ROUTINE

MWO effective date is 1 February 1999 and completion date is 1 January 2013.

MWO 9-1025-211-30-2

MODIFICATION WORK ORDER

MODIFICATION OF HOWITZER, MEDIUM, TOWED: 155-MM, M198 (1025-01-026-6648) (EIC: 3EL)

Headquarters, U.S. Army Tank Automotive and Armament Command

28 February 1999

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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1. PURPOSE. The purpose of this modification is to add an automated lifting system to the M198 Towed Howitzer. The modification will tie into the existing system and add a hydraulic pump, a filter, and a solenoid box to the bottom carriage. The NATO receptacle for powering the system will be located on the rear of the left trail below the saddle. The on/off switch for the system will be located next to the selector valves. This modification will not disable the existing system, so the existing system will still be available for use.

2. PRIORITY. This modification is classified ROUTINE.

3. END ITEM(S) OR SYSTEM(S) TO BE MODIFIED. See Table 1.

Table 1. End Item or System To Be Modified.

Nomenclature	NSN	Part Number	CAGEC	Model Number	Serial Number
Howitzer, Medium Towed: 155-MM, M198	1025-01-026-6648	12008000	19204	M198	TBD

4. MODULE(S) (COMPONENTS, ASSEMBLIES, SUBASSEMBLIES, BOARDS, AND CARDS) TO BE MODIFIED. The following items, whether installed or in PLL/ASL or depot stock, shall be modified. Table 2 lists the assemblies which require modification.

Table 2. Items To Be Modified.

Nomenclature	NSN	CAGEC	Part Number
*Bottom Carriage Assembly		19204	12008300
*Shield, Manifold Assembly	1025-01-038-7459	19204	12008899
*Trail Carriage, Artillery	1025-01-380-9857	19200	12009206

*Depot Stock must support old configuration. Not all M198 Howitzers in the fleet will be modified with HyPAK. Parts will be modified in the field by the procuring unit before installation onto the howitzer.

5. PARTS TO BE MODIFIED. The following items, whether installed or in PLL/ASL or depot stock, shall be modified. Stocked parts shall be modified prior to issue and shall be marked so that it can be easily determined that modification has been accomplished. The parts which require modification are listed in Table 3.

Table 3. Parts To Be Modified.

Nomenclature	NSN	CAGEC	Part Number	Next Higher Assembly
*Bottom Carriage		19204	12008380	12008300
*Cover, Access	5340-01-037-7211	19204	12008772	12008300
*Cover, Access	5340-01-038-5925	19204	12008770	12008300

*Depot Stock must support old configuration. Not all M198 Howitzers in the fleet will be modified with HyPAK. Parts will be modified in the field by the procuring unit before installation onto the howitzer.

6. APPLICATION.

a. Time Compliance Schedule: MWO effective date is 1 February 1999 and completion date is 1 January 2013.

b. Lowest Level of Maintenance Authorized To Apply This MWO: The lowest level of maintenance authorized to apply this MWO is Direct Support Maintenance.

c. Work Force and Man-hour Requirements for Application of the MWO to a Single Unit, End Item, or System: The total man-hours required for a single application of this MWO is as follows:

REQUIREMENTS

WORK FORCE/SKILLS	MAN-HOURS*
U.S. ARMY	
44B10/Welder**	4
44E10/Machinist	6
45B10/Artillery Repairman***	8
U.S. MARINE CORPS	
1361/Welder**	4
2161/Machinist	6
2131/Artillery Repairman***	8

*The man-hours shown is the maximum number of hours required to apply the modification. After initial training, it should be possible to modify a howitzer in 8 man-hours (one howitzer per day).

**It is recommended that two individuals be used for welding. One will do the removal of the CARC paint (grinding) and the other will do the actual welding. This should cut the man-hours required in half.

***It is recommended that two individuals be used for assembling the hardware. This should cut the man-hours required in half.

d. MWOs To Be Applied Prior to or Concurrently with the Application of This MWO: None.

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED.

Publication Number	Date
TM 9-1025-211-10	January 1991
TM 9-1025-211-20&P	May 1991
TM 9-1025-211-34	May 1991
TM 9-1025-211-34P	August 1997
DMWR 9-1025-211-2	May 1997

8. MWO KIT(S)/PART(S) AND THEIR DISPOSITION.

a. Kit Needed To Apply the MWO: M198 HyPAK Modification Kit, NSN 1025-01-458-6160, Part Number 12965280, CAGEC 19200, is required to accomplish this MWO. The MWO kit is unclassified, and the shipping data is: Weight: 175 lb (79.45 kg); Dimension: L 38 in. (96.5 cm) x W 20 in. (50.8 cm) x H 25 in. (63.5 cm); Cubic displacement: 10.4 cu ft (0.29 cu m).

b. Contents of MWO Kit: The parts which are contained in the MWO kit are listed in Table 4.

Table 4. Modification Kit PN 12965280.

Nomenclature	NSN	CAGEC	Part Number	QTY
Gasket	5330-00-641-4336	58536	A-A52481-8	1
Screw, Cap, Hexagon Head	5305-01-420-5112	80204	B1821AH025C050N	1
Screw, Cap, Hexagon Head	5305-01-461-4322	80204	B1821AH025C063L	4
Screw, Cap, Hexagon Head	5305-01-457-8854	80204	B1821AH025C063N	24
Screw, Cap, Hexagon Head	5305-01-389-9145	80204	B1821AH031C088N	4
Bolt, Machine	5306-01-461-4331	80204	B1821AH031C150L	4
Screw, Cap, Hexagon Head	5305-01-458-5388	80204	B1821AH038F075N	1
Screw, Cap, Socket Head	5305-00-978-9372	96906	MS16997-34	4
Screw, Cap, Socket Head	5305-00-978-9356	96906	MS16997-46	4
Screw, Cap, Socket Head	5305-00-983-8084	96906	MS16997-60	4
Screw, Cap, Socket Head	5305-01-080-3764	96906	MS16998-41L	2
Nut, Self-Locking, Hexagon	5310-00-905-8451	96906	MS21083-N06	1
Clamp, Loop	5340-00-057-2904	96906	MS21333-71	8
Elbow, Tube	4730-00-203-3689	96906	MS21908-8	2
Screw, Tapping	5305-00-855-0967	96906	MS24629-37	4
Guard, Switch	5930-00-681-4897	96906	MS25224-3	1
Washer, Flat	5310-00-081-4219	96906	MS27183-12	8
Washer, Flat	5310-01-274-3255	96906	MS27183-52	4
Switch, Toggle	5930-01-436-3612	96906	MS27722-30	1
Screw, Machine	5305-01-458-3598	96906	MS3212-20L	6
Screw, Machine	5305-00-889-3001	96906	MS35206-231	1
Screw, Machine	5305-00-889-3002	96906	MS35206-242	1
Screw, Machine	5305-00-088-9044	96906	MS35207-260	9
Washer, Lock	5310-00-209-0786	96906	MS35335-33	26
Washer, Lock	5310-00-582-5965	96906	MS35338-44	2
Washer, Lock	5310-00-933-8119	96906	MS35338-137	4
Grommet	5325-00-795-0719	96906	MS35489-43	1
Washer, Lock	5310-00-889-2769	96906	MS45904-61	4
Washer, Lock	5310-00-889-2528	96906	MS45904-68	5
Washer, Lock	5310-00-061-1258	96906	MS45904-76	1
Elbow, Tube	4730-01-006-5099	96906	MS51852-11A	2
Tee, Tube	4730-00-997-9914	96906	MS51854-11	2
Nut, Plain, Hexagon	5310-00-269-6717	96906	MS51860-56	2
Screw, Tapping	5305-00-734-7121	96906	MS51861-65C	3
Nut, Self-Locking, Hexagon	5310-00-984-3806	96906	MS51922-9	4

Table 4. Modification Kit PN 12965280. (Cont)

Nomenclature	NSN	CAGEC	Part Number	QTY
Nut, Plain, Hexagon	5310-00-903-5966	96906	MS51971-1	2
Elbow, Tube	4730-01-459-7680	81343	SAE 8-12 080220	2
Connector, Receptacle	5925-01-097-9974	19207	11674728	1
Kit, Intervehicle Power Cable	6150-01-310-1829	19207	11682336-2	1
Gasket	5330-01-039-2523	19204	12008771	4
Gasket	5330-01-032-6495	19204	12008773	2
Gasket	5330-01-031-1476	19204	12008775	1
Pad, Cable		19200	12965257	7
Pad		19200	12965259	1
Cover, Access	5340-01-455-7250	19200	12965262	1
Filter Element, Fluid	4330-01-456-0998	19200	12965266-1*	1
Head, Fluid Filter	2940-01-M26-9606	19200	12965266-2*	1
Bracket, Mounting	5340-01-457-2930	19200	12965271	1
Pad, Cushioning	5340-01-457-2923	19200	12965272	1
Cable Assembly, Special	6150-01-457-2926	19200	12965275	1
Hose Assembly, Nonmetallic	4720-01-459-6078	19200	12965277-1**	1
Hose Assembly, Nonmetallic	4720-01-459-6270	19200	12965277-2**	1
Hose Assembly, Nonmetallic	4720-01-459-6076	19200	12965277-3**	1
Hose Assembly, Nonmetallic	4720-01-459-6131	19200	12965277-4**	1
Hose Assembly, Nonmetallic	5340-01-456-9672	19200	12965277-5**	1
Gasket	5330-01-457-2924	19200	12965278	1
Plate, Mounting	5340-01-456-9672	19200	12965283	1
Cable Assembly, Power	6150-01-456-9671	19200	12965284	1
Cable Assembly, Power	6150-01-456-9667	19200	12965285-1	1
Cable Assembly, Power	6150-01-456-9668	19200	12965285-3	1
Cable Assembly, Special	6150-01-457-2933	19200	12965285-5	1
Cover, Access (Brush)	5340-01-457-2925	19200	12965286	1
Cover, Access (Brush)	5340-01-457-2921	19200	12965287	1
Cover, Access (Brush)	5340-01-455-7252	19200	12965290	1
Box Connector, Electrical	5975-01-191-4814	74545	12965291-1	1
Cover, Access	5340-01-457-2922	19200	12965293	1
Box Connector, Electrical	5975-01-456-0997	19200	12965295	1
Cable Assembly, Power	6150-01-456-9669	19200	12965297-1	1
Cable Assembly, Power	6150-01-456-9670	19200	12965297-3	1
Conduit Outlet	5975-01-457-2929	19200	12965299	1
Pump, Hydraulic	4320-01-455-7253	19200	12965300	1

Table 4. Modification Kit PN 12965280. (Cont)

Nomenclature	NSN	CAGEC	Part Number	QTY
Pad		19200	12965302	1
Pad, Grounding		19200	12965303	1
Connector, Receptacle, Electrical	5306-00-738-2876	19207	7388305	1

* Fluid filter kit parts
** Hose assembly kit parts

c. Bulk and Expendable Material: Table 5 lists the bulk and expendable material required to apply the MWO kit.

Table 5. Bulk and Expendable Material.

Nomenclature	NSN	CAGEC	Part Number	QTY
Argon, Technical	6830-00-169-0779	81349	MIL-A-18455	CF
Bag, Plastic				BX
Band, Rubber	7570-00-243-3437	58536	A-A-131	BG
Cutting/Tapping Fluid	9150-00-252-6371	81348	VVC850	GL
Electrode, Welding (ER 5356)	3439-00-803-9498	31505	AWSA5.10-69 ER5356 0.047	SL
Electrode, Welding (E70S-3)	3439-00-483-8093	31505	AWSA5.4-81/ E505-15	LB
Gasket	5330-01-039-2523	19204	12008771	1
Grease, Aircraft (WTR)	9150-00-944-8953	81349	MIL-G-81322	CN
Grommet, Nonmetallic	5325-00-582-3601	96906	MS35489-38	1
Lubricant, Dry Film	9150-01-260-2534	81349	MIL-L-23398	CN
Hydraulic Fluid (OHT)	9150-00-935-9807	81349	MIL-H-6083	CN
Nut, Plain, Hexagon	5310-00-761-6882	96906	MS51967-2	1
Paint, Black (CARC)	8010-01-229-7540	81349	MIL-C-53039	QT
Paint, Brown (CARC)	8010-01-229-7543	81349	MIL-C-53039	QT
Paint, Green (CARC)	8010-01-229-7546	81349	MIL-C-53039	QT
Plug, End Seal, Electrical Connector	5935-00-235-8970	96906	MS27488-16	1
Primer Coating (CARC)	8010-01-193-0516	81349	MIL-P-53022	KT
Screw, Cap, Socket Head	5305-00-978-9385	96906	MS16997-62	1
Tape, Antiseizing	8030-00-889-3534	81349	MIL-T-27730	EA
Washer, Lock	5310-01-582-5965	96906	MS35338-44	1
Washer, Lock	5310-00-637-9541	96906	MS35338-46	1
Washer, Lock	5310-01-889-2528	96906	MS45904-68	2

d. Parts Disposition: Table 6 lists excess parts.

Table 6. Excess Parts.

Nomenclature	NSN	CAGEC	Part Number	QTY
Cover, Access	5340-01-038-5925	19204	12008770	1
Cover, Access	5340-01-041-4332	19204	12008896	1
Elbow, Tube	4730-01-006-5099	96906	MS51852-11A	2
Gasket	5330-01-039-2523	19204	12008771	3
Gasket	5330-01-032-6495	19204	12008773	1
Gasket	5330-01-031-1476	19204	12008775	1
Screw, Cap, Hexagon Head	5305-00-068-0501	96906	MS90725-5	24
Screw, Cap, Socket Head	5305-00-068-5397	96906	MS24667-15	V
Washer, Lock	5310-00-209-0786	96906	MS35335-33	24

9. SPECIAL TOOLS; TOOL KITS; JIGS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED. The tools listed in Table 7 are required to perform the modification but are not required to support the end item after modification is applied.

Table 7. Special Tools Required.

Nomenclature	NSN	CAGEC	Part Number	QTY
Arbor, 1/4 in., Round Shank			49-56-6950**	1
Arbor, 1/4 in., Three Flats Shank			49-56-6970**	1
Bi-Metal Hole Saw, 3/4 in.			49-56-0750**	1
Bi-Metal Hole Saw, 1 1/4 in.			49-56-1250**	1
Center Punch	5120-00-595-9471	81348	GGG-P-831	1
Deburring Tool				1
Die Grinder (Small)				1
Drill Bit, 1/8 in.				5
Drill Bit, 5/32 in.				1
Drill Bit, 3/16 in.				1
Drill Bit, 17/64 in.				1
Drill Bit, 5/16 in.				1
Drill Bit, 23/64 in.				1
Drill Bit, 25/64 in.				1
Drill Bit, 1/2 in.				1
Drill Bit, 9/16 in.				1
Drill Bit, #1				1
Drill Bit, #29				1
Drilling Template (Figure 1)*			12965263-PPH	1

Table 7. Special Tools Required. (Cont)

Nomenclature	NSN	CAGEC	Part Number	QTY
Drilling Template (Figure 2)*			12965264-RPH	1
Drilling Template (Figure 3)*			12965269-SPH	1
Drilling Template (Figure 4)*			12965271-BPH	1
Ear Plugs				PR
Electromagnetic Drill, 1/2 in.			4204-1**	1
Extension Cord (25 ft minimum)				1
Face Shield				1
Gloves, Chemical and Solvent Resistant	8415-00-266-8675	81348	ZZ-G-381	1
Gloves, Electrical	8415-01-158-9455	81346	GGG-P-831	PR
Goggles, Safety	4240-00-278-9646	81348	GG-G-531	1
Grinder Discs, 4-1/12 in.			48-80-0689**	5
Ground Fault Electrical Box	6150-01-352-1687	7P343	GFP-15	1
High-Efficiency Filter	4240-01-320-1954	50378	2040	V
Organic Vapor/Acid Gas Filter	4240-01-342-2859	50378	6003	V
Pilot, 1/4 in. Flute			49-56-8000**	1
Pilot, 1/4 in. Flute			49-56-8003**	1
Polypropylene Pad Kit			49-36-3455**	1
Portable Electric Drill 1/2 in. Chuck (Variable Speed)			0235-6**	1
Pre-Filter Adapter	4240-01-320-1956	50378	502	V
Respirator (Small)	4240-01-342-2852	50378	6100	V
Respirator (Medium)	4240-01-342-2853	50378	6200	V
Respirator (Large)	4240-01-342-2854	50378	6300	V
Ruler, Metal, 12 in.				
Shop Equipment, Artillery Field Maintenance	4933-00-754-0704		SC 4933-95-A12	
Tap Handle (Small)				1
Taper Tap, #8-32				V
Torque Wrench (50-300 in-lb)				1
Torque Wrench (10-150 ft-lb)				1
Tri-Square, 12 in.				1
Welder (GMAW)				1
Welding Face Shield				1

*Hardware fabricated by Maintenance Operation Procedures Shop, AMSTA-AC-NMFS, Rock Island, IL 61299-7630.
**Hardware from Milwaukee Heavy-Duty Electric Tools, Catalog 1998.

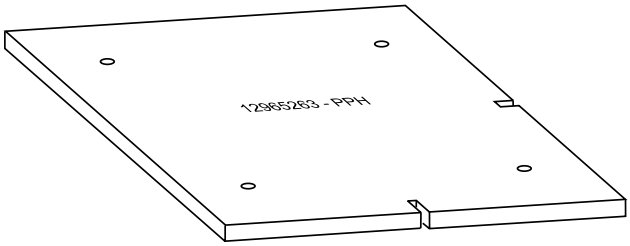


Figure 1

Figure 2

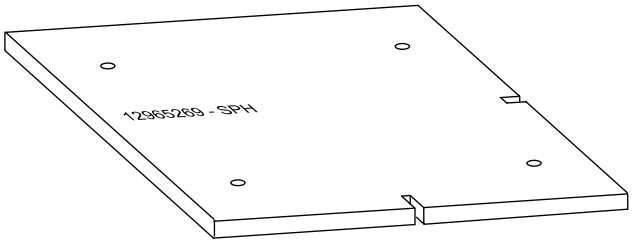


Figure 3

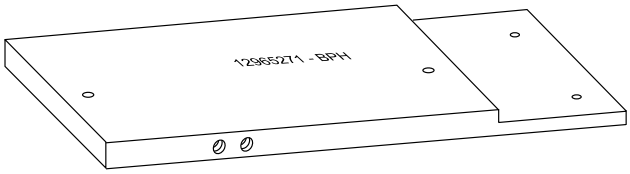


Figure 4

10. MODIFICATION PROCEDURES.

OVERVIEW

The objective of the HyPAK modification is to reduce the time required to raise and lower the speed shift and wheels.

This is accomplished by installing a 24-volt D.C. motor-driven hydraulic pump in the bottom carriage cavity. Also installed inside the cavity are a filter bracket with filter, a solenoid unit to control the on/off function of the hydraulic pump, electrical wiring and cables, and hydraulic lines.

NOTE

Unless specified otherwise, orientation of left and right is as if standing at the breech end of the weapon, facing toward the cannon muzzle.

SET-UP PROCEDURES

WARNING

Placing howitzer in travel lock might not work in some shop situations. If rotating carriage is necessary due to lack of space, failure to use proper care and caution may result in harm to personnel or damage to equipment.

1. Howitzer must be in travel lock configuration.

2. Lower speed shift completely. This is necessary for two reasons.

   a. The speed shift plate is moved out of the way so the bottom carriage access covers can be accessed.

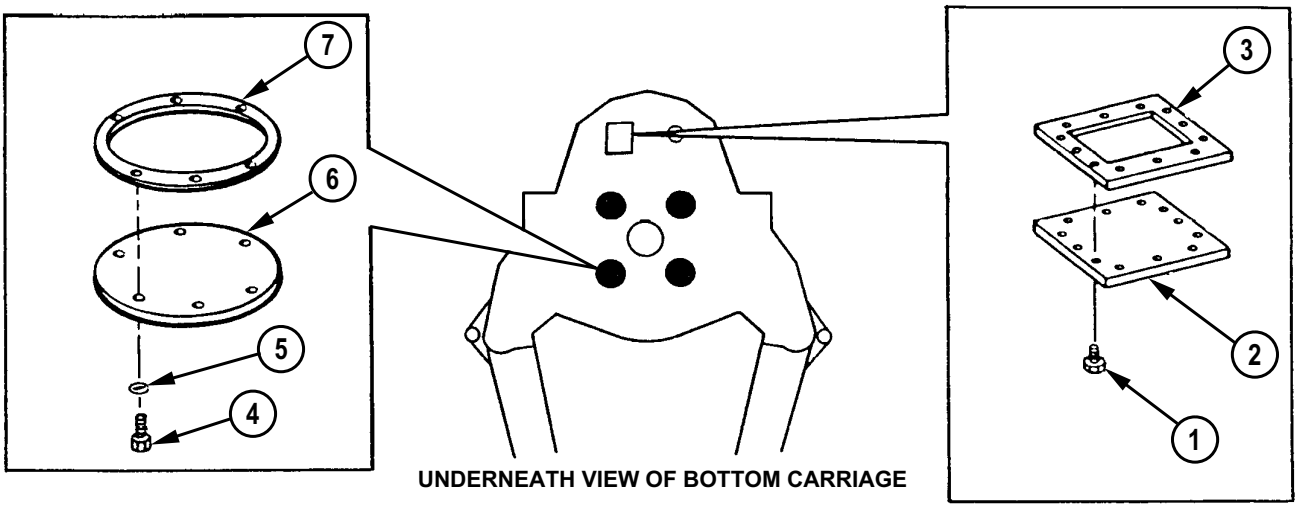
   b. The speed shift can be used as a jack stand even if the lines are disconnected at either pump. (This is because of check valves located inside the hydraulic manifold.) The speed shift should support the weight of the gun in the event of a major mechanical failure as long as the internal hydraulic lines are not disconnected and the hydraulic system is in good condition. It is also important to note that the selector handle must be in the neutral position for the speed shift to offer jack stand protection.

WARNING

To avoid slippage and possible injury to personnel, block up the bottom carriage on each side with timbers under arm and spindle assembly.

NOTE

Steps 3 through 5 apply to removal of parts from the howitzer.



UNDERNEATH VIEW OF BOTTOM CARRIAGE

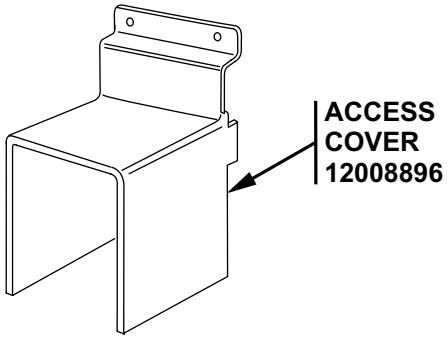
3. Remove from underside of bottom carriage:

   a. Twelve socket head cap screws (1), rectangular access cover (2), and gasket (3) from front of bottom carriage. Remove and discard gasket. Retain cap screws and rectangular access cover.

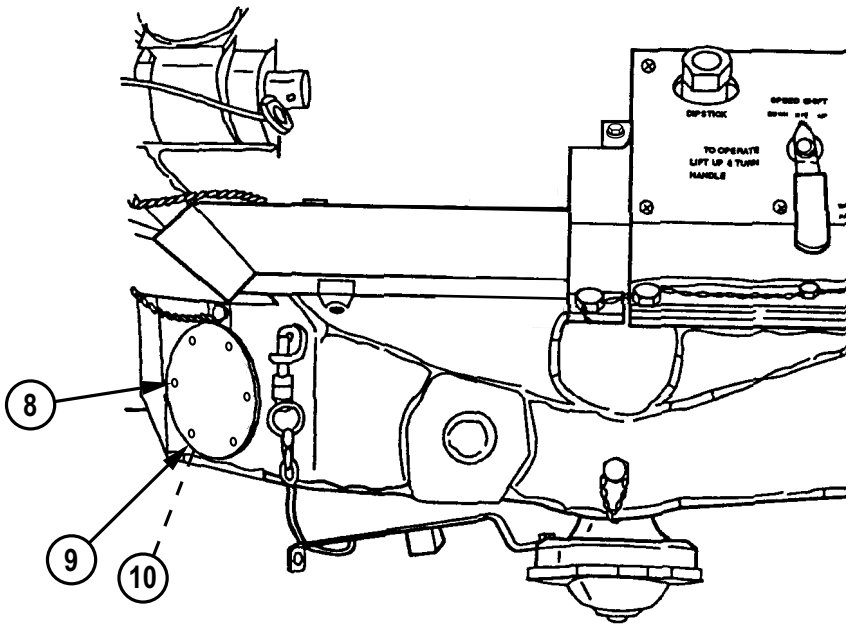
   b. Eighteen hexagon head cap screws (4), 18 lock washers (5), 3 round access covers (6) at rear and right front, and 3 gaskets (7). Discard all cap screws and lock washers. Scrape off gaskets and discard. Discard aluminum right rear access cover. There is a new cover in the kit that will be modified to replace this cover.

4. Remove from front of bottom carriage:

   a. All access covers for hydraulic lines from the hydraulic manifold assembly left to the ram hydraulic pump located by the right wheel. These covers will be referred to as brush covers. Retain all screws and washers. Retain access covers 12008893, 12008894, and 12008895. Discard access cover 12008896.



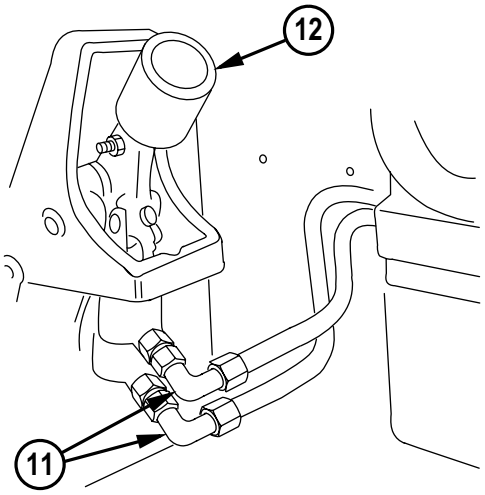
   b. Six socket head cap screws (8), small round access cover (9) on front corner, and gasket (10). Retain four best cap screws and discard the rest. Scrape off and discard gasket. Retain small round access cover.



NOTE

- SPEED SHIFT and WHEELS handles must be OFF to ensure pressure is off hydraulic lines.
- Place drip pan under right ram hydraulic pump.

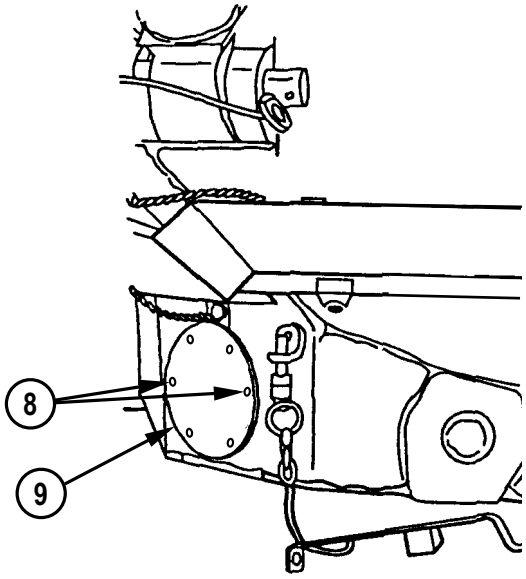
5. Remove two 90 degree tube elbows (11) from front of right ram hydraulic pump (12). Discard tube elbows.



NOTE

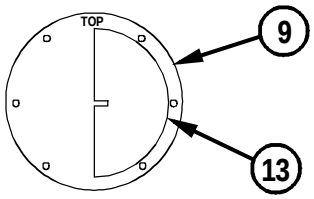
- At this point it should not be necessary to remove any more parts from the howitzer.
- Steps 6 through 14 apply to the modification of removed small right front access cover (12008772).

6. With access cover (9) removed, scribe position of internal web gusset that is inside round opening, above and below the opening.



7. Reattach access cover (9) using two retained cap screws (8) and scribe vertical line onto face and edges of access cover connecting two previously scribed marks.

8. Write "Top" on upper side of access cover (9) to ensure proper orientation during reassembly.



9. Remove access cover (9) and retain two cap screws (8) . Locate center of scribed line and mark the center point. Align drilling template (12965264-RPH) (13) on vertical line using center point and center punch location of two holes on access cover.

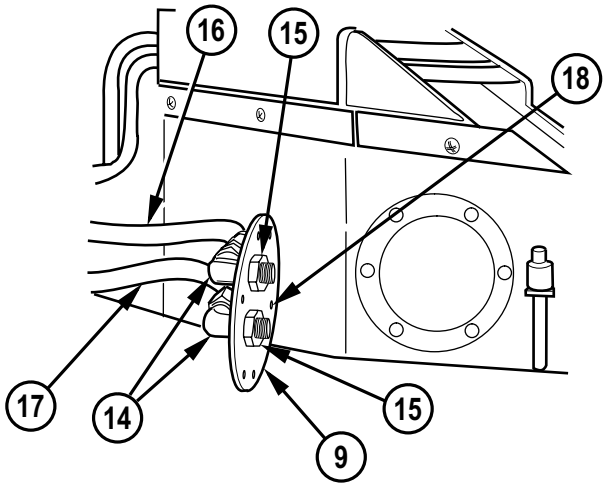
WARNING

Safety goggles must be worn for all drilling and tapping operations.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

10. Remove drilling template (13) from access cover (9). Drill two pilot holes with 1/8 in. drill bit. Then drill with 3/4 in. hole saw. Remove burrs and sharp edges from drilled holes.



11. Attach two tube elbows (MS21908-8) (14) to modified access cover (9) with two hexagon plain nuts (MS51860-56) (15). Do not tighten nuts at this time.

12. Connect hydraulic hose (12965277-1) (16) to upper tube elbow (14) on modified access cover (9). This hose is about 1/4 in. shorter than hydraulic hose (12965277-2) (17).

13. Connect hydraulic hose (12965277-2) (17) to lower tube elbow (14) on modified access cover (9).

NOTE

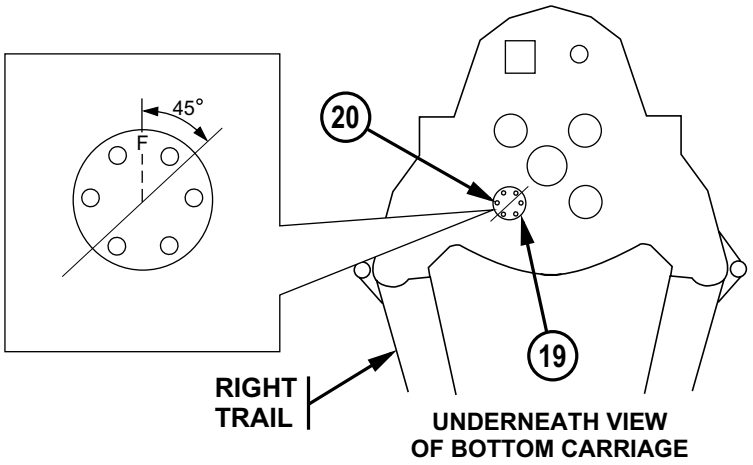
When tightening any of the hydraulic fittings, care must be taken to support the fitting with another wrench.

14. Align hydraulic hoses (16 and 17) as close together as possible without covering screw hole (18). Tighten two tube elbows (14) and two hexagon plain nuts (15) securely to modified access cover (9).

NOTE

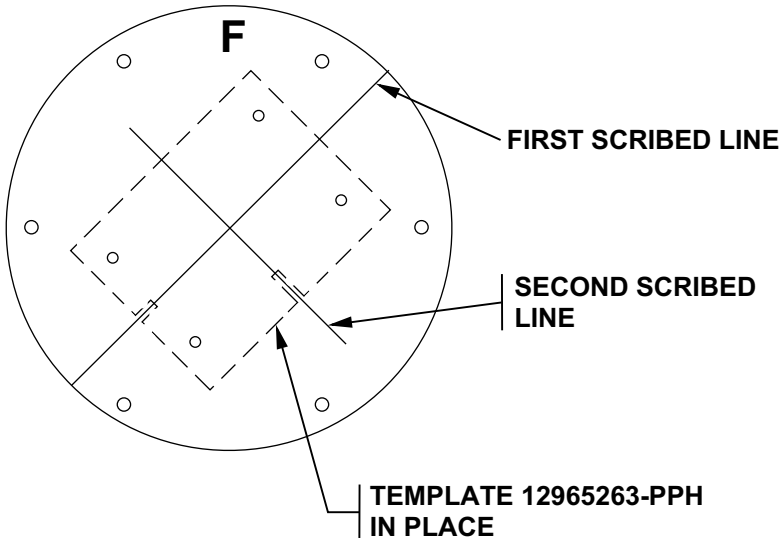
- Steps 15 through 18 apply to the modification of access cover (12965262).
- Access cover (12965262) is the replacement cover for round access cover (12008770) that was earlier removed and discarded.

15. Remove new steel access cover (12965262) (19) from kit and temporarily assemble it to bottom carriage at the right rear access hole using two hexagon head cap screws (B1821AH025C063N) (20). Scribe a line on bottom of carriage and through center of access cover approximately 45 degrees from a line parallel with the axle or centerline (toward right trail). Make mark on front side of cover to aid in relocation.



16. Remove access cover (19) and retain two hexagon head cap screws (20).

17. Measure to the center of the scribed line. From that center point, scribe another line 6 - 8 in. long perpendicular to first scribed line.



WARNING

Safety goggles must be worn for all drilling and tapping operations.

NOTE

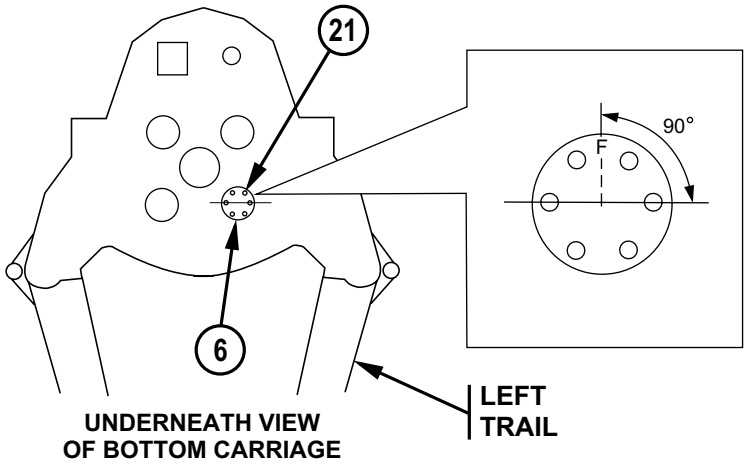
Cutting fluid must be used for all drilling and tapping operations.

18. Using drilling template (12965263-PPH) and scribed lines, lay out hole pattern for drilling. Center punch and drill four 1/8 in. pilot holes. Then drill four 23/64 in. mounting holes through access cover (19), using 23/64 in. drill bit. Remove burrs and sharp edges from drilled holes.

NOTE

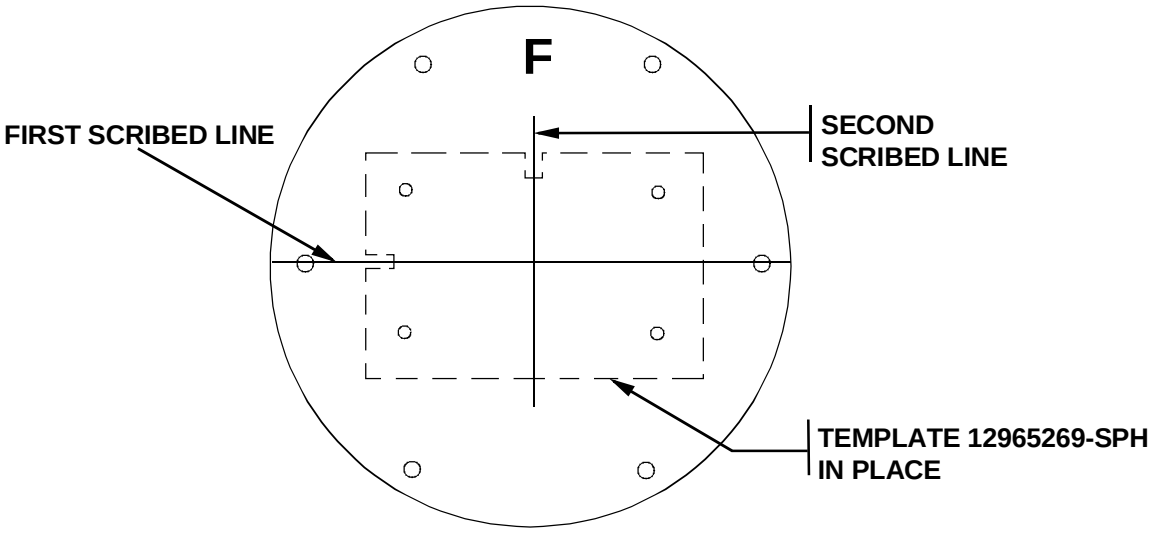
Steps 19 through 22 apply to the modification of removed access cover (12008770).

19. Reinstall one access cover (12008770) (6) on the bottom carriage at left rear access hole using two hexagon head cap screws (B1821AH025C063N) (21). Scribe a line parallel to the axle on bottom of bottom carriage through center of access cover. Mark front edge of access cover to aid in relocation.



20. Remove access cover (6) and retain two hexagon head cap screws (21).

21. Measure to center of scribed line (approximately 4-1/2 in.) and scribe a line perpendicular to first scribed line.



WARNING

Safety goggles must be worn for all drilling and tapping operations.

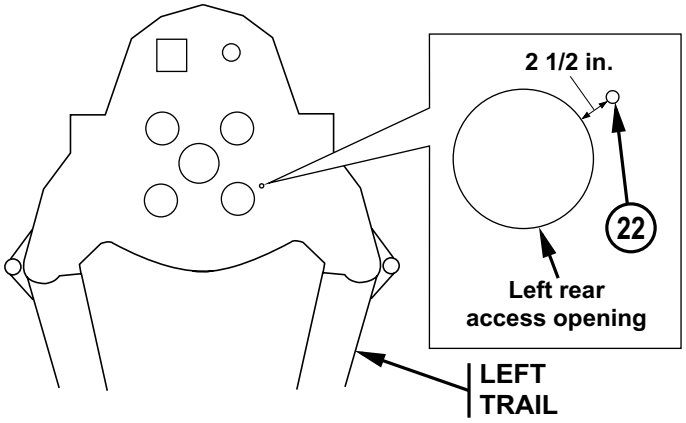
NOTE

Cutting fluid must be used for all drilling and tapping operations.

22. Using drilling template (12965269-SPH) and scribed lines, lay out hole pattern for drilling. Center punch and drill four 1/8 in. pilot holes. Then drill four 17/64 in. mounting holes through access cover (6), using 17/64 in. drill bit. Remove burrs and sharp edges from drilled holes.

NOTE

Steps 23 and 24 apply to the modification of the bottom carriage for the solenoid grounding cable.



CAUTION

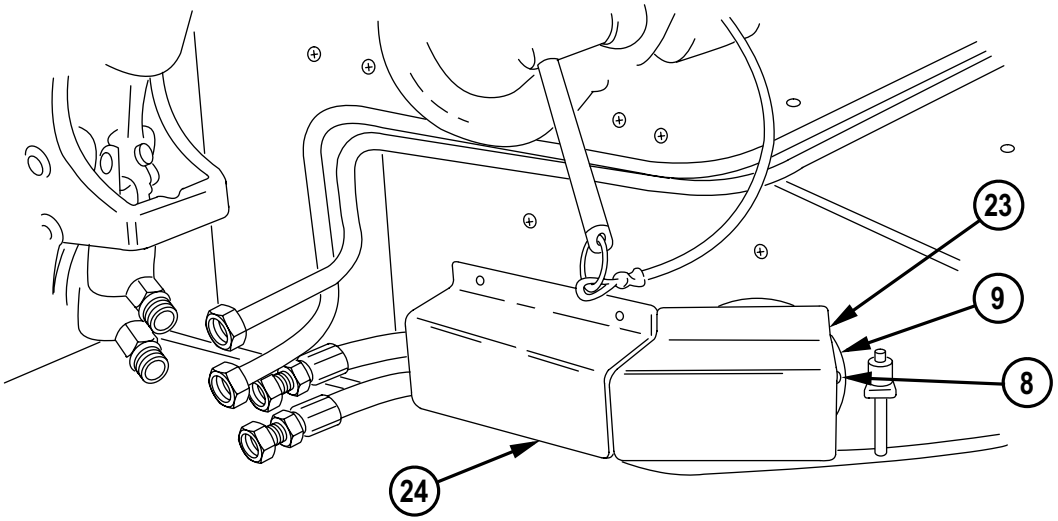
Ensure that internal hydraulic hoses are moved out of the way prior to drilling.

23. Locate the front of the left rear access opening and mark the location for pilot hole (22) at the 2 o'clock position, 2-1/2 in. from the edge of the opening.

24. Center punch and drill pilot hole (22) in bottom carriage, using 1/8 in. drill bit. Using 17/64 in. drill bit, drill in the bottom carriage in the previously drilled 1/8 in. pilot hole.

NOTE

Steps 25 through 32 apply to the modification of brush cover (12965287) and bottom carriage.



25. Reattach modified access cover (12008772) (9) to bottom carriage using two screws (8) retained during removal. Install screws in the 3 and 9 o'clock positions.

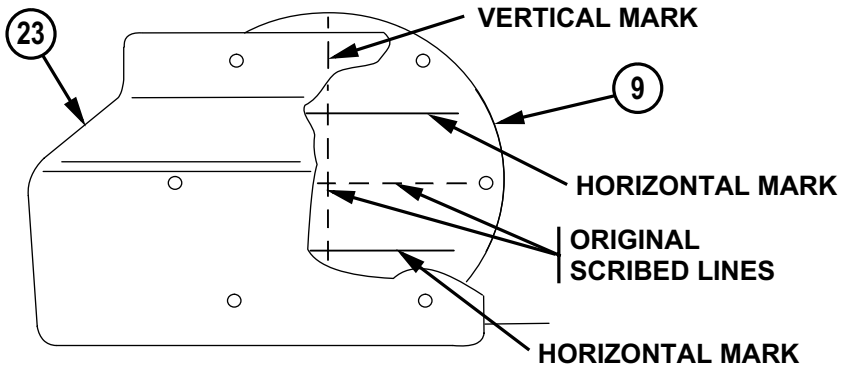
26. Hold brush cover (12965287) (23) over access cover (9).

27. Visually square up brush cover (23) and hold in place.

NOTE

A second person is necessary to complete next step.

28. Place brush cover (12965286) (24) over hydraulic lines and align with brush cover (23). Using the holes in left brush cover (24), mark hole location onto bottom carriage.



29. Mark position of right brush cover (23) with vertical line on right brush cover and horizontal lines on access cover (9).

30. Remove access cover (9) and realign brush cover (23) with vertical and horizontal marks from step 29. From backside of access cover, transfer the position of all relative holes to backside of brush cover. Number of holes to drill will be two, three, or four holes, depending on radial positioning of hole pattern in access cover.

WARNING

Safety goggles must be worn for all drilling and tapping operations.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

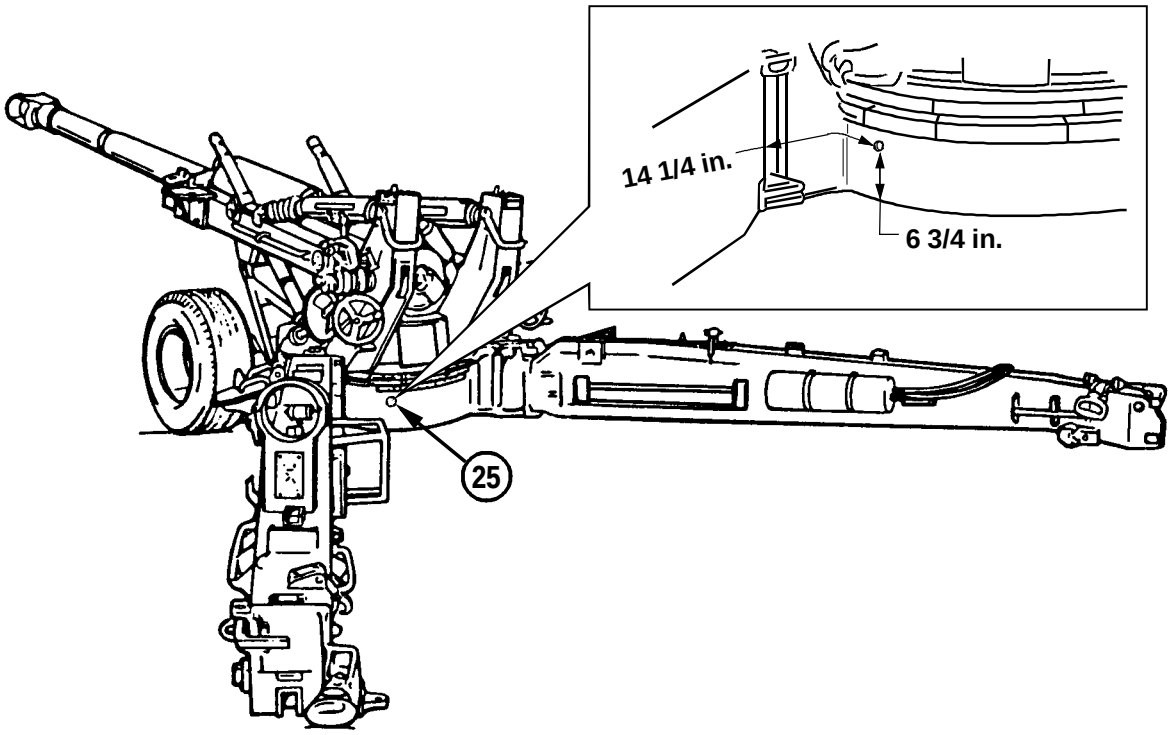
31. Center punch and drill holes in brush cover (23), using 3/16 in. drill bit. Remove burrs and sharp edges from drilled holes.

32. Center punch and drill the three holes in the bottom carriage that were marked in step 28, using #1 drill bit. Remove burrs and sharp edges from drilled holes.

NOTE

Steps 33 through 40 apply to the modification of the bottom carriage for receptacle and grommet.

33. Looking from the rear of howitzer, lay out the location for 1.3 in. receptacle hole (25) on left rear of bottom carriage. Measure 14-1/4 in. from the left acute edge of carriage and around radius. Then measure 6-3/4 in. up.



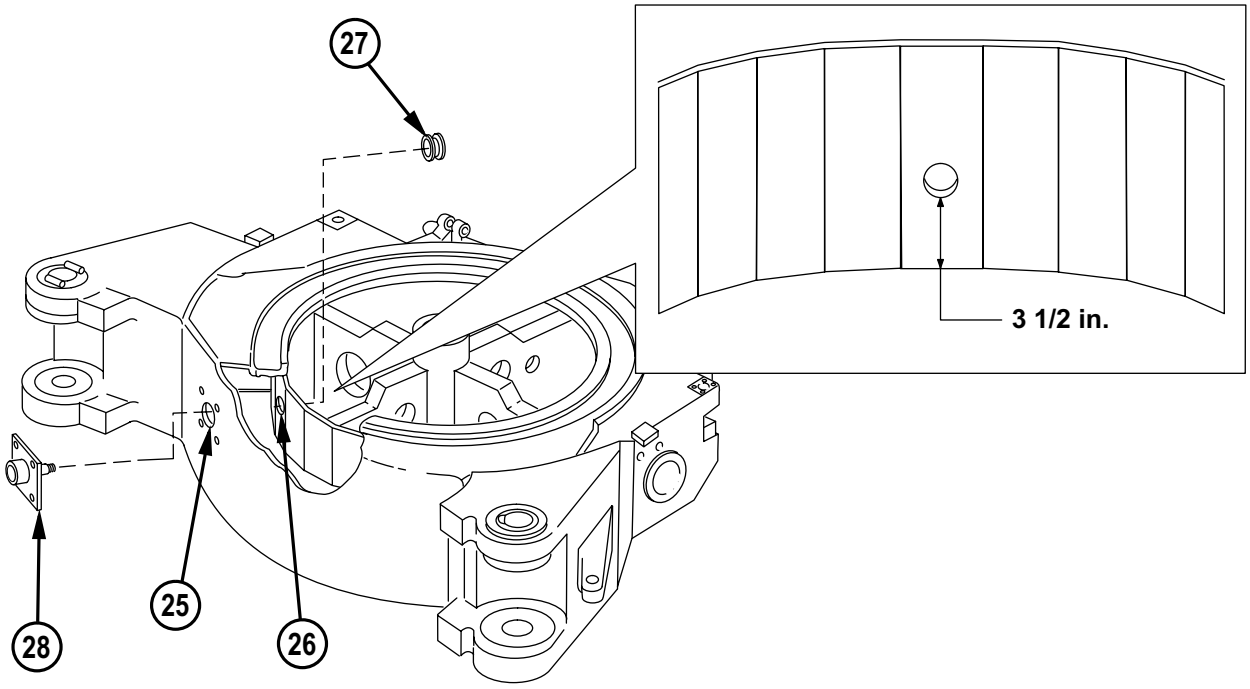
WARNING

Safety goggles must be worn for all drilling and tapping operations.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

34. Attach magnetic base of drill motor to bottom carriage in a position so that the drill bit will line up with point marked in step 33. Drill 1.3 in. hole (25) using 1-1/4 in. hole saw. Remove burrs and sharp edges from drilled hole.



NOTE

Access to inner web is gained through round access hole on underside of bottom carriage which is closest to the 1.3 in. hole just drilled. Looking at inner web through the access opening, it will appear to be curved. Seven flats and one half flat on each end of inner web can be seen.

35. Looking toward rear of howitzer, mark location of hole that will go through inner web of bottom carriage. Make mark on center flat from left to right, 3-1/2 in. up from bottom corner, and in center of flat from left to right.

WARNING

Safety goggles must be worn for all drilling and tapping operations.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

36. Drill 3/4 in. hole (26) through inner web at position marked in step 35, using 3/4 in. hole saw with pilot provided in the kit. This must be done from inside of access opening or cavity. Remove burrs and sharp edges from drilled hole.

37. Lubricate grommet (MS35489-43) (27) and install in the 3/4 in. hole (26).

38. Install electrical receptacle connector (7388305) (28) into 1.3 in. hole (25) and use it as a template to transfer position of receptacle mounting holes to bottom carriage.

WARNING

Safety goggles must be worn for all drilling and tapping operations.

CAUTION

Use care when drilling the two holes on the left side. As the drill breaks through the wall it sometimes comes in contact with an inner web which grabs the drill and can break it.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

39. Remove electrical receptacle connector (28). Center punch and drill holes marked in step 38 with #29 drill bit.

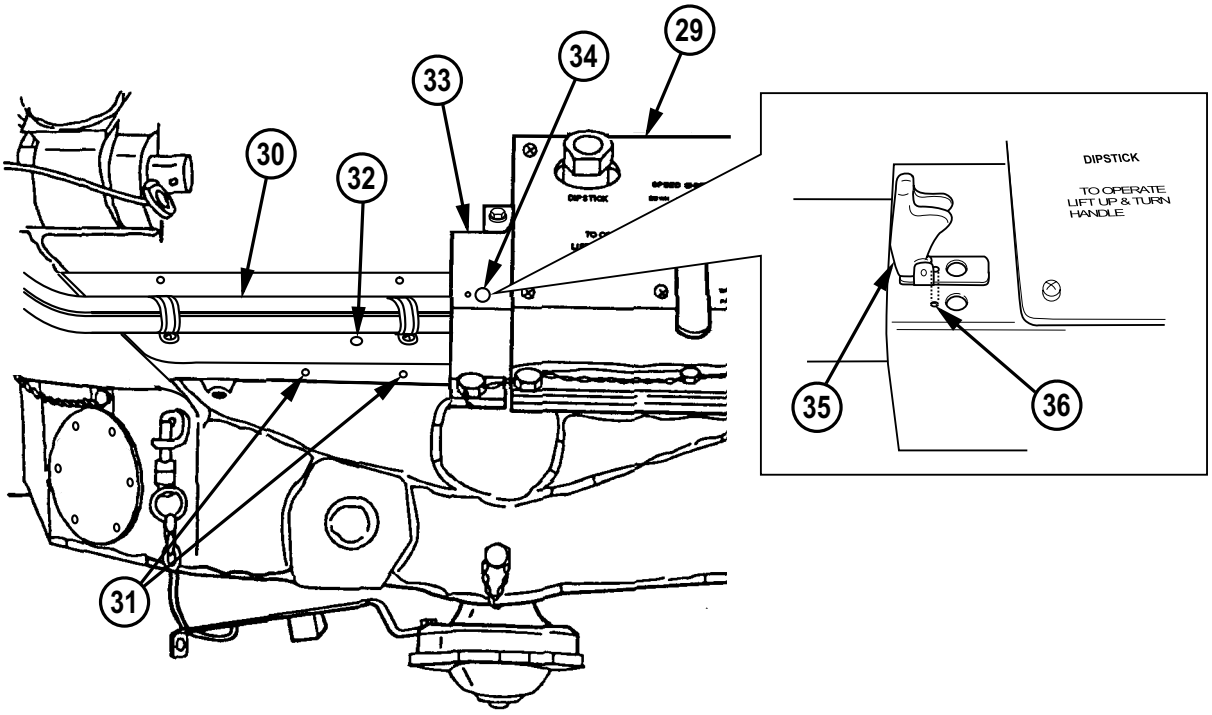
NOTE

The use of one tap per application is recommended. The bottom carriage material is tough and if extreme caution and tapping fluid is not used, the tap will probably break in the hole.

40. Tap holes drilled in step 38 with a # 8-32 tap.

NOTE

Steps 41 through 44 apply to modification for the switch.



WARNING

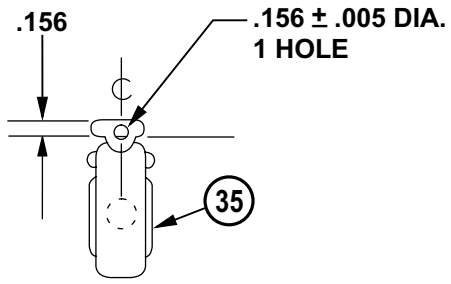
Safety goggles must be worn for all drilling and tapping operations.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

41. On the front of howitzer, locate manifold assembly (29). Next locate the two rigid hydraulic lines (30) that run to the left side of manifold unit. Scribe a vertical line centered between the two lower brush cover mounting holes (31) which are located below the lower hydraulic line. Measure down scribed line from bottom of lower hydraulic line 1/2 in. and mark. Center punch and drill a 9/16 in. hole (32) for the switch wire, using 9/16 in. drill bit. Deburr hole edges.

42. Scribe lines on the right bottom corner of manifold assembly shield (12008899) (33), 1-3/16 in. to the right of the left edge and 3/4 in. up from the bottom. Center punch and drill with a 1/2 in. drill bit. Remove burrs and sharp edges from drilled hole (34).

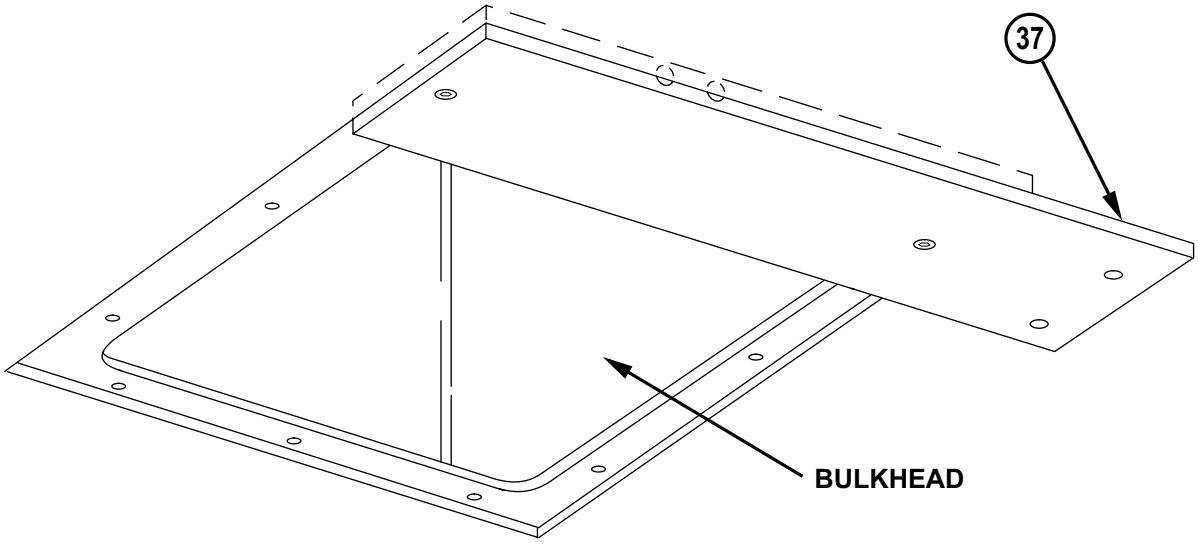


43. Scribe lines on switch guard (MS25224-3) (35) to mark location for the drilling of hole to secure switch guard to manifold assembly shield. Center punch and drill 5/32 in. hole, using 5/32 in. drill bit. Remove burrs and sharp edges from hole.

44. Extend length of horizontal scribed line, 3/4 in. from bottom of manifold assembly shield (33). Measure 0.906 in. to left of hole drilled in step 42. Center punch and drill hole (36), using 5/32 in. drill bit. Remove burrs and sharp edges from drilled hole.

NOTE

Steps 45 through 55 apply to modification of the filter bracket and bottom carriage.



WARNING

Safety goggles must be worn for all drilling and tapping operations.

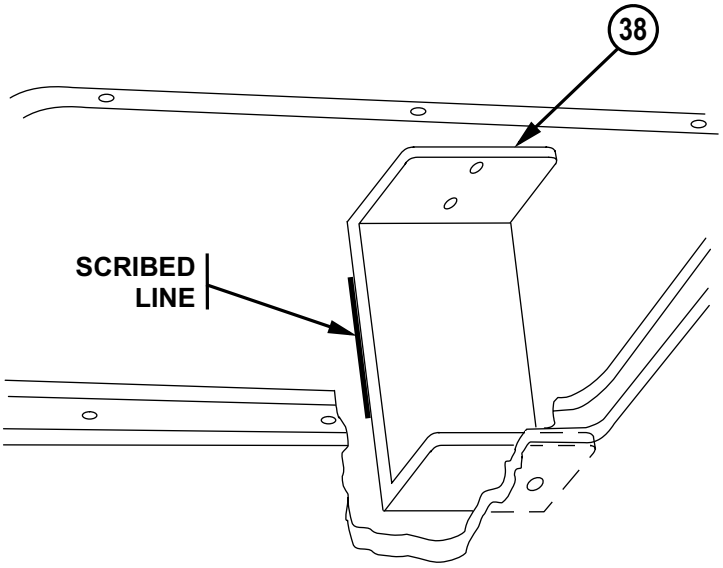
NOTE

Cutting fluid must be used for all drilling and tapping operations.

45. Install drilling template (12965271-BPH) (37) onto rear holes of rectangular access cover opening (pilot holes of template to the right). Mark location of two pilot holes using 1/8 in. drill bit.

46. Using the front edge of drilling template (37), scribe a line on the inner bulkhead of bottom carriage using a 12-inch tri-square to mark position for front edge of filter bracket.

47. Remove drilling template (37) and drill two holes through marked location using 1/8 in. drill bit.



48. Place filter mounting bracket (12965271) (38) into bottom carriage with the surface having two holes up and turned away from inner bulkhead.

49. Align front edge of filter mounting bracket (38) with scribed line on bulkhead. Using 1/8 in. holes drilled in step 47 as pilots, mark the filter mounting bracket using 1/8 in. drill bit.

WARNING

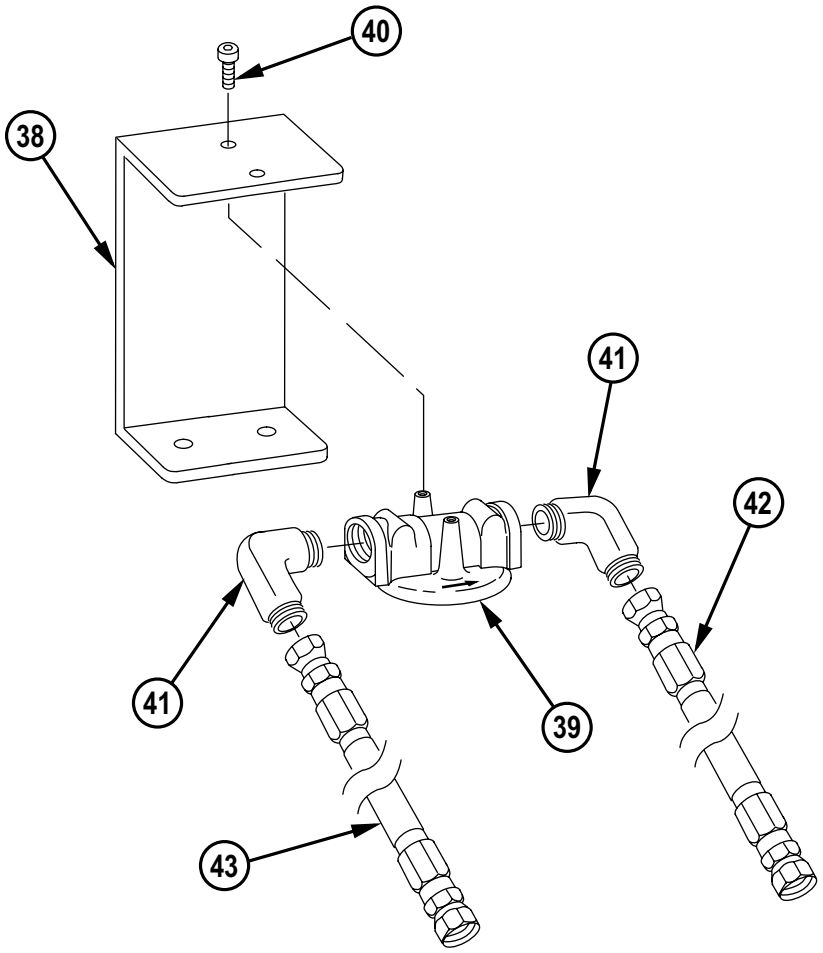
Safety goggles must be worn for all drilling and tapping operations.

NOTE

Cutting fluid must be used for all drilling and tapping operations.

50. Remove filter mounting bracket (38). Using 1/8 in. drill bit, drill two 1/8 in. pilot holes. Using 5/16 in. drill bit, drill two holes in previously drilled pilot holes.

51. Using 5/16 in. drill bit, drill two holes in the bottom carriage in the previously drilled 1/8 in. pilot holes.



52. Position filter mounting bracket (38) with bent ends facing installer and long end on top. Attach fluid filter head (12965266-2) (39), with arrow pointing to right, to filter mounting bracket using two socket head cap screws (MS16997-60) (40).

53. Attach two tube elbows (SAE 8-12 080220) (41) to fluid filter head (39) with both tube elbows facing away from back of the bracket at approximately 45 degrees. Tighten both securely.

NOTE

Place plastic bags over loose ends of both filter lines and secure in place. This is to prevent dirt and grease from getting into lines. Particles in pump lines can cause pump failure.

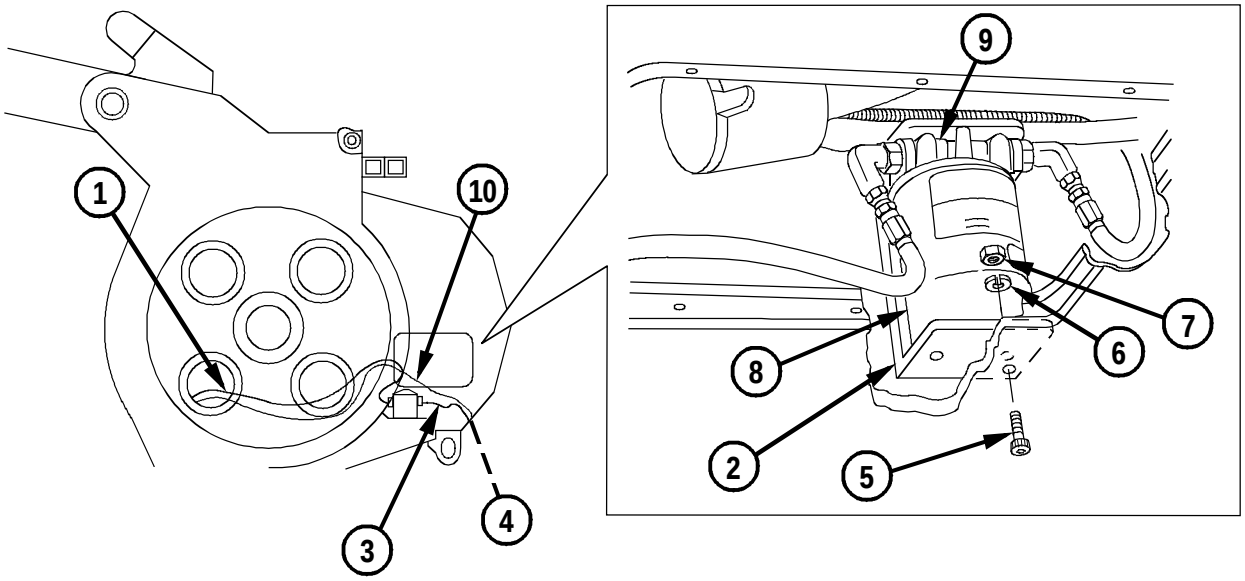
54. Attach hose assembly (12965277-5) (42) to tube elbow (41) on right (only one end of hose will fit to elbow) and tighten.

55. Attach hose assembly (12965277-4) (43) to tube elbow (41) on left side of fluid filter head (39) and tighten.

ASSEMBLY PROCEDURES

NOTE

- Steps 1 through 11 apply to the installation of fluid filter assembly, front access cover, and hydraulic hoses.
- The rear hydraulic hose assembly should run under the axle.
- Because of inconsistencies within bottom carriage cavity, it may be necessary to reposition tube elbows.
- It may be necessary to tighten forward tube elbow after filter mounting bracket is installed in bottom carriage.



CAUTION

Make sure all hose ends are covered to prevent contaminants from entering the lines.

NOTE

- Ensure hydraulic hose assembly (12965277-5) is clear of actuator and hydraulic hose assemblies attached to it.
- Ensure hydraulic hose assembly (12965277-5) runs underneath axle.

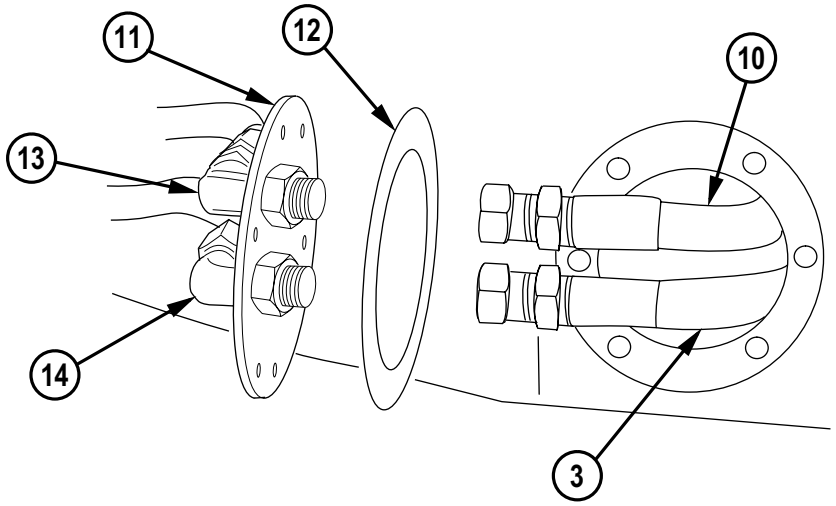
1. Route rear hydraulic hose assembly (12965277-5) (1) up through rectangular access hole and back through webbing holes while positioning filter mounting bracket (12965271) (2) in bottom carriage cavity. Pull hose assembly down through left rear access hole.
2. Route filter hose assembly (12965277-4) (3) through front access hole (4).
3. Install filter mounting bracket (2) into bottom carriage and secure with two socket head cap screws (MS16997-60) (5), two lock washers (MS35338-44) (6), and two hexagon plain nuts (MS51971-1) (7).

CAUTION

Failure to fill with oil is likely to cause overheating of the rotary pump members.

4. Fill fluid filter element (8) with oil and install on fluid filter head (9).

5. Route longest hose assembly in the kit (12965277-3) (10) through front access hole (4) and back through carriage following the same path as hose assembly (1). Pull male end of hose assembly (10) through carriage and down through right rear access hole.

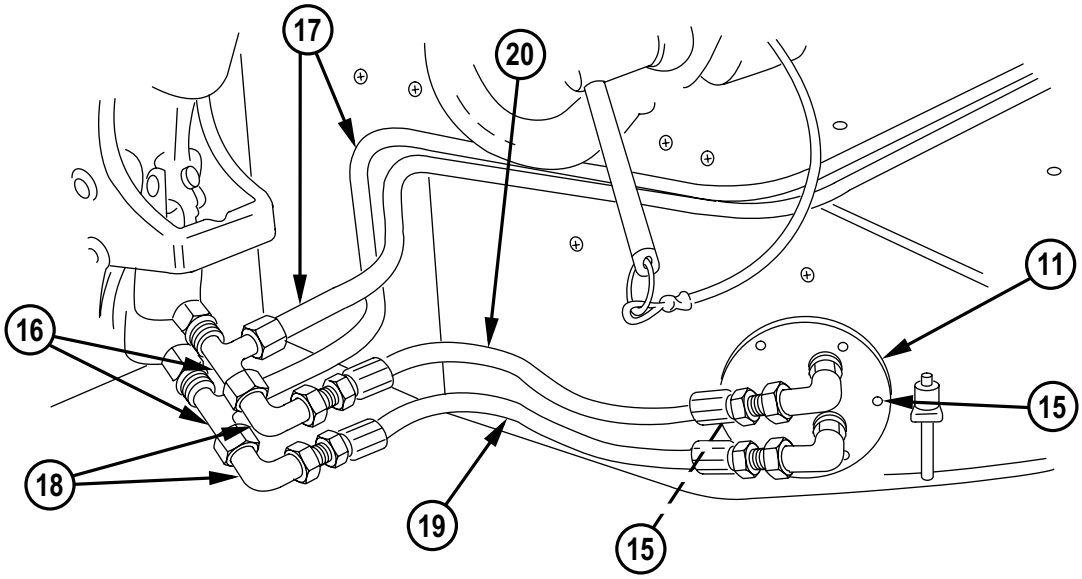


6. Apply film of grease on backside of front access cover (11) to hold gasket in place. Install new gasket (12008773) (12).

7. Connect long hose assembly (12965277-3) (10) to upper tube elbow (13) on front access cover (11). Connect filter hose assembly (12965277-4) (3) to lower tube elbow (14) on front access cover.

NOTE

Upper hose assembly connects to pressure side of hydraulic pump**.**



8. Assemble front access cover (11) to bottom carriage using two, three, or four retained socket head cap screws (MS24667-15) (15). These should be mounted into holes that will not be used when mounting brush cover (12965287). Holes for the brush cover were drilled in steps 30 and 31 of Set-up Procedures.

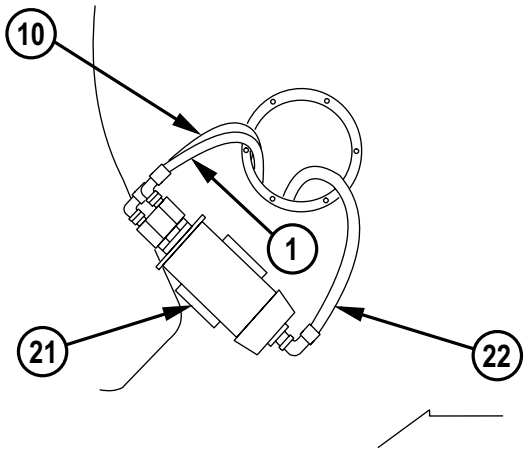
9. Install two tube tees (MS51854-11) (16) onto ram hydraulic pump.

10. Reconnect both rigid hydraulic lines (17) to two tube tees (16) and tighten.

11. Install two tube elbows (MS51852-11A) (18) onto two tube tees (16). Connect lower hydraulic hose assembly (12965277-2) (19) to lower tube elbow and upper hydraulic hose assembly (12965277-1) (20) to upper tube elbow and tighten these fittings.

NOTE

Steps 12 and 13 apply to connections to hydraulic pump.



12. Connect two hose assemblies (12965277-3) (10) and (12965277-5) (1) to hydraulic pump (12965300) (21) and tighten connections. These hoses will only go on pump one way, due to line size. Since there are O-rings on the hose fittings tighten only to 20 to 30 ft-lb.

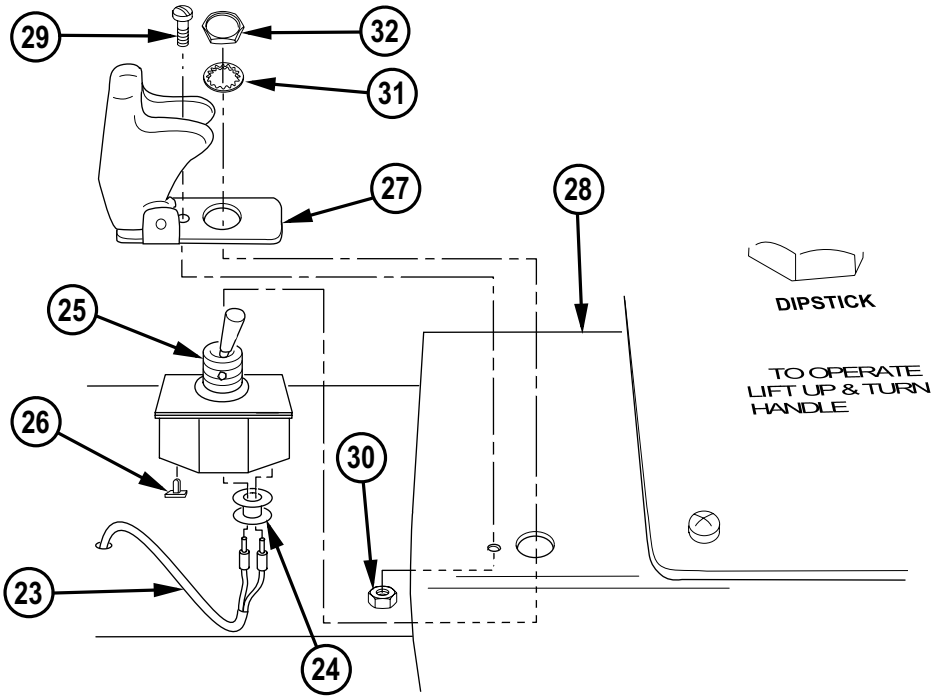
NOTE

Become familiar with this connector so it is not ruined.

13. Attach special cable assembly (12965275) (22) to electrical connection point on rear of hydraulic pump (21). Guide connector onto key while twisting in a clockwise direction until it seats.

NOTE

Steps 14 through 20 apply to installation of toggle switch.



14. Using a pull wire, pull power cable assembly (12965284) (23) up through rectangular opening on bottom side of bottom carriage and through hole drilled in Set-up Procedures, step 41.

15. Apply light coat of grease (WTR) to power cable assembly (23). Install nonmetallic grommet (MS35489-38) (24) onto power cable assembly and then install in 9/16 in. hole drilled in Set-up Procedures, step 41.

NOTE

The wires are numbered. Wire 1 goes to terminal 1 on toggle switch and wire 2 goes to terminal 2.

16. Attach toggle switch (MS27722-30) (25) to contacts on power cable assembly (23) by pushing in until they seat.

17. Install end seal plug (MS27488-16) (26) into terminal 3 on toggle switch (25).

18. Install switch guard (MS25224-2) (27) to manifold assembly shield (28) with machine screw (MS35206-231) (29) and hexagon self-locking nut (MS21083-N06) (30).

NOTE

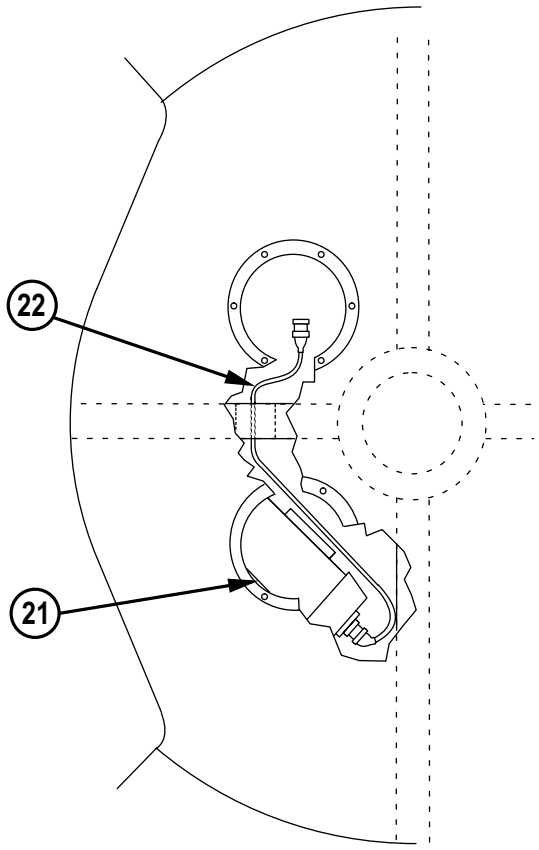
Install toggle switch so OFF is to the right.

19. Assemble toggle switch to manifold assembly shield (28) in hole drilled in Set-up Procedures, step 42. Install with lock washer (31) and jam nut (32) that come with toggle switch.

20. Feed power cable assembly (23) through bottom carriage cavities using same route as pump hydraulic hose. Instead of bringing power cable assembly down through same hole as pump unit, route cable through webbing in bottom carriage to left rear access hole where solenoid will be located.

NOTE

- Steps 21 through 29 apply to installation of hydraulic pump.
- Two persons are required for the next step.
- For best results, tilt hydraulic pump on end with hose end going up into the hole first, while guiding the cable end up at the same time.



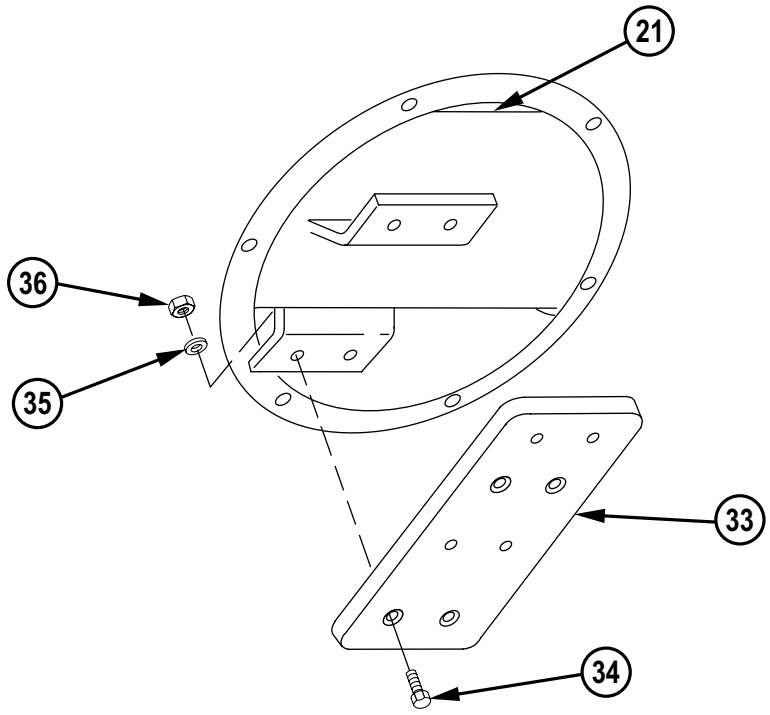
21. Guide hydraulic pump (21) into right rear access hole of bottom carriage. Guide special cable assembly (22) up through hole first.

NOTE

Hose swivel connectors must be in up position.

22. Push hydraulic pump (21) all the way up into cavity in the vertical position. Reach through left rear access hole and guide pump so it can rest in a horizontal position inside right rear cavity with hose end toward rear center of howitzer and pump feet sticking down through access opening.

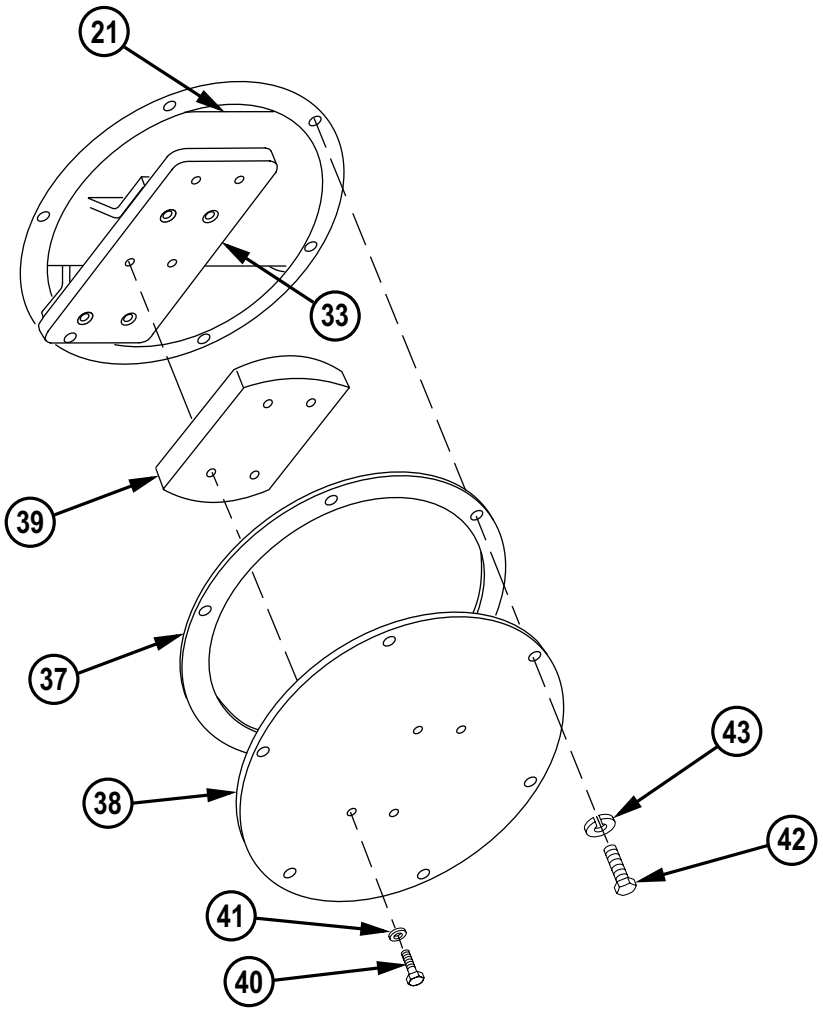
23. Route free end of special cable assembly (22) through large hole in webbing into left rear cavity where solenoid will be located.



NOTE

- The mounting plate must be rocked from one side to the other, assembling two screws at a time, with the mounting plate semi-protruding from the hole.
- Install mounting plate IAW illustration above. If pump does not fit properly, rotate mounting plate 180 degrees.
- Ensure screw heads are in counterbores.

24. Assemble mounting plate (12965283) (33) to the feet of hydraulic pump (21) using four hexagon head cap screws (B1821AH031C088N) (34), four flat washers (MS27183-12) (35), and four hexagon self-locking nuts (MS51922-9) (36) and tighten.



NOTE

- Ensure proper pump orientation.
- Follow illustration for proper orientation of mounting plate.

25. When all four screws are installed, manipulate hydraulic pump (21) with mounting plate (33) into the cavity with the mounting plate centered in the opening. Hydraulic pump will be at 45° angle to axle.

NOTE

Steel access cover (12965262), which was modified in Set-up Procedures, is now identified as pump mounting plate (12965263).

26. Align holes of new gasket (12008771) (37) with holes in round pump mounting plate (12965263) (38). Use a little grease (WTR) to hold gasket in place.

NOTE

- Make sure that washers are on head end of bolt.
- Do not completely tighten bolts yet.

27. Place cushioning pad (12965272) (39) on the same side of round pump mounting plate (38) as gasket (37). Align scribed timing marks on round pump mounting plate and bottom carriage created in Set-up Procedures, step 15. Align holes in cushioning pad with four holes in round pump mounting plate and assemble four machine bolts (B1821AH031C150L) (40) and four flat washers (MS27183-12) (41) through round pump mounting plate and cushioning pad to mounting plate (33)**.**

NOTE

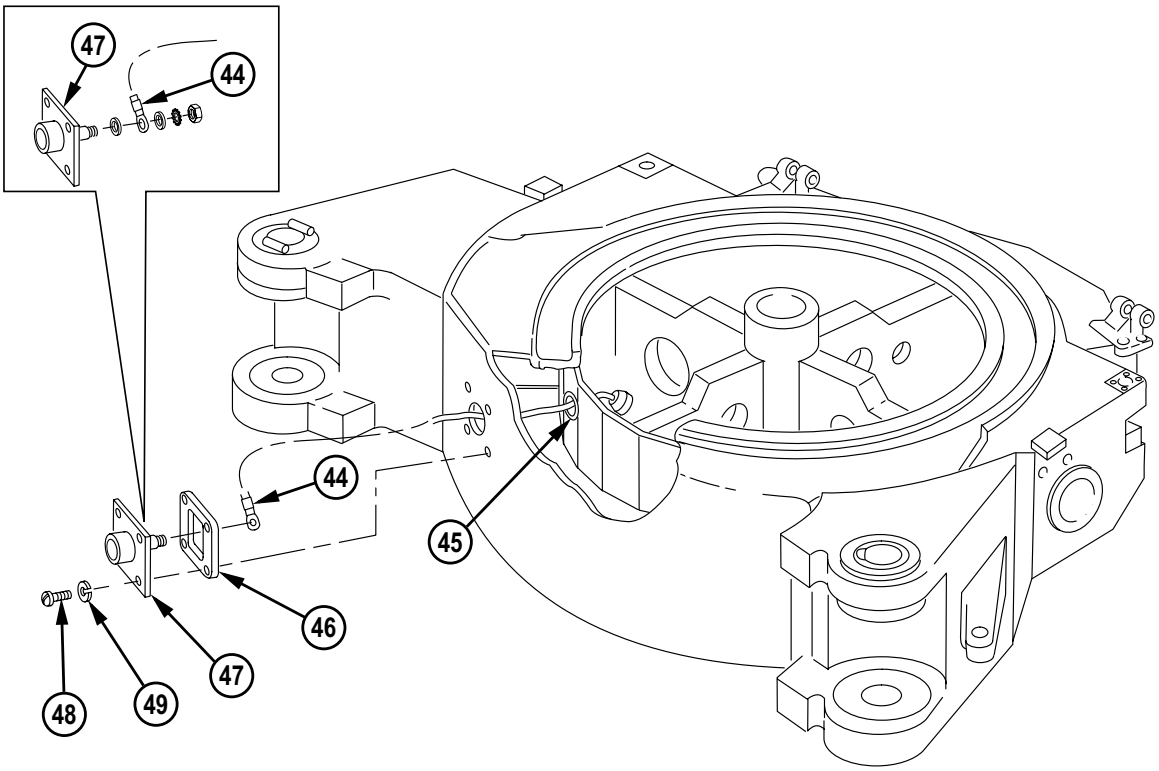
Two persons are required for the next step.

28. Keeping scribed timing marks in line, assemble round pump mounting plate (38) to bottom carriage with six hexagon head cap screws (B1821AH025C063N) (42) and six lock washers (MS35335-33) (43).

29. Tighten four machine bolts (40) to approximately 30 ft-lb.

NOTE

Steps 30 through 33 apply to installation of electrical receptacle connector.



30. Apply light coat of grease (WTR) to power cable assembly (12965297-3) (44). Install power cable assembly through grommet (MS35489-43) (45) located in left rear access hole and pull cable through the 1.3 in. diameter hole in rear of bottom carriage.

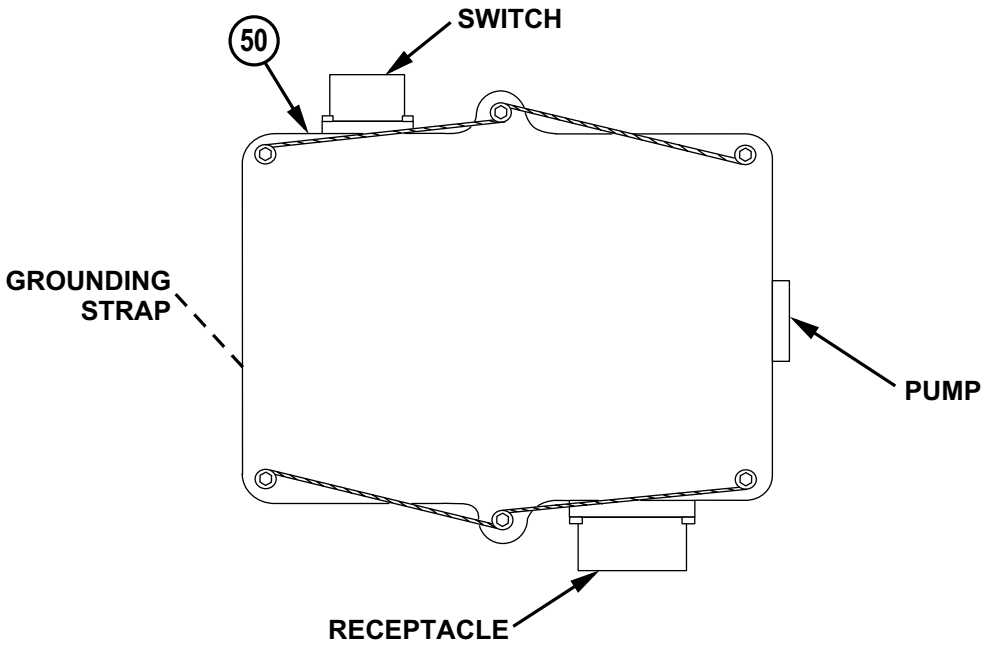
31. Install gasket (A-A52481-8) (46) over terminal end of electrical receptacle connector (7388305) (47).

32. Using hardware with electrical receptacle connector (47), attach power cable assembly (44) to electrical receptacle connector.

33. Attach electrical receptacle connector (47) to bottom carriage using four tapping screws (MS24629-37) (48) and four lock washers (MS35338-137) (49).

NOTE

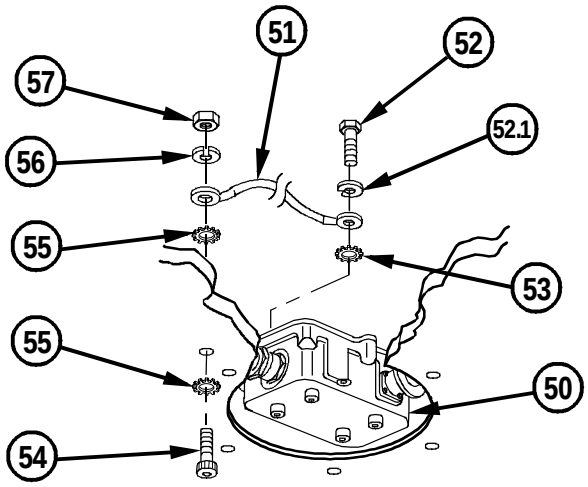
Steps 34 through 38 apply to the installation of electrical box connector (solenoid box).



34. Install solenoid box (50) into bottom carriage at left rear access opening.

35. Orient solenoid box (50) so that grounding strap orientation is toward left tire.

36. Attach power cable assembly (12965284) from switch, special cable assembly (12965275) from pump, and power cable assembly (12965297-3) from receptacle to solenoid box (50).

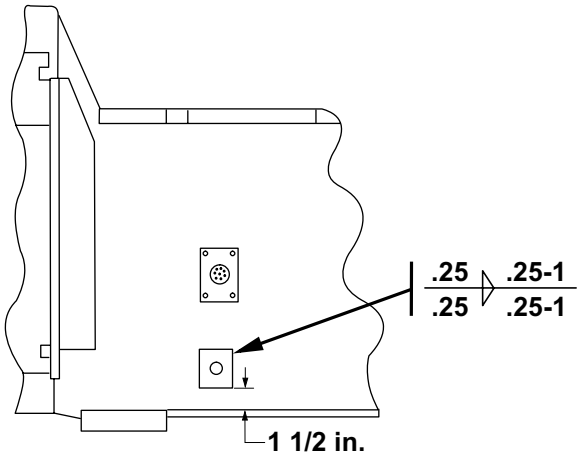


37. Attach special cable assembly (12965285-5) (51) to solenoid box (50) using hexagon head cap screw (B1821AH038F075N) (52), lock washer (MS35338-46) (52.1), and lock washer (MS45904-76) (53).

38. Attach other end of special cable assembly (12965285-5) to bottom carriage in hole drilled in Set-up Procedures, step 24, using socket head cap screw (MS16997-62) (54), two lock washers (MS45904-68) (55), lock washer (MS35338-44) (56), and hexagon plain nut (MS51967-2) (57).

NOTE

Steps 39 through 43 apply to installation of bottom carriage grounding pad.



39. Layout location for grounding pad (12965303) on bottom carriage. Align left edge of pad with left edge of receptacle and place 1-1/2 in. from bottom of carriage.

40. Prior to removal of paint from welding area, center punch corners of pad location on bottom carriage.

WARNING

Safety glasses, face shield, respirator, and hearing protection must be worn for all grinding operations.

41. Remove paint approximately four inches from all surfaces surrounding the area to be welded.

42. Weld grounding pad (12965303) to bottom carriage.

WARNING

Wear respirator and chemical and solvent resistant gloves when applying CARC paint.

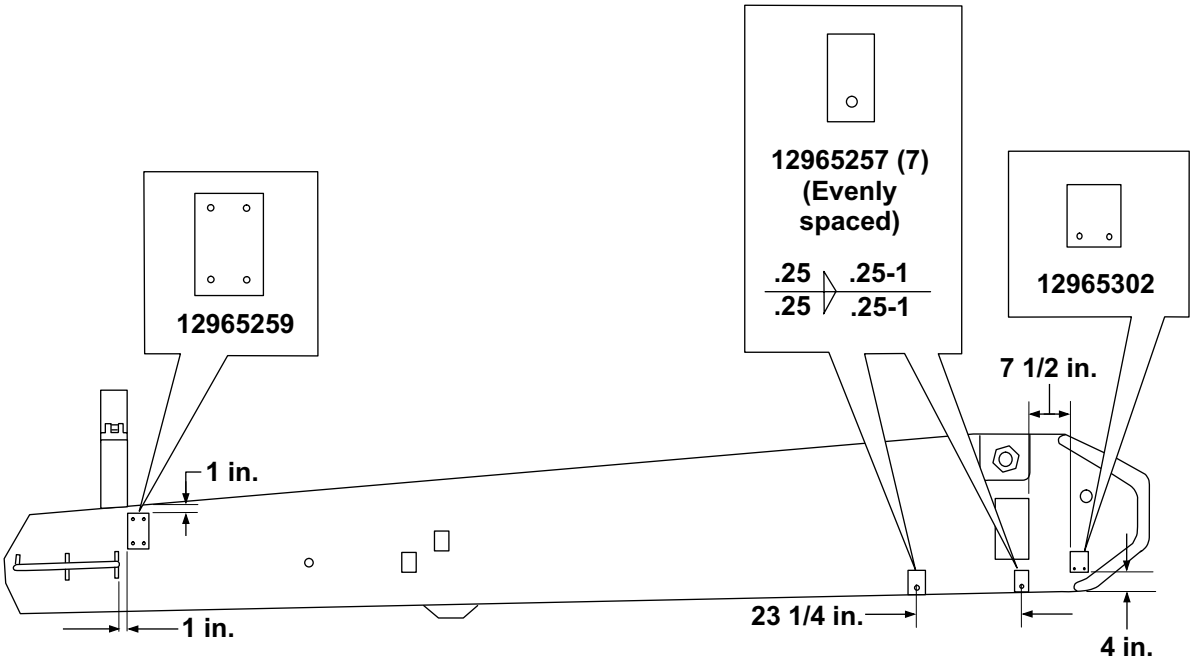
NOTE

When painting area, do not paint threads of pad.

43. Apply dry film lubricant to pad and paint with appropriate color CARC paint.

NOTE

Steps 44 through 48 apply to installation of mounting and grounding pads on left trail.



44. Layout location for mounting pad (12965259) 1 in. from top of left trail and with left edge of pad 1 in. from handle, seven mounting pads (12965257) spaced 23-1/4 in. from center of one pad to center of next pad, and mounting/grounding pad (12965302) 4 ± 1/4 in. from bottom of left trail and 7-1/2 ± 1/4 in. from edge of staff holder. Align mounting/grounding pad (12965302) nearest to bottom carriage with right edge of staff holder.

45. Prior to removing paint from welding area, center punch corners of pad locations on trail.

WARNING

Safety glasses, face shield, respirator, and hearing protection must be worn for all grinding operations.

46. Remove paint approximately four inches from all surfaces surrounding the area to be welded.

47. Weld pads (12965257, 12965259, and 12965302) to left trail.

WARNING

Wear respirator and chemical and solvent resistant gloves when applying CARC paint.

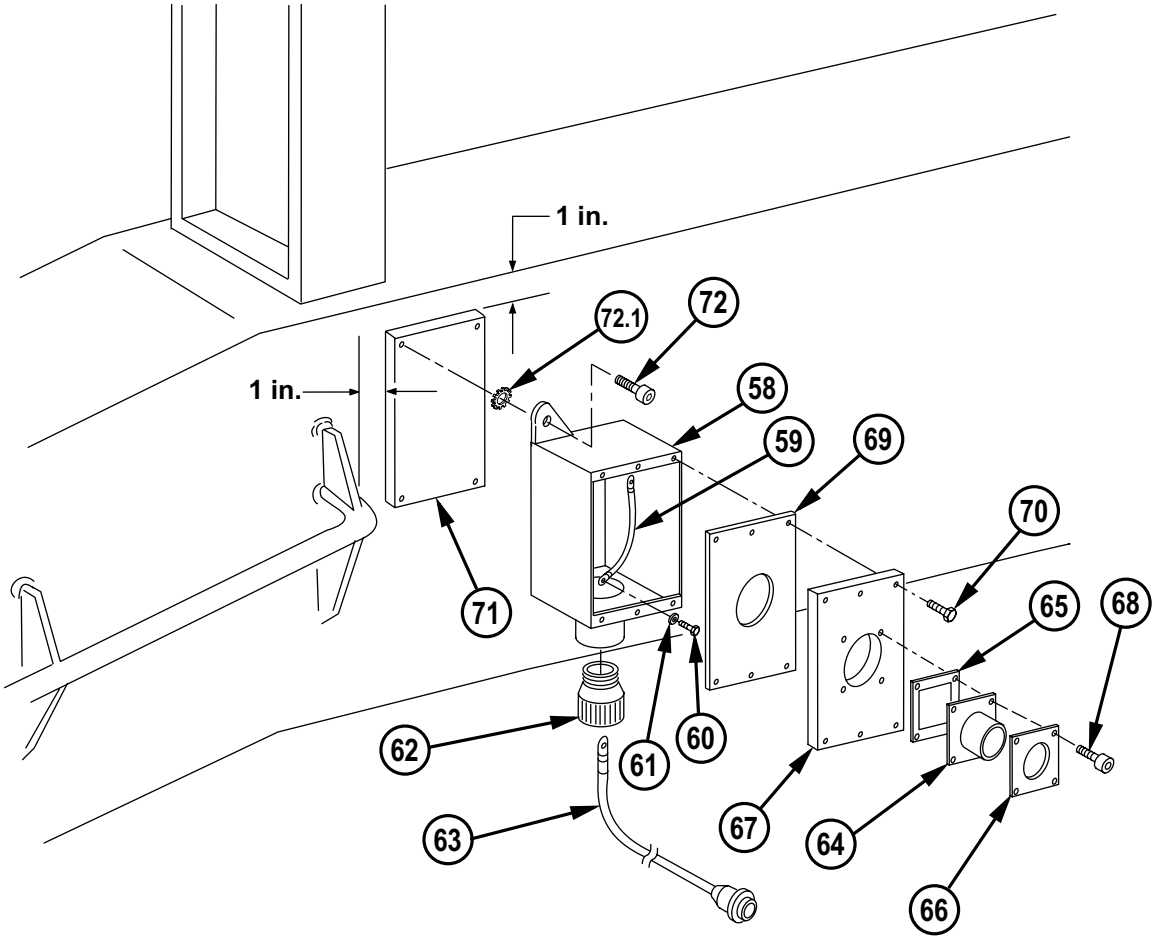
NOTE

When painting area, do not paint threads.

48. Apply dry film lubricant to pads and paint with appropriate color CARC paint.

NOTE

Steps 49 through 63 apply to installation of NATO receptacle and cables.



49. Remove existing screw and washer from conduit outlet (12965299) (58). Attach power cable assembly (12965285-1) (59) to conduit outlet using machine screw (MS35206-242) (60) and lock washer (MS45904-61) (61).

50. Install electrical box connector (12965291-1) (62) to conduit outlet (58). Apply antiseizing tape to connector threads prior to installation.

51. Apply light coat of grease to power cable assembly (12965297-1) (63) and route power cable assembly through electrical box connector (62). Do not secure cap of connector at this time.

NOTE

The negative post of the NATO receptacle connector (11674728) must be on the right-hand side.

52. Attach NATO receptacle connector (11674728) (64), including gasket (65) and camouflage cover (66), to access cover (12965293) (67) using four socket head cap screws (MS16997-46) (68). Attach cover-securing strap to one of the bottom screws.

53. Slide gasket (12965278) (69) over terminal ends of NATO receptacle connector (64) prior to attaching power cable assemblies (59 and 63) to terminals.

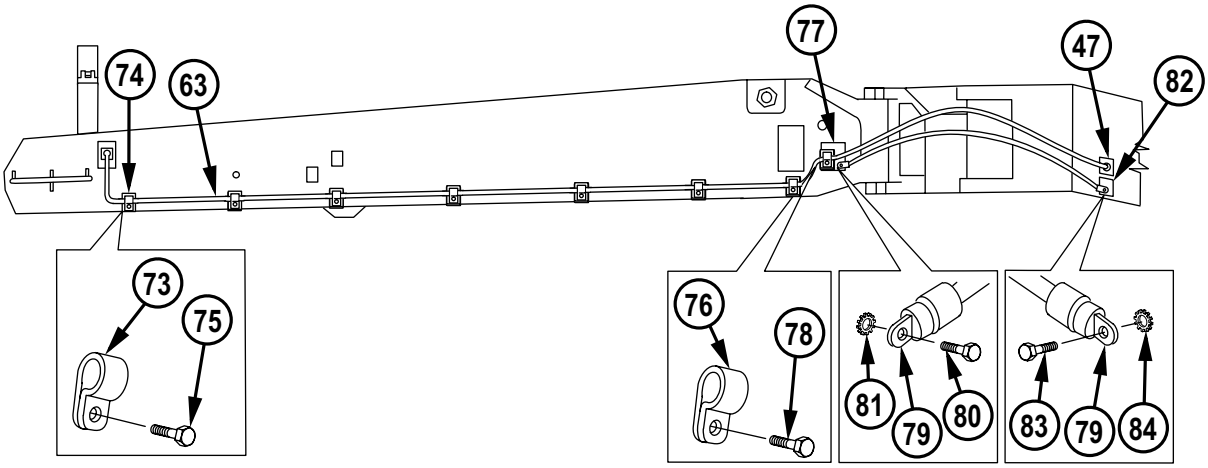
54. Attach power cable assembly (59) to negative terminal end of NATO receptacle connector (64).

55. Attach power cable assembly (63) to positive terminal end of NATO receptacle connector (64).

56. Attach access cover (67) to conduit outlet (58) using six machine screws (MS3212-20L) (70).

57. Secure cap of electrical box connector (62).

58. Attach conduit outlet (58) to pad (12965259) (71) using two socket head cap screws (MS16998-41L) (72) and two lock washers (MS45904-68) (72.1). Torque screws to 8 ft-lb.



NOTE

Step 59 applies to all seven loop clamps (MS21333-71) and installation should start with cable pad (12965257) closest to conduit outlet (12965299).

59. Slide loop clamp (MS21333-71) (73) over power cable assembly (12965297-1) (63) and secure to cable pad (12965257) (74) using machine screw (MS35207-260) (75).

60. Slide loop clamp (MS21333-71) (76) over power cable assembly (63) and secure to the left threaded hole of pad (12965302) (77) using machine screw (MS35207-260) (78). Angle power cable assembly toward upper right corner of pad.

61. Attach power cable assembly (12965285-3) (79) to pad (77) using machine screw (MS35207-260) (80) and lock washer (MS45904-61) (81). Attach end with smaller hole. Angle power cable assembly toward upper right corner of pad.

62. Attach power cable assembly (79) to pad (12965303) (82) using hexagon head cap screw (B1821AH025C050N) (83) and lock washer (MS45904-68) (84). Angle power cable assembly toward upper left corner of pad.

63. Connect power cable assembly (63) to electrical receptacle connector (47).

PURGING AND LEAKAGE CHECK PROCEDURES

1. Replenish oil in hydraulic reservoir to proper operating level.

NOTE

Perform the following to purge air from the system created by line replacement on the left side.

2. Position WHEELS selector handle to the down position. Begin pumping right ram hydraulic pump until wheels are down and axle locks are free.

3. Move WHEELS selector handle to neutral to lower wheels onto axle locks again and move SPEED SHIFT selector handle to UP.

4. Using intervehicle power cable kit (11682336-2), connect NATO receptacle connector to power supply. Ensure that solenoid box is secured in a hanging position so that it will not be crushed when speed shift plate is raised.

NOTE

If the speed shift is not raised after ten seconds, disengage toggle switch. Pump should not be run again except in short bursts until it is discovered why the pump did not operate correctly. The pump will freeze up if it is run dry for too long. Moving fluid in the pump acts as a lubricant and a coolant.

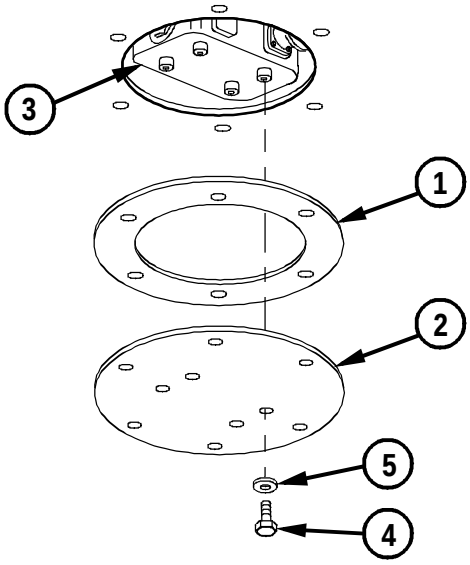
5. Activate toggle switch. After a short period a groaning or whining noise should be heard as the pump primes and begins to raise the speed shift.

6. After pump runs successfully and the speed shift plate has been raised and lowered several times, run the speed shift all the way down until it runs out of travel. Let it run against the solid stop for two or three seconds. A change of sound should be heard in the pump. This is due to the pump dumping over a relief valve that is integrated into the pump.

7. Disconnect the NATO receptacle connector from the power source.

8. Check for leaks by reaching hand into left rear access hole of bottom carriage where the solenoid box will go. Push hand through webbing in bottom carriage over to pump cavity and check around the pump-hose connections to see if there is any oil present. There should be none. Next move around to front of howitzer and look through rectangular access hole of bottom carriage. Visually check for leaks at filter connections and front elbow connections. There should be no oil residue or drops on any fittings.

9. Visually inspect the fittings in the front on the outside of the bottom carriage.



10. Place new gasket (12008771) (1) on inside of modified left rear access cover (12008770) (2) with some grease (WTR). Mount solenoid box (12965295) (3) to access cover so that, when the access cover is mounted to the bottom carriage, the solenoid box will be inside the bottom carriage. Secure solenoid box with four hexagon head cap screws (B1821AH025C063L) (4) and four flat washers (MS27183-52) (5).

11. Assemble the solenoid box-access cover assembly to the bottom carriage using six hexagon head cap screws (B1821AH025C063N) and six lock washers (MS35335-33).

12. Install front right access cover and new gasket (12008771) to the bottom carriage using six hexagon head cap screws (B1821AH025C063N) and six lock washers (MS35335-33).

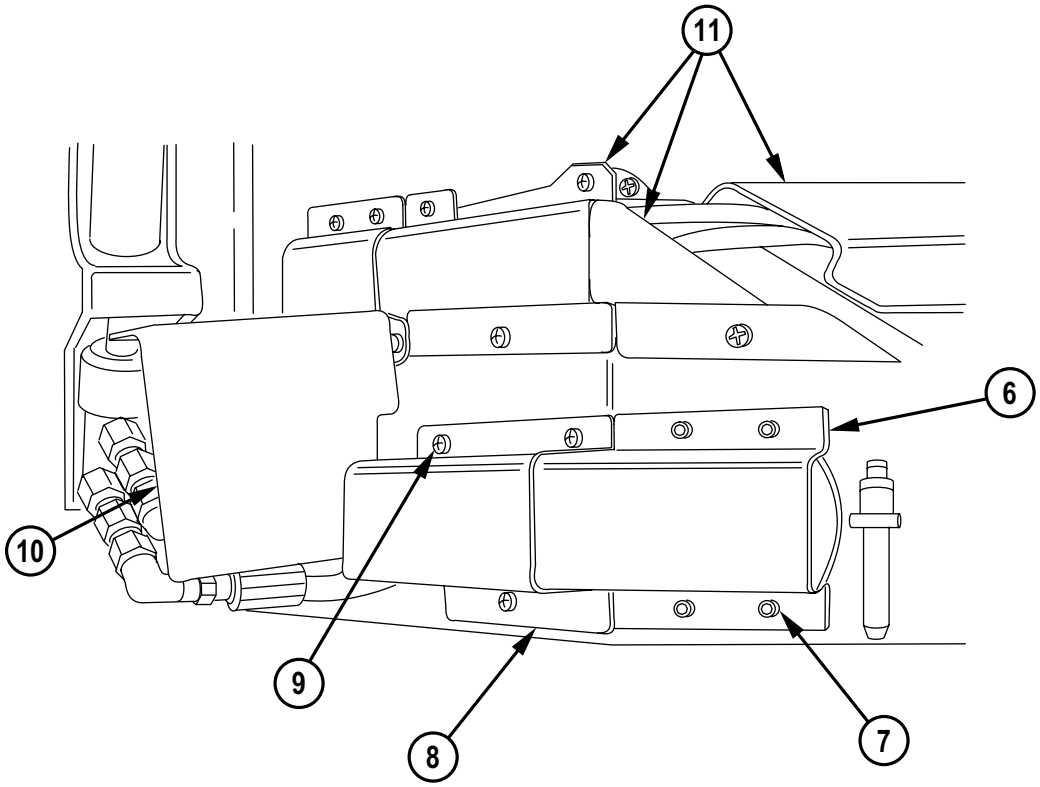
13. Replace all six hexagon head cap screws (B1821AH025C063N) and six lock washers (MS35335-33) which secure front left access cover to bottom carriage.

14. Apply a light film of grease (WTR) to secure new gasket (12008775) to rectangular access cover (12008774). Install rectangular access cover to bottom carriage using same screws which were removed.

15. Connect the power source to the NATO receptacle connector.

16. Move SPEED SHIFT selector handle to UP and fully raise speed shift.

17. Disconnect the NATO receptacle connector from the power source.



18. Install brush cover (12965287) (6) over modified front access cover using four socket head cap screws (MS16997-34) (7). (Only two or three screws may be needed depending on the hole pattern.)

19. Install brush cover (12965286) (8) over hydraulic lines and adjacent to brush cover (6), using three tapping screws (MS51861-65C) (9). They will be difficult to install unless they are turned gradually about a half turn and then turned back about a quarter turn.

20. Install brush cover (12965290) (10) over ram hydraulic pump using existing holes and hardware.

21. Using existing hardware, replace remaining brush covers (11) which were removed.

11. CALIBRATION REQUIREMENTS. Not applicable.

12. WEIGHT AND BALANCE DATA. Weight and balance are not significantly affected.

13. QUALITY ASSURANCE REQUIREMENTS.

a. Drilling and Tapping Requirements:

1) Regular drill bit and hole saws will not be resharpened.

2) Aluminum drilling and tapping fluid must be used.

3) 8-32 taps will be replaced after each application.

b. Physical Inspection: Verify completeness of the assembly.

14. RECORDING AND REPORTING OF THE MODIFICATION.

a. Records and Reports: Record and report accomplishments of the modification IAW with DA PAM 738-750, The Army Maintenance Management System (TAMMS). A DA Form 2407 shall be completed and submitted within three days of accomplishment of the modification. Follow the specific instructions for use of DA Form 2407 to report a modification in paragraph 3-8 and 3-12 of DA PAM 738-750. After completion, copies will be distributed as follows:

1) Copy 1: Retain by using unit.

2) Copy 2: Director, ACALA, ATTN: AMSTA-AC-FATF, Rock Island, IL 61299-7630.

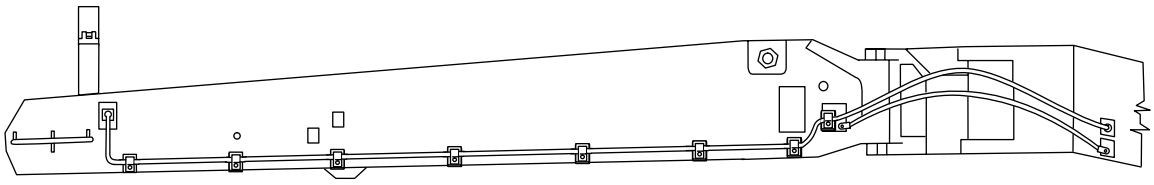
3) Copy 3: Director, ACALA, ATTN: AMSTA-AC-NMR, Rock Island, IL 61299-7630.

b. Marking Equipment: Not required.

c. Identification Data: Not applicable.

15. MATERIEL CHANGE (MC) NUMBER. This MWO is authorized by MC number 1-95-05-7918.

16. MODIFICATION IDENTIFICATION.



By Order of the Secretary of the Army:

DENNIS J REIMER
General, United States Army
Chief of Staff

Official:

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

05545

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