

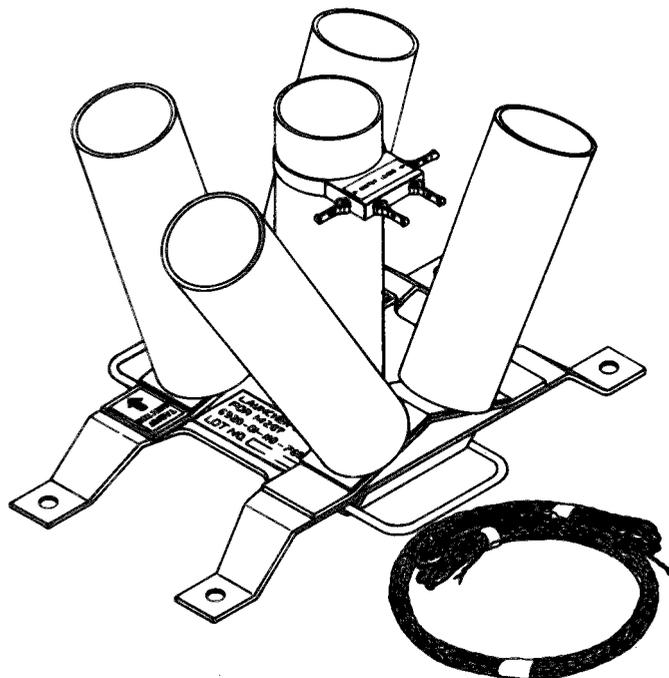
**OPERATOR'S AND ORGANIZATIONAL
MAINTENANCE MANUAL**

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

LAUNCHER, PROJECTILE, LIQUID AIRBURST: M267

(NSN 6920-01-110-7680)



HEADQUARTERS, DEPARTMENT OF THE ARMY

31 MARCH 1986

WARNINGS

When launcher is set in place, make sure the "D" ring handles extend out from the launcher platform. The launcher must be level. Otherwise, it may tip over. Damage to the launcher or injury to personnel may result.

Do not stack sandbags where they obstruct the firing. This could cause injury.

Use only the Simulator, Projectile, Airburst Liquid: M11 (SPAL) with the M267 Launcher. Use of any other projectile could result in serious injury or death.

The explosive housing assemblies may be initiated by static electricity, Radio Frequency (RF) signals, or Electromagnetic Radiation (EMR). To protect yourself from injury when assembling and firing the SPAL, heed the following:

Do NOT use SPAL during electrical storms.

Do NOT operate radar/radio transmitter closer to any part of a SPAL firing circuit than allowed by tables 2-2 or 2-3 during assembly, disassembly, or operation of the SPAL.

Do NOT remove explosive housing assemblies from the ammunition box until ready to place them inside filled bottles at launch site.

Use bare hands to assemble the SPAL and to make all electrical connections at the launcher.

Leave bare ends of lead wires of explosive housing assemblies twisted until ready to parallel connect all SPAL to electrical connector on center tube.

Do not drink the agent simulant. It could make you sick.

Do not splash agent simulant in your eyes. It could cause severe irritation.

If agent simulant is spilled, refill the bottle to the fill line. A bottle containing less than a liter of agent simulant alters the flight path of the SPAL.

Do not load a leaking bottle. A leaking bottle could cause a misfire and damage equipment and/or injure personnel.

To avoid injury, keep all parts of body clear of loaded tubes.

Explosive housing assemblies containing black powder must be handled with care at all times. If the explosive housing assemblies are dropped, thrown, tumbled, or dragged, an explosion may result, causing death or injury and destruction of equipment.

Before removing explosive housing assemblies from the ammunition box and before connecting/disconnecting firing line leads and lead wires, kneel and touch the ground with your bare hand. This will ground static electricity in your body and clothing.

Always store explosive housing assemblies in ammunition box. Do not remove from ammunition box until ready to place them in filled bottles at the launch site.

For first aid information refer to FM 21-11 (TEST), First Aid for Soldiers.

TECHNICAL MANUAL

No. 3-6920-100-12&P

HEADQUARTERS

DEPARTMENT OF THE ARMY

Washington, DC, 31 March 1966

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

LAUNCHER, PROJECTILE, LIQUID AIRBURST: M267

(NSN 6920-01-110-7660)

Current as of 18 February 1986 for Appendix F

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can **help improve** this manual. If you find any mistakes or if you know of **a way to** improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to Commander, US Army Armament, Munitions, and Chemical Command, ATTN: AMSMC-MAR-T (A), Aberdeen Proving Ground, MD 21010-5423. A reply will be furnished to you.

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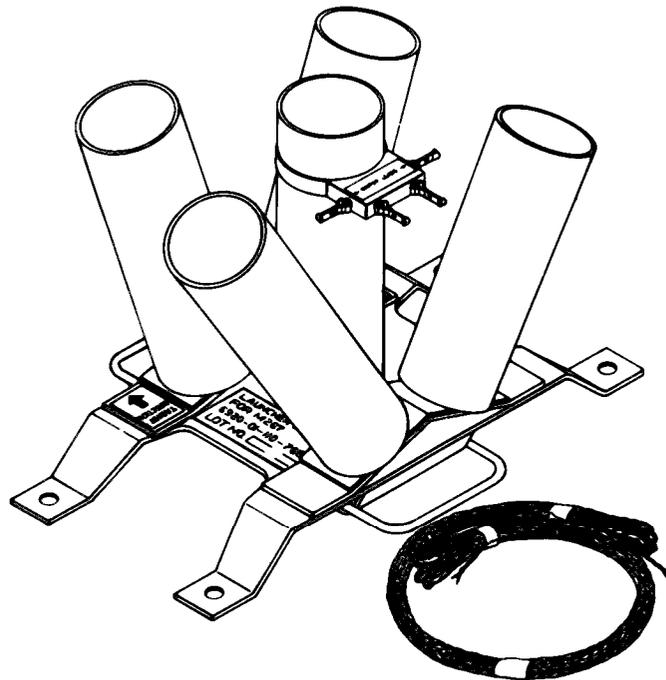
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CHAPTER 1 INTRODUCTION

Section I. GENERAL INFORMATION



1-1. SCOPE.

- a. Type of Manual: Operator's and Organizational Maintenance.
- b. Equipment Name: M267 Liquid Airburst Projectile Launcher.

Purpose of Equipment: To launch the Simulator, Projectile, Airburst, Liquid: **M11** (SPAL which will simulate a chemical artillery airburst attack.

- d. Special Limitations on Equipment: Use limited to launch of M11 SPAL.

1-2. MAINTENANCE FORMS AND RECORDS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMS), as contained in Maintenance Management Update.

Accidents involving injury to personnel or damage to materiel will be reported on DA Form 285 (Accident Report) in accordance with AR 385-40. Explosives and ammunition malfunctions will be reported in accordance with AR 75-1.

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your launcher needs improvement, let us know. Send us an EIR. YOU, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US AMCCOM, ATTN: AMSMC-QAD (R), Rock Island, IL 61299-6000. We'll send you a reply.

1-4. NOMENCLATURE CROSS-REFERENCE LIST.

<u>Common Name</u>	<u>Official Nomenclature</u>
Launcher	Launcher, Projectile, Liquid Airburst: M267
Agent simulant	Polyethylene Glycol 200 (PEG 200)
SPAL	Simulator, Projectile, Airburst, Liquid: M11
Firing line	Cable, Telephone, Stranded Conductor
Lead wires	Electric Match Wires
Electrical connector	Clamp and Contact, Electrical

1-5. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Destruction of unclassified training equipment and supplies is not required. Refer to TM 43-0002-31, Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use.

1-6. PREPARATION FOR STORAGE OR SHIPMENT.

See Chapter 4, Section VI.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. Characteristics. The launcher has five plastic tubes, individually bolted at different angles to an aluminum platform.

b. Capabilities. The launcher fires five simulant-filled bottle assemblies SPAL to produce a simulated contamination area at least 75 meters (246 feet) wide by 75 meters long, downwind from the launch site, depending on wind velocity.

c. Features.

(1) Portable, two-man.

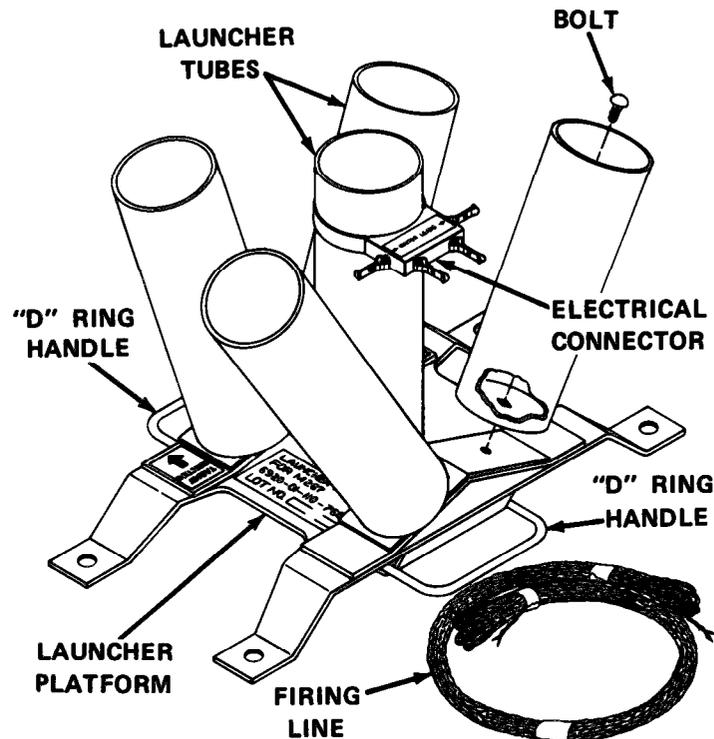
(2) Can be fired effectively in winds up to 15 knots.

(3) Can be used in multiples.

(4) Can perform at temperatures between 20°F and 100°F, and relative humidities between 10% and 90%.

(5) Is safe (nonhazardous) when used properly in troop training exercises.

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



LAUNCHER TUBES. Five high-impact plastic tubes, fitted at different angles to produce a mortar-like line source pattern of projectiles at equal distances apart. They are fastened to the launcher base with bolts.

ELECTRICAL CONNECTOR. A metal ring, with two side clips and two front clips. Five separated lead wires are inserted into each side clip. The separated firing line lead is inserted in front clips. The connector is fastened on the center launcher tube.

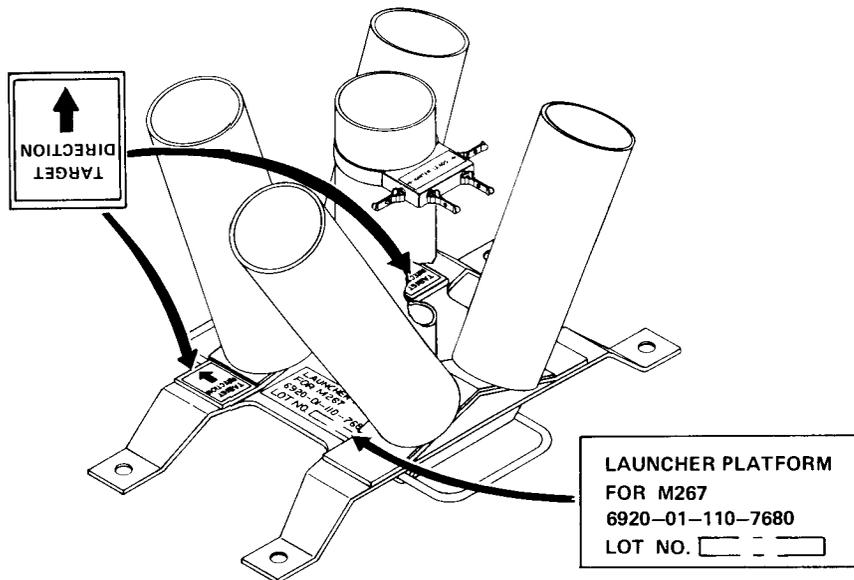
LAUNCHER PLATFORM. Made of aluminum and equipped with two "D" ring handles for carrying. Holes in launcher platform are spaced to allow launcher tubes to be bolted in place.

FIRING LINE. A 50-meter (approximately 164 feet) two-stranded conductor telephone cable.

1-9. LOCATION OF LABELS.

a. Target Direction Labels. Direction of the arrow indicates direction of projectile toward the target.

b. Identification Label. Identifies the launcher platform and states the NSN and lot number for the M267 launcher.



1-10. EQUIPMENT DATA.

a. Weights and Dimensions.

- (1) Height 15 in
- (2) Width 12 in
- (3) Length 20 in
- (4) Weight 15.8 lb

b. Packaging Data.

Container (wood box)

- (1) Height 12 in
- (2) Width 15 in
- (3) Length 24-1/2 in
- (4) Weight 42 lb

c. Effective Range Downwind Coverage (five SPAL).

Depending on wind velocity

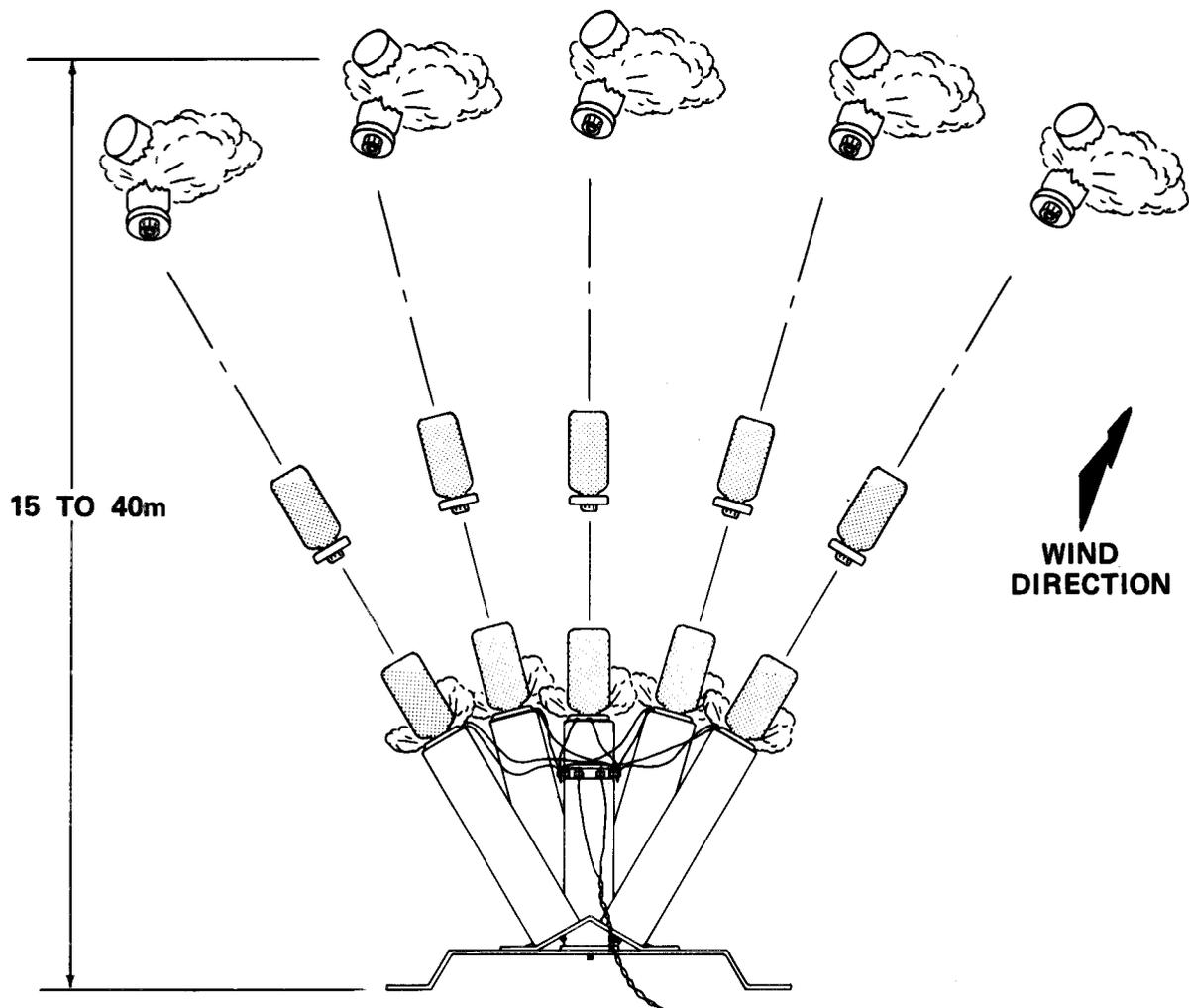
- (1) Width 75 meters
- (2) Length 15-450 meters

1-11. SAFETY, CARE, AND HANDLING.

Launcher tubes and electrical connector are breakable and should be handled with care. For safety, care, and handling of the SPAL, refer to TM 9-1300-206, Ammunition and Explosives Standards.

Section III. TECHNICAL PRINCIPLES OF OPERATION

On applying electrical current to the firing line, current flows through the leads to the electrical connector. The electric match ignites the expulsion charge, which in turn ignites the delay. The gases from the expulsion charge propel the filled bottles into the air. The delay, after burning for approximately two seconds initiates the blasting cap, which detonates the burster charge. This ruptures the bottle to produce a cloud of spray at a height of 15 to 40 meters. The simulated area of contamination extends at least 75 meters wide and 75 meters downwind from the point of burst, depending on wind velocity. (See table 1-1.)



Section IV. SELECTION OF TARGET AREA

1-12. SITING.

a. The key to the successful employment of SPAL is the selection of a suitable target area.

b. The target area should be reasonably open. Avoid obstructions, such as trees and high bushes, that will interfere with the desired contamination pattern.

c. Where troops are involved, maximum free-play is desirable for the exercise. Hence, the target area would be the line-of-march of the troops. If several routes are available to the troops to reach their objective, a route will be specified to allow preplacement of the SPAL. Chemical contamination markers, mine field markers, and artillery simulators can be used as aids in channeling the unit into the attack zone.

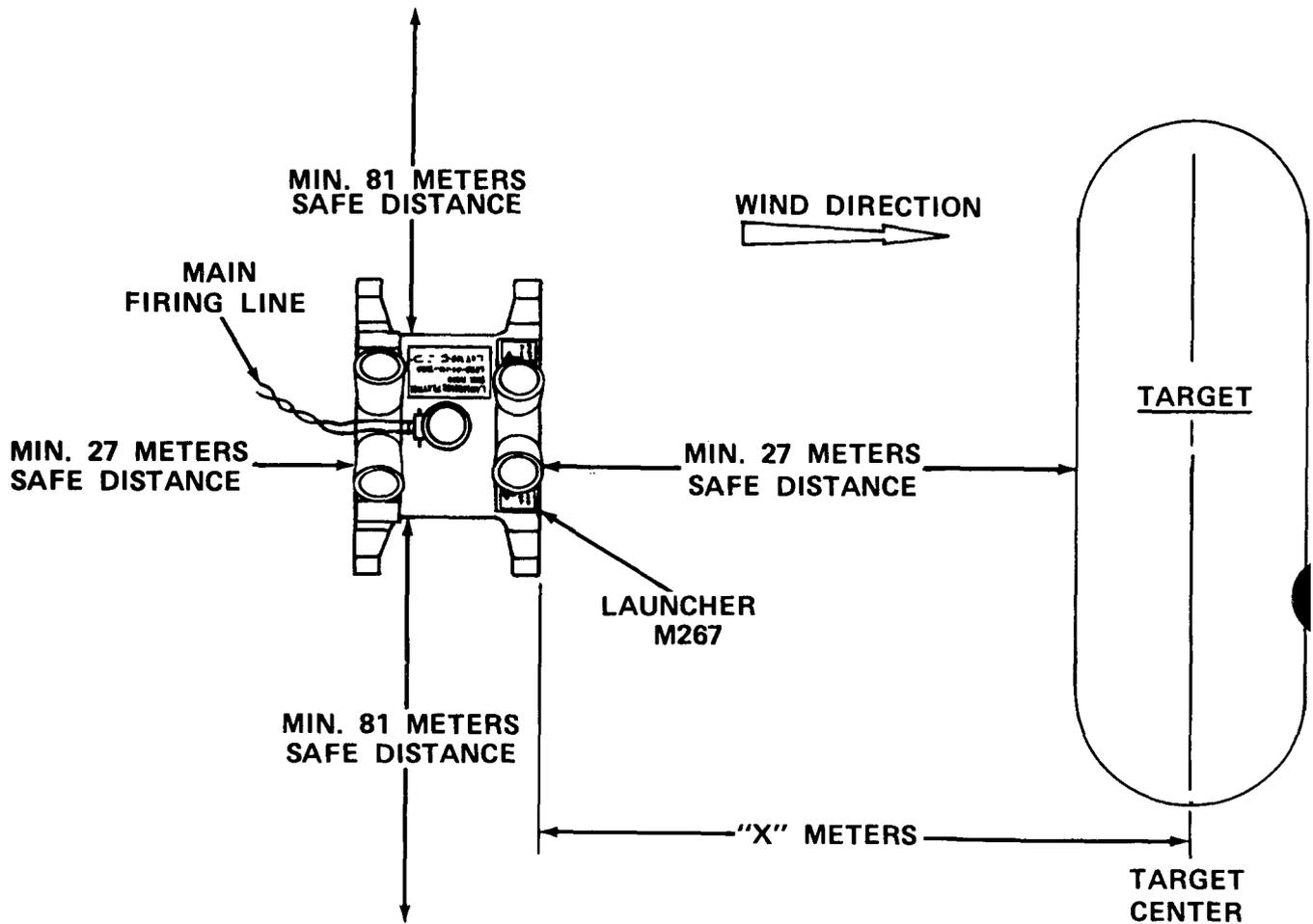
d. The employment of SPAL is dependent on the wind direction. Therefore, several target areas on the route to the objective should be preselected. The prevailing winds will then dictate which one of the candidate target areas will be attacked with SPAL. Determine the approximate wind velocity and direction. An air velocity meter (item 7, app E) may be used. The launcher and SPAL will be placed on a crosswind line upwind of the target. Table 1-1 shows the cloud travel characteristics of agent simulator for the SPAL. Use the table to select launcher-to-target distance according to wind velocity. The figure (page 1-8) shows emplacement of the launcher and target area.

e. The SPAL launch position should be hidden from troop view. Emplace the launcher behind natural cover, such as low brush or tall grass. Avoid broken, sloping ground and hollows. Such terrain may shorten the burst height. This would minimize the area of effectiveness.

f. See FM 21-40 for detailed information on planning and conducting chemical defense training. See FM 105-5 for maneuver control.

Table 1-1. Cloud Travel Characteristics of Agent Simulant for the M11 SPAL

Knots	Wind Speed		Beginning of Cloud (±5 Meters)	Center of Cloud (±5 Meters)	Cloud Ending (±5 Meters)
	Meters per Second	Miles per Hour			
3	1.5	3.5	15	40	90
4	2.1	4.6	21	53	120
5	2.6	5.8	26	67	150
6	3.1	6.9	31	80	180
7	3.6	8.1	36	93	210
8	4.1	9.2	41	107	240
9	4.6	10.4	46	120	270
10	5.1	11.5	52	133	300
11	5.7	12.7	57	147	330
12	- 6.2	13.8	62	160	360
13	6.7	15.0	67	173	390
14	7.2	16.1	72	187	420
15	7.7	17.3	77	200	450



Wind velocity

3-5 knots
 6-10 knots
 11-15 knots

"X" Dimension
 (Launcher distance to target)

40-70 meters
 80-130 meters
 150-200 meters

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

There are no specific indicators and controls for operating the launcher.

Section II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-1. GENERAL.

Before You Operate. Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PMCS.

b. After You Operate. Be sure to perform your after (A) PMCS.

c. If your equipment does not perform as required, notify your supervisor. Report any malfunctions or failures on DA form 2404 or refer to DA **PAM 738-750**.

2-2. PMCS PROCEDURES.

a. Table 2-1, Operator Preventive Maintenance Checks and Services (PMCS) lists the Inspections and services required to keep the launcher in good operating condition.

b. The Item No. column gives the order in which the PMCS will be performed (in numerical order). This column is used as a source of item numbers for the TM Number column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.

c. The Interval columns tells you when to do a certain check or service. The Before (B) column states the checks and services performed prior to the equipment leaving its containment area or performing its intended mission. The After (A) column describes the checks and services to perform when the equipment is taken out of its mission mode or returned to its containment area.

d. The Item to be Inspected column lists the items to be checked.

e. The Procedure column tells how to do the required checks and services.

f. The Equipment is Not Ready/Available **If** column states the criteria by which the equipment cannot be used until corrective maintenance has been performed.

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS)

B - Before

A - After

Item No.	Interval		Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/ Available If:
	B	A			
1	X	X	Launcher Tubes	Inspect tubes for cracks dents, chips or breaks. Check for dirt or debris. Clean with soft, lint-free cloth (item 4, app E). Make sure all five tubes are securely bolted to launcher platform. If tube(s) is loose, lift upon tube and turn clockwise to tighten.	Tube(s) is missing. Tube(s) is cracked, dented, chipped or broken. Tubes are dirty or contain debris.
2	X		Launcher Platform	Inspect platform for cracks or bends.	Launcher platform does not sit flat.
3	X		Electrical Connector	Assure electrical connector is securely fastened to launcher tube. Make sure all four metal clip are securely attached to electrical connector.	Connector is loose. Clips are missing.
4	X		Firing Line	Lay out firing line. Make sure it is 50 +5 meters (164 ±16 feet) long. Inspect for breaks or frayed insulation.	Firing line is too short. Firing line is broken or insulation is frayed.

Section III. OPERATION UNDER USUAL CONDITIONS

NOTE

The launcher and SPAL are used under the supervision of an officer or NCO trained in the use of training systems for chemical defense.

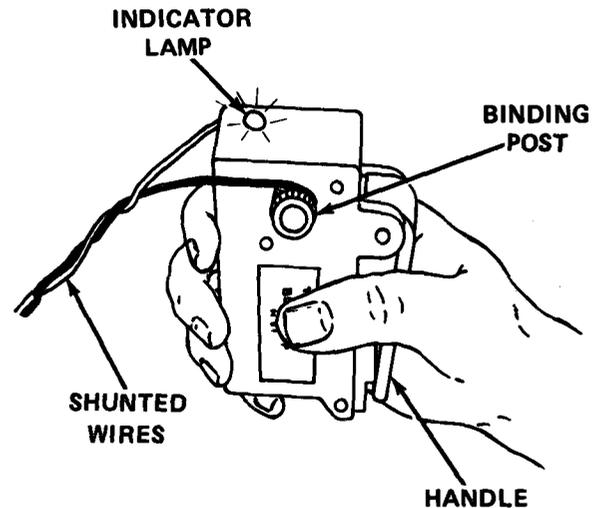
2-3. PRELIMINARY TEST.

a. The M51 Blasting Cap Test Set. The M51 Blasting Cap Test Set (app C) is a self contained unit with a magneto-type impulse generator, and indicator lamp, a handle to activate the generator, and two binding posts for attachment for wire leads.

(1) Use a pocketknife (item 6, app E) to cut a piece of cable, approximately 1 foot long, from one end of the firing line. Strip approximately 1 inch of plastic insulation from the ends.

(2) Twist the stripped wires together on one end of the cable.

(3) Attach the other end of the cable to the M51 test set by fastening the stripped wires to the binding posts.



NOTE

Make sure test set handle is completely depressed for testing.

(4) Firmly depress the test set handle while observing the indicator lamp. If set is operative, the indicator lamp will flash.

(5) Untwist ends of the cable and test the electrical connector, as described below.

(6) If set is inoperative, turn in defective set and requisition new one.

2-3. PRELIMINARY TEST (CONT).

b. Testing Electrical Connector.

NOTE

Make sure wires on one end of cable are connected to binding posts of M51 test set each time handle is depressed for testing

(1) Attach one stripped wire of the cable to the right side clip of the electrical connector and the other stripped wire to the right front clip

(2) Depress the test set handle. If indicator lamp flashes, go to step (3). If indicator lamp does not flash; notify your supervisor.

(3) Disconnect the wire from the right front clip and hold to the base of the electrical connector.

(4) Depress test set handle. If indicator lamp does NOT flash, disconnect wire from right side clip and go to step (5). If indicator lamp flashes, notify your supervisor there is a short in the electrical connector.

(5) Attach one wire to the left side clip of the electrical connector and the other wire to the left front clip.

(6) Depress test set handle. If indicator lamp flashes, go to step (7). If indicator lamp does not flash, notify your supervisor.

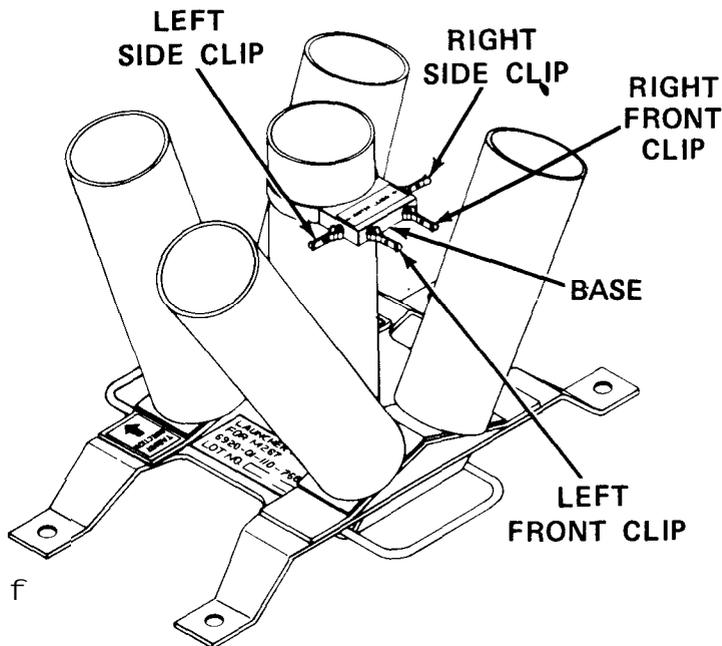
(7) Disconnect the wire from the left front clip and hold to the base of the electrical connector.

(8) Depress test set handle. If indicator lamp does NOT flash, electrical connector is ready for use. If indicator lamp flashes, notify your supervisor there is a short in the electrical connector.

(9) Disconnect wires from the electrical connector and the M51 test set to test the firing line, as described below.

c. Testing the Firing Line.

(1) Use a pocketknife (item 6, app E) to strip approximately 1 inch of plastic insulation from each end of the firing line.



- (2) Twist the stripped wires together on one end of the firing line.
- (3) Attach the other end of the firing line to the M51 test set by fastening the stripped wires to the binding posts.
- (4) Depress the test set handle. If the indicator lamp flashes, go to step (5). If indicator lamp does not flash, notify your supervisor the firing line is faulty.
- (5) Untwist and separate the wires making sure the stripped ends do not touch each other.
- (6) Depress the test set handle. If the indicator lamp does NOT flash go to step (7). If the indicator lamp flashes, notify your supervisor there is a short in the firing line.
- (7) Disconnect wires from M51 test set. Firing line is ready to use.

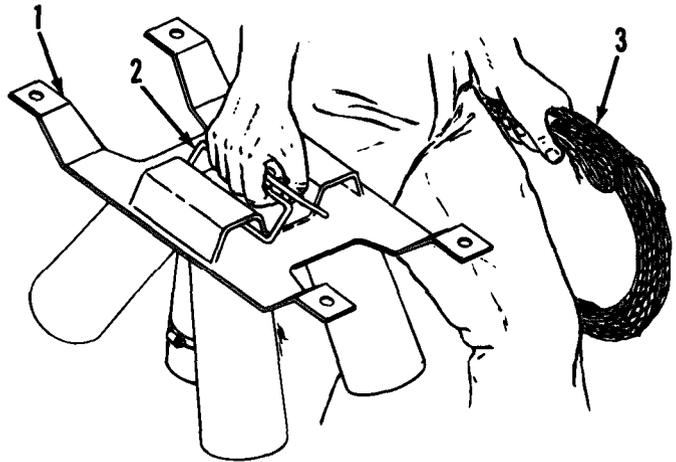
2-4. ASSEMBLY AND PREPARATION FOR USE.

a. Setting up the Launcher.

- (1) Pick up assembled launcher (1) by both "D" ring handles (2).
- (2) Carry launcher (1) and firing line (3) to launch site.

WARNING

When launcher is set in place, make sure the "D" ring handles extend out from the launcher platform. The launcher must be level. Otherwise, it may tip over. Damage to the launcher or injury to personnel may result.

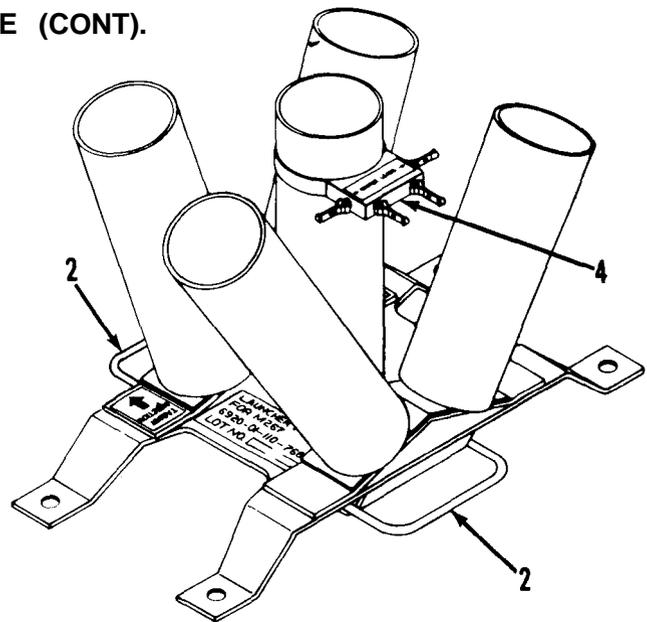


2-4. ASSEMBLY AND PREPARATION FOR USE (CONT).

NOTE

The arrows on the launcher platform indicate the target direction.

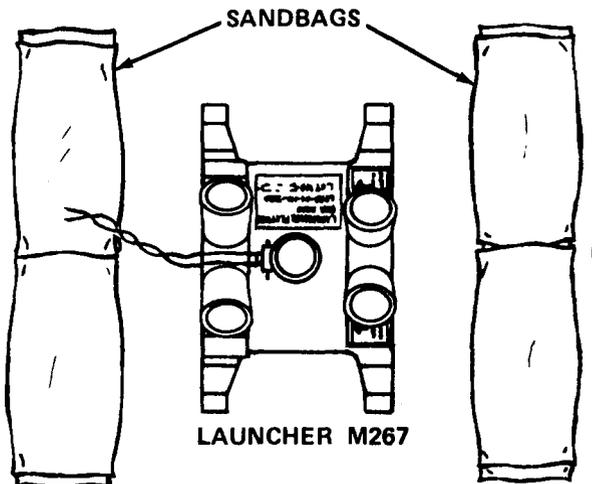
(3) Set launcher in place. Make sure the "D" ring handles (2) are extended and the electrical connector (4), between the farthest angled tubes, is facing the firing source and the arrows on the target direction labels point away from the firing source.



WARNING

Do not stack sandbags where they obstruct the firing. This could cause injury.

(4) Use sandbags (item 1, app E) to form a barricade approximately 30 inches long at the front and back of the launcher. Stack the sandbags 6 inches from the launcher and approximately 18 inches high. This will provide protection to the troops if the SPAL explodes in the tube.



b. Assembling the SPAL (item 9, app E).

WARNINGS

Use only the M11 SPAL with the M267 Launcher. Use of any other projectile could result in serious injury or death.

The explosive housing assemblies may be initiated by static electricity, Radio Frequency (RF) signals, or Electromagnetic Radiation (EMR). To protect yourself from injury when assembling and firing the SPAL, heed the following:

Do NOT use SPAL during electrical storms.

Do NOT operate radar/radio transmitter closer to any part of a SPAL firing circuit than allowed by tables 2-2 or 2-3 during assembly, disassembly, or operation of the SPAL.

WARNINGS (Cont)

Do NOT remove explosive housing assemblies from the ammunition box until ready to place them inside filled bottles at launch site.

Use bare hands to assemble the SPAL and to make all electrical connections at the launcher.

Leave bare ends of lead wires of explosive housing assemblies twisted until ready to parallel connect all SPAL to electrical connector on center tube.

Leave bare ends of firing line twisted until ready to connect, first to electrical connector, and then to the power source.

(1) The explosive housing assemblies may be initiated by Radio Frequency (RF) signals or Electromagnetic Radiation (EMR). See tables 2-2 and 2-3 for safe-distances before assembling, disassembling, or operating the SPAL.

Table 2-2. Approximate Power Output and Minimum Safe Distances For Military Radio Transmitters

Transmitter	Power Output (approximate)	Frequency	Safe Separation Distance	
			(meters)	(ft)
AN/PRC-77 (backpack)	5 watts	30-76 MHz (FM)	0.45	1.5
AN/PRC-68 (handheld)	0.5 watts	30-88 MHz (FM)	0.14	0.5
AN/VRC-12 (vehicle)	60 watts	30-76 MHz (FM)	2.00	6.7

Table 2-3. Effective Radiated Power and Safe Separation Distances

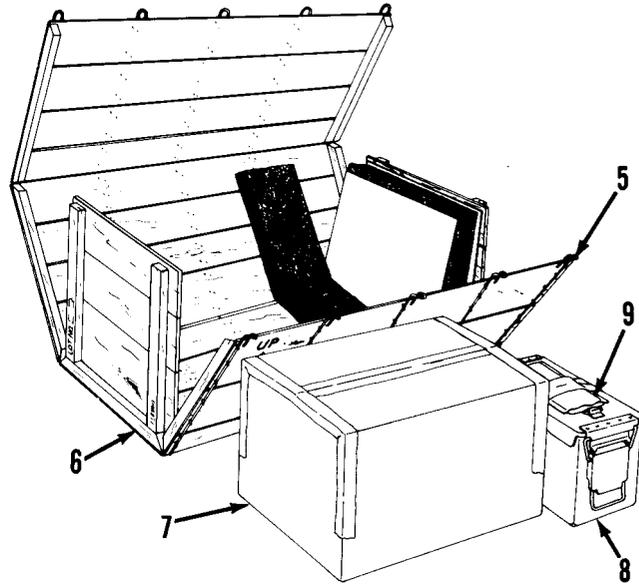
Effective Radiated Power (watts)	Safe Separation Distance	
	(meters)	(feet)
10	0.64	2.1
100	2.00	6.7
1,000	6.47	21.0
10,000	20.30	66.6

2-4. ASSEMBLY AND PREPARATION FOR USE. (CONT).

(2) Unfold wire tabs (5) on shipping crate (6) to open.

(3) Remove fiberboard box (7) and ammunition box (8) from wirebound shipping crate (6). The bag (9) taped to top of ammunition box contains the faucet.

(4) Reassemble shipping crate (6) to use as work surface.



WARNING

Do not drink the simulant.
It could make you sick. Do not splash simulant in your eyes. It could cause severe irritation.

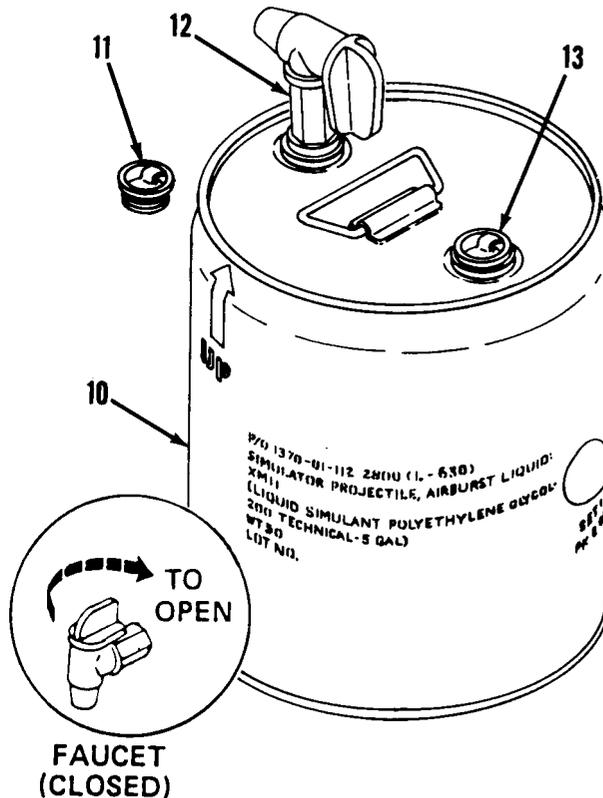
(5) Set pail (10) upright and remove one plug closure (11) with screwdriver (item 8, app E).

(6) Remove faucet (12) from bag (9) taped to top of ammunition box (8).

(7) Screw threaded faucet (12) into opening and hand tighten.

(8) Make sure faucet (12) is closed.

(9) Partially open other plug closure (13), so it can be easily turned by hand. This will ensure smooth flow of liquid from pail (10).



(15) Put cap back on bottle.

(16) Use clean cloth (item 4, app E) to wipe any spilled simulant from bottle.

(17) Repeat steps (11) through (16) to fill four more bottles.

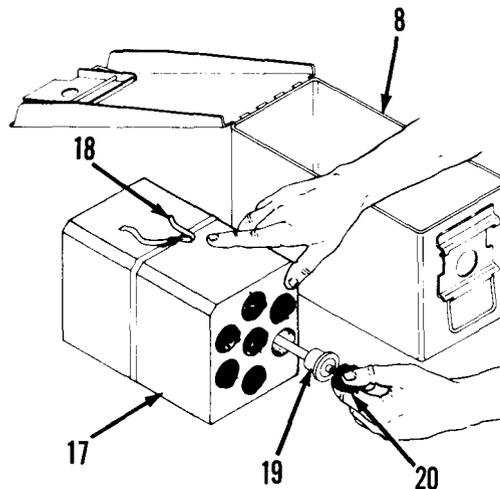
(18) Carry filled bottles, obturators, and ammunition box to launch site.

WARNING

Before removing explosive housing assemblies from the ammunition box, kneel and touch the ground with your bare hand. This will ground static electricity in your body or clothing.

(19) Open ammunition box (8).

(20) Pull plastic foam inner pack (17) out of ammunition box (8) with attached ribbon (18).



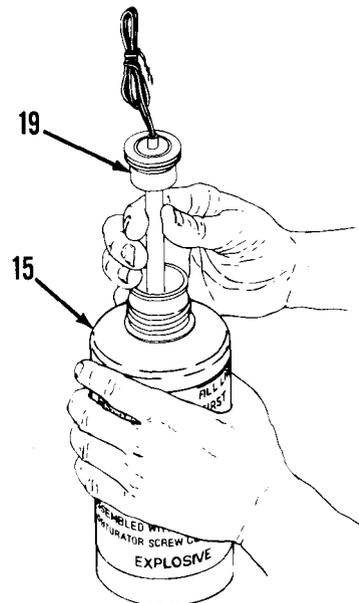
WARNING

Make sure the wire ends of explosive housing assemblies are twisted.

(21) Remove one explosive housing assembly (19) from inner pack (17) by pulling carefully on coiled lead wires (20).

(22) Remove bottle cap and set aside.

(23) Insert explosive housing assembly (19) into bottle (15) of agent simulant.



(24) Straighten lead wires (20) of explosive housing assembly.

(25) Place obturator (14) on filled bottle (15) with straightened lead wires (20) through top of obturator (14). Hand tighten. Be sure stripped ends of lead wires are twisted together. SPAL is now completely assembled.

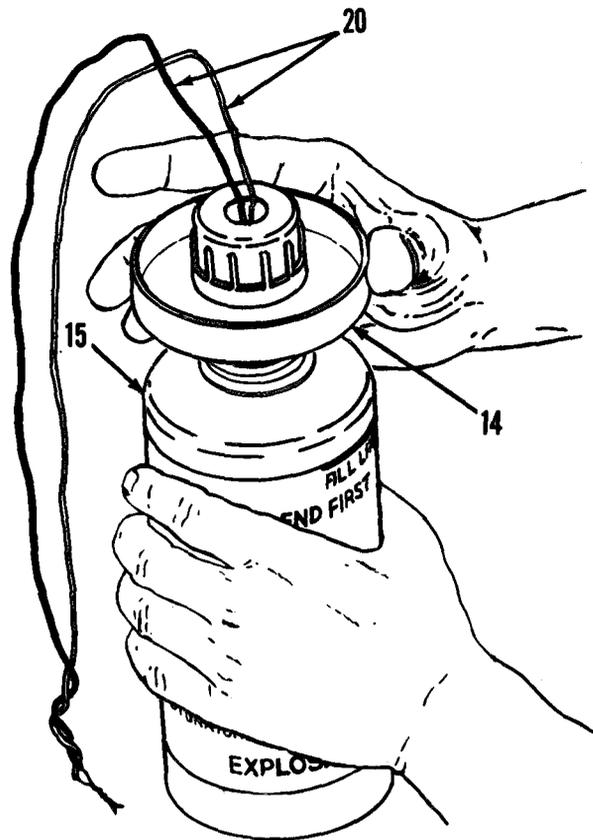
WARNING

Do not load a leaking SPAL. A leaking SPAL could cause a misfire and damage equipment and/or injure personnel.

(26) Turn SPAL upside down and check for leaks. If SPAL leaks, make sure obturator (14) is on straight and tighten again. If SPAL continues to leak, set aside for disposal and replace SPAL.

(27) Repeat steps (21) through (26) for the other four bottles.

(28) Return inner pack with unused explosive housing assemblies to ammunition box. Fasten box securely.



c. Loading the Launcher.

WARNING

To avoid injury, keep all parts of body clear of loaded tubes.

NOTE

The launcher tubes farthest away from the operator must be loaded first, the middle tube next, and the nearest tubes last.

Make sure lead wires point in the direction of the electrical hookup.

(1) Invert SPAL, bringing lead wires (20) up side of bottle.

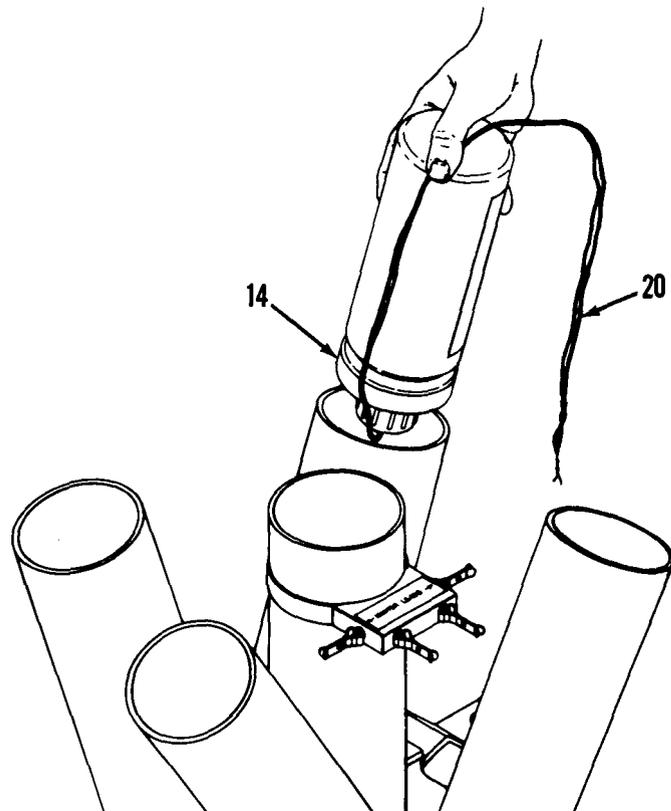
(2) Insert obturator (14) end of SPAL and push to bottom of launcher tube.

(3) Repeat steps (1) and (2) to-load other four SPAL.

(4) Untwist lead wires (one orange, one yellow) on all five SPAL.

(5) Twist all five yellow lead wires together.

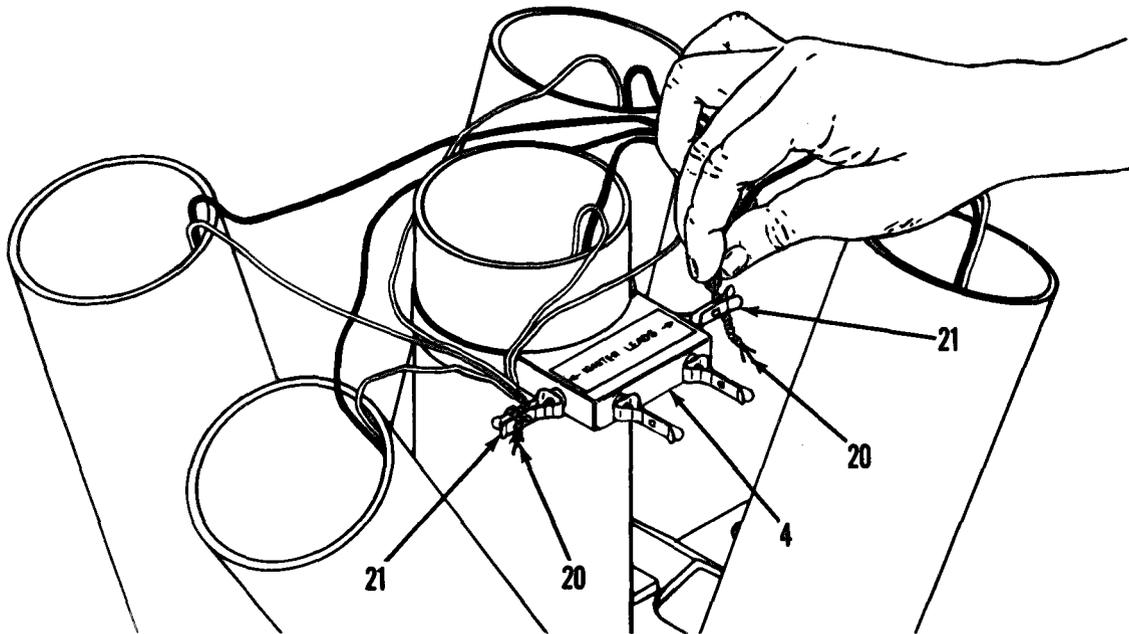
(6) Twist all five orange lead wires together.



NOTE

Make sure lead wires do not cross the top of the launcher tubes.

(7) Insert twisted lead wires (20) into side clips (21) on electrical connector (4). Wrap ends of lead wires around side clips. One clip is provided for the five lead wires of each color.

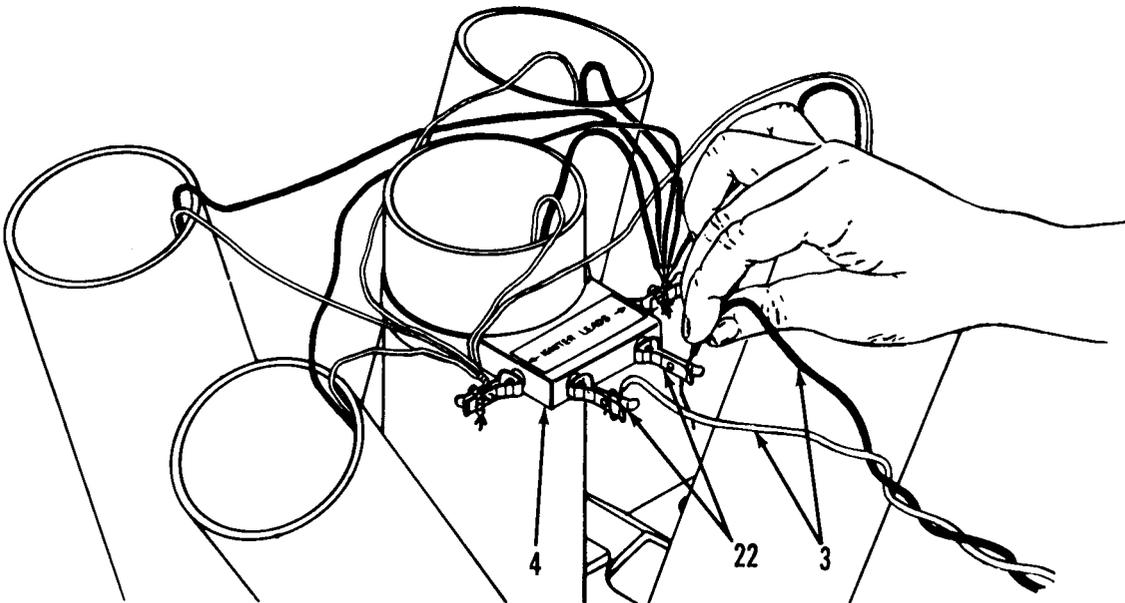


(8) Make sure firing line has approximately one inch of exposed wires on each end. If you do not have enough wire, use pocketknife (item 6, app E) to strip away one inch of insulation.

(9) Lay out firing line from launch site to location of firing source.

(10) Twist wires together on end of firing line at the firing source.

(11) Connect firing line (3) to launcher by inserting a wire in each of the front clips (22) of the electrical connector (4). Wrap wire ends around each of the front clips.



2-5. INITIAL CHECKS.

a. Visual Inspection. Do a visual inspection to make sure all components are intact and ready for application of power.

(1) Make sure lead wires are completely straightened and do not cross the top of launcher tubes.

(2) Make sure each side clip on electrical connector holds five leads of the same color.

CAUTION

To avoid damage to the equipment, do not trip over the firing line. Walk parallel to the line.

(3) Make sure firing line is completely uncoiled (straight).

b. Operational Checkout. The operational checkout consists of a continuity check using the M51 test set.

(1) Testing firing circuit.

(a) Kneel. Untwist and connect one wire of firing line lead to each binding post of M51 test set.

(b) Depress test set handle. Indicator lamp should flash. Disconnect test-set and proceed with firing (para 2-6).

(c) If indicator lamp fails to flash, depress handle again. If indicator lamp still fails to flash, check for faulty circuit connections, as described below.

(2) Faulty circuit connections.

(a) Be sure cable is properly attached to test set. Correct improper connection.

(b) Be sure firing line connections at electrical connector are properly connected and separated from each other. Correct improper connection.

(c) Be sure lead wires are securely attached to clips on the electrical connector. Correct improper connection.

(d) Depress test set handle. Indicator lamp should flash. Disconnect test set and proceed with firing (para 2-6).

(e) If indicator lamp fails to flash, repeat steps in para 2-3.

2-6. OPERATING PROCEDURES

a. Firing Source. Use a 50-cap blasting machine (app D) or a 24-volt battery (item 2, app E). Instructions for operating blasting machines are given in FM 5-25 and TM 9-1375-213-12.

2-6. OPERATING PROCEDURES (CONT).

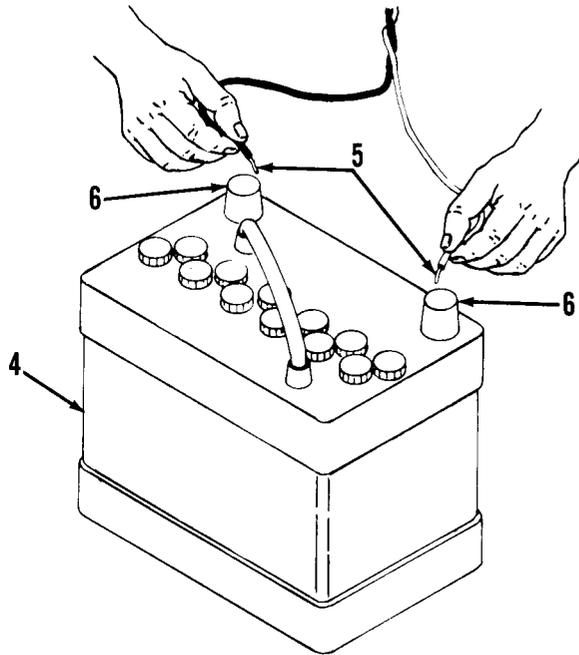
b. Connecting Firing Line to Firing Source.

WARNING

Do not handle bare ends of firing line leads when touching them to battery posts. Hold the insulated portion of the leads to avoid being burned or shocked.

(1) Untwist firing line ends.

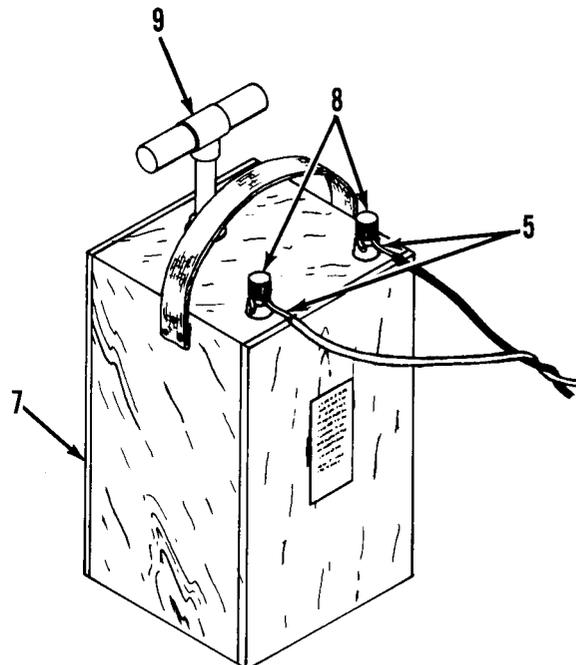
(2) If firing with a 24-volt battery (4), hold insulated portion of firing line lead and touch bare ends (5) to battery posts (6).



WARNING

Make sure handle of blasting machine is fully depressed before connecting firing line, to prevent premature firing.

(3) If firing with a 50-cap blasting machine (7), connect bare ends (5) of firing line to the terminals (8). Operate blasting machine handle (9) to fire.



c. Misfire Procedures. In the event that one or more SPAL fail to fire, check connection at power source and attempt to fire a second time. If a SPAL still fails to fire, wait thirty minutes and follow dismantling procedures listed below.

WARNINGS

Before disconnecting firing line leads and lead wires, kneel and touch the ground with your bare hand. This will ground static electricity in your body and clothing.

To avoid injury, keep all parts of body clear of loaded tubes.

Explosive housing assemblies containing black powder and high explosives must be handled with care at all times. If the explosive housing assemblies are dropped, thrown, tumbled, or dragged, an explosion may result, causing death or injury and destruction of equipment.

(1) Kneel and disconnect firing line from firing source (battery or blasting machine). Shunt the ends.

(2) Move to the electrical connector side of launcher, kneel and disconnect the firing line from the front clips of electrical connector and shunt the two firing line wires.

(3) Kneel and disconnect the two groups of lead wires from the side clips of electrical connector. Then untwist each group, separating all wires.

(4) Pair up the lead wires, one of each color, for each SPAL and shunt them.

NOTE

Remove only the tubes containing the misfired SPAL, in the following order.

(5) While facing the electrical connector, remove the tube to the left of the connector by pulling up and rotating it in a counterclockwise direction until it comes free of the launcher platform.

2-6. OPERATING PROCEDURES (CONT).

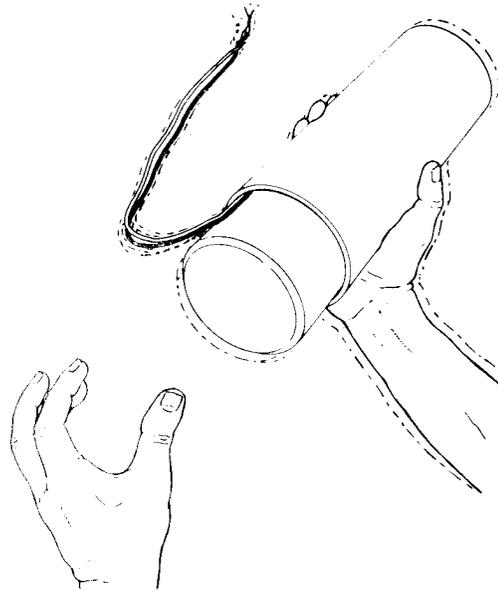
(6) Invert the Tube and gently shake it, catching the SPAL in your free hand. Set bolt aside for reassembly.

(7) Unscrew the obturator from the bottle.

(8) Remove the obturator and explosive housing assembly.

(9) Cap the bottle, being careful not to spill the agent simulant

(10) Use clean cloth (item 4, app E) to wipe the explosive housing assembly and the obturator clean of agent simulant.



(11) Cut wires on explosive housing assembly approximately 3 inches long with pocket knife (item 6, app E). Strip insulation and shunt wires. This will prevent further use of the explosive housing assembly.

(12) Return the explosive housing assembly to the foam inner pack.

(13) Remove the tube to the right of the electrical connector and repeat steps (6) through (12).

(14) Move to right side of launcher and remove the right front tube and repeat steps (6) through (12).

(15) Move to the left side of the launcher and remove the left front tube and repeat steps (6) through (12).

(16) Remove the center launcher tube and repeat steps (6) through (12).

(17) Return the explosive housing assemblies in the foam inner pack to the ammunition box. Close box.

NOTE

Ammunition box containing any defective explosive housing assemblies should be turned in according to local SOP.

(18) Reassemble the launcher by inserting bolt through tube into the hole at the base of the tube and screwing into launcher platform. Lift up on the tube and turn clockwise to tighten bolt.

(19) Carry bottles of agent simulant, obturators, and ammunition box to the shipping box.

(20) Set pail upright, remove faucet.

(21) Remove the bottle cap.

(22) Pour agent simulant into pail.

(23) Replace cap on bottle.

(24) Return bottle to fiberboard box.

(25) Repeat steps (21) through (24) for any remaining bottles.

(26) Return obturators and faucet to fiberboard box.

(27) Reinstall plug closure in pail. Hand tighten both plugs closures.

(28) Repack shipping box.

d. Interrupted Mission. If mission is cancelled, follow dismantling procedures in para 2-6c.

e. SPALS That Fail to Burst (Duds). If a SPAL fails to burst in the air after launch, note the ground impact location of the the dud. Call EOD personnel.

2-7. PREPARATION FOR MOVEMENT.

a. Disconnect firing line from the firing source and twist ends together.

b. Make a visual inspection of the launcher to ensure all SPALS have detonated. If one or more SPAL remain in the tube(s), follow dismantling procedures in para 2-6c.

c. Disconnect firing line from the front clips of electrical connector and twist the ends together.

d. Disconnect the lead wires from the side clips of the electrical connector. Part of the burster disk may be attached to the other end of the lead wires. Dispose of wires and disks as ordinary trash.

2-7. PREPARATION FOR MOVEMENT (CONT).

NOTE

Clean launcher tubes after every firing.

e. Clean all dirt and debris from launcher by wiping with a soft, lint-free cloth (item 4, app E).

f. Inspect launcher platform and tubes for chips, cracks, and breaks. Launcher can not be used again with chips, cracks, or breaks. See Chapter 4 for replacement.

g. Return the launcher and unused SPAL to assigned storage area after completion of mission.

CHAPTER 3

OPERATOR MAINTENANCE

Operator maintenance is limited to the procedures listed in the PMCS (table 2-1) and cleaning the launcher after use. There is no authorized repair.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools or equipment are required to operate the M267 Launcher.

4-3. REPAIR PARTS.

Repair parts are listed and illustrated in Appendix F of this manual.

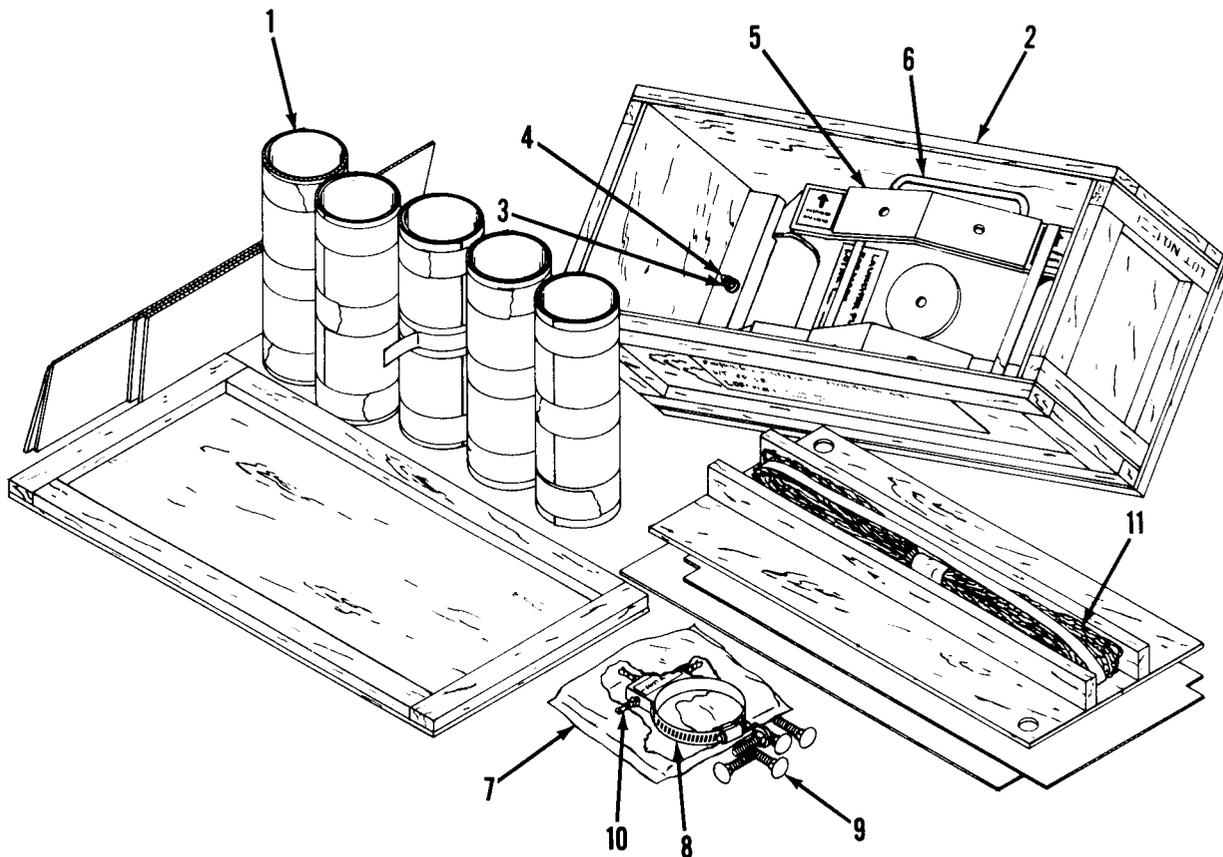
Section II. SERVICE UPON RECEIPT

4-4. CHECKING UNPACKED EQUIPMENT.

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy.

b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.

c. Check to see whether the equipment has been modified.



4-5. INSPECTING EQUIPMENT.

a. Inspecting Launcher Tubes.

- (1) Remove launcher tubes (1) from wooden box (2).
- (2) Remove corrugated wrapper from each tube.
- (3) Inspect each tube for cracks, chips, or breaks.
- (4) Replace cracked, chipped, or broken tubes.

b. Inspecting Launcher Platform.

- (1) Remove the two nuts (3) from the two lag screws (4) at bottom of box with a 6-inch adjustable wrench (item 10, app E) and remove launcher platform (5).
- (2) Remove tape. Inspect for missing "D" ring handles (6), warped or cracked metal.
- (3) Replace launcher if "D" ring handles are missing, or launcher is warped or cracked.

c. Inspecting Electrical Connector and Bolts.

(1) Open package (7) containing the electrical connector (8) and five bolts (9).

(2) Inspect metal ring of connector (8) for dents or bends.

(3) Inspect clips (10) for tight fit to electrical connector and see that prongs are touching. If prongs are spread, use the screwdriver blade of the pocket knife and the adjustable wrench to tighten screw to close prongs.

(4) Replace electrical connector if dented or bent, or clips can not be tightened.

(5) Make sure there are five bolts (8).

(6) Save packing box for future use.

d. Inspecting Firing Line.

(1) Lay out firing line (11). Make sure it is 50 ± 5 meters (164 \pm 16 feet) long.

(2) Inspect for broken or frayed insulation or tangles.

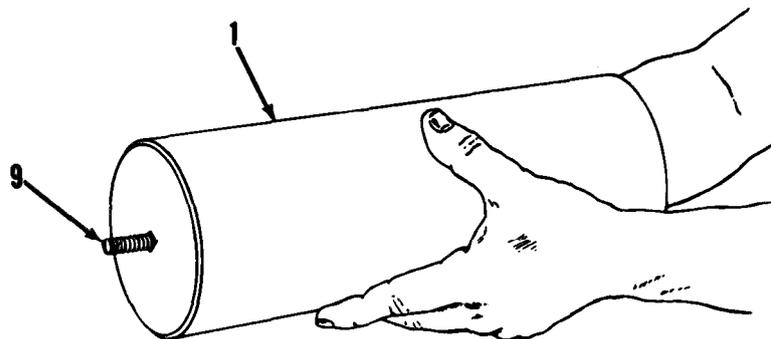
(3) Replace firing line if too short, broken, or frayed. Straighten tangles.

4-6. ASSEMBLING THE LAUNCHER.

The launcher may be assembled on a workbench, shop table, or desk, and carried to site when needed.

(1) Place launcher platform on flat surface.

(2) Insert a bolt (9) through tube (1) into the hole at the base of the tube.



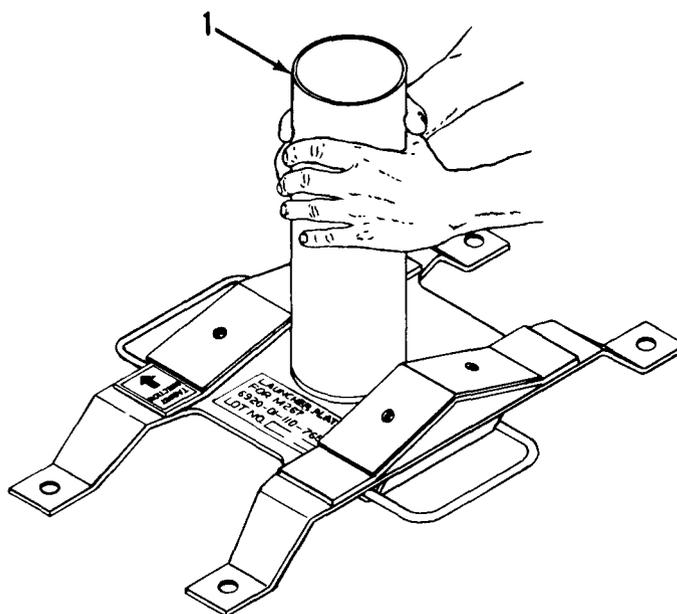
4-6. ASSEMBLING THE LAUNCHER (CONT).

(3) Holding the head of the bolt with your hand (inside the tube), start the threads of the bolt into the center hole in the launcher platform. Make sure bolt is started into the platform.

(4) Lift up on the tube (1) and turn clockwise to tighten bolt.

(5) Tighten tube until handtight.

(6) Repeat the procedure for the remaining four holes in the launcher platform.

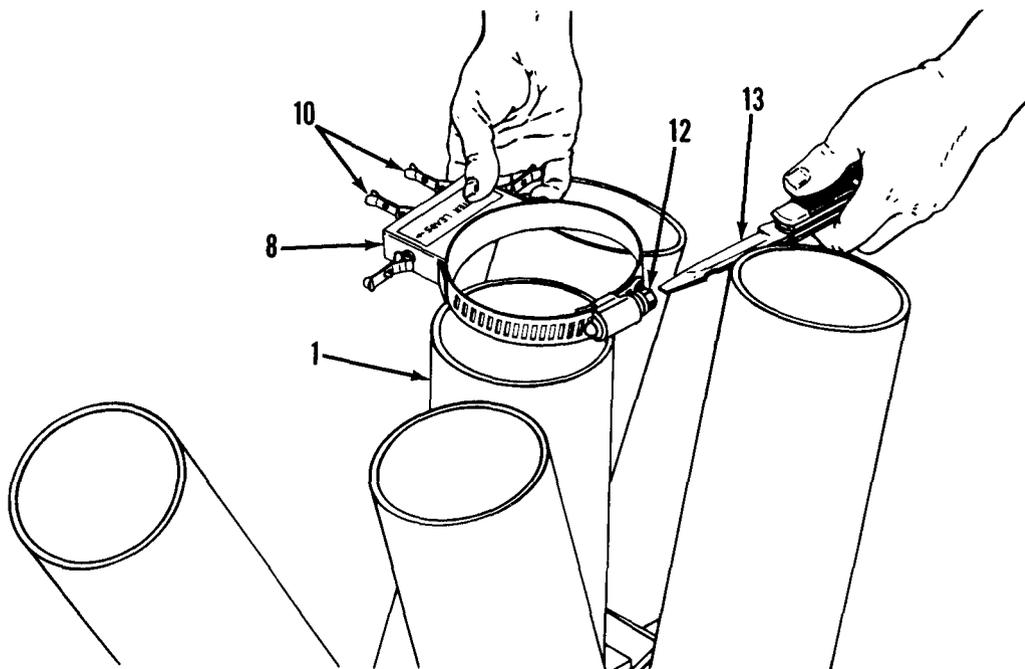


CAUTION

Do not overtighten electrical connector. A deformed tube may cause a malfunction.

(7) Slide electrical connector (8) on center tube (1) with the lead clips (10) between the tubes spaced farther apart.

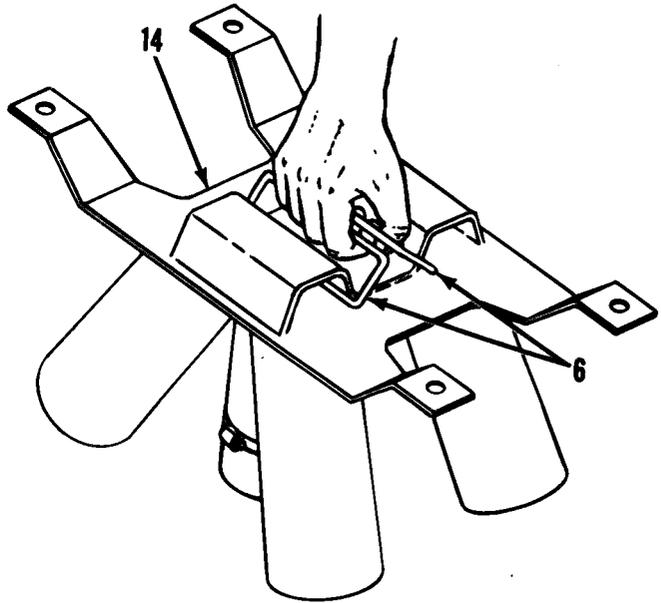
(8) Fasten by tightening the hose clamp screw (12) with the screwdriver blade (13) of the pocket knife (item 6, app E) when the connector (8) is approximately three inches down the tube.



(9) Turn Launcher (14)
over.

(10) Carry Launcher by
picking up-both "D" ring handles
(6).

(11) Launcher is now
assembled and-ready for storage
or issue to the operator.



Section III.

ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-7. PREVENTIVE MAINTENANCE CHECKS AND SERVICES.

Table 4-1 lists checks and services to be performed on the M267 launcher after every mission. The Item Number column gives the order in which the PMCS will be performed. This column is used as a source of item numbers for the TM number column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results-of PMCS. The Item to be Inspected column lists the items to be checked. The Procedures column tells how to do the required checks and services.

Table 4-1. Organizational Preventive Maintenance Checks and Services Scheduled After Every Mission

Item No.	Item to be Inspected	Procedures
1	M267 Launcher	Clean entire launcher with a brush (item 3, app E), detergent (item 5, app E), and water. Flush with water to rinse. Wipe dry with soft, lint-free cloth (item 4, app E).
2	Launcher Platform	Inspect platform for cracks or bends. Check that "D" ring handles are free to move. Replace entire M267 launcher if the platform does not sit flat or has missing handles.
3	Launcher Tubes	Make sure all five tubes are securely bolted to launcher platform. If tube(s) is loose, lift up on tube and turn clockwise to tighten. Inspect tubes for damage, such as cracks, dents, chips, or breaks. Replace damaged tube(s). See para 4-12.
4	Electrical Connector	Make sure electrical connector is securely fastened to center launcher tube. If connector is loose, tighten the hose clamp screw with the screwdriver blade of the pocket knife (item 6, app E). Inspect the four metal clips for tight fit to electrical connector and see that prongs are touching. If prongs are spread, use a screwdriver (item 8, app E) and adjustable wrench (item 10, app E) to tighten screw to close prong. Remove electrical connector from tube, if necessary. Replace the electrical connector if the connector can not be securely fastened or the clips are loose or missing. See para 4-12.
5	Firing Line	Lay out firing line. Make sure it is 50 ±5 meters (164 ±16 feet) long. Inspect for breaks or frayed insulation. Replace firing line if it is too short or has breaks or fraying insulation. See para 4-12.

Section IV. TROUBLESHOOTING

4-8. TROUBLESHOOTING.

Troubleshooting is limited to continuity testing of circuitry. See paragraphs 2-3 and 2-5.

Section V. MAINTENANCE PROCEDURES

4-9. GENERAL.

Organizational maintenance involves servicing, inspecting, repairing, and replacing the M267 launcher.

4-10. SERVICING THE LAUNCHER.

Servicing consists of cleaning the launcher after every mission, as described in the PMCS table (table 4-1).

4-11. INSPECTING THE LAUNCHER.

Inspect the launcher, after servicing, as described in the PMCS table (table 4-1).

4-12. REPAIRING THE LAUNCHER.

Repair the launcher by replacing the launcher tubes, electrical connector, bolts, or firing line. Order new launcher if the platform has damage as described in PMCS table (table 4-1).

- a. Replacing Launcher Tube.

NOTE

If center tube needs replacing, remove connector first.

- (1) Turn tube counterclockwise to remove from launcher platform.
- (2) Remove bolt and inspect threads.
- (3) If threads are stripped, replace with new bolt (app F).
- (4) Insert bolt through new tube (app F) into hole at base of tube.
- (5) Start threads of bolt into hole in launcher platform.
- (6) Lift up on tube and turn clockwise to tighten bolt.
- (7) Tighten tube until handtight.

4-12. REPAIRING THE LAUNCHER (CONT).

b. Replacing Electrical Connector.

(1) Use screwdriver blade of the pocketknife (item 6, app E) to loosen hose clamp screw on connector clamp.

(2) Slide connector off top of tube and discard.

(3) Slide new connector (app F) on center tube with the lead clips between the tubes spaced farther apart.

CAUTION

Do not overtighten electrical connector. A deformed tube may cause a malfunction.

(4) Fasten connector approximately three inches down the tube. Use screwdriver blade of the pocket knife (item 6, app E) to tighten hose clamp screw.

c. Replacing Firing Line.

Cut piece of telephone cable (app F) 50 ± 5 meters (164 \pm 16 feet) in length.

Section VI. PREPARATION FOR STORAGE OR SHIPMENT

4-13. GENERAL.

Store the launcher in assembled condition. Store the firing line with the launcher. For administrative storage of equipment, see TM 740-90-1.

CHAPTER 5

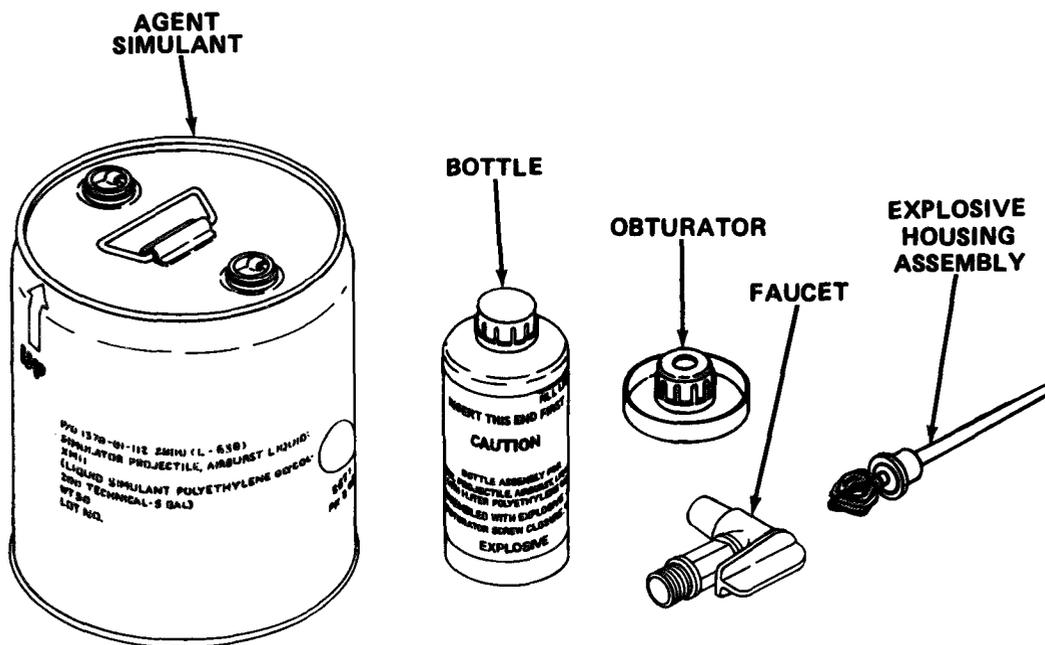
AMMUNITION

Section I. GENERAL INFORMATION

Simulator, Projectile, Airburst, Liquid: M11 (SPAL) is the only ammunition authorized for use with the M267 launcher. Only the M267 launcher will be used to launch the SPAL.

Section II. SPAL DESCRIPTION AND DATA

5-1. DESCRIPTION OF COMPONENTS.



AGENT SIMULANT. Simulant for liquid chemical agent. Causes color changes in chemical agent detector paper in much the same way as liquid toxic chemical agents. Contained in a 5-gallon epoxy-lined, steel pail with two threaded 3/4-inch diameter plug closures.

BOTTLE. A 1-liter, high-density polyethylene container, with caution label attached, to be filled to fill line with agent simulant.

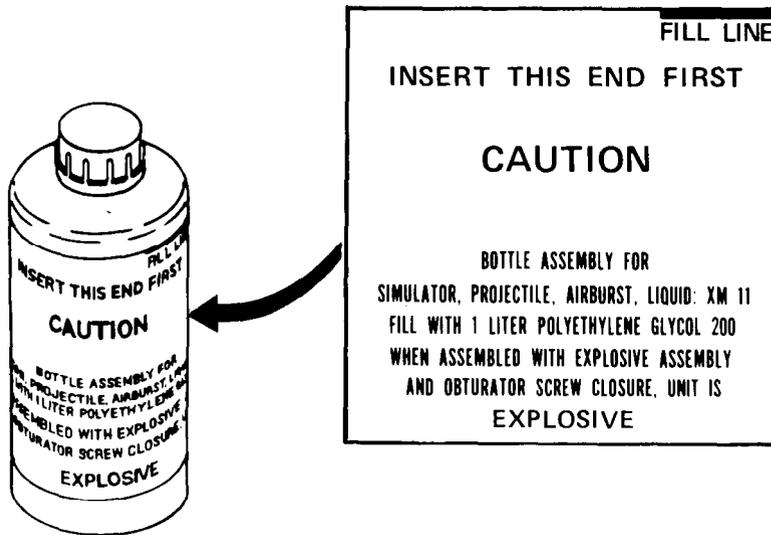
OBTURATOR. A plastic cap that screws on the neck of the filled bottle to hold the explosive housing assembly in place and prevent propellant gas blowby.

5-1. DESCRIPTION OF COMPONENTS (CONT).

FAUCET. Plastic faucet is installed in plug closure of pail to transfer agent simulant to the SPAL bottles.

EXPLOSIVE HOUSING ASSEMBLY. Consists of a black powder expulsion charge, a two-second delay, a burster cap, and a high explosive bursting charge. All are assembled within a molded polyethylene housing. A snap cap with an M100 Electric Match igniter encloses the expulsion cavity. The snap cap has a blow-out disk to release the propellant gases formed in the expulsion cavity.

5-2. SPAL BOTTLE LABEL. Shows level to which bottle shall be filled, the end to be inserted first into the launcher tube, and a CAUTION and yellow-band to indicate explosive when assembled.



5-3. SPAL DATA.

a. Weight and Dimensions of Assembled SPAL.

- (1) Weight 2.7 lb
- (2) Height 8-3/4 in.
- (3) Diameter 3-5/8 in.

b. Packaging (w/ rebound box)

- (1) Weight 28 lb.
- (2) Width 13 in.
- (3) Length 28 in.
- (4) Height 11-1/2 in.

c. Agent Simulant Pail

- (1) Volume 5.0 gal
- (2) Height 13.8 in.
- (3) Weight 49 lb.
- (4) Diameter 10.8 in.

Section III. PREPARATION FOR STORAGE OR SHIPMENT**5-4. GENERAL.****WARNING**

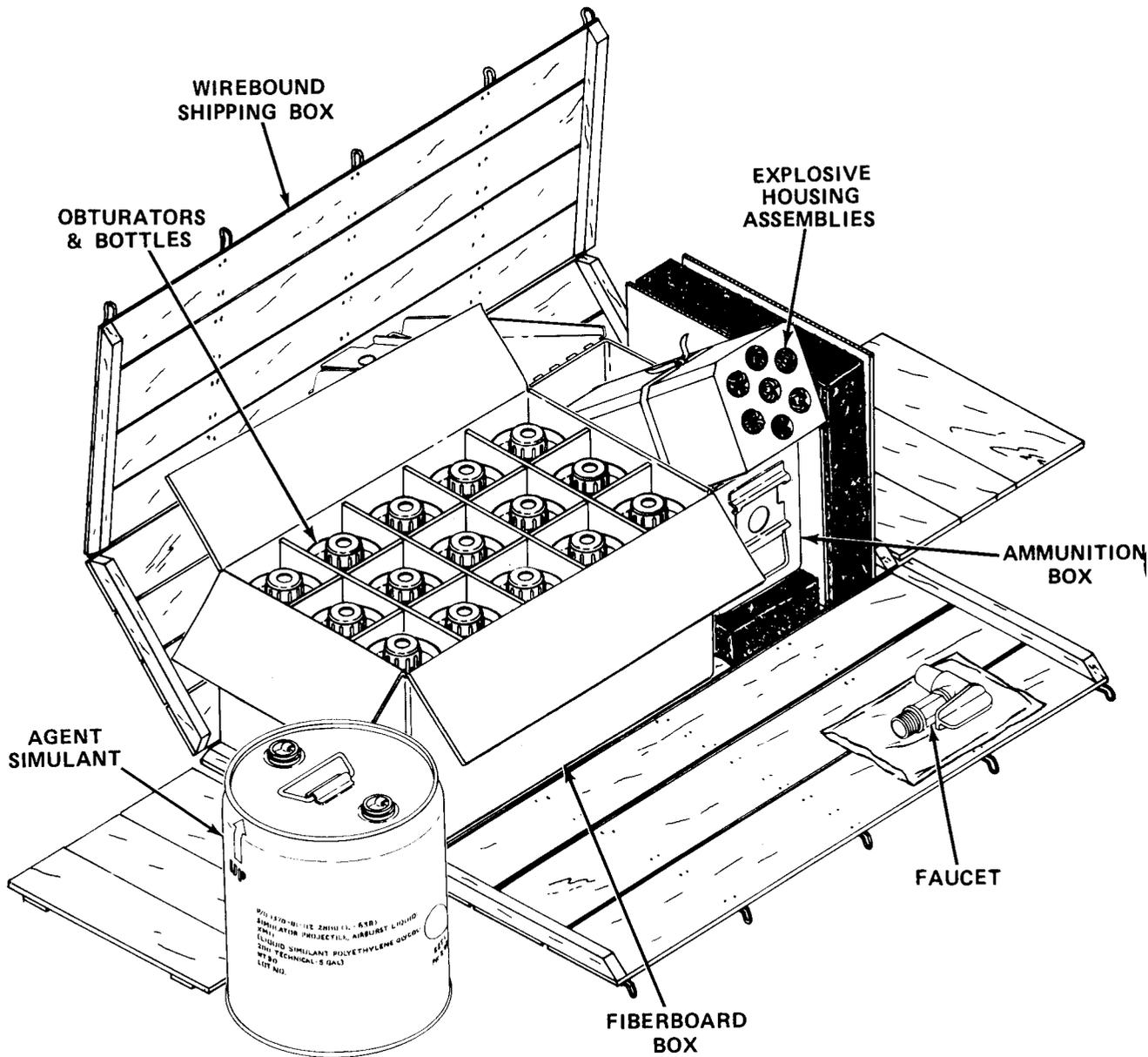
Always store explosive housing assemblies in ammunition box. Do not remove from ammunition box until ready to place them in filled bottles at launch site.

The SPAL is wholly expendable. Unused assemblies will remain as packed until ready for training. Do not store the pail of PEG 200 with STB. For storage of ammunition and explosives (includes fuzes of all types), see TM 9-1300-206.

5-5. PACKAGING.

Package 1 of 2 is a wirebound shipping box containing a fiberboard box and an ammunition box. Fifteen capped bottles and fifteen obturators are packed in the fiberboard box. The faucet is sealed in a protective bag and taped to the top of the ammunition box. The ammunition box holds fifteen explosive housing assemblies, inserted in a plastic foam inner pack. The explosive housing assemblies are classified as "DOT Explosive Class A, Bursters (Explosive) - Handle Carefully," for Shipping. They are classified as "DOD Hazard Class/Division/SCG: (02) 1.2F," for storage purposes.

b. Package 2 of 2 is a 5-gallon pail of agent simulant (PEG 200).



APPENDIX A

REFERENCES

SCOPE

This appendix lists all forms, field manuals and technical manuals referenced in this manual.

FORMS

Accident Report	DA Form 285
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Recommended Changes to Equipment Technical Publications	DA Form 2028-2
Recommended Changes to Publications and Blank Forms	DA Form 2028
Report of Discrepancy	SF 364
Quality Deficiency Report	SF 368

FIELD MANUALS

Chemical, Biological, Radiological, and Nuclear Defense	FM 21-40
Explosives and Demolitions	FM 5-25
First Aid for Soldiers	FM 21-11
Maneuver Control	FM 105-5

TECHNICAL MANUALS

Administrative Storage of Equipment	TM 740-90-1
Ammunition and Explosives Standards	TM 9-1300-206
Demolition Materials	TM 9-1375-213-12
Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use	TM 43-0002-31

MISCELLANEOUS PUBLICATIONS

Accident Reporting and Records	AR 385-40
Army Maintenance Management Systems (TAPIMS)	DA PAM 738-750
Malfunctions Involving Ammunition and Explosives Report Control Symbol DRC-132 (MIN)	AR 75-1

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I

INTRODUCTION

B-1. GENERAL.

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on Instruments or test, measuring, and diagnostics equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by MAC and is shown as the 3rd position code of the SMR code.

i. Repair. The application of maintenance services including fault location, troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00".

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2.)

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C	-----	Operator or crew
O	-----	Organizational maintenance
F	-----	Direct Support Maintenance
H	-----	General Support Maintenance
L	-----	Specialized Repair Activity (SRA)
D	-----	Depot Maintenance

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National Stock Number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

a. Column 1, Reference Code. The code recorded in Column 6, Section II.

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART

FOR

M267 LIQUID AIRBURST PROJECTILE LAUNCHER

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	3) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIP	(6) REMARKS
			C	O	F	H	D		
00	M267 Liquid Airburst Projectile Launcher	Inspect	0.1	0.2					
		Service	0.2	0.3				1	
		Test	0.3						
		Replace		0.2					
		Repair		0.3					

**Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
M267 LIQUID AIRBURST PROJECTILE, LAUNCHER**

(1) Tool and Test Equipment Reference Code	(2) Maintenance Category	(3) Nomenclature	(4) National Stock Number	(5) Tool Number
1	C	Test Set, Blasting Cap, M51	4925-00-999-3454	

Section IV. REMARKS

Not Applicable

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section 1. INTRODUCTION

C-1 . SCOPE.

This appendix lists components of end item and basic issue items for the launcher to help you inventory items required for safe and efficient operation.

C-2. GENERAL.

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the launcher in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the launcher during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

C-3. EXPLANATION OF COLUMNS.

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

Section I. INTRODUCTION - Continued

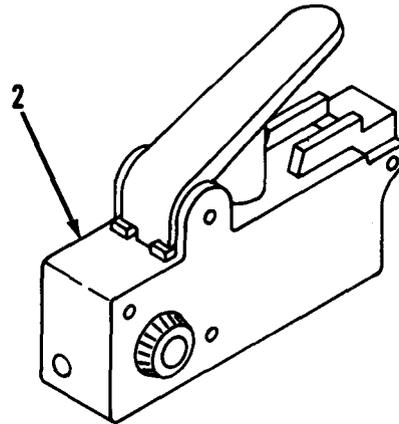
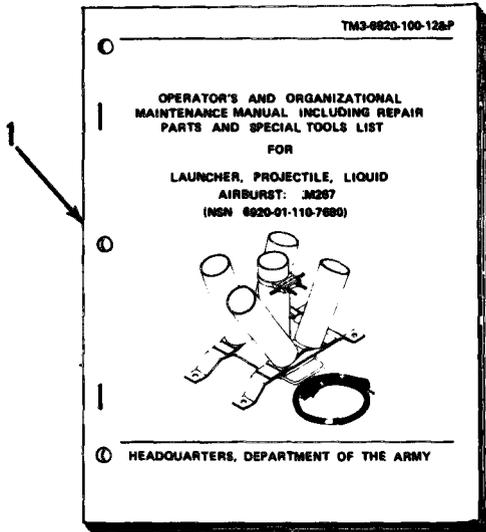
b. Column (2) - National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr).

e. Column (5) - Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. Not Applicable.



Section III. BASIC ISSUE ITEMS

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) Usable on Code U/M	(5) Qty Rqr.
1		TM 3-6920-100-12&P, Operator's and Organizational Maintenance Manual Including Repair Parts and Special Tools List for Launcher, Projectile, Liquid Airburst: M267	ea	1
2	4925-00-999-3454	Test Set, Blasting Cap, M51 (19203) 9227694	ea	1

APPENDIX D
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

D-1. SCOPE.

This appendix lists additional items you are authorized for the support of the launcher.

D-2. GENERAL.

This list identifies items that do not have to accompany the launcher and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, OR JTA.

D-3. EXPLANATION OF LISTING.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you. If the item you require differs between serial numbers of the same model, effective serial numbers are shown in the last line of the description.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM & PART NUMBER USABLE ON CODE	(3) U/M	(4) QTY AUTH
<u>MTOE AUTHORIZED ITEMS</u>			
1375-00-141-9495	Blasting Machine (19203) R7MPA or	ea	
1375-00-567-0223	Blasting Machine, 50 Cap, M34 (19200) 9312773 DODAC 1315-M779	ea	1

APPENDIX E

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE.

This appendix lists expendable/durable supplies and materials you will need to operate and maintain the launcher. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

E-2. EXPLANATION OF COLUMNS.

a. Column(1)- Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e. g., "Detergent, General purpose, item 5, app E").

b. Column(2)- Level. This column identifies the lowest level of maintenance that requires the listed item,

C - Operator/Crew

O - Organizational Maintenance

c. Column(3)- National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column(4)- Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column(5)- Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e. g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II - EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	8105-00-142-9345	Bag, Sand Plastic, Polypropylene Single Wall A4 Flat (81349) MIL-B-52472	hd
2	C	6140-01-068-8572	Battery, Storage (80058) BB-649A/A	ea
3	O	7920-00-234-9317	Brush, Sanitary (81348) H-B-481	ea
4	C	8305-00-222-2423	Cloth, Cheesecloth Cotton Basic (81348) CCCC440	yd
5	O	7930-00-282-9699	Detergent, General Purpose (81349) MIL-D-16791	gl
6	C	5110-00-240-5943	Knife, Pocket (81348) GGG-K-484D	ea
7	C	6680-00-833-7010	Meter, Air Velocity (04024) 5100-454	ea
8	C	5120-00-237-6985	Screwdriver, Flat-tip (56161) 10510988	ea
9	C	1370-01-112-2800	Simulator, Projectile, Airburst, Liquid: M11 (81361) C15-12-337 DODAC 1370-L630	ea
10	O	5120-00-264-3795	Wrench, Adjustable (99993) 41 W10TYPEJ	ea

APPENDIX F
OPERATOR'S AND ORGANIZATIONAL MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

F-1. SCOPE.

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of operator's and organizational maintenance of the Launcher. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the Source, Maintenance and Recoverability (SMR) codes.

F-2. GENERAL.

This Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in NSN sequence.

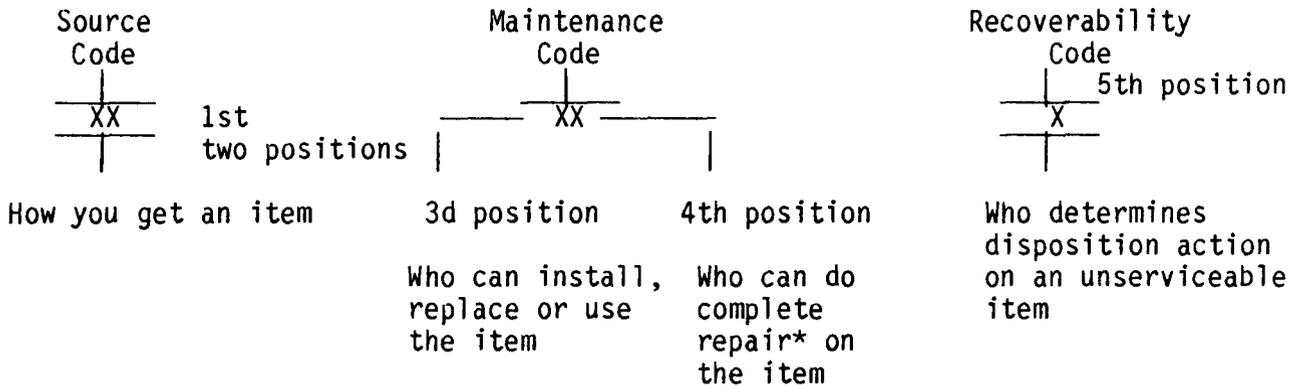
b. Section III. Special Tools List. Not applicable.

c. Section IV. National Stock Number and Part Number Index. A list in National Item Identification number (NIIIN) sequence, of all National Stock numbers (NSN) appearing in the listings; followed by a-list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

F-3. EXPLANATION OF COLUMNS (Section II).

a. ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR CODE (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instructions, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all the corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Source codes are always the first two positions of the SMR code. Explanations of source codes follow:

Code	Explanation
PA	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR code.
PB	
PC**	
PD	
PE	
PF	
PG	
	** Note: Items coded PC are subject to deterioration.
KD	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3d position of the SMR code. The complete kit must be requisitioned and applied.
KF	
KB	
MO - (Made at erg/ AVUM Level)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODEE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the 3d position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
MF - (Made at DS/ AVIM Level)	
MH - (Made at GS Level)	
ML - (Made at Spe- cialized Repair Act (SRA))	
MD - (Made at Depot)	

Code	Expl anati on
A0 - (Assembled by org/AVUM Level)	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3d position code of the SMR code authorizes you to replace the item, but the source code indicates the items is assembled at a higher level, order the item from the higher level of maintenance.
AF - (Assembled by DS/AVIM Level)	
AH - (Assembled by GS Level)	
AL - (Assembled by SRA)	
AD - (Assembled by Depot)	
XA - Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)	
XB - If an "XB" item is not available from salvage, order it using the FSCM and part number given.	
XC - Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.	
XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.	

NOTE: Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 700-42.

(2) Maintenance Code. Maintenance codes tell you the category(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

Code	Appl i cati on/Expl anati on
c	- Crew or operator maintenance done within organizational or aviation unit maintenance.
o	- Organizational or aviation unit level can remove, replace, and use the item.
F	- Direct support or aviation intermediate level can remove, replace, and use the item.

Code	Application/Explanation
H	- General support category can remove, replace, and use the item.
L	- Specialized repair activity can remove, replace, and use the item.
D	- Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions). (NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes.

Code	Application/Explanation
o	- Organizational or aviation unit is the lowest level that can do complete repair on the item.
F	- Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	- General support is the lowest level that can do complete repair of the item.
L	- Specialized repair activity is the lowest level that can do complete repair of the item.
D	- Depot is the lowest level that can do complete repair of the item.
z	- Nonreparable. No repair is authorized.
B	- No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item.) However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

(3) Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR Code as follows:

Recoverability Codes	Application/Explanation
Z	- Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR Code.
0	- Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit level.
F	- Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	- Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	- Reparable item. When beyond lower level repair capability return to depot. Condemnation and disposal of item not authorized below depot level.
L	- Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	-Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. FSCM (Column (3)). The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. PART NUMBER (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

NOTE : When you use a NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. DESCRIPTION AND USABLE ON CODE (Column (5)). This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) the statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in both Section II and Section III.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

F-4. EXPLANATION OF COLUMNS (Section IV).

a. NATIONAL STOCK NUMBER (NSN) INDEX.

(1) STOCK NUMBER column. This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN (i.e. 5305-01-674-1467). When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

(2) FIG. column. This column lists the number of the figure where the item is identified/locate. The figures are in numerical order in Section II and Section III.

(3) ITEM column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in numeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) FSCM column. The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(2) PART NUMBER column. Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

(3) STOCK NUMBER column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and FSCM columns to the left.

(4) FIG. column. This column lists the number of the figure where the item is identified/located in Section II and III.

(5) ITEM column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

F-5. SPECIAL INFORMATION. Use the following subparagraphs as applicable:

a. INDEX NUMBERS. Item which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the National Stock Number/Part Number and the bulk material list in Section II.

F-6. HOW TO LOCATE REPAIR PARTS.

a. When National Stock Number or Part Number is Not Known:

(1) First. Using the table of contents, determine the assembly group or subassembly-group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and note the item number.

(4) Fourth. Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

b. When National Stock Number or Part Number is Known:

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification number (NIIN) sequence (see 4a.(1)). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see 4.b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

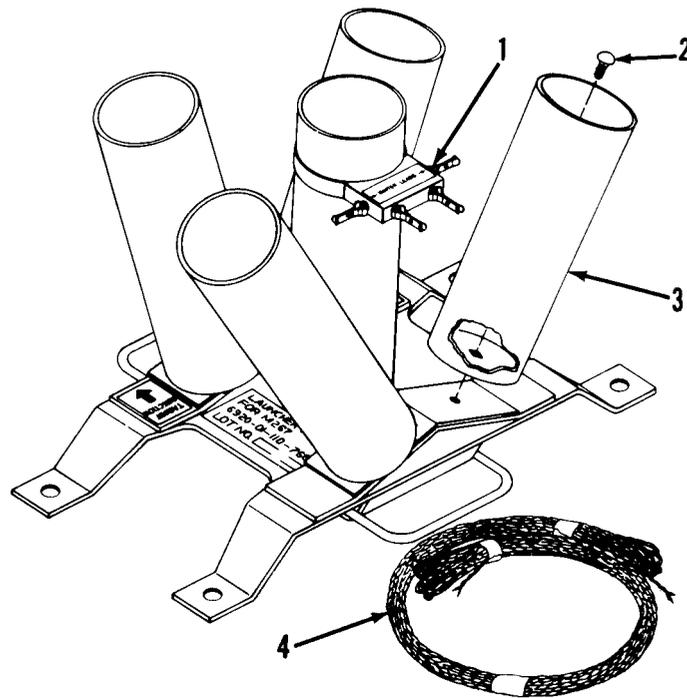


Figure F-1. M267 Liquid Airburst Projectile Launcher

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 00 LAUNCHER, PROJECTILE, LIQUID AIRBURST: M267	
				FIGURE 1. M267 LIQUID AIRBURST PROJECTILE LAUNCHER C13-12-145	
1	PA0ZZ	81361	D13-12-146	CLAMP AND CONTACT, E R	1
2	PA0ZZ	96906	MS35751-16	BOLT, SQUARE NECK.	1
3	PA0ZZ	81361	D13-12-141	TUBE, LAUNCHER	1
4	PA0ZZ	80063	WD1A-1-2MILE	CABLE, TELEPHONE	164

END OF FIGURE

Section III - SPECIAL TOOLS LIST

Not Applicable

SECTION IV

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	NATIONAL STOCK NUMBER INDEX		STOCK NUMBER	FIG.	ITEM
	FIG.	ITEM			
5306-00-845-7961	F-1	2			
6145-01-041-9989	F-1	4			
6920-01-207-8713	F-1	1			
6920-01-208-1685	F-1	3			

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		STOCK NUMBER			
81361	D13-12-141	6920-01-208-1685		F-1	3
81361	D13-12-146	6920-01-207-8713		F-1	1
96906	MS35751-16	5306-00-845-7961		F-1	2
80063	WD1A-1-2MILE	6145-01-041-9989		F-1	4

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PUBLICATION TITLE
Launcher, Projectile, Liquid
Airburst: M267

BE EXACT. PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-8	2-4b		
4-6	4-7		

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

Change: Remove faucet (10) from bag

TO: Remove faucet (12)...

REASON: Illustration shows callout (12) pointing to faucet.

Procedure tells to clean launcher with a brush but does not tell where to get it. Please furnish NSN for the brush.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
E. M. LAWSON
TECH WRITER, AV 584-4415

SIGN HERE
E. M. Lawson

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Launcher, Projectile, Liquid
Airburst: M267

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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

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