

NORMAL

MWO effective date is 1 April 1988
and completion date is 1 April 1992

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MWO -1010-223-30-1

MODIFICATION WORK ORDER

MODIFICATION OF
LIGHTWEIGHT COMPANY MORTAR, 60MM, M224
TO INSTALL IMPROVED RANGE INDICATOR ASSEMBLY
1010-01-237-9033

Headquarters, Department of the Army, Washington, DC
23 December 1987

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

Approved for public release; distribution is unlimited

WARNING

RADIATION HAZARD



Tritium (H₃)

A. RULES AND REGULATIONS. Copies of the following rules and regulations are maintained at HQ, AMCCOM, Rock Island, IL 61299-6000. Copies may be requested or information obtained by contacting the AMCCOM Radiological Protection Officer (RPO), AUTOVON 793-2964, Commercial (309) 782-2964.

- (1) 10CFR Part 19 - Notices, Instructions and Reports to Workers; Inspections.
- (2) 10CFR Part 20 - Standards for Protection Against Radiation.

Change 1 1

CHANGE

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC 7 July 1989

**MODIFICATION OF
LIGHTWEIGHT COMPANY MORTAR, 60MM, M224
TO INSTALL IMPROVED RANGE INDICATOR ASSEMBLY
NSN 1010-01-237-9033**

MWO 9-1010-223-30-1, 23 December 1987, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page.
3. This MWO is changed as a result of new-effective and completion dates.

Remove Pages

1 and 2
3 and 4
7 and 8

Insert Pages

1 and 2
3 and 4
7 and 8

File this change in back of the publication for reference purposes.

By Order of the Secretary of the Army:

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

OFFICIAL:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-40, Direct and General Support Maintenance requirements for Mortar, Lightweight Company, 60-MM, M224.

WARNING--Continued

(3) NRC license, license conditions, and license application.

B. SAFETY PRECAUTIONS. The radioactive material used in these in- hazard to the repairman when intact. These sources illuminate the instrumentation for night operations. Tampering with or removal of the sources in the field is prohibited by Federal law. In the event there is no illumination, notify the local RPO. Do not attempt to repair or replace the instrument in the field! If skin contact is made with any area contaminated with tritium, immediately wash with nonabrasive soap and water.

C. IDENTIFICATION. Radioactive self-luminous sources are identified by means of radioactive warning labels (see para A.). These labels should not be defaced or removed and should be replaced immediately when necessary. Refer to the local RPO or the AMCCOM RPO for instructions on handling, storage, or disposal.

D. STORAGE AND SHIPPING. All radioactively illuminated instruments modules which are defective will be evacuated to a depot maintenance activity. These items must be placed in a plastic bag and packaged in the shipping container from which the replacement was taken before evacuation to a higher echelon is made. Spare equipment must be stored in the shipping container, as received, until installed on the weapon. Storage of these items is recommended to be in an outdoor shed-type storage or unoccupied building.

1. PURPOSE. The purpose of this modification is to improve the design of the shock resistant mounting on the range indicator kit so that the tritium lamp can withstand high recoil forces without breakage.

2. PRIORITY. This modification is classified normal.

3. END ITEM(S) OR SYSTEM(S) TO BE MODIFIED. see table 1.

Table 1. End Item or System to be Modified.

Nomenclature	NSN	Part No.	FSCM	Model No.	Serial No.
Mortar, 60MM M224	1010-01-020-5626	11579088	19206	M224	All

4. MODULE(S) (COMPONENTS, ASSEMBLIES, SUBASSEMBLIES, BOARDS, AND CARDS) TO BE MODIFIED. Not applicable.

5. PARTS TO BE MODIFIED. Not applicable.

6. APPLICATION.

- a. Time compliance schedule: The effective date of this MWO is 1 April 1988 and the completion date is 1 April 19921
- b. Level of maintenance: Intermediate direct support maintenance.
- c. Work force and man-hour requirements for application of the MWO to one end item:
 - (1) Total of h man-hour using one Small Arms Repairman (MOS 45B).
 - (2) Total of 30 minutes downtime for one end item.
- d. MWO to be applied prior to or concurrently with this MWO: None.
- e. Additional information. None.

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED. TECHNICAL PUBLICATIONS which have been changed as a result of this MWO area:

TM 9-1010-223-20&P	27 Mar 1981
TM 9-1010-223-34&P	1 Apr 1981
AMCCOM DMWR 9-1010-223	16 Sep 1986

8. MWO KIT(S)/PART(S) AND THEIR DISPOSITION.

- a. Kit(s)/part(s) needed to apply MWO: See table 2. This kit is unclassified.

Table 2. Parts Required to Accomplish MWO.

NSN	Nomenclature and Part No.	FSCM	Weight	Dimensions	Cube
1010-01-237-9033	Improved Range Indicator Kit 9360382	19200	.35 lbs	.40 x.27 x .15 ft .	15 cu ft

b. Contents of MWO kit(s): See table 3.

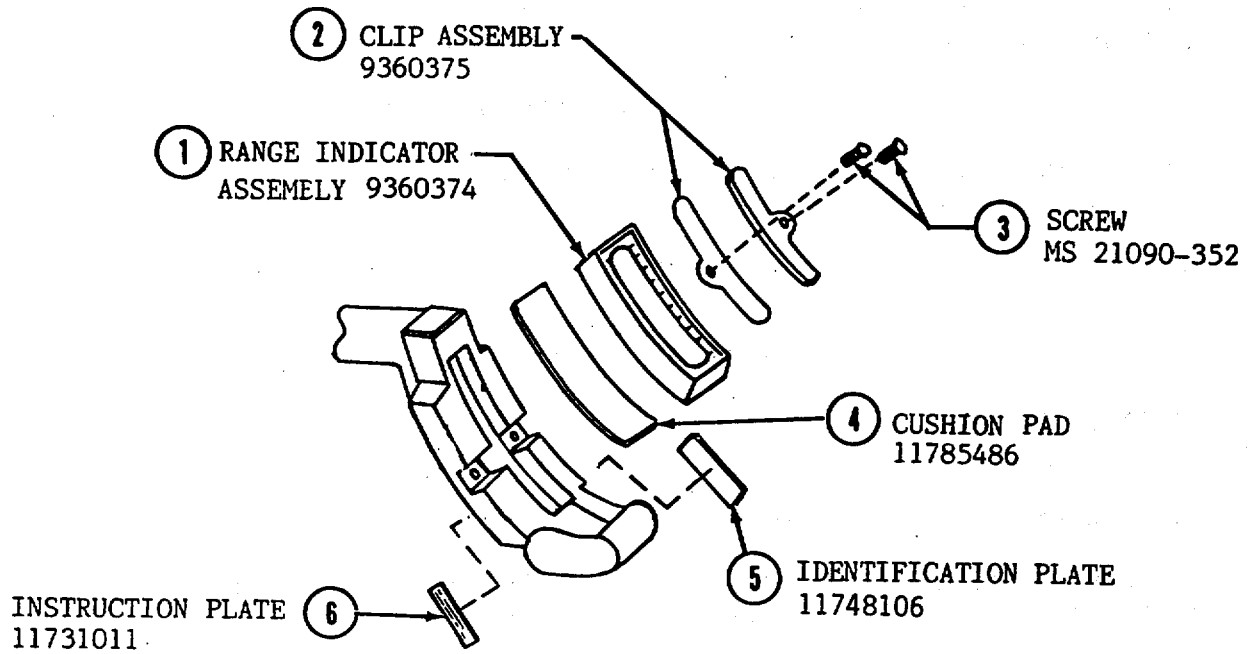


Figure 1. Improved Range Indicator Kit.

Table 3. Contents of MWO Kit.

NSN	Nomenclature and Part No.	FSCM FSCM	Qty Required Per: End Item/System Module	Part	Figure No.	Item No.
1010-01-237-9033	Improved Range Indicator Kit 9360382	19200	1		1	-
	Consisting of:					
1010-01-237-9032	Range Indicator Assembly 9360374	19200	1		1	1

Table 3. Contents of MWO Kit - Continued.

NSN	Nomenclature and Part No	FSCM	Qty Required Per:		Figure No.	Item No.
			End Item/System Module	Part		
5340-01-237-9034	Clip Assembly (Pad and Clip) 9360375	19200		2	1	2
5305-00-116-1469	Screw, Self Locking MS21090-352	96906		2	1	3
8140-01-238-0569	Cushion Pad 11785486	19200		1	1	4
9905-01-043-8163	ID Plate 11748106	19200		1	1	5
9905-00-257-2746	Instruction Plate 11731011	19200		1	1	6

c. Bulk and expendable material: See table 4.

Table 4. Bulk and Expendable Material.

NSN	Nomenclature	Part No.	FSCM	Quantity
8030-00-275-8110	Sealing Compound	MIL-S-11031	81349	Quart

d. Parts disposition: Parts no longer required are listed in table 5 and will be disposed of in accordance with AR 755-2.

Table 5. Parts to be Disposed of.

NSN	Nomenclature	Part No.	FSCM
1010-01-115-3128	Range Indicator Kit	11834863	19200
	Consisting of:		
	Range Indicator	11834851	19200
9905-01-043-8163	ID Plate	11748106	19200
9905-00-257-2746	Instruction Plate	11731011	19200
5305-00-834-1520	Screw, Self-Locking	MS21090-351	96906

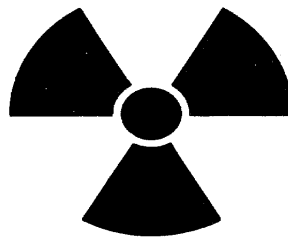
9. SPECIAL TOOLS; TOOL KITS; JIGS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED. Cross-tipped screwdriver PN MS15224-5 (NSN 5120-00-234-8913) from SC 4933-95-CL-A11.

10. MODIFICATION PROCEDURES.

- a. Removal of range indicator kit 11834863:

WARNING

RADIATION HAZARD



TRITIUM (H₃)

The range indicator contains radioactive material (tritium H₃). Care should be exercised to make sure glass vials are not broken. Refer to radiation hazard warning on front page for detailed procedures.

Note

Refer to figure 2 for the following steps.

- (1) Remove two screws (1), range indicator (2), identification plate (3), and instruction plate (4).
- (2) See paragraph 8.d. for parts disposition.

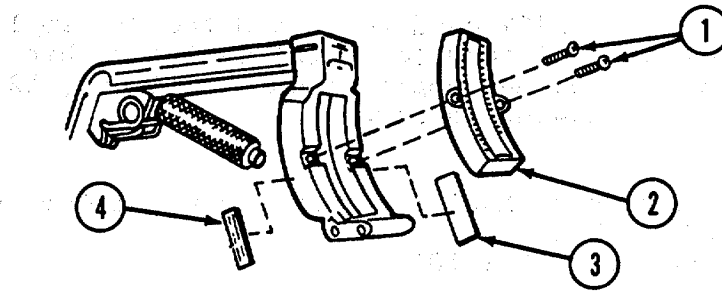


Figure 2. Range Indicator Kit 11834863.

- b. Installation of improved range indicator kit 9360382:

Note

Refer to figure 1 for the following steps.

- (1) Install cushion pad (4) and range indicator assembly (1), so that numbers can be read from the gunner's position, in mortar handle.
- (2) Install two clip assemblies (2) over range indicator assembly (1) and install two screws (3). Make sure that the clip assemblies are tightened snugly against the mortar handle (10 inchpounds).
- (3) Install identification plate (5) using sealing compound.
- (4) Install instruction plate (6).

11. **CALIBRATION REQUIREMENTS.** Not applicable.
12. **WEIGHT AND BALANCE DATA.** Not applicable.
13. **QUALITY ASSURANCE REQUIREMENTS.** Not applicable.
14. **RECORDING AND REPORTING OF THE MODIFICATION.**

a. Records and reports: Refer to AR 750-10 and DA Pam 738-750 for detailed instructions on how to record and report the accomplishments of the modification.

- (1) Completion of a DA-Form 2407, Maintenance Request, to re-report MWO application is mandatory. Refer to DA Pam 738-750.
- (2) DA Form 2407, block 2, Serial Number, must contain the serial number of the end item.
- (3) DA Form 2407, block 6, National Stock Number, must contain the NSN of the end item.

(4) The DA Form 2407 used to record the MWO application must be completed and the NMP copy (copy #2) mailed within 3 working days after completion of the MWO application. Mail copy #2 of the DA Form 2407 to the following address:

Commander
 U.S. Army Armament, Munitions, and Chemical Command
 ATTN: AMSMC-MAF-AL
 Rock Island, IL 61299-6000

Mail copy #3, the control copy, to the following address:

Commander
 U.S. Army Depot Systems Command
 ATTN: AMSMC-MAF-AL
 Chambersburg, PA 17201-4170

(5) Record the MWO application on DA-Form 2408-5, Equipment Modification Record, in accordance with DA PAM 738-750.

b. Marking equipment: No marking is required other than the application of the new ID plate (see figure 1 for the location of the ID plate).

c. Identification data: See table 6.

Table 6. Identification Data.

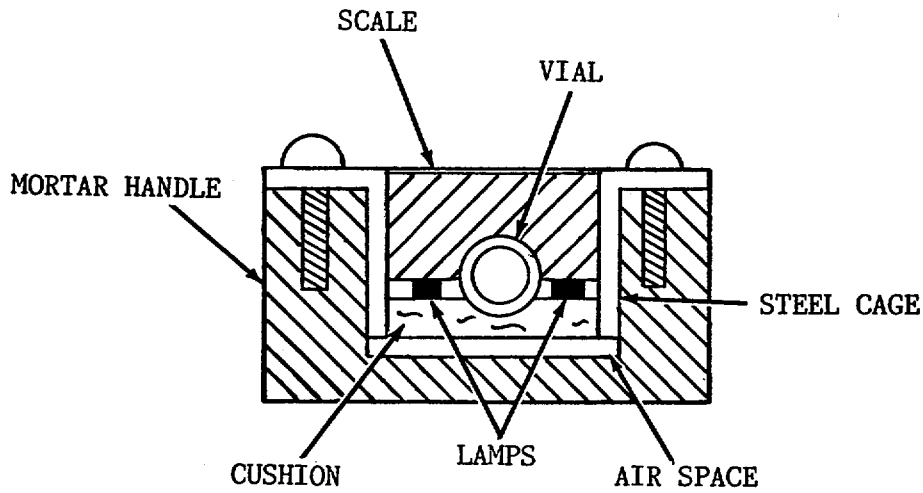
Nomenclature Before/After NSN	FSCM and Part Number Before/After Nomenclature	NSN Before/After Modification
Range indicator kit/ Range indicator kit	19200 11834863/ 19200 9360382	1010-01-115-3128/ 1010-01-237-9033

15. PRODUCT IMPROVEMENT PROPOSAL (PIP) NUMBER. This MWO is authorized by PIP Number 1-82-05-7109.

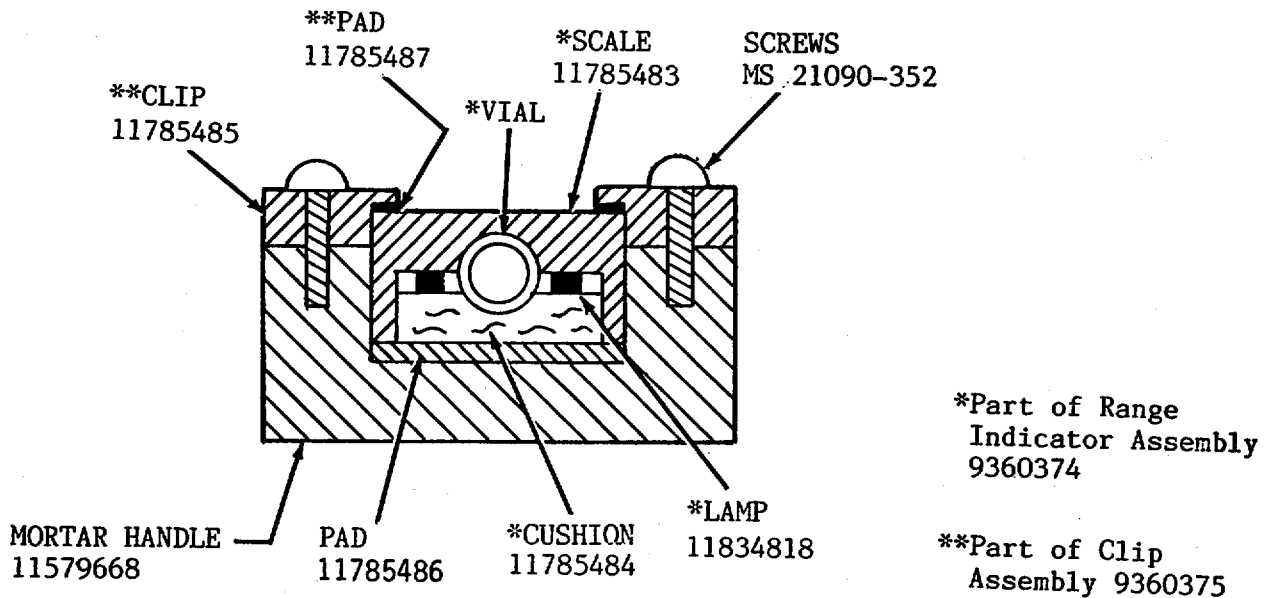
16. MODIFICATION IDENTIFICATION. See figure 3 for an aid in physically inspecting the materiel for application of the MWO.

*U.S. GOVERNMENT PRINTING OFFICE: 1989 643-046/00208

PIN: 063453-001



PRESENT DESIGN



IMPROVED DESIGN
(PIP 1-82-05-7109)

Figure 3. Present and Improved Designs.

By Order of the Secretary of the Army:

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

Officiat:

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

DISTRIBUTION:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Mortar, Lightweight Company, 60-MM, M224.

*U.S. GOVERNMENT PRINTING OFFICE: 1988 542-043/80010

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PUBLICATION DATE

PUBLICATION TITLE

BE EXACT... PIN-POINT WHERE IT IS

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

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
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DA FORM 2028-2 JUL 79

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

PIN: 063453-000