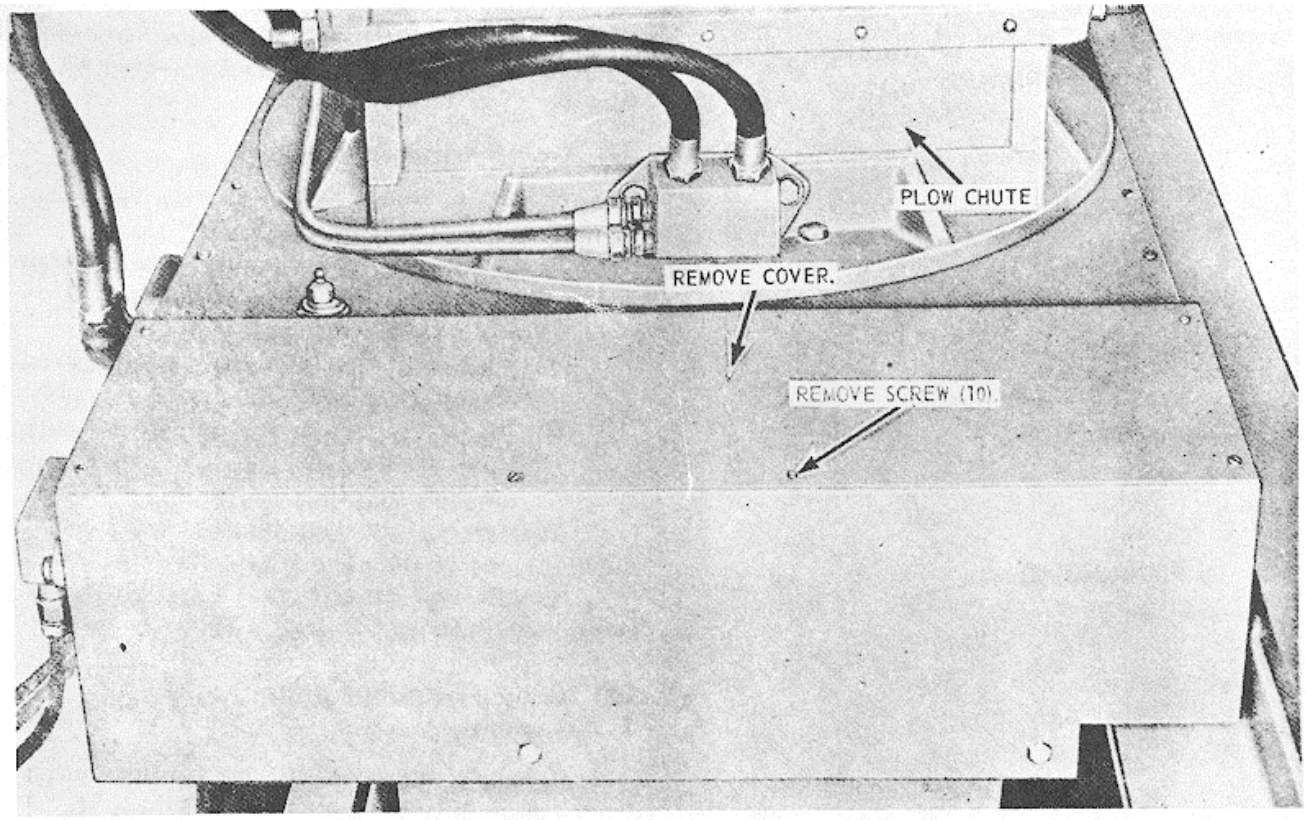
c. Installation. Install the chute hydraulic control valve assembly as illustrated in figure 15.

63. Chute Hydraulic Connection Block Assembly

a. *Removal.*
(1) Remove cover (fig. 15).
(2) Remove the chute hydraulic connection block assembly as illustrated in figure 16.

b. *Cleaning and Inspection.* Clean and inspect the connection block for condition and damage.

c. *Installation.*
(1) Install the chute hydraulic connection block assembly as illustrated in figure 16.
(2) Install cover (fig. 15).



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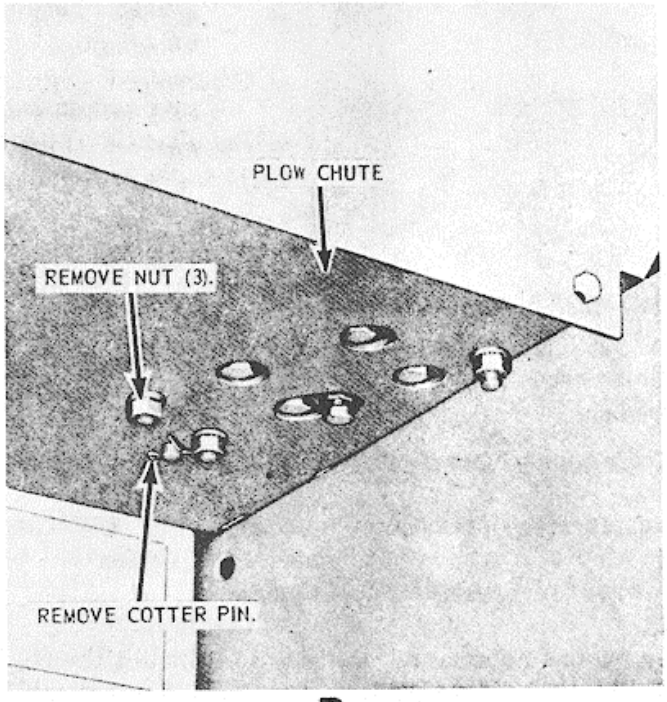

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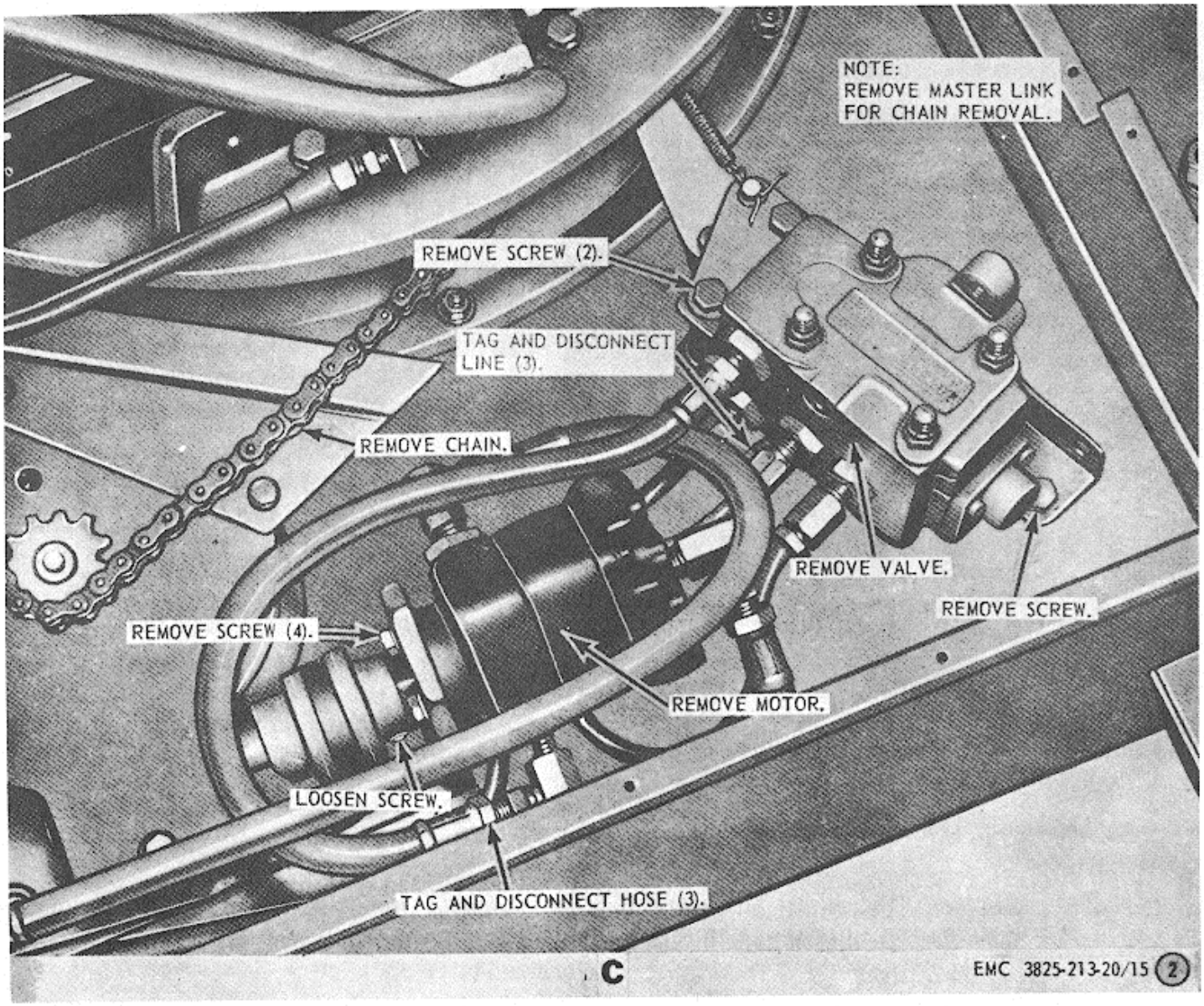
A. Cover removal

B. Underside removal point

Figure 15. Chute hydraulic motor, hydraulic control valve, chain, lever, and bracket, removal and installation.



C. Hydraulic motor, control valve, lines, hoses and linkage removed.

Figure 15-Continued.

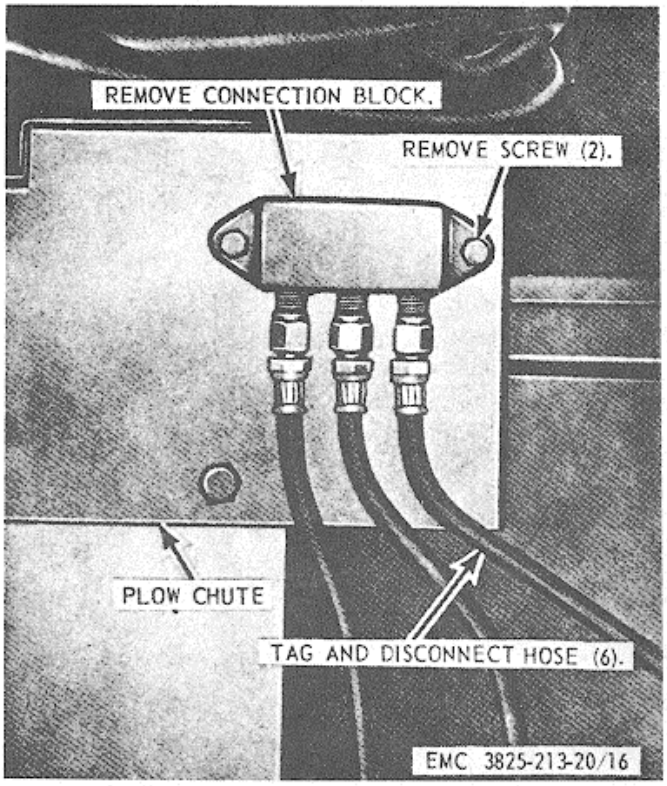


Figure 16. Chute hydraulic connection block assembly, removal and installation.

64. Chute Hydraulic Lifting Cylinder Assembly

a. *Removal*. Remove the chute hydraulic lifting cylinder assembly as illustrated in figure 17.

b. *Cleaning and Inspection*. Clean and inspect the lift cylinder for condition and damage.

c. *Installation*. Install the chute lifting cylinder assembly as illustrated in figure 17.

65. Chute Hydraulic Motor Assembly

a. *Removal*. Remove the chute hydraulic motor assembly as illustrated in figure 15.

b. *Cleaning and Inspection*. Clean and inspect the hydraulic motor assembly and replace defective motor or part as necessary.

c. *Installation.* Install the chute hydraulic motor assembly as illustrated in figure 15.

66. Plow Chute Throttle Valve

a. *Removal*. Remove the plow chute throttle valve as illustrated in figure 18.

b. *Cleaning and Inspection*. Clean and inspect. Replace defective parts.

c. *Installation*. Install the plow chute throttle valve assembly as illustrated in figure 18.

67. Plow Hydraulic Oil Lines and Hose

a. *Removal.* Remove the plow hydraulic lines and hose as illustrated in figure 19.

b. *Cleaning and Inspection*. Clean all hose and lines, inspect and replace defective hose and lines as necessary.

c. *Installation*. Install the plow hydraulic lines and hose as illustrated in figure 19.

68. Fan Housing Hydraulic Cylinder Assembly

a. *Removal.* Remove the fan housing hydraulic cylinder assembly as illustrated in figure 20.

b. *Cleaning and Inspection*. Clean the cylinder assembly and inspect for condition, replace defective cylinder as necessary.

c. *Installation.* Install the fan housing hydraulic cylinder assembly as illustrated in figure 20.

69. Plow Hydraulic Oil System Filter

a. *Removal*. Remove the plow hydraulic oil system filter as illustrated in 'figure 21.

b. *Cleaning, Inspection, and Repair.* Clean, inspect, replace, or repair the filter as necessary.

c. *Installation*. Install the plow hydraulic oil system filter as illustrated in figure 21.

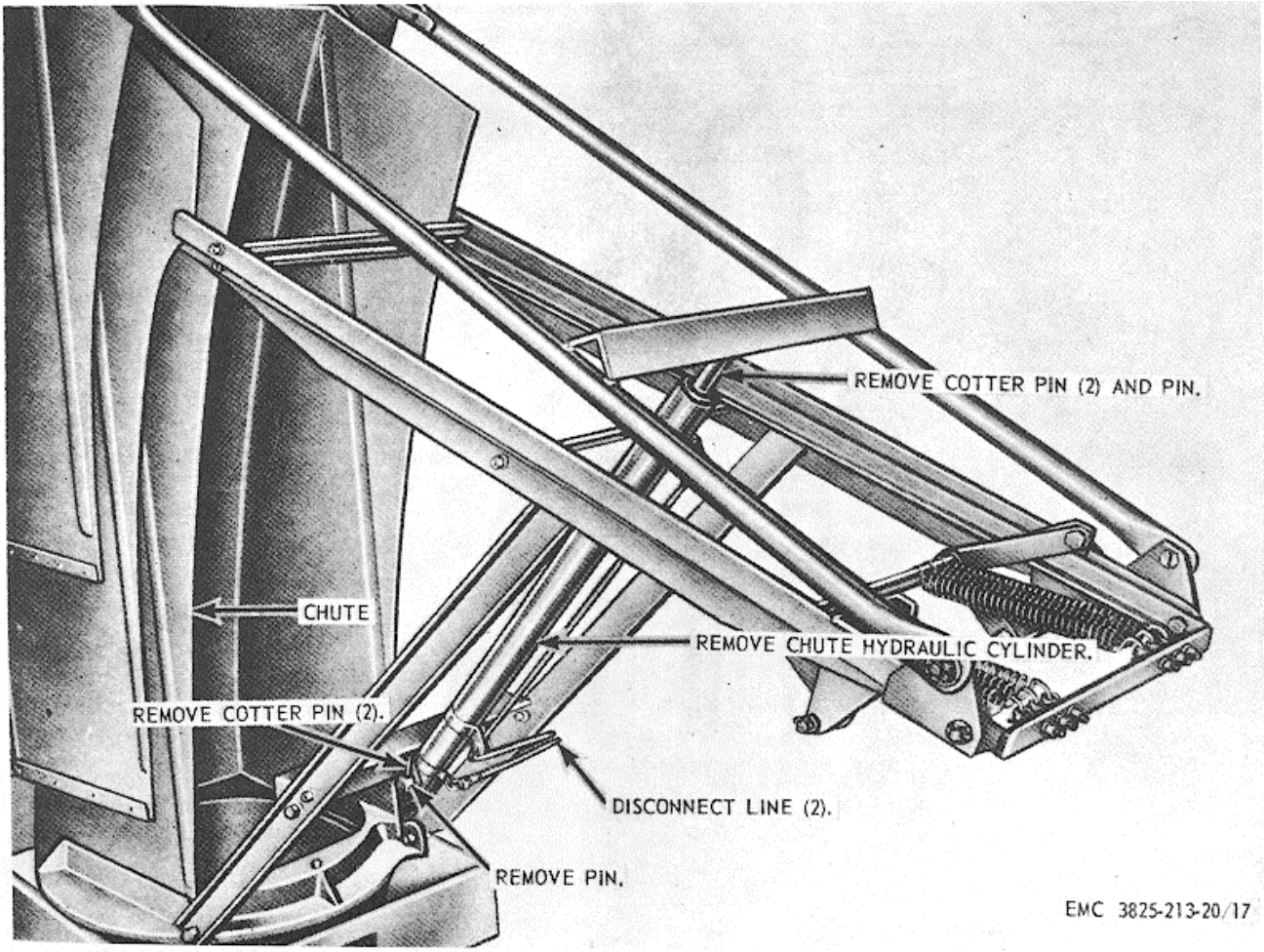


Figure 17. Chute hydraulic lifting cylinder assembly, removal and installation.

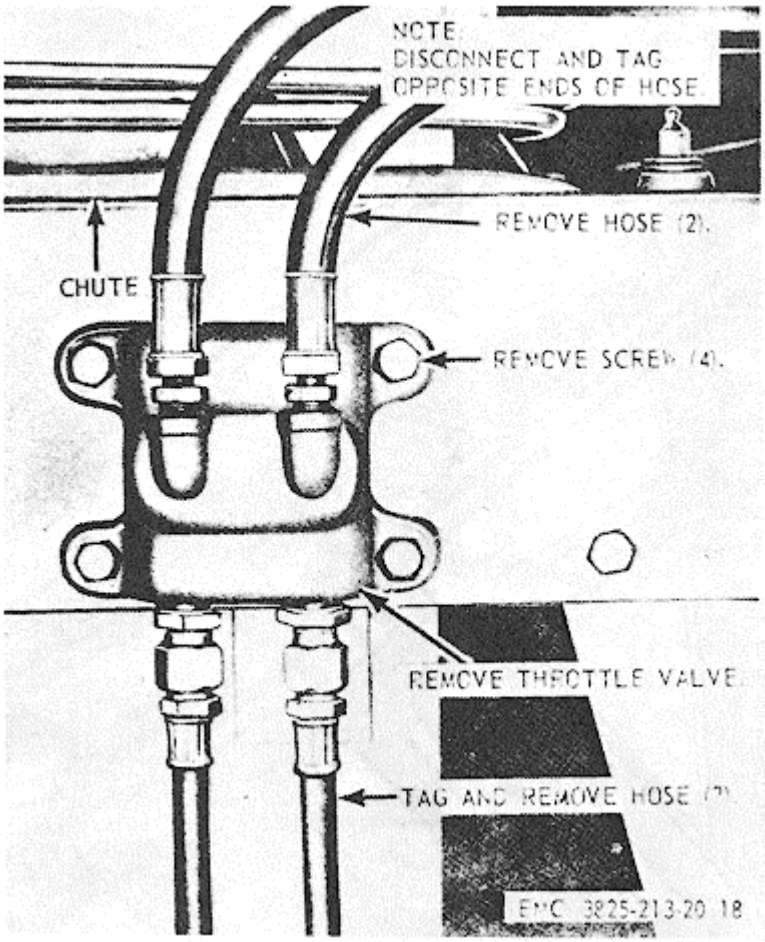
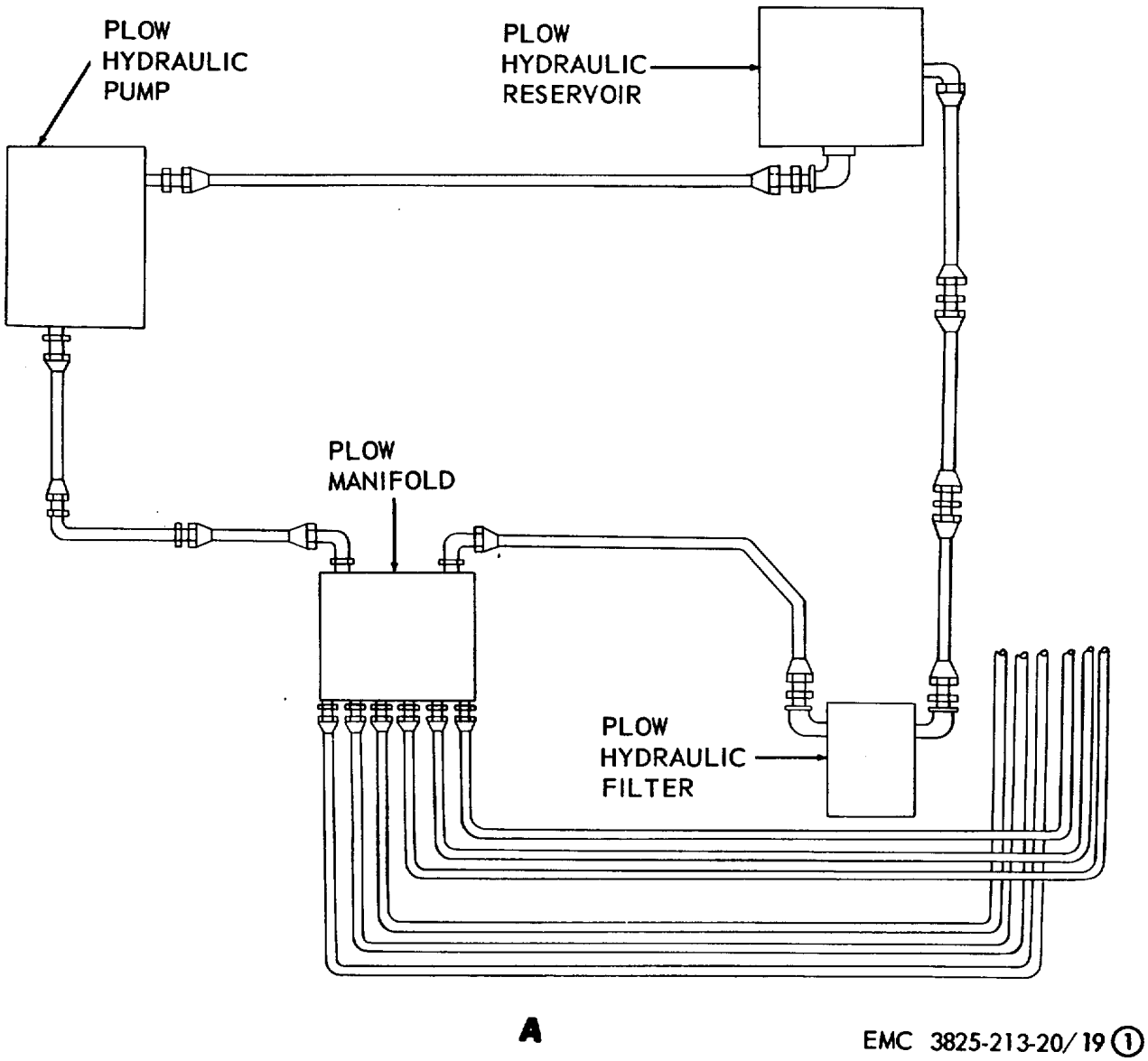
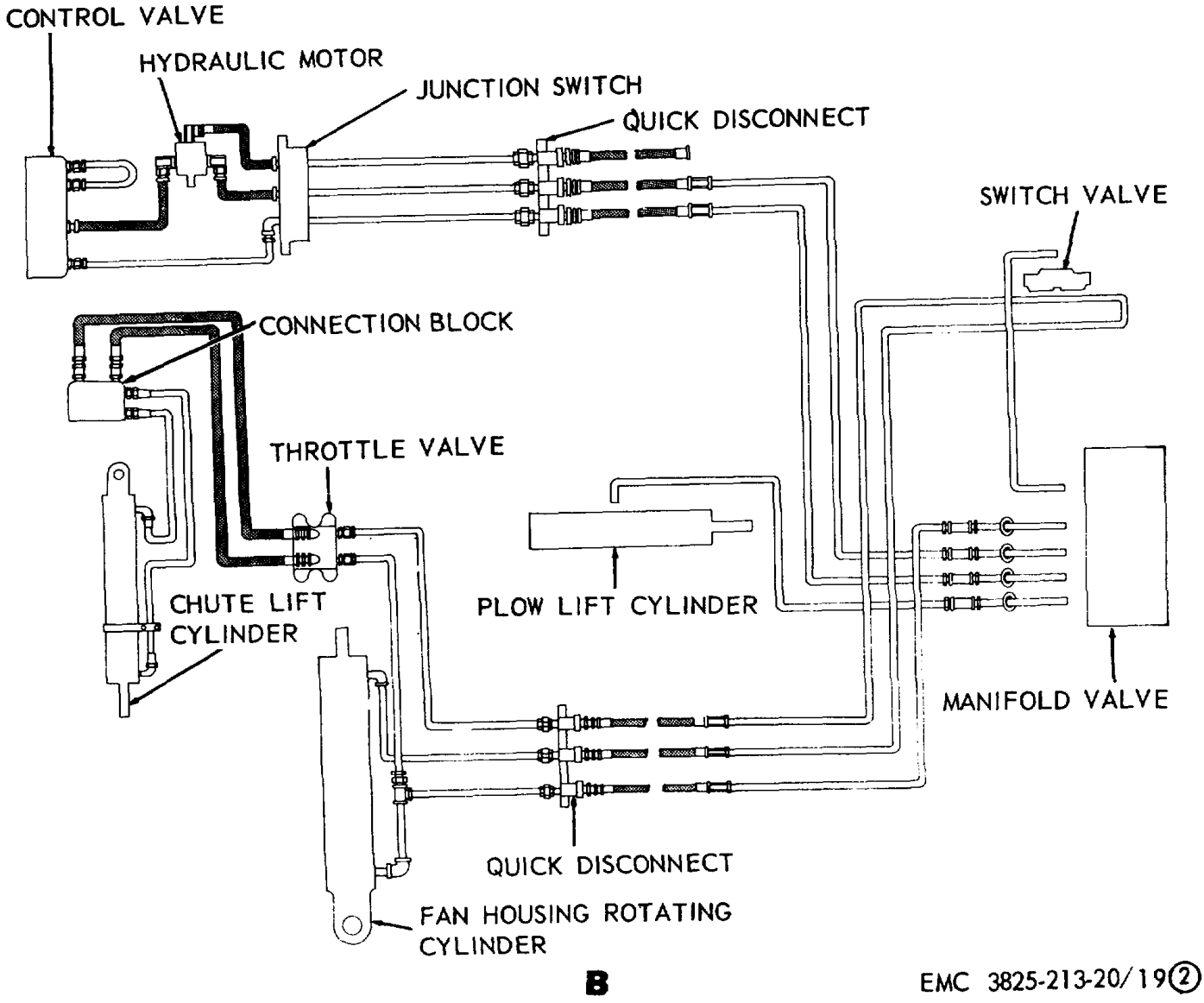


Figure 18. Plow chute throttle valve, removal and installation.



A. Line diagram reservoir to-pump

Figure 19. Plow hydraulic oil lines and hose diagram.



B. Line diagram pump-to-components.

Figure 19-Continued.

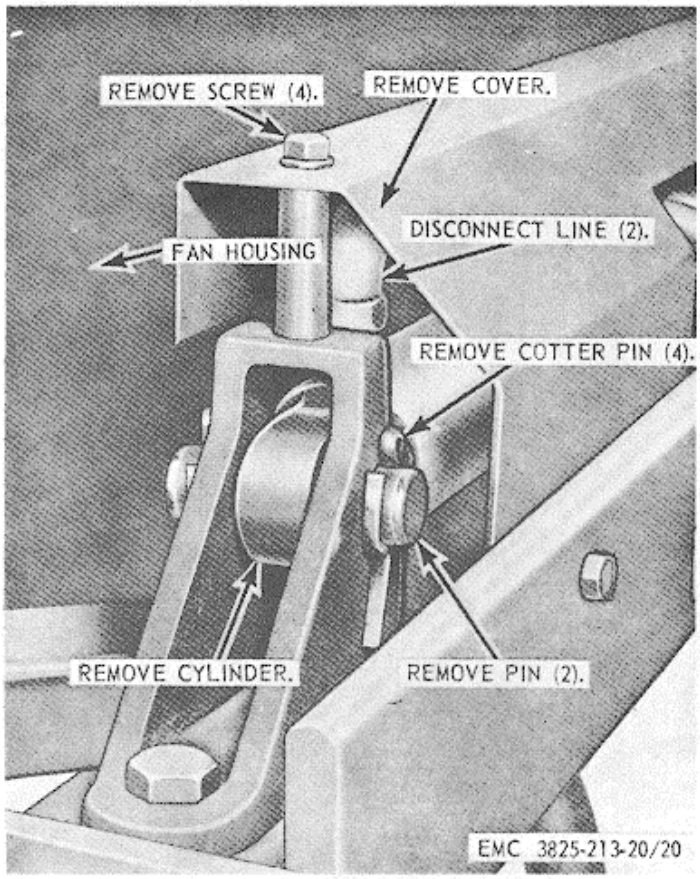


Figure 20. Fan housing hydraulic cylinder assembly, removal and installation.

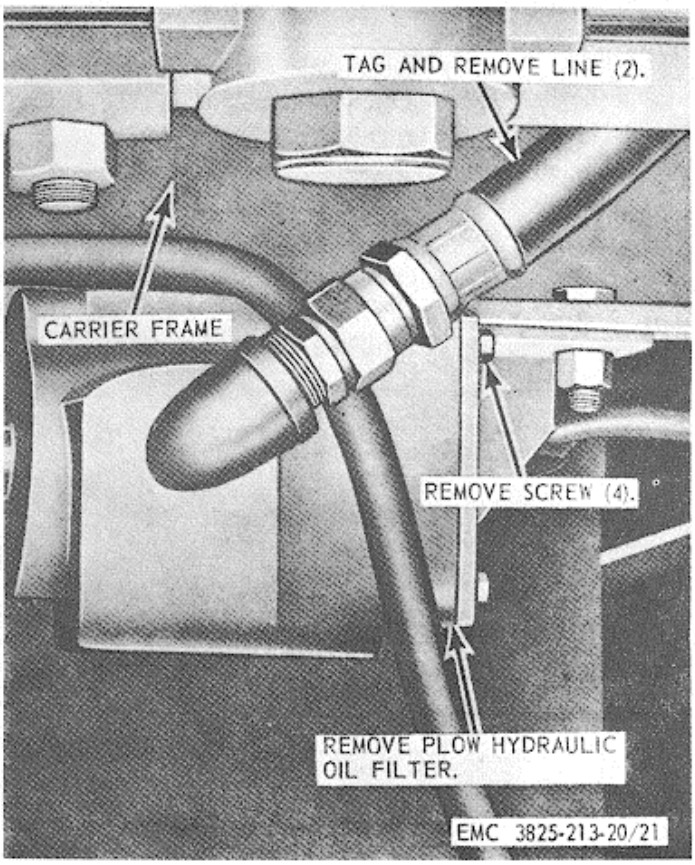


Figure 21. Plow hydraulic oil system filter, removal and installation.

Section II. AUGER ASSEMBLY

70. General

The three spiral augers are located one above the other, and are incased in the plow frame. These augers feed snow into the fan blower which in turn forces the snow to a different area. The lower auger should be inspected thoroughly before each operation for severely bent flights and tube. The bearings are self-alining and will aline the rotation of the augers properly with a slight bend.

71. Auger Assembly

a. *Removal.* Remove the auger assemblies as illustrated in figure 22.

Note. **Be sure to match mark each end of auger and bearing flanges.**

b. Cleaning, Inspection, and Repair. Clean the auger and bearing assemblies and inspect for breaks, bends, and broken welds.

c. *Installation.* Install the auger assemblies as illustrated in figure 22.

72. Auger Trunnion Bearing

a. Removal.
   (1) Remove the auger (par. 71).
   (2) Remove the trunnion bearing as illustrated in figure 23.

b. *Cleaning and Inspection.* Clean the bearing assembly and inspect for damage or wear. Replace damaged or worn parts as necessary.

c. *Installation.*
   (1) Install the trunnion bearing as illustrated in figure 23.
   (2) Install the augers (par. 71).

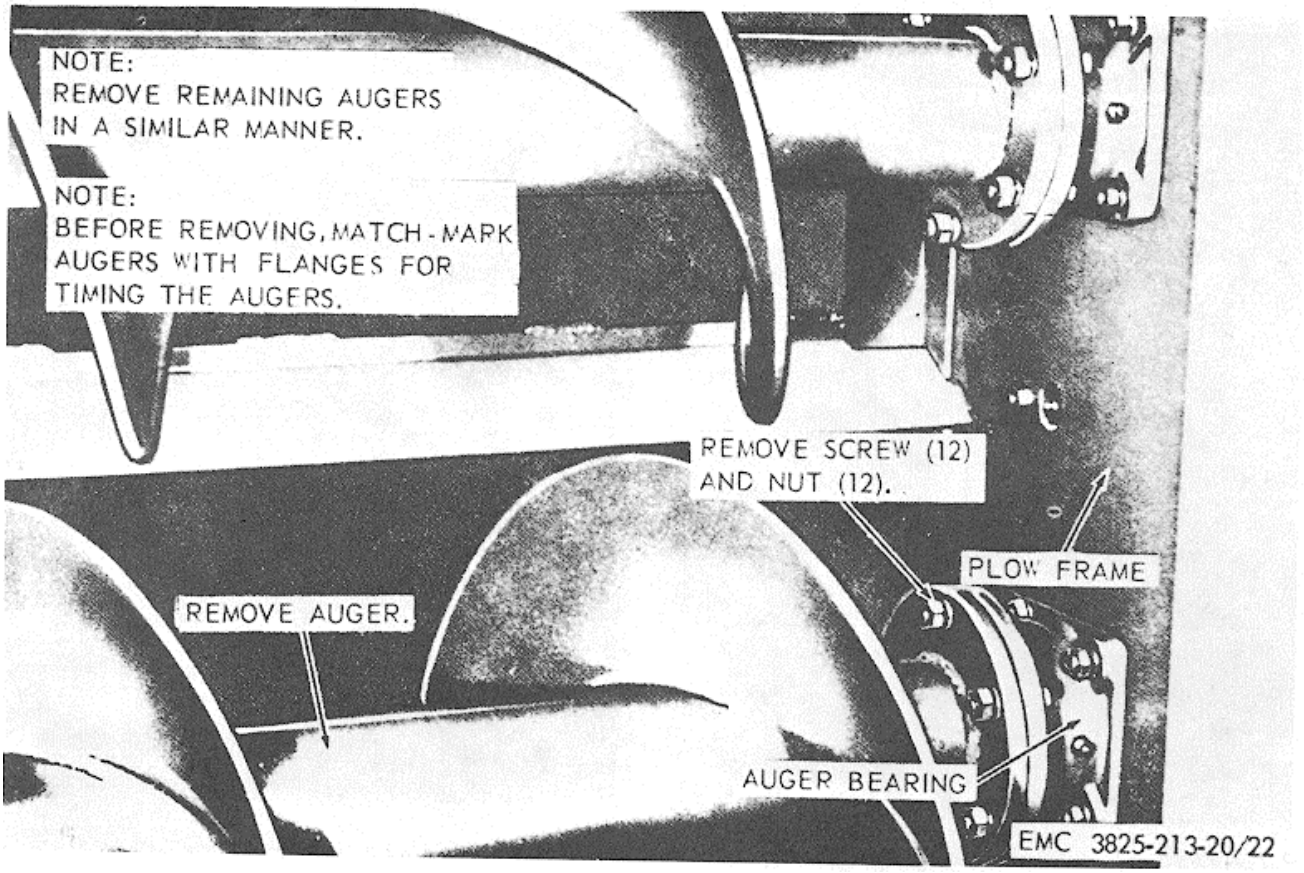


Figure 22. Auger assembly, removal and installation.

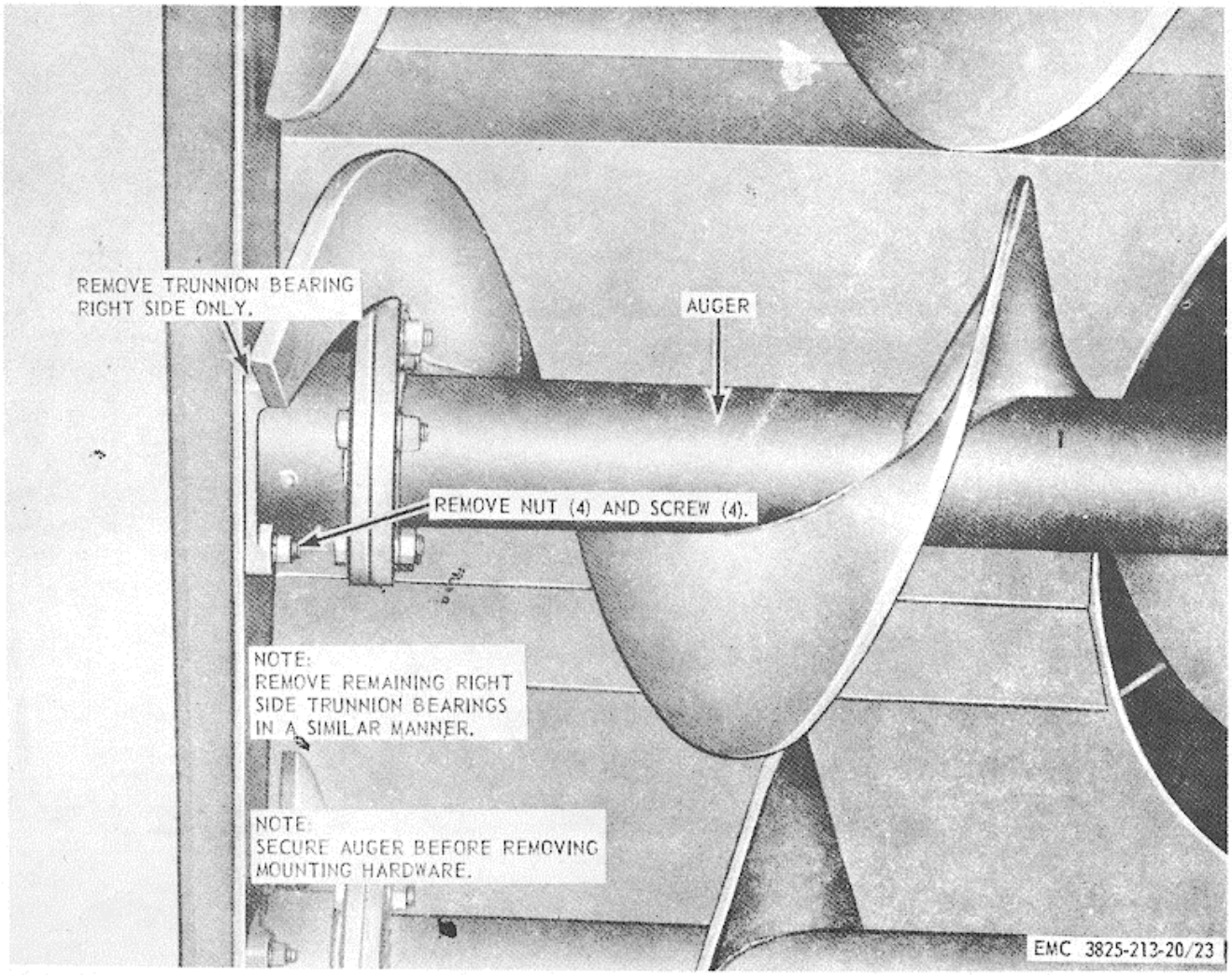


Figure 23. Auger trunnion bearing

Section III. CHUTE ASSEMBLY

73. General

The plow chute assembly is mounted on a turntable above the fan blower housing. The chute is in three sections to permit the plowed snow to be expelled the desired distance. The chute is hydraulically controlled and can be turned to the right or left of the carrier.

74. Chute Trough Assembly

a. *Removal.* Remove the chute trough assembly as illustrated in figure 24.

b. *Disassembly*. Disassemble the chute trough assembly as illustrated in figure 25.

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect the chute, turntable, and arms for condition and broken welds.

(3) Replace or repair defective parts as necessary.

d. *Reassembly*. Reassemble the chute trough assembly as illustrated in figure 25.

e. *Installation*. Install the chute trough assembly as illustrated in figure 24.

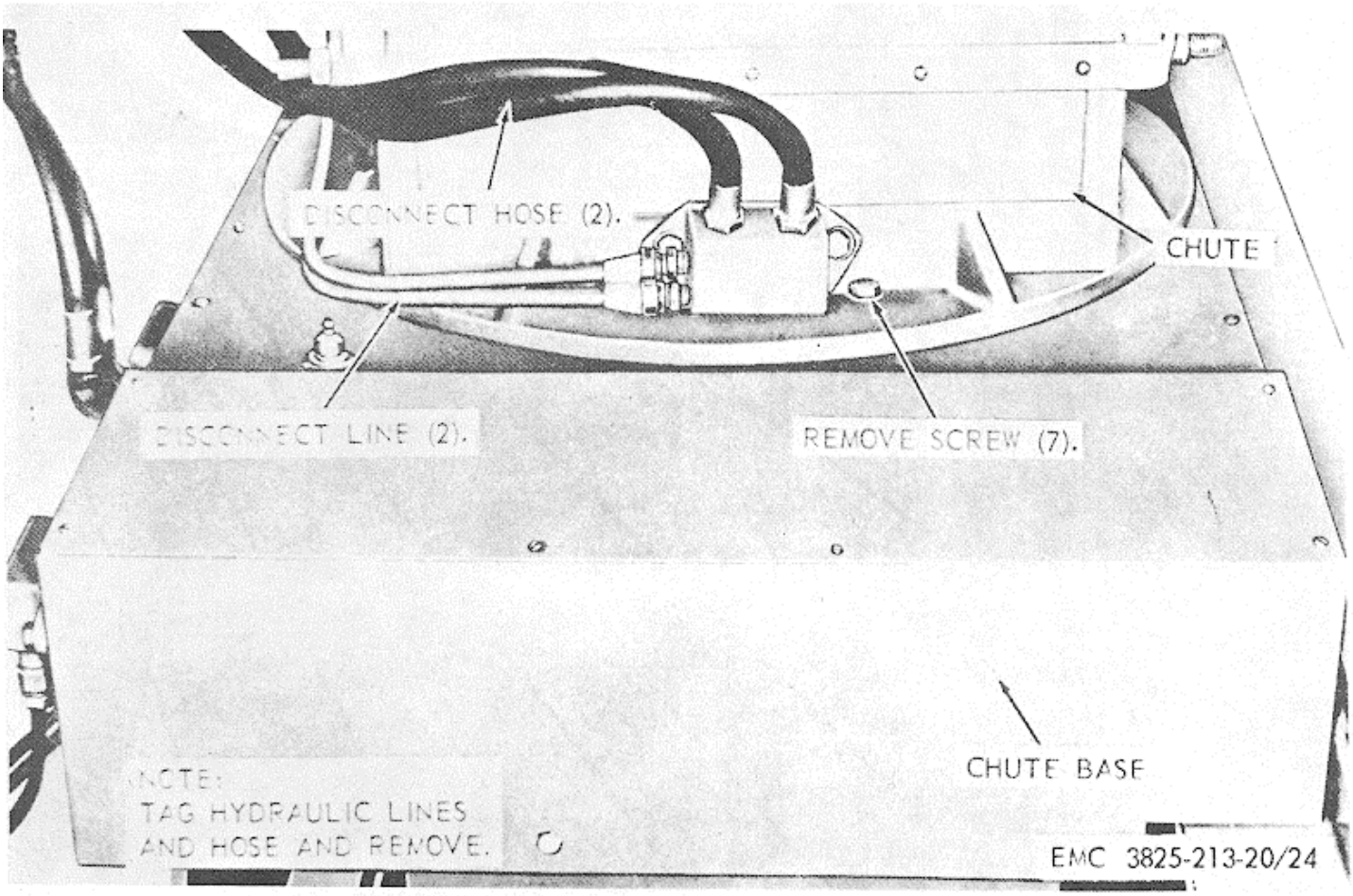
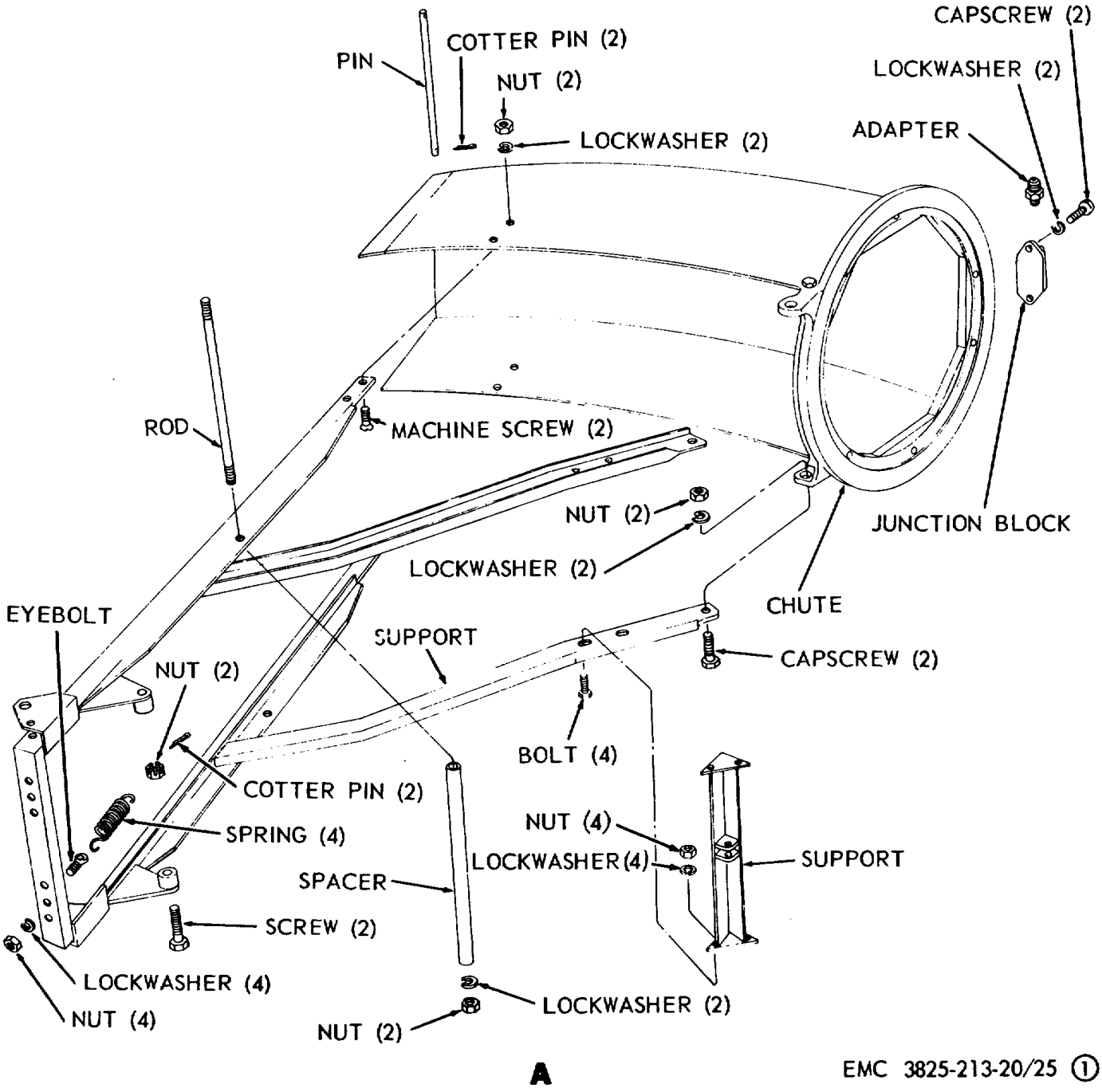
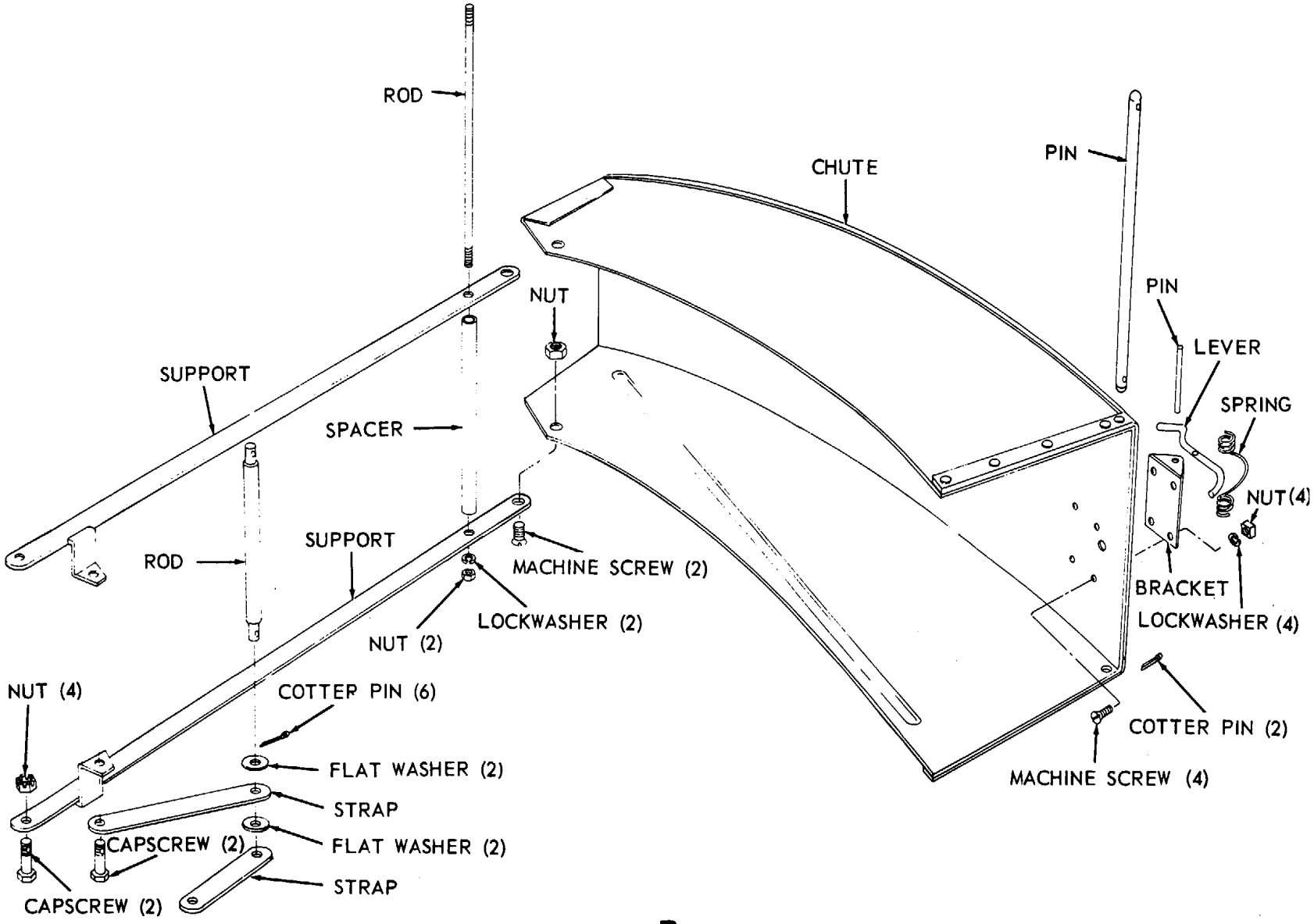


Figure 24. Chute trough assembly, removal and installation.



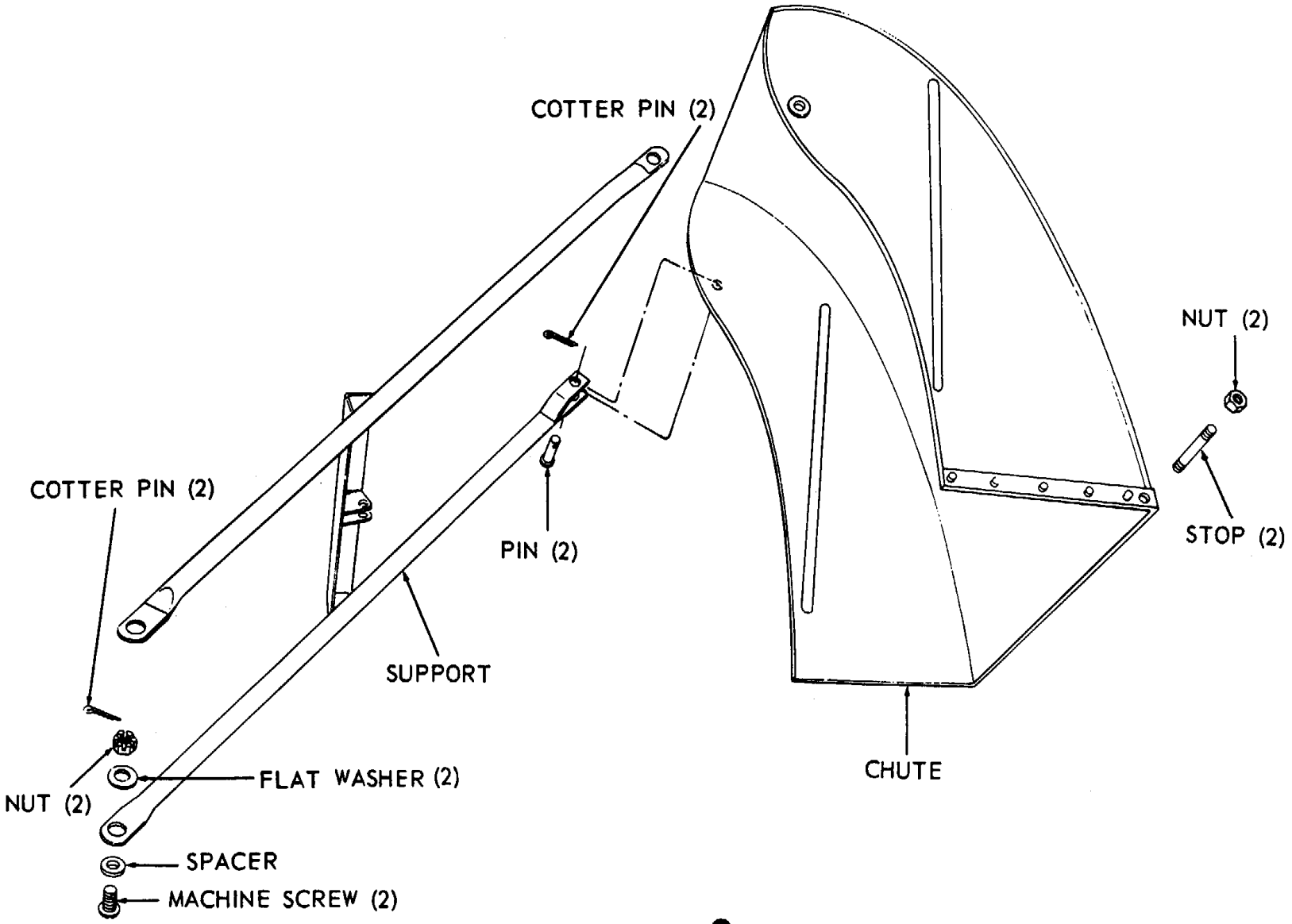
A. Lower chute disassembly.

Figure 25. Chute trough assembly, disassembly and reassembly, exploded view.



B. Intermediate chute disassembly.

Figure 25-Continued.



C. Top chute disassembly.

Figure 25-Continued.

Section IV. FAN BLOWER AND HOUSING ASSEMBLY

75. General

The six blade blower is incased in a housing mounted on the back of the snowplow frame. The fan blower is driven from the fan blower gearcase assembly, powered by the plow engine. The fan blades can be replaced individually when they become bent or damaged. The housing control arm is connected to a hydraulic cylinder and controls the position of the housing as to type of discharge desired when snow removal unit is in operation.

76. Fan Blower Assembly

a. *Removal*. Remove the fan blower blades and arm assemblies as illustrated in figure 26.

b. *Cleaning, Inspection, and Repair.* Clean the blades and arm assemblies and inspect for breaks, bends, or other damage. Replace or repair damaged parts as necessary.

c. *Installation.* Install the fan blower blades and arm assemblies as illustrated in figure 26.

77. Housing Control Arm

a. *Removal*. Remove housing control arm as illustrated in figure 27.

b. *Cleaning and Inspection*. Clean the housing control arm and inspect for bends, excessive wear, or other damage. Replace damaged parts as necessary.

c. *Installation.* Install the housing control arm as illustrated in figure 27.

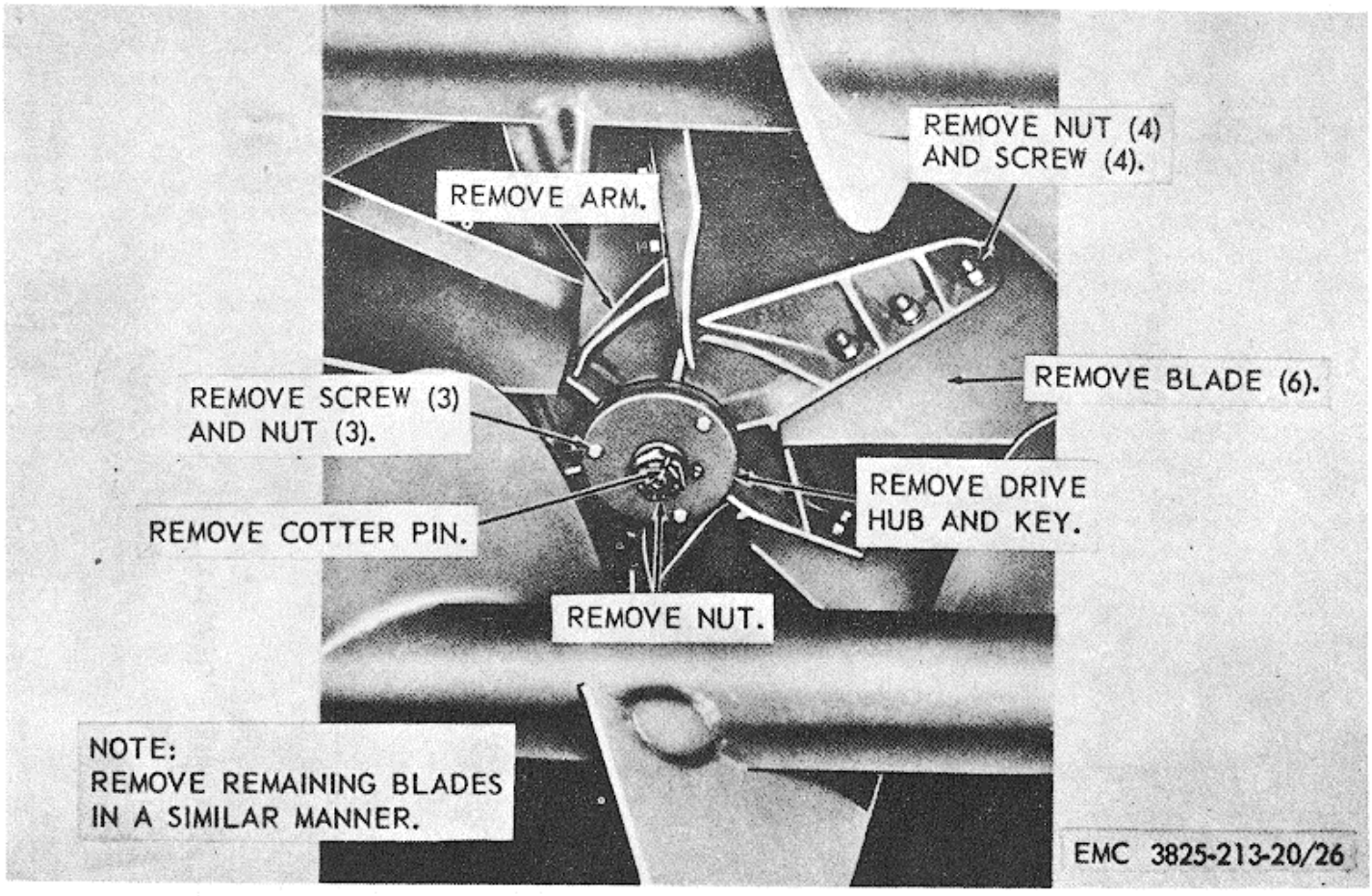


Figure 26. Fan blower blades and arm assembly, removal and installation.

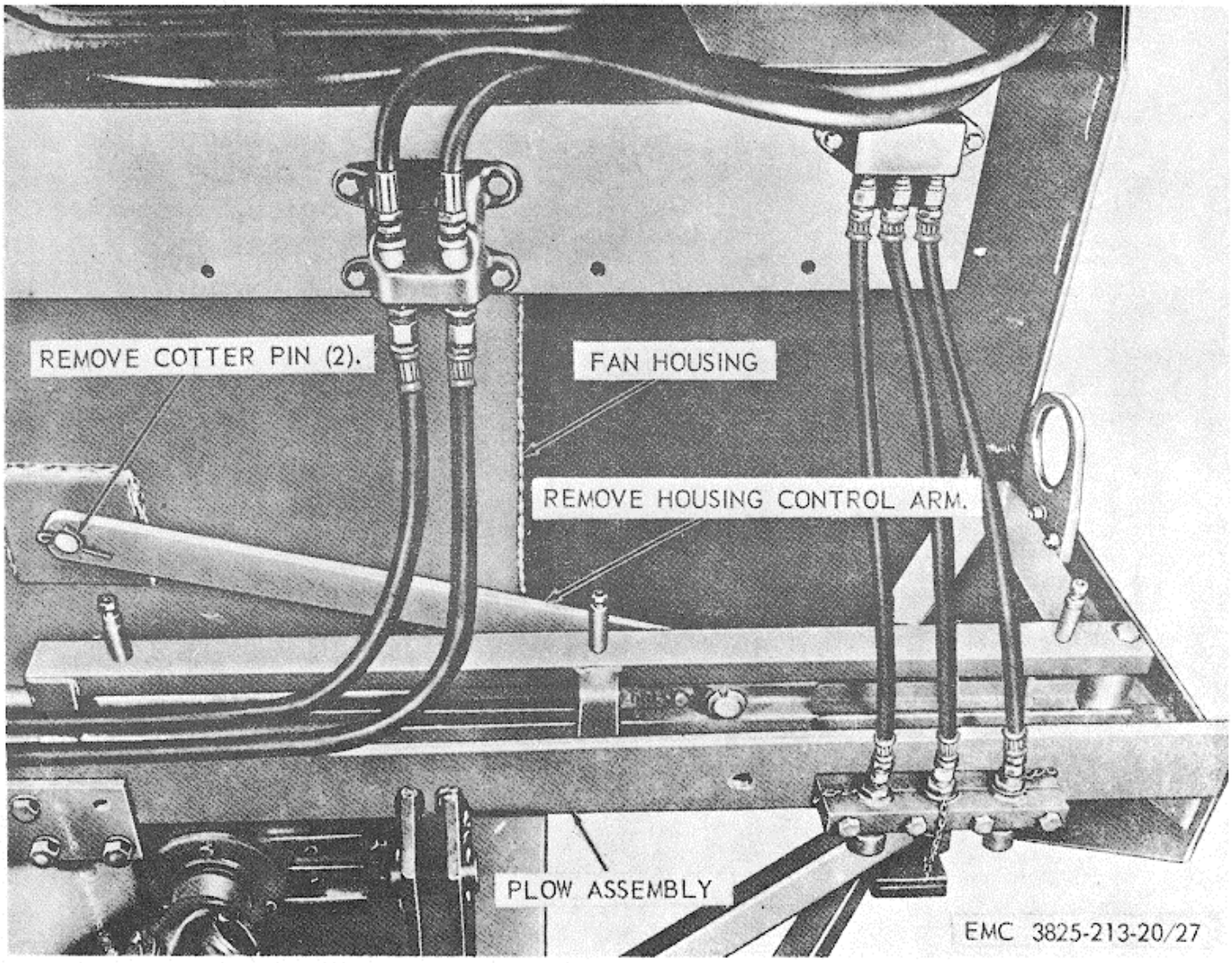


Figure 27. Housing control arm., removal and installation.

Section V. PLOW FRAME AND ACCESSORIES

78. General

The plow frame is an all-welded construction, consisting of rolled steel structural members and steel plate sides and back. The lower edge of the frame is provided with a replaceable scraper blade. Two ver 'al cutting knives, slightly inclined forward, are provided on each side of the plow frame in order to cut through high snow. The plow frame slides in front of the carrier on skates.

79. Side Cutter Knives

a. *Removal*. Remove the side cutter knives as illustrated in figure 28.

b. *Cleaning and Inspection*. Clean the side cutter knives and inspect for condition. Replace as necessary.

c. *Installation*. Install the side cutter knives as illustrated in figure 28.

80. Shoe Assembly

a. *Removal*. Remove the shoe assembly as illustrated in figure 29.

b. *Cleaning, Inspection, and Repair.* Clean and inspect the shoe assembly and repair or replace as necessary.

c. *Installation*. Install the shoe assembly as illustrated in figure 29.

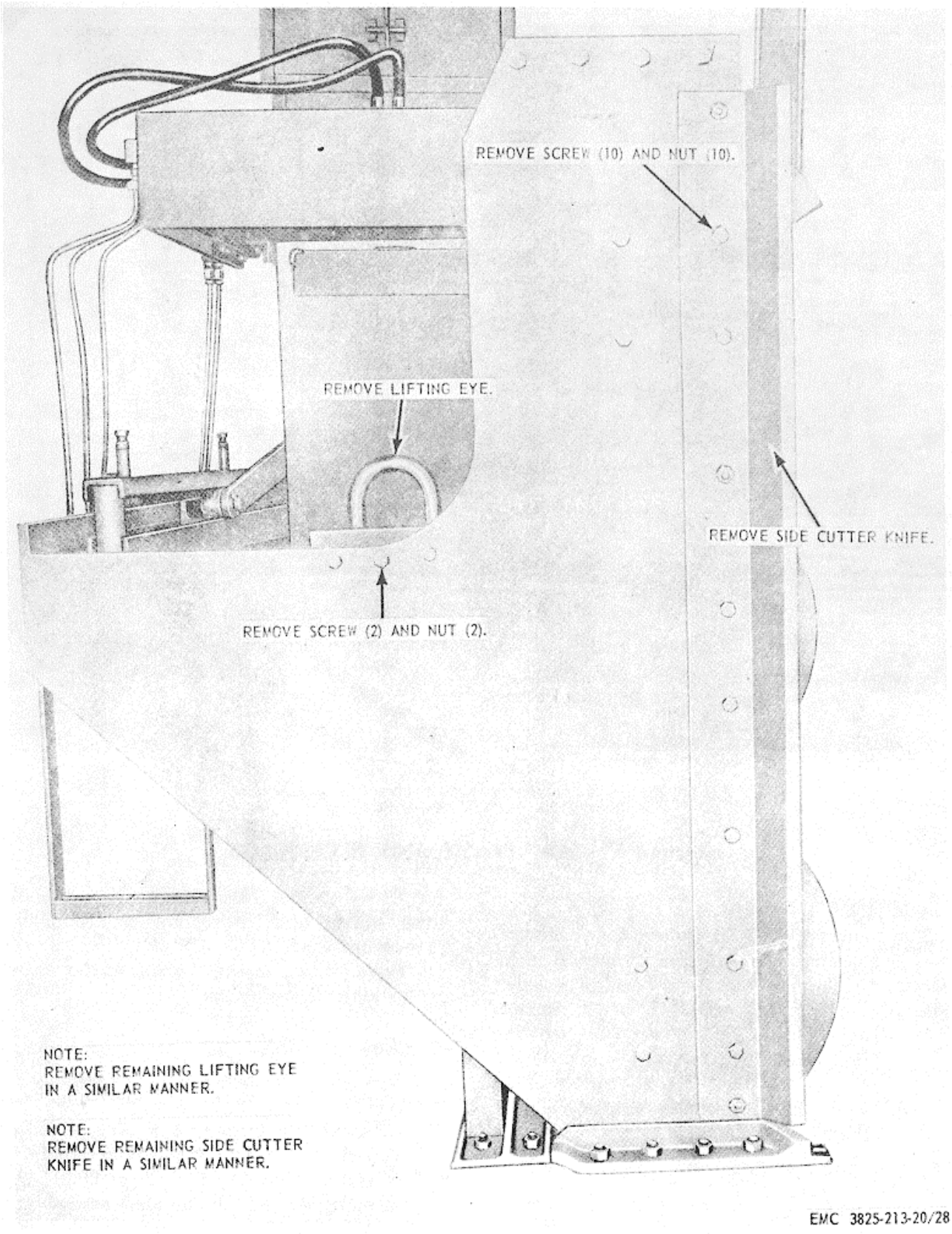


Figure 28. Side cutter knives and plow lifting eyes, removal and installation.

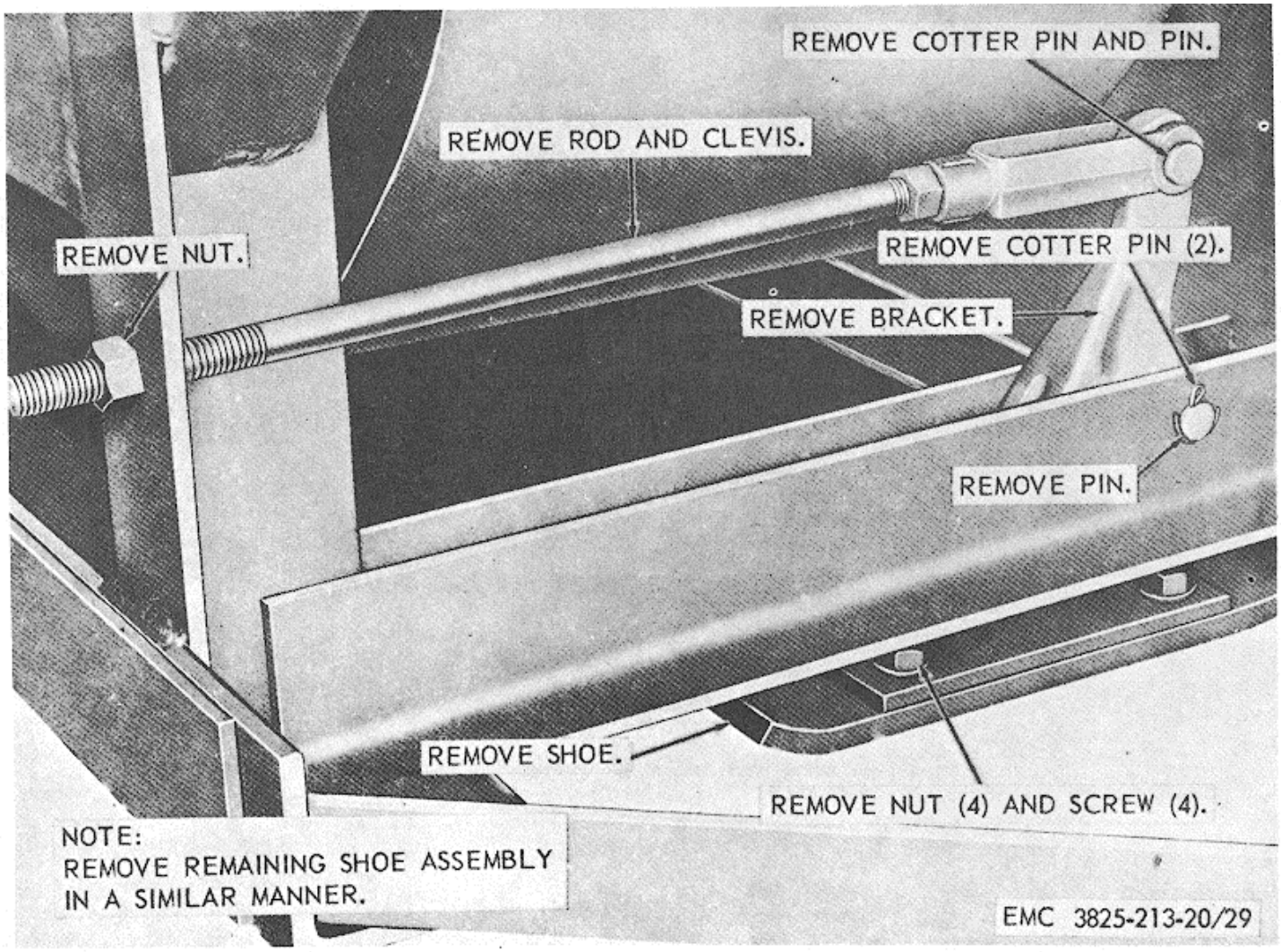


Figure 29. Shoe assembly removal and installation.

d. Adjustment. Adjust the shoe (TM 5-3825-213-10).

81. Plow Skate Assembly

a. *Removal.* Remove the plow skate assembly as illustrated in figure 30.

b. *Cleaning, Inspection, and Repair.* Clean and inspect the plow skate as necessary. Repair or replace as necessary.

c. *Installation.* Install the plow skate assembly as illustrated in figure 30.

82. Auger Drive Shaft Guard Assembly

a. *Removal.* Remove the auger drive shaft guard assembly as illustrated in figure 31.

b. *Cleaning and Inspection.* Clean and inspect the drive shaft guard and replace as necessary.

c. *Installation.* Install the auger drive shaft guard assembly as illustrated in figure 31.

83. Plow Lifting Eye

a. *Removal.* Remove the plow lifting eye (fig. 28).

b. *Cleaning and Inspection.* Clean and inspect the plow lifting eye and replace as necessary.

c. *Installation.* Install the plow lifting eye (fig. 28).

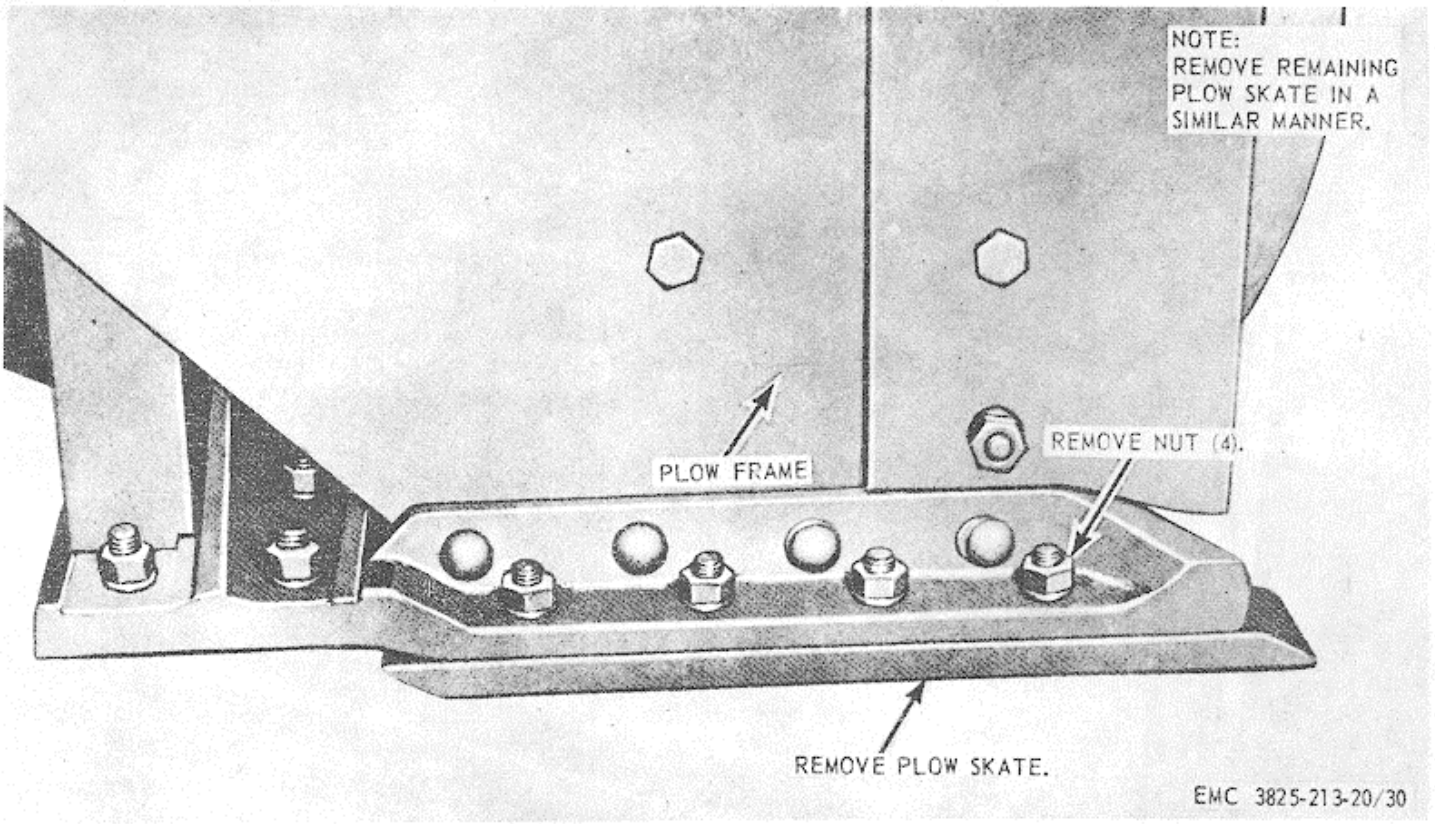


Figure 30. Plow skate assembly, removal and installation.

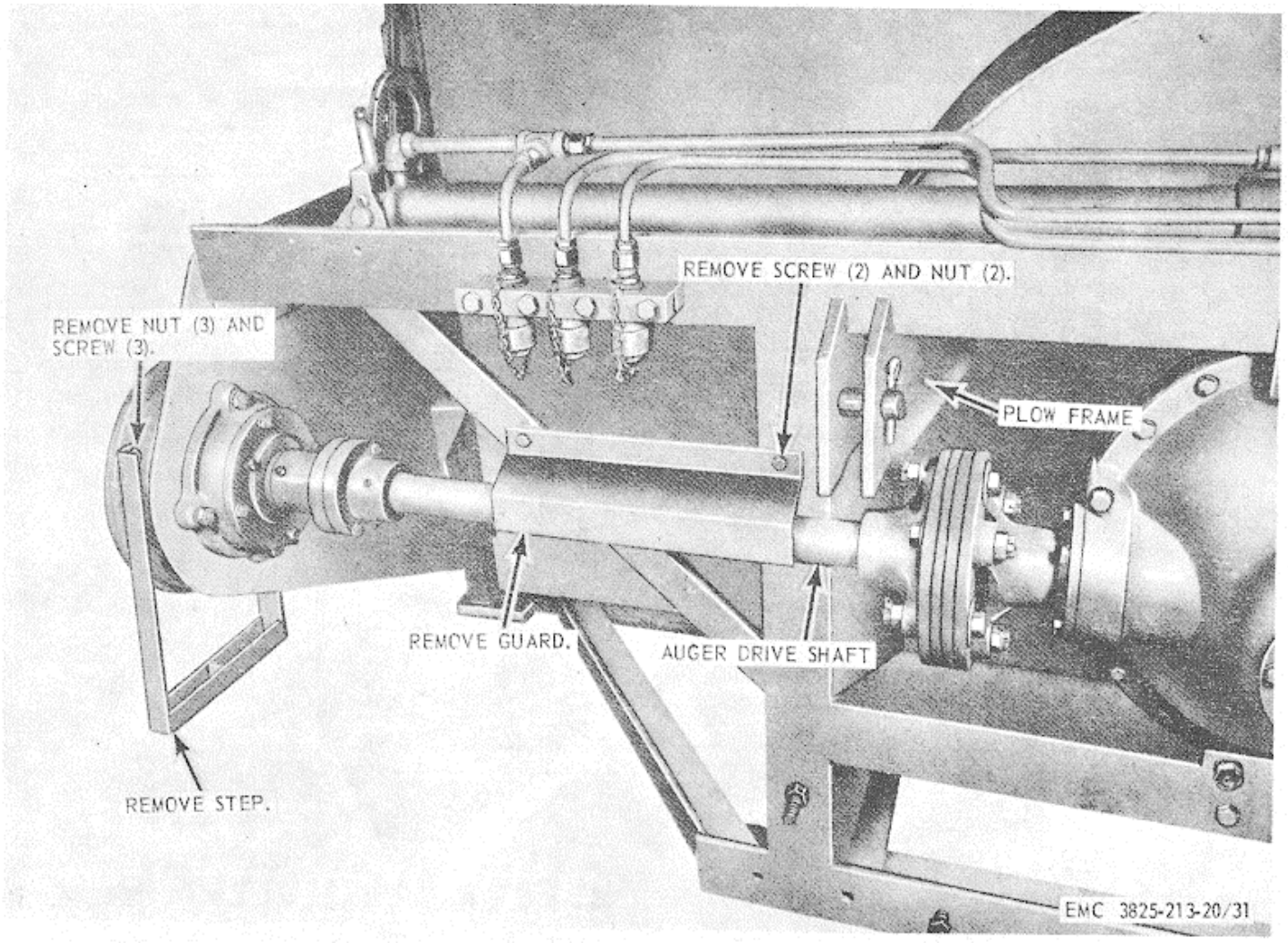


Figure 31. Auger drive shaft guard assembly, removal and installation.

Section VI. CLUTCH AND DRIVE SHAFT

84. General

The plow engine clutch engages and disengages the power from the plow engine to the augers and fan blower. The clutch is a friction-type over-center clutch. An adjustable linkage connects the clutch assembly to an air chamber operated by a valve mounted on the instrument panel in the carrier cab.

85. Clutch Air Valve Assembly

a. *Removal.* Remove the clutch air valve as illustrated in figure 32.

b. *Disassembly.* Disassemble the clutch air valve assembly as illustrated in figure 33.

c. *Cleaning, Inspection, and Repair.* Clean and inspect the clutch air valve for wear, damaged threads, and condition. Replace defective parts as necessary.

d. *Reassembly.* Reassemble the clutch air valve assembly as illustrated in figure 33.

e. *Installation.* Install the clutch air valve assembly as illustrated in figure 32.

86. Clutch Linkage, Valve, and Air Chamber

a. Removal. Remove the clutch linkage, valve, and air chamber as illustrated in figure 34.

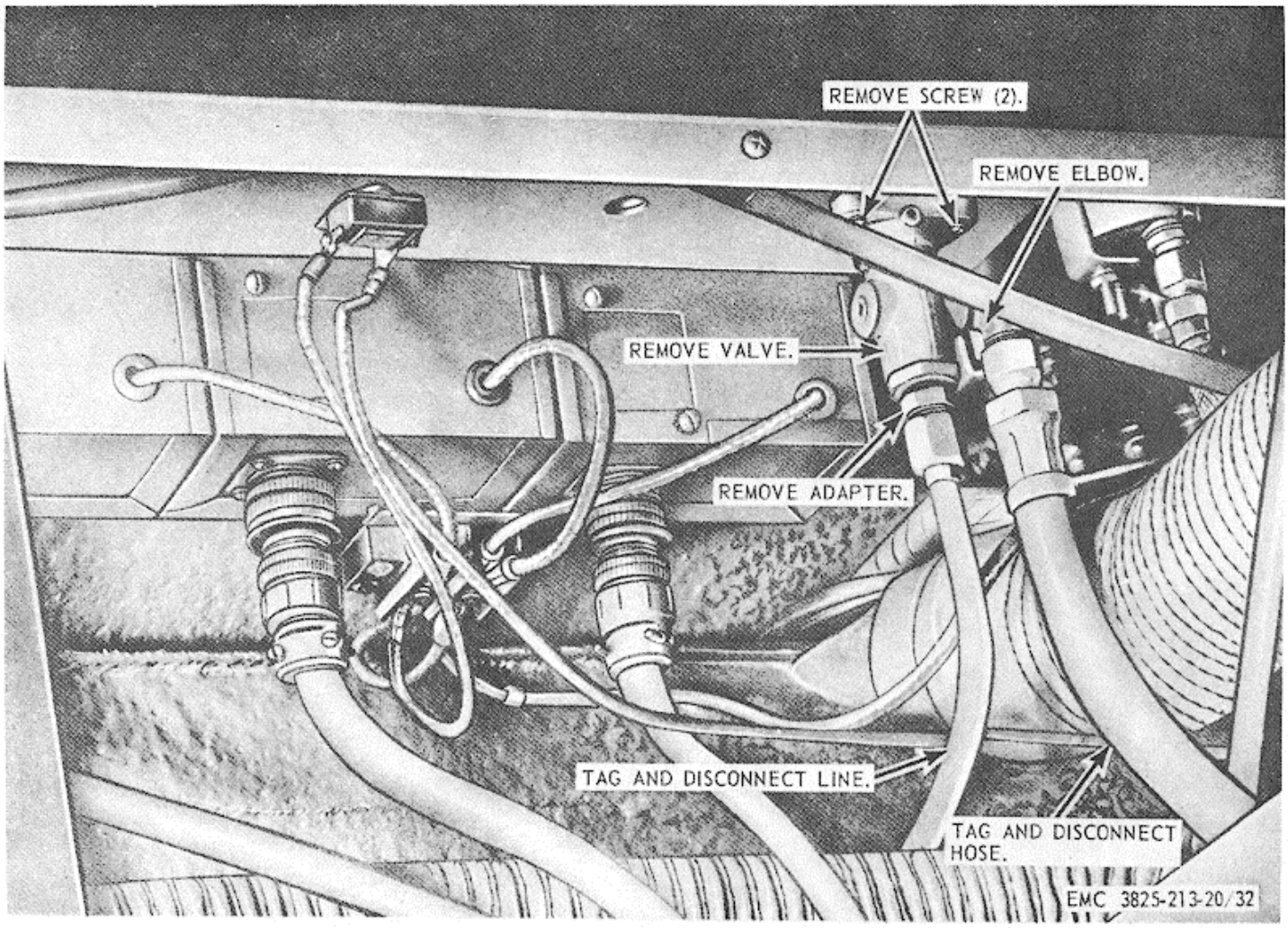


Figure 32. Clutch air valve assembly, removal and installation.

b. *Disassembly*. Disassemble the clutch linkage, valve, and air chamber as illustrated in figure 35.

c. *Cleaning and Inspection*. Clean and inspect the air valve and air chamber for wear and condition. Replace defective parts as necessary.

d. *Reassembly*. Reassemble the clutch air valve and air chamber as illustrated in figure 35.

e. *Installation.*

(1) Install the clutch air valve and air chamber as illustrated in figure 34.

(2) Adjust the clutch (TM 5-3825-213-10).

87. Drive Shaft Assembly

a. *Removal.* Remove the drive shaft assembly as illustrated in figure 36.

b. *Disassembly*. Disassemble the drive shaft assembly as illustrated in figure 37.

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts in an approved cleaning solvent and dry thoroughly.

(2) Inspect the drive shaft for bends and condition.

(3) Inspect the bearings for wear or damage.

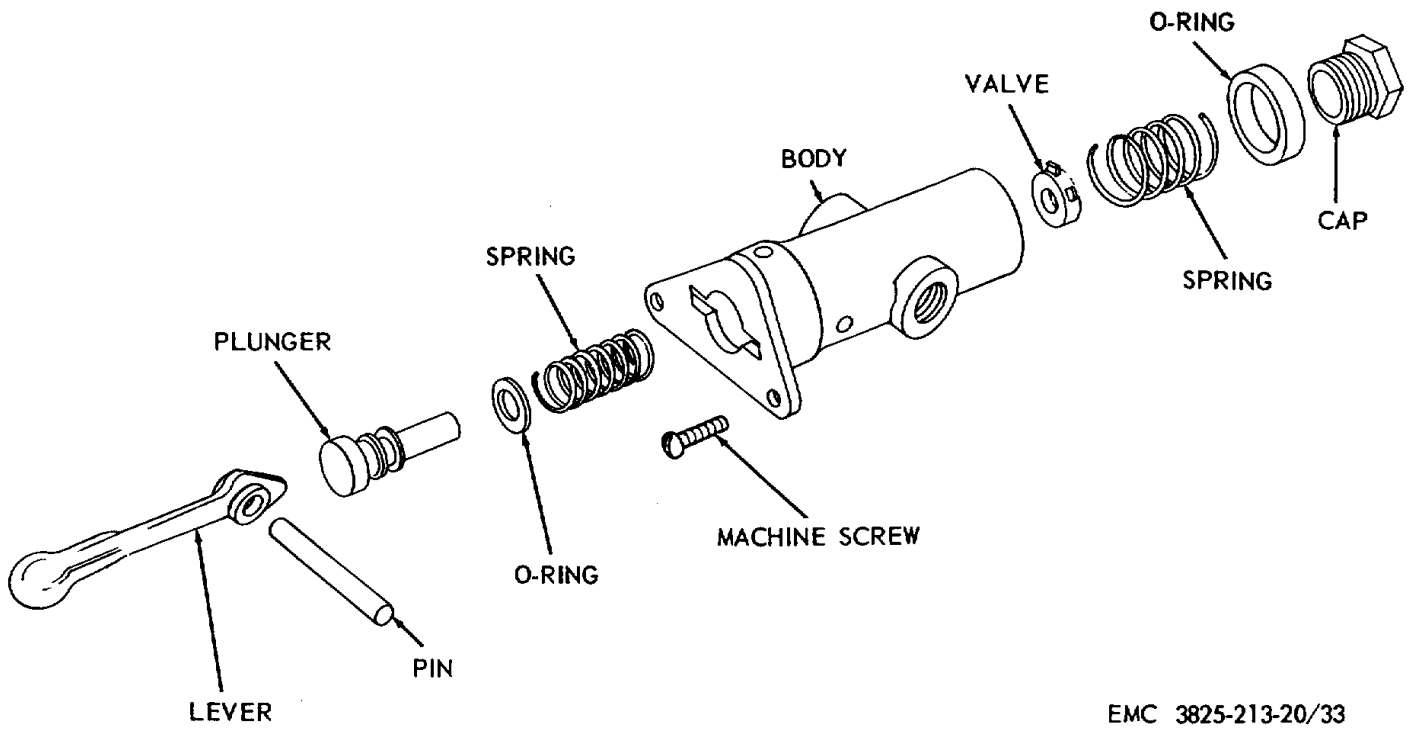


Figure 33. Clutch air valve assembly, diassembly and reassembly, exploded view.

(4) Replace defective parts as necessary.

d. *Reassembly*. Reassemble the drive shaft assembly as illustrated in figure 37.

e. *Installation*. Install the drive shaft assembly as illustrated in figure 36.

88. Plow Cutting Edge

a. *Removal.* Remove the cutting edge as illustrated in figure 38.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective cutting edge as necessary.

c. *Installation.* Install the cutting edge as illustrated in figure 38.

89. Plow Transmission Linkage

a. *Removal*. Remove the plow transmission linkage as illustrated in figure 39.

b. *Cleaning, Inspection, and Repair*. Clean, inspect, repair, or replace defective plow transmission linkage.

c. *Installation.* Install the plow transmission linkage as illustrated in figure 39.

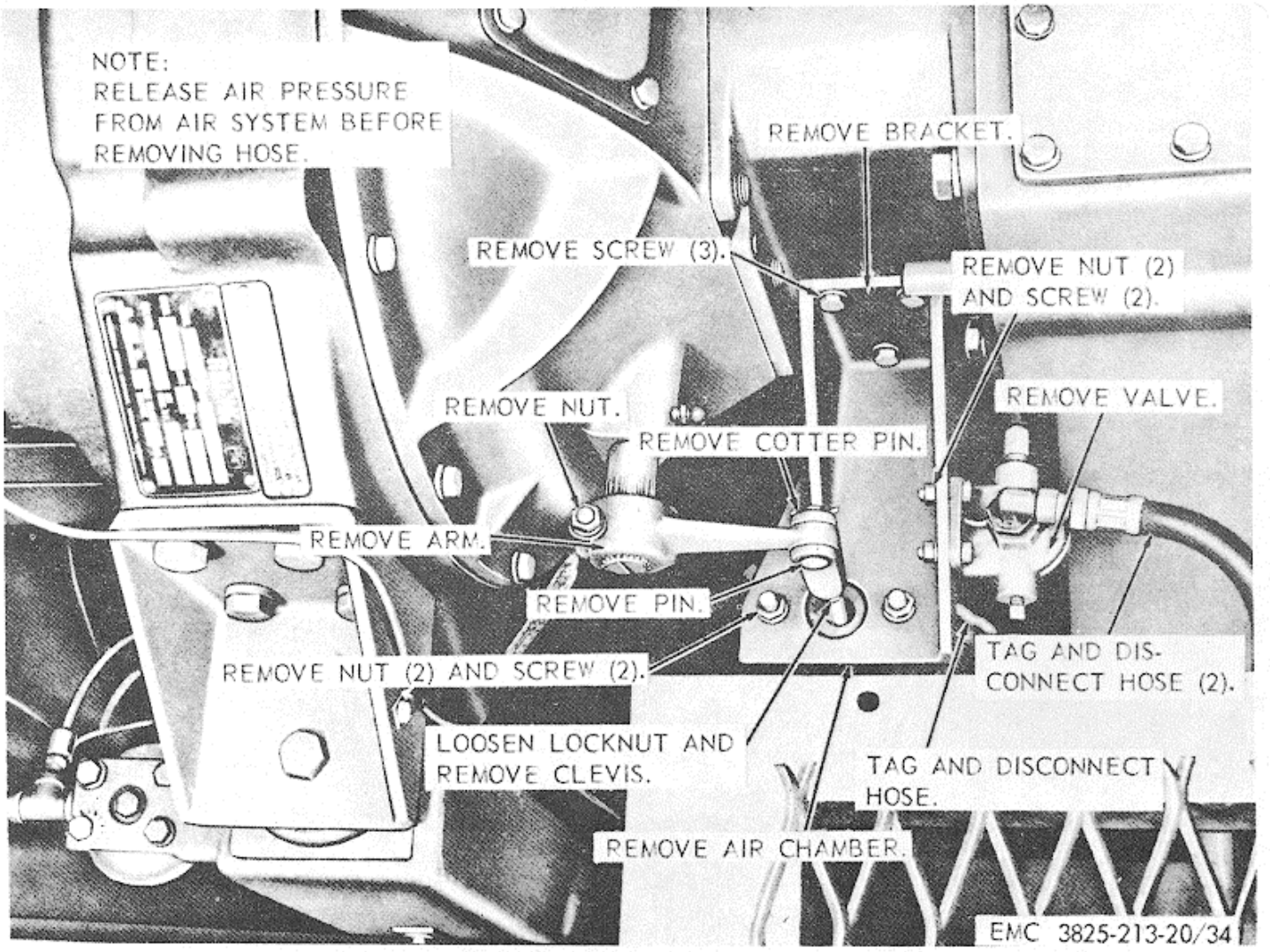


Figure 34. Clutch linkage, valve, and air chamber, removal and installation.

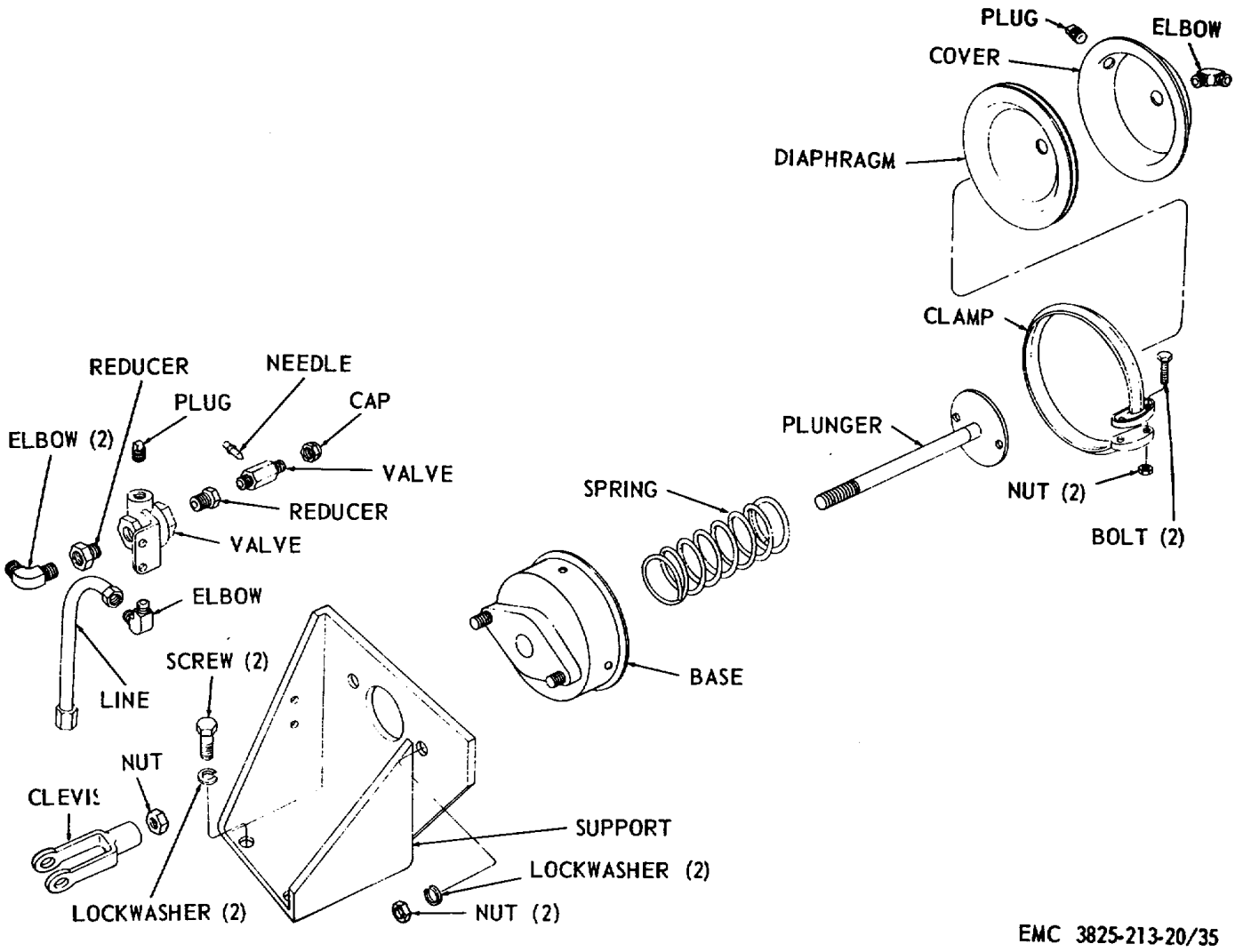
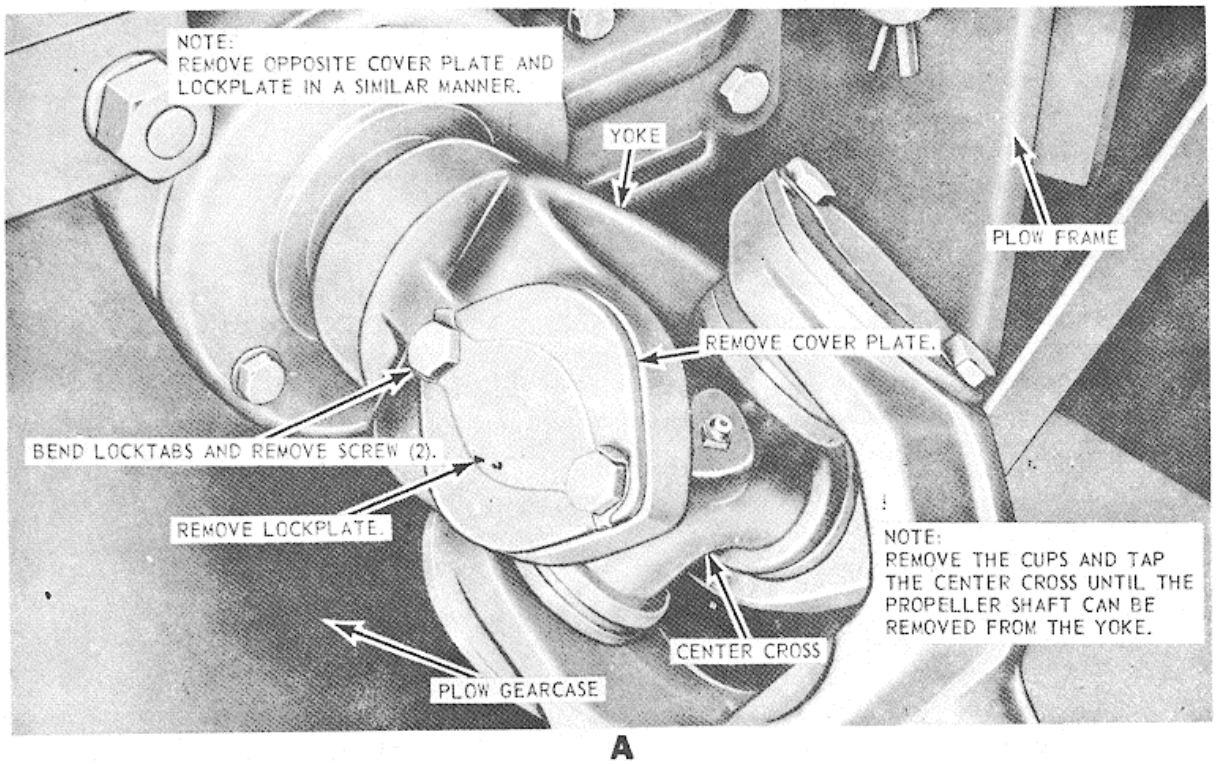
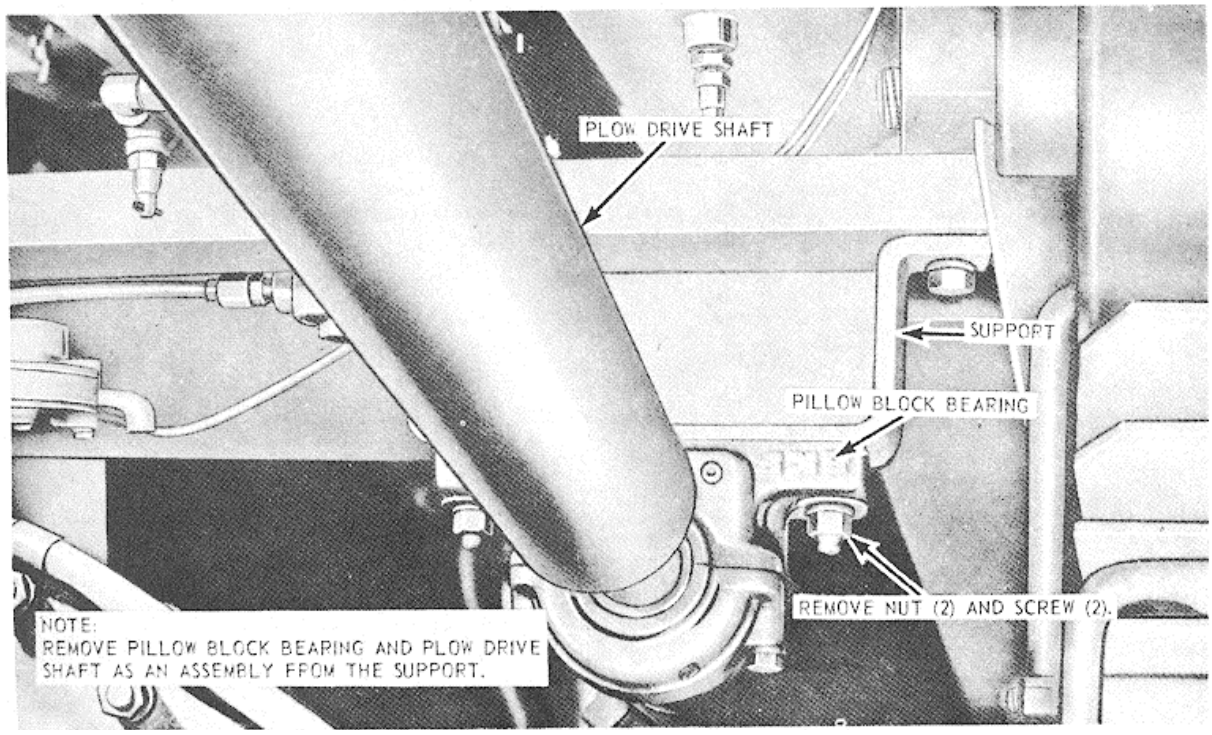


Figure 35. Clutch quick release valve and air chamber, disassembly and reassembly, exploded view.



A

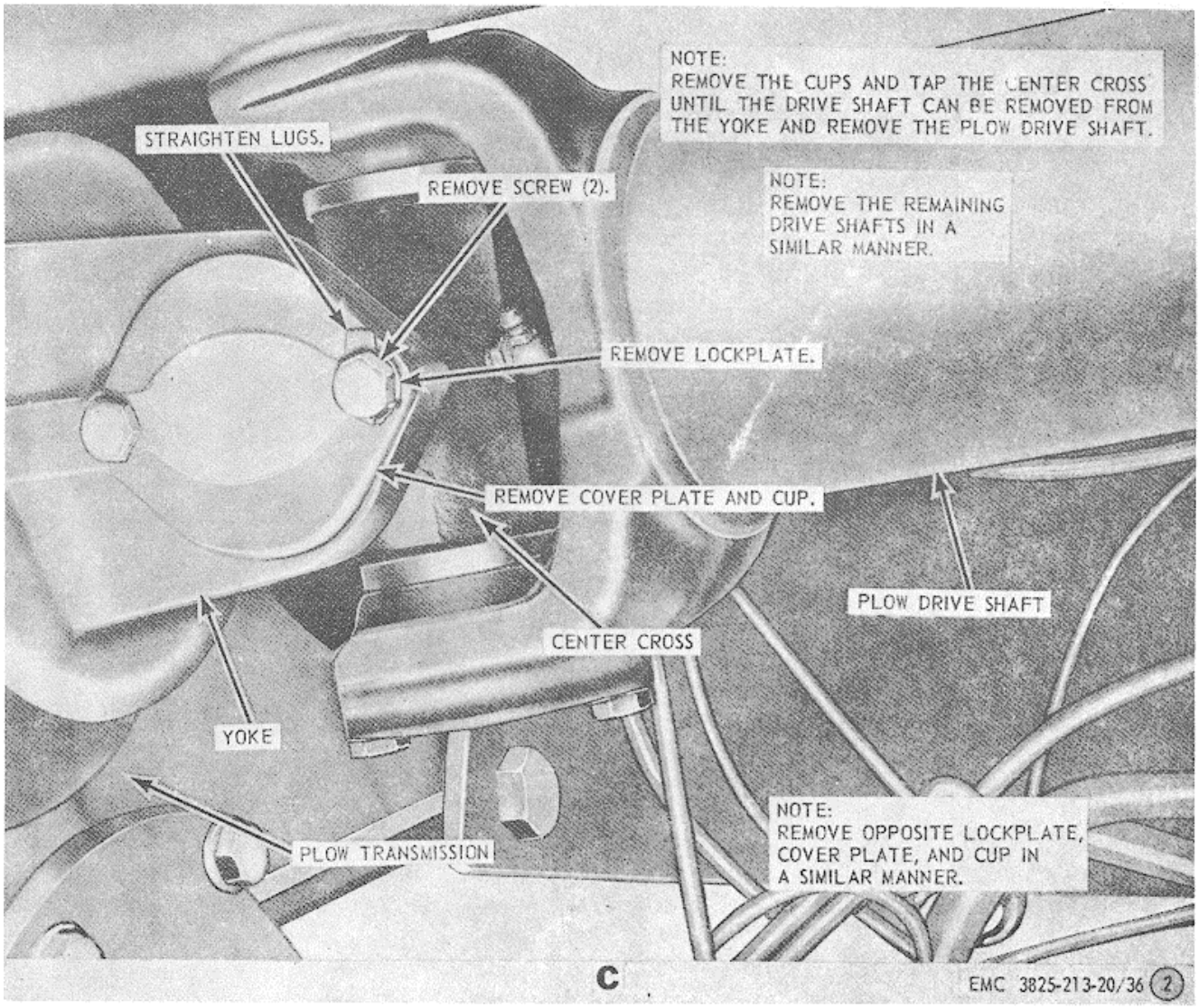


B

A. Plow gear case removal points

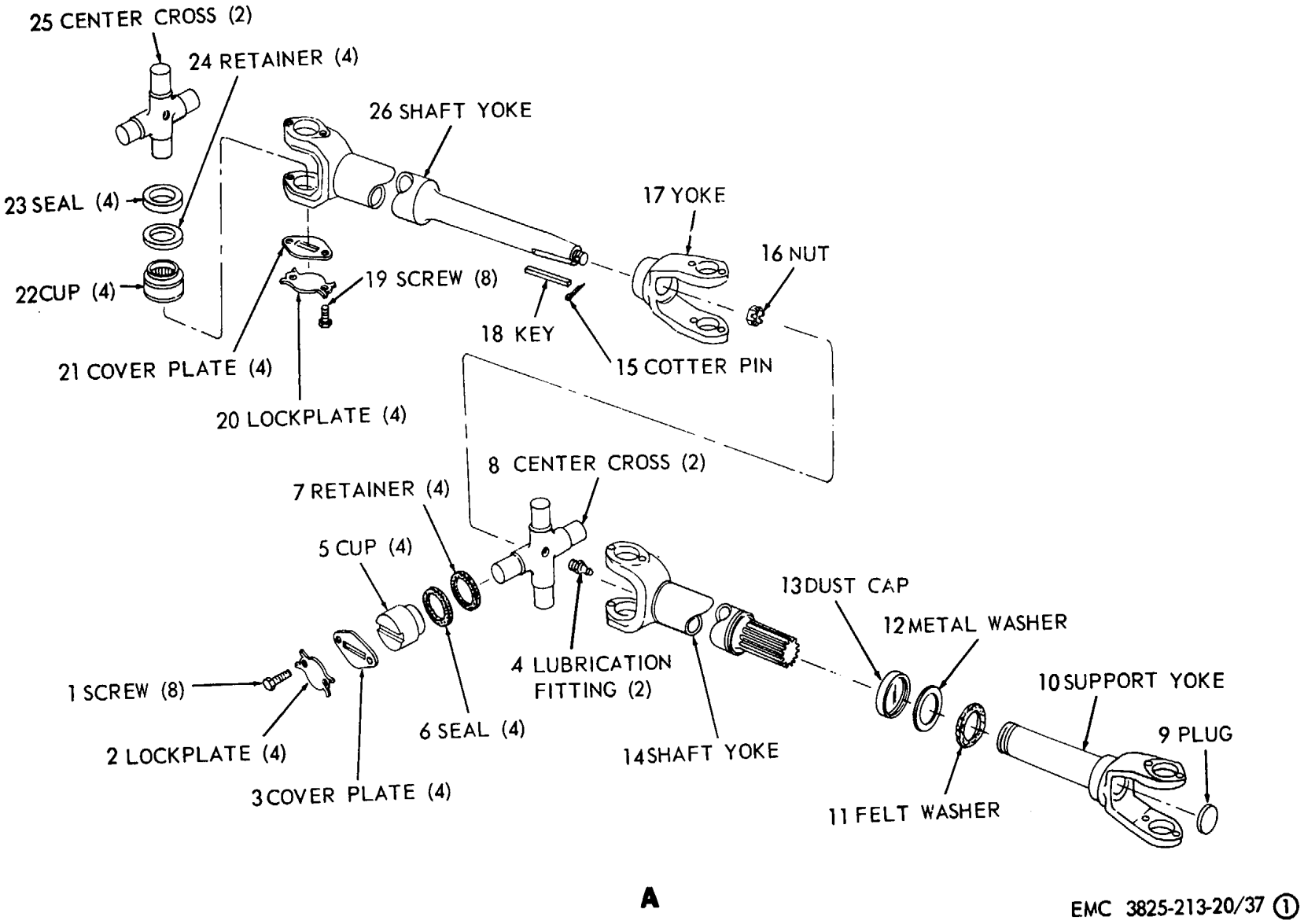
B. Pillow block bearing and support

Figure 36. Plow drive propeller shaft, removal and installation.



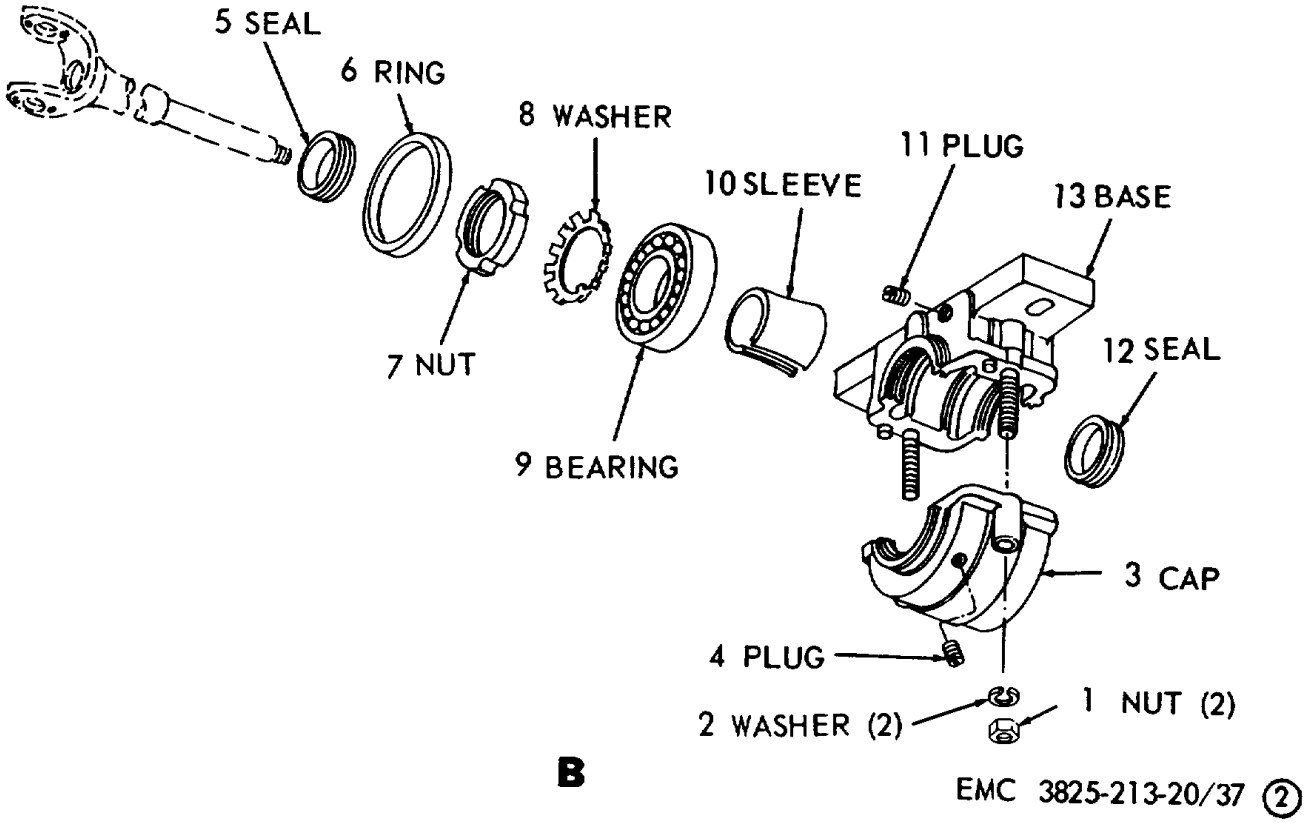
C. Rear removal points

Figure 36-Continued.



A. Shaft

Figure 37. Plow drive propeller shaft and pillow block, disassembly and reassembly, exploded view.



B. Pillow block

Figure 37-Continued.

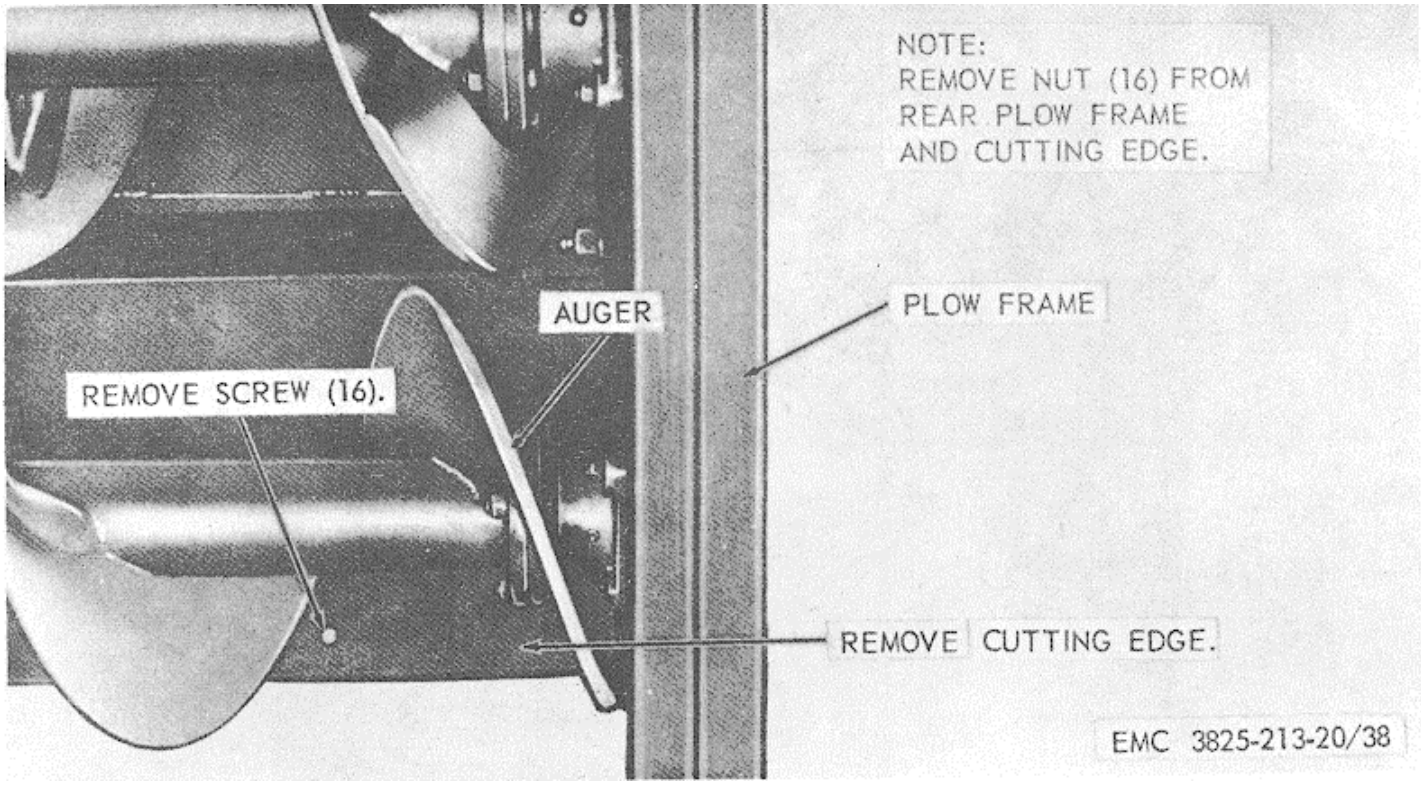


Figure 38. Plow cutting edge, removal and installation.

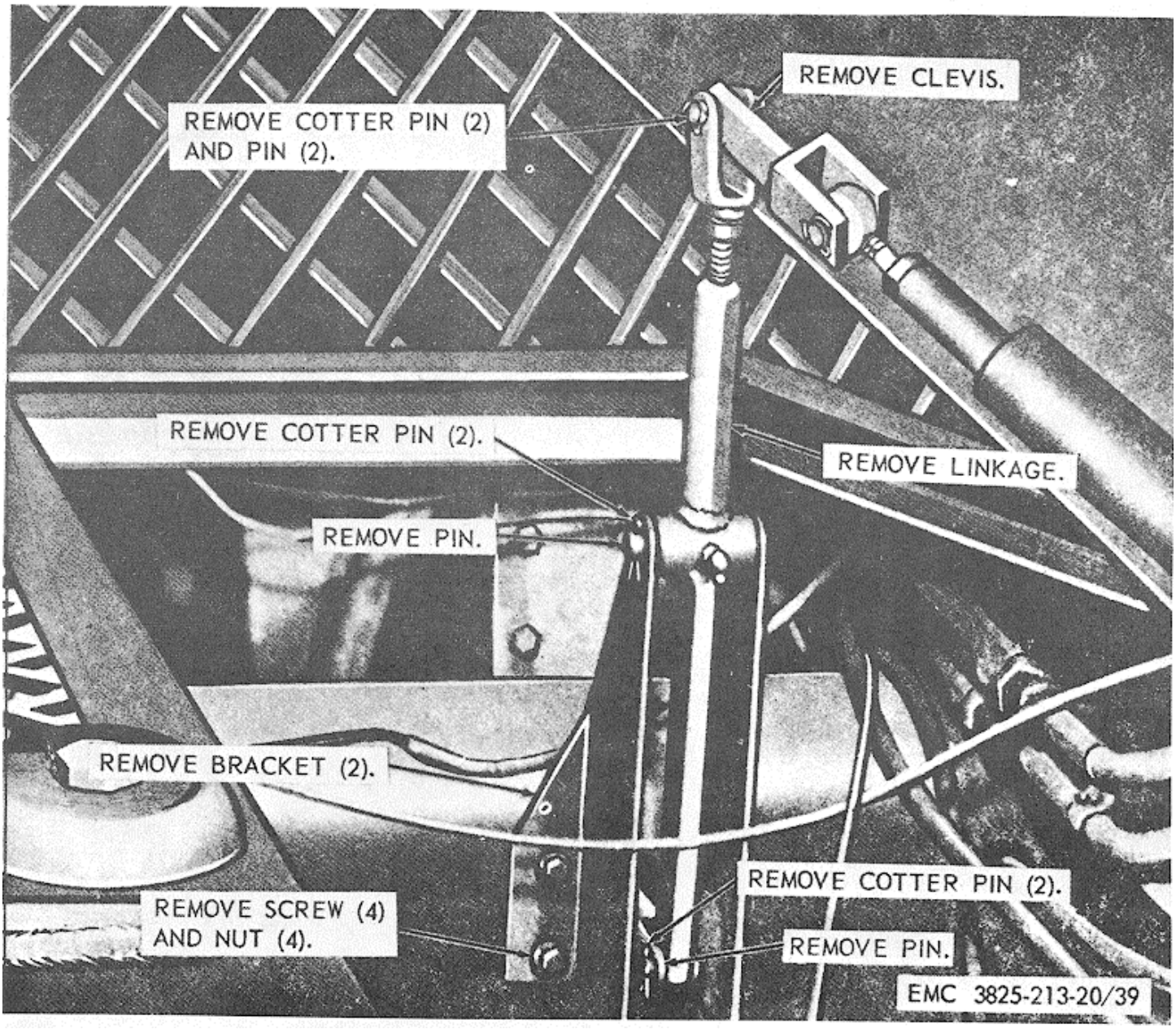


Figure 39. Plow transmission linkage, removal and installation.

CHAPTER 5
SNOWPLOW AND CARRIER ENGINES MAINTENANCE INSTRUCTIONS

Section I. PLOW AND CARRIER ENGINES IGNITION SYSTEM

90. General

The plow and carrier engines ignition system consists of a starter, starter solenoid relay, distributor, spark plugs, and wiring. The source of power to the ignition system derives from the carrier engine batteries. The identical engines for the snowplow and carrier are Waukesha Roiline V-8 engines, model TH-884, overhead valve, liquid-cooled. The temperature conditions under which the snow removal unit is normally operated make it imperative that the engines be maintained in good operating condition.

91. Plow and Carrier Engine Starter Assembly

a. *Removal.*
   (1) Remove the coolant circulating pump (par. 189).
   (2) Remove the starter assembly as illustrated in figure 40.

b. *Brush Replacement*. Replace the starter brushes as illustrated in figure 41.

c. *Cleaning and Inspection*. Clean and inspect the starter for defective brushes, free rotation, and condition. Replace defective parts as necessary.

d. *Installation.*
   (1) Install the starter assembly as illustrated in figure 40.
   (2) Install the coolant circulating pump (par. 189).

92. Plow and Carrier Engine Starter Solenoid Relay Assembly

a. *Removal*. Remove the starter solenoid relay assembly as illustrated in figure 40.

b. *Cleaning and Inspection.* Clean and inspect the starter solenoid relay for condition and damaged terminals. Replace defective parts as necessary.

c. *Installation*. Install the starter solenoid relay assembly as illustrated in figure 40.

93. Plow and Carrier Engine Spark Plug Wiring

a. *Removal*. Remove the spark plug wiring as illustrated in figure 42.

b. *Cleaning and Inspection*. Clean and inspect the spark plug wiring for frayed insulation or damaged threads and replace as necessary.

c. *Installation*. Install the spark plug wiring as illustrated in figure 42.

94. Plow and Carrier Engine Spark Plug

a. *Removal*. Remove spark plug wiring and spark plugs as illustrated in figure 42.

b. *Cleaning and Inspection*. Clean and inspect the spark plugs for burned electrode, cracked porcelain, and damaged threads. Replace spark plugs as necessary.

c. *Testing*. Place spark plug in the testing unit with 125 to 150 psi air pressure. When the spark plug shows a spark breakdown with less than 125 psi air pressure replace the plugs. Test remaining plugs in a similar manner.

d. *Installation*. Install spark plugs and wiring as illustrated in figure 42.

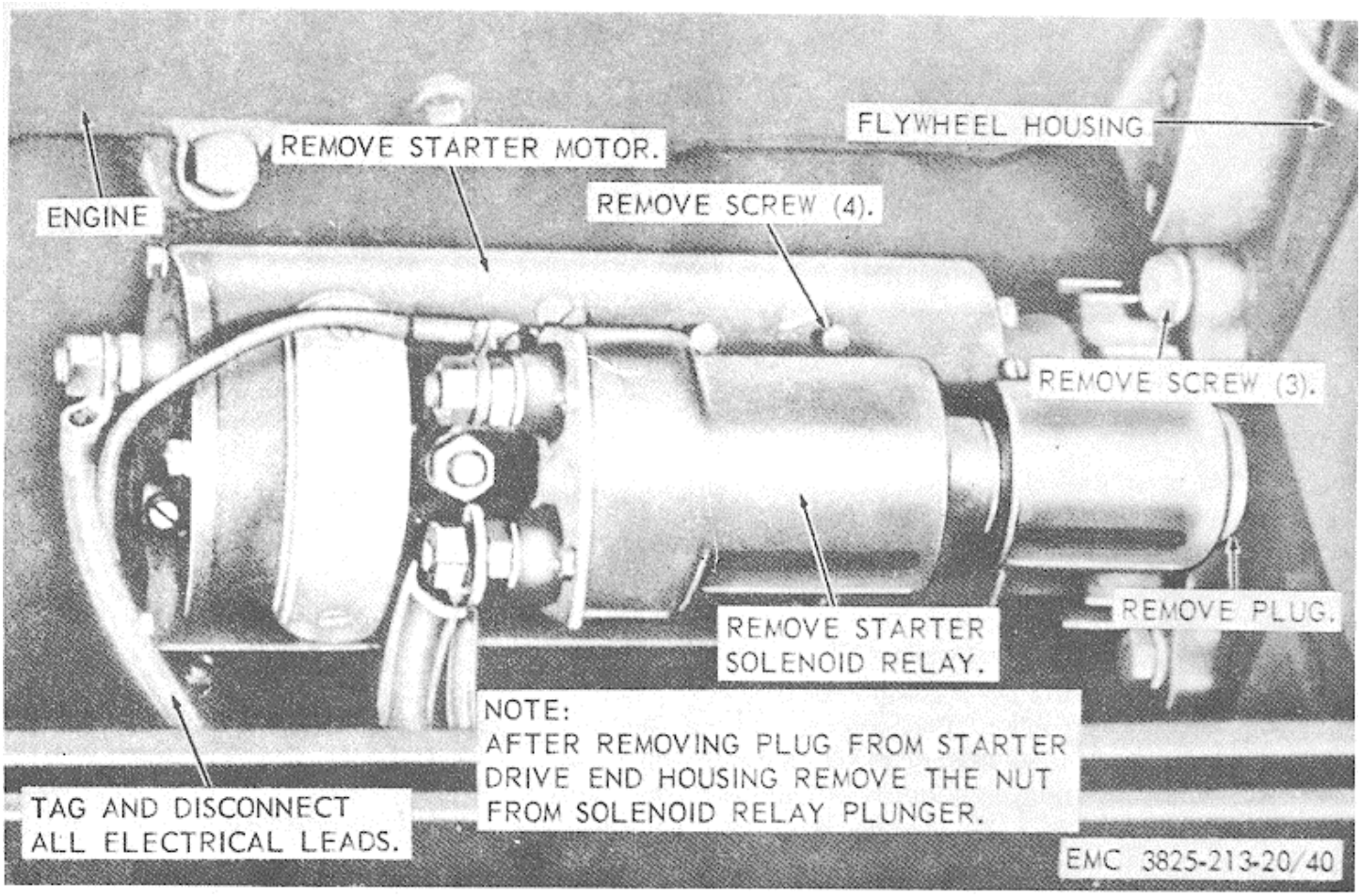


Figure 40. Plow and carrier engine starter assembly and solenoid relay, removal and installation.

95. Plow and Carrier Engine Distributor Assembly

a. *Removal.*

(1) Remove the spark plug wiring (fig. 42).

(2) Remove the distributor assembly as illustrated in figure 43.

b. *Distributor Point Adjustment* and Replacement.

(1) Remove the distributor cover (par. 17).

(2) Adjust or replace distributor points as illustrated in figure 44.

(3) Install the cover (fig. 8).

c. *Cleaning and Inspection.* Clean and inspect the distributor for free movement, and broken rotor or drive gear. Replace distributor as necessary.

d. *Installation.*

(1) Install the distributor as illustrated in figure 43.

(2) Install the spark plug wiring (fig. 42).

e. *Engine Timing.* Time the engine as illustrated in figure 45.

96. Plow and Carrier Engine Tachometer Drive Assembly

a. *Removal.* Remove the tachometer drive assembly as illustrated in figure 46.

b. Cleaning and Inspection. Clean and inspect the tachometer drive for free movement, broken lenses, or damaged housing.

c. *Installation.* Install the tachometer drive assembly as illustrated in figure 46.

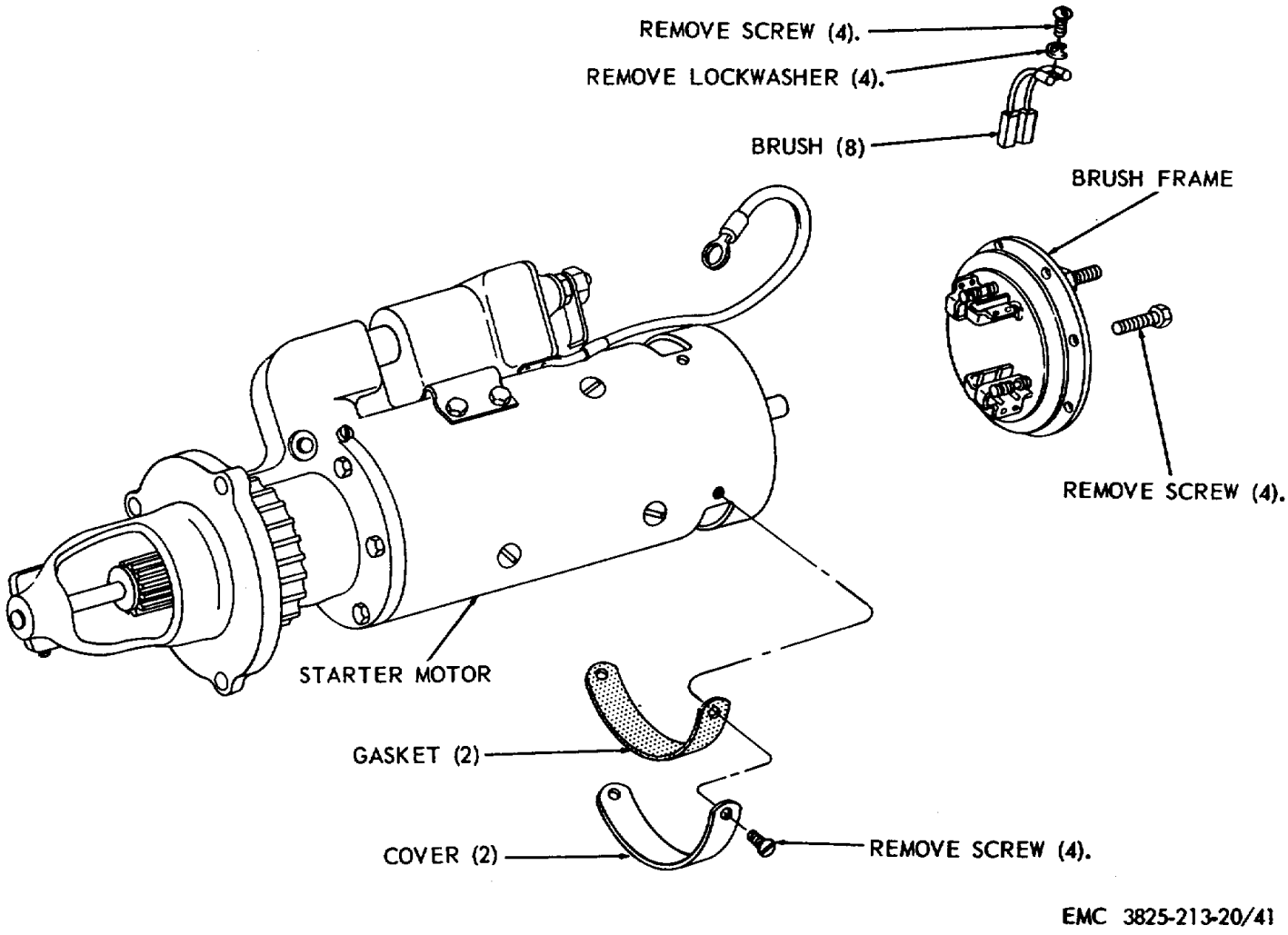


Figure 41. Plow and carrier engine starter brush replacement.

97. Plow and Carrier Engine Rocker Arm Cover and Valve Adjustment

a. *Cover Removal.*

(1) Remove spark plug wiring (fig. 42).

(2) Remove the rocker arm cover as illustrated in figure 47.

b. *Valve Adjustment.* Adjust the valves as illustrated in figure 46.

c. *Cleaning and Inspection.* Clean and inspect the cover and arm assemblies for breaks, wear or other damage. Replace defective parts as necessary.

d. *Cover Installation.*

(1) Install the rocker arm cover as illustrated in figure 47.

(2) Install the spark plug wiring (fig. 42).

98. Plow and Carrier Engine Cranking Device

a. *Removal.* Remove the engine cranking device as illustrated in figure 48.

b. *Disassembly.* Disassemble the engine cranking device as illustrated in figure 49.

c. *Cleaning, Inspection, and Repair.* Clean and inspect all parts and replace as necessary.

d. *Reassembly.* Reassemble the engine cranking device as illustrated in figure 49.

e. *Installation.* Install the engine cranking device as illustrated in figure 48.

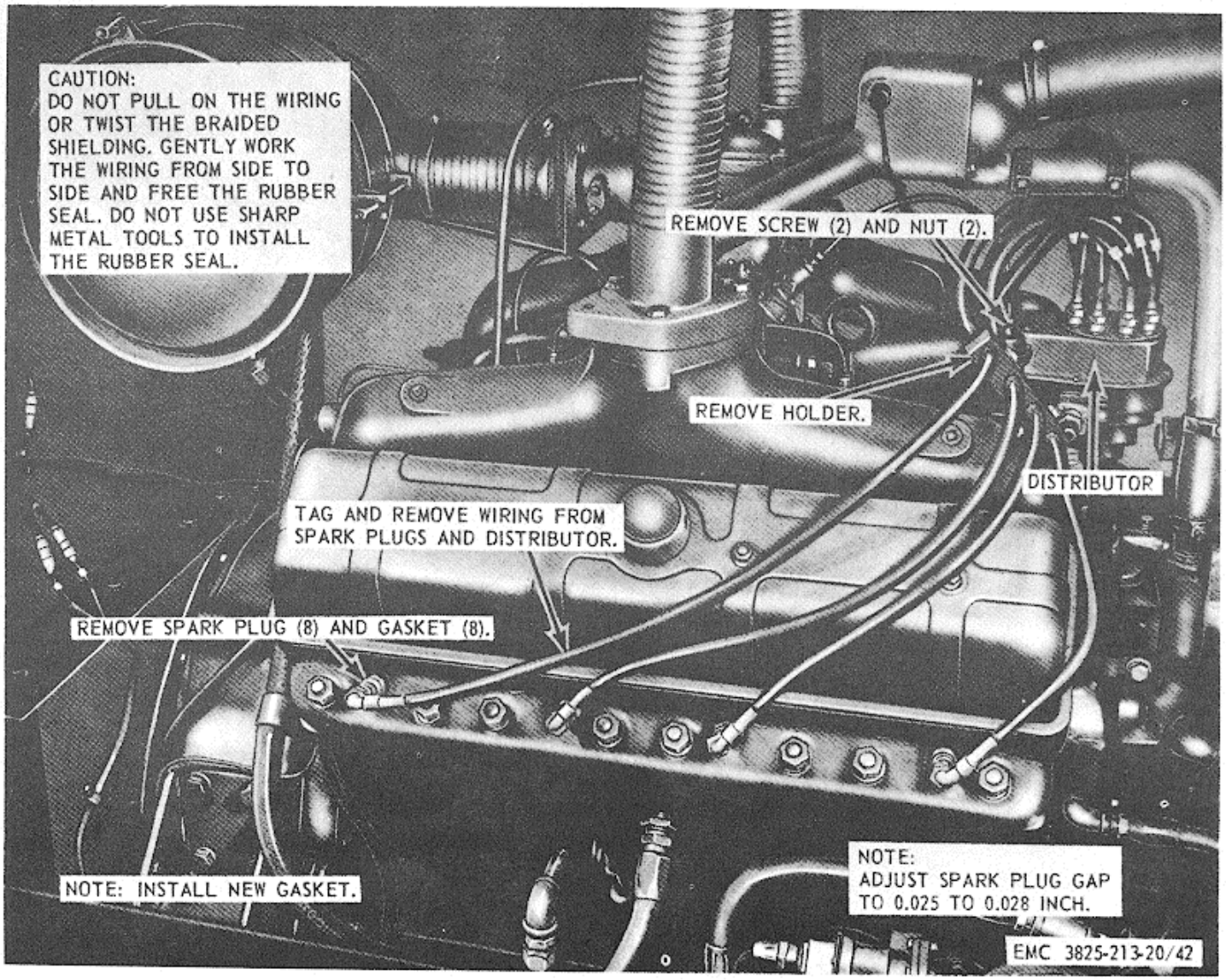


Figure 42. Plow and carrier engine spark plugs and wiring, removal, installation, and adjustment.

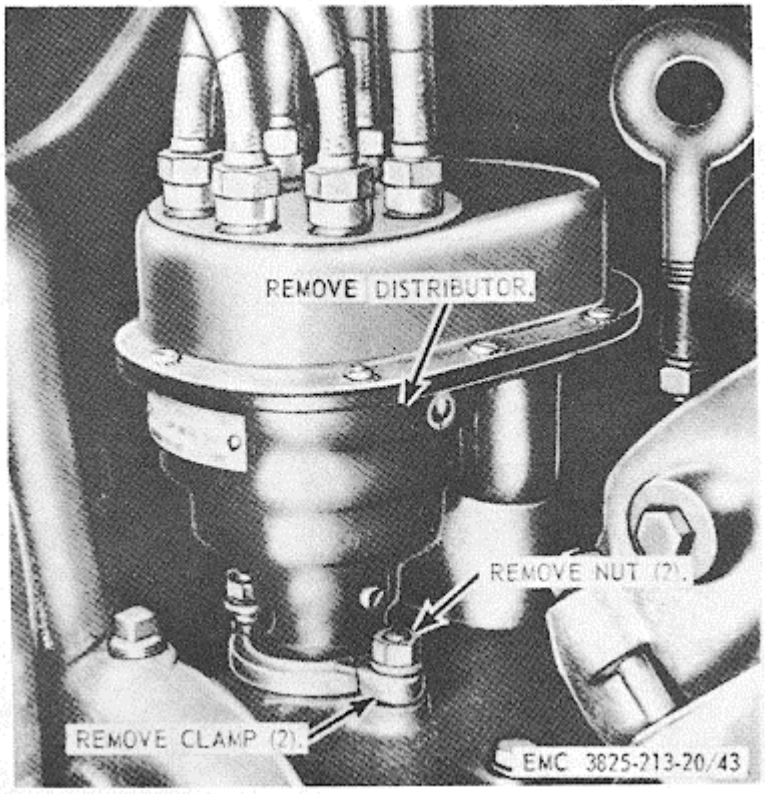


Figure 43. Plow and carrier engine distributor assembly, removal and installation.

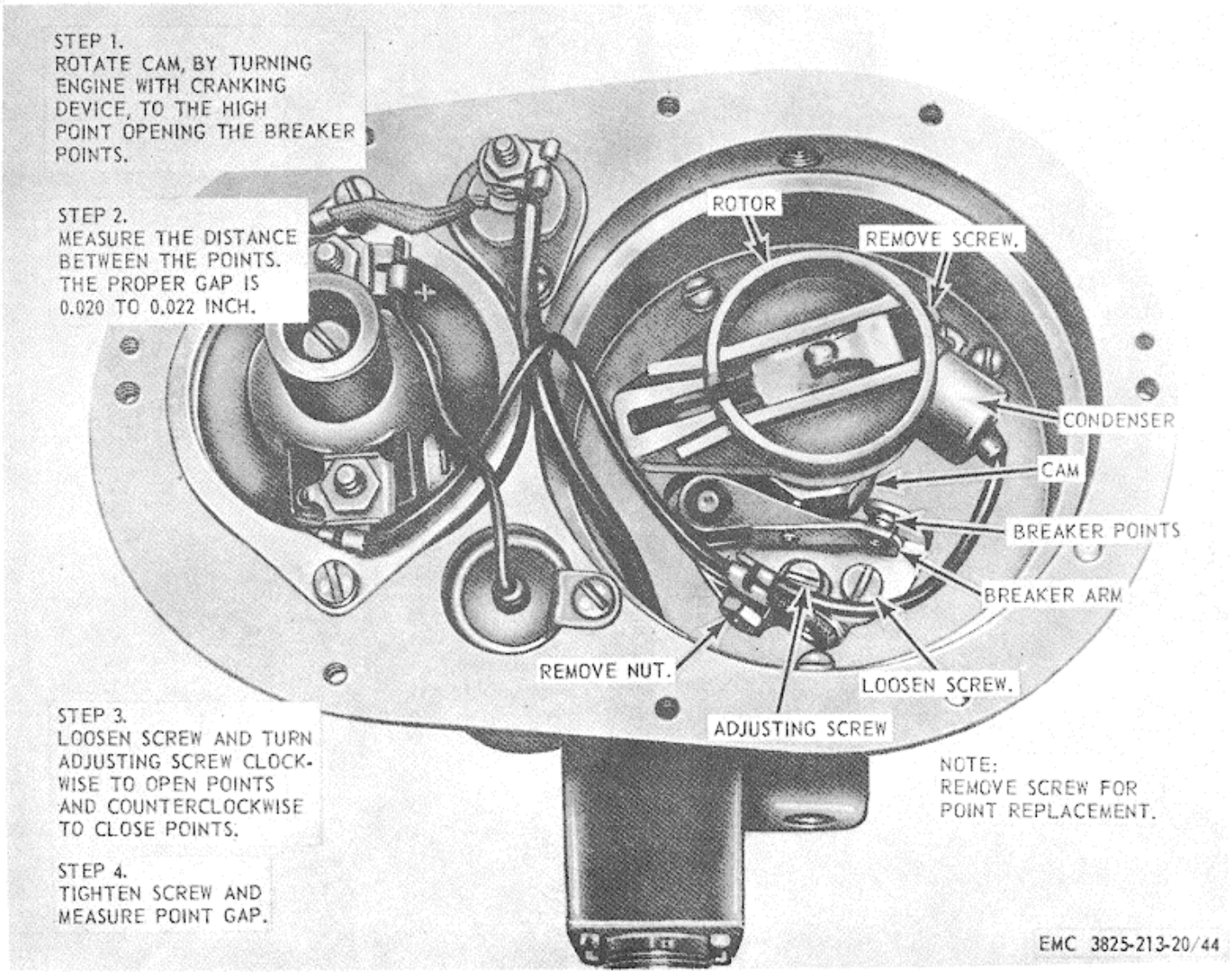


Figure 44. Plow and carrier engine distributor breaker point, replacement and adjustment.

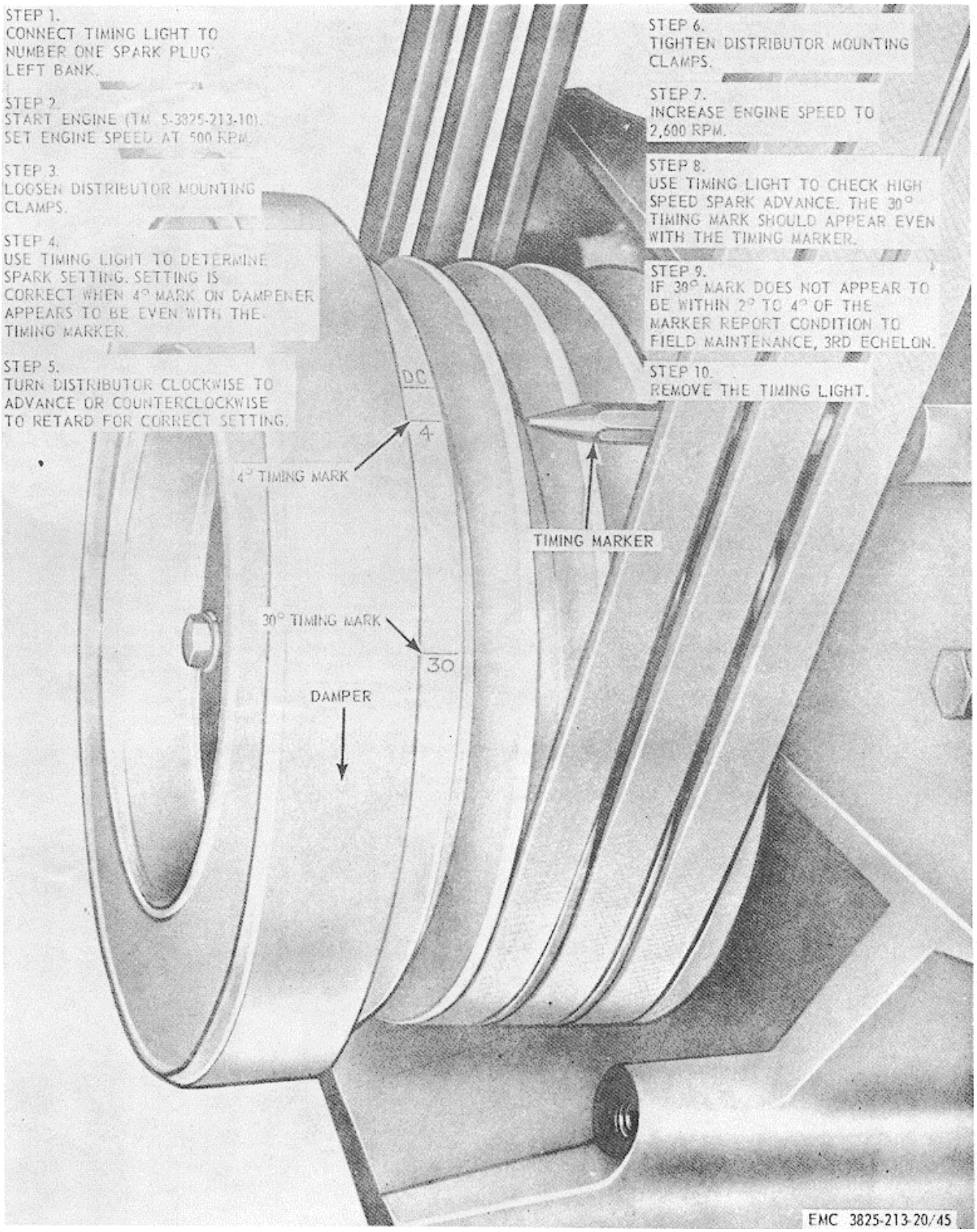
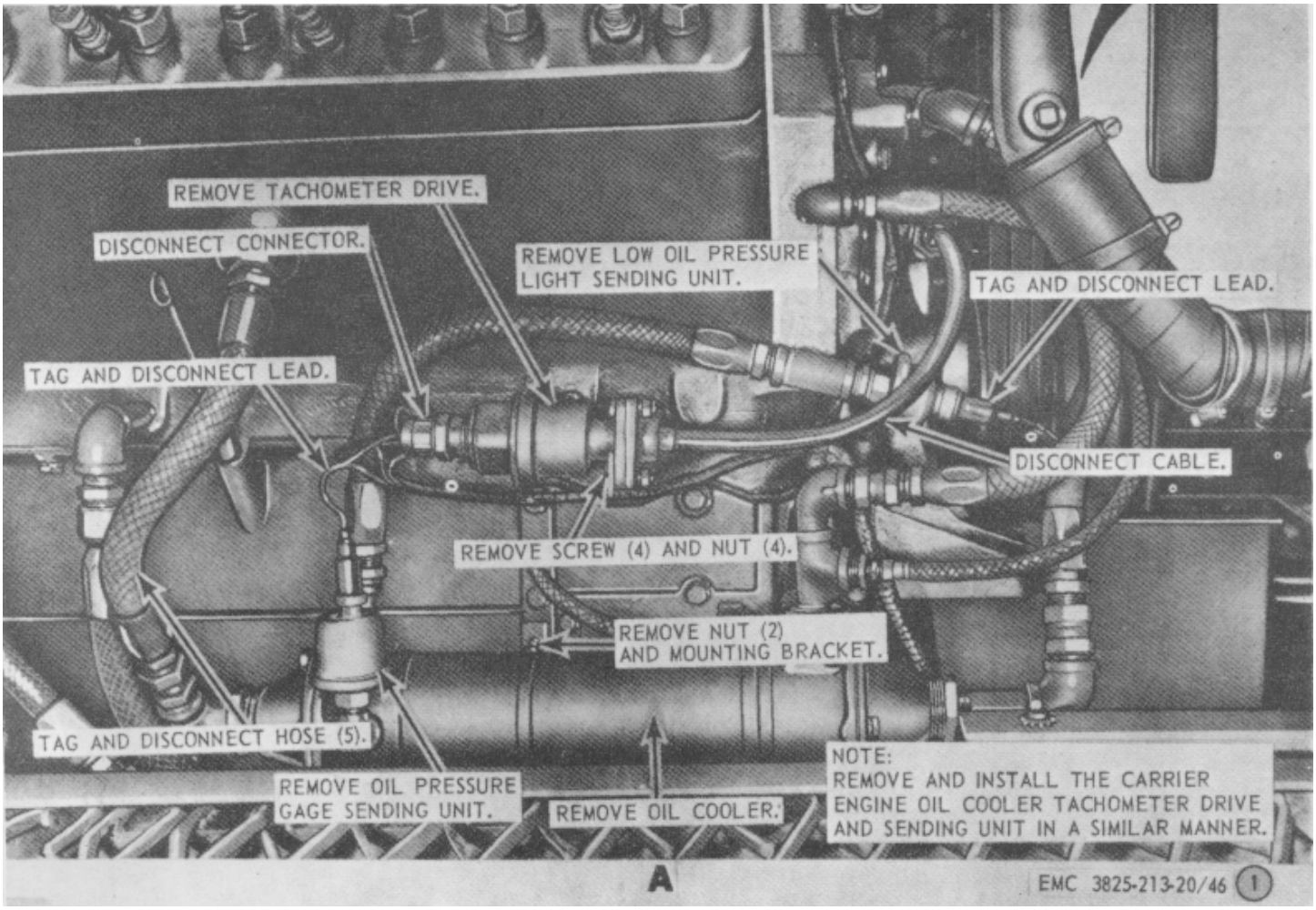
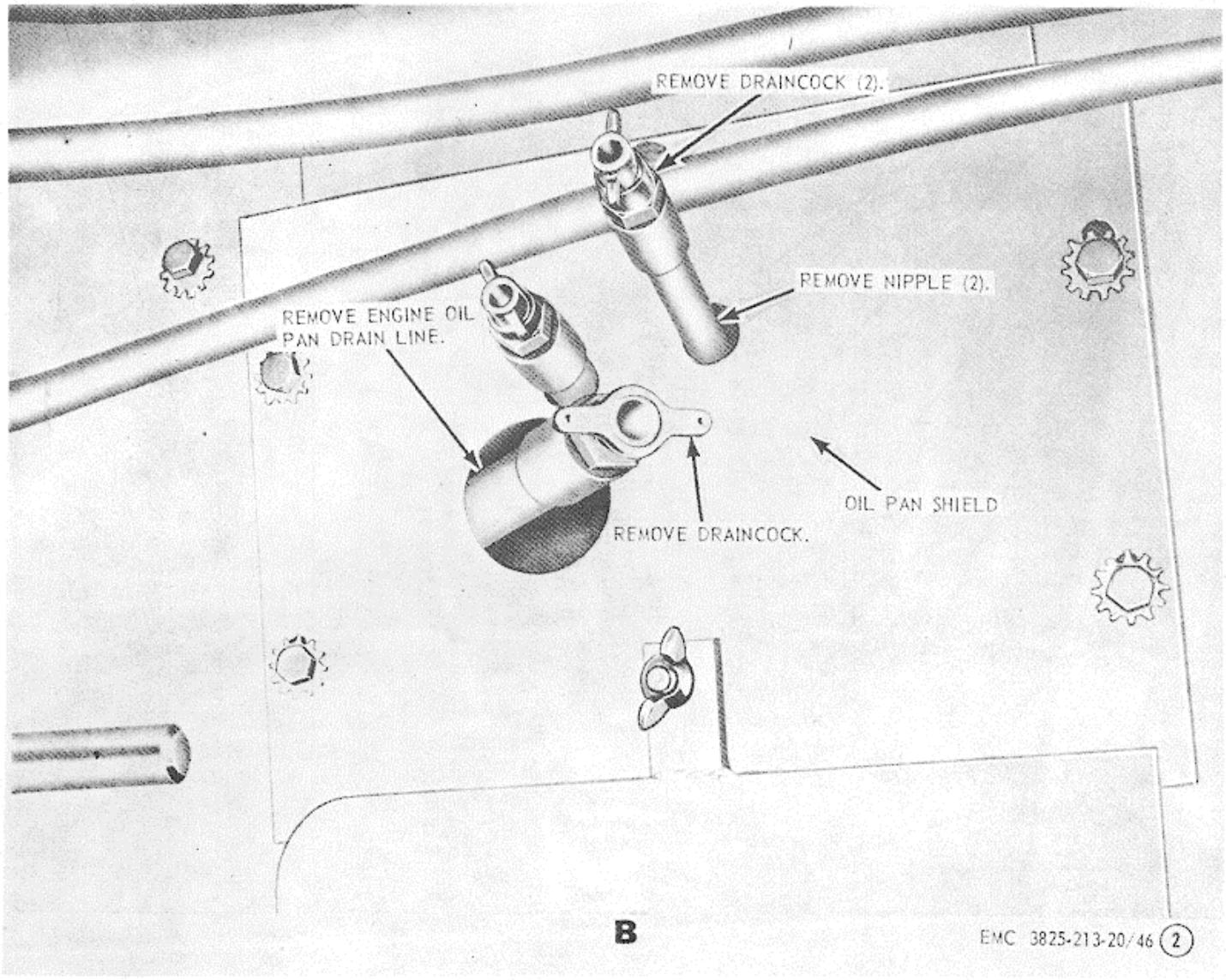


Figure 45. Plow and carrier engine timing.



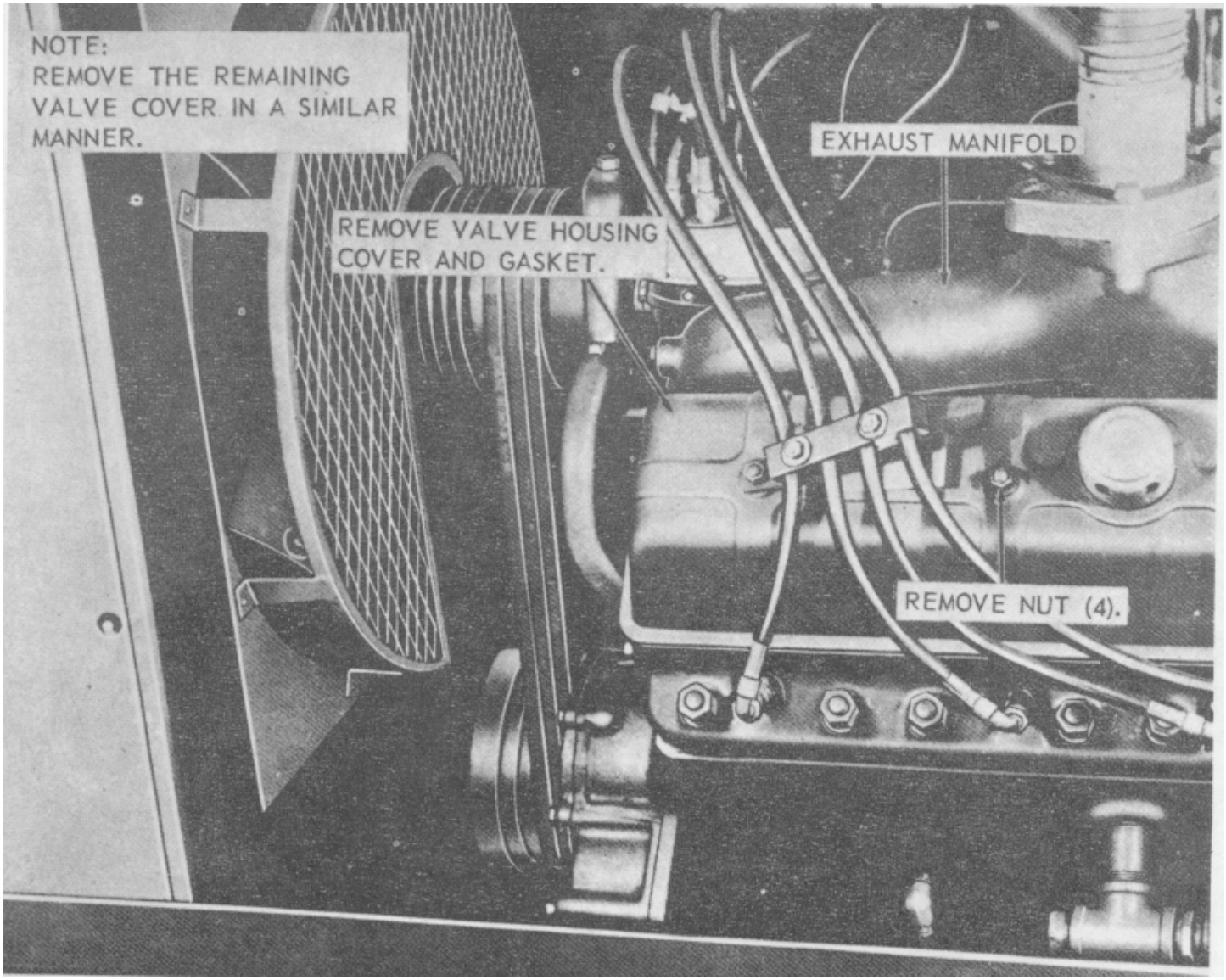
A. Tachometer drive, oil cooler, and sending unit removal

Figure 46. Plow and carrier engine tachometer drive, oil cooler, and sending unit, removal and installation.



B. Draincock and lines removal

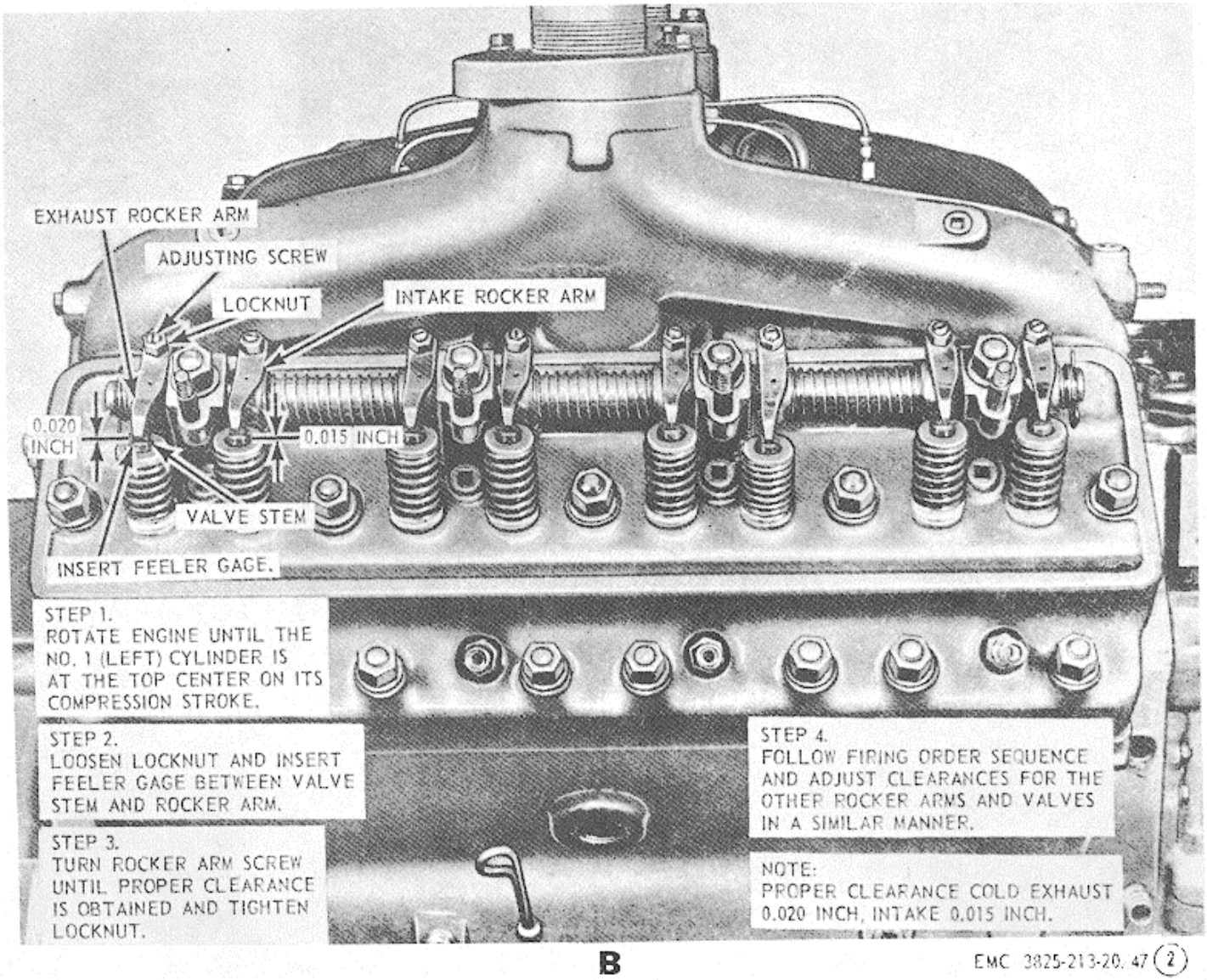
Figure 46-Continued.



A EMC 3825-213-20/47(1)

A. Cover removal

Figure 47. Plow and carrier engine rocker arm cover, removal and installation, and valve adjustment.



B. Valve adjustment

Figure 47-Continued.

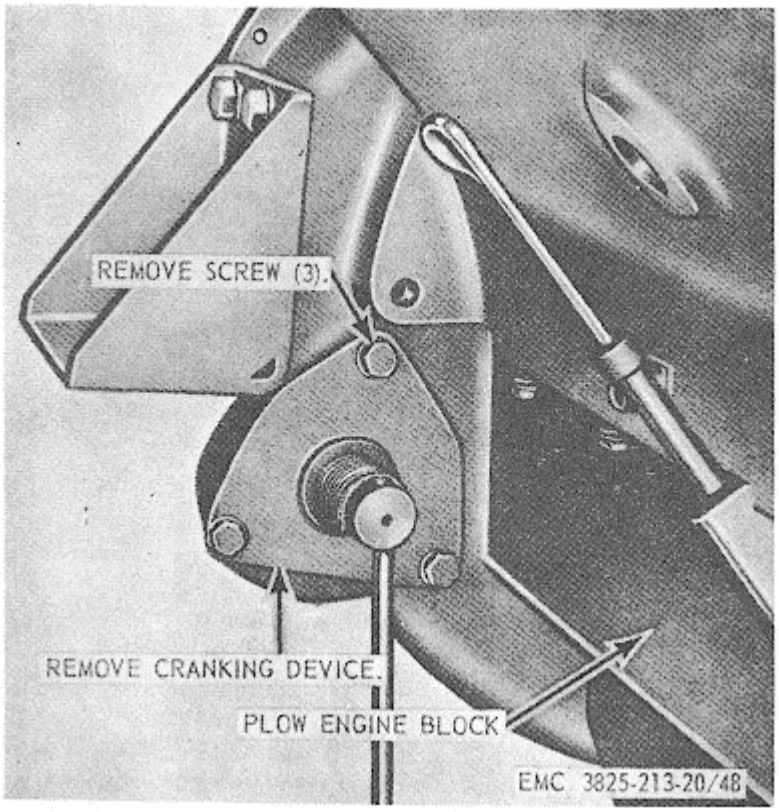


Figure 48. Plow and carrier engine cranking device, removal and installation.

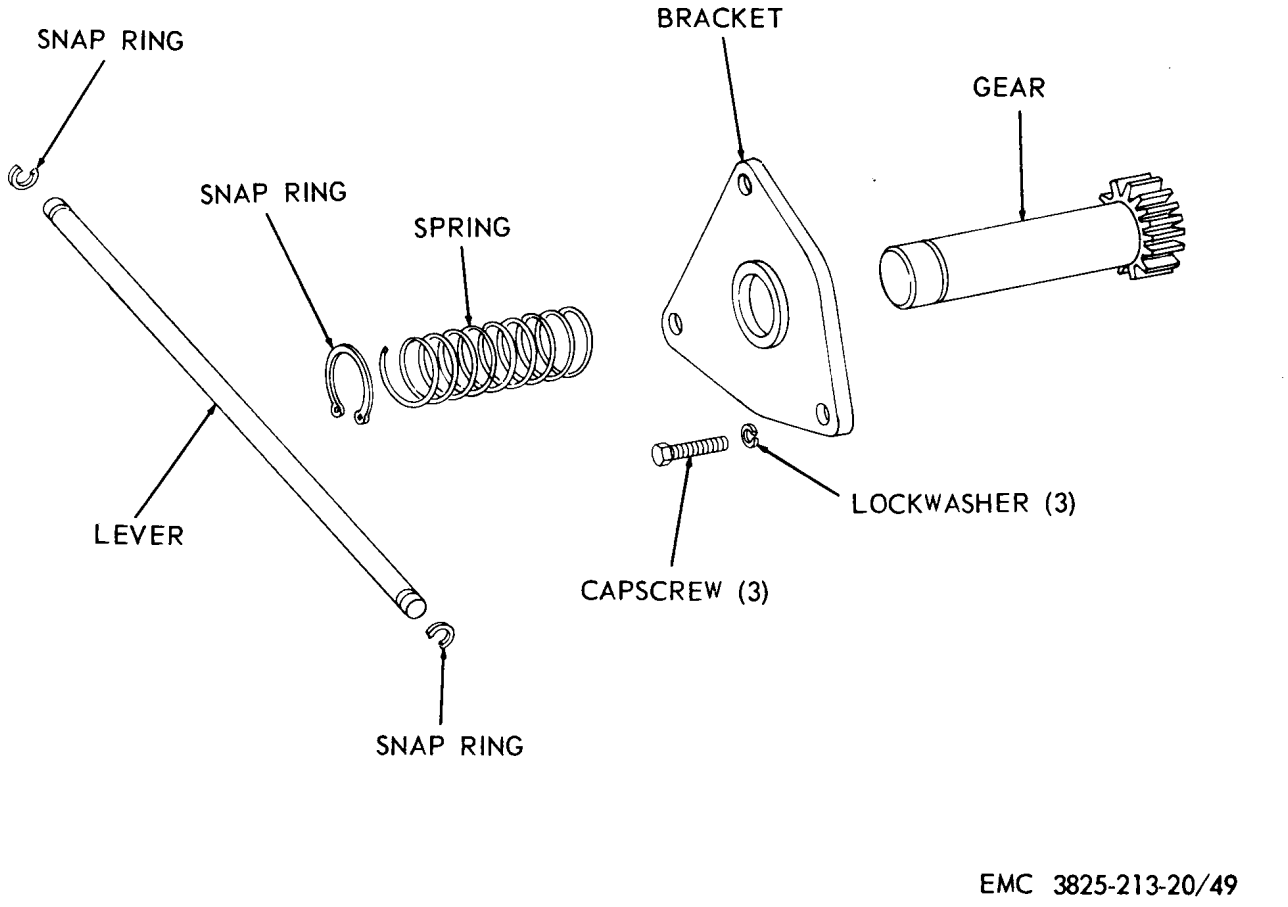


Figure 49. Plow and carrier engine cranking device, disassembly and reassembly, exploded view.

Section II. CARRIER AND CARRIER ENGINE ELECTRICAL SYSTEM

99. General

The carrier and carrier engine electrical system is comprised of an alternator, regulator, rectifier, and accessories such as horn, lights, and switches used in the operation of the snow removal unit.

100. Alternator Drive Belt

a. *Removal.* Remove the alternator drive belt as illustrated in figure 50.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective belt.

c. *Installation.* Install the alternator drive belt as illustrated in figure 50.

d. *Adjustment.* Adjust the alternator drive belts (TM 5-3825-213-10).

101. Alternator Assembly

a. *On-Unit Testing.*

(1) Remove rectifier-to-alternator cable and test the cable for open circuits with an ohmmeter. Test from designated pin A at one end to socket A at the other end, from pin B to socket B, and so on. There should

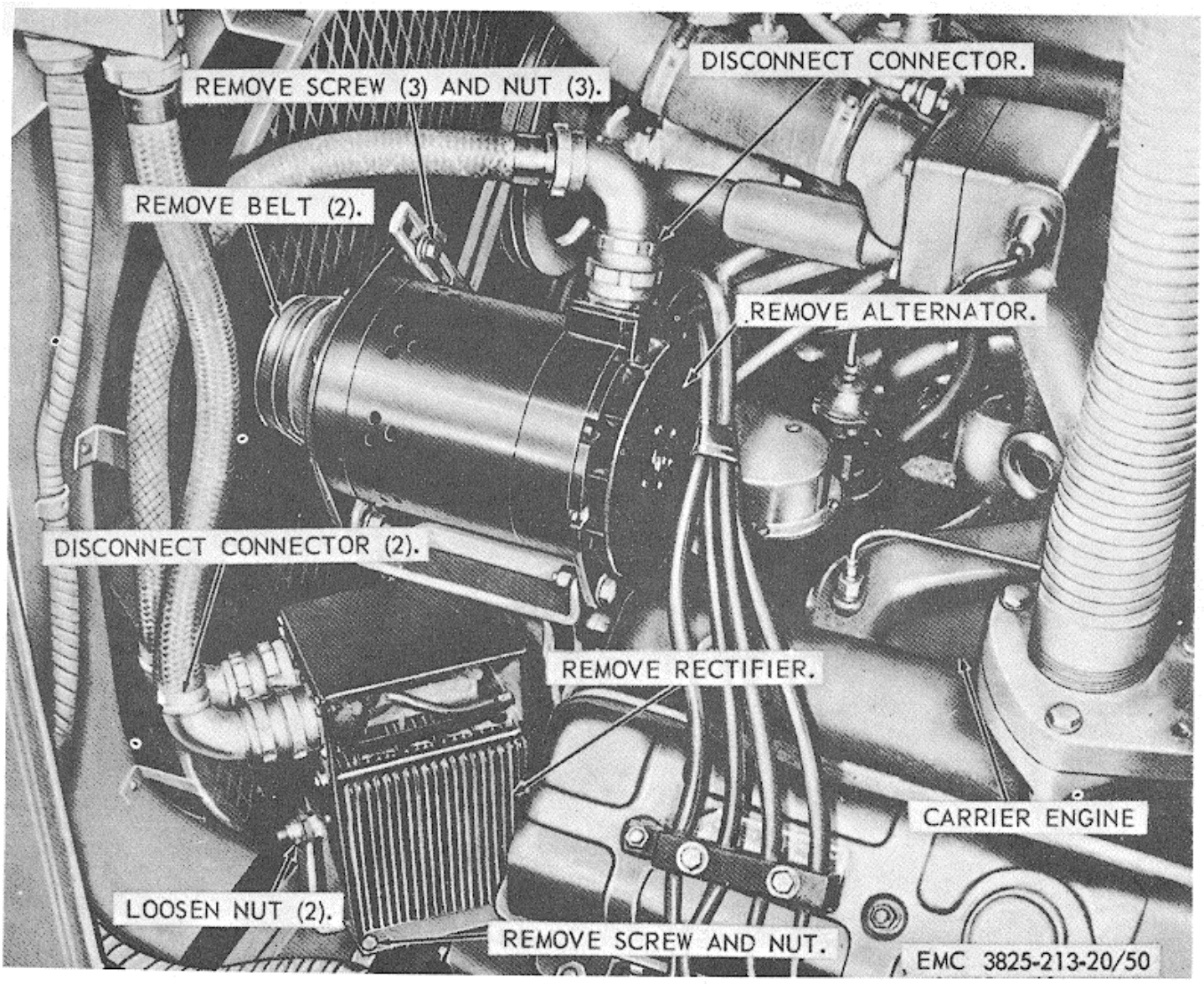


Figure 50. Alternator drive belt, alternator, and rectifier, removal and installation.

be no noticeable resistance in any of the circuits.

(2) With the meter on RX 100 scale, test from each pin to alternator fan guard. A reading of infinite resistance (no reading) should be indicated on these tests. If either of the tests indicates a faulty cable, replace it.

(3) Reconnect the rectifier-to-alternator cable. Obtain a voltage reading of battery voltage with no load by connecting an auxiliary voltmeter between positive and negative terminals of the battery. The voltmeter should indicate 24 volts.

(4) Crank the engine with the engine starter and observe the voltmeter. The voltage should not drop below 18 volts. If the voltage drop exceeds this limit, replace or recharge the batteries and proceed with the following testing instructions.

(5) Start the engine (TM 5-3825-213-10). The voltmeter reading will either return the 24-volt reading or rise to a higher level. If it rises to 27.5 volts, the system is in working order. If the reading rises above 28 volts or falls below 27.5 volts, the system is working but needs adjustment. Refer

to field maintenance for adjustment of voltage regulator. Stop the engine (TM 5-3825-213-10) and disconnect the rectifier-to-alternator cable at the alternator.

(6) With the multimeter set on the RX 1 scale, measure resistance between pins D and E of alternator connector. The reading should be approximately 2 ohms. However, any reading from 1.7 to 5 ohms is acceptable, since the test is being made through the brushes and sliprings.

(7) With the multimeter set on the RM 100 scale, test from any of the large pins A, B, or C to the others. There should be no measureable resistance. Take a resistance test from each pin to the alternator ground. The reading should be infinite.

(8) Place the engine runoff switch to the RUN position, but do not start the engine.

Note. **When the runoff switch is placed to RUN, the load relay in the voltage regulator can be heard closing.**

(9) With the multimeter set on the 50volt, dc scale, test between small socket D and small socket E at the alternator end of the rectifier-to-alternator cable. The reading should be approximately 25 volts.

(10) Reconnect rectifier-to-alternator cable.

(11) Start the engine and run it at approximately 700 to 800 rpm. With the voltmeter set on the 50-volt, ac scale, test from each of the ac connections on the rectifier to the other two connections.

Note. **The ac connections, are identified by yellow dots adjacent to each of the three connections. Because of peculiarities of alternating current, the meter will not read peak voltage of each back-and-forth (alternating) cycle, but will only record an average value. Even through an output of 27.5 volts or more is indicated on the dc side of rectifier, a reading of 22 volts will be indicated on the ac side. The reading may not be 22 volts, but all three possible tests should show very close to the same voltage.**

(12) Replace the alternator if the above test vary more than 1 volt.

b. *Removal*. Remove the alternator as illustrated in figure 50.

c. *Brush Replacement*. Replace the brushes as illustrated in figure 51.

d. *Cleaning and Inspection*. Clean, inspect, and replace defective parts as necessary.

e. *Installation.* Install the alternator as illustrated in figure 50.

102. Alternator Regulator Assembly

a. *On-Unit Testing.*

(1) Perform on-unit tests prescribed for alternator (par. 101) and rectifier (par. 103).

(2) Perform continuity testing on the regulator-to-rectifier cable in the same manner as prescribed for rectifier-to alternator cable (par. 101).

(3) Disconnect voltage regulator-to-terminal board cable at the voltage regulator. Set a multimeter on the 50volt, dc scale. Check from socket A of cable to ground. The meter reading should be 24 volts.

(4) Connect a jumper wire from socket A to socket B. Bypass the oil pressure switch to apply 24 volts to pin F of voltage regulator-to-terminal board cable. Check from socket F to socket C. Battery voltage of 24 volts should be indicated on meter.

(5) Set multimeter on RX 10 scale and check from pin F to pin C of voltage regulator-to-terminal board cable. The line switch coil resistance reading on the meter should indicate 175 $\pm$ 10 ohms.

(6) Disconnect the voltage regulator-torectifier cable and leave the voltage regulator-to-terminal board cable disconnected. With the multimeter set on RX 1 scale, check from socket C to socket B of the voltage regulator to-rectifier cable. The carbon pile resistance reading should be 1 ohm.

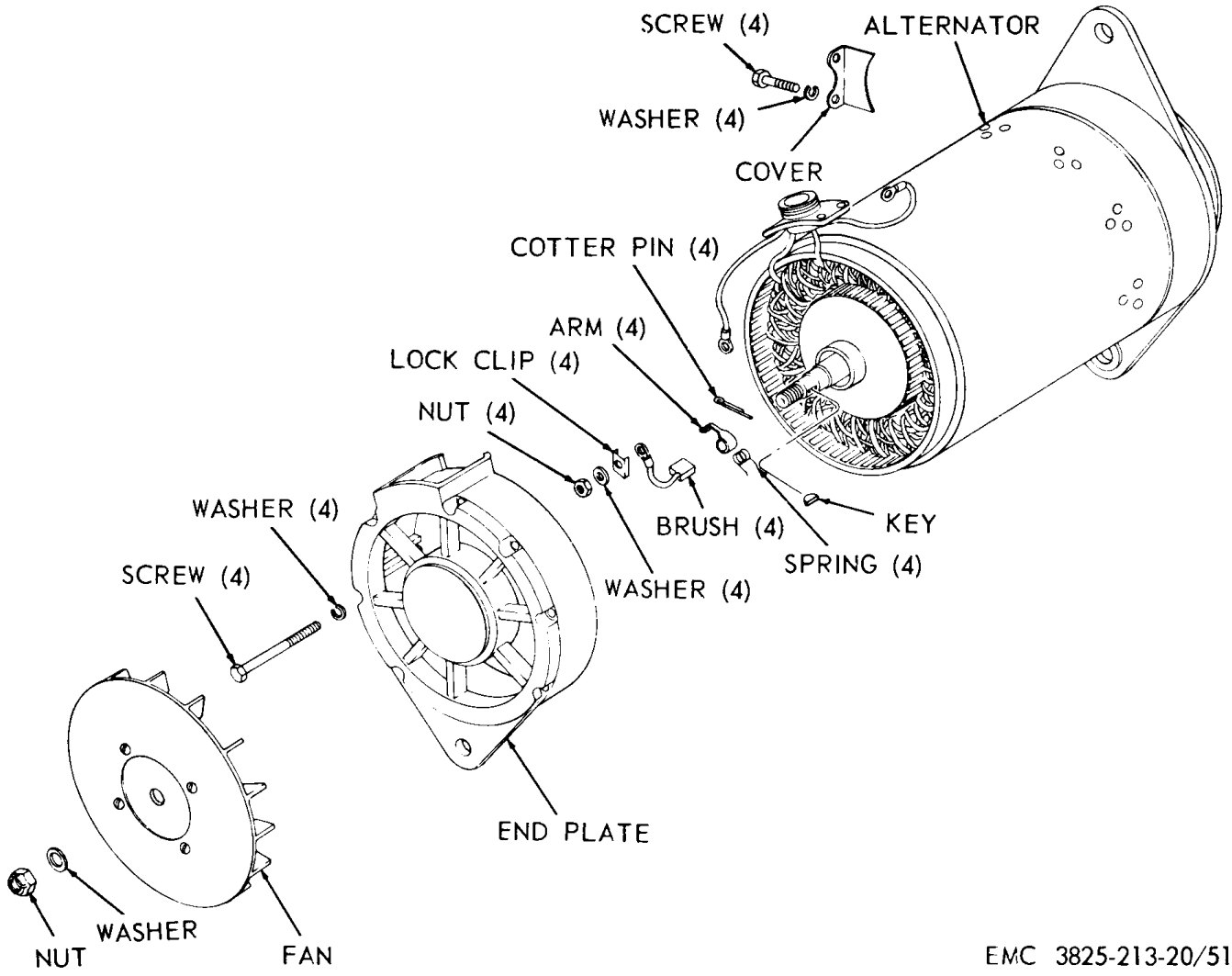


Figure 51. Alternator brush replacement.

(7) If the voltage regulator on cables do not conform to the above tests, replace the voltage regulator or cables.

b. *Removal.* Remove the alternator regulator as illustrated in figure 52.

c. *Cleaning and Inspection.* Clean, inspect, and replace a defective regulator as necessary.

d. *Installation.* Install the alternator regulator as illustrated in figure 52.

e. Alternator Regulator Adjustment. Adjust voltage of the alternator regulator as illustrated in figure 53.

103. Rectifier

a. *On-Unit Testing.*

(1) Perform the on-unit tests prescribed for the alternator (par. 101).

(2) Perform a continuity test on the regulator cable in the same manner as that prescribed for the rectifier-to-alternator cable (par. 101).

(3) Disconnect the alternator-to-rectifier cable and the regulator cable at the rectifier.

(4) With a multimeter set on RX 10 scale, connect one lead to D pin on the rectifier-to-regulator side and touch the other lead to each of the three larger sockets, A, B, and C, on the alternator-to-rectifier side. If a very low reading is obtained, reverse the polarity of the meter and repeat the measurement. A high-resistance reading, 100 to 250 ohms, should be

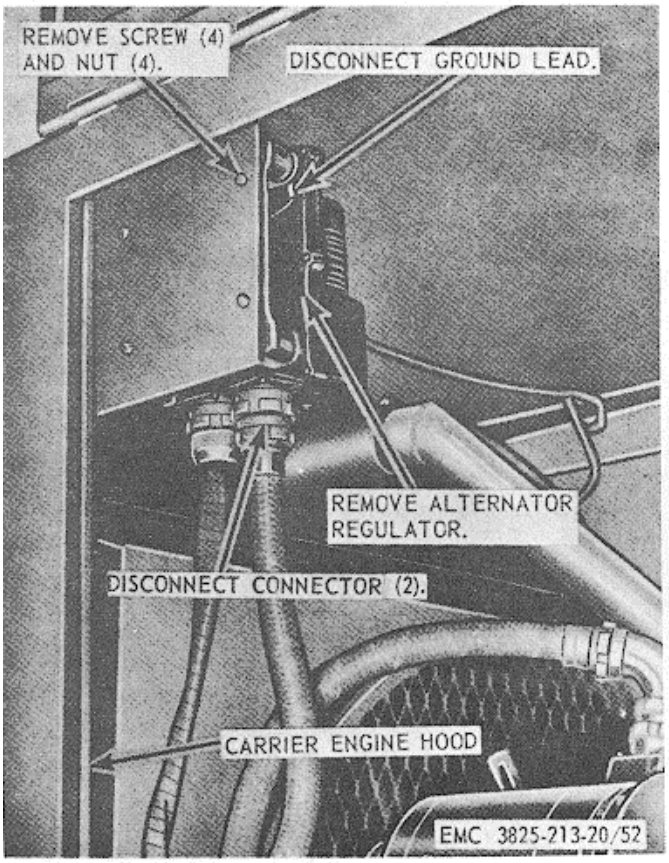


Figure 52. Alternator regulator assembly, removal and installation.

indicated. If a variation of more than 25 ohms is indicated, the rectifier may be defective and the following steps must be performed.

(a) Connect the other lead of the multimeter to pin C on the rectifier-to-regulator side and the first lead to each of the three sockets, A, B, and C on rectifier-to-alternator side. A high-resistance reading, 100 to 250 ohms, should be indicated. If a variation of more than 25 ohms is indicated in this test or in the test performed in step (4) above, the rectifier is defective and must be replaced.

(b) Check the field circuit through the rectifier, with the voltmeter set on RX 1 scale and connections made at small pin B to D, and from small pin E to socket E. The reading should indicate 0 ohm.

b. *Removal*. Remove the rectifier as illustrated in figure 50.

c. *Cleaning and Inspection*. Clean, inspect and replace a damaged rectifier.

d. *Installation*. Install the rectifier as illustrated in figure 50.

104. Horn and Solenoid Valve

a. *Removal*. Remove the carrier cab roof panel, horn, and solenoid valve as illustrated in figure 54.

b. *Cleaning and Inspection*. Clean and inspect. Replace defective parts.

c. *Installation*. Install the horn and solenoid valve and carrier cab roof panels as illustrated in figure 54.

105. Horn Button Assembly

a. *Removal*. Remove the horn button assembly as illustrated in figure 55.

b. *Cleaning and Inspection*. Clean and inspect. Replace defective parts.

c. *Installation*. Install the horn button assembly as illustrated in figure 55.

106. Dimmer Switch

a. *Removal*. Remove the dimmer switch as illustrated in figure 56.

b. Cleaning and Inspection. Clean and inspect. Replace defective parts.

c. Installation. Install the dimmer switch as illustrated in figure 56.

107. Front Signal Light Assembly

a. *Removal.* Remove the signal light assembly as illustrated in figure 57.

b. *Disassembly*. Disassemble the signal light as illustrated in figure 58.

c. *Cleaning, Inspection, and Repair.*

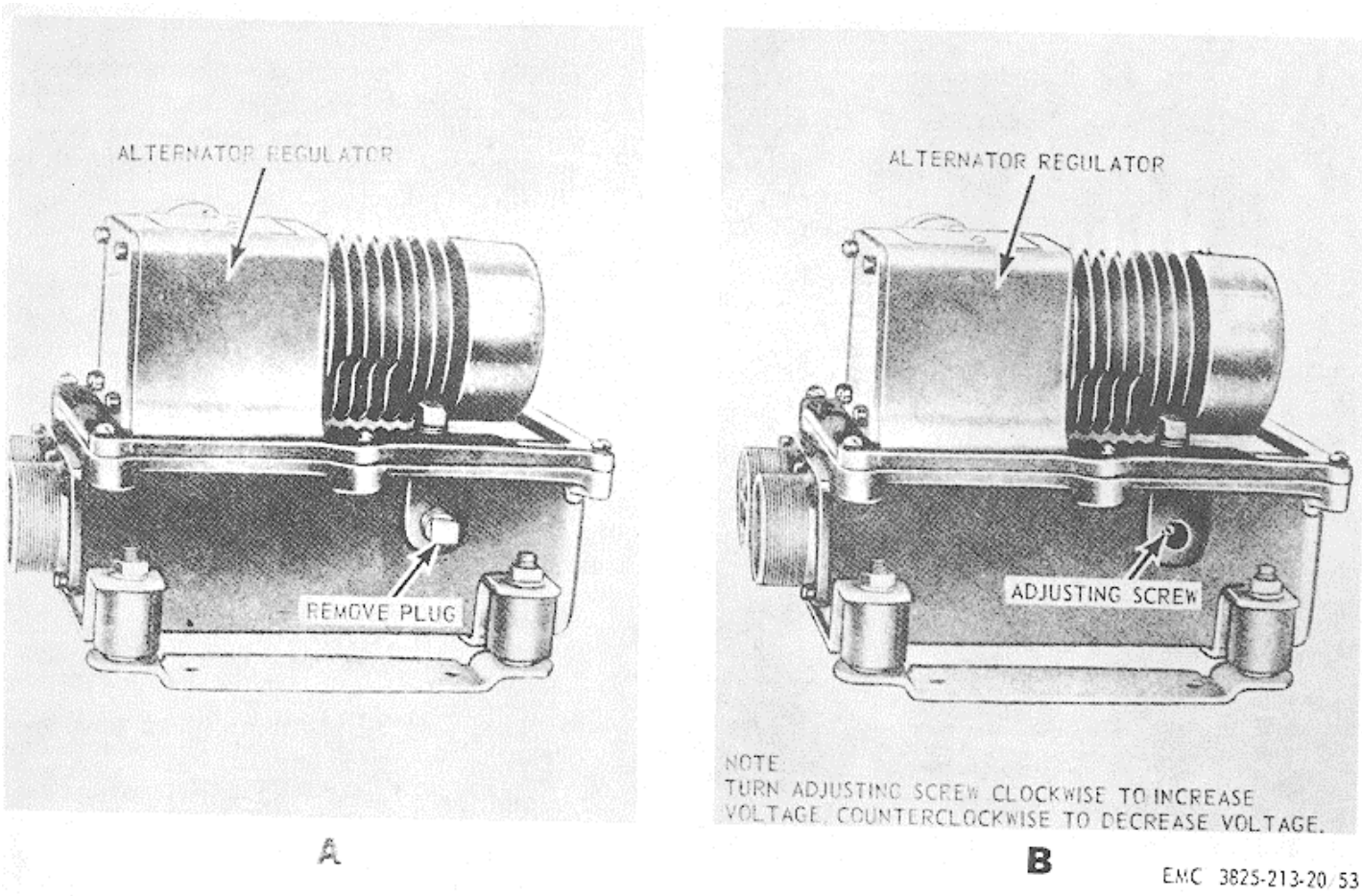
(1) Clean all parts.

(2) Inspect the signal light assembly for defective wires, broken lens, cracks, or breaks.

(3) Replace or repair defective parts.

d. *Reassembly*. Reassemble the signal light assembly as illustrated in figure 58.

e. *Installation*. Install the signal light assembly as illustrated in figure 57.



A. Plug removal

B. Adjustment

Figure 53. Alternator regulator voltage adjustment.

108. Spotlight Assembly

a. *Removal*. Remove the spotlight assembly (fig. 57).

b. *Disassembly*. Disassemble the spotlight assemblies as illustrated in figure 59.

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts.

(2) Inspect the spotlight assembly for defective wiring, broken or cracked lens, breaks, or cracks.

(3) Replace or repair defective parts.

d. *Reassembly*. Reassemble the spotlight assembly as illustrated in figure 59.

e. *Installation*. Install the spotlight assembly (fig. 57).

109. Headlight Assembly

a. *Removal*. Remove the headlight assembly (fig. 57).

b. *Disassembly*. Disassemble the headlight assemblies as illustrated in figure 60.

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts.

(2) Inspect the headlight assembly for defective wiring, broken lens, cracks, or other damage.

(3) Replace or repair defective parts.

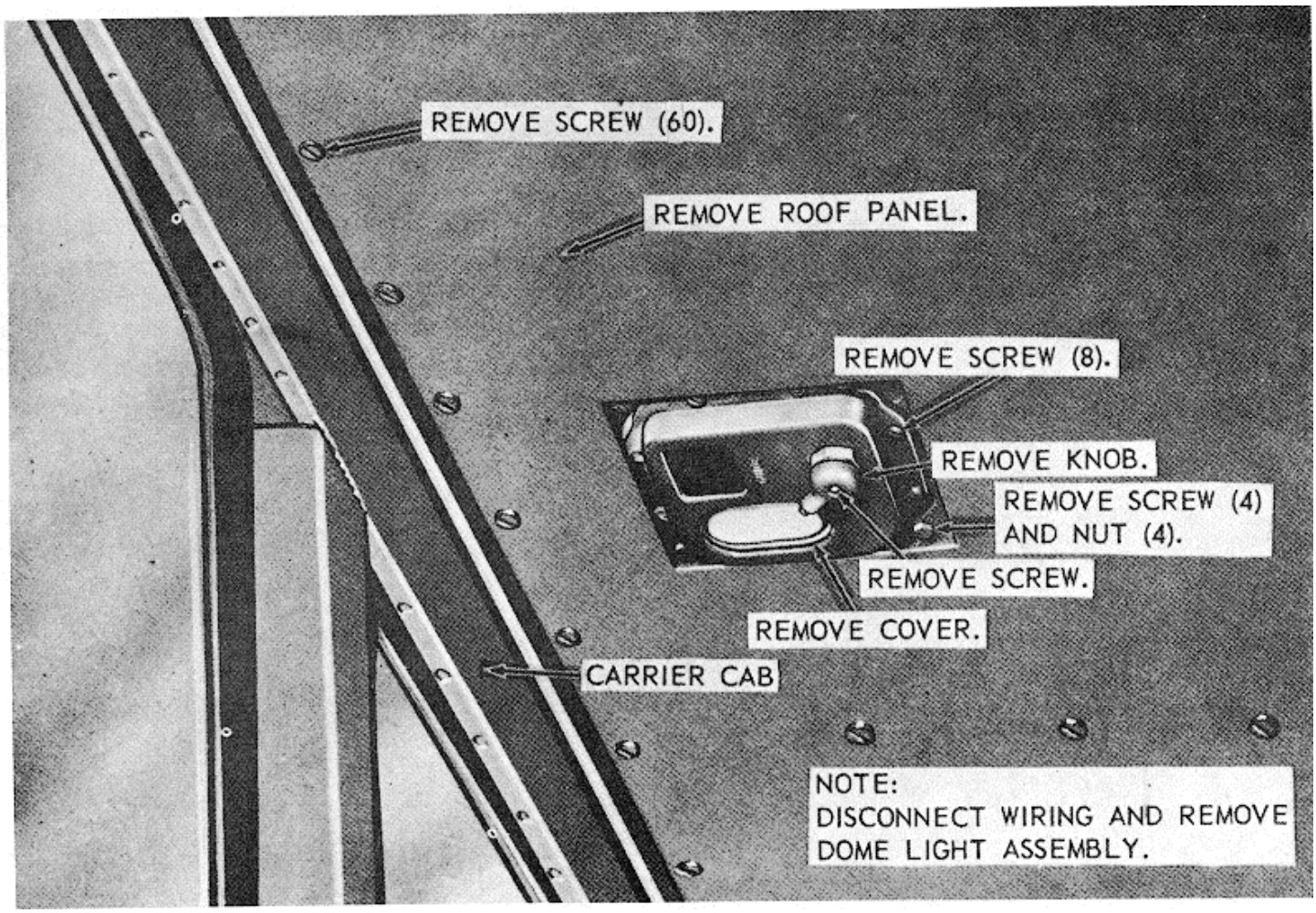
d. *Reassembly*. Reassemble the headlight assembly as illustrated in figure 60.

e. *Installation.* Install the headlight assembly (fig. 57).

110. Clearance Light Assembly

a. *Removal*. Remove the clearance light assembly (fig. 58).

b. Disassembly. Disassemble the clearance light assembly as illustrated in figure 61.



A EMC 3825-213-20/54 (1)

A. Carrier cab roof panel and dome light removal points

Figure 54. Carrier cab roof panel, dome light, and horn, removal and installation.

c. *Cleaning, Inspection, and Repair.*
(1) Clean all parts.
(2) Inspect the clearance light assembly for defective wiring, broken lens, cracks, or breaks.
(3) Replace or repair defective parts.

d. *Reassembly*. Reassemble the clearance light assembly as illustrated in figure 61.

e. *Installation*. Install the clearance light assembly (fig. 57).

Note. **Remove the remaining clearance lights in a similar manner.**

111. Marker Light Assembly

a. *Removal*. Remove the marker light assembly (fig. 57).

b. *Disassembly.* Disassemble the marker light assembly as illustrated in figure 62.

c. *Cleaning, Inspection, and Repair*.
(1) Clean all parts.
(2) Inspect the marker light assembly for defective wiring, cracked or broken lens, cracks or breaks.
(3) Replace or repair defective parts.

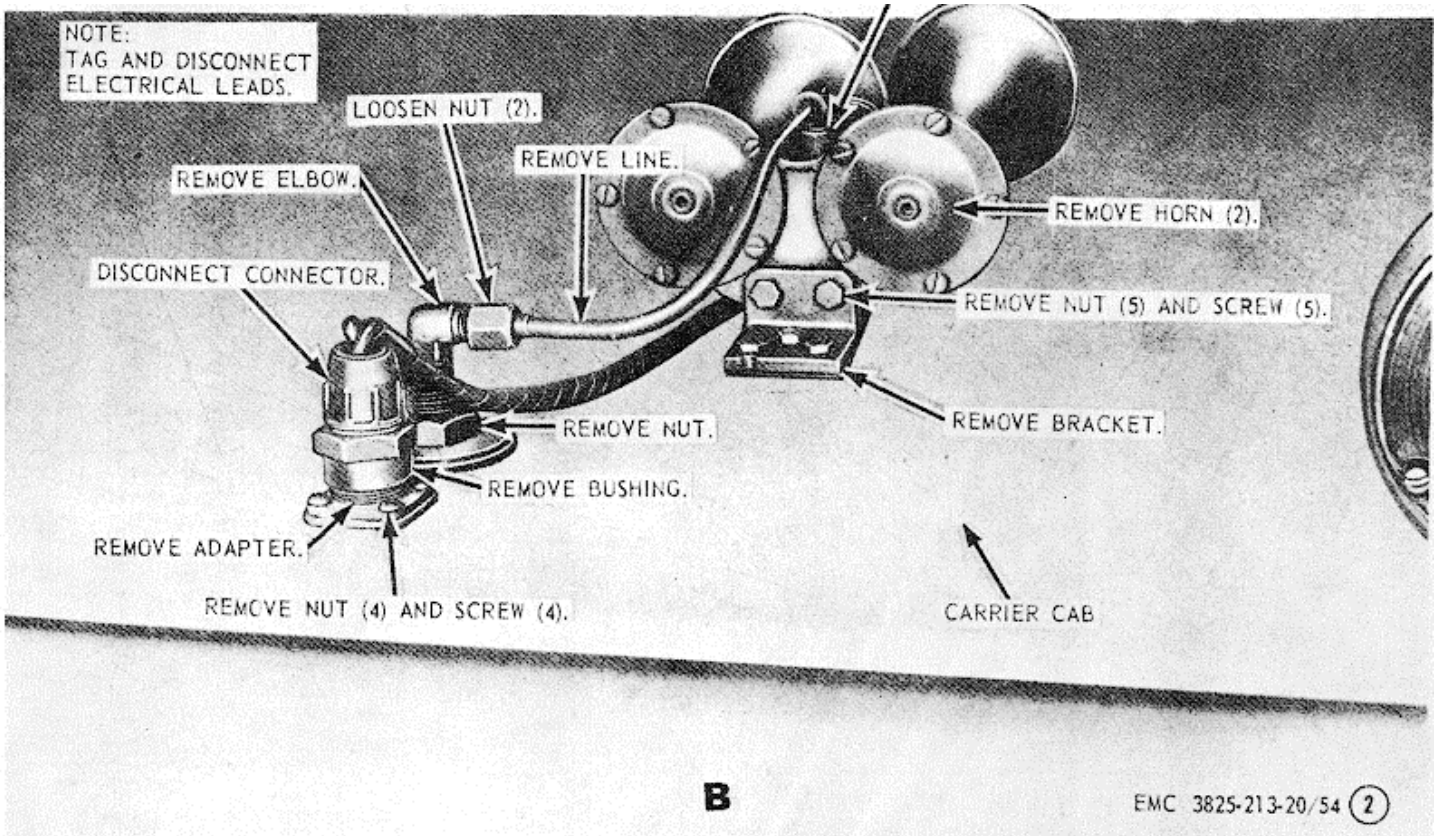
d. *Reassembly*. Reassemble the marker light assembly as illustrated in figure 62.

e. *Installation*. Install the marker light assembly (fig. 57).

112. Rotating Beacon Light Assembly

a. *Removal*. Remove the rotating beacon light assembly as illustrated in figure 63.

b. *Disassembly*. Disassemble the rotating beacon light assembly as illustrated in figure 63.



B. Horn and solenoid valve, removal and installation.

Figure 54-Continued.

c. *Cleaning, Inspection, and Repair.*
(1) Clean all parts.
(2) Inspect the rotating beacon light assembly for defective wiring, cracked or broken lens, cracks, or breaks.
(3) Repair or replace defective parts.

d. *Reassembly.* Reassemble the rotating beacon light assembly as illustrated in figure 63.

e. *Installation.* Install the rotating beacon light assembly as illustrated in figure 63.

113. Blackout Headlight Assembly

a. *Removal.* Remove the blackout headlight (fig. 57).

b. *Disassembly.* Disassemble the blackout headlight as illustrated in figure 64.

c. *Cleaning, Inspection, and Repair.*
(1) Clean all parts.
(2) Inspect the blackout headlight assembly for defective wiring, broken lens, cracks, or breaks.
(3) Replace or repair defective parts.

d. *Reassembly.* Reassemble the blackout headlight assembly as illustrated in figure 64.

e. *Installation.* Install the blackout headlight assembly (fig. 57).

114. Taillight Assembly

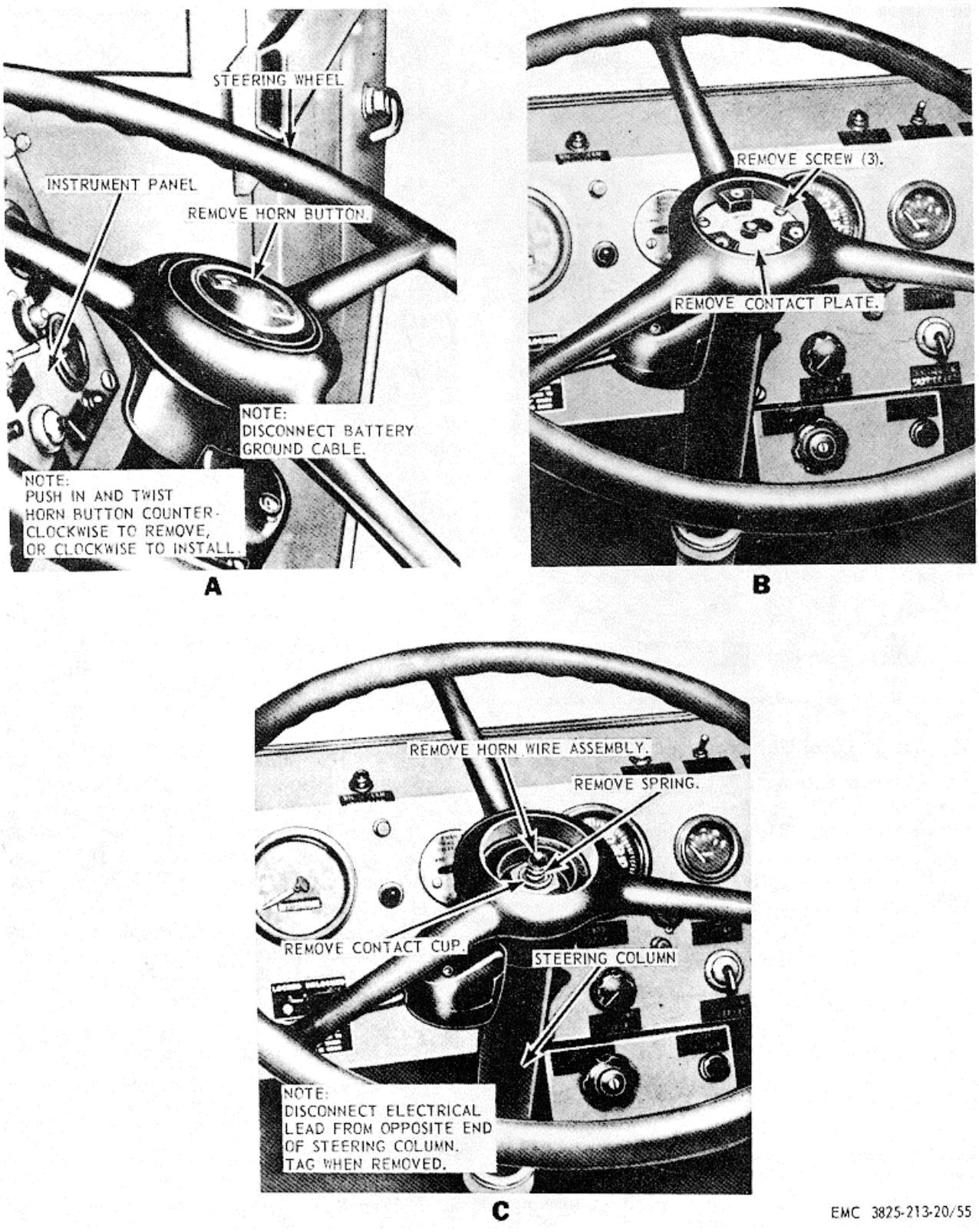
a. *Removal.* Remove the taillight assembly as illustrated in figure 65.

b. *Disassembly.* Disassemble the taillight assembly (fig. 62).

c. *Cleaning, Inspection, and Repair.*
(1) Clean all parts.
(2) Inspect the taillight assembly for defective wiring, broken lens, cracks, or breaks.
(3) Replace or repair defective parts.

d. *Reassembly.* Reassemble the taillight assembly (fig. 62).

e. *Installation.* Install the taillight assembly as illustrated in figure 65.



A. Horn button removal
B. Contact plate removal
C. Cup, wire, and spring removal

Figure 55. Horn button assembly, removal and installation.

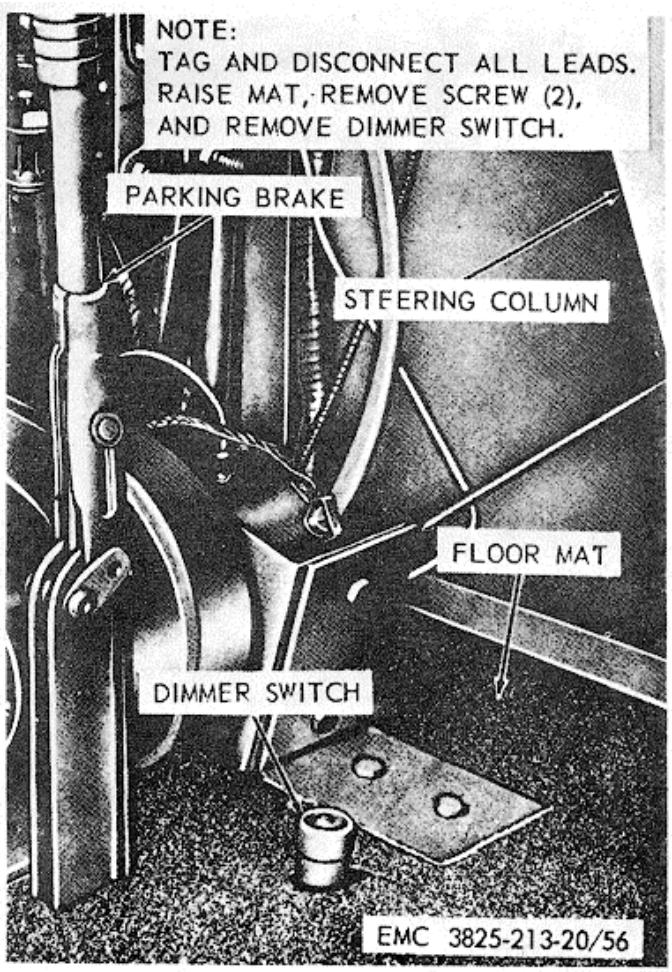


Figure 56. Dimmer switch, removal and installation.

115. Rear Signal Light Assembly

a. *Removal.* Remove the rear signal light assembly (fig. 65).

b. *Disassembly.* Disassemble the rear signal light assembly (fig. 58).

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts.

(2) Inspect the rear signal light assembly for defective wiring, cracked or broken lens, cracks, or breaks.

(3) Replace or repair defective parts.

d. *Reassembly.* Reassemble the rear signal light assembly (fig. 58).

e. *Installation.* Install the rear signal light assembly (fig. 65).

116. Dome Light Assembly

a. *Removal.* Remove the dome light assembly as illustrated in figure 54.

b. *Disassembly.* Disassemble the dome light assembly as illustrated in figure 66.

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts.

(2) Inspect the dome light assembly for defective wiring, cracked or broken lens, cracks or breaks.

(3) Replace or repair defective parts.

d. *Reassembly.* Reassemble the dome light assembly as illustrated in figure 66.

e. *Installation.* Install the dome light assembly as illustrated in figure 54.

117. Auxiliary Light Assembly

a. *Removal.* Remove the auxiliary light assembly as illustrated in figure 67.

b. *Disassembly.* Disassemble the auxiliary light assembly as illustrated in figure 68.

c. *Cleaning, Inspection, and Repair.*

(1) Clean all parts.

(2) Inspect the auxiliary light assembly for defective wiring, broken or cracked lens, cracks or breaks.

(3) Replace or repair defective parts.

d. *Reassembly.* Reassemble the auxiliary light assembly as illustrated in figure 68.

e. *Installation.* Install the auxiliary light assembly as illustrated in figure 67.

118. Blackout Stoplight Assembly

a. *Removal.* Remove the blackout spotlight assembly as illustrated in figure 69.

b. *Disassembly.* Disassemble the blackout stoplight assembly as illustrated in figure 70.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts.

(2) Inspect the blackout stoplight assembly for defective wiring, cracked or broken lens, cracks, or breaks.

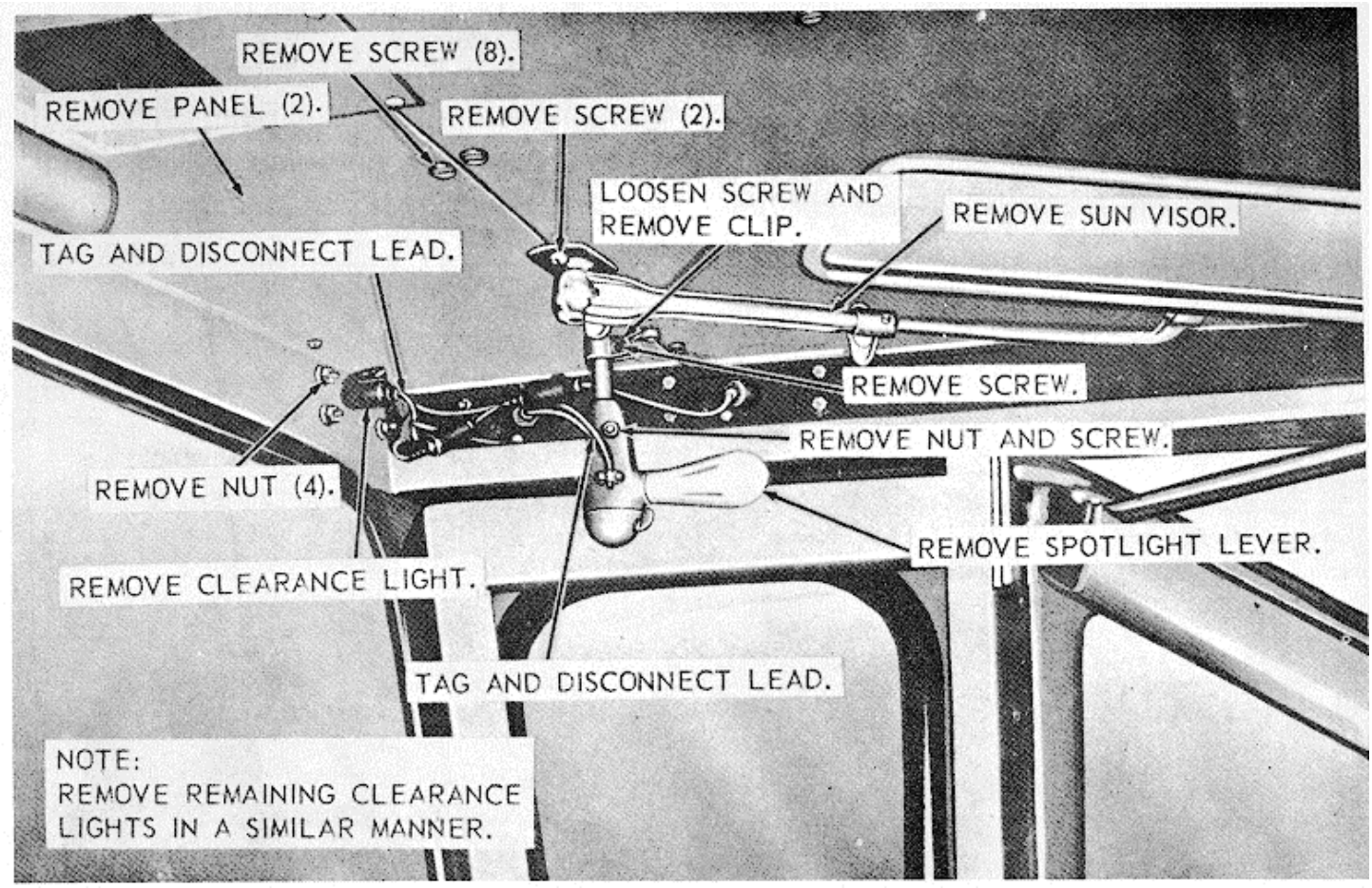
(3) Replace or repair defective parts.

d. *Reassembly.* Reassemble the blackout stoplight assembly as illustrated in figure 70.

e. *Installation.* Install the blackout stoplight assembly as illustrated in figure 69.

119. Rear Steering Solenoid Valve

a. *Removal.* Remove the rear steering solenoid valve as illustrated in figure 71.



A. Clearance light, spotlight, lever, and cab panel removal points

Figure 57. Spotlight, headlight, turn signal lights, marker lights, and blackout headlight, removal and installation.

b. *Cleaning and Inspection.* Clean and inspect. Replace defective parts.

c. *Installation.* Install the rear steering solenoid valve as illustrated in figure 71.

120. Service Brake Stoplight Switch

a. *Removal.* Remove the brake stoplight switch as illustrated in figure 72.

b. *Cleaning and Inspection.* Clean and inspect. Replace defective parts.

c. *Installation.* Install the service brake stoplight switch as illustrated in figure 72.

121. Air Gage Sending Unit

a. *Removal.* Remove the air gage sending unit as illustrated in figure 73.

b. *Cleaning and Inspection.* Clean and inspect. Replace defective parts.

c. *Installation.* Install the air gage sending unit as illustrated in figure 73.

122. Torque Converter and Transmission Oil Temperature and Pressure Sending Units

a. *Removal.* Remove the torque converter and transmission oil temperature and pressure sending units as illustrated in figure 74.

b. *Cleaning and Inspection.* Clean and inspect. Replace defective parts.

c. *Installation.* Install the torque converter and transmission oil temperature and pressure sending units as illustrated in figure 74.

123. Plow and Carrier Engine Coolant Sending Unit Assembly

a. *Removal.* Remove the plow or carrier engine coolant sending unit assembly as illustrated in figure 75.

b. *Cleaning and Inspection.* Clean and inspect. Replace defective parts.

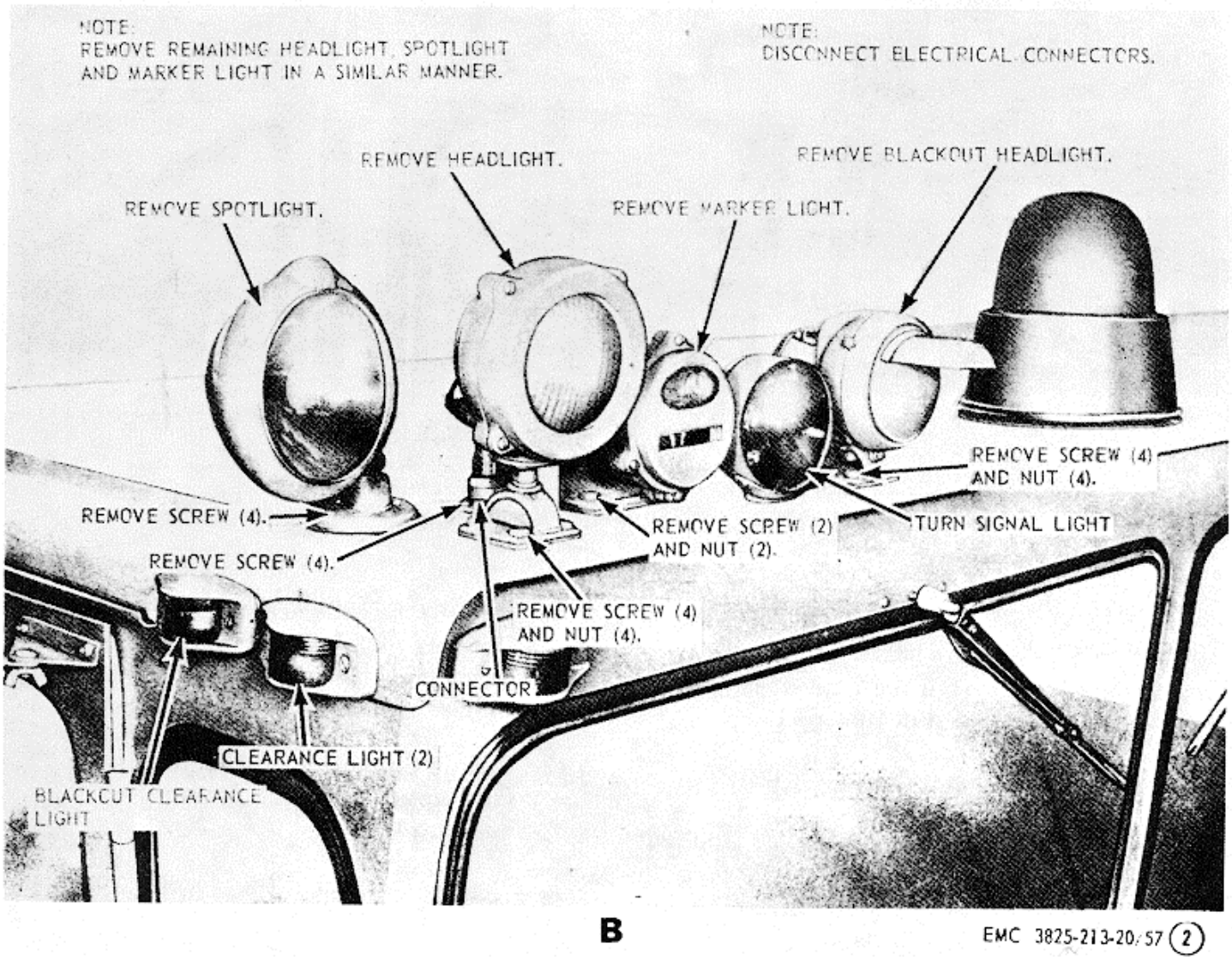
c. Installation. Install the plow or carrier engine coolant sending unit assembly as illustrated in figure 75.

124. Transfer Case Sending Unit

a. *Removal.* Remove the transfer case sending unit as illustrated in figure 76.

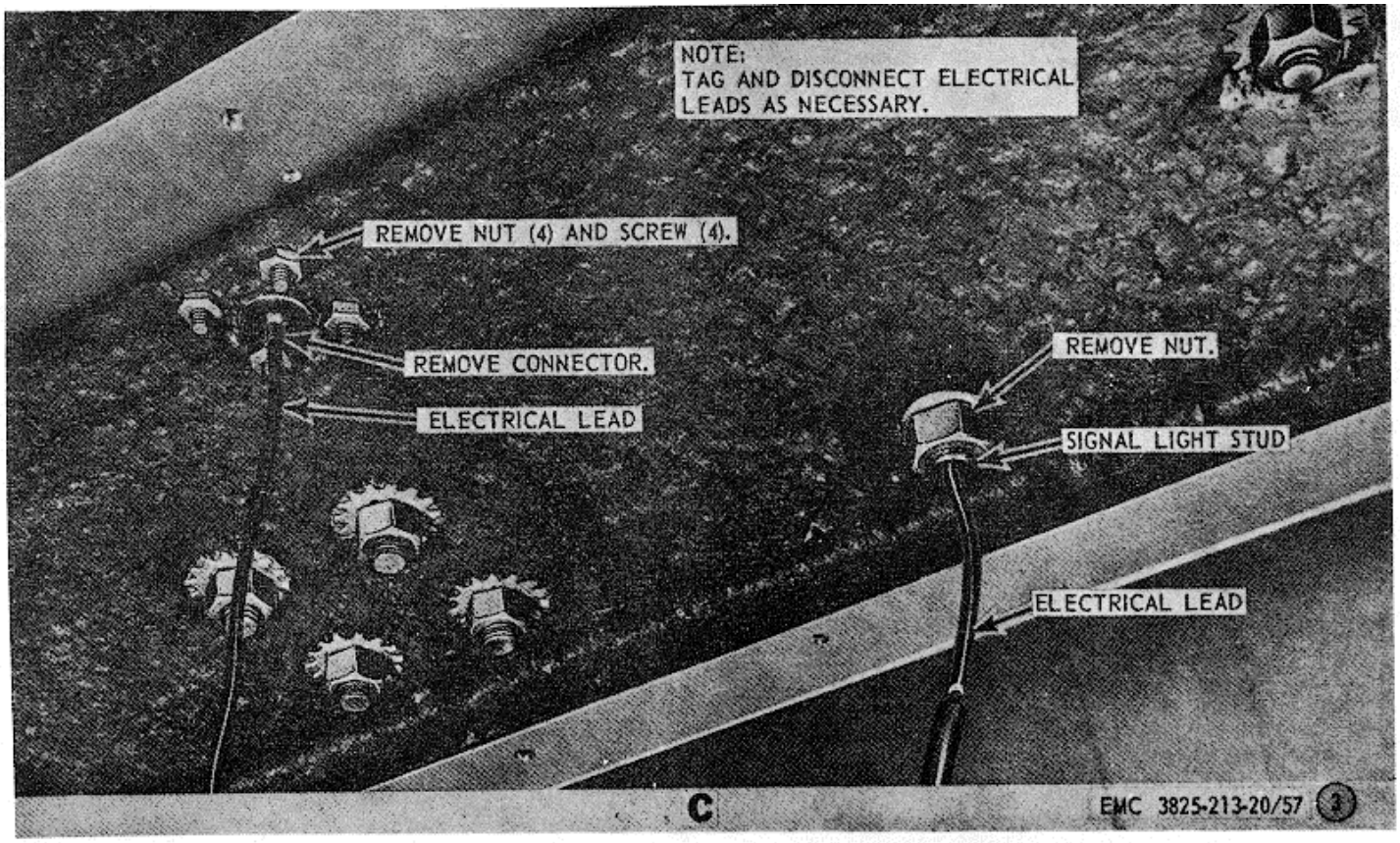
b. *Cleaning and Inspection.* Clean, inspect, and replace a defective sending unit.

c. *Installation.* Install the transfer case sending unit as illustrated in figure 76.



B. Spotlight, headlight, marker light, and blackout headlight removal points

Figure 57-Continued.



C. Turn signal light and connectors removal points

Figure 57-Continued.

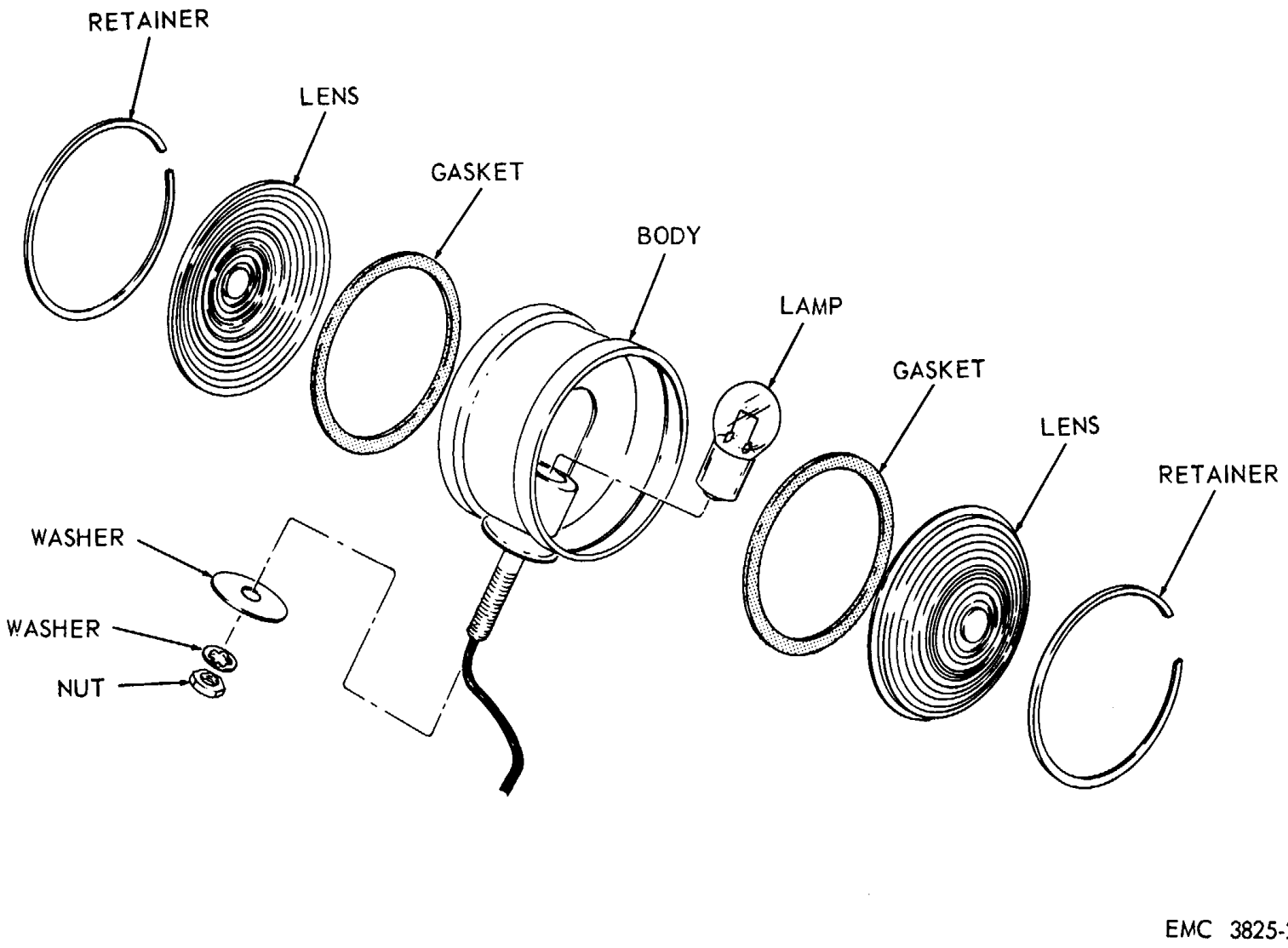


Figure 58. front signal light assembly, disassembly and reassembly, exploded view.

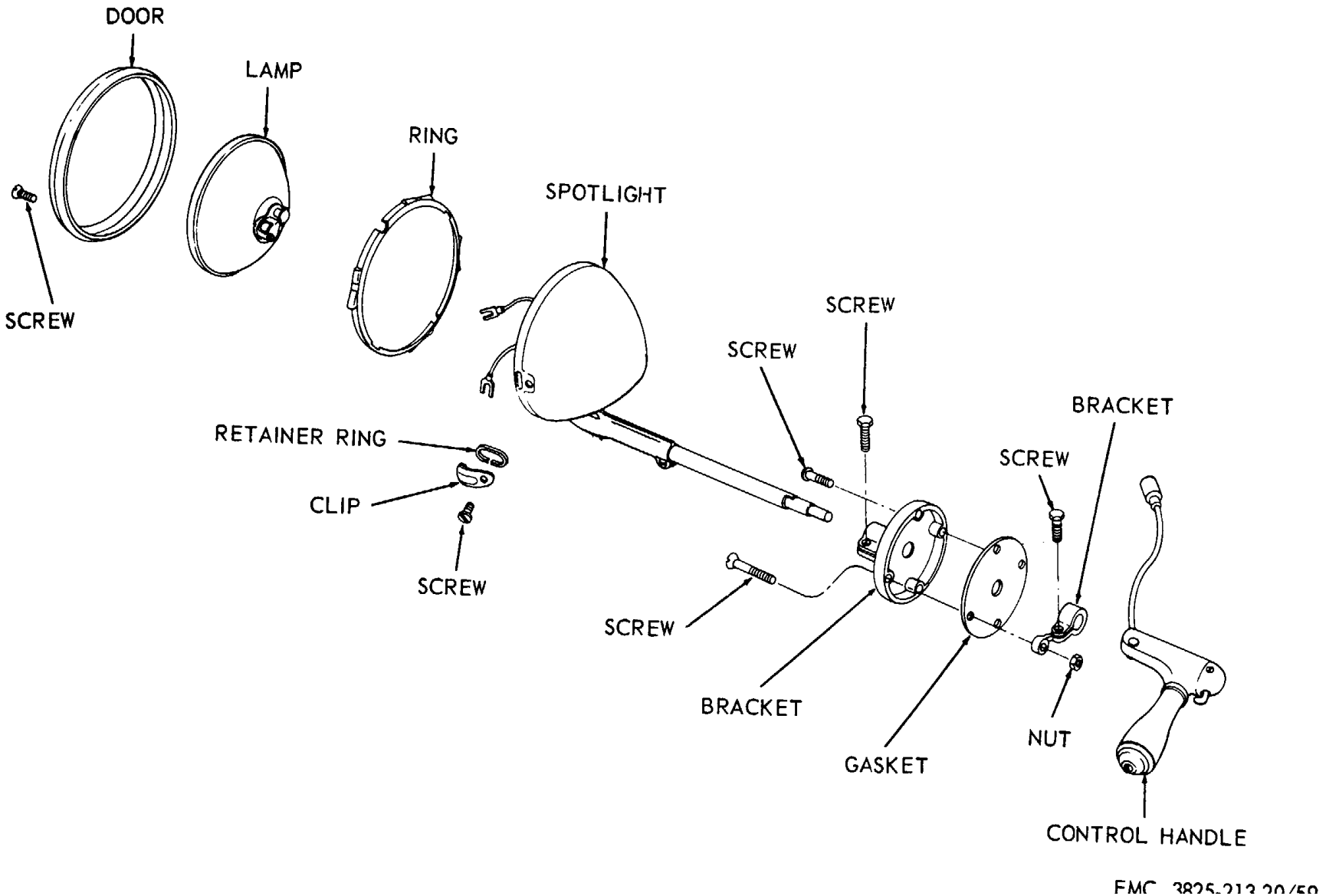


Figure 59. Spotlight assembly, disassembly and reassembly, exploded view.

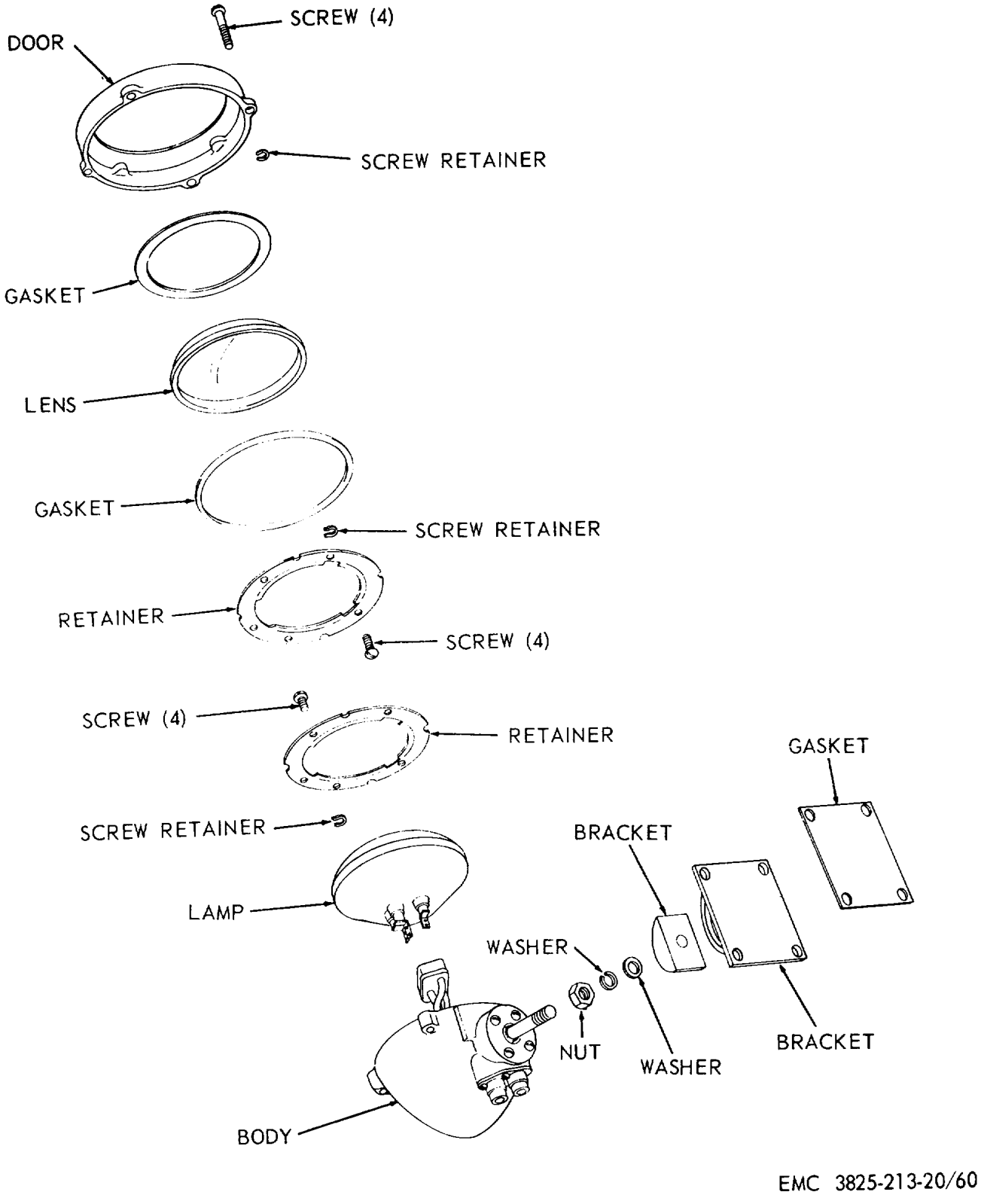


Figure 60. Headlight assembly, disassembly and reassembly, exploded view.

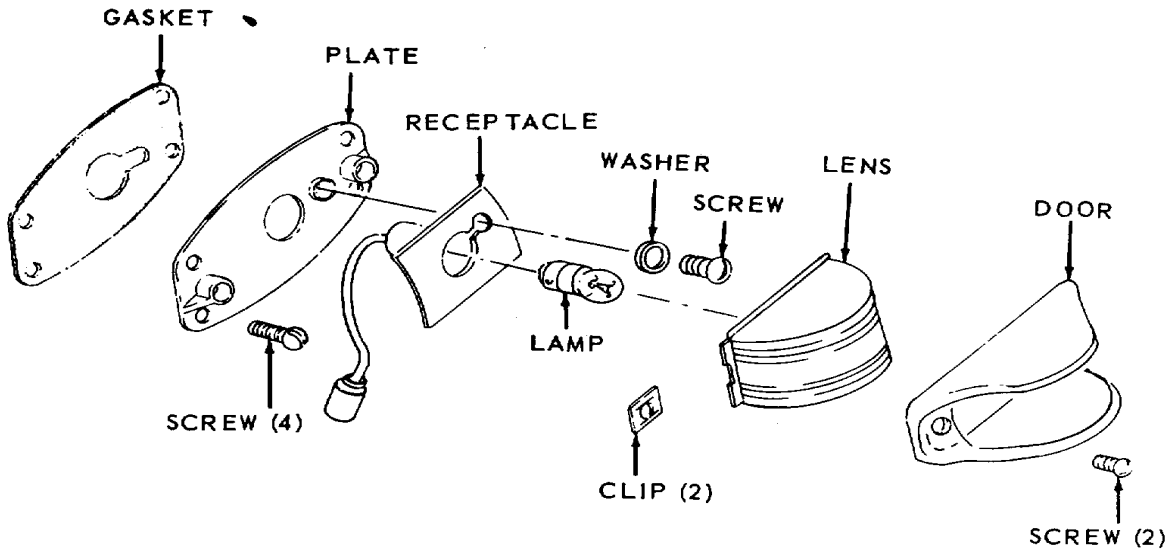


Figure 61. Clearance light assembly, disassembly and reassembly, exploded view.

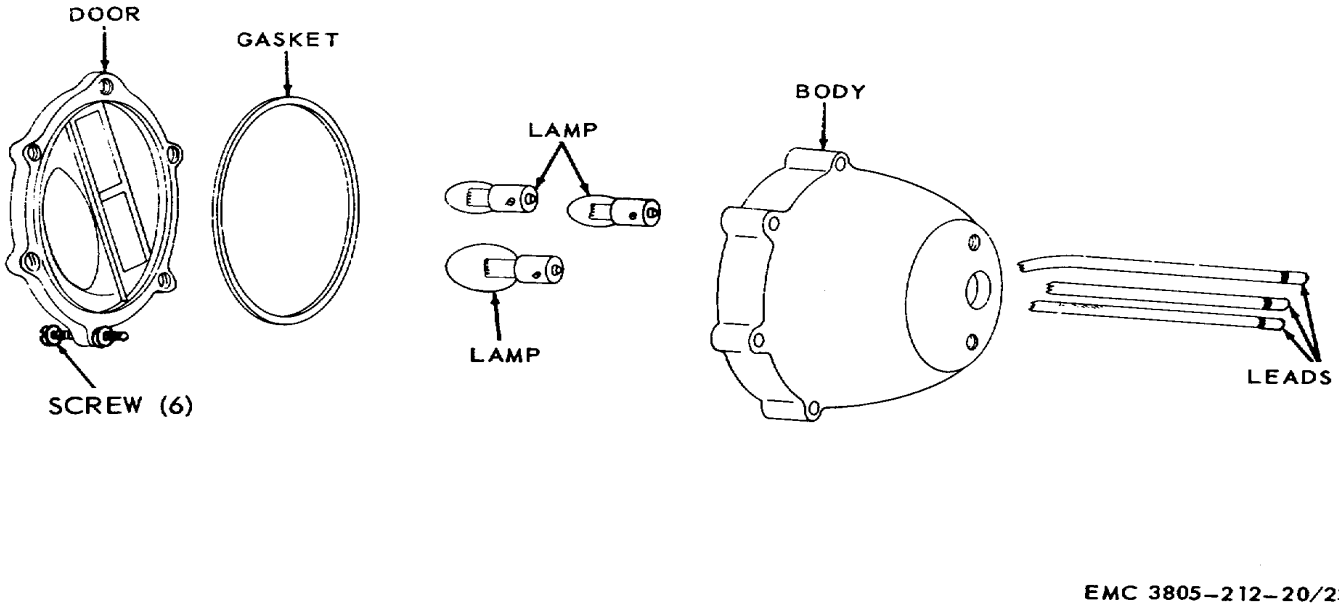
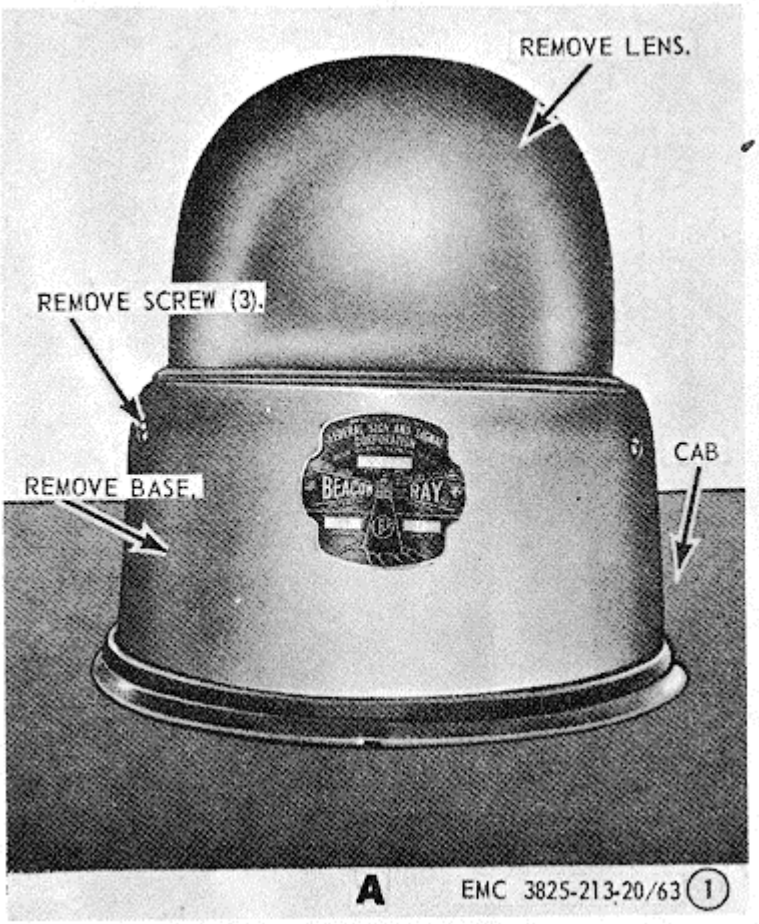
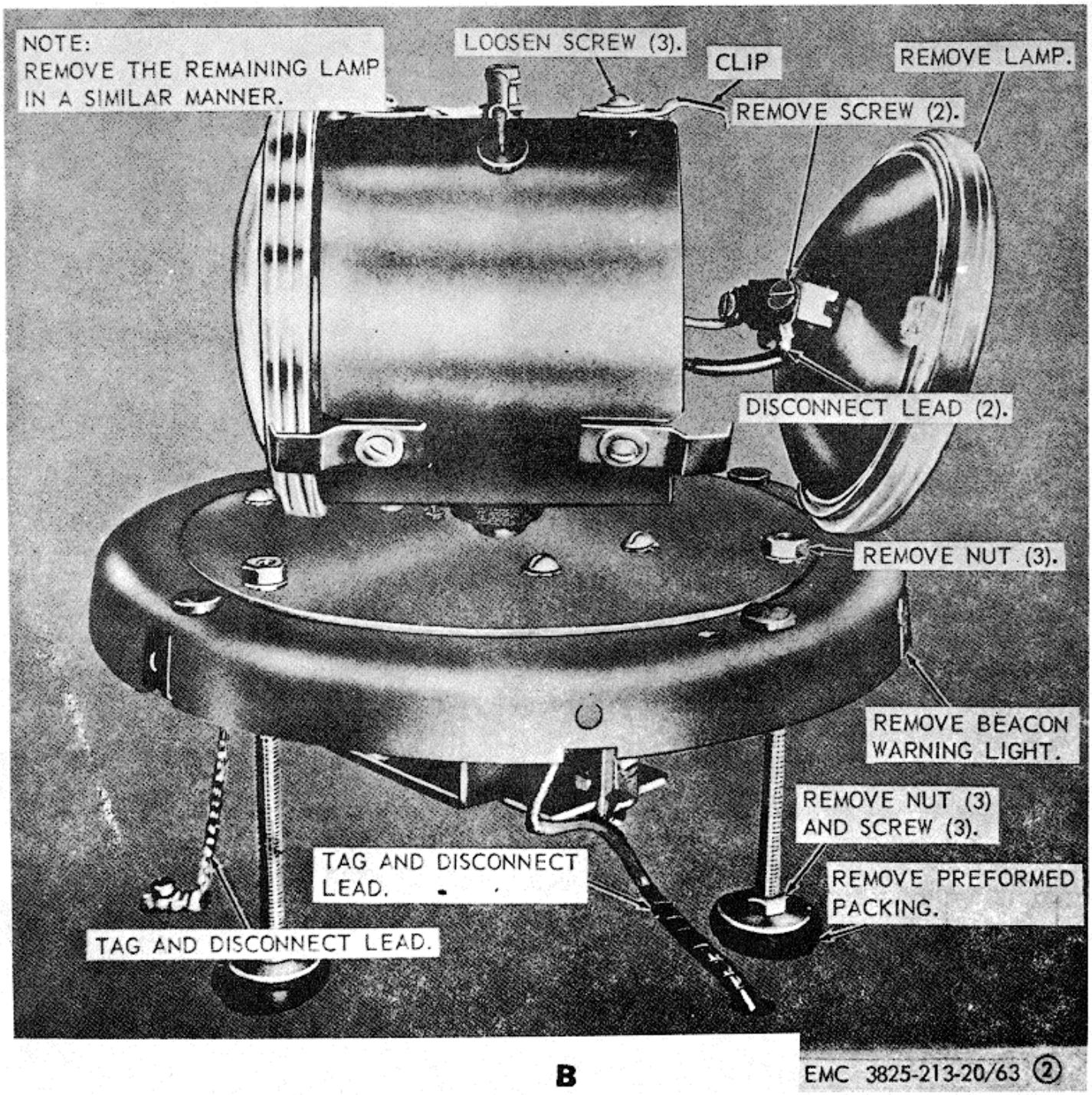


Figure 62. Marker light or tail light assembly, disassembly and reassembly, exploded view.



A. Base and lens removal points

Figure 63. Rotating beacon light assembly, removal, disassembly, reassembly and installation.



B. Lamp and light removal points

Figure 63-Continued.

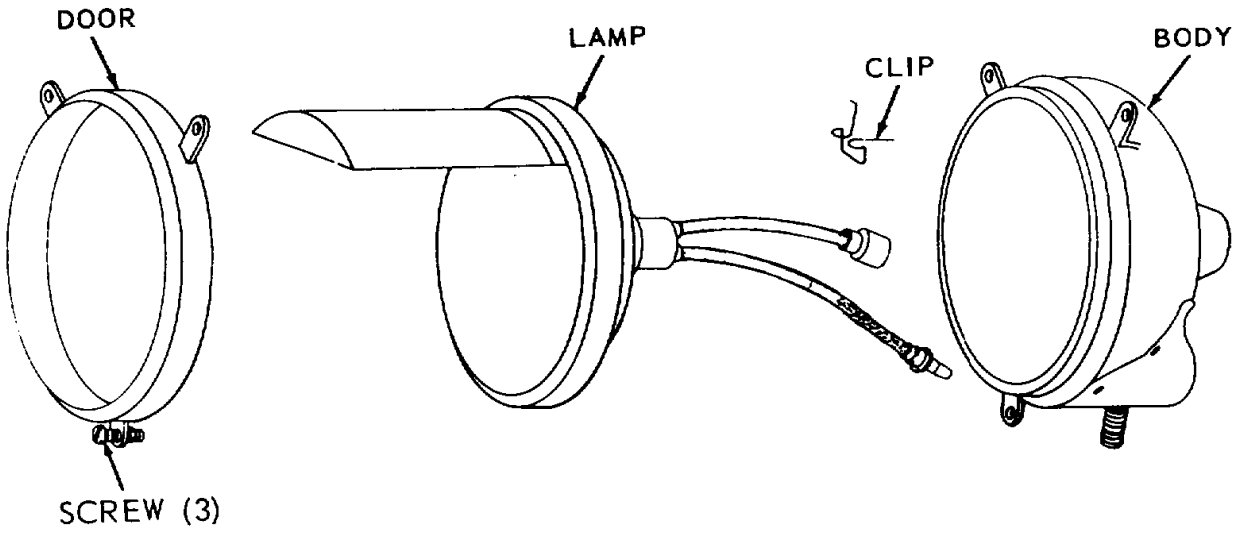


Figure 64. Blackout headlight assembly, disassembly and reassembly, exploded view.

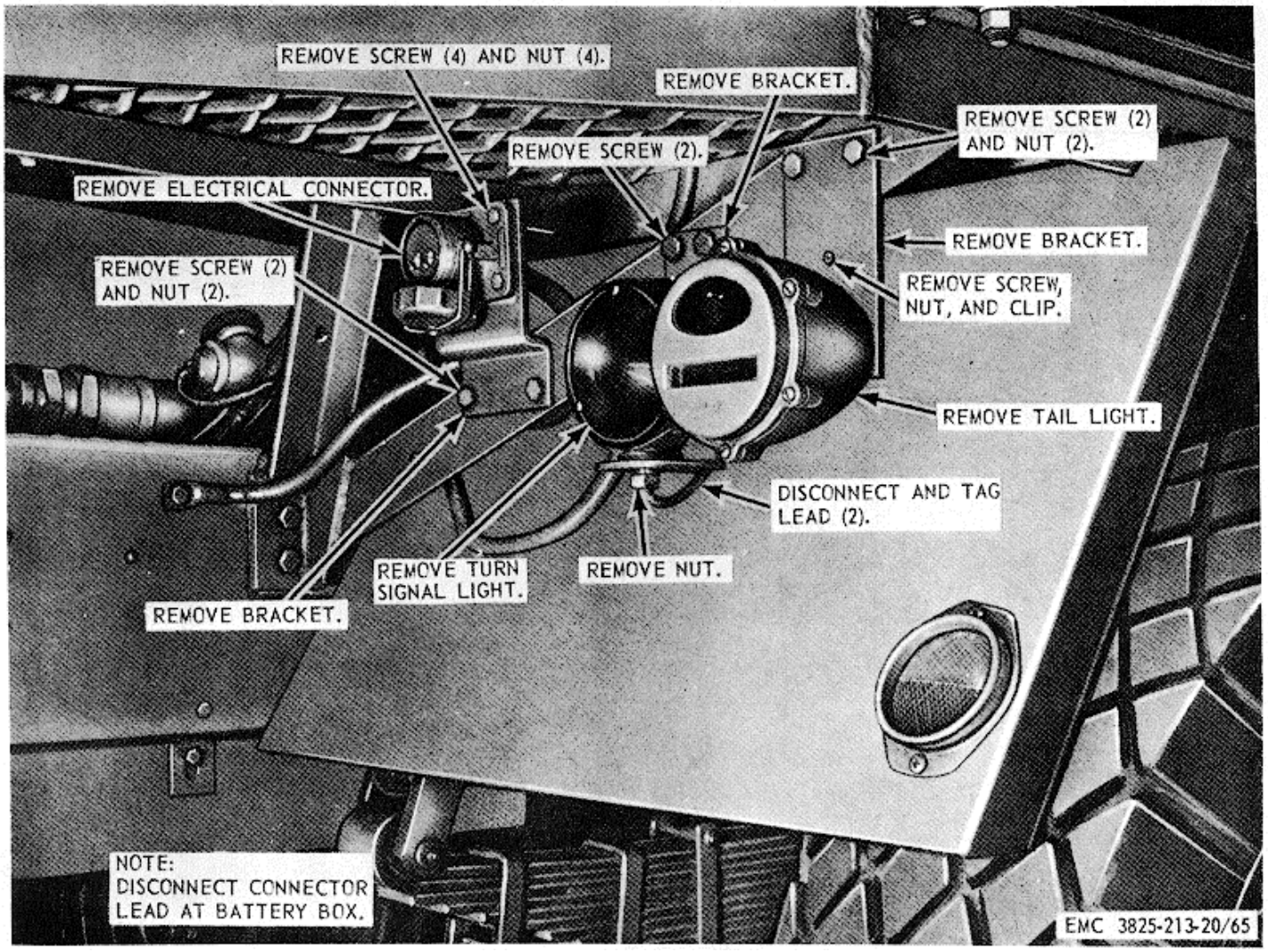


Figure 65. Electrical connection, turn signal, and taillight, removal and installation.

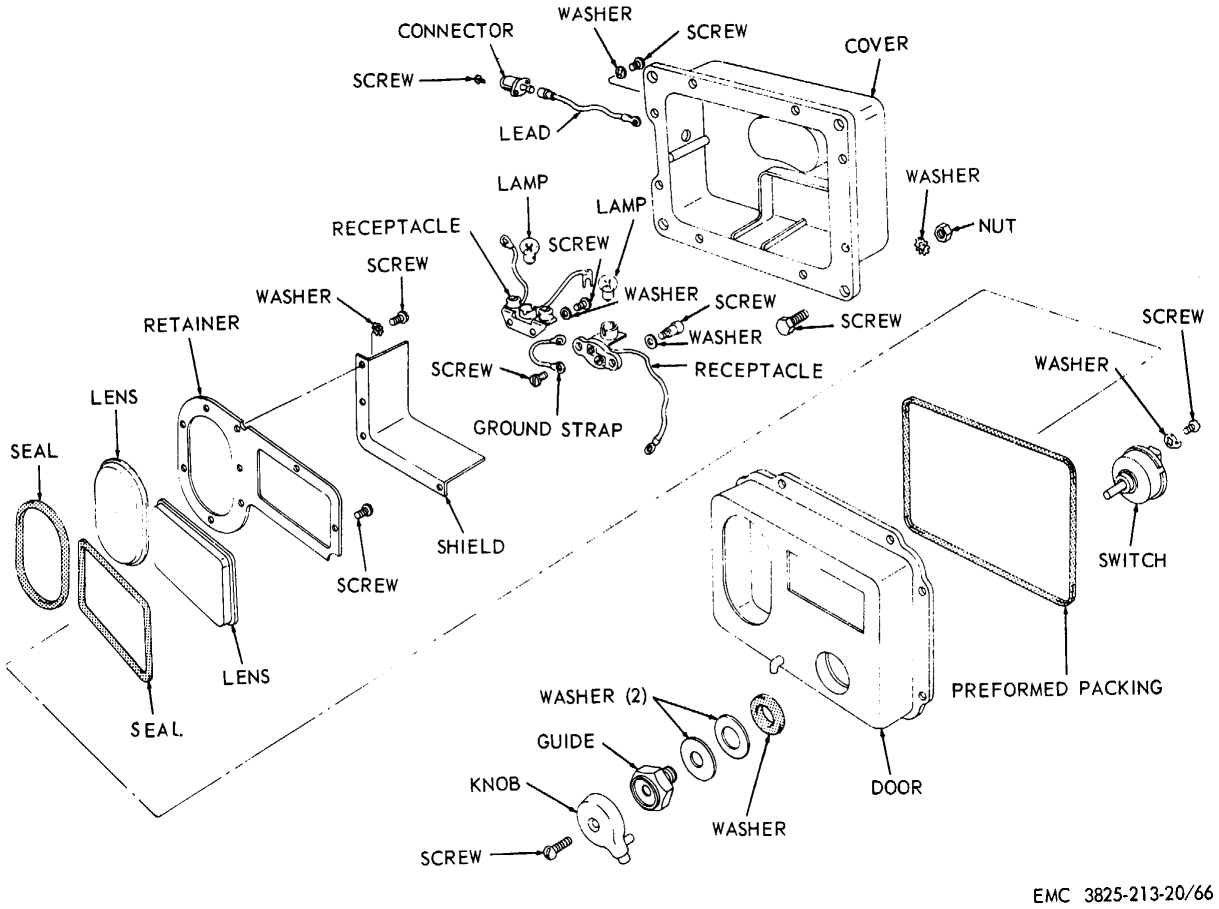


Figure 66. Dome light assembly, disassembly and reassembly exploded view.

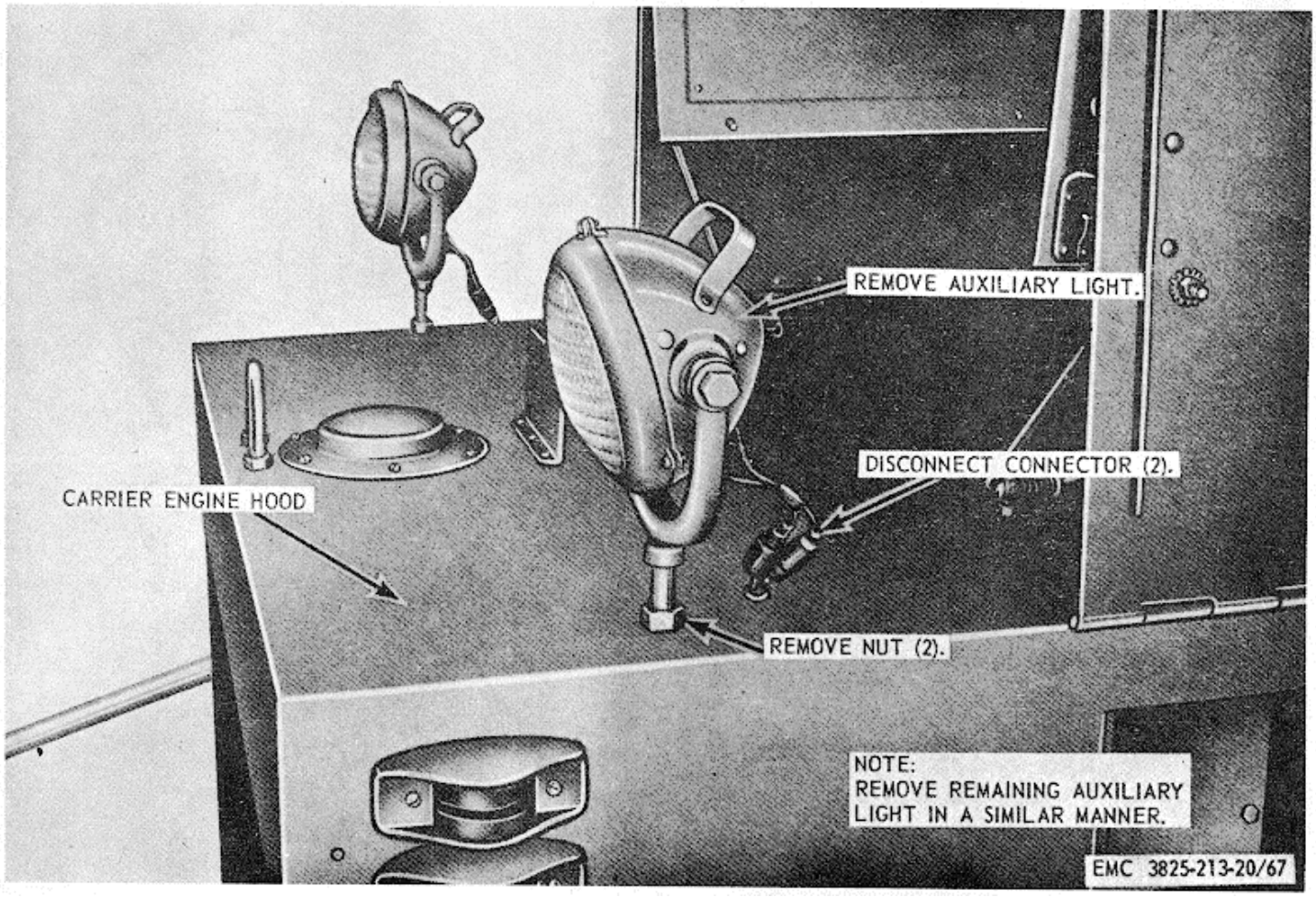


Figure 67. Auxiliary light assembly, removal and installation.

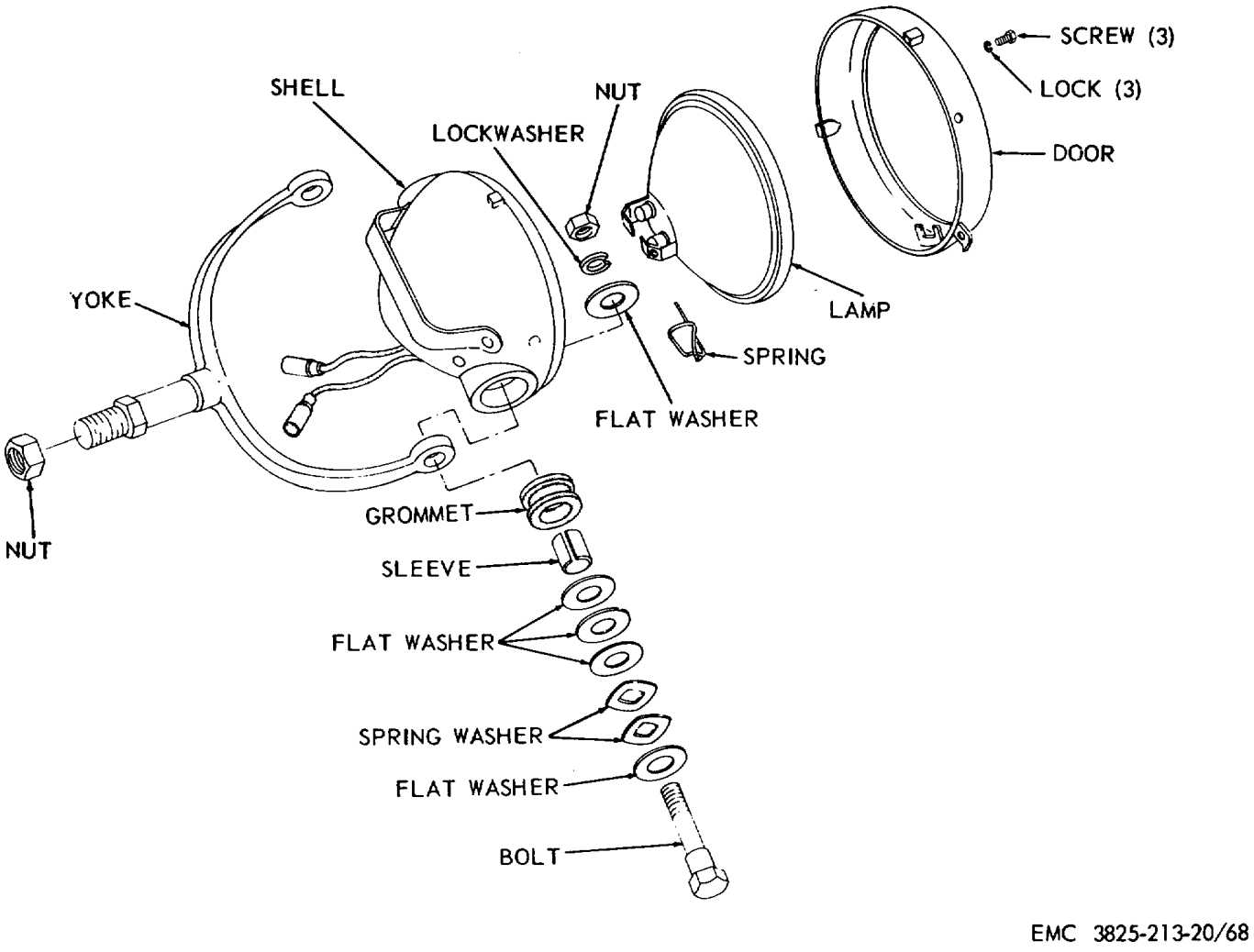


Figure 68. Auxiliary lights, disassembly and reassembly, exploded view.

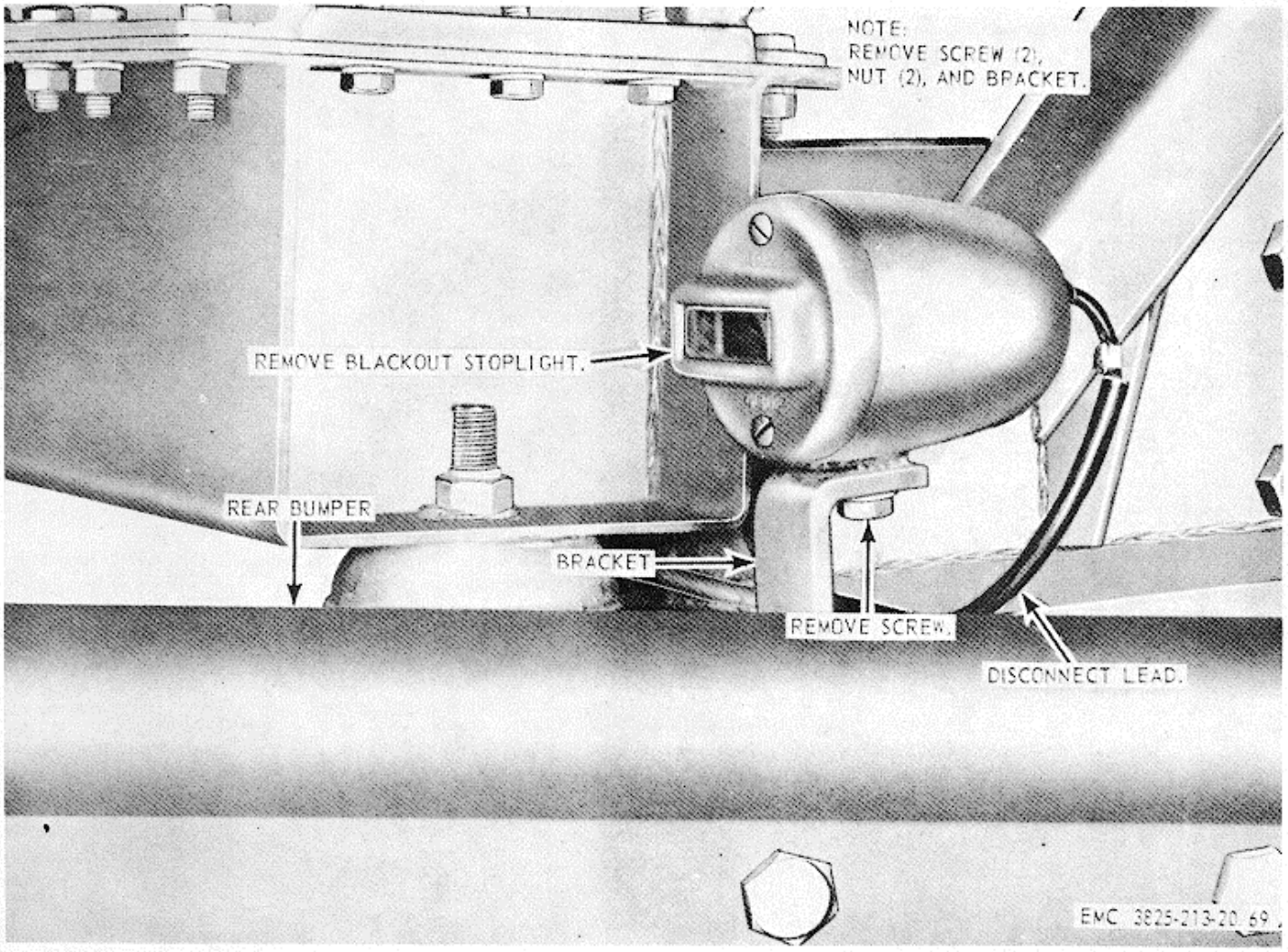


Figure 69. Blackout stoplight assembly, removal and installation.

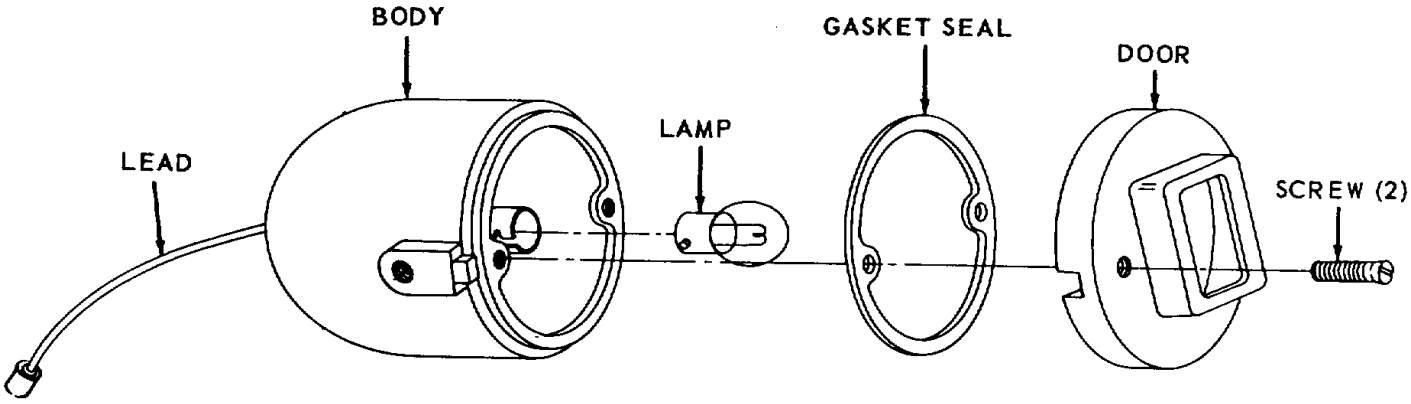


Figure 70. Blackout stoplight assembly, disassembly and reassembly, exploded view.

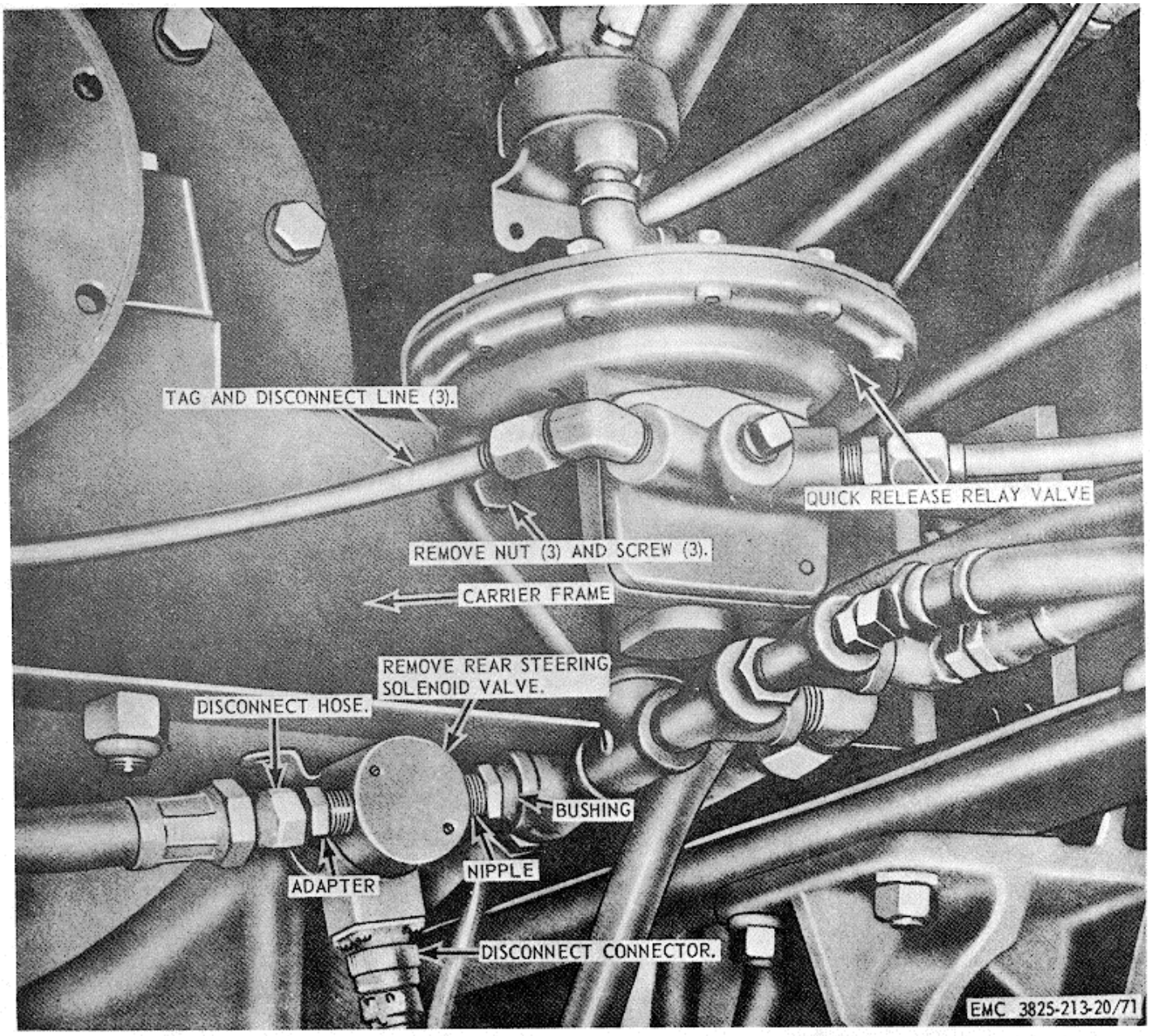


Figure 71. Rear steering solenoid valve, removal and installation.

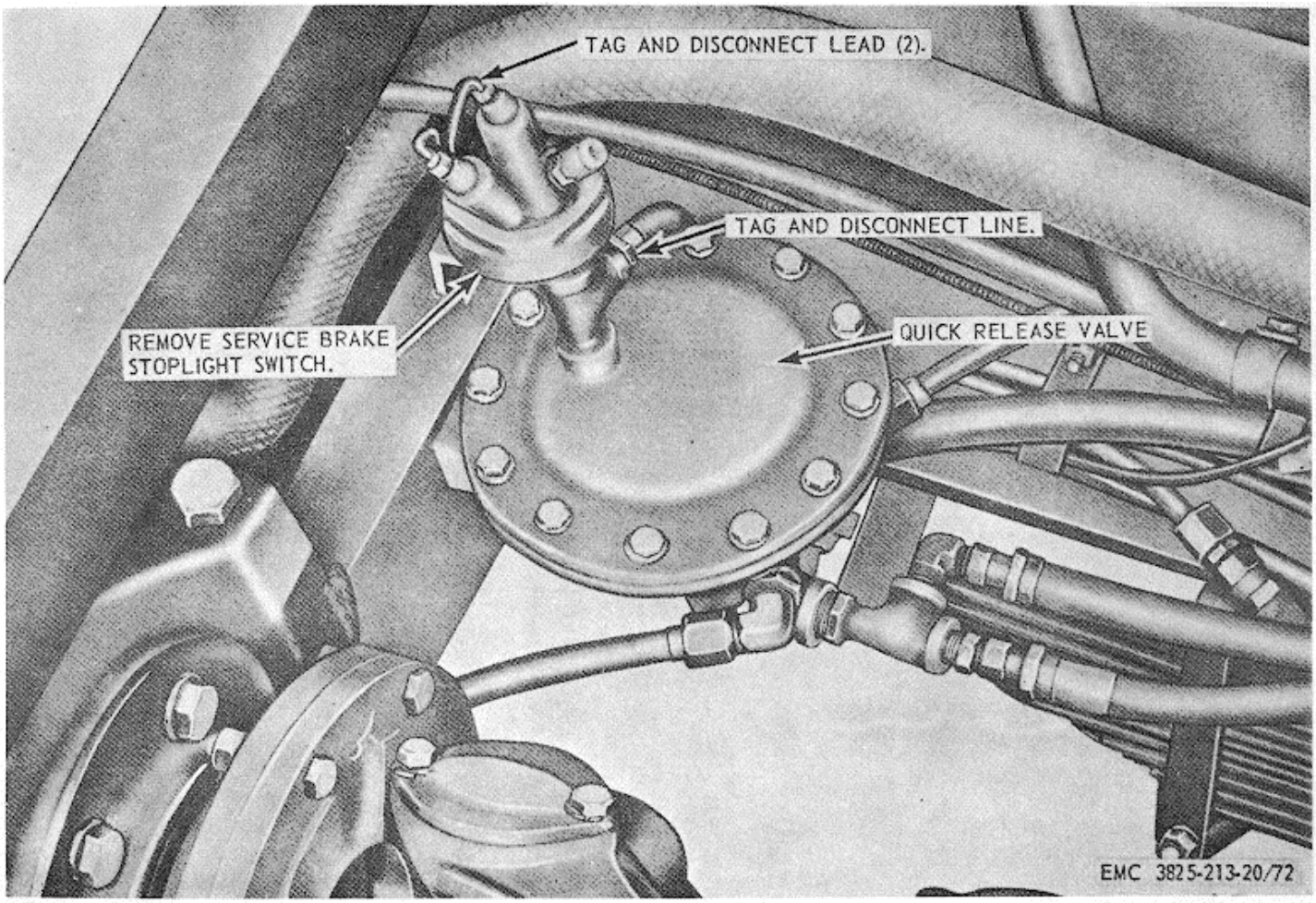


Figure 72. Service brake stoplight switch, removal and installation.

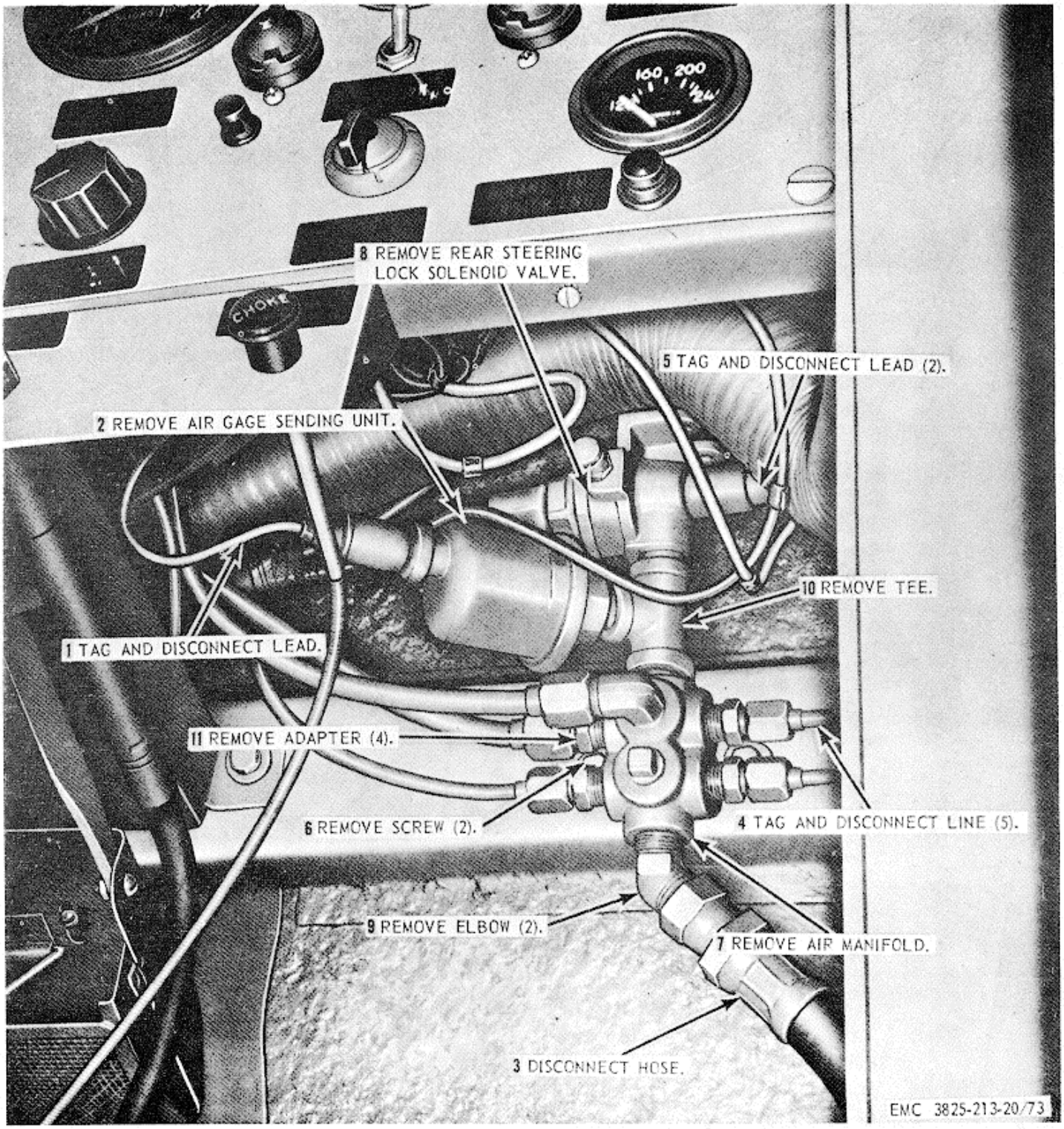


Figure 73. Air gage sending unit, rear steering lock, solenoid valve, and air manifold, removal and installation.

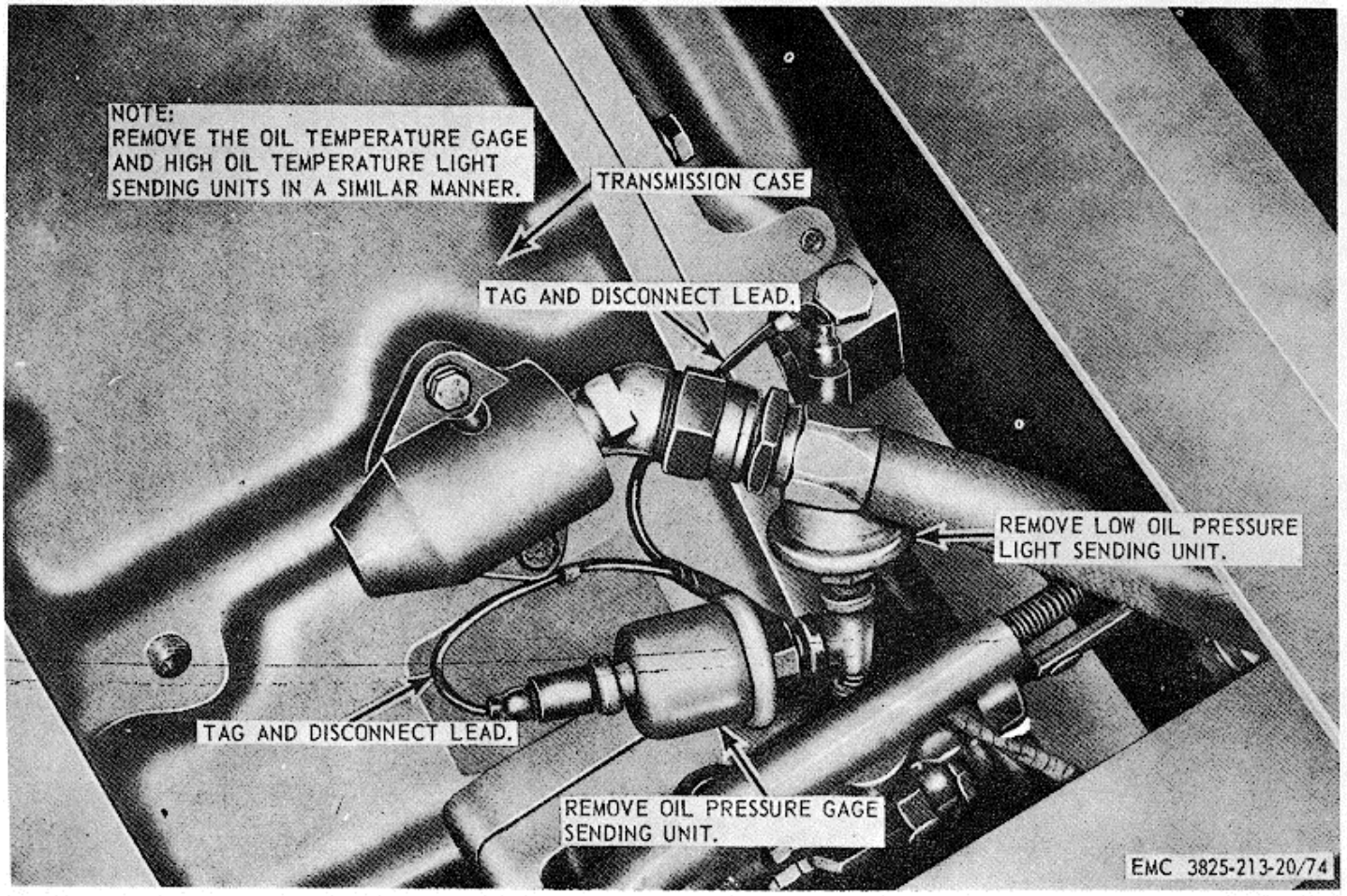


Figure 74. Torque converter and transmission oil temperature and pressure sending units, removal and installation.

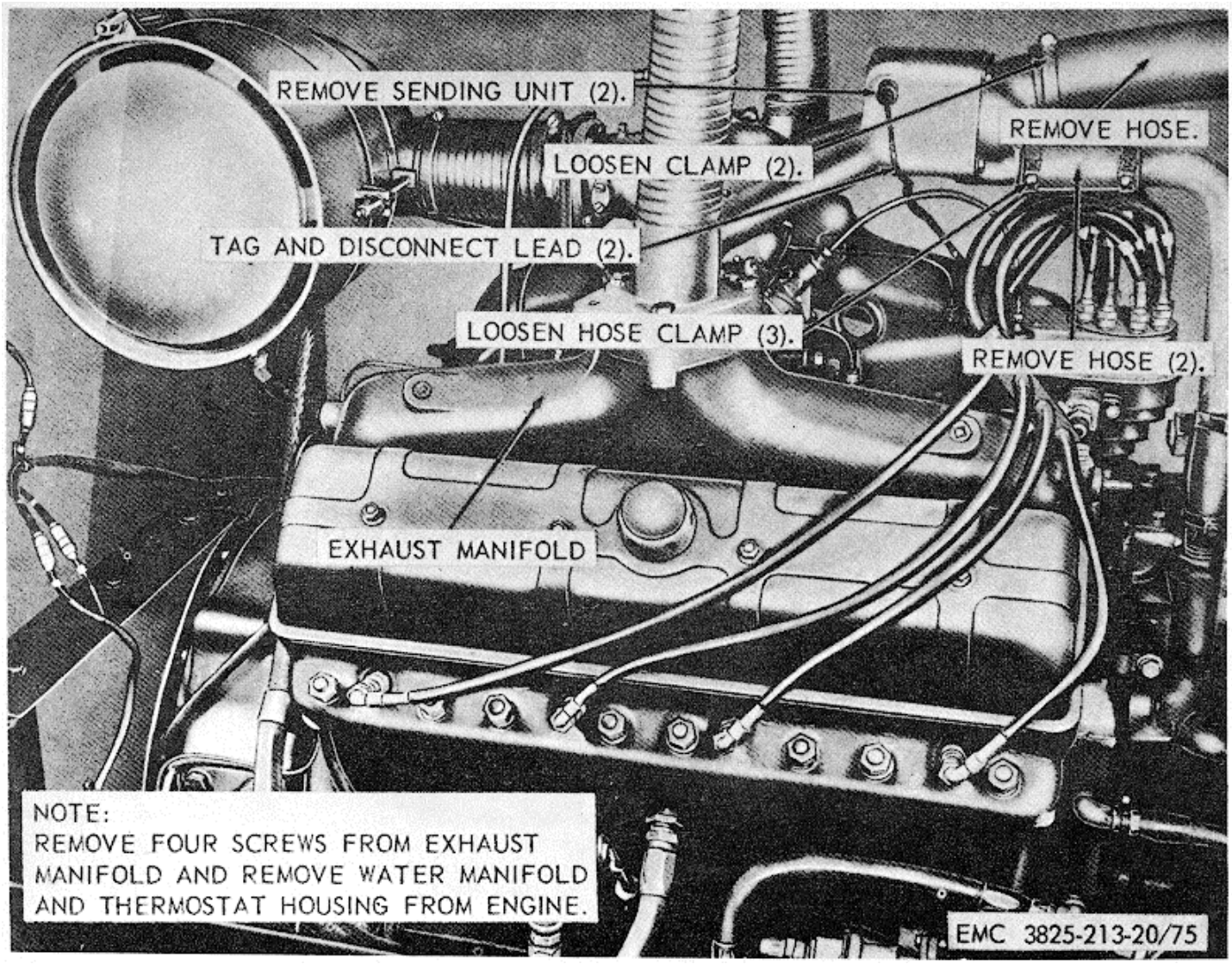


Figure 75. Plow and carrier engine thermostat housing sending unit and water manifold, removal and installation.

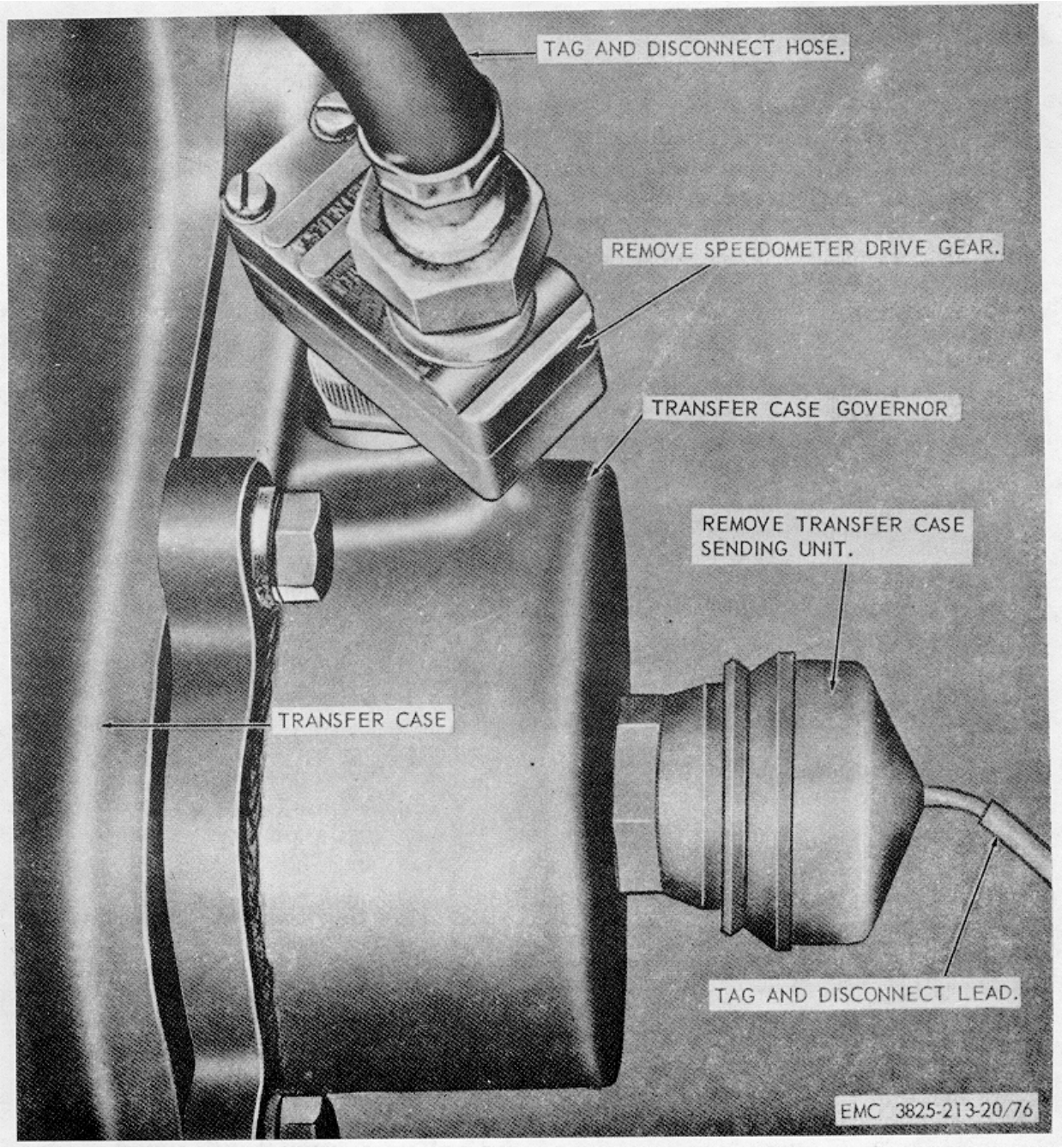


Figure 76. Transfer case sending unit and speedometer drive gear, removal and installation.

Section III. INSTRUMENT PANEL, GAGE, AND INSTRUMENTS

125. General

All the carrier and plow instruments and gages are mounted on the instrument panel of the operator's cab. Each instrument and gage in the operator's cab is described and located in TM 5-3825-213-10.

126. Turn Signal Control Switch

a. *Removal.*

(1) Remove the turn signal control switch as illustrated in figure 77.

(2) Remove the turn signal indicator lamp as illustrated in figure 78.

b. *Cleaning and Inspection*. Clean and inspect the turn signal control switch for improper operation and damage. Inspect the lamp for lack of brilliance. Replace damaged or defective' parts.

c. *Installation.*

(1) Install the turn signal indicator lamp as illustrated in figure 78.

(2) Install the turn signal control switch as illustrated in figure 77.

127. Carrier Engine Tachometer Assembly

a. *Removal*. Remove the carrier engine tachometer assembly as illustrated in figure 79.

b. *Cleaning and Inspection*. Clean and inspect the tachometer assembly for restrictions or other damage. Replace defective tachometer as necessary.

c. *Installation.* Install the tachometer assembly as illustrated in figure 79.

128. Fuel Tank Gage Assembly

a. *Removal*. Remove the fuel tank gage assembly as illustrated in figure 79.

b. *Cleaning and Inspection*. Clean and inspect the fuel tank gage for broken lens, and damaged housing and electrical terminals.

c. *Installation*. Install the fuel tank gage assembly as illustrated in figure 79.

129. Air Pressure Gage Assembly

a. *Removal*. Remove the air pressure gage assembly as illustrated in figure 79.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective air pressure gage as necessary.

c. *Installation*. Install the air pressure gage assembly as illustrated in figure 79.

130. Fuel Tank Switch

a. *Removal*. Remove the fuel tank switch as illustrated in figure 79.

b. *Cleaning and Inspection.* Clean, inspect, and replace defective fuel tank switch assembly.

c. *Installation*. Install the fuel tank switch as illustrated in figure 79.

131. Carrier Engine Ignition Switch

a. *Removal*. Remove the carrier engine ignition switch as illustrated in figure 79.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective ignition switch.

c. *Installation.* Install the carrier engine ignition switch as illustrated in figure 79.

132. Carrier Engine Coolant Temperature Gage Assembly

a. *Removal.* Remove the carrier engine coolant temperature gage assembly as illustrated in figure 79.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective engine coolant temperature gage as necessary.

c. *Installation.* Install the carrier engine coolant temperature gage assembly as illustrated in figure 79.

133. Plow Engine Throttle Control Linkage

a. *Removal.*

(1) Remove throttle control from the carburetor (par. 174).

(2) Remove the plow engine throttle control linkage as illustrated in figure 80.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective throttle control.

c. *Installation.*

(1) Install the throttle control on the carburetor (par. 174).

(2) Install the plow engine throttle control linkage as illustrated in figure 80.

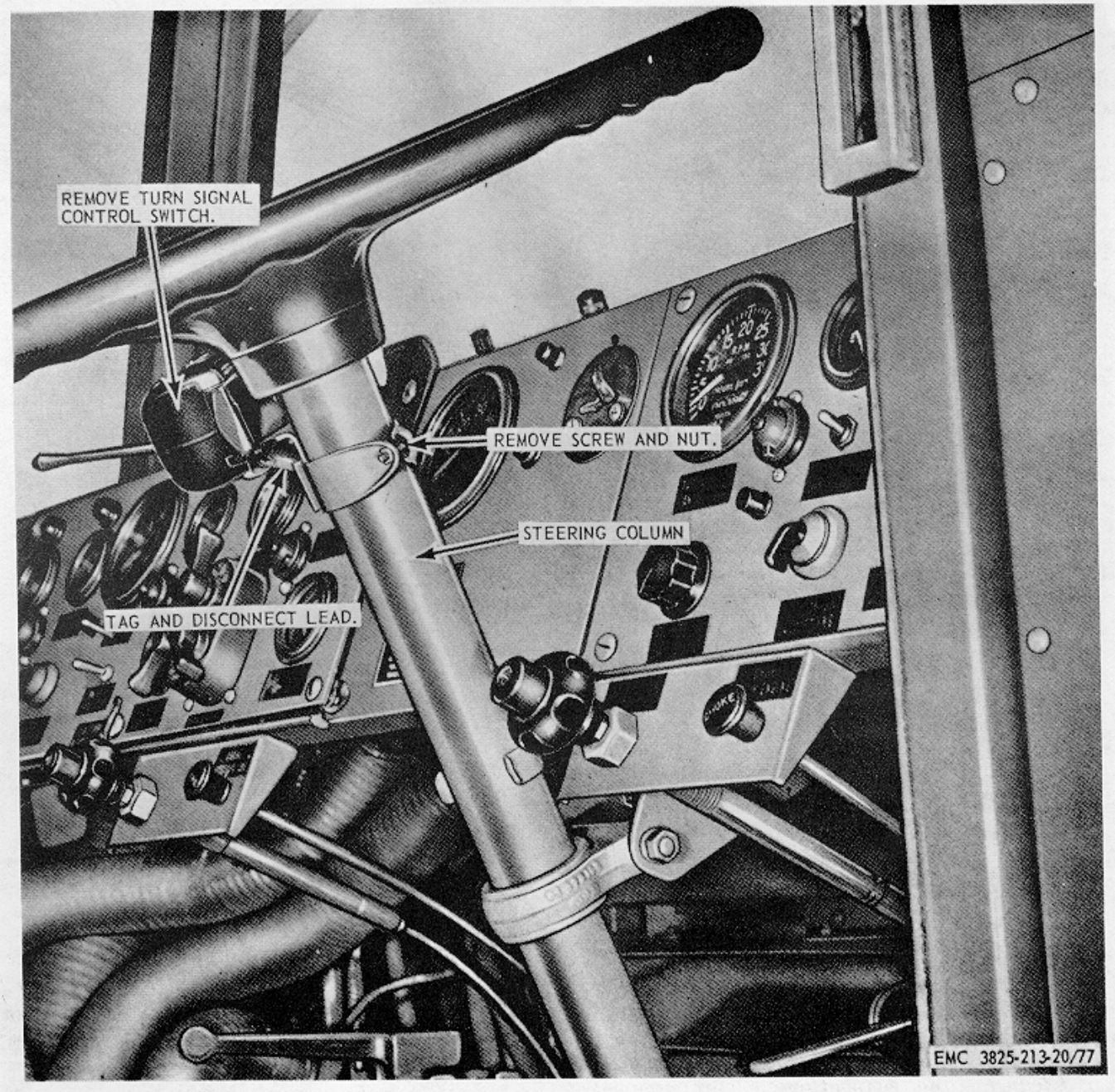


Figure 77. Turn signal control switch, removal and installation.

134. Plow Engine Choke Assembly

a. *Removal.*

(1) Remove the choke assembly from the carburetor /par. 174).

(2) Remove the choke assembly as illustrated in figure 80.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective choke assembly.

c. *Installation.*

(1) Install the choke assembly as illustrated in figure 80.

(2) Install the choke assembly on the carburetor (par. 174).

135. Rotating Beacon Switch

a. *Removal.* Remove the rotating beacon switch as illustrated in figure 79.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective rotating beacon switch.

c. *Installation.* Install the rotating beacon switch assembly as illustrated in figure 79.

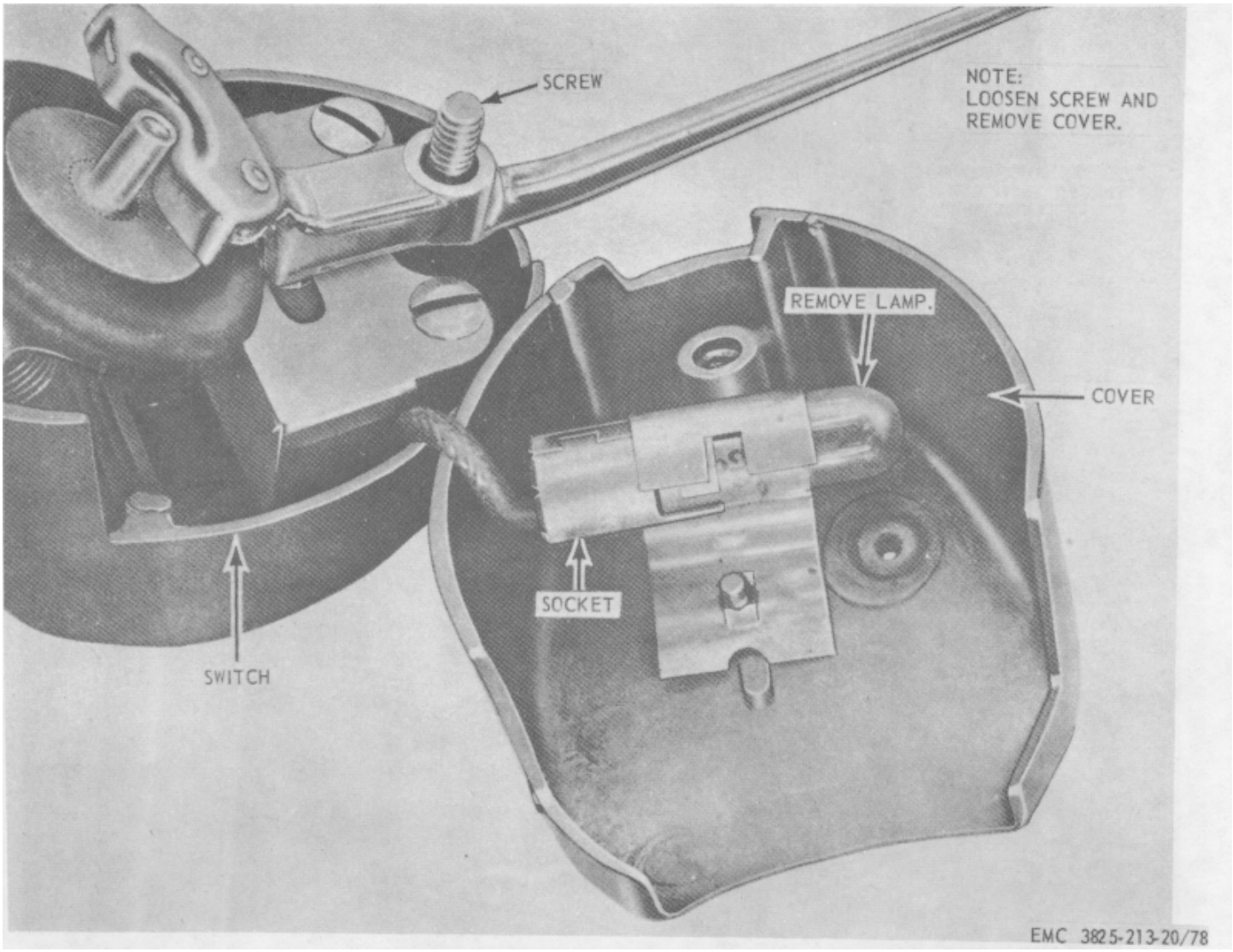


Figure 78. Turn signal indicator lamp, removal and installation.

136. High Beam Indicator

a. *Removal*. Remove the high beam indicator as illustrated in figure 79.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective high beam indicator.

c. *Installation*. Install the high beam indicator as illustrated in figure 79.

137. Carrier Speedmeter Assembly

a. *Removal.* Remove the carrier speedometer as illustrated in figure 79.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective speedometer.

c. *Installation*. Install the carrier speedometer as illustrated in figure 79.

138. Truck Tractor Protector Warning Light

a. *Removal.* Remove the truck tractor protector warning light as illustrated in figure 79.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective warning light assembly.

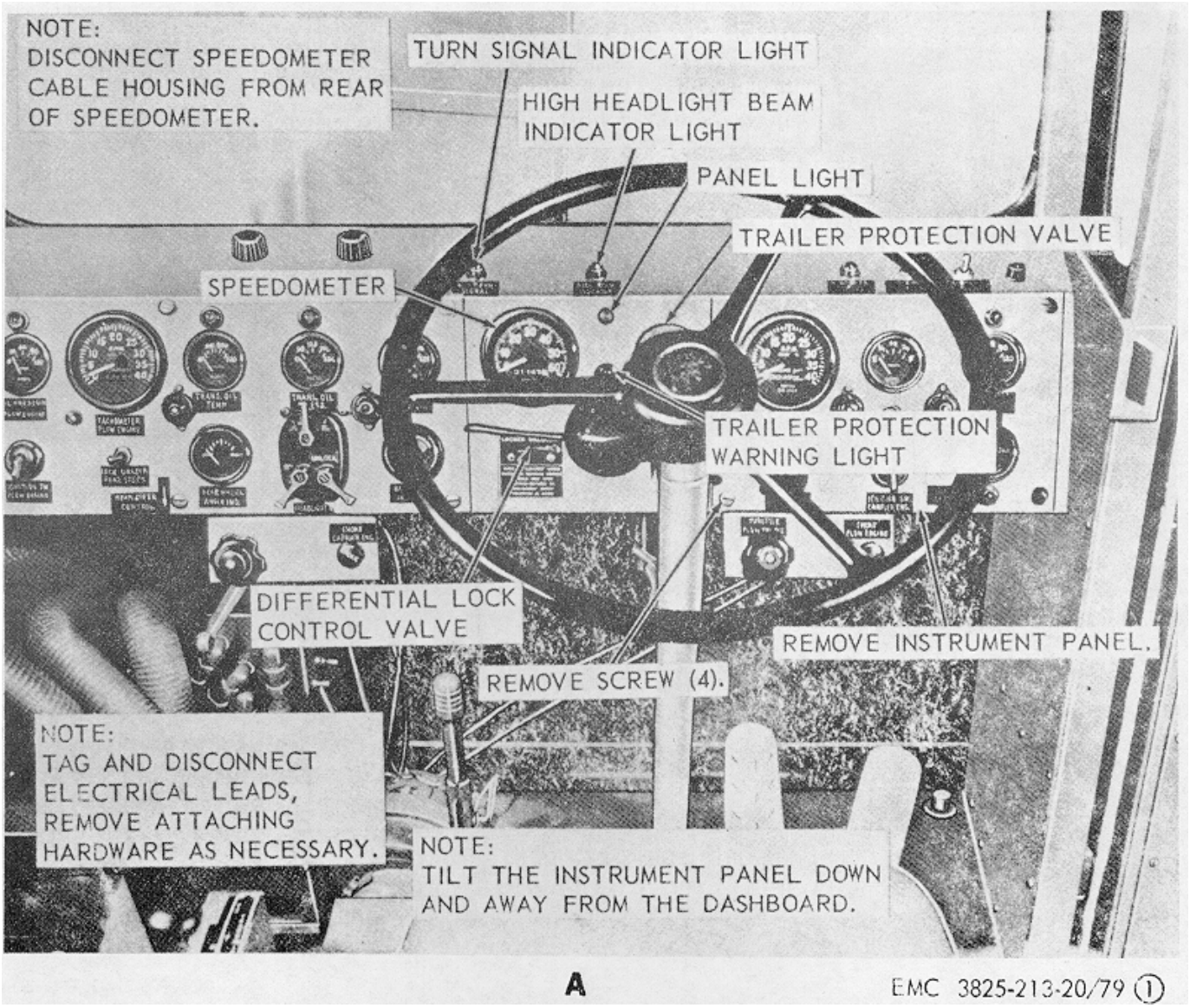
c. *Installation.* Install the truck tractor protector warning light as illustrated in figure 79.

139. Truck Tractor Protector Control Valve Assembly

a. *Removal*. Remove the control valve assembly as illustrated in figure 79.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective control valve assembly.

c. *Installation.* Install the control valve assembly as illustrated in figure 79.



A. Instrument panel, right side, front view.

Figure 79. Instrument panel and instrument, removal and installation.

140. Differential Lock Control Valve Assembly

a. *Removal*. Remove the lock, control valve - assembly as illustrated in figure 79.

b. *Disassembly*. Disassemble lock control valve assembly as illustrated in figure 81.

c. *Cleaning and Inspection*. Clean, inspect, and replace a defective differential lock control valve assembly as necessary.

d. *Reassembly.* Reassemble the differential lock control valve assembly as illustrated in figure 81.

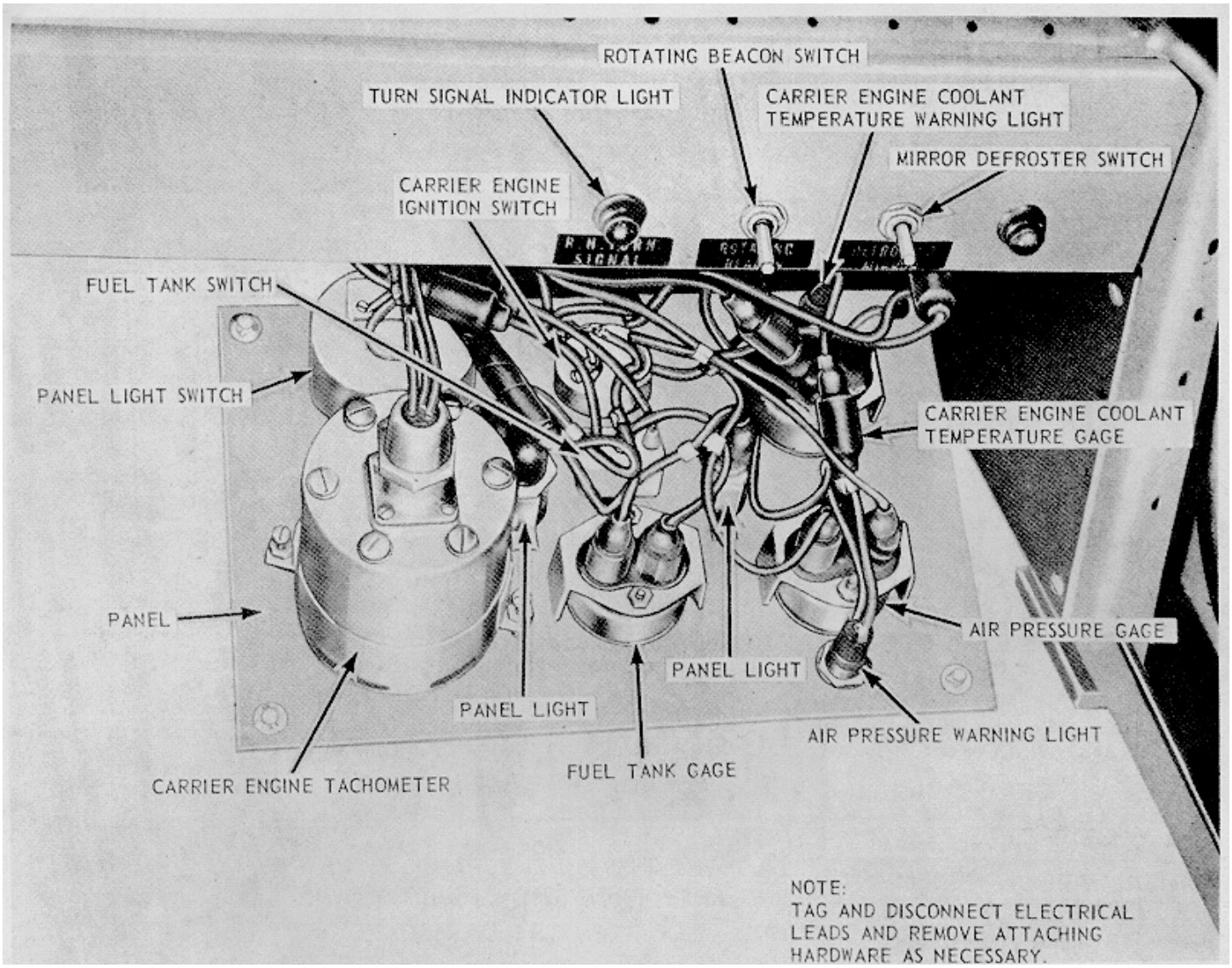
e. *Installation*. Install the differential lock control valve assembly as illustrated in figure 79.

141. Transmission High Oil Temperature Warning Light Assembly

a. *Removal*. Remove the transmission high oil temperature warning light assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective transmission high oil temperature warning light assembly.

c. *Installation.* Install the transmission high oil temperature warning light assembly as illustrated in figure 82.



B. Instrument panel, right side, rear view

Figure 79-Continued.

142. Transmission Oil Temperature Gage Assembly

a. *Removal*. Remove the transmission oil temperature gage assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective transmission oil temperature gage assembly as necessary.

c. *Installation.* Install the transmission oil temperature gage assembly as illustrated in figure 82.

143. Transmission Oil Pressure Gage Assembly

a. *Removal*. Remove the transmission oil pressure gage assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective transmission oil pressure gage assembly as necessary.

c. *Installation.* Install the transmission oil pressure gage as illustrated in figure 82.

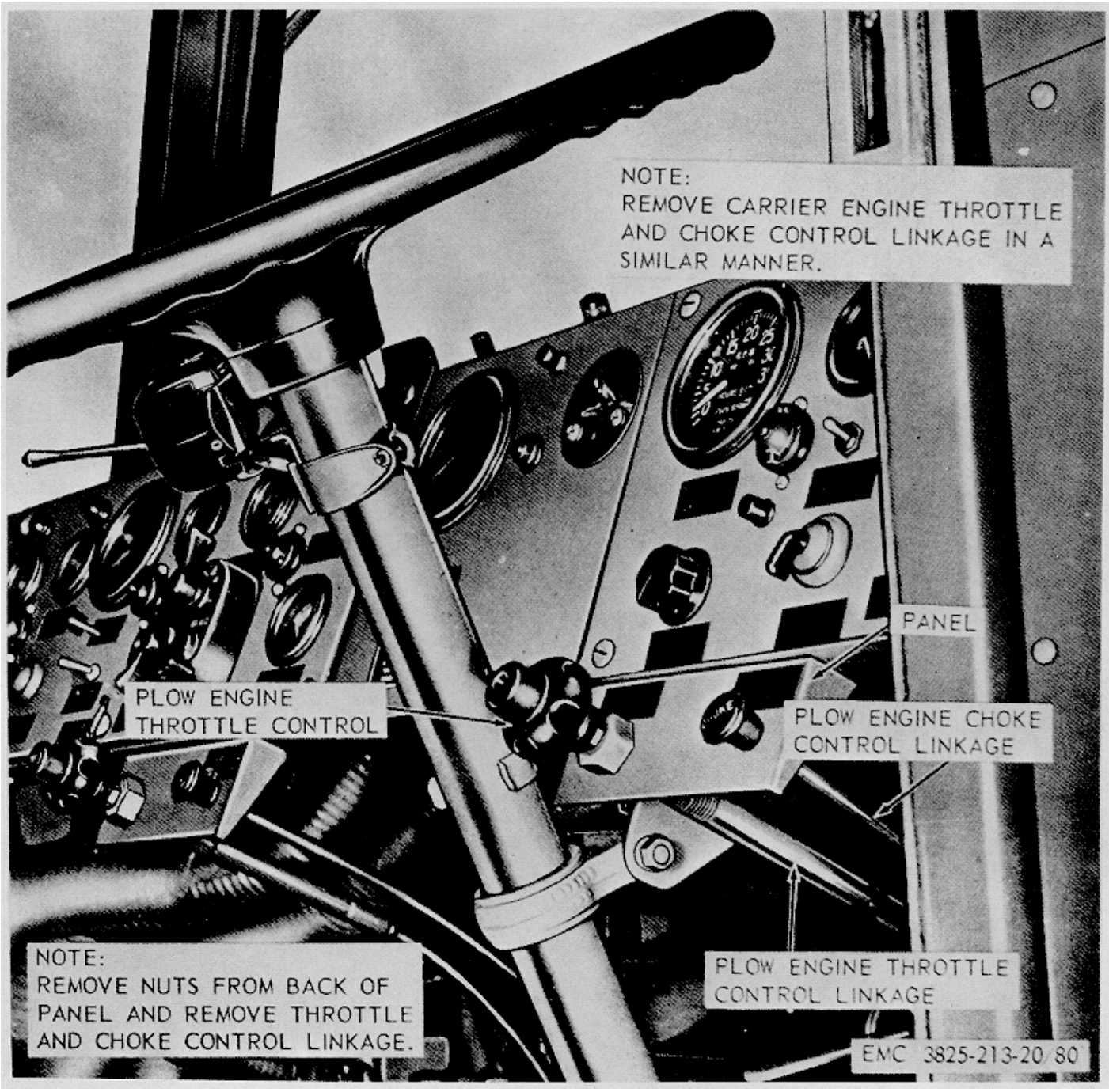


Figure 80. Plow engine throttle control linkage and choke assembly, removal and installation.

144. Carrier Engine Oil Pressure Warning Light Assembly

a. *Removal*. Remove the oil pressure warning light assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective oil pressure warning light assembly.

c. *Installation*. Install the oil pressure warning light assembly as illustrated in figure 82.

145. Carrier Engine Oil Pressure Gage Assembly

a. *Removal*. Remove the carrier engine oil pressure gage as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective carrier engine oil pressure gage as necessary.

c. *Installation*. Install the carrier engine oil pressure gage as illustrated in figure 82.

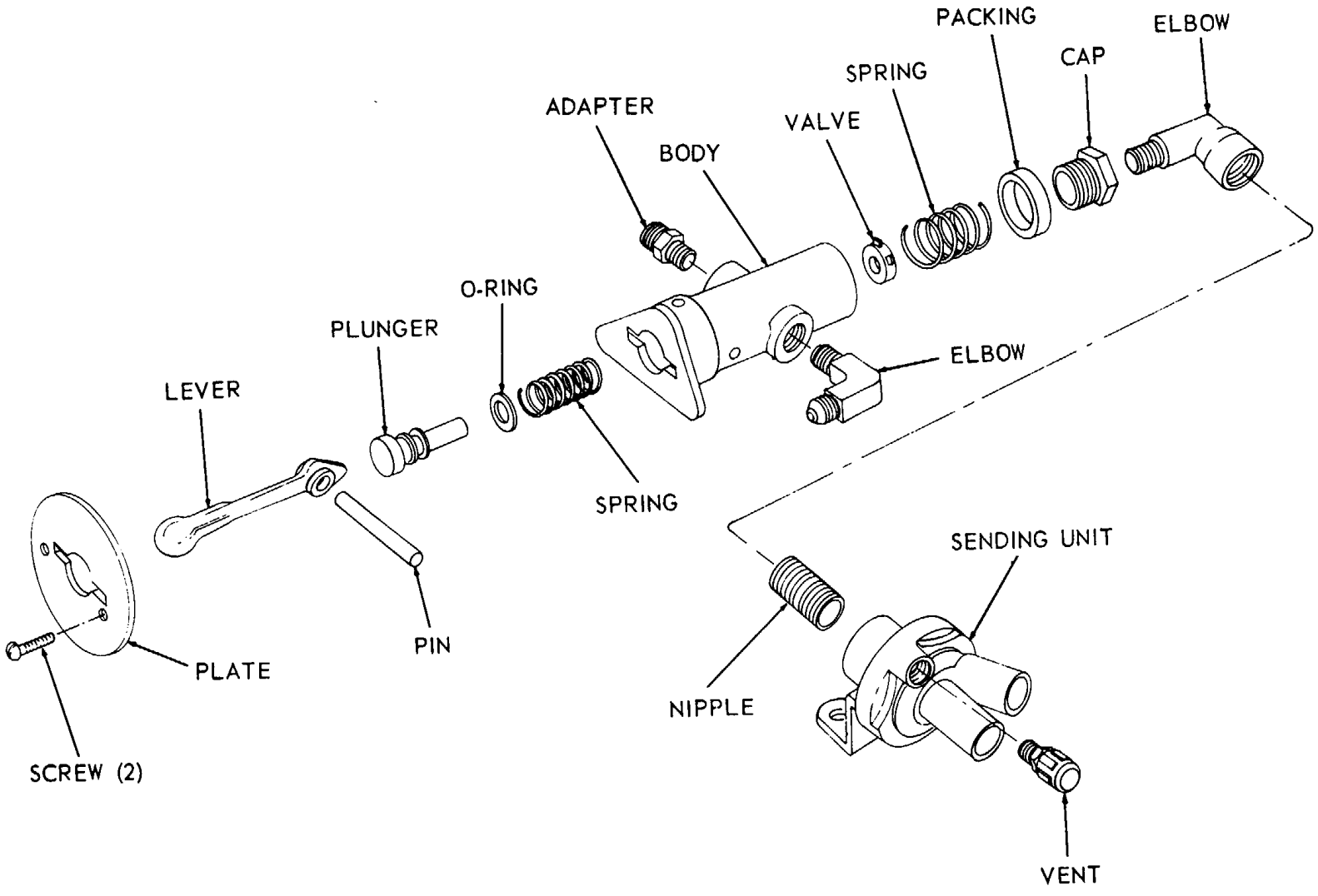
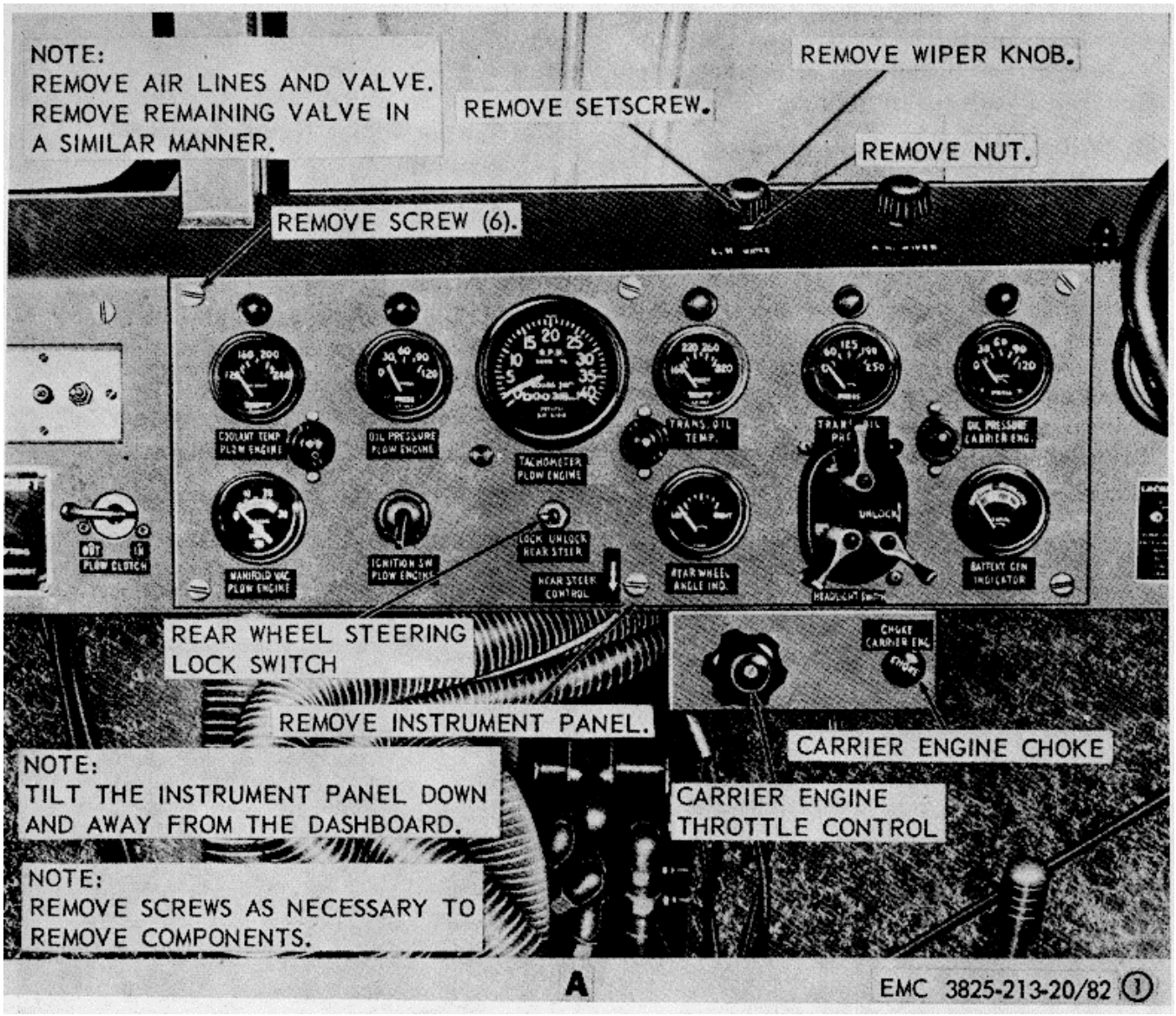


Figure 81. Differential lock control valve assembly, disassembly and reassembly, exploded view.



A. Instrument panel, left side, front view

Figure 82. Instrument panel and instruments, removal and installation

146. Panel Light

a. *Removal.* Remove the panel light as illustrated in figure 79.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective panel light as necessary.

c. *Installation.* Install the panel light as illustrated in figure 79.

147. Rear Wheel Steering Angle Indicator

a. *Removal.* Remove the rear wheel steering angle indicator as illustrated in figure 82.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective angle indicator as necessary.

c. *Installation.* Install the rear wheel steering angle indicator as illustrated in figure 82.

148. Headlight Switch Assembly

a. *Removal.* Remove the headlight switch assembly as illustrated in figure 82.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective or damaged headlight switch assembly.

c. *Installation.* Install the headlight switch assembly as illustrated in figure 82.

149. Battery Generator Indicator

a. *Removal.* Remove the battery generator indicator as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective or damaged indicator.

c. *Installation*. Install the battery generator indicator as illustrated in figure 82.

150. Windshield Wiper Control Valve Assembly

a. *Removal*. Remove the windshield wiper control valve assembly as illustrated in figure 82.

b. *Disassembly*. Disassemble the wiper control valve assembly as illustrated in figure 83.

c. *Cleaning and Inspection.* Clean, inspect, and replace a defective or damaged wiper control valve assembly as necessary.

d. *Reassembly*. Reassemble the wiper control valve assembly as illustrated in figure 83.

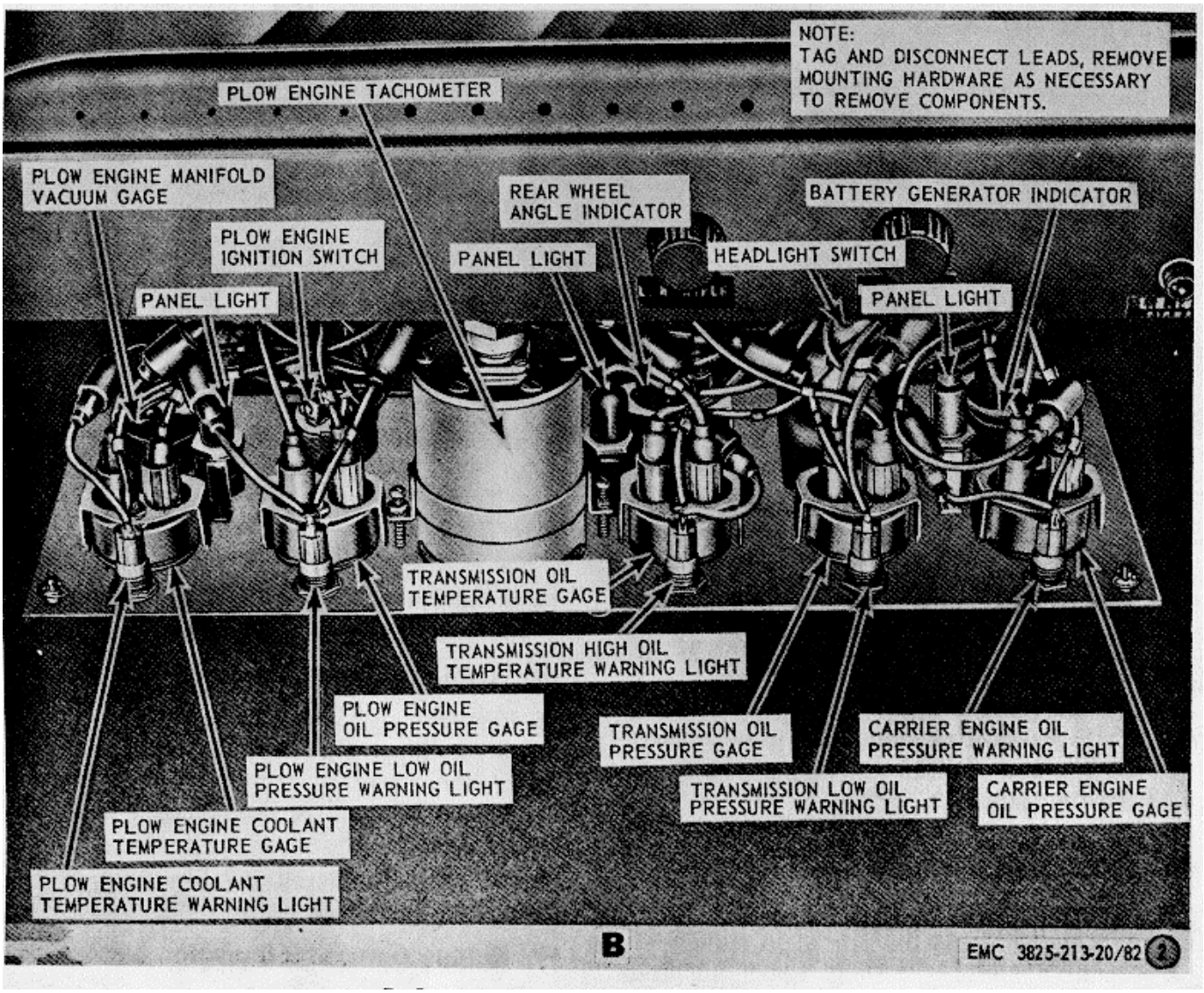
e. *Installation*. Install the windshield wiper control valve assembly as illustrated in figure 82.

151. Carrier Engine Throttle Control Assembly

a. *Removal*. Remove the carrier engine throttle control assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective carrier engine throttle control assembly.

c. *Installation*. Install the carrier engine throttle control assembly as illustrated in figure 82.



B. Instrument panel, left side, rear view

Figure 82-Continued.

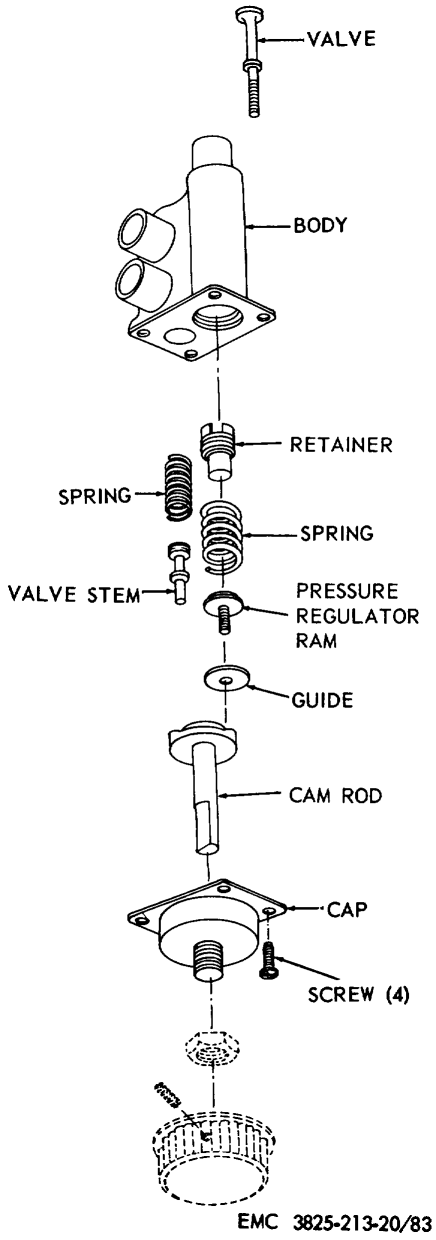


Figure 83. Windshield wiper control valve assembly, disassembly and reassembly, exploded view.

152. Plow Engine Coolant Temperature Warning Light Assembly

a. *Removal*. Remove the plow engine coolant temperature warning light as illustrated in figure 82.

b. *Cleaning and Inspection.* Clean, inspect, and replace a defective coolant temperature warning light.

c. *Installation.* Install the plow engine coolant temperature warning light as illustrated in figure 82.

153. Plow Engine Coolant Temperature Gage Assembly

a. *Removal*. Remove the plow engine coolant temperature gage assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective coolant temperature gage assembly.

c. Installation. Install the plow engine coolant temperature gage assembly as illustrated in figure 82.

154. Plow Engine Low Oil Pressure Warning Light

a. *Removal*. Remove the plow engine low oil pressure warning light as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective plow engine oil pressure warning light.

c. *Installation*. Install the plow engine low oil pressure warning light as illustrated in figure 82.

155. Plow Engine Oil Pressure Gage Assembly

a. *Removal*. Remove the plow engine oil pressure gage assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective plow .engine oil pressure gage assembly as necessary.

c. *Installation.* Install the plow engine oil pressure gage assembly as illustrated in figure 82.

156. Plow Engine Manifold Vacuum Gage Assembly

a. *Removal*. Remove the plow engine manifold vacuum gage assembly as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective plow engine manifold vacuum gage assembly as necessary.

c. *Installation*. Install the plow engine manifold vacuum gage assembly as illustrated in figure 82.

157. Plow Engine Ignition Switch

a. *Removal*. Remove the plow engine ignition switch as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective plow engine ignition switch as necessary.

c. *Installation*. Install the plow engine ignition switch as illustrated in figure 82.

158. Rear Wheel Steering Lock and Unlock Control Switch

a. *Removal*. Remove the rear wheel steering lock and unlock control switch as illustrated in figure 82.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective rear wheel steering lock and unlock control switch as necessary.

c. *Installation*. Install the rear wheel steering lock and unlock control switch as illustrated in figure 82.

159. Personnel and Engine Heaters Control Boxes

a. *Removal*. Remove the personnel heater control box as illustrated in figure 84.

b. Disassembly. Disassemble the heater control box as illustrated in figure 85.

Note **Disassemble the remaining control boxes in a similar manner.**

c. *Cleaning, Inspection, and Repair*. Clean and inspect all parts for damaged condition and replace as necessary.

d. *Reassembly*. Reassemble the personnel heater control box as illustrated in figure 85.

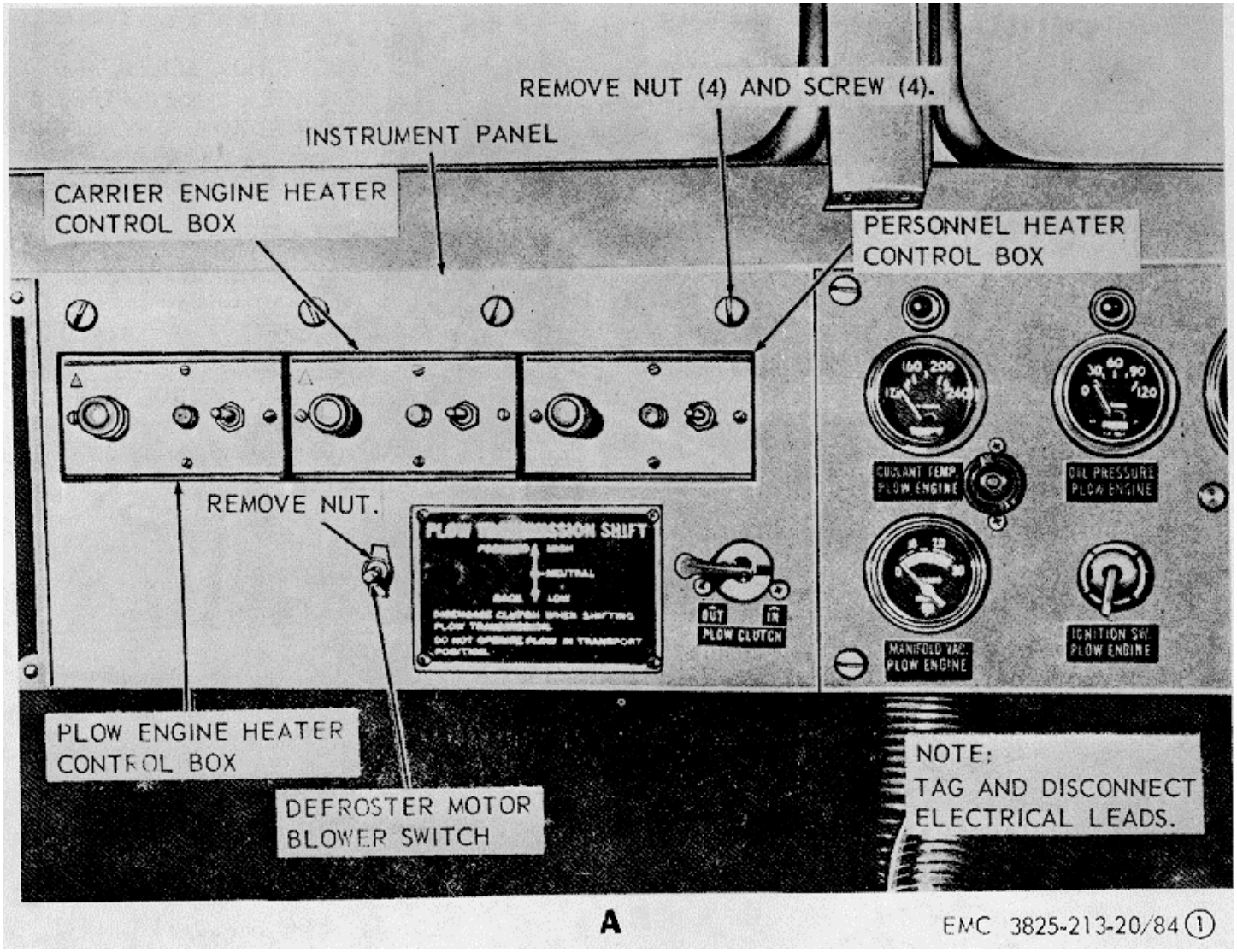
e. *Installation.* Install the personnel heater control box as illustrated in figure 84.

160. Defroster Motor Blower Switch

a. *Removal.* Remove the defroster motor blower switch as illustrated in figure 84.

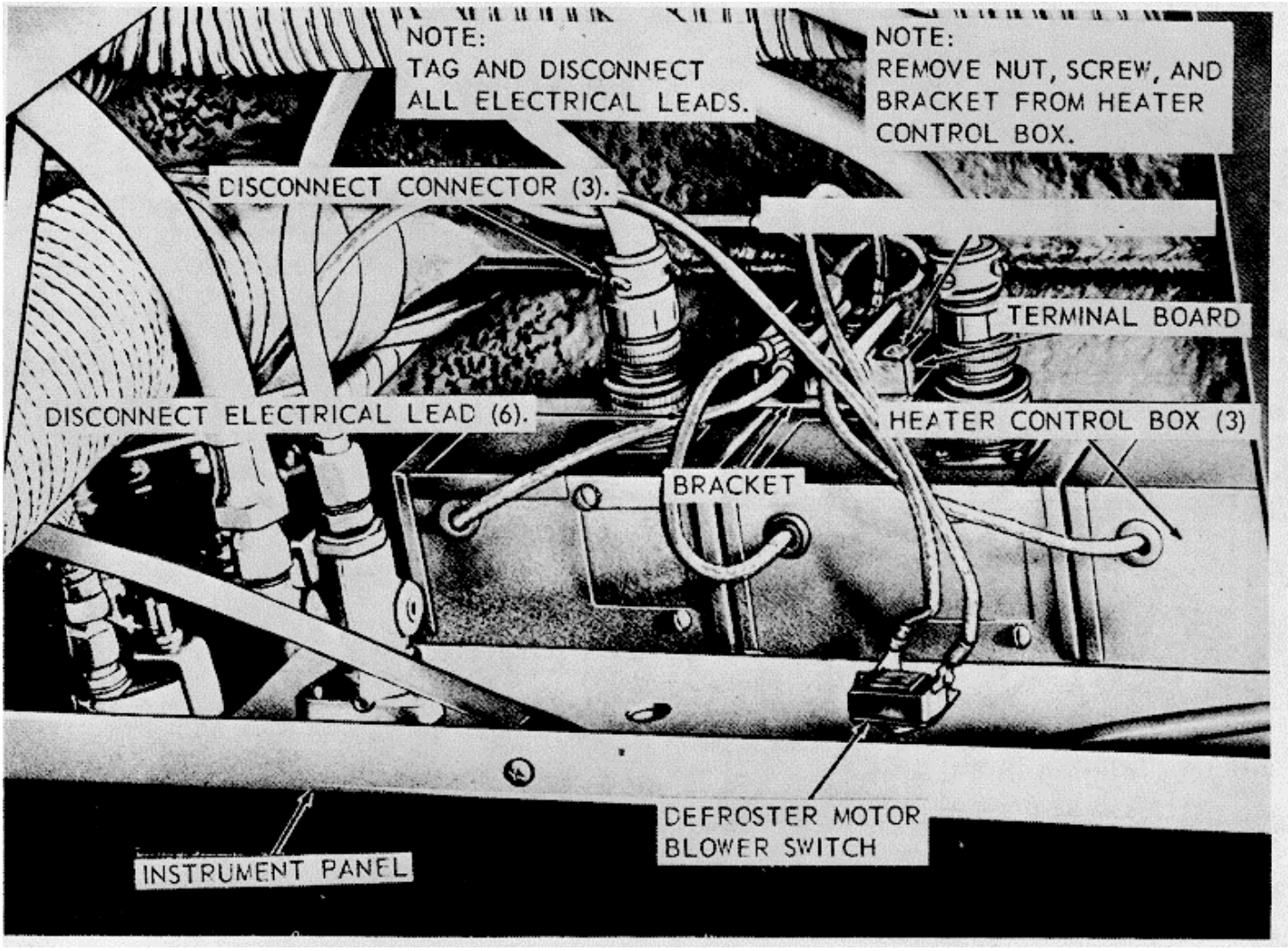
b. *Cleaning and Inspection*. Clean, inspect, and replace a defective defroster motor blower switch as necessary.

c. *Installation*. Install the defroster motor blower switch as illustrated in figure 84.



A. Front view

Figure 84. Personnel and engine heater control boxes , removal and installation.



B EMC 3825-213-20/84 (2)

B. Rear view

Figure 84-Continued.

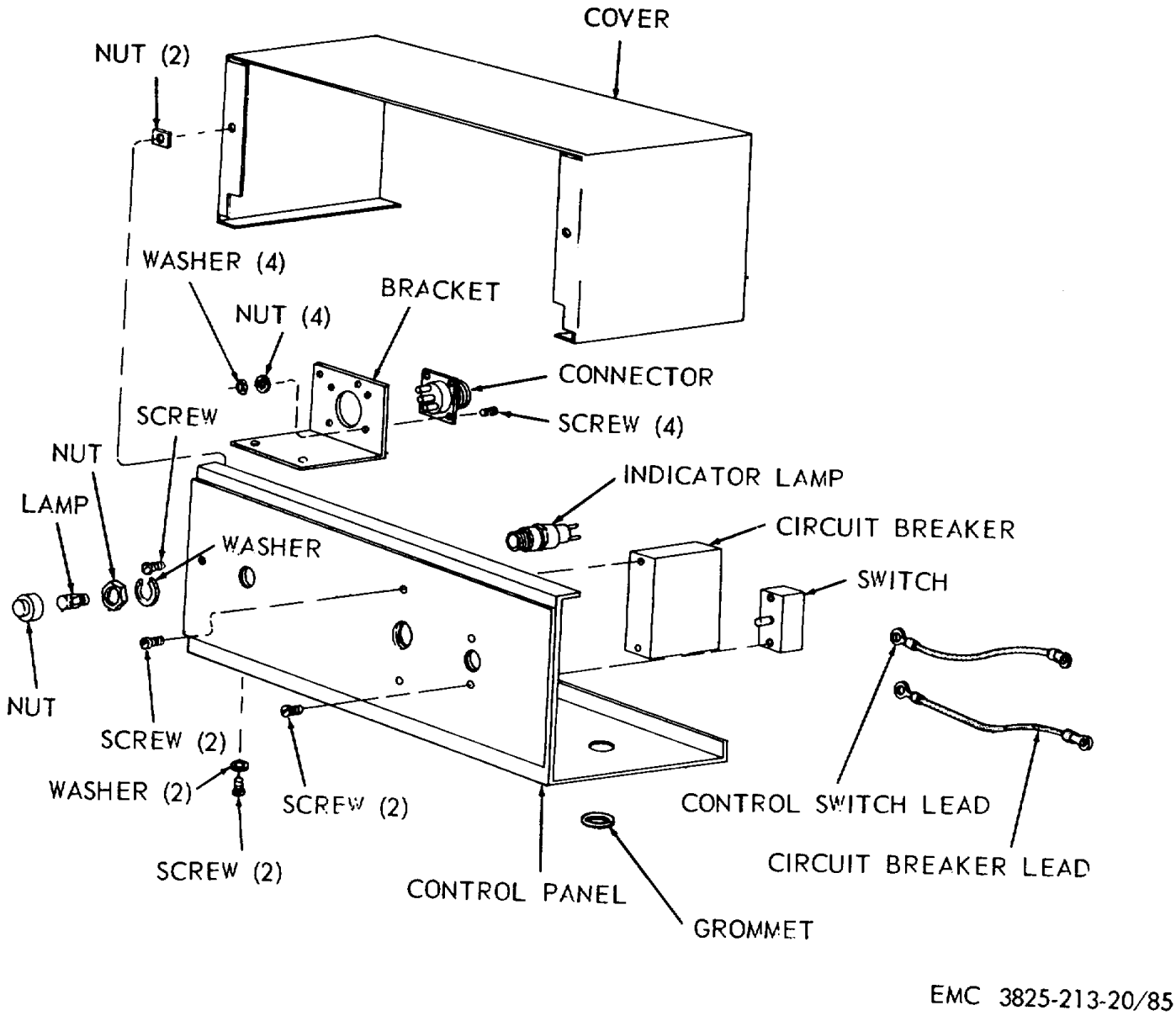


Figure 85. Personnel heater control box, disassembly and reassembly, exploded view.

Section IV. PLOW AND CARRIER ENGINES COOLING SYSTEM

161. General

The plow and carrier engines are liquid cooled. The coolant is circulated from the radiator through the water pump, water manifold, cylinder block, oil cooler, and intake manifold back to the radiator.

162. Plow and Carrier Engine Thermostat Housing and Water Manifold

a. *Removal.* Remove the thermostat housing and water manifold as illustrated in figure 75.

b. *Disassembly.* Disassemble the water manifold and thermostat housing as illustrated in figure 86.

c. *Cleaning, Inspection, and Repair.* Clean and inspect all parts and replace as necessary.

d. *Reassembly.* Reassemble the water manifold and thermostat as illustrated in figure 86.

e. *Installation.* Install the water manifold and thermostat housing as illustrated in figure 75.

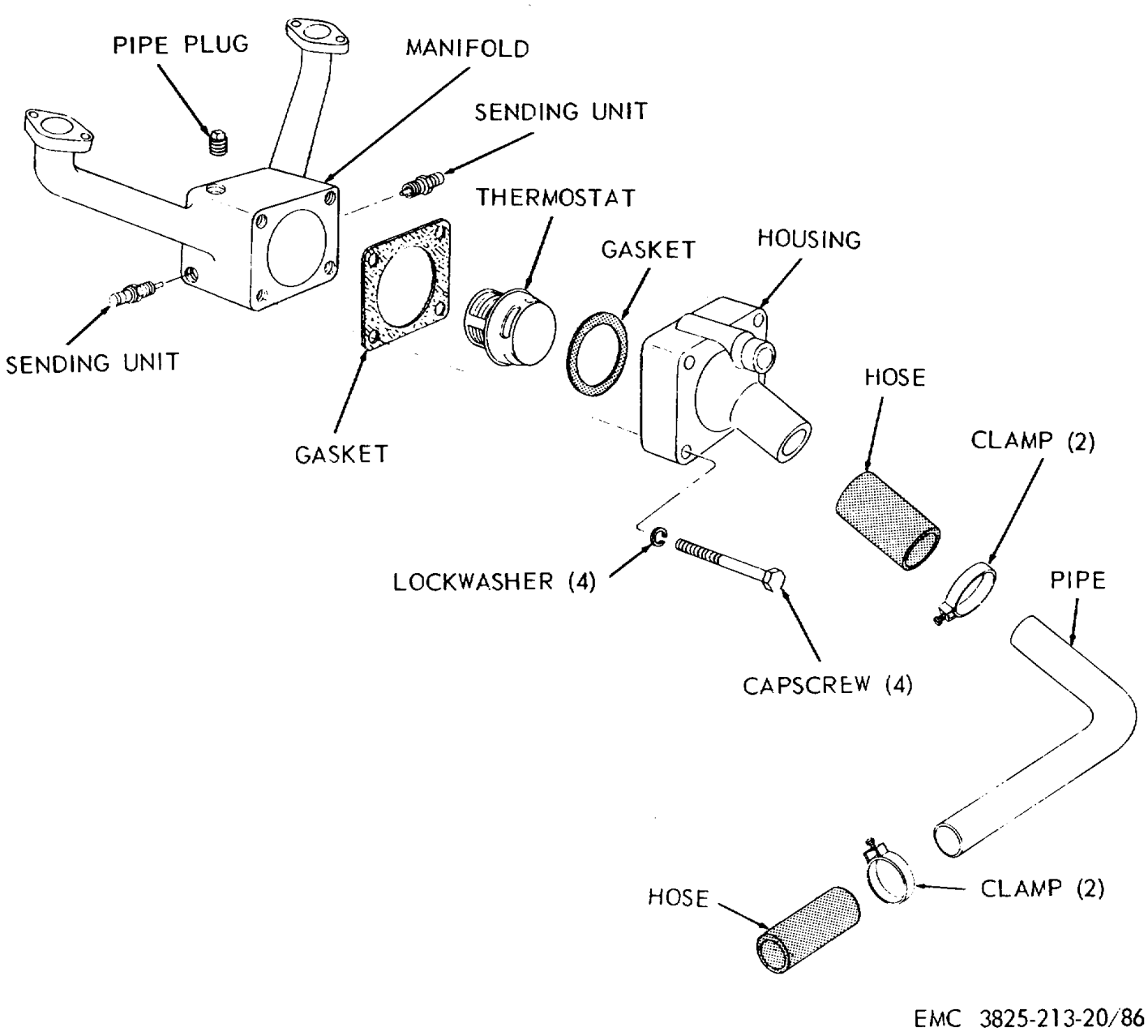


Figure 86. Plow and carrier engine thermostat housing and water manifold, disassembly and reassembly, exploded view.

163. Plow and Carrier Engine Fan Guard and Belts

a. *Removal.* Remove the fan guard and belts as illustrated in figure 87.

b. *Cleaning and Inspection.* Clean the guard and fan belts and inspect for fraying or breaks. Replace defective belts or guard.

c. *Installation and Adjustment.*

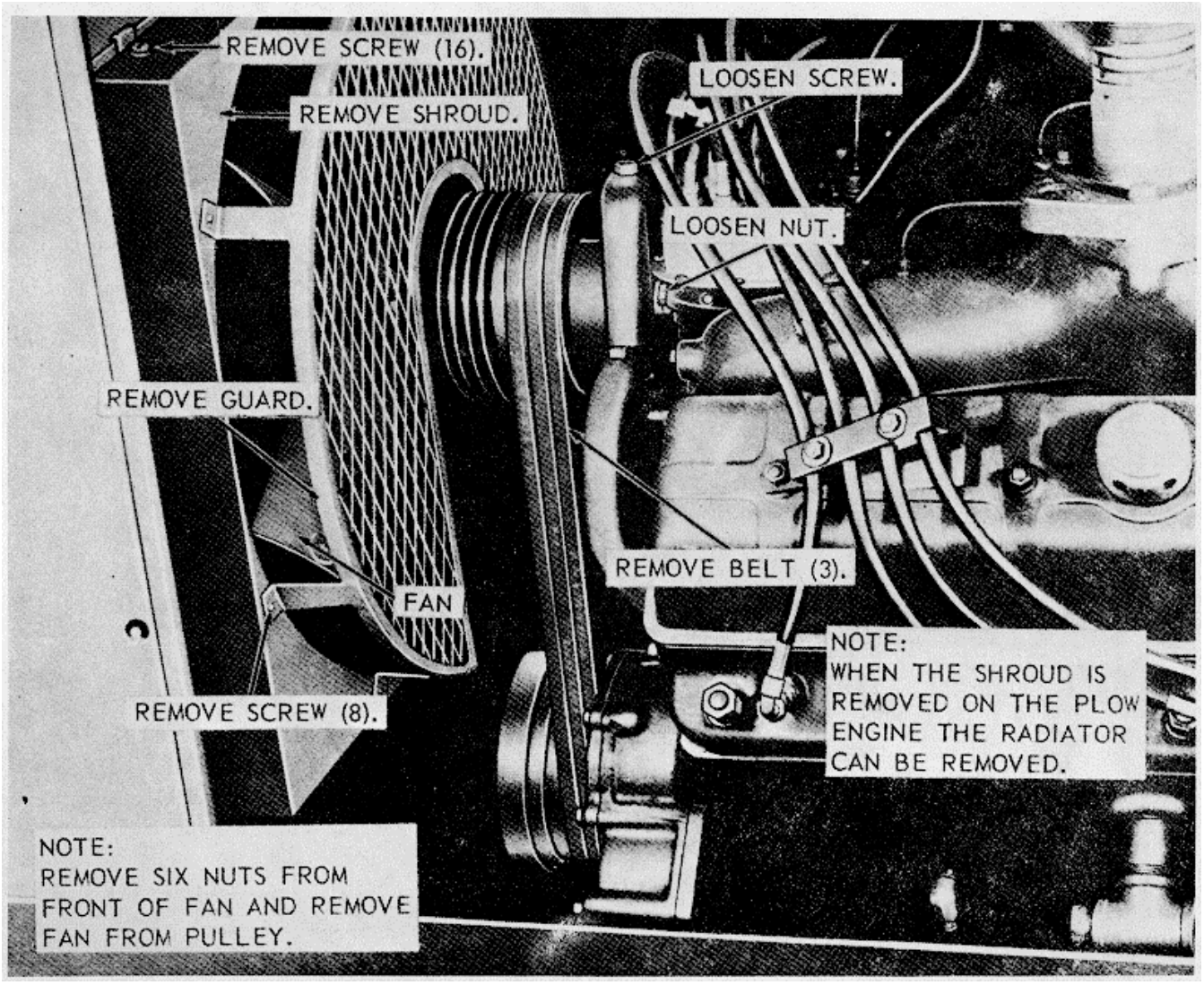
(1) Install the fan belts and guard as illustrated in figure 87.

(2) Adjust the fan belts (TM 5-3825-213-10).

164. Plow and Carrier Engine Fan Assembly

a. *Removal.* Remove the fan assembly as illustrated in figure 87.

b. *Cleaning and Inspection.* Clean and inspect the fan assembly for cracks or broken blades. Replace a defective fan as necessary.



A. Plow engine

Figure 87. Plow and carrier engine fan, fan guard, shroud, and belts, removal and installation.

c. *Installation.* Install the fan assembly as illustrated in figure 87.

165. Plow and Carrier Engine Water Manifold

a. *Removal.* Remove the water manifold as illustrated in figure 75.

b. *Cleaning and Inspection.* Clean and inspect for condition and replace as necessary.

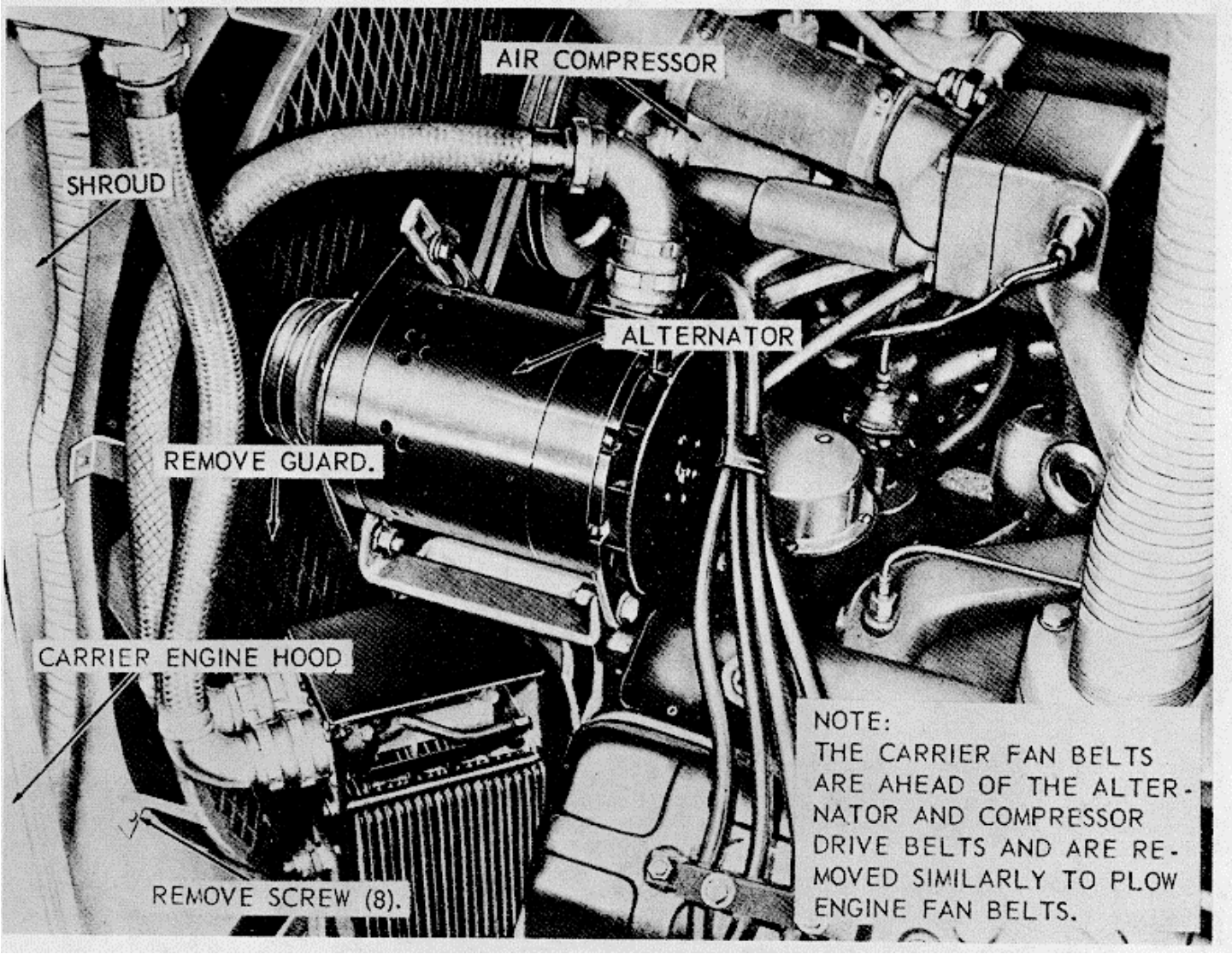
c. *Installation.* Install the water manifold as illustrated in figure 75.

166. Plow and Carrier Engine Radiator Shroud

a. *Removal.* Remove the radiator shroud (fig. 87).

b. *Cleaning, Inspection, and Repair.* Clean, inspect, and repair the radiator shroud as necessary.

c. *Installation.* Install the radiator shroud (fig. 87).



B EMC 3825-213-20/87 (2)

B. Carrier engine

Figure 87-Continued.

167. Plow and Carrier Engine Radiator Shutter Assembly

a. *Removal.* Remove the radiator shutter assembly as illustrated in figure 88.

b. *Disassembly.* Disassemble the radiator shutter assembly as illustrated in figure 89.

c. *Cleaning, Inspection, and Repair.* Clean all parts and inspect for bends, breaks, wear, or other damage. Replace defective parts as necessary.

d. *Reassembly.* Reassemble the radiator shutter assembly as illustrated in figure 89.

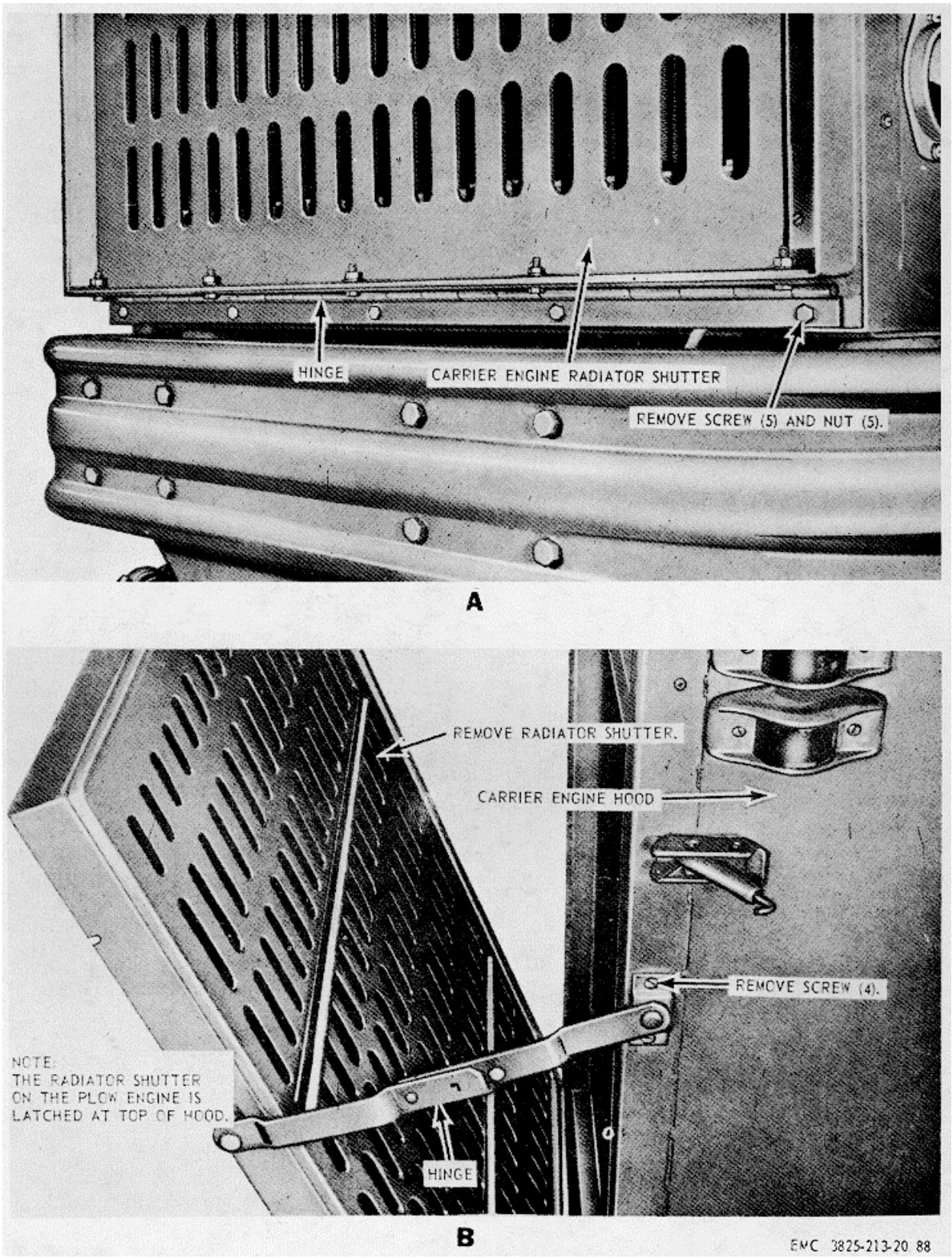
e. *Installation.* Install the radiator shutter assembly as illustrated in figure 88.

168. Plow and Carrier Engine Oil Cooler and Lines

a. *Removal.* Remove the lines and oil cooler as illustrated in figure 46.

b. *Cleaning and Inspection.* Clean the lines and cooler and inspect for restricted flow through cooler and damaged housing and threads. Replace defective parts as necessary.

c. *Installation.* Install the oil cooler and lines as illustrated in figure 46.



A. Shutter removal points

B. Hinge removal points

Figure 88. Plow and carrier engine radiator shutter assembly, removal and installation.

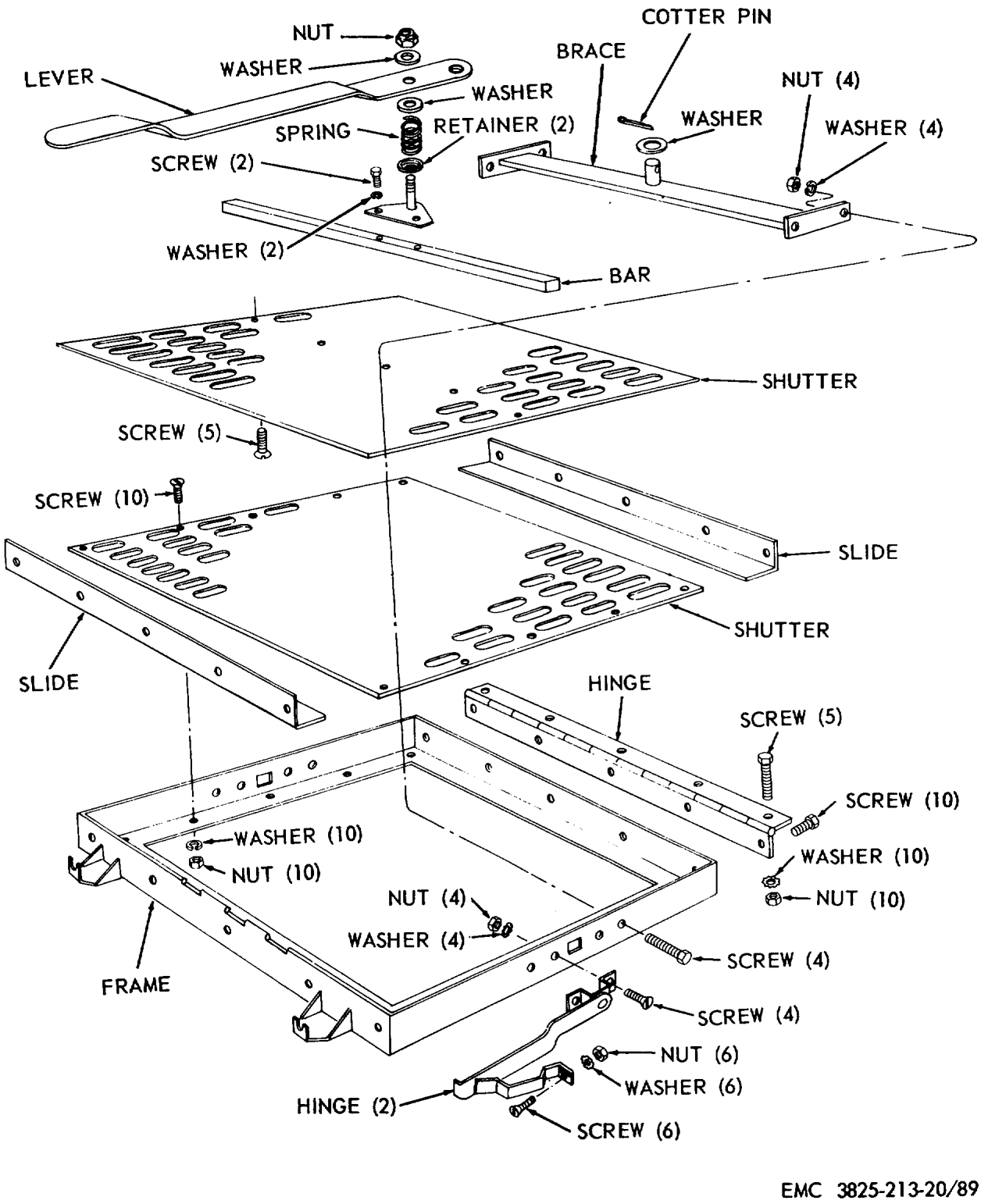
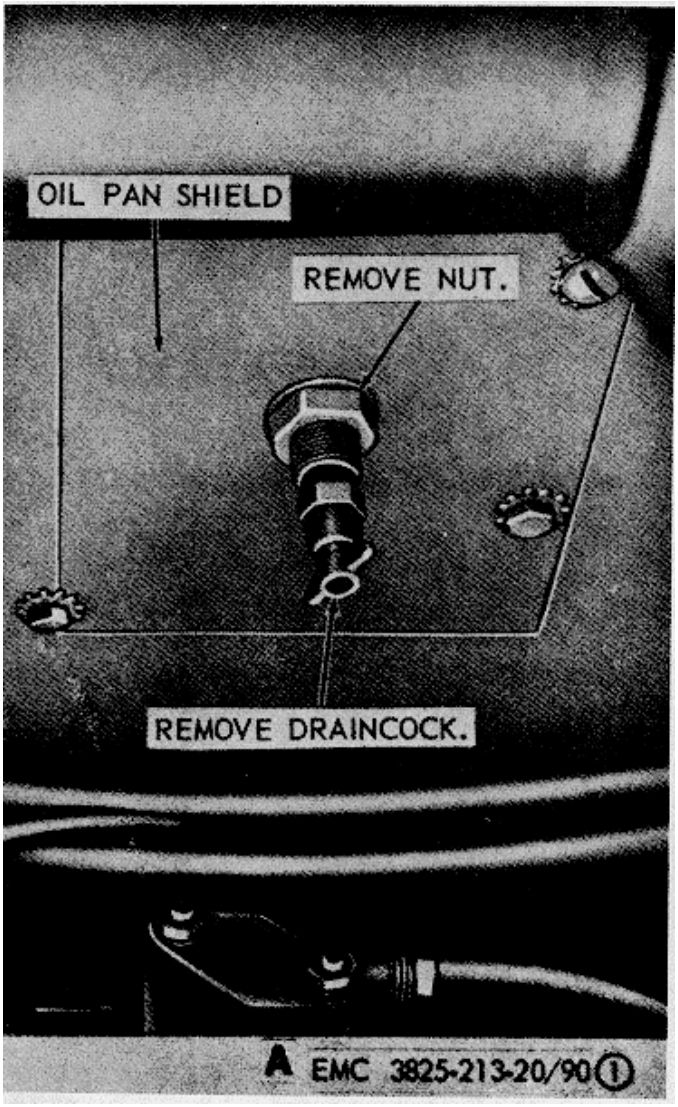


Figure 89. Plow and carrier engine radiator shutter assembly, disassembly and reassembly, exploded view.

169. Plow and Carrier Engine Cylinder Block Draincock

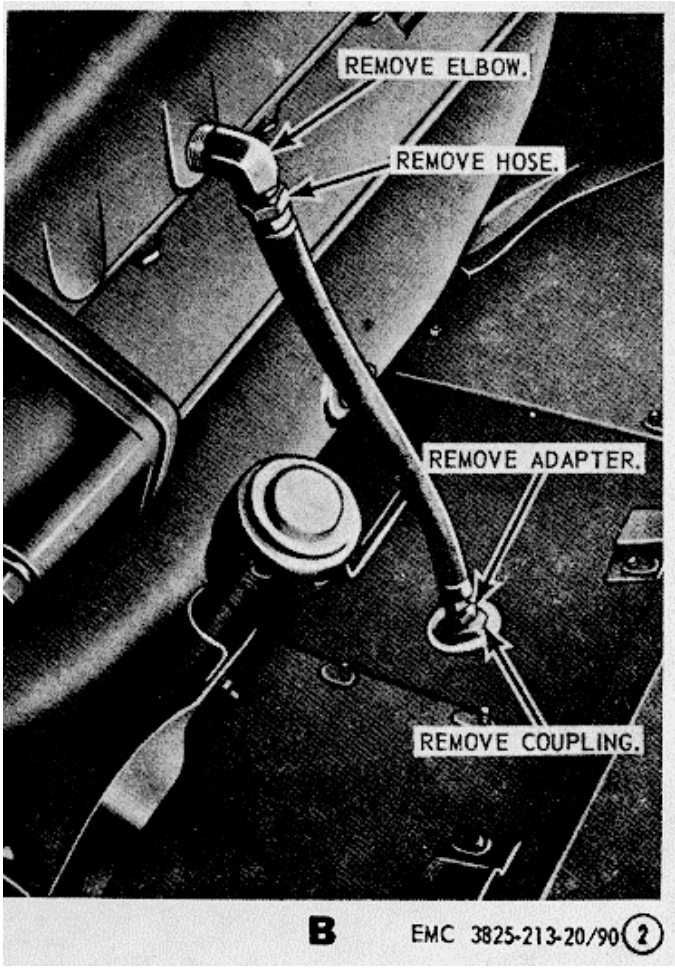
a. *Removal*. Remove the cylinder block draincock as illustrated in figure 90.



A. Draincock removal

b. *Cleaning and Inspection*. Clean and inspect the draincock for damaged threads and free movement. Replace as necessary.

c. *Installation*. Install the cylinder block draincock as illustrated in figure 90.



B. Hose removal

Figure 90-Continued.

Figure 90. Plow and carrier engine cylinder block draincock, removal and installation.

Section V. PLOW AND CARRIER ENGINES EXHAUST SYSTEM

170. General

The plow and carrier engine exhaust system includes the exhaust manifold, exhaust pipe, and muffler. An exhaust manifold is located on each bank of the engine and piped to the muffler mounted on the hood.

171. Plow and Carrier Engine Muffler and Pipe

a. *Removal*. Remove the muffler and pipe as illustrated in figure 91.

b. *Cleaning and Inspection*. Clean all parts and inspect for burned or damaged condition. Replace defective parts as necessary.

c. *Installation*. Install the muffler and pipe as illustrated in figure 91.

172. Plow and Carrier Engine Exhaust Manifold

a. *Removal.*

(1) Remove the muffler and pipe (par. 171).

(2) Remove the water manifold (par. 165).

(3) Remove the exhaust manifold as illustrated in figure 92.

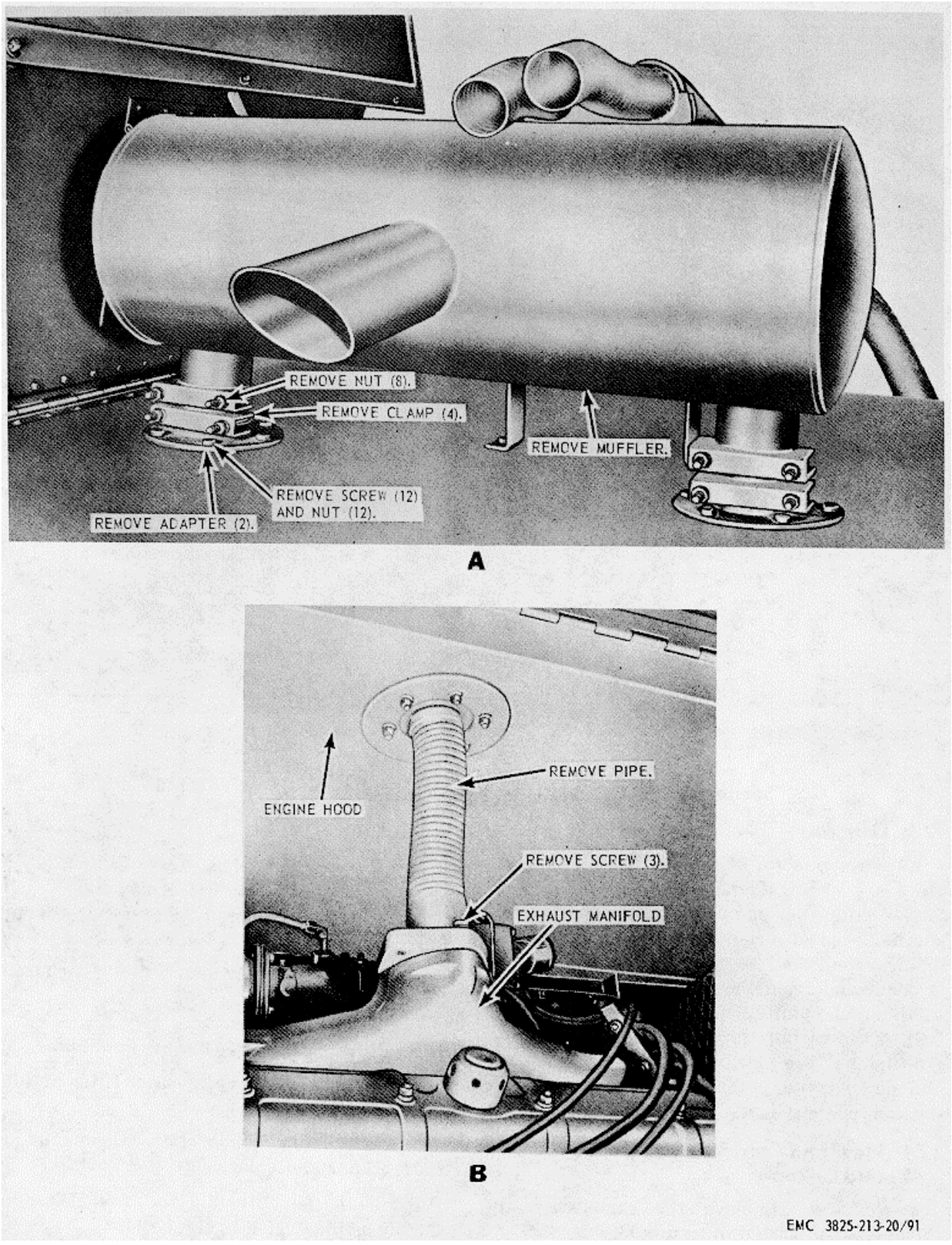
b. *Cleaning and Inspection*. Clean and inspect the manifold for breaks and other damage.

c. *Installation.*

(1) Install the exhaust manifold as illustrated in figure 92.

(2) Install the water manifold (par. 165).

(3) Install the muffler and pipe (par. 171).



A. Muffler removal

B. Pipe removal

Figure 91. Plow and carrier engine muffler and pipe, removal and installation.

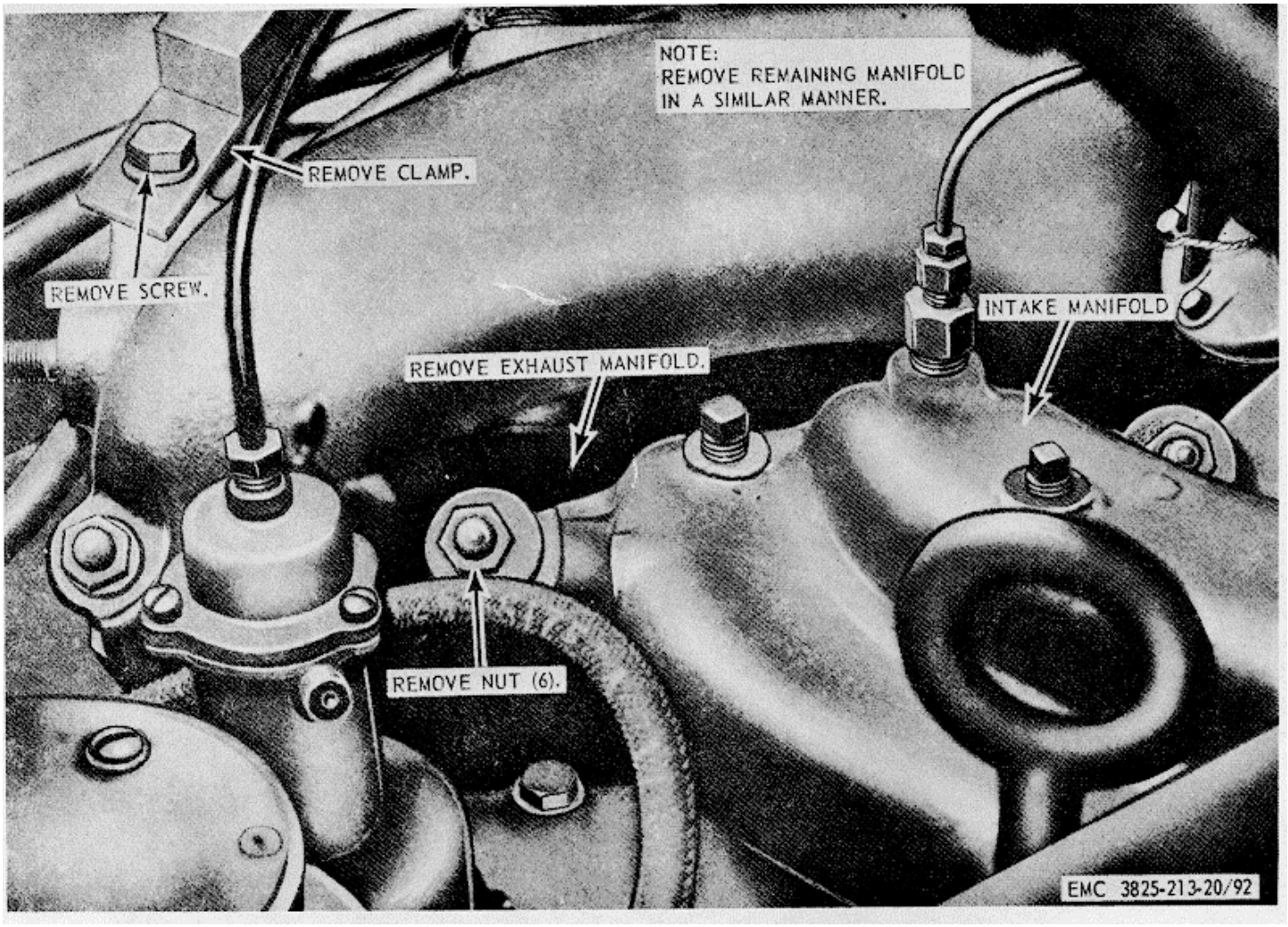


Figure 92. Plow and carrier engine exhaust manifold, removal and installation.

Section VI. PLOW AND CARRIER ENGINES FUEL SYSTEMS

173. General

Fuel systems for the plow and carrier engines are identical and each includes a fuel tank, engine fuel pump, fuel filter, carburetor, engine speed governor and all hose lines, and linkage connected to these components. Fuel is conducted from the tank through the filter to the fuel pump. The fuel pump forces the fuel to the carburetor where it is mixed with air that has been cleaned by the air cleaner and down through the intake manifold into the combustion chambers of the engine.

174. Plow and Carrier Engine Carburetor and Linkage

a. Removal. Remove the carburetor and linkage as illustrated in figure 93.

Note. **Remove throttle cylinder on carrier engine (par. 217).**

b. *Cleaning and Inspection.* Clean and inspect all parts. Replace defective parts.

c. *Installation.* Install the carburetor and linkage as illustrated in figure 93.

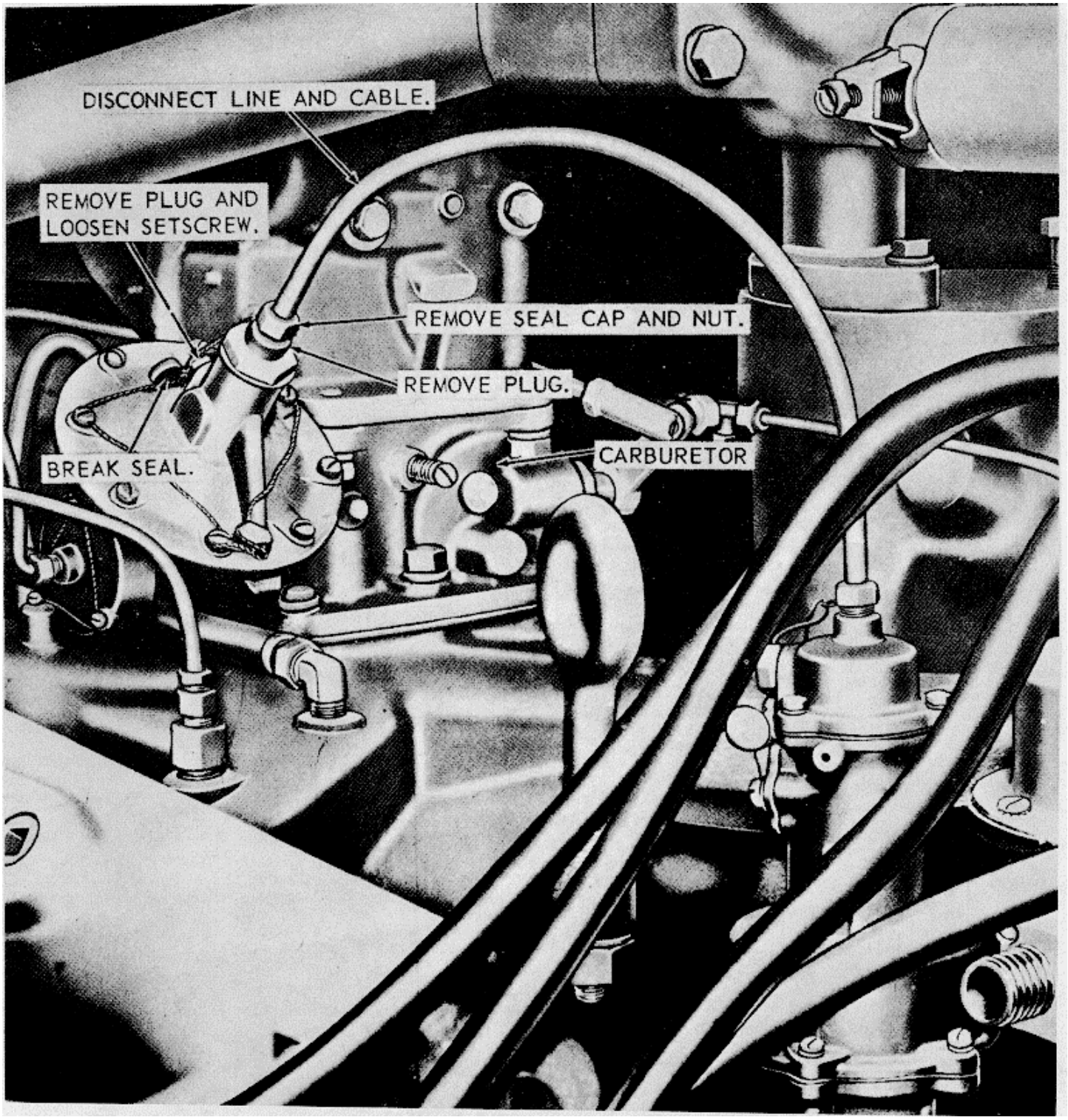
d. *Adjustment.* Adjust the carburetor (TM 5-3825-213-10).

175. Plow and Carrier Engine Fuel Filter

a. *Removal.* Remove the fuel filter as illustrated in figure 94.

b. *Cleaning and Inspection.* Clean and inspect all parts. Replace defective parts.

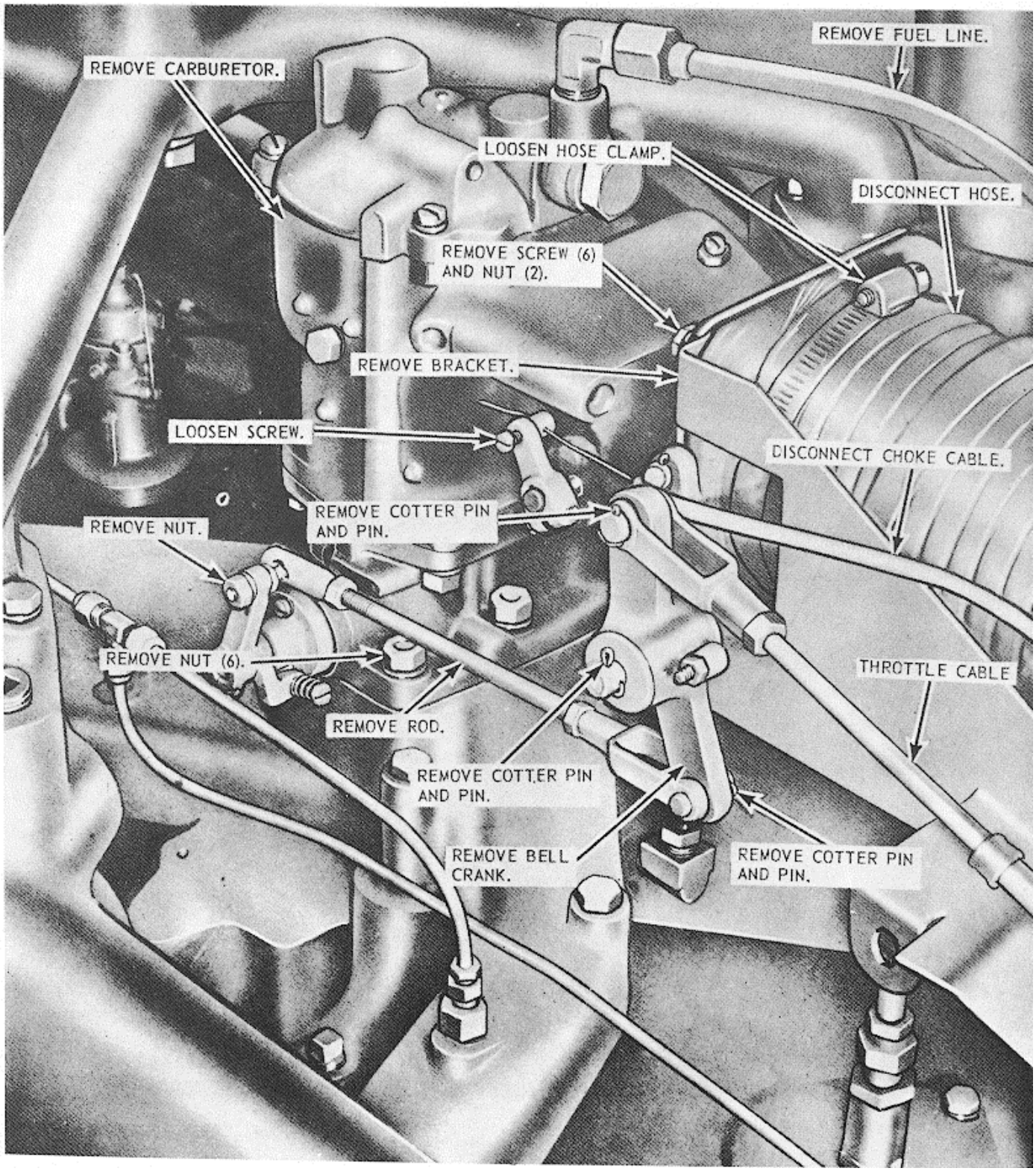
c. *Installation.* Install the fuel filter assembly as illustrated in figure 94.



EMC 3825-213-20/93 (1)

A. Governor attaching points

Figure 93. Plow and carrier engine carburetor and linkage, removal and installation.



B EMC 3825-213-20/93 (2)

B. Carburetor and linkage removal points

Figure 93-Continued.

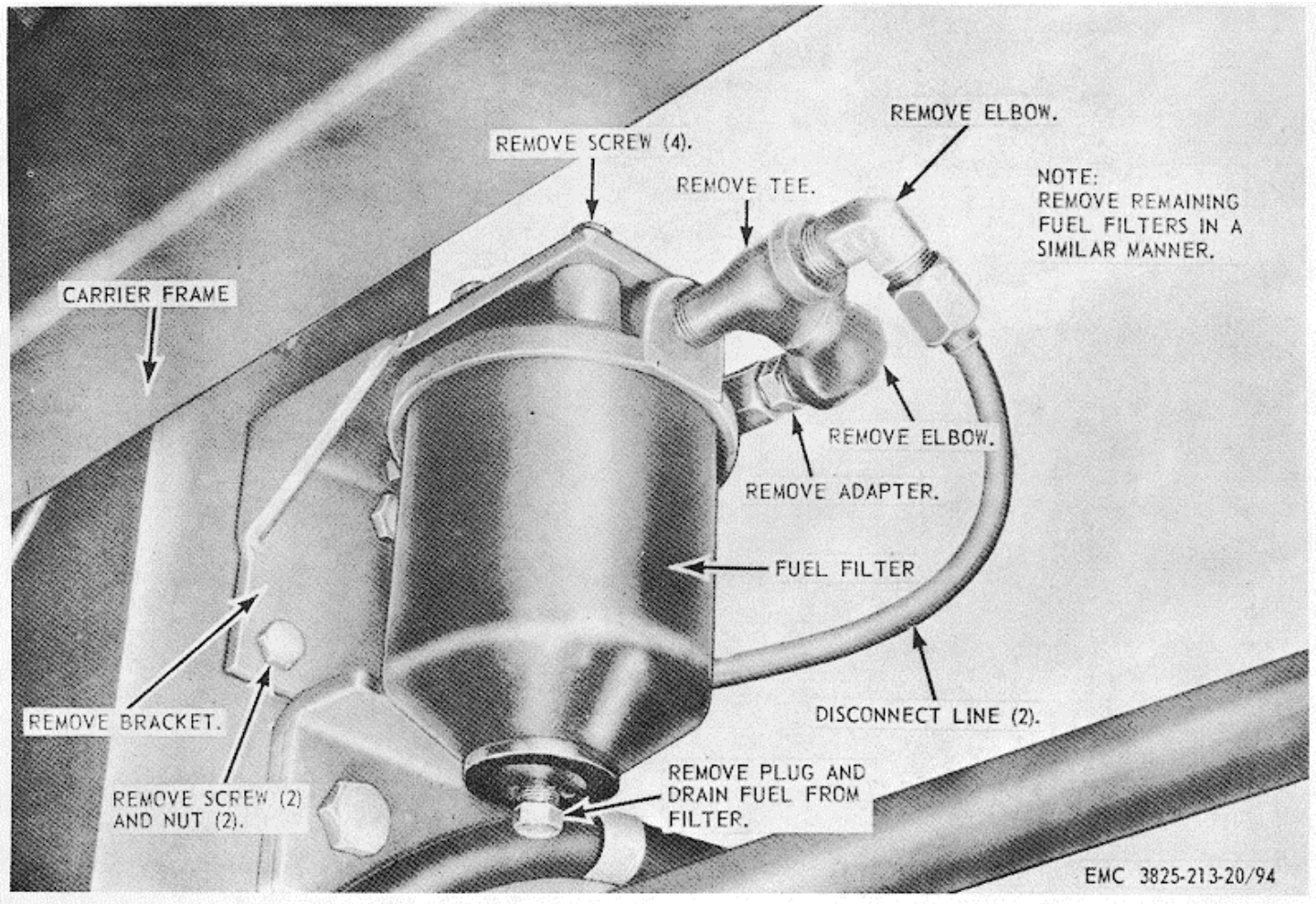


Figure 94. Plow and carrier engine fuel filter, fittings, and bracket, removal and installation.

176. Plow and Carrier Engine Fuel Pump Assembly

a. Removal. Remove the fuel pump assembly as illustrated in figure 95.

b. Cleaning and Inspection. Clean and inspect all parts. Replace defective parts.

c. Installation. Install the fuel pump assembly as illustrated in figure 95.

177. Plow and Carrier Engine Priming Assembly

a. Removal. Remove the priming assembly as illustrated in figure 96.

b. Cleaning, Inspection, and Repair. Clean and inspect all parts. Replace defective parts.

c. Installation. Install the priming assembly as illustrated in figure 96.

178. Plow and Carrier Engine Intake Manifold

a. Removal.

(1) Remove the water manifold (par. 165).

(2) Remove the exhaust manifold (par. 172).

(3) Remove the carburetor and governor (pars. 174 and 183).

(4) Remove the intake manifold as illustrated in figure 97.

b. Cleaning and Inspection. Clean and inspect all parts. Replace defective parts.

c. Installation.

(1) Install the intake manifold as illustrated in figure 97.

(2) Install the carburetor and governor (pars. 174 and 183).

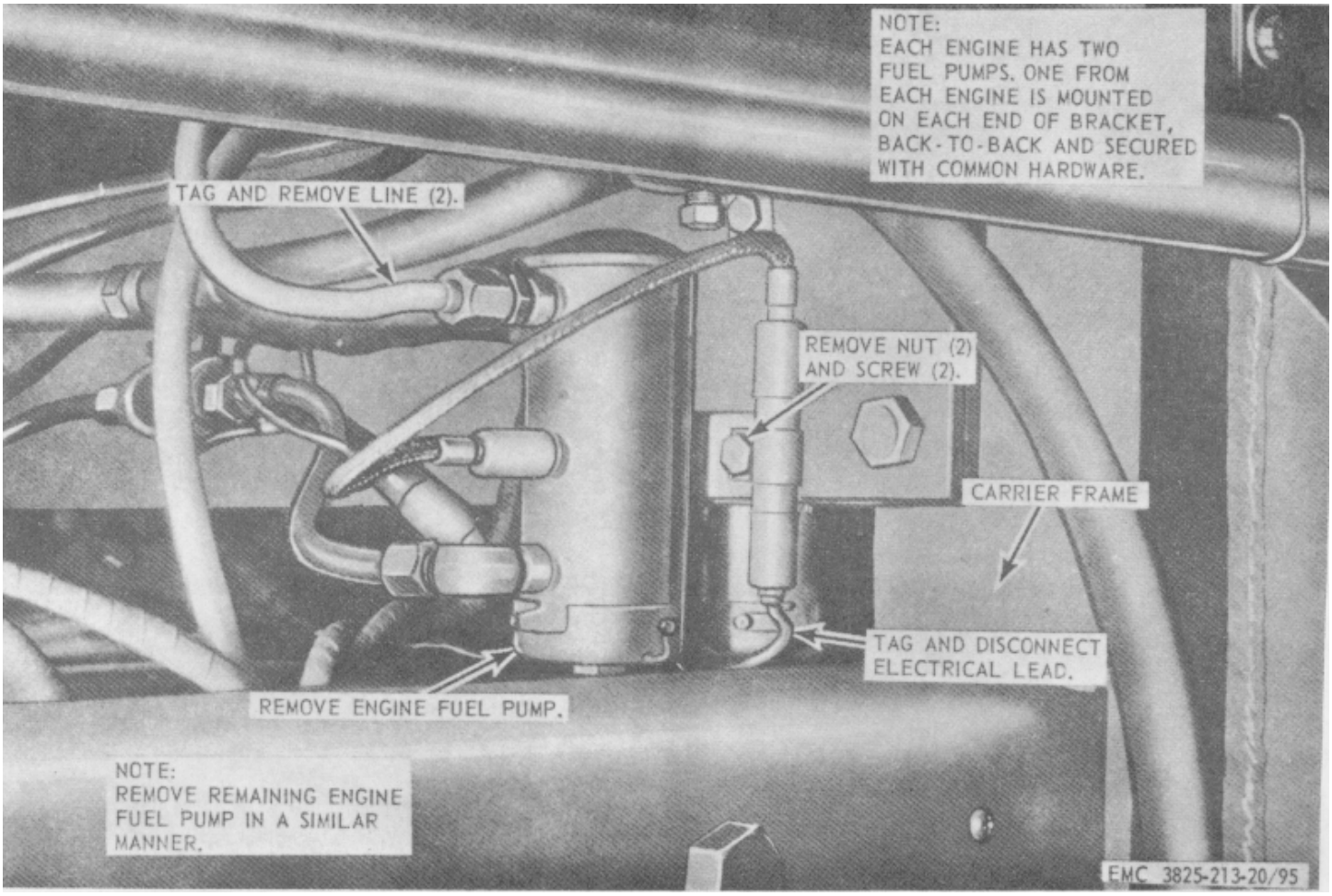


Figure 95. Plow and carrier engine fuel pump assembly, removal and installation.

(3) Install the exhaust manifold (par. 172).
(4) Install the water manifold(par. 165).

179. Plow and Carrier Engine Fuel Tank Assembly

a. Removal.
(1) Drain the fuel tank (TM 5-3825-213-10).
(2) Remove the fuel tank as illustrated in figure 98.

b. Cleaning and Inspection. Clean and inspect all parts. Replace defective parts.

c. Installation.
(1) Install the fuel tank as illustrated in figure 98.
(2) Fill the fuel tank (TM 5-3825-213-10).

180. Plow and Carrier Engine Fuel Tank

a. Removal. Remove the fuel tank sending units as illustrated in figure 98.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective part.

c. Installation. Install the fuel tank sending units and plugs as illustrated in figure 98.

181. Plow and Carrier Engine Air Cleaner Assembly

a. Removal. Remove the air cleaner as illustrated in figure 99.

b. Disassembly. Disassemble the air cleaner assembly as illustrated in figure 100.

c. Cleaning, Inspection, and Repair.
(1) Clean all parts.
(2) Inspect the air cleaner body and base for cracks, breaks, or any damage which may restrict the flow of air.

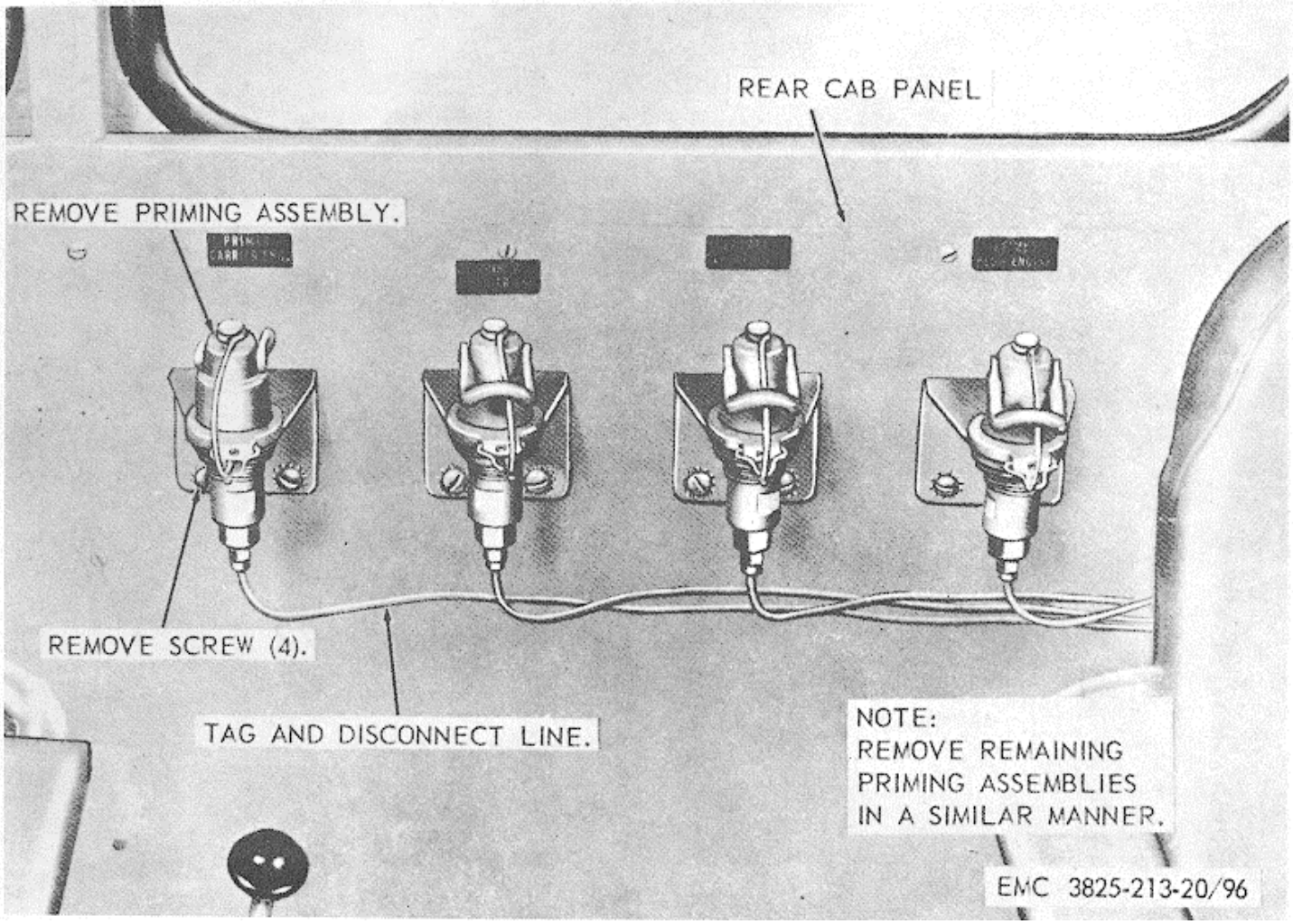


Figure 96. Plow carrier engine priming assemblies, removal and installation.

(3) Replace or repair any damaged parts.

d. Reassembly. Reassemble the air cleaner as illustrated in figure 100.

e. Installation. Install the air cleaner as illustrated in figure 99.

182. Plow and Carrier Engine Fuel Lines and Fittings

a. *Removal.* Remove the fuel lines and fittings as illustrated in figure 101.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective part.

c. Installation. Install the fuel lines and fittings as illustrated in figure 101.

183. Plow and Carrier Engine Speed Governor Assembly

a. Removal. Remove the engine speed governor assembly as illustrated in figure 102.

Note. **Remove throttle on carrier engine (par. 217).**

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective engine speed governor assembly.

c. Installation. Install the engine speed governor assembly as illustrated in figure 102.

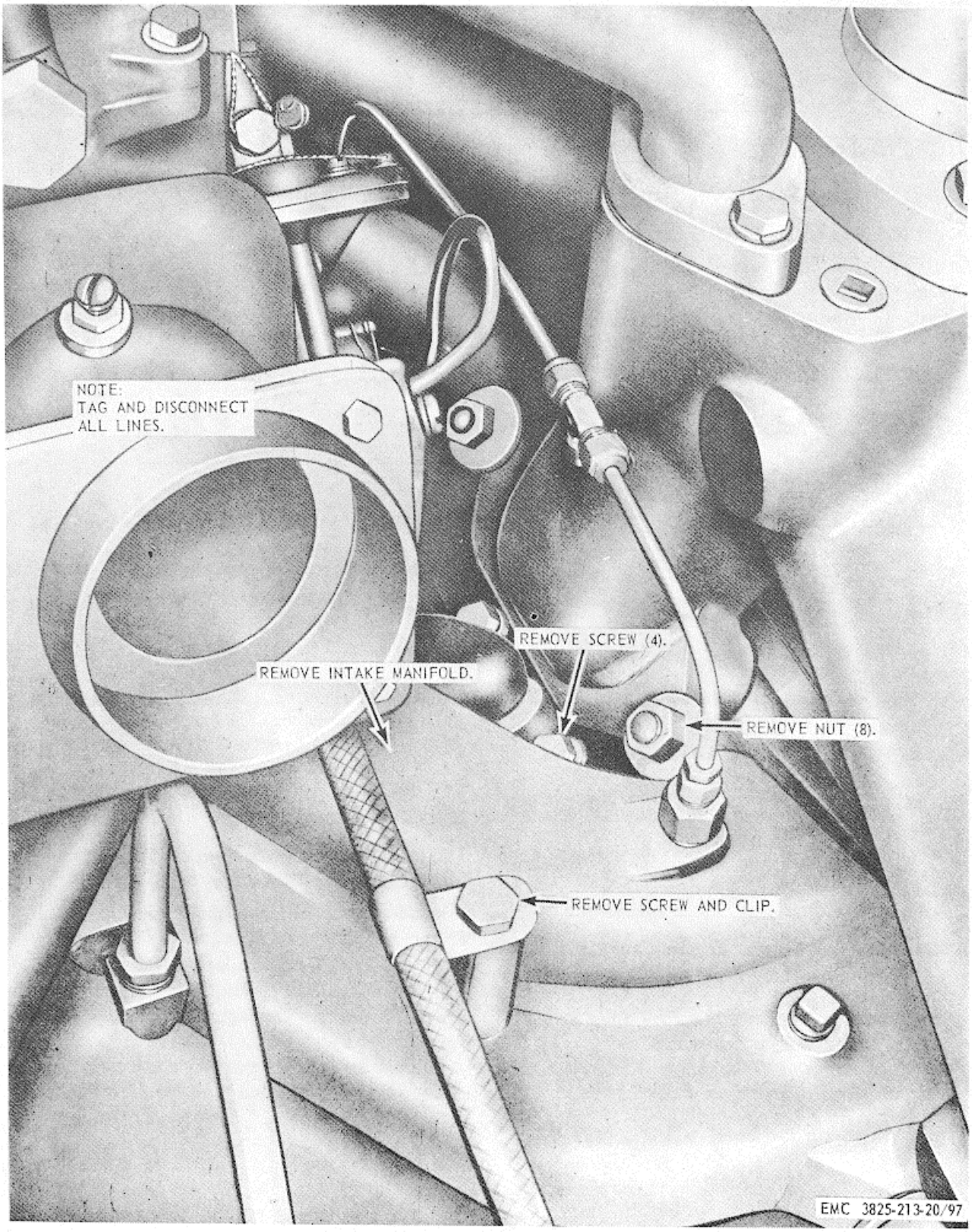
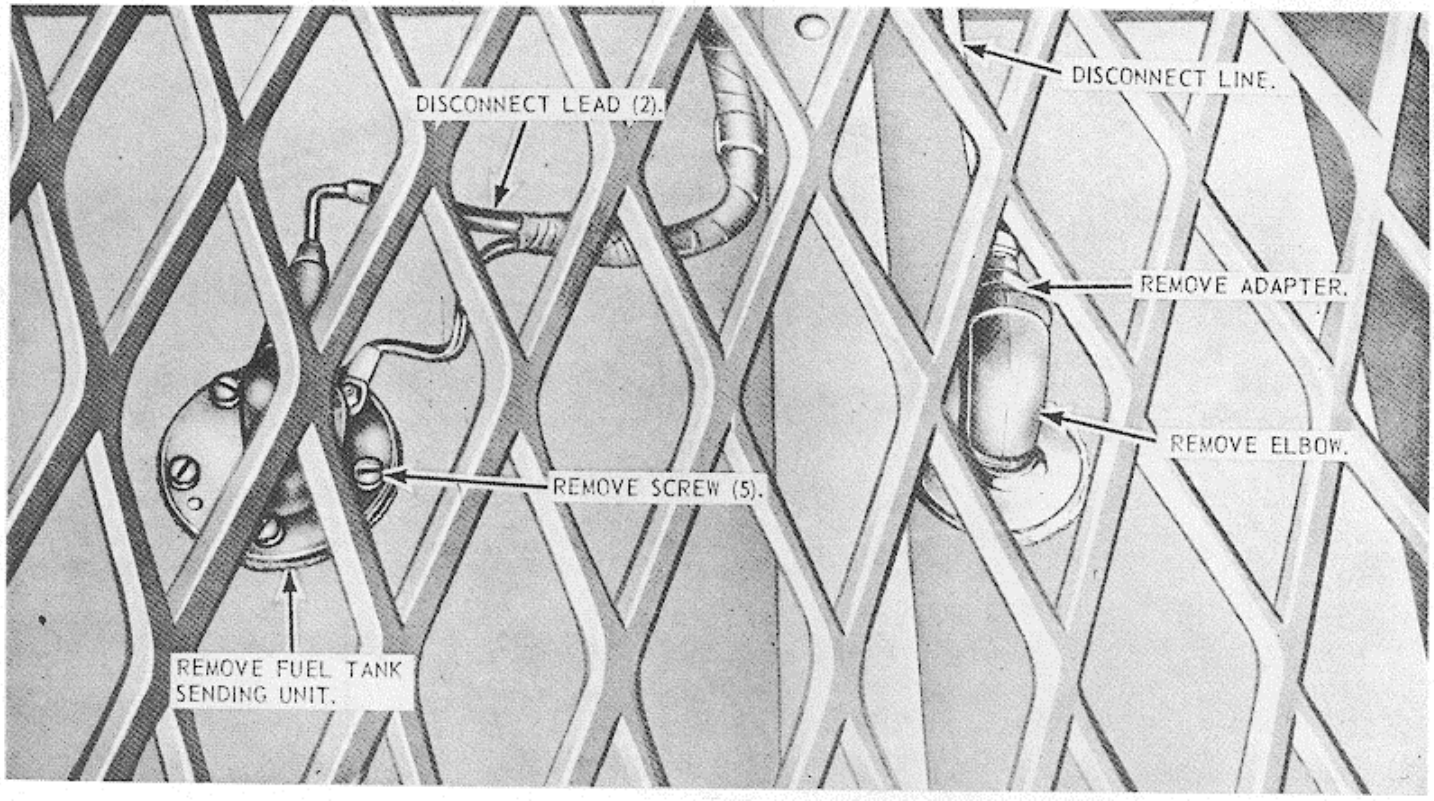
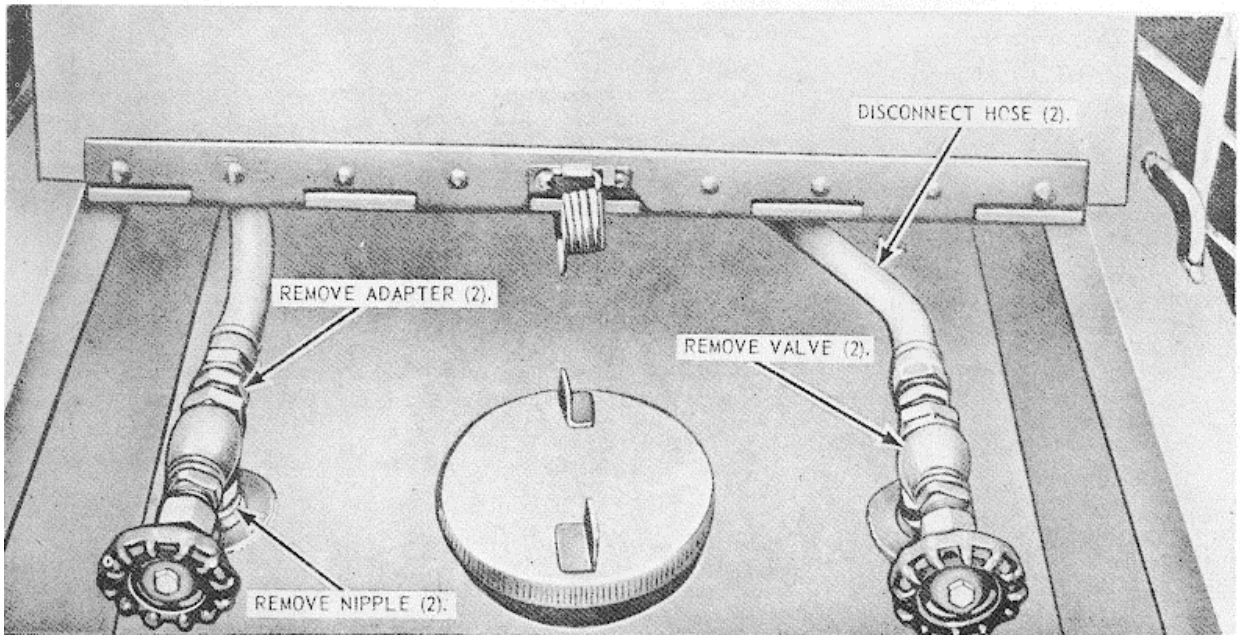


Figure 97. Plow and carrier engine intake manifold, removal and installation.



A



NOTE
REMOVE REMAINING VALVES IN A SIMILAR MANNER.

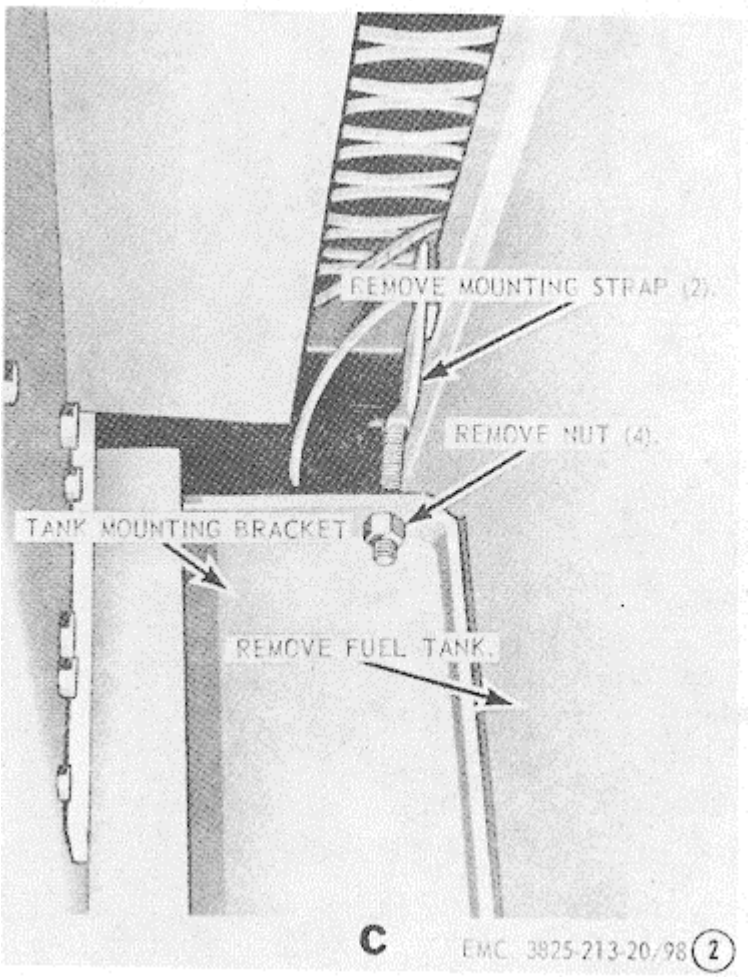
B

EMC 3825-213-20/98 (1)

A. Sending unit and line removal

B. Valve removal

Figure 98. Plow and carrier engine fuel tank assembly and sending units, removal and installation.



C. Fuel tank removal points

Figure 98-Continued.

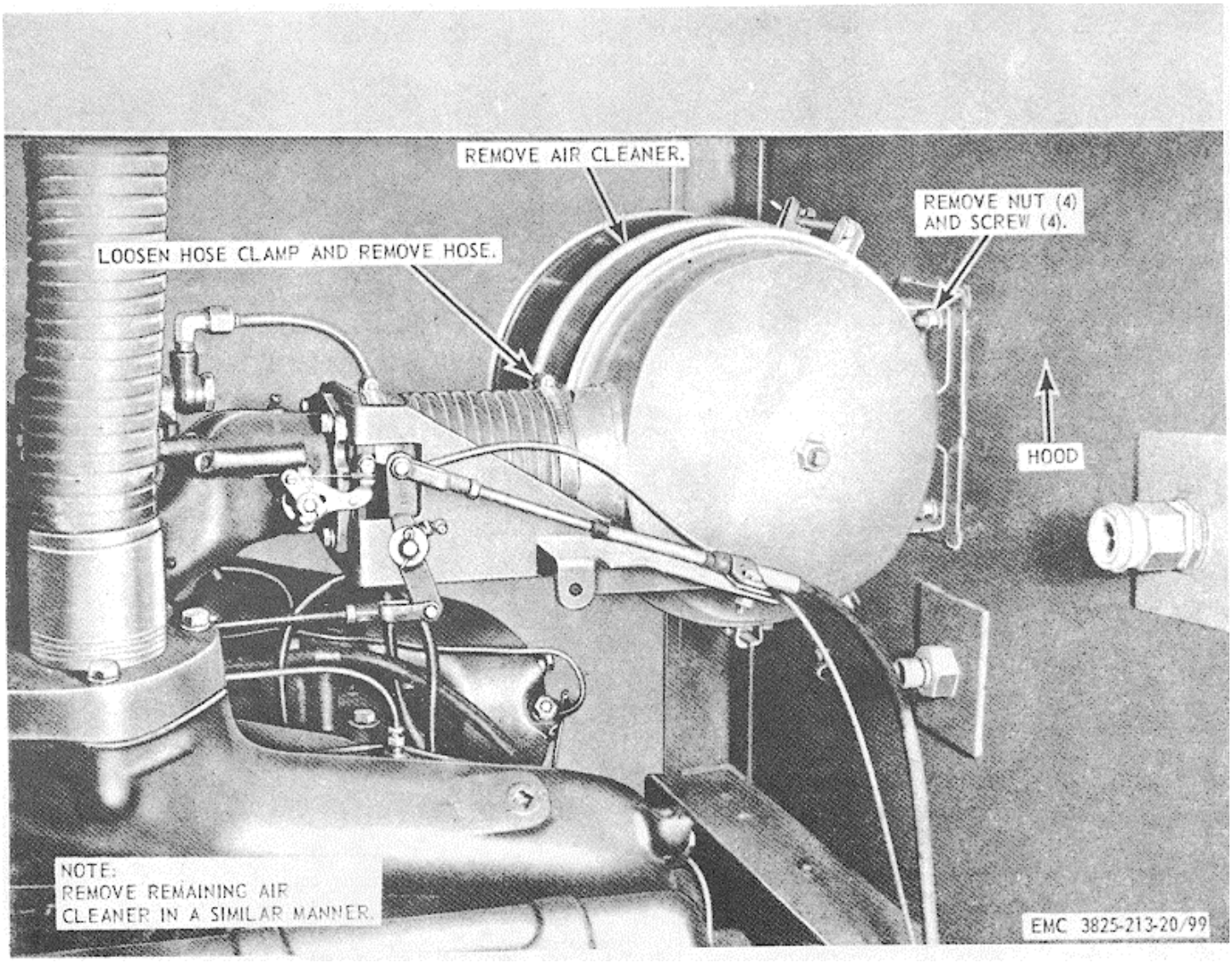


Figure 99. Plow and carrier engine air cleaner assembly, removal and installation.

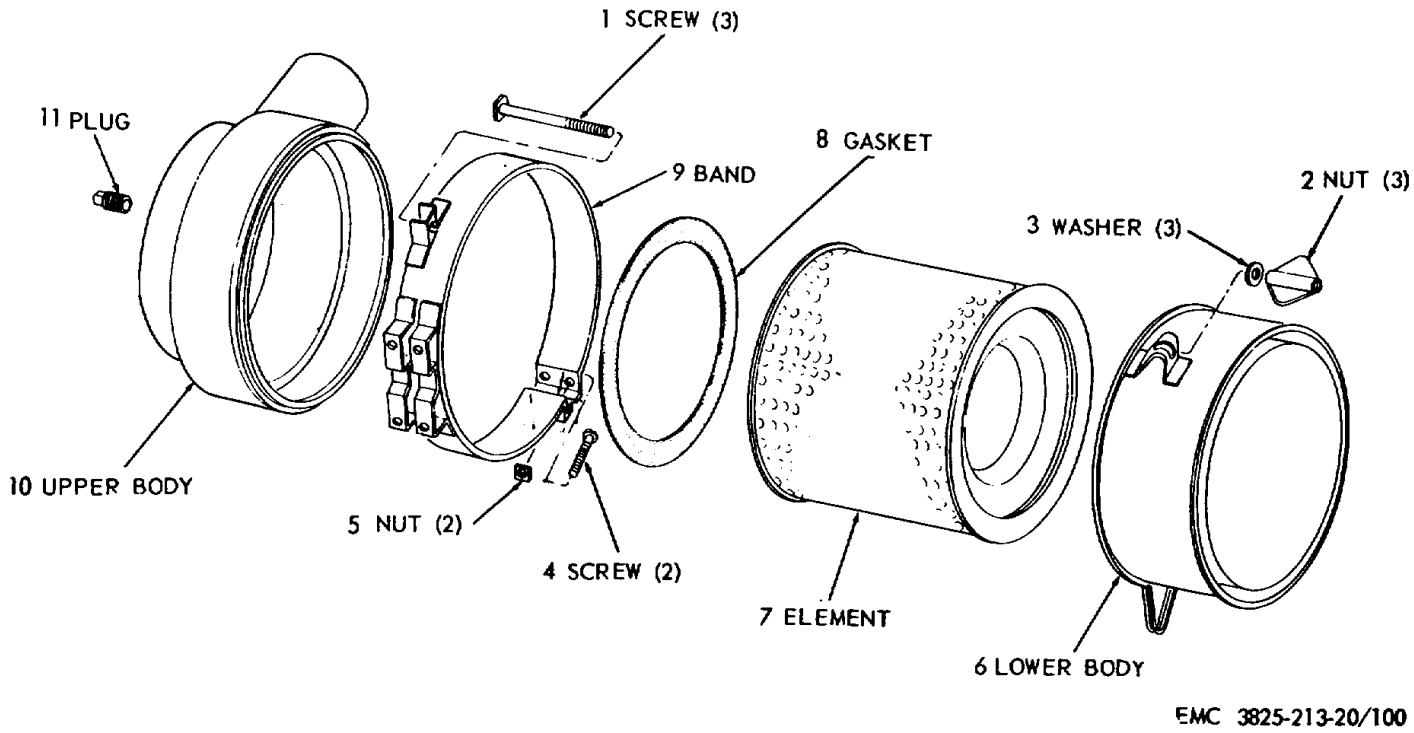


Figure 100. Plow and carrier engine air cleaner assembly, disassembly and reassembly, exploded view.

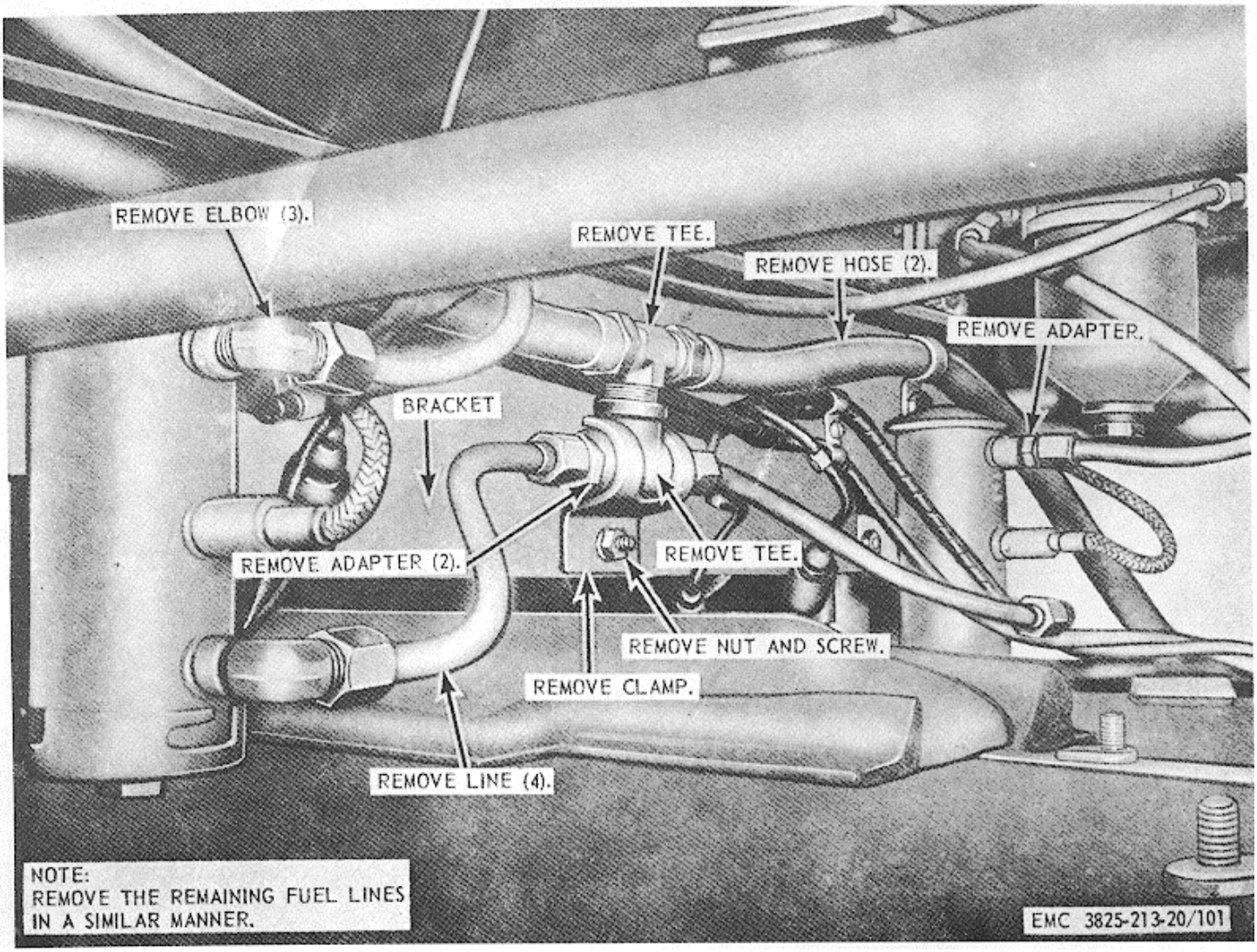


Figure 101. Plow and carrier engine fuel lines and fittings, removal and installation.

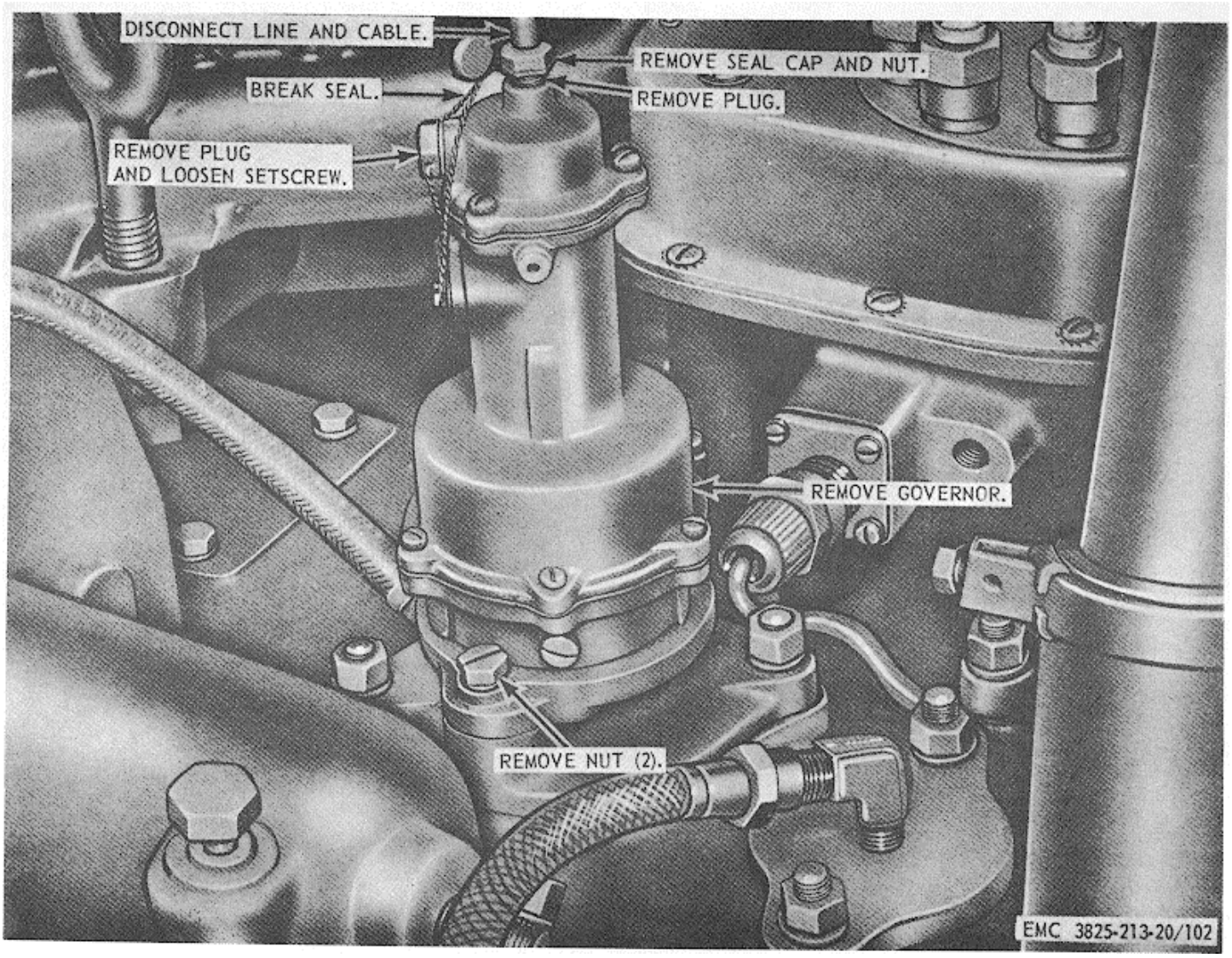


Figure 102. Plow and carrier engine speed governor assembly, removal and installation.

Section VII. PLOW AND CARRIER ENGINES LUBRICATION SYSTEM

184. General

The plow and carrier engines have pressurized oil systems which supply oil to all moving parts of the engines. It is important that the oil system be kept clean, so the oil will circulate freely. At normal operating speed the oil pressure will range between 40 and 60 psi.

185. Plow and Carrier Engine Oil Filter

a. Removal. Remove the oil filter as illustrated in figure 103.

b. Cleaning and Inspection. Clean, service, and inspect the oil filter and lines for damaged fittings, breaks, or broken mounting straps. Replace defective parts as necessary.

c. Installation. Install the oil filter as illustrated in figure 103.

186. Plow and Carrier Engine External Oil Lines and Fittings

a. Removal. Remove the external oil lines and fittings as illustrated in figure 104.

b. Cleaning and Inspection. Clean, inspect, and replace damaged lines and fittings as necessary.

c. Installation. Install the external oil lines and fittings as illustrated in figure 104.

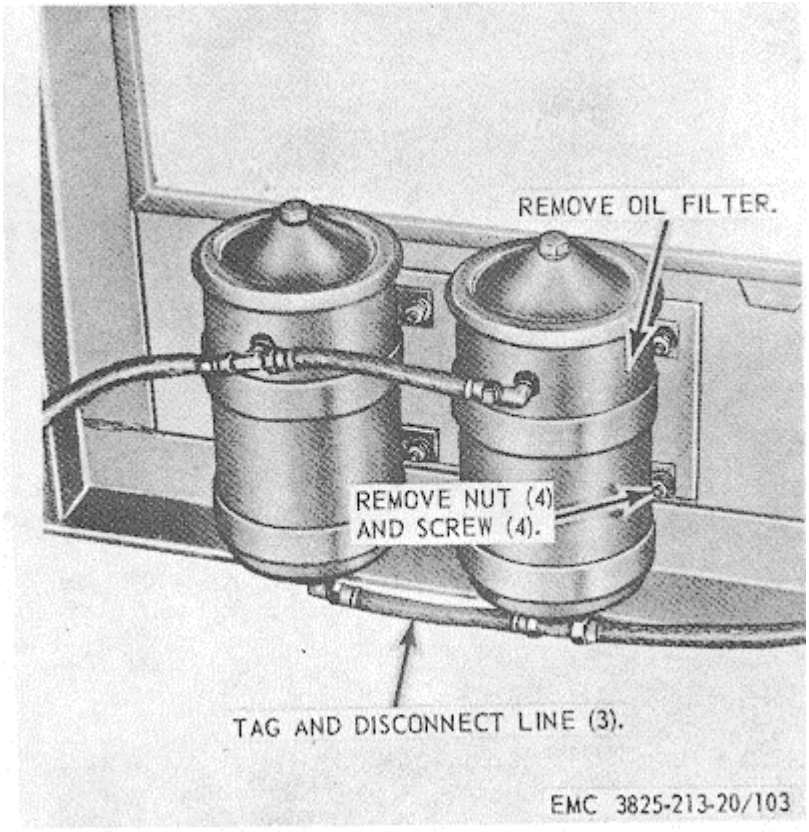
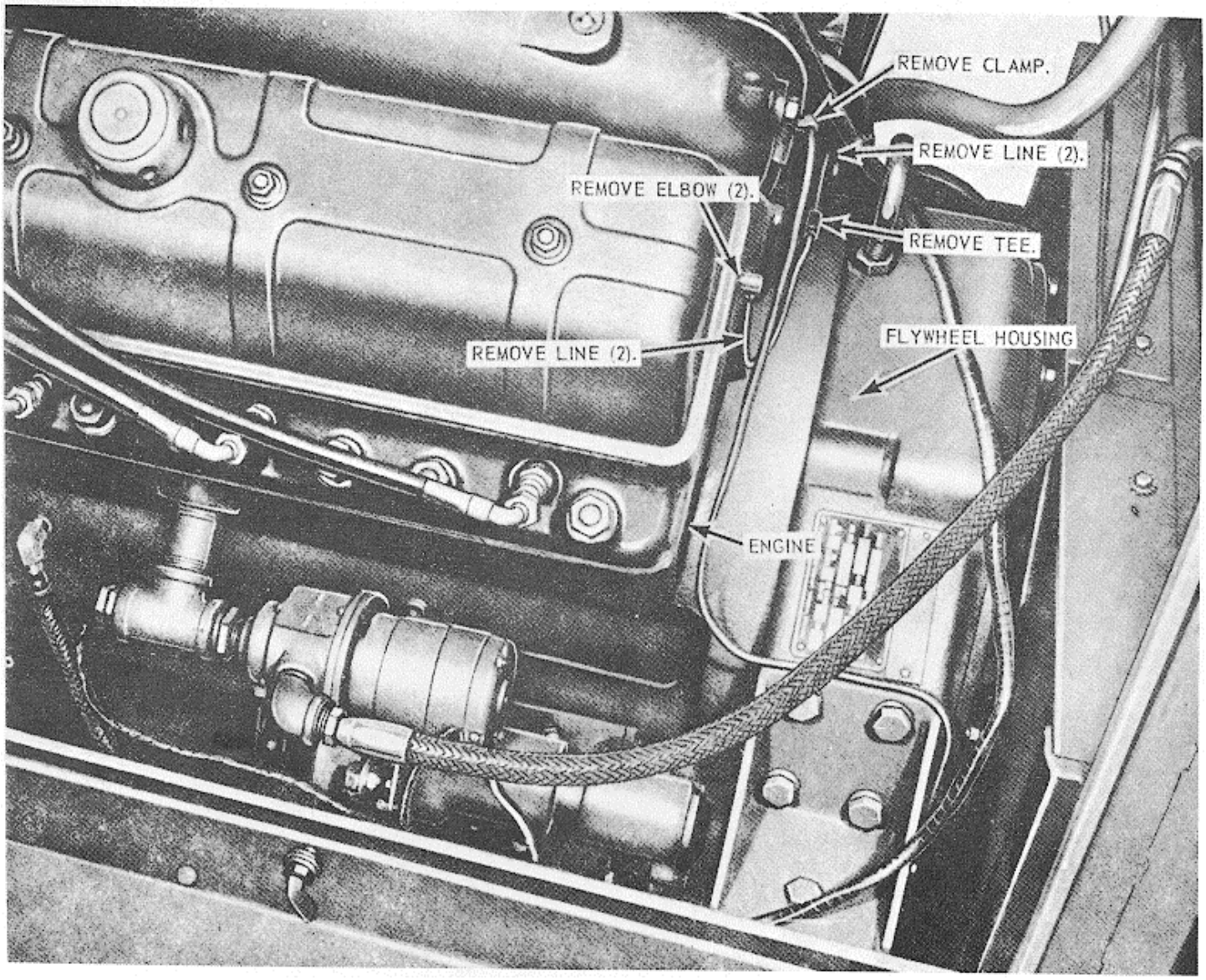


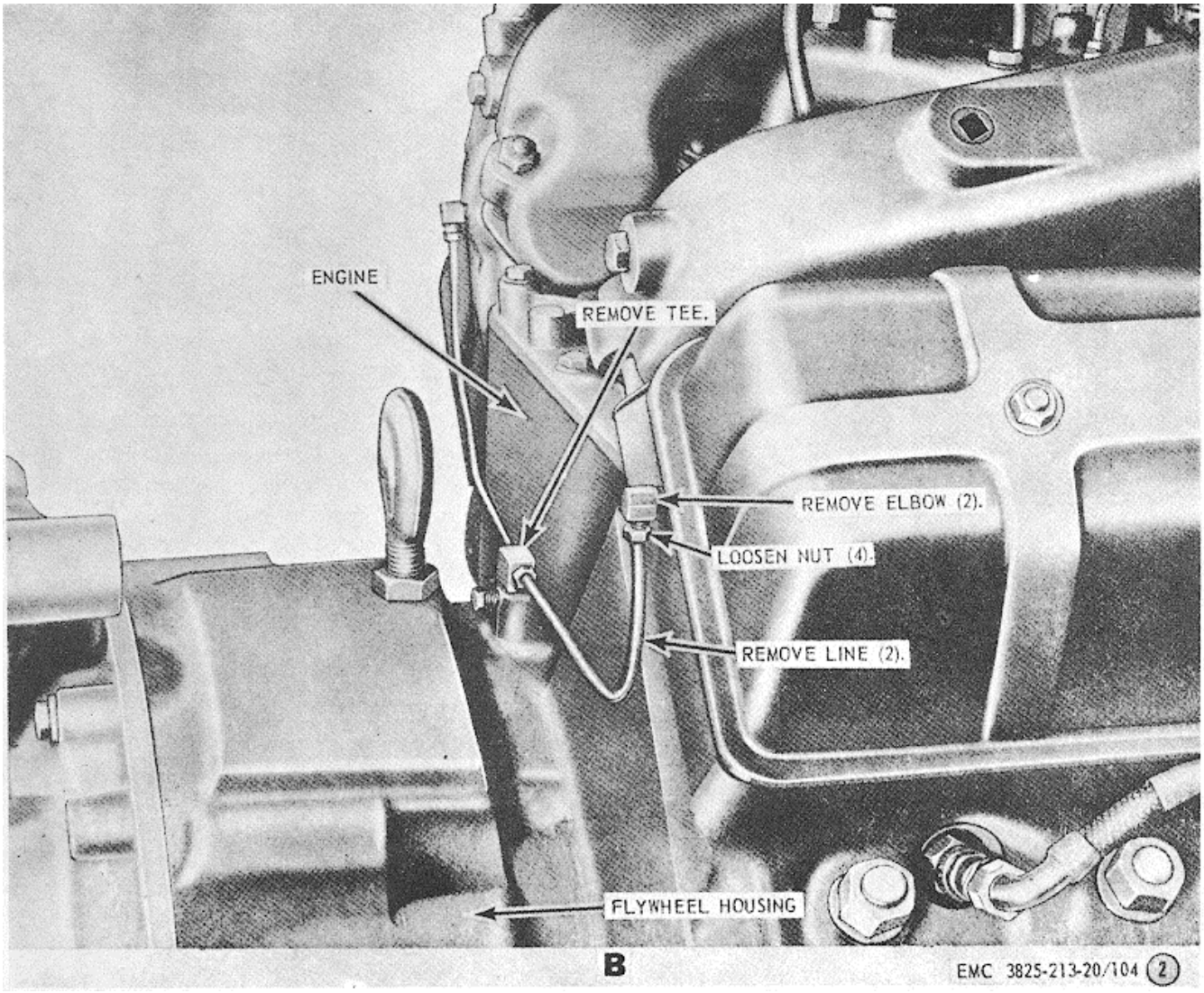
Figure 103. Plow and carrier engine oil filter, removal and installation.



A EMC 3825-213-20/104 (1)

A. Plow engine oil lines

Figure 104. Plow and carrier engine external oil lines and fittings, removal and installation.



B. Carrier engine oil lines

Figure 104-Continued.

Section VIII. PLOW AND CARRIER ENGINES HEATERS

187. General

The carrier and plow engines are equipped with heaters which are used to preheat the engine lubrication and coolant systems for starting in extreme cold weather. Fuel is brought to the heater assemblies from the fuel tank, through a filter, to the fuel pump. From the fuel pump, fuel flows to the regulator valve which works in conjunction with a nozzle assembly to assure a constant, smooth metered flow of fuel to the combustion chamber. A recirculating pump keeps the warmed coolant circulating throughout the system.

188. Plow and Carrier Engine Heater Fuel Pump Strainer, Shutoff Valve, and Bracket

a. Removal. Remove the fuel pump strainer, shutoff valve, and bracket as illustrated in figure 105.

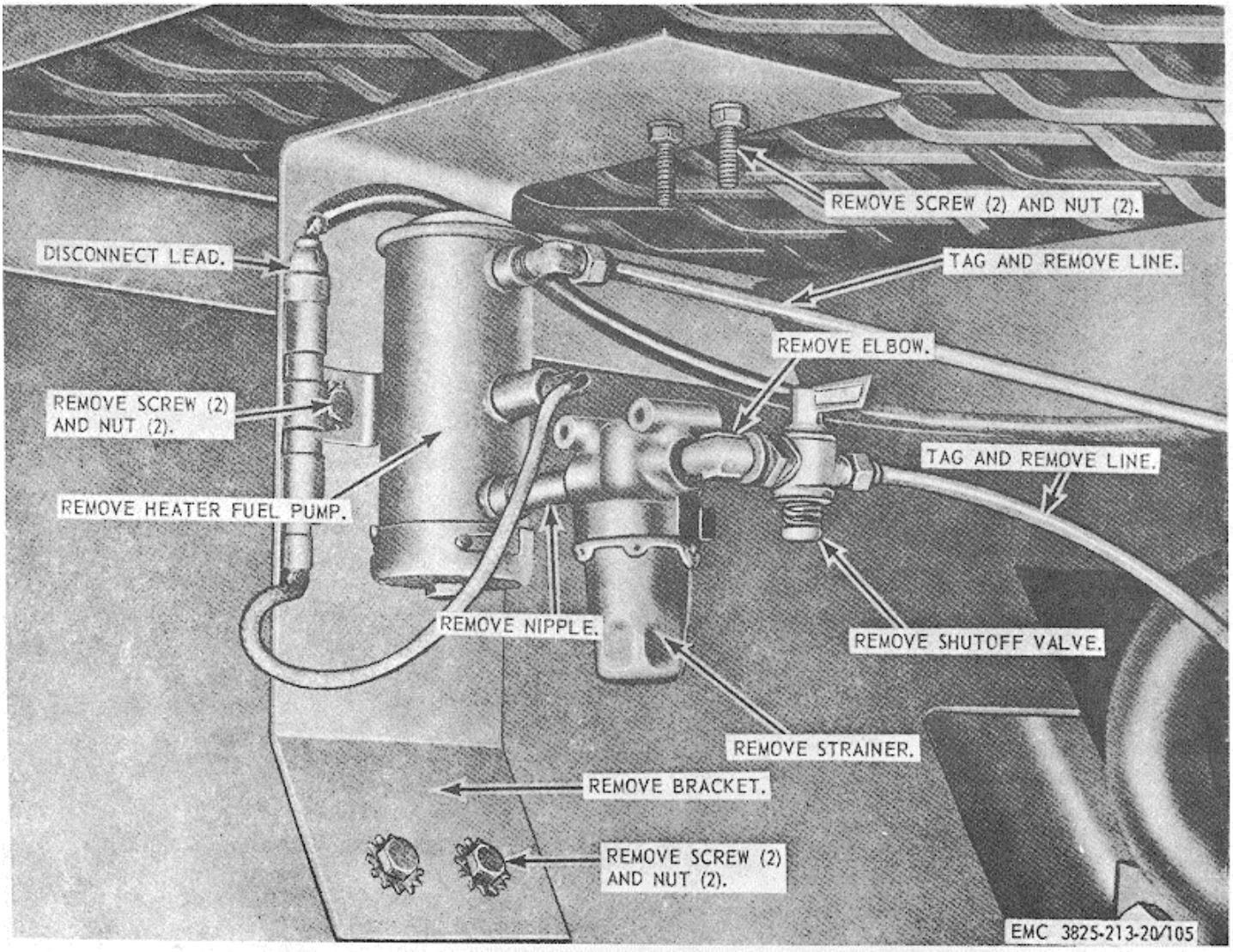


Figure 105. Plow and carrier engine heater fuel pump strainer, shut-off

b. Cleaning and Inspection. Clean and inspect all parts. Replace defective parts.

c. Installation. Install the bracket, fuel pump strainer, and shutoff valve as illustrated in figure 105.

189. Plow and Carrier Engine Heater Coolant Circulating Pump

a. Removal. Remove the engine heater coolant circulating pump as illustrated in figure 106.

b. Cleaning and Inspection. Clean, inspect, and replace a defective circulating pump as necessary.

c. Installation. Install the engine heater coolant circulating pump as illustrated in figure 106.

190. Plow and Carrier Engine Heaters

a. Removal. Remove the engine heater as illustrated in figure 107.

b. Cleaning, Inspection, and Repair. Clean, inspect, replace, or repair defective parts as necessary.

c. Installation. Install the engine heater as illustrated in figure 107.

191. Pump and Carrier Engine Heater Igniter

a. Removal. Remove the cover and igniter as illustrated in figure 108.

b. Cleaning and Inspection. Clean, inspect, and replace defective igniter as necessary.

c. Installation. Install the igniter and cover as illustrated in figure 108.

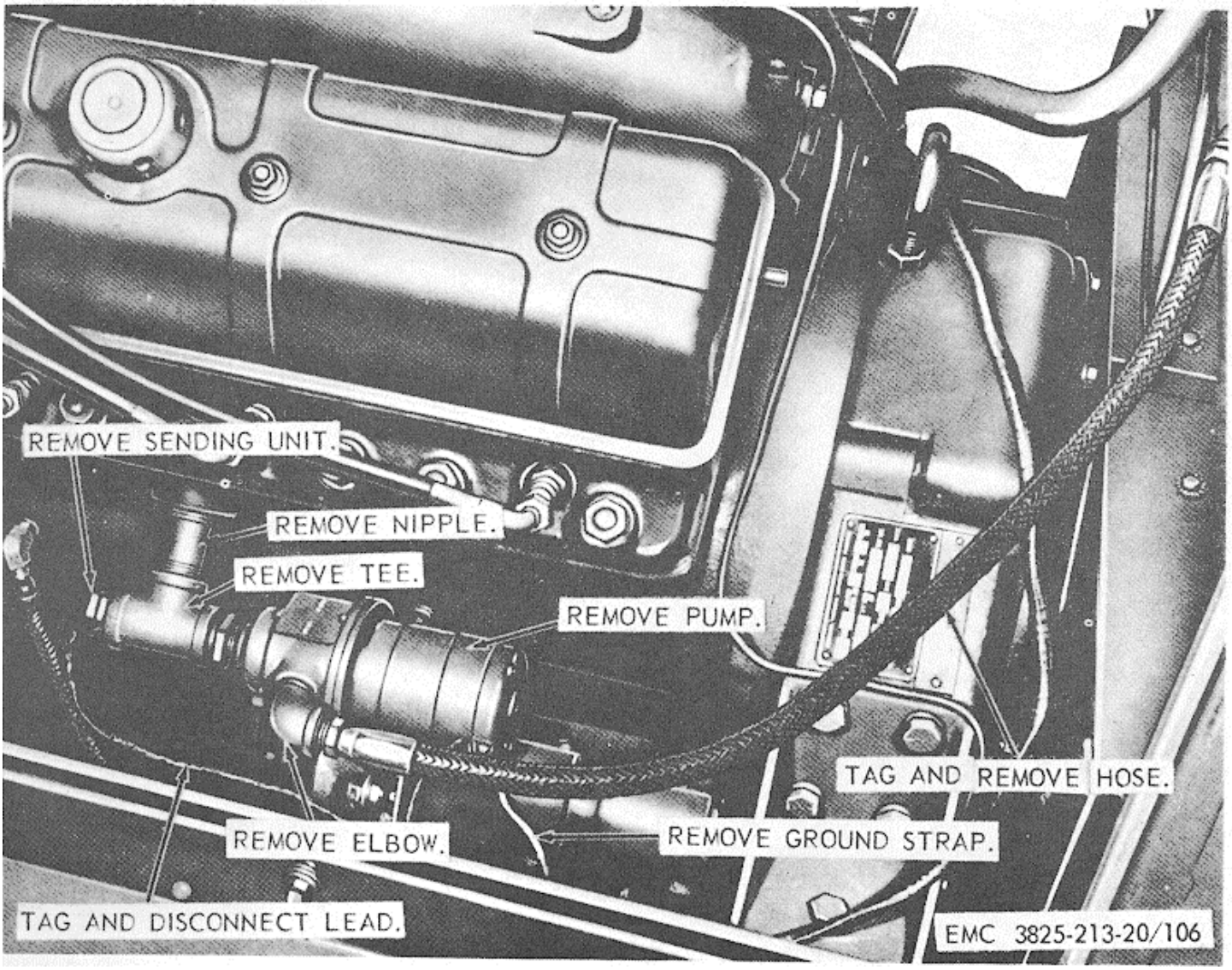
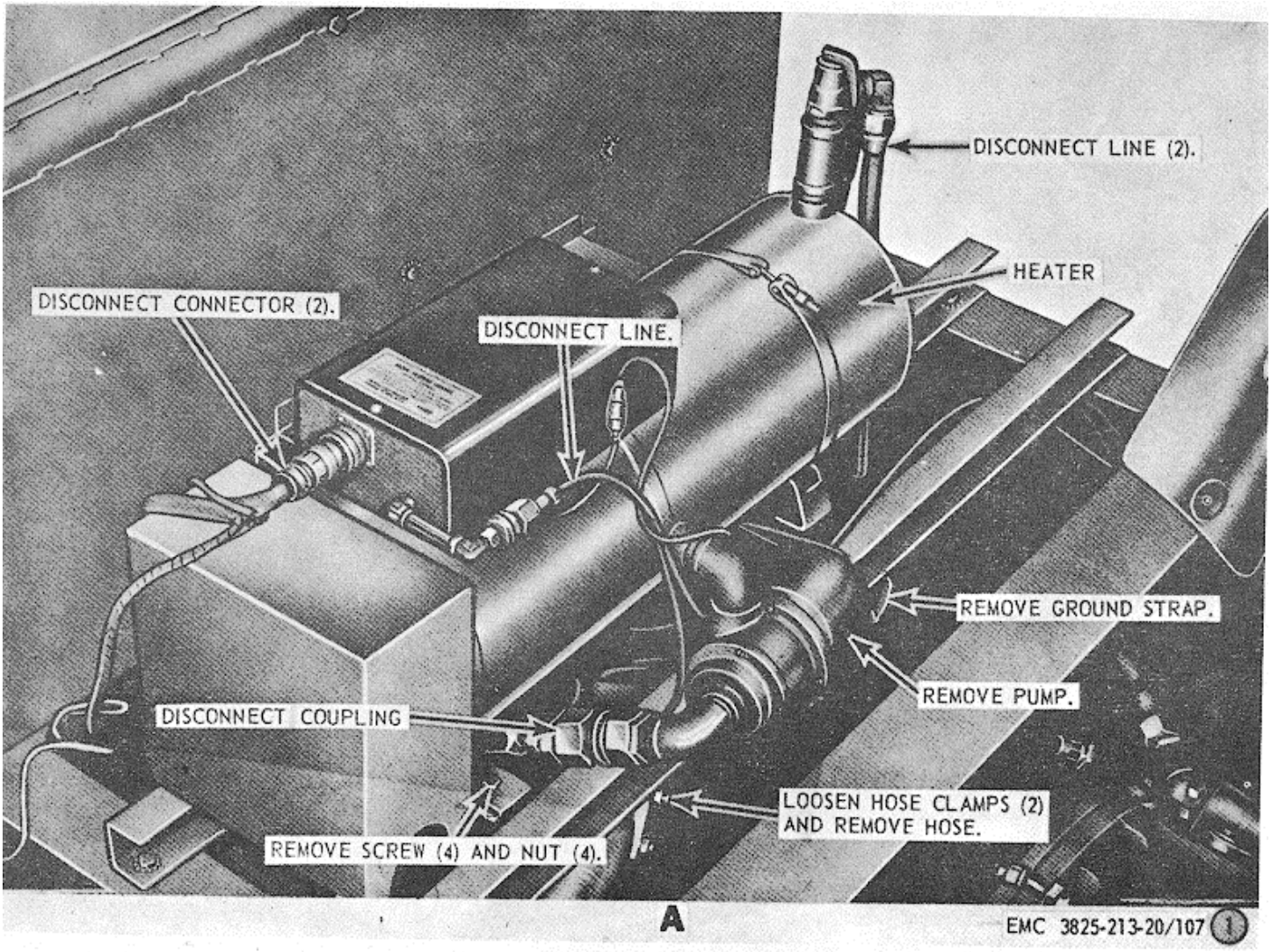
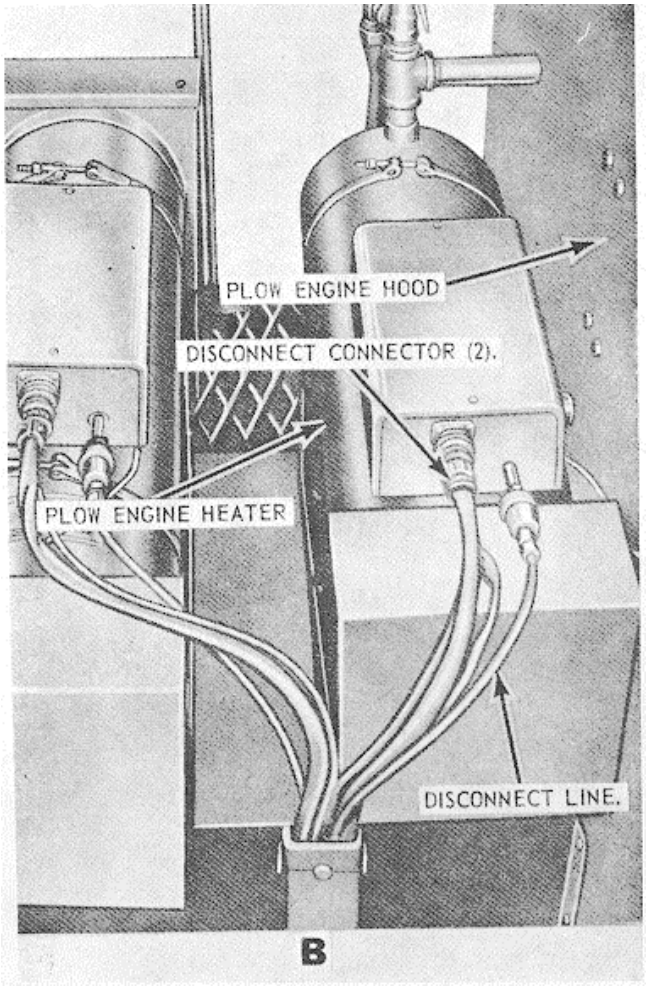


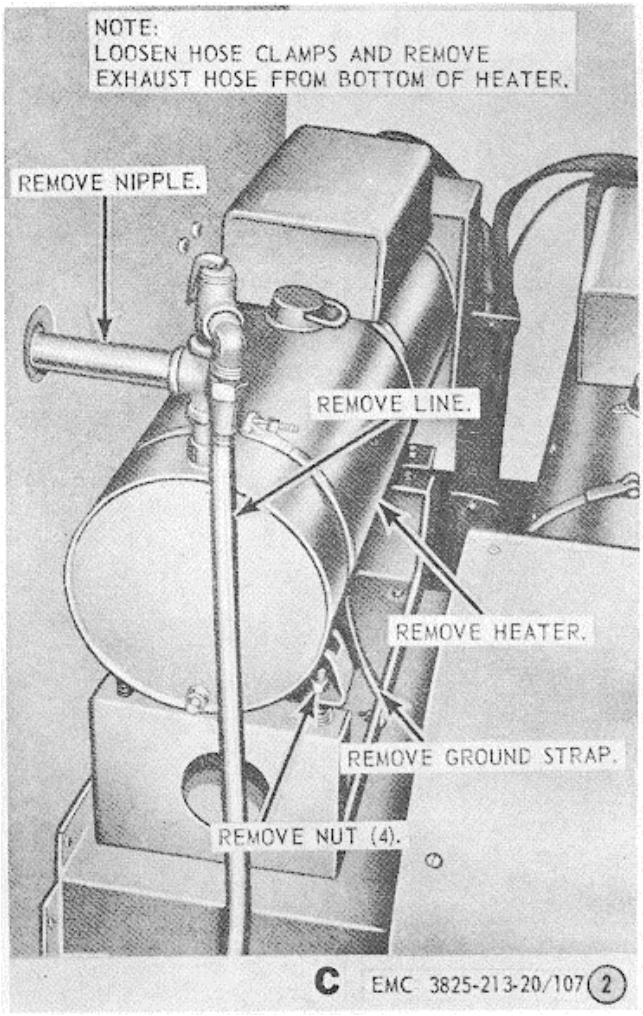
Figure 106. Plow and carrier engine heater coolant circulating pump, removal and installation.



A. Carrier engine heater removal points

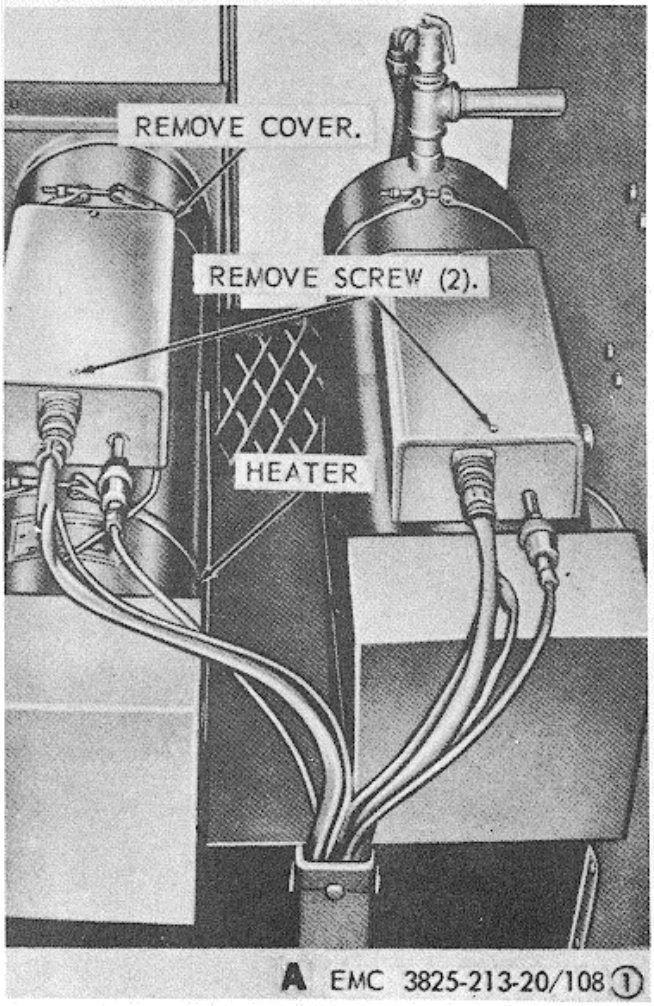
Figure 107. Plow and carrier engine heater, removal and installation.



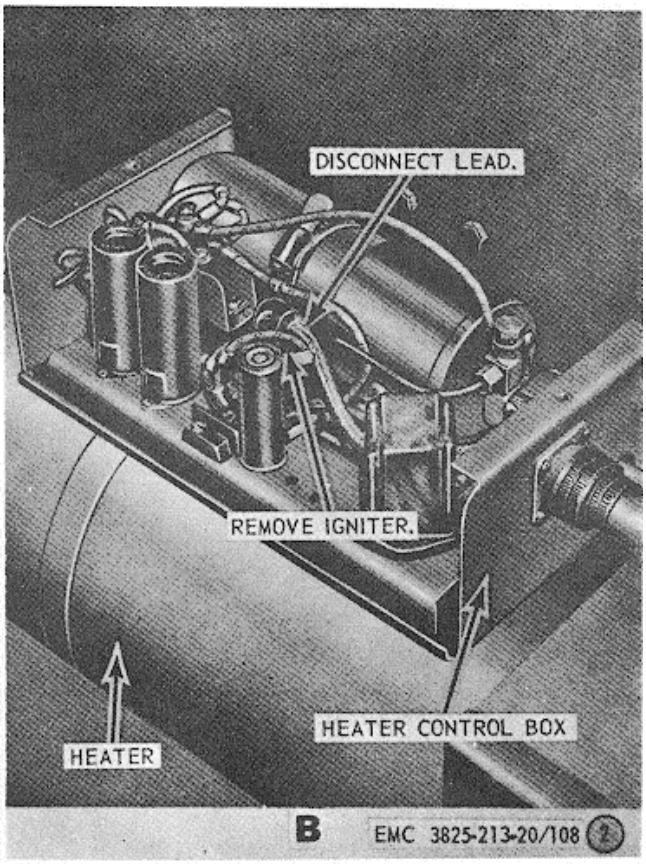


B. Cable and line removal points
C. Plow engine heater removal points

Figure 107-Continued.



A. Cover removal



B. Igniter removal

Figure 108. Plow and carrier engine heater cover and igniter, removal and installation.

Figure 108-Continued.

Section IX. PLOW ENGINE HOOD, DOORS, PANELS, AND LIFTING EYES

192. General

The plow engine hood has three access doors, two at the sides and one at the front of the engine. Each door is piano-hinged into two sections. The hood is a one-piece welded construction with attached lifting eyes for removing the hood easily from the engine with a lifting device. The radiator and shutter are mounted on the front opening.

193. Plow Engine Hood

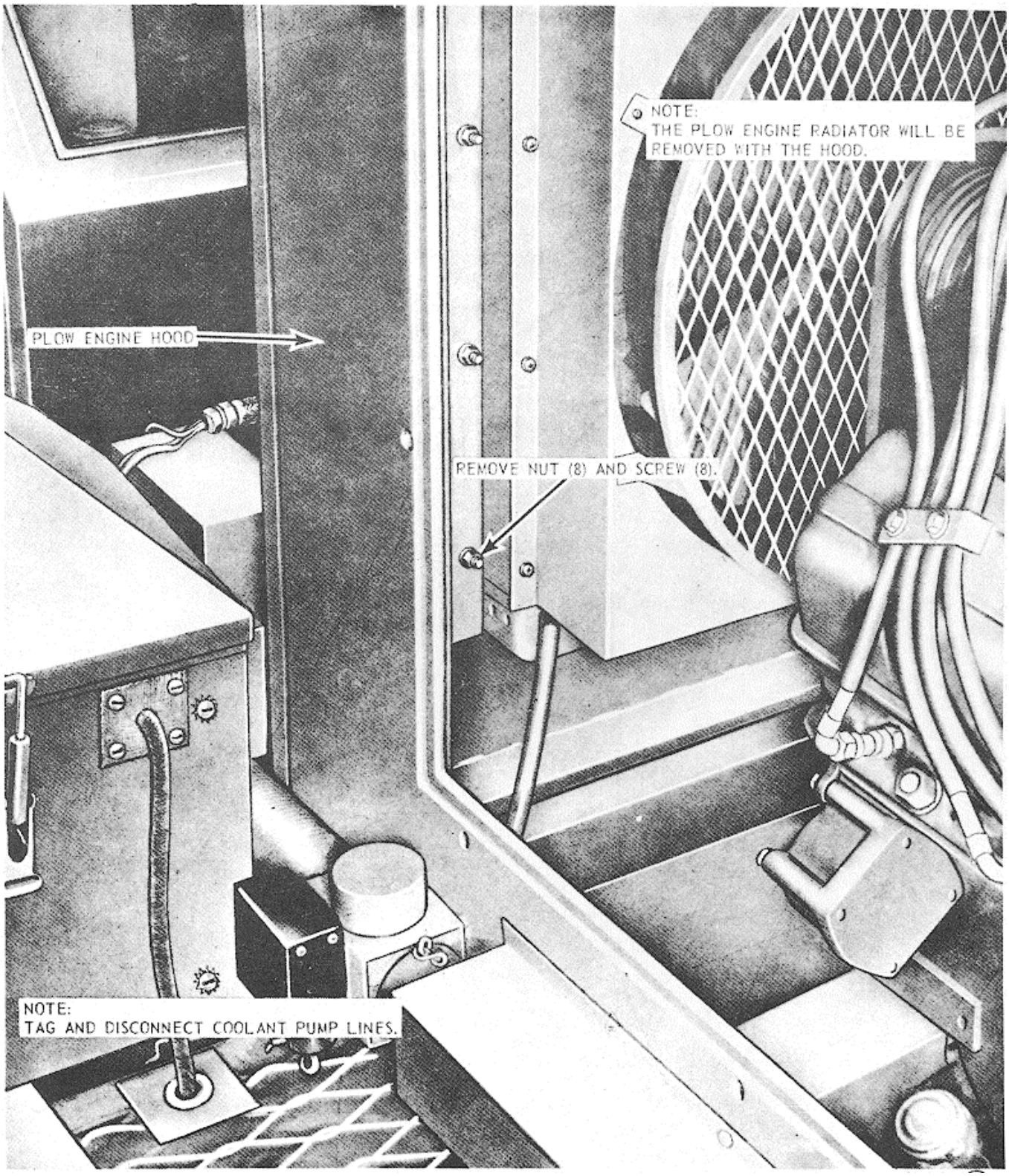
a. *Removal.*
   (1) Remove air cleaner (par. 181).
   (2) Remove oil pan shield (par. 255).
   (3) Remove the heater exhaust pipe (par. 190).
   (4) Remove the shutter (par. 167).
   (5) Remove the muffler and pipe (par. 171).
   (6) Remove the heater pump hose (par. 189).
   (7) Remove the plow engine hood as illustrated in figure 109.

b. *Disassembly.* Disassemble the plow engine hood as illustrated in figure 110.

c. *Cleaning, Inspection, and Repair.* Clean all parts thoroughly and inspect for bends, broken welds, and damaged attaching hardware. Replace or repair defective parts as necessary.

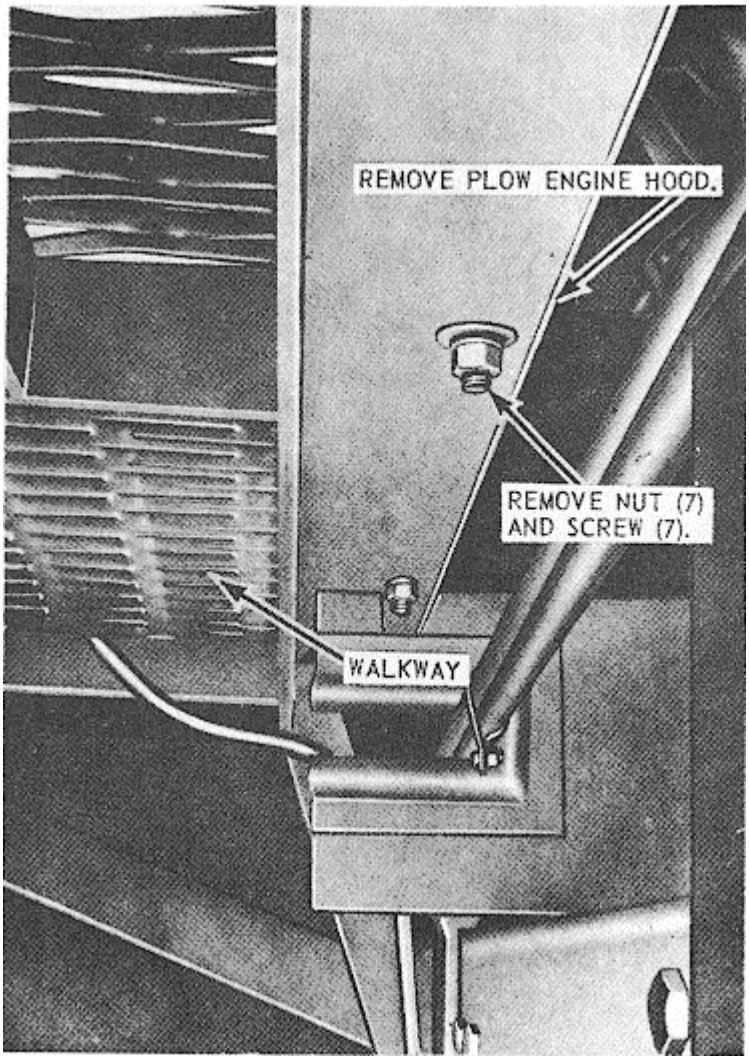
d. *Reassembly*. Reassemble the plow engine hood as illustrated in figure 110.

e. Installation.
   (1) Install the plow engine hood as illustrated in figure 109.
   (2) Install heater pump hose (par. 189).
   (3) Install muffler and pipe (par. 171).
   (4) Install shutter (par. 167)
   (5) Install heater exhaust pipe (par. 190)
   (6) Install oil pan shield (par. 255).
   (7) Install air cleaner (par. 181)



A. Upper hood removal points

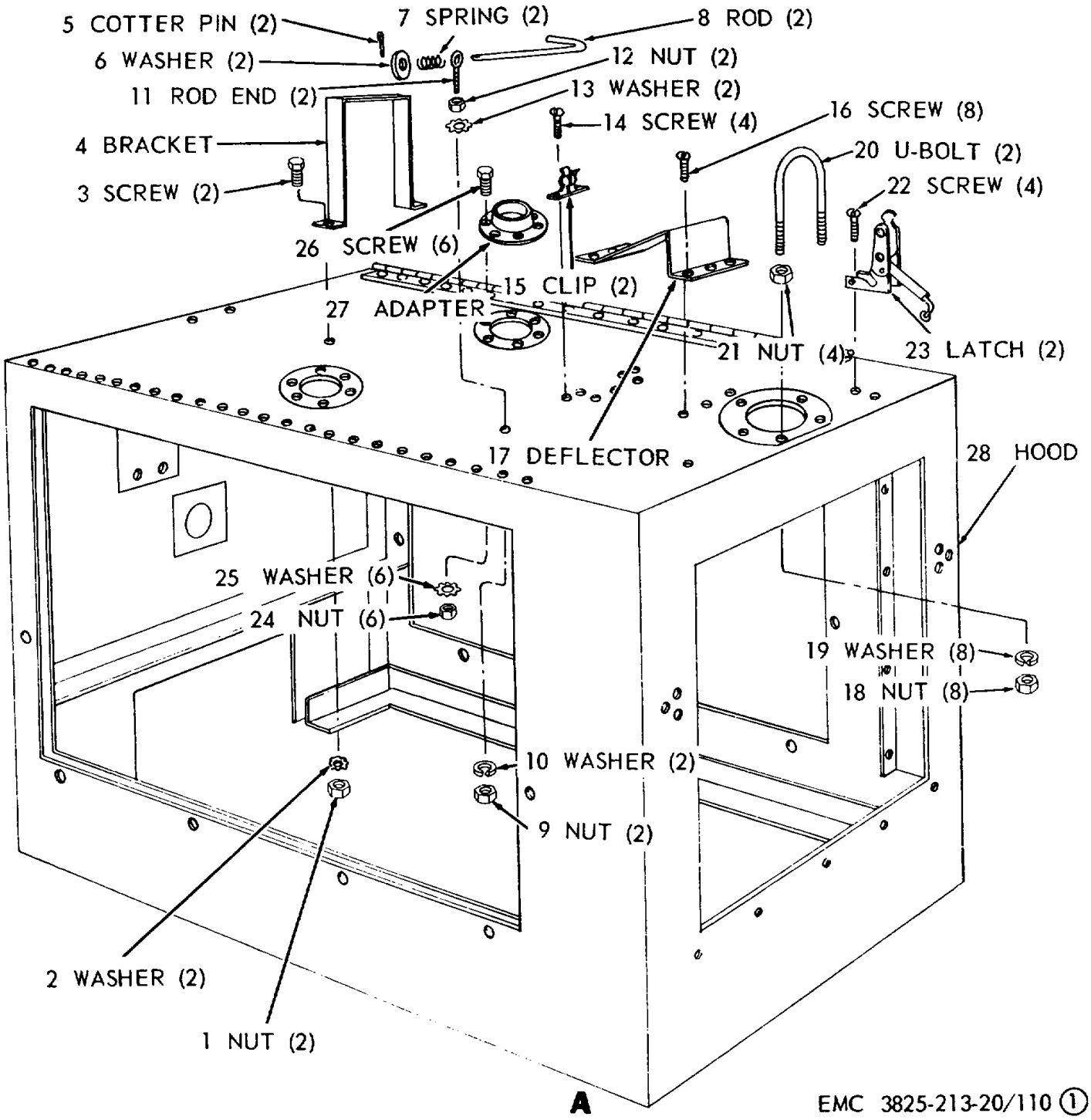
Figure 109. Plow engine hood, removal and installations.



B EMC 3825-213-20/109 (2)

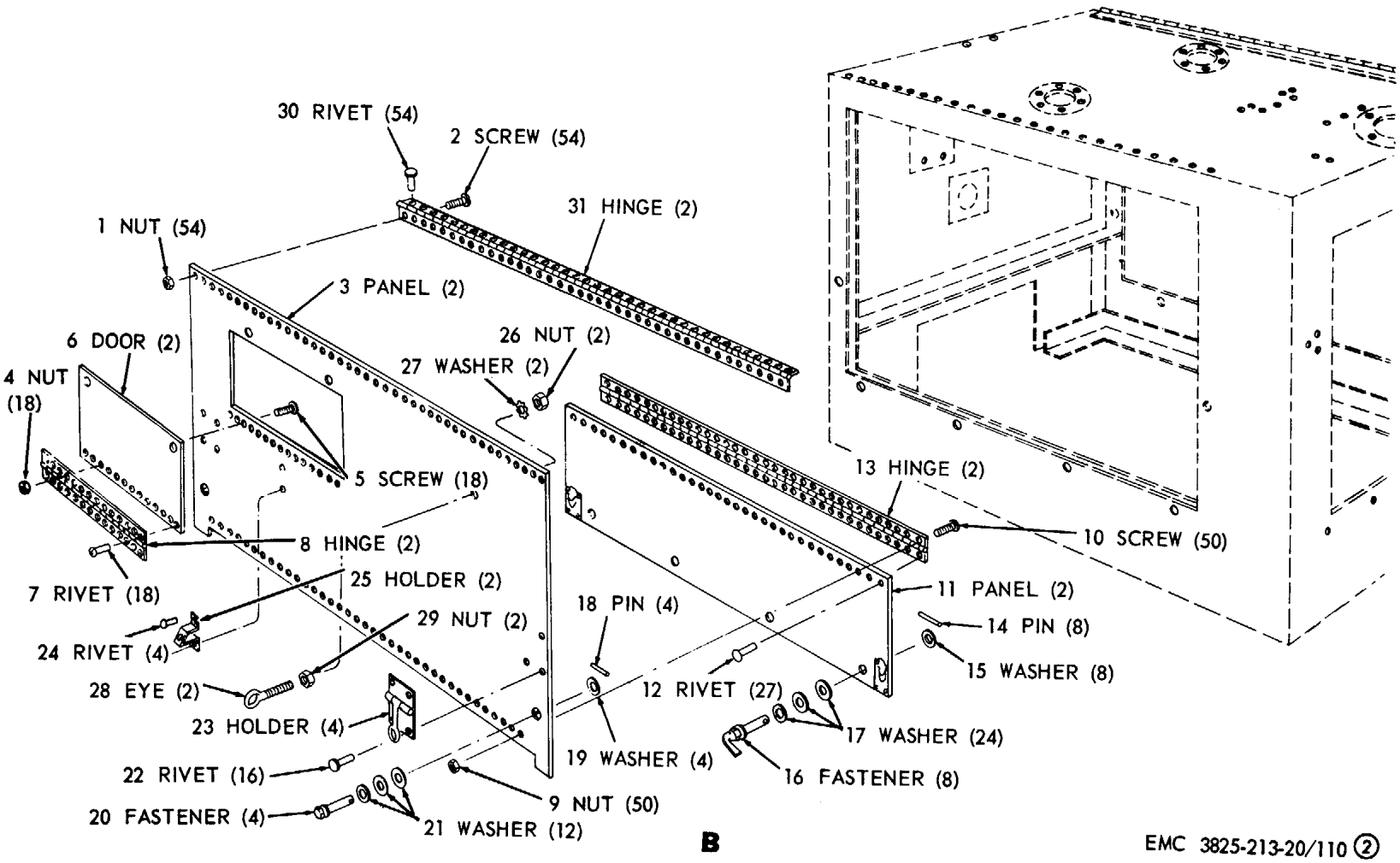
B. Lower hood removal points

Figure 109-Continued.



A. U-bolt, adapter, and attaching hardware, explode

Figure 110. Plow engine hood, disassembly and reassembly, exploded view.



B. Doors, explode

Figure 110-Continued.

Section X. CARRIER ENGINE HOOD, DOORS, PANELS, AND LIFTING EYES

194. General

The carrier engine hood is constructed of sheet metal and angle welds. The two doors on each side provide access for minor engine repairs. The steering and plow hydraulic reservoir are mounted at the rear inside of hood with an access door available for inspection and filling.

195. Carrier Engine Hood Assembly

a. Removal.

(1) Remove the muffler (par. 171).
(2) Remove the alternator regulator (par. 102).
(3) Remove the hydraulic reservoirs (pars. 57 and 234).
(4) Remove the shutter (par. 167).
(5) Remove carrier engine hood assembly as illustrated in figure 111.

b. Disassembly. Disassemble the carrier engine hood assembly as illustrated in figure 112.

c. Cleaning, Inspection, and Repair. Clean, inspect, replace, or repair defective parts as necessary.

d. Reassembly. Reassemble the carrier engine hood assembly as illustrated in figure 112.

e. Installation.

(1) Install the carrier engine hood assembly as illustrated in figure 111.
(2) Install the shutter (par. 167).
(3) Install the hydraulic reservoirs (pars. 57 and 234).
(4) Install the alternator regulator (par. 102).
(5) Install the muffler (par. 171).

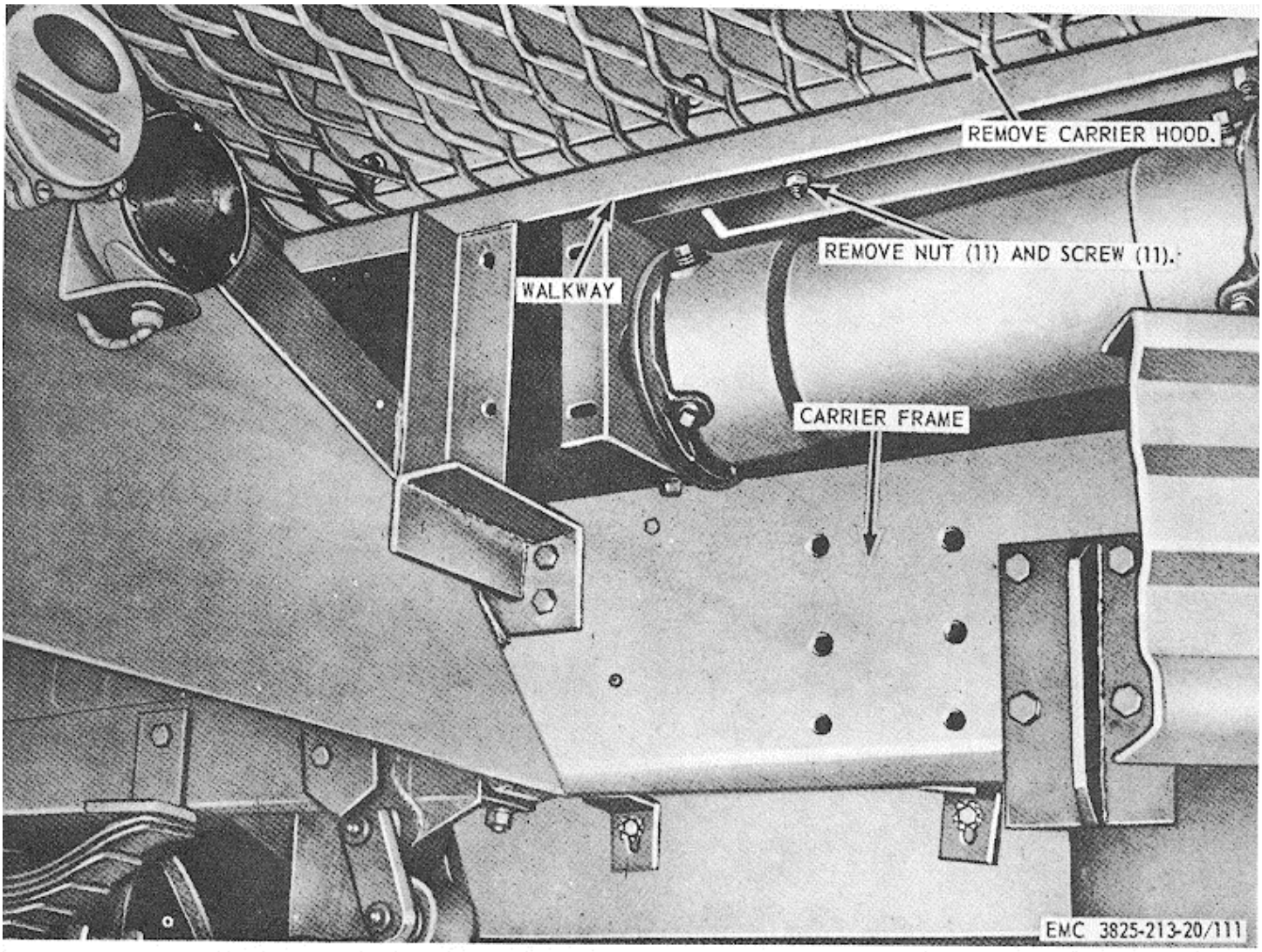
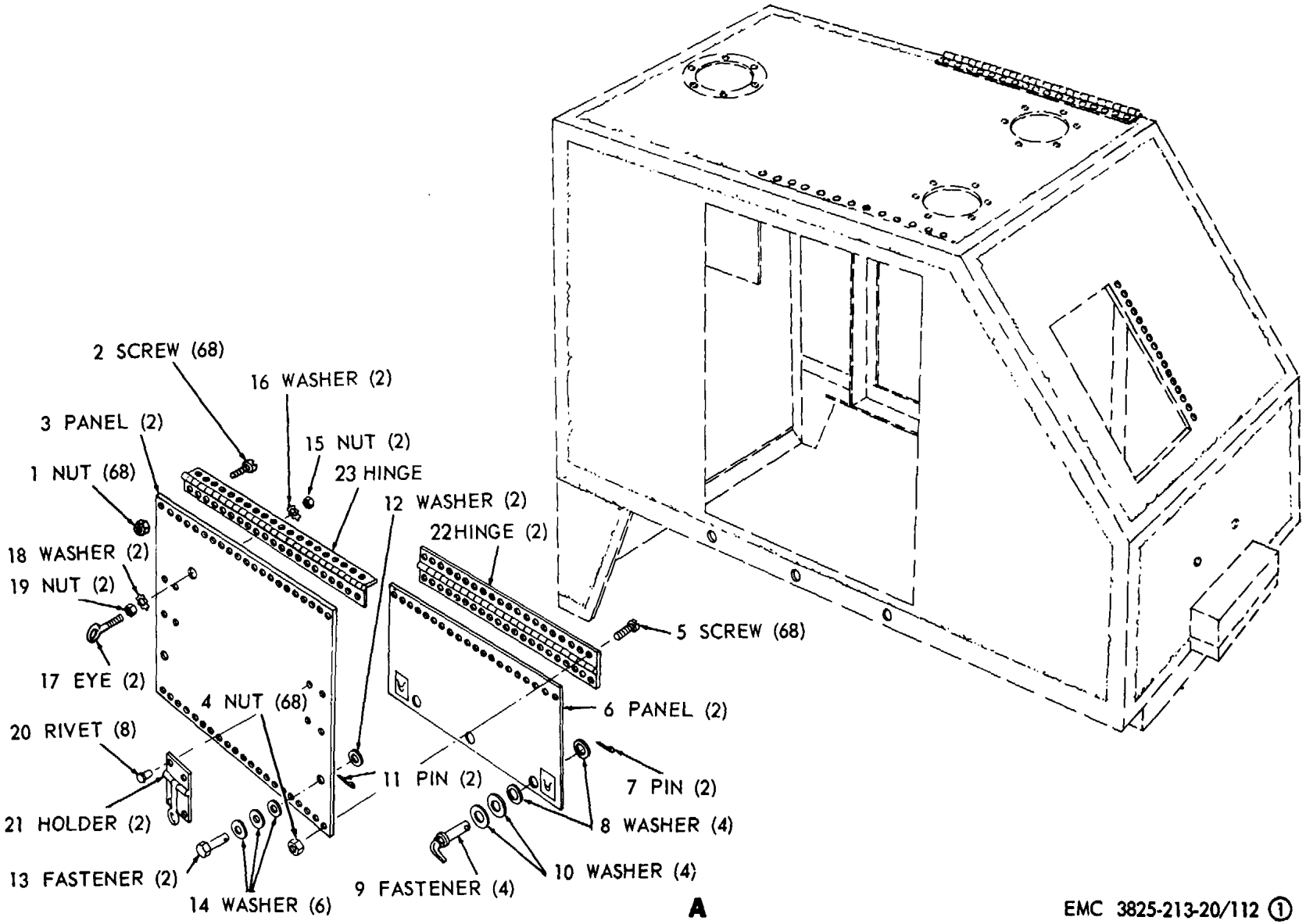
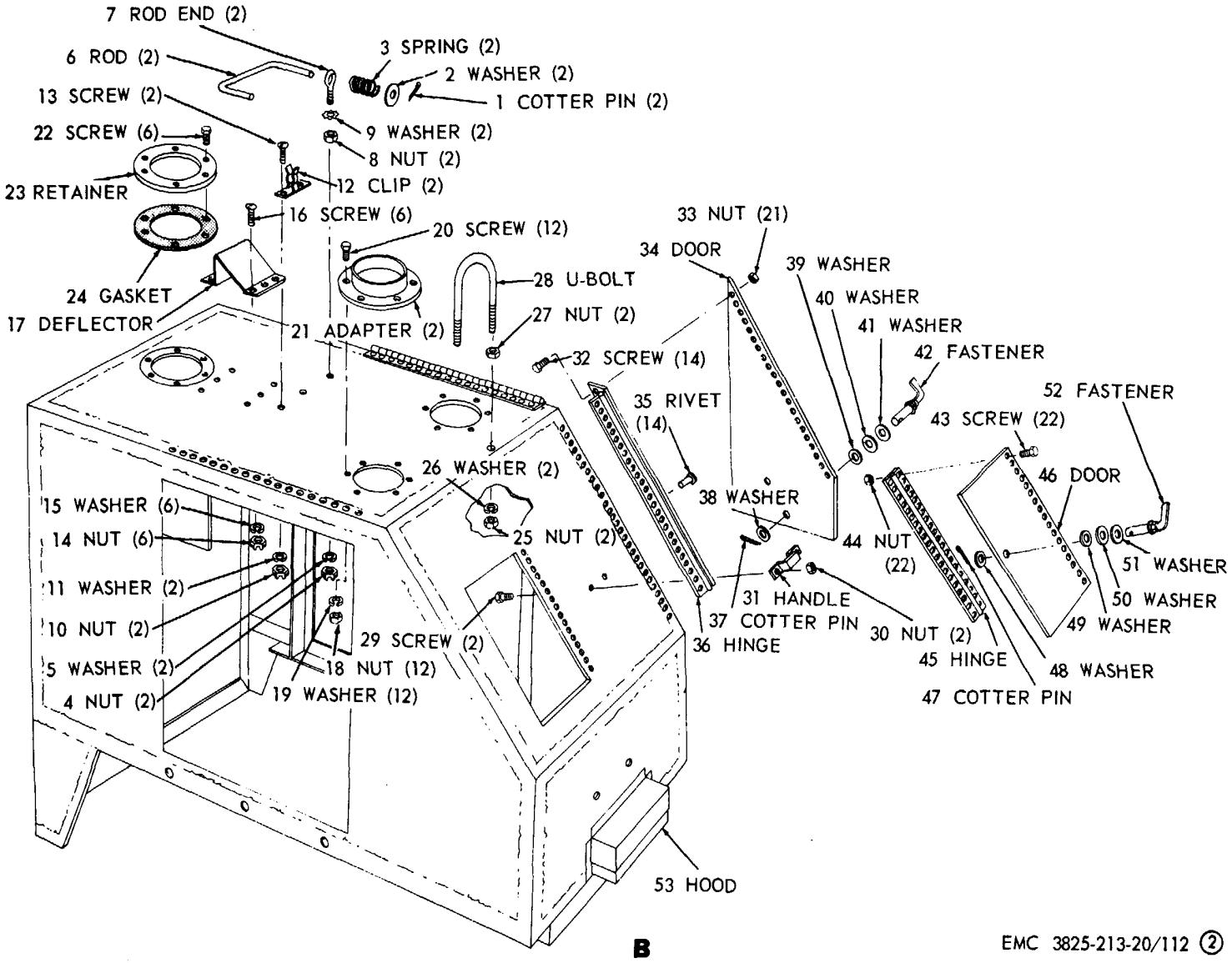


Figure 111. Carrier engine hood assembly, removal and installation.



A. Side doors, exploded view.

Figure 112. Carrier engine hood assembly, disassembly and reassembly, exploded view.



B. Rear door, adapter, and retainers, exploded view

Figure 112-Continued.

CHAPTER 6

CARRIER MAINTENANCE INSTRUCTIONS

Section I. CARRIER WHEELS AND TIRES

196. General

The carrier uses four 14:00 x 24 tires with conventional tubes and standard-type liners, mounted on steel spoke-type wheels with dismountable rims.

197. Wheel and Tire Assembly

a. Wheel Removal. Remove the wheel as instructed in figure 113.

b. Tires and Tubes. For tire and tube maintenance instructions refer to TM 9-1870-1.

c. Cleaning and Inspection. Clean and inspect. Replace defective wheels, tires, or tubes.

d. Wheel Installation. Install the wheel as illustrated in figure 113.

Note. **Remove, *service,* and install the remaining wheels in a similar manner.**

198. Spare Wheel and Rack Assembly

a. Removal. Remove the spare wheel and rack assembly as illustrated in figure 114.

b. Cleaning and Inspection. Clean and inspect. Replace defective parts.

c. Installation. Install the spare wheel and rack assembly as illustrated in figure 114.

199. Wheel Bearings

a. Removal. Remove the wheel bearings as illustrated in figure 115.

Note. Do not remove the bearing cups or seal from the hub to lubricate unless bearing and cup are damaged.

b. Cleaning, Inspection, and Repair. Clean, inspect, replace or repair defective parts as necessary.

c. Installation. Install the wheel bearings as illustrated in figure 115.

Note. **Replace the remaining wheel bearings in a similar manner.**

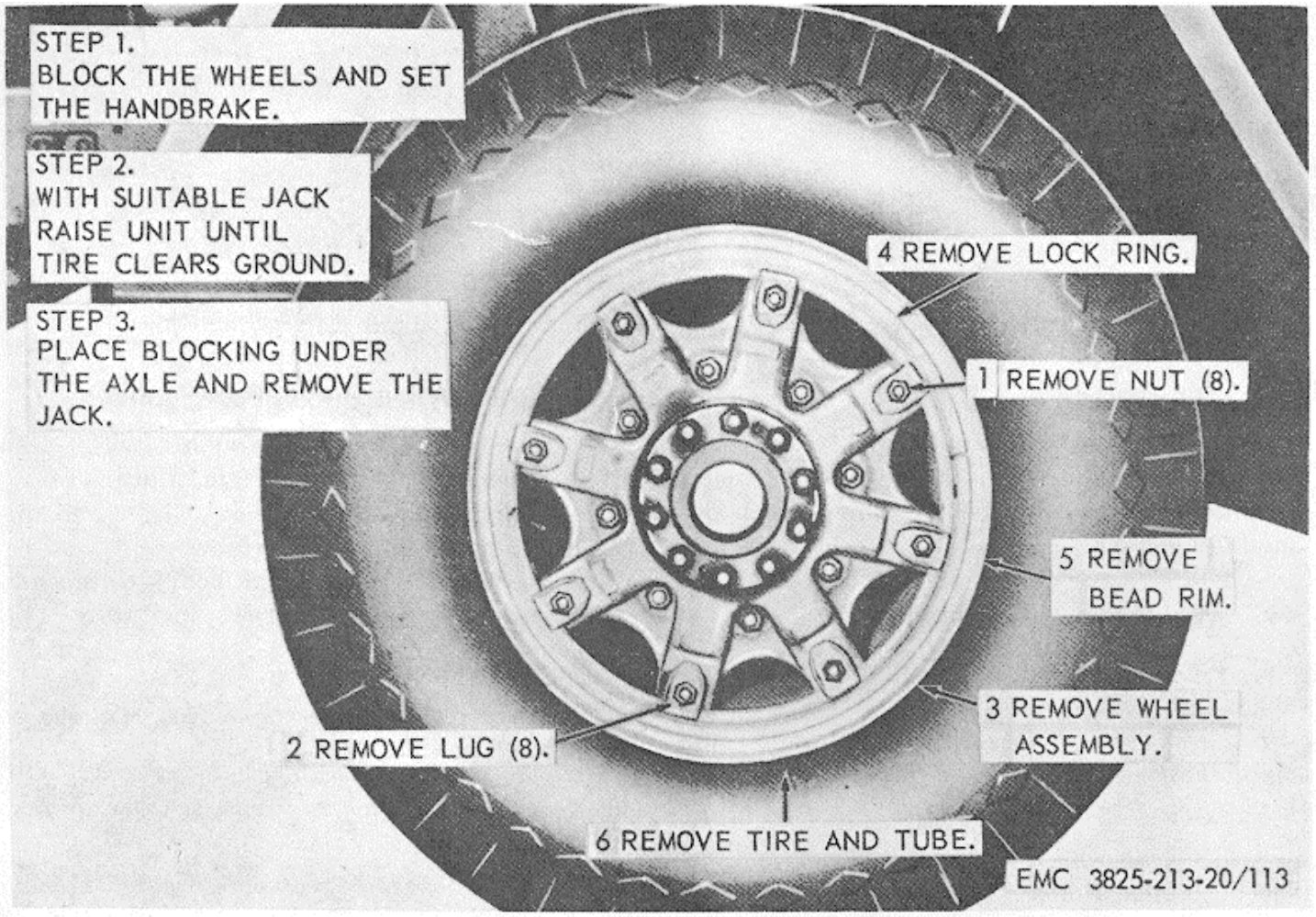
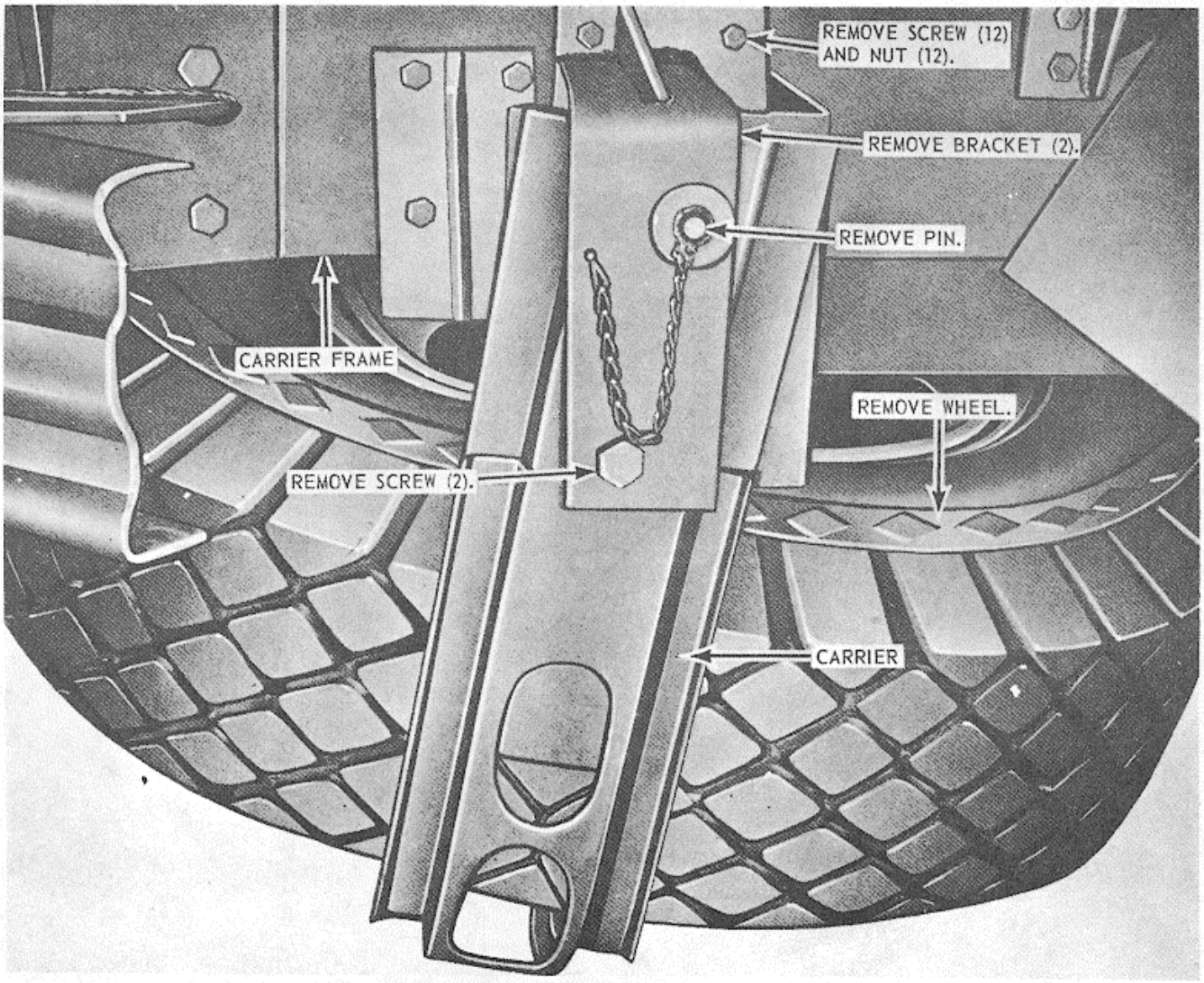
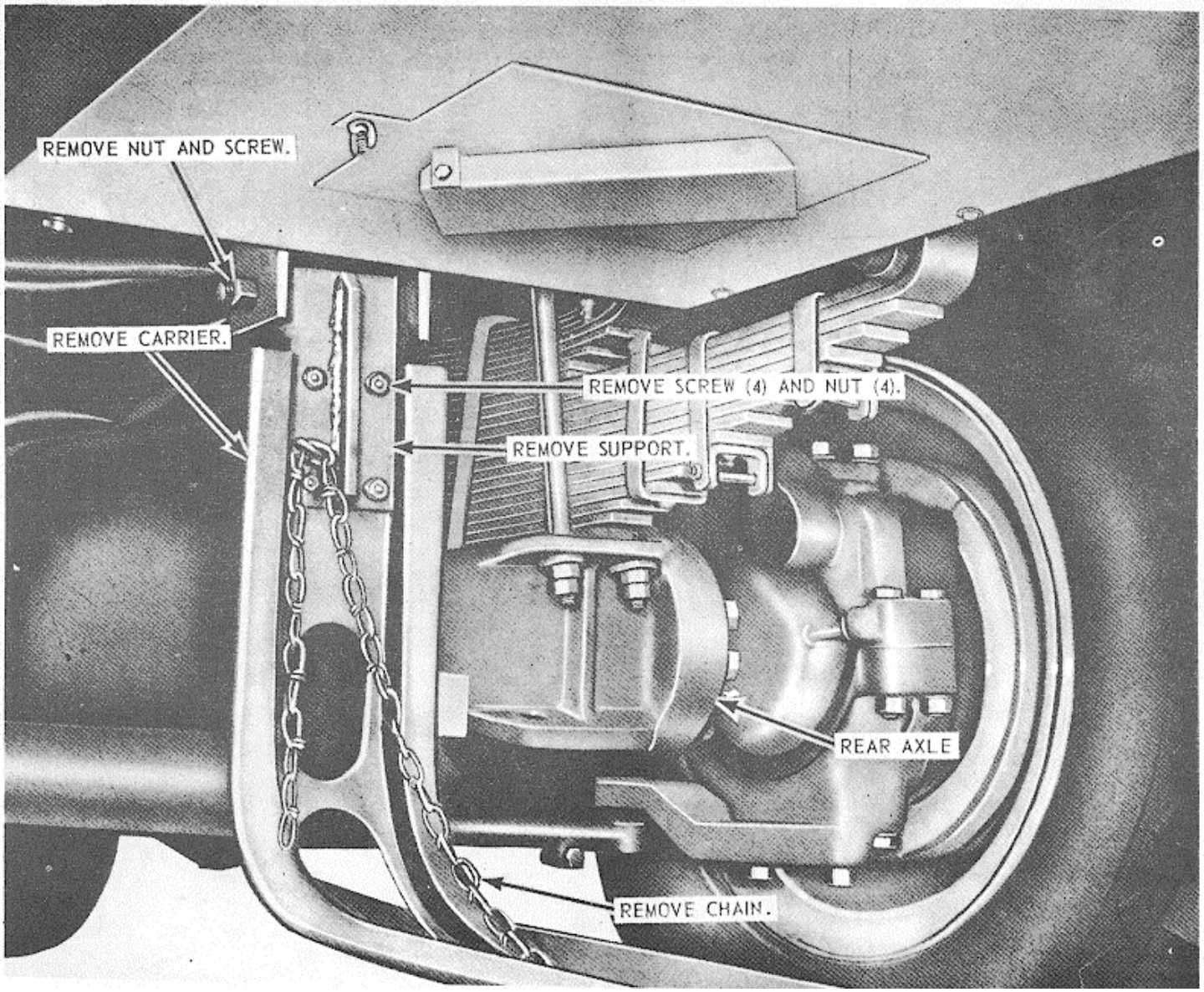


Figure 113. Wheel, removal and installation.



A. Spare wheel and bracket removal points

Figure 114. Spare wheel and rack assembly, removal and installation.



B EMC 3825-213-20/114 (2)

B. Bracket and support removal points

Figure 114-Continued.

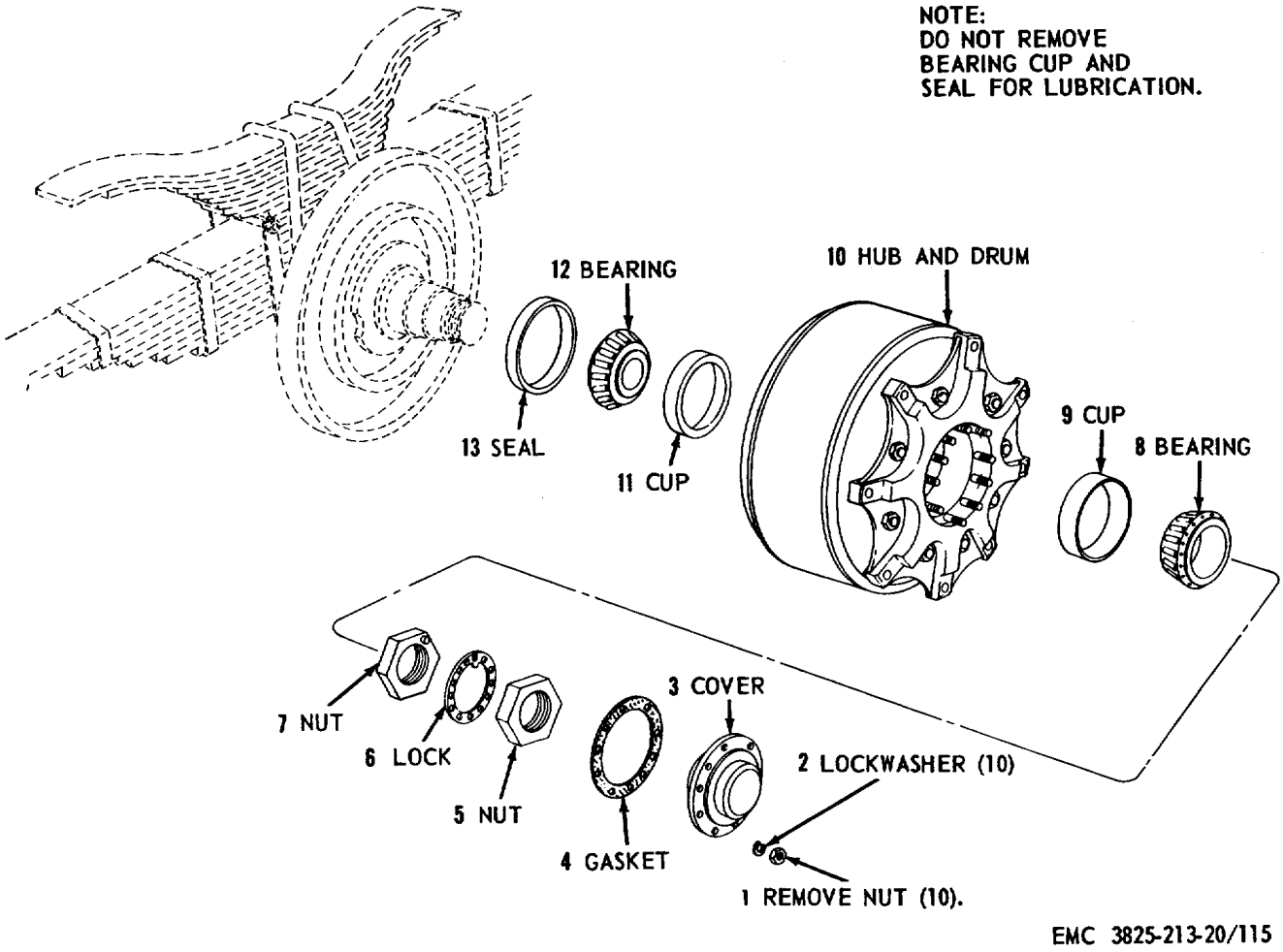


Figure 115. Carrier wheel bearings, removal and installation.

Section II. CARRIER AND SNOWPLOW CONTROLS

200. General

The carrier and snowplow controls are contained within the carrier cab. The plow controls are mounted to the left and forward of the operator's seat. The transmission shift lever and transfer shift lever are mounted directly to the left of the operator's seat.

201. Carrier Engine Accelerator Pedal

a. Removal. Remove the carrier engine accelerator pedal as illustrated in figure 116.

b. Disassembly. Disassemble the carrier engine accelerator pedal as illustrated in figure 117.

c. Cleaning and Inspection. Clean and inspect all parts. Replace a defective carrier engine accelerator pedal as necessary.

d. Reassembly. Reassemble the carrier engine accelerator pedal as illustrated in figure 117.

e. Installation. Install the carrier engine accelerator pedal as illustrated in figure 116.

202. Brake Treadle

a. Removal. Remove the brake treadle as illustrated in figure 116.

b. Disassembly. Disassemble the brake treadle as illustrated in figure 118.

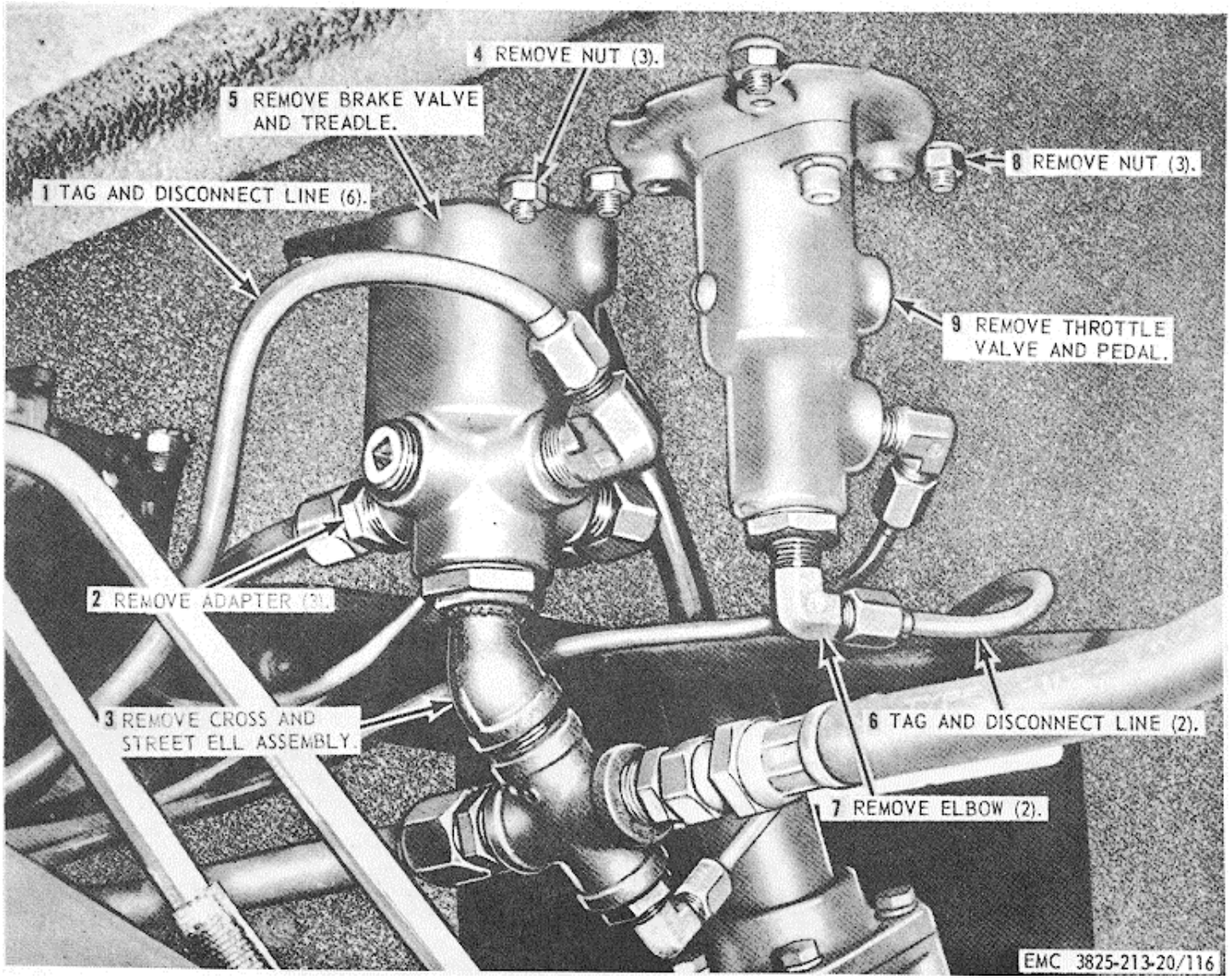


Figure 116. Accelerator pedal and brake treadle, removal and installation.

c. Cleaning and Inspection. Clean and inspect all parts. Replace a defective brake treadle as necessary.

d. Reassembly. Reassemble the brake treadle as illustrated in figure 118.

e. Installation. Install the brake treadle assembly as illustrated in figure 116.

203. Power Transfer Selector Lever Knob and Boot

a. Removal. Remove the power transfer selector knob and boot as, illustrated in figure 119.

Note. **Remove the remaining knobs and boots in a similar manner.**

b. Cleaning and Inspection. Clean and inspect all parts. Replace a damaged knob or boot as necessary.

c. Installation. Install the power transfer selector lever knob and boot as illustrated in figure 119.

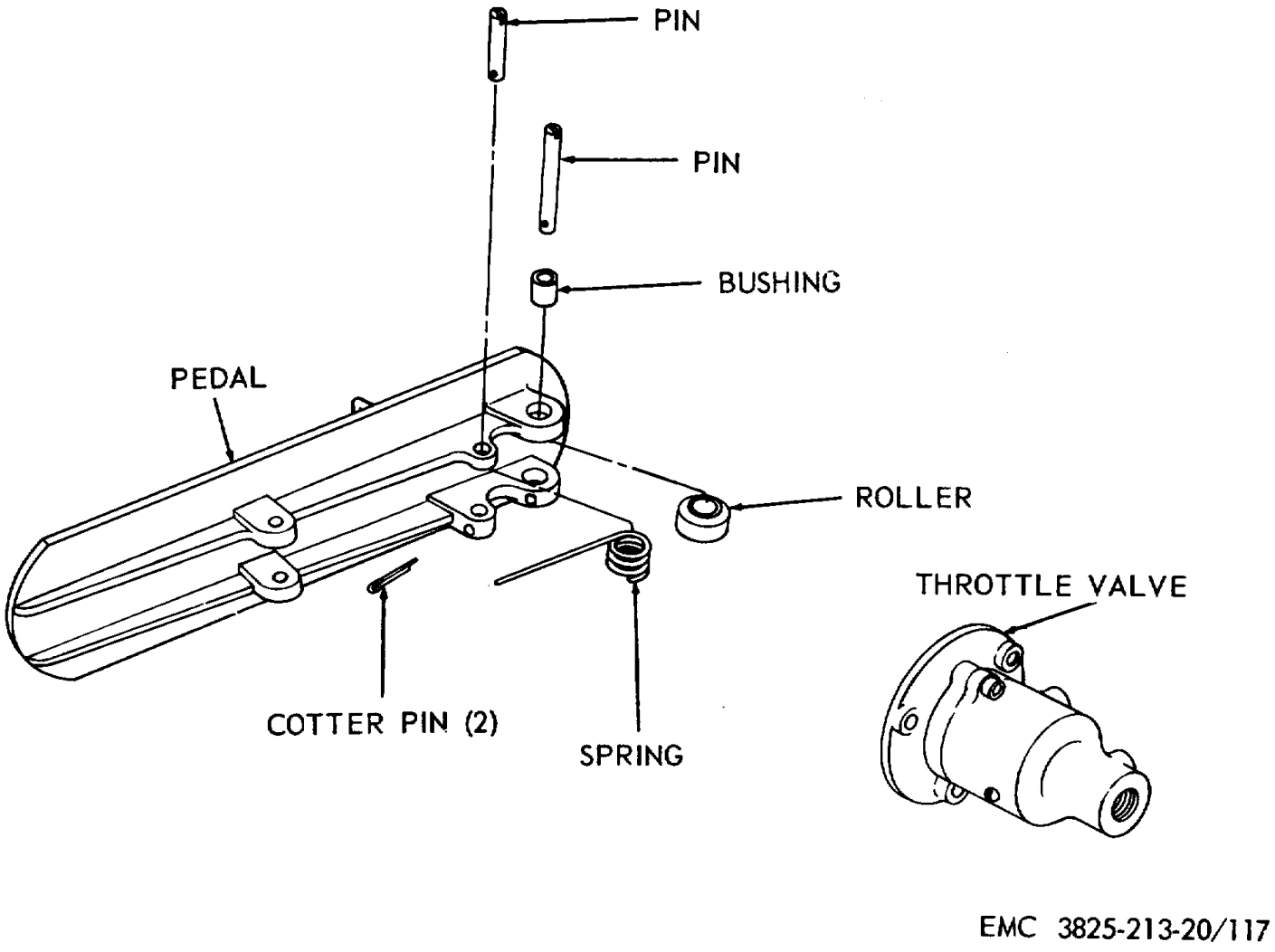


Figure 117. Accelerator pedal, partially exploded view.

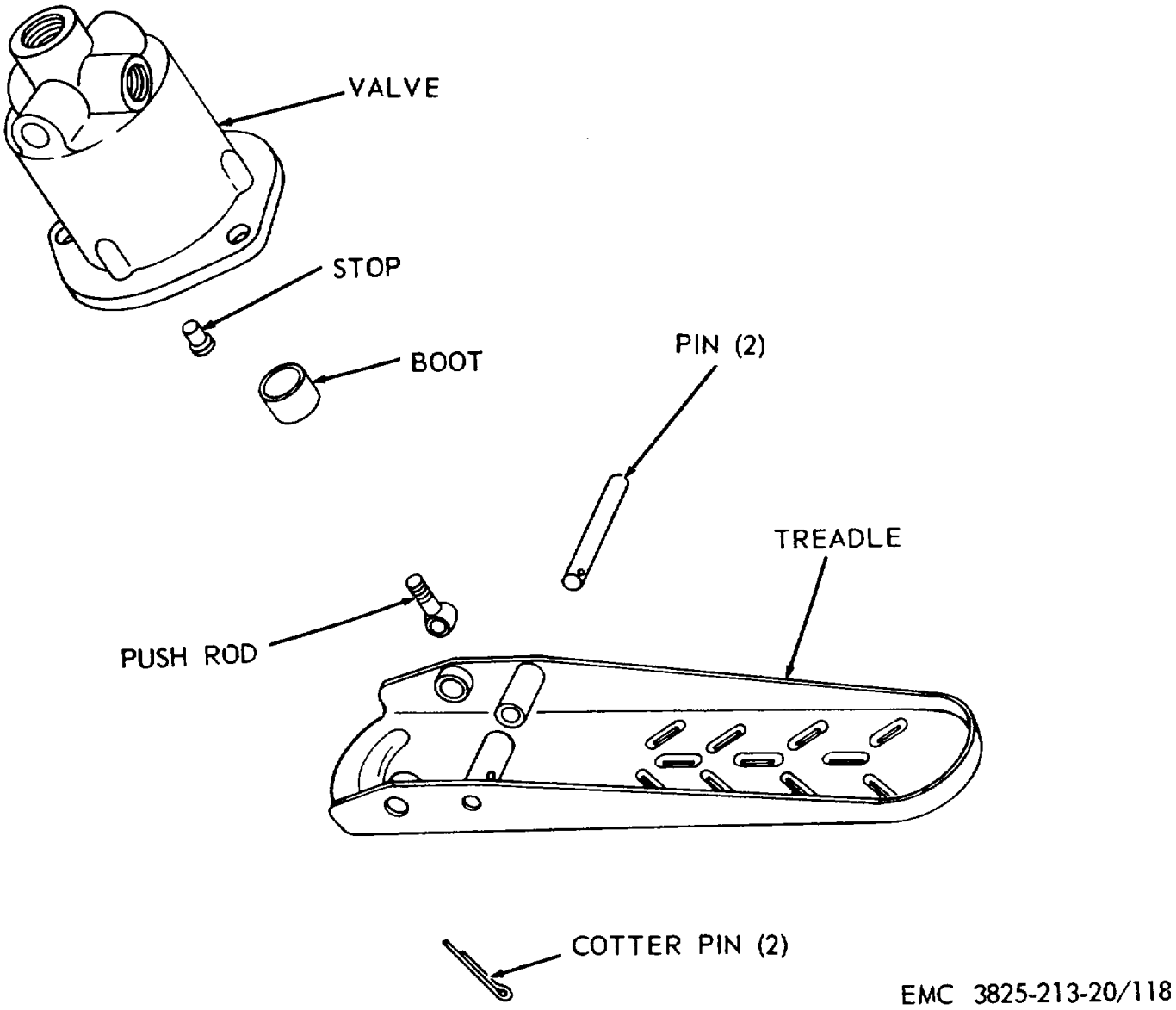


Figure 118. Brake treadle, partially exploded view.

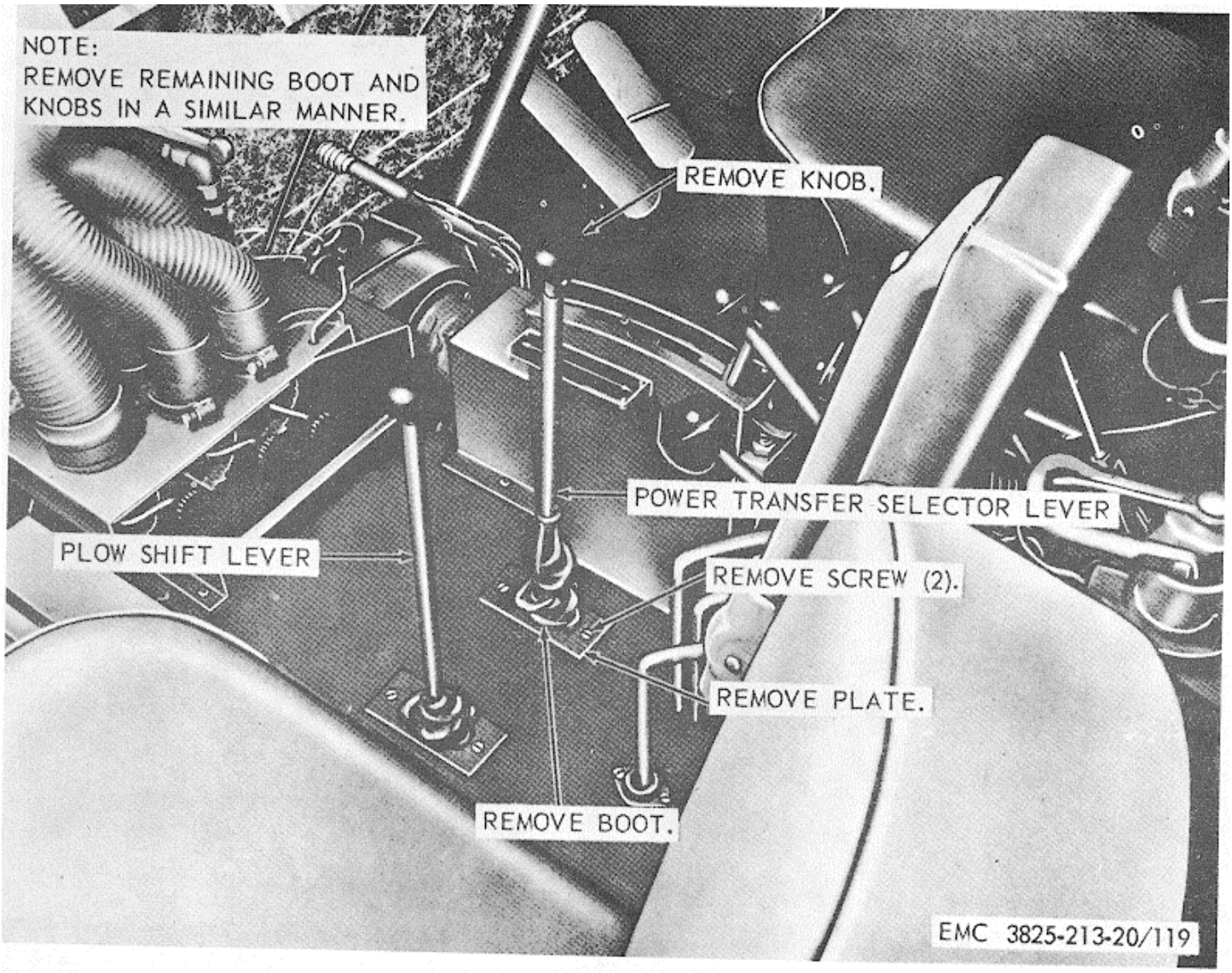


Figure 119. Power transfer selector lever knob and boot, removal and installation.

Section III. CARRIER BRAKE SYSTEM

204. General

The service brake system of the carrier is a full air-type system. The system is directly controlled by a foot operated treadle valve which releases air into an air manifold which delivers air to the diaphragms at each of the four wheels. Brakes are released by quick release valves. The handbrake is a mechanically operated drum-and-band type, mounted on the front of the power transfer case, and acts directly on the rotation of the front drive shaft.

205. Handbrake Cable and Bracket

a. Removal. Remove the handbrake cable and bracket as illustrated in figure 120.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective cable as necessary.

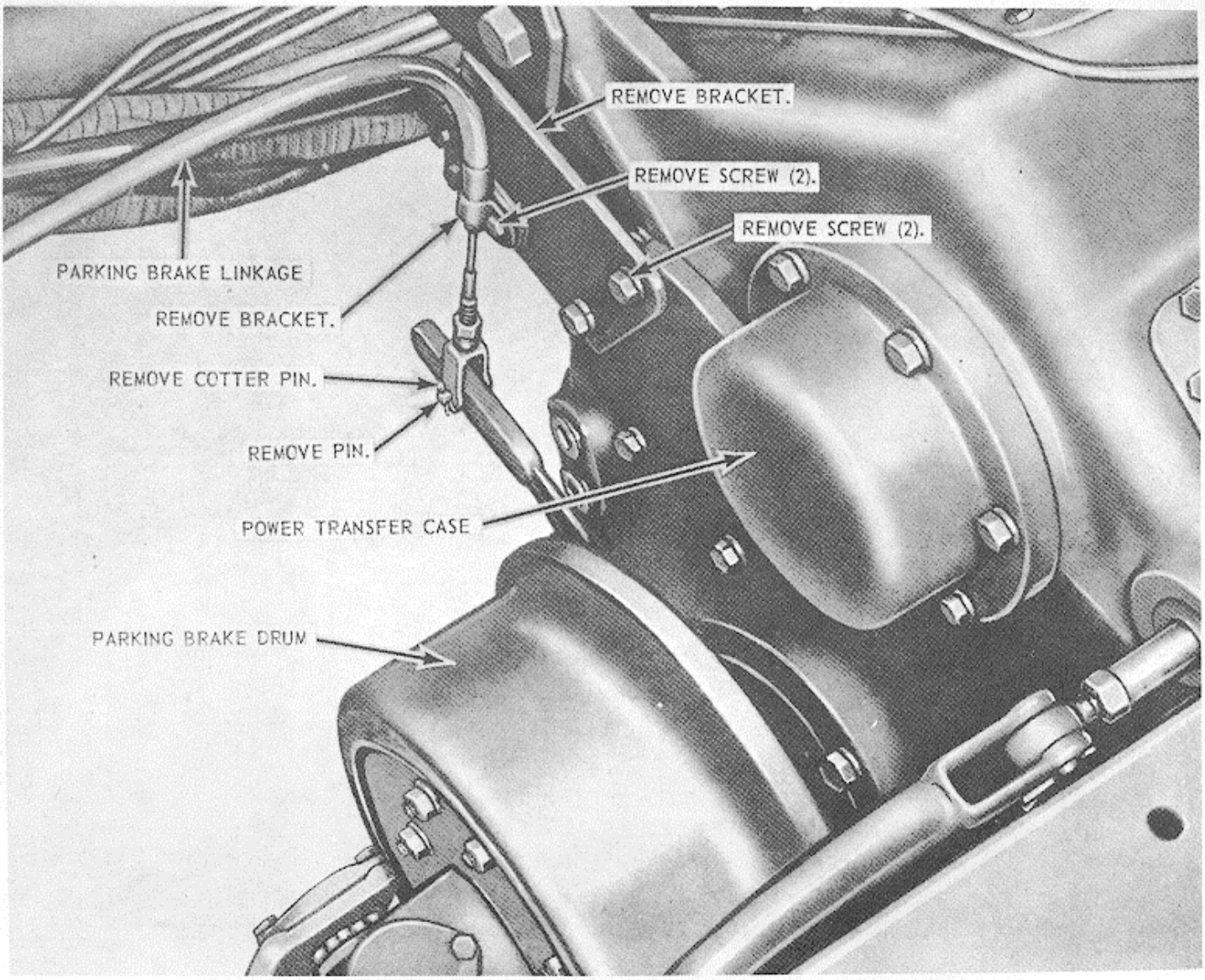
c. Installation.

(1) Install the handbrake cable and bracket as illustrated in figure 120.

(2) Adjust the handbrake (TM 5-3825-213-10).

206. Service Brake Adjustment

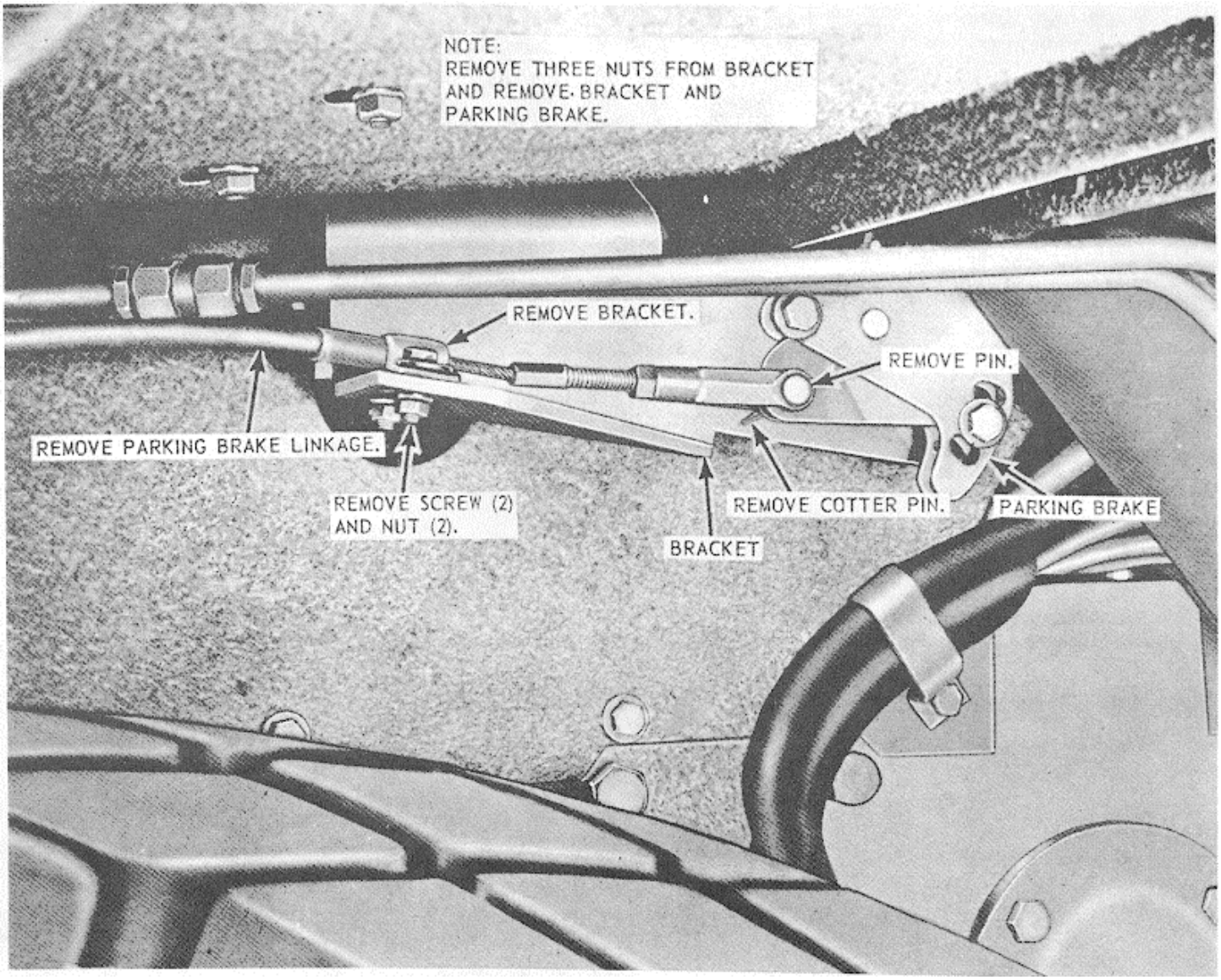
Adjust the service brakes as illustrated in figure 121.



A EMC 3825-213-20/120 (1)

A. Removal from drum end

Figure 120. Handbrake cable and bracket, removal and installation.



B EMC 3825-213-20/120 (2)

B. Removal from parking brake

Figure 120-Continued.

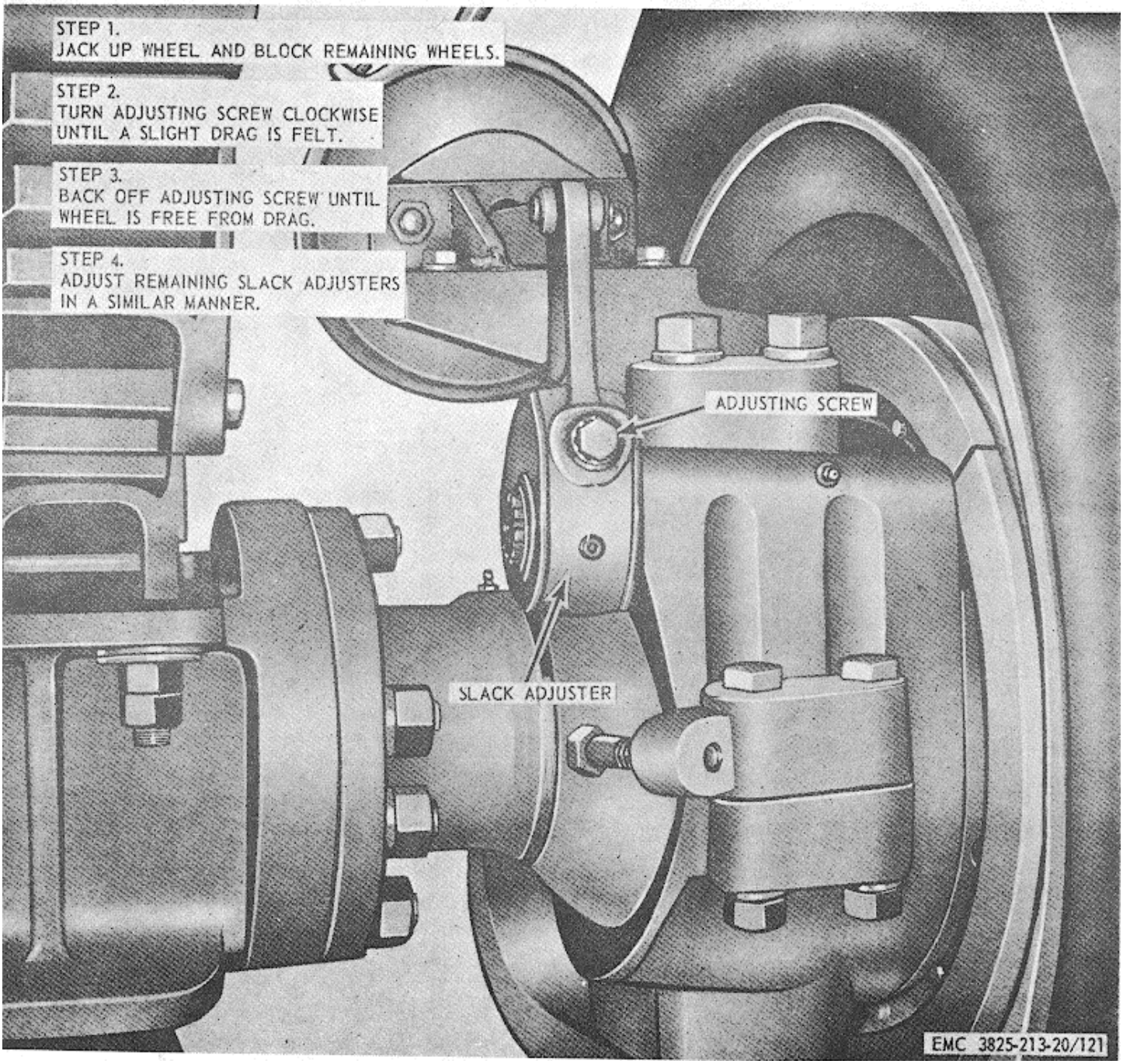


Figure 121. Carrier service brake adjustment.

Section IV. DRIVE SHAFT ASSEMBLIES

207. General

The carrier has two propelling drive shaft assemblies. These connect the front and rear axles to the differential of the carrier power transfer. Each propeller shaft is equipped with a universal joint at each end and a slip joint. The universal joints allow power to be transferred between components of the power train that cannot be mounted in direct alinement.

208. Carrier Front Differential Drive Shaft Assembly

a. Removal. Remove the carrier front drive shaft assembly as illustrated in figure 122.

Caution: **Before removing universals be sure to match mark, so the yokes and drive shaft ends will be parallel at each end when installing.**

b. Disassembly. Disasssemble the carrier front drive shaft assembly as illustrated in figure 123.

c. Cleaning, Inspection, and Repair. Clean and inspect all parts. Replace or repair a defective drive shaft as necessary.

d. Reassembly. Reassemble the carrier front drive shaft assembly as illustrated in figure 123.

e. Installation. Install the carrier front drive shaft assembly as illustrated in figure 122.

209. Carrier Rear Differential Drive Shaft Assembly

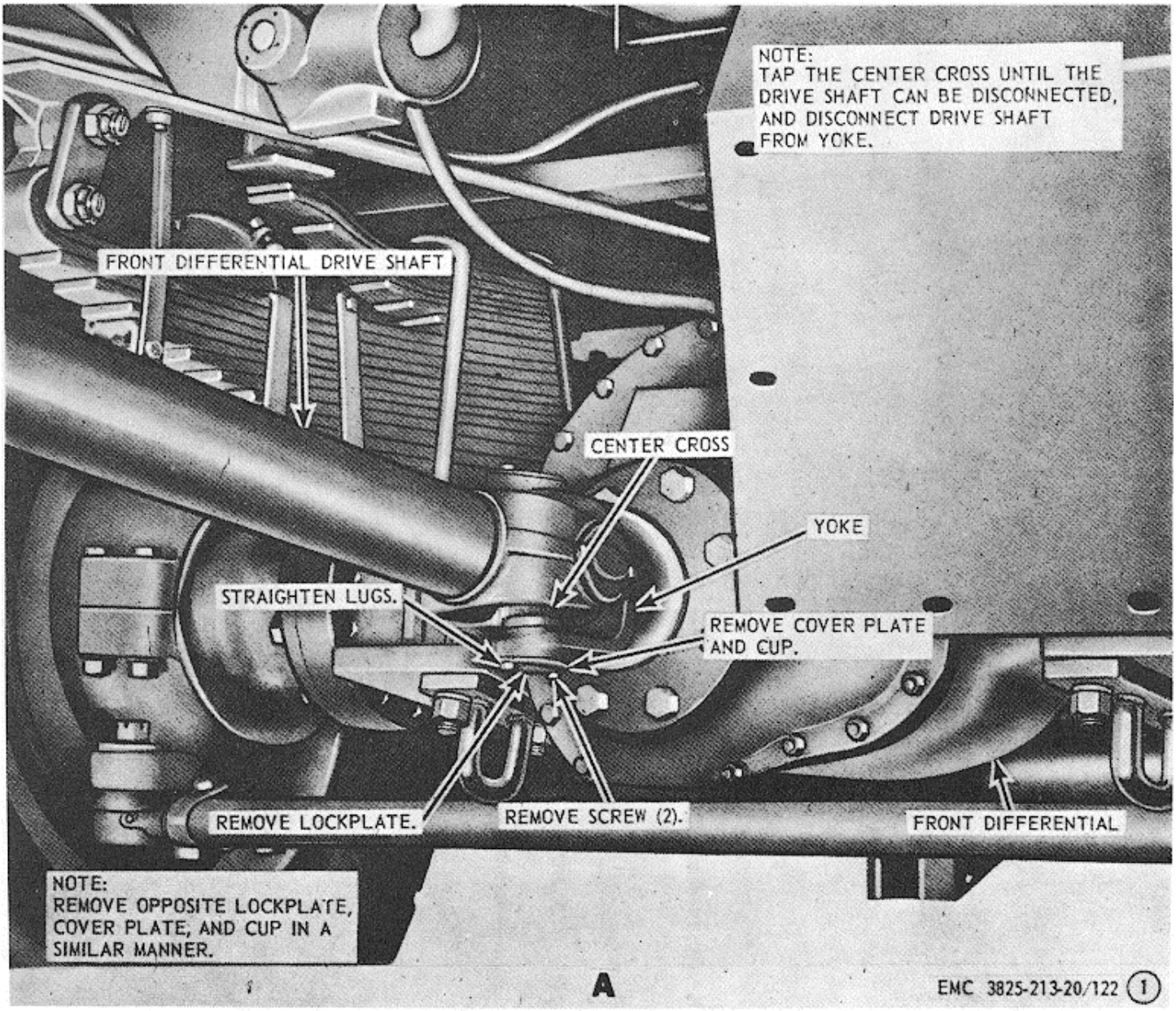
a. Removal. Remove the carrier rear drive shaft assembly as instructed in paragraph 208.

b. Disassembly. Disassemble the rear drive shaft assembly as instructed in paragraph 208.

c. Cleaning, Inspection, and Repair. Clean and inspect all parts. Replace or repair a defective rear drive shaft assembly as necessary.

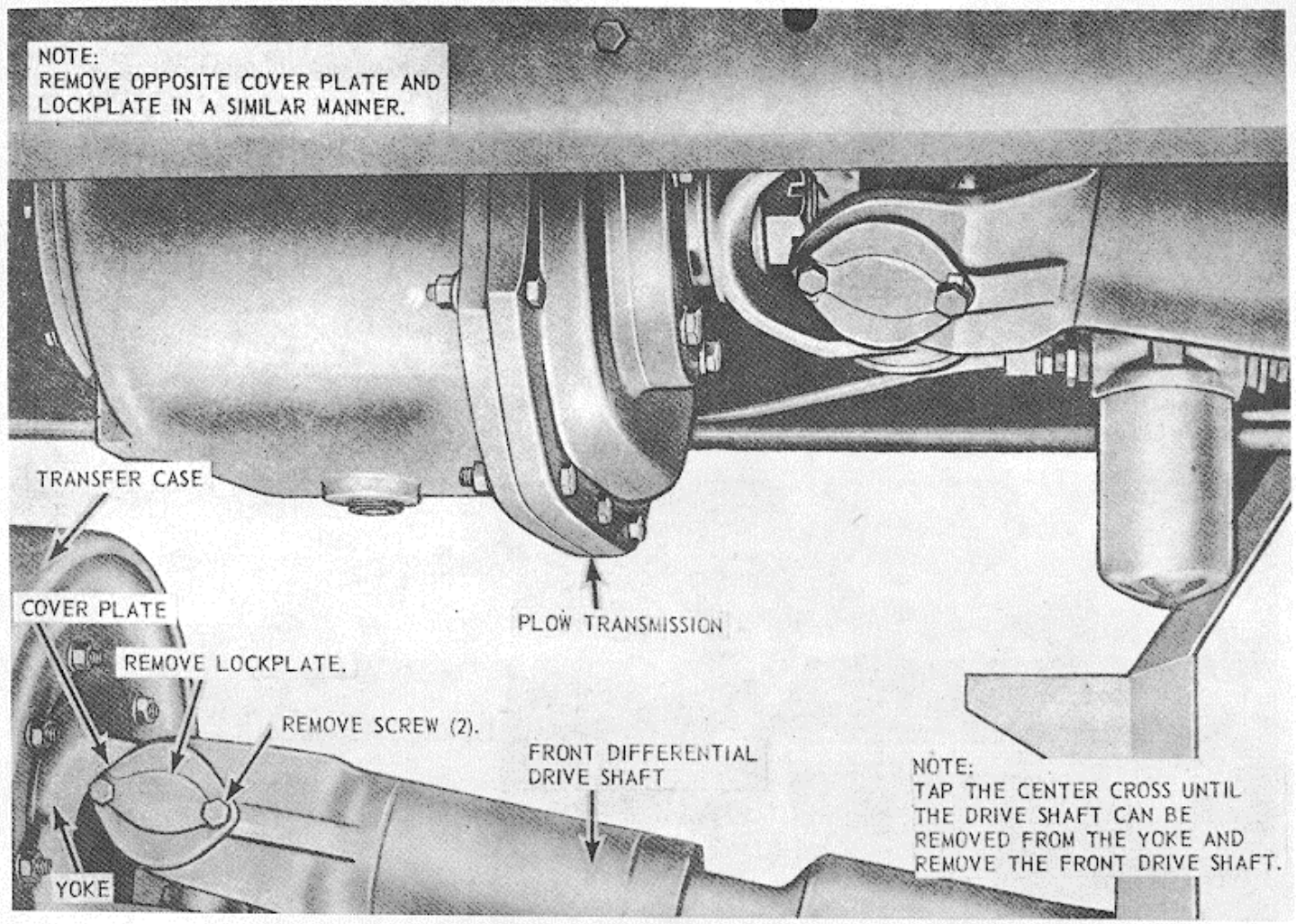
d. Reassembly. Reassemble the rear drive shaft assembly as instructed in paragraph 208.

e. Installation. Install the rear drive shaft as instructed in paragraph 208.



A. Removal from front differential

Figure 122. Carrier front differential drive shaft assembly, removal and installation.



B EMC 3825-213-20/122 (2)

B. Removal from transfer case

Figure 122-Continued.

210. Transfer Case Inspection Covers

a. Removal. Remove the transfer case inspection covers as illustrated in figure 124.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a damaged inspection cover.

c. *Installation.* Install the transfer case inspection covers as illustrated in figure 124.

NOTE:
DISASSEMBLE THE REAR DIFFERENTIAL DRIVE SHAFT IN A SIMILAR MANNER.

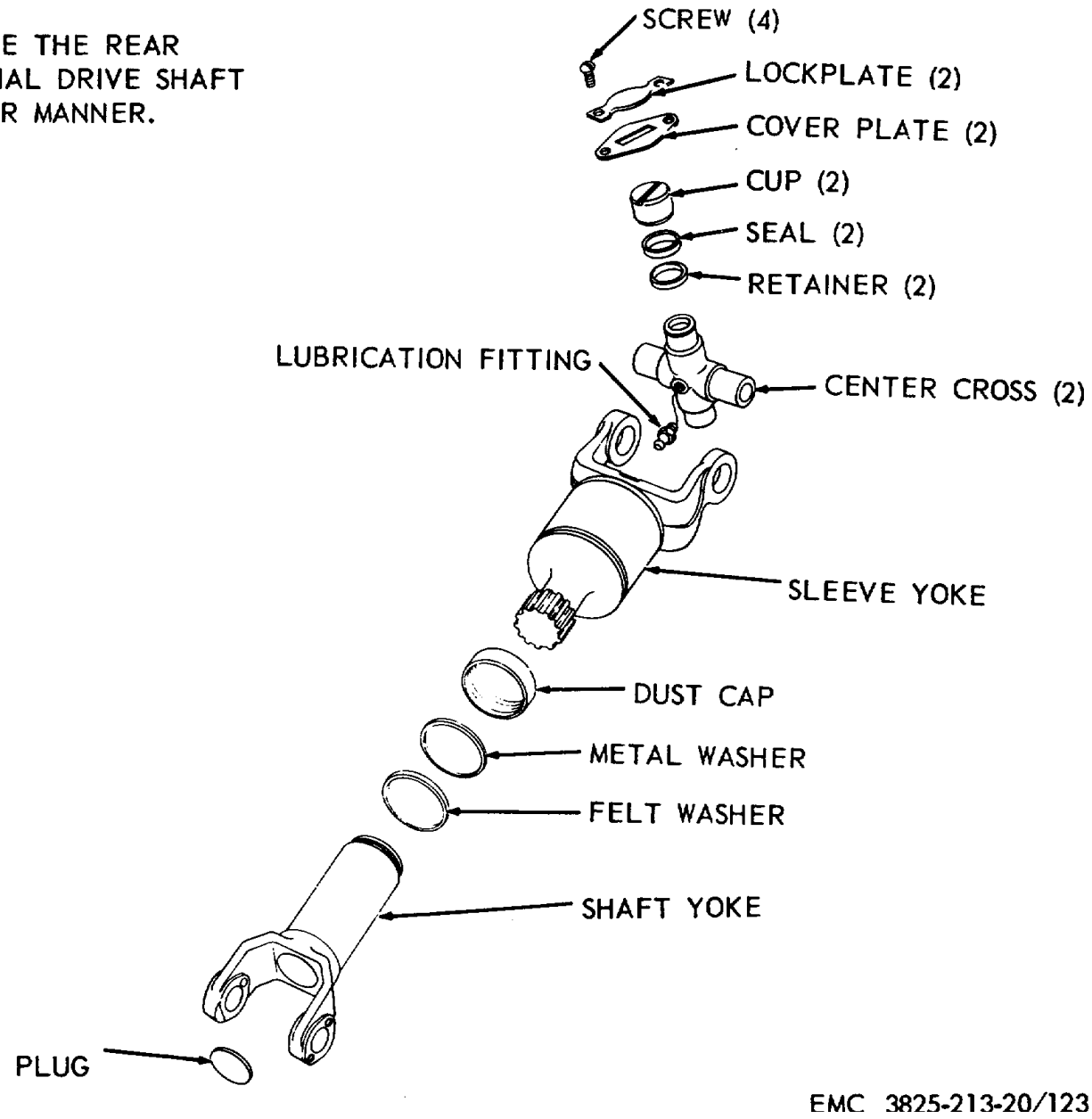


Figure 123. Carrier front differential drive shaft assembly, disassembly and reassembly, exploded view.

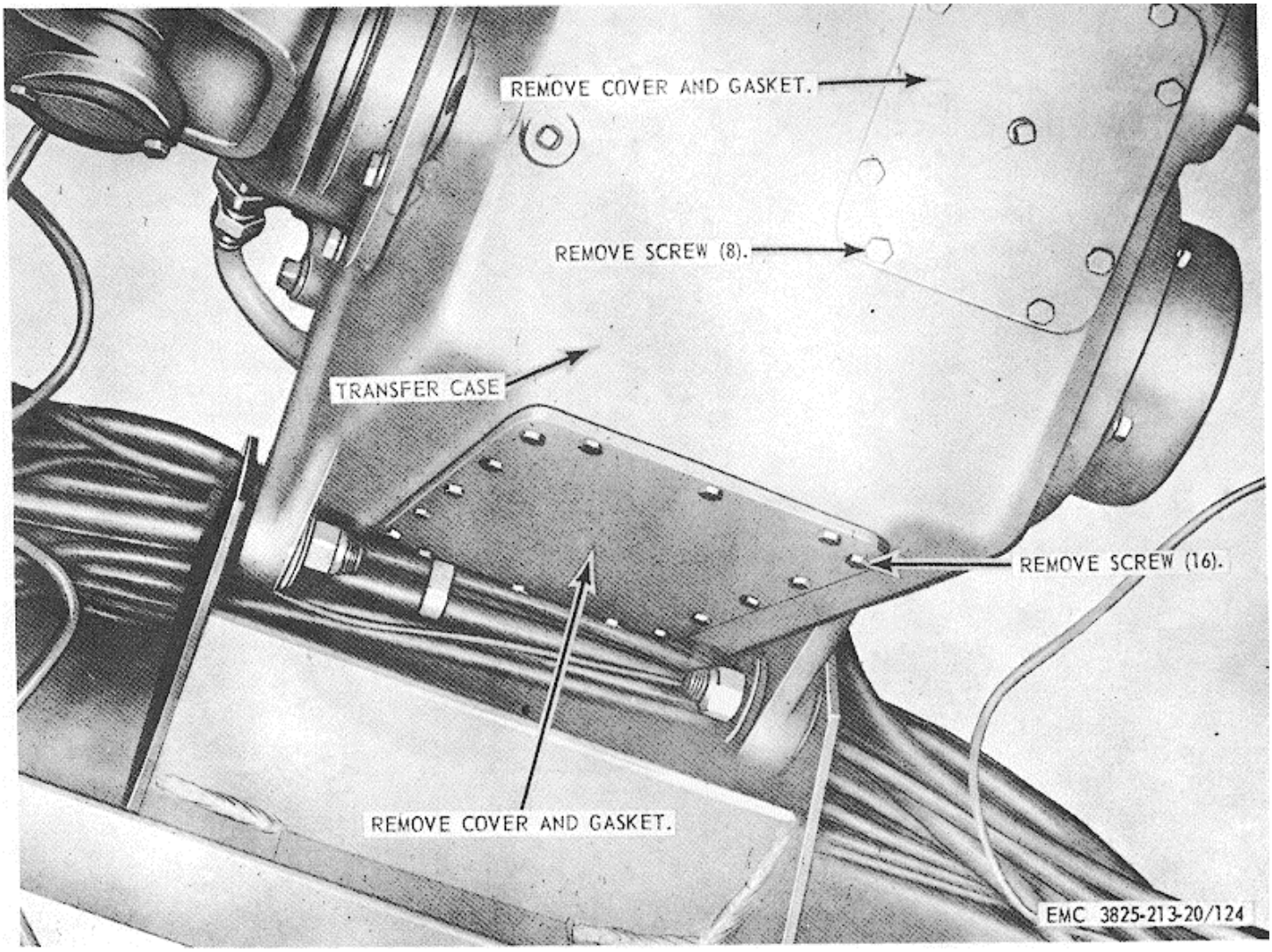


Figure 124. Transfer case inspection covers, removal and installation.

Section V. CARRIER AIR SYSTEM

211. General

The air system (fig. 125) includes the compressor, which is driven by the carrier engine, the air receiver tanks, and the lines and hose which connect the compressor, tanks, and all other air-operated components of the snow removal unit.

212. Alcohol Injector Assembly

a. Removal. Remove the alcohol injector assembly as illustrated in figure 126.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective alcohol injector assembly.

c. Installation. Install the alcohol injector assembly as illustrated in figure 126.

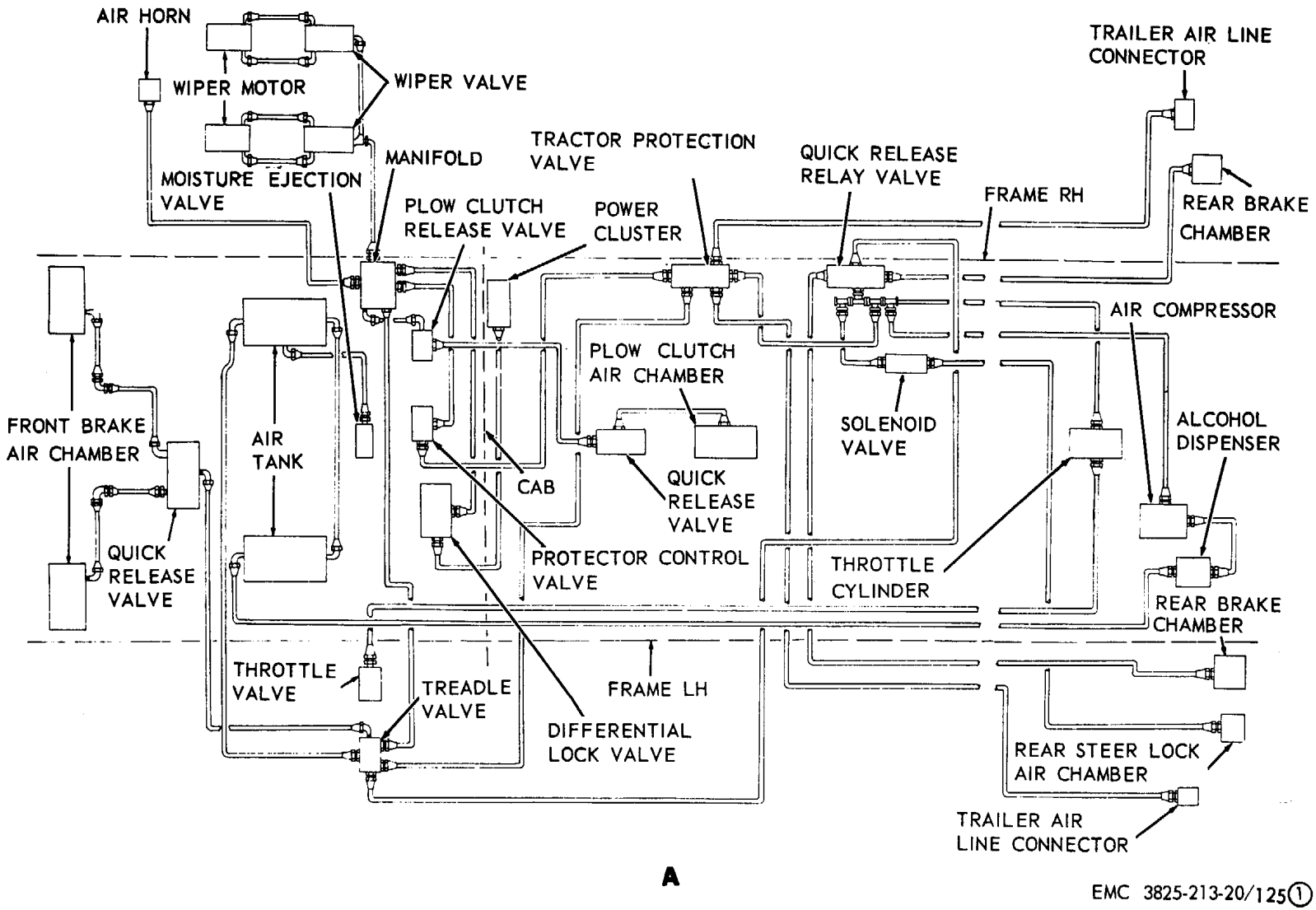
213. Air Compressor Unloader Valve

a. Removal. Remove the unloader valve as illustrated in figure 127.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective unloader valve and spring as necessary.

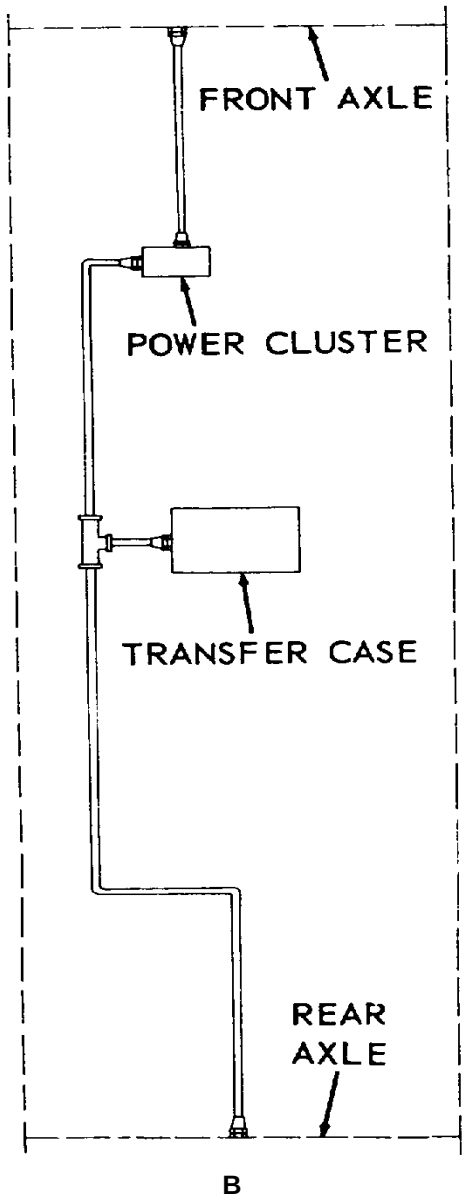
c. Installation. Install the unloader valve as illustrated in figure 127.

d. Adjustment. Adjust the unloader valve as illustrated in figure 127.



A. Air system practical diagram

Figure 125. Air system and differential hydraulic lockout practical diagram.



EMC 3825-213-20/125 (2)

B. Differential hydraulic lockout practical diagram

Figure 125-Continued.

214. Air Reservoirs

a. Removal. Remove the air reservoir as illustrated in figure 128.

b. Disassembly. Disassemble the air reservoirs as illustrated in figure 129.

c. Cleaning, Inspection, and Repair. Clean, inspect, replace, or repair defective parts as necessary.

d. Reassembly. Reassemble the air reservoir as illustrated in figure 129.

e. Installation. Install the air reservoirs as illustrated in figure 128.

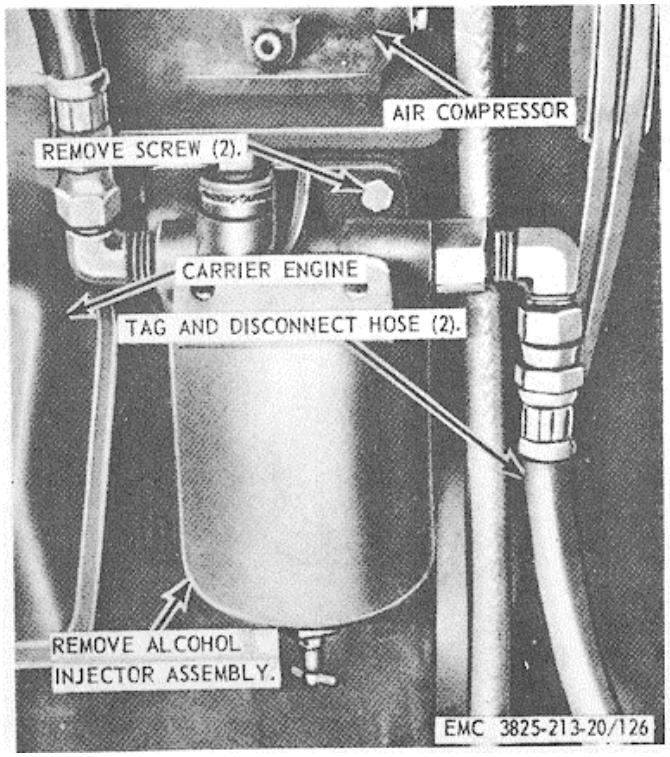


Figure 126. Alcohol injector assembly, removal and installation.

215. Air Manifold Assembly

a. Removal. Remove the air manifold assembly as illustrated in figure 73.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective air manifold as necessary.

c. Installation. Install the air manifold assembly as illustrated in figure 73.

216. Moisture Ejector Valve Assembly

a. Removal. Remove the moisture ejector valve assembly as illustrated in figure 130.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective moisture ejector valve as necessary.

c. Installation. Install the moisture ejector valve assembly as illustrated in figure 130.

217. Throttle Cylinder Assembly

a. Removal. Remove the throttle cylinder assembly as illustrated in figure 131.

b. Cleaning and Inspection. Clean and inspect. Replace a defective throttle cylinder assembly as necessary.

c. Installation. Install the throttle cylinder assembly as illustrated in figure 131.

218. Throttle Valve Assembly

a. Removal.

(1) Remove the throttle valve air lines as illustrated in figure 125.

(2) Remove the throttle valve assembly as illustrated in figure 116.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective throttle valve as necessary.

c. Installation.

(1) Install the throttle valve assembly as illustrated in figure 116.

(2) Install the throttle valve air lines as illustrated in figure 125.

219. Rear Steering Lock Solenoid Valve

a. Removal. Remove the rear steering lock solenoid valve assembly as illustrated in figure 73.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective rear steering lock solenoid valve as necessary.

c. Installation. Install the rear steering lock solenoid valve assembly as illustrated in figure 73.

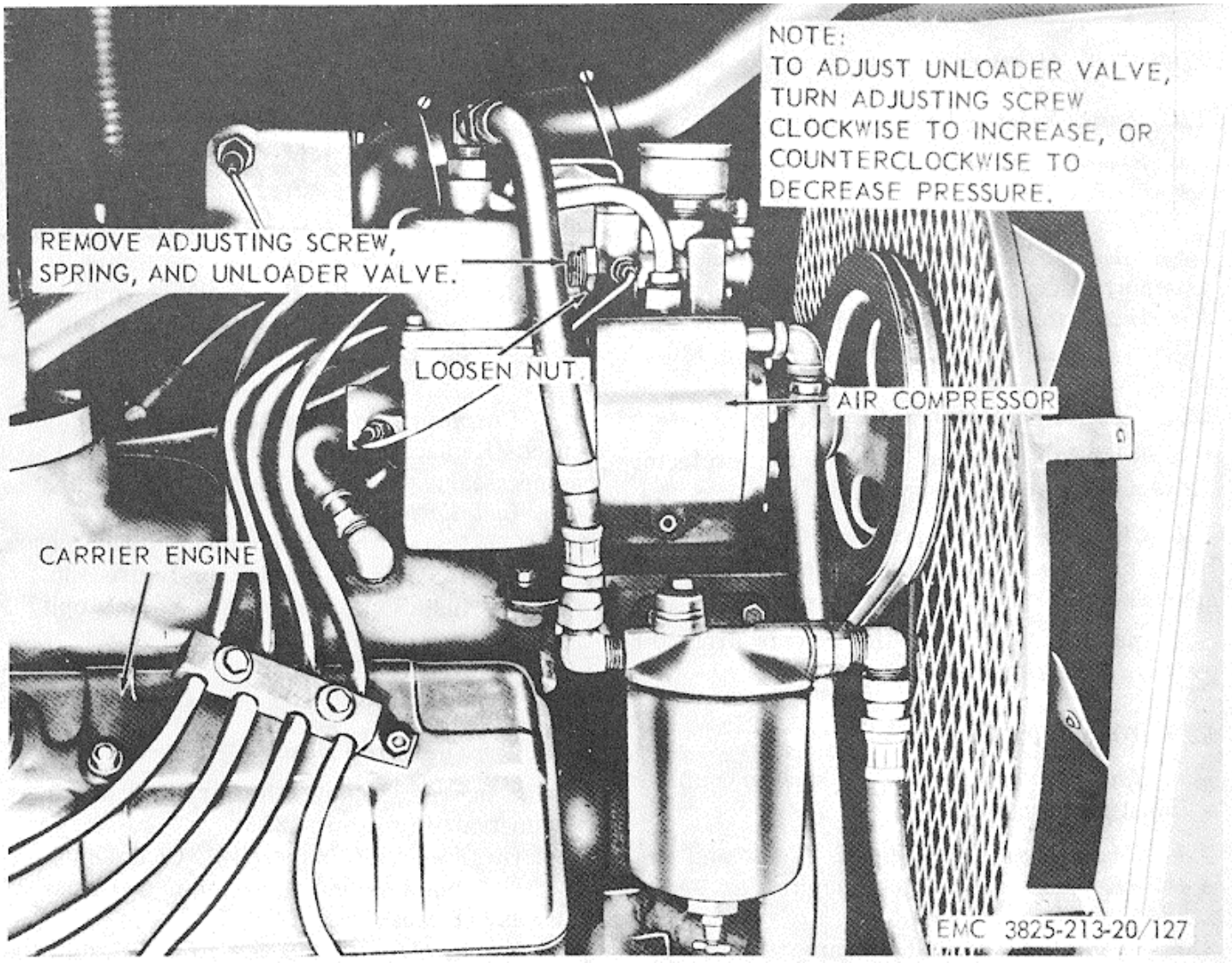


Figure 127. Air compressor unloader valve, removal, installation, and adjustment.

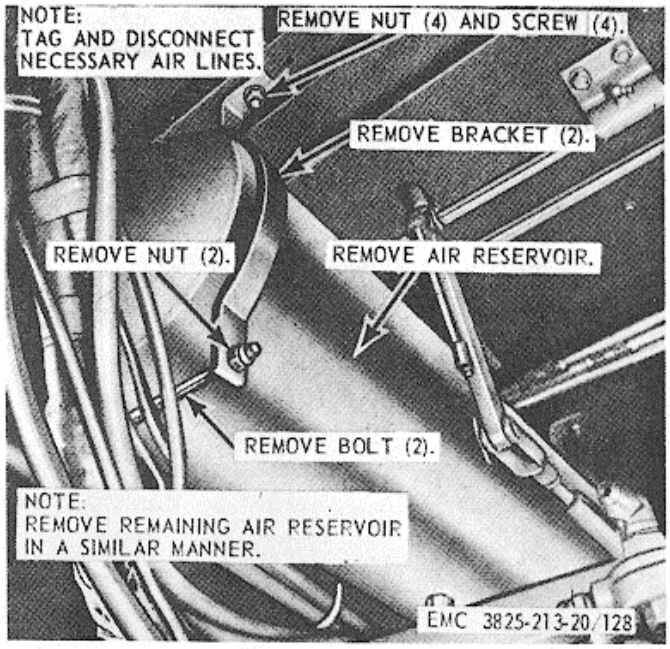


Figure 128. Air reservoirs, removal and installation.

220. Quick Release Valve Assembly

a. Removal. Remove the quick release valve assembly as illustrated in figure 130.

b. Cleaning and Inspection. Clean and inspect. Replace a defective quick release valve assembly as necessary.

c. Installation. Install the quick release valve assembly as illustrated in figure 130.

221. Tractor Protector Valve

a. Removal. Remove the tractor protector valve as illustrated in figure 132.

b. Cleaning and Inspection. Clean and inspect. Replace a defective protector valve as necessary.

c. *Installation.* Install the tractor protector valve as illustrated in figure 132.

222. Air Service Coupling

a. Removal. Remove the air service coupling as illustrated in figure 133.

b. Cleaning and Inspection. Clean and inspect. Replace a defective coupling as necessary.

c. Installation. Install the air service coupling as illustrated in figure 133.

223. Rear Steering Lock Air Chamber

a. Removal. Remove the rear steering lock air chamber as illustrated in figure 134.

b. Cleaning and Inspection. Clean and inspect. Replace a damaged rear steering lock air chamber as necessary.

c. Installation. Install the rear steering lock air chamber as illustrated in figure 134.

224. Rear and Front Air Brake Air Chamber

a. Removal. Remove the rear or front air brake air chamber as illustrated in figure 134.

b. Cleaning and Inspection. Clean, inspect, and replace a damaged air chamber as necessary.

c. Installation. Install the rear or front air brake air chamber as illustrated in figure 134.

225. Air Chamber Quick Release Relay Valve

a. Removal.

(1) Remove the steering solenoid valve (fig. 71).

(2) Remove the service brake stoplight switch (fig. 72).

(3) Remove the air chamber quick release relay valve as illustrated in figure 135.

b. Cleaning and Inspection. Clean and inspect. Replace a defective quick release valve as necessary.

c. Installation.

(1) Install the air chamber quick release valve as illustrated in figure 135.

(2) Install the service brake stoplight switch (fig. 72).

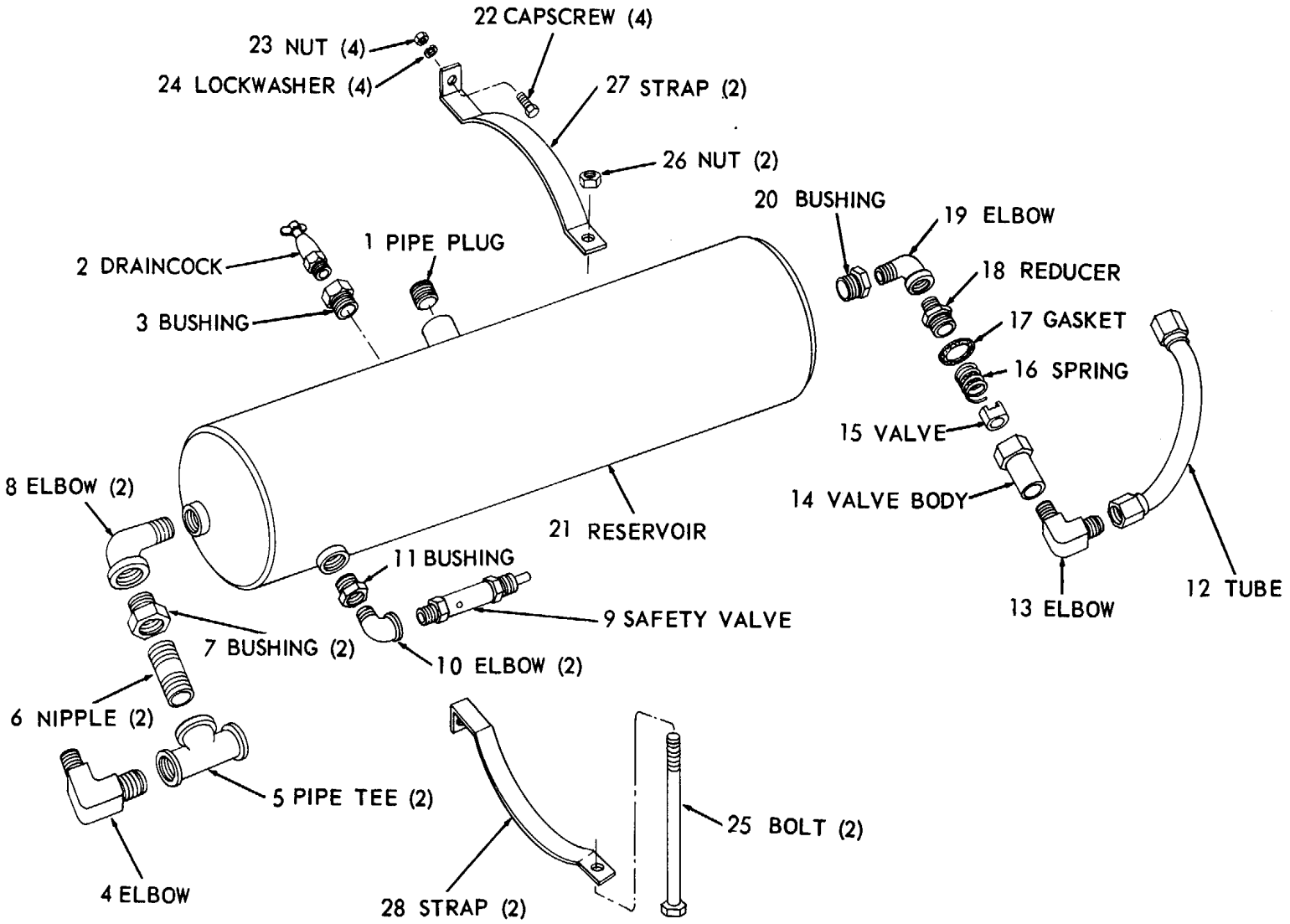
(3) Install the steering solenoid valve (fig. 71).

226. Air Lines and Hose

a. Removal. Remove the air lines and hose as illustrated in figure 125.

b. Cleaning and Inspection. Clean and inspect. Replace defective or damaged lines of hose as necessary.

c. Installation. Install the air lines and hose as illustrated in figure 125.



EMC 3825-213-20/129

Figure 129. Air reservoir, disassembly, exploded view.

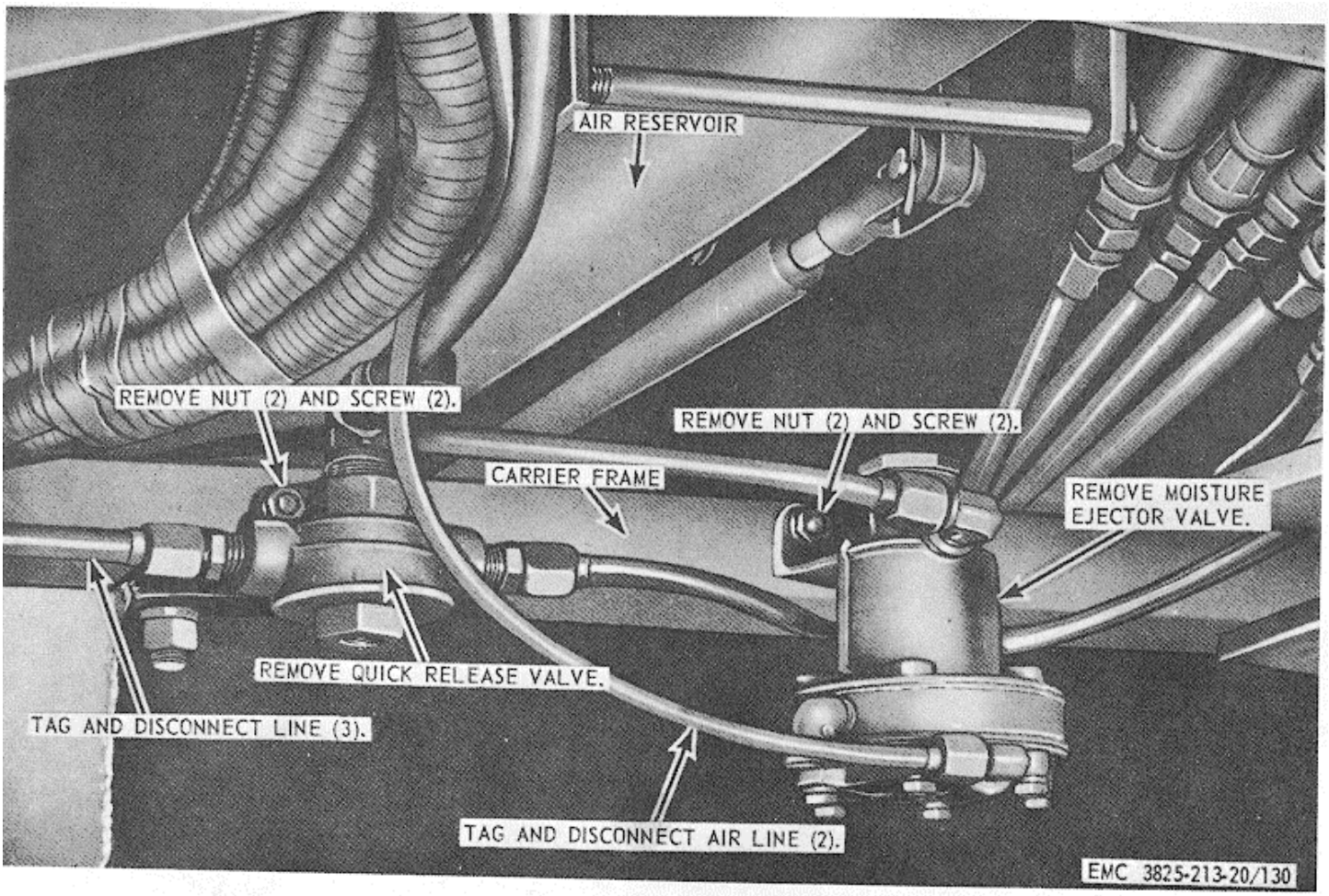


Figure 130. Moisture ejector and quick release valve assemblies, removal and installation.

227. Air Compressor Drive Belts

a. *Removal.*

(1) Remove carrier engine fan belts (fig. 87).

(2) Remove the air compressor drive belts as illustrated in figure 136.

b. *Cleaning and Inspection.* Clean the belts. Replace defective belts.

c. *Installation.*

(1) Install the air compressor drive belts as illustrated in figure 136.

(2) Install the carrier engine fan belts (fig. 87).

Note. Adjust the drive belts to proper tension (TM 5-3825-213-10).

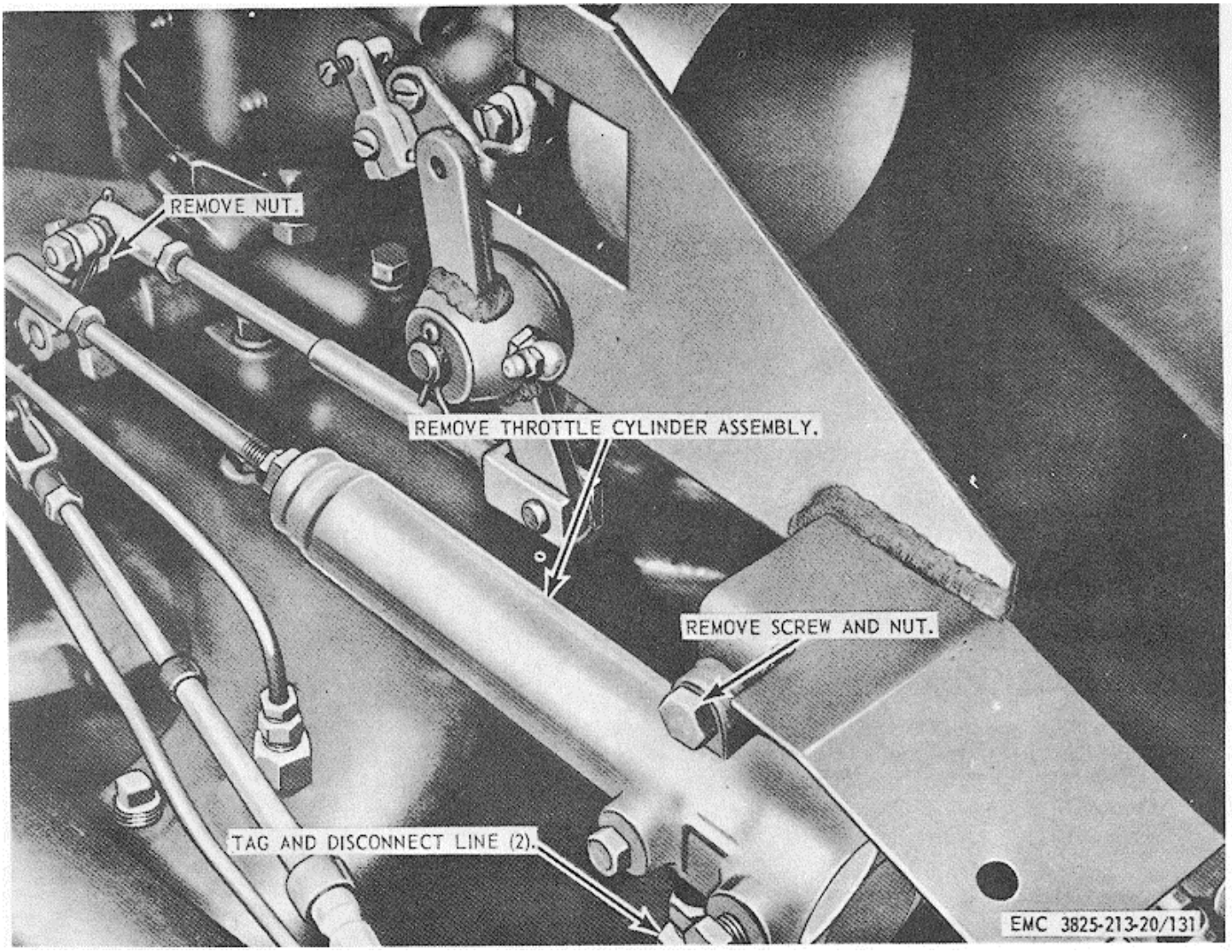


Figure 131. Throttle cylinder assembly, removal and installation.

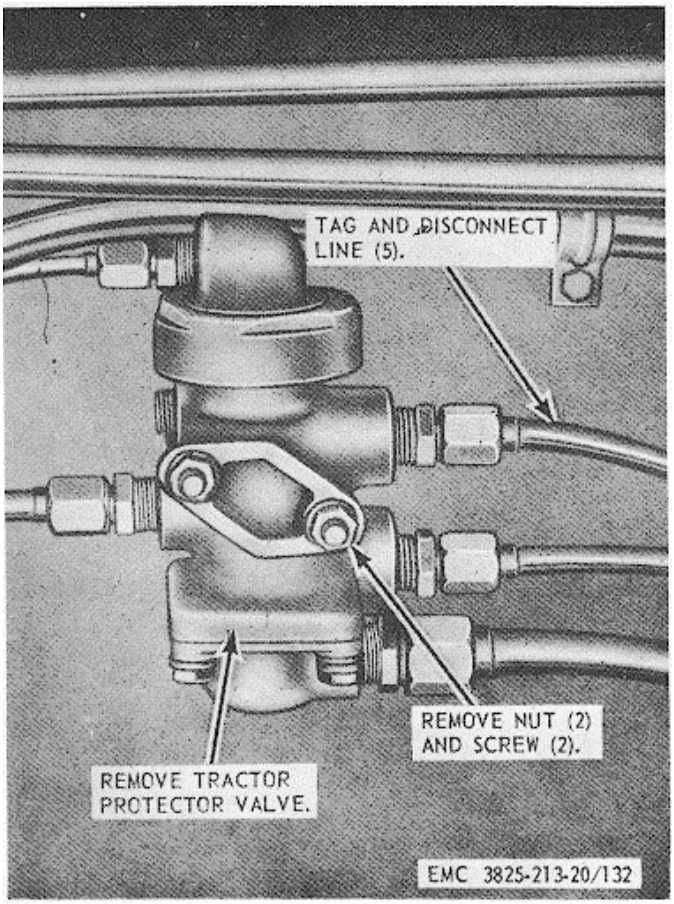


Figure 132. Tractor protector valve, removal and installation..

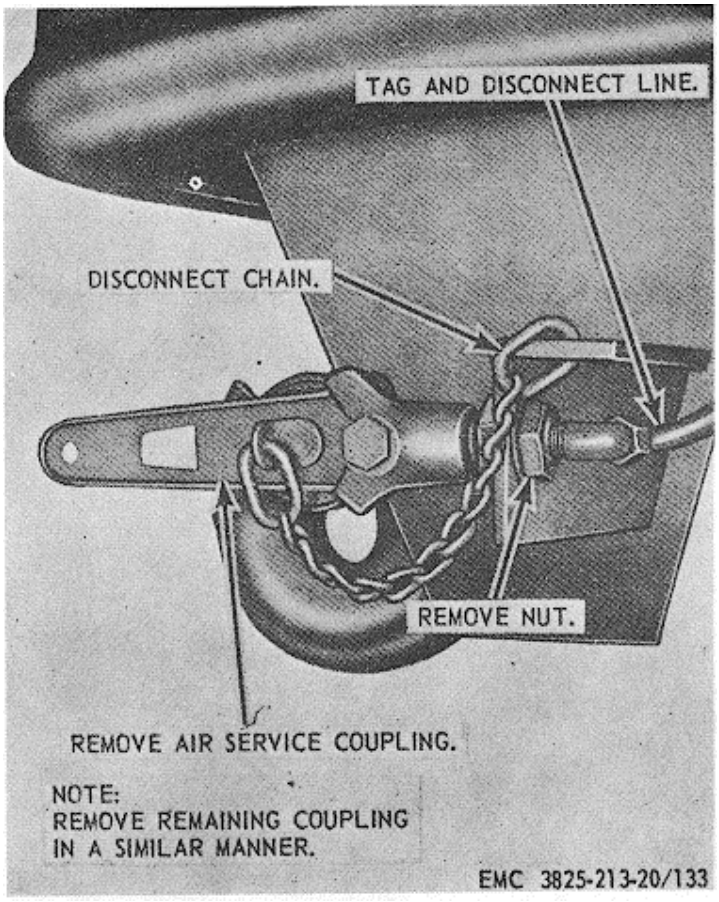
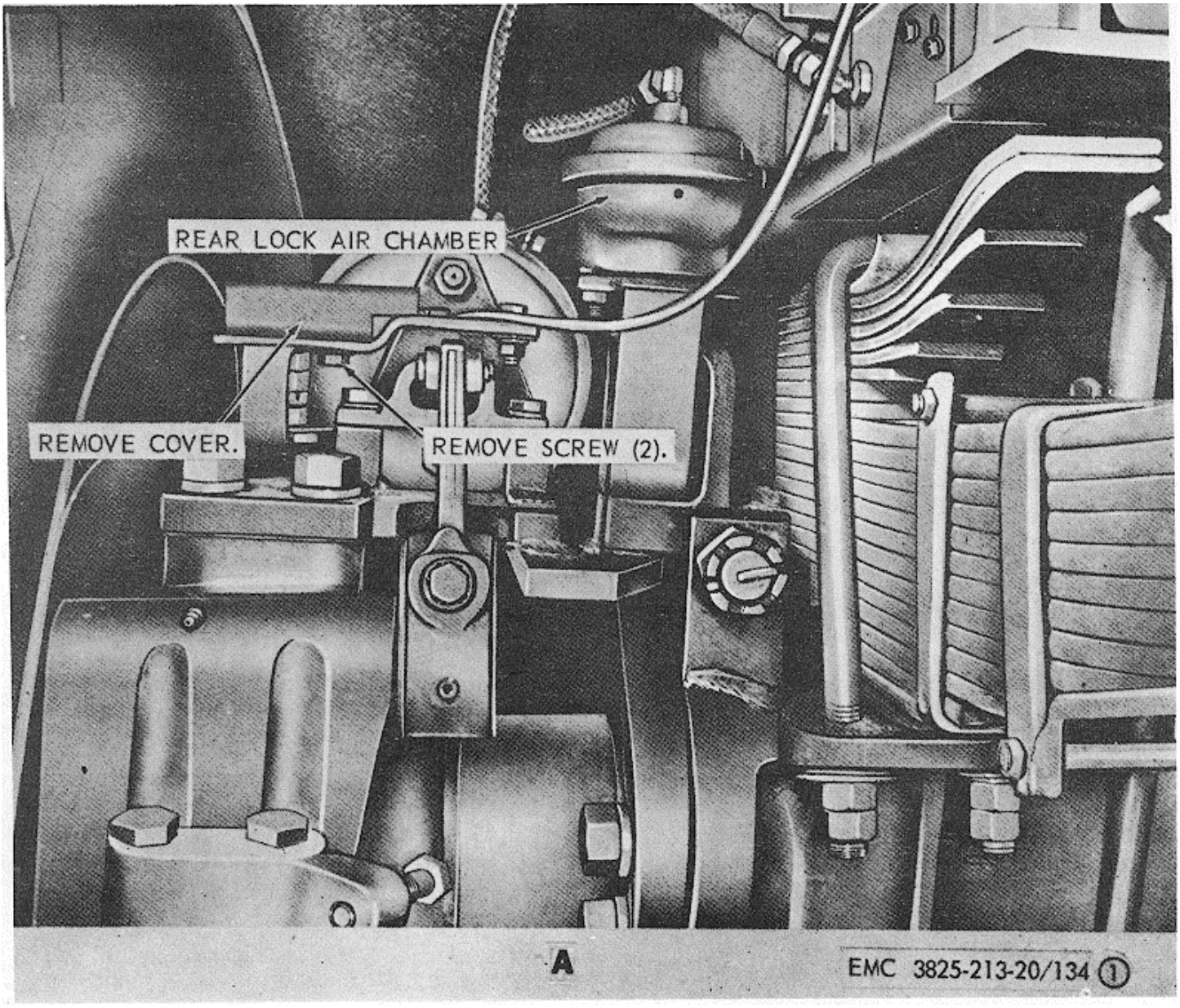
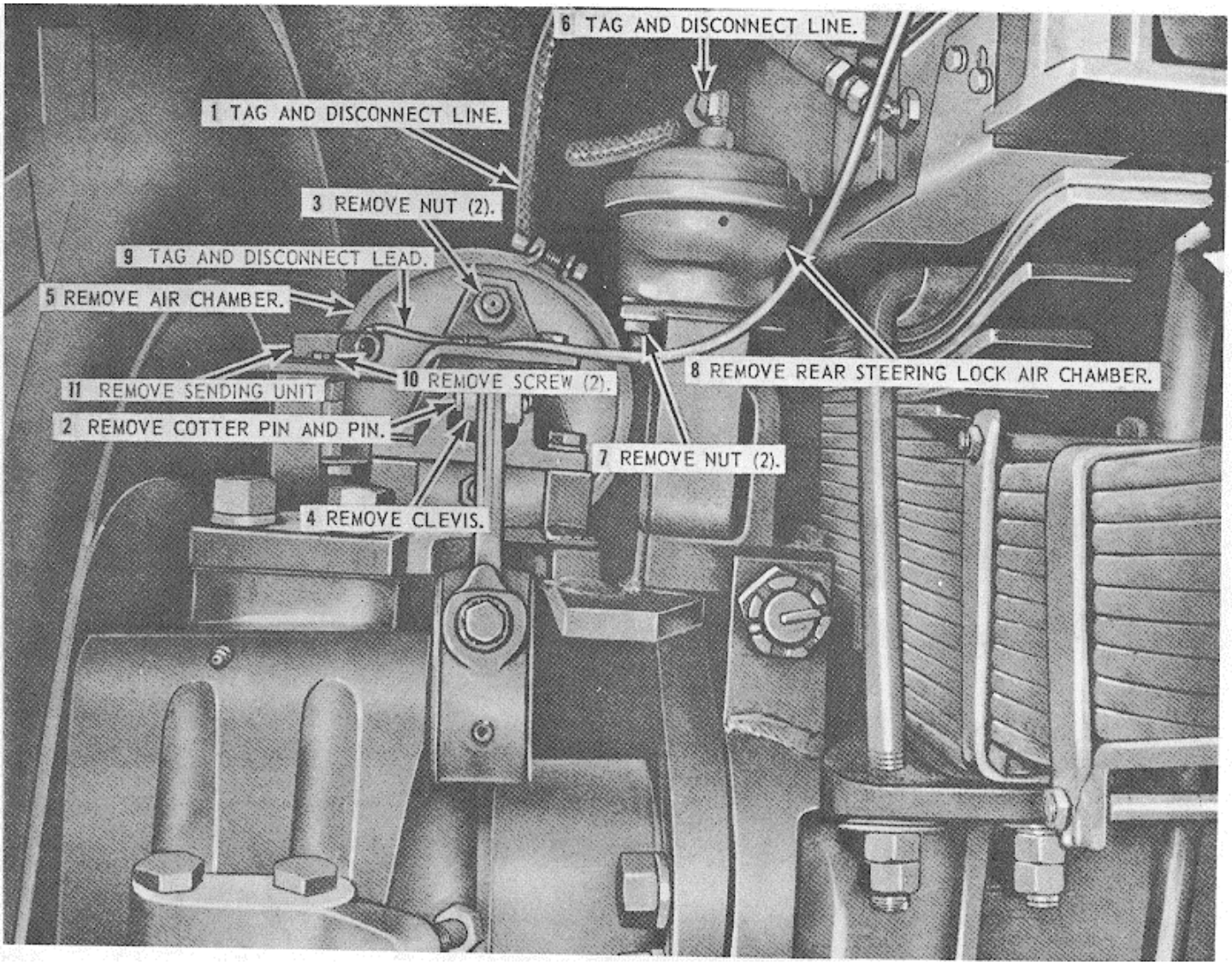


Figure 133. Air service coupling, removal and installation



A. Cover removal

Figure 134. Rear air brake and rear steering lock air chambers, removal and installation.



B EMC 3825-213-20/134 (2)

B. Chambers removal

Figure 134-Continued.

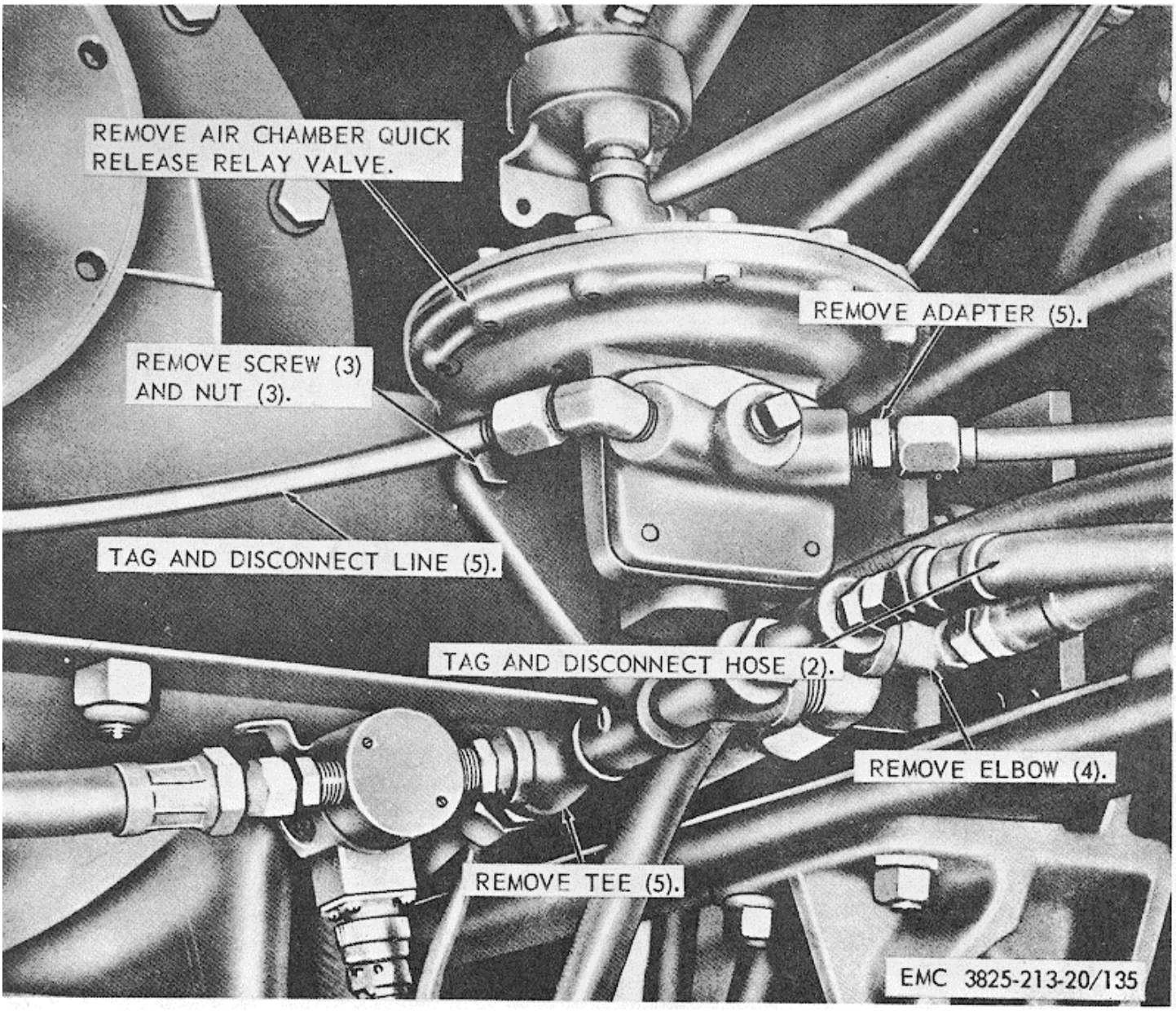


Figure 135. Air chamber quick release relay valve, removal and installation.

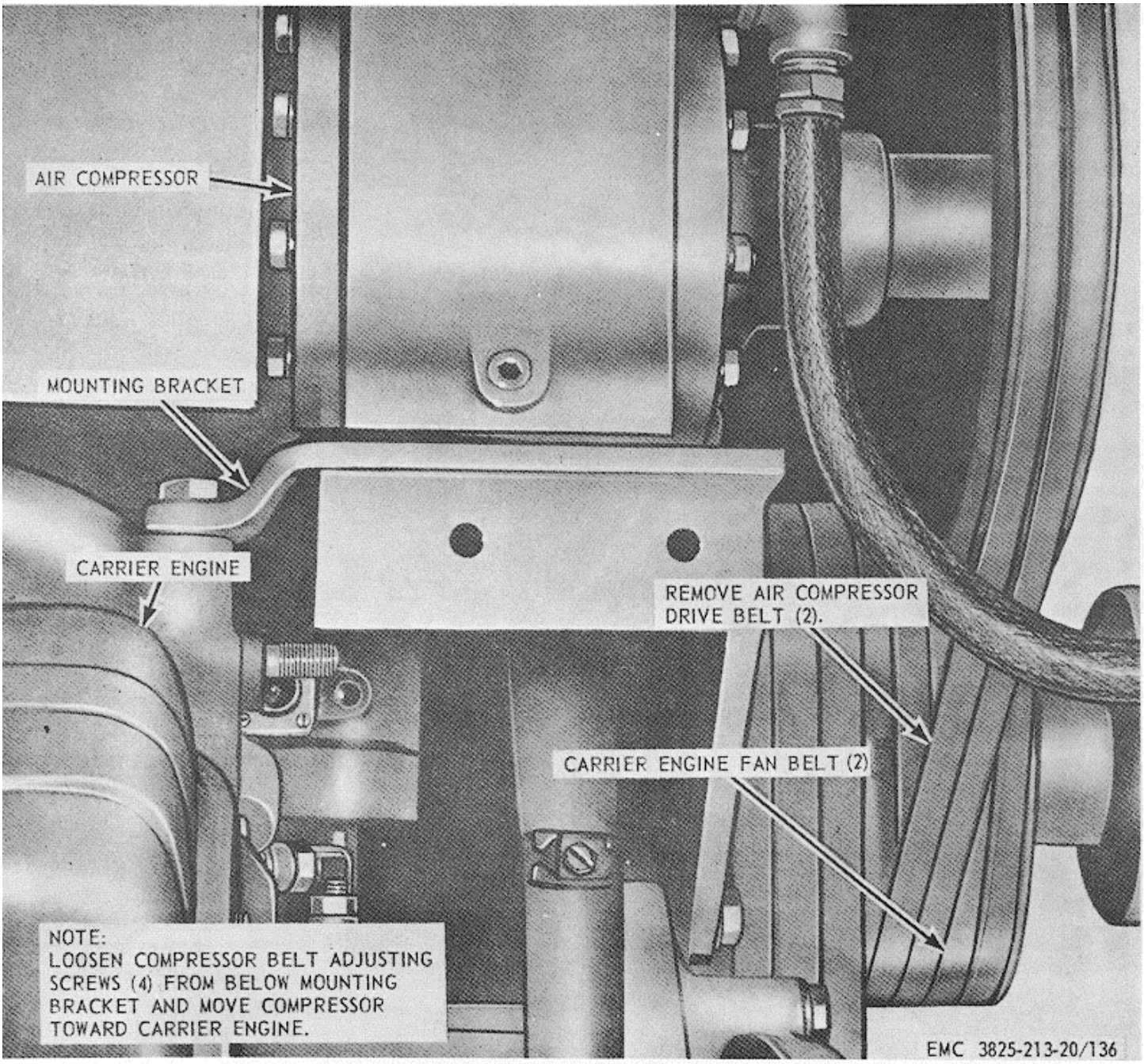


Figure 136. Air compressor drive belts, removal and installation.

Section VI. CARRIER TORQUE CONVERTER AND TRANSMISSION

228. General

The carrier transmission units include a torque converter and transmission, providing three speeds forward and one reverse. The hydraulic oil system is the basic factor of the transmission units and the oil must be kept clean, at proper level, and at proper operating temperature at all times. An oil cooler is mounted on the left rear of the frame to maintain proper operating temperature.

229. Transmission Oil Cooler and Lines

a. *Removal.*

(1) Drain transmission and cooling system (TM 5-3825-213-10).

(2) Remove the oil cooler as illustrated in figure 137.

b. *Disassembly*. Disassemble the transmission oil cooler as illustrated in figure 138.

c. *Cleaning, Inspection, and Repair.* Clean, inspect, and replace or repair defective or damaged parts as necessary.

d. *Reassembly.* Reassemble the transmission oil cooler as illustrated in figure 138.

e. *Installation.*

(1) Install the transmission oil cooler as illustrated in figure 137.

(2) Fill the cooling system and transmission (TM 5-3825-213-10).

230. Torqmatic Transmission Filler Tube

a. *Removal*. Remove the filler tube as illustrated in figure 139.

b. *Cleaning and Inspection*. Clean, inspect, and replace a damaged filler tube as necessary.

c. *Installation.* Install the filler tube as illustrated in figure 139.

231. Torque Transmission Oil Filters

a. *Removal*. Remove the torqmatic transmission oil filters as illustrated in figure 140.

b. *Disassembly*. Disassemble the torqmatic transmission oil filters as illustrated in figure 141.

c. *Cleaning, Inspection, and Repair.* Clean, inspect, replace or repair all defective parts as necessary.

d. *Reassembly*. Reassemble the torqmatic transmission oil filters as illustrated in figure 141.

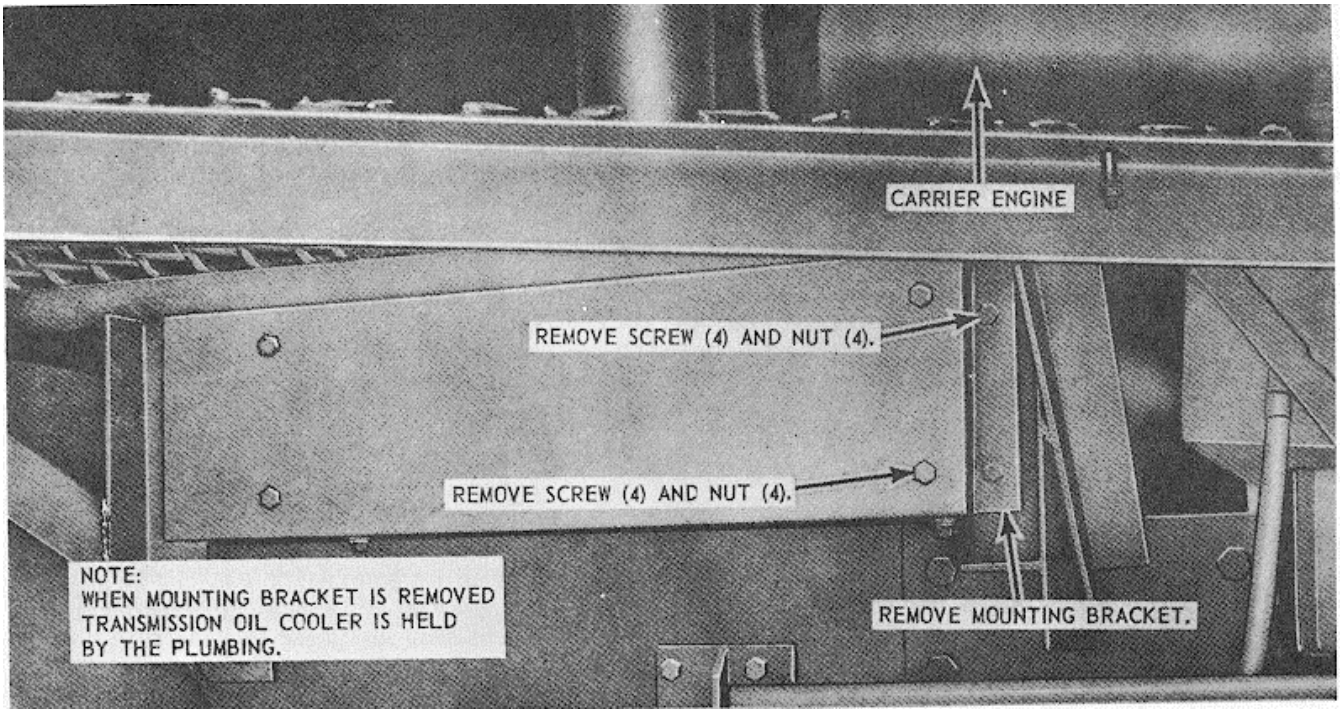
e. *Installation.* Install the torqmatic transmission oil filters as illustrated in figure 140.

232. Torqmatic Transmission, Plow Transmission, and Transfer Case Linkages and Selector Valve

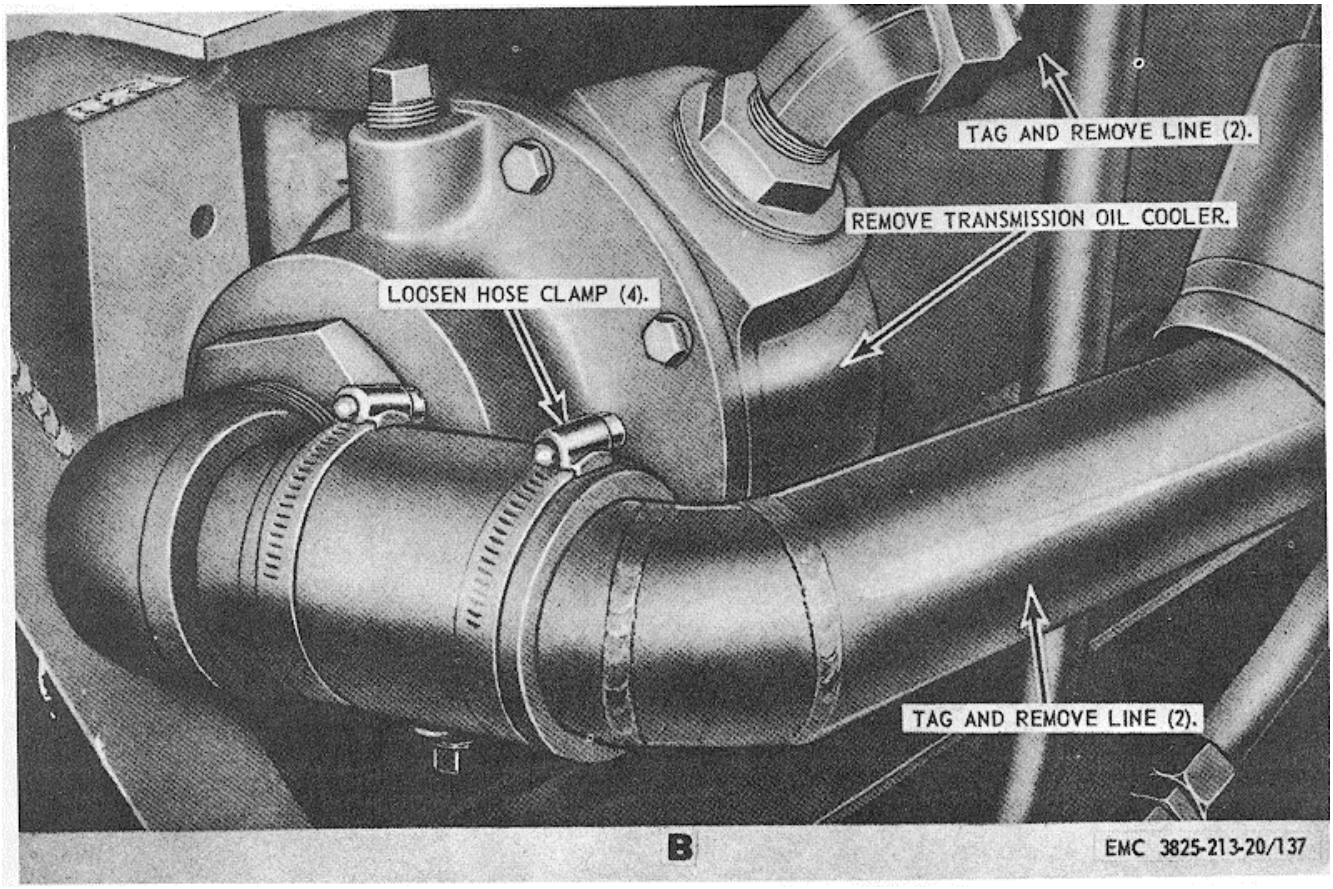
a. *Removal*. Remove the torqmatic transmission, plow transmission, and transfer case linkages and selector valve as illustrated in figure 142.

b. *Cleaning and Inspection*. Clean, inspect, and replace defective linkage or selector valve as necessary.

c. *Installation.* Install the torqmatic transmission, plow transmission, and transfer case linkages and selector valve as illustrated in figure 142.



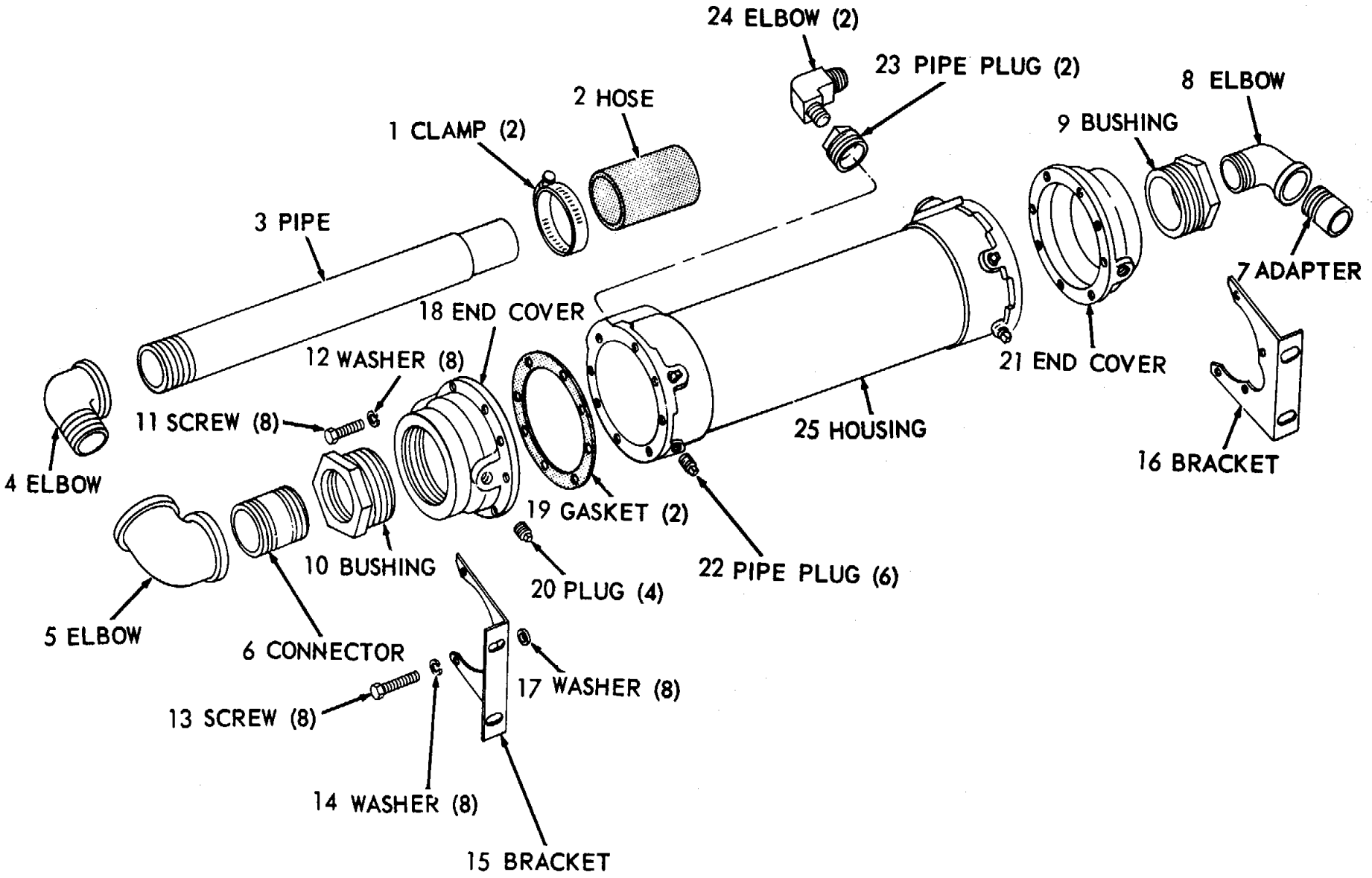
A



A. Mounting bracket removal points

B. Cooler removal points

Figure 137. Transmission oil cooler and lines, removal and installation.



EMC 3825-213-20/138

Figure 138. Transmission oil cooler, disassembly and reassembly, exploded view.

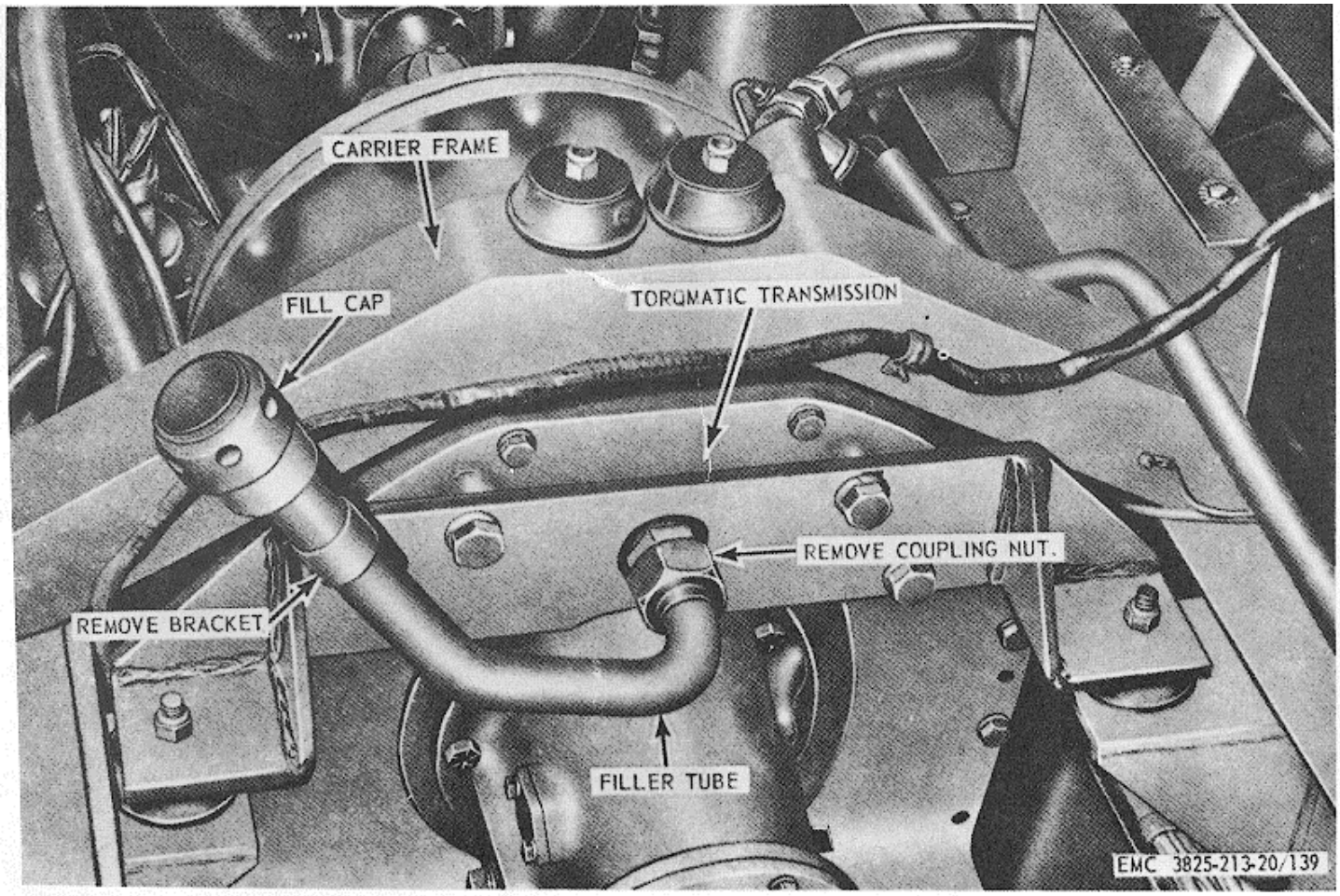


Figure 139. Torqmatic transmission filler tube, removal and installation.

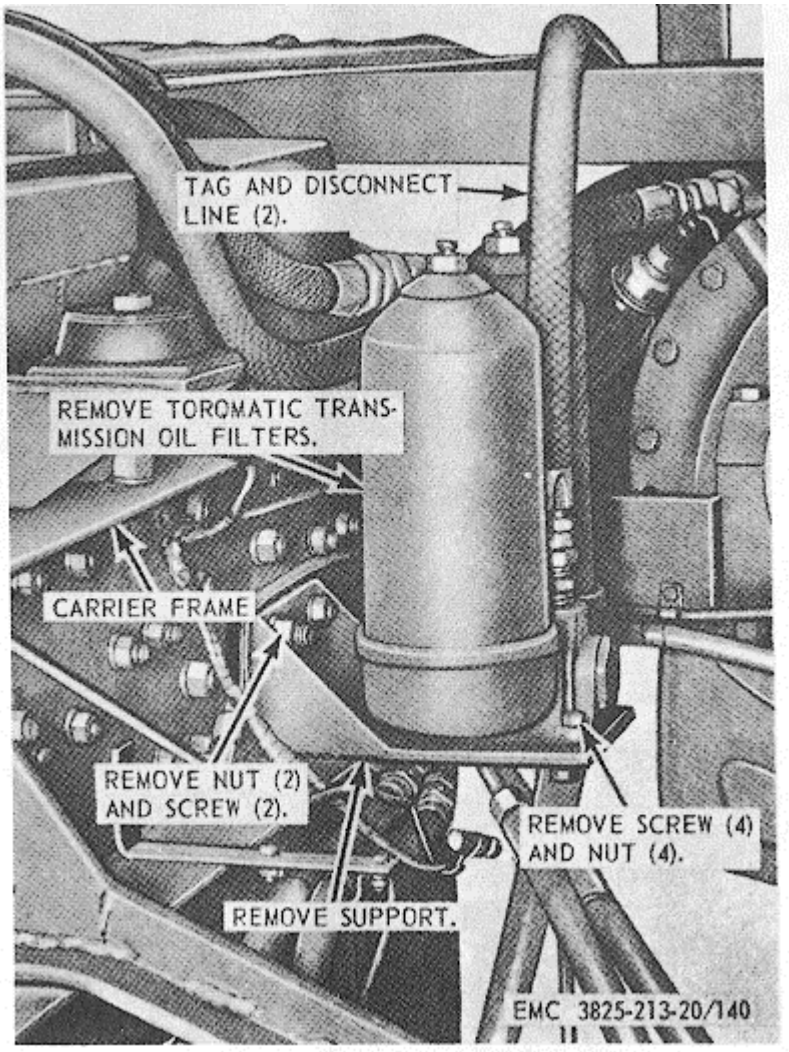


Figure 140. Torqmatic transmission oil filters, removal and installation.

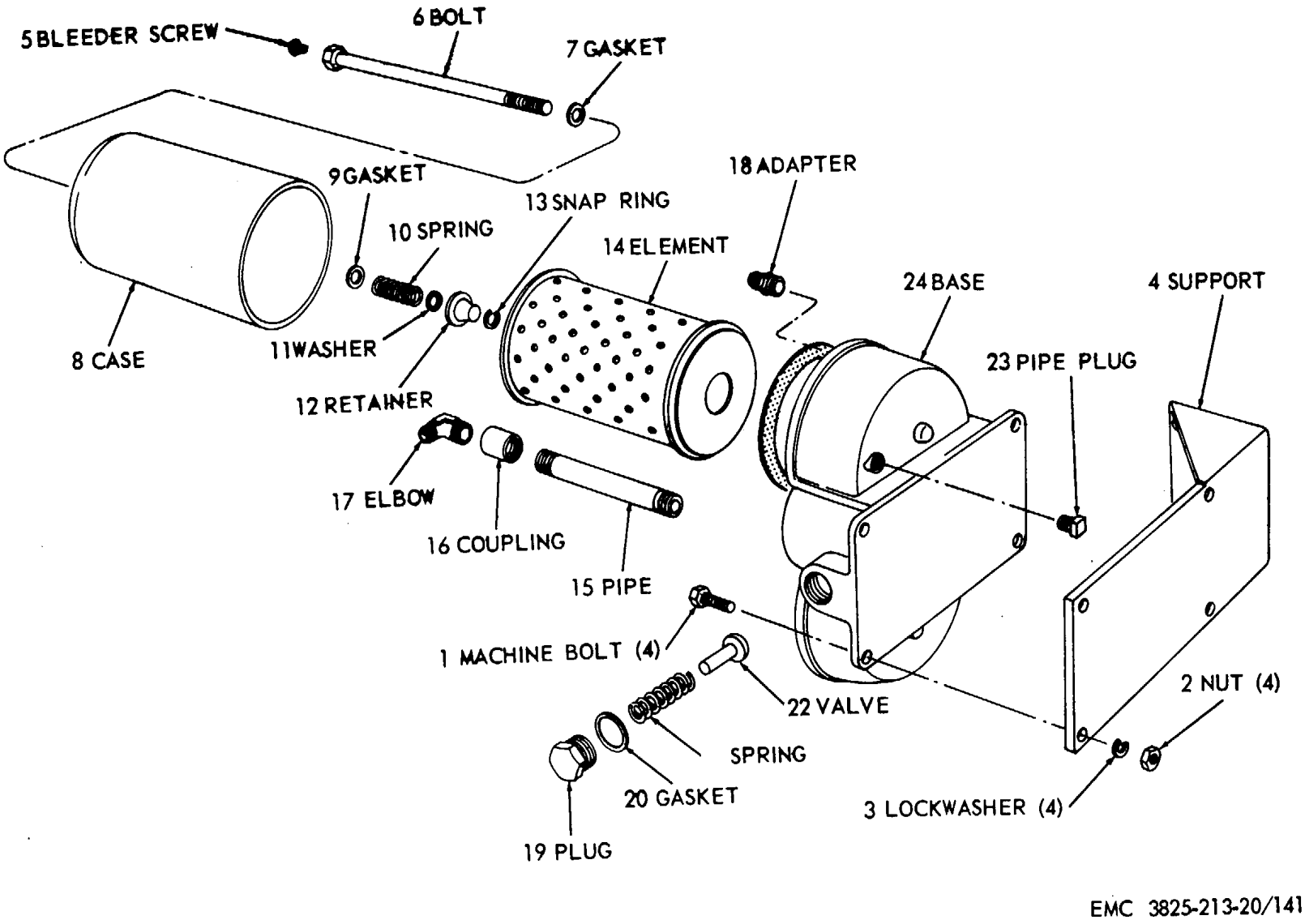
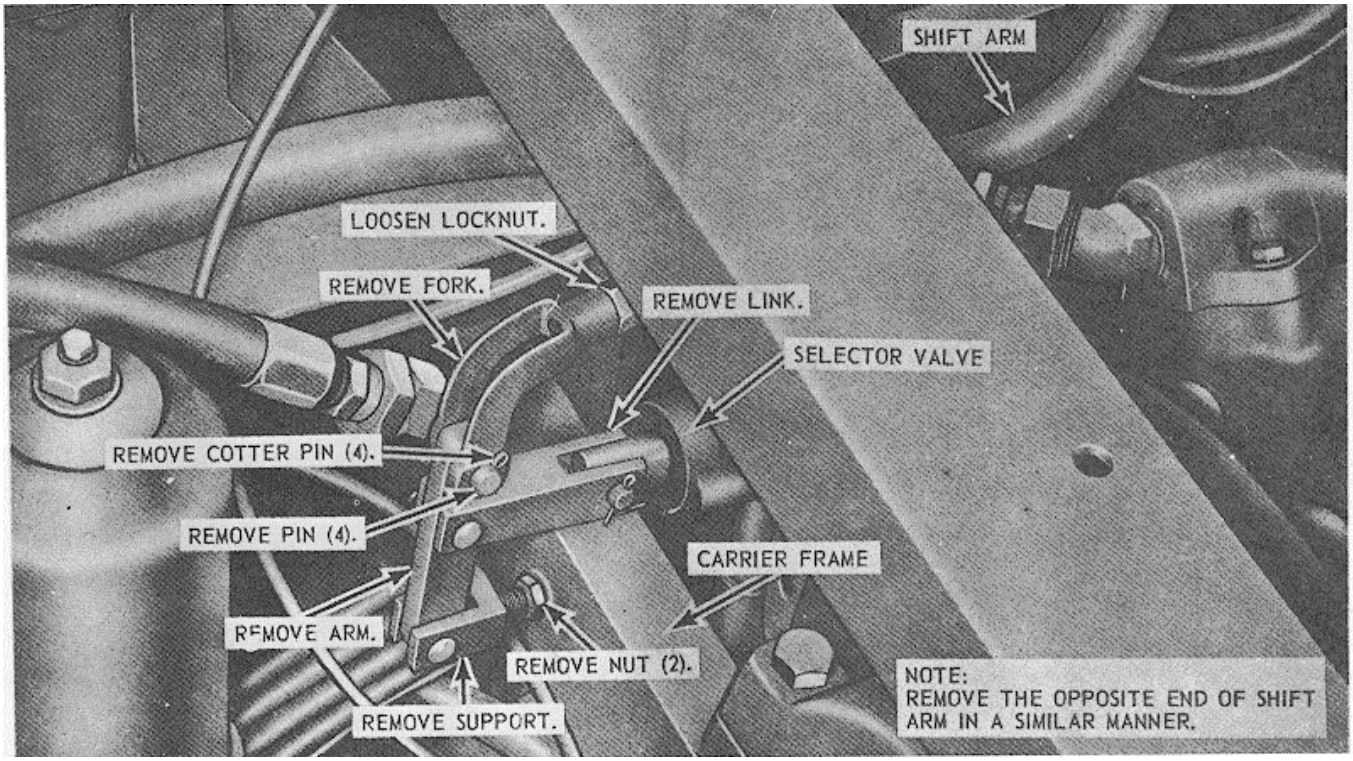
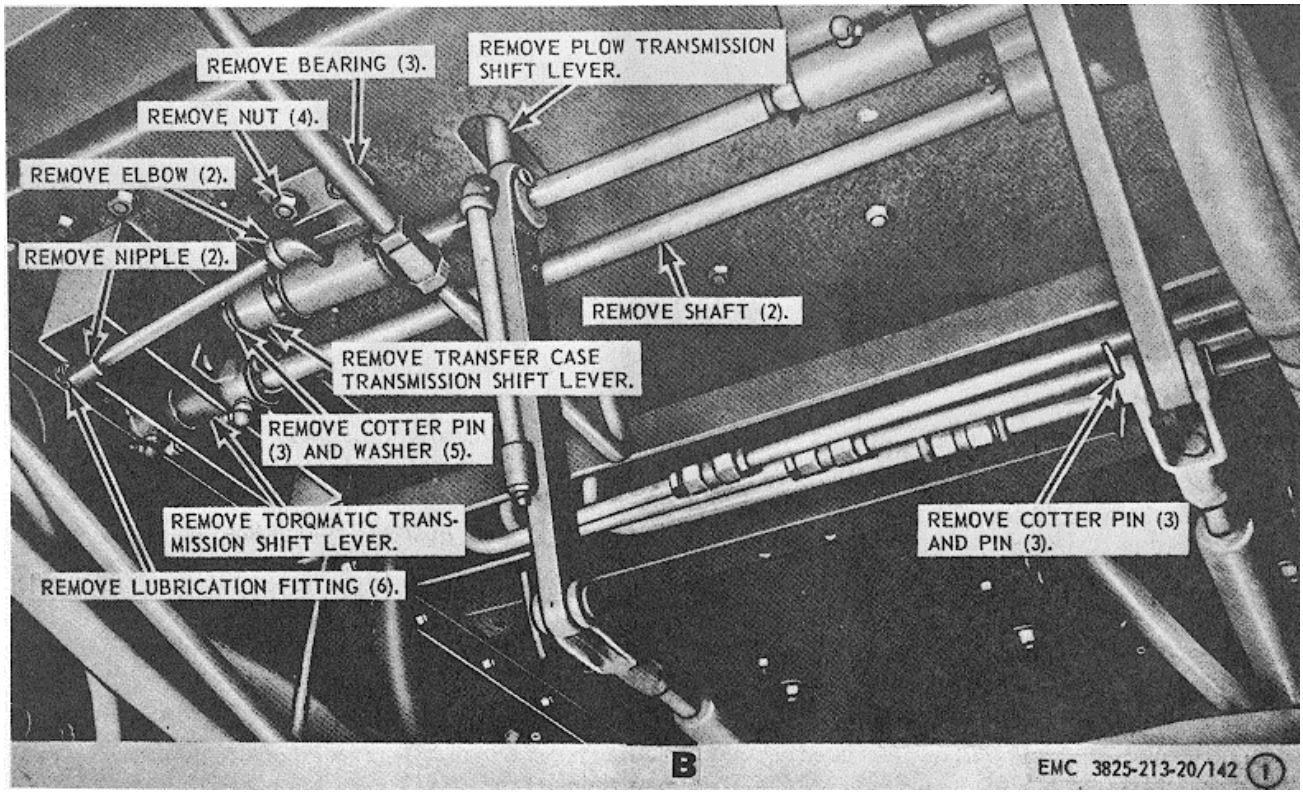


Figure 141. Torqmatic transmission oil filters, disassembly and reassembly, exploded view.

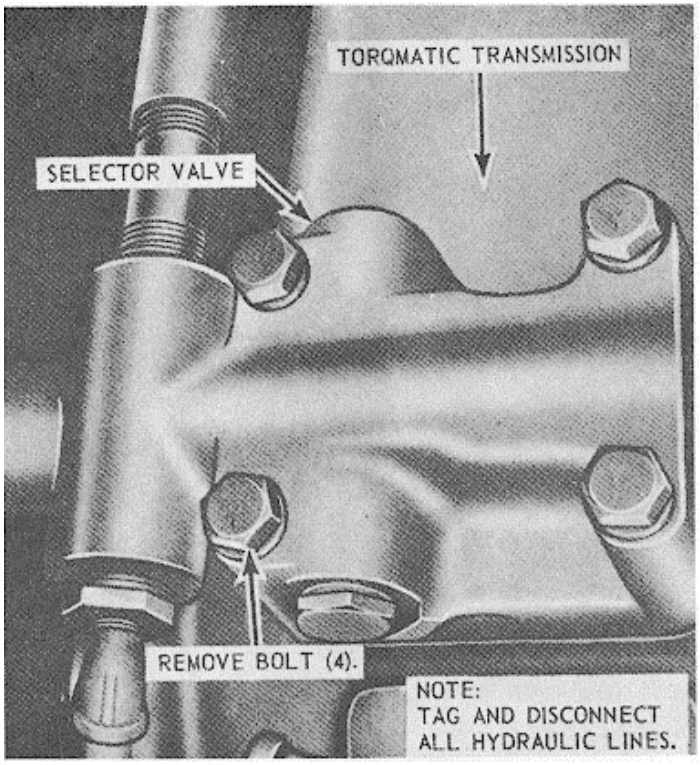


A



A. Torqmatic transmission linkage removal points
B. Plow transmission and transfer case linkage front removal points

Figure 142. Torqmatic transmission, plow transmission, and transfer case linkages and selector valve, removal and installation.



C EMC 3825-213-20/142 (2)

C. Selector valve removal points

Figure 142-Continued.

Section VII. CARRIER STEERING HYDRAULIC SYSTEM

233. General

The hydraulic steering unit on the carrier is provided to assist the mechanical steering mechanism. The hydraulic steering unit enables the operator to have greater control of the vehicle under adverse operating or road conditions. The carrier is also equipped with rear wheel steering to aid in steering on sharp-angle turns. The complete hydraulic steering system consists of the hydraulic pump, cylinders, control valve, lines, fittings, and hydraulic reservoir.

234. Hydraulic Reservoir

a. *Removal*. Remove the hydraulic reservoir and lines as illustrated in figure 143.

b. *Cleaning and Inspection*. Clean and inspect. Replace a damaged hydraulic reservoir as necessary.

c. *Installation*. Install the hydraulic reservoir and lines as illustrated in figure 143.

235. Hydraulic Pump Assembly

a. *Removal*. Remove the hydraulic pump assembly and lines as illustrated in figure 144.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective hydraulic pump.

c. *Installation*. Install the hydraulic pump assembly and lines as illustrated in figure 144.

236. Front Steering Control Valve

a. *Removal*. Remove the front steering control valve as illustrated in figure 145.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective steering control valve as necessary.

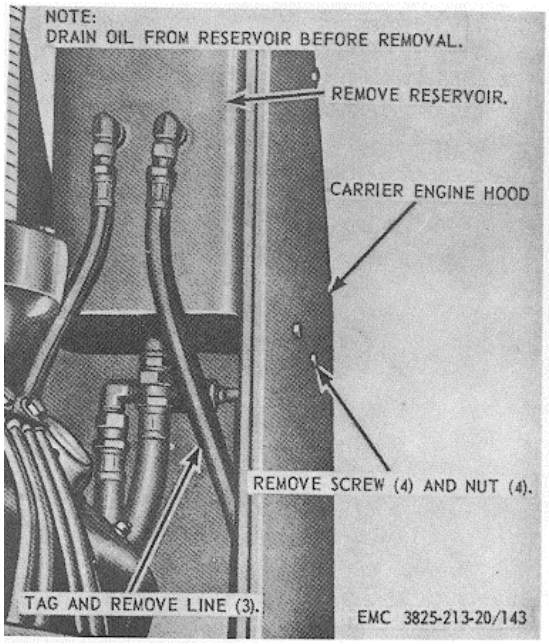


Figure 143. Hydraulic reservoir and lines, removal and installation.

c. *Installation.* Install the front steering control valve as illustrated in figure 145.

237. Front and Rear Steering Cylinder

a. *Removal*. Remove the front or rear steering cylinder as illustrated in figure 146.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective steering cylinder as necessary.

c. Installation. Install the front or rear steering cylinder as illustrated in figure 146.

238. Rear Steering Control Valve

a. *Removal*. Remove the rear steering control valve as illustrated in figure 147.

b. *Cleaning and Inspection*. Clean and inspect. Replace a defective steering control valve as necessary.

c. *Installation.* Install the rear steering control valve as illustrated in figure 147.

239. Steering Hydraulic Oil Filter

a. *Removal.*

(1) Drain the hydraulic system (TM 5-3825-213-10).

(2) Remove the steering hydraulic oil filter as illustrated in figure 148.

b. *Cleaning and Inspection*. Clean, inspect, and replace a defective oil filter.

c. *Installation.*

(1) Install the steering hydraulic oil filter as illustrated in figure 148.

(2) Fill the hydraulic system (TM 5-3825-213-10).

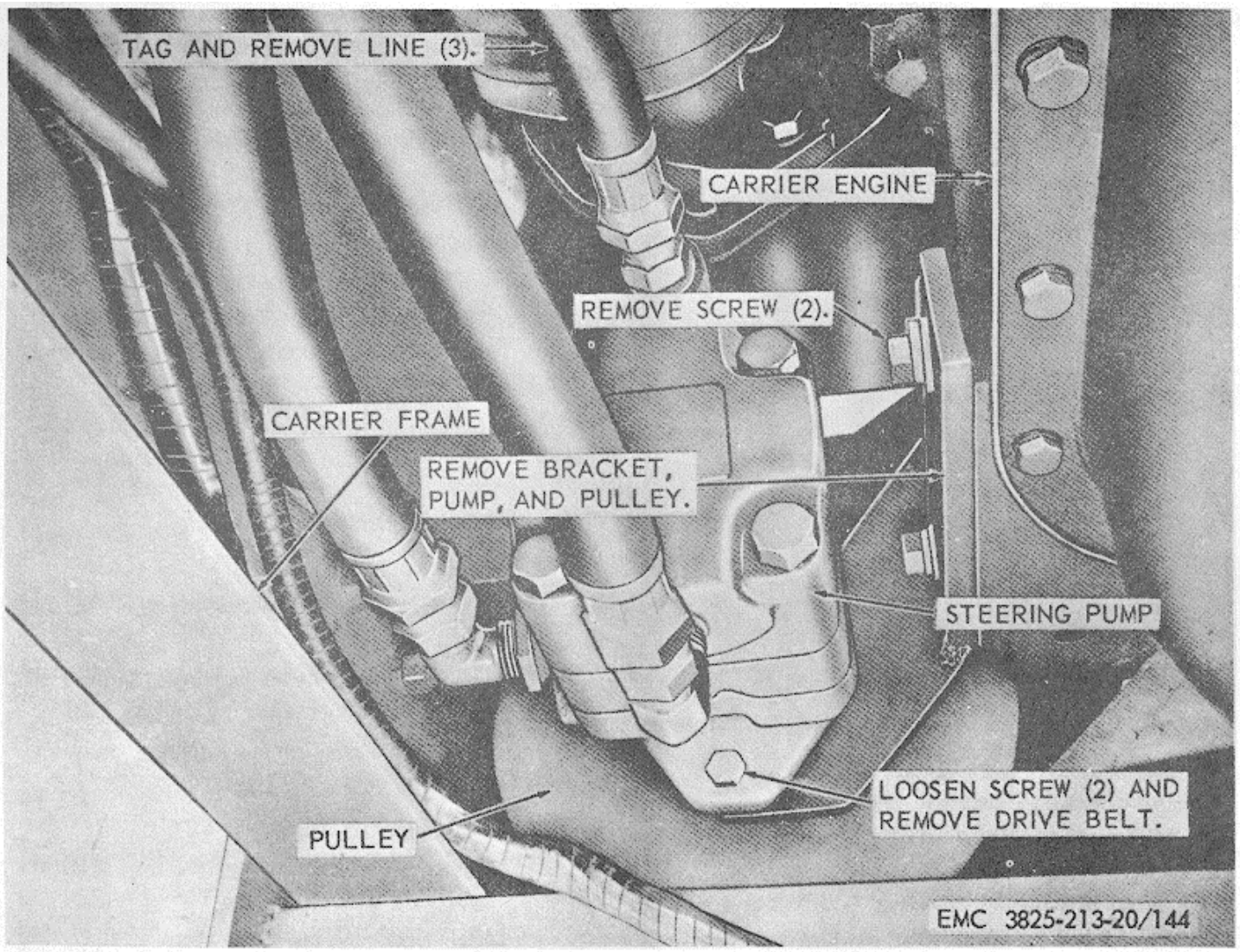
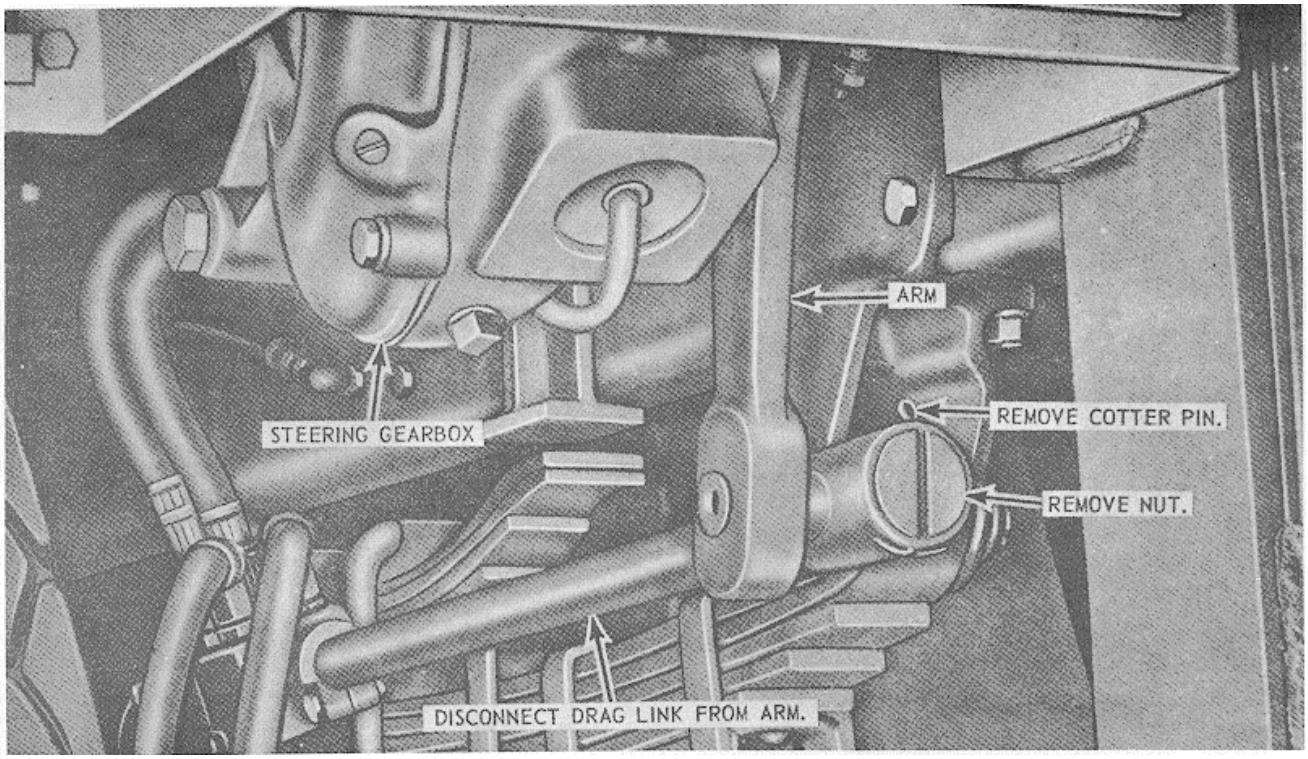
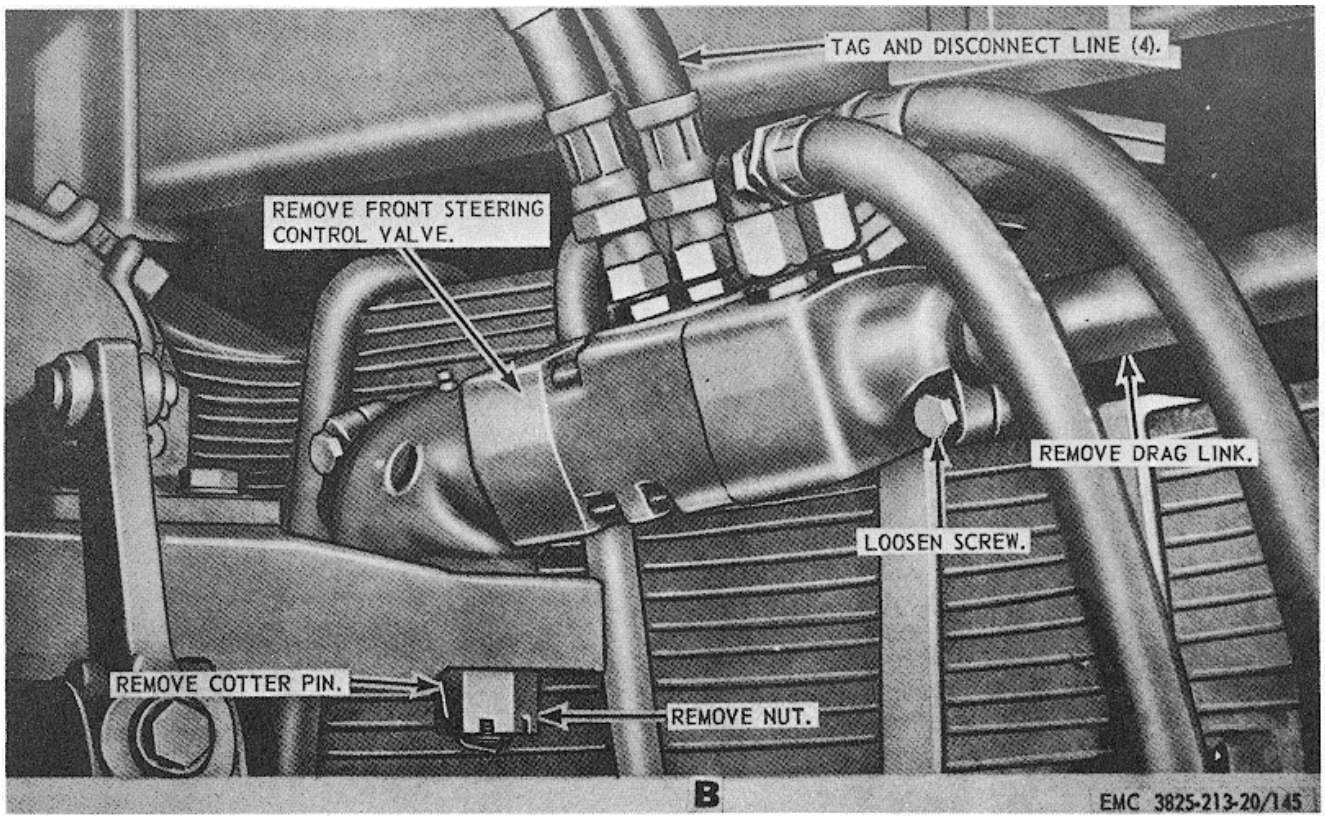


Figure 144. Hydraulic pump assembly and lines, removal and installation.



A



A. Draglink disconnect points

B. Valve removal points

Figure 145. Front steering control valve, removal and installation.

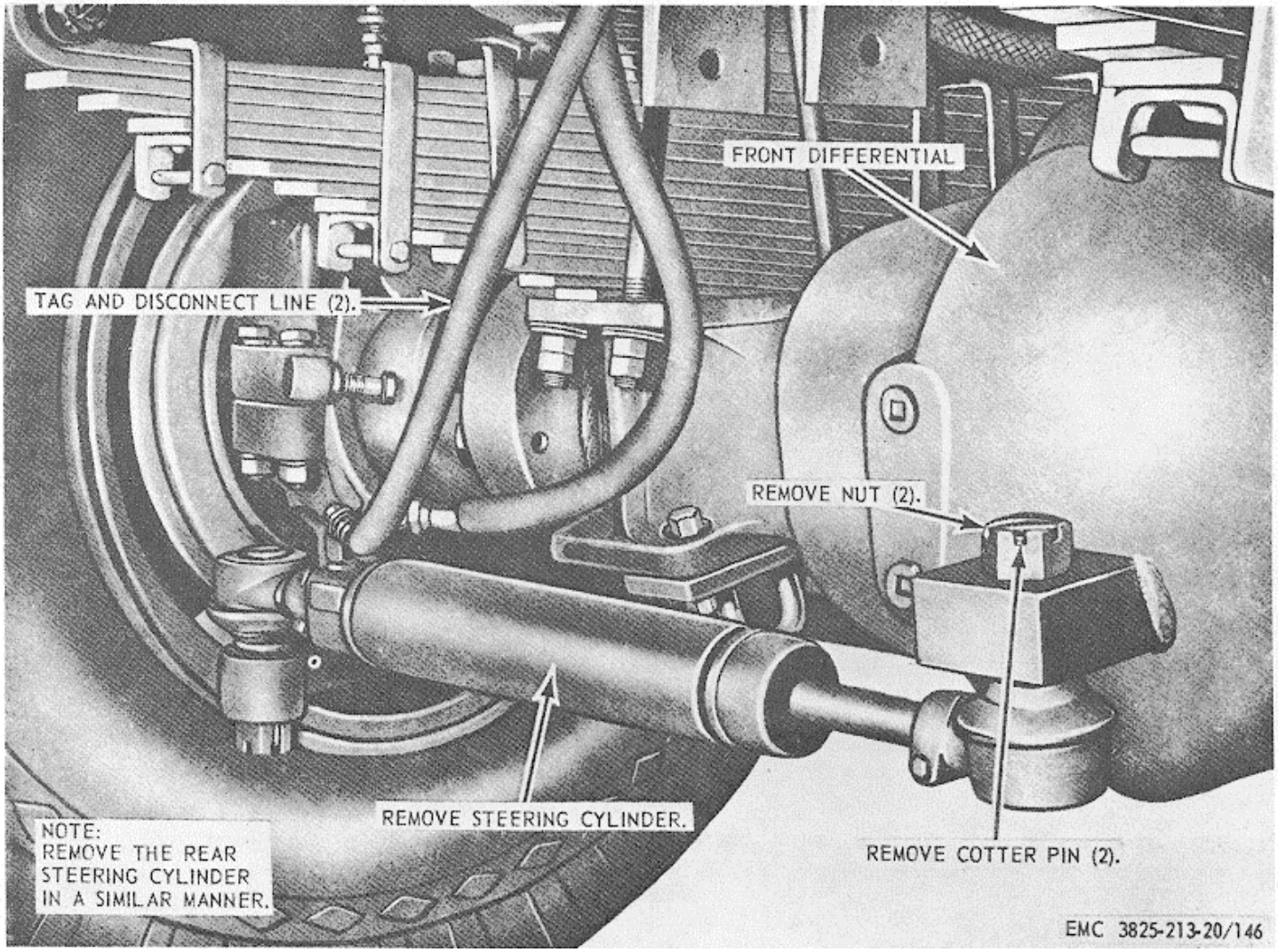


Figure 146. Front and rear steering cylinder, removal and installation.

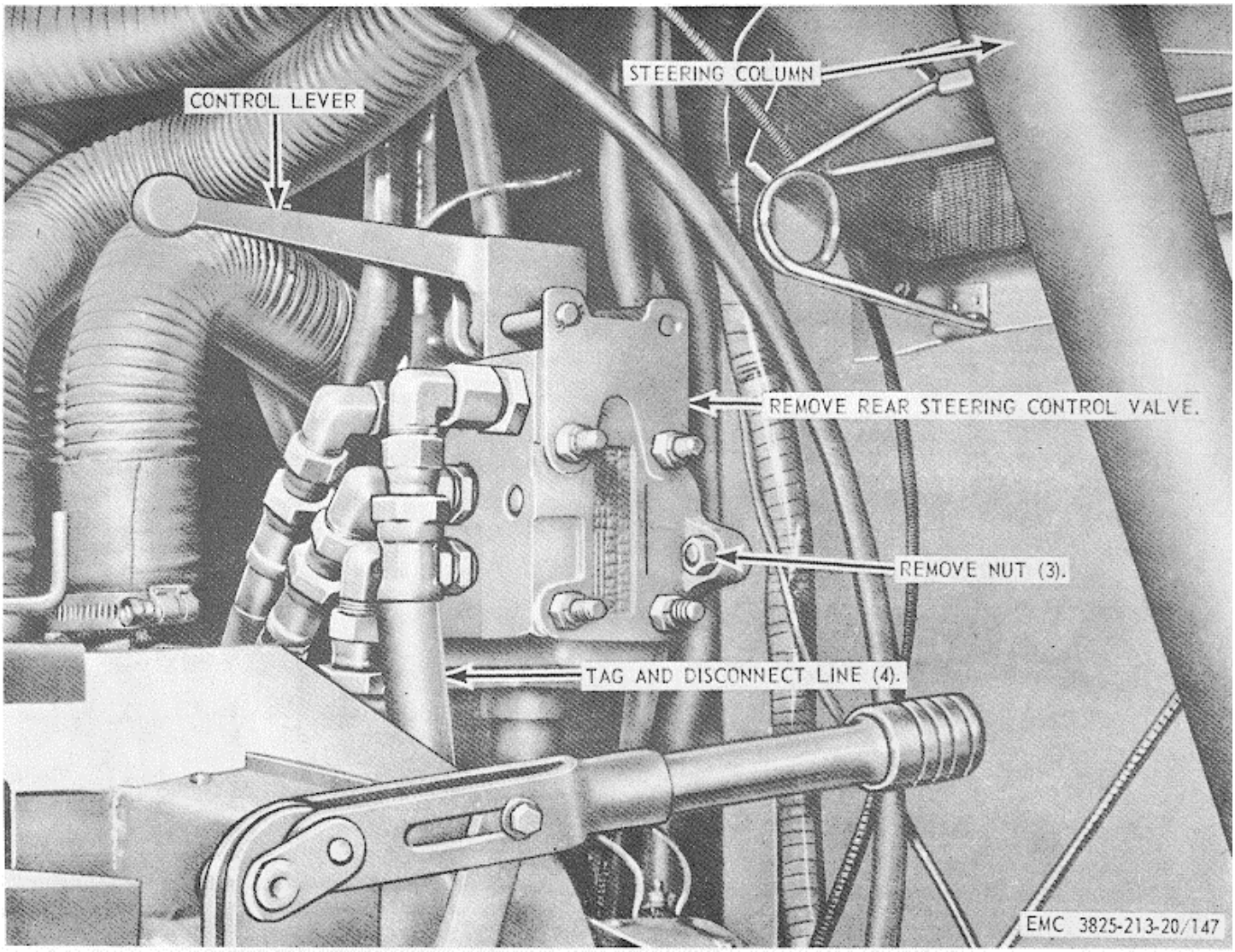


Figure 147. Rear steering control valve, removal and installation.

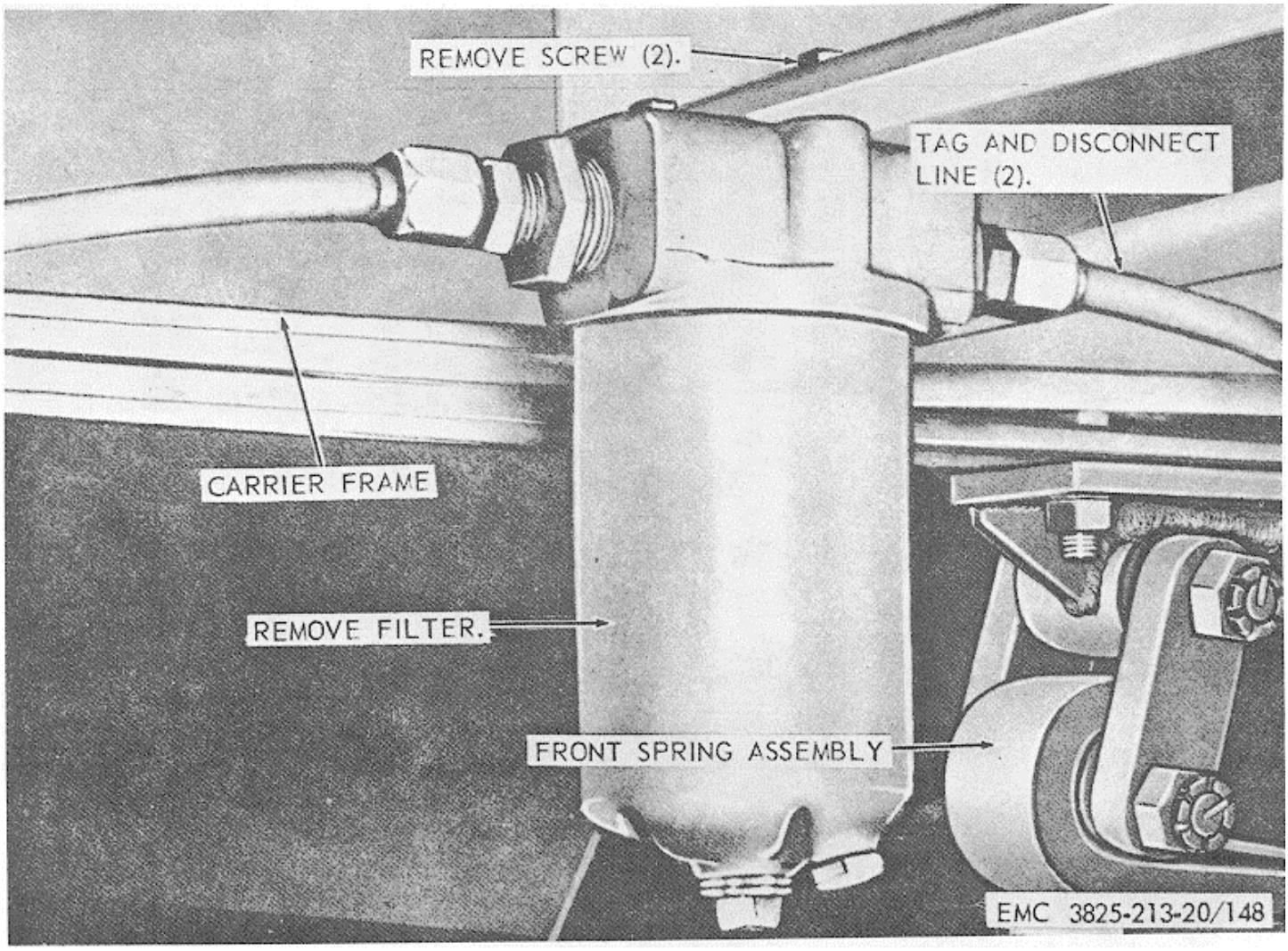


Figure 148. Steering hydraulic oil filter, removal and installation.

Section VIII. CARRIER PERSONNEL HEATER

240. General

The personnel heater is a gasoline-operated, thermostatically controlled heater, heating the operator's cab, the battery box, and supplying heat for defrosting the windshield and side panel windows. The battery box temperature is thermostatically controlled.

241. Personnel Heater, Air Ducts, Shields, and Deflector

a. *Removal.*

(1) Remove the personnel heater as illustrated in figure 149.

(2) Remove the air ducts, shields, and deflectors as illustrated in figure 150.

b. *Disassembly*. Disassemble the air duct as illustrated in figure 151.

c. *Cleaning, Inspection, and Repair.* Clean and inspect. Replace or repair damaged air ducts, shields, and deflectors as necessary.

d. *Reassembly*. Reassemble the air ducts as illustrated in figure 151.

e. *Installation.*

(1) Install the personnel heater as illustrated in figure 149.

(2) Install the air ducts, shields, and deflectors as illustrated in figure 150.

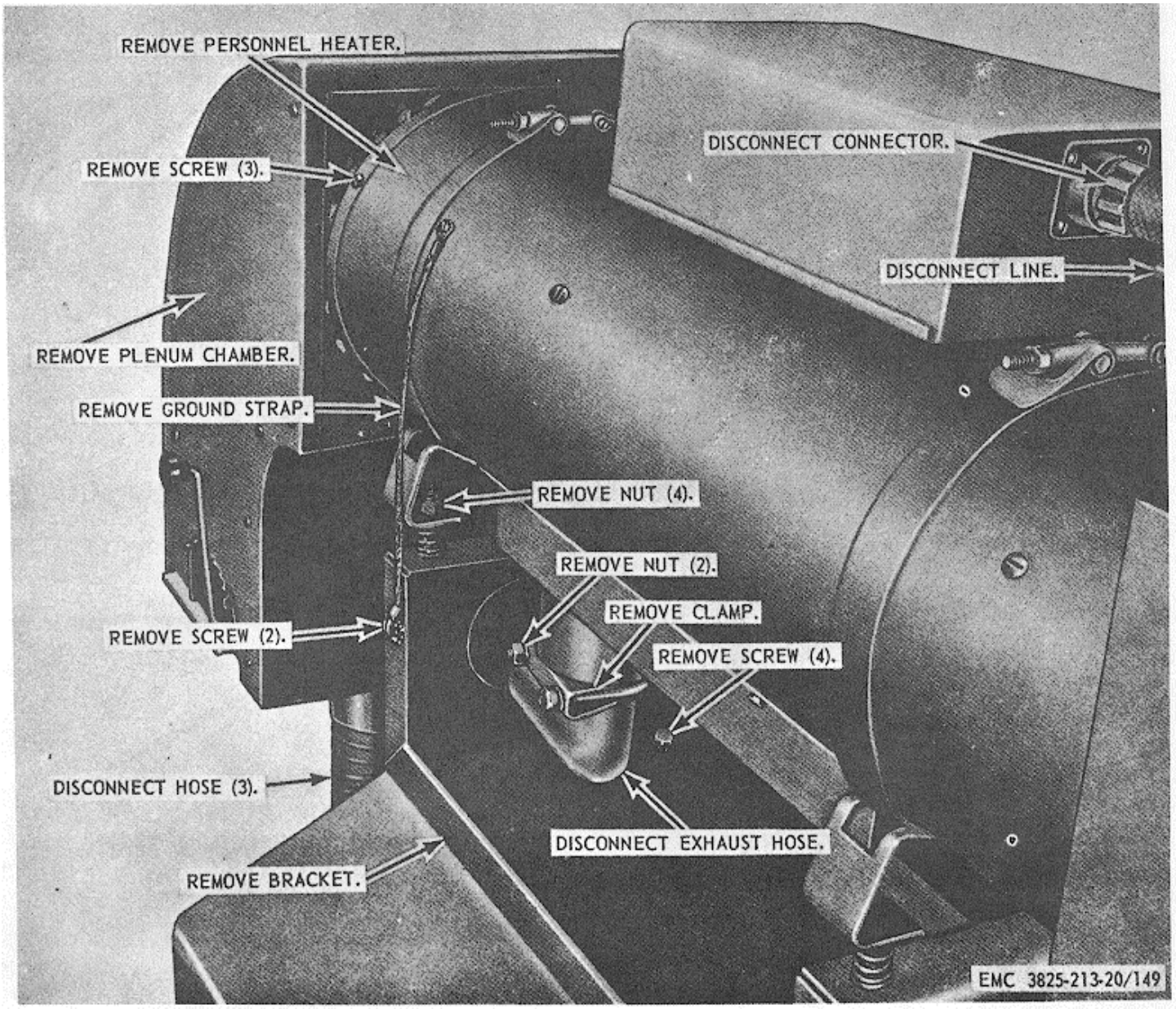
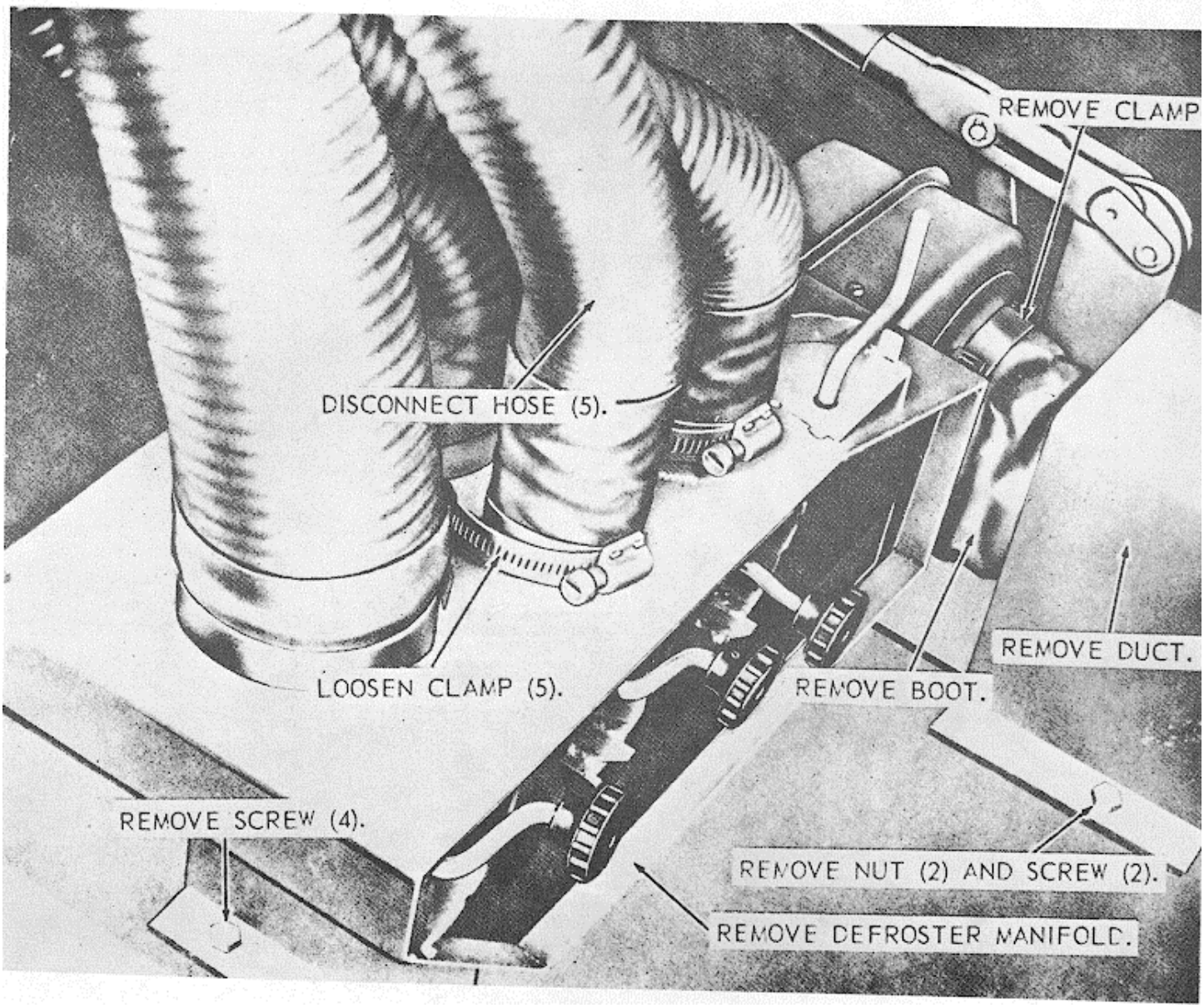


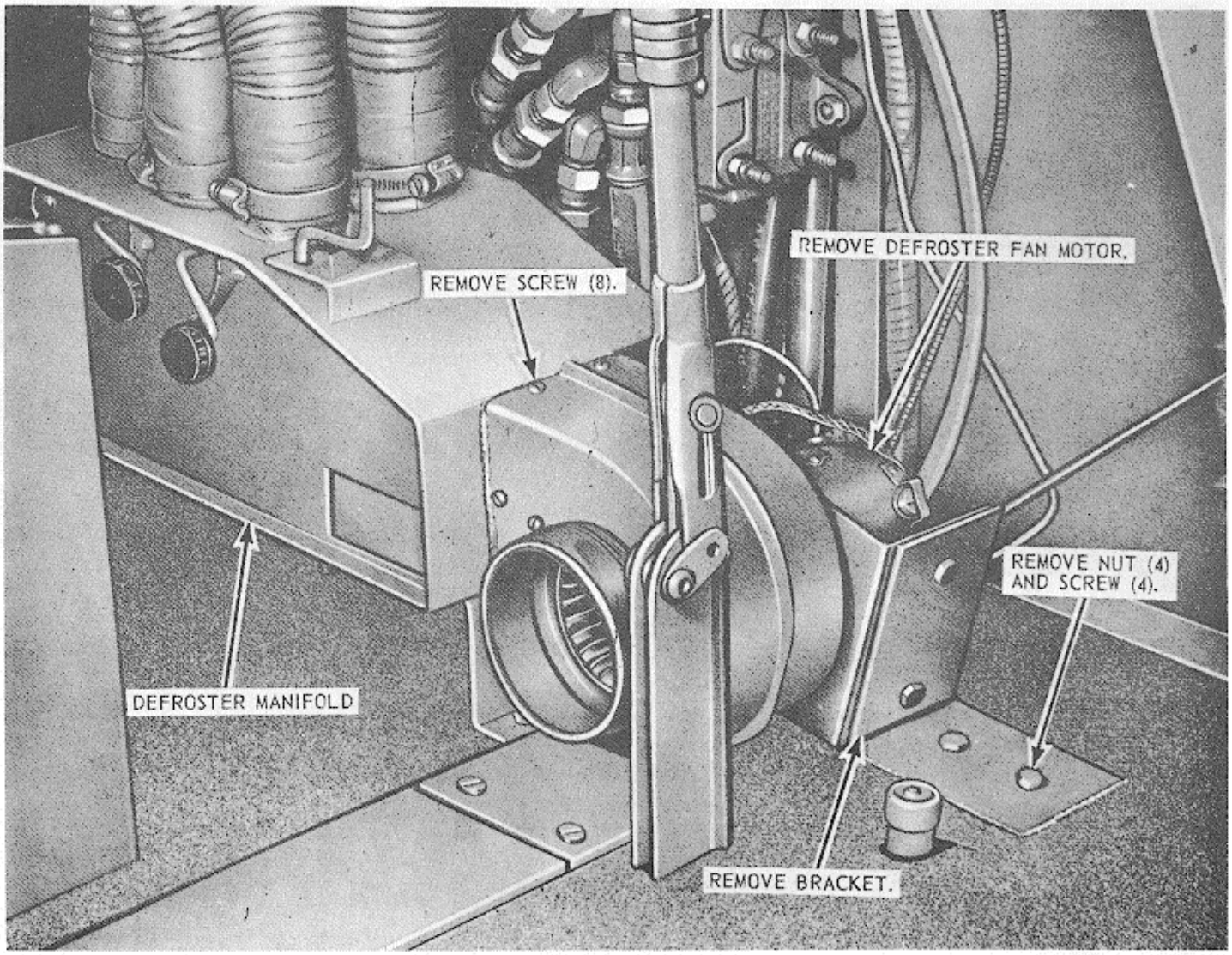
Figure 149. Personnel heater, removal and installation.



A EMC 3825-213-20/150 (1)

A. Defroster manifold removal points

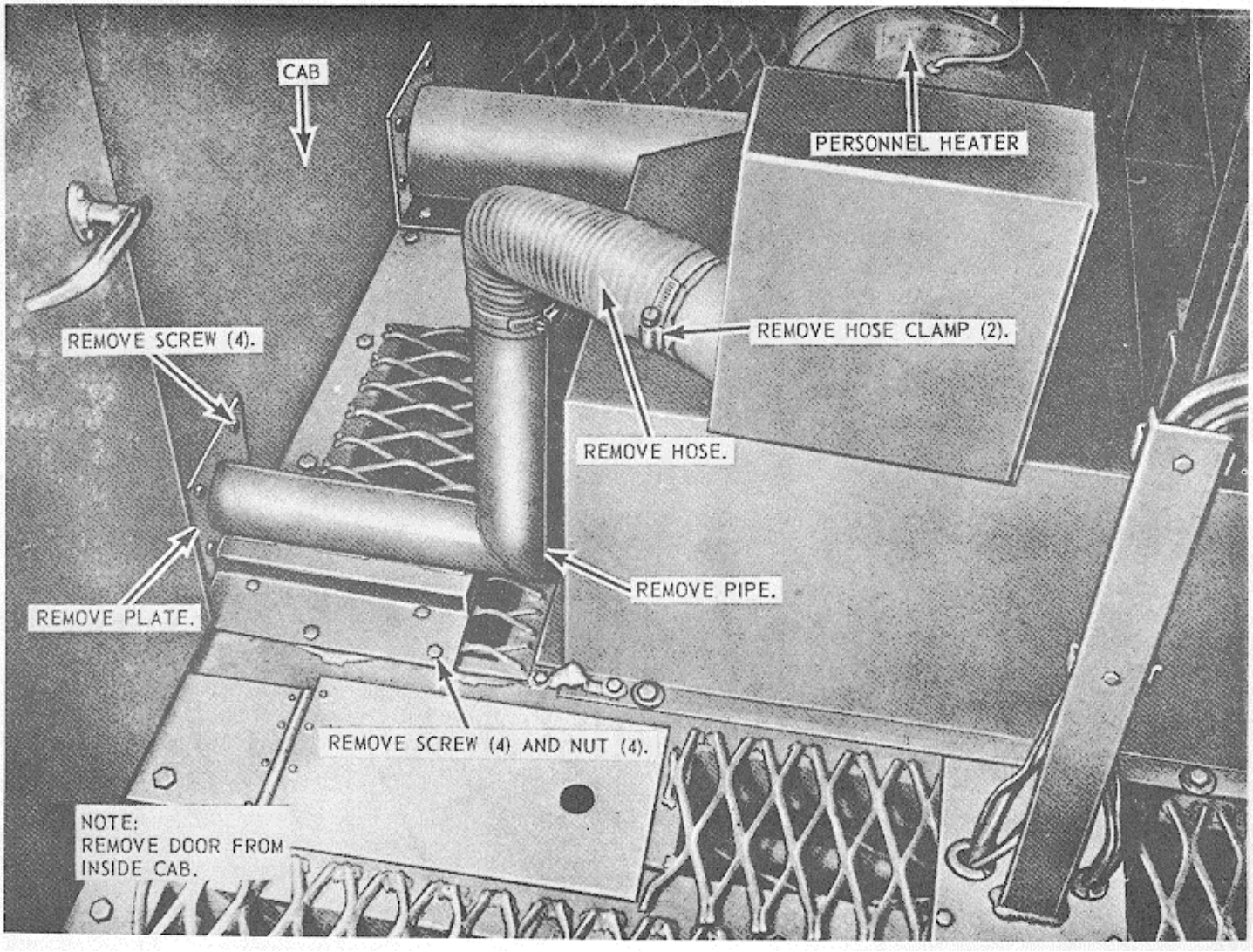
Figure 150. Personnel heater air ducts, shields, and deflectors, removal and installation.



B EMC 3825-213-20/150(2)

B. Defroster fan motor bracket removal points

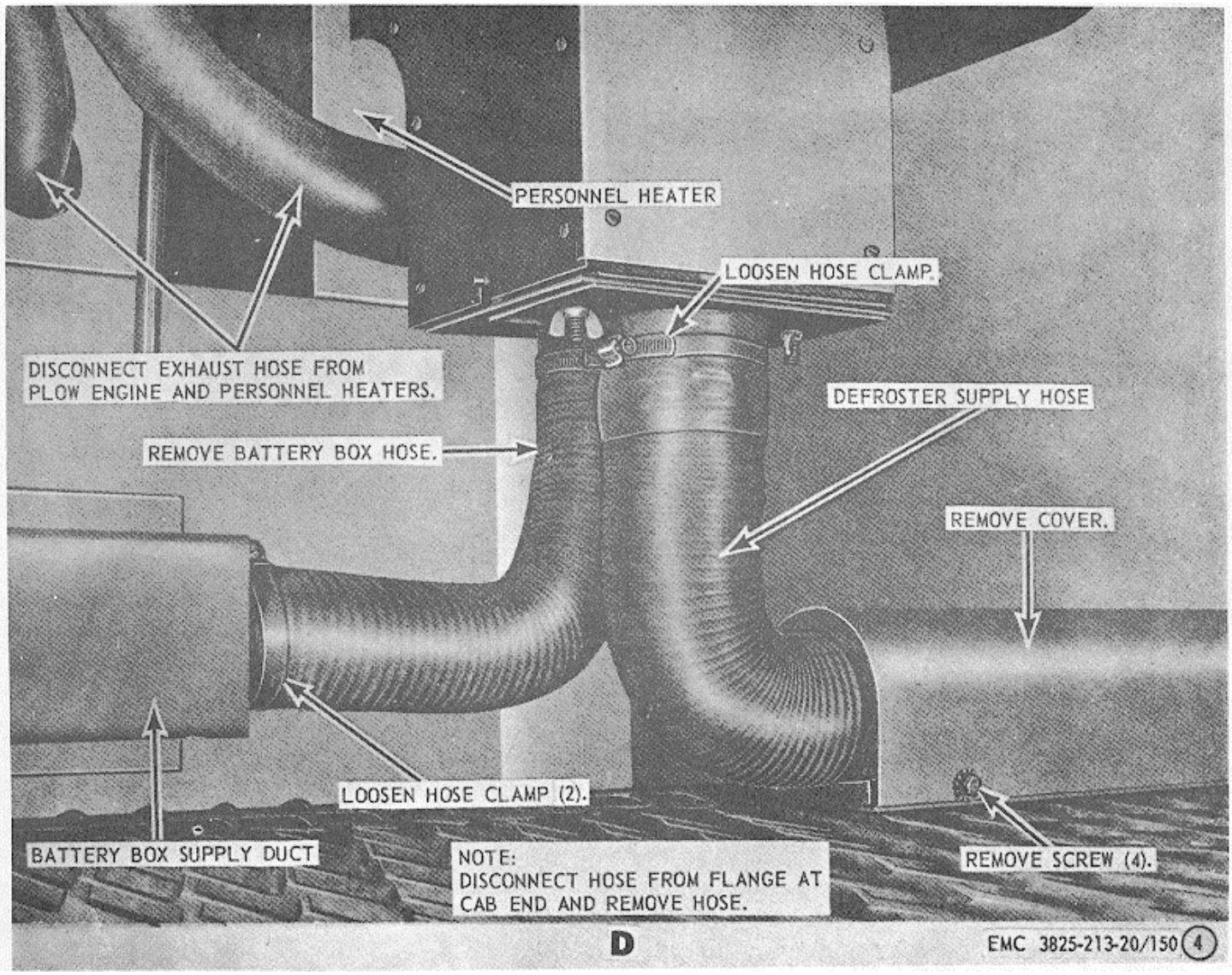
Figure 150-Continued.



C EMC 3825.213-20/150 (3)

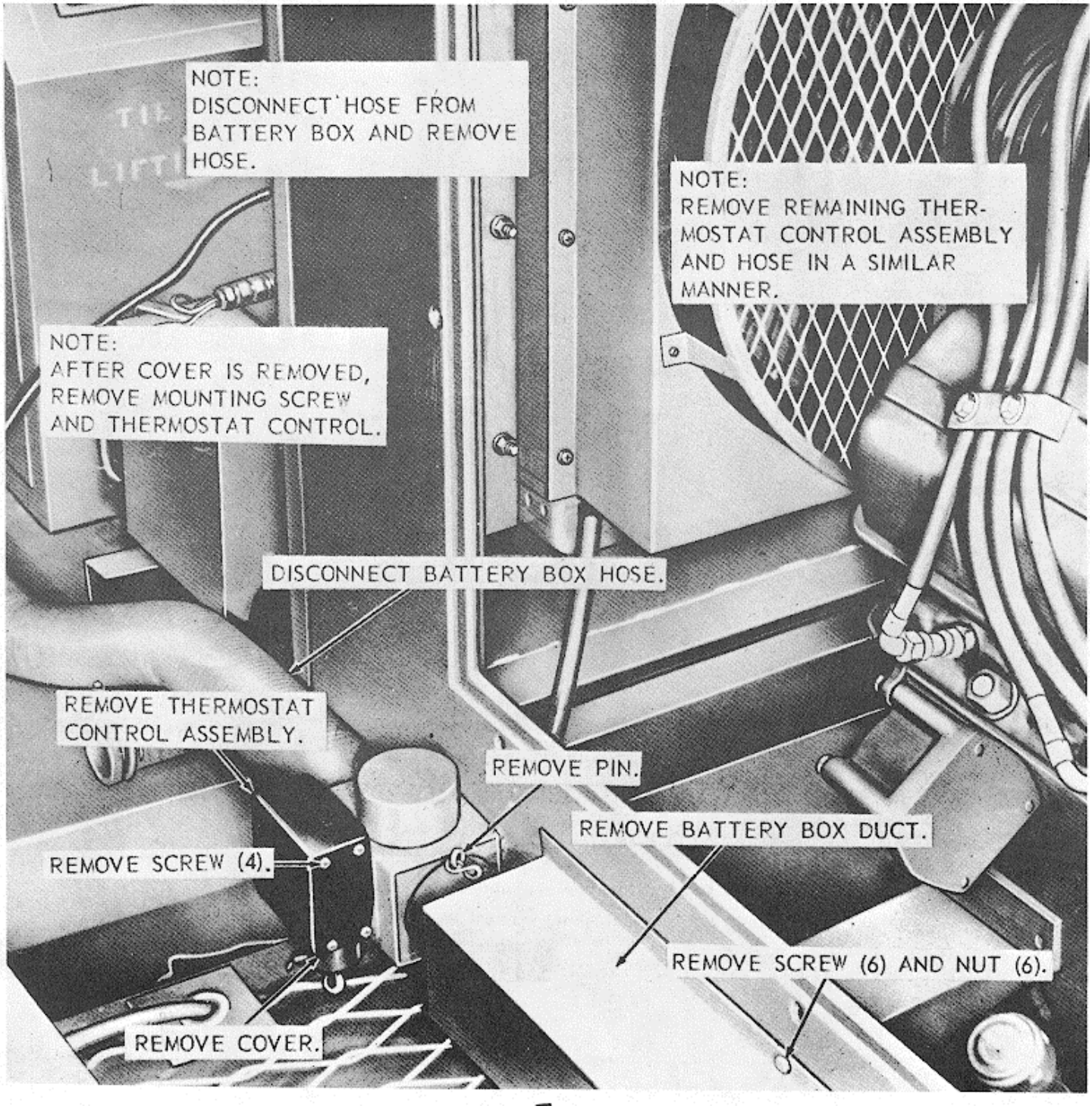
C. Recirculating heat tube removal points

Figure 150-Continued.



D. Battery box heat ducts and exhaust hose removal points

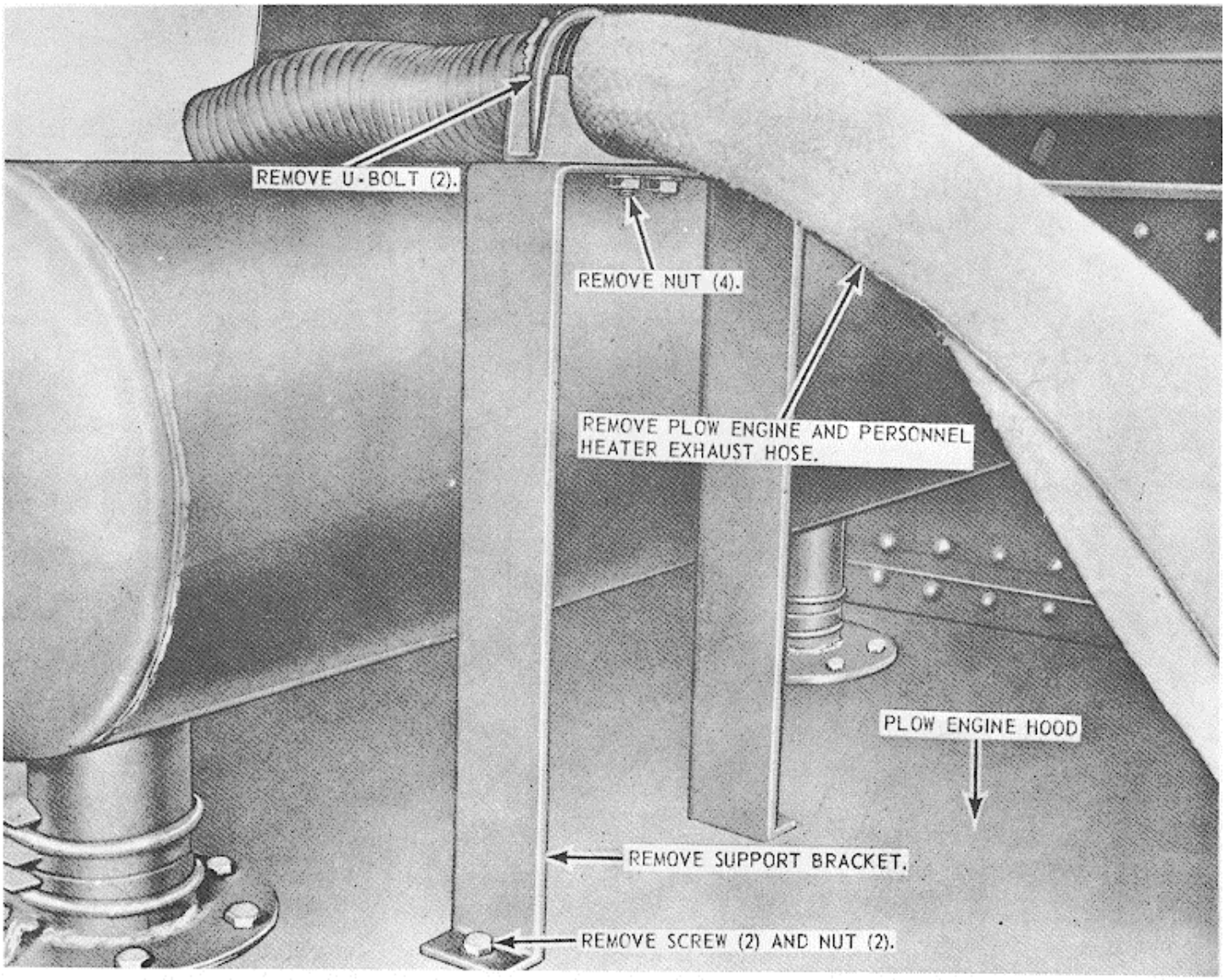
Figure 150-Continued.



E E4MC 3825-213-20/150 (5)

E. Thermostat control removal points

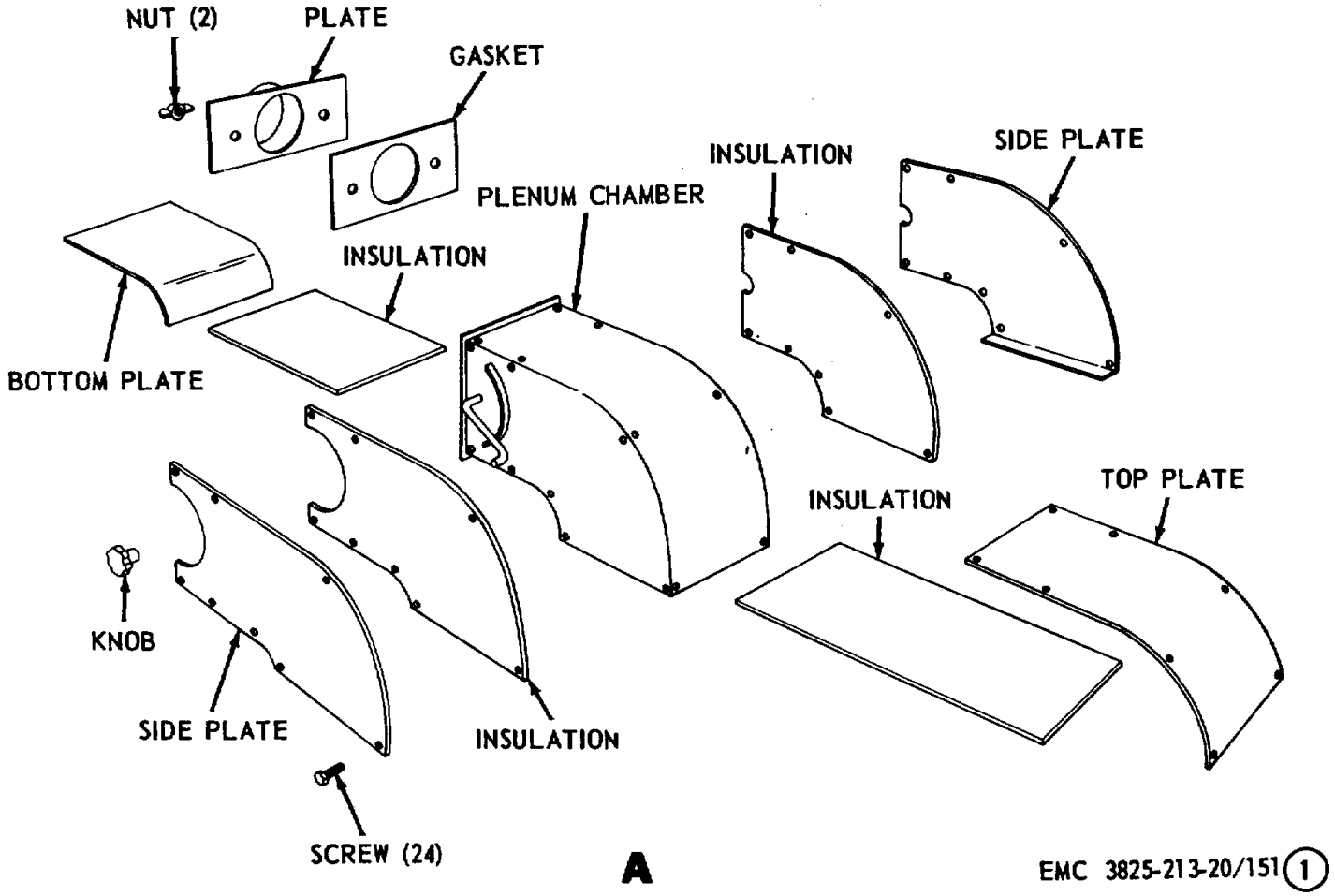
Figure 150-Continued.



F EMC 3825-213-20/150 (6)

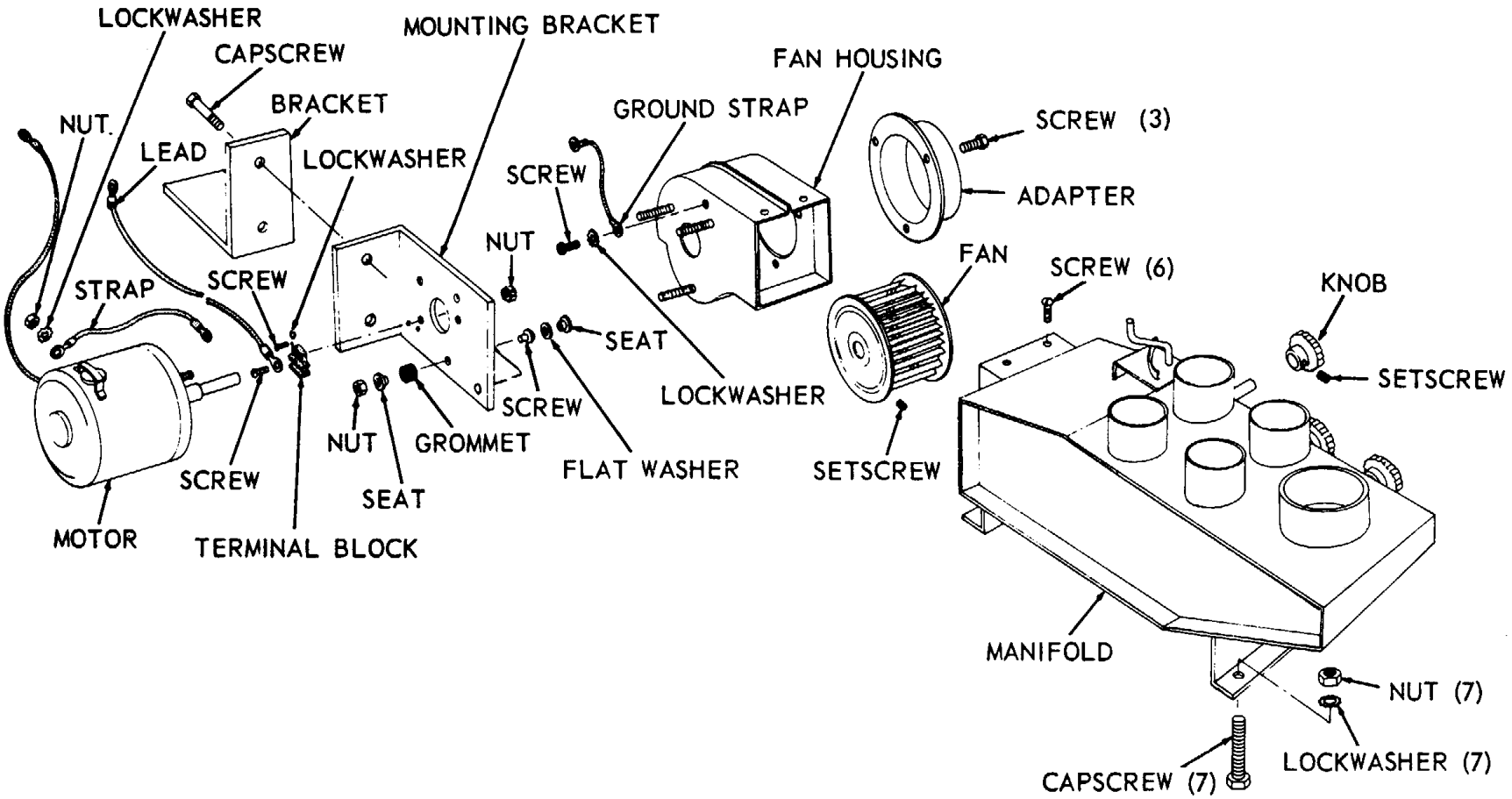
F. Support bracket removal points

Figure 150-Continued.



A. Plenum chamber

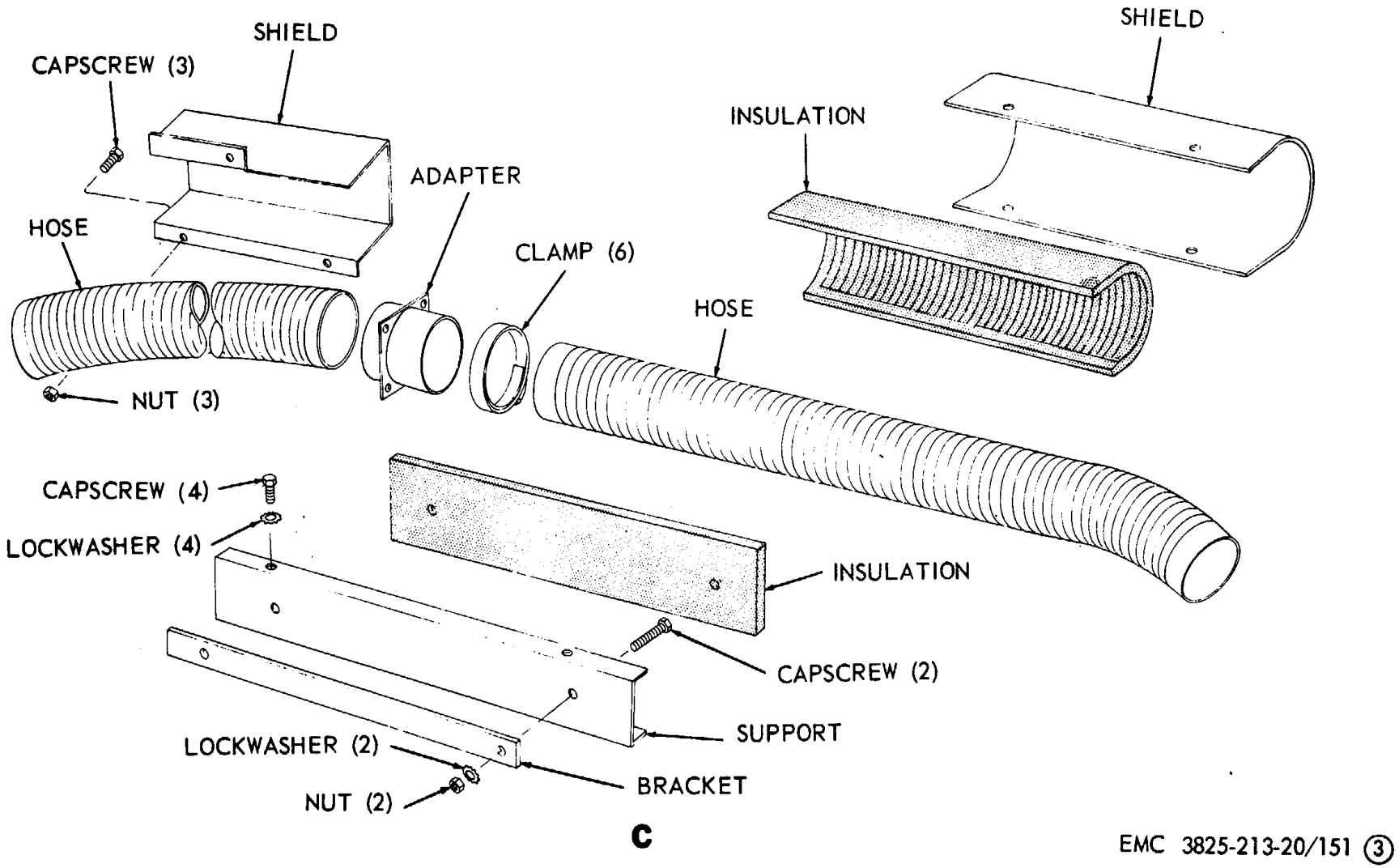
Figure 151. Personnel heater air ducts, disassembly and reassembly, exploded view.



B EMC 3825-213-20/151(2)

B. Defroster fan and manifold

Figure 151-Continued.



C. Heater duct

Figure 151-Continued.

Section IX. CARRIER CAB AND FRAME ACCESSORIES

242. General

The carrier cab and frame accessories include the side view mirrors, reflectors, pintle hook, seats. toolbox, floormat, sun visors, and windshield wiper motors. The side view mirrors are electrically heated for defrosting purposes, seats, are adjustable, and the wiper motors are air operated.

243. Windshield Wiper

a. *Removal.* Remove the windshield wiper motor and arms as illustrated in figure 152.

b. *Disassembly*. Disassemble the wiper motor as illustrated in figure 153.

c. *Cleaning, Inspection, and Repair*. Clean, inspect, replace, or repair damaged windshield wiper motor, arms, lines, and fittings as necessary.

d. *Reassembly*. Reassemble the windshield wiper motor as illustrated in figure 153.

e. *Installation*. Install the windshield wiper motor, lines, and arms as illustrated in figure 152.

244. Side View Mirror

a. *Removal*. Remove the side view mirror as illustrated in figure 154.

b. *Cleaning, Inspection, and Repair*. Clean, inspect, replace, or repair a damaged side view mirror as necessary.

c. *Installation.* Install the side view mirror as illustrated in figure 154.

245. Ventilator

a. *Removal*. Remove the ventilator as illustrated in figure 155.

b. *Cleaning, Inspection, and Repair.* Clean and inspect. Replace or repair defective or damaged ventilator as necessary.

c. *Installation*. Install the ventilator as illustrated in figure 155.

246. Sun Visor

a. *Removal*. Remove the sun visor as illustrated in figure 152.

b. *Disassembly*. Disassemble the sun visor as illustrated in figure 156.

c. *Cleaning, Inspection, and Repair*. Clean, inspect, and replace defective parts as necessary.

d. *Reassembly.* Reassemble the sun visor as illustrated in figure 156.

e. *Installation.* Install the sun visor as illustrated in figure 152.

247. Carrier and Plow Operator's Seat Assembly

a. *Removal.* Remove the carrier and/or plow operator's seat assembly as illustrated in figure 157.

b. *Disassembly*. Disassemble the operator's seat assembly as illustrated in figure 158.

c. *Cleaning, Inspection, and Repair.* Clean and inspect. Replace or repair defective or damaged parts as necessary.

d. *Reassembly*. Reassemble the operator's seat assembly as illustrated in figure 158.

e. *Installation.* Install the operator's seat assembly as illustrated in figure 157.

248. Cab Right and Left Doors

a. *Removal.*

(1) Remove the side view mirrors (fig. 154).

(2) Remove the cab right or left door as illustrated in figure 159.

b. *Disassembly*. Disassemble the cab right or left door as illustrated in figure 160.

c. *Cleaning, Inspection, and Repair*. Clean and inspect. Replace or repair defective parts as necessary.

d. *Reassembly*. Reassemble the cab right or left door as illustrated in figure 160.

e. *Installation.*

(1) Install the cab right or left door as illustrated in figure 159.

(2) Install the side view mirrors (fig. 154).

249. Cab Rear Door

a. *Removal*. Remove the cab rear door as illustrated in figure 159.

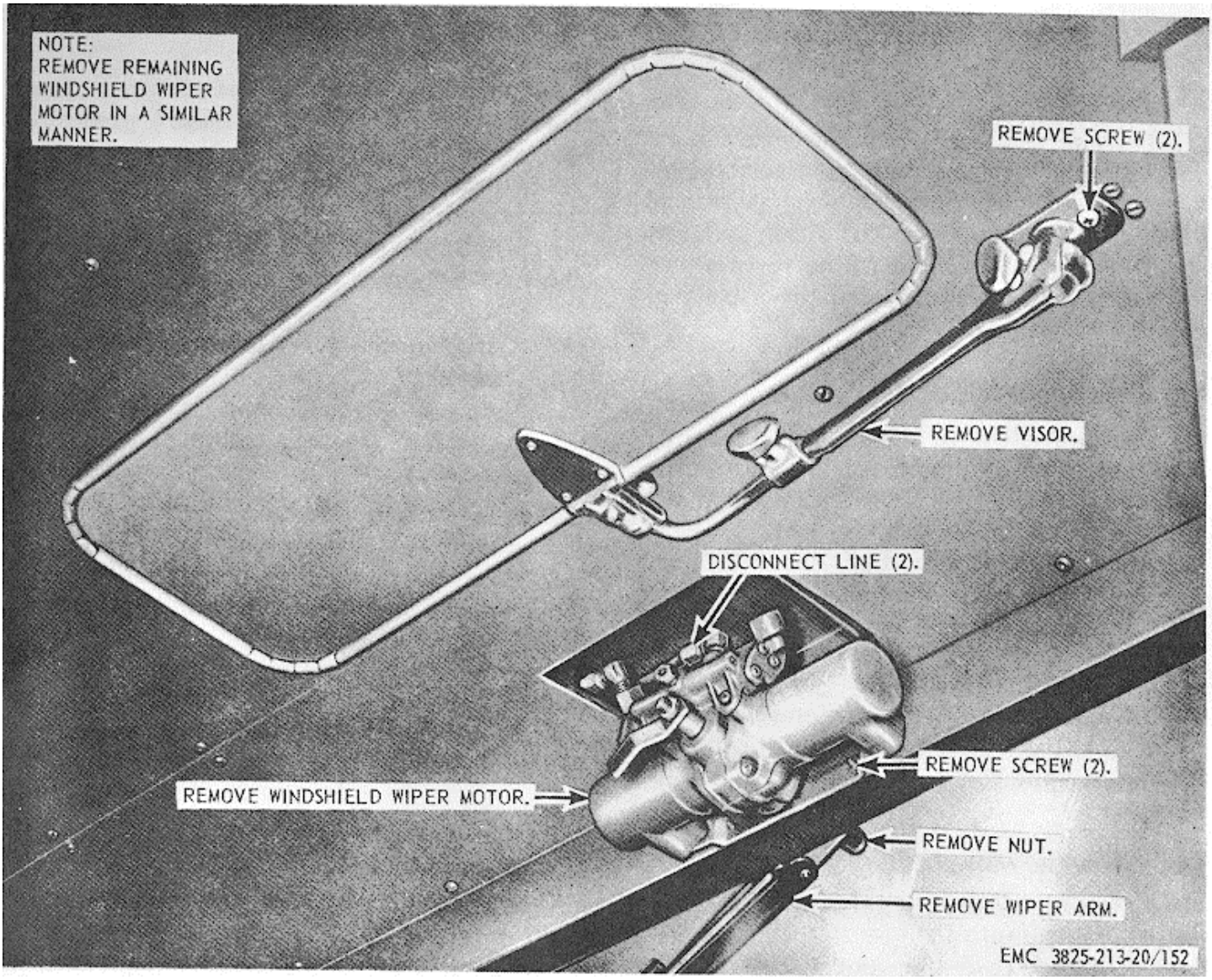


Figure 152. Windshield wiper motor, arms, and visor, removal and installation.

b. *Disassembly*. Disassemble the cab rear door as illustrated in figure 161.

c. *Cleaning, Inspection, and Repair*. Clean and inspect. Replace or repair defective parts as necessary.

d. *Reassembly*. Reassemble the cab rear door as illustrated in figure 161.

e. *Installation.* Install the cab rear door as illustrated in figure 159.

250. Batteries and Battery Box

a. *Removal*. Remove the battery box assembly as illustrated in figure 162.

b. *Disassembly.* Disassemble the battery box assembly as illustrated in figure 163.

c. *Cleaning, Inspection, and Repair*. Clean and inspect. Replace or repair defective parts as necessary.

d. *Reassembly*. Reassemble the battery box assembly as illustrated in figure 163.

e. *Installation.* Install the battery box assembly as illustrated in figure 162.

251. Toolbox

a. *Removal*. Remove the toolbox as illustrated in figure 164.

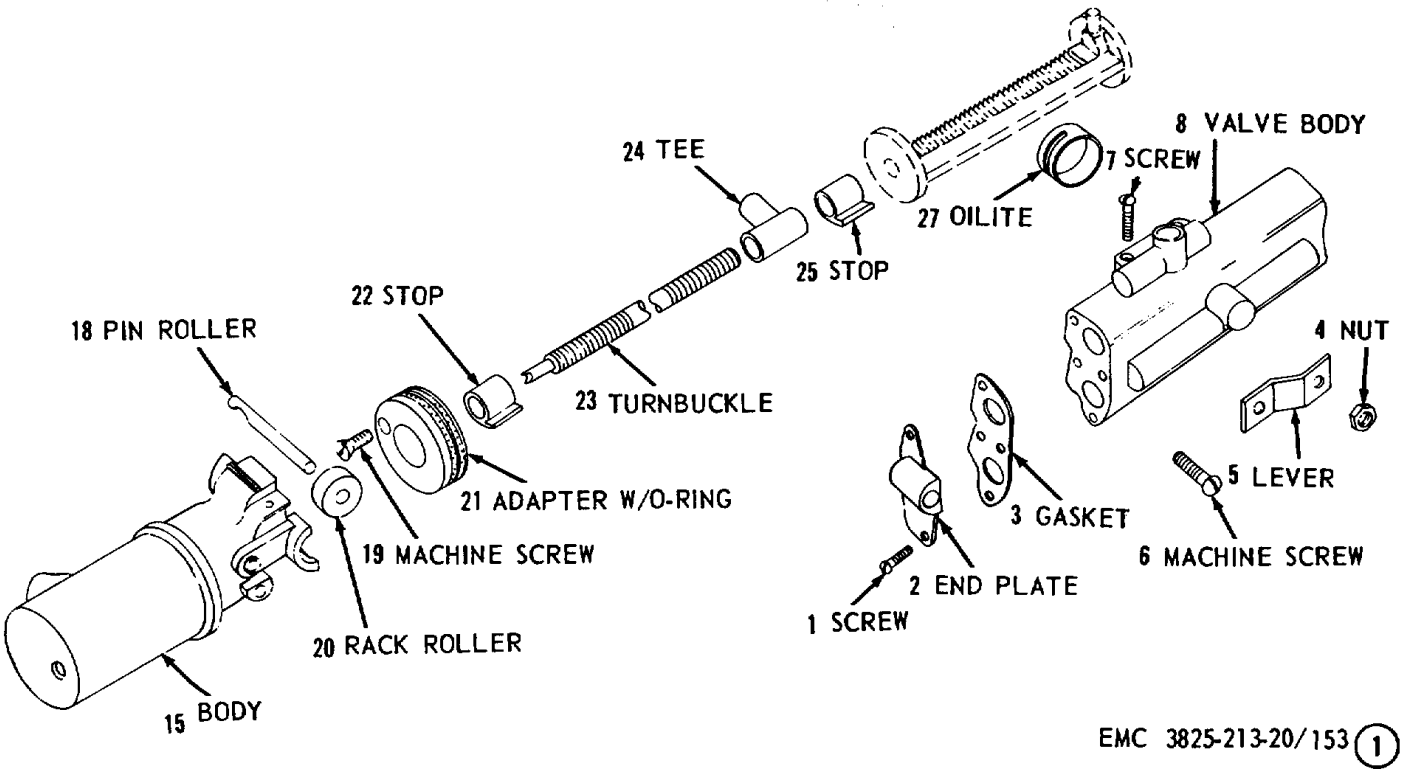


Figure 153. Windshield wiper motor, disassembly and reassembly, exploded view.

b. *Cleaning, Inspection, and Repair*. Clean, inspect, and repair the toolbox as necessary.

c. *Installation*. Install the toolbox as illustrated in figure 164.

252. Reflector

a. *Removal*. Remove the reflector as illustrated in figure 165.

b. *Cleaning and Inspection*. Clean, inspect, and replace a damaged reflector.

c. *Installation*. Install the reflector as illustrated in figure 165.

253. Pintle Hook

a. *Removal*. Remove the pintle hook as illustrated in figure 166.

b. *Disassembly*. Disassemble the pintle hook as illustrated in figure 167.

c. *Cleaning, Inspection, and Repair*. Clean and inspect. Replace or repair defective parts as necessary.

d. *Reassembly*. Reassemble the pintle hook as illustrated in figure 167.

e. *Installation.* Install the pintle hook as illustrated in figure 166.

254. Carrier Engine Oil Pan Shield

a. *Removal*. Remove the oil pan shield as illustrated in figure 168.

b. *Cleaning, Inspection, and Repair*. Clean and inspect. Replace defective parts as necessary.

c. *Installation.* Install the oil pan shield as illustrated in figure 168.

255. Plow Engine Oil Pan Shield

a. *Removal.* Remove the plow engine oil pan shield as illustrated in figure 169.

b. *Cleaning, Inspection, and Repair*. Clean, inspect, repair or replace defective or damaged oil pan shield.

c. *Installation*. Install the plow engine oil pan shield as illustrated in figure 169.

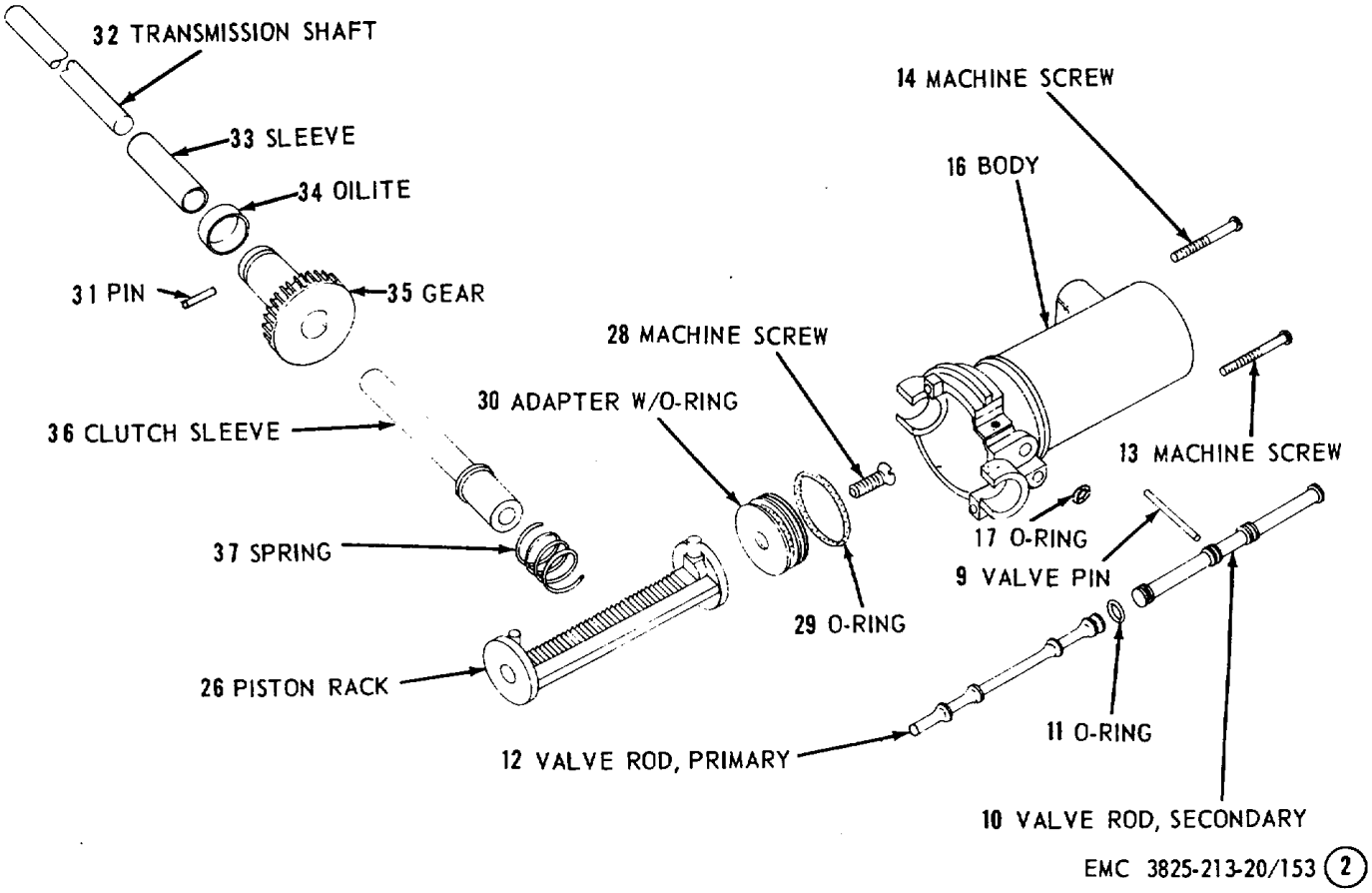


Figure 153-Continued.

256. Walkway and Handrail

a. *Removal.*

(1) Remove the batteries and battery box (fig. 162).
(2) Remove the toolbox (fig. 164).
(3) Remove the taillight and signal light (fig. 65).
(4) Remove electrical connectors (fig. 65).
(5) Remove transmission oil cooler cover (fig. 137).
(6) Remove the plow engine hood (fig. 109) and carrier engine hood (fig. 111).
(7) Remove the handrail and walkway as illustrated in figure 170.

b. *Cleaning, Inspection, and Repair.* Clean, inspect, and repair defective parts as necessary.

c. *Installation.*

(1) Install the walkway and handrail as illustrated in figure 170.
(2) Install the plow engine hood (fig. 109) and carrier engine hood (fig. 111).
(3) Install the transmission oil cooler cover (fig. 137).
(4) Install the electrical connectors (fig. 65).
(5) Install the taillight and signal light (fig. 65).
(6) Install the toolbox (fig. 164).
(7) Install the battery box and batteries (fig. 162).

257. Carrier Rear Fender Assembly

a. *Removal.*

(1) Remove fuel pump and strainer (left fender only) (fig. 105).
(2) Remove reflectors (par. 252).
(3) Remove the rear fender as illustrated in figure 171.

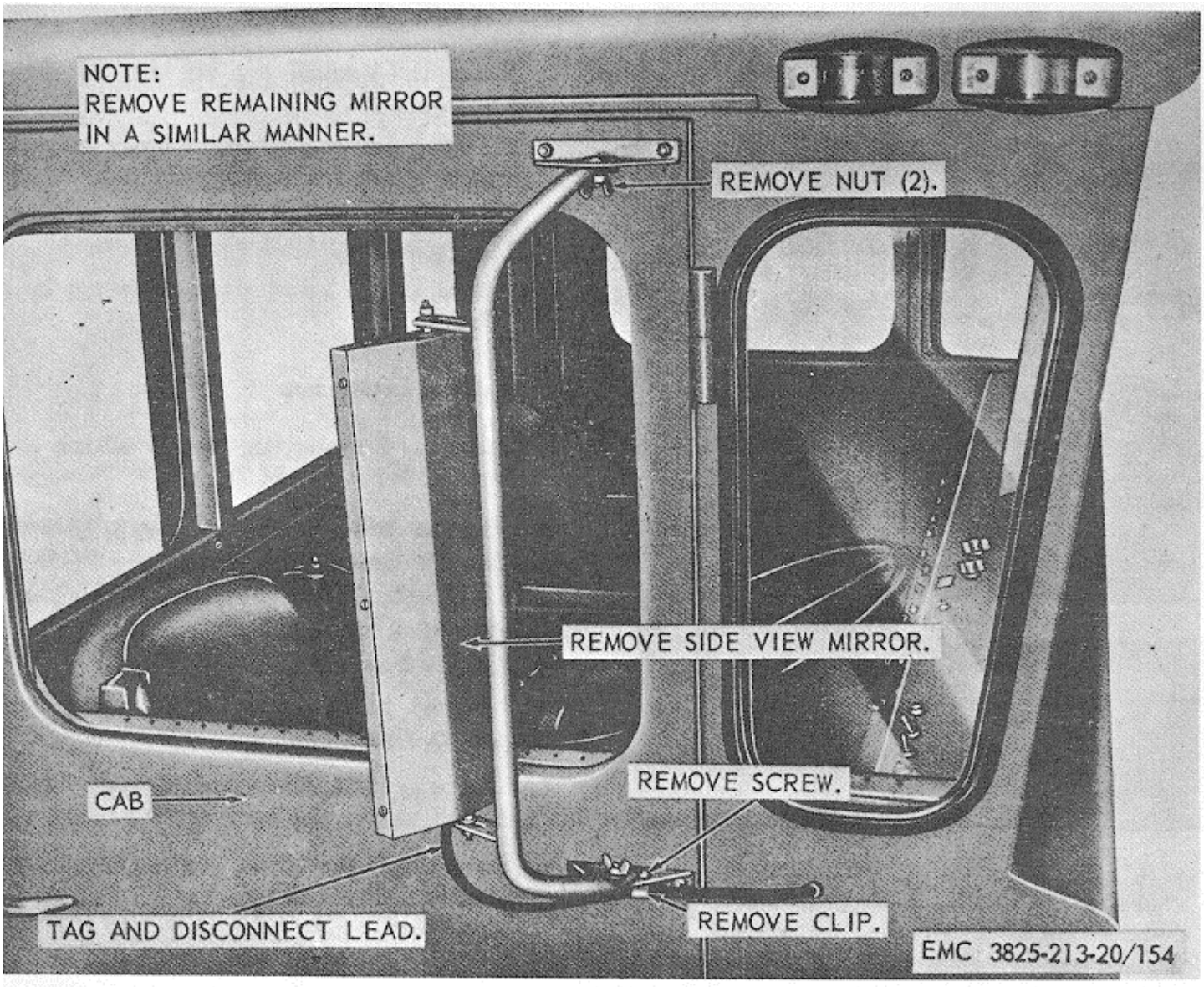


Figure 154. Side view mirror, removal and installation.

Note. Remove opposite fender in a similar manner.

b. *Cleaning, Inspection, and Repair*. Clean, inspect, and repair the rear fender as necessary.

c. *Installation.*

(1) Install the rear fender as illustrated in figure 171.

(2) Install the reflectors (par. 252).

(3) Install fuel pump and strainer (left fender only) (fig. 105).

258. Carrier Steering Assembly Gearbox Shield

a. *Removal*. Remove the steering assembly gearbox shield as illustrated in figure 172.

b. *Disassembly*. Disassemble the steering assembly gearbox shield as illustrated in figure 173.

c. *Cleaning, Inspection, and Repair.* Clean, inspect, and repair the steering assembly gearbox shield as necessary.

d. *Reassembly*. Reassemble the steering assembly gearbox shield as illustrated in figure 173.

e. *Installation*. Install the steering assembly gearbox shield as illustrated in figure 172.

259. Carrier Steering Gearbox Adjustment

Adjust the carrier steering gearbox as illustrated in figure 174.

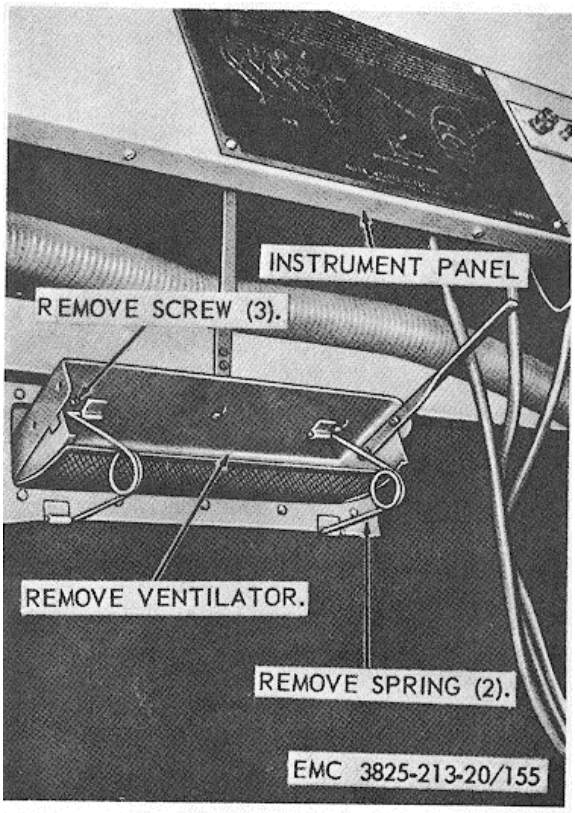


Figure 155. Ventilator, removal and installation.

260. Tie Rod

a. *Removal*. Remove the tie rod as illustrated in figure 175.

b. *Cleaning and Inspection.* Clean, inspect, and replace a bent or damage tie rod.

c. *Installation.* Install the tie rod as illustrated in figure 175.

Note. Remove and adjust the rear tie rod in a similar manner.

261. Carrier Lifting Eye

a. *Removal*. Remove the carrier lifting eye as illustrated in figure 176.

b. *Cleaning and Inspection.* Clean, inspect, and replace a damaged lifting eye as necessary.

c. Installation. Install the carrier lifting eye as illustrated in figure 176.

262. Carrier Bumper

a. *Removal*. Remove the carrier bumper as illustrated in figure 170.

b. *Cleaning, Inspection, and Repair.* Clean, inspect, and repair the bumper as necessary.

c. *Installation.* Install the carrier bumper as illustrated in figure 170.

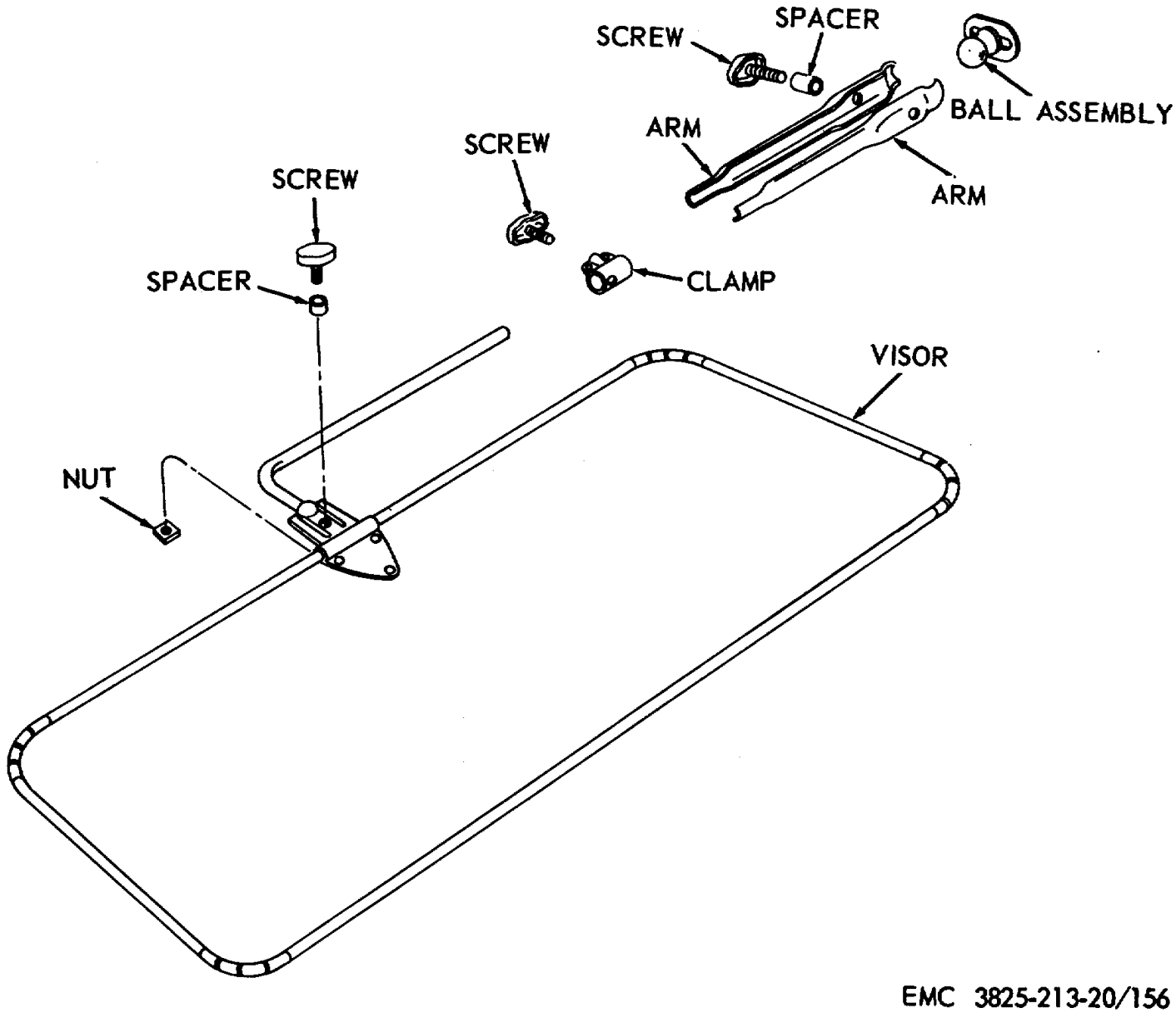


Figure 156. Sun visor, disassembly and reassembly, exploded view.

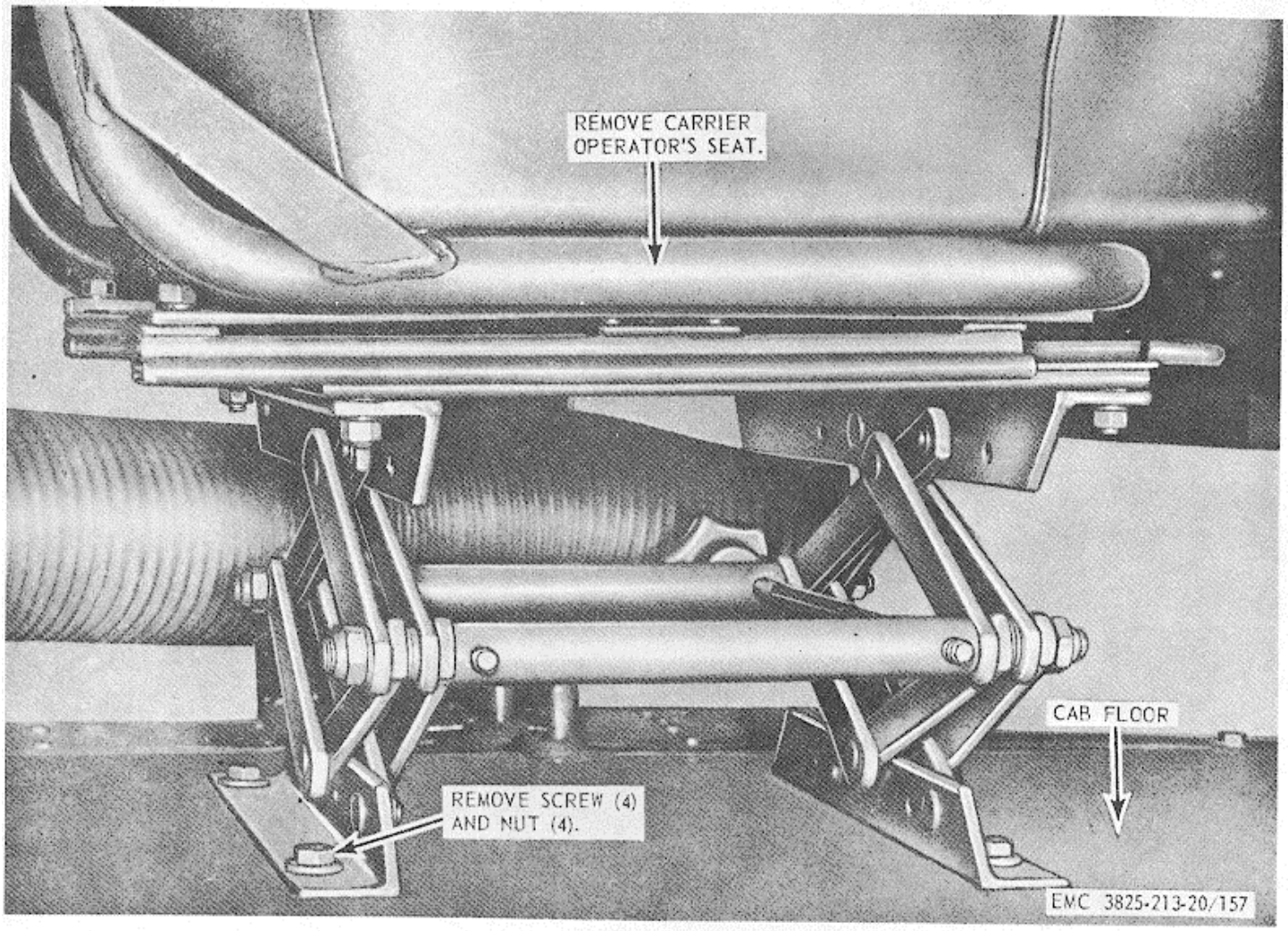


Figure 157. Carrier and plow operator's seat assembly, removal and installation.

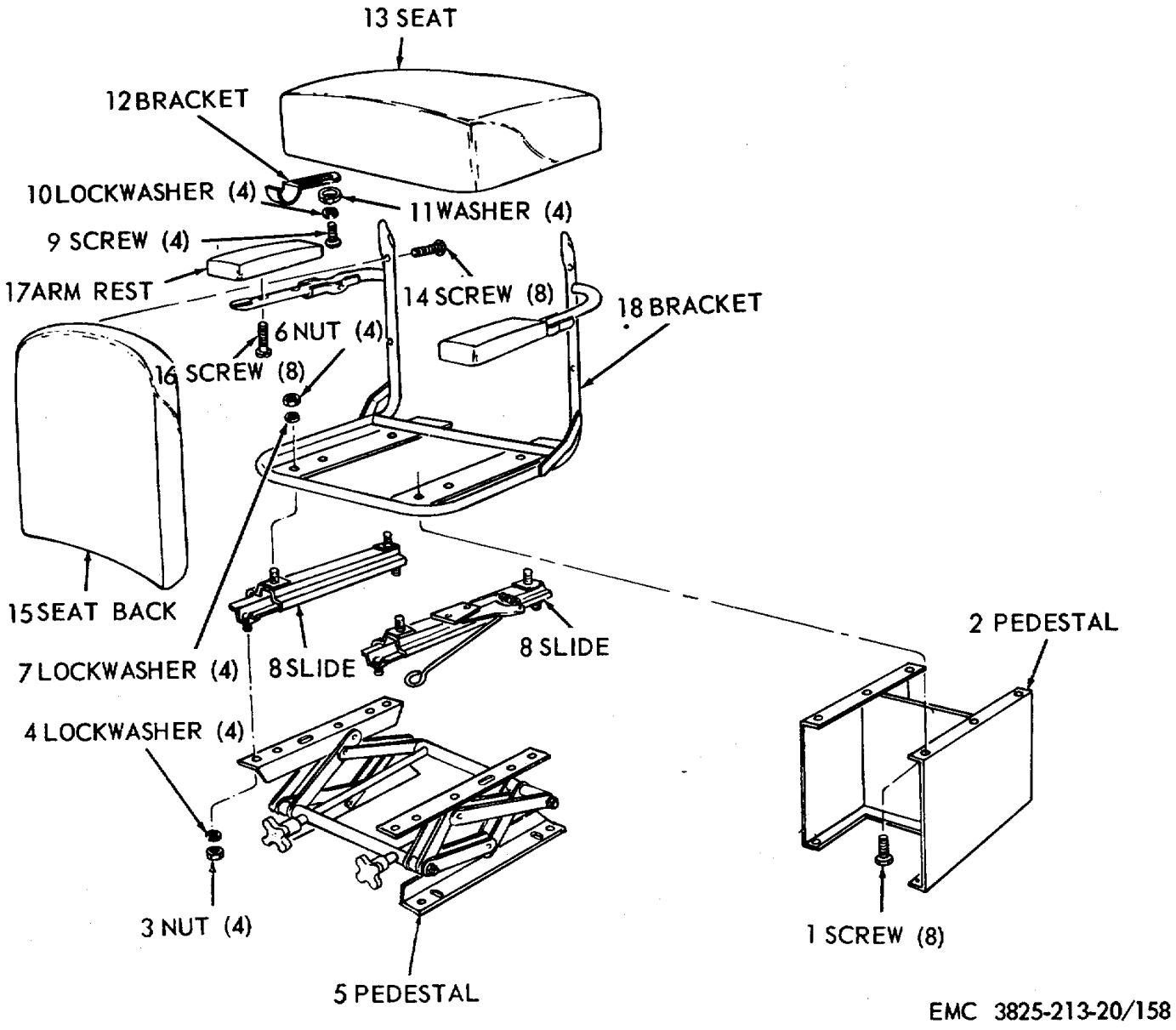


Figure 158. Carrier and plow operator's seat assembly, disassembly and reassembly, exploded view.

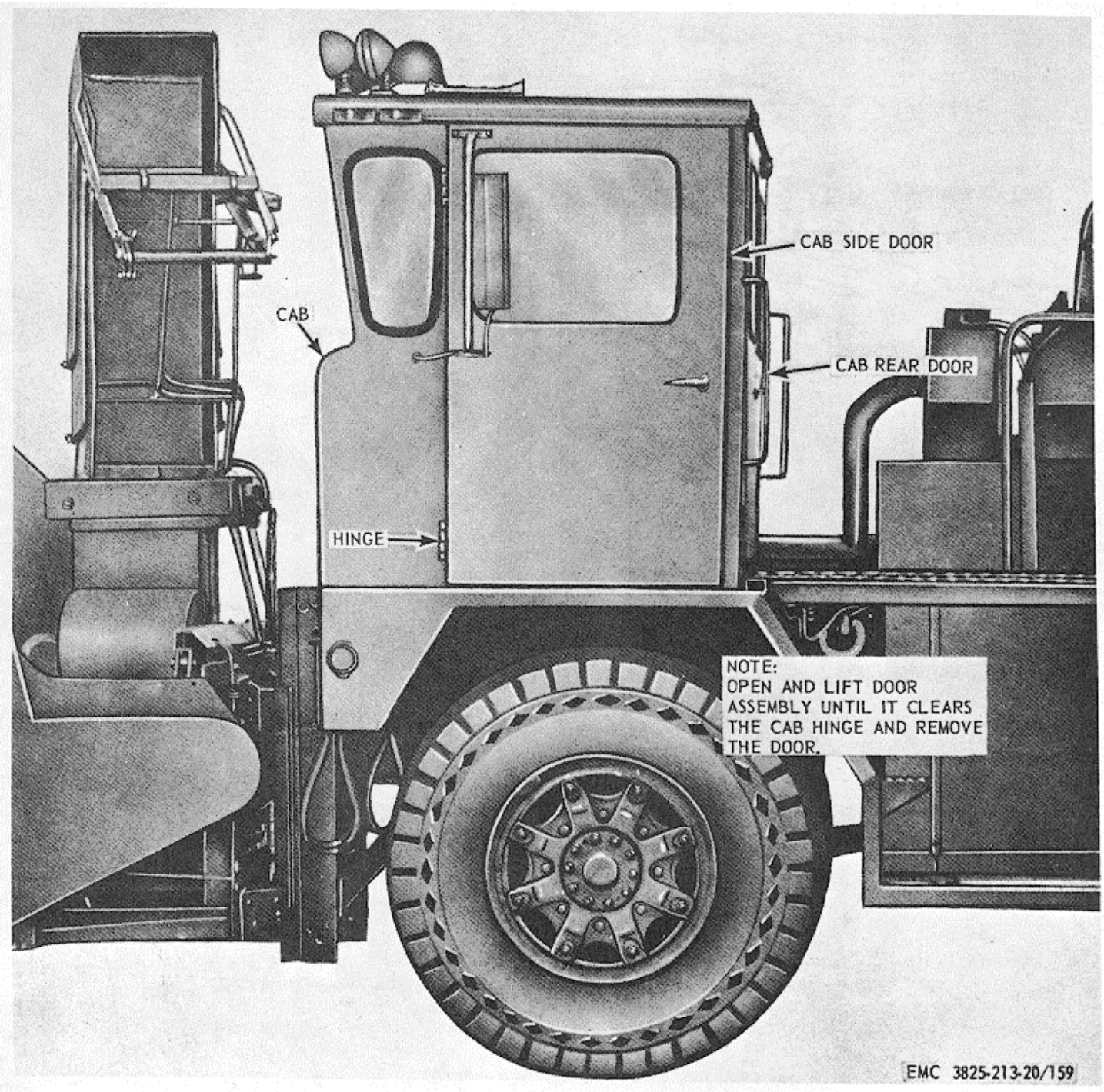


Figure 159. Cab right, left, and rear door, removal and installation.

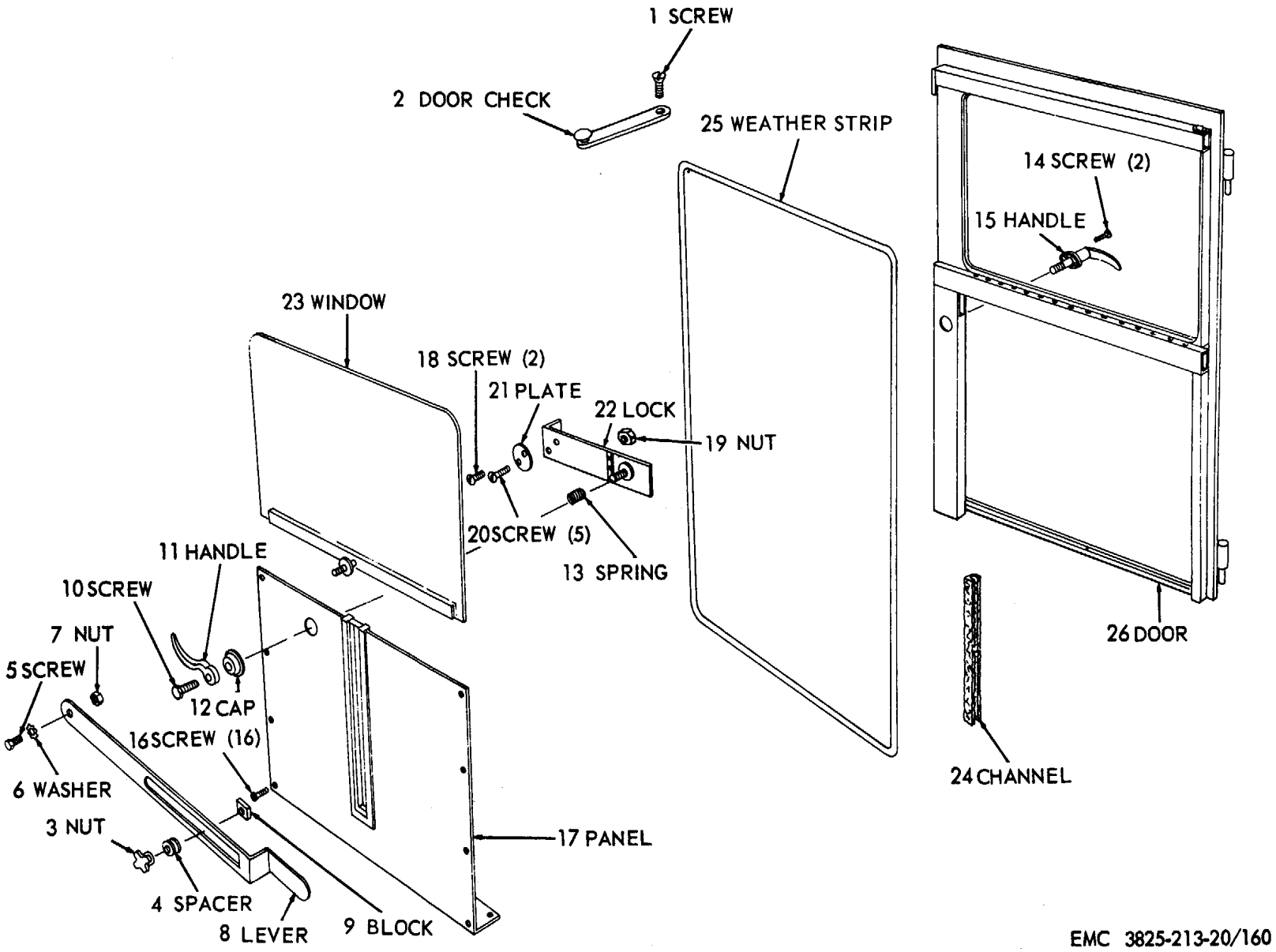


Figure 160. Cab right and left door, disassembly and reassembly, exploded view.

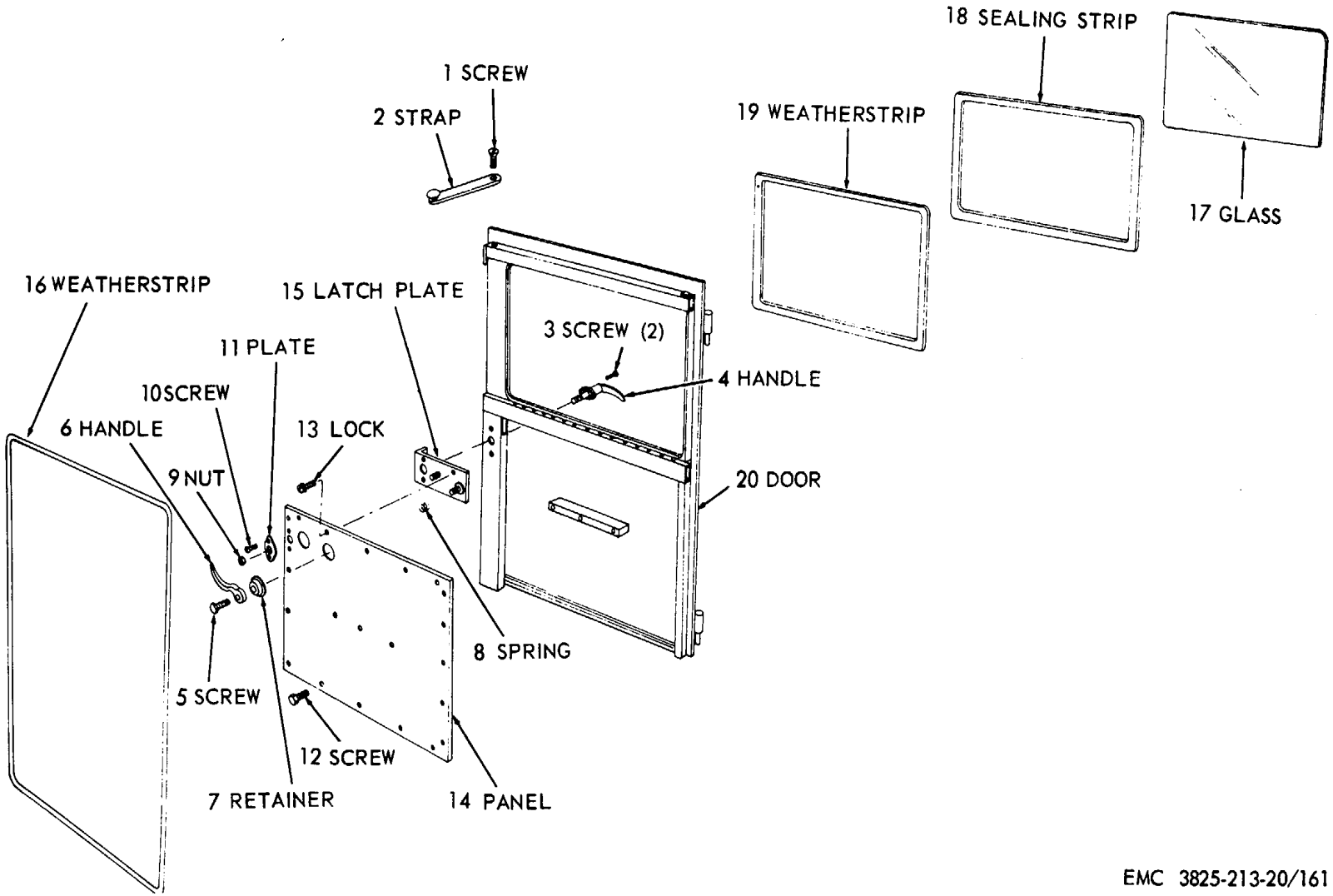
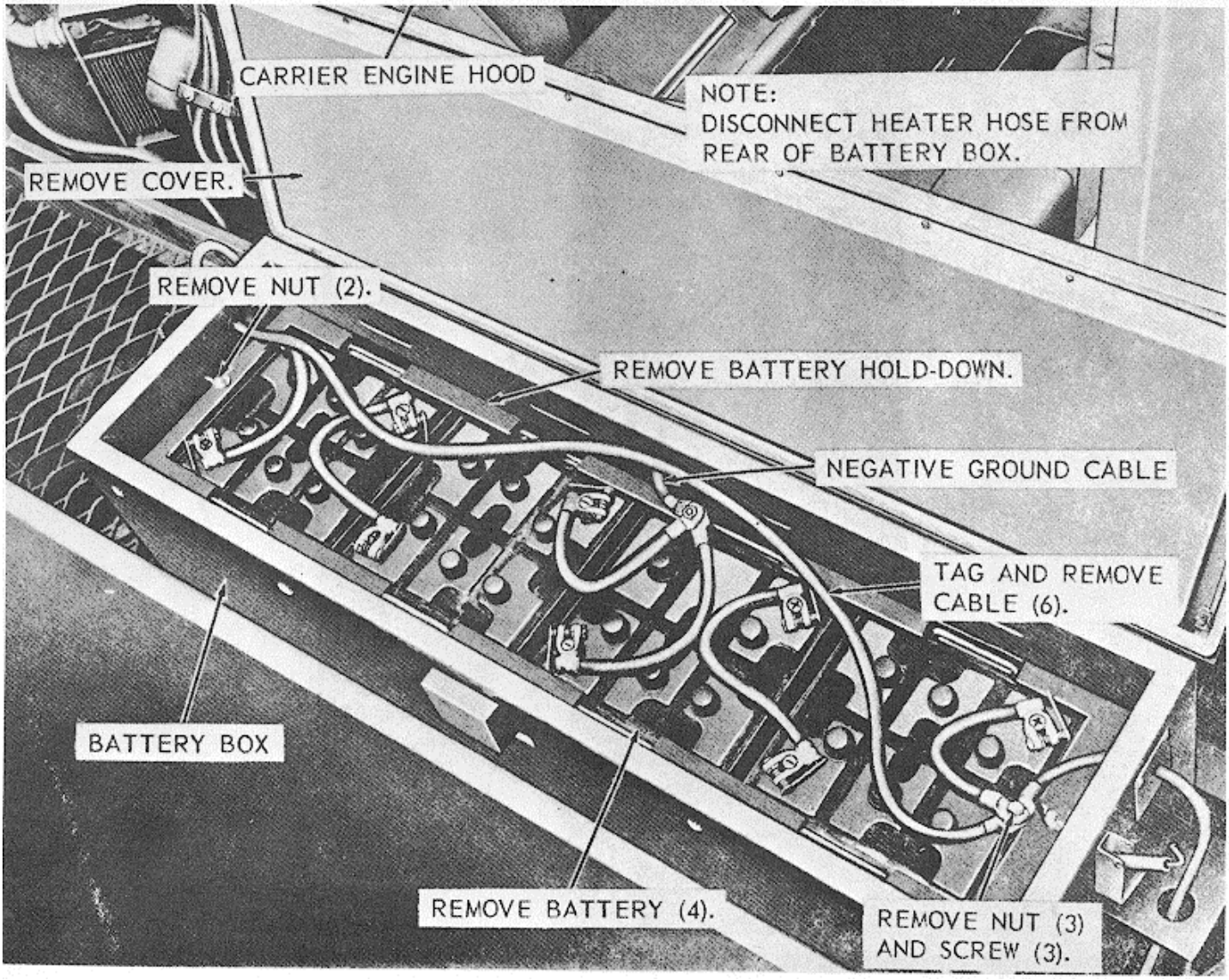


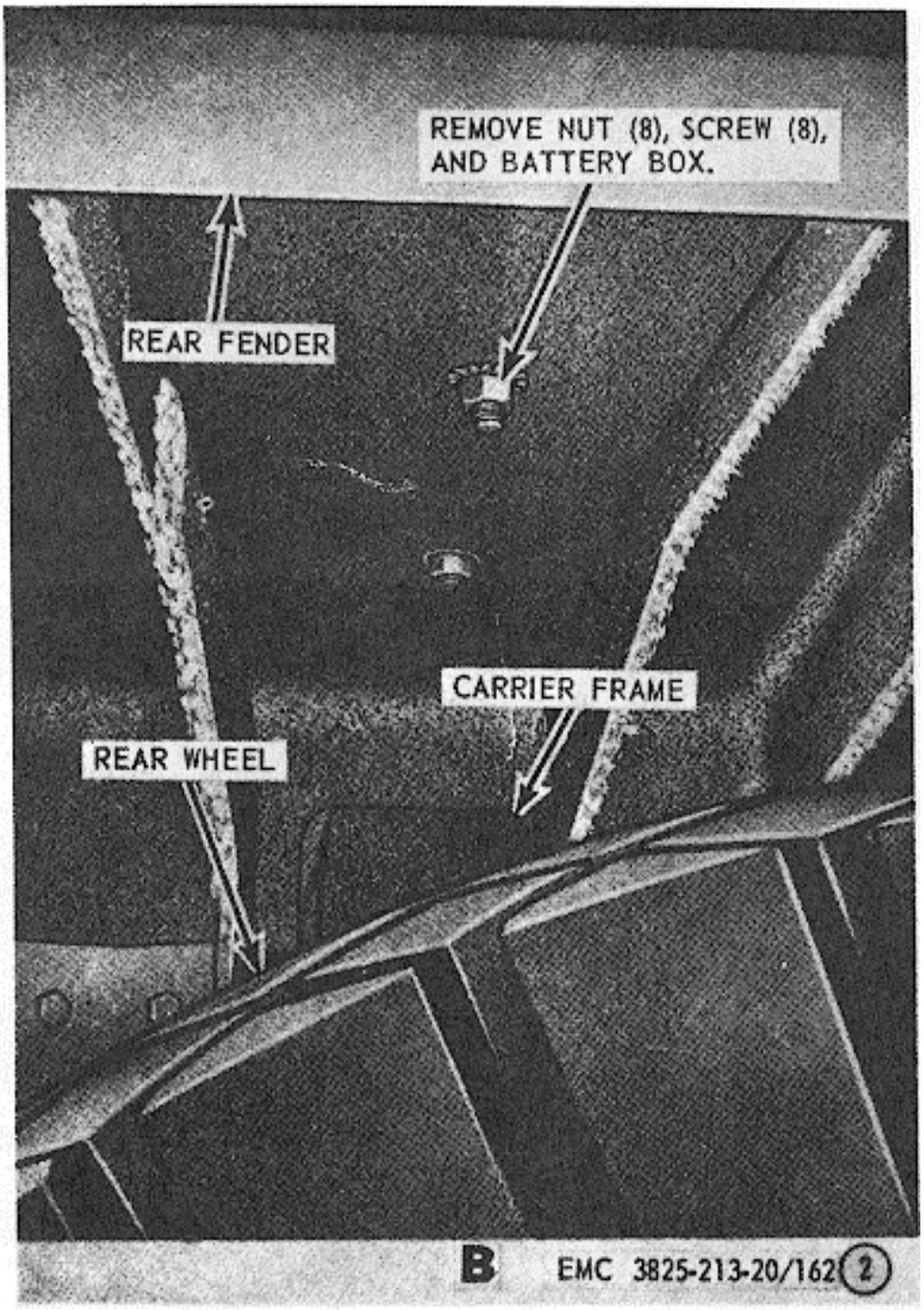
Figure 161. Cab rear door, disassembly and reassembly, exploded view.



A EMC 3825-213-20/162(1)

A. Batteries and cables removal points

Figure 162. Battery box assembly, removal and installation.



B. Battery box removal points

Figure 162-Continued.

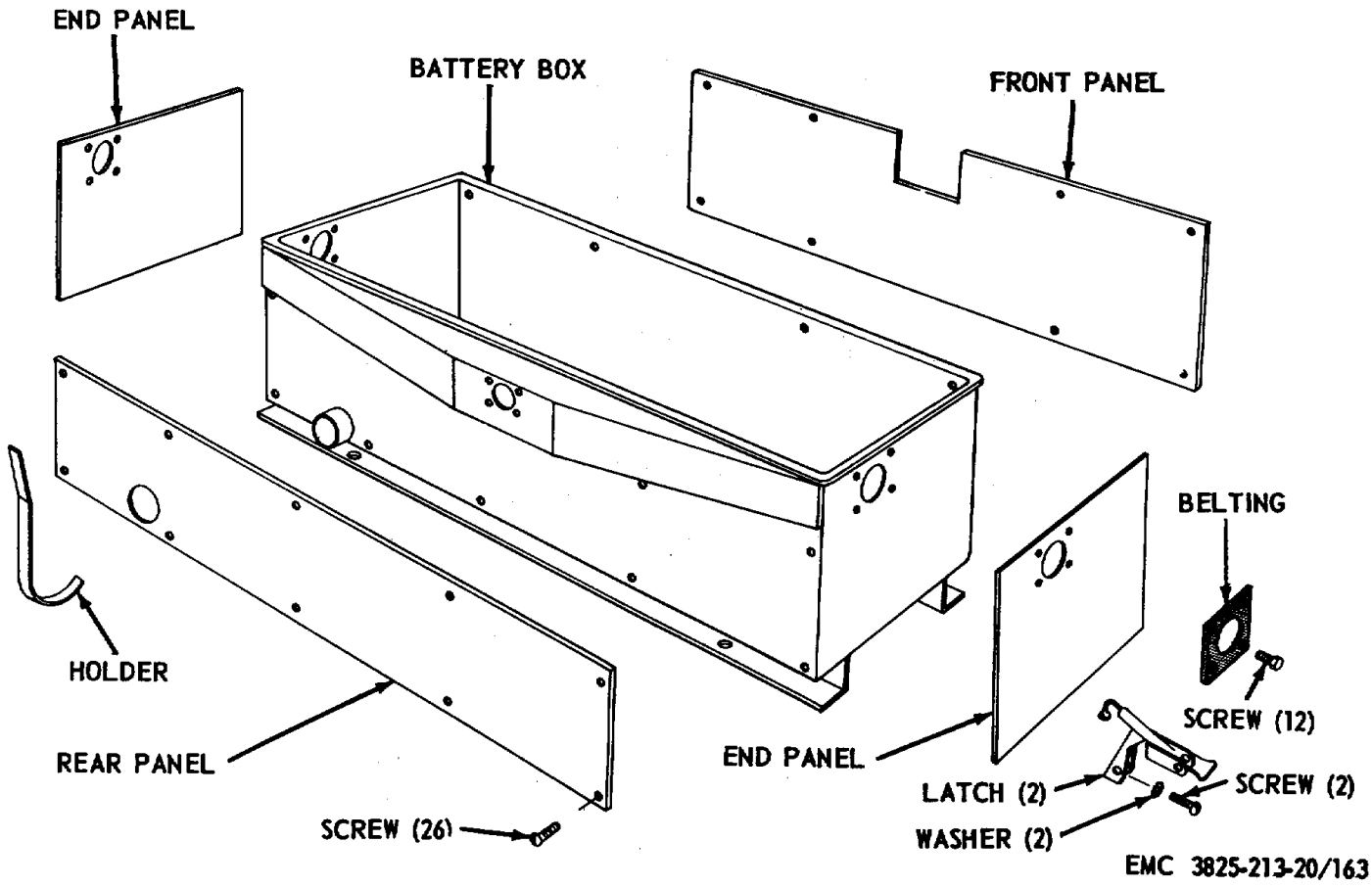


Figure 163. Battery box assembly, disassembly and reassembly, exploded view.

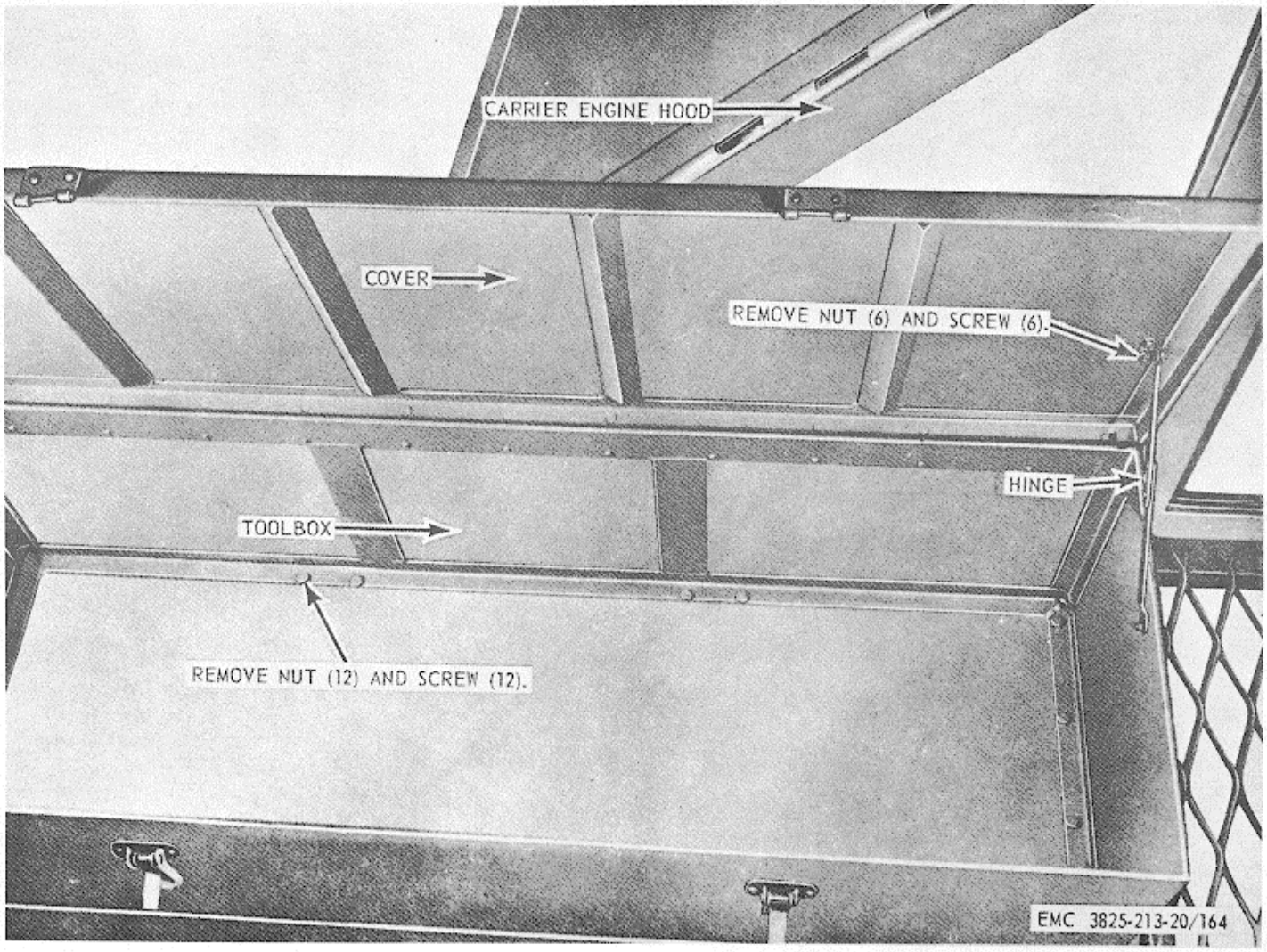


Figure 164. Toolbox, removal and installation.

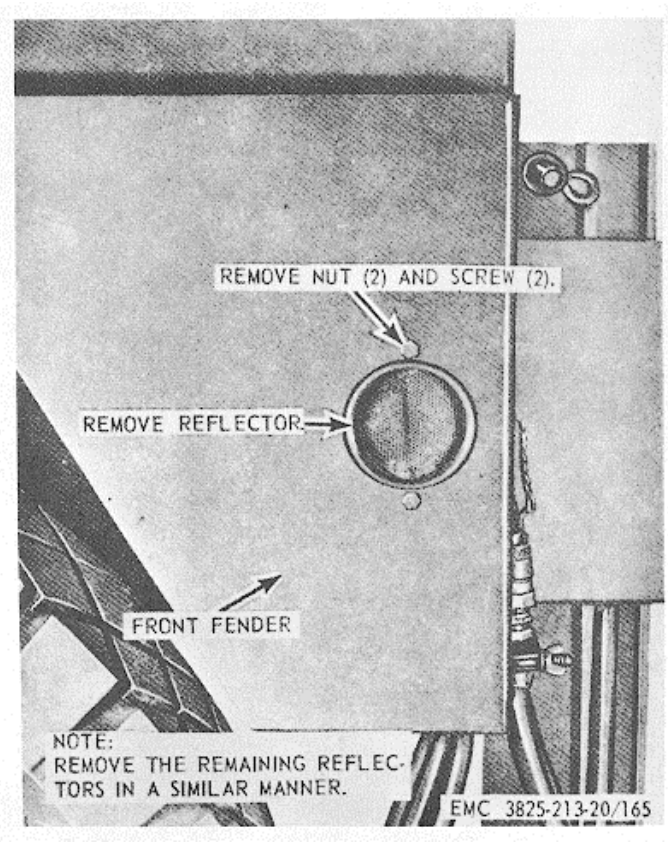


Figure 165. Reflector, removal and installation.

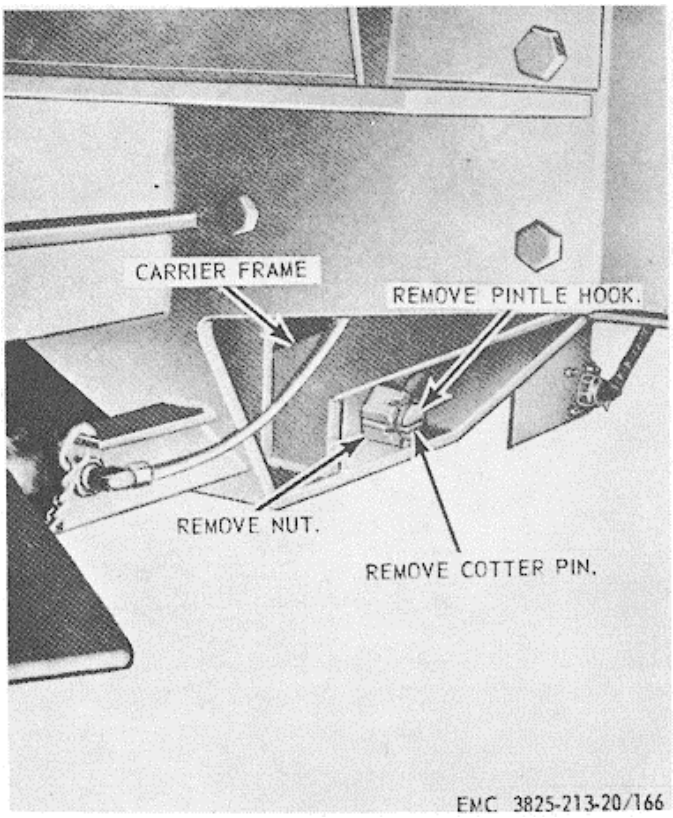


Figure 166. Pintle hook, removal and installation.

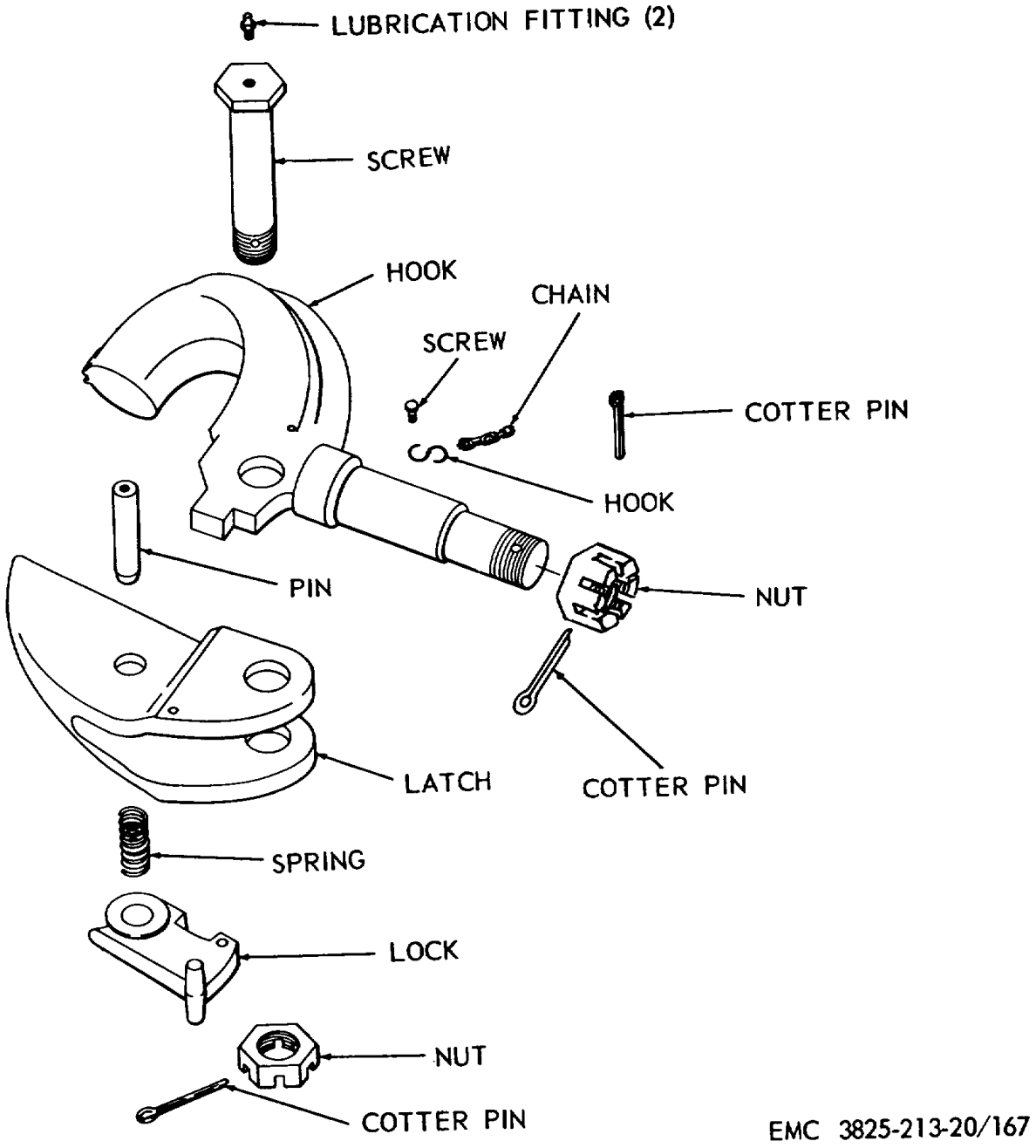


Figure 167. Pintle hook, disassembly and reassembly, exploded view.

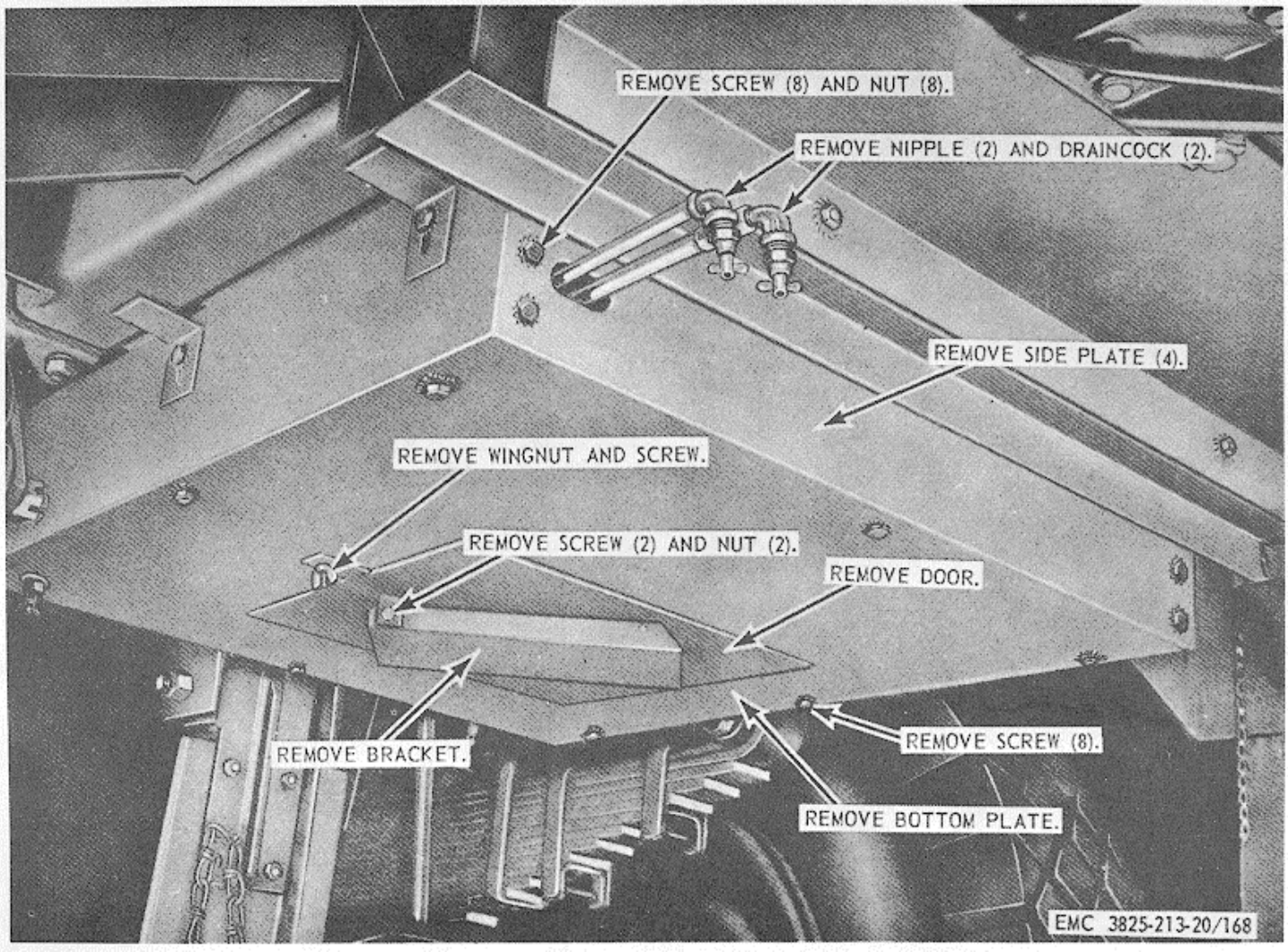
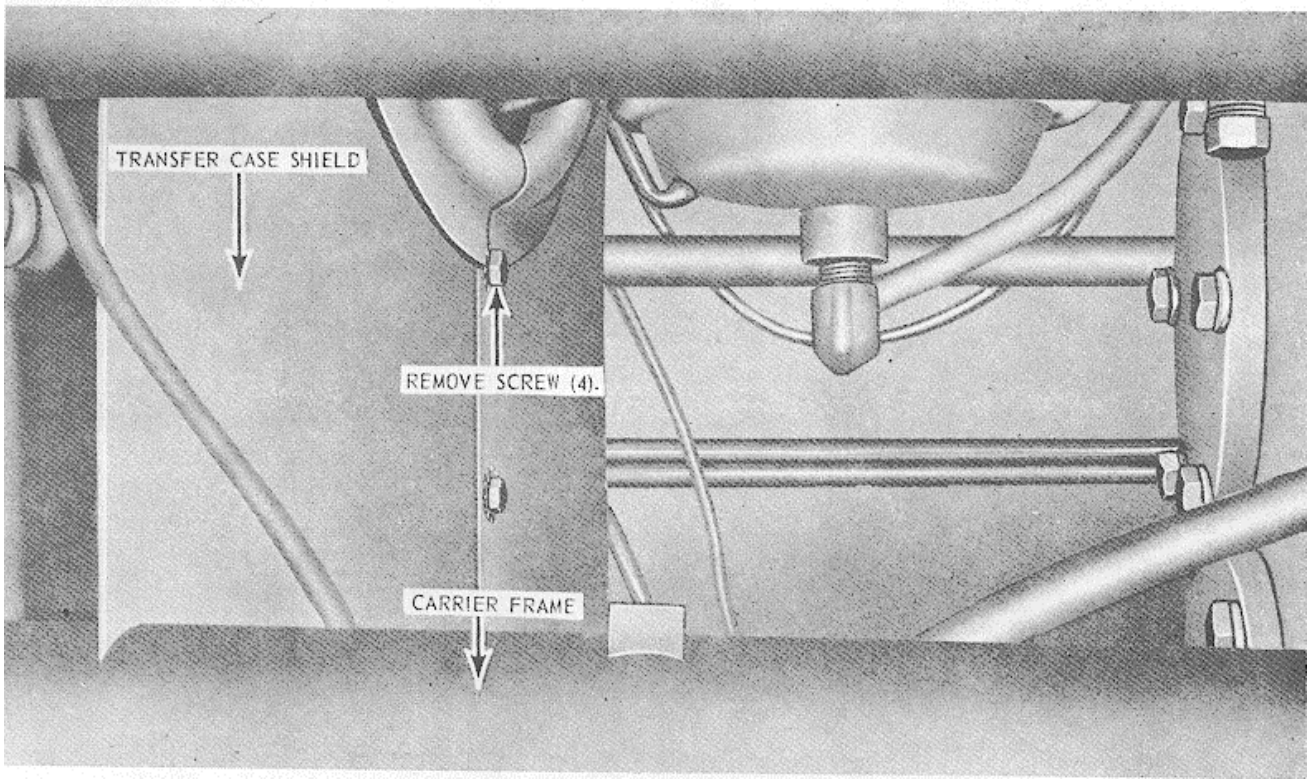
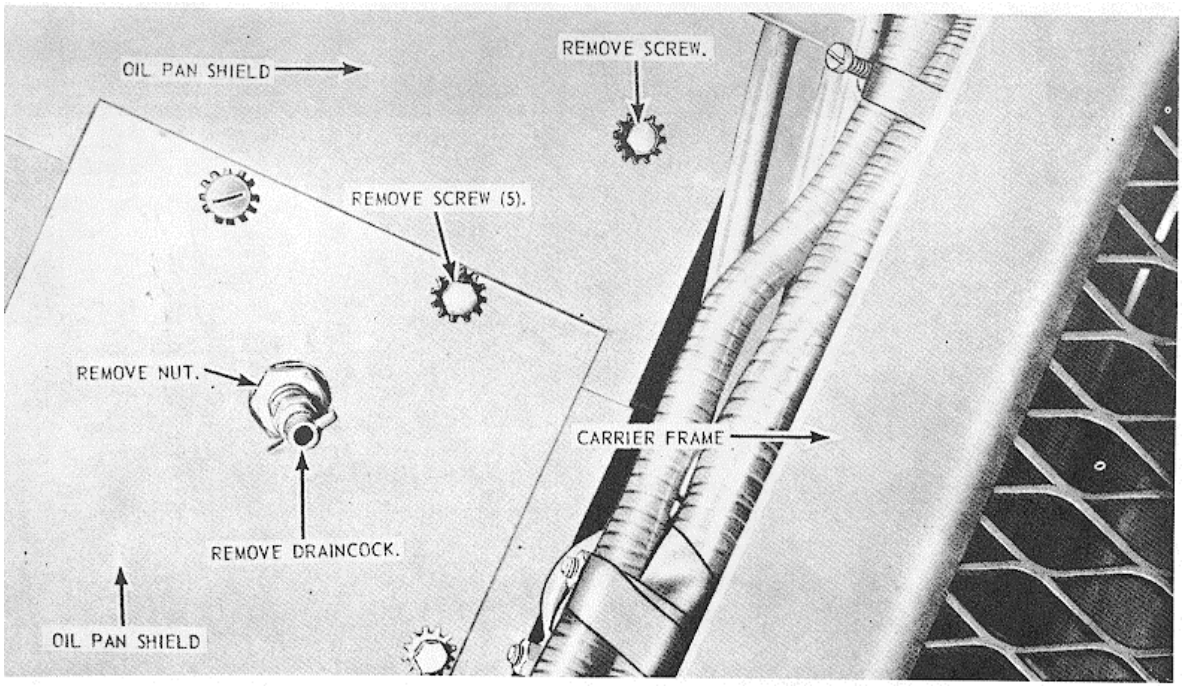


Figure 168. Carrier engine oil pan shield, removal and installation.



A

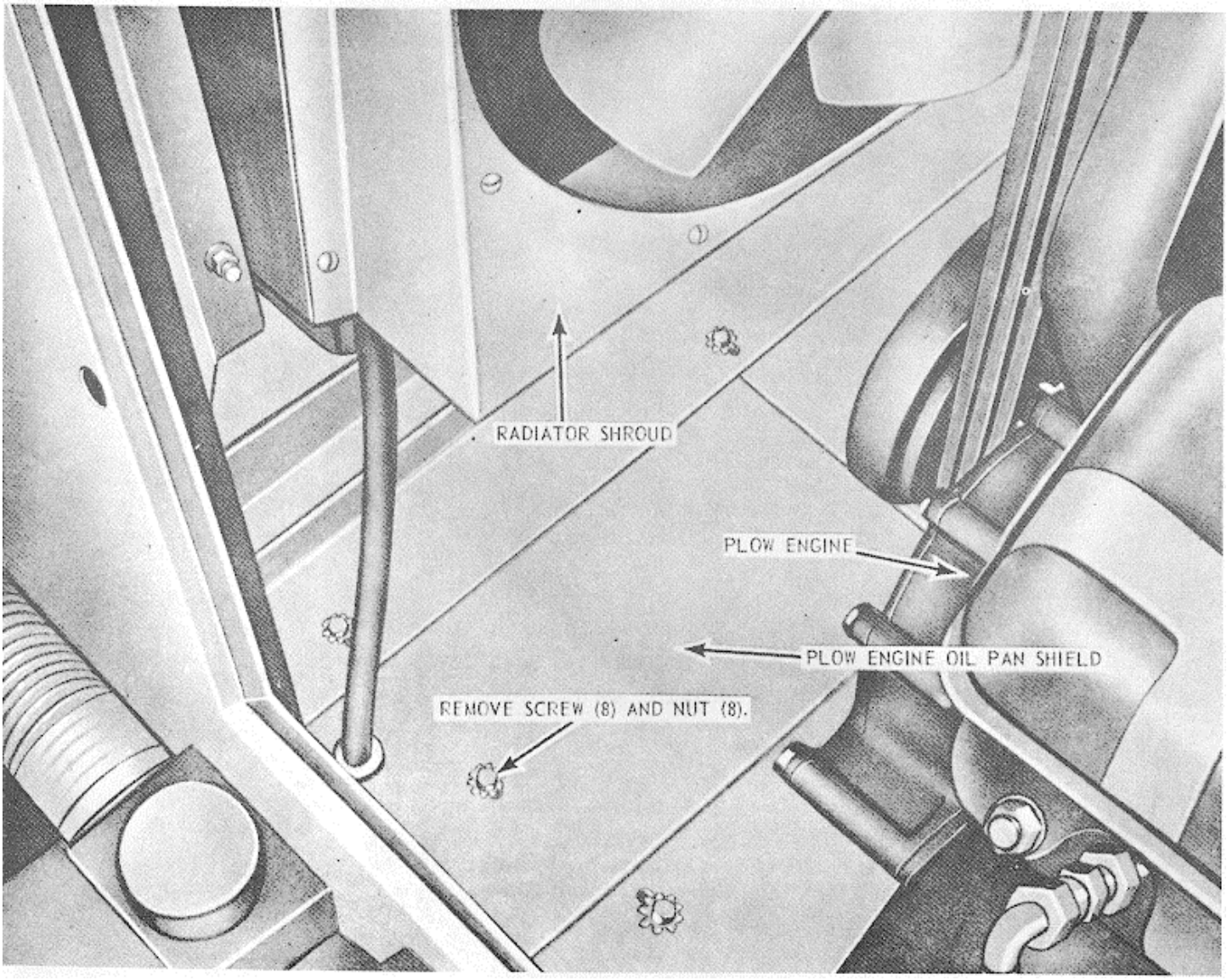


B

A. Transfer case shield, removal points

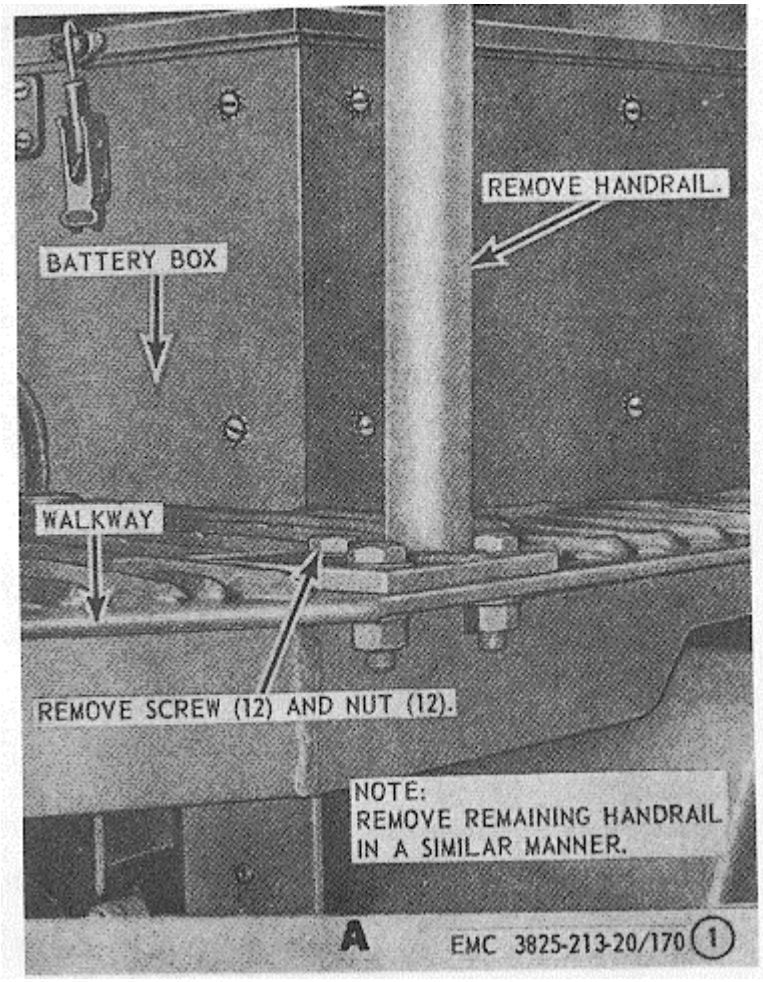
B. Oil pan shield, center, removal points

Figure 169. Transfer case and plow engine oil pan shield, removal and installation.



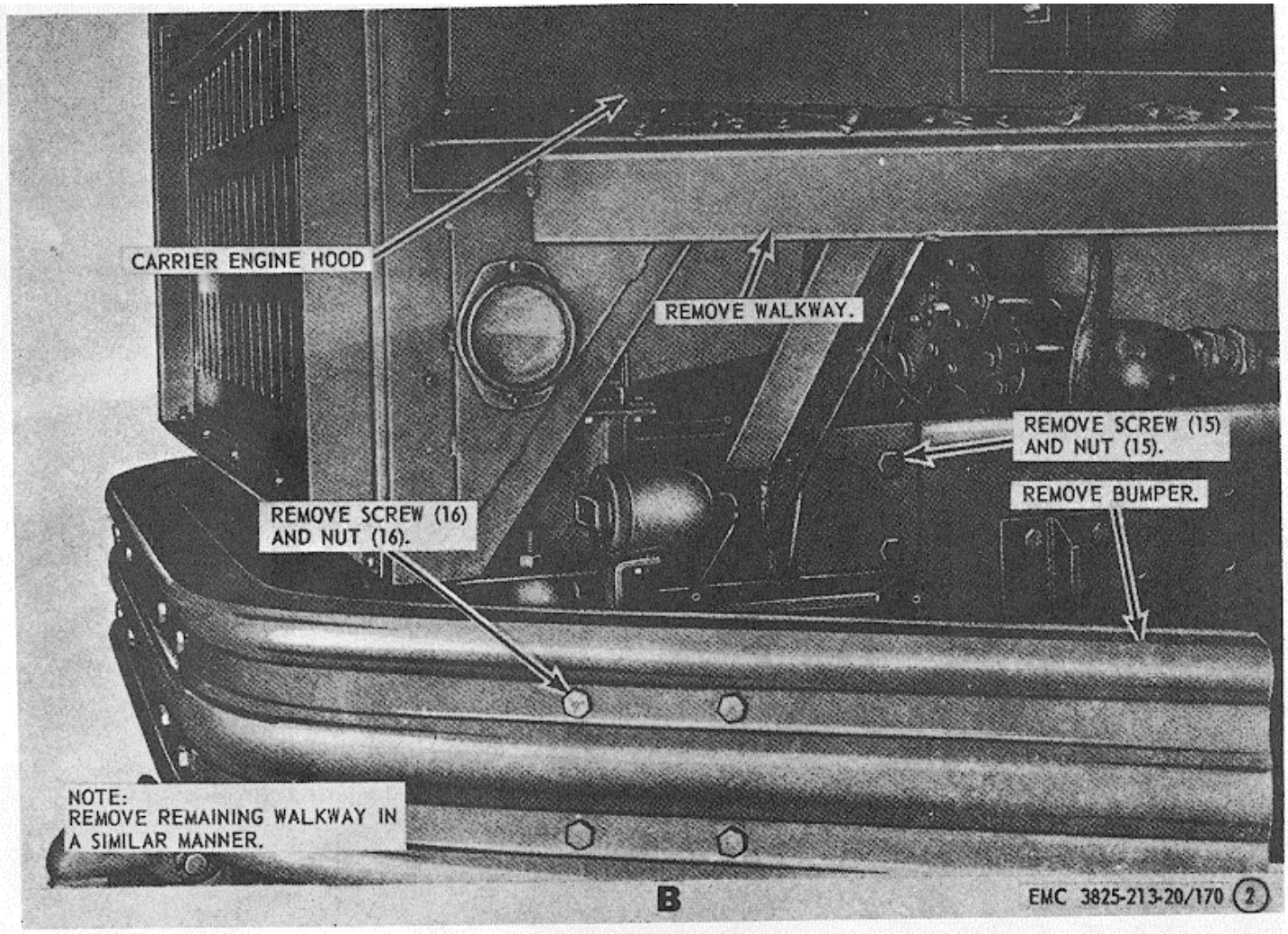
C. Oil pan shield, front, removal points

Figure 169-Continued.



A. Handrail removal point

Figure 170. Carrier walkway, handrail, and bumper, removal and installation.



B. Walkway and bumper removal points

Figure 170-Continued.

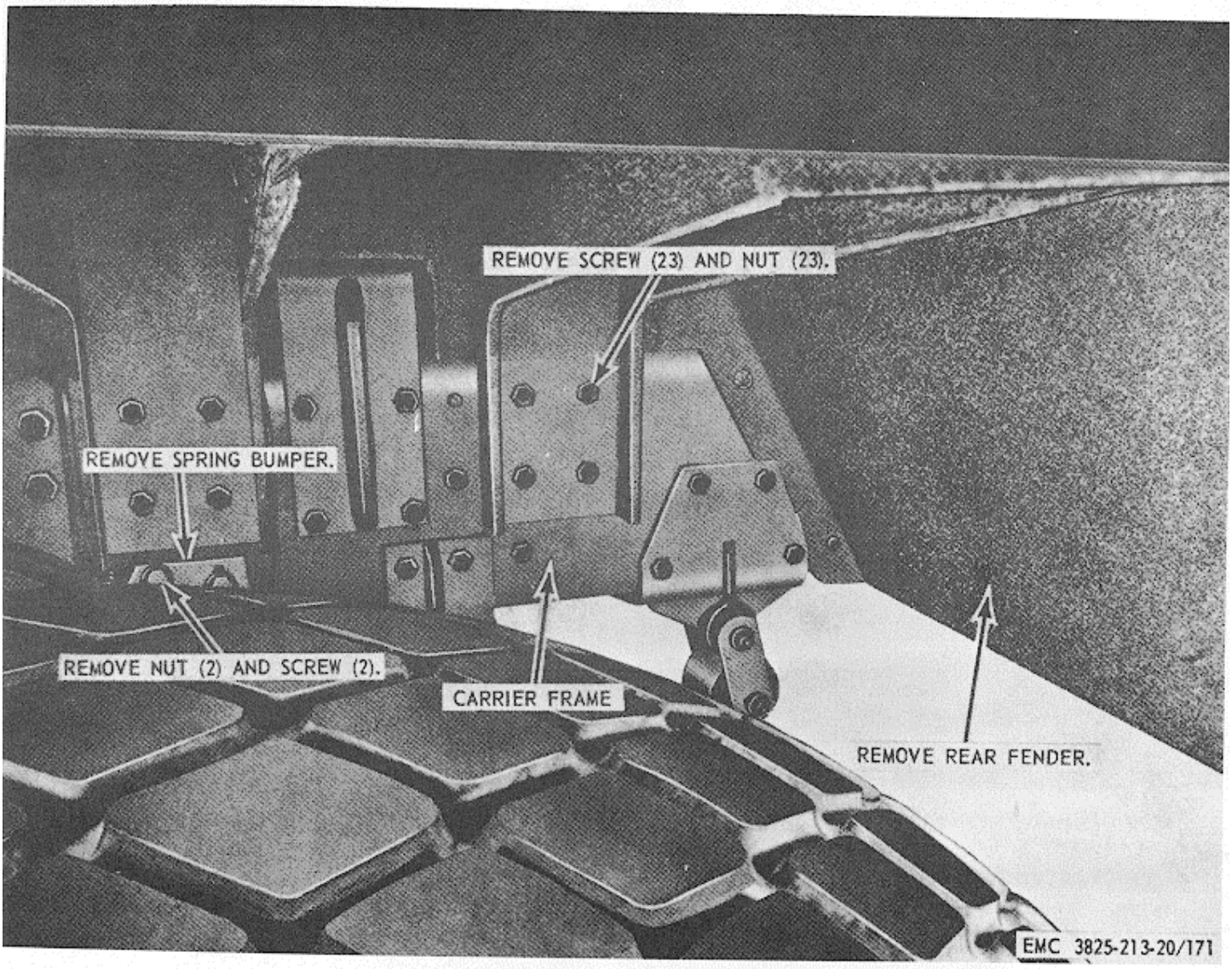


Figure 171. Carrier rear fender assembly, removal and installation.

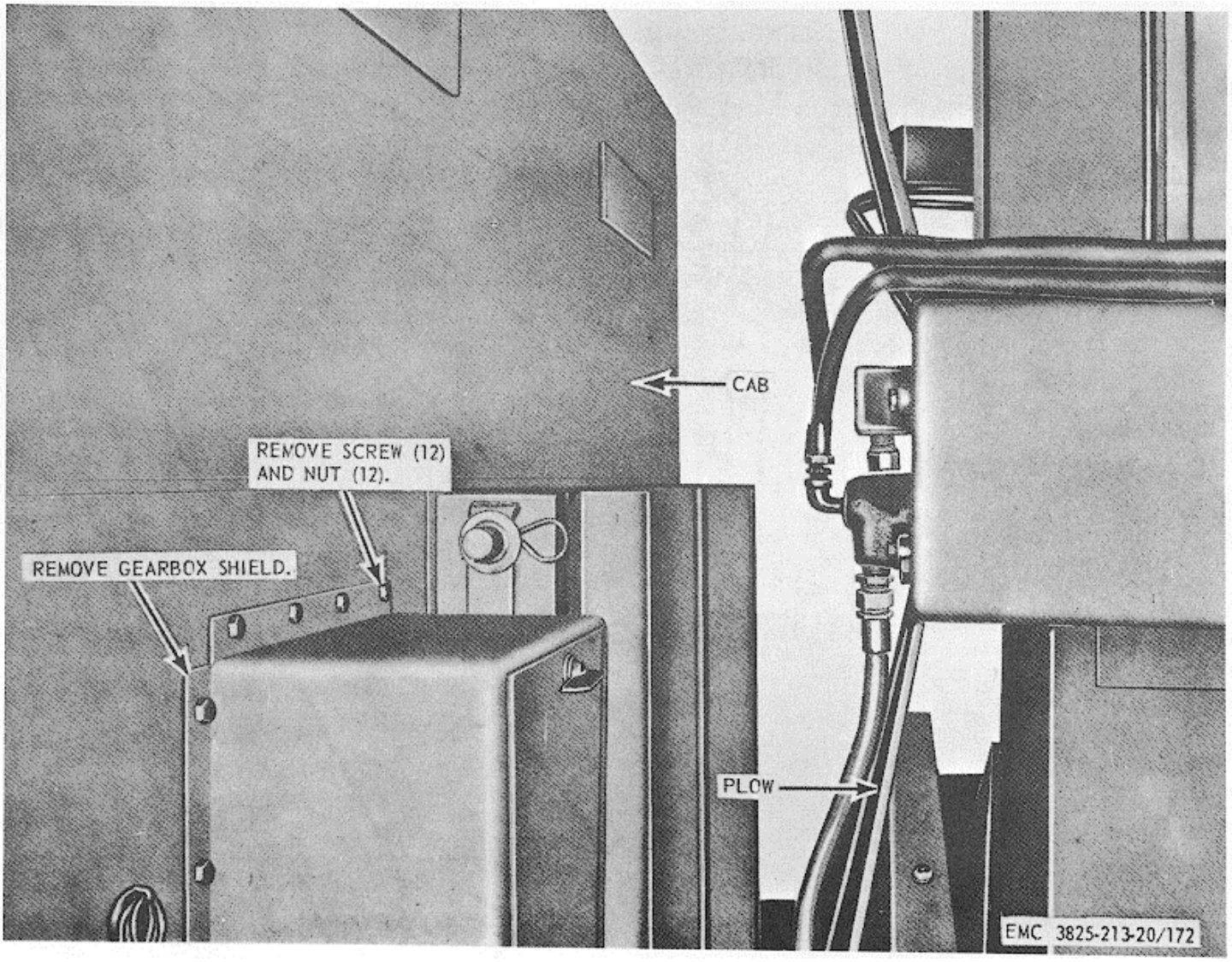


Figure 172. Carrier steering assembly gearbox shield, removal and installation.

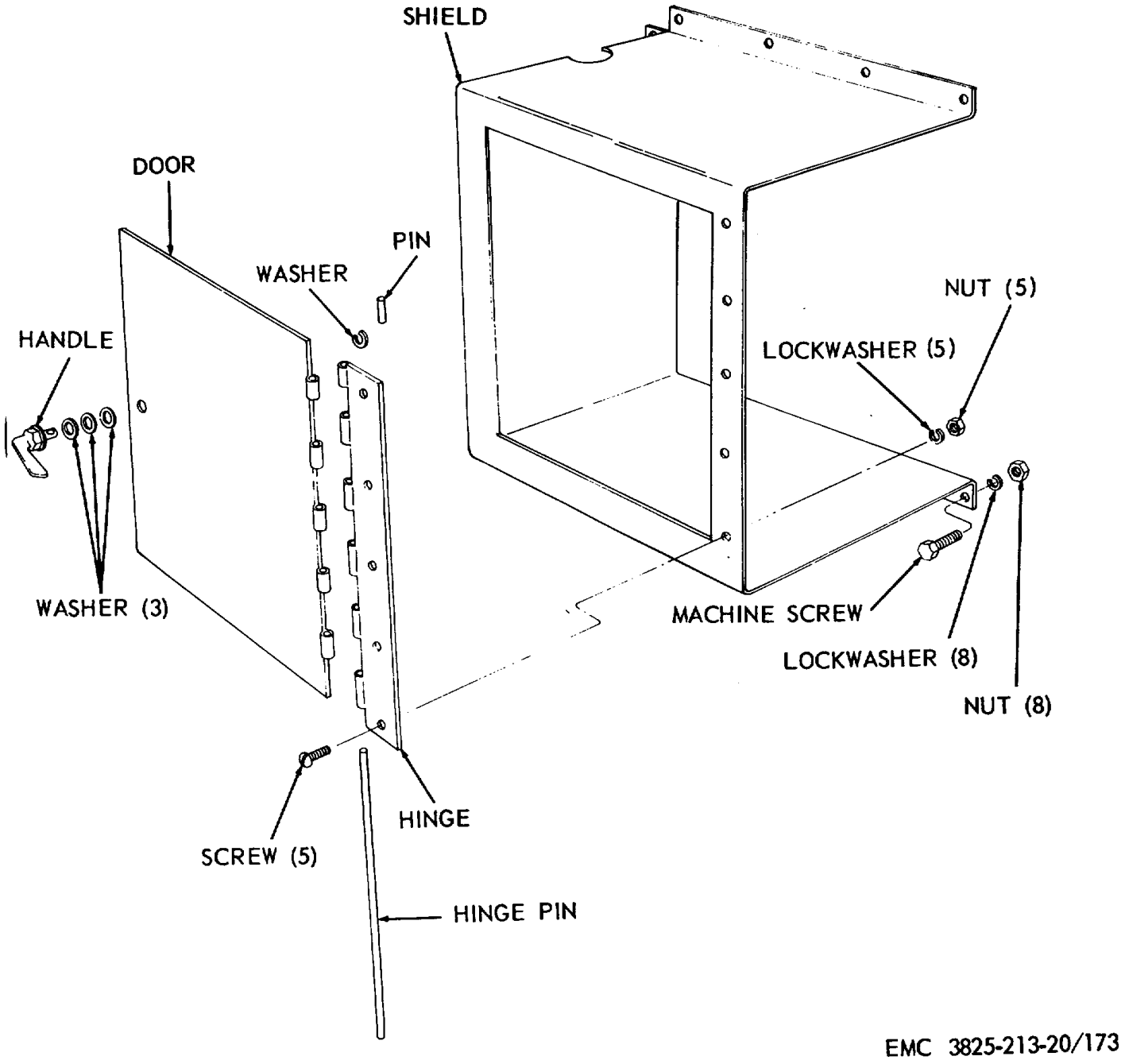


Figure 173. Carrier steering assembly gearbox shield, disassembly and reassembly, exploded view.

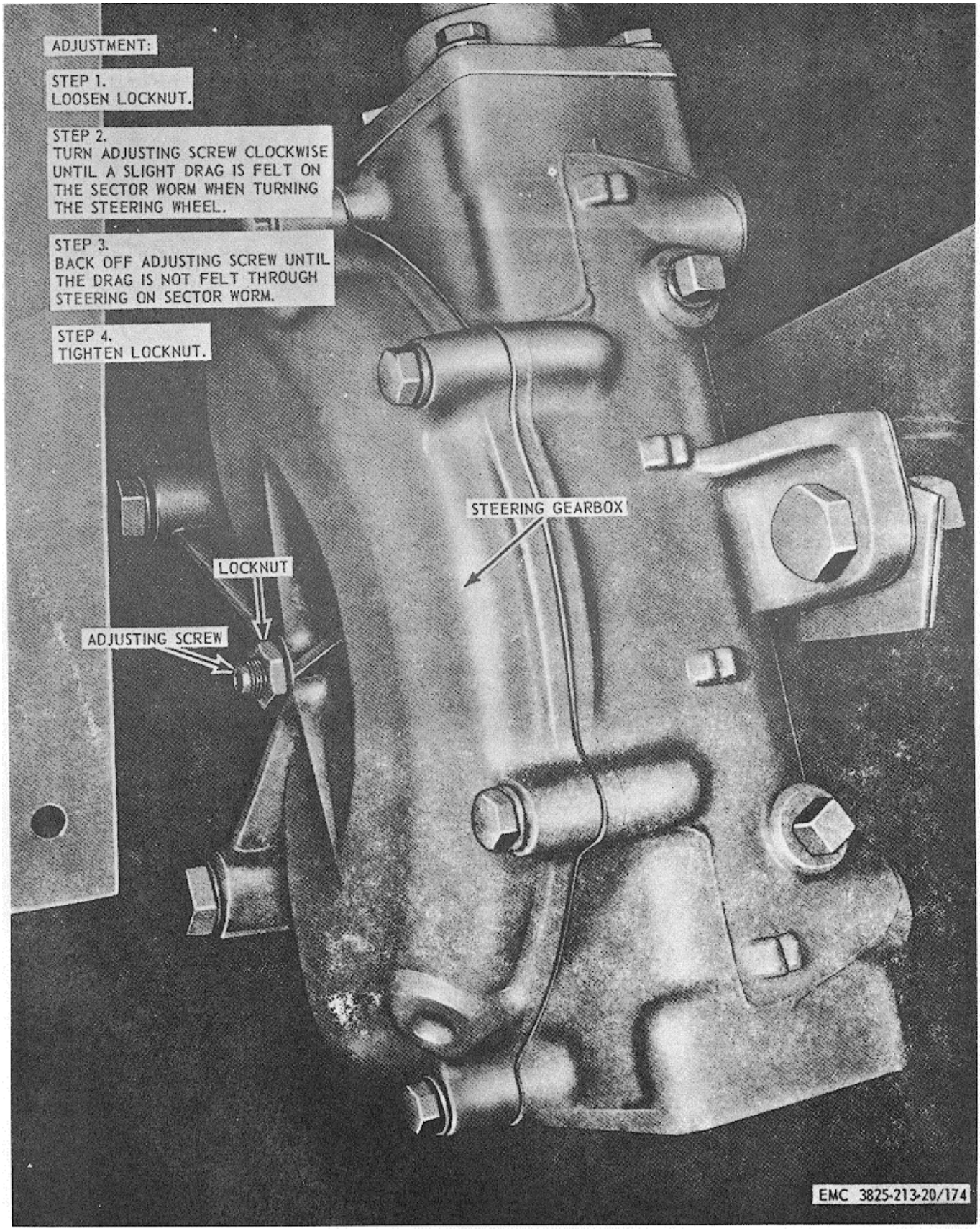


Figure 174. Carrier steering gearbox adjustment.

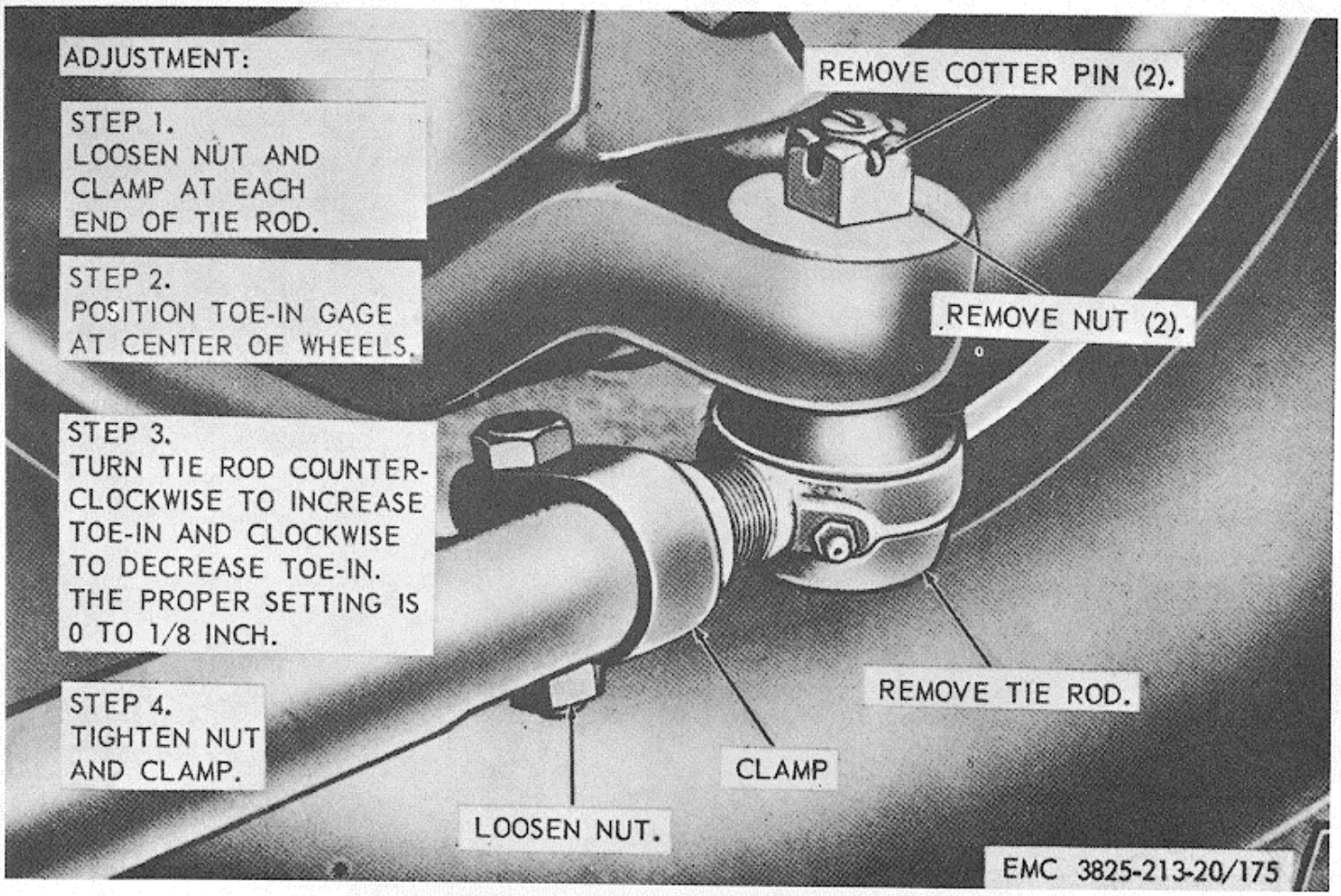


Figure 175. Tie rod, removal, installation and adjustment.

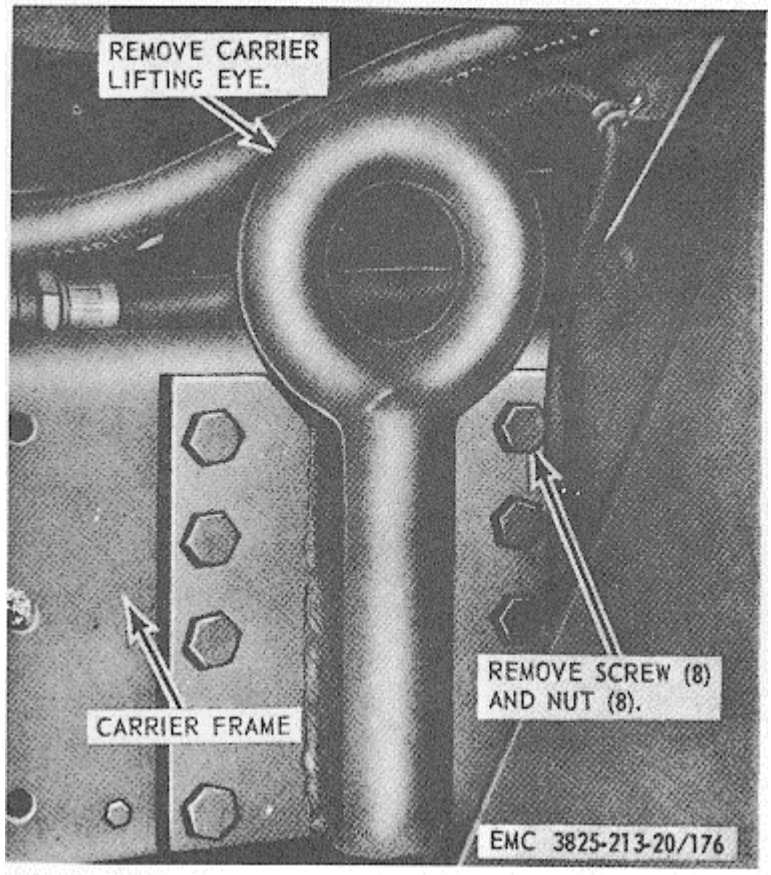


Figure 176. Carrier lifting eye, removal and installation.

CHAPTER 7
SHIPMENT AND LIMITED STORAGE

Section I. SHIPMENT WITHIN ZONE OF INTERIOR

263. Preparation of Equipment for Shipment

a. *General.* Detailed instructions for the preparation of the snow removal unit for domestic shipment are outlined within this paragraph. Preservation will be accomplished in sequence that will not require the operation of previously preserved components.

b. *Inspection.* The snow removal unit will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. DA Form 464, Work Sheet for Preventive Maintenance and Technical Inspection of Engineer Equipment, will be executed on the equipment.

c. *Cleaning and Drying.* Thorough cleaning and drying by an approved technique is the first essential procedure in any effective preservation process. Approved methods of cleaning, drying, types of preservatives, and methods of application are described in TM 38-230.

d. *Painting.* Paint all surfaces when the paint has been removed or damaged. Refer to TB ENG 60 for detailed cleaning and painting instructions.

e. *Depreservation Guide*: DA Form 2258, Depreservation Guide of Engineer Equipment.

(1) A properly annotated depreservation guide will be completed concurrently with preservation for each item of mechanical equipment with any peculiar requirements outlined in the Remarks column. The completed depreservation guide will be placed with the snow removal unit in a waterproof envelope, marked "Depreservation Guide", and fastened in a conspicuous location on or near the operator's controls.

(2) Prior to placing the snow removal unit in operation or to the extent necessary for inspection, depreservation of the item shall be performed as outlined on the Depreservation Guide.

f. *Cooling System Mobile.* Determine that cooling system is filled to the proper level with clean solution of 50 percent water and up to 50 per cent ethylene glycol conforming to specifications O-A-548 Item 1.

Note. **It is not necessary to drain and fill cooling system if the solution is clean and checks to a -25° F. If temperatures below -25° F are expected, antifreeze conforming to specification MILC-11755 shall be used in its undiluted condition.**

g. *Sealing of Openings*. Openings that will permit the direct entry of water into the interior of gasoline engine-driven equipment, starting motor, alternator, and so on, shall be sealed with pressure-sensitive tape conforming to Specification PPP-T-60, type III, class 1.

h. *Fuel Tank:* Drain fuel tank after engine preservation and fog interior with preservative oil, type P-10, grade 2, conforming to Specification MIL-L-21260.

i. *Hydraulic Control Systems, Except Hydraulic Brake.*

(1) Fully retract the pistons as far as the linkage will permit and secure.

(2) Coat exposed portions of the hydraulic piston rods and operating valve controls with type P-6 preservative conforming to Specification MIL-C11796, class 3.

(3) Wrap with type 1, class 2, grade A, barrier material conforming to MIL B-121B.

(4) Secure the hydraulic operating valve controls in a neutral position

j. *Air Cleaners*. Drain the air cleaner and seal all openings that permit the direct entry of water. Use type III, class 1, waterproof pressure-sensitive adhesive tape conforming to PPP-T-60.

k. *Exterior Surfaces*. Coat exposed machined ferrous metal surfaces with preservative (P-6) conforming with Specification MILC-11796, class E. If preservative is not available, cup grease may be used.

l. *Marking*. Shall conform to MIL-STD129.

m. *Windshield Wipers, Blades and Mirrors.* Shall be removed, packaged together and placed in the toolbox to prevent pilferage.

n. *Batteries and Cables.* Batteries shall be secured in the battery compartment. Batteries shall be filled and fully charged. Cables shall be disconnected, vent holes sealed, and all terminals wrapped and secured with type III, class 1, pressure-sensitive tape conforming to Specification PPP-T-60.

o. *Pneumatic Tires*. Tires shall be inflated to their normal required operating pressure.

p. *Air Receivers*. Remove the pipe plugs from tanks and spray the tank interior with type P-10, grade 2, engine preservative oil conforming to Specification MIL-L-21260 and reinstall. Open draincock to allow excess preservative oil to drain. Leave draincock open to allow condensation to drain.

q. *Disassembly, Disassembled Parts, and Basic Issue Items*.

(1) Disassembly shall be limited to the removal of parts and projecting components that tend to increase the overall profile of the snow removal unit and that which is subject to pilferage.

(2) Disassembled items shall be packed with the publications in the toolbox if possible. Otherwise, items will be packed in a suitable container and secured to the snow removal unit to prevent loss or pilferage.

***Note*. If packing is required to provide adequate protection against damage during shipment, refer to TM 38-230 for guidance in crate fabrication.**

264. Loading Equipment for Shipment

a. Using suitable hoisting equipment, attach a hook or sling to the lifting eye. When winching the snow removal unit on a flatcar or truck, attach the sling or hood to the towing eyes.

b. Secure the snow removal unit with blocks, wedged tightly against the carrier wheels, and fasten securely to the carrier.

c. Thread a wire cable through the lifting and tiedown eyes and secure to tiedown brackets on the sides of the transporting vehicle to prevent movement in any direction.

***Caution*: Be careful when using hoisting equipment or working around cable or chain under extreme tension. Do not swing the snow unit back and forth when it is suspended in the air. Lower snow removal unit gently to the bed of the carrier.**

Section II. LIMITED STORAGE

265. Preparation of Equipment for Storage

a. *General*. Refer to paragraph 263.

b. *Inspection*. Refer to paragraph 263.

c. *Cleaning and Drying*. Refer to paragraph 263.

d. *Painting*. Refer to paragraph 263.

e. *Depreservation Guide*. Refer to paragraph 263.

f. *Cooling System, Mobile*. Refer to paragraph 263.

g. *Lubrication System*. Check level of lubricant. Operate the engines at a fast idle until lubricant has been circulated throughout the system. The crankcase will then be drained and the drain plug reinstalled.

h. *Sealing of Openings*. Refer to paragraph 263.

i. *Fuel Tank*: Tanks will be drained and sprayed or fogged with type P-10, grade 2, engine preservative oil, MIL-L-21260.

j. *Hydraulic Control System, Except Brake.* Refer to paragraph 263.

k. *Exterior Surfaces*. Refer to paragraph 263.

l. *Batteries and Cables*. Refer to paragraph 263.

m. *Pneumatic Tires*. Pneumatic tires standing in storage under load will be inflated to the proper pressure. When the equipment is blocked and all weight is removed from the tires, deflate tires to two-thirds normal tire pressure.

n. *Air Receivers*. Refer to paragraph 263.

o. *Disassembly, Disassembled Parts, and Basic Issue Items.* Refer to paragraph 263.

p. *Weatherproofing*. When suitable shelter is not available, select a firm, level, well-drained storage location, protected from prevailing winds. Position the snow removal unit on heavy planking or other solid surfaces. Cover the snow removal unit with a tarpaulin or other suitable waterproof covering and tie down securely.

266. Inspection and Maintenance of Equipment in Storage

a. *Inspection.* When the snow removal unit has been placed in storage, all scheduled preventive maintenance services, including inspection, will be suspended and preventive maintenance inspection will be performed as specified herein. Refer to AR 743-505.

b. *Exercising*. Every 30 days the snow removal unit will be inspected as outlined on DA Form 464 and operated long enough to bring it up to its operating temperature and for complete lubrication of gears, bearings, etc. After each exercising period the snow removal unit will be represerved.

APPENDIX I
REFERENCES

1. Dictionaries of Terms and Abbreviations

AR 320-5	Dictionary of United States Army Terms
AR 320-50	Authorized Abbreviations and Brevity Codes

2. Fire Protection

TM 5-687	Repairs and Utilities: Fire Protection Equipment and Appliances; Inspections, Operation, and Preventive Maintenance
TM 9-1799	Ordnance Maintenance: Fire Extinguishers

3. Lubrication

LO 5-3825-213-20	Snow Removal Unit, Self Propelled; Gasoline Driven; Rotary; Wheel Mtd; Winterized (FWD Model S-349-V) W/Two Engine Waukesha Model TH-884

4. Operating Instructions

TM 5-3825-213-10	Operator's Manual, Snow Removal Unit, Self Propelled; Gasoline Driven; Rotary; Wheel Mtd; Winterized (FWD Model S-349-V) Serial Numbers G30681 Thru G30690 and G30750 Thru G30759, FNS 3825-810-7074

5. Painting and Preservation

TB ENG 60	Preservation and Painting of Serviceable Corps of Engineers Equipment
TM 9-2851	Painting Instructions for Field Use

6. Preventive Maintenance

AR 700-38	Unsatisfactory Equipment Report
AR 750-5	Maintenance Responsibilities and Shop Operation
TB ENG 347	Winterization Techniques for Engineer Equipment
TM 5-505	Maintenance of Engineer Equipment
TM 9-207	Operation and Maintenance of Ordnance Material in Extreme Cold Weather (0° to -65° F.)
TM 9-6140-200-15	Storage Batteries, Lead-Acid Type
TM 9-1870-1	Tires and Tubes, Repair of Ordnance Materiel

7. Publication Indexes

DA Pam 108-1	Index or Army Motion Pictures, Film Strips, Slides, and Phono-Recordings
DA Pam 310-1	Index of Administrative Publications

DA Pam 310-2	Index of Blank Forms
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders
DA Pam 310-5	Index of Graphic Training Aids and Devices
DA Pam 310-25	Index of Supply Manuals-Corps of Engineers

8. Radio Interference Suppression

TM 11-483	Radio Interference Suppression

9. Shipment and Limited Storage

AR 743-505	Limited Storage of Engineers Mechanical Equipment
TM 9-200	General Packaging Instructions for Ordnance General Supplies
TM 38-230	Preservation, Packaging, and Packing of Military Supplies and Equipment

10. Supply Publications

TM 5-3825-213-20P	Organizational Maintenance Repair Parts and Special Tool Lists, Snow Removal Unit, Self-Propelled; Gasoline Driven; Rotary; Wheel Mtd; Winterized (FWD Model S-349-V) Serial Numbers G36081 Thru G30690 and G30750 Thru G30759, FSN 3825-810-7074

11. Training Aids

FM 5-25	Explosives and Demolitions
FM 21-5	Military Training
FM 21-6	Techniques of Military Instruction
FM 21-30	Military Symbols

APPENDIX II

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

1. General

This appendix contains explanations of all maintenance and repair functions authorized for the various echelons. Section II, contains the maintenance allocation chart.

2. Maintenance

Maintenance is any action taken to keep materiel in a serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of materiel includes the following:

a. *Service*. To clean, to preserve, and to replenish fuel and lubricants.

b. *Adjust*. To regulate periodically to prevent malfunction.

c. *Inspect*. To verify serviceability and to detect incipient mechanical failure by scrutiny.

d. *Test*. To verify serviceability and to detect incipient mechanical failure by use of special equipment such as gages, meters, and so on.

e. *Replace*. To substitute serviceable assemblies, sub-assemblies, and parts for unserviceable components.

f. *Rebuild*. To restore an item to a standard as near as possible to original or new condition in appearance, performance and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

g. *Overhaul*. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "inspect and repair only as necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

h. *Repair*. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

3. Explanation of Columns

a. *Functional Group*. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes are taken from the Corps of Engineers Functional Grouping Indexes, and appear on the maintenance allocation chart in their correct numerical sequence. These indexes are normally set up according to their proximity to each other and their function.

b. *Components and Related Operation.* This column contains the functional index group heading, subgroup headings, and a brief description of the part starting with the noun name. it also designates the operations to be performed such as service, adjust, inspect, test, replace, repair, and overhaul.

c. *Echelons of Maintenance.* This column contains the various echelons of maintenance by number designation. An X placed in the appropriate echelon column and in line with an indicated maintenance function, authorizes the particular echelon to perform the function. The symbol X indicates the lowest echelon responsible for performing that particular function. The X does not necessarily indicate repair parts will be stocked at that level. Echelons higher than the echelon annotated by X are authorized to perform the indicated function.

d. *Remarks*. The remarks column is used to explain why the maintenance function which is normally performed at a lower echelon is moved to a higher echelon. When the remark "special tool required" is indicated, applicable technical manuals will be consulted for its use and for requisitioning purposes.

Section II. MAINTENANCE ALLOCATION CHART

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
01	ENGINE						
0100	ENGINE ASSEMBLY						
	Engine Assembly:						
	Inspect	X					
	Service	X					
	Test	..	.....	X			
	Replace	..	.....	....	X		
	Replace	..	.....	X			
	Repair	..	.....	X			
	Overhaul	..	.....	....	....	X	
0101	CRANKCASE, BLOCK, CYLINDER HEAD						
	Crankcase; Block:						
	Replace	..	.....	....	....	X	
	Sleeve, Cylinder:						
	Replace	..	.....	....	X		
	Head, Cylinder:						
	Replace	..	.....	X			
	Repair	..	.....	X			
	Cock, Drain:						
	Replace	..	X				
0102	CRANKSHAFT						
	Crankshaft:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	....	X	Metalize, aline,
	.....	..	.....	....	....	....	resize, etc.
	Bearings:						
	Replace	..	.....	....	X		
	Pulley:						
	Replace	..	.....	X			
0103	FLYWHEEL ASSEMBLY						
	Flywheel:						
	Repair	..	.....	....	X		
	Housing:						
	Replace	..	.....	....	X		
0104	PISTONS, CONNECTING RODS						
	Pistons; Rings; Pins; Retainers:						
	Replace	..	.....	....	X		
	Rods, Connecting:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Bearings, Rod:						
	Replace	..	.....	....	X		
0105.1	VALVES						
	Valves:						
	Replace	..	.....	X			
	Repair	..	.....	X	....	....	Reface.
	Springs; Locks; Guides:						
	Replace	..	.....	X			
	Seats, Insert:						
	Replace	..	.....	X			
	Repair	..	.....	X			

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
0105.2	ROCKER ARMS, TAPPETS						
	Arm Assembly, Rocker:						
	Adjust	..	X				
	Replace	..	.....	X			
	Repair	..	.....	X			
	Cover, Gasket:						
	Replace	..	X				
0105.3	CAMSHAFTS						
	Camshafts:						
	Replace	..	.....	....	X		
	Bearings:						
	Replace	..	.....	....	X		
0105.5	TIMING GEARS						
	Gears, Timing:						
	Replace	..	.....	....	X		
	Gear, Idler:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0106.1	OIL PUMP						
	Pump Assembly, Oil:						
	Replace	..	.....	X			
	Repair	..	.....	X			
	Relief Valves						
	Repair	..	.....	X			
0106.2	OIL FILTERS						
	Filter Assembly, Oil:						
	Service	X					
	Repair	..	X				
	Elements and Gaskets:						
	Replace	X					
0106.3	OIL COOLER						
	Cooler, Oil:						
	Repair	..	.....	X			
0106.5	CRANKCASE VENTILATION						
	Breather Assembly:						
	Service	X					
0106.6	OIL PAN, LINES, LEVEL GAGE						
	Pan, Oil:						
	Repair	..	.....	X			
	Screen, Oil Strainer:						
	Service	..	.....	X			
	Lines	..	.....	....	....	....	Internal
	Replace	..	.....	X			
	Lines and fittings	..	.....	....	....	....	External
	Replace	..	X				
	Gage, level:						
	Replace	X					
0108	MANIFOLDS						
	Manifolds:						
	Repair	..	X				
0109.1	ACCESSORY DRIVE						
	Drive, Accessory:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
02	CLUTCH						
0200	CLUTCH ASSEMBLY						
	Clutch Assembly:						
	Service	X					
	Adjust	X					
	Inspect	..	X				
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0201	CLUTCH DISKS AND PLATES						
	Disks:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0202	CLUTCH RELEASE MECHANISM						
	Shaft, Cross; Yoke, Throwout:						
	Replace	..	.....	....	X		
	Lever; Rod; Clevis, Operating:						
	Repair	..	X				
	Valve, Air Chamber:						
	Replace	..	X				
	Repair	..	X				
0204	FLUID COUPLING: TORQUE CONVERTER						
	Torque Converter:						
	Service	X					
	Inspect	X					
	Repair	..	.....	X			
	Overhaul	..	.....	....	X		
	Oil Pump:						
	Repair	..	.....	X			
03	FUEL SYSTEM						
0301	CARBURETOR; FUEL INJECTOR						
	Carburetor:						
	Adjust	X					
	Replace	..	X				
	Repair	..	.....	X			
0302.4	FUEL PUMP, GASOLINE						
	Pump, Fuel:						
	Service	X					
	Replace	..	X				
	Housing:						
	Replace	..	X				
0304	AIR CLEANER						
	Air Cleaner:						
	Service	X					
	Pipe, Air Intake:						
	Repair	..	X				
0306	TANK, LINES, FITTINGS						
	Tank, Fuel:						
	Service	X					
	Test	..	.....	X			
	Repair	..	.....	X			
	Cap, Tank:						
	Replace	X					
	Lines:						
	Repair	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
	Fittings:						
	Replace	..	X				
	Valves:						
	Replace	..	X				
0308	ENGINE SPEED GOVERNOR						
	Governor Assembly:						
	Replace	..	X				
	Repair	..	.....	X			
0308.2	GOVERNOR DRIVE						
	Drive, Governor:						
	Replace	..	.....	X			
	Repair	..	.....	X			
0309	FUEL FILTERS						
	Strainer, Fuel:						
	Service	X					
0311	PRIMING SYSTEM						
	Priming System, Engine:						
	Repair	..	X				
0312	ACCELERATOR, THROTTLE OR CHOKE, CONTROLS						
	Control Assembly, Choke and Throttle:						
	Repair	..	.....	X			
04	EXHAUST SYSTEM						
0401	MUFFLER AND PIPES						
	Muffler and Pipes:						
	Replace	..	X				
05	COOLING SYSTEM						
0501	RADIATOR						
	Radiator:						
	Service	X					
	Test	..	.....	X			
	Replace	..	.....	X			
	Repair	..	.....	X			
	Cap, Pressure:						
	Replace	X					
0502	COWLING, DEFLECTORS, AIR DUCT, SHROUD						
	Shroud:						
	Repair	..	X				
0503	LINES AND FITTINGS, HOSES, PIPES, CLAMPS						
	Lines and Fittings; Hoses:						
	Pipes: Clamps:						
	Replace	..	X				
0504	WATER PUMP						
	Pump, Water:						
	Repair	..	.....	X	....	....	Install kit.
0505	FAN ASSEMBLY						
	Fan Assembly:						
	Replace	..	X				
	Repair	..	X				
	Guard, Fan:						
	Replace	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
	Belts:						
	Adjust	X					
	Replace	..	X				
0506	WATER MANIFOLD, HEADERS, THERMOSTATS AND HOUSING, GASKETS						
	Manifold, Water:						
	Repair	..	X				
	Housing and Gasket:						
	Replace	..	X				
	Thermostat:						
	Test	..	X				
	Replace	..	X				
06	ELECTRICAL SYSTEM (ENGINE AND VEHICULAR).						
0601	GENERATOR						
	Generator:						
	Test	..	X				
	Replace	..	X				
	Repair	..	.....	X			
	Brushes:						
	Replace	..	X				
0601.1	GENERATOR SPECIAL DRIVE						
	Belts:						
	Adjust	X					
	Replace	..	X				
0602	GENERATOR REGULATOR						
	Regulator, Generator:						
	Adjust	..	.....	X			
	Test	..	.....	X			
	Replace	..	X				
	Repair	..	.....	X			
0603	STARTER						
	Starter:						
	Service	X					
	Replace	..	X				
	Repair	..	.....	X			
	Points; condenser; Rotor:						
	Replace	..	X				
0604.6	IGNITION COIL: WIRING, SPARK PLUGS						
	Coil, Ignition:						
	Test	..	.....	X			
	Replace	..	.....	X			

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
	Wiring:						
	Replace	..	X				
	Repair	..	X				
	Spark Plugs:						
	Service	..	X				
	Adjust	..	X				
	Test	..	X				
	Replace	..	X				
0607	INSTRUMENT OR ENGINE CONTROL PANEL						
	Panel:						
	Replace	..	.....	X			
	Wiring; Switches; Gages; Lights, Panel:						
	Replace	X					
	Lamps:						
	Replace	X					
0608	MISCELLANEOUS ITEMS						
	Box, Junction:						
	Replace	..	X				
	Board, Terminal:						
	Replace	..	X				
	Rectifier:						
	Replace	..	X				
0609.1	HEAD, TAIL, AND MARKER LIGHTS						
	Lights; Head, Tail, and Marker:						
	Replace	..	X				
	Doors, Lamps, Gaskets, Lens:						
	Replace	..	X				
0609.2	ADDITIONAL LIGHTS						
	Lights:						
	Replace	..	X				
	Doors, Lamps, Gasket, Lenses						
	Replace	..	X				
0612	BATTERIES						
	Batteries:						
	Service	X					
	Test	..	X				
	Replace	..	X				
	Box, Battery:						
	Repair	..	X				
	Cables:						
	Replace	..	X				
	Repair	..	X				
0613	HULL OR CHASSIS WIRING HARNESS						
	Harness, Wiring:						
	Replace	..	.....	X			
	Repair	..	X				
0615	RADIO SUPPRESSION						
	Components, Suppression:						
	Test	..	X				
	Replace	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
0617	TRAILER COUPLINGS						
	Couplings, Electrical:						
	Replace	..	X				
	Repair	..	X				
07	TRANSMISSION						
0700	TRANSMISSION ASSEMBLY						
	Transmission Assembly:						
	Service	X					
	Inspect	..	X				
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Overhaul	..	.....	....	X		
0701	TRANSMISSION CASE						
	Case, Transmission:						
	Repair	..	X				
0702.1	INPUT SHAFT						
	Shaft Assembly, Input:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0702.3	OUTPUT SHAFT; MAIN SHAFT						
	Shaft Assembly, Output:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0703	TRANSMISSION CLUTCH						
	Clutch, Transmission:						
	Replace	..	.....	....	X		
0703.1	TRANSMISSION CLUTCH CONTROLS						
	Range Selector Valve:						
	Replace	..	X				
	Repair	..	.....	X			
0704.1	CONTROL SHAFTS, RODS						
	Shafts and Rods, Control:						
	Repair	..	X				
07	TRANSMISSION						
0700	TRANSMISSION ASSEMBLY						
	Transmission Assembly:						
	Service	X					
	Inspect	..	X				
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Overhaul	..	.....	....	X		
0701	TRANSMISSION CASE						
	Case, Transmission and Adapter:						
	Replace	..	.....	....	X		
	Repair	..	X				
0702.1	INPUT SHAFT						
	Shaft Assembly, Input:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0702.3	OUTPUT SHAFT; MAIN SHAFT						
	Shaft Assembly, Output:						
	Replace	..	.....	....	X		

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
0702.5	IDLER SHAFT; COUNTERSHAFT						
	Shaft Assembly, Idler						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0704	TRANSMISSION TOP COVER ASSEMBLY						
	Fork, Shaft:						
	Replace.....	..	.....	X			
	Repair	..	.....	X			
0704.1	CONTROL SHAFTS, RODS						
	Shafts and Rods, Control:						
	Adjust	..	X				
	Repair	..	X				
0706.3	OIL FILTERS						
	Filter, Oil:						
	Service	X					
	Replace.....	..	X				
0706.5	OIL COOLERS						
	Cooler, Oil:						
	Service.....	X					
	Repair	..	X				
0706.6	OIL PRESSURE REGULATORS						
	Regulator, Oil Pressure:						
	Replace	..	X				
	Repair	..	X				
0706.7	VENTILATION AND BREATHERS						
	Filler and Cap:						
	Service	X					
	Breather:						
	Service	X					
0706.9	OIL LINES, FITTINGS, SENDING UNITS						
	Lines, Oil:						
	Replace.....	..	X				
	Repair	.	X				
08	POWER TRANSFER '(REGULAR MECHANICAL TRANSFER ONLY)						
0800	POWER TRANSFER ASSEMBLY						
	Power Transfer Assembly:						
	Service	X					
	Inspect	..	X				
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Overhaul	..	.....	....	X		
0801	TRANSFER CASE						
	Case, Transfer:						
	Repair	..	X				
0802.1	INPUT SHAFT						
	Shaft Assembly, Input:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
0802.3	IDLER SHAFT						
	Shaft, Counter:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
0802.6	OUTPUT SHAFT; MAIN SHAFT						
	Shaft Assembly, Output:						
	Replace	..	.....	X			
	Repair	..	.....	X			
0803	CLUTCH						
	Clutch, Power Transfer:						
	Replace	..	.....	X			
	Repair	..	.....	X			
0803.1	CLUTCH CONTROLS						
	Controls, Clutch:						
	Replace	..	.....	X			
	Repair	..	.....	X			
0804	SHIFT LEVERS, SHAFTS, YOKES						
	Shifter Assembly:						
	Repair	..	.....	X			
09	PROPELLER SHAFT						
0900	PROPELLER SHAFTS						
	Shaft Assembly, Propeller						
	Service	X					
	Replace	..	X				
	Repair	..	X				
0903	PILLOW BLOCKS, BEARINGS						
	Bearing Assembly, Drive Shaft:						
	Service	X					
	Replace	..	X				
	Repair	..	X				
10	FRONT AXLE						
1000	FRONT AXLE ASSEMBLY						
	Axle Assembly, Front:						
	Adjust	X					
	Inspect	..	X				
	Replace	..	.....	X			
	Repair	..	.....	X			
	Overhaul	..	.....	....	X		
1001	HOUSING, BEAM, HOUSING COVERS, PLUGS						
	Beam, Housing:						
	Replace	..	.....	....	X		
1002	DIFFERENTIAL						
	Differential Assembly:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Lock Assembly, Differential:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Valve, Lines:						
	Replace	..	X				
	Power Cluster:						
	Replace	..	X				
	Repair	..	X				
1004	STEERING						
	Steering Assembly:						
	Adjust	..	X				
	Replace	..	.....	X			
	Repair	..	.....	X			

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
1005	VENTILATION						
	Breather:						
	Service	X					
1006	SHAFT						
	Shafts:						
	Replace	..	X				
11	REAR AXLE						(B)
1100	REAR AXLE ASSEMBLY						
	Axle Assembly, Rear:						
	Service	X					
	Inspect	..	X				
	Replace	..	.....	X			
	Repair	..	.....	....	X		
	Overhaul	..	.....	....	X		
1101	HOUSING, BEAM, HOUSING COVERS, PLUGS						
	Beam, Housing:						
	Replace	..	.....	....	X		
1102	DIFFERENTIAL						
	Differential Assembly:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Lock Assembly, Differential:						
	Replace	..	.....	....	X		
	Repair	..	.....	....	X		
	Valves, Lines:						
	Replace	..	X				
	Power Cluster:						
	Replace	..	X ..	....	....	....	Refer to Group 1002
	Repair	..	X				
1104	STEERING						
	Steering Assembly:						
	Adjust	..	X				
	Replace	..	.....	X			
	Repair	..	.....	X			
	Steering Lock:						
	Replace	..	.....	X			
	Repair	..	.....	X			
1105	VENTILATION						
	Breather:						
	Service	X					
1106	SHAFTS						
	Shafts:						
	Replace	..	X				
12	BRAKES (OTHER THAN SPECIAL PURPOSE)						
1201	HANDBRAKES						
	Brake, Hand:						
	Service	X					
	Adjust	X					
	Replace	..	.....	X			
	Repair	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
1202	SERVICE BRAKES						
	Brakes, Service:						
	Service	X					
	Adjust	X					
	Replace	..	.....	X			
	Repair	..	X				
1206	MECHANICAL BRAKE CONTROLS						
	Controls, Brake:						
	Service	X					
	Adjust	..	X				
	Repair	..	X				
1208.1	AIR BRAKE SYSTEM						
	Brake System, Air:						
	Service	X					
	Inspect	X					
	Replace	..	.....	X			
	Repair	..	X				
1208.3	BRAKE CHAMBERS, DIAPHRAGMS, VALVES, FILTERS						
	Chambers, Brake:						
	Replace	..	X				
	Repair	..	.....	X			
	Valve Quick Release Moisture Ejector:						
	Replace	..	X				
	Repair	..	.....	X			
1209	AIR COMPRESSOR ASSEMBLY	..	.....	....	....	....	See Group 50 for breakdown.
	Compressor Assembly, Air:						
	Service	X					
	Inspect	..	X				
	Replace	..	.....	X			
	Repair	..	.....	X			
1209.3	AIR RESERVOIR, FITTINGS						
	Reservoir, Air:						
	Service	X					
	Repair	..	X				
	Fittings:						
	Replace	..	X				
	Safety Release Valve:						
	Replace	..	X				
1211	TRAILER BRAKE CONNECTIONS AND CONTROLS						
	Connections, Brake:						
	Replace	..	X				
	Controls:						
	Repair	..	X				
13	WHEEL AND TRACKS						
1311	WHEEL ASSEMBLY						
	Wheel Assembly:						
	Service	..	X				
	Replace	..	X				
	Repair	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
1313	TIRES, TUBES						
	Tires:						
	Service	X					
	Replace	..	X				
	Tubes:						
	Replace	..	X				
	Repair	..	X				
14	STEERING						
1401	STEERING ASSEMBLY						
	Steering Assembly:						
	Service	X					
	Adjust	..	X				
	Replace	..	.....	X			
	Repair	..	X				
1410	HYDRAULIC PUMP OR MOTOR ASSEMBLY						
	Pump Assembly, Hydraulic:						
	Replace	..	X				
	Repair	..	.....	X			
1410.1	PUMP DRIVE						
	Drive, Pump:						
	Replace	..	X				
	Belt:						
	Adjust	X					
	Replace	..	X				
1411	HOSE, LINES, FITTINGS						
	Hose and Lines:						
	Replace	..	X				
	Fittings:						
	Replace	..	X				
1412	HYDRAULIC OR AIR CYLINDERS						
	Cylinders:						
	Repair	..	X				
1413	TANKS: RESERVOIRS						
	Tanks:						
	Service	X					
	Repair	..	.....	X			
14141	STEERING VALVES						
	Valves, Steering:						
	Adjust	..	X				
	Replace	..	X				
	Repair	..	.....	X			
1414.2	RELIEF VALVES	..	.....	....	....	....	See Group 14141
15	FRAME						
1501	FRAME ASSEMBLY						
	Frame Assembly:						
	Repair	..	.....	....	....	X	
1501.1	PLATFORMS, SUPERSTRUCTURES, RAMPS, CATWALKS						
	Steps; Grab Handles; Platforms; Guard Rails:						
	Repair	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
1501.3	BUMPERS, GUARD, ROLLERS						
	Bumper:						
	Replace.....	..	X				
1504	SPARE WHEEL CARRIER AND TIRE LOCK						
	Spare Wheel Carrier:						
	Replace	..	X				
16	SPRINGS AND SHACK ABSORBERS						
1601.1	FRONT SPRINGS						
	Springs, Front:						
	Replace.....	..	.....	X			
	Repair	..	.....	X			
1601.3	REAR SPRINGS						
	Springs, Rear:						
	Replace.....	..	.....	X			
	Repair	..	.....	X			
1602	AUXILIARY SPRINGS						
	Springs, Auxiliary:						
	Replace.....	..	.....	X			
	Repair	..	.....	X			
17	BODY; CAB; HOOD:; HULL						
1700	BODY, CAB ASSEMBLY						
	Cab Assembly:						
	Repair	..	X				
1701.1	FENDERS, SAND SHIELDS, RUNNING BOARDS						
	Fenders:						
	Repair	..	X				
1702	ENGINE SIDE PANELS						
	Panels, Engine Side:						
	Repair	..	X				
1703	DOORS; HATCHES; HOOD						
	Doors; Hatches; Hood:						
	Repair	..	X				
1704	PANELS						
	Ventilators:						
	Repair	..	X				
	Windshield:						
	Replace.....	..	.....	X			
1705	FLOORS						
	Floors:						
	Replace.....	..	.....	X			
1706	UPHOLSTERY, SEATS, CARPETS						
	Seats:						
	Repair	..	X				
1708	STOWAGE RACKS, BOXES, STRAPS						
	Box, Tool:						
	Repair	..	X				
22	MISCELLANEOUS BODY, CHASSIS OR HULL, AND ACCESSORY ITEMS						
2202.1	MIRRORS, REFLECTORS, DEFROSTERS, WIPERS, AIR HORNS						
	Mirrors; Reflectors, Air Horns:						
	Replace.....	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
	Defrosters:						
	Repair	..	X				
	Wiper Assembly, Windshield:						
	Repair	..	X				
2207	WINTERIZATION EQUIPMENT						
	Ducts and Fittings, Air:						
	Replace.....	..	X				
	Shroud:						
	Replace	..	X				
	Shutter, Radiator:						
	Repair	..	X				
	Lines, Fittings:						
	Replace.....	..	X				
	Pump Assembly, Coolant:						
	Replace	..	X				
	Repair	..	.....	X			
	Manifold, Air:						
	Replace.....	..	X				
	Repair	..	X				
	Blower						
	Replace.....	..	X				
	Alcohol Dispenser:						
	Service.....	X					
	Repair	..	X				
2210	DATA PLATES AND INSTRUCTION HOLDERS						
	Plates, Data:						
	Replace.....	..	.....	X			
	Plates, Caution and Instruction; Holders:						
	Replace.....	..	X				
26	ACCESSORIES, PUBLICATIONS, TEST EQUIPMENT AND TOOLS						
2602.1	ACCESSORIES						
	Accessories:						
	Replace.....	X					
2602.2	COMMON TOOLS						
	Tools, Common:						
	Replace.....	X					
2602.3	SPECIAL TOOLS						
	Tools, Special:						
	Replace	..	X				
2602.4	PUBLICATIONS						
	Publications:						
	Replace.....	X					
43	HYDRAULIC, AIR AND VACUUM SYSTEMS (EXCLUDE BRAKE SYSTEMS)						
4300	HYDRAULIC SYSTEM						
	Hydraulic System:						
	Service.....	X					
	Inspect	..	X				
	Replace.....	..	.....	X			
	Repair	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
4301	HOSE, PIPE, FITTINGS, TUBING						
	Hose; Pipe; Fittings; Tubing:						
	Replace	..	X				
4301.1	STRAINERS AND FILTERS						
	Strainer and Filters:						
	Service	X					
	Replace	..	X				
	Repair	..	X				
4302	PUMP AND MOUNTING PARTS						
	Pump Assembly, Hydraulic:						
	Replace	..	X				
	Repair	..	.....	X			
4303	PUMP DRIVES						
	Gear, Drive:						
	Replace	..	X				
4304	RELIEF VALVES	..	.....	....	....	....	See Group 4305
4305	MANIFOLD AND/OR CONTROL VALVES						
	Valves, Control:						
	Replace	..	X				
	Repair	..	X				
4306	HYDRAULIC OR FLUID MOTOR						
	Motor, Hydraulic:						
	Replace	..	X				
	Repair	..	.....	X			
4307	HYDRAULIC CYLINDERS						
	Cylinder, Hydraulic:						
	Repair	..	.....	X			
4308	OIL TANK OR RESERVOIRS						
	Tank, Hydraulic Oil:						
	Service	X					
	Inspect	X					
	Test	..	X				
	Repair	..	X				
4309	HYDRAULIC CONTROLS AND/OR MANUAL CONTROLS						
	Controls:						
	Replace	..	X				
4315	AIR OR VACUUM SYSTEM						
	Air or Vacuum System:						
	Service	X					
	Inspect	X					
	Replace	..	.....	X			
	Repair	..	X				
4316	HOSE, FITTING, LINES, BREATHERS, FILTERS AND TRAPS						
	Hoses; Fittings; Lines:						
	Replace	..	X				
43171	MANIFOLD OR CONTROL VALVES						
	Valves, Control:						
	Replace	..	X				
	Repair	..	.....	X			

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
4318.1	DIAPHRAGMS, CHAMBERS, CYLINDERS						
	Chambers:						
	Replace	..	X				
	Repair	..	.....	X			
47	GAGES (NONELECTRICAL) WEIGHING AND MEASURING DEVICES						
4701.1	SPEEDOMETERS						
	Speedometers:						
	Replace	..	X				
470.12	TACHOMETERS						
	Tachometer Drive:						
	Replace	..	X				
	Repair	..	X				
4707	LIQUID LEVEL GAGES						
	Gages, Level:						
	Replace	X					
4709.1	VACUUM GAGES						
	Gages, Vacuum:						
	Replace	..	X				
50	PNEUMATIC EQUIPMENT						
5001.1	ROTOR HOUSING						
	Housing, Rotor:						
	Replace	..	.....	X			
5002.3	COMPRESSOR DRIVE						
	Drive, Compressor, Belts:						
	Adjust	X					
	Replace	..	X				
5004.1	ROTOR, BEARINGS, ETC						
	Rotor and Bearings:						
	Replace	..	.....	X			
5006.3	OIL PAN						
	Reservoir:						
	Service	X					
	Replace	..	.....	X			
	Dome Assembly:						
	Replace	..	X				
5008	AIR INTAKE						
	Air Cleaner:						
	Service	X					
5009.3	UNLOADER VALVES; COMPRESSOR INTAKE						
	Valve, Unloader:						
	Replace	..	X				
	Repair	..	X				
5010	COMPRESSOR COOLING						
	Lines, Hoses:						
	Replace	..	X				
60	STEAM BOILERS; WATER HEATERS; HEATING UNITS; BURNERS						
6000.1	PERSONNEL HEATERS						
	Heater, Personnel:						
	Service	X					
	Inspect	..	X				
	Replace	..	X				
	Repair	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
	Control and Control Box:						
	Replace	..	X				
	Repair	..	X				
6000.3	ENGINE OR EQUIPMENT HEATERS						See Group 6000.1
6002	FUEL SYSTEM						
	Pumps and Strainers:						
	Service	X					
	Replace	..	X				
6002.1	BURNER ASSEMBLY						
	Igniters:						
	Replace	..	X				
6002.2	FUEL TANKS						See Group 0306
	Lines and Fittings:						
	Replace	..	X				
6002.3	BLOWER ASSEMBLY						
	Blower Assembly:						
	Repair	..	X				
6004	EXHAUST SYSTEM						
	Pipes and Clamps:						
	Replace	..	X				
6005	COMBUSTION CHAMBER						
	Lines and Insulation:						
	Replace	..	.....	X			
71	SNOW REMOVAL; MOWING; SWEEPING EQUIPMENT						
7100	SNOWPLOW ASSEMBLY						
	Snowplow Assembly:						
	Service	X					
	Inspect	X					
	Replace	..	.....	....	X		
	Repair	..	X				
7101	FRAMES, SEMICIRCLES						
	Frame Assembly, Rotary:						
	Inspect	..	X				
	Repair	..	X				
7102	MOLDBOARD, BLADES						
	Bar, Cutter:						
	Replace	..	X				
	Plates, Wear, Cutting Edge:						
	Replace	..	X				
7103	FEED AND DISCHARGE: ACTIVATING MECHANISM						
	Turret Assembly:						
	Service	X					
	Repair	..	X				
	Gear Box Assembly:						
	Service	X					
	Repair	..	.....	X			
	Cover, Turret; Chute:						
	Repair	..	X				
7103.1	ROTOR RAKES, BLADES, FANS, SHAFTS, AUGER, BEARINGS						
	Auger Assembly:						
	Service	X					
	Replace	..	X				

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remarks
	Sprocket Drive:						
	Replace.....	..	.....	X			
	Fan Assembly:						
	Service.....	X					
	Replace.....	..	.....	X			
	Repair	..	X				
	Fan Guard:						
	Replace.....	..	.....	....	X		
7103.3	DRIVE AND CONTROLS: TILTING ATTACHMENTS						
	Coupling, Flexible:						
	Replace.....	..	X				
	Repair	..	X				
	Drive Shaft Assembly, Auger:						
	Service.....	X					
	Replace.....	..	X				
	Repair	..	.....	X			
	Fan and Auger Drive:						
	Service.....	.X					
	Replace.....	..	.....	X			
	Repair X						
	Shaft Assembly, Gear Case Drive:						
	Replace.....	..	.....	X			
	Lift Assembly:						
	Replace	..	.....	X			
	Repair	..	.....	X			
	Chain Auger Drive:						
	Adjust.....	..	.....	X			
	Replace.....	..	.....	X			
	Repair	..	.....	X			
	Shear Rims:						
	Replace.....	X					
76	FIREFIGHTING EQUIPMENT						
7603	FIRE EXTINGUISHERS						
	Extinguishers, Fire:						
	Service.....	X					
	Replace.....	..	X				

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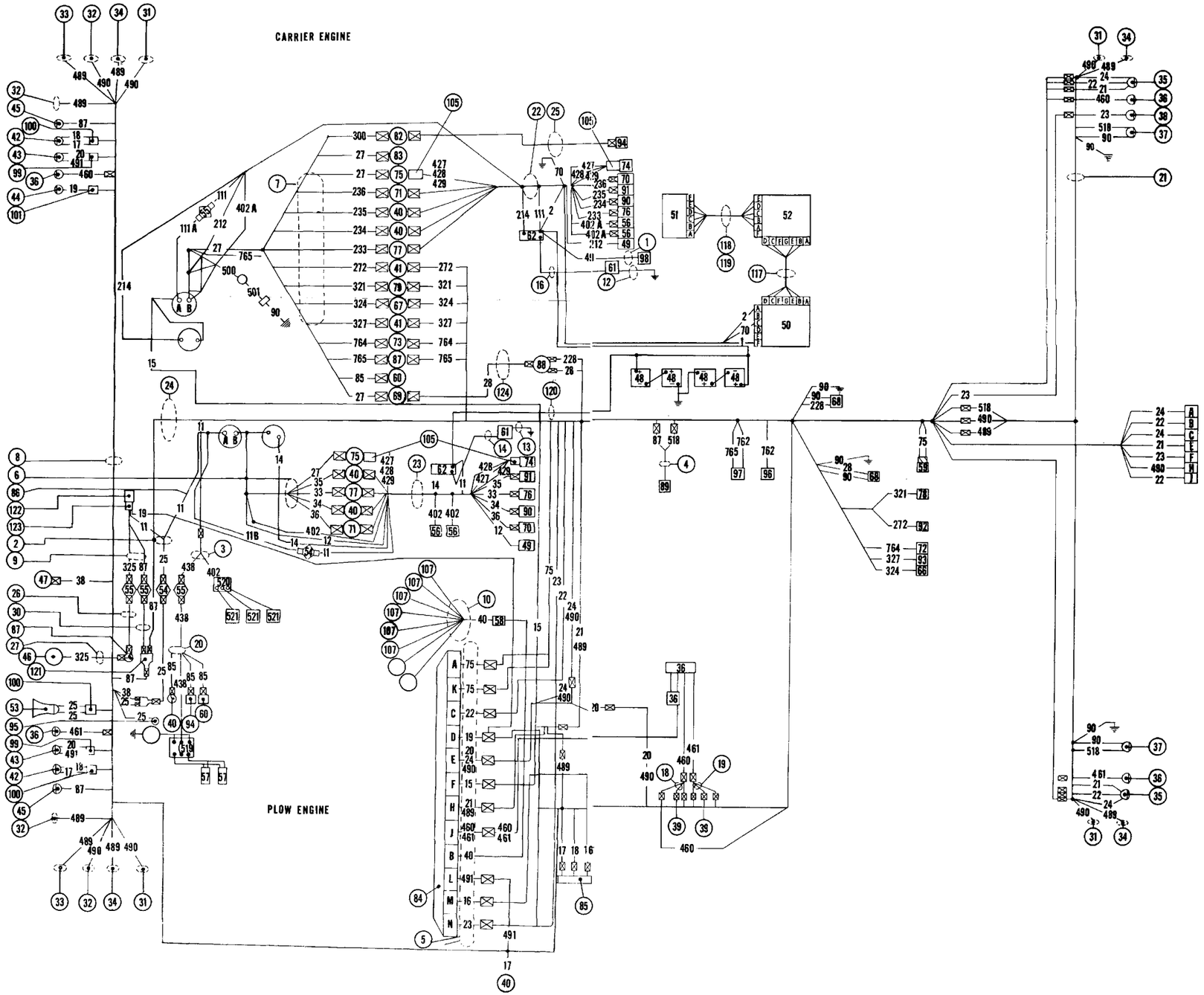

EMC 3852-213-20/1 (1)

Figure 1. Wiring diagram

Figure 1. Carrier practical wiring diagram.

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  St. Louis Engr Dist (1)
  St. Paul Engr Dist (1)
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USAERDL (3)
Engr Cen (5)
AMS (3)
USA Engr Proc Ofc (10)
EMC (26)
ESCO (10)
Fld Comd, DASA (8)
AFSSC (1)
USACOMZEUR (2)
USAREUR Engr Sup Con Agcy (10)
USAREUR Engr Proc Cen (2)
USA Corps (1)
MAAG (1)
JBUSMC (1)
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  5-48 (2)
  5-237 (5)
  5-262 (5)
  5-267 (1)
  5-278 (5)
  5-279 (2)
  5-500 EA, EB (2)

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For explanation of abbreviations used, see AR 320-50.

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THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

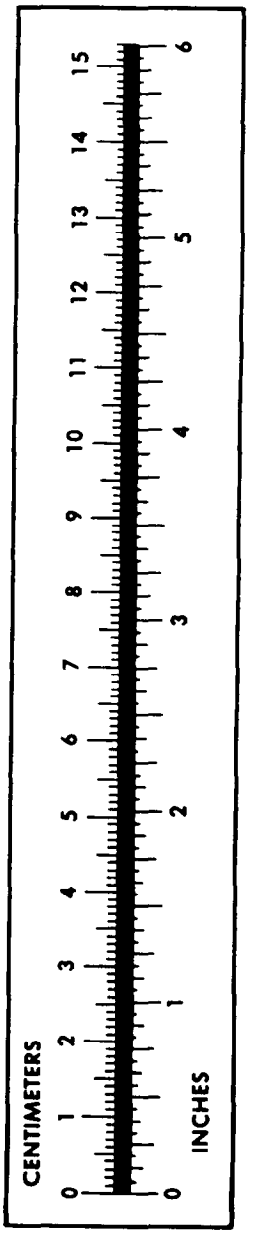
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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