TM 9-1265-368-10-3
Supersedes copy dated 22 January 1982

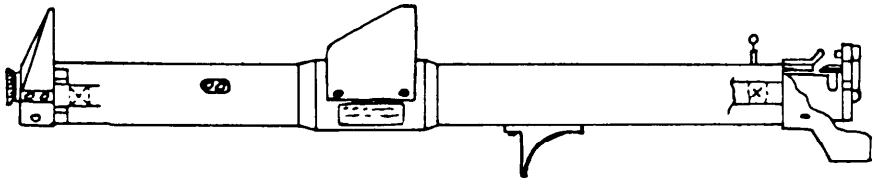
OPERATOR'S MANUAL

MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM (MILES)

SIMULATOR SYSTEM, FIRING LASER: M68 (NSN 1265-01-077-6079)

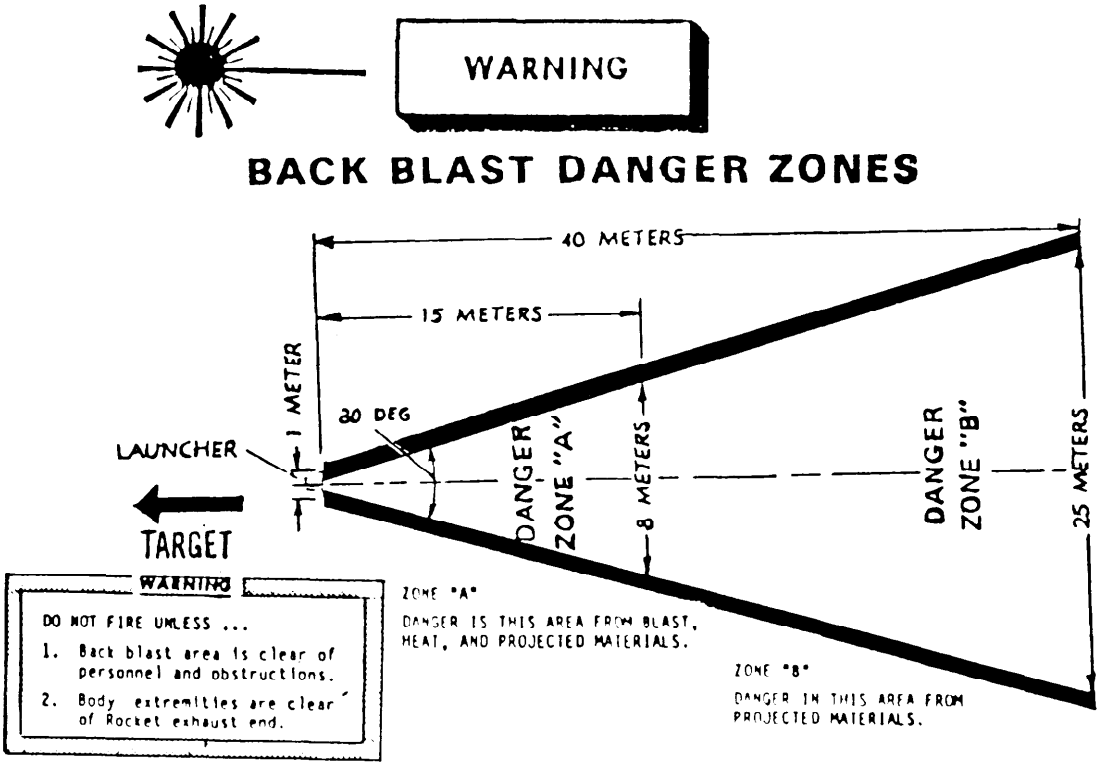
FOR

VIPER ROCKET



HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1988



NEVER STAND WITHIN THE DANGER ZONE WHILE LOADING THE ATWESS. ALWAYS STAND TO THE RIGHT SIDE OF THE REAR OF THE LAUNCHER. AFTER THE CARTRIDGE IS INSERTED INTO THE CHAMBER, KEEP HANDS, ARMS, AND OTHER PORTIONS OF THE BODY AWAY FROM THE HOLE IN THE CENTER OF THE BREECH DOUR. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN PERSONNEL BEING BURNED BY THE BACKBLAST ESCAPING THROUGH THE HOLE IN THE CENTER OF THE BREECH DOOR.

NEVER ARM AN ATWESS UNTIL YOU ARE READY TO FIRE.

TREAT THE VIPER/MILES AS YOU WOULD ANY LOADED AND ARMED WEAPON. DO NOT DROP VIPER/MILES WHEN ATWESS IS LOADED AND ARMED. A STRONG JOLT MAY SET OFF THE ATWESS.

HANDLE ATWESS CARTRIDGES WITH THE SAME CARE YOU USE WITH ANY LIVE AMMUNITION.

ALWAYS WEAR EARPLUGS WHEN FIRING THE VIPER/MILES.

ALTHOUGH THE LASER LIGHT FIRED BY MILES EQUIPMENT TRANSMITTERS IS CONSIDERED SAFE BY THE BUREAU OF RADIOLOGICAL HEALTH, SUITABLE PRECAUTIONS MUST BE TAKEN TO AVOID POSSIBLE DAMAGE TO THE EYE FROM OVEREXPOSURE TO THIS RADIATED ENERGY. TAKE THE FOLLOWING PRECAUTIONS:

- NEVER LOOK AT THE LASER EMITTER AT CLOSE RANGE (LESS THAN 12 METERS).
- NEVER LOOK AT THE LASER EMITTER THROUGH OPTICS SUCH AS BINOCULARS, TELESCOPES, OR WEAPON SIGHTS AT RANGES LESS THAN 75 METERS.
- NEVER LOOK AT THE LASER EMITTER DIRECTLY ALONG THE AXIS OF THE BORE OF THE WEAPON.

FOR INFORMATION ON FIRST AID, SEE FM 21-11.

TM 9-1265-368-10-3*

TECHNICAL MANUAL

TM 9-1265-368-10-3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D.C., 15 JULY 1988

OPERATOR'S MANUAL
FOR
MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM (MILES)
SIMULATOR SYSTEM, FIRING, LASER, M68
(NSN 1265-01-077-6079)
FOR
VIPER ROCKET

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 Simulation, Training, and Instrumentation Command (STRICOM), ATTN: AMSTI-LSM, 12350 Research Parkway, Orlando, FL 32826-3276. A reply will be furnished to you.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

TABLE OF CONTENTS

* Supercedes TM 9-1265-368-10-3 dated 22 January 1982, including all changes.

Storage Instructions

Equipment Distribution:

The MILES equipment for the VIPER/MILES is shown in Task 1 of this Technical Manual (TM). Use the picture with Task 1 as a guide for equipment distribution: Be sure to issue a copy of this TM along with the MILES equipment.

Equipment Return and Storage:

CAUTION

MAKE CERTAIN THAT THE MWLD TORSO AND HELMET HARNESSES ARE COMPLETELY DRY BEFORE STORAGE IN TRANSIT CASE.

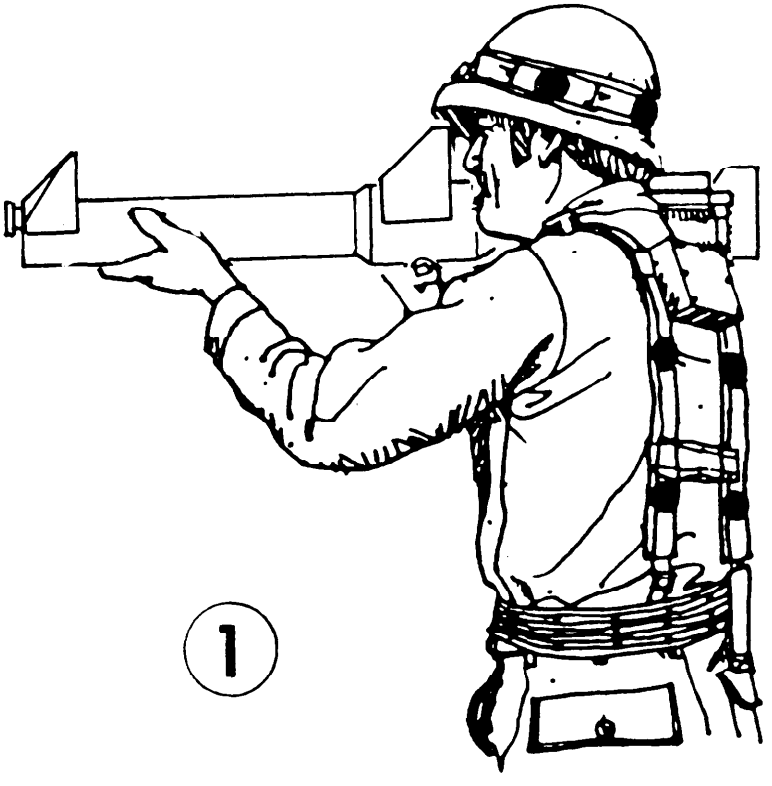
When receiving equipment for storage, always inspect the returned equipment using Task 11 in this TM for guidance.

Return all MILES equipment and the TMs to their transit cases.

Special Instructions for Infrequently Used Equipment:

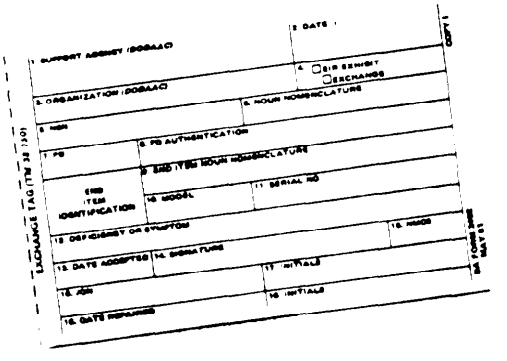
If VIPER/MILES equipment is unused for 60 days, remove from transit case and perform Tasks 1, 2, and 11 in this TM.

Skills Needed To Use This Manual



1

2



TO USE THIS MANUAL, YOU SHOULD BE ABLE TO:

1. Operate a VIPER.

2. Complete DA Form 2402.

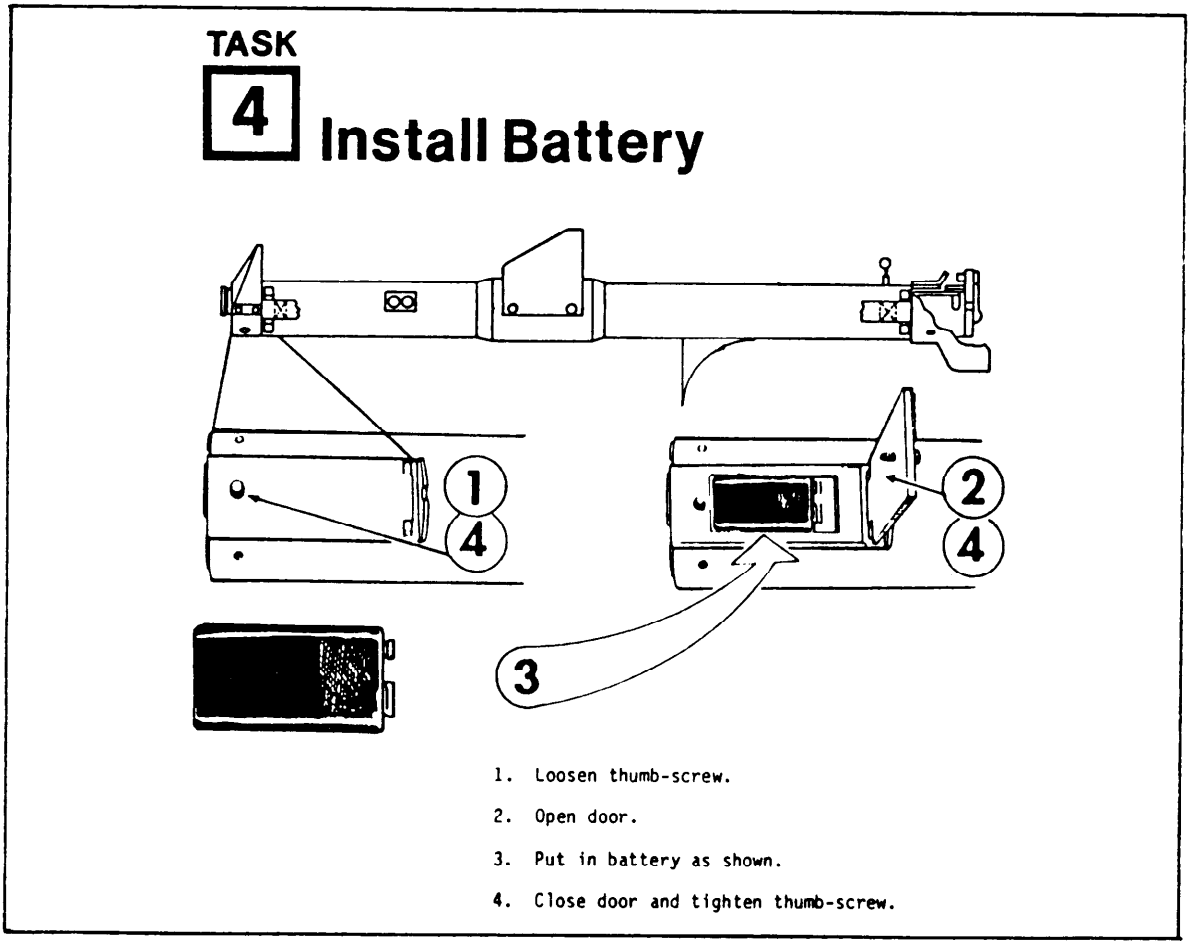
If you can NOT do these tasks, ask your NC0 instructor to show you how. When you can do these tasks, go on to the next page.

VIPER operators also carry the M16A1 rifle and wear a Man-Worn Laser Detector assembly (MWLD). Instructions for using the M1GA1/MILES and the MWLD are found in TM 9-1265-370-10-1.

How to Use This Manual

Before you use any VIPER/MILES equipment, read this manual.

- The first part of the manual briefly explains the purpose of the equipment and how it is used.
- Then comes step-by-step guidance for every task you need to do with the VIPER/MILES equipment.



- The task pages look like this. Some longer tasks run more than one page. Before you begin a task, read all of the steps in that task and look at each drawing carefully. To help perform the task, some steps have matching numbers in the drawings. Do each step just the way you are instructed.

- Do each task in the order it occurs in the manual.

  - DON'T JUMP AHEAD - DON'T SKIP ANY STEPS -

- If your equipment has a problem you can't fix using this manual, report it on DA Form 2402. To get a replacement, turn in the faulty equipment and the completed DA Form 2402 to your NCOIC.

- In the back of this manual is a list of abbreviations and an explanation of terms used in this manual. If you read a word you don't understand, check pages 28-29 for an explanation.

General Information

This manual shows you how to operate and maintain the VIPER/MILES laser simulator equipment. The operator and maintenance tasks are listed in the Table of Contents on i and ii.

Purpose of Equipment:

The VIPER/MILES simulator has a battery-powered laser transmitter in the front of the tube and an Anti-tank Weapon Effects Signature Simulator (ATWESS) assembly in the rear of the tube. The simulator allows realistic combat training without the hazards of using live ammunition.

Forms and Records:

a. Reports of Maintenance or Equipment Replacement.

   Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 733-750, The Army Maintenance Management System (TAMMS).

b. Reporting Equipment Improvement Recommendations (EIRs).

   EIRs can and must be submitted by anyone who is aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show a new design or list a better way to perform a procedure, just simply tell why the design is unfavorable or why a procedure is difficult. EIRs may be submitted on SF 368. Mail directly to: Commander, U.S. Army Armament, Munitions and Chemical Command, ATTN: AMSMC-QAD, Rock Island, IL 61299-6000. A reply will be furnished to you.

c. Hand Receipts Manual.

Hand receipts for Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorizational List (AAL) items are published in a Hand Receipt manual, TM 9-1265-368-10-3-HR. This manual is published to aid in property accountability and is available through: Commander, the U.S. Army Adjutant General Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.

Equipment Description

Capabilities and Features:

Major features of the VIPER/MILES are:

a. Eye-safe laser transmitter mounted in forward end of simulated VIPER tube.

b. Anti-tank Weapon Effects Signature Simulator (ATWESS) mounted inside of rear end of VIPER tube.

The VIPER/MILES can be operated in temperatures from -35°C (-31°F) to 62°C (144°F). It permits tactical skills to be practiced under realistic conditions.

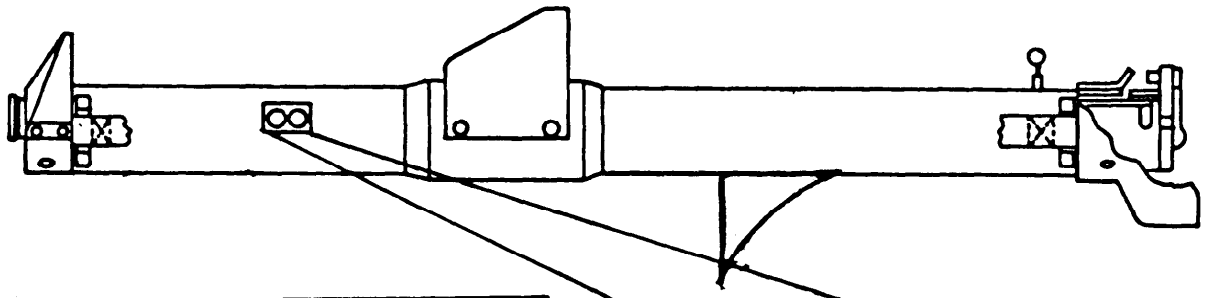
The laser transmitter sends harmless, invisible laser (light) beams toward the target. If the laser beam hits the target, detector assemblies on the target sense the beam and cause an alarm to sound. In addition, if the target is a vehicle, an externally-mounted light on the vehicle will flash.

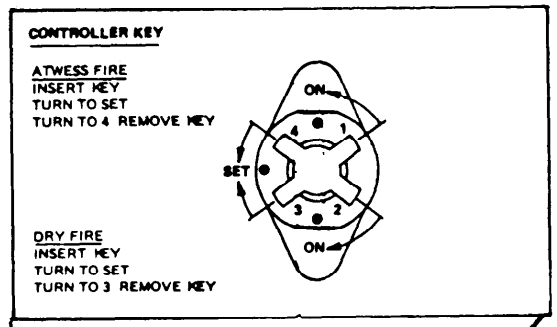
The ATWESS device provides a realistic weapon signature, including muzzle flash, noise, and backblast smoke.

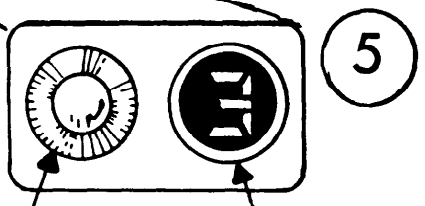
Battery Information:

The VIPER/MILES uses a BA-3090/U, 9 volt alkaline battery which provides approximately 100 hours of power.

LOCATION OF COMPONENTS



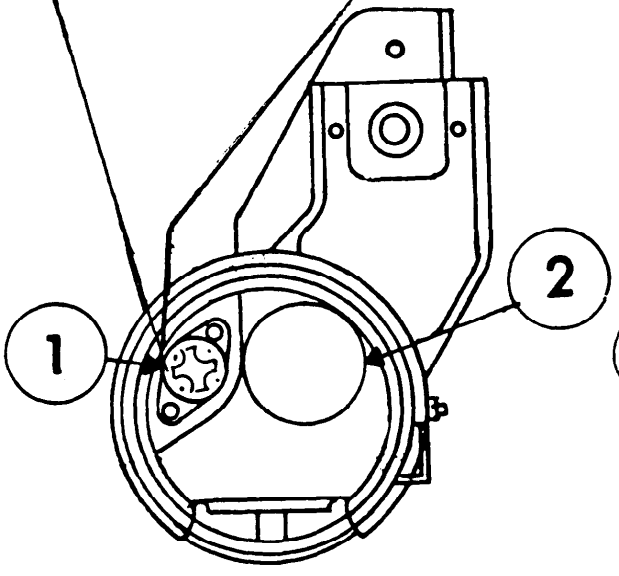




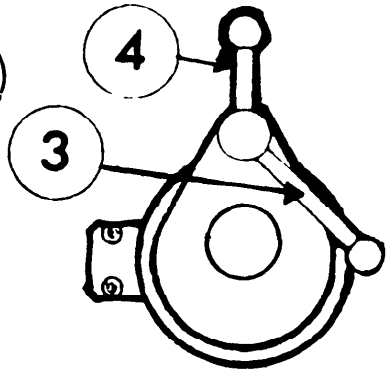
"Rounds Remaining" Button

Display

1. Key Receptacle
2. Laser Transmitter Lens
3. ATWESS Breech Lock Lever
4. ATWESS Safety Lever
5. Rounds Remaining Indicator Panel



Front of Launcher



Rear of Launcher

How it Works:

The VIPER/MILES works much like a real VIPER. However, instead of firing a rocket, the VIPER/MILES fires a harmless invisible laser (light) beam at targets. To make the VIPER/MILES as real as possible, another device called the ATWESS provides a backblast similar to the actual VIPER rocket, so observe normal backblast safety rules (see inside front cover). Because each squad normally carries four VIPERS, each VIPER/MILES is equipped to fire four laser rounds. This means you have a basic store of four rounds instead of your usual single shot capability.

The VIPER/MILES differs from the real VIPER in that a single piece launch tube is used, therefore extension of the tube is not required.

How the VIPER/MILES is Used:

After the VIPER/MILES has been tested to be sure it works, the basic load is set by the Controller using his green key. Then you will be ready for the exercise.

- Load an ATWESS cartridge into the rear of the tube.
- Make sure the backblast area is clear.
- Pull out the ATWESS safety lever to armed position.
- Center the target in the special sighting circle in the front sight.
- Track target and fire, depressing both trigger buttons at the same time.
- You may fire a round every 10 seconds.

You may perform these steps four times to use all four rounds. Because each firing requires an ATWESS cartridge, you need four cartridges for each exercise. To determine the rounds remaining during an exercise, push the "ROUNDS REMAINING" display button. (See Task 8). The rounds counter shows the rounds remaining.

The VIPER/MILES also has a "Dry Fire" (non-ATWESS) mode. To fire the transmitter without using an ATWESS cartridge, the controller key must be inserted and turned to the DRY FIRE position.

The VIPER/MILES operator wears a harness equipped with a laser detector assembly and alarm. If opposing forces fire a MILES-equipped weapon at the VIPER/MILES operator, one of two things will happen.

- The MWLD alarm sounds for one second. Take cover; a near miss has been scored.
- The alarm sounds continuously. You have been "killed." Use your yellow weapon key to shut off the alarm.

Once the alarm sounds, the weapon key must be left in the MWLD assembly harness. If it is removed, the alarm will sound continuously. With the weapon key removed from the transmitter of the M16A1/MILES, it will no longer operate, but another operator may use the VIPER if there are rounds remaining.

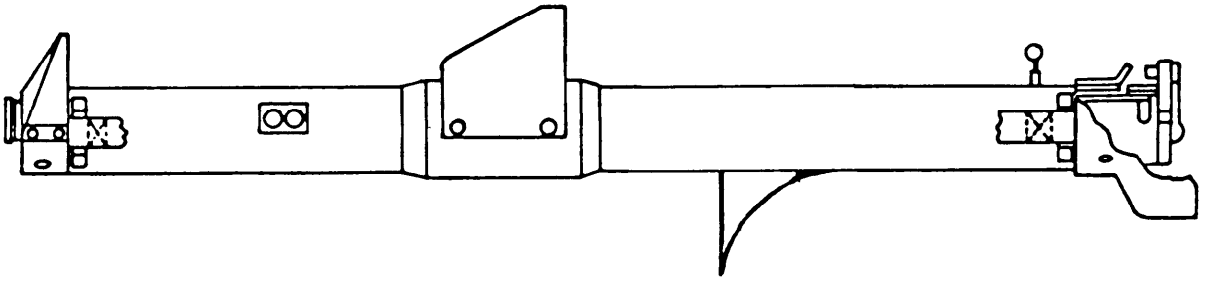
VIPER/MILES targets are armored vehicles, which also carry laser detector assemblies. When the VIPER/MILES laser beam hits an armored vehicle, a yellow CVKI light begins flashing to show that the vehicle has been "hit," "killed," or that the shot was a near miss.

Equipment Limitations :

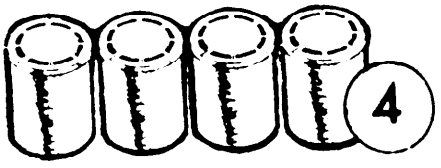
VIPER/MILES has the same range (300 meters) and operational capabilities as the VIPER rocket, but a dirty laser transmitter lens may reduce the effective range of the VIPER/MILES. Although the primary targets for VIPER/MILES are armored vehicles, the VIPER/MILES is also effective against all MILES-equipped vehicles and personnel.

TASK 1 Get This Equipment From Your NCOIC

- Match your equipment with the pictures. Make sure you have everything.



VIPER/MILES SIMULATOR



ATWESS CARTRIDGES

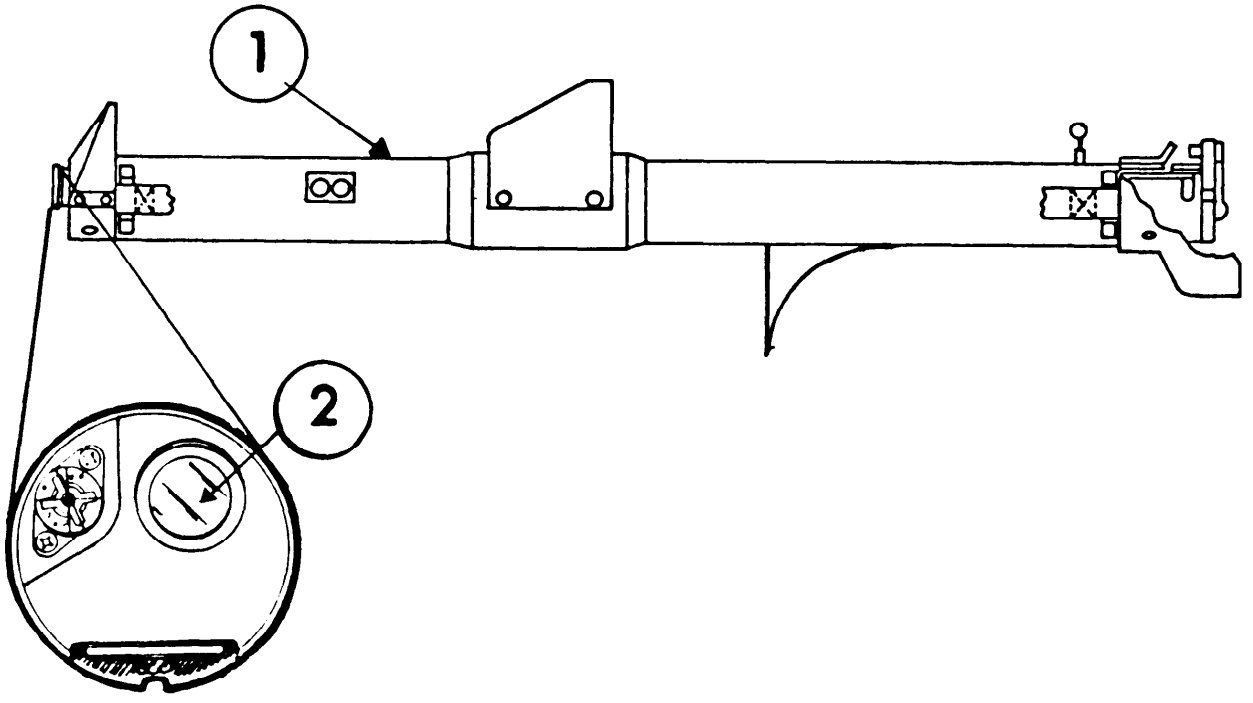
BA-3090/U
9 VOLT BATTERY

WARNING

HANDLE ATWESS CARTRIDGES WITH THE SAME CARE YOU USE WITH ANY LIVE AMMUNITION

- The VIPER/MILES has no weapon key. To shut off the detector alarm, the operator must carry a yellow weapon key. See TM 9-1265-370-10-1 for M16A1/MILES instructions.

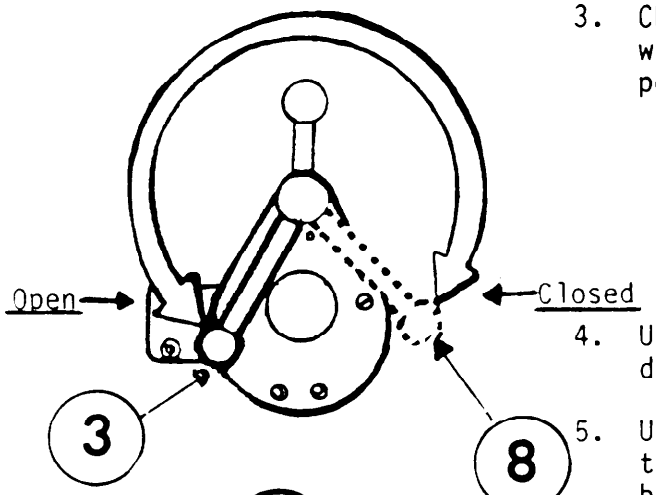
TASK 2 Inspect and Clean VIPER/MILES and ATWESS



1. Inspect VIPER/MILES for any damage that would prevent normal operation. Report any damage on DA 2402 and replace VIPER.

2. Wipe lens paper or a clean, soft cloth on the lens to remove any dirt or oil.

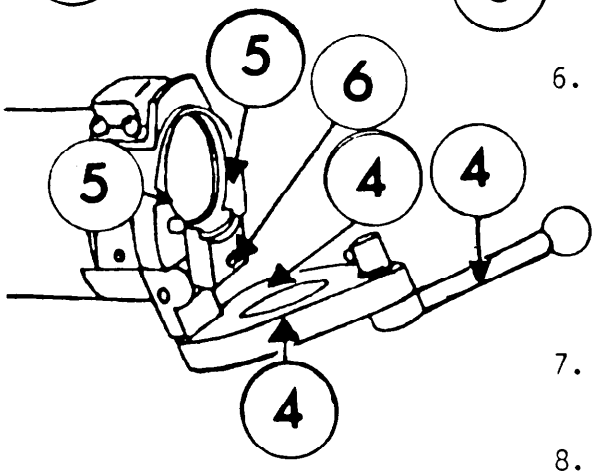
TASK 2



3. Check that the ATWESS breech lock lever will move from closed position to open position.

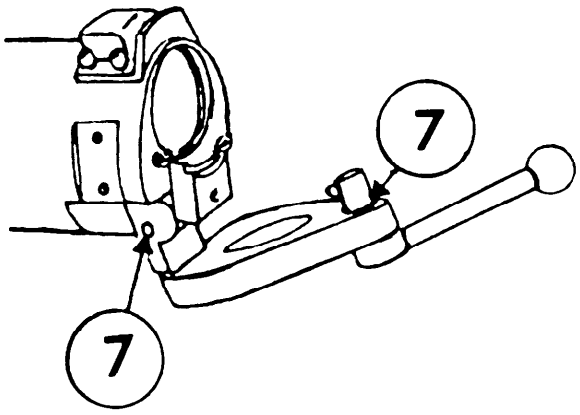
4. Use CLP to clean powder from the breech door and breech lock lever.

5. Use CLP to clean powder from contacts in the breech block. Also, clean the entire breech block.



6. Use CLP to clean powder from the cartridge extractor.

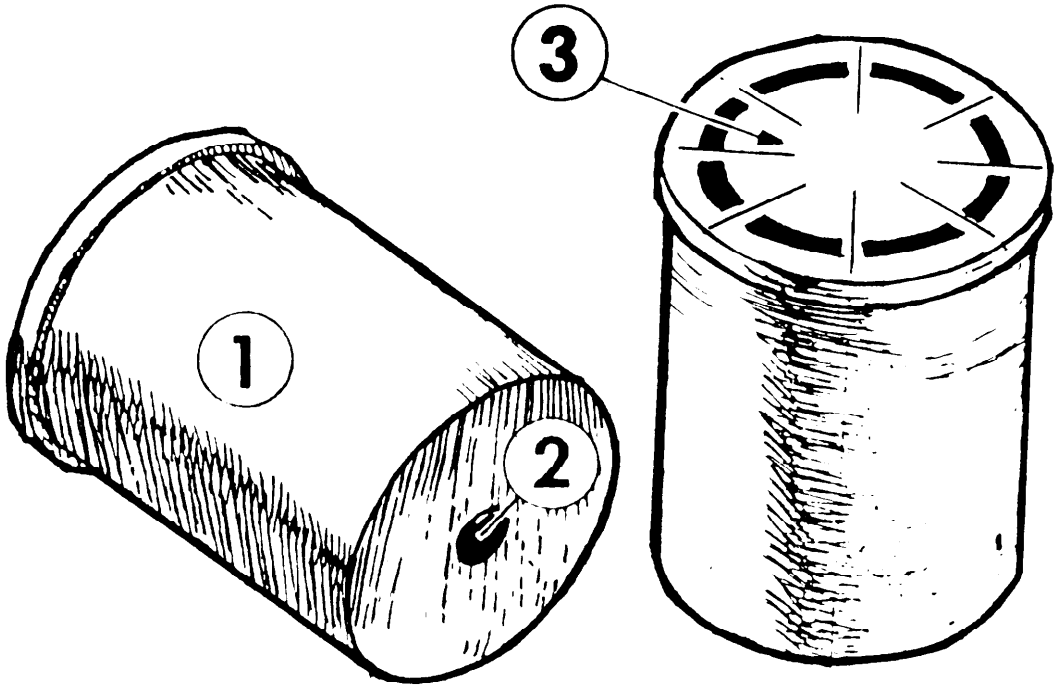
7. Put a drop of CLP at each point shown here.



8. Close the breech door and move the lever to the closed position.

- Report any damage on DA Form 2402, and replace VIPER/MILES.

TASK 3 Inspect ATWESS Cartridges



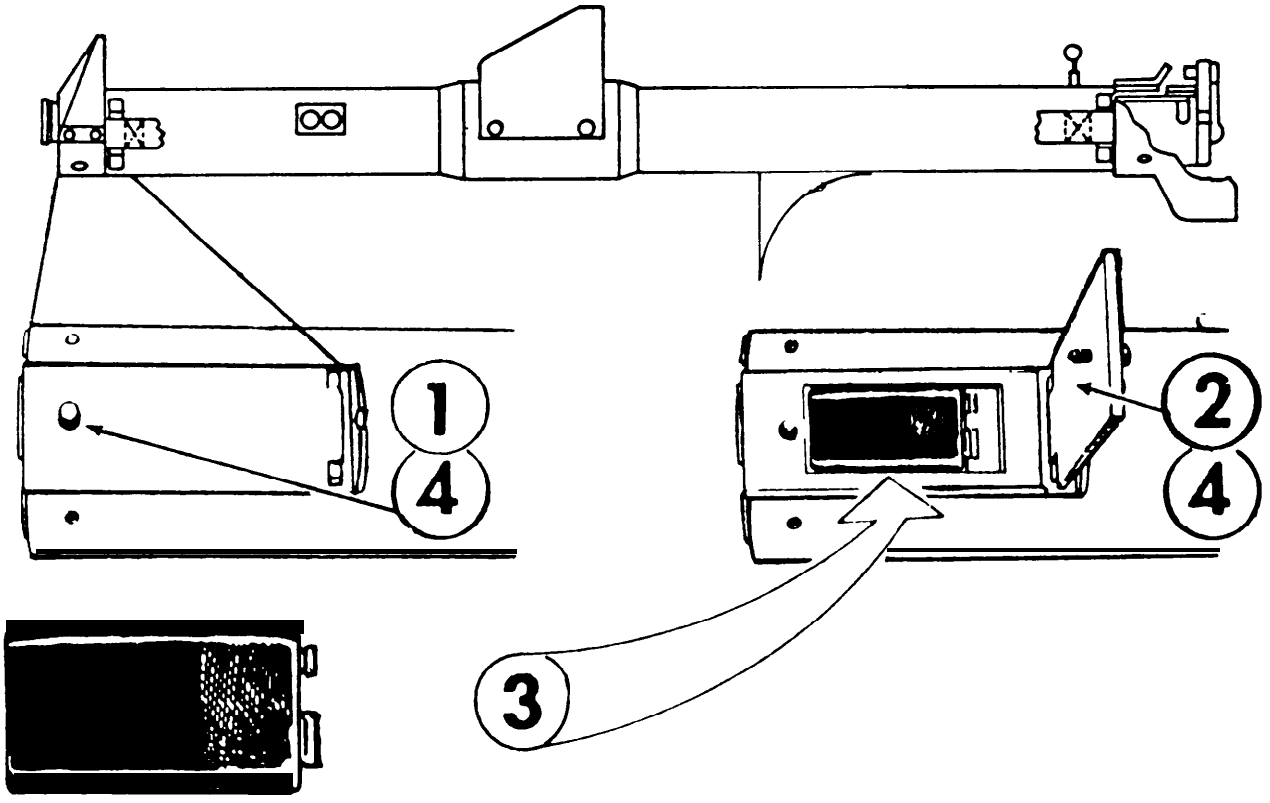
WARNING

HANDLE ATWESS CARTRIDGES WITH THE SAME CARE YOU USE WITH LIVE AMMUNITION.

1. Look for cracks in the plastic cartridge case.
2. Look for a dented primer.
3. Look for tears or punctures in the copper contact disc.
4. Return damaged cartridges to your NCOIC for disposal. Replace damaged cartridges.

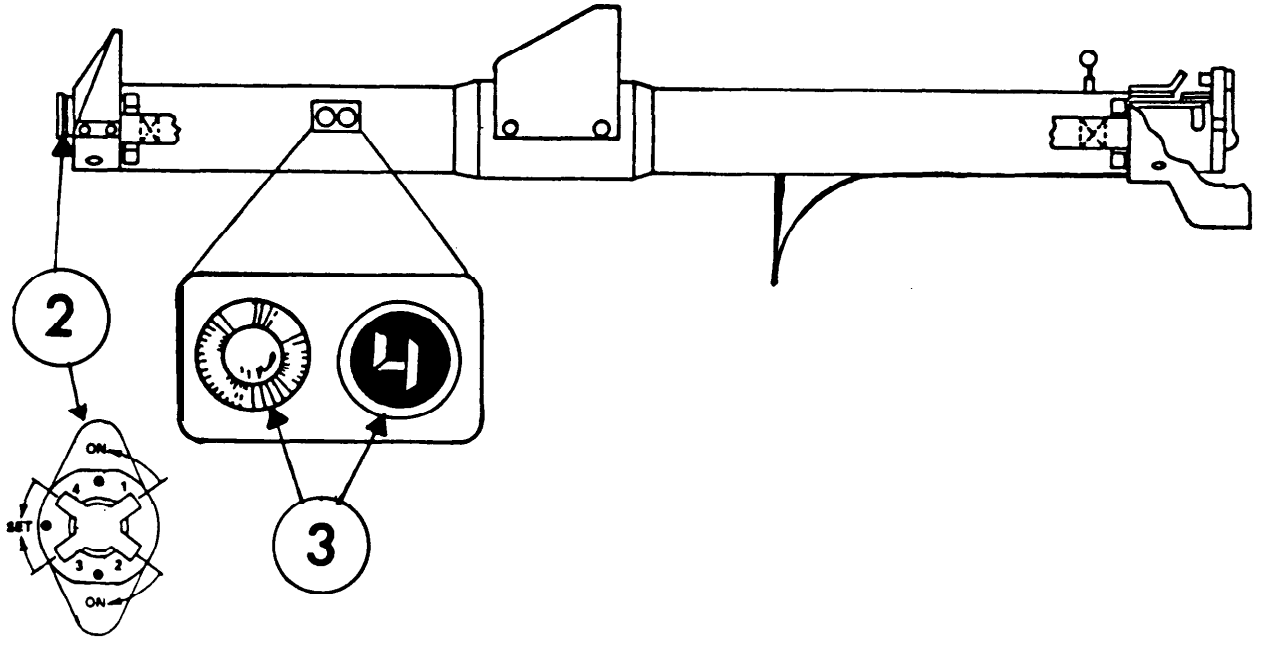
TASK

4 Install Battery



1. Loosen thumb-screw.
2. Open door.
3. Put in battery as shown.
4. Close door and tighten thumb-screw.

TASK 5 Test VIPER/MILES



1. Ask your NCOIC to call the Controller.

2. Ask the Controller to insert green key in transmitter and turn to SET (at the 9 o'clock position), and then to position 3. Remove key.

   - VIPER/MILES is now in the dry-fire mode.

3. Then, press the "Rounds Remaining" push-to-read button. Rounds Counter should show a "4".

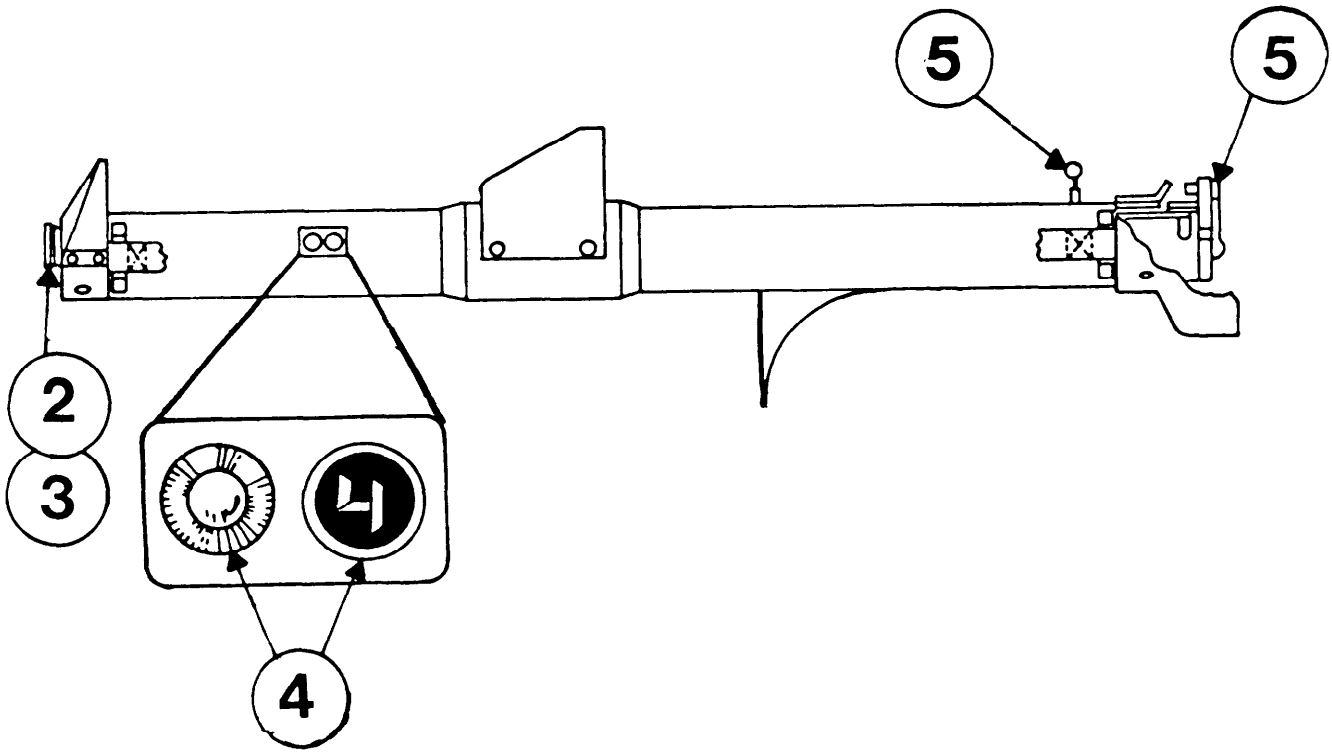
   If you do not see a "4", remove and reinsert the same battery and test again. If you still do not see a "4", remove and install a new battery and test again. If you still do not see a "4", report this failure on a DA Form 2402 and replace the VIPER/MILES.

4. To test transmitter, aim and fire at a nearby man or vehicle target. Make sure that the target has an operating MILES system.

5. The target MILES system should show a "near miss," "hit," or "kill" indication.

TASK 6

Set VIPER/MILES for ATWESS Fire



1. Ask your NCOIC to call the Controller.

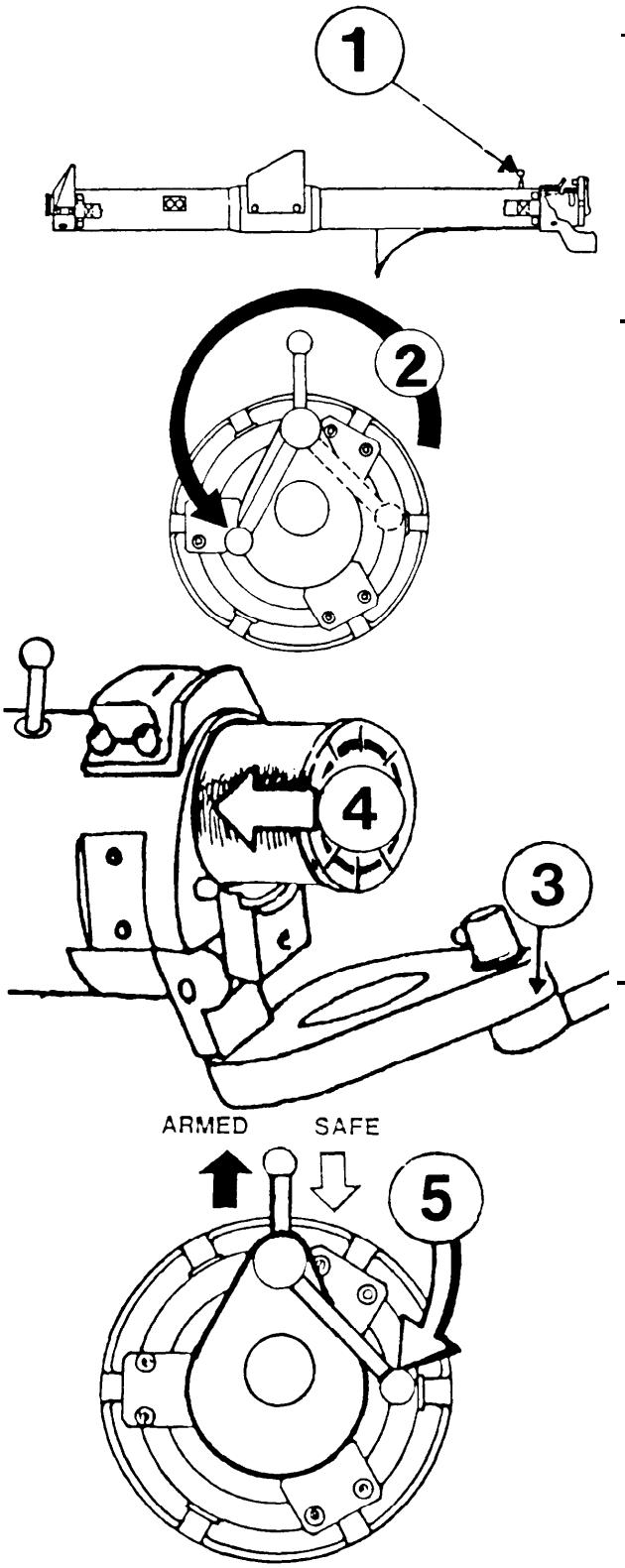
2. Ask the Controller to insert green key in transmitter and turn to SET.

3. Ask the Controller to turn key to position 4 and remove key.

4. Press "Rounds Remaining" button. Rounds Counter should show a "4".

5. The VIPER/MILES is now in the ATWESS mode. You cannot fire the laser transmitter unless an ATWESS cartridge is loaded and the ATWESS safety lever is in the ARMED position.

TASK 7 Load ATWESS



WARNING

Treat the VIPER/MILES as you would any loaded and armed weapon. Do not drop VIPER when ATWESS is loaded and armed. A strong jolt may set off the ATWESS.

A loaded ATWESS will always fire when the VIPER/MILES is fired in the ATWESS mode.

Do NOT do this task unless you are ready to fire.

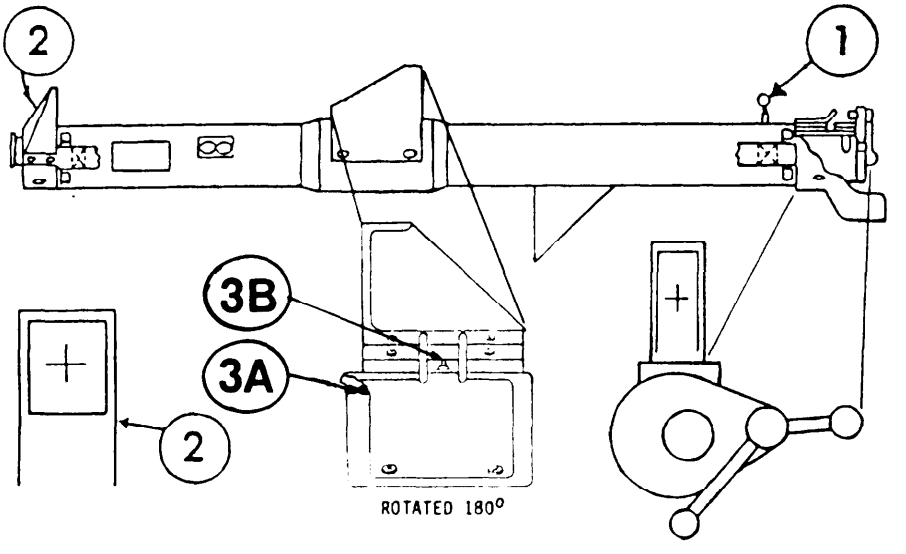
1. Push SAFE/ARM lever to "SAFE" position.
2. Move the breech lock lever to the open position.
3. Open the breech door as far as it goes. This cocks the ATWESS. Visually check to see if the firing pin is protruding. If unsure, use one hand to feel if the firing pin has retracted to its full length. If the firing pin is protruding, or has not retracted to its full length, tag the weapon as unsafe, and return it to its point of issue.
4. Insert an ATWESS cartridge.

WARNING

Failure to follow these instructions could result in personnel being burned by the backblast escaping through the hole in the center of the breech door.

5. Standing to the right side of the rear of the launcher, face away from the target and, using the right hand, close the breech door and move the breech lock lever to the closed position.

TASK 8 Fire VIPER/MILES



WARNING

Do not drop an armed VIPER/MILES. A strong jolt may trigger the ATWESS and cause physical injury.

Use normal backblast safety precautions (see inside front cover).

Always wear earplugs when firing the ATWESS.

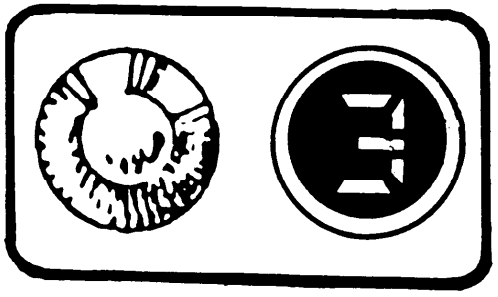
Do not stand behind ATWESS when moving SAFE/ARM lever to either position.

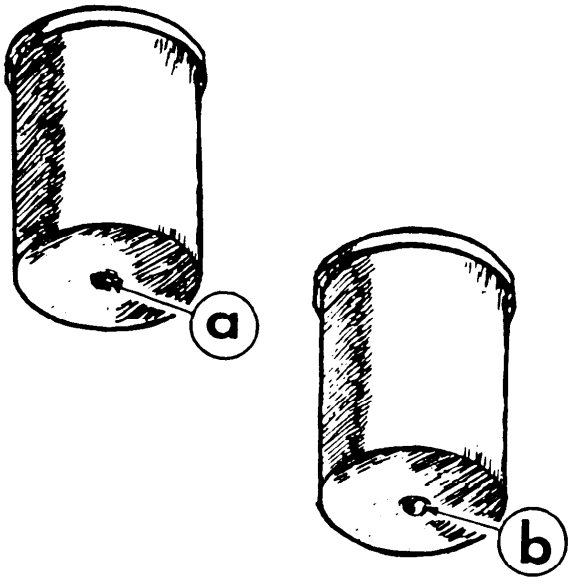
1. Put AWESS safety in ARMED position.
2. Aim the VIPER by centering your target in the circle on the front sight.
3. Squeeze the hold safety trigger (A) with your thumb while squeezing main trigger (B) with finger to fire both the laser beam and ATWESS.

If ATWESS does not fire, see next page for instructions.

4. Eject spent ATWESS cartridge. Close and lock breech door.
5. To refire, load and arm the ATWESS. You may not fire faster than one round every 10 seconds.

TASK 8 FIRE VIPER/MILES(CONT'D)





IF ATWESS DOES NOT FIRE:

1. Place ATWESS safety lever in SAFE position.

2. Remove ATWESS cartridge from ATWESS.

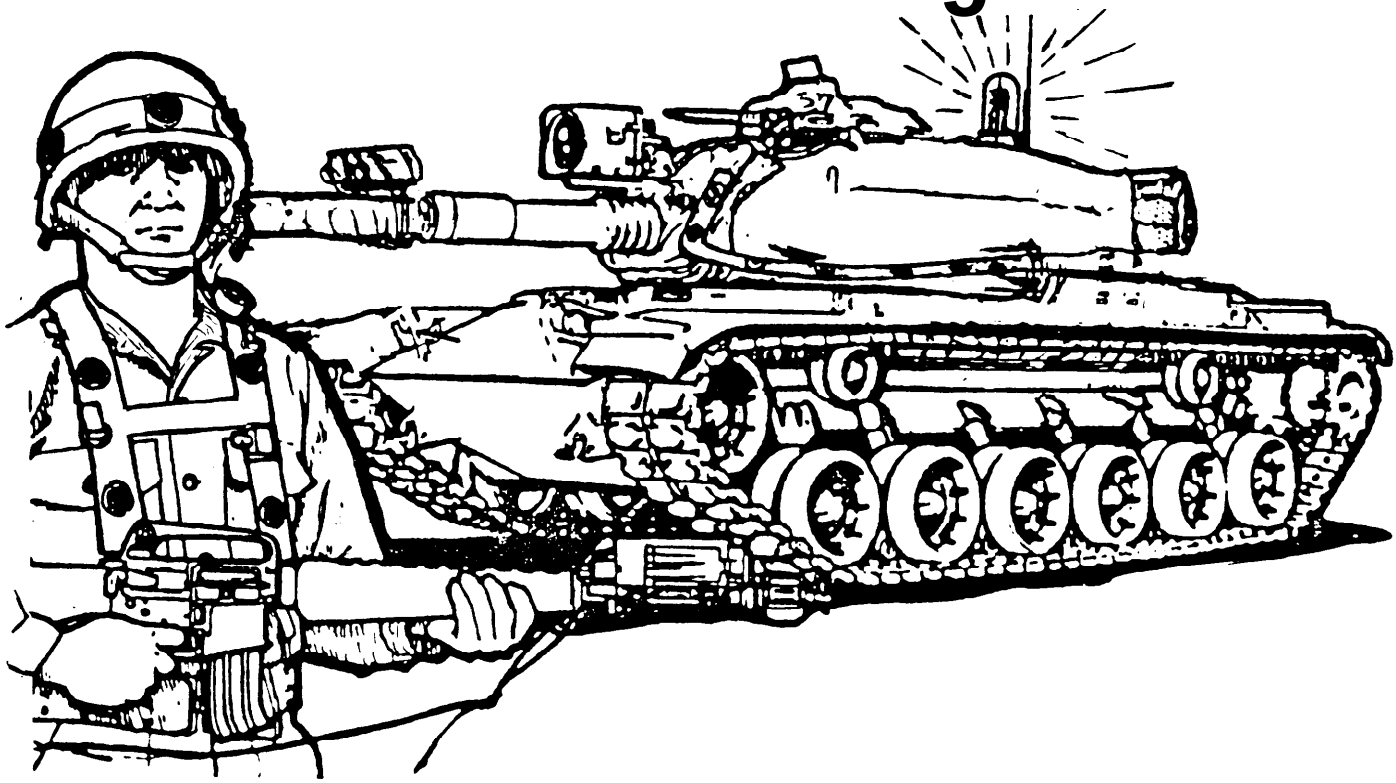
   a. INSPECT the cartridge primer. If dented treat the cartridge as a DUD. REPORT THE DUD CARTRIDGE TO YOUR NCOIC FOR DISPOSAL.

   b. PRESS the PUSH TO READ switch. CHECK the rounds remaining display. If WEAK, replace the battery in the transmitter [see TASK 4).

3. Reload ATWESS cartridge and repeat firing sequence. If ATWESS does not fire, report on DA Form 2402 and replace the VIPER/MILES.

TASK

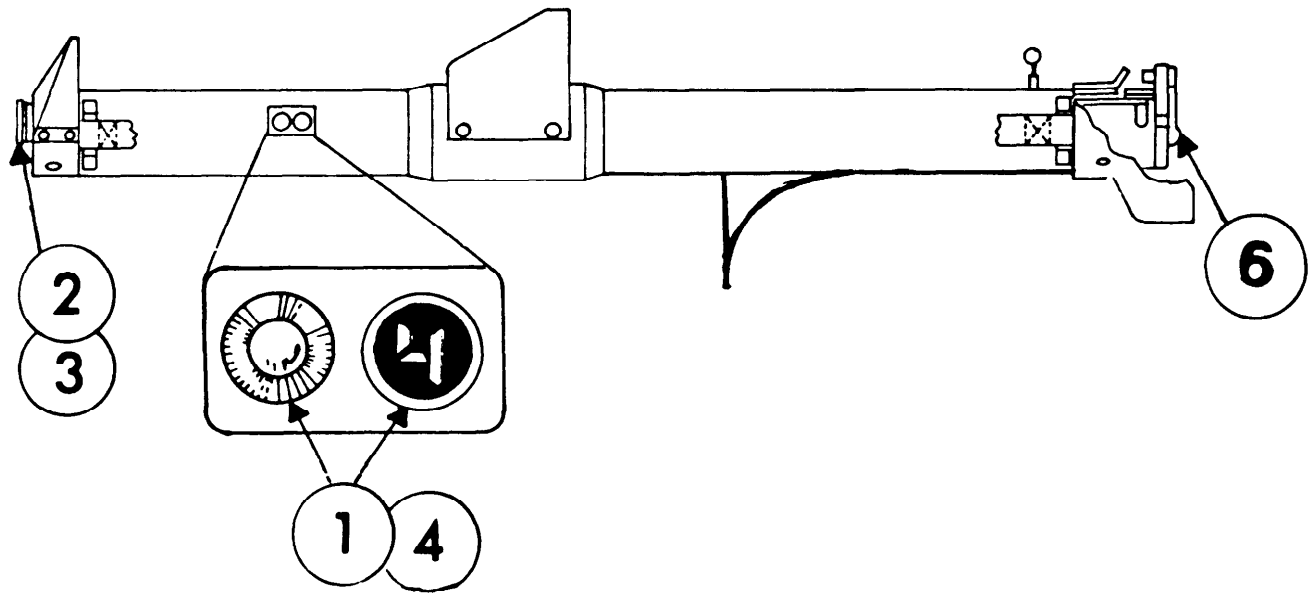
9 Observe Your Target



- When detectors are hit by laser fire, a CVKI light on top of vehicles will flash and alarms on personnel MWLDs will sound. Usually, you will not be close enough to hear the personnel alarms, but you should be able to see the vehicle CVKI lights.
- If you "kill" a target vehicle, the CVKI light flashes continuously.
- If a target vehicle is "hit" but not "killed," the CVKI light will flash four to six times.
- If a target vehicle is "near missed, " the CVKI light will flash two to three times.

TASK 10

Reset VIPER/MILES



1. When rounds counter shows "0," ask your NCOIC to call the Controller to restore your basic load.

2. Ask the Controller to insert his green key and turn it to SET.

3. Ask the Controller to set your weapon for ATWESS fire.

4. Check to make sure your rounds counter shows a "4".

NOTE

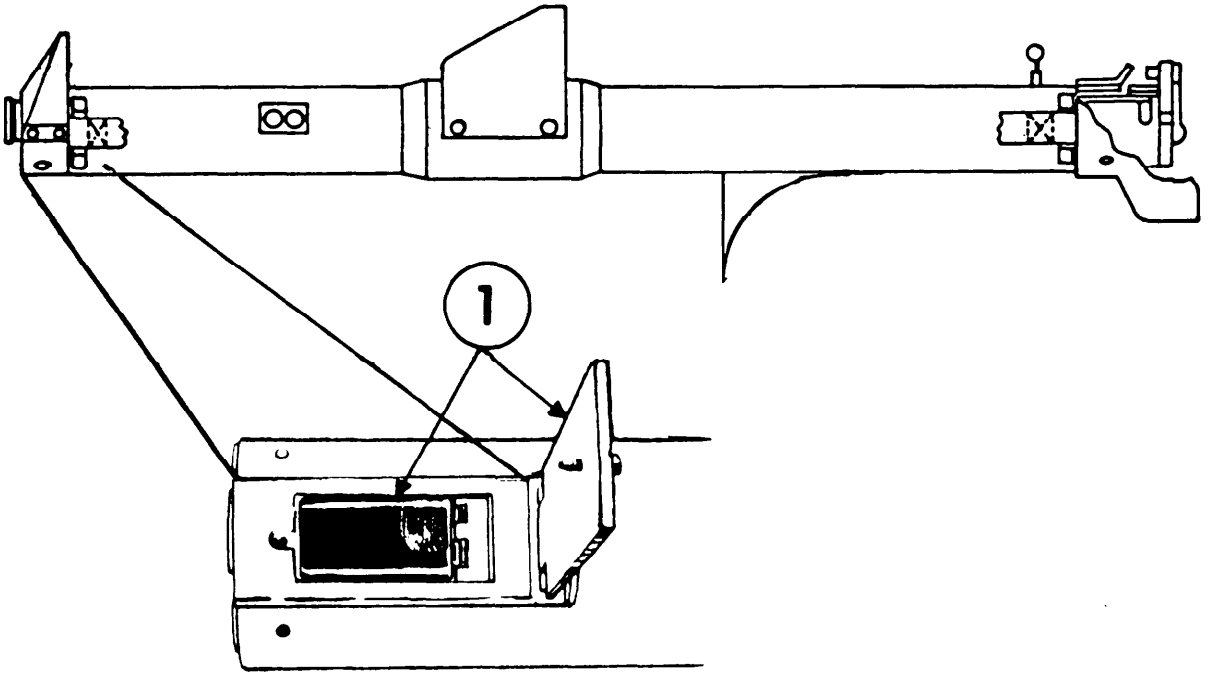
If the rounds counter does not show a "4," replace the transmitter battery and start this task over again. If you still do not see a "4," report on DA Form 2402 and replace the VIPER/MILES.

5. Obtain 4 ATWESS cartridges.

6. You now have a 4-round load. The weapon will not fire unless an ATWESS cartridge is loaded.

TASK

11 Inspect, Clean, and Return Equipment



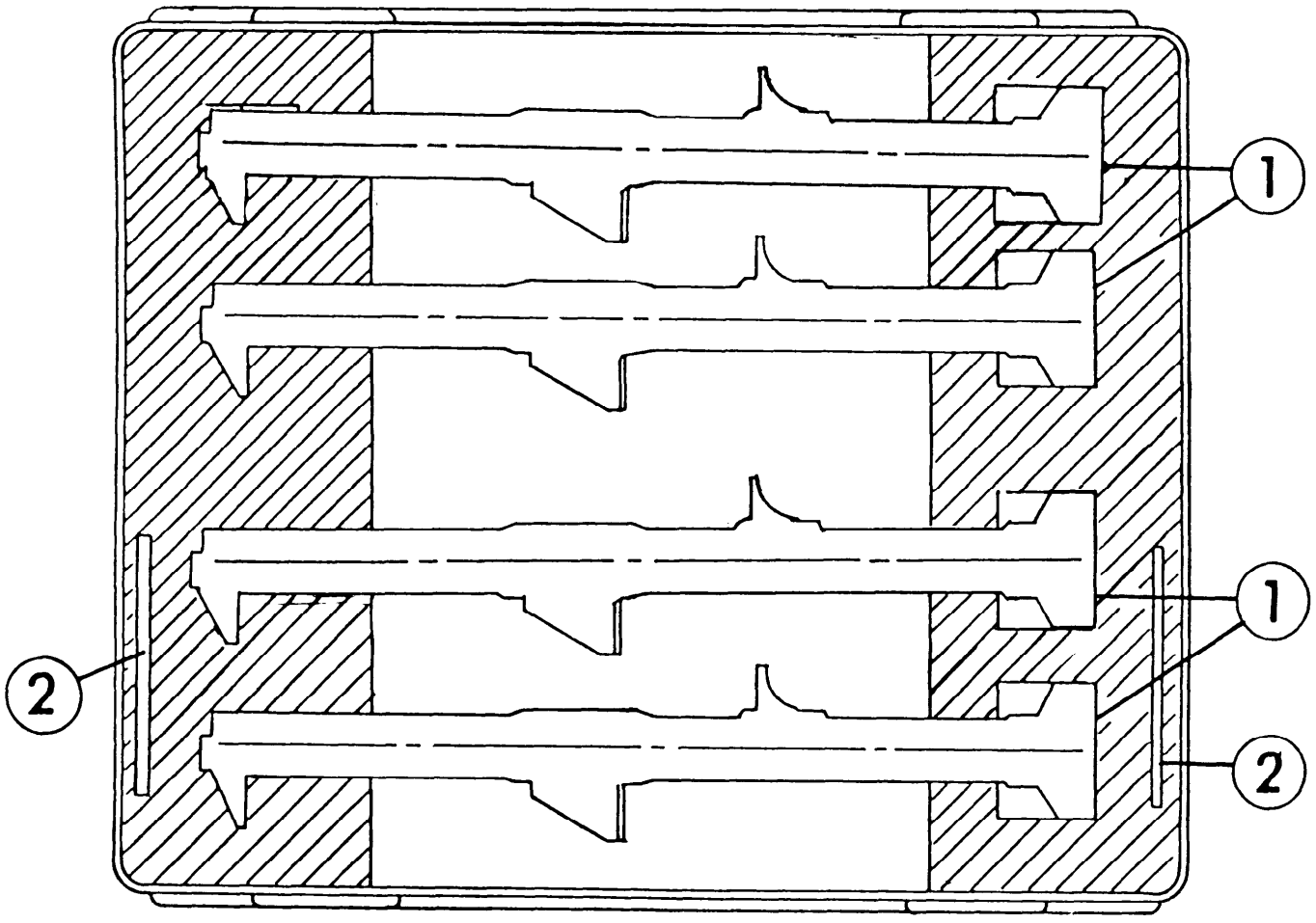
1. Do Task 1: Check that all VIPER/MILES equipment is present.

2. Remove battery from VIPER and close door. If you need guidance, see Task 4.

3. Do Task 2: Inspect and clean VIPER/MILES and ATWESS assembly.

4. Return all MILES equipment and any unused ATWESS cartridges to the NCOIC. You may be asked to return your MILES equipment to its transit case. If so, follow the instructions on the next page.

TASK 11



TRANSIT CASE LOADING INSTRUCTIONS:

1. Place the VIPER into the space provided as shown.

2. Place 2 Operator's Manuals in the spaces at each end of the case as shown - a total of 4.

NOTE

The transit case holds 4 VIPER systems.

APPENDIX A

REFERENCES

A-1. SCOPE

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

A-2. FORMS

SF 368	Quality Deficiency Report
DA Form 2028-2	Recommended Changes to Equipment Technical Publications
DA Form 2062	Hand Receipt
DA Form 2402	Exchange Tag
DA Form 2404	Equipment Inspection and Maintenance Work Sheet

A-3. FIELD MANUALS

FM 21-11	Field Manual: First Aid for Soldiers

A-4. TECHNICAL MANUALS

TM 9-1265-368-10-3-HR	Hand Receipt for Simulator System, Firing Laser: M68 for VIPER Rocket
TM 9-1265-370-10-1	Operator and Organizational Maintenance Manual, Simulator System, Firing, Laser, M60 for M16A1 Rifle

A-5. MISCELLANEOUS PUBLICATIONS

AR 310-2	Identification and Distribution of DA Publications
SB 11-6	Dry Battery Supply Data
DA PAM 738-750	The Army Maintenance Management System (TAMMS)

APPENDIX B

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

SECTION I. INTRODUCTION

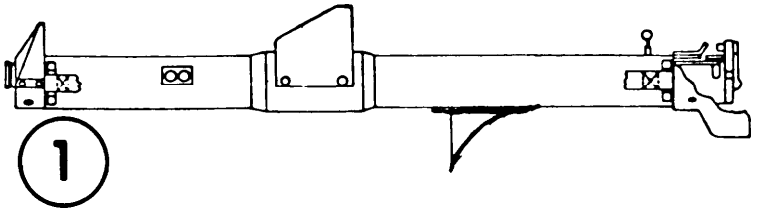
This appendix lists integral components of the VIPER/MILES system. All of these items must be returned to your NCOIC, following a training exercise.

Explanation of Columns:

National Stock Number:	Stock requisition number.
Description:	Line 1 gives a brief item description. Line 2 lists the Federal Supply Code for Manufacturer (FSCM) and the part number.
U/M:	Unit of Measure.
Qty:	Quantity of item furnished for each piece of equipment.
Illustration Number:	The number of the illustration in which the item is shown.

SECTION II. COMPONENTS OF END ITEM

National Stock Number	Description FSCM & Part Number	U/M	Qty	Illustration Number
1265-01-077-6079	VIPER/MILES System 19200-11748807	ea.	1	1



SECTION III. BASIC ISSUE ITEMS

1 ea. TM 9-1265-368-10-3 Operator's Manual f/ Simulator System, Firing Laser: M68 f/ Viper Rocket

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

This appendix lists additional items you will need to operate the VIPER/MILES system.

Explanation of Columns:

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you will need to operate the VIPER/MILES system.

National Stock Number	Description FSCM & Part Number	U/M	Qty	Illustration
6135-01-063-1978	*Battery, 9 volt (80058), BA-3090/U	ea.	1	Task 1

*Dry battery listed is used with the equipment. It will not be preshipped automatically, but is to be requisitioned in quantities necessary for the particular organization in accordance with SB 11-6.

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

This appendix lists the expendable supplies and materials you will use to operate and maintain the VIPER/MILES system.

Explanation of Columns:

National stock numbers, descriptions, and quantities are provided to help you identify and request the expendable supplies and materials you will need to operate and maintain the VIPER/MILES system.

National Stock Number	Description FSCM & Part Number	U/M	Qty
9150-01-079-6124	Cleaner, Lubricant and Preservative (27412), CLP-4	oz.	1
1370-01-085-2601	Cartridge, Practice, M22 (19200), 11749630	ea.	4
6640-00-240-5851	Paper, Lens (81349), NNN-P-40	pk.	1

REFERENCE INFORMATION

This section includes the nomenclature cross reference list, list of abbreviations, and explanations of terms (glossary) used in this manual.

A. NOMENCLATURE CROSS REFERENCE LIST

Common Name	Official Nomenclature
VIPER/MILES	Simulator System, Firing, Laser: M68 For VIPER Rocket

B. LIST OF ABBREVIATIONS

ATWESS	Anti-tank Weapon Effects Signature Simulator
MILES	Multiple Integrated Laser Engagement System
MWLD	Man-Worn Laser Detector

C. GLOSSARY

ATWESS Assembly	A device installed in the rear end of the VIPER/MILES system to provide simulated backblast, flash, noise, and smoke.
ATWESS Cartridge	The explosive round used in the ATWESS device.
Controller	The umpire or referee in a MILES training exercise.
Controller Key	The green key used by the Controller to reset MILES transmitters. Also used to reset the MWLD.
Kill	In a MILES training exercise, a continuous audible alarm indicating the detector assembly was hit by a laser beam.
Laser Beam	In the MILES, a harmless invisible beam of light which simulates weapon fire.

Laser Detector Assembly	A device which senses the laser beam directed at it. When the assembly senses a laser beam, it triggers an alarm.
Laser Transmitter	A device that sends the laser beam.
Man-Worn Laser Detector	The helmet and torso assembly worn by personnel which senses a laser beam directed at it.
Near Miss	A one-second alarm from the MWLD indicating laser fire directed toward you.
Simulator	A training device which takes the place of real equipment and which has many of its characteristics.
Weapon Key, Yellow	This yellow key has two uses: 1. To turn on the M16A1 transmitter. 2. To shut off the alarm when it sounds: remove from M16 rifle transmitter and insert in MWLD weapon key receptacle.
Weapon Key Receptacle	A small device on the MWLD which receives the yellow weapon key to shut off the alarm.

By Order of the Secretary of the Army:

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

Official:

R. L DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-37, Operator's Maintenance requirements for MILES Simulator Sys, Firing, Laser, M63 (for M113 APC).

☆U.S. GOVERNMENT PRINTING OFFICE: 1994 - 300-421/82277

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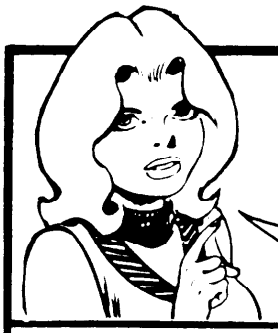

SOMETHING WRONG WITH THIS PUBLICATION?

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DATE SENT
Date you sent in form

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-XXXX-XXX-XX (from TM cover)	(from TM cover)	(from TM cover)

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO.
1	2	2	
5	5	1,2	
		2L	
		2M	
18	2		

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

Change drawing to read illustrations.

Add after the word spray "and allowing 5 minutes of drying time between coats."

Change: Washer, Flat $\frac{1}{4}$" to read
Washer, Lock $\frac{1}{4}$"
Reason: Correct nomenclature

Figure should be shown as flat washer

Figure should be shown as a lock washer

Reason: Figures should depict actual noun nomenclature.

TOW standard Kill Range Meters reads "25-3000", should be "65-3750"

SAMPLE

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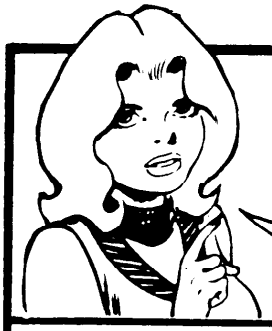

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DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-1265-368-10-3	15 JULY 1988	(MILES) MULTIPLE INTEGRATED LASER ENGAGEMENT SYS M63 FOR M113 APC AND M220 TOW VEH

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 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

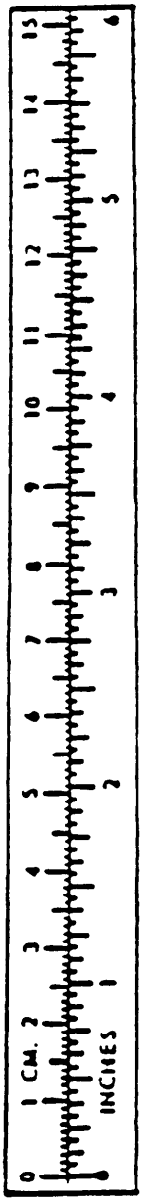
TEMPERATURE

5/9 ($^{\circ}$F - 32) = $^{\circ}$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 C$^{\circ}$ + 32 = F$^{\circ}$

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
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

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



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