



DEPARTMENT OF THE ARMY
U.S. ARMY TANK-AUTOMOTIVE AND ARMAMENTS COMMAND
6501 EAST 11 MILE ROAD
DETROIT ARSENAL, MICHIGAN 48397-5000

Safety Office

6 January 2022

U.S. Nuclear Regulatory Commission
Region III
Materials Licensing Branch
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

Dear Sir/Madam:

This letter is for NRC License Number 21-32838-01, Docket Number 030-38500.

We reported a lost M224 Range Indicator to the U.S. Nuclear Regulatory Commission (NRC) Operation Center on December 9, 2021. The Iowa Department of Public Health, Bureau of Radiological Health was also given a courtesy notification on the same date. This report was made in accordance with the Code of Federal Regulations, Title 10, Part 20.2201. The NRC Operations Center assigned event number 55636 to this incident. Enclosure 1 contains the information required to complete the 30-day reporting requirement contained in 10 CFR 20.2201. Enclosures 2-4 contain incident reports from the end-users and handlers of the missing item, while drawings and other pertinent information is included in Enclosure 5.

If you have any additional questions, please contact Mr. Nathan A. Krzyaniak, Radiation Safety Program Manager, U.S. Army Tank-automotive and Armaments Command (TACOM), at 586-282-3676 or email: Nathan.a.krzyaniak.civ@army.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "Nathan A. Krzyaniak", is written over a horizontal line.

NATHAN A. KRZYANIAK
Radiation Safety Program Manager

Enclosures

30-Day Report Information

The following information is to address the reporting requirements of the Code of Federal Regulations, Title 10 Energy, Part 20.2201.

1. A description of the licensed material involved, including kind, quantity, and chemical and physical form.
 - a. The radioactive material is licensed by NRC license number 21-32838-01, Docket number 030-38500, line items 6a, 7a, 8a, 9a. It contains tritium: hydrogen-3 (H3) gas in sealed glass ampoules not to exceed 10.2 curies (377 GBq) per device. The total possession limit for tritium on this license is 500 kCi.
 - b. A single M224 range indicator was declared missing by a mortar team in the Iowa Army National Guard and reported to my office on 9 December 2021. Each range indicator contains four small vials of tritium, each vial containing 0.8 Ci of tritium, for a total of 3.2 Ci per device. The M224 range indicator is one of many tritium components that attach to the 60mm lightweight mortar; no other tritium components are missing in relation to this incident.

Item Name:	M224 Mortar, 60mm, Range Indicator
Nomenclature:	Range Indicator
National Stock Number:	5840-01-458-6159
Serial Number:	Not tracked individually
Radionuclide:	Tritium (H3)
Activity:	3.2 Ci total

2. A description of the circumstances under which the loss or theft occurred.

On approximately 3 November 2021 maintenance personnel of the B Company, 1st Battalion, 168th Infantry Regiment of the Iowa Army National Guard first identified that a M224 range indicator was missing from a mortar system. This date is the first instance that the range indicator was documented as missing, however according to interviews with mortar system users the range indicator on that particular mortar system had been missing for nearly a year. Mortar system users were unaware that a requirement to report the missing range indicator existed, and failed to report the missing range indicator. No personnel available to be interviewed that were involved in the range indicator inventory management had any information regarding the circumstances for the range indicator's misplacement. Sworn statements from personnel involved with the range indicator indicated that, to the best of their knowledge, no unauthorized maintenance was conducted on the mortar system that the range indicator was affixed to. The range

indicator is not easily disassembled by mortar system users, and the range indicator is only to be removed by trained maintenance personnel.

The timeline from discovery to until the report to the NRC operation center was as follows:

Range Indicator Timeline of Events	
Date	Action
3-Nov-21	Identified that the range indicator was missing during a trigger mechanism MWO.
3-Nov-21	BN S4 NCOIC and former Readiness NCO were notified.
6-Nov-21	Notified Company XO and submitted work order for bore scope and pullover / missing range indicator. Also asked Mortar leadership where it may be. Searched for missing item in the Shenandoah and Camp Dodge Vault and Mortar Cage.
10-Nov-21	Mortar systems were turned in to Armament
24-Nov-21	Range Indicator was ordered.
30-Nov-21	Armament assisted search in Shenandoah.
2-Dec-21	Armament assisted search in Camp Dodge.
3-Dec-21	Date of discovered loss established.
7-Dec-21	BCT Notified BN of requirement of incident report
7-Dec-21	Incident Report Submitted to BCT
9-Dec-21	CECOM Safety Office Notified
9-Dec-21	License Radiation Safety Officer Notified
9-Dec-21	NRC Operations Center Notified

3. A statement of the disposition, or probably disposition, of the licensed material involved.

It is unlikely that the M224 range indicator has left Army custody; it may have rattled loose and been misplaced in a unit arms room, a maintenance shop, or on a training range. The owning unit had significant personnel turnover in the past year, and the history of the lost item is totally unknown to the current staff.

4. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.

There is no indication that persons in unrestricted areas received any exposure or total effective dose equivalent from this device.

5. Actions that have been taken, or will be taken, to recover the material.

Weapons storage vaults and mortar cages at both Camp Dodge and Camp Shenandoah were searched, as well as the maintenance facility. Sworn statements are being collected by the mortar team, and will be completed on/around 9 January 2022. Several personnel involved in handling of the mortar have already been interviewed; the timeline of events is included in other enclosures.

6. Procedures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed material.

a. Doctrine and onsite personnel:

The U.S. Army users written procedures, license conditions, and local Radiation Safety Officers to assist with inventory and control of these devices. All involved personnel at the Iowa ARNG will be hyper-vigilant regarding accountability of radioactive material, as a result of this incident. Prior to this incident, nobody at the battalion level or below was aware of the reporting requirement for this item, and re-education has already occurred.

b. Site Assistance Visits:

The TACOM Safety office as well as a sister organization, the CECOM safety office, have begun onsite inspections of locations wherever licensed assets are used and stored. Any issues identified that might result in a loss of control or pose a health and safety risk are addressed with corrective actions. These audits are evaluated periodically to assess trends in the program, and written procedures will be modified as needed to address shortfalls.

c. Maturity of Radiation Safety Program:

The program is under new management, and only recently hired additional personnel. We are dedicated to further develop and improve this program, and provide more proactive guidance and assistance to our field users of radioactive commodities.

North, Joel J CW3 USARMY NG IAARNG (USA)

From: Bailey, David Michael MSG USARMY NG IAARNG (USA)
Sent: Wednesday, December 8, 2021 9:29 AM
To: North, Joel J CW3 USARMY NG IAARNG (USA)
Cc: Wendzel, Paul W CW4 USARMY NG IAARNG (USA)
Subject: FW: Radiation Incident Report
Attachments: Radiation Incident Report (07DEC21).doc

Sir,

Please see attached and below information as requested.

See attached for Radiation Incident Report. For shared understanding :NO ONE at the BN level or below had any idea of the potential safety concern of this part, nor did anyone know to submit an incident report. The organization viewed the item as just an **expendable end-item**, so after identification of loss it was ordered for replacement. Again NO ONE knew or understood this would require an incident report or reporting of any matter.

To be real clear: THIS IS NOT A SENSITIVE ITEM.

To note: it has been discussed amongst the Soldier in the B Co Mortar Platoon that this item could have been missing more than a year ago. We as leaders can only do something about it if we know about it, and the Soldiers failed to notify the right leaders so they can take action, hence we are now dealing with this incident.

Below is a timeline of events to show what has occurred the past month

Range Indicator Timeline of Events	
Date	Action
3-Nov-21	Identified that the range indicator was missing during a trigger mechanism MWO.
3-Nov-21	BN S4 NCOIC and former Readiness NCO were notified.
6-Nov-21	Notified Company XO and submitted work order for bore scope and pullover / missing range indicator. Also asked Mortar leadership where it may be. Searched for missing item in the Shenandoah and Camp Dodge Vault and Mortar Cage.
10-Nov-21	Mortar systems were turned in to Armament
24-Nov-21	Range Indicator was ordered.
30-Nov-21	Armament assisted search in Shenandoah.
2-Dec-21	Armament assisted search in Camp Dodge.
3-Dec-21	Date of discovered loss established.
7-Dec-21	BCT Notified BN of requirement of incident report
7-Dec-21	Incident Report Submitted to BCT

Thank you,

David M. Bailey
MSG, IA ARNG
HQ 2/34 IBCT OPS NCO
W: 515-432-3108 Ext. 17814

C: 515-230-8018

E: david.m.bailey56.mil@army.mil

RADIATION INCIDENT REPORT		
DATE: 20211207	TIME: 1300	INCIDENT REFERENCE #:
INCIDENT/ITEM DESCRIPTION: 60mm Mortar Range Indicator		
NSN: 5840-01-458-6159	NOMENCLATURE: INDICATOR RANGE	
ISOTOPE: Tritium	ACTIVITY: Unknown	DATE OF ACTIVITY: Unknown
TIME OF INCIDENT: Unknown	DATE OF INCIDENT: Unknown	DATE DISCOVERED: 20211103
LOCATION OF INCIDENT:		
STATE: IA	CITY: Johnston	STREET: 7105 NW 70 th Ave
BLDG NO: W12 (4410)	ROOM: Unknown	OTHER: NA
PERSONNEL INVOLVED: SSG Pester, Cody (B Co 1-168 IN MTR Section Leader) SGT Zollman, Zachary (B Co 1-168 IN MTR Section Sergeant) SGT Cooper, Jefferey (B Co 1-168 IN Supply NCO) SSG Cameron, Emily (C Co 1-168 IN Supply NCO) SFC McCoy, James (Former B Co 1-168 IN Readiness NCO) SFC Macrander, Jonathan (HQ 1-168 IN S4 NCOIC) SFC McEuen, Larry (Armament) TACOM (MWO Staff unknown)		
ACTIONS TAKEN: See enclosure 1 for a Timeline of Events.		
SITUATION STATUS: <p>On 20211103 SSG Cameron, Emily, the C Co 1-168 IN Supply Sergeant took both B Co 1-168 IN 60mm Mortar Systems to Warehouse W12 (4410) on CDJMTC to complete a trigger mechanism MWO due to SGT Cooper Jefferey attending a Government Purchase Card course. While completing the MWO, their staff identified that the range indicator on one of the mortar systems was missing. Continuing on 20211103, SSG Cameron notified SGT Cooper of the matter. SGT Cooper than notified the Battalion S4 NCOIC, SFC Macrander, Jonathan and the former B Co Readiness NCO, SFC McCoy, James.</p> <p>On 20211106 SGT Cooper also notified the Command team of the missing range indicator and completed a work order #:1012321934 for bore scope and pull-over and the range indicator. The mortar section was asked about the range indicator and if they knew where it may be. Their section stated that it had been missing for nearly a year but was never annotated on any documentation. The vault and caged storage areas in Shenandoah and Camp Dodge were both searched extensively but the item was never found.</p> <p>On 20211110 both mortar systems were turned in to Armament to complete the WO #: 1012321934.</p>		

SITUATION STATUS (CONT)

SFC McEuen, Larry, a member of the Armament staff came to Shenandoah on 20211130 and S29 on 20211202 to assist in searching for the item, no to avail. The discovered loss date is 20211203.

B Co 1-168 IN does not have in IDT period in December, 2021, therefore; each member of the Mortar Section will write sworn statements concerning the loss of the item NLT 09JAN21.

The range indicator was ordered on 20211124 without the knowledge of the significance of the item being lost or the mandatory reporting requirement due to being classified as an expendable end-item.

Within the past four months B Co 1-168 has completed a Change of Command, hired a new Supply NCO, and hired a new Readiness NCO. Due to the recent turn-over, the history and timeline prior to 20211103 of the lost item are unknown to the current staff.

ASSISTANCE REQUIRED: No additional assistance required at this time.

REPORT COMPLETED BY

(Name, Grade & Position): MAJ Foote, Justin, O-4, 1-168 IN BN OIC **PHONE (712)** 322-1168 X 18205
SGT Cooper, Jefferey, E-5, Supply Sergeant **PHONE:** (712)246-1913 x17305

RADIATION INCIDENT REPORT

DATE: 07Dec2021**TIME:** 1336**INCIDENT REFERENCE #:****INCIDENT/ITEM DESCRIPTION:***Unit is missing a Range Indicator for a M224A1.***NSN:**

5840-01-458-6159

NOMENCLATURE:

Range Indicator

ISOTOPE:

Tritium (H3)

ACTIVITY:**DATE OF ACTIVITY:****TIME OF INCIDENT:**

0949

DATE OF INCIDENT:

06Nov2021

DATE DISCOVERED:

06Nov2021

LOCATION OF INCIDENT:**STATE:** Iowa**CITY:**

Johnston/Shenandoah

STREET:**BLDG NO:****ROOM:****OTHER:** 1-168 INF Co. B
Det.**PERSONNEL INVOLVED:**

SFC McEuen R. Larry

Small Arms Repairer

SGT Cooper P. Jeffrey

1-168 INF B Co. Supply SGT

SGT Sanchez D. Javier

Small Arms Repairer

SPC Hauge A. James

Small Arms Repairer

ACTIONS TAKEN:

I SGT Sanchez was contacted via text message on my personal phone the morning of Nov 06, 2021, and asked about the ability to order a Range Indicator. I informed SGT Cooper I believed it to be a sensitive item and to contact the Armament Shop the next business day. Around the 29th of Nov, SGT Cooper called me on my personal cell informing me that he believed the range indicator to be an "expendable" item. I informed him that I was unsure and to again contact the Armament Shop for further guidance.

I SPC Hauge began services on the mortar system Nov 23, 2021. After completing the annual service and checking the work order I became aware of the missing range indicator so I immediately sent an email to SGT Cooper with questions concerning the whereabouts of the range indicator. He immediately called the FMCD Armament section where SFC McEuen took the call.

I SFC McEuen was contacted by SGT Cooper on Tuesday November 9 about a missing Range Indicator for a Mortar System. I checked our Radiation Storage and advised SGT Cooper that we did not have the Range Indicator that he was missing. Later in the month around November 23rd I asked SGT Cooper if he would like if I came to his Armory in Shenandoah to help him try and find it. I traveled to the armory on November 30th and helped him look in all the box's he had left in the vault with no luck. Later that week on December 2nd I helped him look in his vault here on Camp Dodge with no luck. After we checked in both his Vault's, SGT Cooper stated that he had already ordered a replacement Range Indicator and that it was on the way.

SITUATION STATUS:

IAW TM 9-1010-233-23&P:

**Verified the item is lost. Reported to the Armament Shop Supervisor
CW3 Gregory McIntire.**

ASSISTANCE REQUIRED:

**REPORT COMPLETED BY
(Name, Grade & Position):**

PHONE: 515-727-3737

SFC McEuen R. Larry Small Arms Repairer

SGT Sanchez D. Javier Small Arms Repairer

SPC Hauge A. James Small Arms Repairer

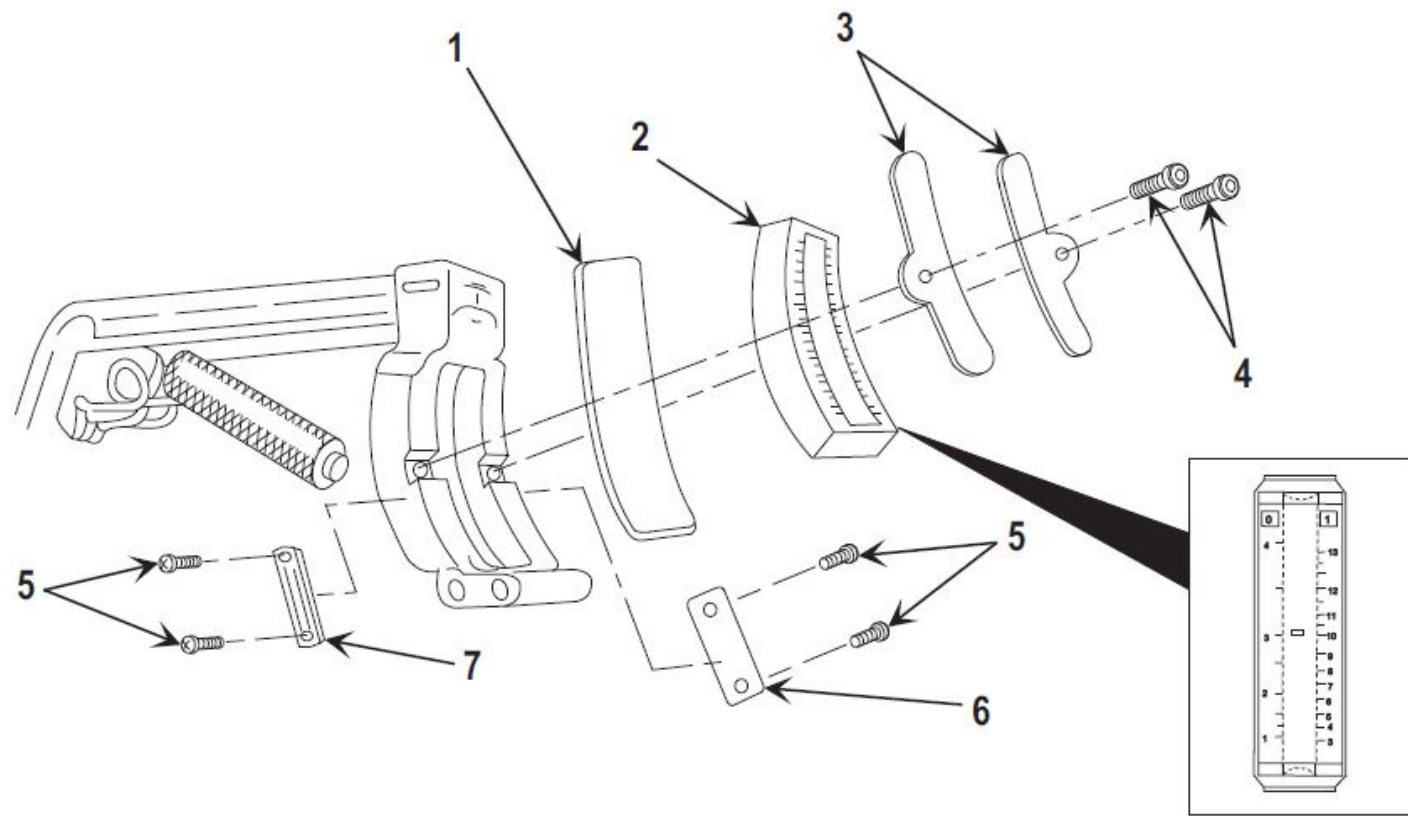
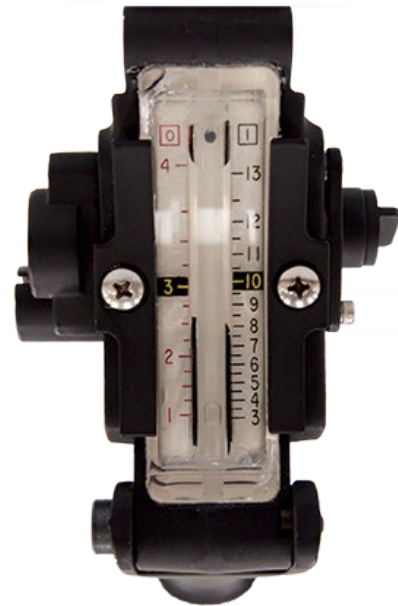


Figure 5. Removal of Range Indicator.

WARNING



RADIATION HAZARD - TRITIUM (H^3) GAS

12. Remove two socket head capscrews (Figure 5, Item 4), two assembly clips (Figure 5, Item 3), range indicator (Figure 5, Item 2), and cushioning pad (Figure 5, Item 1).


CIIC - 7 - SEE NOTE!

FSC: 5840

NIIN: 014586159

ITEM NAME: INDICATOR,RANGE

ARMY MASTER DATA FILE (AMDF)

<u>FSC</u>	<u>NOMENCLATURE</u>	<u>ACT</u>	<u>ADDL</u>	<u>SOS</u>	<u>AAC</u>	<u>PSC</u>	<u>ARMY UNIT PRICE</u>	<u>UI</u>	<u>FC</u>	<u>UM</u>	<u>MEAS QTY</u>	<u>EIC</u>	<u>EC</u>
5840	INDICATOR,RANGE			 B14	V		\$285.00	EA			0		J

<u>SCMC</u>	<u>AEC</u>	<u>MATCAT</u>	<u>LIN</u>	<u>LCC</u>	<u>RICC</u>	<u>ARC</u>	<u>SRC</u>	<u>SCIC</u>	<u>CIIC</u>	<u>ICC</u>	<u>SLC</u>
9 G	5	M 2 1 6H		R	0	X		8	7	4	9

<u>ARIL</u>	<u>ARIL RIC</u>	<u>DEMIL CODE</u>	<u>ADPE CODE</u>	<u>PMIC</u>	<u>MR</u>	<u>RECOV CODE</u>	<u>ESD</u>	<u>HMIC</u>	<u>CRITL CODE</u>
R	BA4	E	0	A	Z	A	A	Y	X

<u>SERVICEABLE CREDIT VALUE</u>	<u>UNSERVICEABLE CREDIT VALUE</u>	<u>EXCHANGE PRICE</u>	<u>SERVICEABLE EP RETURN</u>	<u>DELTA BILL</u>
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00


<u>PHRASE CODE</u>	<u>PHRASE STATEMENT</u>	<u>UI REL</u>	<u>UM REL</u>	<u>QTY PER ASSY</u>
R	REFER TO USE 5840016425687			

MATERIEL CATEGORY STRUCTURE CODE (MATCAT)

<u>MATCAT 1</u>	<u>MATCAT 2</u>	<u>MATCAT 3</u>	<u>MATCAT_4_5</u>
M	2	1	6H

Context Sensitive Help

File Edit

 Type ahead to look for field names under "Index" tab, or search the help system for key words under the "Search" tab

Index Search


CIIC:7
CIIC:7
CIIC:8
CIIC:9
CIIC:A
CIIC:B
CIIC:C
CIIC:D
CIIC:E
CIIC:F
CIIC:G

Display

Tag: CIIC
Code: 7
Literal: CLASSIFIED ITEMS CODE
Description: NON-SENSITIVE (SRC-N/A) - UNCLASSIFIED AA&E: OR ITEMS ASSIGNED A DEMILITARIZATION CODE OTHER THAN A, B, Q, OR P FOR WHICH ANOTHER CIIC IS INAPPROPRIATE. (NOTE: THE LOSS, THEFT, UNLAWFUL DISPOSITION, AND/OR RECOVERY OF AN ITEM WITH CIIC 7 WILL BE INVESTIGATED IN ACCORDANCE WITH DOD-4000-25-2-M AND DOD 7200.14-R, VOLUME 12, CHAPTER 7).

HTTP://ARMYPUBS.ARMY.MIL/EPUBS/DR_PUBS/DR_A/PDF/WEB/P708_2.PI View Reg(s)

Department of Defense FOUO - FOR OFFICIAL USE ONLY

 Close


RECOVERY CODE - A

FSC: 5840

NIIN: 014586159

ITEM NAME: INDICATOR,RANGE

ARMY MASTER DATA FILE (AMDF)

<u>FSC</u>	<u>NOMENCLATURE</u>	<u>ACT</u>	<u>ADDL</u>	<u>SOS</u>	<u>AAC</u>	<u>PSC</u>	<u>ARMY UNIT PRICE</u>	<u>UI</u>	<u>FC</u>	<u>UM</u>	<u>MEAS QTY</u>	<u>EIC</u>	<u>EC</u>
5840	INDICATOR,RANGE			 B14	V		\$285.00	EA			0		J

<u>SCMC</u>	<u>AEC</u>	<u>MATCAT</u>	<u>LIN</u>	<u>LCC</u>	<u>RICC</u>	<u>ARC</u>	<u>SRC</u>	<u>SCIC</u>	<u>CIIC</u>	<u>ICC</u>	<u>SLC</u>
9 G	5	M 2 1 6H		R	0	X		8	7	4	9

<u>ARIL</u>	<u>ARIL RIC</u>	<u>DEMIL CODE</u>	<u>ADPE CODE</u>	<u>PMIC</u>	<u>MR</u>	<u>RECOV CODE</u>	<u>ESD</u>	<u>HMIC</u>	<u>CRITL CODE</u>
R	BA4	E	0	A	Z	A	A	Y	X

<u>SERVICEABLE CREDIT VALUE</u>	<u>UNSERVICEABLE CREDIT VALUE</u>	<u>EXCHANGE PRICE</u>	<u>SERVICEABLE EP RETURN</u>	<u>DELTA BILL</u>
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00


<u>PHRASE CODE</u>	<u>PHRASE STATEMENT</u>	<u>UI REL</u>	<u>UM REL</u>	<u>QTY PER ASSY</u>
R	REFER TO USE 5840016425687			

MATERIEL CATEGORY STRUCTURE CODE (MATCAT)

<u>MATCAT 1</u>	<u>MATCAT 2</u>	<u>MATCAT 3</u>	<u>MATCAT_4_5</u>
M	2	1	6H

Context Sensitive Help

File Edit

 Type ahead to look for field names under "Index" tab, or search the help system for key words under the "Search" tab

Index Search

RECOV_CODE:A
RECOV_CODE:B
RECOV_CODE:C
RECOV_CODE:D
RECOV_CODE:E
RECOV_CODE:F
RECOV_CODE:G
RECOV_CODE:H
RECOV_CODE:I
RECOV_CODE:J

Display

Description: FIELD ACTIVITY CONTROL ITEMS


Literal: ARMY

Description: ITEM REQUIRES SPECIAL HANDLING OR CONDEMNATION PROCEDURES FOR SPECIFIC REASONS, SUCH AS PRECIOUS METAL CONTENT, HIGH DOLLAR VALUE, CRITICAL MATERIAL, OR HAZARDOUS MATERIEL. REFER TO APPROPRIATE MANUALS OR DIRECTIVES FOR SPECIFIC INSTRUCTIONS.

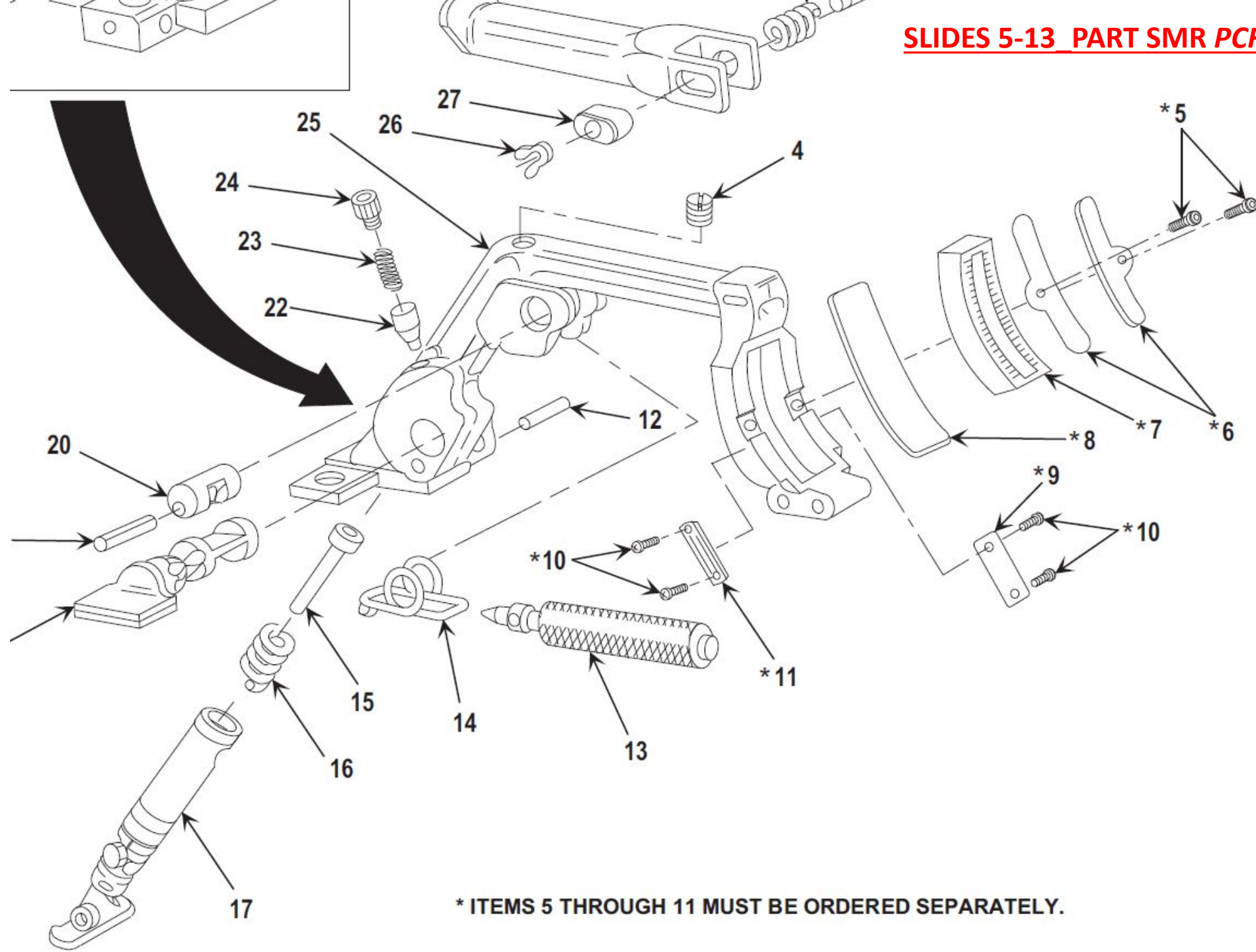
Literal: MARINE CORPS

HTTP://ARMYPUBS.ARMY.MIL/EPUBS/DR_PUBS/DR_A/PDF/WEB/P708_2.PI View Reg(s)

Department of Defense FOUO - FOR OFFICIAL USE ONLY

 Close

SLIDES 5-13 PART SMR PCFZA BREAKDOWN



*** ITEMS 5 THROUGH 11 MUST BE ORDERED SEPARATELY.**

(1) ITEM NO.	(2) SMR CODE ARMY USMC	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 0101	(7) QTY
					FIG. 3 HANDLE AND FIRING MECHANISM 11578985	
1	PAFZZ	PAFZZ	1010-01-042-9139	19206	11578987	HANDLE,CARRYING,MORTAR 1
2	PAFZZ	PAFZZ	5360-01-047-0615	96906	MS24585-1285	SPRING,HELICAL,COMPRESSION 1
3	PAFZZ	PAFZZ	5340-01-042-9230	19206	11578980	PLUNGER,DETENT..... 1
4	PAFZZ	PAOZZ	4730-00-420-9017	10001	1007941	FITTING,LUBRICATION..... 1
5	PAFZZ	PAFZZ	5305-00-116-1469	80205	MS21090-352	SCREW,CAP,SOCKET HEAD..... 2
6	PAFZZ	PAFZZ	5342-01-237-9034	19200	9360375	CLIP,ASSEMBLY..... 2
7	PCFZA	PAFZZ	5840-01-458-6159	19200	9360374	RANGE INDICATOR..... 1
8	PAFZZ	PAFZZ	1010-01-238-0569	19200	11785486	PAD,CUSHIONING 1
9	PAFZZ	PAFZZ	9905-00-257-2754	19200	11729521	PLATE,IDENTIFICATION 1
10	PAFZZ	PAFZZ	5305-00-054-5635	96906	MS51957-1	SCREW,MACHINE 4
11	PAFZZ	PAFZZ	9905-01-397-7511	19200	12950962	PLATE,INSTRUCTION 1
12	PAFZZ	PAFZZ	5315-00-804-9379	88044	MS9105-94	PIN,STRAIGHT,HEADLESS 1
13	PAFZZ	PAFZZ	1010-01-042-9330	19206	11579094	TRIGGER 1

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout. This entry may be subdivided into 4 subentries, one for each service.

Table 1. SMR Code Explanation.

<u>Source Code</u>	<u>Maintenance Code</u>	<u>Recoverability Code</u>	
____ xx ____	____ xx ____	____ x ____	
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition action on unserviceable items.

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

Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

<u>Source Code</u>	<u>Maintenance Code</u>	<u>Recoverability Code</u>
— xx —	— xx —	— x —
1st two positions: How to get an item.	3rd position: Who can in- stall, re- place, or use the item.	4th position: Who can do complete repair* on the item.
		5th position: Who determines disposition ac- tion on unser- viceable items.

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

Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code

Application/Explanation

PA
PB
PC
PD
PE
PF
PG
PH
PR
PZ

NOTE

Items coded PC are subject to deterioration.

Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the third position of the SMR code.

Table 1. SMR Code Explanation.

Source Code	Maintenance Code		Recoverability Code
— xx —	— xx —		— x —
1st two positions: How to get an item.	3rd position: Who can in- stall, re- place, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition ac- tion on unser- viceable items.

INTRODUCTION - Continued**Explanation of Columns in the Repair Parts List and Special Tools List Work Packages - Continued**

<u>Maintenance Code</u>		<u>Application/Explanation</u>
O (USMC only)		Unit Armorer can remove, replace, and use the item.
F	-	Field maintenance can remove, replace, and use the item.
H	-	Below Depot Sustainment maintenance can remove, replace, and use the item.
L	-	Specialized repair activity can remove, replace, and use the item.
G	-	Afloat and ashore intermediate maintenance can remove, replace, and use the item. (Navy only)
K	-	Contractor facility can remove, replace, and use the item.
Z	-	Item is not authorized to be removed, replaced, or used at any maintenance level.
D	-	Depot can remove, replace, and use the item.

Table 1. SMR Code Explanation.

<u>Source Code</u>	<u>Maintenance Code</u>	<u>Recoverability Code</u>	
<u> </u> xx <u> </u>	<u> </u> xx <u> </u>	<u> </u> x <u> </u>	
1st two positions: How to get an item.	3rd position: Who can in- stall, re- place, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition ac- tion on unser- viceable items.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

<u>Maintenance Code</u>		<u>Application/Explanation</u>
F	-	Field is the lowest level that can do complete repair of the item.
H	-	Below Depot Sustainment is the lowest level that can do complete repair of the item.
L	-	Specialized repair activity (enter specialized repair activity or TASMG designator) is the lowest level that can do complete repair of the item.
D	-	Depot is the lowest level that can do complete repair of the item.
G	-	Both afloat and ashore intermediate levels are capable of complete repair of item. (Navy only)
K	-	Complete repair is done at contractor facility.
Z	-	Nonreparable. No repair is authorized.

Table 1. SMR Code Explanation.

Source Code	Maintenance Code	Recoverability Code	
____ xx ____	____ xx ____	____ x ____	
1st two positions: How to get an item.	3rd position: Who can in- stall, re- place, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition ac- tion on unser- viceable items.

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

<u>Recoverability Code</u>		<u>Application/Explanation</u>
Z	-	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
F	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the field level.
H	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the below depot sustainment level.
D	-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L	-	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A	-	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
G	-	Field level reparable item. Condemn and dispose at either afloat or ashore intermediate levels. (Navy only)