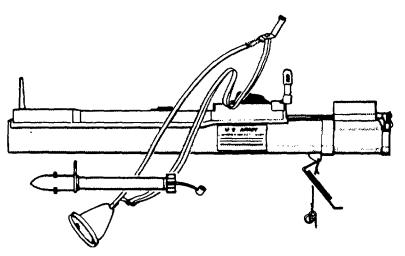
TM 9-1340-224-12

#### DEPARTMENT OF THE ARMY MANUAL

#### ROCKET LAUNCHER M190 WITH SUBCALIBER 35MM PRACTICE ROCKET M73

#### OPERATOR AND UNIT MAINTENANCE MANUAL



Approved for public release, distribution is unlimited,

20 FEBRUARY 1992 This manual supersedes TM 9-1340-203-20, 30 December 1990

#### WARNING

- ALWAYS KEEP LOADED WEAPON POINTED DOWNRANGE. DO NOT STAND TO REAR OF LAUNCHER. DO NOT USE ROCKET IF SAFETY CLIP IS
   MISSING.
- LOAD, UNLOAD, OR FIRE WEAPON AT FIRING LINE ONLY, UNLESS WEAPON IS TRANSFERRED TO AUTHORIZED PERSONNEL.
- DO NOT USE WEAPON IF ROCKET OR LAUNCHER, OR BOTH, HAS BEEN DROPPED OR OTHERWISE EXPOSED TO DIRT.
- INSERT ROCKET ALL THE WAY INTO LAUNCHER BEFORE ATTACHING PRIMER BLOCK.
- DO NOT FIRE THE M190 SUBCALIBER TUBE WITH A CRACK, SPLIT, OR WORN CONDITION AT THE SHOULDER OF THE REAR METAL COLLAR; A BLOWN TUBE INCIDENT MAY OCCUR. A DAMAGED FIRING PIN SPRING OR EXCESSIVE CARBON BUILD-UP CAN CAUSE A MISFIRE.



• METER MARKINGS ON THE FRONT POST SIGHTS OF THE M190, M72A1, AND M72A2, LAUNCHERS CONTAIN SMALL AMOUNTS OF RADIOACTIVE MATERIAL FOR ILLUMINATION. THE SIGHTS DO NOT PRESENT A SIGNIFICANT HEALTH HAZARD BUT MUST BE CONTROLLED. IF SIGHT IS BROKEN, REMOVE AND PLACE IN A PLASTIC SEALED BAG. STORE BAG IN A SEALED CONTAINER UNTIL REMOVED BY AMMUNITION DISPOSAL PERSONNEL.

U AR 5095A

# **CHAPTER 1. INTRODUCTION**

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		Recommended Changes	3	
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u AR 5096A

NOTE

All Light Antitank Weapon (LAW) Launcher Configurations, including M72A2 and M72A3 models, are suitable for use with the M190 conversion kit. Requisition may be made for conversion launchers by requesting "Launcher, M72A1, for rkt 66MM,part number 9210200, NSN 1340-00-426-1013.

#### CHAPTER 1 INTRODUCTION

SCOPE. This manual describes modification of Rocket Launcher M72 Series to form Rocket Launcher M190. Launcher M190 loaded with Subcaliber Practice Rocket M73 forms a Practice Device for the 66MM Light Antitank Weapons Systems M72 Series. Maintenance and firing line loading, firing, and unloading procedures are provided.

FORMS, RECORDS, AND REPORTS. Maintenance forms and records requirements are explained in DA PAM 738-750.

RECOMMENDED CHANGES. Direct reporting of errors, omissions, and recommendations for improving this manual is authorized and encouraged. Use DA Form 2028, Recommended Changes to Publications and Blank Forms, for this purpose.

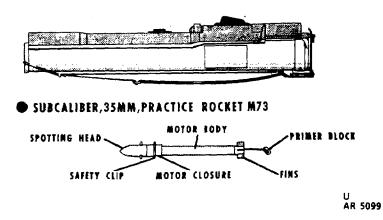
Forward completed forms to the Commanding Officer, U.S. Army Armament Research, Development and Engineering Center, ATTN: SMCAR-LMB, Picatinny Arsenal, NJ 07806-5000. A reply will be furnished directly to you.

u AR 5098A

# SECTION II DESCRIPTION

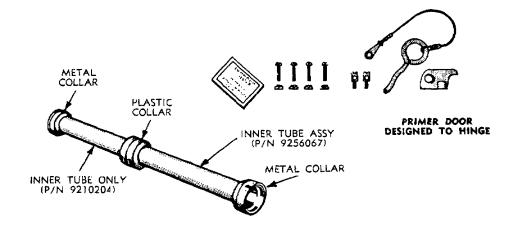
THE LIGHT ANTITANK WEAPON (LAW) SYSTEMS PRACTICE DEVICE CONSISTS OF:

PRACTICE ROCKET LAUNCHER,M190 (MODIFICATION OF EXPENDED LAUNCHER M72A1 TO ACCEPT A SUBCALISER ROCKET)



# **Conversion Kit and Inner Tube Assembly**

 CONVERSION KIT NSN 1340-00-420-7999 (For Complete Kit) CONSISTS OF SCREWS, NUTS, DOOR STUDS, LOCK PIN ASSEMBLY, NEW PRIMER DOOR, AND LABEL



• INNER TUBE ASSEMBLY OR SUBCALIBER TUBE IS ALUMINUM WITH A SMOOTH BORE MACHINED TO ACCEPT THE SUBCALIBER. 35MM, PRACTICE ROCKET

U AR 5100

AFTER MODIFICATION THE PRACTICE DEVICE APPEARS SIMILAR TO THE LIGHT ANTITANK WEAPON SYSTEM, 66MM, M72 SERIES. THE SUBCALIBER ROCKET DIFFERENCE IN CALIBER AND WEIGHT DOES NOT AFFECT FUNCTION.

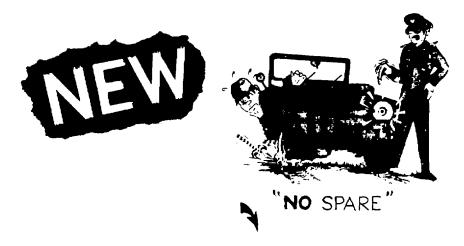
# SECTION III DATA

#### LAUNCHER, ROCKET: PRACTICE, M190 ٠ NSN 1055-00-143-6909)

Diameter Weight	4.9 in. 5.02 lb	Diameter of Rocket Tube 1.4 in. Sights Open. temperature compensating							
Length: Collapsed Extended	25.3 in. 35.4 in.	Trigger Load	Minimum 3 lb Maximum 7 lb						
FUZE • Type Action:	Impact, BD Instantaneous	Operating temp10°F to + 135°F Storage temp40°F to + 160°							
<ul> <li>ROCKET, PRACTICE, 35 MM, SUBCALIBER: M73 (NSN 1340-00-143-6911 and 1340-00-360-5050)</li> </ul>									
Diameter Weight Length	1.38 in. 0.34 lb.	Propellant charge Igniter charge	3 tubular grains of propellant M7 0.3 grams of black powder						
w/o igniter	8.87 in.	Spotting head charge	1.5 grams of composition mix M80						

Effective range 50 to 325 meters \* Not a stocked item (made up by individual units).

U AR 5102



FOR ROCKETS CONVERTED TO M190 ROCKET LAUNCHER IN NEED OF MINOR PARTS ORDER: YOU'LL GET

1 REAR DOOR 1 REAR DOOR PIN ASSEMBLY 2 REAR DOOR SCREWS 1 LABEL (M190) 4 PHILLIPS HD MACH SCREWS 4 SELF LOCKING NUTS

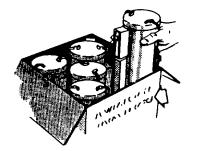
KIT, INSTALLATION (M190) NSN 1055-01-011-8328

u AR 5103

# SECTION I SERVICE UPON RECEIPT OF MATERIEL

# CHAPTER 2 MAINTENANCE AND OPERATION

# **INSPECTION**



- CHECK TO SEE THAT THE RECEIVING BOX AND CARDBOARD CARTONS ARE PROPERLY MARKED AND CONTAIN NECESSARY CONTENTS.
- CHECK BOX AND CONTAINER FOR WATER, DIIT OR OTHER DAMAGE.
- IF EXTENSIVE DAMAGE IS APPARENT, CHECK LAUNCHERS CAREFULLY-CRACKS, BREAKS OR MISSING PARTS.

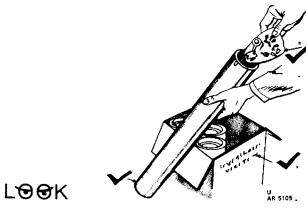
DISCARD UNSERVICEABLE LAUNCHERS

**1 EXPENDED LAUNCHERS** 

U AR 5104A

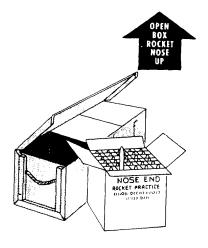
# 2 SUBCALIBER TUBE AND TRAINING KIT OR INNER TUBE ASSEMBLY AND CONVERSION KIT

- CHECK TO SEE THAT RECEIVING BOX AND FIBERBOARD CONTAINER ARE PROPERTY MARKED AND CONTAIN NECESSARY CONTENTS. THE TRAINING KIT IS PLASTIC WRAPPED AND SHIPPED IN THE SUNCALIBER TUBE
- CHECK SUICALIBER TUNE FOR DIRT, RUST, CRACKS AND PITTING
- CHECK TRAINING KIT FOR MISSING PARTS.



IF EXTENSIVE DAMAGE IS APPARENT - USE BOX CONTENTS FOR SPARE PARTS. MARK BOX ACCORDINGLY

# **3 SUBCALIBER ROCKETS**





CHECK TO SEE THAT RECEIVING BOX ROCKETS AND FIBERBOARD CONTAINER ARE PROPERLY MARKED AND CONTAIN NECESSARY CONTENTS

IF EXTENSIVE VISIBLE DAMAGE IS NOTED RETURN ENTIRE BOX TO AMMUNITION SUPPLY POINT

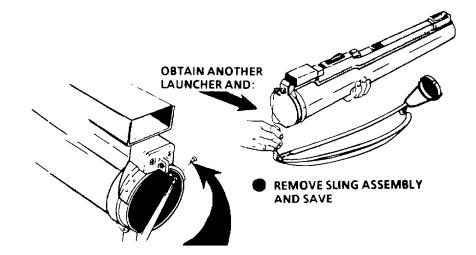
STORE ALL BOXES ON DUNNAGE IN DRY SHELTERED AREA

WOOD BOX (90 ROCKETS) (3 CARTONS) CARDBOARD CARTON (30 ROCKETS)

CHECK BOX CAREFULLY FOR FURTHER STORAGE INSTRUCTION

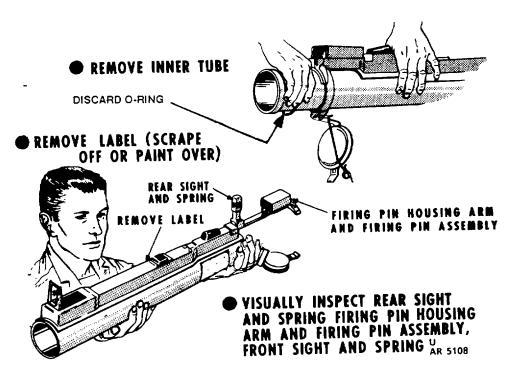
#### WARNING

IF LAUNCHERS MARKED <u>LIMITED FRONT SIGHT</u> ARE RETURNED WITH FRONT SIGHT BROKEN, REMOVE SIGHT AND SEAL IN PLASTIC BAG. SEGREGATE SIGHT FOR DISPOSITION BY AUTHORIZED PERSONNEL IN ACCORDANCE WITH AR 385-11. <u>DISCARD</u> THIS LAUNCHER.

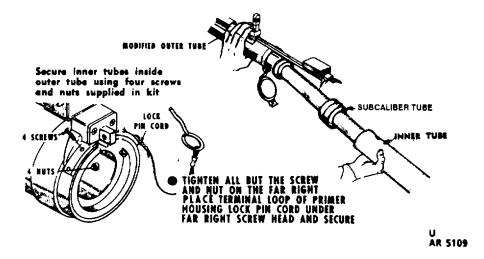


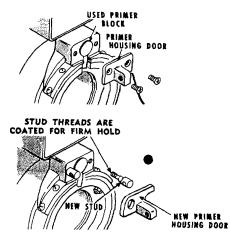
PUNCH OUT RIVETS SECURING INNER TUBE TO LAUNCHER (OUTER TUBE), USE 1/16" PUNCH DISCARD RIVETS

u AR5107



• IF ASSEMBLY IS USABLE, THE SUBCALIBER TUBE IS PLACED INTO THE <u>MODIFIED OUTER TUBE</u>. THE <u>INNER TUBE</u> IS PLACED OVER THE REAR OF THE <u>SUBCALIBER TUBE</u> AND THE ENTIRE ASSEMBLY IS TELESCOPED INTO THE CLOSED POSITION.





• REMOVE PRIMER HOUSING DOOR. DISCARD DOOR, AND RETAINING SCREWS.

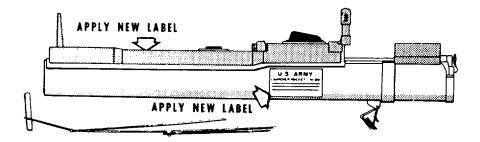
NOTE: RETENTION OF USED PRIMER BLOCK IN CAVITY WILL ASSIST IN POSITIONING NEW PRIMER HOUSING DOOR WHILE CEMENTING AND WILL ALSO PREVENT LOSS OF NEW DOOR AND LOCKPIN DURING TRANSIT AND HANDLING.

 THREAD STUDS INTO HOUSING IMMEDIATELY AND PLACE NEW REAR DOOR AND PRIMER HOUSING LOCK PIN IN POSITION.

SWING DOOR SEVERAL TIMES TO ASCERTAIN PROPER FIT

> u AR 5110

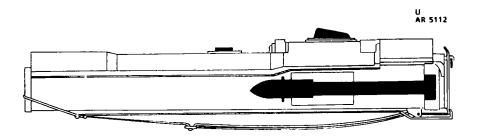
• TEST MECHANICAL FUNCTIONING OF COMPLETED LAUNCHER. SEE THAT TUBES SLIDE FREELY AND SIGHTS SWING TO CORRECT POSITION. RETRIEVE SLING ASSEMBLY AND ASCERTAIN THAT LAUNCHER OPENS AND CLOSES CORRECTLY AND SLING ASSEMBLY OPERATES PROPERLY.



IF COMPLETED LAUNCHER IS FREE OF MECHANICAL DEFECTS APPLY LABEL. LABEL IS PRESSURE SENSITIVE, SELF-ADHERING. PEEL OFF BACKING AND APPLY LABEL TO DRY SURFACE ONLY.

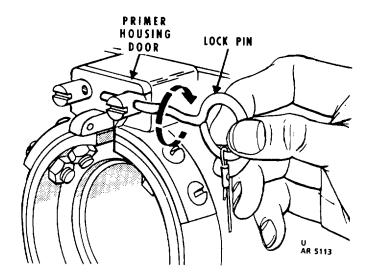
- IF FIRING PIN HOUSING RIVETS
  - OLD REAR PRIMER DOOR, GASKET AND SCREWS
  - OLD OUTER AND INNER TUBE O-RING HAVE BEEN DISCARDED AND
- IF SUBCALIBER TUBE AND OLD INNER TUBE
  - NEW FIRING PIN HOUSING SCREWS AND NUTS
  - NEW REAR DOOR STUDS
  - NEW REAR DOOR
  - NEW PIN ASSEMBLY
  - NEW LABEL

HAVE BEEN ADDED CORRECTLY LAUNCHER IS COMPLETE AND READY TO RECEIVE SUBCALIBER ROCKET.

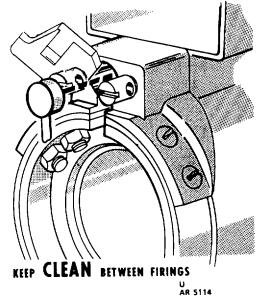


# SECTION II LOADING

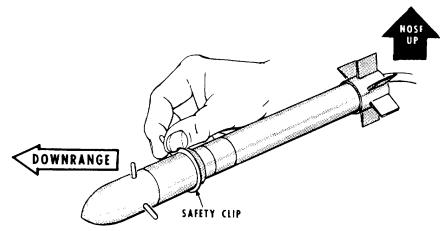
- TWIST AND REMOVE PRIMER HOUSING LOCK PIN
- SWING PRIMER HOUSING DOOR OUT OF WAY OF PRIMER BLOCK ENTRY



- REMOVE FIRED PRIMER BLOCK
- INSPECT PRIMER CAVITY
- INSPECT SUBCALIBER TUBE BORE
- SWAB BORE WITH RAG
- BLOW OUT DUST



OPEN ROCKET CONTAINER, CAREFULLY REMOVE ROCKET





- WARNING: IF ROCKET SAFETY CLIP IS MISSING, CAREFULLY PLACE ROCKET FACING DOWNRANGE. ALERTAUTHORIZED PERSONNEL
- TWIST AND REMOVE SAFETY CLIP FROM ROCKET. SAVE SAFETY CLIP IN CASE ROCKET IS NOT FIRED

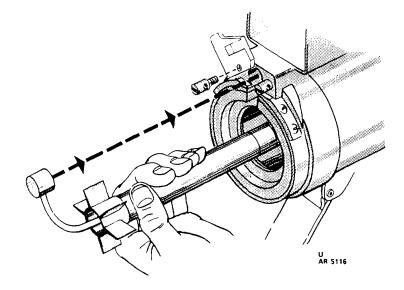
WARNING: DO NOT STAND TO REAR OF LAUNCHER

> u AR 5115

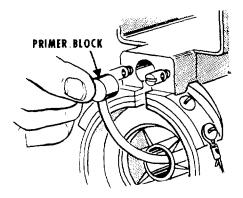
LOAD ROCKET

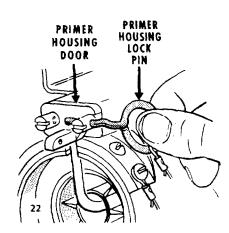
LINE UP PRIMER ON ROCKET WITH PRIMER HOUSING ON LAUNCHER

ROCKET MUST BE FULLY INSERTED IN LAUNCHER TUBE BEFORE PLACING PRIMER IN PRIMER HOUSING





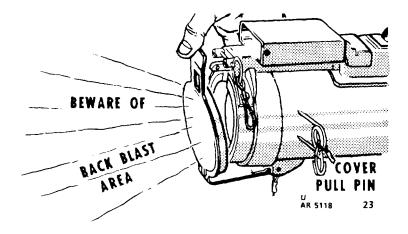


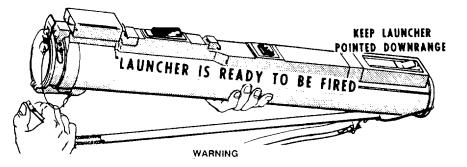


- REPLACE PRIMER HOUSING DOOR
- INSERT PRIMER HOUSING LOCK PIN

u AR 5117

- REPLACE COVER
- REPLACE COVER PULL PIN
- REPLACE SLING ASSEMBLY

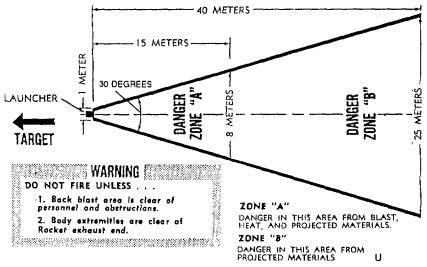




- IF LOADED WEAPON IS NOT USED IMMEDIATELY, INSTRUCTOR SHOULD CAREFULLY PLACE CLOSED WEAPON POINTING DOWNRANGE.
- LAUNCHER TUBES SHOULD BE KEPT CLEAN AND THE SLING ASSEMBLY REPLACED BETWEEN FIRINGS. LAUNCHERS USED AND REUSED SEVERAL TIMES SHOULD BE LIGHTLY CLEANED WITH DRY CLOTH, AND INSPECTED AND SERVICED AS DETAILED IN SECTION XI.
- WEAPON SHOULD BE USED OR UNLOADED AS SOON AS POSSIBLE.
- DUE TO POSSIBILITY OF INJURY FROM FRAGMENTS OF PREMATURE FUNCTIONING AND/OR MOTOR RUPTURES, OPERATORS, INSTRUCTORS AND OBSERVERS SHOULD USE SAFETY EYEWEAR U (GLASSES WITH SIDE SHIELDS OR GOGGLES).

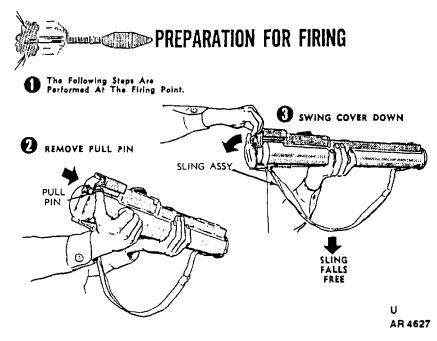
u AR 5119A

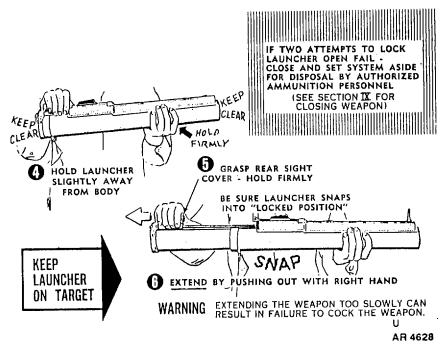
#### SECTION III OBSERVE BACK BLAST DANGER ZONES WITH PRACTICE LAUNCHER



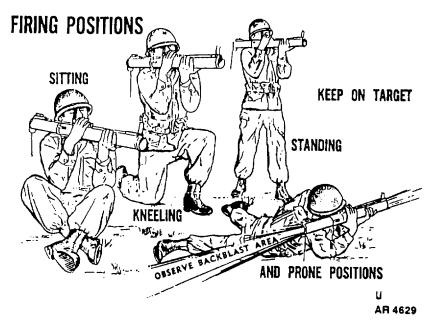
AR 4626

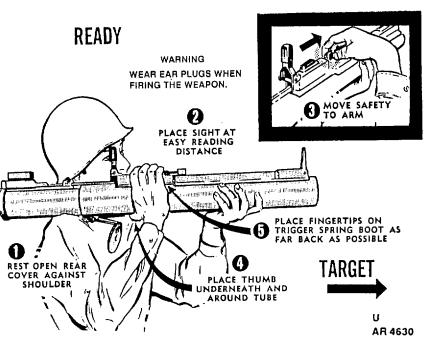




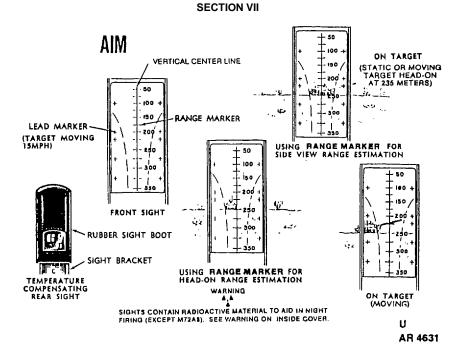


SECTION V

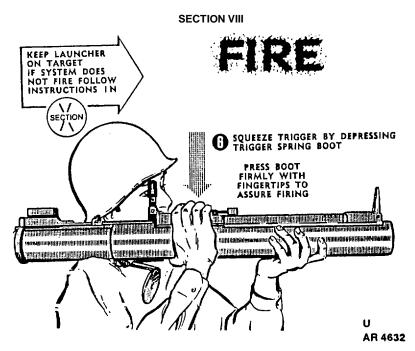




SECTION VI



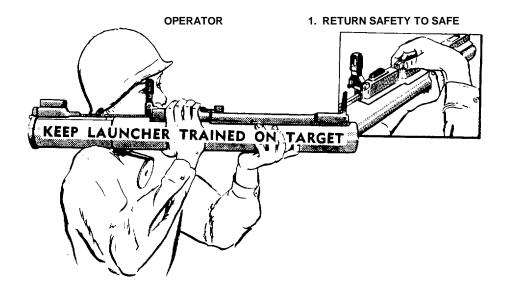






#### SECTION IX

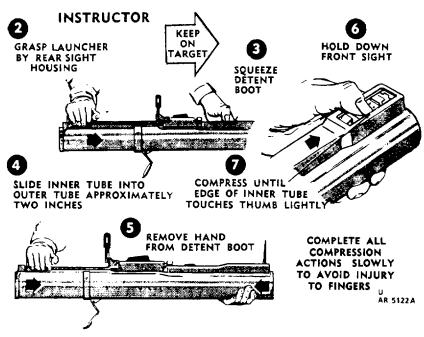
#### **REISSUE OR UNLOADING**

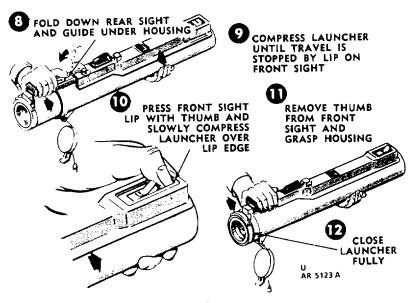


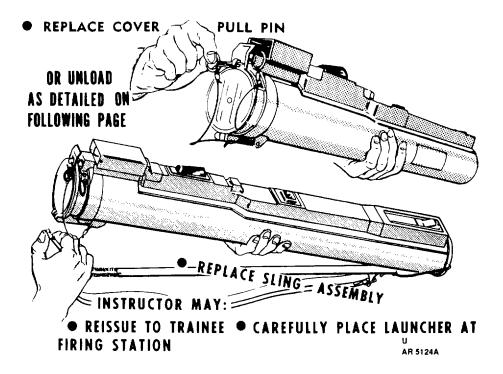
#### 2. GRADUALLY REMOVE WEAPON FROM SHOULDER

INSTRUCTOR









TO UNLOAD KEEP LAUNCHER ON TARGET.

DO NOT REPLACE PIN COVER.

CAREFULLY REMOVE PRIMER FROM HOUSING.

POSITION LAUNCHER SO ROCKET WILL SLIDE EASILY TOWARD REAR.

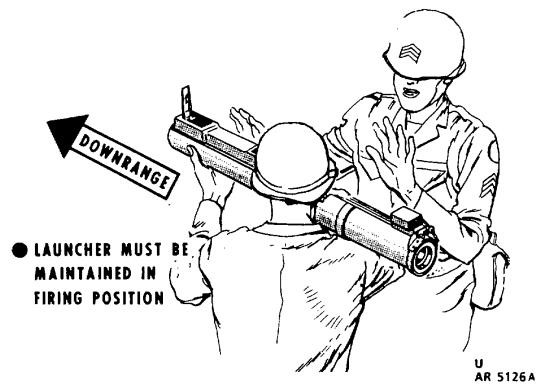
**REMOVE ROCKET.** 

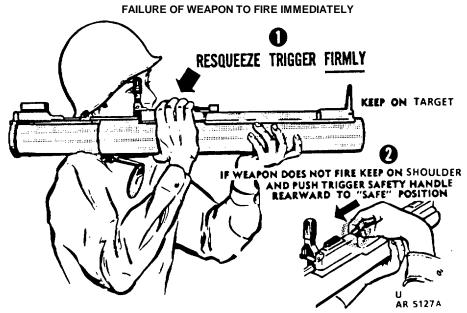
**REPLACE SAFETY CLIP** 

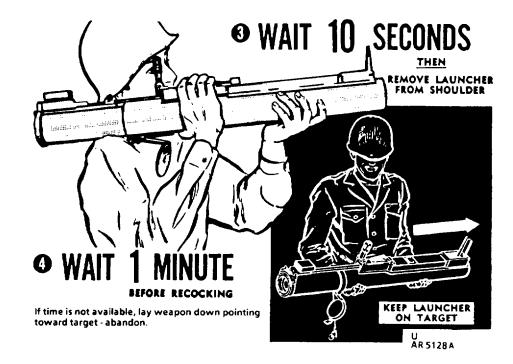
PLACE ROCKET IN ORIGINAL CONTAINER FACING UPWARD.

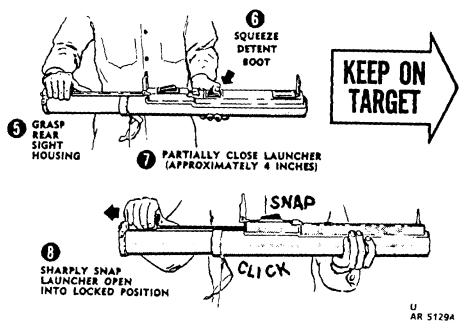
PLACE LAUNCHER IN ORIGINAL CONTAINER.

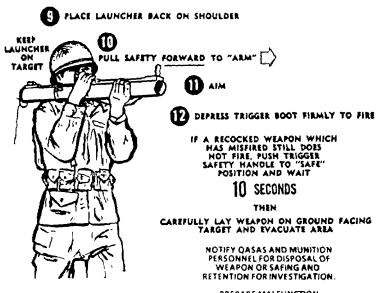
UNLOAD OR RETURN ALL LAUNCHERS TO AUTHORIZED PERSONNEL AT FIRING LINE.











PREPARE MALFUNCTION U REPORT, DA FORM 4379. Art 5130A





### SECTION XI

### AFTER DAILY USE AND AFTER STORAGE

IF THE FOLLOWING PROCEDURES ARE APPLIED, THERE IS NO LIMITATION ON USE OF SUBCALIBER TUBES AND M190 LAUNCHERS.

 INSPECT
 TUBE BORE BY HOLDING UP TO LIGHT. LOOK FOR EXCESSIVE CARBON BUILD-UP AND CRACKING, PITTING, OR A WORN TUBE AT SHOULDER OF REAR METAL COLLAR OF TUBE.

 M72 SERIES ROCKET LAUNCHER FOR CARBON BUILD-UP IN FIRING PIN HOUSING AREA WHICH COULD IMPEDE FIRING PIN MOVEMENT.

 FIRING PIN SPRING AND FIRING PIN FOR PROPER WORKING CONDITIONS.

 REJECT
 TUBES WITH BULGES, DENTS, CURVES, CRACKS, PITS, AND EXCESSIVE WEAR AT SHOULDER OF REAR METAL COLLAR.

CLEAN

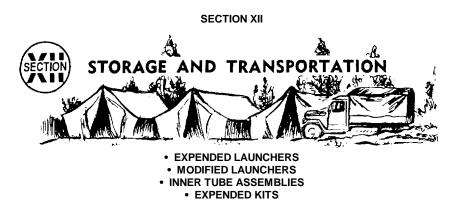
BORE BY SWABBING WITH MINERAL SPIRITS OR EQUIVALENT. DRY BY FORCING CLEAN RAG THROUGH BORE.

CARBON FROM FIRING PIN HOUSING AREA OF LAUNCHER WITH A WIRE BRUSH.

PLACE COVERS AND SLING ON CLOSED LAUNCHER FOR STORAGE.

WARNING

DO NOT FIRE M190 LAUNCHER WITH A SUBCALIBER TUBE WITH CRACKS, SPLITS, OR A WORN CONDITION AT SHOULDER OF REAR METAL COLLAR; A BLOWN TUBE INCIDENT MAY OCCUR. A DAMAGED FIRING PIN SPRING OR EXCESSIVE CARBON BUILD-UP CAN CAUSE A MISFIRE.



WILL BE IN ORIGINAL PACKING WHEN POSSIBLE AND SEPARATED ROCKETS AND MODIFIED LAUNCHERS WILL BE STORED IN SAME GENERAL AREA TO MAINTAIN LIKE TEMPERATURE.

FOR GENERAL CONUS STORAGE REQUIREMENTS

SEE TM 9-1300-206

MILITARY TRANSPORTATION USED FOR MOVEMENT OF HAZARDOUS MATERIAL IS SUBJECT TO ALL SAFETY LAWS, RULES AND REGULATIONS APPLICABLE TO COMMERCIAL CARRIERS. EXCEPTIONS MAY BE PERMITTED IN FOLLOWING INSTANCES:

1. INTRA-DEPOT MOVEMENT UPON AUTHORIZATION OF THE THEATER COMMANDER.

2. INTRA-THEATER MOVEMENT UPON AUTHORIZATION OF THE THEATER.

FREIGHT CLASSIFICATION AND HAZARD DESCRIPTION:

1. RAIL: ROCKT AMMUNITION WITH EXPLOSIVE PROJECTILE (ROCKETS NOIBIN OTHER THAN GUIDED), CLASS A EXPLOSIVES, UFC 9 ITEM 5930.

2. MOTOR: ROCKET AMMUNITION WITH EXPLOSIVE PROJECTILE (ROCKETS, NO1), CLASS A EXPLOSIVES, NMFC A10 ITEM 13880.\*

3. OUTSIDE PACKAGE MARKING: "ROCKETAMMUNITION WITH EXPLOSIVE PROJECTILE, CLASS A EXPLOSIVES - HANDLE CAREFULLY."

\* Spotting charge in training rocket characterizes it as an explosive projectile

# APPENDIX A. REFERENCES

1. ADMINISTRATIVE PUBLICATIONS	
Malfunctions Involving Ammunition and Explosives	AR 75-1
Ionizing Radiation Protection (Licensing) Control, Transportation,	
Disposal, and Radiation Safety	AR 385-11
Accident Reporting and Records	AR 385-40
Regulations for Firing Ammunition for Training Target Practice and	
Combat	
Fire Protection	AR 420-90
Report of Item and Packaging Deficiencies	AR 735-11-2
Army Materiel Maintenance Concepts and Policies	AR 750-1
2. BLANK FORMS	
Fire Reports	DA Form 5-2
Recommended Changes to Publications	
Preliminary Ammunition Malfunction Feeder Report	DA Form 4379
3. TECHNICAL MANUALS	
The Army Maintenance Management System (TAMMS)	DA PAM 738-750
Ammunition, General	TM 9-1300-200
Care, Handling, Preservation and Destruction of Ammunition	
Military Explosives	TM 9-1300-214
60MM Light Antitank Weapon (LAW) M72A1 and M72A2 With	
Coupler and Practice Launcher M190 with M73 Practice Rocket	TM 9-1340-214-10
Demolition Materials	TM 9-1375-213-12
48	

#### APPENDIX B. MAINTENANCE ALLOCATION CHART PRACTICE ROCKET LAUNCHER M190

(1) G R	(2) Functional group	(3) Maintenance functions										(4) Tools and equipment	(5) Remarks		
	I diferioritar group	S P E	TEST	UNPACK	S REPACK	ERVIC C L E A N	E TOUCH UP	MARK	INSTALL	ADJUST	REN P A I N T	R R P A I R	E REPLACE		
	Inner tube M190 Launcher M72A1 (used Rear door pin assembly Rear door Stud Screws	0 0 0 0 0	0 0 - 0 0	0 0 0 0 0	0 0 - - -	0 0 - - -	- 0 - - -	- 0 - -	0 0 0 0 0	0 0 0 0 0	- 0 - -	- 0 - 0 -	0 0 0 0 0	Hammer punch	

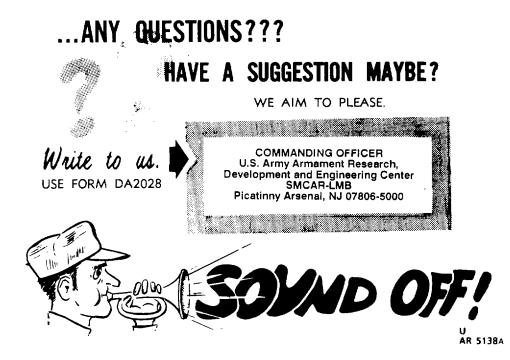
## LEVEL OF RESPONSIBILITY

C - Operator/crew O - Organization

D - Depot

F - Direct Support H - General Support

49 (50 blank)



Supersedes TM 9-1340-203-20, dated 30 December 1990

By Order of the Secretary of the Army

Official Mitte of Anth

MILTON H. HAMILTON Administrative Assistant to the Secretary of the Army 01104

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