

CHANGE

NO. 1

**HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 14 July 1994**

MODIFICATION OF TRAILER MOUNTED LINE CHARGE LAUNCHER KIT

MOD 0 (NSN 1055-01-203-5883)

MOD 1 (NSN 1055-01-281-2770)

INSTALLATION OF ELECTROMECHANICAL TRAILER RELEASE ASSEMBLY

MWO 9-1375-215-30-1, 31 January 1992, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page. Illustration changes are indicated by a miniature pointing hand.

Remove Pages

1 and 2
7 thru 10
13 and 14
25/(26 blank)

Insert Pages

1 and 2
7 thru 10
13 and 14
25/(26 blank)

Retain this sheet in front of the manual for reference purposes.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
06810

DISTRIBUTION: To be distributed in accordance with special list.

ROUTINE

[MWO effective date is 30 June 1994 and completion date is 30 June 1998.]

MWO 9-1375-215-30-1

**MODIFICATION WORK ORDER
MODIFICATION OF TRAILER MOUNTED LINE CHARGE LAUNCHER KIT
MOD 0 (NSN: 1055-01-203-5883)
MOD 1 (NSN: 1055-01-281-2770)
INSTALLATION OF ELECTROMECHANICAL TRAILER RELEASE
ASSEMBLY**

Headquarters, Department of the Army, Washington, DC

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this MWO. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Write a letter or complete and mail a DA Form 2028, Recommended Changes to Publications and Blank Forms, to Director, Armament and Chemical Acquisition and Logistics Activity, ATTN: AMNSMC-MAS, Rock Island, IL 61299-6000. A reply will be provided to you.

1. PURPOSE. Addition of the electromechanical trailer disconnect and hydraulic control solenoid valve will improve system safety by allowing the crew to operate the MICLIC system from within the towing vehicle to avoid exposing personnel to enemy fire and to enhance system capability. This modification will improve the operation of the system by giving the operator the option to remotely release the trailer. The employment of the system as a unit will not be affected

by this modification. The improvement is standard on all the new units currently in production.

2. PRIORITY. This modification is classified as **ROUTINE**.

3. END ITEM(S) OR SYSTEMS(S) TO BE MODIFIED. Table 1 includes the required information in the required tabular format.

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4. MODULES(S) TO BE MODIFIED. The modules consist of the launchers as a whole, and apply to all launchers indicated in Table 1. Specific alterations include:

a. Addition of electromechanical trailer disconnect and its stowage compartment.

b. Addition of solenoid valve to hydraulic system.

c. Replacement of some electrical components.

Table 1. Items or Systems to be Modified

Nomenclature	Nat. Stock No.	Part No.	CAGE	Mod. No.	Ser. No.
Line Charge Launch Kit, Trlr Mtd	1055-01-203-5883	82A5052A0000	01365	Mod 0	all
Line Charge Launch Kit, Trlr Mtd	1055-01-281-2770	82A5052B0000	01365	Mod 1	all

5. PARTS TO BE MODIFIED. No parts are to be modified, all modifications are to the launcher as a whole.

The lowest level of maintenance authorized to apply the MWO is direct support. Work force and man-hour requirements for application of the MWO to a single launcher are given in Table 2.

6. APPLICATION. The effective date of this MWO is 30 June 1994 and its completion date is 30 June 1998.

Table 2. Requirements

Work Force/Skills	Man-Hours
2 Construction Equipment Repairer (MOS 62B) or equivalent	3.25 hours

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED. The following technical publication is affected by this MWO: TM 9-1375-215-14&P, dated 31 January 1992.

NSN 1055-01-338-4753. CAGE for this item is 01365, and part number is 82A5052A2030. Security classification of this kit is **UNCLASSIFIED**. Shipping data is as follows:

8. MWO KITS(S) AND THEIR DISPOSITION. The kit required to apply this MWO is comprised of the parts listed in the Combination of Adopted Items Drawing, DWG. No. 82A5052A2030. The kit may be obtained by ordering Modification Kit, Remote Trailer Disconnect,

Weight 125 LB
 Dimensions: 27 x 18 x 4 in.
 Cube: 3.94 cu ft

The kit contains the following items:

<u>Qty</u>	<u>Military CAGE & PN</u>	<u>Description of Item</u>
1	01365/ 82A5052A2000	Trailer Disconnect
1	01365/ 82A5052A2034	Hydraulics Assembly Modified
1	01365/ 82A5052A2040	Case Installation, Selector Switch Assembly
1	01365/ 82A5052A2100	Selector Switch Cable Assembly

Parts removed from the launcher which are not replaced shall be transferred to the Defense Reutilization and Marketing Office, or disposed of locally as per applicable SOP. Excess or unused kits shall be returned if no longer needed for reuse.

9. TOOLS AND SPECIAL EQUIPMENT NEEDED FOR MWO APPLICATION. The tools necessary for the application of this MWO are:

- a. General mechanics tool kit
- b. Painting equipment (touch up) - Refer to Chapter 4 of TM 9-1375-215-14&P

- c. Power drill and bits
- d. Punch, drive pin, 3/32-inch
- e. Cotton wiping rags
- f. Indoor work area with electrical power
- g. Industrial goggles
- h. Hydraulic fluid, MIL-H 6083
- i. Plastic gloves
- j. Laboratory apron
- k. Wrench, open end, adjustable, size 15, 1-11/16-inch
- l. Funnel
- m. Tape, antiseize

No special test or diagnostic equipment is needed to apply this MWO.

10. MODIFICATION PROCEDURES.

a. Selector Switch Assembly.

(1) Remove the Cable Switch -Assembly and 75-foot cable from their stowage location in the storage compartment on the front of the launcher and place aside for turn-in as described above.

(2) Place the new Selector Switch Assembly and W3, W5, and W6 cable assemblies (from the MWO kit) aside for use later in the MWO.

(3) This part of the modification is now complete.

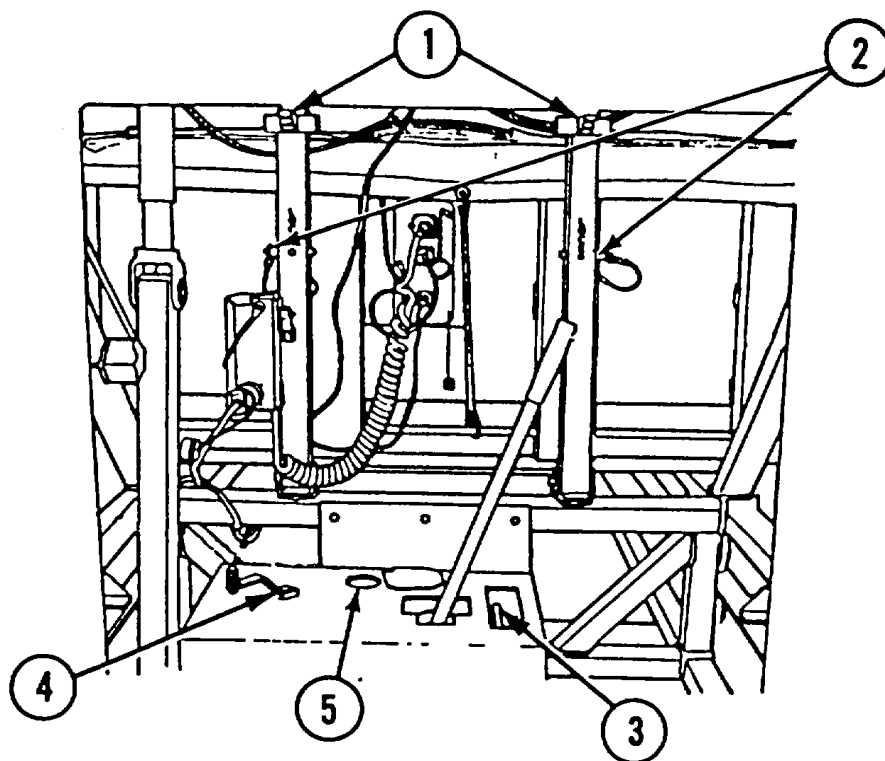
b. Hydraulic Assembly.,

WARNING
WEAR SAFETY GOGGLES WHEN
WORKING WITH HYDRAULIC FLUID
TO PREVENT EYE DAMAGE.

NOTE
Use antiseize pipe tape on all
applicable connections.

(1) Relieve pressure from the hydraulic system, following the steps below. Refer to figure 1.

- (a) Release detents (1) by pushing detent hinge up.
- (b) Insert ball-lock pins (2) in RAISE position.
- (c) Move release valve (3) to HOLD position.
- (d) Move hydraulic control valve lever (4) to REMOTE RAISE position.
- (e) After rail stops rising, move hydraulic control valve lever (4) to MANUAL position.
- (f) Move release valve (3) slightly toward RELEASE position and slowly lower launcher rail to rest position.
- (g) Repeat steps (c) through (f) until pressure gage (5) reading is zero.



LEGEND:

- 1. Detents
- 2. Ball-lock pins
- 3. Release valve
- 4. Hydraulic control valve lever
- 5. Pressure gage

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Figure 1. Launcher - rear view.

(h) Refer to figure 2. Loosen pump handle (1) (with rubber boot attached) by unscrewing counterclockwise and remove.

(i) Remove lanyard from hydraulic control valve lever (4) using 5/32-inch hex key and 7/16-inch wrench.

(2) Remove Hydraulic Cover Weldment. by following procedures below. (Refer to figure 2)

NOTE

o **Place hydraulic control valve lever in MANUAL RAISE/LOWER position.**

o **Place all parts removed from launcher on bench on a clean cotton rag to prevent possible loss, and aid in later reassembly.**

(a) Drive pin (3) from center of hydraulic control valve lever (4) with a 3/32-inch punch and hammer. Check to ensure roll pin did not break on removal.

(b) Remove hydraulic control valve lever (4) by pulling straight up from lever stem (5).

(c) Remove gage cover plate (9) by removing shoulder bolt (6), washer (7), and nut (8) with key, socket head screw, 1/8-inch.

(d) Remove three countersunk machine screws (10), lockwashers (11), and hex nuts (12) from hydraulic pressure gage using no. 1 cross-tip screwdriver and 5/16-inch combination box and open-end wrench.

(e) Remove four hex-head capscrews (16), helical lockwashers (17), and hex nuts (18) from hydraulic control valve (19) using 7/16-inch socket wrench and 1/2-inch combination box and open-end wrench.

(f) Remove seven hex-head capscrews (13), hex nuts (14), and helical lockwashers (15) at top and bottom of hydraulic cover weldment (2) using a 1/2-inch socket wrench and 1/2-inch combination box and open-end wrench.

(g) Lift hydraulic cover weldment (2) off of hydraulic assembly, ensuring that gage gasket remains with gage (21).

(h) Before removing hydraulic control valve, mark its location on cover to ensure proper position when replacing.

(3) Remove Hydraulic Tubes and Fittings by following procedures below. Refer to figure 2.

WARNING

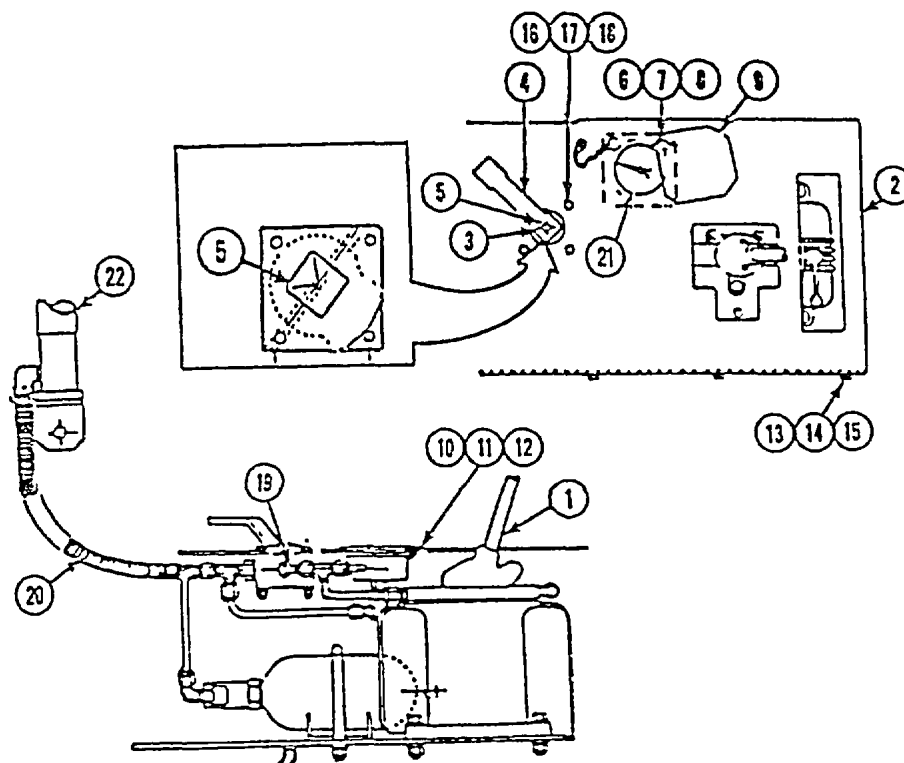
USE GLOVES, GOGGLES, AND LABORATORY APRON TO AVOID SKIN IRRITATION OR EYE DAMAGE.

NOTE

Place rags under fittings to be disconnected to absorb hydraulic fluid.

(a) Using two 7/8-inch combination box and open-end wrenches, loosen the hydraulic hose (20) at swivel nut (23) from cylinder (22). Loosen slowly to relieve pressure.

(b) Use cotton rags to wipe any leakage of hydraulic fluid from loosened connection at swivel nut (23).



LEGEND:

- | | | | |
|-----|-------------------------------|-----|-------------------------|
| 1. | Pump handle | 13. | Hex-head cap screw |
| 2. | Hydraulic cover weldment | 14. | Hex nut |
| 3. | Pin | 15. | Helical lockwasher |
| 4. | Hydraulic control valve lever | 16. | Hex-head capscrew |
| 5. | Lever stem | 17. | Helical lockwasher |
| 6. | Shoulder bolt | 18. | Hex nut |
| 7. | Washer | 19. | Hydraulic control valve |
| 8. | Nut | 20. | Hydraulic hose |
| 9. | Gage cover plate | 21. | Gage |
| 10. | Machine screw | 22. | Cylinder |
| 11. | Lockwasher | 23. | Swivel nut |
| 12. | Hex nut | | |

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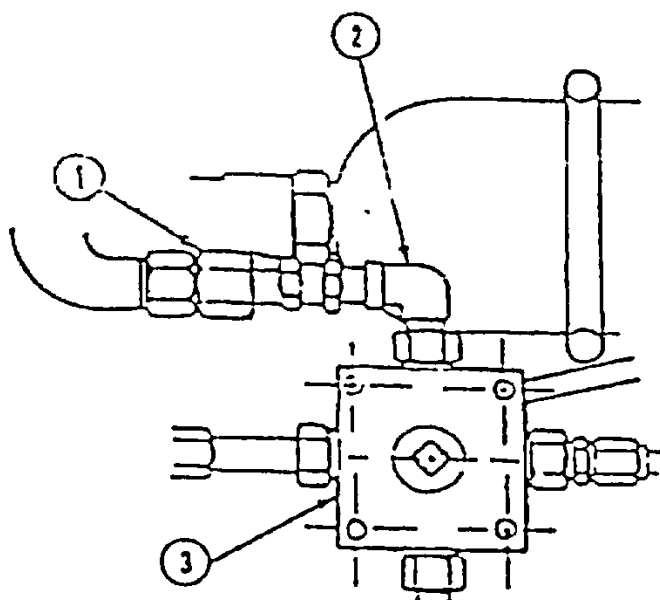
Figure 2. Hydraulic assembly - top and rear views.

(c) Refer to figure 3. Disconnect snubber (1) from elbow (2) using two 7/8-inch combination box and open-end wrenches.

NOTE

Take care not to damage tubing when removing fittings from the hydraulic control valve.

(d) Remove elbow (2) from hydraulic control valve (3) using wrench, open-end, adjustable size 15, 1-11/16-inch.



LEGEND:

- 1. Snubber
- 2. Elbow
- 3. Hydraulic control valve

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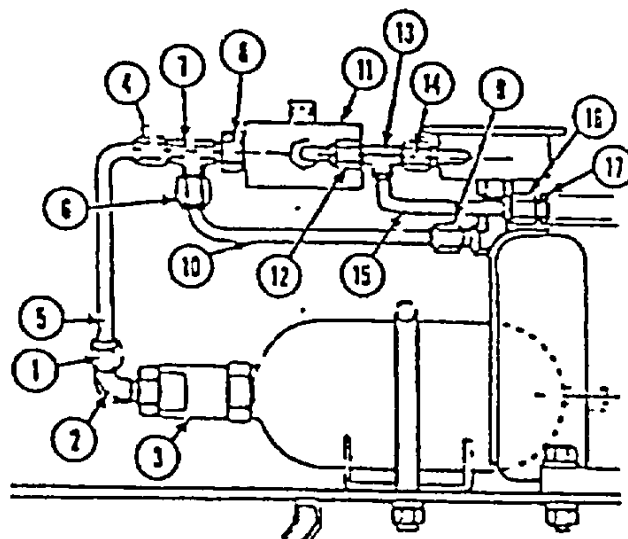
Figure 3. Hydraulic control valve

CAUTION

WHEN REMOVING ELBOW AT SLEEVE, CARE MUST BE TAKEN NOT TO TWIST THE SLEEVE AND IN THE PROCESS LOOSEN THE SEAL AT THE ACCUMULATOR.

(h) Loosen 90° male elbow (2) from sleeve (3) using either 9/16-inch and 1-11/16-inch or an adjustable wrench and remove elbow.

(i) Place elbow with other parts for turn-in or disposal.



LEGEND:

- 1. B-nut
- 2. Elbow
- 3. Sleeve
- 4. B-nut
- 5. Tube
- 6. B-nut
- 7. Tee
- 8. Hydraulic control valve fitting
- 9. B-nut
- 10. Tube
- 11. Hydraulic control valve
- 12. B-nut
- 13. Tee
- 14. B-nut
- 15. Tube
- 16. B-nut
- 17. Adapter

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Figure 4. Hydraulic assembly - rear view

(e) Refer to figure 4. Disconnect B-nut (16) from pump with 9/16-inch combination box and open-end wrench.

(f) Remove adapter (17) from pump using 9/16-inch wrench.

(g) Disconnect B-nut (1) from 90° male elbow (2) with 9/16-inch combination box and open-end wrench. Remove gage and valve assembly, then continue step h.

(j) Refer to figure 5. Unscrew B-nut (1) at street elbow (2) using a 9/16-inch combination box and open-end wrench.

(k) Remove gage (5) with gasket (4).

(l) Keep gasket with gage.

(m) Remove street elbow (2) from gage fitting (3) with two 9/16-inch combination box and open-end wrenches.

(n) Place street elbow with other parts for turn in or disposal.

(o) Refer to figure 4. Support hydraulic control valve (1) so that hydraulic lines are not kinked or broken.

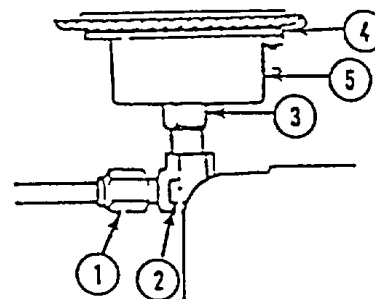
(p) Disconnect the tee (7) from the hydraulic control valve fitting (8) using 9/16-inch combination box and open-end wrench.

(q) Place tee (7) with tubes (5) (10) and B-nuts (4) (6) and (9) with other parts for turn in or disposal.

(r) Remove tee (13) by disconnecting B-nuts (12) and (14) using a 9/16-inch combination box and open-end wrench.

(s) Place tee (13) with tube (15) attached with other parts for turn in or disposal.

(t) Hydraulic tube and fitting removal is now complete.



LEGEND:

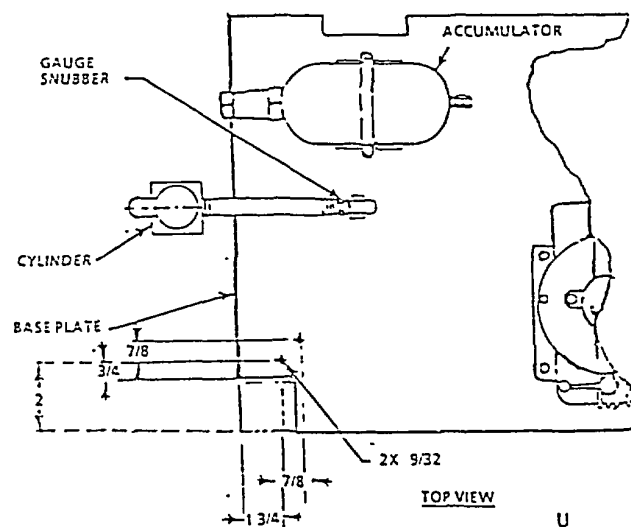
- 1. BS-nut
- 2. Street elbow
- 3. Gage fitting
- 4. Gasket
- 5. Gage

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Figure 5. Hydraulic pressure gage.

(4) Modify Hydraulics Cover and Frame.

(a) Refer to figure 6. Drill two holes in base plate as shown, using electric drill and a 9/32-inch (0.281) diameter drill bit.



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Figure 6. Base plate - top view.

(b) Refer to figure 7. Lay out dimensions for two holes (1) as shown on the cover weldment. Check alignment of holes using valve mounting block (See figure 8, callout (6)).

(c) Drill two holes in cover weldment as shown, using electric drill and 9/32-inch (0.281) diameter drill bit.

(d) Remove any burrs from around the holes with the file from the tool kit.

(e) Carefully clean the areas around the holes on both the base plate and cover weldment.

WARNING

BE SURE TO FOLLOW PROPER PROCEDURE AND WEAR ALL RECOMMENDED SAFETY EQUIPMENT WHEN WORKING WITH PAINTS AND FINISHES TO AVOID INJURY OR HEALTH RISK.

(f) Clean the base plate and cover weldment in accordance with TM 9-1375-215-14&P.

(g) Apply epoxy primer in accordance with TM 9-1375-215-14&P.

(h) Apply final finish, MIL-C-53039, Green 383, in accordance with TM 9-1375-215-14&P.

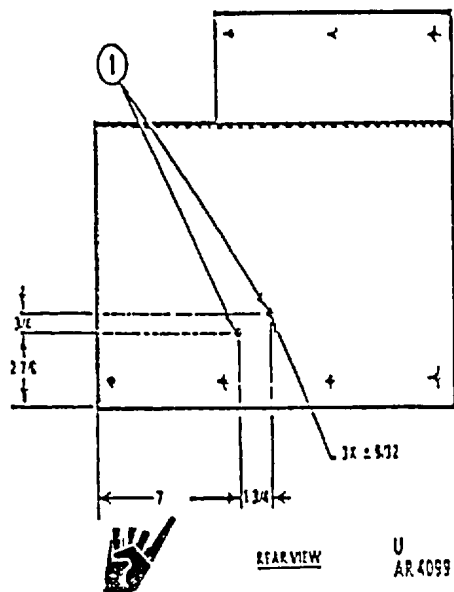


Figure 7. Hydraulic assembly cover

(5) Mount Solenoid Valve.

NOTE

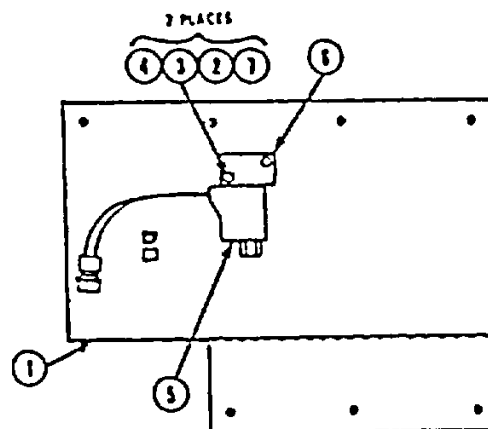
Antiseize pipe tape should be put on pipe threads on fittings prior to assembly.

(a) Refer to figure 9. Remove plastic dust caps from input and output ports of solenoid valve (6).

(b) Wrap antiseize pipe tape on the threads of the elbow (7) and install it in the output port of the solenoid (6).

(c) Refer to figure 8. Mount the mounting block (6) and solenoid valve (5) on the inside of the cover weldment (1) using two hex head cap screws (7), four flat washers (2), two split lockwashers (3), and two hex nuts (4), and tighten using two 7/16-inch wrenches.

(d) The solenoid valve is now installed.



LEGEND:

- 1. Cover weldment
- 2. Flat washer
- 3. Split lockwasher
- 4. Hex nut
- 5. Solenoid valve
- 6. Valve mounting block
- 7. Hex-head cap screw

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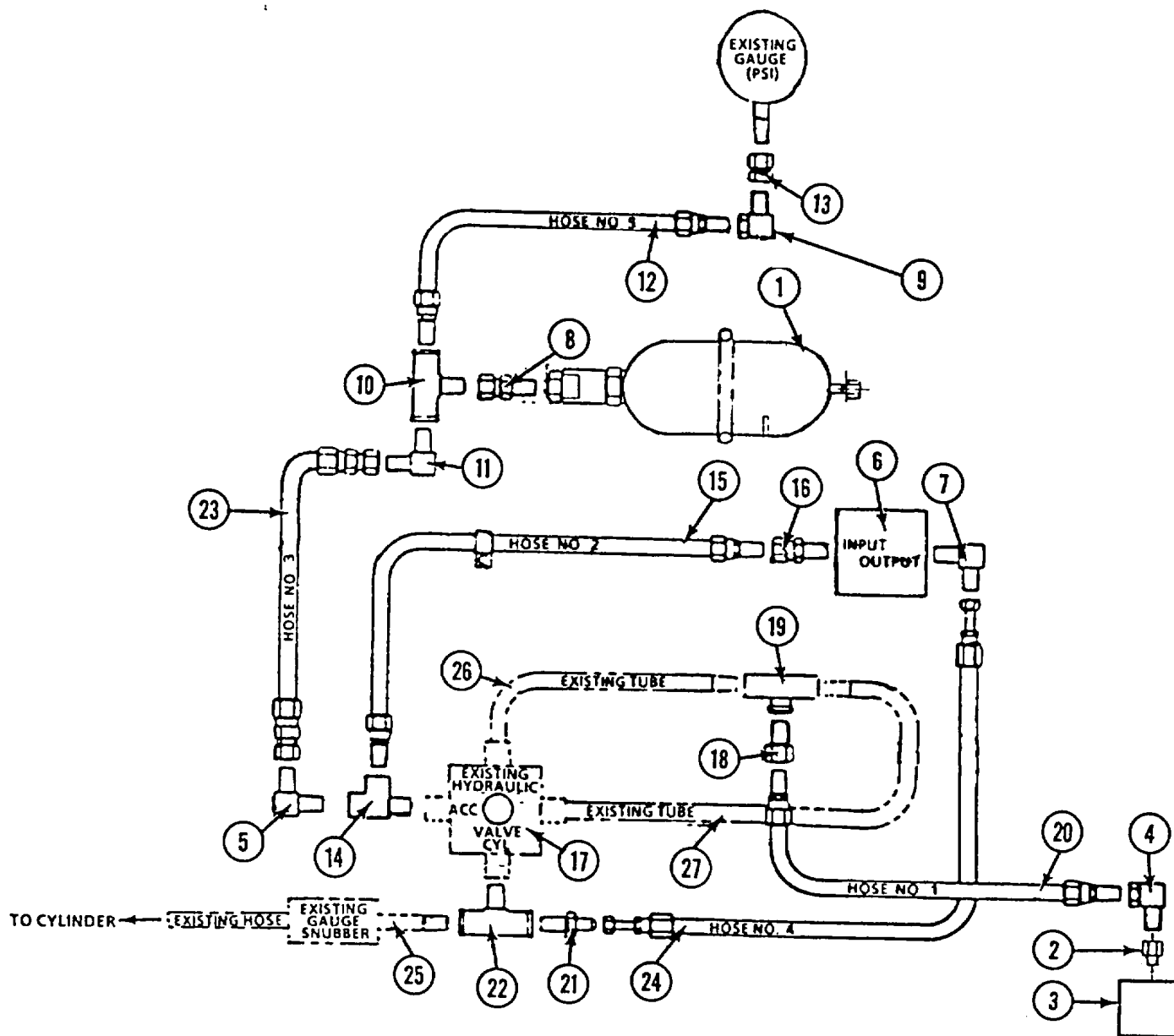
Figure 8. Cover weldment - upside down (rear view)

(6) Install Hydraulic Hoses and Fittings.

NOTE

(a) Refer to figure 9. This is a schematic drawing only and indicates the connections to be made. The positions of hoses and fittings will not look like the drawing.

Most of the following assemblies may be completed using the adjustable wrench, or the 7/16-inch, 1/2-inch, or 9/16-inch box and open-end combination wrenches.



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Figure 9. Hydraulic hose and fittings.

Refer to table 3 for identification of the parts called out in figures 8, 9 and 10.

Table 3. Parts Called Out in Figures 8, 9 and 10.

Part No.	Part Description.	No. Req. (ea.)	Figure No.	Callout No.
MS35307-317	Hex head cap screw 1/4-20 UNC x 2.75	2	8	7
82A5052A2027	Valve mounting block	1	8	6
MS35338-139	Split lockwasher 1/4 Nom ID	2	8	3
MS15795-810	Flat washer 0.281 ID	2	8	2
MS35649-2254	Hex nut 1/4-20 UNC	2	8	4
82A5052A2031	Solenoid valve assembly	1	8 9	5 6
MS35307-307	Hex head cap screw 1/4-20 UNC x 0.88	2	8	7
82A5052A2042-1	Nonmetallic hydraulic hose assembly	1	9	12
4-4 140130 CA	1/4 NPT female x male adapter union	1	9	8
4-4 140131 CA	1/4 NPT female adapter union	1	9	13
82A5052A2029-4	1/4 NPT female to 3/8 NPT male swivel	1	9	16
82A5052A2039-9	Pipe to 37° flare male 90° adapter	1	9	7
MS51821-23SS	Tee, pipe to tube, 1/8 female on brnc	1	9	19
2-4 140139 CA	Adapt 1/8 NPT M1 to 1/4 NPT female	1	9	18
82A5052A2033	Nonmetallic hydraulic hose assembly	1	9	24
82A5052A2042-3	Nonmetallic hydraulic hose assembly	1	9	20
4-4 140230 CA	1/4 NPT 90° adapter union	2	9	9
82A5052A2041-6	Adapter male 37° flare to male pipe	1	9	21
82A5052A2039-5	Adapter pipe to 37° flare male 90°	2	9	11
4-4 140139 CA	Adapter 1/4 to 1/4 male to female	1	9	2
44-4 140424 CA	Tee	1	9	14

Table 3. Parts Called Out in Figures 8, 9, and 10 (Continued)

Part No.	Part Description.	No. Req. (ea.)	Figure No.	Callout No.
4-44140425 CA	Tee 1/4 NPT internal to external	1	9	10
		1	9	22
82A5052A2032	Nonmetallic hydraulic hose assembly	1	9	23
82A5052A2042-2	Nonmetallic hydraulic hose assembly	1	9	15
MS51957-15	PHN machine screw 0.122-40 UNC x 0.38	4	10	3
MS35338-135	Split lockwasher 0.112 Nom ID	4	10	5
MS 15795-803	Flat washer 0.125 ID	4	10	4
MS35649-244	Hex nut 0.1112-40 UNC	4	10	6
82A5052A2026	Connector mounting bracket	1	10	1
Size 1	1/4 wide antiseize pipe tape	As req.	See text	See text

(b) Refer to figure 9. Install an adapter (8) on the accumulator using 11/16-inch wrench.

(c) Install pipe to pipe adapter (2) on the pump using 3/4-inch wrench

(d) Install adapter union (9) to adapter (2) (using 11/16-inch wrench) so that adapter union (4) end is pointing toward front of launcher.

(e) Install the elbow (11) to the run of the tee (10).

(f) Connect hose no. 5 (12) to the run of tee (10) using the adjustable wrench.

CAUTION

USE CARE WHEN HANDLING GAGE TO PREVENT ACCIDENTAL BREAKAGE.

(g) Install adapter union (13) on to existing gage.

(h) install elbow (9) on adapter union (13).

(i) Connect hose no. 5 (12) to elbow (9).

NOTE

Take care not to damage the gasket when putting the gage back in place

(j) Refer to figure 2. Reinstall the gage into the cover weldment (2) with three countersunk machine screws (10), lockwashers (11), and hex nuts (12) using no. 1 cross-tip screwdriver and 5/16-inch combination box and open-end wrench.

(k) Refer to figure 9. Install the elbow (11) to the run of tee (14). Ensure that branch of tee and elbow point in the same direction.

(l) Connect run of tee (14) to the accumulator port of hydraulic control valve (17).

(m) Connect hose no. 2 (15) to the branch of tee (14).

(n) Install swivel adapter (16) into the input port of the solenoid valve (6).

(o) Install adapter (18) on branch of tee (19).

(p) Connect tubes (26) and (27) to run of tee (19) using 9/16-inch combination box and open-end wrench.

(q) Connect hose no. 1 (20) to adapter (18).

(r) Install adapter (21) on run of tee (22).

(s) Connect branch of tee (22) to cylinder port of hydraulic control valve (17).

(t) Refer to figure 2. Reinstall hydraulic control valve (19) to cover weldment (2) with four hex head cap screws (16), helical lockwashers (17), and hex nuts (18) using 7/16-inch socket wrench and 1/2-inch combination box and open-end wrench.

(u) Refer to figure 9, and table 3.

Connect hose no. 3 (23) to elbow (5) and elbow (11).

(v) Connect hose no. 4 (24) to adapter (21) on the hydraulic valve cylinder line, and adapter (7) on the solenoid output port.

(w) Connect hose no. 2 (15) to swivel adapter (16).

CAUTION
THE FOLLOWING OPERATIONS REQUIRE NOT LESS THAN TWO PEOPLE TO HANDLE THE COVER WELDMENT DURING REINSTALLATION.

(7) Reinstall Hydraulics Cover Weldment

(a) Refer to figure 2. Prepare seven hex head capscrews (13), hex nuts (14), and helical lockwashers (15) for reinstallation into the cover (2).

(b) Position the cover weldment (2) in proper position on launcher.

(c) Refer to figure 9. Connect tee (10) to adapter (8) attached to the accumulator.

(d) Connect hose no. 1 (20) to adapter (4) attached to the pump.

(e) Connect the snubber (25) to the run of the tee (22) attached to the hydraulic -control valve.

(f) Refer to figure 10. Mount the connector bracket (1) to the base plate (2) using two hex head cap screws (3), four flat washers (4), two split lockwashers (5), and two hex nuts (6).

(g) Refer to figure 2. Reinstall the seven capscrews (13), lockwashers (15) and nuts (14) previously prepared, and tighten using 9/16-inch socket wrench and 1/2-inch combination box and open-end wrench.

(h) Tighten the hydraulic hose (20) at the swivel nut (23) using two 7/8-inch box and open-end combination wrenches.

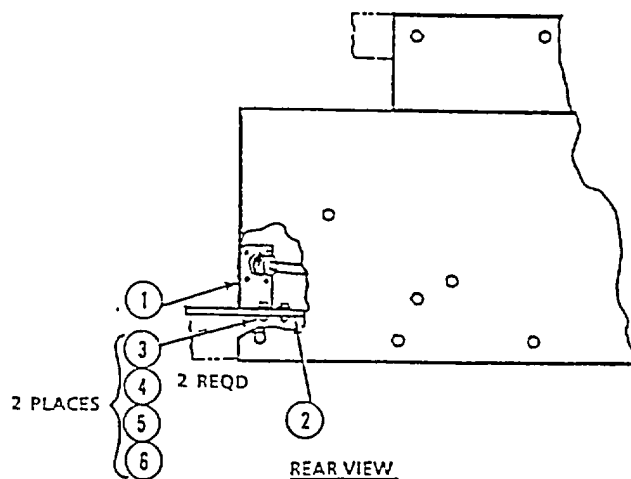
NOTE
Check to ensure that all fittings and connections are tight.

(i) Replace hydraulic control valve lever (4) on valve stem (5) as shown.

(j) Replace pin (3) or equivalent substitute in center of hydraulic control valve lever, tapping gently with a hammer if necessary.

(k) Replace pump handle (1) with rubber boot attached.

(l) Add hydraulic fluid as needed.



- LEGEND:**
- 1. Connector bracket
 - 2. Base plate
 - 3. Hex-head cap screw
 - 4. Flat washer
 - 5. Split lockwasher
 - 6. Hex nut

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Figure 10. Solenoid valve connector bracket.

(m) Refer to figure 11. Bleed the air out of the system.

1. Set hydraulic control valve lever (1) to MANUAL RAISE position.

2. Set pump release valve handle (2) to HOLD position.

3. Remove ball-lock pins (3) from LOCK position and insert into RAISE position.

4. Engage detents (6) by pulling down on levers.

5. Manually pump hand pump (4) until launcher rail starts to rise.

6. Set hydraulic control valve lever (1) to PRESSURIZE ACCUMULATOR position.

7. Manually pump hand pump (4) to 3200 psi (green area) on gage (5).

8. Set hydraulic control valve lever (1) to REMOTE RAISE position.

9. Launcher rail may not fully raise the first time. Follow steps (10) thru (14) until launcher rail raises completely.

10. Set hydraulic control valve lever (1) to MANUAL RAISE position.

NOTE

If launcher rail does not fully raise or lower smoothly after four attempts, perform maintenance in accordance with TM 9-1375-215-14&P.

11. Release detents (7) by pushing up on levers.

12. Pull back pump release valve handle (2) slightly toward RELEASE position and slowly lower launch rail to 0°.

NOTE

Ensure hydraulic fluid is topped up after bleeding system.

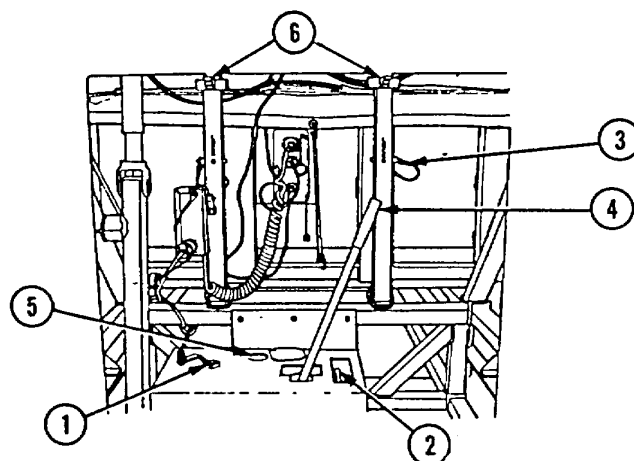
13. Set pump release valve handle (2) to HOLD.

14. Follow steps (6) through (9).

15. Perform steps (10) through (13).

16. Check hydraulic fluid with dipstick, add hydraulic fluid as necessary.

(n) This completes modification of the hydraulic system of the MICLIC launcher.



LEGEND:

- 1. Hydraulic control valve lever
- 2. Valve handle
- 3. Ball-lock pins
- 4. Handle pump
- 5. Gage
- 6. Detents

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Figure 11. Launcher - rear view.

(8) Install Selector Switch Storage Case.

(a) Refer to figure 12. Lay the case (2) on the ground at the rear of the trailer, making sure that the double pair of mounting holes are on the bottom and to the front of the case.

(b) Prepare the three square bend U-bolts (3), flat washers (4), and hex nuts (5) for installation.

NOTE

Installation of the storage case for the trailer disconnect should not be attempted by one man, as damage to the launcher or injury may result.

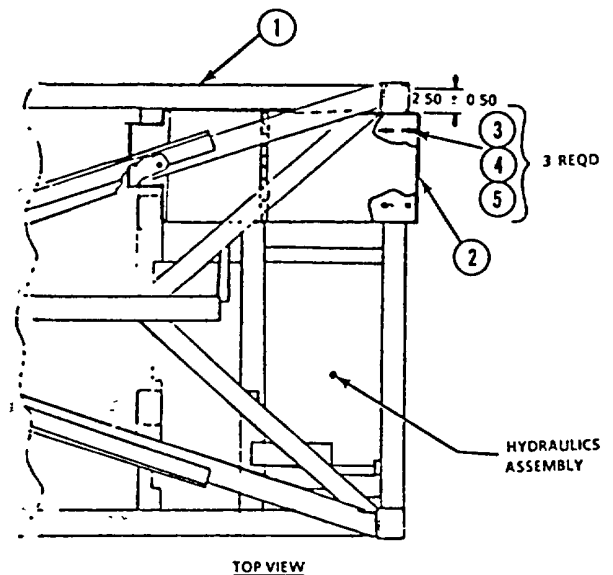
(c) Carefully lift the storage case and place in position on the launcher (1).

(d) Install the three U-bolts (3), washers (4), and hex nuts (5) to secure the storage case on the trailer.

(e) The installation of the selector switch storage case is now complete.

(f) Place trailer disconnect device in forward storage container.

(g) Place selector switch assembly, W3 cable, W5 branched cable, and W6 vehicle power cable in rear storage case.

**LEGEND:**

1. Launcher rail
2. Case
3. U-Bolt
4. Washer
5. Hex nut

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Figure 12. Launcher - top view.

11. CALIBRATION REQUIREMENTS.

There are no calibration requirements for the Modification Work Order.

12. WEIGHT AND BALANCE DATA.

Weight and balance are not significantly affected.

13. QUALITY ASSURANCE REQUIREMENTS.

General quality assurance requirements and inspection criteria of TM 750-245-4 shall apply as necessary for the MWO.

Functionality of the modified system shall be limited to the testing of the hydraulic system and trailer disconnect device.

NOTE

Tests in this series require a vehicle or power source with a standard NATO slave power receptacle.

a. Install trailer disconnect.

(1) Refer to figure 13. Place the disconnect device at the front of the trailer next to the lunette.

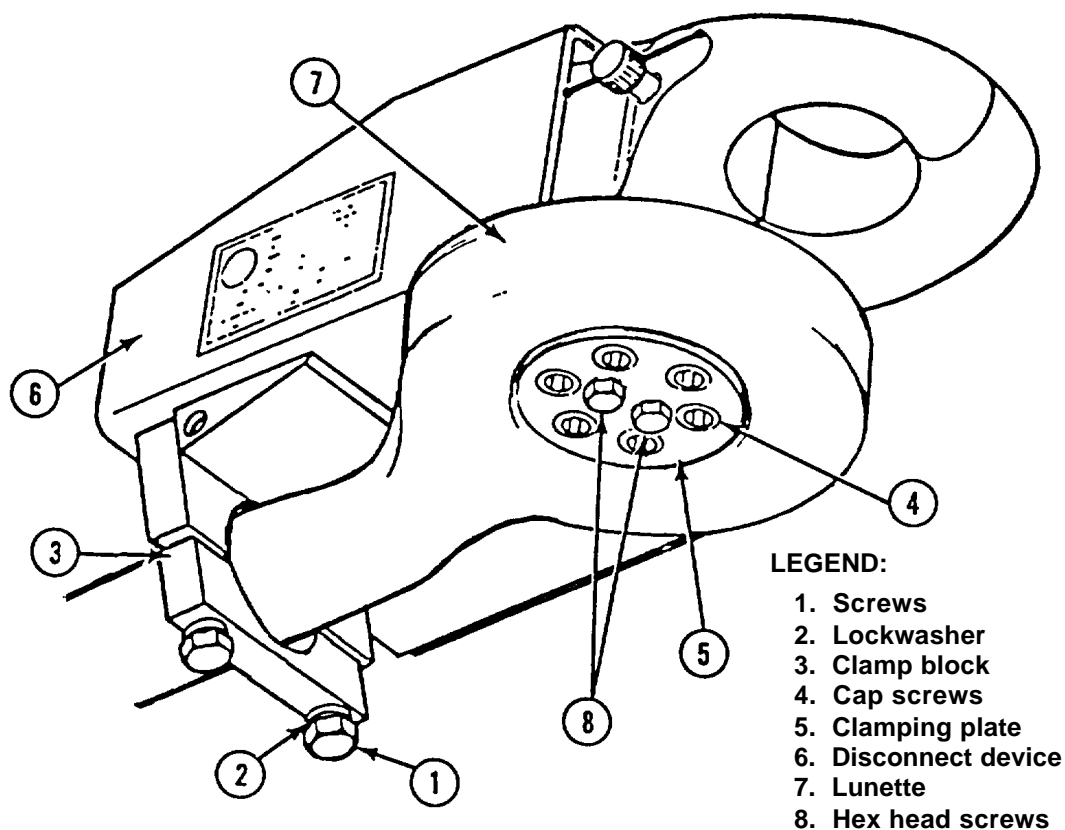
(2) Prepare the mounting hardware by removing two screws (1) and split lockwashers (2) and removing the clamp block (3) using a 9/16-inch wrench.

(3) Remove the hex head cap screws (4) at the bottom of the clamping plate (5) (using 1/4-inch socket head screw key) and remove clamping plate.

(4) Lift the disconnect device (6) onto the lunette of the trailer (7).

(5) Install the clamping plate (5) and cap screws (4). Tighten the clamping plate (6) using 1/4-inch socket head screw key.

(6) Replace the clamp block (3), split lockwashers (2) and screws (1), and tighten evenly using 9/16-inch wrench. The clamp block (3) will not mate with trailer disconnect.



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Figure 13. Disconnect Device.

(7) Refer to figure 14. Ensure connector bracket flange (9) is attached to trailer disconnect (3) using two cap screws (8).

(8) Installation of the disconnect device is now complete

NOTE

For M200A1 trailers only. Do not invert the lunette on M353 trailers. For towing behind tracked vehicles, turn trailer lunette 180° so that trailer disconnect device-is under lunette. Move the connector bracket flange from its position and attach to the clamping plate using hex head screws. (See figure 13, item 8.)

(1) Attach J1 connector bracket (1) of the W5 branched cable assembly (2) to the connector bracket flange (9) and secure with quick release pin (4).

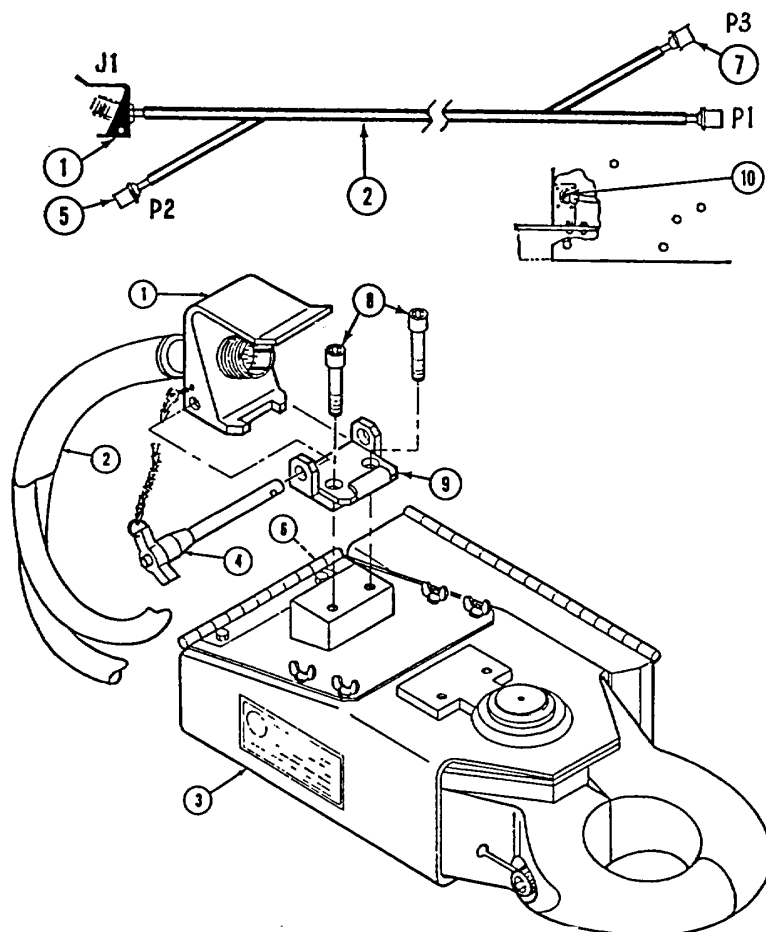
(2) Attach P2 connector (5): of W5 branched cable assembly to trailer disconnect device electrical connector (6)

(3) Run W5 branched cable assembly to rear of launcher.

(4) Attach P3 connector (7) of W5 branched cable assembly to the remote raise solenoid valve connector (10).

b. Make cable connections. Refer to figure 14.

(5) Attach the P1 connector of the W3 60-foot special purpose cable to the branched cable (2) mounted on the top of the trailer disconnect device.



LEGEND:

- 1. Connector bracket
- 2. WS branched cable
- 3. Trailer disconnect device
- 4. Selector switch assembly
- 5. P2 connector
- 6. Electrical connector
- 7. P3 connector
- 8. Cap screws
- 9. Connector bracket flange
- 10. Solenoid valve connector

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Figure 14. Cable connections.

(6) Refer to figure 16. Attach P2 connector of the W3 60-foot cable to the selector switch output connector (6).

(7) Attach the W6 vehicle power cable P2 connector to the vehicle power input connector (7) on the selector switch.

(8) Attach the other end of the W6 vehicle power cable to the slave receptacle on the vehicle.

c. Test hydraulic system for leaks. Refer to figure 11.

(1) Set hydraulic control valve handle (1) to MANUAL RAISE position.

(2) Set pump release valve handle (2) to HOLD position.

(3) Remove ball-lock pins (3) from LOCK position and insert into RAISE position.

(4) Engage detents (6) by pulling down on levers.

(5) Manually pump hand pump (4) until launcher rail starts to rise.

(6) Set hydraulic control valve lever (1) to PRESSURE ACCUMULATOR position.

(7) Manually pump hand pump (4) to 3200 psi (green area) on the gage (5).

(8) Set hydraulic control valve lever (1) to REMOTE RAISE to raise launcher rail.

(9) After rail raises, set hydraulic control valve lever (1) to MANUAL RAISE position.

NOTE

If launcher rail does not fully raise refer to TM 9-1375-215-14&P.

(10) Release detents (6) by pushing up on levers.

(11) Move pump release valve handle (2) slightly toward RELEASE position and slowly lower launcher rail to 0 degrees.

(12) pump release valve handle (2) to HOLD.

(13) Move ball-lock pins (3) to the LOCK position.

(14) Place detents (6) in down position.

(15) Check for leaks from cracked hoses, cracked lines, loose fittings, and the hydraulic control valve.

d. Test for continuity of the ROCKET and CHARGE circuits.

NOTE

This test can be conducted with or without a line charge container available.

(1) If line charge container is used, refer to section 2-18 of TM 9-1375-215-14&P for instructions.

(2) Refer to figure 15. If line charge container is not available, verify continuity by the following instructions:

(a) Secure connector W5P1 from branched cable (8) of selector switch (9) to safety switch connector (2). Attach branched cable (1) to M51 blasting circuit test set (4).

(b) For ROCKET circuit test, set selector switch (3) to ROCKET, short pins A and B (5) of the safety switch electrical lead connector (7) and operate the M51 blasting circuit test set (4). It should register.

(c) For CHARGE circuit test, set selector switch (3) to CHARGE, short pins B and C(6) of the safety switch electrical lead connector (7) and operate the M51 blasting circuit test set (4). It should register.

e. Test of solenoid for REMOTE RAISE of launcher rail. Refer to figure 11.

NOTE

Ensure selector switch assembly is connected to vehicle power.

(1) Engage detents (6) on rail supports by pulling down on levers. Ensure that ball-lock pins (3) are in RAISE position.

(2) Ensure pump release valve (2) is in HOLD position.

(3) Move hydraulic control valve handle (1) to PRESSURIZE ACCUMULATOR position.

(4) Use pump handle (4) to manually pump accumulator pressure to 3200 psi (green area) as indicated on gage (5).

(5) Refer to figure 16. Move vehicle power toggle switch (1) of the selector switch assembly (2) to the ON position and hold. ON lamp (5) will light. If ON lamp does not light, press RESET button. If ON lamp still

does not light; check to ensure that W6 cable is properly connected to the vehicle slave receptacle. Move the toggle switch (3) to the RAISE ROCKET position while continuing to hold vehicle power toggle switch (1) in the ON position. Hold until the launcher rail is raised completely. Ensure that white marks on inner rail supports are visible but have not risen high enough for the vertical white marks (T-stripes) to be seen above the outer lower launch rail supports.

(6) Release vehicle power (1) and raise rocket (3) toggle switches.

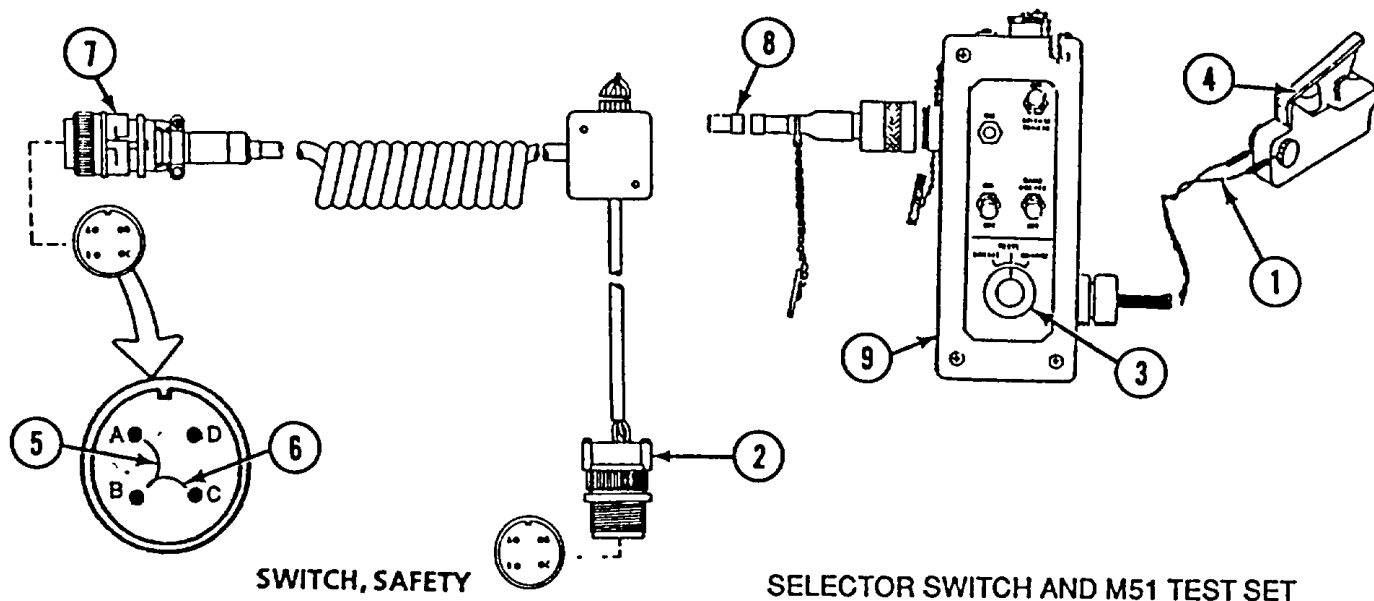
(7) Refer to figure 11. Release detents (6) by pushing up on levers.

(8) Remove ball-lock pins (3).

(9) Pull back on release valve handle (2) slightly toward RELEASE position and slowly lower launcher rail to 0 degrees.

(10) Insert ball-lock pins (3) into LOCK position in launcher rail supports.

(11) Check for leaks from hoses, fitting and solenoid valve.



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Figure 15. Continuity Test.

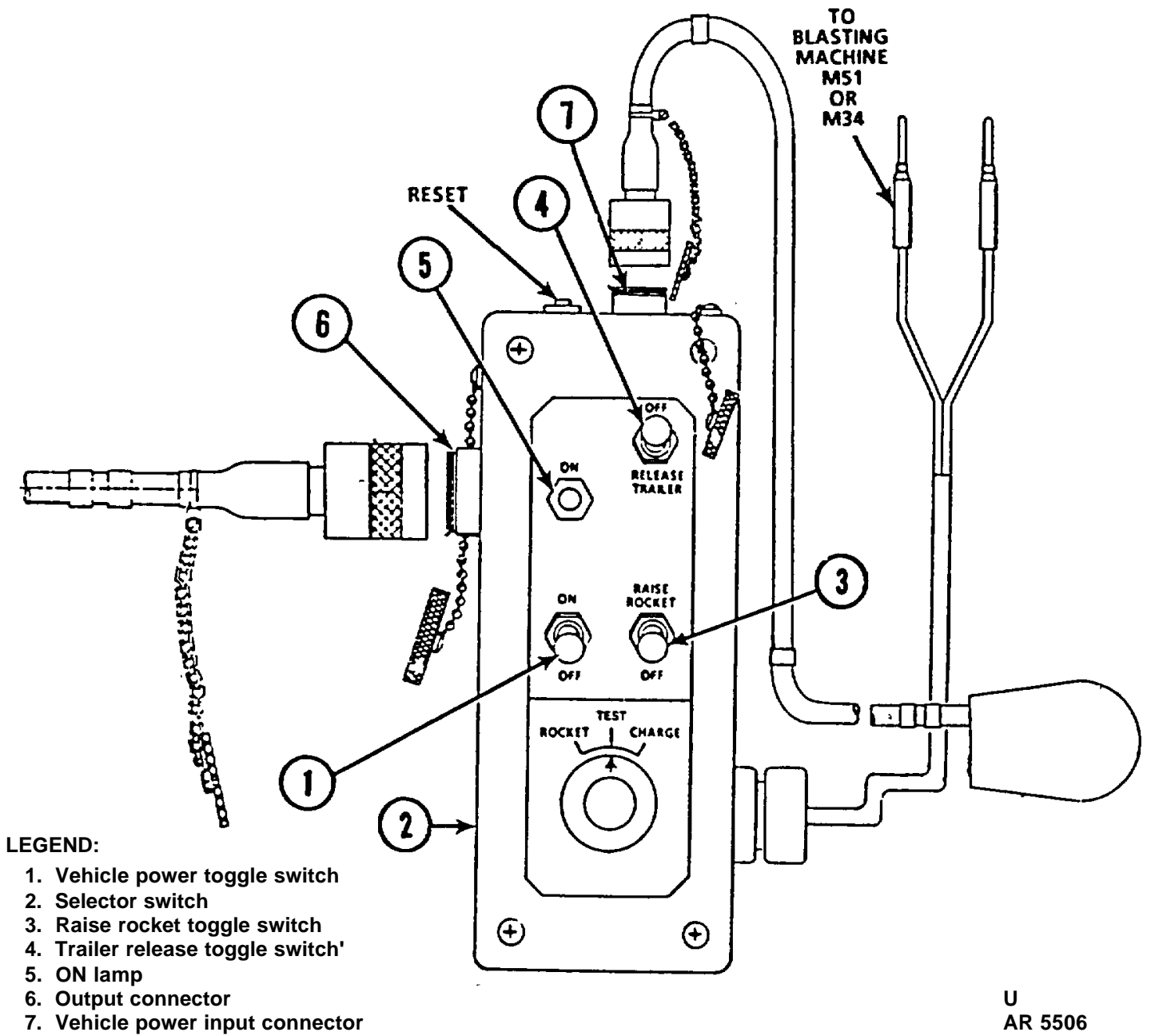


Figure 16. Selector switch.

f. Test of trailer disconnect device.

(1) Refer to figure 17. Remove travel lock (1) from LOCKED position (2) in trailer disconnect (3) by unscrewing. Screw travel lock into STORAGE position (4).

NOTE

The trailer disconnect system (TDS) will function regardless of the position of the mode selector switch.

When performing the following tests, ensure that the trailer is NOT attached to the towing vehicle.

(2) Refer to figure 16. Simultaneously hold the trailer release toggle switch (4) in the RELEASE TRAILER position and the vehicle power toggle switch (1) in the ON position. The jaws of the trailer disconnect device will open.

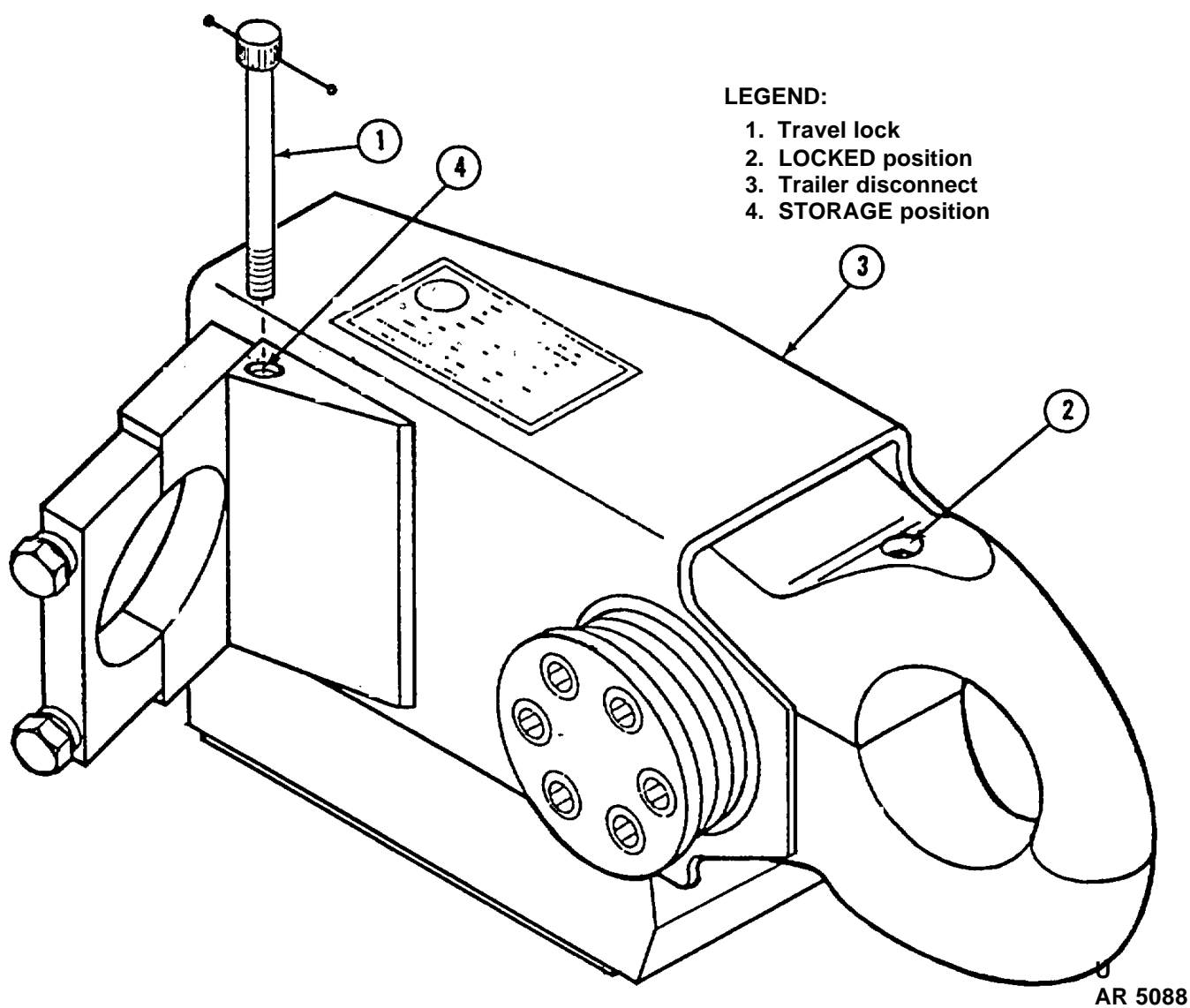


Figure 17. Trailer disconnect device.

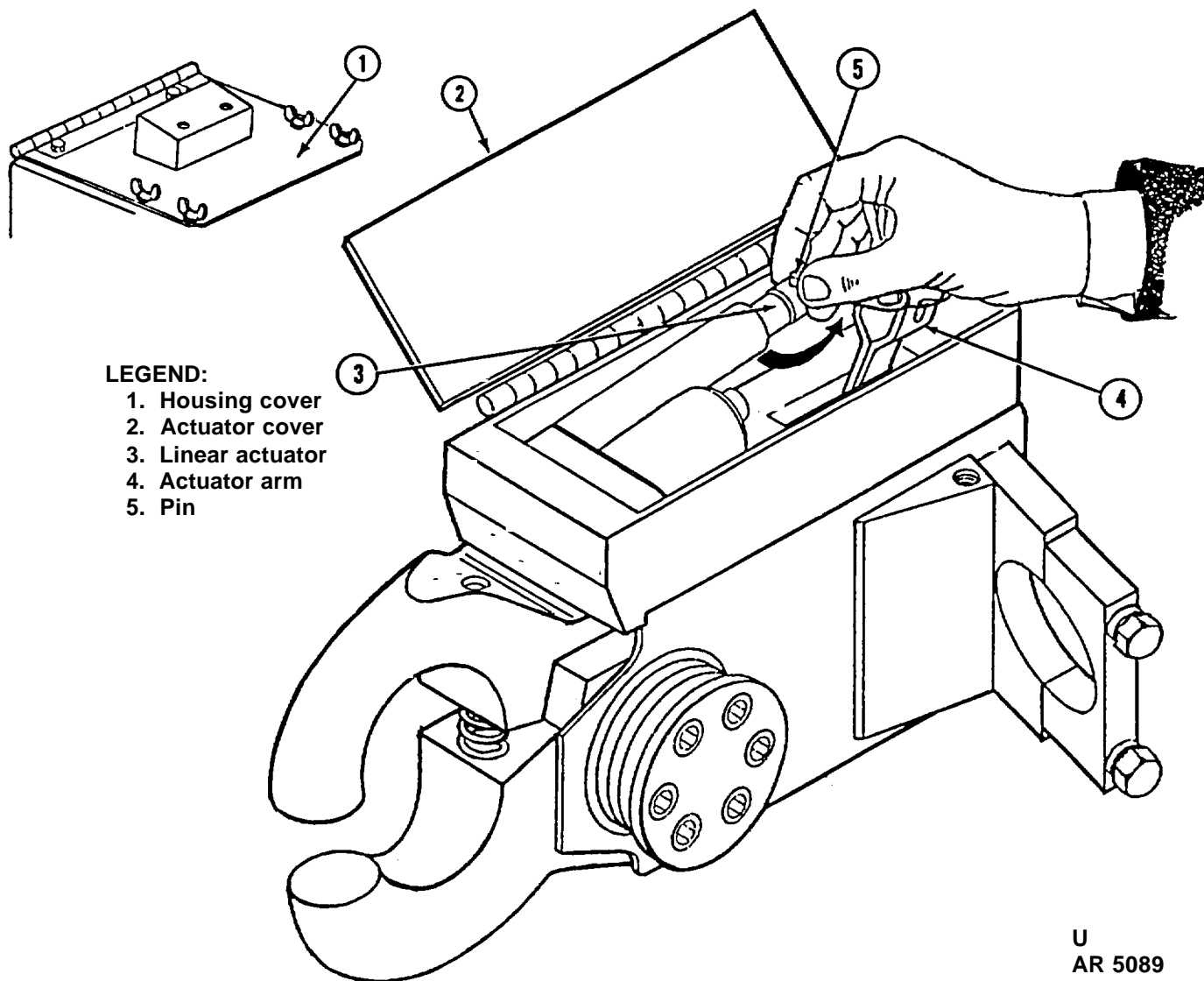
g. Reset the trailer disconnect device as follows:

(1) Refer to figure 18. Loosen wing nuts on disconnect housing cover (1) and actuator housing cover (2), and lift covers.

(2) Disconnect moving end of linear actuator (3) from actuator arm (4).

(3) Manually screw actuator (3) back to closed jaw position by screwing clockwise.

(4) Reconnect moving end of actuator to actuator arm (4). Ensure pin (5) is oriented straight up and down and that both ends have been set in the actuator arm (4).



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Figure 18. Resetting actuator (screw rod in clockwise).

(5) Refer to figure 19. Manually close jaws (3) and hold closed. Roller carriage will spring into closed jaw, position. Ensure roller carriage (1) is properly seated in closed jaws position by manually pulling on roller carriage as shown. Ensure roller carriage (1) is lined up with or pulled past scribe lines (4) on guide plate (2).

(6) Refer to figure 18. Close disconnect housing cover (1), and actuator housing cover (2) and tighten wingnuts.

(7) Refer to figure 17. Remove travel lock (1) from storage position (4) and install in the trailer device locked jaws position (2).

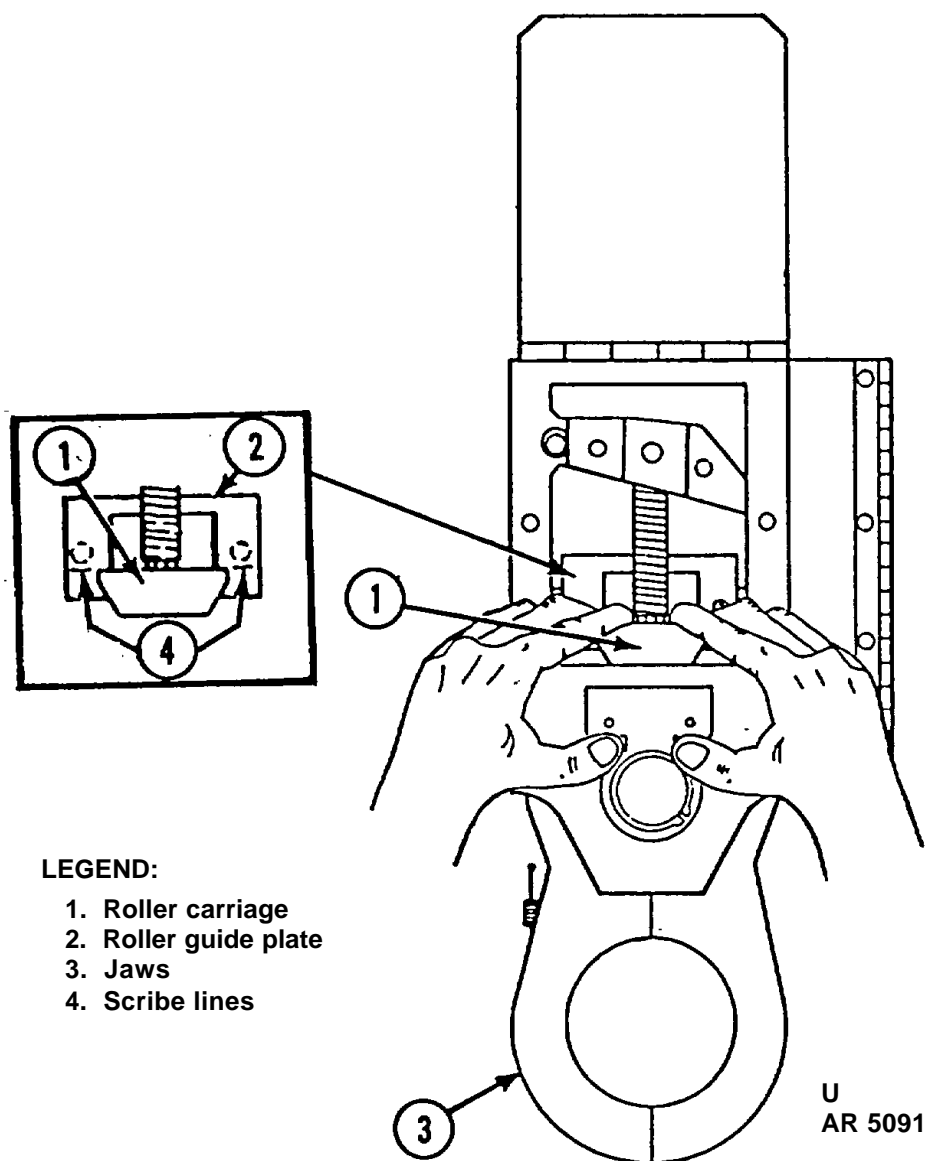


Figure 19. Roller assembly.

14. RECORDING AND REPORTING OF THE MODIFICATION.

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

- (1) Copy 1: Retained by using unit.
- (2) Copy 2: Director
Armament and Chemical
Acquisition and Logistics Activity

ATTN: AMSTA-AC-MASM
Rock Island, IL 61299-7630

(3) Copy 3: Commander
HQ, DESCOM
ATTN: AMSDS-PM
Chambersburg, PA 17201

b. Marking Equipment. The modification of the launcher data plate will be accomplished at the time of the modification by altering the original data plate. Annotate new NSN and model number from table 4 below. Increase shipping weight by 80 pounds.

c. Identification Data. Information about the nomenclature, CAGE, part number and NSN changes on each affected item are profiled in table 4.

Table 4. Identification Data

Nomenclature		CAGE/Part Number		NSN	
Before Modification	After Modification	Before Modification	After Modification	Before Mod	After Mod
MK 155 MOD 0	MK 155 MOD2	01365/ 82A5052A0000	01365/ 82A5052C0000	1055-01-203- 5883	1055-0 1-340- 6084
MK 155 MOD 1	MK 155 MOD 3	01365/ 82A5052B0000	01365/ 82A5052D0000	1055-01281- 2770	1055-01-327- 3106

15. PRODUCT IMPROVEMENT PROPOSAL (PIP) NUMBER.

This MWO is authorized by PIP number 1-83-08-1041.

16. MODIFICATION IDENTIFICATION.

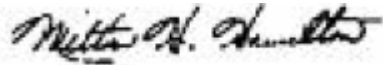
Special instructions for use of the modified MICLIC launcher will be contained in a revision to the Technical Manual.

Change 1 25/(26 blank)

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Official: Chief of Staff

Official:



MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
00813

Distribution:

To be distributed in accordance with DA Form 12-40-E, block 0986, requirements for MWO 9-1375-215-30-1.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

PUBLICATION DATE

PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

THE METRIC SYSTEM AND EQUIVALENTS

WEIGHT 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 = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
its	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



PIN: 069430-001