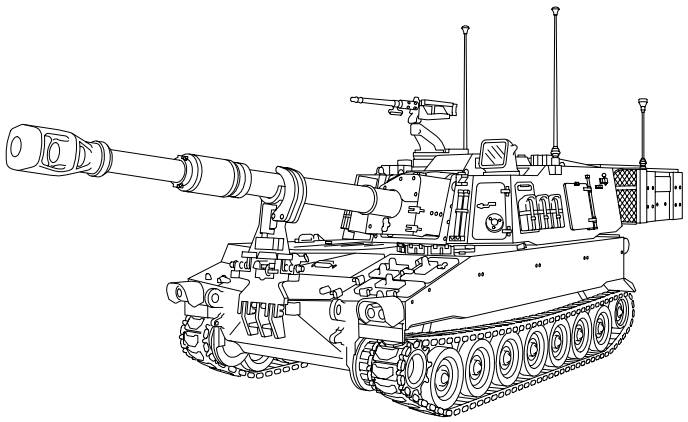
UNIT MAINTENANCE MANUAL
FOR
CAB SYSTEMS AND COMPONENTS



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DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 1 APRIL 2001

CHANGE
NO.1

TECHNICAL MANUAL
UNIT MAINTENANCE MANUAL
FOR
CAB SYSTEMS AND COMPONENTS
HOWITZER, MEDIUM,
SELF–PROPELLED: 155MM M109A6
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TM 9–2350–314–20–2–2, February 1999, is changed as follows:

1. The purpose of this change is to update TM 9–2350–314–20–2–2.
2. New or changed material is indicated by a vertical bar in the outside margin of text changes and by a hand symbol beside illustration changes.
3. Remove the old page and insert the new page as indicated below:

Remove Pages	Insert Pages
none	A and B
i and ii	i and ii
9–5 through 9–8	9–5 through 9–8
9–13 through 9–16	9–13 through 9–16
11–1 through 11–4	11–1 through 11–4
11–11 and 11–12	11–11 and 11–12
12–11 and 12–12	12–11 and 12–12
13–5 and 13–6	13–5 and 13–6
13–11 and 13–12	13–11 and 13–12
13–25 and 13–26	13–25 and 13–26
13–31 through 13–34	13–31 through 13–34
13–39 and 13–40	13–39 and 13–40
13–77 through 13–82	13–77 through 13–82
14–1 through 14–4	14–1 through 14–4
14–7 and 14–8	14–7 and 14–8
16–5 and 16–6	16–5 and 16–6
16–11 through 16–14	16–11 through 16–14
17–7 through 17–11/(17–12 Blank)	17–7 through 17–11/(17–12 Blank)
18–67 and 18–68	18–67 and 18–68
18–85 and 18–86	18–85 and 18–86
18–115 through 18–122	18–115 through 18–122

TM 9–2350–314–20–2–2

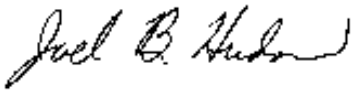
Remove Pages	Insert Pages
18–125 through 18–128	18–125 through 18–128
18–135 and 18–136	18–135 and 18–136
19–1 and 19–2	19–1 and 19–2
19–9 through 19–23/(19–24 Blank)	19–9 through 19–23/(19–24 Blank)
21–3 through 21–6	21–3 through 21–6
21–9 through 21–12	21–9 through 21–12
21–15 through 21–18	21–15 through 21–18
21–21 through 21–28	21–21 through 21–28
22–1 and 22–2	22–1 and 22–2
22–13 and 22–14	22–13 and 22–14
22–17 through 22–24	22–17 through 22–24
23–1 and 23–2	23–1 and 23–2
23–37 through 23–42	23–37 through 23–42.2
24–1 and 24–2	24–1 and 24–2
24–5 through 24–8	24–5 through 24–8
25–1 through 25–4	25–1 through 25–4
26–9 and 26–10	26–9 and 26–10
26–13 through 26–16	26–13 through 26–16
27–25 through 27–28	27–25 through 27–28
28–5 and 28–6	28–5 and 28–6
29–1 and 29–2	29–1 and 29–2
29–5 and 29–6	29–5 and 29–6
29–13 and 29–14	29–13 and 29–14.2
B–3 and B–4	B–3 and B–4
B–11 and B–12	B–11 and B–12
B–21 through B–27/(B–28 Blank)	B–21 through B–27/(B–28 Blank)
C–1 through C–4	C–1 through C–4
D–1 and D–2	D–1 and D–2
F–1 through F–4	F–1 through F–4
G–1 through G–3/(G–4 blank)	G–1 through G–3/(G–4 blank)
H–1 and H–2	H–1 and H–2
Index–1 through Index–7/(Index–8 blank)	Index–1 through Index–7/(Index–8 blank)
DA2028–2 sample form	DA2028–2 sample form
DA2028–2 form (3)	DA2028–2 form (3)
FP–1 through FP–3/(FP–4 blank)	FP–1 through FP–3/(FP–4 blank)
FP–11/(FP–12 blank)	FP–11 /(FP–12 blank)
Cover/blank	Cover/blank

4. File this change in front of the publication.

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

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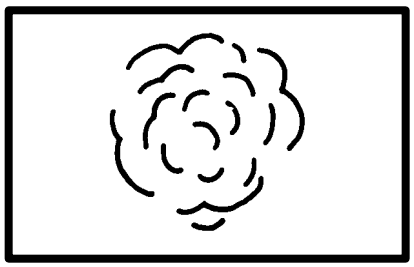


WARNING

CARBON MONOXIDE POISONING CAN BE DEADLY

Carbon monoxide is a colorless, odorless, deadly poisonous gas, which, when breathed, deprives the body of oxygen and causes suffocation. Exposure to air contaminated with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, coma, permanent brain damage or death can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel–burning heaters and internal–combustion engines and becomes dangerously concentrated under conditions of inadequate ventilation. The following precautions must be observed to insure the safety of personnel whenever the personnel heater, main or auxiliary engine of any vehicle is operated for maintenance purposes or tactical use.

Do not operate heater or engine of vehicle in an enclosed area unless the area is adequately ventilated.

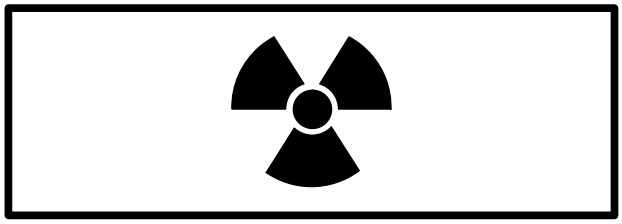
Do not drive any vehicle with inspection plates, cover plates, engine compartment doors removed unless necessary for maintenance purposes.

Be alert at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, immediately ventilate personnel compartments. If symptoms persist, remove affected personnel from vehicle and treat as follows: expose to fresh air; keep warm; do not permit physical exercise; if necessary, administer artificial respiration.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS ADEQUATE VENTILATION

WARNING

RADIOACTIVE MATERIAL(S)



TRITIUM (HYDROGEN–3) GAS

This item contains radioactive material. Control of this radioactive material is mandated by federal law. Immediately report any suspected lost or damaged items to your Radiation Protection Officer (RPO). If your RPO cannot be reached, contact the TACOM–ACALA safety office.

Handle with care. In the event the radioluminous source is broken, cracked, or there is no illumination, immediately wrap device in plastic bag (item 5, Appendix D) and notify the local RPO. Contact the base safety office for the name and telephone number of your local RPO:

LOCAL RPO:_____ TELEPHONE:_____

SAFETY PROCEDURES FOR NUCLEAR REGULATORY COMMISSION
(NRC) TRITIUM FIRE CONTROL DEVICES

1. Purpose: To implement mandatory license requirements for use and maintenance of tritium radioluminous fire control devices used on howitzers, mortars, tanks, and rifles.

2. Scope: This procedure is applicable to all personnel working with tritium devices, including unit, direct support and general support maintenance, and operator's levels.

3. Radiological hazard: The beta radiation emitted by tritium presents no external radiation hazard. However, if taken internally, it can damage soft tissue. If a capsule is broken, the tritium gas will dissipate into the surrounding air and surfaces near the vicinity of the break may become contaminated. Tritium can be taken into the body by inhalation, ingestion, or skin absorption/injection.

4. Safety precautions:

    a. Check for illumination prior to use or service in low light or darkroom. If not illuminated, do not repair. Wrap the entire device in plastic bag (item 17, Appendix C) and notify the local RPO.

    b. No eating, drinking, or smoking will be allowed in tritium device work areas.

5. Emergency procedures: If a tritium source breaks, inform other personnel to vacate the area or move upwind. If skin contact is made with any area contaminated with tritium, wash immediately with nonabrasive soap and water. Report the incident to the local RPO. Actions below will be taken under supervision or direction of the local RPO.

a. Personnel handling the device should wear rubber or latex gloves (item 51, Appendix C). Device must be immediately double wrapped in plastic, sealed at all seams with tape (item 90, Appendix C) and marked as “Broken Tritium Device — Do Not Open” per RPO direction. Package item in box (item 19, Appendix C) and return to depot for disposal. Dispose of used gloves as radioactive waste, per instructions from local RPO, and wash hands well.

b. Personnel who may have handled the broken tritium should report to health clinic for tritium bioassay. Optimum bioassay sample is at least 4 hours after exposure.

c. Broken tritium sources indoors may result in tritium contamination in the area, such as work bench or table. The area must be cordoned off and restricted until wipe tests indicate no contamination.

6. Further information:

a. Requirements for safe handling and maintenance are located in TM 9–254, General Maintenance Procedures for Fire Control Materiel.

b. If assistance is needed, contact your local or major command (MACOM) safety office(s) for information on safe handling, shipping, storage, maintenance, or disposal of radioactive devices.

c. The ACALA RPO/licensee may be contacted by calling: DSN 793–2965/2969/2995, Commercial (309) 782–2965/2969/2995. After duty hours contact the Staff Duty Office through the operator at DSN 793–6001, Commercial (309) 782–6001. The following rules and regulations are available from ACALA, ATTN: AMSMC–SFS, Rock Island, IL 61299–7630. Copies may be requested, or further information obtained by contacting the ACALA Radiation Protection Office (RPO).

(1) Title 10 CFR Part 19 – Notices, Instructions, and Reports to Workers.

(2) Title 10 CFR Part 20 – Standards for Protection Against Radiation.

(3) Title 10 CFR Part 21 – Reporting of Defects and Noncompliance.

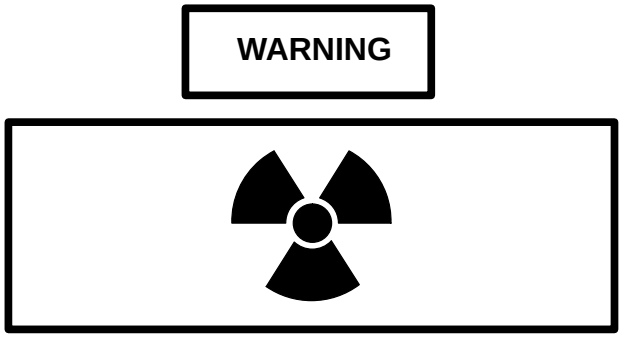
(4) NRC License, License Conditions, and License Application.

7. Safety, Care, and Handling:

WARNING

- Nuclear, Biological, and Chemical (NBC) agents can kill you. If NBC exposure is suspected, all air filter media must be handled by personnel wearing full NBC protective equipment (FM 21–11).

- Make sure MCS enclosure and air duct system is properly decontaminated after being exposed to an NBC environment before maintenance is performed. Failure to do this could result in personnel injury due to residual contamination.



RADIATION HAZARD

Fire control instruments containing Tritium are used as a part of a backup system for manual firing. Loss of illumination may indicate that leakage has occurred. Do not attempt to repair a non–illuminated device.

Pre–Maintenance Check:

a. Prior to taking any maintenance action on fire control devices (e.g., purging or charging M1A1 Collimator), check for broken/cracked reticle or loss of illumination as follows:

   (1) Place device in the dark for at least four hours to prevent exterior light from activating the phosphor.

   (2) Check for cracks/illumination in a low light environment after allowing sufficient time to accustom eyes to the dark.

b. If illumination is not observed, or illuminated but cracks are observed, take following actions:

   (1) Personnel handling the device should wear rubber or plastic gloves (item 51, Appendix C).

   (2) Seal entire device in two plastic bags (item 17, Appendix C).

   (3) Mark the outer bag as “Broken Tritium Device – Do Not Open.”

   (4) Dispose of used gloves as radioactive waste as per instructions from local Radiation Protection Officer (RPO). Wash well with nonabrasive soap and water.

   (5) Per RPO direction, place bag in a strong, tight container, such as fiberboard box (item 19, Appendix C) with all seams sealed using tape (item 90, Appendix C) (masking tape is not authorized).

   (6) Send package to depot level maintenance for repair/disposal.

c. If illumination is observed, maintenance actions may proceed.

WARNING

- Do not purge and charge any instrument containing a radioluminous source if there is no illumination in the assembly. The local Radiological Protection Officer (RPO) must be notified, and the defective unit will be replaced by a serviceable one.

- Do not use mineral spirits or paint thinner to clean the howitzer. Mineral spirits and paint thinners are highly toxic and combustible. Prolonged breathing can cause dizziness, nausea, and even death. Do not use these materials.

- Avoid prolonged contact with cleaning solvents and adhesives. To prevent damage to eyes, skin, and lungs:

- Always use cleaning solvents and adhesives in a well–ventilated area. Do not permit smoking. Do not use near open flame. Avoid contact with skin. Wear gloves and eye protection.

- When removing and installing heavy items, make sure to have sufficient personnel and adequate lifting equipment. Equipment can cause serious injury if dropped.

- Ensure traverse area is clear prior to turning on hydraulic power.

WARNING

- Never torque hydraulic lines or fittings when hydraulic system is pressurized. Damage to tubes and fittings could result in injury to personnel.

- Do not drop tank of compressed nitrogen gas. Do not tap nitrogen tank. Tank can explode when tapped or dropped. When using in confined areas, use extreme care; gas could cause suffocation.

- High pressure gas is used in charging the accumulators and fire control equipment. Do not exceed recommended psi when charging these components. Keep face and body clear of release valves. Failure to observe safety precautions may result in injury or death.

- Failure to align reticle of alignment device M140 with reticles of M117A2 using boresighting procedure could result in projectiles landing outside target area. Injury or death of friendly forces can result from firing with misaligned fire control equipment.

- Failure to align the Dynamic Reference Unit Hybrid (DRUH) to the gun tube using the AFCS Fire Control Alignment procedures could result in a projectile landing outside the target area. Injury or death of friendly forces can result from firing with improper boresight angle offsets.

- Refer to FM 21–11, First Aid For Soldiers, for correct procedures to be taken if personnel are injured.

- Always wear safety glasses when working on hydraulic system. If fluid gets in eyes, flush immediately with water and notify medical personnel.

WARNING

- Fire extinguisher cylinders can discharge and cause frostbite or eye injury. Wear protective clothing and goggles to avoid contact.
- Fire extinguisher cylinders are under high pressure (750 psi at 70° F) and can explode if dropped, struck, or exposed to open flame.

WARNING

High levels of radio frequency radiation can be damaging. Stay at least 2 feet away from the antenna of any operating radio transmitter.

WARNING

Adhesive burns easily and gives off harmful vapors. To avoid injury, keep away from open fire and use in a well ventilated space.

INSERT LATEST CHANGED PAGES.
DESTROY SUPERSEDED PAGES

LIST OF EFFECTIVE PAGES

Note: The portion of the text affected by the changes is indicated by a vertical line in the outer margin of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Date of issue for original and changed pages are:

Original . . . . . 0 . . . . . 8 February 1999
Change . . . . . 1 . . . . . 1 April 2001

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 708, CONSISTING OF THE FOLLOWING:

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
Cover	1	13–32	0	18–85	1
Blank	0	13–33	1	18–86	0
Change 1 Errata Added (4)	1	13–34	0	18–87 – 18–116	0
a – f	0	13–35 – 13–38	0	18–117 – 18–120	1
g	0	13–39	1	18–121	1
h Blank	0	13–40	0	18–122	0
A – B Added	1	13–41 – 13–76	0	18–123 – 18–124	0
i	1	13–77	0	18–125	0
ii	0	13–78	1	18–126	1
9–1 – 9–4	0	13–79 – 13–80	1	18–127 – 18–128	1
9–5	0	13–81	1	18–129 – 18–134	0
9–6	1	13–82	0	18–135	1
9–7	1	13–83 – 13–88	0	18–136 – 18–170	0
9–8	0	14–1	0	19–1	0
9–9 – 9–12	0	14–2	1	19–2	1
9–13	0	14–3	0	19–3 – 19–8	0
9–14	1	14–4	1	19–9	1
9–15	0	14–5 – 14–6	0	19–10	0
9–16	1	14–7	1	19–11	0
10–1 – 10–2	0	14–8	0	19–12	1
11–1	0	14–9 – 14–12	0	19–13	0
11–2	1	15–1 – 15–16	0	19–14	1
11–3	1	16–1 – 16–4	0	19–15 – 19–22	1
11–4	0	16–5 – 16–6	1	19–23	1
11–5 – 11–10	0	16–7 – 16–10	0	19–24 Blank	0
11–11	0	16–11	1	20–1 – 20–4	0
11–12	1	16–12	0	21–1 – 21–2	0
12–1 – 12–30	0	16–13	0	21–3	0
12–31	0	16–14	1	21–4	1
12–32 Blank	0	16–15	0	21–5 – 21–6	1
13–1 – 13–4	0	16–16 Blank	0	21–7 – 21–8	0
13–5	1	17–1 – 17–6	0	21–9	0
13–6	0	17–7	0	21–10	1
13–7 – 13–10	0	17–8	1	21–11	0
13–11	1	17–9 – 17–10	1	21–12	1
13–12	0	17–11	1	21–13 – 21–14	0
13–13 – 13–24	0	17–12 Blank	0	21–15	0
13–25 – 13–26	1	18–1 – 18–67	0	21–16	1
13–27 – 13–30	0	18–68	1	21–17	1
13–31	1	18–69 – 18–84	0	21–18	0

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TECHNICAL MANUAL
No. 9–2350–314–20–2–2
Volume 2

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Washington, D.C. 8 February 1999

UNIT MAINTENANCE MANUAL FOR CAB SYSTEMS AND COMPONENTS, HOWITZER, MEDIUM, SELF–PROPELLED, 155MM, M109A6 (2350–01–305–0028) (EIC: 3FC)

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TABLE OF CONTENTS

This manual supersedes TM 9–2350–314–20–2–2 dated 25 October 1993, including all changes.

TABLE OF CONTENTS

CHAPTER 9
COMMANDER'S SEAT

GENERAL

This chapter illustrates and describes maintenance procedures for the commander's seat, stand, and footrest assemblies. Step–by–step procedures are provided for adjustment, removal, repair, and installation as required for unit level maintenance.

CONTENTS Page

9–1 COMMANDER'S SEAT AND STAND ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Machinist's vise (item 46, Appx G)
Soft–jaw caps (2) (item 12, Appx G)
Torque wrench (item 53, Appx G)

Materials/Parts
Adhesive (item 7, Appx C)
Sealing compound (item 42, Appx C)
Dry–cleaning solvent (item 75, Appx C)
Cotter pin (item 77, Appx F)
Brake washers (2) (item 179, Appx F)
Sleeve spacers (2) (item 180, Appx F)

Materials/Parts – Continued
Spring pin (item 30, Appx F)
Spring pin (item 27, Appx F)
Bearing (item 53, Appx F)
Retaining ring (item 39, Appx F)
Spring washers (4) (item 2, Appx F)
Spring pins (2) (item 28, Appx F)
Spring pin (item 26, Appx F)
Bearing (item 52, Appx F)
Bearing (item 55, Appx F)
Bearings (2) (item 54, Appx F)

Personnel Required
Two

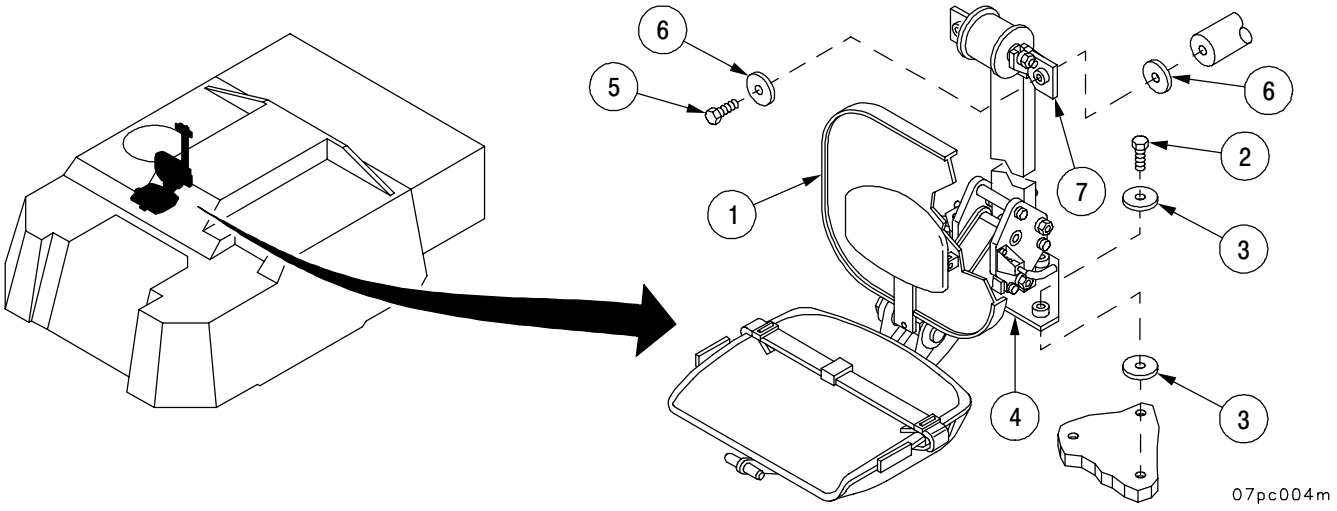
a. Removal.

1 Raise commander's seat/stand assembly (1) to full up position.

2 Remove three screws (2) and six flat washers (3) that secure mounting bracket (4) to cab.

3 Remove two screws (5) and four flat washers (6) that secure mounting bracket (7) to cab.

4 Remove commander's seat/stand assembly (1) from cab.



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

b. Disassembly.

WARNING

The commander's seat spring is under tension. Keep clear while removing screws. Failure to do so will result in personnel injury.

1 Remove two screws (8), two flat washers (9), and retaining strap (10) that secure spring assembly (11) to bracket (12).

2 Remove two nuts (13) and two flat washers (14) from shaft (15).

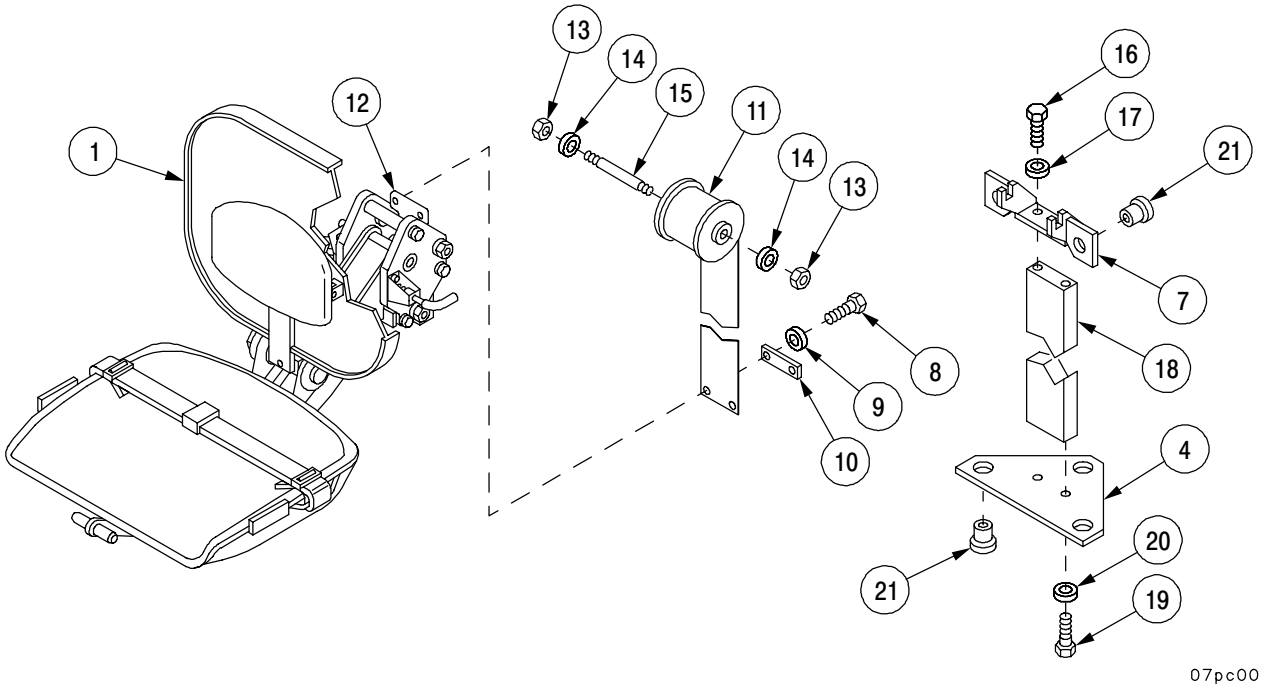
3 Remove spring assembly (11) from mounting bracket (7). Remove shaft (15) from spool in spring assembly (11).

4 Remove two screws (16), two flat washers (17), and mounting bracket (7) from column (18).

5 Remove two screws (19), two flat washers (20), and mounting bracket (4) from column (18).

6 Remove five rubber bushings (21) from mounting brackets (4 and 7).

7 Remove commander's seat (1) from column (18).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

b. Disassembly – Continued

8 Remove five screws (22), hex head screw (23), and six flat washers (24).

9 Remove spring bracket (12) and two spacers (25 and 26). Remove setscrews (27) from spacer (26).

10 Remove hex head screw (28) and flat washer (29) securing handle bracket (30) to side plate (31).

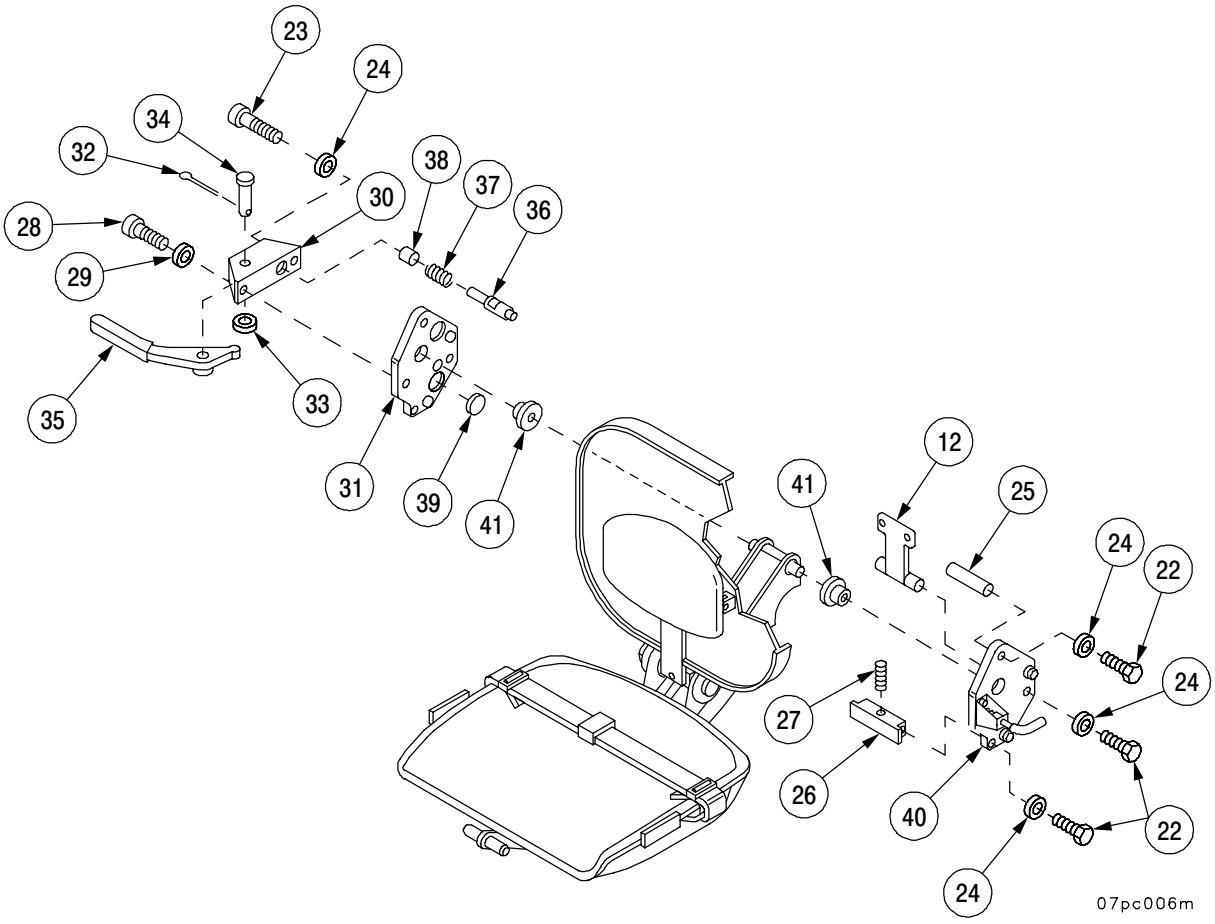
11 Remove cotter pin (32) and flat washer (33) from pin (34). Discard cotter pin.

12 Remove pin (34) and handle (35) from handle bracket (30).

13 Remove pin (36), spring (37), and sleeve (38) from handle bracket (30).

14 Remove four guides (39) from side plates (31 and 40).

15 Remove two bearings (41) from side plates (31 and 40). Discard bearings.



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

b. Disassembly – Continued

16 Remove four nuts (42), four flat washers (43), and four cam followers (44) from side plates (31 and 40).

17 Remove two hex head screws (45) and two flat washers (46) securing latch housing (47) to side plate (40).

18 Remove bearing (48) from side plate (40). Discard bearing.

19 Remove spring pin (49) from handle (50). Discard spring pin.

20 Remove handle (50) from housing (47).

21 Remove flat washer (51), spring (52), and sleeve (53) from housing (47).

22 Remove screw (54) and flat washer (55) securing shaft (56) to arm (57).

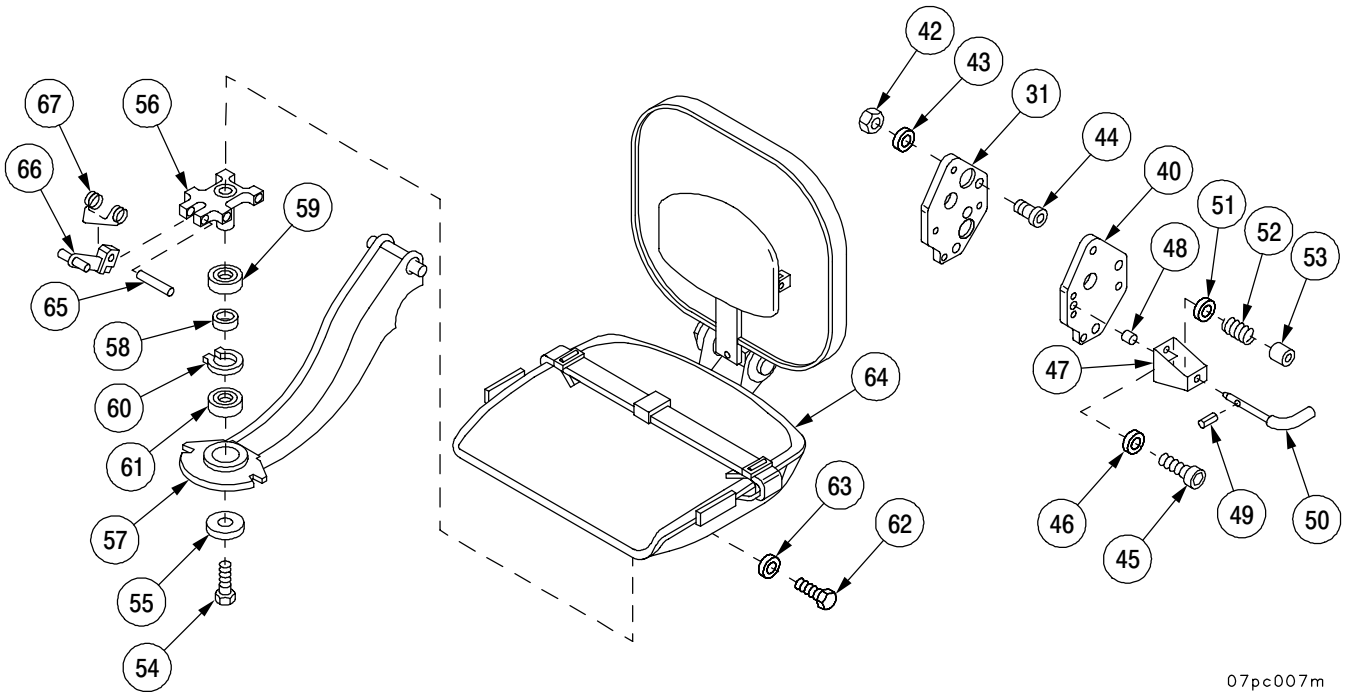
23 Remove arm (57) from shaft (56).

24 Remove spacer (58) and bearing (59) from shaft (56). Discard spacer.

25 Remove retaining ring (60) and bearing (61) from arm (57). Discard retaining ring.

26 Remove four screws (62) and four flat washers (63) securing shaft (56) to seat pan (64).

27 Secure shaft (56) in vise. Remove pin (65) holding handle (66) and spring (67).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

b. Disassembly – Continued

28 Remove two spring pins (68) securing plate (69) to backrest (70). Discard spring pins.

29 Remove socket screw (71) and jamnut (72) from seat pan (64).

30 Remove nut (73), flat washers (74 and 75), four spring washers (76), and plate (77) from hinge pin (78). Discard spring washers.

31 Remove spring pin (79) from hinge pin (78). Discard spring pin.

32 Remove spring pin (80) from backrest hinge pin (78). Discard spring pin.

33 Remove hinge pin (78) from backrest (70) and seat pan (64).

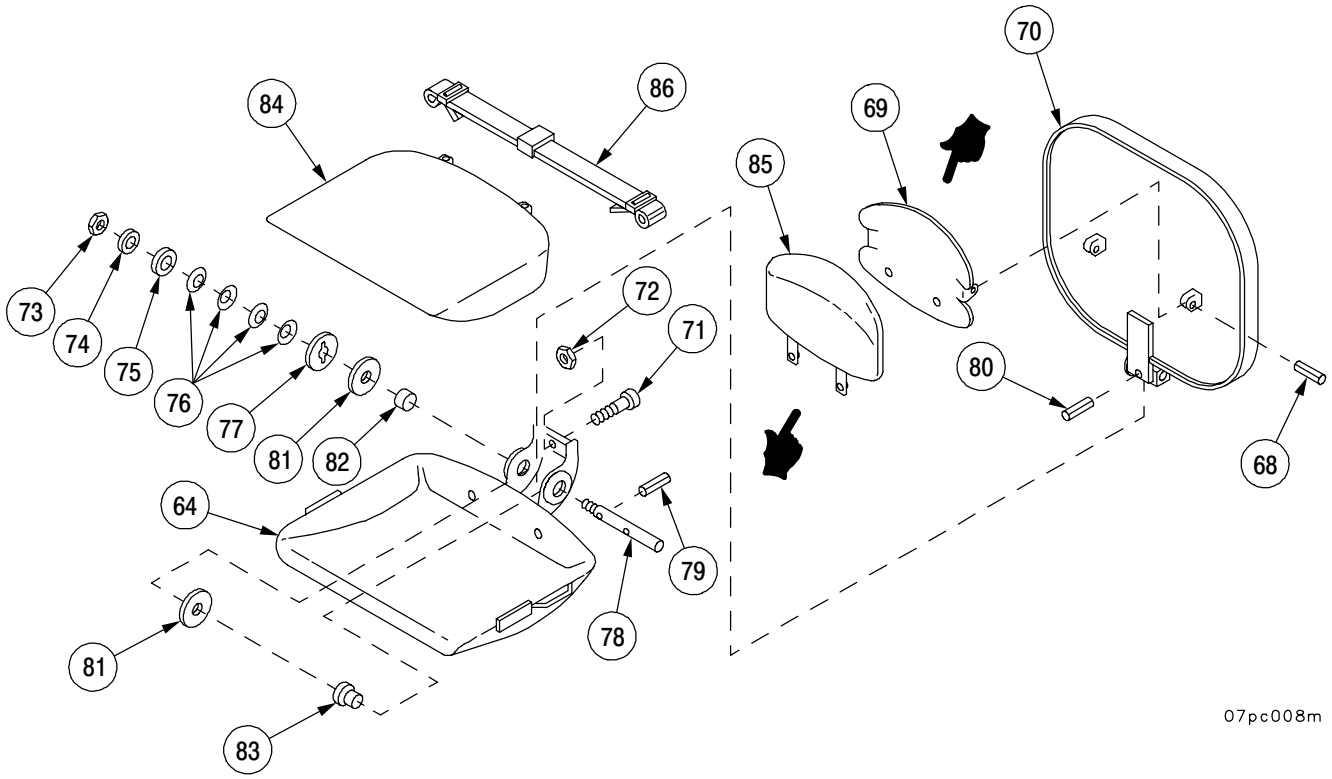
34 Remove two brake washers (81) from seat pan (64). Discard brake washers.

35 Remove two bearings (82 and 83) from seat pan (64). Discard bearings.

36 Remove seat cushion (84) from seat pan (64), if damaged.

37 Remove seat back cushion (85) from plate (69).

38 Remove commander's seat belt (86) from retaining loops on side of seat pan (64).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

c. Assembly.

1 Install commander's seat belt (86) on side of seat pan (64).

2 Install seat back cushion (85) on plate (69).

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

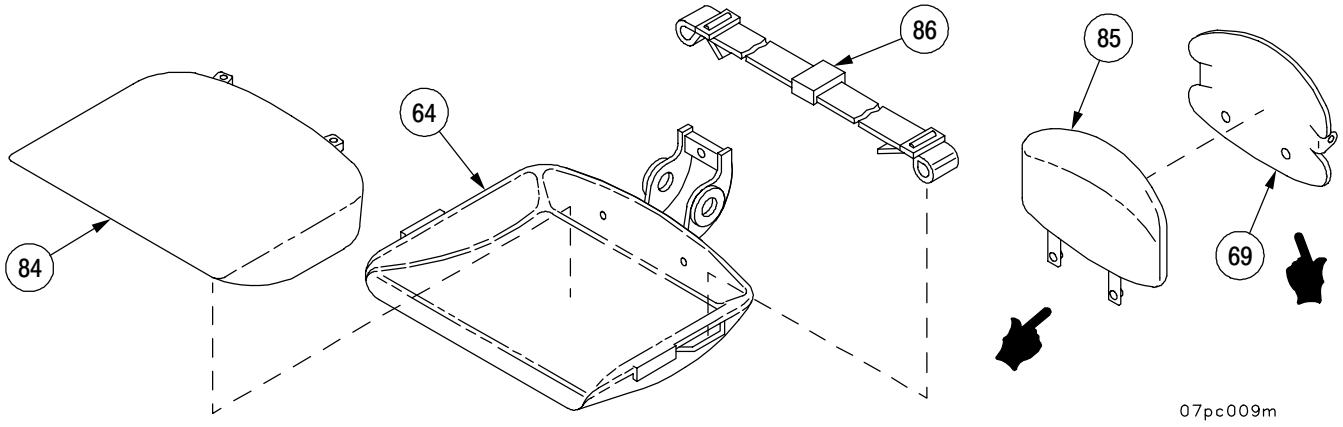
NOTE

Perform steps 3 thru 5 only if seat cushion was removed

3 Clean mounting surface of seat pan (64) with dry–cleaning solvent.

4 Apply adhesive to seat pan (64) and bottom of seat cushion (84).

5 Install seat cushion (84) on seat pan (64).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

c. Assembly – Continued

NOTE

When assembling backrest to seat with hinge pin, large hole in hinge pin must be aligned with hole in backrest.

6 Install two new bearings (82 and 83) on seat pan (64).

7 Install two new bracket washers (81) on seat pan (64).

8 Align backrest (70) mounting lugs with lugs on seat pan (64) and install hinge pin (78).

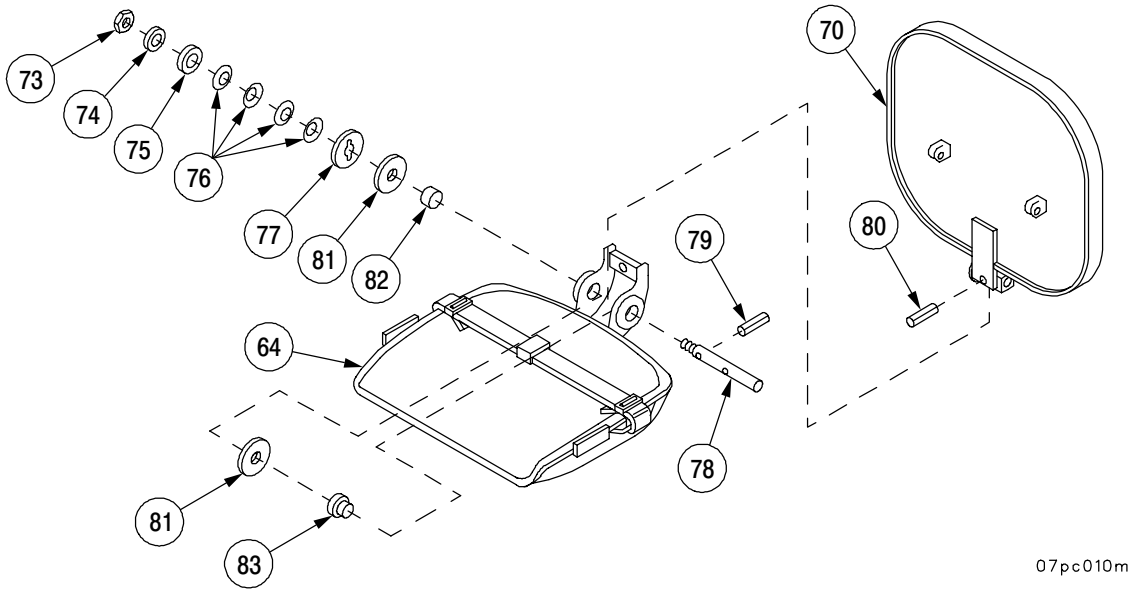
9 Install new spring pin (80) into hinge pin (78).

10 Install new spring pin (79) into hinge pin (78).

NOTE

Make sure nut is tightened on hinge pin to prevent backrest from falling when placed in diagonal position.

11 Install plate (77), four new spring washers (76), flat washers (74 and 75), and nut (73) on pin (78). Torque nut (73) to 13–26 lb–ft (18–35 N·m).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

c. Assembly – Continued

12 Install socket screw (71) and jamnut (72) in seat pan (64).

13 Install two new spring pins (68) to secure plate (69) to backrest (70).

14 Place shaft (56) in vise and secure handle (66) and spring (67) in shaft (56) with pin (65).

NOTE

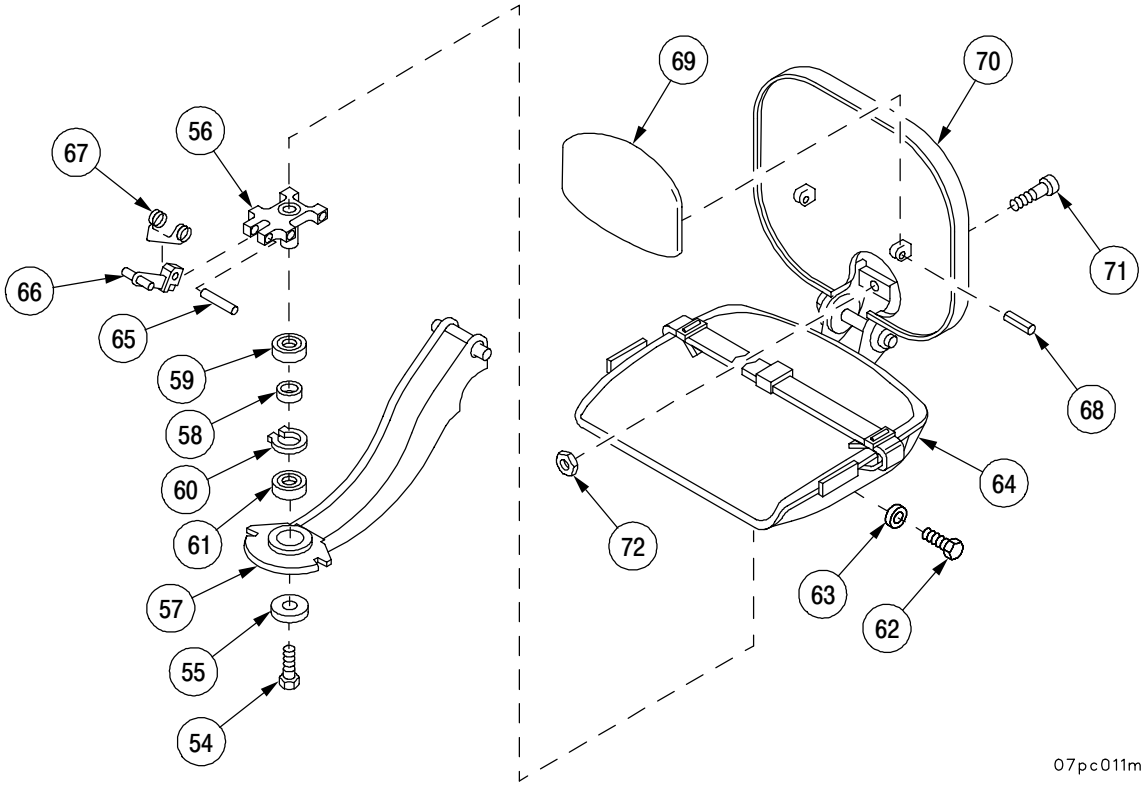
Apply thread lock sealant to all mounting screws, nuts, and threads.

15 Install shaft (56) to seat (64) with four flat washers (63) and four screws (62)

16 Install bearing (59) and spacer (58) on shaft (56).

17 Install bearing (61) and new retaining ring (60) in arm (57).

18 Install arm (57) in shaft (56) with flat washer (55) and screw (54).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

c. Assembly – Continued

19 Install handle (50) halfway through housing (47).

20 Install sleeve (53), spring (52), and flat washer (51) on handle (50). Push handle (50) completely through housing (47).

21 Install new spring pin (49) on handle (50).

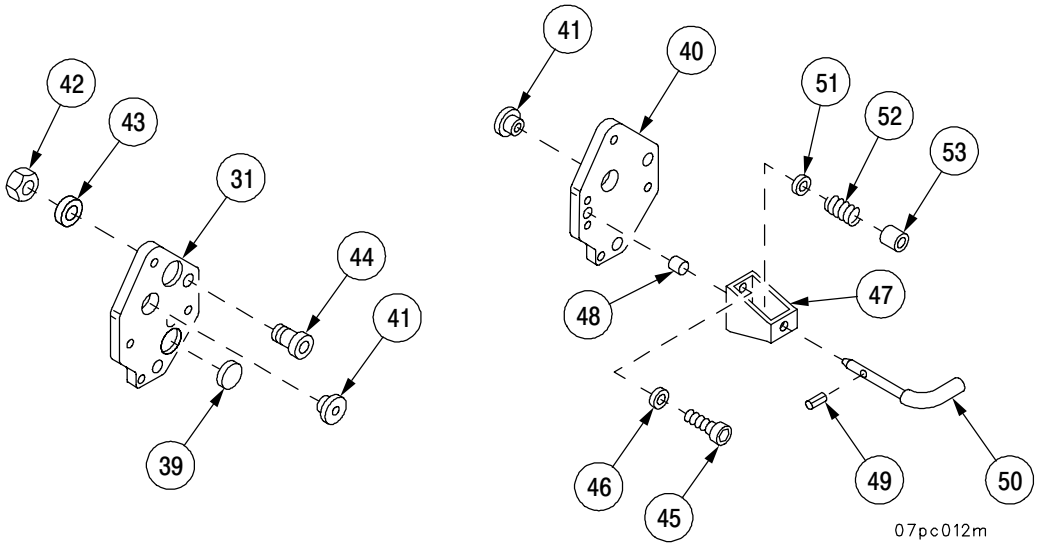
22 Install new bushing (48) in side plate (40).

23 Install latch housing (47) on side plate (40) with two flat washers (46) and two hex head screws (45).

24 Install four cam followers (44), four nuts (42), and four flat washers (43) in side plates (31 and 40).

25 Install two new bearings (41) on side plates (31 and 40).

26 Install four guides (39) on side plates (31 and 40).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

c. Assembly – Continued

27 Install spring (37) and sleeve (38) on pin (36).

NOTE

Be sure slot in pin is positioned so that handle engages.

28 Install pin (36), spring (37), and sleeve (38) in handle bracket (30).

29 Install handle (35) and pin (34) in handle bracket (30).

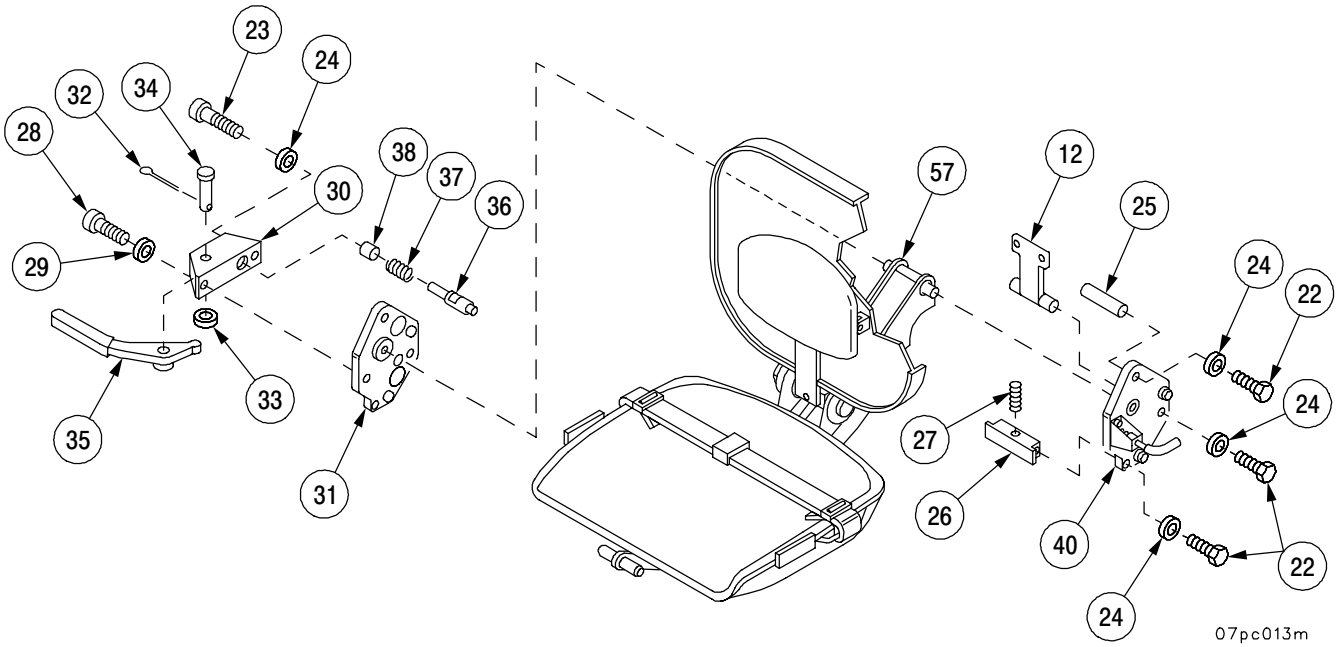
30 Install flat washer (33) and new cotter pin (32) in pin (34).

31 Install handle bracket (30) on side plate (31) with two flat washers (24 and 29) and two hex head screws (23 and 28). Tighten screw (23) hand tight.

32 Install two side plates (31 and 40) in position on arm (57). Install spacer (25), spring bracket (12), and spacer (26).

33 Install five screws (22) and five flat washers (24) to secure side plates (31 and 40).

34 Install setscrew (27) in spacer (26).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

c. Assembly – Continued

35 Install commander's seat (1) on column (18).

36 Adjust setscrew (27) to insert pin in column's (18) lowest holes.

37 With all four bearings in contact with column (18), tighten screws (22 and 23).

38 Install five rubber bushings (21) in mounting brackets (4 and 7).

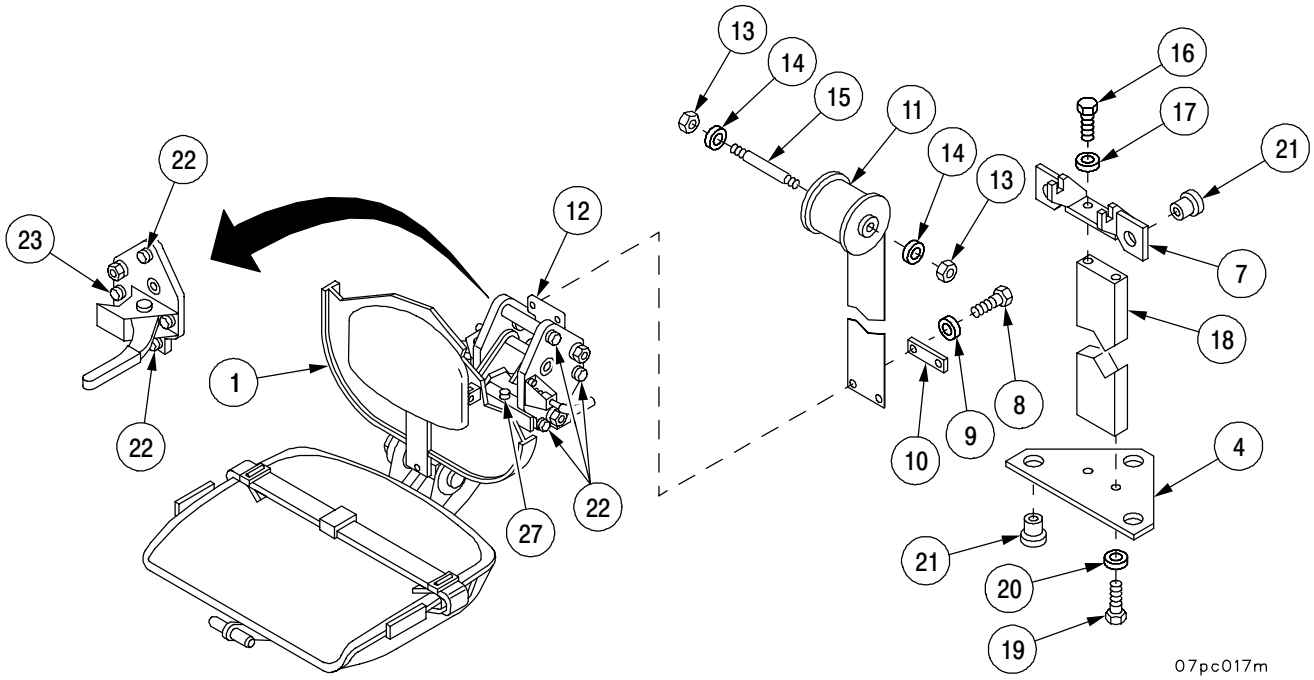
39 Install mounting bracket (4) on column (18) with two flat washers (20) and two screws (19).

40 Insert mounting bracket (7) on column (18) with two flat washers (17) and two screws (16).

41 Insert shaft (15) in spool on spring assembly (11) and install two flat washers (14) and two nuts (13) on shaft (15).

42 Install retaining strap (10), two flat washers (9), and two screws (8) to secure spring assembly (11) to bracket (12).

43 Install spring assembly (11) on mounting bracket (7) by pulling up on spool and inserting shaft in slots on bracket (7).



9–1 COMMANDER'S SEAT AND STAND ASSEMBLY – CONTINUED

d. Installation.

1 Position commander's seat/stand assembly (1) in cab with mounting holes aligned.

2 Apply sealing compound on screw threads.

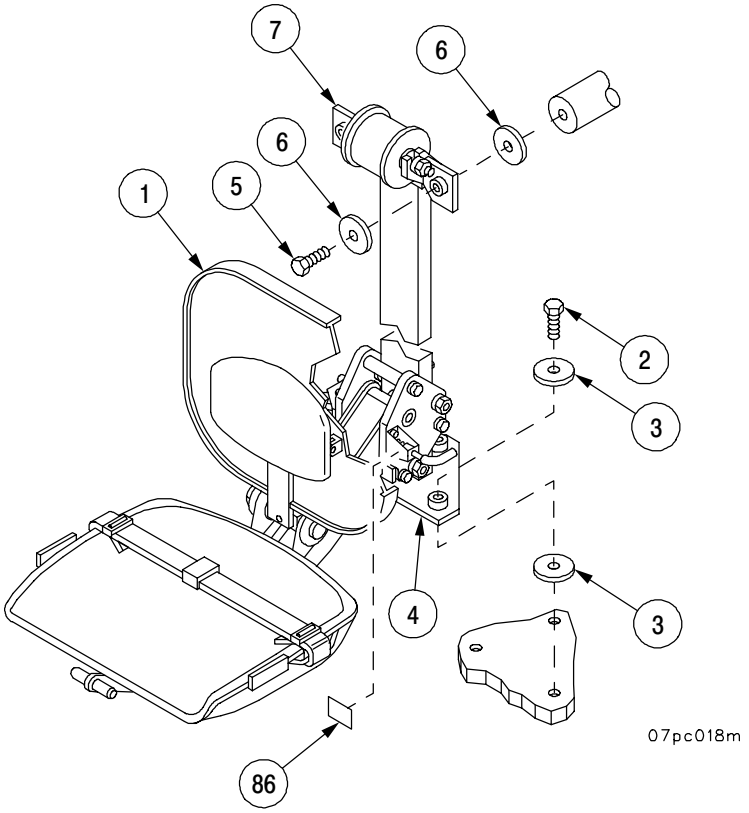
3 Secure mounting bracket (7) on cab with two screws (5) and four flat washers (6). Torque screws to 25–35 lb–in. (2.8–3.9 N·m).

4 Secure mounting bracket (4) to cab with three screws (2) and six flat washers (3). Torque screws to 25–35 lb–in. (2.8–3.9 N·m.).

NOTE

Install new label only if old label is illegible, or if commander's seat was replaced.

5 Install new label (86), if necessary (para 2–8).



9–2 FOOTREST ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

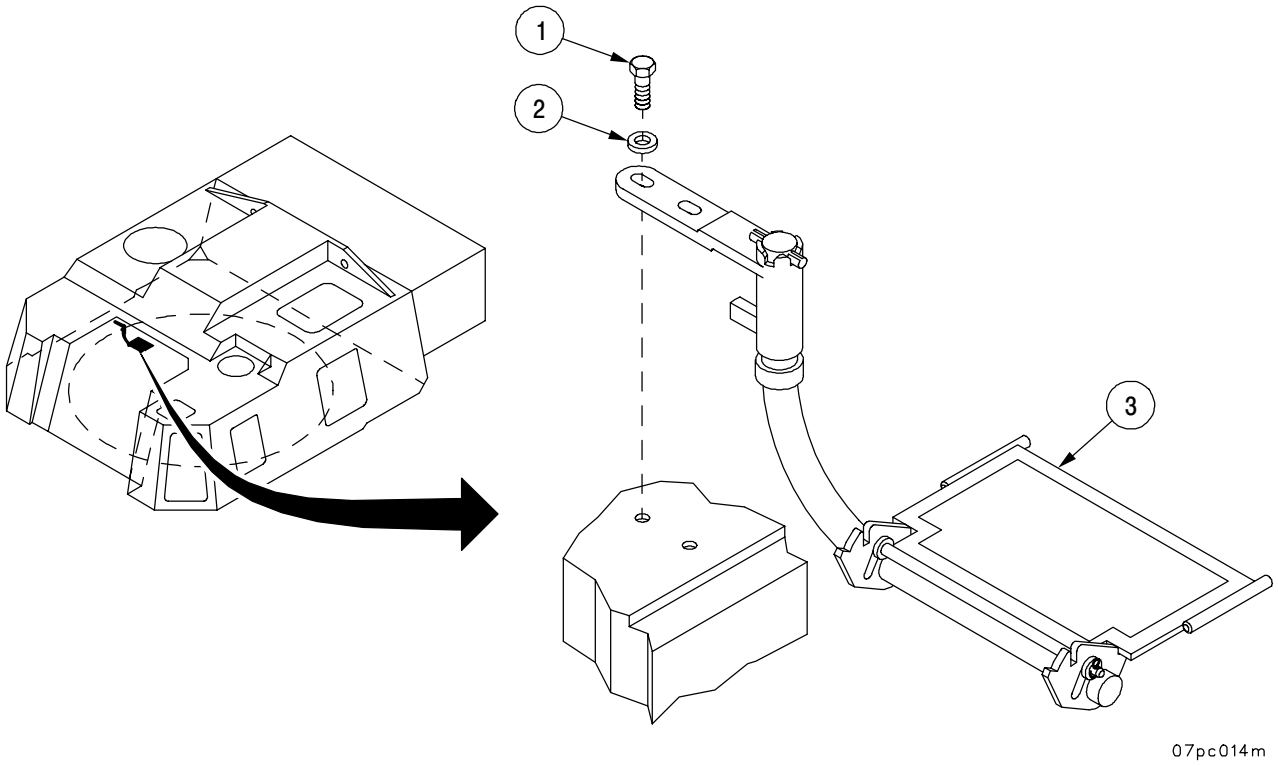
Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Cotter pins (2) (item 77, Appx F)
Spring pin (item 32, Appx F)
Automotive grease (item 52, Appx C)
Sealing compound (item 42, Appx C)
Sealing compound (item 46.1, Appx C)

a. Removal.

1 Remove two screws (1) and two flat washers (2).

2 Remove footrest assembly (3) from its mounting surface.



9–2 FOOTREST ASSEMBLY – CONTINUED

b. Disassembly.

1 Remove two cotter pins (4) and four flat washers (5) from shaft (6). Discard cotter pins.

2 Remove shaft (6) from platform (7) and arm (8). Remove platform (7).

3 Remove spring pin (9) from arm (8). Discard spring pin.

4 Remove arm (8) from bracket (10).

c. Assembly.

1 Lubricate interface between arm (8) and bracket (10).

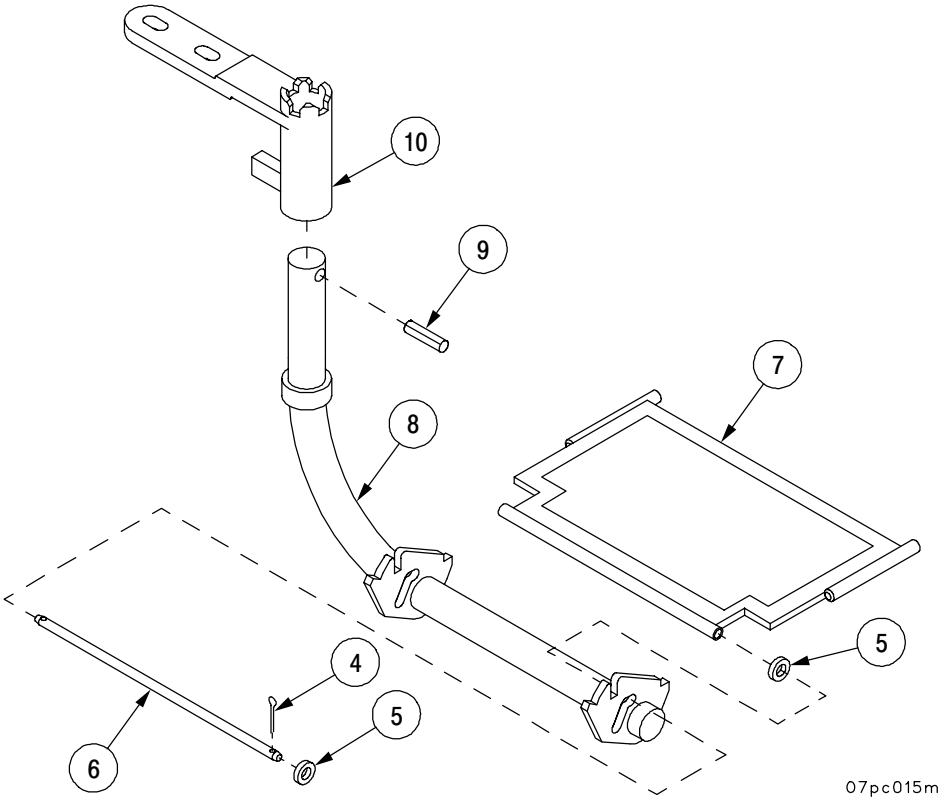
2 Install arm (8) in bracket (10).

3 Install new spring pin (9) in arm (8).

4 Install platform (7) on arm (8).

5 Install shaft (6) in platform (7).

6 Install four flat washers (5) and two new cotter pins (4) on shaft (6).



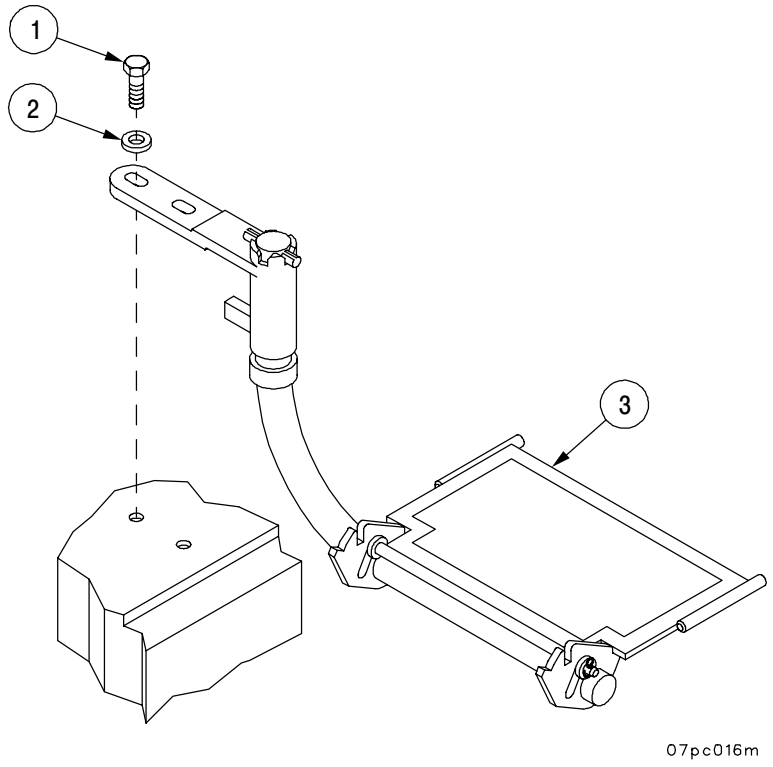
9–2 FOOTREST ASSEMBLY – CONTINUED

d. Installation.

1 Apply sealing compound (item 42, Appx C) on two screws (1).

2 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of footrest assembly (3).

3 Install footrest assembly (3) on mounting surface with two flat washers (2) and two screws (1). Torque screws to 35–45 lb–in. (3.9–5.0 N·m) while sealant is still wet.



CHAPTER 10
TURRET BEARING TORQUE

GENERAL

This chapter explains how to torque the turret bearing.

CONTENTS Page

10–1 TURRET BEARING TORQUE.

This task covers: Inspection

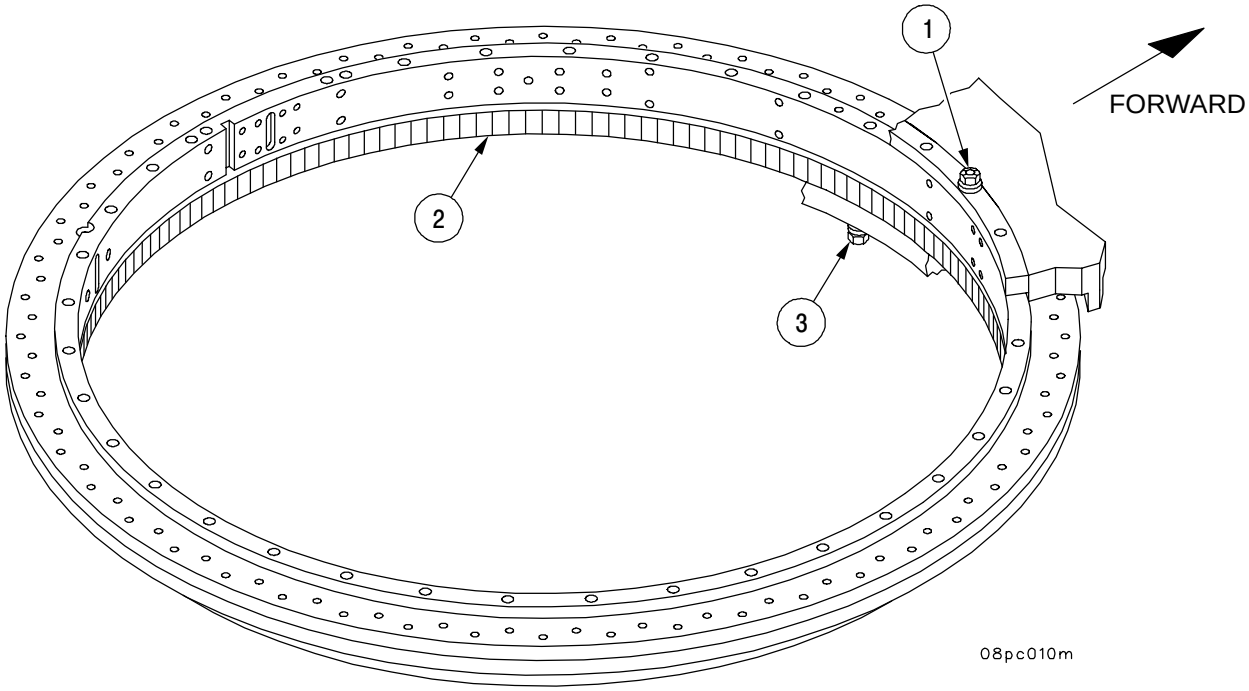
INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)
Socket wrench (item 49, Appx G)
Socket extension (item 16, Appx G)
Torque wrench (item 54, Appx G)

Inspection.

1 Check torque of 33 cab mounting bolts (1) in top side of turret bearing (2). Torque should be 340–380 lb–ft (461–515 N·m).

2 Check torque of 48 turret bearing hull mounting bolts (3). Torque should be 340–380 lb–ft (461–515 N·m).



CHAPTER 11
CREW SEATS

GENERAL

This chapter illustrates and describes maintenance procedure for the crew seat cushion, plate, support, bracket, and safety belt. Step–by–step procedures are provided for removal and installation as required for unit level maintenance.

CONTENTS Page

11–1 CREW SEAT CUSHION, PLATE, AND SUPPORT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Spring pins (2) (item 28, Appx F)
Spring pins (2) (item 29, Appx F)
Sealing compound (item 46.1, Appx C)

NOTE

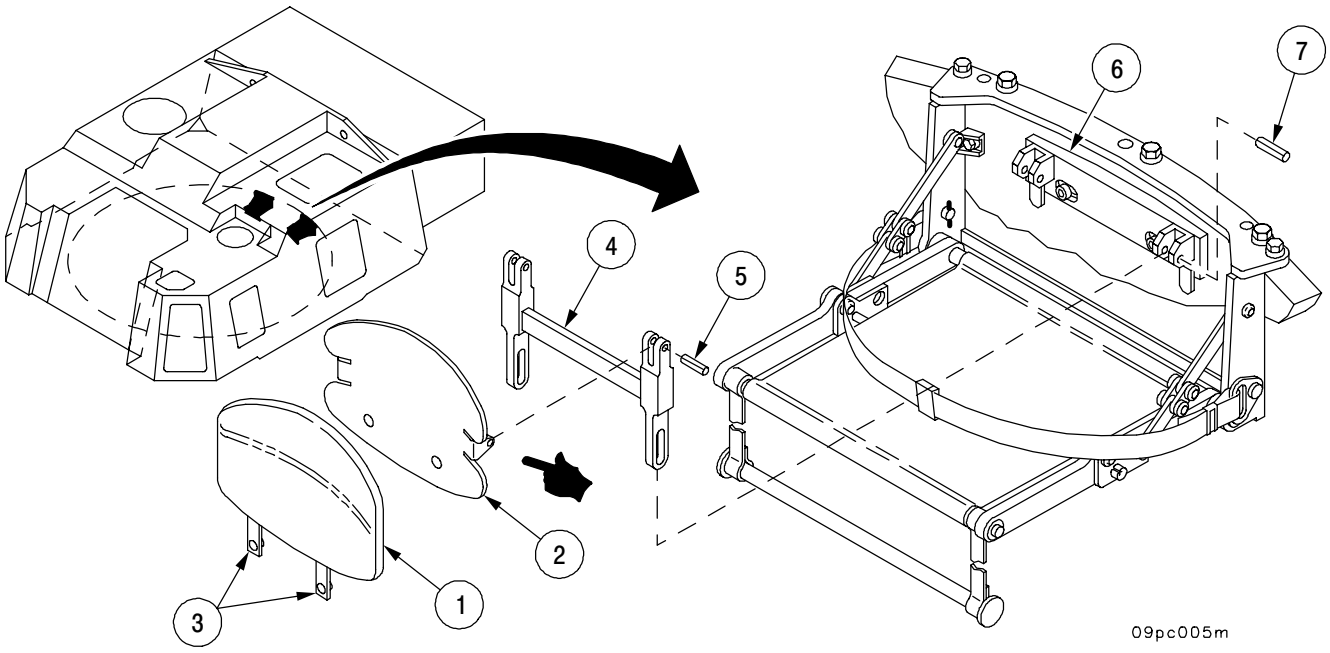
There are two crew seats. The removal and installation procedures for the seat cushions, plates, and support are identical for both. This procedure covers only one set.

a. Removal.

1 Remove cushion (1) from plate (2) by unsnapping two buttons (3).
2 Remove plate (2) from support (4) by removing two spring pins (5). Discard springs pins.
3 Remove support (4) from bracket (6) by removing two spring pins (7). Discard spring pins.

b. Installation.

1 Apply sealing compound to all aluminum/steel interfaces of support (4).
2 Install support (4) on bracket (6) with two new spring pins (7).
3 Install plate (2) on support (4) with two new spring pins (5).
4 Install cushion (1) on plate (2) by snapping two buttons (3).



11–2 CREW SEAT BRACKET.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Spring pins (2) (item 29, Appx F)
Sealing compound (item 46.1, Appx C)

NOTE

There are two crew seats. The removal and installation procedures for the seat brackets are identical. This procedure covers only one bracket.

a. Removal.

1 Remove two spring pins (1) and support/backrest (2) from bracket (3). Discard spring pins.

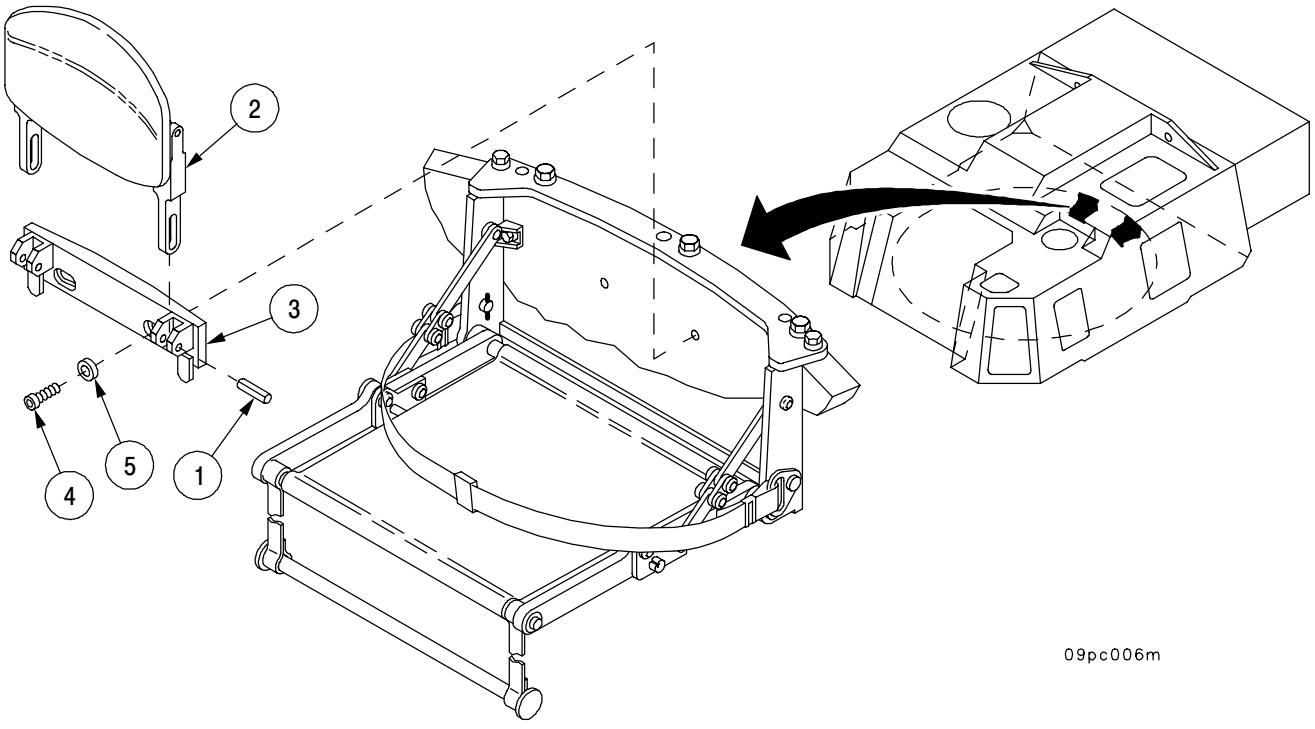
2 Remove two screws (4), two flat washers (5) and bracket (3) from cab.

b. Installation.

1 Apply sealing compound to aluminum/steel interface of bracket (3).

2 Install bracket (3) on cab with two flat washers (5) and two screws (4). Torque screws to 30–32 lb–ft (40.6–43.3 N·m) while sealant is wet.

3 Install support/backrest (2) to bracket (3) with two new spring pins (1).



11–3 CREW SEAT SAFETY BELT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Cotter pins (2) (item 74, Appx F)

NOTE

There are two crew seats. The removal and installation procedures for the seat safety belts are identical. This procedure covers only one safety belt.

a. Removal.

1 Remove and discard two cotter pins (1).

2 Remove two retaining pins (2), two flat washers (3), and two safety belt attaching plates (4) with safety belt (5).

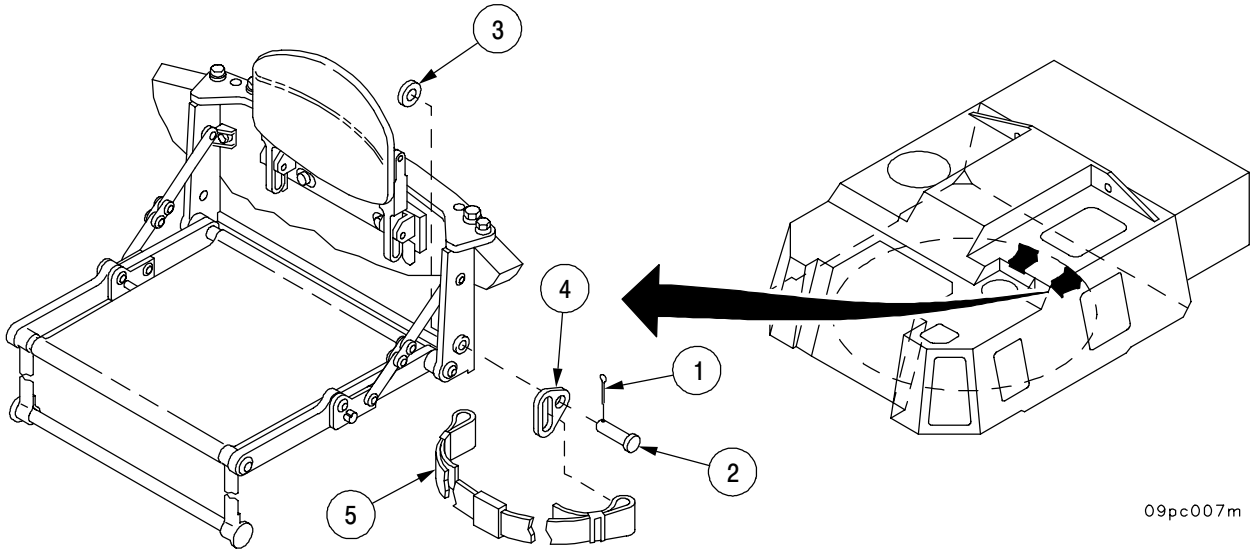
3 Remove two safety belt attaching plates (4) from safety belt (5).

b. Installation

1 Install safety belt (5) on two safety belt attaching plates (4).

2 Install two safety belt attaching plates (4) and safety belt (5) with two flat washers (3) and two retaining pins (2).

3 Install two new cotter pins (1). Bend ends of two cotter pins (1) over two retaining pins (2).



11–4 CREW SEAT ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)
Torque wrench (item 54, Appx G)
Socket wrench adapter (item 2, Appx G)

Materials/Parts
Elastic cord (item 47, Appx C)
Lockwashers (2) (item 132, Appx F)
Lockwashers (2) (item 130, Appx F)
Retaining rings (20) (item 33, Appx F)
Retaining rings (2) (item 34, Appx F)
Retaining rings (2) (item 35, Appx F)
Self–locking bolts (3) (item 140, Appx F)
Bearings (2) (item 16, Appx F)
Bushings (2) (item 185, Appx F)

Equipment Conditions
Crew seat bracket removed (para 11–2)
Crew seat belt removed (para 11–3)
Wiring harness guard removed (para 5–15)

11–4 CREW SEAT ASSEMBLY – CONTINUED

NOTE

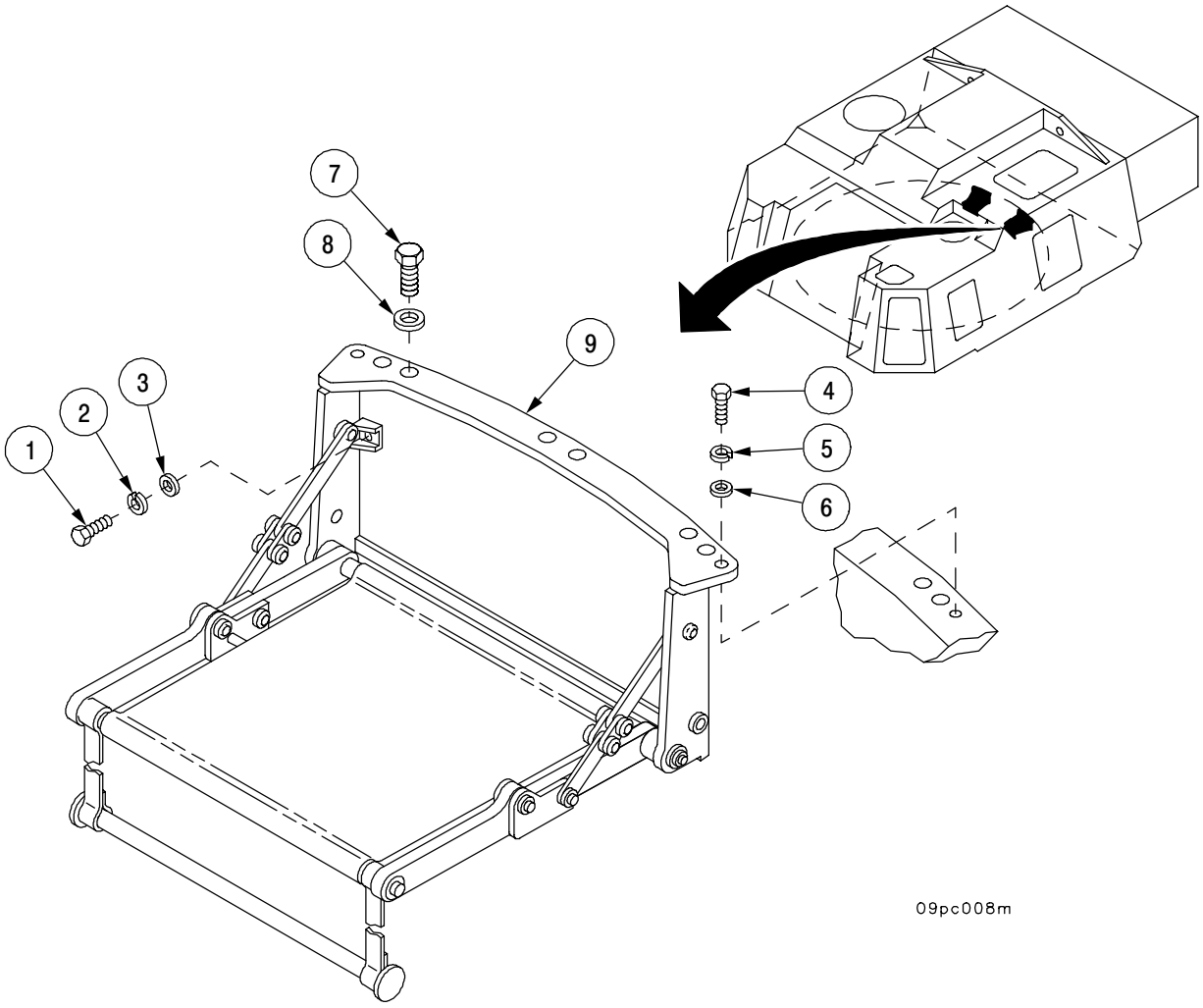
There are two crew seats. The removal and installation procedures are identical for both. This procedure covers only one.

a. Removal.

1 Remove two screws (1), two lockwashers (2), and two flat washers (3). Discard lockwashers.

2 Remove two screws (4), two lockwashers (5), and two flat washers (6). Discard lockwashers.

3 Remove three self–locking bolts (7), three flat washers (8), and crew seat (9). Discard self–locking bolts.

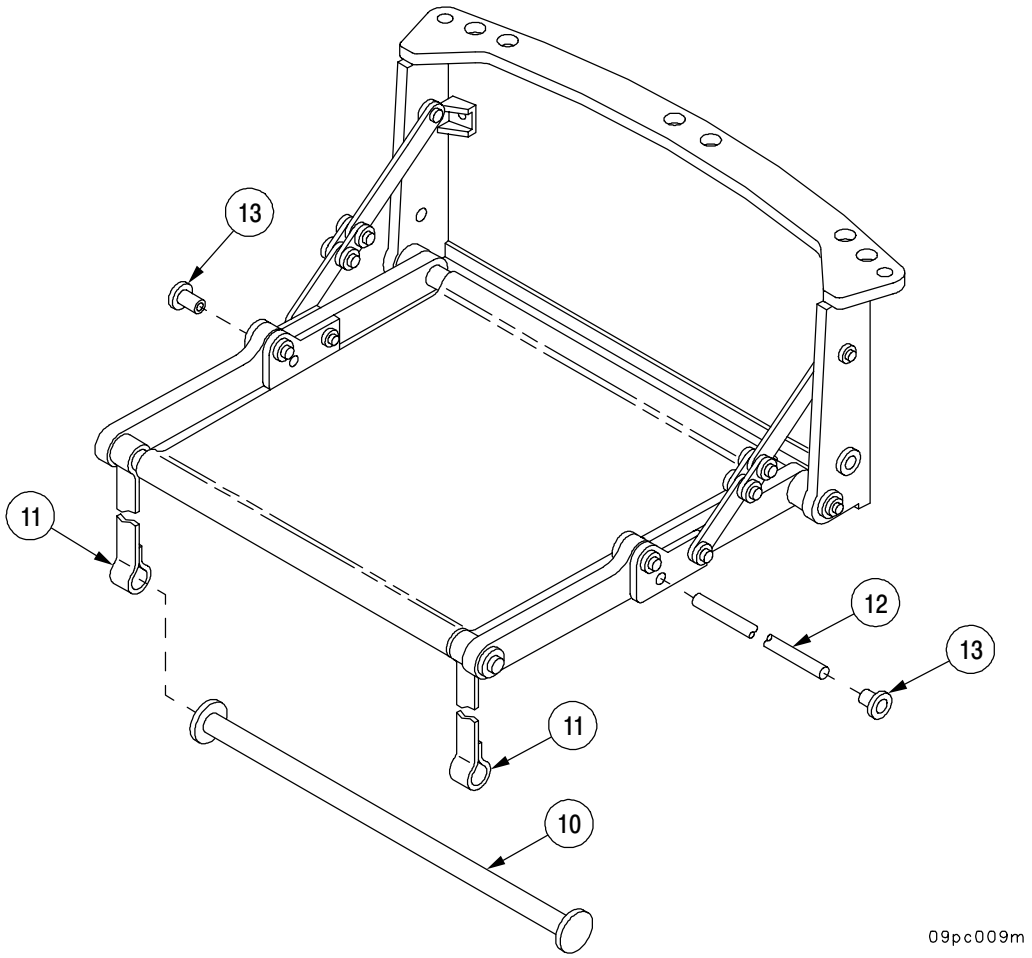


11–4 CREW SEAT ASSEMBLY – CONTINUED

b. Disassembly.

1 Remove footrest (10) from two footrest straps (11).

2 Remove elastic cord (12) and two bushings (13). Discard cord and bushings.



11–4 CREW SEAT ASSEMBLY – CONTINUED

b. Disassembly – Continued

NOTE

When removing pins from seat, arms and/or seat bracket, resistance to removal may occur due to seizing. If this occurs, remove pin by lightly tapping it from components.

3 Remove four retaining rings (14) and two pins (15) from seat bracket (16). Discard retaining rings.

4 Remove two retaining rings (17) from shaft (18). Discard retaining rings.

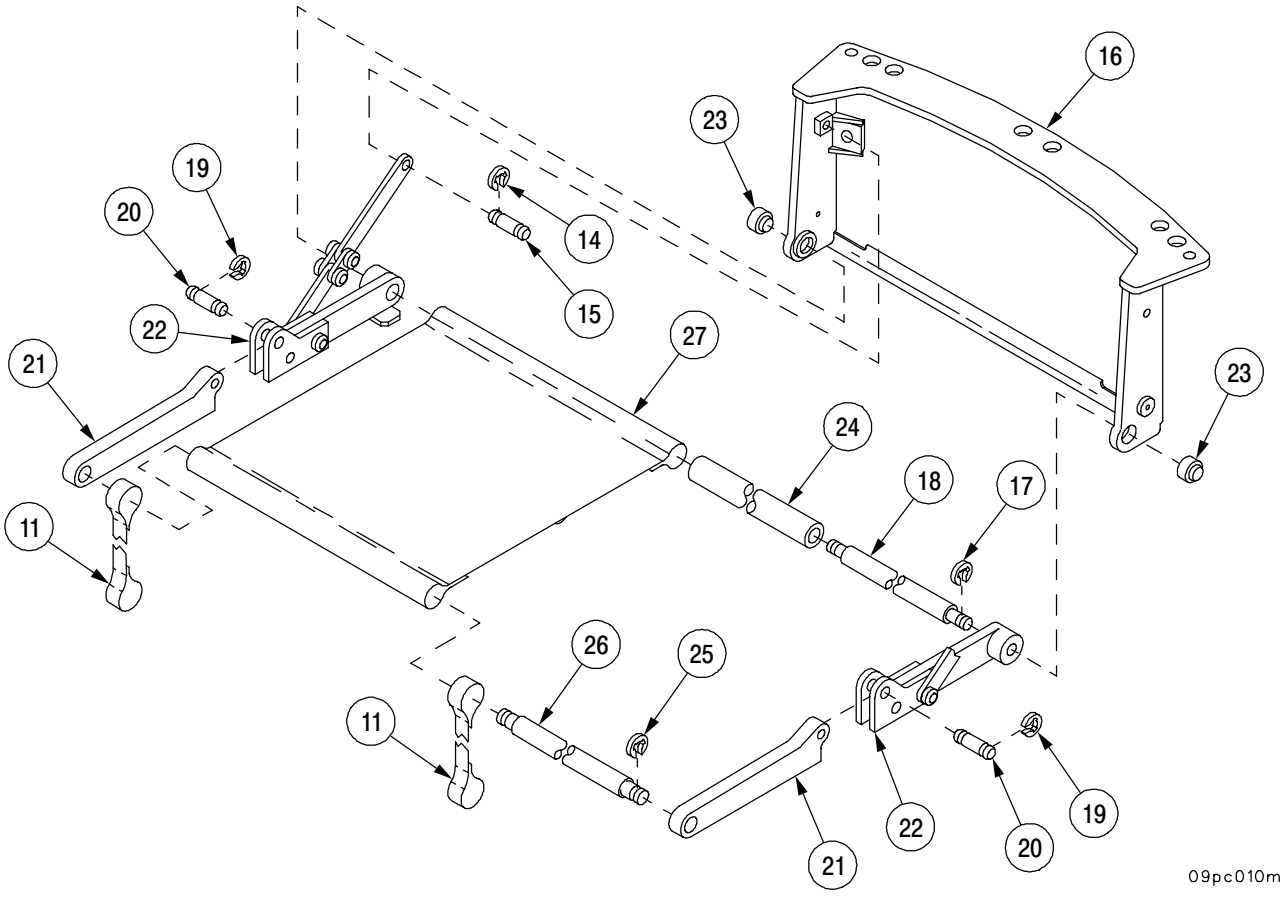
5 Remove four retaining rings (19), two pins (20), and two seat bottom arms (21) from two seat supports (22). Discard retaining rings.

6 Remove four retaining rings (19), two pins (20), and two seat bottom arms (21) from two seat supports (22). Discard retaining rings.

7 Remove shaft (18), two bearings (23), and tube (24). Discard bearings.

8 Remove two retaining rings (25) from shaft (26). Discard retaining rings.

9 Remove two arms (21), seat (27), two footrest straps (11), and shaft (26).



11–4 CREW SEAT ASSEMBLY – CONTINUED

b. Disassembly – Continued

10 Remove two retaining rings (28), pin (29), and flat washer (30) securing link (31) to seat support (22). Discard retaining rings.

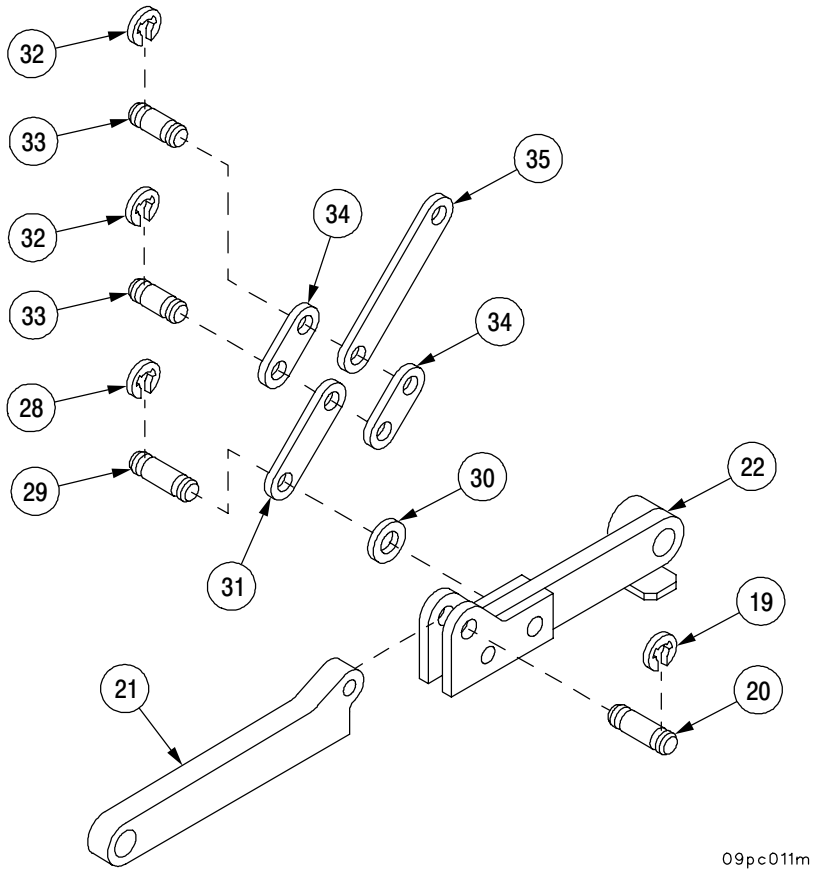
11 Remove four retaining rings (32), two pins (33), and two links (34) from link (35) and link (31). Discard retaining rings.

c. Assembly.

1 Install and secure two arms (21) to two seat supports (22) with two pins (20) and four new retaining rings (19).

2 Assemble four links (31, 34, 35) with two pins (33) and four new retaining rings (32).

3 Install and secure two links (31) on two seat supports (22) with two pins (29), four new retaining rings (28), and two flat washers (30).



11–4 CREW SEAT ASSEMBLY – CONTINUED

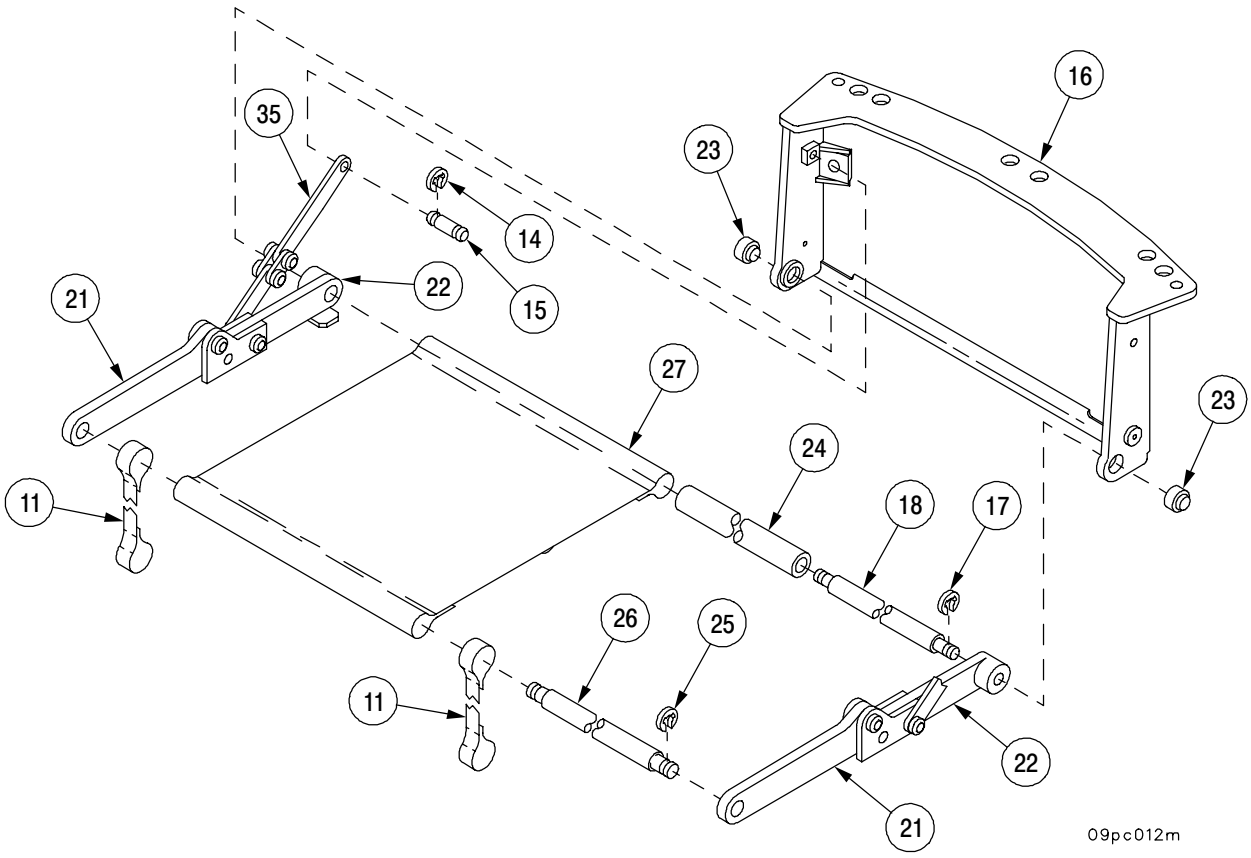
c. Assembly – Continued

4 Install shaft (26) in seat (27).

5 Install and secure two straps (11) and shaft (26) to two arms (21) with two new retaining rings (25).

6 Install and secure tube (24), shaft (18), and seat bracket (16) with two bearings (23) to seat (27) and seat supports (22) with two new retaining rings (17).

7 Install and secure two links (35) to seat bracket (16) with two pins (15) and four new retaining rings (14).

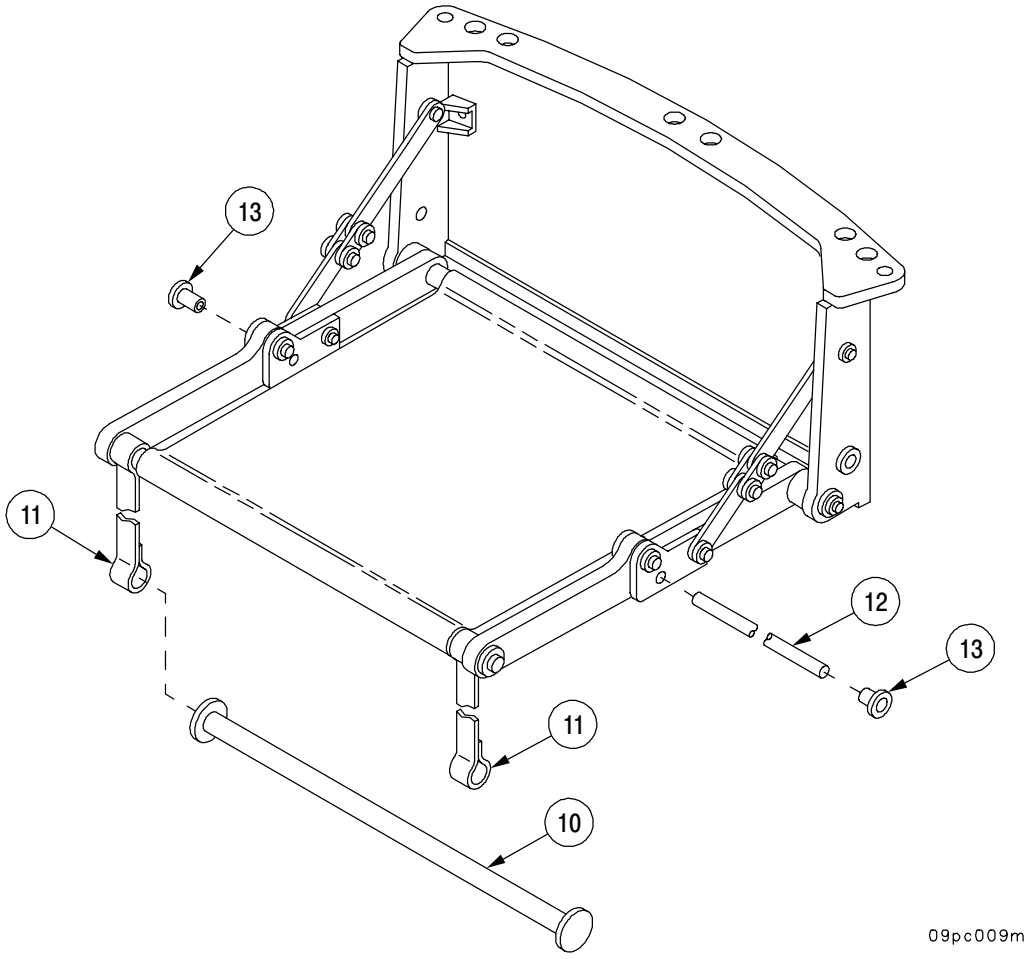


11–4 CREW SEAT ASSEMBLY – CONTINUED

c. Assembly – Continued

8 Install and secure new elastic cord (12) with two new bushings (13).

9 Install footrest (10) to two footrest straps (11).



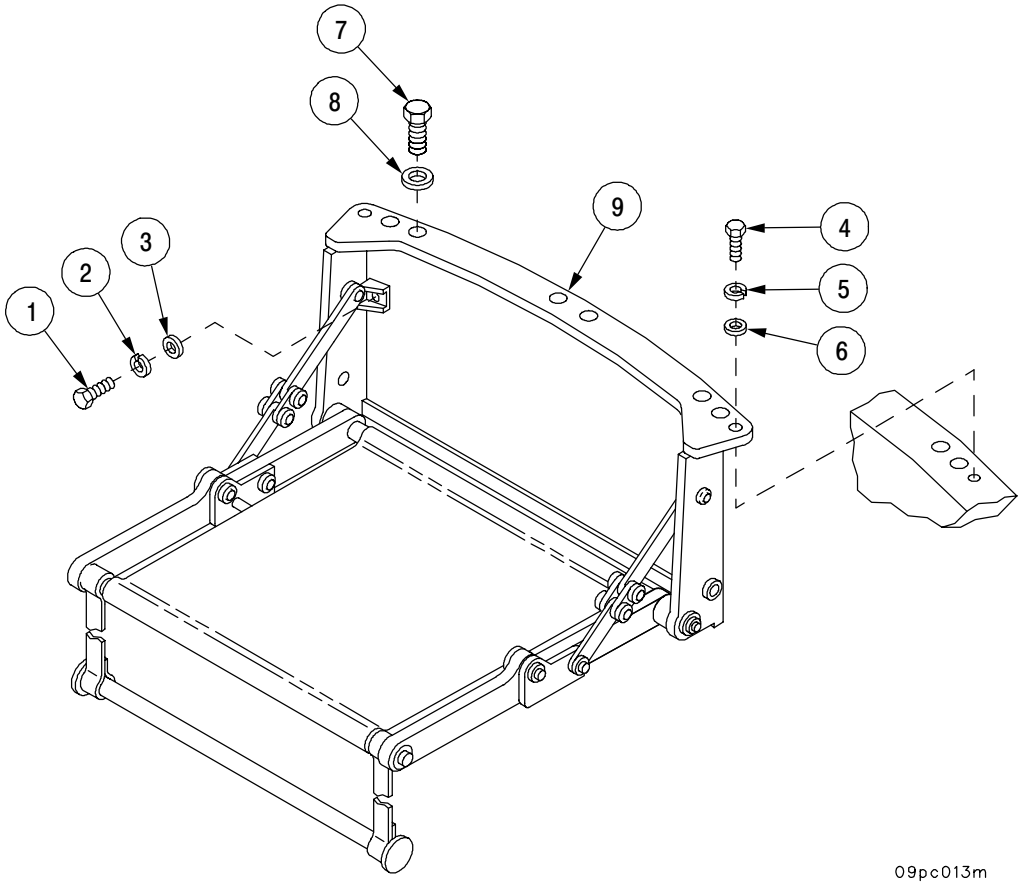
11–4 CREW SEAT ASSEMBLY – CONTINUED

d. Installation.

1 Position crew seat (9) on cab and secure with three flat washers (8) and three self–locking bolts (7). Torque self–locking bolts to 340–380 lb–ft (461–515 N·m).

2 Install two flat washers (6), two new lockwashers (5), and two screws (4). Torque screws to 105–110 lb–ft (142–149 N·m).

3 Install two flat washers (3), two new lockwashers (2), and two screws (1). Torque screws to 40–45 lb–ft (54–61 N·m).



CHAPTER 12
COMPOSITE ARMOR

GENERAL

This chapter illustrates and describes maintenance procedures for the gunner's escape hatch, cab side door and angle composite armor plate. Step–by–step procedures are provided for removal and installation as required by unit level maintenance.

CONTENTS Page

12–1 PLATE ASSEMBLY, CAB RIGHT SIDE FRONT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)

Equipment Conditions
ACU removed (para 8–14)

Materials/Parts
Self–locking studs (11) (item 201, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

1 Remove 11 nuts (1) and armor plate assembly (2).

2 Hold 11 self–locking studs (3) and remove 11 nuts (4) from 11 self–locking studs (3).

3 Remove 11 self–locking studs (3) from cab bulkhead (5). Discard self–locking studs.

b. Installation.

1 Install 11 new self–locking studs (3) into cab bulkhead (5).

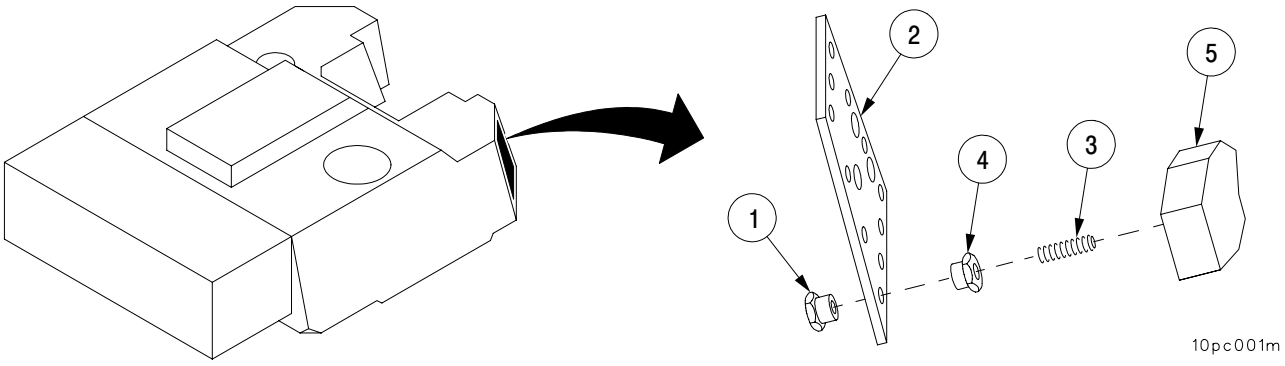
2 Apply sealing compound to the threads of 11 nuts (1) and 11 nuts (4).

3 Install 11 nuts (4) onto 11 new self–locking studs (3), ensuring 11 nuts (4) are seated against cab bulkhead (5).

4 Install armor plate assembly (2) onto 11 new self–locking studs (3).

5 Secure armor plate assembly (2) to 11 new self–locking studs (3) with 11 nuts (1).

6 Torque 11 nuts (1) to 40–50 lb–ft (54–67 N·m).



12–2 PLATE ASSEMBLY, CAB RIGHT SIDE FORWARD.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
ACU shock isolation mounting plate assembly removed (para 8–15)
Radio mounting base removed (para 21–3)

Materials/Parts
Self–locking studs (9) (item 201, Appx F)
Lockwasher (item 109, Appx F)
Sealing compound (item 41, Appx C)

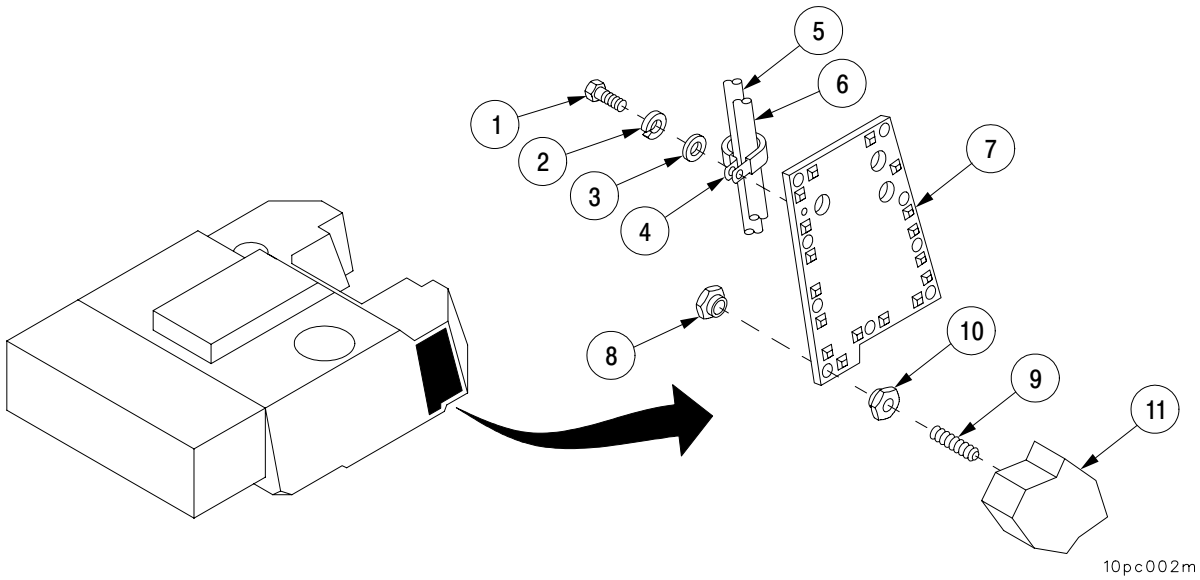
a. Removal.

1 Remove screw (1), lockwasher (2), flat washer (3), and clamp (4) securing wires W65 (5) and W4 (6) to armor plate assembly (7). Discard lockwasher.

2 Remove nine nuts (8) and armor plate assembly (7).

3 Hold nine self–locking studs (9) and remove nine nuts (10).

4 Remove nine self–locking studs (9) from cab bulkhead (11). Discard self–locking studs.



12–2 PLATE ASSEMBLY, CAB RIGHT SIDE FORWARD – CONTINUED

b. Installation.

1 Install nine new self–locking studs (9) into cab bulkhead (11).

2 Apply sealing compound to the threads of nine nuts (8) and nine nuts (10).

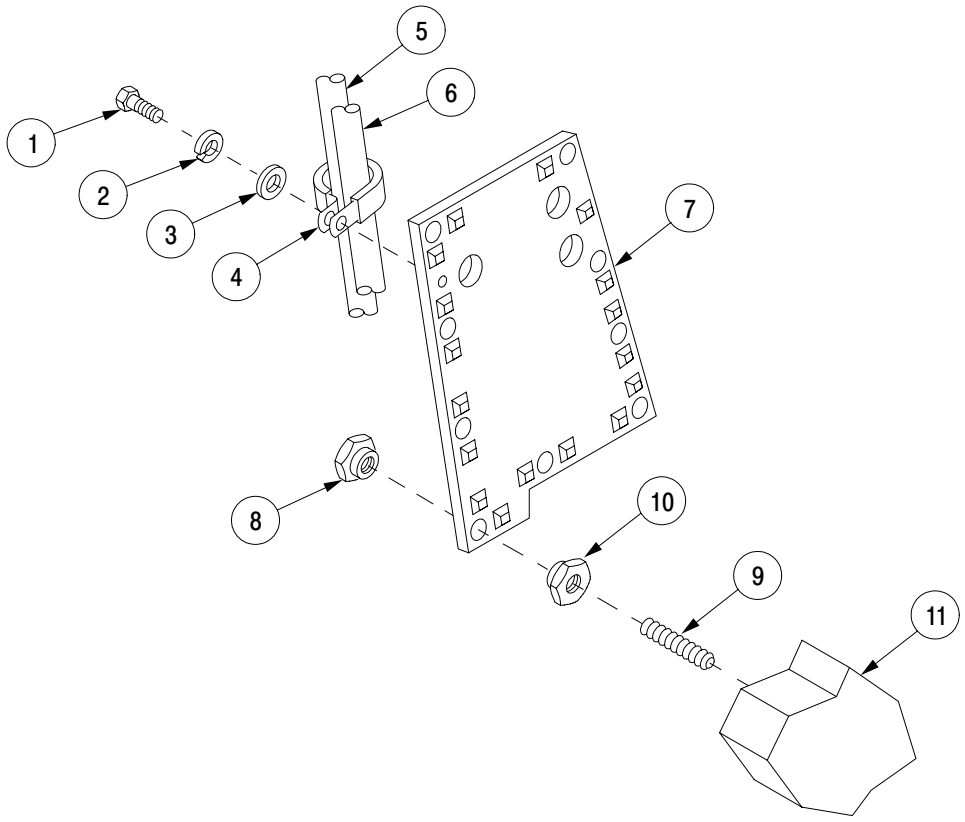
3 Install nine nuts (10) onto nine new self–locking studs (9), making sure that nuts (10) are seated against cab bulkhead (11).

4 Install armor plate assembly (7) onto nine new self–locking studs (9).

5 Secure armor plate assembly (7) to nine new self–locking studs (9) with nine nuts (8).

6 Torque nine nuts (8) to 40–50 lb–ft (54–67 N•m).

7 Secure wires W65 (5) and W4 (6) to plate assembly (7) with clamp (4), flat washer (3), new lockwasher (2), and screw (1).



10pc003m

12–3 ANGLE, ARMOR PLATE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

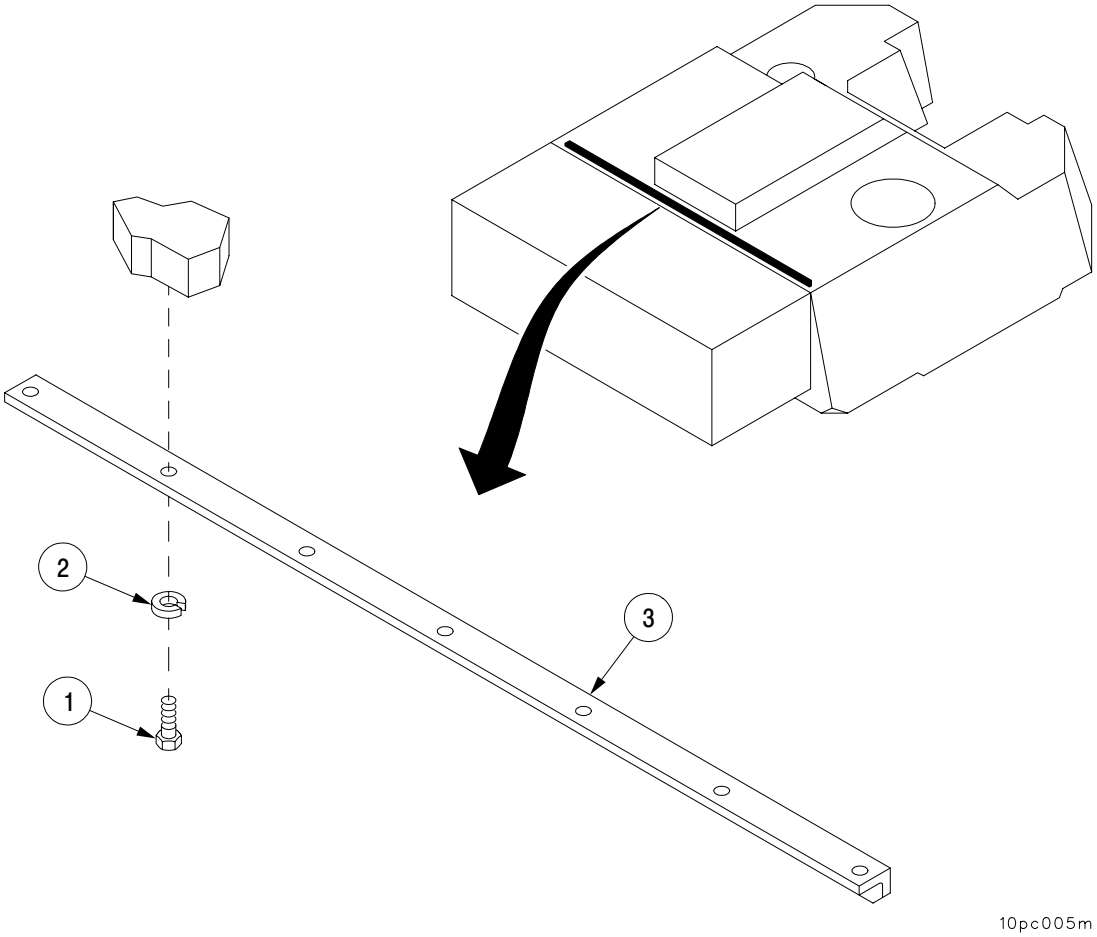
Materials/Parts
Lockwashers (7) (item 128, Appx F)

a. Removal.

Remove seven screws (1) and seven lockwashers (2) from angle (3). Discard lockwashers.

b. Installation.

Position angle (3) on cab roof and install using seven screws (1) and seven new lockwashers (2).



12–4 PLATE ASSEMBLY, CAB RIGHT SIDE CENTER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Sealing compound (item 41, Appx C)
Self–locking studs (21) (item 201, Appx F)
Self–locking stud (item 202, Appx F)

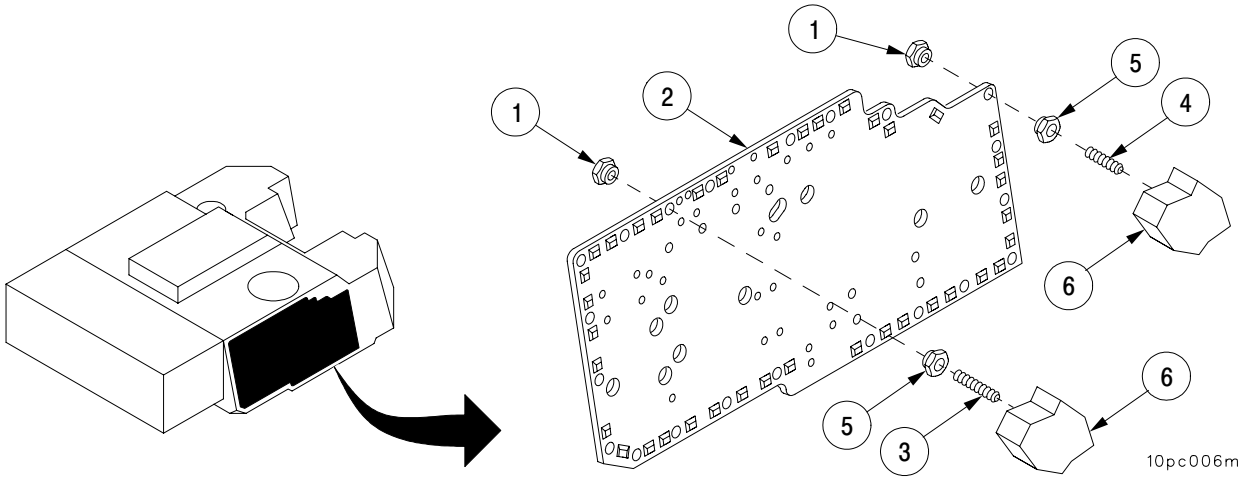
Equipment Conditions
Cable lead from gunner's and commander's headsets to amplifier removed (para 21–7).
DU mounting bracket removed (para 8–18)
PCU removed (para 8–16)
Commander's seat stand removed (para 9–1)
MCS air orifice connector bracket removed (para 13–3)
M3 heater bracket removed (para 13–33)
AFCS battery box mount removed (para 8–3)
First aid kit bracket removed (para 16–5)
Flashlight holder removed (para 16–3)
Full function crew station and cable removed (para 21–2)
Master control station removed (para 21–1)
PDIU removed (para 8–19)
Radio mounting base removed (para 21–3)

a. Removal.

1 Remove 22 nuts (1) and armor plate assembly (2) from 21 self–locking studs (3) and self–locking stud (4).

2 Hold 21 self–locking studs (3) and self–locking stud (4) and remove 22 nuts (5).

3 Remove 21 self–locking studs (3) and self–locking stud (4) from cab wall (6). Discard self–locking studs.



12–4 PLATE ASSEMBLY, CAB RIGHT SIDE CENTER – CONTINUED

b. Installation.

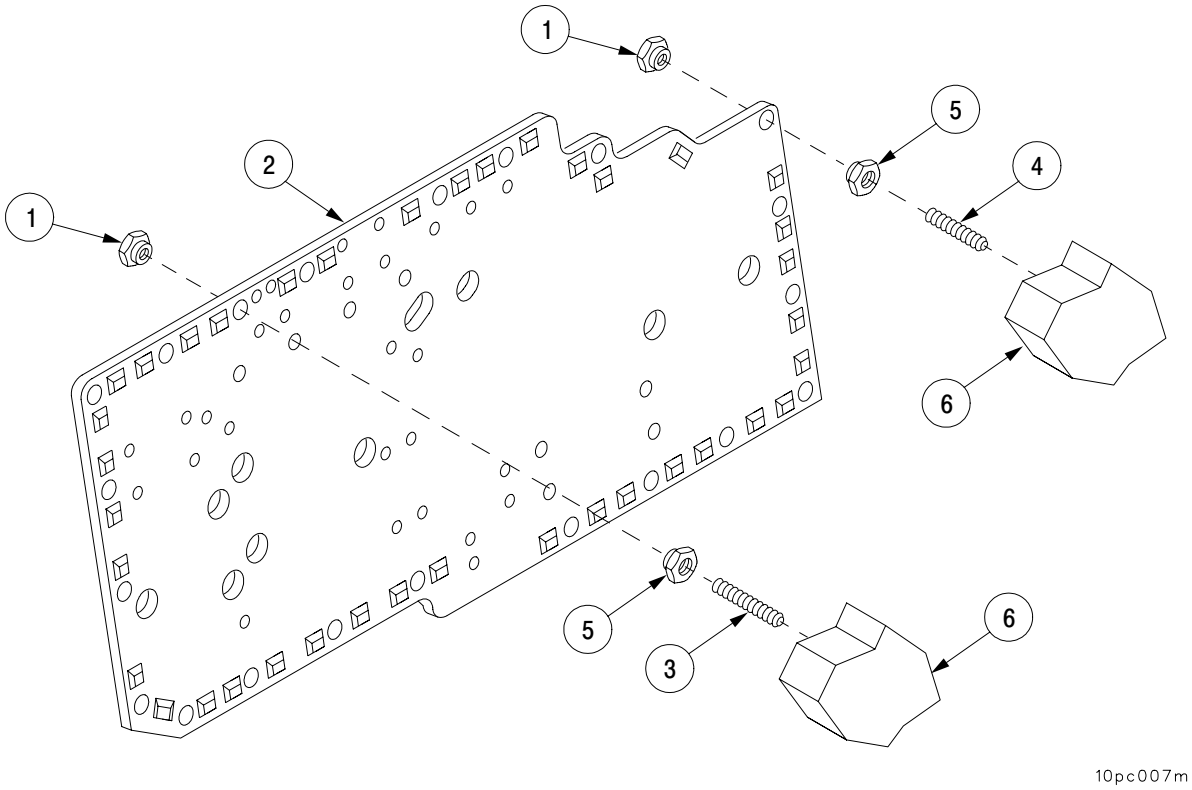
1 Install 21 new self–locking studs (3) and new self–locking stud (4) into cab wall (6).

2 Apply sealing compound to threads of 22 nuts (1) and 22 nuts (5).

3 Install 22 nuts (5) onto 21 new self–locking studs (3) and new self–locking stud (4). Ensure nuts (5) are seated against cab wall.

4 Secure armor plate assembly (2) to 21 new self–locking studs (3) and new self–locking stud (4) with 22 nuts (1).

5 Torque 22 nuts (1) to 40–50 lb–ft (54–67 N·m).



10pc007m

12–5 PLATE ASSEMBLY, CAB TOP LEFT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
M145A1 mount removed (para 7–2)

Materials/Parts
Lockwashers (2) Item 128, Appx F)
Self–locking studs (10) (item 201, Appx F)
Lockwasher (item 144, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

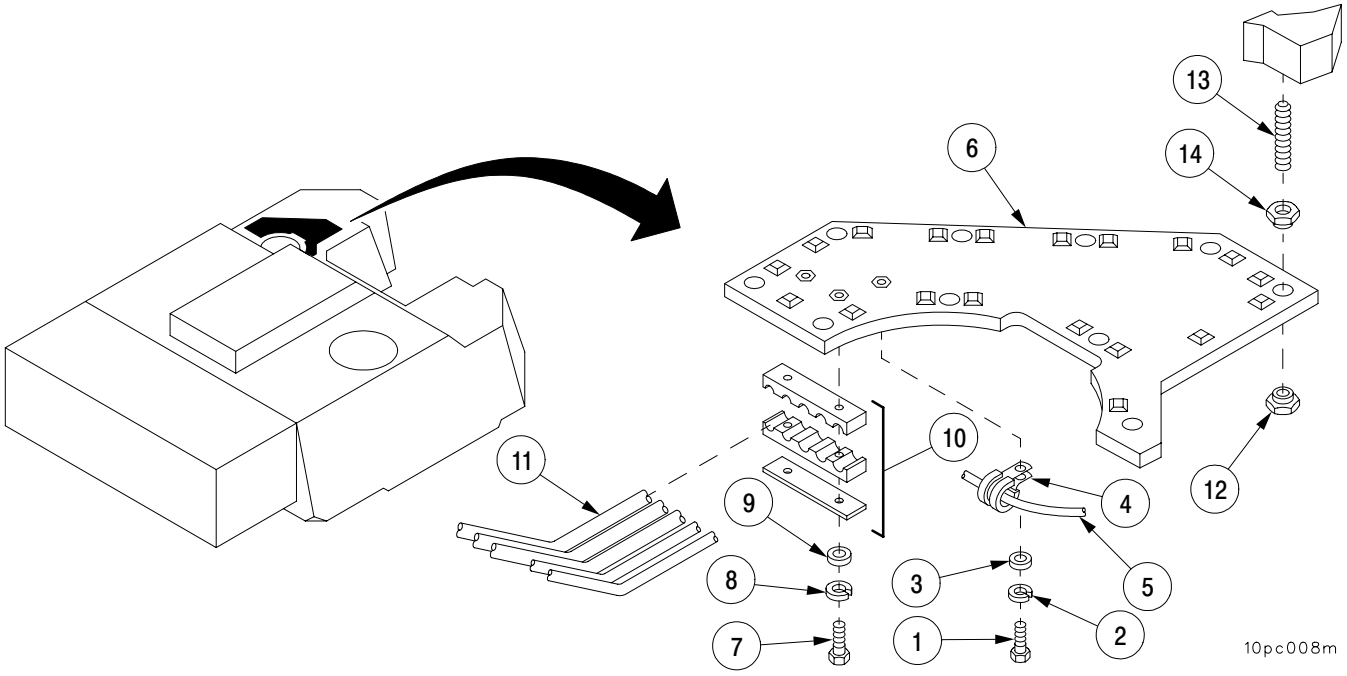
1 Remove screw (1), lockwasher (2), flat washer (3), and clamp (4) securing lead 147 (5) to armor plate assembly (6). Discard lockwasher.

2 Remove two screws (7), two lockwashers (8), two flat washers (9), and clamp (10) securing five lines (11) to armor plate assembly (6). Discard lockwashers.

3 Remove 10 nuts (12) and armor plate assembly (6).

4 Hold 10 self–locking studs (13) in place and remove 10 nuts (14).

5 Remove 10 self–locking studs (13). Discard self–locking studs.



12–5 PLATE ASSEMBLY, CAB TOP LEFT – CONTINUED

b. Installation.

1 Install 10 new self–locking studs (13) in cab wall (15).

2 Apply sealing compound to threads of 10 nuts (14) and 10 nuts (12).

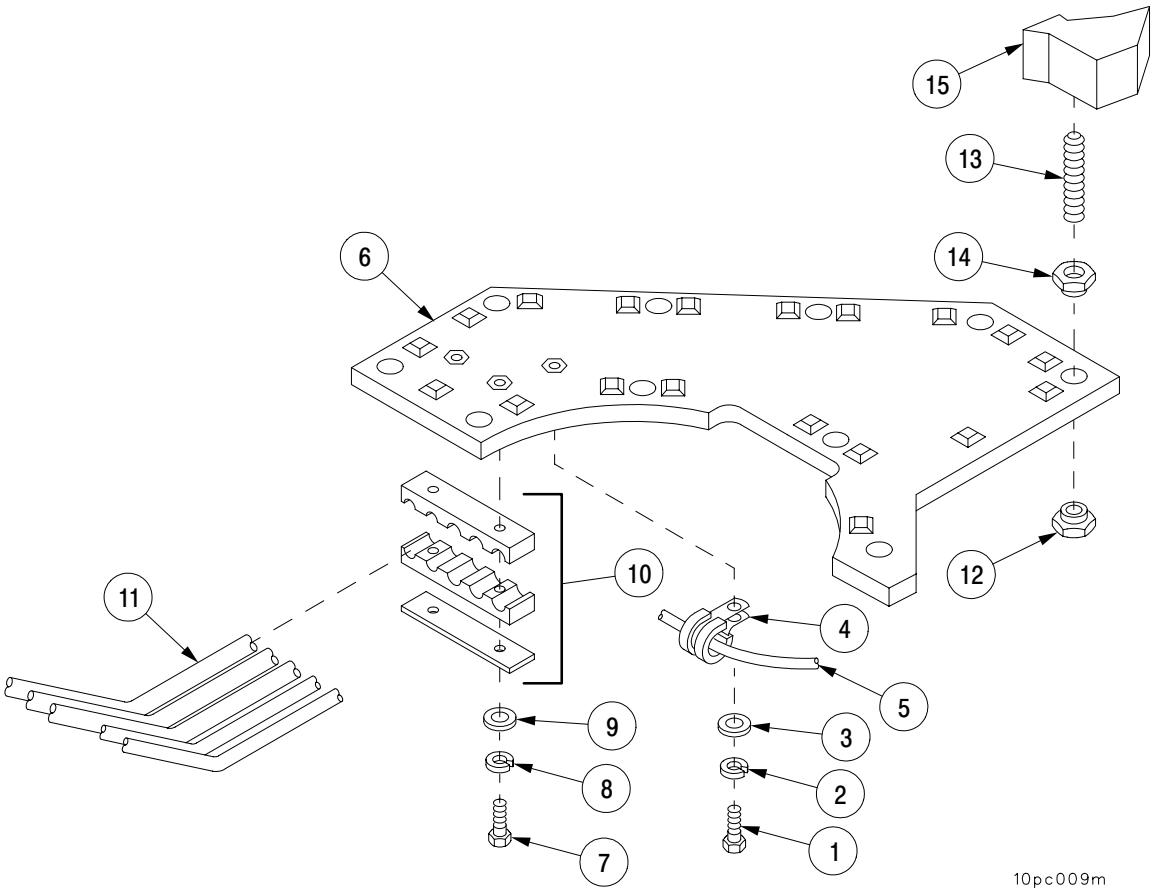
3 Install 10 nuts (14) onto 10 new self–locking studs (13), making sure nuts are seated against cab wall (15).

4 Install and secure armor plate assembly (6) onto 10 new self–locking studs (13) with nuts (12).

5 Torque 10 nuts (12) to 40–50 lb–ft (54–67 N·m).

6 Secure five lines (11) to armor plate assembly (6) with clamps (10), two flat washers (9), two new lockwashers (8), and two screws (7).

7 Secure lead 147 (5) to armor plate assembly (6) with clamp (4), flat washer (3), new lockwasher (2), and two screws (1).



12–6 PLATE ASSEMBLY, CAB TOP RIGHT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Sealing compound (item 41, Appx C)
Self–locking studs (10) (item 201, Appx F)

Equipment Conditions
DU mounting bracket removed (para 8–18)
W64 and W65 harness clamps removed from armor plate (para 5–17)
Rammer hydraulic lines removed (para 18–20)
Replenisher hose removed (para 4–4)

a. Removal.

1 Remove 10 nuts (1) securing armor plate assembly (2) to 10 self–locking studs (3). Remove armor plate (2).

2 Hold 10 self–locking studs (3) and remove 10 nuts (4).

3 Remove 10 self–locking studs (3) from cab wall (5). Discard self–locking studs.

b. Installation.

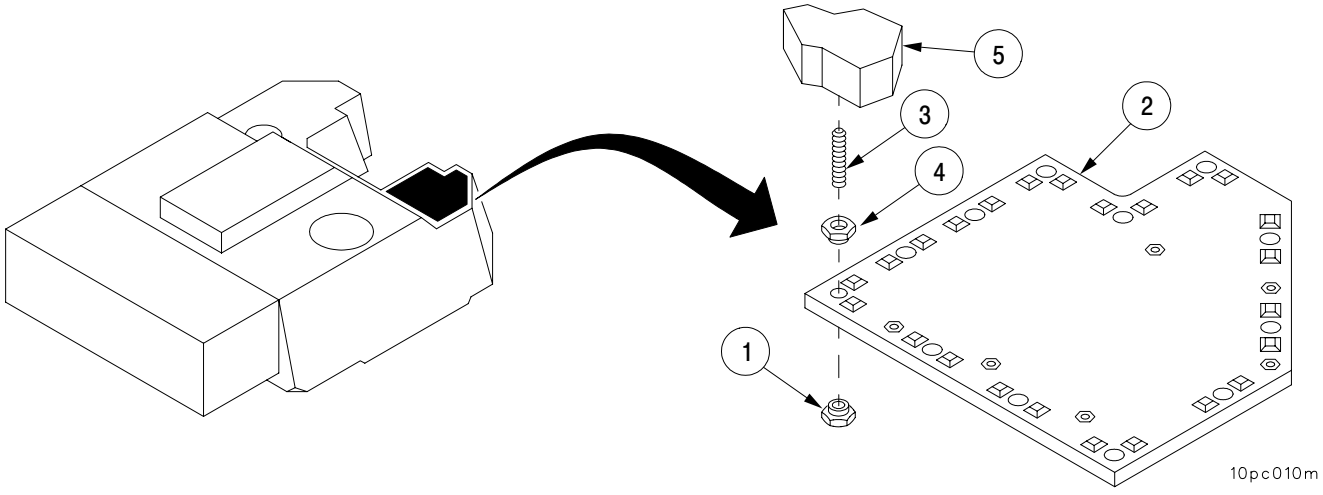
1 Install 10 new self–locking studs (3) into cab wall (5).

2 Apply sealing compound to thread of 10 nuts (4) and 10 nuts (1).

3 Install 10 nuts (4) onto 10 new self–locking studs (3).

4 Secure armor plate assembly (2) to 10 new self–locking studs (3) with 10 nuts (1).

5 Torque 10 nuts (1) to 40–50 lb–ft (54–67 N·m).



12–7 CAB SIDE DOOR ARMOR PLATE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Socket wrench adapter (item 2, Appx G)
Torque wrench (item 53, Appx G)

Equipment Conditions
Aiming device stowage bracket removed (para 16–11)

Materials/Parts
Self–locking studs (8) (item 201, Appx F)
Sealing compound (item 41, Appx C)

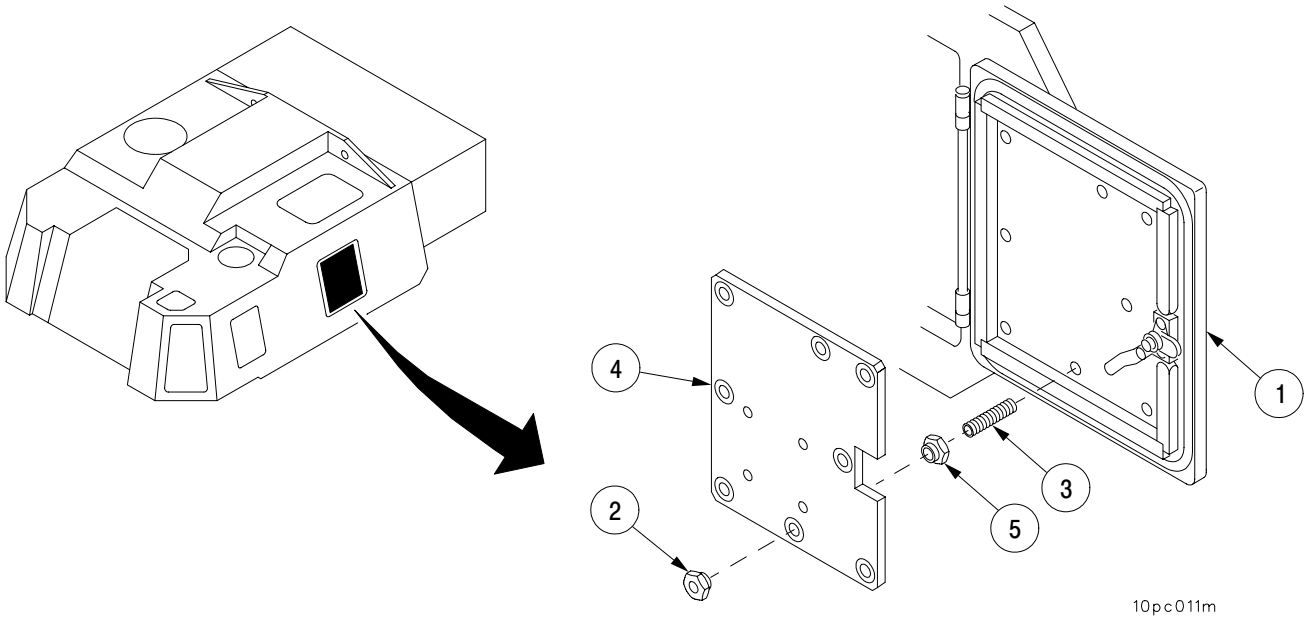
a. Removal.

1 Open left side door (1) and remove eight nuts (2) from eight self–locking studs (3) securing armor plate (4).

2 Remove armor plate (4).

3 Remove eight nuts (5) from eight self–locking studs (3).

4 Remove eight self–locking studs (3). Discard self–locking studs.



12–7 CAB SIDE DOOR ARMOR PLATE – CONTINUED

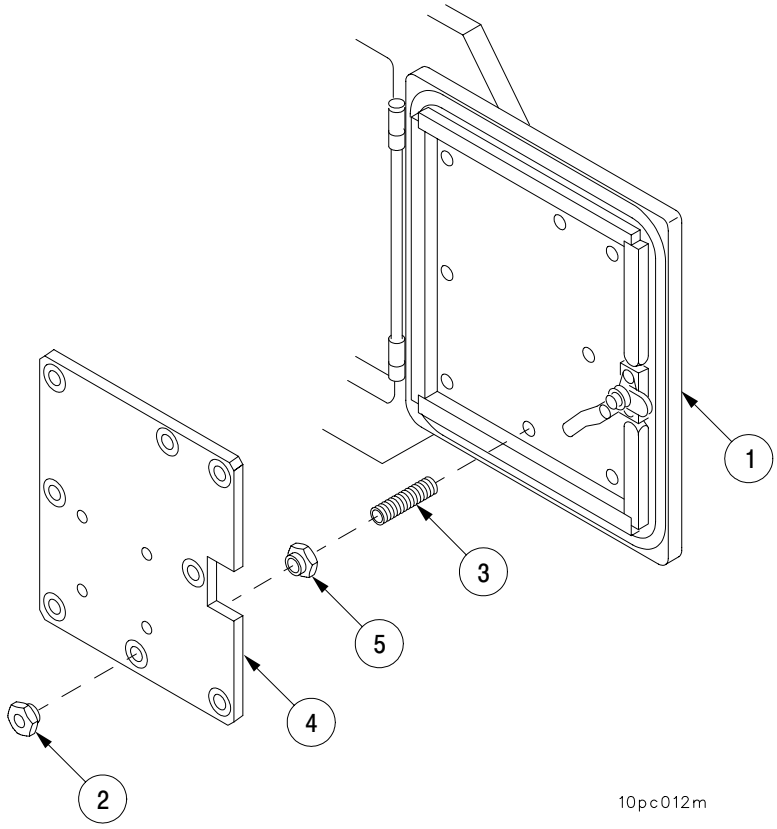
b. Installation.

1 Install eight new self–locking studs (3) with socket end protruding from the mounting surface.

2 Install eight nuts (5) onto eight new self–locking studs (3). Torque nuts to 50–100 lb–ft (68–136 N·m).

3 Install armor plate (4) on eight new self–locking studs (3) and over nuts (5).

4 Apply sealing compound to threads of eight remaining nuts (2) and install on self–locking studs (3). Torque nuts to 40–50 lb–ft (54–68 N·m).



12–8 GUNNER'S ESCAPE HATCH ARMOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Self–locking studs (2) (item 202, Appx F)
Self–locking studs (7) (item 201, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

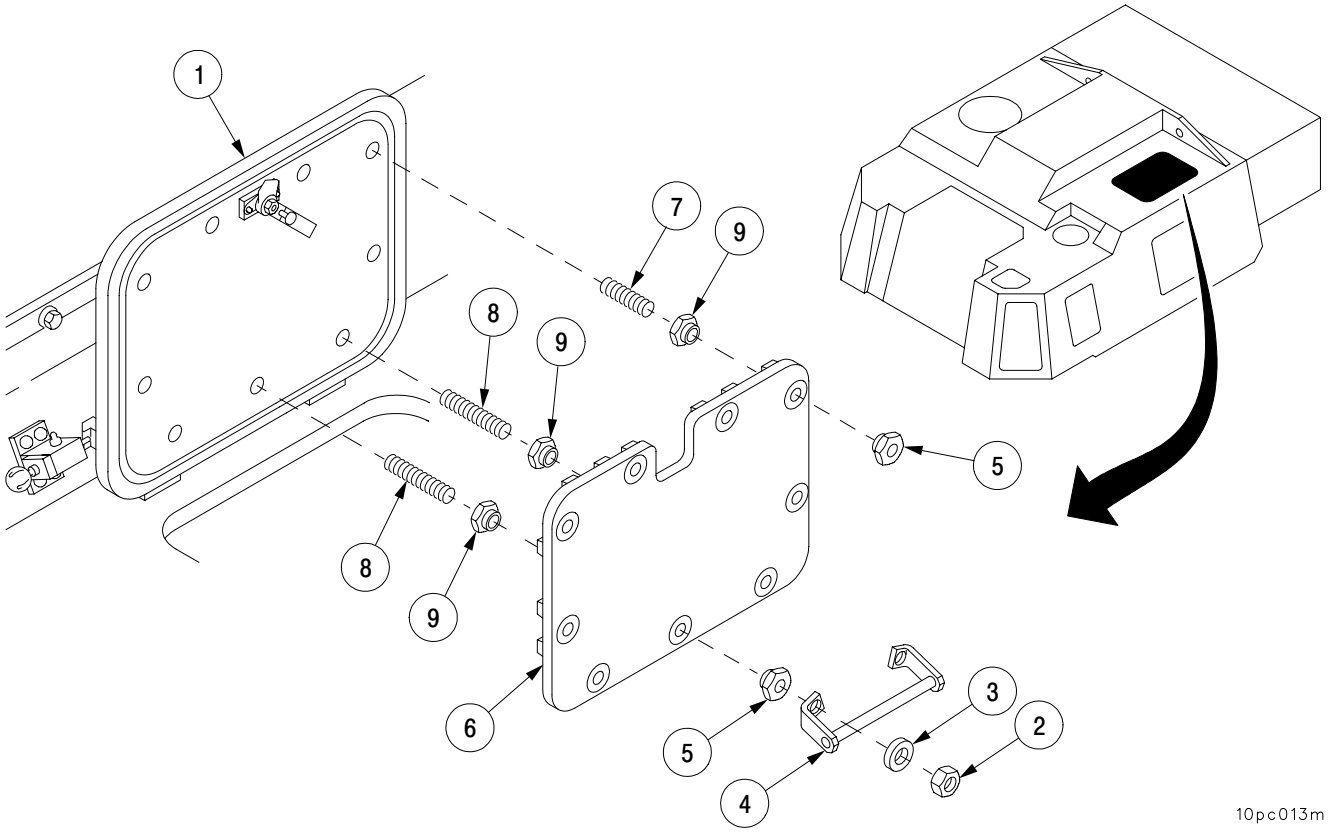
1 Open gunner's hatch (1) and remove two nuts (2), two washers (3), and handle (4).

2 Remove nine nuts (5).

3 Remove armor plate (6).

4 Hold seven self–locking studs (7) and two self–locking studs (8) and remove nine nuts (9).

5 Remove seven self–locking studs (7) and two self–locking studs (8). Discard self–locking studs.



12–8 GUNNER'S ESCAPE HATCH ARMOR – CONTINUED

b. Installation.

1 Install two new self–locking studs (8) and seven new self–locking studs (7) into gunner's escape hatch (1).

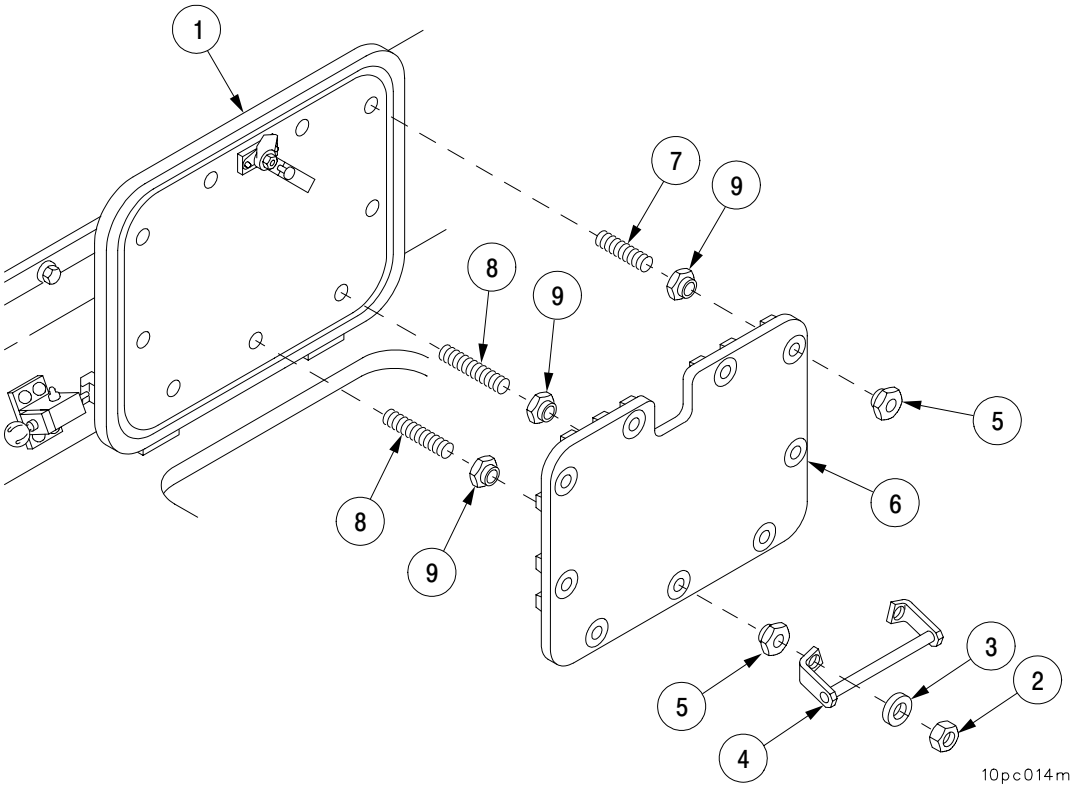
2 Install nine nuts (9), one on each of two new self–locking studs (8) and seven new self–locking studs (7). Torque nine nuts (9) to 40–50 lb–ft (54–68 N·m).

3 Install armor plate (6).

4 Apply sealing compound to threads of nine nuts (5) and install on seven new self–locking studs (7) and two new self–locking studs (8). Torque nuts to 40–50 lb–ft (54–68 N·m).

5 Install handle (4) on two new self–locking studs (8) and secure with two washers (3) and two nuts (2).

6 Close and secure gunner's escape hatch (1).



12–9 PLATE ASSEMBLY, CAB LEFT SIDE FRONT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Self–locking studs (19) (item 202, Appx F)
Self–locking studs (3) (item 201, Appx F)
Sealing compound (item 41, Appx C)

Equipment Conditions
Left side full function crew station removed (para 21–2)
Left side cable guard door removed (para 5–16)
Left side handle removed (para 16–1)
Clutch valve lines and fittings removed (para 18–3)
Elevation manifold lines and check valve removed (para 18–5)
Equilibrator lines, clamps and brackets removed (para 18–8)

Equipment Conditions – Continued
Fuse manifold cover removed (para 18–11)
Interconnecting lines removed (para 18–16)
Return lines, fittings and sampling valve removed (para 18–22)
Selector valve lines and fittings removed (para 18–23)
Mode selector valve lines and fittings removed (para 18–24)
Clutch valve removed (para 18–28)
Equilibrator hand pump lines and fittings removed (para 18–30)
Equilibrator hand pump removed (para 18–30)
Selector valve (elevation and traverse) removed (para 18–40)
Traverse limit valve removed (para 18–43)
M3 heater circuit breaker mount removed (para 5–3)
W64 disconnected (para 5–31)
W55 disconnected at hydraulic compartment bulkhead (para 5–13)
W65 disconnected at hydraulic compartment bulkhead (para 5–17)
Equilibration manifold removed (para 18–32)

12–9 PLATE ASSEMBLY, CAB LEFT SIDE FRONT – CONTINUED

a. Removal.

1 Remove screw (1), flat washer (2), and strap (3) securing equilibrator hand pump handle.

2 Remove 22 nuts (4) and armor plate assembly (5) from 19 self–locking studs (6) and three self–locking studs (7).

3 Hold 19 self–locking studs (6) and three self–locking studs (7) and remove 22 nuts (8).

4 Remove 19 self–locking studs (6) and three self–locking studs (7) from cab wall (9). Discard self–locking studs.

b. Installation.

1 Install 19 new self–locking studs (6) and three new self–locking studs (7) into cab wall (9).

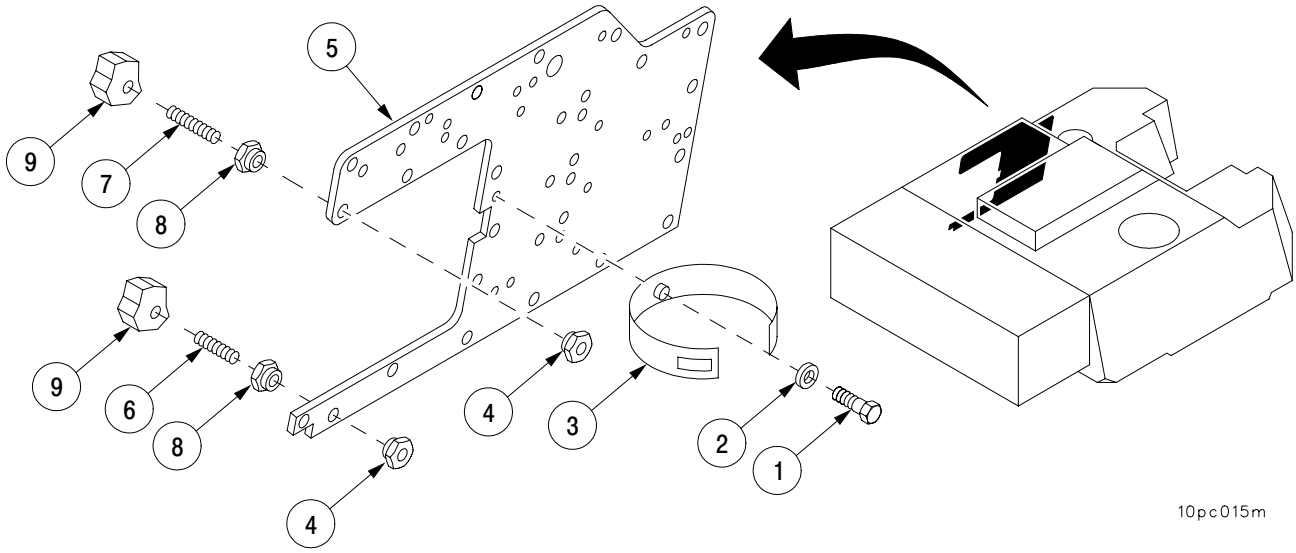
2 Apply sealing compound to the threads of 22 nuts (4) and 22 nuts (8).

3 Install 22 nuts (8) onto 19 new self–locking studs (6) and three new self–locking studs (7). Ensure that 22 nuts (8) are seated against cab wall (9).

4 Secure armor plate assembly (5) to 19 new self–locking studs (6) and three new self–locking studs (7) with 22 nuts (4).

5 Torque 22 nuts (4) to 40–50 lb–ft (54–68 N·m).

6 Install strap (3) to armor plate assembly (5) with flat washer (2) and screw (1).



12–10 PLATE ASSEMBLY, CAB LEFT SIDE REAR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Self–locking studs (12) (item 202, Appx F)
Self–locking stud (item 201, Appx F)
Sealing compound (item 41, Appx C)

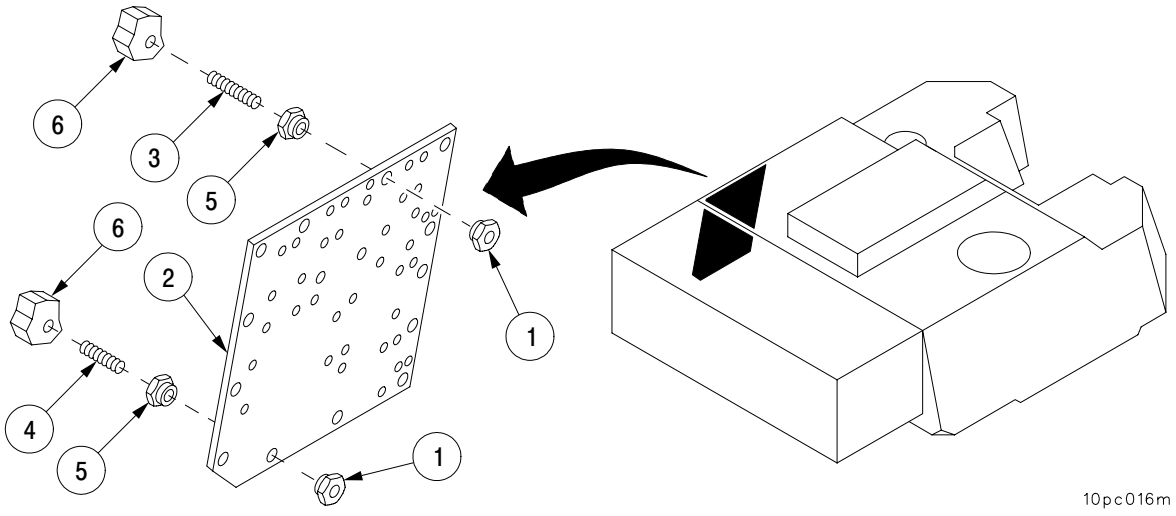
Equipment Conditions
Flash light holder removed (para 16–3)
M3 heaters on cab left side removed (para 13–33)
Dome light removed (para 5–26)
Full function crew station removed (para 21–2)
M27 periscope box removed (para 16–8)
Fuse setter, wrench bracket and oddment box removed (para 16–4)
MCS control box removed (para 13–35)
MCS hose guard left side removed (para 13–2)
W64 harness clamps removed (para 5–31)

a. Removal.

1 Remove 13 nuts (1) and armor plate assembly (2) from 12 self–locking studs (3) and self–locking stud (4).

2 Hold 12 self–locking studs (3) and self–locking stud (4) and remove 13 nuts (5).

3 Remove 12 self–locking studs (3) and self–locking stud (4) from cab wall (6). Discard self–locking studs.



12–10 PLATE ASSEMBLY, CAB LEFT SIDE REAR – CONTINUED

b. Installation.

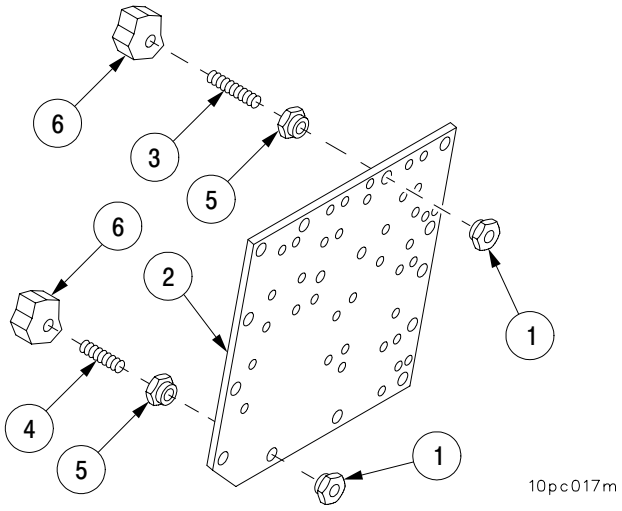
1 Install 12 new self–locking studs (3) and new self–locking stud (4) into cab wall (6).

2 Apply sealing compound to the threads of 13 nuts (1) and 13 nuts (5).

3 Install 13 nuts (5) onto 12 new self–locking studs (3) and new self–locking stud (4). Ensure that 13 nuts (5) are seated against cab wall (6).

4 Secure armor plate assembly (2) to 12 new self–locking studs (3) and new self–locking stud (4) with 13 nuts (5).

5 Torque 13 nuts (1) to 40–50 lb–ft (54–67 N·m).



12–11 PLATE ASSEMBLY, CAB TOP RIGHT FORWARD.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
Clamps securing W64 to armor plate assembly removed (para 5–31)
Dome light removed (para 5–26)

Materials/Parts
Self–locking studs (10) (item 201, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

1 Remove 10 nuts (1) and armor plate assembly (2) from 10 self–locking studs (3).

2 Hold 10 self–locking studs (3) and remove 10 nuts (4).

3 Remove 10 self–locking studs (3) from cab wall (5). Discard self–locking studs.

b. Installation.

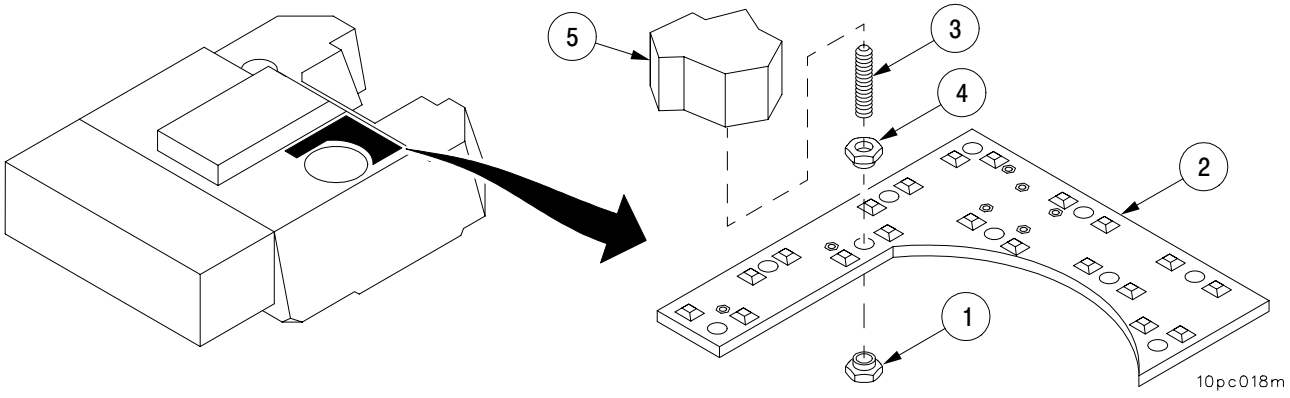
1 Install 10 new self–locking studs (3) into cab wall (5).

2 Apply sealing compound to thread of 10 nuts (1) and 10 nuts (4).

3 Install 10 nuts (4) onto 10 new self–locking studs (3) and make sure nuts (4) are seated against cab wall (5).

4 Install armor plate assembly (2) onto 10 new self–locking studs (3).

5 Secure armor plate assembly (2) to 10 new self–locking studs (3) with 10 nuts (1). Torque 10 nuts (1) to 40–50 lb–ft (54–67 N·m).



12–12 PLATE ASSEMBLY, CAB TOP RIGHT REAR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Self–locking studs (12) (item 201, Appx F)
Sealing compound (item 41, Appx C)

Equipment Conditions
M3 heater removed (para 13–33)
Dome light removed from armor plate (para 5–26)
Lead 138 of W64 removed from armor plate (para 5–31)
MCS duct removed (para 13–1)
MCS orifice connector and bracket removed (para 13–3)
W57 harness clamps removed (para 5–14)

a. Removal.

1 Remove 12 nuts (1) and armor plate assembly (2) from 12 self–locking studs (3).

2 Hold 12 self–locking studs (3) and remove 12 nuts (4).

3 Remove 12 self–locking studs (3) from cab wall (5). Discard self–locking studs.

b. Installation.

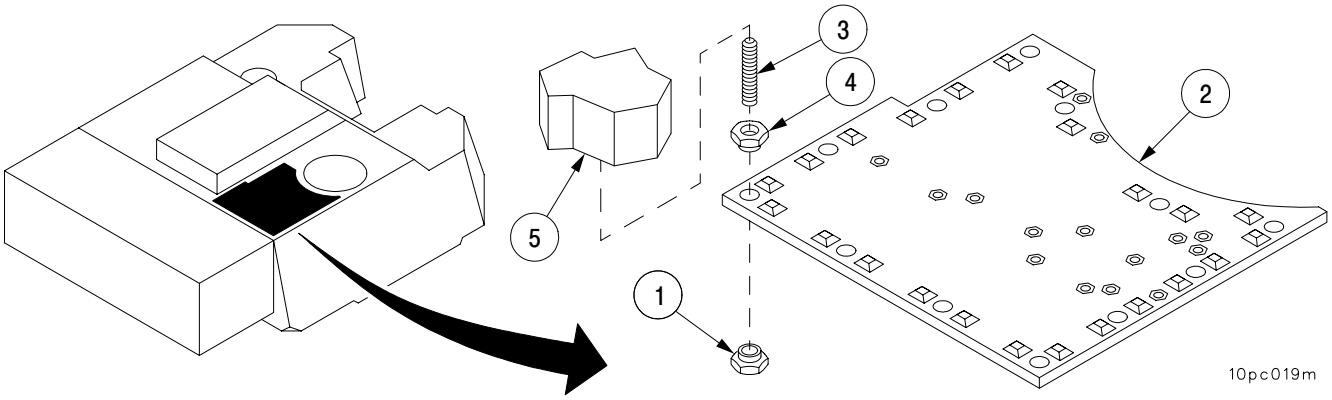
1 Install 12 new self–locking studs (3) into cab wall (5).

2 Apply sealing compound to the threads of 12 nuts (1) and 12 nuts (4).

3 Install 12 nuts (4) onto 12 new self–locking studs (3), ensuring 12 nuts (4) are seated against cab wall (5).

4 Secure armor plate assembly (2) to 12 new self–locking studs (3) with 12 nuts (1).

5 Torque 12 nuts (1) to 40–50 lb–ft (54–67 N·m).



12–13 PLATE ASSEMBLY, CAB TOP LEFT FRONT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
Brackets securing seven hydraulic lines to elevating cylinder removed (para 18–7)
Dome light removed (para 5–26)

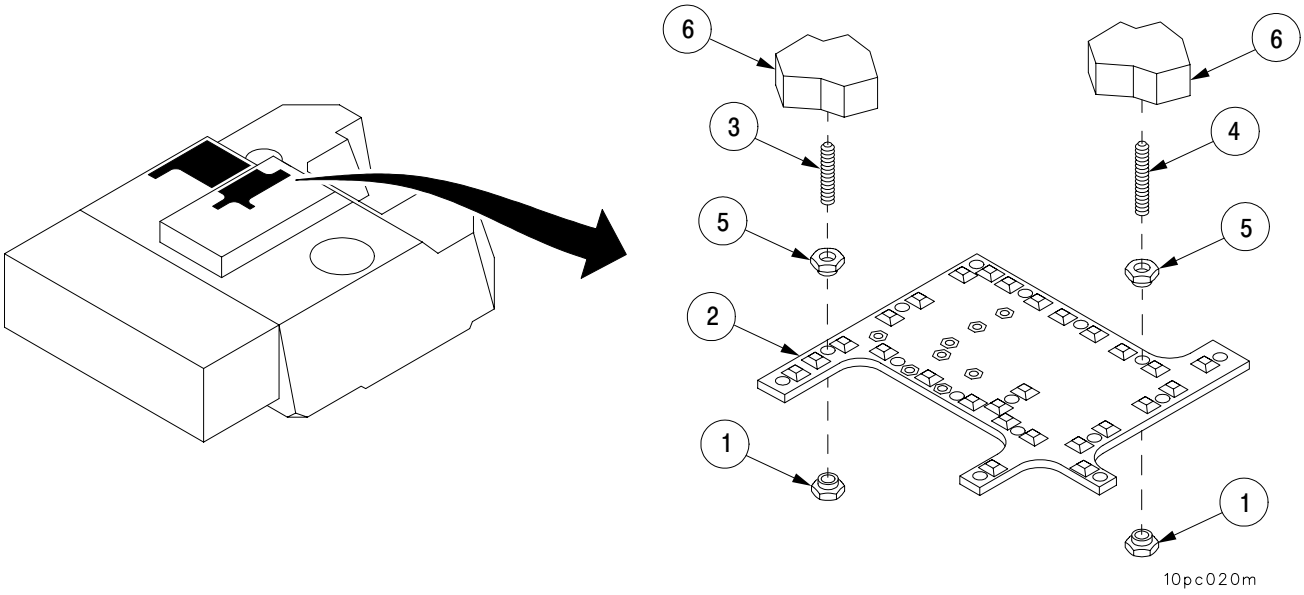
Materials/Parts
Self–locking studs (13) (item 201, Appx F)
Self–locking studs (3) (item 202, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

1 Remove 16 nuts (1) and armor plate assembly (2) from 13 self–locking studs (3) and three self–locking studs (4).

2 Hold 13 self–locking studs (3) and three self–locking studs (4) and remove 16 nuts (5).

3 Remove 13 self–locking studs (3) and three self–locking studs (4) from cab wall (6). Discard self–locking studs.



12–13 PLATE ASSEMBLY, CAB TOP LEFT FRONT – CONTINUED

b. Installation.

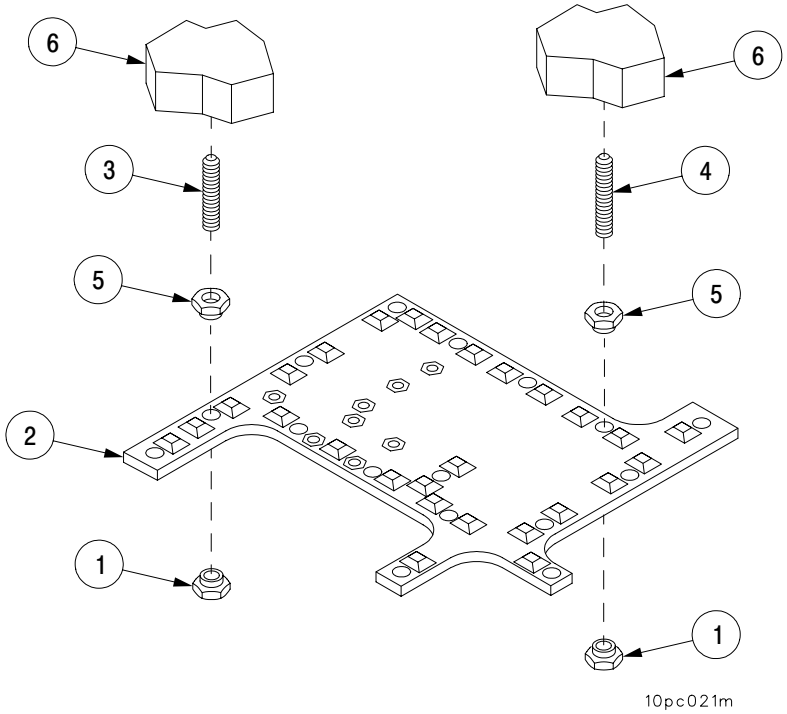
1 Install 13 new self–locking studs (3) and three new self–locking studs (4) into cab wall (6).

2 Apply sealing compound to the threads of 16 nuts (1) and 16 nuts (5).

3 Install 16 nuts (5) onto 13 new self–locking studs (3) and three new self–locking studs (4). Ensure that 16 nuts (5) are seated against cab wall (6).

4 Secure armor plate assembly (2) to 13 new self–locking studs (3) and three new self–locking studs (4) with 16 nuts (5).

5 Torque 16 nuts (1) to 40–50 lb–ft (54–67 N·m).



12–14 PLATE ASSEMBLY, CAB TOP REAR LEFT CENTER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
Dome light removed (para 5–26)
MCS duct removed (para 13–1)

Materials/Parts
Self–locking studs (9) (item 202, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

1 Remove nine nuts (1) and armor plate assembly (2) from nine self–locking studs (3).

2 Hold nine self–locking studs (3) and remove nine nuts (4).

3 Remove nine self–locking studs (3) from cab wall (5). Discard self–locking studs.

b. Installation.

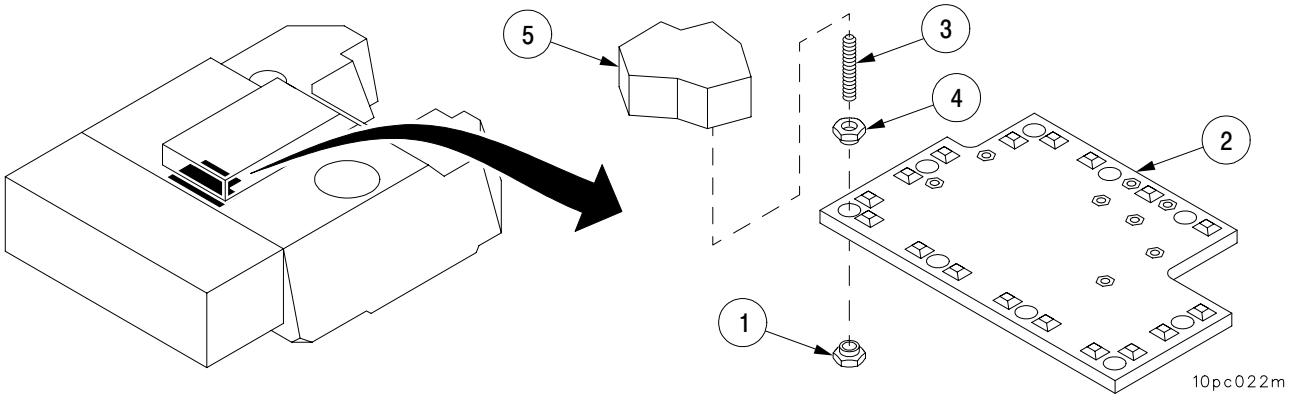
1 Install nine new self–locking studs (3) into cab wall (5).

2 Apply sealing compound to the threads of nine nuts (1) and nine nuts (4).

3 Install nine nuts (4) onto nine new self–locking studs (3) and ensure that nine nuts (4) are seated against cab wall (5).

4 Secure armor plate assembly (2) to nine new self–locking studs (3) with nine nuts (1).

5 Torque nine nuts (4) to 40–50 lb–ft (54–67 N·m).



12–15 PLATE ASSEMBLY, CAB TOP LEFT REAR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Self–locking studs (13) (item 201, Appx F)
Sealing compound (item 41, Appx C)

Equipment Conditions
MCS duct and hoses left rear removed (para 13–1)
MCS orifice connector and bracket left rear removed (para 13–3)

a. Removal.

1 Remove 13 nuts (1) and armor plate assembly (2) from 13 self–locking studs (3).

2 Hold 13 self–locking studs (3) and remove 13 nuts (4).

3 Remove 13 self–locking studs (3) from cab wall (5). Discard self–locking studs.

b. Installation.

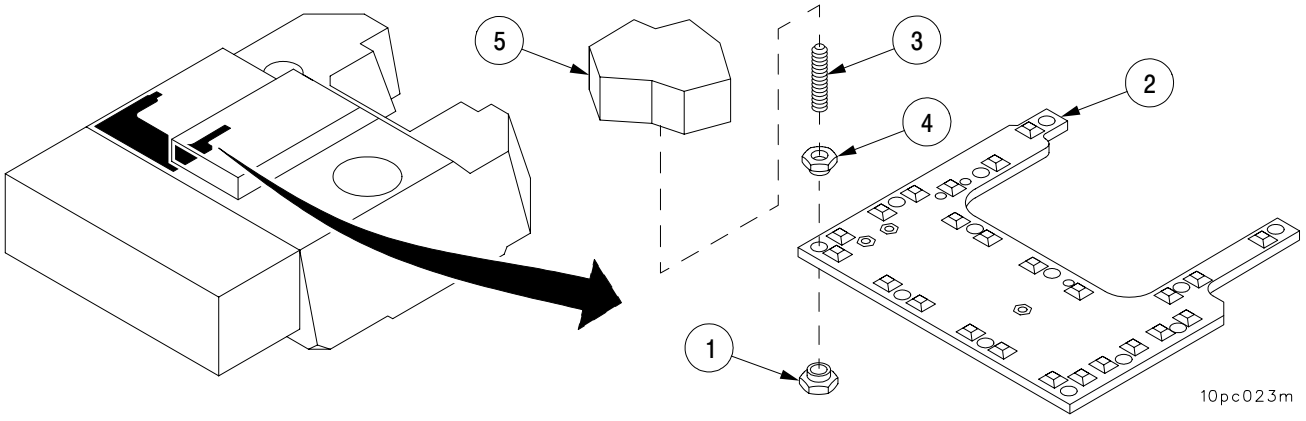
1 Install 13 new self–locking studs (3) into cab wall (5).

2 Apply sealing compound to the threads of 13 nuts (1) and 13 nuts (4).

3 Install 13 nuts (4) onto 13 new self–locking studs (3), ensuring 13 nuts (4) are seated against cab wall (5).

4 Secure armor plate assembly (2) to 13 new self–locking studs (3) with 3 nuts (1).

5 Torque 13 nuts (4) to 40–50 lb–ft (54–67 N·m).



12–16 PLATE ASSEMBLY, CAB TOP RIGHT FRONT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Self–locking studs (5) (item 201, Appx F)
Sealing compound (item 41, Appx C)
Self–locking stud (item 202, Appx F)

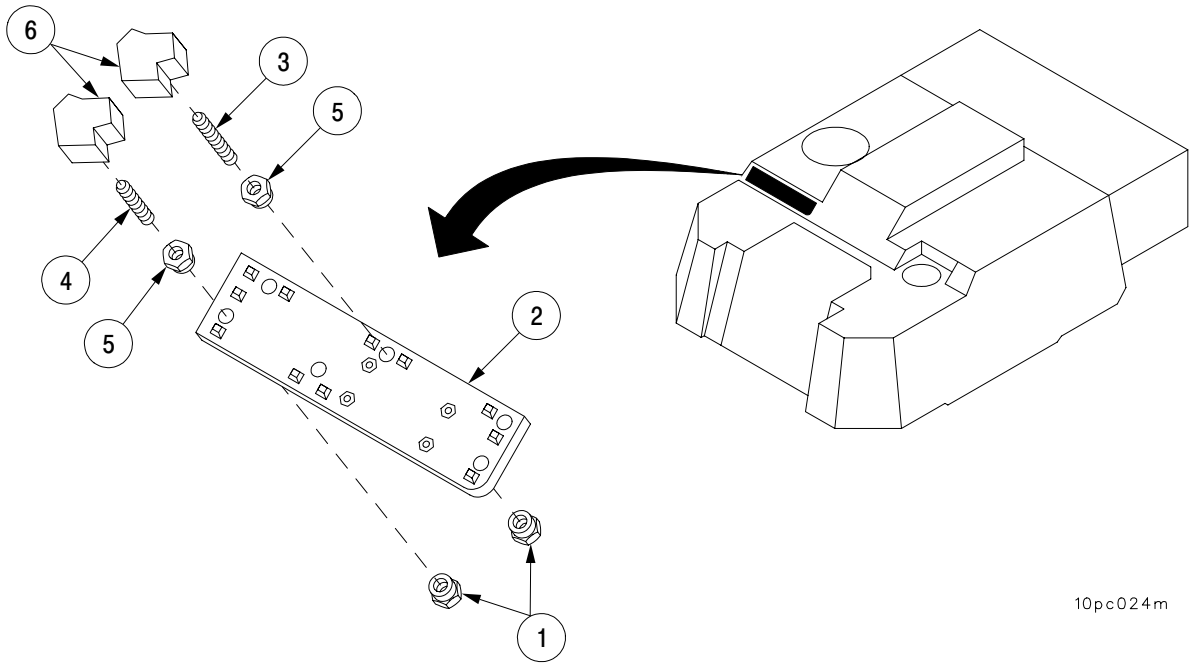
Equipment Conditions
Hydraulic control box and ground lead removed (para 5–20)
Oddment tray removed (para 16–6)
ACU box removed (para 8–14)

a. Removal.

1 Remove six nuts (1) and armor plate assembly (2) from five self–locking studs (3) and self–locking stud (4).

2 Hold five self–locking studs (3) and self–locking stud (4) and remove six nuts (5).

3 Remove five self–locking studs (3) and self–locking stud (4) from cab wall (6). Discard self–locking studs.



12–16 PLATE ASSEMBLY, CAB TOP RIGHT FRONT – CONTINUED

b. Installation.

1 Install five new self–locking studs (3) and new self–locking stud (4) into cab wall (6).

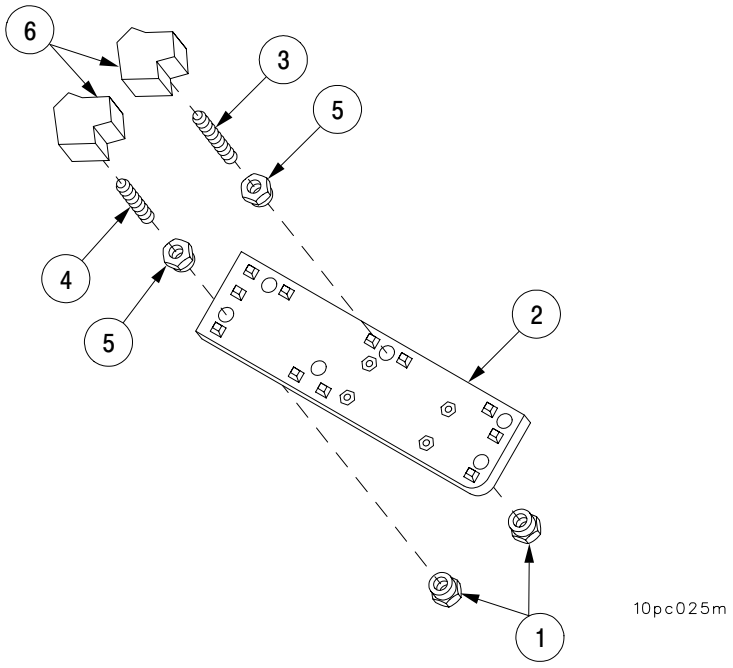
2 Apply sealing compound to the threads of six nuts (1) and six nuts (5).

3 Install six nuts (5) onto five new self–locking studs (3) and new self–locking stud (4). Ensure that six nuts (5) are seated against cab wall (6).

4 Install armor plate assembly (2) onto five new self–locking studs (3) and new self–locking stud (4).

5 Secure armor plate assembly (2) to five new self–locking studs (3) and new self–locking stud (4) with six nuts (1).

6 Torque six nuts (1) to 40–50 lb–ft (54–67 N·m).



12–17 PLATE ASSEMBLY, CAB UPPER LEFT CORNER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
Hydraulic lines to elevation manifold removed (para 18–5)

Materials/Parts
Self–locking studs (3) (item 201, Appx F)
Sealing compound (item 41, Appx C)

a. Removal.

1 Remove three nuts (1) and armor plate assembly (2) from three self–locking studs (3).

2 Hold three self–locking studs (3) and remove three nuts (4).

3 Remove three self–locking studs (3) from cab wall (5). Discard self–locking studs.

b. Installation.

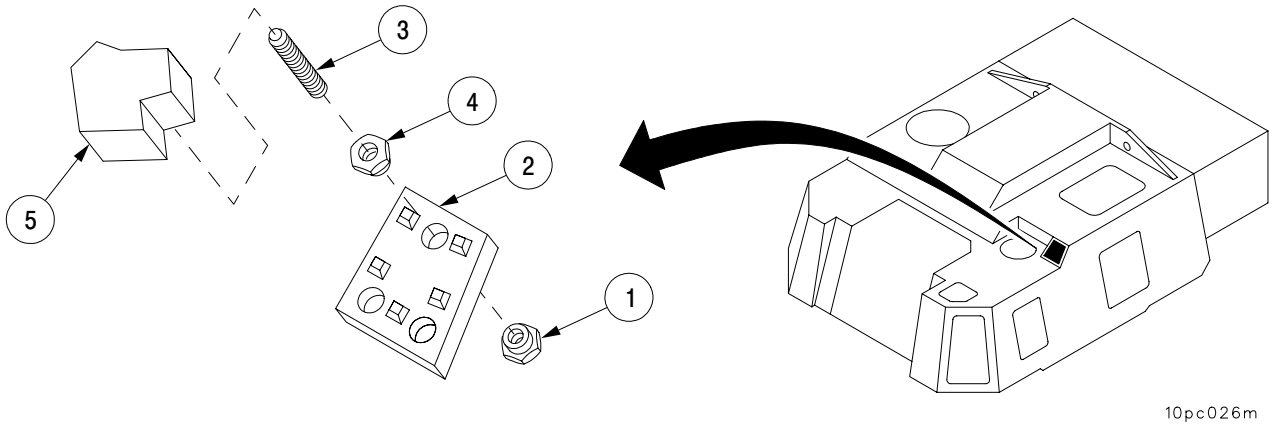
1 Install three new self–locking studs (3) into cab wall (5).

2 Apply sealing compound to the threads of three nuts (1) and three nuts (4).

3 Install three nuts (4) onto three new self–locking studs (3), ensuring that three nuts (4) are seated against cab wall (5).

4 Secure armor plate assembly (2) to three new self–locking studs (3) with three nuts (1).

5 Torque three nuts (4) to 40–50 lb–ft (54–67 N·m).



12–18 PLATE ASSEMBLY, CAB RIGHT FRONT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Lockwashers (2) (item 128, Appx F)
Self–locking studs (8) (item 201, Appx F)
Sealing compound (item 41, Appx C)

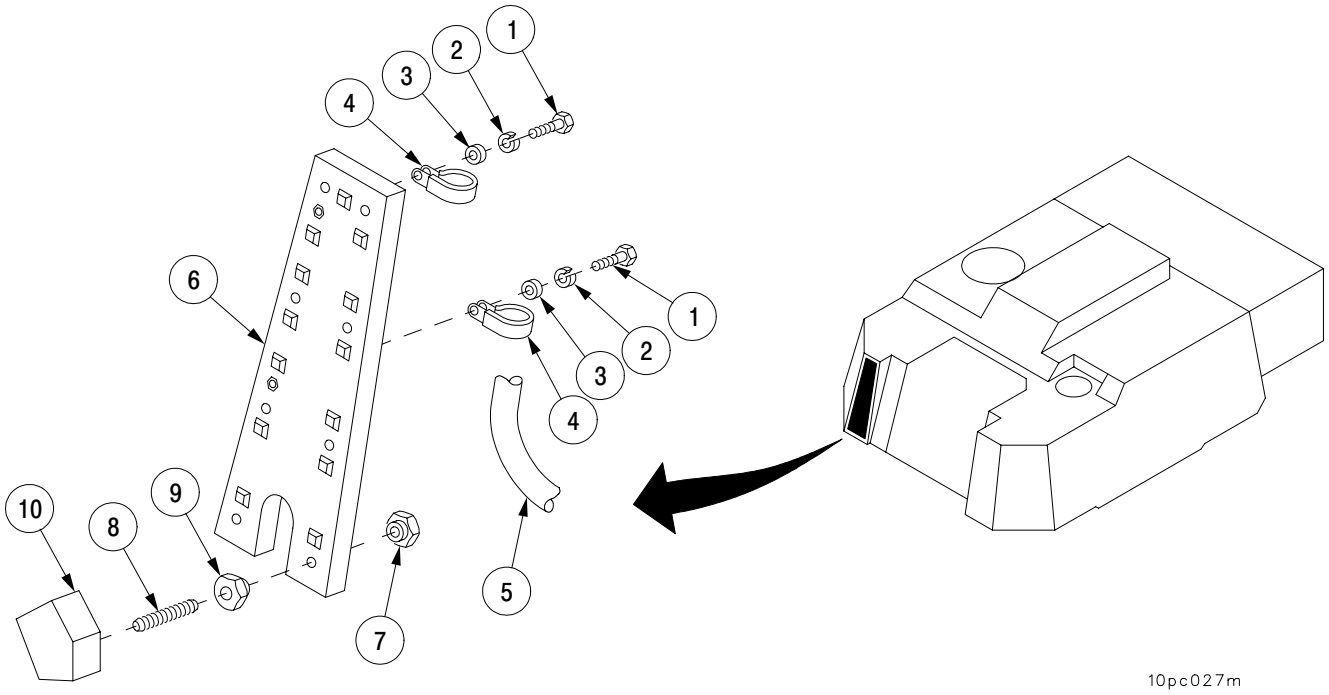
a. Removal.

1 Remove two screws (1), two lockwashers (2), two flat washers (3), and two clamps (4) securing lead W2 (5) to armor plate assembly (6). Discard lockwashers.

2 Remove eight nuts (7) and armor plate assembly (6).

3 Hold eight self–locking studs (8) and remove eight nuts (9) from eight self–locking studs (8).

4 Remove eight self–locking studs (8) from cab bulkhead (10). Discard self–locking studs.



12–18 PLATE ASSEMBLY, CAB RIGHT FRONT – CONTINUED

b. Installation.

1 Install eight new self–locking studs (8) into cab bulkhead (10).

2 Apply sealing compound to the threads of eight nuts (7) and eight nuts (9).

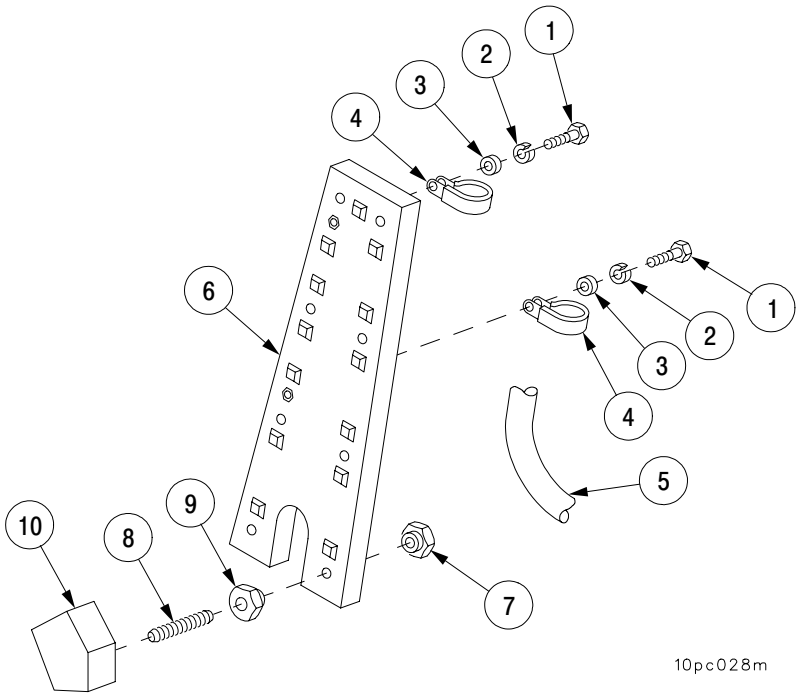
3 Install eight nuts (9) onto eight new self–locking studs (8). Ensure that nuts (9) are seated against cab bulkhead (10).

4 Install armor plate assembly (6) onto eight new self–locking studs (8).

5 Secure armor plate assembly (6) to eight new self–locking studs (8) with eight nuts (7).

6 Torque eight nuts (7) to 40–50 lb–ft (54–67 N·m).

7 Secure lead W2 (5) to armor plate assembly (6) with two clamps (4), two flat washers (3), two new lockwashers (2), and two screws (1).



12–19 ARMOR PLATE INSERTS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Inserts (AR) (item 182, Appx F)
Epoxy resin (item 68, Appx C)

a. Removal.

NOTE

When determined feasible by inspection, damaged inserts should be removed and replaced.

Remove insert (1) from armor plate (2).

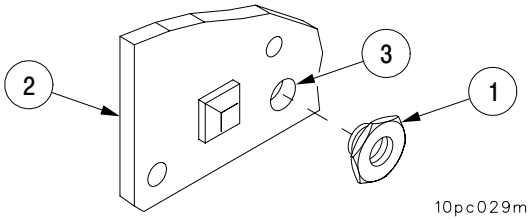
b. Installation.

1 Apply epoxy resin to installation holes (3).

2 While epoxy resin is still moist, install inserts (1).

3 Immediately tighten inserts (1). See torque values below.

4 Ensure internal threads of inserts (1) are free of epoxy resin, primer, or paint.



Insert Sizes and Torque Values.

PART NO.	THREAD A UNC–2B	HEX B NOM	TORQUE	
			LB–IN	N·m
12553635–1	.250–20	.500	45–55	5–6
12553635–2	.3125–18	.5625	70–80	8–9

12–20 ARMOR PLATE SPACERS AND WASHERS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
Armor plates removed (chap 12)

Materials/Parts
Spacers (AR) (item 190, Appx F)
Adhesive washers (AR) (item 191, Appx F)
Isopropyl alcohol (item 14, Appx C)

a. Removal.

NOTE

There are 17 armor plates inside of the cab. This task covers the removal and installation of spacers and washers from one plate only.

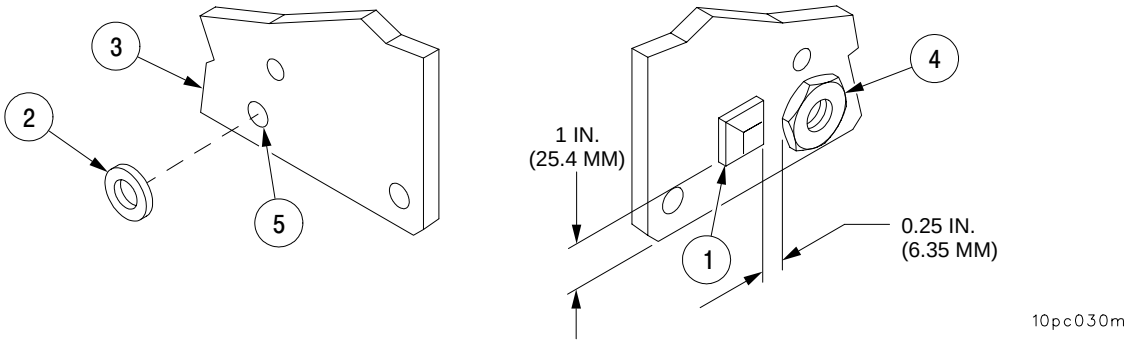
Remove spacer (1) or washer (2) from armor plate (3). Discard spacer or washer.

b. Installation.

1 Clean the surface area of plate (3) where spacer (1) or washer (2) will be installed.

2 Remove contact paper from spacer (1) and apply spacer (1) to side of armor plate (3) facing outward. Locate spacer 1 in. (25.4 mm) from edge of armor and 0.25 in. (6.35 mm) from nut (4).

3 Remove contact paper from new washer (2) and apply washer (2) to armor plate (3). Washer must be centered on holes (5) in plate (3) and wrinkle free.



CHAPTER 13
MICROCLIMATE CONDITIONING SYSTEM

GENERAL

This chapter illustrates and describes maintenance procedures for the microclimate conditioning system (MCS) and the nuclear, biological and chemical (NBC) protection system.

WARNING

Make sure MCS enclosure and air duct system is properly decontaminated after being exposed to an NBC environment before maintenance is performed. Failure to do this could result in personnel injury due to residual contamination.

CONTENTS

CONTENTS Page

13–1 MCS AIR DUCT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit,
(SC 5180–95–A12)

Equipment Conditions
Electrical power to MCS system off
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (19) (item 128, Appx F)
Gasket (item 183, Appx F)
Gaskets (4) (item 181, Appx F)
Pressure sensitive tape (item 90, Appx C)

Personnel Required
Two

a. Removal.

1 Loosen five clamps (1) and remove five hoses (2) with five clamps (1).

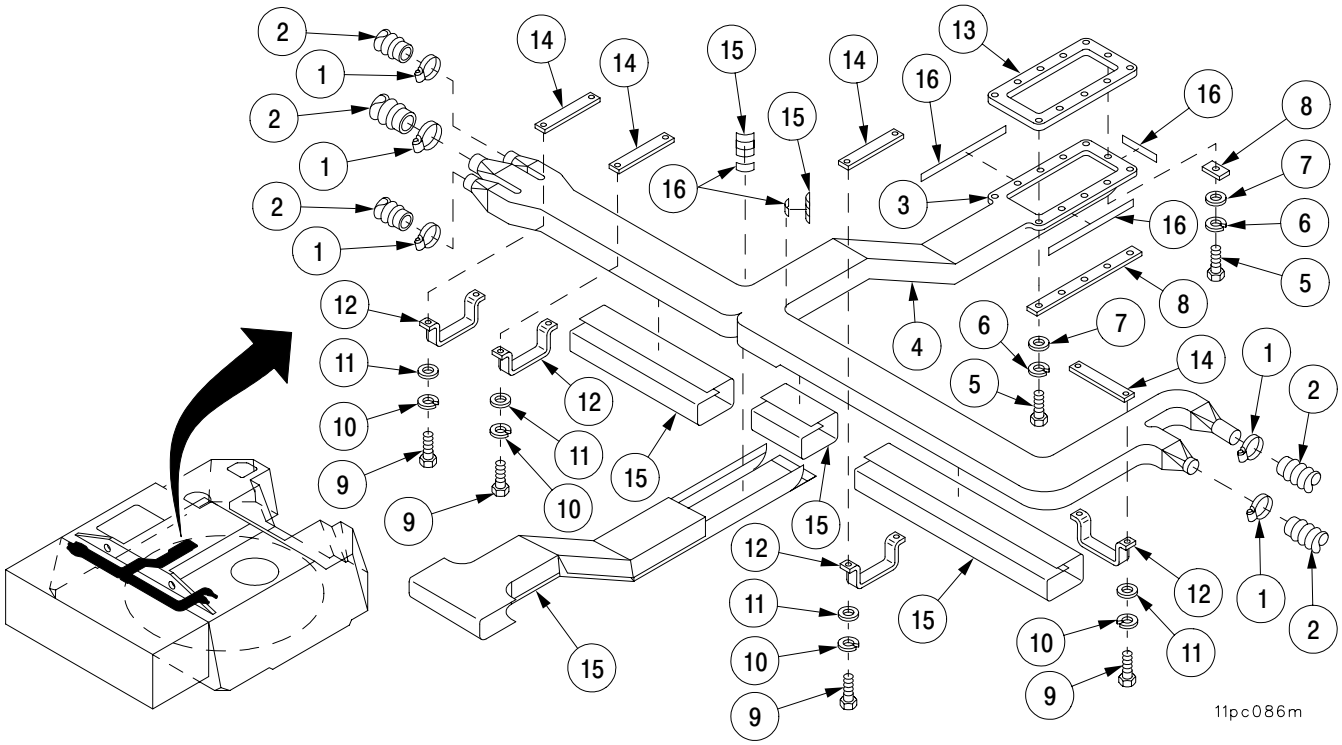
2 At flange (3) on ducting (4), remove 11 screws (5), 11 lockwashers (6), 11 flat washers (7), and three mounting strips (8). Discard lockwashers.

3 With assistant supporting ducting (4), remove eight screws (9), eight lockwashers (10), eight flat washers (11), and four brackets (12). Discard lockwashers.

4 Remove ducting (4) with flange gasket (13) and four bracket gaskets (14). Discard gaskets.

5 Remove ducting insulation (15) from ducting (4).

6 Remove tape (16) from ducting (4). Discard tape.



13–1 MCS AIR DUCT – CONTINUED

b. Installation.

1 Install new tape (16) onto ducting (4).

NOTE

- Install ducting insulation with vinyl film side surface away from ducting.
- Insulation must clear ducting mounting brackets.

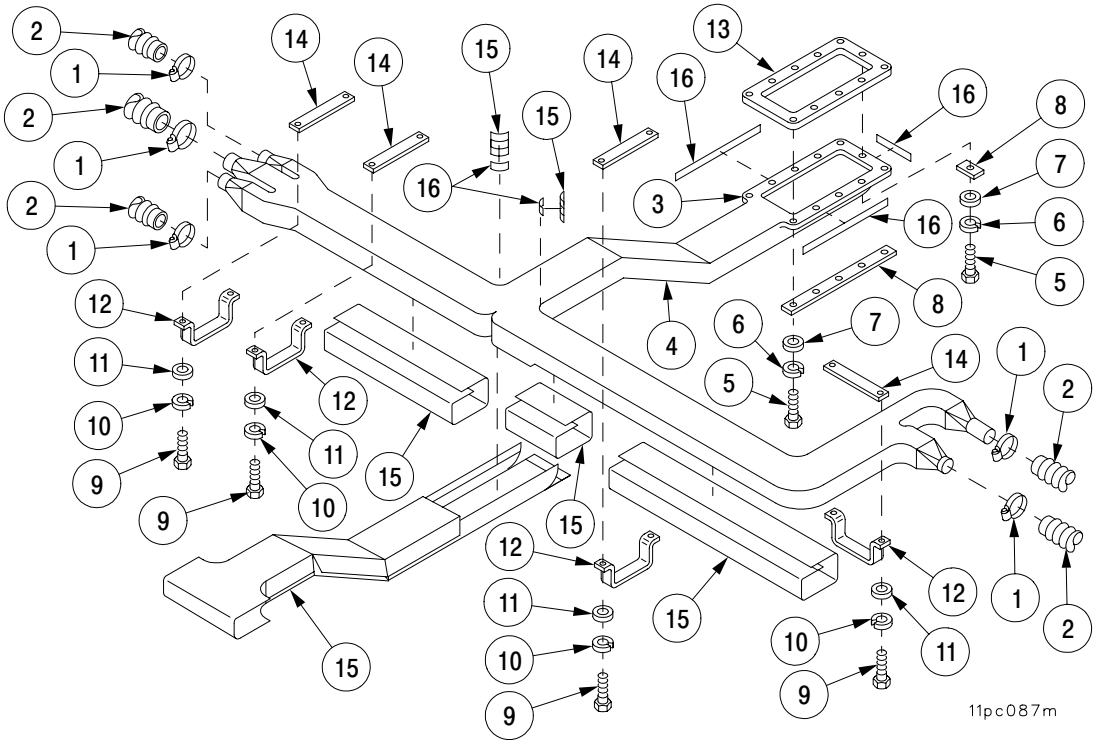
2 Install ducting insulation (15) onto ducting (4).

3 With assistant positioning and supporting ducting (4), install new flange gasket (13) and four new bracket gaskets (14).

4 Secure ducting (4) to roof of cab with four brackets (12), eight screws (9), eight new lockwashers (10), and eight flat washers (11).

5 Secure flange (3) to MCS outlet with 11 screws (5), 11 new lockwashers (6), 11 flat washers (7), and three mounting strips (8).

6 Connect five hoses (2) to ducting (4) and secure with five clamps (1).



13–2 MCS HOSE ASSEMBLIES AND HARDWARE.

This task covers: a. Removal b. Inspection c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Electrical power to MCS system OFF
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (4) (item 130, Appx F)

a. Removal.

NOTE

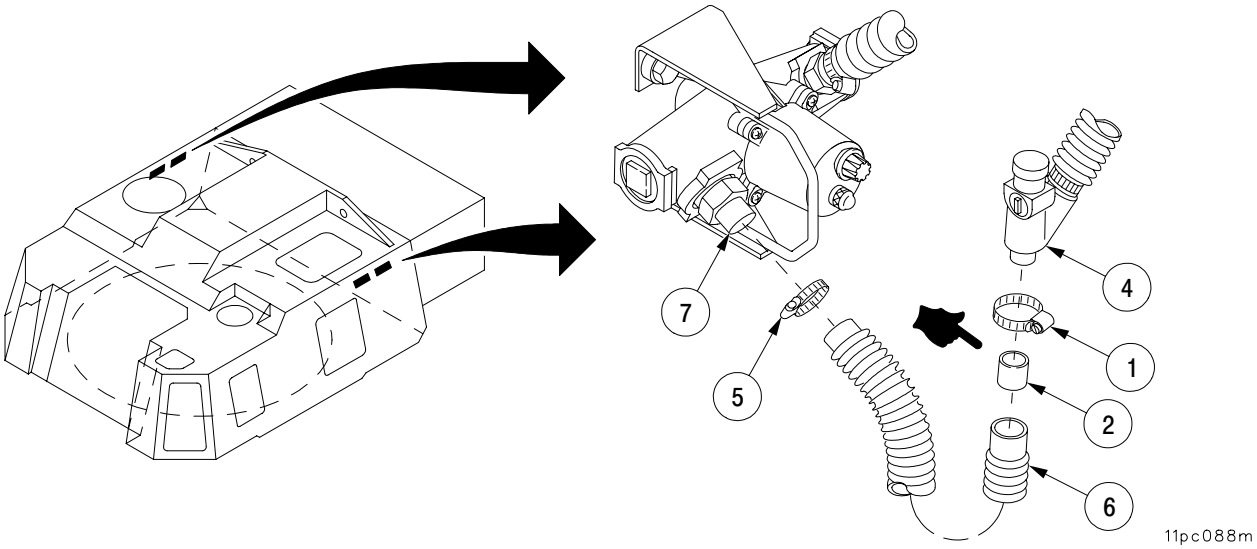
There are four flexible hoses from M3 heater and diverter valves. The removal/installation procedures are identical.

1 Remove clamp (1).

2 Pull hose (2) loose from connector assembly diverter valve (4) and hose (6). Remove hose (2).

3 Remove clamp (5).

4 Remove hose (6) from hose (2) and adapter (7).



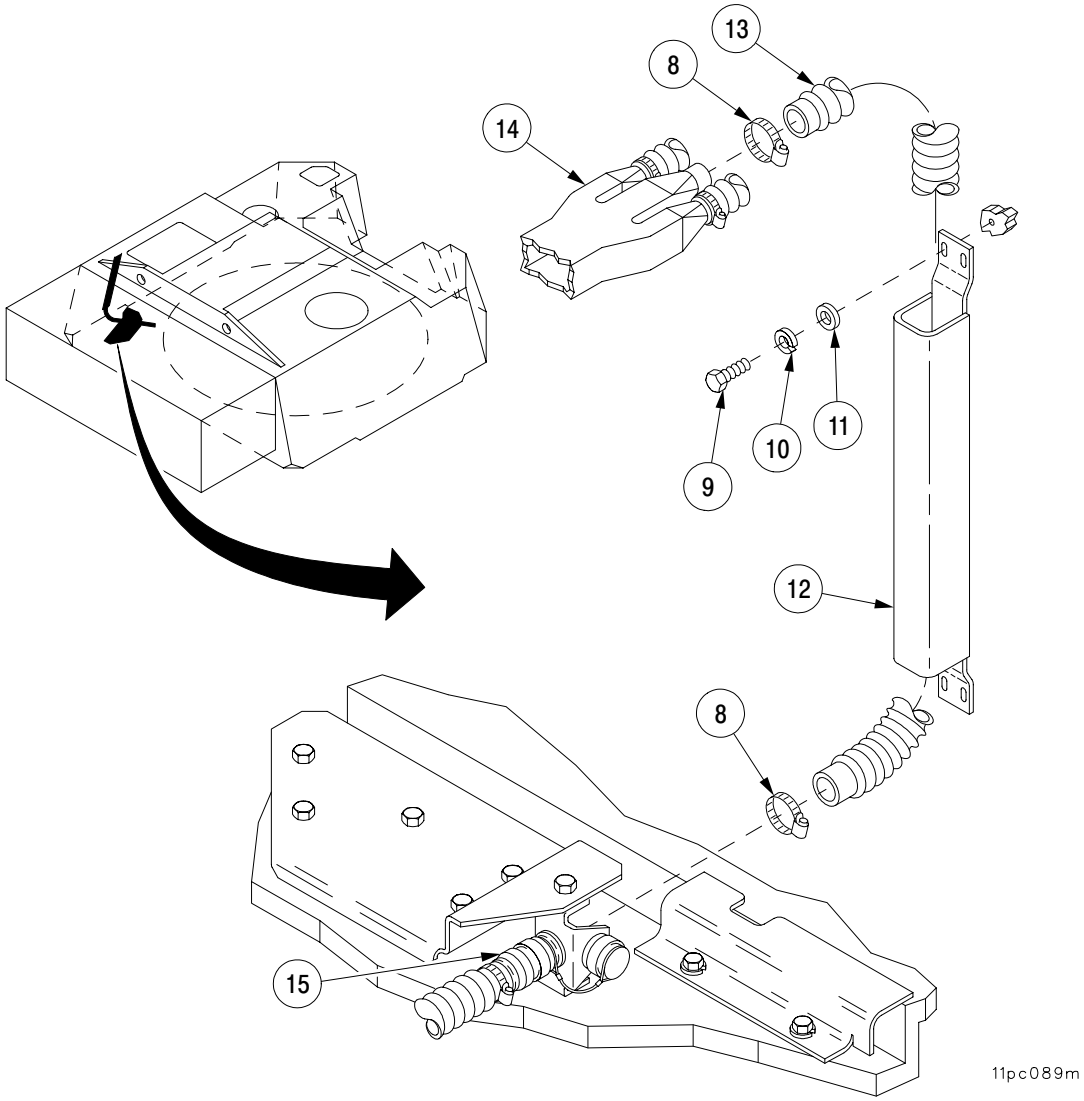
13–2 MCS HOSE ASSEMBLIES AND HARDWARE – CONTINUED

a. Removal – Continued

5 Loosen two clamps (8).

6 Remove four screws (9), four lockwashers (10), four flat washers (11), and guard (12). Discard lockwashers.

7 Pull hose (13) loose from ducting (14) and coupling assembly (15).



13–2 MCS HOSE ASSEMBLIES AND HARDWARE – CONTINUED

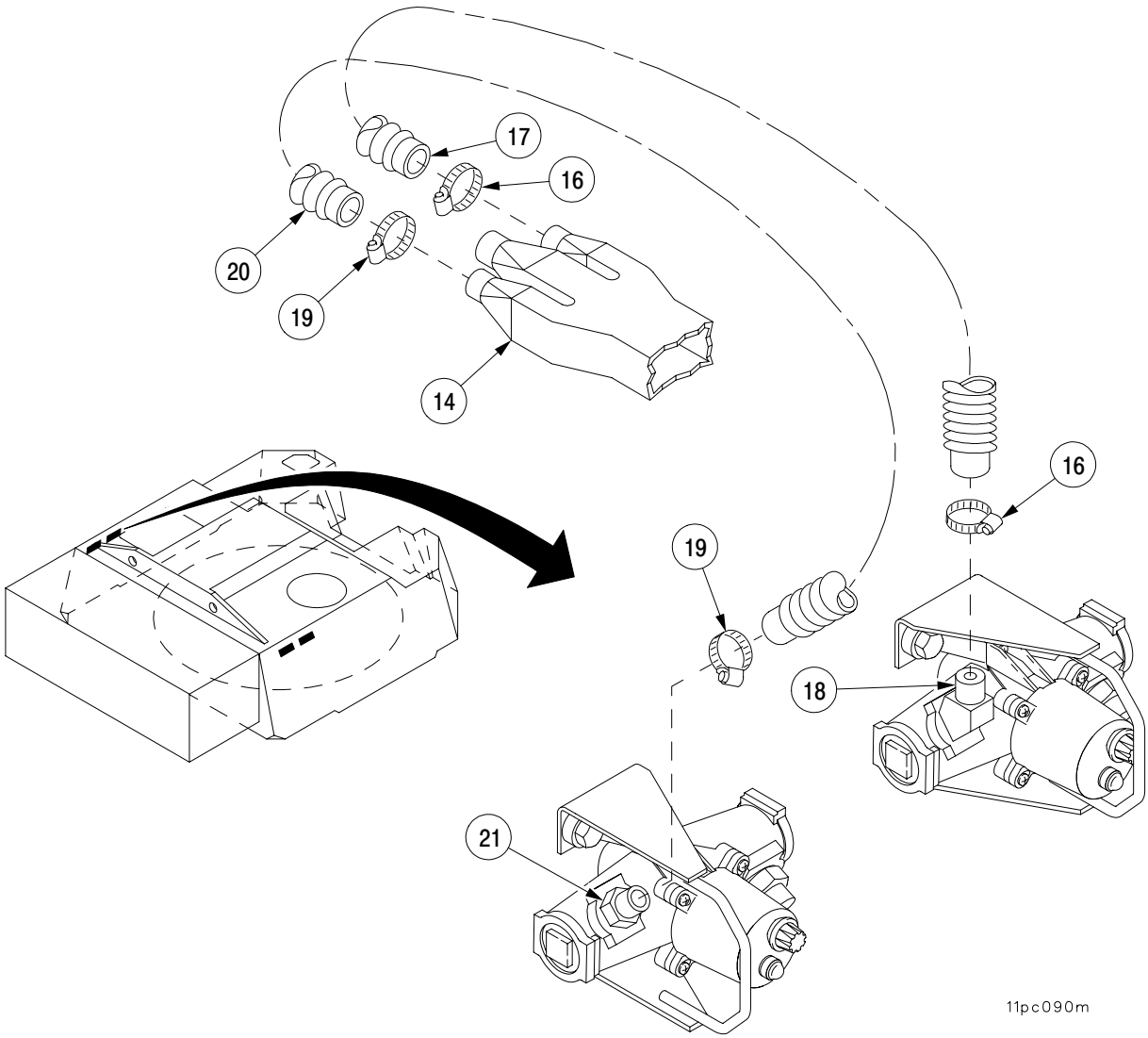
a. Removal – Continued

8 Remove two clamps (16).

9 Remove hose (17) from ducting (14) and adapter (18).

10 Remove two clamps (19).

11 Remove hose (20) from ducting (14) and adapter (21).



13–2 MCS HOSE ASSEMBLIES AND HARDWARE – CONTINUED

a. Removal – Continued

12 Remove two clamps (22).

13 Remove hose (23) from ducting (14) and adapter (24).

14 Remove two clamps (25).

15 Remove hose (26) from ducting (14) and adapter (27).

b. Inspection.

1 Inspect all hoses for damage and deterioration.

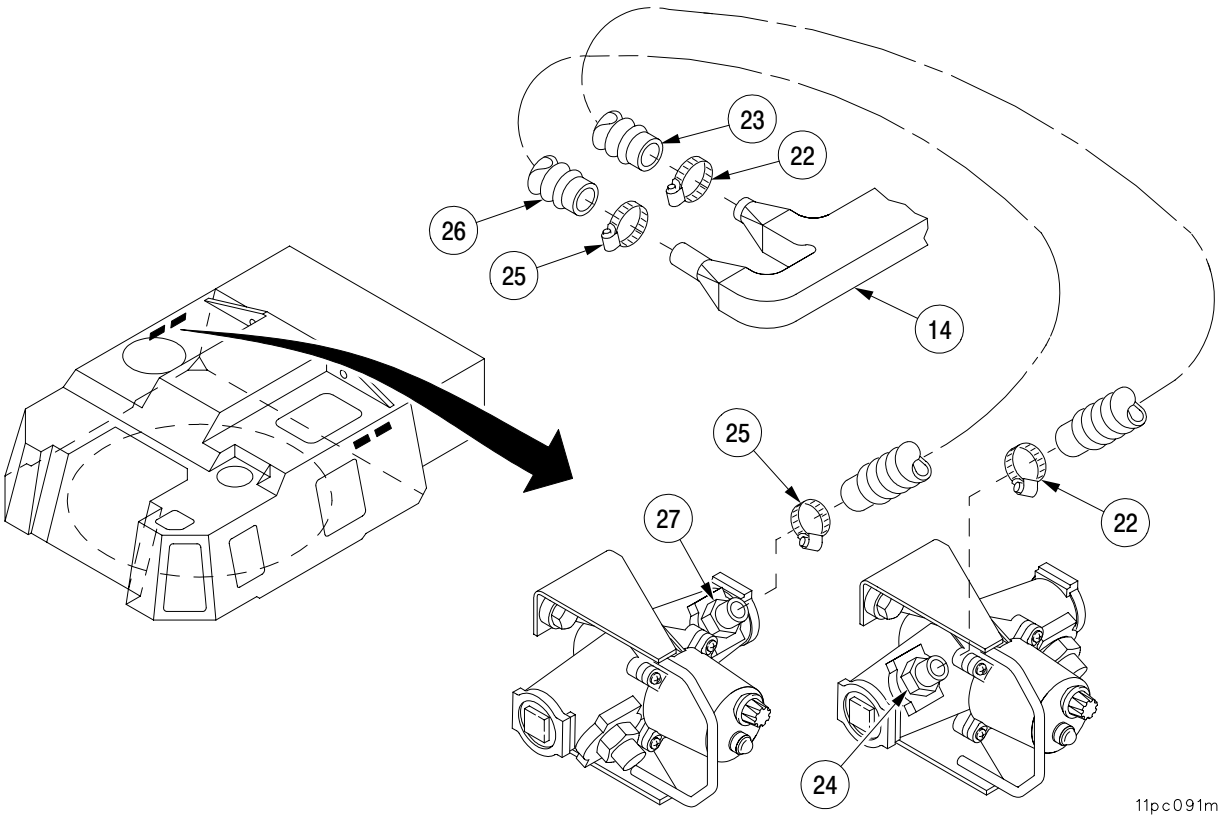
2 Inspect all coupling assemblies for wear and damage.

3 Inspect all hardware for damage.

c. Installation.

1 Position two clamps (25) on hose (26). Position hose (26) on adapter (27) and ducting (14). Secure hose (26) by tightening two clamps (25).

2 Position two clamps (22) on hose (23). Position hose (23) on adapter (24) and ducting (14). Secure hose (23) by tightening two clamps (22).

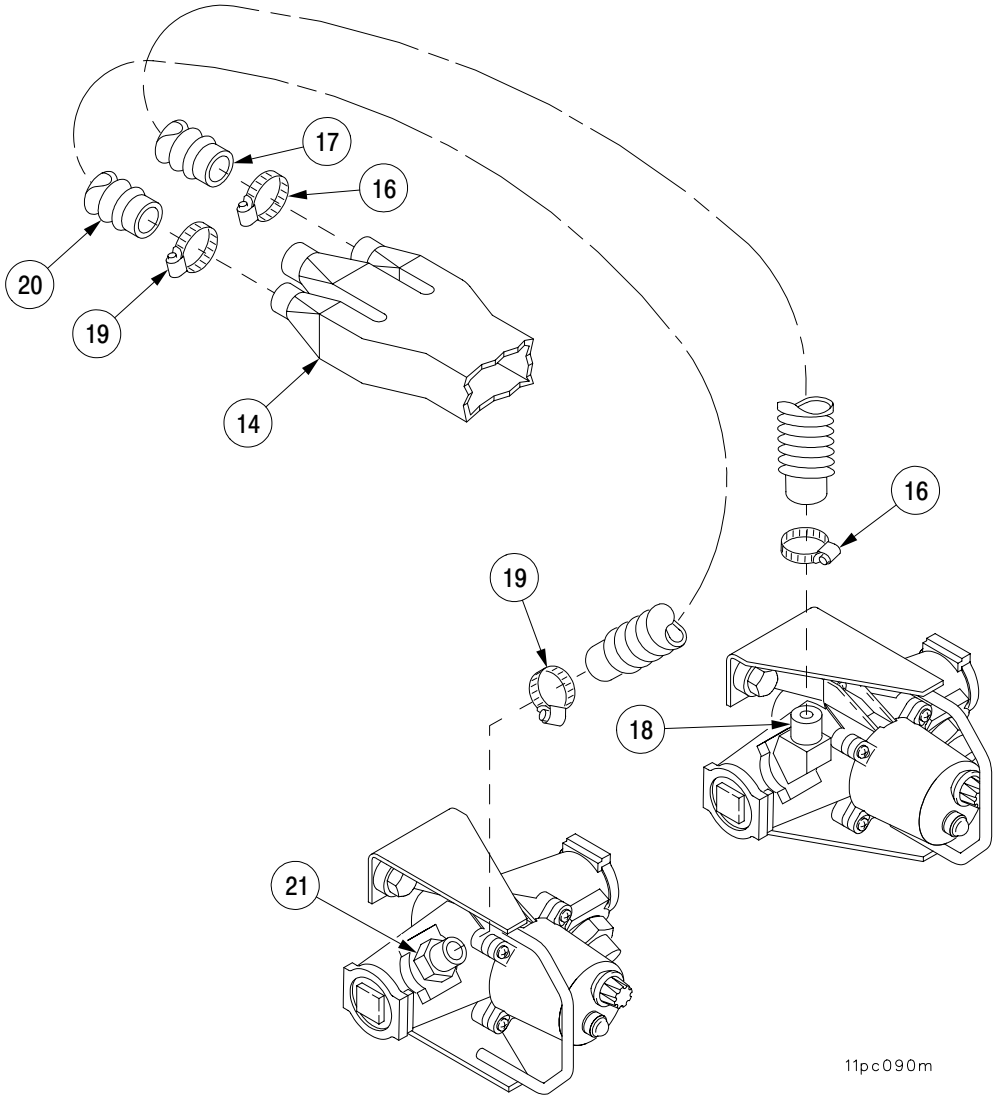


13–2 MCS HOSE ASSEMBLIES AND HARDWARE – CONTINUED

c. Installation – Continued

3 Position two clamps (19) on hose (20). Position hose (20) on ducting (14) and adapter (21). Secure hose (20) by tightening two clamps (19).

4 Position two clamps (16) on hose (17). Position hose (17) on ducting (14) and adapter (18). Secure hose (17) by tightening two clamps (16).



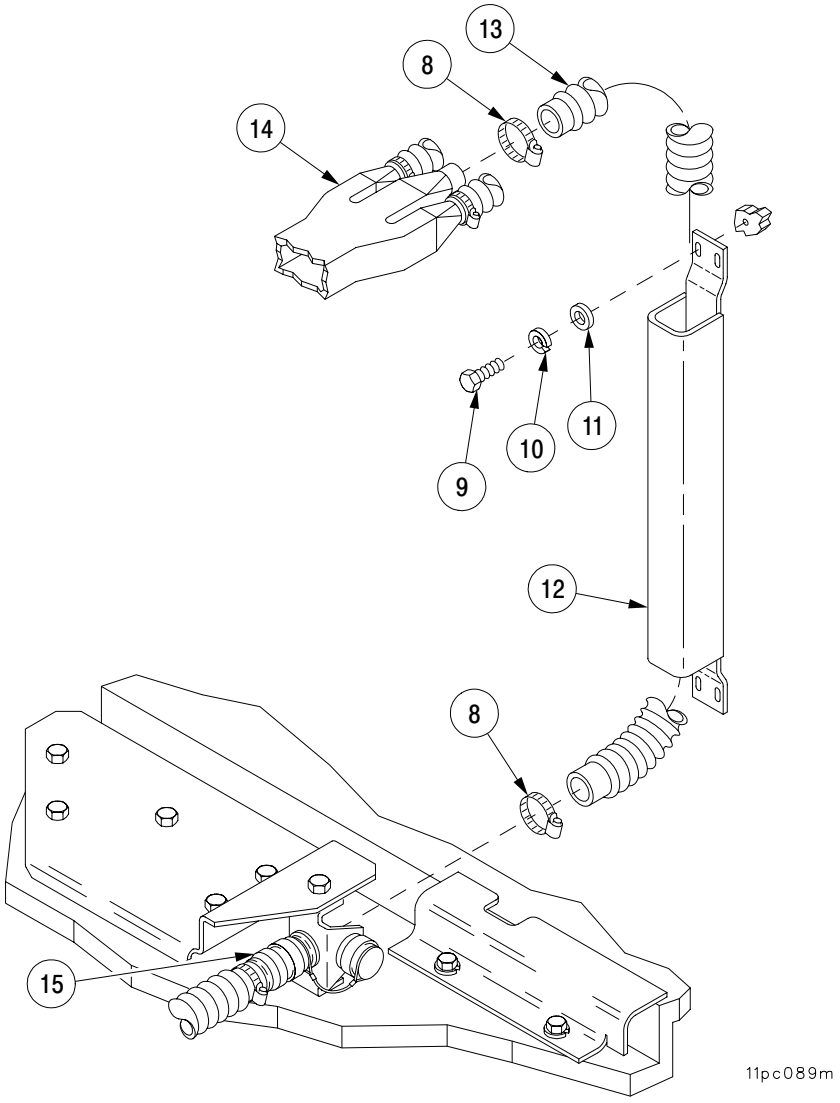
13–2 MCS HOSE ASSEMBLIES AND HARDWARE – CONTINUED

c. Installation – Continued

5 Install guard (12) with four washers (11), four new lockwashers (10), and four screws (9).

6 Install hose (13) through guard (12).

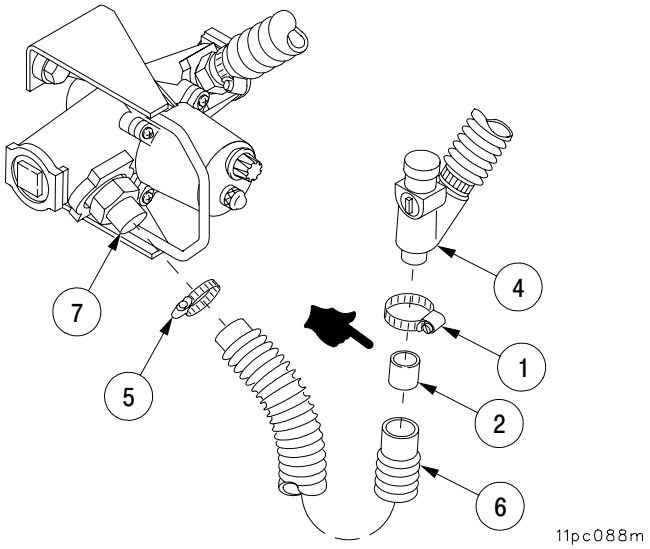
7 Position two clamps (8) on hose (13). Position hose (13) on ducting (14) and coupling assembly (15). Secure hose by tightening two clamps (8).



13–2 MCS HOSE ASSEMBLIES AND HARDWARE – CONTINUED

c. Installation – Continued

8 Position clamp (5) on hose (6). Position hose (6) on adapter (7) and tighten clamp (5). Install hose (6) on hose coupling (2), install hose (2) on connector assembly diverter valve (4) and secure with clamp (1).



13–3 MCS AIR ORIFICE CONNECTOR, BRACKET, AND COUPLING.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Electrical power to MCS system off
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (2) (item 128, Appx F)
Retaining ring (item 36, Appx F)

NOTE

There are four MCS orifices. The removal and installation procedures are identical.

a. Removal.

1 Remove clamp (1) from hose (2).

2 Remove hose (2) from coupling half (3).

3 Disconnect coupling half (3) from orifice connector (4).

4 Remove two screws (5), two lockwashers (6), two flat washers (7), and bracket (8) from cab. Discard lockwashers.

5 Remove retaining ring (9) from orifice connector (4) and remove orifice connector (4) from bracket (8). Discard retaining ring.

13–3 MCS AIR ORIFICE CONNECTOR, BRACKET, AND COUPLING – CONTINUED

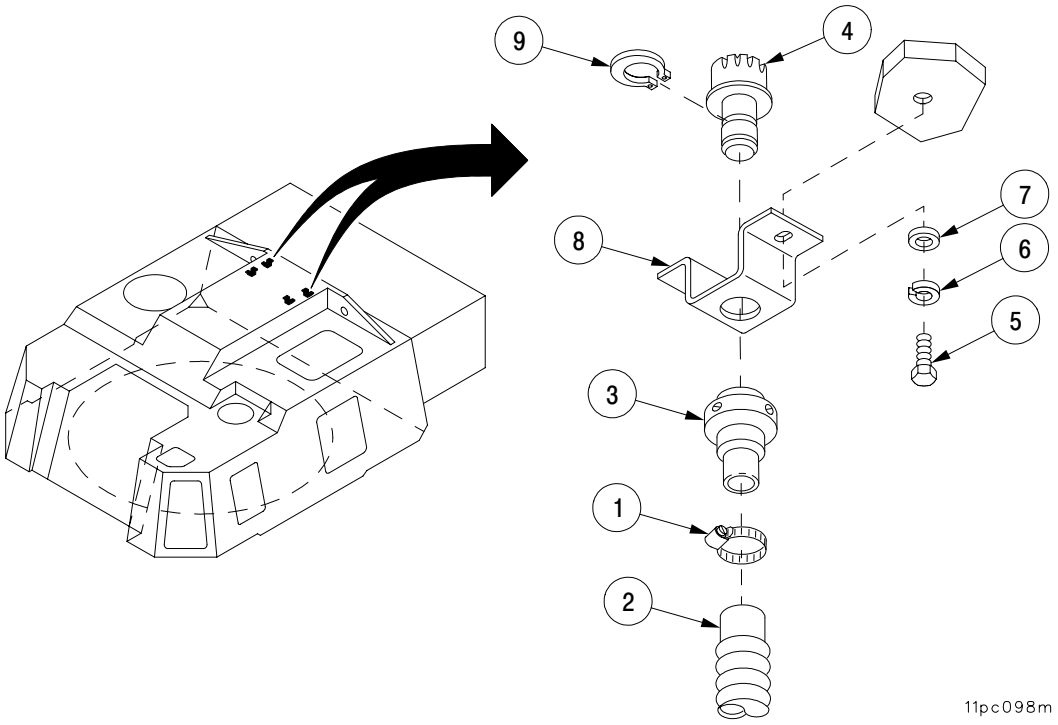
b. Installation.

1 Position orifice connector (4) in bracket (8) and secure with new retaining ring (9).

2 Install bracket (8) with two screws (5), two new lockwashers (6), and two flat washers (7).

3 Connect coupling half (3) to orifice connector (4).

4 Position hose (2) on coupling half (3) and secure with clamp (1).



13–4 MCS QUICK COUPLING AND BRACKET.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

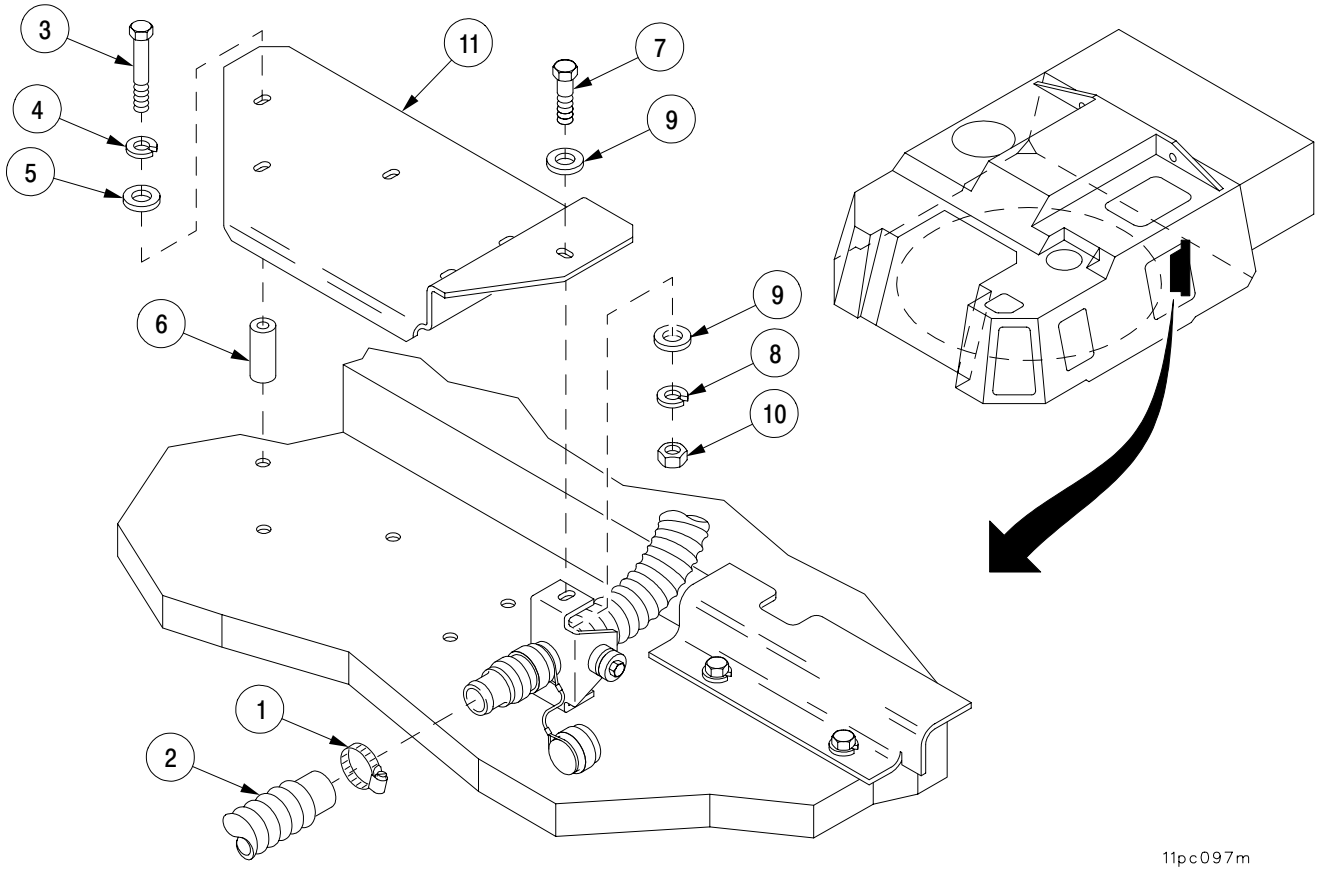
Equipment Conditions
Electrical power to MCS system off
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (7) (item 130, Appx F)
Lockwasher (item 128, Appx F)
Retaining ring (item 37, Appx F)

a. Removal.

1 Remove hose clamp (1) and disconnect driver's compartment air hose (2).

2 Remove five screws (3), five lockwashers (4), five flat washers (5), five spacers (6), screw (7), lockwasher (8), two flat washers (9), nut (10), and plate (11). Discard lockwashers.



13–4 MCS QUICK COUPLING AND BRACKET – CONTINUED

a. Removal – Continued

3 Remove hose clamp (12) and disconnect hose (13).

4 Disconnect and remove driver's hose quick–disconnect (14).

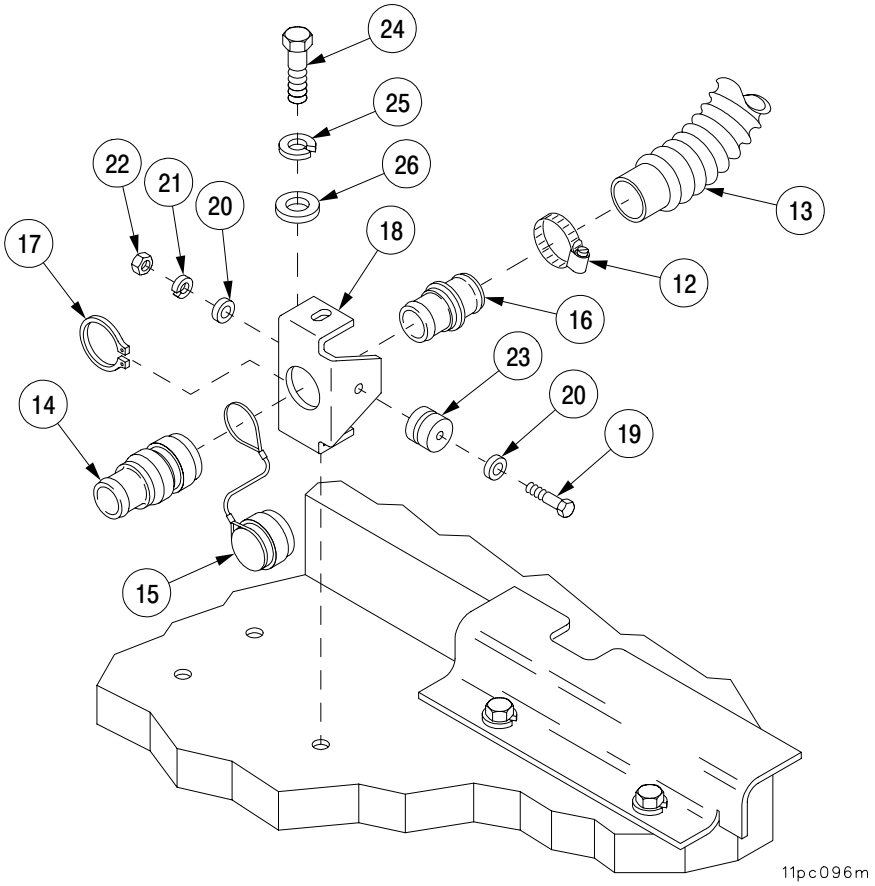
5 Remove lanyard and cap (15) from coupling half (16).

6 Remove retaining ring (17) from coupling half (16). Discard retaining ring.

7 Remove coupling half (16) from bracket (18).

8 Remove screw (19), two flat washers (20), lockwasher (21), nut (22), and cap stowage coupling (23) from bracket (18). Discard lockwasher.

9 Remove screw (24), lockwasher (25), flat washer (26), and bracket (18). Discard lockwasher.



13–4 MCS QUICK COUPLING AND BRACKET – CONTINUED

b. Installation.

1 Install bracket (18) with screw (24), new lockwasher (25), and flat washer (26).

2 Install cap stowage coupling (23) on bracket (18) with screw (19), two flat washers (20), new lockwasher (21), and nut (22).

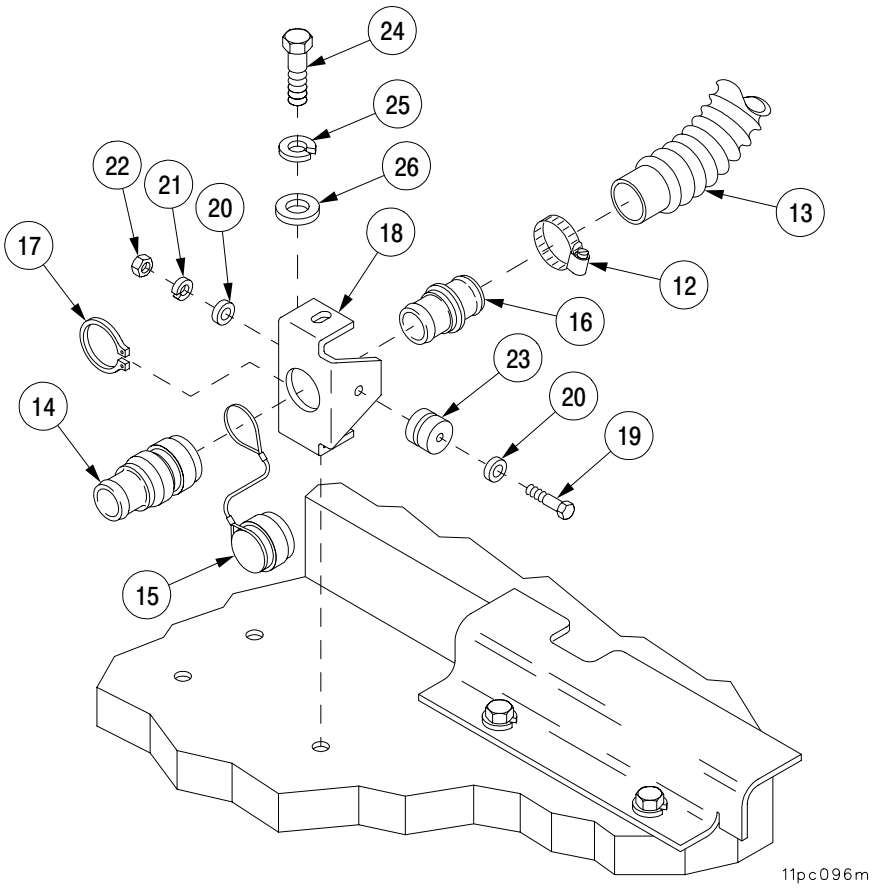
3 Install coupling half (16) on bracket (18).

4 Install new retaining ring (17) on coupling half (16).

5 Install lanyard and cap (15) on coupling half (16).

6 Connect driver's hose quick–disconnect (14).

7 Connect hose (13) and tighten hose clamp (12).

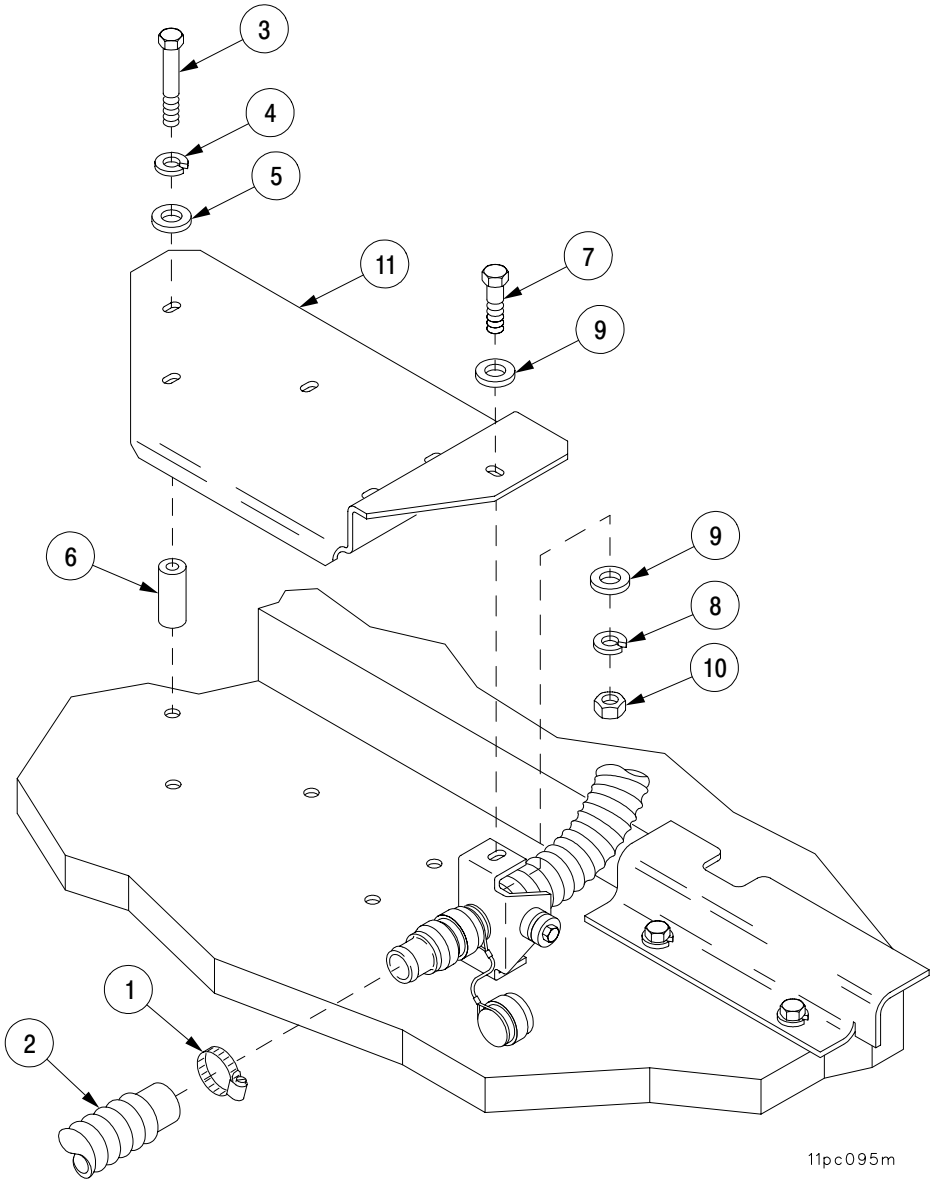


13–4 MCS QUICK COUPLING AND BRACKET – CONTINUED

b. Installation – Continued

8 Install step plate (11) with five screws (3), five new lockwashers (4), five flat washers (5), five spacers (6), screw (7), new lockwasher (8), two flat washers (9), and nut (10).

9 Connect driver's compartment air hose (2) and tighten hose clamp (1).



13–5 MCS PACK BUS BAR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (3) (item 130, Appx F)
Lockwasher (item 132, Appx F)
Marking tags (AR) (item 87, Appx C)

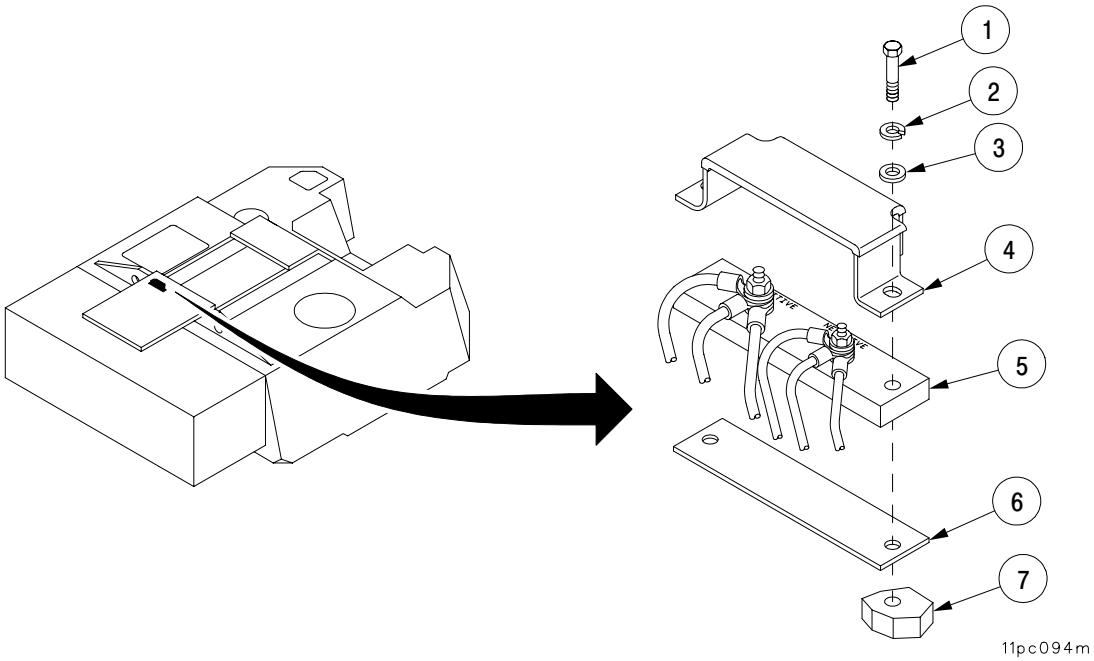
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic cover open (TM 9–2350–314–10)

a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

1 Remove two screws (1), two lockwashers (2), two flat washers (3), cover (4), block (5), and plate (6) from MCS door (7). Discard lockwashers.



13–5 MCS PACK BUS BAR – CONTINUED

a. Removal – Continued

2 Remove nut (8), lockwasher (9), two flat washers (10), three leads (11), and screw (12) from block (5). Discard lockwasher.

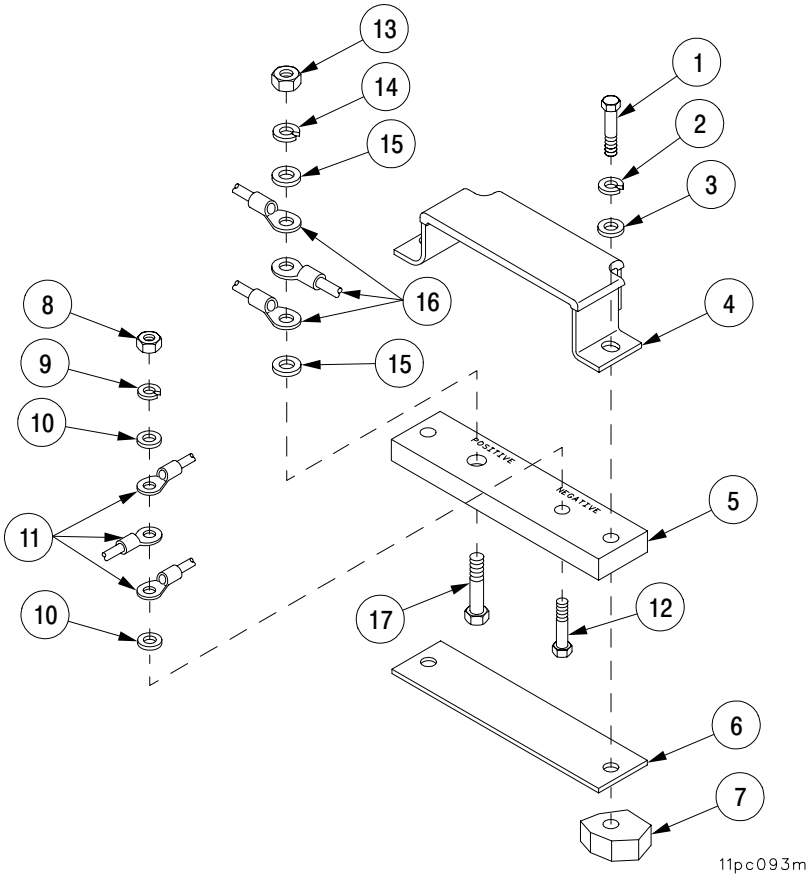
3 Remove nut (13), lockwasher (14), two flat washers (15), three leads (16), and screw (17) from block (5). Discard lockwasher.

b. Installation.

1 Install screw (17) into block (5). Install three leads (16), two flat washers (15), new lockwasher (14), and nut (13) onto screw (17).

2 Install screw (12) into block (5). Install three leads (11), two flat washers (10), new lockwasher (9), and nut (8) onto screw (12).

3 Secure plate (6), block (5), and cover (4) to MCS door (7) with two flat washers (3), two new lockwashers (2), and two screws (1).



13–6 MCS PACK ASSEMBLY AND GUIDE PINS

This task covers: a. Inspection b. Removal c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Lifting sling (item 37, Appx G)
Suitable lifting device
Chain shackles (item 32, Appx G)

Materials/Parts
Thread lubricant (item 56, Appx C)
Preformed packings (10) (item 10, Appx F)
Seal (item 186, Appx F)
Marking tags (AR) (item 87, Appx C)
Preformed packings (10) (item 156, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)

Equipment Conditions – Continued
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic enclosure cover open (TM 9–2350–314–10)
Air particle separator removed (para 13–8)
MCS power cables disconnected (para 13–5)
Support plate removed (para 26–10)
Air outlet duct removed (para 13–22)

Personnel Required
Two

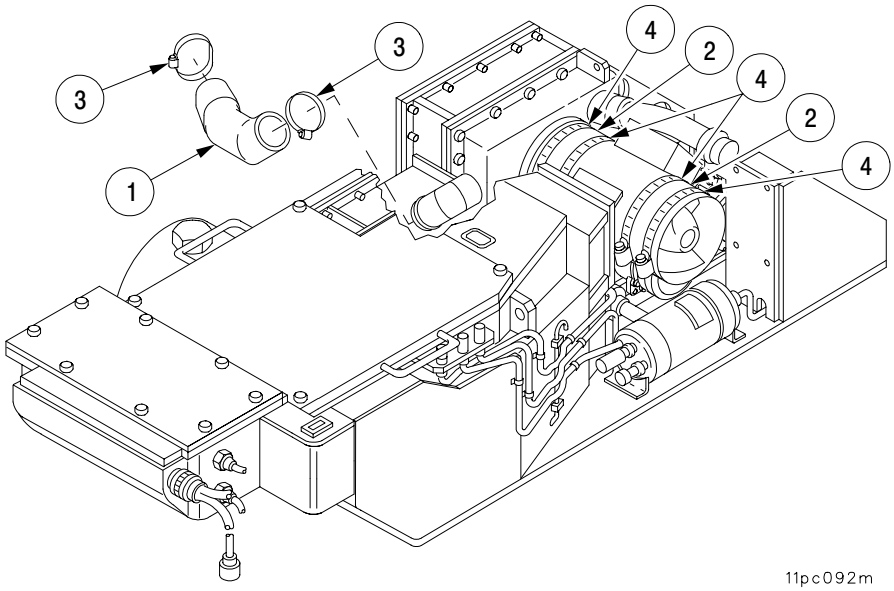
a. Inspection.

1 Inspect area around air duct scavenge hose (1) for excessive dust buildup.

2 Inspect air duct scavenge hose (1) to make sure that hose is firm and has no holes or cracks. Replace hose as necessary.

3 Inspect two rubber boots (2) for tears, cracks or holes. Replace damaged boots.

4 Verify that duct clamps (3 and 4) fit securely and correctly. Replace defective clamps.



13–6 MCS PACK ASSEMBLY AND GUIDE PINS – CONTINUED

b. Removal.

WARNING

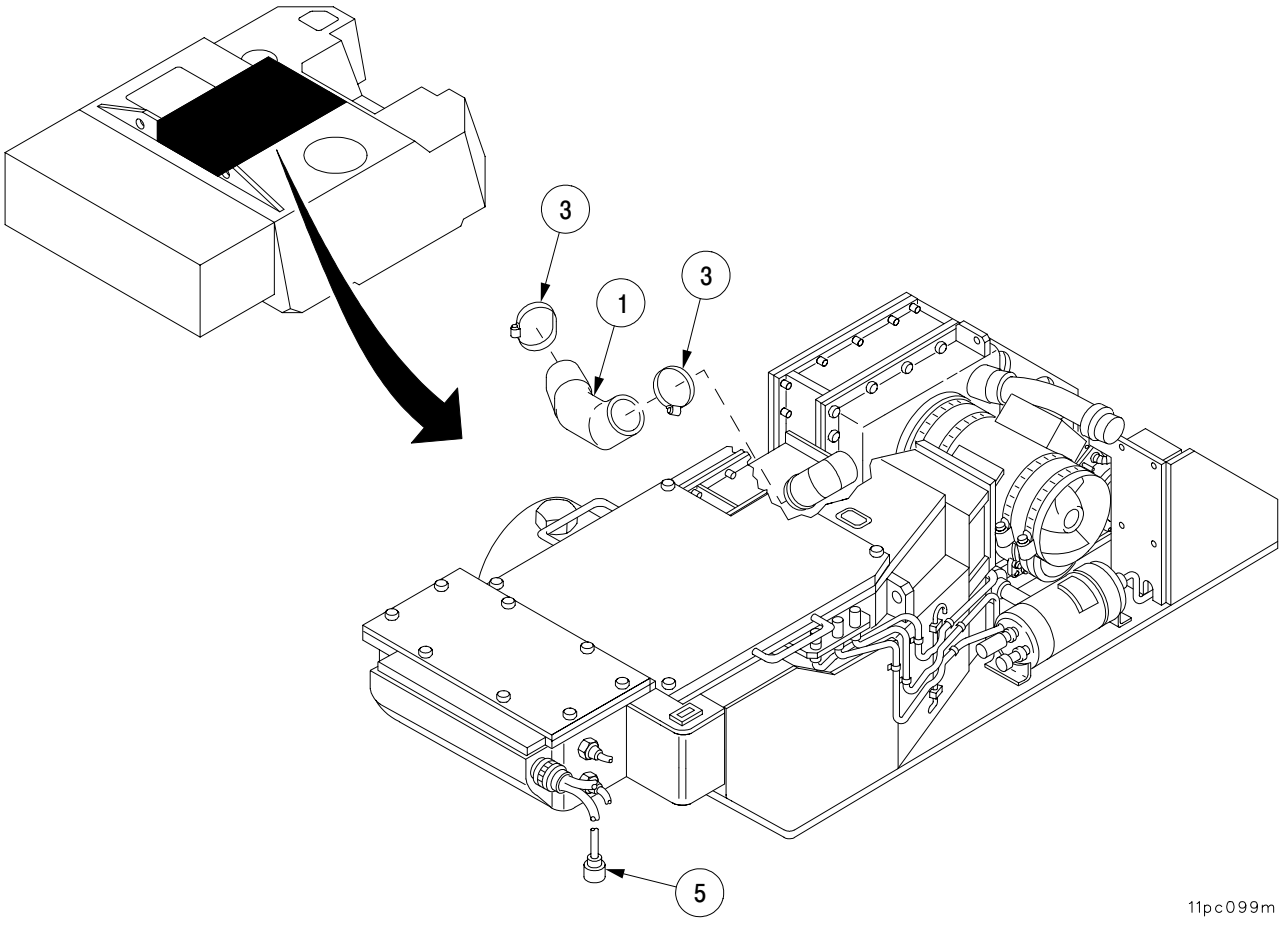
Make sure cab traverse lock is locked and the cab roof is free of obstruction during removal/installation of the MCS pack. Failure to do so may result in personnel injury.

NOTE

Tag leads before disconnecting to aid in installation.

1 Disconnect signal connector (5).

2 Remove two clamps (3) and remove air duct scavenge hose (1).



13–6 MCS PACK ASSEMBLY AND GUIDE PINS – CONTINUED

b. Removal – Continued

WARNING

Use care when handling or lifting MCS pack to avoid serious injury or death to personnel.

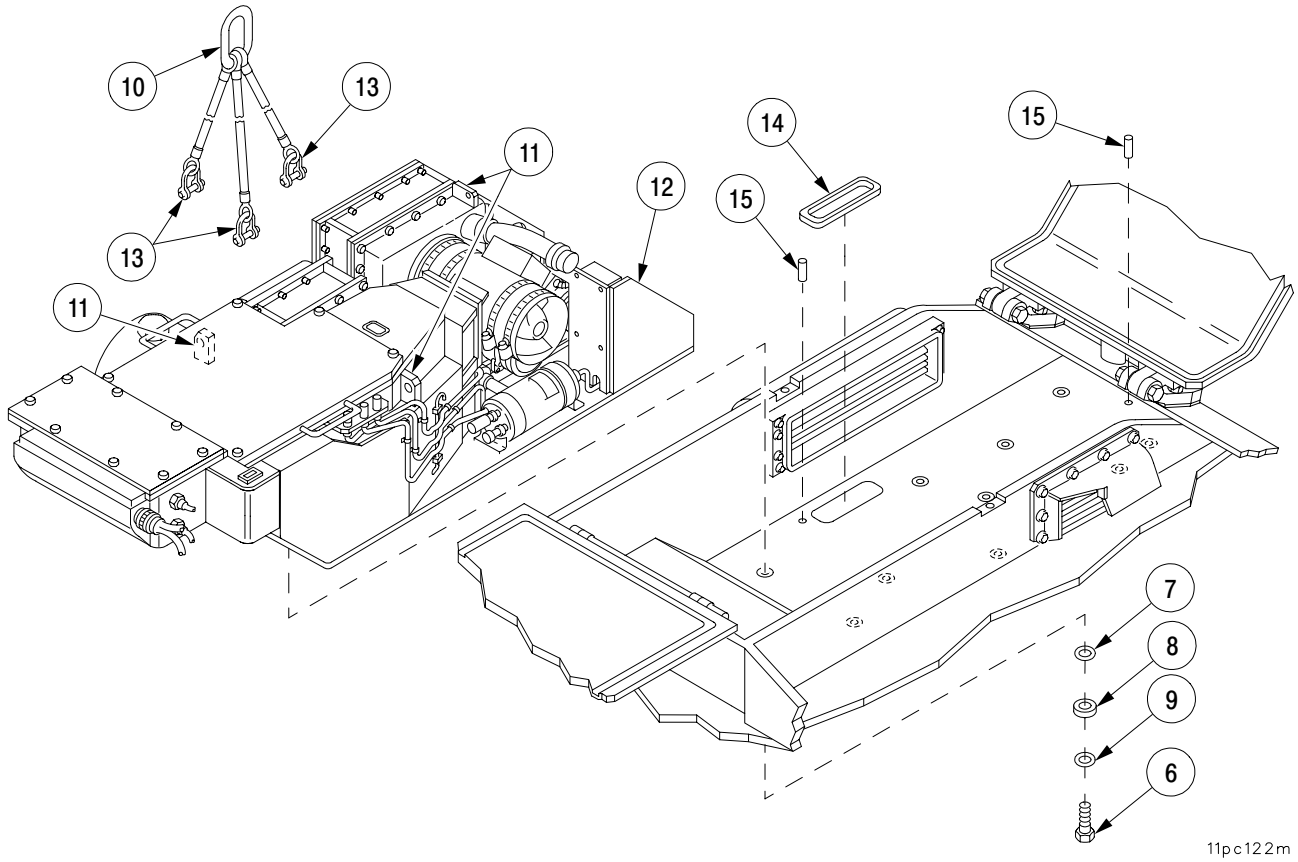
3 From inside cab remove 10 screws (6), 10 preformed packings (7), 10 flat washers (8), and 10 preformed packings (9). Discard preformed packings.

4 Attach lifting sling (10) to lifting points (11) on MCS pack (12) with three shackles (13).

5 With suitabe lifting device, remove MCS pack (12).

6 Remove and discard seal (14).

7 Remove two guide pins (15).



13–6 MCS PACK ASSEMBLY AND GUIDE PINS – CONTINUED

c. Installation.

1 Install two guide pins (15).

2 Attach lifting sling (10) to lifting points (11) on MCS pack (12) with three shackles (13).

3 Inspect ballistic seal recess to insure recess is free of burrs and foreign material.

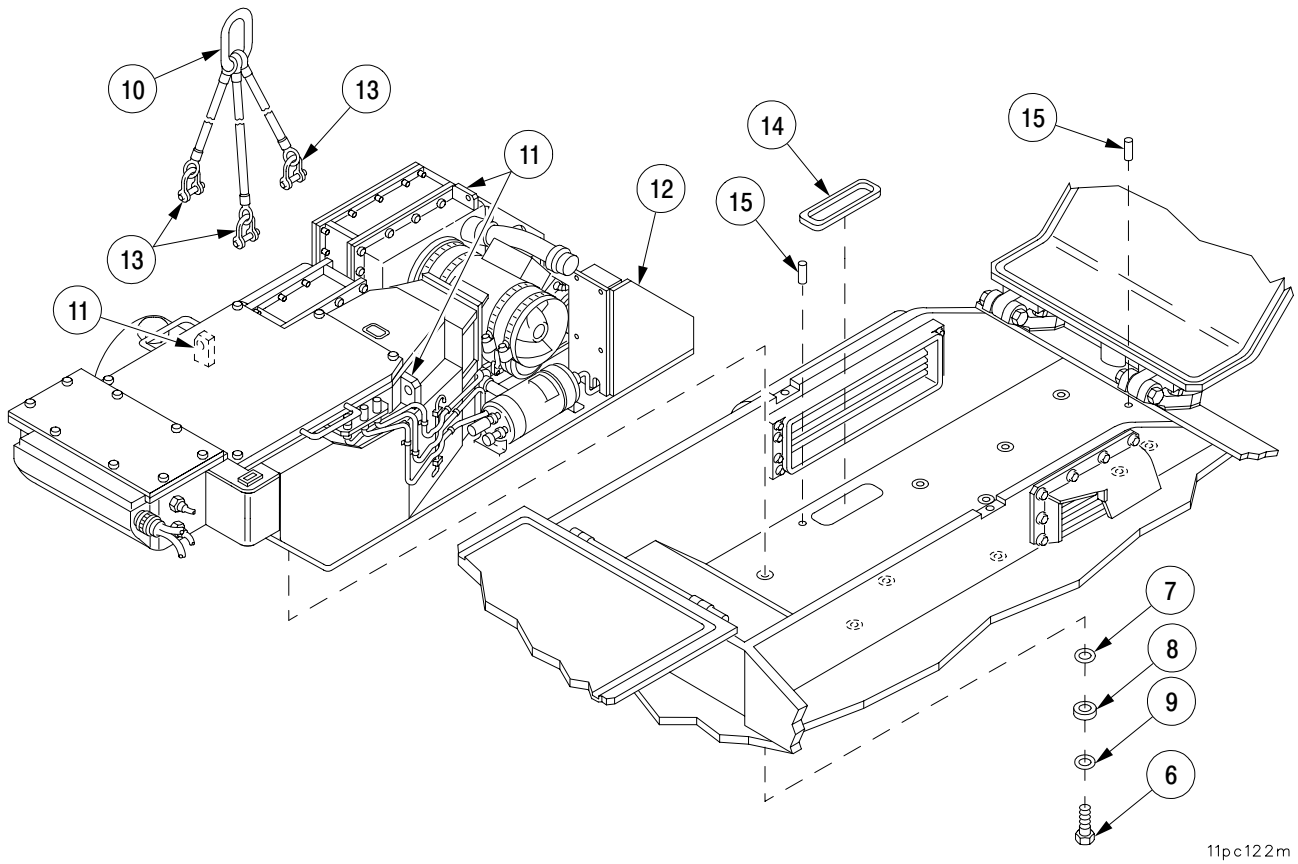
4 Install new seal (14) in ballistic enclosure.

CAUTION

Make sure MCS pack alignment holes are aligned with ballistic enclosure dowel pins during installation to prevent damage to new ballistic enclosure seal.

5 Using suitable lifting device, install MCS pack (12) in ballistic enclosure, aligning two dowel pins (15) with two alignment holes.

6 Secure MCS pack (12) to ballistic enclosure with 10 screws (6), 10 new preformed packings (7), 10 flat washers (8), and 10 new preformed packings (9).

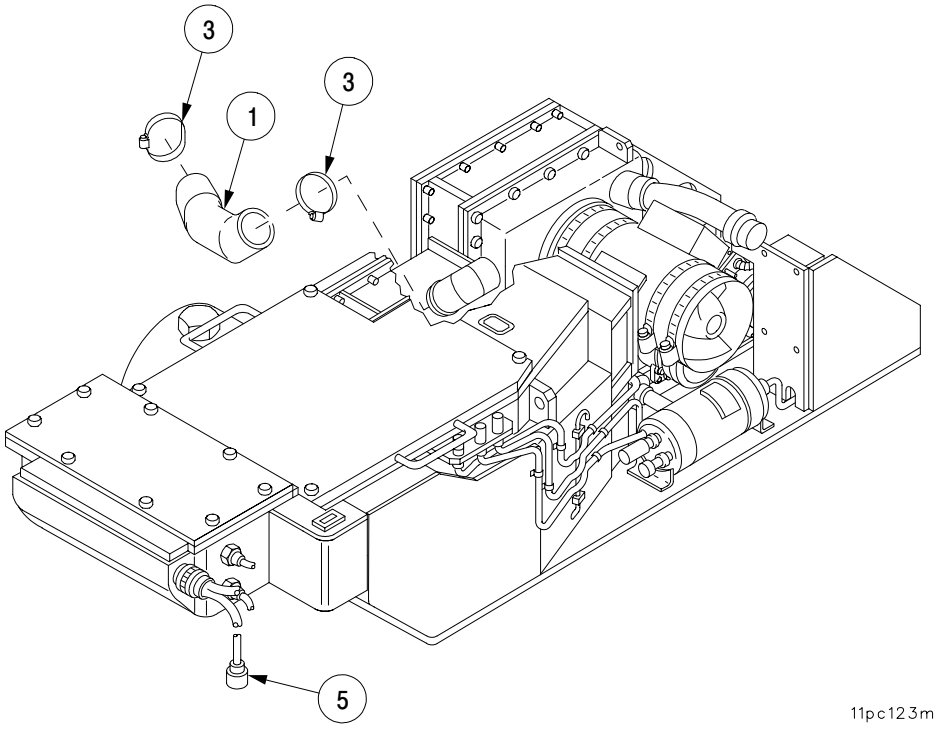


13–6 MCS PACK ASSEMBLY AND GUIDE PINS – CONTINUED

c. Installation – Continued

7 Install air duct scavenge hose (1) with hose clamps (3).

8 Connect signal connector (5).



13–7 NBC FILTER REPLACEMENT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Plastic bag (item 15, Appx C)
Disposable wipes (item 95, Appx C)

Equipment Conditions
Ballistic cover open (TM 9–2350–314–10)
Filter cover assembly removed (para 13–11)

WARNING

- The MCS may contain a "Training Filter" for use in Peace Time exercises and training missions in non NBC environments. Replace training filter with the M48 NBC filter prior to tactical operations.
- NBC–contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3–4) is used and prescribed safety measures and decontamination procedures (FM 3–5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

13–7 NBC FILTER REPLACEMENT – CONTINUED

a. Removal

1 Set retractable filter inlet support (1) to UNLOCKED position.

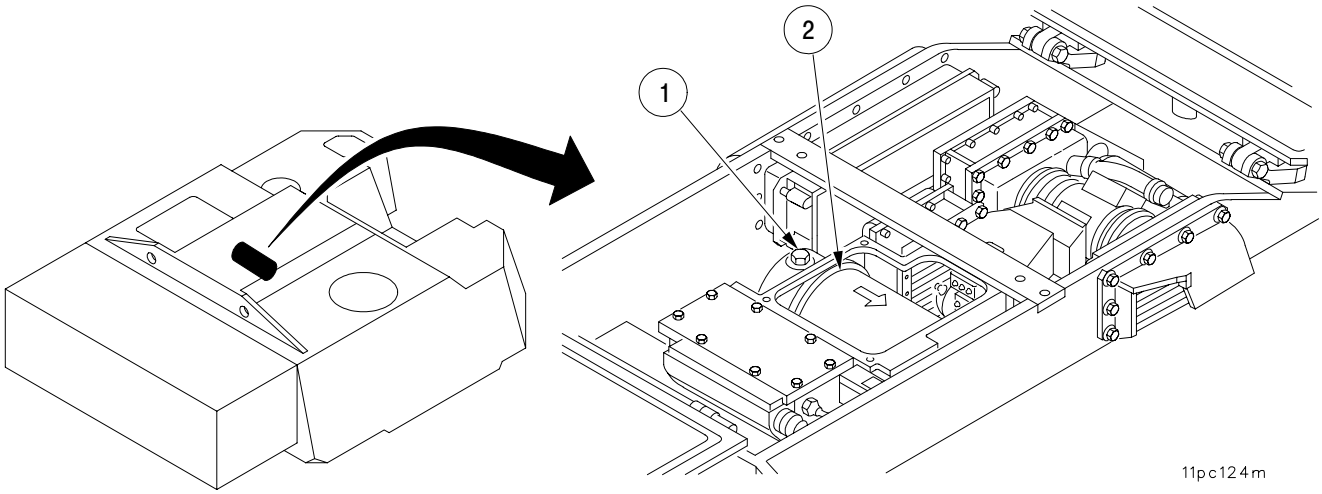
2 Carefully lift up NBC filter (2), slip disposal bag around filter (2), and remove disposal bag with filter (2).

3 Wipe filter cavity with wipes. Place wipes in disposal bag with NBC filter. Dispose of bagged filter (2) and wipes IAW local SOP.

b. Installation

1 Install NBC filter (2), aligning holes at both ends of filter (2) with filter inlet supports (1).

2 Turn retractable filter inlet support (1) to LOCKED position, making sure that support (1) engages NBC filter (2).



13–8 AIR PARTICLE SEPARATOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 128, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic cover open (TM 9–2350–314–10)

a. Removal.

1 Loosen hose clamp (1) and remove air duct scavenge hose (2) from air particle separator outlet (3).

2 Remove four screws (4), four lockwashers (5), four flat washers (6), and air particle separator (7) Discard lockwashers,

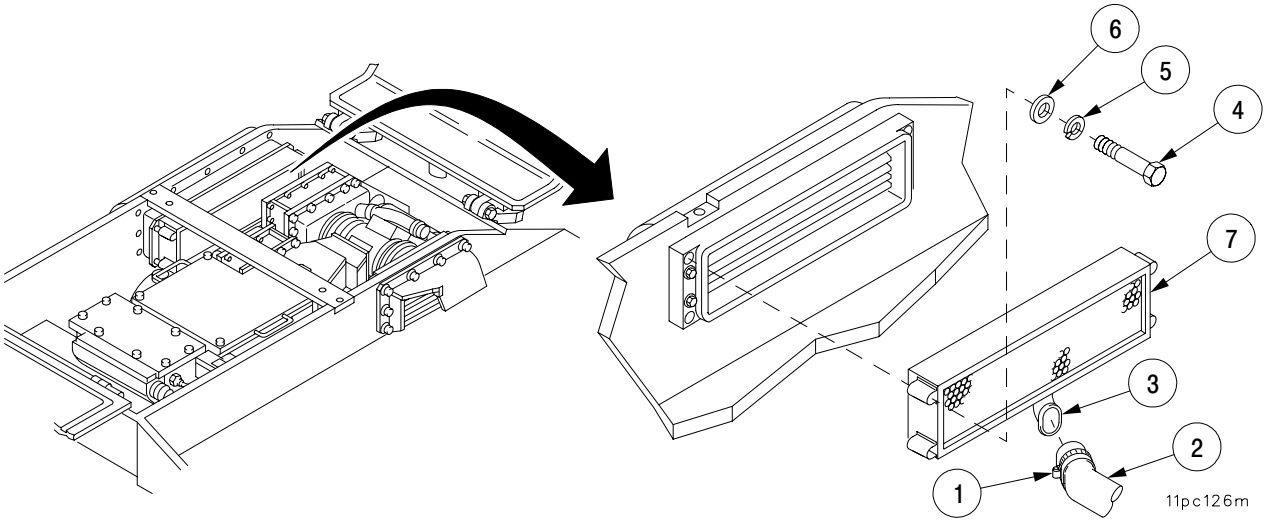
b. Installation.

NOTE

Lower front screw must be installed before separator is positioned on vehicle.

1 Install air particle separator (7) with four screws (4), four new lockwashers (5), and four flat washers (6).

2 Secure air duct scavenge hose (2) to air particle separator outlet (3) with hose clamp (1).



13–9 SIGHT GAGE AND DRAIN COCKS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Sight gage drained (TM 9–2350–314–10)
Drain cocks opened (TM 9–2350–314–10)

Materials/Parts
Preformed packing (item 90, Appx F)

a. Removal.

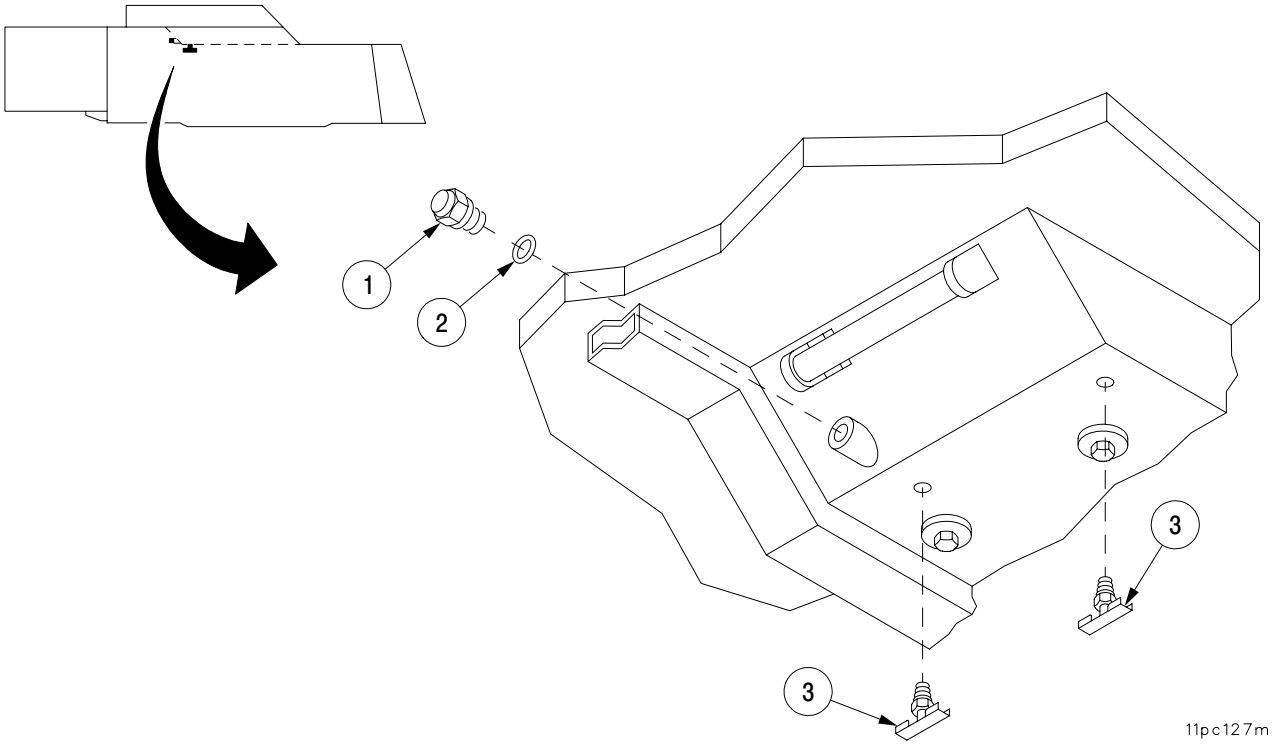
1 Remove sight gage (1) and preformed packing (2). Discard preformed packing.

2 Remove two drain cocks (3).

b. Installation.

1 Install two drain cocks (3).

2 Install new preformed packing (2) and sight gage(1).



13–10 FILTER LOCK.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
C–clamps (2) (item 11, Appx G)

Equipment Conditions
MCS pack removed (para 13–6)

Materials/Parts
Self–locking nut (item 62, Appx F)
Preformed packing (item 157, Appx F)

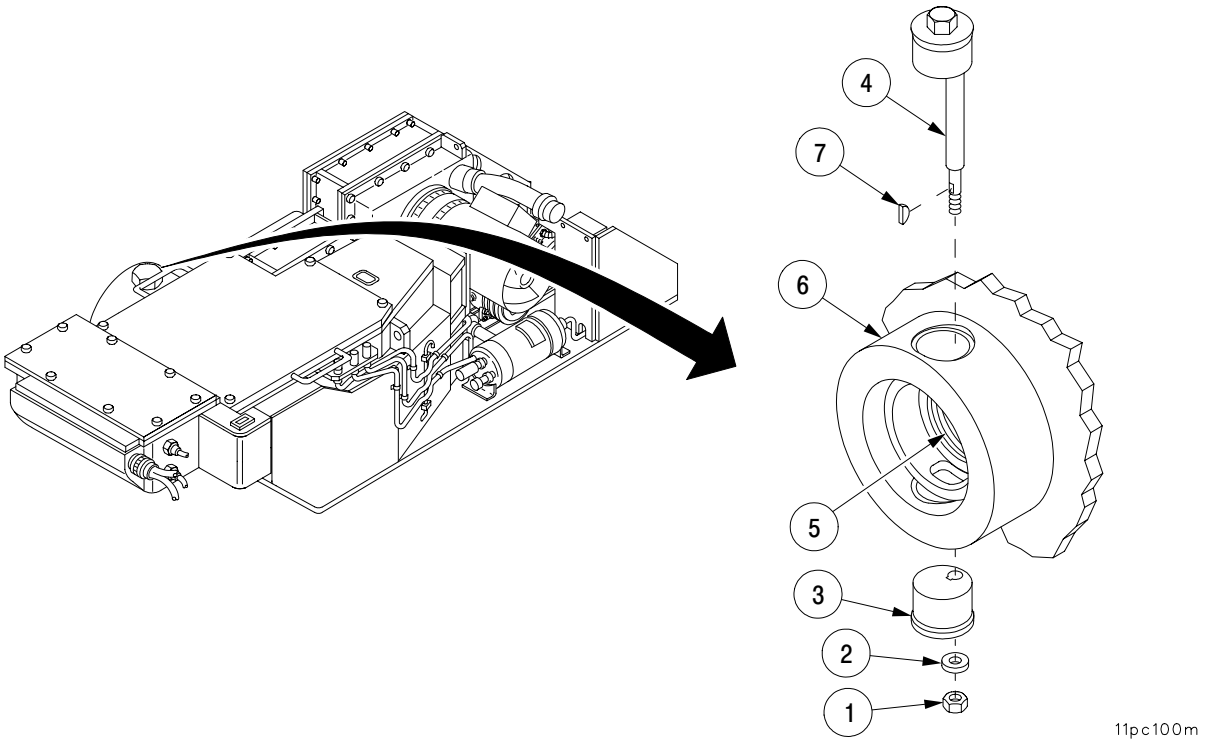
a. Removal.

1 Remove self–locking nut (1), flat washer (2), and cap (3) from shaft (4). Discard self–locking nut.

2 Secure spring (5) in MCS (6) using two c–clamps at the 3 o'clock and 9 o'clock positions.

3 Remove shaft (4) from MCS.

4 Remove woodruff key (7) from shaft (4).



13–10 FILTER LOCK – CONTINUED

a. Removal – Continued

WARNING

Spring is compressed. To prevent injury to personnel, c–clamps must be loosened slowly until compression is relieved.

NOTE

Note location of shaft hole offsets to ensure proper installation.

5 Remove ring spacer (8), spring (5), two bearings (9), sleeve (10), and preformed packing (11) from MCS (6). Discard preformed packing.

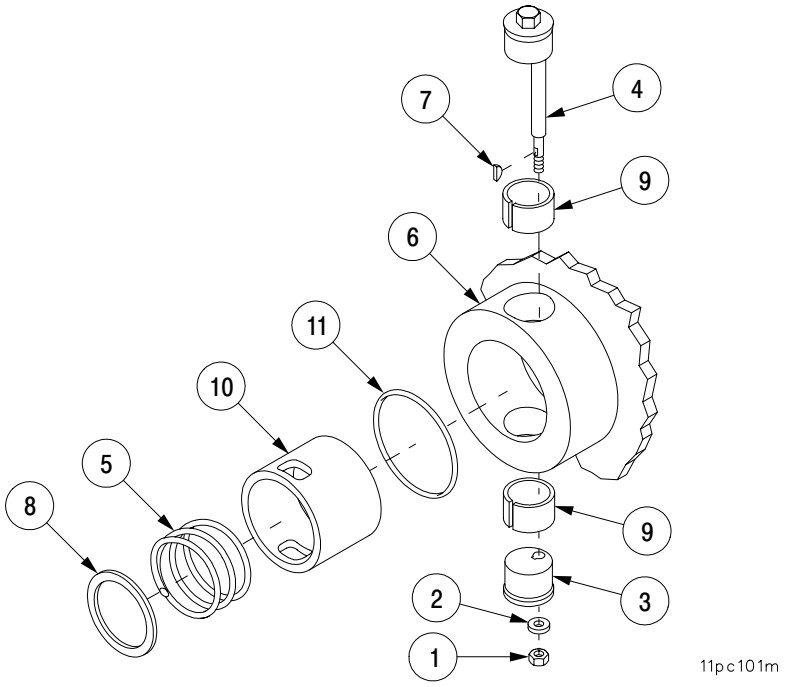
b. Installation.

1 Install new preformed packing (11), sleeve (10), two bearings (9), spring (5), and ring spacer (8) in MCS (6).

2 Compress spring (5) with two c–clamps at the 3 o'clock and 9 o'clock positions.

3 Install woodruff key (7) on shaft (4).

4 Install shaft (4) in MCS (6) and secure with cap (3), flat washer (2), and new self–locking nut (1).



13–11 FILTER COVER ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 56, Appx G)

Materials/Parts
Seal (item 187, Appx F)
Swabbing brush (item 20, Appx C)
Curing agent (item 8, Appx C)
Adhesive (item 1, Appx C)
Coating (item 34, Appx C)
Methyl alcohol (item 57, Appx C)
Primer (item 67, Appx C)

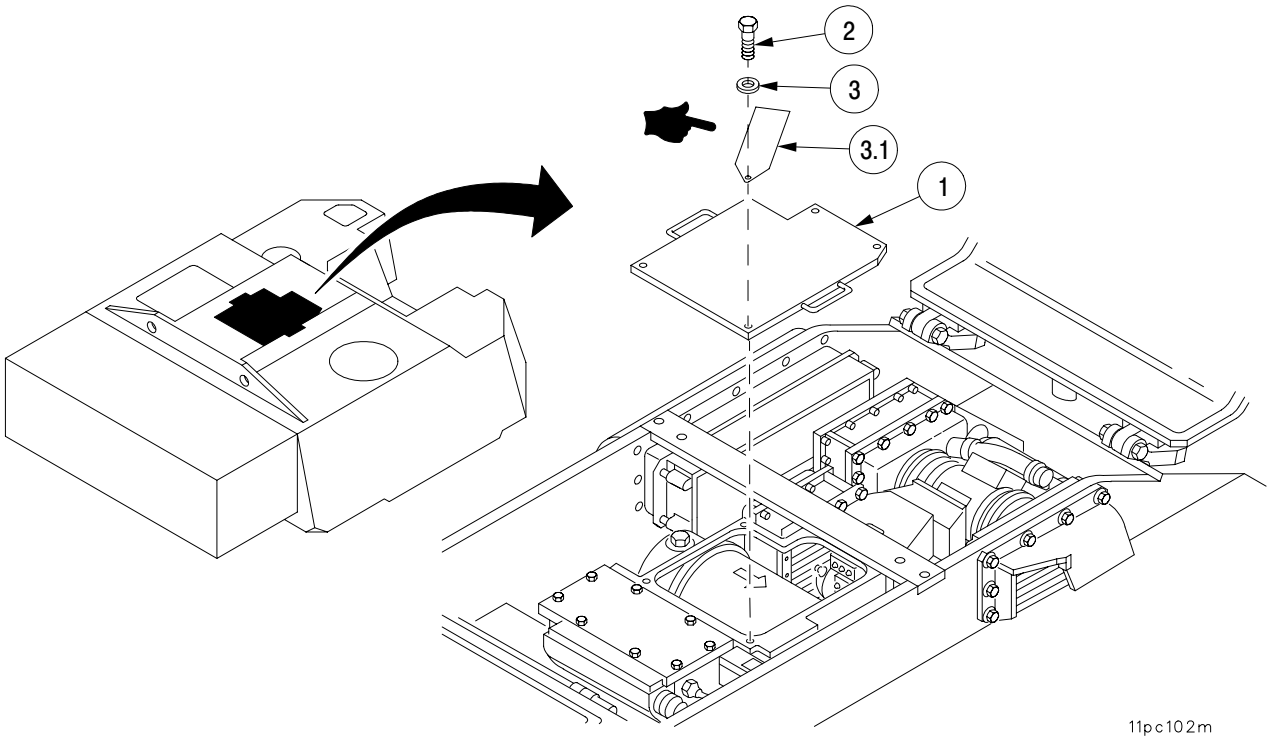
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Ballistic cover open (TM 9–2350–314–10)

NOTE

Tag should be installed on filter cover assembly only when training filter is installed in lieu of M48 NBC filter.

a. Removal.

Remove filter cover assembly (1) by removing five screws (2), five flat washers (3), and tag (3.1), if installed.

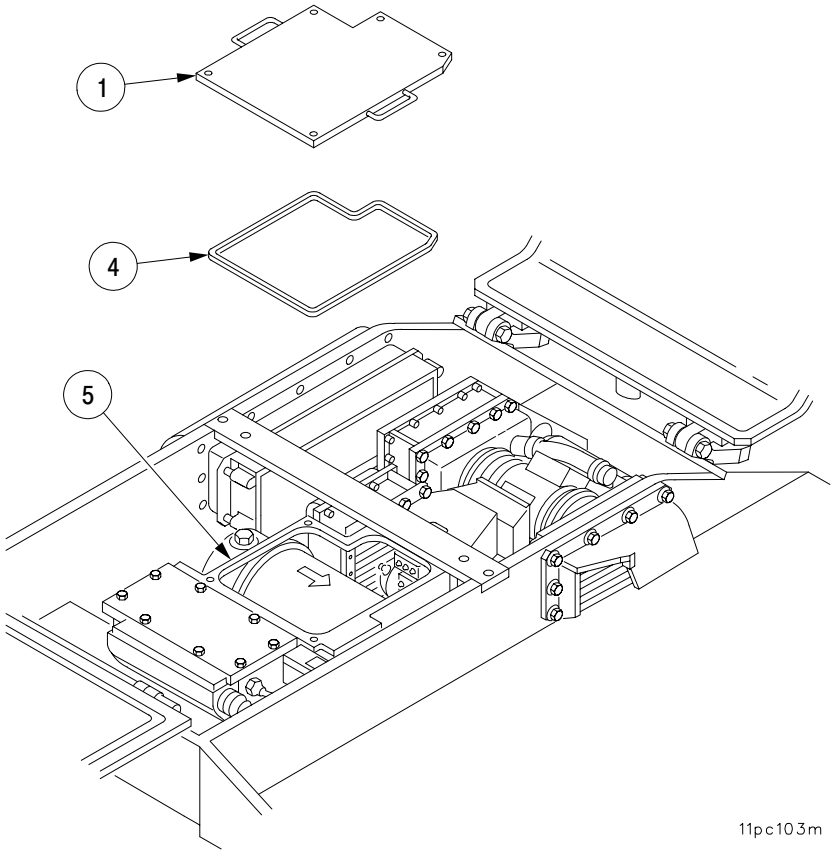


13–11 FILTER COVER ASSEMBLY – CONTINUED

b. Disassembly.

1 Remove and discard seal (4).

2 Remove residual seal (4) and adhesive material from mating surfaces of filter cover (1) and filter cover mounting area (5) using methyl alcohol.



13–11 FILTER COVER ASSEMBLY – CONTINUED

c. Assembly.

1 Apply coating to sealing surfaces of filter cover (1) and filter cover mounting area (5). Allow to dry for 1 hour.

2 Coat the sealing surfaces, coated in the previous step, with primer. Allow to dry for 1 hour.

3 To prepare adhesive mixture, combine seven parts adhesive to one part curing agent. Mix thoroughly.

4 Apply a coat of adhesive mixture to the mating surfaces of filter cover (1), filter cover mounting area (5), and seal (4). Allow adhesive to dry for 1 hour.

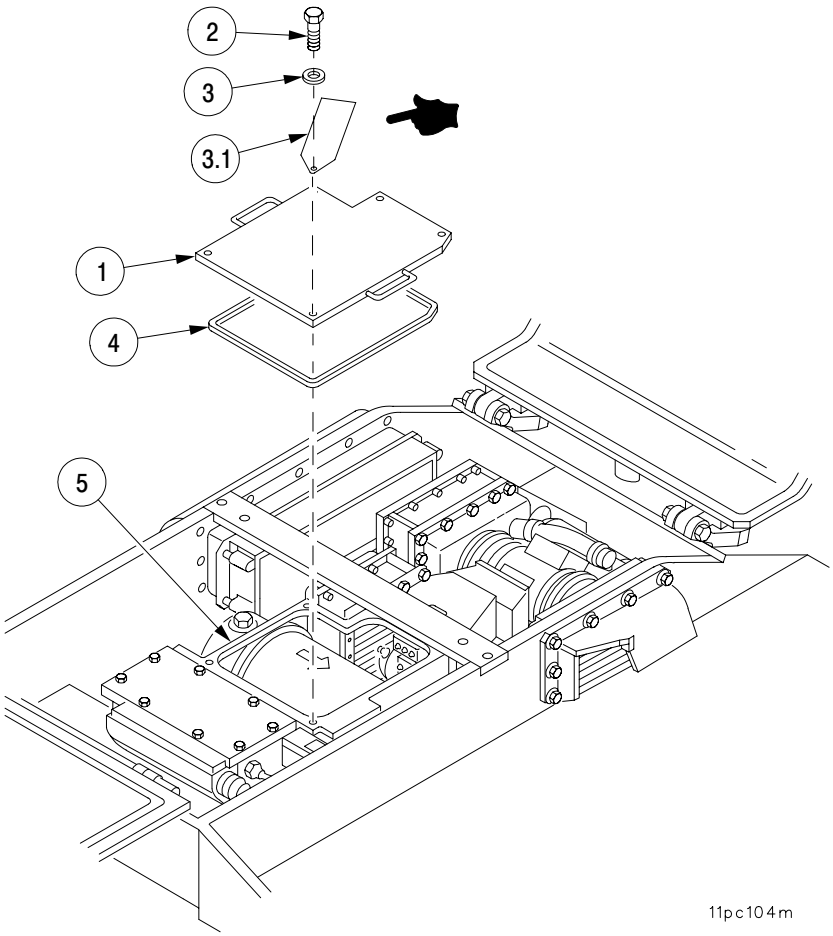
5 Apply a second coat of adhesive to previously coated area. Allow adhesive to set for 30 to 60 minutes.

6 Install new seal (4) onto filter cover (1).

d. Installation.

1 Install filter cover assembly (1) and tag (3.1), if removed, with five flat washers (3) and five screws (2).

2 Torque screws (2) to 14–18 ± 4 lb–in. (1–2 ± 0.45 N·m).



13–12 RELAY COVER ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 55, Appx G)

Materials/Parts
Gasket (item 205, Appx F)
Swabbing brush (item 20, Appx C)
Curing agent (item 8, Appx C)
Adhesive (item 1, Appx C)
Primer (item 67, Appx C)
Coating (item 34, Appx C)
Methyl alcohol (item 57, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic cover open (TM 9–2350–314–10)

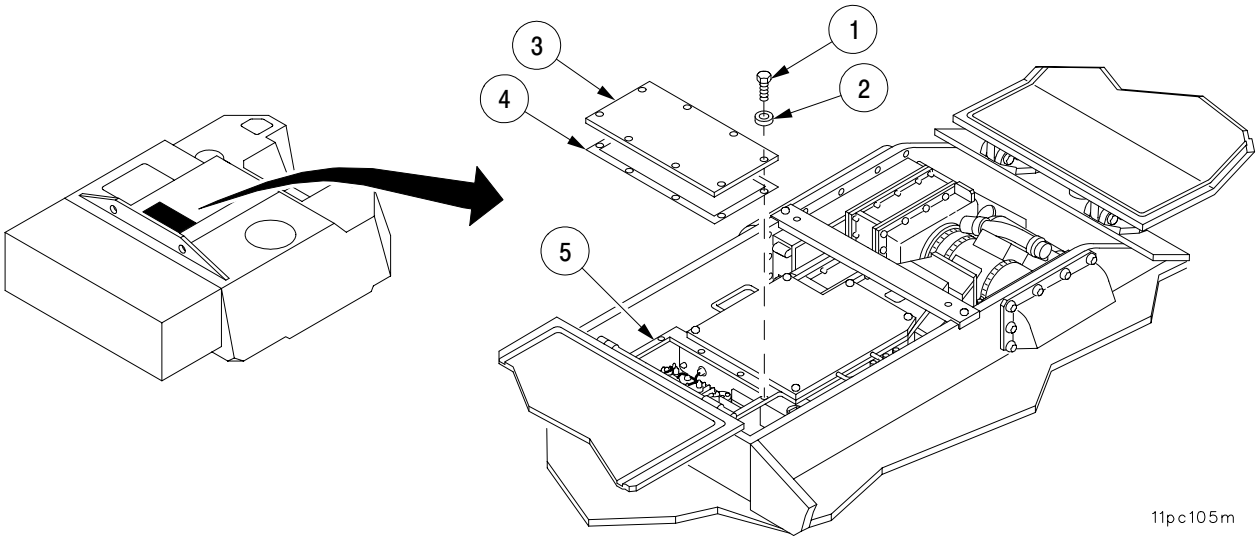
a. Removal.

Remove eight screws (1), eight flat washers (2), and cover assembly (3).

b. Disassembly.

1 Remove and discard gasket (4).

2 Remove residual gasket (4) and adhesive material from mating surfaces of cover (1) and cover mounting area (5) using methyl alcohol.



13–12 RELAY COVER ASSEMBLY – CONTINUED

c. Assembly.

1 Apply coating to sealing surfaces of cover (3) and cover mounting area (5). Allow to dry for 1 hour.

2 Coat sealing surfaces, coated in previous step, with primer. Allow to dry for 1 hour.

3 To prepare adhesive mixture, combine seven parts adhesive to one part curing agent. Mix thoroughly.

4 Apply a coat of adhesive mixture to mating surfaces of cover (3), cover mounting area (5), and gasket (4). Allow adhesive to dry for 1 hour.

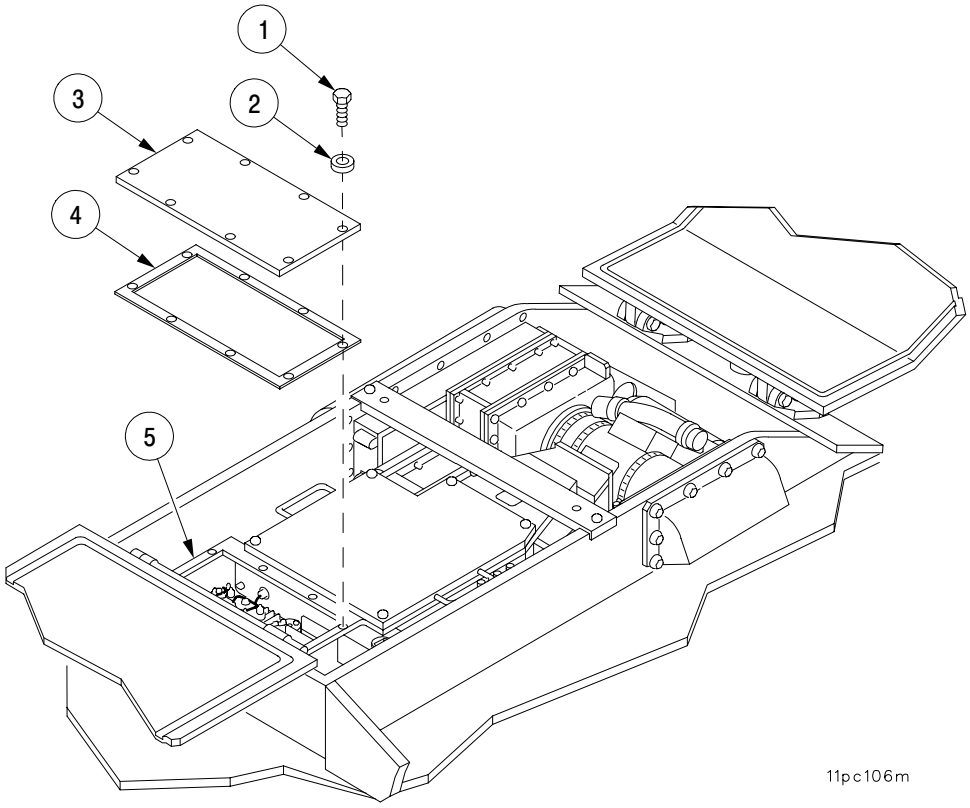
5 Apply a second coat of adhesive to previously coated area. Allow adhesive to set for 30 to 60 minutes.

6 Install new gasket (4) onto cover (3).

d. Installation.

1 Install cover assembly (3) with eight flat washers (2) and eight screws (1).

2 Torque screws (2) to 14–18 ± 4 lb–in. (1–2 ± 0.45 N·m).



13–13 COMPARTMENT VENTILATION DUCT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Ballistic cover open (TM 9–2350–314–10)

Materials/Parts
Self–locking nut (item 61, Appx F)

a. Removal.

1 Remove self–locking nut (1), two flat washers (2), screw (3), and loop clamp (4) from duct mount (5). Discard self–locking nut.

2 Remove bent tube (6) and rubber tube (7) from compartment ventilation duct inlet (8).

3 Remove rubber tube (7) from bent tube (6).

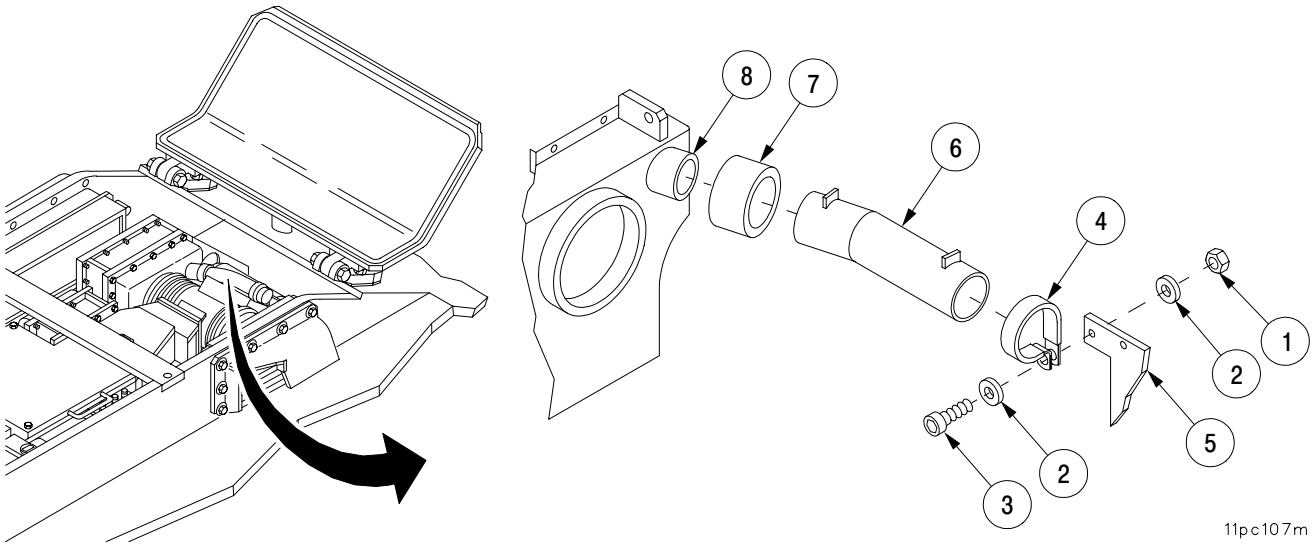
4 Remove loop clamp (4) from bent tube (6).

b. Installation.

1 Install loop clamp (4) and rubber tube (7) on bent tube (6).

2 Install rubber tube (7) on compartment ventilation duct inlet (8).

3 Secure loop clamp (4) to duct mount (5) with screw (3), two flat washers (2), and new self–locking nut (1).



13–14 AIR DUCT HOSE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

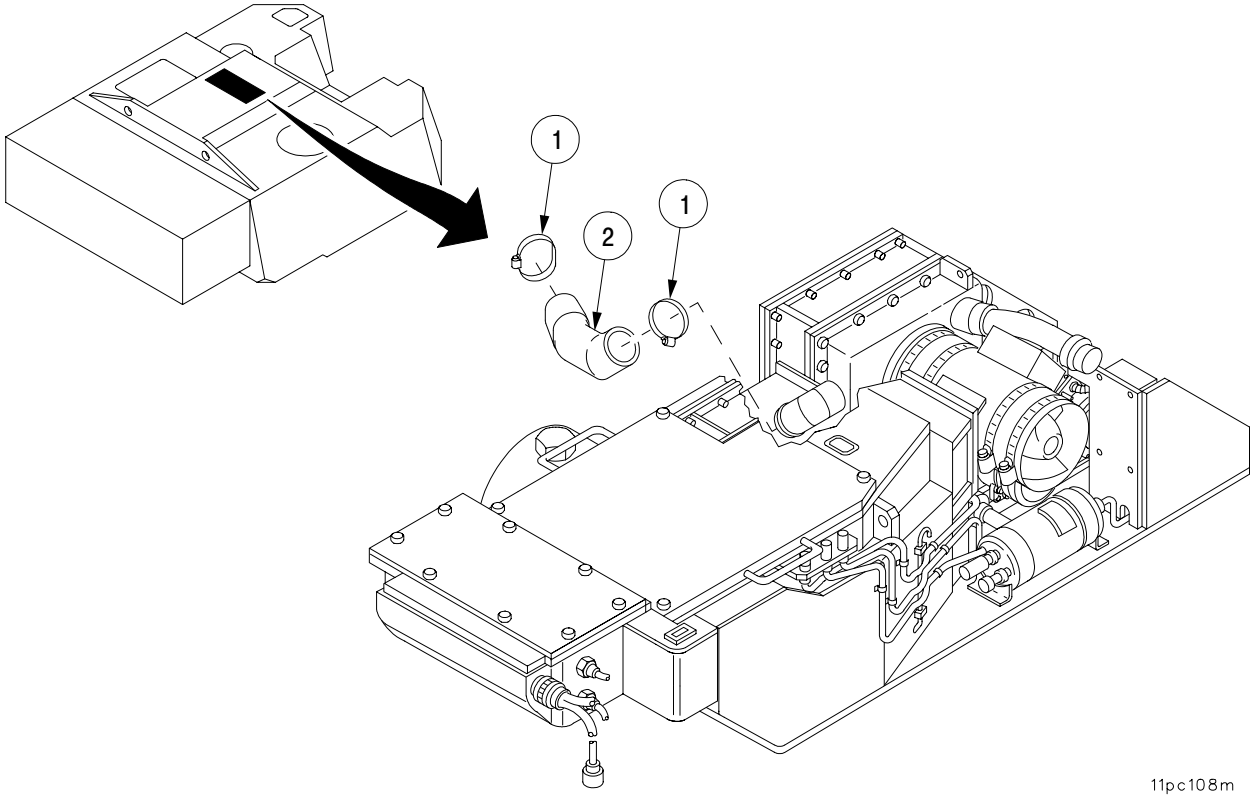
Equipment Conditions
Ballistic cover open (TM 9–2350–314–10)

a. Removal.

Remove two clamps (1) and remove hose (2).

b. Installation.

Install hose (2) and two clamps (1).



13–15 INLET TUBES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
MCS pack removed (para 13–6)

Materials/Parts
Tiedown straps (AR) (item 77, Appx C)
Tiedown straps (AR) (item 83, Appx C)
Isopropyl alcohol (item 14, Appx C)

a. Removal.

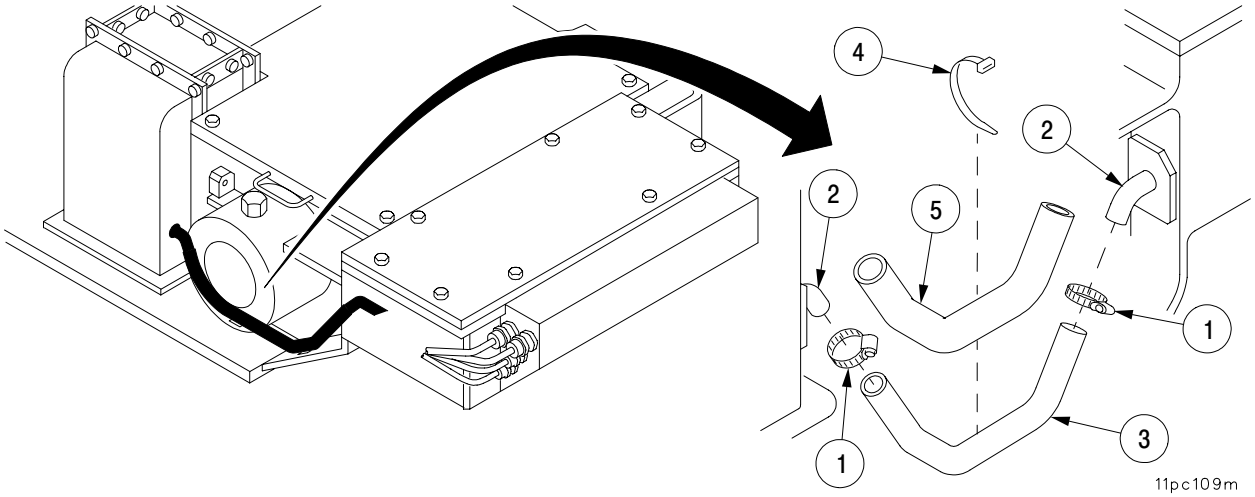
1 Remove two clamps (1) from inlet tubes (2) and remove tube (3).

2 Remove tiedown straps (4) and insulation (5). Discard tiedown straps.

b. Installation.

1 Install insulation (5) over tube (3) and secure with new tiedown straps.

2 Place two clamps (1) over ends of tube (3) and install on inlet tubes (2). Tighten two clamps (1).



13–16 NAMEPLATE AND LABEL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Ballistic cover open (TM 9–2350–314–10)

Materials/Parts
Drive screws (4) (item 70, Appx F)

a. Removal.

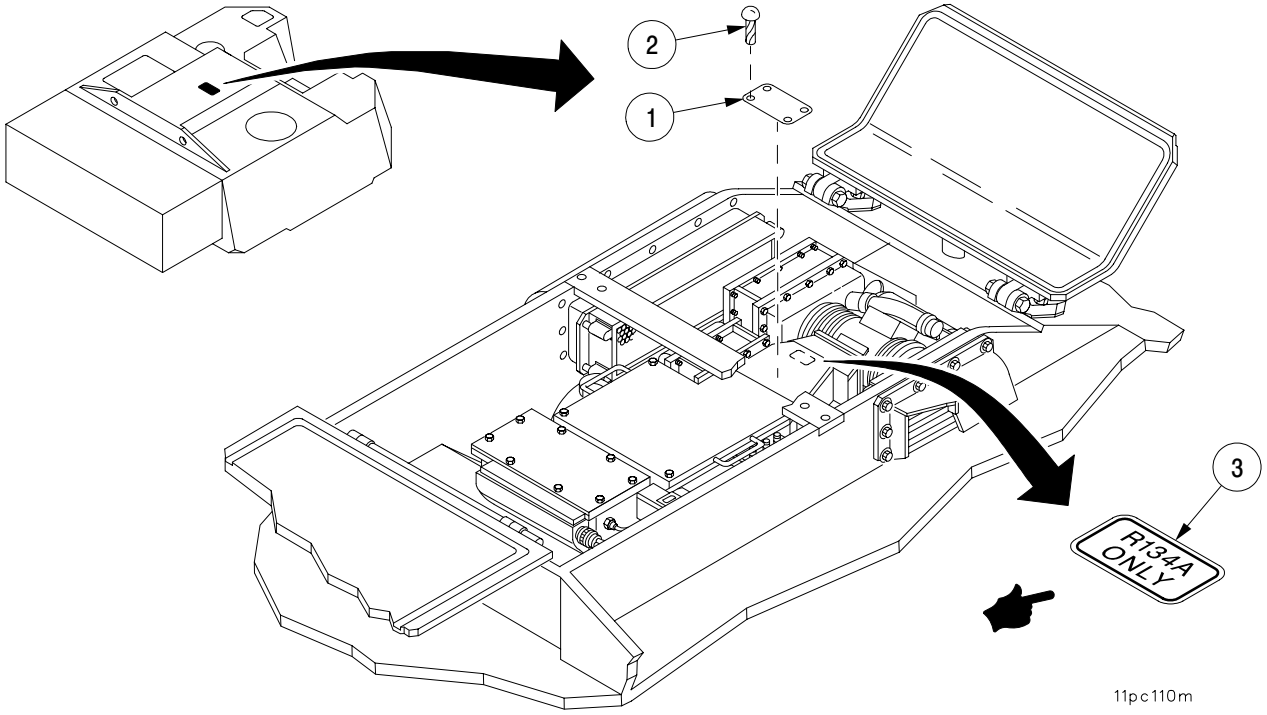
Remove nameplate (1) by removing four drive screws (2). Discard drive screws.

b. Installation.

Install nameplate (1) with four new drive screws (2).

NOTE

Install new label (3) (para 2–8) only if illegible.



13–17 V–BELT.

This task covers: a. Removal b. Inspection c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Belt tensioning gage (item 19, Appx G)
Torque wrench (item 55, Appx G)

Materials/Parts
Thread lubricant (item 56, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
MCS control panel switch OFF (TM 9–2350–314–10)
Ballistic cover open (TM 9–2350–314–10)
Compartment ventilation duct removed (para 13–13)

a. Removal.

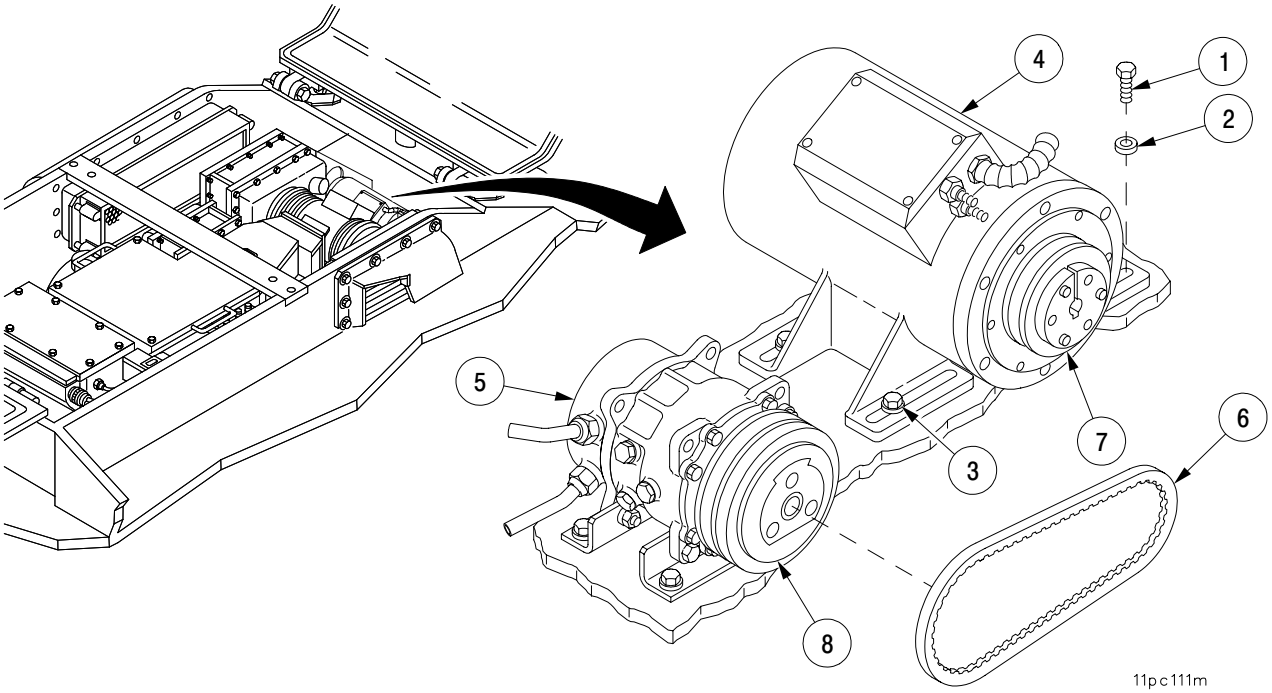
1 Remove two screws (1) and two flat washers (2).

2 Loosen four screws (3).

3 Move motor (4) toward compressor (5) and remove v–belt (6) from sheave (7) and compressor inner sheave (8).

b. Inspection.

Inspect V–belt for cracks, breaks, or excessive wear. Replace if cracked, broken, or worn excessively.



13–17 V–BELT – CONTINUED

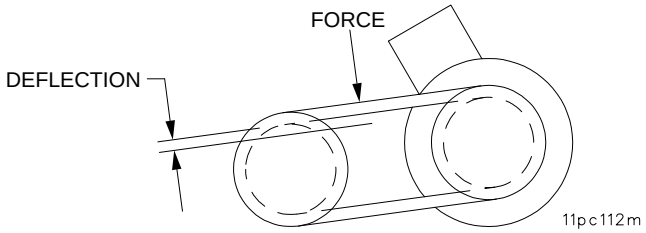
c. Installation.

1 Install v–belt (6) onto sheave (7) and compressor inner sheave (8). Move motor (4) away from compressor (5).

2 Coat threads of two screws (1) with thread lubricant. Install two screws (1) and two flat washers (2). Hand tighten only at this time.

3 Using belt tensioning gage, adjust tension of v–belt (6) as follows:

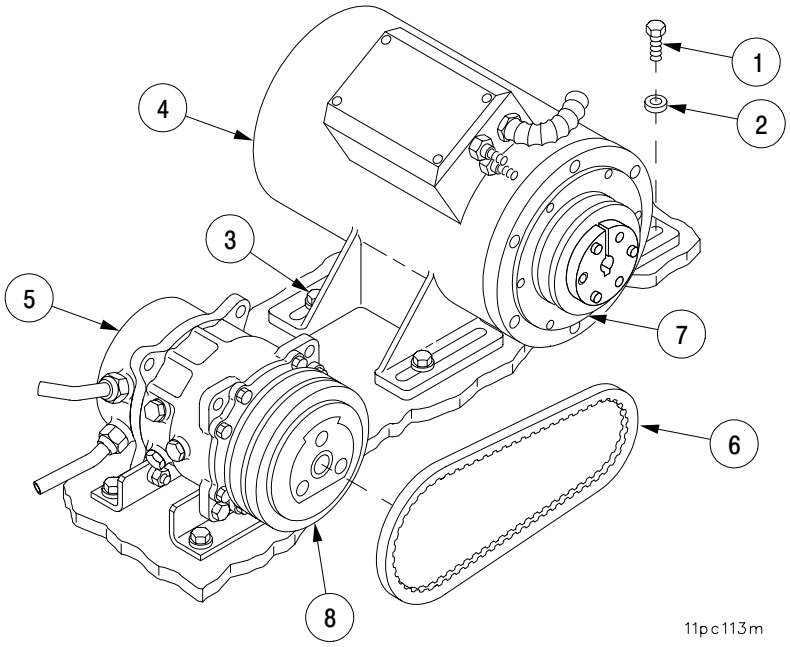
(a) Using belt tensioning gage, apply a perpendicular force to v–belt (6) at the center of its span. The force required to attain a 1/8 ± 1/16 inch (3.04 ± 1.52 mm) deflection of the v–belt (6) must be more than 9.5 pounds (4.31 kg) and less than 14.5 pounds (6.58 kg).



(b) If the force required for a deflection of 1/8 ± 1/16 inch (3.04 ± 1.52 mm) is less than 9.5 pounds (4.31 kg), move motor (4) away from compressor (5). If the force required is more than 14.5 pounds (6.58 kg), move motor (4) closer to compressor (5).

(c) When the above limits are met, tighten two screws (1) and four screws (3) until firmly seated.

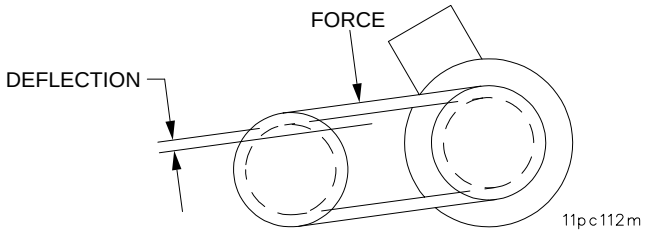
(d) Turn sheave (7) by hand, four to ten revolutions, to fully seat v–belt (6).



13–17 V–BELT – CONTINUED

c. Installation – Continued

(e) Using belt tensioning gage, apply a perpendicular force to v–belt (6) at the center of its span. The force required to attain a 1/8 ± 1/16 (3.04 ± 1.52 mm) inch deflection of the v–belt (6) must be more than 5.5 pounds (2.49 kg) and less than 7.5 pounds.



(f) If the force required for a deflection of 1/8 ± 1/16 inch (3.04 ± 1.52 mm) is less than 5.5 pounds (2.49 kg), slightly loosen two screws (1) and four screws (3) and move motor (4) farther away from compressor (5). If the force required is more than 7.5 pounds (3.40 kg), move motor (4) closer to compressor (5).

(g) When retensioning is complete, torque two screws (1) and four screws (3) to 210–225 lb–in. (23–25 N·m)

4 Reconnect battery ground leads (TM 9–2350–314–20–1–2).

13–17 V–BELT – CONTINUED

c. Installation – Continued

5 Turn ON vehicle MASTER power switch and start engine (TM 9–2350–314–10).

6 Run MCS in COOL mode for 5 to 20 minutes (TM 9–2350–314–10) to ensure proper seating of V–belt.

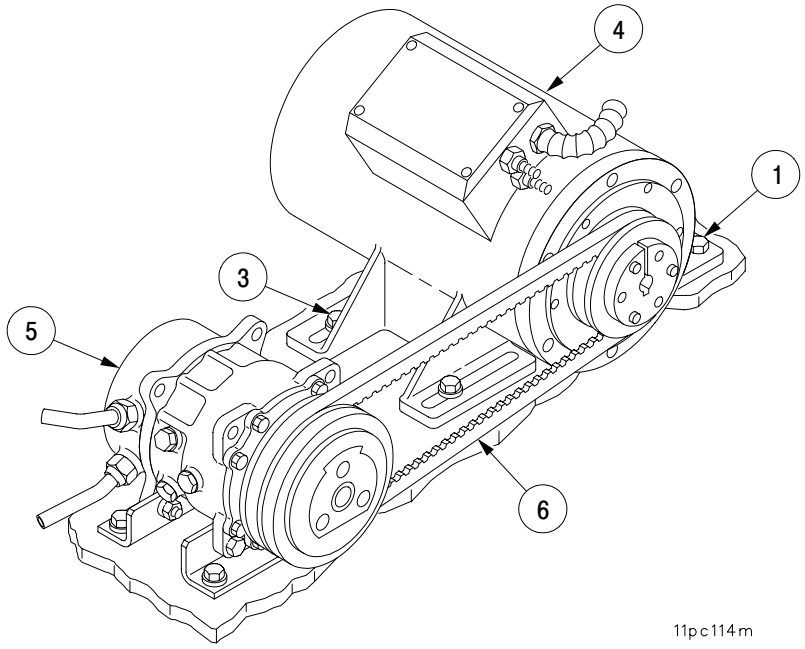
7 Turn OFF engine and set vehicle MASTER power switch to OFF (TM 9–2350–314–10).

8 Retension v–belt as follows:

(a) Using belt tensioning gage, apply a perpendicular force to v–belt (6) at the center of its span. The force required to attain a 1/8 ± 1/16 inch (3.04 ± 1.52 mm) deflection of the v–belt (6) must be more than 3.5 pounds (1.58 kg) and less than 5.5 pounds (2.49 kg).

(b) If the force required for a deflection of 1/8 ± 1/16 (3.04 ± 1.52 mm) inch is less than 3.5 pounds, slightly loosen two screws (1) and four screws (3) and move motor (4) farther away from compressor (5). If the force required is more than 5.5 pounds (2.49 kg), move motor (4) closer to compressor (5).

(c) When retensioning is complete, torque two screws (1) and four screws (3) to 210–225 lb–in (23–25 N·m).



13–18 COMPRESSOR MOTOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 55, Appx G)

Materials/Parts
Thread lubricant (item 56, Appx C)
Self–locking nuts (2) (item 59, Appx F)
Lockwashers (3) (item 119, Appx F)
Marking tags (AR) (item 87, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic cover open (TM 9–2350–314–10)
V–belt removed (para 13–17)
Compartment ventilation duct removed (para 13–13)

WARNING

Compressor may be hot after MCS operation. Let equipment cool before performing maintenance. Failure to do so could result in personnel injury.

a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

1 Remove two self–locking nuts (1) and two leads (2). Discard self–locking nuts.

2 Remove two nuts (3), two flat washers (4), and two leads (5) from EMI filter (6).

3 Remove four screws (7) and four flat washers (8) from motor (9).

4 Remove four nuts (10) and four flat washers (11) securing EMI filter (6) to frame.

5 Remove motor assembly (9) with EMI filter (6) attached.

6 Remove three screws (12) and three lockwashers (13) from sheave (14). Discard lockwashers.

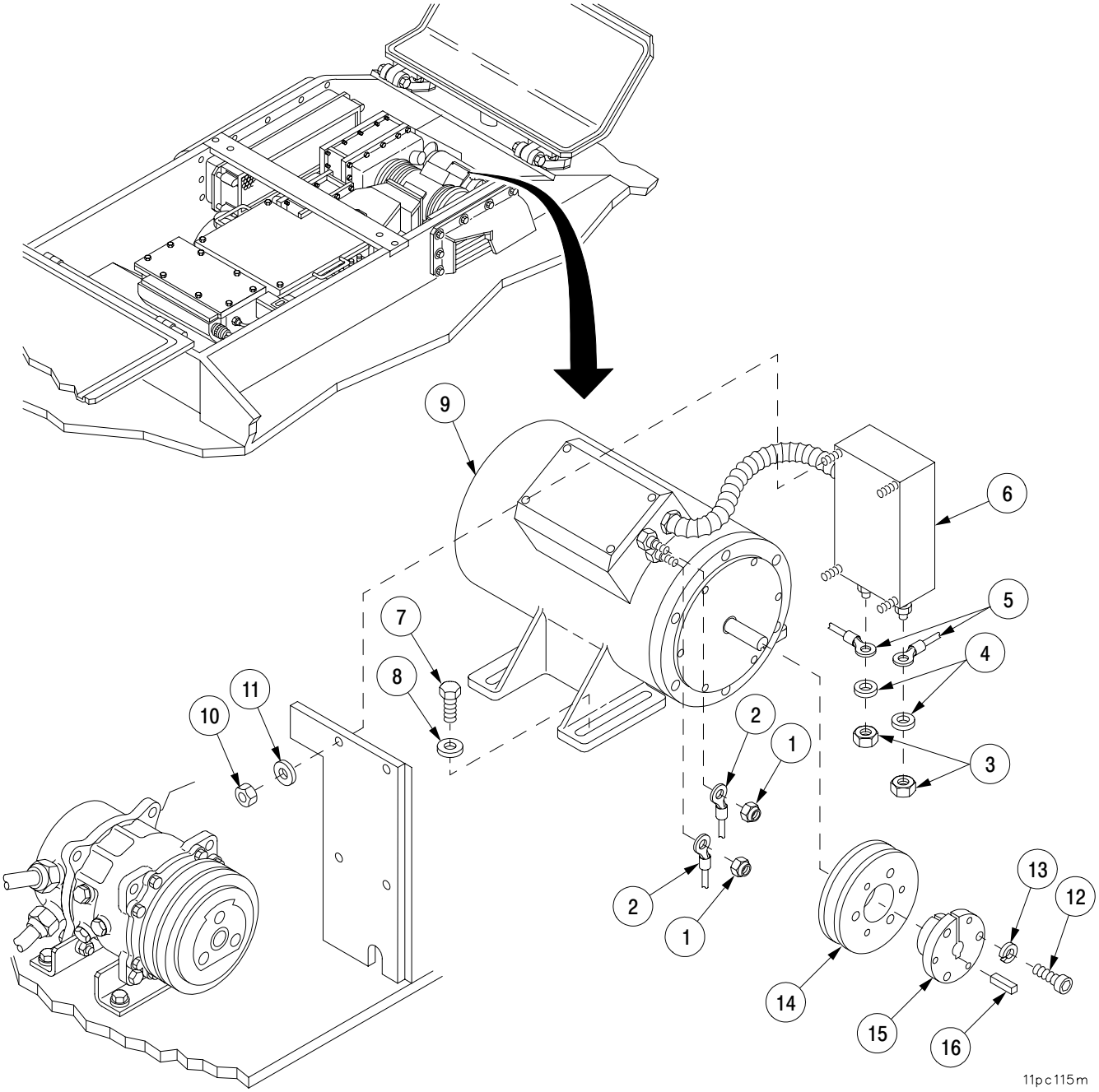
7 Thread three screws (12) into three tapped holes in sheave bushing (15). Evenly jack the three screws (12) to separate sheave (14) from sheave bushing (15).

13–18 COMPRESSOR MOTOR – CONTINUED

a. Removal – Continued

8 Remove woodruff key (16), sheave (14), and sheave bushing (15) from motor (9).

9 Remove three screws (12) from sheave bushing (15).



13–18 COMPRESSOR MOTOR – CONTINUED

b. Installation.

1 Coat threads of six screws (7) with thread lubricant. Install motor (9) with six screws (7) and six flat washers (8). Hand tighten only at this time.

2 Install EMI filter (6) with four nuts (10) and four flat washers (11).

3 Install sheave bushing (15) onto shaft of motor (9) aligning keyways for woodruff key (16) and sheave (14) toward motor.

4 Align sheave bushing (15) on shaft of motor (9). When sheave (14) is drawn up tightly against sheave bushing (15), sheave (14) will be aligned with compressor inner sheave (17). Install woodruff key (16) to secure sheave bushing.

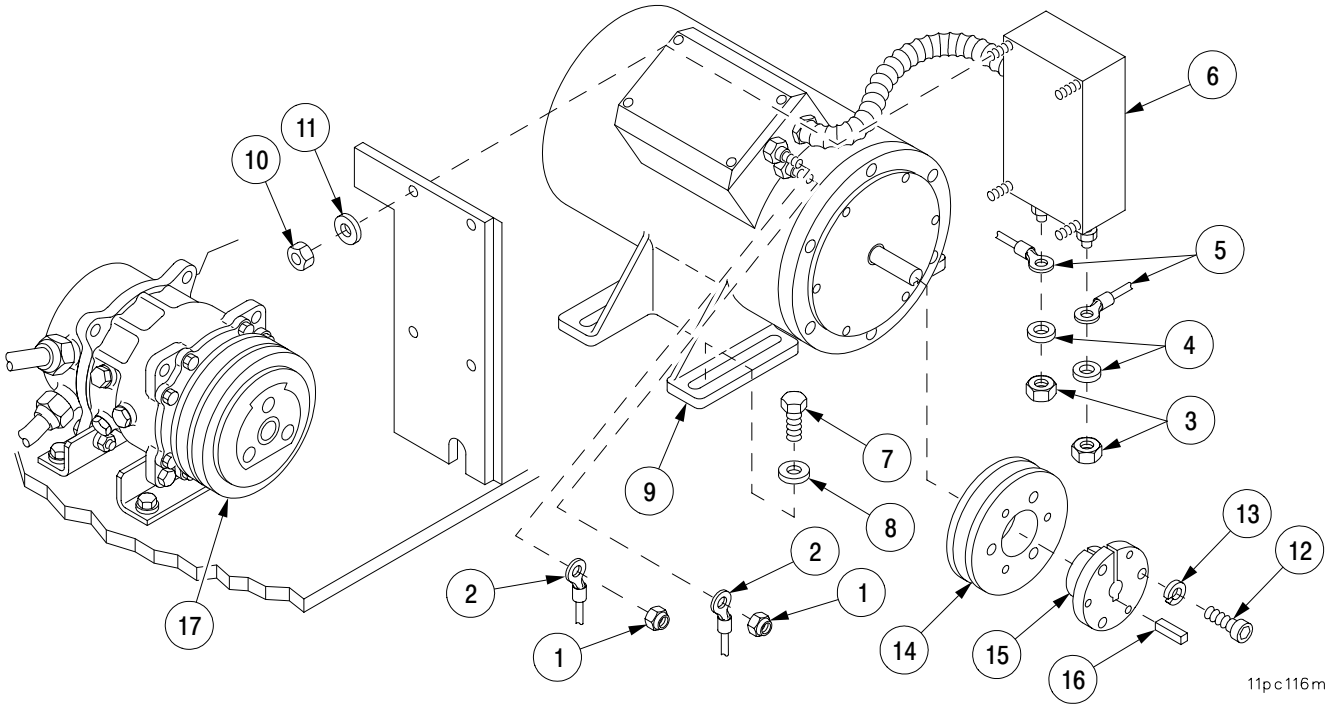
5 Install three screws (12) and three new lockwashers (13) through unthreaded holes in sheave bushing (15) and into threaded holes in sheave (14). Evenly tighten three screws (12) to draw sheave (14) against sheave bushing (15).

6 Check alignment of sheave (14) and compressor inner sheave (17). If alignment is correct, tighten screws (12). If alignment is not correct, use three screws (12) to separate sheave (14) from sheave bushing (15) and repeat steps 4 and 5.

7 Install two leads (2) with two new self–locking nuts (1) onto motor (9).

8 Install two leads (5) with two flat washers (4) and two nuts (3) onto EMI filter (6).

9 Torque screws (7) to 210–255 lb.–in. (24–28 N·m).



13–19 CREW BLOWER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 56, Appx G)

Equipment Conditions
NBC filter removed (para 13–7)
Filter differential pressure switch removed (para 13–20)

Materials/Parts
Marking tags (AR) (item 87, Appx C)
Self–locking nuts (5) (item 65, Appx F)

a. Removal.

NOTE

Tag leads before disconnecting leads to aid in installation.

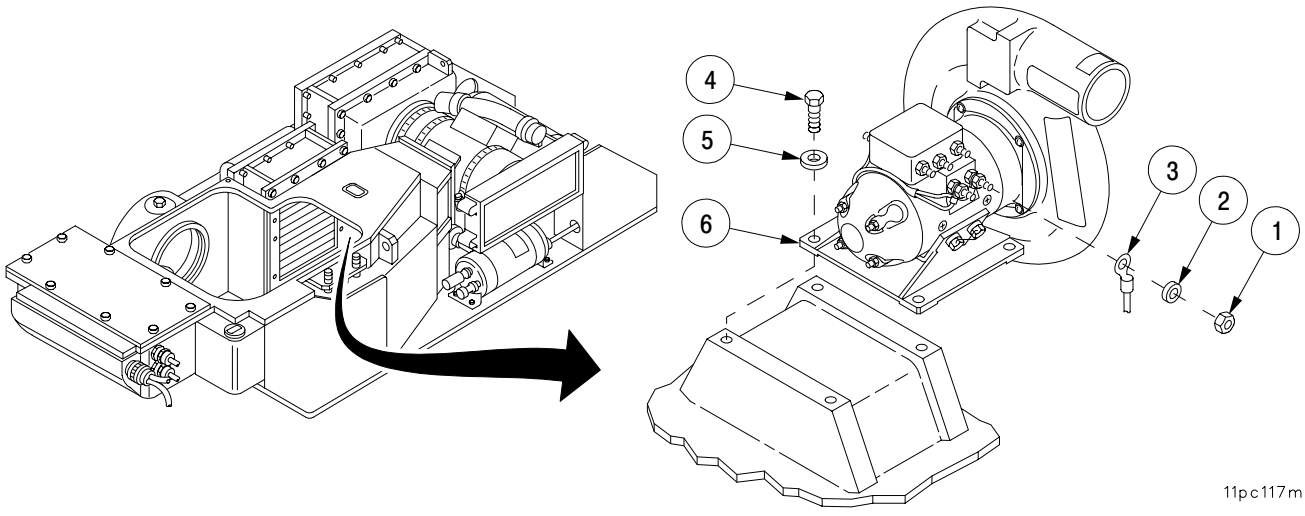
1 Remove five self–locking nuts (1), five flat washers (2), and five leads (3). Discard self–locking nuts.

2 Remove four screws (4), four flat washers (5), and crew blower (6).

b. Installation.

1 Install crew blower (6) with four screws (4) and four flat washers (5). Torque screws (4) to 22–26 lb–in (2–3 N·m).

2 Secure five wire leads (3) to crew blower (6) with five flat washers (2) and five new self–locking nuts (1).



13–20 FILTER DIFFERENTIAL PRESSURE SWITCH.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 56, Appx G)

Materials/Parts
Thread lubricant (item 56, Appx C)
Marking tags (AR) (item 87, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
NBC filter removed (para 13–7)

a. Removal

NOTE

Tag leads before disconnecting to aid in installation.

1 Remove two self–locking nuts (1) and two leads (2) (self–locking nuts supplied with switch). Discard self–locking nuts.

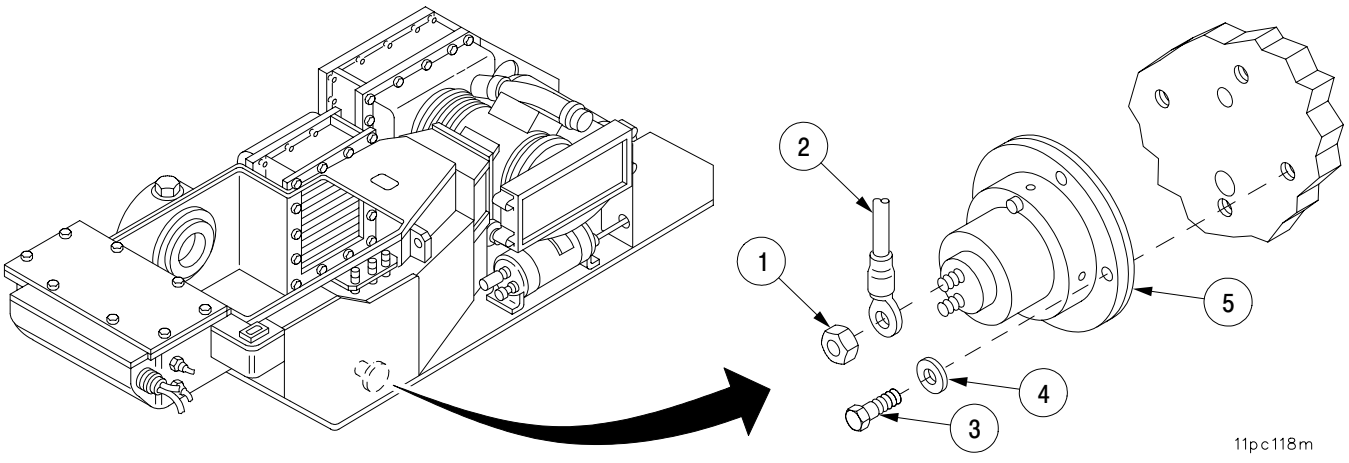
2 Remove four screws (3), four flat washers (4), and filter differential pressure switch (5).

b. Installation.

1 Apply thread lubricant to four screws (3).

2 Install filter differential pressure switch (5) with four screws (3) and four flat washers (4). Torque screws to 35–45 lb–in. (4–5 N·m).

3 Secure two leads (2) to filter differential pressure switch (5) with two new self–locking nuts (1) (self–locking nuts supplied with switch).



13–21 VANEAXIAL FAN.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 56, Appx G)

Equipment Conditions
Compressor motor removed (para 13–18)

Materials/Parts
Thread lubricant (item 56, Appx C)
Marking tag (AR) (item 87, Appx C)
Self–locking nuts (4) (item 65, Appx F)

a. Removal.

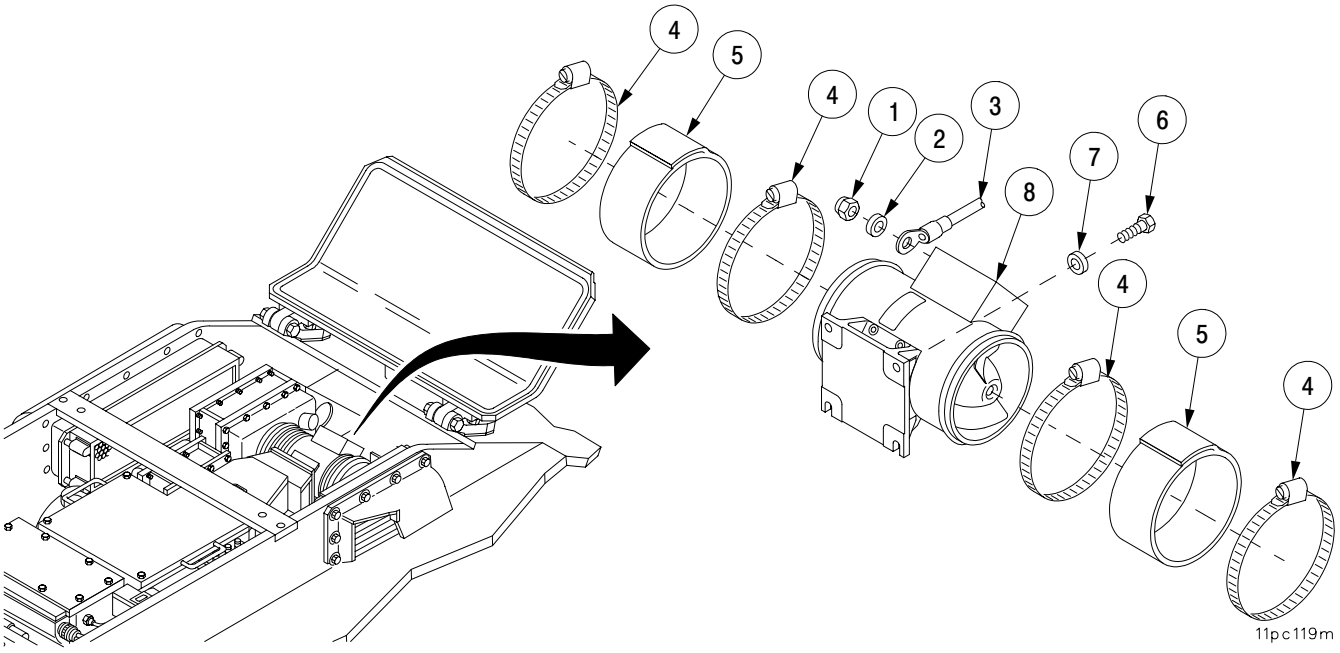
NOTE

Tag leads before disconnecting leads to aid in installation.

1 Remove four self–locking nuts (1), four flat washers (2), and four leads (3). Discard self–locking nuts.

2 Remove four clamps (4) on two rubber boots (5).

3 Remove four screws (6), four flat washers (7), vaneaxial fan (8), and rubber boots (5).



13–21 VANEAXIAL FAN – CONTINUED

b. Installation.

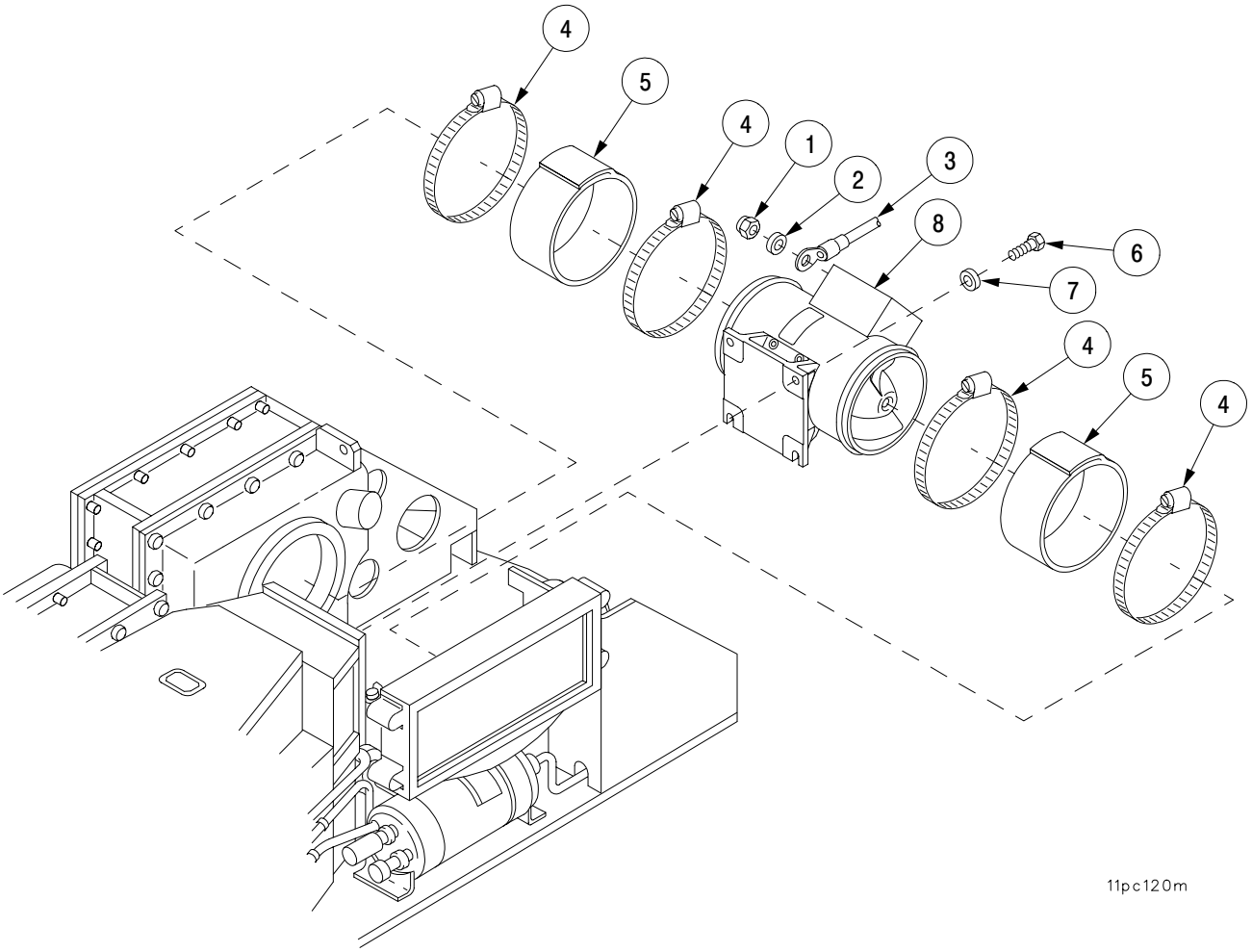
1 Coat threads of four screws (6) with thread lubricant.

2 Install two rubber boots (5) and four clamps (4) on vaneaxial fan (8).

3 Install vaneaxial fan (8) with four screws (6) and four flat washers (7). Torque screws to 88–98 lb–in. (10–11 N·m).

4 Position two rubber boots (5) and tighten four clamps (4).

5 Attach four leads (3) to vaneaxial fan (8) with four new self–locking nuts (1) and four flat washers (2).



13–22 AIR OUTLET DUCT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 128, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic cover open (TM 9–2350–314–10)

a. Removal.

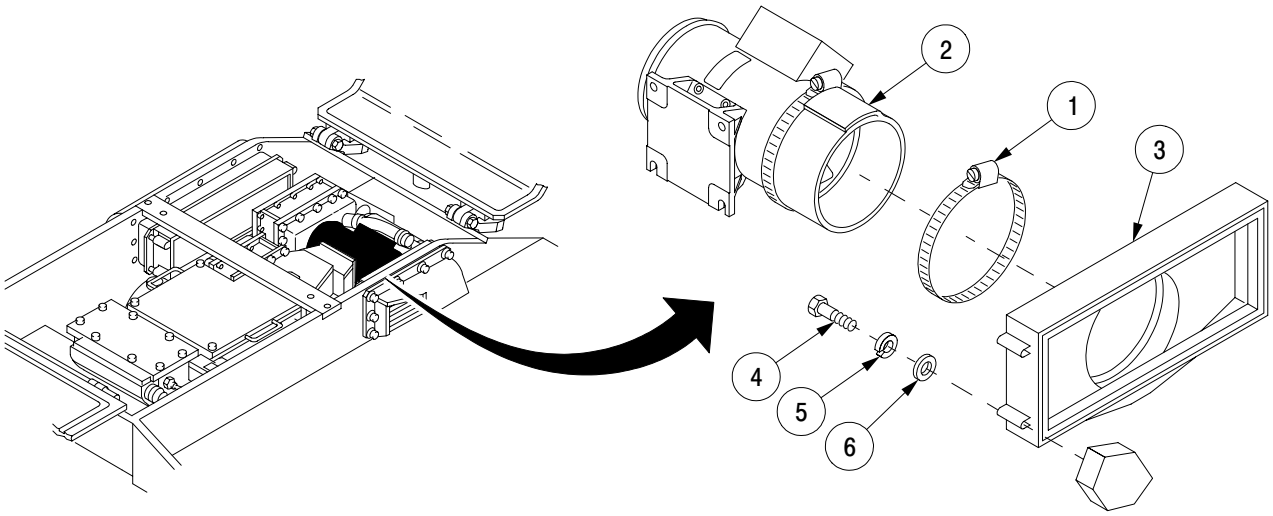
1 Remove hose clamp (1) and rubber boot (2) from air outlet duct (3).

2 Remove four screws (4), four lockwashers (5), four flat washers (6), and air outlet duct (3). Discard lockwashers.

b. Installation.

1 Install air outlet duct (3) with four flat washers (6), four new lockwashers (5), and four screws (4).

2 Secure rubber boot (2) to air outlet duct (3) with clamp (1).



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13–23 RELAY PANEL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 114, Appx F)
Lockwashers (2) (item 136, Appx F)
Lockwashers (4) (item 113, Appx F)
Self–locking nuts (5) (item 61, Appx F)
Tiedown straps (2) (item 83, Appx C)
Gasket (item 189, Appx F)
Marking tags (AR) (item 87, Appx C)
Lockwashers (2) (item 115, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Ballistic cover open (TM 9–2350–314–10)
Relay cover assembly removed (para 13–12)

a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

1 Remove two nuts (1), two lockwashers (2), and four leads (3) from two terminals (4). Discard lockwashers.

2 Remove two nuts (5), two lockwashers (6), and three leads (7) from two terminals (8). Discard lockwashers.

3 Remove two screws (9), two lockwashers (10), and two leads (11) from two terminals (12). Discard lockwashers.

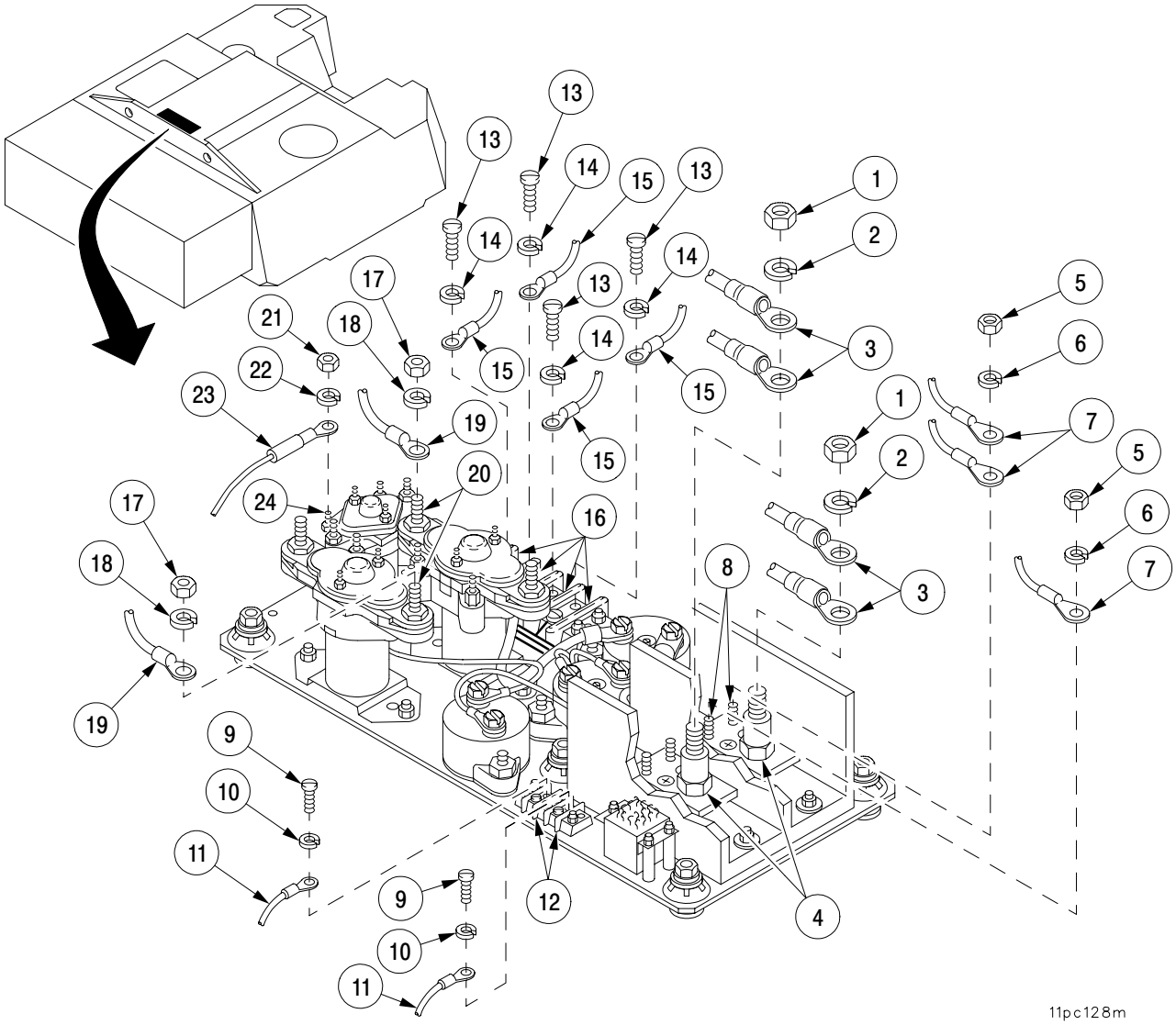
4 Remove four screws (13), four lockwashers (14), and four leads (15) from four terminals (16). Discard lockwashers.

5 Remove two nuts (17), two lockwashers (18), and two leads (19) from two relay terminals (20). (All hardware supplied with relay). Discard lockwashers.

6 Remove nut (21), lockwasher (22), and lead (23) from terminal (24). (All hardware supplied with relay.) Discard lockwasher.

13–23 RELAY PANEL – CONTINUED

a. Removal – Continued



13–23 RELAY PANEL – CONTINUED

a. Removal – Continued

7 Disconnect connector (25) from MCS pack (26).

8 Remove four screws (27), ring nut (28), harness (29), and gasket (30) from MCS pack (26). Discard gasket.

9 Remove two tie straps (31) securing electrical harness (29) to MCS pack (26). Discard tie straps.

10 Remove five self–locking nuts (32), five flat washers (33), and relay panel (34) from MCS pack (26). Discard self–locking nuts.

11 Remove 10 flanged sleeves (35) from relay panel (34).

12 Remove five shock mounts (36) from relay panel (34).

b. Installation.

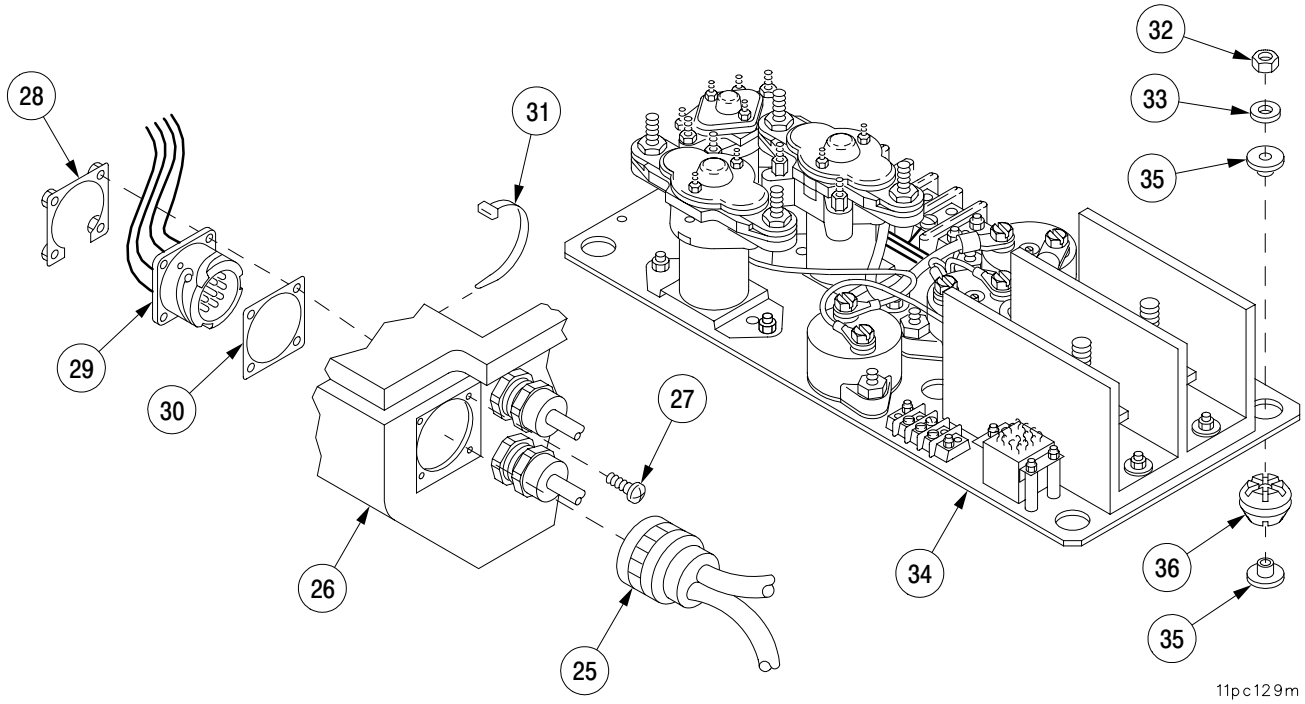
1 Install five shock mounts (36) on relay panel (34).

2 Install 10 flanged sleeves (35), relay panel (34), five flat washers (33), and five new self–locking nuts (32) in MCS pack (26).

3 Secure electrical harness (29) to MCS pack (26) with two new tie straps (31).

4 Install new gasket (30), harness (29), and ring nut (28) on MCS pack (26) with four screws (27).

5 Connect connector (25) to MCS pack (26).



13–23 RELAY PANEL – CONTINUED

b. Installation – Continued

6 Secure lead (23) to terminal (24) with lockwasher (22) and nut (21). (All hardware supplied with relay.)

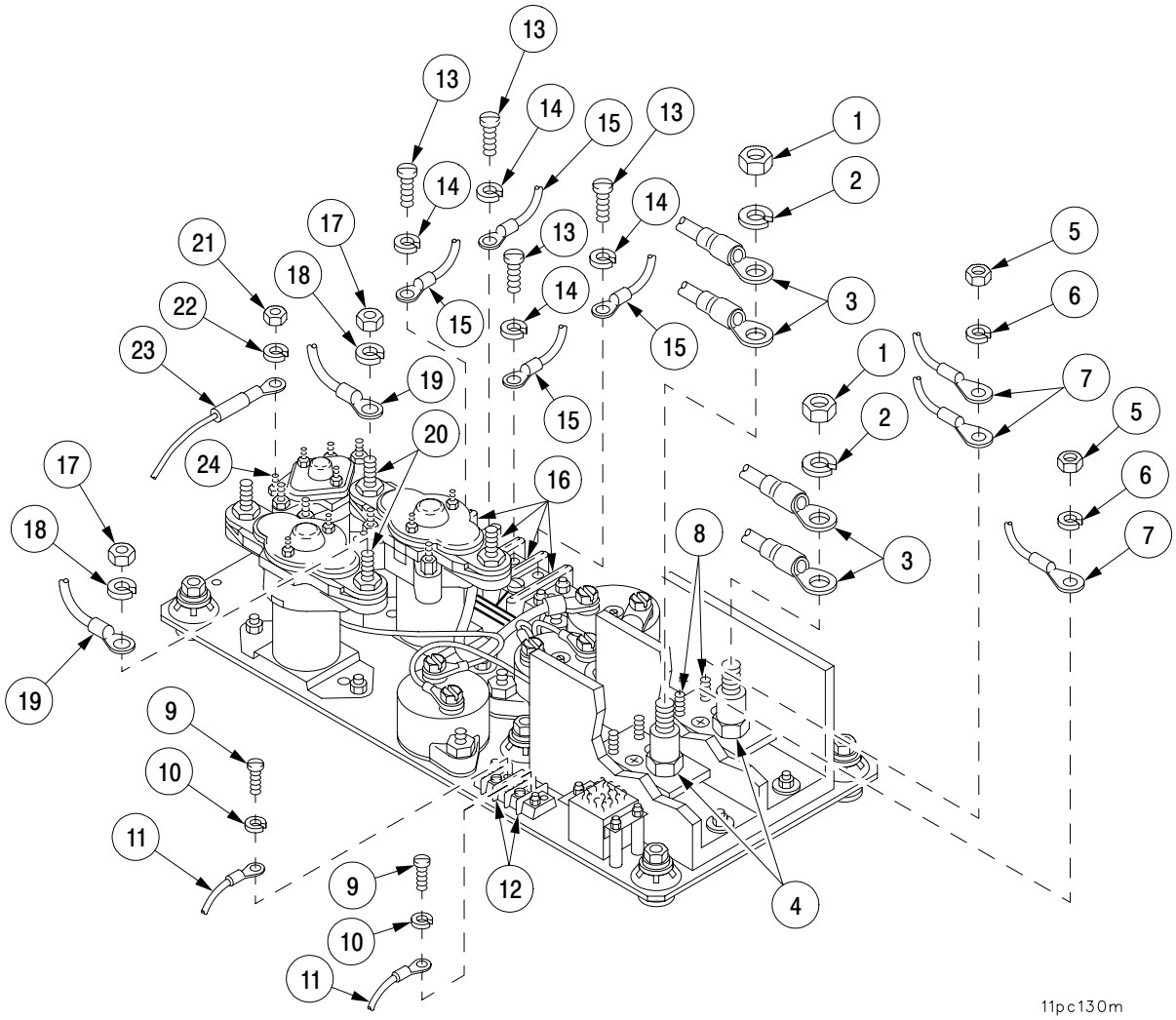
7 Secure two leads (19) to two relay terminals (20) with two lockwashers (18) and two nuts (17). (All hardware supplied with relay.)

8 Secure four leads (15) to four terminals (16) with four new lockwashers (14) and four screws (13).

9 Secure two leads (11) to two terminals (12) with two new lockwashers (10) and two screws (9).

10 Secure three leads (7) to two terminals (8) with two new lockwashers (6) and two nuts (5).

11 Secure four leads (3) to two terminals (4) with two new lockwashers (2) and two nuts (1).



13–24 HOURMETER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Vehicle MASTER power switch OFF
(TM 9–2350–314–10)
Battery ground leads disconnected
(TM 9–2350–314–20–1–2)

a. Removal.

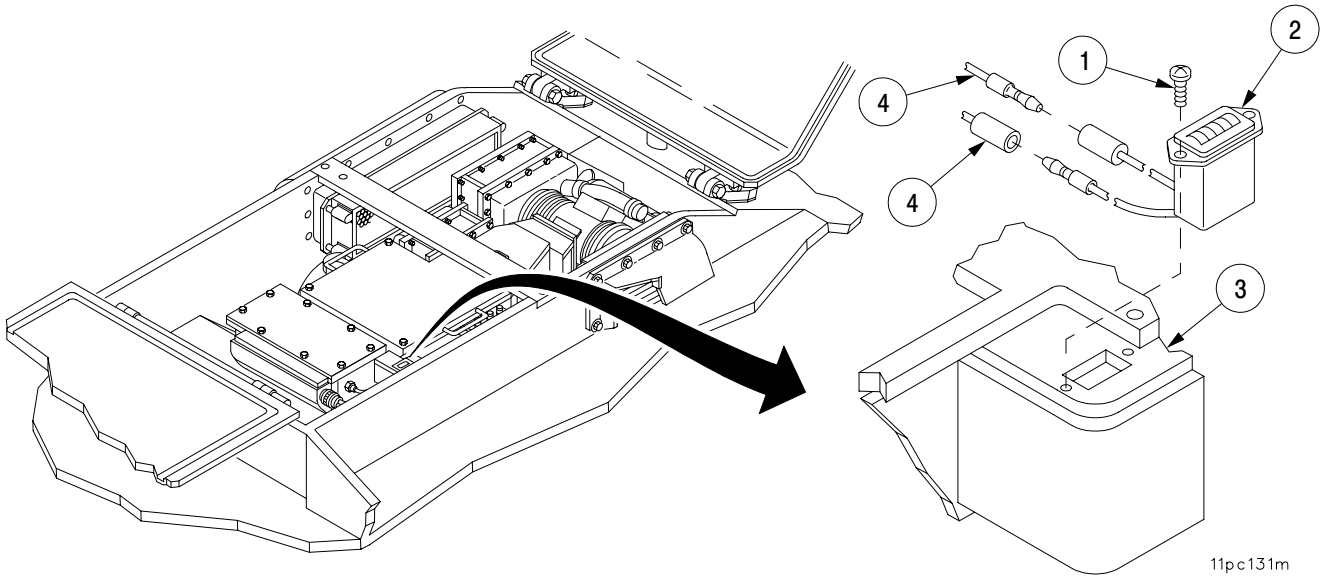
1 Remove two screws (1) and hourmeter (2) from MCS (3).

2 Disconnect two leads (4) from hourmeter (2).

b. Installation.

1 Connect two leads (4) to hourmeter (2).

2 Install hourmeter (2) in MCS (3) with two screws (1).



13–25 PLUG.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

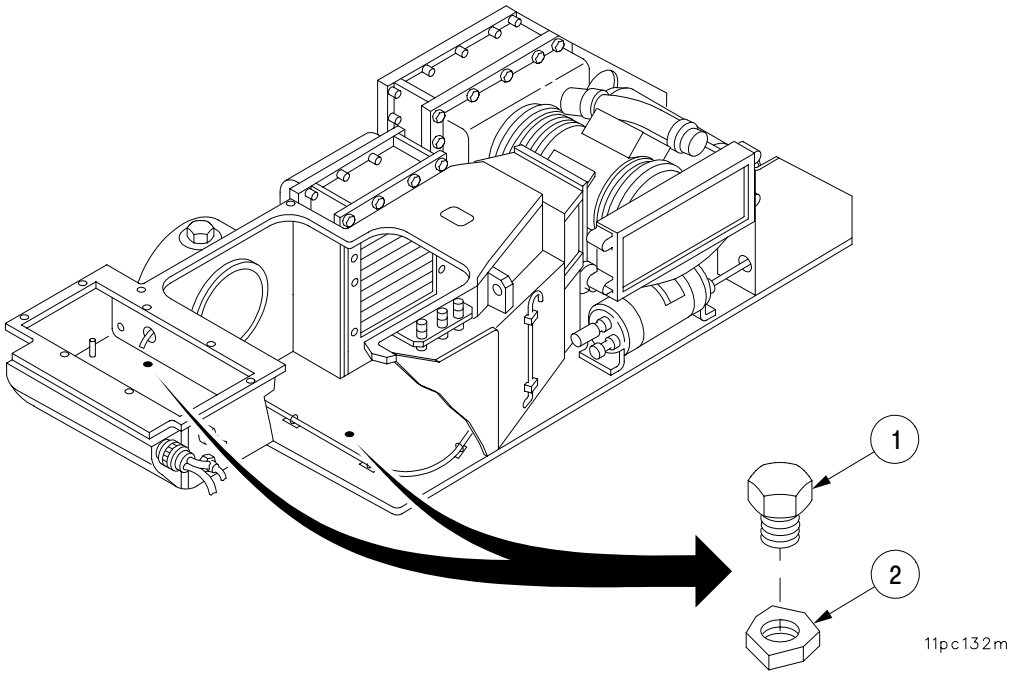
Equipment Conditions
Ballistic cover open (TM 9–2350–314–10)
Relay cover assembly removed (para 13–12)
NBC filter removed (para 13–7)

a. Removal.

Remove plug (1) from MCS assembly (2).

b. Installation.

Install plug (1) into MCS assembly (2).



13–26 LEADS – RELAY PANEL TO POSITIVE TERMINAL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwasher (item 130, Appx F)
Lockwasher (item 132, Appx F)
Adhesive (item 12, Appx C)

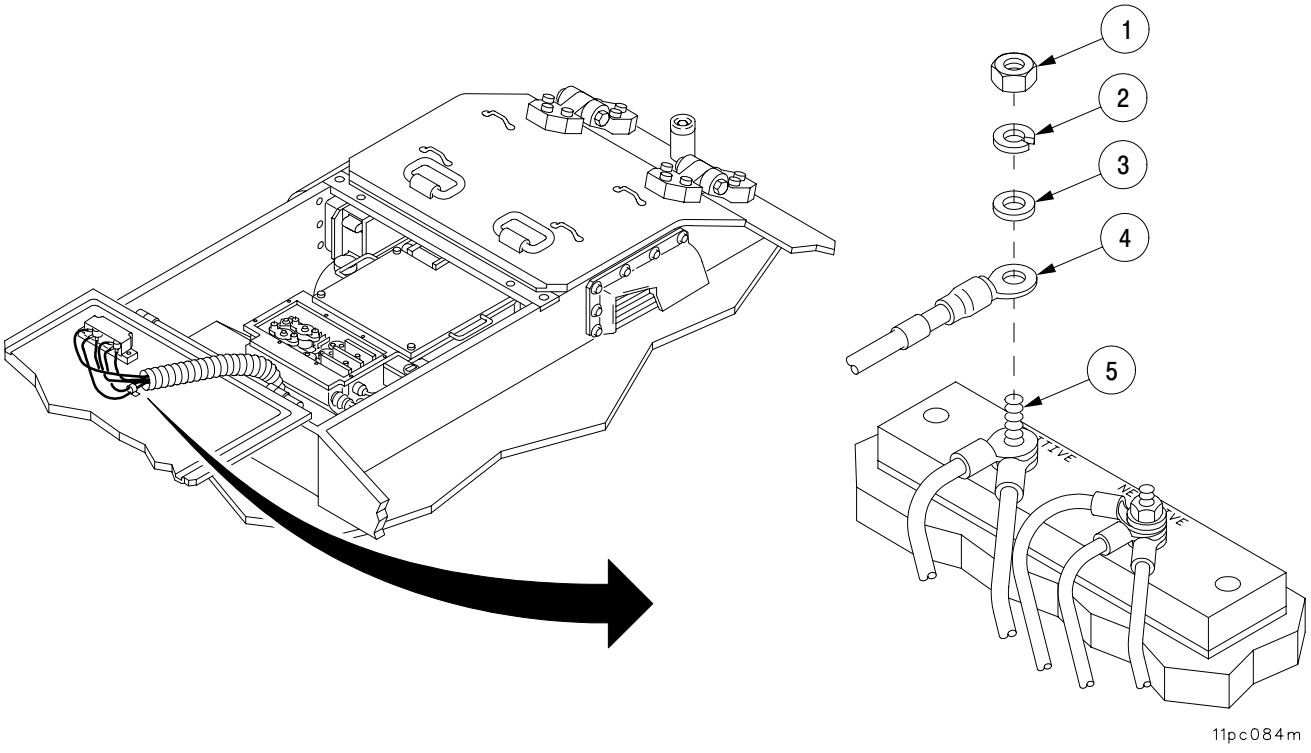
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Relay cover assembly removed (para 13–12)
MCS bus bar cover removed (para 13–5)

NOTE

This task is identical for both leads. One lead is shown.

a. Removal.

1 Remove nut (1), lockwasher (2), flat washer (3) and lead (4) from positive terminal (5). Discard lockwasher.



13–26 LEADS – RELAY PANEL TO POSITIVE TERMINAL – CONTINUED

a. Removal – Continued

2 Remove nut (6), lockwasher (7), and lead (4) from relay panel (8). Discard lockwasher.

3 Remove nut (9) from seal (10).

4 Remove lead (4) from MCS bulkhead (11) and conduit (12).

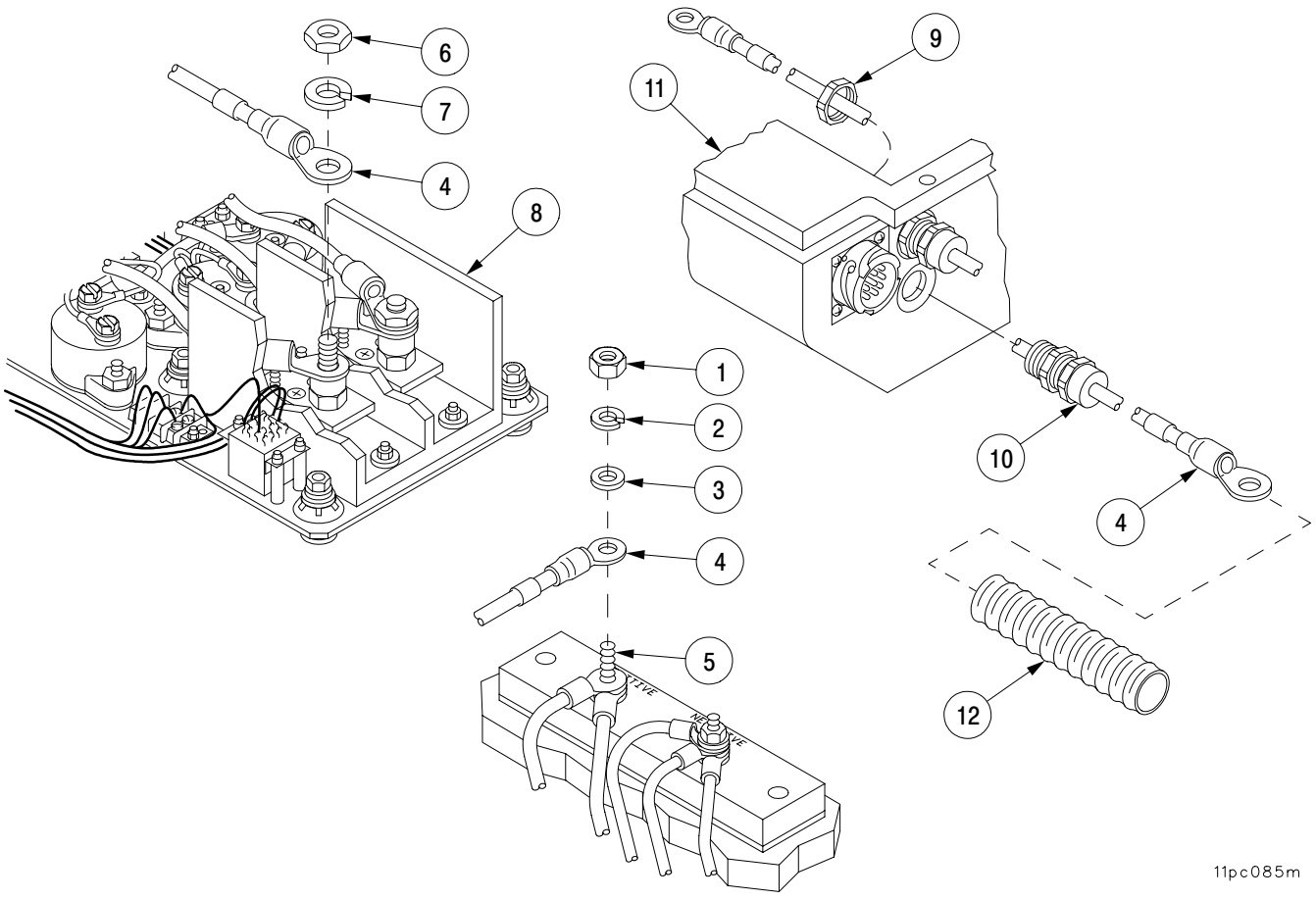
b. Installation.

1 Install lead (4) through conduit (12) and MCS bulkhead (11).

2 Apply adhesive to threads of seal (10) and nut (9) and install nut (9) on seal (10).

3 Position lead (4) on relay panel (8) and secure with new lockwasher (7) and nut (6).

4 Position lead (4) on positive terminal (5) and secure with new lockwasher (2), flat washer (3), and nut (1).



13–27 LEADS – RELAY PANEL TO NEGATIVE TERMINAL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Relay cover removed (para 13–12)
MCS pack removed (para 13–6)

Materials/Parts
Lockwasher (item 115, Appx F)
Tiedown strap (item 75, Appx C)
Adhesive (item 12, Appx C)

NOTE

There are two leads. The removal and installation procedures are identical. This procedure covers only one lead.

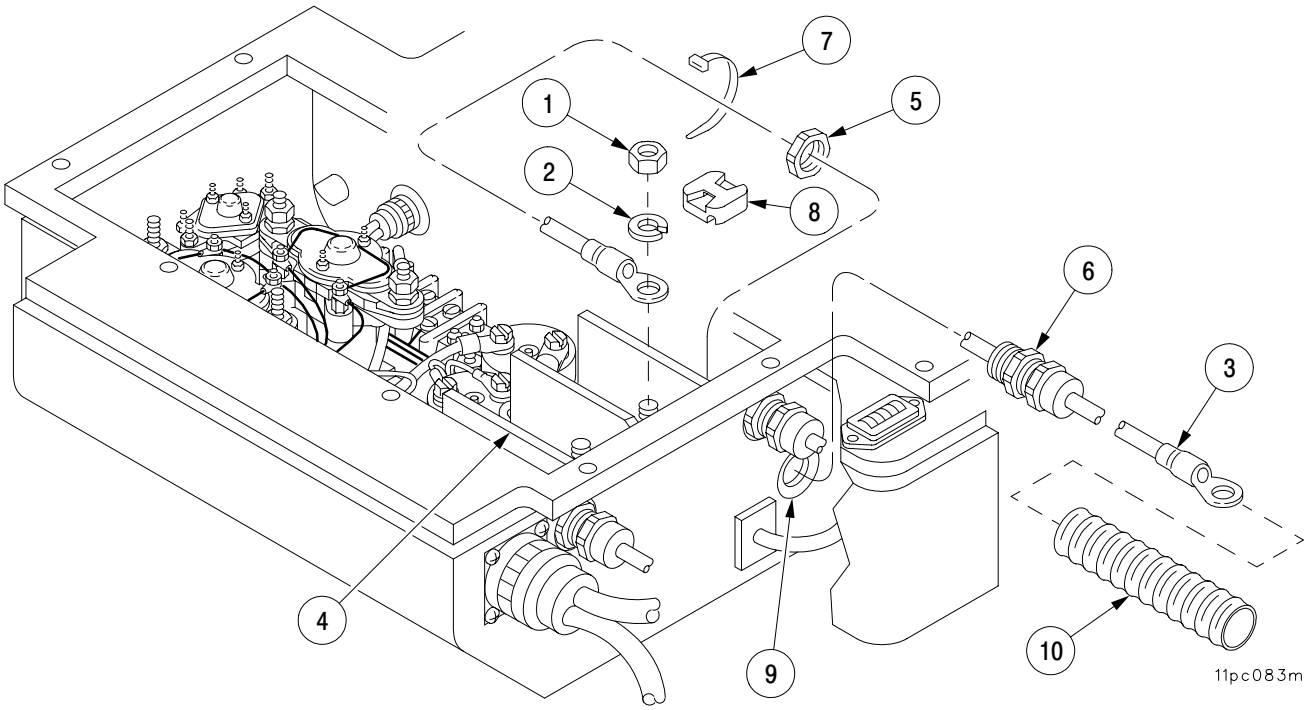
a. Removal.

1 Remove nut (1), lockwasher (2), and lead (3) from relay panel (4). Discard lockwasher.

2 Remove nut (5) from seal (6).

3 Cut tiedown strap (7) securing lead (3) to mounting plate (8). Discard tiedown strap.

4 Remove lead (3) from MCS bulkhead (9) and conduit (10).



13–27 LEADS – RELAY PANEL TO NEGATIVE TERMINAL – CONTINUED

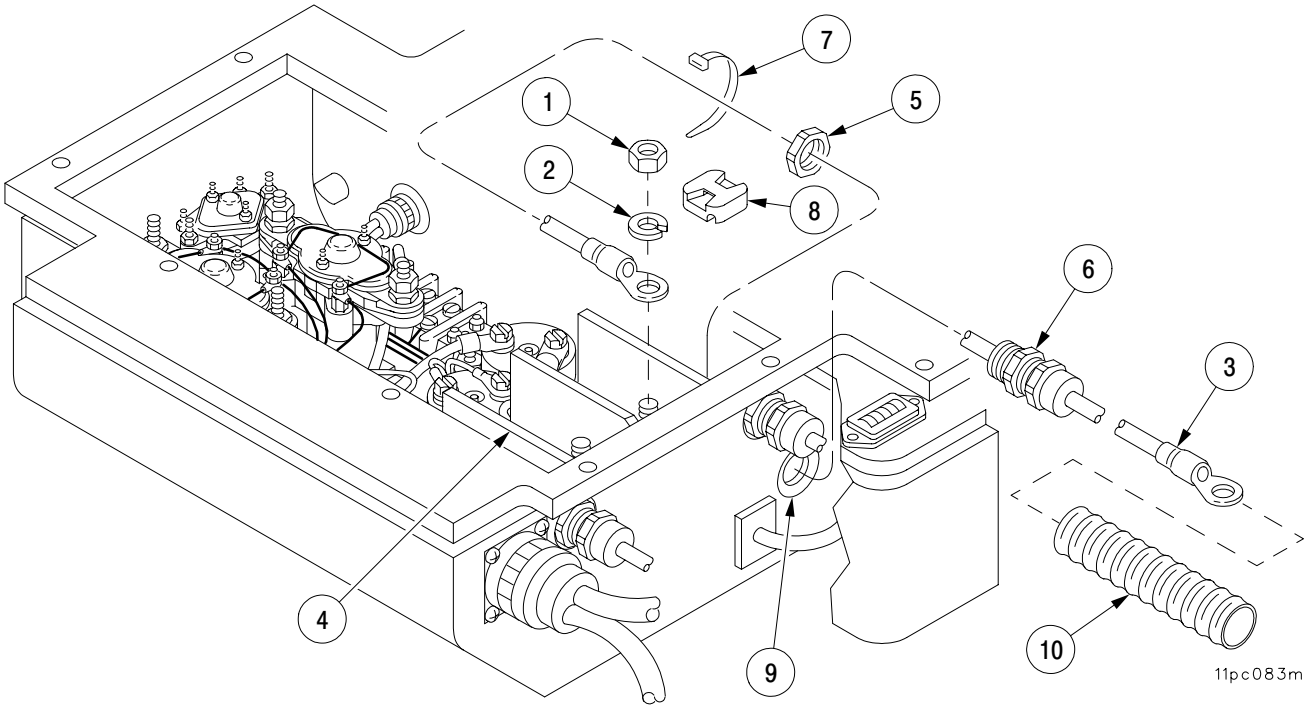
b. Installation.

1 Install lead (3) through conduit (10) and MCS bulkhead (9).

2 Apply adhesive to threads of seal (6) and nut (5) and install nut (5) on seal (6).

3 Position lead (3) on mounting plate (8) and secure with new tiedown strap (7).

4 Position lead (3) on relay panel (4) and secure with new lockwasher (2) and nut (1).



13–28 LEAD ASSEMBLY FROM RELAY PANEL TO GROUND STUD.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwasher (item 114, Appx F)
Self–locking nut (item 61, Appx F)
Marking tags (AR) (item 87, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Relay cover assembly removed (para 13–12)

a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

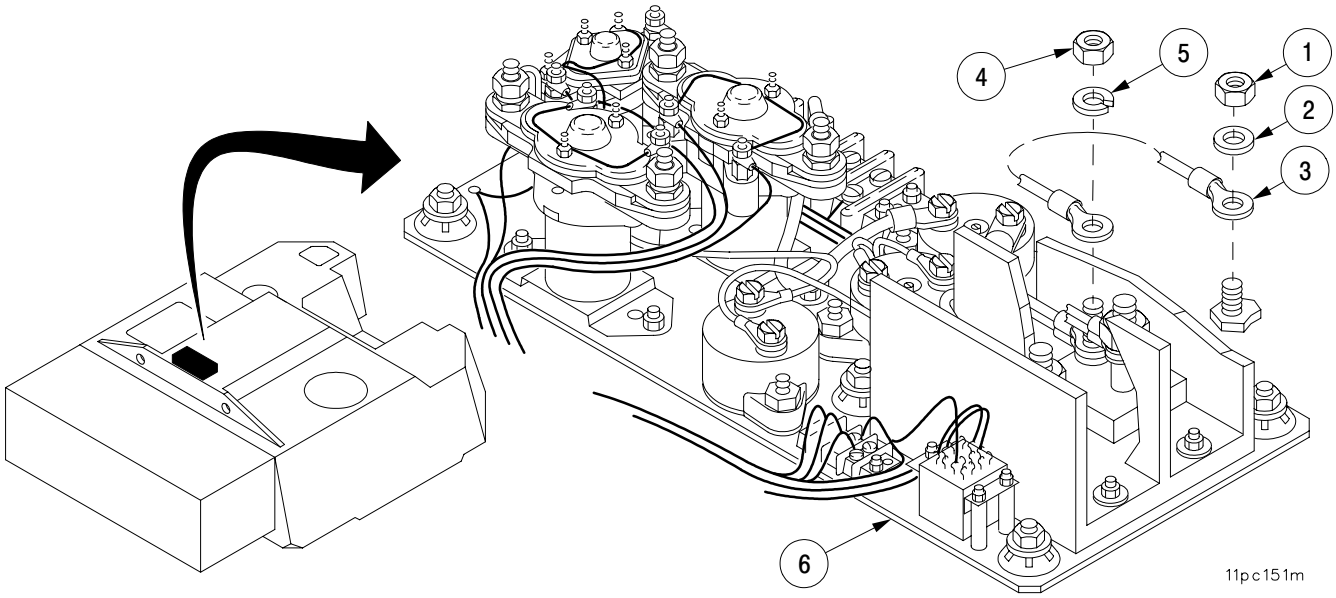
1 Remove self–locking nut (1) and flat washer (2) from lead assembly (3). Discard self–locking nut.

2 Remove nut (4), lockwasher (5), and lead assembly (3) from relay panel (6). Discard lockwasher.

b. Installation.

1 Install lead assembly (3) on relay panel (6) and secure with new lockwasher (5) and nut (4).

2 Install other end of lead assembly (3) and secure with flat washer (2) and new self–locking nut (1).



13–29 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO VANEAXIAL FAN AND EMI FILTER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Tiedown straps (AR) (item 77, Appx C)
Tiedown straps (AR) (item 80, Appx C)
Tiedown straps (AR) (item 83, Appx C)
Isopropyl alcohol (item 14, Appx C)
Swabbing brush (item 20, Appx C)
Marking tags (AR) (item 87, Appx C)
Adhesive (item 12, Appx C)
Self–locking nuts (4) (item 65, Appx F)
Lockwashers (2) (item 114, Appx F)

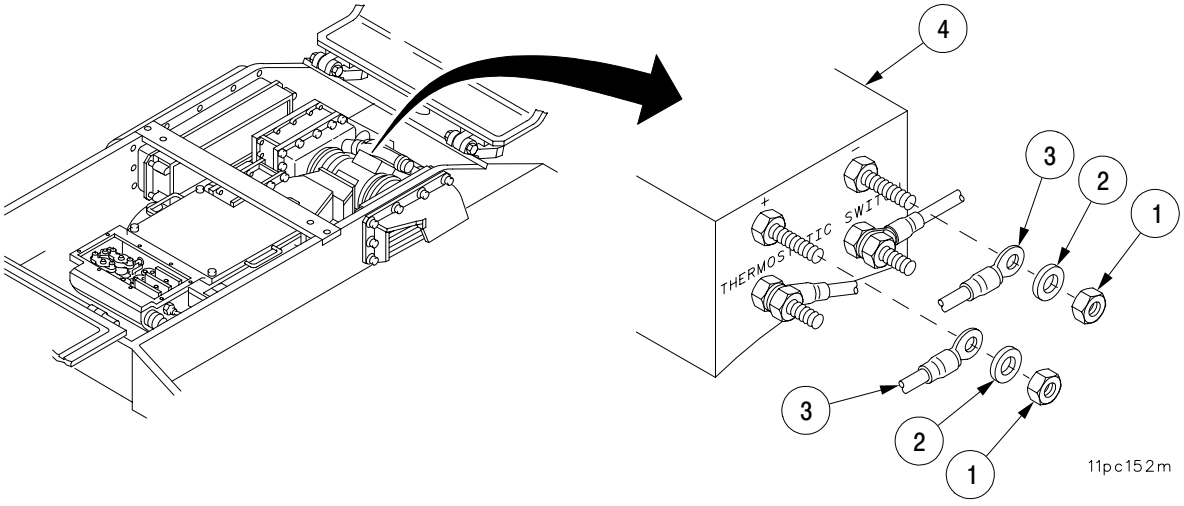
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Relay cover assembly removed (para 13–12)
MCS pack removed (para 13–6)

a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

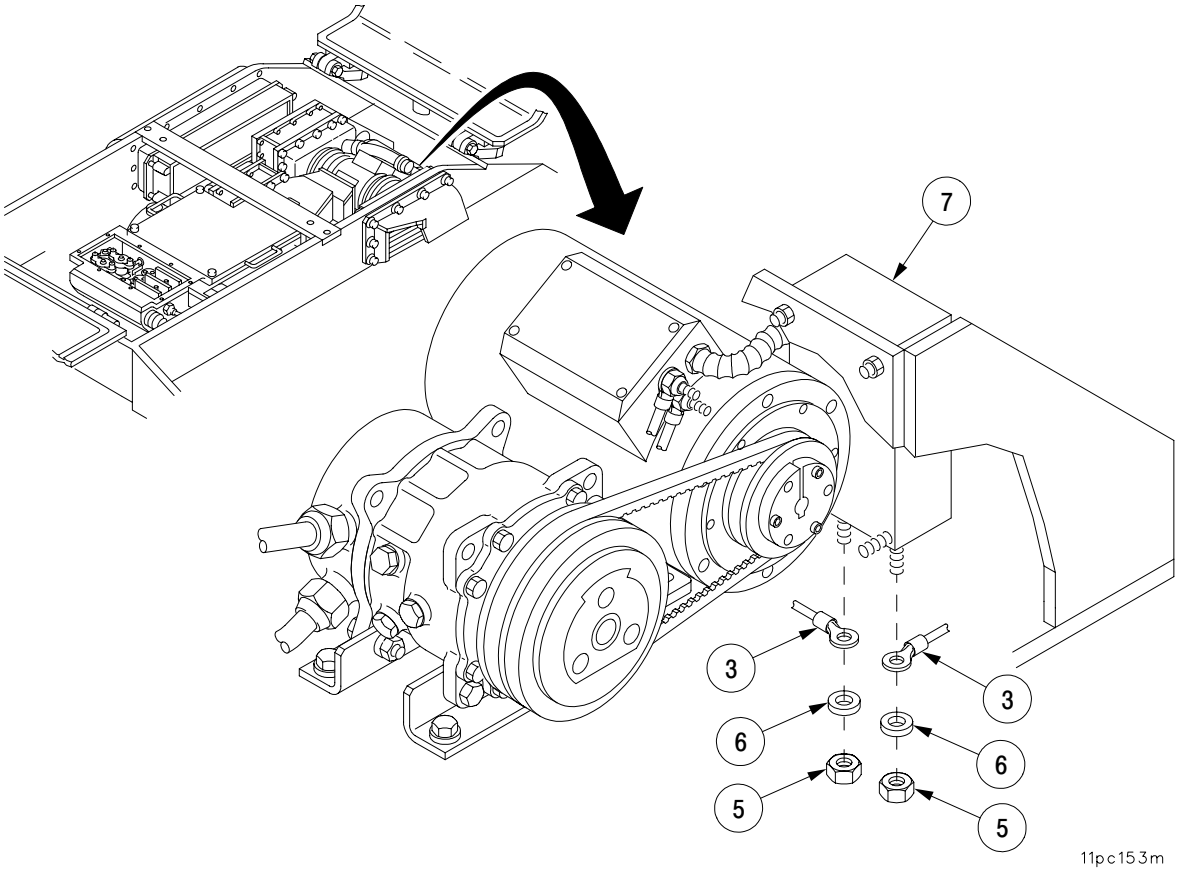
1 Remove two self–locking nuts (1), two flat washers (2), and wiring harness assembly (3) from fan assembly (4). Discard self–locking nuts.



13–29 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO VANEAXIAL FAN AND EMI FILTER – CONTINUED

a. Removal – Continued

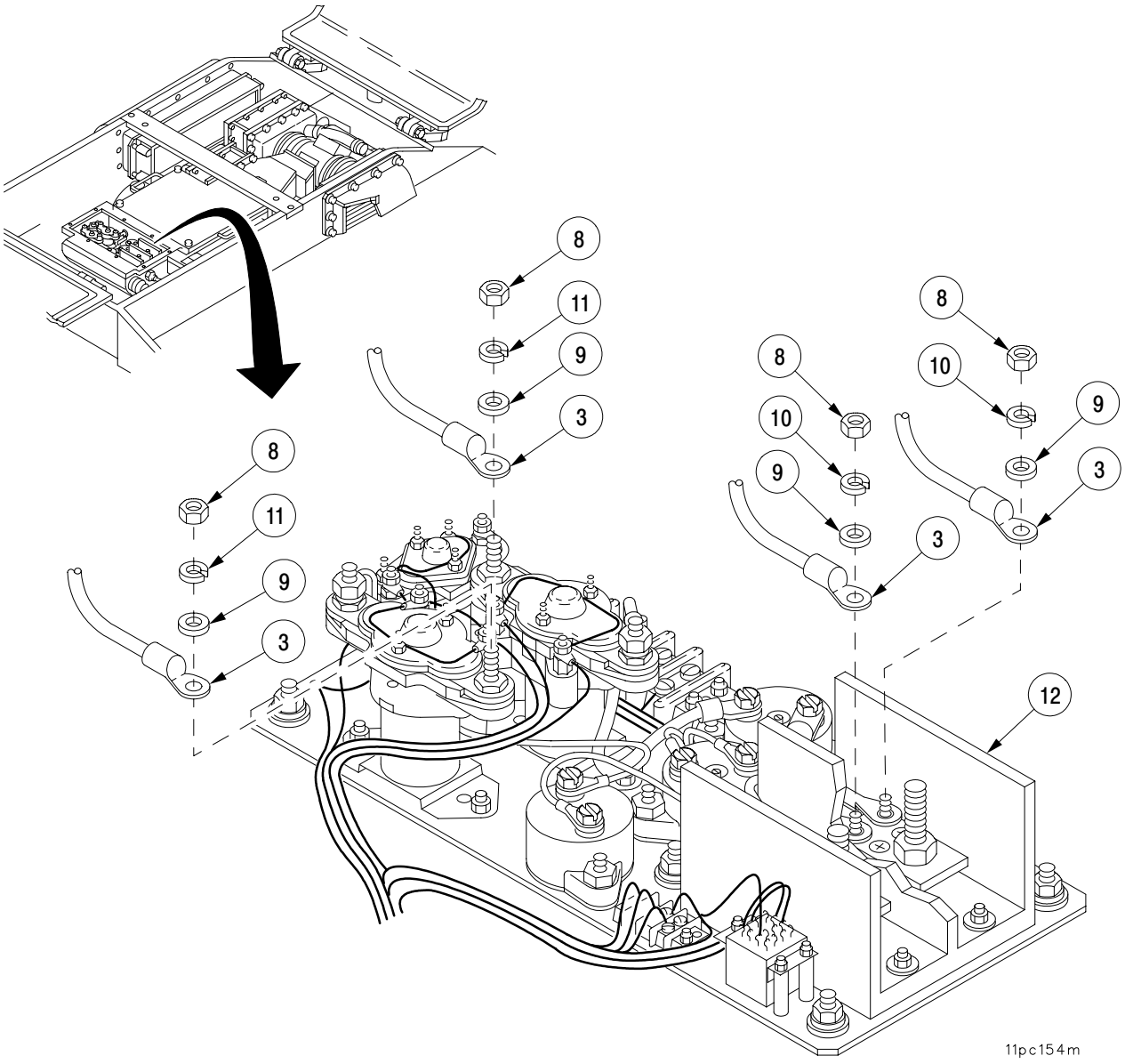
2 Remove two self–locking nuts (5), two flat washers (6), and wiring harness assembly (3) from motor (7). Discard self locking nuts.



13–29 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO VANEAXIAL FAN AND EMI FILTER – CONTINUED

a. Removal – Continued

3 Remove four nuts (8), four flat washers (9), two lockwashers (10), two lockwashers (11), and wiring harness assembly (3) from relay panel (12). Discard two lockwashers (10).



13–29 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO VANEAXIAL FAN AND EMI FILTER – CONTINUED

a. Removal – Continued

4 Remove four nuts (13) from four seals (14) and remove wiring harness assembly (3) from bulkhead (15).

5 Cut tiedown straps (16) as required to allow removal of wiring harness assembly (3). Discard tiedown straps.

6 Remove wiring harness assembly (3) from MCS (17).

7 Remove and discard any damaged tiedown strap mounting bases (18).

b. Installation.

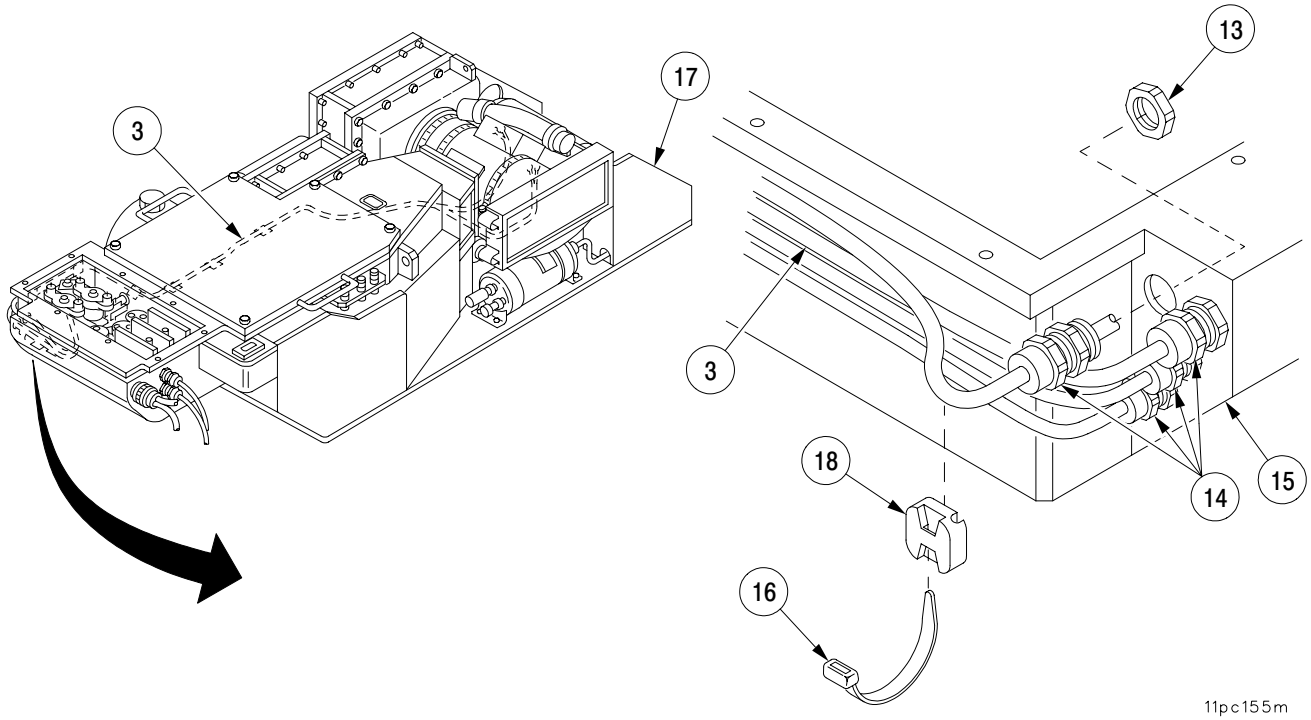
1 Clean tiedown strap mounting base area with isopropyl alcohol.

2 Apply adhesive to the bottom of mounting base (18) and immediately place in position. Hold mounting base in place for 5–10 seconds and allow to set for 30–60 seconds.

3 Position wiring harness assembly (3) in MCS (17) and install new tiedown straps (16).

4 Install wiring harness assembly (3) through bulkhead (15).

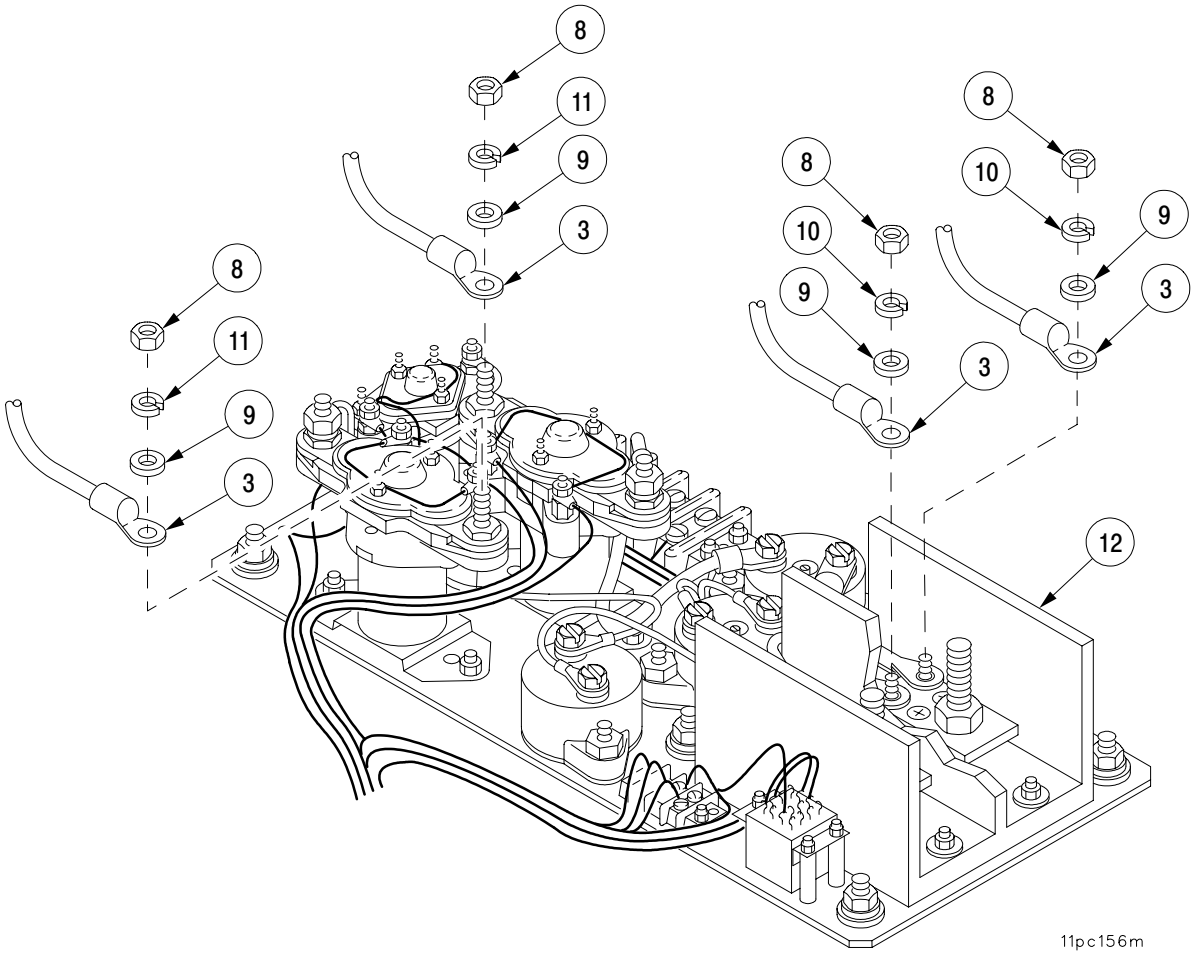
5 Apply adhesive on threads of seals (14) and nuts (13) and install four nuts (13) on four seals (14). (Seals supplied with wiring harness.)



13–29 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO VANEAXIAL FAN AND EMI FILTER – CONTINUED

b. Installation – Continued

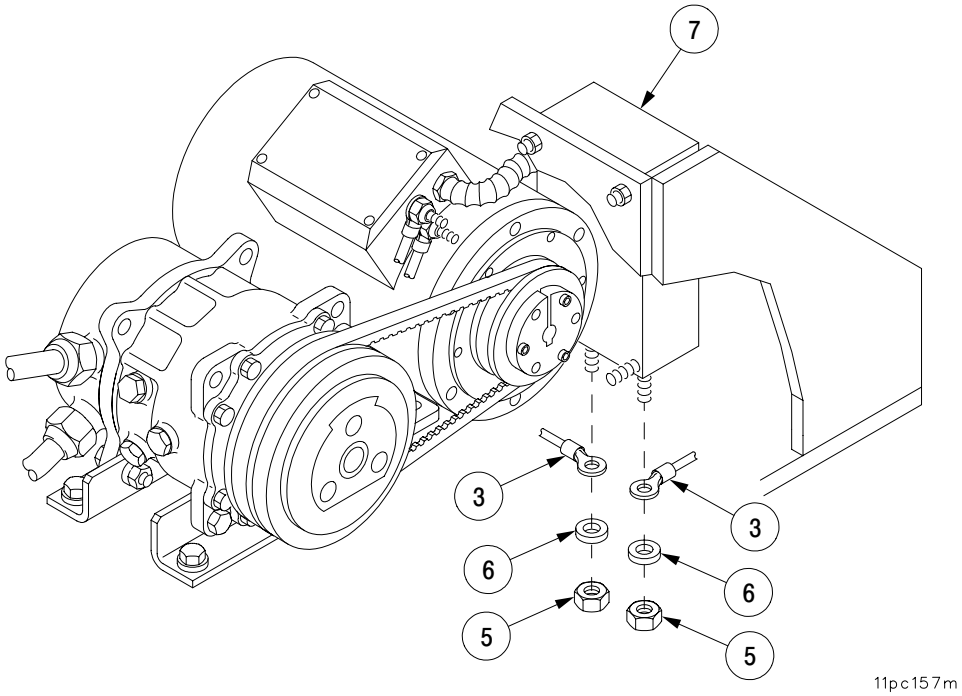
6 Install wiring harness assembly (3) in relay panel (12) with two new lockwashers (10), two lockwashers (11), four flat washers (9), and four nuts (8).



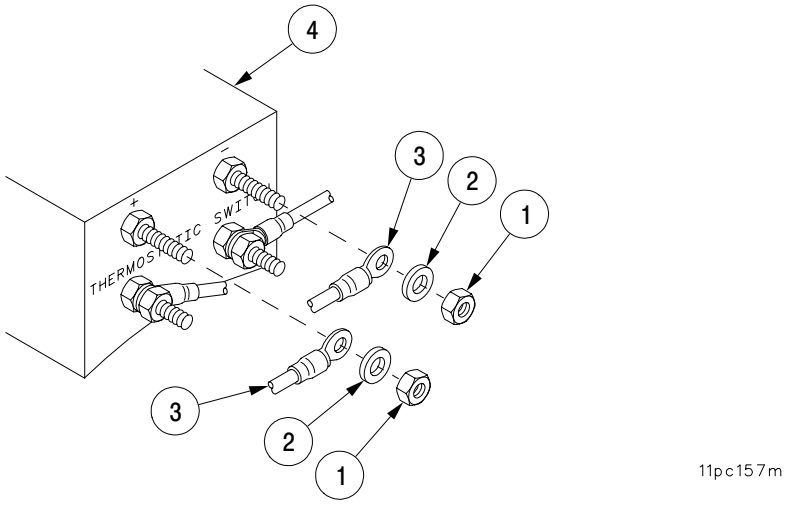
13–29 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO VANEAXIAL FAN AND EMI FILTER – CONTINUED

b. Installation – Continued

7 Install wiring harness assembly (3) on motor (7) with two flat washers (6) and two new self–locking nuts (5).



8 Install wiring harness assembly (3) on fan assembly (4) with two flat washers (2) and two new self–locking nuts (1).



13–30 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Tiedown strap (AR) (item 83, Appx C)
Isopropyl alcohol (item 14, Appx C)
Adhesive (item 12, Appx C)
Swabbing brush (item 20, Appx C)
Marking tags (AR) (item 87, Appx C)
Lockwashers (2) (item 136, Appx F)
Lockwasher (item 113, Appx F)
Self–locking nuts (2) (item 65, Appx F)
Self–locking nuts (2) (item 68, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Filter cover assembly removed (para 13–11)
Relay cover assembly removed (para 13–12)
NBC filter removed (para 13–7)

13–30 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH – CONTINUED

a. Removal.

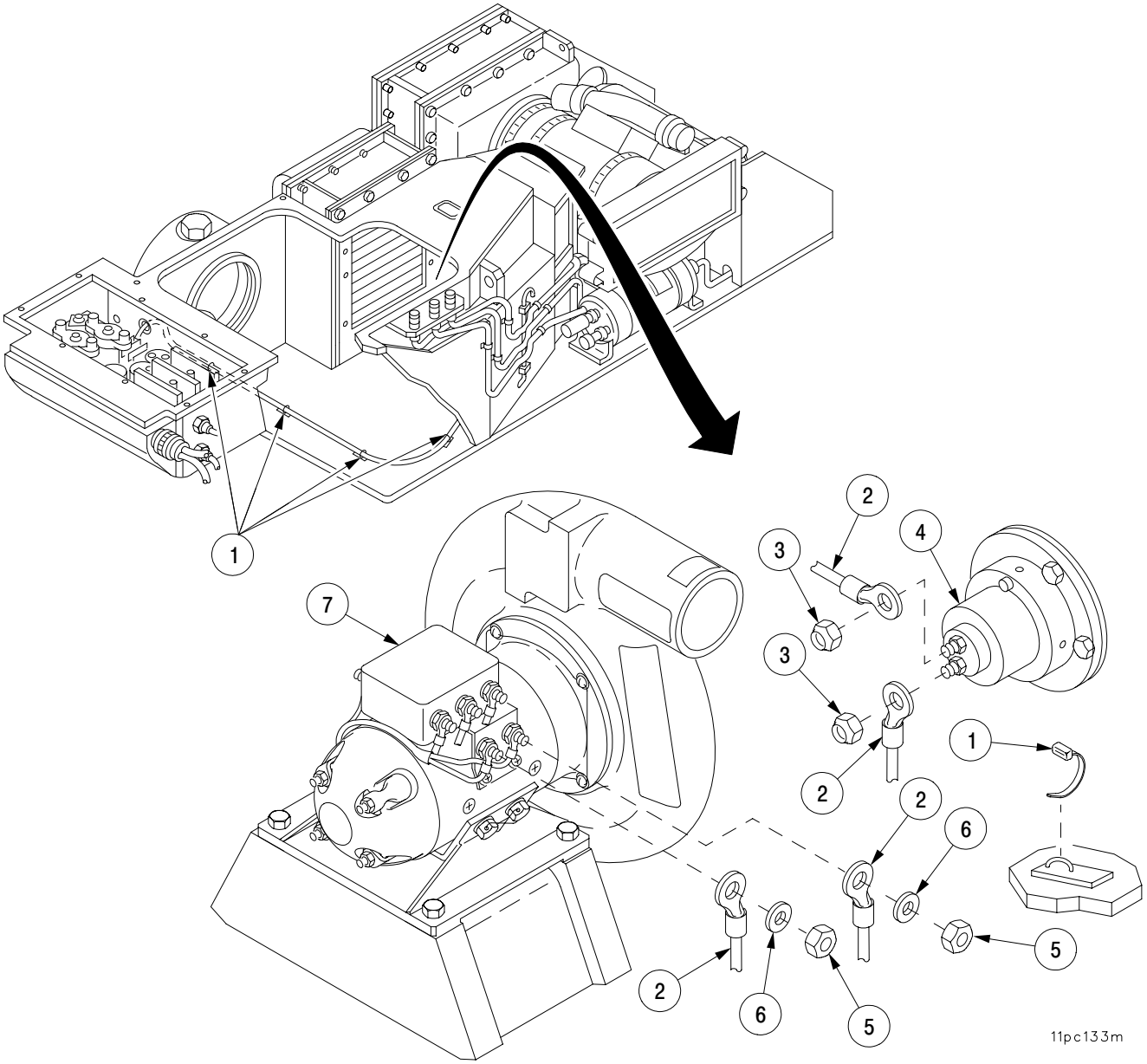
NOTE

Tag leads before disconnecting to aid in installation.

1 Cut tiedown straps (1) securing wiring harness assembly (2). Discard tiedown straps.

2 Remove two self–locking nuts (3) and wiring harness assembly (2) from pressure switch (4). Discard self–locking nuts.

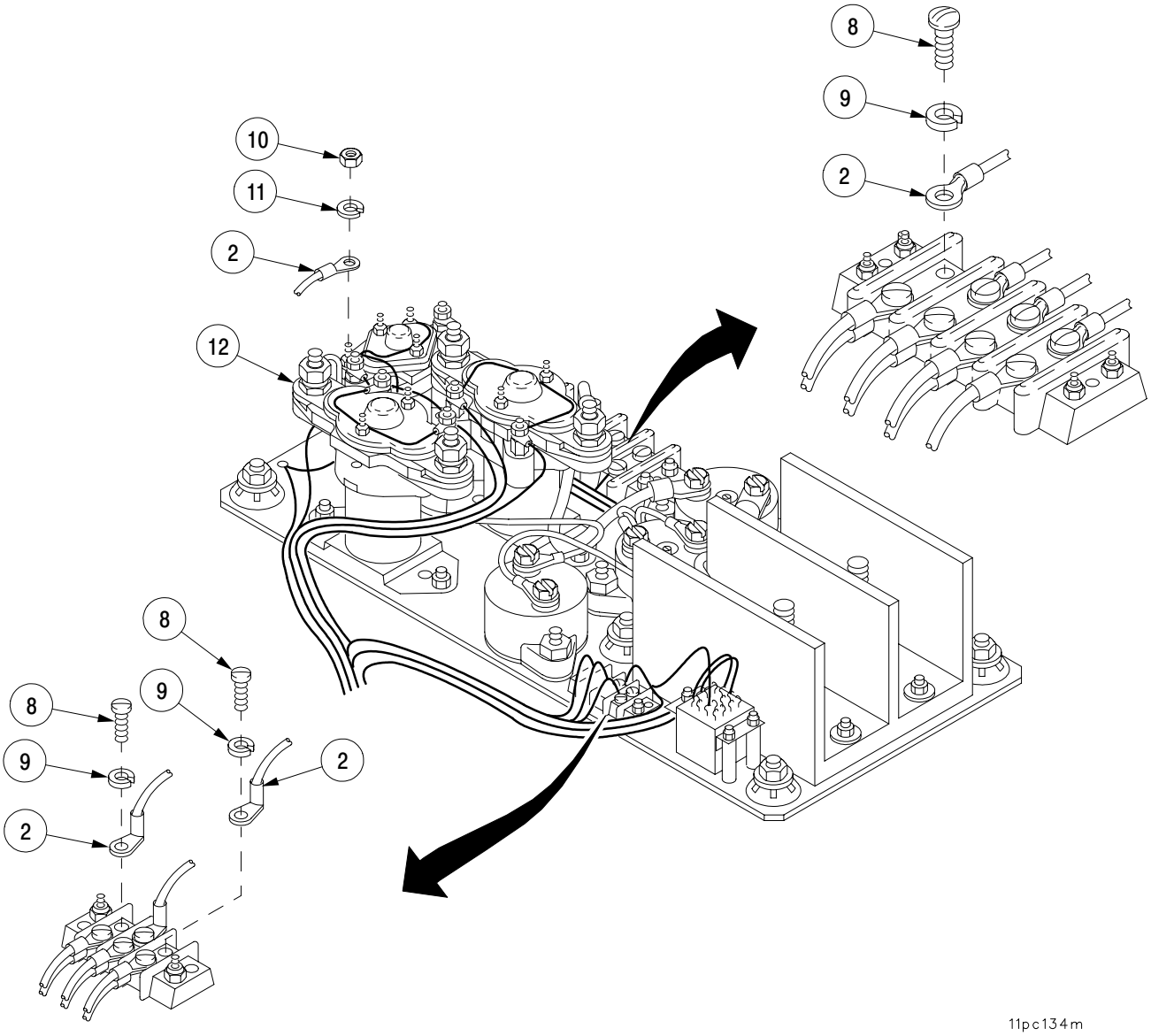
3 Remove two self–locking nuts (5), two flat washers (6), and wiring harness assembly (2) from blower (7). Discard self–locking nuts.



13–30 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH – CONTINUED

a. Removal – Continued

4 Remove three screws (8), three lockwashers (9), nut (10), lockwasher (11), and wiring harness assembly (2) from panel (12). Discard lockwashers.



13–30 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH – CONTINUED

a. Removal – Continued

5 Remove nut (13). Remove wiring harness assembly (2), seal (14), and locknut (13) from bulkhead.

6 Remove and discard any damaged tiedown strap mounting bases (15).

b. Installation.

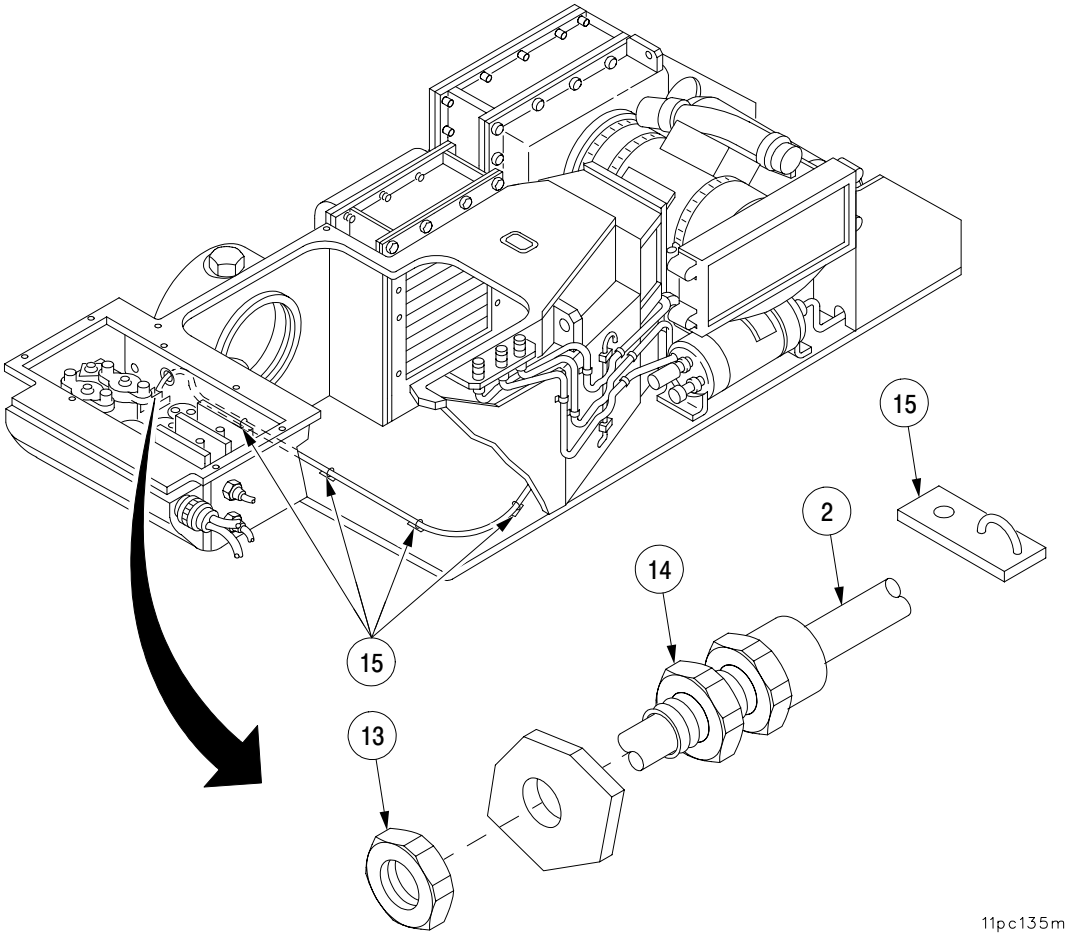
1 Clean mounting base area with isopropyl alcohol.

2 Apply adhesive to the bottom of the mounting bases (15) and position in place immediately.

3 Hold in place for 5–10 seconds, ready to use in 30–60 seconds.

4 Install wiring harness assembly (2) into bulkhead of MCS pack.

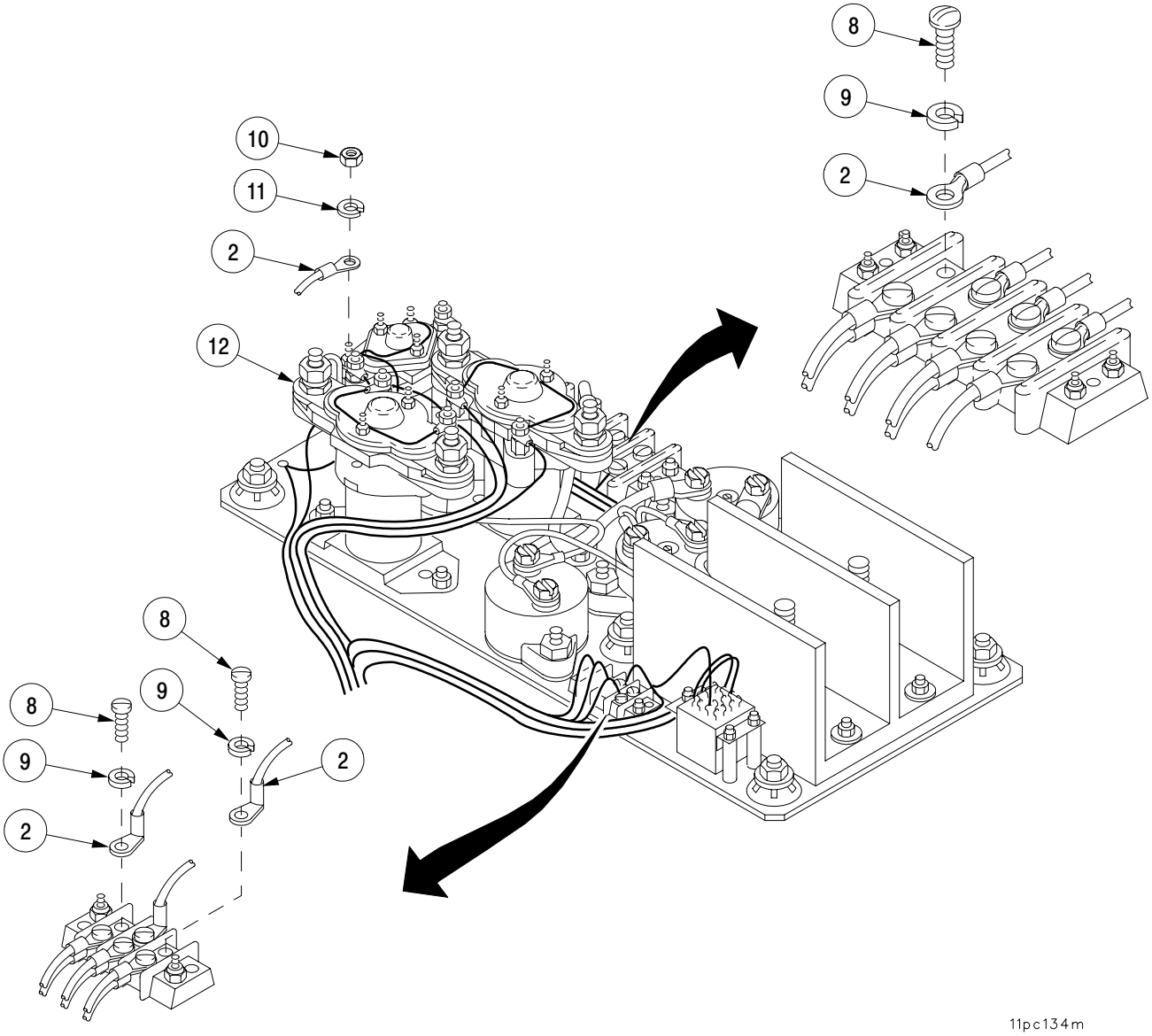
5 Apply adhesive on threads of seal (14) and nut (13) and install nut on seal. (Nut and seal supplied with harness assembly.)



13–30 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH – CONTINUED

b. Installation – Continued

6 Install wiring harness assembly (2) on relay panel (12) and secure with one nut (10), new lockwasher (11), three new lockwashers (9), and three screws (8).



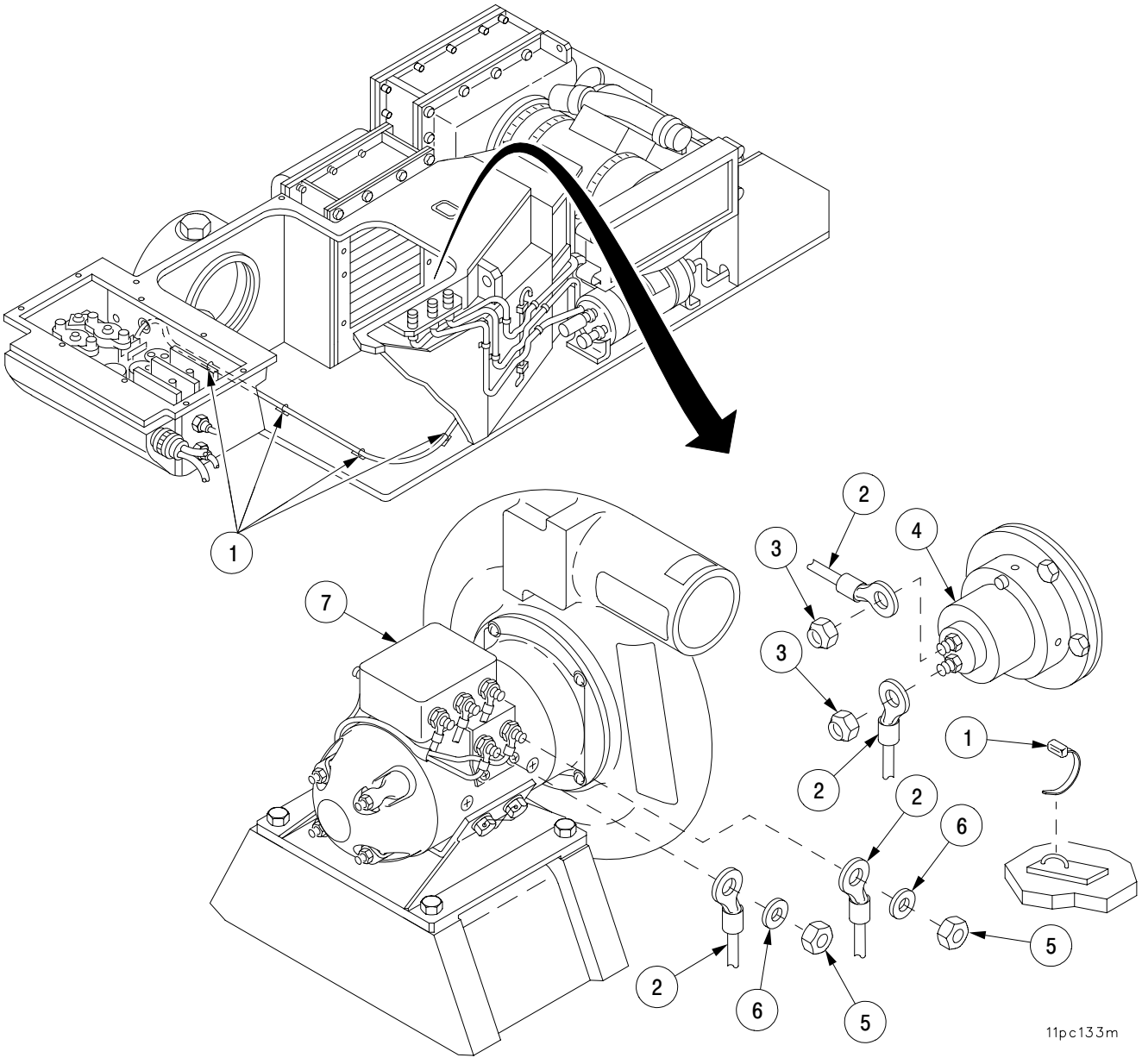
13–30 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH – CONTINUED

b. Installation – Continued

7 Install wiring harness assembly (2) to blower (7) and secure with two flat washers (6) and two new self–locking nuts (5).

8 Install wiring harness assembly (2) to pressure switch (4) with two new self–locking nuts (3).

9 Secure wiring harness assembly (2) with new tiedown straps (1).



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13–31 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Tiedown straps (AR) (item 83, Appx C)
Isopropyl alcohol (item 14, Appx C)
Adhesive (item 12, Appx C)
Swabbing brush (item 20, Appx C)
Marking tags (AR) (item 87, Appx C)
Self–locking nuts (3) (item 65, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Relay cover assembly removed (para 13–12)
NBC filter assembly removed (para 13–7)

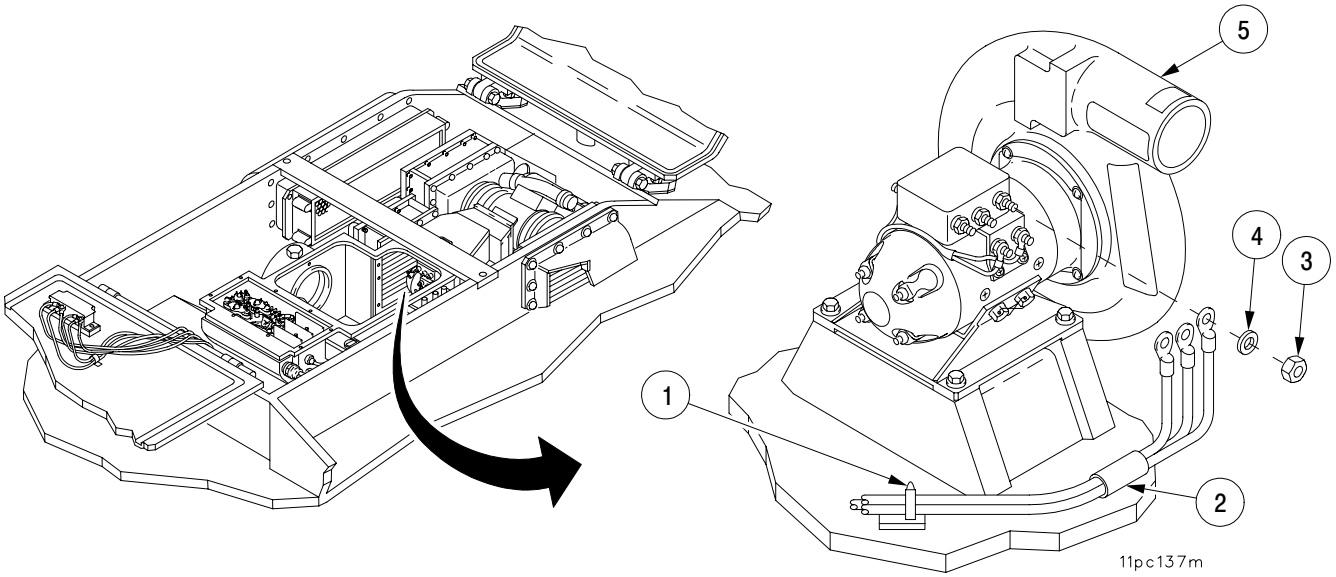
a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

1 Cut tiedown straps (1) securing wiring harness assembly (2). Discard tiedown straps.

2 Remove three self–locking nuts (3), three flat washers (4), and wiring harness assembly (2) from blower (5). Discard self–locking nuts.



13–31 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER – CONTINUED

a. Removal – Continued

3 Remove three screws (6), three flat washers (7), and wiring harness assembly (2) from relay panel (8).

4 Remove nut (9) and then remove wiring harness assembly (2), seal (10), and nut (9) from bulkhead (nut and seal supplied with harness assembly).

5 Remove wiring harness assembly (2) from MCS pack (11).

6 Remove and discard any damaged tiedown straps mounting bases (12).

b. Installation.

1 Clean tiedown strap mounting base area with isopropyl alcohol.

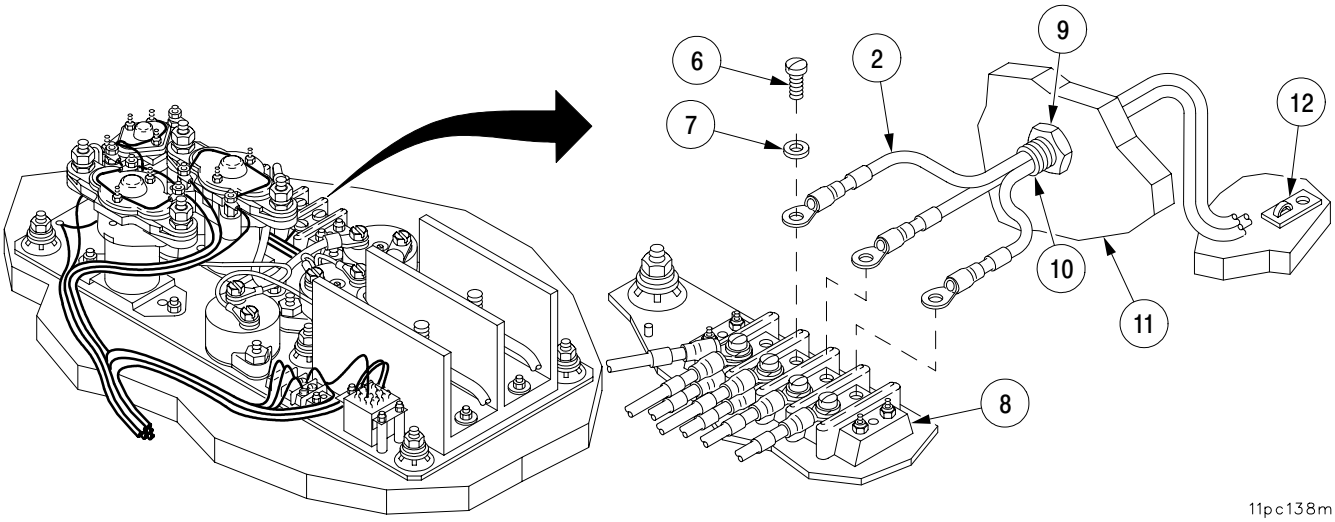
2 Apply adhesive to the bottom of tiedown strap mounting bases (12) and position in place immediately.

3 Hold in place for 5–10 seconds, ready to use in 30–60 seconds.

4 Install wiring harness assembly (2) into bulkhead of MCS pack (11).

5 Apply adhesive to threads of seal (10) and nut (9) and install nut on seal. (Seal and nut supplied with harness.)

6 Install wiring harness assembly (2) on relay panel (8) and secure with three flat washers (7) and three screws (6).

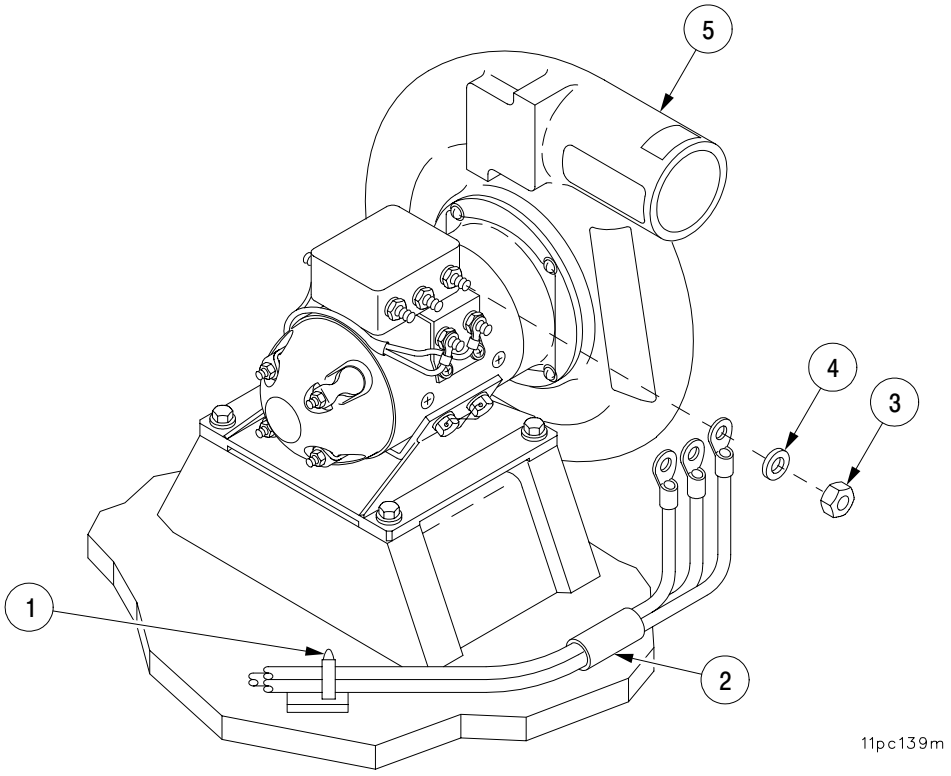


13–31 WIRING HARNESS ASSEMBLY FROM RELAY PANEL TO BLOWER – CONTINUED

b. Installation – Continued

7 Install wiring harness assembly (2) on blower (5) and secure with three flat washers (4) and three new self–locking nuts (3).

8 Secure wiring harness assembly (2) with new tiedown straps (1).



13–32 WIRING HARNESS ASSEMBLY MCS CONTROL BOX TO MCS PACK.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
MCS pack removed (para 13–6)
Compressor motor removed (para 13–18)

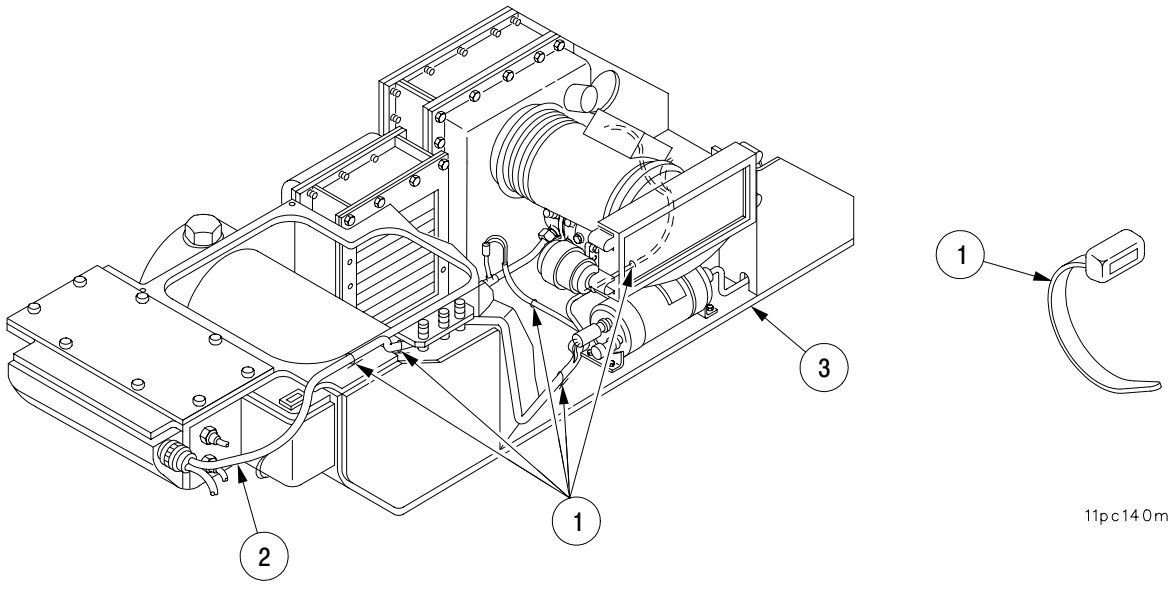
Materials/Parts
Marking tags (AR) (item 87, Appx C)
Tiedown straps (AR) (item 77, Appx C)
Tiedown straps (AR) (item 80, Appx C)
Tiedown straps (AR) (item 83, Appx C)
Isopropyl alcohol (item 14, Appx C)
Adhesive (item 12, Appx C)
Swabbing brush (item 20, Appx C)
Self–locking nuts (2) (item 65, Appx F)
Self–locking nuts (2) (item 59, Appx F)

a. Removal.

NOTE

Tag leads before disconnecting to aid in installation.

1 Cut tiedown straps (1) securing wiring harness assembly (2) to MCS (3). Discard tiedown straps.



13–32 WIRING HARNESS ASSEMBLY MCS CONTROL BOX TO MCS PACK – CONTINUED

a. Removal – Continued

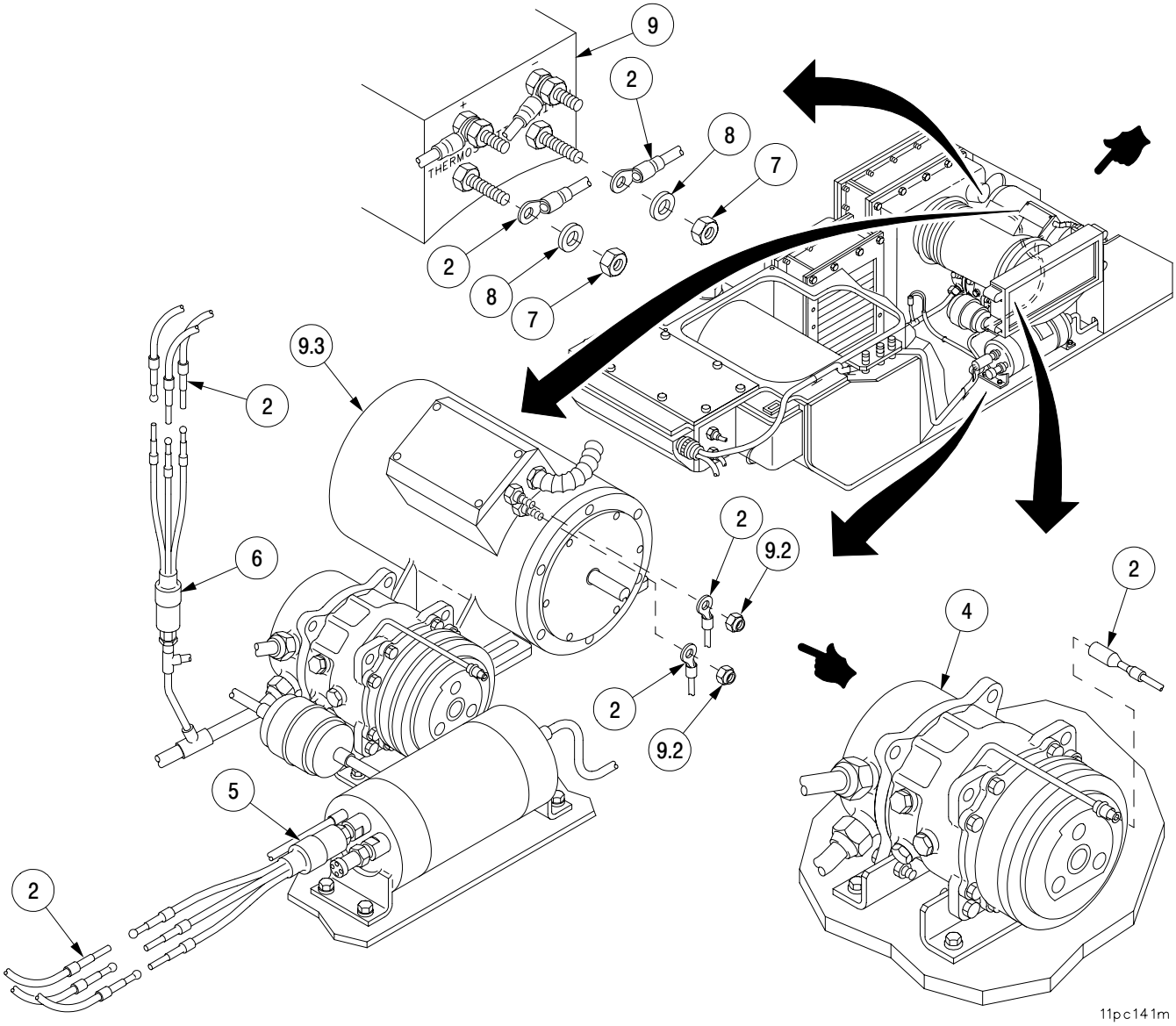
2 Disconnect wiring harness assembly (2) from CP RSR (4).

3 Disconnect wiring harness assembly (2) from low pressure cutout switch (5).

4 Disconnect wiring harness assembly (2) from high pressure cutout switch (6).

5 Remove two self–locking nuts (7), two flat washers (8), and wiring harness assembly (2) from fan assembly (9). Discard self–locking nuts.

5.1 Remove two self–locking nuts (9.2) and wiring harness assembly (2) from electric motor (9.3). Discard self–locking nuts.



13–32 WIRING HARNESS ASSEMBLY MCS CONTROL BOX TO MCS PACK – CONTINUED

a. Removal – Continued

6 Disconnect wiring harness assembly (2) from hourmeter (10).

7 Disconnect wiring harness assembly (2) from relay panel (11).

8 Remove wiring harness assembly (2) from MCS (3).

8.1 Disconnect wiring harness assembly (2) from hot gas pressure switch (11.1) electrical leads.

8.2 Disconnect wiring harness assembly (2) from hot gas solenoid valve (11.2) electrical leads.

9 Remove and discard any damaged tiedown strap mounting bases (12).

b. Installation.

1 Clean tiedown strap mounting base area with isopropyl alcohol.

2 Apply adhesive to bottom of tiedown strap mounting bases (12) and position in place immediately.

3 Hold in place for 5–10 seconds, and allow to set for 30–60 seconds.

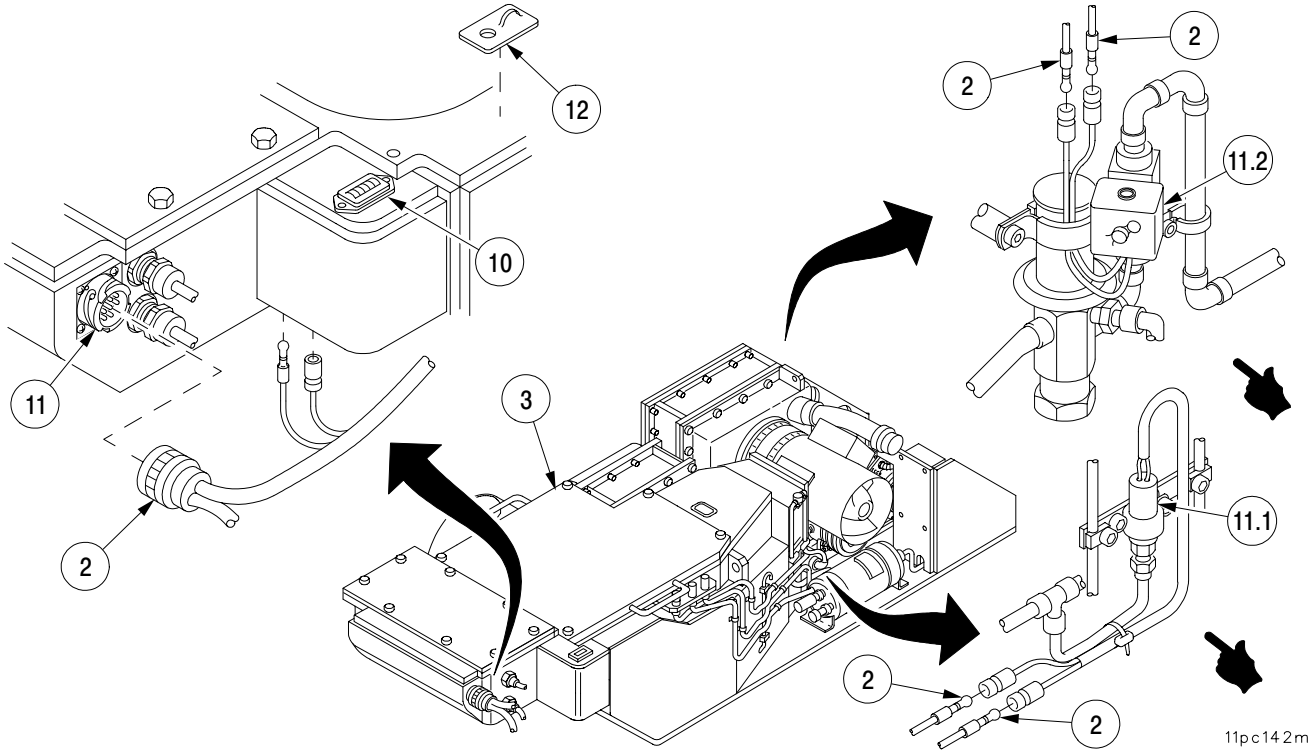
4 Position wiring harness assembly (2) in MCS (3).

4.1 Connect wiring harness assembly (2) to hot gas solenoid valve (11.2).

4.2 Connect wiring harness assembly (2) to hot gas pressure switch (11.1).

5 Connect wiring harness assembly (2) to relay panel (11).

6 Connect wiring harness assembly (2) to hourmeter (10).



13–32 WIRING HARNESS ASSEMBLY MCS CONTROL BOX TO MCS PACK – CONTINUED

b. Installation – Continued

6.1 Install wiring harness assembly (2) on electric fan (9.3) and secure with two new self–locking nuts (9.2).

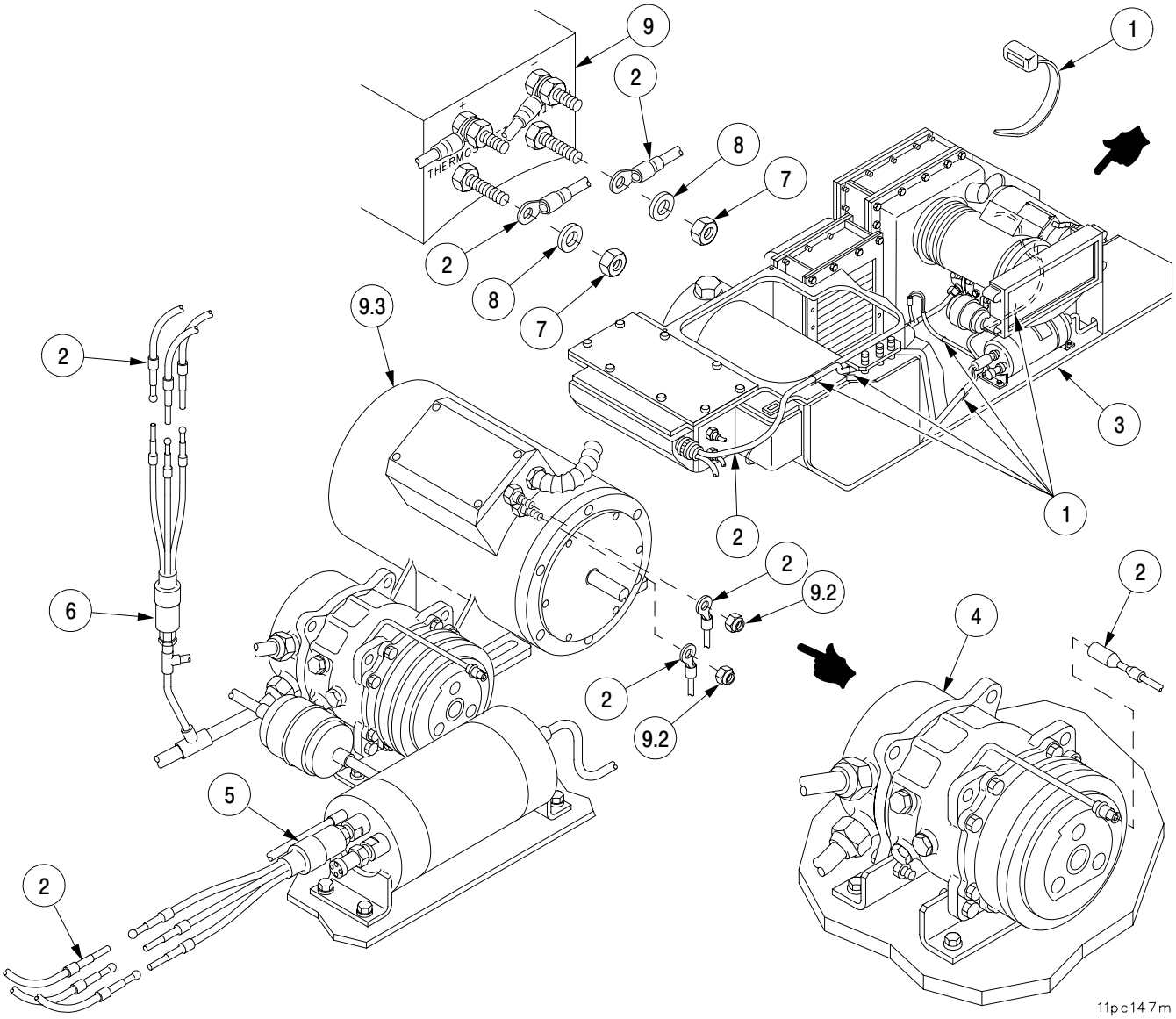
7 Install wiring harness assembly (2) on fan assembly (9) and secure with two flat washers (8) and two new self–locking nuts (7).

8 Connect wiring harness assembly (2) to high pressure cutout switch (6).

9 Connect wiring harness assembly (2) to low pressure cutout switch (5).

10 Connect wiring harness assembly (2) to CP RSR (4).

11 Secure wiring harness assembly (2) to MCS (3) with new tiedown straps (1).



13–33 M3 HEATER.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwasher (item 109, Appx F)
Lockwashers (4) (item 128, Appx F)

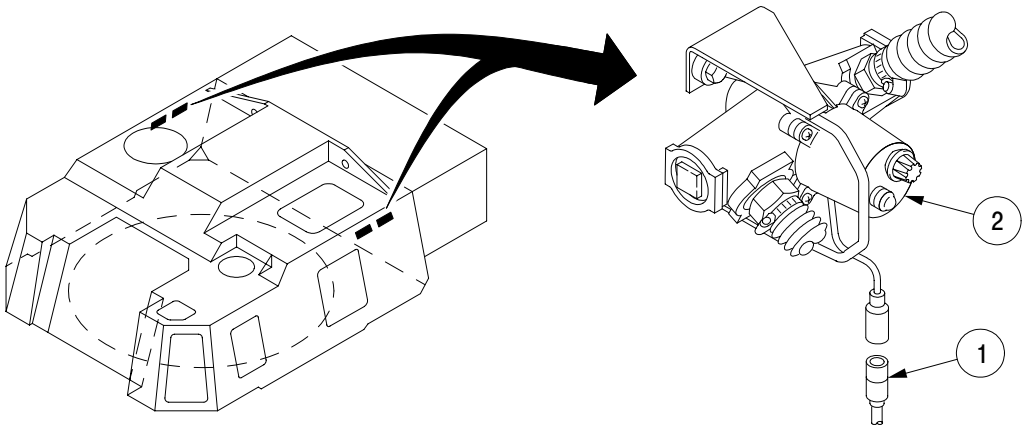
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

NOTE

- There are four M3 heaters. The removal and installation procedures are identical except the left heater has an elbow. This procedure covers only one heater.
- Depending on installation, the inlet and outlet ports can be perpendicular or parallel to the heater body.

1 Disconnect MCS power harness (1) from heater (2).



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13–33 M3 HEATER – CONTINUED

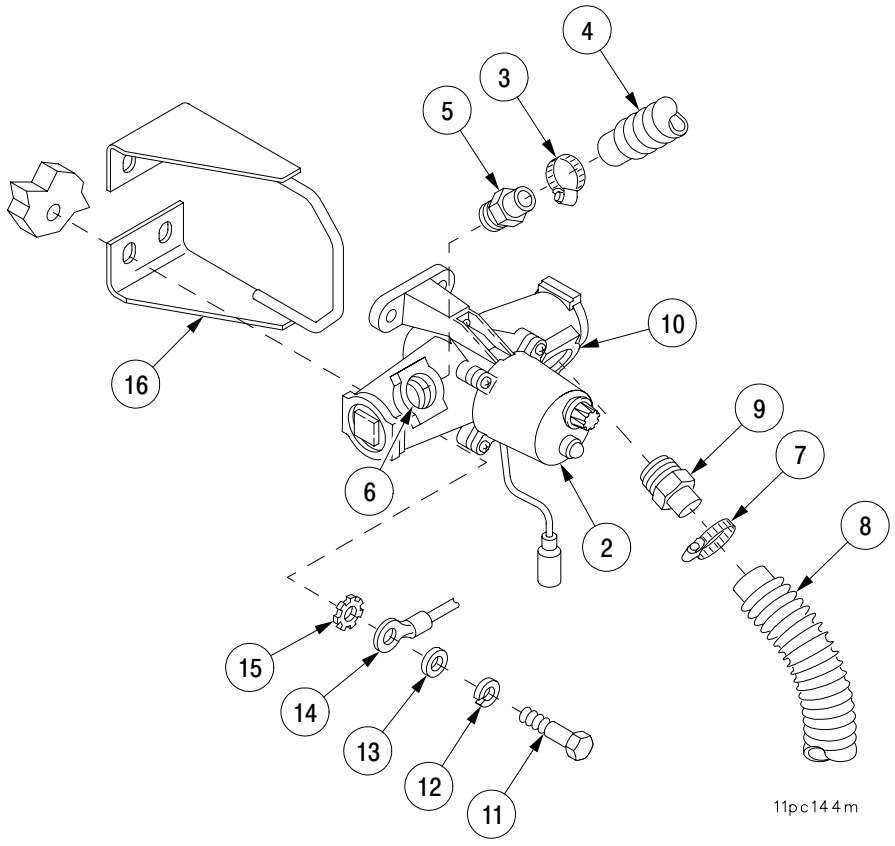
a. Removal – Continued

2 Remove hose clamp (3) and disconnect hose (4) from adapter (5) at inlet port (6) of heater (2).

3 Remove hose clamp (7) and disconnect hose (8) from adapter (9) in outlet port (10) of heater (2).

4 Remove four screws (11), four lockwashers (12), four flat washers (13), ground wire (14), lockwasher (15), heater (2), and guard (16). Discard lockwashers.

5 Remove two adapters (5 and 9).



13–33 M3 HEATER – CONTINUED

b. Disassembly.

1 Turn lens (17) counterclockwise and remove.

2 Remove lamp (18) from lens (17).

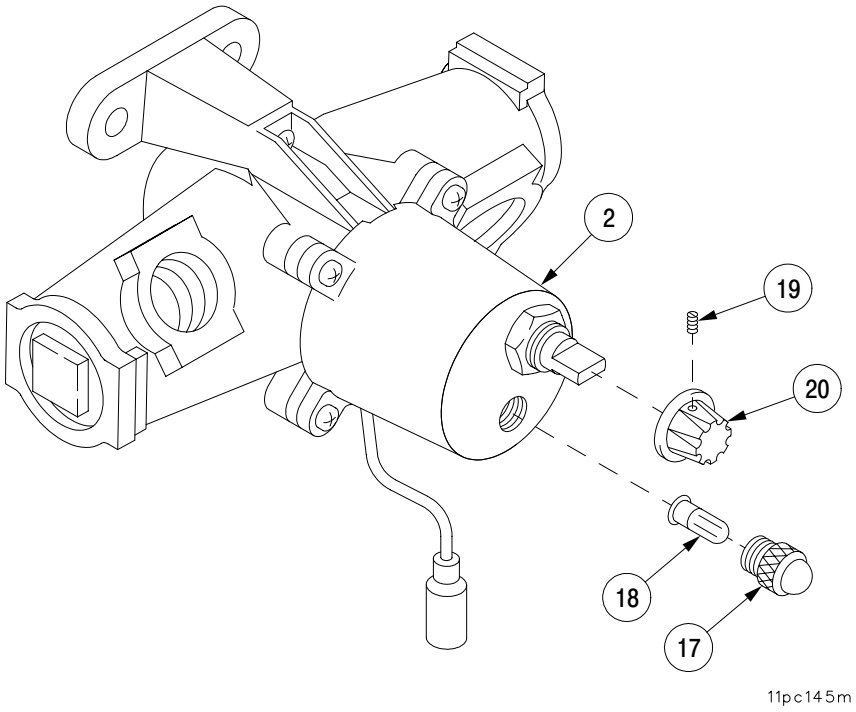
3 Remove setscrew (19) and pull knob (20) off heater (2).

c. Assembly.

1 Install lamp (18) in lens (17).

2 Install lens (17) in heater (2) by turning clockwise.

3 Position knob (20) on heater (2) and tighten setscrew (19).



13–33 M3 HEATER – CONTINUED

d. Installation.

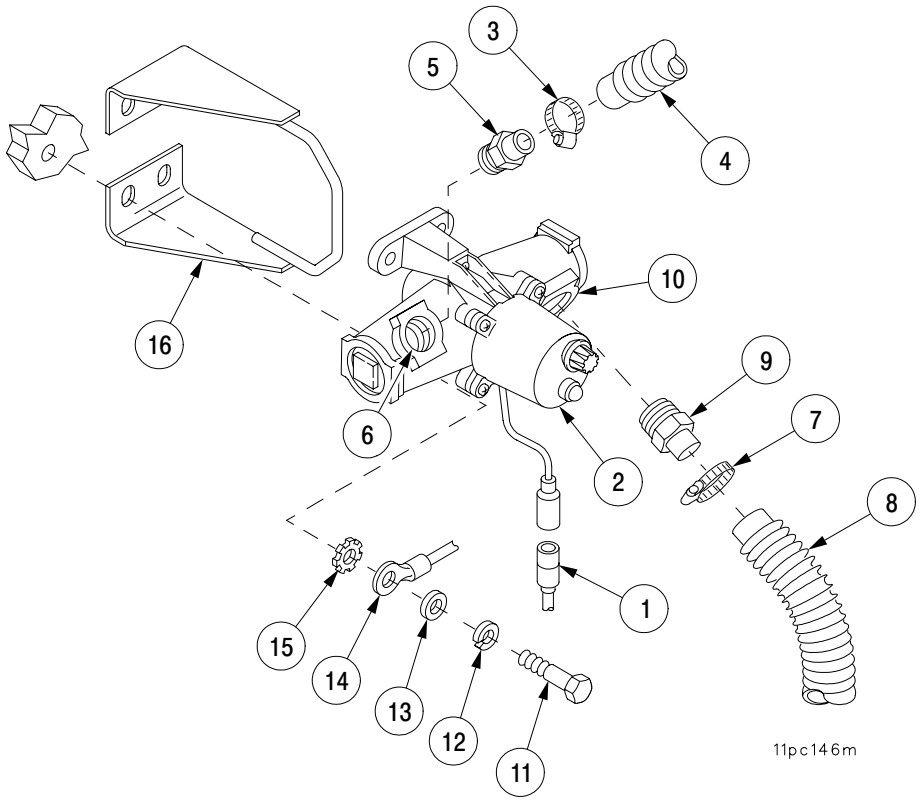
1 Install adapter (5) in inlet port (6) and adapter (9) in outlet port (10) of heater (2).

2 Install guard (16), heater (2), new lockwasher (15), ground wire (14), four flat washers (13), four new lockwashers (12), and four screws (11).

3 Connect hose (8) through clamp (7) to adapter (9) in outlet port (10) of heater (2). Tighten clamp.

4 Connect hose (4) through clamp (3) to adapter (5) in inlet port (6). Tighten clamp.

5 Connect MCS power harness (1) to heater (2).



13–34 CONNECTOR ASSEMBLY AND SUPPLY HOSE TO FACE MASK AND VEST.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Vehicle MASTER power switch OFF
(TM 9–2350–314–10)
Electrical power to MCS system off
(TM 9–2350–314–10)

NOTE

There are four connector assemblies. The removal and installation procedures are identical. This procedure covers only one connector assembly.

a. Removal.

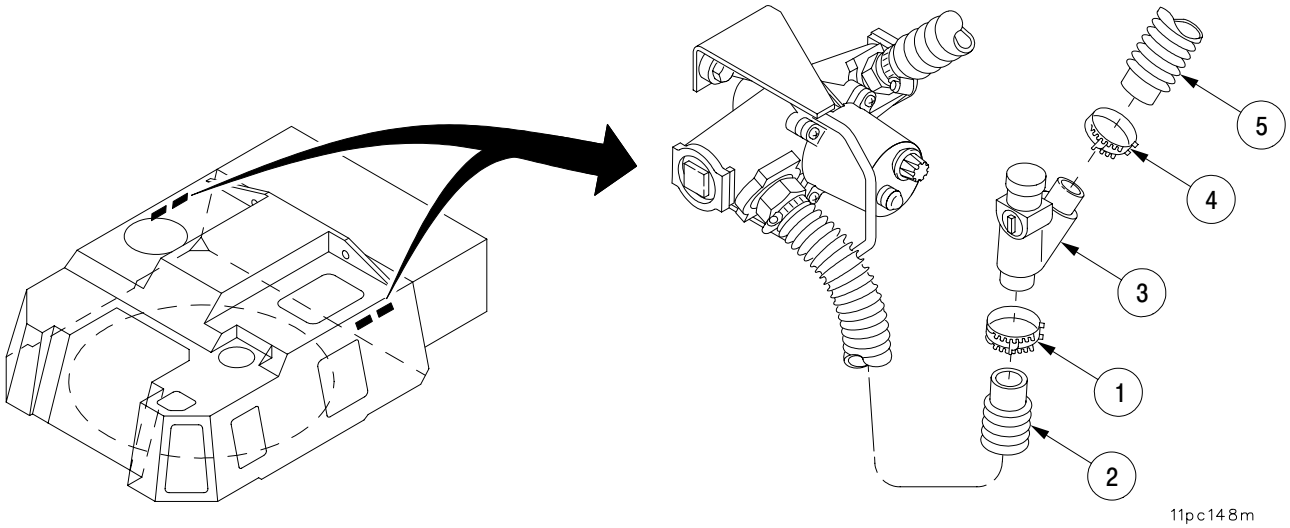
1 Remove hose clamp (1) and remove hose (2) from connector assembly (3).

2 Remove hose clamp (4) and remove hose (5) from connector assembly (3).

b. Installation.

1 Install hose (5) on connector assembly (3) with hose clamp (4).

2 Install hose (2) on connector assembly (3) with hose clamp (1).



13–35 MCS CONTROL BOX AND GROUND STRAP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 128, Appx F)
Lockwashers (2) (item 102, Appx F)

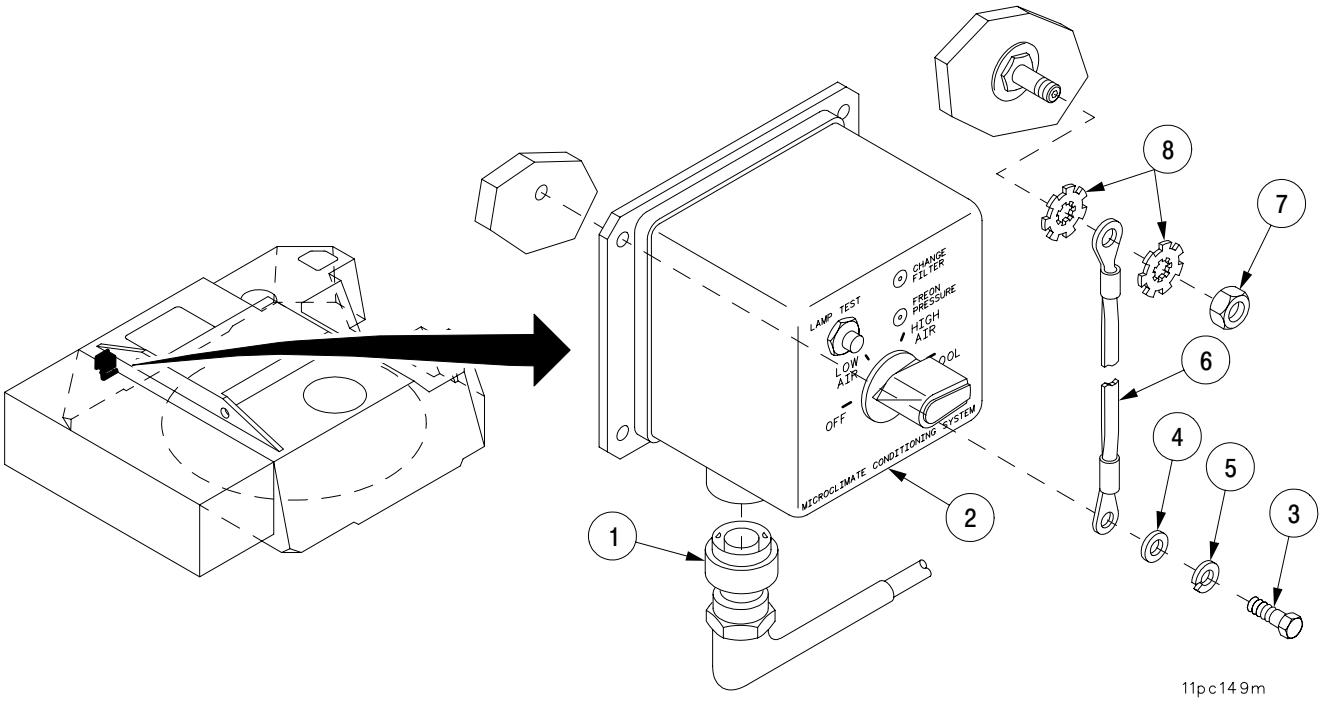
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

1 Disconnect electrical connector (1) from control box (2).

2 Remove four screws (3), four flat washers (4), four lockwashers (5), end of ground strap (6), and control box (2). Discard lockwashers.

3 Remove nut (7), two lockwashers (8), and ground strap (6). Discard lockwashers.



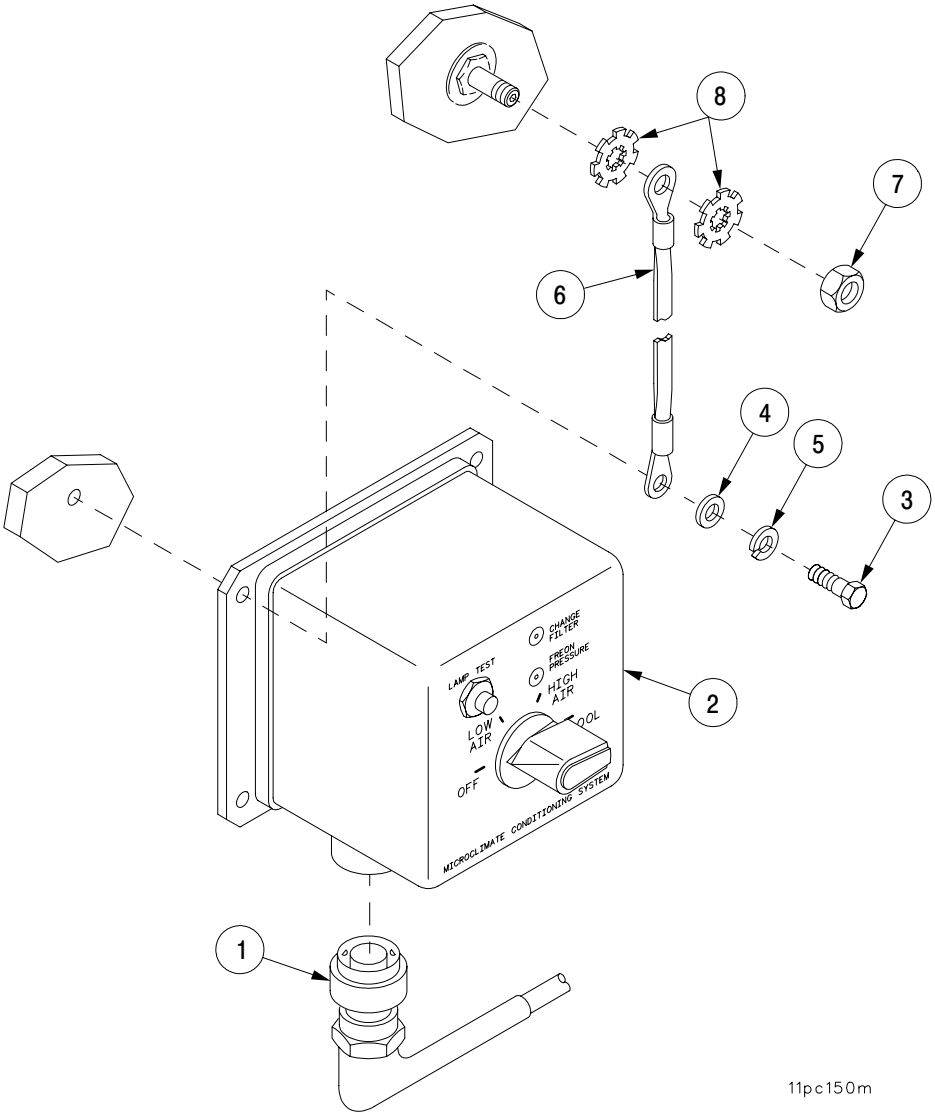
13–35 MCS CONTROL BOX AND GROUND STRAP – CONTINUED

b. Installation.

1 Install ground strap (6) with two new lockwashers (8) and nut (7).

2 Install control box (2) and end of ground strap (6) with four screws (3), four flat washers (4), and four new lockwashers (5).

3 Connect electrical connector (1) to control box (2).



CHAPTER 14
COMMANDER'S CUPOLA

GENERAL

This chapter illustrates and describes maintenance procedures for the commander's cupola cover, latch handle, and .50 caliber machine gun M2 mount support. Step–by–step procedures are provided for removal, repair, and installation as required by unit level maintenance.

CONTENTS

14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit, (SC 5180–95–A12)

Equipment Conditions
Machine gun support removed (para 14–3)

Materials/Parts
Cotter pins (2) (item 77, Appx F)
Lockwashers (2) (item 106, Appx F)
Gasket (item 170, Appx F)
Bowed washer (item 207, Appx F)
Seal (item 165, Appx F)
Adhesive (item 6, Appx C)
Adhesive (item 49, Appx C)
Automotive grease (item 52, Appx C)
Spring pin (item 23, Appx F)
Lockwashers (2) (item 129, Appx F)
Cotter pin (item 80, Appx F)
Cotter pins (2) (item 78, Appx F)
Cotter pins (2) (item 75, Appx F)
Cushioning pad (item 164, Appx F)

Personnel Required
Two

a. Removal.

1 Unlatch commander's cupola cover (1) and open to upright position (support cover in this position to release preload on torsion bar).

2 Remove two screws (2) and two lockwashers (3). Discard lockwashers.

NOTE

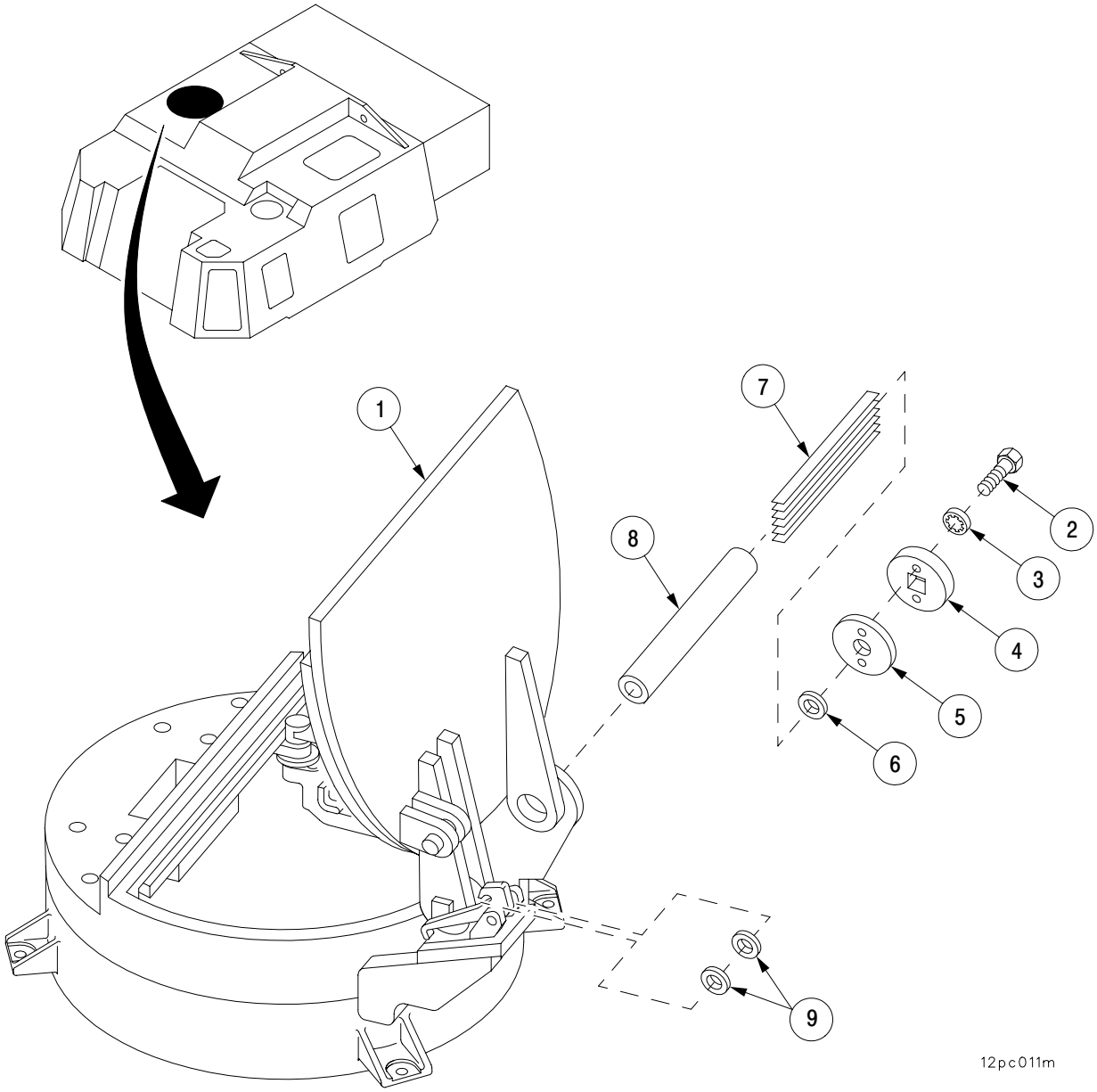
Note location and quantity of shim(s) being removed in step 3 and 4 to ensure shim(s) are installed in same position.

3 Remove anchor plate (4), anchor shim(s) (5), and tube shim(s) (6).

4 Remove torsion hinge spring pack (7), torsion bar tube (8), and tube shim(s) (9).

14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE – CONTINUED

a. Removal – Continued



14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE – CONTINUED

b. Disassembly.

1 Remove spring pin (10) and lockpin (11). Discard spring pin.

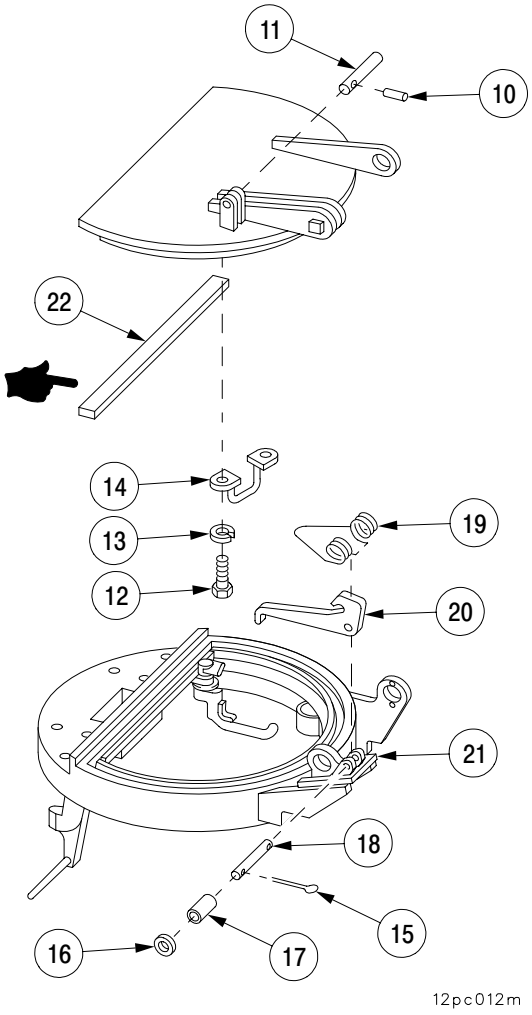
2 Remove two screws (12), two lockwashers (13), and handle (14). Discard lockwashers.

3 Remove two cotter pins (15), two flat washers (16), spacer (17), latch pin (18), latch spring (19), and latch (20) from latch bracket (21). Discard cotter pins.

4 Remove and discard cover seal (22).

NOTE

Scrape dirt and adhesive from cupola seal seat.



14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE – CONTINUED

b. Disassembly – Continued

5 Remove cotter pin (23), castle nut (24), two shims (25), and latch handle (26). Discard cotter pin.

6 Remove locking cam (27), cam key (28), shim (29), and bowed washer (30). Discard bowed washer.

7 Remove two cotter pins (31), two flat washers (32), two springs (33), and two periscope hooks (34). Discard cotter pins.

8 Remove and discard gasket (35).

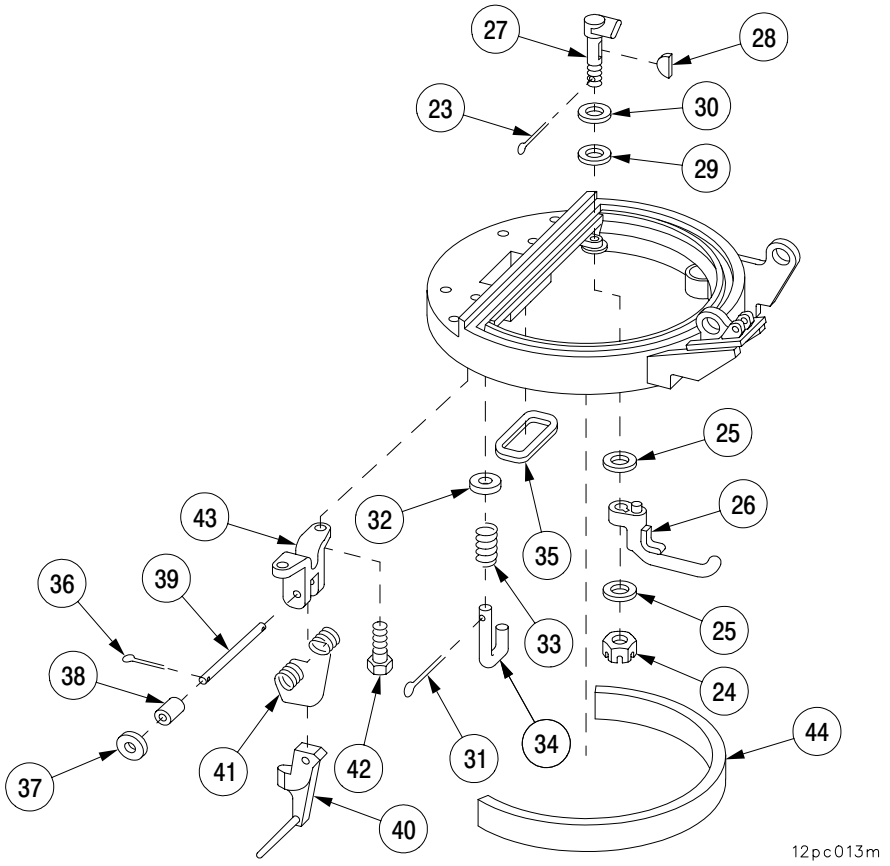
NOTE

Clean dirt and adhesives from gasket seat.

9 Remove two cotter pins (36), two flat washers (37), two spacers (38), pin (39), latch (40), and spring (41). Discard cotter pins.

10 Remove two screws (42) and bracket (43).

11 Remove and discard pad (44).



14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE – CONTINUED

c. Assembly.

1 Apply adhesive to new pad (44) and install.

2 Install bracket (43) with two screws (42).

3 Install spring (41), latch (40), pin (39), two spacers (38), two flat washers (37), and two new cotter pins (36).

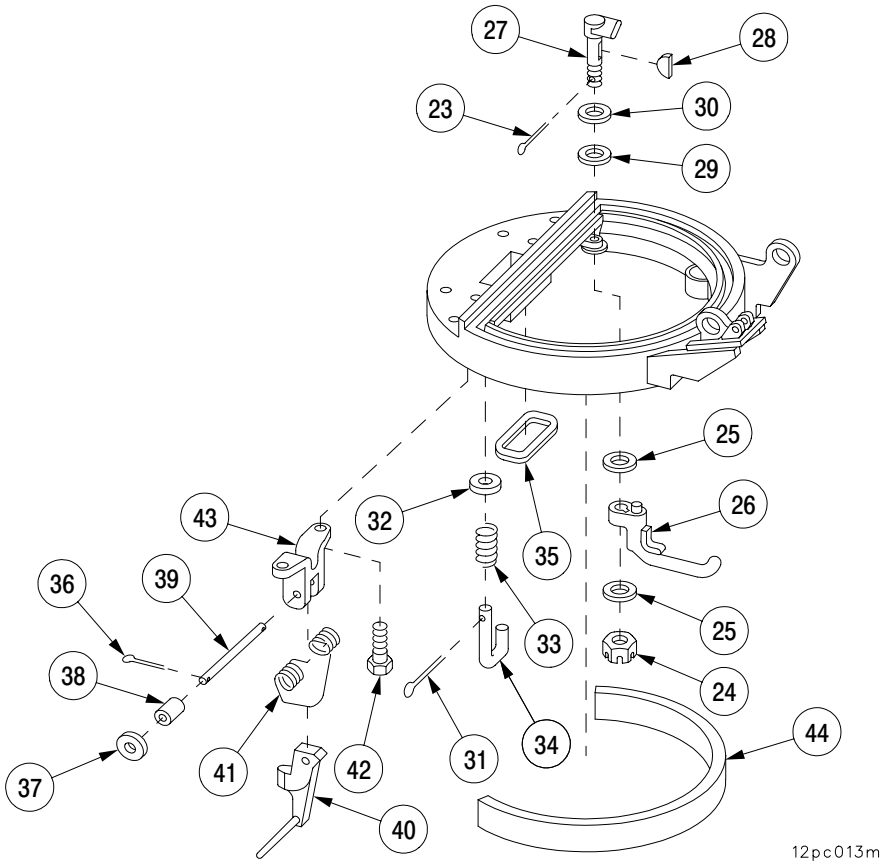
4 Apply adhesive to new gasket (35) and install.

5 Install two periscope hooks (34), two springs (33), two flat washers (32), and two new cotter pins (31).

6 Install new bowed washer (30) to provide a depression of 0.031 in. (0.787 mm) in UNLOCK position.

7 Insert shim(s) (29) as required, cam key (28), and locking cam (27).

8 Install latch handle (26), shim(s) (25) as required, castle nut (24), and new cotter pin (23).



14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE – CONTINUED

c. Assembly – Continued

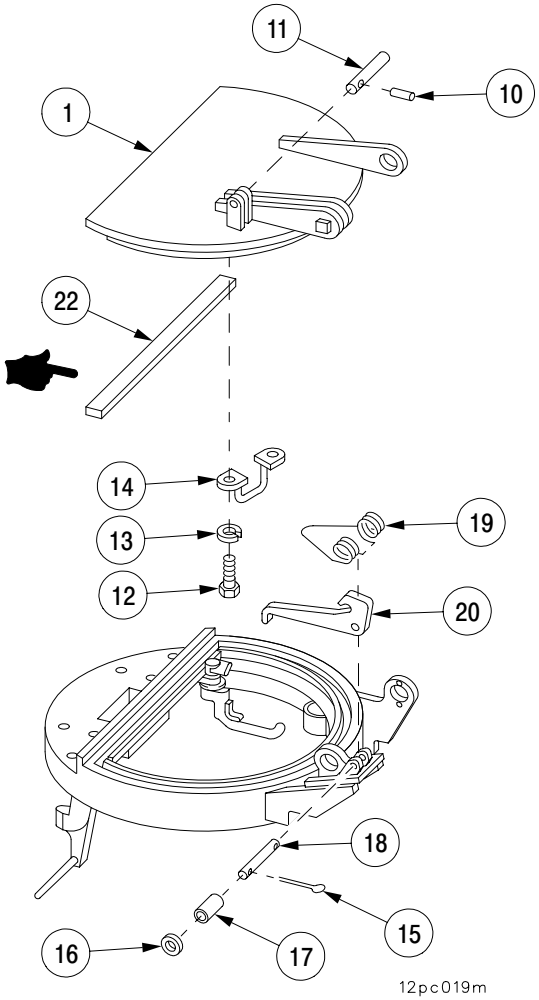
9 Install latch (20), latch spring (19), latch pin (18), spacer (17), two flat washers (16), and two new cotter pins (15).

10 Install locking cam seat (14), two new lockwashers (13), and two screws (12).

11 Apply adhesive to new cupola seal (22) and install.

12 Place cupola cover (1) on top of cupola body.

13 Install lockpin (11) and new spring pin (10).



14–1 CUPOLA ASSEMBLY COVER AND LATCH HANDLE – CONTINUED

d. Installation.

1 Position cupola cover (1) in the closed position on cupola body (45).

2 Lightly coat each leaf spring in the torsion hinge spring pack (7) with grease.

NOTE

Steps 3 and 4 are required only if cupola cover (1) is being replaced or if new shims are being installed for alignment.

3 Install torsion bar tube (8) and tube shim(s) (9), as required, to center cupola cover (1) on cupola body (45) within 0.047 in. (1.1 mm).

4 While holding tube shim(s) (9) in place, temporarily remove torsion bar tube (8).

5 Install torsion hinge spring pack (7). Ensure torsion hinge spring pack (7) seats into cupola cover (1).

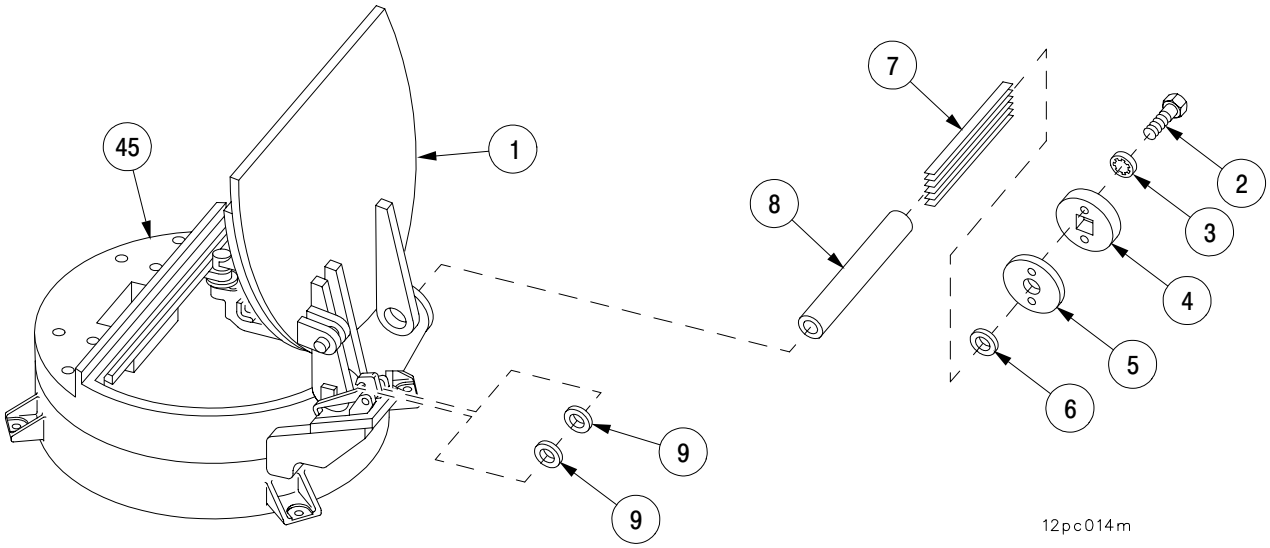
6 Install torsion bar tube (8) and tube shim(s) (6), as required, to provide from 0.005 to 0.205 in. (0.127 to 5.207 mm) clearance between far end of torsion bar tube (8) and cupola cover (1) hinge.

7 Open cupola cover (1) to upright position.

8 Install anchor shim(s) (5), as required, and anchor plate (4) to provide from 0.016 to 0.078 in. (0.406 to 1.981 mm) clearance between torsion hinge spring pack (7) ends and anchor plate (4).

9 Install two new lockwashers (3) and two screws (2).

10 Close and latch cupola cover (1).



14–2 HANDLES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)
Socket wrench (item 48, Appx G)

Materials/Parts
Self–locking bolts (2) (item 140, Appx F)

NOTE

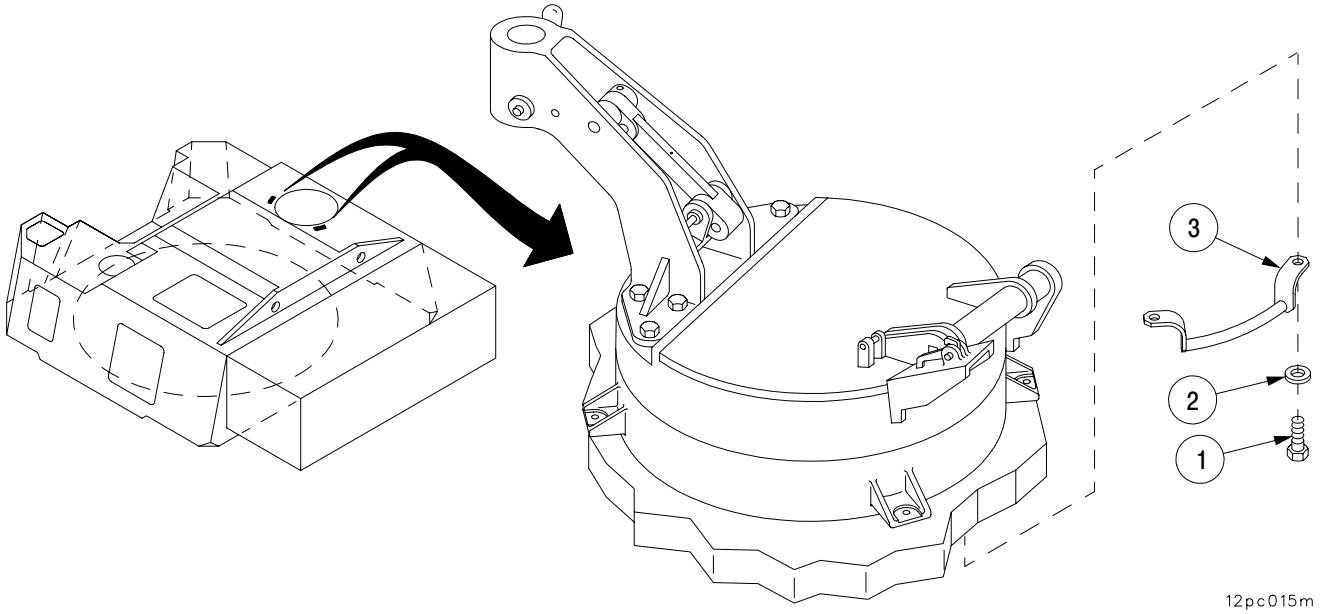
There are two handles. The removal and installation procedures are identical for both. This procedure covers only one handle.

a. Removal.

Remove two self–locking bolts (1), two flat washers (2), and handle (3) from cab. Discard self–locking bolts.

b. Installation.

Install handle (3) in cab with two flat washers (2) and two new self–locking bolts (1). Torque bolts to 299–330 lb–ft (405–447 N·m).



14–3 MACHINE GUN MOUNT SUPPORT.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

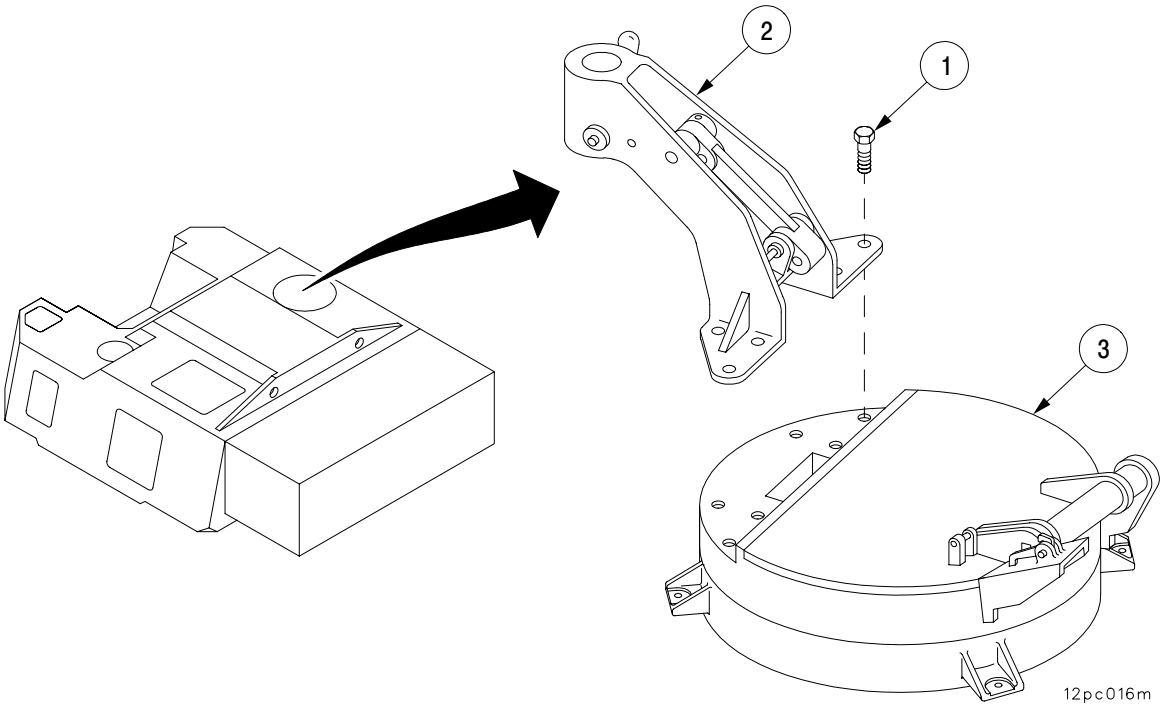
Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Materials/Parts
Cotter pin (item 78, Appx F)
Cotter pins (2) (item 83, Appx F)
Spring pins (2) (item 31, Appx F)
Spring pin (item 25, Appx F)

a. Removal.

1 Remove six screws (1) from mount assembly (2).

2 Lift mount (2) off cupola (3).



14–3 MACHINE GUN MOUNT SUPPORT – CONTINUED

b. Disassembly.

1 Remove and discard two cotter pins (4). Remove headless pin (5) from mount (2).

2 Remove quick–release pin (7) and chain (8) securing connecting link (9) to mount (2).

3 Remove cotter pin (10), cover (11), and spring (12). Discard cotter pin.

4 Remove two spring pins (13) and lock handle (14). Discard spring pins.

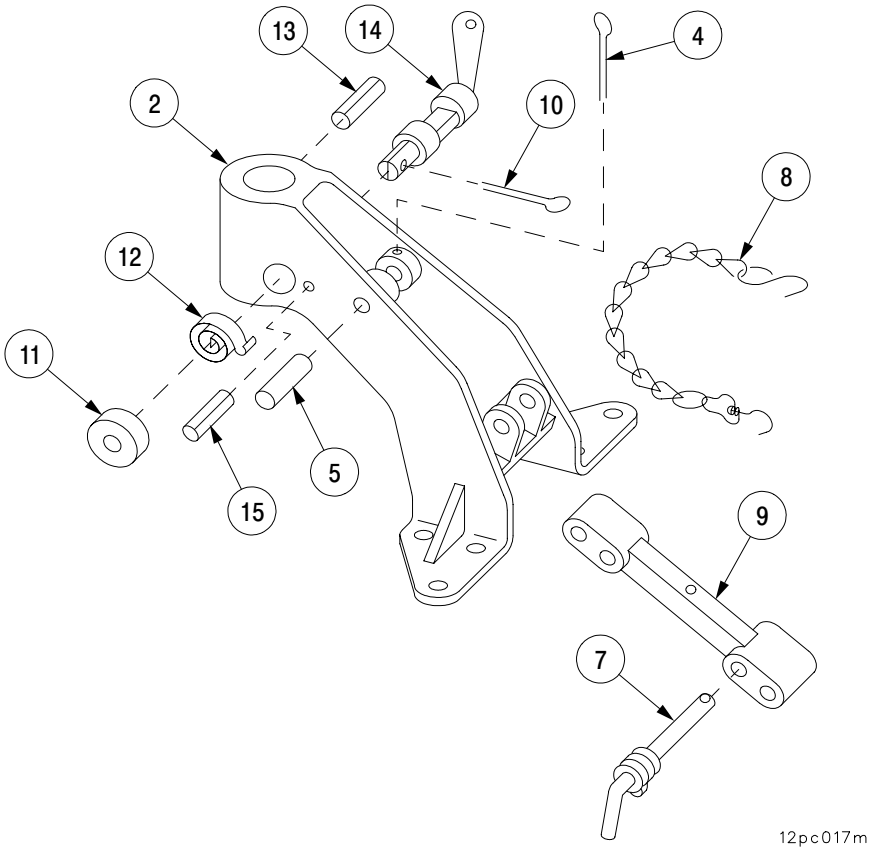
5 Remove spring pin (15) from mount (2). Discard spring pin.

c. Assembly.

1 Insert spring (12) into hole on mount (2). Insert one new spring pin (15) in mount (2). Insert two new spring pins (13) and lock handle (14) into hole on mount (2). Secure spring (12), lock handle (14), and cover (11) to mount (2) with new cotter pin (10).

2 Secure top of connecting link (9) to mount (2) with headless pin (5) and two new cotter pins (4).

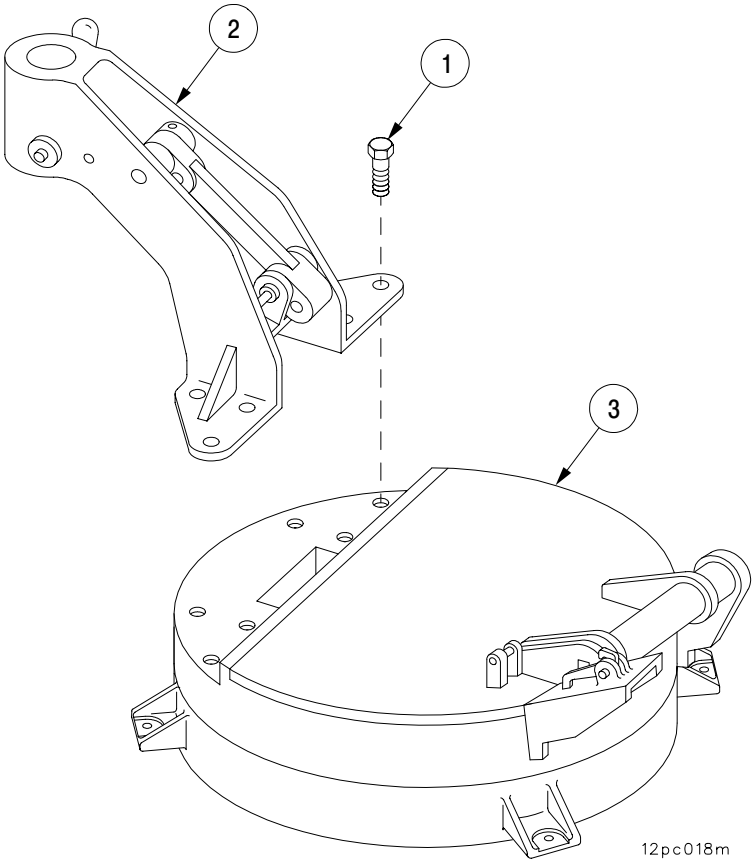
3 Place bottom of connecting link (9) between brackets on mount (2). Install chain (8). Insert quick–release pin (7) through brackets on mount (2) and connecting link (9).



14–3 MACHINE GUN MOUNT SUPPORT – CONTINUED

d. Installation.

Install mount (2) on cupola (3) with six screws (1)



CHAPTER 15
BUSTLE COMPONENTS

GENERAL

This chapter illustrates and describes maintenance procedures for the bustle components. Step–by–step procedures are provided for removal, repair, and installation as required for unit level maintenance.

CONTENTS Page

15–1 RIGHT OR LEFT CHANNEL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Cab traverse lock locked
(TM 9–2350–314–10)

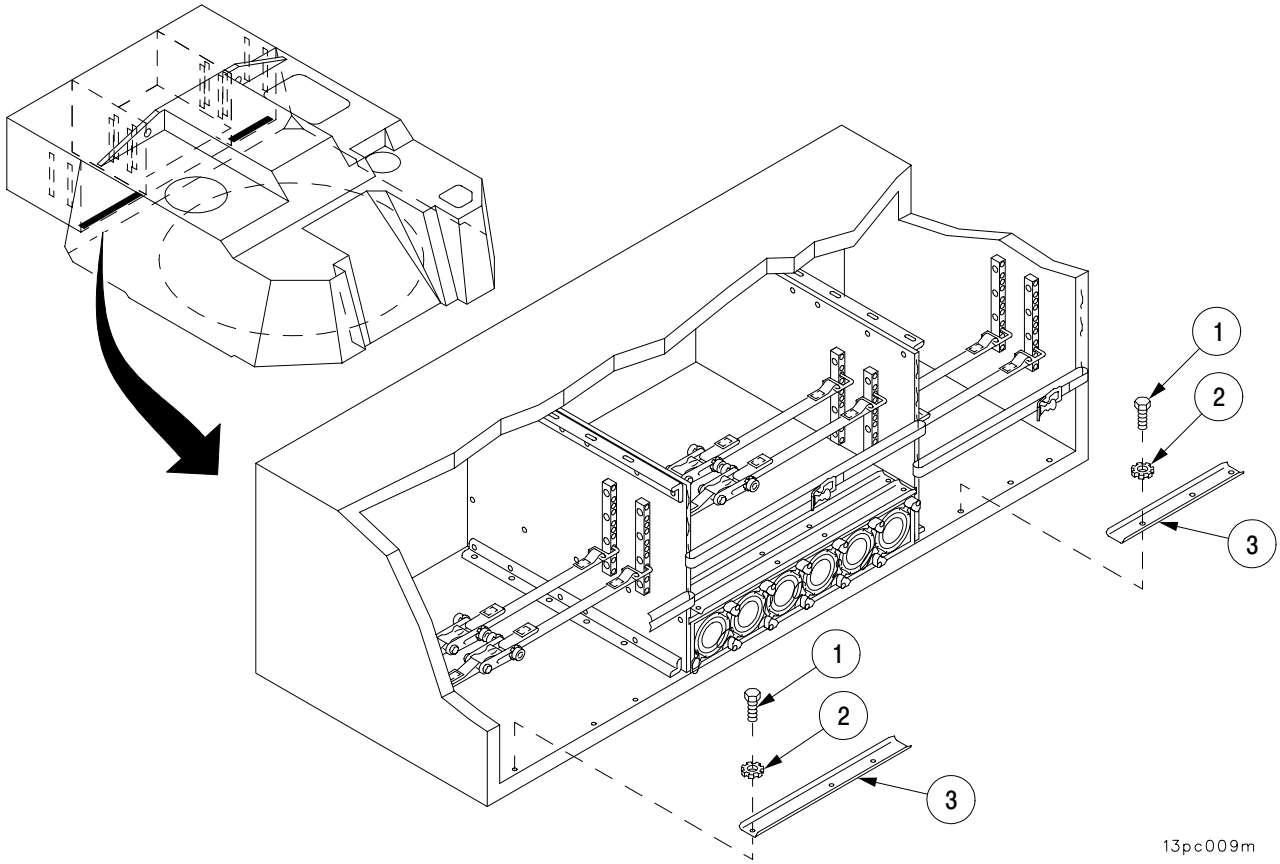
Materials/Parts
Lockwashers (3) (item 111, Appx F)

a. Removal.

Remove three screws (1), three lockwashers (2), and channel (3) from bustle. Discard lockwashers.

b. Installation.

Install channel (3) on bustle with three new lockwashers (2) and three screws (1).



15–2 CENTER PLATE, CHANNEL, AND ANGLE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (8) (item 111, Appx F)
Sealing compound (item 42, Appx C)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)
Retaining straps removed (para 15–5)

Personnel Required
Two

a. Removal.

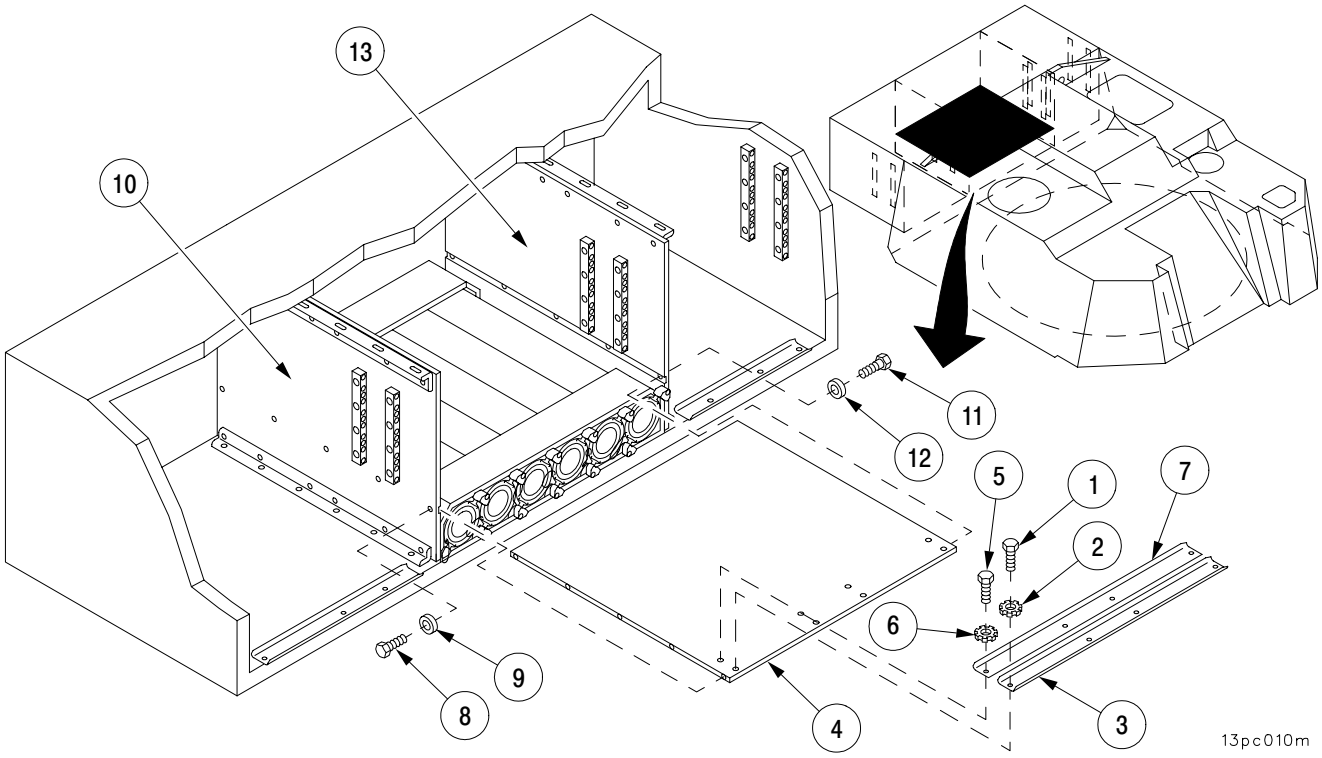
1 Remove four screws (1), four lockwashers (2), and center channel (3) from plate (4). Discard lockwashers.

2 Remove four screws (5), four lockwashers (6), and center angle (7) from plate (4). Discard lockwashers.

3 Remove five screws (8) and five flat washers (9) securing plate (4) to right plate (10).

4 Remove five screws (11) and five flat washers (12) securing plate (4) to left plate (13).

5 Remove plate (4).



15–2 CENTER PLATE, CHANNEL, AND ANGLE – CONTINUED

b. Installation.

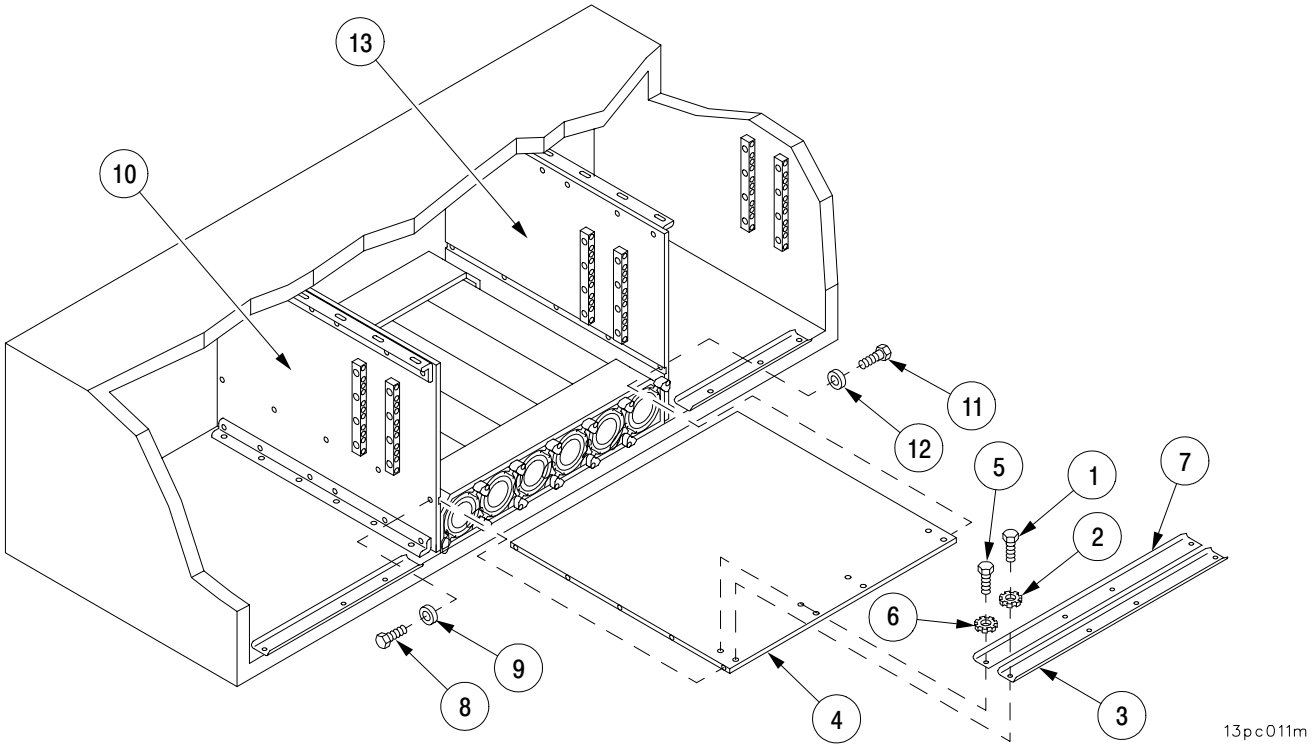
1 Apply sealing compound to threads of screws (8 and 11).

2 Position plate (4) in center section of bustle and secure to left plate (13) with five screws (11) and five flat washers (12).

3 Secure plate (4) to right plate (10) with five screws (8) and five flat washers (9).

4 Position center angle (7) on plate (4) and secure with four screws (5) and four new lockwashers (6).

5 Position center channel (3) on plate (4) and secure with four screws (1) and four new lockwashers (2).



15–3 RIGHT OR LEFT PLATE AND ANGLES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Sealing compound (item 42, Appx C)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)
Retainer bars removed (para 15–4)
Retaining straps removed (para 15–5)

Personnel Required
Two

a. Removal.

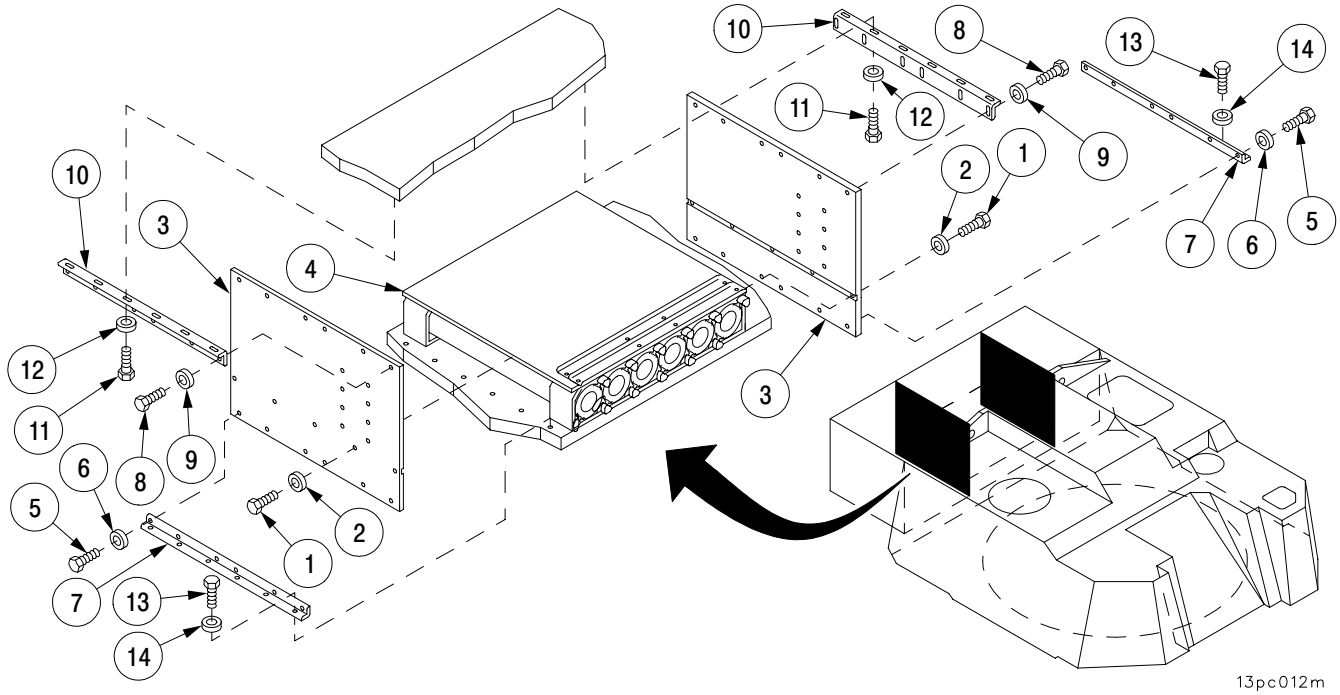
1 Remove five screws (1) and five flat washers (2) securing vertical plate (3) to center plate (4).

2 Remove six screws (5) and six flat washers (6) securing bottom of vertical plate (3) to lower angle (7).

3 With assistant supporting plate (3), remove six screws (8) and six flat washers (9) securing top of vertical plate (3) to upper angle (10). Remove plate (3).

4 Remove six screws (11), six flat washers (12), and upper angle (10) from top of bustle.

5 Remove six screws (13), six flat washers (14), and lower angle (7) from bottom of bustle.



15–3 RIGHT OR LEFT PLATE AND ANGLES – CONTINUED

b. Installation.

1 Apply sealing compound to threads of all screws.

2 Install upper angle (10) on top of bustle with six screws (11) and six flat washers (12).

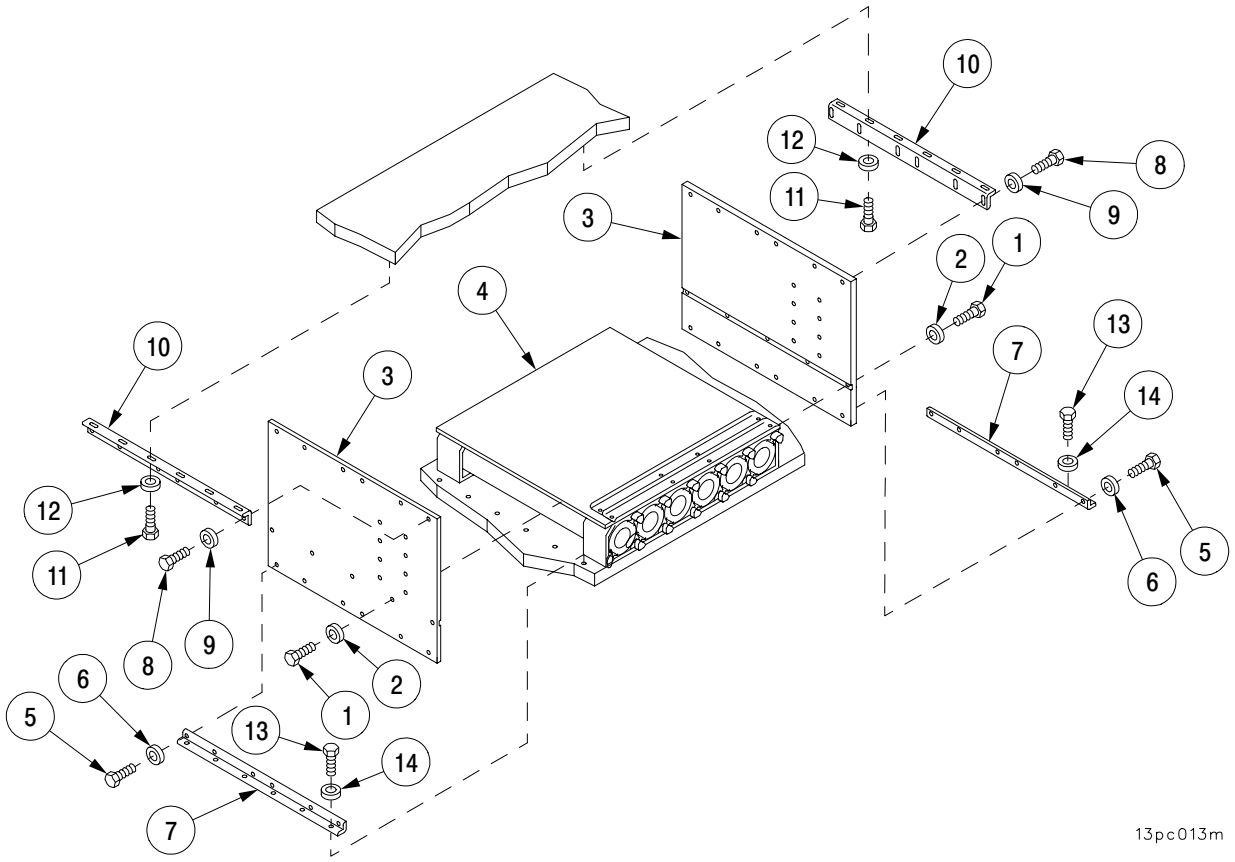
3 Install lower angle (7) on bottom of bustle with six screws (13) and six flat washers (14).

4 With assistant supporting plate (3) in position, secure top of plate to upper angle (10) with six screws (8) and six flat washers (9).

5 Secure bottom of plate (3) to lower angle (7) with six screws (5) and six flat washers (6)

6 Secure plate (3) to center plate (4) with five screws (1) and five flat washers (2).

7 Torque all screws to 35–40 lb–ft (47–54 N·m).



15–4 RETAINER BAR (RIGHT, LEFT, OR CENTER COMPARTMENT).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)
Retaining straps removed (para 15–5)

Materials/Parts
Sealing compound (item 42, Appx C)

a. Removal.

1 Remove four screws (1) and retainer bar (2) from left or right bustle.

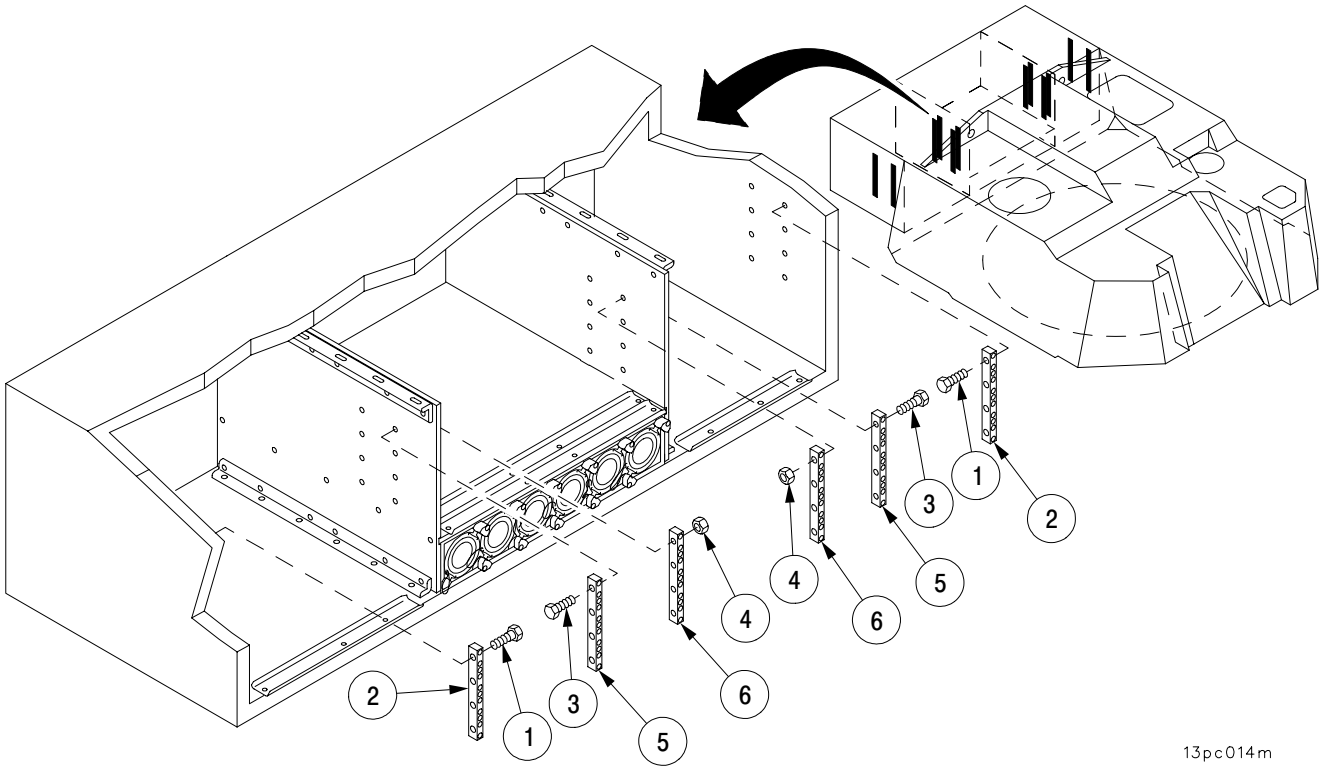
2 Remove four screws (3), four nuts (4), and two retainer bars (5 and 6) from left or right plate.

b. Installation.

1 Apply sealing compound to threads of all screws.

2 Position two retainer bars (5 and 6) on left or right plate and secure with four screws (3) and four nuts (4).

3 Install retainer bar (2) on left or right bustle and secure with four screws (1).



15–5 RETAINING STRAP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools	Equipment Conditions
Canister retaining tool (item 43, Appx G)	Cab traverse lock locked (TM 9–2350–314–10)

a. Removal.

1 Squeeze buckle open to slide retaining strap (1) through buckle and slide retaining strap (1) through loops (2).

2 Relieve tension on retaining strap (3) using the canister retaining tool.

3 Lift up on ratchet handle (4) to disengage locking device (5).

4 Disengage slat hooks (6) from retainer bars (7) and remove retaining strap (3).

b. Installation.

1 Install slat hooks (6) at each end of retaining strap (3) in retainer bars (7).

NOTE

Ensure that locking device is engaged when retaining strap is tight.

2 Operate ratchet handle (4) until slack is removed from retaining strap (3).

3 Engage locking device (5).

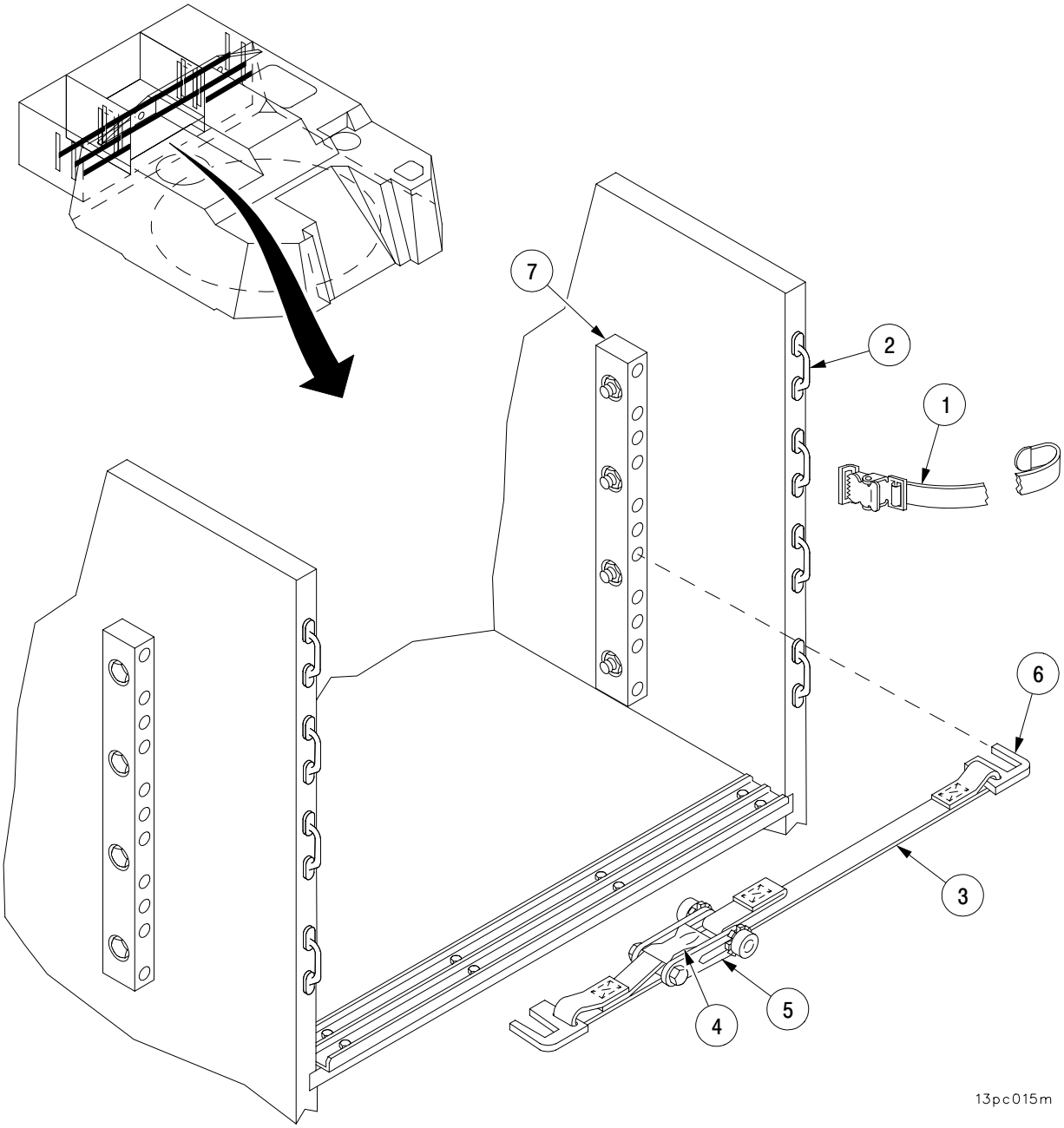
4 Tighten retaining strap (3) using the canister retaining tool.

5 Slide retaining strap (1) through loops (2) and slide retaining strap (1) through buckle by squeezing buckle open.

6 Remove slack from retaining strap (1).

15–5 RETAINING STRAP – CONTINUED

b. Installation – Continued



15–6 PROJECTILE RACK ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Lifting sling (item 34, Appx G)
Lifting sling (item 35, Appx G)
Suitable lifting device

Materials/Parts
Lockwashers (6) (item 130, Appx F)

Personnel Required
Two

a. Removal.

WARNING

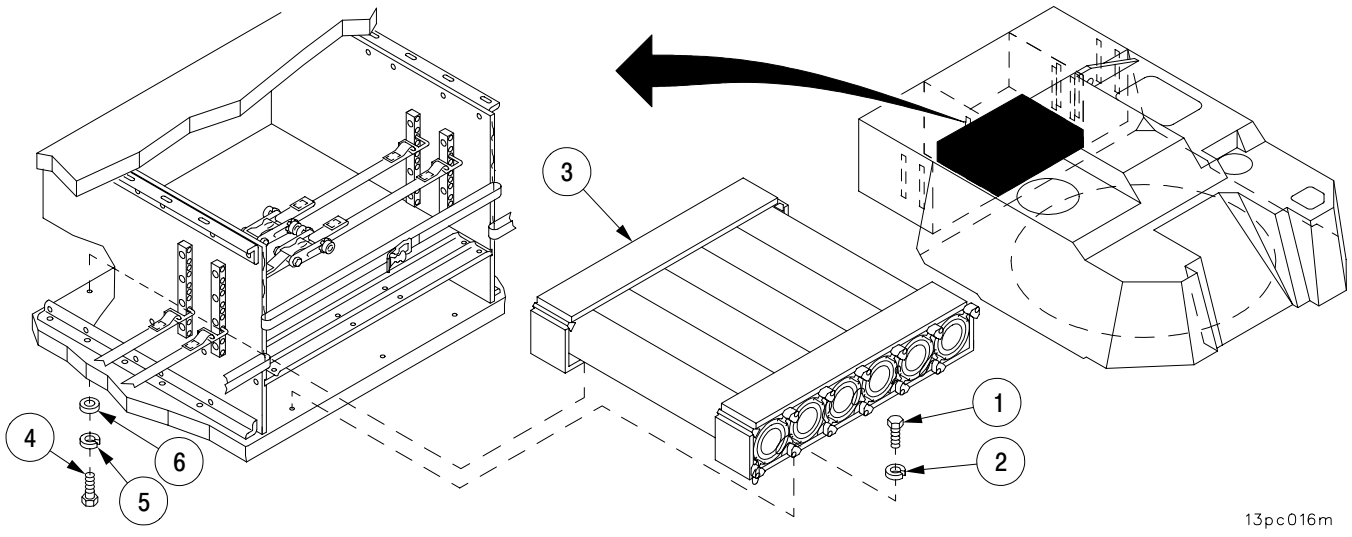
Rack weighs approximately 235 pounds (107 kg). Failure to use caution when lifting rack from bustle could result in serious personnel injury or death.

1 Remove three screws (1) and three lockwashers (2) securing front of projectile rack assembly (3) to bustle. Discard lockwashers.

2 Remove three screws (4), three lockwashers (5), and three flat washers (6) that secure rear of projectile rack assembly (3) to bustle (on outside of vehicle). Discard lockwashers.

3 Secure lifting sling around rack (3).

4 Use suitable lifting device to take up slack on sling and pull rack assembly (3) from bustle. Use assistant to help pull and guide rack assembly to floor of vehicle. Remove rack.



15–6 PROJECTILE RACK ASSEMBLY – CONTINUED

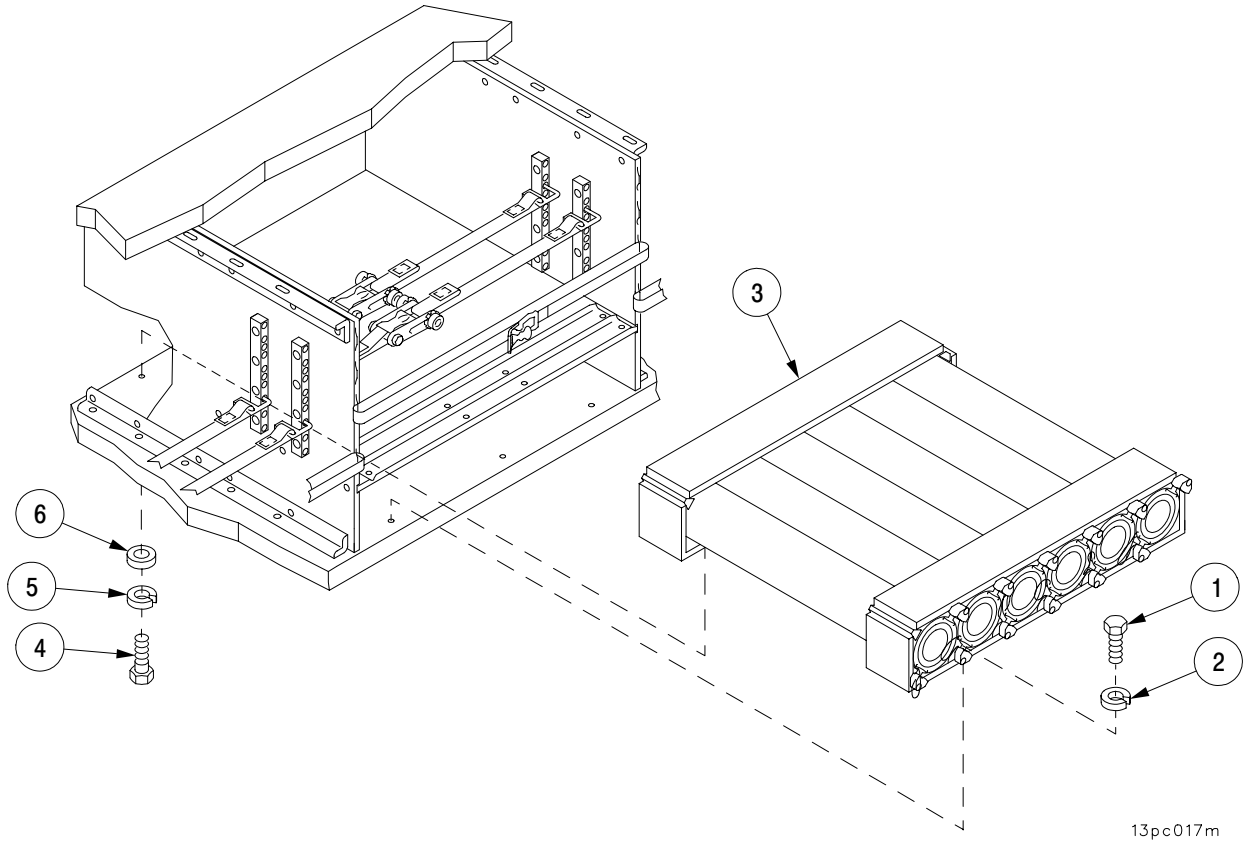
b. Installation.

1 Secure lifting sling around rack assembly (3).

2 Use suitable lifting device to take up slack on sling. Have assistant help guide and push rack assembly (3) into bustle. Remove sling.

3 Install three new lockwashers (2) and three screws (1) in mounting holes to secure front of rack assembly (3) to bustle.

4 Install three flat washers (6), three new lockwashers (5), and three screws (4) in mounting holes located under bustle (on outside of vehicle), securing rear of rack assembly (3) to bustle.



15–7 PROJECTILE RACK ASSEMBLY PAD.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Projectile rack assembly removed (para 15–6)

Materials/Parts
Adhesive (item 7, Appx C)
Dry–cleaning solvent (item 75, Appx C)

a. Removal.

NOTE

Each retainer assembly is held in place by two locking caps.

1 Remove retainer assembly (1) from projectile rack (2).

2 Remove and discard pad (3).

b. Installation.

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

1 Thoroughly clean old adhesive from pad mounting surface.

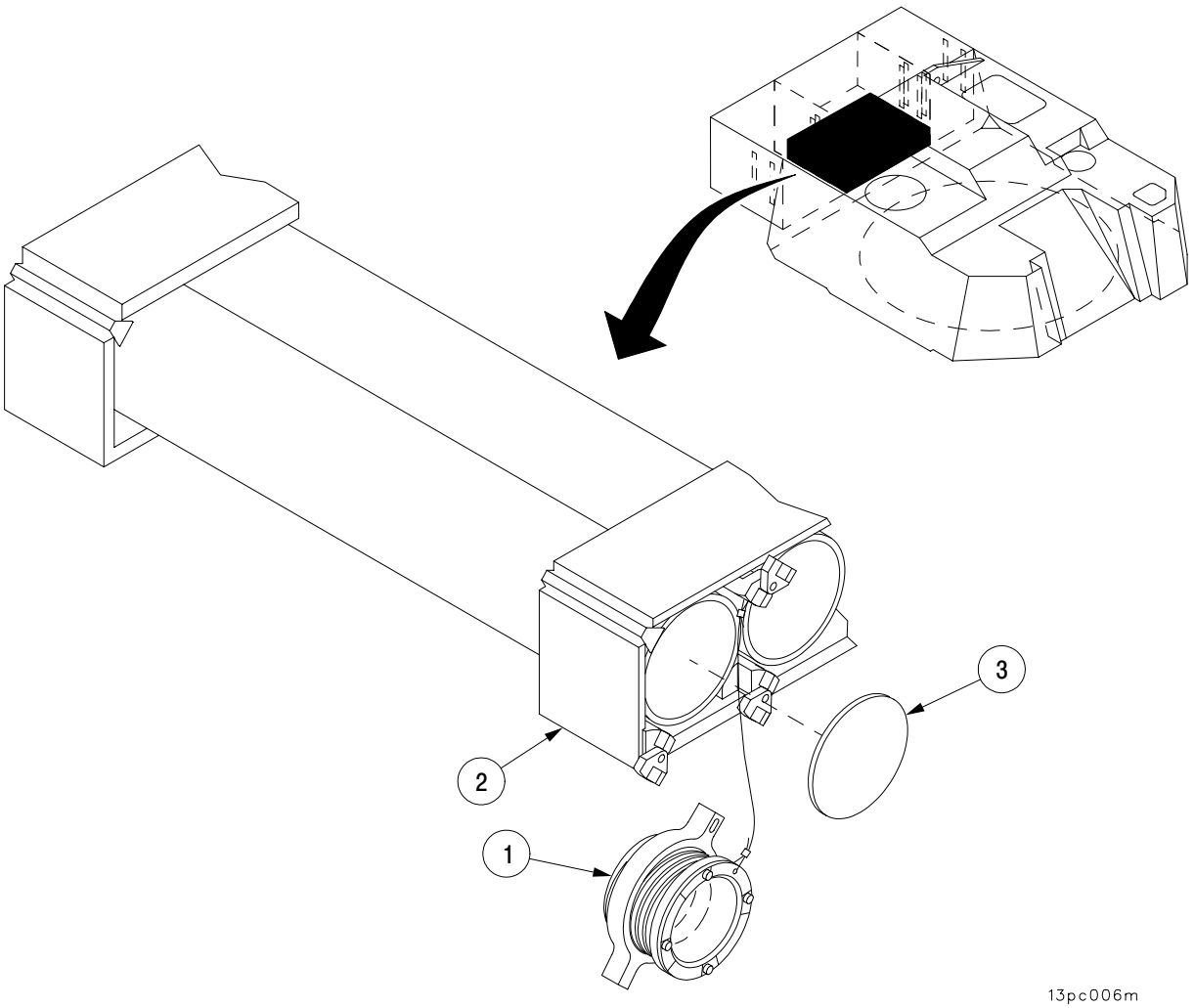
2 Apply thin coat of adhesive on mounting surface of projectile rack assembly (2).

15–7 PROJECTILE RACK ASSEMBLY PAD – CONTINUED

b. Installation – Continued

3 Install new pad (3) on mounting surface.

4 Install retainer assembly (1) on projectile rack (2).



15–8 RETAINER ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Compression sleeves (two required for each disassembly) (item 149, Appx F)
Wire rope (item 71, Appx C)
Self–locking screws (4) (item 225, Appx F)
Self–locking screws (4) (item 46, Appx F)
Sealing compound (item 39, Appx C)
Spring pin (item 242, Appx F)
Straight pin (item 243, Appx F)

NOTE

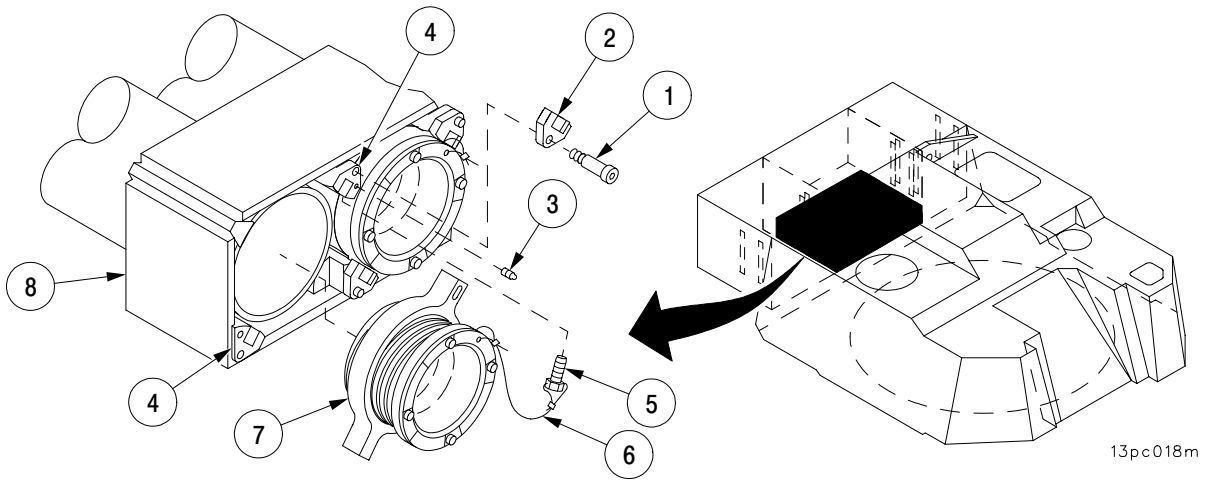
- The cab projectile rack has six retainer assemblies. The removal, disassembly, assembly, and installation procedures are identical for all six. This procedure covers only one assembly. Remove only those retainers which require repair or replacement.
- Each retainer assembly is held in place by two locking caps.

a. Removal.

1 Remove two shoulder screws (1), two locking caps (2), and two ball plungers (3) from two posts (4).

2 Remove machine bolt (5) from post (4) to release wire rope (6). Machine bolt (5) will still be attached to wire rope (6).

3 Remove retainer assembly (7) from projectile rack (8).



15–8 RETAINER ASSEMBLY – CONTINUED

b. Disassembly.

NOTE

If wire rope is frayed or broken and needs replacing, cut rope or remove compression sleeves at both ends.

1 Remove two compression sleeves (9) from ends of wire rope (6). This will release machine bolt (5) and retainer assembly (7) from end of wire rope (6). Discard compression sleeves.

2 Remove four self–locking screws (10) from retainer assembly (7). Discard self–locking screws.

3 Remove end plate (11) and rubber insert (12) from inner ring (13).

4 Remove spring pin (14) and straight pin (15) from outer ring (16). Discard spring pin.

5 Remove four self–locking screws (17) and outer ring (16) from inner ring (13). Discard self–locking screws.

NOTE

If end plate is being replaced or if decals are illegible, install four new decals.

6 Remove four decals (18) from end plate (11). Discard decals.

c. Assembly.

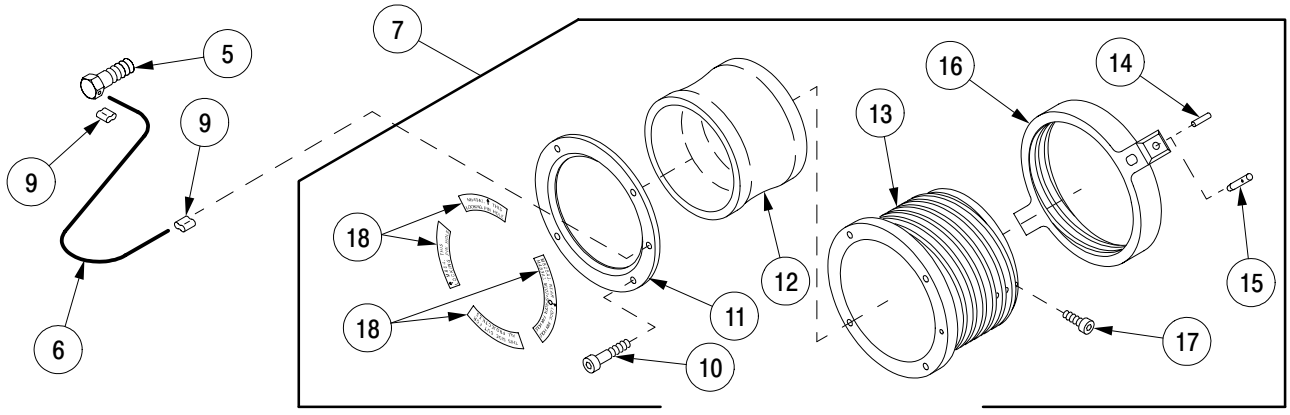
NOTE

Cut hole in decal to match hole in end plate hole where wire rope passes through, being careful not to obliterate arrow on decal.

1 Install four new decals (18) on end plate (11).

2 Install outer ring (16), straight pin (15), new spring pin (14), and four new self–locking screws (17) on inner ring (13).

3 Install rubber insert (12), end plate (11), and four new self–locking screws (10) on inner ring (13).



15–8 RETAINER ASSEMBLY – CONTINUED

d. Installation.

1 Apply sealing compound to threads of machine bolt (5).

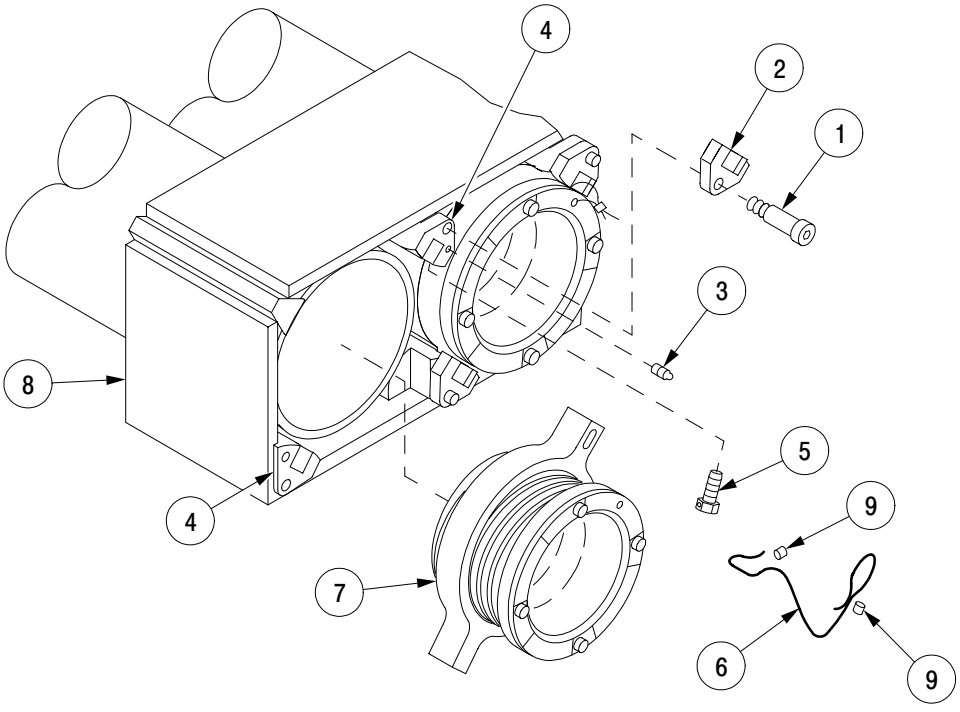
2 Install machine bolt (5) on post (4).

3 Insert end of wire rope (6) into nearest machine bolt (5) on post (4). Make a loop at end of wire rope (6) and crimp new compression sleeve (9) onto wire rope (6) at base of loop.

4 Insert free end of wire rope (6) into hole on retainer assembly (7). Make loop at end of wire rope (6) and crimp new compression sleeve (9) onto rope (6) at base of loop.

5 Install retainer assembly (7) on projectile rack (8).

6 Install two ball plungers (3), two locking caps (2), and two shoulder screws (1) on two nearest posts (4). This will secure retainer assembly (7) on projectile rack (8). Torque shoulder screws (1) to 15–20 lb–ft (20–27 N·m). Adjust ball plungers until contact is made with locking caps.



13pc020m

CHAPTER 16
CAB STOWAGE

GENERAL

This chapter illustrates and describes maintenance procedures for the howitzer cab stowage boxes, brackets, supports, and racks.

CONTENTS

16–1 HANDLES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 132, Appx F)
Self–locking nuts (2) (item 66, Appx F)

a. Removal.

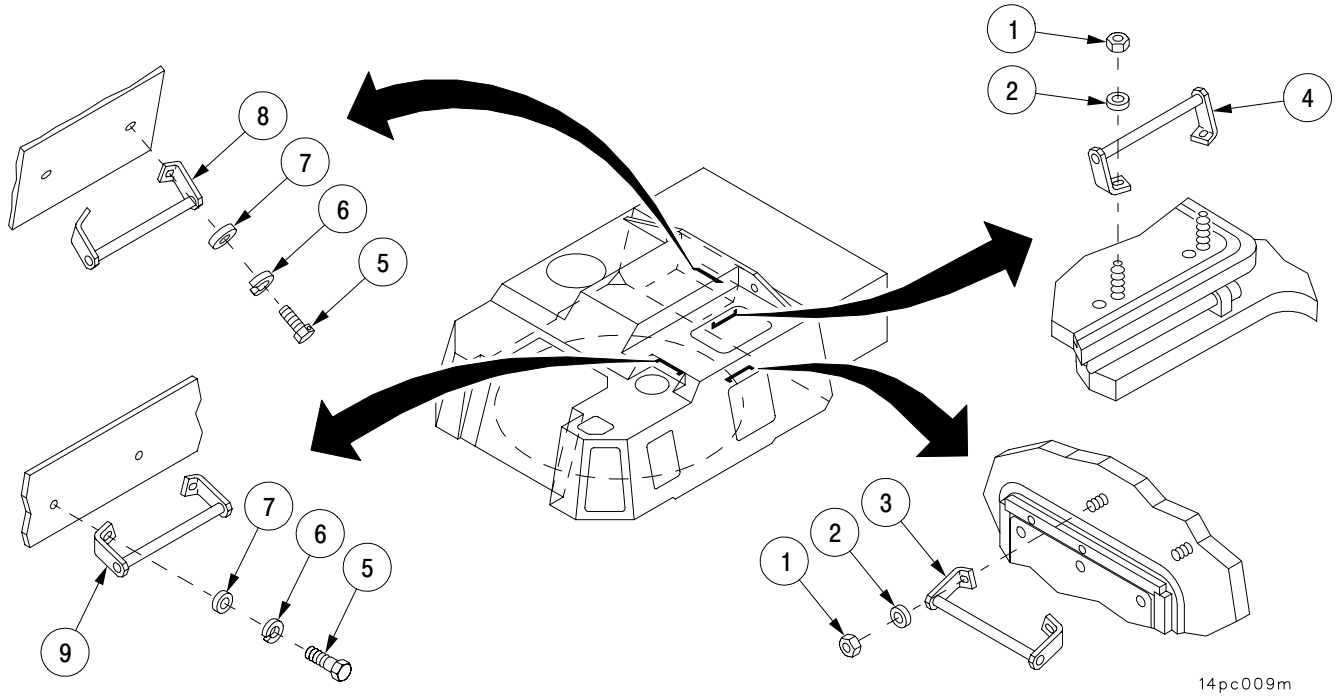
1 Remove two self–locking nuts (1), two flat washers (2), and handle (3 or 4) from cab. Discard self–locking nuts.

2 Remove two screws (5), two lockwashers (6), two flat washers (7), and handle (8 or 9) from cab. Discard lockwashers.

b. Installation.

1 Install handle (8 or 9) in cab with two flat washers (7), two new lockwashers (6), and two screws (5).

2 Install handle (3 or 4) in cab with two flat washers (2) and two new self–locking nuts (1).



16–2 STRAPS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

NOTE

The procedure for removal and installation of all straps is identical. This procedure covers only one strap.

a. Removal.

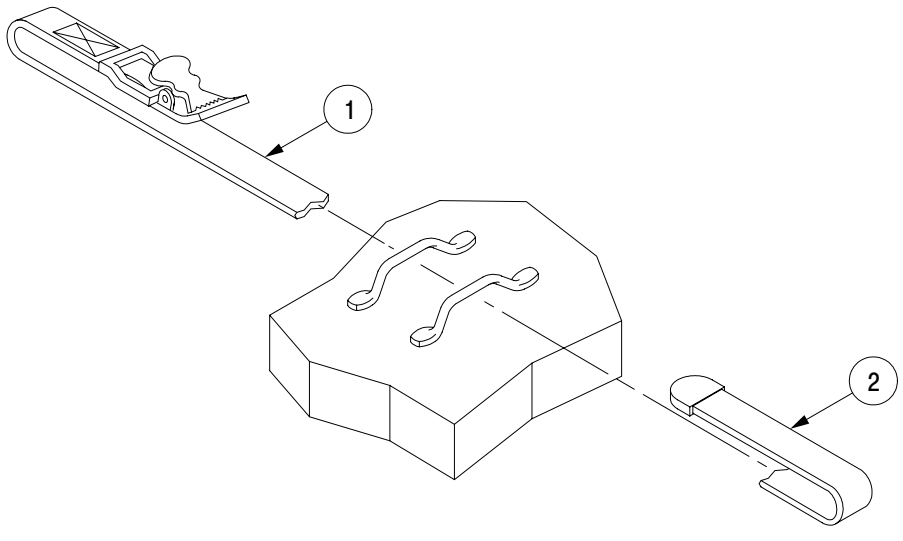
1 Squeeze buckle (1) open and slide strap (2) through buckle (1).

2 Remove strap (2) from anchor.

b. Installation.

1 Slide strap (2) through anchor.

2 Slide strap (2) through buckle (1) by squeezing buckle open.



14pc010m

16–3 FLASHLIGHT HOLDERS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 109, Appx F)

NOTE

There are three flashlight holders. The removal and installation procedures are identical for all three. This procedure covers only one holder.

a. Removal.

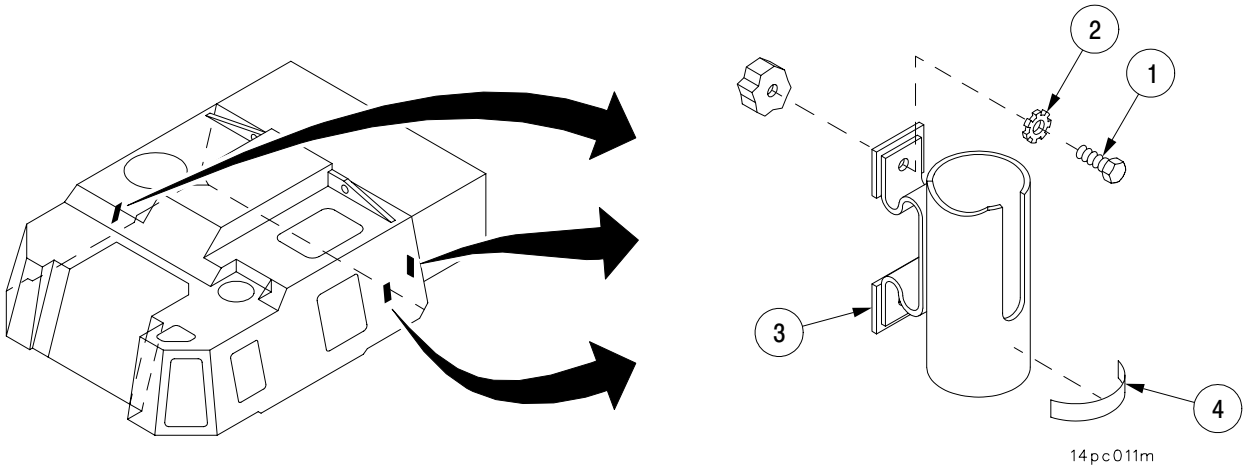
Remove two screws (1), two lockwashers (2), and flashlight holder (3) from cab. Discard lockwashers.

b. Installation.

Install flashlight holder (3) to cab with two new lockwashers (2) and two screws (1).

NOTE

Install new label (4) (para 2–8) only if old label is illegible, or if flashlight holder is replaced.



16–4 FUZE SETTER, WRENCH BRACKET, AND ODDMENT BOX.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

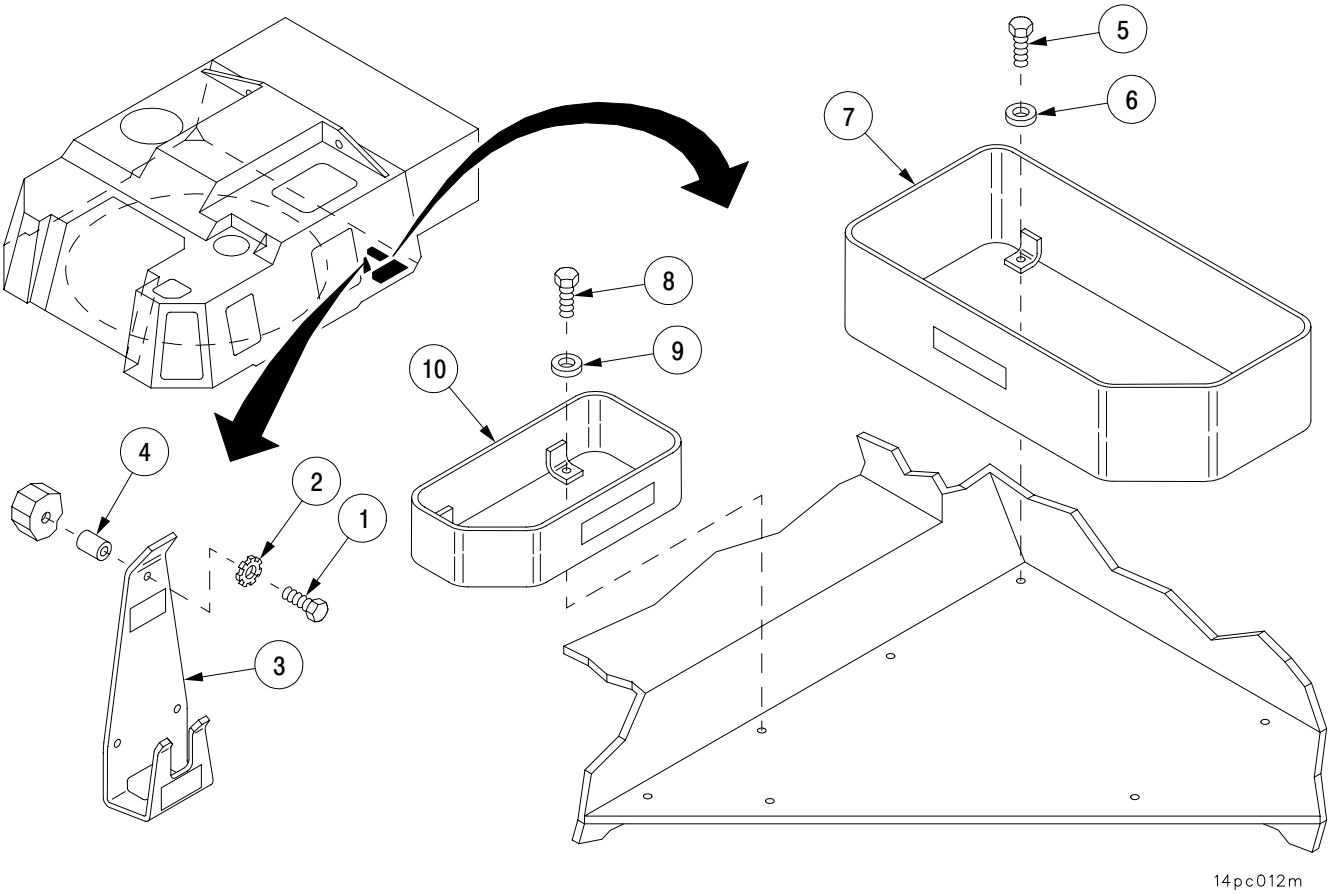
Materials/Parts
Lockwashers (3) (item 109, Appx F)
Sealing compound (item 46.1, Appx C)

a. Removal.

1 Remove three screws (1), three lockwashers (2), fuze setter with wrench bracket (3), and three standoffs (4) from cab. Discard lockwashers.

2 Remove four screws (5), four flat washers (6), and oddment box (7) from cab.

3 Remove three screws (8), three flat washers (9), and oddment box (10).



16–4 FUZE SETTER, WRENCH BRACKET, AND ODDMENT BOX – CONTINUED

b. Installation.

1 Install oddment box (10) in cab with three flat washers (9) and three screws (8).

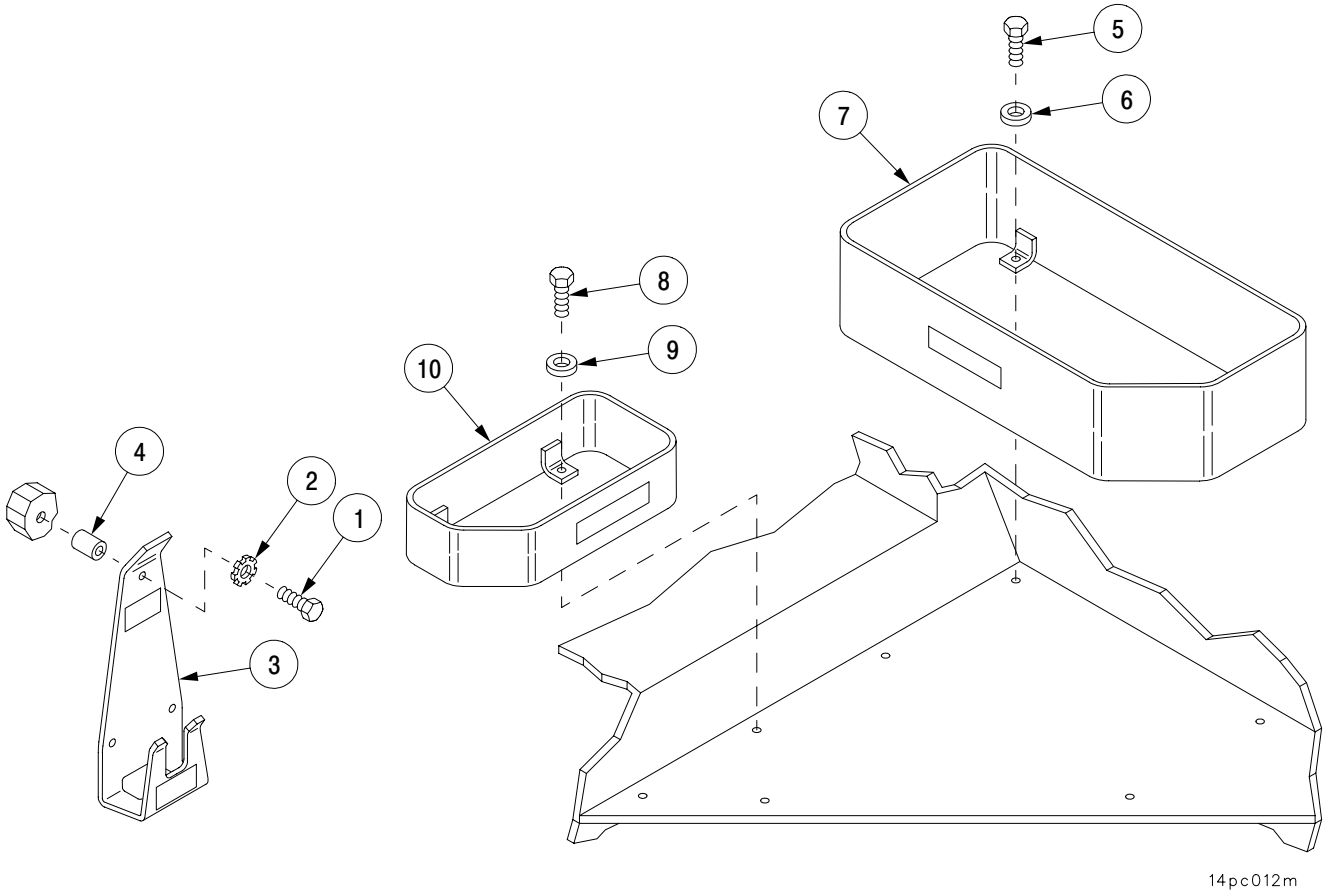
2 Install oddment box (7) in cab with four flat washers (6) and four screws (5).

2.1 Apply sealing compound to aluminum/steel interfaces of three standoffs (4).

3 Install three standoffs (4) and fuze setter with wrench bracket (3) in cab with three new lockwashers (2) and three screws (1).

NOTE

Install new label (para 2–8) only if illegible, or if fuze setter, wrench bracket, or oddment box is replaced.



16–5 FIRST AID KIT BRACKET.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tool
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 109, Appx F)

a. Removal.

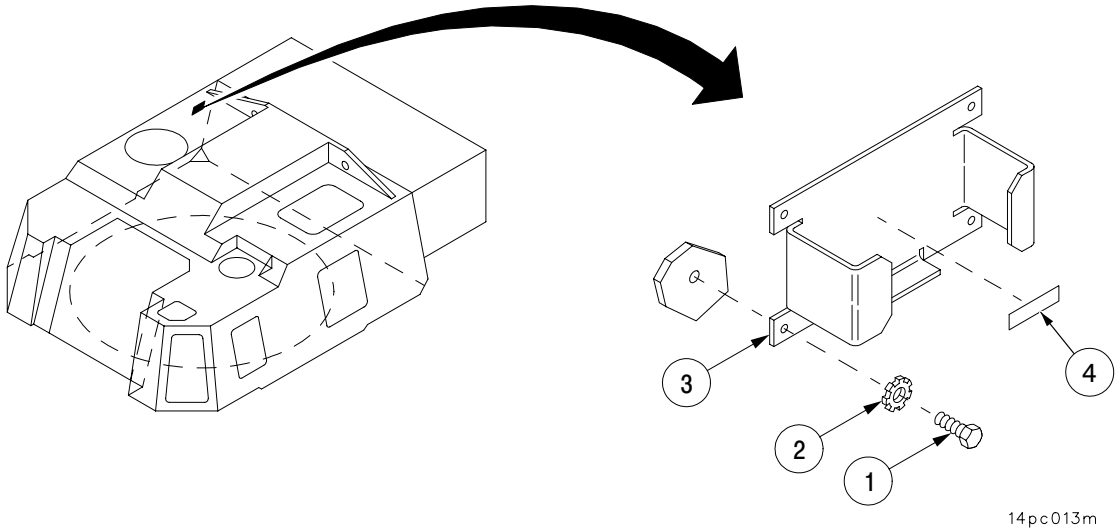
Remove four screws (1), four lockwashers (2), and first aid kit bracket (3) from cab. Discard lockwashers.

b. Installation.

Install first aid kit bracket (3) with four new lockwashers (2) and four screws (1).

NOTE

Install new label (4) (para 2–8) only if old label is illegible, or if first aid kit bracket is replaced.



16–6 ODDMENT TRAY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Manifold removed (para 4–4)

a. Removal.

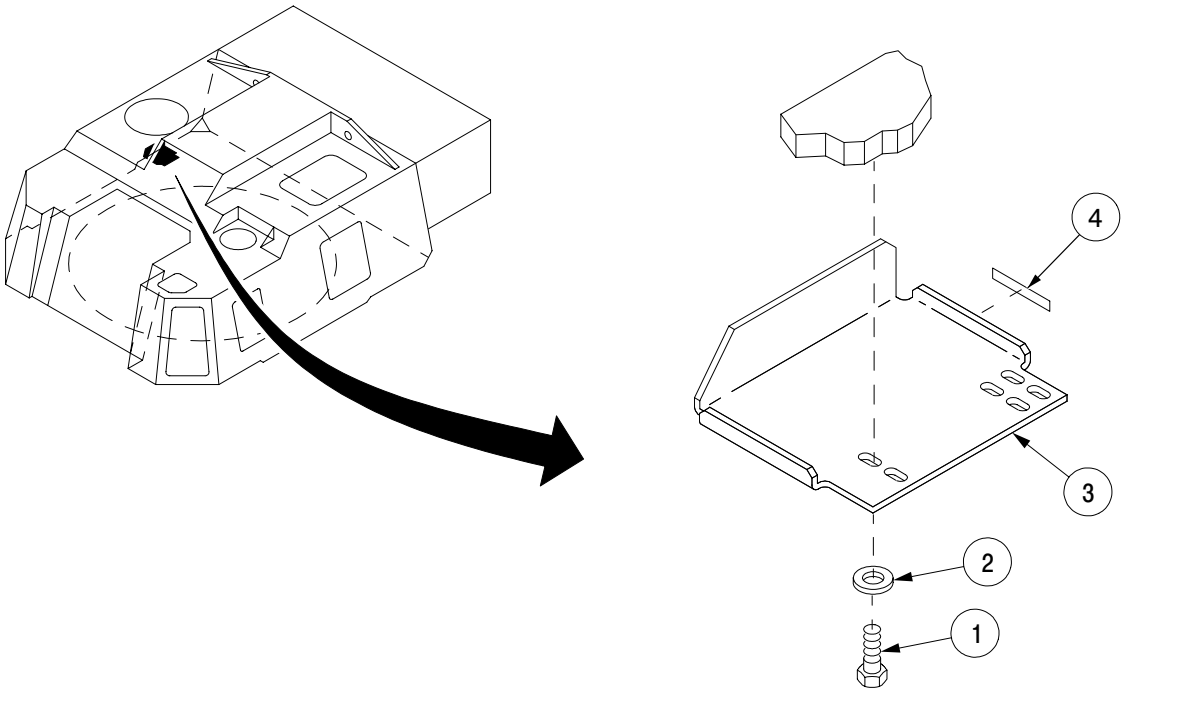
Remove two screws (1) and two flat washers (2) securing tray (3).

b. Installation.

Install tray (3) with two flat washers (2) and two screws (1).

NOTE

Install new label (4) (para 2–8) only if old label is illegible, or if oddment tray is replaced.



16–7 FLARE STOWAGE BRACKET.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

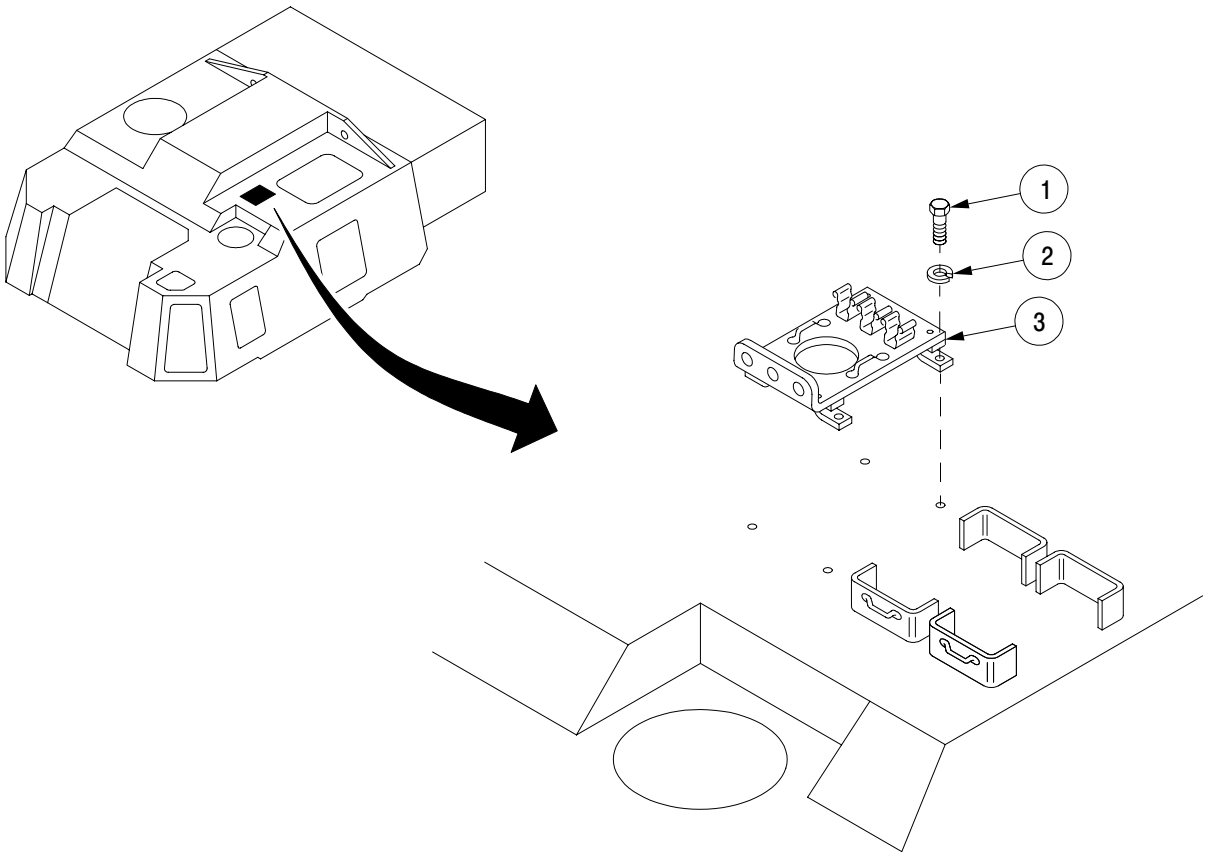
Materials/Parts
Lockwashers (4) (item 128, Appx F)

a. Removal.

Remove four screws (1), four lockwashers (2), and bracket (3). Discard lockwashers.

b. Installation.

Install bracket (3) with four new lockwashers (2) and four screws (1).



14pc015m

16–8 M27 PERISCOPE BOX ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 109, Appx F)

a. Removal.

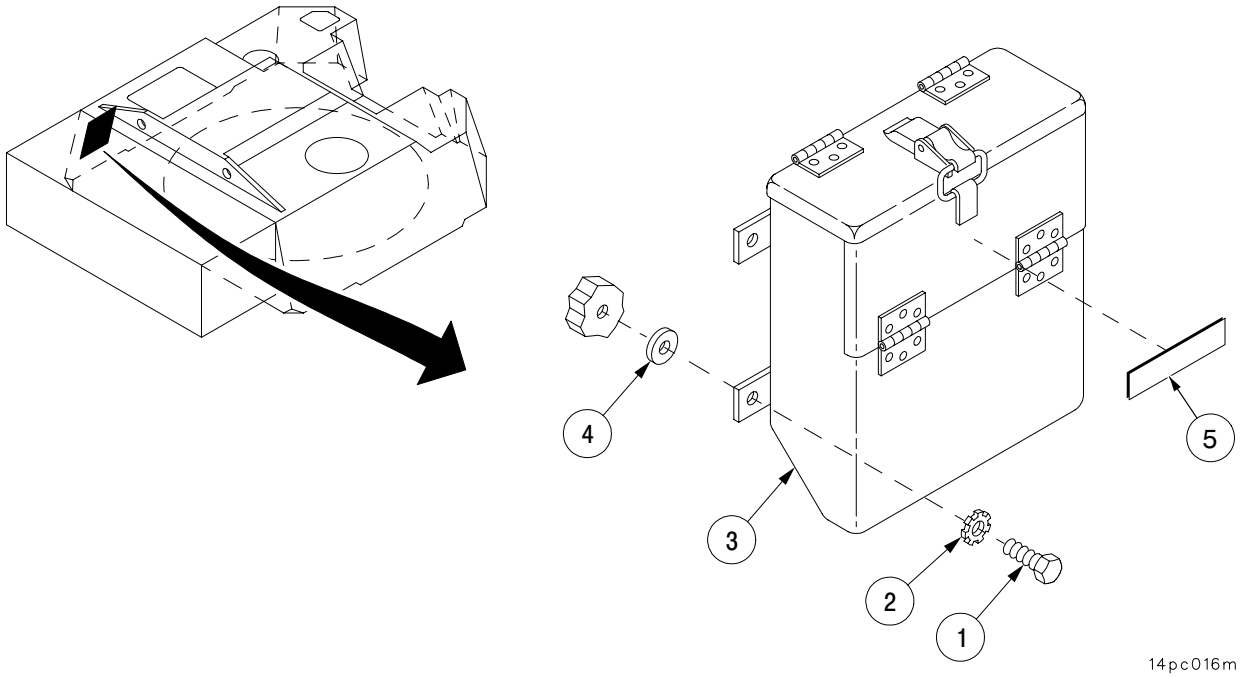
Remove four screws (1), four lockwashers (2), M27 periscope box (3), and four spacers (4) from cab. Discard lockwashers.

b. Installation.

Install four spacers (4) and M27 periscope box (3) with four new lockwashers (2) and four screws (1).

NOTE

Install new label (5) (para 2–8) only if old one is illegible, or if M27 periscope box is replaced.



16–9 CAB LIFTING EYE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)

Materials/Parts
Lockwashers (4) (item 133, Appx F)
Sealing compound (item 46.1, Appx C)

NOTE

There are two lifting eyes. The removal and installation procedures are identical for both. This procedure covers only one eye.

a. Removal.

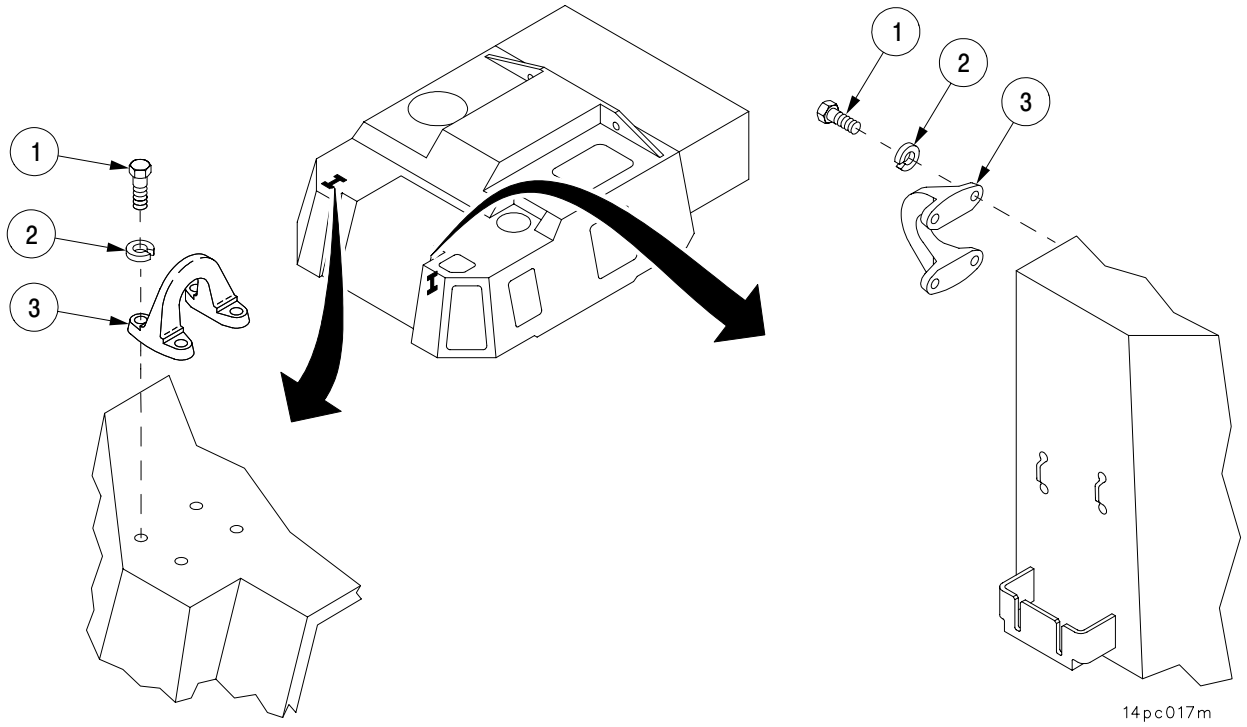
Remove four screws (1), four lockwashers (2), and lifting eye (3). Discard lockwashers.

b. Installation.

1 Apply sealing compound to aluminum/steel interface of lifting eye (3).

2 Install lifting eye (3) with four new lockwashers (2) and four screws (1).

3 Torque four screws (1) to 190–210 lb–ft (257.64–284.76 N·m) while sealant is still wet.



16–10 TOW CABLE STRAP, FASTENER, AND BRACKETS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Lockwashers (4) (item 132, Appx F) (Block replacement only)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)
Strap removed from fastener (para 16–2) (Fastener replacement only)
Tow cable removed (TM 9–2350–314–10)

NOTE

There are two tow cable straps, two mounting brackets, and nine tow cable brackets (two types). The removal and installation procedures for each like component is identical. This procedure covers only one of each item.

a. Removal.

1 Remove screw (1), lockwasher (2), and mounting bracket (3) from cab. Discard lockwasher.

2 Remove two screws (4), two lockwashers (5), and strap (6) securing tow cable to cab. Discard lockwashers.

3 Remove screw (7 or 10), lockwasher (8 or 11), and tow cable bracket (9 or 12) from cab. Discard lockwasher.

b. Installation.

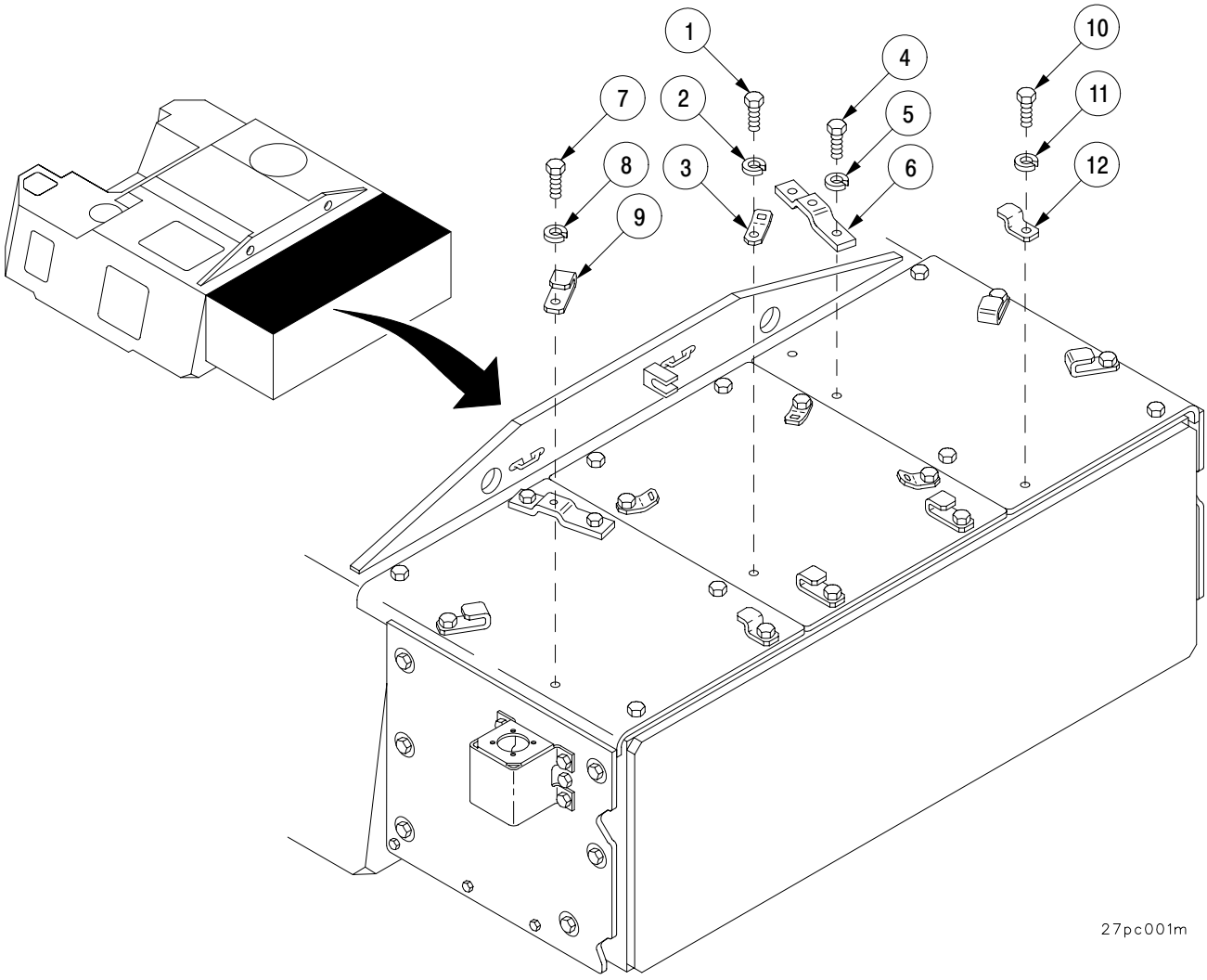
1 Install bracket (12 or 9) on cab with new lockwasher (11 or 8) and screw (10 or 7). Torque screw 106–114 lb–ft (144–155 N·m).

2 Install strap (6) with two new lockwashers (5) and two screws (4).

3 Install mounting bracket (3) on cab with new lockwasher (2) and screw (1). Torque screw to 106–114 lb–ft (144–155 N·m).

16–10 TOW CABLE STRAP, FASTENER, AND BRACKETS – CONTINUED

b. Installation – Continued



16–11 AIMING DEVICE AND CASE STOWAGE BRACKET AND STRAP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 109, Appx F)

a. Removal.

1 Remove four screws (1), four flat washers (2), four lockwashers (3), and stowage bracket (4) from cab door. Discard lockwashers.

2 Remove strap (5) from stowage bracket (4).

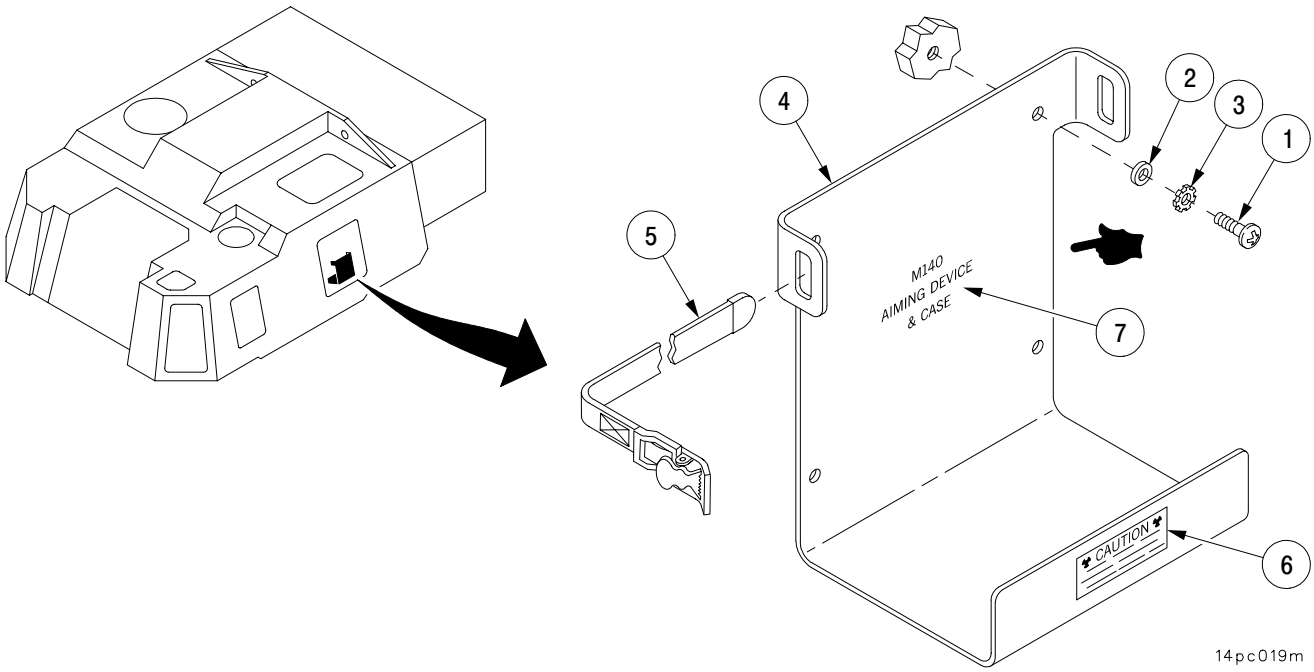
b. Installation.

NOTE

Install new label (6) (para 2–8) or re–stencil (7) only if illegible, or if bracket is replaced.

1 Install strap (5) on stowage bracket (4).

2 Install stowage bracket (4) on cab door with four new lockwashers (3), four flat washers (2), and four screws (1).



16–12 MOUNTED WATER RATION HEATER BRACKET AND BASE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Heater removed (TM 9–2350–314–10)

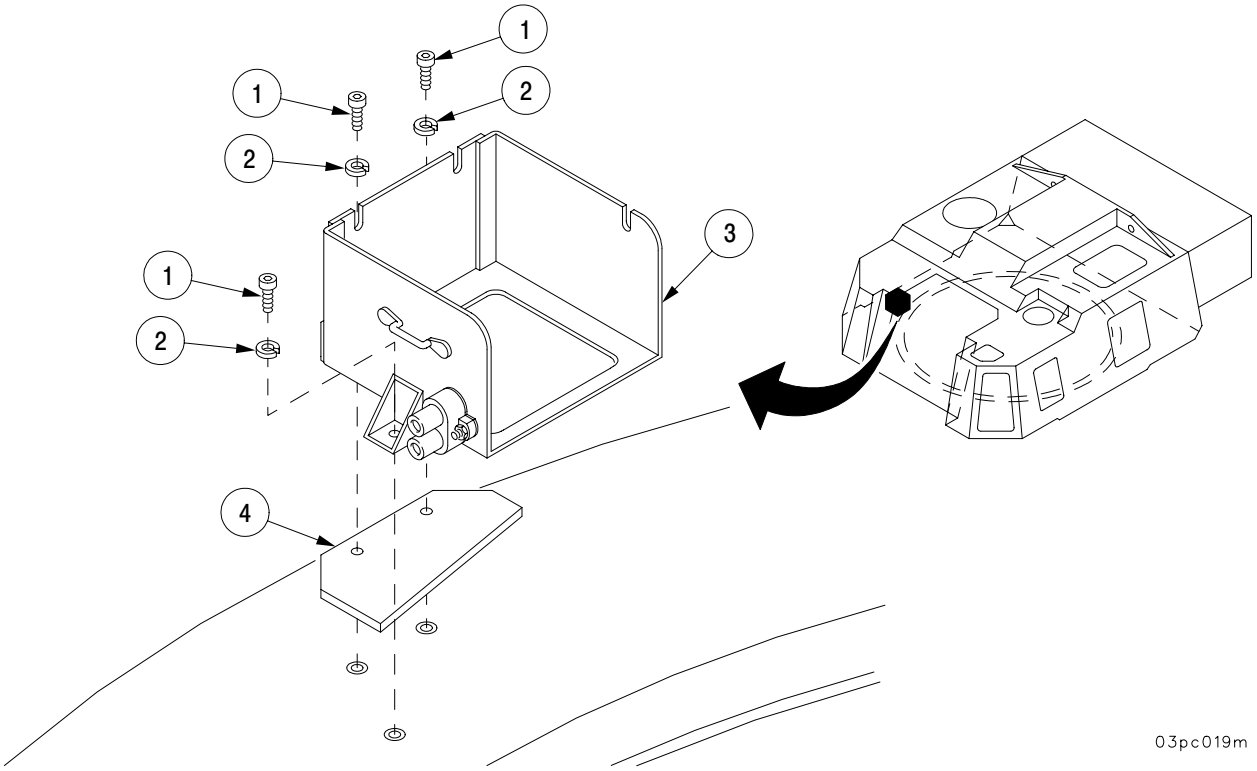
Materials/Parts
Lockwashers (3) (item 130, Appx F)

a. Removal.

Remove three screws (1), three lockwashers (2), bracket (3), and base (4). Discard lockwashers.

b. Installation.

Install base (4) and bracket (3) with three new lockwashers (2) and three screws (1).



CHAPTER 17
GUNNER'S ESCAPE HATCH

GENERAL

This chapter illustrates and describes maintenance procedures for the gunner's escape hatch components. Step–by–step procedures are provided for removal, disassembly, repair, assembly, and installation as required for unit level maintenance.

CONTENTS Page

17–1 GUNNER'S ESCAPE HATCH, TORSION BAR, ANCHORS, AND HINGES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)
Suitable lifting device

Materials/Parts
Lockwashers (4) (item 130, Appx F)
Lockwashers (4) (item 132, Appx F)
Lockwashers (4) (item 235, Appx F)

Equipment Conditions
Gunner's escape hatch bumper assembly removed (para 19–6)

Personnel Required
Two

a. Removal.

WARNING

The gunner's escape hatch weighs 98 lbs. Extreme care should be observed when removing the torsion bar to prevent serious injury to personnel.

CAUTION

The tension on the torsion bar must be released before the anchor assembly can be removed properly.

1 Using assistance, open gunner's escape hatch (1) and hold in a 90° vertical position.

2 Remove two screws (2), two lockwashers (3), and two flat washers (4) securing anchor assembly (5) to hatch (1). Discard lockwashers.

3 Close hatch (1), but do not secure.

4 Remove anchor assembly (5) and torsion bar (6).

5 Remove torsion bar cover (7) and hatch (1).

NOTE

If shims are present, they must be retained for use in the location from which they were removed.

6 Remove four screws (8), four lockwashers (9), and four flat washers (10) securing two hinges (11) and two shims (12) to the cab roof. Discard lockwashers.

7 Remove four screws (13), four lockwashers (14), and four flat washers (15) securing two hinges (16) to gunner's escape hatch (1). Discard lockwashers.

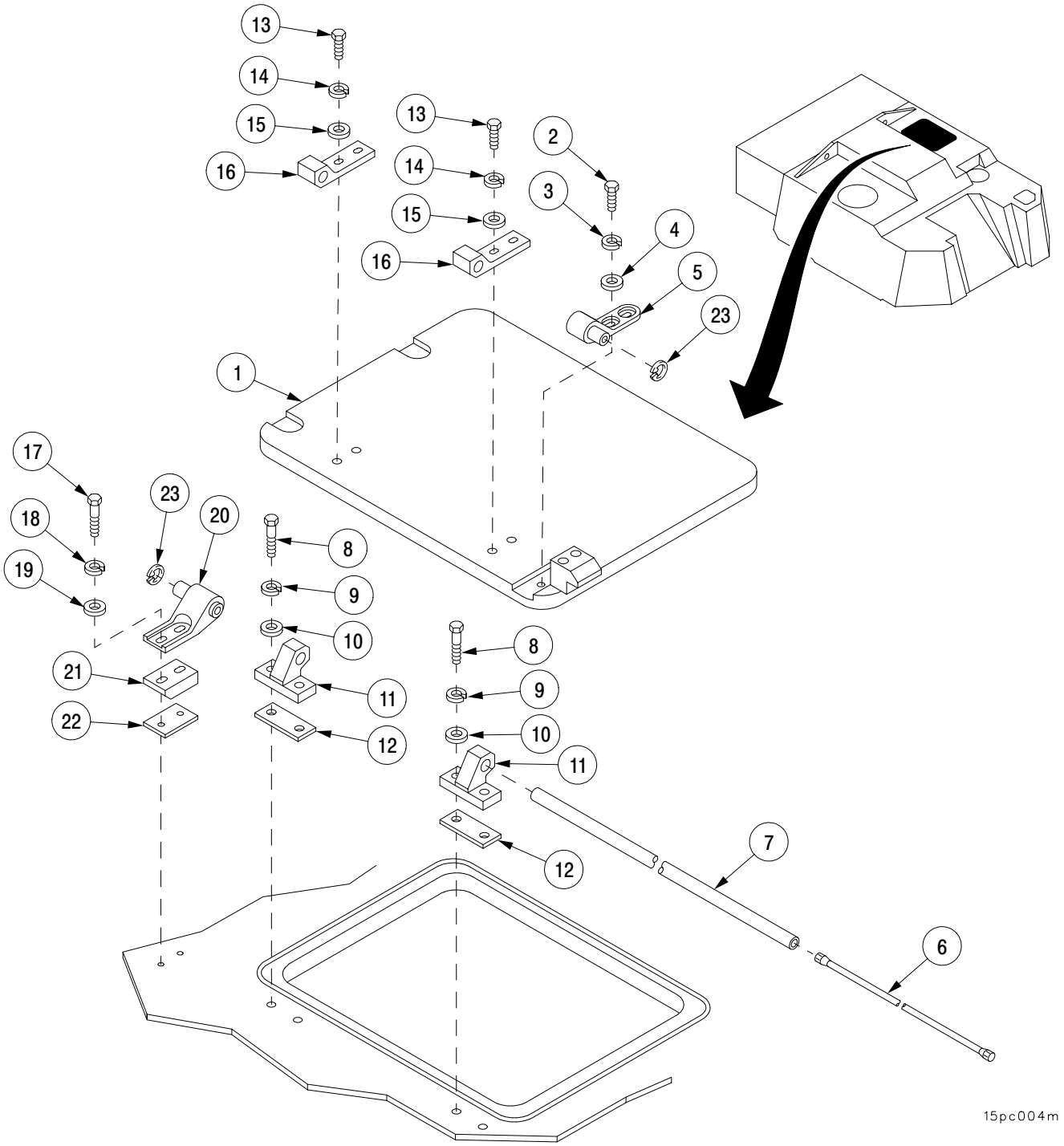
8 Remove two screws (17), two lockwashers (18), and two flat washers (19) securing anchor assembly (20), block (21), and shim (22) to the cab roof. Discard lockwashers.

9 Remove two retaining rings (23) from anchor assembly (5) and anchor assembly (20).

10 Using suitable lifting device, remove hatch (1) from vehicle.

17–1 GUNNER'S ESCAPE HATCH, TORSION BAR, ANCHORS, AND HINGES – CONTINUED

a. Removal – Continued



17–1 GUNNER'S ESCAPE HATCH, TORSION BAR, ANCHORS, AND HINGES – CONTINUED

b. Installation.

1 Using suitable lifting device, position hatch (1) over vehicle opening.

NOTE

- Ensure splines on torsion bar and both anchor assemblies are free of any debris that may hinder assembly procedures.
- Ensure all threaded holes are free of any debris that may interfere with proper installation of attaching hardware.

2 Install retaining ring (23) into anchor assembly (20).

3 Install shim (22), block (21), and anchor assembly (20) onto cab roof and secure with two screws (17), two new lockwashers (18), and two flat washers (19).

4 Loosely install two hinges (16) with four flat washers (15), four new lockwashers (14) and four screws (13) to gunner's escape hatch (1).

5 Position two hinges (11) and two shims (12) with four screws (8), four new lockwashers (9), and four washers (10) but do not tighten.

6 Using assistance, position hatch (1) into its mounting position.

7 Install cover (7) and tighten two hinges (11). Torque screws (13) to 43–46 lb–ft (58–62 N•m).

8 Install torsion bar (6).

NOTE

A change of one spline equals approximately 28°.

9 Install anchor assembly (5), at a 90° installation angle, onto torsion bar (6) while aligning splines on anchor (5) with splines on torsion bar (6).

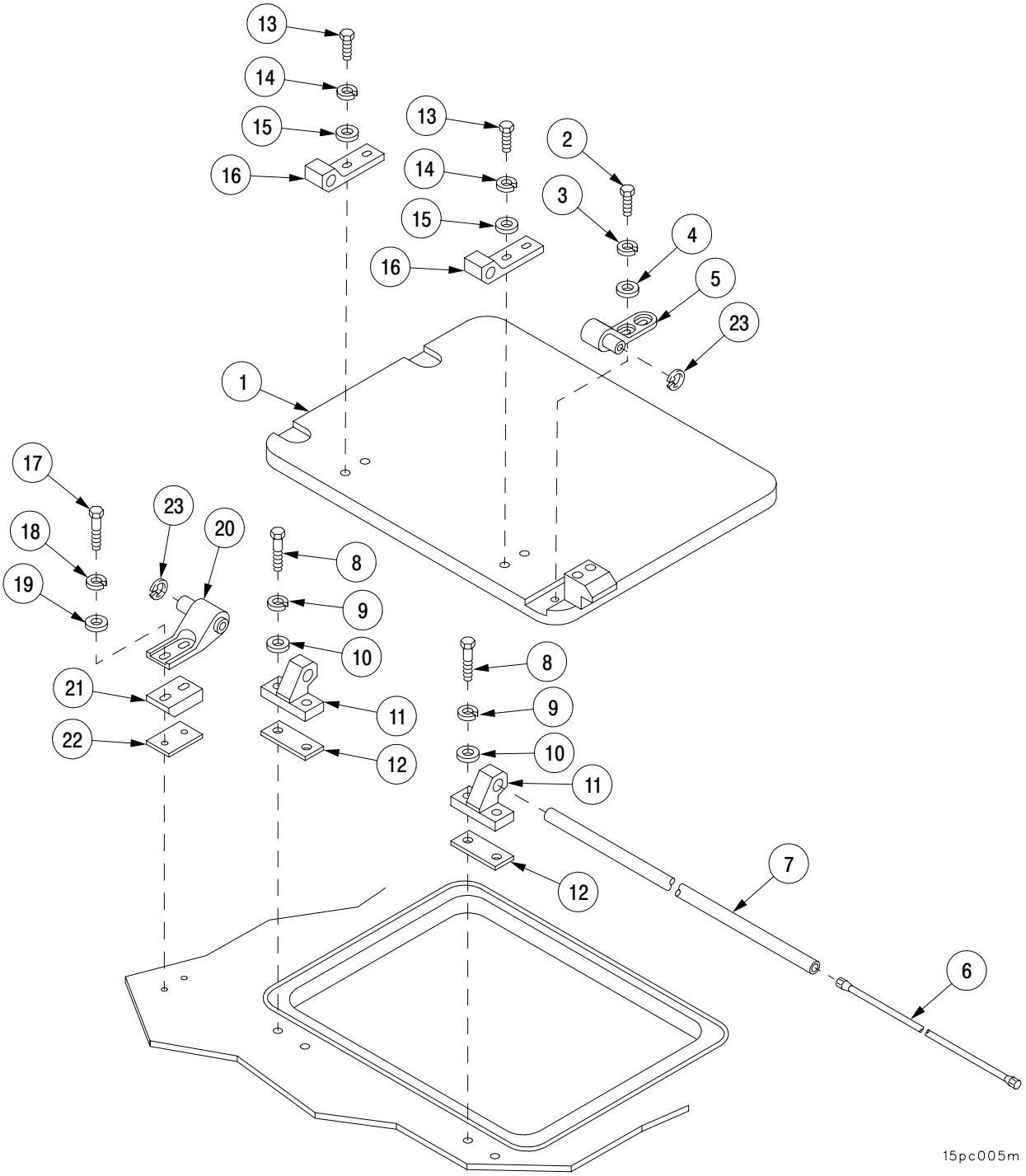
10 Install retaining ring (23) into anchor assembly (5).

11 With assistant, raise hatch (1) to mate with anchor (5) and secure with two screws (2), two new lockwashers (3), and two flat washers (4).

12 Close hatch (1) and secure with latch. Check integrity of installation procedures. When latch is released, hatch should spring open if torsion bar and anchors were properly installed. Verify installation procedures if hatch (1) does not operate properly.

17–1 GUNNER'S ESCAPE HATCH, TORSION BAR, ANCHORS, AND HINGES – CONTINUED

b. Installation – Continued



17–2 GUNNER'S ESCAPE HATCH SEAL AND STRIP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Materials/Parts
Adhesive (item 7, Appx C)
Dry–cleaning solvent (item 75, Appx C)
Swabbing brush (item 20, Appx C)
Rubber strip (item 200, Appx F)
Seal (item 184, Appx F)

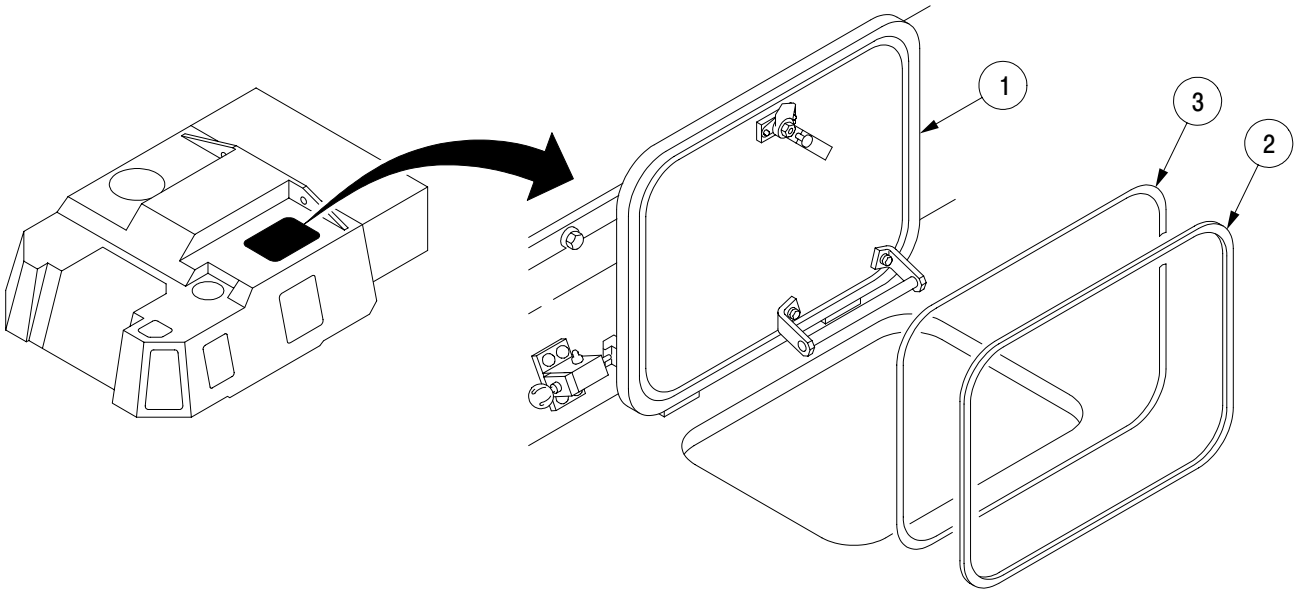
a. Removal.

WARNING

Ensure hatch is properly latched in the open position to prevent injury to personnel during maintenance procedures.

1 Open hatch (1) and secure in opened position.

2 Remove seal (2) and strip (3) from hatch (1). Discard seal and strip.



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17–2 GUNNER'S ESCAPE HATCH SEAL AND STRIP – CONTINUED

b. Installation.

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

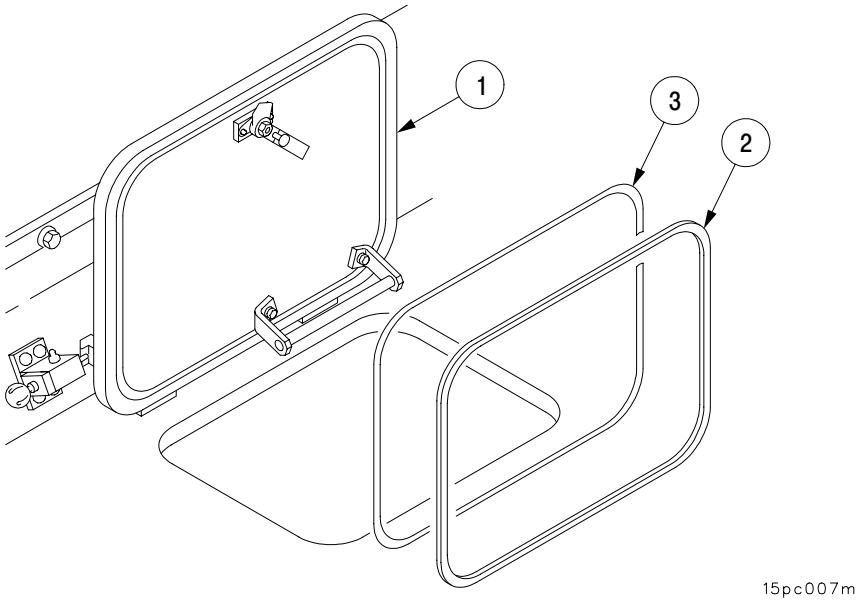
1 Using dry–cleaning solvent, thoroughly clean all remaining adhesive from hatch to ensure proper installation of new strip and seal.

2 Apply a smooth, even coat of adhesive to hatch (1).

3 Install new strip (3) onto hatch (1).

4 Apply a smooth, even coat of adhesive to strip (3).

5 Install new seal (2) on strip (3) and hatch (1).



17–3 GUNNER'S ESCAPE HATCH HANDLE ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Sealing compound (item 40, Appx C)
Sealing compound (item 46.1, Appx C)
Lockwashers (2) (item 130, Appx F)
Locknut (item 216, Appx F)

a. Removal.

WARNING

Ensure hatch is properly latched in the open position to prevent injury to personnel during maintenance procedures.

1 Open hatch (1) and secure in opened position.

2 Remove two screws (2) and two lockwashers (3) securing handle mount (4), spacer (5), and shim (6) to hatch (1). Discard lockwashers.

3 Remove locknut (7), flat washer (8), and handle (9) from handle mount (4). Discard locknut.

4 Remove knob (10), spring (11), and pin (12) from handle (9).

b. Installation.

1 Ensure threaded holes are free of any debris that may interfere with proper installation.

2 Apply sealing compound (item 40, Appx C) to threads of knob (10).

3 Install pin (12), spring (11), and knob (10) on handle (9).

17–3 GUNNER'S ESCAPE HATCH HANDLE ASSEMBLY – CONTINUED

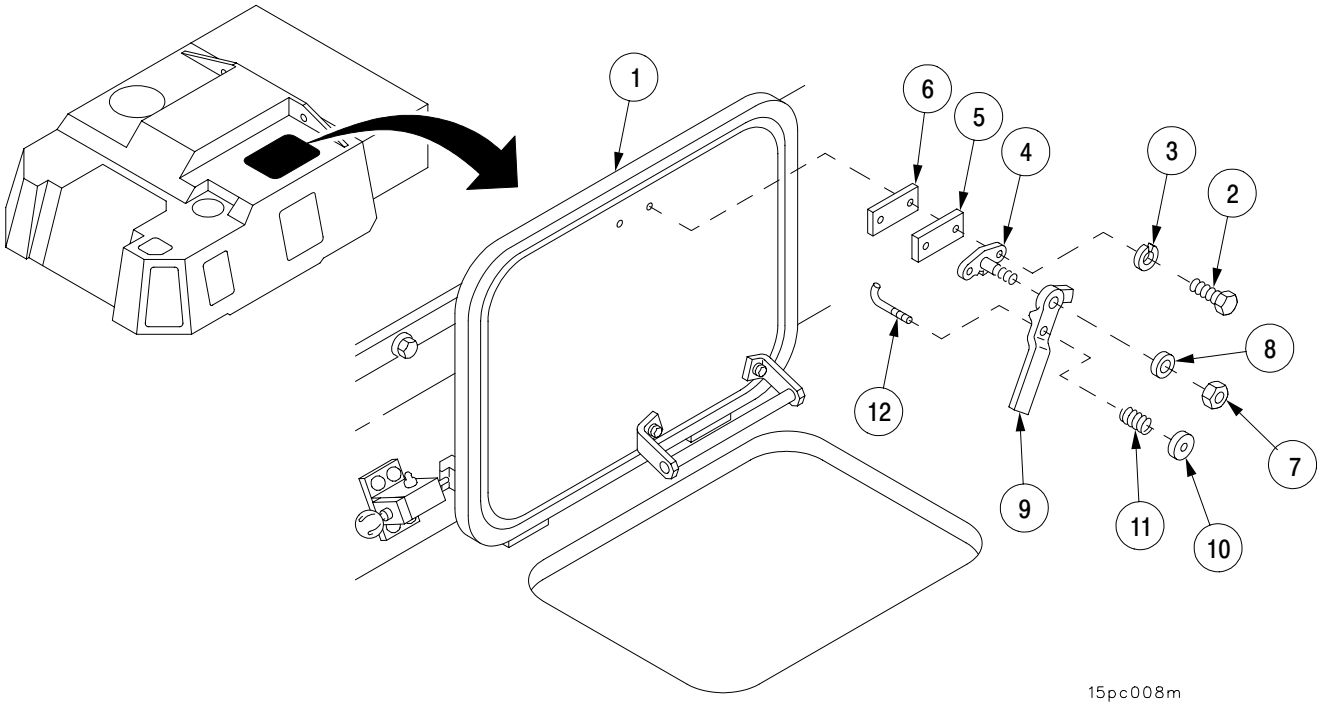
b. Installation – Continued

4 Install handle (9) on handle mount (4) and secure with new locknut (7) and flat washer (8).

4.1 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of spacer (5).

5 Install shim (6), spacer (5), and handle mount (4) on hatch (1) and secure with two screws (2) and two new lockwashers (3).

6 Close hatch (1).



17–4 GUNNER'S ESCAPE HATCH PLATE AND STRIKE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Self–locking screws (2) (item 40, Appx F)
Sealing compound (item 46.1, Appx C)
Lockwashers (2) (item 128, Appx F)

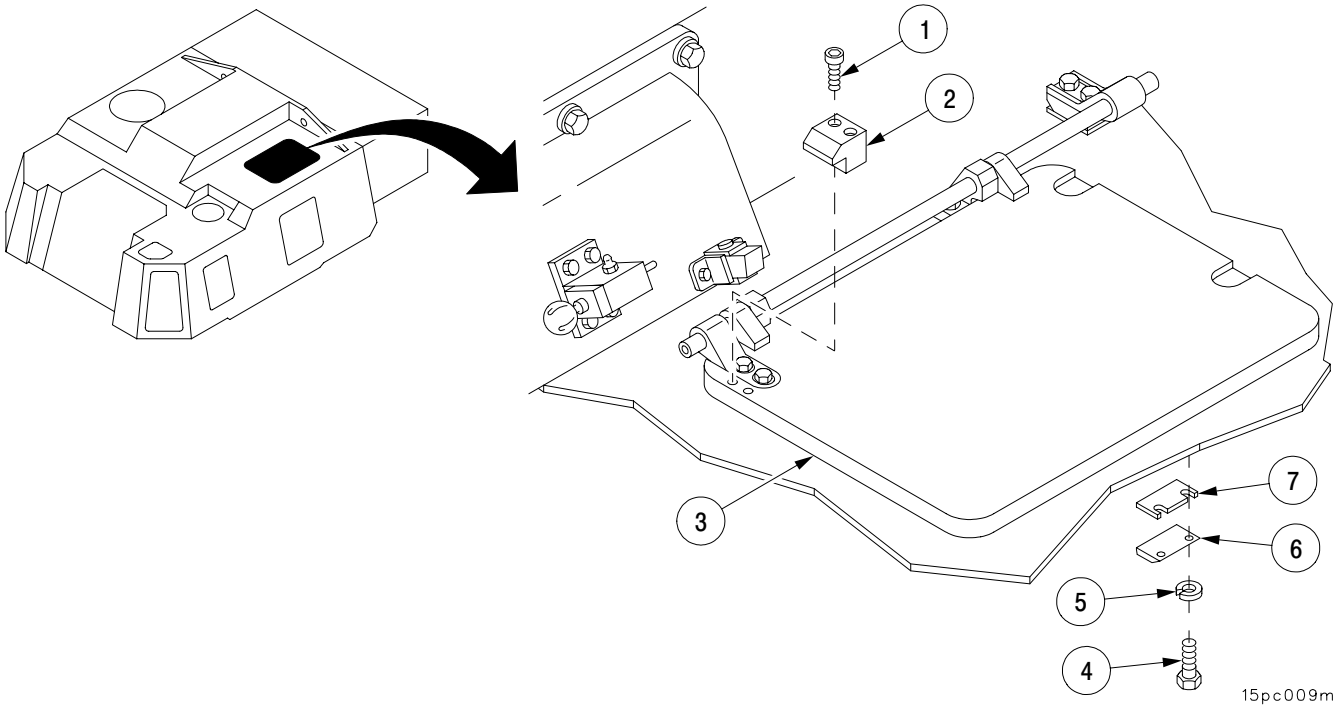
a. Removal.

NOTE

To remove strike, perform step 1. To remove plate, perform step 2.

1 Remove two self–locking screws (1) and strike (2) from hatch (3). Discard screws.

2 Remove two screws (4), two lockwashers (5), plate (6), and shim (7) from cab roof. Discard lockwashers.



17–4 GUNNER'S ESCAPE HATCH PLATE AND STRIKE – CONTINUED

b. Installation.

1 Ensure threaded holes are free of any debris that may interfere with proper installation.

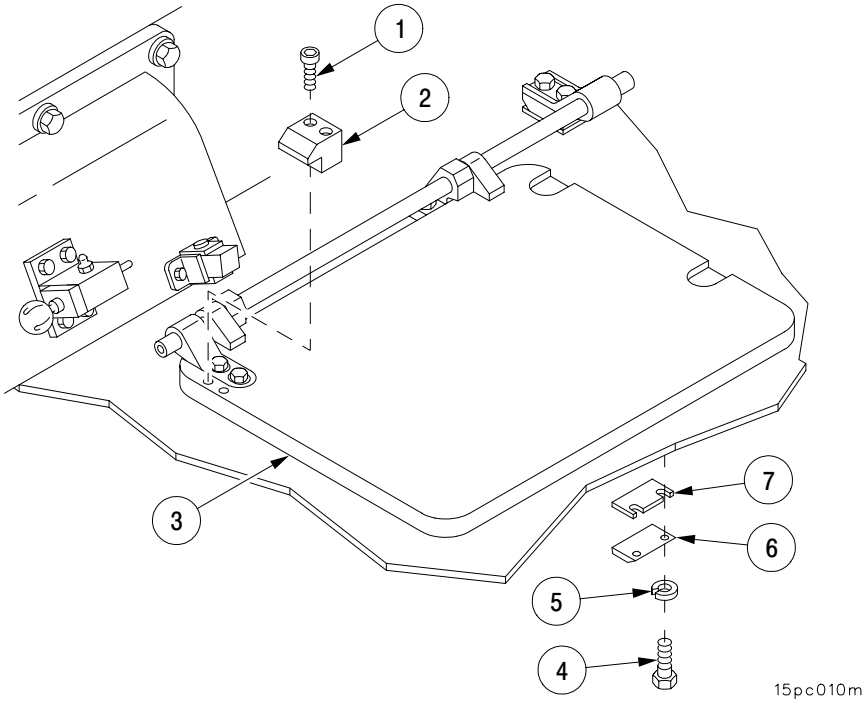
NOTE

To install strike, perform steps 1 thru 2. To install plate, perform steps 1 and 3.

1.1 Apply sealing compound to aluminum/steel interfaces of strike (2).

2 Install strike (2) onto hatch (3) and secure with two new self–locking screws (1).

3 Install plate (6) and shim (7) onto cab roof and secure with two screws (4) and two new lockwashers (5).



CHAPTER 18
CAB HYDRAULICS

GENERAL

This chapter illustrates and describes servicing, testing, and maintaining the howitzer cab hydraulic system at unit level maintenance.

CONTENTS Page

CONTENTS Page

18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING).

This task covers: a. Discharging Pressure b. Draining Hydraulic Fluid c. Filling d. Charging e. Bleeding Equilibration Elevation System f. Adjustment

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Drain pans (3) (item 26, Appx G)
Fast fill assembly (item 18, Appx G)
Cable assembly, fast fill (item 10, Appx G)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Nonmetallic tubing (item 93, Appx C)

Equipment Conditions
Gun tube in travel lock (TM 9–2350–314–10)
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
HYDRAULIC POWER switch OFF (TM 9–2350–314–10)
Cab traverse lock locked (TM 9–2350–314–10)

Personnel Required
Two

References
TM 9–2350–314–10

WARNING

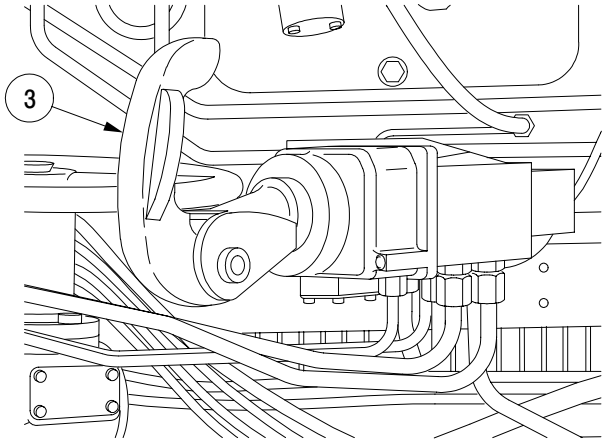
Eye protection will be worn to avoid injury to personnel.

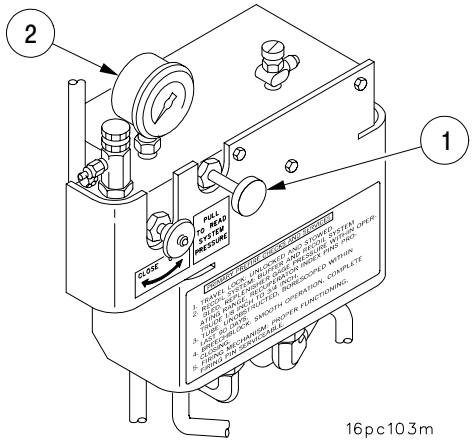
a. Discharging Pressure.

1 Pull manual pull knob (1) on fuse manifold.

2 While watching pressure gage (2), turn COS control handle (3) to right and hold until pressure gage (2) indicates zero.

3 Release control handle (3).





18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

b. Draining Hydraulic Fluid.

1 Connect suction hose (1) quick disconnect coupling (2) to pump inlet port (3).

2 Connect opposite end of suction hose (1) to the hydraulic reservoir drain quick disconnect (4).

3 Connect pressure hose (5) quick disconnect coupling (6) to pump outlet port.

4 Place opposite end of pressure hose (5), end without a fitting, in a suitable container.

NOTE

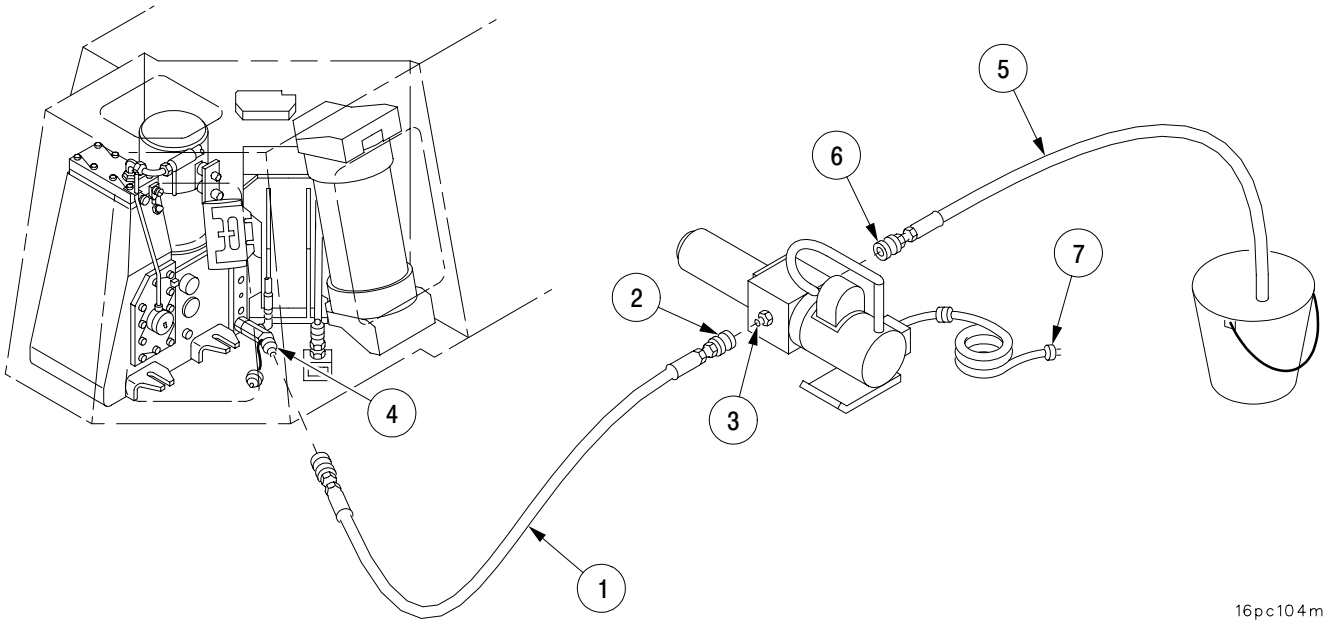
Reservoir contains approximately eight (8) gallons of hydraulic fluid.

5 Connect pump power cable (7) to proper power source.

6 Place pump power switch in ON position.

7 Place pump power switch in OFF position when fluid stops flowing.

8 Disconnect hoses.



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

b. Draining Hydraulic Fluid – Continued

NOTE

Fluid remains in the lines and the equilibration system. Discharge of all fluid requires the use of the equilibration hand pump.

WARNING

Gun tube may fall when the equilibration system is drained causing injury to personnel.

9 Place gun tube in travel lock.

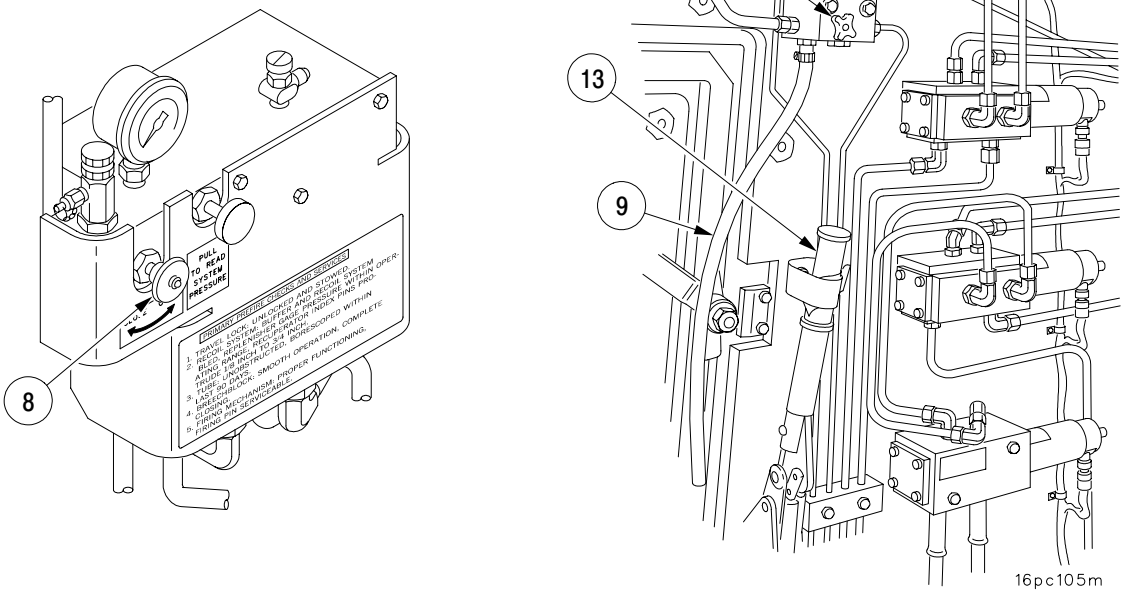
10 Open needle valve on fuse manifold (8).

11 Place hose (9) in a suitable container.

12 Open red knob (10) and white knob (11) on equilibrator manifold (12).

13 Operate equilibrator hand pump (13) until all fluid is drained.

14 Close red knob (10) and white knob (11) on equilibrator manifold (12).



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

c. Filling.

1 Connect suction hose (1) quick disconnect to pump inlet (2).

2 Place the other end of the suction hose (1) into bulk container of hydraulic fluid.

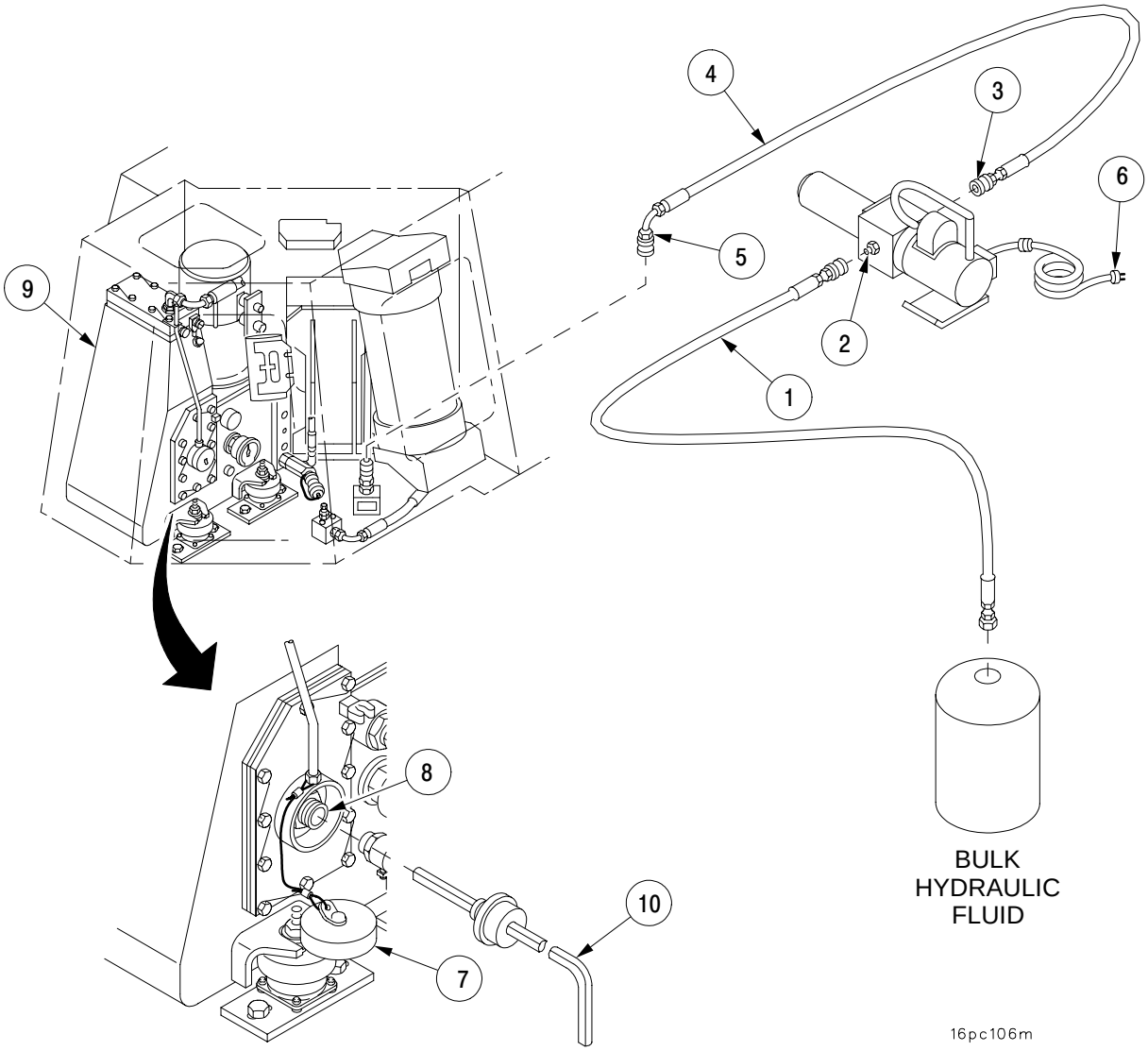
3 Connect straight quick disconnect (3) on end of pressure hose (4) to pump outlet.

4 Connect 90 degree elbow (5) on end of pressure hose (4) to check valve at system fill manifold.

5 Connect power cable (6) to power source.

6 Remove dust cap (7) from bellows boss (8) on hydraulic reservoir (9).

7 Insert dipstick (10) into bellows boss (8).



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

c. Filling – Continued

8 Screw rod guide (11) into bellows boss (8).

NOTE

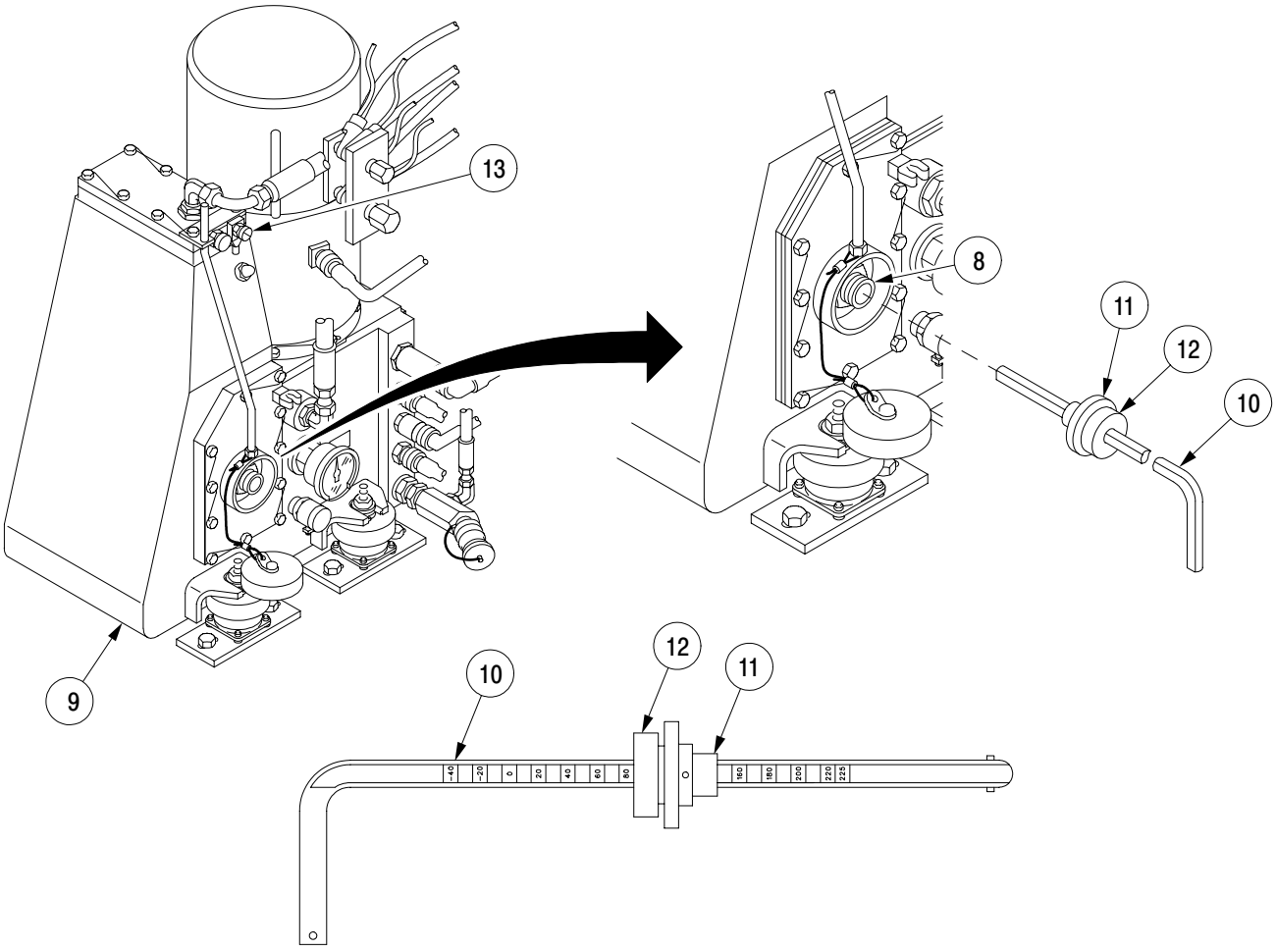
- Ensure vent hole in rod guide is clear.
- Do not tighten cap to rod guide. Rod must be able to slide out of bellows as fluid is added.

9 Insert dipstick cap (12) to rod guide (11).

10 Attach one end of plastic tubing to bleeder valve (13) at the top of hydraulic reservoir (9). Place the other end of tubing in a drain pan.

11 Open bleeder valve (13).

12 Push dipstick (10) into bellows boss (8) until it bottoms out.



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18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

c. Filling – Continued

13 Compare the temperature on dipstick (10) and thermometer (14).

14 Observe sight plug (15) to see if fluid is present.

15 If dipstick (10) indicates a lower temperature than the thermometer (14) when it is bottomed out and no fluid is visible in the sight plug (15), place the pump power switch in the ON position, and pump fluid into the reservoir (9) until fluid is visible in sight plug (15).

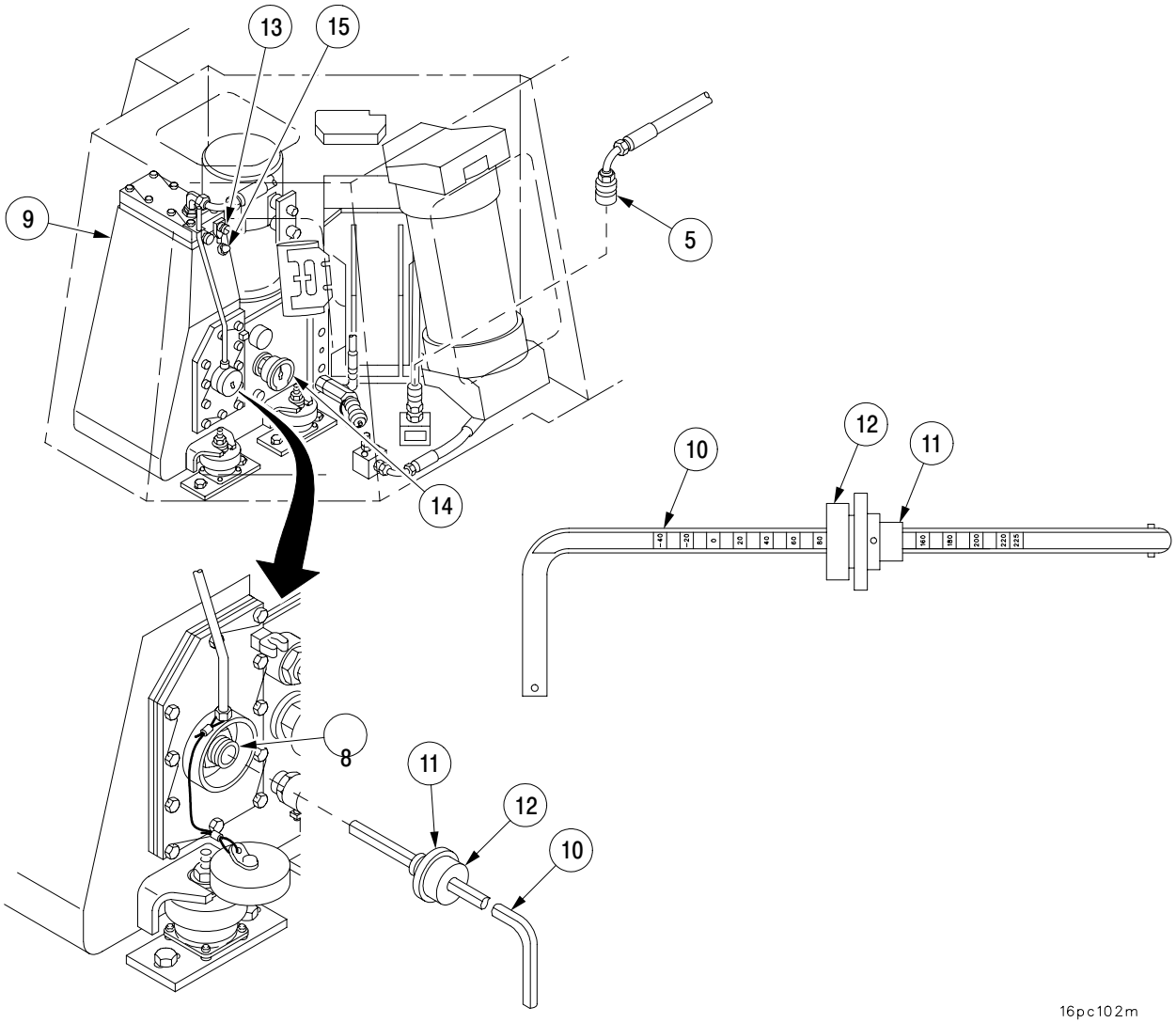
16 Ensure the dipstick (10) has backed out of the bellows boss (8) and the temperature indicated on the dipstick (10) and thermometer (14) match. Place pump power switch in the OFF position.

17 Tighten rod cap (12) to rod guide (11).

18 Add additional hydraulic fluid (as in step 15 above) until clear fluid drains from bleeder valve (13).

19 Close bleeder valve (13).

20 Disconnect 90 degree elbow (5) from check valve at system fill manifold.



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

d. Charging.

CAUTION

If hydraulic pressure reaches 1975 psi, immediately turn HYDRAULIC POWER switch OFF. Discharge hydraulic system (para 18–1a), and turn HYDRAULIC POWER switch ON. If pressure again reaches 1975 psi, turn HYDRAULIC POWER switch OFF and troubleshoot the hydraulic system.

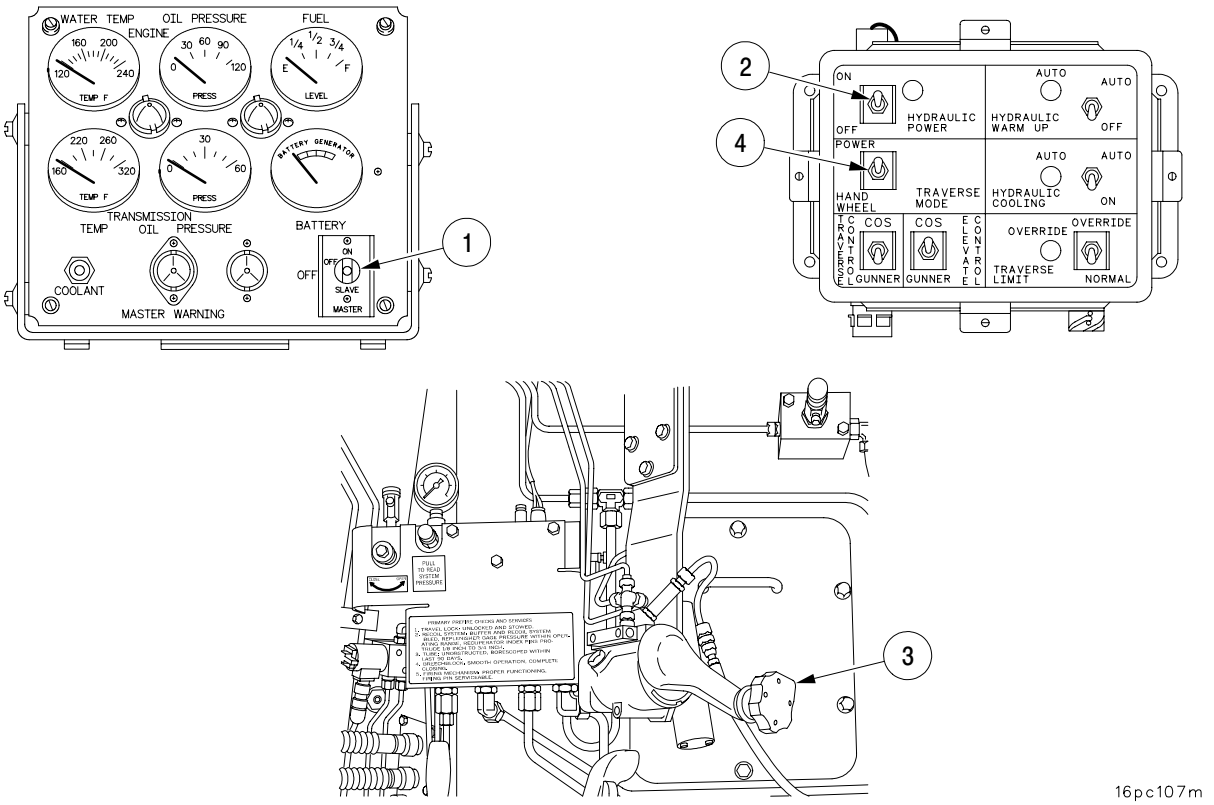
1 Turn vehicle MASTER power switch (1) ON, start engine, and turn HYDRAULIC POWER switch (2) ON to charge elevating and traversing systems.

2 Lower travel lock and unlock traverse lock (TM 9–2350–314–10).

3 Rotate manual elevating hand pump (3) clockwise until movement of elevation cylinder is detected.

4 Turn TRAVERSE MODE switch (4) to POWER position.

5 Traverse cab one full revolution in each direction using gunner's control handle.



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

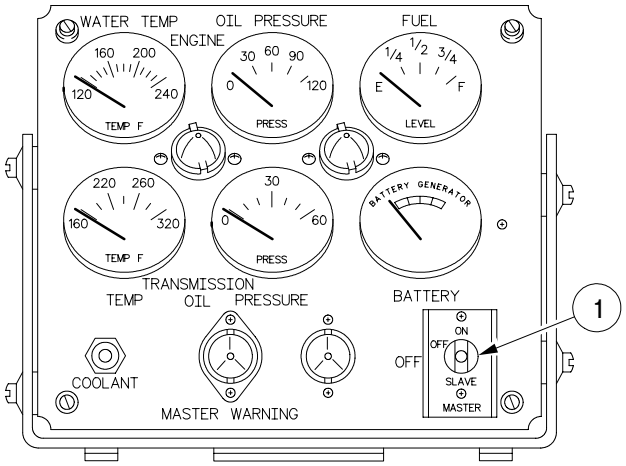
d. Charging – Continued

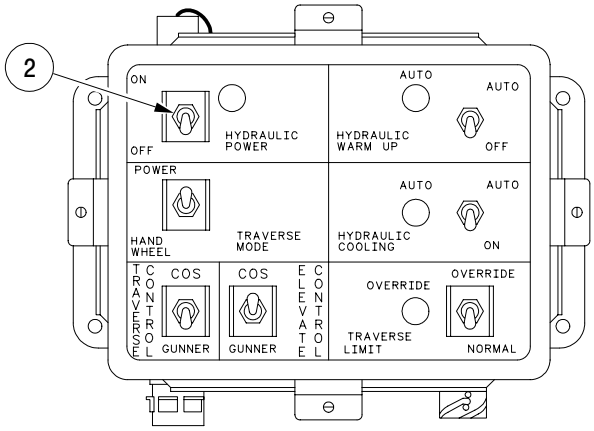
6 Set HYDRAULIC POWER switch (2) and vehicle MASTER power switch (1) to OFF position.

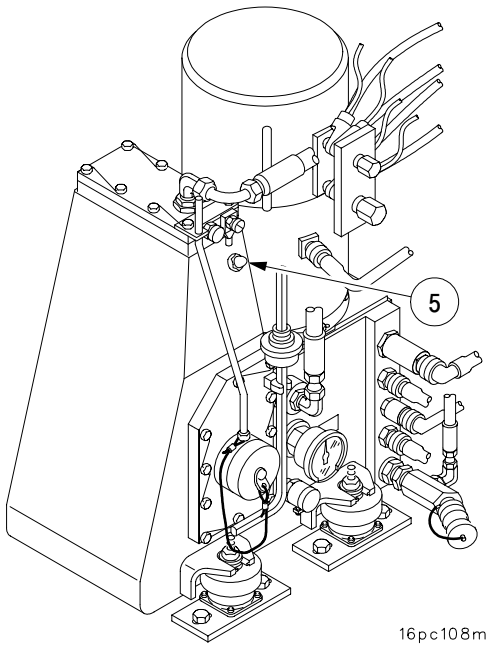
7 Stop engine (TM 9–2350–314–10).

8 Observe hydraulic fluid level in sight plug (5).

9 If fluid is not visible in sight plug, check in accordance with para 3, Appx I, TM 9–2350–314–10.







18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

e. Bleeding Equilibration Elevation System.

NOTE

You may have to repeat the bleed procedure several times. Check fluid level in powerpack reservoir after each bleed sequence and add fluid as required (para 18–1c).

1 Turn vehicle MASTER power switch (1) ON, start engine, and turn HYDRAULIC POWER switch (2) ON.

2 Lower travel lock and unlock traverse lock.

3 Set ELEVATE control switch (3) to GUNNER and fully depress cannon tube (–53 mils).

4 On equilibrator manifold (4), check equilibrator valve knob (5) to make sure it is closed.

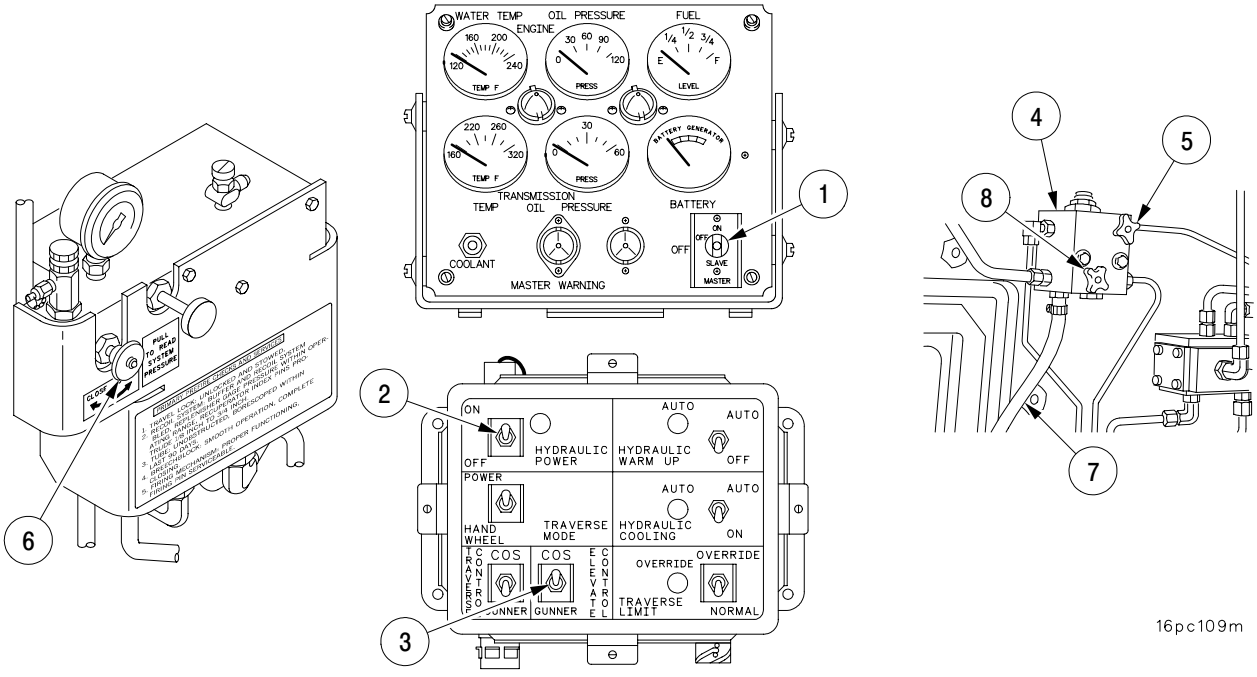
NOTE

Equilibrator cylinder contains approximately 2 1/2–gal. of fluid.

5 Open needle valve (6) on fuse manifold to energize equilibration circuit.

6 Place drain pan under hose (7) and open drain valve knob (8) on equilibrator manifold (4).

7 When air free hydraulic fluid flows through hose (7), close drain valve knob (8) to shut off drain.



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

e. Bleeding Equilibration Elevation System – Continued

WARNING

Bleed valves may have high pressure when first opened causing personnel injury.

8 Slowly open bleed valves (9 and 10) on elevation mechanism (11).

9 Pull back slowly on gunner's control handle (12) until air–free hydraulic fluid flows from front bleed valve (9), and close front bleed valve (9).

10 Push forward slowly on gunner's control handle (12) until air–free hydraulic fluid flows from intermediate bleed valve (10) and close intermediate bleed valve (10).

11 Refill hydraulic powerpack reservoir (para 18–1c) as required.

12 Ensure equilibrator valve knob (5) is closed on equilibrator manifold (4).

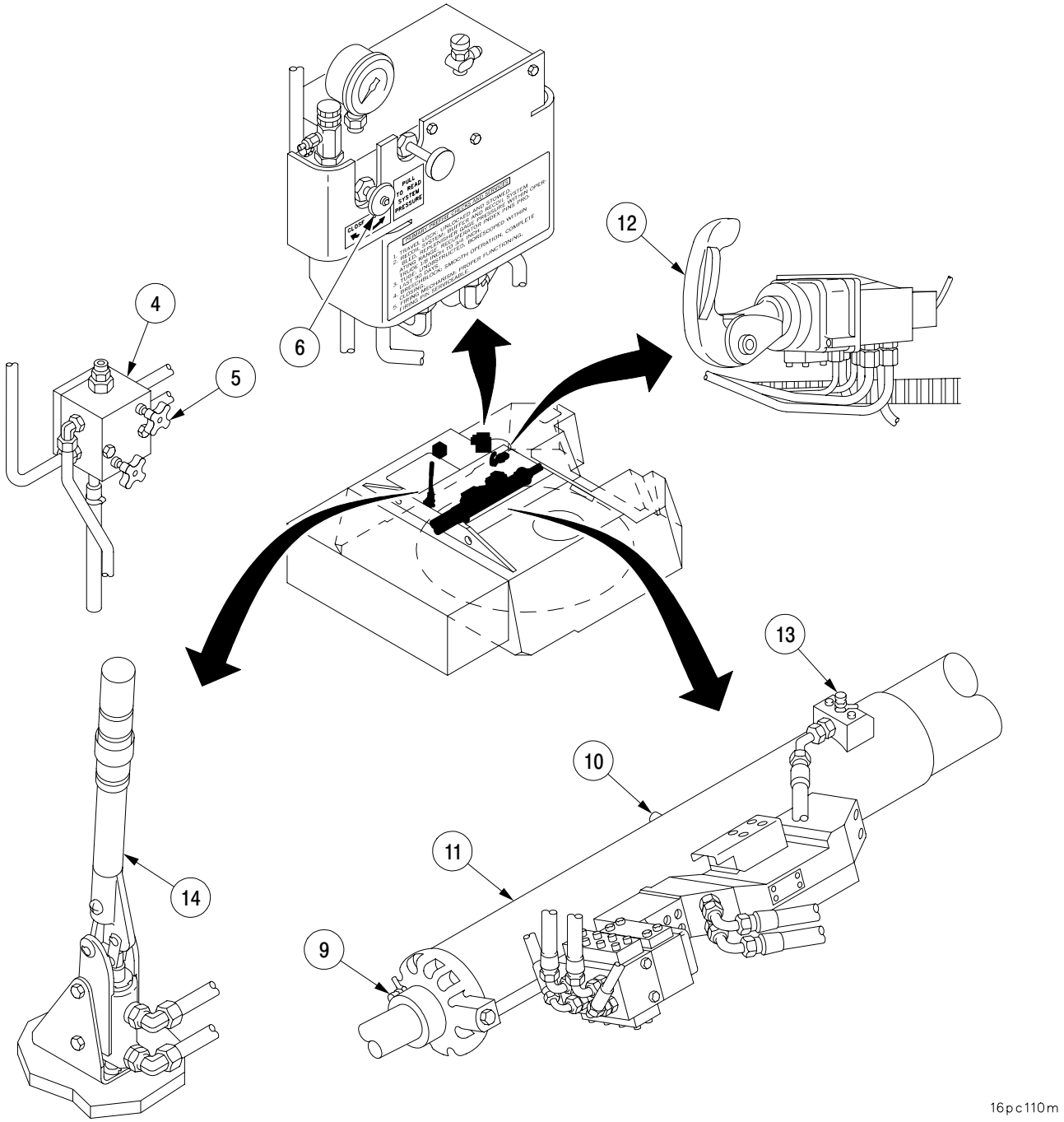
13 Close needle valve (6) and make sure that howitzer tube is fully depressed.

14 Open equilibrator bleed valve (13) on elevation mechanism (11).

15 Pump equilibrator hand pump (14) until air–free fluid flows from equilibrator bleed valve (13) and close equilibrator bleed valve.

18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

e. Bleeding Equilibration Elevation System – Continued



18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

f. Adjustment.

1 Open needle valve (1) on fuse manifold to energize equilibration circuit.

2 Open equilibrator valve knob (2) and leave open approximately 15 seconds, then close equilibrator valve knob (2) and needle valve (1).

3 Operate equilibration hand pump (3) and gunner's control handle (4), alternating from one to the other until the howitzer tube raises to maximum elevation.

NOTE

Ensure equilibration system is not overfilled with hydraulic fluid, which will cause relief valve to open when cannon is depressed.

4 Open needle valve (1) on fuse manifold.

5 With cannon tube at maximum elevation, open equilibrator valve knob (2) and leave open approximately 15 seconds, then close equilibrator valve knob (2) and needle valve (1).

6 Lower howitzer tube to balance point of +533 mils (30°).

7 Use elevation hand pump (5) to elevate and depress howitzer tube.

(a) If howitzer tube is harder to elevate than depress, increase equilibrator pressure with equilibration hand pump (3).

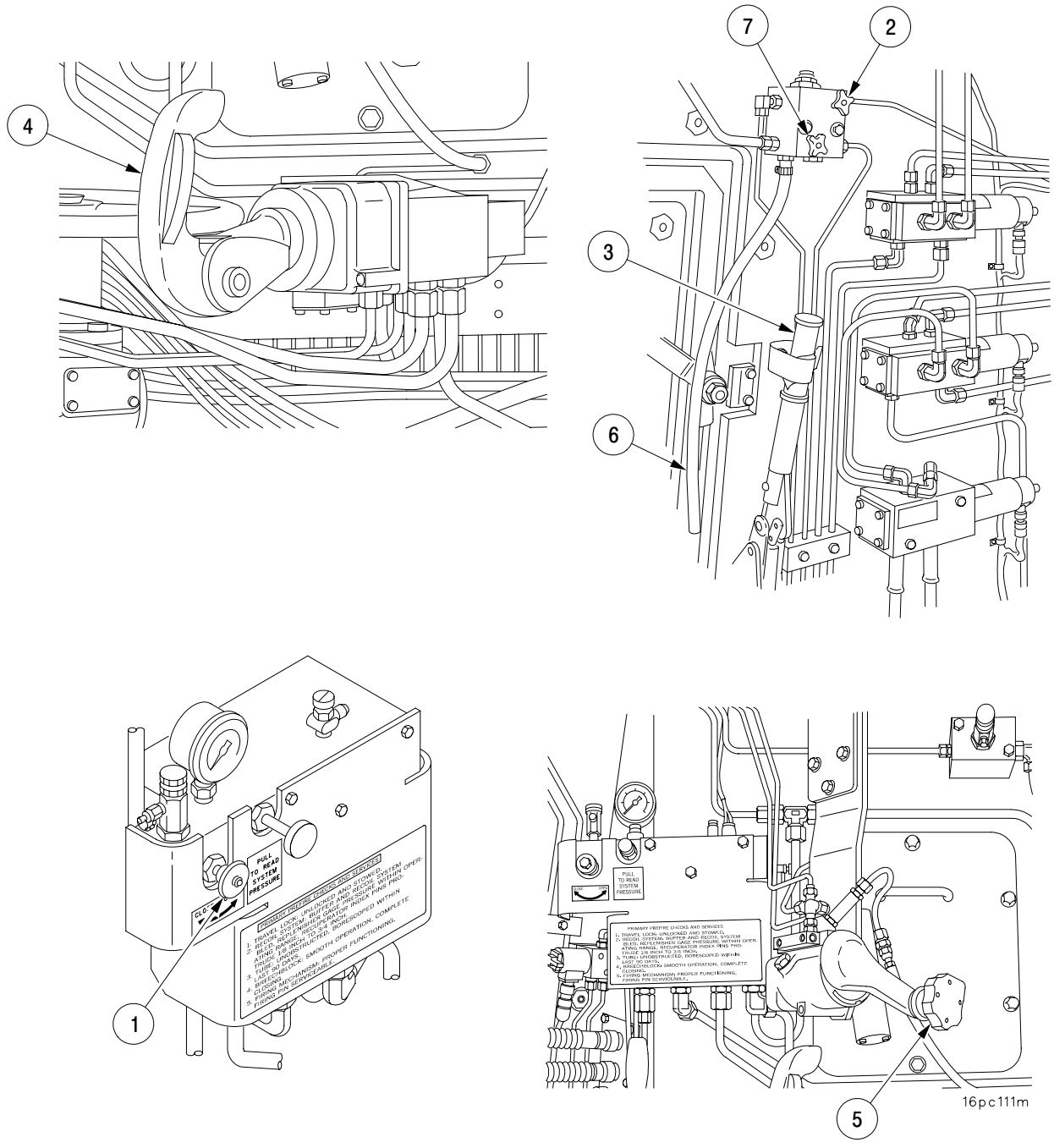
(b) If howitzer tube is harder to depress than elevate, reduce pressure by draining fluid through drain valve. Place container under drain tube (6) and open drain valve knob (7).

(c) Repeat steps (a) and (b) until howitzer tube balances.

8 If required, fill reservoir (para 18–1c).

18–1 HYDRAULIC SYSTEM (DRAINING, FILLING, AND CHARGING) – CONTINUED

f. Adjustment – Continued



18–2 SAMPLING HYDRAULIC FLUID.

This task covers:
a. Sampling Fluid at Fuse Manifold
b. Sampling Fluid at Return Manifold
c. Sampling Fluid at Reservoir
d. Sampling Fluid in Equilibration Chamber

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Sampling bottle (item 18, Appx C)
Nonmetallic tube (item 93, Appx C)

Equipment Conditions
Engine running (TM 9–2350–314–10)
HYDRAULIC POWER switch ON (TM 9–2350–314–10)

Personnel Required
Two

References
TM 9–2350–314–10

WARNING

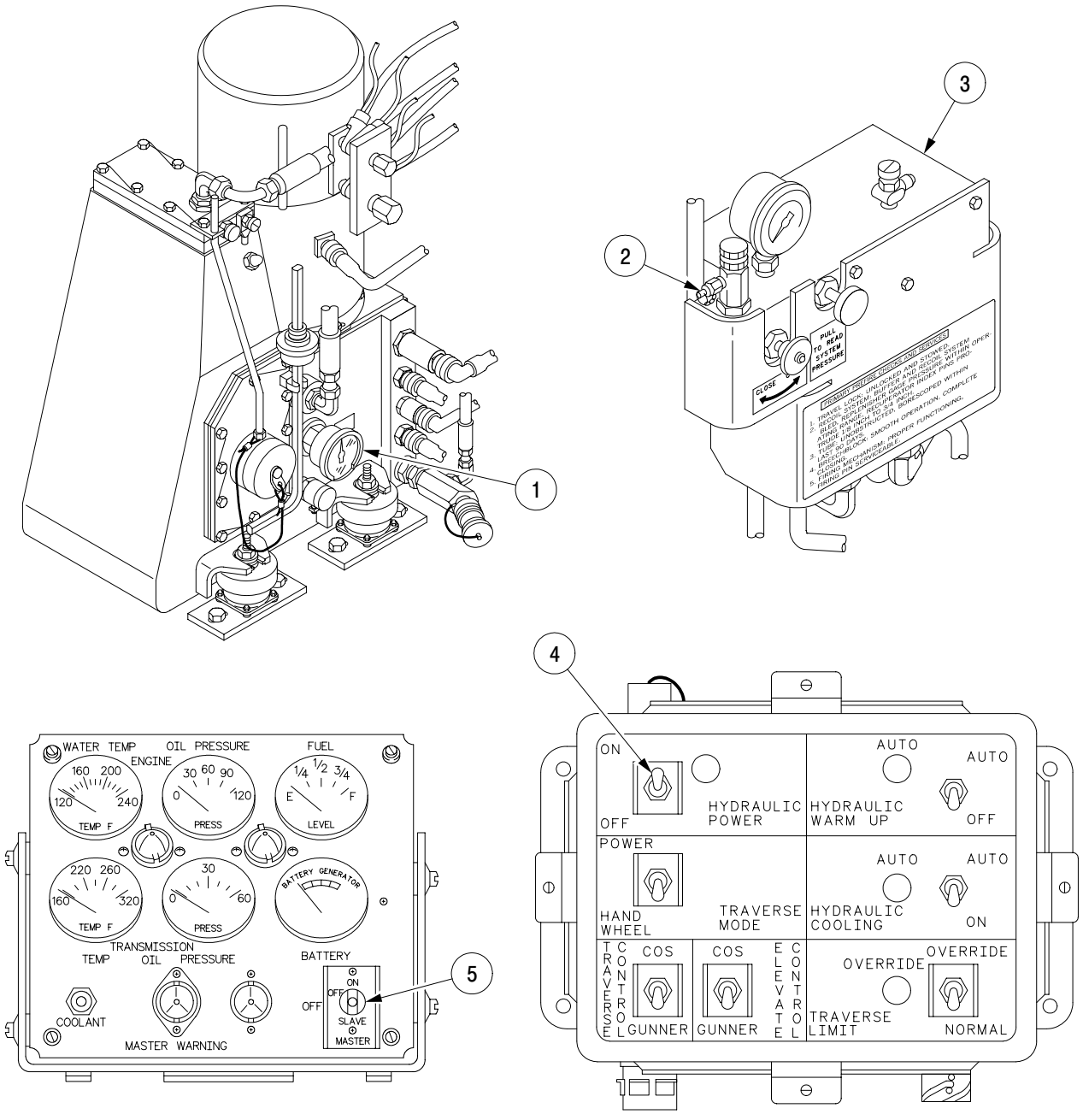
Eye protection will be worn to avoid injury to personnel.

a. Sampling Fluid at Fuse Manifold.

1 Wait until hydraulic fluid temperature gage (1) shows 80° to 160° F.
2 Connect nonmetallic tube to sampling valve (2) on fuse manifold (3).
3 Slowly open sampling valve (2) and flush out nonmetallic tube. Close valve.
4 Open cap on sampling bottle just enough to insert end of nonmetallic tube.
5 Slowly open sampling valve (2) to fill sampling bottle.
6 When sampling bottle is full, close sampling valve (2).
7 Remove nonmetallic tube from sampling bottle and close cap.
8 Disconnect nonmetallic tube from sampling valve (2).
9 Turn HYDRAULIC POWER switch (4) OFF.
10 Stop engine (TM 9–2350–314–10).
11 Turn vehicle MASTER power switch (5) OFF

18–2 SAMPLING HYDRAULIC FLUID – CONTINUED

a. Sampling Fluid at Fuse Manifold – Continued



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18–2 SAMPLING HYDRAULIC FLUID – CONTINUED

b. Sampling Fluid at Return Manifold.

1 Wait until hydraulic fluid temperature gage (1) shows 80° to 160° F (26° to 71° C), then fully elevate and depress gun five times (TM 9–2350–314–10).

2 Set TRAVERSE MODE switch (2) to HANDWHEEL.

3 Set TRAVERSE control switch (3) to GUNNER.

4 Connect nonmetallic tube to sampling valve (4) on return manifold (5).

5 First soldier: hold gunner's control handle (6) fully right.

6 Second soldier: slowly open sampling valve (4), flush out nonmetallic tube and close sampling valve (4).

7 Second soldier: open cap on sampling bottle just enough to insert end of nonmetallic tube.

8 Slowly open sampling valve (4) to fill sampling bottle and close sampling valve (4).

9 Remove nonmetallic tube from sampling bottle and close cap.

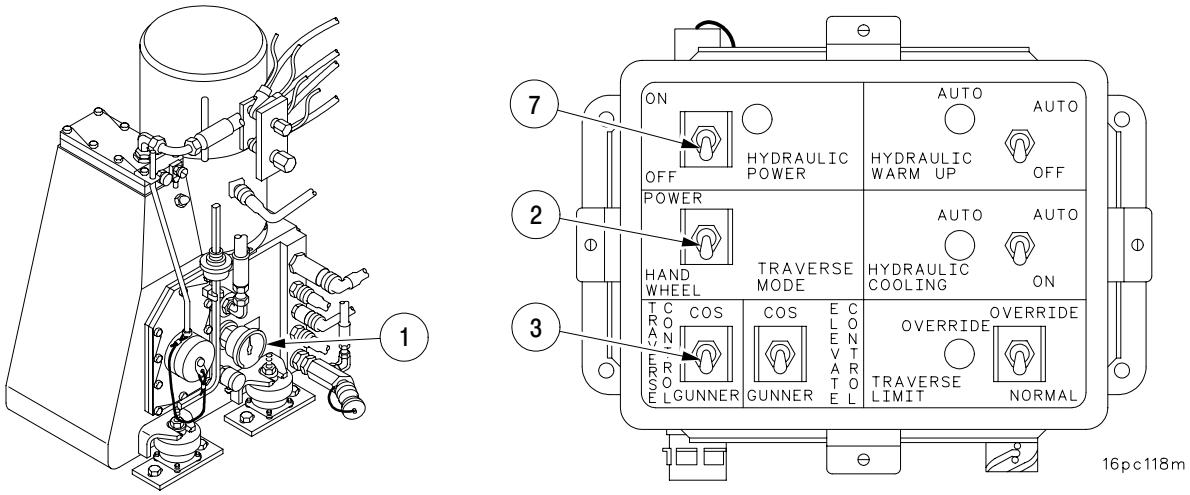
10 Disconnect nonmetallic tube from sampling valve.

11 First soldier: release gunner's control handle (6).

12 Set HYDRAULIC POWER switch (7) to OFF.

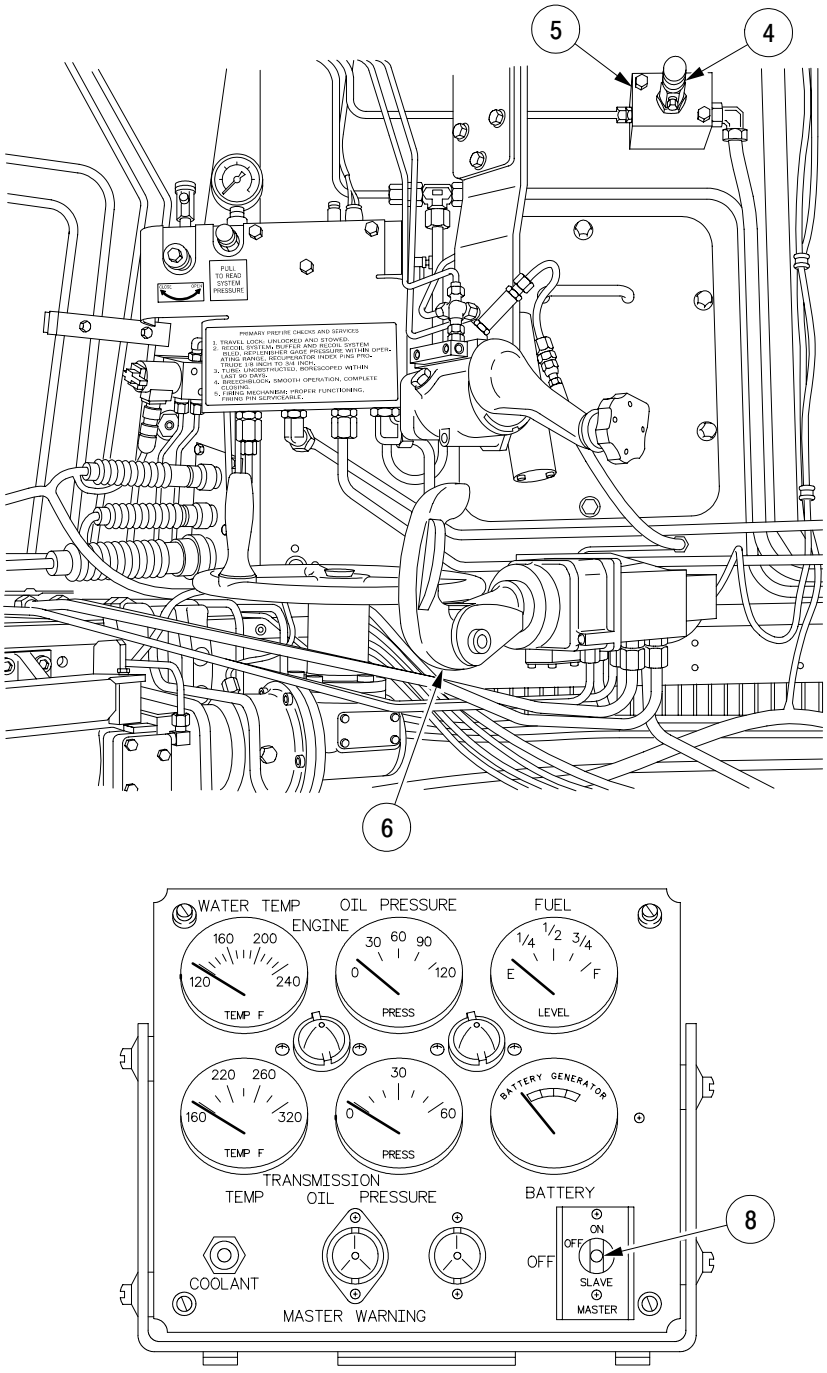
13 Stop engine (TM 9–2350–314–10).

14 Set vehicle MASTER power switch (8) to OFF.



18–2 SAMPLING HYDRAULIC FLUID – CONTINUED

b. Sampling Fluid at Return Manifold – Continued



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18–2 SAMPLING HYDRAULIC FLUID – CONTINUED

c. Sampling Fluid at Reservoir.

1 Wait until hydraulic fluid temperature gage (1) shows 80° to 160° F (26° to 71° C).

2 At reservoir, connect nonmetallic tube to sampling valve (2).

3 Slowly open sampling valve (2), flush out nonmetallic tube and close sampling valve (2).

4 Open cap on sampling bottle just enough to insert end of nonmetallic tube.

5 Slowly open sampling valve (2) to fill sampling bottle and close sampling valve (2).

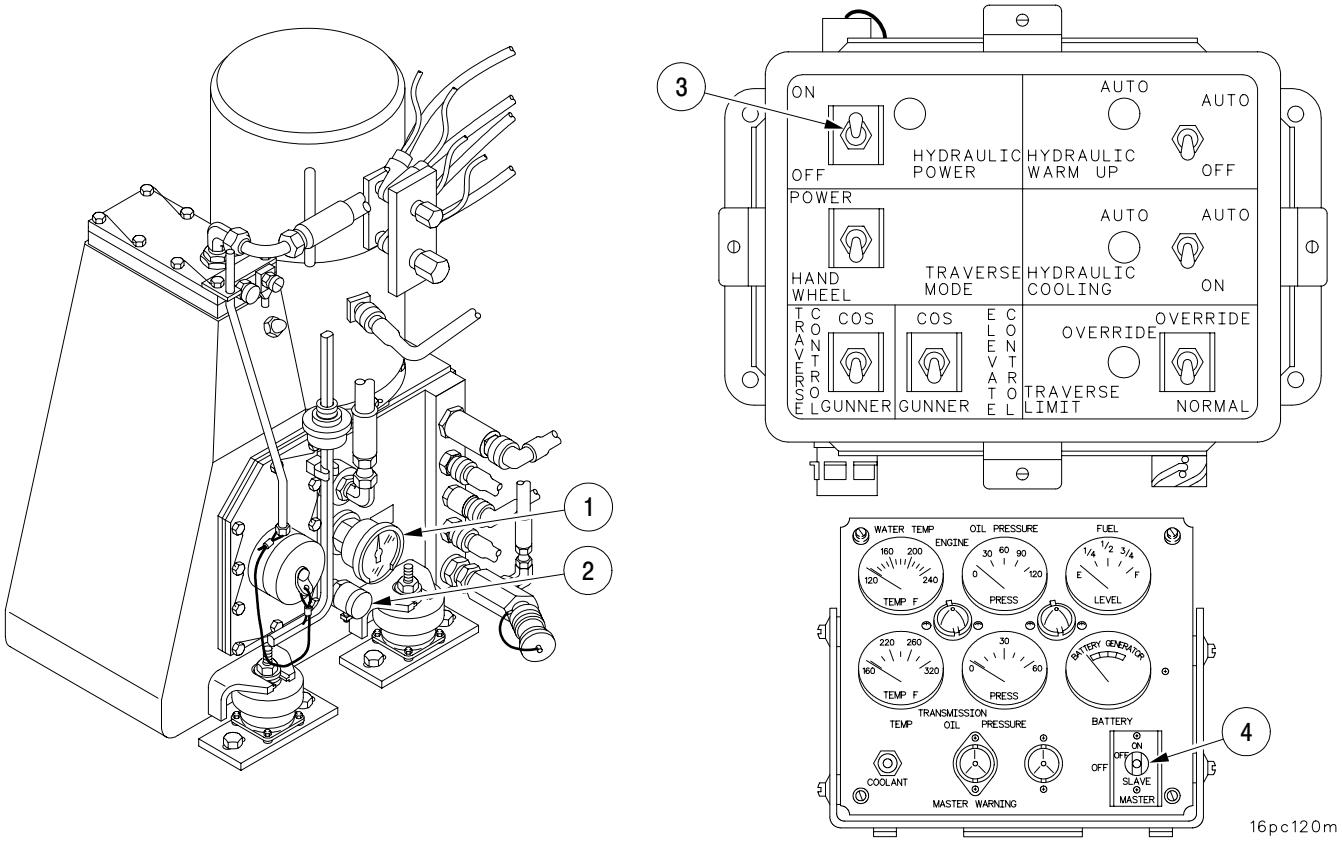
6 Remove nonmetallic tube from sampling bottle and close cap.

7 Disconnect nonmetallic tube from sampling valve (2).

8 Turn HYDRAULIC POWER switch (3) OFF.

9 Stop engine (TM 9–2350–314–10).

10 Turn vehicle MASTER power switch (4) OFF.



18–2 SAMPLING HYDRAULIC FLUID – CONTINUED

d. Sampling Fluid in Equilibration Chamber.

1 Wait until hydraulic fluid temperature gage (1) shows 80° to 160° F (26° to 71° C), then fully elevate and depress gun five times (TM 9–2350–314–10).

2 At elevation mechanism, connect nonmetallic tube to sampling valve (2).

3 Slowly open sampling valve (2), flush out nonmetallic tube and close sampling valve (2).

4 Open cap on sampling bottle just enough to insert end of nonmetallic tube.

5 Slowly open sampling valve (2) to fill sampling bottle and close sampling valve (2).

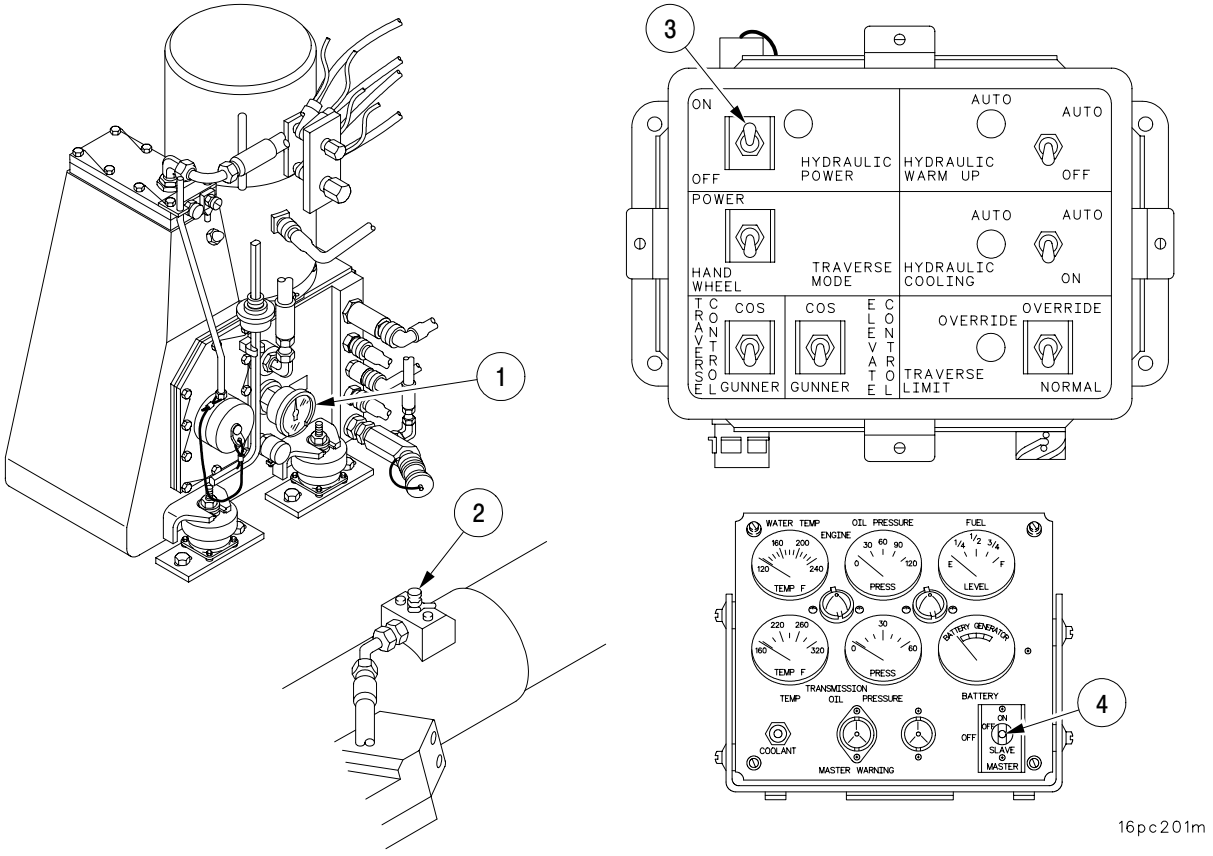
6 Remove nonmetallic tube from sampling bottle and close cap.

7 Disconnect nonmetallic tube from sampling valve (2).

8 Turn HYDRAULIC POWER switch (3) OFF.

9 Stop engine (TM 9–2350–314–10).

10 Turn vehicle MASTER power switch (4) OFF.



18–3 CLUTCH VALVE LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective plug (AR) (item 64, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)

Materials/Parts – Continued
Hydraulic fluid (item 50, Appx C)
Preformed packings (5) (item 4, Appx F)
Preformed packings (3) (item 95, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–3 CLUTCH VALVE LINES AND FITTINGS – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

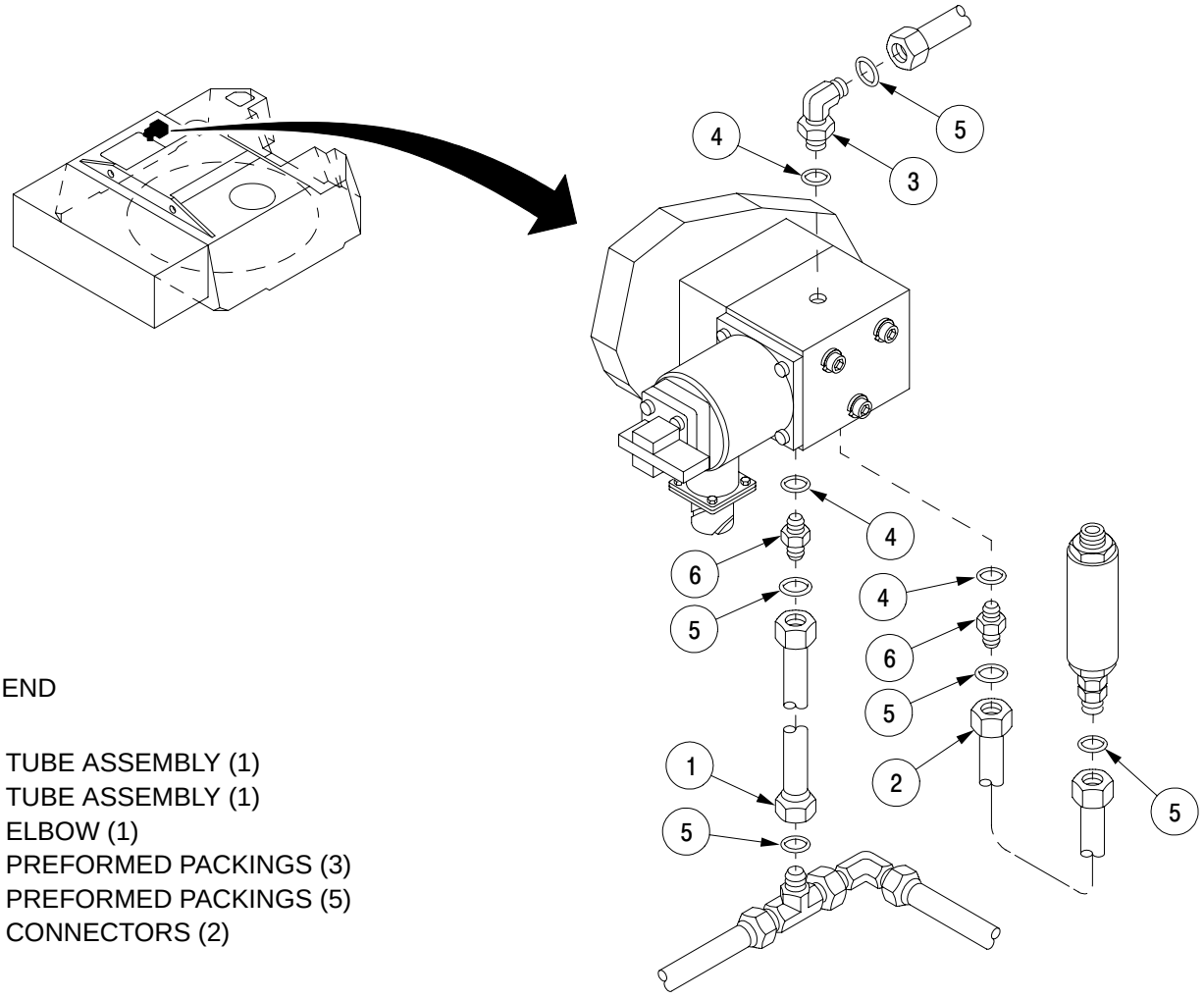
For removal, follow illustration and legend as a guide. Discard all packings.

b. Installation.

For installation, follow illustration and legend as a guide.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.



LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. ELBOW (1)
4. PREFORMED PACKINGS (3)
5. PREFORMED PACKINGS (5)
6. CONNECTORS (2)

16pc121m

18–4 COS CONTROL ASSEMBLY LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Dust protective cap (AR) (item 23, Appx C)
Dust protective cap (AR) (item 24, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 60, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (3) (item 128, Appx F)
Preformed packings (6) (item 6, Appx F)
Preformed packings (4) (item 5, Appx F)
Preformed packings (2) (item 7, Appx F)
Preformed packings (5) (item 97, Appx F)
Preformed packing (item 92, Appx F)

18–4 COS CONTROL ASSEMBLY LINES AND FITTINGS – CONTINUED

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–4 COS CONTROL ASSEMBLY LINES AND FITTINGS – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings and lockwashers.

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. TUBE ASSEMBLY (1)
6. TUBE ASSEMBLY (1)
7. STRAIGHT THREADED CONNECTORS (2)
8. PREFORMED PACKINGS (4)
9. PREFORMED PACKINGS (5)
10. STRAIGHT THREADED CONNECTORS (3)
11. PREFORMED PACKINGS (6)
12. STRAIGHT THREADED CONNECTOR (1)
13. PREFORMED PACKINGS (2)
14. PREFORMED PACKING (1)
15. PLATE (1)
16. CLAMPS (2)
17. SCREWS (3)
18. LOCKWASHERS (3)
19. FLAT WASHER (1)
20. NUT (1)

b. Installation.

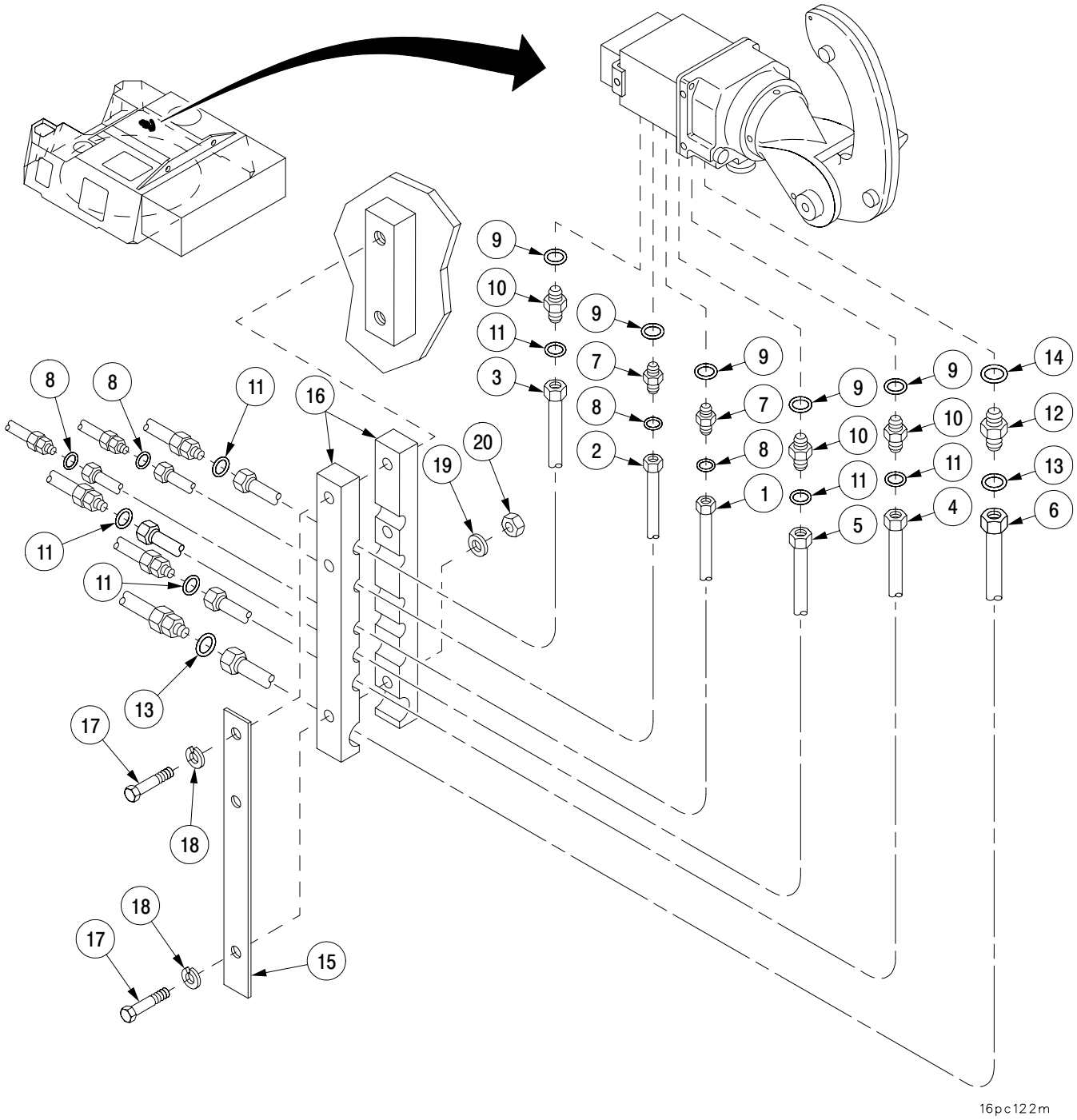
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

18–4 COS CONTROL ASSEMBLY LINES AND FITTINGS – CONTINUED

b. Installation – Continued



18–5 ELEVATION MANIFOLD ASSEMBLY LINES, FITTINGS, AND CHECK VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 62, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 5, Appx F)
Preformed packings (6) (item 4, Appx F)
Preformed packings (4) (item 95, Appx F)
Lockwashers (2) (item 128, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Equilibration system drained (para 18–32)

18–5 ELEVATION MANIFOLD ASSEMBLY LINES, FITTINGS, AND CHECK VALVE – CONTINUED

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–5 ELEVATION MANIFOLD ASSEMBLY LINES, FITTINGS, AND CHECK VALVE – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings and lockwashers.

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. HOSE (1)
5. TUBE ASSEMBLY (1)
6. PREFORMED PACKING (1)
7. CONNECTORS (2)
8. PREFORMED PACKINGS (6)
9. PREFORMED PACKINGS (4)
10. VALVE (1)
11. CLAMP (1)
12. ADAPTER (1)
13. ELBOW (1)
14. CLAMP (1)
15. PADS (2)
16. SCREWS (2)
17. FLAT WASHERS (2)
18. LOCKWASHERS (2)

b. Installation.

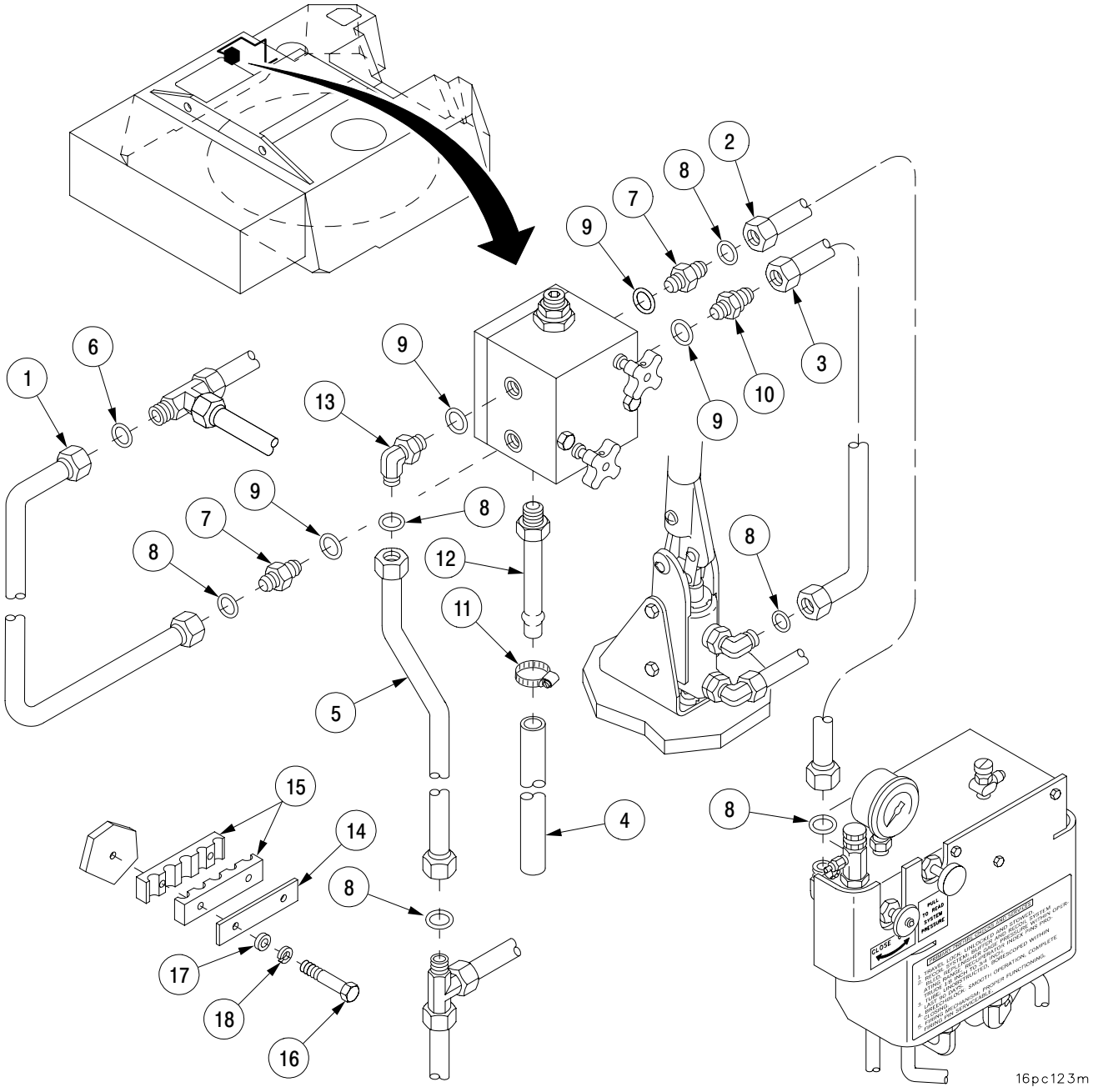
For installation, follow illustration and legend as a guide.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

18–5 ELEVATION MANIFOLD ASSEMBLY LINES, FITTINGS, AND CHECK VALVE – CONTINUED

b. Installation – Continued



18–6 RETURN MANIFOLD, LINES, FITTINGS, AND CHECK VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Materials/Parts
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (5) (item 128, Appx F)
Lockwashers (3) (item 129, Appx F)
Preformed packings (15) (item 5, Appx F)
Preformed packings (6) (item 4, Appx F
Preformed packings (10) (item 96, Appx F)
Preformed packings (4) (item 95, Appx F)
Self–locking nuts (3) (item 66, Appx F)

Equipment Conditions
Hydraulic system pressure discharged
(para 18–1)
Equilibration system drained
(para 18–32)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–6 RETURN MANIFOLD, LINES, FITTINGS, AND CHECK VALVE – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings, lockwashers, and self–locking nuts.

b. Installation.

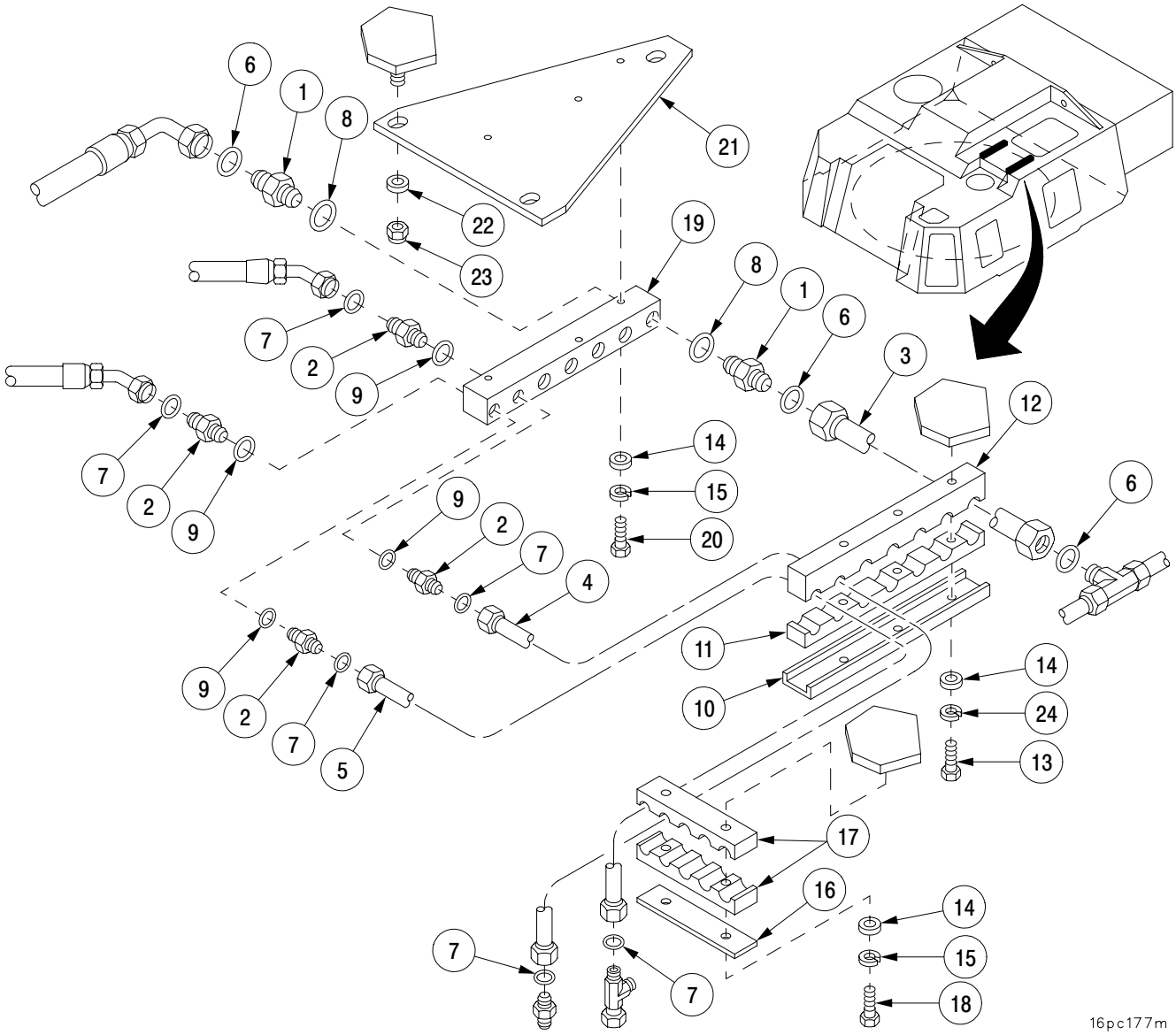
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

18–6 RETURN MANIFOLD, LINES, FITTINGS, AND CHECK VALVE – CONTINUED

b. Installation – Continued

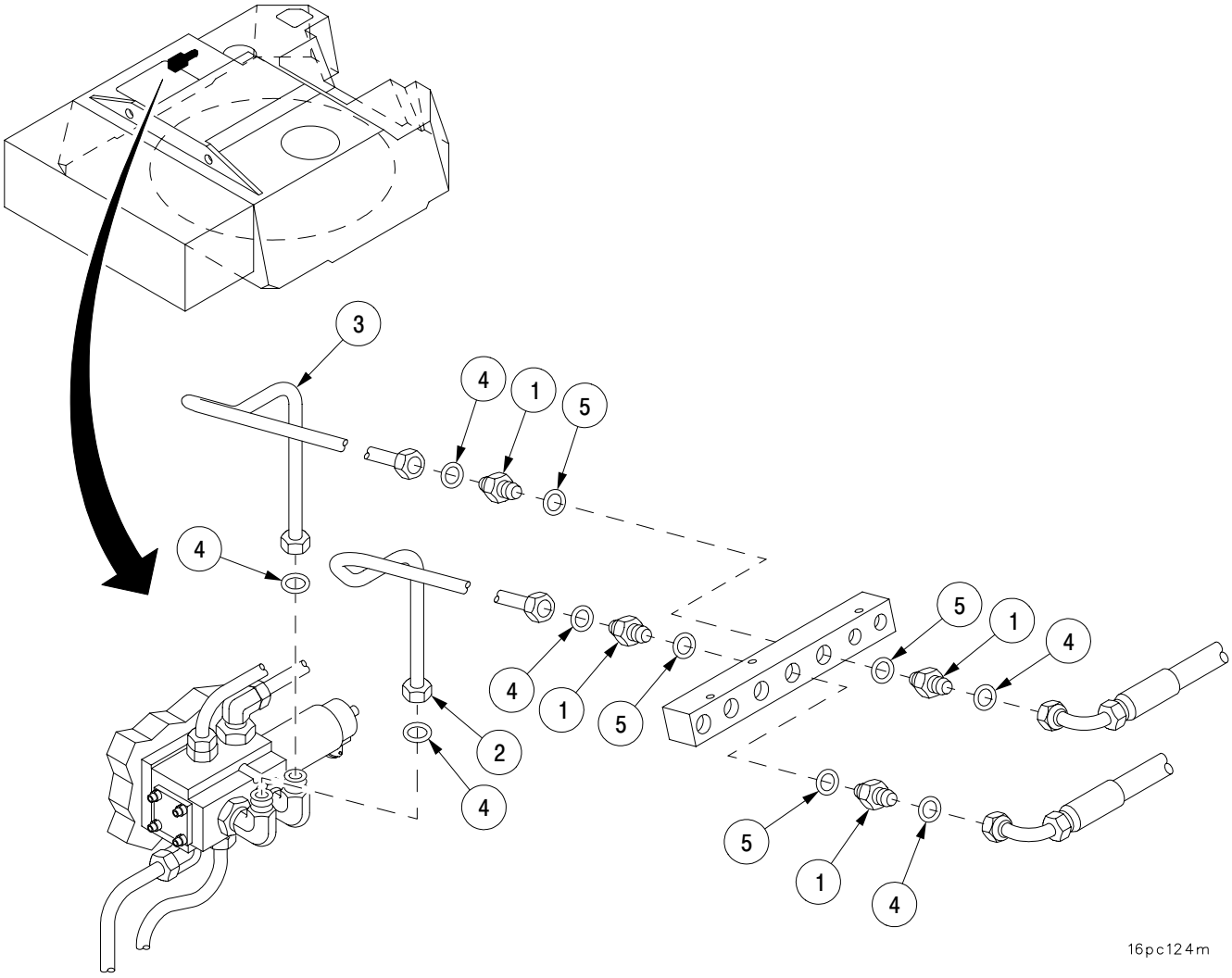


LEGEND

1. CONNECTORS (2)
2. CONNECTORS (4)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. TUBE ASSEMBLY (1)
6. PREFORMED PACKINGS (3)
7. PREFORMED PACKINGS (6)
8. PREFORMED PACKINGS (2)
9. PREFORMED PACKINGS (4)
10. CLAMP (1)
11. PAD (1)
12. PAD (1)
13. SCREWS (3)
14. FLAT WASHERS (8)
15. LOCKWASHERS (5)
16. CLAMP (1)
17. PADS (2)
18. SCREWS (2)
19. MANIFOLD (1)
20. SCREWS (3)
21. BRACKET (1)
22. FLAT WASHERS (3)
23. NUTS, SELF–LOCKING (3)
24. LOCKWASHERS (3)

18–6 RETURN MANIFOLD, LINES, FITTINGS, AND CHECK VALVE – CONTINUED

b. Installation – Continued

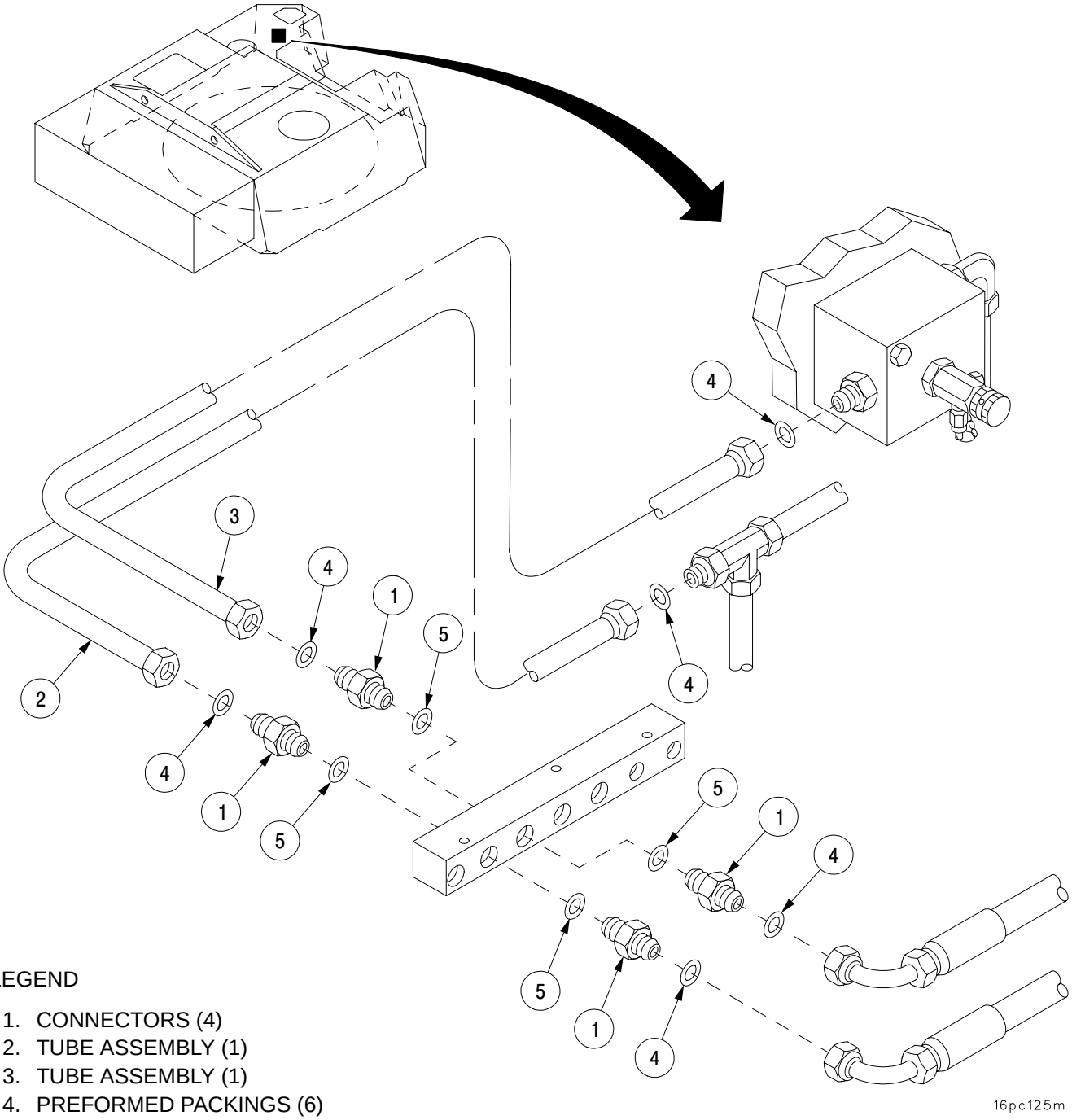


LEGEND

1. CONNECTORS (4)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. PREFORMED PACKINGS (6)
5. PREFORMED PACKINGS (4)

18–6 RETURN MANIFOLD, LINES, FITTINGS, AND CHECK VALVE – CONTINUED

b. Installation – Continued



LEGEND

1. CONNECTORS (4)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. PREFORMED PACKINGS (6)
5. PREFORMED PACKINGS (4)

18–7 ELEVATION MECHANISM ASSEMBLY LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective cap (AR) (item 24, Appx C)
Dust protective cap (AR) (item 22, Appx C)
Dust protective plug (AR) (item 61, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (10) (item 5, Appx F)
Preformed packings (4) (item 4, Appx F)
Preformed packings (2) (item 97, Appx F)
Preformed packings (5) (item 95, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Equilibration system drained (para 18–32)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–7 ELEVATION MECHANISM ASSEMBLY LINES AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

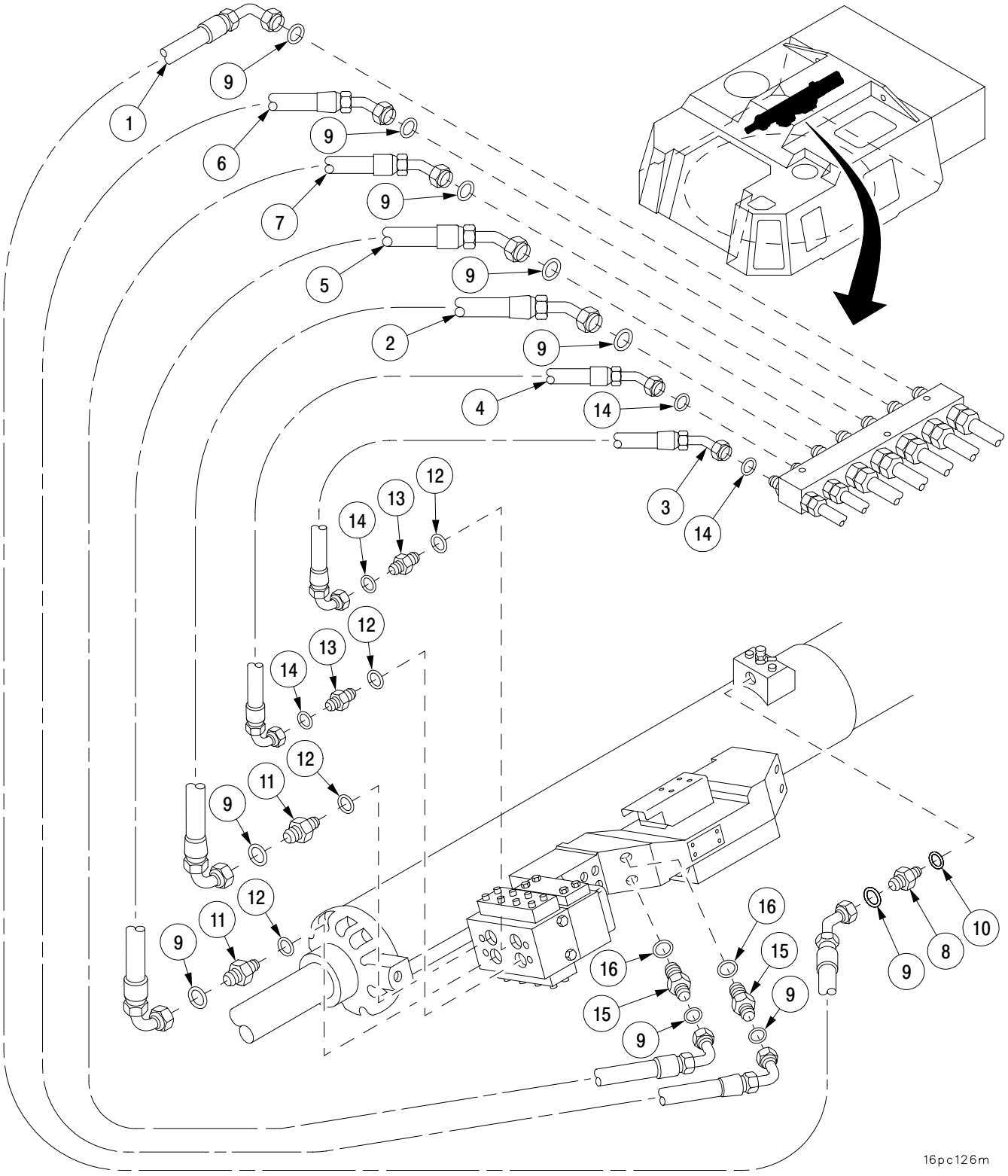
For installation, follow illustration and legend as a guide.

LEGEND

1. HOSE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. HOSE ASSEMBLY (1)
4. HOSE ASSEMBLY (1)
5. HOSE ASSEMBLY (1)
6. HOSE ASSEMBLY (1)
7. HOSE ASSEMBLY (1)
8. CONNECTOR (1)
9. PREFORMED PACKINGS (10)
10. PREFORMED PACKING (1)
11. CONNECTORS (2)
12. PREFORMED PACKINGS (4)
13. CONNECTORS (2)
14. PREFORMED PACKINGS (4)
15. CONNECTORS (2)
16. PREFORMED PACKINGS (2)

18–7 ELEVATION MECHANISM ASSEMBLY LINES AND FITTINGS – CONTINUED

b. Installation – Continued



18–8 EQUILIBRATOR ACCUMULATOR LINE, ELBOW, FUSE, AND FUSE MANIFOLD.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 61, Appx C)
Dust protective cap (AR) (item 24, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)

Materials/Parts – Continued
Hydraulic fluid (item 50, Appx C)
Preformed packings (3) (item 5, Appx F)
Preformed packings (2) (item 96, Appx F)
Preformed packings (4) (item 92, Appx F)
Lockwashers (4) (item 128, Appx F)
Preformed packing (item 221, Appx F)
Preformed packing (item 222, Appx F)
Preformed packings (2) (item 223, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Accumulator nitrogen pressure discharged (para 18–33)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–8 EQUILIBRATOR ACCUMULATOR LINE, ELBOW, FUSE, AND FUSE MANIFOLD – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

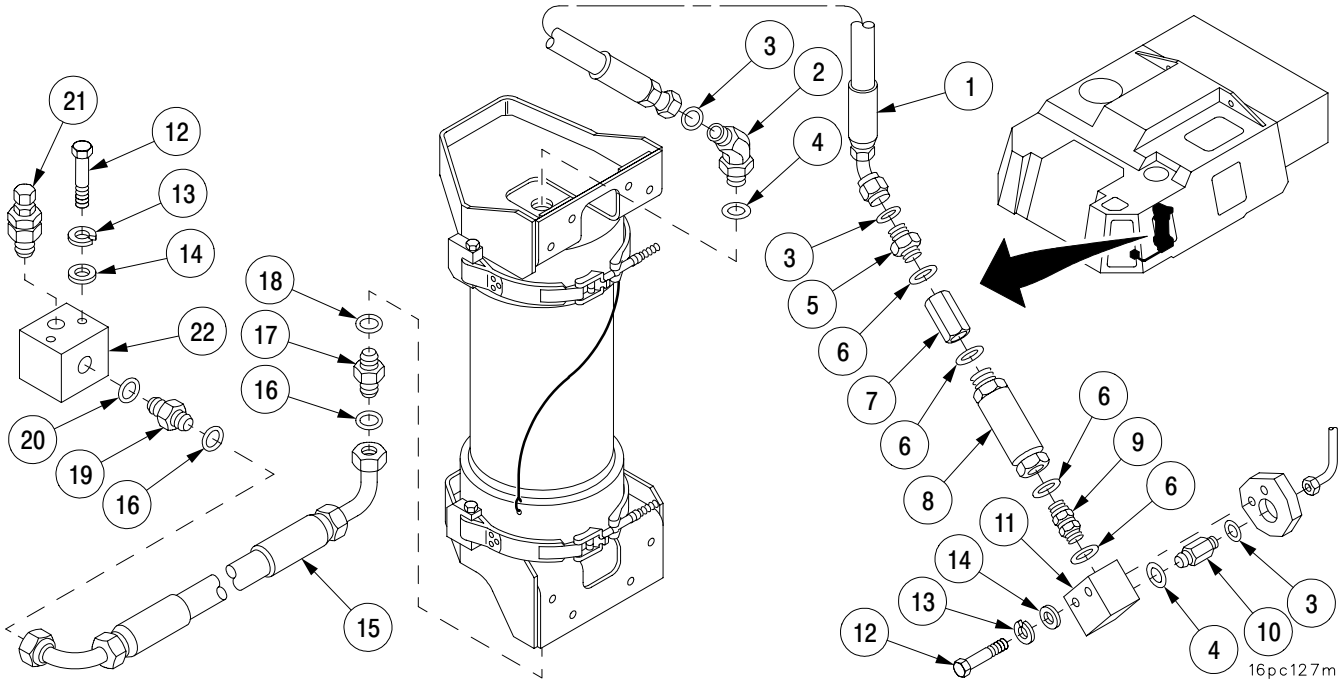
For removal, follow illustration and legend as a guide. Discard all preformed packings and lockwashers.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.



LEGEND

1. HOSE ASSEMBLY (1)
2. ELBOW (1)
3. PREFORMED PACKINGS (3)
4. PREFORMED PACKINGS (2)
5. CONNECTOR (1)
6. PREFORMED PACKINGS (4)
7. BOSS (1)
8. ACCUMULATOR FUSE (1)
9. UNION (1)
10. CONNECTOR (1)
11. FUSE MANIFOLD (1)
12. SCREWS (4)
13. LOCKWASHERS (4)
14. FLAT WASHERS (4)
15. HOSE ASSEMBLY (1)
16. PREFORMED PACKINGS (2)
17. CONNECTOR (1)
18. PREFORMED PACKING (1)
19. CONNECTOR (1)
20. PREFORMED PACKING (1)
21. FILL VALVE (1)
22. FILL MANIFOLD (1)

18–9 FILL MANIFOLD, CHECK VALVE, AND FITTING.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective plug (AR) (item 63, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)

Materials/Parts – Continued
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 6, Appx F)
Preformed packings (3) (item 97, Appx F)
Lockwashers (2) (item 128, Appx F)
Preformed packing (item 96, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–9 FILL MANIFOLD, CHECK VALVE, AND FITTING – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings and lockwashers.

b. Installation.

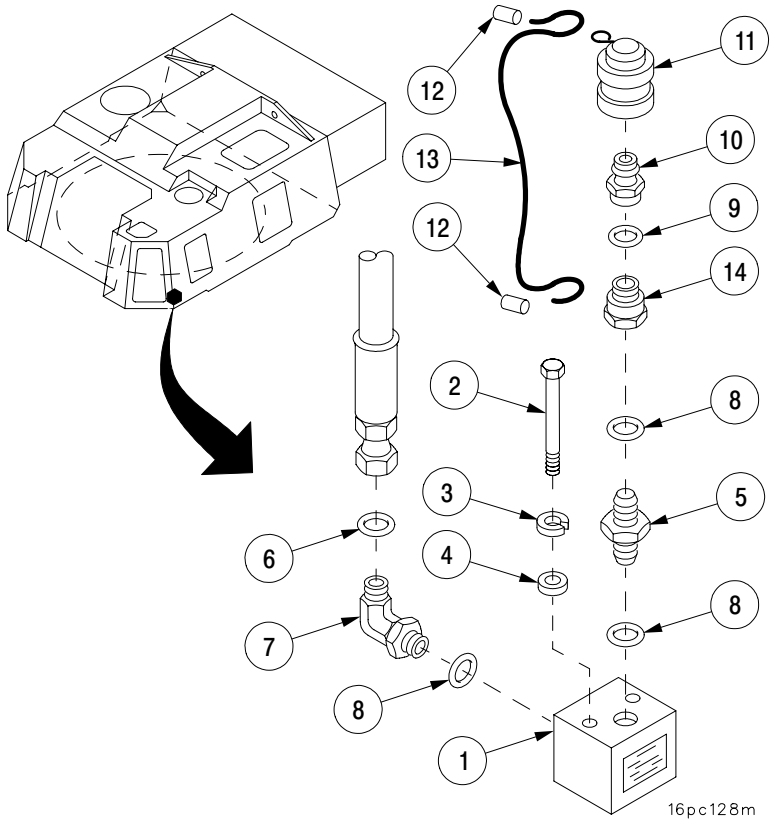
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

LEGEND

1. FILL MANIFOLD (1)
2. SCREWS (2)
3. LOCKWASHERS (2)
4. FLAT WASHERS (2)
5. CHECK VALVE (1)
6. PREFORMED PACKING (1)
7. ELBOW (1)
8. PREFORMED PACKINGS (3)
9. PREFORMED PACKING (1)
10. COUPLING (1)
11. CAP (1)
12. SLEEVES (2)
13. WIRE (1)
14. REDUCER (1)



18–10 FILTER ASSEMBLY LINES, FITTINGS, FLOW METER, AND TRANSDUCER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective plug (AR) (item 62, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective plug (AR) (item 65, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 95, Appx F)
Preformed packings (4) (item 8, Appx F)
Preformed packings (3) (item 7, Appx F)

Materials/Parts – Continued
Preformed packings (5) (item 6, Appx F)
Performed packings (2) (item 94, Appx F)
Preformed packing (item 93, Appx F)
Preformed packings (2) (item 92, Appx F)
Preformed packings (2) (item 97, Appx F)
Lockwasher (item 127, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Hydraulic compartment interior access panel removed (para 24–2)
Hydraulic compartment exterior access panel removed (para 24–3)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–10 FILTER ASSEMBLY LINES, FITTINGS, FLOW METER, AND TRANSDUCER – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings and lockwasher.

b. Installation.

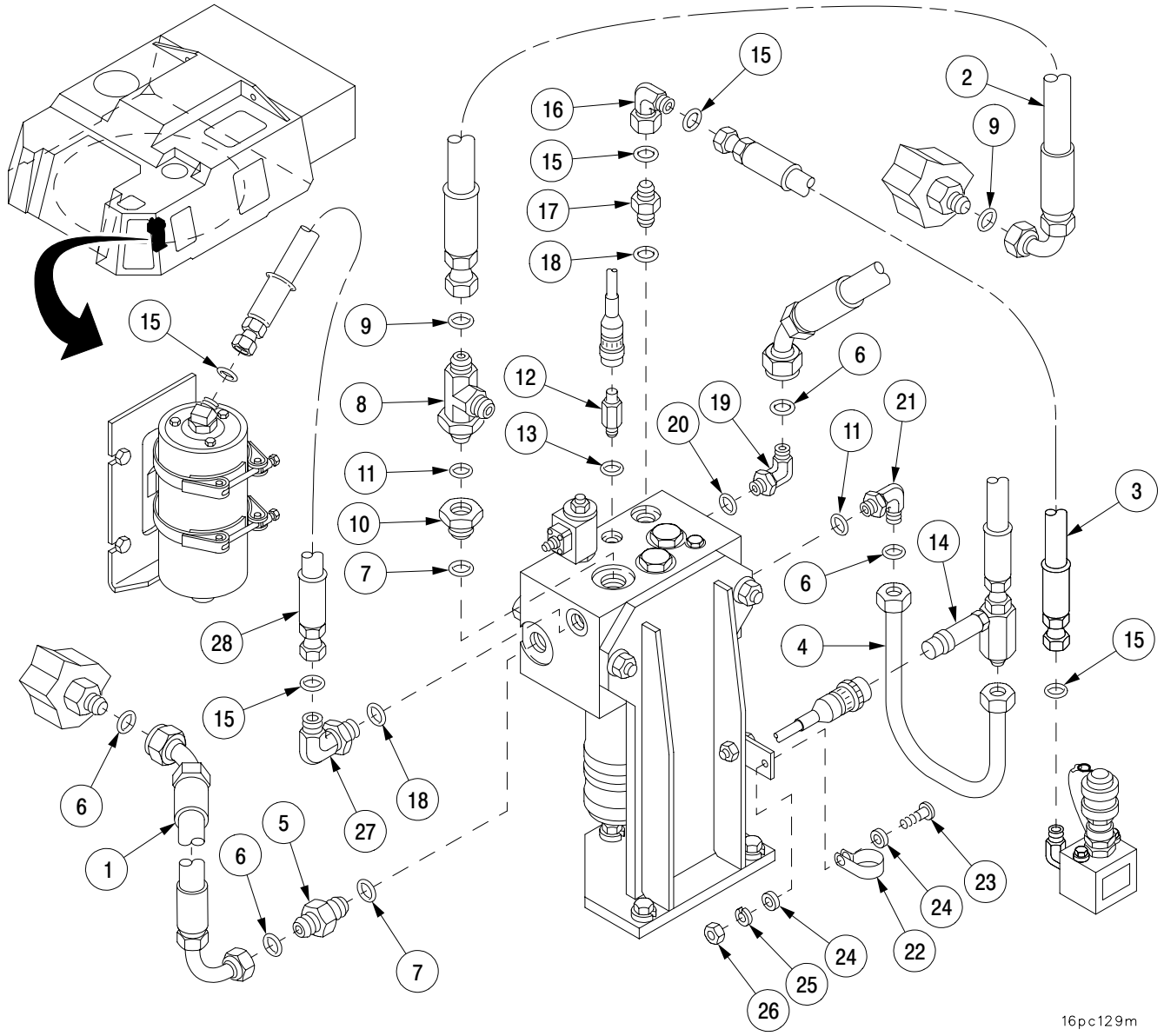
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

18–10 FILTER ASSEMBLY LINES, FITTINGS, FLOW METER, AND TRANSDUCER – CONTINUED

b. Installation – Continued



LEGEND

1. HOSE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. HOSE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. CONNECTOR (1)
6. PREFORMED PACKINGS (4)
7. PREFORMED PACKINGS (2)
8. TEE (1)
9. PREFORMED PACKINGS (2)
10. REDUCER (1)
11. PREFORMED PACKINGS (2)
12. TRANSDUCER (1)
13. PREFORMED PACKING (1)
14. FLOW METER (1)
15. PREFORMED PACKINGS (5)
16. ELBOW (1)
17. CONNECTOR (1)
18. PREFORMED PACKINGS (2)
19. ELBOW (1)
20. PREFORMED PACKING (1)
21. ELBOW (1)
22. CLAMP (1)
23. SCREW (1)
24. FLAT WASHERS (2)
25. LOCKWASHER (1)
26. NUT (1)
27. ELBOW (1)
28. HOSE ASSEMBLY (1)

18–11 FUSE MANIFOLD, FUSES, LINES, AND COMPONENTS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective cap (AR) (item 21, Appx C)
Dust protective cap (AR) (item 22, Appx C)
Dust protective cap (AR) (item 23, Appx C)
Dust protective cap (AR) (item 24, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 60, Appx C)
Dust protective plug (AR) (item 61, Appx C)
Dust protective plug (AR) (item 62, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)

Materials/Parts – Continued
Hydraulic fluid (item 50, Appx C)
Locknut (item 1, Appx F)
Lockwashers (3) (item 129, Appx F)
Lockwashers (6) (item 128, Appx F)
Preformed packings (4) (item 7, Appx F)
Preformed packings (6) (item 6, Appx F)
Preformed packings (2) (item 4, Appx F)
Preformed packings (14) (item 92, Appx F)
Preformed packing (item 97, Appx F)
Preformed packing (item 89, Appx F)
Preformed packings (5) (item 95, Appx F)
Preformed packings (4) (item 3, Appx F)
Self–locking screws (3) (item 41, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Filter assembly lines and fittings removed (para 18–10)
Mode selector valve lines removed (para 18–24)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–11 FUSE MANIFOLD, FUSES, LINES, AND COMPONENTS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard locknut, lockwashers, self–locking screws, and all preformed packings.

b. Installation

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

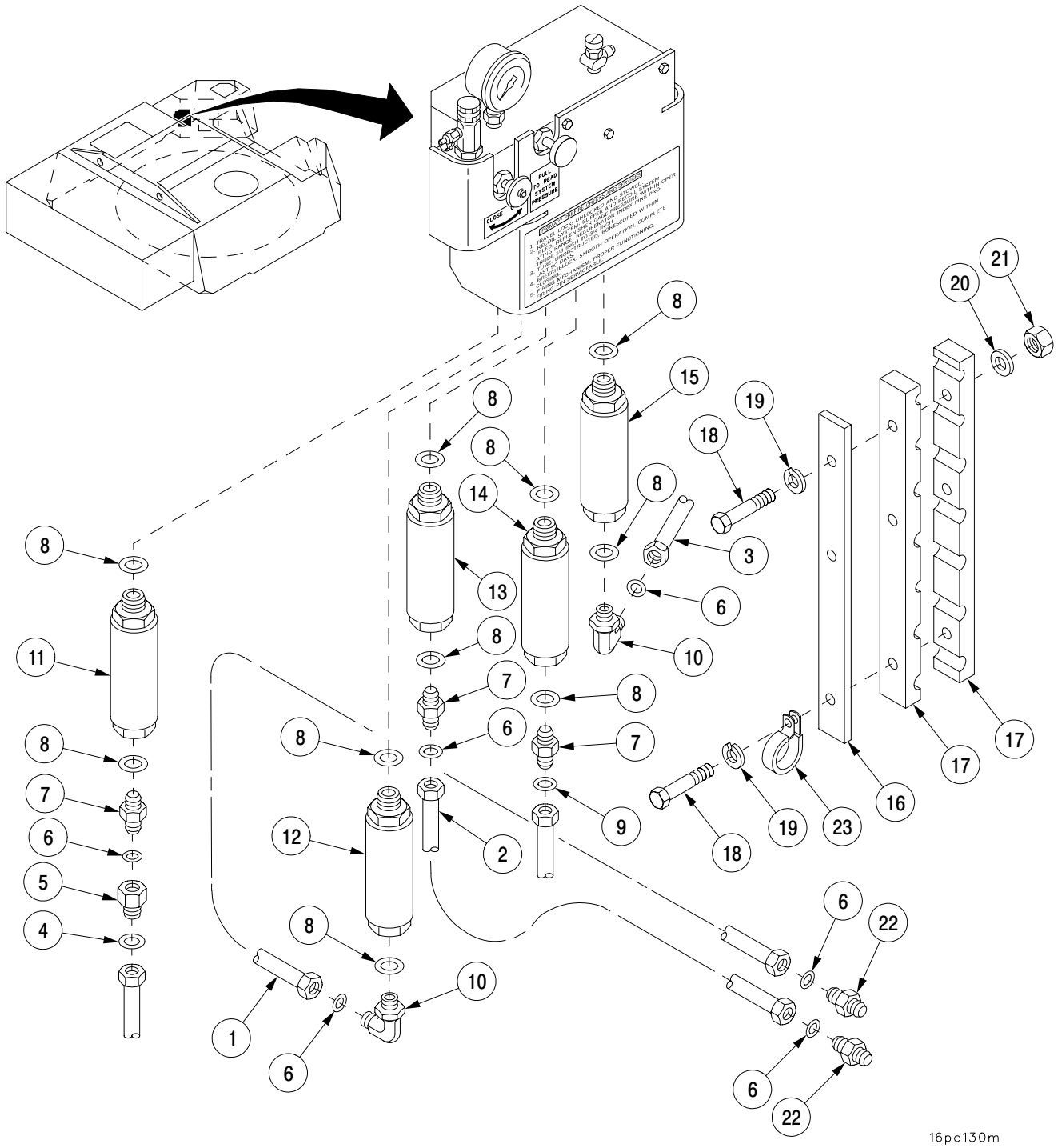
For installation, follow illustration and legend as a guide.

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. PREFORMED PACKING (1)
5. ADAPTER (1)
6. PREFORMED PACKINGS (6)
7. CONNECTORS (3)
8. PREFORMED PACKINGS (10)
9. PREFORMED PACKING (1)
10. ELBOWS (2)
11. CLUTCH VALVE FUSE (1)
12. LOADER RAMMER FUSE (1)
13. COS CONTROL FUSE (1)
14. ELEVATION/TRAVERSE FUSE (1)
15. GUNNER'S CONTROL FUSE (1)
16. PLATES (2)
17. CLAMPS (4)
18. SCREWS (6)
19. LOCKWASHERS (6)
20. FLAT WASHERS (2)
21. NUTS (2)
22. UNIONS (2)
23. ELECTRICAL CLAMPS (2)

18–11 FUSE MANIFOLD, FUSES, LINES, AND COMPONENTS – CONTINUED

b. Installation – Continued

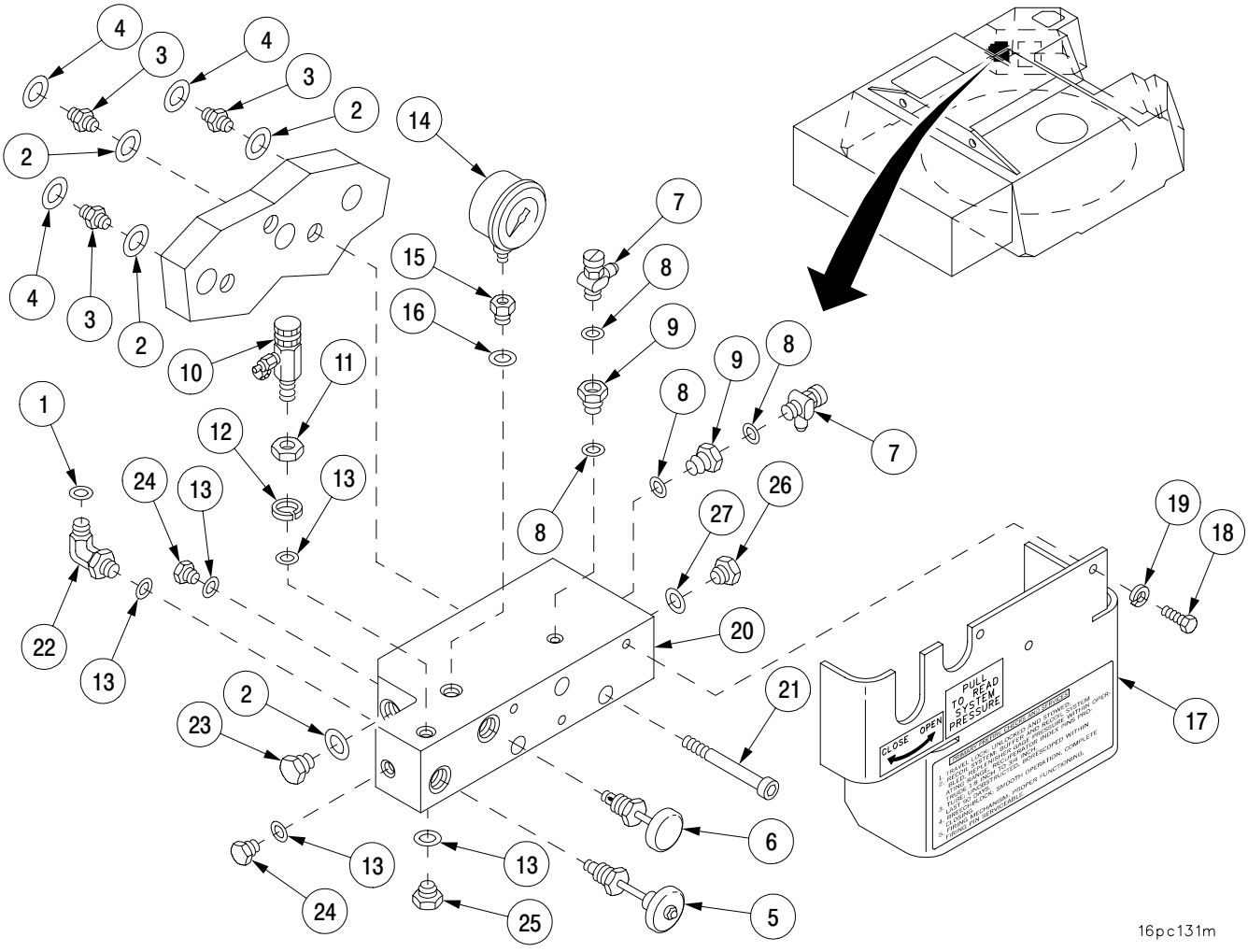


18–11 FUSE MANIFOLD, FUSES, LINES, AND COMPONENTS – CONTINUED

b. Installation – Continued

LEGEND

1. PREFORMED PACKING (1)
2. PREFORMED PACKINGS (4)
3. CONNECTORS (3)
4. PREFORMED PACKINGS (3)
5. NEEDLE VALVE (1)
6. MANUAL PULL VALVE (1)
7. BLEEDER VALVES (2)
8. PREFORMED PACKINGS (4)
9. ADAPTERS (2)
10. SAMPLING VALVE (1)
11. LOCKNUT (1)
12. RETAINER (1)
13. PREFORMED PACKINGS (5)
14. PRESSURE GAGE (1)
15. ADAPTER (1)
16. PREFORMED PACKING (1)
17. COVER (1)
18. SCREWS (3)
19. LOCKWASHERS (3)
20. FUSE MANIFOLD (1)
21. SELF–LOCKING SCREWS (3)
22. ELBOW (1)
23. PLUG (1)
24. PLUGS (2)
25. PLUG (1)
26. PLUG (1)
27. PREFORMED PACKING (1)



18–12 GUNNER'S CONTROL ASSEMBLY LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (4) (item 6, Appx F)
Preformed packings (4) (item 7, Appx F)
Preformed packings (4) (item 5, Appx F)

Materials/Parts – Continued
Preformed packings (5) (item 97, Appx F)
Preformed packing (item 92, Appx F)
Dust protective plug (AR) (item 62, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective cap (AR) (item 26, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–12 GUNNER'S CONTROL ASSEMBLY LINES AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

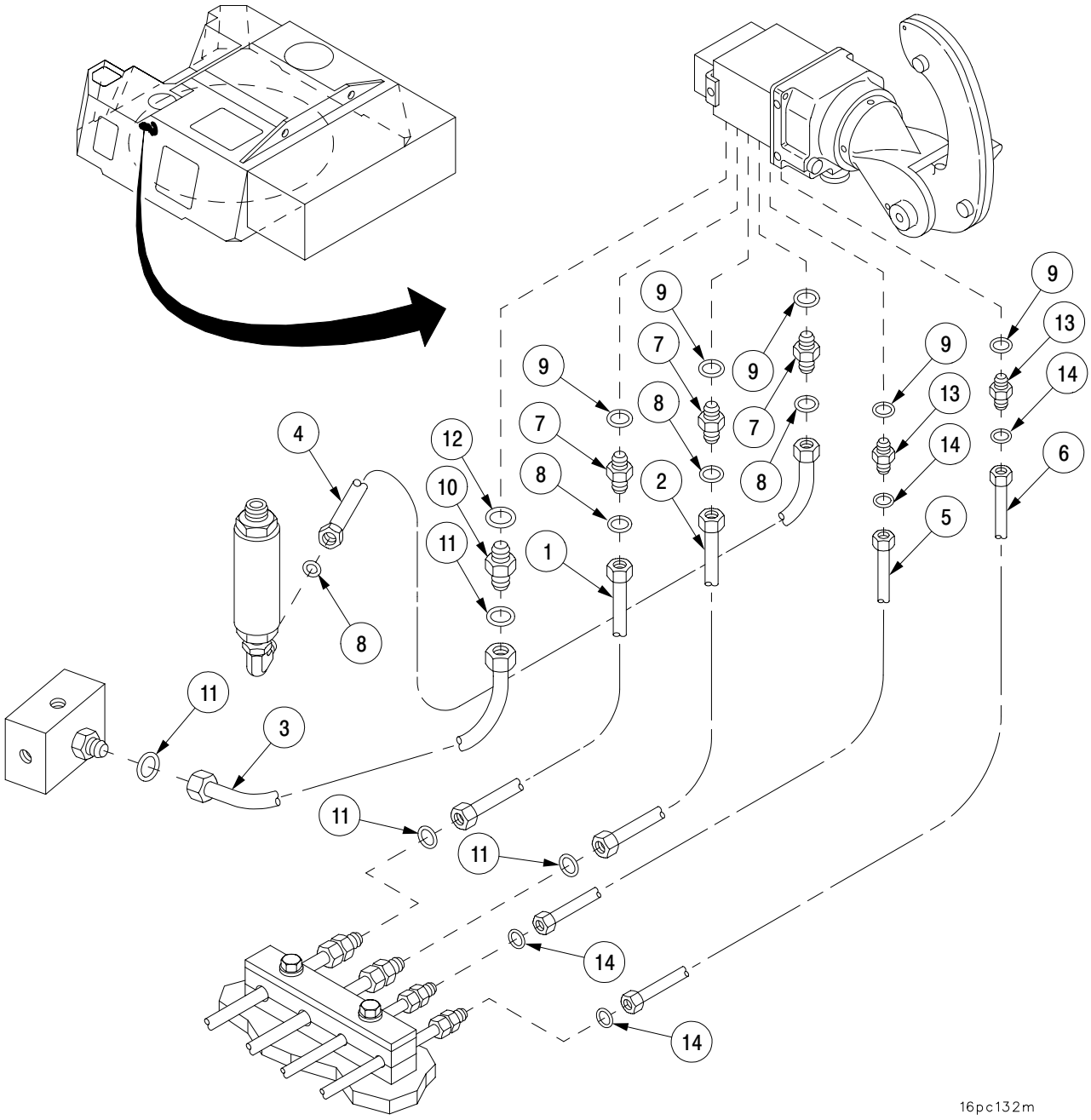
For installation, follow illustration and legend as a guide.

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. TUBE ASSEMBLY (1)
6. TUBE ASSEMBLY (1)
7. STRAIGHT THREADED CONNECTORS (3)
8. PREFORMED PACKINGS (4)
9. PREFORMED PACKINGS (5)
10. STRAIGHT THREADED CONNECTOR (1)
11. PREFORMED PACKINGS (4)
12. PREFORMED PACKING (1)
13. STRAIGHT THREADED CONNECTORS (2)
14. PREFORMED PACKINGS (4)

18–12 GUNNER'S CONTROL ASSEMBLY LINES AND FITTINGS – CONTINUED

b. Installation – Continued



18–13 HYDRAULIC FILTER ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Strap wrench (item 52, Appx G)

Materials/Parts
Locknuts (2) (item 58, Appx F)
Preformed packings (2) (item 92, Appx F)
Preformed packings (2) (item 94, Appx F)
Preformed packings (2) (item 97, Appx F)
Preformed packing (item 93, Appx F)
Preformed packing (item 95, Appx F)
Preformed packings (3) (item 6, Appx F)
Preformed packings (2) (item 7, Appx F)
Preformed packings (2) (item 9, Appx F)
Preformed packings (2) (item 85, Appx F)
Preformed packings (3) (item 8, Appx F)
Lockwashers (3) (item 132, Appx F)
Lockwasher (item 128, Appx F)
Lockwasher (item 127, Appx F)
Filter elements (2) (item 241, Appx F)
Plastic bag (AR) (item16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Dry–cleaning solvent (item 75, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 29, Appx C)
Dust protective cap (AR) (item 31, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 65, Appx C)
Dust protective plug (AR) (item 66, Appx C)

Equipment Conditions
Hydraulic compartment interior access panel removed (para 24–2)
Hydraulic system pressure discharged (para 18–1)
Equilibration accumulator removed (para 18–33)

18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

- All hydraulic lines, electrical lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

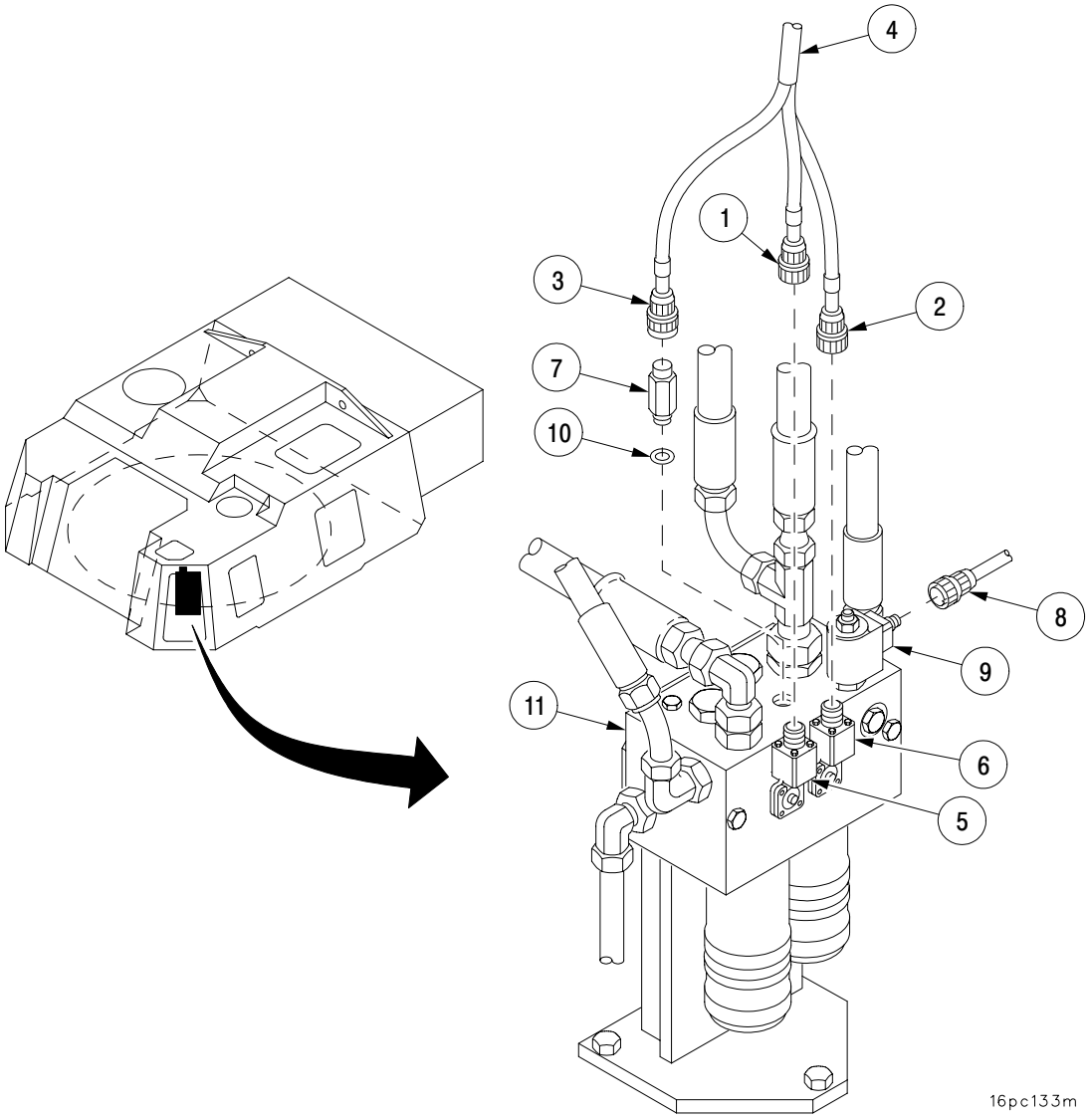
18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

a. Removal – Continued

1 Disconnect electrical connectors P2 (1), P3 (2), and P4 (3) of harness W51 (4) at return filter switch (5), supply filter switch (6), and pressure transducer (7).

2 Disconnect electrical connector P2 (8) of wiring harness W52 at solenoid valve (9).

3 Remove pressure transducer (7) and preformed packing (10) from filter assembly (11). Discard preformed packing.



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

a. Removal – Continued

4 Disconnect hose assembly (12) from connector (13). Remove and discard preformed packing (14).

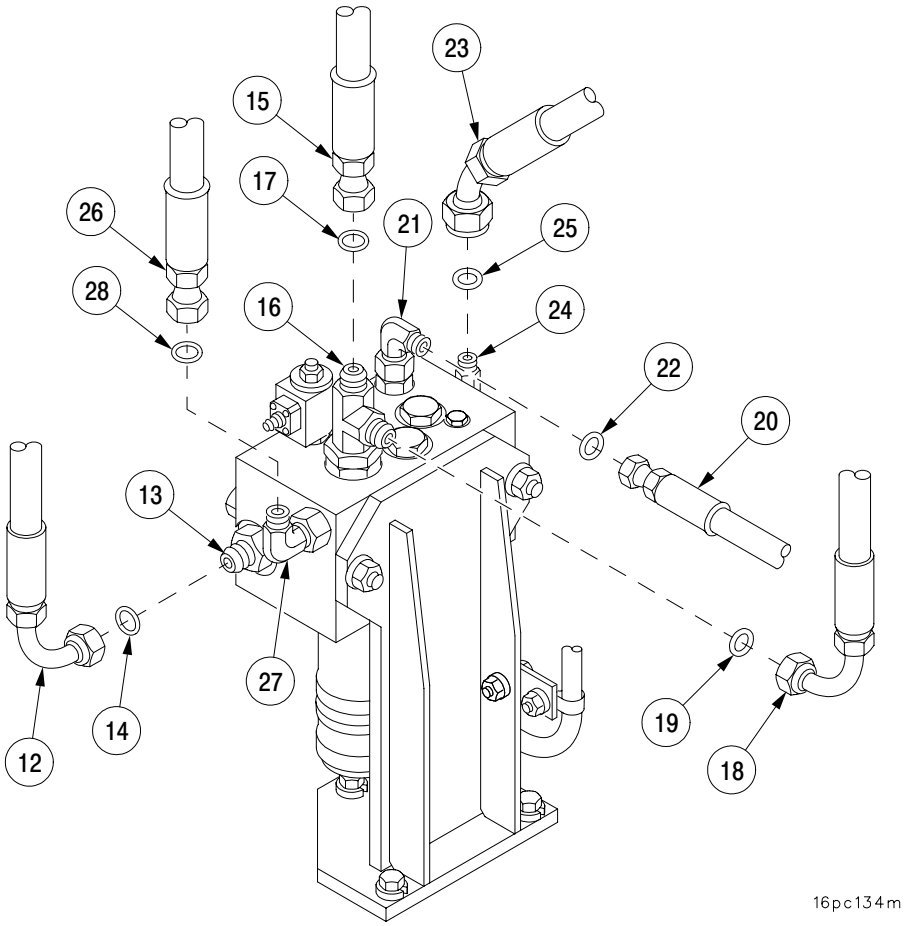
5 Disconnect hose assembly (15) from tee (16). Remove and discard preformed packing (17).

6 Disconnect hose assembly (18) from tee (16). Remove and discard preformed packing (19).

7 Disconnect hose assembly (20) from elbow (21). Remove and discard preformed packing (22).

8 Disconnect hose assembly (23) from elbow (24). Remove and discard preformed packing (25).

9 Disconnect hose assembly (26) from elbow (27). Remove and discard preformed packing (28).



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

a. Removal – Continued

10 Disconnect tube assembly (29) from elbow (30). Remove and discard preformed packing (31).

11 Remove connector (13) from filter assembly (11). Remove and discard preformed packing (32).

12 Remove tee (16) from adapter (33). Remove and discard preformed packing (34).

13 Remove adapter (33) from filter assembly (11). Remove and discard preformed packing (35).

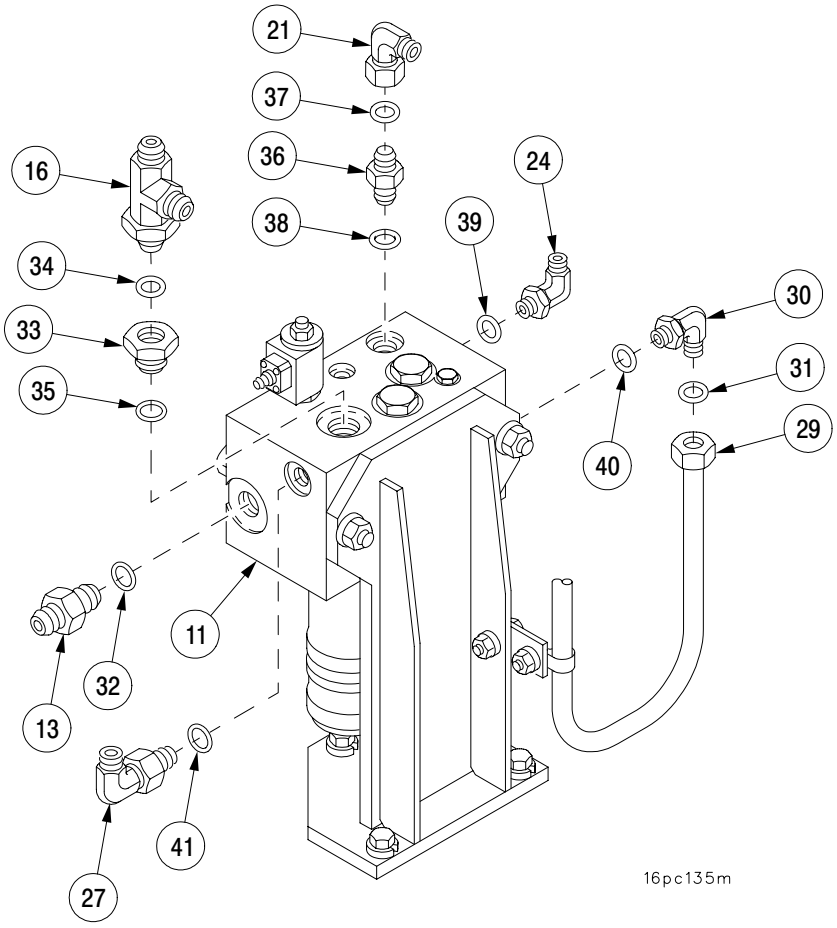
14 Remove elbow (21) from connector (36). Remove and discard preformed packing (37).

15 Remove connector (36) from filter assembly (11). Remove and discard preformed packing (38).

16 Remove elbow (24) from filter assembly (11). Remove and discard preformed packing (39).

17 Remove elbow (30) from filter assembly (11). Remove and discard preformed packing (40).

18 Remove elbow (27) from filter assembly (11). Remove and discard preformed packing (41).



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

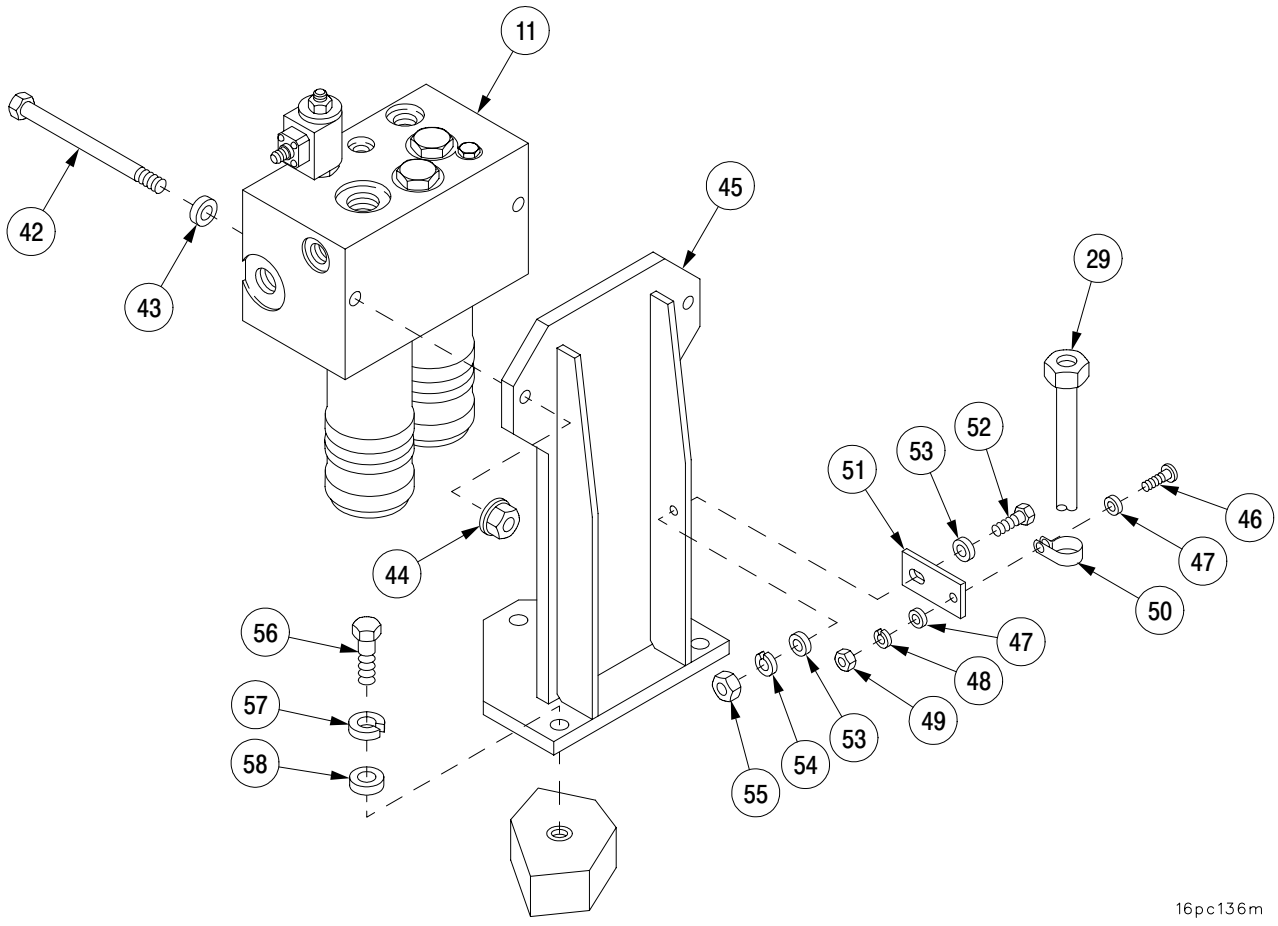
a. Removal – Continued

19 Remove two screws (42), two flat washers (43), two self–locking nuts (44), and filter assembly (11) from bracket (45). Discard self–locking nuts.

20 Remove screw (46), two flat washers (47), lockwasher (48), nut (49), and clamp (50) from tube assembly (29) and bracket (51). Discard lockwasher.

21 Remove screw (52), two flat washers (53), lockwasher (54), nut (55), and bracket (51) from bracket (45). Discard lockwasher.

22 Remove three screws (56), three lockwashers (57), three flat washers (58), and bracket (45) from hydraulic compartment. Discard lockwashers.



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

b. Disassembly.

NOTE

- Replace filter assembly elements when pressure differential indicators have popped out.
- Place rags under area where the filter bowl is to be removed.

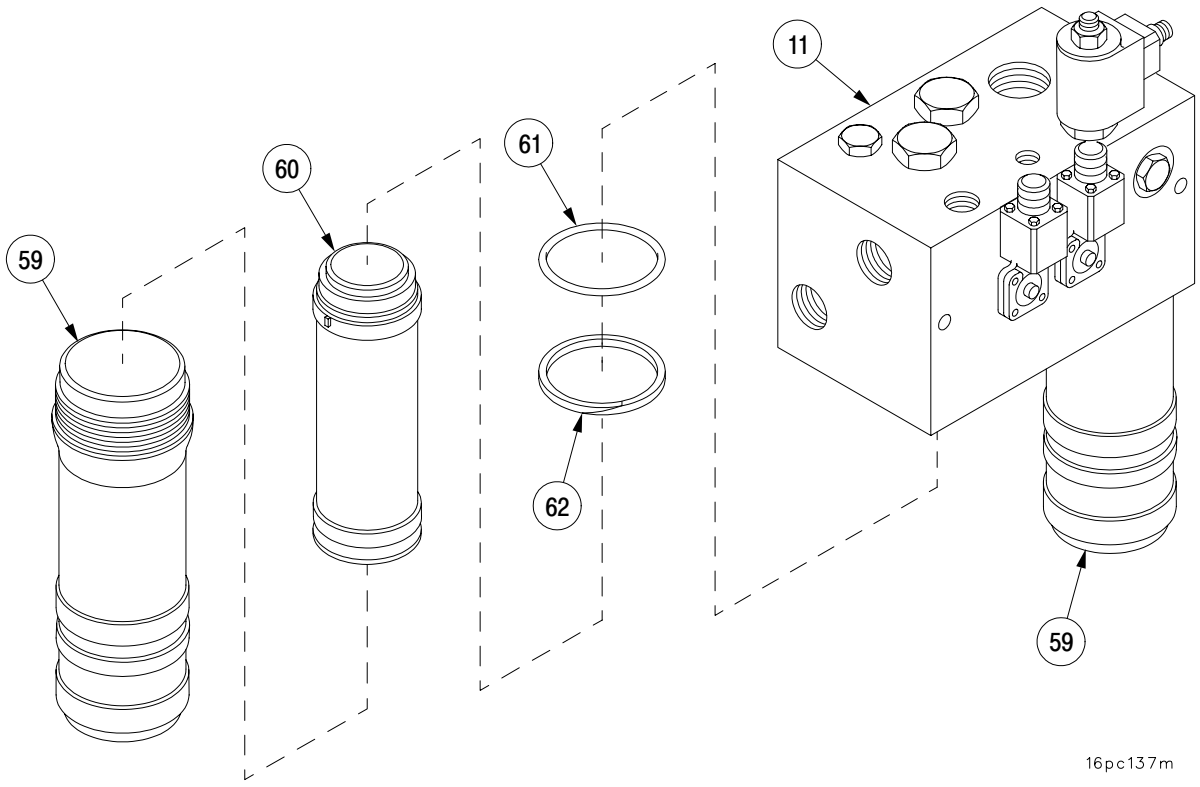
1 Loosen filter bowls (59) from filter assembly (11) with strap wrench.

NOTE

Do not tilt filter bowls, as hydraulic fluid will spill with filter elements during removal.

2 Remove filter bowls (59), dump excess hydraulic fluid from bowls and remove filter elements (60). Discard filter elements.

3 Remove preformed packing (61) and backup preformed packing (62). Discard preformed packings.



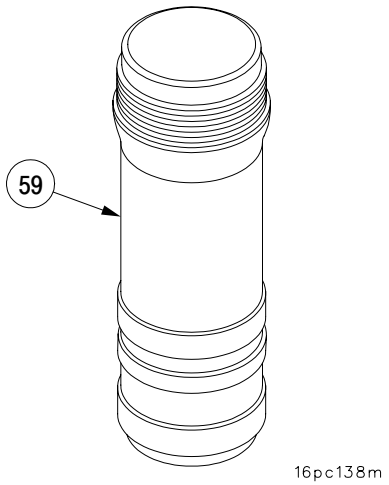
18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

b. Disassembly – Continued

WARNING

Dry cleaning solvent (P–D–680) used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash with water immediately, and obtain medical aid (ref. FM 21–11).

4 Use an oval tapered paint brush and dry–cleaning solvent to clean filter bowls (59). Dry with clean wiping rag.



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

c. Assembly.

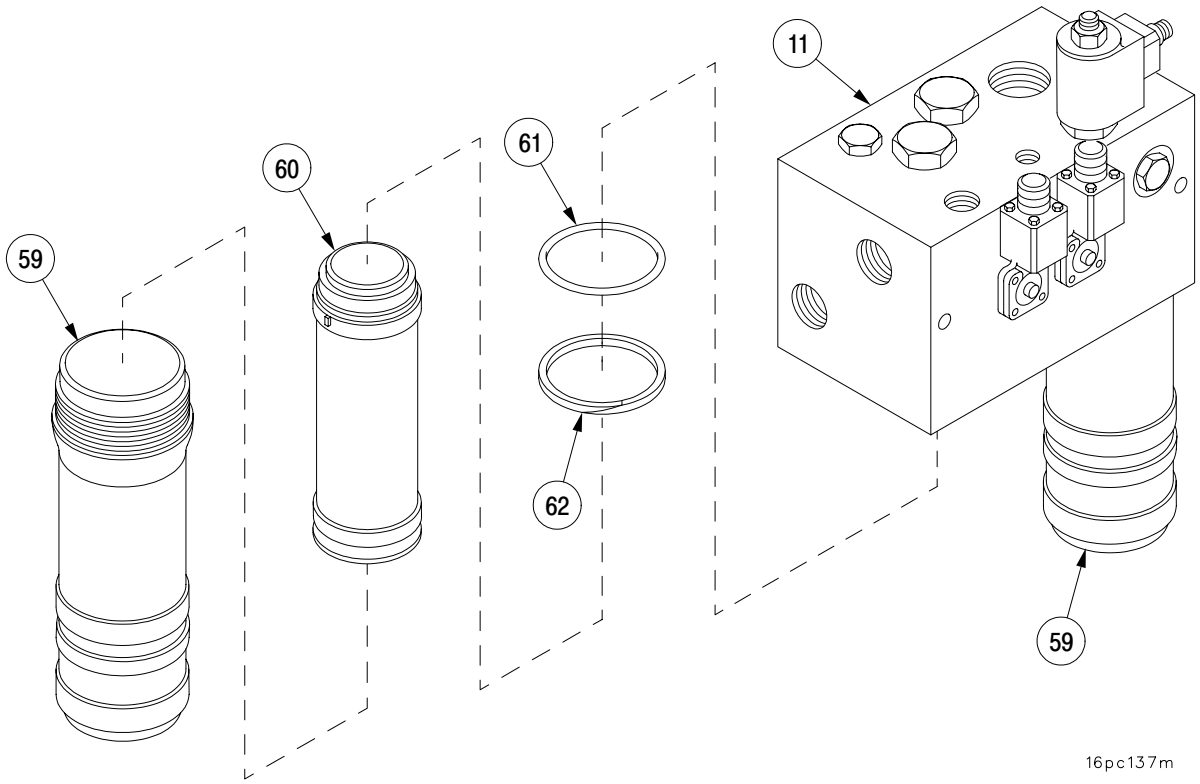
1 Place new filter elements (60) into filter bowls (59).

2 Apply light coat of hydraulic fluid to new preformed packings (61 and 62).

3 Install new preformed packing (61) and new backup preformed packing (62).

4 Position bowls (59) with elements (60) on hydraulic filter assembly (11).

5 Tighten bowls (59) using strap wrench.



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

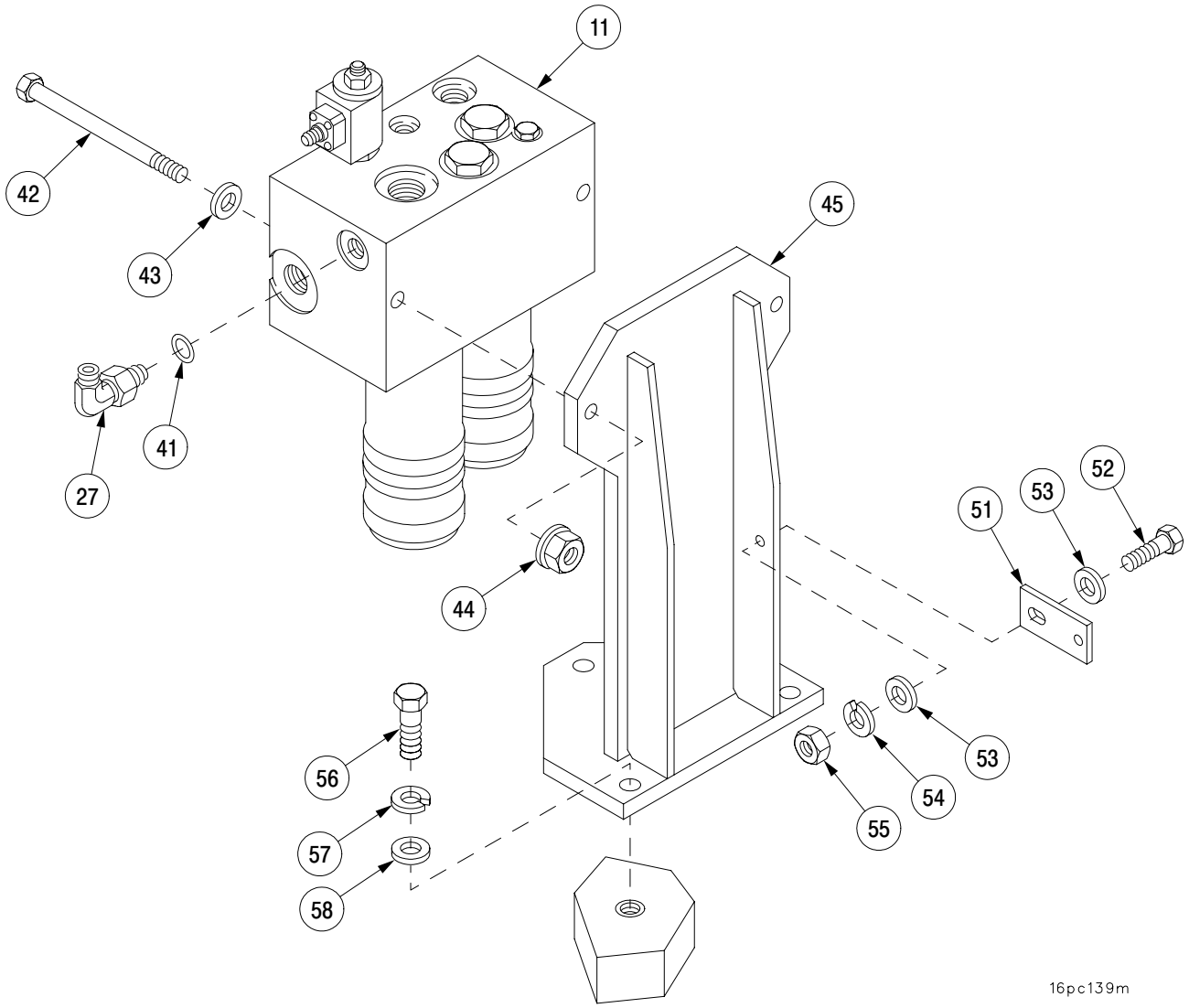
d. Installation.

1 Position bracket (45) in hydraulic compartment and secure by installing three flat washers (58), three new lockwashers (57), and three screws (56).

2 Position bracket (51) to bracket (45) and secure by installing screw (52), two flat washers (53), new lockwasher (54), and nut (55).

3 Position filter assembly (11) to bracket (45) and secure by installing two screws (42), two flat washers (43), and two new self–locking nuts (44).

4 Install elbow (27) with new preformed packing (41) to filter assembly (11).



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

d. Installation – Continued

5 Install elbow (30) with new preformed packing (40) to filter assembly (11).

6 Install elbow (24) with new preformed packing (39) to filter assembly (11).

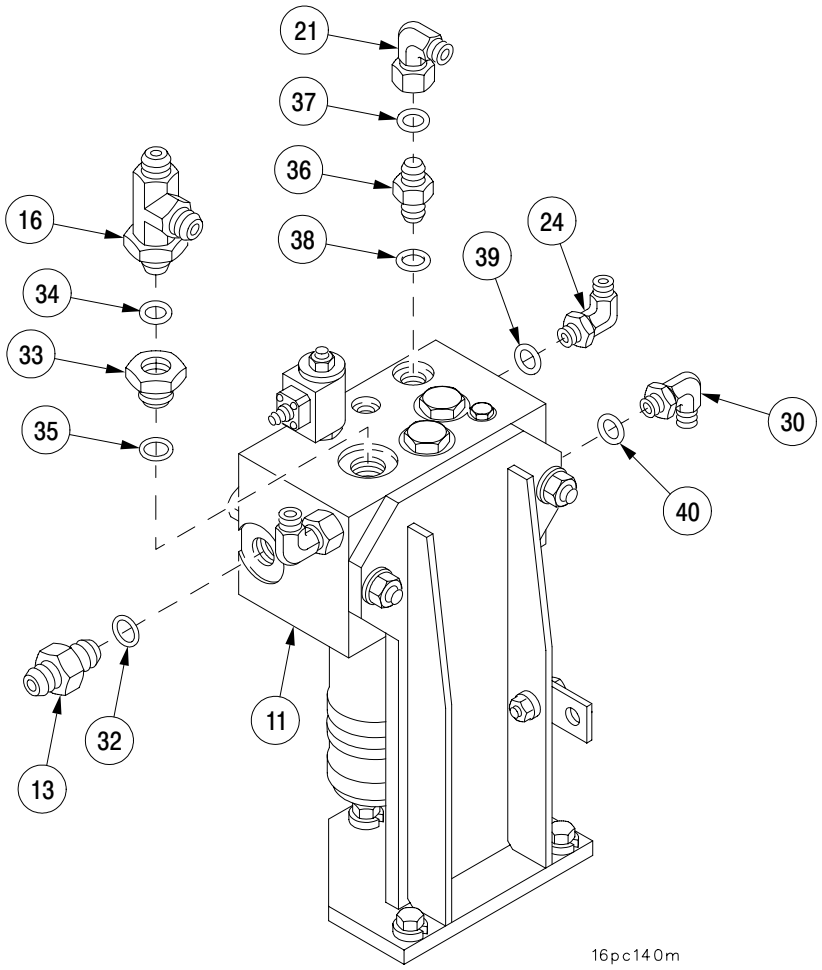
7 Install connector (36) with new preformed packing (38) to filter assembly (11).

8 Install elbow (21) with new preformed packing (37) to connector (36).

9 Install adapter (33) with new preformed packing (35) to filter assembly (11).

10 Install tee (16) with new preformed packing (34) to adapter (33).

11 Install connector (13) with new preformed packing (32) to filter assembly (11).



18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

d. Installation – Continued

12 Install tube assembly (29) to elbow (30) with new preformed packing (31).

13 Position clamp (50) to tube assembly (29) and bracket (51) and secure by installing screw (46), two flat washers (47), new lockwasher (48), and nut (49).

14 Install hose assembly (26) to elbow (27) with new preformed packing (28).

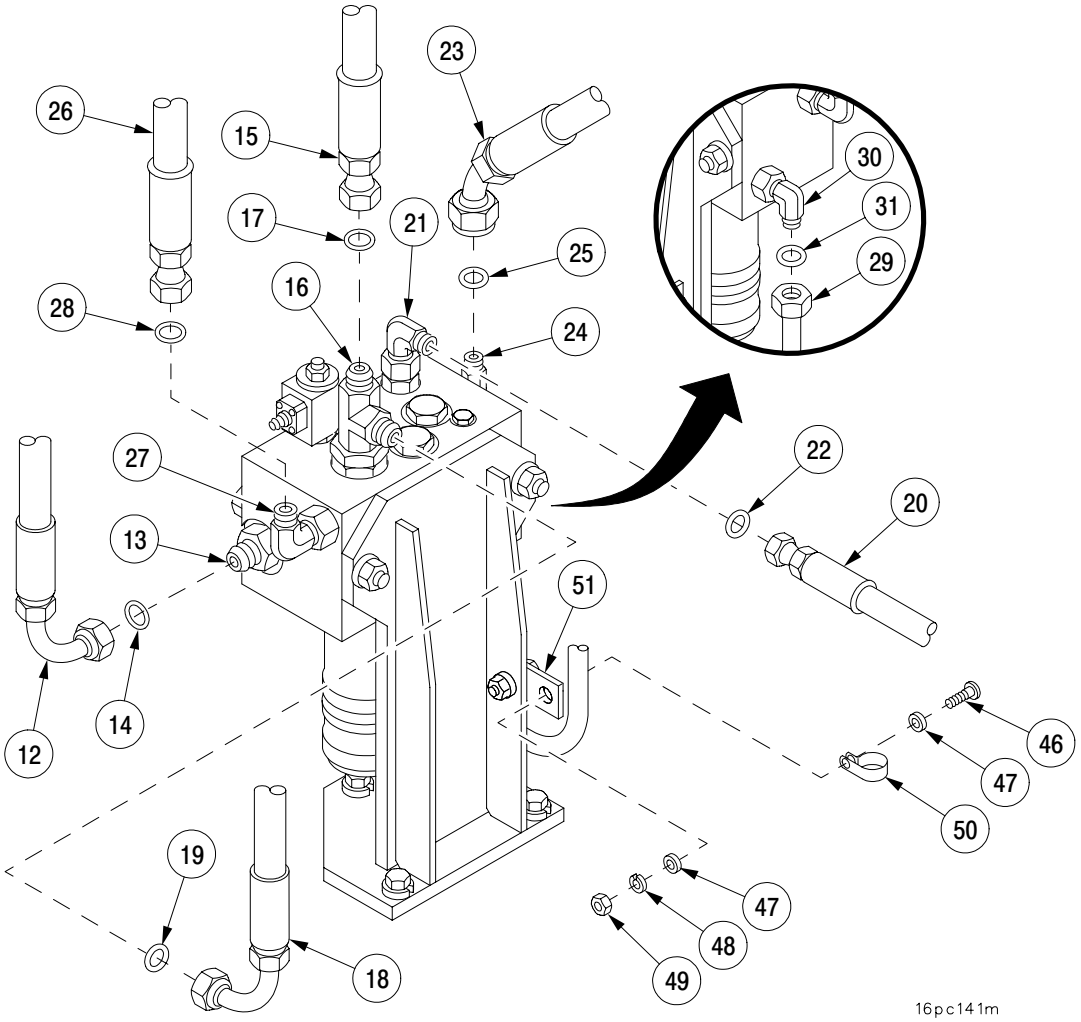
15 Install hose assembly (23) to elbow (24) with new preformed packing (25).

16 Install hose assembly (20) to elbow (21) with new preformed packing (22).

17 Install hose assembly (18) to tee (16) with new preformed packing (19).

18 Install hose assembly (15) to tee (16) with new preformed packing (17).

19 Install hose assembly (12) to connector (13) with new preformed packing (14).



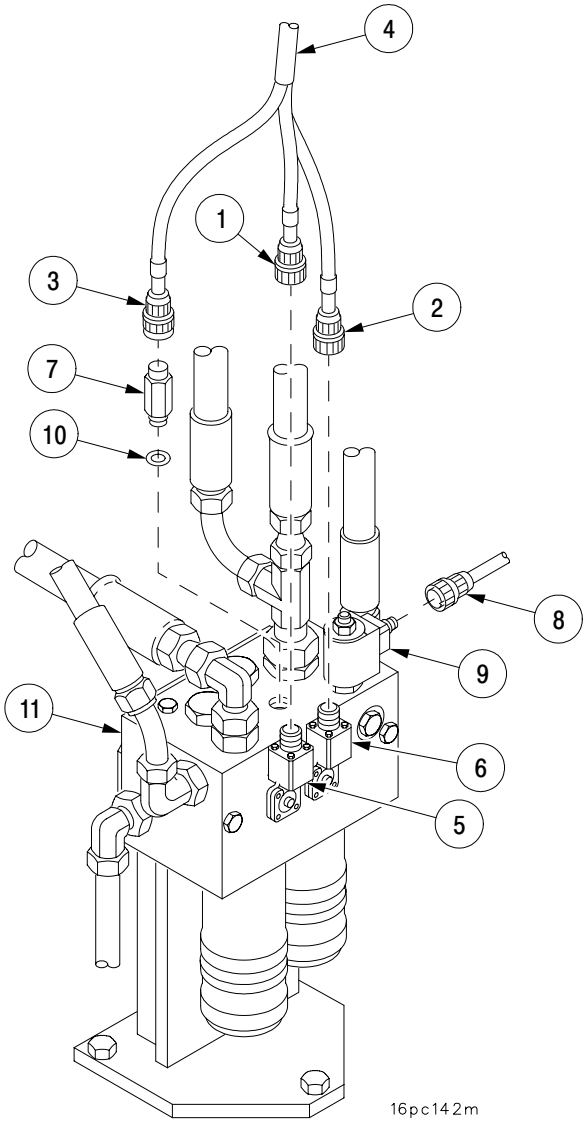
18–13 HYDRAULIC FILTER ASSEMBLY – CONTINUED

d. Installation – Continued

20 Install pressure transducer (7) to filter assembly (11) with new preformed packing (10).

21 Connect electrical connector P2 (8) of wiring harness W52 to solenoid valve (9).

22 Connect electrical connectors P2 (1), P3 (2) and P4 (3) of harness W51 (4) to return filter switch (5), supply filter switch (6) and pressure transducer (7).



18–14 PULSE ACCUMULATOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 130, Appx F)
Preformed packing (item 6, Appx F)
Preformed packing (item 97, Appx F)
Hydraulic fluid (item 50, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Dust protective plug (AR) (item 64, Appx C)

Equipment Conditions
Hydraulic compartment exterior access door opened (TM 9–2350–314–10)
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.

CAUTION

All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.

18–14 PULSE ACCUMULATOR – CONTINUED

a. Removal – Continued

1 Remove two screws (1) and guard (2) from pulse accumulator (3).

WARNING

The pulse accumulator is charged to 900 ± 50 psi. Use caution when relieving pressure. Wear gloves and goggles to prevent personal injury.

2 Remove valve cap (4) from charging valve (5), and slowly turn charging valve nut (6) counterclockwise to relieve nitrogen pressure from pulse accumulator (3). Ensure all nitrogen is vented from accumulator (3). Place valve cap (4) on charging valve (5).

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

3 Disconnect hose assembly (7).

4 Loosen and unhook two clamps (8) and remove pulse accumulator (3).

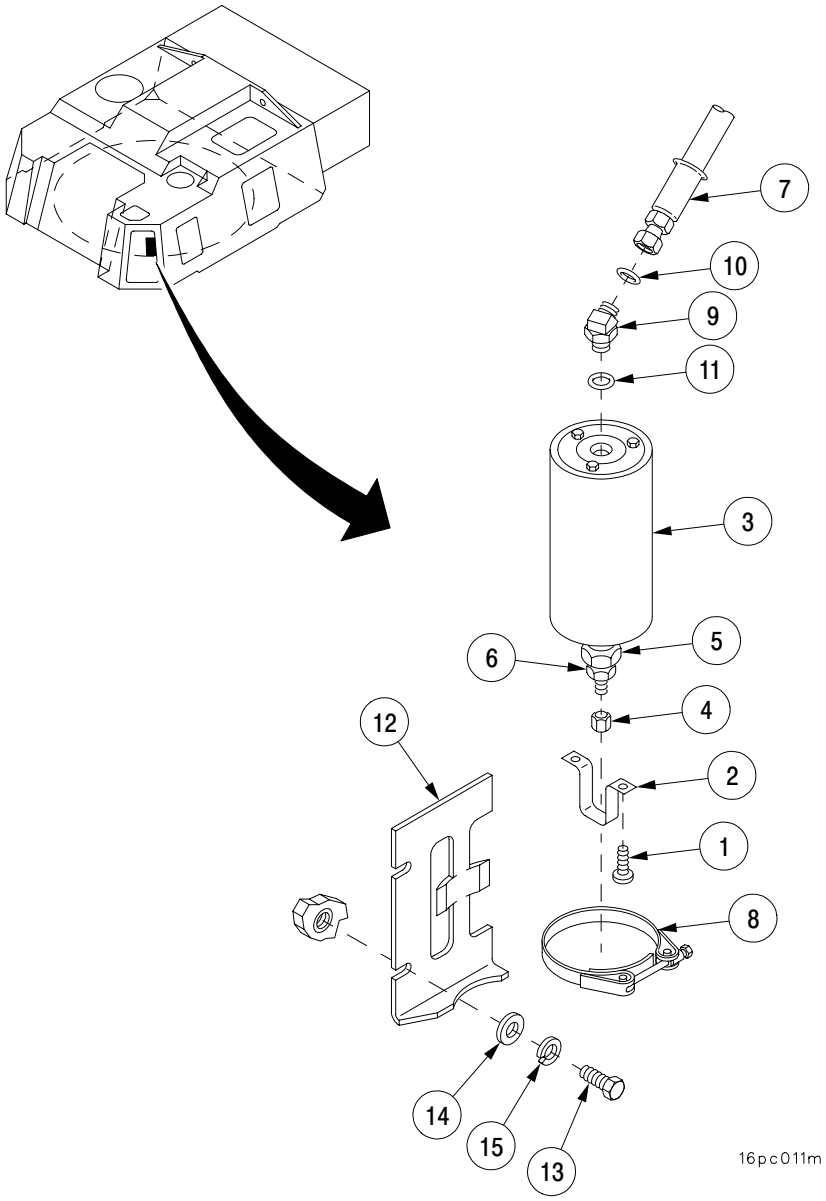
5 Remove elbow (9) and two preformed packings (10 and 11) from pulse accumulator (3). Discard preformed packings.

6 Remove two clamps (8) from mounting bracket (12).

7 Remove two screws (13), two flat washers (14), two lockwashers (15), and bracket (12) from hydraulic compartment. Discard lockwashers.

18–14 PULSE ACCUMULATOR – CONTINUED

a. Removal – Continued



18–14 PULSE ACCUMULATOR – CONTINUED

b. Installation.

1 Install bracket (12) in hydraulic compartment with two screws (13), two flat washers (14), and two new lockwashers (15).

2 Install two clamps (8) to mounting bracket (12).

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

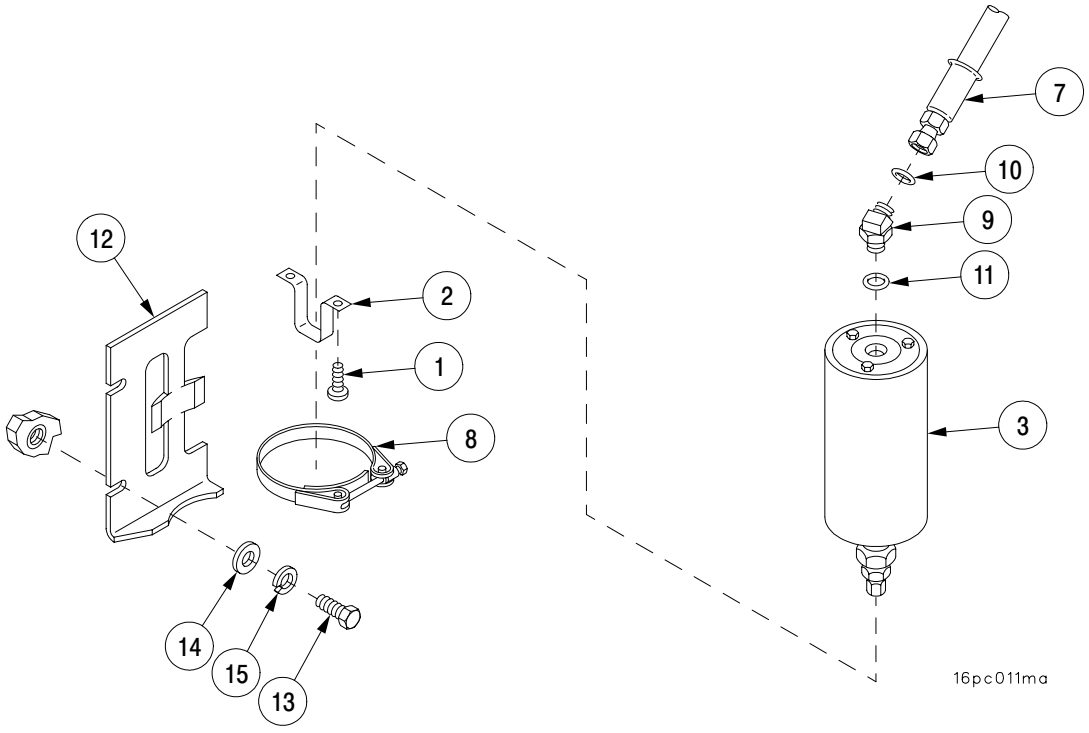
3 Install elbow (9) and new preformed packing (11) to accumulator (3).

4 Position pulse accumulator (3) between two clamps (8). Hook and secure two clamps (8) around pulse accumulator (3).

5 Install new preformed packing (10) and connect hose assembly (7) to elbow (9).

6 Service pulse accumulator (3) (para 28–9).

7 Install guard (2) to pulse accumulator (3) with two screws (1).



18–15 HYDRAULIC POWERPACK LINES, FITTINGS, AND MANIFOLD.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Hydraulic powerpack drained
(para 18–1)

Materials/Parts
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 29, Appx C)
Dust protective cap (AR) (item 30, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 65, Appx C)
Dust protective plug (AR) (item 66, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (2) (item 8, Appx F)
Preformed packing (item 7, Appx F)
Preformed packings (2) (item 4, Appx F)
Preformed packings (4) (item 93, Appx F)
Preformed packing (item 92, Appx F)
Preformed packing (item 95, Appx F)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–15 HYDRAULIC POWERPACK LINES, FITTINGS, AND MANIFOLD – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all preformed packings.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

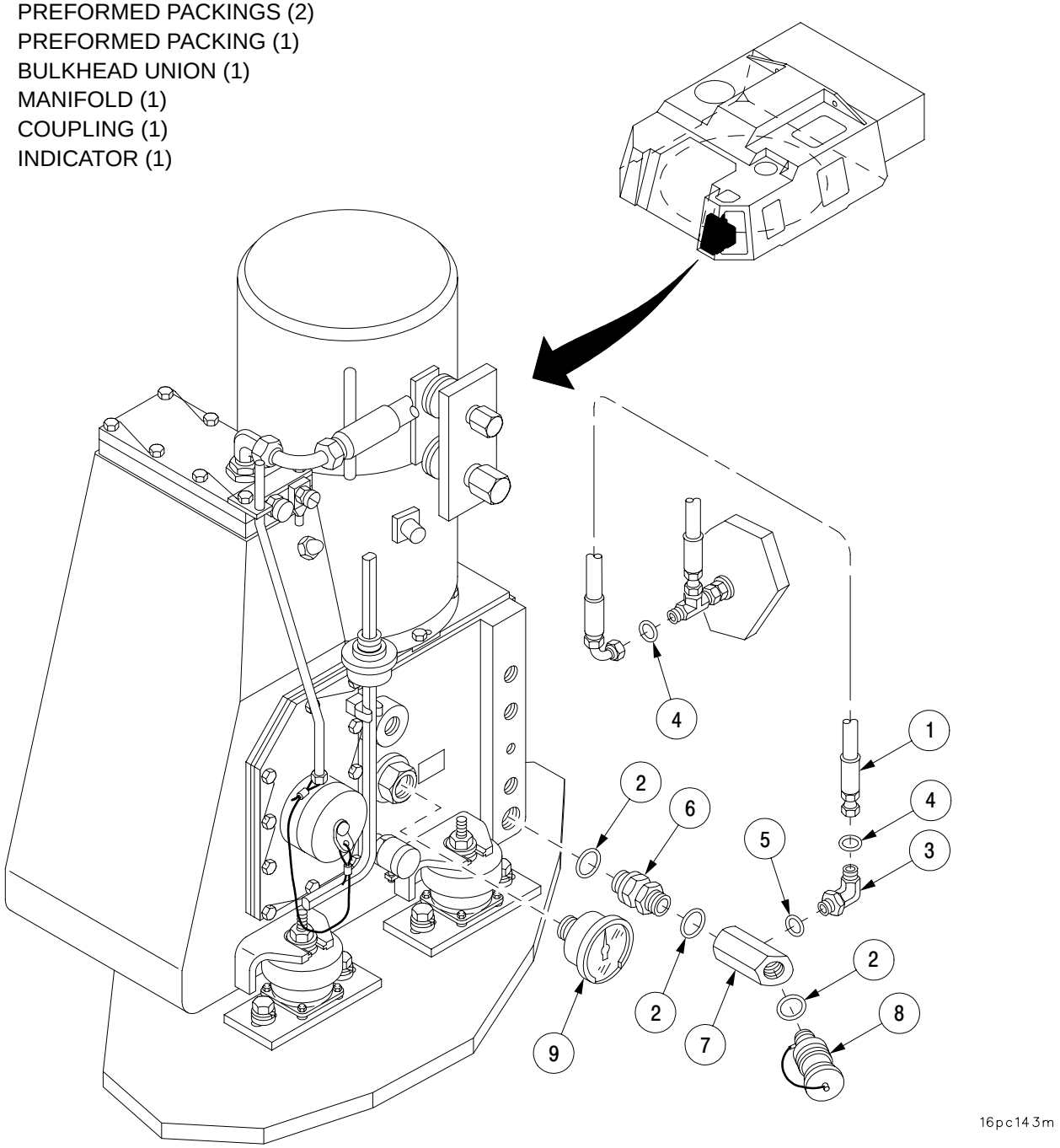
For installation, follow illustration and legend as a guide.

18–15 HYDRAULIC POWERPACK LINES, FITTINGS, AND MANIFOLD – CONTINUED

b. Installation – Continued

LEGEND

1. HOSE ASSEMBLY (1)
2. PREFORMED PACKINGS (3)
3. ELBOW (1)
4. PREFORMED PACKINGS (2)
5. PREFORMED PACKING (1)
6. BULKHEAD UNION (1)
7. MANIFOLD (1)
8. COUPLING (1)
9. INDICATOR (1)

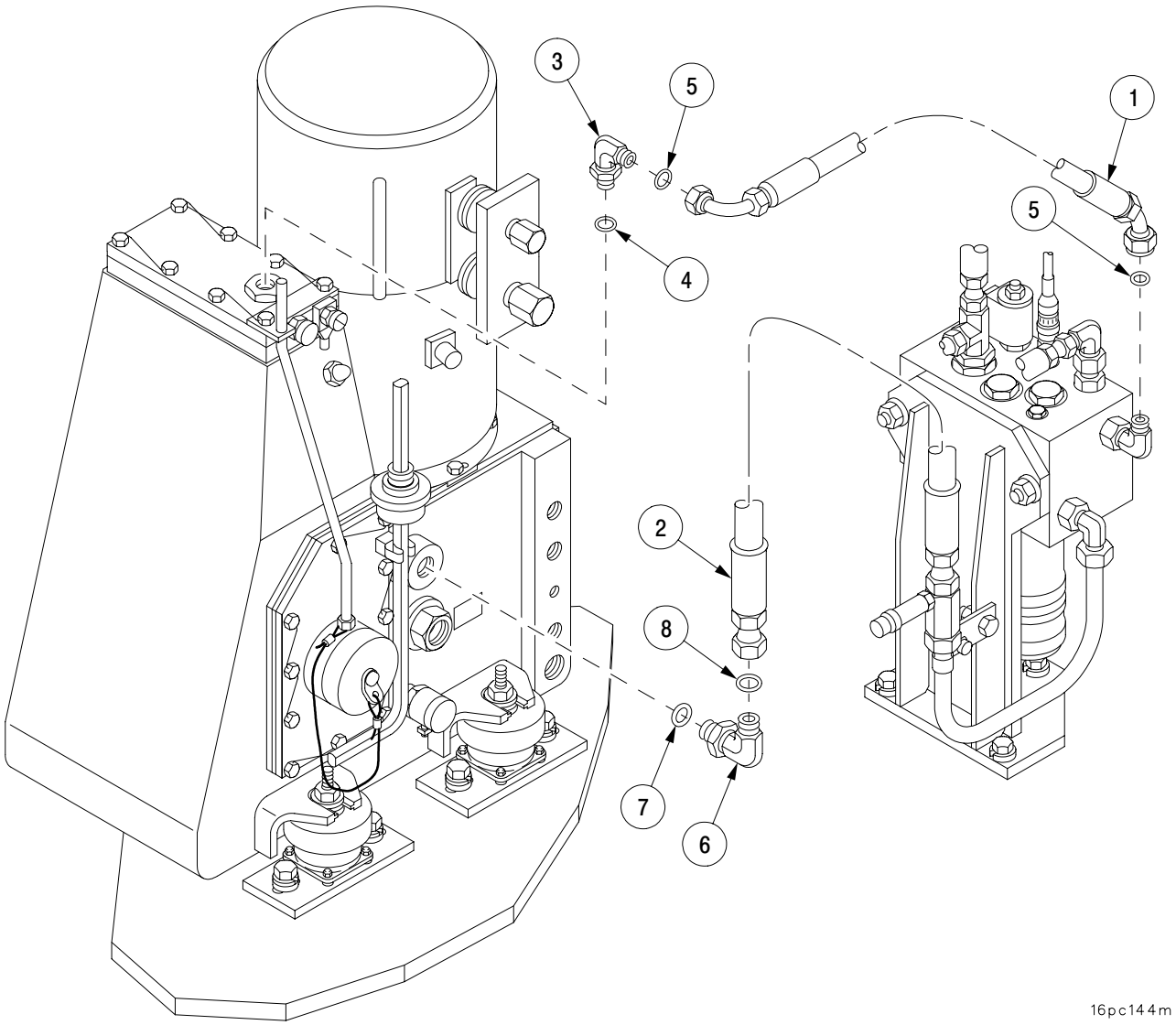


18–15 HYDRAULIC POWERPACK LINES, FITTINGS, AND MANIFOLD – CONTINUED

b. Installation – Continued

LEGEND

1. HOSE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. ELBOW (1)
4. PREFORMED PACKING (1)
5. PREFORMED PACKINGS (2)
6. ELBOW (1)
7. PREFORMED PACKING (1)
8. PREFORMED PACKING (1)



18–16 INTERCONNECTING HYDRAULIC LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged
(para 18–1)

Materials/Parts
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective cap (AR) (item 29, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (10) (item 7, Appx F)
Preformed packings (4) (item 6, Appx F)
Preformed packings (13) (item 5, Appx F)
Preformed packings (15) (item 4, Appx F)
Lockwashers (4) (item 128, Appx F)
Lockwashers (6) (item 127, Appx F)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–16 INTERCONNECTING HYDRAULIC LINES AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings and lockwashers

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

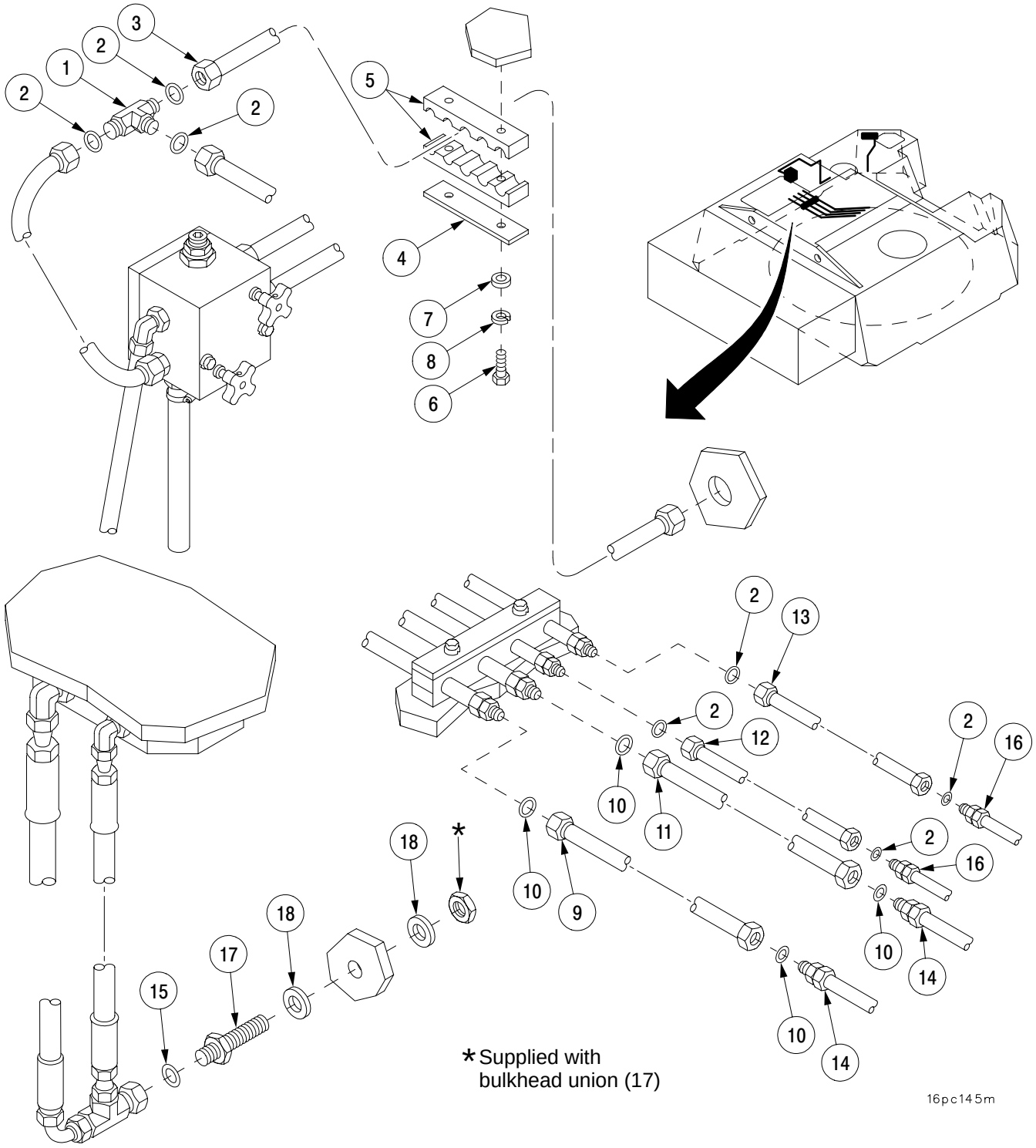
For installation, follow illustration and legend as a guide.

LEGEND

1. TEE (1)
2. PREFORMED PACKINGS (7)
3. TUBE ASSEMBLY (1)
4. CLAMP (1)
5. PADS (2)
6. SCREWS (2)
7. FLAT WASHERS (2)
8. LOCKWASHERS (2)
9. TUBE ASSEMBLY (1)
10. PREFORMED PACKINGS (4)
11. TUBE ASSEMBLY (1)
12. TUBE ASSEMBLY (1)
13. TUBE ASSEMBLY (1)
14. UNIONS (2)
15. PREFORMED PACKING (1)
16. UNIONS (2)
17. BULKHEAD UNION (1)
18. FLAT WASHERS (2)

18–16 INTERCONNECTING HYDRAULIC LINES AND FITTINGS – CONTINUED

b. Installation – Continued

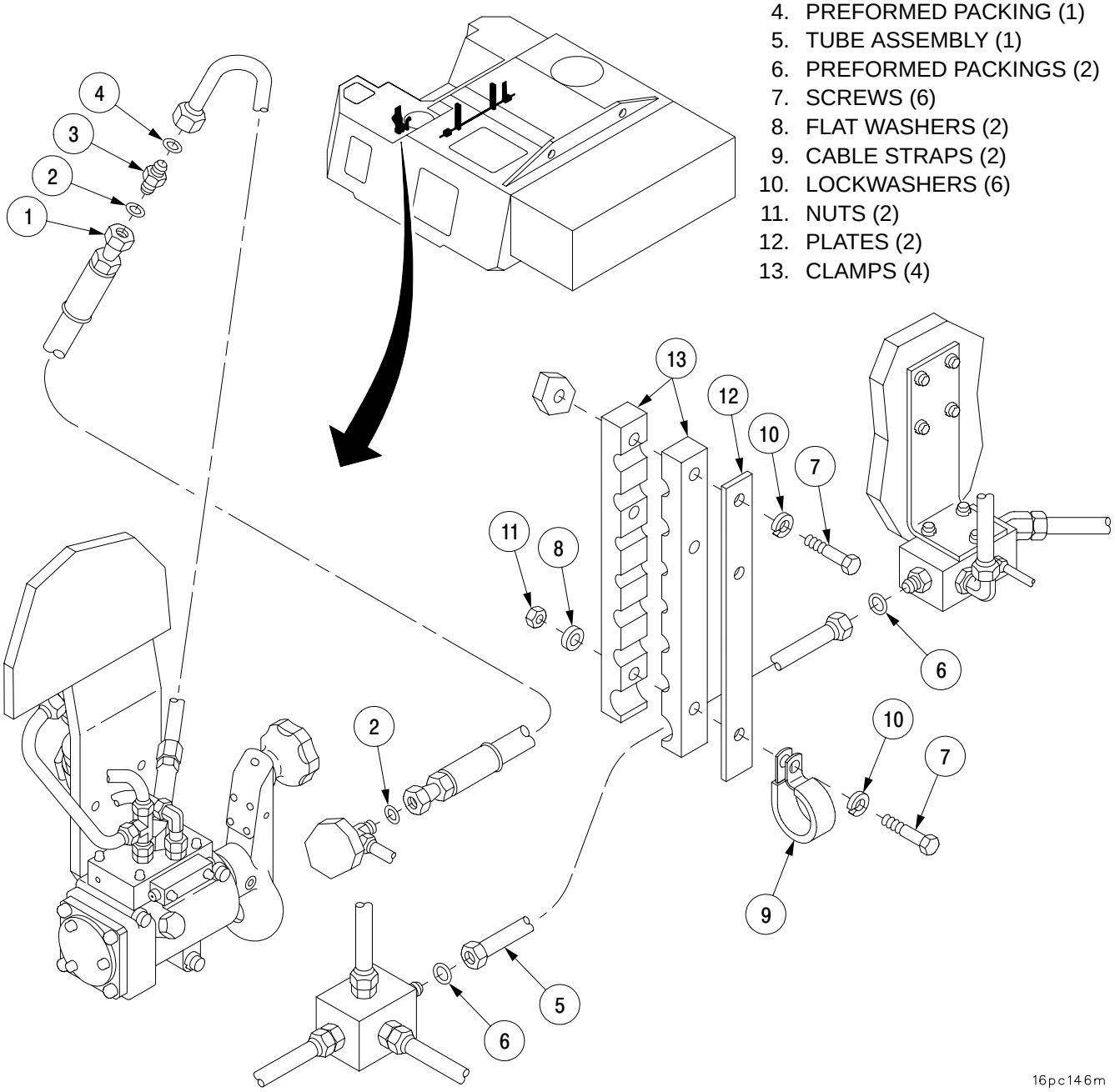


18–16 INTERCONNECTING HYDRAULIC LINES AND FITTINGS – CONTINUED

b. Installation – Continued

LEGEND

1. HOSE ASSEMBLY (1)
2. PREFORMED PACKINGS (2)
3. UNION (1)
4. PREFORMED PACKING (1)
5. TUBE ASSEMBLY (1)
6. PREFORMED PACKINGS (2)
7. SCREWS (6)
8. FLAT WASHERS (2)
9. CABLE STRAPS (2)
10. LOCKWASHERS (6)
11. NUTS (2)
12. PLATES (2)
13. CLAMPS (4)

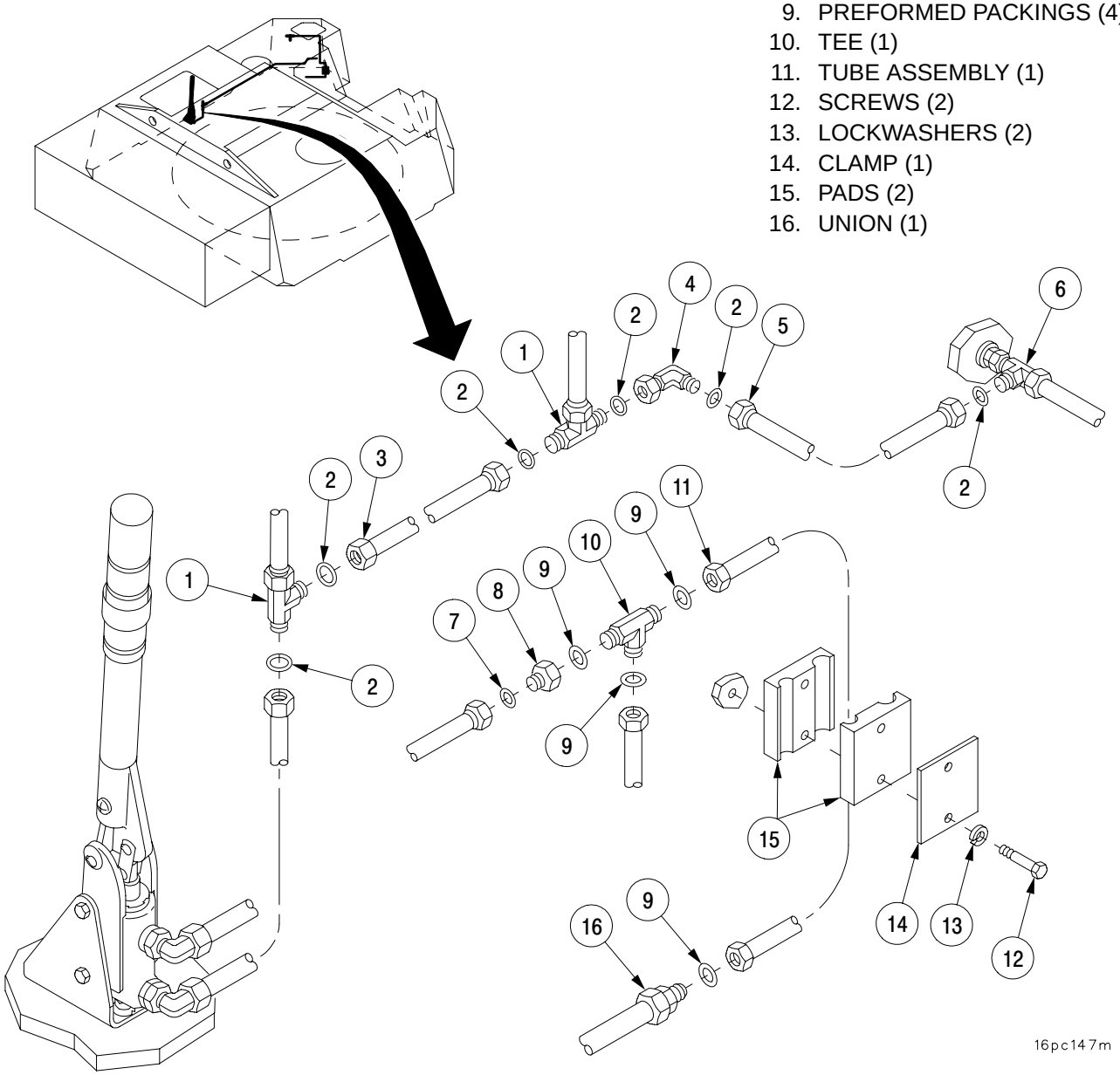


18–16 INTERCONNECTING HYDRAULIC LINES AND FITTINGS – CONTINUED

b. Installation – Continued

LEGEND

1. TEES (2)
2. PREFORMED PACKINGS (6)
3. TUBE ASSEMBLY (1)
4. ELBOW (1)
5. TUBE ASSEMBLY (1)
6. TEE (1)
7. PREFORMED PACKING (1)
8. ADAPTER (1)
9. PREFORMED PACKINGS (4)
10. TEE (1)
11. TUBE ASSEMBLY (1)
12. SCREWS (2)
13. LOCKWASHERS (2)
14. CLAMP (1)
15. PADS (2)
16. UNION (1)



18–17 LOADER MANIFOLD, BRACKET, AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged
(para 18–1)

Materials/Parts
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective cap (AR) (item 28, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective plug (AR) (item 65, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (7) (item 128, Appx F)
Preformed packings (2) (item 7, Appx F)
Preformed packing (item 4, Appx F)
Preformed packing (item 6, Appx F)
Preformed packings (2) (item 92, Appx F)
Preformed packing (item 95, Appx F)
Preformed packing (item 97, Appx F)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–17 LOADER MANIFOLD, BRACKET, AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings and lockwashers.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

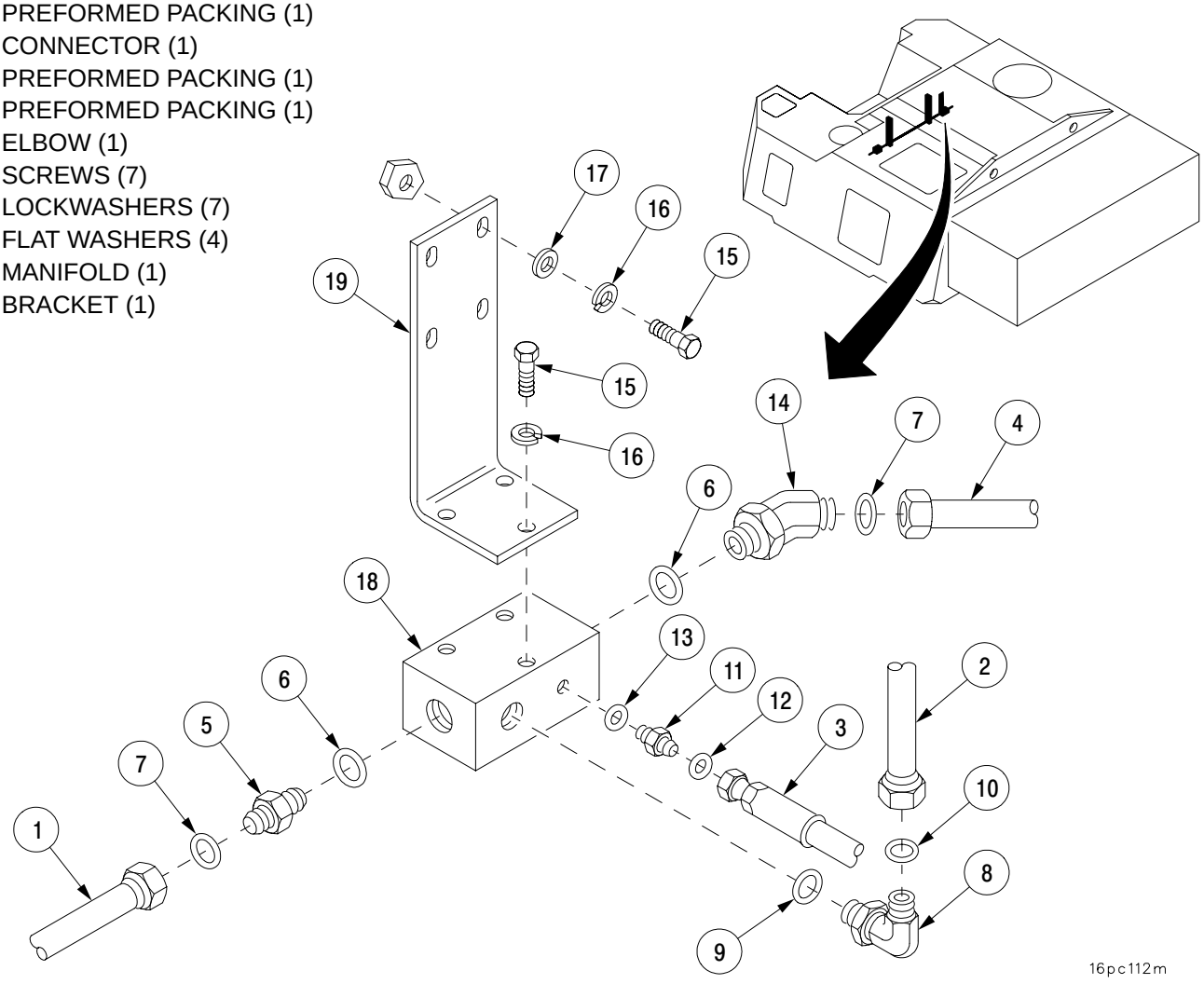
For installation, follow illustration and legend as a guide.

18–17 LOADER MANIFOLD, BRACKET, AND FITTINGS – CONTINUED

b. Installation – Continued

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. HOSE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. CONNECTOR (1)
6. PREFORMED PACKINGS (2)
7. PREFORMED PACKINGS (2)
8. ELBOW (1)
9. PREFORMED PACKING (1)
10. PREFORMED PACKING (1)
11. CONNECTOR (1)
12. PREFORMED PACKING (1)
13. PREFORMED PACKING (1)
14. ELBOW (1)
15. SCREWS (7)
16. LOCKWASHERS (7)
17. FLAT WASHERS (4)
18. MANIFOLD (1)
19. BRACKET (1)



18–18 LOADER/RAMMER SYSTEM LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged
(para 18–1)

Materials/Parts
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 65, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Electrical tape (item 88, Appx C)
Pipe sealant (item 73, Appx C)
Preformed packings (4) (item 6, Appx F)
Preformed packings (2) (item 4, Appx F)
Lockwasher (item 127, Appx F)
Tiedown straps (6) (item 81, Appx C)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–18 LOADER/RAMMER SYSTEM LINES AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

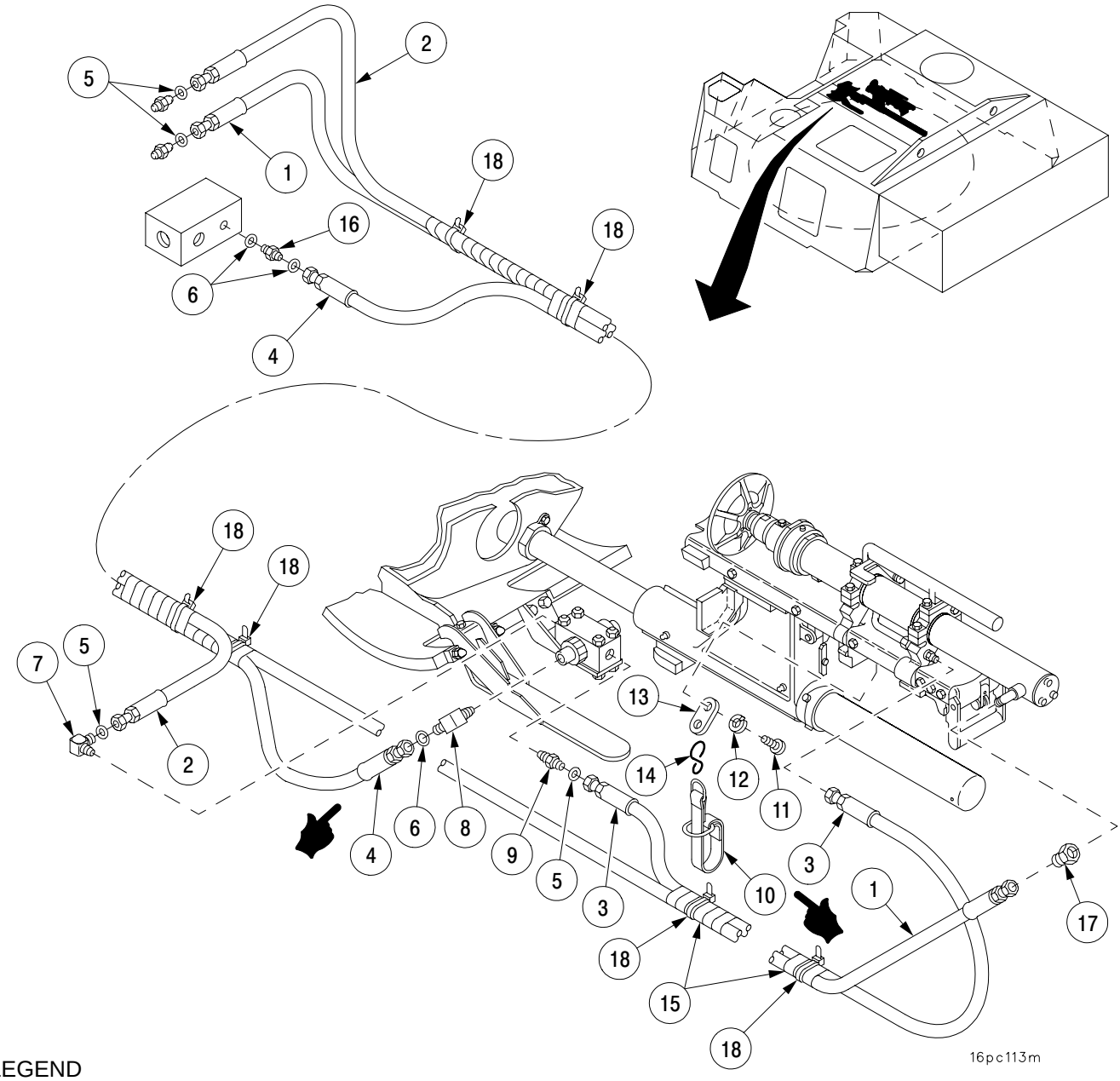
1 For installation, follow illustration and legend as a guide.

2 To form a good seal, apply a thin, even coat of pipe sealant to the threads of adapters 7, 8, and 9, on the blocking valve side of adapter.

3 Wrap strap (10) firmly around hoses (1, 2, 3, 4) and remove slack prior to fastening buckle. Tuck excess strap between hoses.

18–18 LOADER/RAMMER SYSTEM LINES AND FITTINGS – CONTINUED

b. Installation – Continued



LEGEND

1. HOSE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. HOSE ASSEMBLY (1)
4. HOSE ASSEMBLY (1)
5. PREFORMED PACKINGS (4)
6. PREFORMED PACKINGS (3)
7. ADAPTER (1)
8. ADAPTER (1)
9. ADAPTER (1)
10. STRAP (1)
11. SCREW (1)
12. LOCKWASHER (1)
13. HANGER (1)
14. HOOK (1)
15. TAPE (AR)
16. CONNECTOR (1)
17. ADAPTER (1)
18. STRAPS, TIEDOWN (6)

18–19 MANUAL ELEVATING ASSEMBLY LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 5, Appx F)
Preformed packings (5) (item 4, Appx F)
Preformed packings (2) (item 95, Appx F)
Preformed packing (item 6, Appx F)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–19 MANUAL ELEVATING ASSEMBLY LINES AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

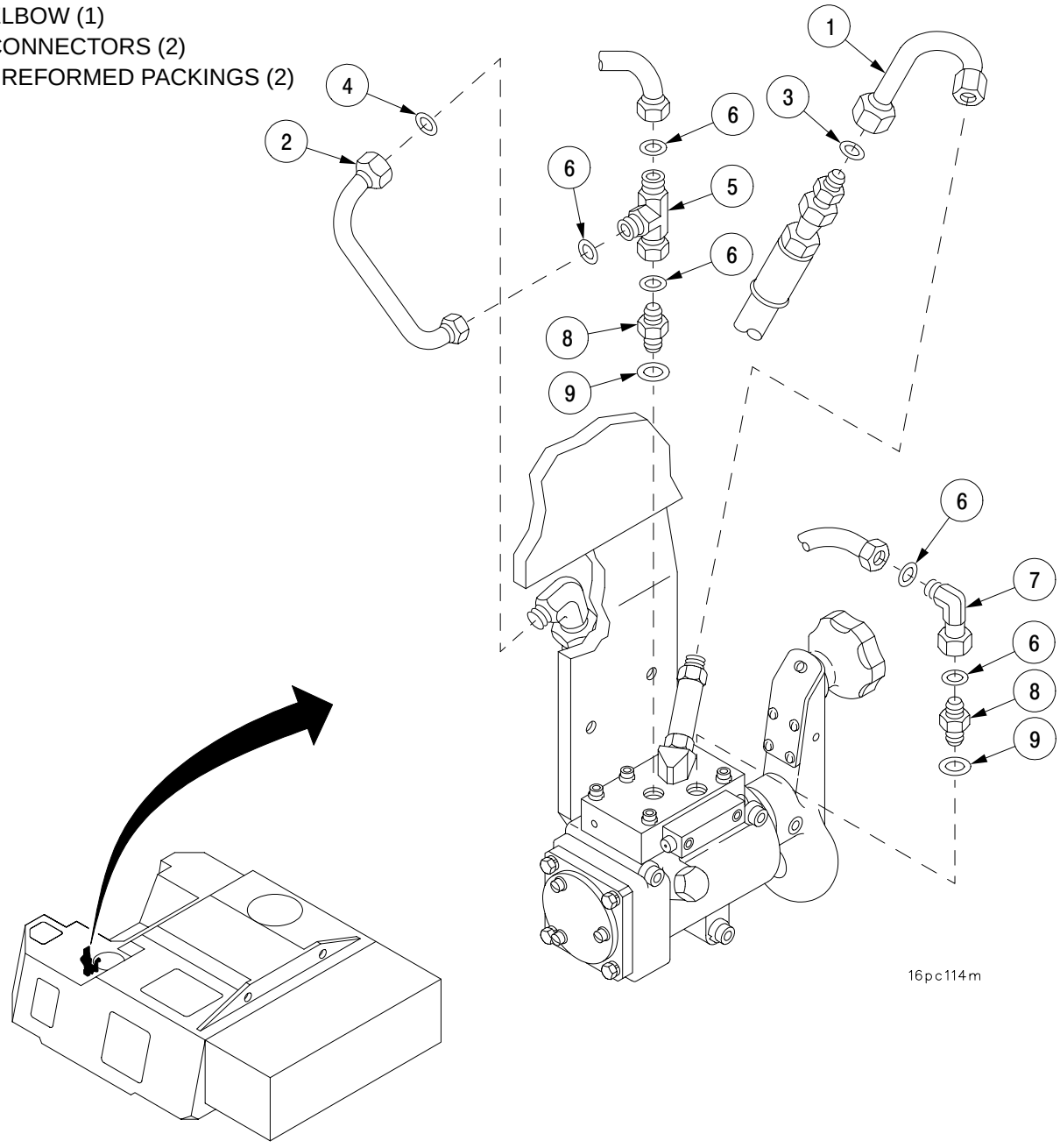
For installation, follow illustration and legend as a guide.

18–19 MANUAL ELEVATING ASSEMBLY LINES AND FITTINGS – CONTINUED

b. Installation – Continued

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. PREFORMED PACKING (1)
4. PREFORMED PACKING (1)
5. SWIVEL TEE (1)
6. PREFORMED PACKINGS (5)
7. ELBOW (1)
8. CONNECTORS (2)
9. PREFORMED PACKINGS (2)



18–20 RAMMER VALVE ASSEMBLY TUBES, FITTINGS, UNIONS, BRACKETS, AND CLAMPS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Dust protective cap (AR) (item 26, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (6) (item 128, Appx F)
Lockwasher (item 130, Appx F)
Preformed packings (8) (item 6, Appx F)
Preformed packings (4) (item 97, Appx F)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–20 RAMMER VALVE ASSEMBLY TUBES, FITTINGS, UNIONS, BRACKETS AND CLAMPS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings and lockwashers.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation

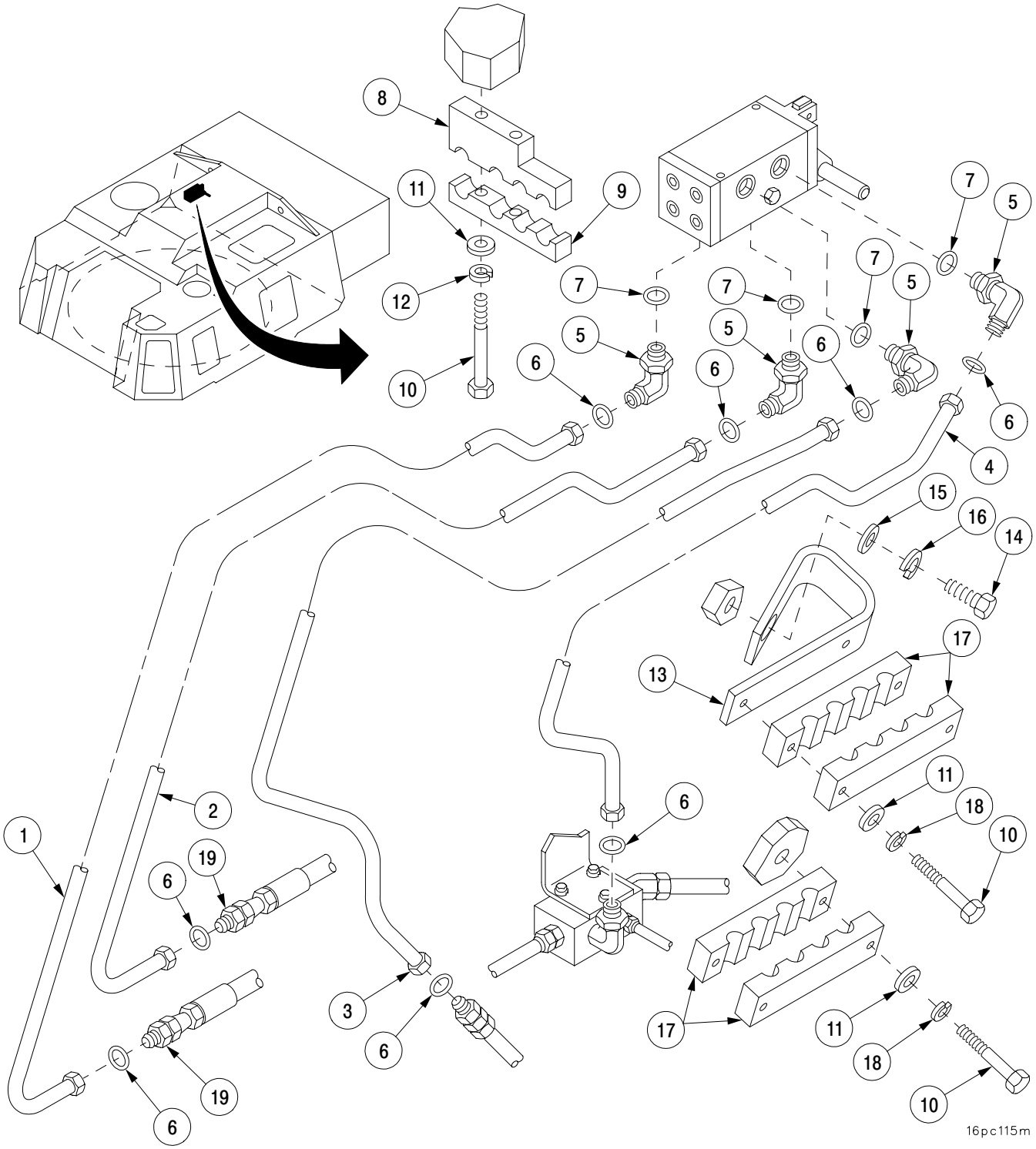
For installation, follow illustration and legend as a guide.

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. ELBOWS (4)
6. PREFORMED PACKINGS (8)
7. PREFORMED PACKINGS (4)
8. BRACKET (1)
9. CLAMP (1)
10. SCREWS (6)
11. FLAT WASHERS (6)
12. LOCKWASHERS (2)
13. BRACKET (1)
14. SCREW (1)
15. FLAT WASHER (1)
16. LOCKWASHER (1)
17. CLAMPS (4)
18. LOCKWASHERS (4)
19. UNIONS (2)

18–20 RAMMER VALVE ASSEMBLY TUBES, FITTINGS, UNIONS, BRACKETS AND CLAMPS – CONTINUED

b. Installation – Continued



18–21 RETURN MANIFOLD AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Dust protective plug (AR) (item 63, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)

Materials/Parts – Continued
Hydraulic fluid (item 50, Appx C)
Preformed packings (3) (item 7, Appx F)
Preformed packing (item 8, Appx F)
Preformed packings (3) (item 92, Appx F)
Preformed packing (item 93, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–22 RETURN MANIFOLD, LINE, FITTINGS, SAMPLING VALVE, AND CLAMP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (2) (item 128, Appx F)
Lockwashers (2) (item 132, Appx F)
Locknut (item 1, Appx F)
Preformed packing (item 5, Appx F)
Preformed packings (2) (item 96, Appx F)
Preformed packings (3) (item 8, Appx F)
Preformed packings (2) (item 93, Appx F)
Preformed packing (item 95, Appx F)
Dust protective plug (AR) (item 61, Appx C)
Dust protective plug (AR) (item 62, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective cap (AR) (item 24, Appx C)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–22 RETURN MANIFOLD, LINE, FITTINGS, SAMPLING VALVE, AND CLAMP – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings, locknuts, and lockwashers.

b. Installation.

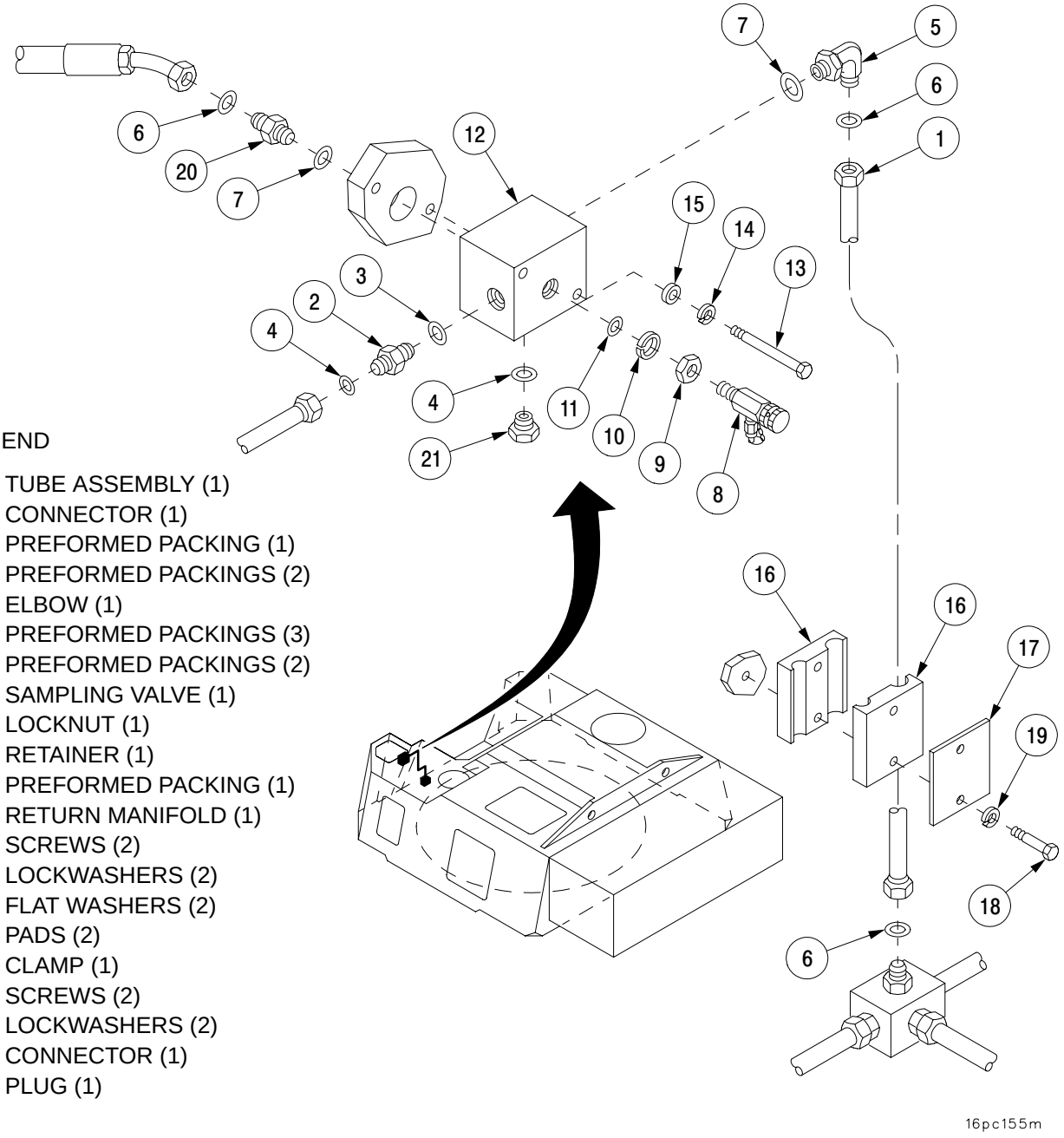
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

18–22 RETURN MANIFOLD, LINE, FITTINGS, SAMPLING VALVE, AND CLAMP – CONTINUED

b. Installation – Continued



LEGEND

1. TUBE ASSEMBLY (1)
2. CONNECTOR (1)
3. PREFORMED PACKING (1)
4. PREFORMED PACKINGS (2)
5. ELBOW (1)
6. PREFORMED PACKINGS (3)
7. PREFORMED PACKINGS (2)
8. SAMPLING VALVE (1)
9. LOCKNUT (1)
10. RETAINER (1)
11. PREFORMED PACKING (1)
12. RETURN MANIFOLD (1)
13. SCREWS (2)
14. LOCKWASHERS (2)
15. FLAT WASHERS (2)
16. PADS (2)
17. CLAMP (1)
18. SCREWS (2)
19. LOCKWASHERS (2)
20. CONNECTOR (1)
21. PLUG (1)

18–23 SELECTOR VALVE(S) LINES, FITTINGS, UNIONS, AND CLAMPS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (6) (item 128, Appx F)
Preformed packings (12) (item 6, Appx F)
Preformed packings (10) (item 5, Appx F)
Preformed packings (12) (item 97, Appx F)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective plug (AR) (item 60, Appx C)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–23 SELECTOR VALVE(S) LINES, FITTINGS, UNIONS, AND CLAMPS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings and lockwashers.

b. Installation.

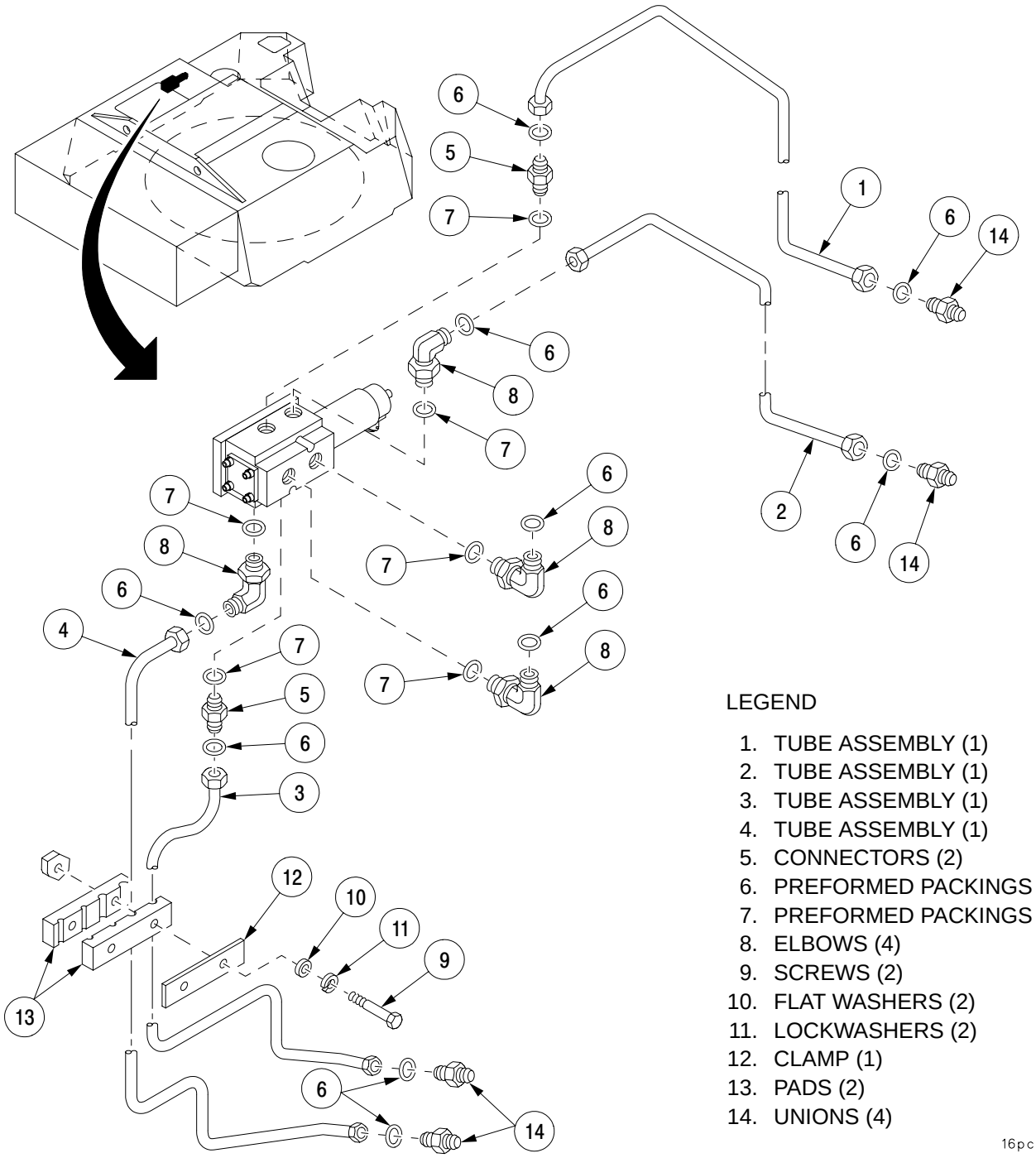
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

18–23 SELECTOR VALVE(S) LINES, FITTINGS, UNIONS, AND CLAMPS – CONTINUED

b. Installation – Continued



LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. CONNECTORS (2)
6. PREFORMED PACKINGS (10)
7. PREFORMED PACKINGS (6)
8. ELBOWS (4)
9. SCREWS (2)
10. FLAT WASHERS (2)
11. LOCKWASHERS (2)
12. CLAMP (1)
13. PADS (2)
14. UNIONS (4)

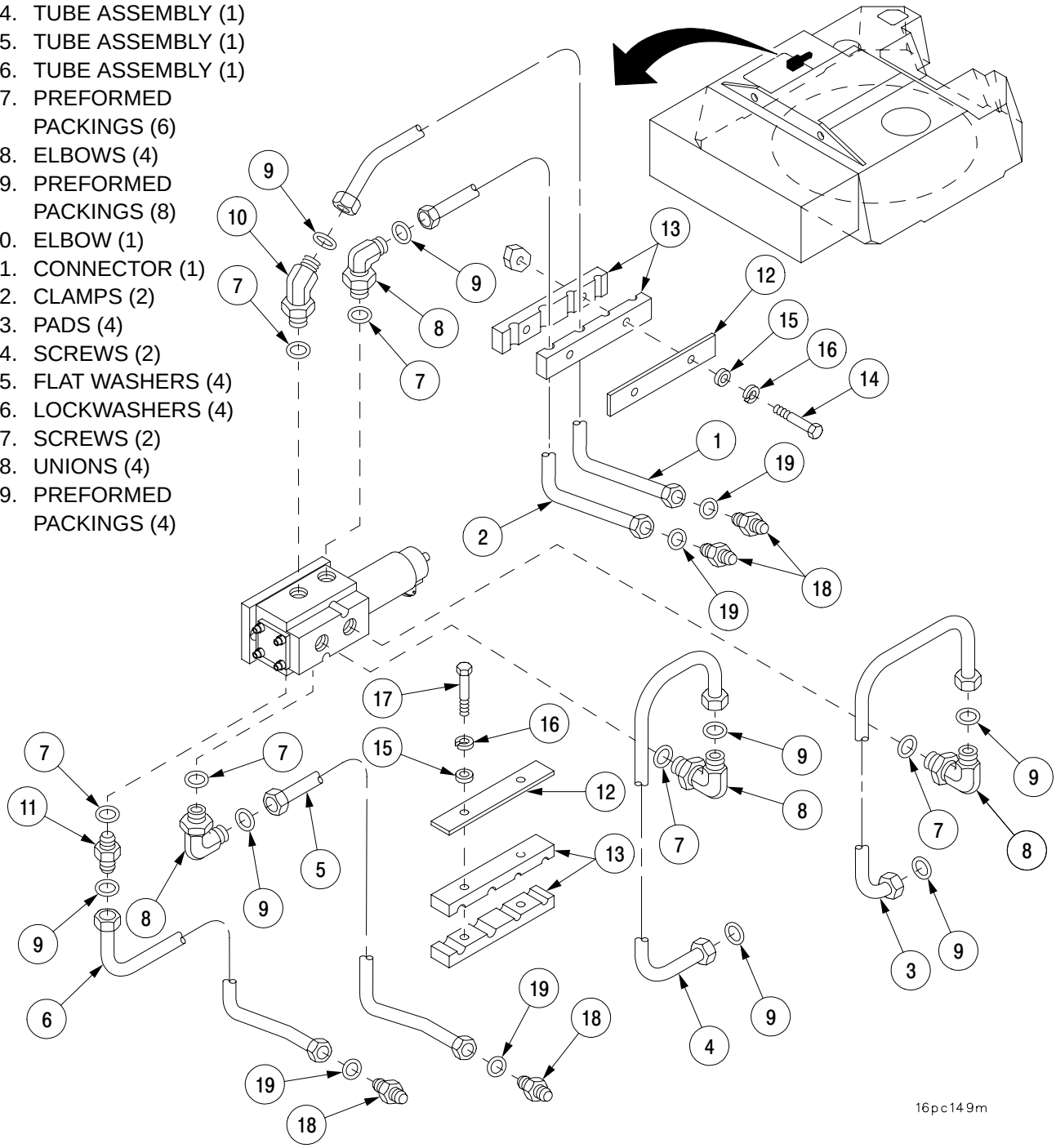
16pc148m

18–23 SELECTOR VALVE(S) LINES, FITTINGS, UNIONS, AND CLAMPS – CONTINUED

b. Installation – Continued

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. TUBE ASSEMBLY (1)
6. TUBE ASSEMBLY (1)
7. PREFORMED PACKINGS (6)
8. ELBOWS (4)
9. PREFORMED PACKINGS (8)
10. ELBOW (1)
11. CONNECTOR (1)
12. CLAMPS (2)
13. PADS (4)
14. SCREWS (2)
15. FLAT WASHERS (4)
16. LOCKWASHERS (4)
17. SCREWS (2)
18. UNIONS (4)
19. PREFORMED PACKINGS (4)



18–24 MODE SELECTOR VALVE LINES AND FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (6) (item 7, Appx F)
Preformed packings (2) (item 4, Appx F)
Preformed packings (5) (item 92, Appx F)
Preformed packing (item 95, Appx F)
Dust protective cap (AR) (item 26, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective plug (AR) (item 60, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Hydraulic compartment door open (TM 9–2350–314–10)
Hydraulic compartment exterior access panel removed (para 24–3)
Hydraulic compartment interior access panel removed (para 24–2)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–24 MODE SELECTOR VALVE LINES AND FITTINGS – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings.

b. Installation.

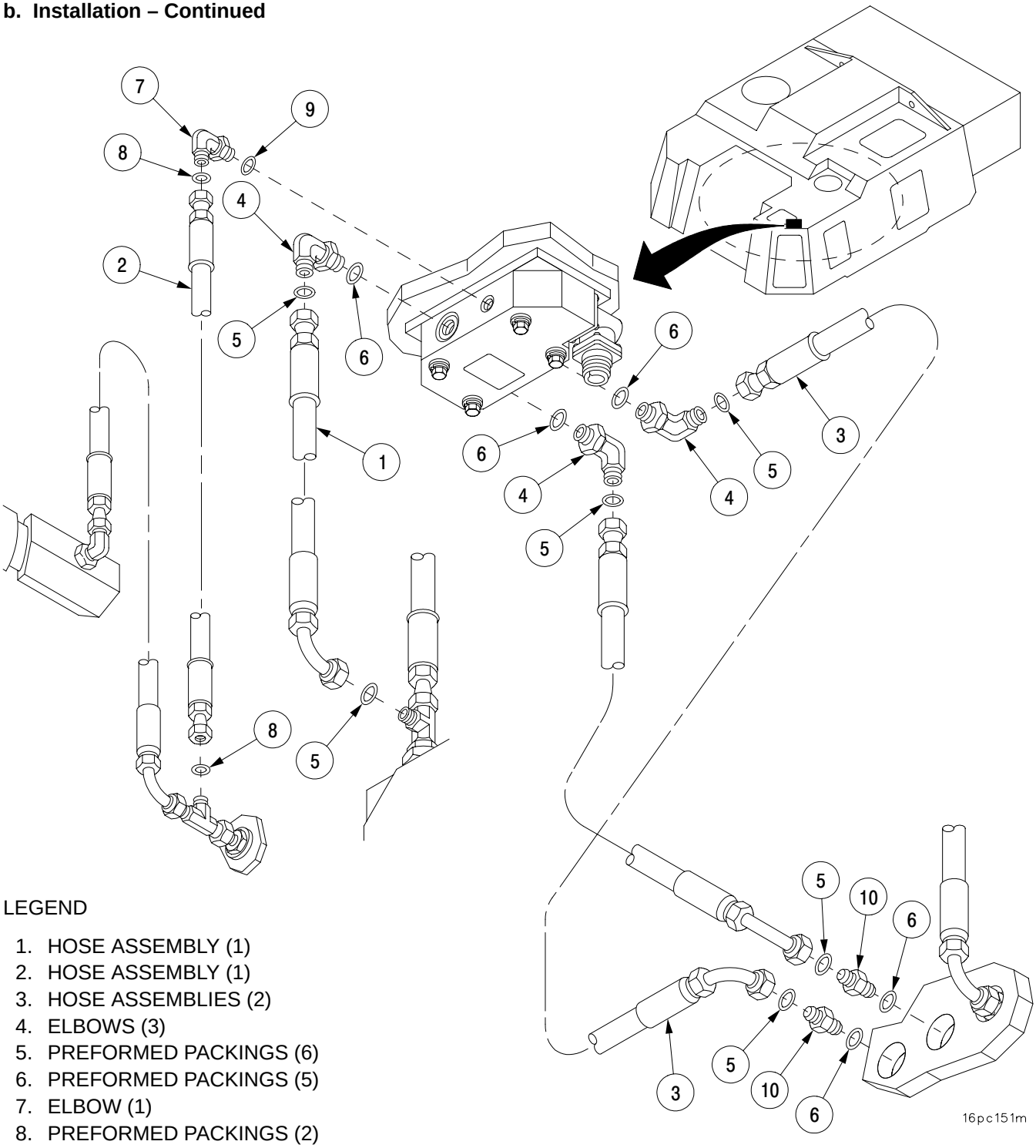
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

18–24 MODE SELECTOR VALVE LINES AND FITTINGS – CONTINUED

b. Installation – Continued



LEGEND

1. HOSE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. HOSE ASSEMBLIES (2)
4. ELBOWS (3)
5. PREFORMED PACKINGS (6)
6. PREFORMED PACKINGS (5)
7. ELBOW (1)
8. PREFORMED PACKINGS (2)
9. PREFORMED PACKING (1)
10. CONNECTORS (2)

18–25 TRAVERSE LIMIT VALVE FITTINGS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (4) (item 97, Appx F)

Materials/Parts – Continued
Preformed packings (5) (item 6, Appx F)
Dust protective cap (AR) (item 27, Appx C)
Dust protective plug (AR) (item 60, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–25 TRAVERSE LIMIT VALVE FITTINGS – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

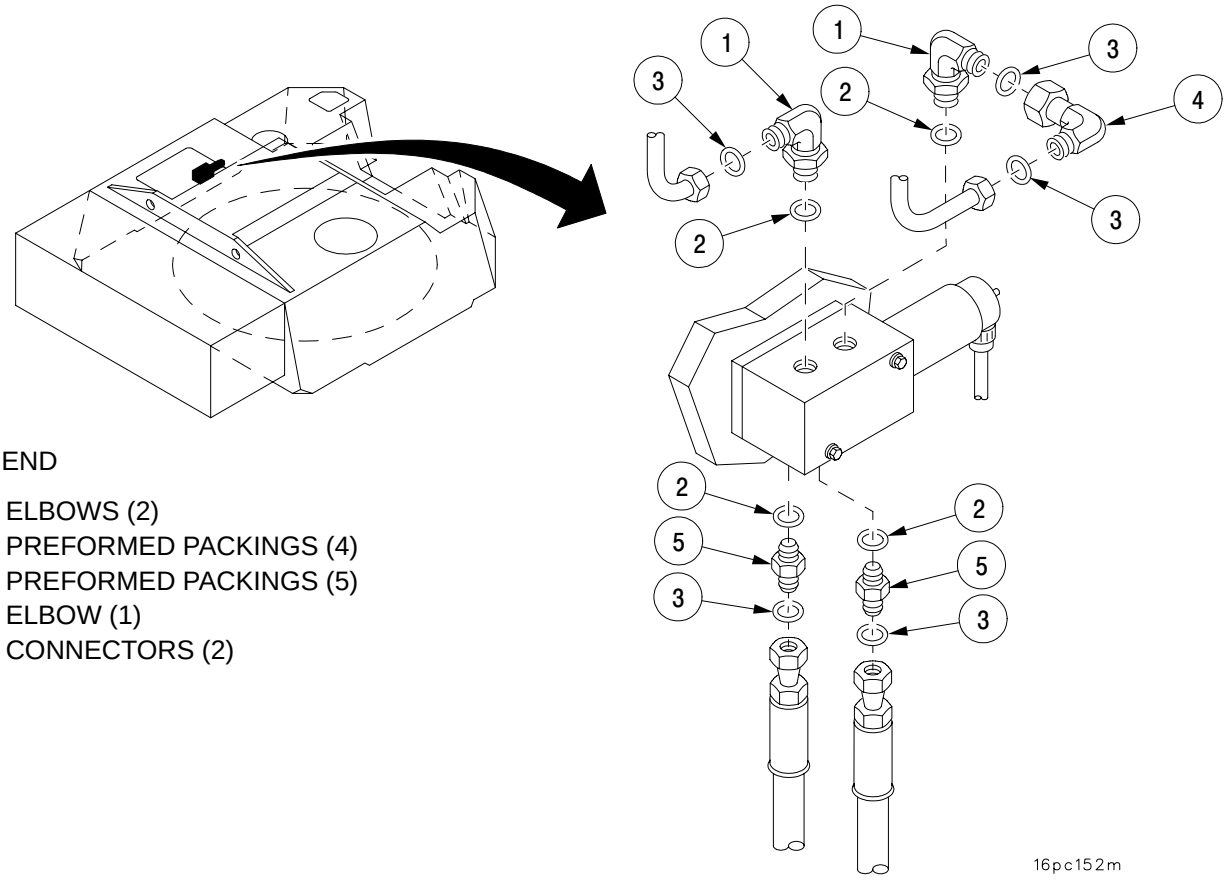
For removal, follow illustration and legend as a guide. Discard all packings.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.



LEGEND

1. ELBOWS (2)
2. PREFORMED PACKINGS (4)
3. PREFORMED PACKINGS (5)
4. ELBOW (1)
5. CONNECTORS (2)

18–21 RETURN MANIFOLD AND FITTINGS – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings.

b. Installation.

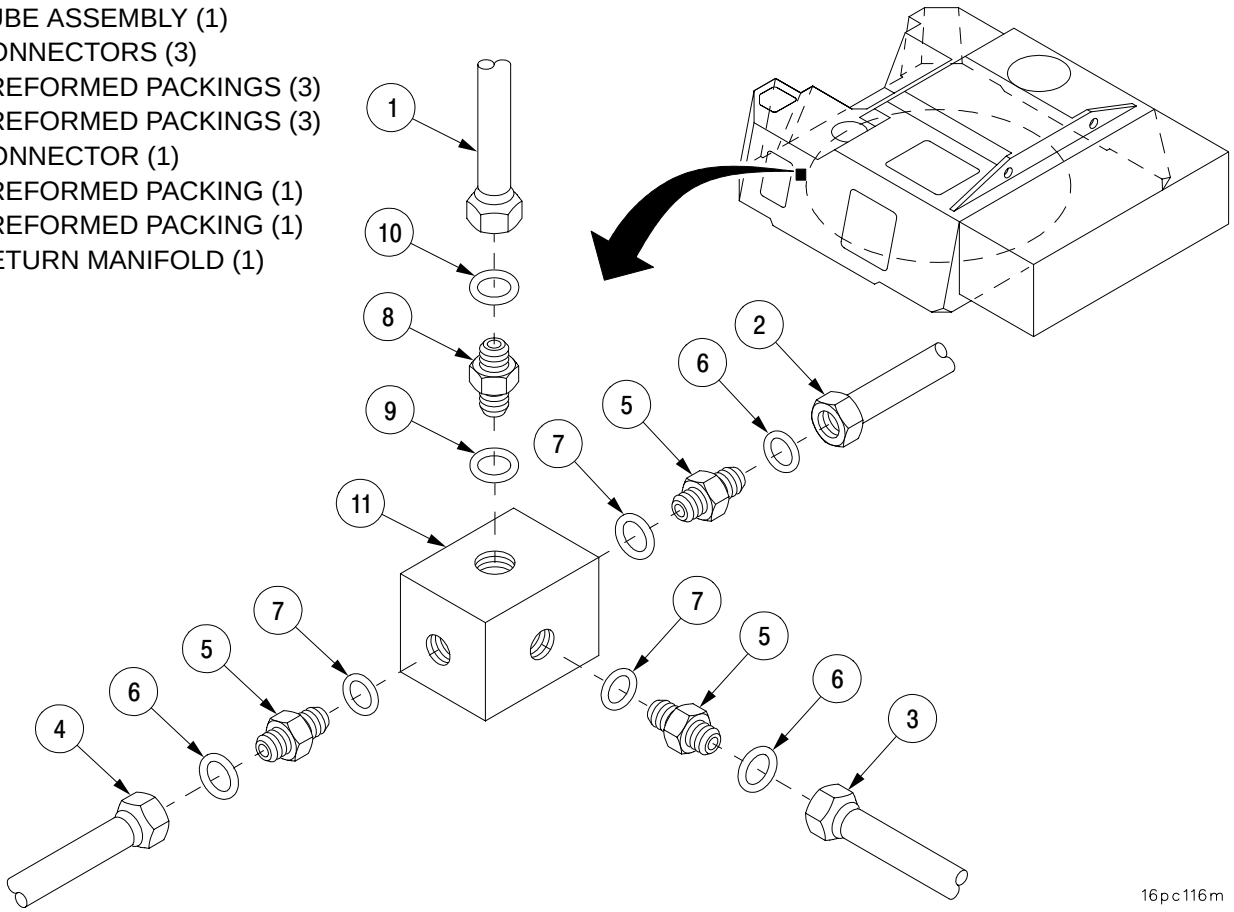
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

For installation, follow illustration and legend as a guide.

LEGEND

1. TUBE ASSEMBLY (1)
2. TUBE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. TUBE ASSEMBLY (1)
5. CONNECTORS (3)
6. PREFORMED PACKINGS (3)
7. PREFORMED PACKINGS (3)
8. CONNECTOR (1)
9. PREFORMED PACKING (1)
10. PREFORMED PACKING (1)
11. RETURN MANIFOLD (1)



18–26 TRAVERSE MECHANISM AND SERVO VALVE ASSEMBLY LINES, FITTINGS, AND CLAMP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Lockwashers (2) (item 128, Appx F)
Preformed packings (5) (item 7, Appx F)
Preformed packings (4) (item 6, Appx F)
Preformed packings (2) (item 4, Appx F)
Preformed packings (3) (item 92, Appx F)
Preformed packings (3) (item 97, Appx F)
Preformed packings (2) (item 95, Appx F)
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 27, Appx C)
Dust protective cap (AR) (item 28, Appx C)
Dust protective plug (AR) (item 60, Appx C)
Dust protective plug (AR) (item 65, Appx C)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–26 TRAVERSE MECHANISM AND SERVO VALVE ASSEMBLY LINES, FITTINGS, AND CLAMP – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

For removal, follow illustration and legend as a guide. Discard all packings and lockwashers.

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

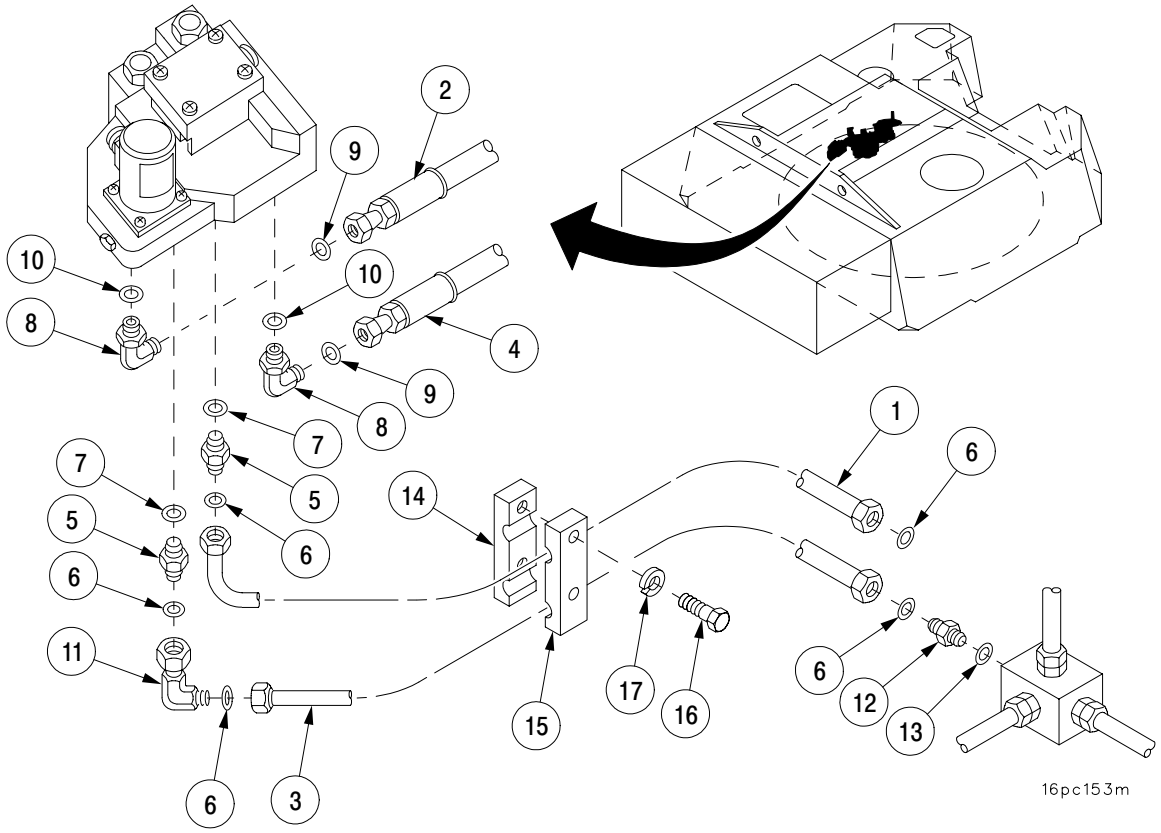
For installation, follow illustration and legend as a guide.

18–26 TRAVERSE MECHANISM AND SERVO VALVE ASSEMBLY LINES, FITTINGS, AND CLAMP – CONTINUED

b. Installation – Continued

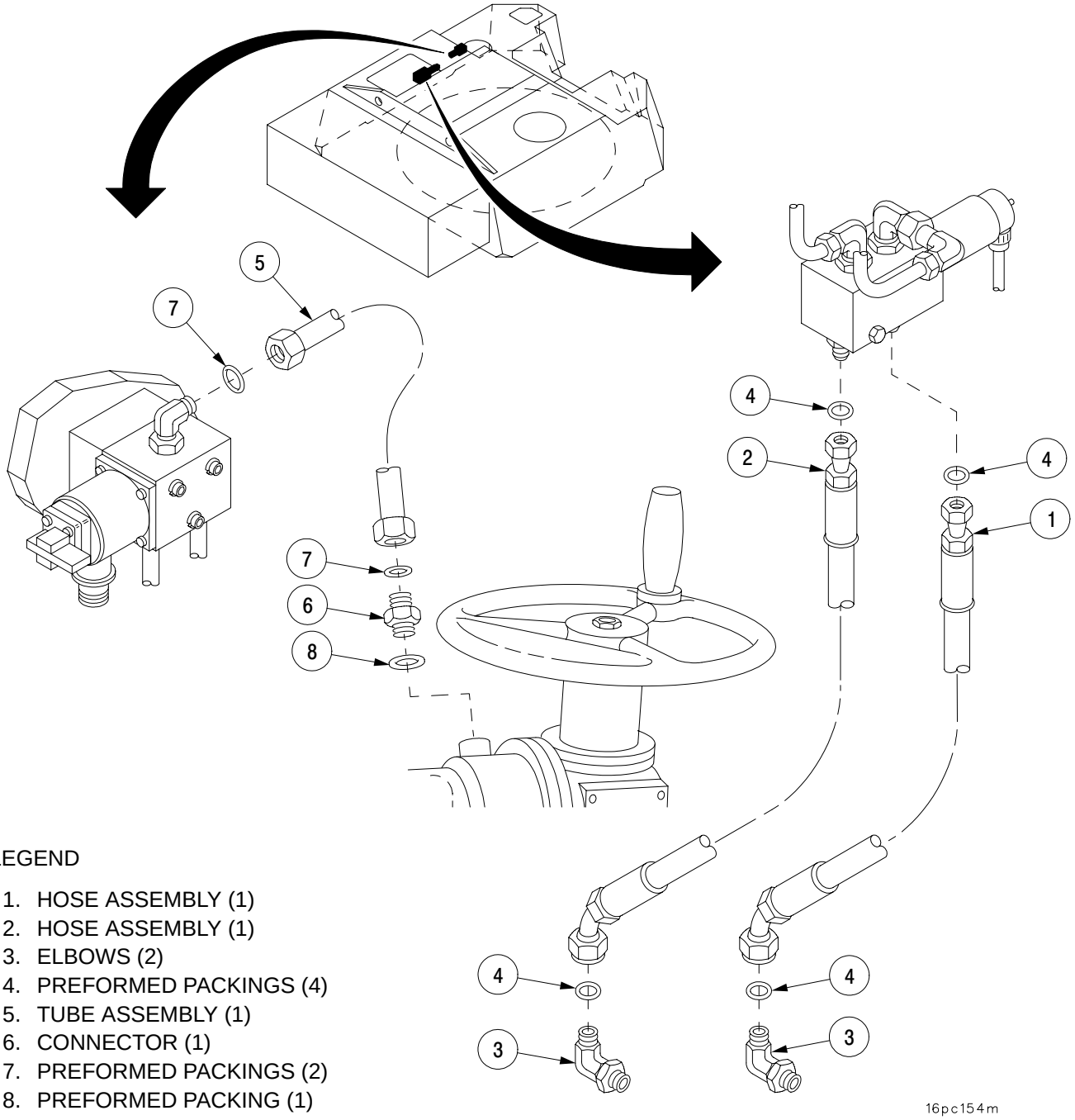
LEGEND

1. TUBE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. TUBE ASSEMBLY (1)
4. HOSE ASSEMBLY (1)
5. CONNECTORS (2)
6. PREFORMED PACKINGS (5)
7. PREFORMED PACKINGS (2)
8. ELBOWS (2)
9. PREFORMED PACKINGS (2)
10. PREFORMED PACKINGS (2)
11. ELBOW (1)
12. CONNECTOR (1)
13. PREFORMED PACKING (1)
14. CLAMP (1)
15. CLAMP (1)
16. SCREWS (2)
17. LOCKWASHERS (2)



18–26 TRAVERSE MECHANISM AND SERVO VALVE ASSEMBLY LINES, FITTINGS, AND CLAMP – CONTINUED

b. Installation – Continued



LEGEND

1. HOSE ASSEMBLY (1)
2. HOSE ASSEMBLY (1)
3. ELBOWS (2)
4. PREFORMED PACKINGS (4)
5. TUBE ASSEMBLY (1)
6. CONNECTOR (1)
7. PREFORMED PACKINGS (2)
8. PREFORMED PACKING (1)

18–27 MODE SELECTOR VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Preformed packings (3) (item 7, Appx F)
Preformed packing (item 4, Appx F)
Preformed packings (3) (item 92, Appx F)
Preformed packing (item 95, Appx F)
Hydraulic fluid (item 50, Appx C)
Lockwashers (4) (item 128, Appx F)

Materials/Parts – Continued
Plastic bags (AR) (item 16, Appx C)
Marking tag (AR) (item 87, Appx C)
Dust protective cap (AR) (item 21, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective cap (AR) (item 23, Appx C)
Dust protective cap (AR) (item 26, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.

18–27 MODE SELECTOR VALVE – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

1 Disconnect three hydraulic hoses (1) with three preformed packings (2) from mode selector valve (3). Discard preformed packings.

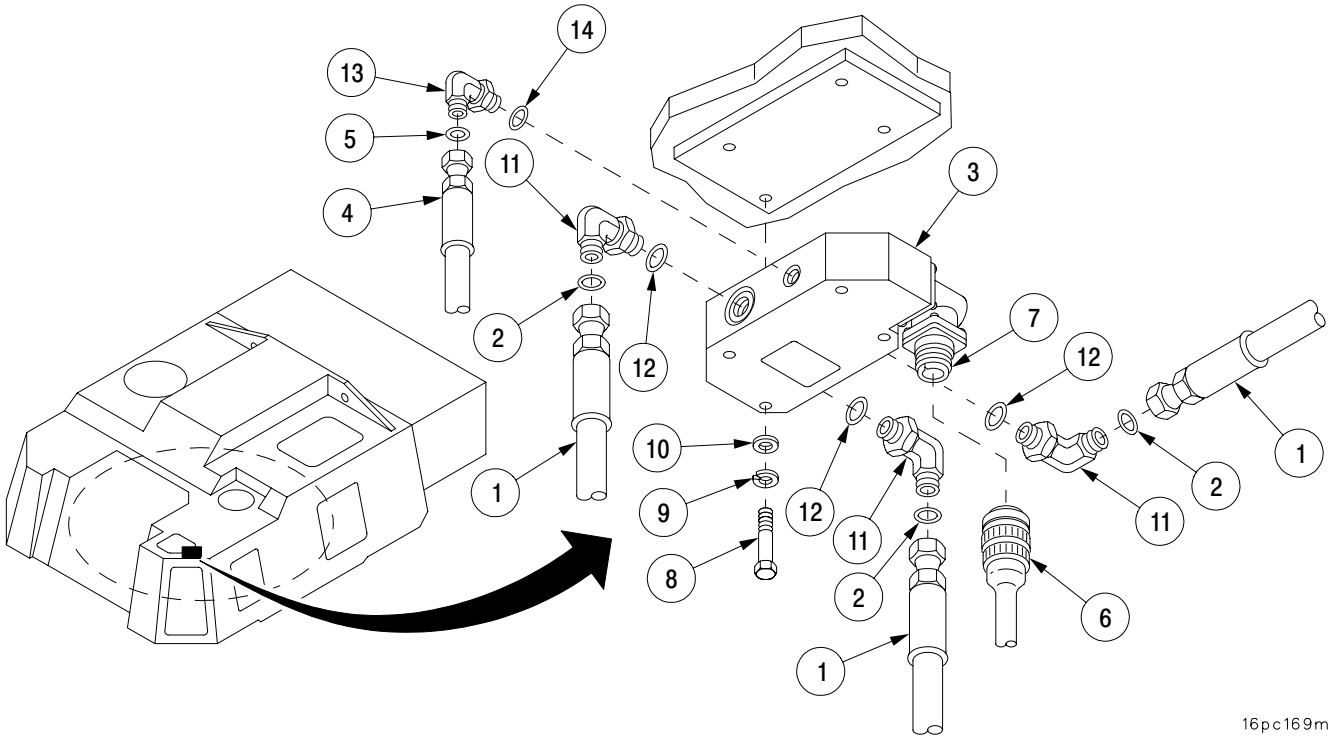
2 Disconnect hydraulic hose (4) with preformed packing (5) from mode selector valve (3). Discard preformed packing.

3 Disconnect electrical lead (6) at connector (7).

4 Remove four screws (8), four lockwashers (9), four flat washers (10), and mode selector valve (3) from hydraulic compartment. Discard lockwashers.

5 Remove three elbows (11) with three preformed packings (12) from mode selector valve (3). Discard preformed packings.

6 Remove elbow (13) with preformed packing (14) from mode selector valve (3). Discard preformed packing.



18–27 MODE SELECTOR VALVE – CONTINUED

b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Install new preformed packing (14) on elbow (13) and losely install elbow (13) in mode selector valve (3).

2 Install three new preformed packings (12) on three elbows (11) and loosely install elbows (11) in mode selector valve (3).

3 Install mode selector valve (3) in hydraulic compartment with four screws (8), four new lockwashers (9), and four flat washers (10).

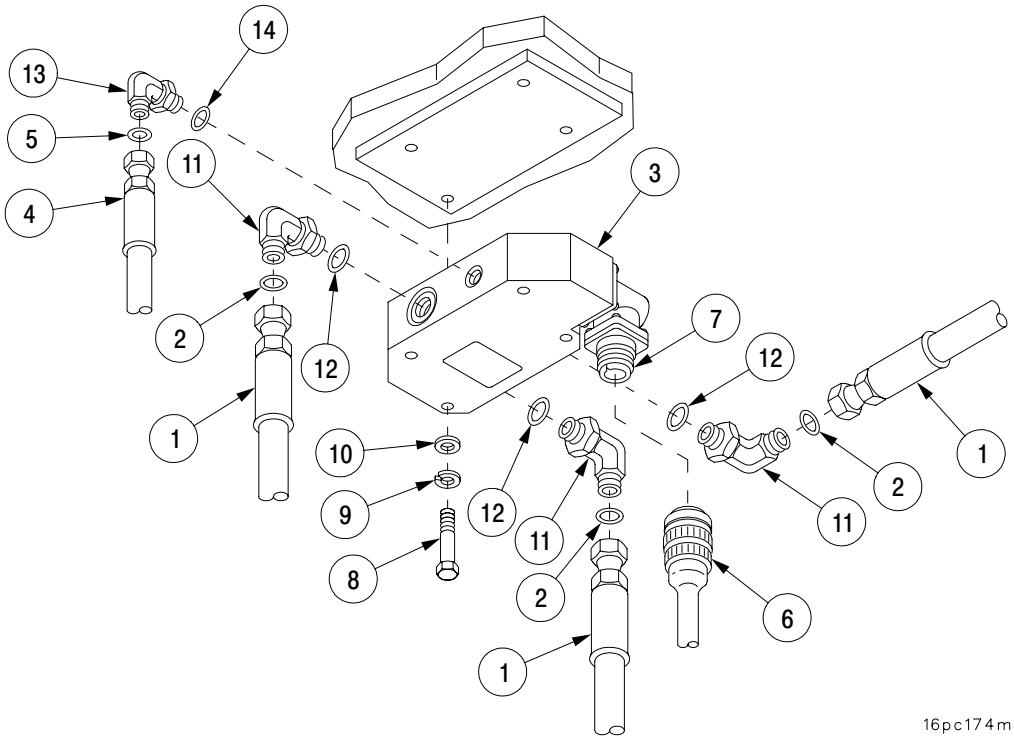
4 Connect electrical lead (6) to connector (7).

5 Position four elbows (11 and 13) for hose connections and tighten.

6 Lubricate new preformed packing (5) with hydraulic fluid and install on elbow (13).

7 Lubricate three new preformed packings (2) with hydraulic fluid and install on three elbows (11).

8 Connect three hydraulic hoses (1) to three elbows (11) and connect hydraulic hose (4) to elbow (13).



18–28 CLUTCH VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Preformed packings (3) (item 4, Appx F)
Lockwashers (3) (item 127, Appx F)
Preformed packings (3) (item 95, Appx F)
Plastic bags (AR) (item 16, Appx C)
Hydraulic fluid (item 50, Appx C)

Materials/Parts – Continued
Marking tags (AR) (item 87, Appx C)
Dust protective cap (AR) (item 21, Appx C)
Dust protective plug (AR) (item 63, Appx C)
Dust protective cap (AR) (item 23, Appx C)
Dust protective cap (AR) (item 26, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.

18–28 CLUTCH VALVE – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

1 Disconnect electrical connector (1) from clutch valve (2).

2 Disconnect three tube assemblies (3) from clutch valve (2).

3 Remove three screws (4), three lockwashers (5), and clutch valve (2) from plate (6). Discard lockwashers.

4 Remove elbow (7) and two straight connectors (8) from clutch valve (2).

5 Remove three preformed packings (9) and three preformed packings (10) from two connectors (8) and elbow (7). Discard all preformed packings.

6 Remove two screws (11) and plate (6) from crew compartment wall.

b. Installation.

1 Install plate (6) on crew compartment wall and secure with two screws (11).

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

2 Install three new preformed packings (10) and three new preformed packings (9) on two connectors (8) and elbow (7).

3 Install two connectors (8) and elbow (7) on clutch valve (2).

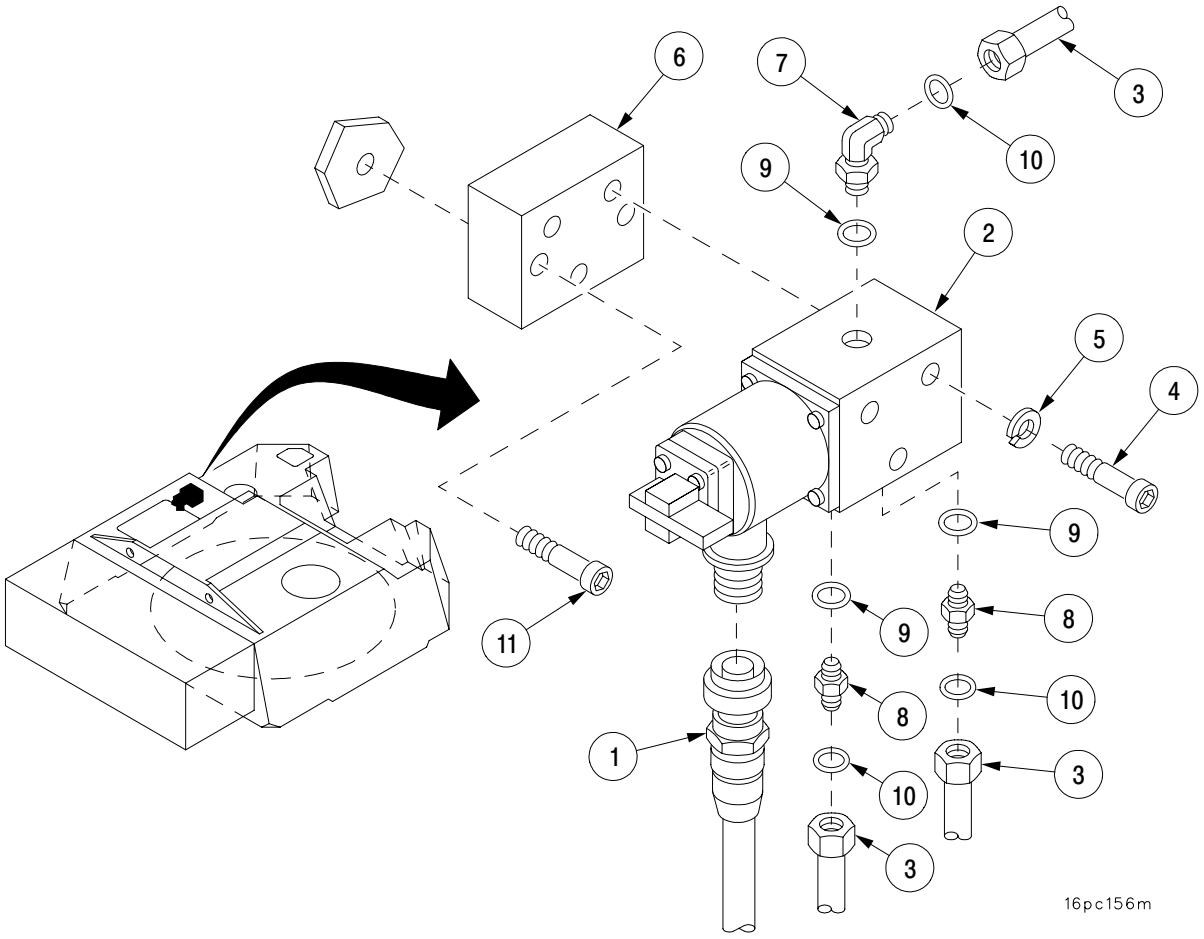
4 Install clutch valve (2) on plate (6) and secure with three screws (4) and three new lockwashers (5).

5 Install three tube assemblies (3) on clutch valve (2).

6 Install electrical connector (1) on clutch valve (2).

18–28 CLUTCH VALVE – CONTINUED

b. Installation – Continued



18–29 GUN CONTROL ASSEMBLIES.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (3) (item 110, Appx F)
Preformed packings (5) (item 97, Appx F)
Preformed packings (3) (item 6, Appx F)
Preformed packings (2) (item 5, Appx F)
Preformed packing (item 7, Appx F)
Hydraulic fluid (item 50, Appx C)
Self–locking nut (item 151, Appx F)
Adhesive (item 6.1, Appx C)
Adhesive (item 40, Appx C)
Preformed packing (item 92, Appx F)
Marking tags (AR) (item 87, Appx C)
Dry–cleaning solvent (item 75, Appx C)

Materials/Parts – Continued
Dust protective cap (AR) (item 24, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 64, Appx C)
Dust protective plug (AR) (item 63, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

18–29 GUN CONTROL ASSEMBLIES – CONTINUED

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

- All hydraulic lines and components must be tagged before removal for identification during installation.
- There are two gun control assemblies, COS control and gunner's control. Removal and installation procedures for both are identical.
- Vehicle serial numbers 001 – 164 have electrical components inside the gun control assembly handle. If these components are present, follow Disassembly step 5 to remove them. Discard them and do not replace them inside the handle upon assembly. If the gun control assembly handle does not have electrical components inside it, disregard Disassembly step 5 and follow Disassembly step 6.

18–29 GUN CONTROL ASSEMBLIES – CONTINUED

a. Removal – Continued

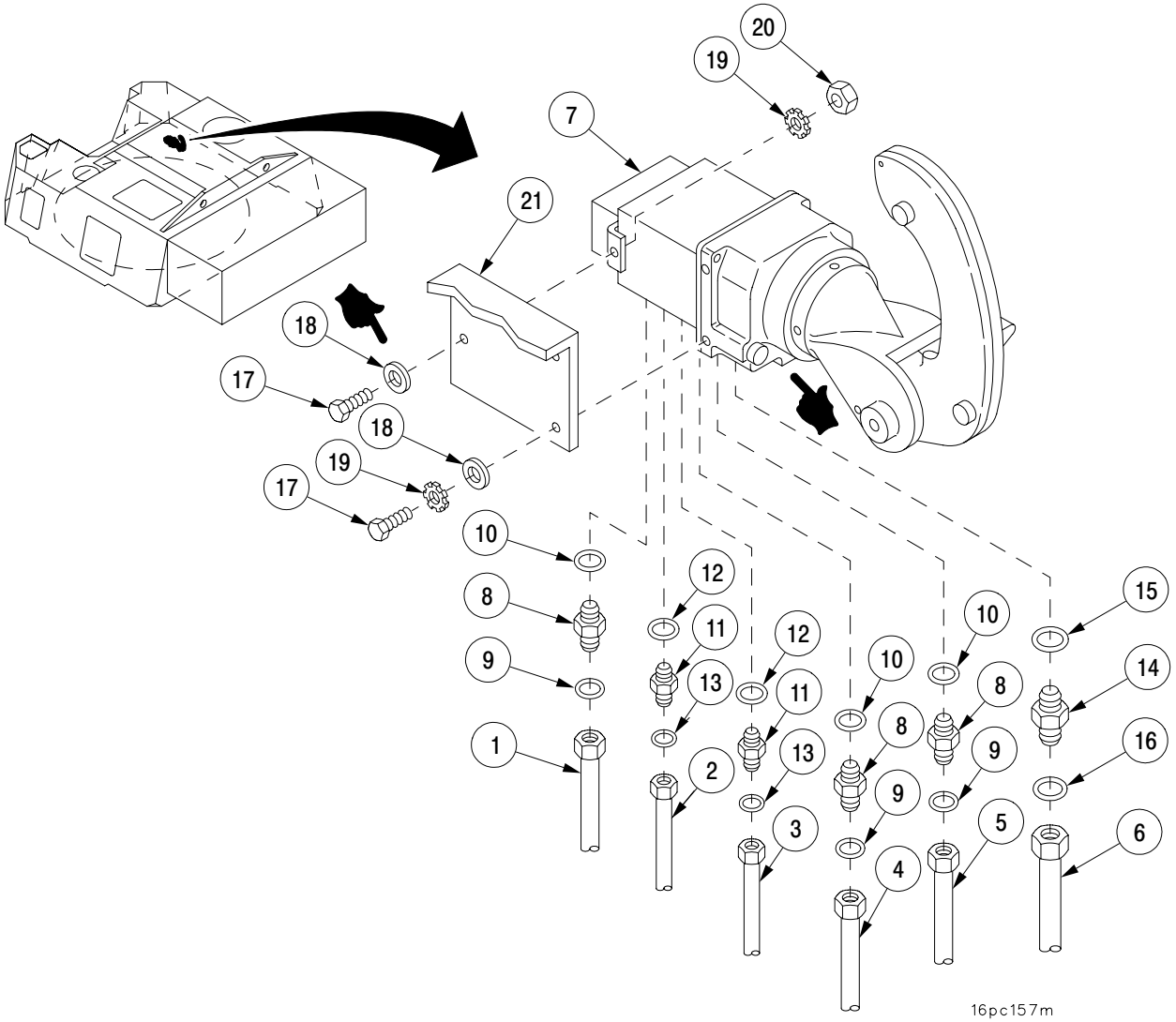
1 Disconnect six tube assemblies (1, 2, 3, 4, 5, and 6) at COS control (7).

2 Remove three connectors (8), three preformed packings (9), and three preformed packings (10). Discard all preformed packings.

3 Remove two connectors (11), two preformed packings (12), and two preformed packings (13). Discard all preformed packings.

4 Remove connector (14), preformed packing (15), and preformed packing (16). Discard all preformed packings.

5 Remove three screws (17), three flat washers (18), three lockwashers (19), self–locking nut (20), and COS control handle (7) from mount (21). Discard lockwashers and nut.



18–29 GUN CONTROL ASSEMBLIES – CONTINUED

b. Disassembly.

1 Remove shoulder screw (22) from access hole in bracket (23).

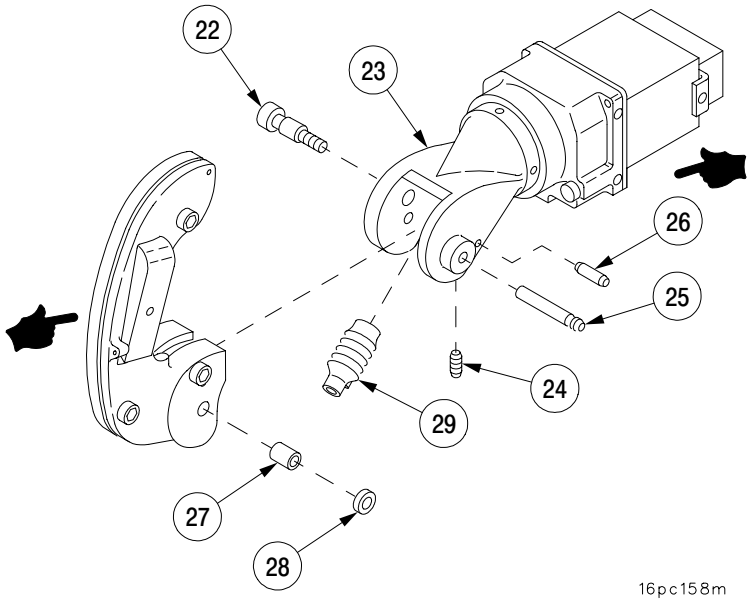
2 Remove setscrew (24), straight shaft (25), stop pin (26), and bushing (27) and shim (28).

WARNING

Dry cleaning solvent (P–D–680) used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash with water immediately, and obtain medical aid (ref. FM 21–11).

3 Separate bellows (29) from adhesive bonding and remove.

4 Clean adhesive residue from both bellows and its mounting surface using dry–cleaning solvent.



18–29 GUN CONTROL ASSEMBLIES – CONTINUED

b. Disassembly – Continued

5 Step deleted.

6 Remove control handle (33) from bracket (23).

c. Assembly.

1 Step deleted.

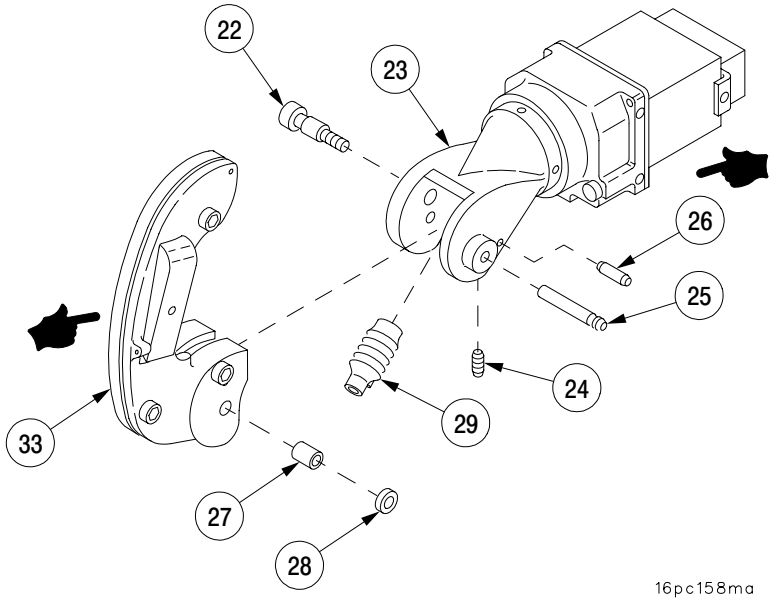
2 Step deleted.

3 Apply adhesive (item 6.1, Appx C) to area of bracket (23) where bellows (29) mounts and install bellows to bracket.

4 Install shims as required (10 washers max) to achieve .005–.008 end–play clearance between control handle and bracket.

5 Position control handle (33) to bracket (23) and secure by installing bushing (27) and shims (28), stop pin (26), straight shaft (25), and setscrew (24).

6 Apply adhesive (item 40, Appx C) to shoulder screw (22) and install shoulder screw (22) through access hole to secure control handle (33) to bracket (23).



18–29 GUN CONTROL ASSEMBLIES – CONTINUED

d. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to ALL new packing material to form a good seal between hydraulic components during installation.

1 Install three screws (17), three flat washers (18), three new lockwashers (19), and new self–locking nut (20) to secure COS control (7) to mount (21).

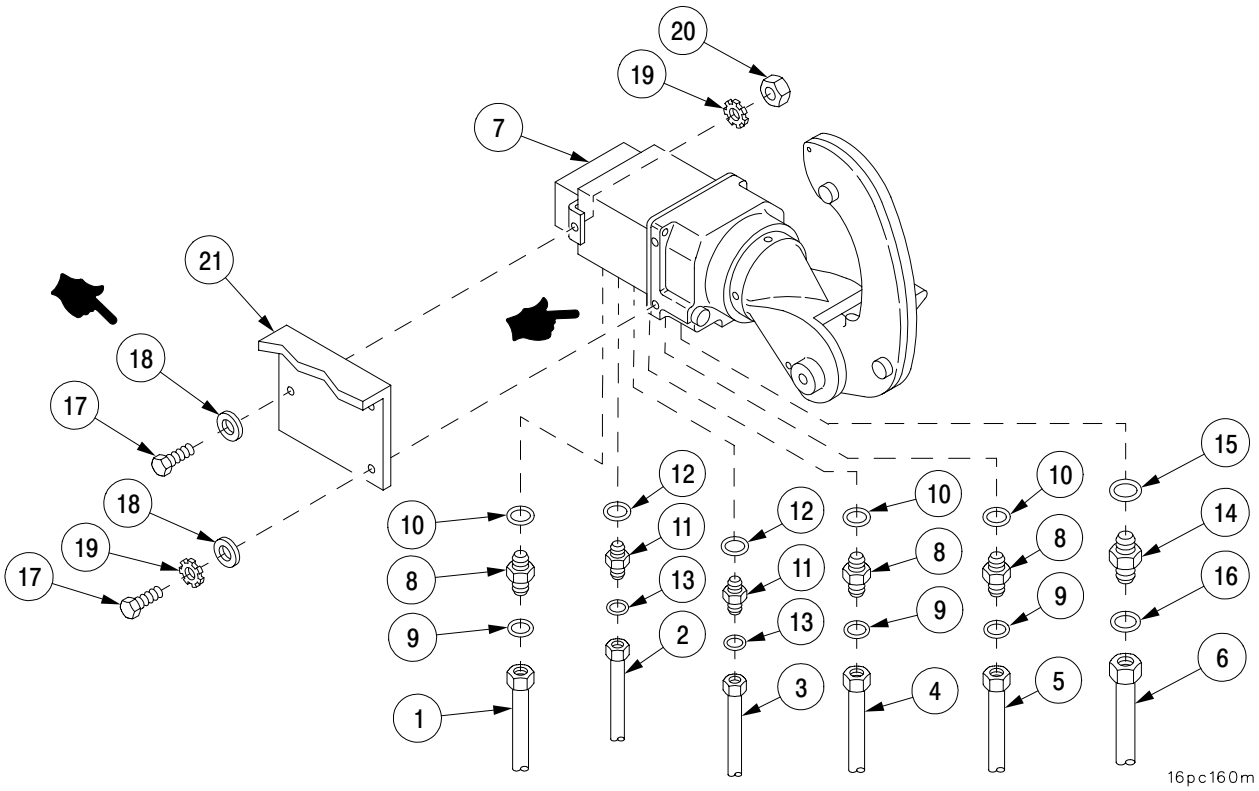
2 Install connector (14), new preformed packing (16), and new preformed packing (15) to COS control (7).

3 Install two connectors (11), two new preformed packings (13), and two new preformed packings (12), to COS control (7).

4 Install three connectors (8), three new preformed packings (10), and three new preformed packings (9) to COS control (7).

5 Install six tube assemblies (1, 2, 3, 4, 5, and 6) to COS control (7).

6 Charge and bleed hydraulic system (para 18–1).



18–30 EQUILIBRATOR HAND PUMP, LINES, AND FITTINGS.

This task covers: a. Removal b. Disassembly c. Inspection d. Assembly e. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Utility pail (item 25, Appx G)

Materials/Parts
Preformed packings (2) (item 4, Appx F)
Preformed packings (4) (item 96, Appx F)
Preformed packing (item 95, Appx F)
Plastic bag (AR) (item 16, Appx C)
Marking tag (AR) (item 87, Appx C)

Materials/Parts – Continued
Hydraulic fluid (item 50, Appx C)
Dust protective plug (AR) (item 61, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Lock nut (item 57, Appx F)
Lockwashers (2) (item 105, Appx F)
Lockwashers (2) (item 132, Appx F)

Equipment Conditions
Hand pump equilibrator system pressure discharged (para 18–32)
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–30 EQUILIBRATOR HAND PUMP, LINES, AND FITTINGS – CONTINUED

a. Removal – Continued

NOTE

All hydraulic lines and components must be tagged before removal for identification during installation.

1 Disconnect tube (1) from elbow (2).

2 Remove and discard preformed packing (3).

3 Remove elbow (2) and preformed packing (4) from hand pump (5). Discard preformed packing.

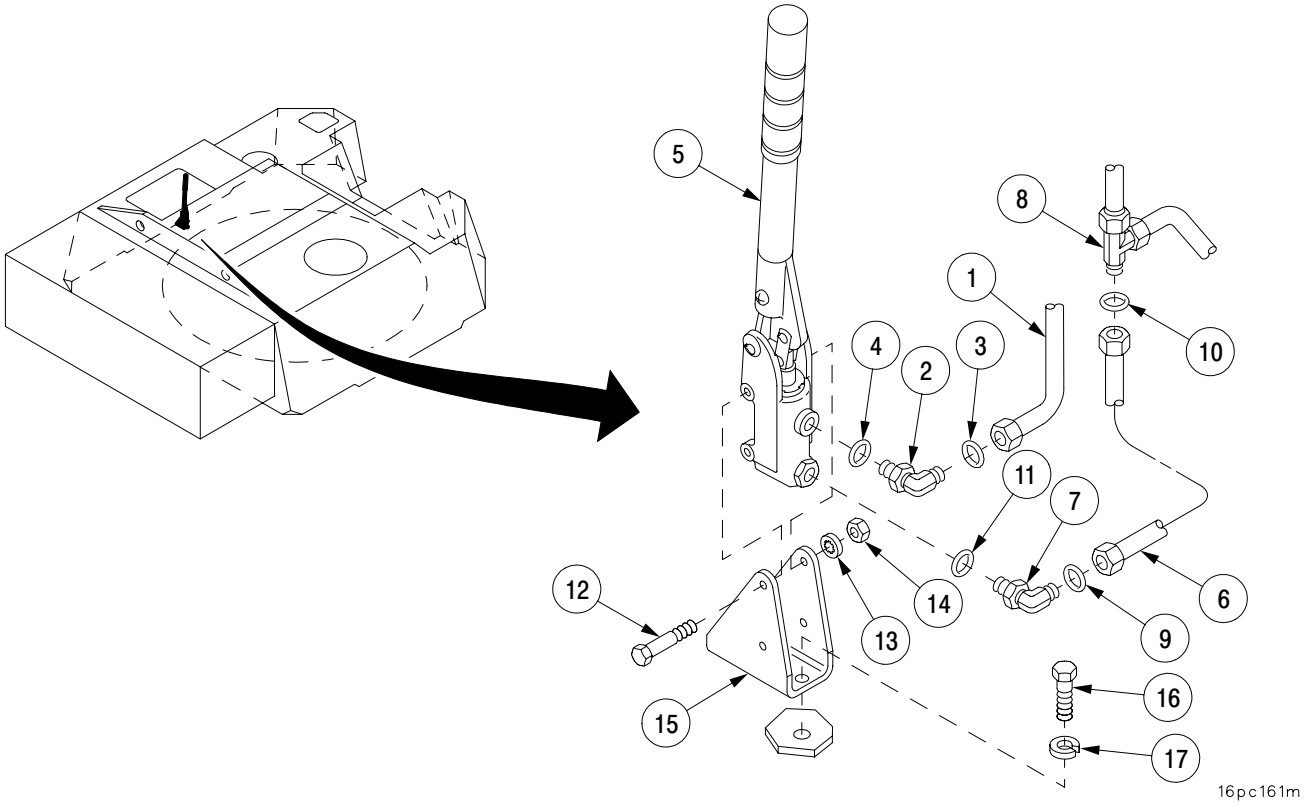
4 Disconnect tube (6) from elbow (7) and tee (8).

5 Remove and discard preformed packings (9 and 10).

6 Remove elbow (7) and preformed packing (11) from hand pump (5). Discard preformed packing.

7 Remove two screws (12), two lockwashers (13), two nuts (14), and equilibrator hand pump (5) from mounting bracket (15). Discard lockwashers.

8 Remove two screws (16), two lockwashers (17), and bracket (15) from cab. Discard lockwashers.



18–30 EQUILIBRATOR HAND PUMP, LINES, AND FITTINGS – CONTINUED

b. Disassembly.

1 Remove locknut (18) and screw (19). Discard locknut.

2 Separate handle assembly (20) from equilibrator hand pump (5).

c. Inspection.

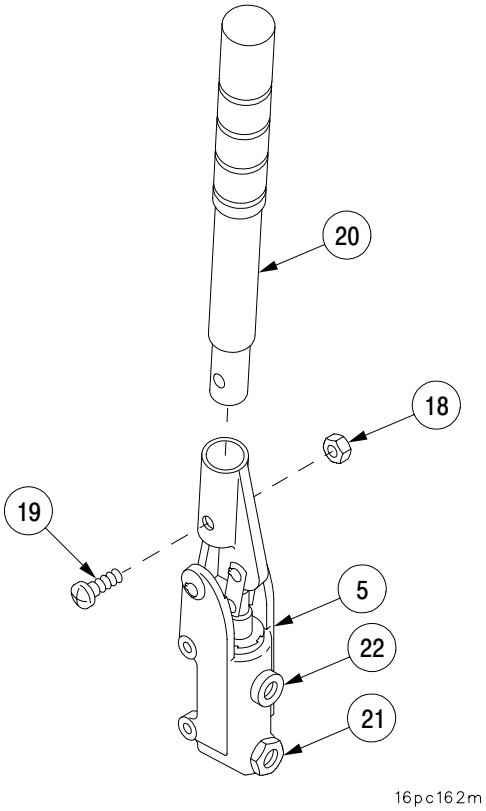
1 Inspect handle assembly (20). Replace if cracked, distorted, or damaged.

2 Inspect equilibrator hand pump (5). Replace if not operable, or if threads to suction port (21) or pressure port (22) are damaged.

d. Assembly.

1 Insert handle assembly (20) into equilibrator hand pump (5), aligning holes for screw (19).

2 Install screw (19) and new locknut (18) securing handle assembly (20) to equilibrator hand pump (5).



18–30 EQUILIBRATOR HAND PUMP, LINES, AND FITTINGS – CONTINUED

e. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to ALL new packing material to form a good seal between hydraulic components during installation.

1 Install bracket (15) in cab and secure with two screws (16) and two new lockwashers (17).

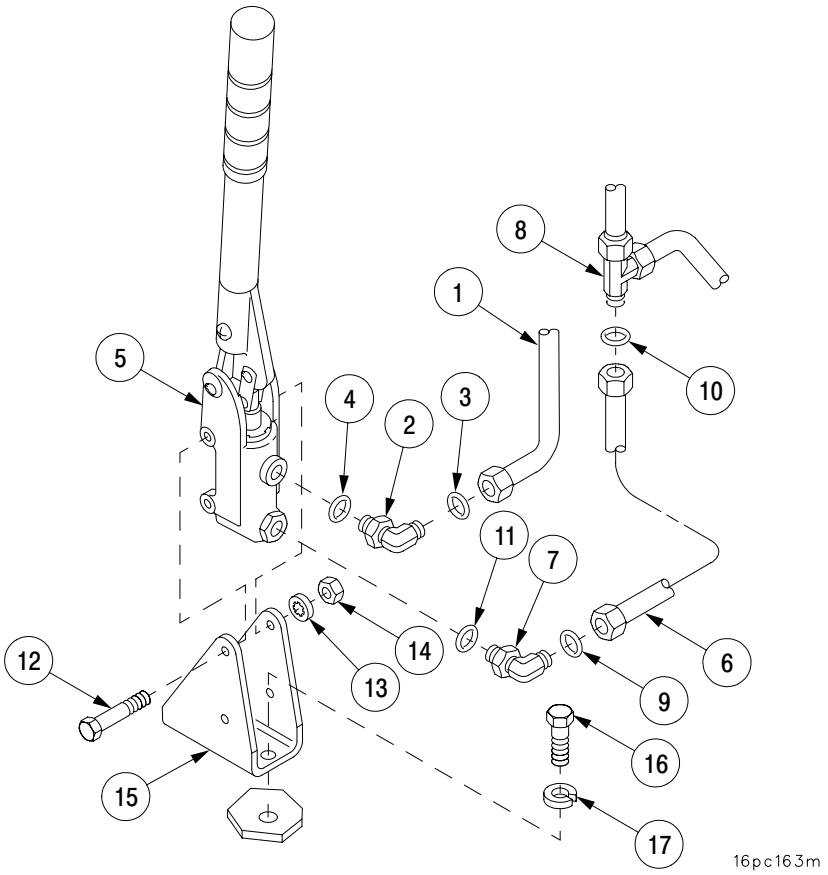
2 Install equilibrator hand pump (5) in bracket (15) and secure with two screws (12), two new lockwashers (13), and two nuts (14).

3 Install elbow (7) with new preformed packing (11) to hand pump (5).

4 Install tube (6) with new preformed packings (9 and 10) to elbow (7) and tee (8).

5 Install elbow (2) with new preformed packing (4) to hand pump (5).

6 Install tube (1) with new preformed packing (3) to elbow (2).



18–31 GUN CONTROL ASSEMBLY HANDLES.

This task covers: a. Disassembly b. Inspection c. Assembly

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Gun control handle assembly removed (para 18–29)

Materials/Parts
Lockwashers (3) (item 213, Appx F)
Lockwasher (item 102, Appx F)
Sealant (item 37, Appx C)

NOTE

- There are two control handles. The disassembly and assembly procedures are identical for both. This procedure covers only one handle.
- Vehicle serial numbers 001 – 164 have electrical components inside the gun control assembly handle. If these components are present, follow Disassembly steps 7 and 8 to remove them. Discard them and do not replace them inside the handle upon assembly. If the gun control assembly handle does not have electrical components inside it, disregard Disassembly steps 7 and 8.

a. Disassembly.

1 Remove two socket head cap screws (1) and two lockwashers (2). Discard lockwashers.

2 Remove socket head cap screw (3) and lockwasher (4). Discard lockwasher.

3 Drive out straight headless pin (5).

4 Separate left and right handle halves (6 and 7).

5 Drive out straight headless pin (8). Remove sealant from actuator (9), setscrew hole. Remove actuator (9) with setscrew (9.1) if setscrew is there. Discard setscrew.

6 Remove two sleeve bushings (10) from left and right handle halves (6 and 7), if damaged.

7 Remove switch (11) from clip (12). Discard switch.

8 Remove screw (13), lockwasher (14), clip (12), and spacer (15) from left handle half (6). Discard lockwasher, clip, and spacer.

b. Inspection.

1 Inspect straight headless pins (5 and 8). Replace if bent or cracked.

2 Inspect left and right handle halves (6 and 7) and actuator (9). Replace if broken or cracked.

18–31 GUN CONTROL ASSEMBLY HANDLES – CONTINUED

c. Assembly.

1 Step deleted.

2 Step deleted.

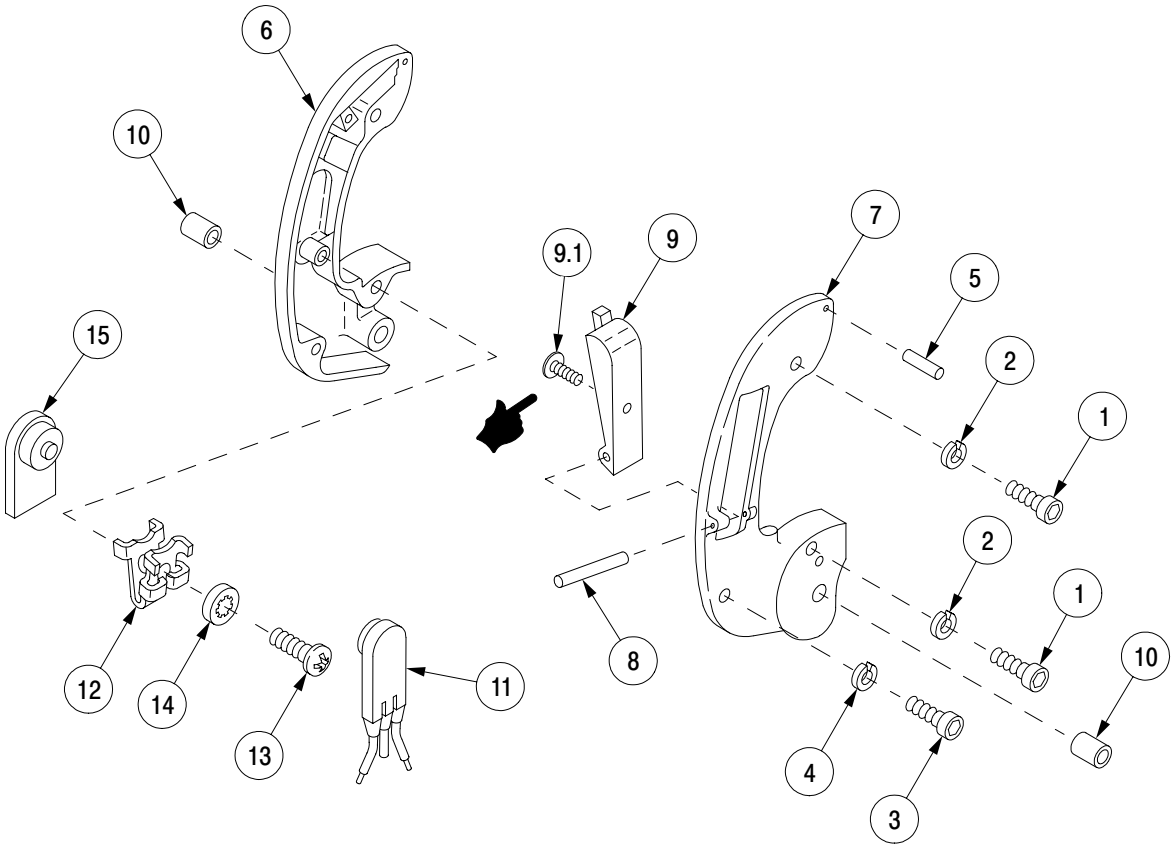
3 Install one sleeve bushing (10) in left handle half (6) and one sleeve bushing (10) in right handle half (7).

4 Install actuator (9) with straight headless pin (8) in right handle half (7).

5 Assemble left and right handle halves (6 and 7) and install straight headless pin (5).

6 Install new lockwasher (4) and socket head capscrew (3).

7 Install two new lockwashers (2) and two socket head capscrews (1).



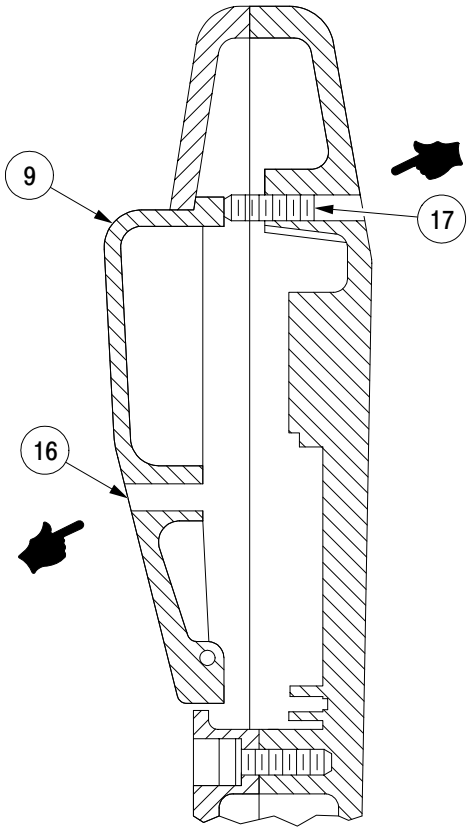
16pc164m

18–31 GUN CONTROL ASSEMBLY HANDLES – CONTINUED

c. Assembly – Continued

8 Adjust setscrew (17) hand tight against the actuator (9). Ensure that the two halves of the handle do not separate.

9 Fill the setscrew (17) hole with sealant. Ensure that hole (16) is also sealed with sealant.



18–32 EQUILIBRATION MANIFOLD ASSEMBLY.

This task covers: a. Discharge b. Removal c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Drain pan (item 26, Appx G)

Materials/Parts
Preformed packings (3) (item 4, Appx F)
Preformed packings (4) (item 95, Appx F)
Hydraulic fluid (item 50, Appx C)
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)

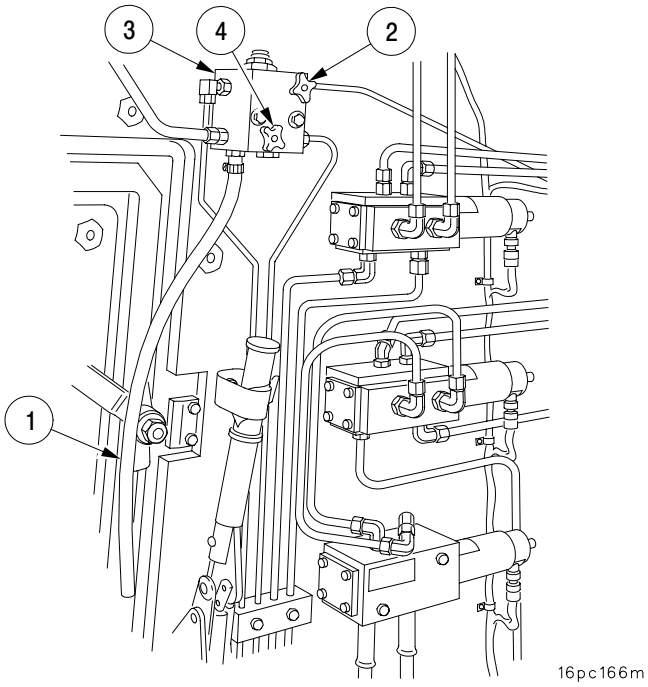
Materials/Parts – Continued
Lockwashers (5) (item 128, Appx F)
Dust protective cap (AR) (item 23, Appx C)
Dust protective cap (AR) (item 24, Appx C)
Dust protective plug (AR) (item 61, Appx C)

a. Discharge.

1 Place hose (1) in drain pan.

2 Open white knob (2) on equilibration manifold (3).

3 Open red knob (4) on equilibration manifold (3) and drain fluid from equilibration system.



18–32 EQUILIBRATION MANIFOLD ASSEMBLY – CONTINUED

b. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.

NOTE

- All hydraulic lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

18–32 EQUILIBRATION MANIFOLD ASSEMBLY – CONTINUED

b. Removal – Continued

1 Disconnect four tube assemblies (5, 6, 7, and 8) from manifold assembly (3).

2 Loosen clamp (9) and remove hose (10) from adapter (11).

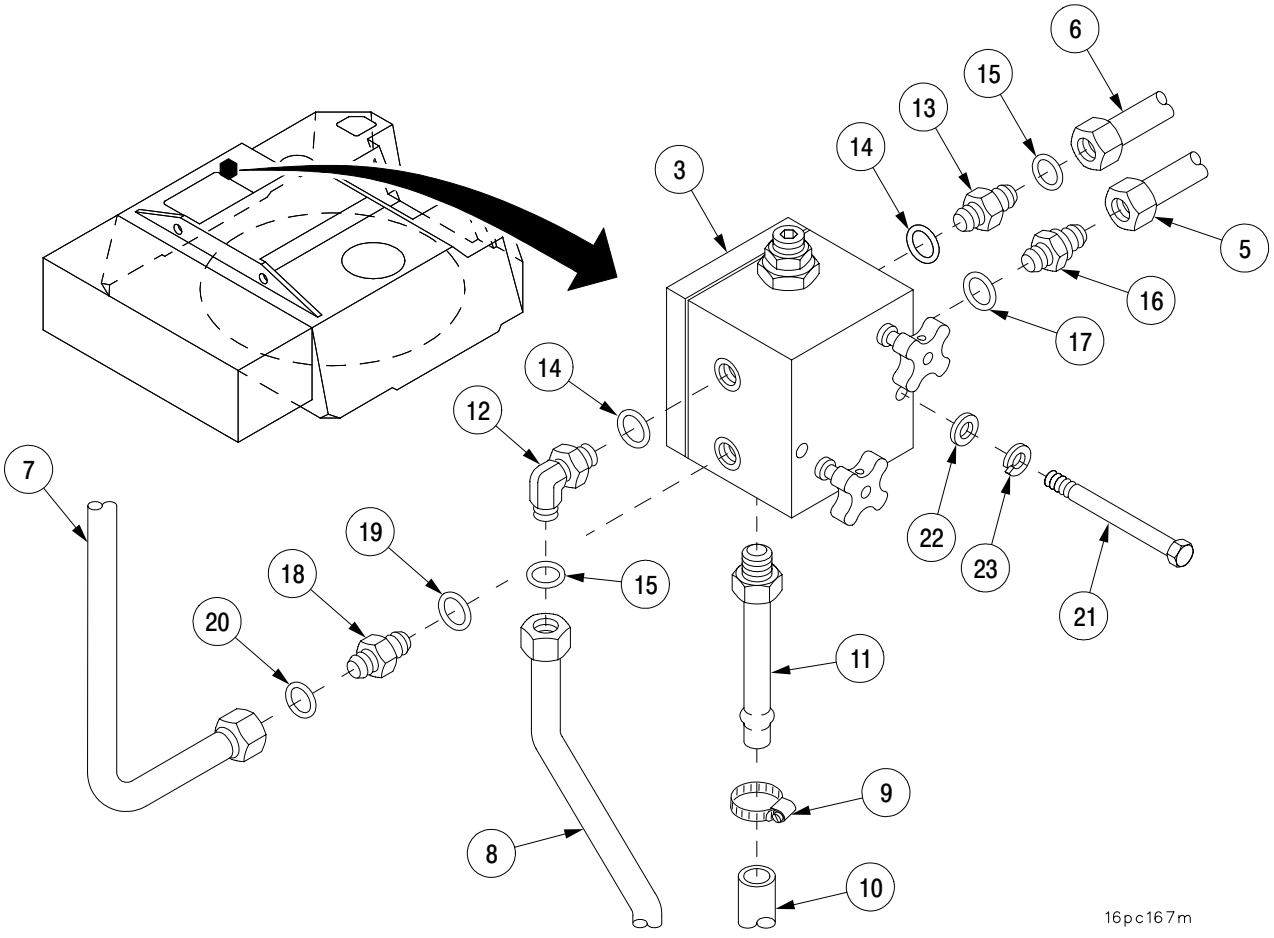
3 Remove elbow (12), connector (13), two preformed packings (14), and two preformed packings (15) from manifold assembly (3). Discard preformed packings.

4 Remove check valve (16) with preformed packing (17) from manifold assembly (3). Discard preformed packing.

5 Remove connector (18) with preformed packing (19) and preformed packing (20) from manifold assembly (3). Discard preformed packing.

6 Remove adapter (11) from manifold assembly (3).

7 Remove two screws (21), two flat washers (22), two lockwashers (23), and manifold assembly (3) from mounting bracket. Discard lockwashers.



18–32 EQUILIBRATION MANIFOLD ASSEMBLY – CONTINUED

b. Removal – Continued

NOTE

Perform Removal step 8 and Installation step 1 to replace manifold mounting plate, if necessary.

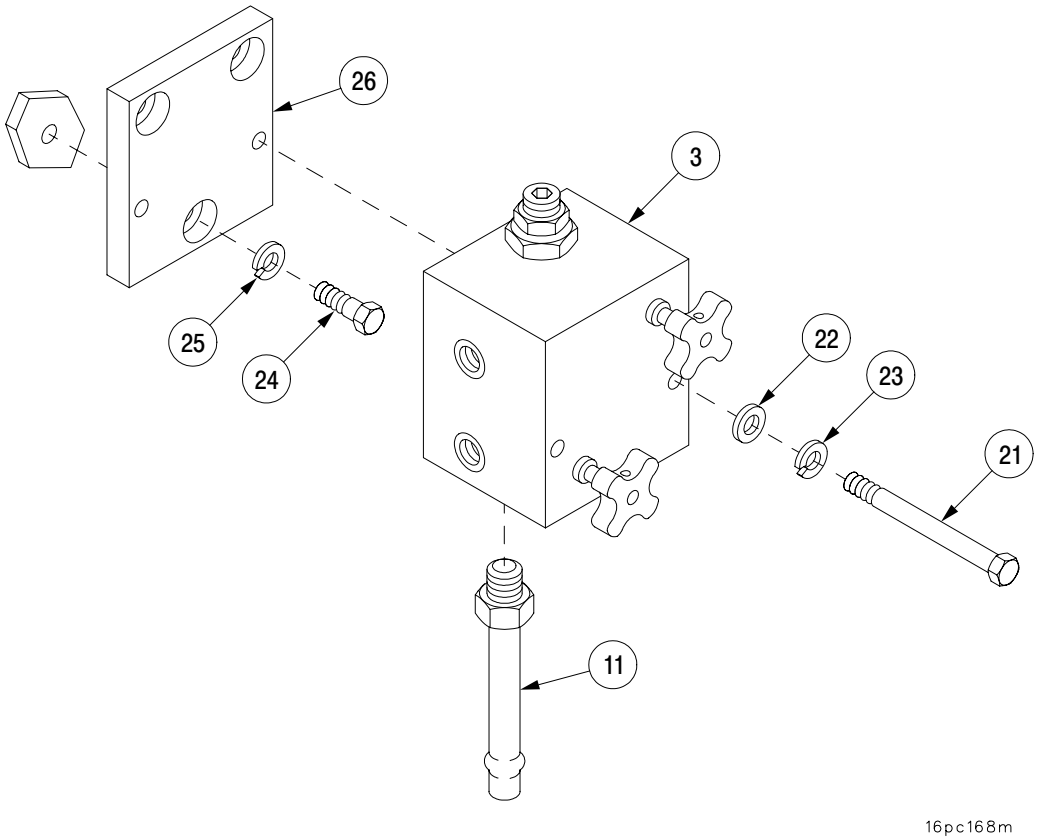
8 Remove three screws (24), three lockwashers (25), and plate (26). Discard lockwashers.

c. Installation.

1 Install plate (26) using three screws (24) and three new lockwashers (25).

2 Install manifold assembly (3) with two screws (21), two flat washers (22), and two new lockwashers (23).

3 Install adapter (11) in manifold assembly (3).



18–32 EQUILIBRATION MANIFOLD ASSEMBLY – CONTINUED

c. Installation – Continued

4 Install connector (18) with new preformed packing (19) and new preformed packing (20) into manifold assembly (3).

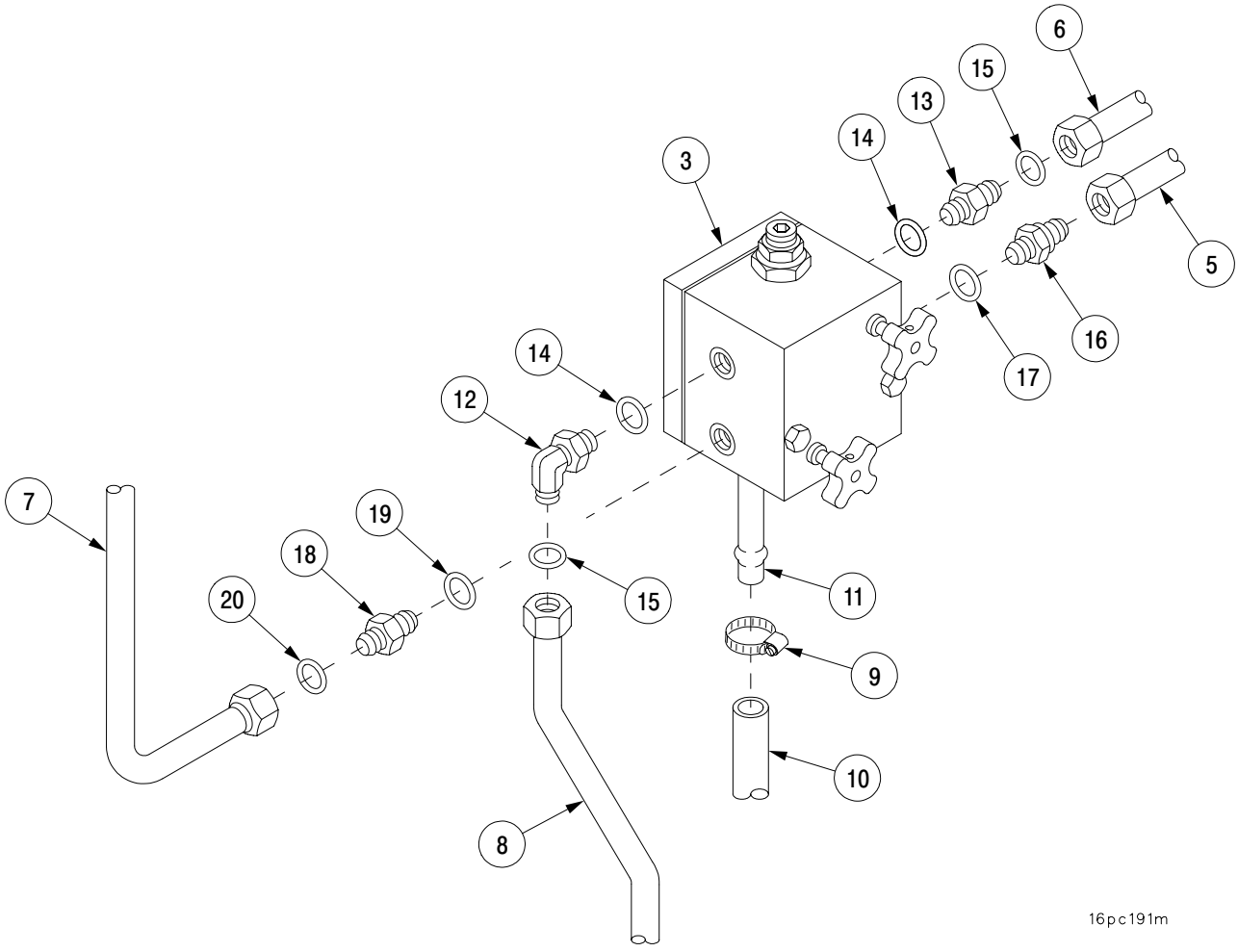
5 Install check valve (16) with new preformed packing (17) in manifold assembly (3).

6 Install elbow (12) and connector (13) with two new preformed packings (14) and two new preformed packings (15) in manifold assembly (3).

7 Install drain hose (10) on adapter (11) and tighten clamp (9).

8 Connect four tube assemblies (5, 6, 7, and 8) to manifold assembly (3).

9 Fill and bleed equilibration system (para 18–1).



18–33 EQUILIBRATOR ACCUMULATOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Nitrogen charging kit (item 23, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)
Lockwashers (12) (item 130, Appx F)
Dust protective plug (AR) (item 62, Appx C)
Dust protective cap (AR) (item 24, Appx C)
Preformed packing (item 5, Appx F)
Preformed packing (item 89, Appx F)
Preformed packing (item 221, Appx F)
Preformed packing (item 223, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Hydraulic compartment exterior access panel removed (para 24–3)

Personnel Required
Two

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- The equilibrator accumulator is charged to 1200 psi. Use caution when relieving pressure. Wear gloves and goggles to prevent personal injury.

CAUTION

All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.

18–33 EQUILIBRATOR ACCUMULATOR – CONTINUED

a. Removal – Continued

NOTE

- All hydraulic lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

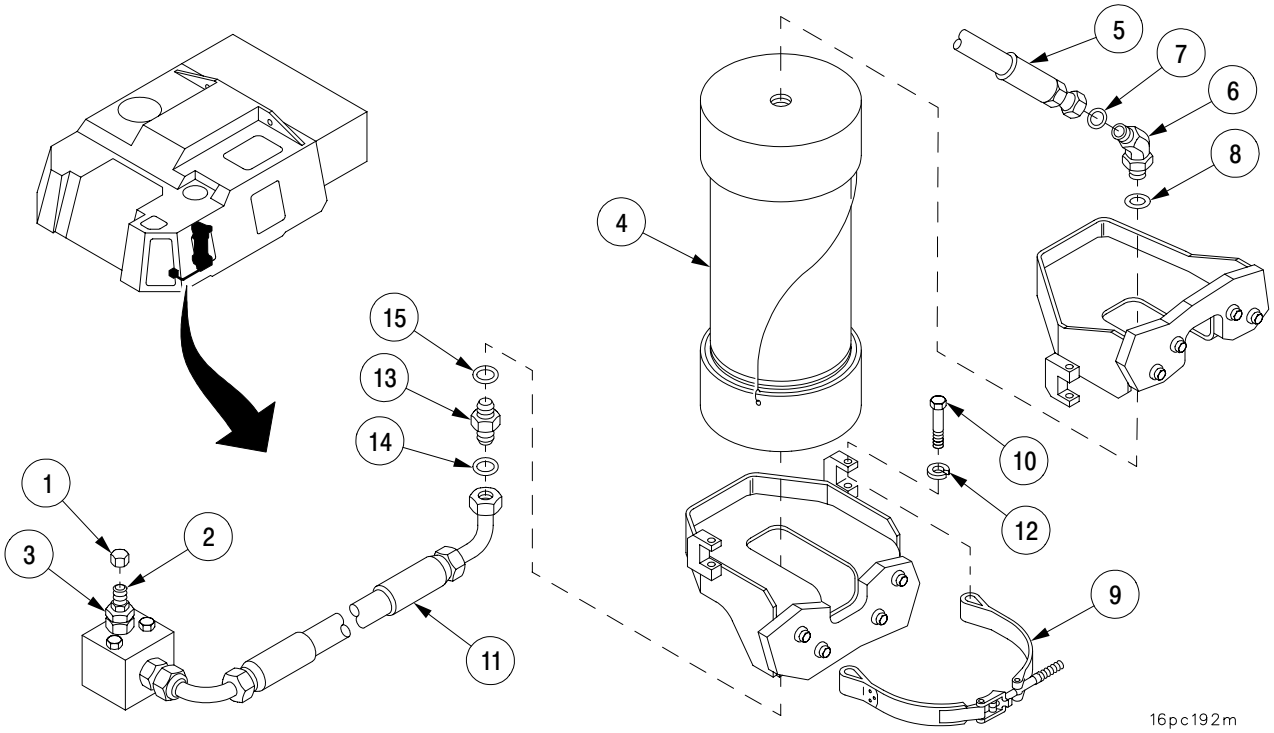
1 Remove valve cap (1) from charging valve (2), slowly open valve (3) and relieve nitrogen pressure from accumulator (4). Ensure all nitrogen is vented from accumulator (4). Place valve cap (1) on charging valve (2).

2 Disconnect hose assembly (5) and remove elbow (6) and two preformed packings (7 and 8) from accumulator (4). Discard preformed packings.

3 Loosen and unhook two straps (9) and remove accumulator (4) from mounting brackets.

4 Remove four screws (10), four lockwashers (12), and two straps (9) from mounting brackets. Discard lockwashers.

5 Disconnect hose assembly (11) and remove adapter (13) and two preformed packings (14 and 15) from accumulator (4). Discard preformed packings.



18–33 EQUILIBRATOR ACCUMULATOR – CONTINUED

a. Removal – Continued

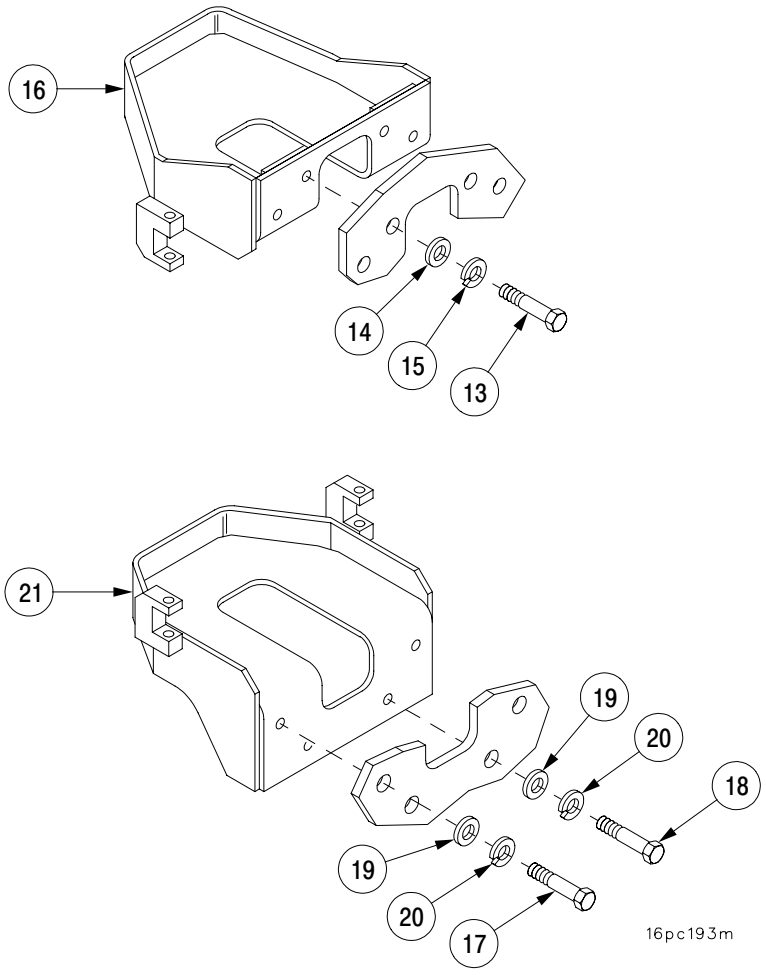
6 Remove four screws (13), four flat washers (14), four lockwashers (15), and bracket (16) from hydraulic compartment. Discard lockwashers.

7 Remove two screws (17), two screws (18), four flat washers (19), four lockwashers (20), and bracket (21) from hydraulic compartment. Discard lockwashers.

b. Installation.

1 Secure bracket (21) in hydraulic compartment with two screws (17), two screws (18), four flat washers (19), and four new lockwashers (20).

2 Secure bracket (16) in hydraulic compartment with four screws (13), four flat washers (14), and four new lockwashers (15).



18–33 EQUILIBRATOR ACCUMULATOR – CONTINUED

b. Installation – Continued

3 Secure two straps (9) to mounting brackets with four screws (10) and four new lockwashers (12).

4 Install new preformed packing (15) and adapter (13) to accumulator (4).

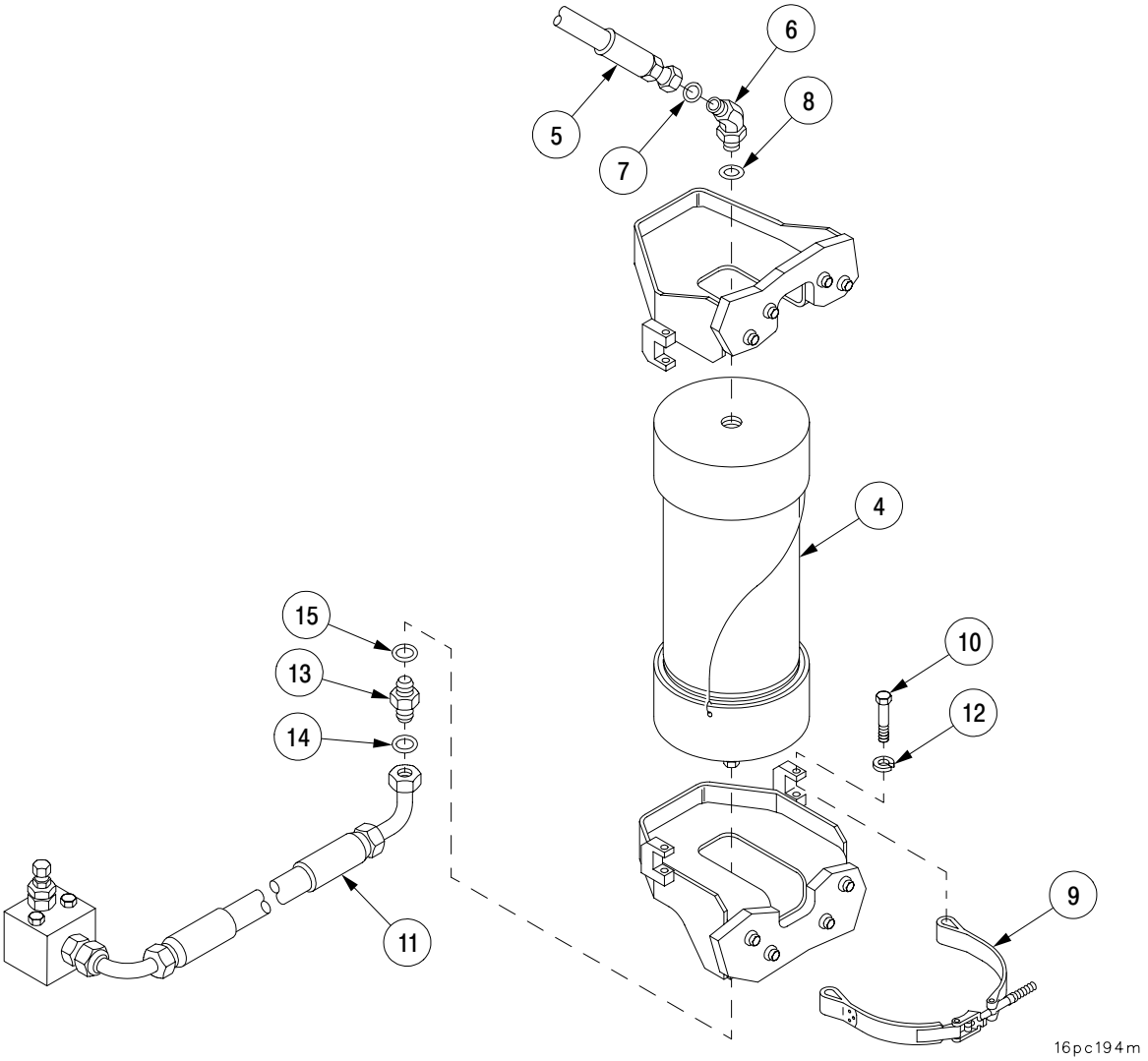
5 Install new preformed packing (14) and connect hose assembly (11) to adapter (13).

6 Position accumulator (4) between two straps (9). Hook and secure two straps (9) around accumulator (4).

7 Install elbow (6) and new preformed packing (8) to accumulator (4).

8 Install new preformed packing (7) and connect hose assembly (5) to elbow (6).

9 Service accumulator (4) (para 28–7).



18–34 DIPSTICK.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Hydraulic compartment access door opened
(TM 9–2350–314–10)

Materials/Parts
Lockwasher (item 134, Appx F)

a. Removal.

1 Remove dipstick (1) from clip (2).

2 Remove wire (3) from access plate (4).

3 Remove clip (2) from access plate (4) by removing screw (5) and lockwasher (6). Discard lockwasher.

b. Disassembly.

1 Remove headless straight pin (7) from rod (12).

2 Remove cap (8), washer (9), gripper (10), and guide (11) from rod (12).

c. Assembly.

1 Install guide (11), gripper (10), washer (9), and cap (8) onto rod (12).

2 Install headless straight pin (7) so that equal lengths are sticking out of each side of rod (12).

d. Installation.

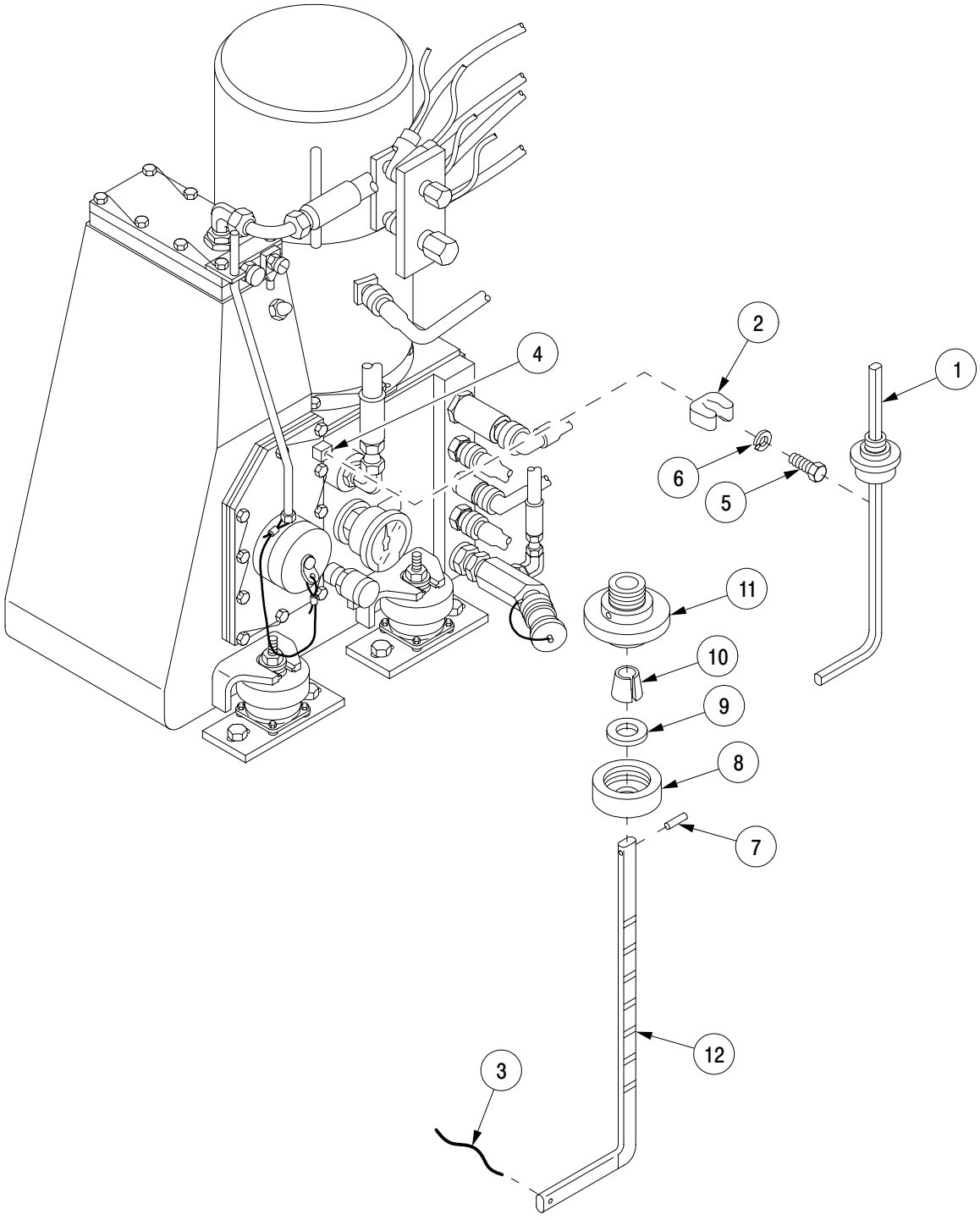
1 Install clip (2) to access plate (4) using new lockwasher (6) and screw (5).

2 Install wire (3) to access plate (4).

3 Install rod (1) onto clip (2).

18–34 DIPSTICK – CONTINUED

d. Installation – Continued



18–35 RELIEF VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Preformed packing (item 224, Appx F)
Dust protective plug (AR) (item 61, Appx C)
Hydraulic fluid (item 50, Appx C)

Equipment Conditions
Hydraulic compartment access door opened (TM 9–2350–314–10)
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–35 RELIEF VALVE – CONTINUED

a. Removal – Continued

Remove relief valve (1) and preformed packing (2) from reservoir (3). Discard preformed packing.

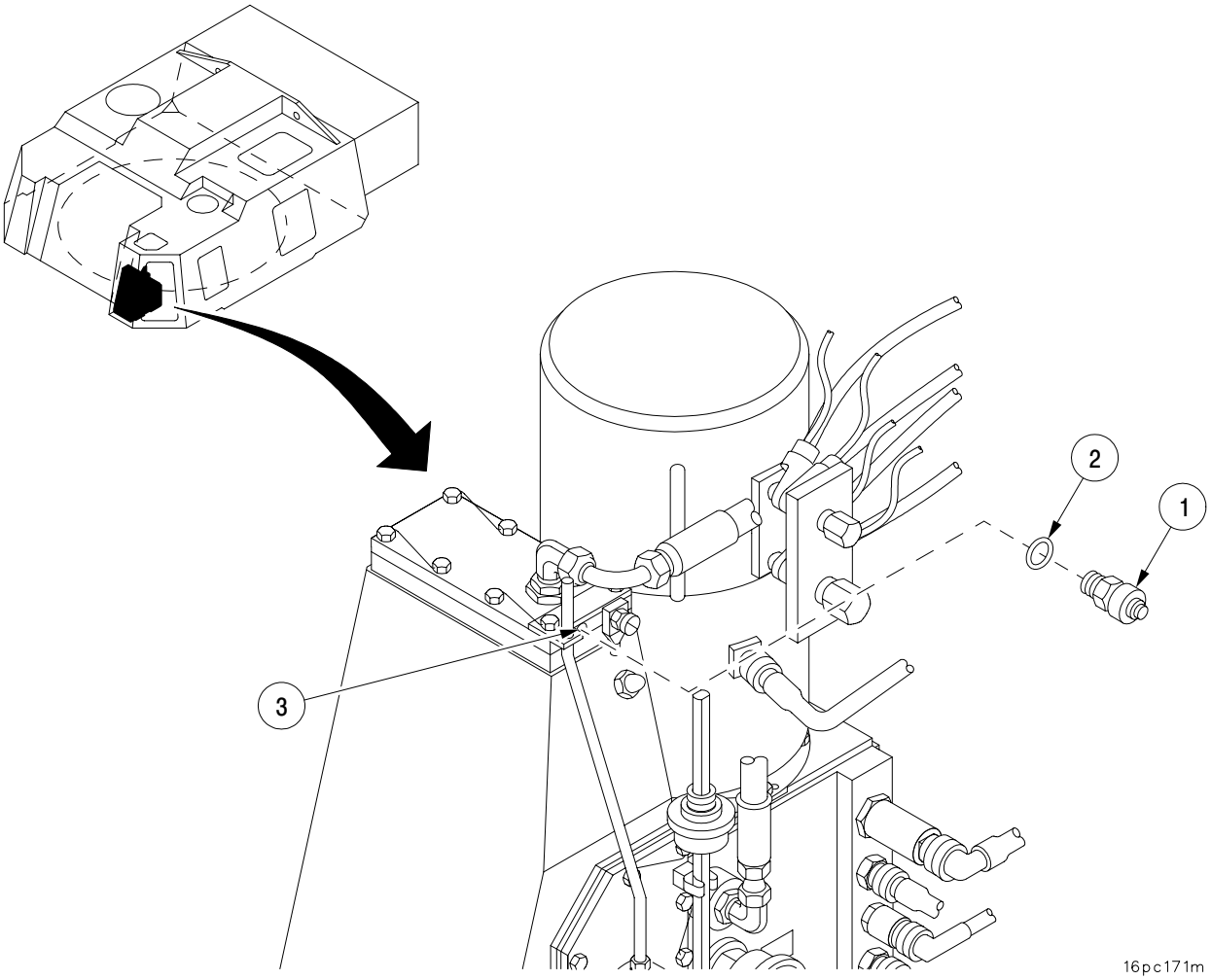
b. Installation.

NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Install relief valve (1) with new preformed packing (2) to reservoir (3).

2 Charge hydraulic system (para 18–1).



18–36 SIGHT PLUG.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Drain pan (item 26, Appx G)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 244, Appx F)
Dust protective plug (AR) (item 63, Appx C)
Nonmetallic tubing (item 93, Appx C)

Equipment Conditions
Hydraulic compartment access door opened (TM 9–2350–314–10)
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–36 SIGHT PLUG – CONTINUED

a. Removal – Continued

1 Attach a 24–inch (610 mm) length of nonmetallic tubing (1) to sampling valve (2) and drain hydraulic fluid from reservoir (3) to a level below sight plug (4) to be replaced.

2 Close sampling valve (2) and remove nonmetallic tubing (1).

3 Remove sight plug (4) and preformed packing (5) from reservoir (3). Discard preformed packing.

b. Installation.

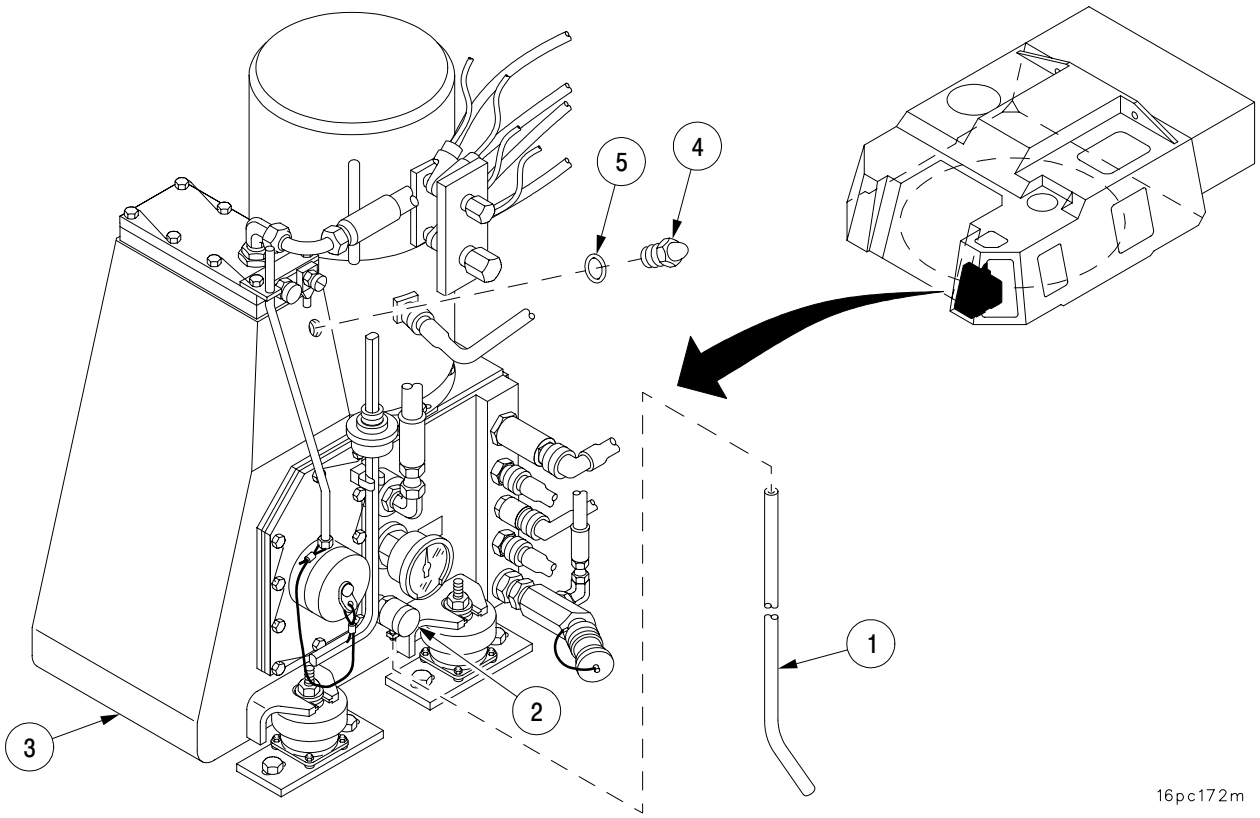
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Install sight plug (4) with new preformed packing (5) to reservoir (3).

2 Fill hydraulic reservoir (para 18–1).

3 Charge hydraulic system (para 18–1).



18–37 SAMPLING VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 224, Appx F)
Dust protective plug (AR) (item 61, Appx C)

Equipment Conditions
Hydraulic compartment access door opened (TM 9–2350–314–10)
Hydraulic system pressure discharged (para 18–1)
Hydraulic fluid drained (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–37 SAMPLING VALVE – CONTINUED

a. Removal – Continued

Remove sampling valve (1), retainer (2), nut (3), and preformed packing (4) from reservoir (5). Discard preformed packing.

b. Installation.

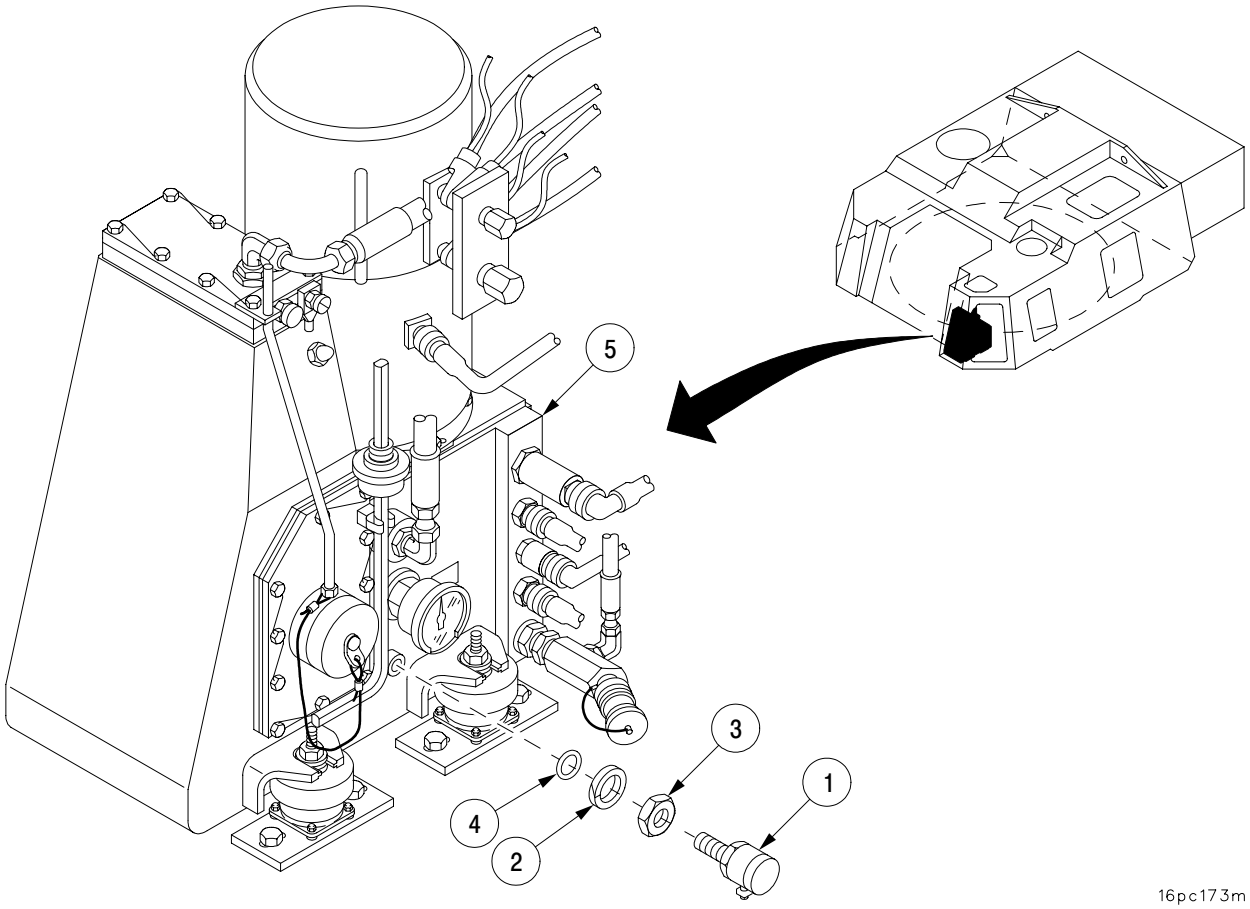
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Install sampling valve (1), nut (3), retainer (2), and new preformed packing (4) to reservoir (5).

2 Fill hydraulic reservoir (para 18–1).

3 Charge hydraulic system (para 18–1).



18–38 BLEEDER VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Drain pan (item 26, Appx G)

Equipment Conditions
Hydraulic compartment access door opened (TM 9–2350–314–10)
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 245, Appx F)
Dust protective plug (AR) (item 61, Appx C)
Nonmetallic tubing (item 93, Appx C)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–38 BLEEDER VALVE – CONTINUED

a. Removal – Continued

1 Attach a 24–inch (610 mm) length of nonmetallic tubing (1) to sampling valve (2) and drain approximately 12 ounces (340 g) of hydraulic fluid from reservoir (3).

2 Remove bleeder valve (4) and preformed packing (5) from reservoir (3). Discard preformed packing.

b. Installation.

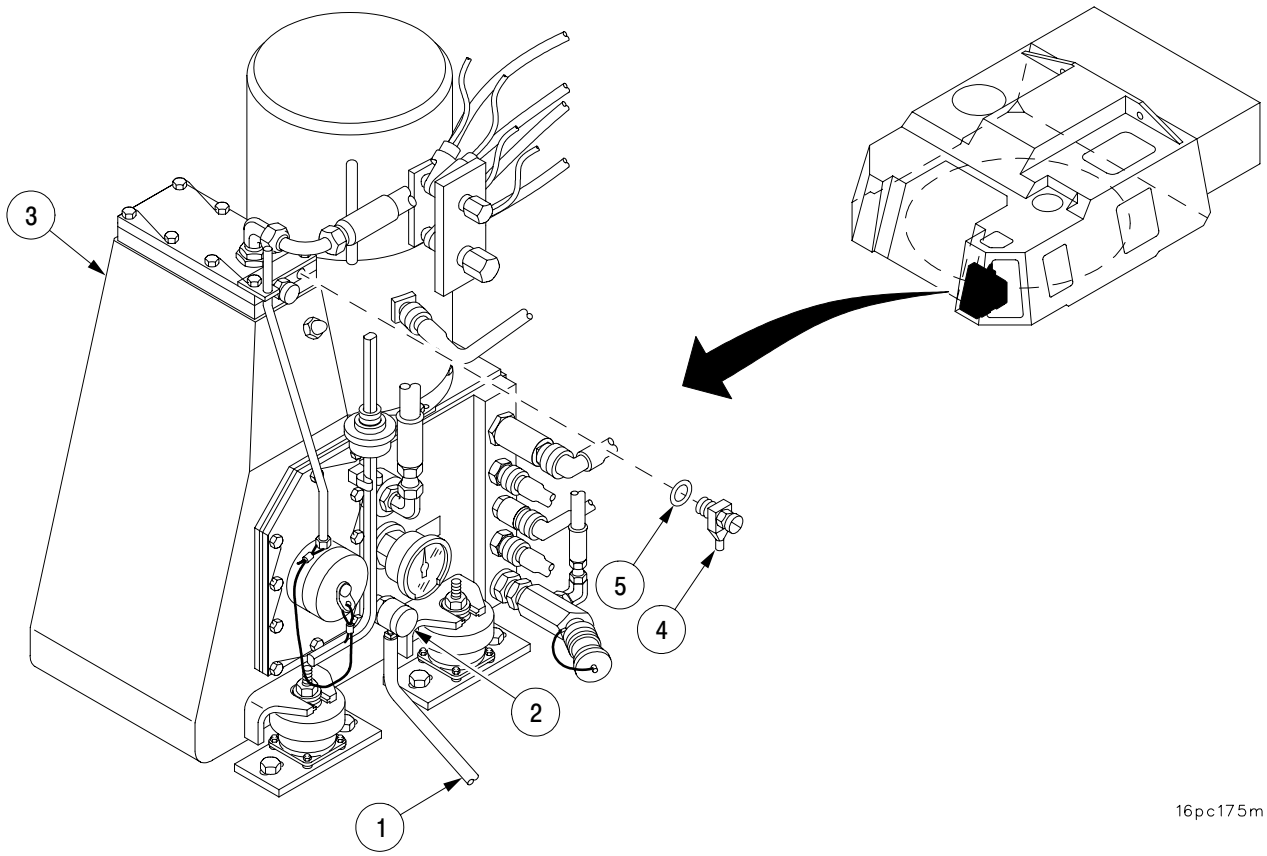
NOTE

A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Install new preformed packing (5) and bleeder valve (4) to reservoir (3).

2 Fill hydraulic reservoir (3) (para 18–1).

3 Charge hydraulic system (para 18–1).



18–39 THERMOWELL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Temperature indicator removed (para 18–15)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Preformed packing (item 246, Appx F)
Dust protective plug (AR) (item 65, Appx C)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

Remove thermowell (1) and preformed packing (2) from reservoir (3). Discard preformed packing.

18–39 THERMOWELL – CONTINUED

b. Installation.

NOTE

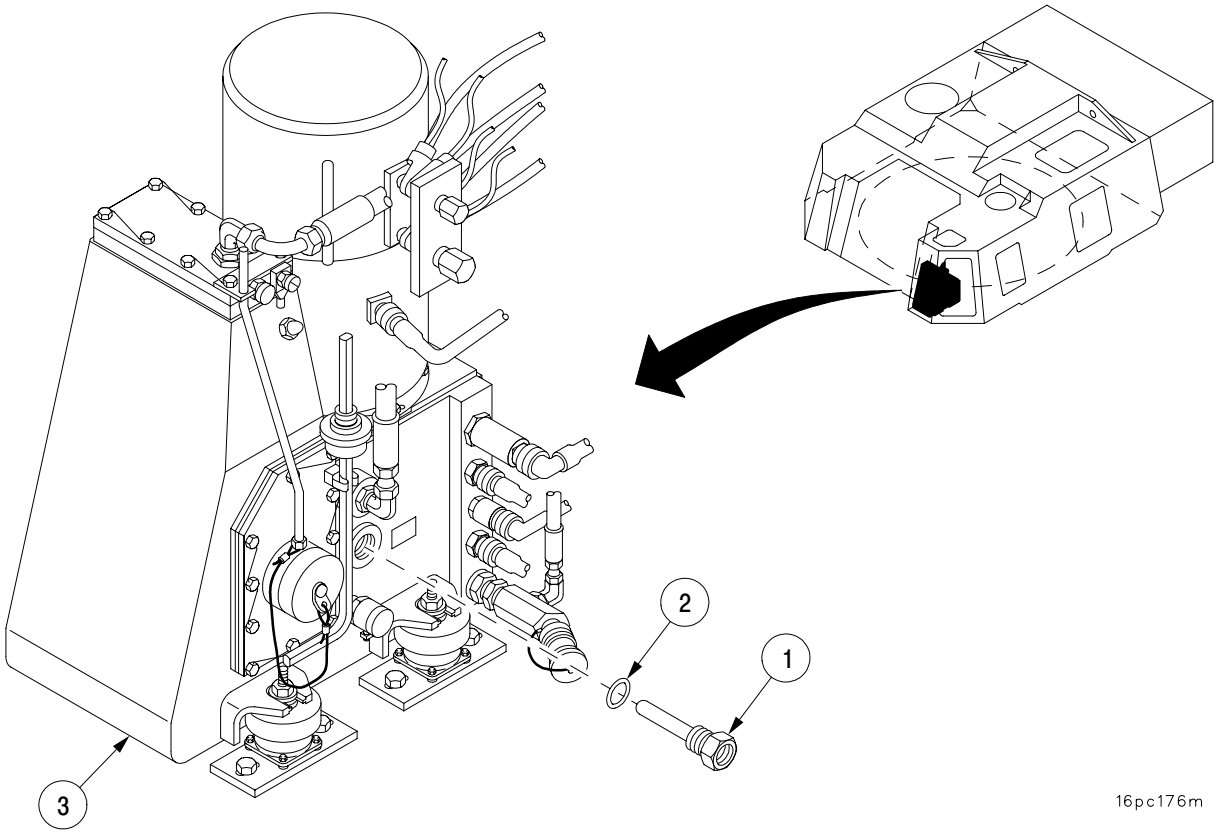
A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Install thermowell (1) with new preformed packing (2) to reservoir (3).

2 Install temperature indicator (para 18–15).

3 Fill hydraulic reservoir (para 18–1).

4 Charge hydraulic system (para 18–1).



18–40 SELECTOR VALVE (ELEVATION OR TRAVERSE).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Drain pan (item 26, Appx G)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Plastic bags (AR) (item 16, Appx C)
Preformed packings (6) (item 5, Appx F)
Preformed packings (6) (item 97, Appx F)
Preformed packings (6) (item 6, Appx F)
Self–locking screws (2) (item 44, Appx F)
Lockwashers (3) (item 129, Appx F)
Dust protective plug (AR) (item 63, Appx C)
Dust protective cap (AR) (item 23, Appx C)
Dust protective cap (AR) (item 25, Appx C)
Marking tags (AR) (item 87, Appx C)
Lockwashers (2) (item 209, Appx F)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–40 SELECTOR VALVE (ELEVATION OR TRAVERSE) – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

- All hydraulic lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

18–40 SELECTOR VALVE (ELEVATION OR TRAVERSE) – CONTINUED

a. Removal – Continued

NOTE

There are two selector valves. The removal and installation procedures for both are identical except where noted. This procedure covers only one selector valve.

1 Disconnect electrical connector (1) from selector valve (2).

2 Disconnect six tubes (3) from valve (2) and remove six preformed packings (4). Discard preformed packings.

3 While supporting valve (2), remove two self–locking capscrews (5), two lockwashers (6), and select valve (2) from mounting plate (7). Discard lockwashers and self–locking capscrews.

NOTE

- Traverse selector valve has five elbows and one connector.
- Elevation selector valve has four elbows and two connectors.

4 Remove five elbows (8), connector (9), and six preformed packings (10) from select valve (2). Discard preformed packings.

5 Remove three screws (11), three lockwashers (12), and plate (7) from cab wall. Discard lockwashers.

b. Installation.

NOTE

Fittings must be installed to original positions.

1 Secure plate (7) to cab wall with three screws (11) and three new lockwashers (12).

2 Install five elbows (8), connector (9), and six new preformed packings (10) in selector valve (2).

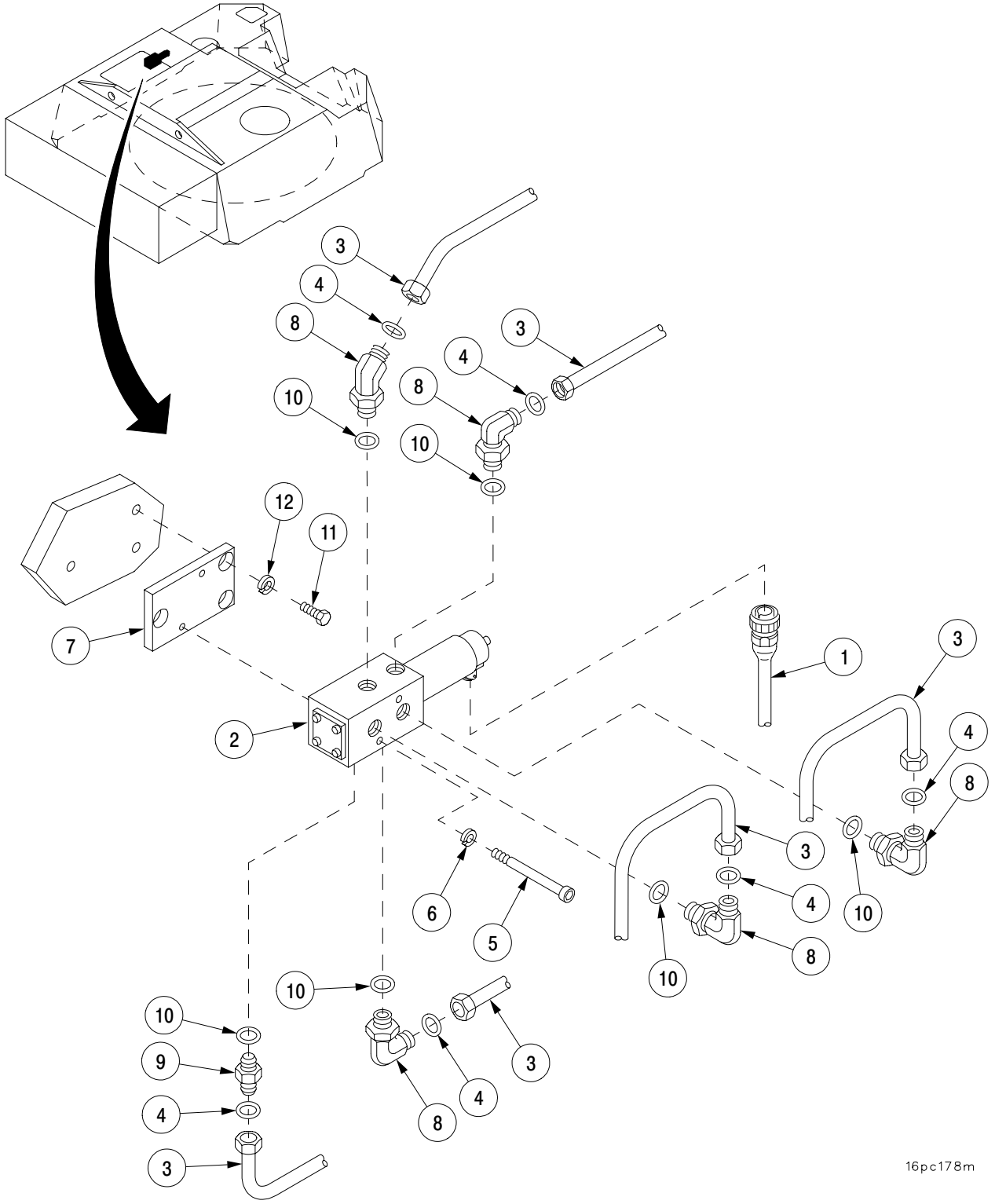
3 Install selector valve (2) on mounting plate (7) and secure with two new self–locking capscrews (5) and two new lockwashers (6).

4 Connect six tubes (3) to selector valve (2) with six new preformed packings (4).

5 Connect electrical connector (1) to selector valve (2).

18–40 SELECTOR VALVE (ELEVATION OR TRAVERSE) – CONTINUED

b. Installation – Continued



18–41 ELEVATION ASSEMBLY (MANUAL).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Dust protective plug (AR) (item 62, Appx C)
Dust protective cap (AR) (item 22, Appx C)
Lockwashers (3) (item 208, Appx F)

Materials/Parts – Continued
Preformed packings (5) (item 4, Appx F)
Preformed packings (2) (item 95, Appx F)
Lockwashers (3) (item 130, Appx F)
Self–locking screws (3) (item 42, Appx F)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Manual elevation pump accumulator assembly removed (para 18–45)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–41 ELEVATION ASSEMBLY (MANUAL) – CONTINUED

a. Removal – Continued

NOTE

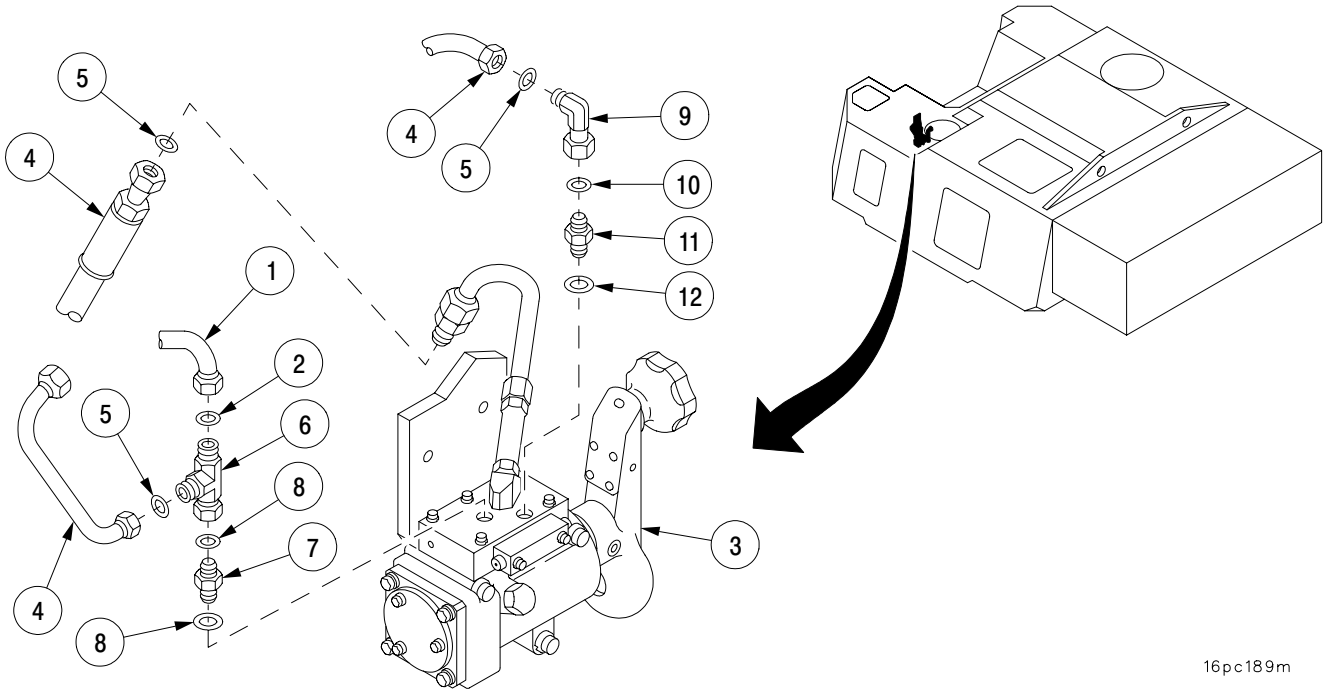
- All hydraulic lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Disconnect tube assembly (1) and remove preformed packing (2) from pump assembly (3). Discard preformed packing.

2 Disconnect three hose assemblies (4) and remove three preformed packings (5). Discard preformed packings.

3 Remove tee (6), connector (7), and two preformed packings (8). Discard preformed packings.

4 Remove elbow (9), performed packing (10), connector (11), and preformed packing (12). Discard preformed packings.



18–41 ELEVATION ASSEMBLY (MANUAL) – CONTINUED

a. Removal – Continued

5 Remove three self–locking screws (13), three lockwashers (14), and pump (3). Discard lockwashers and screws.

6 Remove three screws (15) and three lockwashers (16) securing bracket (17). Discard lockwashers.

7 Remove bracket (17).

b. Installation.

1 Secure bracket (17) with three screws (15) and three new lockwashers (16).

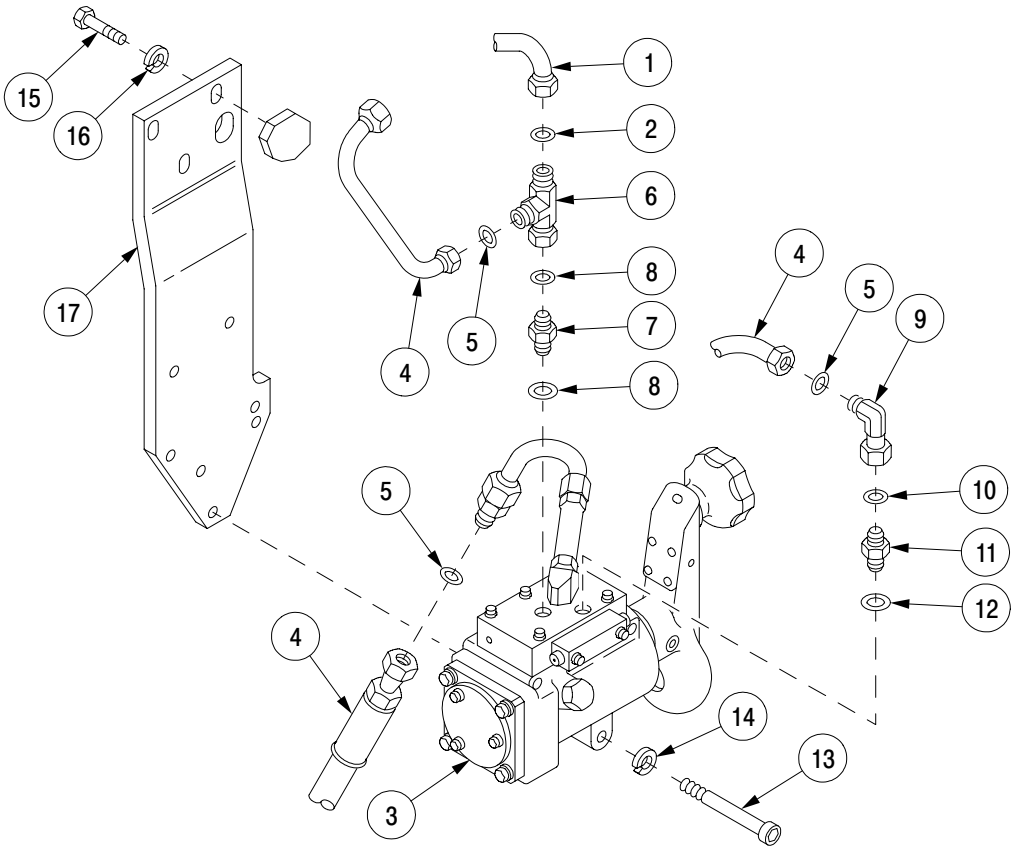
2 Install pump assembly (3) with three new lockwashers (14) and three new self–locking screws (13).

3 Install connector (11), new preformed packing (12), elbow (9), and new preformed packing (10).

4 Install connector (7), tee (6), and two new preformed packings (8).

5 Connect three hose assemblies (4) with three new preformed packings (5).

6 Connect tube assembly (1) and new preformed packing (2) to pump assembly (3).



18–42 RAMMER ACTUATING VALVE ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Plastic bags (AR) (item 16, Appx C)
Marking tags (AR) (item 87, Appx C)
Hydraulic fluid (item 50, Appx C)
Preformed packings (4) (item 6, Appx F)
Preformed packings (4) (item 97, Appx F)
Lockwashers (2) (item 208, Appx F)
Self–locking screws (2) (item 43, Appx F)

References
TM 9–2350–314–10

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

18–42 RAMMER ACTUATING VALVE ASSEMBLY – CONTINUED

a. Removal – Continued

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

NOTE

- All hydraulic lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

1 Disconnect four hydraulic lines (1, 2, 3, and 4) from elbows (5) in valve assembly (6). Remove and discard four preformed packings (7).

2 Loosen four locknuts (8) and remove four elbows (5) and four preformed packings (9) from valve (6). Discard preformed packings.

3 Remove two self–locking screws (10), two lockwashers (11), and valve assembly (6). Discard lockwashers and self–locking screws.

18–42 RAMMER ACTUATING VALVE ASSEMBLY – CONTINUED

b. Installation.

1 Install valve assembly (6) to cab roof with two new self–locking screws (10) and two new lockwashers (11).

2 Lightly lubricate all new preformed packings with hydraulic fluid.

3 Install four new preformed packings (9) on four elbows (5).

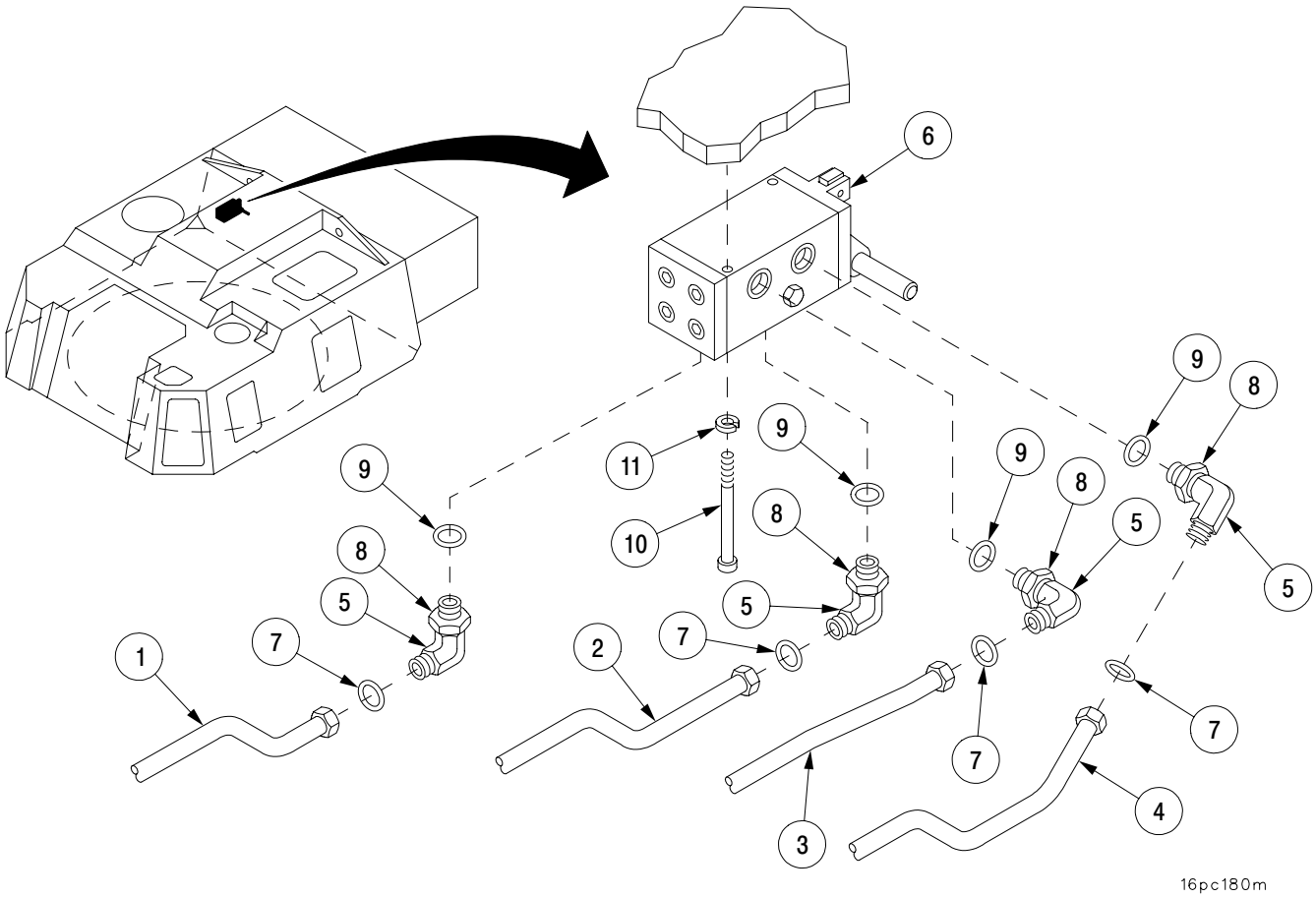
4 Install four elbows (5) into valve assembly (6) mounting holes.

5 Hold elbows (5) in position and tighten locknuts (8).

6 Install four hydraulic lines (1, 2, 3, and 4) with four new preformed packings (7) onto elbows (5).

7 Refill with hydraulic fluid and charge and bleed hydraulic system (para 18–1).

8 Operate rammer five strokes (TM 9–2350–314–10), observe hydraulic filter pop–out indicators, and replace filters if necessary (para 18–13).



18–43 TRAVERSE LIMIT VALVE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Preformed packings (4) (item 97, Appx F)
Hydraulic fluid (item 50, Appx C)
Preformed packings (5) (item 6, Appx F)
Plastic bag (AR) (item 16, Appx C)
Marking tag (AR) (item 87, Appx C)

Materials/Parts – Continued
Lockwashers (5) (item 129, Appx F)
Dust protective plug (AR) (item 62, Appx C)
Dust protective cap (AR) (item 25, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

a. Removal.

WARNING

- Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.
- Eye protection will be worn when performing maintenance procedures on all hydraulic components to avoid injury to personnel.

CAUTION

- All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.
- All serviceable components must be placed in plastic bags to prevent contamination of hydraulic system during installation.

18–43 TRAVERSE LIMIT VALVE – CONTINUED

a. Removal – Continued

NOTE

- All hydraulic lines and components must be tagged before removal for identification during installation.
- A thin, even coat of clean hydraulic fluid must be applied to all new packing material to form a good seal between hydraulic components during installation.

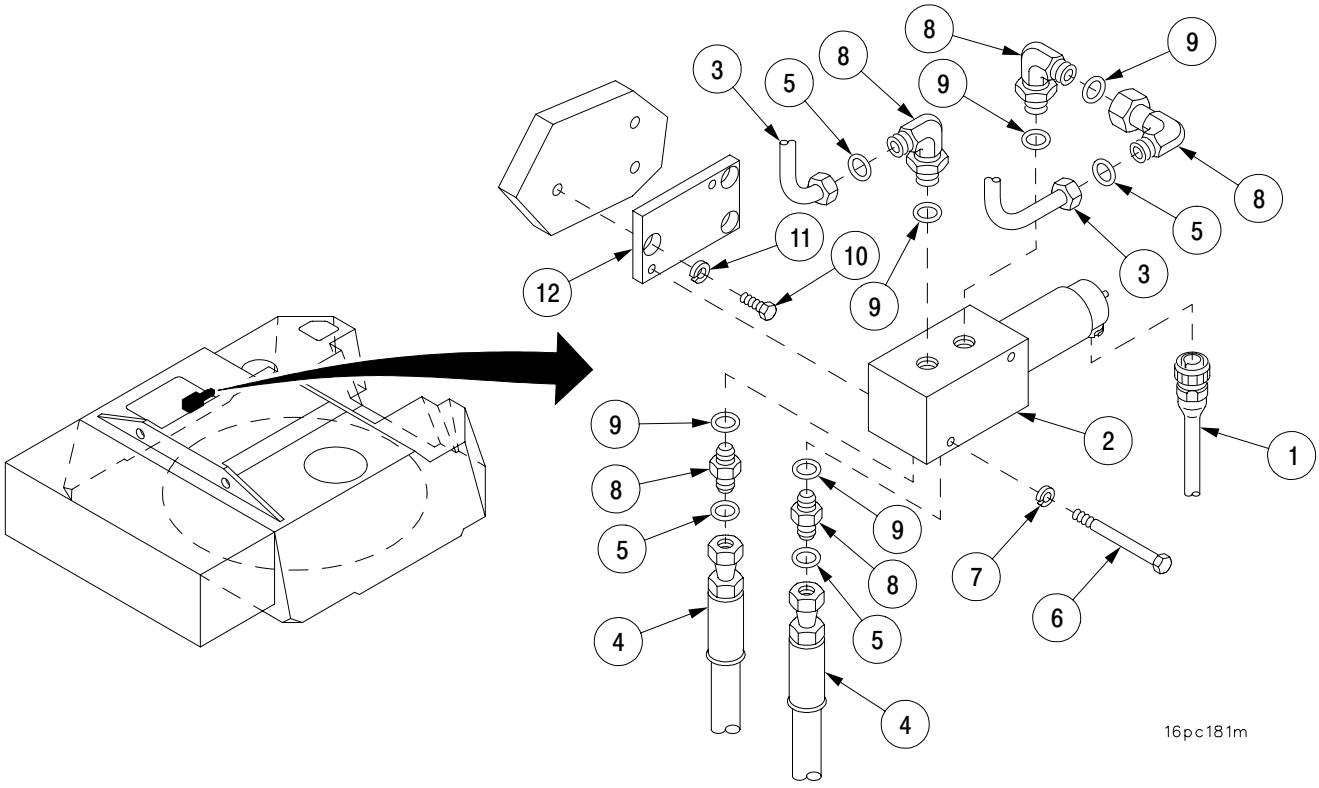
1 Disconnect electrical connector (1) from traverse limit valve (2).

2 Disconnect two tube assemblies (3) and two hose assemblies (4) with four preformed packings (5) from traverse limit valve (2). Discard preformed packings.

3 While supporting valve (2), remove two screws (6), two lockwashers (7), and traverse limit valve (2). Discard lockwashers.

4 Remove five fittings (8) with five preformed packings (9). Discard preformed packings.

5 Remove three screws (10), three lockwashers (11), and plate (12). Discard lockwashers.



18–43 TRAVERSE LIMIT VALVE – CONTINUED

b. Installation.

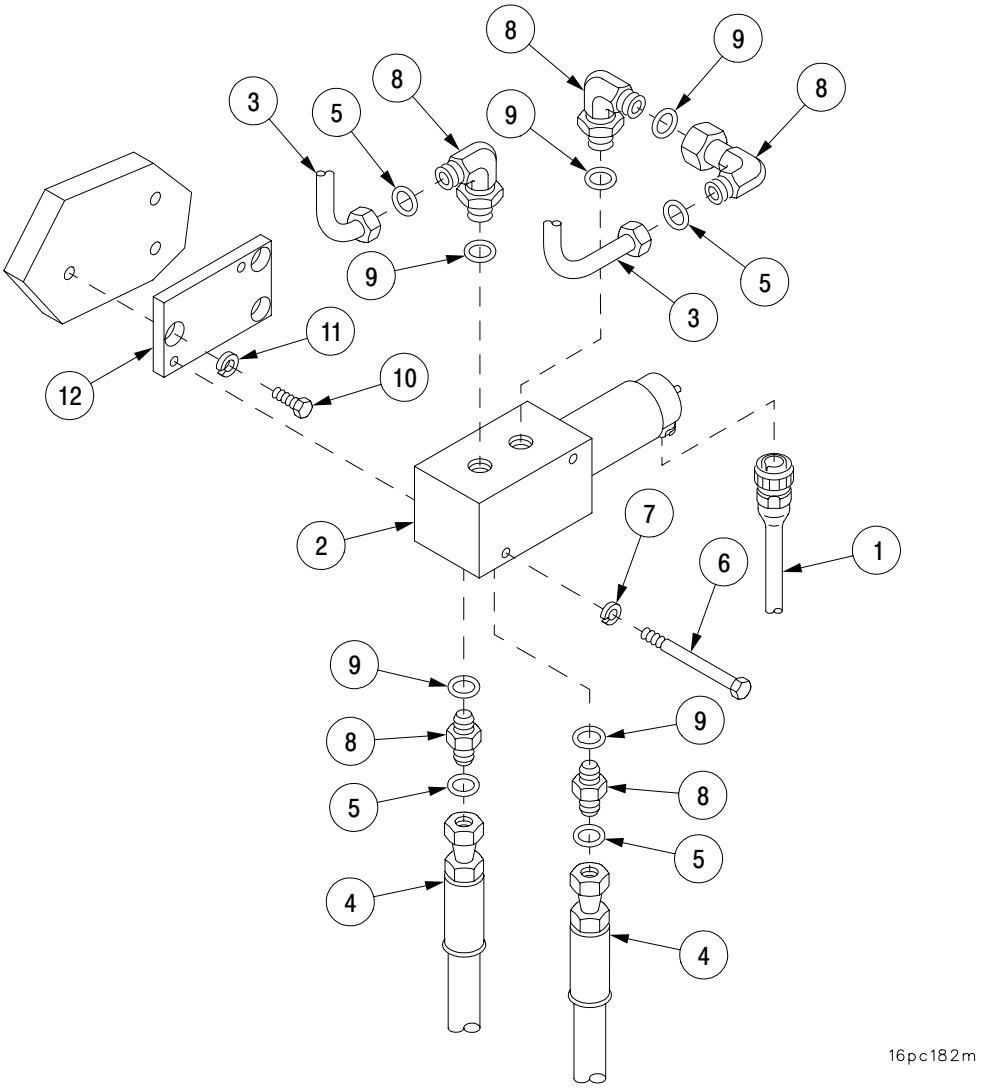
1 Install plate (12) with three screws (10) and three new lockwashers (11).

2 Install five fittings (8) and five new preformed packings (9).

3 Install traverse limit valve (2) with two screws (6) and two new lockwashers (7).

4 Connect two tube assemblies (3) and two hose assemblies (4) with four new preformed packings (5) onto traverse limit valve (2).

5 Connect electrical connector (1) to traverse limit valve (2).



18–44 SHOCK MOUNT ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (3) (item 130, Appx F)
Self–locking nuts (4) (item 64, Appx F)

Materials/Parts – Continued
Adhesive (item 3, Appx C)
Sealing compound (item 42, Appx C)
Sealing compound (item 46, Appx C)

Equipment Conditions
Hydraulic pump motor removed (for rear shock mount only) (para 5–19)

NOTE

- There are four shock mounts. The removal and installation procedures are identical for all four. This procedure covers only one mount.
- The top two shock mounts must be removed prior to removal of lower shock mounts.

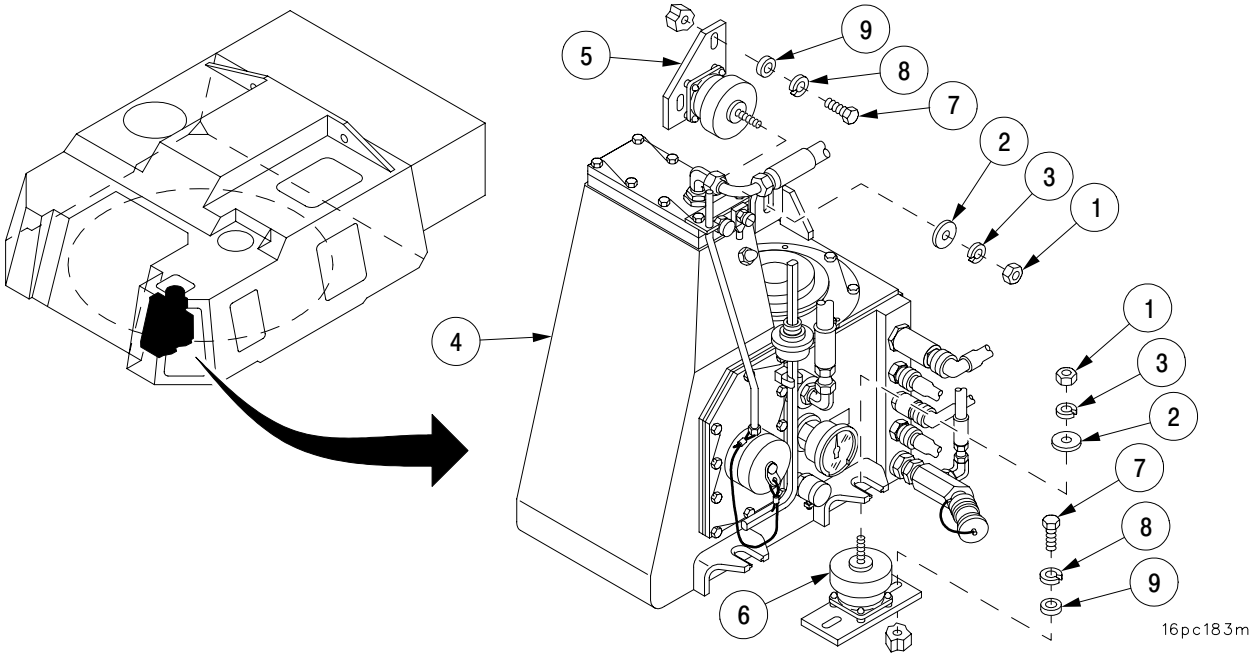
a. Removal.

1 Remove nut (1), flat washer (2), and lockwasher (3) securing reservoir (4) to shock mount assemblies (5 or 6). Discard lockwasher.

NOTE

The bottom two shock mounts require the hydraulic reservoir to be shifted rearward for access to screws.

2 Remove shock mount assembly (5 or 6) by removing two screws (7), two lockwashers (8), and two flat washers (9). Discard lockwashers.



18–44 SHOCK MOUNT ASSEMBLY – CONTINUED

b. Disassembly.

1 Remove plate (10) from mount (11) by removing four screws (12), four flat washers (13), and four self–locking nuts (14). Discard self–locking nuts.

2 Remove stud (15) from mount (11) and boot (16).

3 Remove boot (16) and shim (17) from mount (11).

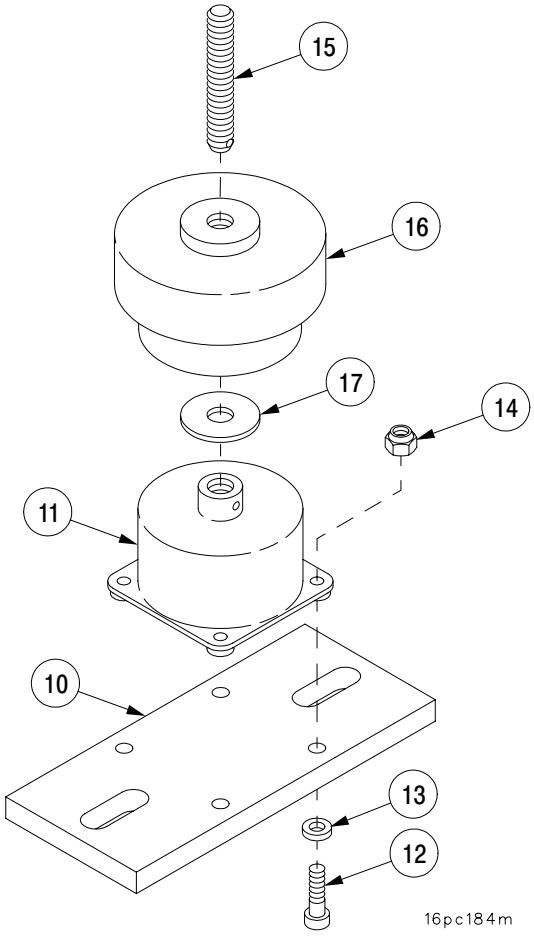
c. Assembly.

1 Apply adhesive to boot (16) and install shim (17) and boot (16) on mount (11).

2 Apply sealing compound (item 41, Appx C) on threads of stud (15) and install in boot (16) and mount (11).

3 Position mount (11) on plate (10) and secure with four screws (12), four flat washers (13), and four new self–locking nuts (14).

4 Apply sealing compound (item 45, Appx C) around base of mount (11) on plate (10).



18–44 SHOCK MOUNT ASSEMBLY – CONTINUED

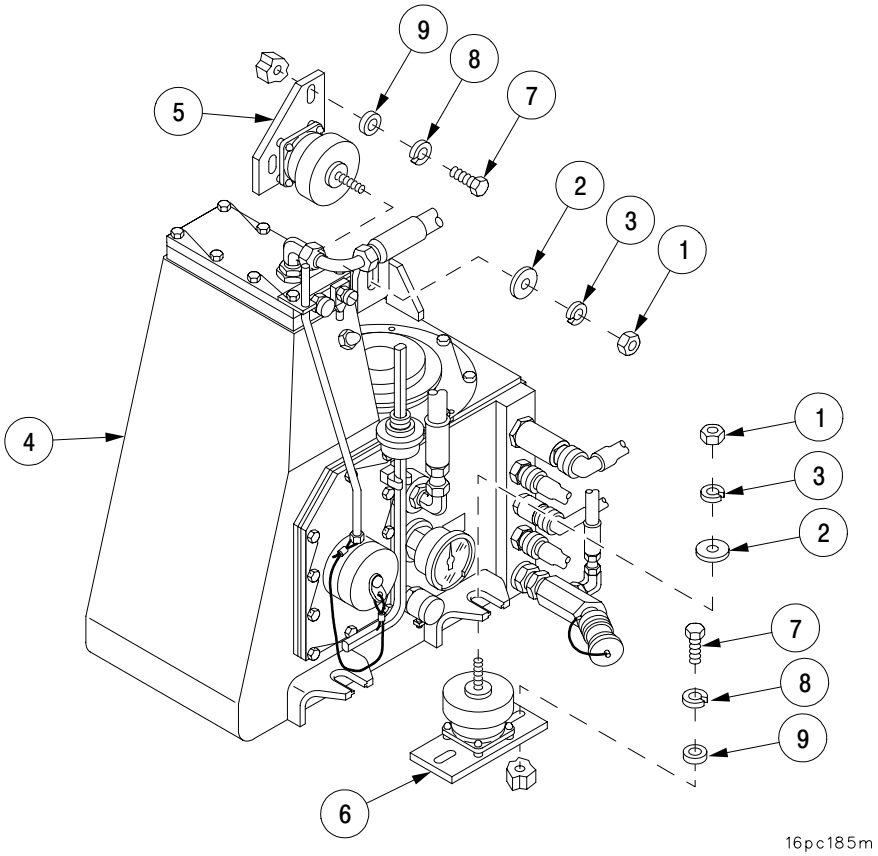
d. Installation.

NOTE

- Install lower shock mounts prior to installation of top two shock mounts.
- Position hydraulic reservoir over shock mounts.

1 Position shock mount assembly (5 or 6) in place and secure with two screws (7), two new lockwashers (8), and two flat washers (9).

2 Secure reservoir (4) to shock mount assembly (5 or 6) with new lockwasher (3), flat washer (2), and nut (1).



18–45 ACCUMULATOR ASSEMBLY, MANUAL PUMP.

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Nitrogen charging kit (item 23, Appx G)

Materials/Parts
Preformed packing (item 6, Appx F)
Preformed packing (item 4, Appx F)
Preformed packing (item 97, Appx F)
Preformed packing (item 90, Appx F)
Lockwashers (2) (item 128, Appx F)
Preformed packing (item 96, Appx F)

Materials/Parts – Continued
Decal (item 169, Appx F)
Hydraulic fluid (item 50, Appx C)
Dust protective cap (AR) (item 26, Appx C)
Dust protective plug (AR) (item 62, Appx C)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)
Accumulator assembly (manual elevation pump) nitrogen pressure discharged (para 28–8)

a. Removal.

WARNING

Hydraulic system pressure is 1925 ± 50 psi. Do not torque hydraulic fittings or perform removal procedures when hydraulic system is pressurized. Discharging system pressure before performing any maintenance procedures will avoid serious injury to personnel.

CAUTION

All hydraulic lines and ports must be capped to prevent contaminants from entering the hydraulic system and causing internal damage to hydraulic components.

NOTE

Prior to removal, tag all hydraulic lines and components for identification during installation.

18–45 ACCUMULATOR ASSEMBLY, MANUAL PUMP – CONTINUED

a. Removal – Continued

1 Disconnect tube assembly (1) from tee (2). Remove and discard preformed packing (3).

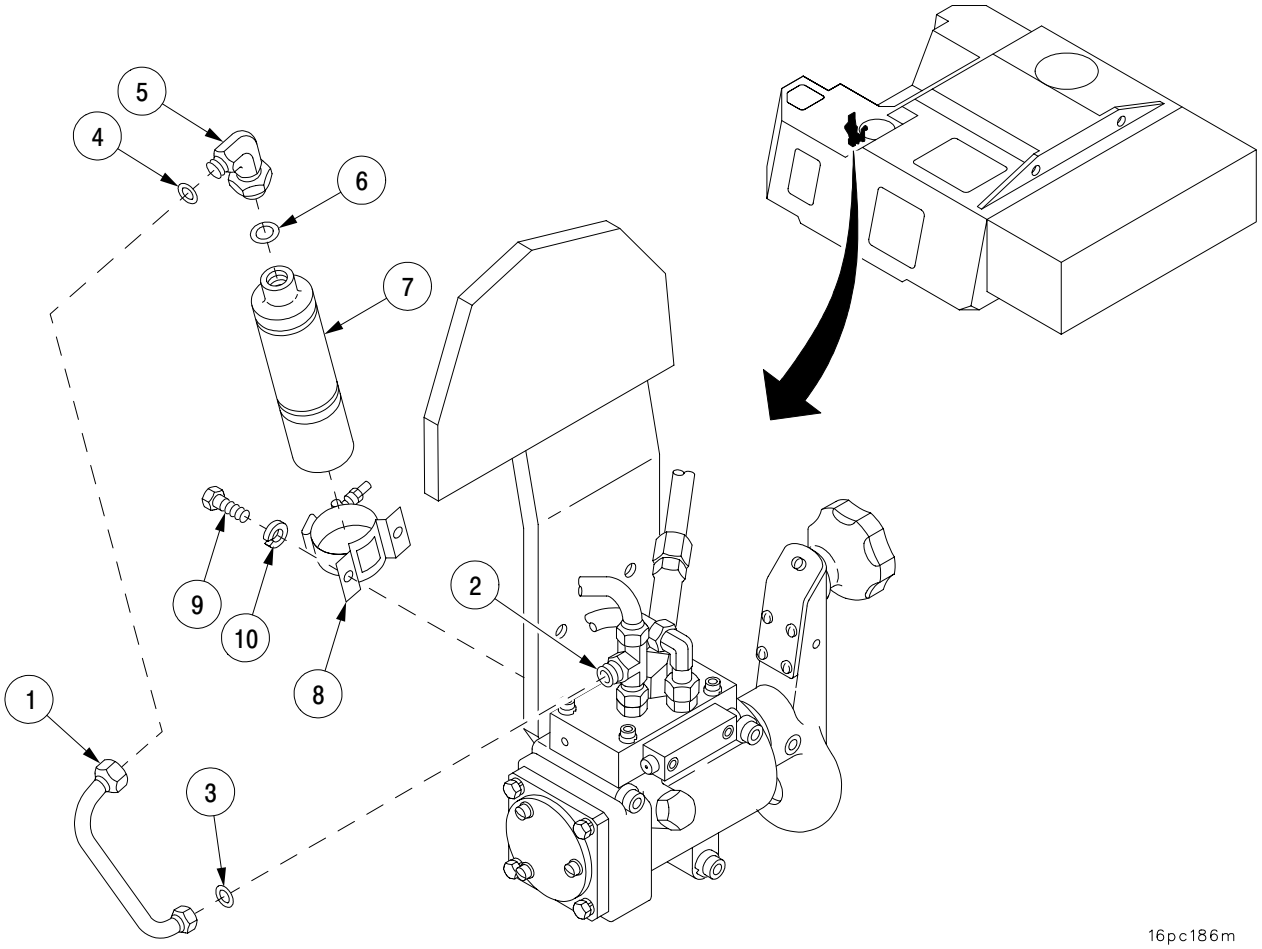
2 Remove tube assembly (1) and preformed packing (4) from elbow (5). Discard preformed packing.

3 Remove elbow (5) and preformed packing (6) from accumulator (7). Discard preformed packing.

4 Loosen clamp (8) to remove accumulator (7).

5 Inspect clamp (8) for damage and serviceability. If defective, perform step 6.

6 Remove two screws (9), two lockwashers (10), and clamp (8). Discard lockwashers.



18–45 ACCUMULATOR ASSEMBLY, MANUAL PUMP – CONTINUED

b. Repair.

1 Remove two screws (11) and plate (12) from accumulator cap (13).

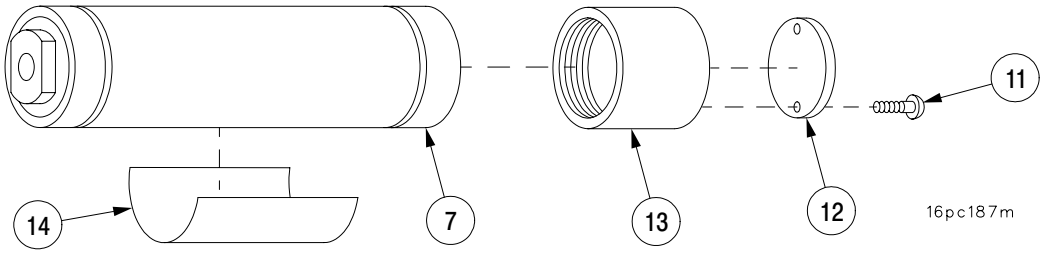
2 Remove accumulator cap (13) from accumulator (7).

3 Remove and discard decal (14) from accumulator (7).

4 Install new decal (14) to accumulator (7).

5 Install accumulator cap (13) to accumulator (7).

6 Position plate (12) to accumulator cap (13) and secure by installing two screws (11).



c. Installation.

1 Install two new lockwashers (10), two screws (9), and clamp (8).

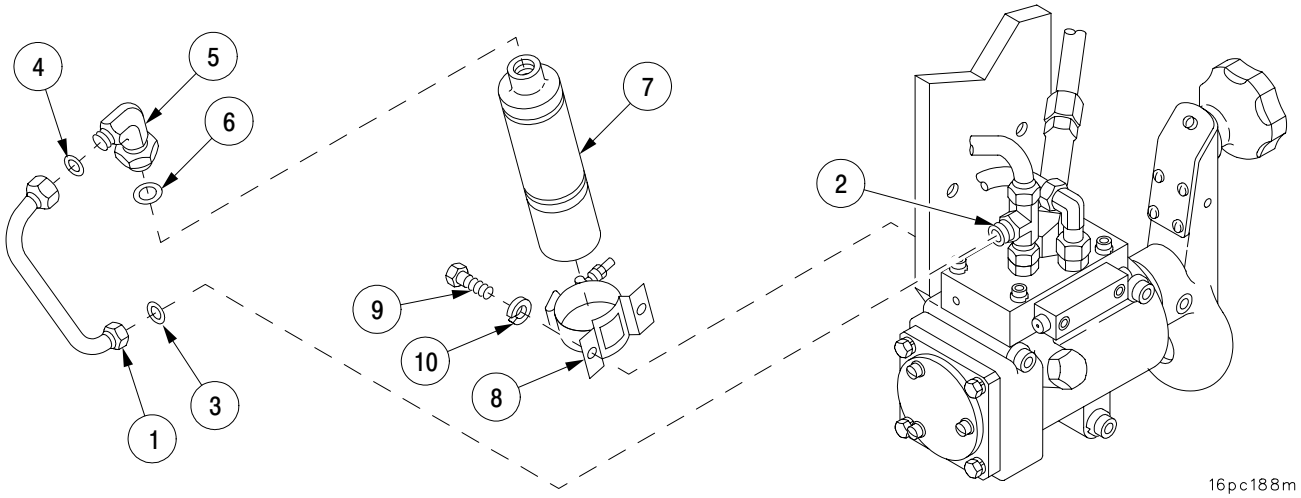
2 Install accumulator (7) in clamp (8) and secure.

3 Install two new preformed packings (6) and elbow (5) to accumulator (7).

4 Connect tube assembly (1) to elbow (5) with new preformed packing (4).

5 Connect tube assembly (1) to tee (2) with new preformed packing (3).

6 Charge accumulator assembly (para 28–8).



18–46 RESETTING VELOCITY FUSES.

This task covers: a. Servo Fuses b. Hand Control Fuse c. Other Fuses

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)
Drain pan (item 26, Appx G)

Materials/Parts
Hydraulic fluid (item 50, Appx C)
Nonmetallic tubing (item 93, Appx C)

a. Servo Fuses.

1 Connect tube to top bleeder valve (1) on fuse manifold (2).

2 Place opposite end of tube in drain pan.

3 Enter a MANUAL fire mission (TM 9–2350–314–10).

4 When FIRE MISSION screen appears, open top bleeder valve (1).

5 Activate GUN SERVO switch on DU (TM 9–2350–314–10).

6 Turn HYDRAULICS switch ON (TM 9–2350–314–10).

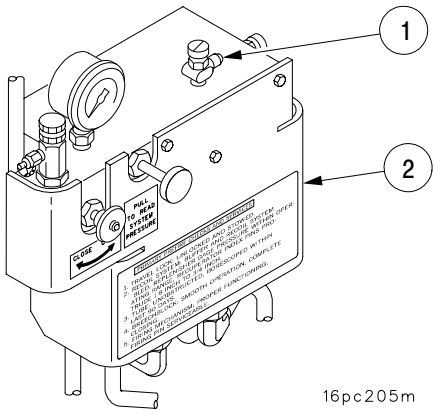
7 Press LAY to cause tube to move (TM 9–2350–314–10).

8 When air free hydraulic fluid flows through tube, or fuse resets, release LAY key and close bleeder valve (1).

9 If fluid is not air free when gun reaches commanded deflection, press STOW key (TM 9–2350–314–10).

10 Repeat steps 8 and 10 until air free hydraulic fluid flows through tube, then perform step 9.

11 If required, fill hydraulic fluid reservoir (para 18–1c).



18–46 RESETTING VELOCITY FUSES – CONTINUED

b. Hand Controls Fuse.

1 Connect tube to side bleeder valve (3) on fuse manifold (2).

2 Place opposite end of tube in drain pan.

3 Open side bleeder valve (3).

4 Turn HYDRAULICS switch ON (TM 9–2350–314–10).

5 When air free hydraulic fluid flows through tube, or fuse resets, close side bleeder valve (3).

6 If required, fill hydraulic fluid reservoir (para 18–1c).

c. Other Fuses.

1 Discharge system pressure (para 18–1a).

2 If fuse does not reset, connect tube to sampling/bleeder valve (4) on fuse manifold (2).

3 Place opposite end of tube in drain pan.

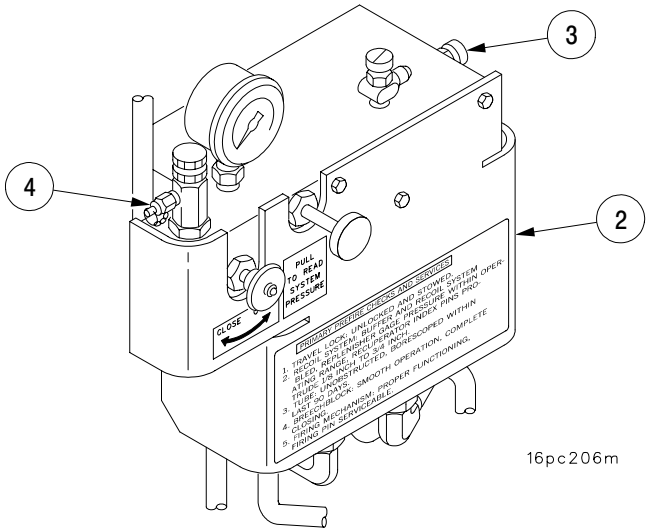
4 Open sampling/bleeder valve (4).

5 Turn HYDRAULICS switch ON (TM 9–2350–314–10).

6 When air free hydraulic fluid flows through tube, or fuse resets, close sampling/bleeder valve (4).

7 Turn HYDRAULICS switch OFF (TM 9–2350–314–10).

8 If required, fill hydraulic fluid reservoir (para 18–1c).



CHAPTER 19
TRAVERSE LOCK, HYDRAULIC COMPARTMENT ACCESS COVER, AND CAB SIDE DOOR

GENERAL

This chapter illustrates and describes maintenance procedures for the traverse lock, hydraulic compartment access cover, and cab side door. Step–by–step procedures are provided for removal, disassembly, assembly, and installation as required for unit level maintenance.

CONTENTS

19–1 TRAVERSE LOCK ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation e. Adjustment

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 107, Appx F)
Self–locking bolts (2) (item 138, Appx F)
Automotive grease (item 52, Appx C)
Spring pins (2) (item 154, Appx F)
Self–locking bolts (2) (item 228, Appx F)

a. Removal.

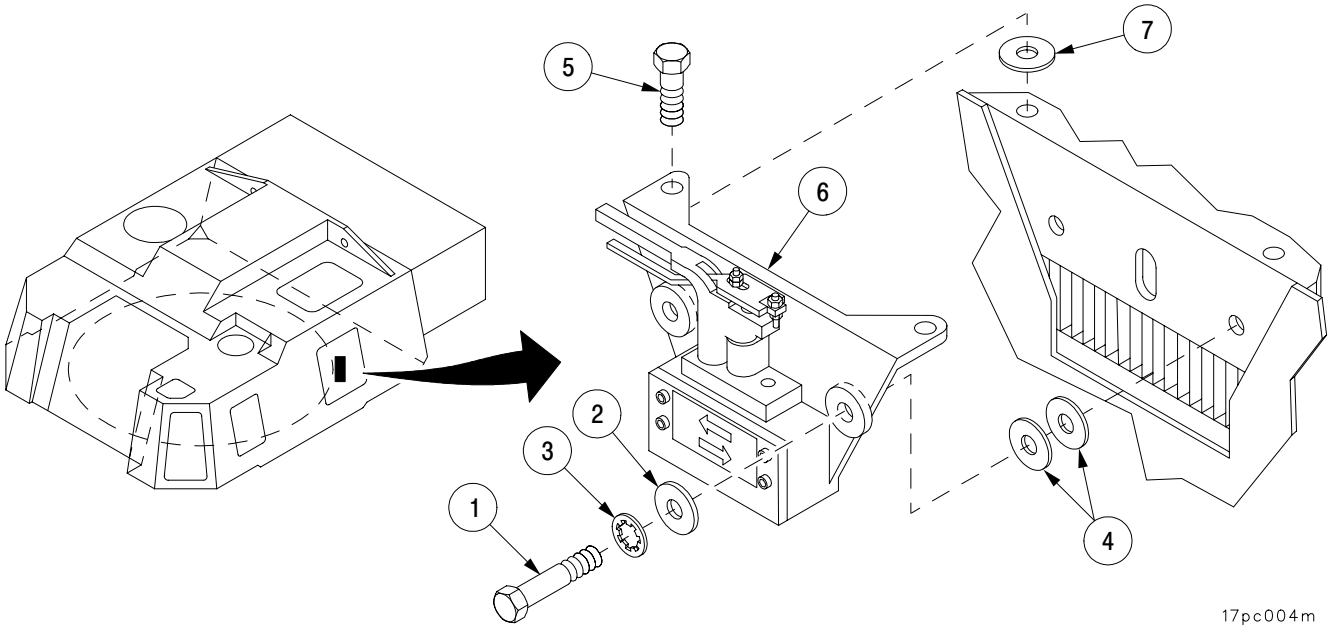
1 Move lever to UNLOCKED position.

NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

2 Remove two self–locking bolts (1), two flat washers (2), two lockwashers (3), and shims (4). Discard self–locking bolts and lockwashers.

3 Remove two self–locking bolts (5), traverse lock (6), and shims (7). Discard self–locking bolts.



19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

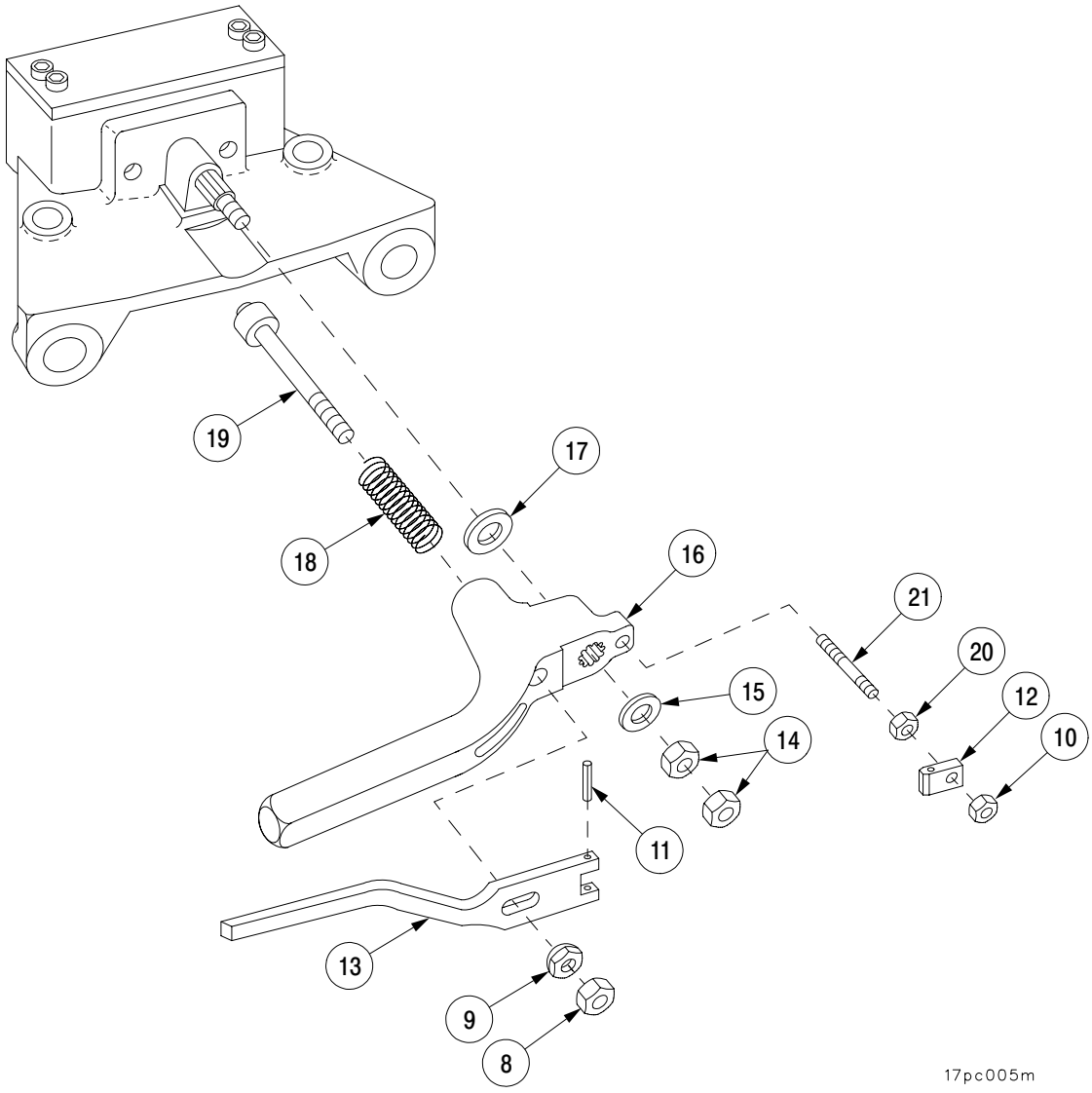
b. Disassembly.

1 Remove nuts (8, 9, and 10).

2 Drive out spring pin (11) and remove arm (12) and lever (13). Discard spring pin.

3 Remove two nuts (14), flat washer (15), lever (16), flat washer (17), spring (18), and pin assembly (19).

4 Remove nut (20) and shaft (21) from lever (16).



19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

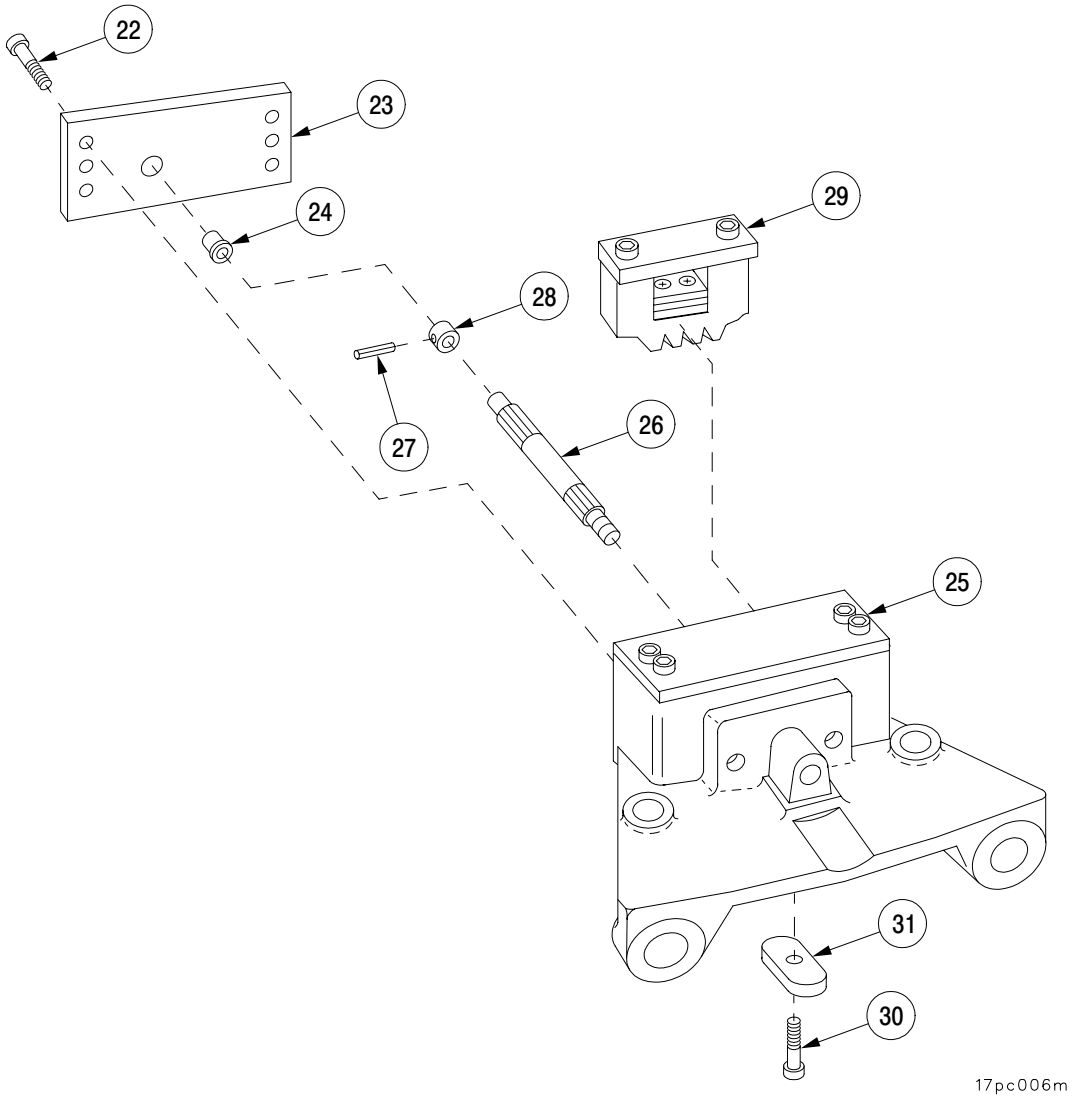
b. Disassembly – Continued

5 Remove four screws (22), plate (23), and bearing (24) from bracket (25).

6 Remove camshaft (26) with attached parts.

7 Drive out spring pin (27) and remove cam (28) from camshaft (26). Discard spring pin.

8 Remove gear (29) with attached parts, screw (30), and key (31).



19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

b. Disassembly – Continued

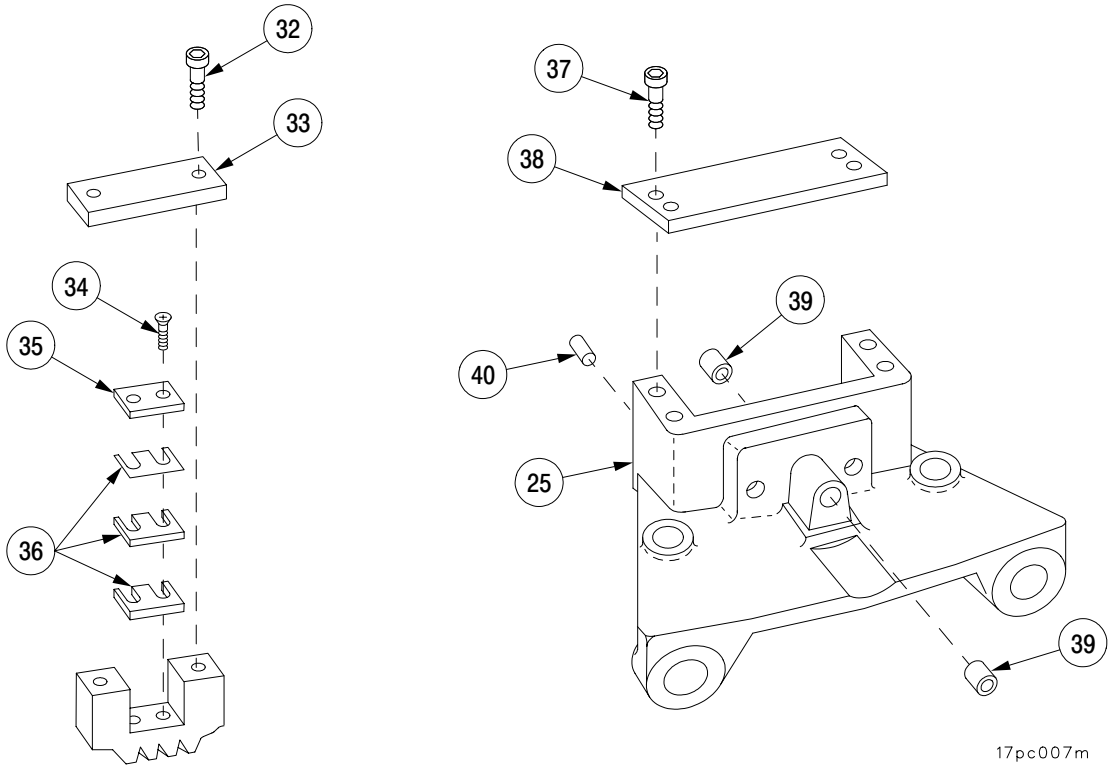
NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

9 Remove two screws (32), access cover (33), two screws (34), retainer (35), and shims (36), if any. Tie shims (36) together and retain for reassembly.

10 Remove four screws (37) and cover (38).

11 Press out two bearings (39) from bracket (25). Remove two locator pins (40).



19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

c. Assembly.

NOTE

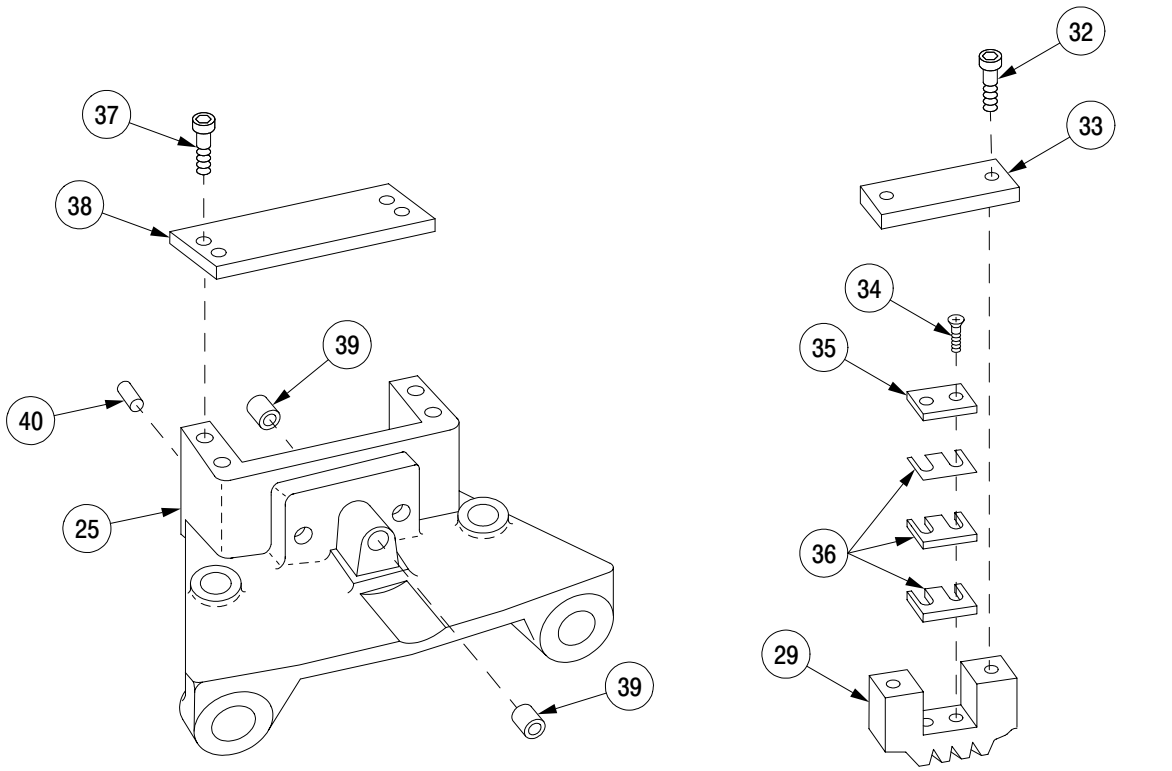
Coat all internal parts with grease prior to assembly.

1 Press two bearings (39) and place two locator pins (40) in bracket (25).

2 Install cover (38) with four screws (37).

3 Install original shims (36) (if used) and retainer (35) on gear (29) with two screws (34). Stake two screws (34) after assembling shims (36) and retainer (35).

4 Install access cover (33) on gear (29) with two screws (32).



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19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

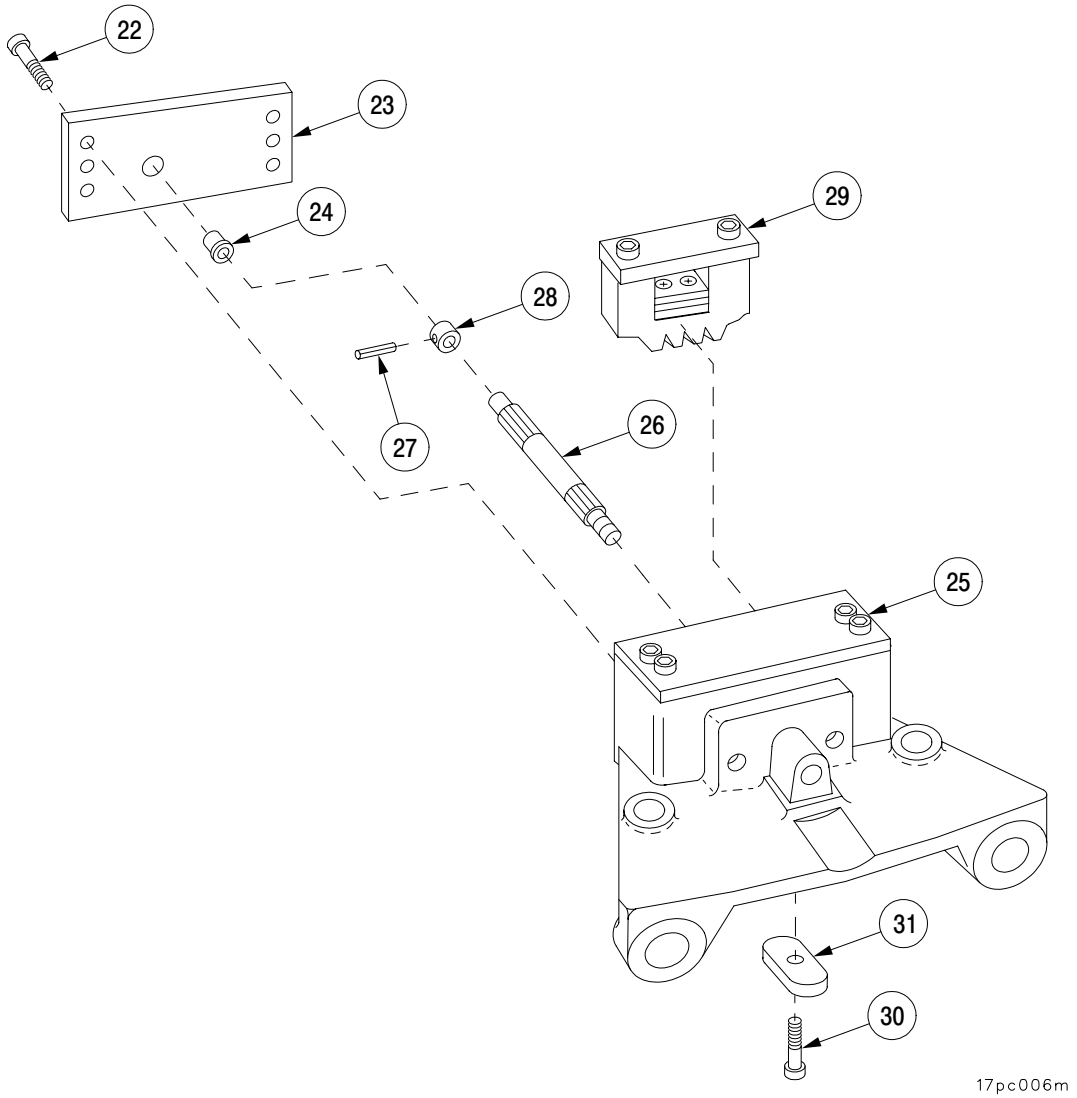
c. Assembly – Continued

5 Place gear (29) with attached parts in bracket (25).

6 Install key (31) and screw (30).

7 Install cam (28) on camshaft (26), align holes, and secure with new spring pin (27).

8 Slide end of camshaft (26) through gear (29) into hole in bracket (25). Install bearing (24), plate (23), and four screws (22).



19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

c. Assembly – Continued

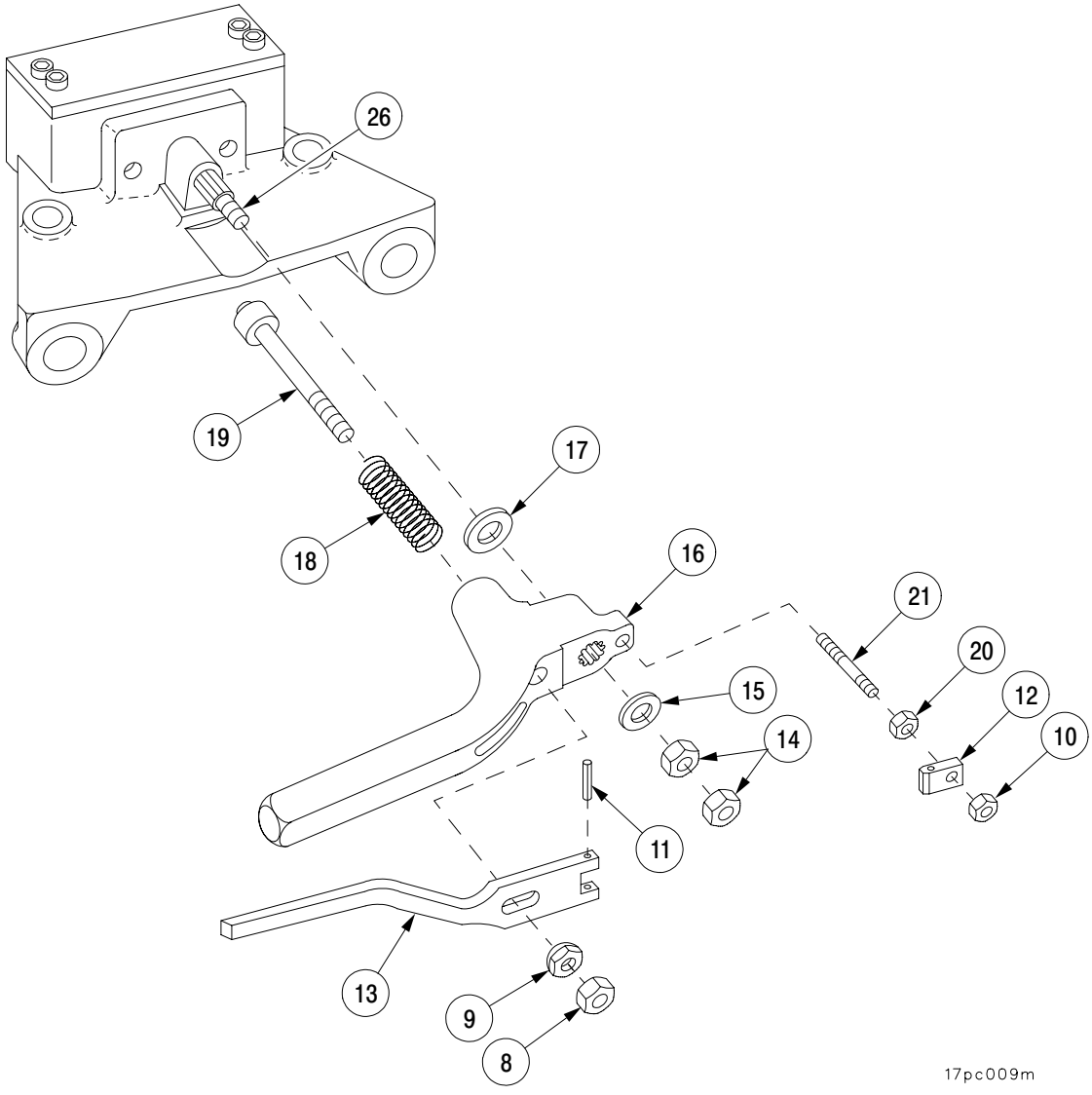
9 Install shaft (21) onto lever (16), then thread nut (20) onto shaft (21).

10 Install pin assembly (19), spring (18), flat washer (17) and lever (16) on cam shaft (26) and secure with flat washer (15) and two nuts (14).

11 Position arm (12) in clevis of lever (13), align holes and drive in new spring pin (11) to secure arm (12). Make sure arm (12) pivots in clevis.

12 Slide end of lever (13) into slot in lever (16) until end of shaft (21) protrudes from hole in arm (12). Install nut (10) on shaft (21).

13 Install two nuts (8 and 9) on pin assembly (19).

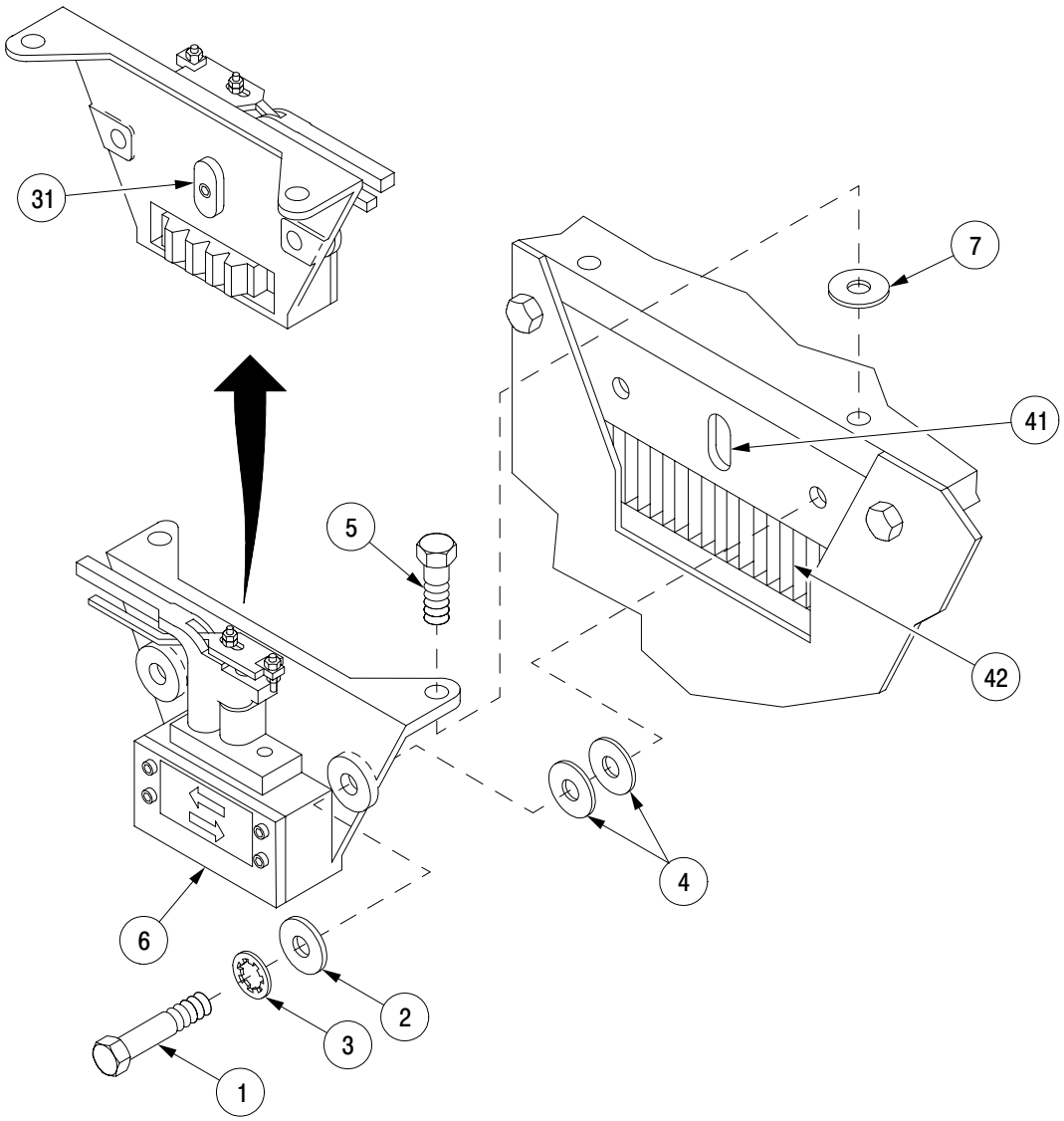


19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

d. Installation.

1 Install traverse lock (6), two new self–locking bolts (5), original shims (7). To properly locate traverse lock (6), fit key (31) into hole (41) in geared race (42).

2 Install original shims (4), two new lockwashers (3), two flat washers (2), and two new self–locking bolts (1).



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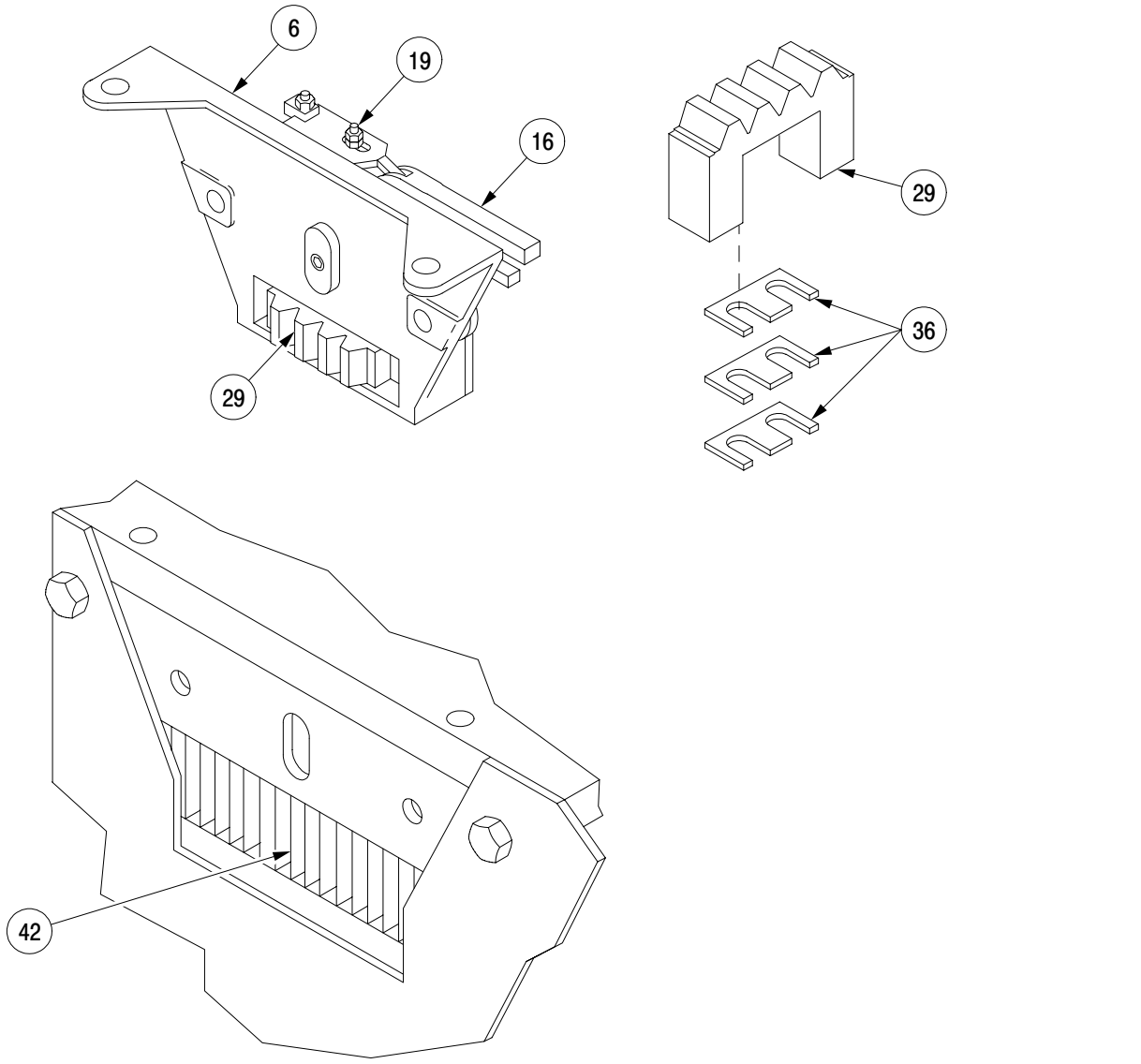
19–1 TRAVERSE LOCK ASSEMBLY – CONTINUED

e. Adjustment.

1 Move lever (16) to LOCKED position and check to be sure that teeth of gear (29) engage teeth of race (42) and that pin assembly (19) engages hole in traverse lock (6) for LOCKED position.

2 Vary thickness of shims (36) to adjust engagement of gear (29) with teeth of race (42). Decreasing thickness of shims (36) brings gear (29) into closer engagement with race (42); increasing shims' (36) thickness moves gear (29) away from race (42). Shims (36) are available in three thicknesses: 0.001, 0.002 and 0.003 inches.



19–2 HYDRAULIC COMPARTMENT ACCESS COVER.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

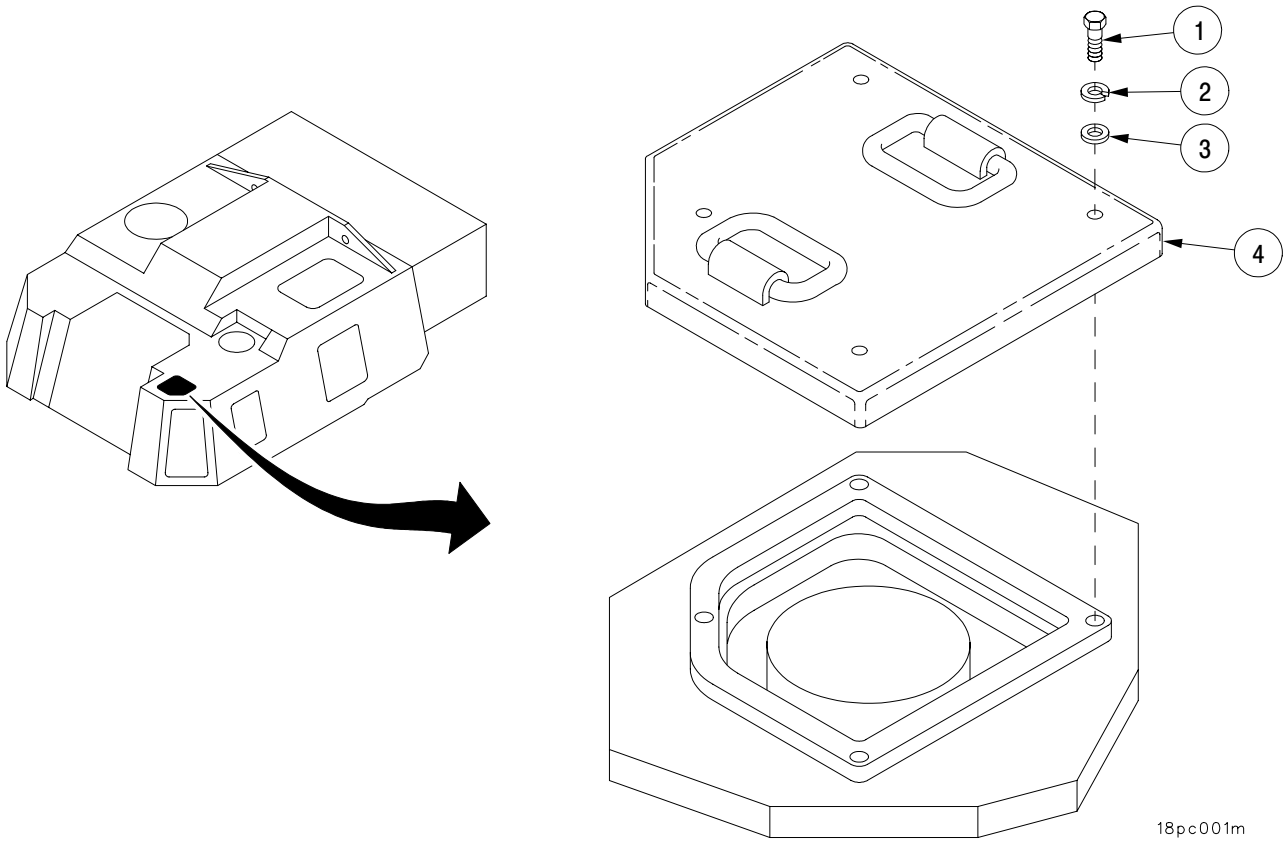
Materials
Lockwashers (4) (item 132, Appx F)

a. Removal.

Remove four screws (1), four lockwashers (2), four flat washers (3), and hydraulic access cover (4). Discard lockwashers.

b. Installation.

Install hydraulic access cover (4) with four screws (1), four flat washers (3), and four new lockwashers (2).



19–3 CAB SIDE DOOR, HANDLE, AND STRIKE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Side door armor plate removed (para 12–7)

Materials/Parts
Lockwashers (8) (item 130, Appx F)
Adhesive (item 7, Appx C)
Seal (item 184, Appx F)
Rubber strip (item 200, Appx F)
Sealing compound (item 40, Appx C)
Sealing compound (item 46.1, Appx C)

Personnel Required
Two

a. Removal.

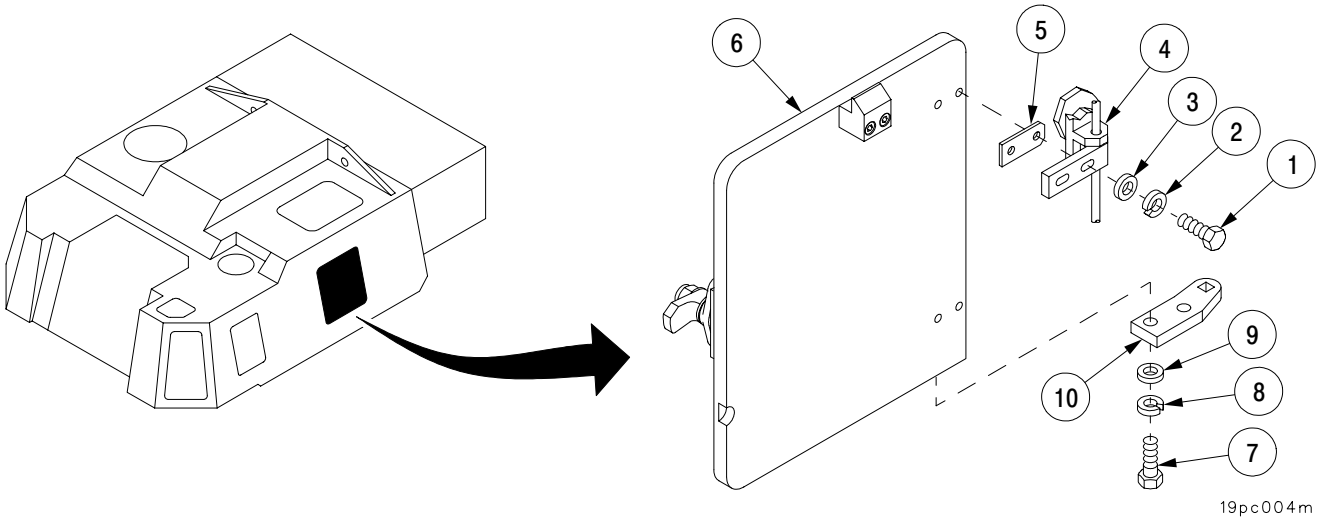
NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

1 Remove four screws (1), four lockwashers (2), four flat washers (3), two hinges (4), and shims (5) from door (6). Discard lockwashers.

2 Remove two screws (7), two lockwashers (8), two flat washers (9), and anchor (10) from door (6). Discard lockwashers.

3 Remove door (6) from cab.



19–3 CAB SIDE DOOR, HANDLE, AND STRIKE – CONTINUED

a. Removal – Continued

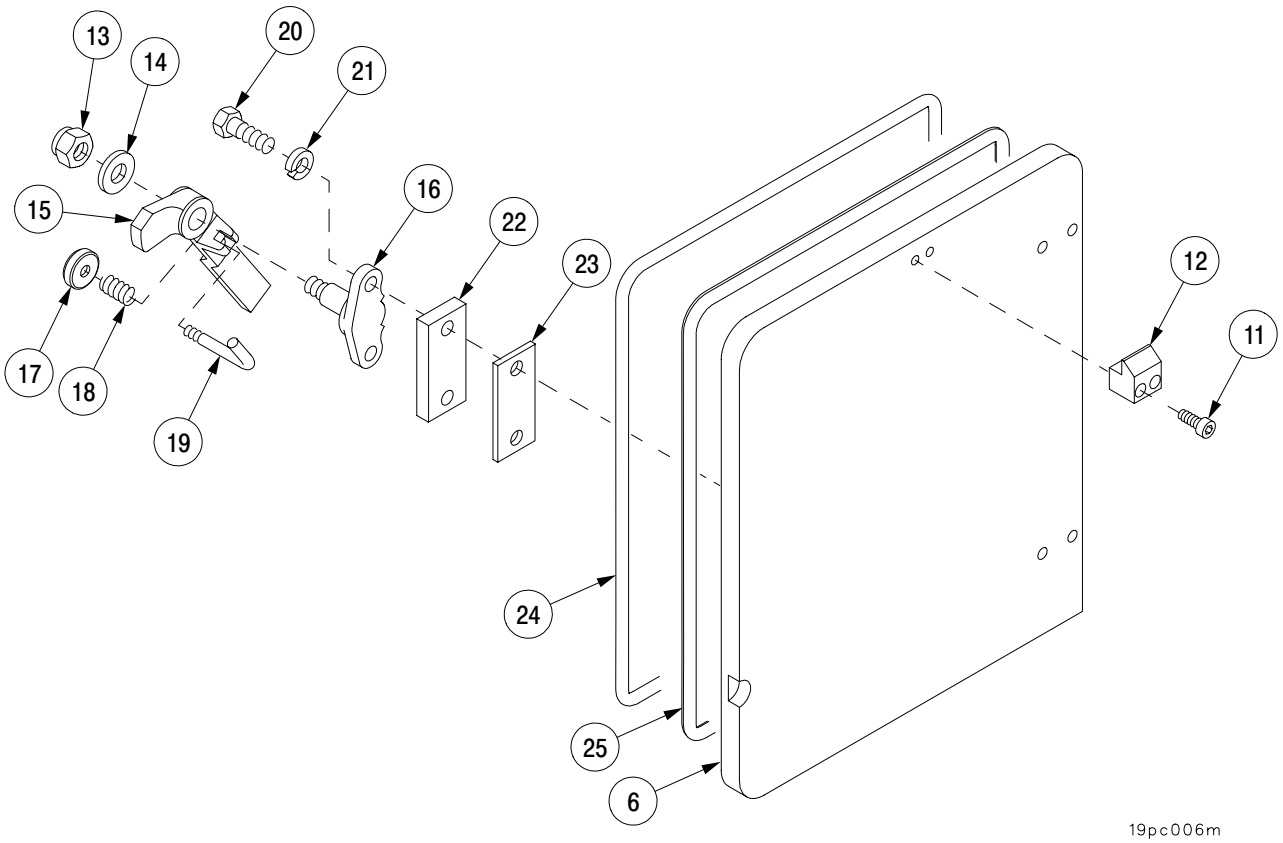
4 Remove two screws (11) and strike (12) from door (6).

5 Remove nut (13), flat washer (14), and handle (15) from mount (16).

6 Remove knob (17), spring (18), and pin (19) from handle (15).

7 Remove two screws (20), two lockwashers (21), mount (16), spacer (22), and shim (23) from door (6). Discard lockwashers.

8 Remove seal (24) and rubber strip (25) from door (6). Discard seal and rubber strip.



19–3 CAB SIDE DOOR, HANDLE, AND STRIKE – CONTINUED

b. Installation.

1 Apply adhesive (item 7, Appx C) to new rubber strip (25) and new seal (24).

2 Install new rubber strip (25) and new seal (24) on door (6).

2.1 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of shim (22).

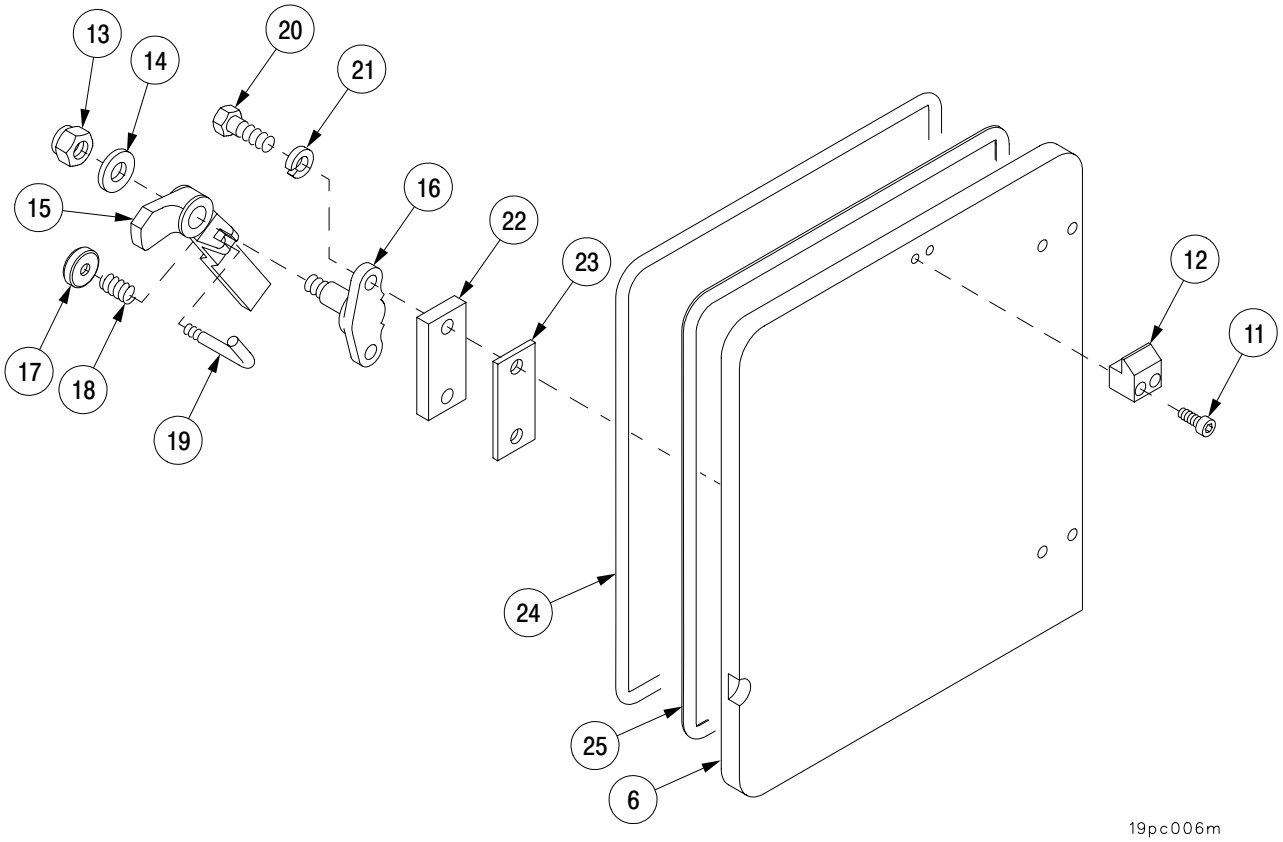
3 Install shim (23), spacer (22), and mount (16) to door (6) with two screws (20) and two new lockwashers (21).

4 Apply sealing compound (item 40, Appx C) to pin (19) before installing knob.

5 Install knob (17), spring (18), and pin (19) on handle (15).

6 Install handle (15) to mount (16) with flat washer (14) and nut (13).

7 Install strike (12) on door (6) with two screws (11).



19–3 CAB SIDE DOOR, HANDLE, AND STRIKE – CONTINUED

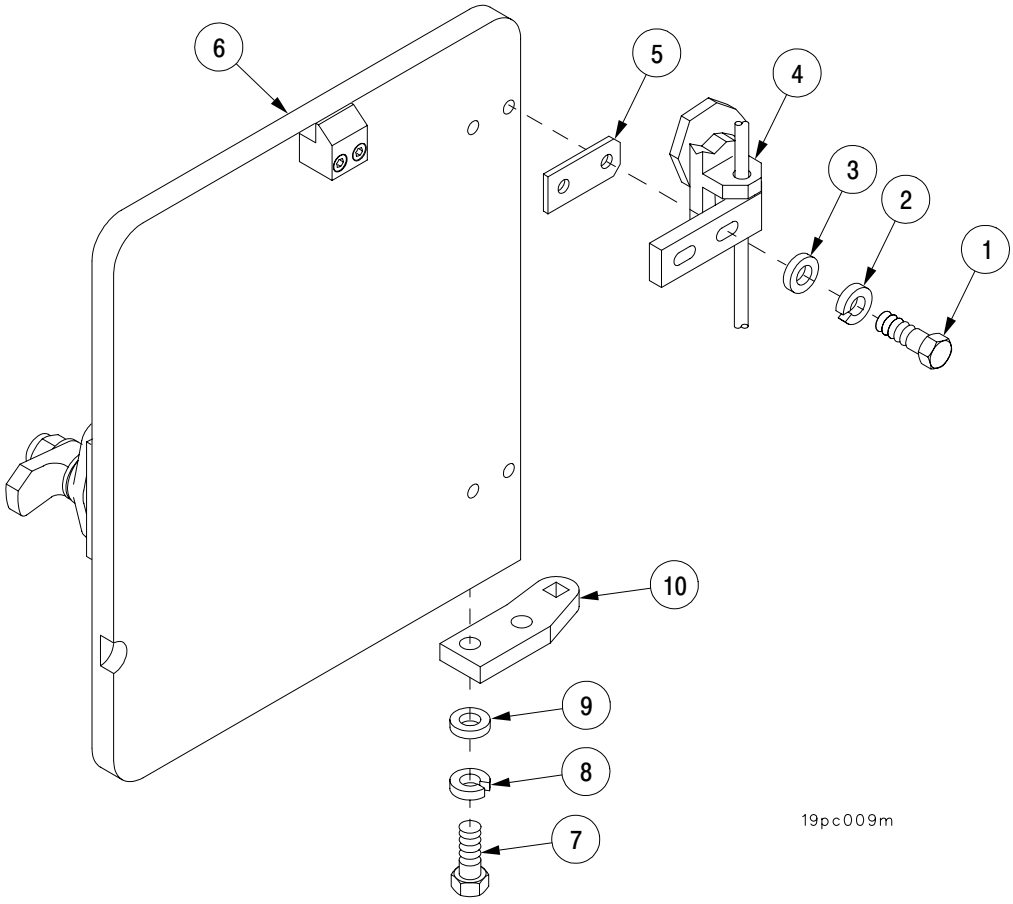
b. Installation – Continued

8 Install door (6) on cab.

8.1 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of anchor (10) and shims (5).

9 Install anchor (10) on door (6) with two screws (7), two new lockwashers (8), and two flat washers (9).

10 Install two hinges (4) and shims (5) to door (6) with two screws (1), two new lockwashers (2), and two flat washers (3).



19–4 CAB SIDE DOOR PLATE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 128, Appx F)
Sealing compound (item 46.1, Appx C)

a. Removal.

NOTE

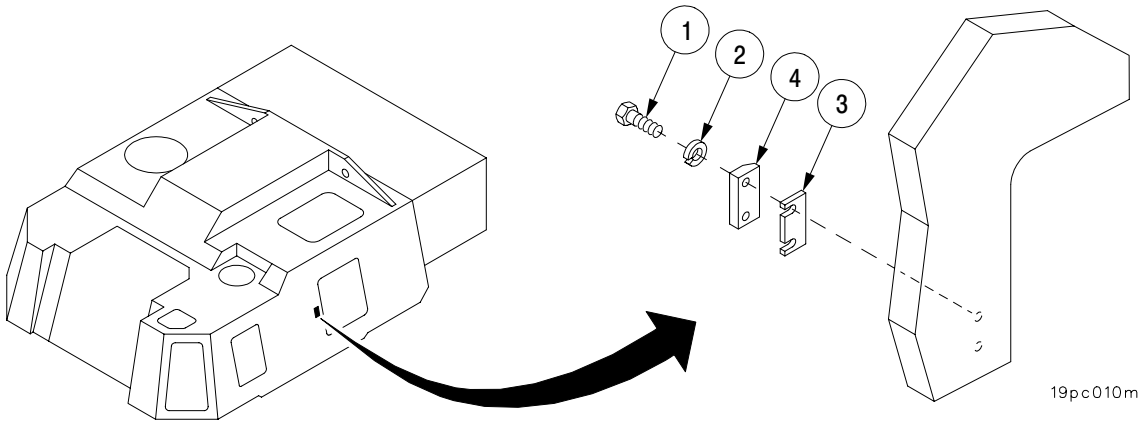
If shims are present, they must be retained for installation to the same location from which they were removed.

Remove two screws (1), two lockwashers (2), shim (3), and plate (4). Discard lockwashers.

b. Installation.

1 Apply sealing compound to aluminum/steel interfaces of shim (3).

2 Install plate (4) and shim (3) with two screws (1) and two new lockwashers (2).



19–5 CAB SIDE DOOR TORSION BAR, ANCHORS, AND HINGES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Spring pin (item 47, Appx F)
Lockwashers (10) (item 130, Appx F)
Sealing compound (item 46.1, Appx C)

Personnel Required
Two

a. Removal.

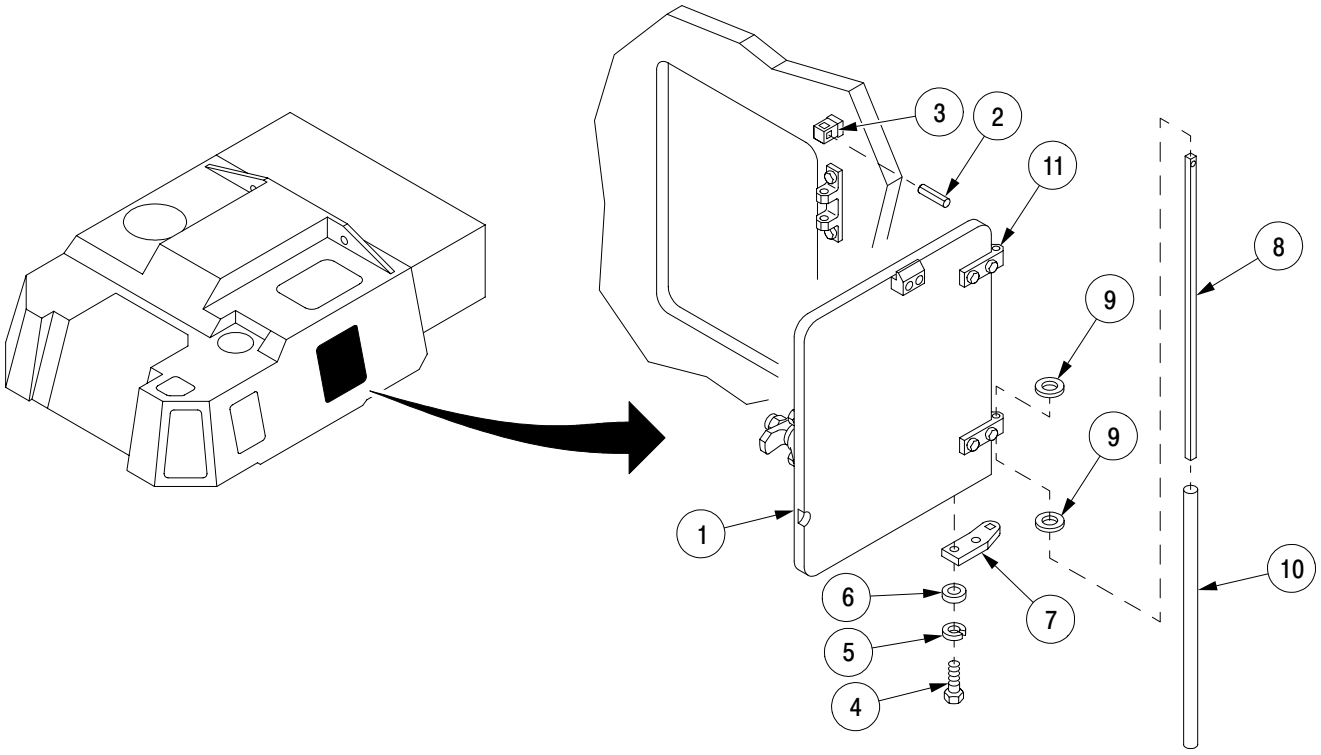
1 Hold door (1) open at a 90° angle.

2 Remove pin (2) from torsion bar anchor (3). Discard pin.

3 Remove two screws (4), two lockwashers (5), and two flat washers (6) from anchor (7) at bottom of torsion bar (8). Discard lockwashers.

4 Remove anchor (7), two bearings (9), torsion bar (8), and torsion bar cover (10) from hinges (11).

5 Remove door (1).



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19–5 CAB SIDE DOOR TORSION BAR, ANCHORS, AND HINGES – CONTINUED

a. Removal – Continued

6 Remove torsion bar anchor (3) from cab.

NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

7 Remove four screws (12), four lockwashers (13), four flat washers (14), two hinge brackets (15), and shims (16) from cab. Discard lockwashers.

8 Remove four screws (17), four lockwashers (18), four flat washers (19), two hinges (11), and shims (20) from door (1). Discard lockwashers.

b. Installation.

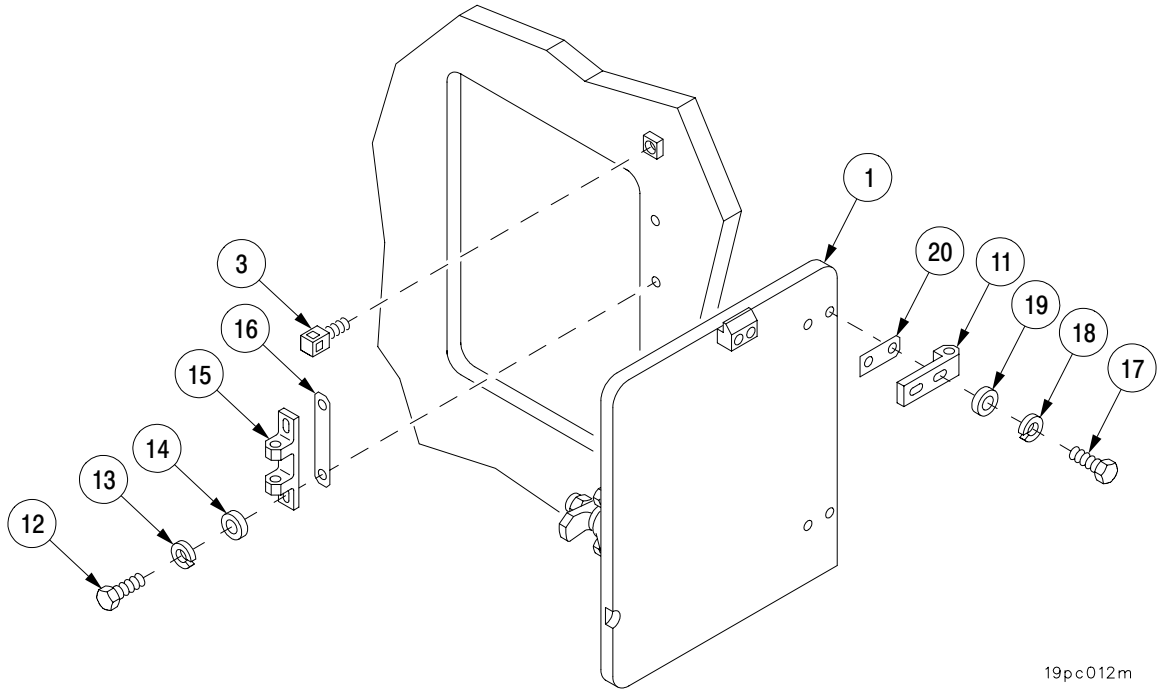
1 Apply sealing compound to aluminum/steel interfaces of shims (20 and 16).

2 Install shims (20), two hinges (11), four screws (17), four new lockwashers (18), and four flat washers (19) on door (1).

3 Install shims (16), two hinge brackets (15), four screws (12), four new lockwashers (13), and four flat washers (14) to cab.

4 Install torsion bar anchor (3) in cab.

5 Place door (1) in door opening, aligning holes in hinges (11) and hinge brackets (15), and support door (1) in this position.



19–5 CAB SIDE DOOR TORSION BAR, ANCHORS, AND HINGES – CONTINUED

b. Installation – Continued

6 Install torsion bar (8) in cover (10) and slide through holes in door hinges (11) and two bearings (9) so hole in end of torsion bar (8) aligns with hole for pin (2) in torsion bar anchor (3).

7 Install new pin (2) to retain torsion bar (8) in anchor (3).

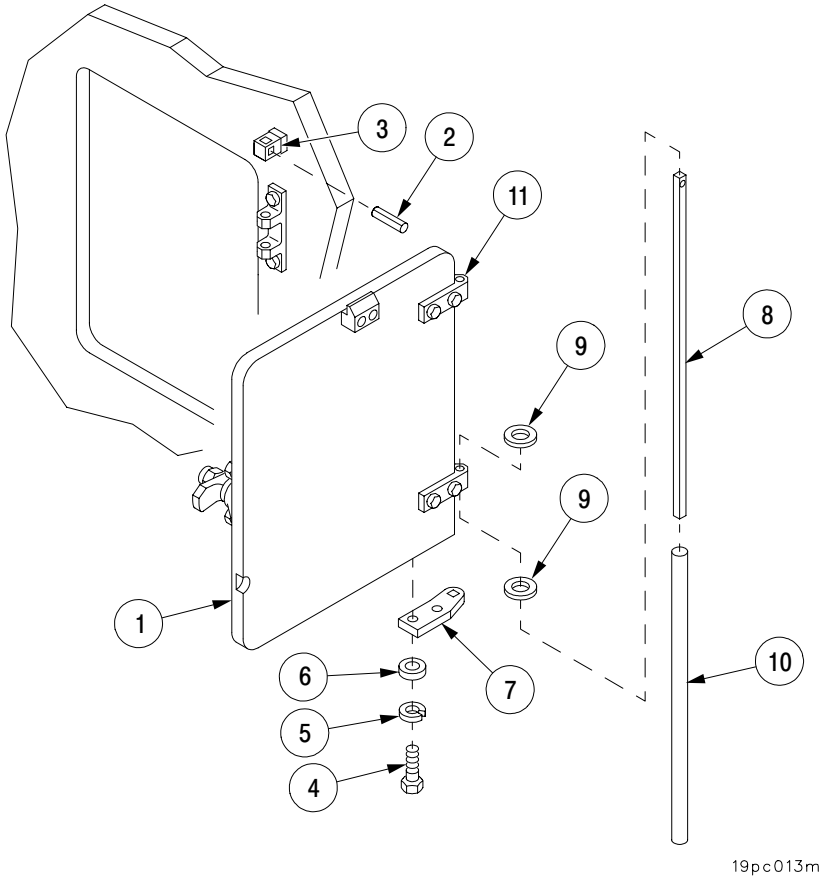
8 Open door (1) to 90° and support in this position.

9 Apply sealing compound to aluminum/steel interfaces of anchor (7).

10 Align anchor (7) with splines of torsion bar (8) so that anchor (7) can be installed on torsion bar (8) and fastened to cab door (1) with door (1) perpendicular to the cab.

11 Install anchor (7) to door (1) with two screws (4), two new lockwashers (5), and two flat washers (6).

12 Close door (1). When latch is released, the door (1) will spring open gently if it is installed properly.



19–6 BUMPER ASSEMBLY, SIDE DOOR AND GUNNER'S ESCAPE HATCH.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Cotter pin (item 78, Appx F)
Lockwashers (2) (item 128, Appx F)
Sealing compound (item 46.1, Appx C)

NOTE

There are two bumper assemblies. The removal and installation procedures for both are identical.

a. Removal.

Remove two screws (1), two lockwashers (2), bumper assembly (3), and shim (4) from cab. Discard lockwashers.

b. Disassembly.

Remove cotter pin (5), retainer pin (6), and rubber bumper (7) from bracket (8). Discard cotter pin.

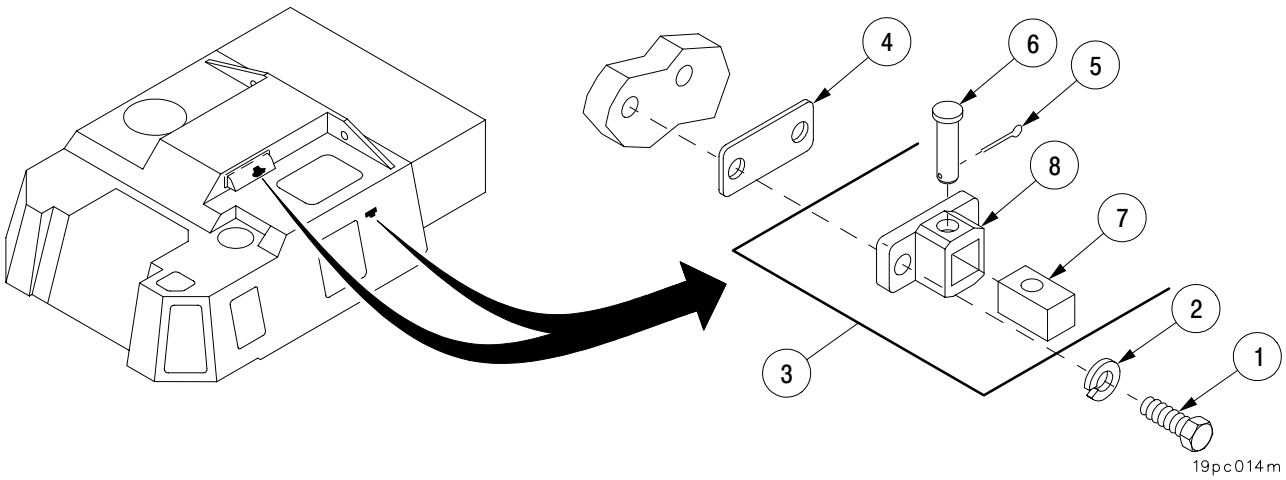
c. Assembly.

Install rubber bumper (7) in bracket (8) with retainer pin (6) and new cotter pin (5).

d. Installation.

1 Coat aluminum/steel interface of shim (4) with sealing compound.

2 Install shim (4) and bumper assembly (3) on cab with two screws (1) and two new lockwashers (2).



19–7 LATCH ASSEMBLY, SIDE DOOR AND GUNNER'S ESCAPE HATCH.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 129, Appx F)
Lockwashers (4) (item 126, Appx F)
Sealing compound (item 38, Appx C)
Sealing compound (item 46.1, Appx C)

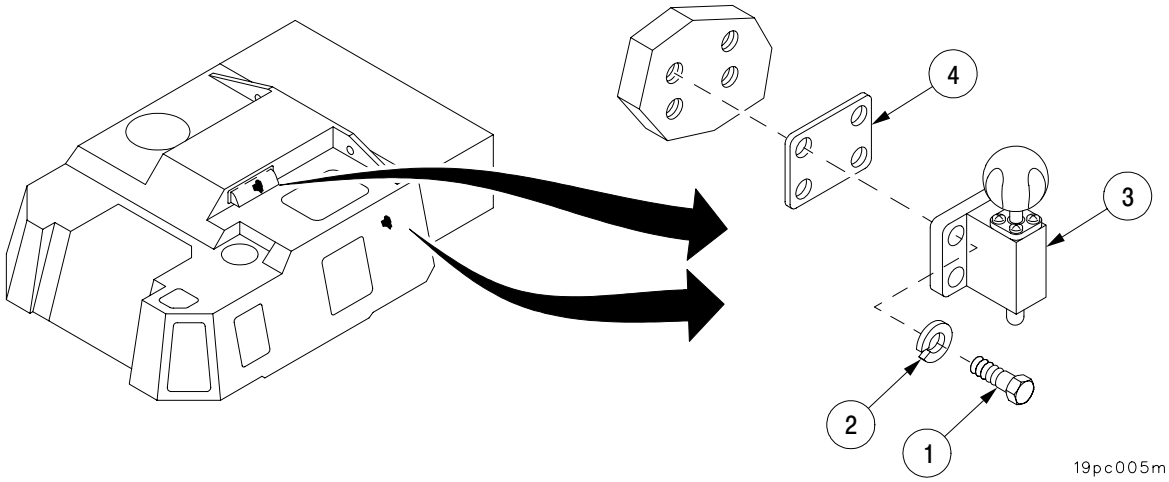
References
TM 9–2350–314–10

a. Removal.

NOTE

- There are two latch assemblies. The removal and installation procedures are identical.
- If shims are present, they must be retained for installation to the location from which they were removed.

Remove four screws (1), four lockwashers (2), side door latch (3), and latch shim (4) from cab side door. Discard four lockwashers (2).



19–7 LATCH ASSEMBLY, SIDE DOOR AND GUNNER'S ESCAPE HATCH – CONTINUED

b. Disassembly.

1 Unscrew latch knob (5).

2 Remove four screws (6), four lockwashers (7), and access cover (8). Discard lockwashers.

3 Pull out latch pin (9) and spring (10).

4 Remove grease fitting (11) if damaged.

c. Assembly.

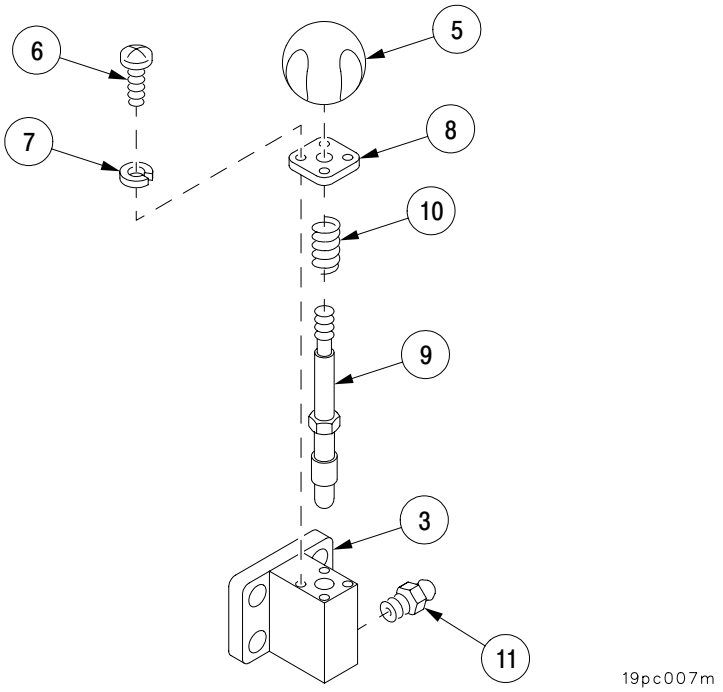
1 Install grease fitting (11) on side door latch (3), if removed.

2 Install spring (10) on latch pin (9). Apply sealing compound (item 38, Appx C) to threads of latch pin (9).

3 Install latch pin (9) on side door latch (3).

4 Install access cover (8) on side door latch (3) with four screws (6) and four new lockwashers (7).

5 Install latch knob (5) on latch pin (9).



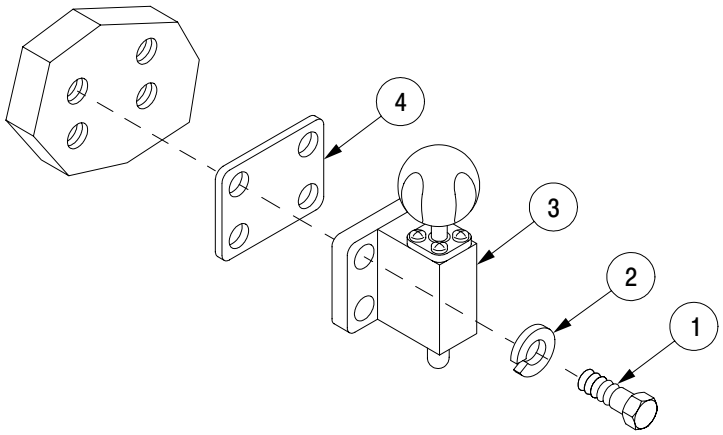
19–7 LATCH ASSEMBLY, SIDE DOOR AND GUNNER'S ESCAPE HATCH – CONTINUED

d. Installation.

1 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of shim (4).

2 Install side door latch (3) and latch shim (4) on cab side door with four screws (1) and four new lockwashers (2).

3 Lubricate per TM 9–2350–314–10.



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CHAPTER 20
TRAVERSE MECHANISM

GENERAL

This chapter illustrates and describes maintenance procedures for the traverse mechanism. Step–by–step procedures are provided for removal and installation as required for unit level maintenance.

CONTENTS

20–1 TRAVERSING MECHANISM GUARD ASSEMBLY, ANGLE, AND SUPPORT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

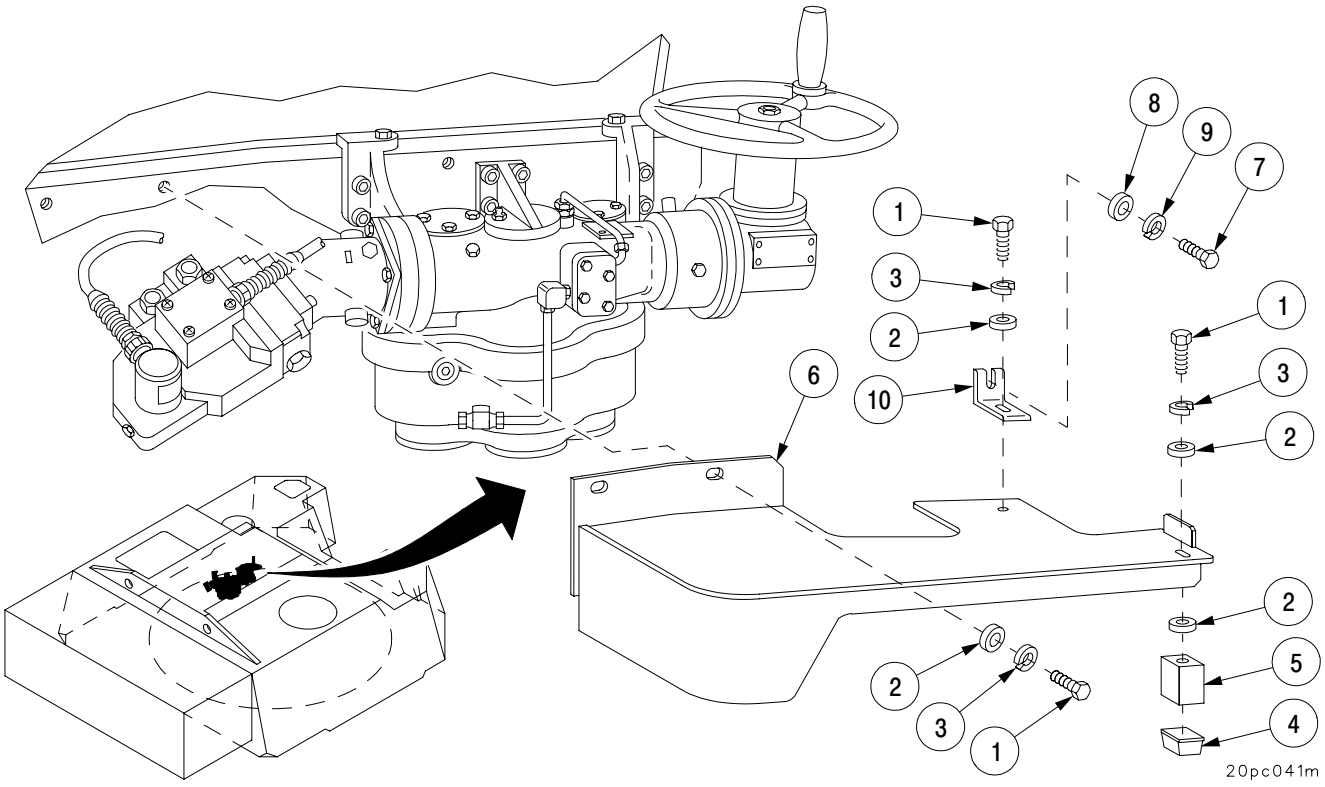
Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)

Materials/Parts
Lockwashers (5) (item 128, Appx F)
Spacer (item 190, Appx F)

a. Removal.

1 Remove four screws (1), five flat washers (2), four lockwashers (3), spacer (4), support (5), and guard assembly (6). Discard lockwashers and spacer.

2 Remove screw (7), flat washer (8), lockwasher (9), and angle (10). Discard lockwasher.



20–1 TRAVERSING MECHANISM GUARD ASSEMBLY, ANGLE, AND SUPPORT – CONTINUED

b. Installation.

NOTE

- Remove paper liner from new spacer.
- Shim with flat washers as required, so support makes contact with traverse mechanism housing.

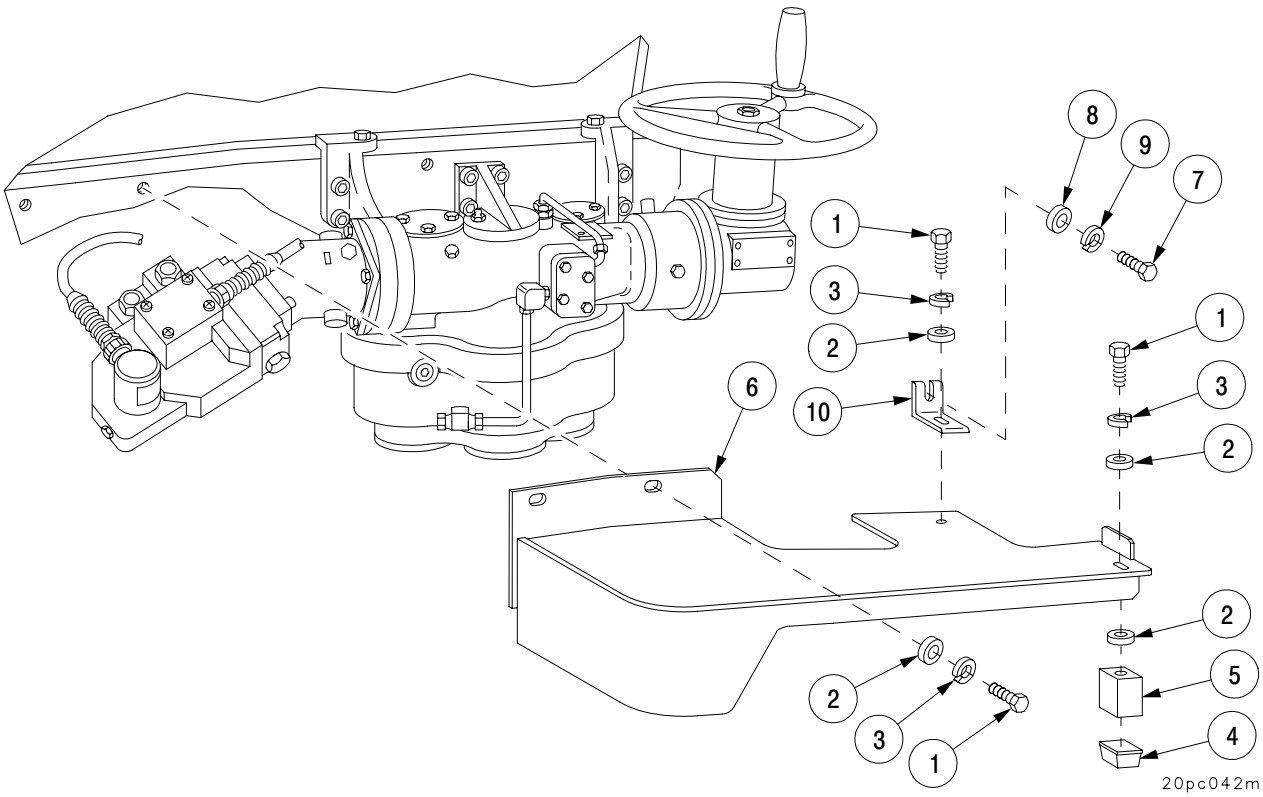
1 Position new spacer (4) on support (5).

2 Install new lockwasher (3), two flat washers (2), and screw (1).

3 Position guard assembly (6) and angle (10) and install three new lockwashers (3), three flat washers (2), and three screws (1).

4 Install new lockwasher (9), flat washer (8), and screw (7) securing angle (10) to traverse ring.

5 Torque all screws to 72–88 lb–ft (97–119 N·m).



20–2 TRAVERSING MECHANISM HANDWHEEL ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Cab traverse lock locked
(TM 9–2350–314–10)

Materials/Parts
Keywasher (item 206, Appx F)

a. Removal.

1 Straighten locking tab of keywasher (1).

2 Remove nut (2) and keywasher (1) from shaft (3). Discard keywasher.

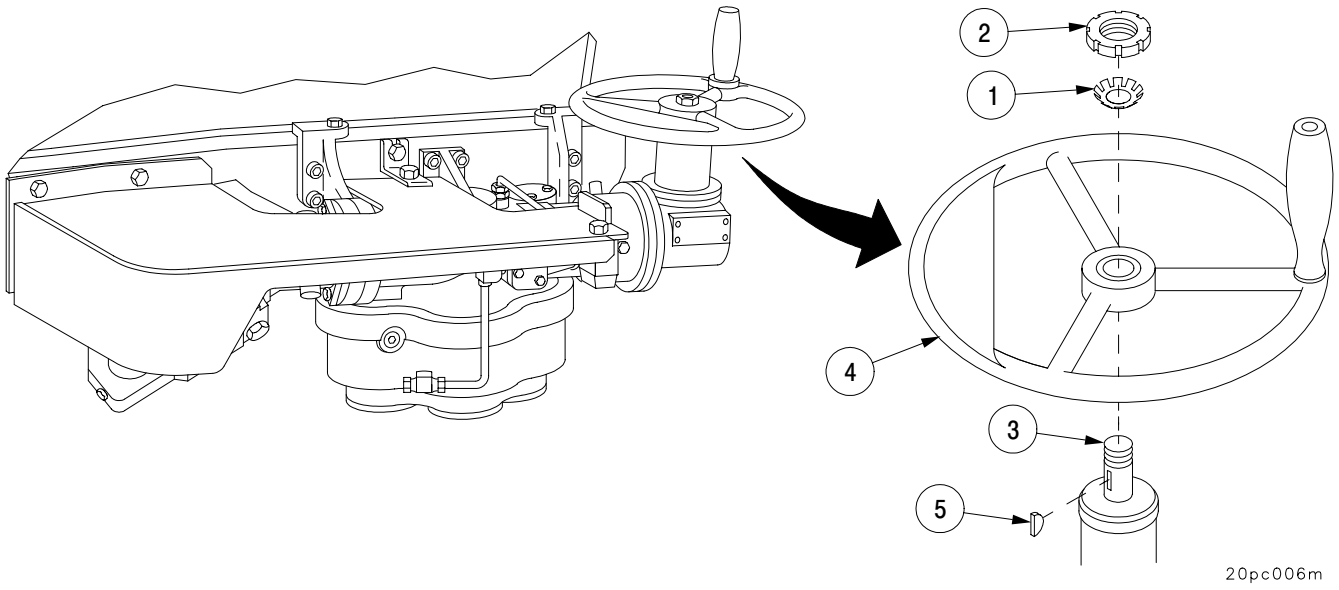
3 Remove handwheel (4) and upper key (5) from shaft (3).

b. Installation.

1 Install upper key (5) and handwheel (4) on shaft (3).

2 Install new keywasher (1) and nut (2) on shaft (3).

3 Bend locking tab of keywasher (1) into slot of nut (2) to secure nut (2) on shaft (3).



CHAPTER 21
COMMUNICATIONS

GENERAL

This chapter illustrates and describes maintenance procedures for communications components, electrical leads, wiring harnesses, antennas, and mounting plates. Step–by step procedures are provided for removal, repair, and installation as required by unit level maintenance.

CONTENTS

21–1 MASTER CONTROL STATION (MCS) AND MOUNTS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 145, Appx F)
Lockwashers (2) (item 247, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

WARNING

Read TB 43–0129 before performing maintenance of communications components. Failure to follow safety requirements of TB 43–0129 could result in personnel injury or death.

NOTE

Tag cables and leads before disconnecting to aid in installation.

1 Disconnect six cable connectors (1, 2, 3, 4, 5, and 6) and two line leads (7) from master control station (8).

2 Remove screw (9) and two lockwashers (10) that secure ground strap lead (11) to vehicle. Discard lockwashers.

3 Remove four nuts (12), four lockwashers (13), four flat washers (14), four mounts (15), and ground lead (11) that secures master control station (8) to vehicle. Remove master control station (8). Discard lockwashers.

b. Installation.

NOTE

If master control station is being replaced, refer to TM 11–5830–263–10 for reprogramming after installation.

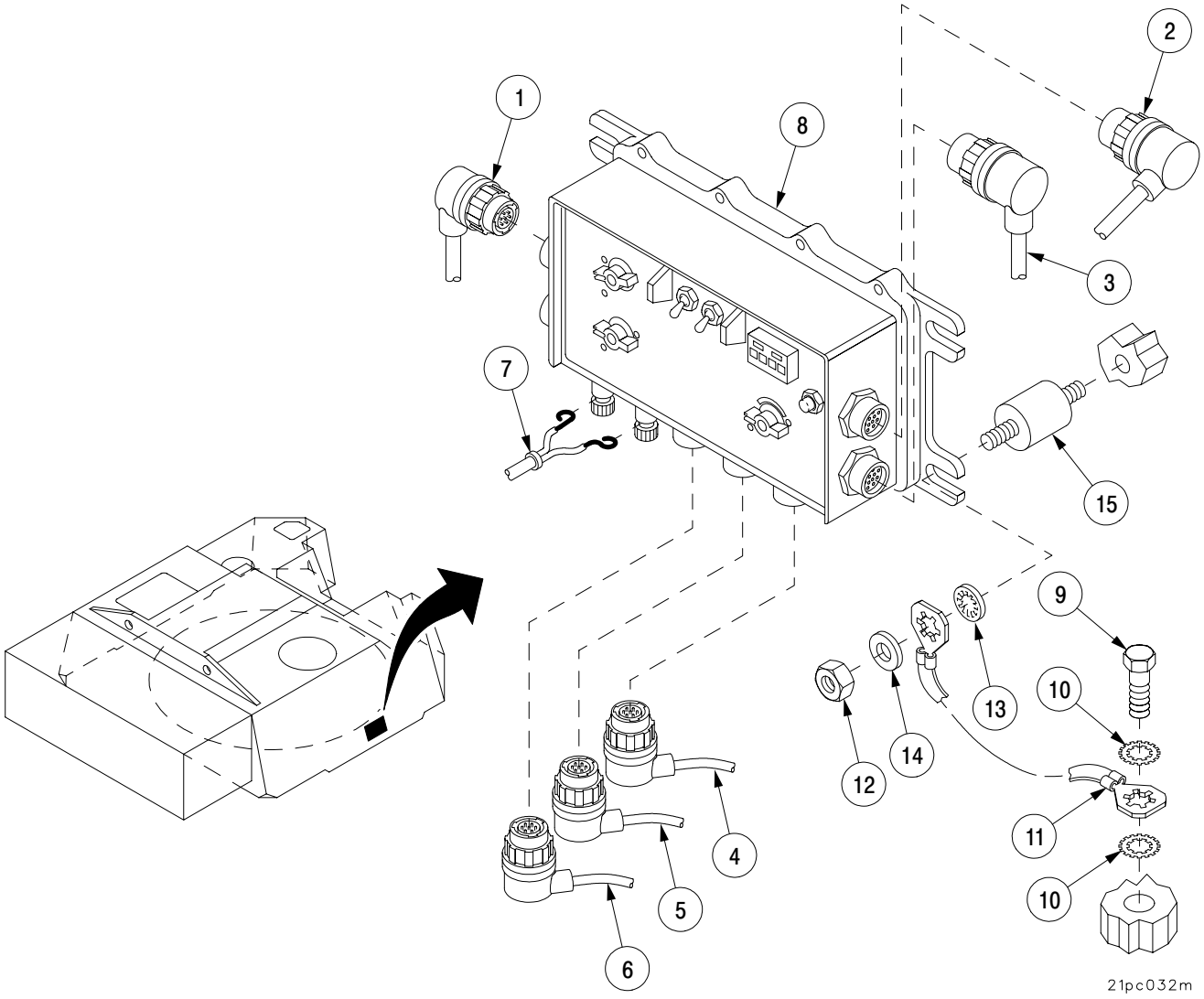
1 Position master control station (8) on vehicle and secure by installing four mounts (15), four new lockwashers (13), ground lead (11), four flat washers (14), and four nuts (12).

21–1 MASTER CONTROL STATION (MCS) AND MOUNTS – CONTINUED

b. Installation – Continued

2 Secure ground lead (11) to vehicle with screw (9) and two new lockwashers (10).

3 Connect lead assembly (7) and six cable connectors (1, 2, 3, 4, 5, and 6) to master control station (8).



21–2 FULL FUNCTION CREW STATION (FFCS).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 145, Appx F)
Lockwashers (2) (item 147, Appx F)
Tiedown strap (item 84, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

WARNING

Maintenance personnel should be familiar with the requirements of TB 43–0129 before attempting replacement of equipment. Failure to follow requirements could result in injury or death.

NOTE

- There are four full function crew stations, COMMANDER, CANNONEER, and AUXILIARY stations have two cable assemblies connected; the GUNNER'S station has only one cable assembly connected. The removal and installation procedures are identical. This procedure is for the COMMANDER'S station.
- Tag cables before disconnecting to aid in installation.

1 Disconnect cable assemblies (1) from full function crew station (2).

2 Disconnect headset bailout connector (3) from full function crew station (2).

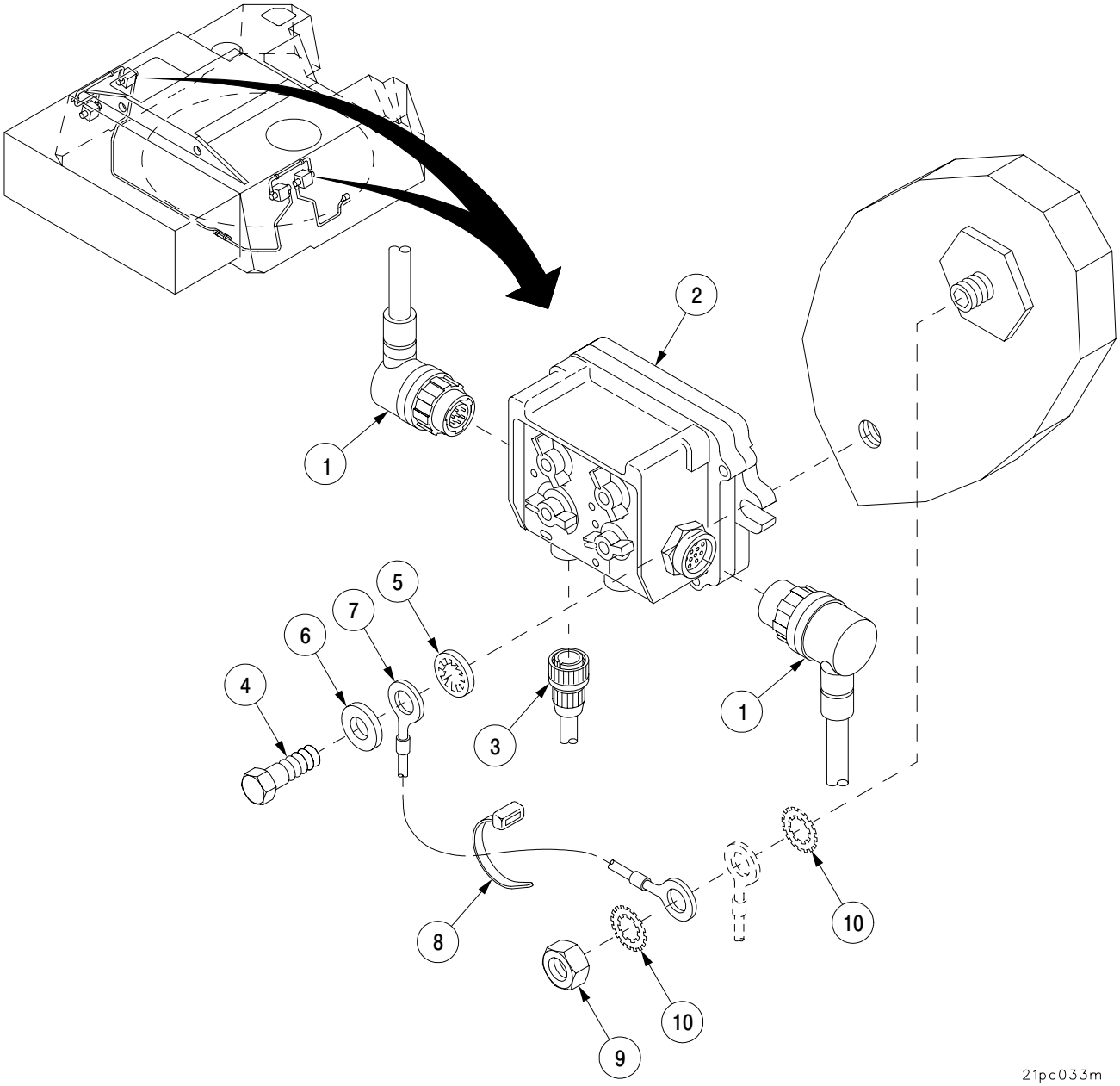
21–2 FULL FUNCTION CREW STATION (FFCS) – CONTINUED

a. Removal – Continued

3 Remove two screws (4), two lockwashers (5), two flat washers (6), ground lead (7), and full function crew station (2). Discard lockwashers.

4 Cut and discard tiedown strap (8).

5 Remove nut (9), two lockwashers (10), and ground lead (7). Discard lockwashers.



21–2 FULL FUNCTION CREW STATION (FFCS) – CONTINUED

b. Installation.

NOTE

If any of the four full function crew stations are being replaced, refer to TM 11–5830–263–10 to set station signal prior to installation.

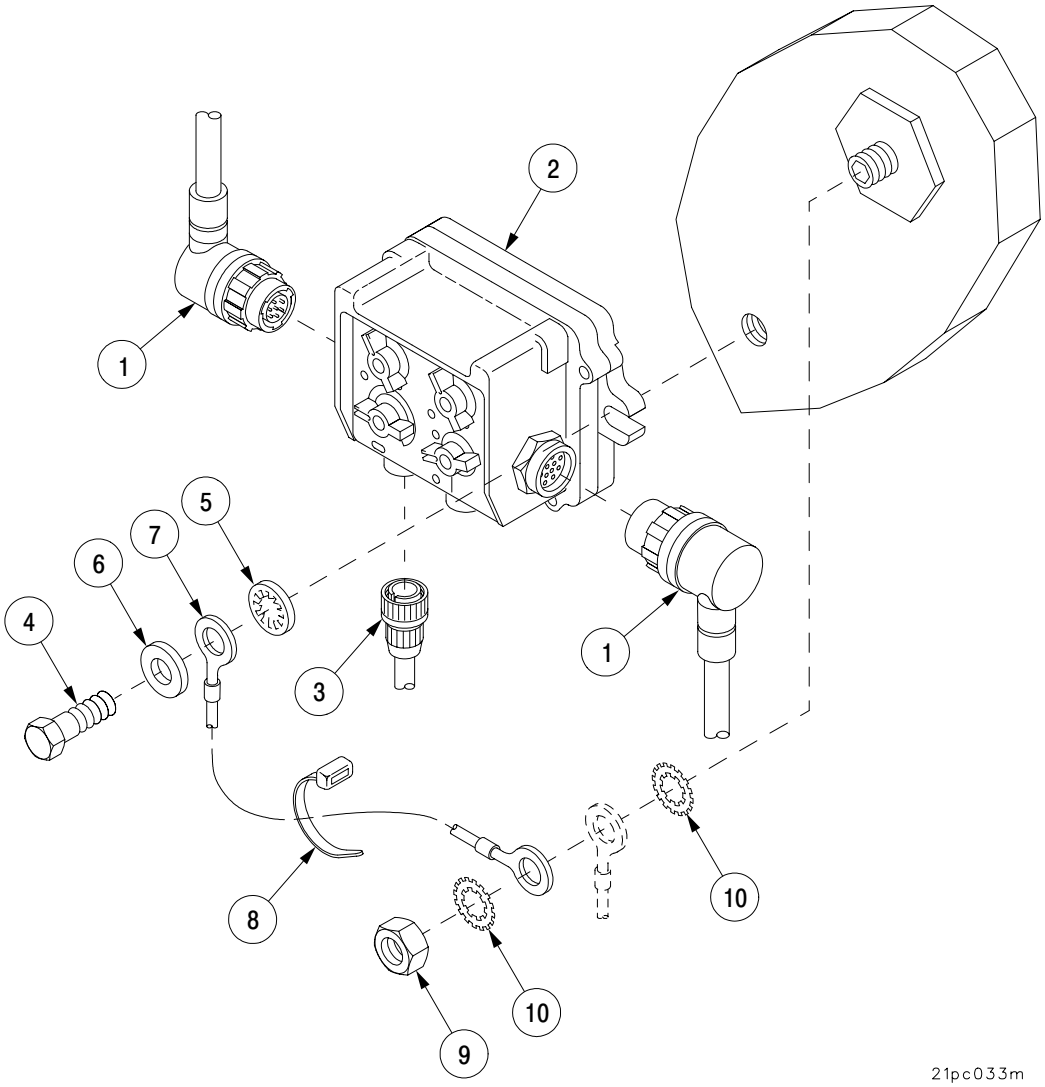
1 Install ground lead (7), two new lockwashers (10), and nut (9).

2 Install full function crew station (2), ground lead (7), two new lockwashers (5), two flat washers (6), and two screws (4).

3 Install new tiedown strap (8).

4 Connect headset bailout connector (3) to full function crew station (2).

5 Connect cable assemblies (1) to full function crew station (2).



21–3 MOUNTING BASE AND PLATE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (3) (item 147, Appx F)
Lockwashers (4) (item 247, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Radios removed (TM 9–2350–314–10)
Communication cables disconnected (para 21–7)

References
TM 9–2350–314–10

a. Removal.

WARNING

Read TB 43–0129 before performing maintenance of communications components. Failure to follow safety requirements of TB 43–0129 could result in personal injury or death.

21–3 MOUNTING BASE AND PLATE – CONTINUED

a. Removal – Continued

1 Remove four screws (1) and four lockwashers (2) that secure mounting base (3) to plate (4). Remove mounting base. Discard lockwashers.

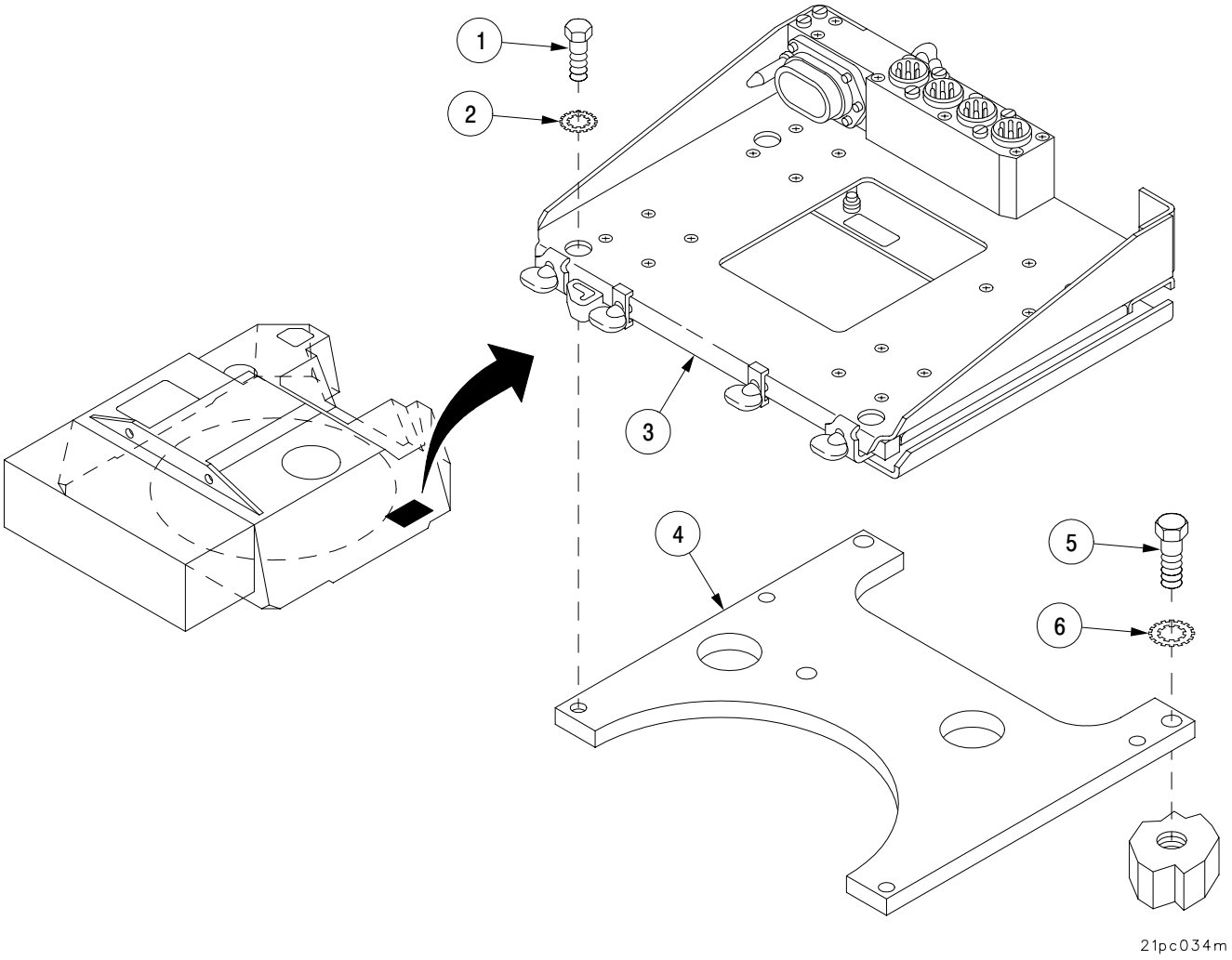
2 Remove three screws (5) and three lockwashers (6) that secure plate (4) to vehicle. Remove plate. Discard lockwashers.

b. Installation.

1 Position plate (4) on vehicle and install three new lockwashers (6) and three screws (5).

2 Position mounting base (3) on plate (4) and install four new lockwashers (2) and four screws (1).

3 Install radios (TM 9–2350–314–10).



21–4 RIGHT SIDE ANTENNA AND MOUNT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 144, Appx F)
Lockwashers (6) (item 130, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

WARNING

- Maintenance personnel should be familiar with the requirements of TB 43–0129 before attempting replacement of equipment. Failure to follow the requirements of TB 43–0129 could result in injury or death.
- Dangerous RF voltages, up to 10,000 volts, may exist at radio elements and connectors. Avoid radio frequency burns. Stay in or stay clear of vehicle when transmitting with the radio.

21–4 RIGHT SIDE ANTENNA AND MOUNT – CONTINUED

a. Removal – Continued

1 Remove screw (1), two lockwashers (2), and ground lead (3) from vehicle. Discard lockwashers.

2 Remove four screws (4), four lockwashers (5), antenna (6) and gasket (6.1) from mount (7) (screws, lockwashers and gasket supplied with antenna).

3 Disconnect cable assembly (8) from antenna (6).

4 Remove four screws (9), four lockwashers (10), four flat washers (11), two screws (12), two lockwashers (13), two flat washers (14), two plates (15), and mount (7). Discard lockwashers.

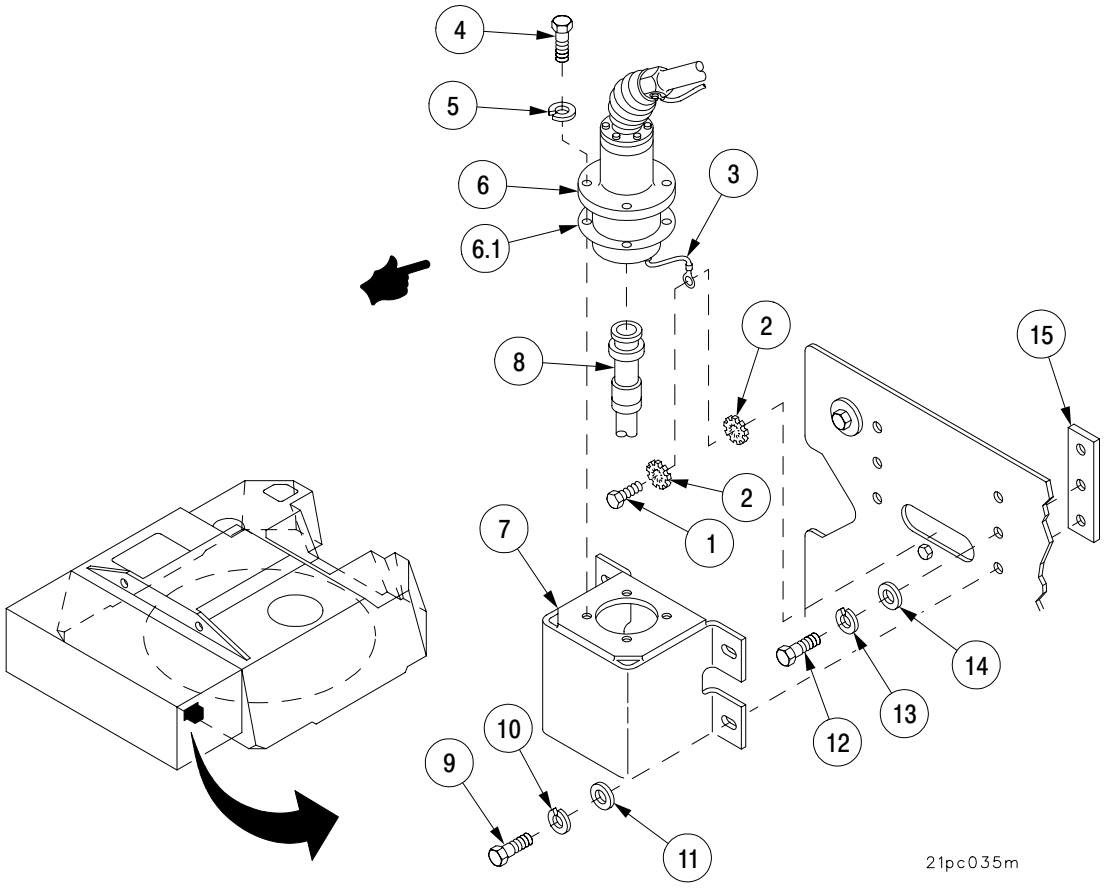
b. Installation.

1 Install mount (7) and two plates (15) on vehicle with four screws (9), four new lockwashers (10), four flat washers (11), two screws (12), two new lockwashers (13), and two flat washers (14).

2 Connect cable assembly (8) to antenna (6).

3 Install antenna (6) and gasket (6.1) on mount (7) with four screws (4) and four lockwashers (5) (screws, lockwashers, and gasket supplied with antenna).

4 Attach ground lead (3) to vehicle with screw (1) and two new lockwashers (2).



21–5 LEFT SIDE ANTENNA AND MOUNT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 144, Appx F)
Lockwashers (4) (item 130, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

WARNING

- Maintenance personnel should be familiar with the requirements of TB 43–0129 before attempting replacement of equipment. Failure to follow requirements of TB 43–0129 could result in injury or death.
- Dangerous RF voltages, up to 10,000 volts, may exist at radio elements and connectors. Avoid radio frequency burns. Stay in or stay clear of vehicle when transmitting with the radio.

21–5 LEFT SIDE ANTENNA AND MOUNT – CONTINUED

a. Removal – Continued

1 Remove screw (1), two lockwashers (2), and ground lead (3) from vehicle. Discard lockwashers.

2 Remove four screws (4), four lockwashers (5), antenna (6) and gasket (6.1) from mount (7) (screws, lockwashers and gasket supplied with antenna). Discard lockwashers.

3 Disconnect cable assembly (8) from antenna (6).

4 Remove two screws (9), two flat washers (10), and grommet (11).

5 Remove four screws (12), four lockwashers (13), four flat washers (14), and mount (7). Discard lockwashers.

b. Installation.

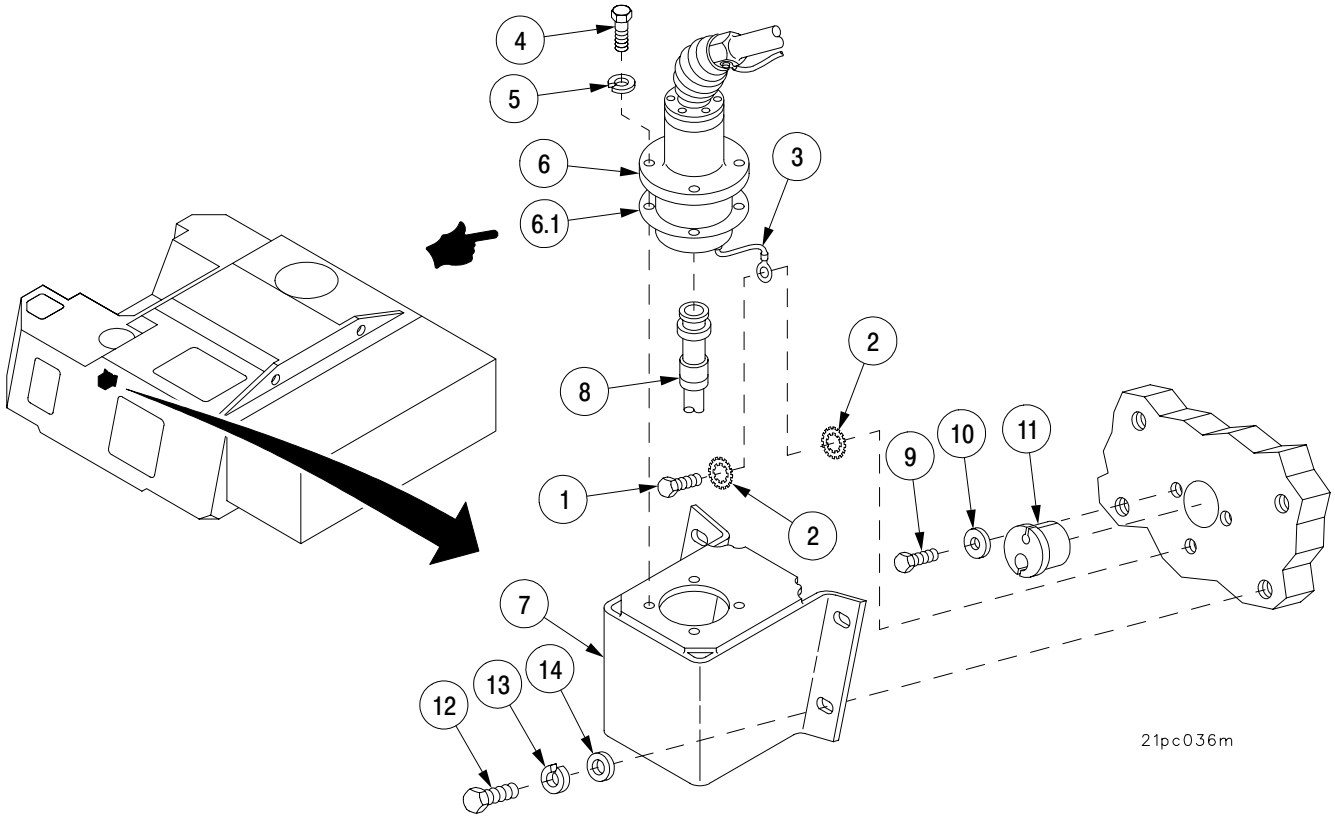
1 Position mount (7) on vehicle with four screws (12), four new lockwashers (13), and four flat washers (14).

2 Install grommet (11) with two flat washers (10) and two screws (9).

3 Connect cable assembly (8) to antenna (6).

4 Install antenna (6) and gasket (6.1) on mount (7) with four screws (4) and four lockwashers (5) (screws, lockwashers and gasket supplied with antenna).

5 Attach ground lead (3) to vehicle with screw (1) and two new lockwashers (2).



21–6 WIRE LINE TERMINALS AND ANTENNA CABLE GUARDS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 129, Appx F)
Lockwashers (4) (item 99, Appx F)
Lockwashers (2) (item 130, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

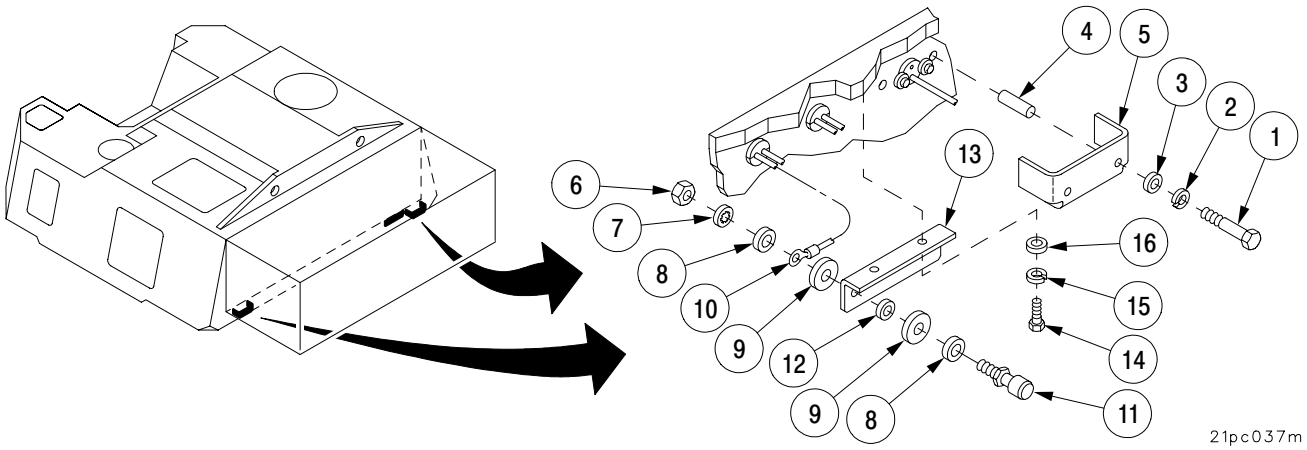
NOTE

- Before removal, tag connectors for identification during installation.
- If required, depress four terminal ends to release leads.
- There are two antenna cable guards mounted on the left and right side of vehicle. The removal and installation procedures are identical for both. This procedure covers only the right side.

1 Remove two screws (1), two lockwashers (2), two flat washers (3), two spacers (4), and cable guard (5) from cab. Discard lockwashers.

2 Remove four nuts (6), four lockwashers (7), eight flat washers (8), eight flat washers (9), four leads (10), four terminals (11), and four flat washers (12) from bracket (13). Discard lockwashers.

3 Remove two screws (14), two lockwashers (15), two flat washers (16), and bracket (13) from cab. Discard lockwashers.



21–6 WIRE LINE TERMINALS AND ANTENNA CABLE GUARDS – CONTINUED

a. Removal – Continued

NOTE

Four rubber grommets are located in rear cab plate: one behind each cable guard and two behind bracket.

4 Remove two screws (17), two flat washers (18), and rubber grommet (19) from cab.

5 From outside vehicle, push two grommets (20) through cab wall.

6 Remove four leads (10) from two grommets (20) through slits in side of grommet (20).

b. Installation.

1 Install four leads (10) through slits in sides of two grommets (20).

2 From inside vehicle, push two grommets (20) with four leads (10) into cab wall.

3 Install rubber grommet (19) with two screws (17) and two flat washers (18) on cab.

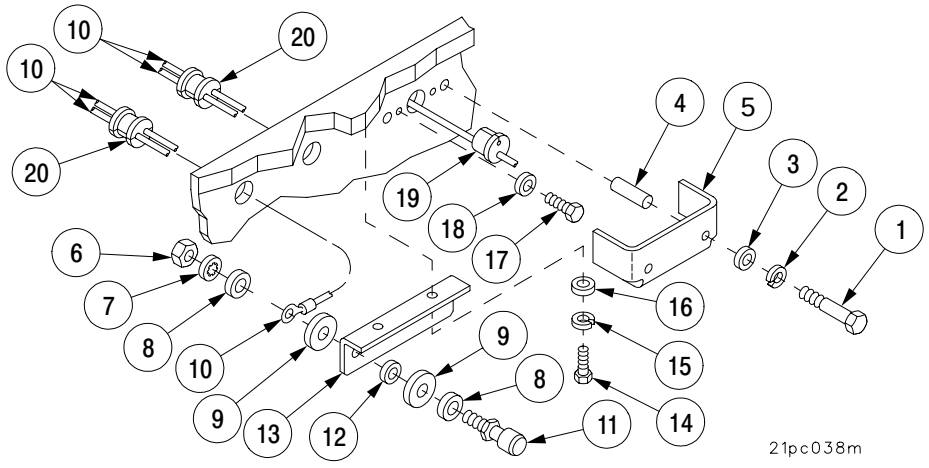
4 Install bracket (13) with two screws (14), two new lockwashers (15), and two flat washers (16) on bottom of bustle.

5 Install four terminals (11) with eight flat washers (8), eight flat washers (9), four flat washers (12), four leads (10), four new lockwashers (7), and four nuts (6) in bracket (13).

NOTE

If required, depress four terminal ends to install removed leads.

6 On rear cab plate under bustle, install cable guard (5) with two screws (1), two new lockwashers (2), two flat washers (3), and two spacers (4) on cab.



21–7 COMMUNICATION WIRING HARNESSES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (14) (item 128, Appx F)
Lockwashers (6) (item 99, Appx F)
Lockwashers (2) (item 129, Appx F)
Tiedown straps (12) (item 76, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

WARNING

Read TB 43–0129 before performing maintenance of communications components. Failure to follow safety requirements of TB 43–0129 could result in personnel injury or death.

21–7 COMMUNICATION WIRING HARNESSES – CONTINUED

NOTE

- All communications cable and lead assemblies are disconnected and connected by hand in a like manner.
- Table lists beginning and ending points of each cable/lead assembly and any mounting hardware required.

Cable/ Lead Assy		From	To	Attach Hardware
A	A3014032–7	Rec/Trans (J1)	Antenna (J1)	B
B	A3206129–2	MCS (P2)	W62A Harness (P1)	
C	A3206017–5	MCS (P1)	AMP (P2)	
D	A3206019–6	MCS (P1)	AMP (P2)	
E	12991163 (W12A)	ACU (P1)	AMP (J1)	2 ea. – B, straps
F	12910592	MCS (Line)	Voice (L1, L2)	
G	A3206021–1	MCS (P1)	W10 Harness (P2)	
H	12553923 (W10)	AFCS (L3, L4)	ACU (J4) To Harness A3206021–1 (P2) To MCS	
J	A3206193–6	MCS (P1)	Loudspeaker	
K	A3206018–6	MCS (P2)	Commander's Set (P2)	
L	12553934 (W26)	PCU (P1)	AMP (P2)	
M	A3014031–7	Rec/Trans (J1)	Antenna (J1)	4 ea. – C, clamps
N	A3206018–20	Cannoneer's Set (P2)	Auxiliary Set (P1)	2 ea. – B, straps
P	A3206018–3	Cannoneer's Set (P2)	Commander's Set (P1)	2 ea. – B, straps
Q	A3206018–4	Gunner's Set (P2)	Auxiliary Set (P1)	1 ea. – A, clamp 1 ea. – B, strap

a. Removal.

1 Disconnect cable/lead assembly being removed (A thru Q) at each end.

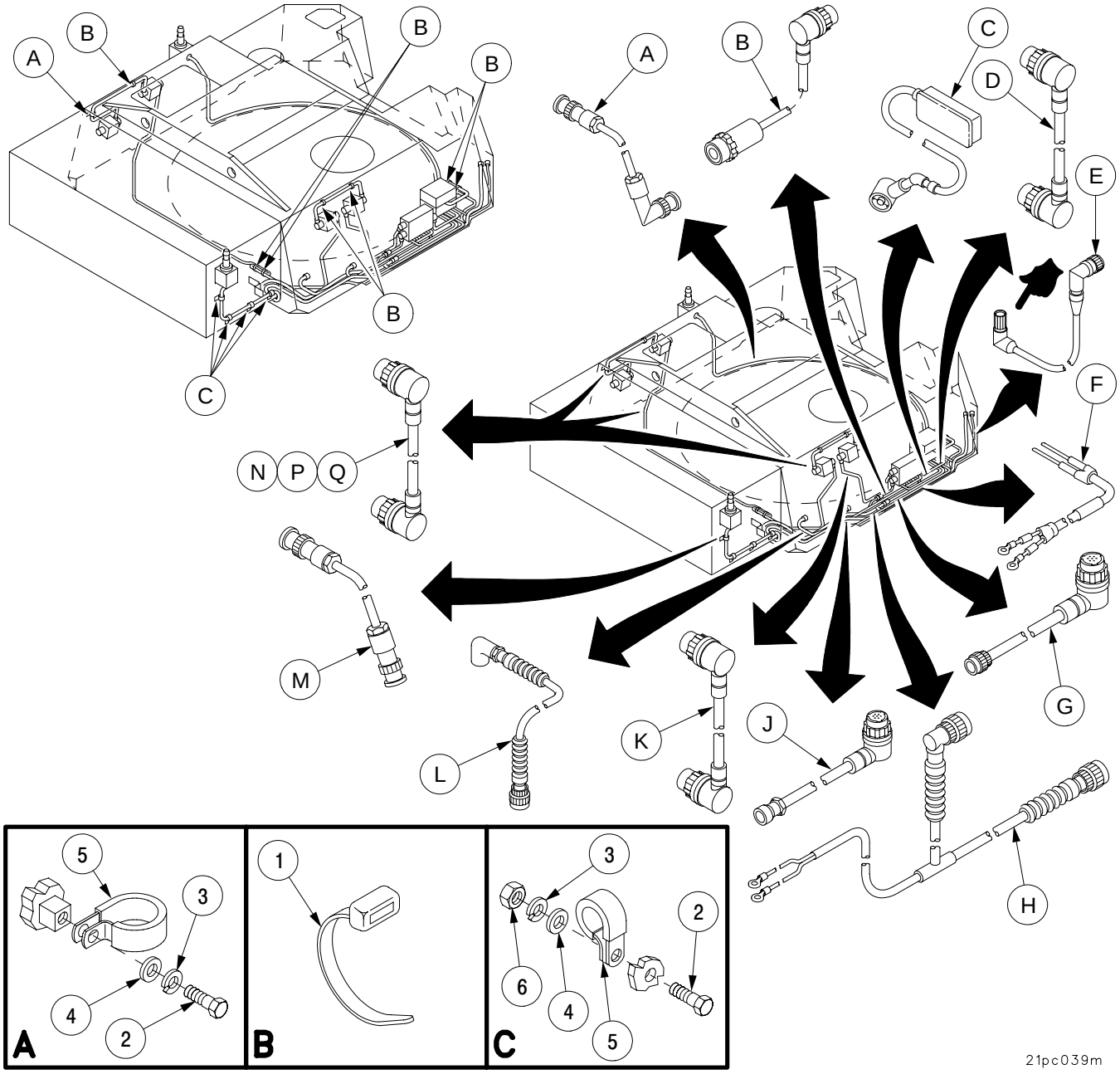
2 Remove any attaching hardware (1–6) as needed. Remove cable/lead assembly from vehicle. Discard any lockwashers or straps removed.

21–7 COMMUNICATION WIRING HARNESSES – CONTINUED

b. Installation.

1 Install cable/lead assembly (A thru Q) on vehicle with required attaching hardware (1–6). Use new lockwashers and straps where required.

2 Connect both ends of cable/lead assembly.



21–8 WIRING HARNESS W10.

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 99, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

WARNING

Read TB 43–0129 before performing maintenance of communications components. Failure to follow safety requirements of TB 43–0129 could result in personnel injury or death.

1 Disconnect connector (1) of cable assembly (2) at AFCS computer unit (3).

2 Disconnect connector (4) of cable assembly (2) at cable (A3206021–1) connector (5).

3 Disconnect cable assembly (2) terminal lugs (6) from AFCS terminal lugs (7) by removing two nuts (8), two lockwashers (9), and two flat washers (10). Discard lockwashers.

4 From inside the vehicle, force rubber grommet (11) through bulkhead and remove cable assembly (2).

b. Repair.

If repair of cable is necessary, refer to para 2–9.

21–8 WIRING HARNESS W10 – CONTINUED

c. Installation.

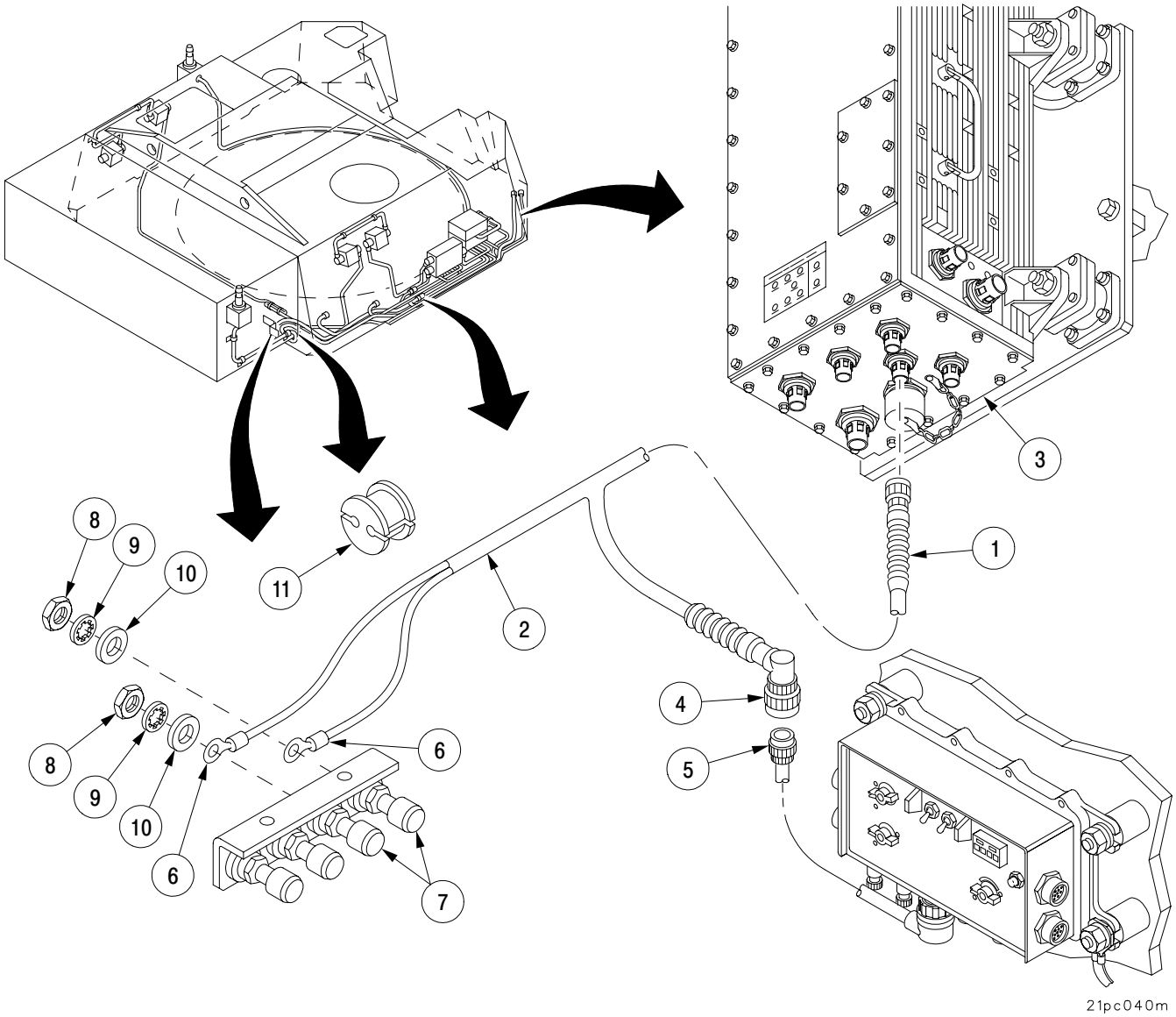
1 Run cable assembly (2) through bulkhead and attach rubber grommet (11) to cable wires.

2 Install rubber grommet (11) into hole in bulkhead from outside of vehicle.

3 Install cable assembly (2) terminal lugs (6) on AFCS terminals (7) with two flat washers (10), two new lockwashers (9), and two nuts (8).

4 Connect connector (4) of cable assembly (2) at cable (A3206021–1) connector (5).

5 Connect connector (1) of cable assembly (2) to AFCS computer unit (3).



21–9 LEAD ASSEMBLY, COMMUNICATIONS AMPLIFIER TO TELEPHONE TERMINAL (VOICE).

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 99, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

a. Removal.

WARNING

Read TB 43–0129 before performing maintenance of communications components. Failure to follow safety requirements of TB 43–0129 could result in personal injury or death.

1 Disconnect L1 (1) and L2 (2) of lead assembly (3) at amplifier master control station terminals (4).

2 Disconnect lead assembly (3) from voice terminal lugs (5) by removing two nuts (6), two lockwashers (7), and two flat washers (8). Discard lockwashers.

3 From inside of vehicle, force rubber grommet (9) through bulkhead and remove lead assembly (3).

b. Repair.

Repair cable assembly (para 2–9).

c. Installation.

1 Run lead assembly (3) through bulkhead and attach rubber grommet (9) to lead wires.

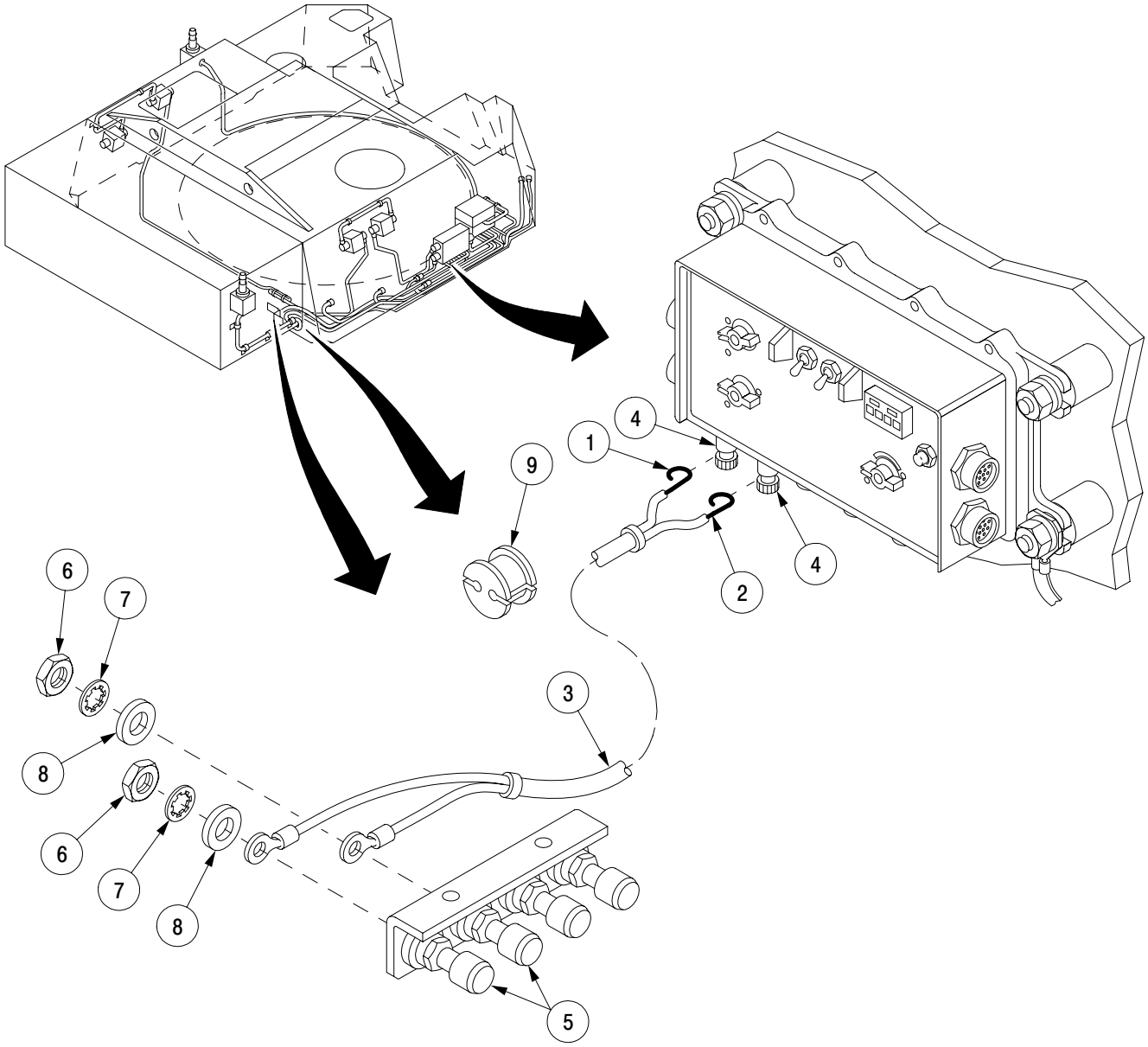
2 Install rubber grommet (9) through hole in bulkhead from outside of vehicle.

3 Install lead assembly (3) on voice terminals (5) with two flat washers (8), two new lockwashers (7), and two nuts (6).

4 Connect L1 (1) and L2 (2) of lead assembly (3) at amplifier master control station terminals (4).

21–9 LEAD ASSEMBLY, COMMUNICATIONS AMPLIFIER TO TELEPHONE TERMINAL (VOICE) – CONTINUED

c. Installation – Continued



21pc041m

21–10 PLGR ANTENNA AND MOUNT.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 56, Appx G)

Materials/Parts
Screws (4) (item 143, Appx F)
Lockwashers (4) (item 120, Appx F)
Lockwashers (6) (item 130, Appx F)
Lockwasher (item 127, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

WARNING

Maintenance personnel should be familiar with the requirements of TB 43–0129 before attempting replacement of equipment. Failure to follow the requirements of TB 43–0129 could result in injury or death.

21–10 PLGR ANTENNA AND MOUNT – CONTINUED

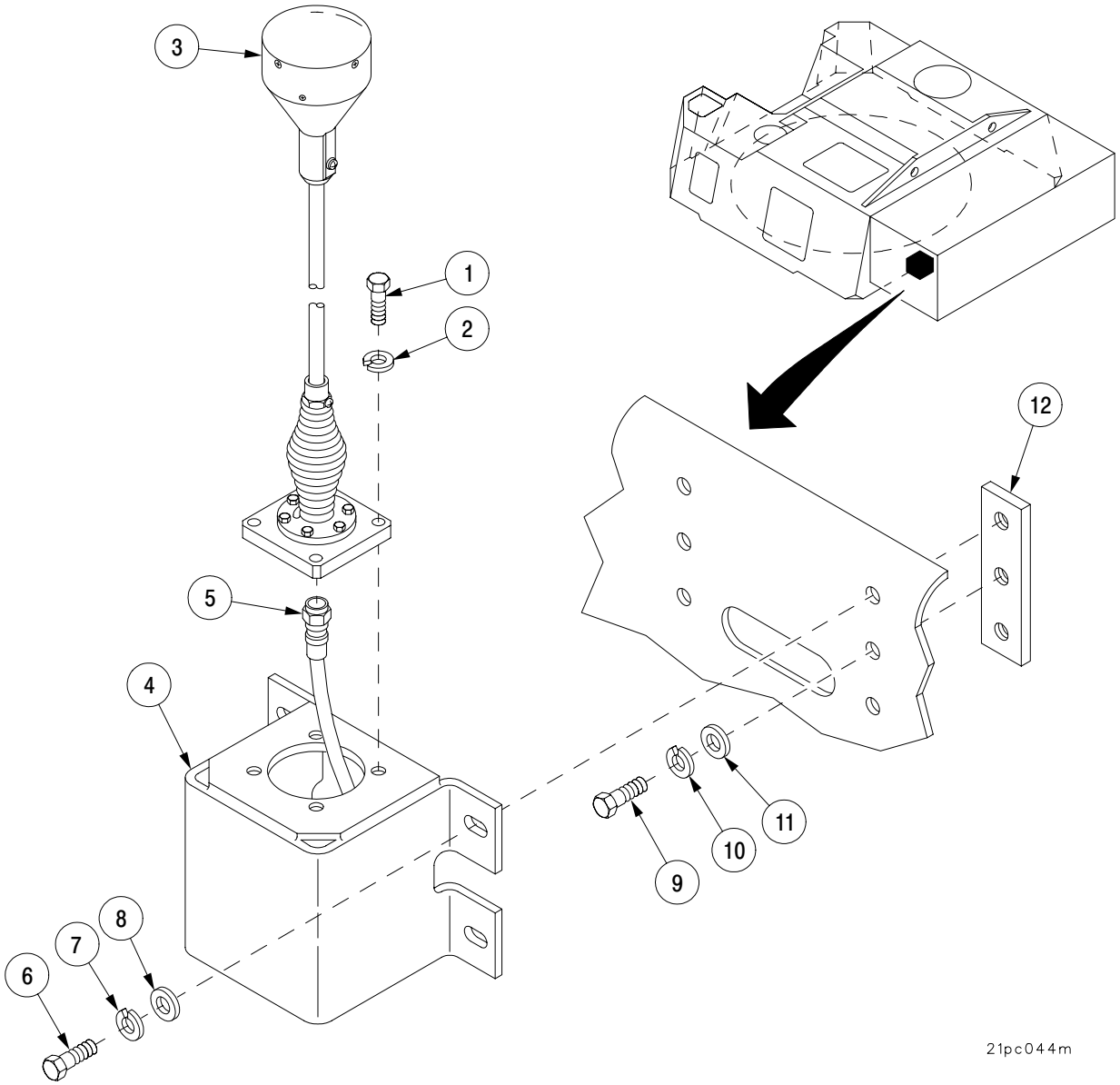
a. Removal.

1 Remove four screws (1), four lockwashers (2), and antenna assembly (3) from mount (4). Discard lockwashers.

2 Disconnect cable assembly (5) from antenna assembly (3).

3 Remove four screws (6), four lockwashers (7), four flat washers (8) and mount (4). Discard lockwashers.

4 Remove two screws (9), two lockwashers (10), two flat washers (11) and two plates (12). Discard lockwashers.



21–10 PLGR ANTENNA AND MOUNT – CONTINUED

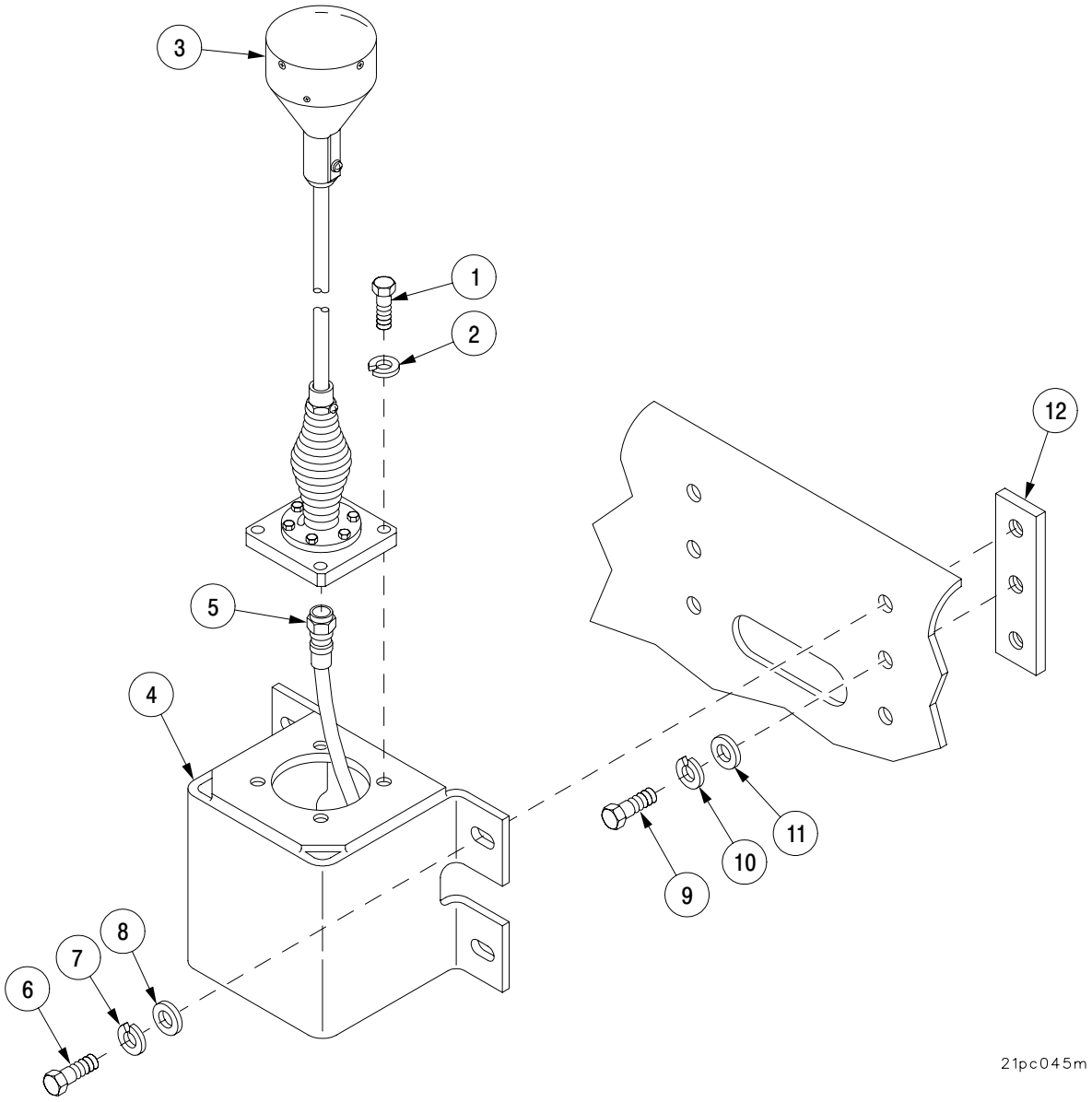
b. Installation.

1 Install two plates (12) on vehicle with two screws (9), two new lockwashers (10), and two flat washers (11).

2 Install mount (4) on vehicle with four screws (6), four new lockwashers (7), and four flat washers (8).

3 Connect cable assembly (5) to antenna assembly (3).

4 Install antenna assembly (3) on mount (4) with four screws (1) and four new lockwashers (2). Torque screws to 90–100 inch pounds (797–885 N·m).



CHAPTER 22
CAB AND HULL NAVIGATION

GENERAL

This chapter illustrates and describes maintenance procedures for the Vehicle Motion Sensor (VMS), VMS modem, shaft assembly, wiring harness, and Dynamic Reference Unit Hybrid (DRUH). Step–by step procedures are provided for removal and installation as required for unit level maintenance.

CONTENTS

22–1 VEHICLE MOTION SENSOR (VMS).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 128, Appx F)
Self–locking nuts (4) (item 71, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Right transmission access door open (TM 9–2350–314–10)

a. Removal.

CAUTION

Do not twist or turn harness connector backshell when loosening coupling nuts or pins may break.

1 Disconnect electrical connector (1) from top of VMS assembly (2).

2 Remove four self–locking nuts (3), four screws (4), four lockwashers (5), four flat washers (6), and VMS assembly (2). Discard lockwashers and self–locking nuts.

3 Disconnect shaft assembly (7) from bottom of VMS assembly (2).

b. Installation.

CAUTION

Align key and keyway of harness connectors before pushing connector halves together or pins may break.

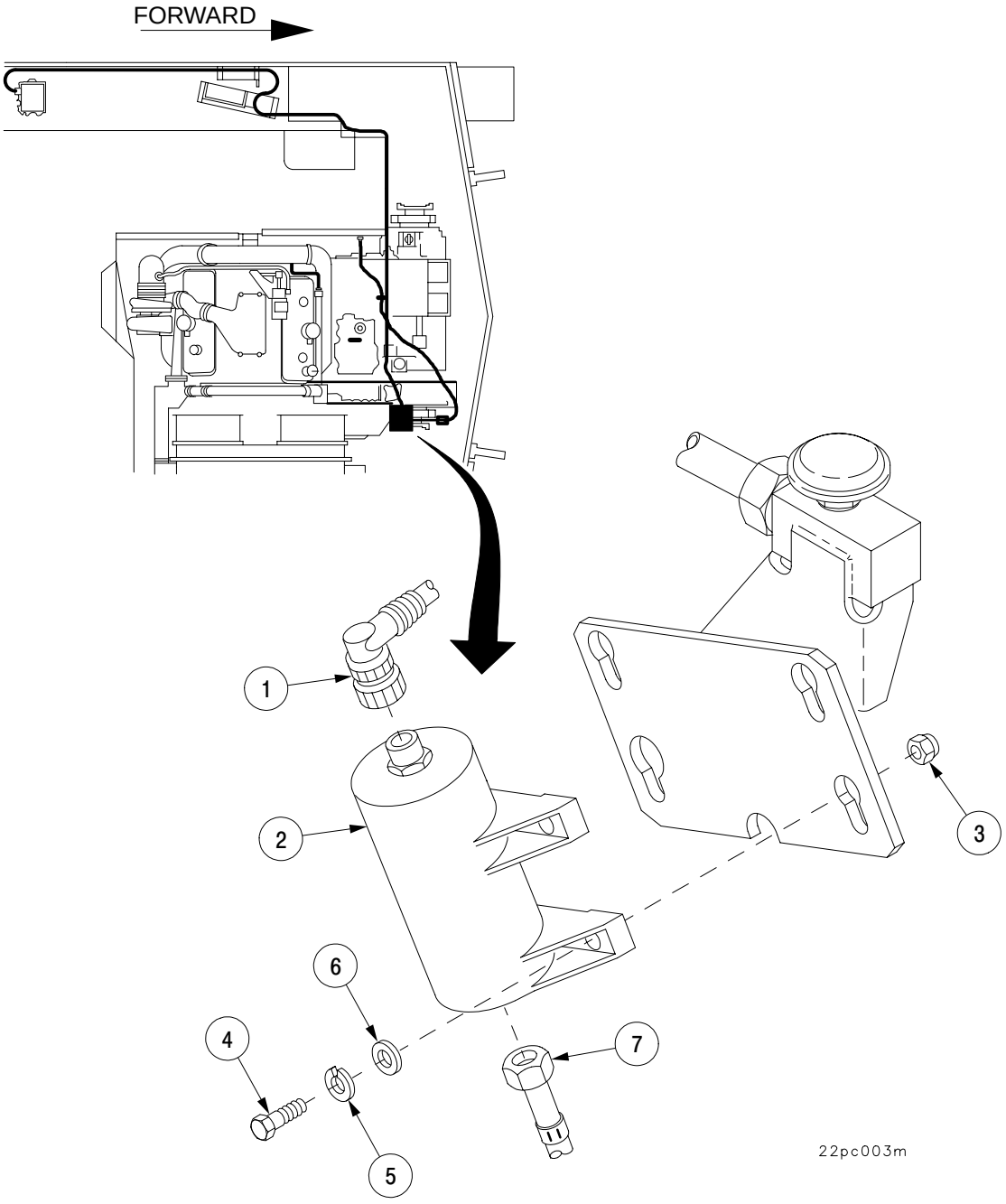
1 Connect shaft assembly (7) to bottom of VMS assembly (2).

2 Install VMS assembly (2) on bracket with four screws (4), four new lockwashers (5), four flat washers (6), and four new self–locking nuts (3).

3 Connect electrical connector (1) to top of VMS assembly (2).

22–1 VEHICLE MOTION SENSOR (VMS) – CONTINUED

b. Installation – Continued



22–2 VEHICLE MOTION SENSOR (VMS) SHAFT ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

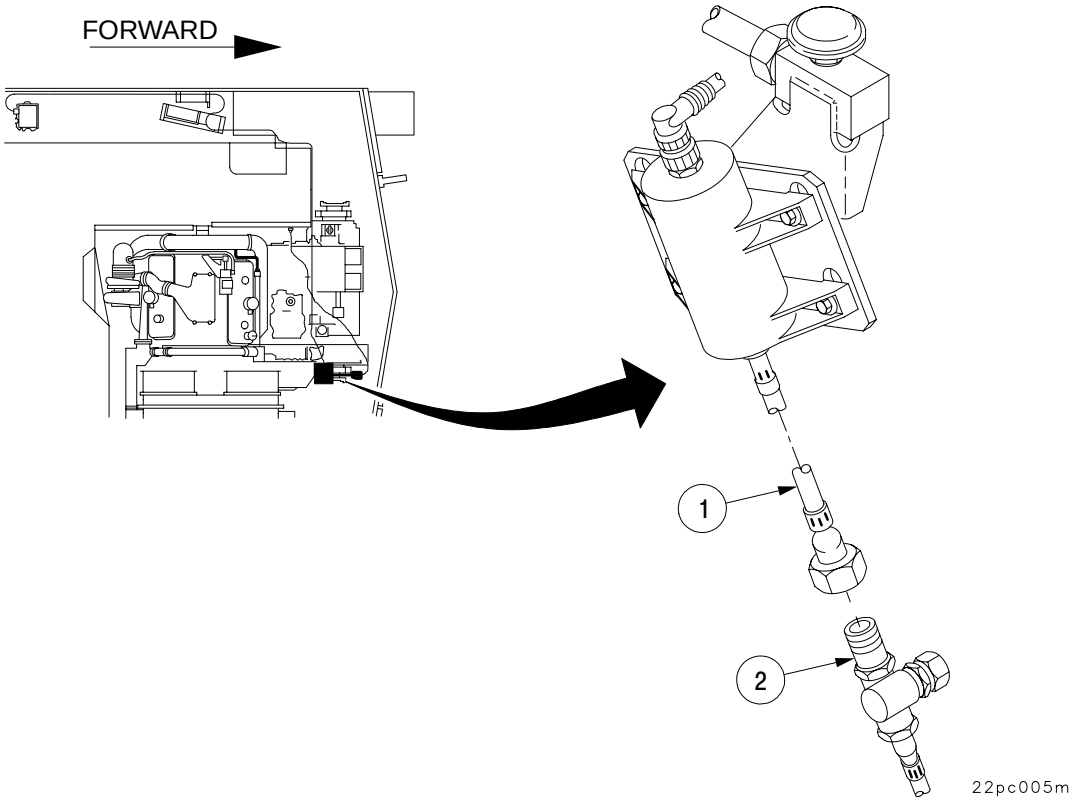
Equipment Conditions
Right transmission access door open
(TM 9–2350–314–10)
VMS removed (para 22–1)

a. Removal.

Disconnect shaft (1) from adapter (2).

b. Installation.

Connect shaft (1) to adapter (2).



22–3 VEHICLE MOTION SENSOR (VMS) BRACKET.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 130, Appx F)

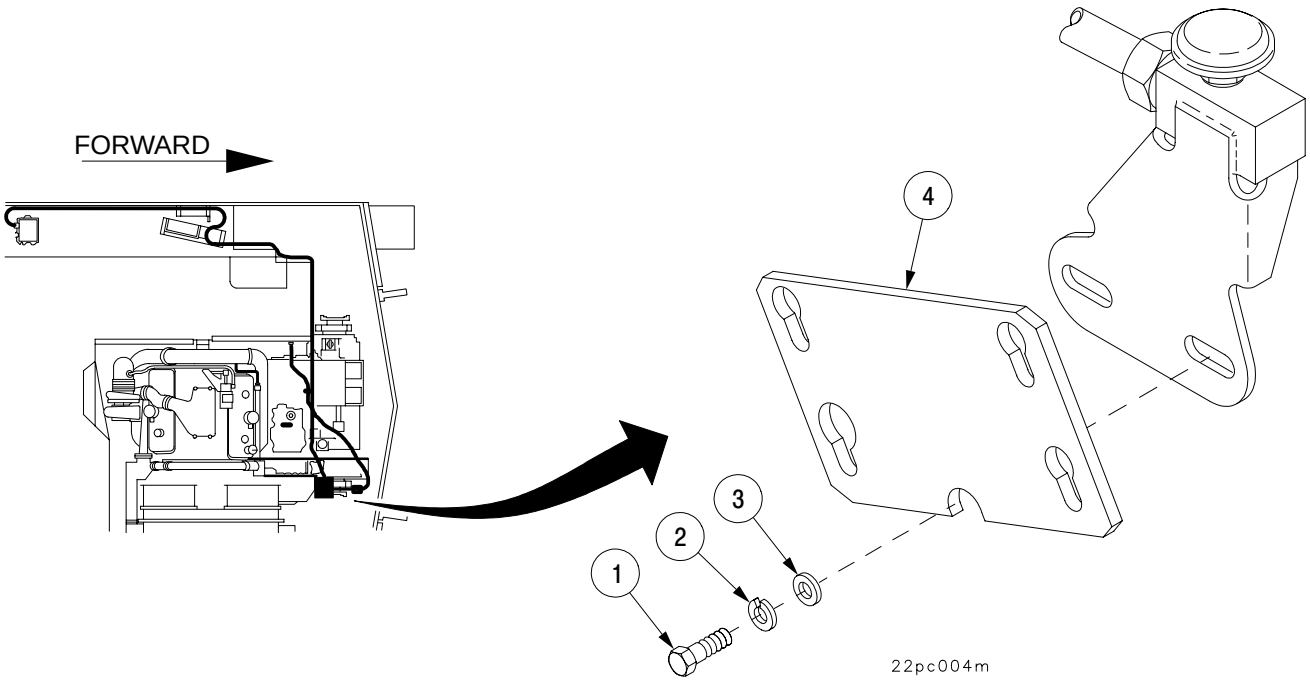
Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Right transmission access door open (TM 9–2350–314–10)
VMS removed (para 22–1)

a. Removal.

Remove two screws (1), two lockwashers (2), two flat washers (3), and bracket (4). Discard lockwashers.

b. Installation.

Install bracket (4) with two flat washers (3), two new lockwashers (2), and two screws (1).



22–4 VEHICLE MOTION SENSOR (VMS) MODEM (HULL).

This task covers: a. Removal b. Installation c. Testing

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (3) (item 130, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

References
TM 9–2350–314–10
TM 9–2350–314–20–1–2

a. Removal.

CAUTION

Do not twist or turn harness connector backshell when loosening coupling nuts, or pins may break.

1 Remove the following connectors from VMS modem by unscrewing coupling nuts and pulling connectors apart:

(a) Harness W21 connector P2 (1) from modem connector J1 (2).

(b) Harness W111A connector P1 (3) from modem connector J2 (4).

2 Remove three screws (5), three lockwashers (6), three flat washers (7), and VMS modem (8). Discard lockwashers.

b. Installation.

1 Position VMS modem (8) to vehicle with three flat washers (7), three new lockwashers (6), and three screws (5).

CAUTION

Align key and keyway of harness connectors before pushing connector halves together or pins may break.

2 Attach the following connectors:

(a) Harness W111A connector P1 (3) to modem connector J2 (4).

(b) Harness W21 connector P2 (1) to modem connector J1 (2).

22–4 VEHICLE MOTION SENSOR (VMS) MODEM (HULL) – CONTINUED

c. Testing.

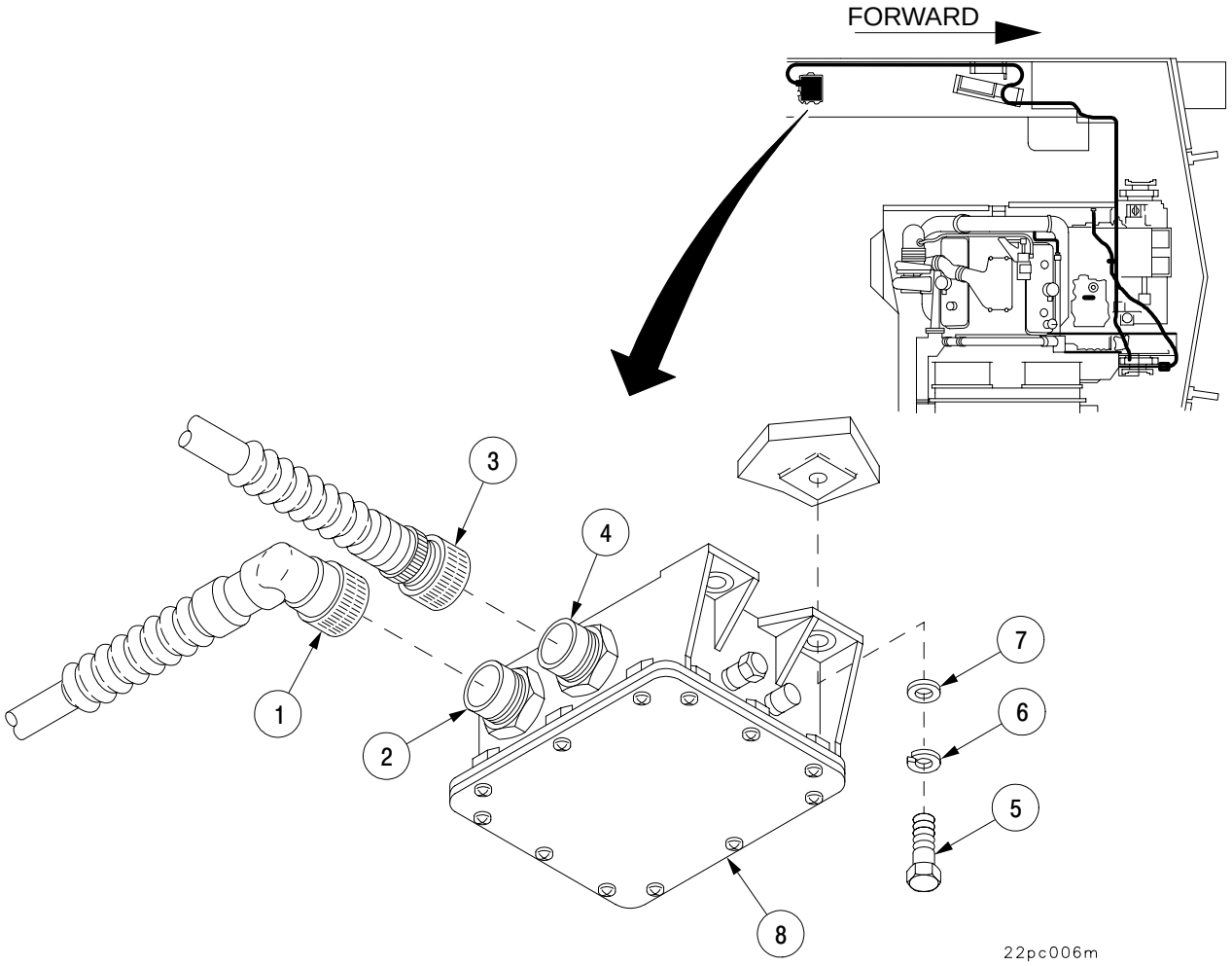
NOTE

Light of VMS modem should be on.

1 Connect battery ground leads (TM 9–2350–314–20–1–2).

2 Turn vehicle MASTER power switch ON and perform self–test (automatically done by AFCS) (TM 9–2350–314–10).

3 Fault isolate using troubleshooting table (Chapter 3), if necessary.



22–5 VEHICLE MOTION SENSOR (VMS) MODEM (CAB).

This task covers: a. Removal b. Installation c. Testing

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

References
TM 9–2350–314–10
TM 9–2350–314–20–1–2

a. Removal.

CAUTION

Do not twist or turn harness connector backshell when loosening coupling nuts or pins may break.

1 Remove the following connectors from VMS modem by unscrewing coupling nuts and pulling connectors apart:

(a) Harness W17A connector P2 (1) from modem connector J1 (2).

(b) Harness W62A connector P7 (3) from modem connector J2 (4).

2 Remove three screws (5), three flat washers (6), and VMS modem (7).

b. Installation.

1 Position VMS modem (7) to vehicle with three flat washers (6) and three screws (5).

CAUTION

Align key and keyway of harness connectors before pushing connector halves together or pins may break.

2 Attach the following connectors:

(a) Harness W62A connector P7 (3) to modem connector J2 (4).

(b) Harness W17A connector P2 (1) to modem connector J1 (2).

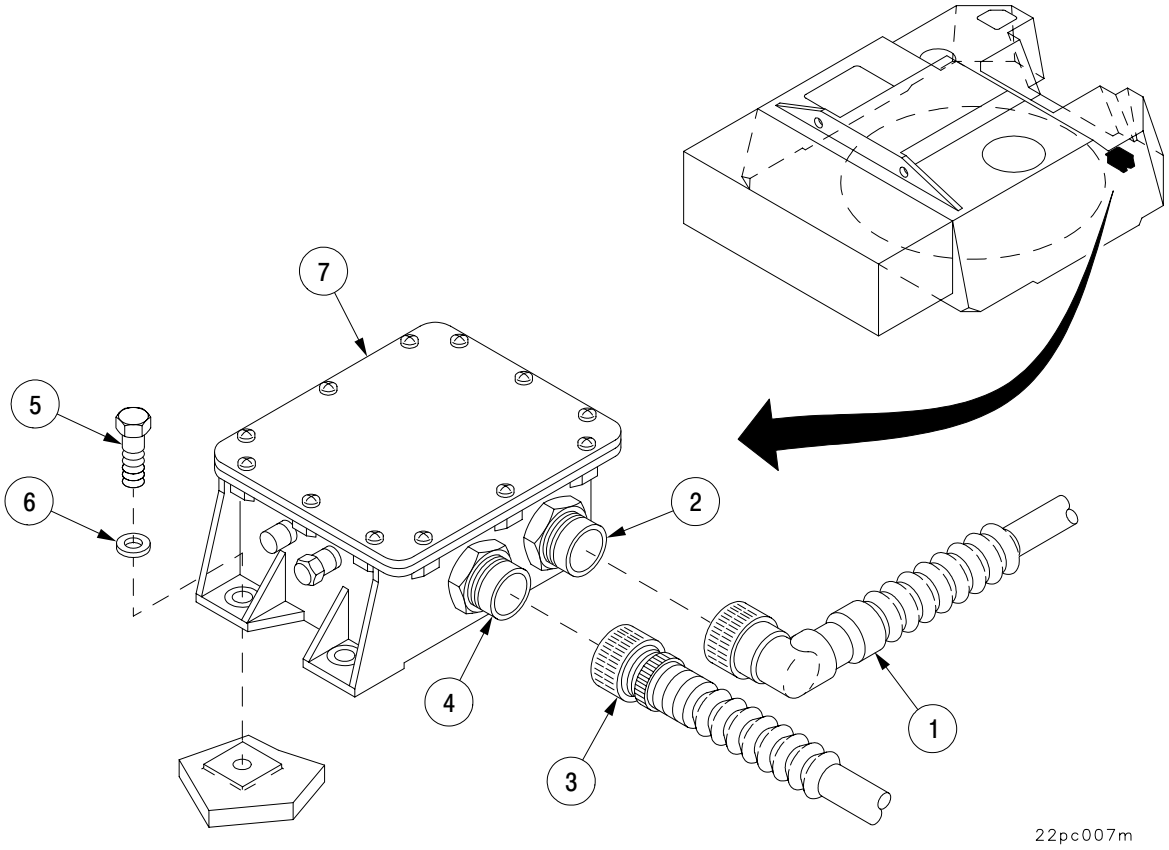
22–5 VEHICLE MOTION SENSOR (VMS) MODEM (CAB) – CONTINUED

c. Testing.

1 Connect battery ground leads (TM 9–2350–314–20–1–2) .

2 Turn vehicle MASTER power switch ON and perform self–test (automatically done by AFCS) (TM 9–2350–314–10).

3 Fault isolate using troubleshooting table (Chapter 3), if necessary.



22–6 WIRING HARNESS W21.

This task covers: a. Removal b. Installation c. Testing

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit, (SC 5180–95–A12)

Materials/Parts
Lockwashers (2) (item 134, Appx F)
Marking tags (AR) (item 87, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Driver's FFCS mounting plate removed (TM 9–2350–314–20–1–2)
Bulkhead wiring harness bracket removed (TM 9–2350–314–20–1–2)

References
TM 9–2350–314–10

a. Removal.

CAUTION

Do not twist or turn harness connector backshell when loosening coupling nuts or pins may break.

NOTE

Before removal, tag connectors for identification during installation.

1 Remove two screws (1), two lockwashers (2), two flat washers (3), and three clamps (4) securing wiring harness (5) and cables to hull. Discard lockwashers.

2 Disconnect the following connectors:

(a) P1 of W21 (6) to J1 on engine bulkhead connector (7).

(b) P2 of W21 (8) from J1 on VMS modem (9).

3 Remove wiring harness (5) from hull.

22–6 WIRING HARNESS W21 – CONTINUED

b. Installation.

CAUTION

- Do not twist or turn harness connector backshell when tightening coupling nuts or pins may break.
- Make sure key and keyways are aligned before pushing connector halves together or pins may break.

1 Connect the following connectors:

(a) P1 of W21 (6) to J1 on engine bulkhead connector (7).

(b) P2 of W21 (8) to J1 on VMS modem (9).

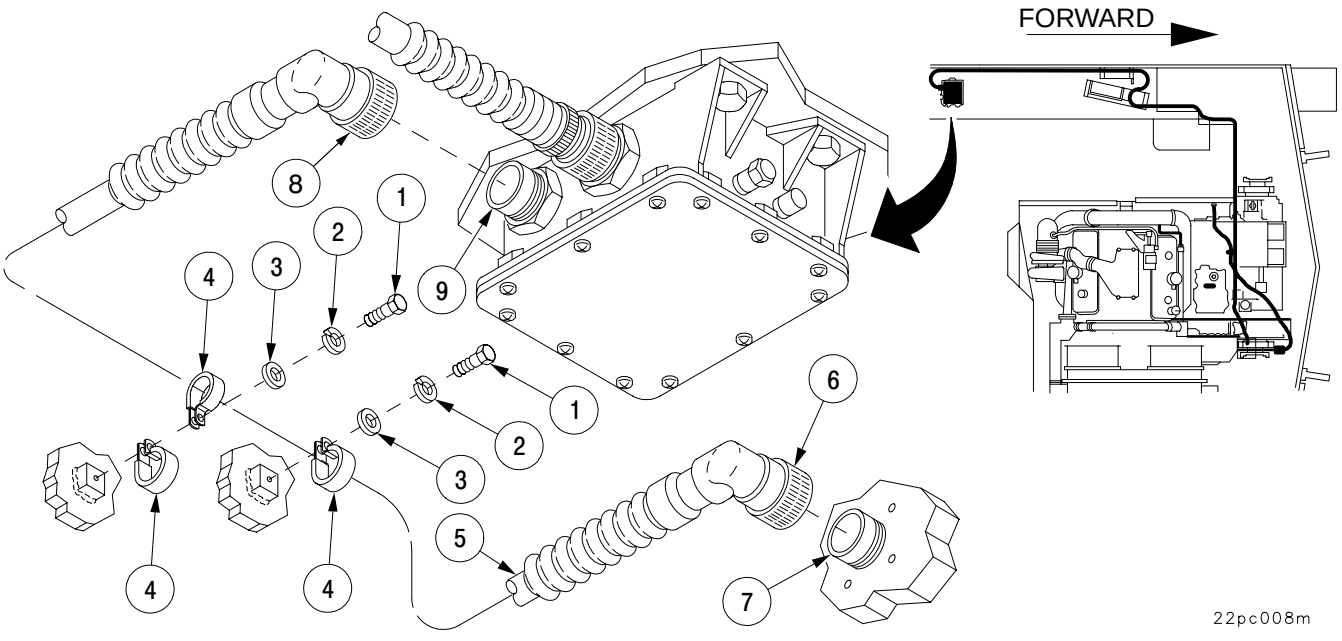
2 Secure wiring harness (5) and cables to hull with three clamps (4), two flat washers (3), two new lockwashers (2), and two screws (1).

c. Testing.

1 Test harness for continuity through all plugs and connectors as applicable.

2 Turn vehicle MASTER power switch ON and perform self–test (automatically done by AFCS) (TM 9–2350–314–10).

3 Fault isolate using the troubleshooting table (Chapter 3), if necessary.



22–7 WIRING HARNESS W28.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (5) (item 134, Appx F)
Lockwashers (4) (item 124, Appx F)
Gasket (item 214, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Transmission doors open (TM 9–2350–314–10)
Battery box doors open (TM 9–2350–314–10)

a. Removal.

CAUTION

Do not twist or turn harness connector backshell when loosening coupling nuts or pins may break.

1 Disconnect wiring harness (1) from sensor assembly (2).

2 Disconnect wiring harness (3) at bulkhead wiring harness (1) connector.

3 Remove four screws (4), four nuts (5), four lockwashers (6), four flat washers (7), wiring harness (1), and gasket (8) from bulkhead. Discard lockwashers and gasket.

4 Remove five tiedown straps (9), five screws (10), five flat washers (11), five lockwashers (12), nut (13), and wiring harness (1). Discard lockwashers.

b. Installation.

CAUTION

Align key and keyway of harness connectors before pushing connector halves together.

1 Install new gasket (8) and wiring harness connector (1) on bulkhead with four screws (4), four flat washers (7), four new lockwashers (6), and four nuts (5).

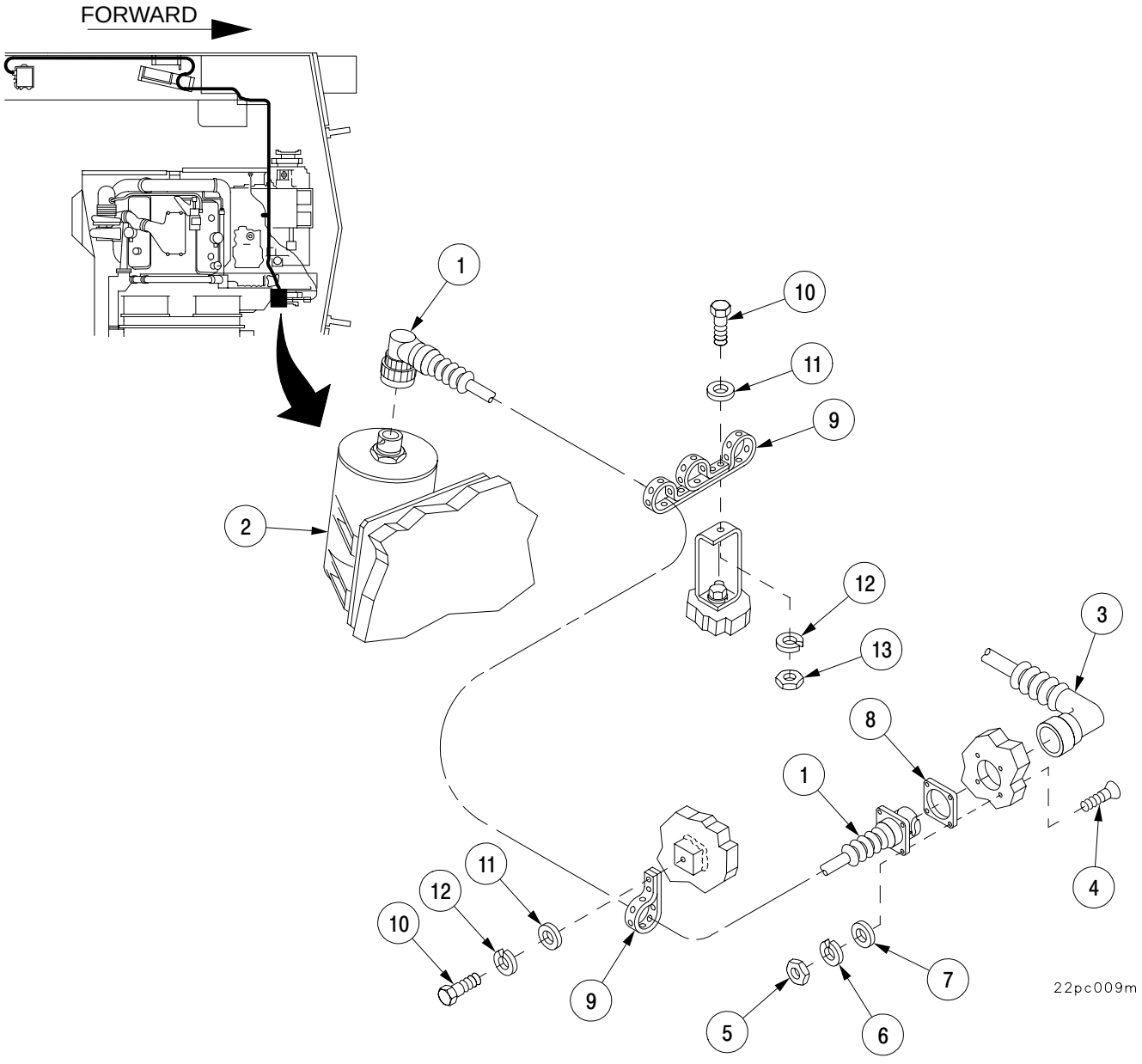
22–7 WIRING HARNESS W28 – CONTINUED

b. Installation – Continued

2 Connect wiring harness (1) to sensor assembly (2).

3 Secure wiring harness (1) with five tiedown straps (9), five screws (10), five flat washers (11), five new lockwashers (12), and nut (13).

4 Connect wiring harness (3) at bulkhead wiring harness (1) connector.



22–8 DYNAMIC REFERENCE UNIT HYBRID (DRUH).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Sealing compound (item 39, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
PLGR mount assembly removed (para 22–12)

a. Removal.

CAUTION

- Do not twist or turn harness connector backshell when loosening coupling nuts or pins may break.
- The DRUH has a precision mounting surface and must be handled carefully. Do not let the DRUH strike any hard surface. Be sure the DRUH one piece mounting plate alignment pins are carefully guided into the DRUH alignment pin holes. Damage to DRUH mount may occur.

NOTE

Document AFCS data prior to removing/replacing DRUH.

1 Disconnect wiring harness connector W27–P1 (1) from connector J2 (2), and wiring harness connector W17A–P1 (3) from connector J1 (4) on Dynamic Reference Unit Hybrid (DRUH) (5).

2 Remove six screws (6), six flat washers (7), and DRUH (5) from mount (8).

b. Installation.

1 Position DRUH (5) on mount (8) by hand for installation.

2 Apply sealing compound to threads of six screws (6).

3 Install six screws (6) with six flat washers (7) finger tight.

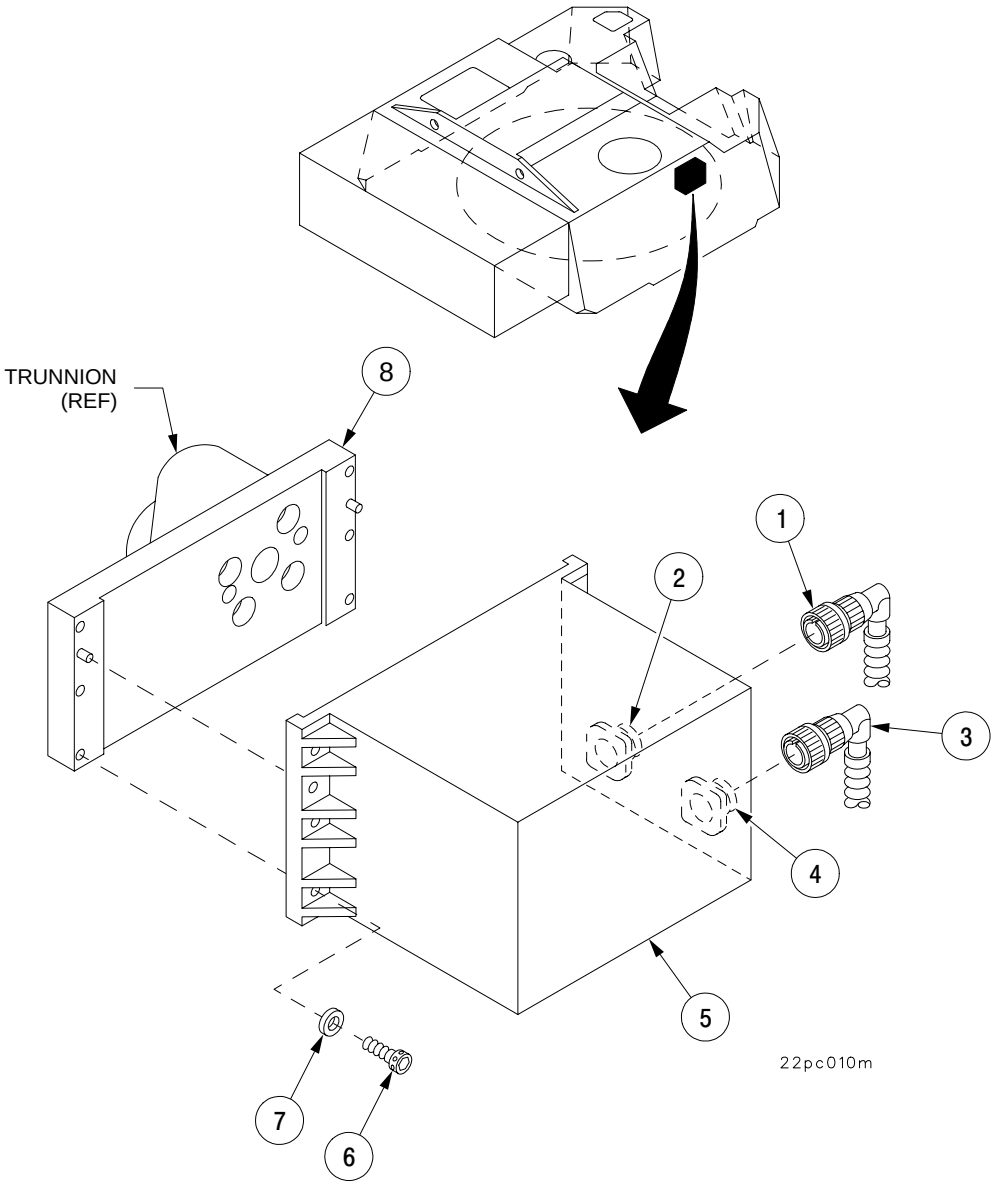
4 Torque six screws (6) between 190–210 lb–in. (22–24 N·m) in a random pattern.

5 Reconnect wiring harness connector W27–P1 (1) to connector J2 (2), and wiring harness connector W17A–P1 (3) to connector J1 (4) on DRUH (5).

6 To reprogram the DRUH, use the SPORT, accessory kit and TB 9–2350–314–20–2–1 (CD).

22–8 DYNAMIC REFERENCE UNIT HYBRID (DRUH) – CONTINUED

b. Installation – Continued



22–9 VEHICLE MOTION SENSOR (VMS) MODEM VALVE CORE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit)
(SC 5180–95–A12)

a. Removal.

NOTE

VMS modem valve core may be removed/installed with VMS modem removed or installed in vehicle.

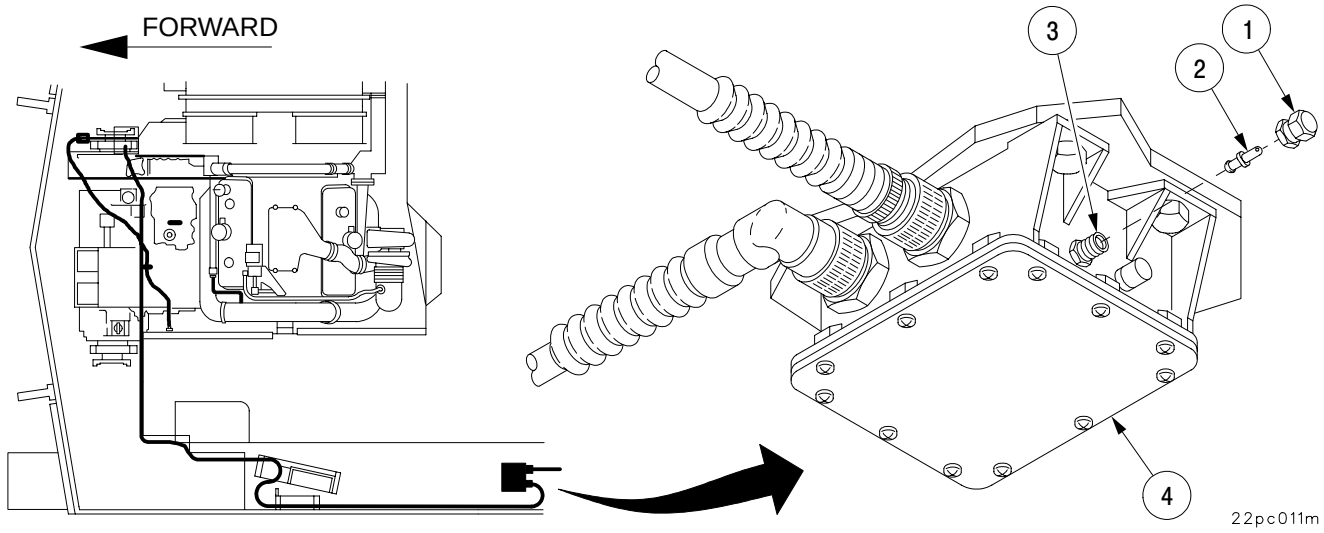
1 Remove valve cap (1) and release pressure.

2 Remove valve core (2) from valve stem (3) at VMS modem (4).

b. Installation.

1 Install valve core (2) in valve stem (3) at VMS modem (4).

2 Purge/charge VMS modem (4) (para 28–3).



22–10 DELETED

22–11 PLGR WIRING HARNESSES.

This task covers: a. Removal b. Installation c. Test

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Multimeter (item 24, Appx G)

Materials/Parts
Lockwashers (4) (item 128, Appx F)
Tiedown strap (12) (item 76, Appx C)
Marker kit (item 159, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–341–20–1–2)
AFCS power off (TM 9–2350–314–10)
All connectors on wiring harness W17A and W27 are connected
All connections to wiring harness W64 are made

WARNING

Read TB 43–0129 before performing maintenance of navigation components. Failure to follow safety requirements of TB 43–0129 could result in personnel injury or death.

CAUTION

A bad PLGR ground connection can cause costly damage to the DRUH and/or PLGR. Verify the PLGR power ground connection.

NOTE

- All navigation cable and lead assemblies are disconnected and connected by hand in a like manner.
- Table lists beginning and ending points of each cable/lead assembly, any mounting hardware required, and the correct marker from the marker kit if required.
- Resistance measurements will be invalid if Main or AFCS power is on.

Cable/Lead Assy	From	To	Attach Hardware
1	PLGR Antenna	Cable 2	A (1 pl) B (4 pl)
2	Antenna Cable	PLGR J3	A (1 pl)
3	W17A P4	PLGR J2	A (1 pl)
4	Dome Light	PLGR J4	A (1 pl)

22–11 PLGR WIRING HARNESSES – CONTINUED

a. Removal.

1 Disconnect cable/lead assembly being removed (1 through 4) at each end.

2 Remove any straps, as needed. Remove cable/lead assembly from vehicle. Discard any straps removed.

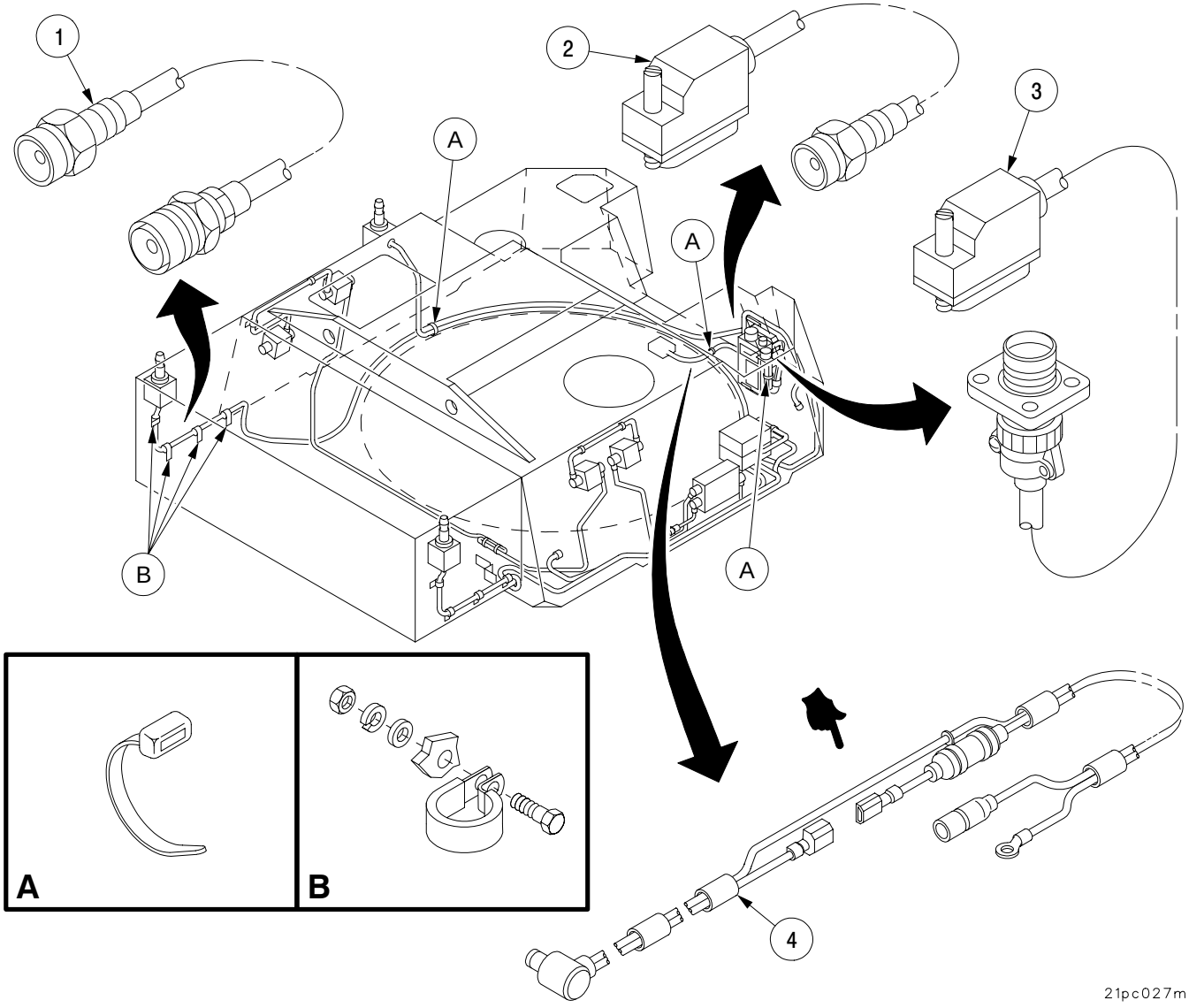
3 Replace marker if damaged.

b. Installation.

1 Apply new marker, if removed, to cable/lead assembly.

2 Install cable/lead assembly (1 through 4) on vehicle with required straps. Use new straps where required.

3 Connect both ends of cable/lead assembly.



22–11 PLGR WIRING HARNESSES – CONTINUED

c. Test.

1 Verify MASTER power switch and AFCS power are off.

2 Disconnect the PLGR if mounted.

3 Verify there is no play in the PLGR power cable ground lead lug (5) and wiring harness 12906854 W64 ground lead lug (6) where they are secured to the dome light (7). If there is play, tighten the four screws (8), securing the dome light until there is no play.

4. Measure the resistance between the outer contact on the PLGR power cable connector (9) and the shell of DRUH connector J1 (10).

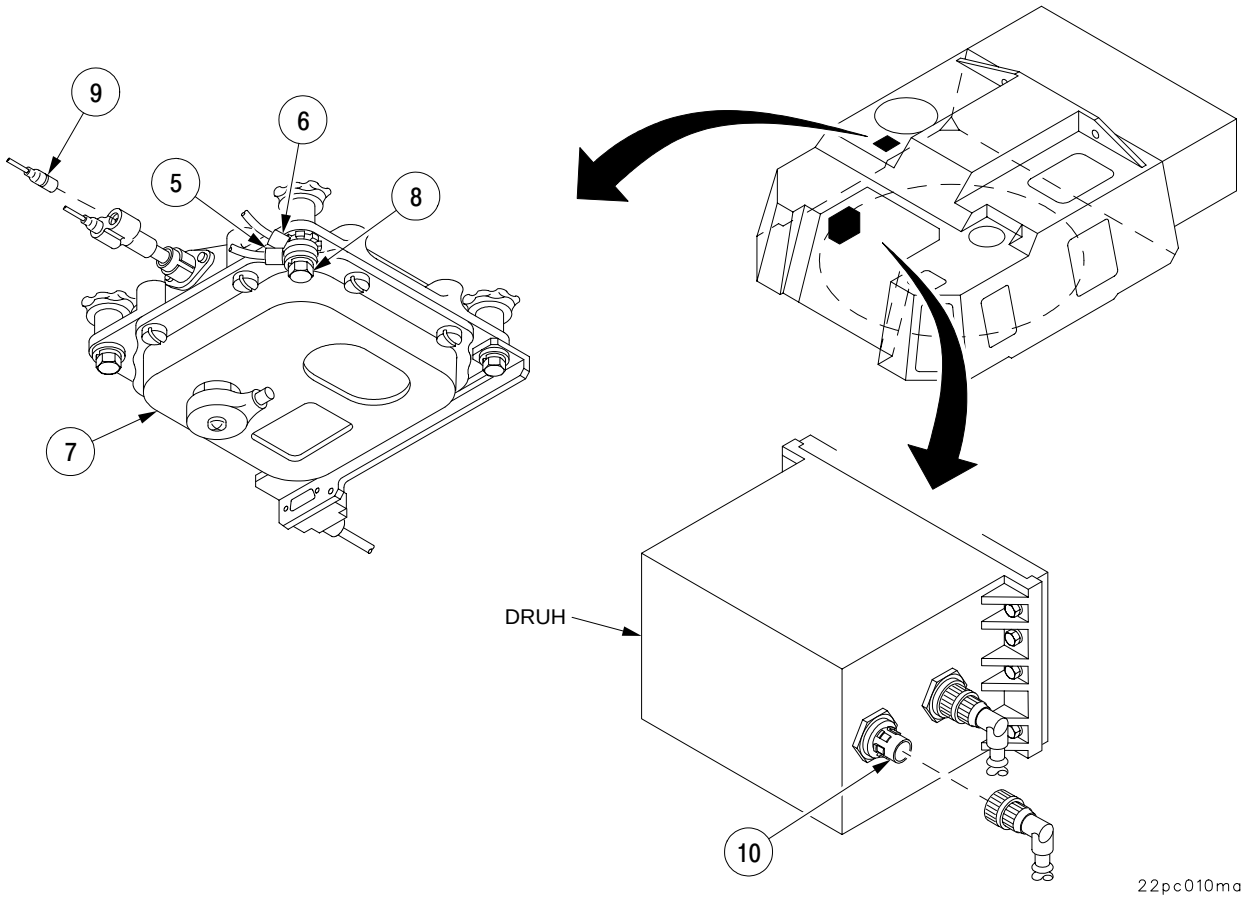
5. If the resistance is less than one ohm, the check has been successfully completed. If the resistance is greather than one ohm, go to step 6.

6. Insure all paint and corrosion has been removed from the ground lugs (5 and 6), dome light contact surface, and screw (8).

NOTE

Do not install a PLGR until the problem is corrected.

7. Recheck resistance, step 4. If resistance is still greater than one ohm, go to para 3–3.o(1). in Troubleshooting.



22–12 PLGR MOUNT ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (3) (item 231, Appx F)
Dry–cleaning solvent (item 75, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
PLGR removed (TM 9–2350–314–10)

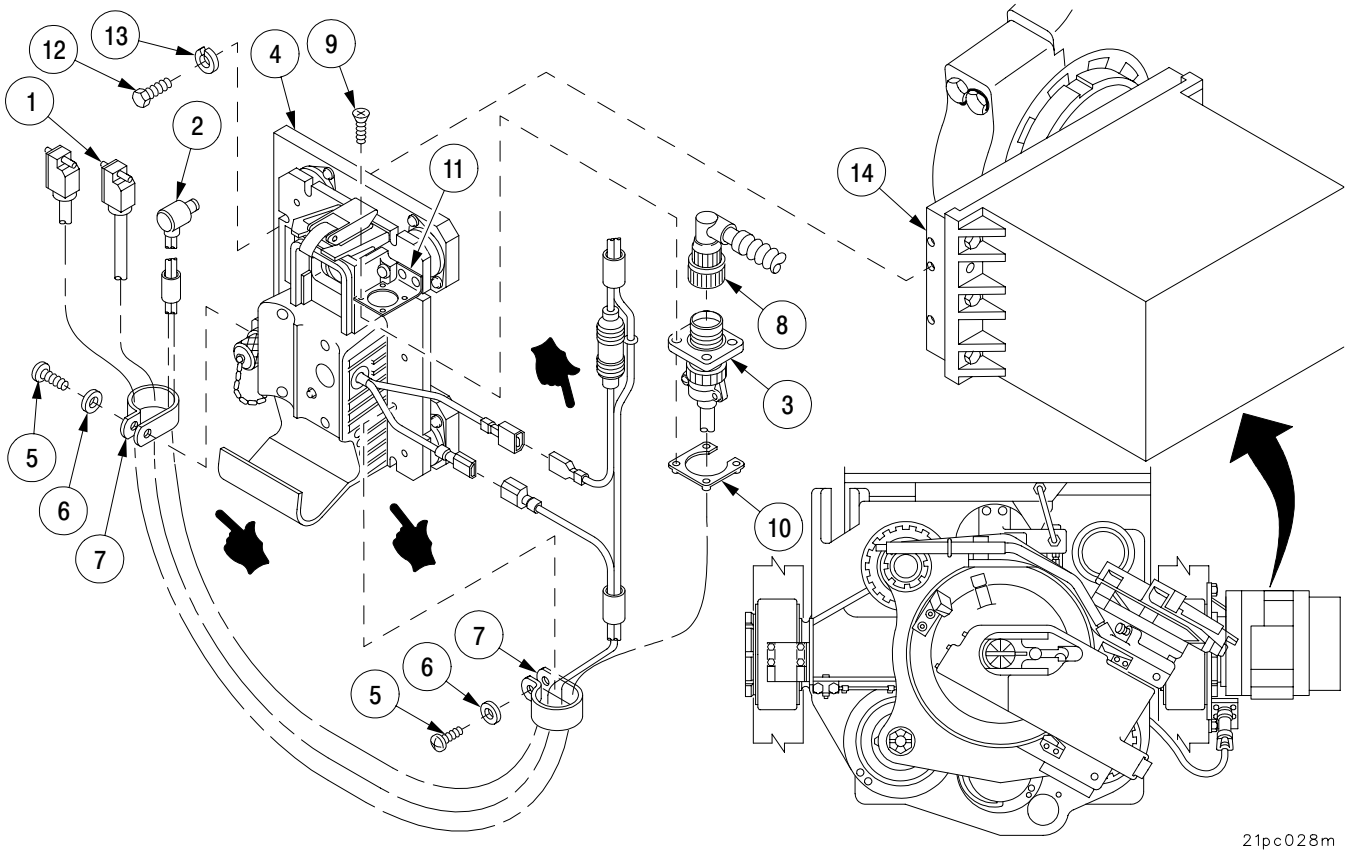
a. Removal.

1 Remove any straps tying cables (1, 2 and 3) together in the area of the PLGR mount assembly (4). Discard straps.

NOTE

Note the direction of connector keys.

2 Remove two screws (5), two flat washers (6), and two clamps (7) from PLGR mount assembly (4) and three cables (1, 2, and 3).
3 Disconnect cable (8) from cable (3).
4 Disconnect cable (2) from PLGR mount assembly (4).
5 Remove four screws (9), nut plate (10), and cable (3) from cable conductor bracket (11).
6 Remove three screws (12), three lockwashers (13), and PLGR mount assembly (4) from DRUH plate (14). Discard lockwashers.



22–12 PLGR MOUNT ASSEMBLY – CONTINUED

a. Removal – Continued

7 Remove two screws (15) and connector bracket (11) from mounting plate (16).

8 Remove four screws (17), four flat washers (18), and block (19) from mounting plate (16).

9 Remove five screws (20), five flat washers (21), and PLGR mount (22) from mounting plate (16). Discard PLGR mount.

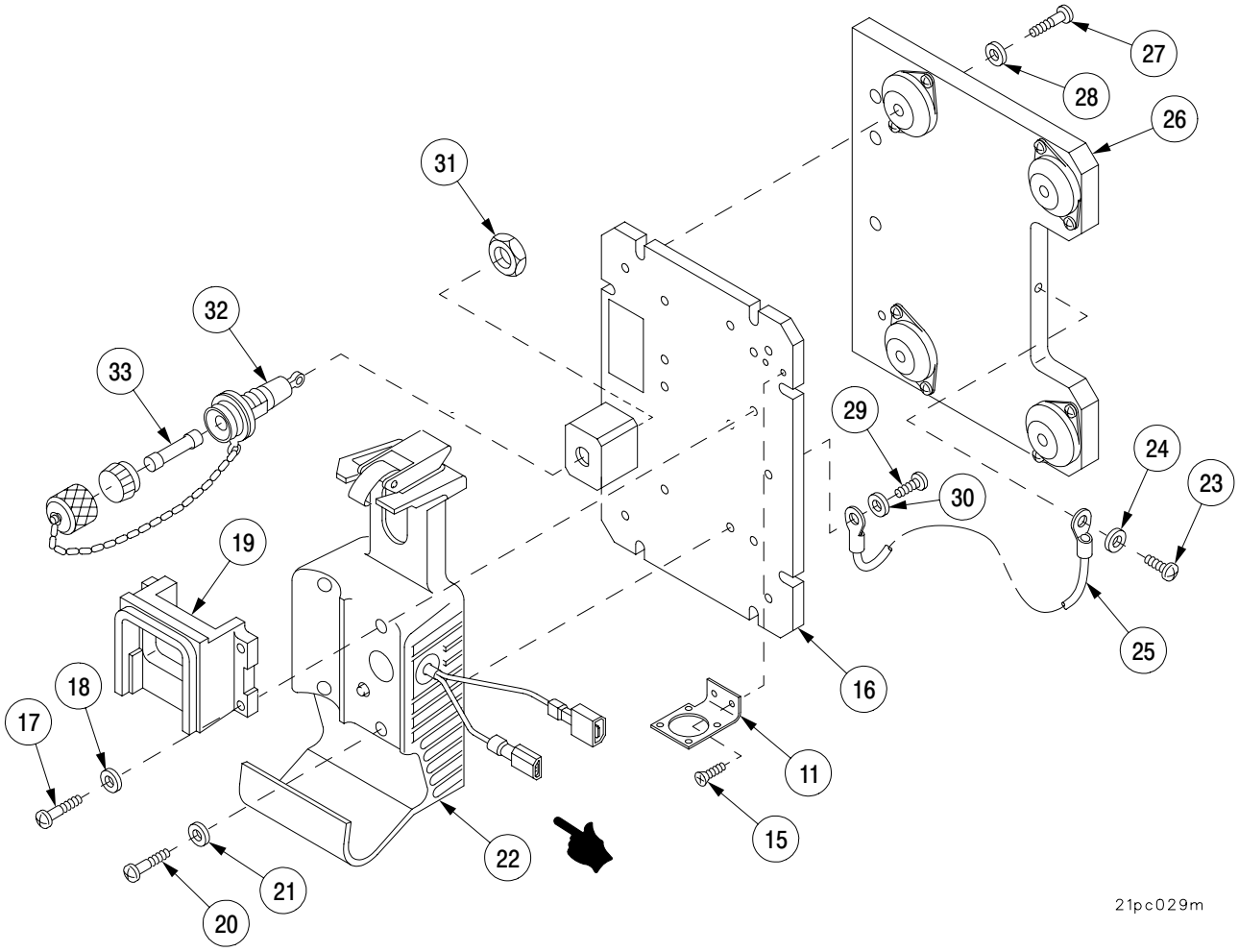
10 Remove screw (23), flat washer (24), and ground cable (25) from adapter plate (26).

11 Remove four screws (27), four flat washers (28), and mounting plate (16) from adapter plate (26).

12 Remove screw (29), flat washer (30), and ground cable (25) from mounting plate (16).

13 Remove nut (31) and fuse holder (32) from mounting plate (16). (Nut supplied with fuse holder.)

14 If faulty, remove fuse cartridge (33) from fuse holder (32). Discard fuse cartridge.



22–12 PLGR MOUNT ASSEMBLY – CONTINUED

a. Removal – Continued

NOTE

The four vibration insulators are removed and installed in the same manner.

15 Remove eight screws (34), eight flat washers (35), and four resilient mounts (36) from adapter plate (26).
16 If required, remove and discard identification plate (37) from mounting plate (16).

b. Installation.

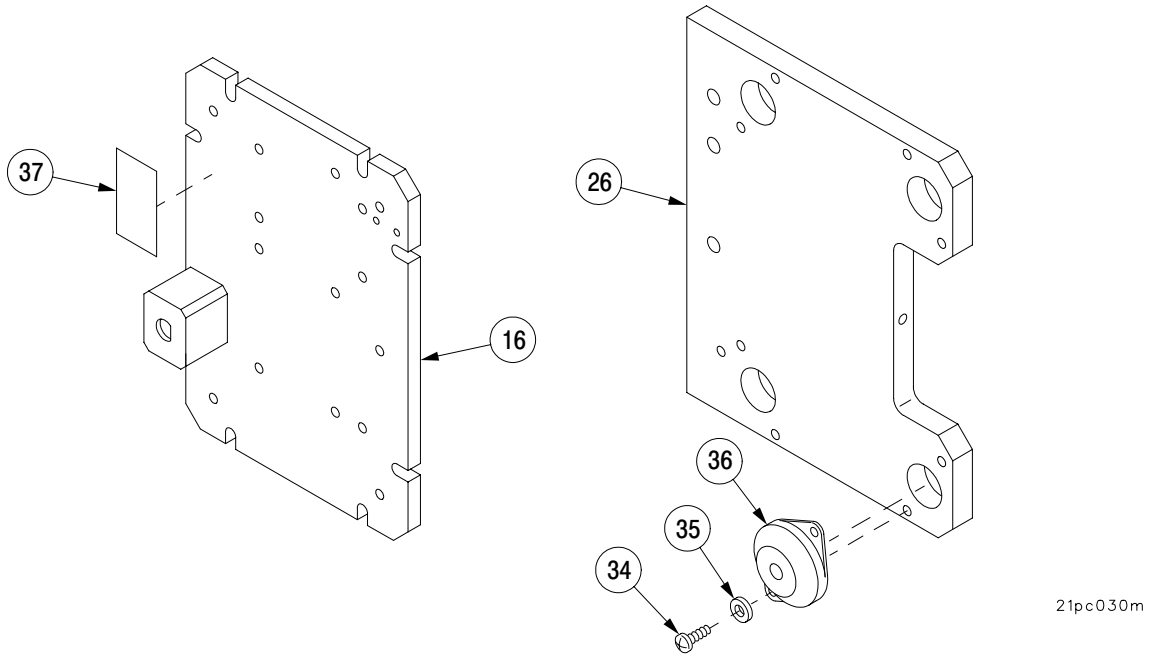
WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

NOTE

Perform steps 1 and 2 only if identification plate was removed.

1 Using dry–cleaning solvent, remove any remaining adhesive from mounting plate (16).
2 Remove backing from new identification plate (37) and attach to mounting plate (16).
3 Install four resilient mounts (36) on adapter plate (26) with eight screws (34) and eight flat washers (35).



22–12 PLGR MOUNT ASSEMBLY – CONTINUED

b. Installation – Continued

4 If removed, install new fuse cartridge (33) in fuse holder (32).

5 Install fuse holder (32) in mounting plate (16) with nut (31) (supplied with fuse holder).

6 Install ground cable (25) on mounting plate (16) with screw (29) and flat washer (30).

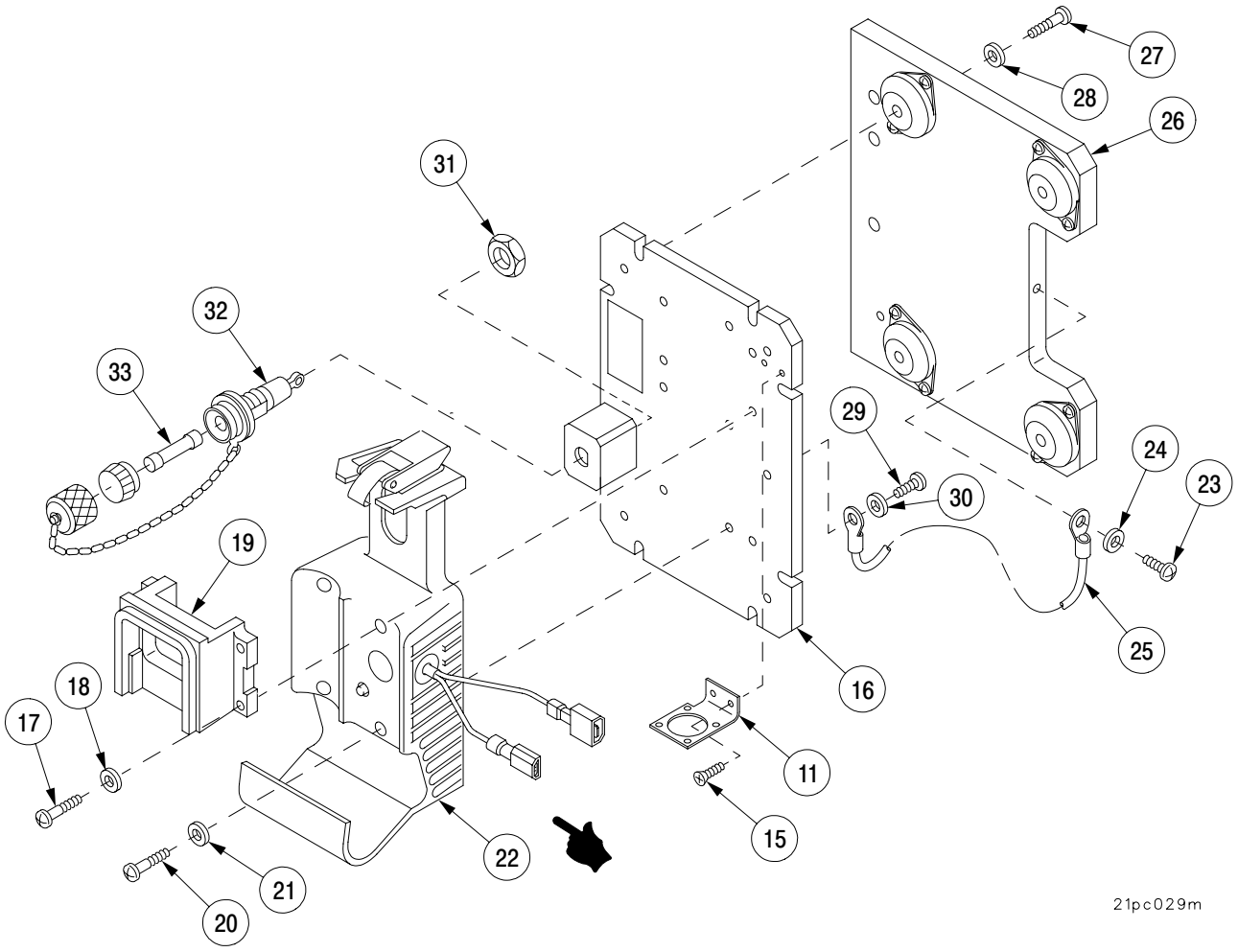
7 Install mounting plate (16) on adapter plate (26) with four screws (27) and four flat washers (28).

8 Install ground cable (25) on adapter plate (26) with screw (23) and flat washer (24).

9 Install new PLGR mount (22) on mounting plate (16) with five screws (20) and five flat washers (21).

10 Install block (19) on mounting plate (16) with four screws (17) and four flat washers (18).

11 Install connector bracket (11) on mounting plate (16) with two screws (15).



22–12 PLGR MOUNT ASSEMBLY – CONTINUED

b. Installation – Continued

12 Install PLGR mount assembly (4) on DRUH plate (14) with three screws (12) and three new lockwashers (13).

13 Connect cable (2) to PLGR mount assembly (4).

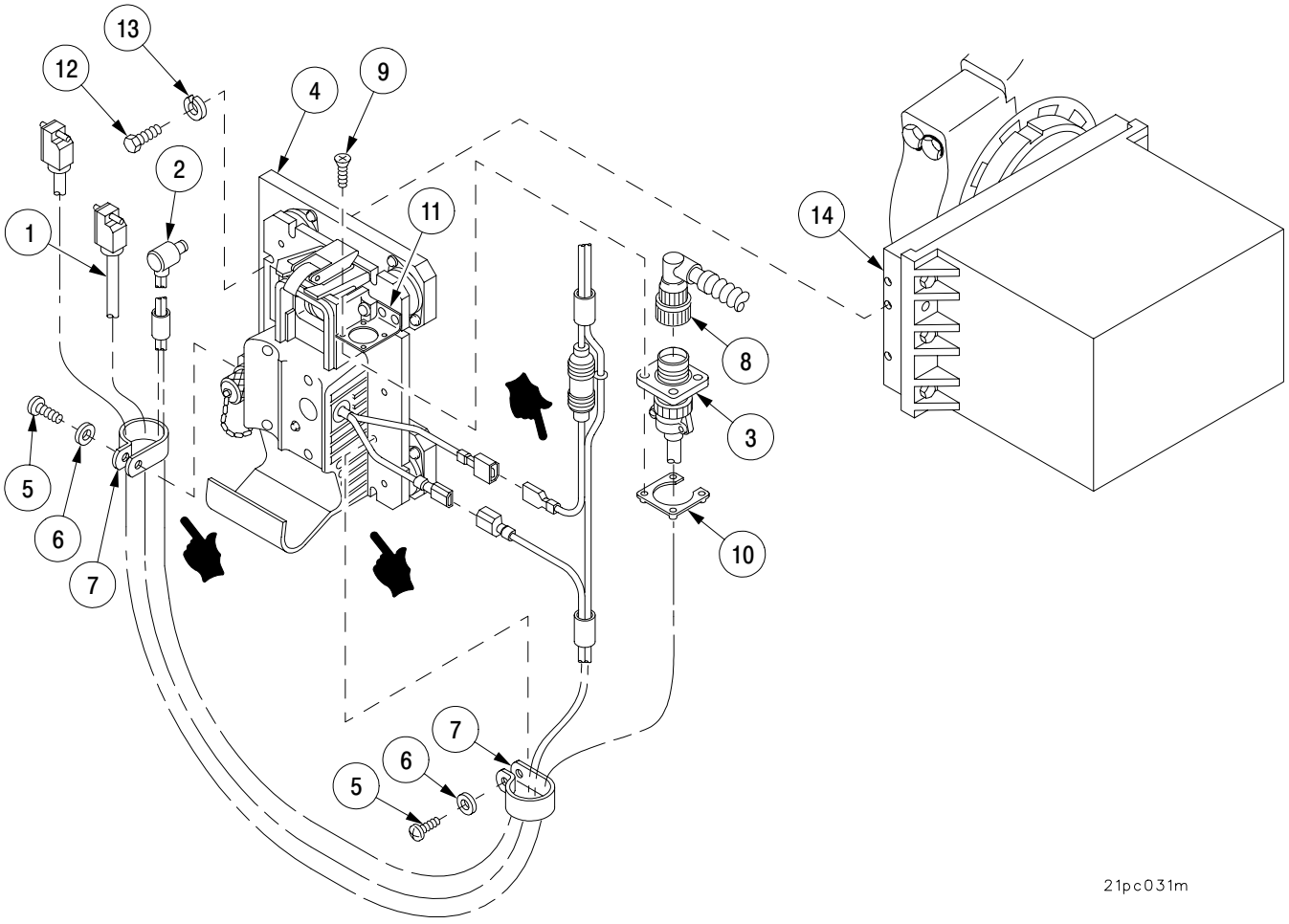
14 Install cable (3) on cable conductor bracket (11) with four screws (9) and nut plate (10).

NOTE

Position connector keys the same as before removal.

15 Connect cable (8) to cable (3).

16 Install two clamps (7) over three cables (1, 2, and 3). Secure two clamps on PLGR mount assembly (4) with two screws (5) and two flat washers (6).



CHAPTER 23
SLIP RING, BEARING SHIELDS, AND BRUSH BLOCKS

GENERAL

This chapter illustrates and describes maintenance procedures for the slip ring and bearing blocks. Step–by–step procedures are provided for removal, repair, cleaning, installation, and adjustment as required by unit level maintenance.

CONTENTS Page

23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (100) (item 109, Appx F)
Lockwashers (10) (item 128, Appx F)
Lockwashers (9) (item 127, Appx F)
Lockwashers (4) (item 130, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Crew seats removed (para 11–4)
Segment board cleaning mechanism removed (para 23–5)

NOTE

The requirements to remove/install each shield, spacer, and cover will vary by location in cab. Follow those procedures that coincide with the callouts listed in this task.

23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal.

1 Remove shield (1).

(a) Remove two screws (2) and two lockwashers (3) securing clamp (4), two pads (5), shield (1), and spacer (6) to cab. Discard lockwashers.

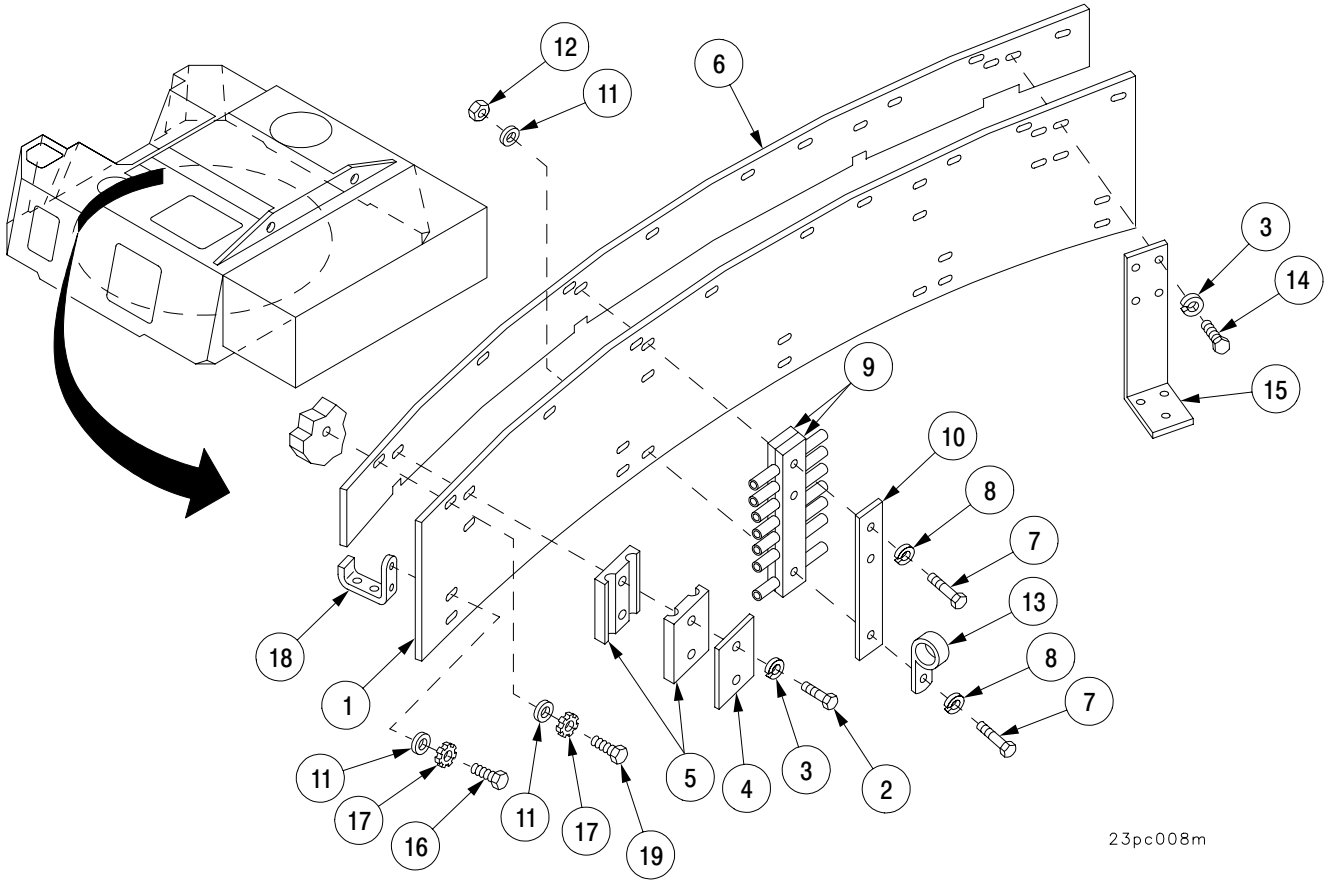
(b) Remove four screws (7) and four lockwashers (8) securing four clamps (9), two plates (10), shield (1), and spacer (6) to cab. Discard lockwashers.

(c) Remove two screws (7), two lockwashers (8), two flat washers (11), and two nuts (12) securing four clamps (9), two plates (10), and two clamps (13) to shield (1). Discard lockwashers.

(d) Remove four screws (14) and four lockwashers (3) securing bracket (15), shield (1), and spacer (6) to cab. Discard lockwashers.

(e) Remove 10 screws (16), 10 lockwashers (17), and 10 flat washers (11) securing shield (1) to five hooks (18). Discard lockwashers.

(f) Remove nine screws (19), nine lockwashers (17), nine flat washers (11), shield (1), and spacer (6). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

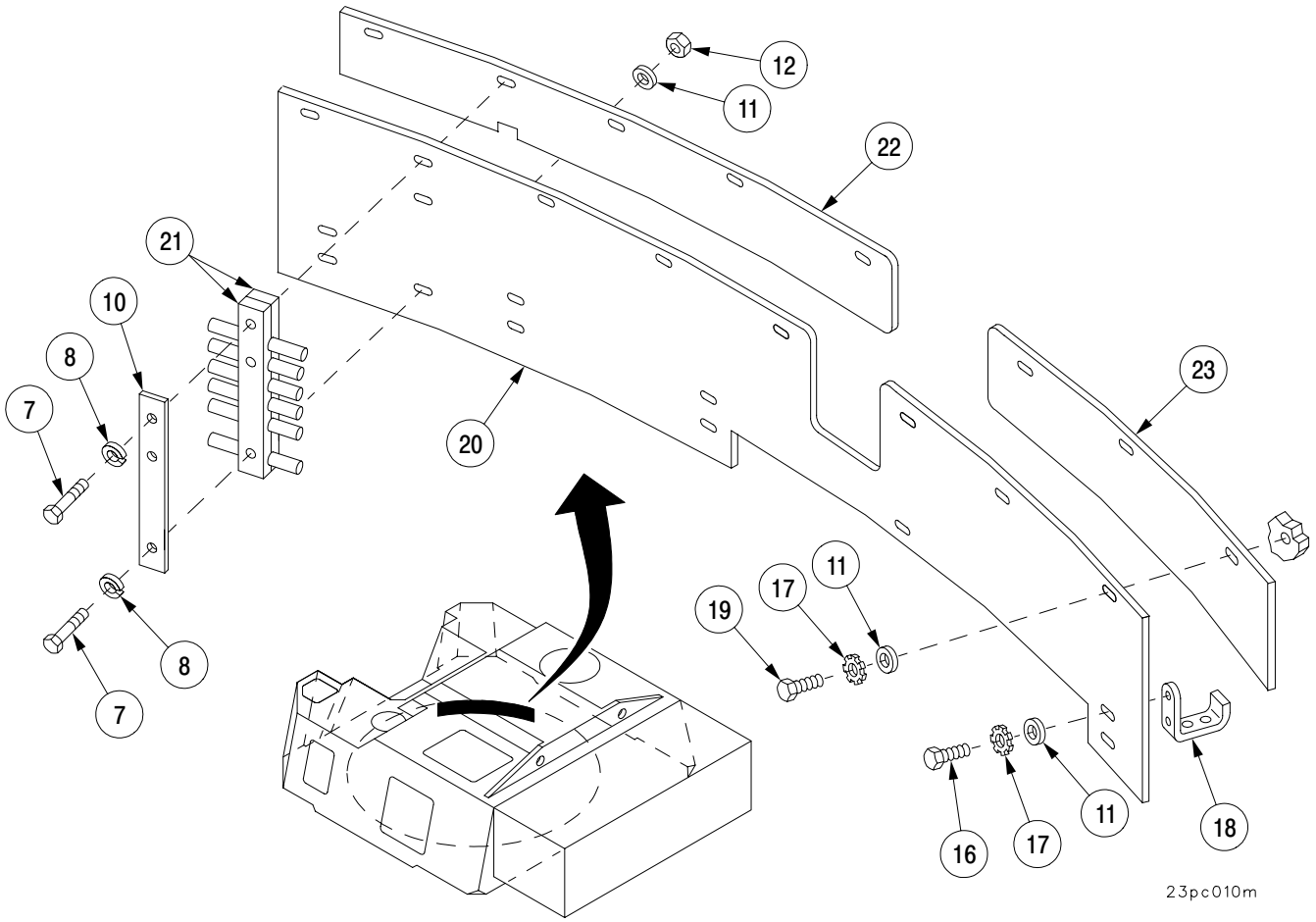
2 Remove shield (20).

(a) Remove two screws (7) and two lockwashers (8) securing two clamps (21), plate (10), shield (20), and spacer (22) to cab. Discard lockwashers.

(b) Remove screw (7), lockwasher (8), flat washer (11), and nut (12) securing two clamps (21) and plate (10) to shield (20). Discard lockwashers.

(c) Remove eight screws (16), eight lockwashers (17), and eight flat washers (11) securing shield (20) to four hooks (18). Discard lockwashers.

(d) Remove seven screws (19), seven lockwashers (17), seven flat washers (11), shield (20), spacer (22), and spacer (23). Discard lockwashers.



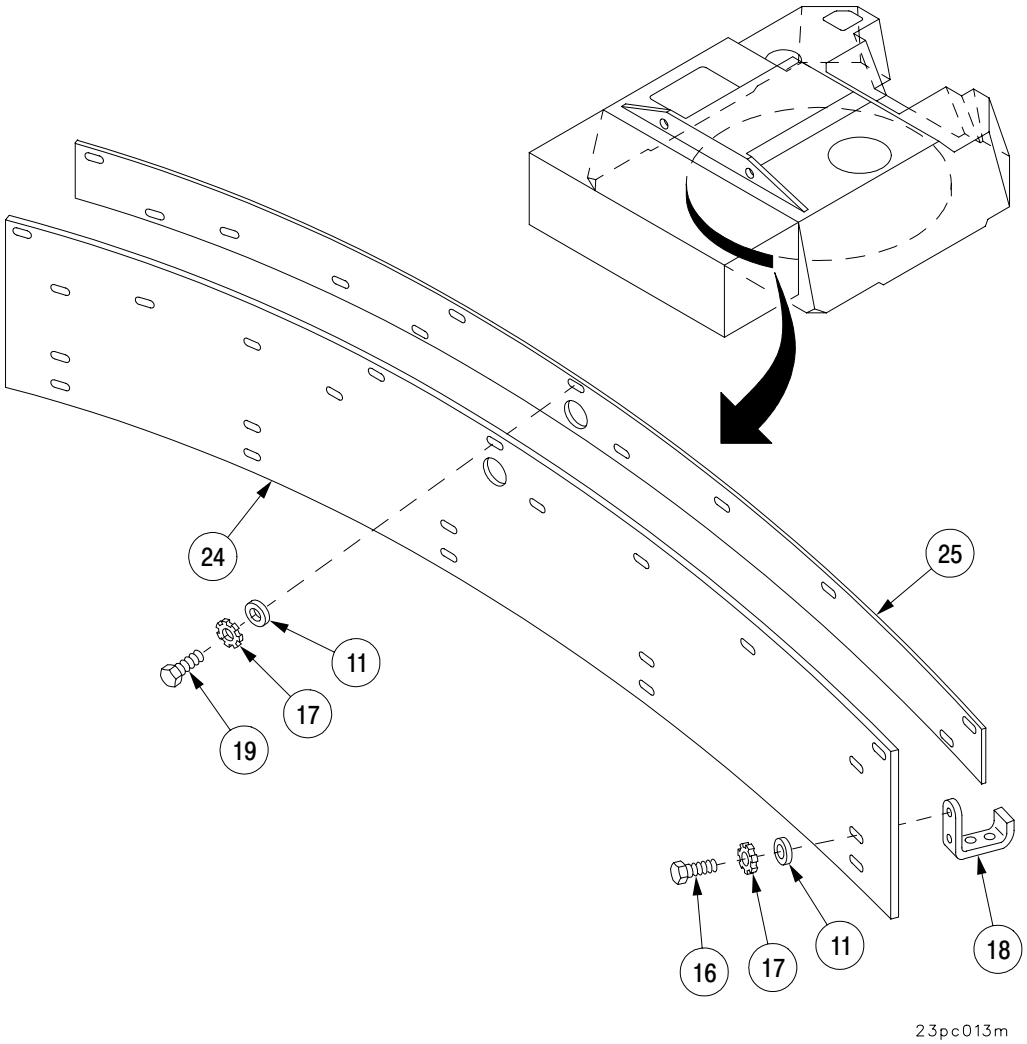
23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

3 Remove shield (24).

(a) Remove 10 screws (16), 10 lockwashers (17), and 10 flat washers (11) securing shield (24) to five hooks (18). Discard lockwashers.

(b) Remove four screws (19), four lockwashers (17), four flat washers (11), shield (24), and spacer (25). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

4 Remove shield (26).

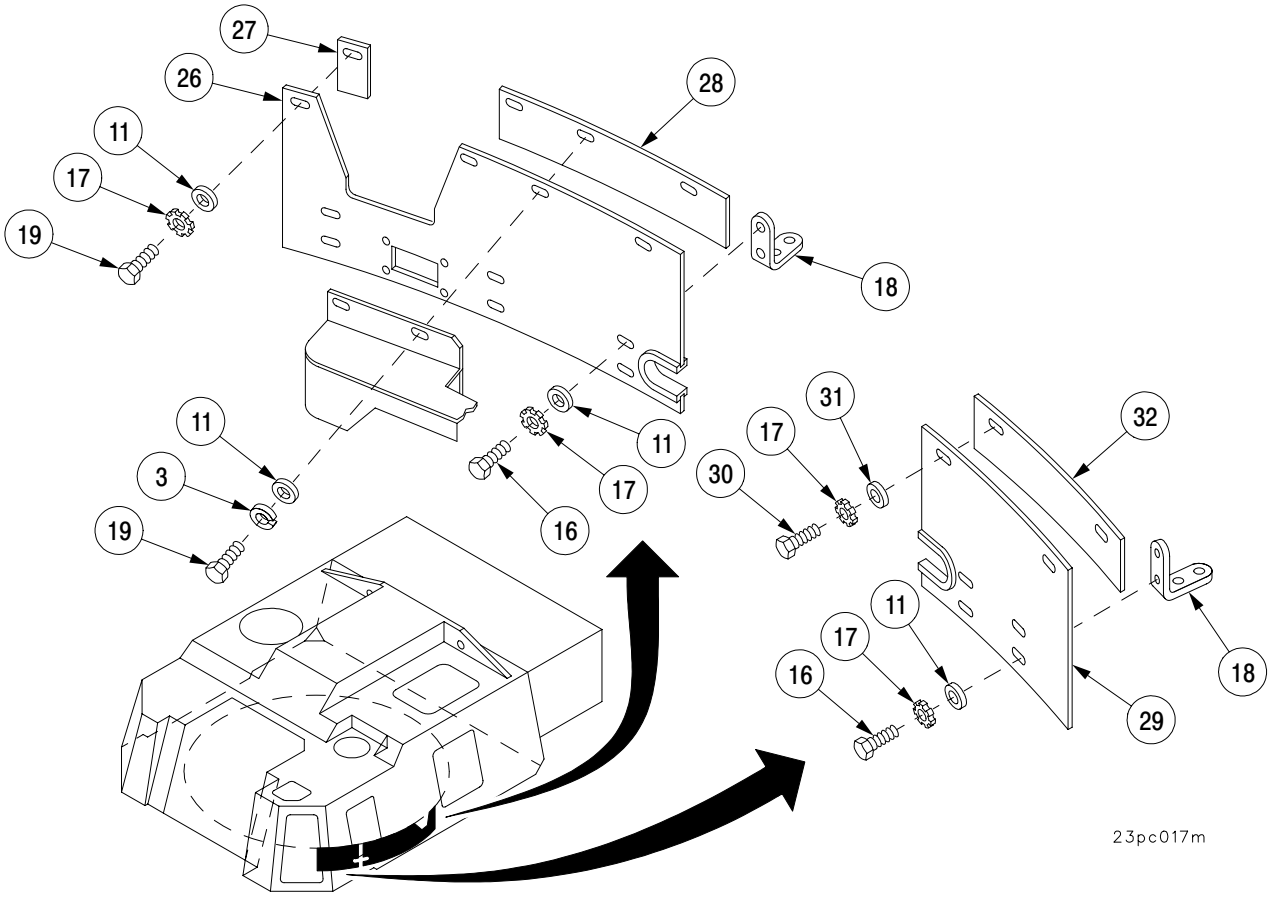
(a) Remove six screws (16), six lockwashers (17), and six flat washers (11) securing shield (26) to three hooks (18). Discard lockwashers.

(b) Remove four screws (19), two lockwashers (17), two lockwashers (3), four flat washers (11), shield (26), spacer (27), and spacer (28). Discard lockwashers.

5 Remove shield (29).

(a) Remove four screws (16), four lockwashers (17), and four flat washers (11) securing shield (29) to two hooks (18). Discard lockwashers.

(b) Remove two screws (30), two lockwashers (17), two flat washers (31), shield (29), and spacer (32). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

6 Remove cover (33).

(a) Remove four screws (19), four lockwashers (17), and four flat washers (11) securing cover (33) to two hooks (18). Discard lockwashers.

(b) Remove two screws (16), two lockwashers (17), two flat washers (11), and cover (33) from hook (18). Discard lockwashers.

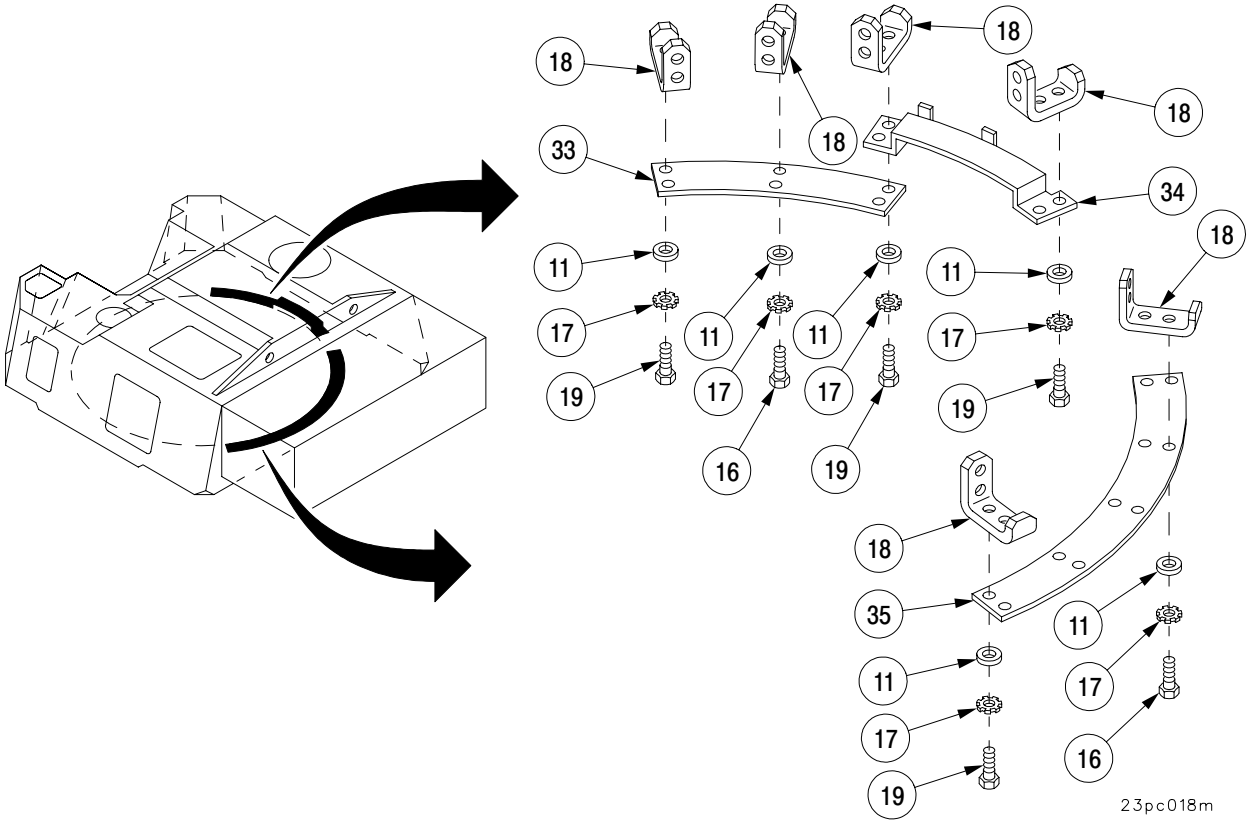
7 Remove cover (34).

Remove four screws (19), four lockwashers (17), four flat washers (11), and cover (34) from two hooks (18). Discard lockwashers.

8 Remove cover (35).

(a) Remove four screws (19), four lockwashers (17), and four flat washers (11) securing cover (35) to two hooks (18). Discard lockwashers.

(b) Remove six screws (16), six lockwashers (17), six flat washers (11), and cover (35) from three hooks (18). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

9 Remove cover (36).

NOTE

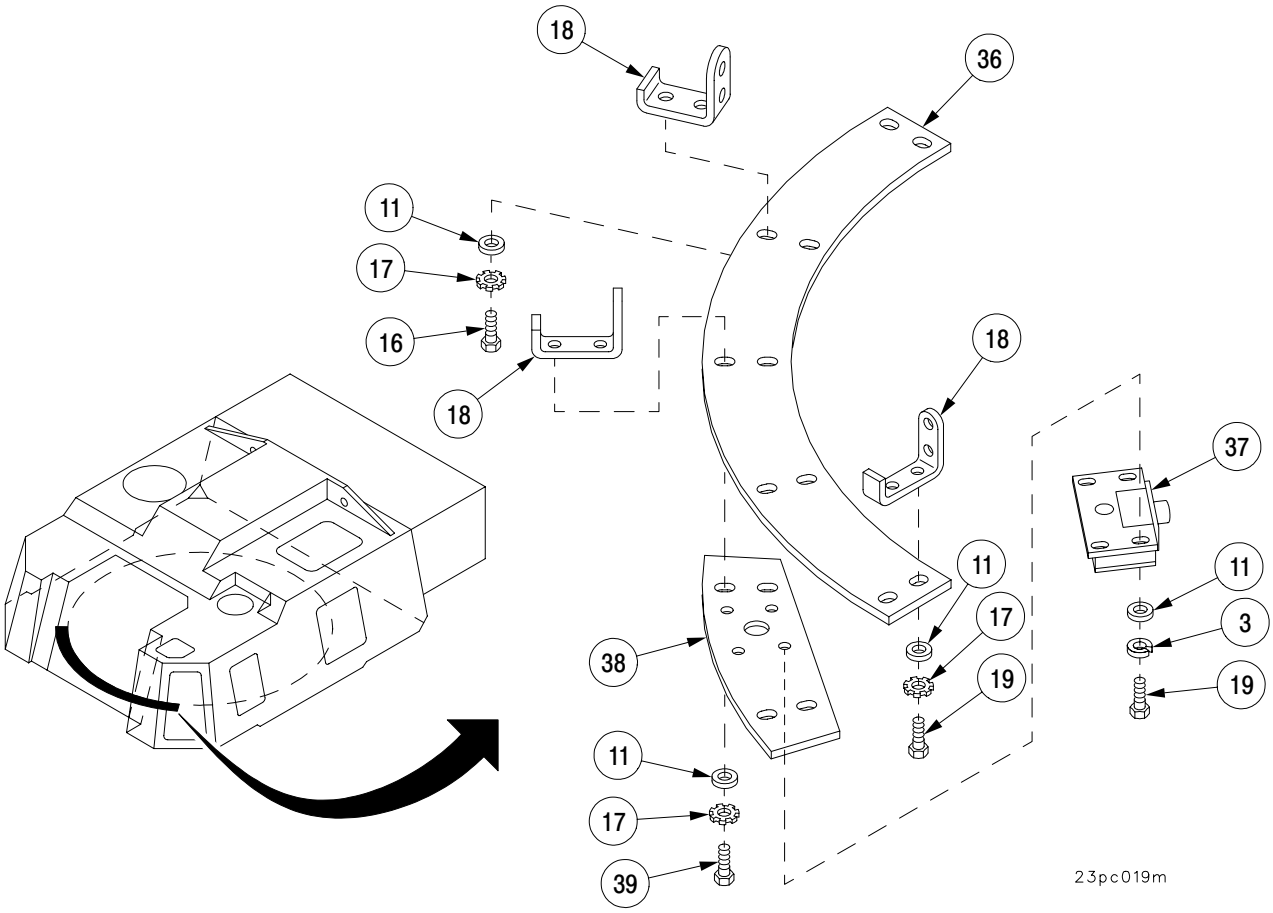
The following maintenance procedures are applicable to cover and spacer located by traverse limit switch.

(a) Remove four screws (19), four lockwashers (3), and four flat washers (11) securing traverse limit switch (37) to spacer (38). Discard lockwashers.

(b) Remove four screws (39), four lockwashers (17), and four flat washers (11) securing spacer (38) and cover (36) to two hooks (18). Discard lockwashers.

(c) Remove four screws (19), four lockwashers (17), and four flat washers (11) securing cover (36) to two hooks (18). Discard lockwashers.

(d) Remove two screws (16), two lockwashers (17), two flat washers (11), and cover (36) from hook (18). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

10 Remove cover (40).

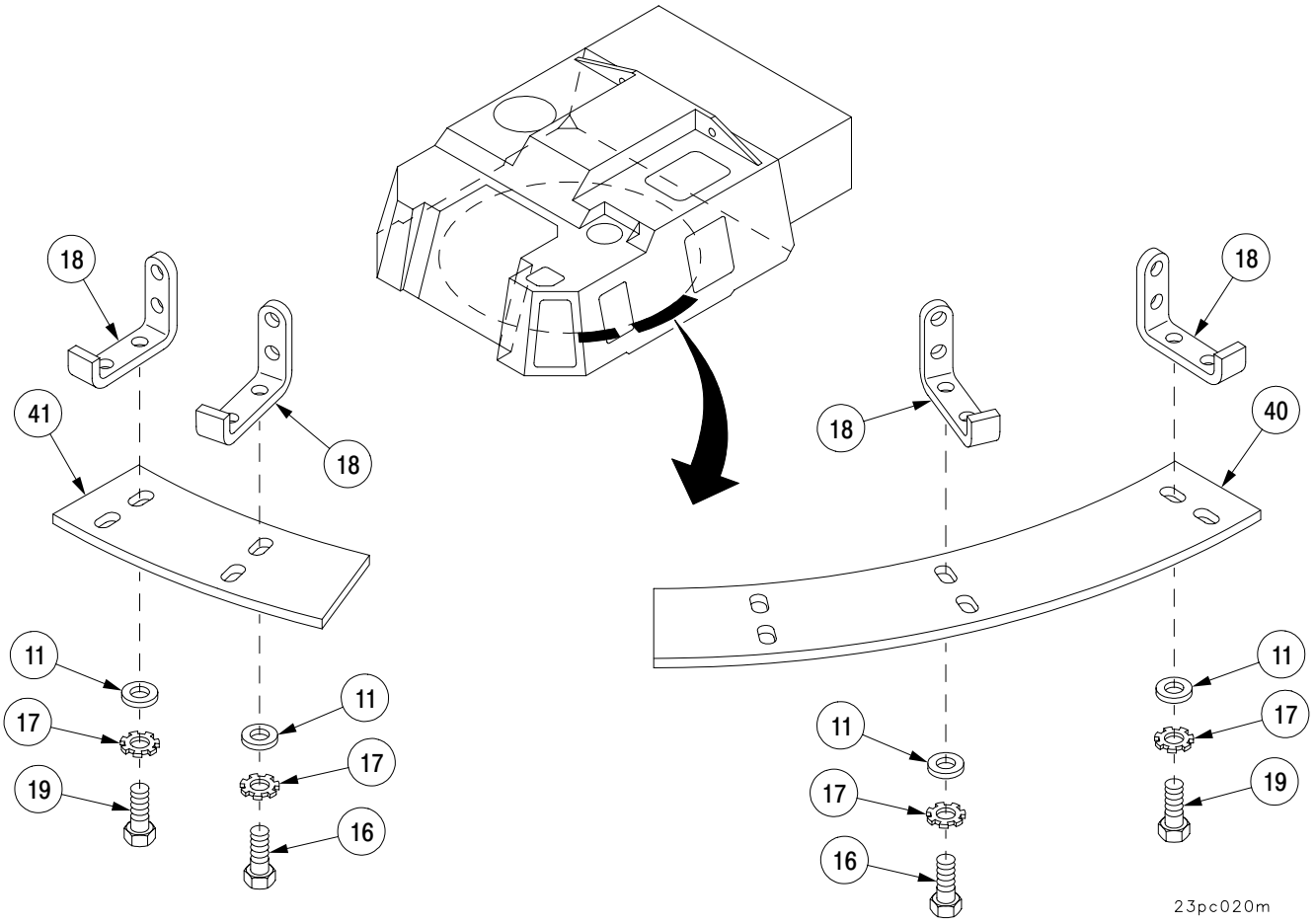
(a) Remove two screws (19), two lockwashers (17), and two flat washers (11) securing cover (40) to hook (18). Discard lockwashers.

(b) Remove four screws (16), four lockwashers (17), four flat washers (11), and cover (40) from two hooks (18). Discard lockwashers.

11 Remove cover (41).

(a) Remove two screws (19), two lockwashers (17), and two flat washers (11) securing cover (41) to hook (18). Discard lockwashers.

(b) Remove two screws (16), two lockwashers (17), two flat washers (11), and cover (41) from hook (18). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

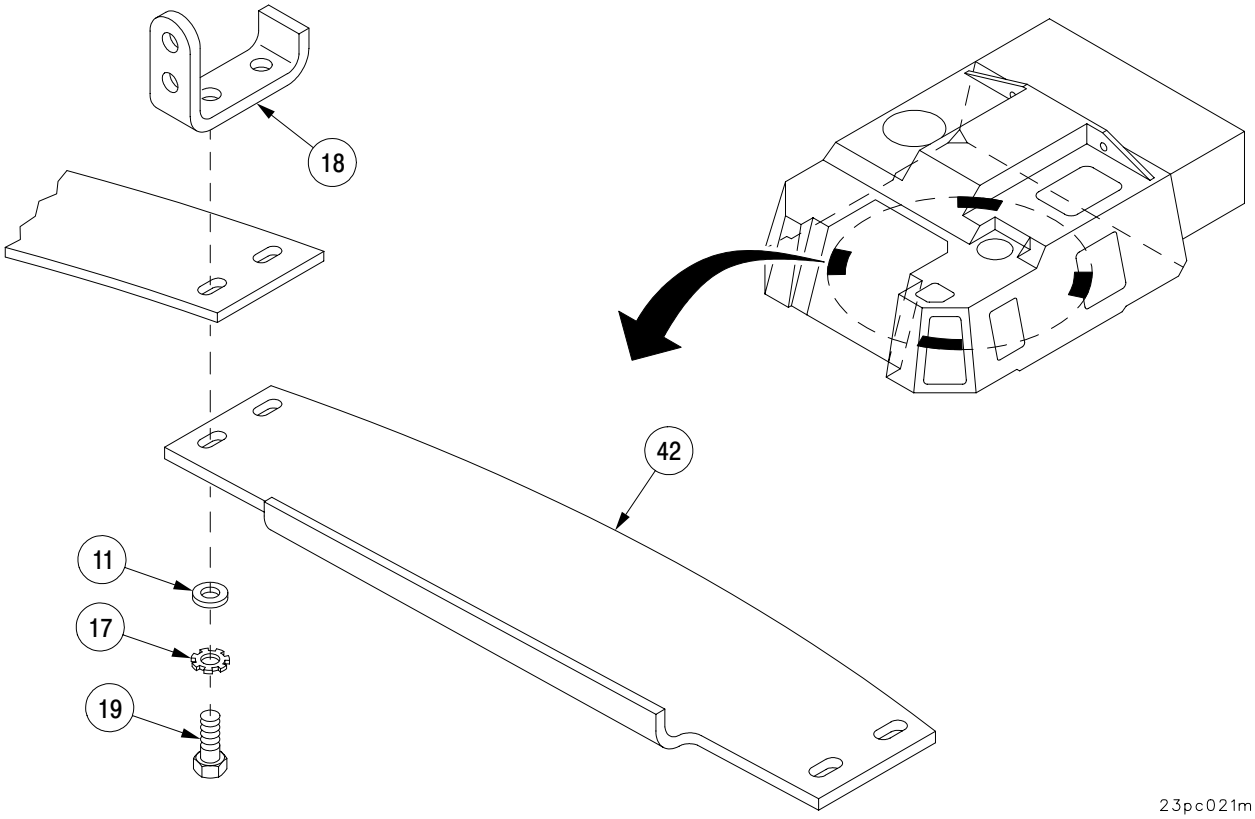
a. Removal – Continued

12 Remove cover (42).

NOTE

The following maintenance procedure is applicable to all brush block covers.

Remove four screws (19), four lockwashers (17), four flat washers (11), and cover (42) from two hooks (18). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

a. Removal – Continued

13 Remove hook (18).

NOTE

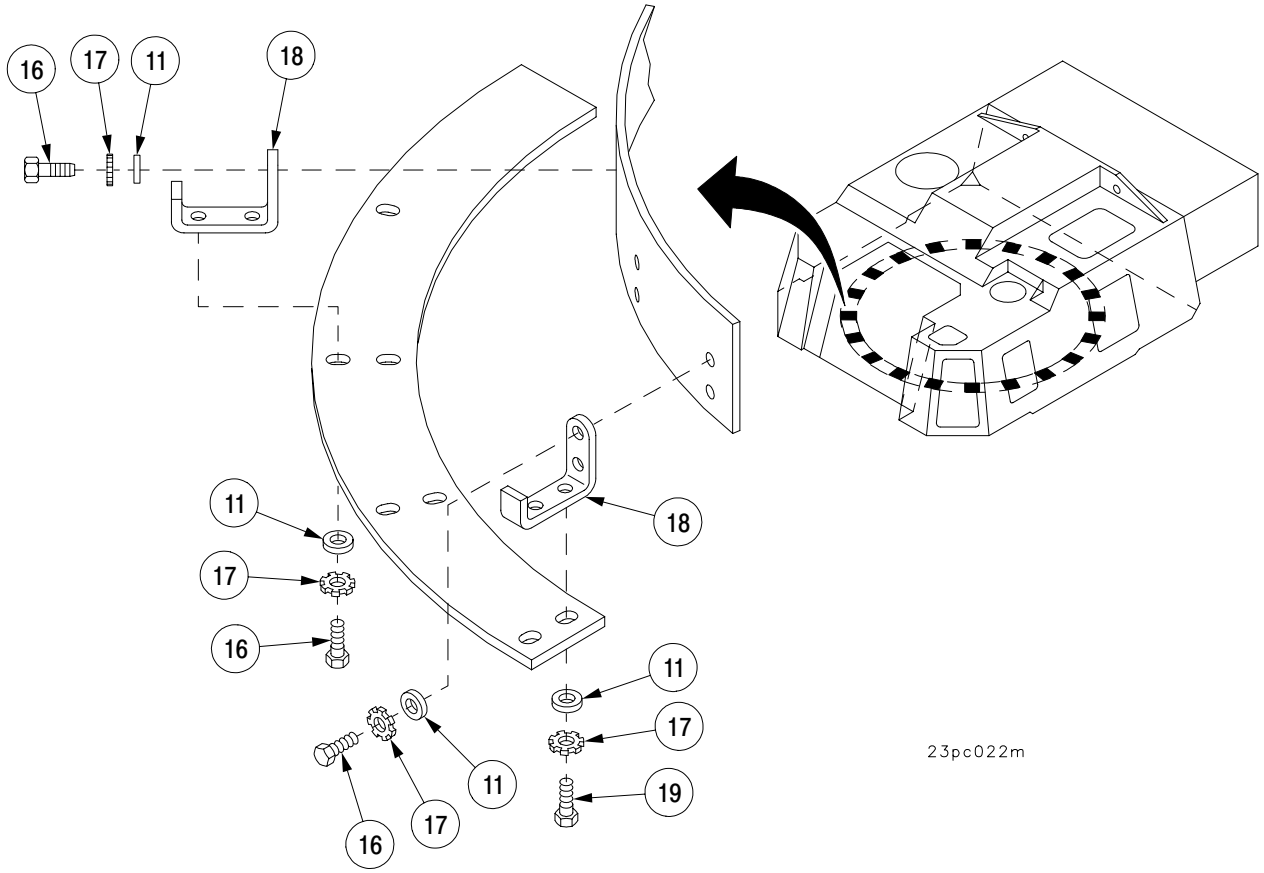
Perform steps (a and b) for hooks securing two covers and steps (c and d) for hooks securing single covers.

(a) Remove two screws (16), two lockwashers (17) and two flat washers (11) securing hook (18) to shield. Discard lockwashers.

(b) Remove two screws (19), two lockwashers (17), two flat washers (11) and hook (18). Discard lockwashers.

(c) Remove two screws (16), two lockwashers (17), and two flat washers (11) securing hook (18) to shield. Discard lockwashers.

(d) Remove two screws (16), two lockwashers (17), two flat washers (11), and hook (18). Discard lockwashers.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation.

1 Install hook (18).

NOTE

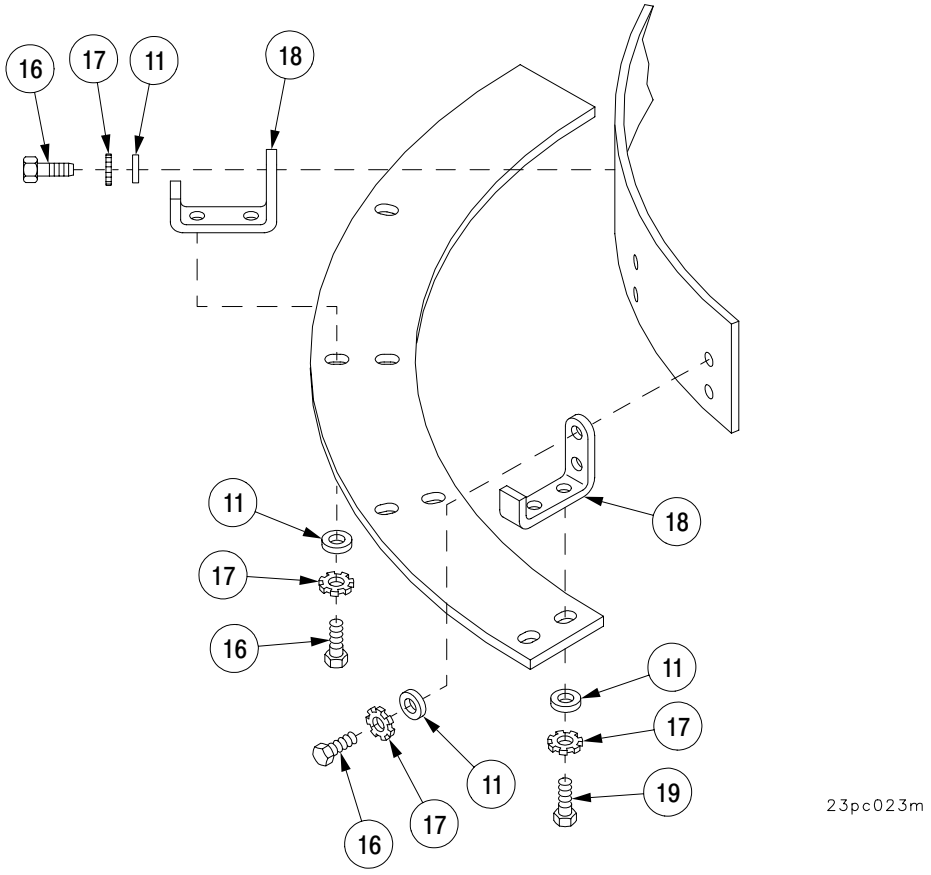
Perform steps (a and b) for hooks securing two covers and steps (c and d) for hooks securing single covers.

(a) Install hook (18) onto shield and secure with two screws (16), two new lockwashers (17), and two flat washers (11).

(b) Install two screws (19), two new lockwashers (17), and two flat washers (11) to secure hook (18) to shield.

(c) Install hook (18) onto shield and secure with two screws (16), two new lockwashers (17), and two flat washers (11).

(d) Install two screws (16), two new lockwashers (17), and two flat washers (11) to secure hook (18) to shield.



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

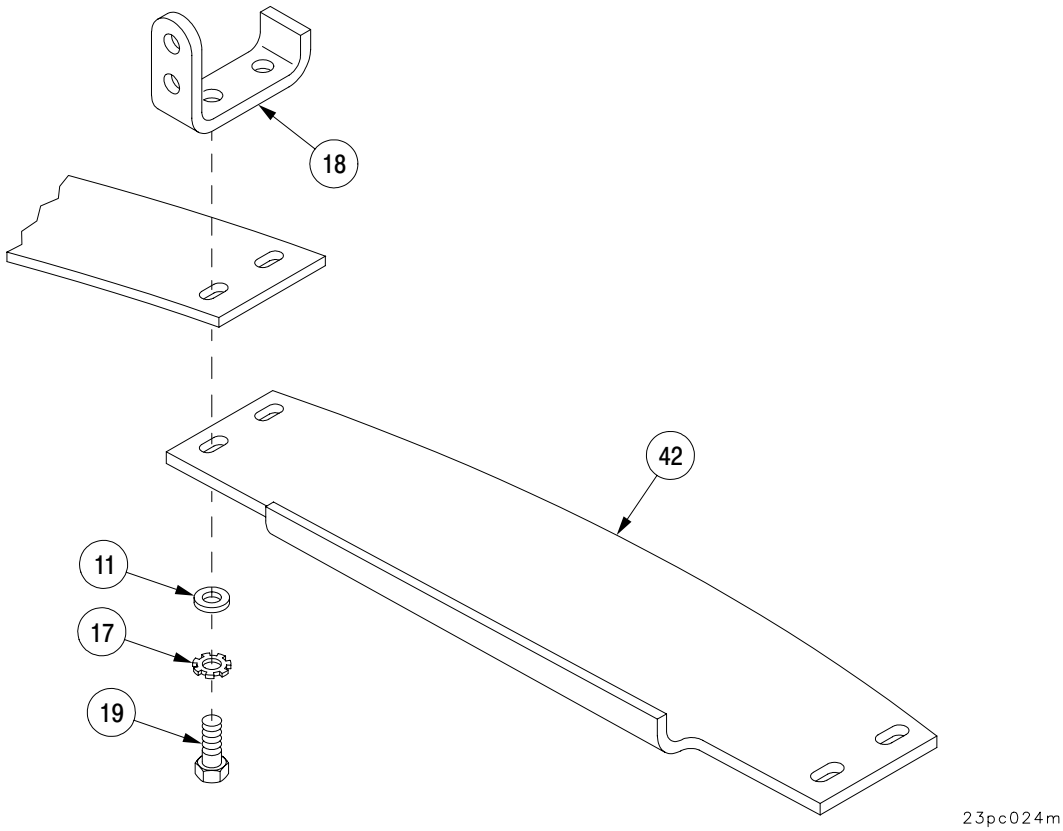
b. Installation – Continued

2 Install cover (42).

NOTE

The following maintenance procedure is applicable to all brush block covers.

Install cover (42) onto two hooks (18) and secure with four screws (19), four new lockwashers (17), and four flat washers (11).



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

3 Install cover (41).

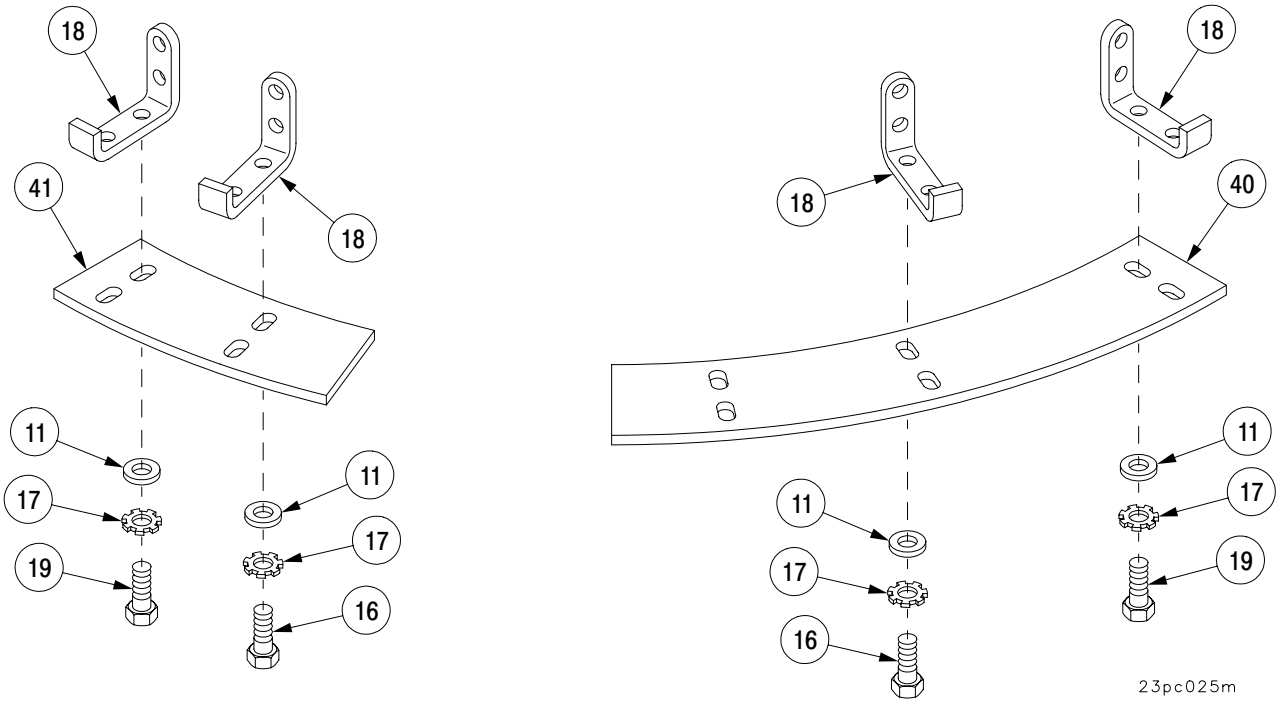
(a) Install cover (41) onto hook (18) and secure with two screws (19), two new lockwashers (17), and two flat washers (11).

(b) Install two screws (16), two new lockwashers (17), and two flat washers (11) to secure cover (41) to hook (18).

4 Install cover (40).

(a) Install cover (40) on hook (18) and secure with two screws (19), two new lockwashers (17), and two flat washers (11).

(b) Install four screws (16), four new lockwashers (17), and four flat washers (11) to secure cover (40) to two hooks (18).



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

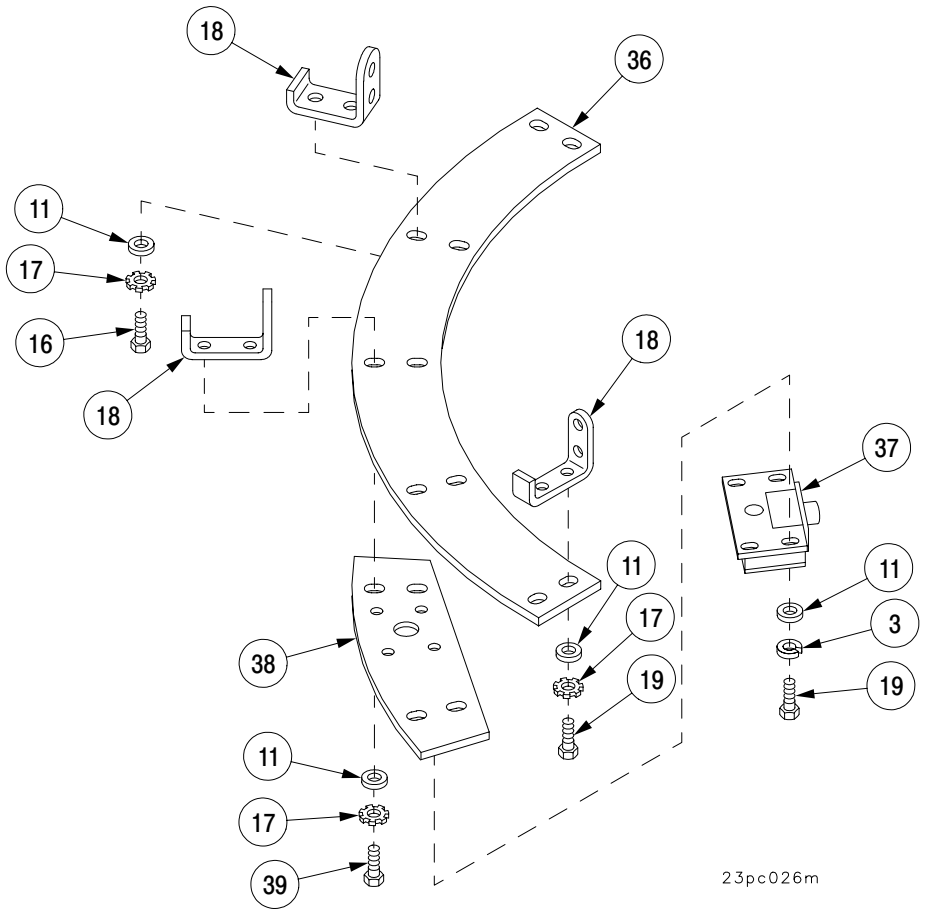
5 Install cover (36).

(a) Install cover (36) on two hooks (18) and secure with four screws (19), four new lockwashers (17), and four flat washers (11).

(b) Install spacer (38) on cover (36) and secure spacer (38) and cover (36) to two hooks (18) with four screws (39), four new lockwashers (17), and four flat washers (11).

(c) Install two screws (16), two new lockwashers (17), and two flat washers (11) to secure cover (36) to hook (18).

(d) Install traverse limit switch (37) on spacer (38) and secure with four screws (19), four new lockwashers (3), and four flat washers (11).



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

6 Install cover (35).

(a) Install cover (35) on two hooks (18) and secure with four screws (19), four new lockwashers (17), and four flat washers (11).

(b) Install six screws (16), six new lockwashers (17), and six flat washers (11) to secure cover (35) to three hooks (18).

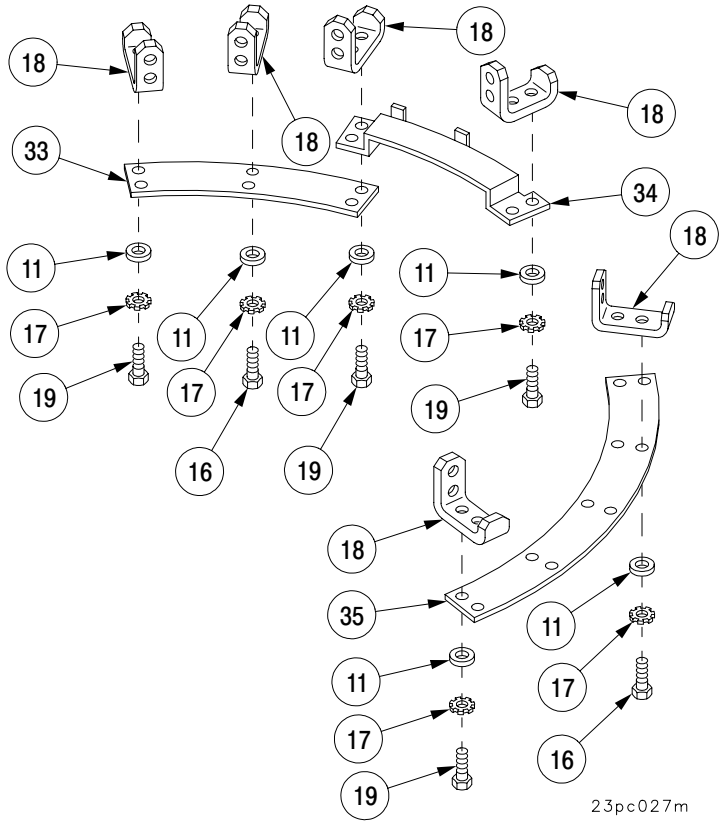
7 Install cover (34).

Install cover (34) on two hooks (18) and secure with four screws (19), four new lockwashers (17), and four flat washers (11).

8 Install cover (33).

(a) Install cover (33) on two hooks (18) and secure with four screws (19), four new lockwashers (17), and four flat washers (11).

(b) Install two screws (16), two new lockwashers (17), and two flat washers (11) to secure cover (33) to hook (18).



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

9 Install shield (29).

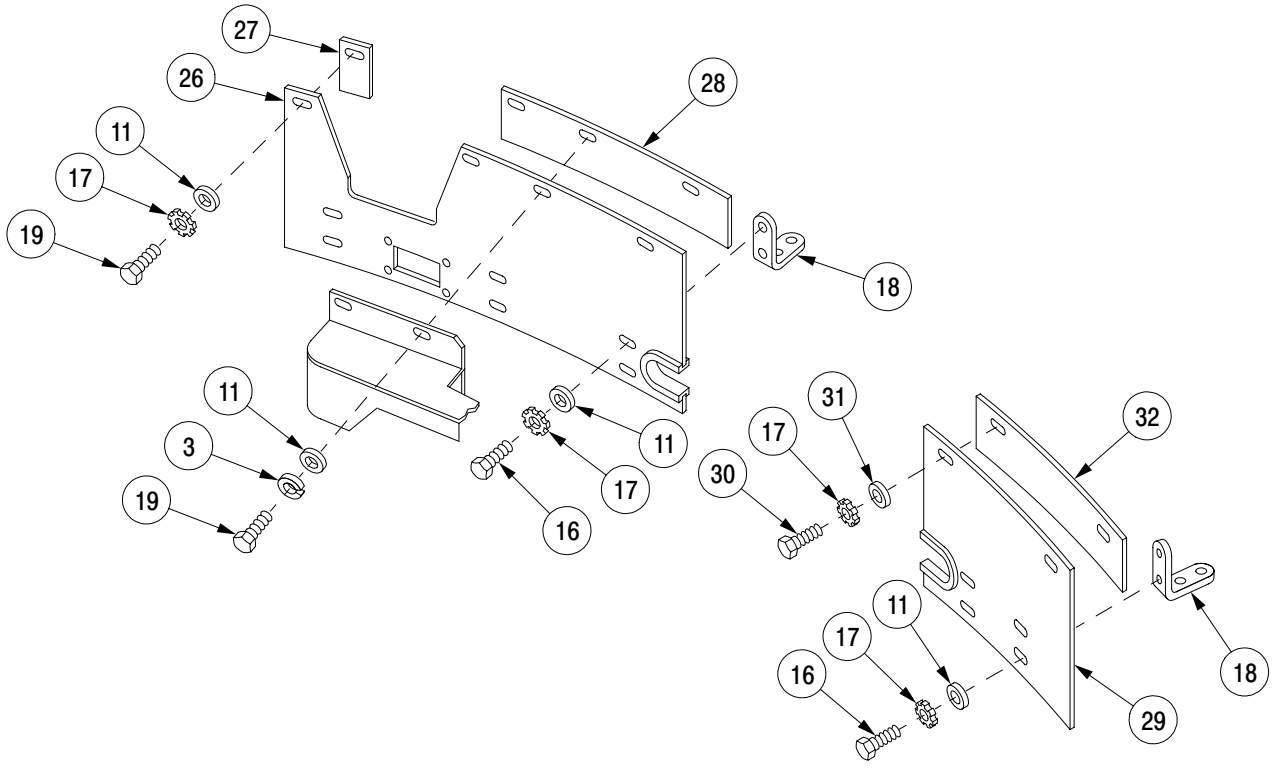
(a) Install shield (29) and spacer (32) on cab and secure with two screws (30), two new lockwashers (17), and two flat washers (31).

(b) Install four screws (16), four new lockwashers (17), and four flat washers (11) to secure shield (29) to two hooks (18).

10 Install shield (26).

(a) Install shield (26), spacer (27), and spacer (28) onto cab and secure with four screws (19), two new lockwashers (3), two new lockwashers (17), and four flat washers (11).

(b) Install six screws (16), six new lockwashers (17), and six flat washers (11) to secure shield (26) to three hooks (18).



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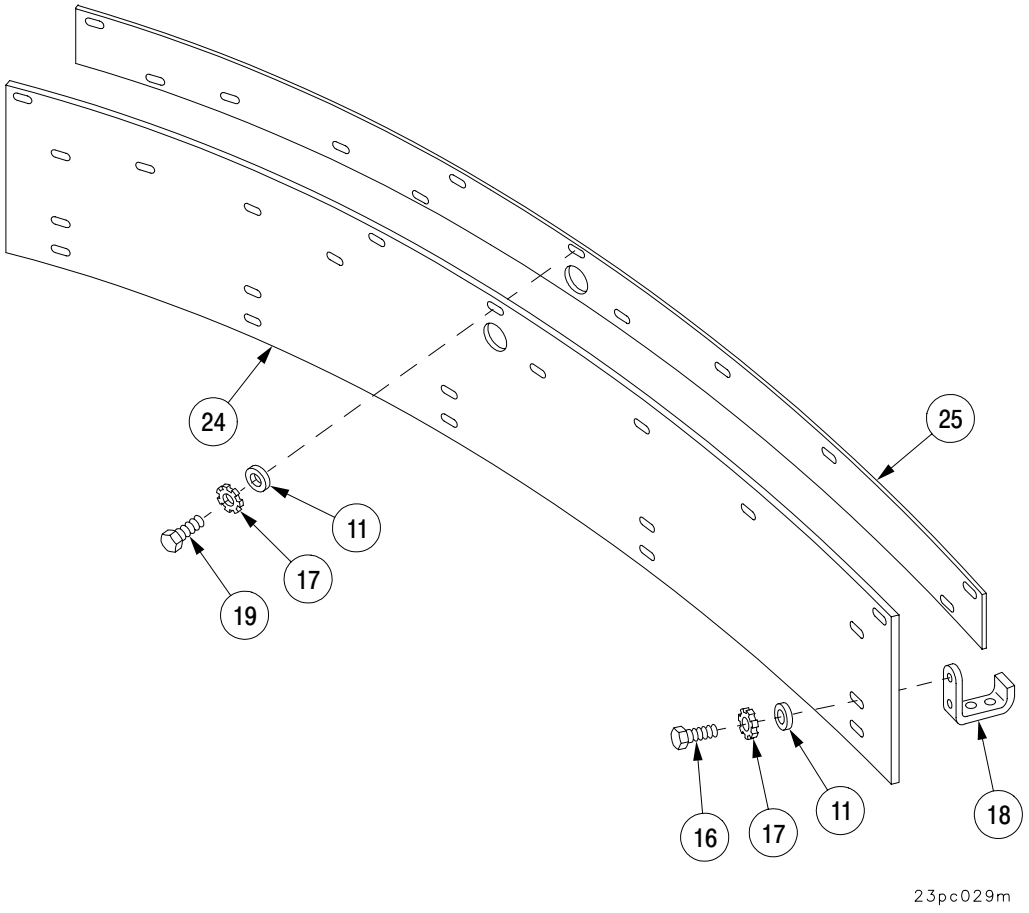
23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

11 Install shield (24).

(a) Install shield (24) and spacer (25) onto cab and secure with four screws (19), four new lockwashers (17), and four flat washers (11).

(b) Install 10 screws (16), 10 new lockwashers (17), and 10 flat washers (11) to secure shield (24) to five hooks (18).



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

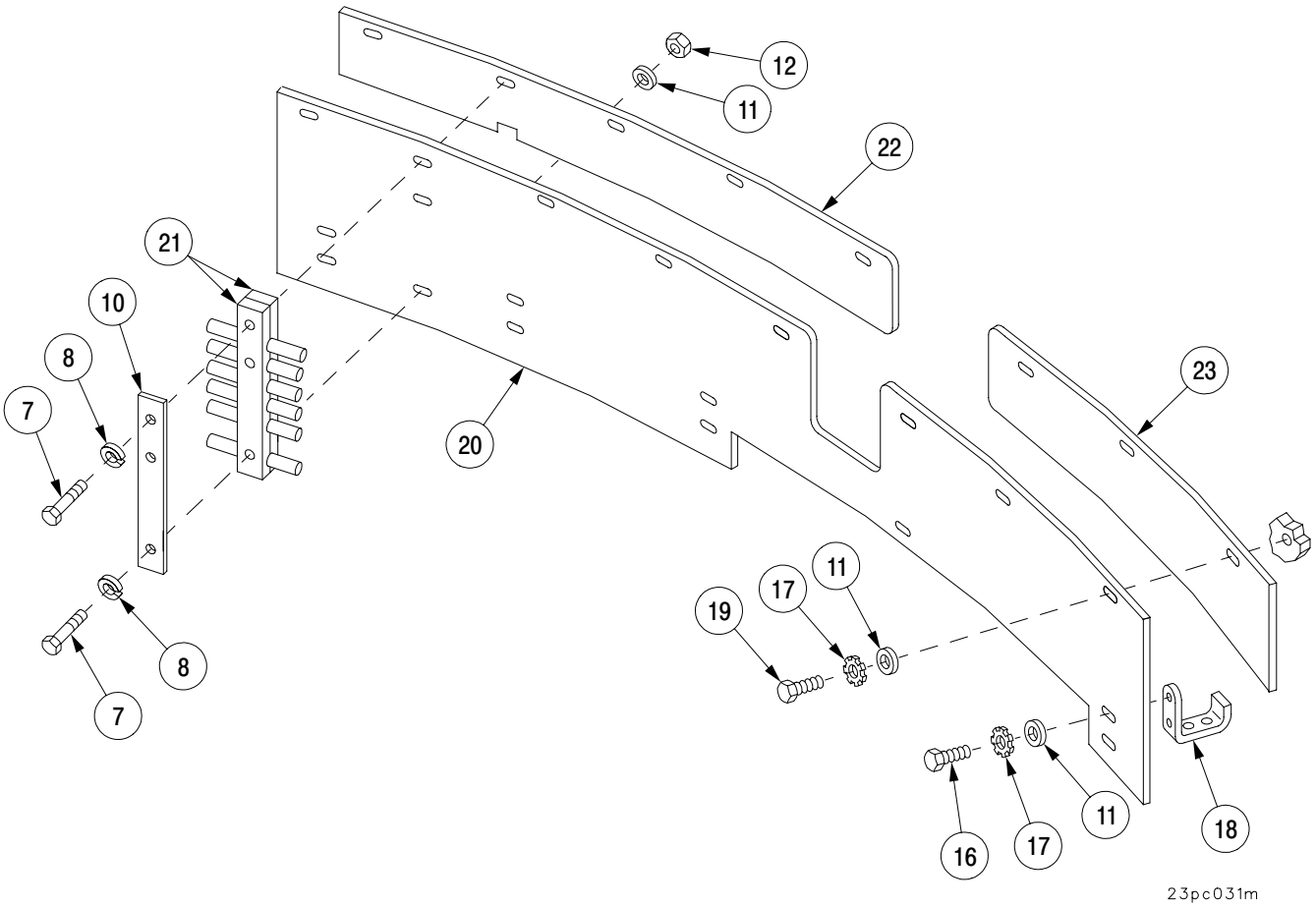
12 Install shield (20).

(a) Install shield (20), spacer (22), and spacer (23) onto cab and secure with seven screws (19), seven new lockwashers (17), and seven flat washers (11).

(b) Install two clamps (21) and plate (10) onto shield (20) and secure two clamps (21), plate (10), shield (20), and spacer (22) to cab with two screws (7) and two new lockwashers (8).

(c) Install screw (7), new lockwasher (8), flat washer (11), and nut (12) to secure two clamps (21) and plate (10) to shield (20).

(d) Install eight screws (16), eight new lockwashers (17), and eight flat washers (11) to secure shield (20) to four hooks (18).



23–1 BEARING SHIELDS, SPACERS, COVERS, AND HOOKS – CONTINUED

b. Installation – Continued

13 Install shield (1).

(a) Install shield (1) and spacer (6) onto cab and secure with nine screws (19), nine new lockwashers (17), and nine flat washers (11).

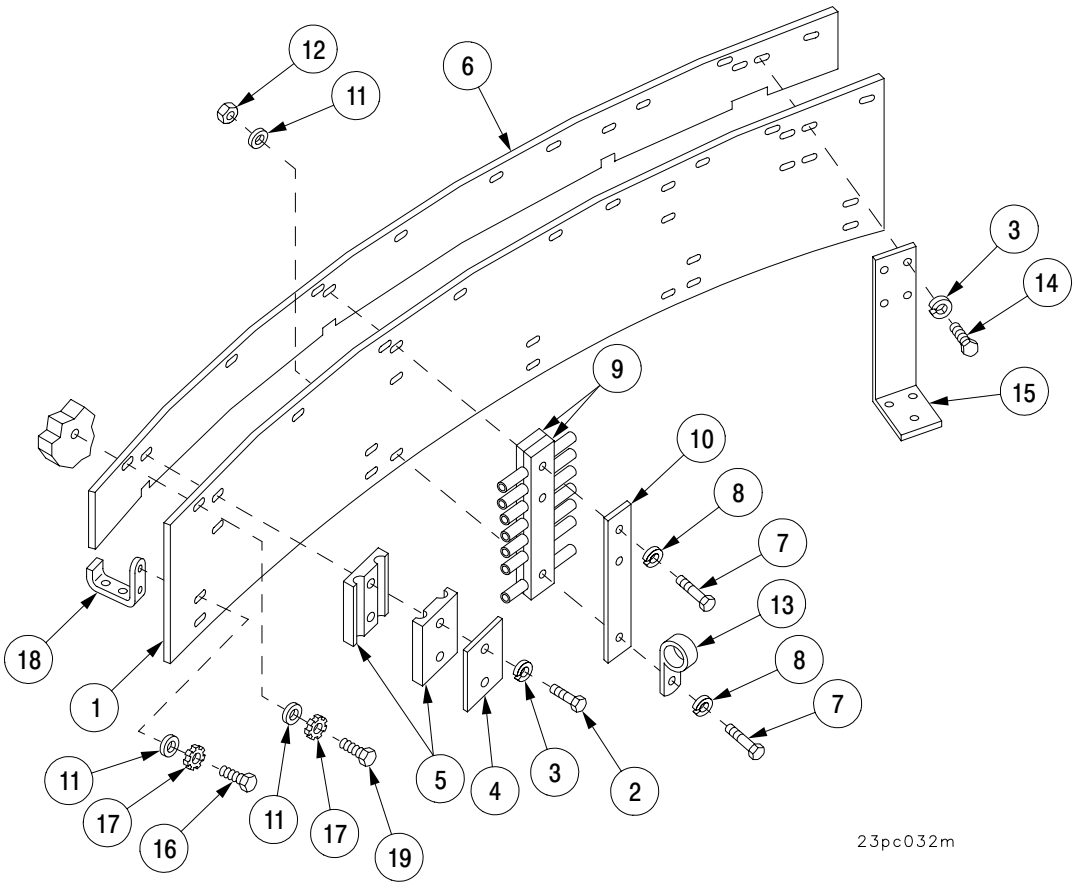
(b) Install bracket (15) onto shield (1) and secure bracket (15), shield (1), and spacer (6) to cab with four screws (14) and four new lockwashers (3).

(c) Install four clamps (9) and two plates (10) onto shield (1) and secure four clamps (9), two plates (10), shield (1), and spacer (6) onto cab with four screws (7) and four new lockwashers (8).

(d) Install two clamps (13) onto two clamps (9) and secure two clamps (13), four clamps (9), and two plates (10) to shield (1) with two screws (7), two new lockwashers (8), two flat washers (11), and two nuts (12).

(e) Install clamp (4) and two pads (5) onto shield (1) and secure clamp (4), two pads (5), shield (1), and spacer (6) to cab with two screws (2) and two new lockwashers (3).

(f) Install 10 screws (16), 10 lockwashers (17), and 10 flat washers (11) to secure shield (1) to five hooks (18).



23–2 BRUSH BLOCK COVERS AND LIDS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Vehicle MASTER power switch OFF
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (4) (item 130, Appx F)
Lockwashers (2) (item 126, Appx F)

a. Removal.

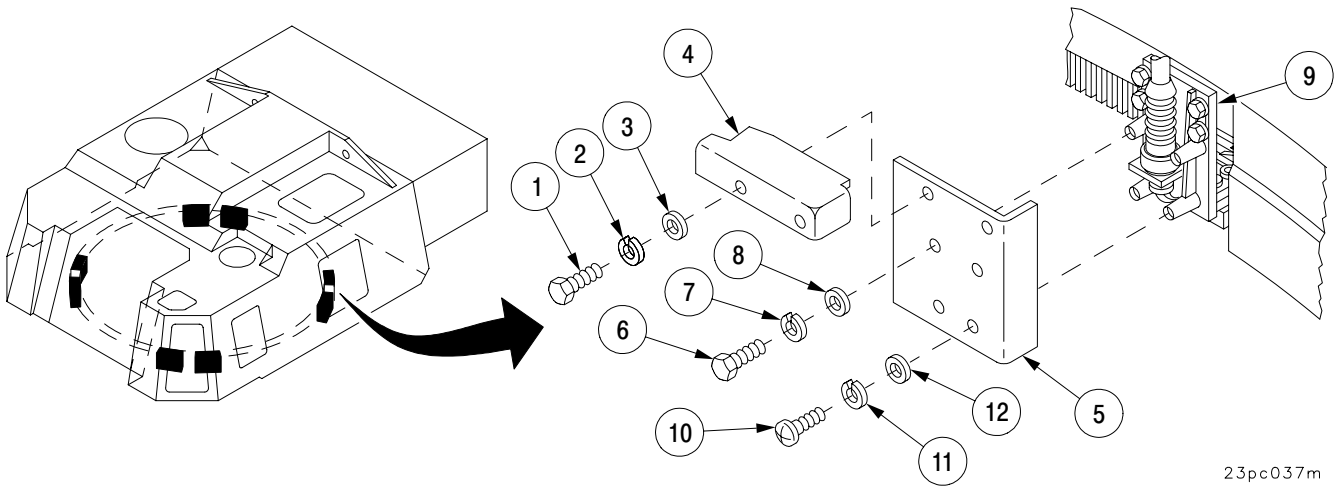
NOTE

There are eight brush block covers and lids. The removal and installation procedures are identical for all eight. This procedure covers only one brush block cover and lid.

1 Remove two screws (1), two lockwashers (2), two flat washers (3), lid (4) from cover (5). Discard lockwashers.

2 Remove two screws (6), two lockwashers (7), and two flat washers (8) securing cover (5) to brush block (9). Discard lockwashers.

3 Remove two screws (10), two lockwashers (11), two flat washers (12), and cover (5) from brush block (9). Discard lockwashers.



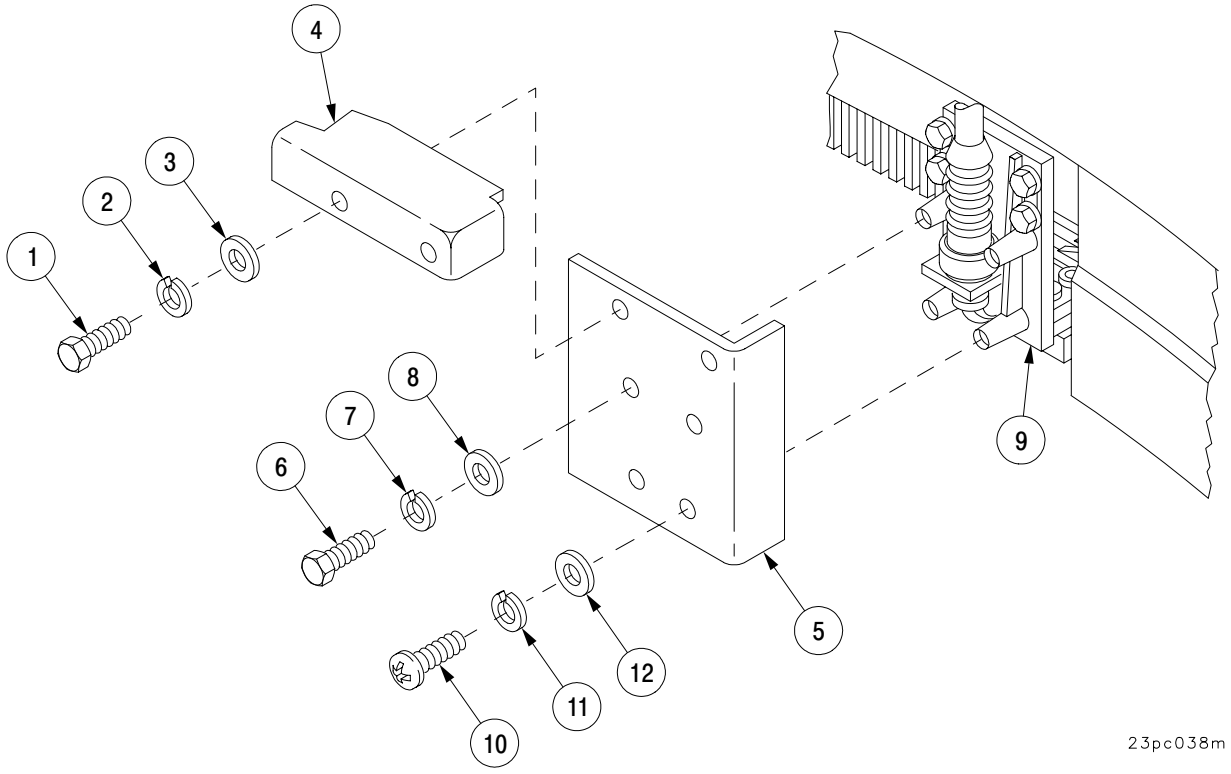
23–2 BRUSH BLOCK COVERS AND LIDS – CONTINUED

b. Installation.

1 Install cover (5) onto brush block (9) and secure with two screws (10), two new lockwashers (11), and two flat washers (12).

2 Install two screws (6), two new lockwashers (7), and two flat washers (8) to secure cover (5) to brush block (9).

3 Install lid (4) onto cover (5) and secure with two screws (1), two new lockwashers (2), and two flat washers (3).



23–3 SLIP RING SEGMENT ASSEMBLY.

This task covers: a. Removal b. Installation c. Cleaning

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwasher (item 133, Appx F)
Lockwashers (2) (item 132, Appx F)
Lockwashers (2) (item 130, Appx F)
Self–locking screws (12) (item 69, Appx F)
Marking tags (AR) (item 87, Appx C)
Alcohol, isopropyl (item 14, Appx C)
Pads, scouring (AR) (item 59, Appx C)
Velcro (AR) (item 92, Appx C)
Adhesive (item 11, Appx C)
Dry–cleaning solvent (item 75, Appx C)
Velcro (AR) (item 94, Appx C)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Bearing shield covers and hooks removed (para 23–1)
Brush blocks removed (para 23–4)

Personnel Required
Two

References
TM 9–2350–314–10
TM 9–2350–314–20–1–2

a. Removal.

WARNING

All personnel located outside the vehicle must be clear of hull while cab is being traversed.

NOTE

- Tag leads before disconnecting to aid in installation.
- There are two slip ring segment assemblies. The procedures for removal and installation are identical for both. However the slip rings are not interchangeable.
- If removing both slip ring segment assemblies, tag the locations before removal to ensure that they are installed in the same position. This procedure covers only one slip ring segment assembly.

23–3 SLIP RING SEGMENT ASSEMBLY – CONTINUED

a. Removal – Continued

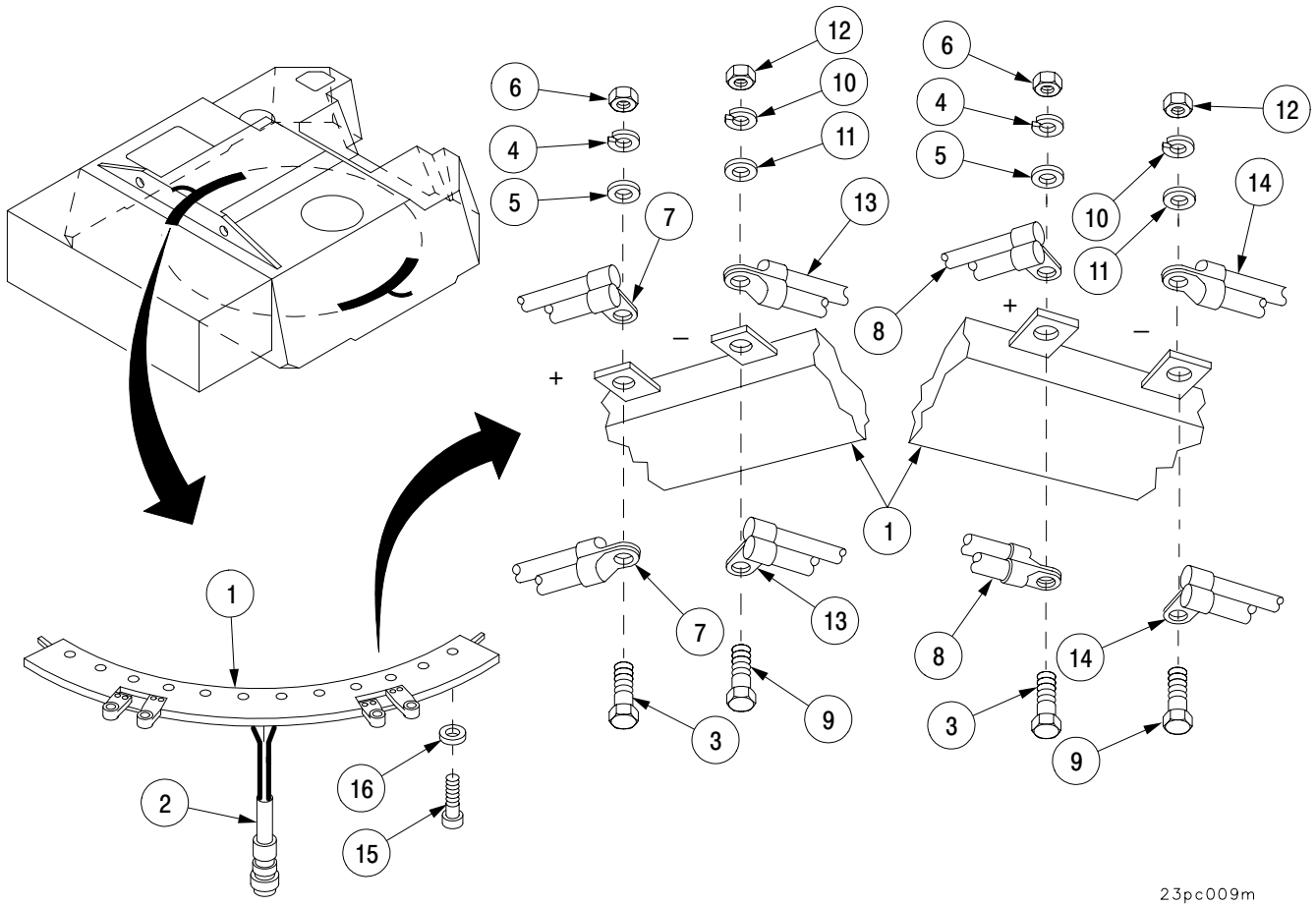
1 Manually traverse cab to gain clear access to segment assembly (1).

2 Disconnect segment assembly lead (2) from W111A cable.

3 Remove two screws (3), two lockwashers (4), two flat washers (5), two nuts (6), and positive leads (7 and 8) from segment assembly (1). Discard lockwashers.

4 Remove two screws (9), two lockwashers (10), two flat washers (11), two nuts (12), and negative leads (13 and 14) from segment assembly (1). Discard lockwashers.

5 Using assistance, remove 12 self–locking screws (15), 12 flat washers (16), and segment assembly (1) from hull. Discard self–locking screws.



23–3 SLIP RING SEGMENT ASSEMBLY – CONTINUED

b. Installation.

1 Using assistance, install segment assembly (1) onto hull and secure with 12 new self–locking screws (15) and 12 flat washers (16).

2 Install negative leads (13 and 14) onto segment assembly (1) and secure with two screws (9), two new lockwashers (10), two flat washers (11), and two nuts (12). Torque screws from 300 to 360 lb–in. (34–41 N·m).

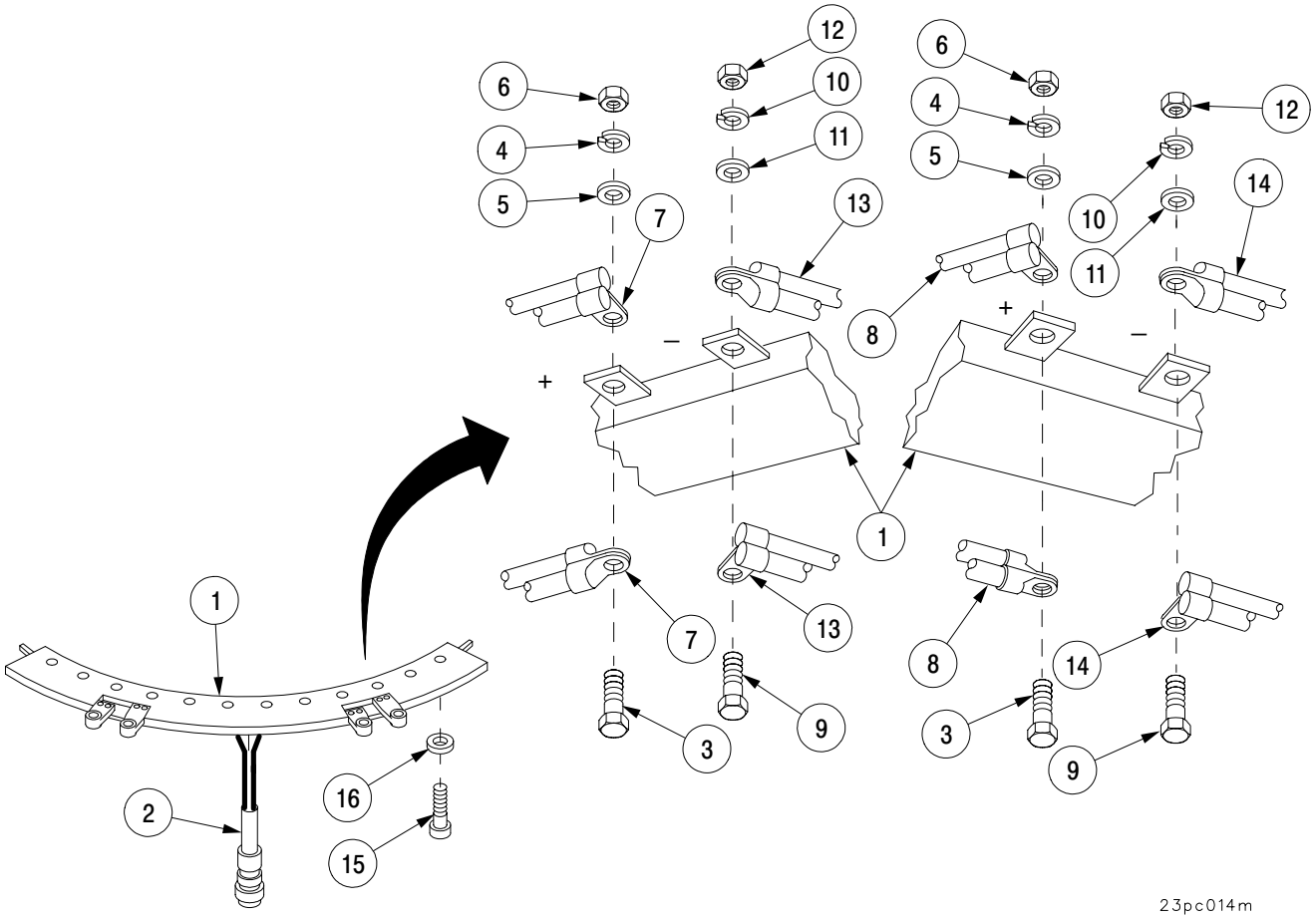
3 Install positive leads (7 and 8) onto segment assembly (1) and secure with two screws (3), two new lockwashers (4), two flat washers (5), and two nuts (6). Torque screws from 360 to 420 lb–in. (41–43 N·m).

4 Reconnect segment assembly lead (2) to the W111A cable.

5 Install brush blocks (para 23–4).

6 Install bearing shield covers and backs (para 23–1).

7 Connect battery ground leads (TM 9–2350–314–20–1–2).



23–3 SLIP RING SEGMENT ASSEMBLY – CONTINUED

c. Cleaning.

WARNING

- Electrical hazards may result if the segment boards are cleaned with master power switch ON.
- All personnel located outside the vehicle must be clear of hull while cab is being traversed.

NOTE

Verify that all electrical components are powered OFF prior to cleaning the segment boards.

1 Clear by hand any loose debris from eight brush blocks and two segment boards.

2 Inspect the segment boards and brush blocks for damage. Repair as needed (ref steps a and b, paras 23–2, or 23–4).

3 Turn MASTER power switch ON (TM 9–2350–314–10).

4 Check function of electronic components. Record any malfunctions.

5 Start engine and set throttle to 1000 – 1200 rpm.

6 Release gun tube (TM 9–2350–314–10).

7 Power traverse cab (TM 9–2350–314–10) 700 mils left. This will permit access to the segment board cleaning mechanism (SBCM) (1) above upper left corner of rear door.

8 Verify that all electrical components are powered OFF.

9 Turn HYDRAULIC POWER, engine, and MASTER power switches OFF.

10 Remove the cleaning block (2) from the SBCM (1) and inspect the cleaning pads (3). Clean or replace the cleaning pads as needed.

NOTE

If cleaning pads are serviceable, go to step 22. If replacement is required, go to step 11.

11 Remove two socket head screws (4) and block (5) from base plate bracket (6).

12 Remove two cleaning pads (3) from block (5). Discard cleaning pads.

13 Inspect velcro strips (7). Replace velcro strips as needed.

NOTE

If velcro strips are serviceable, go to step 19. If replacement is required, go to step 14.

14 Remove two velcro strips (7) from block (5). Discard velcro strips.

23–3 SLIP RING SEGMENT ASSEMBLY – CONTINUED

c. Cleaning – Continued

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

15 Clean adhesive residue off block (5) with dry–cleaning solvent.

16 Cut two new velcro strips (7), one strip 2.46” wide by 7” long, one strip .88” wide by 7” long.

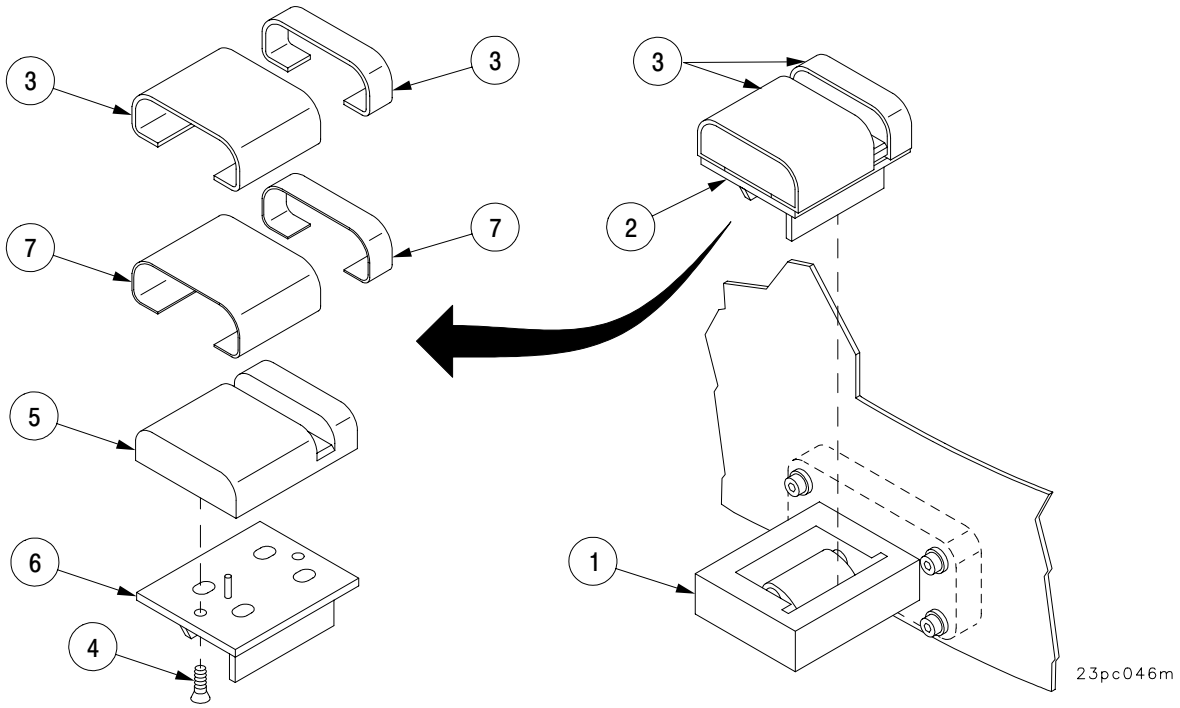
17 Apply adhesive to surfaces of block (5) where velcro strips (7) will be applied.

18 Apply two new velcro strips (7) to block (5). Wipe off excess adhesive with dry–cleaning solvent and trim velcro strips (7) to size using block (5) as template.

19 Cut two new cleaning pads (3), one pad 2.46” wide by 7” long, one pad .88” wide by 7” long.

20 Install two new cleaning pads (3) to block (5).

21 Install block (5) to base plate bracket (6) with two socket head screws (4).



23–3 SLIP RING SEGMENT ASSEMBLY – CONTINUED

c. Cleaning – Continued

22 Spray isopropyl alcohol on the cleaning pads (3).

23 Rotate handle (9) clockwise to stop; install the cleaning block (2) on the SBCM (1).

24 Use the handwheel to manually traverse the turret until the SBCM (1) is positioned under the ramp at the start of the left segment board (8) (TM 9–2350–314–10).

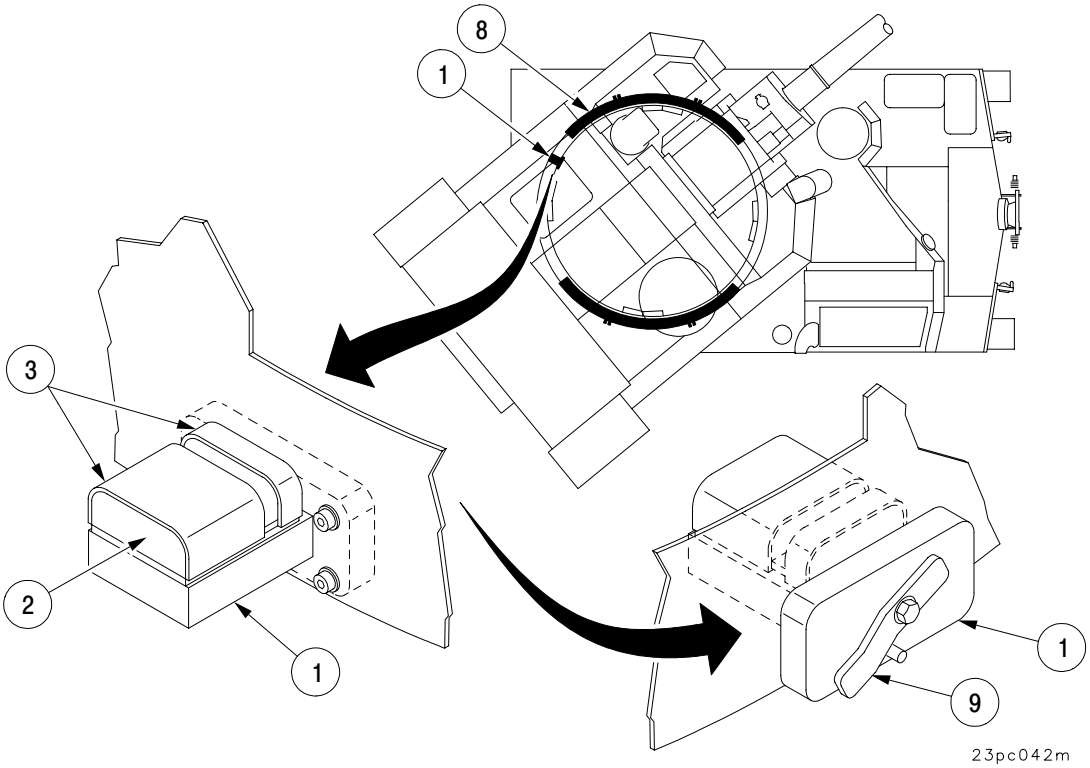
NOTE

Applying excessive force at the SBCM handle will cause rapid wear and/or tearing of the cleaning pads, resulting in the need to replace the cleaning pads more frequently.

25 Rotate the SBCM handle (9) clockwise to raise the cleaning block (2) against the segment board (8). Hold the handle with a medium force.

26 With the cleaning block (2) held against the segment board (8), use the handwheel to manually traverse the turret through the length of the segment board (8) (TM 9–2350–314–10).

27 Release the SBCM handle (9) to lower the cleaning block (2).



23–3 SLIP RING SEGMENT ASSEMBLY – CONTINUED

c. Cleaning – Continued

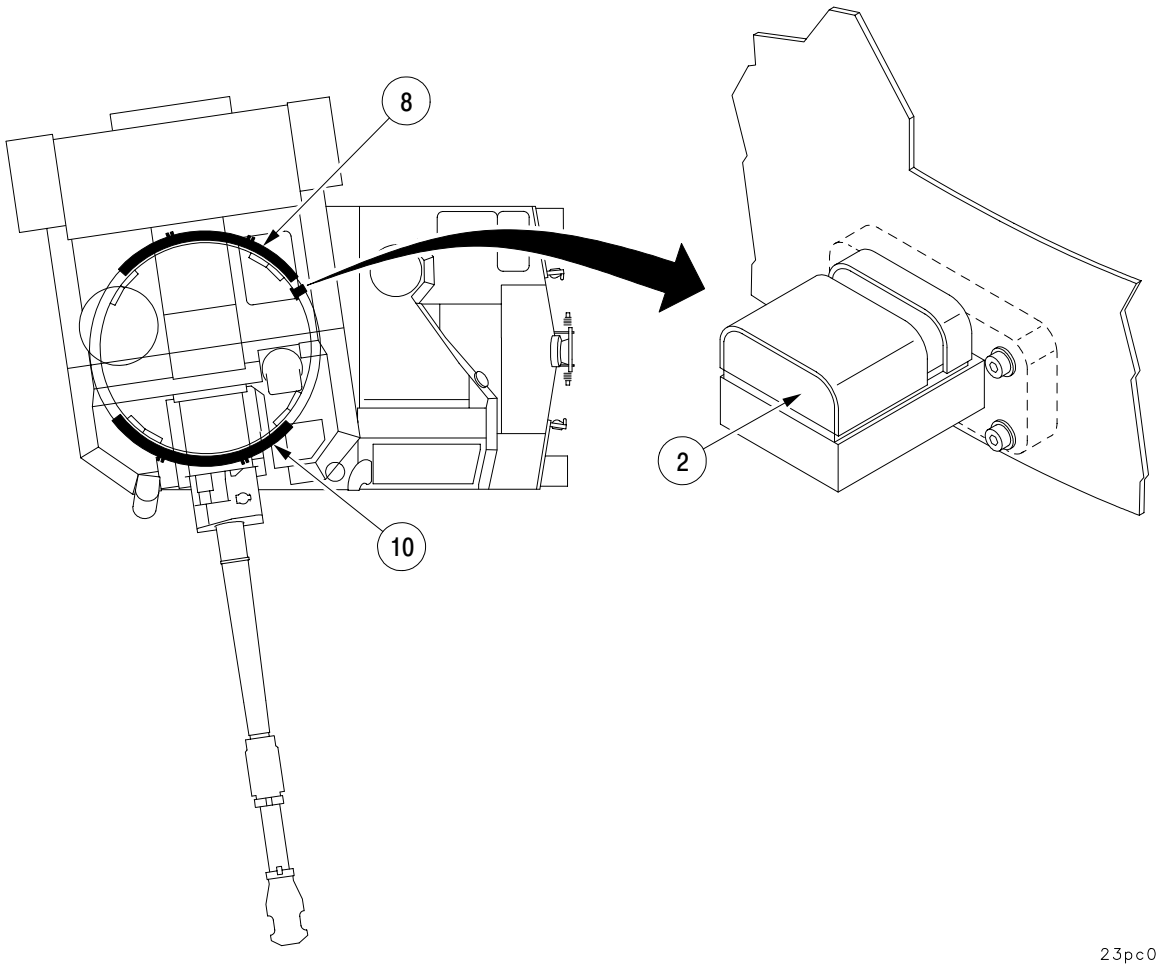
28 Hand traverse the turret to gain access to the cleaning block (2) near the entrance to the driver's compartment (TM 9–2350–314–10).

29 Repeat steps 10 through 26 for the right segment board (10).

30 Inspect the segment boards (8 and 10) and repeat cleaning procedure as needed.

31 Check function of electrical components to determine whether cleaning procedure corrected problems.

32 If problems still exist, remove/inspect/clean/adjust brush blocks (para 23–4).



23pc043m

23–4 BRUSH BLOCK ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Cleaning d. Assembly e. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Electrical drill (item 14, Appx G)
Drill twist set (item 15, Appx G)
Alignment tool, brush block (item 4, Appx G)
Adjustment shim, brush block (item 3, Appx G)

Materials/Parts
Marking tags (AR) (item 87, Appx C)
Lockwashers (10) (item 130, Appx F)
Lockwashers (2) (item 132, Appx F)
Lockwashers (2) (item 126, Appx F)
Lockwashers (4) (item 109, Appx F)
Lockwashers (4) (item 118, Appx F)
Lockwashers (4) (item 117, Appx F)
Lockwashers (14) (item 116, Appx F)
Lockwashers (21) (item 135, Appx F)
Dry–cleaning solvent (item 75, Appx C)
Straight pins (2) (item 49, Appx F)
Screw, machine (2) (item 226, Appx F)

Equipment Conditions
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)

Personnel Required
Two

23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

a. Removal.

NOTE

- Tag leads before disconnecting to aid in installation.
- There are eight brush block assemblies. The removal and installation procedures are identical for all eight. This procedure covers only one brush block assembly.

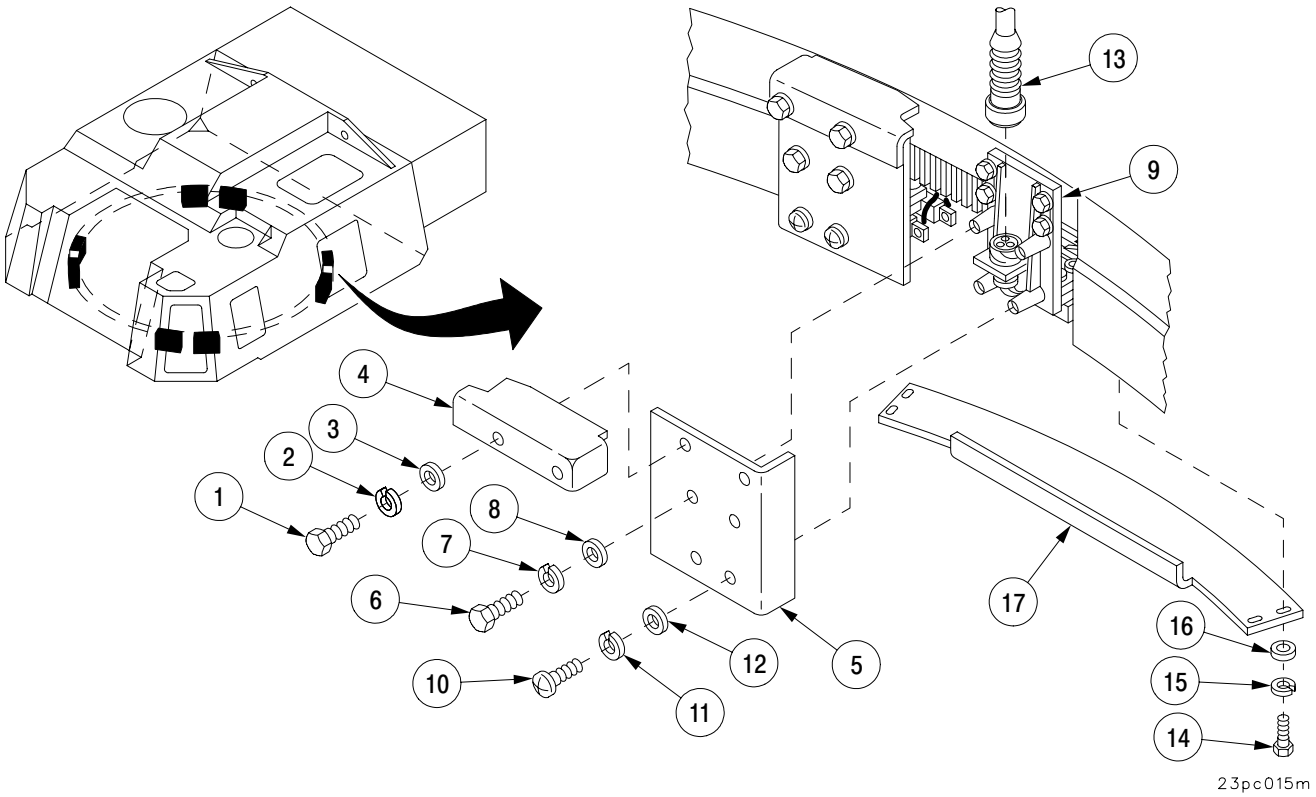
1 Remove two screws (1), two lockwashers (2), two flat washers (3), and lid (4) from cover (5). Discard lockwashers.

2 Remove two screws (6), two lockwashers (7), and two flat washers (8) securing cover (5) to brush block (9). Discard lockwashers.

3 Remove two screws (10), two lockwashers (11), two flat washers (12), and cover (5) from brush block (9). Discard lockwashers.

4 Disconnect connector (13) from brush block (9).

5 Remove four screws (14), four lockwashers (15), four flat washers (16), and cover (17). Discard lockwashers.



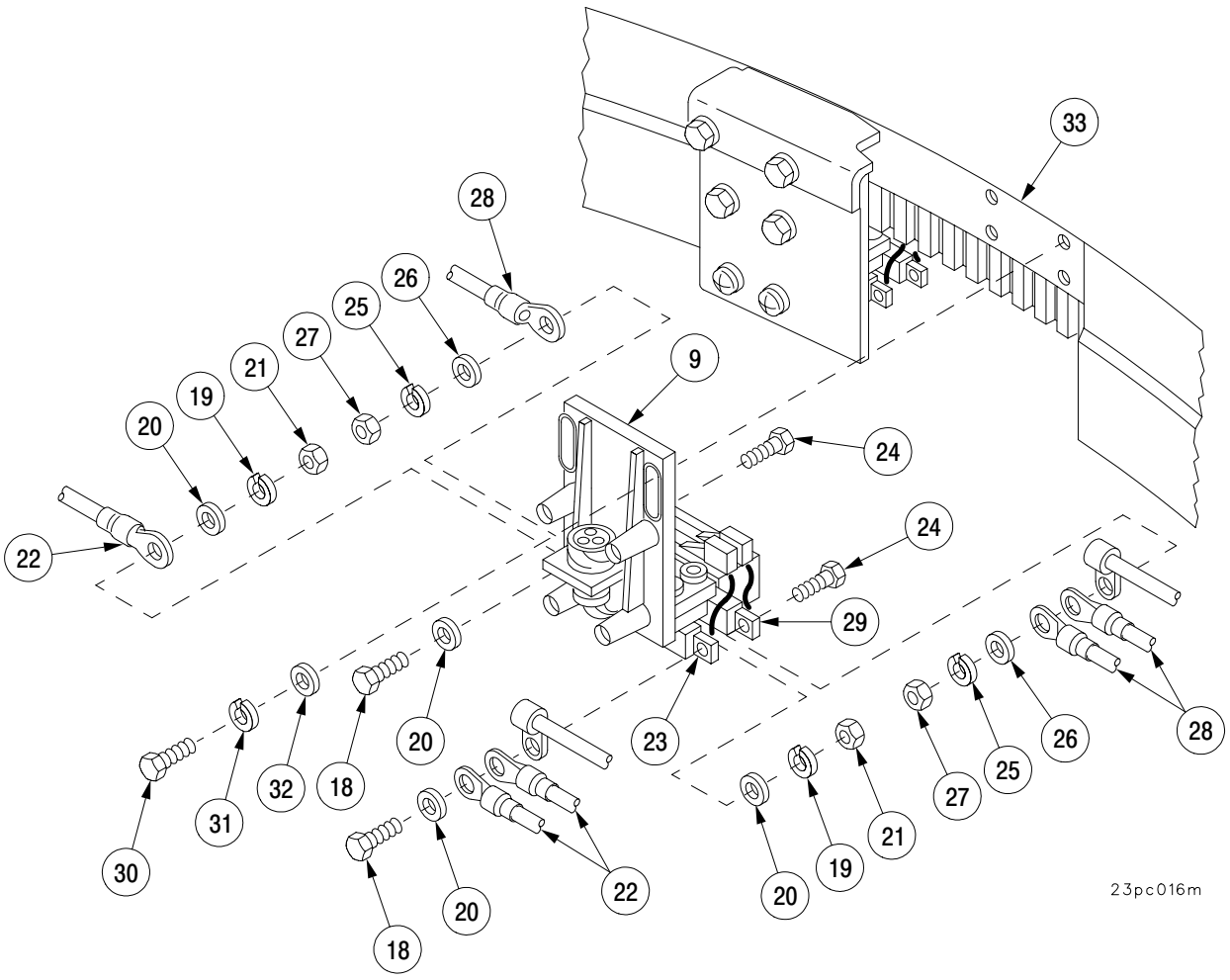
23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

a. Removal – Continued

6 Remove two screws (18), two lockwashers (19), four flat washers (20), two nuts (21), and three positive leads (22) from two positive bus bar ends (23). Discard lockwashers.

7 Remove two screws (24), two lockwashers (25), two flat washers (26), two nuts (27), and three negative leads (28) from two negative bus bar ends (29). Discard lockwashers.

8 Remove four screws (30), four lockwashers (31), four flat washers (32), and brush block (9) from bearing (33). Discard lockwashers.



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

b. Disassembly.

1 Remove four screws (1) and two shields (2 and 3) from lower brush leaf and bus bar assembly (4).

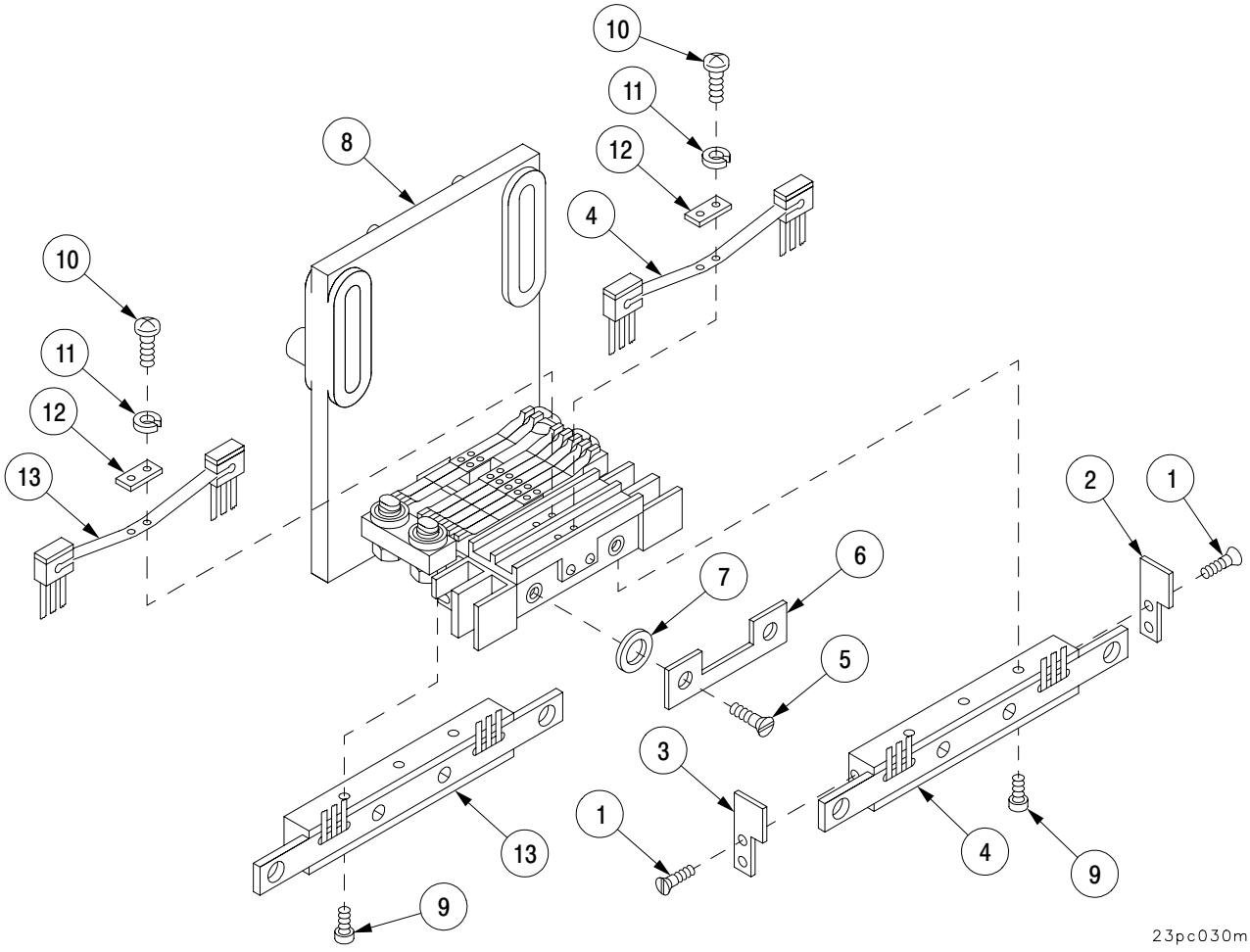
2 Remove two screws (5), plate (6), and two spacers (7) from brush block and guide assembly (8).

3 Remove three screws (9) and lower brush leaf and bus bar assembly (4) from brush block and guide assembly (8).

4 Remove two screws (10), two lockwashers (11), bus bar (12), and upper brush leaf and bus bar assembly (4) from brush block and guide assembly (8). Discard lockwashers.

5 Remove three screws (9) and lower brush leaf and bus bar assembly (13) from brush block and guide assembly (8).

6 Remove two screws (10) and two lockwashers (11) securing bus bar (12) and upper brush leaf and bus bar assembly (13) from brush block and guide assembly (8). Discard lockwashers and screws.



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

b. Disassembly – Continued

7 Remove four screws (14) and two power brush shields (15 and 16) from brush block and guide assembly (8).

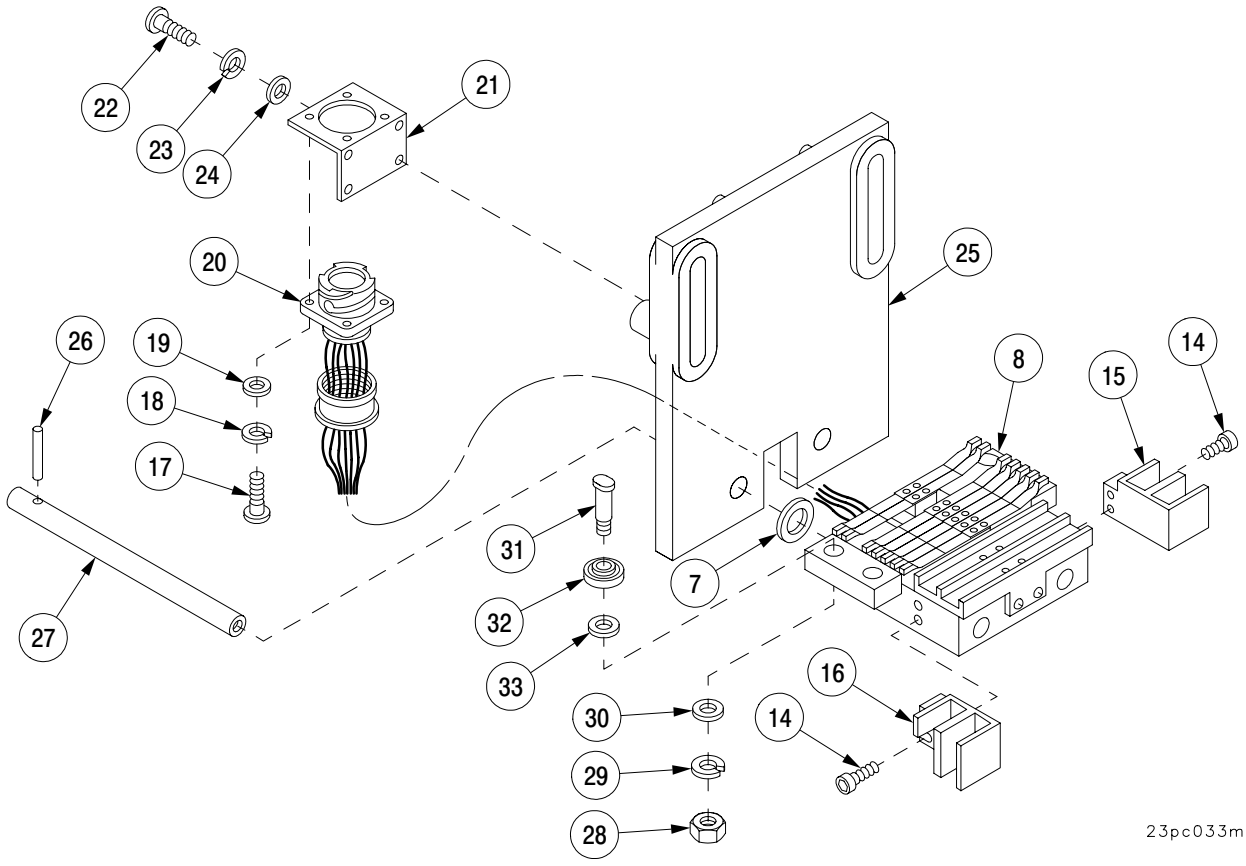
8 Remove four screws (17), four lockwashers (18), four flat washers (19), and wiring harness (20) from bracket (21). Discard lockwashers.

9 Remove four screws (22), four lockwashers (23), four flat washers (24), and bracket (21) from brush block bracket (25). Discard lockwashers.

10 Drill two straight pins (26) from two brush block posts (27). Discard straight pins.

11 Remove two brush block posts (27) and separate brush block bracket (25) and two spacers (7) from brush block and guide assembly (8).

12 Remove four nuts (28), four lockwashers (29), four flat washers (30), four shoulder screws (31), four bearings (32), and four spacers (33) from brush block and guide assembly (8). Discard lockwashers.



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

b. Disassembly – Continued

13 Remove 14 screws (34), 14 lockwashers (35), and 14 brush leaf assemblies (36) from brush block blank (37). Discard lockwashers.

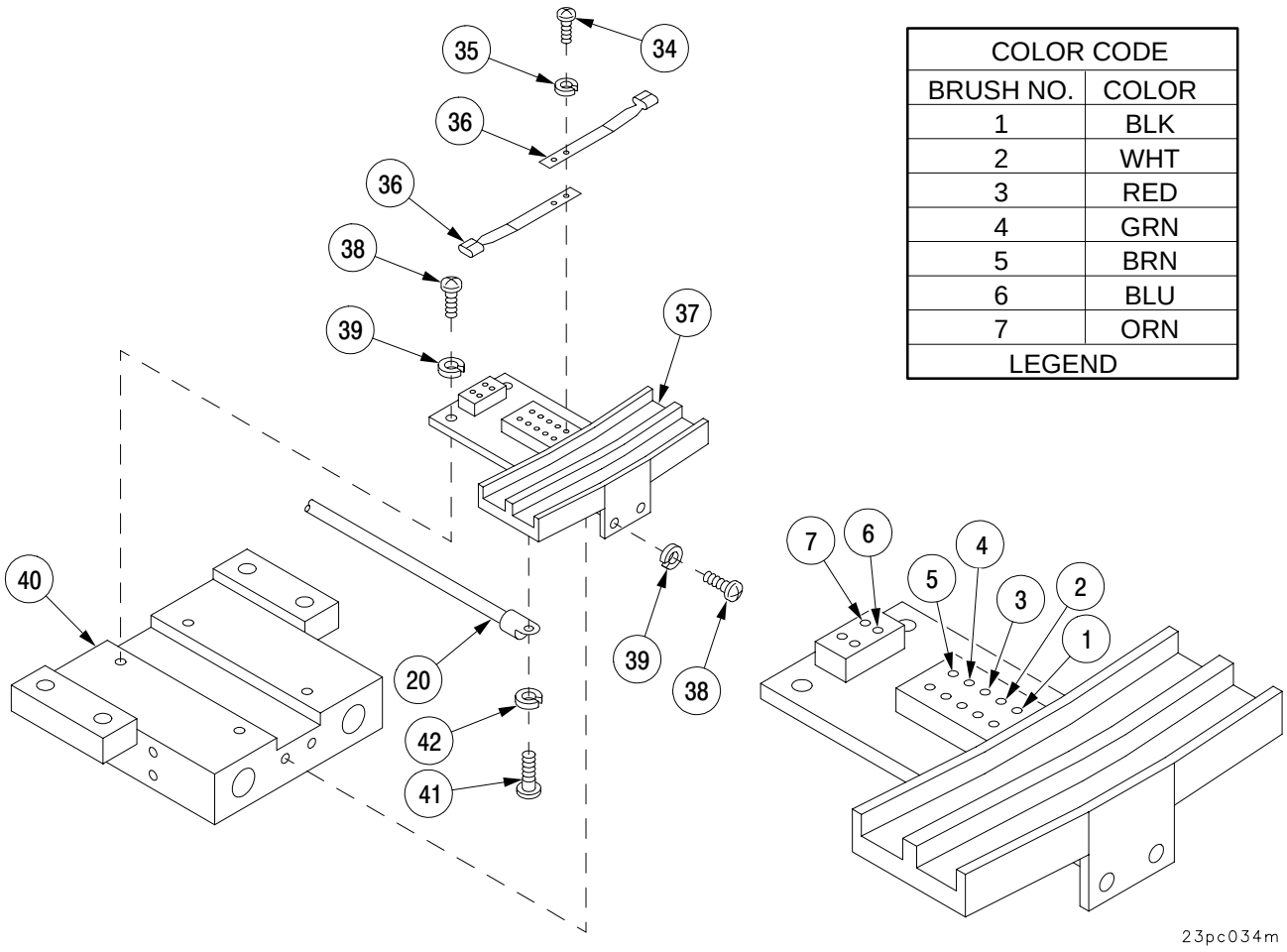
14 Remove six screws (38), six lockwashers (39), and brush block blank (37) from brush block guide (40). Discard lockwashers.

NOTE

The following legend and illustration identifies each lead of the wiring harness by color and corresponding brush number and location.

15 Remove seven screws (41), seven lockwashers (42), and wiring harness (20) leads from brush block blank (37). Discard lockwashers.

COLOR CODE	
BRUSH NO.	COLOR
1	BLK
2	WHT
3	RED
4	GRN
5	BRN
6	BLU
7	ORN
LEGEND	



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

c. Cleaning.

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

1 Using dry–cleaning solvent, clean contact arm assembly (brush block).

2 Allow surface to dry before installing contact arm assembly (brush block).

23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

d. Assembly.

NOTE

The following legend and illustration identifies each lead of the wiring harness by color and corresponding brush number and location.

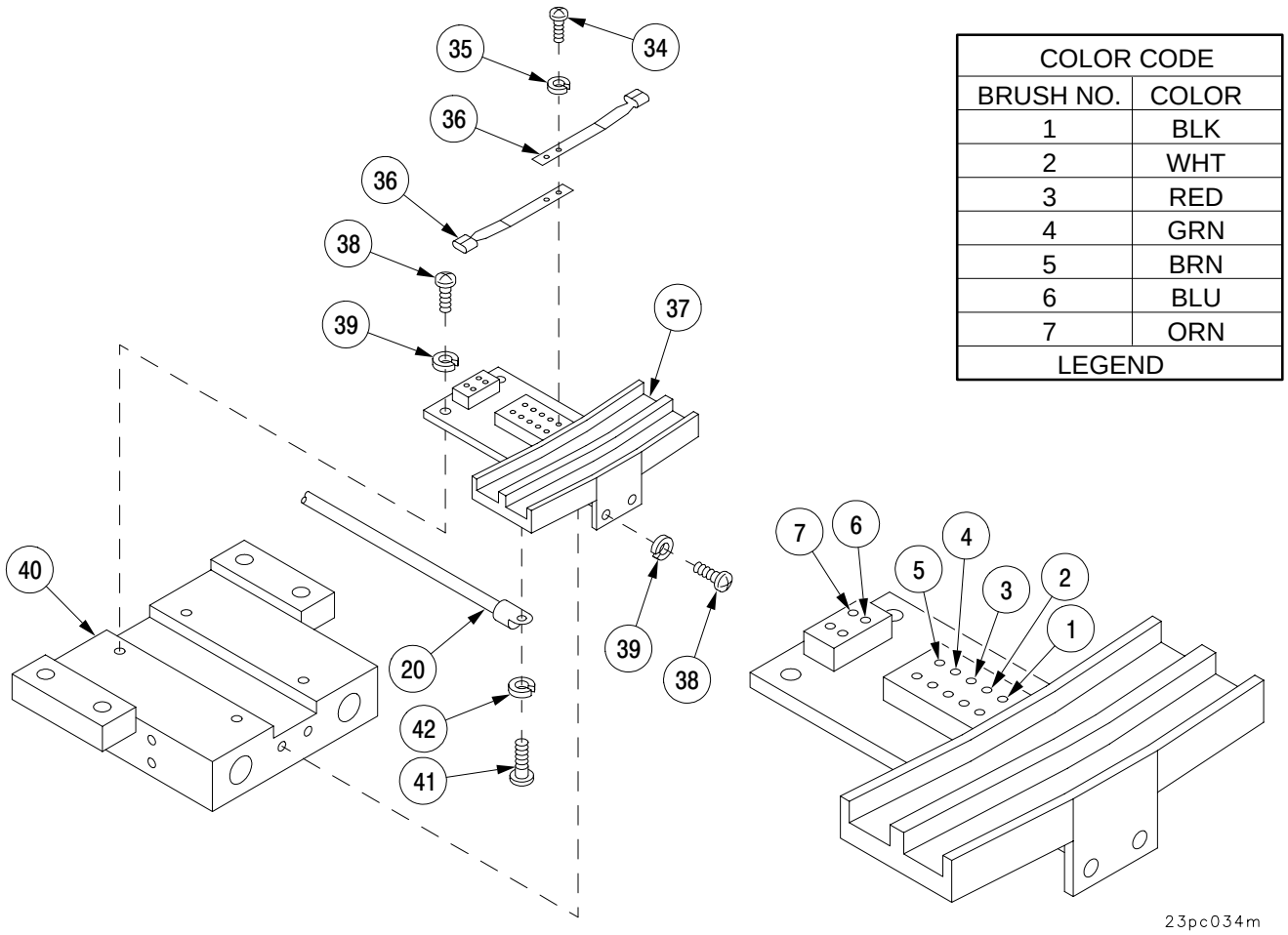
1 Install seven screws (41) and seven new lockwashers (42) to secure wiring harness (20) leads to brush block blank (37).

2 Install six screws (38) and six new lockwashers (39) to secure brush block blank (37) to brush block guide (40).

3 Install 14 screws (34) and 14 new lockwashers (35) to secure 14 brush leaf assemblies (36) to brush block blank (37). Do not tighten screws.

3.1 Align 14 brush leaf assemblies (36) using brush block alignment tool per para 23–4.1 steps 1 thru 4.

COLOR CODE	
BRUSH NO.	COLOR
1	BLK
2	WHT
3	RED
4	GRN
5	BRN
6	BLU
7	ORN
LEGEND	



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

d. Assembly – Continued

4 Install four spacers (33), four bearings (32), and four shoulder screws (31) onto brush block and guide assembly (8) and secure with four nuts (28), four new lockwashers (29), and four flat washers (30).

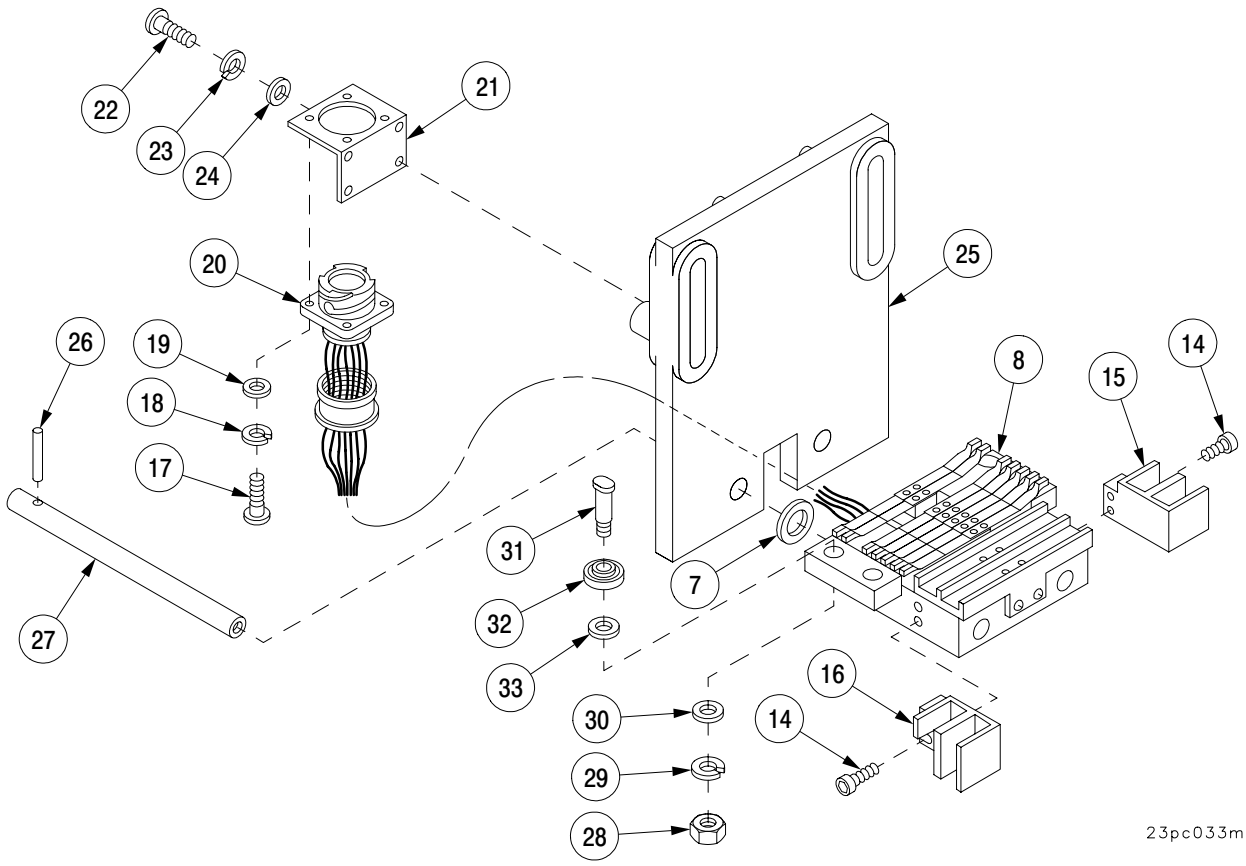
5 Attach brush block bracket (25) and two spacers (7) to brush block and guide assembly (8) and secure together with two brush block posts (27).

6 Install two new straight pins (26) to secure two brush block posts (27) to brush block bracket (25).

7 Install four screws (22), four new lockwashers (23), and four flat washers (24) to secure bracket (21) to brush block bracket (25).

8 Install four screws (17), four new lockwashers (18), and four flat washers (19) to secure wiring harness (20) to bracket (21).

9 Install four screws (14) to secure two power brush shields (15 and 16) to brush block and guide assembly (8).



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

d. Assembly – Continued

10 Install two new screws (10) and two new lockwashers (11) to secure bus bar (12) and upper brush leaf and bus bar assembly (13) to brush block and guide assembly (8). Do not tighten screws.

11 Install three screws (9) to secure brush leaf and bus bar assembly (13) to brush block and guide assembly (8).

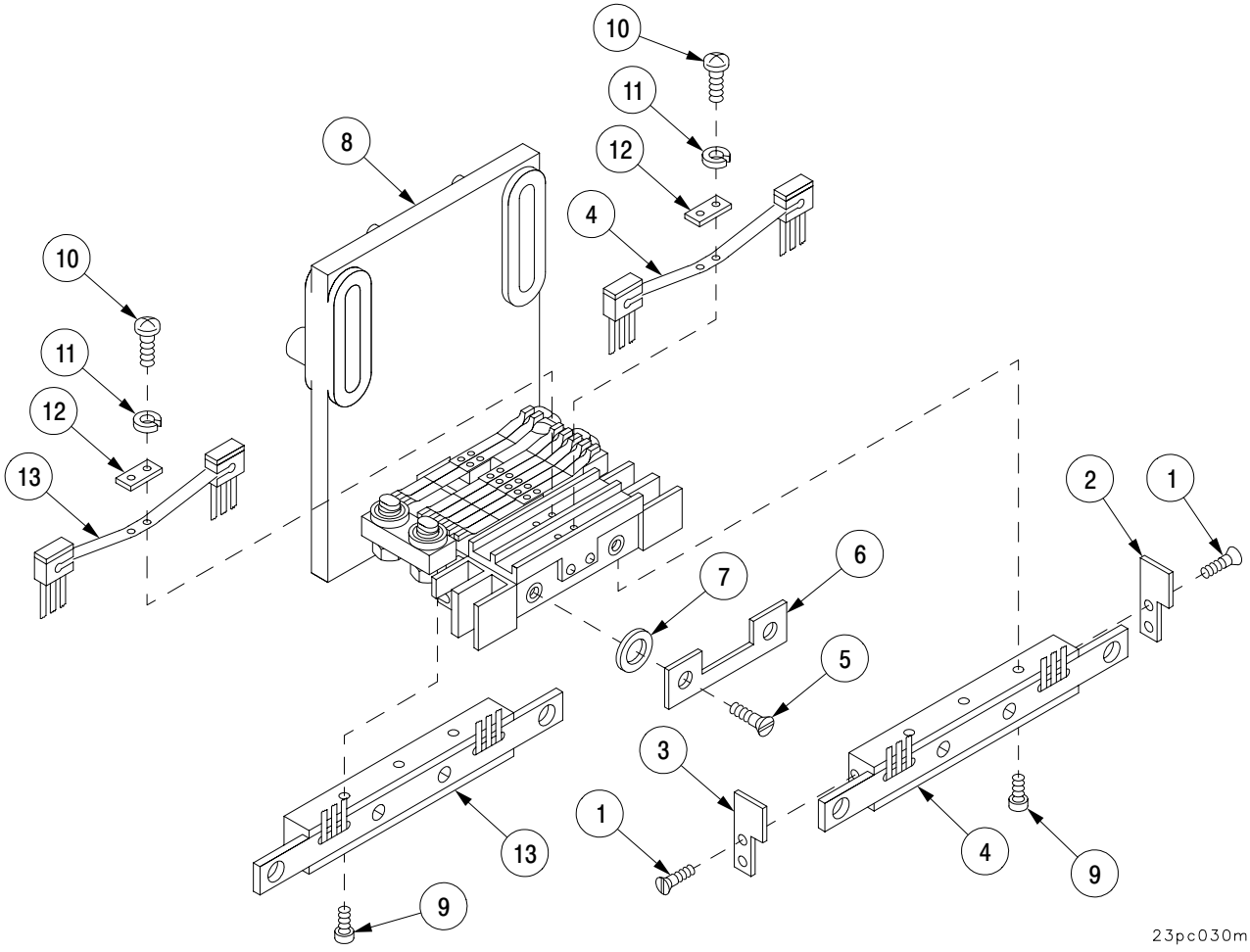
12 Install two screws (10) and two new lockwashers (11) to secure bus bar (12) and upper brush leaf and bus bar assembly (4) to brush block and guide assembly (8). Do not tighten screws.

13 Install three screws (9) to secure brush leaf and bus bar assembly (4) to brush block and guide assembly (8).

14 Install two screws (5) to secure plate (6) and two spacers (7) to brush block and guide assembly (8).

15 Install four screws (1) to secure two shields (2 and 3) to brush leaf and bus bar assembly (4).

15.1 Align upper brush leaf and bus bar assemblies (4 and 13) using brush block alignment tool per para 23–41.1, steps 1 thru 4.



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

e. Installation.

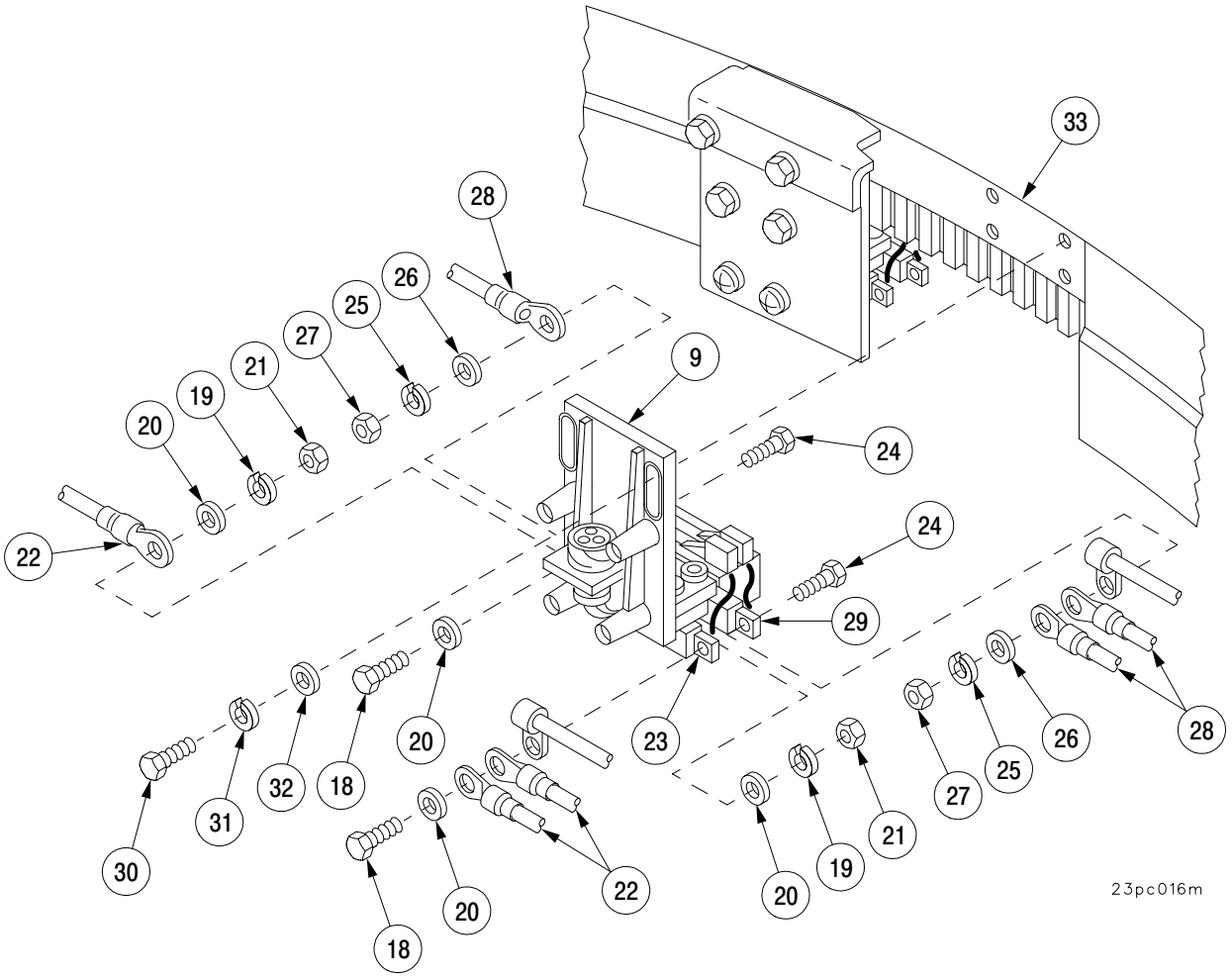
1 Install brush block (9) onto bearing (33) and loosely secure with four screws (30), four new lockwashers (31), and four flat washers (32).

2 Adjust brush block (9) per para 23–4.2 steps 2 thru 5.

3 Step deleted.

4 Install three negative leads (28) onto two negative bus bar ends (29) and secure with two screws (24), two new lockwashers (25), two flat washers (26), and two nuts (27). Tighten screws from 300 to 360 lb–in. (34–40 N·m).

5 Install three positive leads (22) onto two positive bus bar ends (23) and secure with two screws (18), two new lockwashers (19), four flat washers (20), and two nuts (21). Tighten screws from 360 to 420 lb–in. (40–47 N·m).



23–4 BRUSH BLOCK ASSEMBLY – CONTINUED

e. Installation – Continued

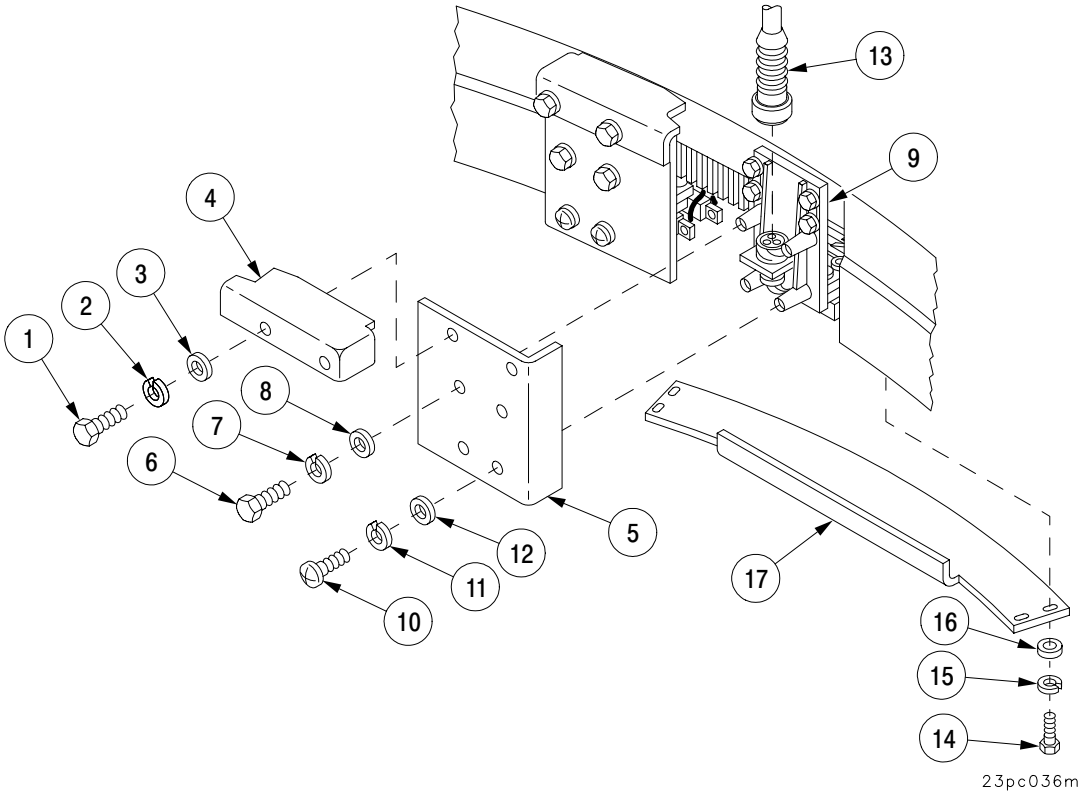
6 Install cover (17) onto two hooks and secure with four screws (14), four new lockwashers (15), and four flat washers (16).

7 Connect connector (13) to brush block (9).

8 Install cover (5) onto brush block (9) and secure with two screws (10), two new lockwashers (11), and two flat washers (12).

9 Install two screws (6), two new lockwashers (7), and two flat washers (8) to secure cover (5) to brush block (9).

10 Install lid (4) onto cover (5) and secure with two screws (1), two new lockwashers (2), and two flat washers (3).



23–4.1 BRUSH BLOCK ASSEMBLY ALIGNMENT.

This task covers: Alignment

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Alignment tool, brush block (item 4, Appx G)

Equipment Conditions
Brush block assembly removed from vehicle (para 23–4)

Alignment.

1 Place brush block alignment tool (1) onto brush block (2) with large ridge of tool placed between the four bearings (3) as indicated below.

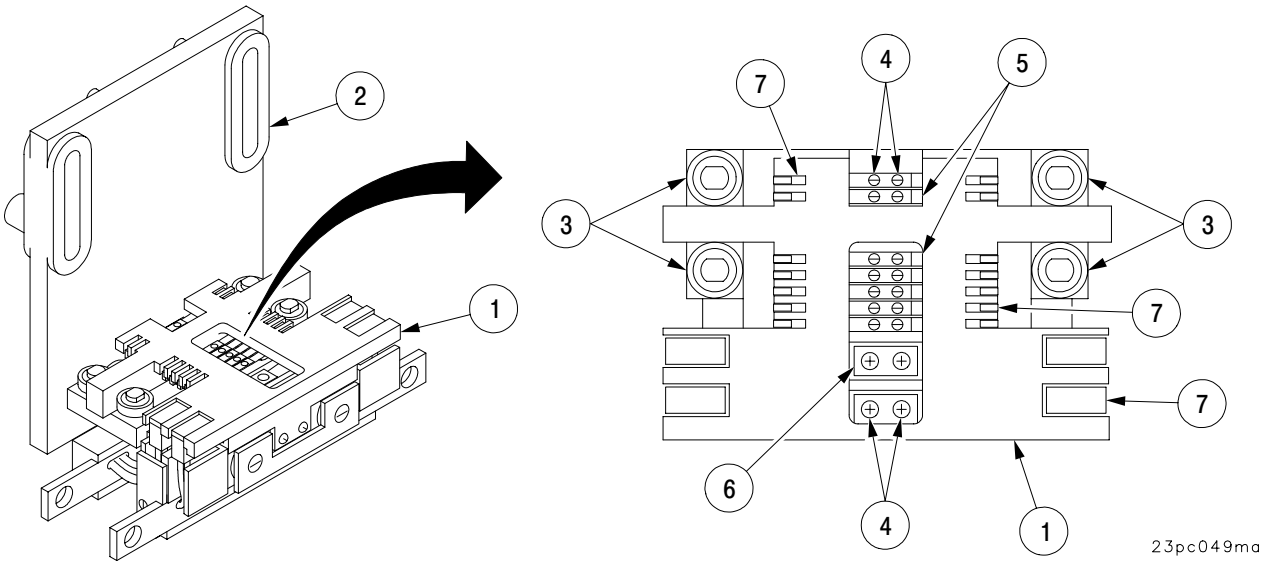
NOTE

- There are eight brush block assemblies. The alignment procedures are identical for all eight.
- Ensure that all brushes are aligned in the slots of the brush block alignment tool.
- The height of each brush should be halfway between the top and bottom of the slots on the alignment tool. All brushes should be adjusted to the same height.

2 Loosen two screws (4) per each brush leaf assembly (5) and/or upper brush leaf and bus bar assembly (6) and align in slots of alignment tool (1) as required. Tighten two screws.

3 Bend each brush end (7) up or down to obtain the correct height adjustment in each slot of the alignment tool (1).

4 When all alignments and adjustments have been completed, remove brush block alignment tool (1) from brush block assembly (2).



23–4.2 BRUSH BLOCK ASSEMBLY ADJUSTMENT.

This task covers: Adjustment

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Adjustment shim, brush block (item 3, Appx G)

Equipment Conditions
Brush block assembly removed from vehicle (para 23–4)
Battery ground leads disconnected (TM 9–2350–314–20–1–2)
Brush block cover and lid removed (para 23–2)

Adjustment.

NOTE

There are eight brush block assemblies. The adjustment procedures are identical for all eight.

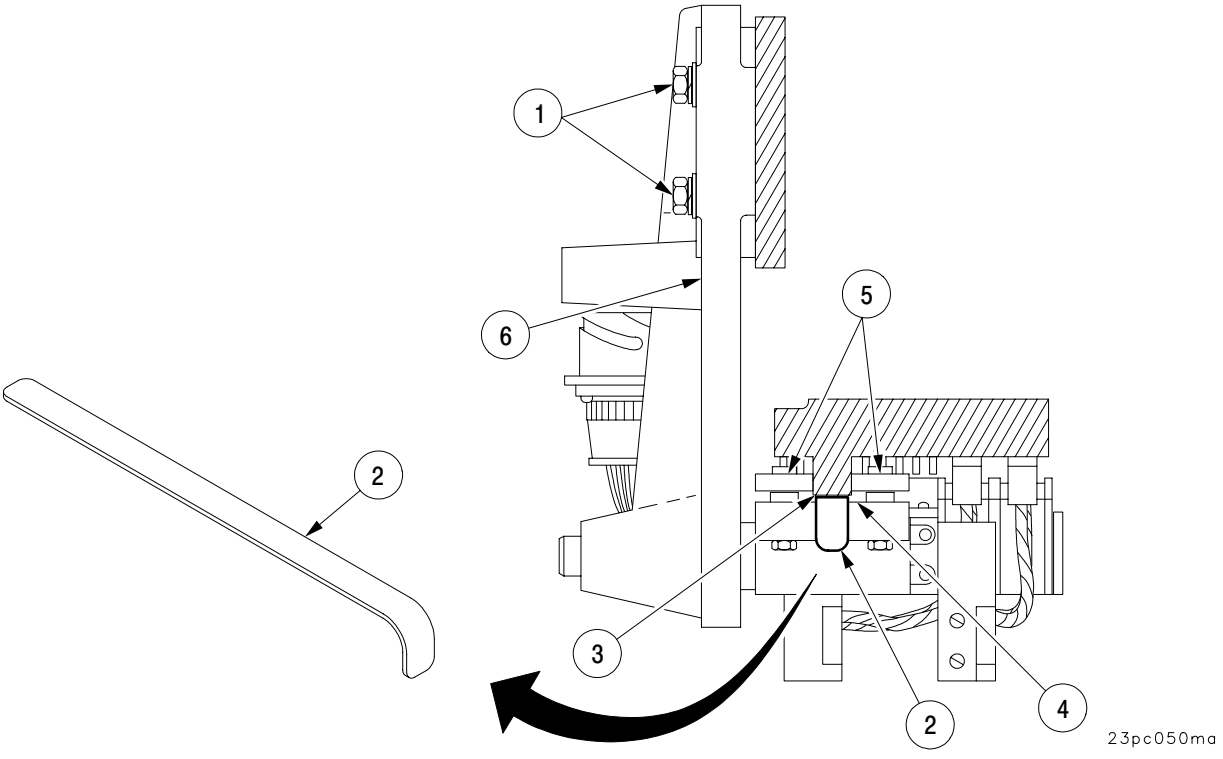
1 Loosen four brush block assembly mounting screws (1).

2 Insert brush block adjustment shim (2) between brush block guide rail on segment board (3) and on flat surface of brush block guide (4) between four brush block guide rollers (5).

3 Push brush block assembly (6) upward toward the segment board guide rail (3) until a feeler gage type fit is obtained on the adjustment shim (2).

4 Tighten four brush block assembly mounting screws (1).

5 Re–check adjustment and remove adjustment shim (2).



23–5 SEGMENT BOARD CLEANING MECHANISM.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Cab traversed so segment board cleaning mechanism is off segment board (TM 9–2350–314–10)
Vehicle MASTER power switch OFF (TM 9–2350–314–10)
Traversing mechanism guard assembly removed (para 20–1)

References
TM 9–2350–314–10

a. Removal.

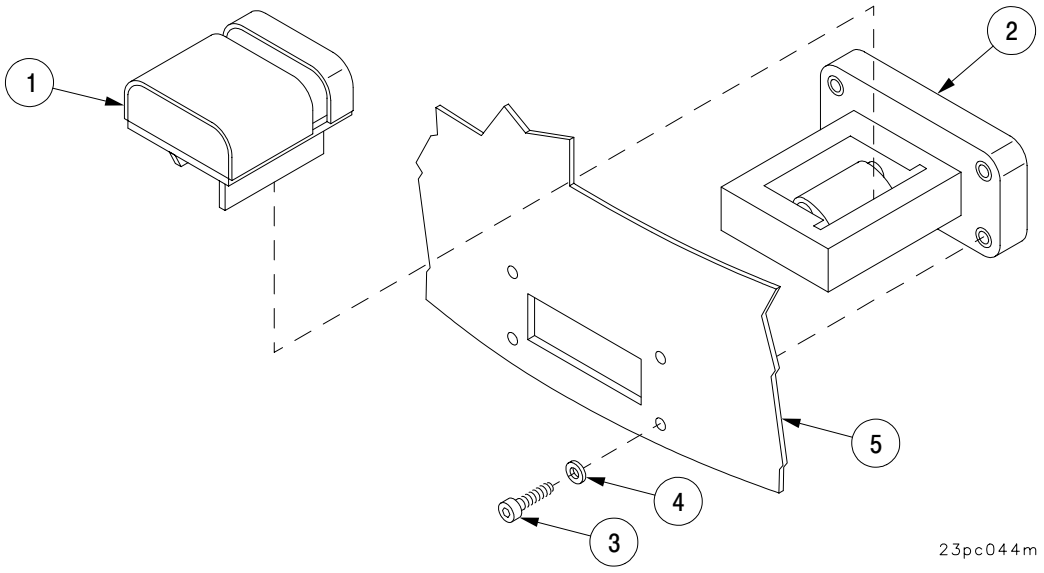
1 Remove cleaning block assembly (1) from segment board cleaning mechanism (2).

2 Remove four socket head screws (3), four flat washers (4), and segment board cleaning mechanism (2) from shield (5).

b. Installation.

1 Install segment board cleaning mechanism (2) to shield (5) with four flat washers (4) and four socket head screws (3).

2 Install cleaning block assembly (1) to segment board cleaning mechanism (2).



CHAPTER 24
HYDRAULIC COMPARTMENT ACCESS DOOR, INTERIOR ACCESS PANEL, AND EXTERIOR ACCESS PANEL

GENERAL

This chapter illustrates and describes maintenance procedures for hydraulic compartment access door, interior access panel, and exterior access panel. Step–by–step procedures are provided for removal and replacement as required for unit level maintenance.

CONTENTS Page

24–1 HYDRAULIC COMPARTMENT ACCESS DOOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Cotter pins (2) (item 82, Appx F)
Cotter pin (item 80, Appx F)
Lockwashers (3) (item 132, Appx F)
Lockwashers (2) (item 128, Appx F)
Seal (item 184, Appx F)
Dry–cleaning solvent (item 75, Appx C)
Adhesive (item 7, Appx C)
Lockwashers (4) (item 130, Appx F)
Sealing compound (item 46.1, Appx C)

Equipment Conditions
Cooling fan removed (para 5–1)
Time meter removed (para 5–2)

Personnel Required
Two

a. Removal.

WARNING

Door weighs approximately 100 pounds (45 kg). Use extreme caution during removal to prevent personnel injury.

1 Remove two cotter pins (1) and two flat washers (2) from two hinge pins (3) that attach door (4) to cab. Discard cotter pins.

24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

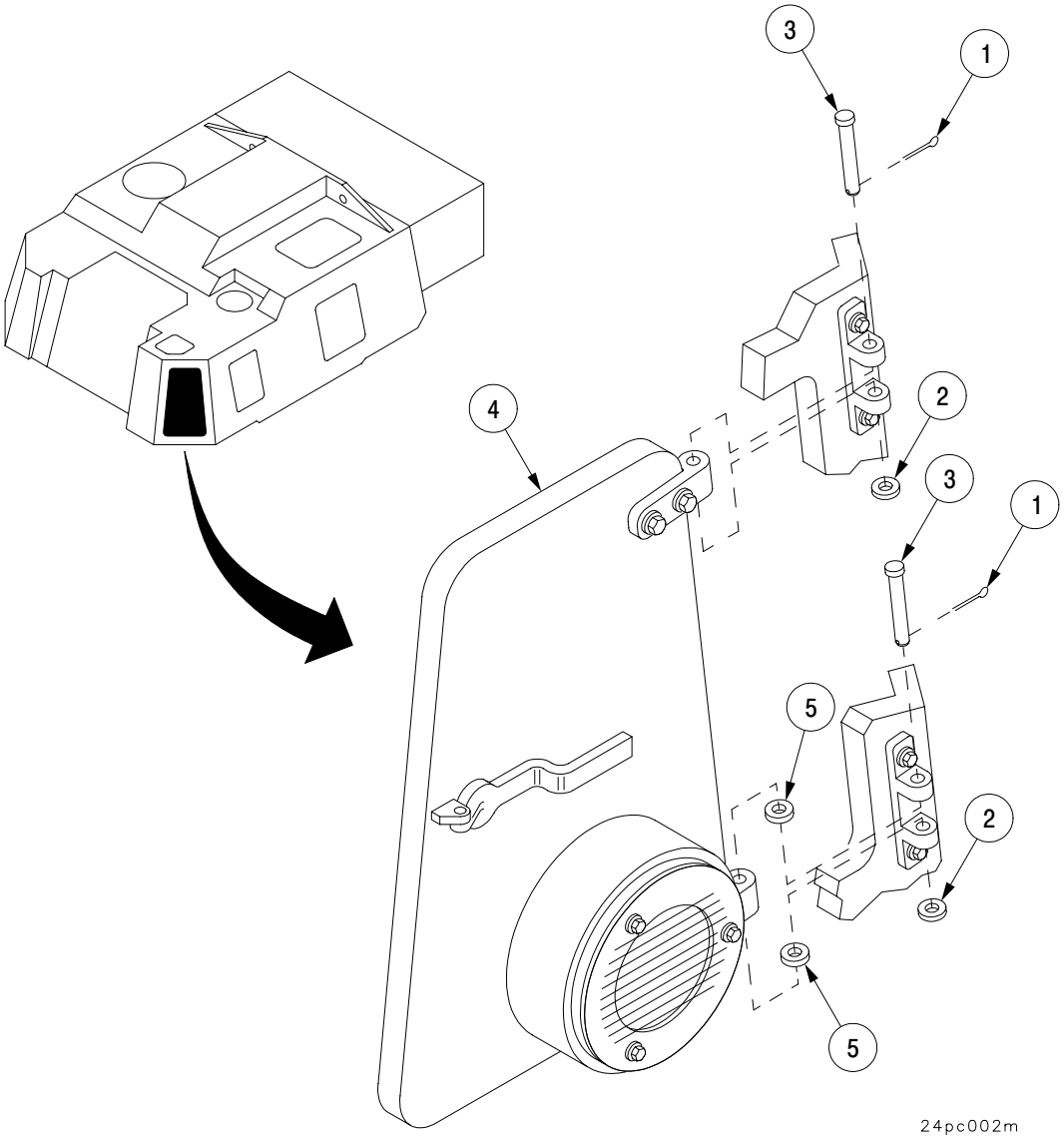
a. Removal – Continued

CAUTION

Assistance will be necessary to prevent door from moving while removing hinge pins.

2 Tap hinge pins (3) from hinges while supporting door (4).

3 Remove door (4) and two bearings (5).



24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

a. Removal – Continued

4 Remove three screws (6), three flat washers (7), three lockwashers (8), ballistic cover (9), and debris guard (10) from door (4). Discard lockwashers.

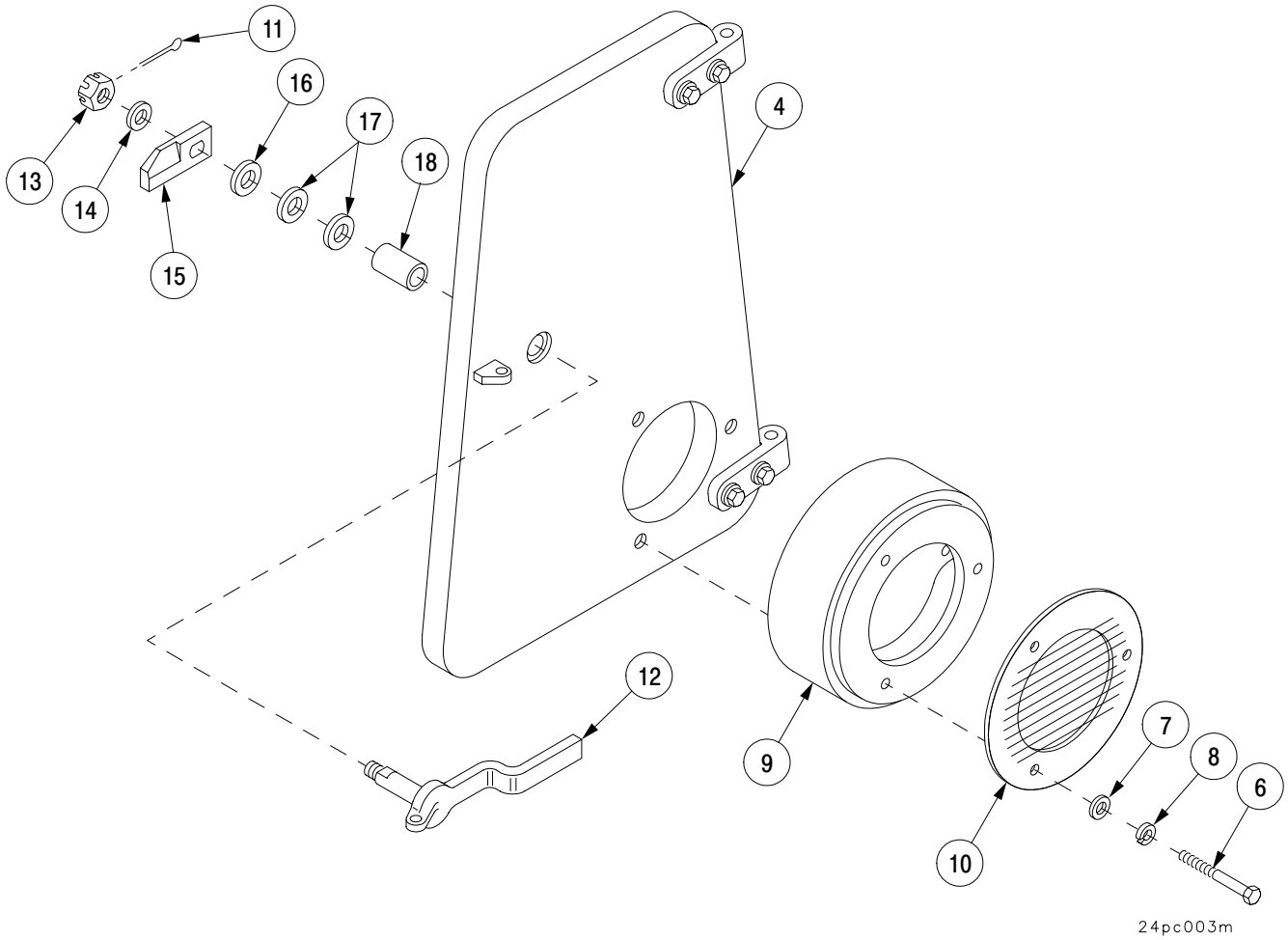
5 Remove and discard cotter pin (11) from handle (12).

NOTE

If shims are present, they must be retained for the same location as they were removed.

6 Remove nut (13), flat washer (14), plate (15), shim (16), two flat washers (17), and handle (12) from door (4).

7 Remove bearing (18) from door (4).



24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

a. Removal – Continued

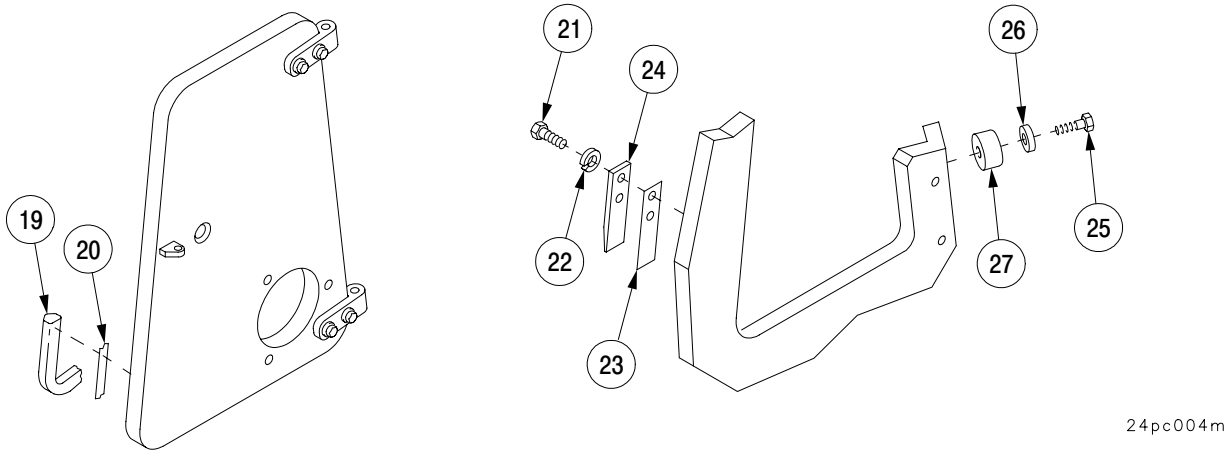
WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

8 Remove seal (19) and strip (20) and remove all adhesive using dry–cleaning solvent. Discard seal.

9 Remove two screws (21), two lockwashers (22), shim (23), and striker (24). Discard lockwashers.

10 Remove screw (25), flat washer (26), and bumper (27).



24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

a. Removal – Continued

NOTE

The procedures for cab mounted hinges are the same for top and bottom.

11 Remove two screws (28), two lockwashers (29), two flat washers (30), hinge (31), and shim (32). Discard lockwashers.

NOTE

The procedures for door mounted hinges are the same for top and bottom.

12 Remove two screws (33), two lockwashers (34), two flat washers (35), hinge (36), and shim (37). Discard lockwashers.

b. Installation.

NOTE

The procedures for door mounted hinges are the same for top and bottom.

1 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of shim (37).

2 Install shim (37), hinge (36), two flat washers (35), two new lockwashers (34), and two screws (33). Do not tighten screws.

NOTE

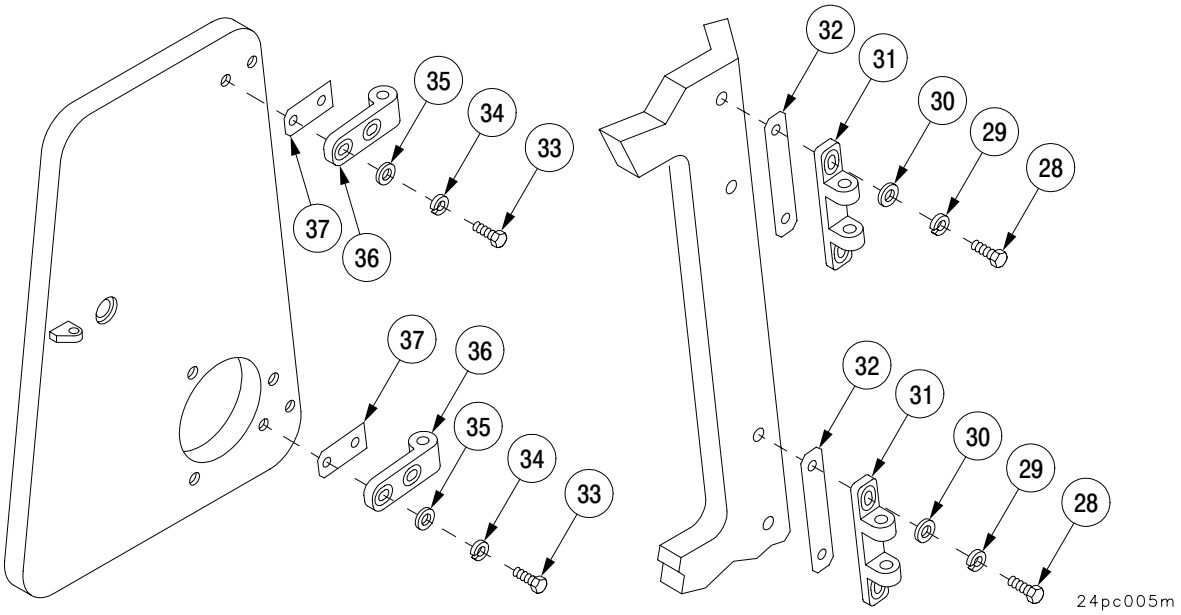
The procedures for cab mounted hinges are the same for top and bottom.

3 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of shim (32).

4 Install shim (32) on hinge (31) with two flat washers (30), two new lockwashers (29), and two screws (28). Do not tighten screws.

24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

b. Installation – Continued



5 Install bumper (27) with flat washer (26) and screw (25).

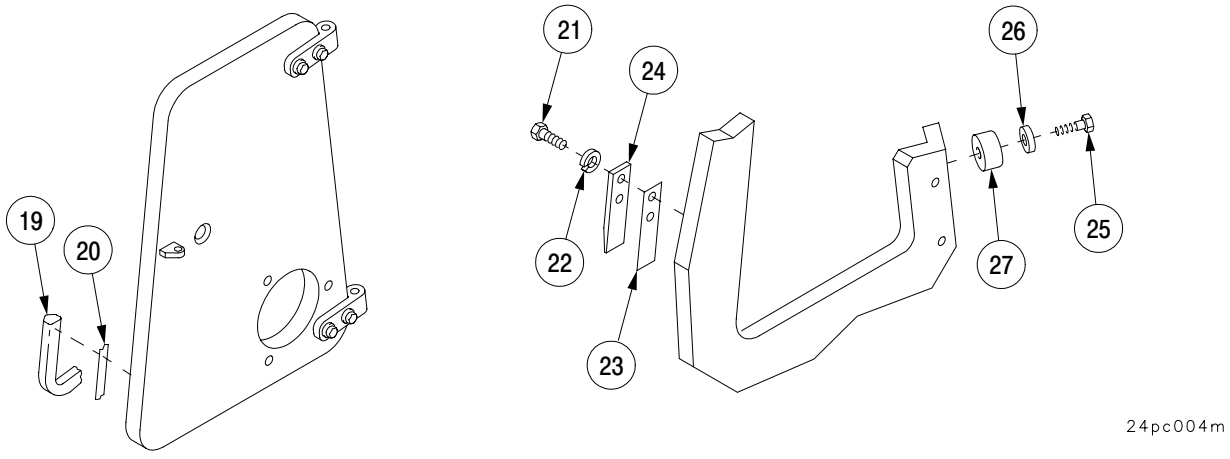
6 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of shim (23).

7 Install striker (24) and shim (23) to cab with two screws (21) and two new lockwashers (22).

WARNING

Door weighs approximately 100 pounds (45 kg). Use extreme caution during installation to prevent personnel injury.

8 Apply adhesive to strip (20) and new seal (19) and install on door (4).



24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

b. Installation – Continued

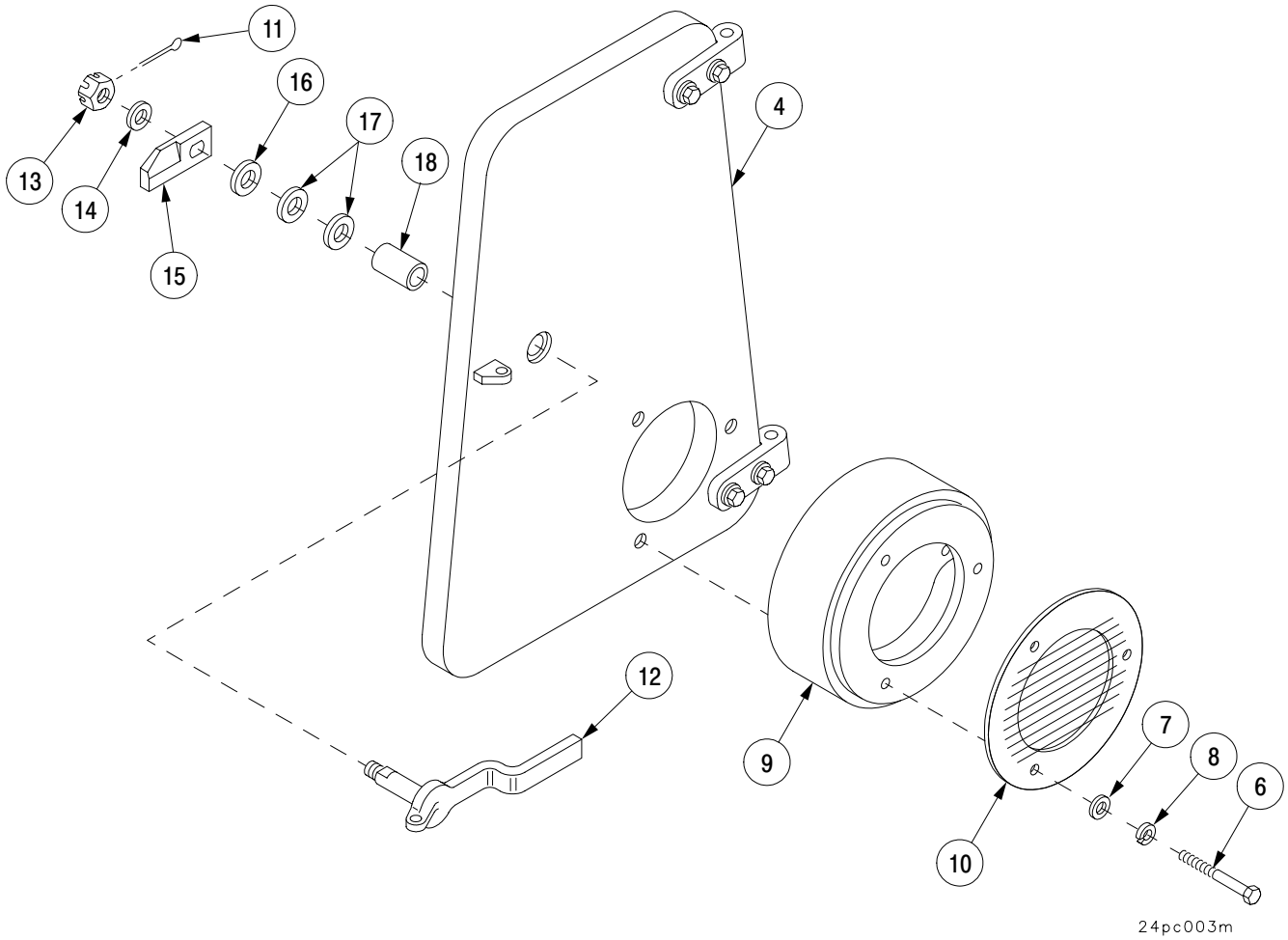
9 Tap bearing (18) into door (4).

10 Install handle (12) in door (4), with two flat washers (17), shim (16), plate (15), flat washer (14), and nut (13).

11 Align slots in nut (13) with hole in handle (12) and install new cotter pin (11).

12 Apply sealing compound (item 46.1, Appx C) to aluminum/steel interfaces of debris guard (10).

13 Install debris guard (10) and ballistic cover (9) on door (4) with three new lockwashers (8), three flat washers (7), and three screws (6).



24–1 HYDRAULIC COMPARTMENT ACCESS DOOR – CONTINUED

b. Installation – Continued

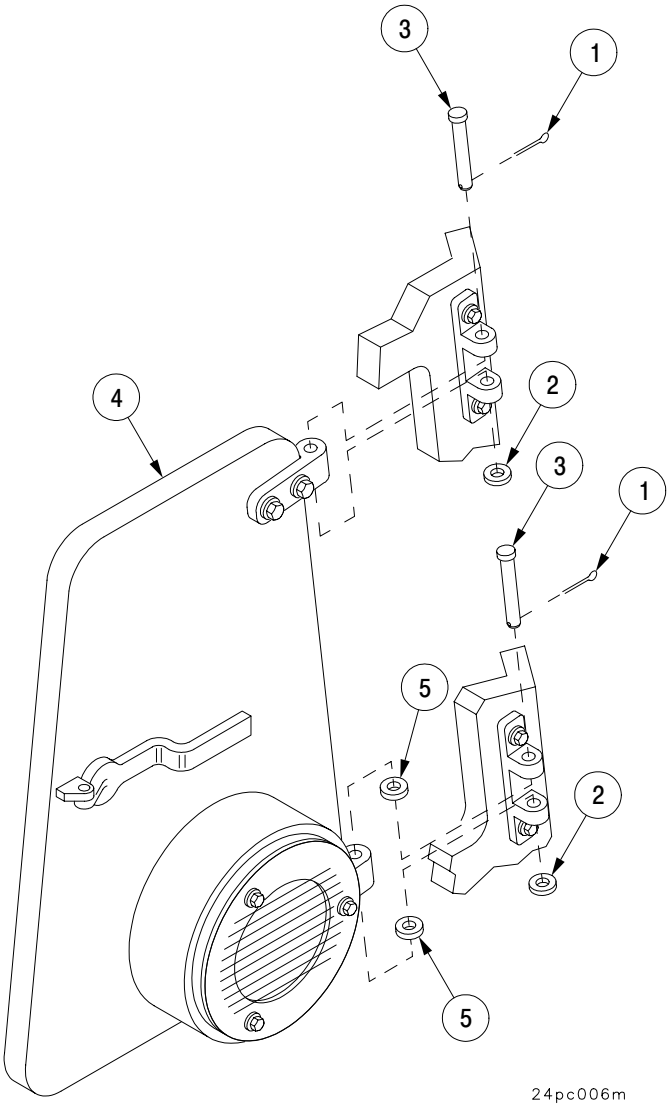
NOTE

Two bearings are installed in the lower hinge only. They are positioned on the upper and lower surfaces of the lower door hinge.

14 Position two bearings (5) and door (4) on hinges while supporting door (4). Install two hinge pins (3) in hinges.

15 Install two flat washers (2) and two new cotter pins (1) on hinge pins (3).

16 Secure door (4) and tighten four hinge screws.



24–2 HYDRAULIC COMPARTMENT INTERIOR ACCESS PANEL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (6) (item 132, Appx F)
Dry–cleaning solvent (item 75, Appx C)
Adhesive (item 7, Appx C)
Rubber strip (item 197, Appx F)

a. Removal.

1 Remove six screws (1), six flat washers (2), six lockwashers (3), and access panel (4). Discard lockwashers.

2 Remove and discard rubber strip (5), if damaged.

b. Installation.

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

NOTE

- Perform steps 1 thru 4 for installation of new rubber strip.
- Perform step 5 for installation of access panel.

1 Clean rubber strip groove (6) with dry–cleaning solvent.

24–2 HYDRAULIC COMPARTMENT INTERIOR ACCESS PANEL – CONTINUED

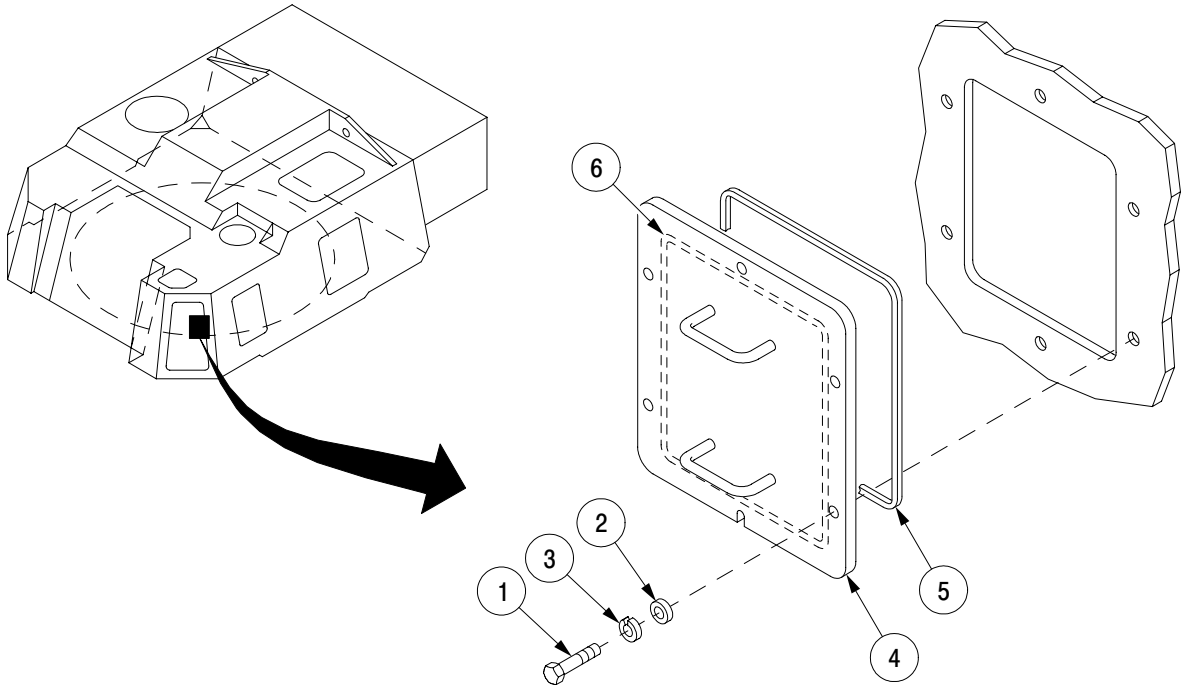
b. Installation – Continued

2 Apply adhesive to rubber strip groove (6) and rubber strip (5).

3 Install rubber strip (5) on access panel (4).

4 Allow adhesive to dry 1 hour before installing access panel (4).

5 Install access panel (4) with six screws (1), six flat washers (2), and six new lockwashers (3).



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24–3 HYDRAULIC COMPARTMENT EXTERIOR ACCESS PANEL.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Water can and straps removed
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (8) (item 130, Appx F)
Gasket (item 204, Appx F)

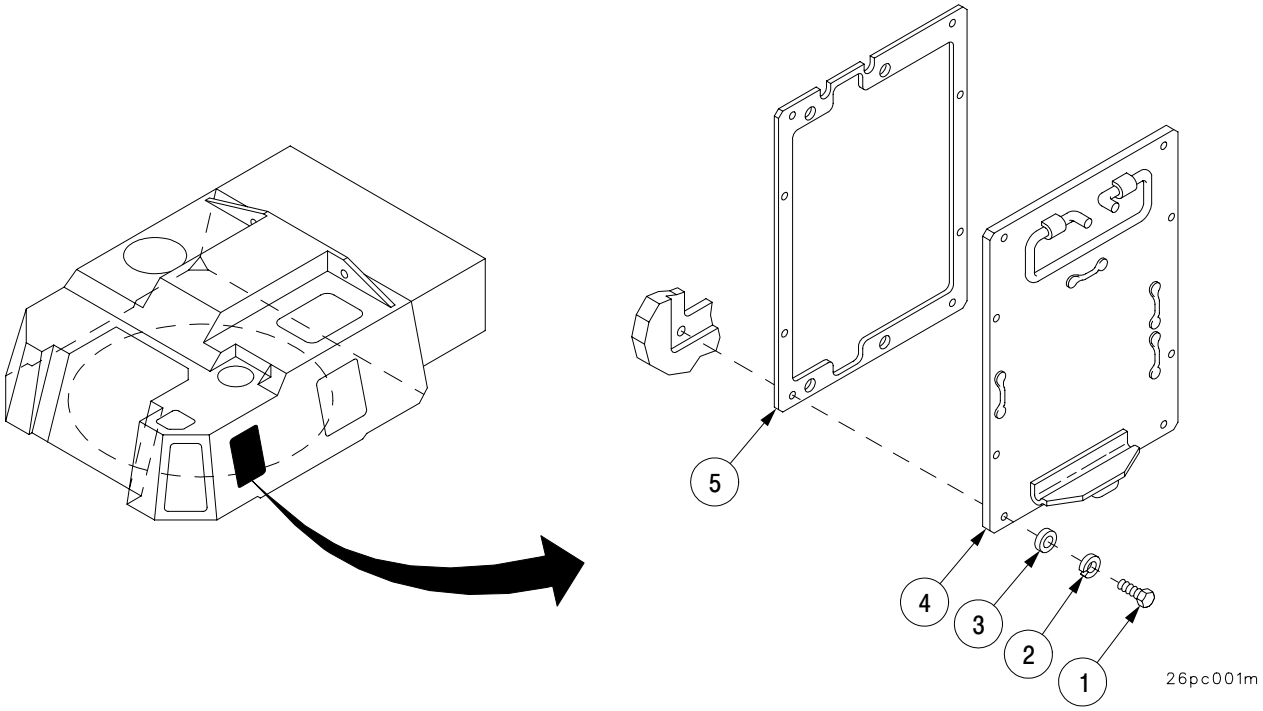
a. Removal.

1 Remove eight screws (1), eight lockwashers (2), and eight flat washers (3). Discard lockwashers.

2 Remove access panel (4) and gasket (5). Discard gasket.

b. Installation.

Install new gasket (5) and access panel (4) with eight flat washers (3), eight new lockwashers (2), and eight screws (1).



CHAPTER 25
BUSTLE ARMOR

GENERAL

This chapter illustrates and describes maintenance procedures for the bustle armor. Step–by–step procedures are provided for removal and installation as required for unit level maintenance.

CONTENTS Page

25–1 LEFT OR RIGHT SIDE PLATE ARMOR, BUSTLE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Lockwashers (6) (item 132, Appx F)
Sealing compound (item 46.1, Appx C)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)

Equipment Conditions – Continued
Radio antenna bracket removed (para 21–4) (right side plate only)
Communication cable CX–4722 removed (para 21–7) (right side only)
Communication cable GC–3856 removed (para 21–7) (right side only)
Stowage basket swung to rear of vehicle (TM 9–2350–314–10)

Personnel Required
Two

a. Removal.

WARNING

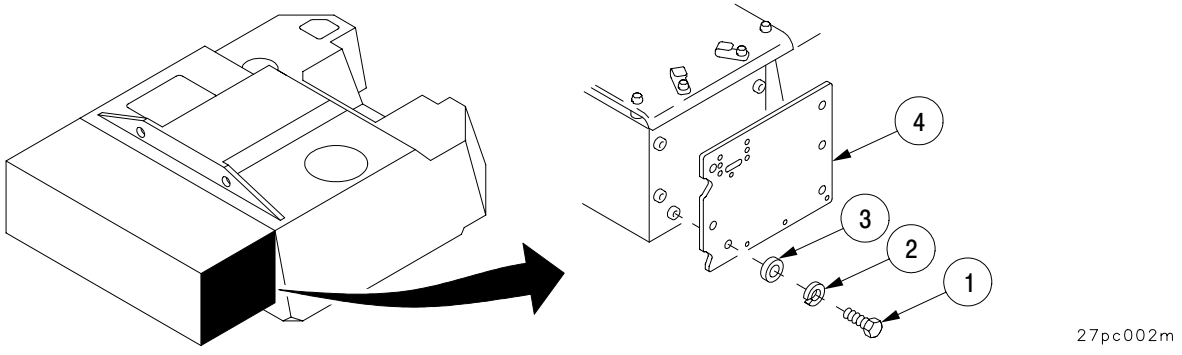
Armor plate assembly is heavy. Use caution to prevent severe injury when removing or installing armor plate.

Remove six screws (1), six lockwashers (2), six flat washers (3), and armor plate (4). Discard lockwashers.

b. Installation.

1 Apply sealing compound to aluminum/steel interfaces of armor plate (4).

2 Install armor plate (4) with six flat washers (3), six new lockwashers (2), and six screws (1). Torque screws to 106–114 lb–ft (144–155 N·m).



25–2 LEFT OR RIGHT TOP PLATE ARMOR, BUSTLE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)
Tow cable removed (TM 9–2350–314–10)

Materials/Parts
Lockwashers (8) (item 132, Appx F)
Sealing compound (item 46.1, Appx C)

Personnel Required
Two

a. Removal.

WARNING

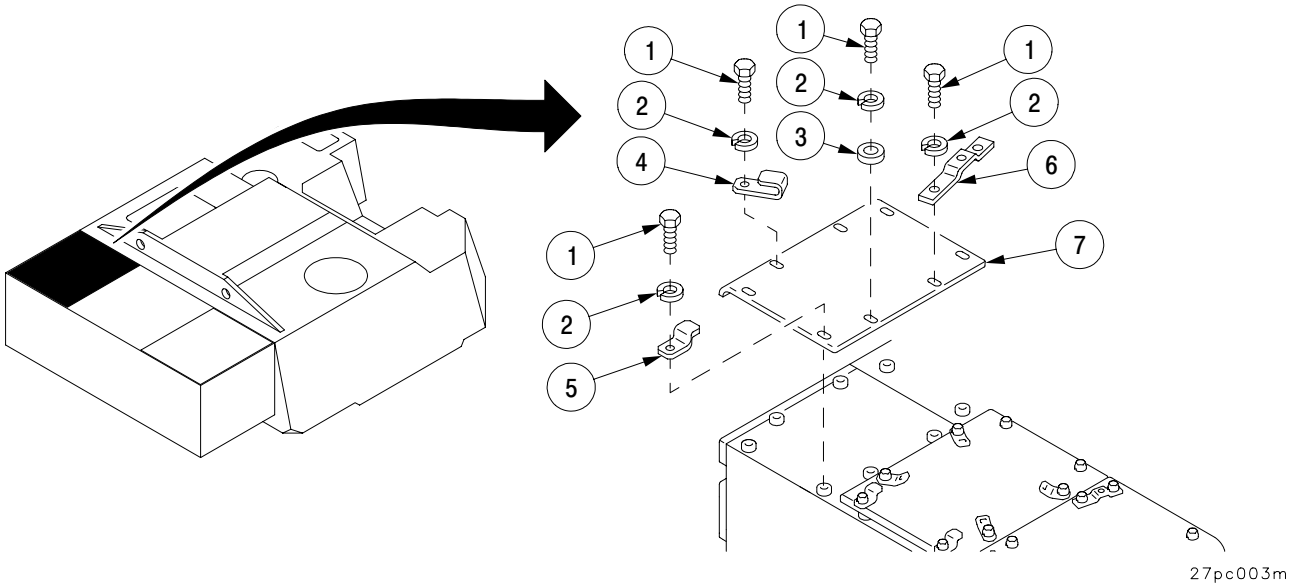
Armor plate assembly is heavy. Use caution to prevent severe injury when removing or installing armor plate.

Remove eight screws (1), eight lockwashers (2), three flat washers (3), two brackets (4), bracket (5), block (6), and armor plate (7). Discard lockwashers.

b. Installation.

1 Apply sealing compound to aluminum/steel interfaces of armor plate (7).

2 Install armor plate (7) with block (6), bracket (5), two brackets (4), three flat washers (3), eight new lockwashers (2), and eight screws (1). Torque screws to 106–114 lb–ft (144–155 N·m).



25–3 CENTER TOP PLATE ARMOR, BUSTLE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)

Materials/Parts
Lockwashers (8) (item 132, Appx F)
Sealing compound (item 46.1, Appx C)

Equipment Conditions
Cab traverse lock locked (TM 9–2350–314–10)
Tow cable removed (TM 9–2350–314–10)
Straps, camouflage net removed (TM 9–2350–314–10)

Personnel Required
Two

a. Removal.

WARNING

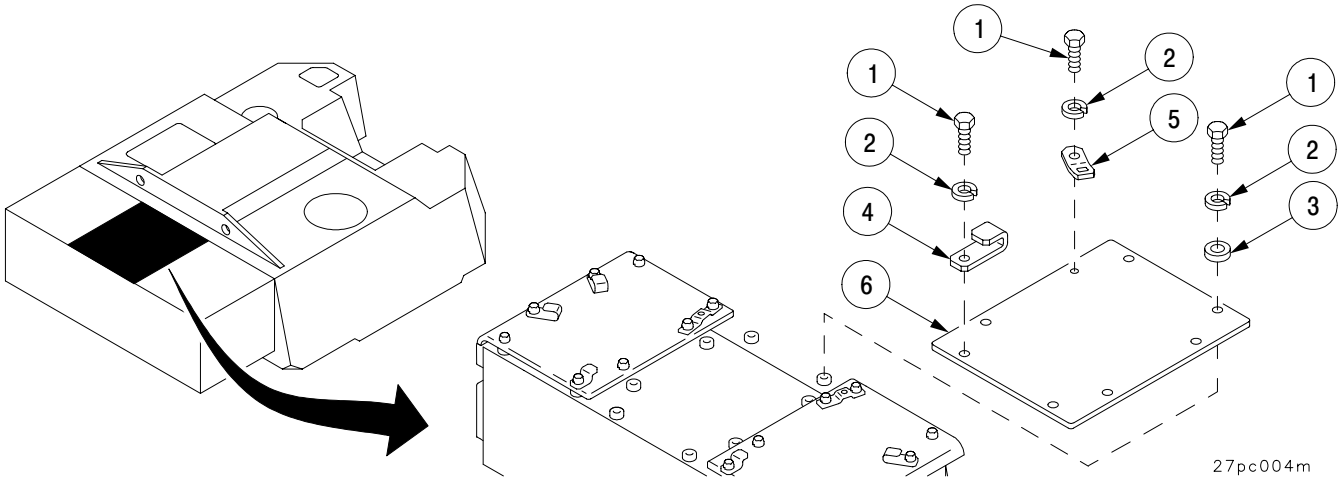
Armor plate assembly is heavy. Use caution to prevent severe injury when removing or installing armor plate.

Remove eight screws (1), eight lockwashers (2), two flat washers (3), two brackets (4), four brackets (5), and plate (6). Discard lockwashers.

b. Installation.

1 Apply sealing compound to aluminum/steel interfaces of armor plate (6).

2 Install armor plate (6) with four brackets (5), two brackets (4), two flat washers (3), eight new lockwashers (2), and eight screws (1). Torque screws to 106–114 lb–ft (144–155 N·m).



CHAPTER 26
MCS DOORS AND GRILLES

GENERAL

This chapter illustrates and describes maintenance procedures for MCS doors, handles, hinges, grilles, and air particle separation filter bracket. Step–by–step procedures are provided for removal and installation as required for unit level maintenance.

CONTENTS

26–1 MCS FRONT DOOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)
Lifting sling (item 36, Appx G)
Suitable lifting device

Materials/Parts
Lockwashers (6) (item 130, Appx F)

Equipment Conditions
MCS rear door open (TM 9–2350–314–10)
MCS front door seal and strip removed (para 26–4)

Personnel Required
Two

a. Removal.

NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

1 Remove six screws (1), six lockwashers (2), and six flat washers (3) securing two hinges (4) and shims (5) to front door (6). Move hinges away from door. Discard lockwashers.

WARNING

MCS front door is heavy. Exercise care when removing MCS front door to prevent loss of life or serious personal injury.

2 Using a suitable lifting device, remove front door (6).

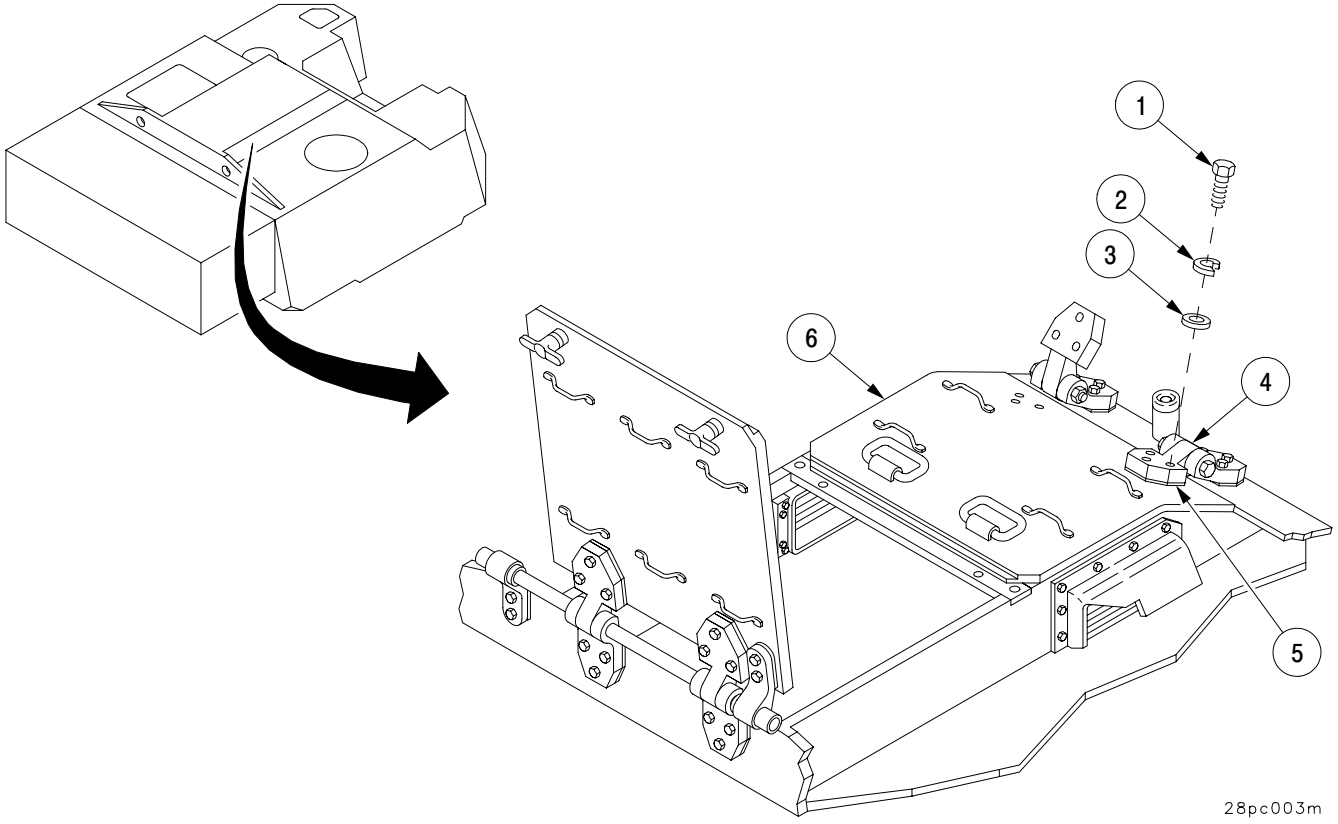
b. Installation.

1 Using a suitable lifting device, position MCS front door (6) for installation.

2 Install two shims (5) and two hinges (4) onto MCS front door (6) with six flat washers (3), six new lockwashers (2), and six screws (1). Torque screws to 43–46 lb–ft (58.3–62.4 N·m).

26–1 MCS FRONT DOOR – CONTNUED

b. Installation – Continued



26–2 MCS FRONT DOOR HINGES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Materials/Parts
Lockwashers (6) (item 130, Appx F)
Locknut (item 56, Appx F)

a. Removal.

1 Remove locknut (1), washer (2), and screw (3) from hinges (4 and 5). Discard locknut.

NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

2 Remove three screws (6), three lockwashers (7), three flat washers (8), hinge (4), and shim (9) from door (10). Discard lockwashers.

3 Remove three screws (11), three lockwashers (12), three flat washers (13), hinge (5), spacer (14), and shim (15) from MCS weldment (16). Discard lockwashers.

b. Installation.

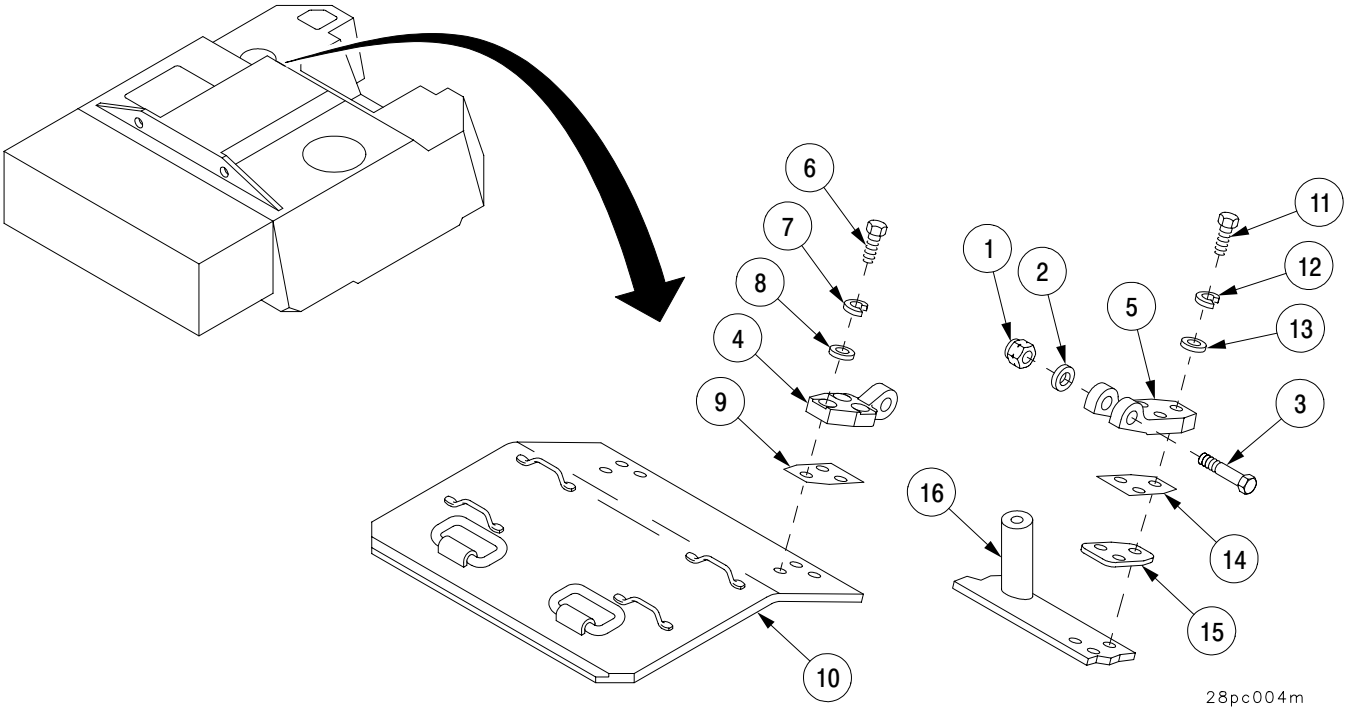
1 Install shim (15), hinge (5), and spacer (14) on MCS weldment (16) with three flat washers (13), three new lockwashers (12), and three screws (11). Torque screws to 43–46 lb–ft (58.3–62.4 N·m).

2 Install shim (9) and hinge (4) on door (10) with three flat washers (8), three new lockwashers (7), and three screws (6). Torque screws to 43–46 lb–ft (58.3–62.4 N·m).

3 Install screw (3), flat washer (2), and new locknut (1) in hinges (4 and 5).

26–2 MCS FRONT DOOR HINGES – CONTINUED

b. Installation – Continued



26–3 BUMPER, MCS DOOR.

This task covers: a. Removal b. Installation

INITIAL SETUP

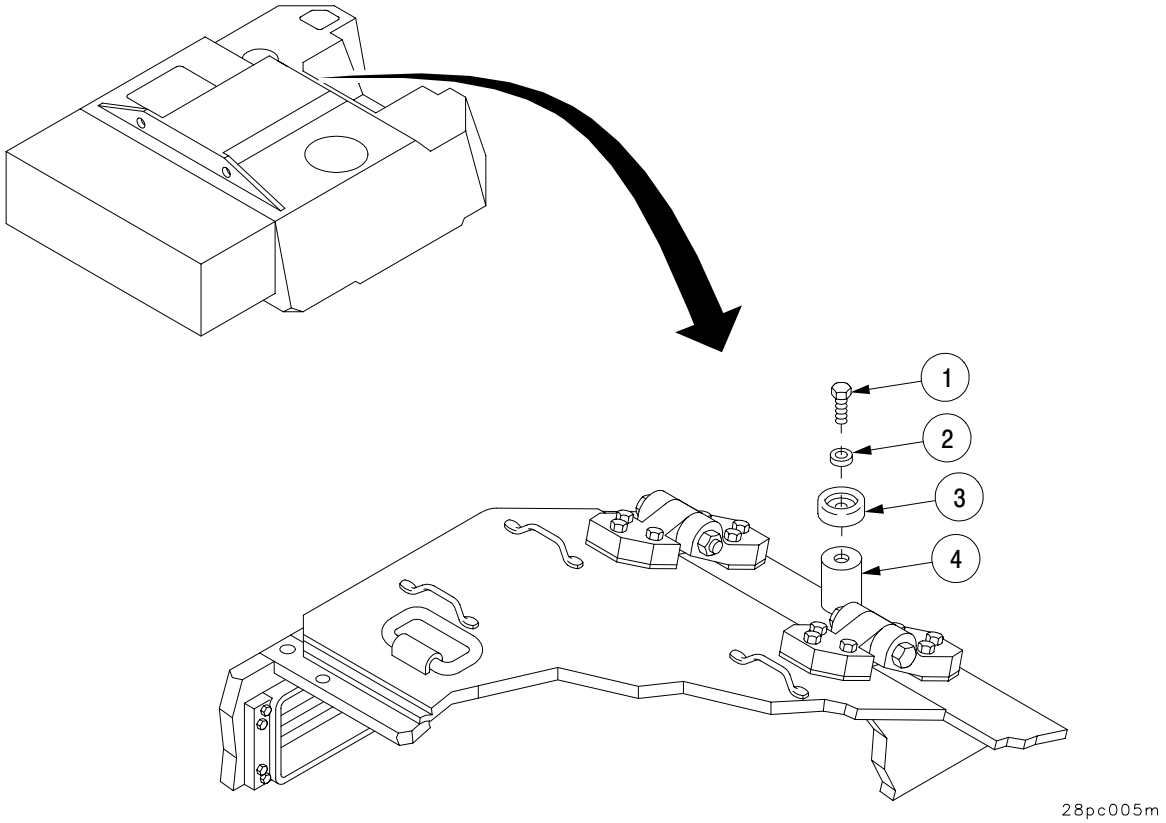
Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

a. Removal.

Remove screw (1), flat washer (2), and bumper (3) from MCS weldment (4).

b. Installation.

Install bumper (3) on MCS weldment (4) with flat washer (2) and screw (1).



26–4 MCS FRONT AND REAR DOOR SEALS AND RUBBER STRIPS.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
MCS doors open (TM 9–2350–314–10)

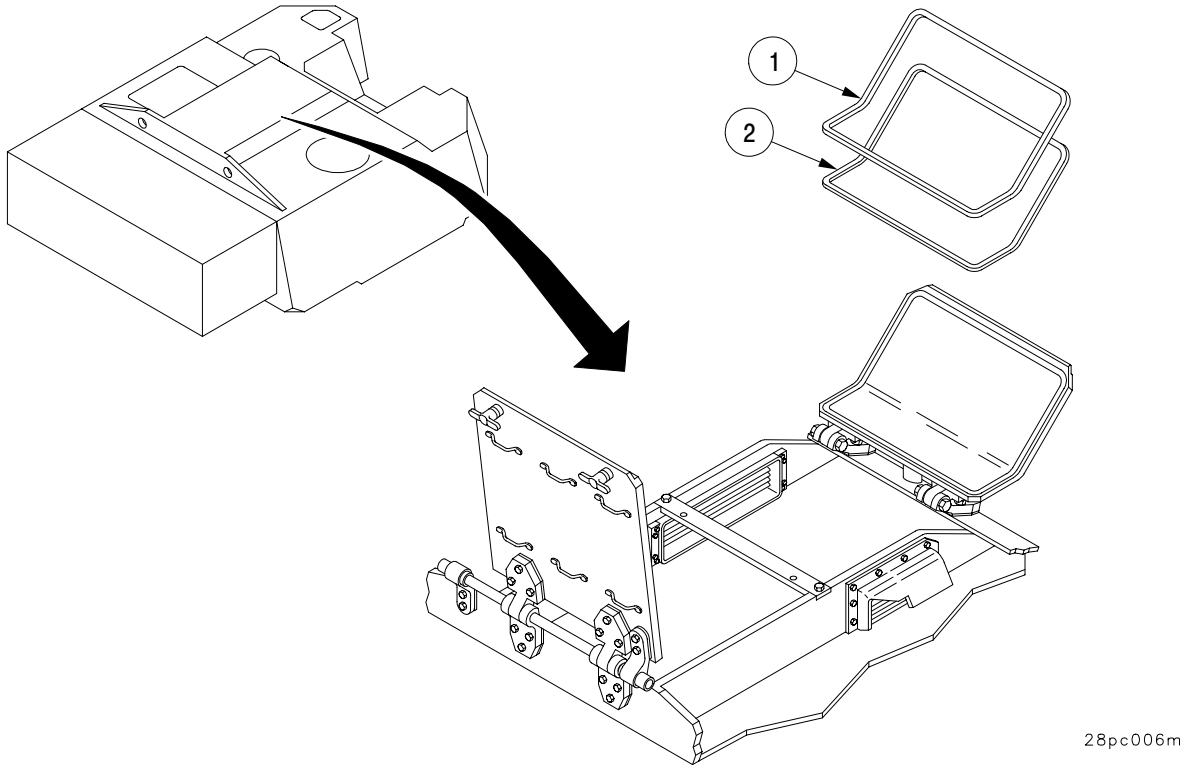
Materials/Parts
Dry–cleaning solvent (item 75, Appx C)
Adhesive (item 7, Appx C)
Seal (item 184, Appx F)
Rubber strip (item 200, Appx F)

a. Removal.

NOTE

There are two rubber strips and two seals, one of each per door. The removal and installation procedures are identical for each door. This procedure covers only one door.

1 Remove door seal (1) and rubber strip (2). Discard rubber strip and seal.



26–4 MCS FRONT AND REAR DOOR SEALS AND RUBBER STRIPS – CONTINUED

a. Removal – Continued

WARNING

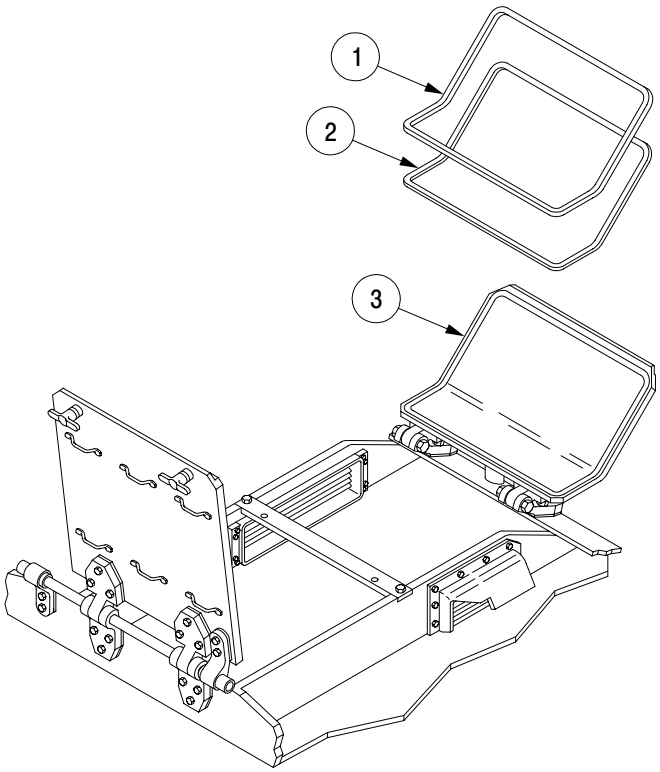
Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well–ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (FM 21–11).

2 Clean seal cavity (3) with dry–cleaning solvent until free of adhesive residue.

b. Installation.

1 Apply a thin even coat of adhesive in seal cavity (3)

2 Install new seal (1) and new rubber strip (2).



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26–5 MCS REAR DOOR HANDLES.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
MCS doors open (TM 9–2350–314–10)

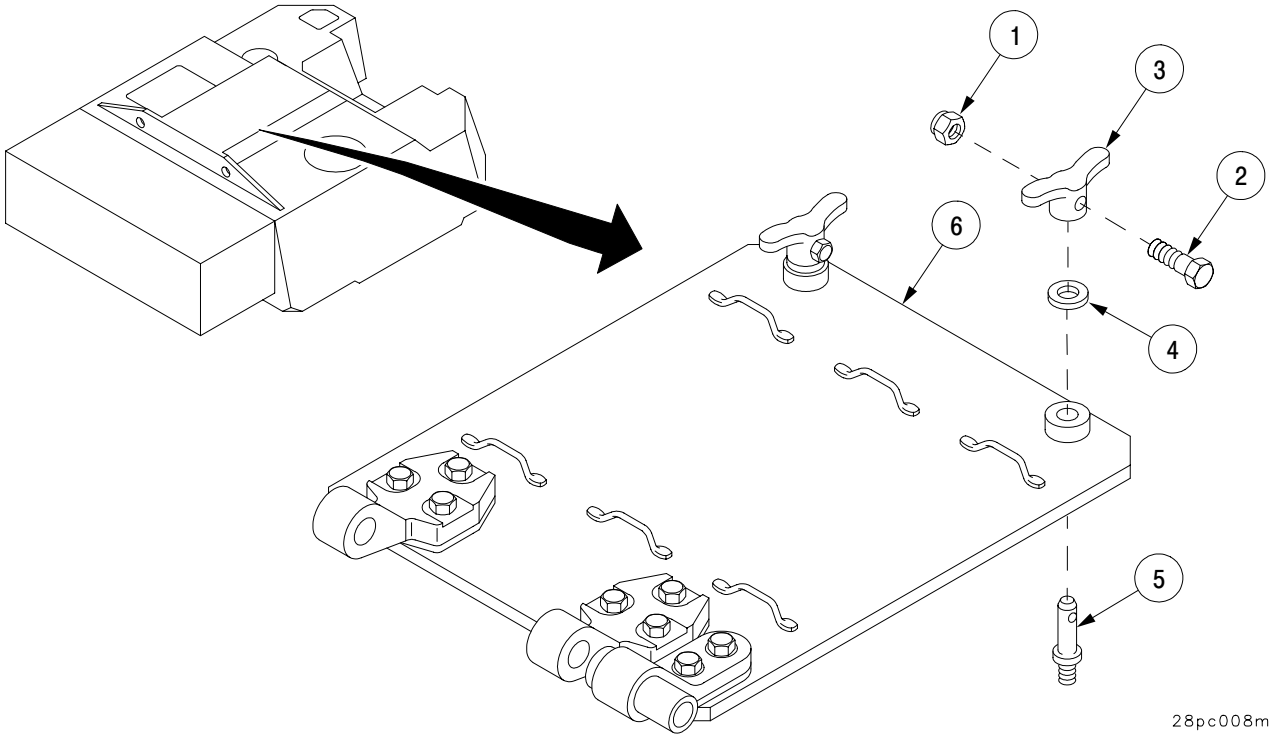
Materials/Parts
Locknut (item 215, Appx F)

a. Removal.

Remove locknut (1), screw (2), handle (3), flat washer (4), and stud (5) from MCS door (6). Discard locknut.

b. Installation.

Install stud (5) into MCS door (6) using flat washer (4), handle (3), screw (2), and new locknut (1).



26–6 MCS REAR DOOR, HINGES, ANCHORS, AND TORSION BAR.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)
Combination square (item 40, Appx G)

Materials/Parts
Retaining rings (2) (item 38, Appx F)
Lockwashers (16) (item 130, Appx F)
Sealing compound (item 46.1, Appx C)

Equipment Conditions
MCS door closed (TM 9–2350–314–10)
Wiring harness W56 and W57 removed from MCS rear door (para 5–14)
MCS bus bar removed (para 13–5)
MCS rear door handles removed (para 26–5)
MCS rear door seal and rubber strip removed (para 26–4)

Personnel Required
Two

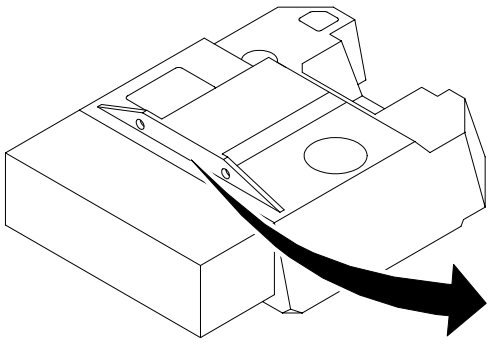
a. Removal.

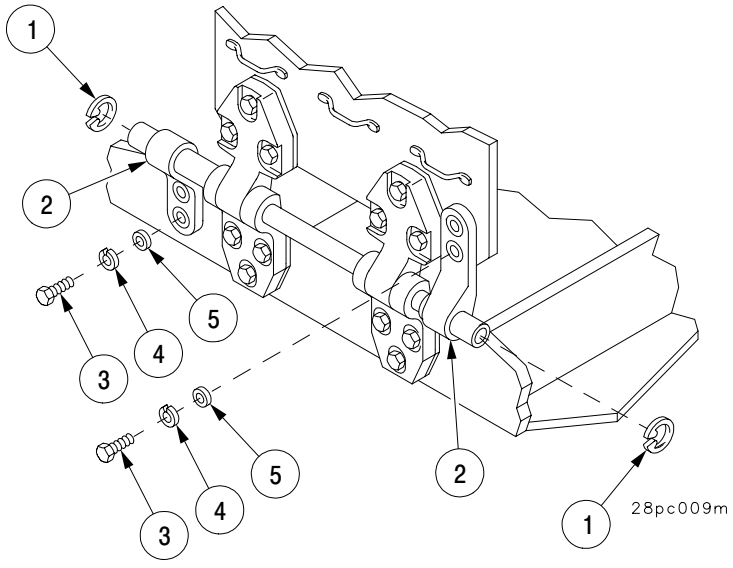
1 Remove two retaining rings (1) from inside two anchors (2). Discard rings.

NOTE

Have assistant stabilize MCS door in the open position to minimize torsion bar tension.

2 Remove four screws (3), four lockwashers (4), and four flat washers (5) from two anchors (2). Discard lockwashers.





26–6 MCS REAR DOOR, HINGES, ANCHORS, AND TORSION BAR – CONTINUED

a. Removal – Continued

NOTE

If shims are present, they must be retained for installation to the same location from which they were removed.

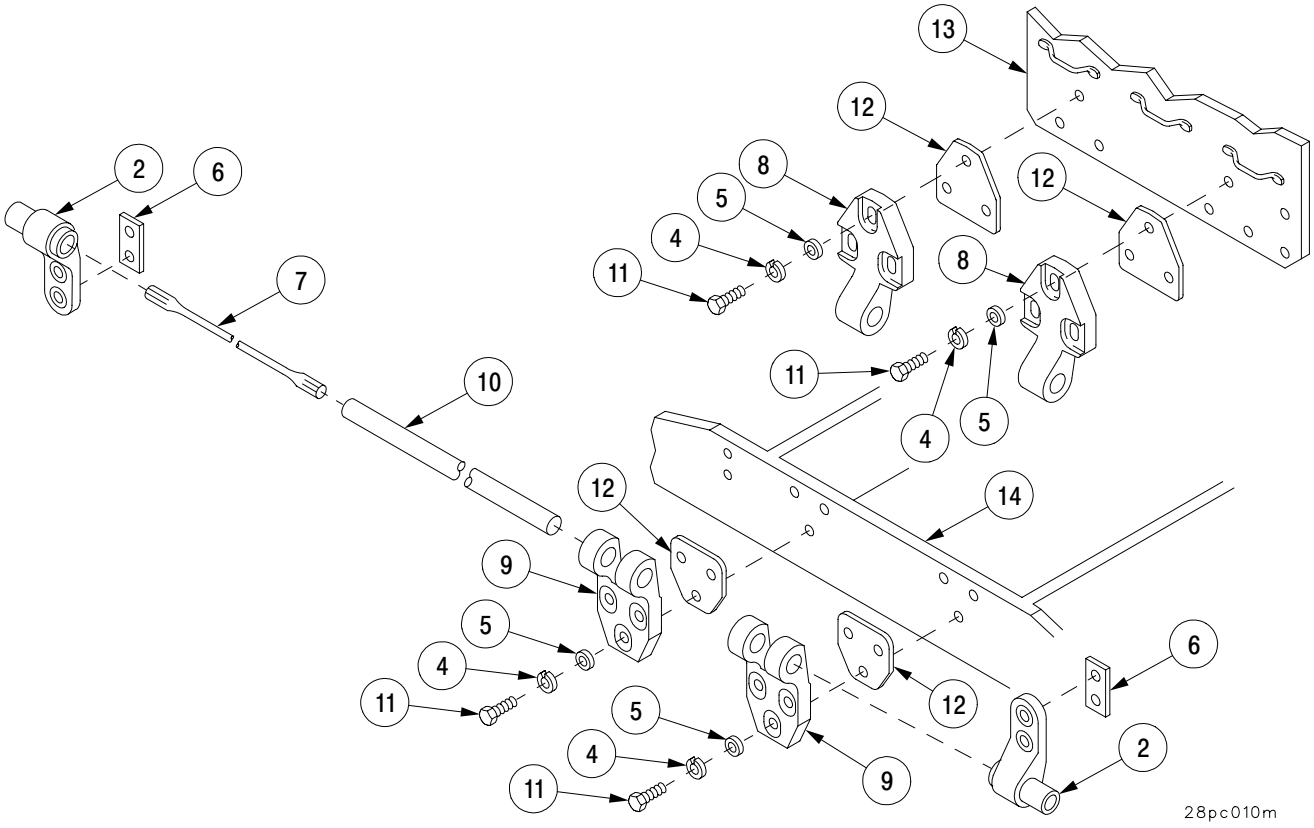
3 Slide two anchors (2) from torsion bar (7) and remove shims (6).

4 Slide torsion bar (7) out of two hinges (8), two hinges (9), and cover (10).

NOTE

Hinges are not interchangeable. Note location before removing.

5 Remove 12 screws (11), 12 lockwashers (4), 12 flat washers (5), and two hinges (8) with two shims (12) from MCS door (13), and two hinges (9) with two shims (12) from MCS weldment (14). Remove MCS door (13). Discard lockwashers.



26–6 MCS REAR DOOR, HINGES, ANCHORS, AND TORSION BAR – CONTINUED

b. Installation.

NOTE

Hinges are not interchangeable. Make sure hinges are returned to their original position.

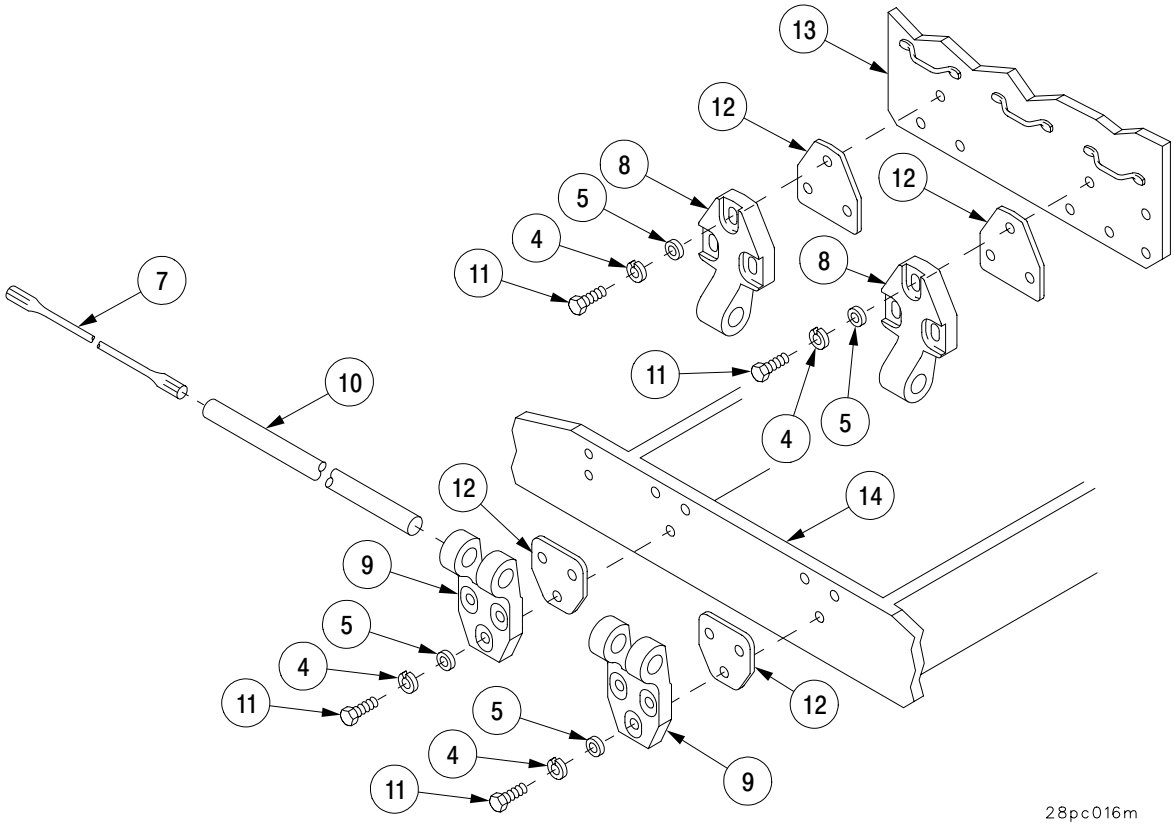
1 Position MCS door (13), two shims (12), and two hinges (9) on MCS weldment (14). Install with six flat washers (5), six new lockwashers (4), and six screws (11).

2 Position two shims (12) and two hinges (8) on MCS rear door (13). Install with six flat washers (5), six new lockwashers (4), and six screws (11).

3 Insert torsion bar (7) with cover (10) into two hinges (8) and two hinges (9).

4 Raise rear door (13) in upward position and have an assistant hold door in position.

5 Use a combination square and establish an approximately 97–degree angle between MCS rear door (13) and top of MCS weldment (14).



26–6 MCS REAR DOOR, HINGES, ANCHORS, AND TORSION BAR – CONTINUED

b. Installation – Continued

6 Slide anchors (2) onto each end of torsion bar (7) with bottom of surfaces touching MCS weldment and MCS rear door. Install anchors as close to 97–degree position as splines on torsion bar allow.

7 Install new retaining ring (1) in each anchor (2).

7.1 Apply sealing compound to aluminum/steel interfaces of two shims (6).

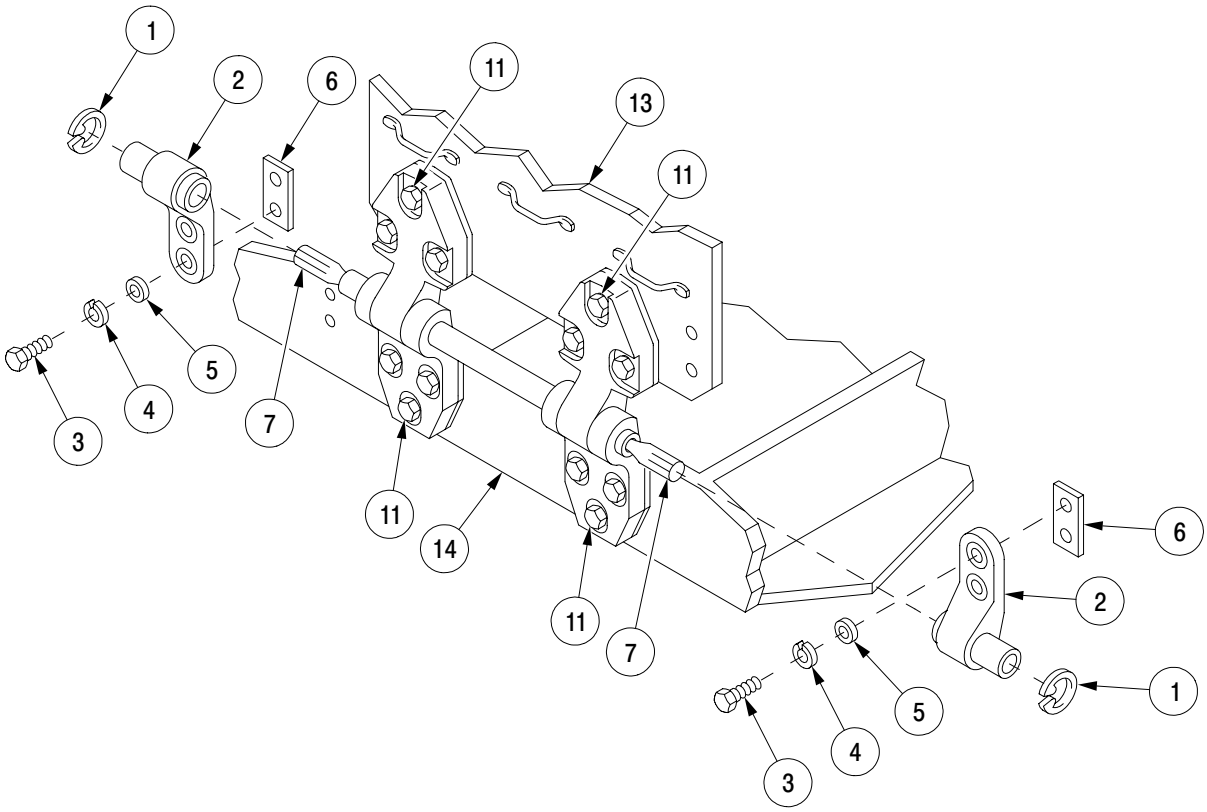
8 Position one shim (6) and one anchor (2) on MCS weldment (14) and secure with two flat washers (5), two new lockwashers (4), and two screws (3).

9 Position one shim (6) and one anchor (2) onto MCS rear door (13) and secure with two flat washers (5), two new lockwashers (4), and two screws (3).

10 Torque screws (3 and 11) to 43–46 lb–ft (58.3–62.4 N·m).

NOTE

Check all mounting hardware for proper installation and for proper opening and closing of MCS doors.



28pc011m

26–7 MCS INTAKE GRILLE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)

Materials/Parts
Lockwashers (8) (item 130, Appx F)

Equipment Conditions
Gunner's escape hatch bumper assembly removed (para 19–6)
Gunner's escape hatch latch assembly removed (para 19–7)

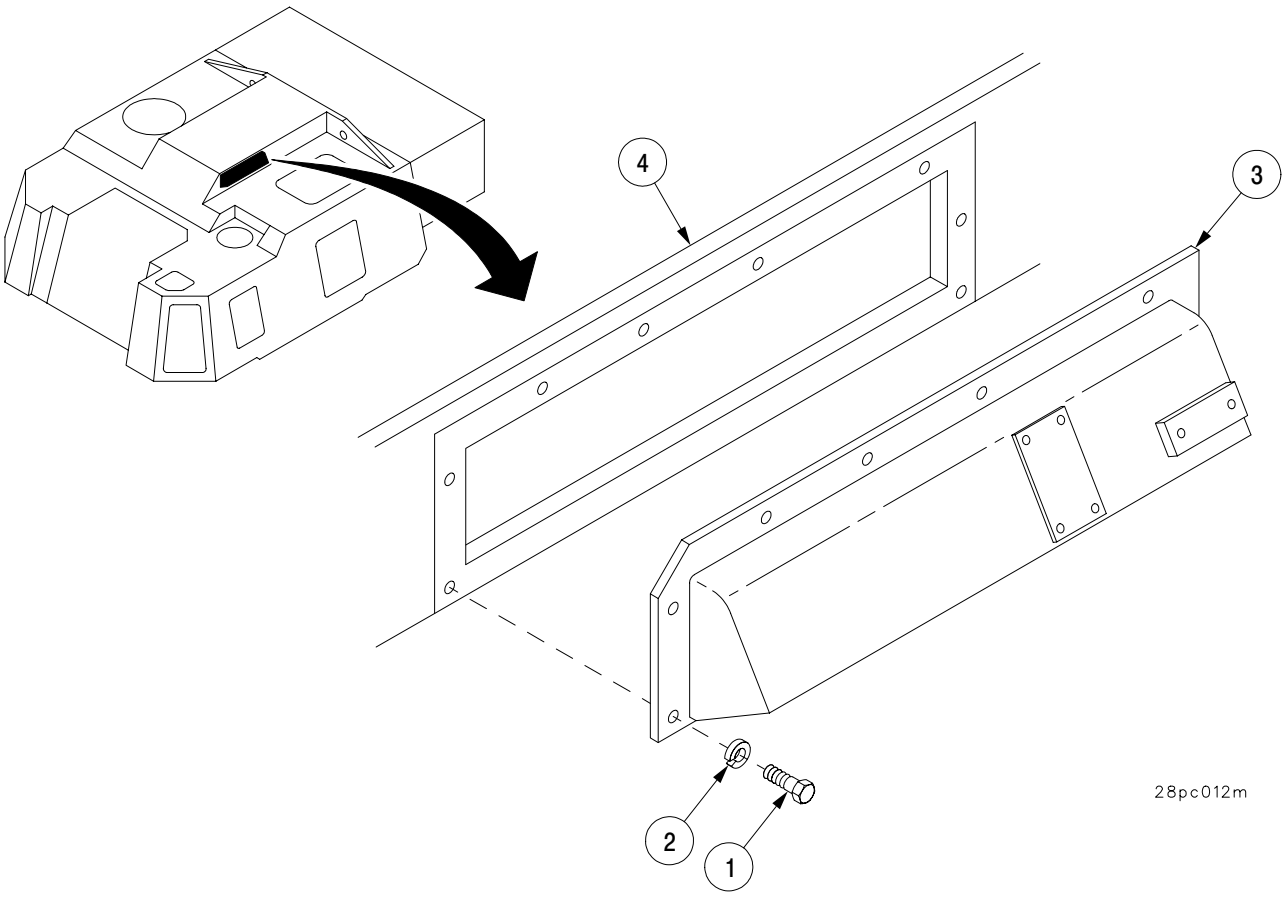
Personnel Required
Two

a. Removal.

Remove eight screws (1), eight lockwashers (2), and grille (3) from MCS weldment (4). Discard lockwashers.

b. Installation.

Install grille (3) on MCS weldment (4) with eight new lockwashers (2) and eight screws (1). Torque screws to 43–46 lb–ft (58.3–62.4 N•m).



26–8 MCS EXHAUST GRILLE.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)

Personnel Required
Two

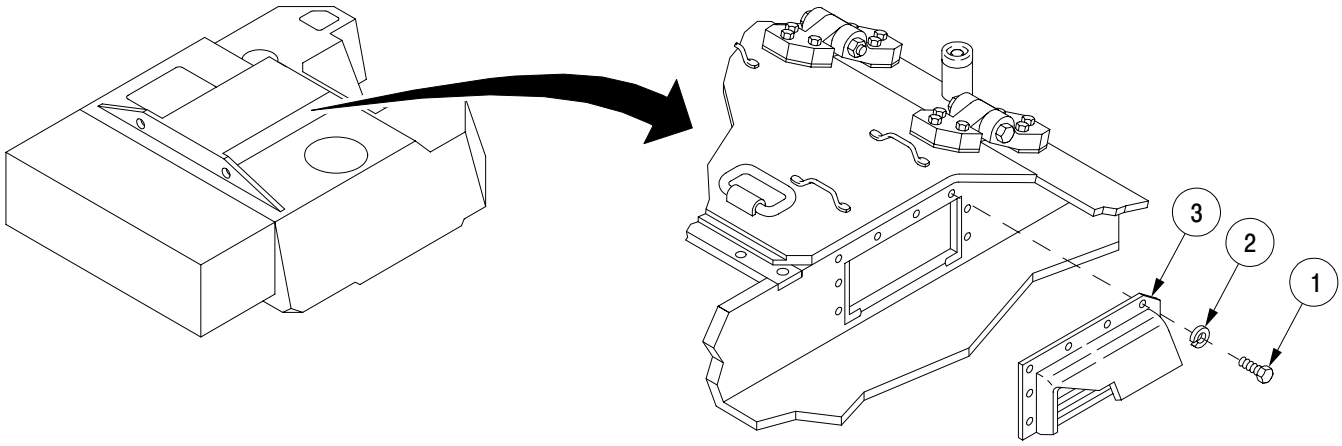
Materials/Parts
Lockwashers (8) (item 130, Appx F)

a. Removal.

Remove eight screws (1), eight lockwashers (2), and exhaust grille (3). Discard lockwashers.

b. Installation.

Install grille (3) with eight screws (1) and eight new lockwashers (2). Torque screws to 43–46 lb–ft (58.3–62.4 N•m).



28pc013m

26–9 AIR PARTICLE SEPARATION FILTER BRACKET.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
Air particle separator removed (para 13–8)

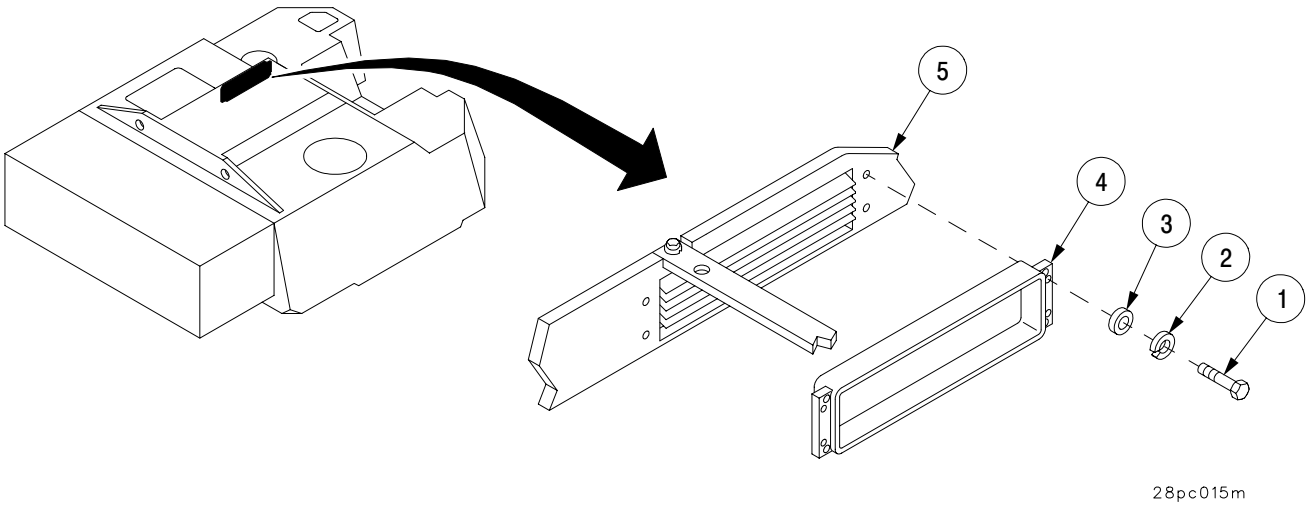
Materials/Parts
Lockwashers (4) (item 129, Appx F)

a. Removal.

Remove four screws (1), four lockwashers (2), four flat washers (3), and bracket (4) from MCS weldment (5). Discard lockwashers.

b. Installation.

Install bracket (4) on MCS weldment (5) with four flat washers (3), four new lockwashers (2), and four screws (1).



26–10 SUPPORT PLATE (MCS WELDMENT).

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Equipment Conditions
MCS doors open (TM 9–2350–314–10)

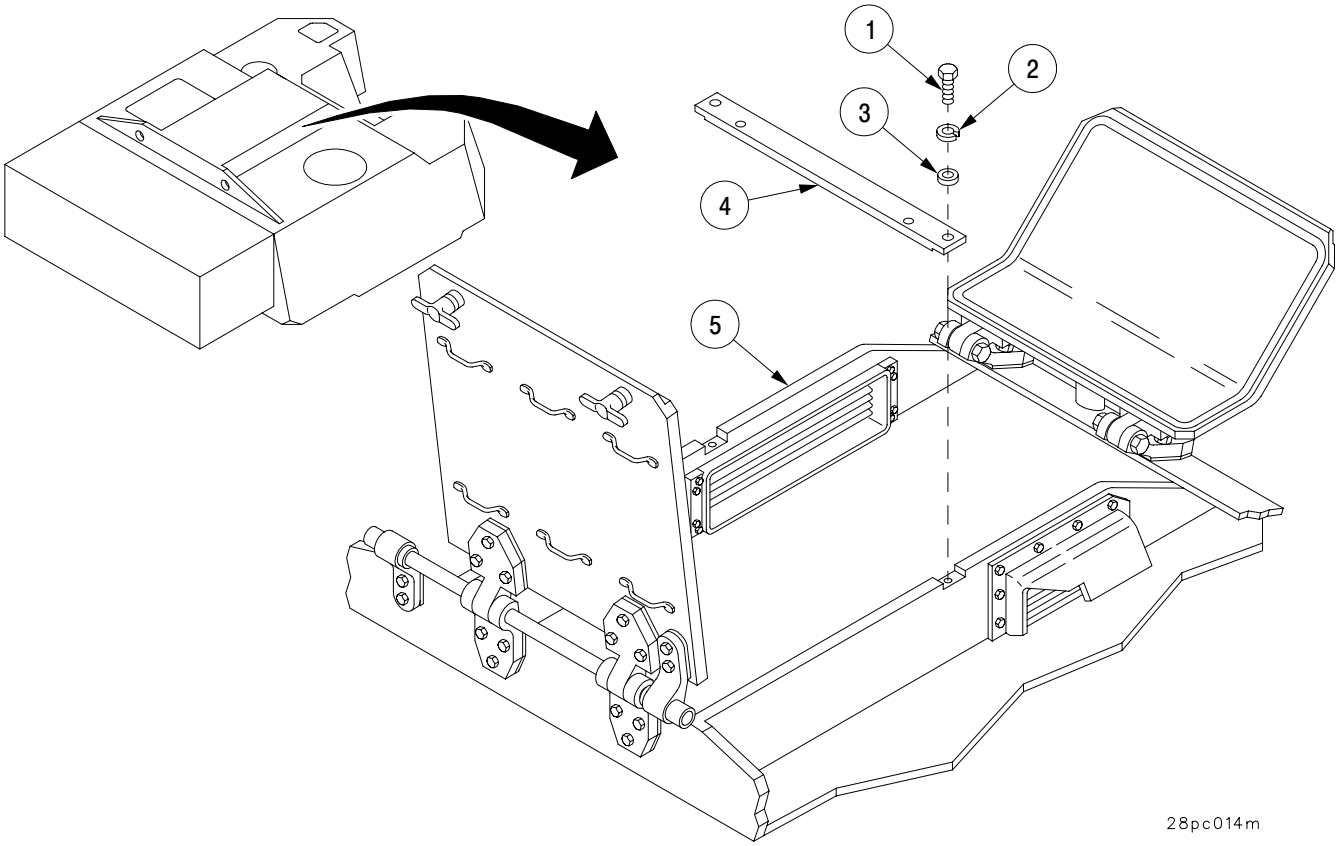
Materials/Parts
Lockwashers (2) (item 132, Appx F)

a. Removal.

Remove two screws (1), two lockwashers (2), two flat washers (3), and support plate (4) from MCS weldment (5). Discard lockwashers.

b. Installation.

Install support plate (4) on MCS weldment (5) with two flat washers (3), two new lockwashers (2), and two screws (1).



CHAPTER 27
EXTERNAL STOWAGE BASKETS

GENERAL

This chapter illustrates and describes maintenance procedures for the external stowage baskets, mine stowage box, and launcher stowage box. Step–by step procedures are provided for removal and installation as required by unit level maintenance.

CONTENTS Page

27–1 EXTERNAL STOWAGE BASKET ANCHOR AND BLOCK.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Basket in the open position
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (4) (item 132, Appx F)

a. Removal.

NOTE

There are two anchors and two blocks. The removal and installation procedures are identical for each set. This procedure covers only one of each.

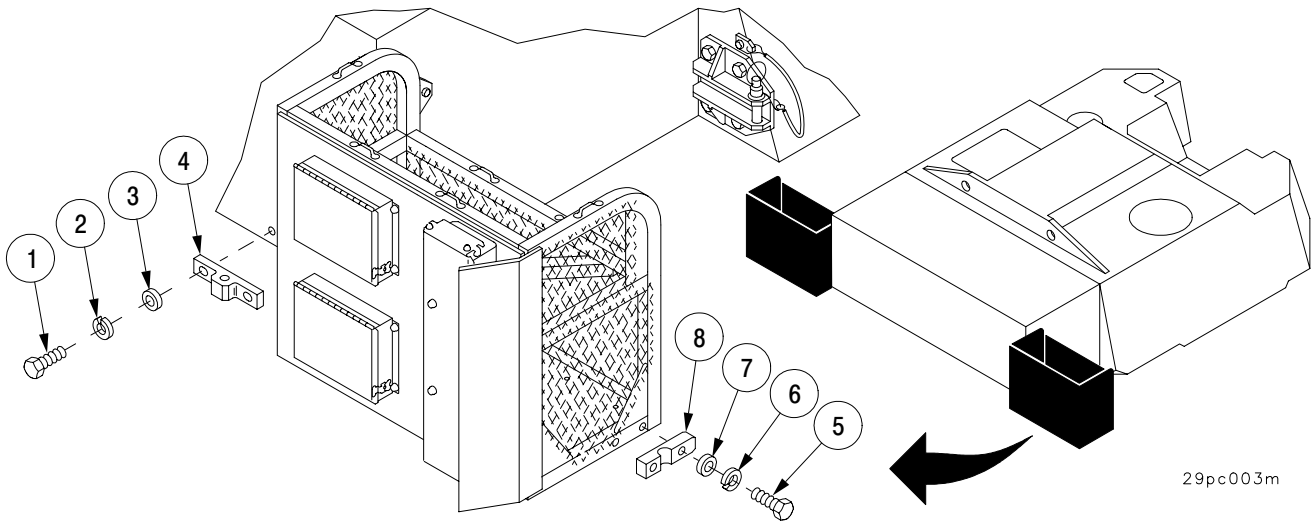
1 Remove two screws (1), two lockwashers (2), two flat washers (3), and anchor (4). Discard lockwashers.

2 Remove two screws (5), two lockwashers (6), two flat washers (7), and block (8). Discard lockwashers.

b. Installation.

1 Install block (8) on basket with two screws (5), two new lockwashers (6), and two flat washers (7).

2 Install anchor (4) on rear of bustle with two screws (1), two new lockwashers (2), and two flat washers (3).



27–2 EXTERNAL STOWAGE BASKET BRACKET AND CLIP.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Wire rope (item 72, Appx C)
Lockwashers (5) (item 130, Appx F)
Sleeves (2) (item 149, Appx F)

a. Removal.

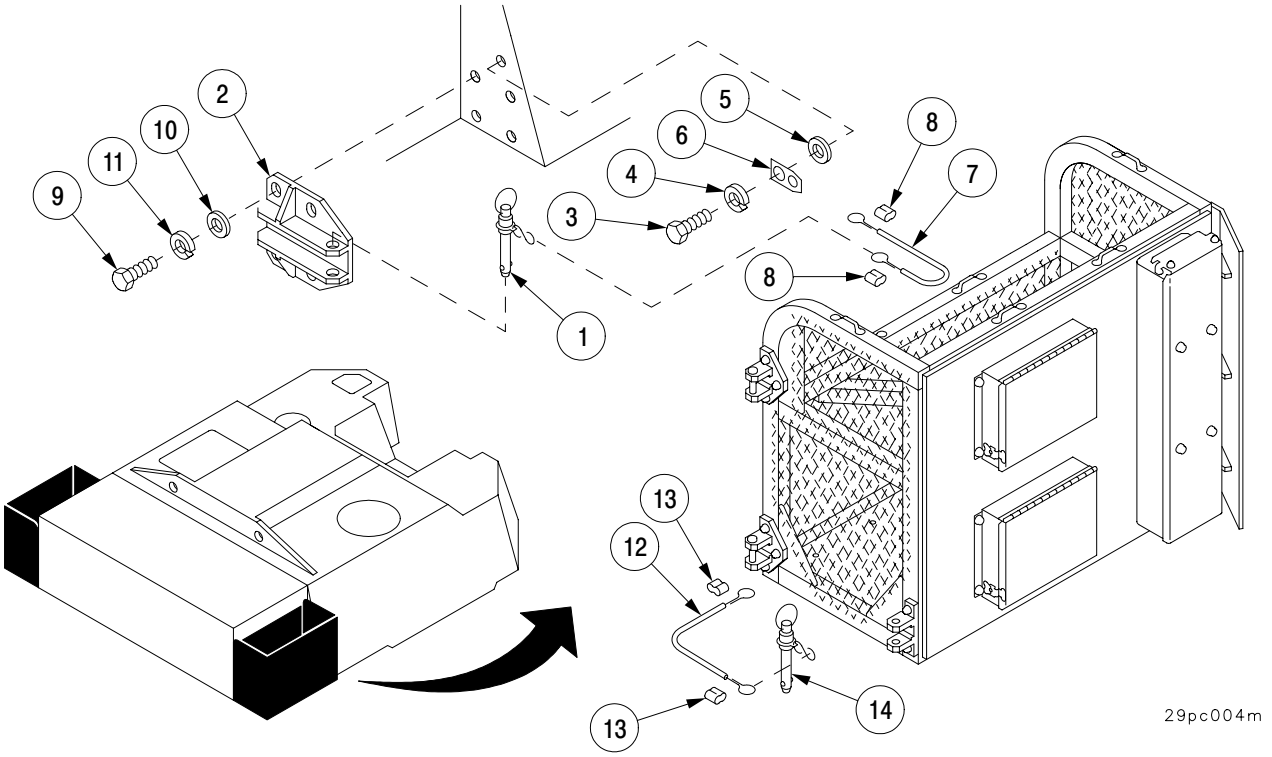
1 Remove pin (1) from bracket (2).

2 Remove screw (3), lockwasher (4), flat washer (5), clip (6), pin (1) with wire rope (7), and sleeve (8) from bustle. Discard lockwasher.

3 Remove four screws (9), four flat washers (10), four lockwashers (11), and bracket (2). Discard lockwashers.

4 Remove wire rope (12) and sleeve (13) from pin (14).

5 Cut wire ropes (7 and 12) at sleeves (8 and 13). Discard wire ropes and sleeves.



27–2 EXTERNAL STOWAGE BASKET BRACKET AND CLIP – CONTINUED

b. Installation.

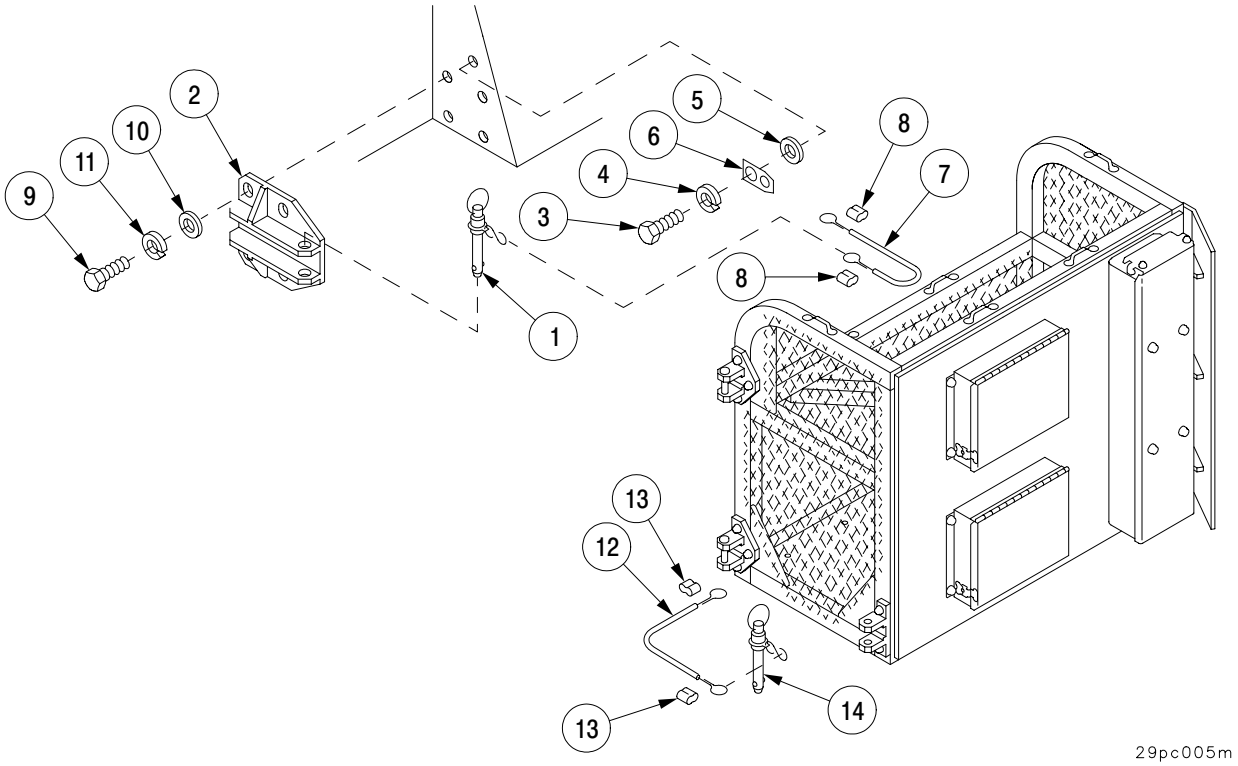
1 Loop new wire rope (7) through pin (1) and clip (6) and secure both ends of wire rope (7) with new sleeve (8).

2 Loop new wire rope (12) through pin (14) and secure with new sleeve (13).

3 Secure bracket (2) to vehicle with four screws (9), four new lockwashers (11), and four flat washers (10).

4 Secure clip (6) with wire rope (7) and pin (1) to bustle with screw (3), new lockwasher (4), and flat washer (5).

5 Install pin (1) in bracket (2).



27–3 EXTERNAL STOWAGE BASKET HINGE AND BEARING.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 54, Appx G)
Sling (item 37, Appx G)
Suitable lifting device

Materials/Parts
Lockwashers (3) (item 132, Appx F)
Cotter pin (item 81, Appx F)

Equipment Conditions
Left or right side bustle armor plate removed (para 25–1)

Personnel Required
Two

27–3 EXTERNAL STOWAGE BASKET HINGE AND BEARING – CONTINUED

a. Removal.

WARNING

Support stowage baskets before removing hinges. Failure to adhere to this warning may result in injury to personnel or damage to the equipment.

NOTE

There are four hinges. The removal and installation procedures are identical for all four. This procedure covers only one hinge.

1 Using a suitable lifting device and sling, support stowage basket (1).

2 Remove cotter pin (2) and pin (3) from hinge (4). Discard cotter pin.

3 Remove three screws (5), three lockwashers (6), three flat washers (7), hinge (4), and bearing (8). Discard lockwashers.

b. Installation.

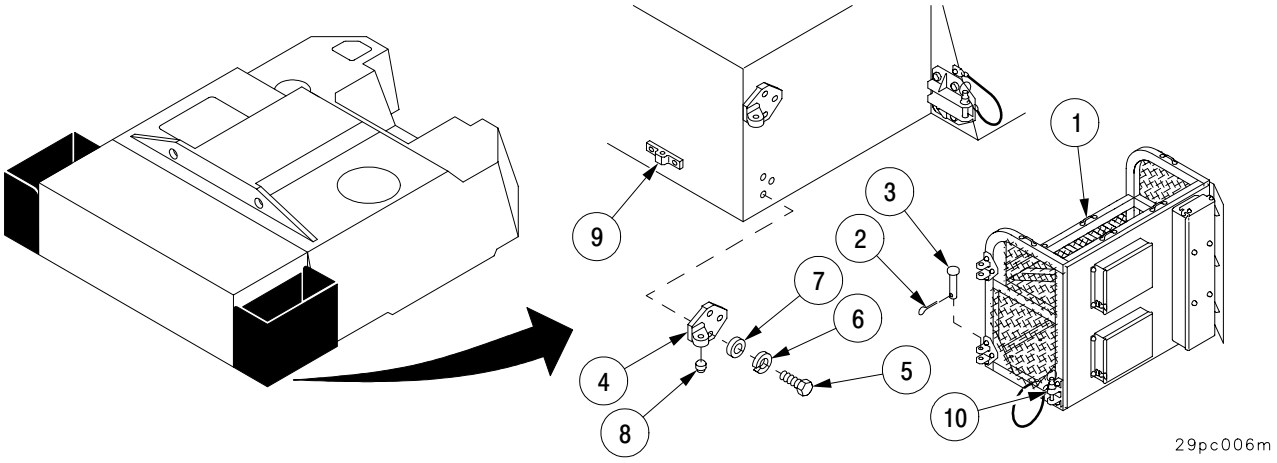
1 Install bearing (8) in hinge (4).

2 Install hinge (4) on bustle with three screws (5), three new lockwashers (6), and three flat washers (7). Snug down screws.

3 Place pin (3) in hinge (4) and secure with new cotter pin (2).

4 Pivot basket to the open position and make sure that block (9) enters bracket (10) freely. Adjust hinge as necessary.

5 Torque three screws (5) to 85–95 lb–ft (115–128 N·m).



27–4 MINE STOWAGE BOX.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Lockwashers (4) (item 128, Appx F)
Dry–cleaning solvent (item 75, Appx C)
Gaskets (2) (item 198, Appx F)
Adhesive (item 6, Appx C)
Gaskets (2) (item 199, Appx F)

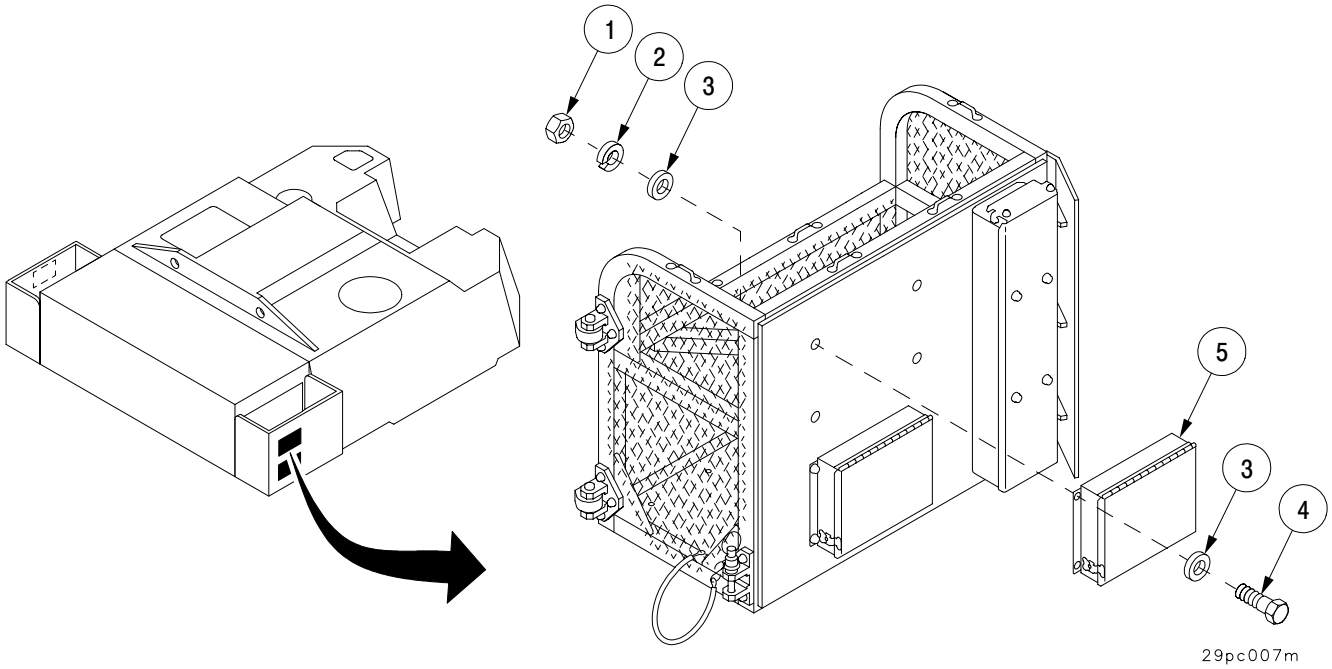
a. Removal.

NOTE

There are three mine stowage boxes. The removal and installation procedures are identical for all three. This procedure covers only one box.

1 Remove four nuts (1).

2 Remove four lockwashers (2), eight flat washers (3), four screws (4), and stowage box (5). Discard lockwashers.



27–4 MINE STOWAGE BOX – CONTINUED

b. Disassembly.

NOTE

- The repair procedures apply to mine stowage boxes on right and left stowage baskets.
- It is not necessary to remove mine stowage box to replace gaskets.

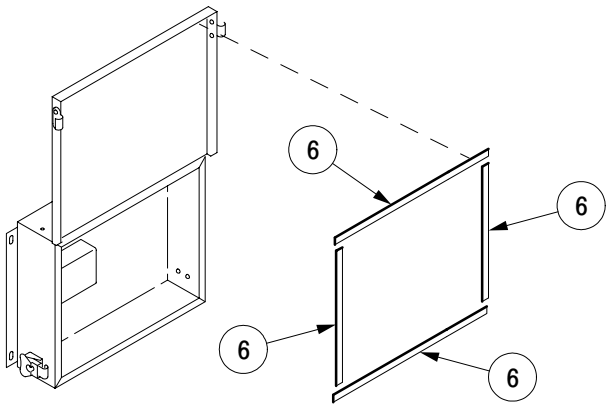
1 Remove and discard four gaskets (6).

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well– ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (ref. FM 21–11).

2 With a wiping rag and dry–cleaning solvent, thoroughly clean area where gaskets (6) were removed.

3 With a dry, clean, wiping rag, make sure all solvent residue is removed.

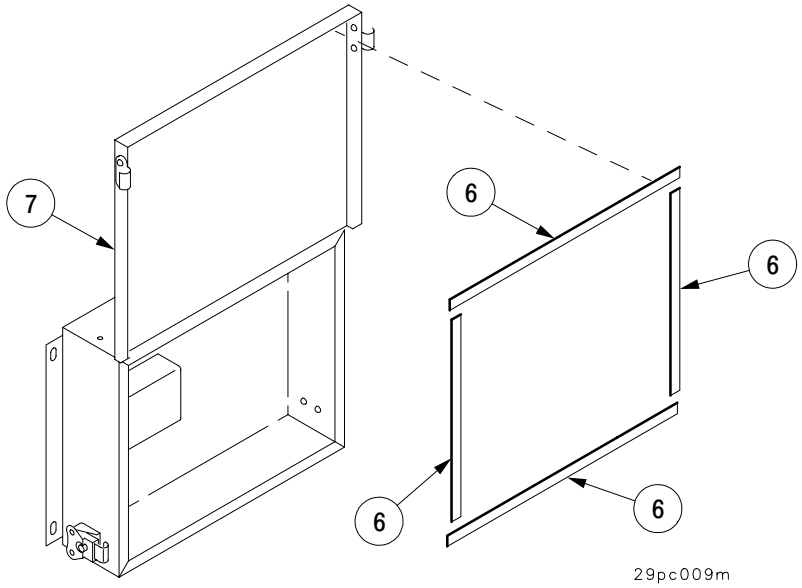


27–4 MINE STOWAGE BOX – CONTINUED

c. Assembly.

1 Apply adhesive to contact surfaces and gaskets.

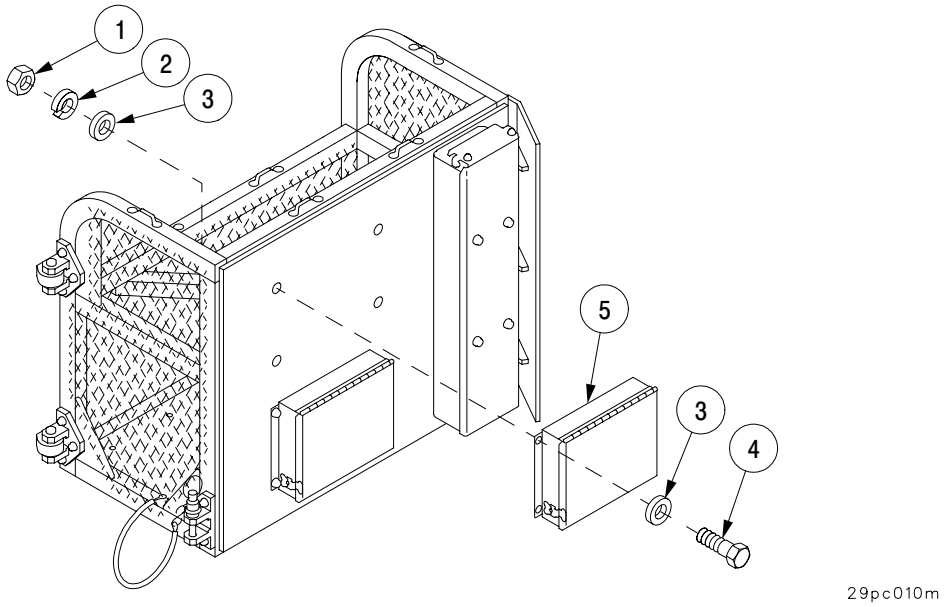
2 Install four new gaskets (6) on stowage box lid (7).



d. Installation.

1 Align stowage box (5) with installation mounting holes.

2 Install four screws (4), eight flat washers (3), four new lockwashers (2), and four nuts (1).



27–5 RIGHT OR LEFT BASKET ASSEMBLY.

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools
Artillery and turret mechanics' tool kit (SC 5180–95–A12)
Suitable lifting device
Torque wrench (item 54, Appx G)
Sling (item 37, Appx G)

Personnel Required
Two

Materials/Parts
Wire rope (item 72, Appx C)
Compression sleeves (2) (item 149, Appx F)
Lockwashers (2) (item 129, Appx F)
Lockwashers (2) (item 130, Appx F)
Lockwashers (12) (item 128, Appx F)
Lockwashers (8) (item 132, Appx F)
Cotter pins (2) (item 81, Appx F)
Self–locking nuts (3) (item 152, Appx F)

27–5 RIGHT OR LEFT BASKET ASSEMBLY – CONTINUED

a. Removal.

WARNING

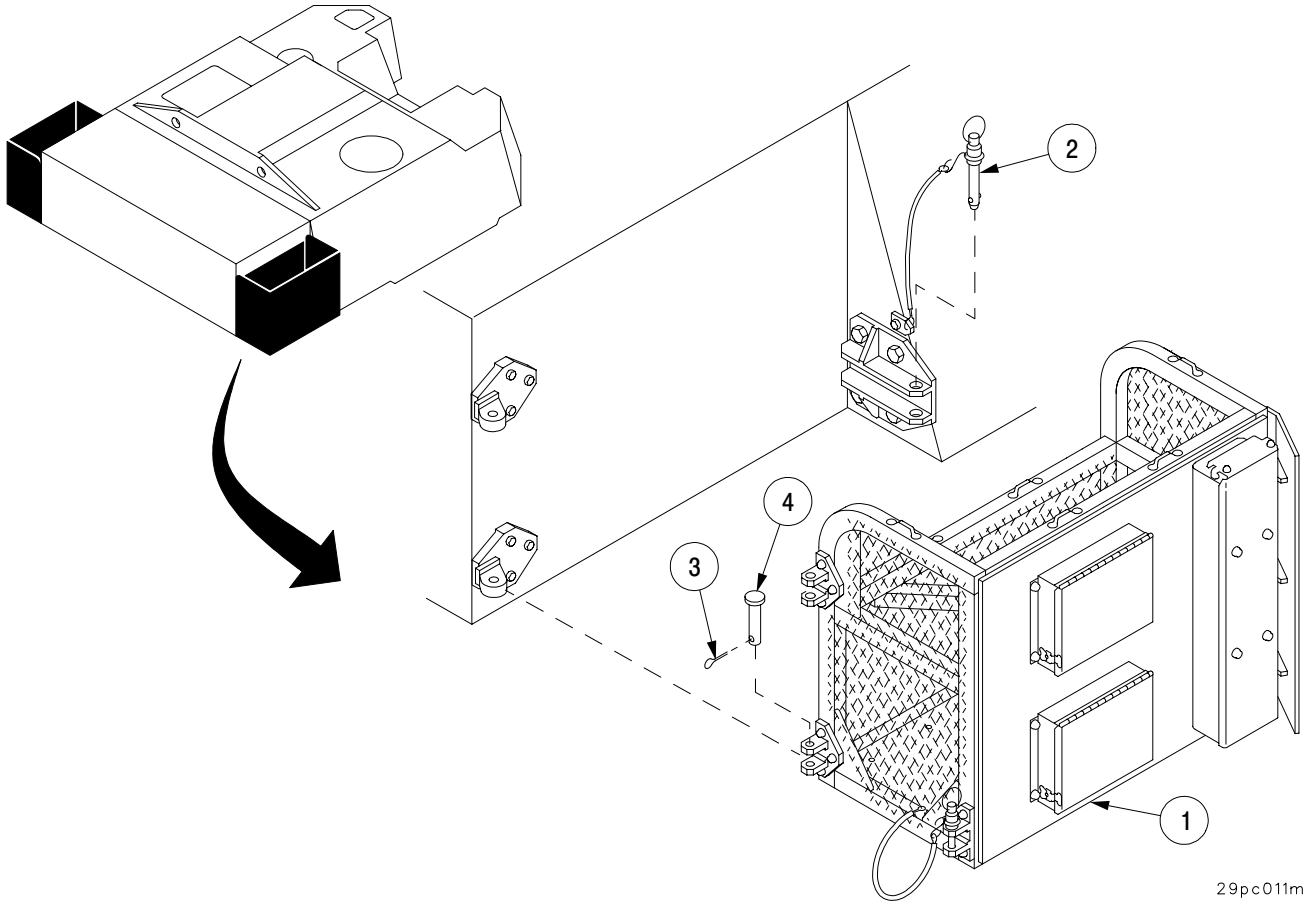
Basket assembly weighs approximately 100 pounds (45 kg) when empty. Use extreme caution during removal to prevent personnel injury.

NOTE

There are two baskets. The removal and installation procedures are identical for both baskets, except as noted. This procedure covers only one basket.

1 Using suitable lifting device to support basket assembly (1), remove quick–release pin (2).

2 Remove cotter pin (3), straight pin (4), and basket (1). Discard cotter pin.



27–5 RIGHT OR LEFT BASKET ASSEMBLY – CONTINUED

a. Removal – Continued

NOTE

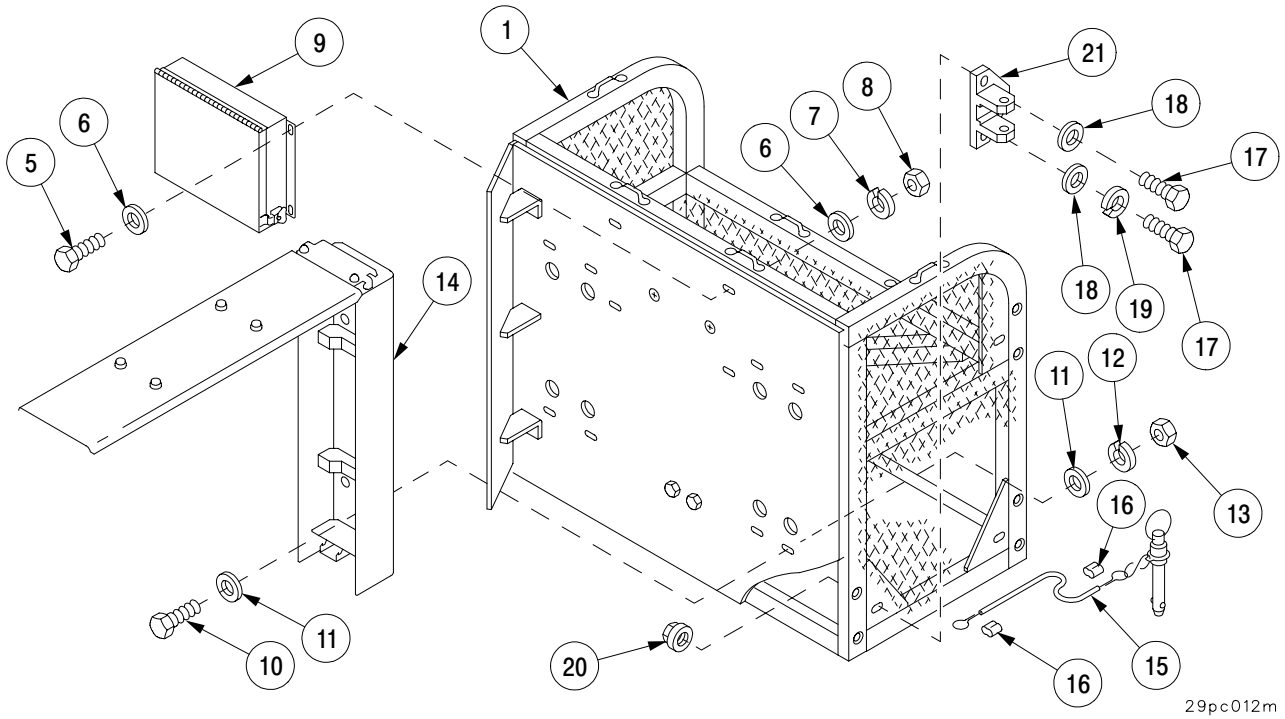
- Replacement of left basket requires removal of two launcher boxes and one mine box. Replacement of right basket requires removal of two mine boxes and one launcher box.
- This task will remove one mine box and one launcher box.

3 Remove four screws (5), eight flat washers (6), four lockwashers (7), four nuts (8), and mine stowage box assembly (9). Discard lockwashers.

4 Remove four screws (10), eight flat washers (11), four lockwashers (12), four nuts (13), and launcher box assembly (14). Discard lockwashers.

5 Cut wire rope (15) at both ends where rope loops into sleeve (16). Discard rope and sleeve.

6 Remove nine screws (17), nine flat washers (18), six lockwashers (19), three self–locking nuts (20), and three hinges (21) from basket (1). Discard lockwashers and self–locking nuts.



27–5 RIGHT OR LEFT BASKET ASSEMBLY – CONTINUED

a. Removal – Continued

NOTE

Steps 7, 8, 9, and 10 required for left basket only.

7 Remove four screws (22), four lockwashers (23), four flat washers (24), four flat washers (25), four nuts (26), and hand pump box (27) from basket (1). Discard lockwashers.

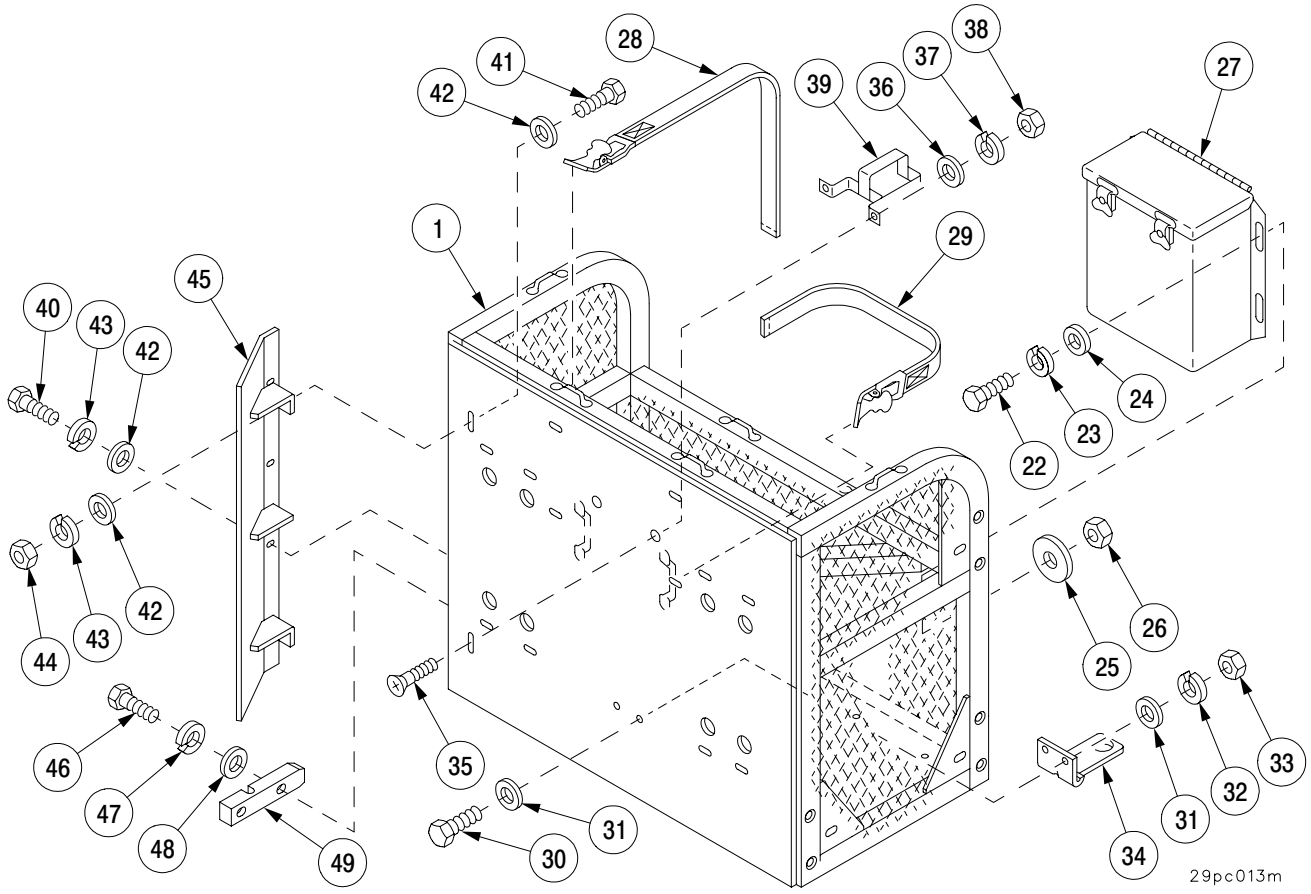
8 Remove three straps (28) and one strap (29) from basket.

9 Remove two screws (30), four flat washers (31), two lockwashers (32), two nuts (33), and support (34) from basket (1). Discard lockwashers.

10 Remove two screws (35), two flat washers (36), two lockwashers (37), two nuts (38), and bracket (39) from basket (1). Discard lockwashers.

11 Remove four screws (40), two screws (41), eight flat washers (42), six lockwashers (43), two nuts (44), and guard (45) from basket (1). Discard lockwashers.

12 Remove two screws (46), two lockwashers (47), two flat washers (48), and block (49) from basket (1). Discard lockwashers.



27–5 RIGHT OR LEFT BASKET ASSEMBLY – CONTINUED

b. Installation.

1 Secure block (49) to basket (1) with two screws (46), two new lockwashers (47), and two flat washers (48).

2 Secure guard (45) to basket (1) with two screws (41), four screws (40), eight flat washers (42), six new lockwashers (43), and two nuts (44).

NOTE

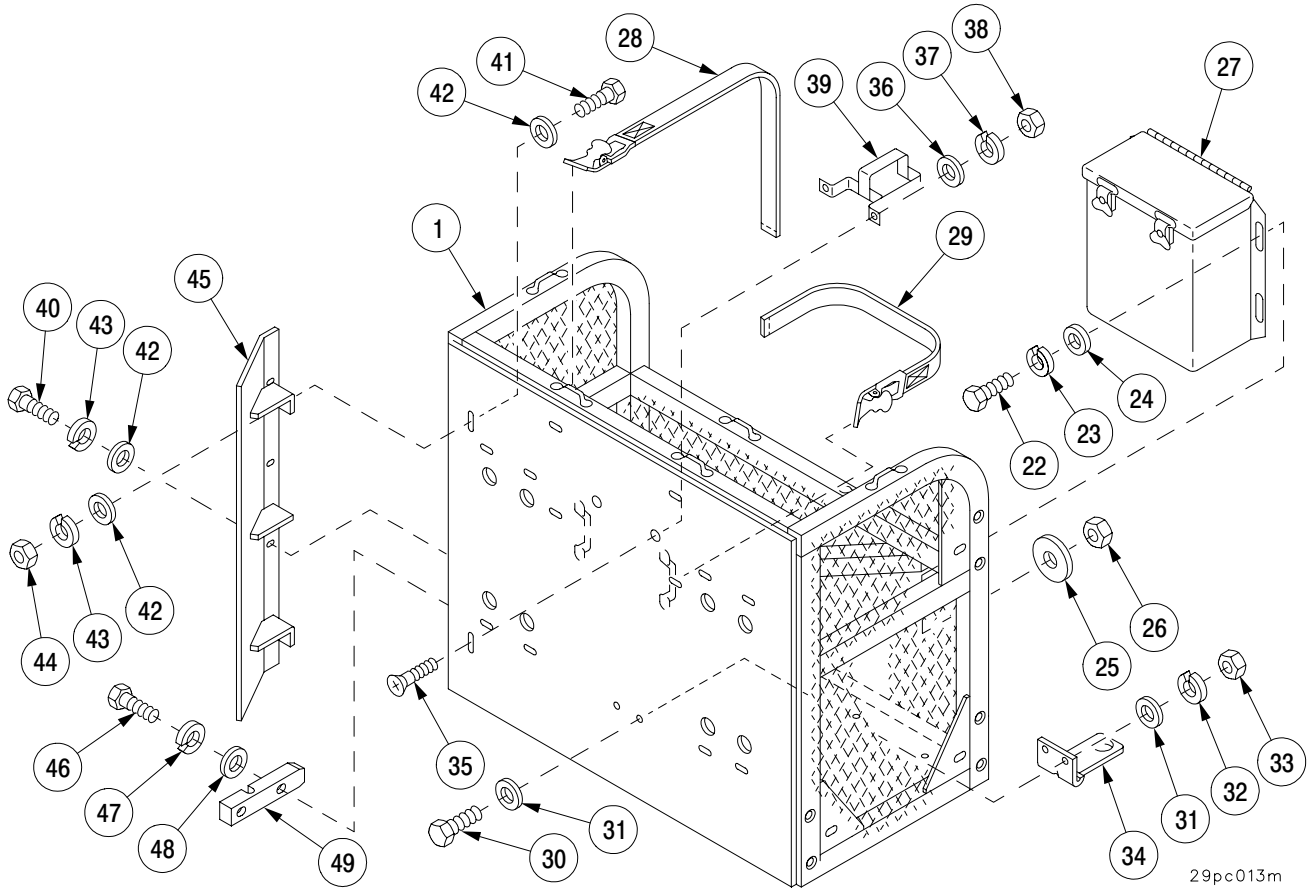
Steps 3, 4, 5, and 6 are required for left basket only.

3 Secure bracket (39) to basket (1) with two screws (35), two flat washers (36), two new lockwashers (37), and two nuts (38).

4 Secure support (34) to basket (1) with two screws (30), four flat washers (31), two new lockwashers (32), and two nuts (33).

5 Install three straps (28) and one strap (29) onto basket (1).

6 Install hand pump box (27) to basket (1) with four screws (22), four new lockwashers (23), four flat washers (24), four flat washers (25), and four nuts (26).



27–5 RIGHT OR LEFT BASKET ASSEMBLY – CONTINUED

b. Installation – Continued

7 Secure three hinges (21) to basket (1) with nine screws (17), nine flat washers (18), six new lockwashers (19), and three new self–locking nuts (20).

8 Torque screws (17) to 85–95 lb–ft (115–128 N·m).

9 Cut new wire rope (15) (12 in. ± .50) for quick–release pin (2). Loop wire rope (15) through quick–release pin (2) and secure wire rope (15) with new sleeves (16). Crimp sleeves securely to achieve 100 lbs (45 kg) minimum pull–off force.

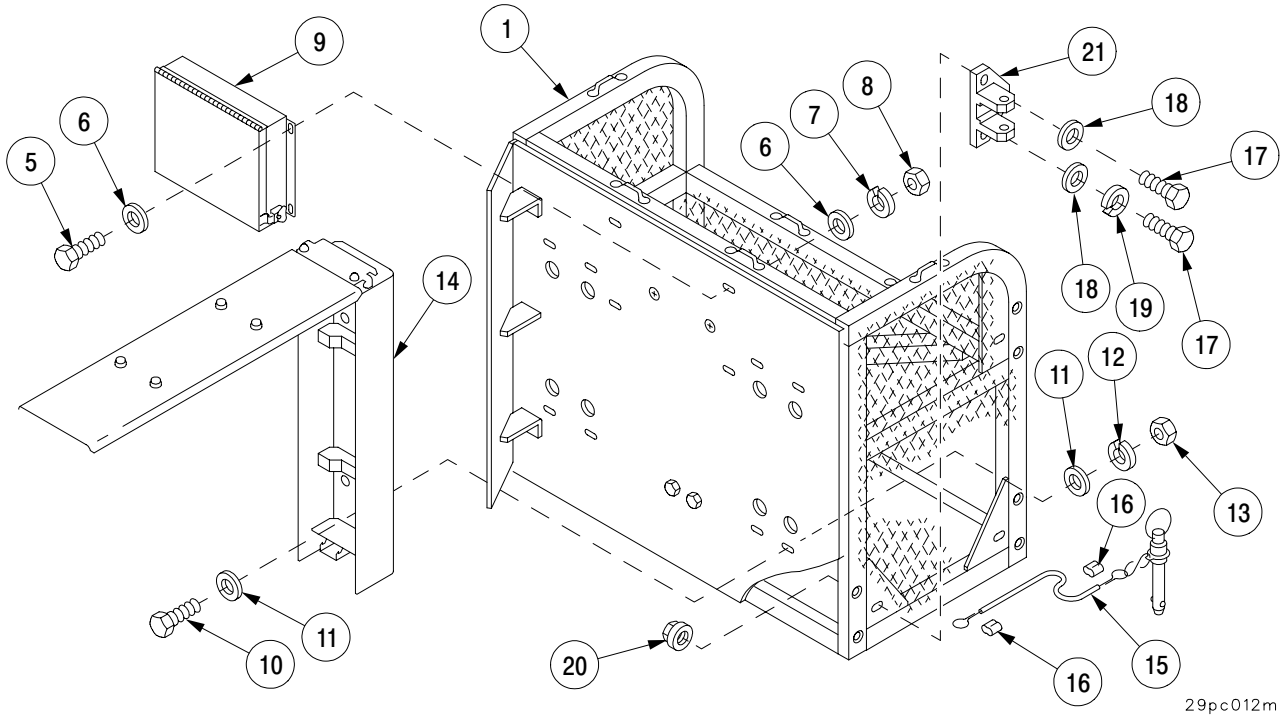
10 Secure other end of wire rope (15) to basket (1) by making a 1/2–inch loop through caging and securing loop with new sleeve (16).

NOTE

- Replacement of left stowage basket requires the installation of two launcher boxes and one mine box.
- Replacement of right stowage basket requires the installation of two mine boxes and one launcher box.

11 Secure launcher box assembly (14) to basket (1) with four screws (10), eight flat washers (11), four new lockwashers (12), and four nuts (13).

12 Secure mine stowage box assembly (9) to basket (1) with four screws (5), eight flat washers (6), four new lockwashers (7), and four nuts (8).



27–5 RIGHT OR LEFT BASKET ASSEMBLY – CONTINUED

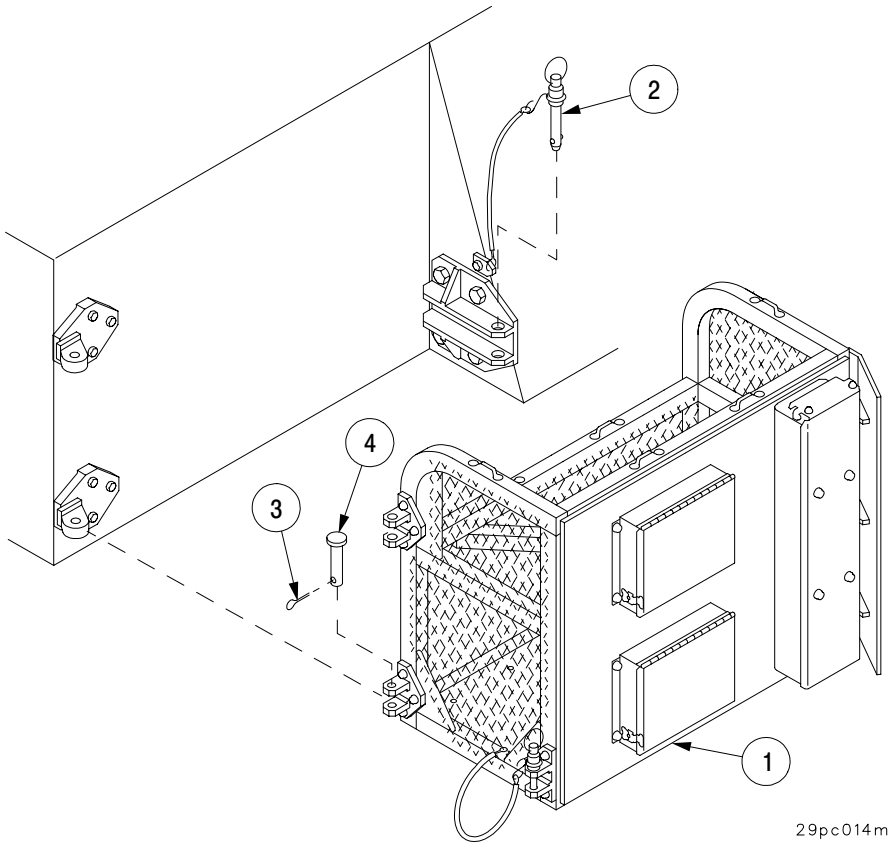
b. Installation – Continued

WARNING

Basket assembly weighs approximately 100 pounds (45 kg) when empty. Use extreme caution during installation to prevent personnel injury.

13 Using a suitable lifting device, position basket (1) on vehicle. Secure basket (1) with two pins (4) and quick–release pin (2).

14 Secure two pins (4) with two new cotter pins (3).



27–6 LAUNCHER STOWAGE BOX.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

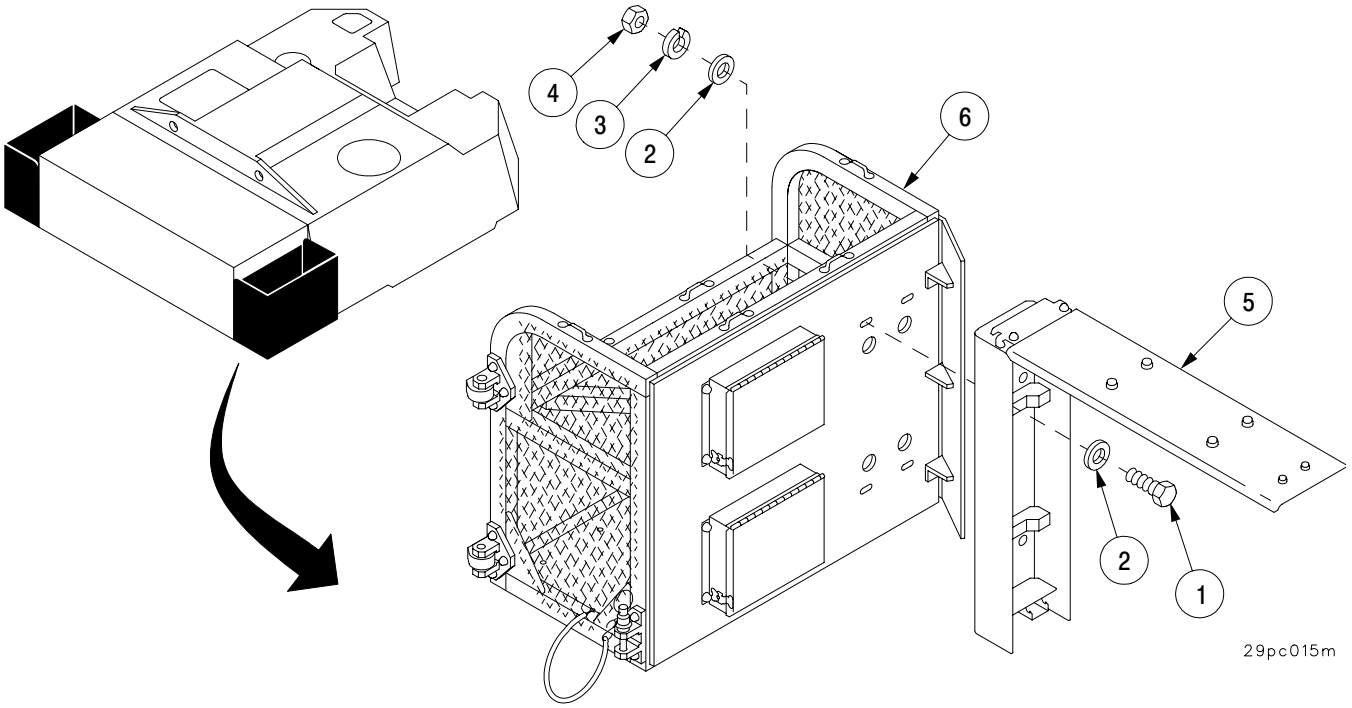
Materials/Parts
Lockwashers (8) (item 128, Appx F)
Lockwashers (8) (item 105, Appx F)
Lockwashers (4) (item 109, Appx F)
Cotter pin (item 75, Appx F)

a. Removal.

NOTE

There are three launcher stowage boxes. The removal and installation procedures are identical for all three. This procedure covers only one launcher stowage box.

Remove four screws (1), eight flat washers (2), four lockwashers (3), four nuts (4), and launcher stowage box assembly (5) from stowage basket (6). Discard lockwashers.



27–6 LAUNCHER STOWAGE BOX – CONTINUED

b. Disassembly.

1 Remove eight screws (7), eight flat washers (8), eight lockwashers (9), and four pads (10); two from launcher box (5) and two from door (11). Discard lockwashers.

2 Remove two screws (12), two lockwashers (13), two flat washers (14), and strike (15). Discard lockwashers.

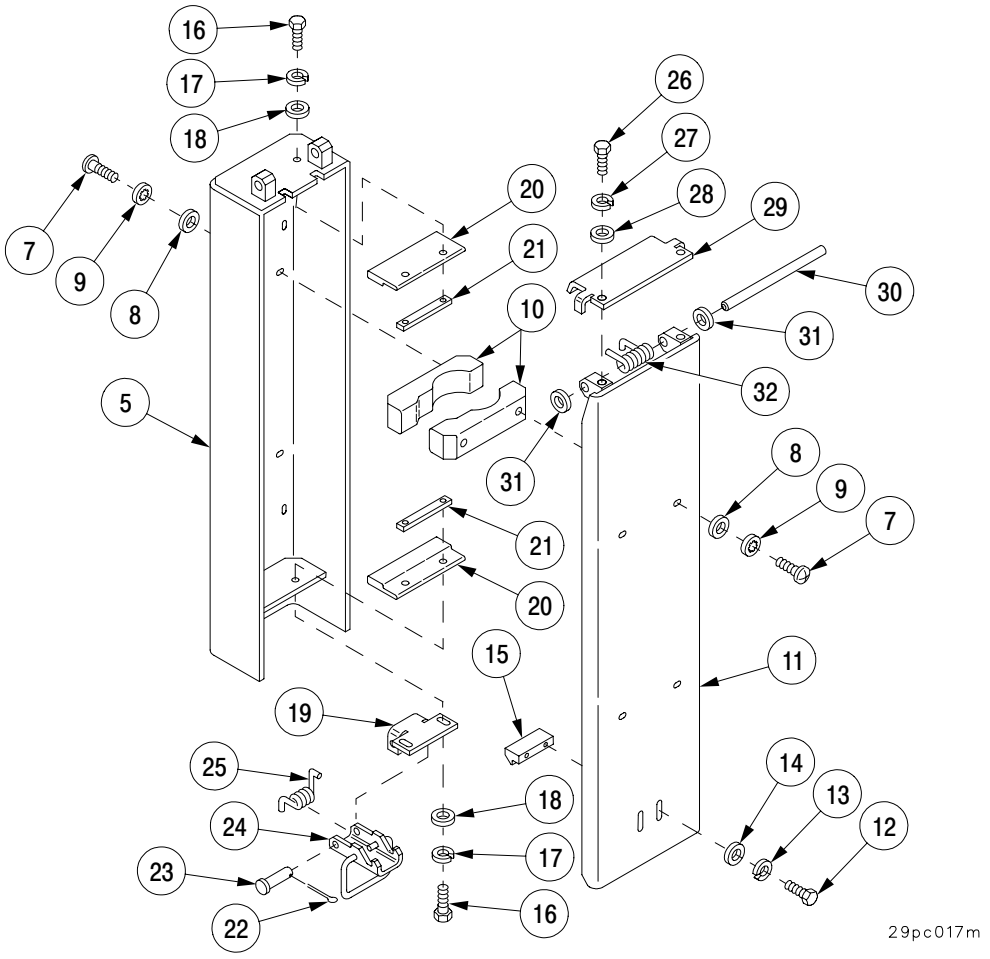
3 Remove four screws (16), four lockwashers (17), four flat washers (18), bracket (19), two pads (20), and two strips (21). Discard lockwashers.

4 Remove cotter pin (22) from pin (23). Discard cotter pin.

5 Remove pin (23), latch (24), and spring (25).

6 Remove two screws (26), two lockwashers (27), two flat washers (28), and stop (29). Discard lockwashers.

7 Remove pin (30), shims (31), spring (32), and door (11) from launcher box (5).



27–6 LAUNCHER STOWAGE BOX – CONTINUED

c. Assembly.

NOTE

Shim between box and door hinges to allow pad mounted on door to enter box when closing door.

1 Install door (11) on launcher box (5) with shims (31), spring (32), and pin (30).

2 Install stop (29) on launcher box (5) with two screws (26), two new lockwashers (27), and two flat washers (28).

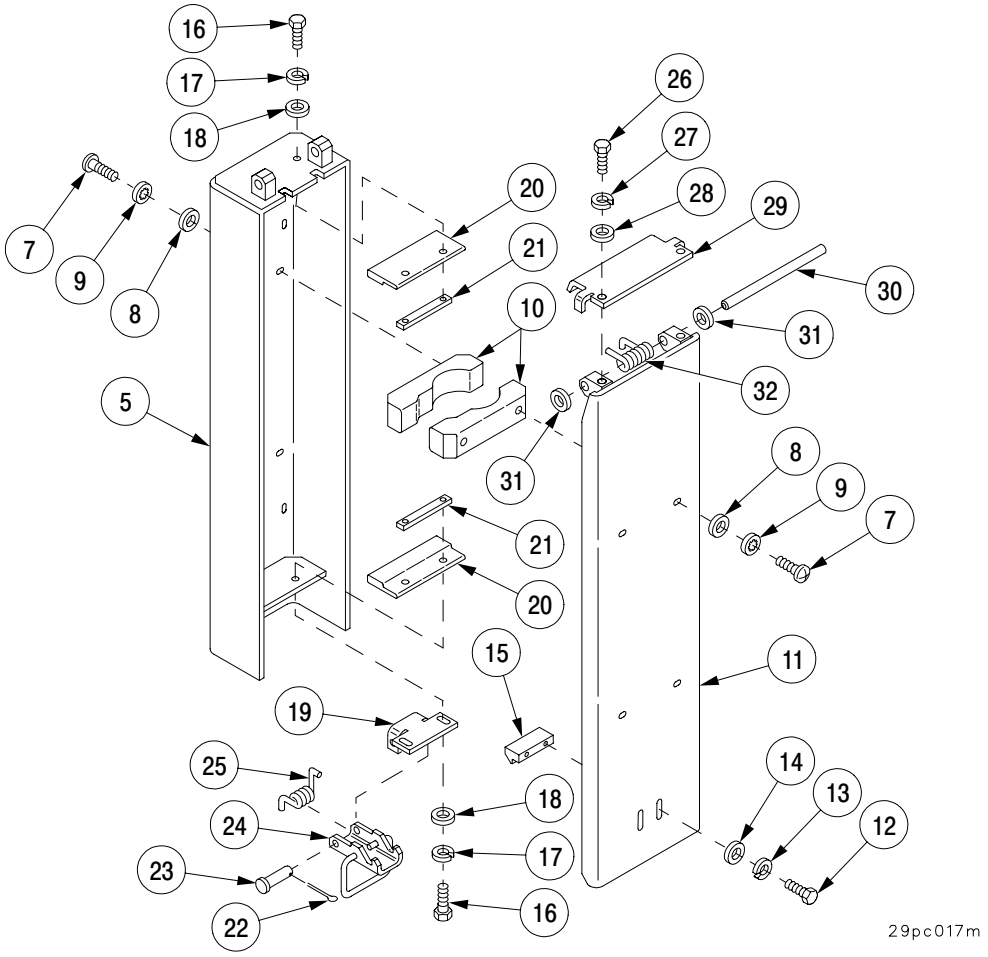
3 Install latch (24), spring (25), and pin (23).

4 Install new cotter pin (22) into pin (23).

5 Install two pads (20), two strips (21), and bracket (19) onto launcher stowage box assembly (5) with four screws (16), four new lockwashers (17), and four flat washers (18).

6 Install strike (15) with two screws (12), two new lockwashers (13), and two flat washers (14).

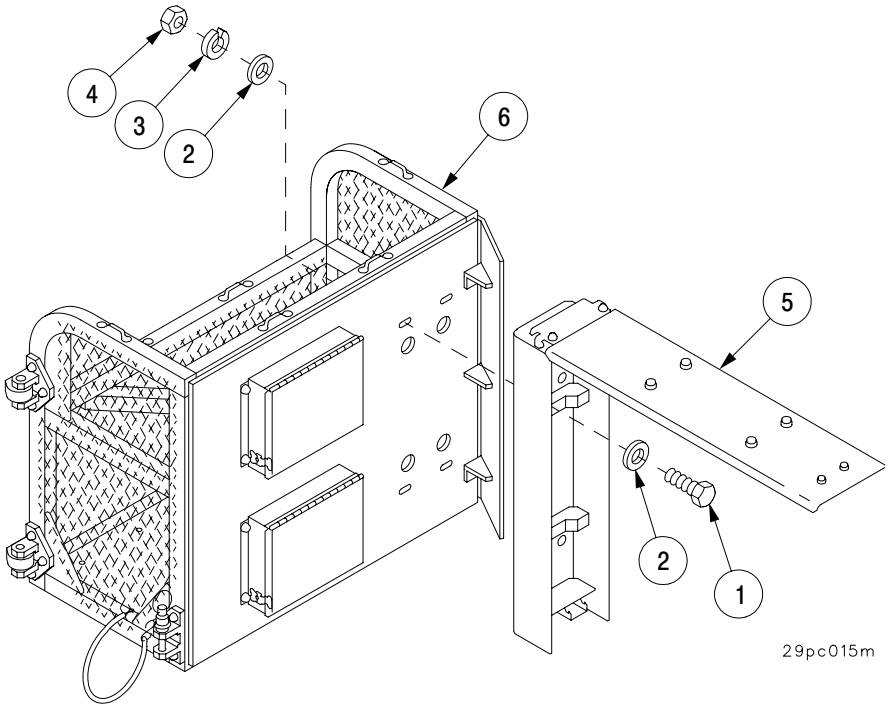
7 Install two pads (10) in launcher box (5) and two pads (10) in launcher box door (11) with eight screws (7), eight flat washers (8), and eight new lockwashers (9).



27–6 LAUNCHER STOWAGE BOX – CONTINUED

d. Installation.

Install launcher stowage box assembly (5) to stowage basket (6) with four screws (1), eight flat washers (2), four new lockwashers (3), and four nuts (4).



27–7 HAND PUMP BOX ASSEMBLY.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

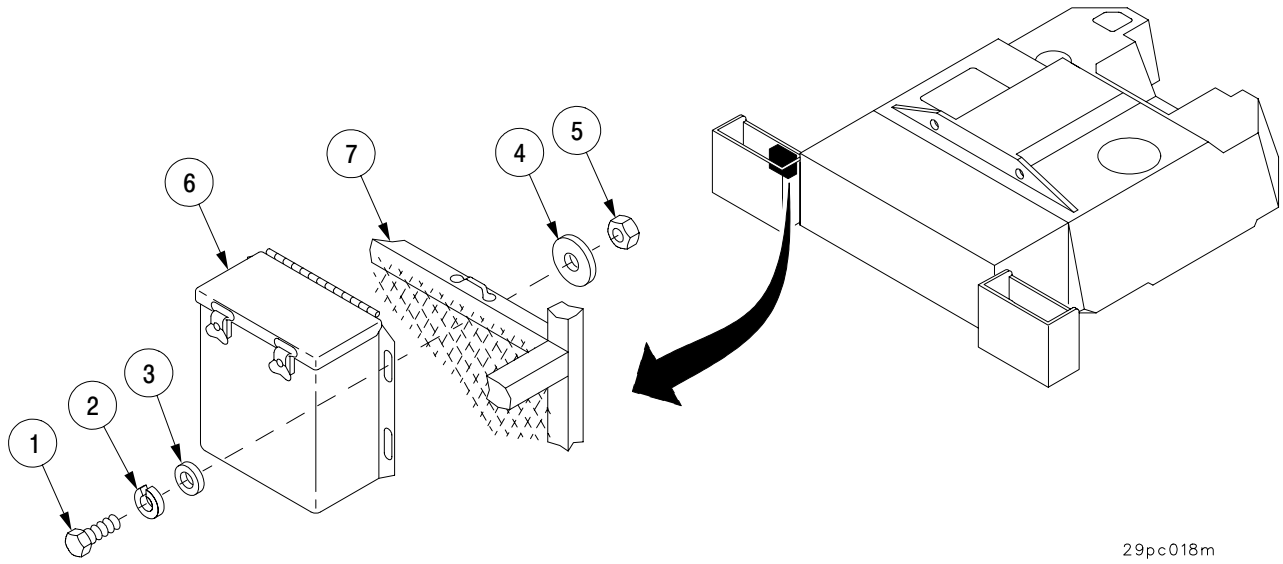
Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)

Equipment Conditions
Hand pump removed
(TM 9–2350–314–10)

Materials/Parts
Lockwashers (4) (item 132, Appx F)
Gasket (item 203, Appx F)
Rivets (2) (item 60, Appx F)
Dry–cleaning solvent (item 75, Appx C)
Adhesive (item 7, Appx C)

a. Removal.

Remove four screws (1), four lockwashers (2), four flat washers (3), four flat washers (4), four nuts (5), and box (6) from basket (7). Discard lockwashers.



27–7 HAND PUMP BOX ASSEMBLY – CONTINUED

b. Disassembly.

NOTE

It is not necessary to remove hand pump box to remove gasket.

1 Remove and discard gasket (8).

WARNING

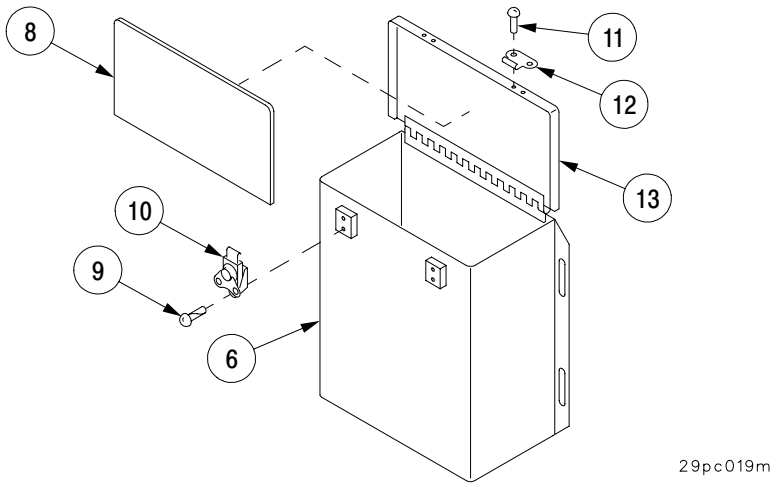
Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well– ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (ref. FM 21–11).

2 With a wiping rag and dry–cleaning solvent, thoroughly clean area where gasket (8) was removed.

3 With a dry, clean, wiping rag, make sure all solvent residue is removed.

4 Remove two screws (9) and fastener (10) from box (6).

5 Remove two rivets (11) and strike (12) from lid (13). Discard rivets.



27–7 HAND PUMP BOX ASSEMBLY – CONTINUED

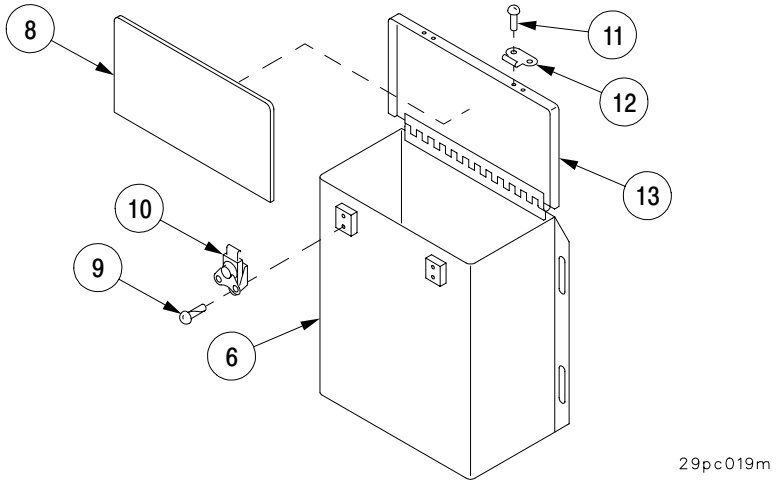
c. Assembly.

1 Install strike (12) on lid (13) and secure with two new rivets (11).

2 Install fastener (10) on box (6) and secure with two screws (9).

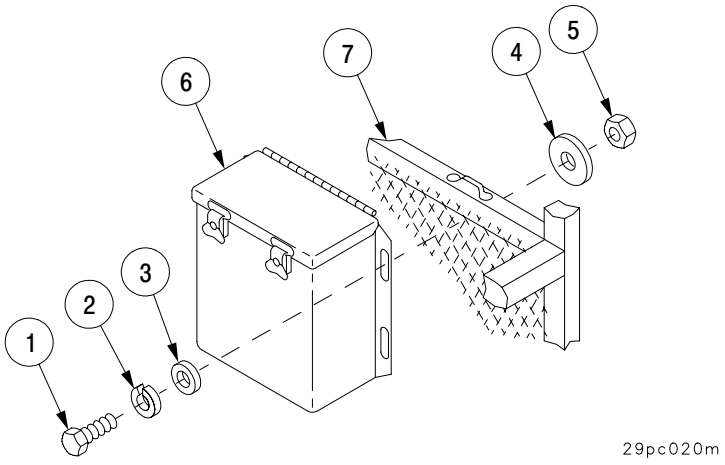
3 Apply adhesive to contact surface and gasket.

4 Install new gasket (8) on box lid (13).



d. Installation.

Install box (6) on basket (7) with four screws (1), four new lockwashers (2), four flat washers (3), four flat washers (4), and four nuts (5).



27–8 AT4 ROCKET LAUNCHER STOWAGE BOX.

This task covers: a. Removal b. Disassembly c. Assembly d. Installation

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)

Materials/Parts
Rivets (7) (item 232, Appx F)
Rivets (2) (item 233, Appx F)
Rivets (2) (item 234, Appx F)
Adhesive (item 6, Appx C)
Dry–cleaning solvent (item 75, Appx C)
Adhesive (item 13, Appx C)
Seals (2) (item 237, Appx F)
Seals (2) (item 238, Appx F)
Wipes, disposable (item 95, Appx C)

Materials/Parts – Continued
Padding (item 239, Appx F)
Padding (item 240, Appx F)
Padding (item 230, Appx F)
Padding (item 217, Appx F)

Equipment Conditions
Basket in the open position (TM 9–2350–314–10)

Personnel Required
Two

a. Removal.

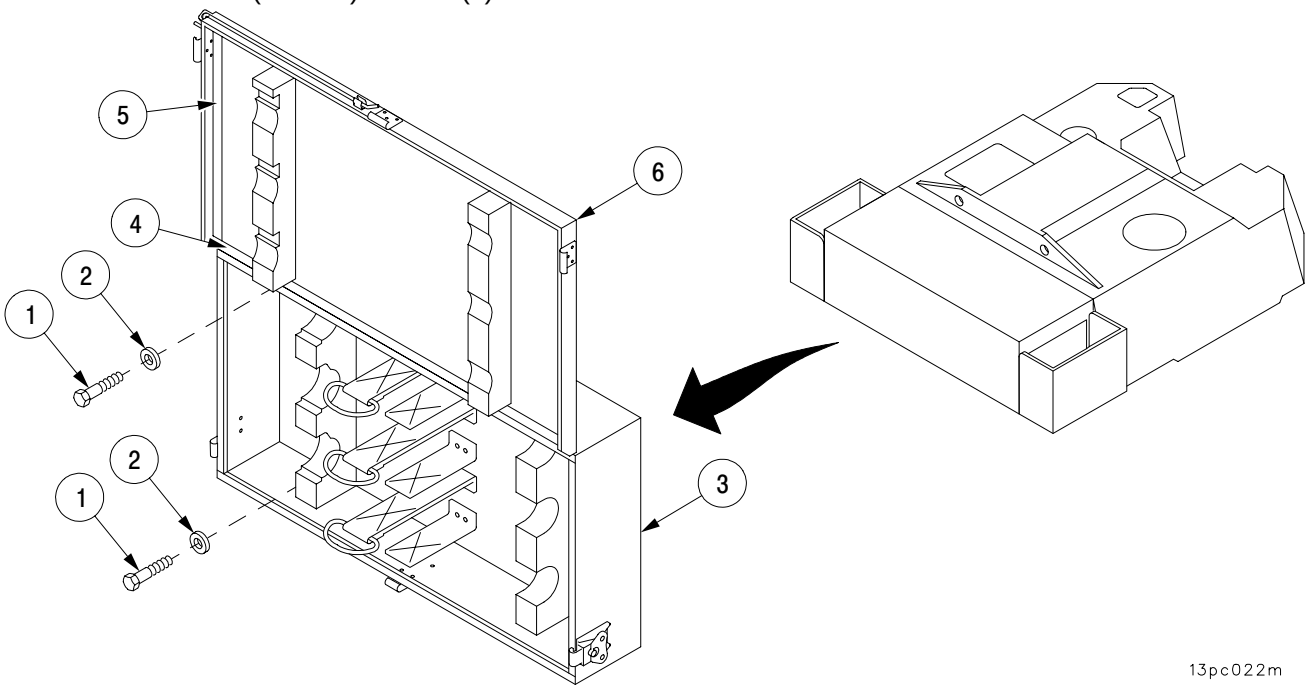
Using assistance, remove six screws (1), six flat washers (2), and stowage box (3).

b. Disassembly.

NOTE

The stowage box lid has four seals top, bottom, and sides. The procedures are the same for all seals.

1 Remove seals (4 and 5) from lid (6). Discard seals.



27–8 AT4 ROCKET LAUNCHER STOWAGE BOX – CONTINUED

b. Disassembly – Continued

NOTE

The padding for rocket launchers are located in the box and on the lid. The procedures are the same for all padding.

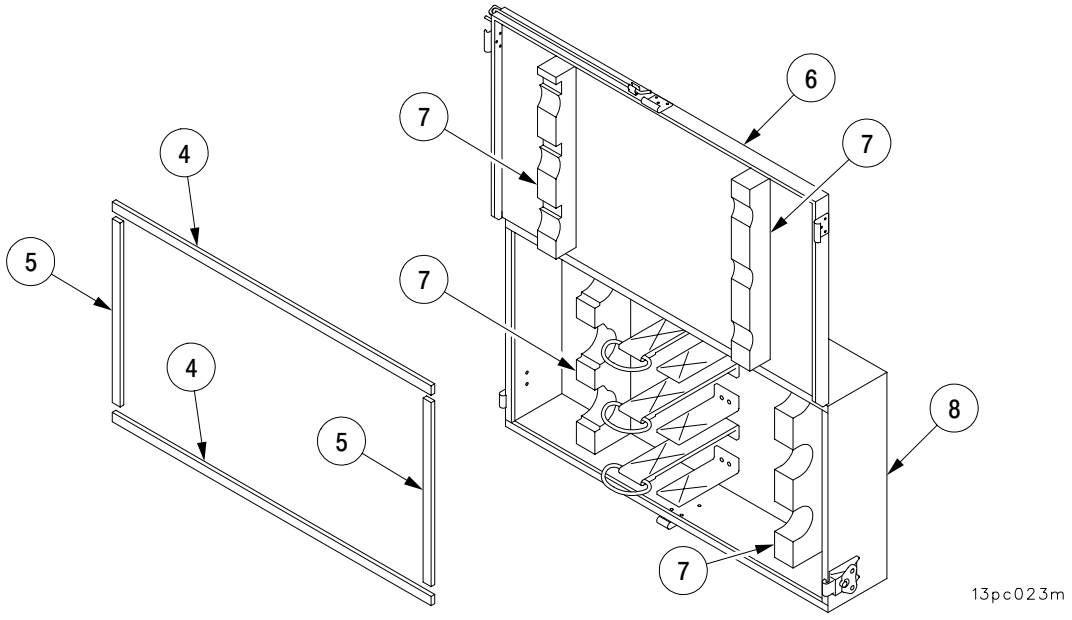
2 Remove padding (7) from lid (6) or box (8). Discard padding.

WARNING

Dry–cleaning solvent (P–D–680), used to clean parts, is toxic and flammable. Wear protective goggles and gloves and use only in a well– ventilated area. Avoid contact with skin, eyes, and clothes. Do not breathe vapors. Do not use near open flame or excessive heat. Do not smoke when using solvent. Failure to do so could cause SERIOUS INJURY. If you become dizzy while using dry–cleaning solvent, get fresh air immediately, and if necessary, get medical attention. If contact with skin or clothes is made, flush thoroughly with water. If the solvent contacts your eyes, wash them with water immediately and obtain medical aid (ref. FM 21–11).

3 With a wiping rag and dry–cleaning solvent, thoroughly clean area where seals (4 and 5) and padding (7) was removed.

4 With a dry, clean wiping rag, make sure all solvent residue is removed.



27–8 AT4 ROCKET LAUNCHER STOWAGE BOX – CONTINUED

b. Disassembly – Continued

NOTE

The rocket launchers are secured inside the box with three strap assemblies. The procedure for one side is given. The procedures are the same for all straps.

5 Remove two rivets (9) and strap (10). Discard rivets.

6 Remove lid support rod (11) from rod clip (12) and lid (6).

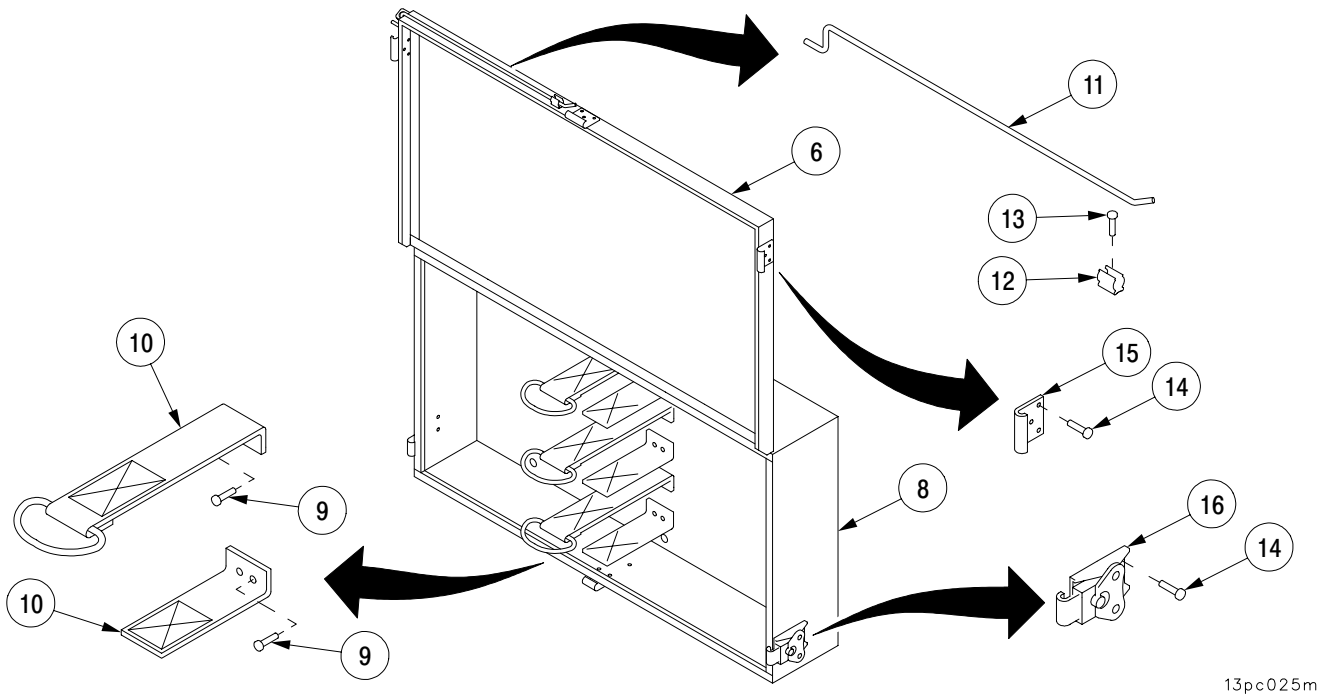
7 Remove two rivets (13) and rod clip (12) from lid (6). Discard rivets.

NOTE

The stowage box lid has three latches. The procedures are the same for all latches.

8 Remove three rivets (14) and keeper (15) from lid. Discard rivets.

9 Remove four rivets (14) and latch (16) from box (8). Discard rivets.



27–8 AT4 ROCKET LAUNCHER STOWAGE BOX – CONTINUED

c. Assembly.

NOTE

The stowage box has three latches. The procedures are the same for all latches.

1 Install latch (16) on box (8) with four new rivets (14).

2 Install keeper (15) on lid with three new rivets (14).

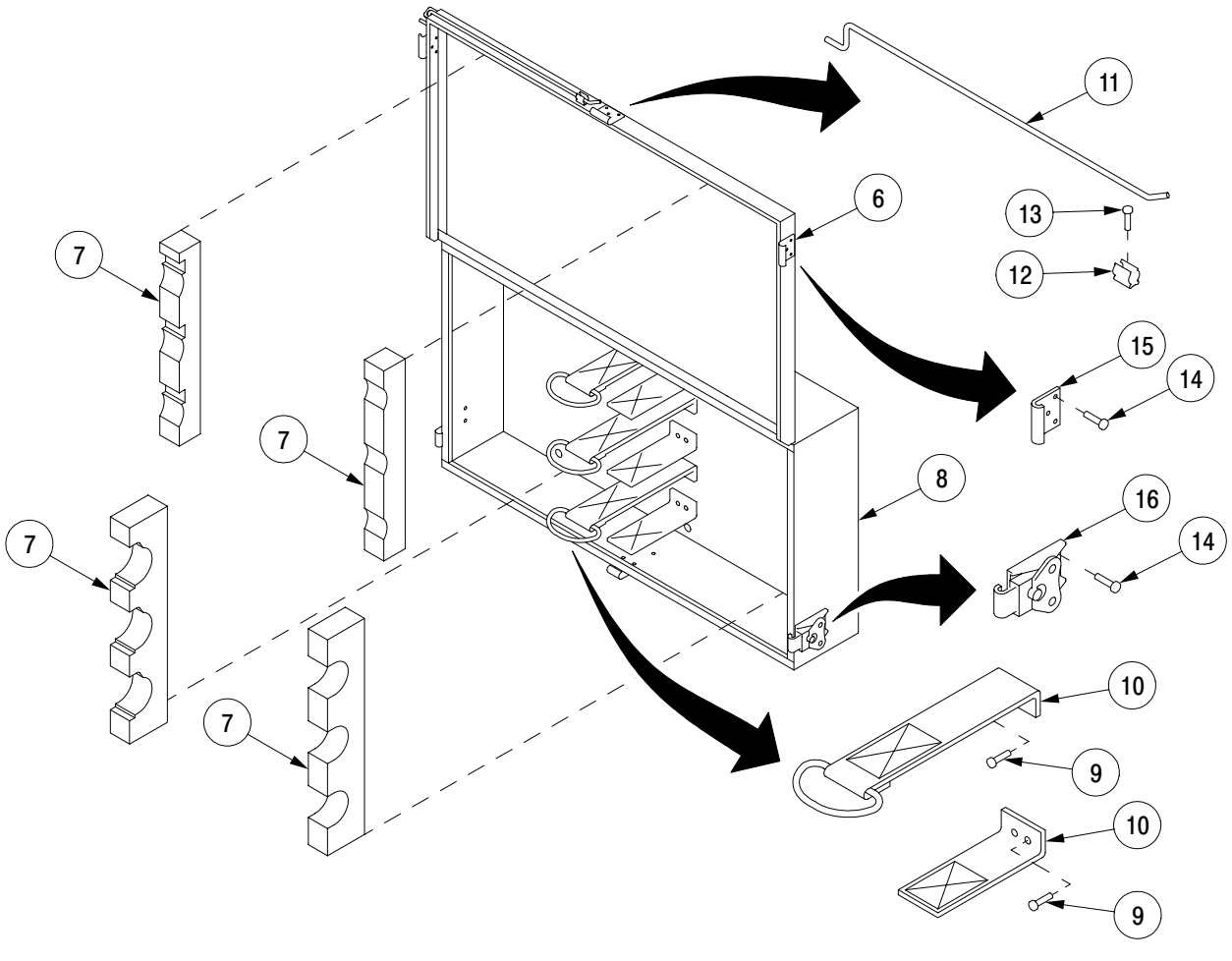
3 Install rod clip (12) on lid (6) with two new rivets (13).

4 Install lid support rod (11) on lid (6) and rod clip (12).

5 Install strap (10) with two new rivets (9).

6 Apply adhesive (item 12, Appx C) to contact surface and new padding (7).

7 Install new padding (7) on box (8) or lid (6).



27–8 AT4 ROCKET LAUNCHER STOWAGE BOX – CONTINUED

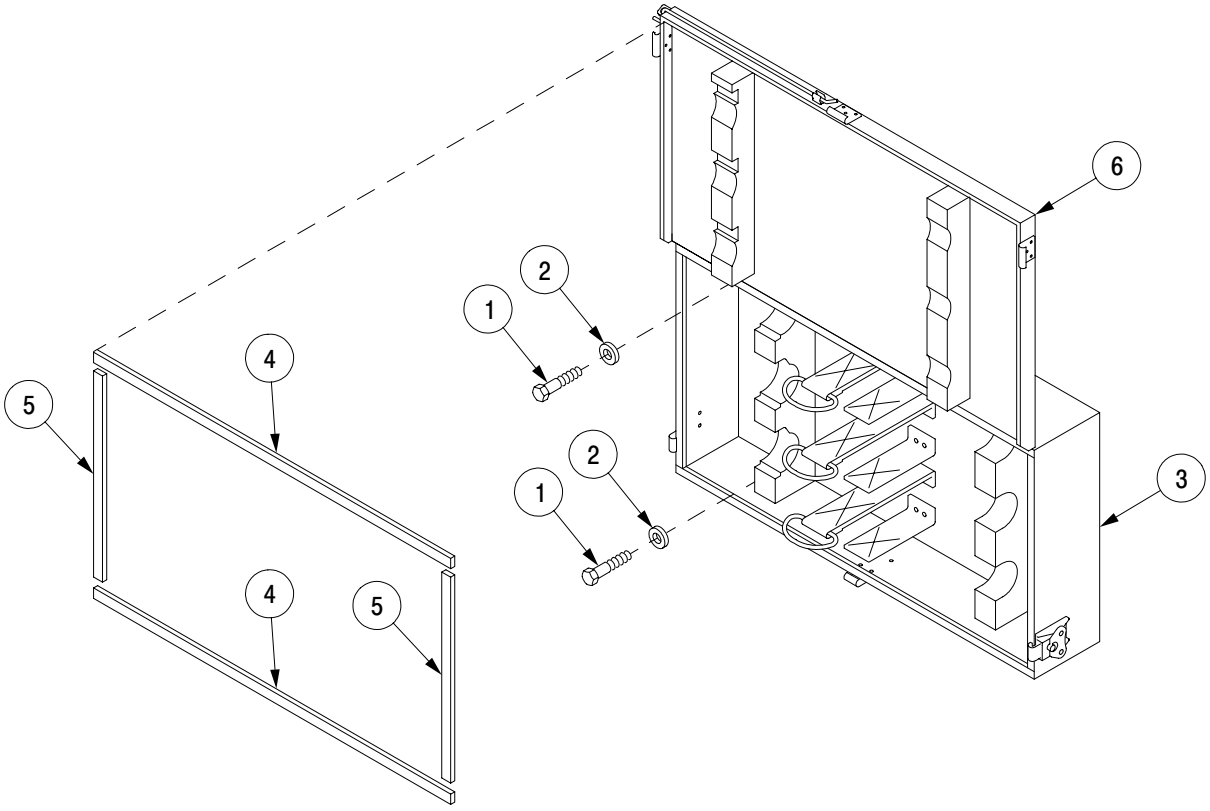
c. Assembly – Continued

8 Apply adhesive (item 6, Appx C) to contact surface and new seals (4 and 5).

9 Install new seals (4 and 5) on lid (6).

d. Installation.

Using assistance, position stowage box (3) and secure with six flat washers (2) and six screws (1).



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CHAPTER 28
PURGING AND CHARGING

GENERAL

This chapter provides procedures for purging, charging, and servicing with high pressure nitrogen the components in the cab.

CONTENTS

28–1 DISPLAY UNIT (DU).

This task covers: Purging and Charging

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Fire control purging and charging kit (item 22, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)

Purging and Charging.

NOTE

Purging procedures may be performed with box assembly installed or removed.

1 Remove valve cap (1) from valve stem (2) and self–sealing screw (3) from outlet port (4).

2 Attach free end of hose assembly (5) to valve stem (2).

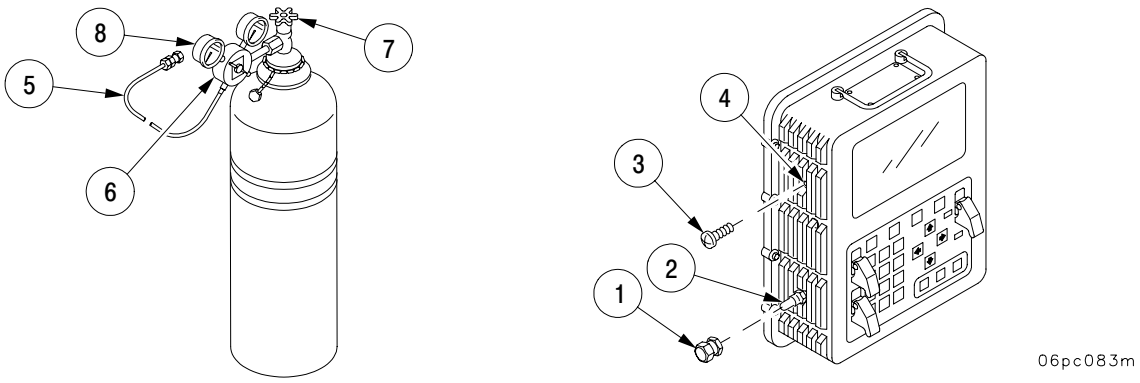
3 Make sure pressure regulator valve (6) is closed (fully counterclockwise). Open valve (7) slowly and purge assembly by turning pressure regulator valve (6) clockwise until low pressure gage (8) indicates 8 to 10 psi. Maintain pressure for a minimum of 5 minutes.

4 Slowly turn pressure regulator valve (6) counterclockwise until low pressure gage (8) indicates 1 to 4 psi.

5 Install self–sealing screw (3) in outlet port (4). Torque self–sealing screw to 20 ± 4 in.–lbs (2.26 ± 0.45 N·m).

6 Turn pressure regulator valve (6) counterclockwise to off.

7 Remove hose assembly (5) and install inlet port cap (1). Close valve (7).



28–2 POWER CONDITIONING UNIT (PCU).

This task covers: Purging and Charging

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Fire control purging and charging kit (item 22, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)

NOTE

Purging procedures may be performed with box assembly installed or removed.

Purging and Charging

1 Remove valve cap (1) from valve stem (2) and self–sealing screw (3) from outlet port (4).

2 Attach free end of hose assembly (5) to valve stem (2).

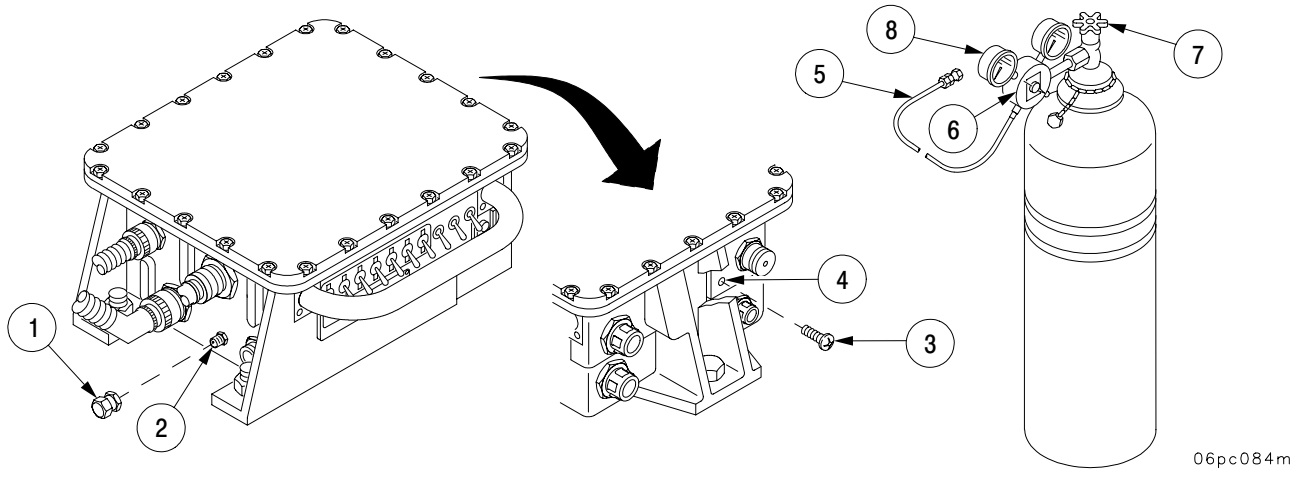
3 Make sure pressure regulator valve (6) is closed (fully counterclockwise). Open valve (7) slowly and purge assembly by turning pressure regulator valve (6) clockwise until low pressure gage (8) indicates 8 to 10 psi. Maintain pressure for a minimum of 5 minutes.

4 Slowly turn pressure regulator valve (6) counterclockwise until low pressure gage (8) indicates 1 to 4 psi.

5 Install self–sealing screw (3) in outlet port (4). Torque self–sealing screw to 4.5 ± 0.5 in.–lbs (0.51 ± 0.06 N.m).

6 Turn pressure regulator valve (6) counterclockwise to off.

7 Remove hose assembly (5) and install inlet port cap (1). Close valve (7).



28–3 VEHICLE MOTION SENSOR (VMS) MODEM.

This task covers: Purging and Charging

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Fire control purging and charging kit (item 22, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)
Self–sealing screw (item 91, Appx F)

Purging and Charging.

NOTE

Purging and charging procedures may be performed with box assembly installed or removed.

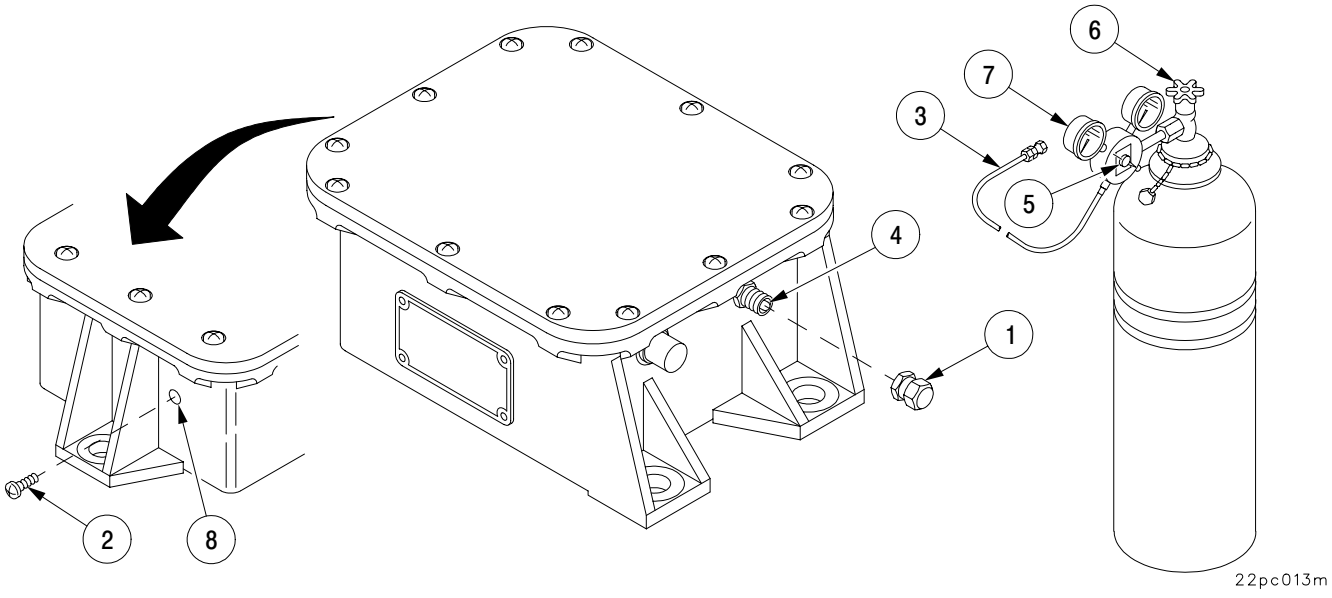
1 Remove valve cap (1) and self–sealing screw (2). Discard self–sealing screw.

2 Attach free end of hose assembly (3) to valve stem (4).

3 Make sure pressure regulator valve (5) is closed (fully counterclockwise). Open valve (6) slowly and purge assembly by turning pressure regulator valve (5) clockwise until low pressure gage (7) indicates 8 to 10 psi. Maintain pressure for a minimum of 5 minutes.

4 Install new self–sealing screw (2) into outlet port (8). Torque self–sealing screw to 20 ± 4 in.–lbs (2.26 ± 0.45 N.m).

5 Turn pressure regulator valve (5) counterclockwise to off.



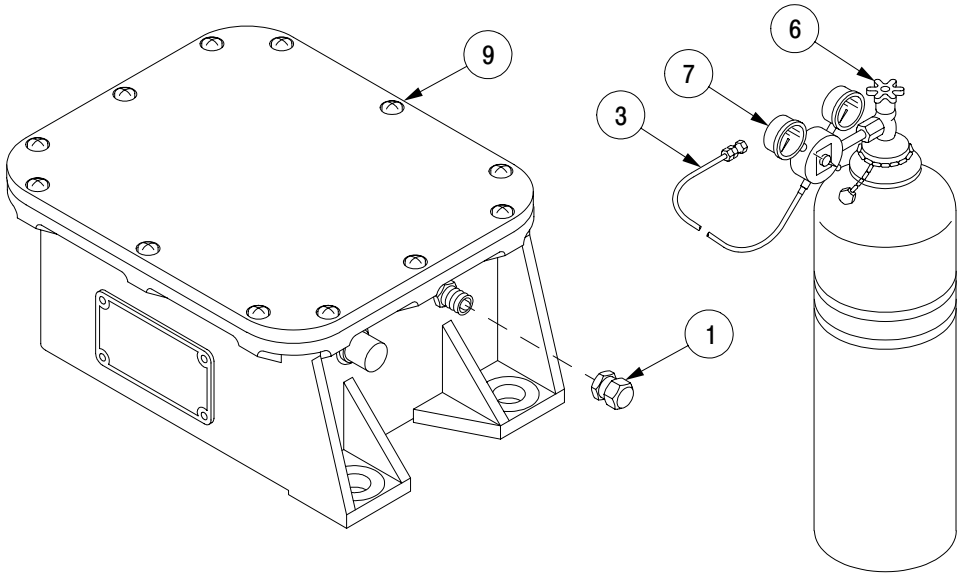
28–3 VEHICLE MOTION SENSOR (VMS) MODEM – CONTINUED

Purging and Charging – Continued

6 Step deleted.

7 Step deleted.

8 Remove hose assembly (3) and install valve cap (1). Close valve (6).



28–4 PANORAMIC TELESCOPE MOUNT M145A1.

This task covers: Purging and Charging

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Fire control purging and charging kit (item 22, Appx G)

Materials/Parts
Sealing compound (item 40, Appx C)
Nitrogen (item 58, Appx C)

Purging and Charging.

1 Remove inlet port cap (1) and outlet plug (2).

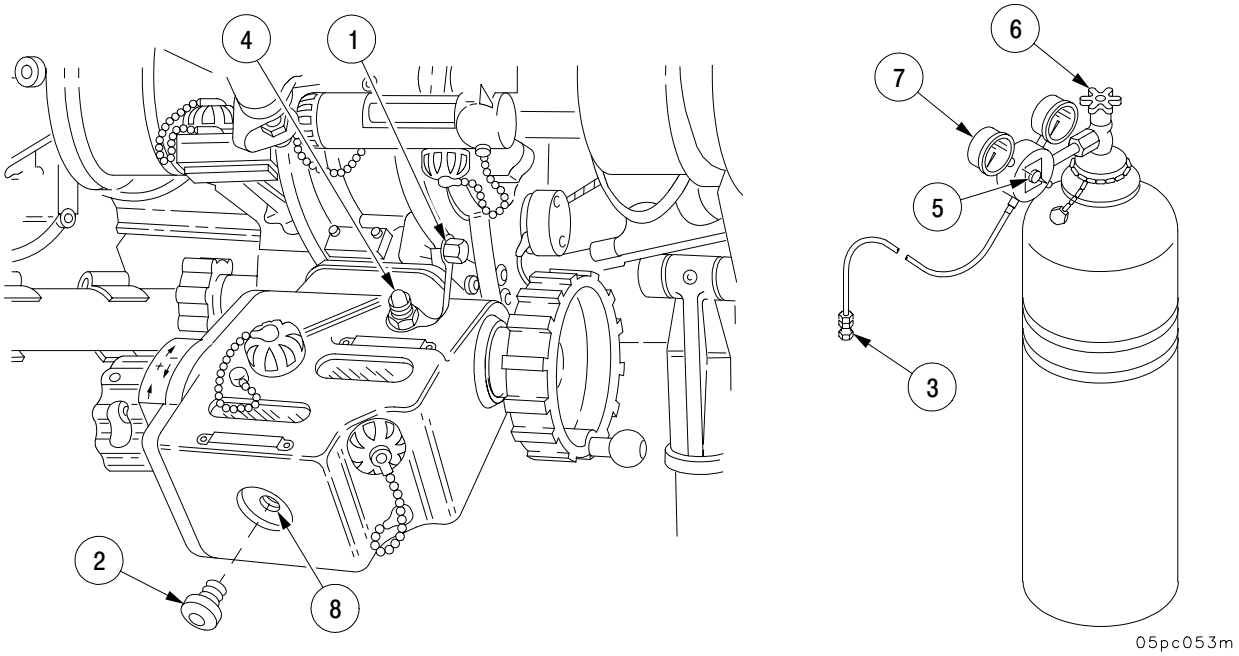
2 Attach free end of hose assembly (3) to inlet port (4).

3 Make sure pressure regulator valve (5) is closed (fully counterclockwise). Open valve (6). Then purge mount by slowly turning pressure regulator valve (5) clockwise until low pressure gage (7) indicates 5 psi. Maintain pressure for 5 minutes.

4 Turn pressure regulator valve (5) counterclockwise to off.

5 Apply sealing compound to threads of outlet plug (2) and install in outlet port (8).

6 Remove hose assembly (3) and install inlet port cap (1). Close valve (6).



28–5 RECUPERATOR ASSEMBLY.

This task covers: Servicing with High Pressure Nitrogen – Method One

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Nitrogen charging kit (item 23, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)

Equipment Conditions
Gun tube set at 0 mils elevation (TM 9–2350–314–10)
Recuperator serviced with hydraulic fluid (TM 9–2350–314–10)
Gun mount ballistic shield door opened (TM 9–2350–314–10)

Servicing with High Pressure Nitrogen.

WARNING

When charging recuperator assembly with dry nitrogen, cannon must be at 0–mils elevation and in battery to prevent serious injury to personnel.

WARNING

Dry nitrogen tanks are marked with one or two black bands at the top of the tank. Do not use tanks without black band. In charging recuperator, use dry nitrogen. Certain other gases will cause recuperator cylinder to explode, resulting in possible death or serious injury.

CAUTION

Open and close nitrogen cylinder shut off valve to clear valve seat of any dust or dirt. Repeat operation after installation of pressure regulator to clear hose.

28–5 RECUPERATOR ASSEMBLY – CONTINUED

Servicing with High Pressure Nitrogen – Continued

NOTE

Recuperator must be serviced with hydraulic fluid before it is charged with dry nitrogen.

1 Attach nitrogen charging kit (1) to nitrogen cylinder (2) as shown.

2 Remove nitrogen valve cap (3). Attach valve (4) of nitrogen charging kit (1) to nitrogen valve (5) but do not tighten valve (4).

3 Close valves (6 and 7) of nitrogen charging kit (1).

4 Open nitrogen cylinder (2) shutoff valve (8).

5 Open pressure regulator valve (9) slowly until 3000 psi gage (10) shows 15–20 psi (103–139 kPa), then close pressure regulator valve (9).

6 Open valve (6) on nitrogen charging kit (1). Tighten valve (4) just before gage (10) registers 0 psi (0 kPa).

NOTE

Gage must be at least a 1000 psi gage.

7 Open nitrogen valve (5) and observe pressure on gage (11). Pressure should read 700 $\pm$ 50 psi (4826 $\pm$ 345 kPa) at 70° F (21° C).

8 Open nitrogen cylinder (2) shutoff valve (8). Observe nitrogen cylinder (2) pressure gage (12). Pressure should be at least 1400 $\pm$ 50 psi (9653 $\pm$ 345 kPa).

9 Open pressure regulator valve (9) until gage (10) registers 700 $\pm$ 50 psi (4826 $\pm$ 345 kPa) at 70° F (21° C).

10 Loosen nut on nitrogen valve (5) about 1 turn (2–1/4 turns provide maximum opening).

CAUTION

Charging the system too fast will heat the dry nitrogen. This will give an inaccurate reading because the pressure will decrease when the nitrogen cools, possibly causing equipment to malfunction.

28–5 RECUPERATOR ASSEMBLY – CONTINUED

Servicing with High Pressure Nitrogen – Continued

NOTE

Estimated time to charge system is 30 minutes.
System should be charged at ambient temperature of weapon use.

11 Tighten nut on nitrogen valve (5) when sound of nitrogen flow has stopped.

12 Close nitrogen cylinder (2) shutoff valve (8).

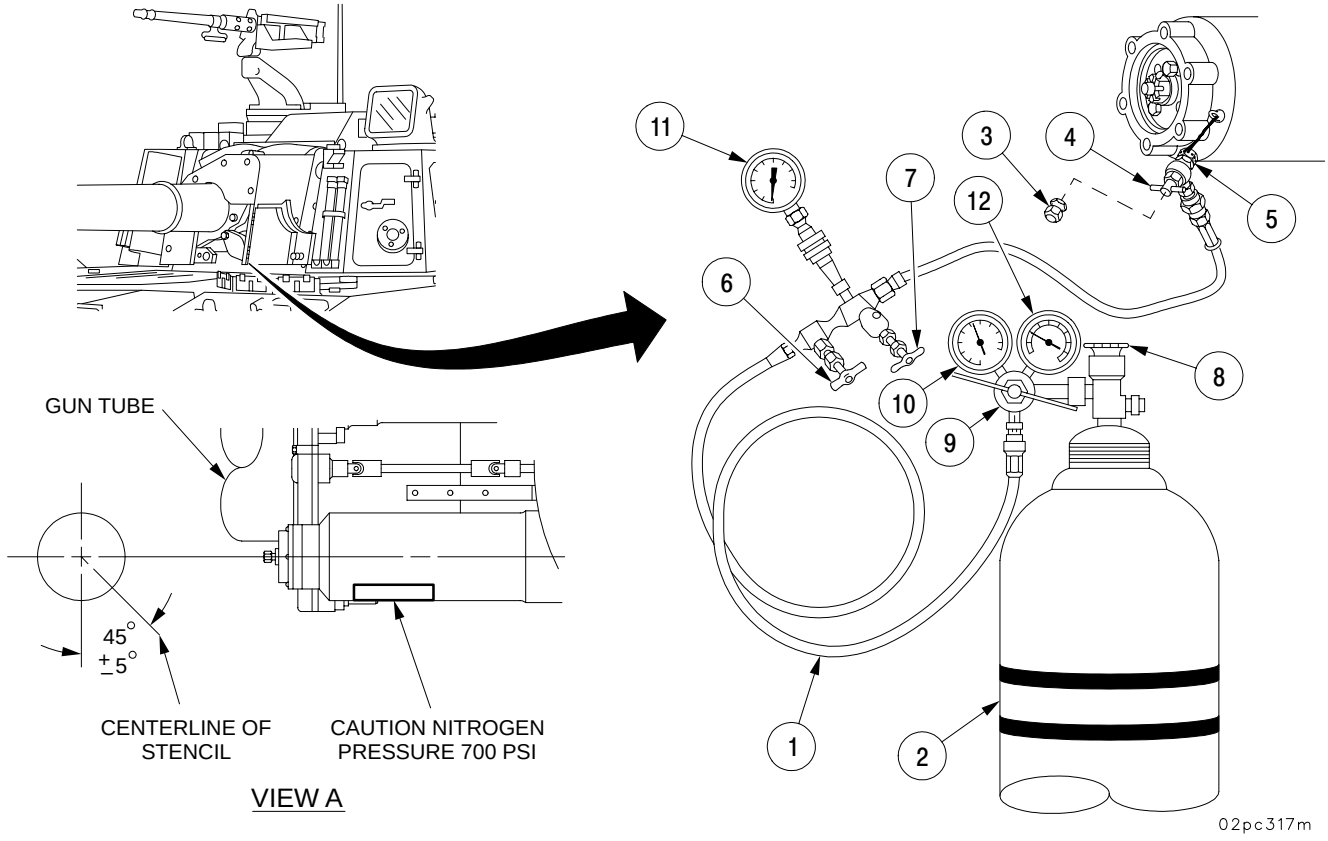
13 Open valve (7) on nitrogen charging kit (1). Slowly relieve pressure in nitrogen charging kit (1). Remove valve (4) from nitrogen valve (5).

14 Install nitrogen valve cap (3) on nitrogen valve (5).

15 Close pressure regulator valve (9).

16 Remove nitrogen charging kit (1) from nitrogen cylinder (2).

17 Restencil recuperator as shown in View A if illegible.



28–6 REPLENISHER ACCUMULATOR ASSEMBLY.

This task covers: Servicing with High Pressure Nitrogen

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Fire control purging and charging kit (item 22, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)

Equipment Conditions
Replenisher accumulator cover removed (para 4–1)

Servicing with High Pressure Nitrogen.

CAUTION

Never exceed the pressures indicated in the following procedures, to prevent damage to equipment.

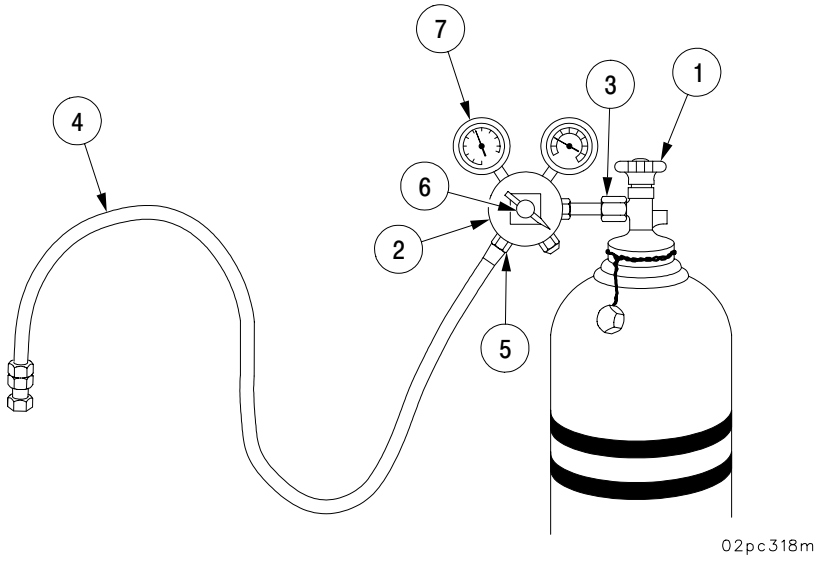
1 Open valve (1) slightly to clear away any foreign matter; then close.

2 Attach regulator (2) securely with adapter (3).

3 Attach hose assembly (4) to low pressure port (5).

4 Shut off regulator valve (6) by rotating counterclockwise.

5 Open valve (1) slowly. Adjust until maximum tank pressure registers on high pressure gage (7).



28–6 REPLENISHER ACCUMULATOR ASSEMBLY – CONTINUED

Servicing with High Pressure Nitrogen – Continued

NOTE

If pressure indicated is less than 100 psi (690 kPa), replace tank.

6 Rotate regulator valve (6) slowly clockwise. Rotate until approximately 5 psi (34 kPa) registers on low pressure gage (8).

7 Close valve (1). Allow nitrogen to bleed from regulators and hose assembly (4).

8 Close regulator valve (6) by turning counterclockwise.

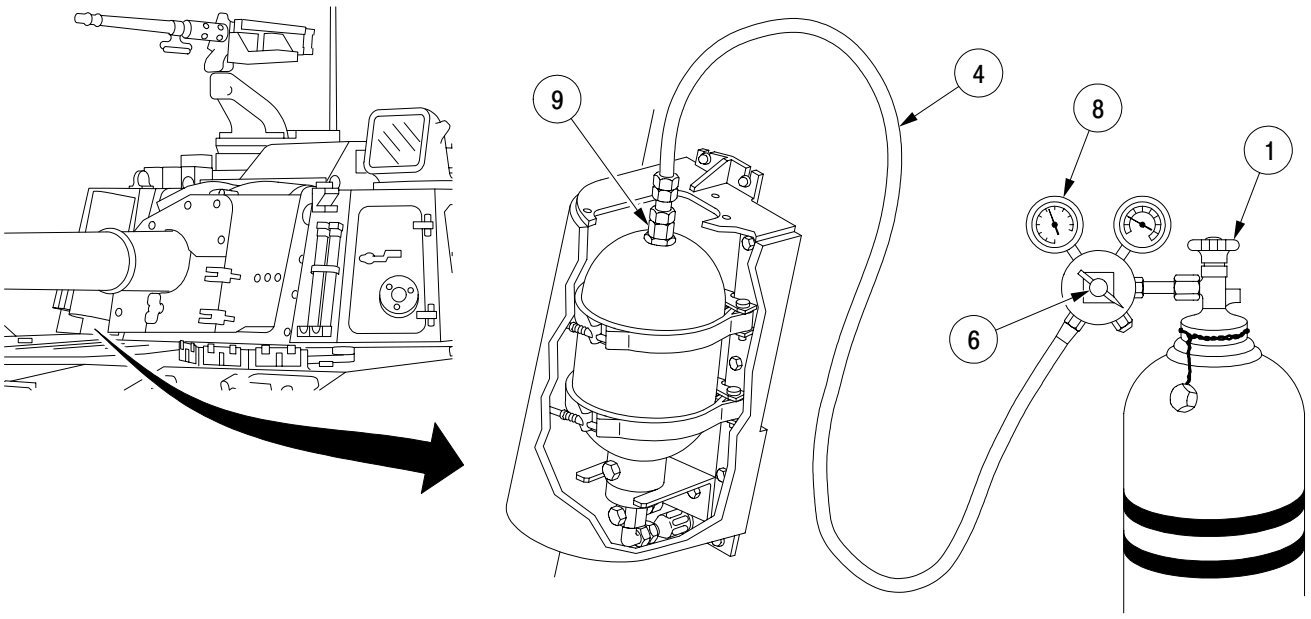
9 To charge REPLENISHER ACCUMULATOR, connect hose assembly (4) to filling valve (9), but do not tighten at this time.

10 Open valve (1) and regulator valve (6) slowly to purge hose assembly (4).

11 Close regulator valve (6) and tighten connection on filling valve (9) by rotating slowly clockwise.

12 Rotate regulator valve (6) until 7 to 8 psi (45–55 kPa) registers on low pressure gage (8).

13 Close regulator valve (6) and disconnect hose (4) at filling valve (9).



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28–7 EQUILIBRATOR ACCUMULATOR.

This task covers: Service

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Nitrogen charging kit (item 23, Appx G)

Equipment Conditions
Equilibrator system pressure discharged (para 18–32)
Hydraulic compartment exterior access panel removed (para 24–3)

Materials/Parts
Nitrogen (item 58, Appx C)

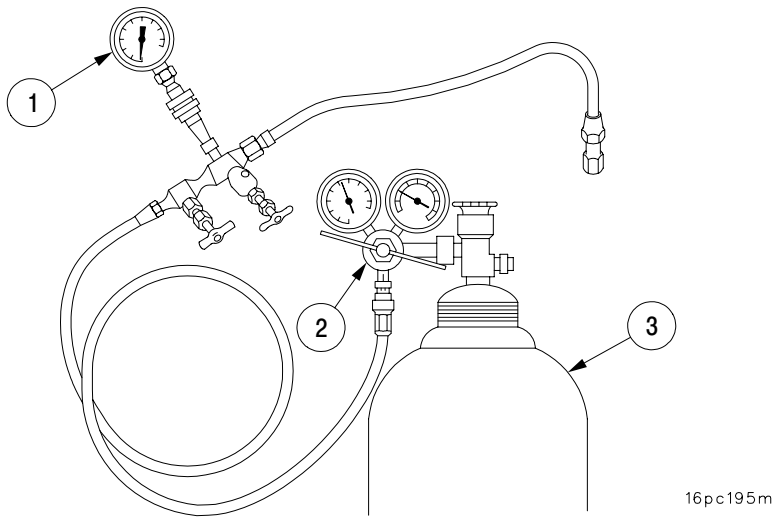
Service.

1 Remove low pressure gage (1) from accumulator charging regulator (2).

WARNING

The equilibrator accumulator is charged to 1200 psi. Use caution when relieving pressure. Wear gloves and industrial glasses to prevent personal injury.

2 Attach and tighten accumulator charging regulator (2) to nitrogen charging cylinder (3) as shown.



28–7 EQUILIBRATOR ACCUMULATOR – CONTINUED

Service – Continued

3 Remove pneumatic valve cap (4) from valve body (5) located on manifold (6) for charging accumulator (7). Manifold (6) can be reached by opening hydraulic compartment access door.

NOTE

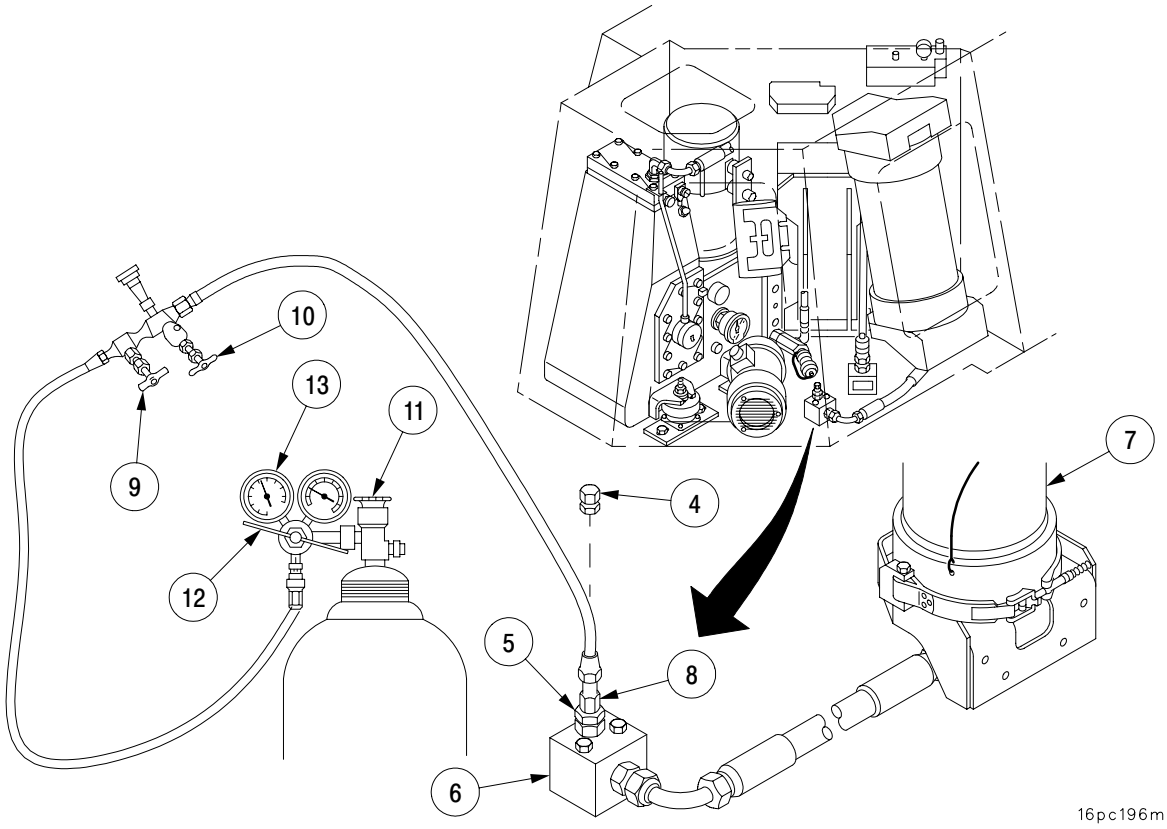
Be sure ports in bottom cylinder cap are not blocked or plugged.

4 Attach charging device valve (8) to valve (5), but do not tighten.

5 Open valve (9) and close valve (10). Open shutoff valve (11).

6 Open pressure regulator valve (12) until gage (13) registers 16 to 20 psi (103–137 kPa), then close pressure regulator valve (12).

7 Tighten charging device valve (8) just before gage (13) registers 0 psi (0 kPa).



28–7 EQUILIBRATOR ACCUMULATOR – CONTINUED

Service – Continued

8 Open valve (5) counterclockwise.

9 Open pressure regulator valve (12) by turning handle clockwise until gage (13) registers 1200 ± 50 psi (8274 ± 345 kPa).

10 Close pressure regulator valve (12) when sound of nitrogen flowing into accumulator (7) has stopped.

11 Close valve (5) clockwise.

12 Slowly open valve (10) to release pressure in the charging device.

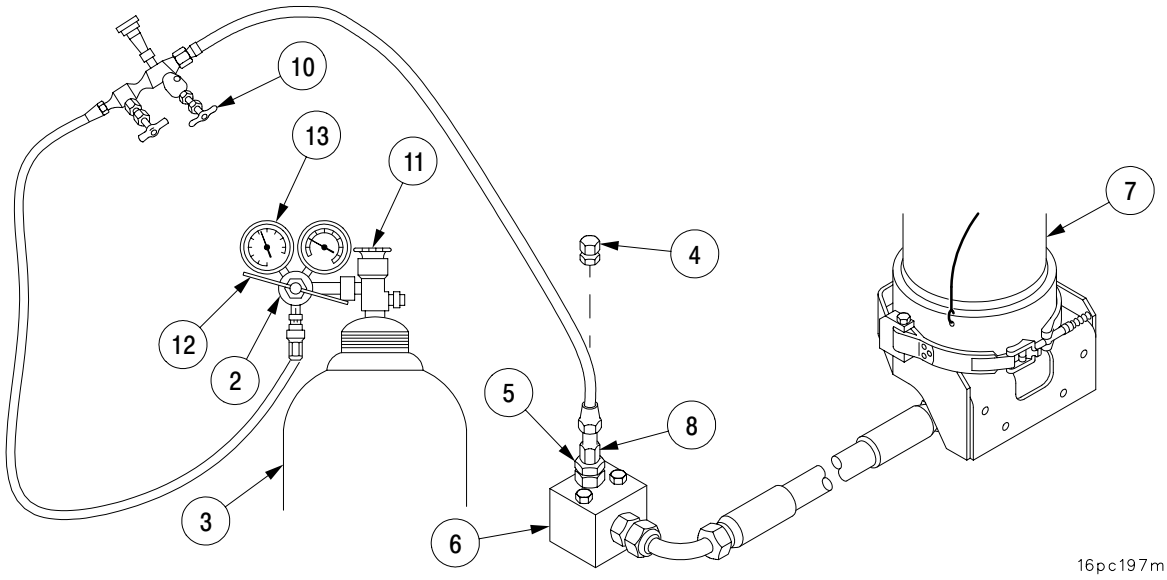
13 Remove charging device valve (8) from manifold (6).

14 Install pneumatic valve cap (4) on accumulator (7).

15 Close shutoff valve (11) by turning it clockwise.

16 Remove accumulator charging regulator (2) from nitrogen charging cylinder (3).

17 Charge and fill equilibrator hydraulic system (para 18–1).



28–8 ACCUMULATOR ASSEMBLY (MANUAL ELEVATION PUMP).

This task covers: Service

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Nitrogen charging kit (item 23, Appx G)

Equipment Conditions
Hydraulic system pressure discharged (para 18–1)

Materials/Parts
Nitrogen (item 58, Appx C)

Service.

WARNING

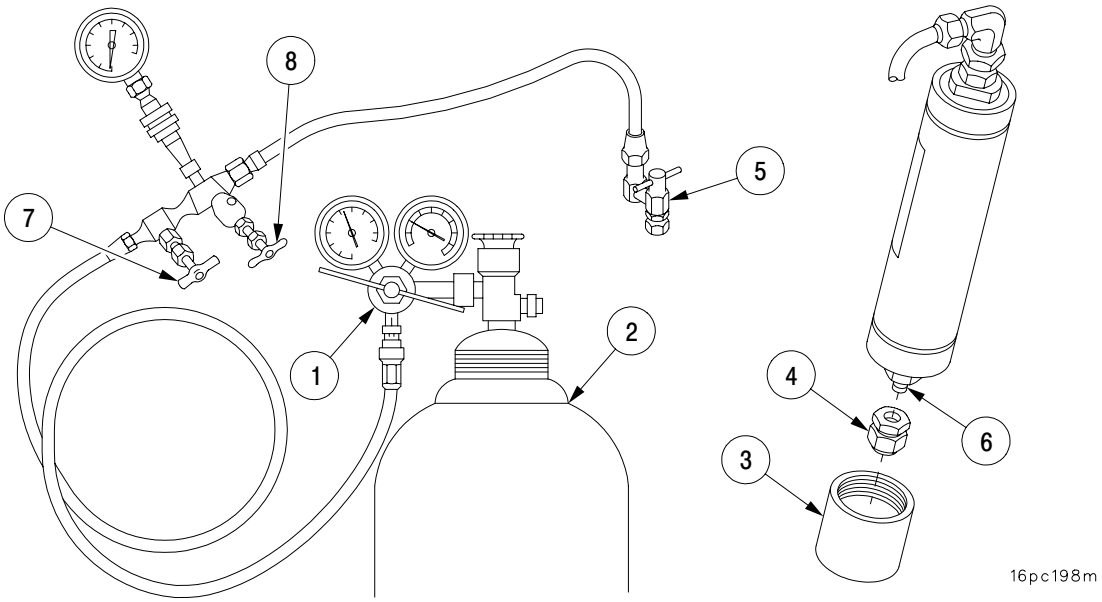
Make sure charging cylinder contains dry nitrogen. Dry nitrogen tanks are marked with one or two black bands. Certain other gases can cause accumulator to explode, resulting in possible personnel injury.

1 Attach charging regulator (1) to nitrogen cylinder (2) as shown and tighten.

2 Remove end cap (3) and pneumatic valve cap (4).

3 Attach valve (5) to air valve body (6), but do not tighten. Back out stem of valve (5) until stem no longer contacts air valve core.

4 Close valves (7 and 8) of charging device.



28–8 ACCUMULATOR ASSEMBLY (MANUAL ELEVATION PUMP) – CONTINUED

Service – Continued

5 Open nitrogen cylinder shutoff valve (9) and observe nitrogen cylinder pressure gage (10). Pressure must be greater then 200 psi (1379 kPa).

6 Open pressure regulator valve (11) until gage (12) reaches 15–20 psi (103–137 kPa), then close pressure regulator valve (11).

7 Open valve (7) and tighten valve (5) just before gage (12) reaches 0 psi.

8 Open pressure regulator valve (11) until gage (12) reaches 75–90 psi (517–620 kPa).

9 Turn in stem of valve (5) clockwise until nitrogen begins to enter accumulator (13). Allow accumulator (13) to fill slowly.

10 Close pressure regulator valve (11) when sound of nitrogen flowing into accumulator (13) has stopped.

11 Back out stem of valve (5) all the way (counterclockwise).

12 Open valve (8) slowly to release pressure in charging device.

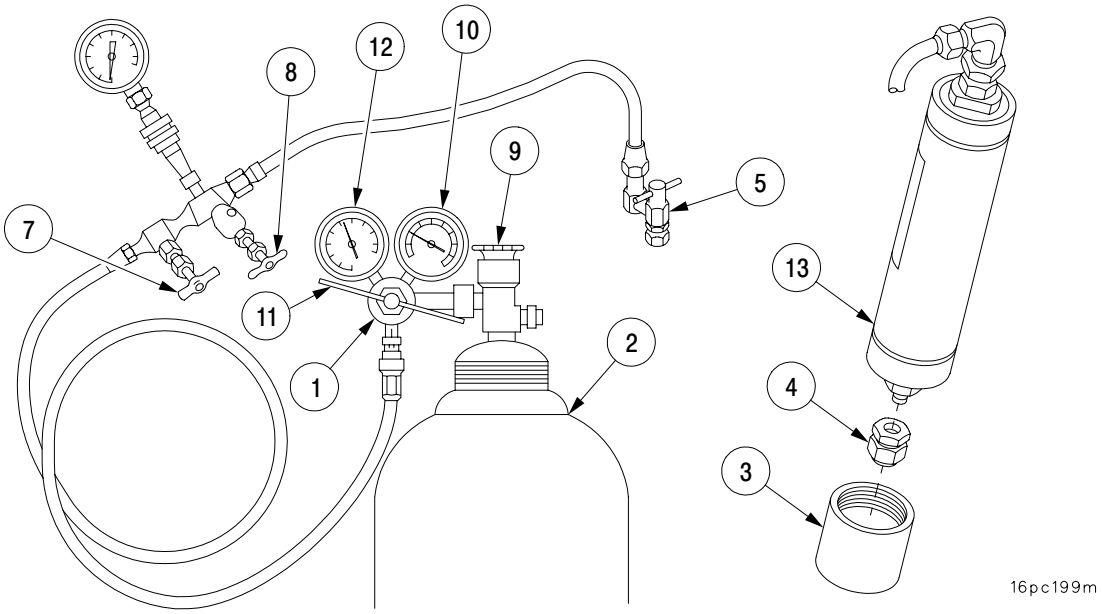
13 Remove valve (5) from accumulator (13).

14 Install pneumatic valve cap (4) and end cap (3).

15 Close nitrogen cylinder shutoff valve (9) by turning clockwise

16 Remove charging regulator (1) from nitrogen cylinder (2).

17 Refill, charge, and bleed hydraulic system (para 18–1).



28–9 PULSE ACCUMULATOR.

This task covers: Service

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Nitrogen charging kit (item 23, Appx G)

Materials/Parts
Nitrogen (item 58, Appx C)

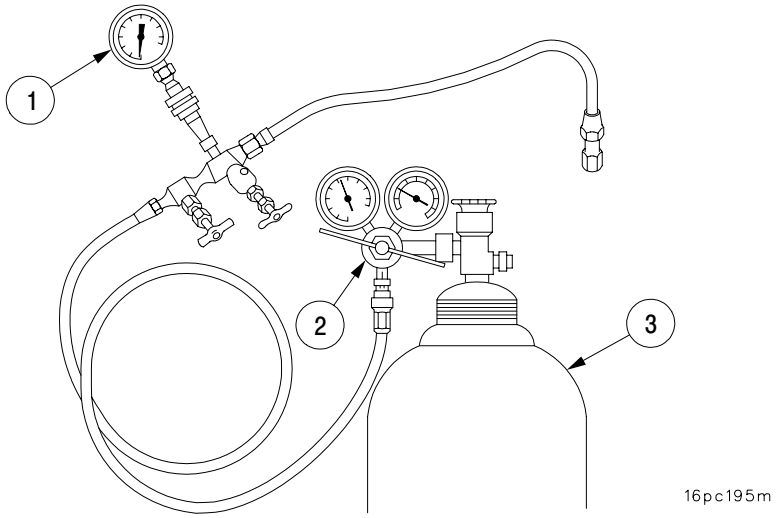
Service.

1 Remove low pressure gage (1) from accumulator charging regulator (2).

WARNING

The pulse accumulator is charged to 900 ± 50 psi. Use caution when relieving pressure. Wear gloves and industrial glasses to prevent personal injury.

2 Attach and tighten accumulator charging regulator (2) to nitrogen charging cylinder (3) as shown.



28–9 PULSE ACCUMULATOR – CONTINUED

Service – Continued

3 Remove two screws (4) and guard (5).

4 Remove cap (6) from charging valve body (7) at accumulator (8).

NOTE

Be sure ports in bottom cylinder cap are not blocked or plugged.

5 Attach charging device valve (9) to charging valve body (7), but do not tighten.

6 Open valve (10) and close valve (11). Open shutoff valve (12).

7 Open pressure regulator valve (13) until gage (14) registers 16 to 20 psi (103–137 kPa), then close pressure regulator valve (13).

8 Tighten charging device valve (9) just before gage (14) registers 0 psi.

9 Open charging valve body (7) by turning counterclockwise.

10 Open pressure regulator valve (13) by turning handle clockwise until gage (14) registers 850 to 950 psi.

11 Close pressure regulator valve (13) when sound of nitrogen flowing into accumulator (8) has stopped.

12 Close charging valve body (7) by turning clockwise.

13 Slowly open valve (11) to release pressure in the charging device.

14 Remove charging device valve (9) from accumulator (8).

15 Install cap (6) on accumulator (8).

16 Install guard (5) with two screws (4) to protect valve assembly (15).

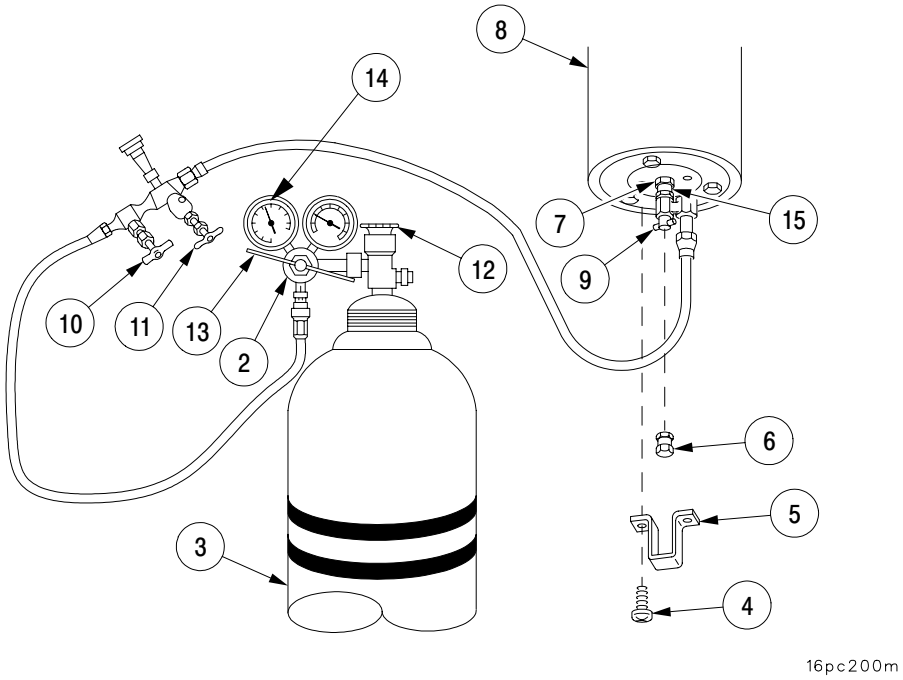
17 Close shutoff valve (12) by turning it clockwise.

18 Remove accumulator charging regulator (2) from nitrogen charging cylinder (3).

19 Charge and fill hydraulic system (para 18–1).

28–9 PULSE ACCUMULATOR – CONTINUED

Service – Continued



CHAPTER 29
PREPARATION FOR STORAGE AND SHIPMENT

GENERAL

This chapter provides step–by step procedures for administrative storage, care of equipment in storage, preparation for shipment, loading vehicle for shipment, and blocking the vehicle.

CONTENTS

29–1 ADMINISTRATIVE STORAGE.

a. Placement of equipment in administrative storage can be for short periods of time when:

(1) an organization lacks operating funds, personnel, and other resources, or normal usage of its organic equipment is not adequate to sustain materiel readiness.

(2) materiel exceeding the owning organization's capability for operation or maintenance must be retained by that organization for contingency or other cogent reasons.

b. Installation or organization commanders may authorize the administrative storage of their materiel within guidance furnished by MACOM commanders and AR 750–1. Howitzers should be ready for use within time factors determined by the directing authority.

c. Throughout storage, appropriate maintenance records will be kept.

29–1.1 Scope.

The requirements specified herein are necessary to maintain M109A6 self–propelled howitzers in administrative storage in maximum readiness condition.

29–1.2 General.

a. Except as indicated in paragraphs 29–1.6 and 29–1.8, equipment placed in administrative storage should be capable of mission readiness within a 24–hour period or as otherwise prescribed by the approving authority. Before equipment is placed in administrative storage, current maintenance services, shortcomings and deficiencies should be corrected, and all modification work orders (MWOs) should be applied.

b. Report equipment in administrative storage in Materiel Readiness and Unit Readiness reports as prescribed for all reportable equipment. Refer to AR 220–1.

c. Perform inspections, maintenance services, and lubrications in accordance with TM 9–2350–314 series manuals or applicable technical manuals.

d. Records and reports to be maintained for equipment in administrative storage are those prescribed by DA PAM 738–750, for equipment in use.

e. Ten percent variance is acceptable on time running hours, or mileage used to determine maintenance actions required.

29–1.3 Security.

Instructions contained herein do not modify security procedures and requirements for classified or pilferable items. Refer to AR 190–11, AR 190–13, and AR 190–51.

29–1.4 Storage Site.

a. Select the best available site for administrative storage. Separate stored equipment from equipment in use. Conspicuously mark the area "Administrative Storage."

b. Covered storage space is preferred. When insufficient covered space is available for all howitzers to be stored, select an open site.

c. Open sites should be improved hardstand, if available. Unimproved sites should be firm, well–drained, and kept free of excessive vegetation.

29–1 ADMINISTRATIVE STORAGE – CONTINUED

29–1.5 Storage Plan.

a. Store equipment to provide maximum protection from the elements and to provide access for inspection, maintenance, and exercising. Anticipate removal or deployment problems and take suitable precautions.

b. Take into account environmental conditions, such as extreme heat or cold; high humidity; blowing sand, dust or loose debris; soft ground; mud; heavy snows; earthquakes; or combinations thereof and take adequate precautions.

c. Establish a fire plan and provide for adequate firefighting equipment and personnel.

29–1.6 Maintenance Services and Inspection.

Prior to storage, perform the next scheduled major preventive maintenance service (monthly, quarterly, or semiannually).

29–1.7 Auxiliary Equipment and Basic Issue Items.

Process auxiliary and basic issue items simultaneously with the howitzer to which they are assigned. If possible, store auxiliary and basic issue items with the howitzer. If stored apart from the howitzer, mark auxiliary and basic issue items with tags indicating the howitzer, its registration or serial number and location, and store in protective type closures. In addition, place a tag or list indicating the location of the removed items in a conspicuous place on the howitzer.

29–1.8 Corrections of Shortcomings and Deficiencies.

Correct all shortcomings and deficiencies prior to storage, or obtain a deferment from the approving authority.

29–1.9 Lubrication.

Lubricate equipment in accordance with the applicable technical manual. Retract hydraulic systems linkage and coat exposed portion of shafts with grease.

29–1.10 General Cleaning, Painting, and Preservation.

a. Clean the equipment of dirt, grease, and other contaminants in accordance with this manual.

CAUTION

Do not direct water or steam under pressure against air cleaners, air duct outlets, exhaust outlets, unsealed electrical systems, fire control instruments, upholstery, or any exterior opening, or component damage may occur.

b. Removal of rust and damaged paint by scraping, wire brushing, sanding, or buffing is not authorized on cannon, fire control, or other armament components.

c. After cleaning and drying, immediately coat unpainted metal surfaces with an oil or grease, as appropriate.

d. Sunlight, heat, moisture (humidity), and dirt tend to accelerate deterioration. Install all covers (including vehicle protection closures) authorized for the equipment. Close and secure all openings except those required for venting and draining. Seal openings to prevent the entry of rain, snow, or dust. Insert desiccant when complete seal is required. Place equipment and provide blocking or framing to allow for ventilation and water drainage. Support cover away from howitzer surfaces which may rust, rot, or mildew.

29–1 ADMINISTRATIVE STORAGE – CONTINUED

CAUTION

Place a piece of barrier materiel between desiccant bags and metal surfaces.

NOTE

Air circulation under draped covers reduces deterioration from moisture and heat.

29–1.11 Preparation of Cannon and Fire Control Instruments.

a. Cannon.

(1) Thoroughly clean, dry, and coat the inside of cannon tube with preservative oil and insert a strip of Volatile Corrosion Inhibitor (VCI) paper the full length of the tube. Seal breech and muzzle to sustain VCI benefits.

(2) Remove, thoroughly clean, and dry bore evacuator chambers. Apply preservative oil to all machined surfaces on the evacuator and the gun tube. Replace the evacuator on the gun tube. Do not wrap or tape the evacuators.

(3) Remove, clean, and dry the muzzle brake. Coat the muzzle brake lock, key, hardware, and unpainted surfaces of the muzzle brake with grease, automotive and artillery (GAA). Reassemble and wrap muzzle brake with pressure–sensitive tape.

(4) Wrap the end of the cannon tubes with barrier material and seal with tape.

(5) Thoroughly clean and dry the breech, breech ring, and breechblock before coating with grease, automotive and artillery (GAA). Set the breechblock in the closed position.

(6) Breech mechanisms of cannons are afforded protection by the cab and need not be wrapped.

b. Fire Control Instruments.

(1) Thoroughly clean and dry fire control instruments and coat unpainted surfaces with grease, automotive and artillery (GAA).

(2) Wrap all optical glass with lens tissue and fasten with tape.

(3) Store all instruments on racks or in cases or protect with covers.

29–2 CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE.

29–2.1 Maintenance Services.

After equipment has been placed in administrative storage, suspend all regularly scheduled preventive maintenance services and inspect and exercise as specified herein. Do not reduce Prescribed Load List.

29–2 CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE – CONTINUED

29–2.2 Inspection.

a. Vehicle to be prepared for administrative storage must be given a limited technical inspection and processed as prescribed on DD Form 1397. The results of the inspection and classification will be entered on DA Form 2404.

b. If a vehicle is not shipped or issued upon expiration of the limited storage period, process as applicable in accordance with MIL–H–46709.

c. If a vehicle to be shipped will reach its destination within the limited storage period, it need not be reprocessed when removed from storage, unless necessary because of anticipated in–transit weather conditions.

d. Inspection will usually be visual and must consist of at least a walk–around examination of all equipment to observe any deficiencies that may have occurred. Inspect equipment in open storage weekly, and that in covered storage monthly. Immediately after any severe storm or environmental change, inspect all equipment. The following are examples of things to look for during visual inspection:

(1) Leaks: coolant, fuel, oil, or hydraulic fluid.

(2) Condition of preservatives, seals, and wraps. Seals may develop leaks during storage, during exercise, or shortly thereafter. If leaking continues, refer to the repair procedures in this manual or notify support maintenance.

(3) Corrosion or other deterioration.

(4) Missing or damaged parts.

(5) Water in compartments.

(6) Purge and charge fire control instruments as required (see TM 750–116 or this manual).

(7) Inspect cannon at the time recoil mechanisms and equilibrators are exercised. Record date of exercise on DA Form 2408–4.

(8) Any other readily recognizable shortcomings or deficiencies.

29–2.3 Receipt for Storage.

a. When received for storage and already processed for domestic shipment by the manufacturer as indicated on DD Form 1397, the vehicle will not be reprocessed unless inspection performed on receipt of materiel reveals corrosion, deterioration, etc.

b. Upon receipt from manufacturing facilities, if the processing data on the tag indicates that preservation has been rendered ineffective by operation or by freight shipping damage, completely process the vehicle in accordance with MIL–H–46709.

c. Prepare SF Form 364 for all shipments received in a damaged or otherwise unsatisfactory condition due to deficiencies in preservation, packaging, marking, handling, loading, or storage, and for apparently excessive preservation.

29–2 CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE – CONTINUED

29–2.4 Exercising.

Exercise equipment before administrative storage if schedule calls for exercising during administrative storage. Limit depreservation to removal of materiels that will restrict exercising. Perform the before, during, and after operational checks in accordance with TM 9–2350–314–10. Immediately take action to correct shortcomings and deficiencies noted. Exercise all hydraulic units when exercising the howitzer. Note inspection and exercise results on DA Form 2404. Record and report maintenance actions on DA Form 2407. After exercising, restore the preservation to the original condition. Replenish fuel and oil used during exercising and note the amount on DA Form 2408–1.

29–2.5 Rotation.

To assure utilization of all assigned materiel, rotate items in accordance with any rotational plan that will keep equipment in an operational condition and reduce maintenance effort.

29–2.6 Removal from Administrative Storage.

Remove preservative materiels. Perform the next scheduled preventive maintenance service and prepare equipment for service as outlined in TM 9–2350–314–10 and in accordance with instructions on DD Form 1397.

29–2.7 Servicing.

Resume the maintenance service schedule in effect at the commencement of storage as per DD Form 314. Refer to DA PAM 738–750.

29–3 SHIPPING PREPARATION.

29–3.1 Preparation for Shipment.

When shipping the self–propelled howitzer, the officer in charge of preparing the shipment will be responsible for furnishing the materiel in serviceable condition, properly cleaned, processed, packaged and packed.

29–3.2 Removal of Preservatives Prior to Shipment.

Personnel withdrawing the vehicle from storage or from shipment must not remove preservatives other than to insure that the materiel is complete and serviceable. If preservatives have been removed, they must be restored to prescribed level of preservation prior to shipment.

29–3.3 Army Shipping Documents.

Prepare all Army shipping documents in accordance with AR 55–355.

29–3.4 Removal and Installation of Commander’s Cupola for Railway Shipment.

The commander’s cupola must be removed when railway transportation is used for shipping the M109A6. The procedures in 29–3 instruct maintenance personnel in the removal, installation, and stowage of the commander’s cupola, adapter, lockring, and machine gun mount as a complete assembly.

29–3.5 Removal and Installation of PLGR Antenna and Mount for Railway Shipment.

The PLGR antenna and mount must be removed when railway transportation is used for shipping the M109A6. The procedures in 29–3.5 instruct the maintenance personnel in the removal, installation and storage of the PLGR antenna and mount as one assembly.

29–3 SHIPPING PREPARATION – CONTINUED

INITIAL SETUP

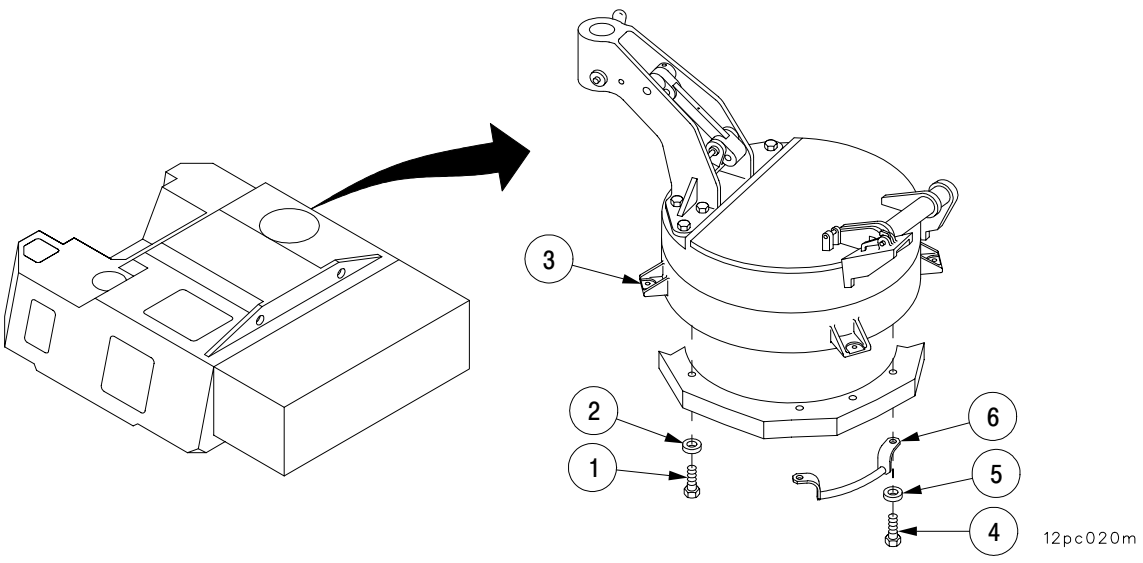
Tools
Artillery and turret mechanic's tool kit (SC 5180–95–A12)
Torque wrench (item 53, Appx G)
Torque wrench (item 54, Appx G)
Socket wrench (item 48, Appx G)
Sling (item 34, Appx G)
Suitable lifting device

Materials/Parts
Self–locking bolts (6) (item 139, Appx F)
Self–locking bolts (4) (item 140, Appx F)
Fabricated shipping cover (Appx D)
Lockwashers (4) (item 132, Appx F)
Wood (item 101, Appx C)
Sealing compound (item 37, Appx C)

a. Removal.

1 Remove six self–locking bolts (1) and six flat washers (2) securing commander's cupola assembly (3) to cab. Discard self–locking bolts.

2 Remove four self–locking bolts (4), four flat washers (5), and two handles (6). Discard self–locking bolts.

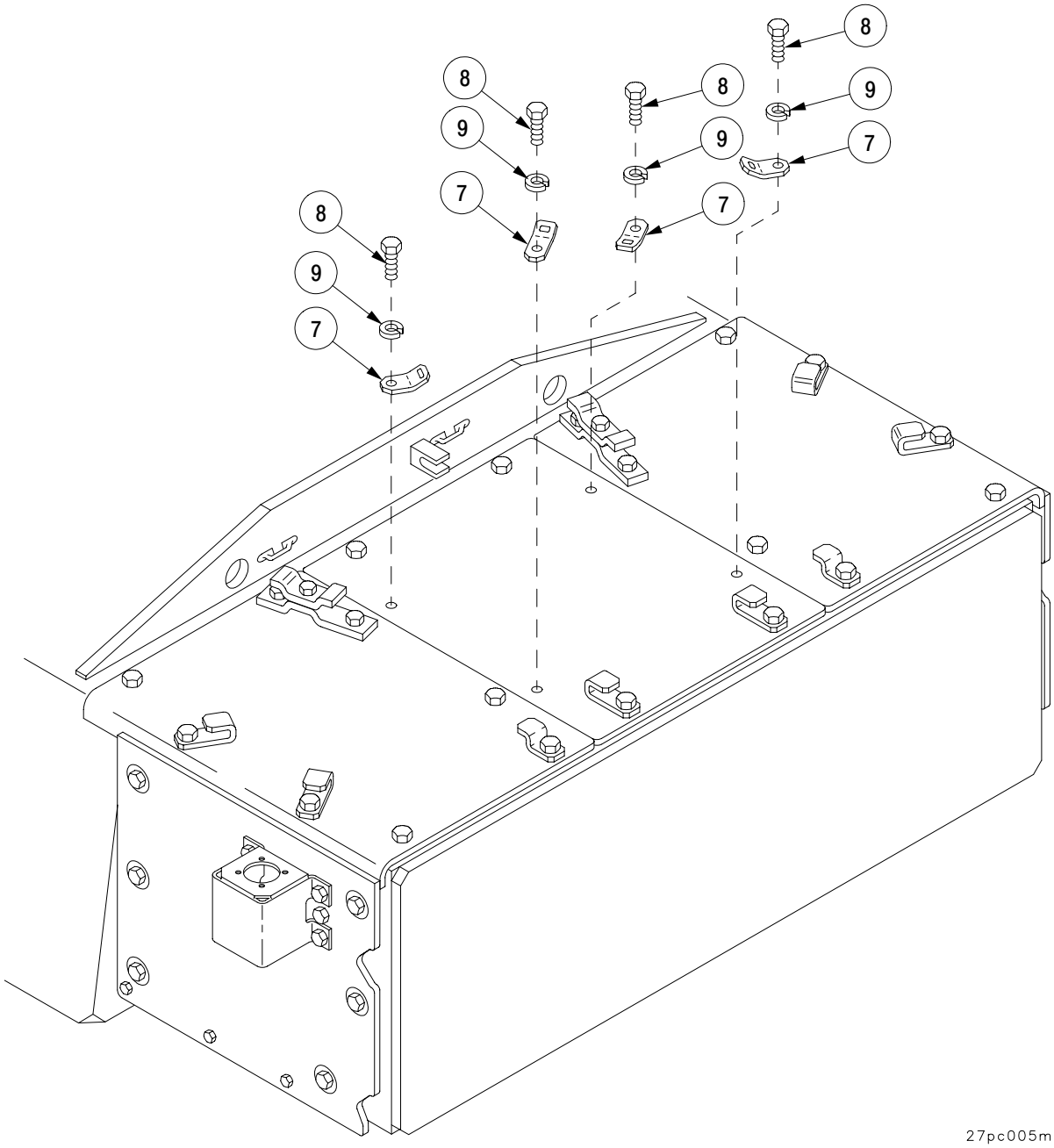


29–3 SHIPPING PREPARATION – CONTINUED

29–3.4 Removal and Installation of Commander's Cupola for Railway Shipment – Continued

a. Removal – Continued

3 Remove four brackets (7) by removing four screws (8) and four lockwashers (9). Discard lockwashers. Stow brackets and screws for later use.



29–3 SHIPPING PREPARATION – CONTINUED

29–3.4 Removal and Installation of Commander's Cupola for Railway Shipment – Continued

a. Removal – Continued

WARNING

Weight of commander's cupola, adapter, lockring and machine gun mount as a complete assembly is approximately 875 lbs. Use sling and suitable lifting device when performing this procedure.

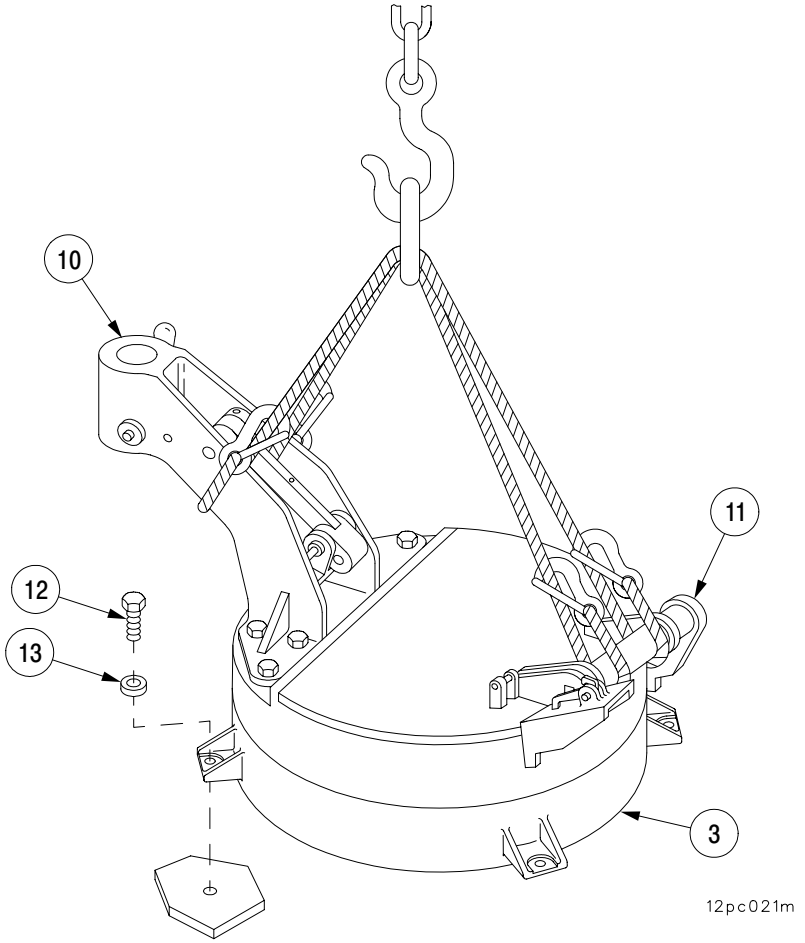
4 Attach sling and suitable lifting device to machine gun mount (10) and cupola hinge (11).

5 Remove complete cupola assembly (3) from vehicle using suitable lifting device.

6 Using suitable lifting device, position complete cupola assembly (3) on top center of cab bustle.

7 Secure cupola assembly (3) to bustle with four self–locking bolts (12) and four flat washers (13).

8 Remove sling and suitable lifting device.



29–3 SHIPPING PREPARATION – CONTINUED

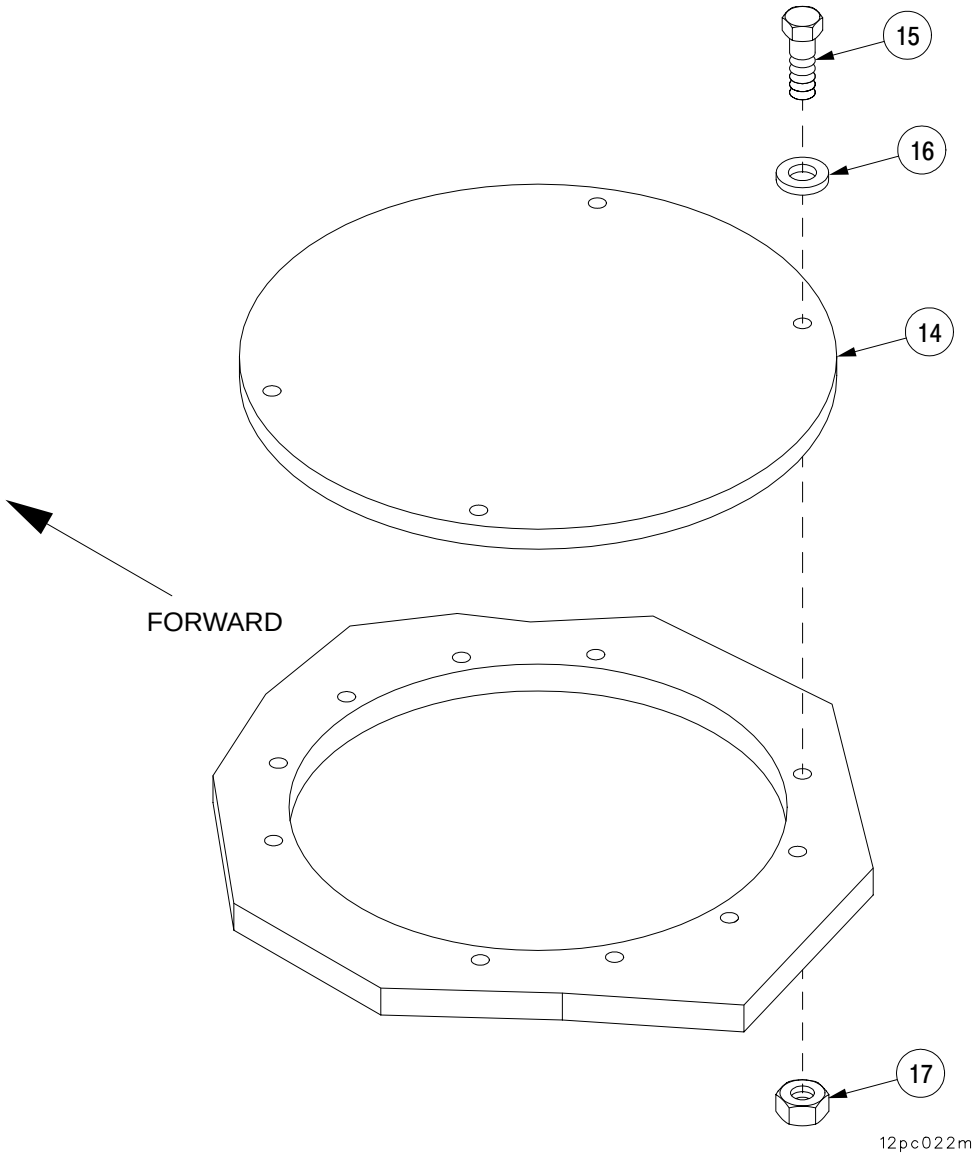
29–3.4 Removal and Installation of Commander's Cupola for Railway Shipment – Continued

a. Removal – Continued

9 Install fabricated shipping cover (14) over cab hole where cupola assembly (3) was, using four self–locking bolts (15), four flat washers (16), and four nuts (17).

b. Installation

1 Remove four self–locking bolts (15), four flat washers (16), and four nuts (17), and remove shipping cover from cab hole where cupola assembly (3) was removed.



29–3 SHIPPING PREPARATION – CONTINUED

29–3.4 Removal and Installation of Commander's Cupola for Railway Shipment – Continued

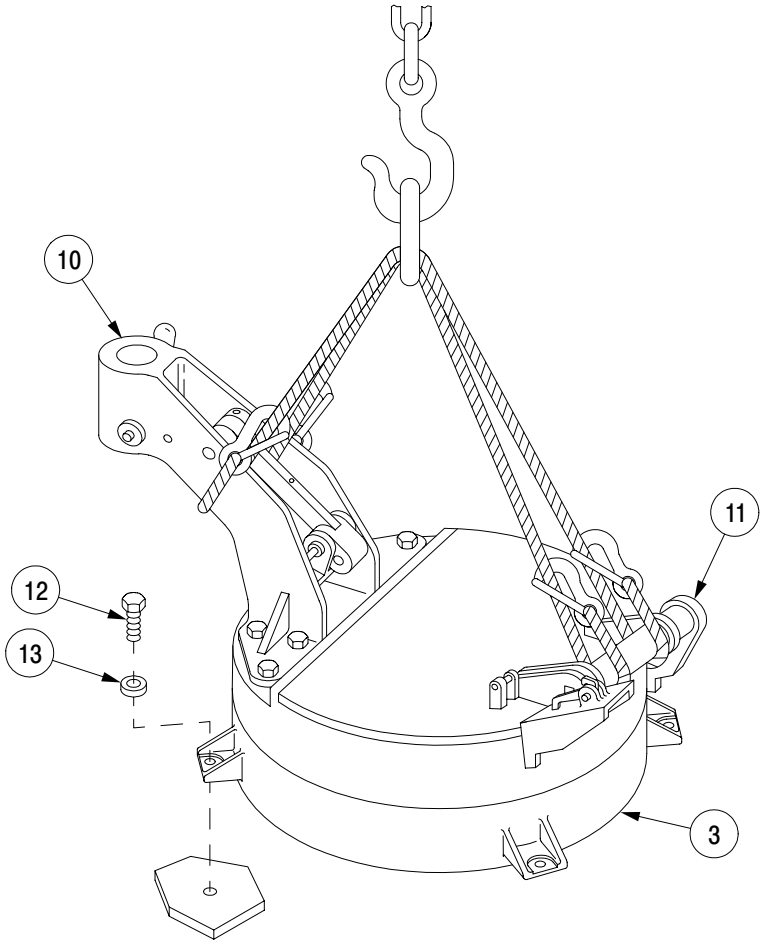
b. Installation – Continued

2 Remove four self–locking bolts (12) and four flat washers (13) from cupola assembly (3).

3 Attach sling and suitable lifting device to machine gun mount (10) and cupola hinge (11).

4 Apply sealing compound to mating surface of cab and cupola assembly.

5 Lift cupola assembly (3) with suitable lifting device and position over hole in cab.



29–3 SHIPPING PREPARATION – CONTINUED

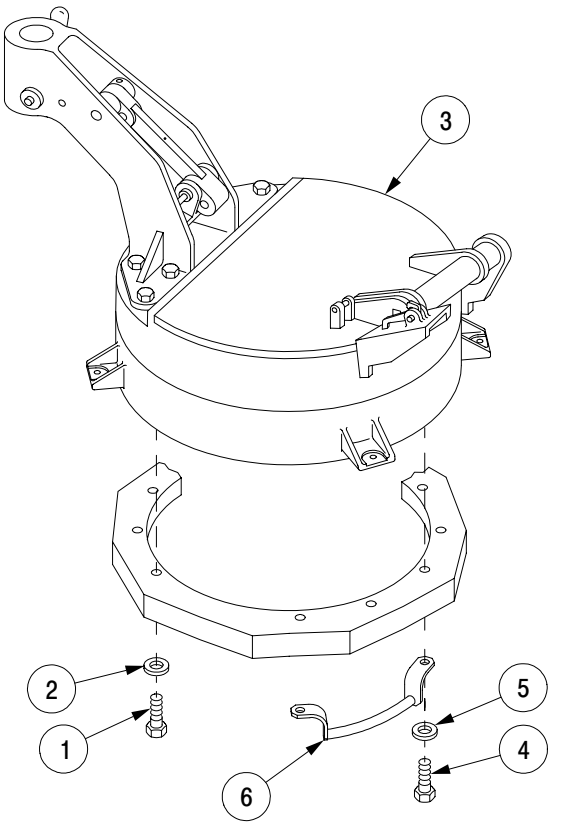
29–3.4 Removal and Installation of Commander's Cupola for Railway Shipment – Continued

b. Installation – Continued

6 Secure cupola assembly (3) to cab with six flat washers (2) and six new self–locking bolts (1). Torque screws to 299–330 lb–ft (405–447 N·m).

7 Install two handles (6) with four flat washers (5) and four new self–locking bolts (4).

8 Remove sling and suitable lifting device.

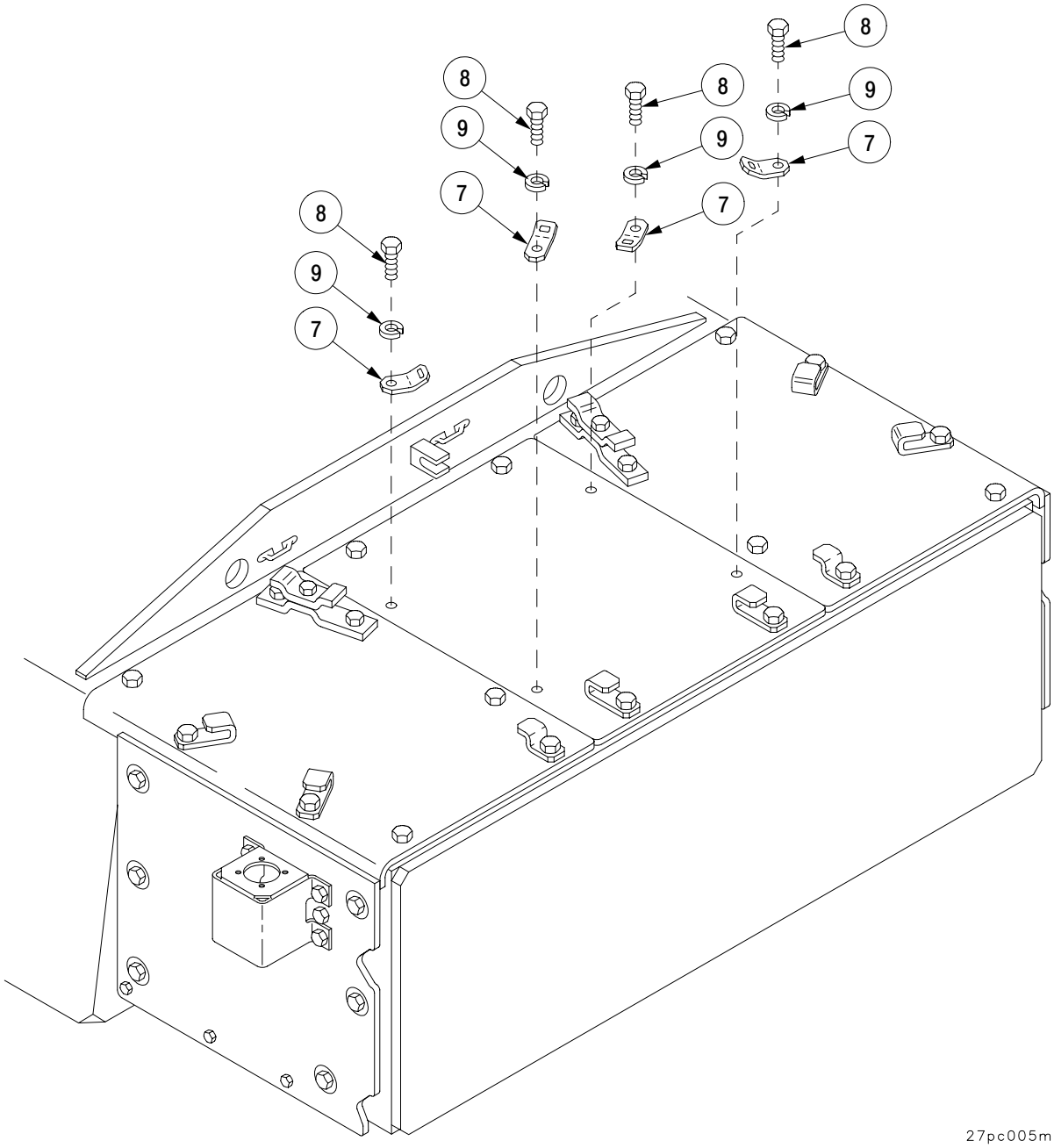


29–3 SHIPPING PREPARATION – CONTINUED

29–3.4 Removal and Installation of Commander's Cupola for Railway Shipment – Continued

b. Installation – Continued

9 Install four brackets (7) with four screws (8) and four new lockwashers (9). Torque screws to 106–114 lb–ft (144–154 N·m).



29–3 SHIPPING PREPARATION – CONTINUED

INITIAL SETUP

Tools
Artillery and turret mechanic's tool kit
(SC 5180–95–A12)
Torque wrench (item 56, Appx G)

Materials/Parts
Lockwashers (4) (item 130, Appx F)

29–3.5 Removal and Installation of PLGR Antenna and Mount for Railway Shipping – Continued

a. Removal.

1 Disconnect cable assembly connector (1) from antenna assembly (2).

2 Remove four screws (3), four lockwashers (4), four flat washers (5) and mount (6) with antenna assembly (2) from cab mounting plate (7). Discard lockwashers.

3 Cover cable assembly connector (1) with masking tape and tape cable assembly to mounting plate (7) to prevent damage during shipping.

4 Place antenna assembly (2) with mount (6) inside of vehicle to prevent damage during shipping.

b. Installation.

1 Remove masking tape from cable assembly connector (1) and mounting plate (7).

2 Remove antenna assembly (2) with mount (6) from interior storage location.

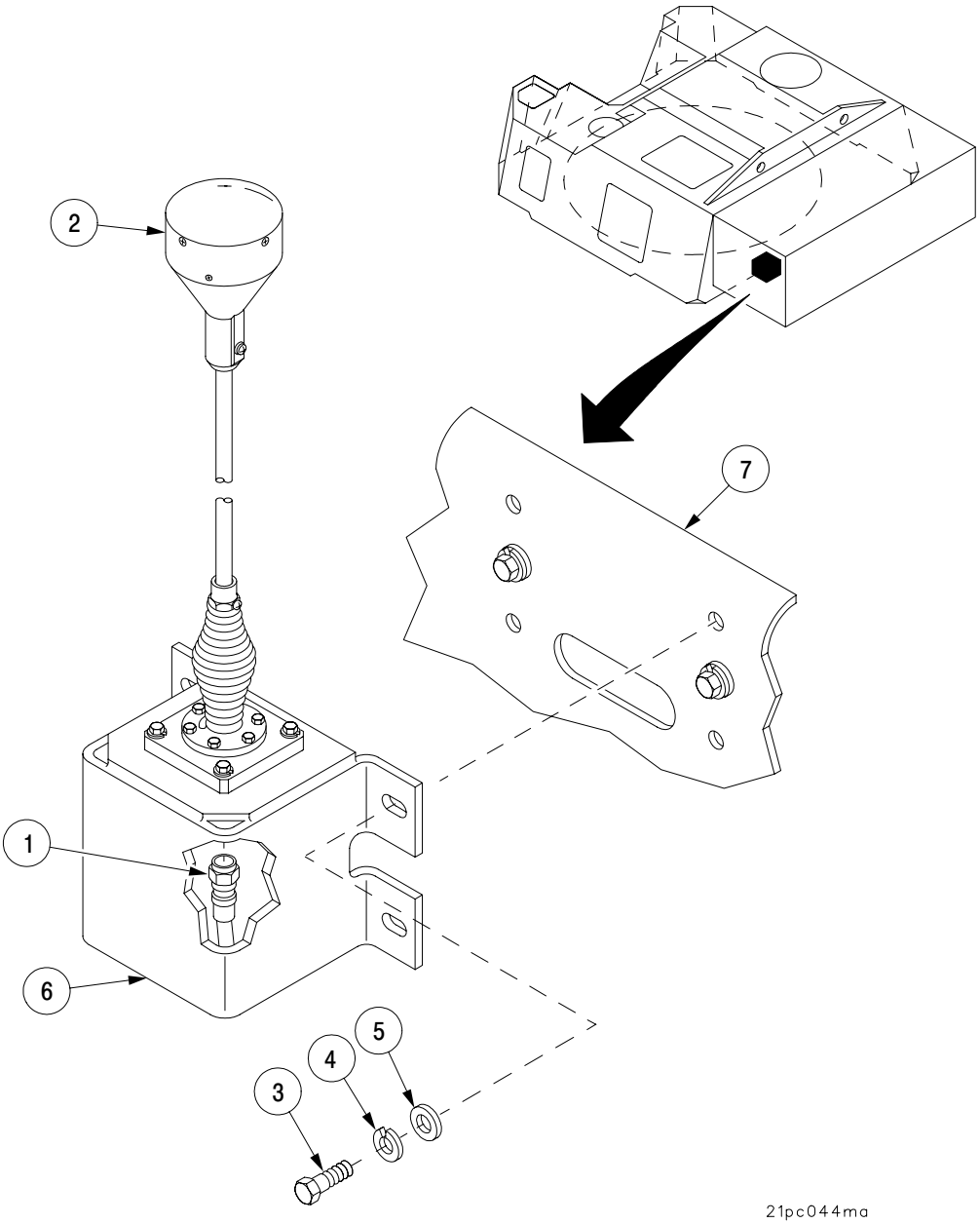
3 Intall mount (6) with antenna assembly (2) to mounting plate (7) with four screws (3), four new lockwashers (4) and four flat washers (5).

4 Connect cable assembly connector (1) to antenna assembly (2).

5 Check PLGR operation through AFCS.

29–3 SHIPPING PREPARATION – CONTINUED

29–3.5 Removal and Installation of PLGR Antenna and Mount for Railway Shipping – Continued



29–4 LOADING VEHICLE FOR SHIPMENT.

29–4.1 General.

Use the following publication when preparing a vehicle for shipment.

a. MTMCTEA Pamphlet 55–19, Tiedown Handbook for Rail Movements.

b. MTMCTEA Reference 92–55–20, Tiedown Handbook for Truck Movements.

c. MTMCTEA Reference 95–55–22, Marine Lifting and Lashing Handbook.

29–4.2 Rail Shipment.

CAUTION

The height and width of a vehicle, when prepared for rail transportation, must not exceed the limitations prescribed for particular railroad lines. Whenever possible, local transportation officers must be consulted about the limitations of the particular railroad lines to be used for the movement in order to avoid delays, dangerous conditions or damage to equipment.

When a vehicle is shipped by rail, every precaution must be taken to see that it is properly loaded, blocked and securely fastened to flatcar floor.

a. Inspect flatcar prior to loading and see that it is in a suitable condition to carry loads safely.

b. Prepare flatcar for loading by removing debris, previous blocking, nails, and other obstructions. Inspect flatcar for loose or broken floor planks. If found unsatisfactory, reject the flat car for use.

c. If suitable hoisting equipment, permanent loading ramps, and handling equipment are not available for loading or unloading materiel, improvised runways, ramps, and spanning platforms can be constructed.

d. Loading must be governed by the capacity and length of flatcars available at the time of shipment, as well as requirements of bills of lading and shipping requirements.

CAUTION

The howitzer cannon must never extend beyond end of flatcar.

e. Position the vehicle as far from the brake wheel end of the flatcar as space permits. Provide a minimum clearance of 4 inches (10.2 cm) below and 6 inches (15.2 cm) above, behind and to each side of the flatcar brake wheel.

29–5 BLOCKING.

29–5.1 General.

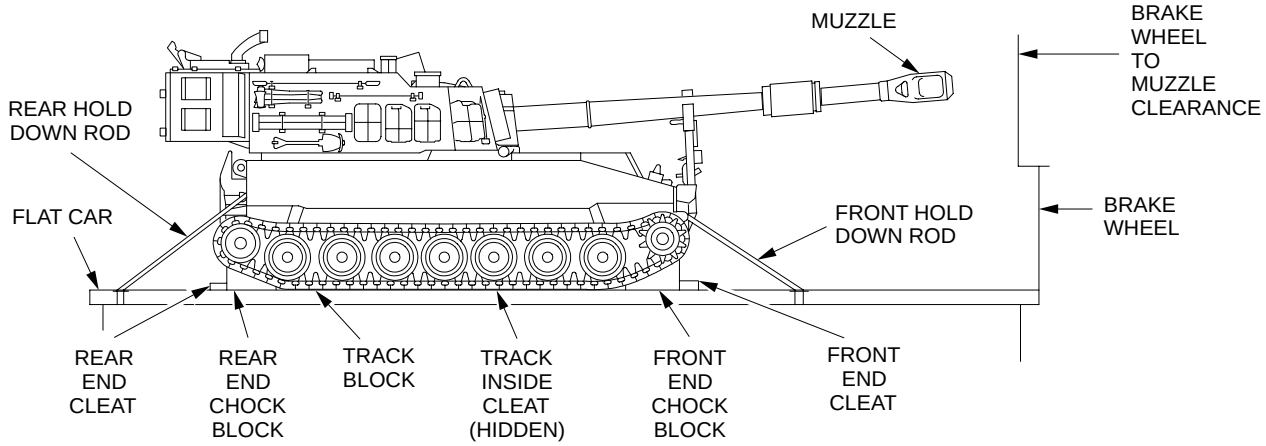
All blocking instructions specified herein are minimum and are in accordance with the Association of American Railroads Pamphlet, Section No. 6, Rules Governing the Loading of Department of Defense Materiel on Open–Top Cars. Additional blocking may be added at the discretion of the officer in charge.

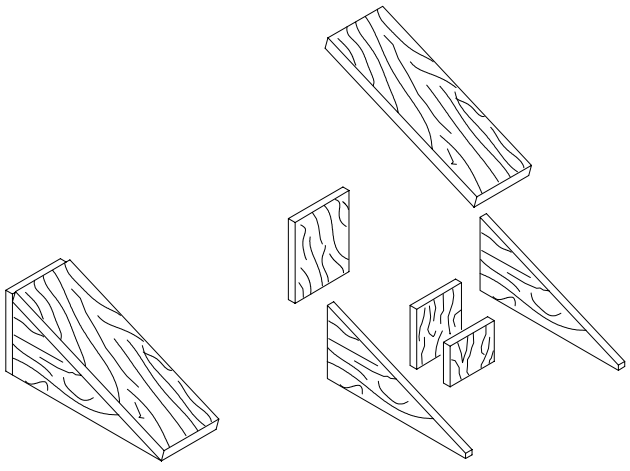
29–5.2 Track Inside Cleats.

Locate two cleats (6 in. x 6 in. x 14 ft) (15.2 cm x 15.2 cm x 4.3M), along the inside of the left and right tracks. Nail to car floor with 30–penny nails, staggered approximately every 12 inches (30.4 cm).

29–5.3 Chock Blocks.

Construct four chock blocks; two to fit the angle between the tracks and car deck at the front of the vehicle and two to fit the angle between the track and car deck at the rear of the vehicle. Using 1 5/8 inch (4.1 cm) thick lumber, make chock blocks 12 inches (30.4 cm) wide and minimum of 18 inches (45.72 cm) high. Nail pieces together with 20–penny nails. Locate one chock block against the front of each track and one against the rear of each track. Toenail the chock blocks to the car floor with 40–penny nails.





CHOCK BLOCK

29–5 BLOCKING – CONTINUED

29–5.4 End Cleats.

Locate one cleat (2 in. x 4 in. x 12 ft) (5 cm x 10.2 cm x 30.4 cm), against the end of each chock block (eight cleats required) and secure to car deck with 30–penny nails. Locate the upper cleat on top of the lower cleat and secure to lower cleat with 30–penny nails.

29–5.5 Side Cleats.

Locate one cleat (2 in. x 3 in. x 10 ft) (5 cm x 7.6 cm x 25 cm), against the inside and outside of each of the chock blocks (eight cleats required). Secure each to car deck with 20–penny nails.

CAUTION

Make sure cannon tube is securely locked in TRAVEL LOCK and CAB TRAVERSE LOCK is engaged.

29–5.6 Track Blocks.

Cut 34 blocks to conform with the shape of road wheels. Locate blocks on tracks between wheels. Place wedges under block to insure a snug fit against wheels, if required. Nail 2 in. x 4 in. (5 cm x 10.2 cm) cleat (length to suit) across top of blocks to prevent track blocks from sliding out of position.

29–5.7 Holddown Rods.

Thread both ends of rod 1–1/4 inch (3.2 cm) diameter, length to suit. Insert one end of rod through lifting eye on front of vehicle. Bend rod and insert other end through stake pocket on opposite side of flatcar. Repeat operation with second rod through lifting eye on front of vehicle. Repeat operations with two rods on rear of vehicle.

APPENDIX A
REFERENCES

A–1 SCOPE

The following publications constitute a listing of forms and publications applicable to maintenance for material covered in this technical manual. Appropriate indexes should be consulted frequently for latest applicable changes, revisions, and additions.

A–2 PUBLICATION INDEXES

Consolidated Index of Army Publications and Blank Forms	DA PAM 25–30
The Army Maintenance Management System	DA PAM 738–750
Charging System Troubleshooting	DA PAM 750–33
Index of Army Motion Pictures and Related Audio Visual Aids	DOD Reg 5040.2

A–3 REGULATIONS

Defense Traffic Management Regulation	AR 55–355
Malfunctions Involving Ammunition and Explosives	AR 75–1
Physical Security of Arms, Ammunition and Explosives	AR 190–11
Army Physical Security Program	AR 190–13
Security of Army Property at Unit and Installation Level	AR 190–51
Unit Status Reporting	AR 220–1
Dictionary of United States Army Terms	AR 310–25
Authorized Abbreviations and Brevity Codes	AR 310–50
Accident Reporting and Records	AR 385–40
Prevention of Motor Vehicle Accidents	AR 385–55
Reporting of Quality Deficiency Data	AR 702–7
Army Material Maintenance Policies	AR 750–1

A–4 FORMS

U.S. Army Accident Investigation Report	DA Form 285
Recommended Changes to Publications and Blank Forms	DA Form 2028
Recommended Changes to Equipment Technical Publications	DA Form 2028–2
Exchange Tag	DA Form 2402
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Maintenance Request	DA Form 2407
Equipment Daily Log	DA Form 2408–1
Oil Analysis Log	DA Form 2408–20
Weapons Data Card	DA Form 2408–4
Report of Damaged or Improper Shipment	DD Form 6
Preventive Maintenance Schedule and Record	DD Form 314
Processing and Deprocessing Record for Shipment, Storage, and Issue of Vehicles and Spare Engines	DD Form 1397
Equipment Utilization Record	DD Form 1970
Nuclear, Biological and Chemical Decontamination and Reconnaisaince Operations	FM 3–87
Explosives and Demolition	FM 5–25
Field Artillery Survey	FM 6–2
Operation and Maintenance of Ordinance Material in Cold Weather	FM 9–207
First Aid for Soldiers	FM 21–11
NBC (Nuclear, Biological and Chemical) Defense	FM 21–40
Basic Cold Weather Manual	FM 31–70

A–5 MANUALS

Storage Serviceability Standard: Tracked Vehicles, Wheeled Vehicles, and Component Parts	SB 740–98–1
Report of Discrepancy	SF Form 364
Quality Product Deficiency Report	SF Form 368
Safety Measures to be Observed When Installing and Using Whip Antennas Field–Type Masts Towers, Antennas, and Metal Poles That are Used With Communication, Radar, and Direction Finder	TB 43–0129
Solder and Soldering	TB SIG 222
Destruction of Chemical Munitions	TM 3–250
Operator's Manual: Welding Theory and Application	TM 9–237
General Maintenance Procedures for Fire Control Material	TM 9–254
Operator's Manual: Machine Gun, Cal. 50, Browning, M2, Heavy Barrel, Flexible	TM 9–1005–213–10
Unit, DS, GS and Depot Maintenance Manual Including Repair Parts and Special Tools Lists: Machine Gun, Cal. 50, Browning, M2, Heavy Barrel, Flexible	TM 9–1005–213–25
Operator, Unit, DS and GS Maintenance Manual Including Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Various Machine Gun Mounts and Combinations Used on Tactical and Armored Vehicle Mounts	TM 9–1005–245–14
Quadrant, Fire Control, Gunner's: M1A1/M1A2	TM 9–1290–200–14&P
Operator, Unit, DS and GS Maintenance Manual Including Repair Parts and Special Tools Lists for Paladin Muzzle Velocity Sensor M93	TM 9–1290–365–14&P
Operator's Manual: Howitzer, Medium, Self–Propelled: 155mm, M109A6	TM 9–2350–314–10
Hand Receipt for Howitzer, Medium, Self–Propelled: 155mm, M109A6	TM 9–2350–314–10–HR
Unit Maintenance Manual for Hull, Powerpack, Drive Controls, Tracks, Suspension and Associated Components, Howitzer, Medium, Self–Propelled: 155mm, M109A6	TM 9–2350–314–20–1 –1 TM 9–2350–314–20–1 –2
Unit, DS and GS Maintenance Repair Parts and Special Tools List: Hull, Powerpack, Drive Controls, Tracks, Suspension, and Associated Components, Howitzer, Medium, Self–Propelled: 155mm, M109A6	TM 9–2350–314–24P–1
Unit Maintenance Repair Parts and Special Tools List: Cab Armament, Sighting and Fire Control, Elevating and Traversing Systems and Associated Components Used on Howitzer, Medium, Self–Propelled: 155mm, M109A6	TM 9–2350–314–24P–2
Maintenance Manual: Lead–Acid Storage Batteries	TM 9–6140–200–14
Mounted Water Ration Heater	TM 10–7310–241–12&P
Radio Sets, AN/VRC–12, AN/VRC–43, AN/VRC–44, AN/VRC–45, AN/VRC–46, AN/VRC–47, AN/VRC–48, AN/VRC–49 (Used Without Intercom Systems) Operator's Manual	TM 11–5820–401–10–1
SINCGARS Ground Combat Net Radio, ICOM	TM 11–5820–890–10–1
Operator's Manual: Vehicular Intercommunications Systems AN/VIC–3(V)–6	TM 11–5830–263–10
Unit Maintenance Manual: Vehicular Intercommunications Systems AN/VIC–3(V)–6	TM 11–5830–263–20&P
Satellite Signals Navigation Set AN/PSN–11	TM 11–5825–291–13
Packaging of Materiel – Packing (Volume II)	TM 38–230–2
Procedure for Destruction of Improved Conventional Munitions (ICM) to Prevent Enemy Use	TM 43–0002–33
Painting Instructions for Army Materiel	TM 43–0139
Administrative Storage of Equipment	TM 740–90–1
Storage and Materiels Handling	TM 743–200

A–5 MANUALS – CONTINUED

General Procedures for Purging and Charging of Fire Control Instruments	TM 750–116
Procedures for Rapid Deployment, Redeployment and Retrograde for Combat Vehicles	TM 750–138
Destruction of Conventional Ammunition to Prevent Enemy Use	TM 750–244–5–1
Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use	TM 750–244–6

A–6 MILITARY SPECIFICATIONS

Grease, Automotive and Artillery	MIL–G–10924
Grease, Molybdenum Disulfide	MIL–G–21164
Grease, General Purpose	MIL–G–23549
Grease, Aircraft and Instrument	MIL–G–23827
Grease, General Purpose	MIL–G–23829
Vehicle Preservation Process Procedure	MIL–H–46709
Hydraulic Fluid, Petroleum Base, Aircraft Missile and Ordnance	MIL–H–5606
Hydraulic Fluid, Petroleum Base, Preservative, Hydraulic Equipment	MIL–H–6083
Lubricating Oil, ICE, Tactical Service	MIL–L–2104
Lubricating Oil, Gear, Multi–Purpose	MIL–L–2105
Lubricating Oil, Internal Combustion Engine, Arctic	MIL–L–46167
Cleaner, Lubricant, Preservative	MIL–L–63460
Welding, Gas Metal–Arc and Gas Tungsten–Arc, Aluminum Alloys	MIL–STD–372
Welding Repair of Steel Castings (Other than Armor), Metal Arc	MIL–STD–1943

A–7 MISCELLANEOUS PUBLICATIONS

Tiedown Handbook for Rail Movements	MTMCTEA Pamphlet 55–19
Tiedown Handbook for Truck Movements	MTMCTEA Reference 92–55–20
Marine Lifting and Lashing Handbook	MTMCTEA Reference 95–55–22

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B–1 THE ARMY MAINTENANCE SYSTEM MAC.

a. This introduction (Section I) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit — includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support — includes an F subcolumn.

General Support —includes an H subcolumn.

Depot —includes a D subcolumn.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B–2 MAINTENANCE FUNCTIONS.

Maintenance functions are limited to and defined as follows:

a. **Inspect**. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. **Test**. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. **Service**. Operations required periodically to keep an item in proper operating conditions; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. **Adjust**. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

e. **Align**. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. **Calibrate**. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. **Remove/Install**. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. **Replace**. To remove an unserviceable item and install a serviceable counterpart in its place. “Replace” is authorized by the MAC and assigned maintenance level is shown as the 3d position code of the SMR code.

B–2 MAINTENANCE FUNCTIONS – CONTINUED

i. **Repair**. The application of maintenance services[1–1] including fault location/troubleshooting[1–2] removal/installation, and disassembly/assembly[1–3] procedures, and maintenance actions[1–4] to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. **Overhaul**. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

B–3 EXPLANATION OF COLUMNS IN THE MAC, Section II.

a. **Column 1, Group Number.** Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

b. **Column 2, Component/Assembly.** Column 2 contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. **Column 3, Maintenance Functions.** Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B–2.)

d. **Column 4, Maintenance Level.** Column 4 specifies each level of maintenance authorized to perform each function listed in Column 3, by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work–time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work–time figures are to be shown for each level. The work–time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart.

The symbol designations for the various maintenance levels are as follows:

C . . . . . Operator or crew maintenance
O . . . . . Unit maintenance
F . . . . . Direct support maintenance
L . . . . . Specialized Repair Activity (SRA)[1–5]
H . . . . . General support maintenance
D . . . . . Depot maintenance

[1–1] Services – Inspect, test, service, adjust, align, calibrate, and/or replace.

[1–2] Fault location/troubleshooting – The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

[1–3] Disassembly/assembly – The step–by–step breakdown (taking apart) of a spare/functional group coded item to the level of its least component that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

[1–4] Actions – Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

[1–5] This maintenance level is not included in Section II, column (4) of the Maintenance Allocation Chart. Functions to this level of maintenance are identified by a work–time figure in the “H” column of Section II, column (4), and an associated reference code is used in the Remarks column (6). This code is keyed to Section IV, Remarks, and the SRA complete repair application is explained there.

B–3 EXPLANATION OF COLUMNS IN THE MAC, Section II – CONTINUED

e. **Column 5, Tools and Test Equipment reference code**. Column 5 specifies, by code, those common tools sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated function. Codes are keyed to tools and test equipment in Section III.

f. **Column 6, Remarks.** When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks contained in Section IV.

B–4 EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, Section III.

a. **Column 1, Reference Code.** The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. **Column 2, Maintenance level**. The lowest level of maintenance authorized to use the tool or test equipment.

c. **Column 3, Nomenclature**. Name or identification of the tool or test equipment.

d. **Column 4, National Stock Number.** The National Stock Number of the tool or test equipment.

e. **Column 5, Tool Number**. The manufacturer’s part number, model number, or type number.

B–5 EXPLANATION OF COLUMNS IN REMARKS, Section IV.

a. **Column 1, Remarks Code**. The code recorded in column 6, Section II.

b. **Column 2, Remarks**. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
00	CAB	REM/INS	.0	.0	8.0	.0	.0	27, 44, 58, 60, 65	
02	CANNON & MOUNT	TEST	1.0	.0	.0	.0	.0		
		SERVICE	.9	.0	.0	.0	.0		
		REPAIR	.0	.2	1.5	.0	.0	41, 44, 58	
0201	MOUNT COMPONENTS	REM/INS	.0	.0	8.1	.0	.0	21, 22, 41, 44, 58, 60, 65, 98, 100	
		REPAIR	.0	1.3	2.0	.0	.0	58	
020101	HOSE ASSEMBLY, REPLENISHER ACCUMULATOR	REPLACE	.0	.9	.0	.0	.0	46, 58	
		REPAIR	.0	1.9	.0	.0	.0	46, 58	
020102	REPLENISHER ACCUMULATOR	SERVICE	.5	1.0	.0	.0	.0	49, 58	
		REPLACE	.0	1.2	.0	.0	.0	46, 58	
		REPAIR	.0	.0	2.0	.0	.0	49, 50, 58	
02010201	BLADDER ASSEMBLY	REPLACE	.0	.0	.5	.0	.0	50, 58	
		REPAIR	.0	.0	.3	.0	.0	58	
020103	CRADLE ASSEMBLY, HOWITZER	REPAIR	.0	.2	.0	.3	.0	24, 46, 58	
02010301	CONTROL CAM ASSEMBLY	ADJUST	.0	2.5	.0	.0	.0	58, 110	
		REPLACE	.0	.0	.5	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	58	
02010302	PIN ASSEMBLY, SHOULDER	REPLACE	.0	.0	1.0	.0	.0	58	
		REPAIR	.0	.0	1.3	.0	.0	58	
02010303	DAMPER ASSEMBLY, CAM	REM/INS	.0	.3	.0	.0	.0	58	
		REPAIR	.0	1.0	.3	.0	.0	58	
02010304	CRADLE ASSEMBLY	REPLACE	.0	.0	.0	.0	26.0		
		REPAIR	.0	.0	.0	.0	12.0		
0201030401	RECUPERATOR ASSEMBLY	SERVICE	.5	1.0	.0	.0	.0	49, 58, 97	
		REPLACE	.0	.0	6.7	.0	.0	23, 42, 45, 58	
		REPAIR	.0	.0	8.7	.0	.0	45, 48	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
0201030402	VARIABLE RECOIL ASSEMBLY	INSPECT	.2	.3	.0	.0	.0	58	
		SERVICE	.2	.0	.0	.0	.0		
		REPAIR	.0	.2	11.9	.0	.0	23, 44, 45, 48, 50, 58, 93	
020103040201	HOUSING ASSEMBLY	REPLACE	.0	.0	1.5	.0	.0	44, 58,	
		REPAIR	.0	.0	2.0	.0	.0	58	
020103040202	CONNECTING LINK ASSEMBLY	REPLACE	.0	.0	1.0	.0	.0	44, 58	
		REPAIR	.0	.0	1.3	.0	.0	50, 58	
020103040203	PISTON ASSEMBLY	REPLACE	.0	.0	12.0	.0	.0	23, 45, 48, 51, 58, 93	
		REPAIR	.0	.0	.0	.0	1.0		
020103040204	BUFFER ASSEMBLY	REPLACE	.0	.0	2.3	.0	.0	23, 58	
		REPAIR	.0	.0	5.7	.0	.0	23, 48, 58	
02010304020401	BUSHING ASSEMBLY	REPLACE	.0	.0	5.7	.0	.0	23, 58	
		REPAIR	.0	.0	5.7	.0	.0	23, 58	
020103040205	ACTUATOR ASSEMBLY	REPLACE	.0	.0	1.0	.0	.0	58	
		REPAIR	.0	.0	.0	1.0	.0	43, 44, 58	
02010304020501	COVER ASSEMBLY	REPLACE	.0	.0	.0	.3	.0	58	
		REPAIR	.0	.0	.0	.5	.0	43, 44, 58	
02010304020502	LEVER ASSEMBLY	REPLACE	.0	.0	.3	.0	.0	58	
		REPAIR	.0	.0	.0	.3	.0	44, 58	
02010304020503	GEARSHAFT ASSEMBLY	REPLACE	.0	.0	.0	.3	.0	58	
		REPAIR	.0	.0	.0	.5	.0	43, 58	
0201030402050301	COVER ASSEMBLY	REPLACE	.0	.0	.0	.3	.0	44, 58	
		REPAIR	.0	.0	.0	.5	.0	44, 58	
02010304020504	HOUSING ASSEMBLY	REPAIR	.0	.0	.0	1.5	.0	44, 58	
020103040206	CRADLE ASSEMBLY VARIABLE RECOIL	REPLACE	.0	.0	.0	.0	26.0		
		REPAIR	.0	.0	.0	.0	12.0		
020103040207	SHIELD, LOWER, GUN	REM/REP	.0	.0	.3	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	47, 50, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
020103040208	FOLLOWER ASSEMBLY	REM/REP	.0	.0	12.5	.0	.0	23, 45, 48, 51, 58, 93	
		REPAIR	.0	.0	8.8	.0	.0	23, 45, 48, 51, 58, 93	
02010305	CABLE ASSEMBLY	REM/REP	.0	.5	.0	.0	.0	45, 58	
		REPAIR	.0	.0	1.0	.0	.0	46, 58, 47	
020104	GUN SHIELD	REM/REP	.0	3.0	.0	.0	.0	46, 58	
		REPAIR	.0	1.0	.0	.0	.0	58	
02010401	GUN MOUNT BALLISTIC SHIELD AND COVER ASSEMBLY	REM/REP	.0	1.5	.0	.0	.0	46, 58	
		REPAIR	.0	2.0	.0	.0	.0	58	
0202	CANNON ASSEMBLY	INSPECT	.2	.0	.0	.0	.0		
		SERVICE	2.0	.0	.0	.0	.0		
		REPAIR	.0	.0	3.5	.0	.0	50, 58	
020201	FIRING MECHANISM	INSPECT	.2	.0	.0	.0	.0		
		REPLACE	.1	.1	.0	.0	.0		
		REPAIR	.0	.4	.0	.0	.0	47, 58	
020202	GUN TUBE ASSEMBLY	REM/INS	1.0	.0	.0	.0	.0	41	
		REPLACE	.0	.0	7.9	.0	.0	19, 20, 23, 42, 50, 58, 68, 82, 97	
		REPAIR	.5	1.0	7.9	.0	.0	19, 20, 23, 41, 42, 50, 58, 68, 82, 97	
02020201	BORE EVACUATOR ASSEMBLY	INSPECT	.3	.0	.0	.0	.0		
		REM/INS	.5	.0	.0	.0	.0	41, 58	
		REPLACE	.0	1.5	.0	.0	.0	41, 58	
		REPAIR	.0	1.8	.0	.0	.0		
02020202	MUZZLE BRAKE THRUST COLLAR	REPLACE	.0	1.3	.0	.0	.0	3, 20, 41, 58	
		REPAIR	.0	1.5	.0	.0	.0	3, 20, 41, 58	
02020203	BORE EVACUATOR ASSEMBLY THRUST COLLAR	REPLACE	.0	1.3	.0	.0	.0	3,20,41,58	
		REPAIR	.0	.5	.0	.0	.0	3, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
020203	BREECH MECHANISM ASSEMBLY	INSPECT	.1	1.1	.0	.0	.0		
		SERVICE	.1	.0	.0	.0	.0		
		REPAIR	3.0	1.7	.7	.0	.0	58	
02020301	SPINDLE ASSEMBLY	INSPECT	.1	.0	.0	.0	.0		
		REPLACE	.0	1.5	.0	.0	.0	58	
		REPAIR	.0	2.0	.0	.0	.0	58	
02020302	SPRING PACK	REPLACE	.0	.5	.0	.0	.0	58	
		REPAIR	.0	1.0	.0	.0	.0	58	
02020303	CRANK ASSEMBLY	REPLACE	.0	1.9	.0	.0	.0	58	
		REPAIR	.0	.0	.5	.0	.0	58	
02020304	HANDLE ASSEMBLY	REPLACE	.0	1.9	.0	.0	.0	58	
		REPAIR	.0	.0	.8	.0	.0	48, 58	
02020305	BREECH BLOCK ASSEMBLY	REPLACE	.0	1.9	.0	.0	.0	58	
		REPAIR	.0	.0	.5	.0	.0	48, 58	
02020306	CARRIER ASSEMBLY	REPLACE	.0	1.9	.0	.0	.0	58	
		REPAIR	.0	2.4	.5	.0	.0	58	
0202030601	PLUNGER ASSEMBLY	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.5	.0	.0	.0	58	
02020307	HOUSING ASSEMBLY	REPLACE	.0	1.5	.0	.0	.0	58	
		REPAIR	.0	1.8	.0	.0	.0	58	
02020308	BLOCK ASSEMBLY	REPLACE	.0	1.5	.0	.0	.0	58	
		REPAIR	.0	.5	.0	.0	.0	58	
0202030801	FOLLOWER ASSEMBLY	REPLACE	.0	.8	.0	.0	.0	58	
		REPAIR	.0	1.0	.0	.0	.0	58	
0203	TRUNNION BRACKET ASSEMBLY	REPLACE	.0	.0	7.0	.0	.0	27, 41, 44, 58, 60, 65, 98	
		REPAIR	.0	.0	.0	.0	2.0		
0204	WEATHER COVER ROLLER ASSEMBLY	SERVICE	.1	.0	.0	.0	.0		
		REPLACE	.0	1.0	.0	.0	.0	46, 58	
		REPAIR	.0	2.0	.0	.0	.0	58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
03	CAB ELECTRICAL	REPAIR	.0	.4	.3	.0	.0	8, 9, 12, 17 44, 46, 58	
0301	MOTOR, HYDRAULIC PUMP	REPLACE REPAIR	.0 .0	.4 .0	.0 .0	.0 .0	.0 1.0	58	
0302	CONTROL BOX, HYDRAULIC	REPLACE REPAIR	.0 .0	.1 .5	.0 .0	.0 .0	.0 .0	58 47, 58	
030201	WIRING HARNESS, HYDRAULIC CONTROL BOX	REPLACE REPAIR	.0 .0	.5 .5	.0 .0	.0 .0	.0 .0	47, 58 47, 58	
030202	WIRING HARNESS, HYDRAULIC CONTROL BOX	REPLACE REPAIR	.0 .0	.3 .4	.0 .0	.0 .0	.0 .0	58 58	
030203 THRU 030228	LEAD ASSEMBLIES, HYDRAULIC CONTROL BOX	REPLACE REPAIR	.0 .0	.3 .4	.0 .0	.0 .0	.0 .0	46, 58 46, 58	
0303	SWITCH ASSEMBLY, TRAVERSE LIMIT	REPLACE REPAIR	.0 .0	.5 .7	.0 .0	.0 .0	.0 .0	58 58	
0304	DOME LIGHT	REPLACE REPAIR	.0 .0	.2 .2	.0 .0	.0 .0	.0 .0	58 58	
0305	LEAD ASSEMBLY, BRUSH BLOCK NEG	REPLACE REPAIR	.0 .0	.2 .8	.0 .0	.0 .0	.0 .0	46, 58 46, 58	
0306	LEAD ASSEMBLY, BRUSH BLOCK POS	REPLACE REPAIR	.0 .0	.2 .7	.0 .0	.0 .0	.0 .0	46, 58 46, 58	
0307	LEAD ASSEMBLY, HYDRAULIC PUMP MOTOR TO CURRENT SHUNT AND W60	REPLACE REPAIR	.0 .0	.2 .7	.0 .0	.0 .0	.0 .0	58 58	
0308	LEAD ASSEMBLY, HYDRAULIC PUMP MOTOR TO CURRENT SHUNT AND W51	REPLACE REPAIR	.0 .0	.2 .7	.0 .0	.0 .0	.0 .0	58 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
0309	LEAD ASSEMBLY, HYDRAULIC PUMP MOTOR TO OVERLOAD SENSOR AND W60	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.7	.0	.0	.0	58	
0310	LEAD ASSEMBLY, HYDRAULIC PUMP MOTOR TO OVERLOAD SENSOR AND W51	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.7	.0	.0	.0	58	
0311	WIRING HARNESS W62A	REPLACE	.0	.9	.0	.0	.0	58	
		REPAIR	.0	.8	.0	.0	.0	46, 58	
0312	WIRING HARNESS W64	REPLACE	.0	.9	.0	.0	.0	58	
		REPAIR	.0	.5	.0	.0	.0	46, 58	
0313	WIRING HARNESS W54	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.7	.0	.0	.0	46, 58	
0314	WIRING HARNESS W59	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.7	.0	.0	.0	46, 58	
0315	WIRING HARNESS W60	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.7	.0	.0	.0	58	
0316	WIRING HARNESS W52	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.7	.0	.0	.0	46, 58	
0317	WIRING HARNESS W51	REPLACE	.0	.5	.0	.0	.0	58	
		REPAIR	.0	1.0	.0	.0	.0	46, 58	
0318	WIRING HARNESS W67	REPLACE	.0	.8	.0	.0	.0	46, 58	
		REPAIR	.0	1.3	.0	.0	.0	46, 58	
04	LOADER RAMMER	ADJUST	.0	.3	.0	.0	.0	58	
		SERVICE	.1	.0	.0	.0	.0		
		REPAIR	.0	.2	.0	.0	.0	58	
0401	LOADER/RAMMER ASSEMBLY	INSPECT	.1	.0	.0	.0	.0		
		REPLACE	.0	.0	4.5	.0	.0	58	
		REPAIR	.0	.5	10.5	.0	.0	44, 47, 58	
040101	CYLINDER ASSEMBLY, RAMMER	REPLACE	.0	.0	2.0	.0	.0	58	
		REPAIR	.0	.0	4.0	.0	.0	43, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
05	SIGHTING EQUIPMENT	ADJUST	.0	2.5	.0	.0	.0	58	
		SERVICE	1.5	.5	.0	.0	.0	49, 58	
		REPAIR	.0	.0	.3	.2	.2	44, 58	
0501	MOUNT, M145A1	INSPECT	.2	.2	.0	.0	.0		
		REPLACE	.0	1.6	.0	.0	.0	58	
		OVERHAUL	.0	.0	.0	.0	50.0		
0502	LINKAGE ASSEMBLY, M145A1 MOUNT	INSPECT	.0	.2	.0	.0	.0		
		ADJUST	.0	2.0	.0	.0	.0	58	
		REPLACE	.0	1.0	.0	.0	.0	47, 58	
		REPAIR	.0	2.0	.0	.0	1.0	58	
050201	LINK ASSEMBLY, CONNECTING	REPLACE	.0	.0	.0	.0	.1		
		REPAIR	.0	.0	.0	.0	.5		
0503	COVER, TELESCOPE	REPLACE	.0	.5	.0	.0	.0	58, 92	
		REPAIR	.0	.0	4.0	.0	.0	58	
050301	WINDOW, OBSERVATION	REPLACE	.0	.0	.2	.0	.0	58	
		REPAIR	.0	.0	.5	.0	.0	58	
050302	RING ASSEMBLY	REPLACE	.0	.0	.5	.0	.0	58	
		REPAIR	.0	.0	1.5	.0	.0	58	
0504	MOUNT ASSEMBLY, M145 ALINEMENT DEVICE	REPLACE	.0	.0	.0	.3	.0	58	
		REPAIR	.0	.3	.0	1.8	.0	44, 58	
06	AFCS	TEST	.2	.0	.0	.0	.0		
		REPAIR	.0	.5	.5	.0	.0	45, 58	
0601	AFCS COMPUTER UNIT	TEST	.2						
		REPLACE	.5					58	
		REPAIR						16, 54, 55	
		OVERHAUL							
060101	CIRCUIT CARD ASSEMBLY	INSPECT	.0	.0	.0	.0	.1	89	
		TEST	.0	.0	.0	.0	.5	5, 6, 89	
		REPLACE	.0	.0	.2	.0	.0	2, 16, 54 55, 61, 89	
		REPAIR	.0	.0	.0	.0	.3	57, 62, 88, 89, 90, 108, 109	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
060102	CIRCUIT CARD ASSEMBLY	INSPECT	.0	.0	.0	.0	.1	89	
		TEST	.0	.0	.0	.0	.5	5, 6, 89	
		REPLACE	.0	.0	.2	.0	.0	2, 16, 54 55, 61, 89	
		REPAIR	.0	.0	.0	.0	.3	57, 62, 88, 89, 90, 108, 109	
060103	PANEL, INDICATOR	REMOVE						13, 16, 54, 55, 108, 109	
		REPLACE						13, 16, 54, 55, 108, 109	
060104	MICROCIRCUIT, MEMORY	REMOVE						16, 54, 55	
		REPLACE						16, 54, 55	
060105	POWER SUPPLY ASSEMBLY	REMOVE						16, 54, 55, 108	
		REPLACE						16, 54, 55, 108	
0602	DU ASSEMBLY	TEST	.0	.0	.3	.0			
		SERVICE	.0	.5	.0	.0	.0	49, 58	
		REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.5	1.2	.0	.0	49, 56, 58	
060201	ELECTRICAL CONTROL PANEL	REPAIR	.0	.0	.5	.0	.0	45	
0603	PDIU ASSEMBLY	TEST	.0	.0	.5	.0	.0	6, 16, 54, 89	
		REPLACE	.0	.1	.0	.0	.0	58, 103	1, 2
		REPAIR	.0	.0	.4	.0	1.1	2, 4, 16, 54 55, 57, 61 62, 88, 89	
060301	CIRCUIT CARD	INSPECT	.0	.0	.0	.0	.1	89	
		TEST	.0	.0	.0	.0	.5	5, 6, 89	
		REPLACE	.0	.0	.2	.0	.0	2, 16, 54 55, 61, 89	
		REPAIR	.0	.0	.0	.0	.3	57, 62, 88, 89, 90	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
060302	CIRCUIT CARD	INSPECT	.0	.0	.0	.0	.1	89	
		TEST	.0	.0	.0	.0	.5	5, 89	
		REPLACE	.0	.0	.2	.0	.0	2, 16, 54, 55, 61, 89	
		REPAIR	.0	.0	.0	.0	.3	57, 62, 88 89, 90	
060303	CIRCUIT CARD	INSPECT	.0	.0	.0	.0	.1	89	
		TEST	.0	.0	.0	.0	.5	5, 89	
		REPLACE	.0	.0	.2	.0	.0	2, 16, 54, 55, 61, 89	
		REPAIR	.0	.0	.0	.0	.3	57, 62, 88 89, 90	
060304	PANEL ASSY	INSPECT	.0	.0	.1	.0	.0		
		REPLACE	.0	.0	.7	.0	.0	16, 54, 89	
		REPAIR	.0	.0	.0	.0	.4	4, 13, 14, 15, 16, 33, 34, 35, 36, 37, 38, 39, 40, 54, 57, 83	
060305	COVER, ACCESS	INSPECT	.0	.0	.1	.0	.0		
		REPLACE	.0	.0	.2	.0	.0	16, 54	
		REPAIR							
060306	COVER, ACCESS	INSPECT	.0	.0	.1	.0	.0		
		REPLACE	.0	.0	.2	.0	.0	16, 54	
		REPAIR	.0	.0	.1	.0	.0	16, 54	
060307	ELECTRONIC HOUSING	INSPECT	.0	.0	.0	.0	.1		
		REPAIR	.0	.0	.0	.0	.6	10, 11, 57, 64, 71, 72, 84, 85, 86, 95, 96	
0604A	VMS MODEM ASSEMBLY, CAB	SERVICE	.0	1.0	.0	.0	.0	49, 58	
		REPLACE	.0	.5	.0	.0	.0	58	
		REPAIR	.1	1.0	.0	.8	.0	44, 46, 49, 58	
0604B	VMS MODEM ASSEMBLY HULL	SERVICE	.0	.5	.0	.0	.0	49, 58	
		REPLACE	.0	.4	.0	.0	.0	58	
		REPAIR	.1	.5	.0	.8	.0	44, 46, 49, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
0605	PCU ASSEMBLY	TEST	.0	.0	.0	.0	.3		
		SERVICE	.0	.0	.0	.0	.5	49, 58	
		REPLACE	.0	.5	.0	.0	.0	58,	
		REPAIR	.1	.4	.0	.0	.0	45, 58	
060501	COVER & INSERT PCU	TEST	.0	.0	.3	.0	.0		
		REPLACE	.0	.0	.9	.0	.0		
		REPAIR	.0	.0	1.2	.0	.0	45	
06050101	CIRCUIT CARD ASSEMBLY	INSPECT	.0	.0	.0	.0	.1	89	
		TEST	.0	.0	.0	.0	.5	5, 89	
		REPLACE	.0	.0	.2	.0	.0	2, 16, 54, 55, 61, 89	
		REPAIR	.0	.0	.0	.0	.3	57, 62, 88 89, 90	
0606	BRACKET, THERMAL	REPLACE	.0	.6	.0	.0	.0	47, 58	
		REPAIR	.0	.0	.3	.0	.0	45	
07	COMMANDER'S SEAT	INSPECT	.1	.1	.0	.0	.0		
		SERVICE	.1	.0	.0	.0	.0		
		REPAIR	.0	.1	.3	.0	.0	47, 58	
0701	FOOT REST ASSEMBLY	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.4	.0	.0	.0	58	
0702	COMMANDER'S SEAT ASSEMBLY	REPLACE	.0	.5	.0	.0	.0	58	
		REPAIR	.0	3.5	.0	.0	.0	47, 58	
08	CAB BEARING	REPAIR	.0	.0	12.6	.0	.0	18, 27, 44, 58, 60, 65	
0801	BEARING ASSEMBLY, CAB	INSPECT	.0	.4	.0	.0	.0	46	
		REPLACE	.0	.0	13.5	.0	.0	27, 41, 44, 58, 60, 65, 81	
		REPAIR					12.0		
080101	OUTER RING ASSEMBLY	REPAIR					12.0		
09	CREW SEATS	SERVICE	.1	.0	.0	.0	.0		
		REPAIR	.0	.1	.3	.0	.0	50, 58	
0901	SEAT ASSEMBLY, CREW	INSPECT	.1	.0	.0	.0	.0		
		REPLACE	.0	.3	.0	.0	.0	46, 58	
		REPAIR	.0	1.7	.0	.0	.0	46, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
10	COMPOSITE ARMOR	REPAIR	.0	.3	.3	.0	.0	44, 58	
1001	PLATE ASSEMBLY, CAB RIGHT FRONT	REPLACE	.0	.9	.0	.0	.0	58	
		REPAIR	.0	1.2	.0	.0	.0	58	
1002	PLATE ASSEMBLY, CAB RIGHT SIDE FORWARD	REPLACE	.0	.7	.0	.0	.0	58	
		REPAIR	.0	.9	.0	.0	.0	58	
1003	PLATE ASSEMBLY, CAB RIGHT SIDE CENTER	REPLACE	.0	3.0	.0	.0	.0	58	
		REPAIR	.0	2.0	.0	.0	.0	58	
1004	PLATE ASSEMBLY, CAB TOP LEFT	REPLACE	.0	2.0	.0	.0	.0	58	
		REPAIR	.0	1.0	.0	.0	.0	58	
1005	PLATE ASSEMBLY, CAB TOP RIGHT	REPLACE	.0	6.1	.0	.0	.0	58	
		REPAIR	.0	6.4	.0	.0	.0	58	
1006	CAB SIDE DOOR ARMOR PLATE	REPLACE	.0	1.1	.0	.0	.0	2, 3, 58	
		REPAIR	.0	1.6	.0	.0	.0	2, 3, 58	
1007	GUNNER'S ESCAPE HATCH ARMOR	REPLACE	.0	1.5	.0	.0	.0	58	
		REPAIR	.0	1.0	.0	.0	.0	58	
1008	PLATE ASSEMBLY, CAB LEFT SIDE FRONT	REPLACE	.0	14.9	.0	.0	.0	46, 58	
		REPAIR	.0	15.4	.0	.0	.0	46, 58	
1009	PLATE ASSEMBLY, CAB LEFT SIDE REAR	REPLACE	.0	2.7	.0	.0	.0	58	
		REPAIR	.0	3.2	.0	.0	.0	58	
1010	PLATE ASSEMBLY, CAB TOP RIGHT FORWARD	REPLACE	.0	2.3	.0	.0	.0	58	
		REPAIR	.0	2.5	.0	.0	.0	58	
1011	PLATE ASSEMBLY, CAB TOP RIGHT REAR	REPLACE	.0	3.1	.0	.0	.0	58	
		REPAIR	.0	3.6	.0	.0	.0	58	
1012	PLATE ASSEMBLY, CAB TOP LEFT FRONT	REPLACE	.0	3.0	.0	.0	.0	46, 58	
		REPAIR	.0	3.5	.0	.0	.0	46, 58	
1013	PLATE ASSEMBLY, CAB TOP LEFT CENTER	REPLACE	.0	1.9	.0	.0	.0	58	
		REPAIR	.0	.8	.0	.0	.0	58	
1014	PLATE ASSEMBLY, CAB TOP LEFT REAR	REPLACE	.0	1.7	.0	.0	.0	58	
		REPAIR	.0	2.2	.0	.0	.0	58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINT. FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
1015	PLATE ASSEMBLY, CAB TOP RIGHT FRONT	REPLACE REPAIR	.0 .0	.6 .9	.0 .0	.0 .0	.0 .0	58 58	
1016	PLATE ASSEMBLY, CAB UPPER LEFT	REPLACE REPAIR	.0 .0	2.0 2.5	.0 .0	.0 .0	.0 .0	46, 58 46, 58	
1017	PLATE ASSEMBLY, CAB RIGHT FRONT	REPLACE REPAIR	.0 .0	.5 .8	.0 .0	.0 .0	.0 .0	58 58	
11	MICROCLIMATE CONDITIONING SYSTEM (MCS)	INSPECT REPAIR	.0 .8	.5 .5	.0 .3	.0 .0	.0 .0	7, 44, 50, 58, 91	
1101	MCS PACK	INSPECT SERVICE REPLACE REPAIR	.2 .0 .0 .0	.5 .0 1.0 .1	.0 2.7 .0 2.8	.0 .0 .0 .0	.0 .0 .0 .0	50, 52, 80, 82 7, 58, 70 44, 46, 50, 52, 58, 82 94	
110101	COVER ASSEMBLY, MCS FILTER	REPLACE REPAIR	.0 .0	.3 4.5	.0 .0	.0 .0	.0 .0	58 58	
110102	COVER ASSEMBLY, MCS ACCESS	REPLACE REPAIR	.0 .0	.3 4.5	.0 .0	.0 .0	.0 .0	58 58	
110103	WELDMENT ASSEMBLY, MCS	REPLACE REPAIR	.0 .0	1.0 .0	.0 .3	.0 .0	.0 .0	7, 58, 91 45, 50, 52	
110104	MOTOR, MCS COMPRESSOR	REPLACE REPAIR	.0 .0	1.0 .0	.0 1.5	.0 .0	.0 1.5	47, 58 44, 59	
11010401	BRUSH AND END BELL, MCS COMPRESSOR MOTOR	REPLACE REPAIR	.0 .0	.0 .0	1.0 1.5	.0 .0	.0 .0	59 59	
110105	BLOWER ASSEMBLY, MCS PACK	REPLACE REPAIR	.0 .0	.8 .0	.0 .7	.0 .0	.0 .0	58 44, 52	
11010501	MOTOR ASSEMBLY, MCS PACK BLOWER	REPLACE REPAIR	.0 .0	.0 .0	.7 .5	.0 .0	.0 .0	44, 52 44, 52	
110106	DUCT ASSEMBLY, MCS PACK AIR OUTLET	REPLACE REPAIR	.0 .0	1.0 .0	.0 3.5	.0 .0	.0 .0	58 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
110107	FAN ASSEMBLY, MCS PACK VANE AXIAL	REPLACE	.0	.3	.0	.0	.0	44, 52	
		REPAIR	.0	.0	.9	.0	.0	44, 52	
11010701	MOTOR ASSEMBLY, MCS PACK VANE AXIAL FAN	REPLACE	.0	.0	.6	.0	.0	44, 52	
		REPAIR	.0	.0	.5	.0	.0	44, 52	
110108	EVAPORATOR ASSEMBLY	REPLACE	.0	.0	3.7	.0	.0	52, 82	
		REPAIR	.0	.0	4.5	.0	.0	44, 52, 82	
110109	HEADER ASSEMBLY, EVAPORATOR	REPLACE	.0	.0	.3	.0	.0	52	
		REPAIR	.0	.0	3.3	.0	.0	52	
110110	RELAY PANEL ASSEMBLY, MCS PACK	REPLACE	.0	1.0	.0	.0	.0	58	
		REPAIR	.0	.0	1.2	.0	.0	58	
110111	LEAD ASSEMBLY, RELAY PANEL TO GROUND STUD	REPLACE	.0	.8	.0	.0	.0	58	
		REPAIR	.0	1.5	.0	.0	.0	47, 58	
110112	WIRING HARNESS ASSEMBLY, RELAY PANEL TO VANE AXIAL FAN AND COMPRESSOR MOTOR	REPLACE	.0	1.7	.0	.0	.0	7, 58, 91	
		REPAIR	.0	1.5	.0	.0	.0	47, 58	
110113	WIRING HARNESS ASSEMBLY, RELAY PANEL TO BLOWER AND DIFFERENTIAL PRESSURE SWITCH	REPLACE	.0	1.0	.0	.0	.0	58	
		REPAIR	.0	1.5	.0	.0	.0	47, 58	
110114	WIRING HARNESS ASSEMBLY, RELAY PANEL TO BLOWER	REPLACE	.0	1.0	.0	.0	.0	58	
		REPAIR	.0	1.5	.0	.0	.0	47, 58	
110115	WIRING HARNESS ASSEMBLY, MCS CONTROL BOX TO MCS PACK	REPLACE	.0	1.0	.0	.0	.0	7, 58, 91	
		REPAIR	.0	1.5	.0	.0	.0	47, 58	
1102	HEATER ASSEMBLY, M3	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.3	.0	.0	.0	58	
1103	PANEL ASSEMBLY, MCS CONTROL	TEST	.1	.0	.0	.0	.0		
		REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.0	.7	.0	.0	58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
110301	HOUSING ASSEMBLY, MCS CONTROL PANEL	REPLACE	.0	.0	1.1	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	43, 58	
12	COMMANDER'S CUPOLA	REPAIR	.0	.1	4.0	.0	.0	31, 32, 41, 44, 45, 47, 58	
1201	CUPOLA ASSEMBLY	INSPECT	.1	.0	.0	.0	.0		
		SERVICE	.1	.0	.0	.0	.0		
		REPLACE	.0	.0	2.3	.0	.0	41, 50, 58	
		REPAIR	.0	.5	4.5	.0	.0	41, 50, 58	
120101	SUPPORT ASSEMBLY, PINTLE	SERVICE	.1	.0	.0	.0	.0		
		REPLACE	.0	.4	.0	.0	.0	58	
		REPAIR	.0	.5	.0	.0	.0	58	
13	BUSTLE COMPONENTS	REPAIR	.0	.1	.3	.0	.0	50, 58	
1301	PROJECTILE RACK	INSPECT	.1	.0	.0	.0	.0		
		REPLACE	.0	1.6	.0	.0	.0	30, 41, 42 58	
		REPAIR	.0	.2	.0	.0	.0	58	
130101	RETAINER ASSEMBLY	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.6	.0	.0	.0	58	
130102	BOX ASSEMBLY, AT4 ROCKET LAUNCHER STOWAGE	REM/REP	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.6	.0	.0	.0	58	
1302	PLATE, CENTER	REPLACE	.0	.4	.0	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
1303	COVER, REAR	REPAIR	.0	.0	.3	.0	.0	50, 58	
1304	PLATE, RIGHT	REPLACE	.0	1.5	.0	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	47, 58	
1305	PLATE, LEFT	REPLACE	.0	1.5	.0	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
14	CAB STOWAGE	REPAIR	.0	.1	.3	.0	1.0	46, 50, 58	
15	GUNNER'S ESCAPE HATCH	REPAIR	.0	.6	.3	.0	.0	45, 47, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
1501	DOOR ASSEMBLY	INSPECT	.1	.0	.0	.0	.0		
		REPLACE	.0	1.7	.0	.0	.0	47, 58	
		REPAIR	.0	.0	.3	.0	.0	45, 58	
1502	LATCH ASSEMBLY	SERVICE	.1	.0	.0	.0	.0		
		REPLACE	.0	.1	.0	.0	.0	58	
		REPAIR	.0	.3	.0	.0	.0	46, 58	
1503	BUMPER ASSEMBLY	REPLACE	.0	.1	.0	.0	.0	58	
		REPAIR	.0	.1	.0	.0	.0	58	
16	HYDRAULICS	INSPECT	.3	.0	.0	.0	.0		
		ADJUST	.5	.0	.0	.0			
		SERVICE	.0	.2	.0	.0	.0	46, 58, 101, 102	
		REPAIR	.0	1.1	.3	.0	.0	45, 46, 58	
1601	CONTROL HANDLE ASSEMBLY, COS/ GUNNER'S	REPLACE	.0	1.4	.0	.0	.0	46, 58	
		REPAIR	.0	.3	1.0	.0	.0	50, 58	
160101	HANDLE ASSEMBLY	ADJUST	.0	.5	.0	.0	.0	58	
		REPLACE	.0	.5	.0	.0	.0	46, 58	
		REPAIR	.0	1.0	.0	.0	.0	58	
1602	ACCUMULATOR ASSEMBLY, MANUAL ELEVATION PUMP	SERVICE	.0	.5	.0	.0	.0	49, 50, 58	
		REPLACE	.0	.9	.0	.0	.0	58	
		REPAIR	.0	.3	1.9	.0	.0	43, 49, 58	
1603	EQUILIBRATION MANIFOLD	ADJUST	.0	.0	.5	.0	.0	58	
		REPLACE	.0	.5	.0	.0	.0	46, 58	
		REPAIR	.0	.0	1.0	.0	.0	58	
1604	HAND PUMP ASSEMBLY, EQUILIBRATION	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.6	.0	.0	.0	58	
1605	ACCUMULATOR EQUILIBRATION ASSEMBLY	TEST	.5	.0	1.0	.0	.0	50, 58, 68, 82, 97	
		SERVICE	.0	.5	.0	.0	.0	46, 49, 58 68, 82, 97	
		REPLACE	.0	.2	.0	.0	.0	46, 49, 58 68, 69, 82, 97	
		REPAIR	.0	.0	.4	.0	.0	44, 48	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
1606	VALVE, MODE SELECTOR	REPLACE REPAIR	.0 .0	.5 .0	.0 1.0	.0 .0	.0 .0	46, 58 58	
1607	ELEVATION MECHANISM ASSEMBLY	REPLACE REPAIR	.0 .0	.0 .0	3.2 5.7	.0 .0	.0 .0	41, 50, 58 25, 26, 41, 44, 50, 58, 73, 74, 75, 76, 77	
160701	EYE ASSEMBLY	REPLACE REPAIR	.0 .0	.0 .0	3.3 3.5	.0 .0	.0 .0	58 50, 58	
160702	EYE ASSEMBLY	REPLACE REPAIR	.0 .0	.0 .0	3.3 3.5	.0 .0	.0 .0	50, 58 50, 58	
160703	MANIFOLD ASSEMBLY	REPLACE REPAIR	.0 .0	.0 .0	1.2 1.6	.0 .0	.0 .0	50, 58 58	
160704	SERVOVALVE ASSEMBLY, ELEVATION	REPLACE REPAIR	.0 .0	.0 .0	.4 1.4	.0 .0	.0 .0	50, 58 58	
1608	HYDRAULIC POWER–PACK ASSEMBLY	REPLACE REPAIR	.0 .0	.0 1.0	5.0 5.0	.0 .0	.0 .0	50, 58 46, 50, 58 101, 102	
160801	BELLOWS ASSEMBLY	REPLACE	.0	.0	1.0	.0	.0	46, 50, 58, 101, 102	
160802	HYDRAULIC PUMP	REPLACE REPAIR	.0 .0	.0 .0	4.8 .0	.0 .0	.0 3.0	50, 58	
1609	MOTOR ASSEMBLY, TRAVERSE	REPLACE REPAIR	.0 .0	.0 .0	1.8 .0	.0 3.0	.0 .0	50, 58 50, 58	
1610	SERVOVALVE ASSEMBLY, TRAVERSE	REPLACE REPAIR	.0 .0	.0 .0	1.1 2.1	.0 .0	.0 .0	50, 58 45, 58	
1611	VALVE ASSEMBLY, HYDRAULIC CLUTCH	REPLACE REPAIR	.0 .0	1.0 .0	.0 1.5	.0 .0	.0 .0	58 58	
1612	VALVE ASSEMBLY, ELEVATION SELECTOR OR TRAVERSE SELECTOR	REPLACE REPAIR	.0 .0	1.5 .0	.0 .3	.0 .0	.0 .0	46, 58 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
1613	HAND PUMP, MANUAL ELEVATION	REPLACE REPAIR	.0 .0	1.0 .0	.0 .5	.0 .0	.0 .0	46, 58 58	
161301	HYDRAULIC PUMPING UNIT	REPLACE REPAIR	.0 .0	.0 .0	.9 1.5	.0 .0	.0 .0	58 50, 58	
16130101	PUMP ASSEMBLY, AXIAL PISTON	REPLACE REPAIR	.0 .0	.0 .0	1.4 4.9	.0 .0	.0 .0	58 43, 58	
16130102	HAND CRANK ASSEMBLY	REPLACE REPAIR	.0 .0	.0 .0	.2 1.4	.0 .0	.0 .0	58 58	
161302	SHUTTLE VALVE ASSEMBLY	REPLACE REPAIR	.0 .0	.0 .0	.4 .6	.0 .0	.0 .0	58 29, 58	
1614	FILTER ASSEMBLY, HYDRAULIC FLUID	REPLACE REPAIR	.0 .0	1.3 .8	.0 .7	.0 .0	.0 .0	46, 58 44, 46, 58, 63	
1615	VALVE ASSEMBLY, LOADER RAMMER CONTROL	SERVICE REPLACE REPAIR	.1 .0 .0	.0 .5 .0	.0 .0 1.5	.0 .0 .0	.0 .0 .0	 46, 58 58	
161501	BODY ASSEMBLY, VALVE	INSPECT	.0	.0	1.6	.0	.0	58	
16150101	SLEEVE ASSEMBLY, VALVE	REPAIR	.0	.0	.3	.0	.0	58	
1616	VALVE ASSEMBLY, TRAVERSE LIMIT	REPLACE REPAIR	.0 .0	.5 .0	.0 1.0	.0 .0	.0 .0	46, 58 58	
1617	SHOCK MOUNT ASSEMBLY	REPLACE REPAIR	.0 .0	.5 1.0	.0 .0	.0 .0	.0 .0	58 58	
1618	SHOCK MOUNT ASSEMBLY	REPLACE REPAIR	.0 .0	.5 1.0	.0 .0	.0 .0	.0 .0	58 58	
1619	PULSE ACCUMULATOR	SERVICE REPLACE REPAIR TEST		.7 .5 	 2.0 .5	 	 	58, 49, 97, 82, 68 58 58 58, 49, 97, 82	
1620	ROD ASSEMBLY	REPLACE REPAIR	.0 .0	.1 .2	.0 .0	.0 .0		58 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
17	TRAVERSE LOCK	REPAIR	.0	.1	.0	.0	.0	58	
1701	TRAVERSE LOCK ASSEMBLY	ADJUST	.0	.2	.0	.0	.0	58	
		SERVICE	.1	.0	.0	.0	.0		
		REPLACE	.0	1.0	.0	.0	.0	58	
		REPAIR	.0	1.7	.0	.0	.0	58	
170101	BRACKET ASSEMBLY CAB SIDE DOOR	REPLACE	.0	1.7	.0	.0	.0	58	
		REPAIR	.0	.1	.0	.0	.0	58	
18	HYDRAULIC COMPARTMENT ACCESS COVER	REPAIR	.0	.1	.3	.0	.0	50, 58	
19	CAB SIDE DOOR	REPAIR	.0	.6	.3	.0	.0	50, 58	
1901	ACCESS DOOR	INSPECT	.1	.0	.0	.0	.0		
		REPLACE	.0	.8	.0	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	46, 58	
1902	BUMPER, CAB SIDE DOOR	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.3	.0	.0	.0	58	
1903	LATCH, CAB SIDE DOOR	SERVICE	.1	.0	.0	.0	.0		
		REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.5	.0	.0	.0	58	
20	TRAVERSE MECHANISM	INSPECT	.1	.0	.0	.0	.0		
		REPAIR	.0	.2	.3	.0	.0	44, 47, 58	
2001	TRAVERSE MECHANISM ASSEMBLY	SERVICE	.1	1.0	.0	.0	.0	58	
		REPLACE	.0	.0	2.5	.0	.0	44, 58, 66	
		REPAIR	.0	.3	2.0	8.0	.0	44, 50, 58, 87	
200101	OIL PUMP ASSEMBLY	REPLACE	.0	.0	1.0	.0	.0	58	
		REPAIR	.0	.0	1.5	.0	.0	44, 58	
200102	GEARSHAFT ASSEMBLY	REPLACE	.0	.0	4.3	.0	.0	58	
		REPAIR	.0	.0	.7	.0	.0	44, 58, 67	
200103	NO BACK DEVICE	REPLACE	.0	.0	1.0	.0	.0	44, 58	
		REPAIR	.0	.0	.2	.0	.0	58	
2002	GUARD ASSEMBLY	REPLACE	.0	.1	.0	.0	.0	47, 58	
		REPAIR	.0	.0	.3	.0	.0	44, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
21	COMMUNICATIONS	REPAIR	.0	.4	.5	.0	.0	45, 58	
2101	WIRING HARNESS W10	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.3	.0	.0	.0	47, 58	
2102	LEAD ASSEMBLY, COMMUNICATIONS AMP TO TELEPHONE TERMINAL	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.3	.0	.0	.0	47, 58	
2103	PLATE, MOUNTING	REPLACE	.0	.3	.0	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	44, 58	
22	CAB AND HULL NAVIGATION	REPAIR	.0	.0	.5	.0	.0	43, 45, 47, 48, 50, 58	
2201	DYNAMIC REFERENCE UNIT HYBRID (DRUH)	REPLACE	.0	.4	.0	.0	.0	58, 103	1, 2
		REPAIR	.0	.0	.0	.0	1.0		
2203	VMS ASSEMBLY	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.0	.0	.0	1.0		
2204	MOUNT ASSEMBLY, DRUH	REPLACE	.0	.0	1.0	.0	.0	43, 45, 58, 78, 99,	
		REPAIR	.0	.0	.4	.0	.0	45, 58	
23	SLIP RING, BEARING SHIELDS, AND BRUSH BLOCKS	ADJUST	.0	.3	.0	.0	.0	58	
		REPAIR	.0	4.1	.3	.0	.0	45, 58	
2301	BRUSH BLOCK ASSEMBLY	REPLACE	.0	1.9	.0	.0	.0	58	
		REPAIR	.0	2.4	.0	.0	.0	47, 58, 69	
230101	GUIDE ASSEMBLY, BRUSH BLOCK	REPLACE	.0	2.4	.0	.0	.0	58	
		REPAIR	.0	3.5	.0	.0	.0	58, 69	
24	HYDRAULIC COMPARTMENT ACCESS DOOR	SERVICE	.1	.0	.0	.0	.0		
		REPAIR	.0	.3	1.4	.0	.0	44, 58	
2401	DOOR ASSEMBLY	REPLACE	.0	.7	.0	.0	.0	41, 58	
		REPAIR	.0	.0	1.4	.0	.0	44, 58	
25	HYDRAULIC COMPARTMENT INTERIOR ACCESS PANEL	REPAIR	.0	.0	.3	.0	.0	44, 58	

Section II. MAINTENANCE ALLOCATION CHART – CONTINUED

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
2501	PANEL ASSEMBLY	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.4	.0	.0	.0	58	
26	HYDRAULIC COMPARTMENT EXTERIOR ACCESS PANEL	REPAIR	.0	.2	.3	.0	.0	44, 50, 58	
27	BUSTLE ARMOR	REPAIR	.0	1.4	.5	.0	.0	44, 47, 58	
28	MCS DOORS AND GRILLES	INSPECT	.1	.0	.0	.0	.0		
		REPAIR	.0	.4	.3	.0	.0	50, 53, 58	
2801	DOOR, MCS FRONT	REPLACE	.0	.5	.0	.0	.0	42, 58	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
2802	DOOR, MCS REAR	REPLACE	.0	2.5	.0	.0	.0	42, 53, 58	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
2803	PLATE, MOUNTING	REPLACE	.0	.1	.0	.0	.0	58	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
29	EXTERNAL STOWAGE BASKETS	REPAIR	.0	.7	.3	.0	.0	1, 44, 46, 47, 58, 66	
29	EXTERNAL STORAGE BASKET, RIGHT	REPLACE	.0	.2	.0	.0	.0	47, 58, 66	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
29	EXTERNAL STORAGE BASKET, LEFT	REPLACE	.0	.2	.0	.0	.0	47, 58, 66	
		REPAIR	.0	.0	.3	.0	.0	50, 58	
2901	BOX ASSEMBLY, ACCESSORY STOWAGE	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.4	.0	.0	.0	46, 58	
2902	BOX ASSEMBLY, LAW STOWAGE	REPLACE	.0	.2	.0	.0	.0	58	
		REPAIR	.0	.6	.0	.0	.0	58	
2903	BOX ASSEMBLY, HAND PUMP	REMOVE/ REPLACE	.0	.5	.0	.0	.0	58	
		REPAIR	.0	1.0	.0	.0	.0	58	

Section III. TOOLS AND TEST EQUIPMENT

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	O	STENCIL SET, MARKING	7520–00–205–1760	A–A–130
2	O	ADAPTER SKT WRENCH	5120–00–227–8088	SH–131
3	O	WRENCH TORQUE 0–175	5120–00–640–6364	A–A–2411
4	F	BRUSH, ACID SWABBING	7920–00–514–2417	A–A–289
5	D	IFTE–CEE		AN/GSM–340
6	F, D	IFTE–BSTF		AN/TSM–191
7	O	SHACKLES	4030–00–132–9142	AN116–3
8	O	CROWFOOT ATTACHMENT	5120–00–229–2773	AN8508–18A
9	O	CROWFOOT ATTACHMENT	5120–00–181–6755	AN8508–24
10	D	RIVET SQUEEZER	5120–00–507–0659	DA2
11	D	DRILL PRESS	5130–00–974–0873	ES212
12	O	CROWFOOT ATTACHMENT	5120–00–224–7288	A16150–013
13	D	PLIERS, WIRE TWISTER	5120–00–305–2306	GGG–W–340
14	D	WRENCH SET, COMBO	5120–00–148–7917	GGG–W–636
15	D	TORQUE WRENCH		GGG–W–686
16	F	TOOL KIT, ELECTRIC	5180–01–073–3845	JTK–17LAL
17	O	CROWFOOT ATTACHMENT	5120–00–229–2772	IC2690
18	F	STAND, CAB		MI003
19	F	EYEBOLT		MI004
20	O, F	T–HANDLE	5340–01–318–0197	9399097
21	F	TRIPOD, CRADLE MT		MI011
22	F	TRIPOD, CANNON		MI012
23	F	BREECH STAND		MI013
24	H	TRUNNION BRG PULLER		MI014
25	F	EL MECH ASSY TOOL		MI017
26	F	GUIDE TOOL ASSY		MI018
27	F	SLING, CAB LIFTING	3940–01–385–6944	52–6–9
28	DELETED			
29	F	SCREW, NO. 4–40	5305–00–984–4980	MS35206–223
30	O	BOLT, EYE	5306–00–050–0347	MS51937–5
31	F	BOLT, SHLDR EYE	5306–00–150–3075	MS51937–8
32	F	NUT, PLAIN	5310–00–915–4891	MS51967–21
33	D	CRIMPER	5120–01–286–4418	M22520/7–01
34	D	PIN POSITIONER	5120–00–133–1772	M22520/7–04
35	D	PIN POSITIONER	5120–01–274–7658	M22520/7–07
36	D	PIN POSITIONER	5120–00–133–1785	M22520/7–08
37	D	INS/EXTRACT TOOL	5120–01–367–0267	M81969/14–01

Section III. TOOLS AND TEST EQUIPMENT – CONTINUED

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
38	D	INS/EXTRACT TOOL	5120–01–367–0268	M81969/14–02
39	D	INS/EXTRACT TOOL	5120–01–367–0269	M81969/14–03
40	D	INSERTION TOOL	5120–00–079–4601	M81969/19–07
41	C, O, F	SLING, ENDLESS 4 FT	3940–00–675–5002	PD101–48
42	O, F	SLING, ENDLESS 8 FT	3940–00–675–5003	PD101–96
43	F. H	SH EQPT, MACH SHOP	3470–00–754–0708	SC 3470–95–A02
44	P. F. J	SH EQPT, AUTO MAINT	4910–00–754–0705	SC 4910–95–A31
45	O, F	SH EQPT, AUTO FLD	4910–00–754–0706	SC 4910–95–A62
46	P. F. J	SHOP EQPT, COMMON #2	4910–00–754–0650	SC 4910-95-CL-A72
47	O, F	SHOP EQPT, COMMON #1	4910–00–754–0654	SC 4910-95-A74
48	F	SHOP EQPT, FIRE CONT	4931–00–754–0740	SC 4931-95-CL-A07
49	O, F, H, D	PURGING KIT, FIRE CO	4931–00–065–1110	SC 4931–95–J54
50	O, F, H	SH EQPT, ARTY MAINT	4933–00–754–0704	SC 4933-95-CL-A12
51	F	SH EQPT, AUTO MAINT		SC 4933–95–A31
52	O, F	TOOL KIT REFR SVCE	5180–00–596–1474	SC 5180-90-CL-N18
53	O	TOOL KIT, WELDER'S	5180–00–754–0661	SC 5180–90–N39
54	F	TOOL KIT (TK105G)	5180–00–610–8177	SC 5180-91-CL-R07
55	F	TOOL KIT (TK101G)	5180–00–064–5178	SC 5180-91-CL-R13
56	O, F	TOOL KIT, ELEK EQPT	5180–00–605–0079	SC 5180-91-CL-S21
57	F	TOOL KIT (JTK–17)	5180–00–670–7123	SC 5180-92-CL-A07
58	O, F, H, D	TOOL KIT, ARTY/TUR	5180–00–357–7727	SC 5180–95–A12
59	F	TOOL KIT, AUTO, F&E	5170–00–754–0655	SC 5180-95-CL-B08
60	F	SHACKLE	4030–00–343–5433	1019515
61	F	SOCKET WRENCH ATCH	5120–00–596–0930	VA0930
62	D	SOLDER SET	3439–00–460–7198	W–TCP–K
63	O	WRENCH, STRAP	5120–01–192–9406	YA826
64	D	INSERT TAP	5136–01–038–2911	041FPB
65	F	HOOK		10–23449 and 10–90081
66	O, F	SLING, ENDLESS 8 FT	3940–00–678–8414	10942192
67	F	ADAPTER, TORQUE	5120–00–933–7357	10954669
68	O, F	EXTENSION VALVE	4810–00–051–5566	11605630
69	O	ALIGNMENT TOOL, BRUSH BLOCK		12979832
70	O	SLING, LIFTING	4910–00–295–8074	11652649
71	D	EXTRACTION TOOL	5120–00–245–9539	1227–06
72	D	EXTRACTION TOOL	5120–00–723–6833	1227–6
73	F	INSERTER, SEAL	5120–01–355–0860	12910862
74	F	ROD GUIDE TOOL	1025–01–355–6626	12910863

Section III. TOOLS AND TEST EQUIPMENT

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
75	F	END CAP GUIDE TOOL	1025–01–355–6627	12910864
76	F	SOCKET, SOCKET WRENCH	5130–01–355–0819	12910865
77	F	SPANNER ASSEMBLY	5120–01–368–3847	12910866
78	F	FIXTURE, DRUH ALIGN	4933–01–381–7090	12940849
79	DELETED			
80	F	FREON RECOVERY SYS	4130–01–338–2707	17500B
81	F	BOLT, EYE	5306–00–337–4160	1820129
82	O, F	REGULATOR, NITROGEN	4935–00–040–9916	231–P–128058
83	F	BRUSH, SOLDER	3439–01–043–9053	244B106
84	D	INSERT TAP	5136–00–825–7130	3FPB
85	D	BREAK–OFF TOOL	5120–00–793–1073	3695–04
86	D	BREAK–OFF TOOL	5120–00–793–1076	3695–3
87	F	DIAL INDICATOR	5210–00–377–6525	399A
88	D	BRUSH, SOLDER	3439–01–043–9053	40B247
89	F	PAD SET, STATIC	4940–01–087–3458	4560901
90	D	DESOLDERING WICK	3439–00–403–5321	5007
91	O	SLING, LIFTING	4910–00–473–7556	7081593
92	F	SLING, LIFTING	4910–00–708–3778	7083778
93	F	WR. SPANNER, ADJ HOOK	5120–00–293–0316	7308
94	O	GAGE BELT TNSN	5210–01–365–7810	74010076
95	D	INSERTION TOOL	5120–01–118–6282	7552–04
96	D	INSERTION TOOL	5120–00–797–2404	7552–3
97	O, F	CHARGING KIT, NITRO	1025–01–070–3200	8449334
98	F	SLING, GUN TUBE	5340–00–699–9307	8735440
99	F	LEVEL STRIDING	5210–00–293–0005	98–6
100	F	SLING, LIFTING	4910–00–776–8906	8387711
101	O	FAST FILL ASSEMBLY	4320–01–416–7840	12927729
102	O	CABLE ASSEMBLY, FAST FILL, POWER	6150–00–682–3460	11647741
103	O	SPORT ACCESSORY KIT		12988701
104	DELETED			
105	DELETED			
106	DELETED			
107	O	ADJUSTMENT SHIM, BRUSH BLOCK		12979852

Section III. TOOLS AND TEST EQUIPMENT – CONTINUED

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
108	O, F	TORQUE WRENCH	5120–01–355–1810	TE1FUA
109	O, F	TORQUE WRENCH	5120–01–355–1812	TE6FUA
110	O, F	RECOIL EXERCISER ACCESSORY KIT	1015–01–410–8087	12940961

Section IV. REMARKS

REMARKS CODE	REMARKS
1	SPORT WITH ACCESSORY KIT REQUIRED FOR REPROGRAMMING AND TROUBLESHOOTING LRU'S
2	TB 9–2350–314–20–2–1 (CD) REQUIRED FOR REPROGRAMMING SOFTWARE AND TROUBLESHOOTING OF AFCS LRU'S.

APPENDIX C
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

C–1 SCOPE.

This appendix lists expendable/durable supplies and materials needed to operate and maintain the 155MM self–propelled howitzer at organizational level. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized by CTA 50–970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8–100, Army Medical Department Expendable/Durable Items.

C–2 EXPLANATION OF COLUMNS.

a. Column (1) — Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the materiel (e.g., “Use adhesive, Item 2, Appx C”).

b. Column (2) — Level. This column identifies the lowest level of maintenance that requires the listed item. O — Unit Maintenance.

c. Column (3) — National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to request or requisition the item.

d. Column (4) — Description. Indicates the federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity (CAGE) in parentheses followed by the part number.

e. Column (5) — Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two–character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
1	O	8040–01–125–4675	Adhesive BOSTIK1096 (70707)	GL
2	O	8040–00–903–5081	Adhesive MIL–A–24456 (81349)	KT
3	O	8040–01–140–0954	Adhesive MIL–A–46050 TY2CL3 (80244)	OZ
4	O	8040–00–262–9027	Adhesive MIL–A–5092 TY1 (81349)	TU
5	O	8040–01–304–0784	Adhesive MIL–A–48611 TY2 (80244)	KT
6	O	8040–00–262–9028	Adhesive MMM–A–1617 TY1 (80244)	PT
6.1	O	8040–00–664–4318	Adhesive MMM–A–1617TY2 (80244)	PT
7	O		Adhesive MMM–A–1617 (19200)	TU
8	O	8040–00–067–8990	Adhesive, curing BOSCODUR 9 (70707)	KT
9	O	8040–01–048–3158	Adhesive, epoxy resin A–A–3053 TY2 CLAA	KT
10	O	8040–00–845–4304	Adhesive, silicone MIL–A–46106	PT
11	O	8040–00–522–3429	Adhesive, silicone MIL–A–46106	CC

Section II. EXPENDABLE AND DURABLE ITEMS LIST – CONTINUED

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
12	O	8040–01–376–0468	Adhesive 45404 (05972)	TU
13	O	8040–00–079–7158	Adhesive 4693 (76381)	QT
14	O	6810–01–190–2538	Alcohol, isopropyl TT–I–735 (81348)	CN
15	O	8030–00–155–6444	Antiseize compound MIL–A–907 (81349)	CN
16	O	8105–00–837–7754	Bag, plastic A–A–1799 (58536)	MX
17	O	8105–00–299–8532	Bag, plastic, 100 each A–A–1668 (58536)	BX
18	O	8125–01–082–9697	Bottle, oil sampling MIL–B–44054 (81349)	BX
19	O	8115–00–190–5020	Box, shipping, 10 each (81348) PPP–B–636	BD
20	O	7920–00–223–8005	Brush, swabbing H–B–643 (81348)	GR
21	O	5340–01–026–3250	Cap, dust protective 1/8 inch M5501/7–F2 (81349)	EA
22	O	5340–01–065–9917	Cap, dust protective 1/4 inch M5501/7–F4 (81349)	EA
23	O	5340–01–183–0961	Cap, dust protective 3/8 inch M5501/9–F6 (81349)	EA
24	O	5340–01–326–2579	Cap, dust protective 1/2 inch MIL–C–5501/7–F8 (81349)	EA
25	O	5340–00–597–4502	Cap, dust protective 5/8 inch M5501/3–R10 (81349)	EA
26	O	5340–01–185–7897	Cap, dust protective 3/4 inch M5501/10–F12 (81349)	EA
27	O	5340–01–183–0976	Cap, dust protective 1 inch MIL–C–5501/11F16 (81349)	EA
28	O	5340–01–210–0511	Cap, dust protective 1 1/8 inches M5501/11F17 (81349)	EA
29	O	5340–01–215–0037	Cap, dust protective 1 1/8 inches MIL–C–5501/9–F17 (81349)	EA
30	O	5340–01–238–3768	Cap, dust protective 1 3/8 inches MIL–C–5501/7–F23 (81349)	EA
31	O	5340–01–194–3200	Cap, dust protective 1 1/2 inches M5501/7–F25 (81349)	EA
32	O	9150–01–053–6688	Cleaner, lubricant MIL–L–63460	GL
33	O	5350–00–221–0872 5350–00–268–3116	Cloth, abrasive A–A–1206 (58536) 50 sheets 50 yards	 PG RO
34	O		Coating ECT6SR	PT
35	O	8010–00–297–0593	Coating, primer TT–P–1757 (81348)	PT
36	O	9150–01–054–6453	Compound, cleaning MIL–L–63460 (81349)	PT
37	O	8030–00–275–8114	Compound, sealing MIL–S–11030 TY1 (80244)	PT
38	O	8030–00–081–2336	Compound, sealing MIL–S–22473 GRAV (81349)	BT
39	O	8030–00–058–5398	Compound, sealing MIL–S–22473 GRB (80244)	TU

Section II. EXPENDABLE AND DURABLE ITEMS LIST – CONTINUED

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
40	O	8030–00–823–7917	Compound, sealing MIL–S–22473 GRC (80244)	BT
41	O	8030–01–104–5392	Compound, sealing MIL–S–46163 TY2GRN (80244)	BT
42	O	8030–01–142–9830	Compound, sealing MIL–S–46163 TY2GRO (80244)	BT
43	O	8030–01–054–3968	Compound, sealing MIL–S–46163 TY2GRM (80244)	BT
44	O	8030–01–142–3131	Compound, sealing MIL–S–46163 TY2GRO (80244)	BT
45	O	8030–01–181–5549	Compound, sealing MIL–S–46163 TY3GRP (80244)	BT
46	O	8030–00–174–2598	Compound, sealing MIL–S–8802 TY2CLB–4 (80244)	KT
46.1	O		Compound, sealing SAE AMS 3265, CLASS A	BT
47	O	8305–00–267–3114	Cord, elastic MIL–C–5651 (81349)	FT
48	O		Detergent, general purpose P–D–220 TY2 (80244)	
		7930–00–530–8067	1 gl can	GL
		7930–00–527–1207	5 gl can	CN
49	O		Compound, Sealing 12984469 (19200)	CN
50	O	9150–00–935–9808	Fluid, hydraulic MILPRF6083 (81349)	GL
51	O		Gloves, patient, exam (package of 100) (89875)	PG
		6515–01–150–2976	E–010 Size small	
		6515–01–150–2978	E–012 Size medium	
		6515–01–150–2977	E–011 Size large	
52	O	9150–00–190–0906	Grease, automotive MIL–G–10924 (81349)	CN
53	O	7510–01–036–3724	Ink, black marking B43553–IIBLKPT (81349)	PT
54	O	5970–01–157–9469	Insulating compound M46146/31AWN	TU
55	O	9150–00–985–7255	Lubricant, solid film MIL–L–46010 (81349)	GL
56	O	9150–00–754–2595	Lubricant, thread MOLITHN02MOLY (73219)	CN
57	O	6810–00–292–9676	Methyl alcohol O–M–232 (81348)	QT
58	O	6830–01–028–9402	Nitrogen BB–N–411 (81348)	CY
59	O	7920–00–753–5242	Pad, scouring SCOTCHBRITE96 (27293)	PG
60	O		Plug, dust protective MIL–C–5501/1–R2 (81349)	EA
61	O	5340–01–050–4861	Plug, dust protective 1/4 inch M5501/1–R4 (81349)	EA
62	O	5340–00–682–1857	Plug, dust protective 3/8 inch M5501/1–F6 (81349)	EA
63	O	5340–00–286–4161	Plug, dust protective 1/2 inch M5501/1–R8 (81349)	EA
64	O	5340–01–167–9320	Plug, dust protective 5/8 inch M5501/10–R10 (81349)	EA
65	O	5340–00–804–0753	Plug, dust protective 1 inch MIL–C–5501/7–F21 (81349)	EA
66	O	5340–00–804–0754	Plug, dust protective 1 1/4 inch MIL–C–5501/2–20 (81349)	EA
67	O	8010–00–063–5776	Primer TT–P–666 (81348)	QT
68	O	8030–01–284–3943	Resin, epoxy MIL–R–9300 (81349)	GL

Section II. EXPENDABLE AND DURABLE ITEMS LIST – CONTINUED

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) (U/M)/ (U/I)
69	O	4020–00–089–0374	Rope, fibrous MIL–R–17343 (81349)	CL
70	O	4020–00–231–9005	Rope, fibrous TR605 (81348)	CL
71	O	4010–00–837–3649	Rope, wire M83420/2–003 (81349)	FT
72	O	4010–00–575–6233	Rope, wire 879447–01 (18894)	FT
73	O	1015–01–255–4144	Sealant, pipe, teflon 12297953 (19207)	TU
74	O	3439–01–094–3338	Solder SN60WRAP1 0.032 1LB (81348)	SL
75	O	6850–00–285–8011	Solvent, dry–cleaning P–D–680 (81348)	DR
76	O	5975–00–984–6582	Strap, tiedown electric MS3367–1–0 (96906)	HD
77	O	5975–00–074–2072	Strap, tiedown electric MS3367–1–9 (96906)	HD
78	O	5975–00–899–4606	Strap, tiedown electric MS3367–2–0 (96906)	HD
79	O	5975–01–045–0431	Strap, tiedown electric MS3367–2–4 (96906)	EA
80	O	5975–00–156–3253	Strap, tiedown electric MS3367–2–9 (96906)	HD
81	O	5975–00–985–6630	Strap, tiedown electric MS3367–3–0 (96906)	HD
82	O	5975–00–451–5001	Strap, tiedown electric MS3367–3–9 (96906)	HD
83	O	5975–00–727–5153	Strap, tiedown electric MS3367–4–9 (96906)	HD
84	O	5975–00–133–8696	Strap, tiedown electric MS3367–6–9 (96906)	HD
85	O	5975–01–034–5871	Strap, tiedown electric MS3367–7–0 (96906)	HD
86	O	5975–00–483–5756	Strap, tiedown electric 8724501 (19207)	FT
87	O	9905–00–537–8954	Tag, marking MIL–T–12755 (81349)	BD
88	O	5970–00–816–6056	Tape, insulation, electrical HH–I–595–B–108–0 (81348)	RO
89	O	7510–00–198–5831	Tape, pressure sensitive 3842G (53578)	RO
90	O	7510–01–146–7767	Tape, pressure sensitive PPP–T–60 (81348)	RO
91	O	9320–00–130–7374	Tape, rubberized MILF21840TY11 (81349)	RL
92	O	3610–00–897–1552	Towel, paper PAPERWIPING12INW (14731)	BD
93	O	4720–00–964–1433	Tube, nonmetallic 46–66440 (34629)	RL
94	O	8315–01–187–7773	Velcro: fastener, nylon hook MIL–F–21840	YD
95	O	6515–01–140–5266	Wipes, disp. lint free C6395–1A (04687)	PG
96	O	9505–00–331–3275	Wire, non–electrical MS20995C41 (96906)	LB
97	O	9505–00–684–4843	Wire, non–electrical MS20995F41 (96906)	LB
98	O	9505–00–248–9850	Wire, non–electrical MS20995F47 (96906)	LB
99	O	9525–00–618–0257	Wire, non–electrical MS20995NC20 (96906)	SL
100	O		Wood, 4x4 MM–L–751 (81348)	
101	O	5530–00–128–4061	Wood, A–A–1417 (58536)	SH

APPENDIX D
MANUFACTURED ITEMS LIST

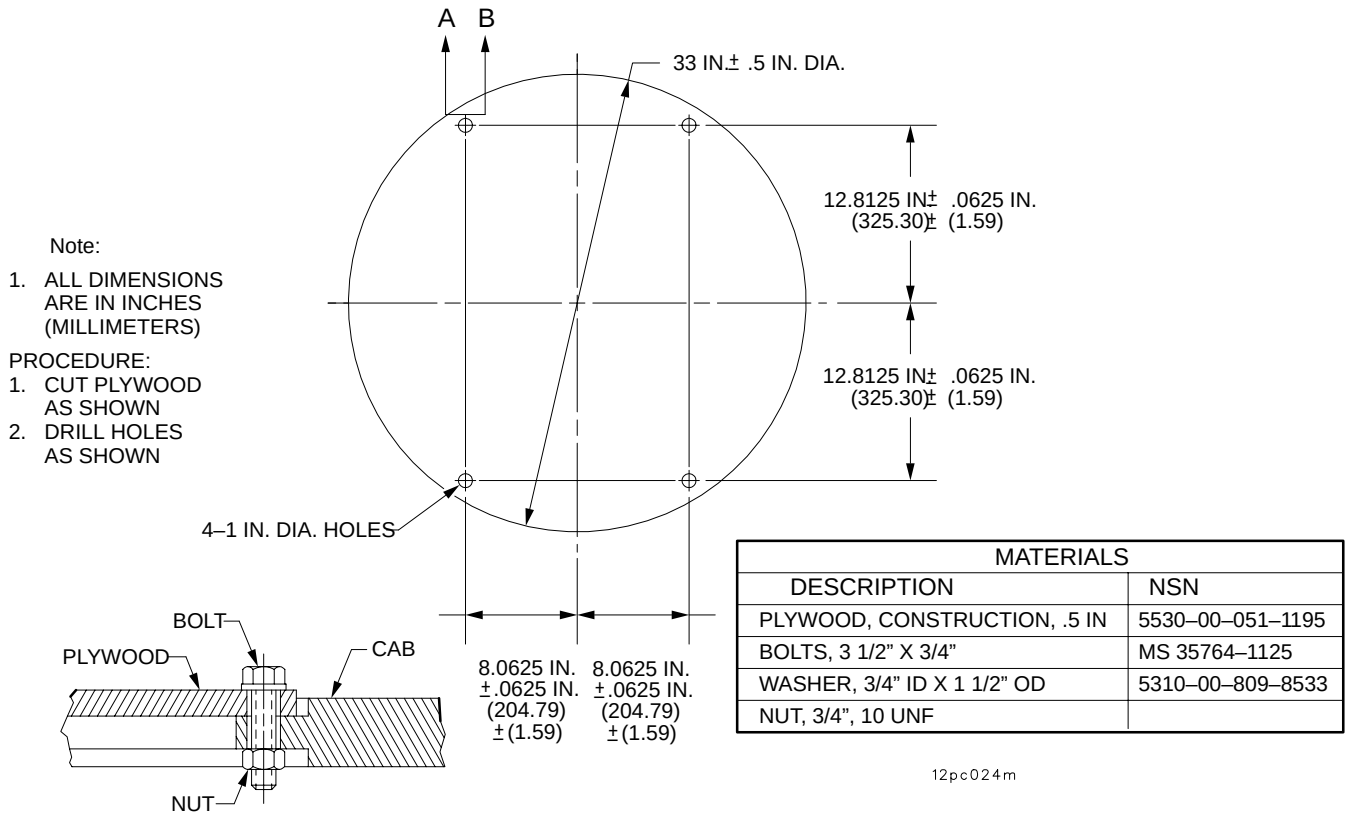
D–1 SCOPE.

This appendix includes complete instructions for making items authorized to be manufactured or modified fabricated at unit maintenance level. A part number index in alphanumeric order is provided for cross–referencing the part of the item to be manufactured to the figure which covers fabrication criteria. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

D–2 PART NUMBER INDEX LIST.

ITEM	PART NUMBER	REFERENCE
Commander's Cupola Opening Cover	TBD	Figure 1
Recoil Mechanism Exercising Bracket		Figure 2

D–3 MANUFACTURED ITEMS.



MATERIALS	
DESCRIPTION	NSN
PLYWOOD, CONSTRUCTION, .5 IN	5530–00–051–1195
BOLTS, 3 1/2" X 3/4"	MS 35764–1125
WASHER, 3/4" ID X 1 1/2" OD	5310–00–809–8533
NUT, 3/4", 10 UNF	

Figure 1. Commander's Cupola Opening Cover

D–3 MANUFACTURED ITEMS – CONTINUED

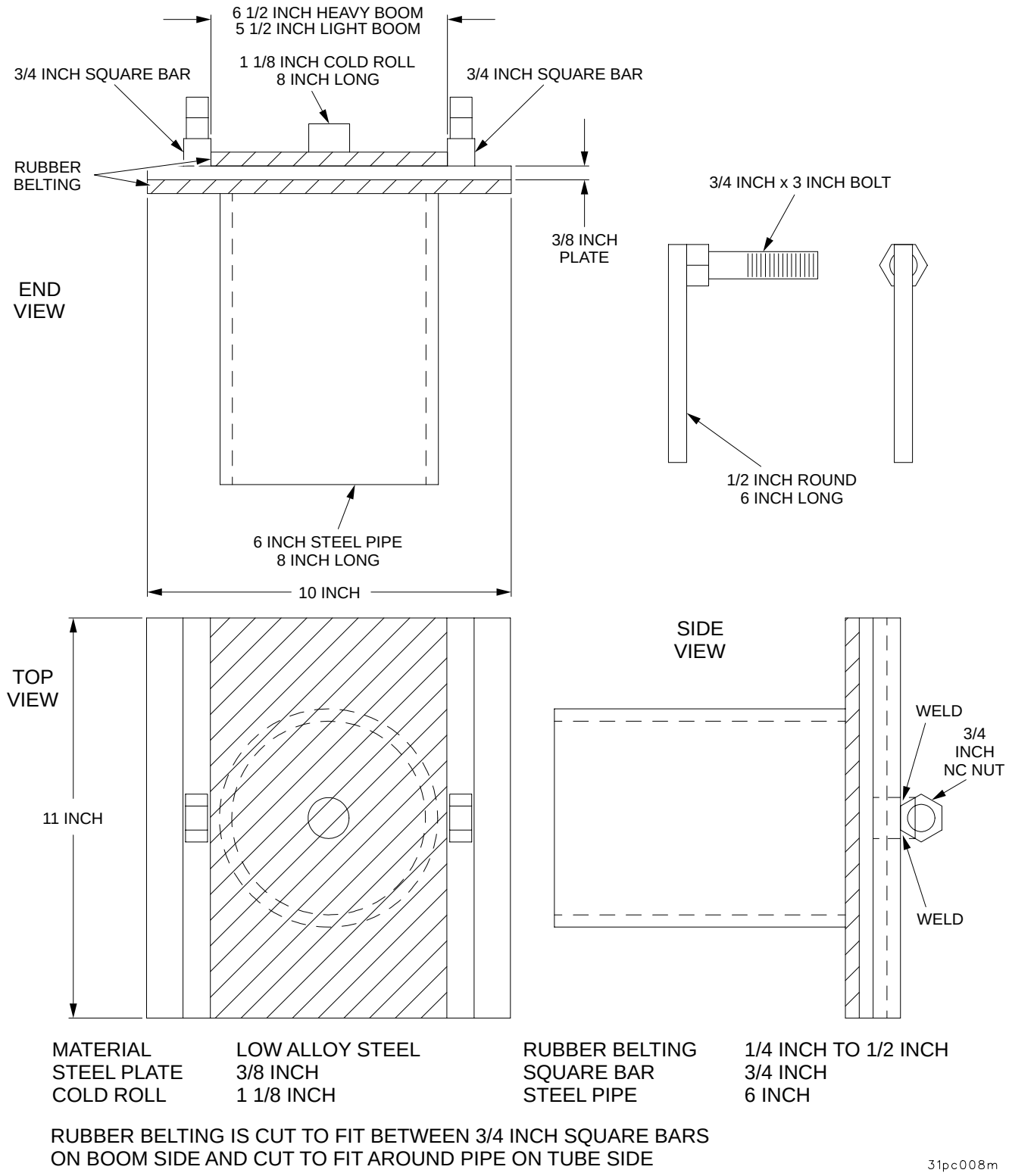


Figure 2. Dimensional drawing for fabricating improvised recoil mechanism exercising bracket for wreckers M543A2/M816

APPENDIX E
TORQUE LIMITS

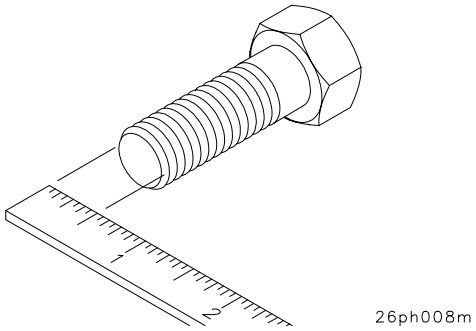
E–1 GENERAL.

This section provides general torque limits for screws used on the M109A6 vehicles. Special torque limits are indicated in the maintenance procedures for applicable components. The general torque limits given in this appendix shall be used when specific torque limits are not indicated in the maintenance procedure. These general torque limits cannot be applied to screws that retain rubber components. The rubber components will be damaged before the correct torque limit is reached. If a special torque limit is not given in the maintenance instructions, tighten the screw or nut until it touches the metal bracket, then tighten it one more turn.

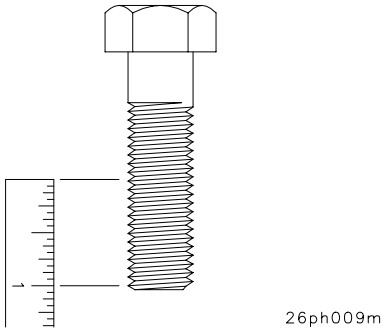
E–2 TORQUE LIMITS.

Table E–1 lists dry torque limits. Dry torque limits are used on screws that do not have lubricants applied to the threads. Table E–2 lists wet torque limits. Wet torque limits are used on screws that have high–pressure lubricants applied to the threads.

E–3 HOW TO USE TORQUE TABLE.



a. Measure the diameter of the screw you are installing.



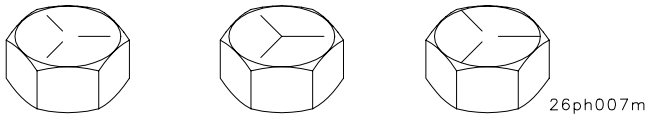
b. Count the number of threads per inch or use a pitch gage.

c. Under the heading SIZE, look down the left hand column until you find the diameter of the screw you are installing (there will usually be two lines beginning with the same size).

d. In the second column under SIZE, find the number of threads per inch that matches the number of threads you counted in step b.

E–3 HOW TO USE TORQUE TABLE – CONTINUED

CAPSCREW HEAD MARKINGS
Manufacturer's marks may vary.
These are all SAE Grade 5 (3 line)

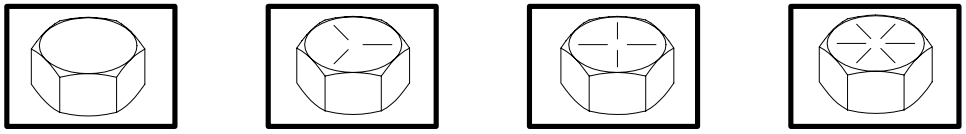


e. To find the grade screw you are installing, match the markings on the head to the correct picture of CAPSCREW HEAD MARKINGS on the torque table.

f. Look down the column under the picture you found in step e. until you find the torque limit (in lb–ft or N·m) for the diameter and threads per inch of the screw you are installing.

Table E–1. Torque Limits for Dry Fasteners

SAE CAPSCREW HEAD MARKINGS

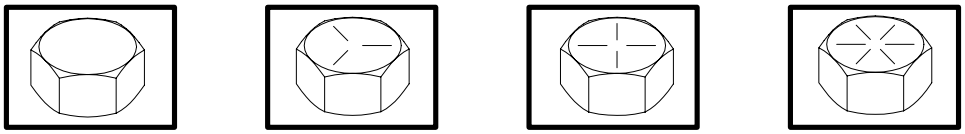


SIZE			TORQUE							
			SAE GRADE No. 1 or 2		SAE GRADE No. 5		SAE GRADE No. 6 or 7		SAE GRADE No. 9	
DIA. INS.	THREADS PER INCH	MMs	POUND–FEET	N·m	POUND–FEET	N·m	POUND–FEET	N·m	POUND–FEET	N·m
1/4	20	6.35	5	6.78	8.0	10.85	10	13.56	12.0	16.27
1/4	28	6.35	6	8.14	10.0	13.56	—	—	14.0	18.98
5/16	18	7.94	11	14.92	17.0	23.05	19	25.76	24.0	32.52
5/16	24	7.94	13	17.63	19.0	25.76	—	—	27.0	36.61
3/8	16	9.53	18	24.41	31.0	42.04	34	46.10	44.0	59.66
3/8	24	9.53	20	27.12	35.0	47.46	—	—	49.0	66.44
7/16	14	11.11	28	37.97	49.0	66.44	55	74.58	70.0	94.92
7/16	20	—	30	40.68	55.0	74.58	—	—	78.0	105.77
1/2	13	12.70	39	52.88	75.0	101.70	85	115.26	105.0	142.38
1/2	20	—	41	55.60	85.0	115.26	—	—	120.0	162.78
9/16	12	14.29	51	69.16	110.0	149.16	120	162.72	155.0	210.18
9/16	18	—	55	74.58	120.0	162.72	—	—	170.0	230.52
5/8	11	15.88	63	85.43	150.0	203.40	167	226.45	210.0	284.76
5/8	18	—	95	128.82	170.0	230.52	—	—	240.0	325.44
3/4	10	19.05	105	142.38	270.0	366.12	280	379.68	375.0	508.50
3/4	16	—	115	155.94	295.0	400.02	—	—	420.0	596.52
7/8	9	22.23	160	216.96	395.0	535.62	440	596.64	605.0	820.38
7/8	14	—	175	237.30	435.0	589.86	—	—	675.0	915.30
1	8	25.40	235	318.66	590.0	800.04	660	894.96	910.0	1233.96
1	14	—	250	339.00	660.0	894.96	—	—	990.0	1342.44
1–1/8	—	25.58	—	—	800.0	1064.8	—	—	1280.0	1735.7
					880.0	1193.3			1440.0	1952.8
1–1/4	—	31.75	—	—	—	—	—	—	1820.0	2467.9
							—	—	2000.0	2712.0
1–3/8	—	34.93	—	—	1460.0	1979.8	—	—	2380.0	3227.3
					1680.0	2278.1			2720.0	3688.3
1–1/2	—	38.10	—	—	1940.0	2630.6	—	—	3160.0	4285.0
					2200.0	2983.2			3560.0	4827.4

E–3 HOW TO USE TORQUE TABLE – CONTINUED

Table E–2. Torque Limits for Wet Fasteners

SAE CAPSCREW HEAD MARKINGS



26ph006m

SIZE			TORQUE							
			SAE GRADE No. 1 or 2		SAE GRADE No. 5		SAE GRADE No. 6 or 7		SAE GRADE No. 8	
DIA. INS.	THREADS PER INCH	MMs	POUND–FEET	N·m	POUND–FEET	N·m	POUND–FEET	N·m	POUND–FEET	N·m
1/4	20	6.35	4.9	6.10	7.2	9.76	9.0	12.20	10.8	14.64
1/4	28	6.35	5.4	7.33	9.0	12.20	—	—	12.6	17.08
5/16	18	7.94	9.9	13.34	15.3	22.54	17.1	23.18	21.6	29.27
5/16	24	7.94	11.7	15.87	17.1	23.18	—	—	24.3	32.95
3/8	16	9.53	16.2	21.97	27.9	37.84	30.6	41.49	39.6	53.69
3/8	24	9.53	18.0	24.41	31.5	42.71	—	—	44.1	59.80
7/16	14	11.11	25.2	34.17	44.1	59.80	49.5	67.12	63.0	85.42
7/16	20	—	27.0	36.61	49.5	67.12	—	—	70.2	95.19
1/2	13	12.70	35.1	47.59	67.5	91.53	76.5	103.73	94.5	128.14
1/2	20	—	36.9	50.04	76.5	103.73	—	—	108.0	146.50
9/16	12	14.29	45.9	62.24	99.0	134.24	108.0	146.45	139.5	189.16
9/16	18	—	49.5	67.12	108.0	146.45	—	—	153.0	207.47
5/8	11	15.88	56.7	76.89	135.0	183.06	150.3	203.80	189.0	256.28
5/8	18	—	85.5	115.94	153.0	207.47	—	—	216.0	296.90
3/4	10	19.05	94.5	128.14	243.0	329.51	252.0	341.71	337.5	457.65
3/4	16	—	103.5	140.35	265.5	360.2	—	—	378.0	536.87
7/8	9	22.23	144.0	195.26	355.5	482.06	396.0	536.98	544.5	738.34
7/8	14	—	157.5	213.57	391.5	530.87	—	—	607.5	823.77
1	8	25.40	211.5	286.79	531.0	720.04	594.0	805.46	819.0	1110.56
1	14	—	225.0	305.10	594.0	805.46	—	—	891.0	1208.20
1–1/8	—	25.58	—	—	720.0	976.32	—	—	1152.0	1562.13
					792.0	1073.97			1296.0	1757.52
1–1/4	—	31.75	—	—	—	—	—	—	—	2221.11
										2440.80
1–3/8	—	34.93	—	—	1314.0	1781.82	—	—	2142.0	2904.57
					1512.0	2050.29			2448.0	3319.47
1–1/2	—	38.10	—	—	1746.0	2367.54	—	—	2844.0	3856.5
					1980.0	2684.88			3204.0	4344.66

E–4 TIGHTENING METAL FASTENERS.

When torquing a fastener, select a wrench whose range (Table E–3) fits the required torque value. A torque wrench is most accurate from 25% to 75% of its stated range. A wrench with a stated range of 0 to 100 will be most accurate from 25 to 75 Pound–Feet. The accuracy of readings will decrease as you approach 0 Pound–Feet or 100 Pound–Feet. The following ranges are based on this principle.

E–4 TIGHTENING METAL FASTENERS – CONTINUED

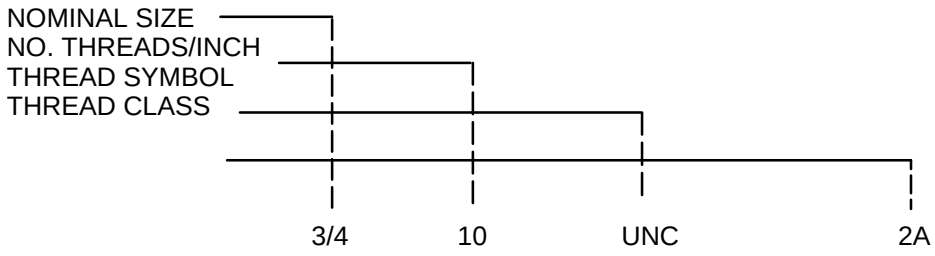
Table E–3. TORQUE RANGES	
STATED RANGE	**MOST EFFECTIVE RANGE**
0–200 lb–in	4–13 lb–ft
0–600 lb–ft	50–450 lb–ft
0–170 lb–ft	44–131 lb–ft
15–75 lb–ft	30–60 lb–ft

E–5 FASTENER SIZE AND THREAD PATTERN.

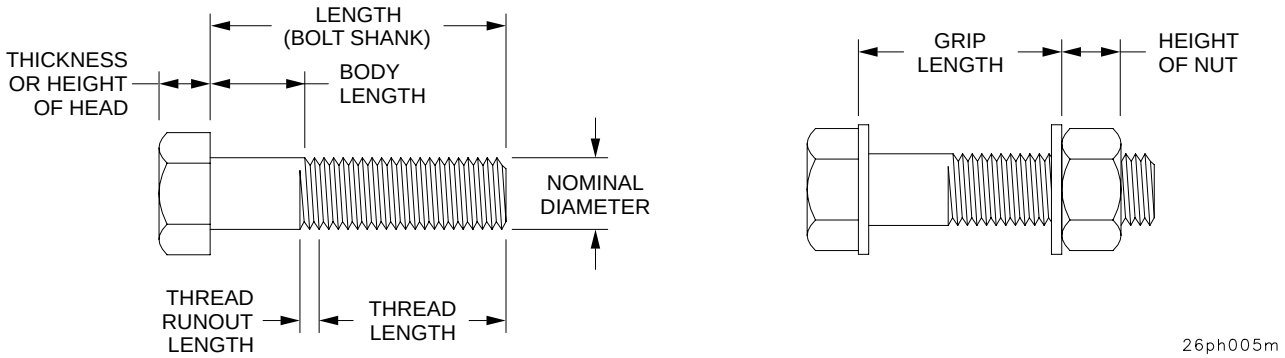
Threaded fasteners are categorized according to diameter of the fastener shank. Thread styles are divided into broad groups, the two most common being coarse (Unified Coarse–UNC) and fine (Unified Fine–UNF). These groups are defined by the number of threads per inch on the bolt shanks. In addition, threads are categorized by thread class (Table E–4), which is a measure of the degree of fit between the threads of the bolt or screw (external threads) and the threads of the attaching nut or tapped hole (internal threads). The most common thread class for bolts and screws is Class 2.

Table E–4. THREAD CLASSES AND DESCRIPTION		
EXTERNAL	**INTERNAL**	**FIT**
1A	1B	LOOSE FIT
2A	2B	MEDIUM FIT
3A	3B	CLOSE FIT

Thread patterns are designed as follows:



NOTE: Unless followed with –LH (e.g. 3/4–1 OUNC–2A–LH), threads are right hand.



E–6 FASTENER GRADE.

In addition to being classified by thread type, threaded fasteners are also classified by material. The most familiar fastener classification system is the SAE grading system (Table E–5).

Table E–5. SAE Screw and Bolt Markings

SCREWS	BOLTS
SAE GRADE 2 NO MARKING	SAE GRADE 6 4 RADIAL DASHES 90° APART
SAE GRADE 3 2 RADIAL DASHES 180° APART	SAE GRADE 7 5 RADIAL DASHES 72° APART
SAE GRADE 5 3 RADIAL DASHES 120° APART	SAE GRADE 8 6 RADIAL DASHES 60° APART

Markings On Hex Locknuts

GRADE A – No Marks
GRADE B – 3 Marks
GRADE C – 6 Marks

GRADE A – No Mark
GRADE B – Letter B
GRADE C – Letter C

GRADE A – No Notches
GRADE B – One Notch
GRADE C – Two Notches

APPENDIX F
MANDATORY REPLACEMENT PARTS LISTS

F–1 SCOPE.

This appendix is a cross–reference of item numbers to part numbers and is included for that purpose only.

F–2 EXPLANATION OF COLUMNS.

a. Column (1) – Item Number. This number is assigned to the entry in the listing for cross–referencing to the part number.

b. Column (2) – Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specification, standards, and inspection requirements to identify an item or range of items.

c. Column (3) – Description. This column contains the nomenclature which appears on the first page of the task under the subheading “Materials/Parts”.

F–3 MANDATORY REPLACEMENT PARTS LIST.

ITEM #	PART NUMBER	NOMENCLATURE
1	AN6289–4	NUT, LOCK
2	M12133/2–630	WASHER, SPRING
3	M83461/1–010	PACKING, PREFORMED
4	M83461/1–011	PACKING, PREFORMED
5	M83461/1–012	PACKING, PREFORMED
6	M83461/1–014	PACKING, PREFORMED
7	M83461/1–016	PACKING, PREFORMED
8	M83461/1–018	PACKING, PREFORMED
9	M83461/1–138	PACKING, PREFORMED
10	M83461/1–218	PACKING, PREFORMED
11	M83461/2–902	PACKING, PREFORMED
12	M83528/004J004	GASKET
13	M83528/004J018	GASKET
14	M83528/004J021	GASKET
15	M83528/004J028	GASKET
16	MS14104–8	BEARING
17	MS16562–109	PIN, SPRING
18	MS16562–29	PIN, SPRING
19	MS16562–124	PIN, SPRING
20	MS16562–129	PIN, SPRING
21	MS16562–135	PIN, SPRING
22	MS16633–1012	RING, RETAINING

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
23	MS16562–206	PIN, SPRING
24	MS16562–224	PIN, SPRING
25	MS16562–36	PIN, SPRING
26	MS16562–42	PIN, SPRING
27	MS16562–50	PIN, SPRING
28	MS16562–62	PIN, SPRING
29	MS16562–64	PIN, SPRING
30	MS16562–66	PIN, SPRING
31	MS16562–78	PIN, SPRING
32	MS16562–80	PIN, SPRING
33	MS16624–2043	RING, RETAINING
34	MS16624–2050	RING, RETAINING
35	MS16624–1075	RING, RETAINING
36	MS16624–4087	RING, RETAINING
37	MS16624–4162	RING, RETAINING
38	MS16625–2062	RING, RETAINING
39	MS16625–2206	RING, RETAINING
40	MS16997–101	SCREW, SELF–LOCKING
41	MS16997–154	SCREW, SELF–LOCKING
42	MS16997–69	SCREW, SELF–LOCKING
43	MS16997–70	SCREW, SELF–LOCKING
44	MS16997–78	SCREW, SELF–LOCKING
45	MS16998–27	SCREW, SELF–LOCKING
46	MS16998–42L	SCREW, SELF–LOCKING
47	MS171500	PIN, SPRING
48	MS171531	PIN, SPRING
49	293MT003P025	PIN, SPRING
50	MS171533	PIN, SPRING
51	MS171572	PIN, SPRING
52	MS17795–100	BEARING, SLEEVE
53	MS17795–47	BEARING, SLEEVE
54	MS17796–195	BEARING, SLEEVE
55	MS17796–81	BEARING, SLEEVE
56	MS17829–14F	NUT, SELF–LOCKING
57	MS17829–3C	NUT, SELF–LOCKING

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
58	MS21042–6	NUT, SELF–LOCKING
59	MS21083B3	NUT, SELF–LOCKING
60	MS20613–4C5	RIVET
61	MS21044C3	NUT, SELF–LOCKING
62	MS21044C8	NUT, SELF–LOCKING
63	MS21044N5	NUT, SELF–LOCKING
64	MS21046C3	NUT, SELF–LOCKING
65	MS21083C3	NUT, SELF–LOCKING
66	MS21083N8	NUT, SELF–LOCKING
67	MS21083–B4	NUT, SELF–LOCKING
68	MS21044B3	NUT, SELF–LOCKING
69	MS21262–64	SCREW, SELF–LOCKING
70	MS21318–20	SCREW, DRIVE
71	MS51988–3	NUT, SELF–LOCKING
72	MS24585C365	SPRING
73	MS24665–134	PIN, COTTER
74	MS24665–170	PIN, COTTER
75	MS24665–281	PIN, COTTER
76	MS24665–282	PIN, COTTER
77	MS24665–283	PIN, COTTER
78	MS24665–285	PIN, COTTER
79	MS24665–298	PIN, COTTER
80	MS24665–353	PIN, COTTER
81	MS24665–355	PIN, COTTER
82	MS24665–387	PIN, COTTER
83	MS24665–441	PIN, COTTER
84	MS24665–625	PIN, COTTER
85	MS27595–138	PACKING, PREFORMED
86	MS28778–10	PACKING, PREFORMED
87	MS28778–16	PACKING, PREFORMED
88	MS28778–4	PACKING, PREFORMED
89	MS28778–6	PACKING, PREFORMED
90	MS28778–8	PACKING, PREFORMED
91	MS3212–216	SCREW, SELF–SEALING
92	MS3393–10	PACKING, PREFORMED

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
93	MS28778–12	PACKING, PREFORMED
94	MS3393–16	PACKING, PREFORMED
95	MS3393–4	PACKING, PREFORMED
96	MS28778–6	PACKING, PREFORMED
97	MS3393–8	PACKING, PREFORMED
98	MS35191–239L	SCREW, SELF–LOCKING
99	MS35333–108	WASHER, LOCK
100	MS35333–126	WASHER, LOCK
101	MS35333–35	WASHER, LOCK
102	MS35333–36	WASHER, LOCK
103	MS35333–37	WASHER, LOCK
104	MS35333–39	WASHER, LOCK
105	MS35333–40	WASHER, LOCK
106	MS35333–42	WASHER, LOCK
107	MS35333–46	WASHER, LOCK
108	MS35335–30	WASHER, LOCK
109	MS35335–33	WASHER, LOCK
110	MS35335–34	WASHER, LOCK
111	MS35335–35	WASHER, LOCK
112	MS35336–21	WASHER, LOCK
113	MS35338–100	WASHER, LOCK
114	MS35338–101	WASHER, LOCK
115	MS35338–103	WASHER, LOCK
116	MS35338–135	WASHER, LOCK
117	MS35338–136	WASHER, LOCK
118	MS35338–138	WASHER, LOCK
119	MS35338–139	WASHER, LOCK
120	MS35338–141	WASHER, LOCK
121	MS35338–143	WASHER, LOCK
122	MS35338–145	WASHER, LOCK
123	MS35338–161	WASHER, LOCK
124	MS35338–40	WASHER, LOCK
125	MS35338–41	WASHER, LOCK
126	MS35338–42	WASHER, LOCK
127	MS35338–43	WASHER, LOCK

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
128	MS35338–44	WASHER, LOCK
129	MS35338–45	WASHER, LOCK
130	MS35338–46	WASHER, LOCK
131	MS35338–47	WASHER, LOCK
132	MS35338–48	WASHER, LOCK
133	MS35338–51	WASHER, LOCK
134	MS35338–63	WASHER, LOCK
135	MS35338–96	WASHER, LOCK
136	MS35338–98	WASHER, LOCK
137	MS35340–47	WASHER, LOCK
138	MS35764–1549	BOLT, SELF–LOCKING
139	MS35764–1605	BOLT, SELF–LOCKING
140	MS35764–1609	BOLT, SELF–LOCKING
141	MS35764–1613	BOLT, SELF–LOCKING
142	MS39086–173	PIN, SPRING
143	12979837	SCREW
144	MS45904–68	WASHER, LOCK
145	MS35333–41	WASHER, LOCK
146	MS45904–76	WASHER, LOCK
147	MS45904–84	WASHER, LOCK
148	MS51844–782	SLEEVE, COMPRESSION
149	MS51844–82	SLEEVE
150	MS51848–12	WASHER, LOCK
151	MS51967–5	NUT, SELF–LOCKING
152	MS51988–11	NUT, SELF–LOCKING
153	MS29513–153	PACKING, PREFORMED
154	MS9048–108	PIN, SPRING
155	MS24665–151	PIN, COTTER
156	NAS1523–12B	PACKING, PREFORMED
157	NAS1601–436	PACKING, PREFORMED
158	MS22064–5	CLAMP
159	PPL3695	KIT, MARKING
160	100340	RIVET
161	10888018	SEAL
162	10895585	GASKET

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
163	10895606	GASKET
164	10895831	PAD, CUSHIONING
165	12979826	SEAL
166	10897248	SEAL
167	10897269	PAD
168	10897823	SEAL
169	10916022	DECAL
170	10935752	GASKET
171	10953654	PIN, SPRING
172	10954727	SEAL
173	11747276	PAD
174	11784950	DECAL
175	11784977	PAD
176	12012119	GASKET
177	12361690–3	GASKET
178	12391690–4	GASKET
179	12553331	WASHER, BRAKE
180	12553339	SPACER, SLEEVE
181	12553511	GASKET
182	12553635–1	INSERT
183	12553515	GASKET
184	12553526	SEAL
185	12553577	BUSHING
186	12553639	SEAL
187	12553814	SEAL
188	M6855/4–04L103	TUBING, RUBBER
189	12562954	GASKET
190	12563007	SPACER
191	12563009	WASHER, ADHESIVE
192	12563028	PLATE, FACE
193	12576013	ASSEMBLY, COVER
194	12576121	GASKET
195	12531094	BUSHING
196	12531095	BUSHING
197	12906913	STRIP, RUBBER

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
198	12910389–1	GASKET
199	12910389–2	GASKET
200	12910696	STRIP, RUBBER
201	12927652–1	STUD, SELF–LOCKING
202	12917652–2	STUD, SELF–LOCKING
203	12927677	GASKET
204	12934662	GASKET
205	12934672	GASKET
206	172204	KEYWASHER
207	7358587	WASHER, BOWED
208	MS51848–10	WASHER, LOCK
209	7407418	WASHER, LOCK
210	7962254	GASKET
211	MS51848–12	WASHER, LOCK
212	8267869	NUT, SELF–LOCKING
213	8346053	WASHER, LOCK
214	85099K13	GASKET
215	8712289–1	NUT, LOCK
216	8712289–5	NUT, LOCK
217	12940931	PADDING, TOP RIGHT
218	MS16562–33	PIN, SPRING
219	10955765	GASKET
220	MS45904–72	WASHER, LOCK
221	MS28775–015	PACKING, PREFORMED
222	MS3393–5	PACKING, PREFORMED
223	MS3393–3	PACKING, PREFORMED
224	M83461/2–904	PACKING, PREFORMED
225	MS16997–30L	SCREW, SELF–LOCKING
226	MS51957–14	SCREW, MACHINE
227	MS27665–71	PIN, COTTER
228	MS35764–1611	SCREW, SELF–LOCKING
229	MS35338–61	WASHER, LOCK
230	12940929	PADDING, TOP LEFT
231	MS35338–140	WASHER, LOCK
232	MS20613–6C8	RIVET

F–3 MANDATORY REPLACEMENT PARTS LIST – CONTINUED

ITEM #	PART NUMBER	NOMENCLATURE
233	MS20427–3C5	RIVET
234	MS20426A7–8	RIVET
235	AA55610–46	WASHER, LOCK
236	MS27183–8	WASHER, LOCK
237	12940924–2	SEAL
238	12940924–1	SEAL
239	12940927	PADDING, BOTTOM RIGHT
240	12940928	PADDING, BOTTOM LEFT
241	12563145	FILTER ELEMENT, FLUID
242	MS16562–30	PIN, SPRING
243	12940881	PIN, STRAIGHT
244	M83461/2–908	PACKING, PREFORMED
245	3–902N674–7	PACKING, PREFORMED
246	M83461/2–916	PACKING, PREFORMED

APPENDIX G
TOOL IDENTIFICATION LIST

ITEM	LEVEL	NOMENCLATURE	NSN	REFERENCE
1	O	ADAPTER CABLE ASSEMBLY DRUH (12979821)		TM 9–2350–314–24P–2
2	O	ADAPTER, SOCKET: WRENCH, 1/2 DR TO 3/4 DR (A–A–2172)	5120–00–227–8088	TM 9–2350–314–24P–1
3	O	ADJUSTMENT SHIM, BRUSH BLOCK (12979852)		TM 9–2350–314–24P–2
4	O	ALIGNMENT TOOL, BRUSH BLOCK (12979832)		TM 9–2350–314–24P–2
5	O	ATTACHMENT, CROWFOOT 3/8 DR 5/8 INCH (A16150–013)	5120–00–224–7288	TM 9–2350–314–24P–2
6	O	ATTACHMENT, CROWFOOT 3/8 DR 3/4 INCH (1C2690)	5120–00–229–2772	TM 9–2350–314–24P–2
7	O	ATTACHMENT, CROWFOOT 1/2 DR 1–1/8 INCH (AN8508–18A)	5120–00–229–2773	TM 9–2350–314–24P–2
8	O	ATTACHMENT, CROWFOOT 1/2 DR 1–1/2 INCH (AN8508–24)	5120–00–181–6755	TM 9–2350–314–24P–2
9	O	BRUSH, WIRE (HB178)	7220–00–291–5815	SC 4910–95–A72
10	O	CABLE ASSEMBLY, FAST FILL (11647741)	6150–00–682–3460	TM 9–2350–314–24P–2
11	O	C–CLAMP	5120–00–203–6431	SC 4910–95–A72
12	O	CAPS, SOFT JAW (GGG–C–137)	5120–00–221–1506	SC 4910–95–A72
13	O	CABLE ASSEMBLY, SOFTWARE DOWN-LOAD (12974620)	6150–01–407–1100	TM 9–2350–314–24P–2
14	O	DRILL, ELECTRIC (WD00661)	5130–00–889–9004	SC 4910–95–A74
15	O	DRILL, TWIST SET (800434)	5133–00–293–0983	SC 4910–95–A74
16	O	EXTENSION, SOCKET (FAC01016)	5120–00–243–7328	SC 4910–95–A74
17	O	EYEBOLT, 1/2 INCH (MS51937–5)	5306–00–050–0347	TM 9–2350–314–24P–1
18	O	FAST FILL ASSEMBLY (12927729)	4320–01–416–7840	TM 9–2350–314–24P–2
19	O	GAGE, BELT TENSIONING (74010076)	5210–01–365–7810	TM 9–2350–314–24P–2
20	O	GAGE, TIRE PRESSURE (955)	4910–01–117–2994	SC 4910–95–A72
21	O	GUN, HEAT (500A)	4940–00–561–1002	TM 9–2350–314–24P–1
22	O	KIT, FIRE CONTROL PURGING AND CHARGING	4931–00–065–1110	SC 4931–95–J54

TOOL IDENTIFICATION LIST – CONTINUED

ITEM	LEVEL	NOMENCLATURE	NSN	REFERENCE
23	O	KIT, NITROGEN CHARGING (8449334)	1025–01–070–3200	TM 9–2350–314–24P–2
24	O	MULTIMETER, DIGITAL (T00377)	6625–01–139–2512	SC 4910–95–A72
25	O	PAIL, UTILITY (A–A–1273)	7240–00–160–0455	SC 4910–95–A12
26	O	PAN, DRAIN (45)	4910–00–387–9592	SC 4910–95–A72
27	O	PUMP, OIL (12927838)	4930–01–119–4030	SC 4910–95–A72
28	O,F	REGULATOR, ACCUMULATOR CHARGING (11615420)	4910–00–861–2068	TM 9–2350–314–24P–2
29	O	REGULATOR, NITROGEN (231–P–12805)	4935–00–040–9916	TM 9–2350–314–24P–2
30	O	REPAIR TOOL, PNEUMATIC TIRE VALVE (3522)	5120–00–308–3809	SC 4910–95–A72
31	O	RIVET SET, HAND (GGG–R–400)	5120–00–017–2849	SC 4933–95–A11
32	O	SHACKLES, CHAIN (AN116–3)	4030–00–132–9142	TM 9–2350–314–24P–2
33	O	SLING (10930417)	4910–00–976–3104	
34	O, F	SLING, 4 FOOT (PD101–48)	3940–00–675–5002	
35	O, F	SLING, 8 FOOT (PD101–96)	3940–00–675–5003	TM 9–2350–314–24P–1
36	O	SLING, LIFTING (11652649)	4910–00–295–8074	TM9–2350–314–24P–2
37	O	SLING, MULTIPLE LEG (10942192)	3940–00–678–8414	TM 9–2350–314–24P–1
38	O	SOLDERING GUN, ELECTRIC (D550–3)	3439–00–618–6623	SC 4910–95–A72
39	O	SOLDERING IRON, ELECTRIC	3439–00–853–8760	SC 4931–95–A07
40	O	SQUARE, COMBINATION (GGG–S–656)	5210–00–078–8948	SC 5180–90–N39
41	O	TAP AND DIE SET (TDM99117)	5136–01–119–0005	SC 4910–95–A74
42	O	TA1 PROBE KIT (12303622)	6625–01–102–6878	
43	O	TOOL, CANISTER RETAINING (12910438)	5120–01–352–5676	TM 9–2350–314–10
44	O, F	TOOL KIT, ELECTRICAL CONNECTOR REPAIR	5180–00–876–9336	SC 4910–95–A74
45	O, F	VALVE, EXTENSION, ACCUMULATOR CHARGING (11605630)	4810–00–051–5566	TM 9–2350–314–24P–2
46	O	VISE, MACHINIST'S (GGG–V–410TY6CL2)	5120–00–293–1439	SC 4910–95–A72
47	O, F	WRECKER, 10 TON (XM984)	2320–01–097–0248	
48	O	WRENCH, SOCKET 3/4 DR 1 INCH (A–A–1394)	5120–00–237–0989	SC 4910–95–A72

TOOL IDENTIFICATION LIST – CONTINUED

ITEM	LEVEL	NOMENCLATURE	NSN	REFERENCE
49	O	WRENCH, SOCKET 3/4 DR 1–1/8 INCH (A–A–1394)	5120–00–239–0021	SC 4910–95–A72
50	O	WRENCH, SPANNER (GGG–W–665)	5120–00–293–0206	TM 9–2350–314–10
51	O, F	WRENCH, SPANNER (8769014)	5120–00–446–3750	TM 9–2350–314–10
52	O	WRENCH, STRAP (YA826)	5120–01–192–9406	TM 9–2350–314–24P–2
53	O	WRENCH, TORQUE 1/2 DR 0–175 LB/FT (0–237 NM) (A–A–2411)	5120–00–640–6364	SC 4910–95–A72
54	O	WRENCH, TORQUE, 3/4 DR 0–600 LB/FT (9–813 NM) (SW130–310)	5120–00–221–7983	SC 4910–95–A72
55	O	WRENCH, TORQUE, 1/2 DR 0–300 LB/IN (A–A–1274)	5120–00–247–2536	SC 4910–95–A74
56	O	WRENCH, TORQUE, 3/8 DR 0–200 LB/IN (F200–1)	5120–00–853–4538	SC 4910–95–A72
57	O	SPORT ACCESSORY KIT	————————	TM 9–2350–314–24P–2

APPENDIX H
CORROSION PREVENTION AND CONTROL (CPC)

H–1 SCOPE.

This appendix contains unit level maintenance Corrosion Prevention and Control (CPC) information for various corrosion problems, treatments, tools, and available materials.

While corrosion is usually associated with rusting of metals, it can also include the deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

It is important that any corrosion problem be reported. This will allow the problem to be corrected, and improvements made to prevent the problem on future items. Report identified corrosion problems on Standard Form 368, Quality Deficiency Report. Use of key words such as corrosion, rust, deteriorating, or cracking will ensure that the information is identified as a CPC problem.

The form should be submitted to:
Department of the Army
U.S. Army Tank–automotive and Armaments Command
Armament Research, Development and Engineering Center
ATTN: AMSTA–AR–QW–C
Rock Island, IL 61299–7300

H–2 GENERAL.

The Corrosion Prevention and Control (CPC) program is a planned and organized effort to prevent damage to the M109A6 during its operation. This is accomplished by the proper and timely identification, documentation, and implementation of corrective actions. As the first line of defense, the mechanic will visually check the vehicle for corrosion and identify methods of treatment.

H–3 TYPES OF CORROSION PROBLEMS.

a. Corrosion. Corrosion is the chemical disintegration of metals caused by reaction with other elements in the environment. Corrosion destroys the usefulness of the metal by producing compounds that do not possess the physical characteristics of the metal from which they were formed. Listed and described below are four stages of corrosion to be found in metals.

(1) Stage I corrosion. Discoloration or staining. This stage of corrosion appears as a thin gray, black, or reddish film on ferrous metals; as a white or gray film on aluminum, magnesium, zinc, and their alloys; and in varied colors (green, blue–green, brown, or black) on copper and copper alloys. This is the initial stage of corrosion; it does not extend beyond the surface of the metals, and it is easily removed.

(2) Stage II corrosion. Etching. When rust or corrosion is removed, the surface of the metal is slightly roughened, but holes in the surface are not identifiable.

(3) Stage III corrosion. Pitting. In this type of corrosion, holes in the surface of the metal are visible after the corrosive coating is removed from the metal.

(4) Stage IV corrosion. Scales, pitting, and powdering. Corrosion in this stage has progressed to the point where fit, wear, function, or life of the part has been affected. Powdery or scaly conditions accompanied by deep pitting and/or irregular flaking of metal is encountered in this stage of corrosion.

b. Corrosion of Painted Surfaces. This type of corrosion occurs primarily on painted steel surfaces. The paint is often cracked and the area may have a reddish brown appearance. The size and location may vary from small spots to large areas. It may occur at mating parts such as where the suspension mates to the hull or around fasteners such as nuts, bolts, or washers.

c. Corrosion of Unpainted Moving Parts. This type of corrosion occurs on moving parts such as hinges, pins, and catches where the original protective finish was removed through use or exposure to weather. It also has a reddish brown appearance.

d. Stress Corrosion Cracks. Stress corrosion cracking is a form of corrosion that can occur in high strength steel and aluminum. It is found in the form of cracks or seams in areas where no parts are joined.

e. Selective Leaching. This type of corrosion occurs on brass or bronze components found primarily in electrical connectors. This has a spongy type appearance with much of the original metal removed.

H–4 TREATMENT PROCEDURES.

a. General. Keep the vehicle and its individual components clean. Dirt, grease, oil, and debris may conceal a serious problem. Clean components as needed. Use dry–cleaning solvent on all metal surfaces. Use mild soap and water to clean rubber and plastic parts.

Remove existing (old) lubricant with solvent or cleaner if possible. Corrosion or corrosion products should be carefully removed with a soft bristle brush or crocus cloth. Do not use stainless steel brush, steel wool, or sand paper. Use care not to remove paint or protective finishes from other non–corroded parts. Thoroughly clean with solvent or cleaner.

Lubricate equipment in accordance with TM 9–2350–314–10.
Clean batteries in accordance with TM 9–6140–200–14.

b. Painted Surfaces. AR 750–1 limits unit–level painting to touch–up or spot painting only, refer to TM 43–0139. Complete repainting is only done at General Support and Depot level maintenance.

c. Unpainted Surfaces. Clean the bore and breech mechanism in accordance with TM 9–2350–314–10 and lubricate per TM 9–2350–314–10. Coat other unpainted metal surfaces with oil or grease as appropriate.

d. Stress Corrosion Cracks. The crack should be verified by probing into the metal, and not just checking cracked paint. If cracked, weld in accordance with aluminum welding MIL–STD–372 or steel welding MIL–STD–1943.

e. Rubber and Plastic Materials. The only repair to deteriorating rubber or plastic is to replace at Unit Maintenance or a higher level of maintenance (if required).

f. Hydraulic system and parts. The vehicle hydraulic system uses a petroleum base hydraulic fluid (OHT) and the system and parts are cleaned by flushing with petroleum base hydraulic fluid. During repair, it is desirable to provide interim protection of the parts or assemblies prior to reassembly. This protection may be provided by lightly coating parts with a film of hydraulic oil and placing in a plastic bag and plugging ports and/or covering openings.

g. Electrical parts. Solvents such as dry–cleaning solvent should not be used to clean electrical insulation, wires, cables, or wiring harnesses because of the damage effects of solvents on materials such as fibers and rubber. To clean these items, wipe clean with a damp cloth and immediately dry with a clean dry cloth. Clean contact points with fine abrasive paper and dust thoroughly after cleaning. If selective leaching or cracking is present on connectors, replace connectors at Unit Maintenance or a higher level of maintenance (if required).

H–5 TOOLS AND MATERIALS.

The tools and materials used by the mechanic in performing CPC on the M109A6 Howitzer are listed in Appendix C (Expendable/Durable Supplies and Materials List) and Appendix G (Tool Identification List).

ALPHABETICAL INDEX

A

B

C

ALPHABETICAL INDEX – CONTINUED

D

E

F

ALPHABETICAL INDEX – CONTINUED

ALPHABETICAL INDEX – CONTINUED

M

ALPHABETICAL INDEX – CONTINUED

N

O

P

Q

R

ALPHABETICAL INDEX – CONTINUED

S

T

U

ALPHABETICAL INDEX – CONTINUED

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH DOD-STD-100 AND ANSI Y14.5M - 1982.

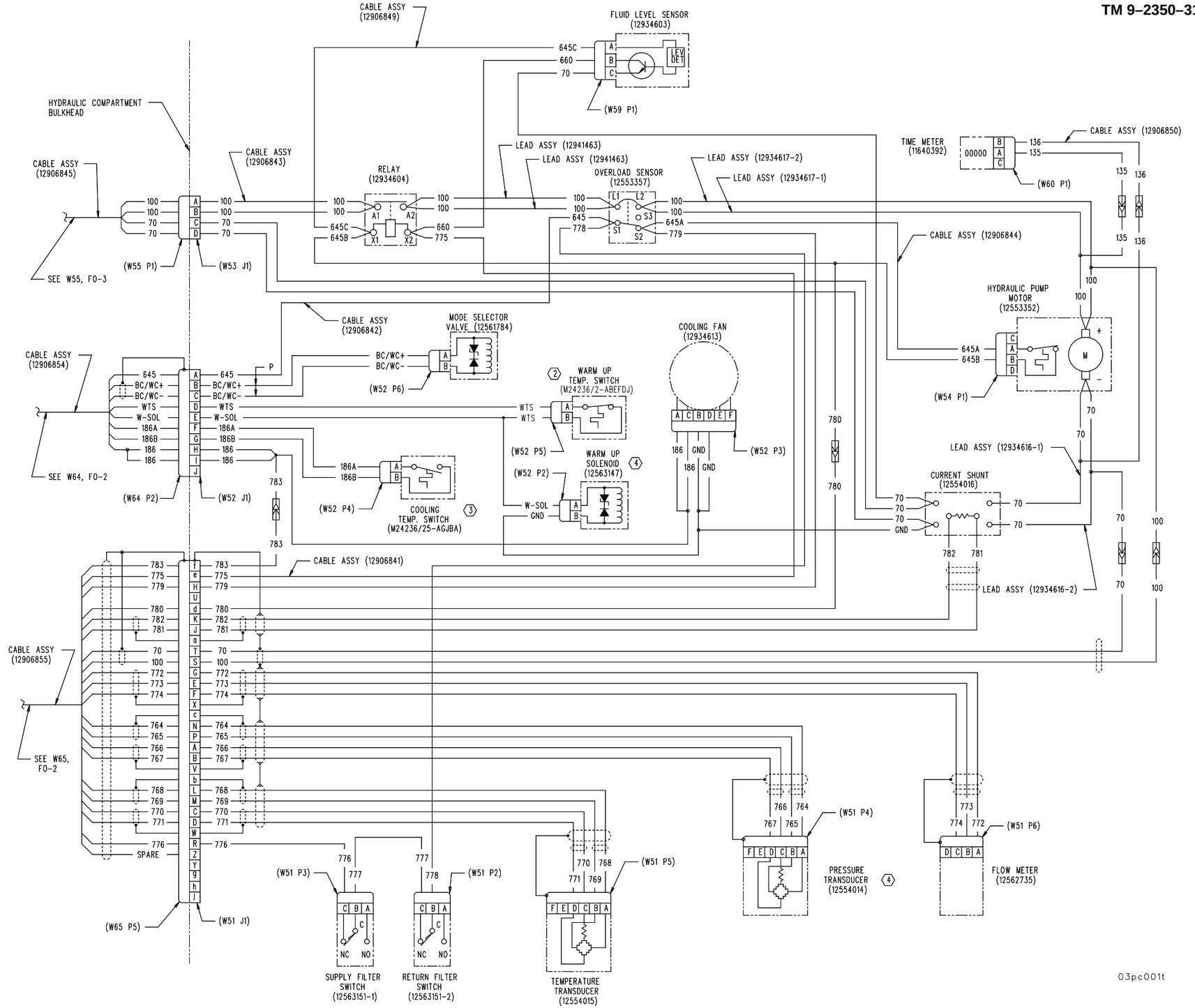
(2) SWITCH OPENS ON INCREASING TEMPERATURE ABOVE 15° F ± 5° F.

(3) SWITCH CLOSES ON INCREASING TEMPERATURE ABOVE 155° F ± 4° F.

(4) SEE FILTER ASSY 12553354.

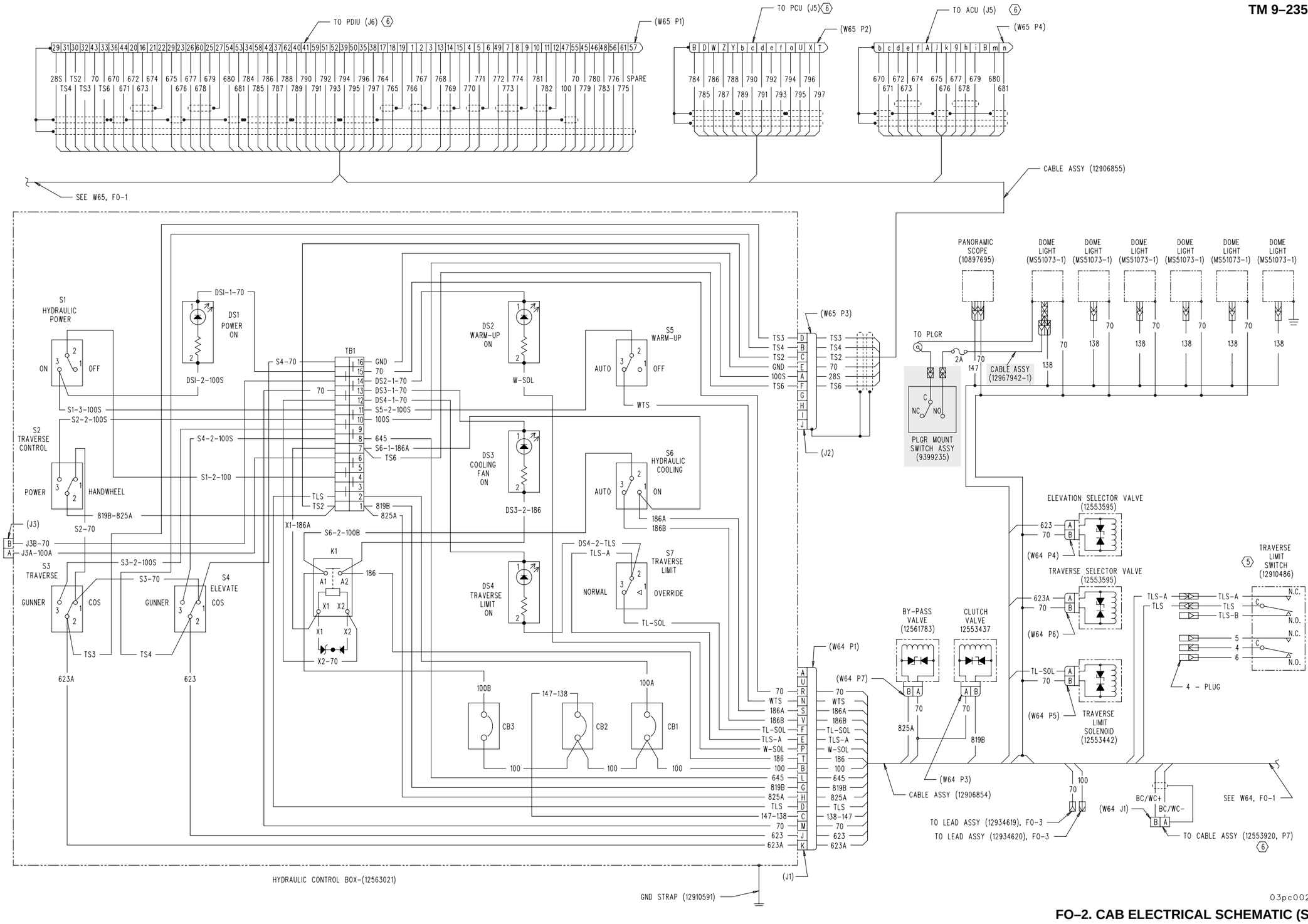
(5) SWITCH SHOWN WITH GUN TUBE IN STOWED POSITION.

(6) AUTOMATIC FIRE CONTROL SYSTEM.



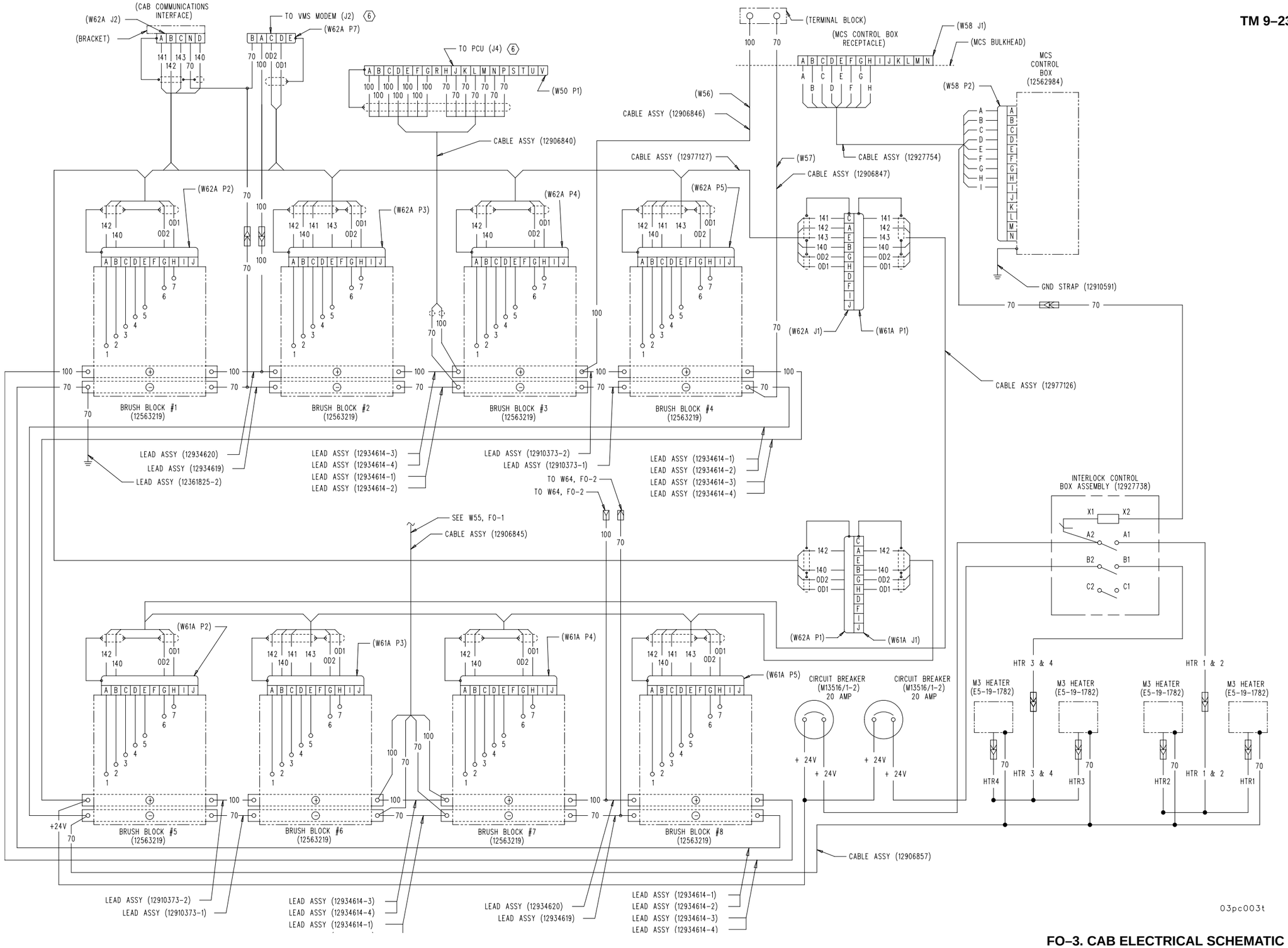
IDENTIFICATION CROSS REFERENCE		
PART NUMBER	DESCRIPTION	REF DESIGNATOR
12906840	CABLE ASSY	W50
12906841	CABLE ASSY	W51
12906842	CABLE ASSY	W52
12906843	CABLE ASSY	W53
12906844	CABLE ASSY	W54
12906845	CABLE ASSY	W55
12906846	CABLE ASSY	W56
12906847	CABLE ASSY	W57
12927754	CABLE ASSY	W58
12906849	CABLE ASSY	W59
12906850	CABLE ASSY	W60
12977126	CABLE ASSY	W61A
12977127	CABLE ASSY	W62A
12906854	CABLE ASSY	W64
12906855	CABLE ASSY	W65
12906857	CABLE ASSY	W67
12967942	CABLE ASSY	

FO-1. CAB ELECTRICAL SCHEMATIC (SHEET 1 OF 3)

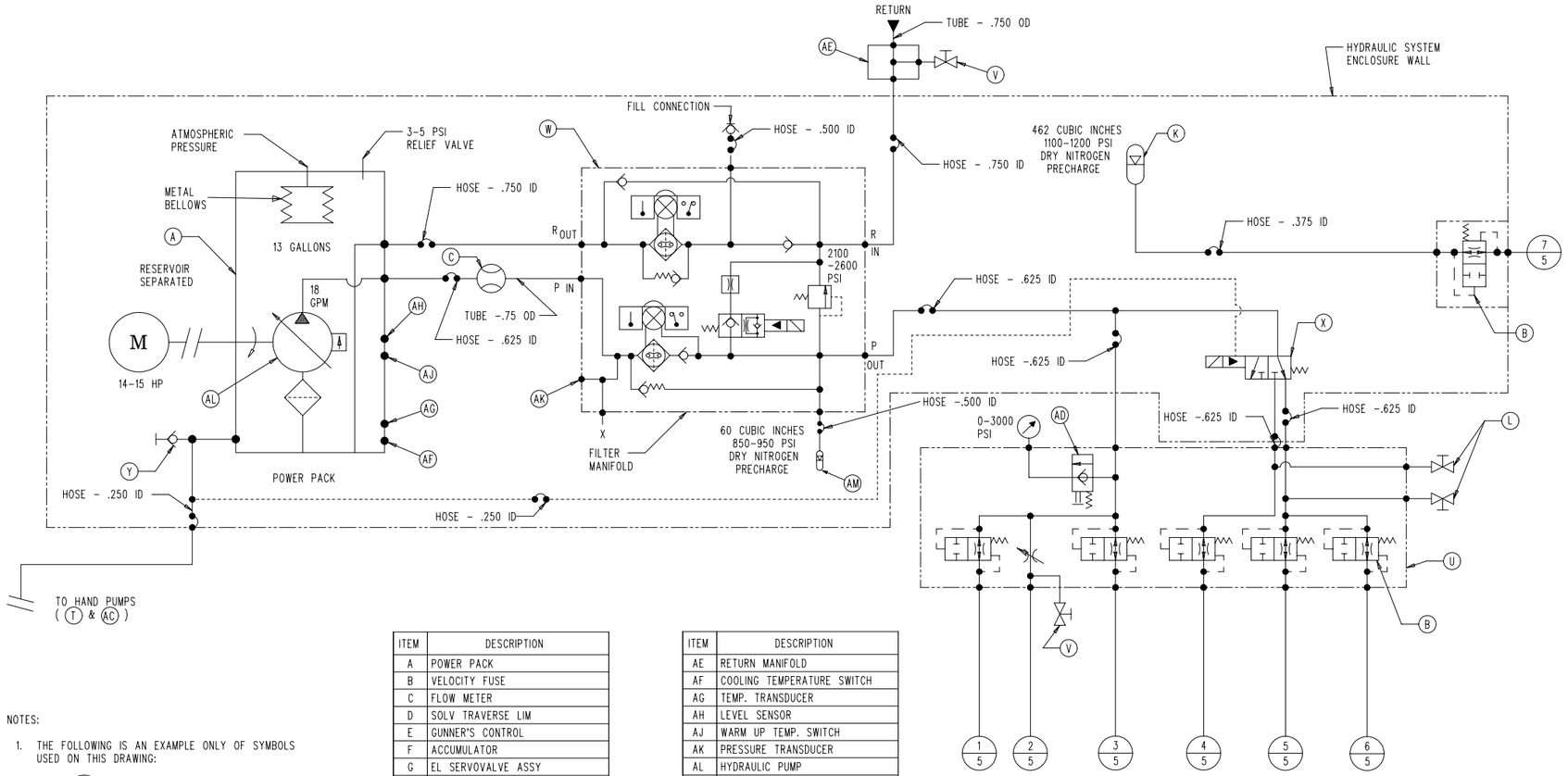


03pc002t

FO–2. CAB ELECTRICAL SCHEMATIC (SHEET 2 OF 3)



FO–3. CAB ELECTRICAL SCHEMATIC (SHEET 3 OF 3)



ITEM	DESCRIPTION
A	POWER PACK
B	VELOCITY FUSE
C	FLOW METER
D	SOLV TRAVERSE LIM
E	GUNNER'S CONTROL
F	ACCUMULATOR
G	EL SERVOVALVE ASSY
H	SELECTOR VALVE
J	LOADER VALVE
K	ACCUMULATOR, EQUILIBRATION
L	BLEED VALVE
M	HYDRAULIC MOTOR
N	LOADER RAMMER VALVE
P	EQUILIBRATION MANF
R	AZ SERVOVALVE ASSY
S	EL/EQUILIBRATION CYL
T	EL ASSY, MANUAL
U	MANIFOLD, FUSE
V	SAMPLING–BLEED VALVE
W	FILTER ASSY
X	MODE SELECTOR VALVE
Y	QUICK DISC CPLG HALF
Z	CLUTCH VALVE
AA	LOCKING VALVE ASSY
AB	RELIEF VALVE
AC	EQUILIBRATION HANDPUMP
AD	MANUAL PULL VALVE

ITEM	DESCRIPTION
AE	RETURN MANIFOLD
AF	COOLING TEMPERATURE SWITCH
AG	TEMP. TRANSDUCER
AH	LEVEL SENSOR
AJ	WARM UP TEMP. SWITCH
AK	PRESSURE TRANSDUCER
AL	HYDRAULIC PUMP
AM	ACCUMULATOR

NOTES:

1. THE FOLLOWING IS AN EXAMPLE ONLY OF SYMBOLS USED ON THIS DRAWING:

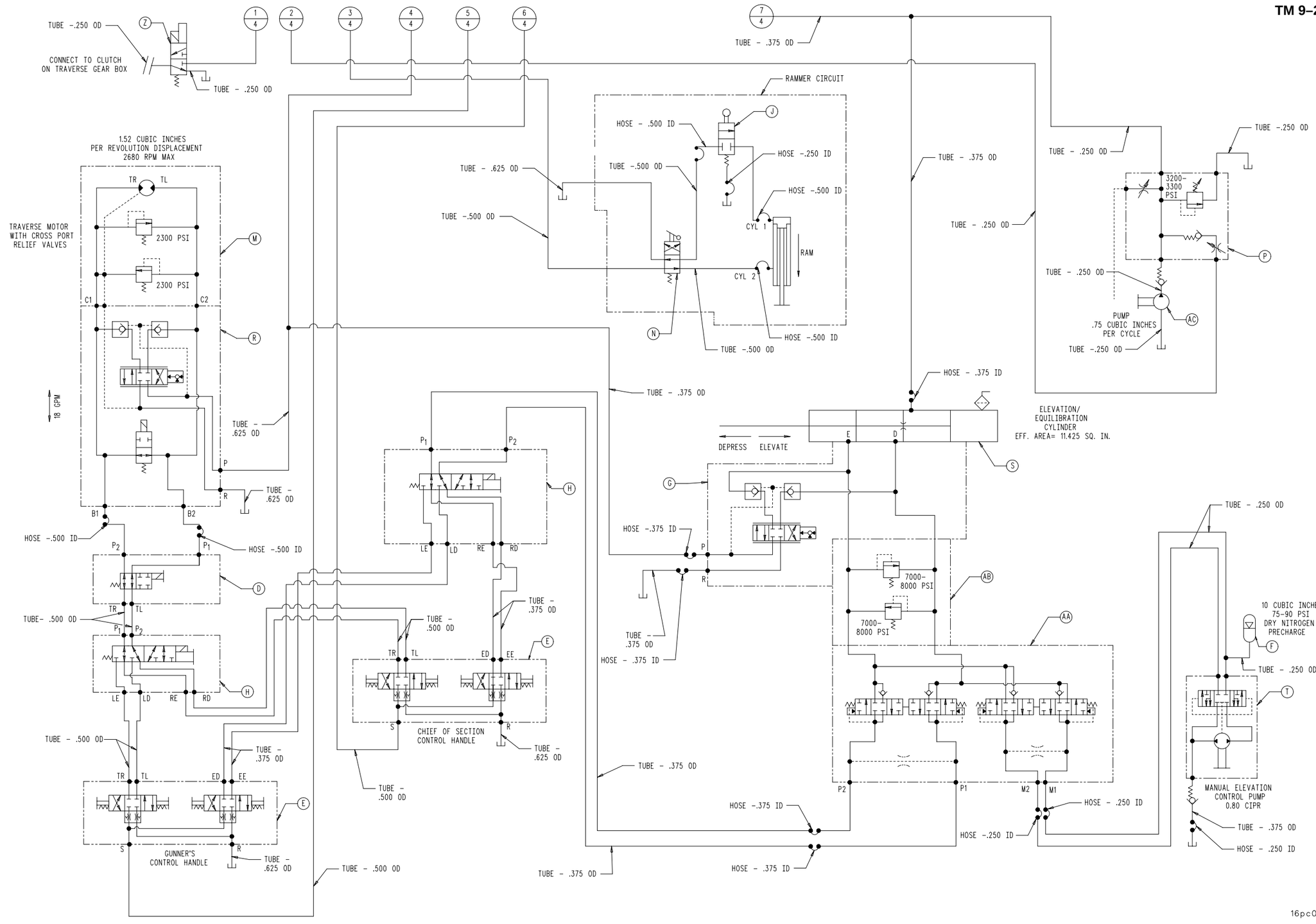
   FIND NO.
   FOLD OUT NUMBER.

   LAST FIND NO. USED: 7

2. FOR INSTALLATION, SEE DRAWING 12553219.

16pc008t

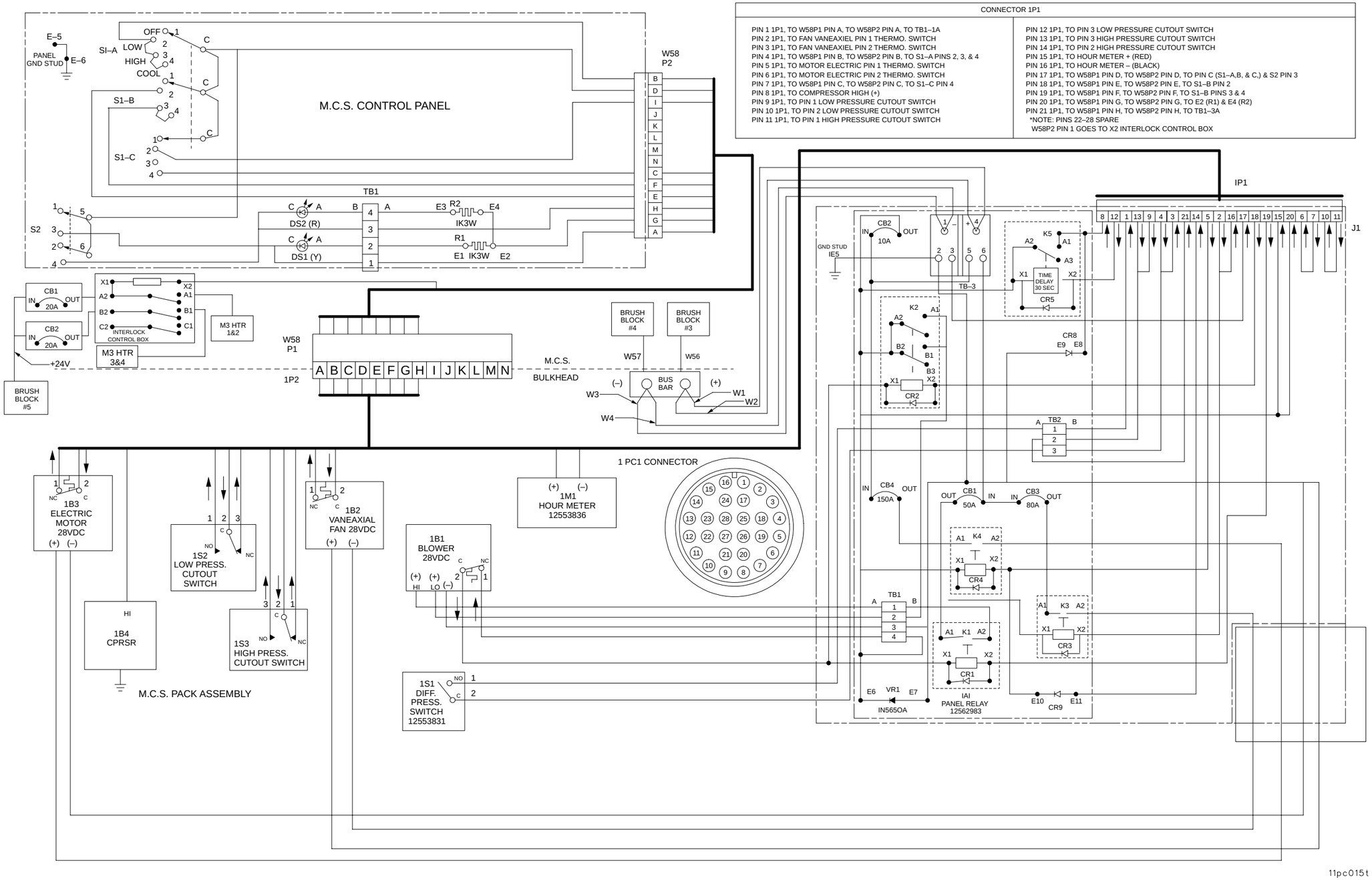
FO–4. CAB HYDRAULIC SCHEMATIC (SHEET 1 OF 2)



16pc009t

FO–5. CAB HYDRAULIC SCHEMATIC (SHEET 2 OF 2)

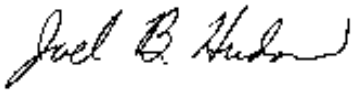
CONNECTOR 1P1	
PIN 1 1P1, TO W58P1 PIN A, TO W58P2 PIN A, TO TB1–1A PIN 2 1P1, TO FAN VANEAXIEL PIN 1 THERMO. SWITCH PIN 3 1P1, TO FAN VANEAXIEL PIN 2 THERMO. SWITCH PIN 4 1P1, TO W58P1 PIN B, TO W58P2 PIN B, TO S1–A PINS 2, 3, & 4 PIN 5 1P1, TO MOTOR ELECTRIC PIN 1 THERMO. SWITCH PIN 6 1P1, TO MOTOR ELECTRIC PIN 2 THERMO. SWITCH PIN 7 1P1, TO W58P1 PIN C, TO W58P2 PIN C, TO S1–C PIN 4 PIN 8 1P1, TO COMPRESSOR HIGH (+) PIN 9 1P1, TO PIN 1 LOW PRESSURE CUTOUT SWITCH PIN 10 1P1, TO PIN 2 LOW PRESSURE CUTOUT SWITCH PIN 11 1P1, TO PIN 1 HIGH PRESSURE CUTOUT SWITCH	PIN 12 1P1, TO PIN 3 LOW PRESSURE CUTOUT SWITCH PIN 13 1P1, TO PIN 3 HIGH PRESSURE CUTOUT SWITCH PIN 14 1P1, TO PIN 2 HIGH PRESSURE CUTOUT SWITCH PIN 15 1P1, TO HOUR METER + (RED) PIN 16 1P1, TO HOUR METER – (BLACK) PIN 17 1P1, TO W58P1 PIN D, TO W58P2 PIN D, TO PIN C (S1–A,B, & C,) & S2 PIN 3 PIN 18 1P1, TO W58P1 PIN E, TO W58P2 PIN E, TO S1–B PIN 2 PIN 19 1P1, TO W58P1 PIN F, TO W58P2 PIN F, TO S1–B PINS 3 & 4 PIN 20 1P1, TO W58P1 PIN G, TO W58P2 PIN G, TO E2 (R1) & E4 (R2) PIN 21 1P1, TO W58P1 PIN H, TO W58P2 PIN H, TO TB1–3A *NOTE: PINS 22–28 SPARE W58P2 PIN 1 GOES TO X2 INTERLOCK CONTROL BOX



By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Acting Administrative Assistant to the
Secretary of the Army

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Rock Island, IL 61299–7630

CONVERSION TABLE

inch	decimal	mm
1/64	0.015625	0.3969
1/32	0.031250	0.7938
3/64	0.046875	1.1906
1/16	0.062500	1.5875
5/64	0.078125	1.9844
3/32	0.093750	2.3812
7/64	0.109375	2.7781
1/8	0.125000	3.1750
9/64	0.140625	3.5719
5/32	0.156250	3.9688
11/64	0.171875	4.3656
3/16	0.187500	4.7625
13/64	0.203125	5.1594
7/32	0.218750	5.5562
15/64	0.234375	5.9531
1/4	0.250000	6.3500
17/64	0.265625	6.7469
9/32	0.281250	7.1438
19/64	0.296875	7.5406
5/16	0.312500	7.9375
21/64	0.328125	8.3344
11/32	0.343750	8.7312

inch	decimal	mm
23/64	0.359375	9.1281
3/8	0.375000	9.5250
25/64	0.390625	9.9219
13/32	0.406250	10.3188
27/64	0.421875	10.7156
7/16	0.437500	11.1125
29/64	0.453125	11.5094
15/32	0.468750	11.9062
31/64	0.484375	12.3031
1/2	0.500000	12.7000
33/64	0.515625	13.0969
17/32	0.531250	13.4938
35/64	0.546875	13.8906
9/16	0.562500	14.2875
37/64	0.578125	14.6844
19/32	0.593750	15.0812
39/64	0.609375	15.4781
5/8	0.625000	15.8750
41/64	0.640625	16.2719
21/32	0.656250	16.6688
43/64	0.671875	17.0656
11/16	0.687500	17.4625

inch	decimal	mm
45/64	0.703125	17.8594
23/32	0.718750	18.2562
47/64	0.734375	18.6531
3/4	0.750000	19.050
49/64	0.765625	19.4469
25/32	0.781250	19.8437
51/64	0.796875	20.2406
13/16	0.812500	20.6375
53/64	0.828125	21.0344
27/32	0.843750	21.4312
55/64	0.859375	21.8281
7/8	0.875000	22.2250
57/64	0.890625	22.6219
29/32	0.906250	23.0188
59/64	0.921875	23.4156
15/16	0.937500	23.8125
61/64	0.953125	24.2094
31/32	0.96750	24.6062
63/64	0.984375	25.0031
1	1.000000	25.4000

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 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

WEIGHTS

1 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 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

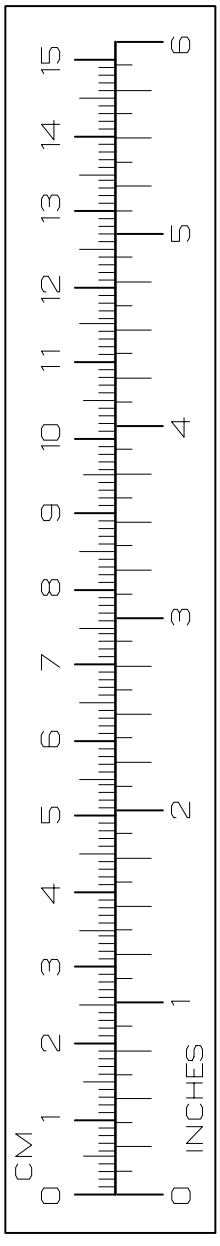
TEMPERATURE

$^{\circ}C = 5/9 (^{\circ}F - 32)$
212° Fahrenheit is equivilent to 100° Celsius
90° Fahrenheit is equivilent to 32.2° Celsius
32° Fahrenheit is equivilent to 0° Celsius
$(9/5 \times {}^{\circ}C) + 32 = {}^{\circ}F$

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	Millimeters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	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
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton–Meters	Pound–Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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