TM 9-1265-370-10-1

Supersedes copy dated 22 January 1982

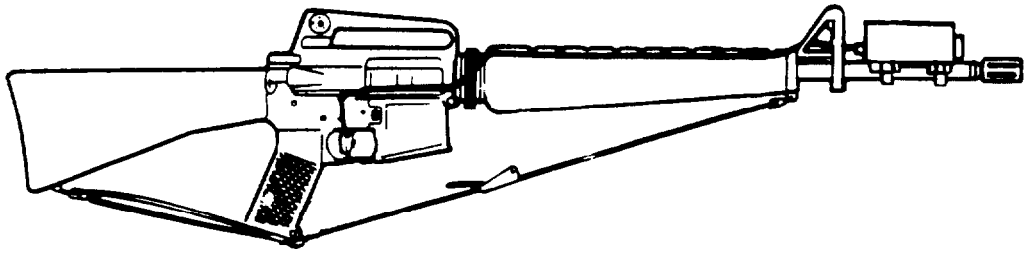
OPERATOR'S MANUAL

MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM (MILES)

SIMULATOR SYSTEM, FIRING LASER: M60 (NSN 1265-01-085-1583)

FOR

M16A1 AND M16A2 RIFLE



(Not for use with Small Arms Transmitter (SAT) NSN 1265-01-236-6725)

HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1988

ALTHOUGH THE LASER LIGHT EMITTED BY MILES EQUIPMENT TRANSMITTERS IS CONSIDERED EYE 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. PRECAUTIONARY MEASURES INCLUDE THE FOLLOWING:

- **AVOID VIEWING LASER EMITTER AT CLOSE RANGE (LESS THAN 12 METERS). INCREASING THE DISTANCE FROM THE EYE TO THE LASER SOURCE GREATLY REDUCES THE RISKS OF OVEREXPOSURE.**
- **AVOID VIEWING THE EMITTER DIRECTLY ALONG THE OPTICAL AXIS OF RADIATED BEAM.**
- **ESPECIALLY AVOID VIEWING THE EMITTER DIRECTLY ALONG THE OPTICAL AXIS OF THE BEAM THROUGH STABILIZED OPTICS SUCH AS BINOCULARS, TELESCOPES, OR PERISCOPES AT RANGES OF LESS THAN 75 METERS.**

DO NOT LOAD MILES-EQUIPPED WEAPONS WITH LIVE OR THE WRONG BLANK AMMUNITION. USE ONLY M200 BLANK ROUNDS. IMPROPER AMMUNITION MAY CAUSE FATAL INJURIES TO PERSONNEL. REFER TO THE M16A1 OPERATOR'S MANUAL, TM 9-1005-249-10 FOR ADDITIONAL INFORMATION ON THE USE OF AMMUNITION.

PRIMER IS HIGHLY FLAMMABLE. DO NOT SPRAY NEAR HEAT, SPARKS, OR OPEN FLAME. NO SMOKING. USE ONLY IN WELL-VENTILATED AREA.

FOR INFORMATION ON FIRST AID, SEE FM21-11.

TM 9-1265-370-10-1*

TECHNICAL MANUAL

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: M60
(NSN 1265-01-085-1583)
FOR
M16A1 AND M16A2 RIFLE

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

TABLE OF CONTENTS

*Supersedes TM 9-1265-370-10-1 dated 22 January 1982 , including all changes.

TABLE OF CONTENTS (continued)

Storage Instructions

Equipment Distribution:

The MILES equipment for the M16A1 or M16A2 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 14 in this TM for guidance.

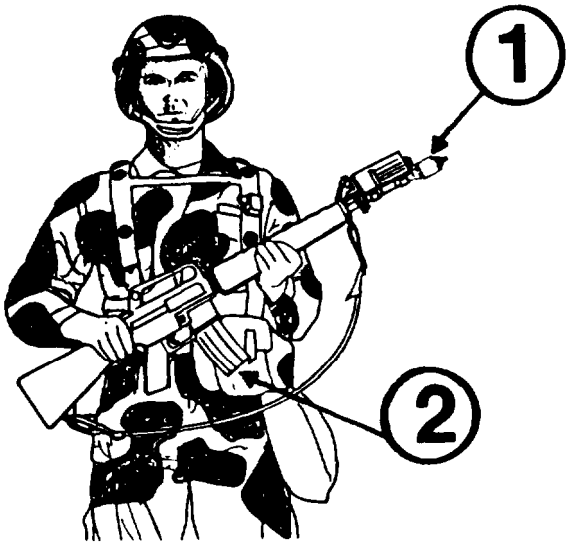
Return all MILES equipment and the TMs to their transit cases.

Special Instructions for Infrequently Used Equipment:

If M16A1 or M16A2/MILES equipment is unused for 60 days, remove from transit cases and perform Tasks 1, 2, 3, 8, and 14.

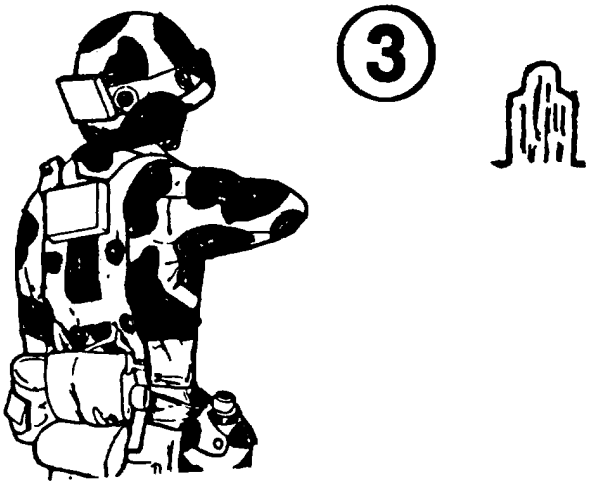
Skills Needed To Use This Manual

To use this manual, you should be able to:

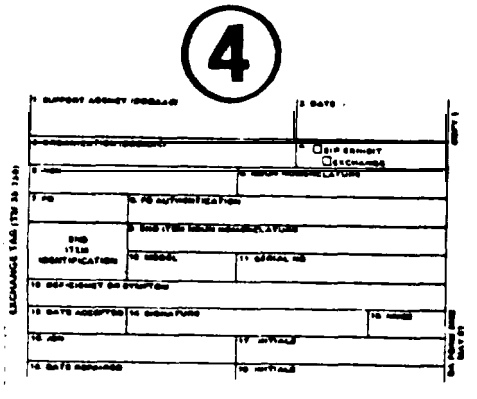


1. Put a blank-fire attachment on the M16A1 or M16A2 rifle.

2. Load and fire blank amunition.



3. Zero the M16A1 or M16A2 rifle sights. (See TM 9-1005-249-10).



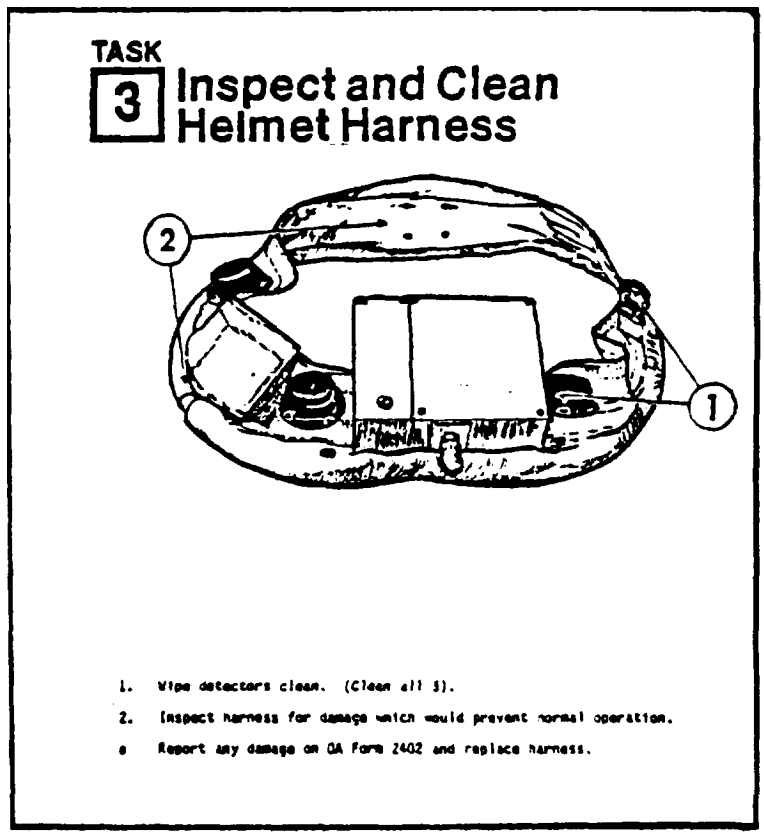
4. Complete DA Form 2402.

If you can not do all of the above tasks, ask your NCO or instructor to show you how. When you can do all these tasks, go on to the next page.

How to Use This Manual

Before you use any M161A1 or M16A2/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 M16A1 or M16A2/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.
- In the remainder of this manual, general reference to both the M16A1 and M16A2 will be made simply as "M16"; information that applies to a particular type weapon will specify which type.

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 2401. 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 (glossary) used in this manual. If you read a word you don't understand, check the abbreviations or glossary for an explanation.

General Information

This manual shows you how to operate and maintain the M16/MILES laser simulator equipment. The operator and maintenance tasks are listed in the Table of Contents on i and ii.

Purpose of Equipment:

The M16/MILES simulator is a battery-powered laser transmitter and detector system. 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 738-750, 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 direct 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.

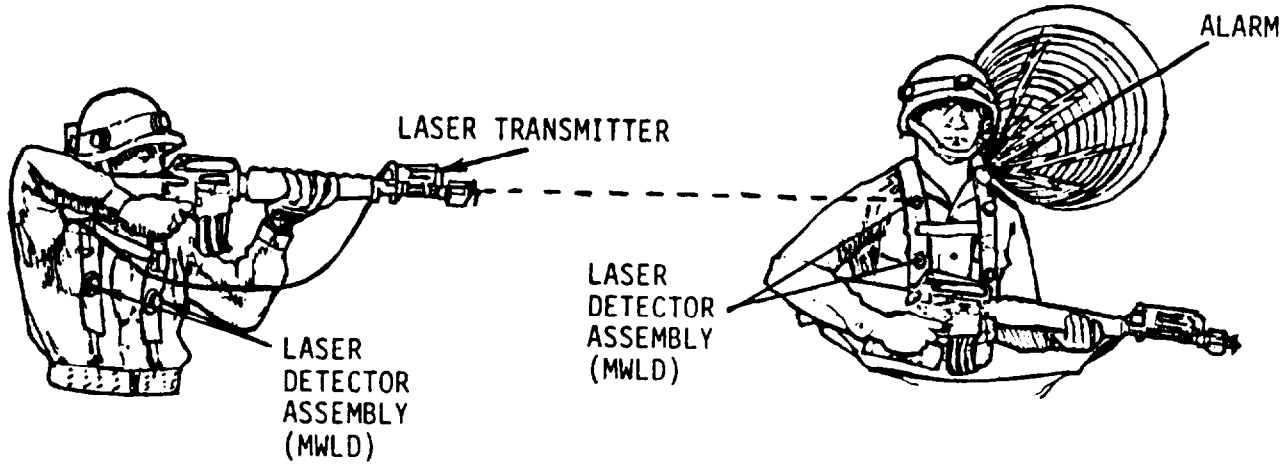
C. Hand Receipts Manual

Hand receipts for Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL) items are published in a Hand Receipt manual, TM 9-1265-370-10-1-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 M16/MILES include an eye-safe Laser transmitter mounted on the barrel of the rifle. This transmitter is activated by the sound of blank cartridges being fired.



The M16/MILES system can be operated in temperatures from -35° C (-31° F) to 62° C (144° F).

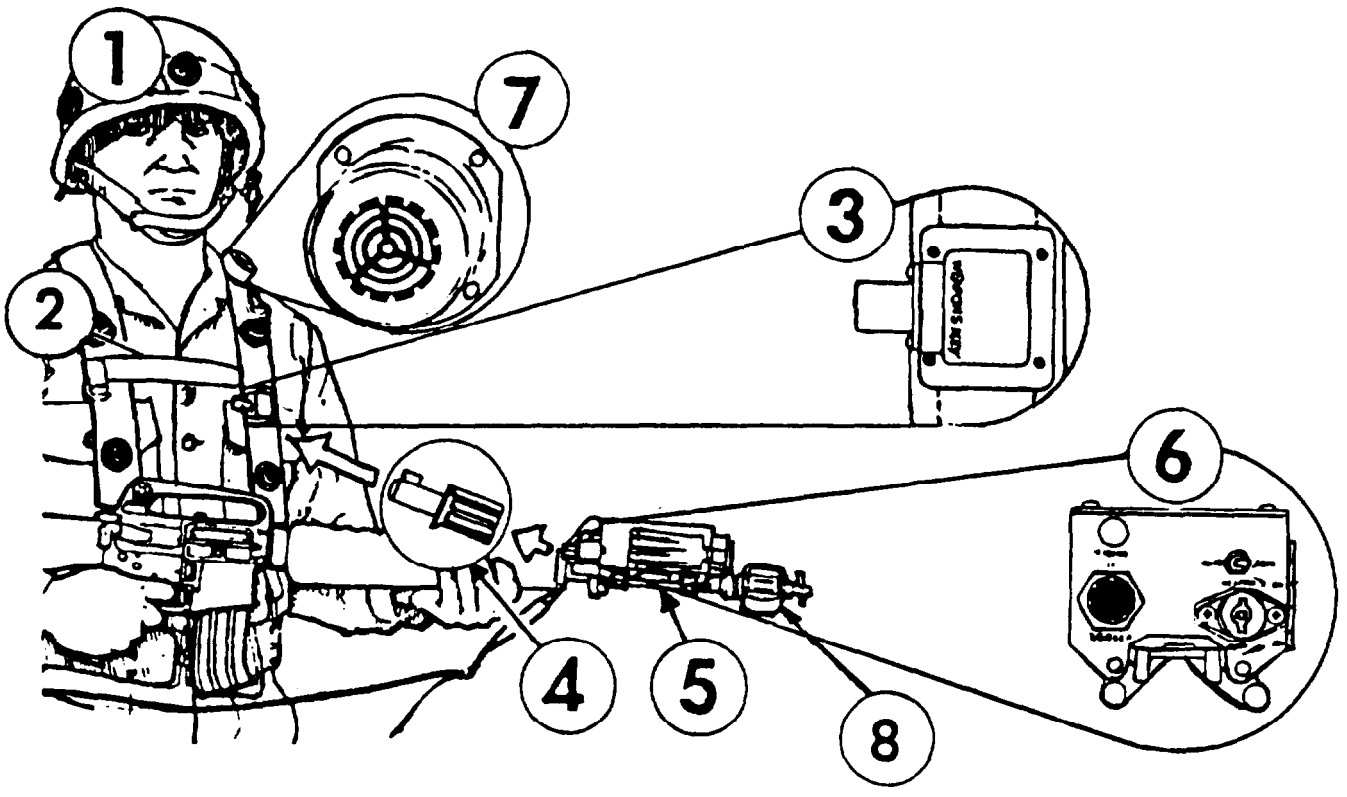
It permits tactical skills to be practiced under realistic conditions.

The laser transmitter sends 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.

Battery Information:

The M16/MILES system uses a BA-3090/U, 9 volt alkaline battery which provides approximately 100 hours of power.

Location of Components:



1. Helmet harness)
2. Torso harness)-MWLD
3. Weapon key receptacle
4. Yellow Weapon Key
5. Transmitter
6. Transmitter (rear view)
7. Alarm
8. Blank fire attachment

How it Works:

The M16/MILES works much like a real M16. However, instead of firing live ammunition, the M16/MILES fires blank ammunition and a laser (light) beam at targets.

The targets wear MWLDs equipped with laser detector assemblies and alarms. When a laser beam from a transmitter strikes a soldier's MWLD, an alarm sounds. To shut off the alarm, the soldier must remove the yellow key from his weapon transmitter and put it into a receptacle on his MWLD. With the key removed from the transmitter, it will not operate. Removing the weapon's capability to fire a laser beam simulates a combat "kill."

The M16/MILES operator also wears an MWLD. His alarm may be triggered by laser fire from other MILES-equipped weapons.

How the M16/MILES is Used:

After the M16/MILES transmitter and MWLD have been installed and tested, you will be ready to begin the training exercise.

- To begin, place a blank-fire attachment on your rifle and load it with blank ammnunition.
- Turn the transmitter yellow weapon key to the ON position.
- Aim and fire. The laser transmitter will operate until you run out of blank ammnunition.

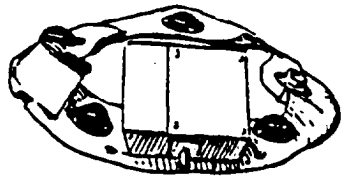
Limitations of Equipment:

The M16/MILES laser transmitter has the same range and operational capabilities as the M16 rifle, but a dirty laser transmitter lens may reduce the effective range of the transmitter. The laser is only effective against exposed personnel wearing MWLDs. Automatic fire in the blank-fire mode for an extended period of time could result in laser transmitter failure. If the transmitter becomes too hot to touch, stop firing. Wait until transmitter has cooled off before firing again.

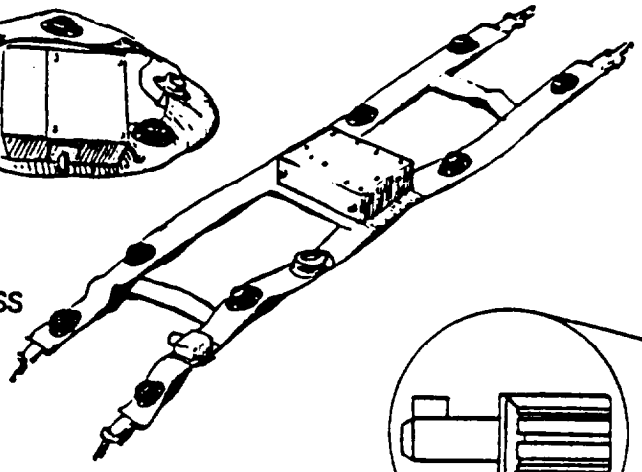
TASK 1

Get This Equipment From Your NCOIC

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

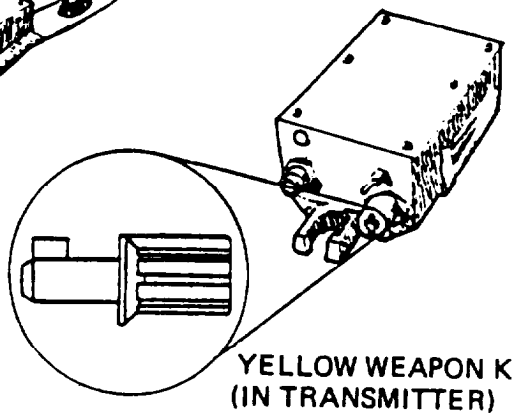


HELMET HARNESS



TORSO HARNESS

M16A1 LASER TRANSMITTER

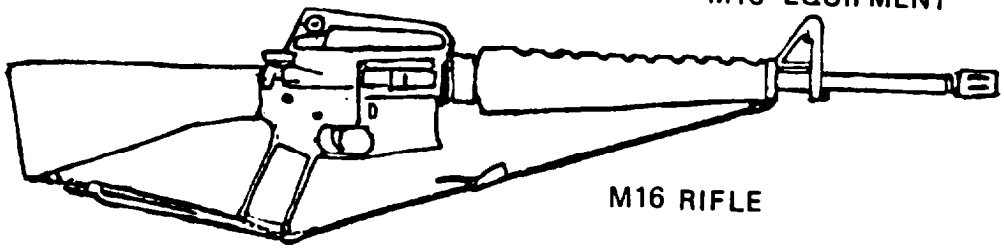


YELLOW WEAPON KEY (IN TRANSMITTER)

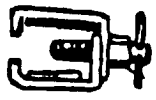
9-VOLT BATTERIES

BA-3090/U

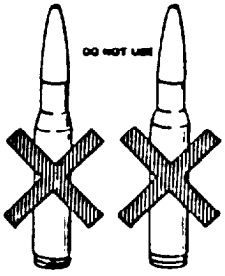
M16 EQUIPMENT



M16 RIFLE

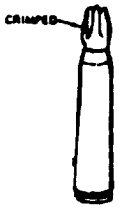


BLANK-FIRE ATTACHMENT

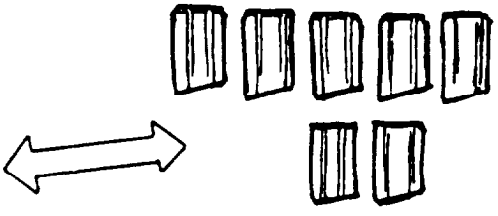


M193 BALL M196 TRACER

USE THIS AMMO ONLY



M200 BLANK



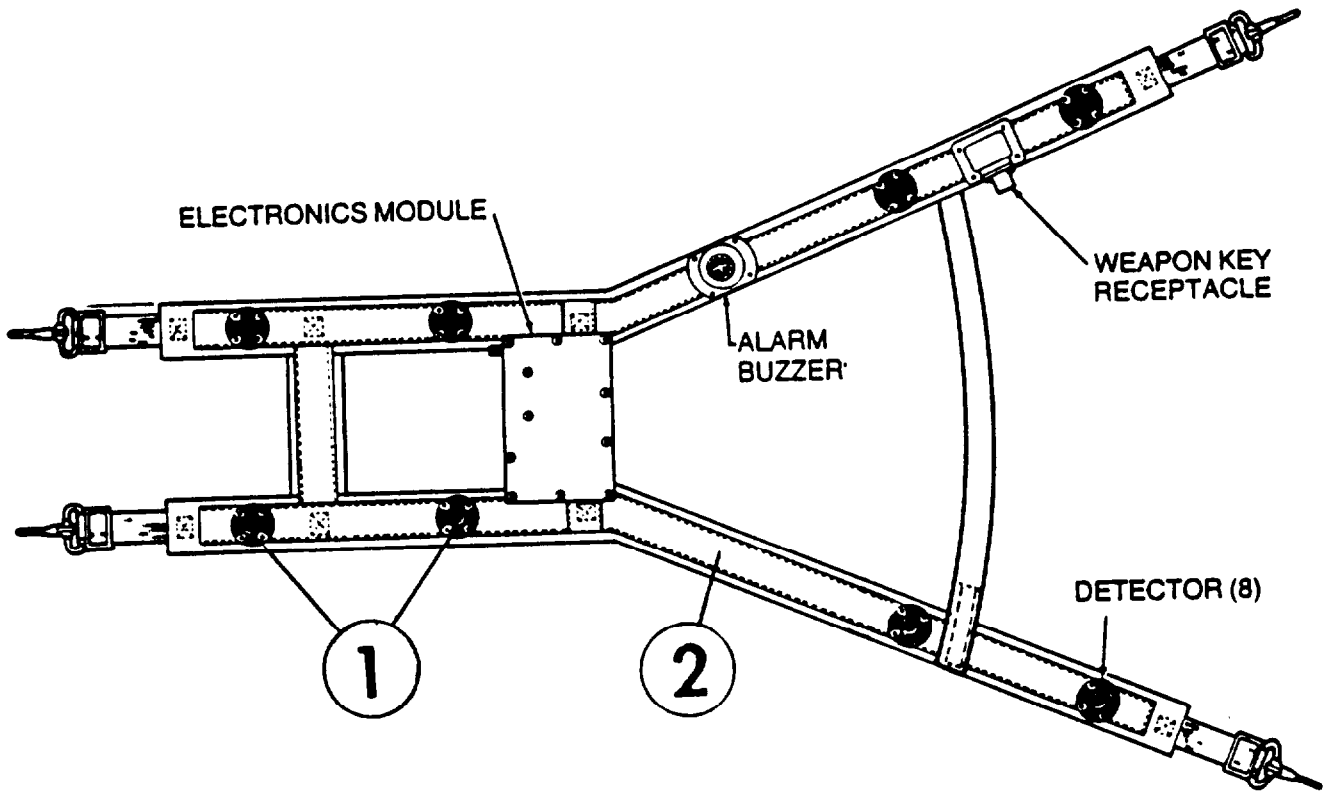
MAGAZINES WITH BLANK AMMUNITION

2 Inspect and Clean Torso Harness

1. Wipe detectors clean (clean all 8).

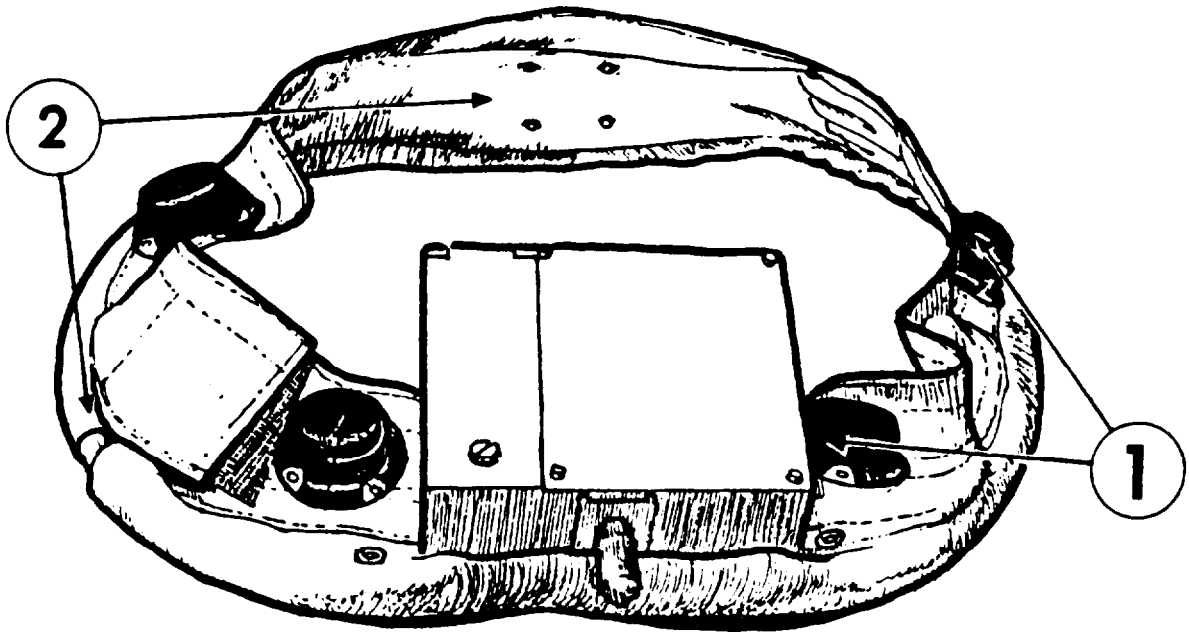
2. Inspect harness for damage which would prevent normal operation

- Report any damage on DA Form 2402 and replace harness.



TASK 3

Inspect and Clean Helmet Harness

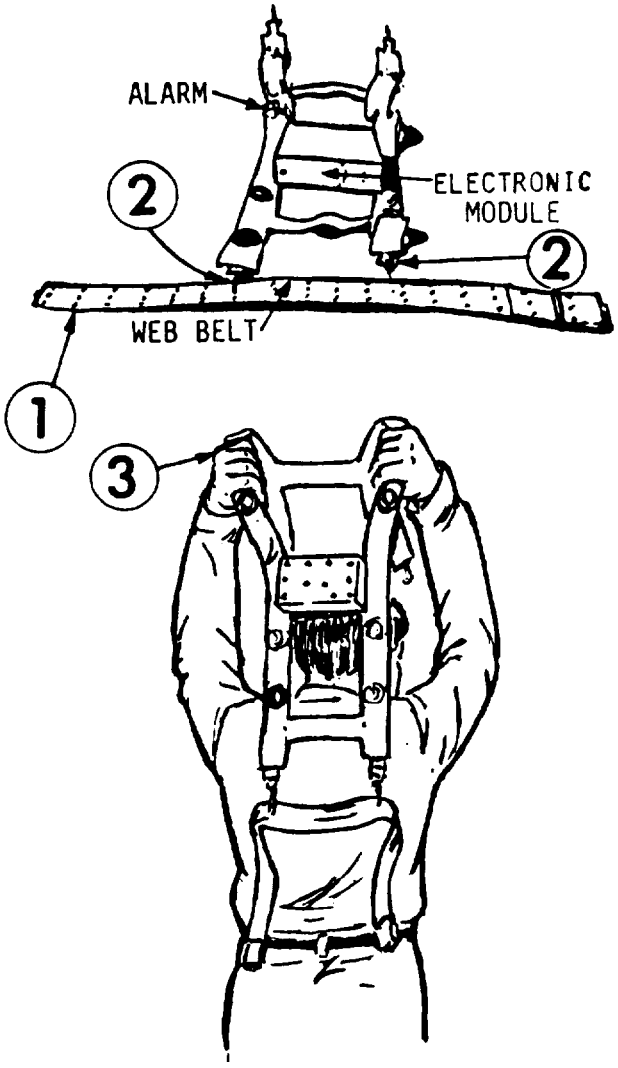


1. Wipe detectors clean. (Clean all 5).
2. Inspect harness for damage which would prevent normal operation.

- Report any damage on DA Form 2402 and replace harness.

TASK

4 Put on Torso Harness



If you are wearing them, remove the suspenders from your web gear.

1. Remove your web belt and lay it next to the harness as shown.

NOTE

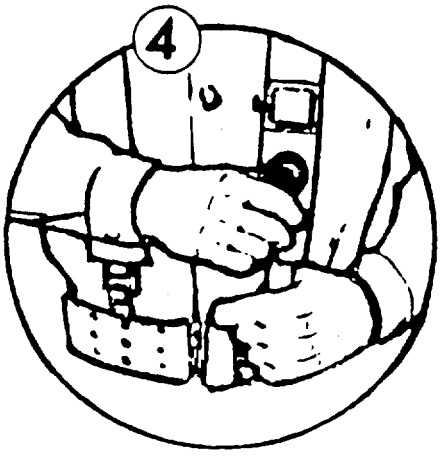
The harness should look like this with the alarm above the electronic module.

2. Fasten both clips to the belt.

3. With your web belt at the bottom, raise the harness and then lower it over your head.

NOTE

If you are carrying a PRC-77 radio, place harness <u>over</u> the radio so that rear detectors are not covered by the radio or its harness.



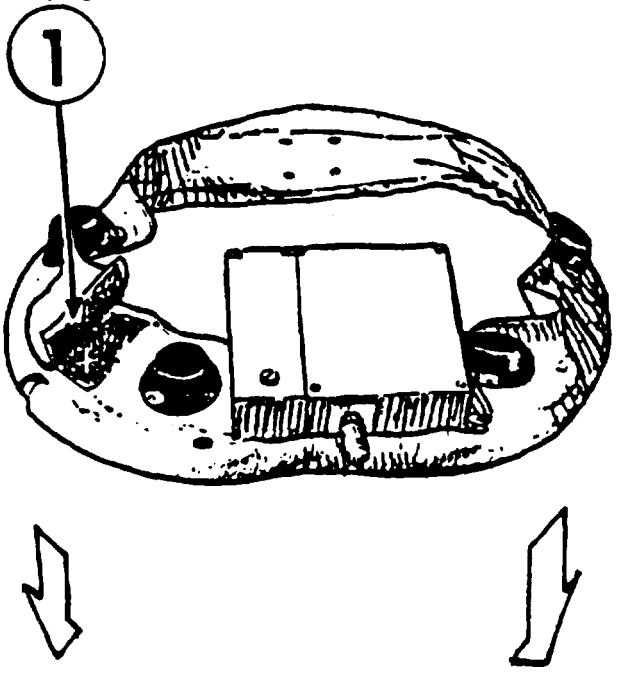
4. Fasten your web belt. Connect harness to the belt. Adjust harness so electronics module is at the back of your collar, at the collar line.

TASK 5

Put Helmet Harness on Helmet

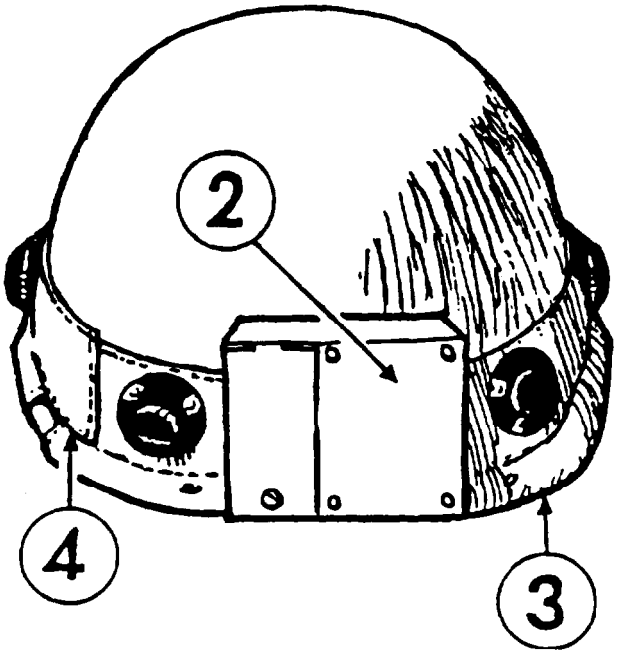
NOTE

If you have the Steel Ground Troop Helmet, M1, follow the instructions on this page. If you have the PASGT Helmet, follow the instructions on page 13.



- Make sure the chin strap on your steel helmet is hanging loose.

1. Pull back flap.



2. Place harness over helmet with electronic module at rear.

3. Be sure that the thick bottom edge of the harness completely covers and overhangs the rim of the helmet.

4. Pull the flap tight and fasten it. If flap cannot be fastened, use camouflage band to secure harness.

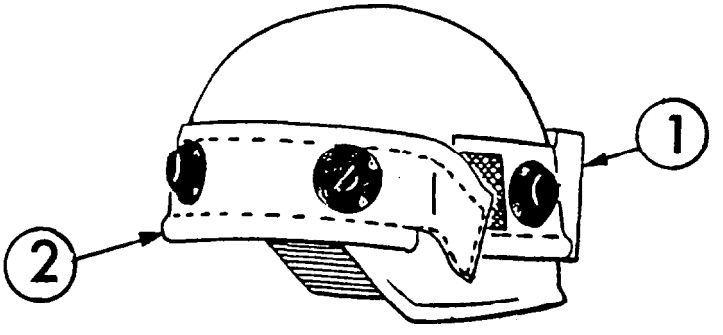
- Now put on helmet. Wear helmet with chin strap fastened. The added weight of the harness makes this necessary.

TASK 5

VELCRO MOUNTING INSTRUCTIONS FOR PASGT HELMETS

NOTE

These instructions pertain only to the PASGT Helmet. If you have the Steel Ground Troop Helmet, M1, follow the instructions on page 12. If your PASGT Helmet already has five patches of Velcro installed, skip to the instructions on page 14.



PASGT Helmets require three to five patches of Velcro glued to the outside to hold the MWLD helmet harness in place. The Velcro patches must be attached in the proper position on the helmet so that they will mate with the patches of Velcro which are attached to the harness.

1. Slip the MWLD helmet harness over the PASGT helmet so that electronics box is at the rear.

2. Make sure the thick bottom edge of the harness completely covers and overhangs rim of the helmet in front.

3. Pull the harness tight and mark the helmet areas where the five Velcro patches on the harness touch the helmet. Remove the harness.

4. Cut five patches of Velcro (approximately 2 inches square).

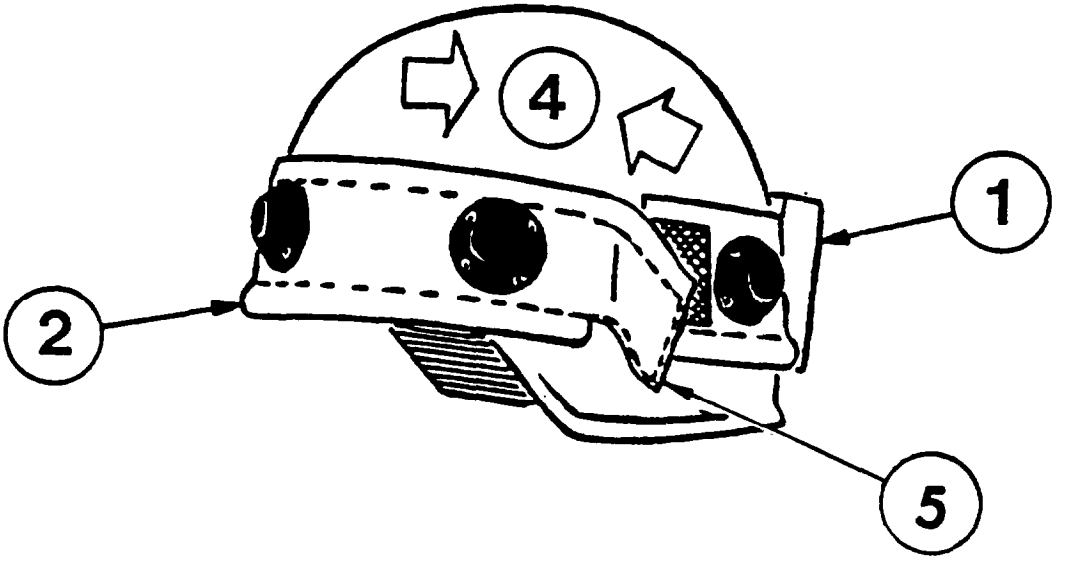
WARNING

TAPE MOUNTING PRIMER IS HIGHLY FLAMMABLE. DO NOT SPRAY NEAR HEAT, SPARKS, OR OPEN FLAME. NO SMOKING. USE ONLY IN WELL-VENTILATED AREAS.

5. Spray tape mounting primer over the marked areas where the Velcro will be attached. Allow primer spray to dry for at least 5 minutes.

6. Remove backing paper from patches of Velcro and firmly press the patches onto the helmet.

TASK
5

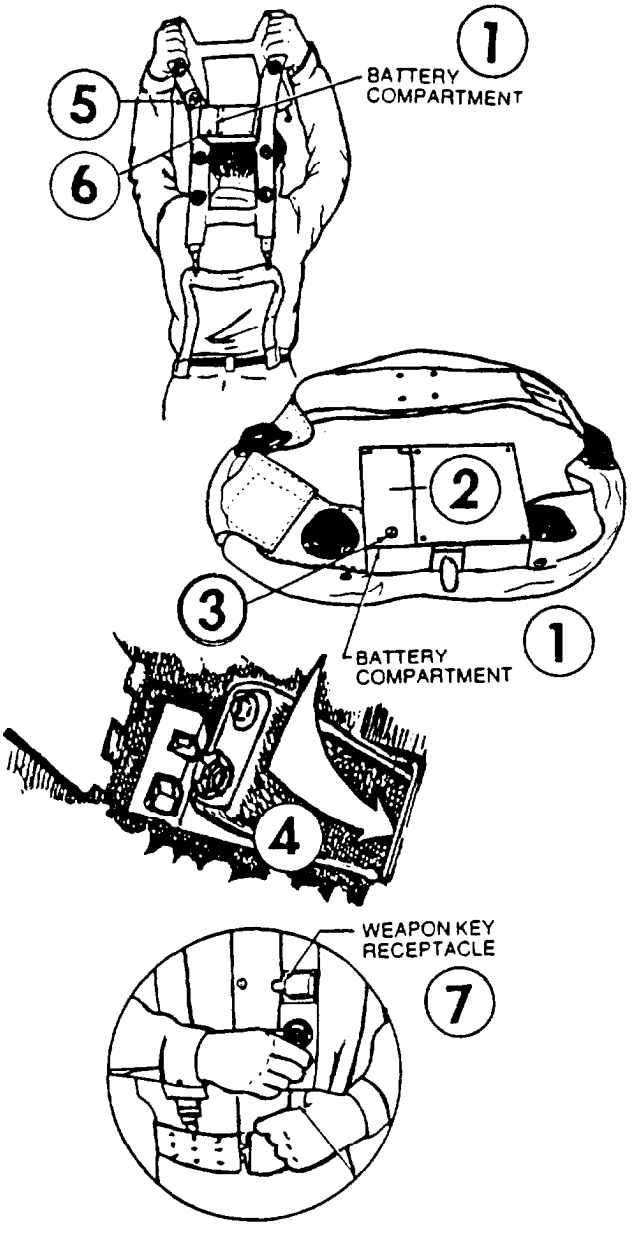


PASGT HELMET HARNESS MOUNTING

1. Slip harness over helmet so that the electronic box is at the rear.
2. Make sure the heavy cable overhangs the lip of the helmet in front.
3. Adjust harness so that the five pieces of Velcro on the inside of the harness line up with Velcro pieces attached to the outside of your helmet.
4. Pull harness ends in the direction of the arrows to tighten harness.
5. Fasten Velcro flaps tightly.

- When you wear your helmet, fasten the chinstrap. The added weight of the harness makes this necessary.

TASK 6 Install Batteries in MWLD Harnesses



Ask your NCOIC to call the Controller.

1. Locate battery boxes on both MWLD helmet and torso harnesses.
2. First put a battery in the helmet harness.
3. Loosen thumbscrew and open door.
4. Put in battery as shown.
5. Close door and tighten thumb screw.

When you put a battery in the torso harness, an alarm should sound. If you do not hear an alarm, remove and reinsert the same battery and try again. If still no alarm, get a new battery. from your NCOIC and try again. If still no alarm, report on DA Form 2402, and replace torso harness.

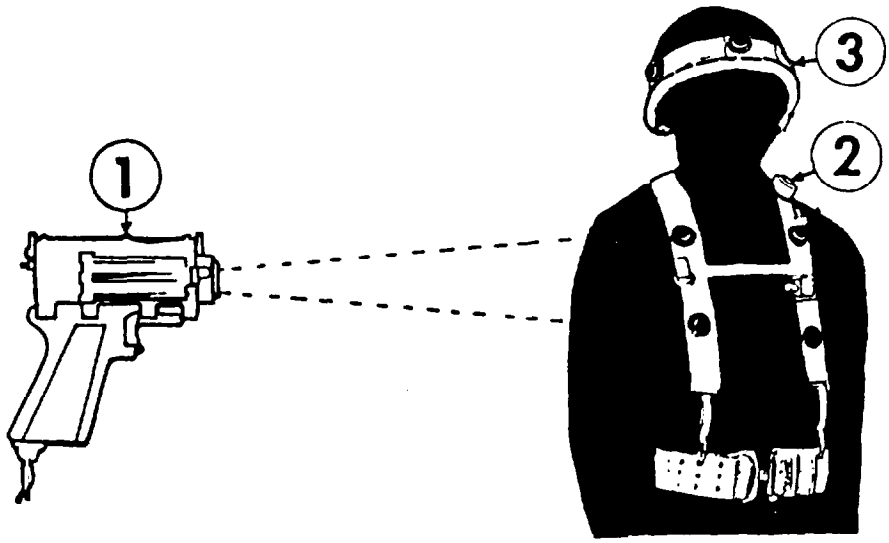
6. Put a battery in the torso harness, repeating steps 3, 4 and 5.
7. Ask Controller to insert his green key in key receptable and turn off alarm.

NOTE

Be sure to put batteries in both torso and helmet harnesses.

TASK 7

Test Operation of MWLD

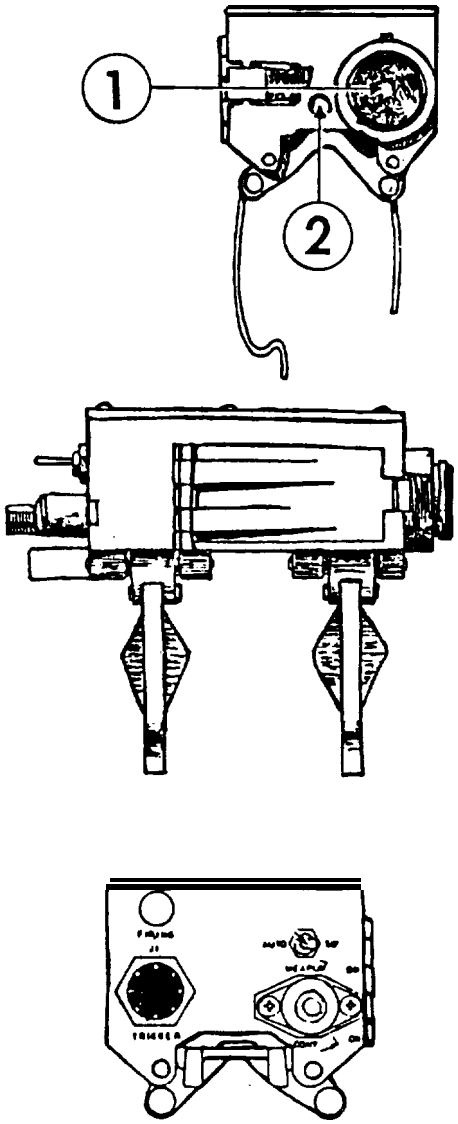


1. Ask Controller to test your torso harness using "Near Miss" mode.

2. When he fires, your alarm should sound briefly. If you do not hear an alarm, remove and reinsert the same battery in the torso harness and test again. If still no alarm, replace the battery in the torso harness (see Task 6) and test again. If still no alarm, report on DA Form 2402, and replace the torso harness.

3. Ask Controller to test helmet harness for an alarm. You must be wearing your helmet during this test. If you do not hear an alarm, make sure that the bottom of the harness overhangs the entire rim of the helmet and test again. If still no alarm, remove and reinsert the same battery and test again. If still no alarm, replace the battery in the helmet harness (see Task 6) and test again. If still no alarm, ask a soldier whose MWLD has already been checked and is operating properly to put on your helmet and test again. If still no alarm, report on DA Form 2402 and replace the helmet harness. If after a retest the alarm sounds, report on DA Form 2402 and replace your torso harness.

TASK 8 Inspect and Clean Transmitter



1. Remove any dirt or oil from the lens with a lens paper or a soft cloth. Wet cloth to remove stubborn dirt.

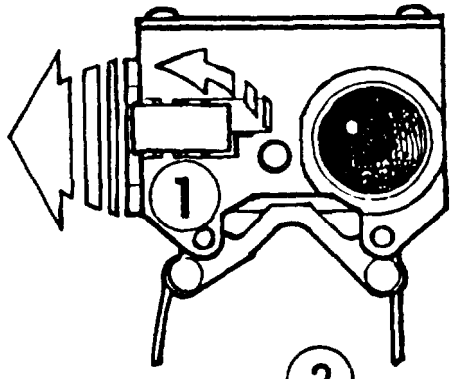
2. Make sure foam microphone cover is dry and not caked with dirt or blank-fire residue.

- Check for damage which would prevent normal operation of the transmitter.

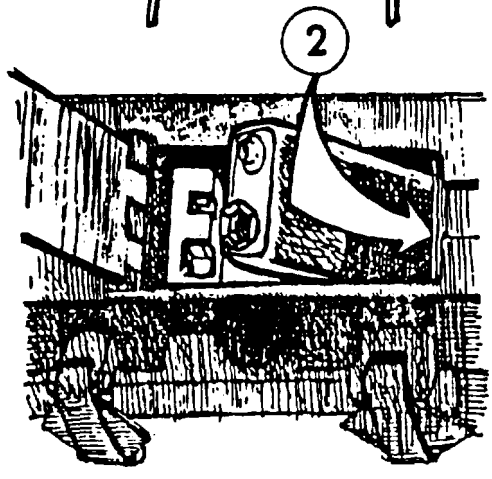
- Report any damage on DA form 2402. Replace transmitter.

TASK 9

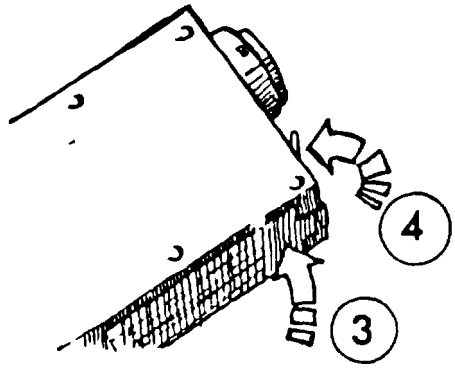
Put Battery in Transmitter



1. Flip latch and open door.



2. Insert a BA-3090/U battery as shown.



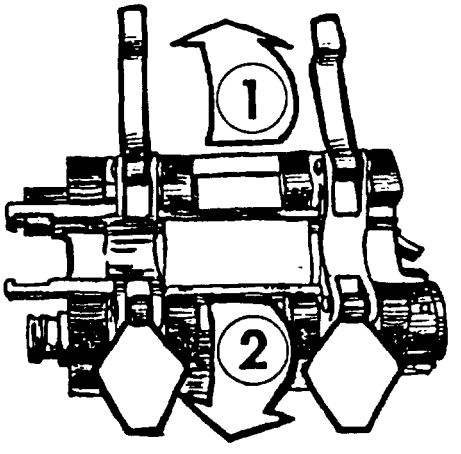
3. Press door closed. Hold door closed with one hand, and fasten clamp with other hand.

4. Press latch closed.

TASK 10

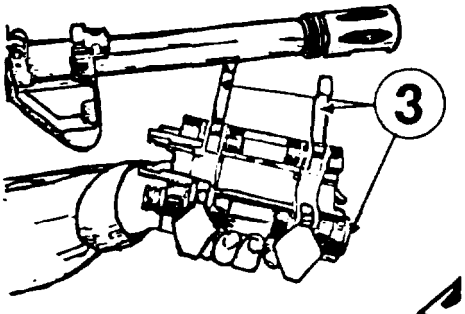
Place Transmitter on Barrel

- If your weapon is equipped with an M203 Grenade Launcher, remove grenade launcher barrel before installing transmitter.

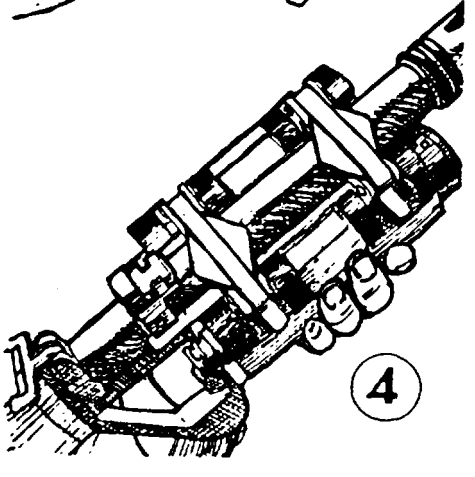


1. Open both spring clamps.

2. Flip the diamond-shaped pieces to the outside.



3. Hold transmitter with clamps facing and the lens pointing forward.

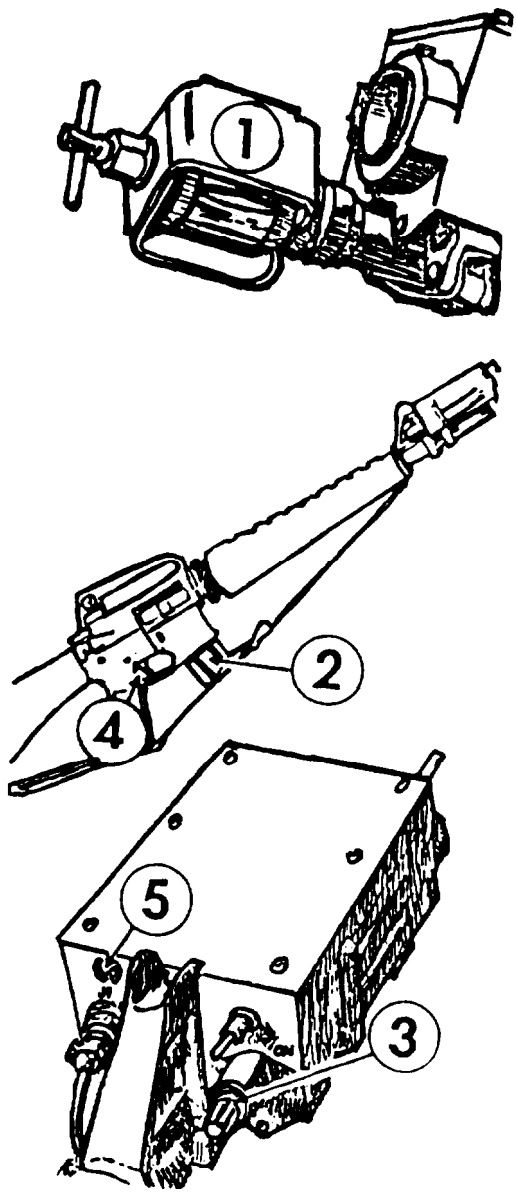


4. With the rifle held upside down, put transmitter on barrel so guides straddle the front sight. Close diamond-shaped pieces over barrel. Then close the locking pieces. Lock both clamps.

5. Reinstall grenade launcher barrel.

TASK

11 Blank-Fire Operation



1. Attach blank-fire attachment. Put top covered side of blank-fire attachment at an angle, as shown, to protect the transmitter lens from muzzle blast.

2. Insert magazines loaded with blank cartridges into weapon.

3. Insert yellow key in transmitter. Turn to WEAPON ON position.

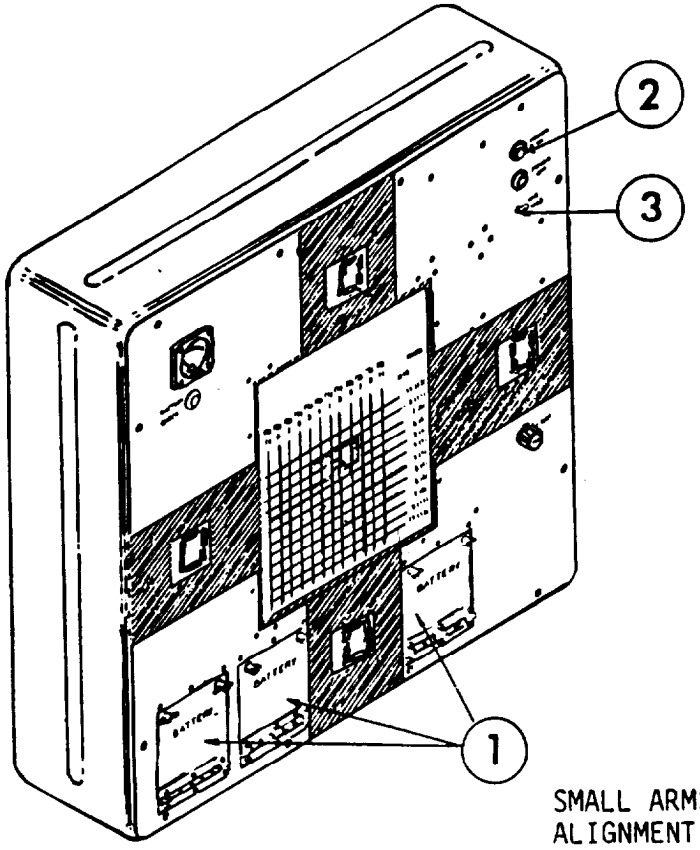
4. Chamber first round.

5. While watching the FIRING light, fire one round. The lamp should light briefly.

   If you do not see a light, fire again. If still no light, remove and reinsert the same battery in transmitter and test again. If still no light, replace battery and test again. If still no light, report on DA Form 2402. Replace the transmitter.

   If lamp goes out or does not light while you are firing the M16 in an exercise, replace transmitter battery.

TASK 12 Align the Transmitter



SMALL ARMS
ALIGNMENT FIXTURE (SAAF)
PART NUMBER 11835282

- This Small Arms Alignment Fixture is a laser-detecting device which you can use to align your M16A1 weapon sights with the MILES transmitter. For Fixture details, refer to current TM 9-5860-436-14&P. If you are equipped with the M16A2, the alignment fixture will not work with your weapon. Refer to page 22.

- Set up the alignment fixture at a range of 25 meters from the firing point, with the target facing you.

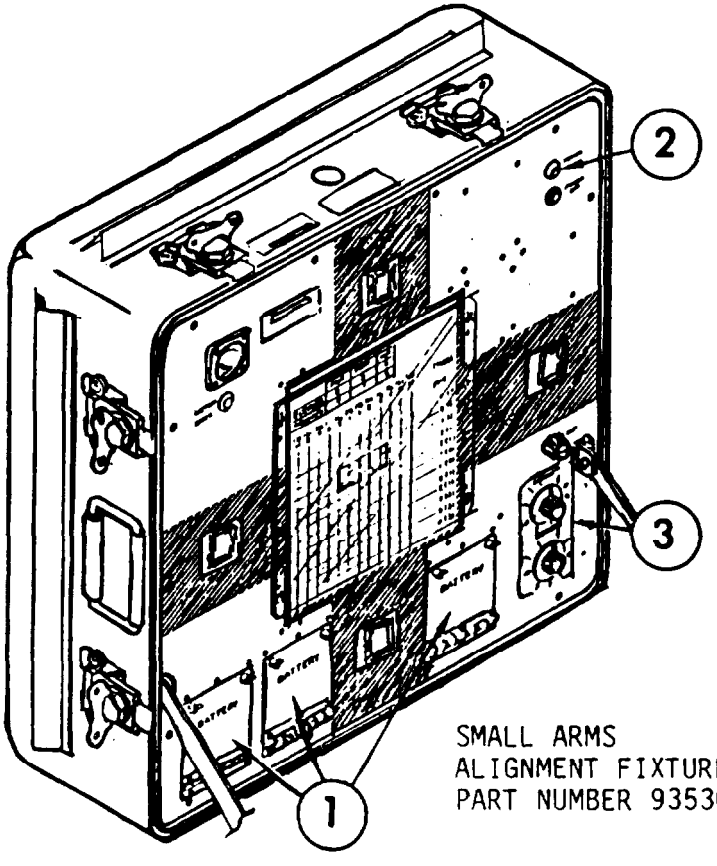
- Before you can use the Alignment Fixture, you must:

  1. Install three BA200/U batteries.

  2. Turn Power Switch ON.

  3. Set Weapon Switch to M16.

TASK 12

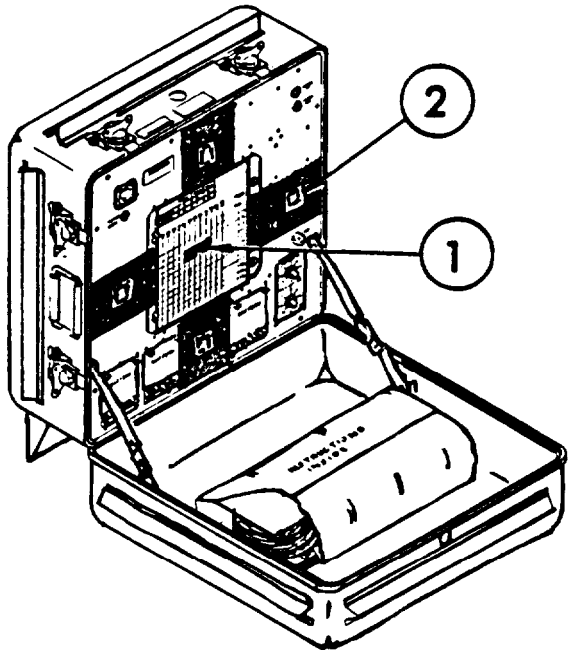


SMALL ARMS
ALIGNMENT FIXTURE (SAAF)
PART NUMBER 9353020

- This Small Arms Alignment Fixture, part number 9353020, is a laser detecting device which you can use to align your M16A2 weapon sights with the MILES transmitter. (For fixture details refer to current TM 9-5860-436-14&P).
- Set up the alignment fixture at a range of 25 meters from the firing point, with the target facing you.
- Before you can use the Alignment Fixture, you must:

  1. Install three BA-200/U batteries.
  2. Turn Power Switch ON.
  3. Ensure that the M16A1, M16A2, M60 target face is installed.
  4. Set WEAPON SIGHT SELECT Switches to the positions listed in the upper left corner of the target face; use the numbers for the weapon being aligned (M16A1 or M16A2).

TASK 12



- The M16A1 and M16A2 transmitters can be aligned in either blank-fire or dry-fire mode.

NOTE

To put your weapon in dry-fire mode see page 24.

- If your weapon is in blank-fire mode, be sure it is loaded with blank ammunition.

- Adjust the sights:

  - Turn the front sight until base of sight is flush with its well.
  - Center the windage on the rear sight.
  - Set rear sight to use unmarked (short range) aperture.

  Assume the prone supported firing position.

  1. Aim and fire one round at the target's bull's-eye.

  2. The target displays tell you what to do next. For example, if the right display shows 8, move the rear sight 8 clicks to the right. If the lower display shows 4, move the front sight 4 clicks down, etc.

  3. When the displays show four "zeros" (plus or minus one count) the transmitter is aligned.

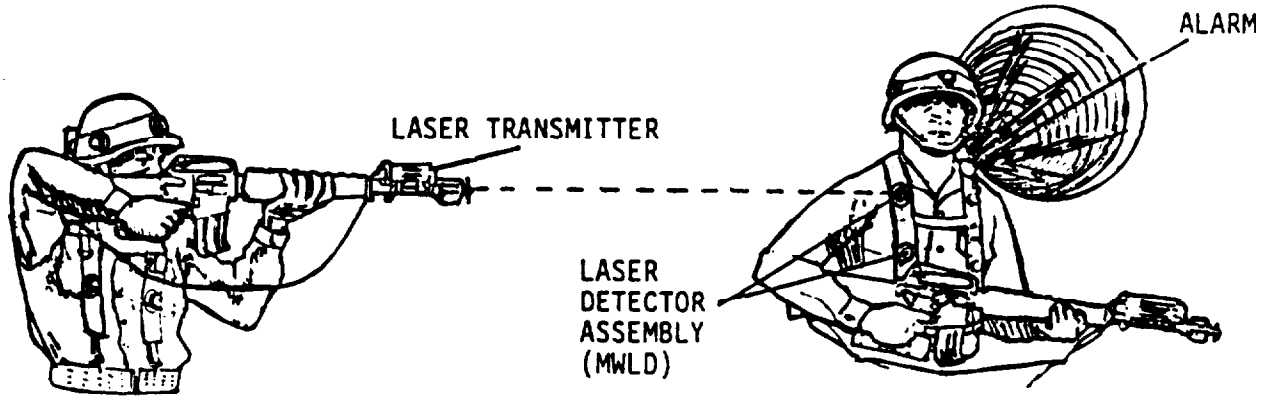
  4. If no display shows, see instructions on page 25.

TASK 12

To align the sights of your weapon when in the dry-fire mode, you must perform the following steps:

1. Obtain a dry-fire cable from the accessory bag in the SAAF.
2. Remove and secure protective cap from J-1 connector on rear of transmitter.
3. Attach plug on dry-fire cable to J-1 connector ensuring that slot on plug aligns with "tooth" on connector. Screw locking sleeve down securely (finger tight, use no tools).
4. Attach clips on cable to vent holes on upper hand guards of rifle.
5. Wrap Velcro tie loop around upper hand guard slip ring.
6. Cock rifle and open trigger guard.
7. Route cable under dust cover and gently push trigger button up over trigger.
8. Have a Controller insert a green key into your rifle transmitter. Turn Key. Press trigger button and light should illuminate in the window above J-1 connector. When it does, have the controller remove green key.
9. Insert your yellow weapons key into transmitter. Turn to ON position.
10. Place toggle switch (on the rear of the transmitter) to position marked SEMI.
11. Adjust your sights according to the display on the SAAF (see steps 1 thru 4, page 23).

TASK 12



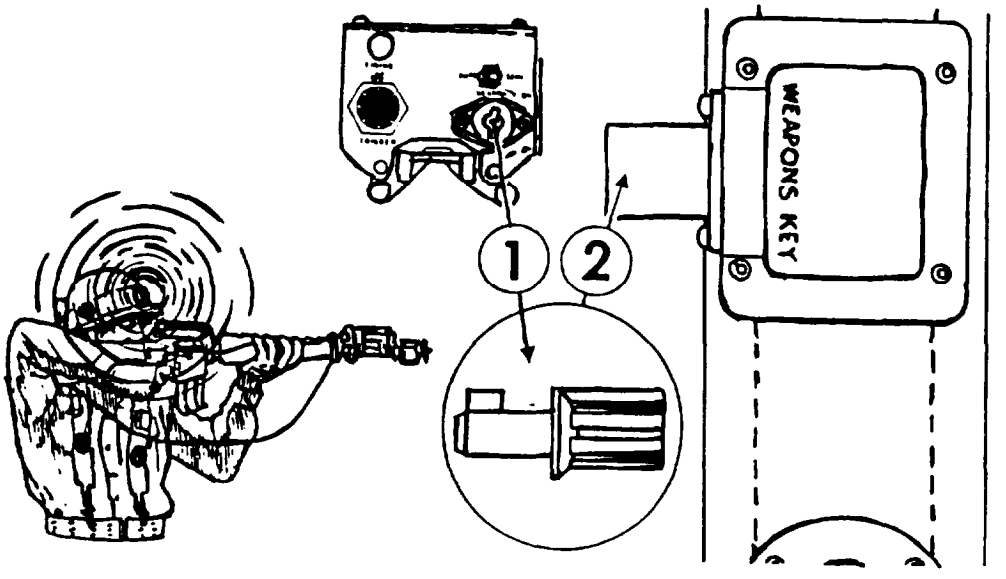
If no display appears on Alignment Fixture at close range, fire at a nearby soldier who is wearing an operable MWLD. While firing, observe the firing light. It should light when the transmitter fires. If no MWLD alarm sounds or no firing light appears, replace the battery in the transmitter. If still no response, report on DA Form 2402. Replace transmitter.

Verify alignment of your weapon sight:

1. From a distance of 100 meters, fire at a soldier wearing an operable MWLD. The alarm should sound continuously indicating a "kill".

2. If alarm does not sound or sounds briefly, indicating a "near miss," your transmitter may not be properly aligned. Realign using the Alignment Target.

TASK 13 Turn Off Alarm And Reset



NOTE

One-second alarm means a near miss.
Continuous alarm means you have been "killed".

TO TURN OFF ALARM AFTER A "KILL":

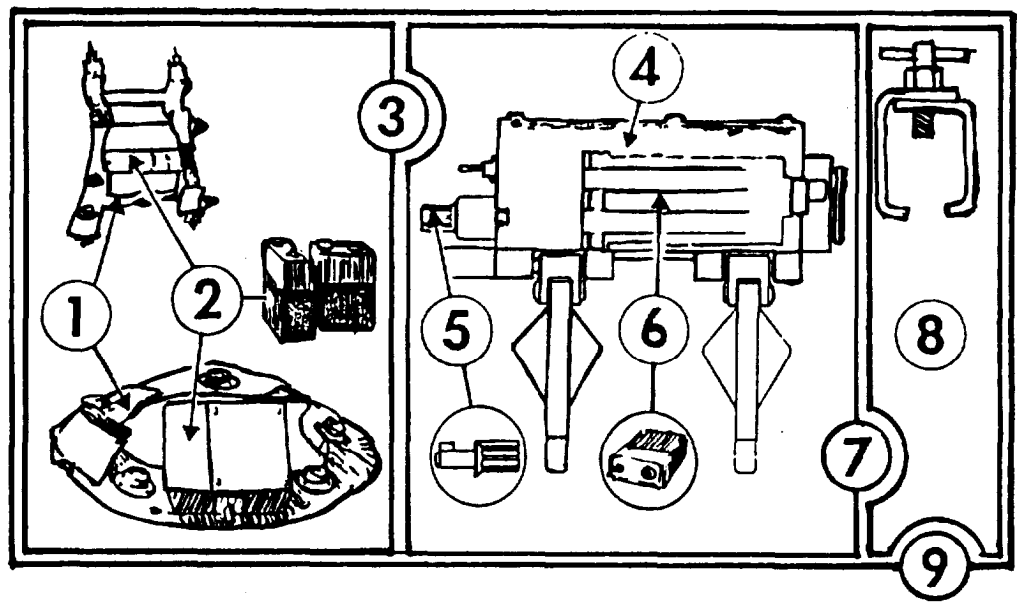
1. Remove the yellow weapon key from your transmitter.
2. Insert key in receptacle on torso harness and turn key to silence alarm.

- If you remove key from the receptacle on the torso harness, the alarm will sound again.

TO RESET MWLD:

1. Ask your NCOIC to call the Controller.
2. Remove the yellow weapon key from your torso harness. Alarm will sound.
3. Ask Controller to use his green key to silence your alarm.
4. Put yellow weapon key back in transmitter and turn to WEAPON ON.

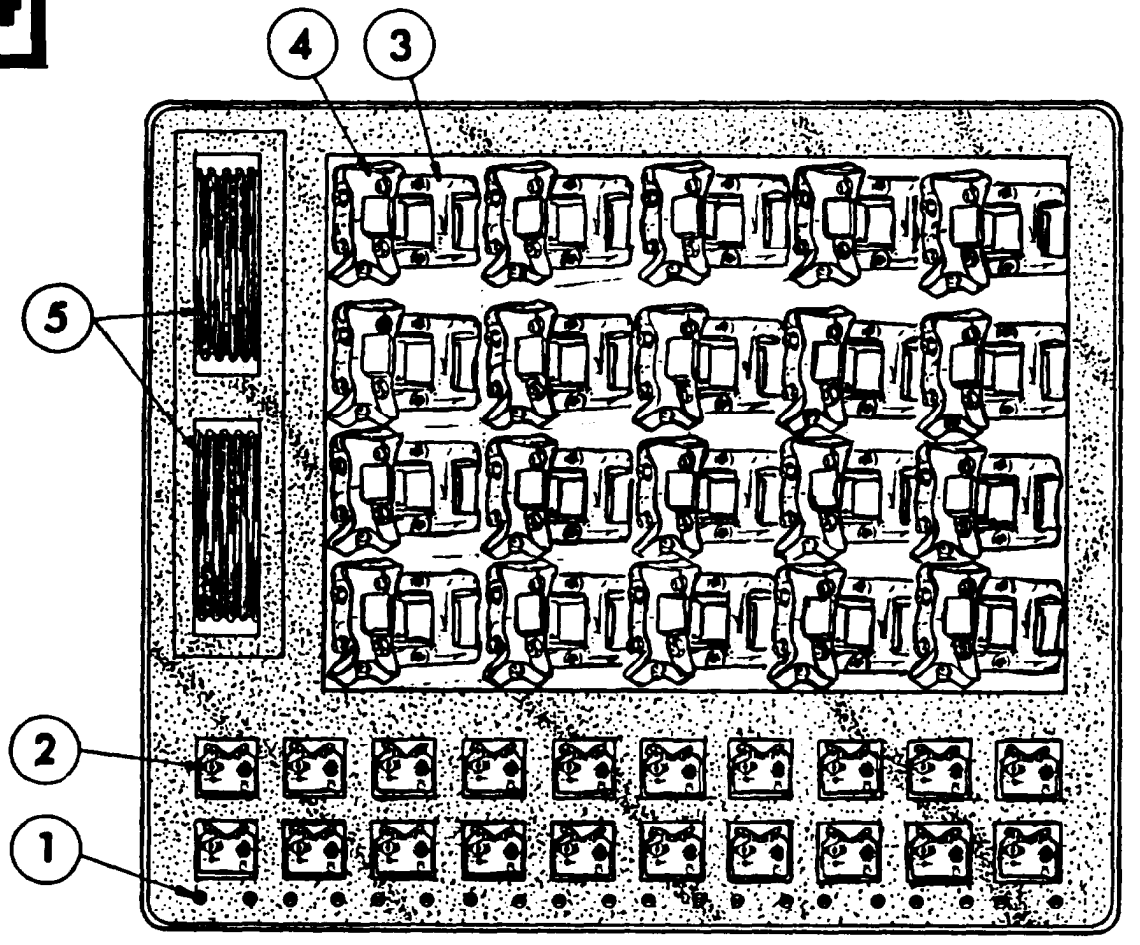
TASK 14 Inspect, Clean, and Return MILES Equipment



- Unload your weapon

1. Remove MWLD torso and helmet harnesses.
2. Remove both batteries from MWLD and close doors (see Task 6).
3. Do Tasks 2 and 3: Inspect and clean harness assemblies.
4. Remove M16 transmitter from barrel (see Task 10).
5. Make sure that yellow weapon key is in transmitter.
6. Remove transmitter battery and close door (see Task 9).
7. Do Task 8: Inspect and clean transmitter.
8. Remove blank-fire attachment from M16A1.
9. Make sure that you have all your equipment (see Task 1).
10. Return all MILES equipment, M16, blank-fire attachment, and any unused blank ammunition to your NCOIC. You may be asked to return your MILES equipment to its transit case. If so, follow the instructions on the next page.

TASK 14



Transit Case Loading Instructions

- The transit case holds 20 complete M16A1 or M16A2 MILES systems.

1. Remove yellow weapon keys from each transmitter. Place keys in spaces provided.
2. Insert 20 transmitters, lens down, into spaces provided.
3. Fold torso harnesses and place them in space provided.
4. Fold helmet harnesses and place them on top of torso harnesses.
5. Two spaces are provided for holding Operator's Manuals. Place 10 copies of the manual in each space.

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**

Operator's Manual: M16A1 Rifle	TM 9-1005-249-10
Hand Receipt for Simulator System, Firing Laser: M60 for M16A1 Rifle	TM 9-1265-370-10-1-HR
Alignment Fixture, Laser: M1 for MILES Small Arms	TM 9-5860-436-14&P

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 M16A1 and M16A2/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: Lines 1 and 2 give a brief item description. Line 3 lists the Federal Supply Code for Manufacturer (FSCM) and the reference number.

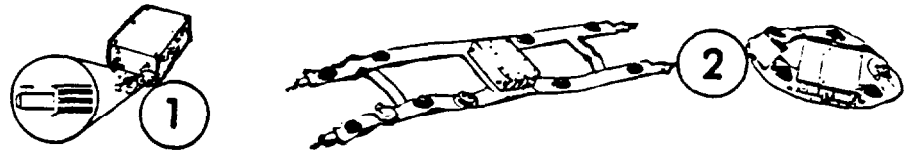
U/M: Unit of Measure

Qty: Quantity of item furnished.

Illustration Number: Number of illustration that shows item.

SECTION II. COMPONENTS OF END ITEM

National Stock Number	Description FSCM & Part Number	U/M	Qty	Illustration Number
1265-079-5264	M16A1 Laser Transmitter Assembly (19200), 11748801	ea.	1	1
None Assigned	M16A2 Laser Transmitter Assembly (alternate item) (19200), 9353050	ea.	1	1
1265-01-075-4893	Man Worn Laser Detector Assembly (19200), 11748808	ea.	1	2



SECTION III. BASIC ISSUE ITEMS

1 ea. TM 9-1265-370-10-1 Operator's Manual f/ Simulator System, Firing Laser : M60 f/ M16A1/A2 Rifle

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

This appendix lists additional items you will need to operate the M16/MILES system.

Explanation of Columns:

National stock numbers, description, unit of measure, and quantities are provided to help you identify and request the additional items you will need to operate the M16/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.	3	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 which you will need to operate and maintain the M16/MILES system.

Explanation of Columns:

National stock numbers, descriptions and unit of measure are provided to help you identify and request the expendable supplies and materials used with the M16/MILES system.

National Stock Number	Description FSCM & Part Number	U/M
6640-00-240-5851	Paper, Lens (81349), NNN-P-40	pk.
8010-01-040-0947	Primer, Tape (19200), 11749034	cn
8315-01-111-7170	Fastener Tape, Hook (19200), 11749428	ea.

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
Alignment Target	Small Arms Alignment Fixture
Controller Gun	Controller's Gun, Simulator System, Laser
Helmet Harness	Detector Assembly, Simulator System, Laser: Man Worn
M16A1 Transmitter M16A2 Transmitter	Transmitter Assembly, Simulator System, Laser: For M16A1 (or M16A2) Rifle
Torso Harness	Detector Assembly, Simulator System, Laser: Man Worn

B. LIST OF ABBREVIATIONS

MILES	Multiple Integrated Laser Engagement System
MWLD	Man Worn Laser Detector

C. GLOSSARY

Controller	The umpire or referee in a MILES training exercise.
Controller Gun	The device used to test MILES detector systems. May also be used to disqualify soldiers or vehicles from the exercise.
Controller Key	The green key used by the Controller to reset MILES transmitters. Also used to reset the MWLD.
Helmet Harness	The part of the laser detector assembly worn on a combat helmet.
Kill	In a MILES training exercise, a continuous alarm sounds indicating the detector assembly was hit by a laser beam. The yellow weapon key is removed from the transmitter and put in the detector assembly to silence alarm. The M16A1 transmitter will not operate with weapon key removed.

Laser Beam	In 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 indicates laser fire directed towards you.
Simulator	A training device which takes the place of real equipment and which has many of its characteristics.
Torso Harness	The part of the laser detector assembly worn on the upper body.
Trigger Cable Assembly	A MILES device used with Dry-Fire.
Weapon Key	This yellow key has two uses: 1. To turn on the M16 transmitter. 2. To silence alarm when it sounds, remove key from transmitter and insert in MWLD weapon.
Weapon Key Receptacle	A small device on the MWLD which receives the yellow weapon key to shut off 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 12-40, Operator's Maintenance requirements for MILES Simulator Sys, Firing, Laser, M60 (for M16A1 Rifle).

☆ U.S. GOVERNMENT PRINTING OFFICE : 1993 - 342-421 (80104)

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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

SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)
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Date you filled out form.

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
'TM 9-XXXX-XXX-XX	Date of TM	Title of TM

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO
400		183	
512		191	

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

Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.

Figure 191, item 3 has the wrong NSN. Supply rejects orders for this item. The NSN shown here is not listed in the AMDF or the MCRL.
Please give us the correct NSN and P/N.

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John Smith

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TM 9-1265-370-10-1	15 JULY 1988	(MILES) MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM SIMULATOR SYSTEM FIRING LASER

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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 Millilters = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Mililiters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Milimeters = 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 Milimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

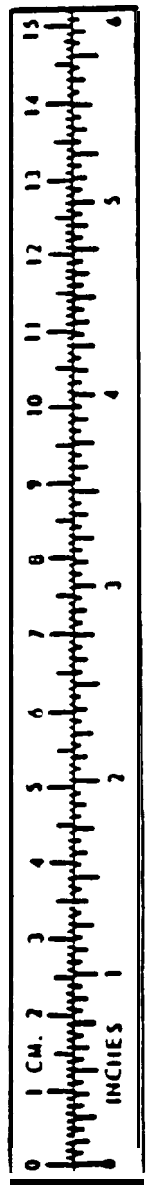
TEMPERATURE

5/9 (° F - 32) = ° 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° + 32 = F °

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
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
	Inches	0.394
	Feet	3.280
	Yards	1.094
	Miles	0.621
	Square Inches	0.155
	Square Feet	10.764
	Square Yards	1.196
	Square Miles	0.386
	Acres	2.471
	Cubic Feet	35.315
	Cubic Yards	1.308
	Fluid Ounces	0.034
	Pints	2.113
	Quarts	1.057
	Gallons	0.264
	Ounces	0.035
	Pounds	2.205
	Short Tons	1.102
	Pound-Feet	0.738
	Pounds per Square Inch	0.145
	Miles per Gallon	2.354
	Miles per Hour	0.621



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