

**SOLDIER'S MANUAL**

**MOS 11B**

**INFANTRY**

**SKILL LEVELS 2-4**

**AUGUST 2004**

**HEADQUARTERS**  
**DEPARTMENT OF THE ARMY**

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## **SOLDIER'S MANUAL and TRAINER'S GUIDE**

### **MOS 11B, Infantry**

### **Skill Levels 2, 3 and 4**

#### **TABLE OF CONTENTS**

|                                                                | <u>PAGE</u> |
|----------------------------------------------------------------|-------------|
| <b>Table of Contents</b> .....                                 | <b>i</b>    |
| <b>PREFACE</b> .....                                           | <b>vi</b>   |
| <b>Chapter 1. Introduction</b> .....                           | <b>1-1</b>  |
| <b>Chapter 2. Trainer's Guide</b> .....                        | <b>2-1</b>  |
| 2-1. General .....                                             | 2-1         |
| 2-2. Subject Area Codes .....                                  | 2-2         |
| 2-3. Critical Tasks List.....                                  | 2-3         |
| <b>Chapter 3. MOS Skill Level Tasks</b> .....                  | <b>3-1</b>  |
| <b>Skill Level 2</b>                                           |             |
| 071-326-5505 Issue an Oral Operation Order.....                | 3-1         |
| <b>Subject Area 5: COMMUNICATE: GENERAL</b>                    |             |
| 071-334-4001 Guide a Helicopter to a Landing Point .....       | 3-3         |
| <b>Subject Area 7: COMMUNICATE: RADIO</b>                      |             |
| 071-810-0001 Maintain an AN/PRC-126 Radio .....                | 3-8         |
| 071-810-0002 Operate an AN/PRC-126 Radio .....                 | 3-9         |
| <b>Subject Area 9: MOVE: BASIC TACTICS</b>                     |             |
| 061-283-1003 Locate a Target by Polar Plot .....               | 3-11        |
| 071-326-5605 Control Movement of a Fire Team.....              | 3-12        |
| 071-326-5606 Select an Overwatch Position .....                | 3-14        |
| 071-410-0016 Conduct Occupation of an Overwatch Position ..... | 3-15        |
| <b>Subject Area 10: MOVE: DEFENSE/OFFENSE</b>                  |             |
| 071-420-0026 Conduct a Breach of a Wire Obstacle .....         | 3-16        |

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|              |                                                      |      |
|--------------|------------------------------------------------------|------|
| 071-730-0003 | Install a Platoon Early Warning System AN/TRS-2..... | 3-35 |
| 071-730-0006 | Enforce Operations Security .....                    | 3-37 |

### **Subject Area 22: SUSTAIN: GENERAL**

|              |                                  |      |
|--------------|----------------------------------|------|
| 071-600-0005 | Enforce Preventive Medicine..... | 3-39 |
|--------------|----------------------------------|------|

### **Subject Area 26: VEHICLES**

|              |                                                                   |       |
|--------------|-------------------------------------------------------------------|-------|
| 071-001-0001 | Boresight the Weapon Systems on an M2A3/M3A3 BFV .....            | 3-41  |
| 071-001-0002 | Zero the Weapon Systems on an M2A3/M3A3 BFV .....                 | 3-68  |
| 071-001-0006 | Engage Targets Using the Weapon Systems on an M2A3/M3A3 BFV ..... | 3-89  |
| 071-216-0009 | Maintain the Turret on a BFV .....                                | 3-109 |
| 071-216-0025 | Maintain the Turret on an M2A3/M3A3 BFV .....                     | 3-110 |
| 071-324-0026 | Operate the Turret of an M2A3/M3A3 BFV .....                      | 3-112 |
| 071-324-6004 | Operate the Turret of a BFV .....                                 | 3-125 |

### **Subject Area 38: WEAPONS: HG/MINES/DEMOLITIONS**

|              |                     |       |
|--------------|---------------------|-------|
| 052-193-2030 | Clear Misfires..... | 3-131 |
|--------------|---------------------|-------|

### **Subject Area 42: WEAPONS: M220-SERIES TOW**

|              |                                                                                    |       |
|--------------|------------------------------------------------------------------------------------|-------|
| 071-056-0003 | Operate the TOW Launcher on a BFV .....                                            | 3-134 |
| 071-056-0024 | Conduct Preparation of a Dismounted M220 Launcher System Firing<br>Position .....  | 3-139 |
| 071-056-0025 | Conduct Preparation of a Mounted M220 Launcher System Firing Position .....        | 3-142 |
| 071-056-0030 | Determine M220 Launcher System Firing Limitations .....                            | 3-145 |
| 071-056-0032 | Conduct Mounting of an M220 Launcher System on an M966 Vehicle .....               | 3-152 |
| 071-056-0034 | Conduct Dismounting of an M220 Launcher System from an M966 Vehicle.....           | 3-154 |
| 071-056-0035 | Conduct Occupation of an M220 Launcher System Firing Position.....                 | 3-156 |
| 071-056-0041 | Conduct Mounting of an M220 Launcher System on an M901 Vehicle .....               | 3-157 |
| 071-056-0045 | Conduct Dismounting of an M220 Launcher System from an M901 Vehicle.....           | 3-161 |
| 071-056-0059 | Select Firing Positions for an M220 Launcher System .....                          | 3-165 |
| 071-056-0060 | Conduct Placement of a Dismounted M220 Launcher System into Action.....            | 3-168 |
| 071-056-0065 | Conduct Mounting of an M41 Launcher on an M1121 Vehicle .....                      | 3-170 |
| 071-056-0066 | Conduct Dismounting of an M41 Launcher on an M1121 Vehicle .....                   | 3-182 |
| 071-056-0067 | Perform Immediate-Action Procedures on the TOW System on an<br>M2A3/M3A3 BFV ..... | 3-184 |
| 071-056-0068 | Operate the TOW Launcher on an M2A3/M3A3 BFV .....                                 | 3-190 |
| 071-316-3002 | Perform Misfire Procedures on the TOW System on a BFV .....                        | 3-196 |
| 071-316-3005 | Boresight the TOW Launcher on a BFV.....                                           | 3-199 |
| 071-316-3006 | Engage Targets with the TOW System on a BFV .....                                  | 3-206 |

### **Subject Area 44: WEAPONS: M240C MACHINE GUN (COAX)**

|              |                                                                                    |       |
|--------------|------------------------------------------------------------------------------------|-------|
| 071-026-0001 | Load the M240C Coaxial Machine Gun on a BFV .....                                  | 3-212 |
| 071-026-0002 | Unload the M240C Coaxial Machine Gun on a BFV .....                                | 3-216 |
| 071-026-0003 | Zero the M240C Coaxial Machine Gun on a BFV .....                                  | 3-218 |
| 071-026-0004 | Perform a Function Check on the M240C Coaxial Machine Gun on a BFV .....           | 3-222 |
| 071-026-0007 | Load the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV .....                       | 3-223 |
| 071-026-0008 | Unload the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV .....                     | 3-227 |
| 071-026-0009 | Correct Malfunctions of the M240C Coaxial Machine Gun on an M2A3/M3A3<br>BFV ..... | 3-234 |
| 071-026-0010 | Install an M240C Coaxial Machine Gun on an M2A3/M3A3 BFV .....                     | 3-243 |
| 071-026-0011 | Remove an M240C Coaxial Machine Gun on an M2A3/M3A3 BFV .....                      | 3-246 |
| 071-313-4004 | Boresight the M240C Coaxial Machine Gun on a BFV .....                             | 3-249 |



|              |                                                                      |       |
|--------------|----------------------------------------------------------------------|-------|
| 071-313-4006 | Correct Malfunctions of the M240C Coaxial Machine Gun on a BFV ..... | 3-254 |
| 071-313-4007 | Engage Targets with the M240C Coaxial Machine Gun on a BFV .....     | 3-258 |
| 171-132-1004 | Install/Remove an M240C Coaxial Machine Gun on an M3 BFV .....       | 3-263 |

#### **Subject Area 45: WEAPONS: M242 25-MM GUN**

|              |                                                                                    |       |
|--------------|------------------------------------------------------------------------------------|-------|
| 071-024-0005 | Maintain the 25-mm Automatic Gun on a BFV .....                                    | 3-265 |
| 071-024-0006 | Perform a Function Check on the 25-mm Automatic Gun on a BFV .....                 | 3-267 |
| 071-024-0007 | Load the 25-mm Automatic Gun on a BFV .....                                        | 3-271 |
| 071-024-0008 | Unload the 25-mm Automatic Gun on a BFV .....                                      | 3-275 |
| 071-024-0009 | Zero the 25-mm Automatic Gun on a BFV .....                                        | 3-281 |
| 071-024-0011 | Perform Misfire Procedures on the 25-mm Automatic Gun on an<br>M2A3/M3A3 BFV ..... | 3-285 |
| 071-314-0008 | Boresight the 25-mm Automatic Gun on a BFV .....                                   | 3-288 |
| 071-314-0011 | Perform Misfire Procedures on the 25-mm Automatic Gun on a BFV .....               | 3-297 |
| 071-314-0012 | Engage Targets with the 25-mm Automatic Gun on a BFV .....                         | 3-300 |

#### **Subject Area 53: WEAPONS: SMOKE GRENADE LAUNCHER**

|              |                                                                                 |       |
|--------------|---------------------------------------------------------------------------------|-------|
| 071-034-0009 | Fire the M257 Smoke Grenade Launcher on an M2A3/M3A3 BFV .....                  | 3-305 |
| 071-324-4004 | Perform Misfire Procedures on the M257 Smoke Grenade Launcher on a<br>BFV ..... | 3-307 |

### **Skill Level 3**

#### **Subject Area 9: MOVE: BASIC TACTICS**

|              |                                                                    |       |
|--------------|--------------------------------------------------------------------|-------|
| 071-056-0056 | Conduct Movement Techniques by an M220 Antiarmor Section .....     | 3-309 |
| 071-326-3001 | Direct a Driver Over a Terrain Route .....                         | 3-310 |
| 071-326-5610 | Conduct Movement Techniques by a Squad .....                       | 3-315 |
| 071-334-4002 | Establish a Helicopter Landing Point .....                         | 3-317 |
| 071-410-0010 | Conduct a Leader's Reconnaissance .....                            | 3-320 |
| 071-410-0015 | Direct Dismount from an M113 Vehicle .....                         | 3-322 |
| 071-410-0017 | Conduct Reconnaissance for an M220 Antiarmor Support Mission ..... | 3-323 |

#### **Subject Area 10: MOVE: DEFENSE/OFFENSE**

|              |                                                       |       |
|--------------|-------------------------------------------------------|-------|
| 071-326-5611 | Conduct the Maneuver of a Squad .....                 | 3-324 |
| 071-420-0007 | Conduct the Maneuver of an M2 BFV Section/Squad ..... | 3-329 |
| 071-430-0024 | Conduct a Defense by an M2 BFV Section/Squad .....    | 3-331 |
| 071-430-0029 | Reorganize a Unit .....                               | 3-333 |

#### **Subject Area 13: MOVE: SPECIALIZED MISSIONS**

|              |                                                                     |       |
|--------------|---------------------------------------------------------------------|-------|
| 071-326-5804 | Conduct a Point Antiarmor Ambush by an M2 BFV Section/Squad .....   | 3-335 |
| 071-450-0014 | Conduct a Point Antiarmor Ambush by a Squad .....                   | 3-341 |
| 071-450-0024 | Conduct an Area Ambush by an M2 BFV Platoon .....                   | 3-343 |
| 071-450-0030 | Conduct a Passage of Lines .....                                    | 3-345 |
| 071-450-0041 | Conduct a Point Ambush .....                                        | 3-347 |
| 071-450-0042 | Conduct a Point Antiarmor Ambush by an M220 Antiarmor Section ..... | 3-349 |

#### **Subject Area 14: MOVE: URBAN OPERATIONS**

|              |                                                                                               |       |
|--------------|-----------------------------------------------------------------------------------------------|-------|
| 071-440-0014 | Conduct an Attack on a Building by an M2 BFV Section/Squad During an<br>Urban Operation ..... | 3-350 |
| 071-440-0016 | Conduct a Defense by an M2 BFV Section/Squad During an Urban<br>Operation .....               | 3-353 |

#### **Subject Area 18: RECON-SECURITY: GENERAL**

|              |                                          |       |
|--------------|------------------------------------------|-------|
| 071-720-0006 | Conduct Operation of a Patrol Base ..... | 3-355 |
|--------------|------------------------------------------|-------|

**Subject Area 20: RECON-SECURITY: OPSEC AND COMSEC**

301-348-6001 Protect Classified Information and Material.....3-357

**Subject Area 22: SUSTAIN: GENERAL**

071-316-2538 Charge a Battery Using a PP-7382/TAS Battery Charger .....3-360

091-309-0711 Direct Vehicle and Equipment Recovery Operations .....3-362

**Subject Area 24: SUSTAIN: NBC**

031-507-3003 Supervise Operational Decontamination.....3-368

**Subject Area 26: VEHICLES**

071-001-0003 Operate the Commander's Tactical Display on an M2A3/M3A3 BFV .....3-370

071-001-0004 Operate the Commander's Independent Viewer on an M2A3/M3A3 BFV .....3-386

**Subject Area 38: WEAPONS: HG/MINES/DEMOLITIONS**

052-192-3060 Conduct a Breach a Minefield .....3-393

**Subject Area 42: WEAPONS: M220-SERIES TOW**

071-316-2651 Recommend Employment of M220 Launcher Systems .....3-395

**Skill Level 4****Subject Area 1: COMMAND AND STAFF**

071-326-5626 Prepare an Oral Operation Order.....3-401

071-332-5034 Extract Information from a Route Reconnaissance Report.....3-404

071-332-5051 Post a Daily Staff Journal .....3-407

071-900-0001 Prepare an Operation Plan.....3-408

071-900-0003 Prepare a Battalion Operation Order.....3-410

071-900-0004 Establish a Tactical Operations Center .....3-412

071-940-0002 Conduct Resupply of a Platoon.....3-413

**Subject Area 9: MOVE: BASIC TACTICS**

071-326-5630 Conduct Movement Techniques by a Platoon.....3-414

071-326-5910 Conduct Movement Techniques by an M2 BFV Dismount Platoon .....3-417

071-326-5911 Conduct Movement Techniques by an M2 BFV Platoon While Mounted .....3-421

071-326-5913 Employ an M2 BFV Platoon in the Aerial Defense Role .....3-425

071-410-0003 Conduct Movement Techniques by a Mechanized (M113) Platoon While Mounted .....3-426

071-410-0004 Conduct Movement Techniques by a Mechanized (M113) Platoon While Dismounted .....3-427

071-410-0020 Plan for Use of Supporting Fires .....3-428

071-420-0005 Conduct the Maneuver of a Platoon.....3-430

**Subject Area 10: MOVE: DEFENSE/OFFENSE**

071-326-5832 Conduct a Disengagement by a Platoon While Under Enemy Pressure .....3-434

071-420-0006 Conduct the Maneuver of a Mechanized M113 Platoon .....3-439

071-420-0010 Conduct a Mounted Assault by an M2 BFV Platoon .....3-441

071-420-0020 Conduct an Attack by an M2 BFV Platoon .....3-443

071-420-0023 Conduct an Attack by a Platoon .....3-445

071-430-0017 Conduct a Defense by an M2 BFV Platoon.....3-447

**Subject Area 13: MOVE: SPECIALIZED MISSIONS**

071-450-0005 Conduct a Screen by a Platoon.....3-449

071-450-0011 Conduct an Antiarmor Area Ambush by an M2 BFV Platoon .....3-455

071-450-0017 Conduct a Raid.....3-457

071-450-0027 Conduct a Relief.....3-459

|                                                          |                                                                        |                     |
|----------------------------------------------------------|------------------------------------------------------------------------|---------------------|
| 071-450-0035                                             | Conduct an Area Ambush by a Platoon .....                              | 3-461               |
| 071-450-0036                                             | Conduct an Antiarmor Area Ambush by a Platoon .....                    | 3-464               |
| 071-450-0039                                             | Conduct an Area Ambush by an M220 Antiarmor Platoon .....              | 3-466               |
| 071-450-0040                                             | Conduct an Antiarmor Area Ambush by an M220 Antiarmor Platoon.....     | 3-468               |
| <b>Subject Area 14: MOVE: URBAN OPERATIONS</b>           |                                                                        |                     |
| 071-440-0019                                             | Conduct a Defense by an M2 BFV Platoon During an Urban Operation ..... | 3-470               |
| 071-440-0009                                             | Conduct a Defense by a Platoon During an Urban Operation .....         | 3-473               |
| 071-440-0012                                             | Conduct an Attack by a Platoon During an Urban Operation.....          | 3-479               |
| 071-440-0022                                             | Conduct an Attack by an M2 BFV Platoon During an Urban Operation ..... | 3-481               |
| <b>Subject Area 18: RECON-SECURITY: GENERAL</b>          |                                                                        |                     |
| 071-720-0012                                             | Conduct a Zone Reconnaissance by a Platoon .....                       | 3-485               |
| <b>Subject Area 20: RECON-SECURITY: OPSEC AND COMSEC</b> |                                                                        |                     |
| 071-730-0004                                             | Plan Installation of a Platoon Early Warning System AN/TRS-2.....      | 3-490               |
| <b>Subject Area 22: SUSTAIN: GENERAL</b>                 |                                                                        |                     |
| 071-600-0009                                             | Coordinate with Supported Units.....                                   | 3-496               |
| <b>Subject Area 42: WEAPONS: M220-SERIES TOW</b>         |                                                                        |                     |
| 071-316-2800                                             | Manage an M220 Launcher System Battery Program .....                   | 3-498               |
| 071-056-0057                                             | Conduct Movement Techniques by an M220 Antiarmor Platoon.....          | 3-500               |
| <b>Glossary .....</b>                                    |                                                                        | <b>Glossary-1</b>   |
| <b>Supporting References.....</b>                        |                                                                        | <b>References-1</b> |

## PREFACE

This publication is for Skill Levels 2 through 4 soldiers holding the military occupational specialty 11B. It contains standardized training objectives in the form of task summaries, to train critical tasks that support unit missions during wartime. All soldiers holding MOS 11B should have access to this publication.

This manual applies to both Active and Reserve Component soldiers.

The proponent of this publication is the United States Army Infantry School. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to--

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Fort Benning, GA 31905-5593

*Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.*

## CHAPTER 1

### Introduction

*This soldier's manual (SM) identifies the individual military occupational specialty training requirements for soldiers in MOS 11B. Commanders, trainers, and soldiers should use it to plan, conduct, and evaluate individual training in units. This manual is the primary MOS reference to support the self-development and training of every soldier. It is used with the following manuals to establish effective training plans and programs that integrate soldier, leader, and collective tasks:*

- STP 7-11B1-SM-TG.
- The soldier's manuals of common tasks (STP-21-1-SMCT and STP 21-24-SMCT).
- Army Training and Evaluation Programs (ARTEPs).
- FM 25-101.

#### 1-1. TASK SUMMARIES

Task summaries outline the wartime performance requirements of each critical task in the SM. They provide the soldier and the trainer with the information needed to prepare, conduct, and evaluate critical task training. As a minimum, task summaries include information the soldier must know and the skills that he must perform to standards for each task. The format for the task summaries included in this SM is as follows:

- Task Number.** A 10-digit number identifies each task or skill. This task number, along with the task title, must be included in any correspondence pertaining to the task.
- Task Title.** The task title identifies the action to be performed.
- Conditions.** The task condition identifies all the equipment, tools, references, job aids, and supporting personnel that the soldier needs to use to perform the task in wartime. This section identifies any environmental conditions that can alter task performance, such as visibility, temperature, or wind. This section also identifies any specific cues or events that trigger task performance such as a chemical attack or identification of a threat vehicle.
- Standards.** The task standards describe how well and to what level the task must be performed under wartime conditions. Standards are typically described in terms of accuracy, completeness, and speed.
- Training and Evaluation.** The training evaluation section identifies specific actions (known as performance measures) that the soldier must do to successfully complete the task. These actions are in the evaluation guide section of the task summary and are listed in a pass/fail format for easy evaluation. For some tasks, the training and evaluation section may also include detailed training information in a training information outline and an evaluation preparation section. The evaluation preparation section indicates necessary modifications to task performance in order to train and evaluate a task that cannot be trained to the wartime conditions. It may also include special training and evaluation preparation instructions to accommodate these modifications, and any instructions that should be given to the soldier before evaluation.
- References.** This section identifies references that provide more detailed and thorough explanations of task performance requirements than those given in the task summary description.
- Warnings.** Warnings alert users to the possibility of immediate personal injury or damage to equipment.
- Notes.** Notes provide a supportive explanation or hint that relates to the performance standards.

**1-2. SOLDIER'S RESPONSIBILITIES**

Each soldier is responsible for performing individual tasks that the first-line supervisor identifies based on the unit's mission-essential task list (METL). The soldier must perform each task to the standards listed in the SM. If a soldier has a question about how to do a task or which tasks he must perform, he must ask the first-line supervisor for clarification. The first-line supervisor either knows how to perform each task or can direct the soldier to the appropriate training materials.

**1-3. TRAINING SUPPORT**

This manual includes the following appendixes and information:

a. **Glossary.** The glossary, which follows the last appendix, is a single comprehensive list of acronyms, abbreviations, definitions, and letter symbols.

b. **References.** This section contains two lists of references that support training of all tasks in this SM. "Needed" references are listed in the conditions statement and are required for the soldier to do the task. "Recommended" references are materials that help a trainer prepare for the task but are not required to perform the task.

## CHAPTER 2

### MOS Skill Level Tasks

2-1. General. The MOS Training Plan (MTP) identifies the essential components of a unit training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the MTP should be used as a guide for conducting unit training and not a rigid standard. The MTP is designed to assist the commander in preparing a unit training plan which satisfies integration, cross training, training up, and sustainment training requirements for soldiers in this MOS.

This MTP shows the relationship of an MOS skill level between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas. These subject areas are used to define the training requirements for each duty position within an MOS.

**Duty Position Column.** This column lists the duty positions of the MOS, by skill level, which have different training requirements.

**Subject Area Column.** This column lists, by numerical key, the subject areas a soldier must be proficient in to perform in that duty position.

**Task Number Column.** This column lists the task numbers for all tasks included in the subject area.

**Title Column.** This column lists the task title for each task in the subject area.

**Training Location Column.** This column identifies the training location where the task is first trained to soldier training publications standards. If the task is first trained to standard in the unit, the word "Unit" will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (ANCOC, BNCOC, etc.), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

|                 |                     |
|-----------------|---------------------|
| <b>UNIT</b>     | Trained in the Unit |
| <b>INSTITUT</b> | Institution         |

Figure 2-1. Training Locations

2-2. Subject Area Codes.**Skill Level 2**

- 1    COMMAND AND STAFF
- 5    COMMUNICATE: GENERAL
- 7    COMMUNICATE: RADIO
- 9    MOVE: BASIC TACTICS
- 10   MOVE: DEFENSE/OFFENSE
- 18   RECON-SECURITY: GENERAL
- 19   RECON-SECURITY: NIGHT VISION DEVICES
- 20   RECON-SECURITY: OPSEC AND COMSEC
- 22   SUSTAIN: GENERAL
- 26   VEHICLES
- 38   WEAPONS: HG/MINES/DEMOLITIONS
- 42   WEAPONS: M220-SERIES TOW
- 44   WEAPONS: M240C MACHINE GUN (COAX)
- 45   WEAPONS: M242 25-MM GUN
- 53   WEAPONS: SMOKE GRENADE LAUNCHER

**Skill Level 3**

- 9    MOVE: BASIC TACTICS
- 10   MOVE: DEFENSE/OFFENSE
- 13   MOVE: SPECIALIZED MISSIONS
- 14   MOVE: URBAN OPERATIONS
- 18   RECON-SECURITY: GENERAL
- 20   RECON-SECURITY: OPSEC AND COMSEC
- 22   SUSTAIN: GENERAL
- 24   SUSTAIN: NBC
- 26   VEHICLES
- 38   WEAPONS: HG/MINES/DEMOLITIONS
- 42   WEAPONS: M220-SERIES TOW

**Skill Level 4**

- 1    COMMAND AND STAFF
- 9    MOVE: BASIC TACTICS
- 10   MOVE: DEFENSE/OFFENSE
- 13   MOVE: SPECIALIZED MISSIONS
- 14   MOVE: URBAN OPERATIONS
- 18   RECON-SECURITY: GENERAL
- 20   RECON-SECURITY: OPSEC AND COMSEC
- 22   SUSTAIN: GENERAL
- 42   WEAPONS: M220-SERIES TOW



2-3. Critical Tasks List.**MOS TRAINING PLAN  
11B24**

| <b>Task Number</b> | <b>Title</b>                                                             | <b>Training Location</b> | <b>Sust Tng SL</b> |
|--------------------|--------------------------------------------------------------------------|--------------------------|--------------------|
| 071-326-5505       | Issue an Oral Operation Order                                            | INSTITUT                 | 2                  |
| 071-334-4001       | Guide a Helicopter to a Landing Point                                    | UNIT                     | 2                  |
| 071-810-0001       | Maintain an AN/PRC-126 Radio                                             | UNIT                     | 2                  |
| 071-810-0002       | Operate an AN/PRC-126 Radio                                              | UNIT                     | 2                  |
| 061-283-1003       | Locate a Target by Polar Plot                                            | UNIT                     | 2                  |
| 071-326-5605       | Control Movement of a Fire Team                                          | UNIT                     | 2                  |
| 071-326-5606       | Select an Overwatch Position                                             | UNIT                     | 2                  |
| 071-410-0016       | Conduct Occupation of an Overwatch Position                              | UNIT                     | 2                  |
| 071-420-0026       | Conduct a Breach of a Wire Obstacle                                      | UNIT                     | 2                  |
| 071-720-0009       | Conduct a Local Security Patrol                                          | UNIT                     | 2                  |
| 071-710-0004       | Control Use of Night Vision Devices                                      | UNIT                     | 2                  |
| 071-331-1000       | Prepare a Platoon Early Warning System AN/TRS-2 for Operation            | UNIT                     | 2                  |
| 071-331-1002       | Monitor a Platoon Early Warning System AN/TRS-2                          | UNIT                     | 2                  |
| 071-730-0003       | Install a Platoon Early Warning System AN/TRS-2                          | UNIT                     | 2                  |
| 071-730-0006       | Enforce Operations Security                                              | UNIT                     | 2                  |
| 071-600-0005       | Enforce Preventive Medicine                                              | UNIT                     | 2                  |
| 071-001-0001       | Boresight the Weapon Systems on an M2A3/M3A3 BFV                         | UNIT                     | 2                  |
| 071-001-0002       | Zero the Weapon Systems on an M2A3/M3A3 BFV                              | UNIT                     | 2                  |
| 071-001-0006       | Engage Targets Using the Weapon Systems on an M2A3/M3A3 BFV              | UNIT                     | 2                  |
| 071-216-0009       | Maintain the Turret on a BFV                                             | UNIT                     | 2                  |
| 071-216-0025       | Maintain the Turret on an M2A3/M3A3 BFV                                  | UNIT                     | 2                  |
| 071-324-0026       | Operate the Turret of an M2A3/M3A3 BFV                                   | UNIT                     | 2                  |
| 071-324-6004       | Operate the Turret of a BFV                                              | UNIT                     | 2                  |
| 052-193-2030       | Clear Misfires                                                           | INSTITUT                 | 2                  |
| 071-056-0003       | Operate the TOW Launcher on a BFV                                        | UNIT                     | 2                  |
| 071-056-0024       | Conduct Preparation of a Dismounted M220 Launcher System Firing Position | UNIT                     | 2                  |
| 071-056-0025       | Conduct Preparation of a Mounted M220 Launcher System Firing Position    | UNIT                     | 2                  |
| 071-056-0030       | Determine M220 Launcher System Firing Limitations                        | UNIT                     | 2                  |
| 071-056-0032       | Conduct Mounting of an M220 Launcher System on an M966 Vehicle           | UNIT                     | 2                  |
| 071-056-0034       | Conduct Dismounting of an M220 Launcher System from an M966 Vehicle      | UNIT                     | 2                  |
| 071-056-0035       | Conduct Occupation of an M220 Launcher System Firing Position            | UNIT                     | 2                  |
| 071-056-0041       | Conduct Mounting of an M220 Launcher System on an M901 Vehicle           | UNIT                     | 2                  |
| 071-056-0045       | Conduct Dismounting of an M220 Launcher System from an M901 Vehicle      | UNIT                     | 2                  |
| 071-056-0059       | Select Firing Positions for an M220 Launcher System                      | UNIT                     | 2                  |
| 071-056-0060       | Conduct Placement of a Dismounted M220 Launcher System into Action       | UNIT                     | 2                  |
| 071-056-0065       | Conduct Mounting of an M41 Launcher on an M1121 Vehicle                  | UNIT                     | 2                  |
| 071-056-0066       | Conduct Dismounting of an M41 Launcher on an M1121 Vehicle               | UNIT                     | 2                  |

| Task Number  | Title                                                                     | Training Location | Sust Tng SL |
|--------------|---------------------------------------------------------------------------|-------------------|-------------|
| 071-056-0067 | Perform Immediate-Action Procedures on the TOW System on an M2A3/M3A3 BFV | UNIT              | 2           |
| 071-056-0068 | Operate the TOW Launcher on an M2A3/M3A3 BFV                              | UNIT              | 2           |
| 071-316-3002 | Perform Misfire Procedures on the TOW System on a BFV                     | UNIT              | 2           |
| 071-316-3005 | Boresight the TOW Launcher on a BFV                                       | UNIT              | 2           |
| 071-316-3006 | Engage Targets with the TOW System on a BFV                               | UNIT              | 2           |
| 071-026-0001 | Load the M240C Coaxial Machine Gun on a BFV                               | UNIT              | 2           |
| 071-026-0002 | Unload the M240C Coaxial Machine Gun on a BFV                             | UNIT              | 2           |
| 071-026-0003 | Zero the M240C Coaxial Machine Gun on a BFV                               | UNIT              | 2           |
| 071-026-0004 | Perform a Function Check on the M240C Coaxial Machine Gun on a BFV        | UNIT              | 2           |
| 071-026-0007 | Load the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV                    | UNIT              | 2           |
| 071-026-0008 | Unload the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV                  | UNIT              | 2           |
| 071-026-0009 | Correct Malfunctions of the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV | UNIT              | 2           |
| 071-026-0010 | Install an M240C Coaxial Machine Gun on an M2A3/M3A3 BFV                  | UNIT              | 2           |
| 071-026-0011 | Remove an M240C Coaxial Machine Gun on an M2A3/M3A3 BFV                   | UNIT              | 2           |
| 071-313-4004 | Boresight the M240C Coaxial Machine Gun on a BFV                          | UNIT              | 2           |
| 071-313-4006 | Correct Malfunctions of the M240C Coaxial Machine Gun on a BFV            | UNIT              | 2           |
| 071-313-4007 | Engage Targets with the M240C Coaxial Machine Gun on a BFV                | UNIT              | 2           |
| 171-132-1004 | Install/Remove an M240C Coaxial Machine Gun on an M3 BFV                  | UNIT              | 2           |
| 071-024-0005 | Maintain the 25-mm Automatic Gun on a BFV                                 | UNIT              | 2           |
| 071-024-0006 | Perform a Function Check on the 25-mm Automatic Gun on a BFV              | UNIT              | 2           |
| 071-024-0007 | Load the 25-mm Automatic Gun on a BFV                                     | UNIT              | 2           |
| 071-024-0008 | Unload the 25-mm Automatic Gun on a BFV                                   | UNIT              | 2           |
| 071-024-0009 | Zero the 25-mm Automatic Gun on a BFV                                     | UNIT              | 2           |
| 071-024-0011 | Perform Misfire Procedures on the 25-mm Automatic Gun on an M2A3/M3A3 BFV | UNIT              | 2           |
| 071-314-0008 | Boresight the 25-mm Automatic Gun on a BFV                                | UNIT              | 2           |
| 071-314-0011 | Perform Misfire Procedures on the 25-mm Automatic Gun on a BFV            | UNIT              | 2           |
| 071-314-0012 | Engage Targets with the 25-mm Automatic Gun on a BFV                      | UNIT              | 2           |
| 071-034-0009 | Fire the M257 Smoke Grenade Launcher on an M2A3/M3A3 BFV                  | UNIT              | 2           |
| 071-324-4004 | Perform Misfire Procedures on the M257 Smoke Grenade Launcher on a BFV    | UNIT              | 2           |
| 071-056-0056 | Conduct Movement Techniques by an M220 Antiarmor Section                  | INSTITUT          | 3           |
| 071-326-3001 | Direct a Driver Over a Terrain Route                                      | UNIT              | 3           |
| 071-326-5610 | Conduct Movement Techniques by a Squad                                    | INSTITUT          | 3           |
| 071-334-4002 | Establish a Helicopter Landing Point                                      | INSTITUT          | 3           |
| 071-410-0010 | Conduct a Leader's Reconnaissance                                         | INSTITUT          | 3           |
| 071-410-0015 | Direct Dismount from an M113 Vehicle                                      | UNIT              | 3           |
| 071-410-0017 | Conduct Reconnaissance for an M220 Antiarmor Support Mission              | UNIT              | 3           |
| 071-326-5611 | Conduct the Maneuver of a Squad                                           | INSTITUT          | 3           |
| 071-420-0007 | Conduct the Maneuver of an M2 BFV Section/Squad                           | INSTITUT          | 3           |
| 071-430-0024 | Conduct a Defense by an M2 BFV Section/Squad                              | INSTITUT          | 3           |

| Task Number  | Title                                                                                | Training Location | Sust Tng SL |
|--------------|--------------------------------------------------------------------------------------|-------------------|-------------|
| 071-430-0029 | Reorganize a Unit                                                                    | UNIT              | 3           |
| 071-326-5804 | Conduct a Point Antiarmor Ambush by an M2 BFV Section/Squad                          | UNIT              | 3           |
| 071-450-0014 | Conduct a Point Antiarmor Ambush by a Squad                                          | INSTITUT          | 3           |
| 071-450-0024 | Conduct an Area Ambush by an M2 BFV Platoon                                          | INSTITUT          | 3           |
| 071-450-0030 | Conduct a Passage of Lines                                                           | INSTITUT          | 3           |
| 071-450-0041 | Conduct a Point Ambush                                                               | UNIT              | 3           |
| 071-450-0042 | Conduct a Point Antiarmor Ambush by an M220 Antiarmor Section                        | UNIT              | 3           |
| 071-440-0014 | Conduct an Attack on a Building by an M2 BFV Section/Squad During an Urban Operation | INSTITUT          | 3           |
| 071-440-0016 | Conduct a Defense by an M2 BFV Section/Squad During an Urban Operation               | INSTITUT          | 3           |
| 071-720-0006 | Conduct Operation of a Patrol Base                                                   | INSTITUT          | 3           |
| 301-348-6001 | Protect Classified Information and Material                                          | UNIT              | 3           |
| 071-316-2538 | Charge a Battery Using a PP-7382/TAS Battery Charger                                 | UNIT              | 3           |
| 091-309-0711 | Direct Vehicle and Equipment Recovery Operations                                     | INSTITUT          | 3           |
| 031-507-3003 | Supervise Operational Decontamination                                                | UNIT              | 3           |
| 071-001-0003 | Operate the Commander's Tactical Display on an M2A3/M3A3 BFV                         | UNIT              | 3           |
| 071-001-0004 | Operate the Commander's Independent Viewer on an M2A3/M3A3 BFV                       | UNIT              | 3           |
| 052-192-3060 | Conduct a Breach a Minefield                                                         | UNIT              | 3           |
| 071-316-2651 | Recommend Employment of M220 Launcher Systems                                        | UNIT              | 3           |
| 071-326-5626 | Prepare an Oral Operation Order                                                      | INSTITUT          | 4           |
| 071-332-5034 | Extract Information from a Route Reconnaissance Report                               | INSTITUT          | 4           |
| 071-332-5051 | Post a Daily Staff Journal                                                           | UNIT              | 4           |
| 071-900-0001 | Prepare an Operation Plan                                                            | INSTITUT          | 4           |
| 071-900-0003 | Prepare a Battalion Operation Order                                                  | INSTITUT          | 4           |
| 071-900-0004 | Establish a Tactical Operations Center                                               | UNIT              | 4           |
| 071-940-0002 | Conduct Resupply of a Platoon                                                        | UNIT              | 4           |
| 071-326-5630 | Conduct Movement Techniques by a Platoon                                             | INSTITUT          | 4           |
| 071-326-5910 | Conduct Movement Techniques by an M2 BFV Dismount Platoon                            | INSTITUT          | 4           |
| 071-326-5911 | Conduct Movement Techniques by an M2 BFV Platoon While Mounted                       | INSTITUT          | 4           |
| 071-326-5913 | Employ an M2 BFV Platoon in the Aerial Defense Role                                  | UNIT              | 4           |
| 071-410-0003 | Conduct Movement Techniques by a Mechanized (M113) Platoon While Mounted             | UNIT              | 4           |
| 071-410-0004 | Conduct Movement Techniques by a Mechanized (M113) Platoon While Dismounted          | UNIT              | 4           |
| 071-410-0020 | Plan for Use of Supporting Fires                                                     | INSTITUT          | 4           |
| 071-420-0005 | Conduct the Maneuver of a Platoon                                                    | INSTITUT          | 4           |
| 071-326-5832 | Conduct a Disengagement by a Platoon While Under Enemy Pressure                      | INSTITUT          | 4           |
| 071-420-0006 | Conduct the Maneuver of a Mechanized M113 Platoon                                    | INSTITUT          | 4           |
| 071-420-0010 | Conduct a Mounted Assault by an M2 BFV Platoon                                       | INSTITUT          | 4           |
| 071-420-0020 | Conduct an Attack by an M2 BFV Platoon                                               | INSTITUT          | 4           |
| 071-420-0023 | Conduct an Attack by a Platoon                                                       | INSTITUT          | 4           |
| 071-430-0017 | Conduct a Defense by an M2 BFV Platoon                                               | INSTITUT          | 4           |

| <b>Task Number</b> | <b>Title</b>                                                                             | <b>Training Location</b> | <b>Sust Tng SL</b> |
|--------------------|------------------------------------------------------------------------------------------|--------------------------|--------------------|
| 071-450-0005       | Conduct a Screen by a Platoon                                                            | UNIT                     | 4                  |
| 071-450-0011       | Conduct an Antiarmor Area Ambush by an M2 BFV Platoon                                    | INSTITUT                 | 4                  |
| 071-450-0017       | Conduct a Raid                                                                           | INSTITUT                 | 4                  |
| 071-450-0027       | Conduct a Relief                                                                         | INSTITUT                 | 4                  |
| 071-450-0035       | Conduct an Area Ambush by a Platoon                                                      | INSTITUT                 | 4                  |
| 071-450-0036       | Conduct an Antiarmor Area Ambush by a Platoon                                            | INSTITUT                 | 4                  |
| 071-450-0039       | Conduct an Area Ambush by an M220 Antiarmor Platoon                                      | UNIT                     | 4                  |
| 071-450-0040       | Conduct an Antiarmor Area Ambush by an M220 Antiarmor Platoon                            | UNIT                     | 4                  |
| 071-440-0019       | Conduct a Defense by an M2 BFV Platoon During an Urban Operation                         | INSTITUT                 | 4                  |
| 071-440-0009       | Conduct a Defense by a Platoon During an Urban Operation                                 | INSTITUT                 | 4                  |
| 071-440-0012       | Conduct an Attack by a Platoon During an Urban Operation                                 | INSTITUT                 | 4                  |
| 071-440-0022       | Conduct an Attack by an M2 BFV Platoon During an Urban Operation                         | INSTITUT                 | 4                  |
| 071-720-0012       | Conduct a Zone Reconnaissance by a Platoon                                               | INSTITUT                 | 4                  |
| 071-730-0004       | Plan Installation of a Platoon Early Warning System AN/TRS-2                             | UNIT                     | 4                  |
| 071-600-0009       | Coordinate with Supported Units                                                          | INSTITUT                 | 4                  |
| 101-521-4051       | Identify the Procedures to Maintain, Report and Request Supplies and Logistical Services | INSTITUT                 | 4                  |
| 071-316-2800       | Manage an M220 Launcher System Battery Program                                           | UNIT                     | 4                  |
| 071-056-0057       | Conduct Movement Techniques by an M220 Antiarmor Platoon                                 | UNIT                     | 4                  |

## CHAPTER 3

### - PROPONENT SCHOOL OR AGENCY CODES

Skill Level 2

Subject Area 1: COMMAND AND STAFF

#### Issue an Oral Operation Order 071-326-5505

**Conditions:** Given a platoon operation order (OPORD), a map and an overlay of the operational area, pencil and paper, and a requirement to develop and issue an order to subordinates that support the higher unit's intent and concept and allow accomplishment of the mission.

**Standards:** Developed a clear and concise oral order and issued it to unit members within the time allotted. Issued the order so all individuals understand their assigned tasks and coordinating instructions and in the standard OPORD format.

#### Performance Steps

1. Apply troop-leading procedures. Develop an order that supports the commander's plan and allows accomplishment of the mission. The troop-leading procedures are:
  - a. Step 1. Receive the mission.
  - b. Step 2. Issue a warning order.
  - c. Step 3. Make a tentative plan.
  - d. Step 4. Start necessary movement.
  - e. Step 5. Reconnoiter.
  - f. Step 6. Complete the plan.
  - g. Step 7. Issue the order.
  - h. Step 8. Supervise.

NOTE: You use troop-leading procedures (TLP) each time you receive a mission. Troop-leading procedures are a series of eight interrelated, overlapping processes that are often accomplished concurrently and do not follow a rigid sequence. Leaders use the procedures as outlined, if only in abbreviated form, to ensure that they leave nothing is left out of planning and preparation and to ensure that soldiers understand the mission and prepare adequately. The detail of the order varies with the time available to prepare it. Standing operating procedures complement the order and serve as a quick reference for reoccurring tasks. The TLP sequence helps organize the order.

2. Issue the situation paragraph.
  - a. Enemy forces. Provide available information on disposition, composition, strength, capabilities, and most probable course of action.
  - b. Friendly forces. Give available information concerning the missions of next higher and adjacent units.
  - c. Attachments and detachments. Give information concerning any units that have been attached or detached.
3. Issue the mission paragraph. Issue a clear, concise statement of the task to be accomplished and the purpose for doing it.
  - a. Situation paragraph.
    - (1) Enemy forces: Provide available information on disposition, composition, strength, capabilities, and most probable course of action.
    - (2) Friendly forces: Give available information concerning the missions of next higher and adjacent units.
    - (3) Attachments and detachments: Give information concerning any units that have been

## Performance Steps

- attached or detached.
- b. Mission paragraph. The mission paragraph contains a clear, concise statement of the task to be accomplished and the purpose for doing it.
- c. Execution paragraph. Provide information about the operation, if available.
- d. Service support paragraph. Provide all known instructions and arrangements supporting the operation.
- e. Command and signal paragraph. Designate the succession of command if it differs from the unit SOP.

NOTE: Warning orders involving movement should state the time of movement.

4. Issue the execution paragraph.
  - a. Given the concept of the operation, explain in general terms how your unit, as a whole, will accomplish the mission.
  - b. Address each unit member by name and assign specific tasks they are to accomplish.
  - c. Describe the plan for the fire support to synchronize and complement the scheme of maneuver. Address priority of fires, priority of targets, and any restrictive control measures on the use of fires.
  - d. State the concept of employment of any combat support attachments--which will have priority of their use, how they are to be used, and how long they will be controlled.
5. Issue the service support paragraph.
  - a. Provide instructions and arrangements supporting the operation that are of primary interest to your unit (location of and routes to casualty/POW collection points), including changes to established SOPs.
  - b. Provide information on classes of supply that are of interest to your unit.
  - c. Provide any administrative instructions that affect your unit, such as maintenance or destruction of supplies.
6. Issue the command and signal paragraph.
  - a. Give the location of the higher unit command post. Designate the succession of command if it differs from unit SOP.
  - b. Provide communications instructions to include visual signals, radio frequencies, and call signs.

**Evaluation Preparation:** SETUP: Provide the soldier with the material listed in the task conditions statement (unit OPORD should be written).

BRIEF SOLDIER: Tell the soldier to use the written platoon orders and develop a squad operation order. Tell the soldier upon completing the order; he will give the order orally.

## Performance Measures

|                                                                                                                                                                                                                                                   | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Developed a clear and concise OPORD, using the standard OPORD format: <ol style="list-style-type: none"> <li>a. Situation.</li> <li>b. Mission.</li> <li>c. Execution.</li> <li>d. Service Support.</li> <li>e. Command and Signal.</li> </ol> | —         | —            |
| 2. Issued the order in a clear and concise manner, and clarified questions.                                                                                                                                                                       | —         | —            |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References  
Required**

**Related**  
FM 101-5  
FM 7-7  
FM 7-7J  
FM 7-8

## Subject Area 5: COMMUNICATE: GENERAL

**Guide a Helicopter to a Landing Point****071-334-4001**

**Conditions:** Given a prepared landing site for a UH-1 or UH-60 helicopter (the location of which is known to the pilot), individual TOE equipment, night vision goggles, FM radio (SINCGAR), and the appropriate arm-and-hand signals to guide the helicopter to the landing site and land the helicopter on the landing site.

**Standards:** Guide the helicopter to a safe landing by MEDEVAC request, identifying the landing site to the pilot and controlling the landing using the correct arm-and-hand signals.

**Performance Steps**

CAUTION: During training, dispose of all batteries IAW unit SOP.

1. As the aircraft approaches, provide the pilot with tactical and security information. Tell him of conditions that may affect his landing such as terrain, weather, landing site markings, and possible obstacles.
  - a. Confirm information or answer any questions the pilot may have pertaining to the landing site.
  - b. Maintain communications with the pilot during the entire operation.
2. Identify the landing site and guide the pilot in.
  - a. Once the pilot is within your area, he establishes radio contact with the unit for positive identification.
  - b. The pilot will be oriented to the landing site by using the clock method (12 o'clock is always the direction of flight). Tell the pilot the time position of your location. (For example: "The LZ is now at 3 o'clock to your position.")
  - c. Mark or identify the landing site:
    - (1) Day--The only signals required are colored smoke and a signalman. VS-17 marker panels may be used to mark the landing site, but are NOT used any closer than 50 feet to the touchdown point. In addition to identifying the landing site, the smoke will give the pilot the wind direction and speed.
    - (2) Night--The landing site and touchdown point are marked by an inverted "Y" composed of four lights (Figure 1).

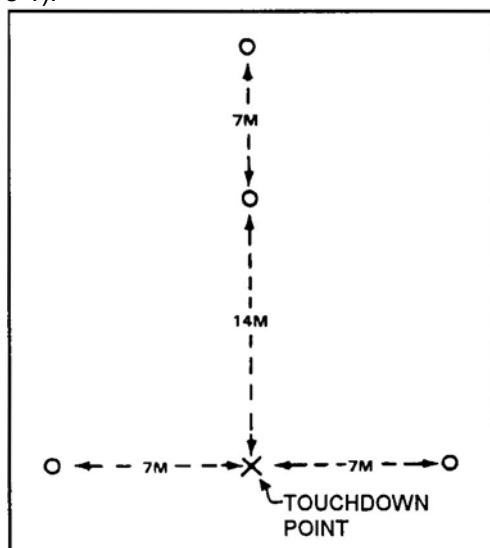


Figure 1. Night Marking.



### Performance Steps

3. Use arm-and-hand signals (Figures 2 through 9).



Figure 2. Arm guidance.

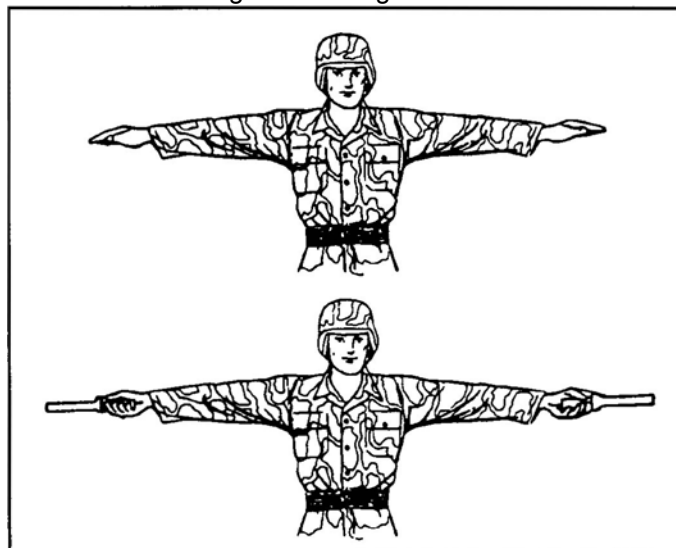


Figure 3. "Hover" signal.

**Performance Steps**

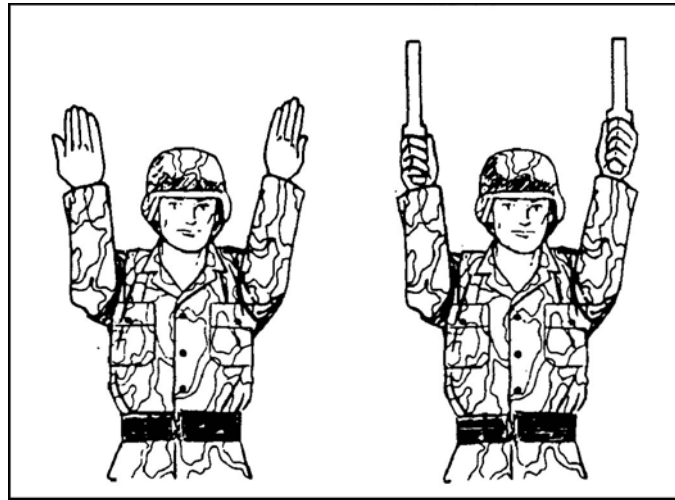


Figure 4. "Move ahead" signal.

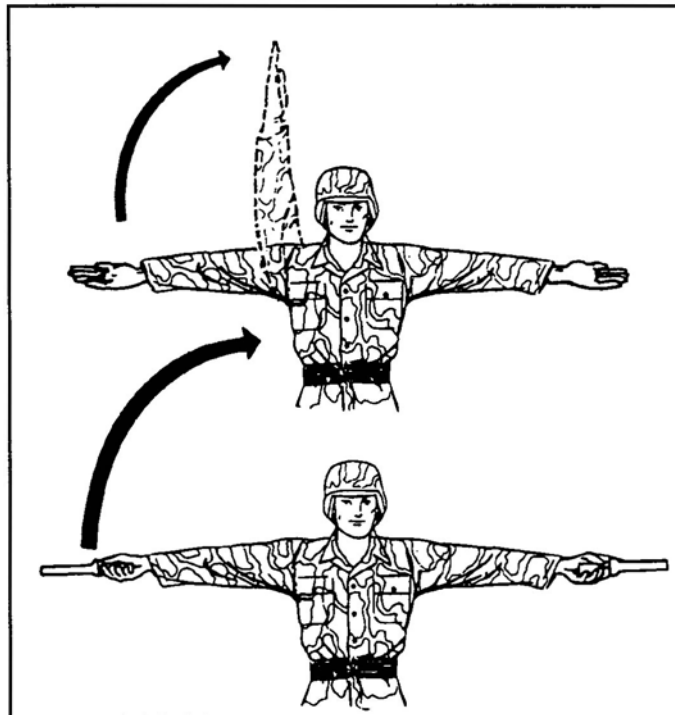


Figure 5. "Move to right" signal.

Performance Steps

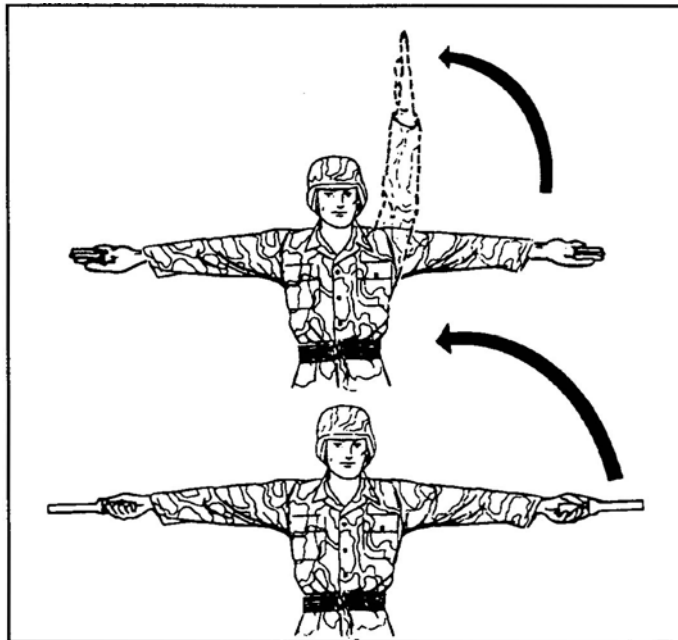


Figure 6. "Move to left" signal.

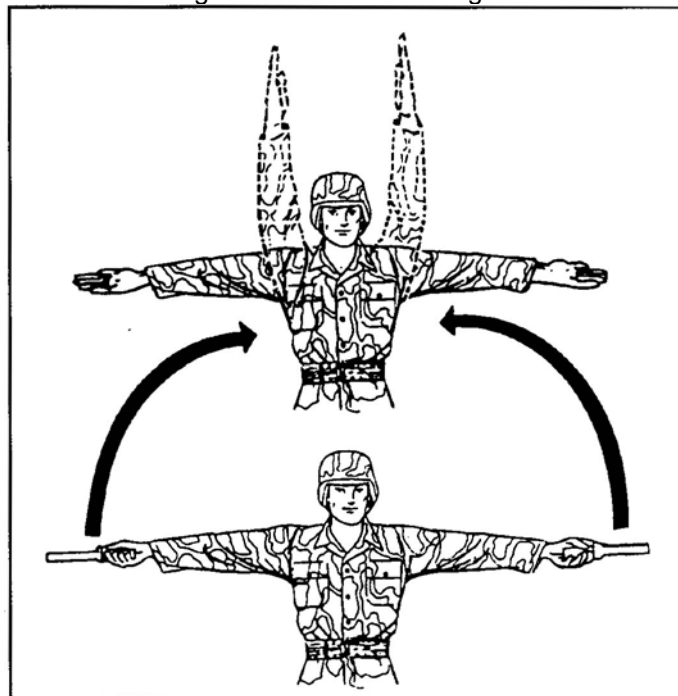


Figure 7. "Move upward" signal.

## Performance Steps

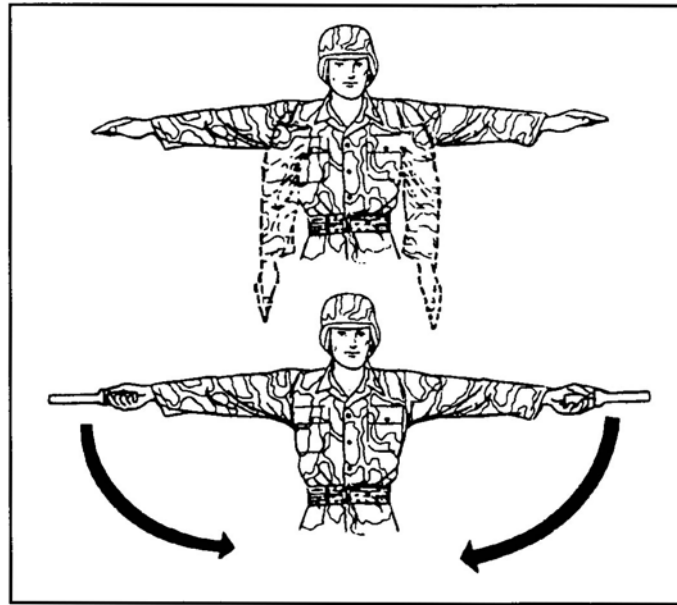


Figure 8. "Move downward" signal.

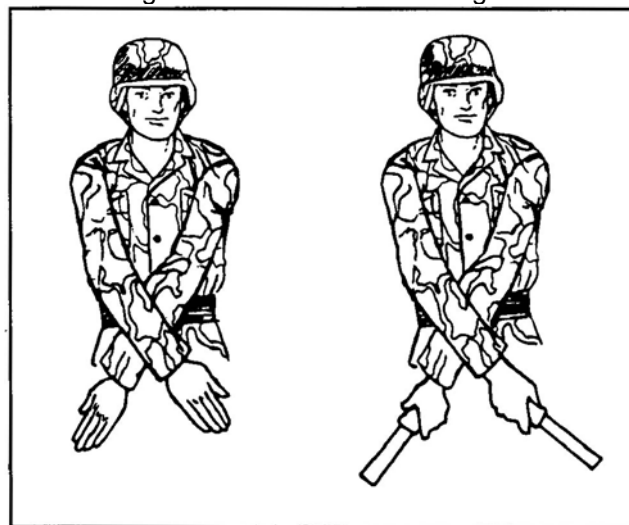


Figure 9. "Land" signal.

- The signal man's position when directing a helicopter is to the right front of the aircraft where he can be seen best by the pilot. The signal man's position for utility helicopters is 30 meters to the right front of the aircraft during day or night operations.
- Signals at night are given by using lighted batons or flashlights. In the illustrations, one of the men is using a lighted wand. This is a flashlight with a plastic wand attached to the end. The flashlight is used when there is decreased visibility.
- The speed of the arm movement indicates the desired speed of aircraft compliance with the signal.

NOTE: The "hover" signal should be used to change from one arm-and-hand signal to another. For example, assume that the signalman desires to land an approaching helicopter and that the signalman has given the helicopter the "move ahead" signal. The helicopter is now positioned directly over the desired landing area. Before giving the helicopter the signal to move downward, the signalman should execute the "hover" signal. This gives the pilot time to change from the "move ahead" to the "move downward" signals.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and information given in the task condition statement. For test purposes, the tester may act as the pilot.

BRIEF SOLDIER: Tell the soldier to land the helicopter using arm-and-hand signals.

| Performance Measures                                      | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------------|-----------|--------------|
| 1. Advised the pilot of changes to the information given. | _____     | _____        |
| 2. Identified the landing site to the pilot.              | _____     | _____        |
| 3. Controlled the landing using arm-and-hand signals.     | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                |
|-------------------|----------------|
| <b>References</b> | <b>Related</b> |
| <b>Required</b>   | FM 21-60       |
|                   | FM 7-8         |

## Subject Area 7: COMMUNICATE: RADIO

**Maintain an AN/PRC-126 Radio****071-810-0001**

**Conditions:** Given a complete AN/PRC-126 radio; cleaning equipment, including clean rags and a soft bristle brush; and a requirement to perform maintenance.

**Standards:** Ensured all components were present, cleaned, and serviceable, and reported all unserviceable or damaged items.

**Performance Steps**

1. Maintain the transmitter/receiver. Clean all foreign matter from the cases, knobs, switches, connectors, and covers. Clean corrosion, debris, or other foreign matter from the battery compartment and terminals.
2. Maintain antennas. Fully assemble, clean and mount on the radio. Ensure all parts are present, the flexible boots are free of cracks, and that milled surfaces are free of dents and corrosion. Report all deficiencies to supervisor or communications NCO on DA Form 2404(Equipment Inspection Maintenance Worksheet).
3. Maintain canvas webbing. Clean webbing and check it for serviceability.

**Evaluation Preparation:** SETUP: At the test site, provide the soldier with materials according to the task condition statement.

BRIEF SOLDIER: Tell the soldier that within 30 minutes to perform operator preventive maintenance checks and services on radio set.

**Performance Measures**

1. Performed routine checks.
2. Performed PMCS.
3. Completed DA Form 2404.

**GO**    **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

TM 11-5820-1025-10

**Operate an AN/PRC-126 Radio**  
**071-810-0002**

**Conditions:** Given an operational AN/PRC-126 radio complete and a BA-5588/U serviceable battery.

**Standards:** Sent and received transmissions and selected and pre-set channels on the radio.

**Performance Steps**

1. Install a battery
2. Place the receiver/transmitter (R/T) into operation.
  - a. Install an antenna.
  - b. Turn OFF/ON control to the ON position.
  - c. Wait for operating frequency to appear on the display.
  - d. Use the indicated channel or select another.
  - e. Listen for the antenna warning signal and disable if necessary.
  - f. Listen for the low voltage tone and change battery if necessary.
  - g. Adjust volume control.
  - h. Press the PUSH TO TALK (PTT) button to transmit.
  - i. Release the PTT button to receive.
3. Program channels in the R/T.
  - a. Locate the SET/INC buttons.
  - b. Set the channel switch to the channel to be programmed. The set must be ON to perform this step.
  - c. Press SET to place the R/T in the program mode.
  - d. Press INC until the leftmost digit of the channel appears in the display.
  - e. Press SET to program (lock in) the digit.
  - f. Repeat steps d and e until all digits of the channel have been programmed.
  - g. Press SET LOAD will appear on the display.
  - h. Repeat steps b through g to program additional channels.

**Evaluation Preparation:** SETUP: At the test site provide all materials according to task condition statement.

**BRIEF SOLDIER:** Tell the soldier the radio set must be assembled and a communication checked with another station within 5 minutes.

| Performance Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | GO    | NO GO |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 1. Installed a battery.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | _____ | _____ |
| 2. Placed the R/T into operation. <ol style="list-style-type: none"><li>a. Installed an antenna.</li><li>b. Turned OFF/ON control to the ON position.</li><li>c. Waited for operating frequency to appear on the display.</li><li>d. Used the indicated channel or selected another channel.</li><li>e. Listened for the ANT warning signal and disable if necessary.</li><li>f. Listened for the low voltage tone and change the battery if necessary.</li><li>g. Adjusted the volume control.</li><li>h. Pressed the (PTT) button to transmit.</li><li>i. Released the PTT to receive.</li></ol> | _____ | _____ |
| 3. Programmed channels in the R/T <ol style="list-style-type: none"><li>a. Located the SET/INC buttons.</li><li>b. Set channel to channel to be programmed. Ensure the set is ON.</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                        | _____ | _____ |

**Performance Measures**

**GO**    **NO GO**

- c. Pressed SET to place the R/T in the program mode.
- d. Pressed INC until the leftmost digit of the channel being programmed appeared in the display.
- e. Pressed SET to program (lock in) the digit.
- f. Repeated steps d and e until all channel digits were programmed.
- g. Pressed SET until LOAD appeared on the display.
- h. Repeated steps b through g until all required channels were programmed.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

TM 11-5820-1025-10



Subject Area 9: MOVE: BASIC TACTICS

**Locate a Target by Polar Plot**  
**061-283-1003**

**Conditions:** Given a map of the target area, binoculars, declinated M2 compass, and target.

**Standards:** Locate the target within  $\pm 250$  meters of the actual location. Announce the target location within 30 seconds after identification. Express direction to within 10 mils and within  $\pm 100$  mils of the actual direction. Express distance to the nearest 100 meters.

**Performance Steps**

1. Determine direction to the target. Direction may be determined by use of a compass, computed by adding or subtracting differences from a known direction, determined by use of a map, or estimated.
2. Estimate distance to the target.
  - a. Distance can be estimated by the football-field method. A football field is 100 yards long, which is about 100 meters. Therefore, a target that is about seven football fields away from the OP is at a distance of about 700 meters.
  - b. The flash-to-bang method is another method of estimating distance. After observing a flash or burst in the target area, the observer counts the number of seconds until he hears the sound. He then multiplies the number of seconds times 350 (350 meters per second is about the speed of sound) to obtain the estimated distance—for example, 3 seconds  $\times$  350 = 1,050 meters, expressed as a distance of 1,000 meters.

NOTE: The speed of sound of 350 meters per second will only be used when estimating distance to adjust artillery fire. For all other times that the flash-to-bang method is used to estimate distance, use 330 meters per second.

**Evaluation Preparation:** Setup: Ensure that the target is readily identifiable to the soldier, and that the equipment listed in the task conditions statement is present and operational. Brief Soldier: Identify the target to the soldier. Tell the soldier to use the polar-plot method to determine the location of the target within 30 seconds. NOTE: Ensure that the tested soldier understands exactly what is expected of him; do not help him.

| Performance Measures                                                                                                               | GO    | NO GO |
|------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| NOTE: Sequence is scored.                                                                                                          |       |       |
| 1. START TIMING THE SOLDIER: Determine the direction within $\pm 100$ mils of actual direction; express it to the nearest 10 mils. | _____ | _____ |
| 2. Determine the distance to the target within $\pm 250$ meters of the actual distance.                                            | _____ | _____ |
| 3. Determine the vertical (up or down) within $\pm 5$ meters. If there are no obvious differences, ignore the vertical shift.      | _____ | _____ |
| 4. Complete Steps 1 through 3 in sequence.                                                                                         | _____ | _____ |
| 5. Complete Steps 1 through 3 within 30 seconds.                                                                                   | _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any steps are failed (F). If the soldier fails any steps, show what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 6-30

## **Control Movement of a Fire Team**

**071-326-5605**

**Conditions:** As a fire team leader or assistant scout squad leader, while moving in a tactical environment, given specific instructions by the squad leader as to the movement technique to be used, the route to the overwatch position, and the actions to be taken there.

**Standards:**

1. React immediately to all of the squad leader's orders or instructions.
2. Keep the interval between fire teams (if in a trail team) appropriate to the given movement technique and to the terrain.
3. Move to the overwatch position and use the terrain to provide cover and concealment for the fire team.
4. Recognize the fire team members' use of the following (and correct them when necessary):
  - a. Camouflage, cover and conceal.
  - b. Individual interval appropriate to terrain and visibility, while keeping all team members in sight.
  - c. Noise and light discipline.
  - d. Security measures (soldiers are alert and ready to act).
  - e. Response to leader's lead-by-example actions.

NOTE: Corrections may be made orally or with arm-and-hand signals.

### **Performance Steps**

1. Thoroughly understand the mission. Know--
  - a. The destination of the team.
  - b. The route the team will use.
  - c. The actions to take when the team arrives at the destination.
  - d. The location of the squad leader.
  - e. The location of the overwatch team.
2. Inform the team members of the mission.
3. Be proficient in battle drill techniques, and apply the squad leader's instructions and unit SOPs:
  - a. Use camouflage, cover, and concealment techniques.
  - b. Keep individual intervals.
  - c. Maintain noise and light discipline.
  - d. Take security measures.
  - e. Respond to lead-by-example actions.
  - f. Respond to hand signals.
4. Maintain a visual or radio contact with the squad leader.
5. Use the lead-by-example technique to control the fire team.
  - a. Control the desired interval (normally, it should be 10 meters between individuals) between the fire teams and team members. This may vary depending on terrain, visibility, and movement techniques.
  - b. Make quick visual reconnaissance of the next overwatch position designated by the squad leader, and lead the fire team through the terrain that offers the best cover and concealment available.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and information given in the task condition statement.

**BRIEF SOLDIER:** Using the instructions and information given by the squad leader, tell the soldier the route to the overwatch position; tell him that the movement technique and the actions to be taken will be given to him.

**Performance Measures****GO**      **NO GO**

- |                                                                                                                   |       |       |
|-------------------------------------------------------------------------------------------------------------------|-------|-------|
| 1. Understood the mission.                                                                                        | _____ | _____ |
| a. Know where the team is to move.                                                                                |       |       |
| b. Know the route to use.                                                                                         |       |       |
| c. Know the action to be taken upon arrival.                                                                      |       |       |
| d. Know the location of the squad leader.                                                                         |       |       |
| e. Know the location of the overwatch team.                                                                       |       |       |
| 2. Informed the team members of the mission.                                                                      | _____ | _____ |
| 3. Used the proper battle drill techniques.                                                                       | _____ | _____ |
| a. Use camouflage, cover, and concealment.                                                                        |       |       |
| b. Control the individual intervals.                                                                              |       |       |
| c. Enforce noise and light discipline.                                                                            |       |       |
| d. Enforce security measures.                                                                                     |       |       |
| e. Use arm-and-hand signals.                                                                                      |       |       |
| 4. Maintained visual or radio contact with the squad leader.                                                      | _____ | _____ |
| 5. Used the lead-by-example technique.                                                                            | _____ | _____ |
| a. Control the desired interval between the fire teams and team members (normally 10 meters between individuals). |       |       |
| b. Lead the fire team through the terrain that offers the best cover and concealment.                             |       |       |
| c. Stay within 50 meters of the designated route.                                                                 |       |       |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**
**Related**  
 FM 7-7  
 FM 7-8

### Select an Overwatch Position

071-326-5606

**Conditions:** As a fire team leader, given the direction of the enemy threat, route and destination of a bounding element, and a designated area to select an overwatch position.

**Standards:** Selected the fire team's position within the designated area that provides—

1. Cover and concealment.
2. Observed good fields of fire from the overwatch position, along the route of the bounding element up to its destination.

**NOTE:** The range of the fire team's weapons must be considered. The overwatching element must be able to support by fire, if necessary.

### Performance Steps

1. The bounding overwatch technique is used when contact is expected. One fire team advances while the other team is in an overwatch position ready to fire.
2. The key to this movement technique is the proper use of terrain. All members of the squad must exploit all natural cover and concealment. Exposure to possible enemy observation must be kept to a minimum. A bound is normally made to a position about 100 to 150 meters forward of the overwatch team. The terrain, the range of the overwatch fire team's weapons, and the ability of the squad leader to control all elements of his squad must be considered.
3. In these bounds, the squad leader has both fire teams move along the same general line of advance. On occupying an overwatch position, the fire team leader must ensure that all team members can support the bounding team by fire when needed. A change in the team's position within the general location designated by the squad leader may be necessary.

**Evaluation Preparation:** **SETUP:** At the test site, provide all materials and equipment given in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier that he will select a fire team position within the designated area.

### Performance Measures

|                                                     | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------|-----------|--------------|
| 1. Provided observation and good fields of fire.    | _____     | _____        |
| 2. Provided cover and concealment.                  | _____     | _____        |
| 3. Provided support for bounding element's advance. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

#### Required

#### Related

FM 7-7  
FM 7-7J  
FM 7-8

**Conduct Occupation of an Overwatch Position**  
**071-410-0016**

**Conditions:** In a combat environment, given an overwatch mission and an overwatch position.

**Standards:** As a minimum reconnoiters the overwatch position, setup local security, and positioned vehicles (when assigned), crew-served weapons, and individual weapons where they can place fire on and along the route and on the next position of the moving force.

**Performance Steps**

- 1. Reconnoiter the overwatch position.
- 2. Establish local security. Place soldiers where the enemy will surprise the overwatch position.
- 3. Position vehicles and crew-served weapons. Locate both where they can provide immediate support- by- fire for the moving elements.

**Evaluation Preparation:** SETUP: Provide at the test site all equipment and information given to him in the task condition statement.

BRIEF SOLDIER: Tell the soldier to follow the instructions and information given by the squad leader.

| <b>Performance Measures</b>                                                                                                                                        | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. When contact was expected. Used the bounding overwatch technique. One fire team advanced while the other team remained in an overwatch position, ready to fire. | _____            | _____               |
| 2. The key to this movement technique is the proper use of terrain. All members of the squad must exploit all natural cover and concealment.                       | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7

## Subject Area 10: MOVE: DEFENSE/OFFENSE

**Conduct a Breach of a Wire Obstacle****071-420-0026**

**Conditions:** Acting as a team leader in an urban environment, given specific instructions by the squad leader which requires conducting a breach for the purpose of creating a foothold in a building or to clear the room. Both enemy forces and civilians could be present in the objective. The team is equipped with all TO&E authorized; given necessary equipment to conduct a mechanical, explosive, or ballistic breach and the current rules of engagement (ROE).

**Standards:** The breach was large enough, there were minimal friendly casualties, and the mission was completed in accordance with the rules of engagement.

**Performance Steps**

1. Analyze the mission. Use METT-TC to determine and make a tentative plan for: routes, breach location, support and cover locations and follow on actions.
  2. Issue the warning order: Tell soldiers they have breach mission, time of mission, breach site and time and location of the complete order.
- NOTE: At fire team level the troop leading procedure may be very abbreviated with the steps overlapping.
3. Secure any mission specific equipment and start soldiers preparing for the mission.
  4. Reconnoiter the routes, if possible; determine the breach site and the techniques to use; support and cover locations.
  5. Complete the plan, designate soldiers to conduct the breach and conduct any necessary training and issue the order.
  6. Supervise thorough out the process; inspect weapons, ammunition, demolition, and mission essential equipment. Rehearse mission essential tasks if possible.
  7. Move the team to breach site maintaining security.
  8. Prepare any mission specific charges or equipment.
  9. Execute the breach in accordance with the ROE. Secure and maintain the breach.

**Evaluation Preparation:** SETUP: At the test site, provide all materials and equipment given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to conduct a breach at specific location.

NOTE: It is a good technique to give the soldiers an operations order to integrate and reinforce trooping leading procedures.

**Performance Measures**

|                                                                                                                                                              | <u><b>GO</b></u> | <u><b>NO GO</b></u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Analyzed the mission. Used METT-TC to determine and make a tentative plan for routes, breach location, support and cover locations and follow on actions. | —                | —                   |
| 2. Issued order:                                                                                                                                             | —                | —                   |
| 3. Secured any mission specific equipment and started soldiers preparing for the mission.                                                                    | —                | —                   |
| 4. Reconnoitered if possible.                                                                                                                                | —                | —                   |

| <b>Performance Measures</b>                                                                                                                                        | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 5. Completed the plan, designated soldiers to conduct the breach and conducted any necessary training.                                                             | _____            | _____               |
| 6. Supervised thorough out the process, inspected weapons, ammunition, demolition, and mission essential equipment. Rehearsed mission essential tasks if possible. | _____            | _____               |
| 7. Moved the team to breach site maintaining security.                                                                                                             | _____            | _____               |
| 8. Prepared any mission specific charges or equipment.                                                                                                             | _____            | _____               |
| 9. Executed the breach in accordance with the ROE. Secure and maintain the breach.                                                                                 | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

##### **Required**

FM 7-7J

FM 7-8

##### **Related**

Subject Area 18: RECON-SECURITY: GENERAL

**Conduct a Local Security Patrol**

**071-720-0009**

**Conditions:** In a combat environment, given a squad, an area of operations, and a mission to conduct a security patrol.

**Standards:** 1. Developed a plan that included routes, key terrain, fire support, formations, control measures, and requirements for subordinates.

2. Conducted preparations, to include cleaning and test-firing weapons, maintaining equipment, and resupplying ammunition or needed equipment.

3. Used the designated formation and proper movement techniques. Detected any threat in sector, and reported all detections to the platoon leader.

**Performance Steps**

1. PLAN

- a. Receive the mission.
- b. Make a tentative plan.
- c. Start preparations.
- d. Conduct reconnaissance.
- e. Develop the final plan.

2. PREPARE

- a. Request supplies.
- b. Receive supplies.
- c. Conduct rehearsals.
- d. Conduct final inspection.

3. CONDUCT

- a. Depart the friendly lines.
- b. Cross danger areas.
- c. Occupy surveillance/vantage points.
- d. Move to re-entry point. All information is given to all patrol measures.
- e. Conduct re-entry of friendly lines.

**Evaluation Preparation:** SETUP: At the test site, provide the leader with the materials and information according to task condition statement.

BRIEF SOLDIER: Tell the leader that he will receive a mission that specifies departure and return times and exact locations to reconnoiter.

**Performance Measures**

1. Planned.

GO      NO GO

\_\_\_\_\_

2. Received the mission.

\_\_\_\_\_

3. Determined general organization of a local security patrol.

\_\_\_\_\_

4. Stated which special skills personnel must go on the patrol, and who assigns them to the patrol.

\_\_\_\_\_

5. Stated the principal consideration for selecting personnel for the patrol.

\_\_\_\_\_



**Performance Measures**

**GO**    **NO GO**

6. Stated when a patrol may conduct a hasty ambush.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7J  
FM 7-8

## Subject Area 19: RECON-SECURITY: NIGHT VISION DEVICES

**Control Use of Night Vision Devices****071-710-0004**

**Conditions:** Given a fire team-sized element located in a defensive position at night, with assigned night vision devices and a platoon early warning system (PEWS), operate the devices.

**Standards:** The element's sector is covered by observation; and PEWS cover any dead space.

**Performance Steps**

1. The night observation plan must ensure overlapping sectors of observation similar to sectors of fire. Assign each night vision device a sector of observation. If possible, any device mounted on a weapon should have a matching sector of fire for the weapon.
2. Thermal sights should be kept on the wide field of view settings for normal use. When a target is detected and engagement is begun, the sight should be set to a higher magnification. Other devices should be required to cover portions of the sector of observation for the brief time that a normal target engagement takes.
3. Some device should be placed forward of the firing positions to help provide early warning. Night observation and listening posts using night vision devices can provide target identification for organic direct and indirect fire weapons.
4. Dead space can be covered using the PEWS. Defiles, gullies, wooded areas, and other areas that cannot be observed using night vision devices should be covered using PEWS sensors.
5. The efficiency of an observer decreases rapidly after 30 minutes. This is true when using night vision devices. Observers should be rotated at least every 30 minutes. Observer teams should be relieved about every two hours.
6. During night movement, using a three-man element at squad level may help in detecting and destroying the enemy. The three-man element consists of one soldier who has night-adapted vision and uses no vision devices, one soldier who is using the AN/PVS-5 or AN/PVS-7 night vision goggles, and one soldier who is using an M16A1 or M16A2 rifle and AN/PVS-4 night vision sight. Use of this technique provides the element with a wide range of viewing capability. Personnel and equipment should be rotated frequently so that soldier vision "burnout" does not occur. The soldier with night-adapted vision does not take turns on the night vision equipment. He is rotated with another soldier who has night-adapted vision.

**Evaluation Preparation:** SETUP: This task should be evaluated during a field training exercise. Otherwise, provide the soldier with the personnel and equipment given in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to assign duties and responsibilities to the personnel of his fire team for use of night vision devices.

**Performance Measures**

|                                                 | <u><b>GO</b></u> | <u><b>NO GO</b></u> |
|-------------------------------------------------|------------------|---------------------|
| 1. Assigned overlapping sectors of observation. | _____            | _____               |
| 2. Set thermal sights on wide field of view.    | _____            | _____               |
| 3. Assigned the device to an observation post.  | _____            | _____               |
| 4. Used PEWS in dead space.                     | _____            | _____               |
| 5. Rotated operators at least every 30 minutes. | _____            | _____               |

**Performance Measures****GO**    **NO GO**

6. Employed a three-man element during movement.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

FM 23-1

TM 11-5855-213-10

TM 11-5855-238-10

TM 11-5855-262-10-1

TM 9-1425-484-10

TM 9-2350-252-10-2

Subject Area 20: RECON-SECURITY: OPSEC AND COMSEC

**Prepare a Platoon Early Warning System AN/TRS-2 for Operation**  
**071-331-1000**

**Conditions:** Given a platoon early warning system (PEWS) set with batteries and wire.

**Standards:** Correctly assembled receivers and detectors for wire or radio-frequency (RF) mode.

**Performance Steps**

NOTE: The PEWS is to be used by platoons, squads, or patrols. The receiver detects, locates, and classifies approaching personnel or vehicles to a maximum range of 1,500 meters. Each detector has a maximum detection range of 10 meters.

1. Introduction to components.
  - a. Each set of PEWS consists of two bags. Within each bag (Figure 1) is a receiver (Figure 2), antenna and adapter (Figure 3), headset (Figure 4), five detectors (Figure 5), wire link (Figure 6), grounding rod (Figure 7), a pouch containing ten grounding spikes for the detectors, and five detector antennas.

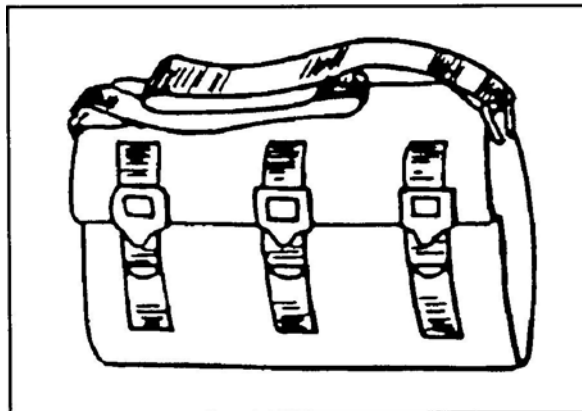


Figure 1. PEWS carrying bag.

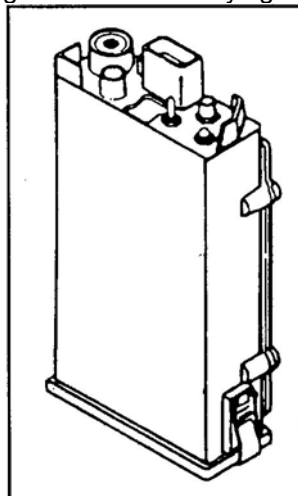


Figure 2. Receiver.

## Performance Steps

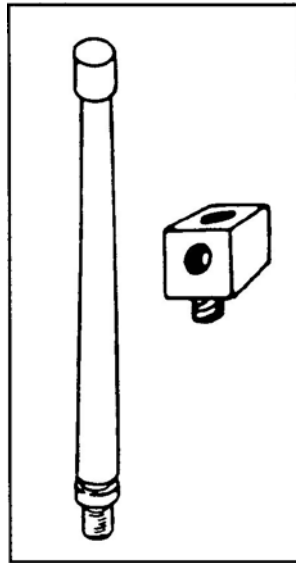


Figure 3. Antenna and adapter.

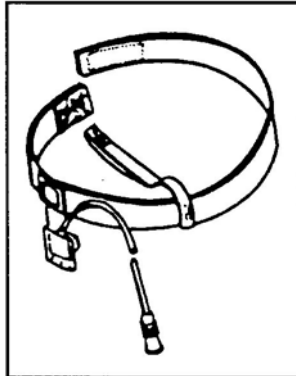


Figure 4. Headset.

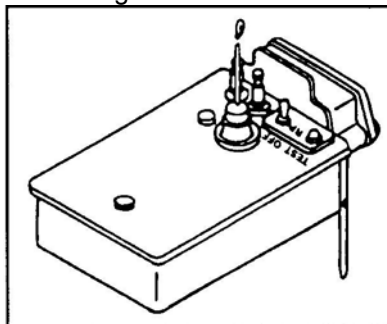


Figure 5. Detector.

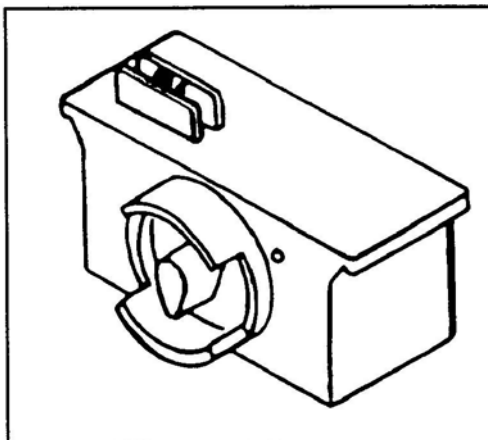
**Performance Steps**

Figure 6. Wire Link.

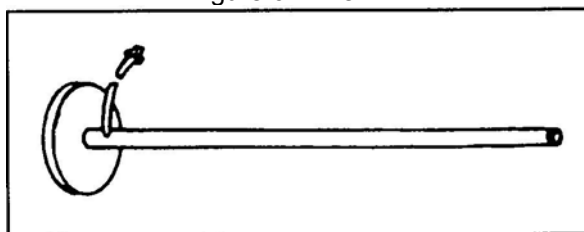


Figure 7. Grounding rod.

NOTE: Add a TE-33 tool kit (pliers, TL-13A; knife, TL-29; and leather pouch) to one of the two bags.

- b. Operation of each receiver requires two batteries (BA-90 or BA-3090). Operation of each detector requires one battery (BA-90 or BA-3090) and wire (WD-36), in addition to the components in each bag.

| TEMPERATURE RANGE                       | BATTERY | RECEIVER | DETECTOR |
|-----------------------------------------|---------|----------|----------|
| Above 40 degrees F (5 degrees C)        | BA-90   | 3 days   | 14 days  |
| 23 to 40 degrees F (-5 to +5 degrees C) | BA 3090 | 3 days   | 16 days  |

Table 1. Normal battery life.

NOTE: BA-90 batteries are used when temperature is above 40 degrees F (5 degrees C), and BA-3090 batteries are used from 23 degrees F (-5 degrees C) to 41 degrees F (5 degrees C). When working below 23 degrees F (-5 degrees C), the operator should be aware that battery life will decrease as the temperature goes below that reading. Table 1 shows normal battery life.

CAUTION: Dispose of all belt links and spent brass IAW unit SOP.

2. Use of operator's controls.
  - a. Receiver (Figure 8).

## Performance Steps

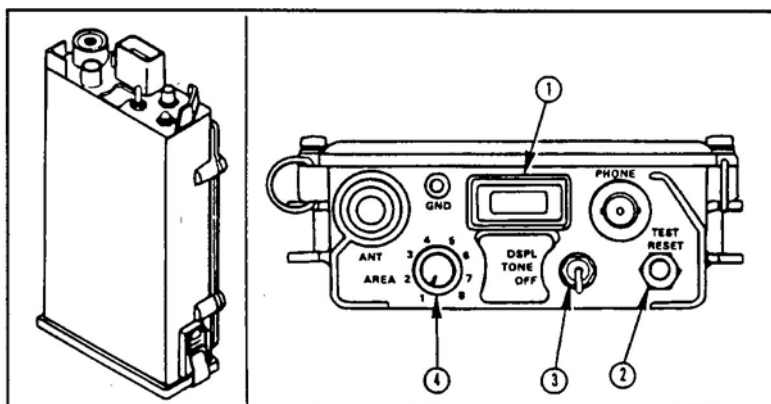


Figure 8. Receiver.

- (1) The display (DSPL) window (1, Figure 8) shows the identification number of the detector(s) transmitting to the receiver when the detector has been activated, and shows the type of intruder. The first two digits shown are identification numbers (1 to 16), and the last digit will be either a "P" (personnel intruder) or "C" (vehicle intruder).

NOTE: The receiver in the RF mode will handle up to 16 detectors.

- (2) The TEST-RESET button (2, Figure 8) is used to test the receiver battery and display. The button also is used to erase alarm messages from the receiver memory and to clear the display.
- (3) The DSPL-TONE-OFF switch (3, Figure 8) has three positions.
  - (a) DSPL--A detector message is displayed and the tone is heard in the earphone of the headset when the detector message is received.
  - (b) TONE--The display is turned off but the tone is heard in the earphone when the detector message is received.
  - (c) OFF--Receiver power is shut off.
- (4) The AREA switch (4, Figure 8) has eight positions. Each set of detectors is assigned an area number.

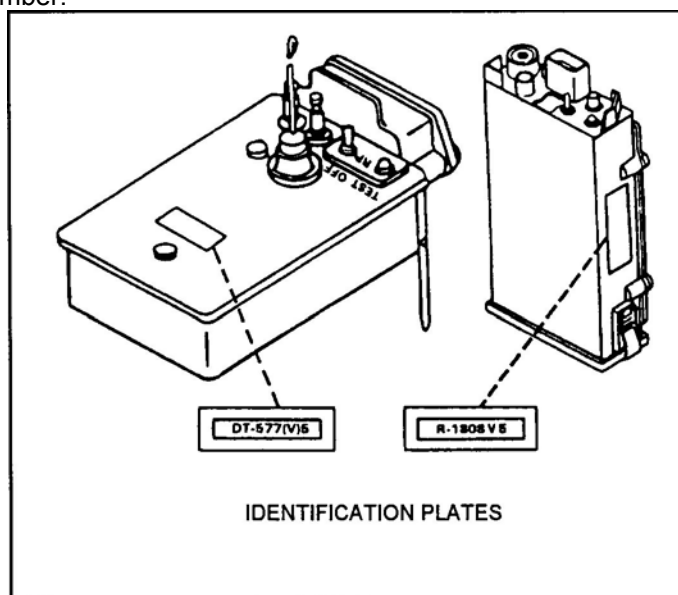


Figure 9. Receiver identification plate.

NOTE: For the PEWS to be used in the RF mode, the variation number on the receiver and detectors must be the same. The variation numbers are 1 to 6 and are found following the "V" in the equipment

### Performance Steps

nomenclature. The variation numbers identify the operating (radio) frequency of the detectors and receivers (Figure 9).

NOTE: A company may have receivers and detectors that all have the same variation number. Each platoon will be issued a different area number, which will keep one platoon's receivers from receiving messages from another platoon's detectors.

NOTE: In the wire mode, the variation numbers do not have to be the same.

b. Detector (Figure 10).

(1) The antenna post (1, Figure 10) allows connection of the antenna to the detector.

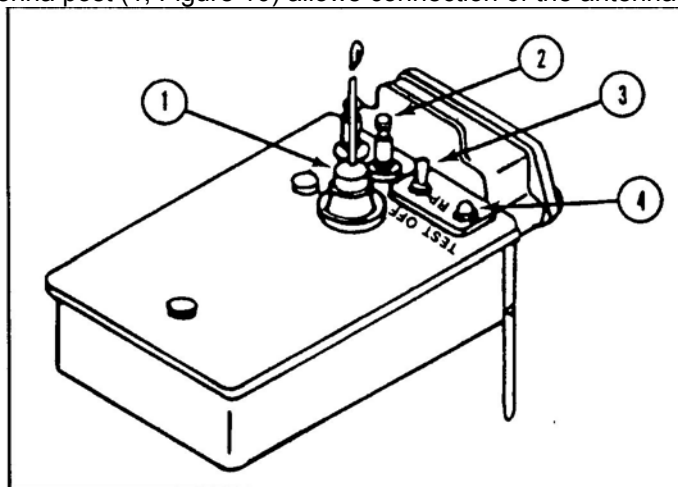


Figure 10. Detector controls.

(2) The data terminal posts (2, Figure 10) provide for connection of wire pairs to the wire link.

(3) The RF-OFF-W switch (3, Figure 10) has three positions.

(a) RF--Places the detector in the RF mode of operation.

(b) OFF--Turns off detector power.

(c) W--Places the detector in the wire mode of operation.

(4) The TEST button (4, Figure 10) allows a check of the transmitter element of the detector.

c. Wire link (Figure 11).

(1) The connector (1, figure 11) allows attachment of the wire link to the base of the receiver.

(2) The REC-TEST switch (2, Figure 11) has 10 positions.

(a) The REC (receive) position is used during operation.

(b) The TEST positions 1 through 9 allow testing of field wire connections.

(3) The TEST IND light (3, Figure 11) lights when the REC-TEST switch is turned to a wire-link pair number.

(4) WIRE terminals 1 through 9 (4, Figure 11) are used to connect field wire pairs from the wire link to the detectors. The GND terminal (5, Figure 11) is used to attach the grounding rod to the wire link.



## Performance Steps

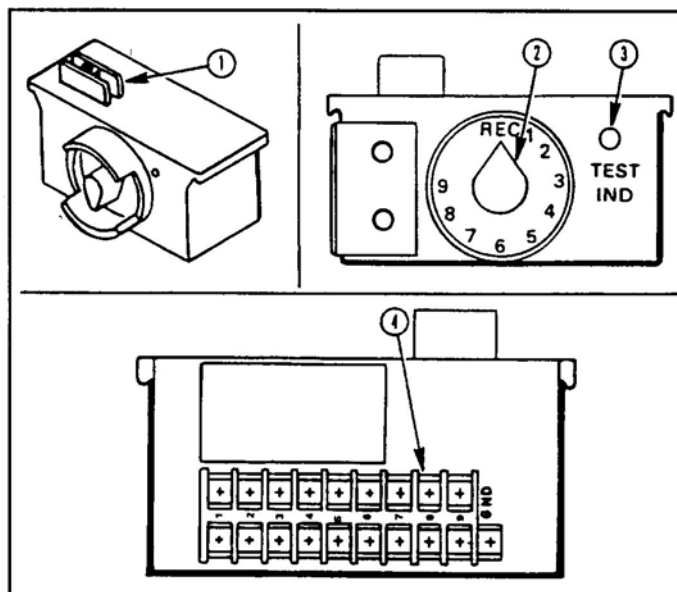


Figure 11. Wire Link.

### 3. Preparation of the receiver (RF mode).

#### a. Install the batteries (Figure 12).

- (1) Set DSPL-TONE-OFF switch to OFF.
- (2) Release the latches on the battery compartment at the base of the receiver.
- (3) Remove the battery compartment cover.
- (4) Snap two batteries into position in the battery compartment with the connectors against the rubber pad.
- (5) Replace the cover and secure the latches.

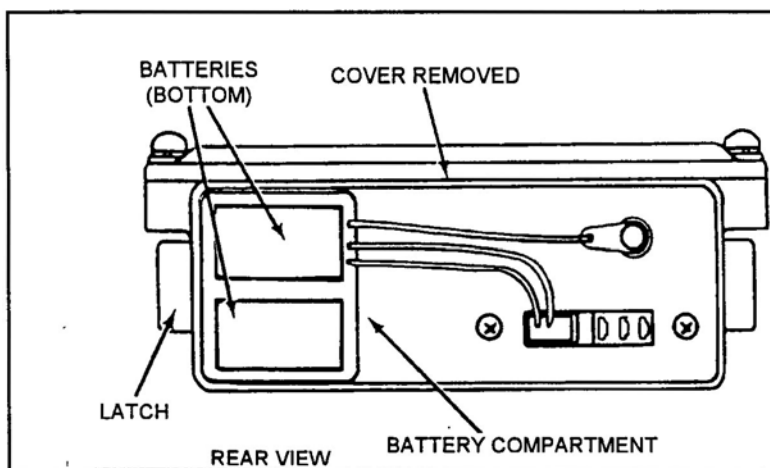


Figure 12. Receiver battery compartment.

#### b. Install the antenna and headset (Figure 13).

- (1) Install the antenna adapter into the ANT socket on the front panel.
- (2) Connect the antenna to the adapter (the antenna adapter has three sockets; the antenna can be connected to any one of them).

## Performance Steps

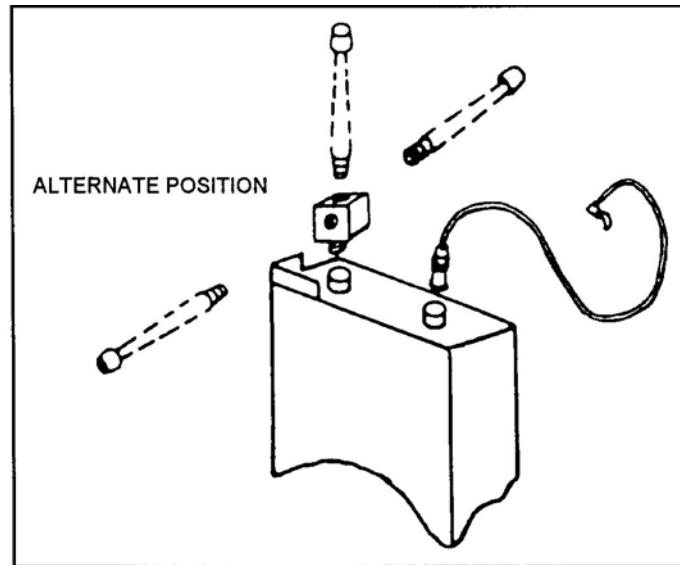


Figure 13. Receiver antenna installation.

### 4. Preparation of the detectors (RF mode).

#### a. Install the battery (Figure 14).

- (1) Set the RF-OFF-W switch to OFF.
- (2) Loosen the screws to release the battery cover.
- (3) Snap the battery into the clip and place it in the compartment with the connector against the pad.
- (4) Check the area number and detector identification number on the inside of the battery compartment cover.

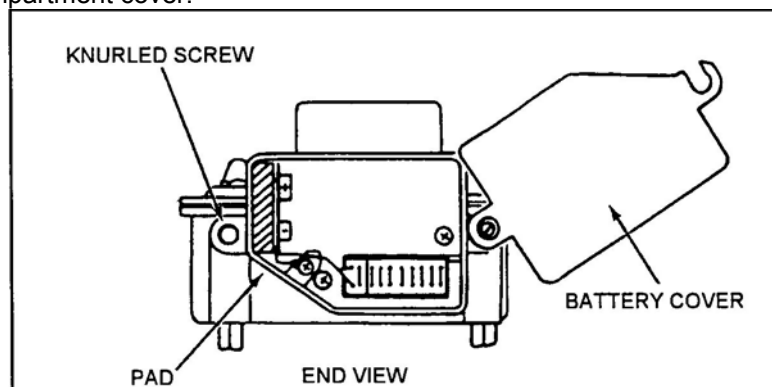


Figure 14. Detector battery compartment.

NOTE: All detectors within a set must have the same area number, and each detector must have a different identification number.

- (5) Close the battery compartment and tighten the screws.

#### b. Install the antenna (Figure 15). Screw the detector antenna onto the threaded post on top of the detector.

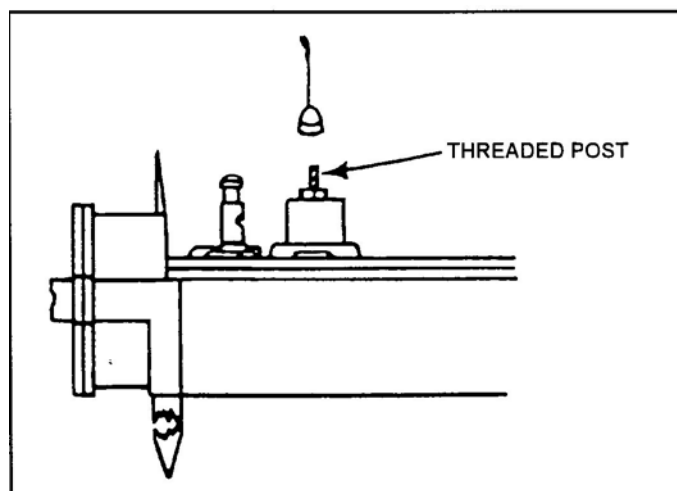
**Performance Steps**

Figure 15. Detector antenna.

- c. Install the ground stake (Figure 16). Screw the ground stakes (2) into the bottom of the detector.

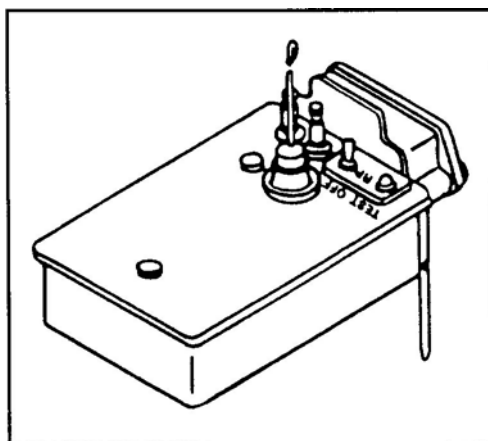


Figure 16. Detector ground stakes.

NOTE: Ground stakes should not be installed until the detector is to be placed in the ground.

5. Preparation of the receiver (wire mode).

- a. Prepare the receiver the same as for the RF mode including the installation of the batteries.
- b. Remove the battery compartment cover and snap it onto the holding bracket on the wire link.
- c. Secure the wire link to the bottom of the receiver using the wire link connector (Figure 17).

## Performance Steps

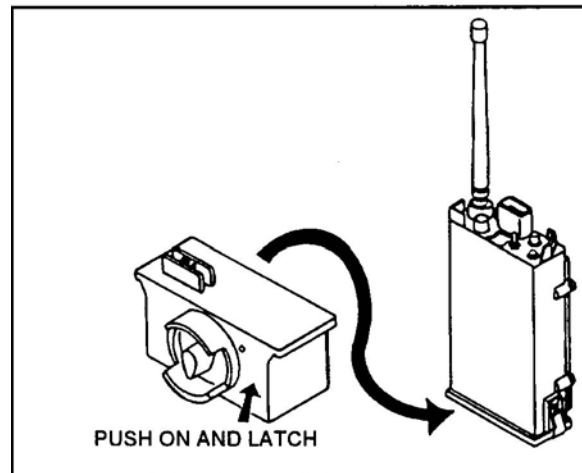


Figure 17. Wire Link secured to the receiver.

d. Secure the latches to the wire link.

6. Preparation of the receiver and detectors is complete.

**Evaluation Preparation:** SETUP: At the test site, provide the equipment given in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to prepare the receiver and five detectors: four for RF mode and one for wire mode and to prepare the receiver for use.

### Performance Measures

1. Checked the variation numbers of the receiver and detectors.
2. Prepared the detectors for RF mode operation.
3. Prepared the detector for wire mode operation.
4. Prepared the receiver for both RF and wire mode of operation.
5. Installed the receiver headset.

**GO**      **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References Required

**Related**  
TM 11-5895-1047-10

## Monitor a Platoon Early Warning System AN/TRS-2 071-331-1002

**Conditions:** Given an operational platoon early warning system (PEWS) with detectors in place and a copy of the installation sketch.

**Standards:** Identified intruders as to location, type of intruder (personnel or vehicle), and direction of movement, when possible.

### Performance Steps

1. Detect an intruder (DSPL position).
  - a. When the receiver is first turned on, an |8.|8.|8.| appears in the display window and the tone sounds for about 10 seconds. At the end of the 10 seconds, the display should clear and the tone should stop.
  - b. When the detector senses an intruder, a message is sent to the receiver. The detector ID number appears on the receiver display.
  - c. The ID number is followed by the intruder classification, "P" for personnel or "C" for vehicles.
  - d. At the same time the intruder message is seen in the display, the tone is heard in the headset.
  - e. As the intruder moves out of the detector's range, the detector stops transmitting.
  - f. Even though the detector is no longer transmitting, the memory in the receiver continues to display the message from the detector that was activated.
  - g. When new messages from other detectors are received, they are momentarily displayed with decimal points (|1.|0.|P.|) and tone.
  - h. When no new messages are being received, previously received (old) messages (without decimal points) are repeated in the display window in rotation, starting with the lowest ID number. (For example: | 4|P|, | 6|P|, | 8|P|.)
  - i. If both personnel and vehicles are detected, they are displayed and repeated in rotation, again starting with the lowest ID number. (For example: | 2|P|, | 3|P|, |1|0|C|, |1|2|P|, |1|3|C|.)
  - j. Turning the DSPL-TONE-OFF switch to TONE makes the display go blank but does not erase the receiver memory.
  - k. Pressing the TEST-RESET button on the receiver erases the memory and clears the receiver. This action allows the operator to determine which detectors the intruders set off.

NOTE: If the same ID numbers (with decimals and audio alert) are displayed, there may be more than one intruder near the detector.

2. Detect an intruder (TONE position).
  - a. Operation in TONE position is the same as in the DSPL position, except that no display appears in the window.
  - b. If the tone is heard in the headset, the DSPL-TONE-OFF switch should be turned to the DSPL position.
  - c. The ID number and classification of the intruder appear on the display window.
  - d. Any messages stored in the receiver memory are also displayed in rotation.

NOTE: Switching from DSPL to TONE or TONE to DSPL does not erase the receiver's memory.

3. Identify the reporting detector.
  - a. After noting the ID number(s) of the detector(s) reporting, refer to the installation sketch to find the area and location of the detector and the intruder.
  - b. Use the installation sketch. Note which detectors are reporting. It may be possible to determine the movements of a large number of intruders.

NOTE: When detectors are reporting at a high rate (many intruders), there is a greater chance of false alarm messages.

**Evaluation Preparation:** SETUP: At the test site, provide the equipment and situation given in the task condition statement. The detectors must be placed so that the soldier being tested cannot see them.

Provide a vehicle and another soldier to activate the detectors.

**BRIEF SOLDIER:** Tell the soldier to monitor the receiver, report if a detector is activated, and report whether a person or vehicle has activated the detector.

| <b>Performance Measures</b>                                                                                                                                                                           | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Turned on the receiver to the DSPL position and wait for the display window to clear.                                                                                                              | _____            | _____               |
| 2. Identified the detector by the number being activated.                                                                                                                                             | _____            | _____               |
| 3. Identified whether personnel or a vehicle activated the detector.                                                                                                                                  | _____            | _____               |
| 4. Identified the difference between an old message and a new message.                                                                                                                                | _____            | _____               |
| 5. Noted an activation of a detector with the receiver in the TONE position. Identified whether the detector was activated by personnel or by a vehicle. Stated the number of the detector activated. | _____            | _____               |
| 6. Identified the enemy's direction of travel.                                                                                                                                                        | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 11-5895-1047-10

## Install a Platoon Early Warning System AN/TRS-2 071-730-0003

**Conditions:** In a combat environment, given an operational platoon early warning system (PEWS), wire cutters, a screwdriver, and a requirement to install the PEWS.

**Standards:** The installation was complete when the detectors were installed, sketched, and identified. The detectors were emplaced so that holding stakes were implanted into the ground firmly. Insulation was stripped. Field wire was run to receiver locations and camouflaged. Detectors were turned on; the RF-OFF-W switch was set to RF for radio mode or W for wire mode. Wire link was attached to the receiver while the ends of field wire were stripped. Using a screwdriver, the pairs of wires were connected and the wire lead from the ground rod to the GND was connected. Ground rods were then firmly implanted into the soil.

### Performance Steps

#### 1. Install the detectors.

- a. Dig a shallow hole at the detector location about 1 inch deep, slightly larger than the detector.
- b. Sketch out the location and identification number of each detector you install.
- c. Observe the arrow on the detector case and align the detector so that the arrow is parallel to the expected travel of vehicles.
- d. Push the detector into the hole so that the holding stakes are firmly implanted into the ground.

NOTE: Do not step on the detector.

- e. Pack the soil firmly against the sides of the detector case. Do not cover the top of the detector case with rocks or soil. To conceal the detector, use vegetation (grass, pine needles, etc.) found in the vicinity.
- f. If the detector is to be used in the wire mode---
  - (1) Strip insulation from the ends of the field wire with wire cutters.
  - (2) Insert each wire end into the terminal post on the detector by pressing down on top of the post and inserting the wire into the post.
  - (3) Run the field wire to the receiver location and camouflage, as necessary.
  - (4) Bury or stake field wire securely to the ground to prevent movement. Blowing or moving field wire may reduce the detector performance or cause false alarms.

NOTE: Detector antennas are not required for the wire mode of operation. Do not allow any plants or other objects to touch the detector antenna or data post.

- g. Turn the detector set on by setting the RF-OFF-W switch to RF for radio frequency mode or W for wire mode.
- h. Camouflage the detector, as necessary.
- i. Repeat steps 1a through 1h for installation of other detectors.

#### 2. Install the receivers.

- a. Ensure the wire link is attached to the receiver.
- b. Ensure the antenna is attached to the receiver if any of the detectors are set to RF.
- c. Strip the ends of the field wire pairs from the detectors.
- d. Using a screwdriver, connect one pair of wires from each detector to a numbered terminal on the wire link.
- e. Using a screwdriver, connect the wire lead from the grounding rod to the GND terminal on the wire link.
- f. Push the grounding rod into the soil in the area where the receiver is to remain operating.

CAUTION: The grounding rod should always be connected to the wire link during operation to prevent damage to the equipment caused by lightning striking or high voltage lines accidentally contacting the field wire input lines.

**Evaluation Preparation:** SETUP: At the test site, provide a complete set of operational PEWS.

BRIEF SOLDIER: Tell the soldier to install detectors and receivers.

**Performance Measures**

**GO**

**NO GO**

1. Installed the detectors.

\_\_\_\_\_

\_\_\_\_\_

2. Installed the receivers.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

TM 11-5895-1047-10



**Enforce Operations Security**  
**071-730-0006**

**Conditions:** In a combat environment, given a mission to conduct a tactical operation.

**Standards:** The enemy was denied information on planned, ongoing, and completed operations. The unit practiced: camouflage, physical security, noise and light discipline, information security, authentication procedures, document security, sign and countersign, and terrain masking.

**Performance Steps**

1. Identify operations security requirements.
  - a. Counter surveillance.
    - (1) Camouflage and concealment.
    - (2) Positions.
    - (3) Noise and light discipline.
  - b. Physical security.
    - (1) Observation posts.
    - (2) Patrols.
    - (3) Stand-to.
    - (4) Silent watch.
    - (5) Mounted and dismounted security.
  - c. Signal security.
    - (1) Communications procedures.
    - (2) Electronic counter-countermeasures.
    - (3) Encoded and decoded information.
  - d. Information security.
    - (1) Foreign nationals kept out of troop areas.
    - (2) Weapons and ammunition kept covered whenever possible.
    - (3) Vehicle markings and unit patches.
    - (4) Mail was censored.
2. Disseminate operational security information.
3. Make on-the-spot corrections.

**Evaluation Preparation:** SETUP: At the test site, provide the leader with a mission to conduct a tactical operation.

BRIEF SOLDIER: Tell the soldier to be familiar with camouflage, physical security, noise and light discipline, information security, authentication procedures, document security, sign and countersign, and terrain masking procedures.

| <b>Performance Measures</b>                       | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------|------------------|---------------------|
| 1. Enforced counter surveillance.                 | _____            | _____               |
| 2. Enforced physical security.                    | _____            | _____               |
| 3. Enforced signal security.                      | _____            | _____               |
| 4. Enforced information security.                 | _____            | _____               |
| 5. Disseminated operational security information. | _____            | _____               |
| 6. Made on-the-spot corrections as required.      | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7  
FM 7-7J

Subject Area 22: SUSTAIN: GENERAL

**Enforce Preventive Medicine**  
**071-600-0005**

**Conditions:** In a combat environment, given a squad and TO&E equipment.

**Standards:** Ensured soldiers practiced personal hygiene, consumed only purified rations, and prevented heat and cold injuries.

**Performance Steps**

1. Ensure soldiers practice personal hygiene.
  - a. Inspect soldiers daily for signs of poor hygiene or insect bites.
  - b. Ensure soldiers dispose of body waste safely.
  - c. Ensure soldiers use repellents and protective clothing.
  - d. Instruct soldiers to clean their body and clothing on every possible occasion.
2. Ensure soldiers consume only those consumables that has been issued or approved.
  - a. Ensure soldiers consume only rations from approved sources.
  - b. Ensure soldiers purify water taken from field sources.
3. Ensure soldiers practice heat injury prevention.
  - a. Order soldiers to drink extra water before work details.
  - b. Ensure soldiers drink small quantities of water while they work.
  - c. Ensure soldiers work and rest in shade whenever possible.
  - d. Modify uniform requirements IAW with the heat conditions.
  - e. Inspect frequently ensuring policies are enforced.
  - f. Use buddy system to monitor each soldier.
4. Ensure soldiers practice cold injury prevention.
  - a. Inspects soldiers to ensure clothing is worn in loose layers.
  - b. Ensure soldiers remove unnecessary clothing layers.
  - c. Ensure soldiers exercise as the mission permits.
  - d. Use buddy system to monitor each soldier.
  - e. Ensure soldiers keep hands and feet as dry and clean as the mission permits.

**Evaluation Preparation:** SETUP: In a pre-selected area before or during a road march or in a bivouac site ensure each soldier practices preventive medicine.

**BRIEF SOLDIER:** Tell the soldier to properly demonstrate the procedures for foot care before and during a road march, by purifying water, properly disposing of human solid waste, and preventing heat and cold injuries.

| Performance Measures                                                                                                                                                                                                                                                                                                                                                                               | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Ensured soldiers practiced personal hygiene. <ol style="list-style-type: none"><li>a. Inspected soldiers daily for signs of poor hygiene or insect bites.</li><li>b. Ensured soldiers disposed of body waste safely.</li><li>c. Ensured soldiers used repellents and protective clothing.</li><li>d. Instructed soldiers to clean their body and clothing on every possible occasion.</li></ol> | —         | —            |
| 2. Ensured soldiers only consumed approved or issued consumables. <ol style="list-style-type: none"><li>a. Ensured soldiers only consumed rations from approved sources.</li><li>b. Ensured soldiers purified water taken from field sources.</li></ol>                                                                                                                                            | —         | —            |



## Subject Area 26: VEHICLES

### Boresight the Weapon Systems on an M2A3/M3A3 BFV 071-001-0001

**Conditions:** Given an operational M2A3/M2A3 BFV with basic issue items, an operational boresight kit with 25-mm gun adapter, an installed M240C coaxial machine gun, turret operator's manual, a 1200 meter 25-mm boresight panel, and an 800 meter coax boresight panel.

**Standards:** Boresighted the weapon systems and sights on an M2A3/M3A3 BFV without causing damage to equipment or injuring personnel.

#### Performance Steps

1. Prepare the M2A3/M3A3 BFV turret for boresighting.
  - a. Move the turret power switch on the system control box (SCB) to ON (Figure 1).

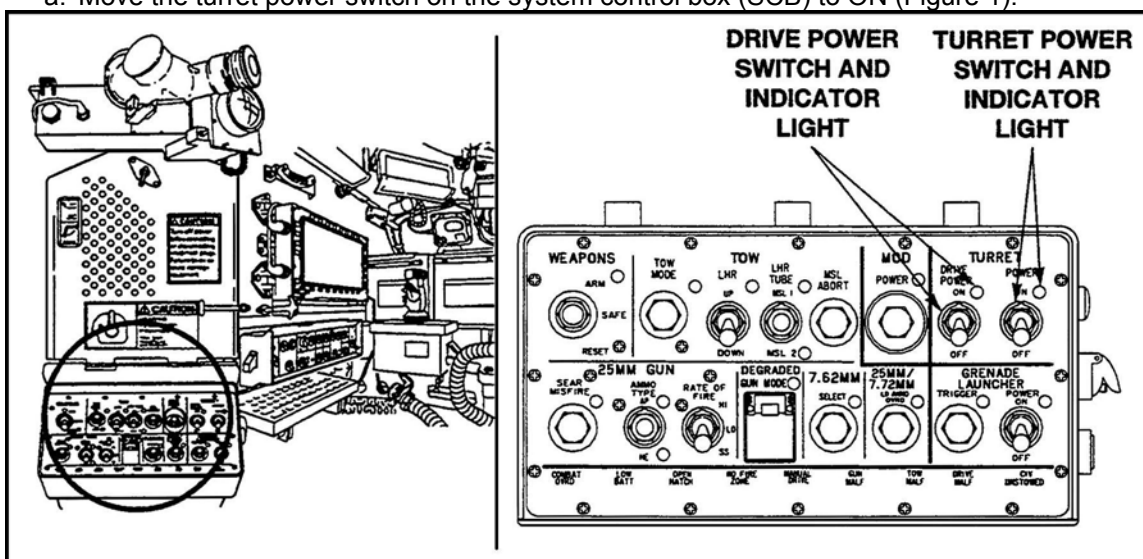


Figure 1. Turret power and turret drive switches.

NOTE: The commander's tactical display (CTD) will display a series of five test patterns. Once the test patterns have completed the A3 Bradley tactical software will initialize. Observe the A3 Bradley banner on the CTD. This banner is the indicator that the CTD is starting its self-test.

- b. Enter the appropriate vehicle password by using the commander's data entry tool (CDET) and the cursor control function on the commander's hand station (CHS)(Figure 2).



**Performance Steps**

- g. Open the ballistic sight cover doors (Figure 4).

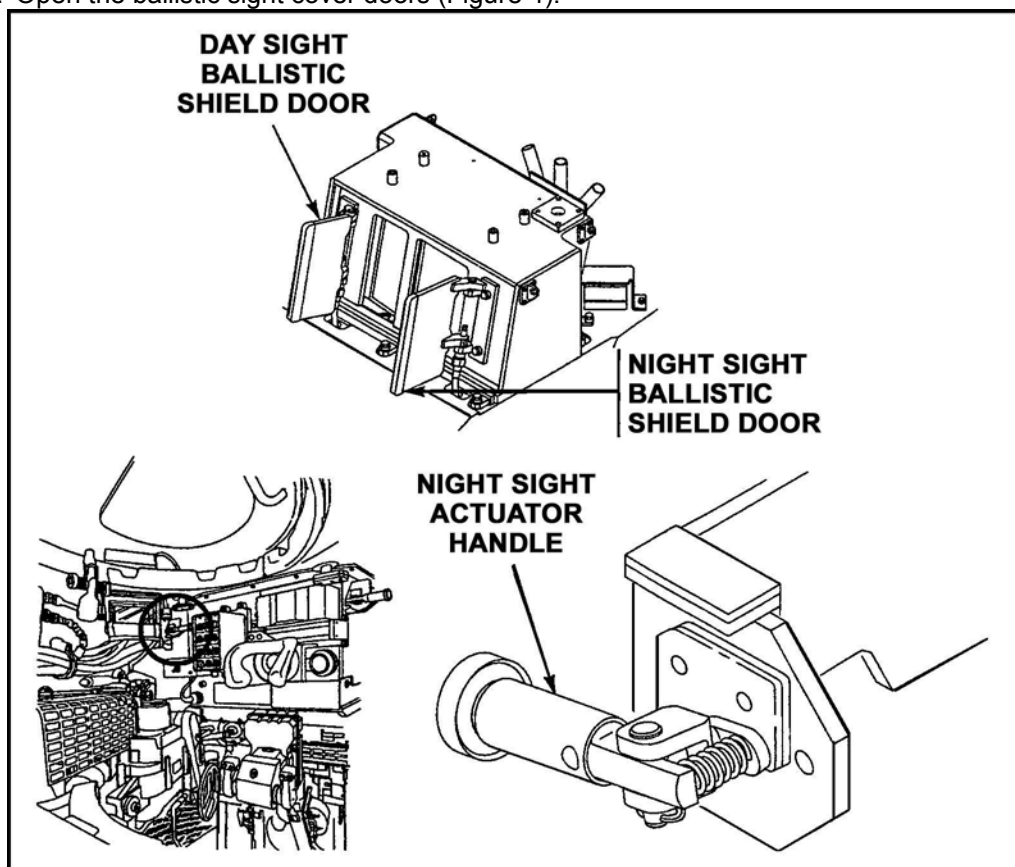


Figure 4. Actuator handle.

- (1) Pull out on the day sight cover handle located on the upper right corner of the improved Bradley acquisition system (IBAS).
  - (2) Rotate the handle to the right until it locks into the open position.
  - (3) Pull out on the night sight cover handle located on the upper left corner of the IBAS.
  - (4) Rotate the handle to the left until it locks into the open position.
- h. Adjust the IBAS forward looking infrared (FLIR) and DAY TV sights so that the sight picture is clear.
- (1) Select FLIR mode on the gunner hand station (GHS)(Figure 5).

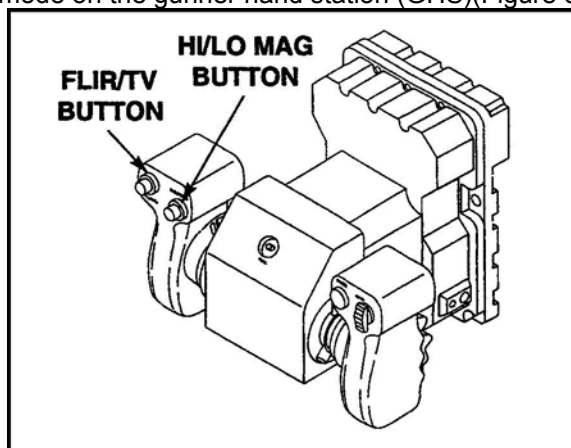


Figure 5. GHS FLIR/TV button.

## Performance Steps

- (2) Locate the MODE switch on the gunner's sight control panel (GSCP).
- (3) Pull down and release the MODE switch to AUTO; ensure the indicator light for AUTO is lit.
- (4) Adjust sight picture, as necessary, using the LEVEL, GAIN, FOCUS, BRIGHTNESS, CONTRAST switches on the GSCP (Figure 6).

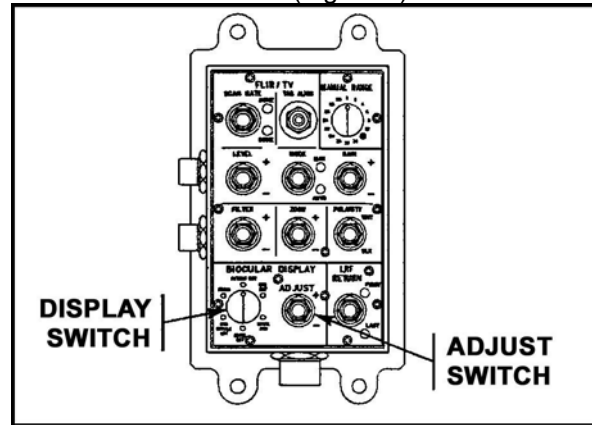


Figure 6. Gunner's sight control panel.

- (a) Press up on the MODE switch to MANUAL; ensure the indicator light for MANUAL is lit and the AUTO light is not lit.
  - (b) Press up or pull down and release the LEVEL switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (c) Press up or pull down and release the GAIN switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (d) Rotate the DISPLAY knob to the FOCUS position.
  - (e) Adjust the focus level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (f) Rotate the DISPLAY knob to the BRIGHTNESS position.
  - (g) Adjust the brightness level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (h) Rotate the DISPLAY knob to the CONTRAST position.
  - (i) Adjust the contrast level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- i. Unstow the commander's independent viewer (CIV)(Figure 7).



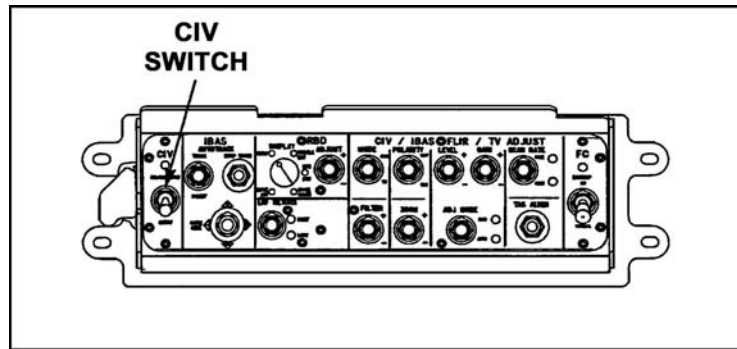
**Performance Steps**

Figure 7. CIV STOW/UNSTOW switch.

- (1) Move the CIV UNSTOW/STOW switch on the commander's sight control panel (CSCP) to the UNSTOW position.
- (2) Squeeze and hold the palm switch on the CHS (Figure 8).

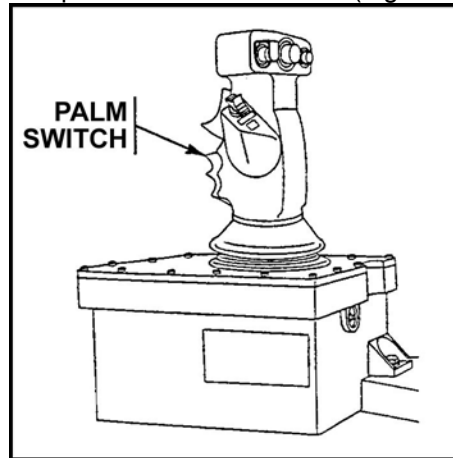


Figure 8. CHS palm switch.

- (3) Observe that the UNSTOW indicator light on the CSCP is lit.
  - (4) Release the palm switches.
- j. Adjust the CIV FLIR and DAY TV sights so that the sight picture is clear.
- (1) Select FLIR mode on the CSCP by pushing down and releasing the switch (Figure 9).

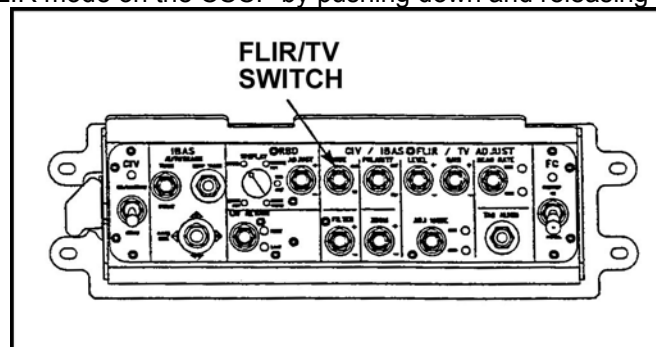


Figure 9. CSCP FLIR/TV MODE switch.

- (2) Push down and release the FLIR ADJ MODE switch on the CSCP to AUTO. Ensure the AUTO indicator light is lit.
- (3) Pull down and release the IBAS-CIV switch located on the lower left side of the remote biocular display (RBD). This switch toggles between the IBAS and the CIV sights.

**Performance Steps**

- (4) Adjust sight picture, as necessary, using the LEVEL, GAIN, FOCUS, BRIGHTNESS, CONTRAST switches on the CSCP.
  - (a) Press up on the MODE switch to MANUAL; ensure the indicator light for MANUAL is lit and the AUTO light is not lit.
  - (b) Press up or pull down and release the LEVEL switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (c) Press up or pull down and release the GAIN switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (d) Rotate the DISPLAY knob to the FOCUS position.
  - (e) Adjust the focus level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (f) Rotate the DISPLAY knob to the BRIGHTNESS position.
  - (g) Adjust the brightness level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (h) Rotate the DISPLAY knob to the CONTRAST position.
  - (i) Adjust the contrast level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- k. Raise the TOW launcher (Figure 10).

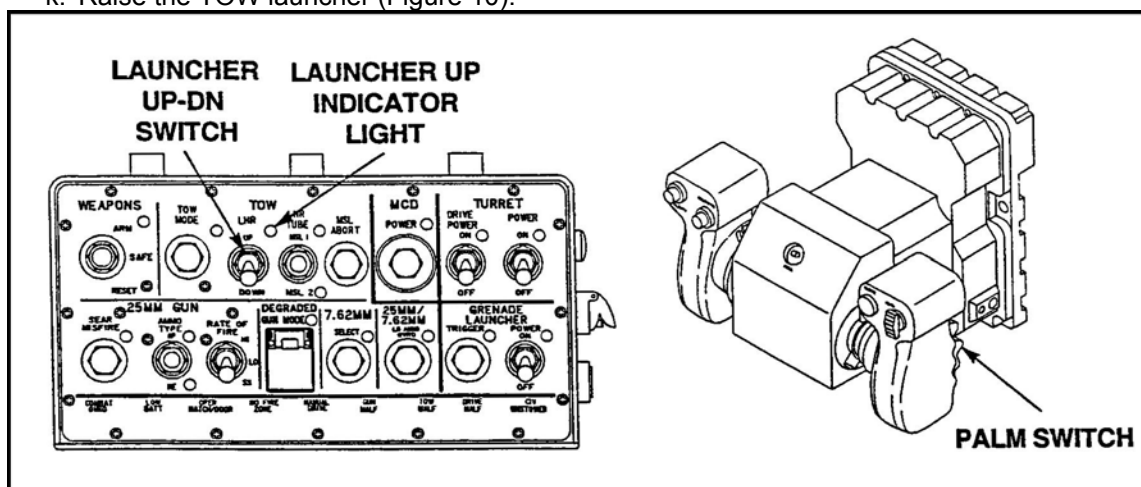


Figure 10. Launcher UP/DOWN switch.

- (1) Move the TOW launcher switch on the SCB to the UP position.
  - (2) Squeeze and hold the palm switch on either the GHS or the CHS.
  - (3) Observe that the TOW UP indicator light on the SCB is lit.
  - (4) Release the palm switches.
- l. Manipulate through the screens by pressing the appropriate soft keys to arrive at the manual boresight screen.
- (1) Select SETUP using the CTD soft key (Figure 11).

Performance Steps

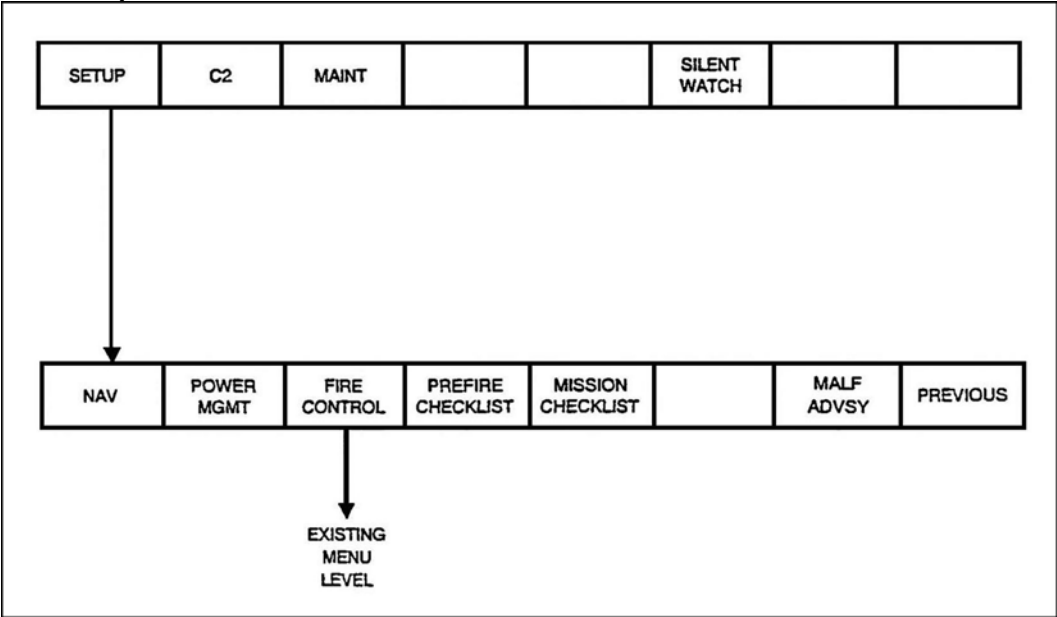


Figure 11. CTD menu structure.

- (2) Select FIRE CONTROL using the CTD soft key.
- (3) Select BORESIGHT using the CTD soft key.
- (4) Select MANUAL BORESIGHT using the CTD soft key.
- (5) Observe the PRE-BORESIGHT/ZERO TASK screen on the CTD (Figure 12).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                                                 |               |                      |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|---------------|----------------------|----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 21 1535Z JAN 96 | 10S EG 59835E 5598 M MSL<br>19738N +/-123 M CEP | OPS FOM<br>=1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <b>PRE=BORESIGHT TASKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                                                 |               |                      |                |
| <p>1. Unload and make weapons safe.</p> <p>2. Position vehicle on level surface<br/>(slope indicator bubble within black inner ring)<br/>with boresight target approximately:<br/>a) Greater than 200 meters. 1200 meters recommended<br/>for Boresight Tasks.<br/>b) Not required for Sight Alignment Tasks..<br/>c) 1200 meters for Zeroing 25mm Gun.<br/>d) 800 meters for Zeroing 7.62MM Coax Gun.</p> <p>3. NULL System:<br/>a) Required for TAS Boresight/Alignment Tasks.<br/>b) Not required for CIV Boresight/Alignment Tasks.</p> <p>4. If TOW is to be boresighted, raise TOW Launcher.</p> <p>5. Open sight shield doors (Not required for Sight Alignment Tasks).</p> <p>6. Place TDS in MANUAL mode.</p> <p>When ready, press "CONTINUE"</p> <p>Reference TM 9-2350-294-10-2 for Tools and Equipment Conditions</p> |                 |                                                 |               |                      |                |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |                                                 |               |                      | EXIT           |

Figure 12. PRE-BORESIGHT TASK screen.

- m. Complete the pre-boresight tasks.

### Performance Steps

- (1) Unload and make weapons safe.
- (2) Unstow CIV.
- (3) Position vehicle on level surface (slope indicator bubble at the drivers station is within the black inner ring).
  - (a) Greater than 200 meters (1200 meters is recommended) for boresighting.
  - (b) 800-1200 meters for zeroing 25mm gun.
  - (c) 800 meters for zeroing the 7.62mm coaxial machine gun.
- (4) Null system (Figure 13).

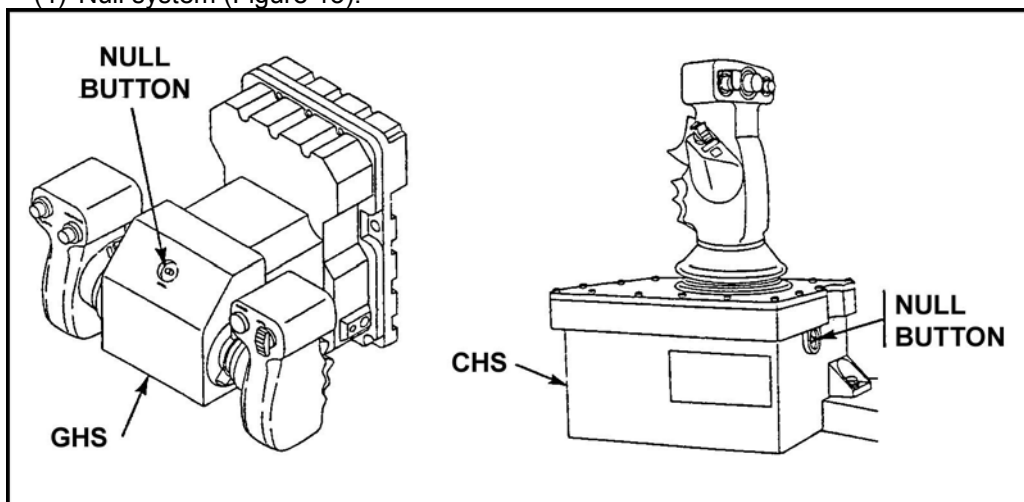


Figure 13. GHS and CHS NULL button.

- (a) Press the NULL button on the GHS or the CHS.
- (b) Press TAS ALIGN button on the GSCP (If required by an IBAS message)(Figure 14).

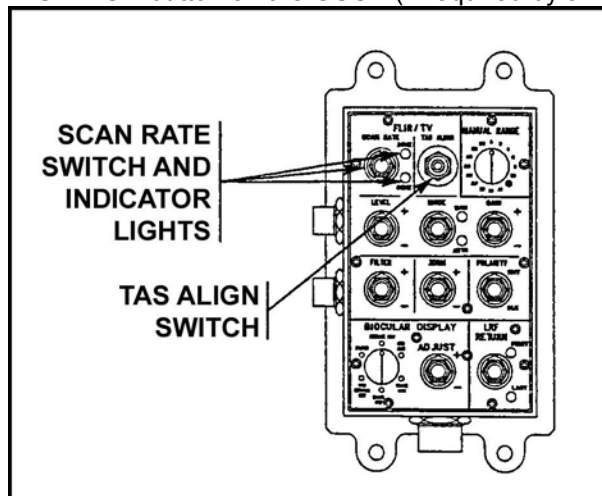


Figure 14. TAS ALIGN button.

- (c) Close ballistic sight shield doors.
- (d) Wait for TAS alignment to be completed.
- (e) Open ballistic sight shield doors.
- (5) If TOW is to be boresighted, raise TOW launcher.
- (6) Perform functional checks on the 25mm gun system.
  - (a) Ensure the manual sear retractor is disengaged (Figure 15).

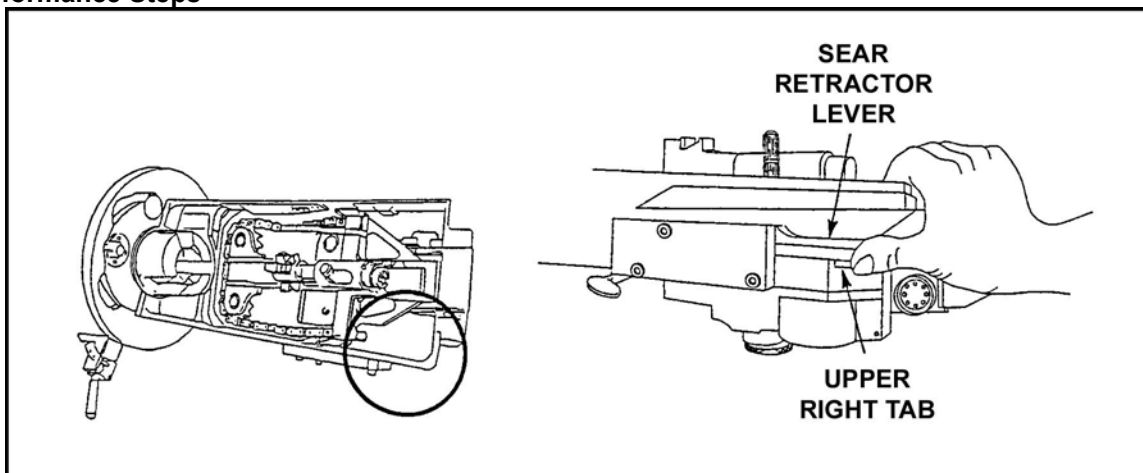
**Performance Steps**

Figure 15. Sear retractor lever.

- ( b ) Ensure the vertical drive shaft is up and locked into position (Figure 16).

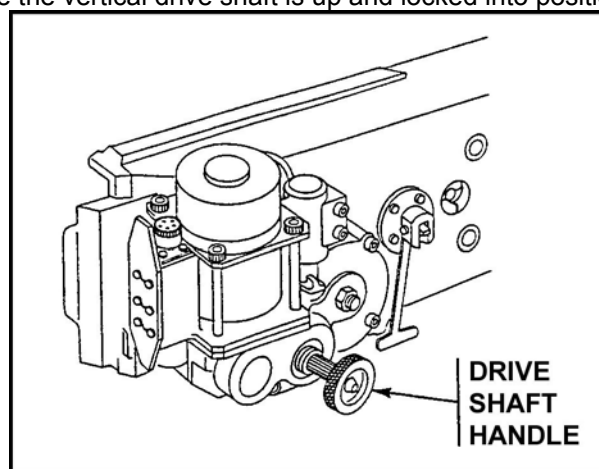


Figure 16. Vertical drive shaft.

- ( c ) Ensure the feed and eject chutes are connected.
- ( d ) In the power mode, dry cycle the 25mm gun twice in high explosive (HE) and twice in armor piercing (AP).
- ( 7 ) During normal operating conditions, ensure the IBAS defogger fan switch is in the OFF position (Figure 17).

## Performance Steps

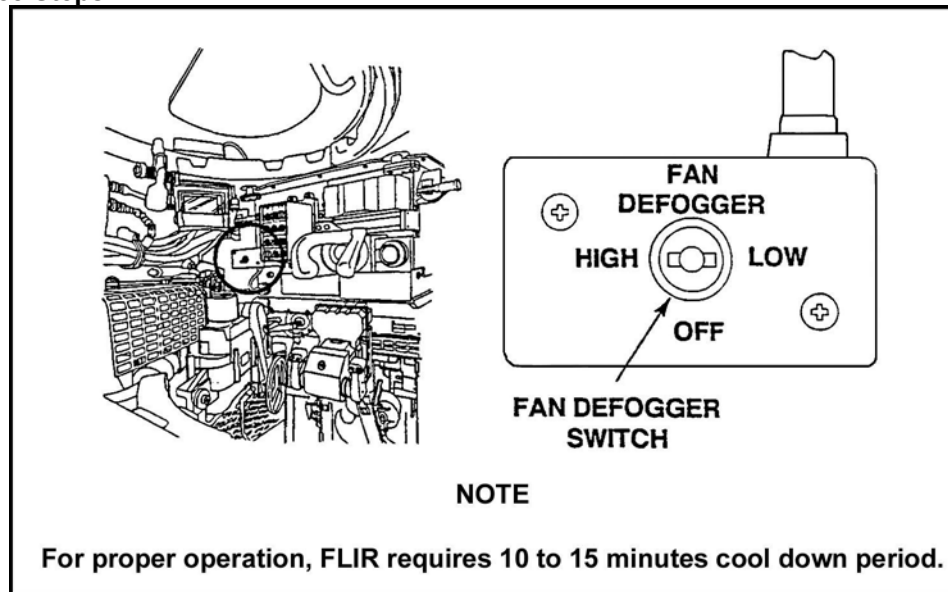


Figure 17. Fan defogger switch.

- (8) Position the direct view optic (DVO) reticle on a distant aiming point and compare the DVO reticle to the FLIR reticle. At 1200 meters, the FLIR reticle should be about 0.2 mils to the left of the DVO reticle.
  - (a) Squeeze and hold the palm switches on the GHS.
  - (b) Rotate the GHS to the left or right in order to move the gun and the sights in that direction.
  - (c) Rotate the GHS forward to depress the gun and sight picture or rotate the GHS backward to elevate the gun and sight picture.
  - (d) Move the sight reticle (the center dot) on the center of the boresight panel.
  - (e) Release palm switches.
  - (f) Select CONTINUE by using the soft key on the CTD.
2. Boresight the TAS/BACKUP sight to the 25mm gun.
  - a. Select BORESIGHT TAS/BACKUP SIGHT TO 25MM GUN using the cursor control on the CHS. Observe the BORESIGHT TAS/BACKUP SIGHT TO 25MM GUN setup screen (Figure 18).

## Performance Steps

|          |                        |                                      |                    |               |                 |
|----------|------------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0 | 20 1138: 19Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
|----------|------------------------|--------------------------------------|--------------------|---------------|-----------------|

**BORESIGHT THS/BACKUP SIGHT TO 25MM GUN SETUP**

**PERSONNEL REQUIRED:**  
 Gunner  
 Helper (H)

**EQUIPMENT CONDITIONS: X**  
 System nulled  
 a) Press "NULL" button on GHS or CHS  
 b) Press "TAS ALIGN" on GSCP (If required by IBAS message)  
 Sight shield doors opened  
 Boresight telescope and adapter with streamer installed on 25mm gun  
 TDS in MANUAL mode (gun elevation and traverse in MANUAL,  
 TOW elevation in POWER)  
 BORESIGHT mode displayed on TRS biocular display

**TOOLS:**  
 7.62mm boresight kit  
 25mm boresight adapter  
 Open end wrench, 7/16-inch  
 Socket wrench socket, 7/16-inch  
 Socket wrench ratchet handle, 1/2-inch sq dr  
 Flat-tip screwdriver, 1/8-inch

|          |  |  |  |  |  |          |  |
|----------|--|--|--|--|--|----------|--|
| CONTINUE |  |  |  |  |  | PREVIOUS |  |
|----------|--|--|--|--|--|----------|--|

Figure 18. BORESIGHT TAS/BACKUP SIGHT TO 25MM GUN setup screen.

- b. Ensure the equipment conditions are completed.
  - (1) Ensure the system has been nulled.
  - (2) Ensure sight shield doors are open.
  - (3) Install boresight telescope and adapter with streamer into the 25mm gun barrel (Figure 19).

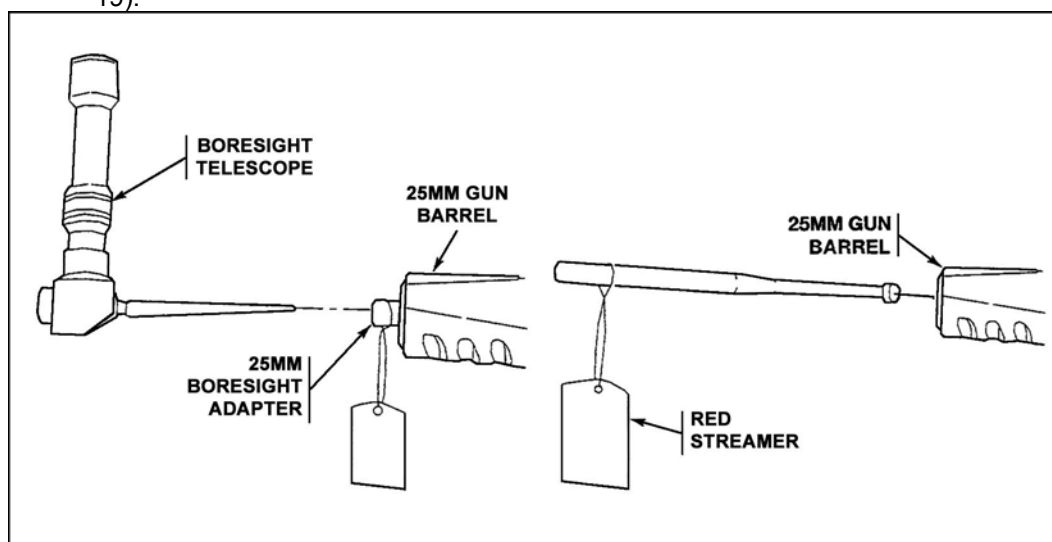


Figure 19. 25mm Boresight adapter and boresight telescope.

### Performance Steps

(4) Place the turret drive system (TDS) in the manual mode.

(a) Press and hold the push-button on the traverse drive handle (Figure 20).

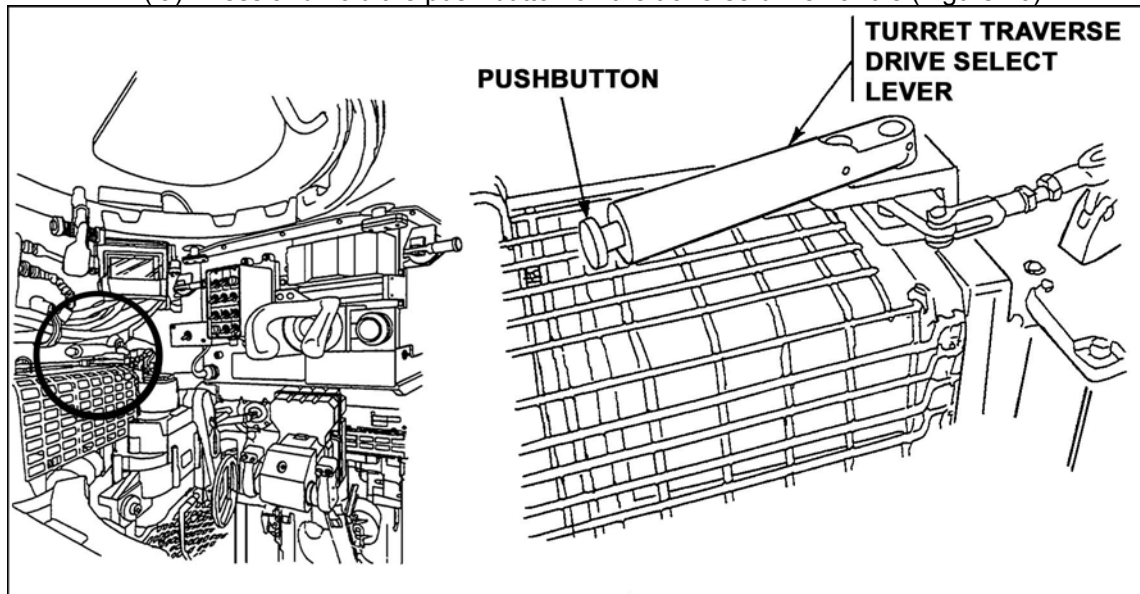


Figure 20. Turret traverse drive select lever.

(b) Pull the handle to the right until it stops and then release the push-button and handle.

(c) Press and hold the push-button on the gun elevation drive handle (Figure 21).

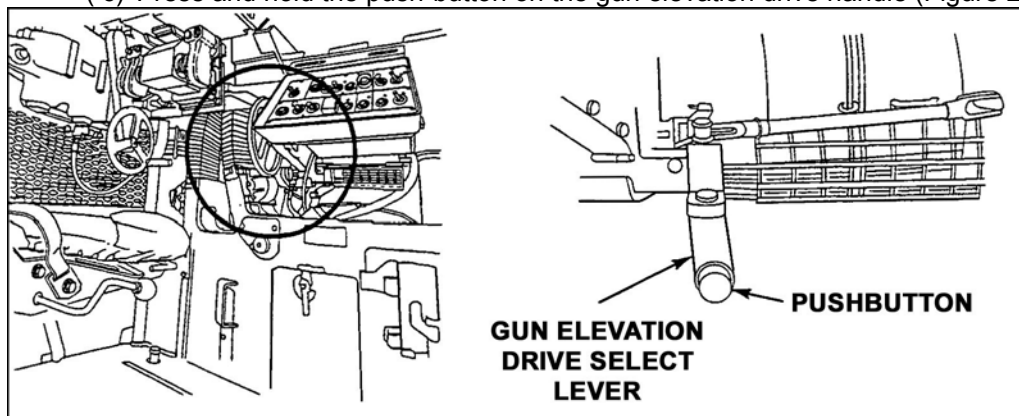


Figure 21. Gun elevation drive select lever.

(d) Pull the handle to the left until it stops and then release the push-button and handle.

(e) Ensure the TOW elevation drive is in power (Figure 22).



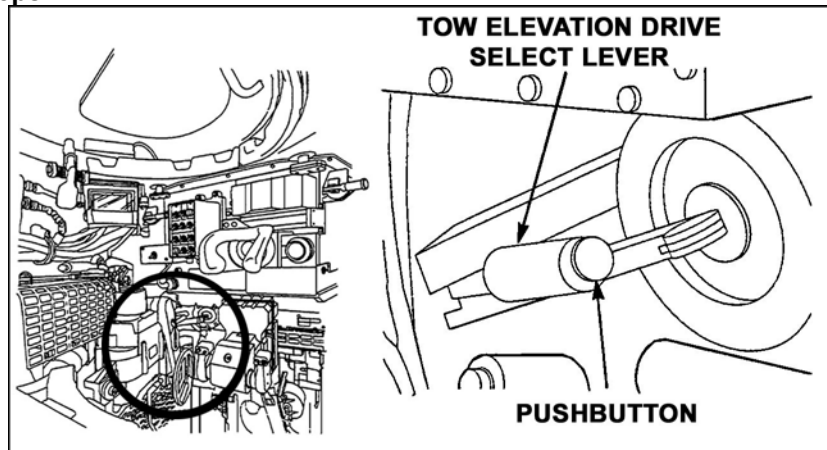
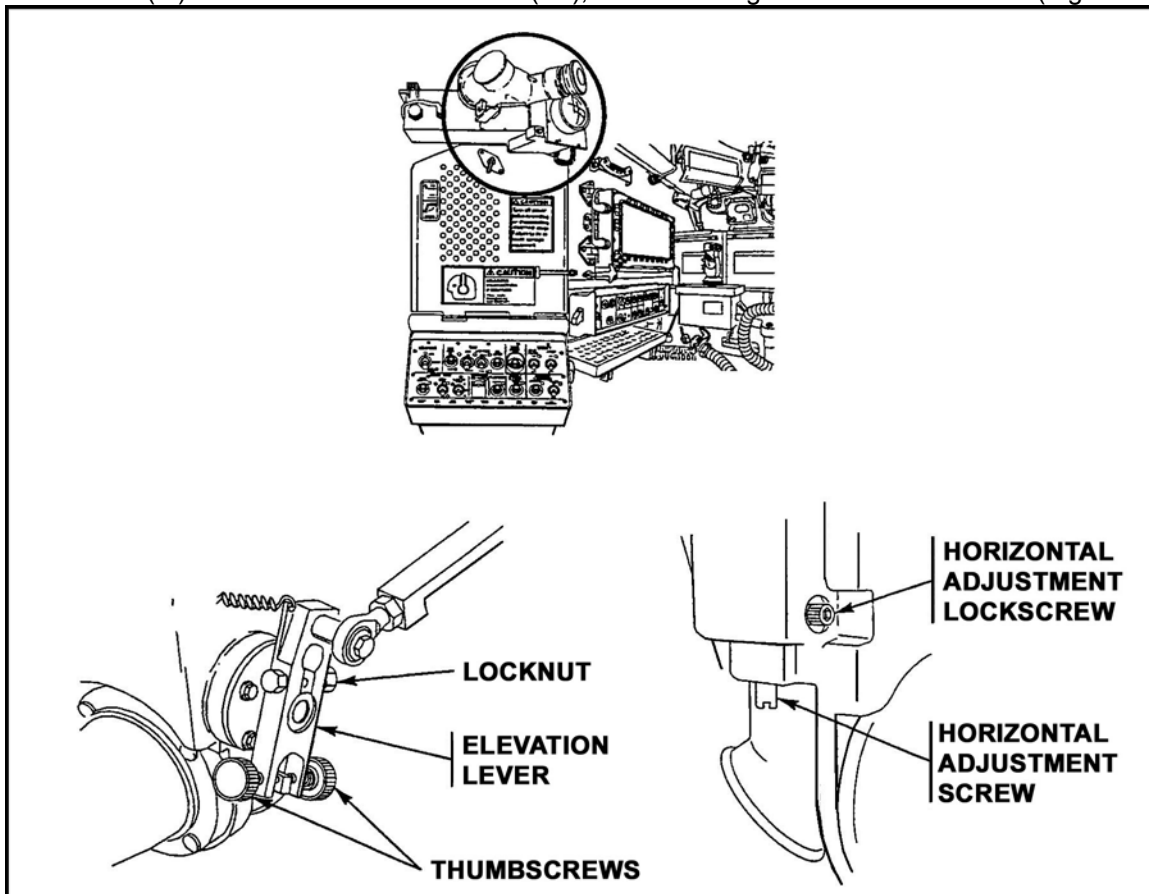
**Performance Steps**

Figure 22. TOW elevation drive select lever.

- (5) Ensure the BORESIGHT symbology is visible in the IBAS.
- c. Select CONTINUE by using the soft key on the CTD.
- d. Complete the BORESIGHT TAS/BACKUP SIGHT TO 25MM GUN procedure tasks.
  - (1) Manually traverse the turret and elevate or depress the gun until the boresight telescope reticle is centered on the boresight panel.
  - (2) Perform "Check Boresight Accuracy" in accordance with TM.
  - (3) Check the backup sight reticle crosshairs are aligned with the panel. If needed align reticle crosshairs on target.
  - (a) To move reticle in elevation (EL), loosen and tighten the thumb screws (Figure 23).



## Performance Steps

Figure 23. Auxiliary sight adjustment screws.

- (b) To move the reticle in azimuth (AZ), loosen the horizontal adjustment locking screw using the Allen wrench located in the 7.62mm boresight kit and turn the horizontal adjustment screw clockwise or counterclockwise.
- (c) Tighten locking screw.
- (4) Use DVO (preferred), or DAY TV.
- (5) Select high magnification (HI MAG) - narrow field of view (NFOV) using HI/LO MAG switch on the GHS.
- (6) Center target acquisition system (TAS) reticle on the boresight panel using the GHS (Figure 24).

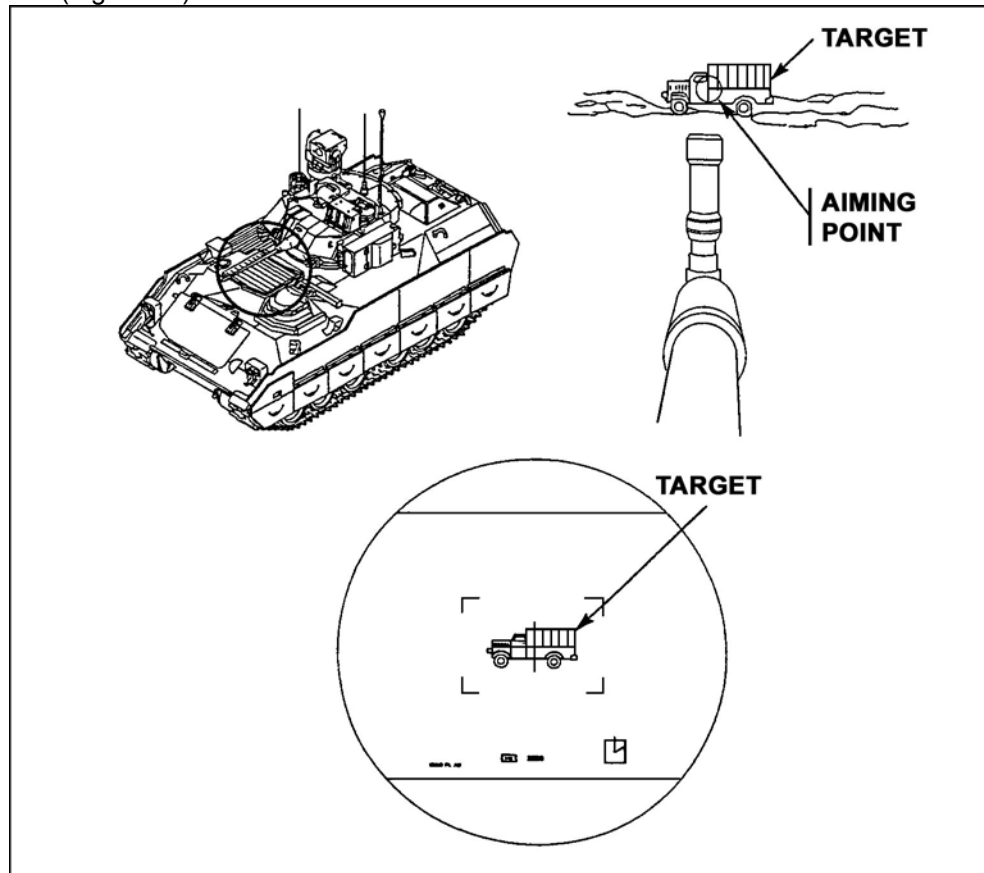


Figure 24. TAS reticle.

- (7) Range the target using the laser range finder (LRF) or enter the range manually by using the range knob on the GSCP.
- (8) Ensure the reticle is in the center of the panel; if not, repeat step (6).
- (9) Press CALCULATE using the soft key function on the CTD (Figure 25).

## Performance Steps

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                                                 |                                                                                                                                                                                  |                      |                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 21 1535Z JAN 96      | 10S EG 59835E 5598 M MSL<br>19738N +/-123 M CEP | GPS FOM<br>= 1                                                                                                                                                                   | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON              |
| <b>BORESIGHT TAS/BACKUP SIGHT TO 25mm GUN</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                                                 | <b>PROCEDURE</b>                                                                                                                                                                 |                      |                             |
| 1. Manually traverse turret and elevate/depress gun until boresight telescope reticle is centered on boresight target.<br>2. Check that backup sight reticle crosshairs are aligned with target. If needed, align reticle crosshairs on target as follows:<br>a. To move reticle in elevation, loosen locknut on elevation lever and adjust thumbscrews. Use wrench and socket.<br>b. To move reticle in azimuth, loosen horizontal adjustment lockcrew and turn horizontal adjustment screw. Use screwdriver.<br>c. Tighten lockcrew.<br>3. Use DVO (preferred), TV, or FLIR (using FLIR/TV switch on GHS to select TV or FLIR) for best viewing.<br>4. Select HI MAG (NFOV) using HI/LO MAG switch on GHS.<br>5. Center TAS reticle on boresight target using GHS.<br>6. Range target using LRF or enter range manually on GSCP.<br>7. Repeat step 5.<br>8. Press "CALCULATE".<br>9. To use new values, press "SAVE", or to repeat test, go to step 1.<br>10. To perform "BORESIGHT CIV TO 25MM GUN", press "CONTINUE". |                      |                                                 | New Values      Current Values<br>ELEV (MILS) <input type="text"/> <input type="text"/><br>AZ (MILS) <input type="text"/> <input type="text"/><br>RANGE (M) <input type="text"/> |                      |                             |
| <b>SHUTDOWN</b><br>11. Remove boresight telescope, adapter, and streamer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                      |                                                 |                                                                                                                                                                                  |                      |                             |
| <b>CONTINUE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="text"/> | <b>CALCULATE</b>                                | <b>SAVE</b>                                                                                                                                                                      | <input type="text"/> | <b>PREVIOUS</b> <b>EXIT</b> |

Figure 25. BORESIGHT TAS/BACKUP SIGHT TO 25MM GUN procedure screen.

- (10) Press SAVE to use the new values or repeat the test from step (1).  
 (11) Press CONTINUE to perform BORESIGHT CIV TO 25MM GUN by using the softkey function on the CTD.

3. Boresight the CIV to the 25mm gun.  
     a. Observe the BORESIGHT CIV TO 25MM GUN setup screen.  
     b. Ensure the equipment conditions are completed.  
         (1) Ensure the CIV is unstowed.  
         (2) Install boresight telescope and adapter with streamer into the 25mm gun barrel.  
         (3) Ensure the TDS is in the manual mode.  
         (4) Ensure the BORESIGHT symbology is visible in the IBAS.  
         (5) Select CONTINUE by using the soft key on the CTD.  
     c. Complete the BORESIGHT CIV TO 25MM GUN procedure tasks.

**WARNING**

CIV will move automatically during CIV boresight.

- (1) Select HI MAG using the HI/LO MAG switch on the GHS.  
 (2) Manually traverse the turret and elevate or depress the gun until the boresight telescope reticle is centered on the boresight panel.  
 (3) Center the CIV TV reticle onto the boresight panel using the GHS.  
 (4) Enter the range manually using the GSCP (Figure 26).

## Performance Steps

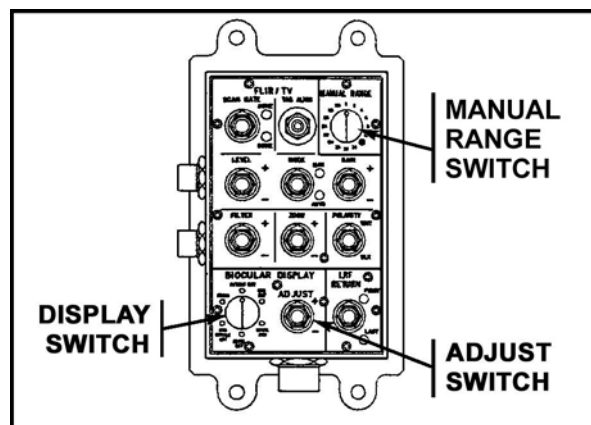


Figure 26. GSCP MANUAL RANGE switch.

- (5) Ensure reticle is in the center of the boresight panel; if not, repeat step (3).
  - (6) Press CALCULATE using the soft key function on the CTD.
  - (7) Press SAVE to use the new values or repeat the test from step (1).
  - (8) Press CONTINUE to perform BORESIGHT TAS/25MM GUN TO 7.62MM COAXIAL MACHINE GUN by using the softkey function on the CTD.
4. Boresight the TAS/25mm gun to the 7.62mm coaxial machine gun.
    - a. Observe the BORESIGHT TAS/25MM GUN TO 7.62MM COAXIAL MACHINE GUN setup screen (Figure 27).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                      |                    |               |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                         | 21 0817:36Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| <b>BORESIGHT TRS/25MM GUN TO 7.62MM COAX GUN      SETUP</b>                                                                                                                                                                                                                                                                                                                                                                                      |                       |                                      |                    |               |                 |
| <b>PERSONNEL REQUIRED:</b><br>Gunner<br>Helper (H)                                                                                                                                                                                                                                                                                                                                                                                               |                       |                                      |                    |               |                 |
| <b>EQUIPMENT CONDITIONS:</b><br>System nulled.<br>a) Press "NULL" button on GHS or CHS<br>b) Press "TAS ALIGN" on GSCP (If required by IBAS message)<br>Sight shield doors opened<br>TAS/backup sight boresighted to 25mm gun<br>Boresight telescope and adapter with streamer installed on 25mm gun<br>TDS in MANUAL mode (gun elevation and traverse in MANUAL,<br>TOW elevation in POWER)<br>BORESIGHT mode displayed on TAS biocular display |                       |                                      |                    |               |                 |
| <b>TOOLS:</b><br>7.62mm boresight kit<br>25mm boresight adapter                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                      |                    |               |                 |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                      |                    |               | EXIT            |

Figure 27. BORESIGHT TAS/25MM GUN TO 7.62MM COAX GUN setup screen.

- b. Ensure the equipment conditions are completed.
  - (1) Ensure the system has been nulled.
  - (2) Ensure sight shield doors are open

**Performance Steps**

- (3) Ensure TAS/BACKUP sight has been boresighted to the 25mm gun.
  - (4) Install boresight telescope and adapter with streamer into the 25mm gun barrel.
  - (5) Place the TDS in the manual mode.
  - (6) Ensure the BORESIGHT symbology is visible in the IBAS.
  - (7) Select CONTINUE by using the soft key on the CTD.
- c. Complete BORESIGHT TAS/25MM GUN TO 7.62MM COAXIAL MACHINE GUN procedure tasks (Figure 28).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                      |                    |               |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|------------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 21 0756:28Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF  |
| <b>BORESIGHT TAS/25MM GUN TO 7.62MM COAX GUN PROCEDURE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                      |                    |               |                  |
| <ol style="list-style-type: none"> <li>1. Select HI MAG (NFOV) using HI/LO MAG switch on GHS.</li> <li>2. Manually traverse turret and elevate/depress gun if boresight telescope reticle on 25mm gun is not already centered on boresight target.</li> <li>3. Relocate boresight telescope and adapter with streamer to 7.62mm coax gun.</li> </ol>                                                                                                                                                                                                                                                                                                                                                               |                       |                                      |                    |               |                  |
| <b>NOTE</b><br>When moving between stations, make sure controls and handwheels are not moved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |                                      |                    |               |                  |
| <ol style="list-style-type: none"> <li>4. Open coax gun access doors.</li> <li>5. Adjust EL and AZ knobs on coax gun mount to align boresight telescope reticle on boresight target.</li> <li>6. Close coax gun access doors.</li> <li>7. Use DVD (preferred), or TV.</li> <li>8. Center TAS reticle on boresight target using GHS.</li> <li>9. Range target using LAF or enter range manually on GSCP.</li> <li>10. Repeat step 8.</li> <li>11. Press "CALCULATE".</li> <li>12. To use new values press "SAVE" or to repeat test, go to step 1.</li> <li>13. Remove boresight telescope from 7.62 and move to TOW Launcher.</li> <li>14. To perform "BORESIGHT TAS TO TOW LAUNCHER", PRESS "CONTINUE".</li> </ol> |                       |                                      |                    |               |                  |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                      |                    |               |                  |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       | CALCULATE                            |                    |               | PREVIOUS    EXIT |

Figure 28. BORESIGHT TAS/25MM GUN TO 7.62MM GUN procedure screen.

- (1) Select HI MAG using the HI/LO MAG switch on the GHS.
- (2) Manually traverse the turret and elevate or depress the gun until the boresight telescope reticle is centered on the boresight panel.
- (3) Remove the boresight telescope and 25mm adapter with streamer from the 25mm gun barrel.
- (4) Install the boresight telescope and 7.62mm adapter with streamer into the 7.62mm coaxial machine gun barrel (Figure 29).

## Performance Steps

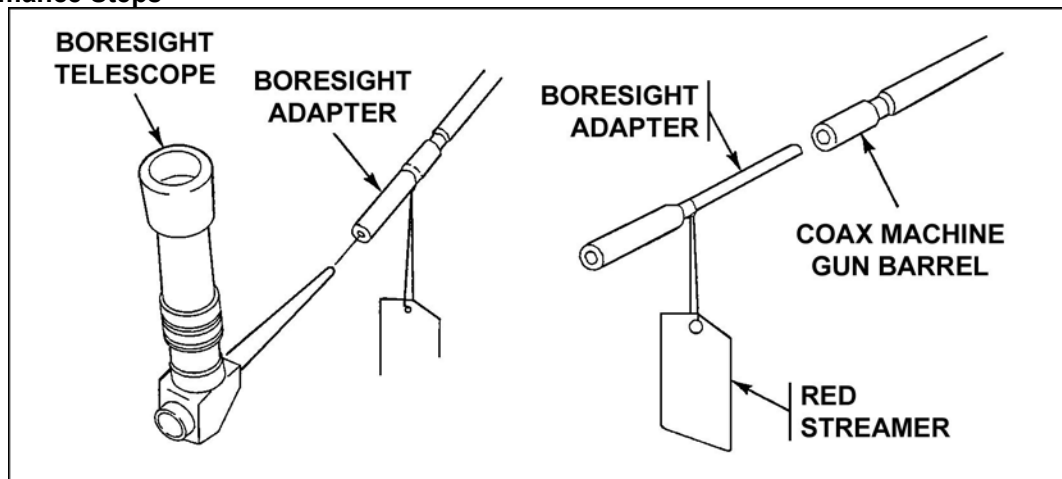


Figure 29. Coax boresight adapter and boresight telescope.

- (5) Open the coaxial machine gun access doors.
- (6) Adjust the EL and AZ knobs located on the coaxial machine gun mount to align the boresight telescope reticle on to the center of the boresight panel (Figure 30).

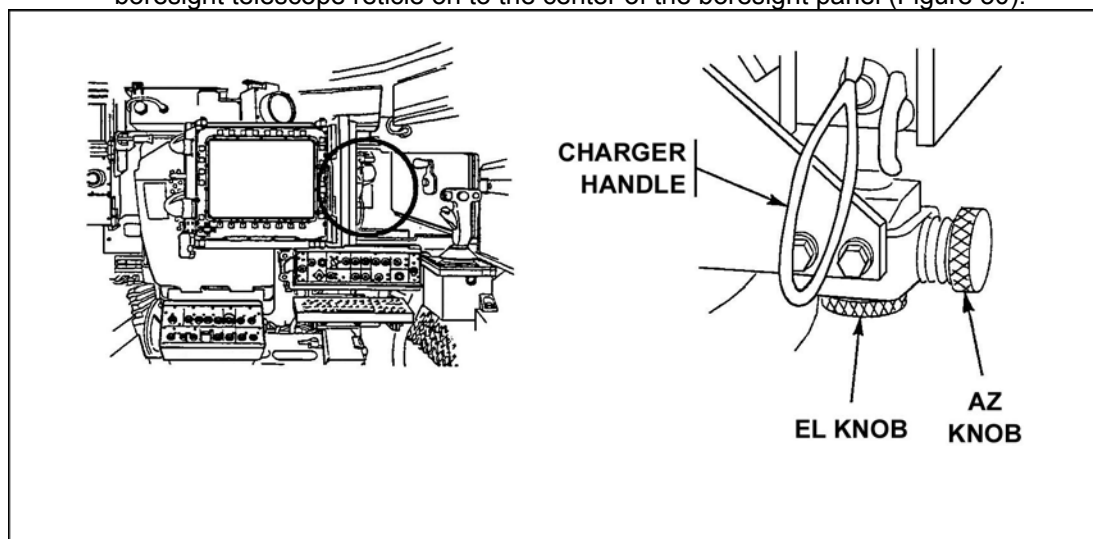


Figure 30. Coax A2 and EL knobs.

- (7) Close the coaxial machine gun access doors.
- (8) Use DVO (preferred), or DAY TV sight.
- (9) Center TAS reticle on boresight panel using the GHS.
- (10) Range panel using the LRF or by entering the range manually using the GSCP.
- (11) Ensure the reticle is in the center of the panel, if not repeat step (9).
- (12) Press CALCULATE using the soft key function on the CTD.
- (13) Press SAVE to use the new values or repeat the test from step (1).
- (14) Remove the boresight telescope and adapter with streamer from the 7.62mm coaxial machine gun barrel and move it to the TOW launcher (Figure 31).

## Performance Steps

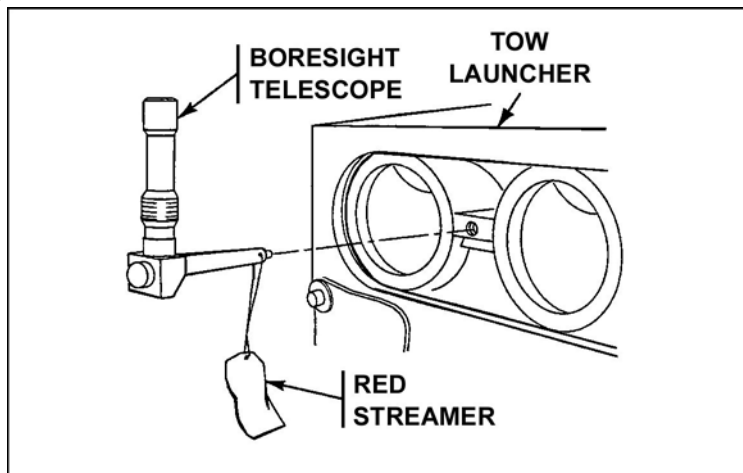


Figure 31. Boresight telescope.

(15) Press CONTINUE to perform BORESIGHT TAS TO TOW LAUNCHER by using the softkey function of the CTD.

5. Boresight the TAS to the TOW launcher.
  - a. Observe the BORESIGHT TAS TO TOW LAUNCHER setup screen (Figure 32).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                      |                    |               |                 |               |      |  |  |  |  |  |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|---------------|------|--|--|--|--|--|------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 21 0817:36Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |               |      |  |  |  |  |  |      |
| <b>BORESIGHT TAS TO TOW LAUNCHER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                      |                    |               | <b>SETUP</b>    |               |      |  |  |  |  |  |      |
| <p><b>PERSONNEL REQUIRED:</b><br/>         Gunner<br/>         Helper (H)</p> <p><b>EQUIPMENT CONDITIONS:</b><br/>         System nulled<br/>           a) Press "NULL" button on GHS or CHS<br/>           b) Press "TAS ALIGN" on GSCP (If required by IBAS message)<br/>         Sight shield doors opened<br/>         TOW Launcher raised<br/>         Boresight telescope with streamer installed on TOW launcher<br/>         TDS in MANUAL mode (TOW elevation and traverse in MANUAL,<br/>           gun elevation in POWER)<br/>         Boresight mode displayed on TAS biocular display</p> <p><b>TOOLS:</b><br/>         7.62mm boresight kit</p> |                       |                                      |                    |               |                 |               |      |  |  |  |  |  |      |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">CONTINUE<br/>X</td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;">EXIT</td> </tr> </table>                                                                                                                                                                                                                                                                                       |                       |                                      |                    |               |                 | CONTINUE<br>X |      |  |  |  |  |  | EXIT |
| CONTINUE<br>X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                      |                    |               |                 |               | EXIT |  |  |  |  |  |      |

Figure 32. BORESIGHT TAS TO TOW LAUNCHER setup screen.

- b. Ensure the equipment conditions are completed.
  - (1) Ensure the system has been nulled.
  - (2) Ensure sight shield doors are open
  - (3) Ensure TOW launcher is raised.
  - (4) Ensure the boresight telescope is installed in the TOW launcher.

**Performance Steps**

- (5) Place the TDS into manual mode, the gun elevation drive must be in power and the TOW elevation and turret traverse drives in manual.
  - (6) Ensure the BORESIGHT symbology is visible in the IBAS.
  - (7) Select CONTINUE by using the soft key on the CTD.
- c. Complete the BORESIGHT TAS TO TOW LAUNCHER procedure tasks (Figure 33).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                      |                    |                                                                                                                                   |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 21 0756:28Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN                                                                                                                     | APPLIQUE<br>OFF |
| <b>BORESIGHT TAS TO TOW LAUNCHER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                      | <b>PROCEDURE</b>   |                                                                                                                                   |                 |
| <ol style="list-style-type: none"> <li>1. Use DVD (preferred), or TV.</li> <li>2. Select HI MAG (NFOV) using HI/LO MAG switch on GHS.</li> <li>3. Manually traverse turret and elevate/depress TOW Launcher until boresight telescope reticle is centered on boresight target.</li> <li>4. Center TAS reticle on boresight target using GHS.</li> <li>5. Press "CALCULATE".</li> <li>6. To use new values press "SAVE" or to repeat test, go to step 1.</li> <li>7. Remove boresight telescope and streamer.</li> <li>8. To perform "ALIGN TAS TV NFOV TO ATT", press "CONTINUE".</li> </ol> |                       |                                      | New<br>Values      | Current<br>Values                                                                                                                 |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                      | ELEV<br>(MILS)     | <input style="width: 50px;" type="text"/><br><div style="border: 1px solid black; padding: 2px; text-align: center;">177.78</div> |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                      | AZ<br>(MILS)       | <input style="width: 50px;" type="text"/><br><div style="border: 1px solid black; padding: 2px; text-align: center;">88.89</div>  |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                      | RANGE<br>(M)       | <input style="width: 50px;" type="text"/><br><div style="border: 1px solid black; padding: 2px; text-align: center;">10005</div>  |                 |
| <div style="display: flex; justify-content: space-between; padding: 5px;"> <span>CONTINUE</span> <span></span> <span>CALCULATE</span> <span></span> <span></span> <span></span> <span>PREVIOUS</span> <span>EXIT</span> </div>                                                                                                                                                                                                                                                                                                                                                               |                       |                                      |                    |                                                                                                                                   |                 |

Figure 33. BORESIGHT TAS TO TOW LAUNCHER procedure screen.

- (1) Use DVO (preferred), or DAY TV sight.
  - (2) Select HI MAG using the HI/LO MAG switch on the GHS.
  - (3) Manually traverse turret and elevate or depress the TOW launcher until the boresight telescope reticle is centered on the boresight panel.
  - (4) Center TAS reticle on boresight panel using the GHS.
  - (5) Press CALCULATE using the soft key function on the CTD.
  - (6) Press SAVE to use the new values or repeat the test from step (1).
  - (7) Remove boresight telescope and streamer from the TOW launcher.
  - (8) Press CONTINUE to perform ALIGN TAS TV NFOV TO ATT by using the softkey function on the CTD.
6. Align the TAS TV NFOV to the auto target tracker (ATT).
- a. Observe the ALIGN TAS TV NFOV TO ATT setup screen (Figure 34).



Performance Steps

|                                                                                                                         |                       |                                      |                    |               |                 |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                | 21 0817:36Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| ALIGN TAS TV NFOV TO ATT                                                                                                |                       |                                      | SETUP              |               |                 |
| <p>PERSONNEL REQUIRED:<br/>Gunner</p> <p>EQUIPMENT CONDITIONS:<br/>Sight shield doors closed</p> <p>TOOLS:<br/>None</p> |                       |                                      |                    |               |                 |
| CONTINUE<br>X                                                                                                           |                       |                                      |                    |               | EXIT            |

Figure 34. ALIGN TAS TO NFOV TO ATT setup screen.

- b. Ensure equipment conditions are completed.
  - (1) Close ballistic sight shield doors.
  - (2) Press CONTINUE using the softkey function on the CTD.
- c. Complete the ALIGN TAS TV NFOV TO ATT procedure tasks (Figure 35).

## Performance Steps

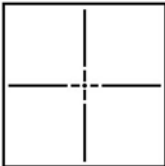
|                                                                                                                                                                                                                                                                                                               |                       |                                      |                                                                                                                                      |               |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                      | 20 1140:25Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1                                                                                                                   | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| <b>ALIGN TAS TV NFOV TO ATT</b>                                                                                                                                                                                                                                                                               |                       |                                      | <b>PROCEDURE</b>                                                                                                                     |               |                 |
| <ol style="list-style-type: none"> <li>1. Move G-SIZE switch on GHS to locate alignment dot on TAS biocular display.</li> <li>2. Align dot with TAS TV reticle using G-SIZE switch.</li> <li>3. To repeat test, go to step 1.</li> <li>4. To perform "ALIGN TAS TV WFOV TO ATT", press "CONTINUE".</li> </ol> |                       |                                      |  <p><b>SAMPLE</b><br/>Dot aligns with reticle</p> |               |                 |
| <p><b>NOTE:</b><br/>Make sure dot is aligned with reticle before pressing a softkey.</p>                                                                                                                                                                                                                      |                       |                                      |                                                                                                                                      |               |                 |
| CONTINUE                                                                                                                                                                                                                                                                                                      |                       |                                      |                                                                                                                                      |               | PREVIOUS EXIT   |

Figure 35. ALIGN TAS TV NFOV TO ATT procedure screen.

- (1) Move gate size (G-SIZE) switch on the GHS to locate alignment dot on TAS biocular display (Figure 36).

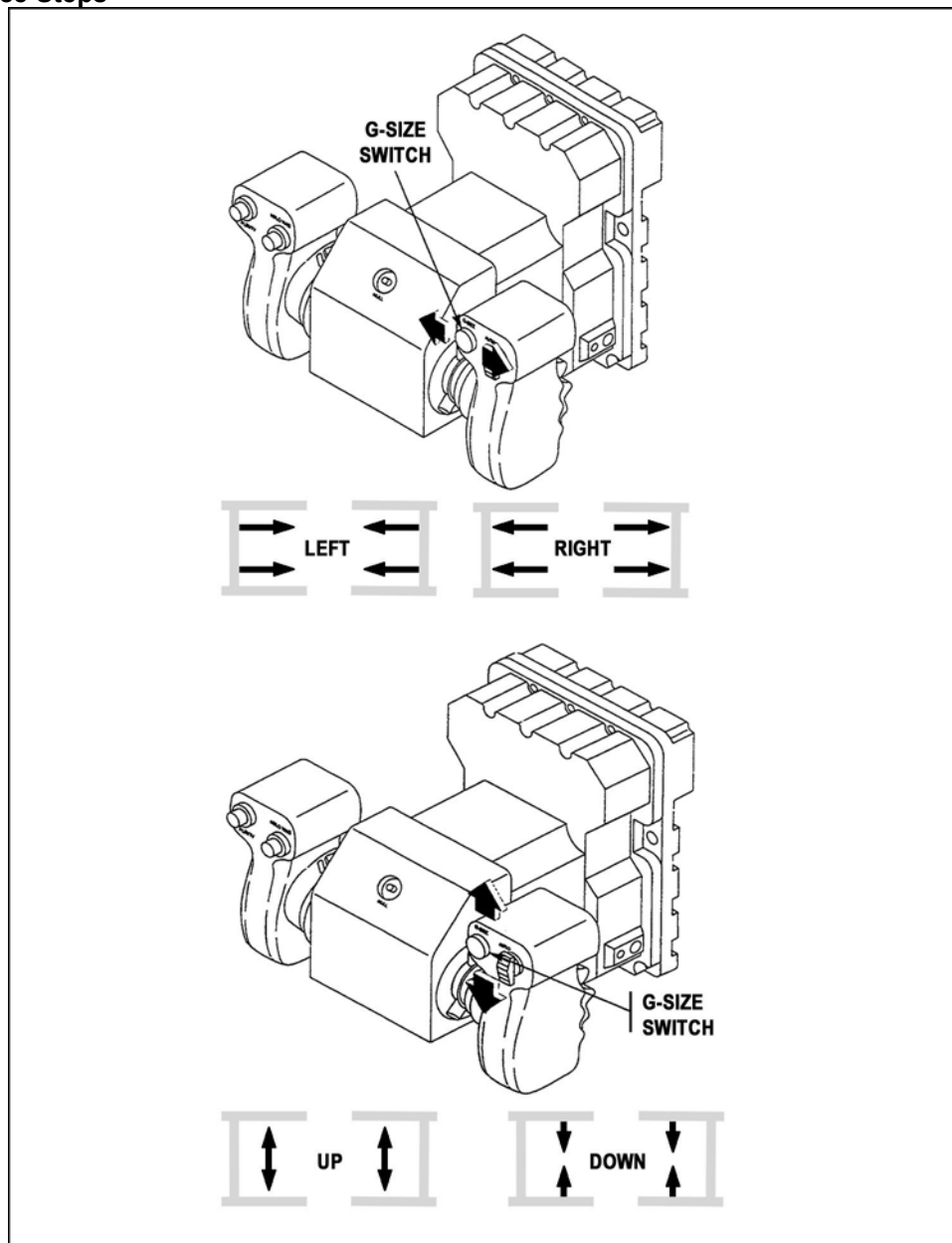
**Performance Steps**

Figure 36. G-SIZE switch.

- (2) Align the dot with the TAS TV reticle using the G-SIZE switch.
  - (3) Repeat the test if dot and reticle are not aligned (Repeat step 1).
  - (4) Press CONTINUE to perform ALIGN TAS TV WFOV TO ATT by using the softkey function on the CTD.
7. Align the TAS TV WFOV to the ATT.
    - a. Observe the ALIGN TAS TV WFOV TO ATT setup screen (Figure 37).

## Performance Steps

|                                                                                                                                                     |                       |                                      |                    |               |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                            | 20 1141:05Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| <b>ALIGN TAS TV NFOV TO ATT</b>                                                                                                                     |                       |                                      | <b>SETUP</b>       |               |                 |
| <b>PERSONNEL REQUIRED:</b><br>Gunner<br><br><b>EQUIPMENT CONDITIONS:</b><br>System nulled<br>Sight shield doors closed<br><br><b>TOOLS:</b><br>None |                       |                                      |                    |               |                 |
| CONTINUE<br>X                                                                                                                                       |                       |                                      |                    |               | EXIT            |

Figure 37. ALIGN TAS TV WFOV TO ATT setup screen.

- b. Ensure equipment conditions are completed.
  - (1) Ensure the system is nulled.
  - (2) Ensure ballistic sight shield doors are closed.
  - (3) Press CONTINUE using the softkey function on the CTD.
- c. Complete the ALIGN TAS TV WFOV TO ATT procedure tasks (Figure 38).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                      |                    |               |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 20 1141:27Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| <b>ALIGN TAS TV NFOV TO ATT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                      | <b>PROCEDURE</b>   |               |                 |
| <ol style="list-style-type: none"> <li>1. Move G-SIZE switch on GHS to locate alignment dot on TAS biocular display.</li> <li>2. Align dot with TAS TV reticle using G-SIZE switch.</li> <li>3. To repeat test, go to step 1.</li> <li>4. To perform "ALIGN CIV FLIR TO ATT", press "CONTINUE".</li> </ol> <div style="text-align: center;">  <p><b>SAMPLE</b><br/>Dot aligns with reticle</p> </div> <p><b>NOTE:</b><br/>Make sure dot is aligned with reticle before pressing a softkey.</p> |                       |                                      |                    |               |                 |
| CONTINUE<br>X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |                                      |                    |               | PREVIOUS EXIT   |

Figure 38. ALIGN TAS TV WFOV TO ATT procedure screen.

Performance Steps

- (1) Move G-SIZE switch on the GHS to locate alignment dot on TAS biocular display.
  - (2) Align the dot with the TAS TV reticle using the G-SIZE switch.
  - (3) Repeat the test if dot and reticle are not aligned (Repeat step 1).
  - (4) Press CONTINUE to perform ALIGN CIV FLIR TO TV by using the softkey function on the CTD.
8. Align the CIV FLIR to the TV.
- a. Observe the ALIGN CIV FLIR TO TV setup screen (Figure 39).

|                                                                                                            |                       |                                      |                    |               |                 |
|------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                   | 20 1141:45Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| ALIGN TAS TV NFOV TO ATT                                                                                   |                       |                                      | SETUP              |               |                 |
| <p>PERSONNEL REQUIRED:<br/>Gunner</p> <p>EQUIPMENT CONDITIONS:<br/>CIV unstowed</p> <p>TOOLS:<br/>None</p> |                       |                                      |                    |               |                 |
| CONTINUE<br>X                                                                                              |                       |                                      |                    |               | EXIT            |

Figure 39. ALIGN CIV FLIR TO TV setup screen.

- b. Ensure equipment conditions are completed.
  - (1) Ensure the CIV is unstowed.
  - (2) Press CONTINUE using the softkey function on the CTD.
- c. Complete the ALIGN CIV FLIR TO TV procedure tasks (Figure 40).

**Performance Steps**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       |                                      |                    |               |                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20 1141:59Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| <b>ALIGN CIV FLIR TO TV</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |                                      | <b>PROCEDURE</b>   |               |                 |
| <p>1. Select HI MAG (NFOV) using HI/LO MAG switch on GHS or CHS.<br/> 2. Select TV using FLIR/TV switch on GHS or CSCP<br/> 3. Align TV reticle to boresight target GHS or CHS.<br/> 4. Select FLIR.<br/> 5. Align FLIR reticle to same boresight target for TV<br/> using GATE SIZE switch on GHS or CSCP.<br/> 6. To repeat test, go to step 1.<br/> 7. To perform "ZERO 25MM GUN", press "CONTINUE".</p> <p style="text-align: center;">NOTE:<br/> Make sure FLIR reticle is aligned with boresight target before<br/> pressing a softkey.</p> |                       |                                      |                    |               |                 |
| CONTINUE<br>X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                      |                    |               | PREVIOUS EXIT   |

Figure 40. ALIGN CIV FLIR TO TV procedure screen.

- (1) Select HI MAG (NFOV) using the HI/LO MAG switch on the GHS or CHS.
- (2) Select TV using the FLIR/TV switch on the GHS or CHS.
- (3) Align TV reticle to boresight panel using the GHS or CHS controls.
- (4) Select FLIR using the FLIR/TV switch on the GHS or CHS.
- (5) Align FLIR reticle to the same point of aim on the boresight panel as that of the TV using the G-SIZE switch on the GHS or CSCP.
- (6) Repeat the test if sights are not aligned (Repeat step 1).

9. Select EXIT using the softkey functions of the CTD.

10. Select MAIN using the soft key functions on the CTD.

**Evaluation Preparation:** SETUP: Ensure the boresight kit is operational, the M240C coaxial machine gun is installed, the turret travel lock is engaged, and the turret power and drive switches are in the off position. Ensure all drive select levers are in the power mode and the ballistic sight covers are closed. Ensure the vehicle is parked on level ground with the engine running and the vehicle parking brake is engaged.

**BRIEF SOLDIER:** Tell the soldier to successfully boresight all weapon systems and sights in accordance with appropriate TMs.

**Performance Measures**

1. Prepared the M2A3/M3A3 BFV turret for boresighting.
2. Boresighted the TAS/BACKUP sight to the 25mm gun.

**GO**      **NO GO**

\_\_\_\_      \_\_\_\_  
\_\_\_\_      \_\_\_\_

| Performance Measures                                                | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------|-----------|--------------|
| 3. Boresighted the CIV to the 25mm gun.                             | _____     | _____        |
| 4. Boresighted the TAS/25mm gun to the 7.62mm coaxial machine gun.  | _____     | _____        |
| 5. Boresighted the TAS to the TOW launcher.                         | _____     | _____        |
| 6. Aligned the TAS TV NFOV to the ATT.                              | _____     | _____        |
| 7. Aligned the TAS TV WFOV to the ATT.                              | _____     | _____        |
| 8. Aligned the CIV FLIR to the TV.                                  | _____     | _____        |
| 9. Selected EXIT by using the softkey function on the CTD.          | _____     | _____        |
| 10. Selected MAIN by using the softkey function on the CTD.         | _____     | _____        |
| 11. Completed boresighting the weapon systems on the M2A3/M3A3 BFV. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

| References           | Related            |
|----------------------|--------------------|
| <b>Required</b>      |                    |
| TM 9-2350-294-10-2-1 | TM 9-2350-294-10-1 |
| TM 9-2350-294-10-2-2 |                    |

## Zero the Weapon Systems on an M2A3/M3A3 BFV

### 071-001-0002

**Conditions:** Given an operational M2A3/M3A3 BFV with basic issue items, an installed M240C coaxial machine gun, 25mm Armor Piercing (AP) ammunition loaded in the ready box, 7.62mm ammunition loaded in the coaxial machine gun ready box, a 1200 meter 25-mm zero target, and an 800 meter coaxial machine gun target. The weapon systems have been boresighted and there is a requirement to zero the weapon systems.

**Standards:** Zeroed the weapon systems and sights on an M2A3/M3A3 BFV without causing damage to equipment or injuring personnel.

### Performance Steps

1. Prepare the M2A3/M3A3 BFV turret for zeroing.
  - a. Move the turret power switch on the system control box (SCB) to ON (Figure 1).

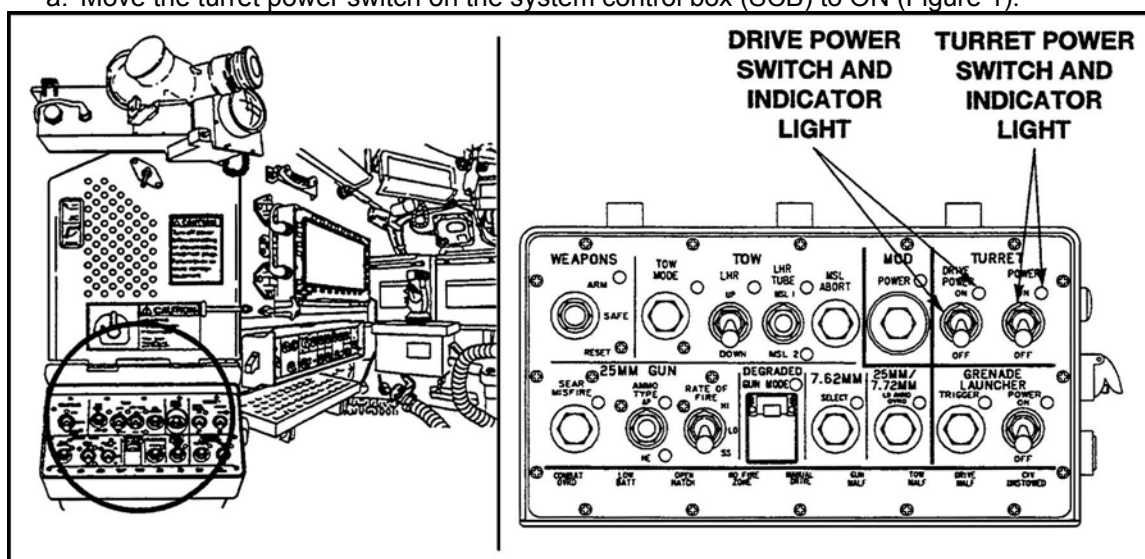


Figure 1. Turret power switch.

**NOTE:** The commander's tactical display (CTD) will display a series of five test patterns. Once the test patterns have completed the A3 Bradley tactical software will initialize. Observe the A3 Bradley banner on the CTD. This banner is the indicator that the CTD is starting its self-test.

- b. Enter the appropriate vehicle password by using the commander's data entry tool (CDET) and the cursor control function on the commander's hand station (CHS) (Figure 2).



Performance Steps

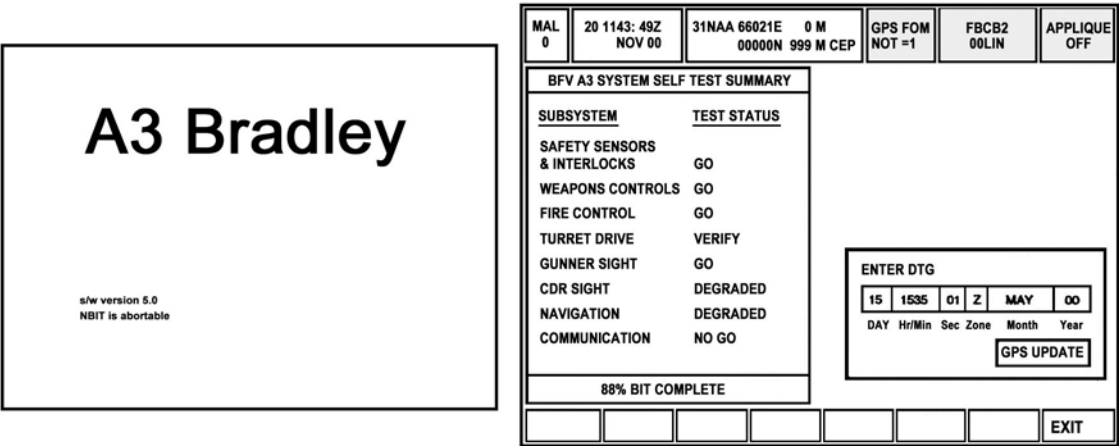


Figure 2. System START UP Screen.

- c. Enter correct date time group (DTG) by using the CDET and the cursor control function on the CHS.
- d. Select close on the CTD by using the soft-key on the CTD or the cursor control function from the CHS.

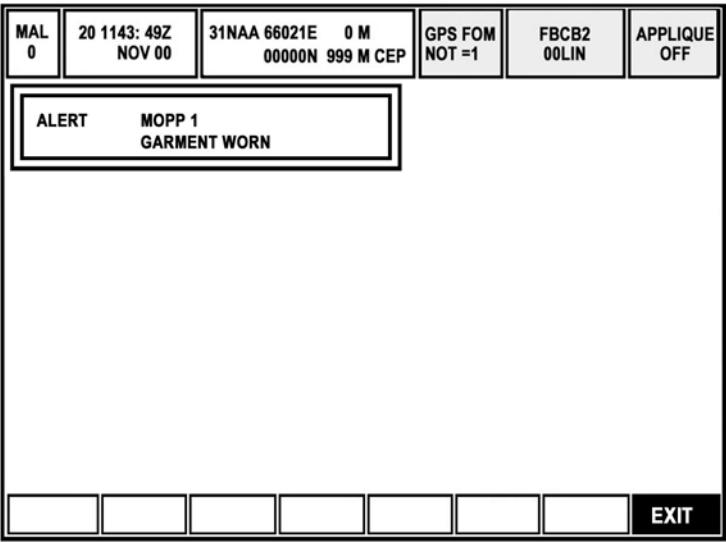


Figure 3. Pop-up advisories.

NOTE: A series of pop-up advisories will be displayed. These advisories must be closed in order for the system to complete the self test (Figure 3).

- e. Select MAIN on the CTD by using the soft-key on the CTD or the cursor control function on the CHS.
- f. Move the turret drive switch on the SCB to ON.
- g. Open the ballistic sight cover doors (Figure 4).

## Performance Steps

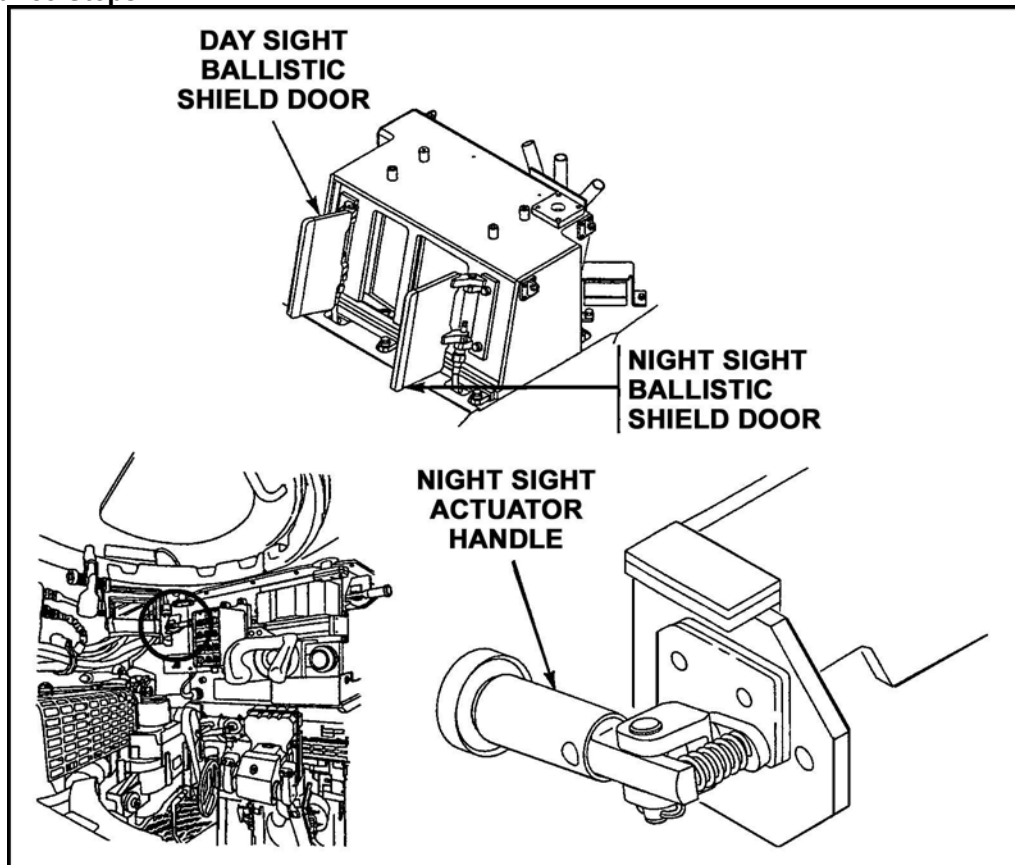


Figure 4. Ballistic shield doors.

- (1) Pull out on the day sight cover handle located on the upper right corner of the Improved Bradley acquisition system (IBAS).
  - (2) Rotate the handle to the right until it locks into the open position.
  - (3) Pull out on the night sight cover handle located on the upper left corner of the IBAS.
  - (4) Rotate the handle to the left until it locks into the open position.
- h. Adjust the IBAS forward looking infrared (FLIR) and day TV sights so that the sight picture is clear.

- (1) Select FLIR mode on the gunner hand station (Figure 5).

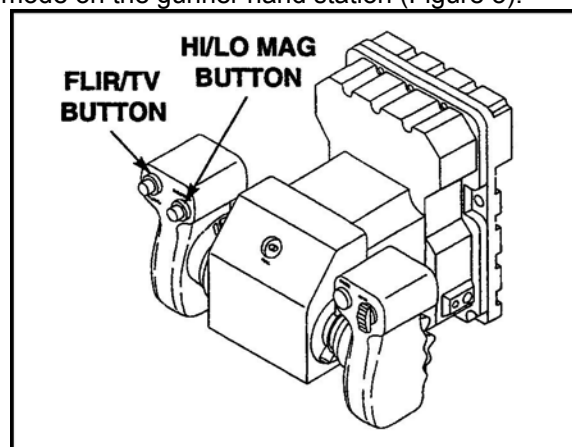


Figure 5. FLIR/TV button.

### Performance Steps

- (2) Locate the MODE switch on the gunner's sight control panel (GSCP).
- (3) Pull down and release the MODE switch to AUTO ensure the indicator light for AUTO is lit.
- (4) Adjust sight picture, as necessary, using the LEVEL, GAIN, FOCUS, BRIGHTNESS, or CONTRAST switches on the GSCP (Figure 6).

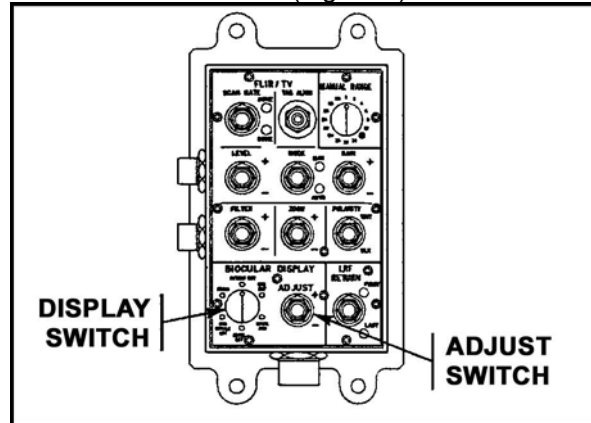


Figure 6. Gunner's sight control panel (GSCP) display and adjust switch.

- (a) Press up on the MODE switch to MANUAL and ensure the indicator light for MANUAL is lit and the AUTO light is not lit.
- (b) Press up or pull down and release the LEVEL switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- (c) Press up or pull down and release the GAIN switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- (d) Rotate the DISPLAY knob to the FOCUS position.
- (e) Adjust the focus level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- (f) Rotate the DISPLAY knob to the BRIGHTNESS position.
- (g) Adjust the brightness level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- (h) Rotate the DISPLAY knob to the CONTRAST position.
- (i) Adjust the contrast level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.

i. Unstow the commander's independent viewer (CIV) (Figure 7).

## Performance Steps

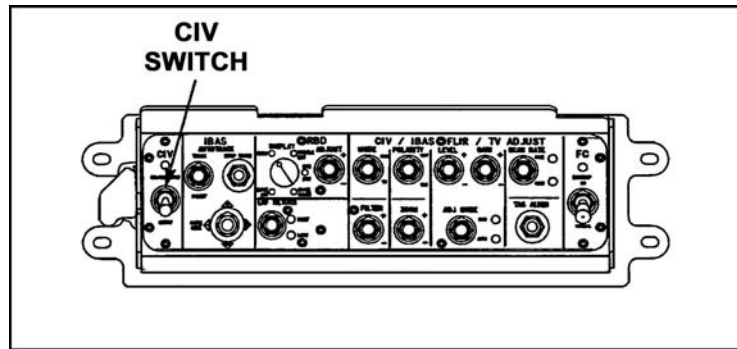


Figure 7. CIV UNSTOW/STOW switch.

- (1) Move the CIV UNSTOW/STOW switch on the commander's sight control panel (CSCP) to the UNSTOW position.
- (2) Squeeze and hold the palm switch on the commander's hand station (CHS) (Figure 8).

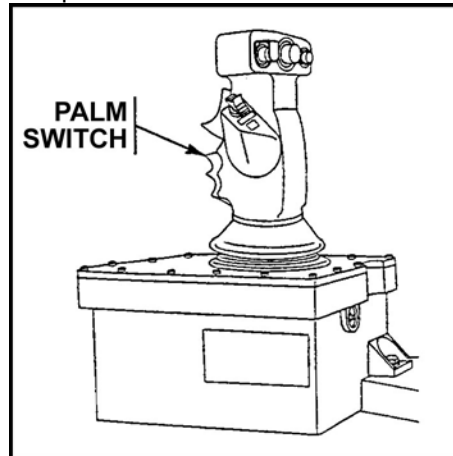


Figure 8. Commander's hand station.

- (3) Observe that the UNSTOW indicator light on the CSCP is lit.
- (4) Release the palm switches.
- j. Adjust the CIV FLIR and day TV sights so that the sight picture is clear.
  - (1) Select FLIR mode on the CSCP by pushing down and releasing the switch (Figure 9).

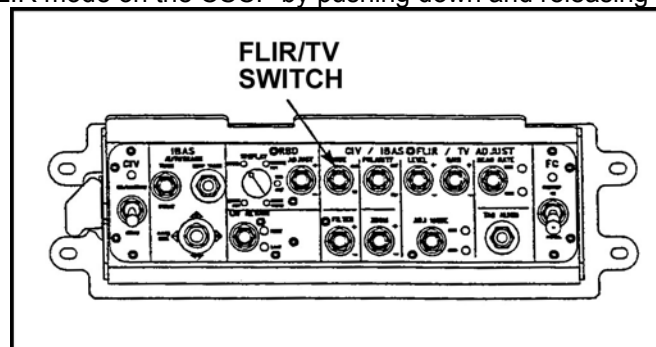


Figure 9. CSCP FLIR/TV switch.

- (2) Push down and release the FLIR ADJ MODE switch on the CSCP to AUTO. Ensure the AUTO indicator light is lit.
- (3) Pull down and release the IBAS-CIV switch located on the lower left side of the Remote biocular display (RBD). This switch toggles between the IBAS and the CIV sights.

**Performance Steps**

- (4) Adjust sight picture, as necessary, using the LEVEL, GAIN, FOCUS, BRIGHTNESS, or CONTRAST switches on the CSCP.
  - (a) Press up on the MODE switch to MANUAL and ensure the indicator light for MANUAL is lit and the AUTO light is not lit.
  - (b) Press up or pull down and release the LEVEL switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (c) Press up or pull down and release the GAIN switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (d) Rotate the DISPLAY knob to the FOCUS position.
  - (e) Adjust the focus level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (f) Rotate the DISPLAY knob to the BRIGHTNESS position.
  - (g) Adjust the brightness level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
  - (h) Rotate the DISPLAY knob to the CONTRAST position.
  - (i) Adjust the contrast level by pressing up or down and release the display toggle switch as needed to adjust sight picture. Observe through the sight that the adjust field wedge symbol with arrow indicator is visible and coarse and fine adjustments are being made to the sight picture.
- k. Raise the TOW launcher (Figure 10).

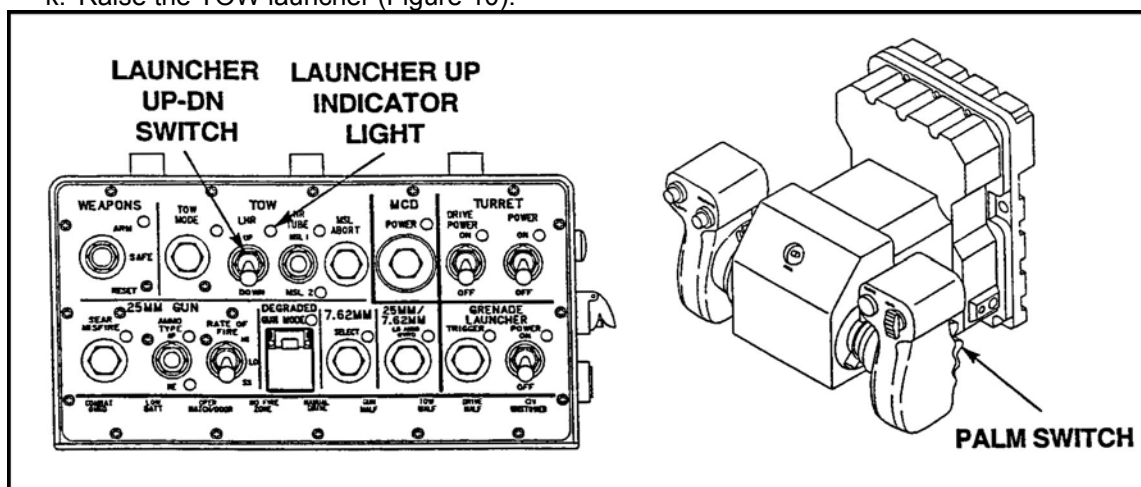


Figure 10. TOW launcher switch.

- (1) Move the TOW launcher switch on the SCB to the UP position.
  - (2) Squeeze and hold the palm switch on either the gunner's hand station (GHS) or the CHS.
  - (3) Observe that the TOW UP indicator light on the SCB is lit.
  - (4) Release the palm switches.
- l. Manipulate through the screens by pressing the appropriate soft keys to arrive at the Manual boresight screen.
- (1) Select SETUP using the CTD soft key (Figure 11).

## Performance Steps

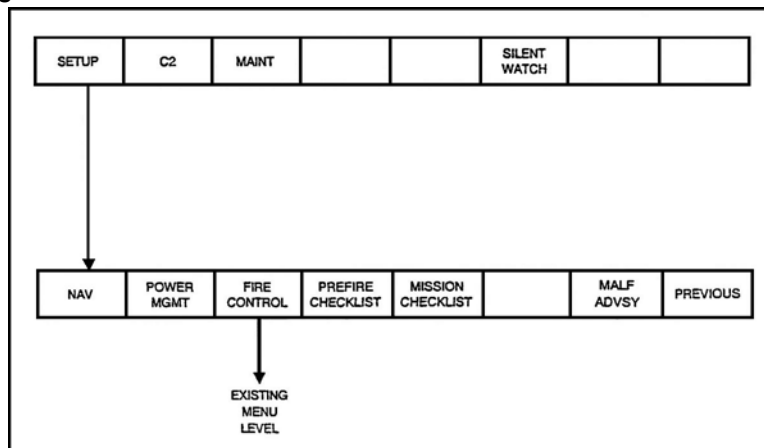


Figure 11. CTD menu structure.

- (2) Select FIRE CONTROL using the CTD soft key.
- (3) Select MANUAL BORESIGHT using the CTD soft key.
- (4) Observe the PRE-BORESIGHT/ZERO TASK screen on the CTD (Figure 12).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                                      |                   |                |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------|-------------------|----------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20 1143: 49Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT =1 | FBCB2<br>00LIN | APPLIQUE<br>OFF |
| <b>PRE=BORESIGHT TASKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |                                      |                   |                |                 |
| <ol style="list-style-type: none"> <li>1. Unload and make weapons safe.</li> <li>2. Unstow CIV</li> <li>3. Position vehicle on level surface<br/>(slope indicator bubble at driver station within black inner ring)               <ol style="list-style-type: none"> <li>a) Greater than 200 meters. X</li> <li>1200 meters recommended for Boresight Tasks.</li> <li>b) 800-1200 meters for Zeroing 25mm Gun.</li> </ol> </li> <li>4. NULL System:               <ol style="list-style-type: none"> <li>a) Press NULL button on GHS or CHS.</li> <li>b) Press TRS Align on GSCP (if required by IBAS message)</li> <li>c) Open shield doors when complete.</li> </ol> </li> <li>5. If TOW is to be boresighted, raise TOW Launcher.</li> <li>6. Perform the following functional checks on the 25mm gun system.               <ol style="list-style-type: none"> <li>a) Ensure the manual sear retractor is disengaged.</li> <li>b) Ensure the straight drive shaft to the feeder is locked in place.</li> <li>c) Ensure the feed and eject chutes are connected.</li> <li>d) Dry cycle the 25mm gun twice in HE and twice in AP.<br/>(In the power mode.)</li> </ol> </li> <li>7. During normal operating conditions, ensure the IBAS defogger fan is OFF.</li> <li>8. Lay DVD reticle on distant aim point and compare with FLIR reticle. At 1200 meters, FLIR reticle should be about 0.2 all left of DVO reticle.</li> </ol> <p style="margin-top: 10px;">When ready, press "CONTINUE"</p> <p style="margin-top: 5px; font-size: small;">Reference TM 902350-294-10-2 for Tools and Equipment Conditions</p> |                        |                                      |                   |                |                 |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                                      |                   |                | EXIT            |

Figure 12. Pre-boresight tasks menu.

- m. Complete the pre-boresight tasks.
  - (1) Unload and make weapons safe.
  - (2) Unstow CIV.
  - (3) Position vehicle on level surface (slope indicator bubble at the drivers station is within the black inner ring).
    - (a) Greater than 200 meters (1200 meters is recommended) for boresighting.
    - (b) 800-1200 meters for zeroing 25mm gun.
    - (c) 800 meters for zeroing the 7.62mm coaxial machine gun.
  - (4) Null system (Figure 13).

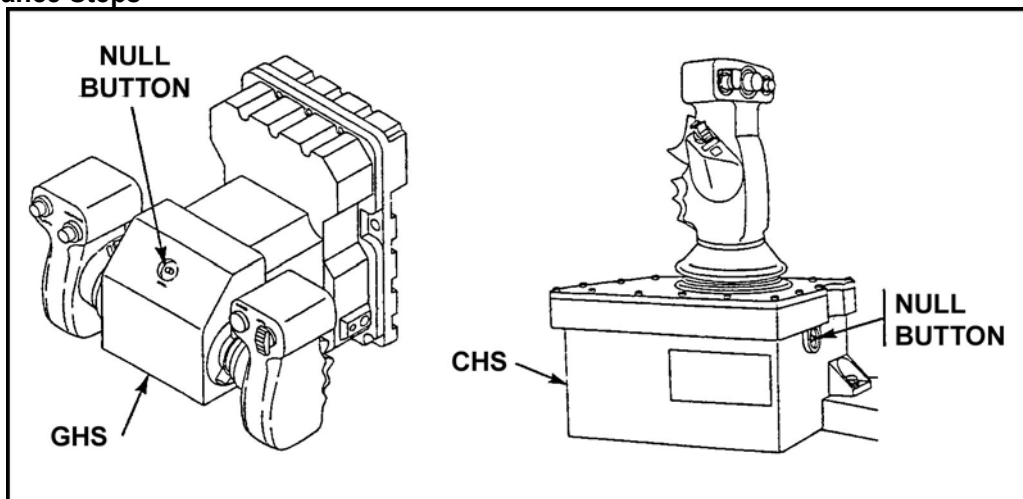
**Performance Steps**

Figure 13. NULL button.

- (a) Press the NULL button on the GHS or the CHS.
- (b) Press target acquisition system alignment button on the GSCP (If required by an IBAS message) (Figure 14).

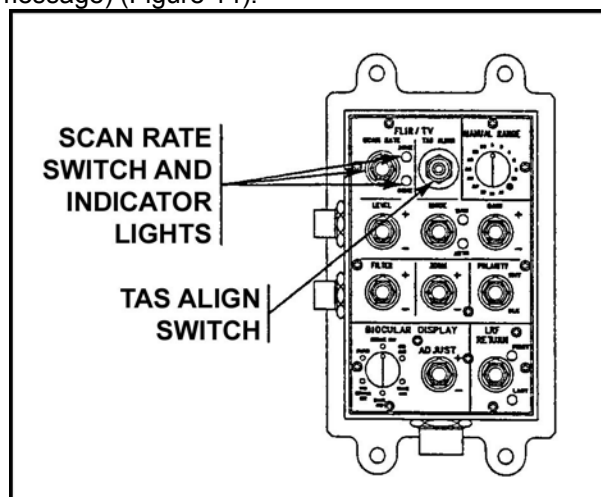


Figure 14. TAS ALIGN button.

- (c) Close ballistic sight shield doors.
- (d) Wait for TAS alignment to be completed.
- (e) Open ballistic sight shield doors.
- (5) If TOW is to be boresight, raise TOW launcher.
- (6) Perform functional checks on the 25mm gun system.
  - (a) Ensure the manual sear retractor is disengaged (Figure 15).

## Performance Steps

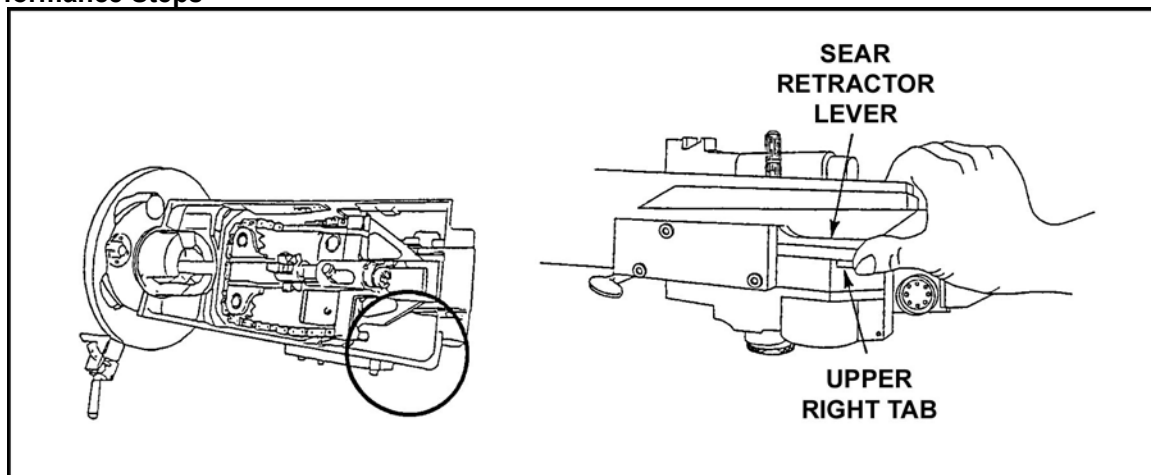


Figure 15. Sear retractor lever.

- ( b ) Ensure the vertical drive shaft is up and locked into position (Figure 16).

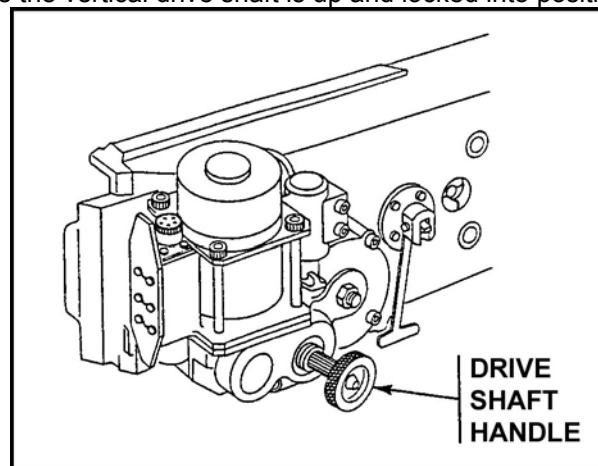


Figure 16. Vertical drive shaft handle.

- ( c ) Ensure the feed and eject chutes are connected.
- ( d ) In the power mode, dry cycle the 25mm gun twice in high explosive (HE) and twice in armor piercing (AP).
- ( 7 ) During normal operating conditions, ensure the IBAS defogger fan switch is in the OFF position (Figure 17).



Performance Steps

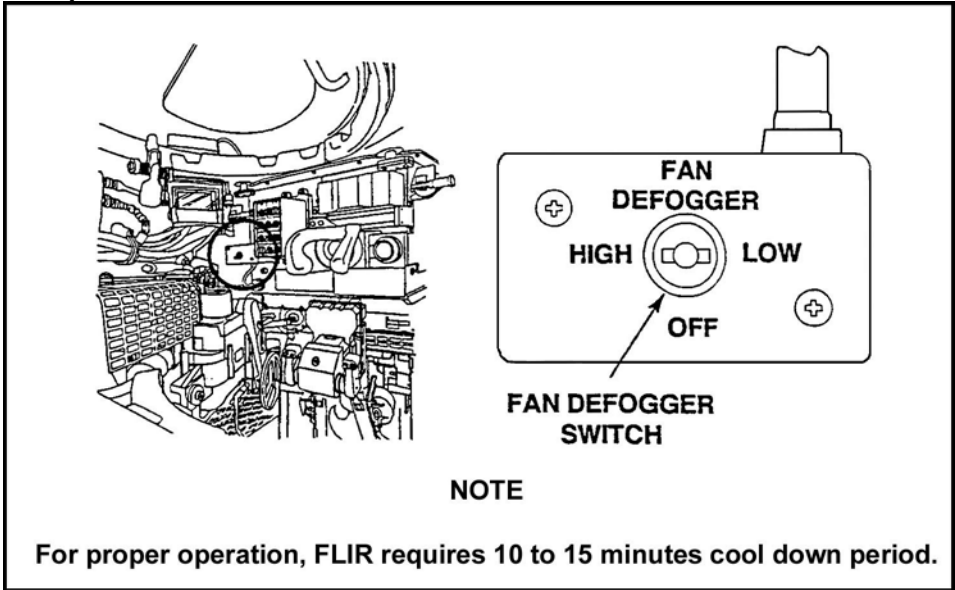


Figure 17. Defogger fan switch.

- (8) Lay direct view optic (DVO) reticle on a distant aiming point and compare the DVO reticle to the FLIR reticle. At 1200 meters, the FLIR reticle should be about 0.2 mils to the left of the DVO reticle.
  - (a) Squeeze and hold the palm switches on the GHS.
  - (b) Rotate the GHS to the left or right in order to move the gun and the sights in that direction.
  - (c) Rotate the GHS forward to depress the gun and sight picture or rotate the GHS backward to elevate the gun and sight picture.
  - (d) Move the sight reticle (the center dot) onto the center of the boresight panel.
  - (e) Release palm switches.
  - (f) Select CONTINUE by using the soft key on the CTD.
- 2. Zero TAS and auxiliary sight to the 25mm gun.
  - a. Select ZERO TAS & AUX SIGHT TO 25MM GUN using the cursor control on CHS (Figure 18).

|                                           |                       |                                      |                                  |               |                |
|-------------------------------------------|-----------------------|--------------------------------------|----------------------------------|---------------|----------------|
| MAL<br>0                                  | 20 1138-00Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1               | FBCB2<br>DOWN | APPLIQUE<br>ON |
| COMBAT STATE MANUAL BORESIGHT TASKS       |                       |                                      |                                  |               |                |
| BORESIGHT                                 |                       |                                      | SIGHT ALIGNMENT                  |               |                |
| BORESIGHT TAS/BACKUP SIGHT TO 25MM GUN    |                       |                                      | ALIGN TAS TV NFDV TO ATT         |               |                |
| BORESIGHT CIV TO 25MM GUN                 |                       |                                      | ALIGN TAS TV WFDV TO ATT         |               |                |
|                                           |                       |                                      | ALIGN FLIR TO TV                 |               |                |
| BORESIGHT TAS/25MM GUN TO 7.62MM COAX GUN |                       |                                      |                                  |               |                |
|                                           |                       |                                      | ZEROING                          |               |                |
|                                           |                       |                                      | ZERO TAS & AUX SIGHT TO 25MM GUN |               |                |
| BORESIGHT TAS TO TOW LAUNCHER             |                       |                                      | ZERO 7.62MM COAX GUN SIGHT & TAS |               |                |
|                                           |                       |                                      |                                  |               |                |
|                                           |                       |                                      |                                  |               |                |
|                                           |                       |                                      | PREVIOUS                         |               |                |

Figure 18. Combat state manual boresight tasks menu.

**Performance Steps**

- b. Observe the ZERO TAS & AUX SIGHT TO 25MM GUN setup screen (Figure 19).

|                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                      |                    |               |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                               | 20 1142-12Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| ZERO TAS & AUX SIGHT TO 25MM GUN SETUP                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                      |                    |               |                 |
| <b>PERSONNEL REQUIRED:</b><br>Commander<br>Gunner                                                                                                                                                                                                                                                                                                                                                                                      |                       |                                      |                    |               |                 |
| <b>EQUIPMENT CONDITIONS:</b><br>System nulled<br>a) Press "NULL" button on GHS or CHS<br>b) Press "TAS ALIGN" on GSCP (If required by IBAS message)<br>Sight shield doors opened<br>TAS/backup sight boresighted to 25mm gun<br>25mm AP ammo loaded<br>25mm gun feeder loaded<br>TDS in MANUAL mode (gun elevation and traverse in MANUAL,<br>TOW elevation in POWER)<br>Vehicle positioned with target approximately 1200 meters away |                       |                                      |                    |               |                 |
| <b>TOOLS:</b><br>None                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                      |                    |               |                 |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                                      |                    |               | PREVIOUS        |

Figure 19. ZERO TAS & AUX SIGHT TO 25MM GUN setup screen.

- c. Ensure the equipment conditions are completed.
- (1) Ensure the system has been nulled.
  - (2) Ensure sight shield doors are open.
  - (3) Ensure the TAS/Backup sight has been boresighted to the 25mm gun
  - (4) Ensure 25mm ammunition is loaded.
  - (5) Ensure the 25mm gun feeder is loaded.
  - (6) Place the turret drive system (TDS) in the manual mode.
    - (a) Press and hold the push-button on the traverse drive handle.
    - (b) Pull the handle to the right until it stops and then release the push-button and handle.
    - (c) Press and hold the push-button on the gun elevation drive handle.
    - (d) Pull the handle to the left until it stops and then release the push-button and handle.
    - (e) Ensure the TOW elevation drive is in power.
  - (7) Ensure the vehicle is positioned with the target approximately 1200 meters away.
  - (8) Select CONTINUE by using the soft key on the CTD.
- d. Complete the ZERO TAS & AUX SIGHT TO 25MM GUN procedures (Figure 20).

Performance Steps

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                      |                                    |                   |                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|------------------------------------|-------------------|----------------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 21 0756:28Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1                 | FBCB2<br>DOWN     | APPLIQUE<br>OFF      |
| ZERO TAS & AUX SIGHT TO 25MM GUN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                      | PROCEDURE                          |                   |                      |
| <p>1. Use DVD (preferred), or TV (FLIR should only be used if zeroing must be done at night.)</p> <p>2. Select HI MAG (NFOV) using HI/LO MAG switch on GHS.</p> <p>3. Center TAS reticle on target using elevation and traverse handwheels.</p> <p>4. Range target using LAF (or enter range manually on GSCP.)</p> <p>5. Repeat step 3 if required.</p> <p>6. Cycle the "Ghost Round" before firing the 25mm gun.</p> <p>7. Have Commander observe round impact point.</p> <p>8. Fire one tracer round at target. If round impact was on target go to step 14.</p> <p>If 25mm gun is not zeroed, proceed to step 9.</p> <p>10. Press "AIM POINT".</p> <p>11. Center TAS reticle at round impact point using CHS or GHS.</p> <p>12. Press "CALCULATE".</p> <p>13. Press "SAVE".</p> <p>14. Center TAS reticle on target using elevation and traverse handwheels, and repeat steps 7-13 until either 25mm gun is zeroed, or three rounds have been fired.</p> <p>Note: If 25mm gun cannot be zeroed within three rounds, notify master gunner</p> <p>15. To perform 'ZERO AUX SIGHT TO 25MM GUN', press "NEXT PAGE".</p> |                       |                                      | New<br>Values                      | Current<br>Values |                      |
| ELEV<br>(MILS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                      | <input type="text"/>               | 177.78            |                      |
| AZ<br>(MILS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                                      | <input type="text"/>               | 88.89             |                      |
| RANGE<br>(M)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                                      | <input type="text" value="10005"/> |                   |                      |
| <input type="text"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | AIM POINT             | <input type="text"/>                 | <input type="text"/>               | NEXT<br>PAGE      | <input type="text"/> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                      | PREVIOUS                           | EXIT              |                      |

Figure 20. ZERO TAS & AUX SIGHT TO 25MM GUN procedure menu.

- (1) Use DVO (preferred) or day TV. FLIR should be used only if zeroing must be done at night.
- (2) Select high magnification (HI MAG) narrow field of view (NFOV) using HI/LO MAG switch on the GHS.
- (3) Center (TAS) reticle on the 25mm zero target by manually traversing the turret and elevating or depressing the gun.
  - (a) Rotate the traverse handwheel clockwise to move the turret to the right and counter clockwise to move the turret to the left.
  - (b) Rotate the gun elevation handwheel clockwise to elevate the gun and counter clockwise to depress.
- (4) Range the target using the Laser Range Finder (LRF) or enter the range manually by using the range knob on the GSCP.
- (5) Repeat step 3 if the reticle is not on target.
- (6) Cycle the ghost round.
  - (a) Move the ARM-SAFE-RESET switch to ARM (Figure 21).

## Performance Steps

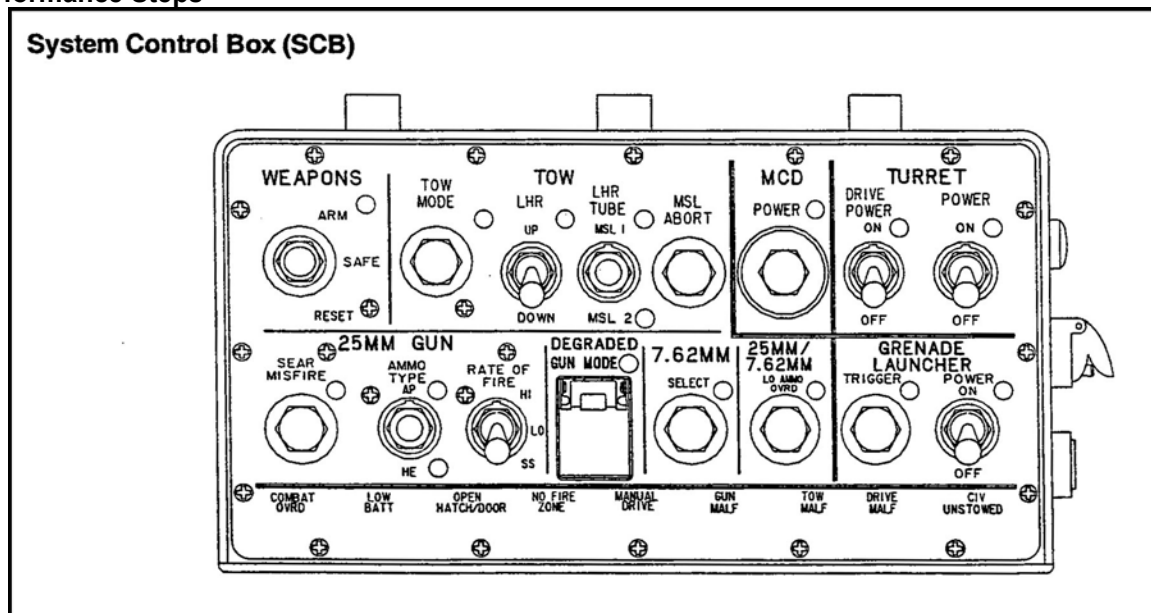


Figure 21. System control box.

- (b) Move the 25mm ammunition type switch to AP.
- (c) Move the rate of fire switch to single shot (SS).
- (d) Press and release the manual trigger located on the end of the traverse handwheel handle (Figure 22).

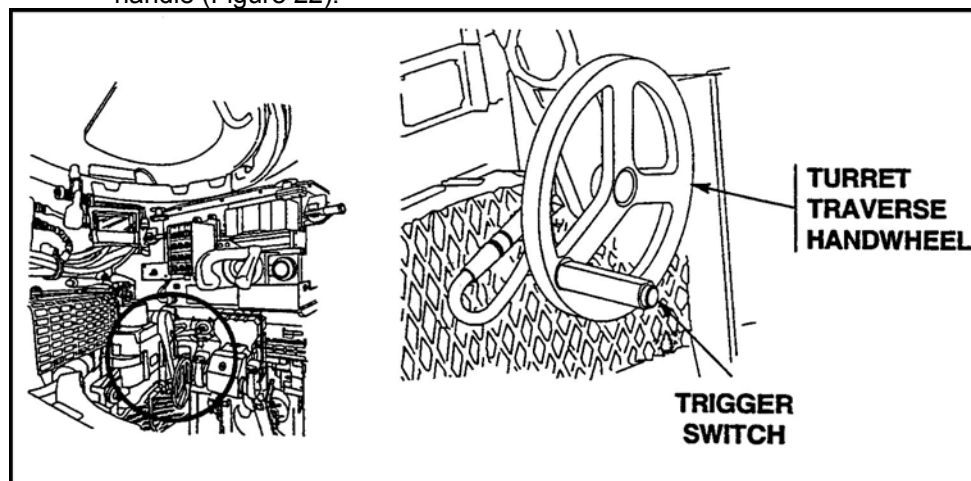


Figure 22. Turret traverse handwheel and manual trigger.

- (e) Observe the bolt position indicator (BPI) and ensure the arrow is in the misfire position (Figure 23).

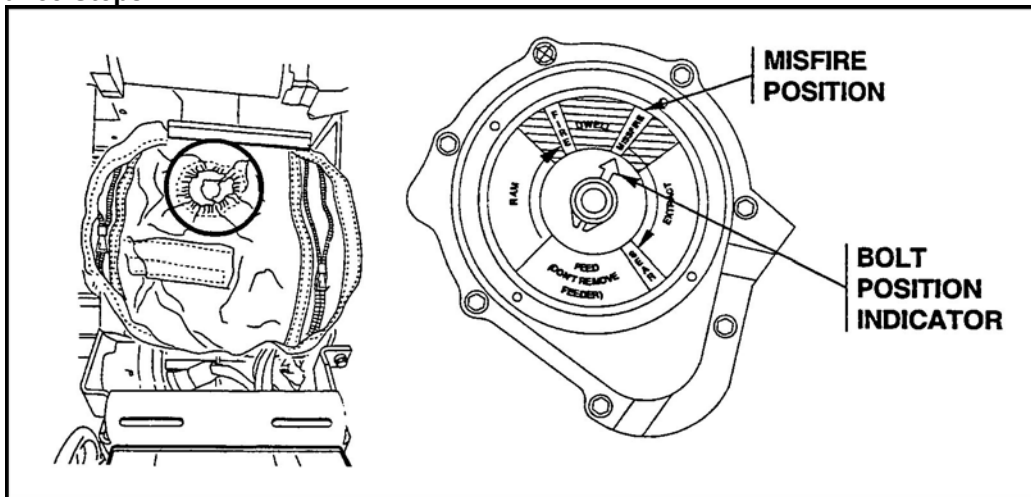
**Performance Steps**

Figure 23. Bolt position indicator (BPI) in misfire position.

- (f) Press and release the MISFIRE button.
- (g) Press and release the manual trigger.
- (h) Observe the BPI is back in SEAR and the MISFIRE light is not lit (Figure 24).

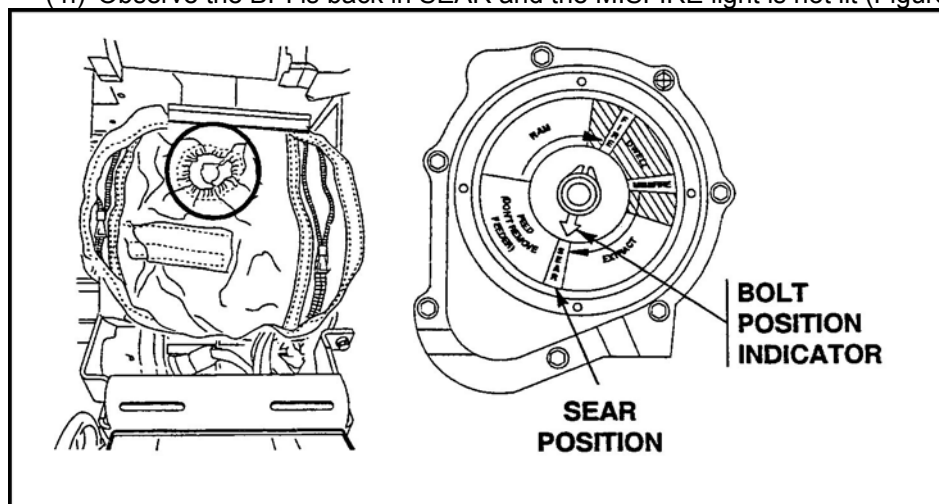


Figure 24. Bolt position indicator in SEAR position.

- (7) The vehicle commander will observe the strike of the round using the CIV.
  - (8) Fire one round of 25mm AP ammunition. If round impact was on target go to step 14. If 25mm gun is not zeroed then proceed to step 9.
  - (9) Ensure TAS reticle is still aligned with the zero target, re-aim as necessary using the handwheel only.
  - (10) Press AIM POINT using the softkey function on the CTD.
  - (11) Center the TAS reticle on the point of round impact by using the GHS or CHS.
  - (12) Press CALCULATE using the soft key function on the CTD.
  - (13) Press SAVE using the softkey function on the CTD.
  - (14) Center the TAS reticle on the target using the elevation and traverse handwheels, and repeat steps 7-13 until either the 25mm gun is zeroed or three rounds have been fired.
- NOTE: If the 25mm gun cannot be zeroed within three rounds, notify the Master Gunner.
- (15) Press NEXT PAGE to perform ZERO AUX SIGHT TO 25MM GUN by using the softkey function on the CTD.

3. Zero the auxiliary sight to the 25mm gun.

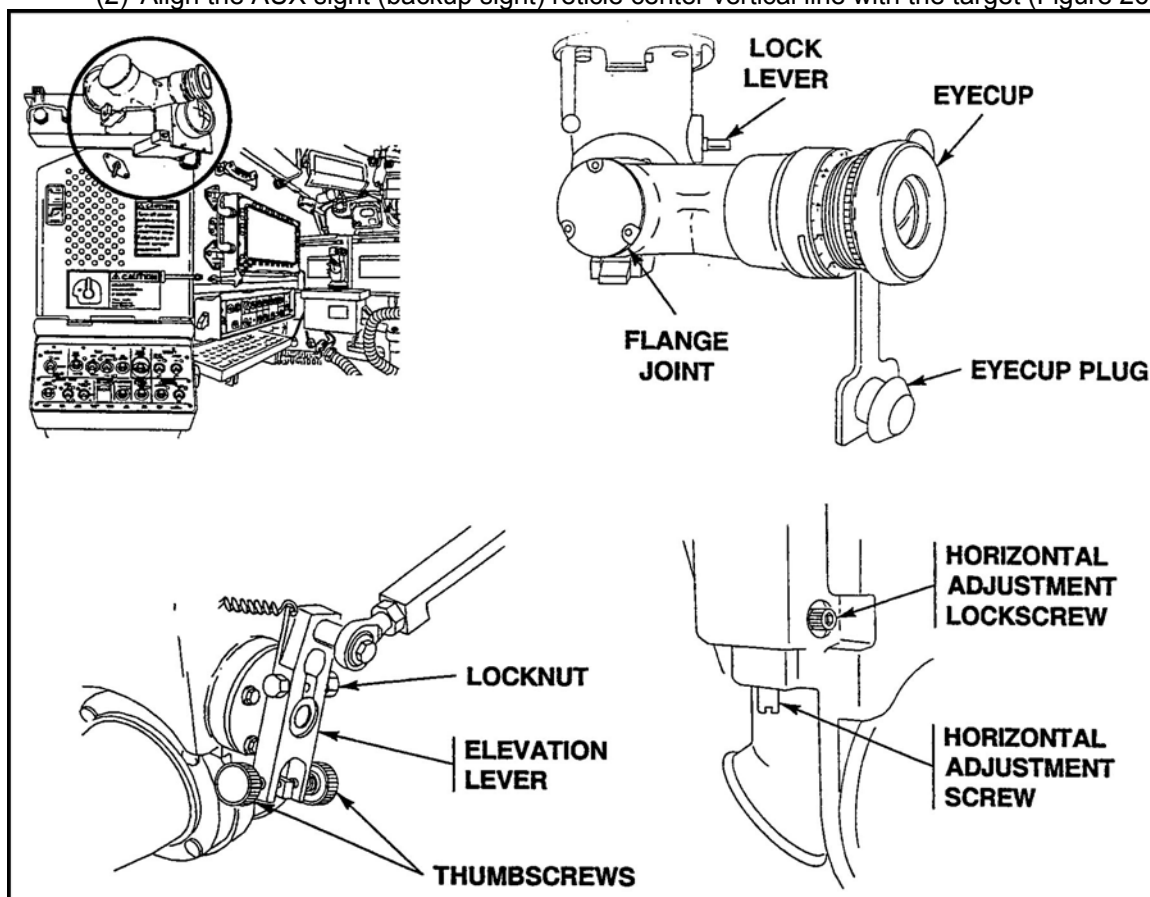
**Performance Steps**

- a. Observe the ZERO AUX SIGHT TO 25MM GUN procedure screen.
- b. Complete the ZERO AUX SIGHT TO 25MM GUN procedures (Figure 25).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       |                                      |                    |               |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20 1206:48Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| ZERO TAS & AUX SIGHT TO 25MM GUN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                      | PROCEDURE          |               |                 |
| <ol style="list-style-type: none"> <li>1. Verify that the TAS reticle is aligned with the 25mm zero target. (re-aim using handwheels if necessary.)</li> <li>2. Align the Aux sight (Backup sight) reticle center vertical line with target. (To move reticle in azimuth, loosen horizontal adjustment lock screw and turn horizontal adjustment screw. Then tighten lock screw.)</li> <li>3. Align reticle so that the AP range line aligns with the target at the correct target range. (To move reticle in elevation, adjust thumbscrews. Ensure thumbscrews are both snug when complete with reticle properly aligned.)</li> <li>4. Verify that TAS reticle and flux sight reticle range line are both on target.</li> <li>5. Have commander observe round impact point.</li> <li>6. Fire one confirmation AP tracer round at the zero target.</li> <li>7. If round does not hit the target, repeat steps 4-7 one time.</li> </ol> <p>Note : If the aux sight is not aligned within two rounds, notify unit master gunner.</p> <ol style="list-style-type: none"> <li>8. To perform "ZERO 7.62MM COAX GUN TO AUX SIGHT AND TAS", press "CONTINUE".</li> </ol> |                       |                                      |                    |               |                 |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | AIM POINT             |                                      |                    | PREVIOUS      | EXIT            |

Figure 25. ZERO TAS &amp; AUX SIGHT TO 25MM GUN procedure continued.

- (1) Verify that the TAS reticle is aligned with the 25mm zero target. If necessary, re-aim using the handwheel only.
- (2) Align the AUX sight (backup sight) reticle center vertical line with the target (Figure 26).



## Performance Steps

Figure 26. AUX sight.

- (a) Loosen the horizontal adjustment lockscrew.
- (b) Turn the horizontal adjusting screw clockwise to move the reticle to the right and counter-clockwise to move it to the left.
- (c) Tighten the lockscrew.
- (3) Align the AUX sight reticle, 1200 meter AP range line, with the target (Figure 27).

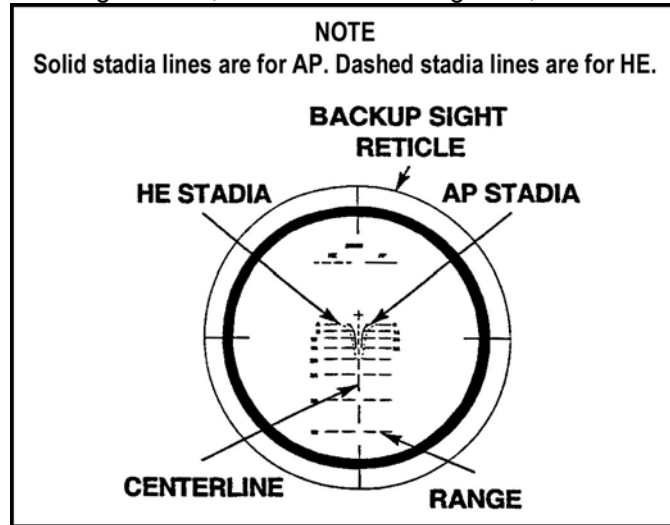


Figure 27. AUX sight reticle.

- (a) Loosen the right thumb screw and tighten the left to elevate the sight reticle.
  - (b) Loosen the left thumb screw and tighten the right to depress the sight reticle.
  - (c) Ensure both thumb screws are tight once the reticle is on target.
  - (4) Verify the TAS reticle and the AUX sight reticle range line are on target.
  - (5) The vehicle commander will observe the strike of the round using the CIV.
  - (6) Fire one confirmation AP tracer round at the zero target.
  - (7) Repeat steps 4-6 if the round does not hit the target. If the AUX sight is not aligned within two rounds, notify the Master Gunner.
  - (8) Press CONTINUE to perform ZERO 7.62MM COAX GUN TO AUX SIGHT AND TAS by using the softkey on the CTD.
4. Zero the 7.62mm coaxial machine gun to the auxiliary sight and TAS.
- a. Observe the ZERO 7.62MM COAX GUN TO AUX SIGHT AND TAS setup screen (Figure 28).

## Performance Steps

|                                                                                                                                                                                                                                                                                                                                                                                                              |                       |                                      |                    |               |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                     | 21 0817:36Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| ZERO 7.62MM COAX GUN TO AUX SIGHT & TAS <span style="float: right;">SETUP</span>                                                                                                                                                                                                                                                                                                                             |                       |                                      |                    |               |                 |
| PERSONNEL REQUIRED:<br>Commander<br>Gunner                                                                                                                                                                                                                                                                                                                                                                   |                       |                                      |                    |               |                 |
| EQUIPMENT CONDITIONS:<br>System nulled.<br>a) Press "NULL" button on GHS or CHS<br>b) Press "TAS ALIGN" on GSCP (If required by IBAS message)<br>Sight shield doors opened<br>TAS/25mm gun boresighted to 7.62mm coax gun<br>Coax machine gun loaded<br>TDS in MANUAL mode (gun elevation and traverse in MANUAL,<br>TOW elevation in POWER)<br>Vehicle positioned with target approximately 800 meters away |                       |                                      |                    |               |                 |
| TOOLS:<br>None                                                                                                                                                                                                                                                                                                                                                                                               |                       |                                      |                    |               |                 |
| CONTINUE                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                      |                    |               | EXIT            |

Figure 28. ZERO 7.62 COAX TO AUX SIGHT &amp; TAS setup menu.

- (1) Ensure the system has been nulled.
  - (2) Ensure the sight shield doors are open.
  - (3) Ensure the TAS/25mm gun has been boresighted to the 7.62mm coaxial machine gun.
  - (4) Ensure the coaxial machine gun is loaded.
  - (5) Ensure the TDS is in the manual mode.
  - (6) Ensure the vehicle is approximately 800 meters away from the 7.62mm zero target.
  - (7) Press CONTINUE using the softkey function on the CTD.
- b. Complete the ZERO 7.62MM COAX GUN TO AUX SIGHT AND TAS procedures (Figure 29).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |                                      |                    |               |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------|--------------------|---------------|-----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20 1143:12Z<br>NOV 00 | 31NAA 66021E 0 M<br>00000N 999 M CEP | GPS FOM<br>NOT = 1 | FBCB2<br>DOWN | APPLIQUE<br>OFF |
| ZERO 7.62MM COAX GUN TO AUX SIGHT & TAS <span style="float: right;">PROCEDURE</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                      |                    |               |                 |
| <ol style="list-style-type: none"> <li>1. Use DVD (preferred), or TV (FLIR should only be used if zeroing must be done at night).</li> <li>2. Select HI MAG (NFDV) using HI/LO MAG switch on GHS</li> <li>3. Center TAS reticle on target using elevation and traverse handwheels.</li> <li>4. Range target using LAF or enter range manually on GSCP.</li> <li>5. Using Transverse and elevation handwheels, center the Aux sight (Backup sight) on the target using the HE range line for the range displayed in the DVD (800 meters if possible).</li> </ol> <p>NOTE : The following and adjustments are made with the COAX gun mount knobs - NOT the Aux sight.</p> <ol style="list-style-type: none"> <li>6. Have Commander observe round impact cluster.</li> <li>7. Fire a burst of 10 to 15 rounds at target.</li> <li>8. Open coax access doors and manually move the coax azimuth and elevation knobs to move the strike of the rounds to the center of mass of the coax zero target.</li> <li>9. Repeat steps 5 thru 8 until coax is zeroed. If 7.62mm coax gun cannot be zeroed within three burst, notify master gunner.</li> <li>10. To perform 'ZERO 7.62 COAX TO TAS', press 'NEXT PAGE'.</li> </ol> |                       |                                      |                    |               |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |                                      | NEXT<br>PAGE       | PREVIOUS      | EXIT            |

Figure 29. ZERO 7.62 COAX TO AUX SIGHT &amp; TAS procedure.

- (1) Use DVO (preferred) or day TV. FLIR should only be used if zeroing must be done at night.
- (2) Select HI MAG (NFOV) using HI/LO MAG switch on the GHS.
- (3) Center TAS reticle on the 25mm zero target by manually traversing the turret and elevating or depressing the gun.



**Performance Steps**

- (4) Range the target using the LRF or enter the range manually by using the range knob on the GSCP.
- (5) Using the traverse and elevation handwheel, center the AUX sight reticle on the zero target using the (HE) range line for the range that is displayed in the DVO (800 meters if possible).

NOTE: The following adjustments will be made using the coaxial machine gun mount knobs, not the AUX sight.

- (6) The vehicle commander will observe the strike of the rounds using the CIV.
- (7) Fire a burst of 10-15 rounds at the target.
  - (a) Ensure the ARM-SAFE-RESET switch is in the ARM position.
  - (b) Press and release the 7.62mm select button.
  - (c) Press the manual trigger for 2-4 seconds and then release. This gives enough time for the M240C to fire 10-15 rounds.
- (8) Open the M240C coaxial machine gun access doors and manually move the coaxial machine gun azimuth and elevation knobs to move the strike of the rounds to the center mass of the 7.62mm zero target (Figure 30).

## Performance Steps

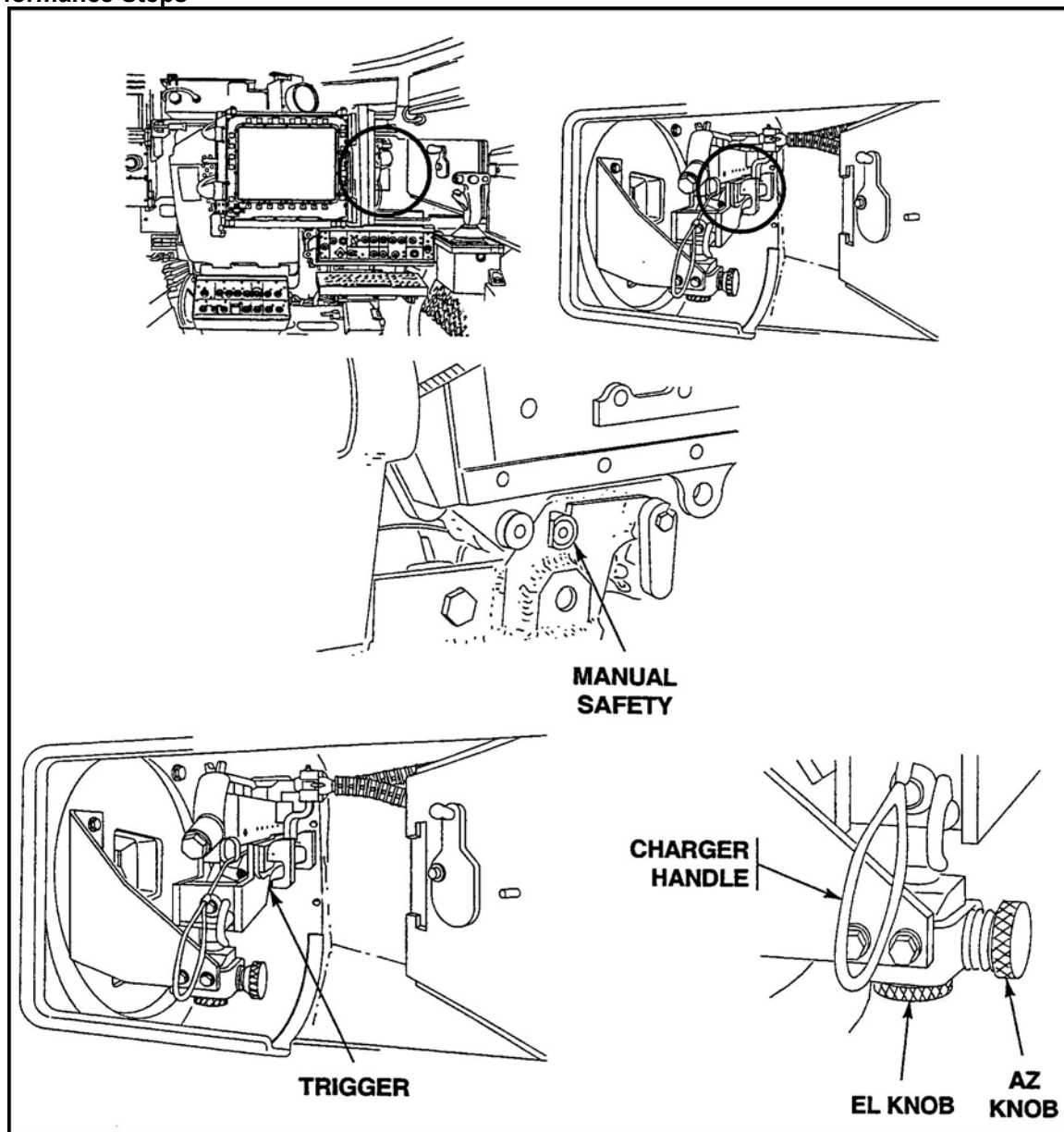


Figure 30. M240C elevation and azimuth knobs.

- (9) Close the M240C coaxial machine gun access doors.
  - (10) Repeat steps 5-9 until the coaxial machine gun is zeroed. If the M240C coaxial machine gun cannot be zeroed within three bursts, notify the Master Gunner.
  - (11) Press NEXT PAGE to perform the ZERO 7.62MM COAX TO TAS procedure.
5. Zero the 7.62mm coaxial machine gun to the TAS.
    - a. Observe the ZERO 7.62MM COAX TO AUX SIGHT & TAS procedure screen.
    - b. Complete the ZERO 7.62MM COAX TO AUX SIGHT & TAS procedures (Figure 31).

Performance Steps

| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 21 0756:28Z<br>NOV 00              | 31NAA 66021E 0 M<br>00000N 999 M CEP    | GPS FOM<br>NOT = 1                                                                                                                                                                                                                                                                                                                      | FBCB2<br>DOWN | APPLIQUE<br>OFF |  |            |                |             |                      |        |           |                      |       |           |                                    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--|------------|----------------|-------------|----------------------|--------|-----------|----------------------|-------|-----------|------------------------------------|--|
| ZERO 7.62 COAX TO AUX SIGHT & TAS                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                    |                                         | PROCEDURE                                                                                                                                                                                                                                                                                                                               |               |                 |  |            |                |             |                      |        |           |                      |       |           |                                    |  |
| <div>1. Ensure flux sight reticle is still aligned with boresight target, re-aim as necessary. Note TAS reticle may not be on target.</div> <div>2. Press "AIM POINT".</div> <div>3. Center TAS reticle at center of round impact cluster using CHS or GHS.</div> <div>4. Press "CALCULATE".</div> <div>5. Press "SAVE".</div> <div>6. Verify coax zero through TAS by firing a burst at zero target.</div> <div>SHUTDOWN</div> <div>7. Unload and make weapons safe.</div> |                                    |                                         | <table><thead><tr><th></th><th>New Values</th><th>Current Values</th></tr></thead><tbody><tr><td>ELEV (MILS)</td><td><input type="text"/></td><td>177.78</td></tr><tr><td>AZ (MILS)</td><td><input type="text"/></td><td>88.89</td></tr><tr><td>RANGE (M)</td><td><input type="text" value="10005"/></td><td></td></tr></tbody></table> |               |                 |  | New Values | Current Values | ELEV (MILS) | <input type="text"/> | 177.78 | AZ (MILS) | <input type="text"/> | 88.89 | RANGE (M) | <input type="text" value="10005"/> |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | New Values                         | Current Values                          |                                                                                                                                                                                                                                                                                                                                         |               |                 |  |            |                |             |                      |        |           |                      |       |           |                                    |  |
| ELEV (MILS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="text"/>               | 177.78                                  |                                                                                                                                                                                                                                                                                                                                         |               |                 |  |            |                |             |                      |        |           |                      |       |           |                                    |  |
| AZ (MILS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="text"/>               | 88.89                                   |                                                                                                                                                                                                                                                                                                                                         |               |                 |  |            |                |             |                      |        |           |                      |       |           |                                    |  |
| RANGE (M)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="text" value="10005"/> |                                         |                                                                                                                                                                                                                                                                                                                                         |               |                 |  |            |                |             |                      |        |           |                      |       |           |                                    |  |
| <input type="button" value="AIM POINT"/>                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                    | <input type="button" value="PREVIOUS"/> | <input type="button" value="EXIT"/>                                                                                                                                                                                                                                                                                                     |               |                 |  |            |                |             |                      |        |           |                      |       |           |                                    |  |

Figure 31. ZERO 7.62 COAX TO AUX SIGHT & TAS procedure continued.

- (1) Ensure the AUX sight reticle is still aligned with the 7.62mm zero target. If necessary re-aim the sight.
- NOTE: The TAS reticle may not be on target.
- (2) Press AIM POINT using the softkey function on the CTD.
- (3) Center the TAS reticle on the center of round impact cluster by using the GHS or CHS.
- (4) Press CALCULATE using the softkey function on the CTD.
- (5) Press SAVE using the soft key function on the CTD.
- (6) Verify that the M240C coaxial machine gun is zeroed by using the TAS and firing a burst at the zero target.
6. Press EXIT using the softkey function on the CTD to exit the zeroing menu.
7. Press MAIN using the softkey function on the CTD to return to the main menu.

**Evaluation Preparation:** SETUP: Ensure the M240C coaxial machine gun is installed, the turret travel lock is engaged, and the turret power and drive switches are in the off position. Ensure all drive select levers are in the power mode and the ballistic sight covers are closed. Ensure the vehicle is parked on level ground with the engine running and the vehicle parking brake is engaged. Ensure the ammunition is loaded in the appropriate ready boxes.

BRIEF SOLDIER: Tell the soldier to zero the weapon systems so that the strike of the round and the point of aim are the same.

| Performance Measures                                       | GO    | NO GO |
|------------------------------------------------------------|-------|-------|
| 1. Prepared the M2A3/M3A3 BFV turret for zeroing.          | _____ | _____ |
| 2. Zeroed the TAS to the 25mm gun.                         | _____ | _____ |
| 3. Zeroed the AUX SIGHT to the 25mm gun.                   | _____ | _____ |
| 4. Zeroed the 7.62mm Coaxial Machine Gun to the AUX SIGHT. | _____ | _____ |
| 5. Zeroed the 7.62mm Coaxial Machine Gun to the TAS.       | _____ | _____ |
| 6. Selected EXIT by using the softkey function on the CTD. | _____ | _____ |

**Performance Measures**

**GO**      **NO GO**

7. Selected MAIN by using the softkey function on the CTD.

\_\_\_\_\_

8. Completed zeroing the weapon systems on the M2A3/M3A3 BFV.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

TM 9-2350-294-10-2-1

TM 9-2350-294-10-2-2

**Related**

TM 9-2350-294-10-1

## Engage Targets Using the Weapon Systems on an M2A3/M3A3 BFV

071-001-0006

**Conditions:** Given an M2A3/M3A3 BFV with a 25-mm automatic gun installed and loaded, an M240C coaxial machine gun installed and loaded, TOW system loaded, and targets identified within range.

**Standards:** Engaged targets with the weapon systems on the M2A3/M3A3 BFV in power mode and manual mode using the improved Bradley acquisition system (IBAS) in forward looking infrared (FLIR) mode and day-TV mode, with the direct view optics (DVO) sight, and with the auxiliary sight (backup sight) so that the targets were destroyed.

### Performance Steps

1. Engage targets with the 25-mm automatic gun.
  - a. Select armor-piercing (AP) by moving the ammo type toggle switch up to the AP position (Figure 1).

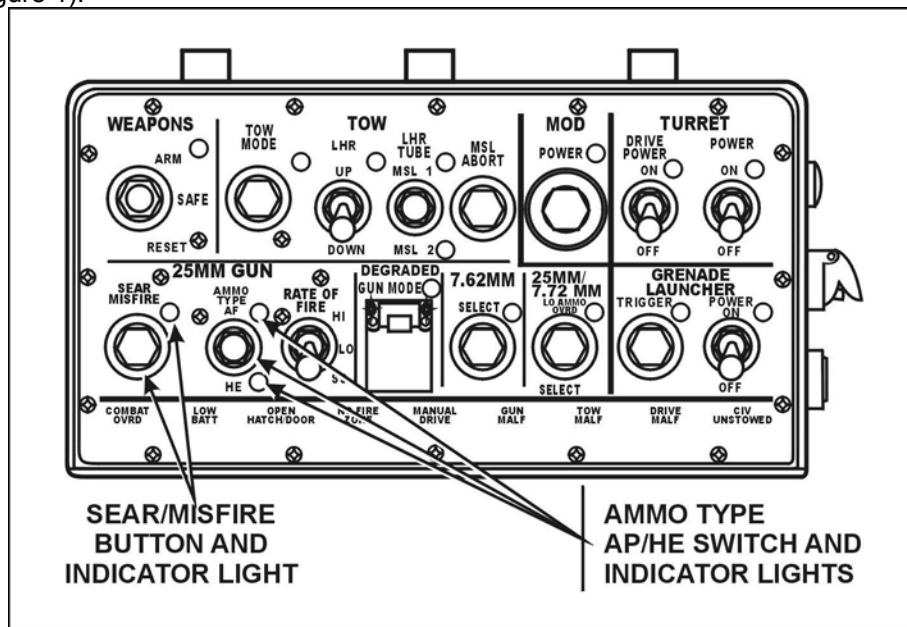


Figure 1. Ammo type and SEAR indicator.

- b. Select the desired rate of fire by moving the rate of fire toggle switch to either single shot (SS), low (LO), or high (HI). (HI rate is the preferred rate of fire.)
  - c. Ensure the SEAR indicator light is on.
  - d. Move the ARM-SAFE-RESET switch to ARM (Figure 2).

## Performance Steps

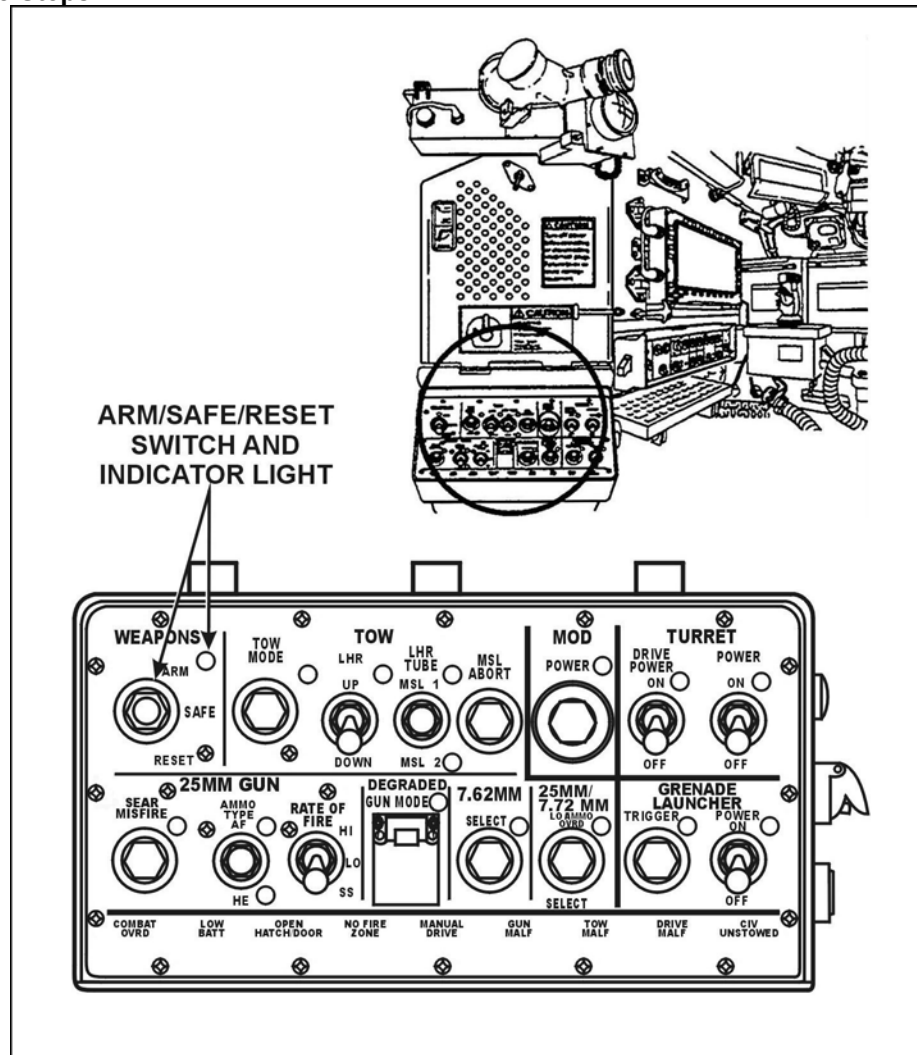


Figure 2. AMMO-SAFE-RESET switch.

- e. Squeeze and hold the palm switches on the gunner's hand station (GHS)(Figure 3).

## Performance Steps

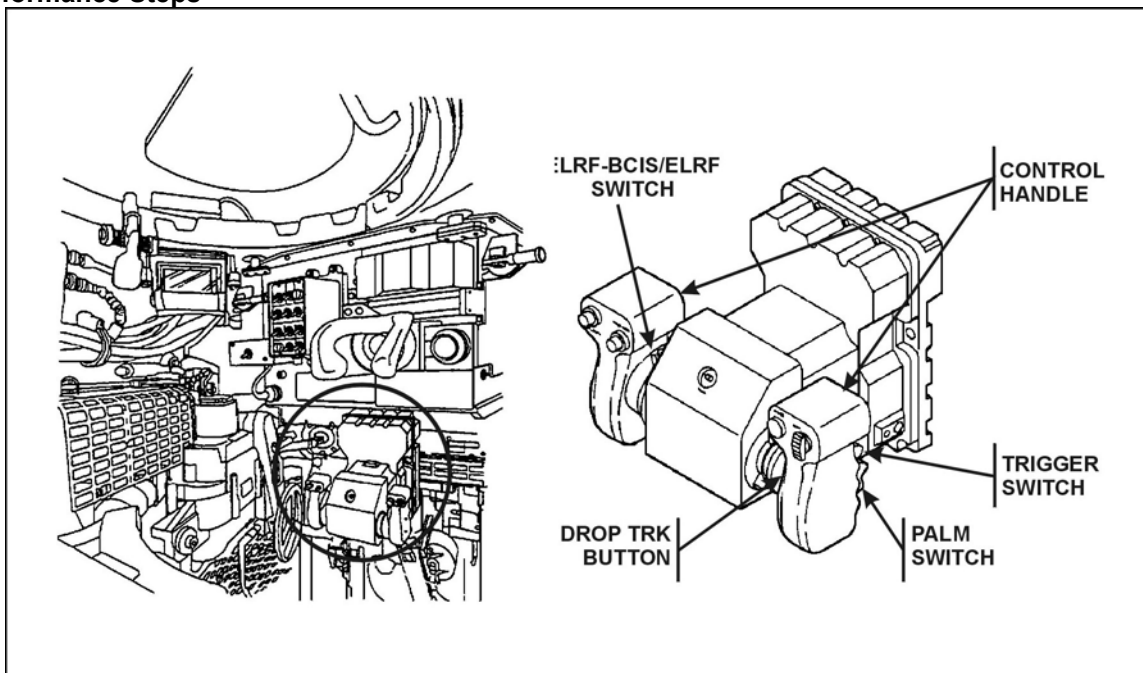


Figure 3. Gunners hand station.

- f. Acquire the target using the IBAS.
  - (1) Rotate the GHS left or right until the target is in the wide field of view (WFOV) low magnification (LO MAG).
  - (2) Rotate the GHS forward or backward until the target is in the WFOV LO MAG.
  - (3) Repeat steps (1) and (2) until the reticle is centered on the target.
- g. Gunner announces "IDENTIFIED."
- h. Select high magnification (HI MAG, narrow field of view (NFOV))(Figure 4).

## Performance Steps

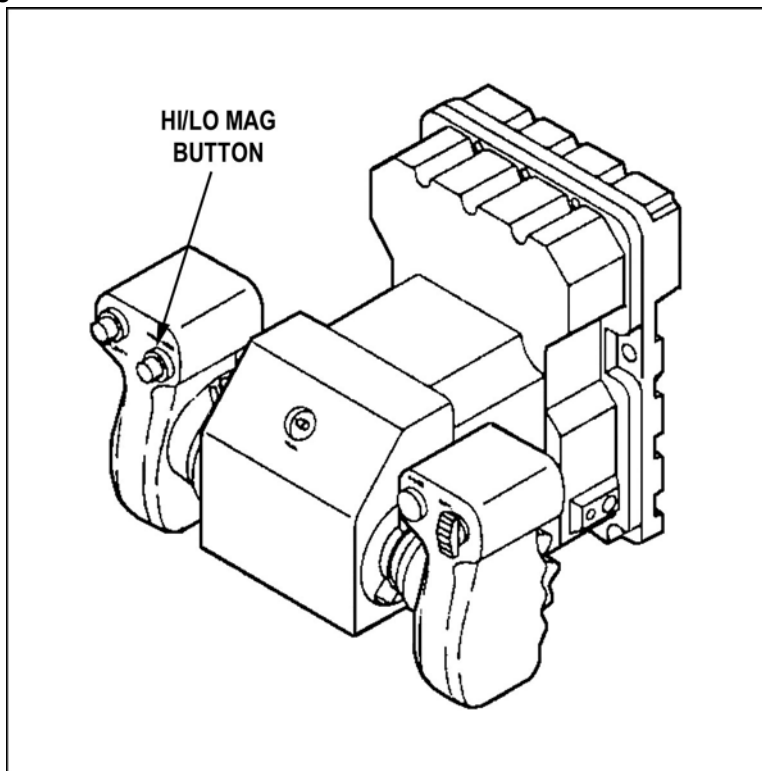


Figure 4. HI/LO MAG button.

- (1) Press and release the HI/LO MAG button located on the GHS.
  - (2) Observe that the sight picture has changed to the NFOV.
  - i. Acquire the range to the target (refer to Figure 3).
    - (1) Push forward or pull backward on the Battlefield Combat Identification System (BCIS)/Eyesafe Laser Range Finder (ELRF) to lase the target.
    - (2) Check for multiple returns.
      - (a) If multiple returns exist, re-center reticle on target and re-lase target.
      - (b) If no multiple returns exist, continue to next step.
    - (3) Manually index the range to the target if the ELRF is not functioning.
      - (a) Estimate the range to the target.
      - (b) Rotate the manual range knob to the desired range.
      - (c) Observe the sight to ensure the proper range has been displayed.
  - j. Commander issues the proper fire command.
- NOTE: The gunner can not fire until the commander issues the command "FIRE."
- k. Gunner announces "ON THE WAY."
  - l. Fire at the target by squeezing the trigger switches on the GHS. Fire a sensing burst (one to two rounds at a time).
  - m. Sense the round impact.
- NOTE: When the ammunition change is made, the first round fired is the same as the previous round. However, automatic elevation correction for the range is set for the new ammunition selection. If one high explosive (HE) round is fired using the AP superelevation correction, the round will fall short of the target. If one AP round is fired using the HE superelevation correction, the round will fall past the target.
- (1) If the sensing round impacts the target the commander announces "TARGET." The gunner maintains the same sight picture and fire killing bursts (three to five rounds).
  - (2) If the sensing rounds do not impact the target, the commander announces "RE-LASE." The gunner recenters the reticle on target, presses the BCIS/ELRF-ELRF switch again, and fires another sensing burst.
- n. Commander announces "CEASE FIRE" once the target has been destroyed.



**Performance Steps**

- o. If the gun fails to fire, perform misfire procedures.
- p. If the LO AMMO OVRD indicator light flashes on the system control box (SCB), either push the LO AMMO OVRD button and continue to fire or stop firing and reload (Figure 5).

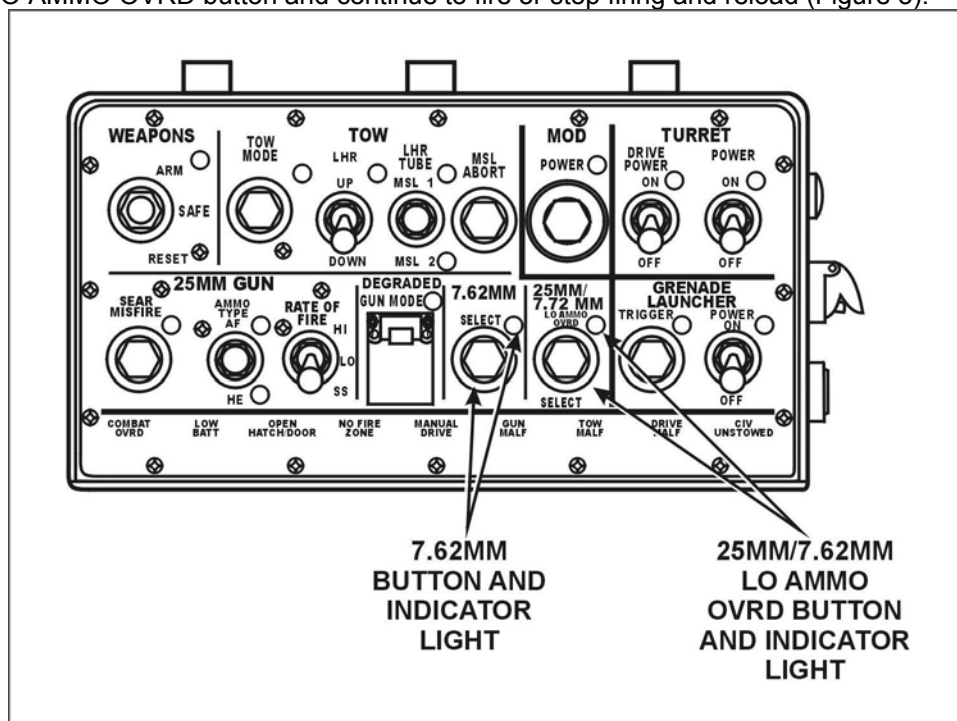


Figure 5. LO AMMO OVRD button.

- q. If the targets have been destroyed, move the ARM-SAFE-RESET switch to RESET, then to SAFE.
- r. Press the HI/LO MAG button once to change the magnification to low.
- s. Continue to scan for targets. If the threat has been removed, release the palm switches.

**2. Engage targets with the M240C coaxial machine gun.**

- a. Select 7.62-mm by pressing the 7.62-mm button (refer to Figure 5).
- b. Move the ARM-SAFE-RESET switch to ARM.
- c. Squeeze and hold the palm switches on the GHS.
- d. Acquire the target using the IBAS.
- e. Gunner announces "IDENTIFIED."
- f. Select NFOV (HI MAG).
- g. Acquire the range to the target.
- h. Commander issues the proper fire command.
- i. Gunner announces "ON THE WAY."
- j. Fire at the target by squeezing the trigger switches on the GHS. Fire a sensing burst (five to seven rounds at a time).
- k. Sense the round impact.
  - (1) If the sensing rounds impact the target the commander announces "TARGET." The gunner will maintain the same sight picture and fire killing bursts (20 to 25 round bursts onto the target area in a Z-pattern from the near to the far edge of the target until the target is destroyed or suppressed).
  - (2) If the sensing rounds do not impact the target the commander announces "RE-LASE." The gunner recenters the reticle on target and presses the BCIS/ELRF-ELRF switch again and fires another sensing burst.
- l. Commander announces "CEASE FIRE" once the target has been destroyed or suppressed.
- m. If the M240C coaxial machine gun fails to fire, perform misfire procedures.

### Performance Steps

- n. If the LO AMMO OVRD indicator light flashes on the SCB, either push the LO AMMO OVRD button and continue to fire or stop firing and reload.
- o. If the targets have been destroyed, move the ARM-SAFE-RESET switch to RESET and then to SAFE.
- p. Press the HI/LO MAG button once to change the magnification to low.
- q. Continue to scan for targets. If the threat has been removed, release the palm switches.

3. Engage targets with the TOW missile.

### WARNINGS

- 1. The TOW backblast may cause injury or death. All vehicle personnel must be inside the vehicle with the hatches closed when the TOW is fired. Dismounted personnel should be at least 75 meters away from the TOW blast area.
- 2. A TOW or TOW wire touching a high-tension wire may cause injury or death. Do NOT fire the TOW over high-tension wires.
- 3. Firing TOW missile through bushes and trees or over bodies of water can cause premature explosion or loss of missile control. Do NOT fire TOW missile through bushes and trees or over bodies of water.
- 4. TOW missiles are guided to target by aligning with gunner's day or night sight reticle. If day and night sights are blocked, missile cannot be tracked or controlled. Soldiers could be killed or injured and equipment damaged. Make sure day and night sights are clear before firing TOW missile.
  - a. Acquire the target using the IBAS (Figure 6).

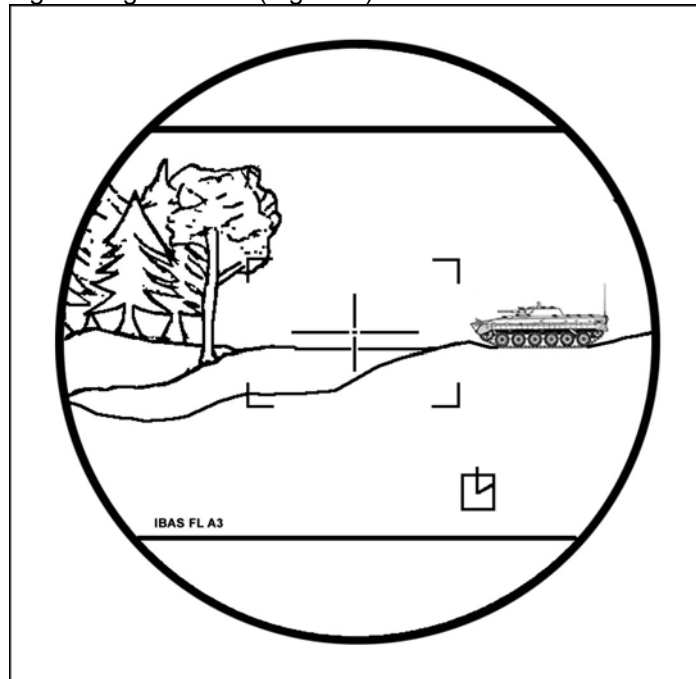


Figure 6. Acquire target.

- b. Raise the TOW launcher.
  - (1) Move the Launcher UP/DOWN switch to the UP position (Figure 7).

## Performance Steps

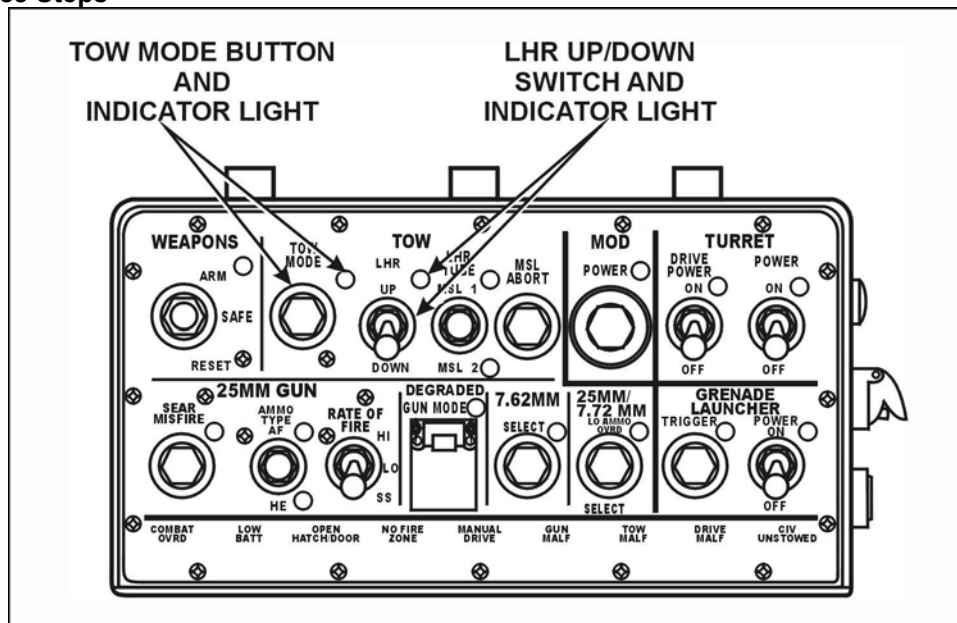


Figure 7. LHR UP/DOWN switch.

- (2) Squeeze and hold the GHS palm switch until the Launcher UP indicator light is lit.
- c. Check the inclinometer to ensure that the vehicle has less than 10 degrees side-slope. If the vehicle has more than 10 degrees side-slope then instruct the driver to move the vehicle to level ground (Figure 8).

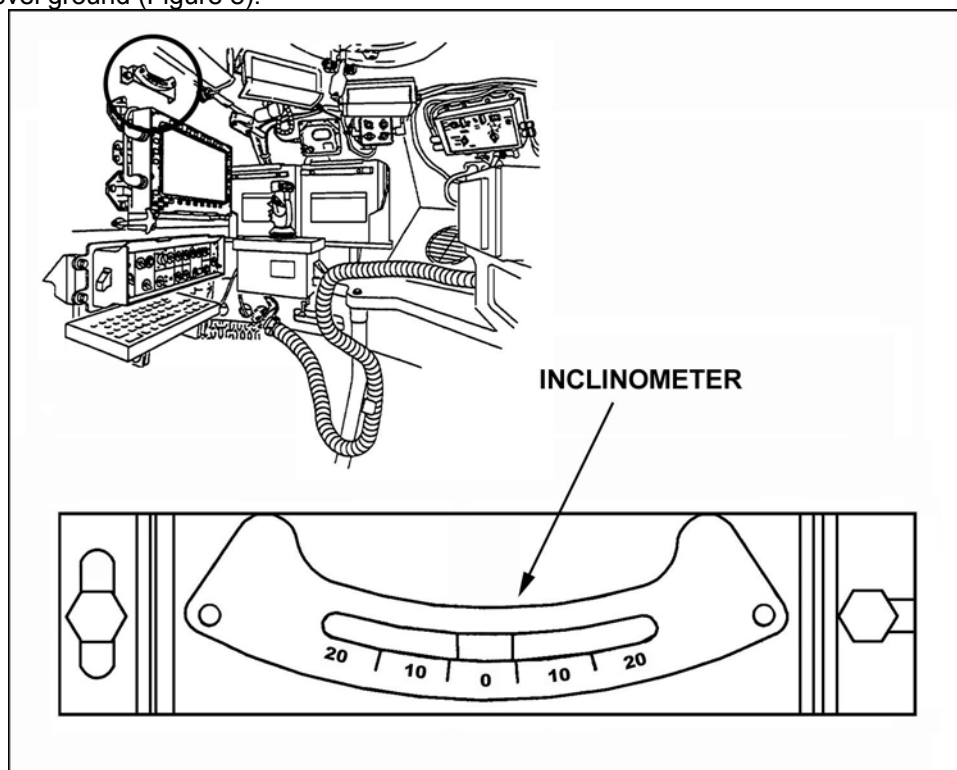


Figure 8. Inclinometer.

NOTE: Firing TOW missiles from a vehicle tilted to one side can cause the TOW missiles to miss the

**Performance Steps**

target. Do not fire a TOW missile when the inclinometer indicates side-slope is greater than 10 degrees.

- d. Press and release the TOW mode button located on the SCB (Figure 9).

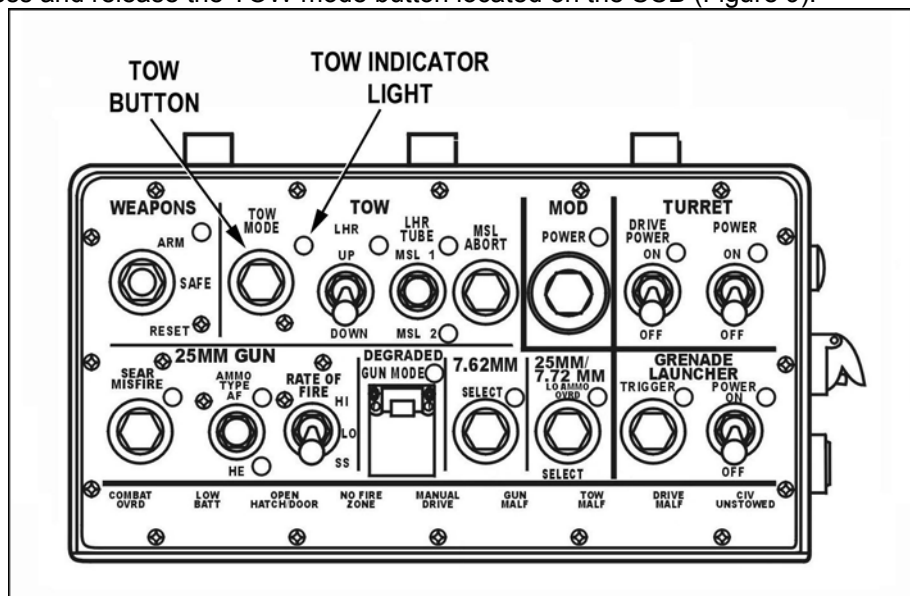


Figure 9. TOW button and indicator light.

- (1) Ensure the TOW indicator light comes on and stays on. If it does not, notify unit maintenance.
- (2) Check that the TOW icon appears in the weapons selected field of the IBAS sight.

**NOTES:**

1. Missile can be selected in HI-MAG (NFOV) or LO-MAG (WFOV). However, TOW missile cannot be armed or target engaged (fired) until HI-MAG (NFOV) is selected.

2. When the Target Acquisition System (TAS) is autotracking (Track (TRK) 1/TRK2 displayed on reticle), the field of view cannot be changed. The DROP TRK button on the GHS must be pressed once for each track box that is being used in order to stop autotracking. After the field of view is changed, autotracking may be started again.

- e. Press and release the HI/LO MAG button on the GHS to toggle the sight to HI-MAG (NFOV).
- f. Check that the OPEN HATCH/DOOR, NO FIRE ZONE, and or TOW MALF annunciator lights are off (Figure 10).

## Performance Steps

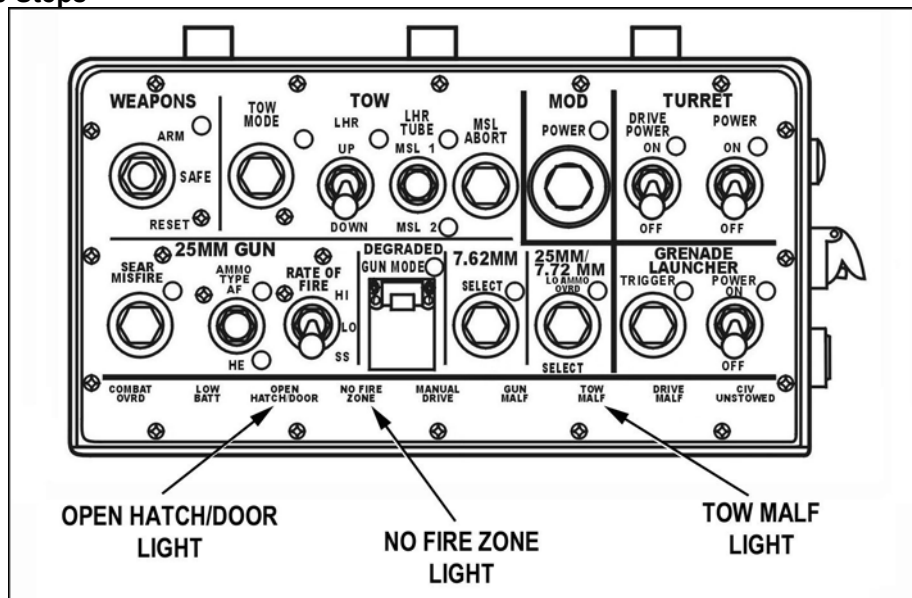


Figure 10. Annunciator lights.

- (1) If the OPEN HATCH/DOOR annunciator light is on ensure the driver's hatch cover, cargo hatch cover, and turret shield door are fully closed and locked in place. If all hatch covers are closed and the OPEN HATCH/DOOR annunciator light remains on, move the ARM-SAFE-RESET switch to RESET, then to SAFE, and notify unit maintenance.
  - (2) If NO FIRE ZONE annunciator light is on, check the cargo hatch cover to ensure it is closed. If it is closed and the NO FIRE ZONE annunciator light remains on, move the ARM-SAFE-RESET switch to RESET, then to SAFE, and notify unit maintenance.
  - (3) If TOW MALF annunciator light is on, move the ARM-SAFE-RESET switch to RESET, then to SAFE, and notify unit maintenance.
- g. Momentarily move the missile (MSL) selection switch to MSL 1 or MSL 2 (Figure 11).

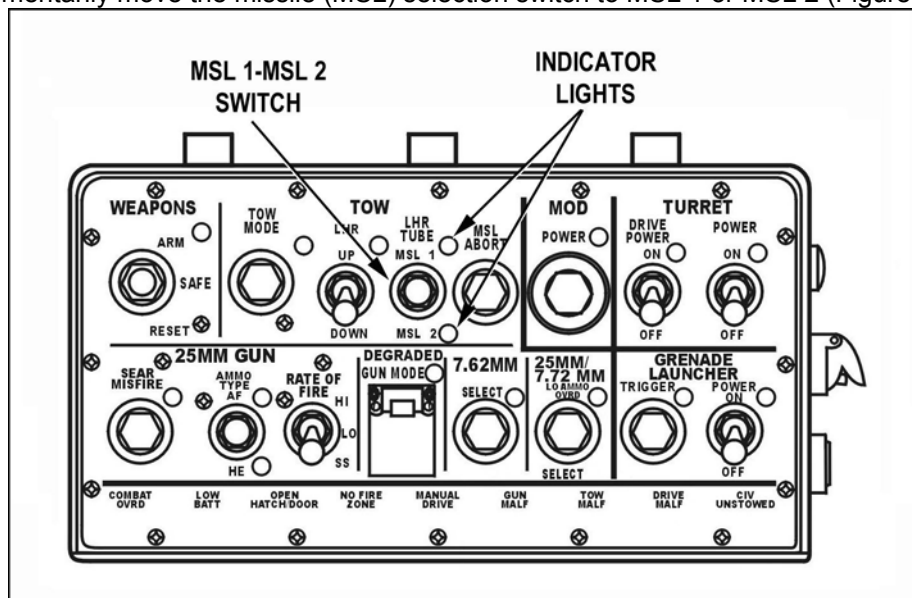


Figure 11. LHR TUBE switch.

- (1) If MSL 1 or MSL 2 indicator light flashes, then MSL 1 or MSL 2 is empty. Load the empty TOW missile tubes.

### Performance Steps

- (2) If TOW 2A or TOW 2B appears in the weapons selected field of the TAS reticle, a TOW 2 missile is in the missile tube being selected (Figure 12).

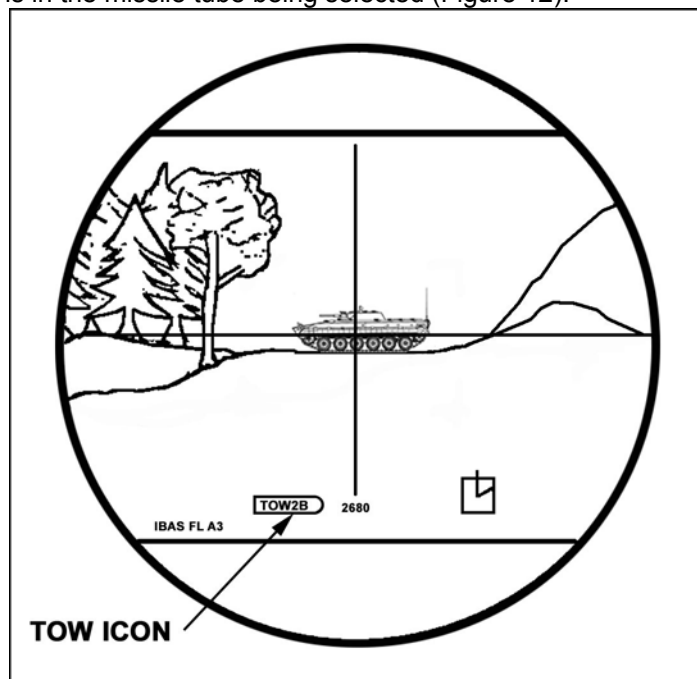


Figure 12. TOW icon.

NOTE: If TAS is autotracking the target, autopoint may be used to move the reticle onto the track box, but autopoint fine adjustment cannot be used. When missile fires, the target point of impact must be tracked with the GHS or commander's hand station (CHS).

- h. Center reticle on target.
  - (1) Rotate the GHS left or right and forward or backward until the target is in the center of the TOW reticle.
  - (2) Repeat step (1) as needed to center the reticle on target.
- i. Estimate target exposure time if target is moving.
  - (1) With the reticle centered on target, look for any obstacles the moving target can hide behind before the missile impact.
  - (2) If there are any obstacles between the reticle centerline and the edge of the field of view, the target may reach the obstacle before the missile reaches the target. If this is the case, do NOT fire the missile. Select another target, hand off the target to another crew, or have the driver move the vehicle so the path to the target is clear.
- j. Move the ARM-SAFE-RESET switch to ARM.
- k. Fire the TOW missile.

### NOTES:

1. When the trigger is squeezed, there will be a delay of approximately 1.5 seconds before the missile is launched.
2. The palm switch must be squeezed and held to allow power operation of the turret while tracking the target. Target may be tracked using the handwheel if power operation is low.
  - (1) Squeeze and hold palm switch on the GHS.
  - (2) Squeeze and release the trigger switch on the GHS.
  - (3) If the TOW missile does not launch in 5 seconds, squeeze and release the trigger switch again.
  - (4) When TOW missile launches, continue to squeeze palm switch on the GHS.
- l. Abort TOW missile (Figure 13).

## Performance Steps

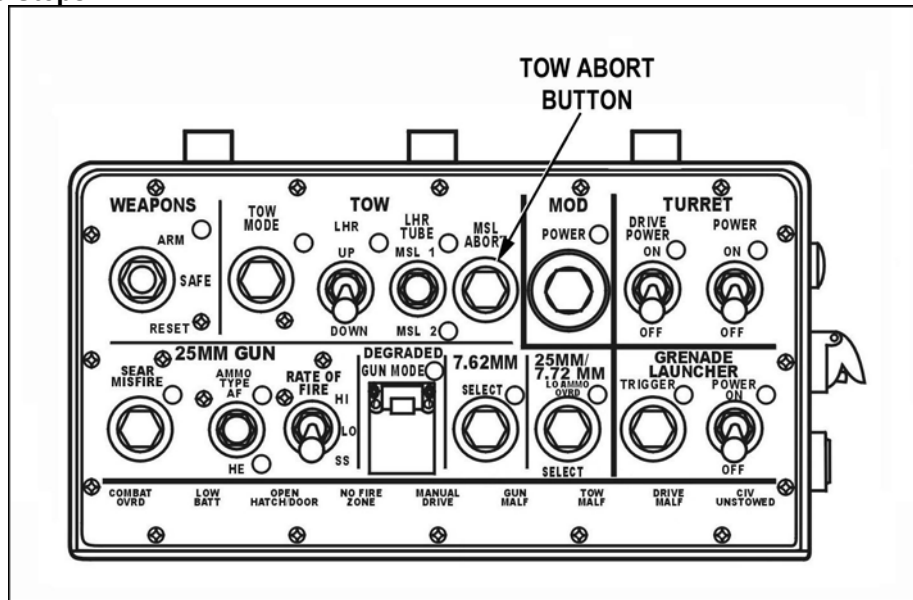


Figure 13. TOW ABORT button.

- (1) If TOW missile flight path is safe, press the MSL ABORT button on the SCB.
  - (2) If TOW missile flight path is NOT safe, guide the TOW missile to a safe area with the GHS until the missile either impacts or the missile flight path is safe to abort.
  - m. Release palm switch when the missile impacts on target or missile is aborted.
  - n. Deselect the missile to cut the TOW missile wire from the launcher.
- NOTE: Separation of missile control wire from the launcher does not automatically occur on missile detonation. Wire cut is normally accomplished by deselecting the missile;
- Press HI/LO MAG button to toggle the sight to LO MAG.
- Press the MSL ABORT button on the SCB.
- Move MSL 1-MSL 2 switch to select the missile again.
- Move MSL 1-MSL 2 switch to select the second missile.
- Move the ARM-SAFE-RESET switch to RESET (complete deselect of TOW).
- Select another weapon.
- o. If the targets have been destroyed, move the ARM-SAFE-RESET switch to RESET, then to SAFE.
  - p. Press the HI/LO MAG button once to change the magnification to low.
  - q. Continue to scan for targets. If the threat has been removed then release the palm switches.

## 4. Engage targets using the autotrack-autopoint functions.

### NOTES:

1. The gunner uses the tracking controls on the GHS. In commander override mode, the commander uses the tracking controls on the commander's sight control panel (CSCP). If the GHS tracking controls are inoperative, the gunner may use the tracking controls on the CSCP.
2. Autotracking is only done by the TAS FLIR even when day TV is selected. Make sure the night sight shield door is open when autotracking is being used.
  - a. Center the reticle crosshairs on target.
    - (1) Rotate the GHS left or right and forward or backward until the target is in the center of the reticle.
    - (2) Repeat step (1) as needed to center the reticle on target.
  - b. Establish a track gate around a target (Figure 14).

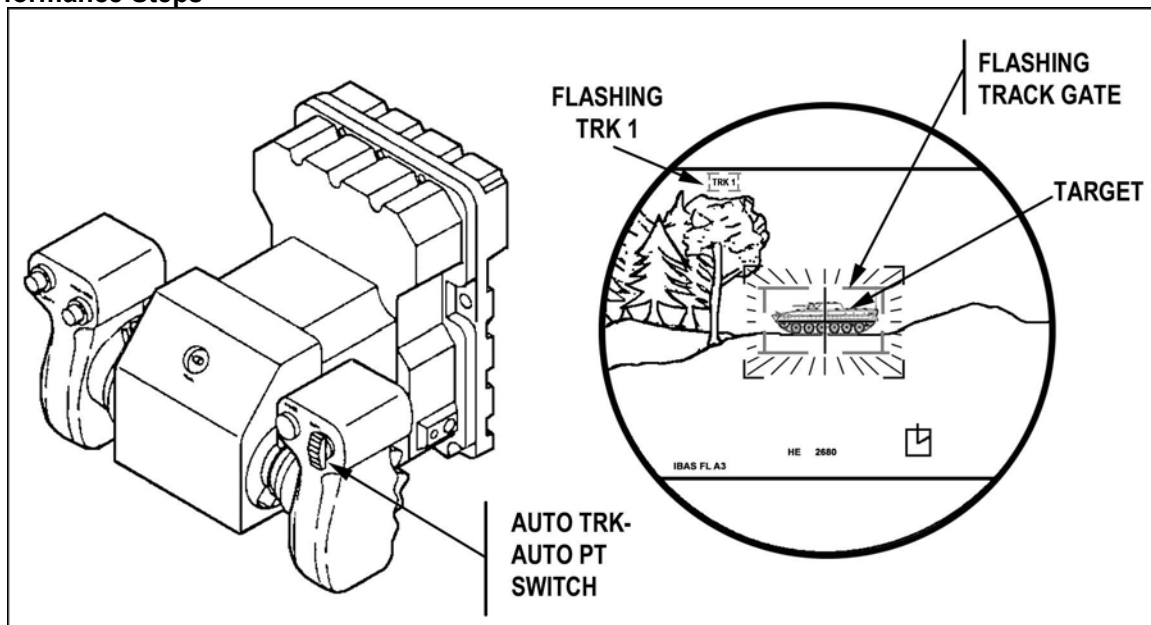
**Performance Steps**

Figure 14. AUTO TRK\_AUTO PT switch.

NOTE: To lock onto the target, the track gate must be sized to match the target as closely as possible. The track gate will initially appear sized correctly for a tank 1500 meters away, unless within the last two minutes.

-- A previous target has been tracked. In that case the gate will appear the same size as the previous gate.

-- A target has been lased or the range has been entered manually. In that case, the gate will appear sized for a tank at the set range.

- (1) Momentarily move the AUTO TRK-AUTO PT switch to AUTO-TRK.
- (2) Observe the flashing track box around the target and the flashing TRK 1 symbol in the upper left corner of the display.
- c. Adjust the track gate to the size of the target.
  - (1) Move the gate-size (G-SIZE) switch up to move the horizontal lines apart or down to move the horizontal lines together (Figure 15).



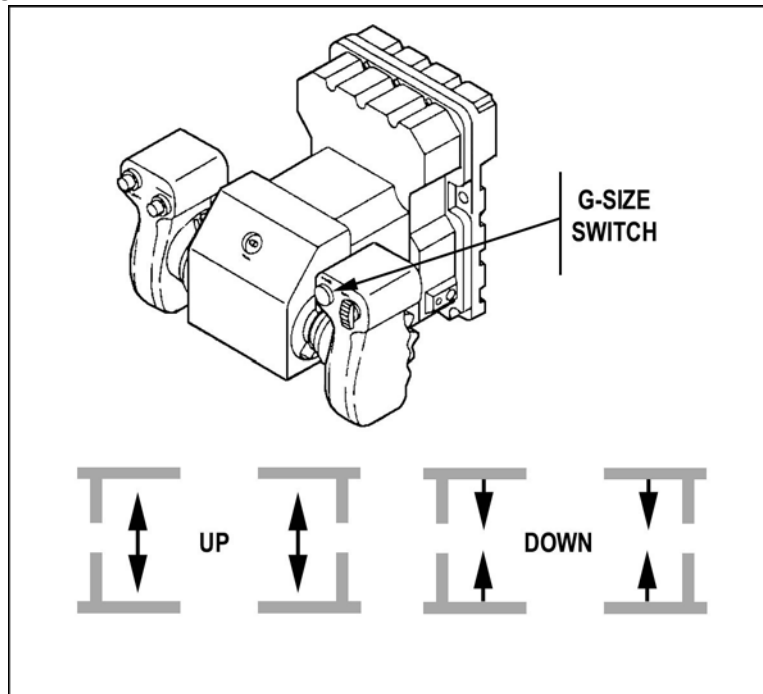
**Performance Steps**

Figure 15. G-SIZE UP/DOWN switch.

- (2) Move the G-SIZE switch right to move the vertical lines apart or left to move the vertical lines together (Figure 16).

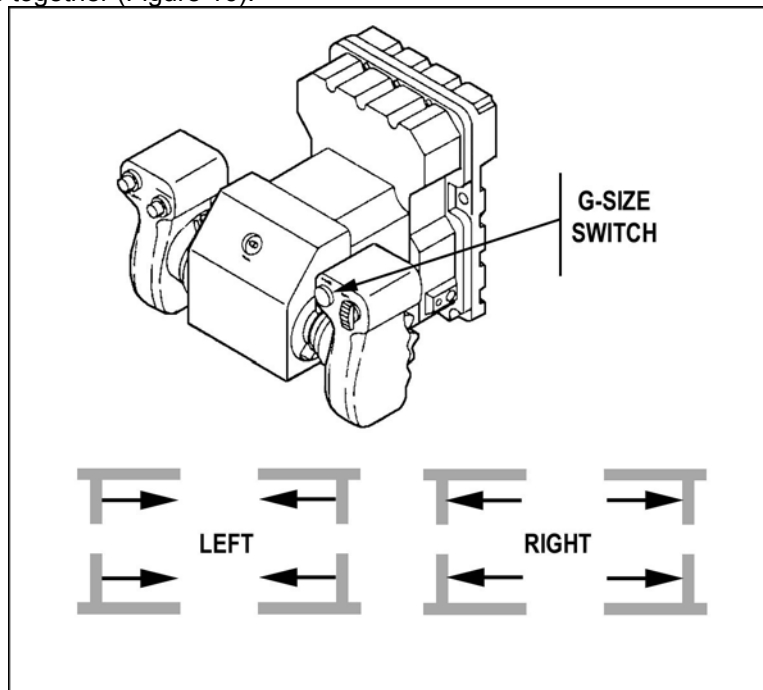


Figure 16. G-SIZE LEFT/RIGHT switch.

- d. Lock the track gate onto the target.
- (1) Momentarily move the AUTO TRK-AUTO PT switch to AUTO TRK.
  - (2) Observe that the track box and TRK 1 symbol stop flashing and appear solid and the track box follows the target as long as the target stays within the field of view (Figure 17).

## Performance Steps

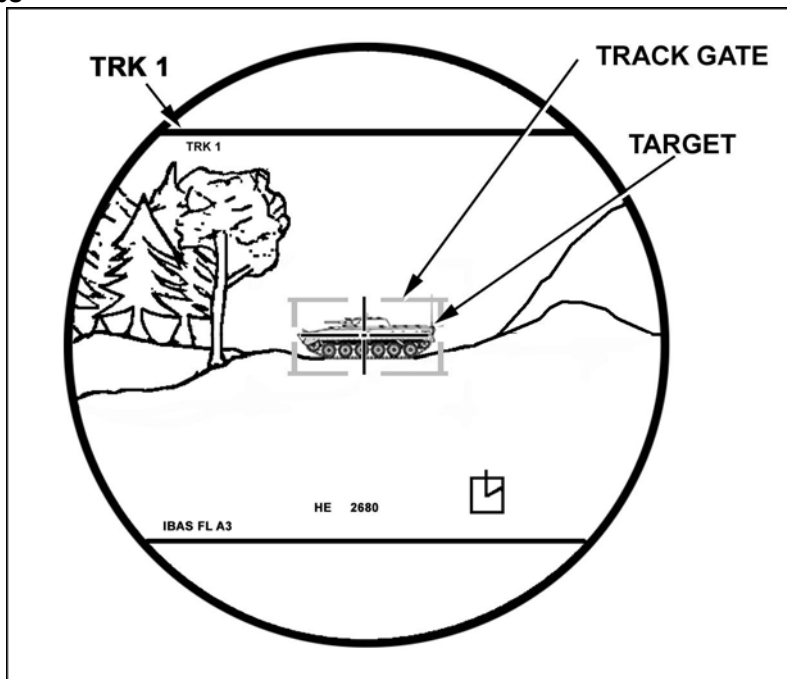


Figure 17. TRACK GATE.

- (3) If the track box and TRK 1 symbol continue to flash, repeat step c to size the gate smaller or larger as needed. Then move the AUTO TRK-AUTO PT switch to AUTO TRK again.
- e. Track a second target (repeat steps a - d.)
- f. Autopoint a tracked target.

NOTE: The autopoint function will move the reticle crosshairs to the closest track box. The closest track box does not mean the closest target but the box that is the closest to the reticle crosshairs.

- (1) Squeeze and hold the palm switch on the GHS.
- (2) Move and hold down on the AUTO TRK-AUTO PT switch to AUTO PT until the crosshairs are in the center of the track box.
- g. Engage a tracked target.
  - (1) Select and arm the desired weapon system.
  - (2) Squeeze and hold the palm switch.
  - (3) Traverse the turret and or elevate or depress the gun as needed to center the reticle crosshairs on target.
  - (4) Squeeze the trigger switch.
  - (5) When target is destroyed release the palm switch and trigger switch.
- h. Drop the track box (Figure 18).

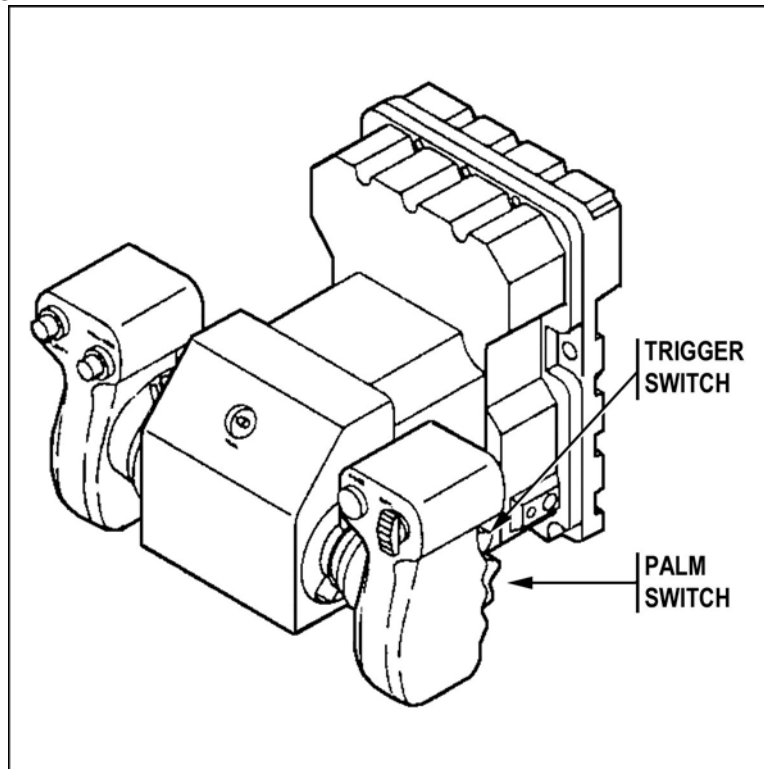
**Performance Steps**

Figure 18. DROP TRK button.

- (1) Press and release the DROP TRK button.
- (2) Observe that the track box closest to the crosshairs will disappear.
- (3) Press and release the DROP TRK button again to drop the second track box.

5. Engage targets in degrade gun mode.

**NOTES:**

1. The degraded gun mode is only used when there is a data bus failure with the GHS still operational. If the commander's tactical display (CTD) is still operational, then power track mode should be used. If the GHS malfunctions, then manual mode must be used.

2. In degraded gun mode, only the 25-mm gun at HI rate of fire can be used. Ammo selection and gun fan control must be done manually. TOW cannot be used since it requires an operational TAS. The M240C coaxial machine gun can only be fired using manual mode.

- a. Lift the red guard and momentarily press the DEGRADED GUN button (Figure 19).

## Performance Steps

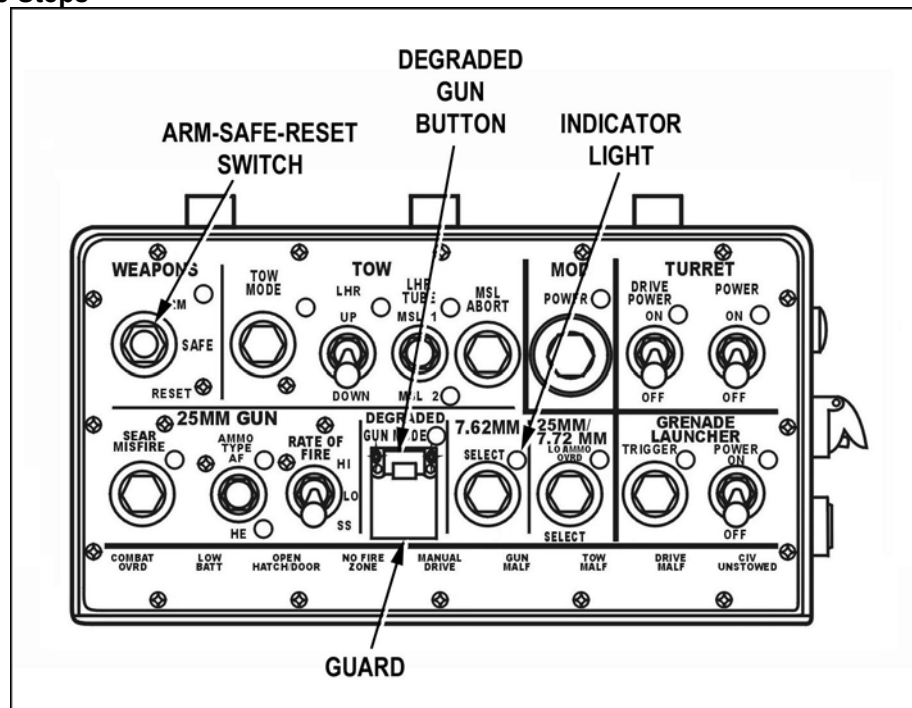


Figure 19. DEGRADED GUN button.

- (1) Check that the DEGRADED GUN indicator light is flashing.
  - (2) If the DEGRADED GUN indicator light is on steady, move the ARM-SAFE-RESET switch to RESET, and release it back to SAFE.
  - (3) If DEGRADED GUN indicator light is not flashing, use manual mode.
- b. If needed, change the ammo selection (Figure 20).

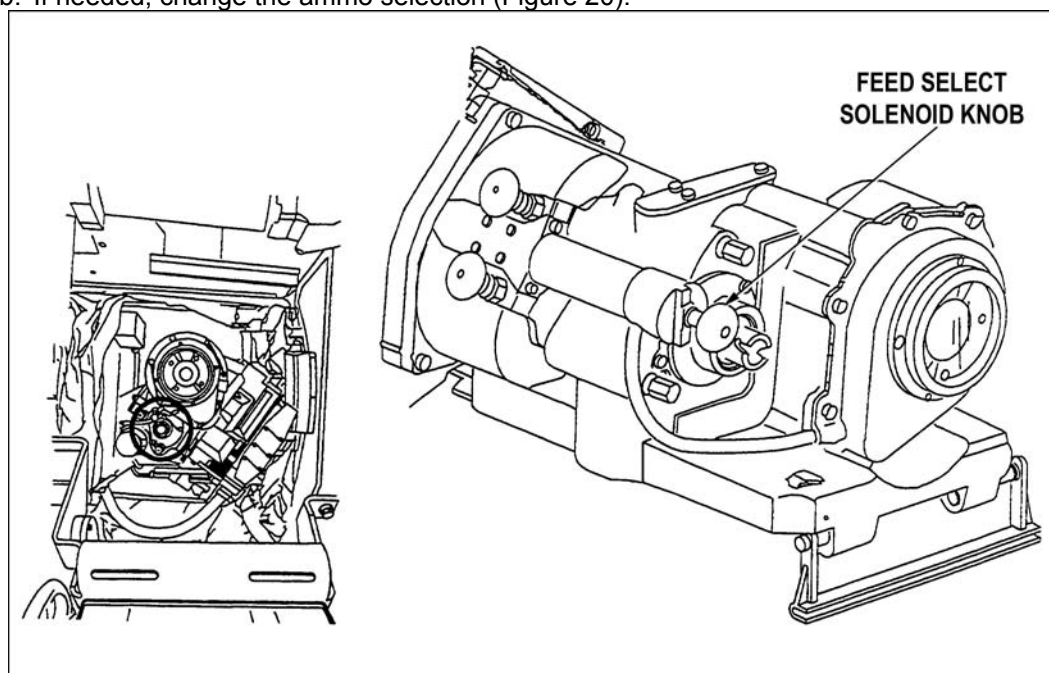


Figure 20. Feed select solenoid knob.

NOTE: Degraded gun mode does not control ammo selection so the last ammo selected (electrically or

**Performance Steps**

manually) will remain selected until it is manually changed.

- (1) Remove the 25-mm gun guard and open the gun cover.
  - (2) Push in feed select solenoid knob to select AP ammo or pull out knob to select HE ammo.
  - (3) Close the gun cover and install 25-mm gun guard.
- c. Momentarily press the gun fan button (Figure 21).

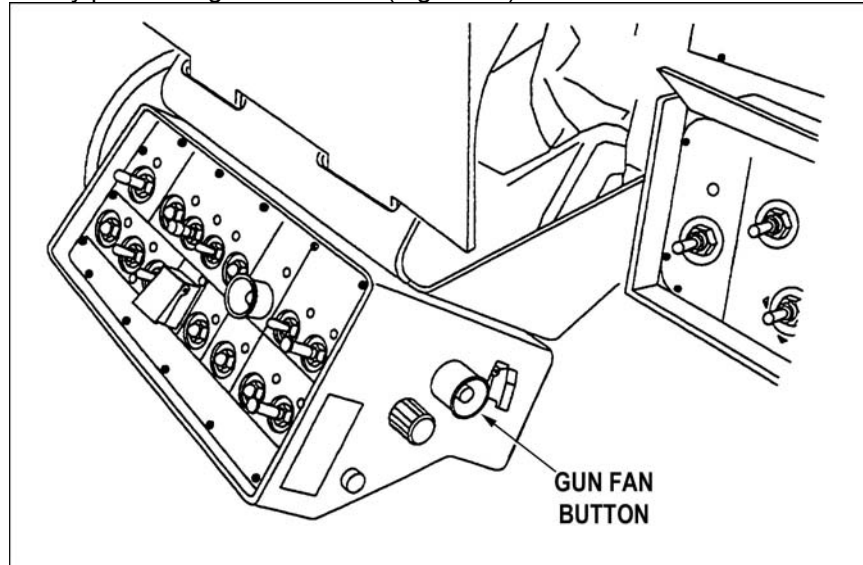


Figure 21. Gun fan button.

- d. Use auxiliary sight (backup sight) to acquire targets.
- (1) Traverse the turret and or elevate or depress the gun as needed to center the reticle crosshairs on target.
  - (2) Place the target within the appropriate ammunition stadia line and estimate the range to the target.
- e. Move the ARM-SAFE-RESET switch to ARM.
- (1) Check that the DEGRADED GUN indicator light stops flashing and comes on steady.
  - (2) If the DEGRADED GUN indicator light is on steady use manual mode, go to Troubleshooting for 25-mm Gun.
- f. Fire 25-mm gun at target.
- (1) Squeeze and hold palm switch, then squeeze and release trigger switch.
  - (2) If gun does not stop firing when trigger switch is released (runaway gun), refer to the referenced TM.
- g. To end firing, move ARM-SAFE-RESET switch to RESET, then to SAFE.
- h. After 60 seconds, momentarily press gun fan button to stop fan.
- i. To exit DEGRADED GUN MODE, cycle turret power and drive switches (Figure 22).

## Performance Steps

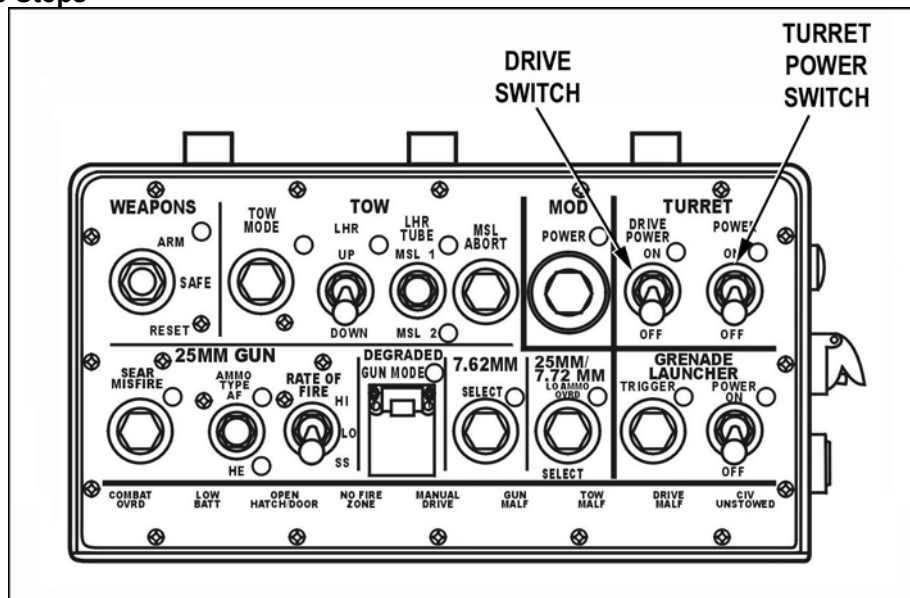


Figure 22. TURRET POWER and DRIVE switch.

## 6. Engage target in gun power track mode.

NOTE: The GUN POWER TRACK MODE operates the same as the DEGRADED GUN mode.

- a. On the CTD select SETUP, then FIRE CONTROL, and then FIRE CNTL MODE.
- b. On the FIRE CNTL MODE screen press POWER TRACK softkey (Figure 23).

|                                                                                                                                |                 |                                                 |                |                      |                |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                                                       | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;">STOW CIV BEFORE SELECTING POWER TRACK</div> |                 |                                                 |                |                      |                |
| INDEP<br>SEARCH                                                                                                                |                 | POWER<br>TRACK                                  |                |                      | EXIT           |

Figure 23. POWER TRACK softkey.

- c. To engage targets, use the backup sight to range-in target.
- d. Select 25-mm or COAX gun.
- e. Move the ARM-SAFE-RESET switch to ARM.
- f. Squeeze and hold palm switch and squeeze and release trigger switch.
- g. To deselect POWER TRACK mode, press INDEP SEARCH softkey on the FIRE CNTL MODE screen (Figure 24).

Performance Steps

|                                                  |                 |                                                 |                |                      |                |
|--------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                         | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <div>STOW CIV BEFORE SELECTING POWER TRACK</div> |                 |                                                 |                |                      |                |
| INDEP<br>SEARCH                                  |                 | POWER<br>TRACK                                  |                |                      | EXIT           |

Figure 24. INDEP SEARCH softkey.

**Evaluation Preparation:** **SETUP:** Provide the soldier with a fully functional M2A3/M3A3 BFV with all weapon systems installed and loaded. Provide the soldier with 50 rounds of 25-mm ammunition, 500 rounds of 7.62-mm ammunition, and two TOW missiles. Also provide the soldier targets at the following ranges on a live-fire range complex or applicable subcaliber range:

- One BMP-size target between 250 and 500 meters.
- Two BMP-size targets between 500 and 1000 meters.
- One BMP-size target between 1000 and 1500 meters.
- One BMP-size target between 1500 and 2000 meters.
- Five E-type targets between 50 and 150 meters.
- Five E-type targets between 150 and 250 meters.
- Ten E-type targets between 250 and 400 meters.
- Ten E-type targets between 400 and 600 meters.
- Ten E-type targets between 600 and 900 meters.
- One T-72/T-80-size target between 1000 and 1500 meters.
- One T-72/T-80-size target between 2000 and 3000 meters.

**BRIEF SOLDIER:** Tell the soldier to successfully engage all BMP targets using the IBAS and achieve kills (three to five rounds hitting the target) on at least three of five targets. Successfully engage all E-type targets using the IBAS and achieve target kills on the two sets of five targets by killing two of the five targets and achieve suppression on the three sets of ten targets by killing one of the ten targets and cover at least 90% of the target area. Also inform the soldier to successfully engage and destroy the two tank targets.

| Performance Measures                                        | GO | NO GO |
|-------------------------------------------------------------|----|-------|
| 1. Engaged targets using the 25-mm automatic gun.           | —  | —     |
| 2. Engaged targets using the M240C coaxial machine gun.     | —  | —     |
| 3. Engaged targets using the TOW missile.                   | —  | —     |
| 4. Engaged targets using the autotrack-autopoint functions. | —  | —     |

**Performance Measures**

5. Engaged targets in degraded gun mode.
6. Engaged targets in gun power track mode.

**GO**      **NO GO**

\_\_\_\_      \_\_\_\_

\_\_\_\_      \_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 23-1  
TM 9-2350-294-10-1



**Maintain the Turret on a BFV**  
**071-216-0009**

**Conditions:** Given a BFV with basic issue items, TM 9-2350-252-10-2, DA Form 2404, DA Pam 738-750, a pencil, and a helper.

**Standards:** Performed scheduled or other required maintenance on the BFV turret in accordance with procedures described in TM 9-2350-252-10-2. Recorded any uncorrectable deficiencies on DA Form 2404 in accordance with procedures described in DA Pam 738-750 and reported them to the chain of command.

**Performance Steps**

NOTE: The maintenance of the weapon systems on the BFV is covered in separate tasks; however, maintenance of these systems should be performed as part of maintaining the turret in order to not detract from the following maintenance steps as described in TM 9-2350-252-10-2.

1. Inspect the turret following the procedures described in TM 9-2350-252-10-2.
2. Pay careful attention to removing spent casings (25-mm and 7.62-mm) from between the hull and the turret. Casings not removed may become caught underneath the turret slowing the turret's rate of traverse.
3. Correct all shortcomings and deficiencies within the scope of the operator's capabilities.
4. Clean and lubricate the turret where and when required following the schedule and procedures described in TM 9-2350-252-10-2.
5. Record any uncorrected shortcomings and deficiencies on DA Form 2404 in accordance with the procedures outlined in DA Pam 738-750.
6. Report any uncorrected shortcomings and deficiencies to the chain of command.

**Evaluation Preparation:** SETUP: Provide the soldier with all the material and equipment in the task condition statement.

BRIEF SOLDIER: Tell the soldier to perform a maintenance check on the turret in accordance with the procedures outlined in TM 2350-242-10-2 and annotate all uncorrectable faults on DA Form 2404 in accordance with DA Pam 738-750.

| <b>Performance Measures</b>            | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|----------------------------------------|------------------|---------------------|
| 1. Performed before-operations checks. | _____            | _____               |
| 2. Performed during-operations checks. | _____            | _____               |
| 3. Performed after-operations checks.  | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

DA FORM 2404  
DA PAM 738-750  
TM 9-2350-252-10-2

**Related**

**Maintain the Turret on an M2A3/M3A3 BFV**  
**071-216-0025**

**Conditions:** Given an M2A3/M3A3 BFV with basic issue items, TM 9-2350-294-10-2-1, TM 9-2350-294-10-2-2 DA Form 2404, DA Pam 738-750, a pencil, and a helper.

**Standards:** Performed scheduled or otherwise required maintenance on the M2A3/M3A3 BFV's turret in accordance with procedures described in TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2. Recorded any uncorrectable deficiencies on DA Form 2404 in accordance with procedures described in DA Pam 738-750 and reported them to the chain of command.

**Performance Steps**

NOTE: The maintenance of the weapon systems on the BFV is covered in separate tasks; however, maintenance of these systems should be performed as part of maintaining the turret in order to not detract from the following maintenance steps as described in TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2.

1. Inspect the turret following the procedures described in TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2.
2. Pay careful attention to removing spent casings (25-mm and 7.62-mm) from between the hull and the turret. Casings not removed may become caught underneath the turret slowing the turret's rate of traverse.
3. Correct all shortcomings and deficiencies within the scope of the operator's capabilities.
4. Clean and lubricate the turret where and when required following the schedule and procedures described in TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2.
5. Record any uncorrected shortcomings and deficiencies on DA Form 2404 in accordance with the procedures outlined in DA Pam 738-750.
6. Report any uncorrected shortcomings and deficiencies to the chain of command.

**Evaluation Preparation:** SETUP: Provide the soldier with all the material and equipment in the task condition statement.

BRIEF SOLDIER: Tell the soldier to perform a maintenance check on the turret in accordance with the procedures outlined in TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2 and annotate all uncorrectable faults on DA Form 2404 in accordance with DA Pam 738-750.

| <b>Performance Measures</b>                                                                                               | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Inspected the turret in accordance with the procedures described in TM 9-2350-294-10-2-1 and TM 9-2350-294-10-2-2.     | —                | —                   |
| 2. Removed all spent casings (25-mm and 7.62-mm) from between the hull and turret.                                        | —                | —                   |
| 3. Corrected all shortcomings and deficiencies within the scope of the operators capabilities.                            | —                | —                   |
| 4. Cleaned and lubricated the turret in accordance with TM 9-2350-294-10-2-1, TM 9-2350-294-10-2-2, and LO 9-2350-252-12. | —                | —                   |
| 5. Recorded all uncorrected shortcomings and deficiencies on DA Form 2404 in accordance with DA Pam 738-750.              | —                | —                   |
| 6. Reported all uncorrected shortcomings and deficiencies to the chain of command.                                        | —                | —                   |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required**

DA FORM 2404

DA PAM 738-750

TM 9-2350-252-10-2

**Related**

**Operate the Turret of an M2A3/M3A3 BFV**  
**071-324-0026**

**Conditions:** Given a BFV with the master power switch ON and an operational turret.

**Standards:** Traversed the turret, elevated and depressed the gun rotor as required; operated the turret in the POWER and MANUAL modes without causing damage to the equipment or injury to personnel.

**Performance Steps**

**WARNING:** Before allowing the soldier to enter or exit the turret, make sure the turret travel lock is engaged. Soldiers must not enter the turret without permission. Do not operate the turret with the turret shield door open. The soldier could be killed or injured. Make sure the gunner's and commander's hatch covers are secured.

**CAUTION:** Before traversing the turret, make sure the feed chutes are installed on the feeder.

1. Operate the turret in POWER mode.
  - a. Ensure that the driver's and cargo hatches are closed or in the pop-up position.
  - b. Ensure that the emergency turret power shutdown switch on the vehicle distribution box (VDB) is OFF (Figure 1).

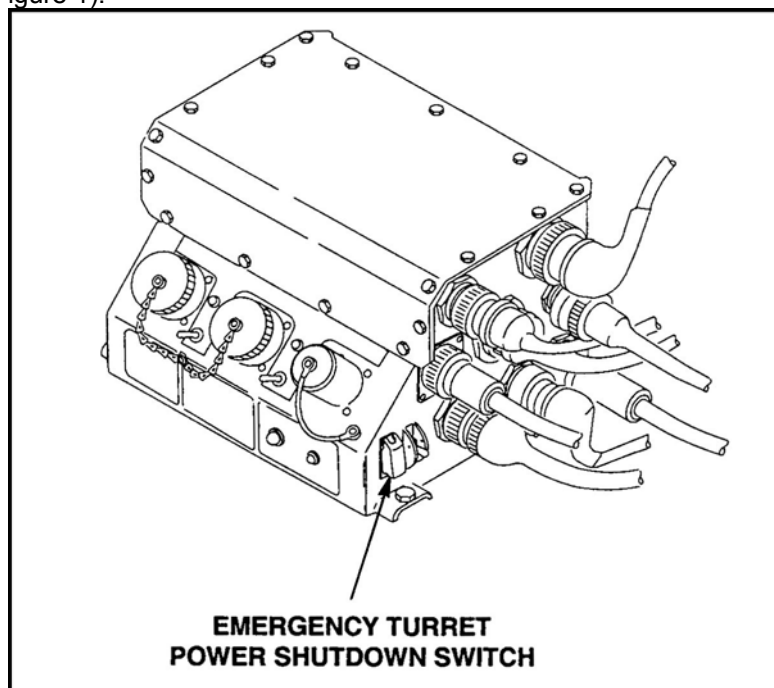


Figure 1. Emergency turret power shutdown switch.

- c. Close and latch the turret shield door.
    - d. Release the turret travel lock (Figure 2).

## Performance Steps

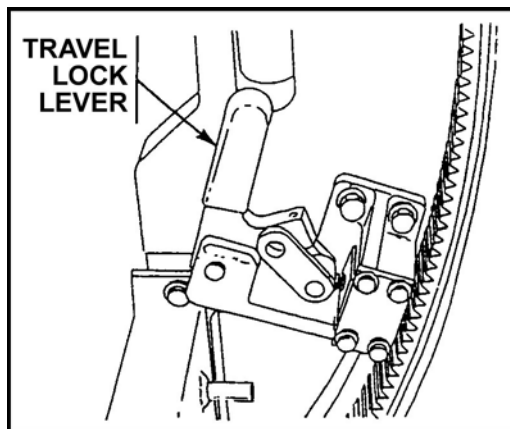


Figure 2. Travel lock.

**WARNING:** Do not stand on the seats. Make sure that the safety belts are used while the vehicle or turret is in motion.

- e. Put on the lap safety belt.
- f. Move the turret traverse drive select lever to the POWER position (Figure 3).

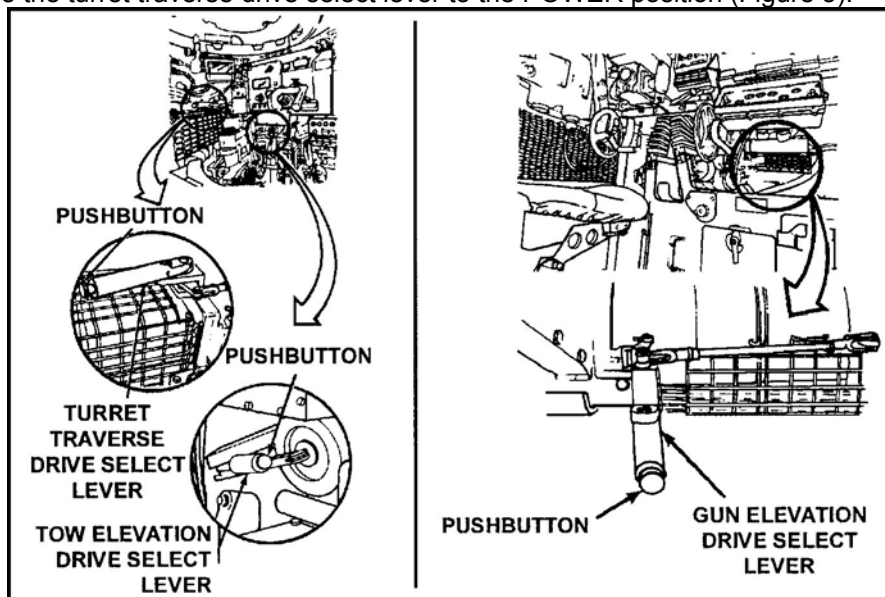


Figure 3. Select levers.

- (1) Press and hold the push button.
- (2) Move the turret select lever to the right to the POWER position.
- (3) Release the push button.
- g. Move the TOW elevation drive select lever to the POWER position.
  - (1) Press and hold the push button.
  - (2) Move the TOW elevation drive select lever to the right to the POWER position.
  - (3) Release the push button.
- h. Move the gun elevation drive select lever to the POWER position.
  - (1) Press and hold.
  - (2) Move the gun elevation drive select lever to the right to the POWER position.
  - (3) Release the push button.
- i. Ensure the emergency shutdown switch on the System Control Box (SCB) is OFF (Figure 4).

## Performance Steps

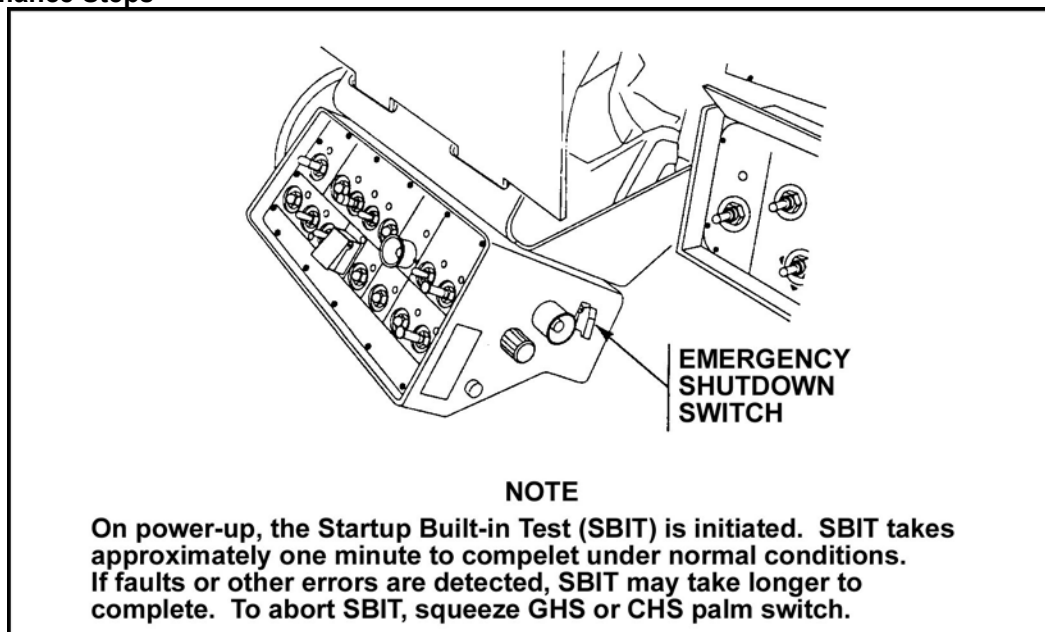


Figure 4. Emergency shutdown switch.

- j. Ensure the combat override switch is in the OFF position (Figure 5).

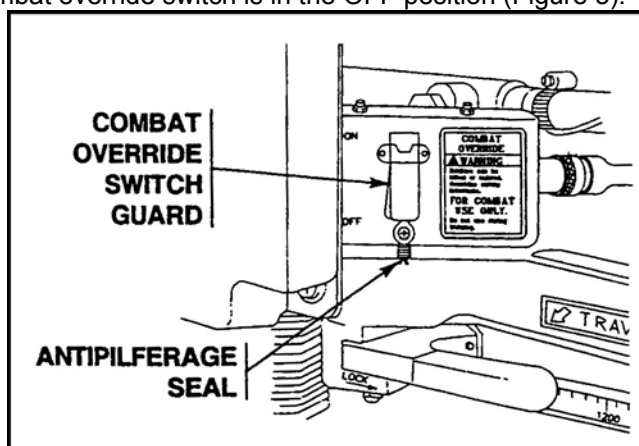


Figure 5. Combat override.

**WARNING:** Combat override disables safety interlocks. Soldier can be killed or seriously injured without safety locks working.

Do not activate combat override unless turret shield door, driver's hatch, and cargo hatch are closed. Do not activate combat override unless in COMBAT and hatch switches have received battle damage.

**WARNING:** Before moving the turret or guns, clear all soldiers and equipment from the top of the vehicle.

**NOTE:** When combat override is active, COMBAT OVRD annunciator light on the SCB is lit and COMBAT OVERRIDE appears as symbology at the bottom of the Improved Bradley Acquisition System (IBAS) and Commander's Independent Viewer (CIV) video. The OPEN HATCH annunciator light on the SCB flashes when either the cargo or driver's hatch or turret shield door is open and combat override is active.

- k. Move the turret power switch to ON (Figure 6).

## Performance Steps

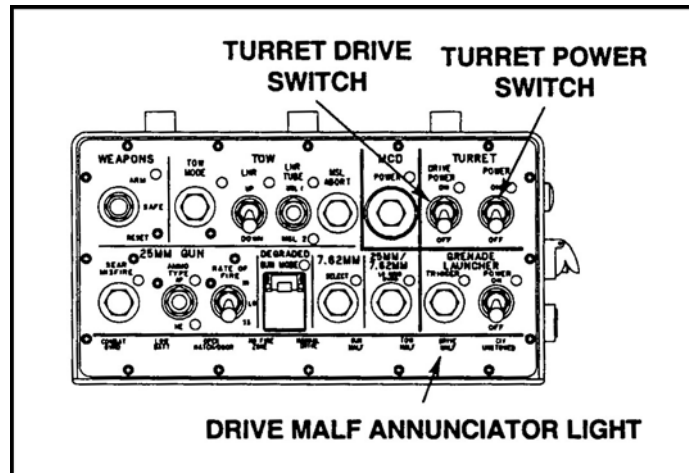


Figure 6. DRIVE MALF annunciator light.

NOTE: On power-up, the Startup Built-in Test (SBIT) is initialized. SBIT takes approximately one minute to complete under normal conditions. If faults or other errors are detected, SBIT may take longer to complete. To abort SBIT, squeeze Gunner's Hand Station (GHS) or Commander's Hand Station (CHS) palm switch.

- l. Turn the turret drive system ON.
- m. Ensure that the DRIVE MALF annunciator light is not lit.
  - (1) If DRIVE MALF annunciator light is not on, continue to the next step.
  - (2) If the DRIVE MALF annunciator light is on.
    - (a) Turn the TURRET DRIVE switch to OFF.
    - (b) Turn the TURRET DRIVE switch to ON.
  - (3) If the DRIVE MALF annunciator light comes on again.
    - (a) Turn the TURRET DRIVE switch to OFF.
    - (b) Move the ARM-SAFE-RESET switch to RESET, then to SAFE.
    - (c) Turn the TURRET POWER switch to OFF.
    - (d) Wait three minutes.
    - (e) Move the TURRET POWER switch to ON.
    - (f) Move the TURRET DRIVE switch to ON. If the DRIVE MALF annunciator light comes on again. Do not continue the task and notify unit maintenance.
- n. Traverse the turret (Figure 7).

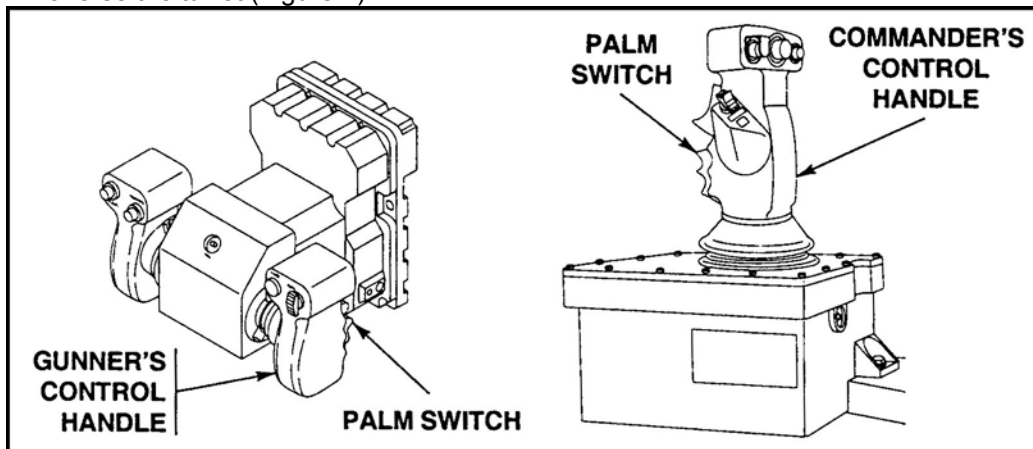


Figure 7. Commander's and gunner's hand stations.

- (1) Squeeze and hold the palm switches on either the gunner's hand station (GHS) or the commander's hand station (CHS).

### Performance Steps

- (2) Turn the hand station to the left or right. The turret will traverse to the left or right. To increase the rate of turret movement, turn the hand station more in the direction of the turret movement.
  - (3) Observe the position of turret on azimuth indicator while traversing turret.
  - (4) Rotate the turret to 6400 mils.
  - (5) Return the hand station to center and release the palm switches.
  - o. Elevate and depress the gun rotor.
    - (1) Squeeze and hold the palm switches.
    - (2) Rotate the hand station forward to depress and rotate it backward to elevate. To increase the rate of gun rotor movement, turn the hand station more in the direction of movement.
    - (3) Center the hand station and release the palm switches.
2. Adjust the Improved Bradley Acquisition Subsystem (IBAS) using the gunner's sight control panel (GSCP)(Figure 8).

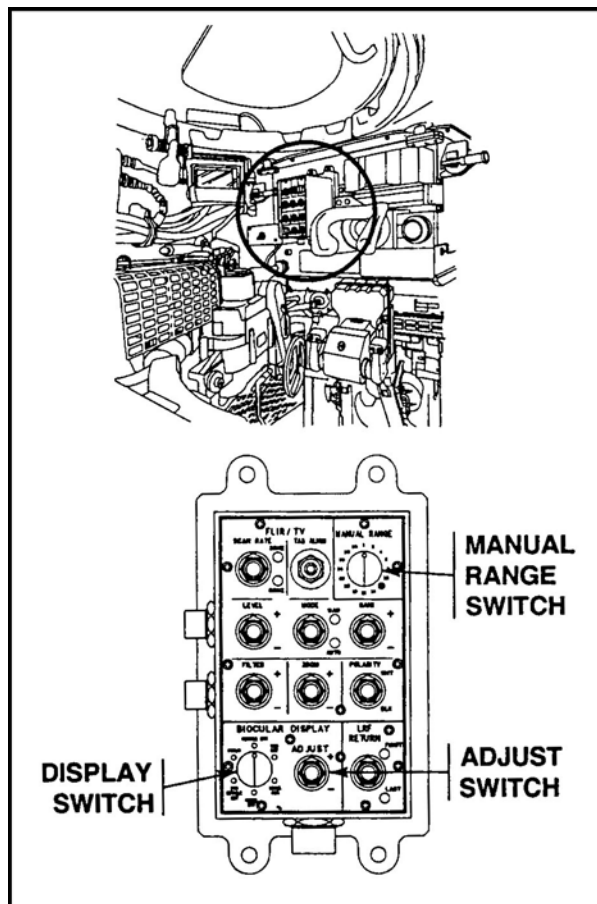


Figure 8. Gunner's sight control panel (GSCP).

- a. Press and release the MODE switch on the GSCP down to AUTO (Figure 9).



## Performance Steps

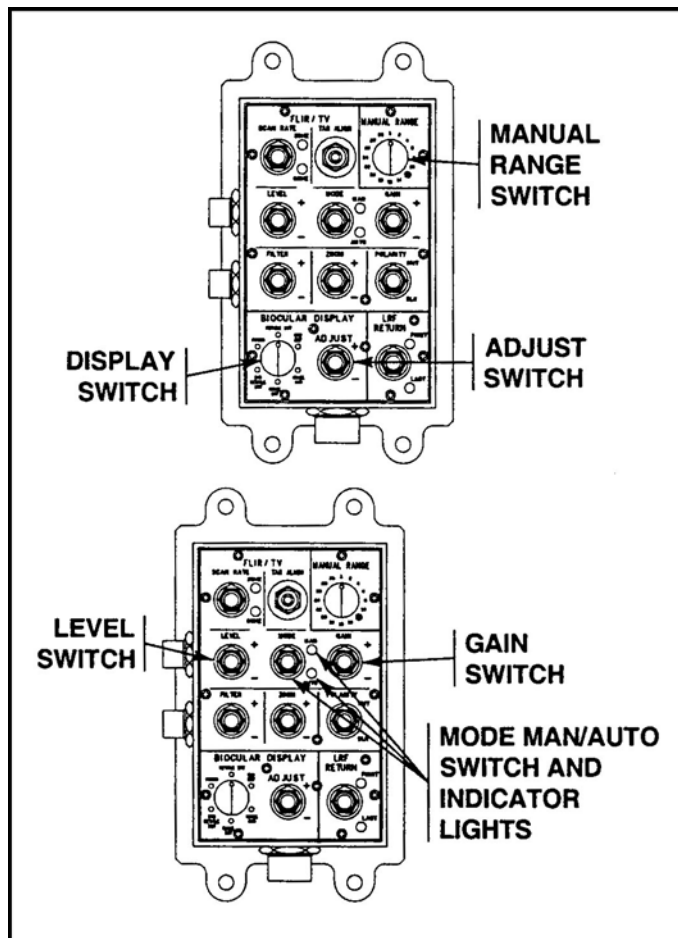


Figure 9. MODE switch.

- b. Ensure the AUTO indicator light is lit.
- c. Observe the sight picture.
- d. Adjust the scan rate (Figure 10).

## Performance Steps

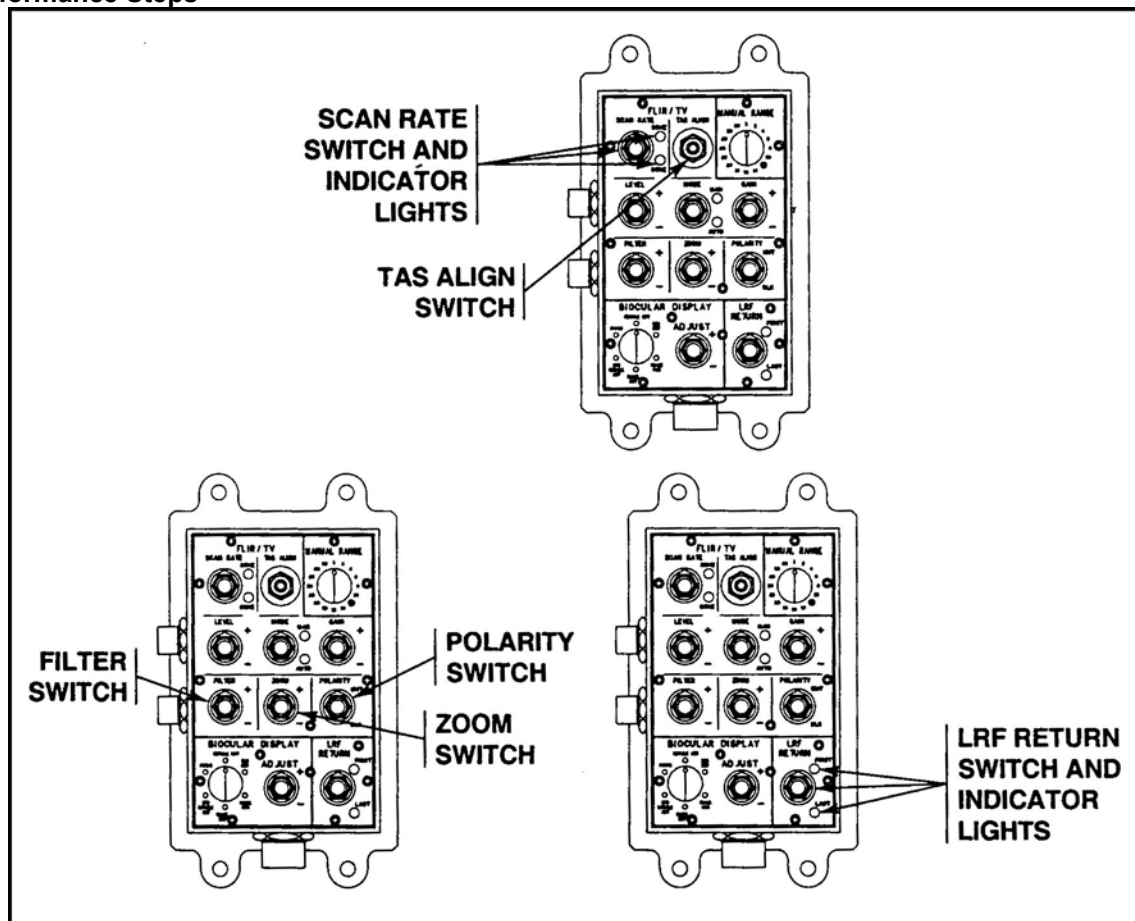


Figure 10. SCAN RATE switch.

- (1) If 30hz scan rate is desired.
  - (a) Move the SCAN RATE switch up for 30hz refresh rate.
  - (b) Ensure the 30hz indicator light is lit.
- (2) If a 60hz scan rate is desired.
  - (a) Move the SCAN RATE switch down for 60hz refresh rate.
  - (b) Ensure the 60hz indicator light is lit.
- e. Adjust the polarity.
  - (1) Press and release the polarity switch upward for white hot.
  - (2) Press and release the polarity switch downward for black hot.
- f. Adjust the IBAS TV sight.
 

NOTE: When the turret is powered up IBAS TV is the default setting.

  - (1) Press up and release the mode switch to select the MANUAL position, ensuring the MANUAL indicator light is lit.
  - (2) Move the LEVEL toggle switch up or down to adjust the LEVEL in the sight.
  - (3) Observe the momentary level adjustment bar on the left side of the screen in the sight.
  - (4) Move the GAIN toggle switch up or down to adjust the GAIN in the sight.
  - (5) Observe the momentary gain adjustment bar on the left side of the screen in the sight.
  - (6) Repeat steps (2) through (5) until the picture is at the desired settings.
- g. Adjust the IBAS FLIR sight.
  - (1) Press and release the FLIR/TV button on the GHS.
  - (2) Ensure the manual indicator light is lit.
  - (3) Move the LEVEL toggle switch up or down to adjust the LEVEL in the sight.
  - (4) Observe the momentary level adjustment bar on the left side of the screen in the sight.

**Performance Steps**

- (5) Move the GAIN toggle switch up or down to adjust the GAIN in the sight.
  - (6) Observe the momentary gain adjustment bar on the left side of the screen in the sight.
  - (7) Rotate the biocular display knob to FOCUS.
  - (8) Move the adjust switch up and down until the sight is focused.
  - (9) Observe the momentary focus adjustment bar on the left side of the screen in the sight.
  - (10) Rotate the biocular display knob to image contrast (IMAGE CON).
  - (11) Move the adjust switch up and down until the sight has sufficient image contrast.
  - (12) Observe the momentary contrast gray scale bar on the right side of the screen in the sight.
  - (13) Rotate the biocular display knob to image brightness (IMAGE BRT).
  - (14) Move the adjust switch up and down until the sight has sufficient image brightness.
  - (15) Observe the momentary contrast gray scale bar on the right side of the screen in the sight.
  - (16) Repeat steps (1) to (15) until sights are adjusted.
- h. Adjust the reticle brightness.
- (1) Rotate the biocular display knob to reticle brightness (RETICLE BRT).
  - (2) Move the adjust switch up and down until the reticle has sufficient brightness.
  - (3) Observe the reticle.
- i. Adjust symbology brightness.
- (1) Rotate the biocular display knob to symbology brightness (SYM BRT).
  - (2) Move the adjust switch up and down until the symbology has sufficient brightness.
  - (3) Observe the symbology.
- j. Adjust the Direct View Optic (DVO) reticle (Figure 11).

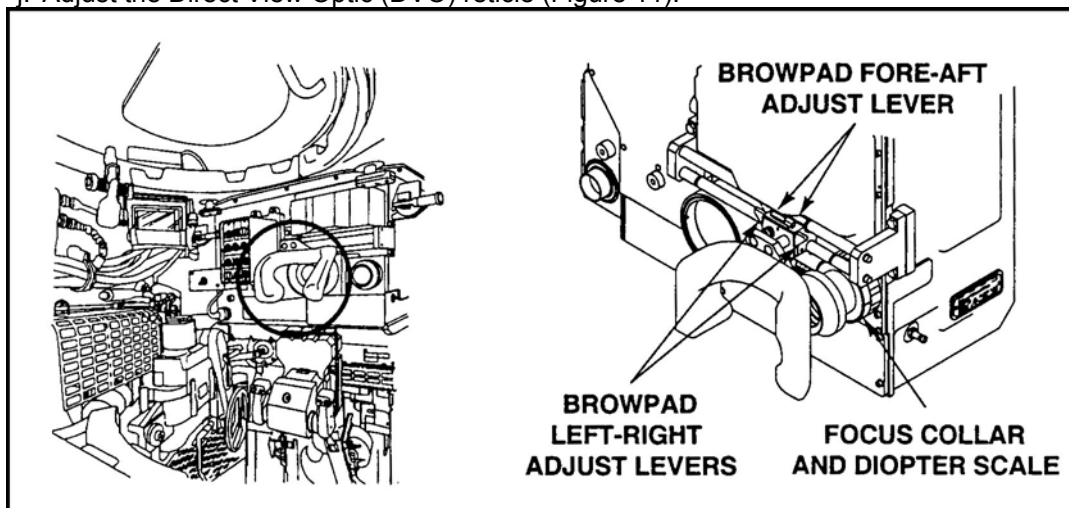


Figure 11. DVO-focus collar.

- (1) Adjust the focus of the DVO.
    - (a) Rotate the focus collar clockwise and counter clockwise until the sight is focused.
    - (b) Observe the DVO sight.
  - (2) Rotate the biocular display knob to DVO reticle brightness (DVO RETICLE BRT).
  - (3) Move the adjust switch up and down until the reticle has sufficient brightness.
  - (4) Observe the reticle.
3. Operate the system control box (SCB) (Figure 12).

## Performance Steps

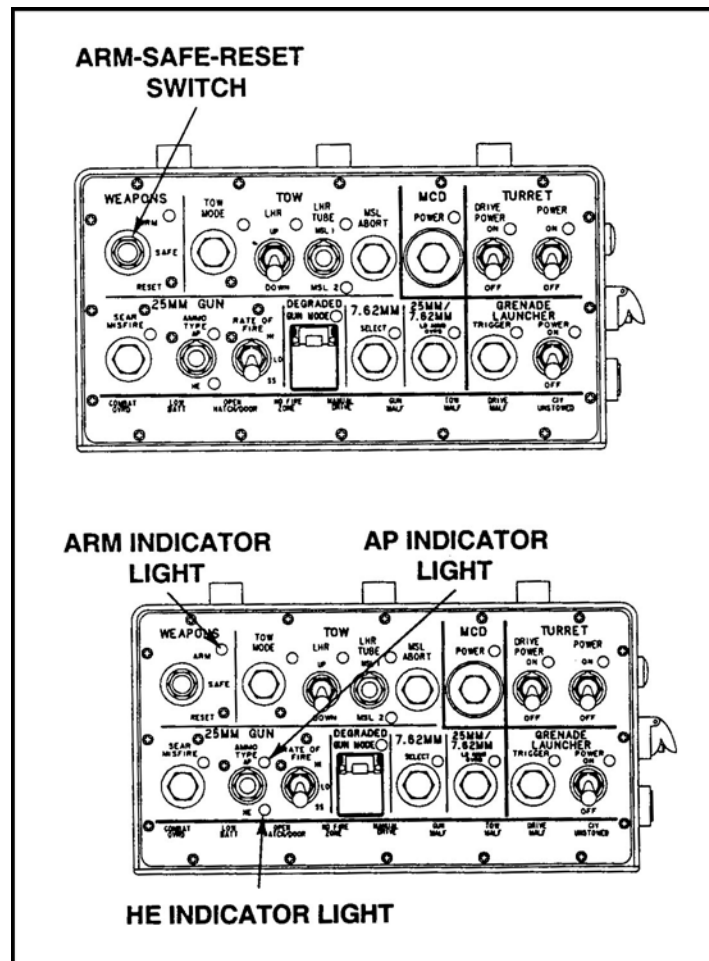


Figure 12. System control box-ammo type.

- a. Select a weapon type or ammunition.
  - (1) Select 25mm gun.
    - (a) Move the ammo type switch up for armor piercing (AP).
    - (b) Ensure the AP indicator light is lit.
    - (c) Observe the sight for the weapon selected symbology (AP or DU ) (Figure 13).

## Performance Steps

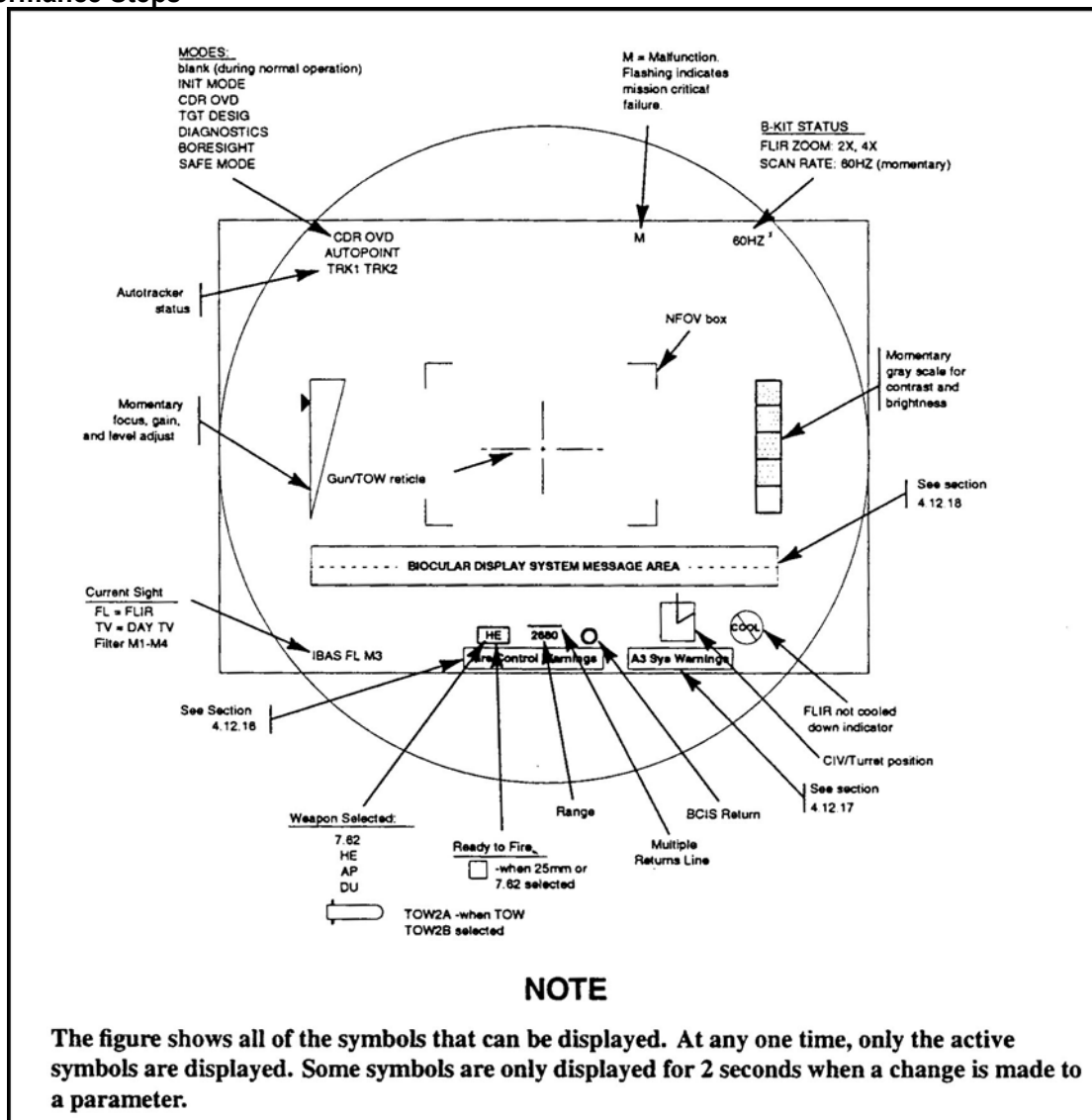


Figure 13. IBAS symbology.

- (d) Move the ammo type switch down for high explosive (HE).
- (e) Ensure the HE indicator light is lit.
- (f) Observe the sight for the weapon selected symbology (HE).
- (2) Select the 25mm rate of fire.
  - (a) Move the RATE OF FIRE switch to SS for a single shot rate of fire.
  - (b) Move the RATE OF FIRE switch to LO for a low rate of fire.
  - (c) Move the RATE OF FIRE switch to HI for a high rate of fire.
- (3) Select 7.62mm coaxial machine gun.
  - (a) Press and release the 7.62mm button.
  - (b) Ensure the 7.62mm indicator light is lit.
  - (c) Observe the sight for the weapon selected symbology (7.62).
- (4) Select TOW (Figure 14).

## Performance Steps

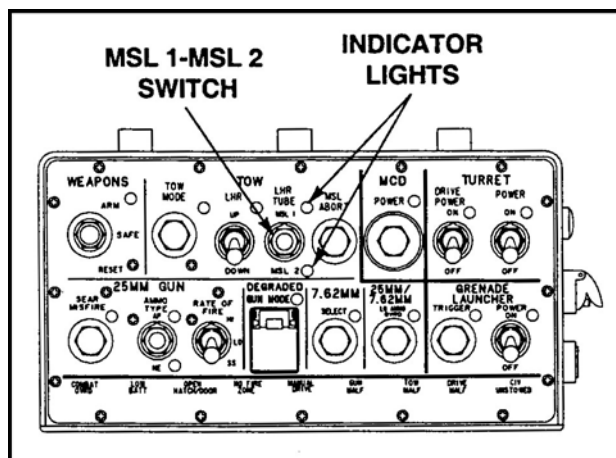


Figure 14. TOW missile select switch.

- (a) Move the TOW launcher UP/DOWN switch to the UP position.
  - (b) Squeeze and hold the palm switches on the GHS.
  - (c) Observe the launcher UP indicator light is lit.
  - (d) Release the palm switches.
  - (e) Press and release the TOW MODE button.
  - (f) Ensure the TOW MODE indicator light is lit.
  - (g) Move the LHR TUBE switch UP for TUBE 1 and DOWN for TUBE 2.
  - (h) Ensure the desired TUBE indicator light is lit.
  - (i) Observe the sight for the weapon selected symbology (TOW2A or TOW2B).
  - (5) Select GRENADE.
    - (a) Move the GRENADE LAUNCHER POWER switch to the ON position.
    - (b) Ensure the power ON indicator light is lit.
    - (c) Press and release the TRIGGER button to fire the GRENADES.
    - (d) Observe the TRIGGER indicator light comes on when the trigger is pressed.
  - b. Operate the ARM-SAFE-RESET switch.
    - (1) Move the ARM-SAFE-RESET switch to ARM.
- NOTE: This position allows the weapon systems to be fired.
- (2) Ensure the ARM indicator light is lit.
  - (3) Observe the ready to fire box in the sight symbology is present.
  - (4) Move the ARM-SAFE-RESET switch to SAFE.
  - (5) Ensure the ARM indicator light is NOT lit.
  - (6) Observe that the ready to fire box in the sight symbology is NOT present.
  - (7) Move the ARM-SAFE-RESET switch to RESET and release.
- NOTE: The RESET position deselects all weapons that have been selected.
- (8) Ensure that all weapon selected indicator lights are NOT lit.
4. Check for turret stabilization/drift.
    - a. Align the reticle on the target (Figure 15).

## Performance Steps

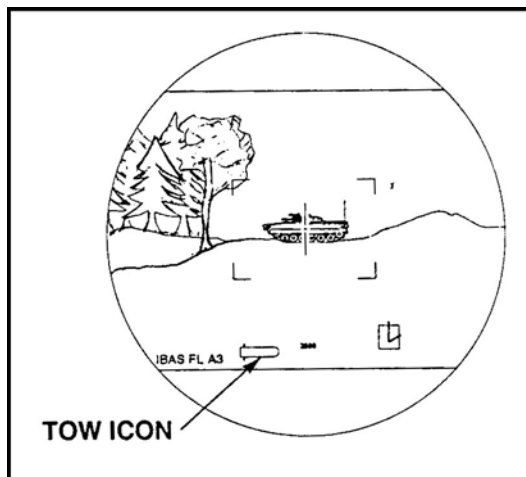


Figure 15. IBAS reticle.

- (1) Squeeze and hold the palm switches.
- (2) Rotate the GHS right or left until the reticle and target azimuths are aligned.
- (3) Rotate the GHS forward or backward until the reticle and target elevations are aligned.
- (4) Release palm switches.
- b. Check for stabilization drift. The reticle should not move off target more than 1 mil in 10 seconds.
  - (1) Press and hold palm switches.
  - (2) Observe the reticle. If reticle moves off target more than 1 mil in 10 seconds proceed to next step. If the reticle does not move then release palm switches the task is complete.
  - (3) Release the palm switches.
  - (4) Press and hold the NULL button for 1-3 seconds then release (Figure 16).

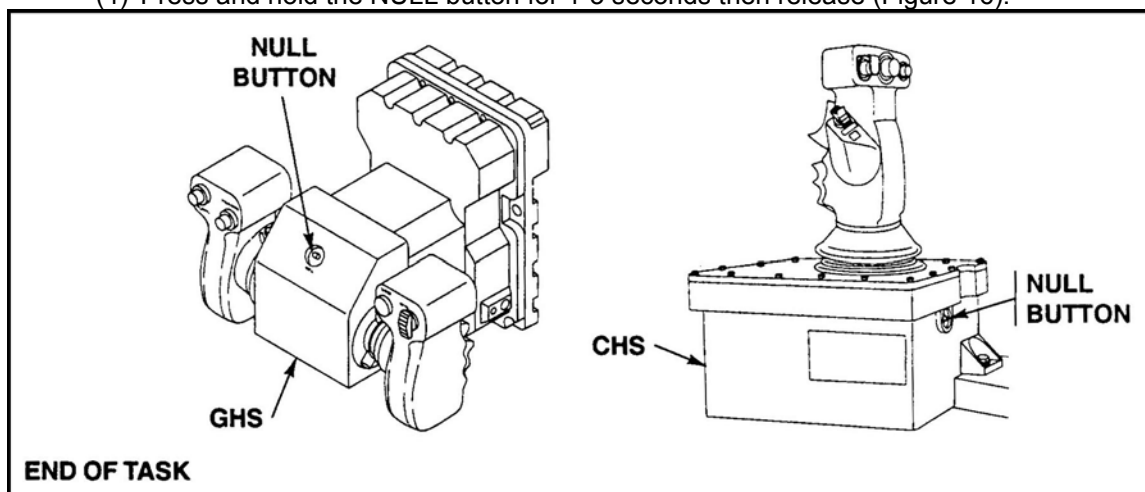


Figure 16. NULL button.

- (5) Acquire the target and center the reticle on the target.
- (6) Press and hold the palm switches.
- (7) Observe the reticle. If the reticle does not move then the task is complete. If the reticle move again report the deficiency to maintenance.
- (8) Release palm switches.

### 5. Operate the turret in the MANUAL mode.

**CAUTION:** Linkage between the TOW and gun elevation systems can be damaged if the gun elevation handwheel is turned while both levers are in the manual mode.

### Performance Steps

- a. Move the turret drive switch to the OFF position.
- b. Move the turret traverse drive select lever to the MANUAL position.
- c. Remove the spring from the traverse drive handwheel handle.
- d. Move the gun elevation drive select lever to the MANUAL position.
- e. Remove the spring from the gun elevation drive handwheel handle.
- f. Traverse the turret left and right then back to 6400 mils.
- g. Elevate and depress the gun rotor to the desired position, then back to 0 mils.
- h. Move the turret and gun select levers to the power position and install the spring handle.

6. Upon completion of the movement of the turret, lock the turret travel lock.

7. Move the turret power switch to the OFF position.

8. Open the turret shield door and exit the turret.

**Evaluation Preparation:** SETUP: Provide the soldier with a vehicle and equipment as stated in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to traverse the turret; elevate and depress the gun rotor while exercising safety procedures.

| Performance Measures                                                                                         | <u>GO</u> | <u>NO GO</u> |
|--------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Operated the turret in the power mode.                                                                    | _____     | _____        |
| 2. Adjusted the Improved Bradley Acquisition Subsystem (IBAS) using the gunner's sight control panel (GSCP). | _____     | _____        |
| 3. Operated the system control box (SCB).                                                                    | _____     | _____        |
| 4. Checked for turret stabilization/drift.                                                                   | _____     | _____        |
| 5. Operated the turret in the manual mode.                                                                   | _____     | _____        |
| 6. Locked the travel lock.                                                                                   | _____     | _____        |
| 7. Moved the turret power switch to the OFF position.                                                        | _____     | _____        |
| 8. Exited the turret.                                                                                        | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

#### Required

#### Related

TM 9-2350-294-10-2-1

TM 9-2350-294-10-2-2



**Operate the Turret of a BFV**  
**071-324-6004**

**Conditions:** Given a BFV with the master power switch ON and an operational turret.

**Standards:** Traversed the turret, elevated and depressed the gun rotor, and operated in the STAB mode; operated the turret in the POWER or MANUAL mode without causing damage to equipment or injury to personnel.

**Performance Steps**

**WARNING:** Before allowing the soldier to enter or exit the turret, make sure the turret travel lock is engaged. Soldiers must not enter the turret without permission. Do not operate the turret with the turret shield door open. The soldier could be killed or injured. Make sure the gunner's and commander's hatch covers are secured.

**CAUTION:** Before traversing the turret, make sure the feed chutes are installed on the feeder. Before turning the turret power on, make sure the mirror control knob is in the unlocked or disengaged (out) position.

1. Ensure that the driver's and cargo hatches are closed or in the pop-up position.
2. Close and latch the turret shield door.
3. Release the turret travel lock.

**WARNING:** Do not stand on the seats. Make sure that the safety belts are used while the vehicle or turret is in motion.

4. Put on the lap safety belt.
5. Move the turret traverse drive select lever to the POWER position.
  - a. Press and hold the push button.
  - b. Move the turret select lever to the right to the POWER position. Release the push button.
6. Move the TOW elevation drive select lever to the POWER position.
  - a. Press and hold the push button.
  - b. Move the TOW elevation drive select lever to the right to the POWER position. Release the push button.
7. Move the gun elevation drive select lever to the POWER position (Figure 1).

## Performance Steps

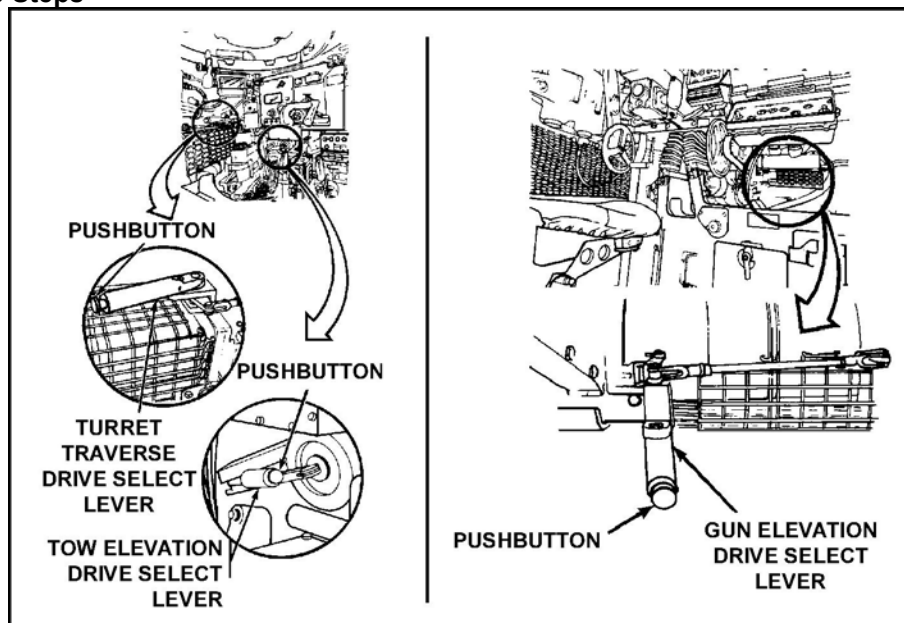


Figure 1. Select levers.

- a. Press and hold the push button.
- b. Move the gun elevation drive select lever to the right to the POWER position. Release the push button.

8. Move the turret power switch to ON (Figure 2).

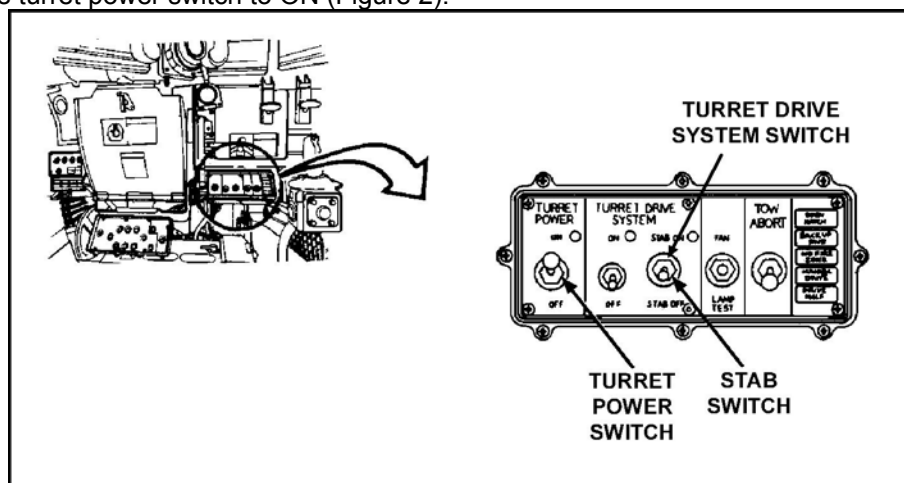


Figure 2. Turret control box.

9. Turn the turret drive system ON (Figures 2 and 3).

## Performance Steps

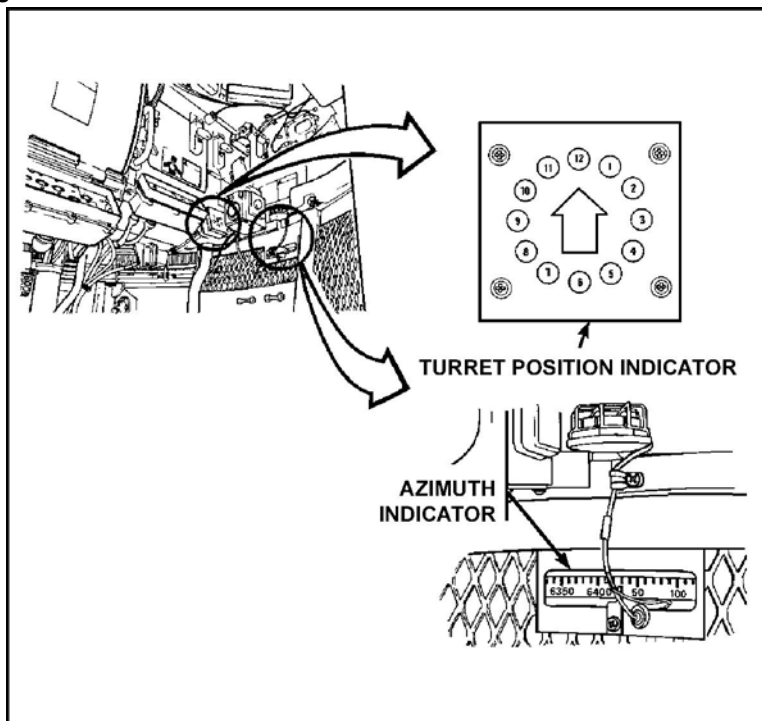


Figure 3. Turret position and azimuth indicators.

**WARNING:** Before moving the turret or guns, clear all soldiers and equipment from the top of the vehicle.

**NOTE:** The azimuth indicator shows the turret position in mils. It also shows the position for HE LOAD, AP LOAD, and TOW LOAD. The turret position indicator shows the position of the turret in relation to the vehicle (with 12:00 o'clock being the front of the vehicle). Numbered lights 1 through 12 light up as the turret reaches each position.

10. Traverse the turret by using the gunner's control handles (Figure 4).

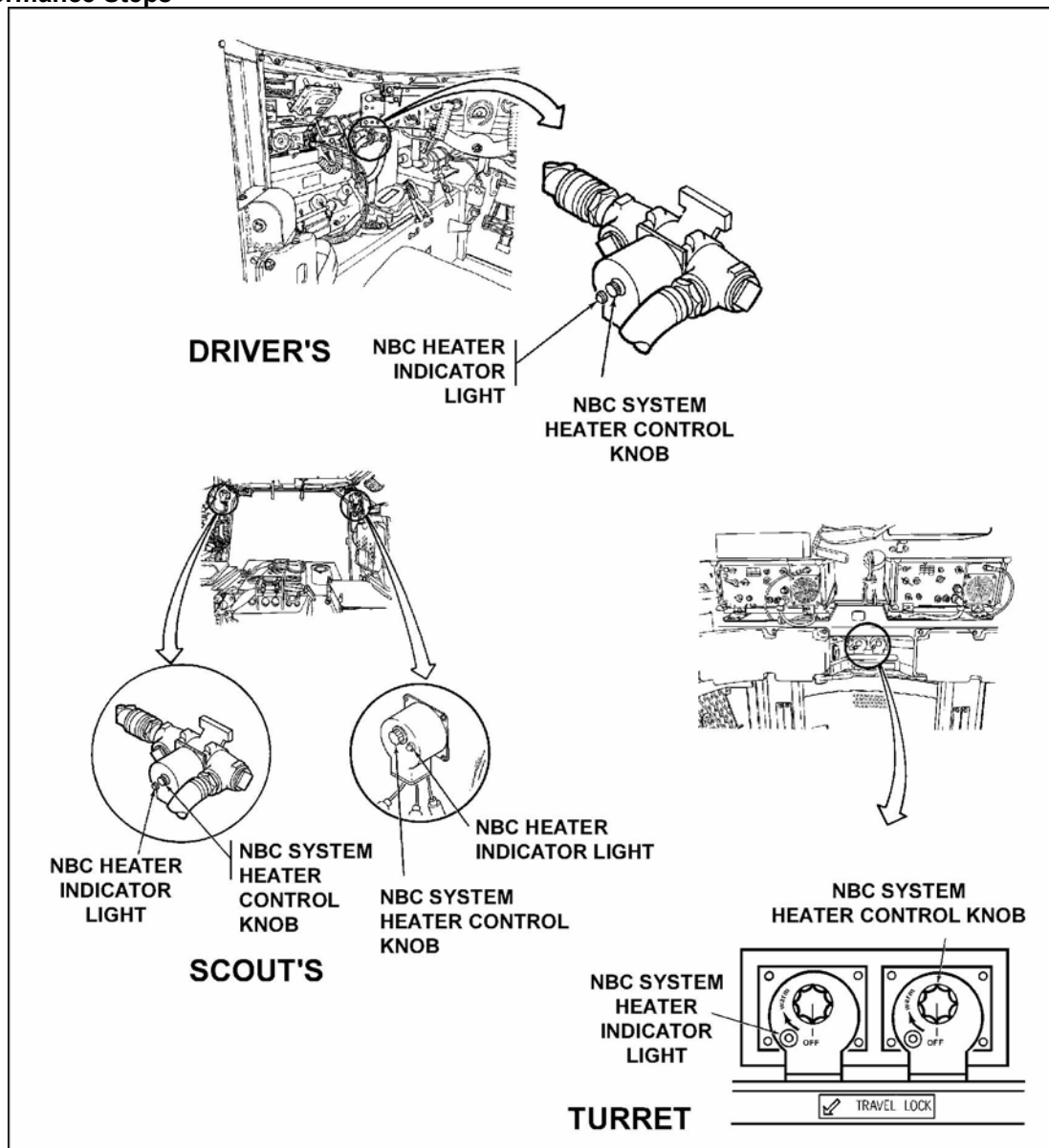
**Performance Steps**

Figure 4. Gunner control handles.

- a. Squeeze and hold the palm switches.
- b. Turn the control handles in the direction that the turret is to be traversed.

11. Traverse the turret at high speed by depressing and holding the fast turret switches while performing step 10.

NOTE: The gun rotor can elevate to 1050 mils and depress to -180 mils. Each line on the elevation indicator equals 10 mils and each number equals 100 mils.

12. Elevate and depress the gun rotor.

13. Elevate and depress the gun rotor at high speed.

WARNING: Keep the 25-mm gun guard in place during the stabilized mode operation of the 25-mm gun.

CAUTION: If the gun barrel has been removed, do not operate the turret in the STAB mode, because the drive system can be damaged.

## Performance Steps

14. Move the STAB switch to the ON position.
15. Make sure that the DRIVE MALF annunciator lights on the turret control and annunciator boxes are not on (Figure 5).

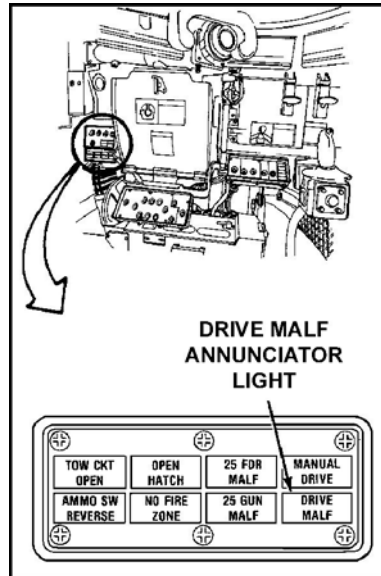


Figure 5. Annunciator box.

NOTE: If the DRIVE MALF annunciator light is on, recycle the turret drive system. If the annunciator light comes on again, turn off the turret power and wait for at least three minutes. If the annunciator light comes on again, notify the chain of command and unit maintenance.

16. Press the HE SS or AP SS (single-shot) button.

NOTE: The stabilization controls assist in maintaining the reticle on target while the vehicle is moving. STAB is used when the vehicle is moving; however, the vehicle does not have to be moving for the STAB to operate.

17. Select the target through the gunner's eyepiece (Figure 6).

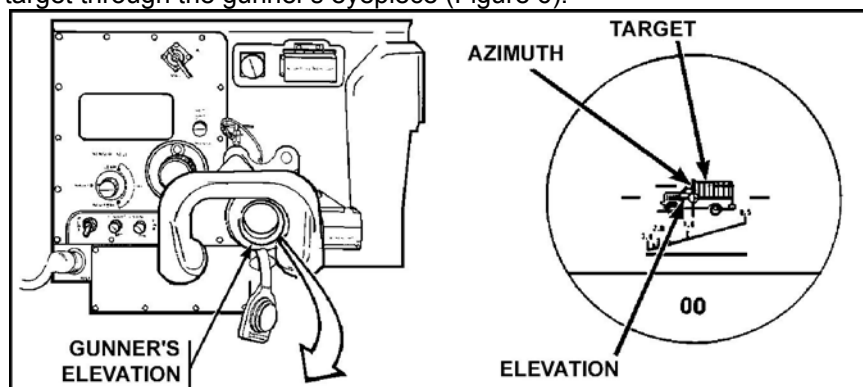


Figure 6. Eyepiece.

18. Align the reticle on the target (Figure 6).
  - a. Squeeze and hold the palm switches.
  - b. Turn the control handles right or left until the target azimuth is aligned.
  - c. Rotate the control handles forward or backward until the target elevation is aligned.

NOTE: The center ring in the gun reticle is 1 mil wide. Use the width of the center ring to estimate the

**Performance Steps**

amount of stabilization drift.

19. Check for stabilization drift. The reticle should not move off target more than 1 mil in 10 seconds.

20. Traverse the turret to 6400 mils and the gun rotor elevation to 0 mils.

21. Turn all switches to the OFF position.

22. Operate the turret in the MANUAL mode.

CAUTION: Linkage between the TOW and gun elevation systems can be damaged if the gun elevation handwheel is turned while both levers are in the manual mode.

- a. Move the turret traverse drive select lever to the MANUAL position and move the gun elevation drive select lever to the MANUAL position.
- b. Remove the spring from the traversing handwheel handle.
- c. Traverse the turret left and right then back to 6400 mils.
- d. Elevate and depress the gun rotor to the desired position, then back to 0 mils.
- e. Move the turret and gun select levers to the power position and reinstall the spring handle.

23. Upon completion of the movement of the turret, lock the turret travel lock.

**Evaluation Preparation:** SETUP: Provide the soldier with a vehicle and equipment as stated in the task condition statement.

BRIEF SOLDIER: Tell the soldier to traverse the turret, elevate, and depress the gun rotor while exercising safety procedures.

**Performance Measures**

|                                                                                     | <u>GO</u> | <u>NO GO</u> |
|-------------------------------------------------------------------------------------|-----------|--------------|
| 1. Ensured that the driver and cargo hatches are closed or in the pop-up positions. | _____     | _____        |
| 2. Closed the turret shield door.                                                   | _____     | _____        |
| 3. Released the turret travel lock.                                                 | _____     | _____        |
| 4. Ensured all three select levers are in the POWER mode.                           | _____     | _____        |
| 5. Turned the turret power switch and the turret drive system switch to ON.         | _____     | _____        |
| 6. Traversed the turret, elevated and depressed the gun rotor.                      | _____     | _____        |
| 7. Used the STAB.                                                                   | _____     | _____        |
| 8. Set the turret at 6400 mils and gun rotor at 0 mils.                             | _____     | _____        |
| 9. Engaged the turret travel lock.                                                  | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

TM 9-2350-252-10-2

## Subject Area 38: WEAPONS: HG/MINES/DEMOLITIONS

**Clear Misfires****052-193-2030**

**Conditions:** Given electric and/or nonelectric blasting cap(s), detonating cord, time fuze, fuze igniter, TNT, a demolition set, hand tools, and a misfired charge.

**Standards:** Cleared misfires, ensured that you --

Waited the required amount of time prior to move downrange to investigate the misfire.

Investigated the misfired system and determined the cause of the misfire.

Avoided injury to personnel.

**Performance Steps**

1. Wait the required time and watch for the following signs before moving downrange to investigate the misfired charge.
  - a. Wait 30 minutes prior to moving downrange to investigate the misfire, with one exception. If the misfired charge is electrically primed, above ground, and it is not dual primed, it can be investigated immediately.
  - b. If smoke or fire can be seen coming from the charge location, wait until the smoke or fire stops before moving downrange.

2. Investigate to determine the cause and corrective action to take.

**WARNING** Do not move either the blasting cap or the misfired cap.

- a. Electrical firing system.
  - (1) At the firing point, check the blasting machine for operability, check connections between the firing wire and the blasting machine for adequate contact, and check the firing wire for breaks.

**Note:** If the blasting machine is inoperable or the connections are inadequate, immediately correct the problem and try to fire again.

- (2) Downrange, check the firing wire for breaks and shorts, check connections between the cap lead wire and the firing wire for adequate contact, and check the location of the electrical blasting cap to determine if the priming is inadequate.

**Note:** If the electric cap detonated but did not initiate the charge, priming was inadequate.

- b. Nonelectrical firing system. Check the location of the blasting cap to determine if the priming was inadequate.

**Note:** If the blasting cap detonated but did not initiate the charge, priming was inadequate.

- c. Systems with detonating cord. Locate the primed end of the detonating cord to determine if the blasting cap detonated but failed to initiate the cord, or if the fault is in the initiating assembly.

3. Clear misfired charges.

- a. Tamped charges.
  - (1) Misfired charges that have no more than 1 foot of tamping. Attempt to explode the misfired charge by detonating a new 2-pound charge placed directly on top of the tamping.
  - (2) Misfired charges that have more than 1 foot of tamping. Carefully remove the tamping by means of wooden or nonmetallic tools within 1 foot either above or beside the charge. Detonate a new 2-pound charge placed on the tamping.

**Note:** Avoid accidentally digging into the misfired charge by constantly checking the depth of the tamping during digging. Tamping may be blown out by means of a stream of compressed air or water, if available.

- b. Untamped charges. Detonate a 1-pound charge placed next to the misfired charge.
- c. Correct equipment faults found in electrical detonating assemblies by replacing equipment

## Performance Steps

and/or repairing breaks and insulating shorts.

- d. Attach new detonating assemblies to detonating cord main lines and/or branch lines at least 6 inches from the cut end of the cord.

Note: If the detonating cord continually fails to fire, the detonating cord is defective and the charge must be fired again.

**Evaluation Preparation:** SETUP: Provide the soldier with the items listed in the task condition statement. Use inert training equipment when performing this task.

BRIEF SOLDIER: Tell the soldier to clear the misfire without causing injury to personnel.

## Performance Measures

GO      NO GO

1. Wait the required time before moving downrange to investigate the misfired charge. \_\_\_\_\_

- a. Without leaving the firing point, immediately investigates as much of an electrical firing assembly as possible.

2. Investigates to determine the cause and corrective action to take. \_\_\_\_\_

CAUTION: Do not move either the blasting cap or the misfired cap.

- a. Electrical firing system.

- (1) At the firing point, checks the blasting machine for operability, checks connections between firing wire and blasting machine for adequate contact, and checks firing wire for breaks.

NOTE: If the blasting machine is inoperable or the connections inadequate, immediately correct the problem, and try to fire again.

- (2) Down range, checks the firing wire for breaks and shorts, checks connections between the cap lead wire for adequate contact, and checks the location of the electrical blasting cap to determine if the priming is inadequate.

NOTE: If the electric cap detonated but did not initiate the charge, priming was inadequate.

- b. Nonelectrical firing systems.

- (1) Checks all igniters and the time fuze to determine if one did not burn.
- (2) Checks location of the blasting cap to determine if the priming was inadequate.

NOTE: If the blasting cap detonated but did not initiate the charge, priming was inadequate.

- c. Systems with detonating cord. Locates the primed end of the detonating cord to determine if the blasting cap detonated but failed to initiate the cord, or if the fault is in the initiating assembly.

- d. Checks for misfires after multiple charges have been detonated to ensure all charges detonated.

3. Clears misfired charges. \_\_\_\_\_

- a. Tamped charges.

- (1) Misfired charges that have no more than 1 foot of tamping. Attempts to explode them by detonating a new 2-pound charge placed directly on top of the tamping.

- (2) Misfired charges that have more than 1 foot of tamping. Carefully removes the tamping by means of wooden nonmetallic tools within 1 foot of the charge. Detonates a new 2-pound charge placed on the tamping.

NOTE: Avoid accidentally digging into the misfired charge. Constantly check the depth of the tamping during digging. Tamping may be blown out by means of a stream of compressed air or water, if available.



**Performance Measures****GO**    **NO GO**

- b. Untamped charges. Detonates a 1-pound charge placed next to each misfired charge.
- c. Corrects equipment faults found in electrical detonating assemblies by replacing equipment and/or repairing breaks and insulating shorts.
- d. Attaches new detonating assemblies to detonating cord main lines and/or branch lines at least 6 inches from the cut end of the cord.

NOTE: If detonating cord continually fails to fire, the detonating cord is defective and the charges must be primed again.

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

**References****Required****Related**

FM 5-250

Subject Area 42: WEAPONS: M220-SERIES TOW

**Operate the TOW Launcher on a BFV**

**071-056-0003**

**Conditions:** Given a BFV with the TOW launcher in the stowed position, basic issue items, and a requirement to operate the launcher.

**Standards:** Operated the TOW launcher to the ERECT position and back to the STOWED position and operated the launcher in the manual mode and the power mode.

**Performance Steps**

1. Operate the TOW launcher in the POWER mode.
  - a. Move the turret power and turret drive system switches to the ON position.
  - b. Move the turret traverse drive select lever to the POWER position (Figure 1).

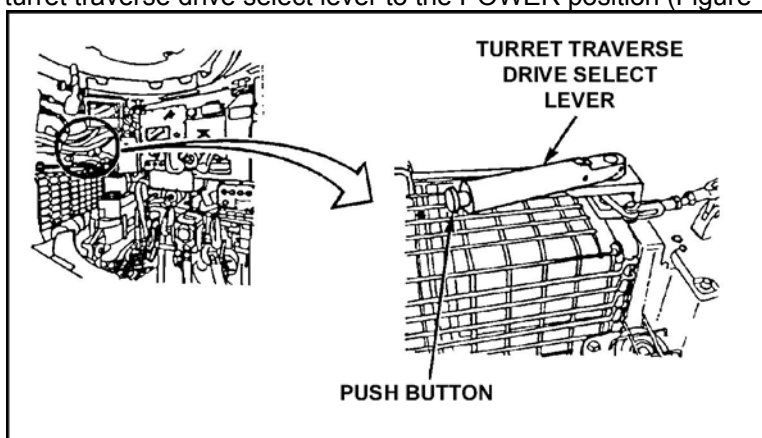


Figure 1. Turret traverse drive select lever.

- (1) Press and hold the push button.
- (2) Pull the select lever to the right to POWER and release the push button.

**WARNING**

Ensure soldiers and equipment are not in the path of the moving TOW launcher.

**CAUTION:** Do not squeeze the palm switches for more than 10 seconds; to do so can cause damage to the TOW elevation drive motor. If the launcher UP-DN indicator light does not come on in 10 seconds, release the palm switches and notify unit maintenance.

**NOTE:** There are two types of TOW control boxes. The launcher UP-DN switch and indicator light are the same for both.

- c. Raise the TOW launcher (Figure 2).

## Performance Steps

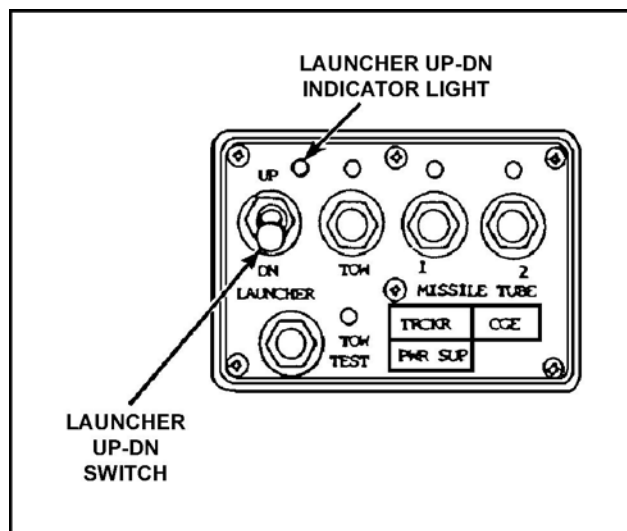


Figure 2. M2 TOW control box.

- (1) Move the launcher UP-DN switch to the UP position.
- (2) Squeeze the palm switches until the indicator light comes on, but do not hold the switches for more than 10 seconds.

NOTE: Each line on the elevation indicator equals 10 mils. Each number equals 100 mils.

d. Elevate the TOW launcher.

- (1) Squeeze and hold the palm switches.
- (2) Pull back on the gunner's control handles until the launcher reaches the desired angle or stops.
- (3) Center the control handles and release the palm switches.

NOTE: At maximum depression (-180 mils), the elevation indicator pointer will be about 1 inch below number 10.

e. Depress the TOW launcher.

- (1) Squeeze and hold the palm switches.
- (2) Push forward on the control handles until the launcher reaches the desired angle or stops.
- (3) Center the control handles and release the palm switches.

f. Lower the TOW launcher.

- (1) Move the launcher UP-DN switch to DN position.
- (2) Squeeze the palm switches until the TOW launcher stows against the turret and the indicator light goes out.

2. Operate the TOW manually by moving the turret power switch to ON and the turret drive system switch to the OFF position.

a. Move the turret traverse drive select lever to MANUAL position.

- (1) Press and hold the push button.
- (2) Move the select lever left to the MANUAL position and release the push button.

b. Move the gun elevation drive select lever to the POWER position (Figure 3).

## Performance Steps

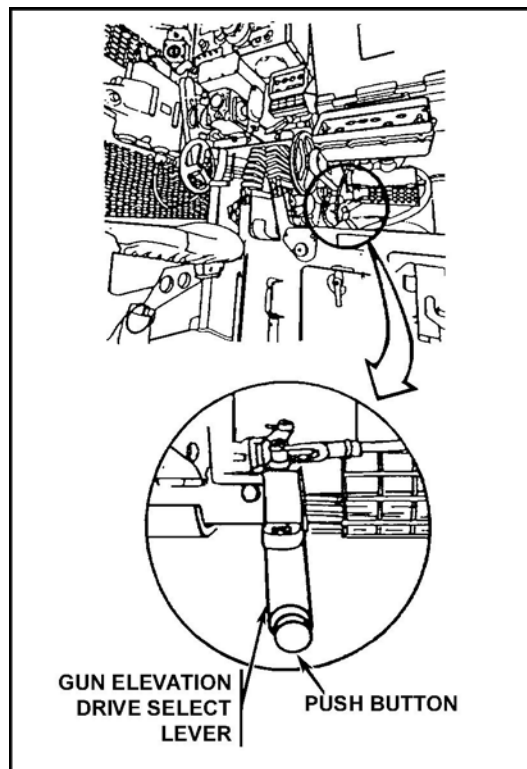


Figure 3. Gun elevation drive select lever.

- (1) Press and hold the push button.
- (2) Move the gun select lever to the right and release the push button.

**CAUTION:** Linkage between the TOW launcher and gun elevation systems can be damaged if the gun elevation handwheel is turned while both levers are in the manual position. Never turn the gun elevation handwheel with both the TOW elevation drive select lever and gun elevation drive select lever in the manual position.

- c. Move the TOW elevation drive select lever to MANUAL (Figure 4).

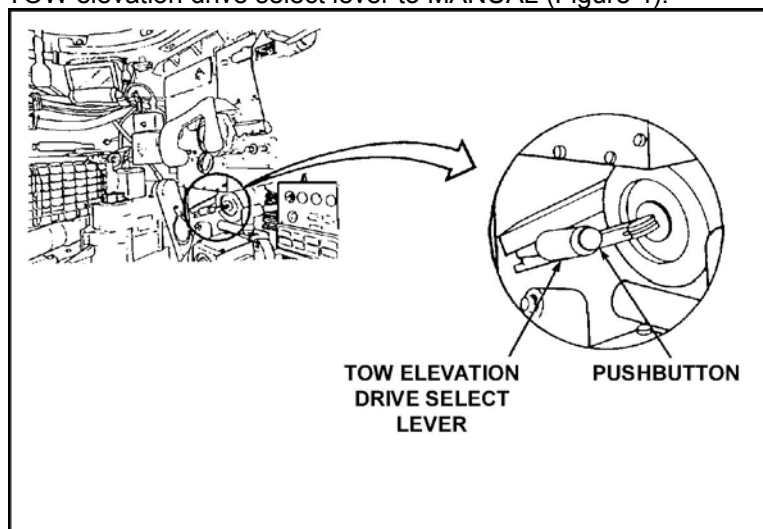


Figure 4. TOW elevation drive select lever.

- (1) Press and hold the push button.
- (2) Move the TOW select lever to MANUAL and release the push button.

**Performance Steps**

- d. Remove the spring from the handle of the gun elevation handwheel (Figure 5).

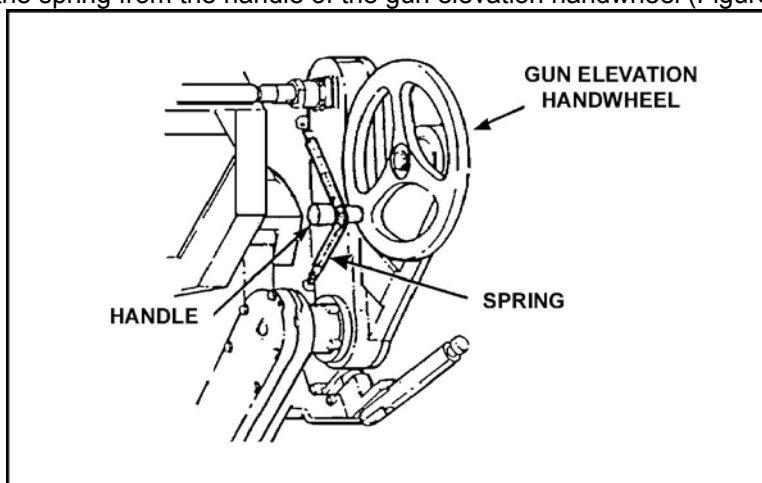


Figure 5. Gun elevation handwheel.

- e. Depress the TOW launcher by turning the handwheel forward to clear the stow pin from the saddle (Figure 6).

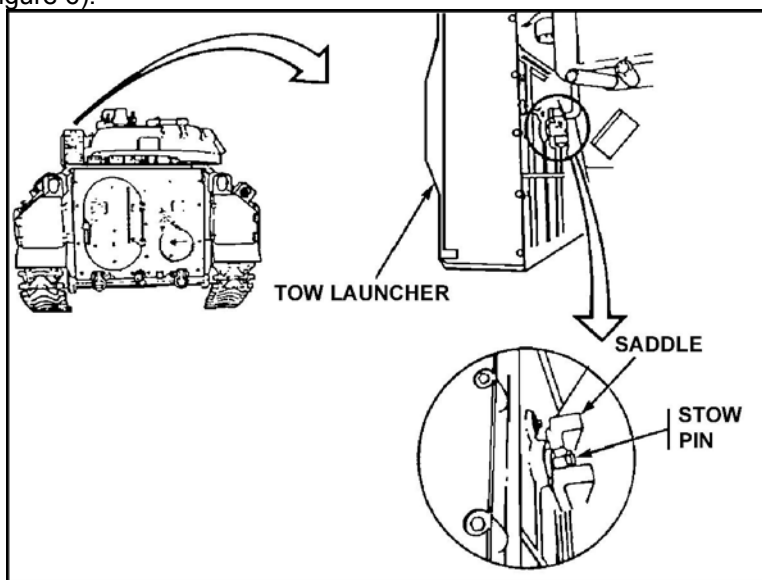


Figure 6. Stow pin and saddle.

- f. Raise the TOW launcher to the firing position by using the 14-mm ratchet wrench on the TOW manual lift drive shaft by turning clockwise until the launcher is fully elevated and the TOW light comes on (Figure 7).

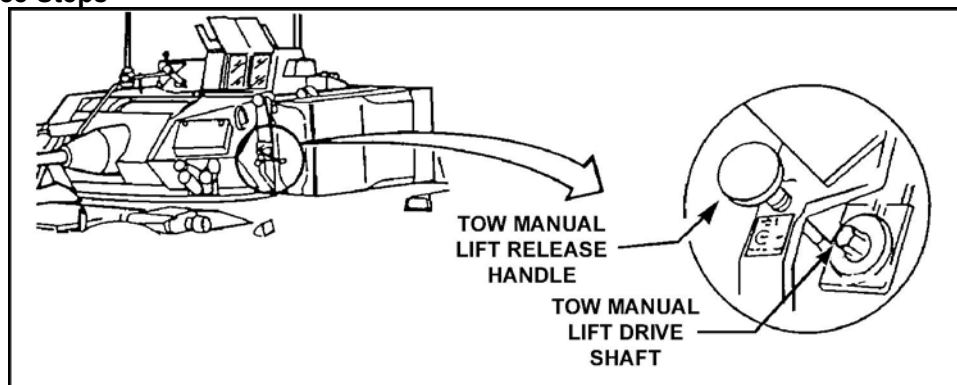
**Performance Steps**

Figure 7. TOW manual lift drive shaft.

NOTE: Elevation of the TOW launcher to 500 mils is done for loading or unloading of TOW missiles.

- g. Elevate the launcher by turning the handwheel counterclockwise.
- h. Depress the launcher by turning the handwheel clockwise.
- i. Lower the launcher by pulling out the TOW manual lift release handle.
- j. Elevate the launcher to move the stow pin into the saddle.
- k. Move the TOW elevation drive select lever to the POWER position, and install the spring on the handle of the gun elevation handwheel.

**Evaluation Preparation:** SETUP: Provide the soldier with all the material and equipment listed in the task conditions statement.

**BRIEF SOLDIER:** Tell the soldier that he is to operate the TOW launcher in power and manual modes.

**Performance Measures****GO**    **NO GO**

1. Operated the TOW launcher in the POWER mode.
  - a. Raised the launcher.
  - b. Elevated the launcher.
  - c. Depressed the launcher.
  - d. Stowed the launcher.
2. Operated the TOW launcher in the MANUAL mode.
  - a. Raised the launcher.
  - b. Elevated the launcher.
  - c. Depressed the launcher.
  - d. Stowed the launcher.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References  
Required**

**Related**  
TM 9-2350-252-10-2

## Conduct Preparation of a Dismounted M220 Launcher System Firing Position

071-056-0024

**Conditions:** Given a dismounted M220 launcher system, a TOW crew with load-bearing equipment (LBE), individual weapons, waterproof material (packing material or poncho), pioneer tools, logs (4 to 6 inches in diameter), the specific position for the weapon location, and the specific sector of fire.

**Standards:** During day or night, ensured that the firing position does not restrict the TOW target engagement; provided protection for both the weapon and the crew; that it blends in with the surroundings, so that it cannot be easily detected 35 meters to the front and cannot be seen from the air; and so that its backblast area is as clear as possible of debris that could increase the launch signature.

### Performance Steps

**CAUTION:** During training or stability and support operations, comply with SOP, OPORD, and local regulations, whichever applies, as to cutting live vegetation, digging holes, and preventing erosion.

**NOTE:** When constructing a dismounted position, do not dismount the TOW from its vehicle until the position will both support and protect the employment of the TOW. Use only the tripod to outline the dismounted position.

1. Construct the position.
  - a. Clear fields of fire and dig the weapon's position first. As time allows, add overhead protection for the crew and missiles. To ensure an adequate line-of-sight, allow at least 30 inches of clearance between the gunner's line of sight to a target and any obstructions located between 500 and 900 meters from the firing position. Dig the position 24 inches deep, then scoop out a place for the missile guidance set (MGS), either to the front or under the tripod (Figure 1).

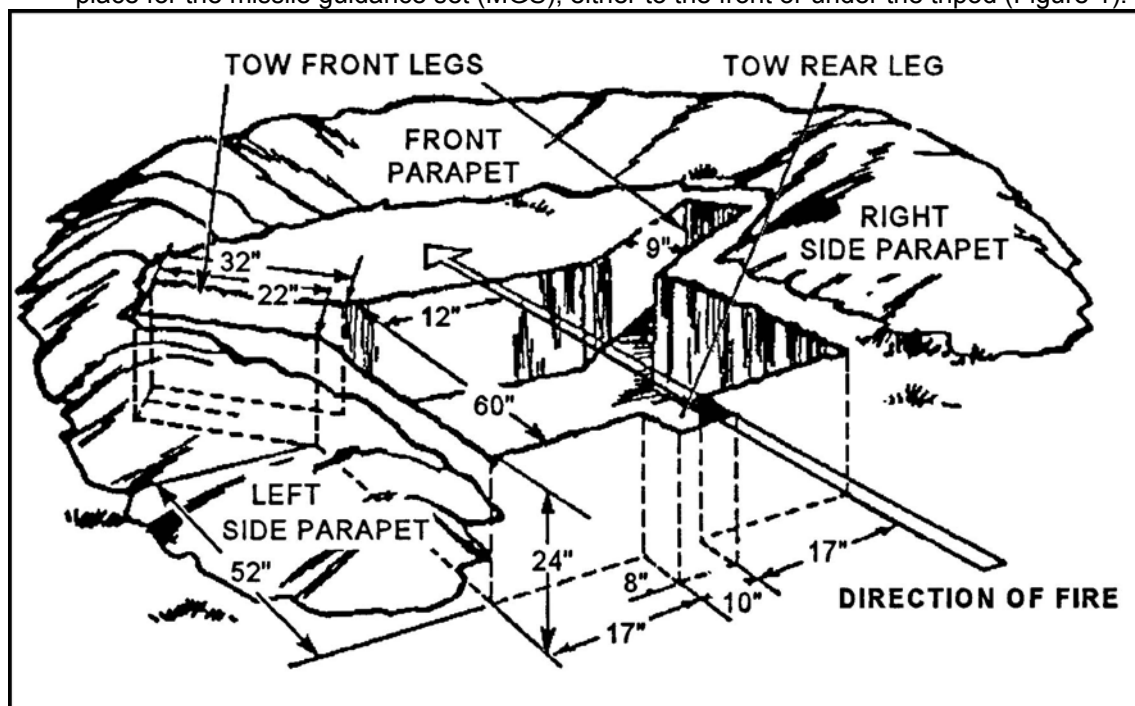


Figure 1. Dig a position.

**NOTE:** A line-of-sight clearance less than 30 inches increases the probability that the missile will hit the ground.

- b. You must allow 9 inches of clearance between the bottom of the launch tube and the parapet. Build a parapet to the front and flanks of the position at least 18 inches thick. This will provide

**Performance Steps**

- additional protection against small arms fire and front mortar and artillery fragments.
- c. Disconnect the MGS and position it in the place made for it. Then place the launcher into the position. Reconnect the MGS and check the boresight.
- d. Improve the position by adding overhead cover for the crew and missiles. Provide overhead protection for squad personnel and missiles by digging squad positions on each side and to the rear of the position.
- e. Dig to the flank (90 degrees to the primary direction of fire) and use the strongest material available for the roof. Put plastic or canvas down before throwing the dirt on the roof to help keep the ceiling from leaking. If you use sandbags, cover them with canvas or plastic. Wet sandbags are heavy and may cave in. Place at least 20 inches of dirt on top of the storage/protective area (Figure 2).

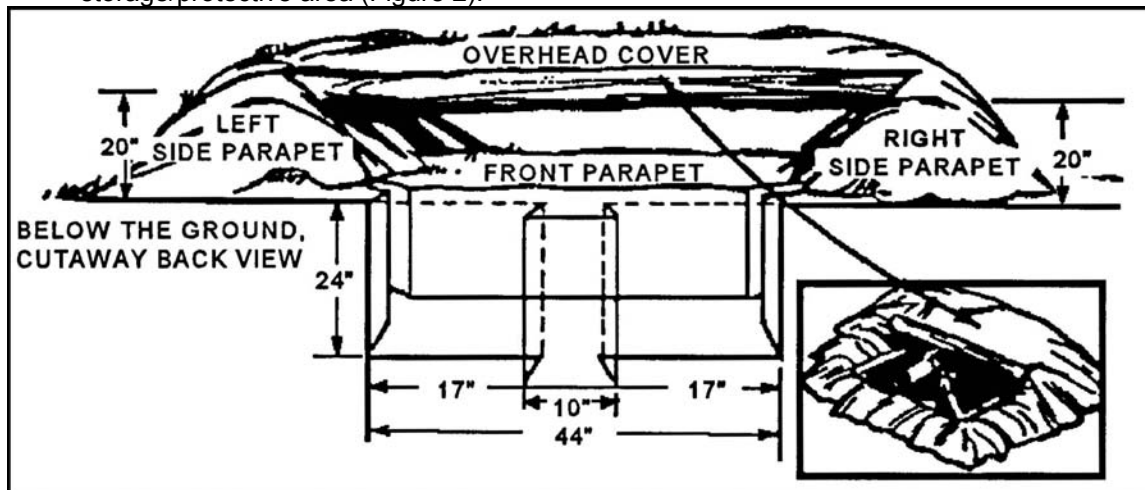


Figure 2. Storage protective area.

2. Camouflage the position.
  - a. Place sod from the position on the parapet so that it looks natural and has a good chance of growing.
  - b. Cover all fresh dirt with leaves or brush so that it blends with the ground around the position. If you need more vegetation to break up the outline of the parapet, get it from far to the rear of the position. This vegetation should look like the vegetation around the position and, if possible, should have intact roots. Do not use so much vegetation that the position has more than the surrounding area. Camouflage the holes or cuts from which vegetation was removed.
  - c. If the position is covered, camouflage it like a parapet. If it is not covered, camouflage it with camouflage nets or available brush, branches, and so forth, so that it is not visible from above.
  - d. Replace foliage if it withers or begins to change color. Try to get sod and vegetation to grow, so that the position improves as time passes. Remember that the position can always be improved. Approach the position only from the rear, ensuring you leave no signs you were there. Cover all footprints around and leading into and out of the position.
  - e. Do not litter the area or make unnecessary noise while preparing the position. Do not disturb vegetation not used to prepare the position. The area around the position should look as natural as possible.
3. Kneel the launcher. If the gunner is being suppressed by fire and must conceal the TOW, he can kneel (lower) the launcher below ground level.
  - a. Have the gunner lift the encased missile with his right shoulder.
  - b. Release the friction locking handle and detent stop on the rear leg and allow the rear leg to slide back into its notch. The launcher moves back by its own weight.
  - c. Depress and lock the launch tube in the full downward position so it does not show above the frontal protection.



## Performance Steps

4. Raise the launcher.
  - a. Lift the rear of the encased missile and push forward and down on the rear leg. (Elevation and azimuth locks must be engaged.)
  - b. Check the level indicators and the friction locking handle.
5. Inspect camouflage.
  - a. Ensure that the ground behind the TOW out to 25 meters is free of leaves and dirt so the backblast from the weapon does not leave a signature.
  - b. Do not leave any evidence of digging. Do not leave equipment lying around. Everything must be concealed or camouflaged.
  - c. If possible, move at least 35 meters to the front of the position and study it. Ensure that the position looks natural and blends with its surroundings.

**Evaluation Preparation:** SETUP: At the test site, provide all the equipment, personnel, and information stated in the task condition statement.

BRIEF SOLDIER: Tell the soldier that he will be required to supervise, assist, and make on-the-spot corrections while the squad prepares a ground-mounted TOW position. The position must--

1. Allow the squad to engage the enemy in the assigned sector of fire.
2. Provide protection for both weapon and crew.
3. Blend with the surroundings so it cannot be detected 35 meters to the front and cannot be seen from the air.

## Performance Measures

|                                                                                 | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------|-----------|--------------|
| 1. Outlined position and clear fields of fire.                                  | _____     | _____        |
| 2. Ensured sector of fire is properly covered.                                  | _____     | _____        |
| 3. Inspected the position for proper dimensions.                                | _____     | _____        |
| 4. Ensured the backblast area (about 25 meters) is free of leaves and dirt.     | _____     | _____        |
| 5. Ensured the weapon position is not detectable from the front at 35 meters.   | _____     | _____        |
| 6. Ensured the camouflage does not restrict TOW target engagement.              | _____     | _____        |
| 7. Ensured the camouflage provides concealment from ground and air observation. | _____     | _____        |
| 8. Ensured the natural vegetation used for camouflage is fresh.                 | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

## References

Required

Related  
FM 7-91

## **Conduct Preparation of a Mounted M220 Launcher System Firing Position**

**071-056-0025**

**Conditions:** Given a vehicle-mounted M220 launcher system, TOW crew with load-bearing equipment (LBE), individual weapons, pioneer tools, the specific position for the weapon location, and the specific sector of fire.

**Standards:** During day or night, prepared a firing position that does not restrict the TOW's target engagement; that provides concealment from ground and air observation for the crew and vehicle; that blends with surrounding terrain so as not to be detected 350 meters to the front; and whose backblast area is as clear as possible of debris that could increase the launch signature.

### **Performance Steps**

**CAUTION:** During training or stability and support operations, comply with SOP, OPORD, and local regulations, or whichever applies, concerning cutting of live vegetation, digging of holes, and measures to prevent erosion.

1. Camouflage and conceal the firing position to blend with the surrounding terrain.
  - a. Using terrain-driving techniques, approach the position from the rear or the flank.
  - b. When taking the route to the position, try to follow existing paths, roads, fences, or natural lines in the terrain.
  - c. Ensure the exposed routes do not end at the position.
  - d. If only a short portion of the route into or around the position is exposed, use tree branches to sweep out the tracks.
  - e. Keep traffic into and out of the position to a minimum (that is, essential movements only).
  - f. Upon moving into a position, erase the trail leading into the position.
2. Use natural camouflage.
  - a. Keep the natural vegetation used for camouflage fresh by changing it often. Wilted vegetation makes the position easy to find.
  - b. Cut the vegetation used as camouflage from a different area than the position.
  - c. Match the camouflage with the other vegetation in the area.
  - d. Ensure the camouflage does not interfere with the firing of the weapon.
3. Use camouflage nets.
  - a. Blend the nets with the surrounding terrain or vegetation.
  - b. Ensure the nets do not interfere with firing from the position.
    - (1) Raise the nets above the top of the vehicle. To keep the nets above the vehicle, use poles or small tree branches for support.
    - (2) If the vehicle is in a hull-defilade position, ensure that the vehicle outline is broken and that the net drapes over the vehicle and blends with the surrounding terrain (Figure 1).

## Performance Steps

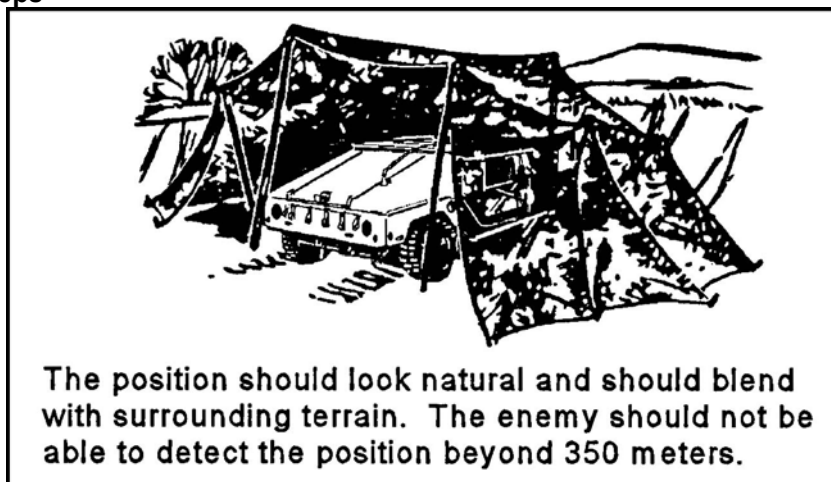


Figure 1. Hull defilade with camouflage net.

(3) If no hull-down position is available, use a hide position (Figure 2).

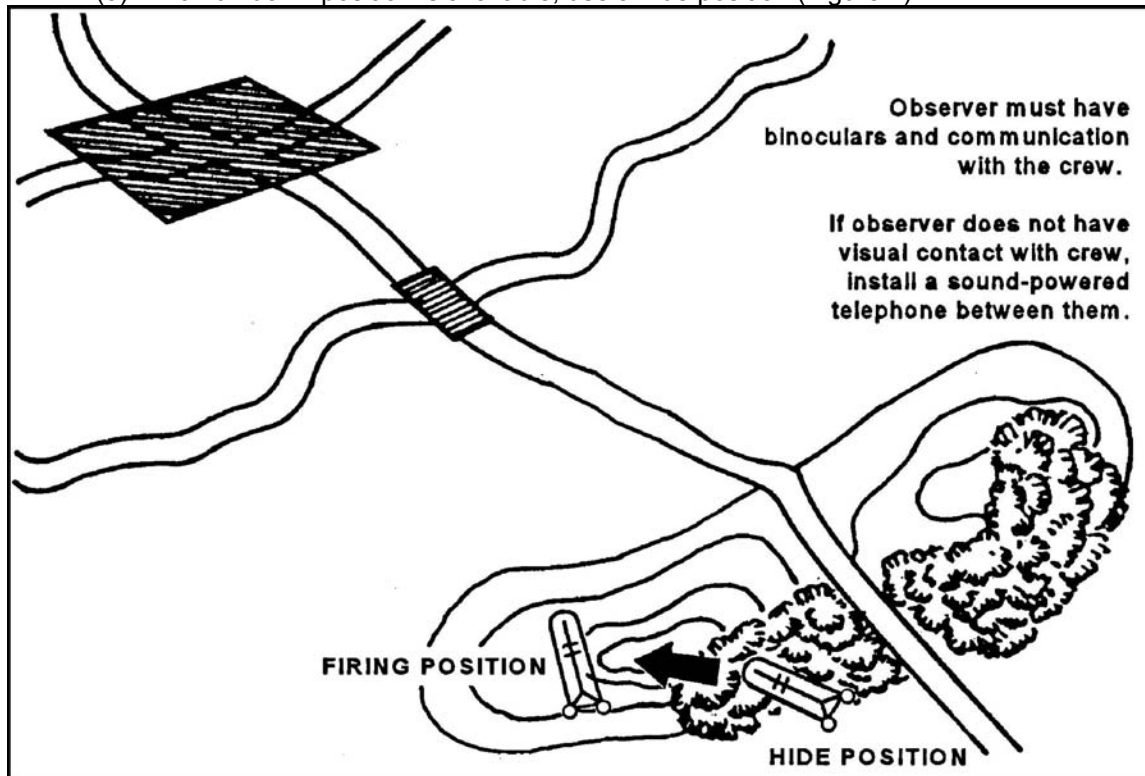


Figure 2. Hull-down position.

## 4. Inspect the camouflage.

- a. Ensure that the ground behind the TOW (about 25 meters) is free of leaves and dirt so the backblast does not leave a signature.
- b. Do not leave any evidence of digging. Do not leave equipment lying around. Conceal or camouflage everything.
- c. If possible, move 350 meters in front of the position to ensure that the position looks natural and blends with its surroundings.

**Evaluation Preparation:** SETUP: Provide the soldier with all equipment, personnel, and information listed in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to supervise camouflaging of the position to ensure it meets the following criteria:

- It does not restrict the TOW's target engagement.
- It provides concealment from ground and air observation.
- Its backblast area is as clear as possible of debris.

| <b>Performance Measures</b>                                                     | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------|------------------|---------------------|
| 1. Ensured the natural vegetation used for camouflage is fresh.                 | _____            | _____               |
| 2. Ensured all vehicles use the same route into the position.                   | _____            | _____               |
| 3. Ensured the backblast area (about 25 meters) is free of leaves and dirt.     | _____            | _____               |
| 4. Ensured the vehicle position is not detectable from the front at 350 meters. | _____            | _____               |
| 5. Ensured the camouflage does not restrict the TOW's target engagement.        | _____            | _____               |
| 6. Ensured the camouflage provides concealment from ground and air observation. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 23-34

FM 7-91

**Determine M220 Launcher System Firing Limitations****071-056-0030**

**Conditions:** Given a tripod or vehicle mounted M220A1 or M220A2 launcher system, a firing position, a sector of fire, and a completed TOW range card (DA Form 5517-R) for the sector of fire.

**Standards:** Determined M220 launcher system firing limitations and took necessary actions to compensate for firing over water, over electrical wires, in windy conditions, through smoke and fire, from bunkers and buildings, and from a vehicle and complied with clearance requirements in FM 23-34.

**Performance Steps**

1. Fire over water. Ensure the TOW position is as far above and back from the water as the tactical situation allows. Analyze the sector as soon as you occupy the position to determine whether firing over the water will affect the employment of the TOW. You will use an extended range chart to determine firing data. Which chart you will use depends on the width of the lake and, if you are firing over water less than 1,100 meters wide, which TOW you will be using.
  - a. Water less than 1,100 meters wide. Firing across bodies of water less than or equal to 1,100 meters wide does not affect the missile's range.
    - (1) To determine how much water you can fire across, you need to know, in meters (a meter is about 3.3 feet)--
      - (a) The height of the firing position above the water.
      - (b) The height of the target above the water.
    - (2) The type of TOW missile determines whether you use the chart shown in Figure 1A or in Figure 1B. Both charts work the same, so directions apply to both.
      - (a) TOW 1--Use the chart in Figure 1A.

Performance Steps

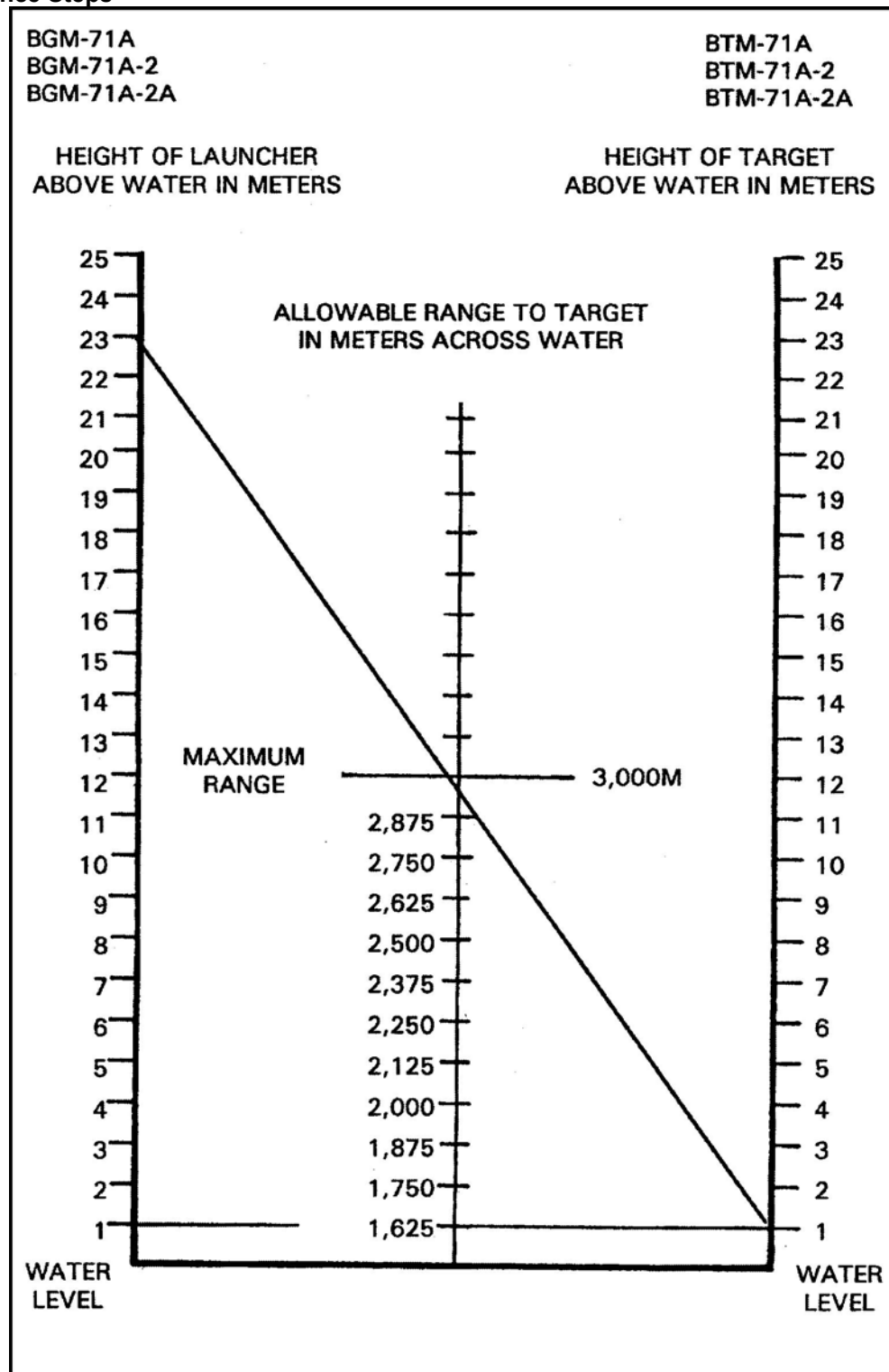


Figure 1A. Extended range chart, lake less than or equal to 1,100 meters wide, TOW 1.

(b) TOW 2--Use the chart in Figure 1B.

## Performance Steps

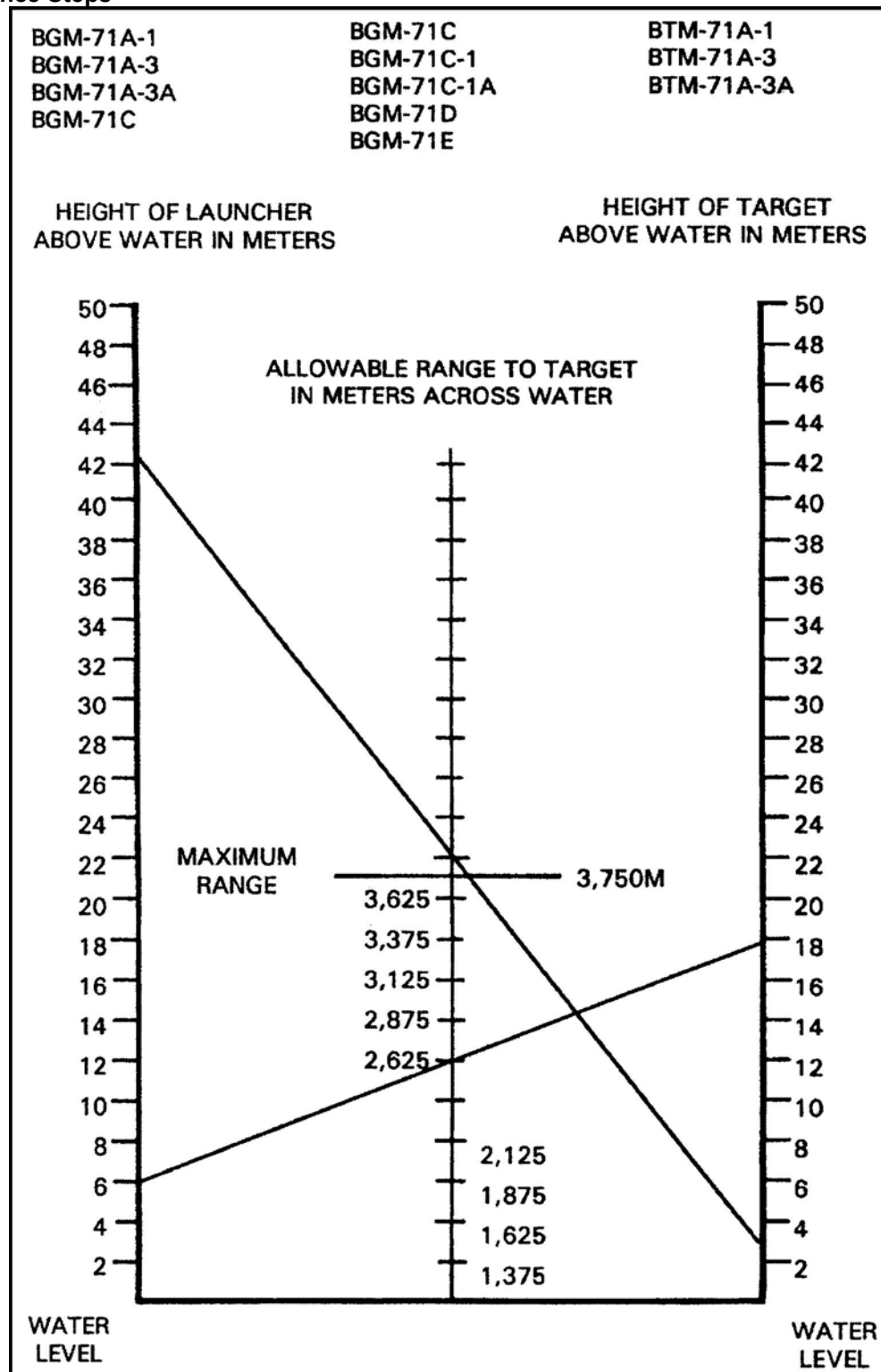


Figure 1B. Extended range chart, lake less than or equal to 1,100 meters wide, TOW 2.

- (3) Find the number on the left side of the chart that corresponds to the height of the launcher above water.
- (4) Place the end of a straightedge on the tick mark beside that number.

**Performance Steps**

- (5) Find the number on the right side of the chart that corresponds to the height of the target above water.
- (6) Place the other end of the straightedge on the tick mark beside that number.
- (7) Read the number where the straightedge crosses the centerline. (The number represents how many meters of water you can fire the TOW over.)
- (8) If the straightedge crosses between two numbers, you may have to estimate.
- b. Water more than 1,100 meters wide. Firing across bodies of water wider than 1,100 meters can reduce the range of the TOW. If a large amount of the wire falls in the water, the water will short out the signal. If you know the width of the lake, and it is more than 1,100 meters wide, you can determine how far the missile will travel.
  - (1) To determine how much water you can fire across, you need to know, in meters--
    - (a) The distance from the launcher to the water.
    - (b) The width of the lake.
    - (c) The height of the firing position above the water.
    - (d) The height of the target above the water.
  - (2) Once you have this information, you can use the chart in Figure 2 to compute your maximum engagement range. This chart applies to either the TOW 1 or the TOW 2 missile. For the example used in Figure 2, the launcher is 500 meters from the lake, the lake is 1,600 meters wide, the firing position is 5 meters above the water, and the target is 6 meters above the water. (Steps correspond to those in Figure 2.)

|                                                                                                                                                                           |                                                 |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------|
| <b>EXAMPLE:</b> The launcher is 500 meters from a lake, which is 1,600 meters wide. The launcher is 5 meters above the water, and the target is 6 meters above the water. |                                                 |                       |
| STEP A                                                                                                                                                                    | Distance of launcher to lake                    | 500 meters            |
| STEP B                                                                                                                                                                    | Width of lake                                   | <u>+ 1,600 meters</u> |
|                                                                                                                                                                           | Distance missile can travel at water level      | 2,100 meters          |
| STEP C                                                                                                                                                                    | Launcher altitude above water                   | 5 meters              |
| STEP D                                                                                                                                                                    | Target height above water                       | <u>+ 6 meters</u>     |
|                                                                                                                                                                           | Total height above water                        | 11 meters             |
| STEP E                                                                                                                                                                    | Amount distance increases for each meter height | <u>x 60 meters</u>    |
|                                                                                                                                                                           | Total increase in distance due to height        | 660 meters            |
| STEP F                                                                                                                                                                    | Sum from Step B                                 | 2,100 meters          |
|                                                                                                                                                                           | Product from Step E                             | <u>+ 660 meters</u>   |
|                                                                                                                                                                           | Maximum engagement range                        | 2,760 meters          |

Figure 2. Extended-range chart, lake wider than 1,100 meters.

- (a) Add the distance from the firing position to the lake to the width of the lake.

|        |     |                                 |
|--------|-----|---------------------------------|
| Step A | 500 | Distance from launcher to water |
| Step B | +   | 1,600                           |
|        |     | 2,100                           |
|        |     | Total distance                  |

- (b) Add the heights of the firing position above water and the target above water .

|        |   |                                           |
|--------|---|-------------------------------------------|
| Step C | 5 | Height of firing position above the water |
|--------|---|-------------------------------------------|



**Performance Steps**

|        |   |    |                                  |
|--------|---|----|----------------------------------|
| Step D | + | 6  | Height of target above the water |
|        |   | 11 | Total height                     |

( c ) Multiply the height total (C+D) times 60.

|        |   |     |                                              |
|--------|---|-----|----------------------------------------------|
|        |   | 11  | Total height                                 |
| Step E | x | 60  | Additional distance for each meter in height |
|        |   | 660 | Distance added to compensate for height      |

( d ) Add the total in Step E, Figure 2 to the total in Step B.

|        |   |       |                                         |
|--------|---|-------|-----------------------------------------|
| Step F |   | 2,100 | Total distance                          |
|        | + | 660   | Distance added to compensate for height |
|        |   | 2,760 | Maximum engagement range                |

( e ) The result is the maximum engagement range.

NOTE: To increase the maximum engagement range, raise the launcher's height 1 meter for each 60-meter increase in range required.

2. Fire from organic carriers. Ensure that the backblast area is clear and that the backblast is not directed into the vehicle. Also, ensure you have enough muzzle clearance between the launcher and the vehicle.
3. Fire over electrical wires. If the command-link wires contact a live high-voltage power line, personal injury or loss of control of the missile can occur. The launcher electronics may also be damaged.
4. Fire in windy conditions. Gusts, flanking, or quartering winds can cause the launch tube to vibrate and spoil your tracking performance. Position the TOW behind a windbreak to reduce this problem. Strong winds can move the missile around during flight. However, as long as you keep the cross hairs on center-mass of the target, the weapon system will compensate for wind effects.
5. Fire the weapon through smoke and area fires. Smoke can obscure the line of sight and hide the target. Maintain a smooth tracking rate as the target disappears into a smoke cloud. This ensures it will most likely still be on target (or close to it) when the vehicle emerges from the other side of the smoke cloud. (Practice this technique during field-tracking exercises.) Fire can burn through the command-link wire, which can cause you to lose control of the missile. Avoid firing through or over fire if the wires might contact the fire before the missile impacts.
6. Fire from bunkers and buildings. Fire the TOWs from enclosures only if they meet the following requirements:
  - a. Ensure the room is no smaller than 17 x 24 feet, with a 7-foot ceiling. You can use smaller rooms, but only if they meet the minimum ventilation requirements for the backblast.
  - b. Ensure the room has an opening of at least 20 square feet for ventilation, preferably to the rear of the launcher. Open all windows and doors.
  - c. Ensure the room is clear of all loose objects or debris, any of which would be affected by the backblast. Break all glass out of windows. Clear that and all other rubble from the backblast area.
  - d. The room should be of sturdy construction.
  - e. Everyone in the room must be forward of the rear end of the launch tube.
  - f. Everyone in the room must wear double ear protection to prevent hearing loss. Earplugs and communications (CVC) helmets provide such protection.
7. Follow clearance requirements (Figure 3).

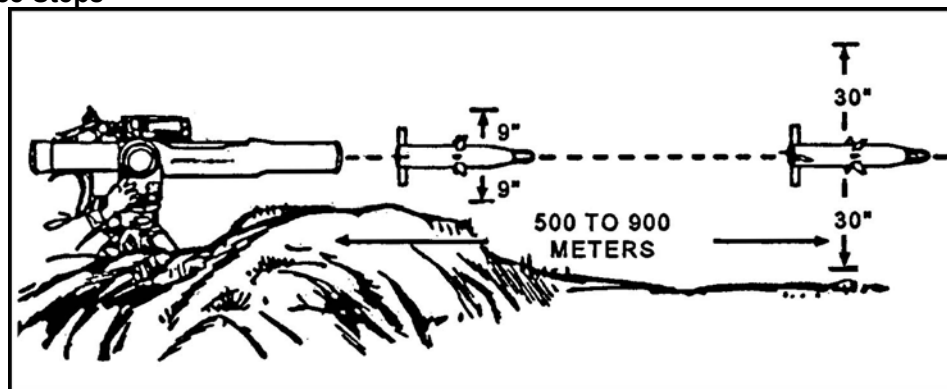
**Performance Steps**

Figure 3. Clearance requirements.

- For TOW muzzle clearance, ensure the ends of the launch tubes have at least 9 inches of clearance. This avoids damage to the wings and control surfaces when they extend after the missile clears the launch tube.
- Extend the muzzle of the launch tube beyond any enclosure, windowsill, or aperture.
- Ensure you have at least 30 inches of clearance between the line of sight and any obstruction located between 500 and 900 meters downrange. This clearance is required because the missile may fly below the gunner's line of sight between 500 and 900 meters. You need 30-inch line-of-sight clearance to ensure the missile will not hit the ground on its way to the target.

**Evaluation Preparation:** **SETUP:** Provide the soldier with all equipment, personnel, and information listed in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to supervise camouflaging of the position and ensure it meets the following criteria:

- Does not restrict the TOW's target engagement.
- Provides concealment from ground and air observation.
- The backblast area is as clear as possible of debris.

**Performance Measures**

- Determined the maximum range using the following information for firing over water.
  - Distanced from the launcher to the lake is 500 meters.
  - Distanced you know the missile can travel 1,600 meters.
  - Height of the launcher above the water is 5 meters.
  - Height of the target above the water is 10 meters.
- What action can be taken to prevent gusty wind, flanking wind, or quartering wind from vibrating the launch tube and spoiling your tracking performance?
- What can happen if the command-link wires contact a high-voltage power line?
- What should you do when you are tracking a target and it enters a smoke cloud?
- What is the minimum amount of square feet required for ventilation when firing a TOW from inside a room?
- How many inches of muzzle clearance are required for firing the TOW?
- How many inches of muzzle clearance are required between your line of sight and any obstructions that are located from 500 to 900 meters downrange?

**GO**      **NO GO**

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**Evaluation Guidance:** If you answer 5 of the 7 questions correctly, score yourself a GO. If you miss 3 or more questions score yourself a NO-GO. A NO-GO indicates that you need to work on this task some more.

#### ANSWERS

1. 3,000 meters.
2. Provide a windbreak.
3. The gunner could be injured and lose control of the missile, possibly damaging launcher electronics.
4. Continue tracking at a smooth rate.
5. 20 square feet.
6. 9 inches.
7. 30 inches.

#### References

**Required**  
DA FORM 5517-R

**Related**  
FM 23-34  
TM 9-1425-450-12  
TM 9-1425-472-12

## Conduct Mounting of an M220 Launcher System on an M966 Vehicle

**071-056-0032**

**Conditions:** Given a tripod mounted M220A1 or M220A2 launcher system positioned for firing, an encased missile, an M966 TOW carrier, a TOW crew, and an FM 23-34.

**Standards:** Supervised, assisted, and made on-the-spot corrections as needed; ensured that soldiers mount the launcher system on the M966 and that the launcher system worked. Ensured soldiers placed and secured components and encased missiles in designated locations without damaging equipment or hurting themselves or others.

### Performance Steps

Note: FM 23-34, Chapter 3, provides the specific duties and responsibilities of each member of the crew. Assign these duties and responsibilities to each member of the crew in such a way as to complete this task with the most possible efficiency. Chapter 3 also provides specific procedures for mounting the weapon system.

1. Give the command to mount the launcher system.
2. Supervise, assist, and make on-the-spot corrections in order to:
  - a. Secure the missile guidance set (SGS) on the MGS tray.
    - (1) M220A1 - with the battery assembly installed.
    - (2) M220A2 - with the TOW vehicle power conditioner (VPC) installed.
  - b. Mount the traversing unit on the traversing unit adapter and secure it with the top coupling clamp.
  - c. Mount the daysight on the traversing unit.
  - d. Mount the nightsight on the daysight.
  - e. Mount the launch tube on the traversing unit.
  - f. Connect the coil cable to the MGS J1 connector.
    - (1) M220A1 - nightsight power conditioner cable connects to nightsight J1 input jack.
    - (2) M220A2 - nightsight VPC cable connects to nightsight J1 input jack; VPC cable connects to VPC.
  - g. Complete the self-test portion of the system checkout procedure.
  - h. If time permits, collimate the nightsight to the daysight.
  - i. Stow and secure the nightsight case and boresight collimator in the right rear of the vehicle.
  - j. Stow the MGS cover in the right front passenger footwell.
  - k. Stow and secure the tripod in the vehicle at the rear of the missile storage rack.
    - (1) M220A1 - Stow coolant cartridge and battery cases in right rear of vehicle; stow battery assembly in battery racks.
    - (2) M220A2 - Stow the battery power conditioner in right rear of vehicle; stow battery assembly in battery racks.
  - l. Stow the encased missiles in the missile storage racks.
  - m. Close and secure the cargo shell door.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and material as outlined in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier, "As a member of a TOW squad, mount the TOW and all the required equipment, to include an encased missile, on the M966, and prepare for extended travel."

### Performance Measures

|                                                            | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------------------|-----------|--------------|
| 1. Gave command to mount the launcher system.              | _____     | _____        |
| 2. Supervised, assisted, and made on-the-spot corrections. | _____     | _____        |
| a. Secured the missile guidance set on the tray.           |           |              |

**Performance Measures****GO**    **NO GO**

- b. Mounted the traversing unit on the traversing unit adapter and secured it with the top coupling clamp.
- c. Mounted the daysight on the traversing unit.
- d. Mounted the nightsight on the daysight.
- e. Mounted the launch tube on the traversing unit.
- f. Connected the coil cable to the MGS J1 connector.
- g. Completed the self-test portion of the system checkout procedure.
- h. If time permits, collimate the nightsight to the daysight.
- i. Stowed and secured the nightsight case and boresight collimator in the right rear of the vehicle.
- j. Stowed the MGS cover in the right front passenger footwell.
- k. Stowed and secured the tripod in the vehicle at the rear of the missile storage rack.
- l. Stowed the encased missiles in the missile storage racks.
- m. Closed and secured the cargo shell door.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**  
FM 23-34

**Related**  
TM 9-1425-450-12

## Conduct Dismounting of an M220 Launcher System from an M966 Vehicle

**071-056-0034**

**Conditions:** Given an M220A1 or M220A2 launcher system mounted on a M966 TOW carrier, an encased missile, a TOW crew, and FM 23-34.

**Standards:** Supervised, assisted, and made on-the-spot corrections; ensured soldiers remove the launcher system and encased missile from the vehicle, and emplaced both at a firing position. Ensured they complete the task without damaging equipment or hurting themselves or others.

### Performance Steps

Note: FM 23-34, Chapter 3, provides the specific duties and responsibilities of each member of the crew. Assign these duties and responsibilities to each member of the crew in such a way as to complete this task with the most possible efficiency. Chapter 3 also provides specific procedures for mounting the weapon system.

1. Squad or section leader: give the command to dismount the launcher system.
2. Supervise, help, and make on-the-spot corrections to ensure soldier accomplishes the following:
  - a. Dismount the launcher system and encased missile.
  - b. Disconnect all cables and stow them in the designated place.
  - c. Disassemble and remove the launch tube, nightsight, daysight, and traversing unit from the vehicle mount.
  - d. Remove the tripod, the nightsight carrying case, the boresight collimator, the MGS, and the encased missile(s) from the vehicle. If you have the M220A1, also remove the coolant cartridge and battery cases. If you have the M220A2, remove the battery power conditioner (BPC).
  - e. Place the nightsight in its carrying case.
  - f. Place the MGS cover on the MGS and secure it; remove the TOW vehicle power conditioner (VPC) and the battery assembly that you installed just before putting on the MGS cover.
  - g. After off-loading equipment, position it where you can easily move it later to a ground firing site.
  - h. Mount the launcher system on the tripod and prepare for firing.
  - i. Comply with the safety precautions of both the vehicle and the launcher system.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and material as outlined in the task condition statement.

BRIEF SOLDIER: Tell the soldiers to dismount the launcher system and all required equipment, to include an encased missile. Mount the launcher system on the tripod and prepare for firing.

### Performance Measures

|                                                                                                                                                                                                                                                                                         | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Squad or section leader gave the command to dismount the launcher system.                                                                                                                                                                                                            | —         | —            |
| 2. Supervised, helped, and made-on-the spot corrections; ensured the soldier accomplished the following:                                                                                                                                                                                | —         | —            |
| a. Dismounted the launcher system and encased missile.                                                                                                                                                                                                                                  |           |              |
| b. Disconnected all cables and stowed them in the designated place.                                                                                                                                                                                                                     |           |              |
| c. Disassembled and removed the launch tube, nightsight, daysight, and traversing unit from the vehicle mount.                                                                                                                                                                          |           |              |
| d. Removed the tripod, the nightsight carrying case, the boresight collimator, the MGS, and the encased missile(s) from the vehicle. If you have the M220A1, also removed the coolant cartridge and battery cases. If you have the M220A2, removed the battery power conditioner (BPC). |           |              |
| e. Placed the nightsight in its carrying case.                                                                                                                                                                                                                                          |           |              |
| f. Placed the MGS cover on the MGS and secured it; removed the TOW VPC (vehicle power conditioner) and the battery assembly that you installed just                                                                                                                                     |           |              |

**Performance Measures****GO**    **NO GO**

- before putting on the MGS cover.
- g. After off-loading equipment, positioned it where you can easily move it later to a ground firing site.
- h. Mounted the launcher system on the tripod and prepare for firing.
- i. Complied with the safety precautions of both the vehicle and the launcher system.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required**

FM 23-34

**Related**

TM 9-1425-450-12

## Conduct Occupation of an M220 Launcher System Firing Position

### 071-056-0035

**Conditions:** Given a squad sector of fire, the general location of a firing position, an M220 launcher system mounted on its organic carrier, squad members, and a requirement to occupy a firing position.

**Standards:** Occupation of the firing position has been accomplished without detection by threat forces. The launcher system is located to provide effective antiarmor fire in assigned sector of fire, is concealed from enemy observation, and can be displaced from the position without having to move toward the enemy or to turn around.

#### Performance Steps

1. Direct the driver of the carrier to approach the general area of the firing position from the rear or flank.
2. Halt the carrier short of the position in a covered and concealed location.
3. Dismount the carrier and conduct a reconnaissance.
4. Analyze the terrain and select the exact location for the firing position, and a covered and concealed route into and out of the position.

NOTE: Attempt to find a mounted firing position. This increases flexibility of the squad by using the least amount of time displacing to new positions. If terrain prevents the carrier from moving to the position or if the carrier cannot be concealed, the launcher system must be employed in the ground mount mode.

5. Occupy the position and place the launcher system so that:
  - a. All of assigned sector can be covered with effective antiarmor fire.
  - b. All of assigned sector can be covered with effective antiarmor fire.
  - c. Flash and weapon signature is concealed from enemy observation.
  - d. Defilade is achieved to the front and from the direction of approaching enemy vehicles.
  - e. Rapid displacement from the position can be accomplished without having to move toward the enemy or take the time to turn around.

**Evaluation Preparation:** SETUP: At the test site, provide the squad leader with all the equipment and information stated in the task condition statement.

BRIEF SOLDIER: Tell the squad leader to occupy a firing position that allows coverage of the sector of fire. Make full use of natural cover, and concealment.

#### Performance Measures

1. Reconnoitered the firing position.
2. Selected a firing position.
3. Occupied the firing position.

**GO**    **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### References

##### Required

##### Related

FM 23-34  
FM 7-91



## **Conduct Mounting of an M220 Launcher System on an M901 Vehicle**

**071-056-0041**

**Conditions:** Given an M901 vehicle, a TOW squad, a complete TOW launcher system in the tripod mode, an encased missile, and a requirement to mount the system on an M901 TOW carrier.

**Standards:** Supervised, assisted, and made on-the-spot corrections so that components and encased missiles are placed and secured in their designated location. The launcher system is mounted on the M901, is operational, and is in the extended travel configuration on an M901 in accordance with FM 23-34.

### **Performance Steps**

1. The squad leader gives the command to mount the TOW.
2. The squad mounts the M220 launcher system on the M901 from a dismounted firing position. (See table 1.)

## Performance Steps

| SEQUENCE      | SQUAD LEADER | GUNNER | LOADER                                                                                                                          | DRIVER                                                                                                                                             |
|---------------|--------------|--------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 2<br>(cont'd) |              |        | NOTE: If the driver is still installing the sights, recovers the WD-1 communications wire before taking on-board duty position. | If necessary (and not installing the sights), returns to the ground firing position and recovers the WD-1 wire (if the tactical situation allows). |

Table 1. Remount procedures for M901-series-mounted TOW (continued).

## Performance Steps

| SEQUENCE | SQUAD LEADER                                                                                                                                                                                    | GUNNER                                                                                                                                                                                              | LOADER                                                                                                                                                                                                                                                                         | DRIVER                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | Commands: INSTALL THE TOW.<br>Disconnects and stows BPC cable then slings the BPC and binoculars around his neck.<br>Assists in stowing the coil cable in the traversing unit.                  | Disconnects the BPC cable and PA cable from the nightsight.<br>Removes the nightsight and daysight tracker. Disconnects the coil cable from the MGS.                                                | Unloads the encased missile or expended launch container and removes launch tube and traversing unit.                                                                                                                                                                          | Locks the machine gun (unloading it if necessary), moves to the ground firing position and picks up the nightsight and daysight tracker.                                                                                                                                                                                                                                                                                                              |
| 2        | After the other components are removed by the crew, picks up the tripod and moves to the carrier. Stows the BPC, tripod, and binoculars. Opens driver's hatch and takes on-board duty position. | Moves to the carrier with the launch tube and MGS. Places the launch tube at the right rear of the vehicle. Installs the TVPC into the MGS, and installs the MGS, and takes on-board duty position. | Carries the traversing unit to the carrier and stows it. Returns to the ground firing position, picks up TA-1, collimator, and or encased missile and stows them in the carrier with the straps provided. Also, installs the launch tube before taking on-board duty position. | Returns to the carrier, opens sight access cover, sets the sight on + 0 -, installs the daysight tracker, hooks up VPC cable and collimator power cable, installs nightsight, connects postamplifier cable, connects actuators, stows free end of collimator power cable in range focus storage bracket, turns nightsight ON, and closes and secures access cover.<br><br>NOTE: Before taking on - board duty position, ensures the VPC is turned on. |

Table 1. Remount procedures for M901-series-mounted TOW.

Note: For the M901A1, omit the power cable and TOW vehicle power conditioner (VPC), add battery on collimator and nightsight, and add coolant cartridge.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and materials as outlined in the task condition statement.

BRIEF SOLDIER: Tell the soldier to mount TOW and all required equipment including an encased missile and prepare for extended travel.

| <b>Performance Measures</b>                                                                 | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Complied with all vehicle and launcher system safety precautions.                        | _____            | _____               |
| 2. Ensured vehicle is in a covered and concealed position with ramp lowered and engine off. | _____            | _____               |
| 3. Squad leader gave the command to mount the TOW.                                          | _____            | _____               |
| 4. Mounted the TOW and encased missile so that it is operational.                           | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 23-34  
TM 9-1425-450-12  
TM 9-1425-472-12

## **Conduct Dismounting of an M220 Launcher System from an M901 Vehicle**

**071-056-0045**

**Conditions:** Given a complete TOW launcher mounted on an M901 vehicle, an encased missile, a TOW squad, and a requirement to dismount the TOW.

**Standards:** Supervised, assisted, and made on-the-spot corrections so that components and encased missiles are removed from the vehicle without damage to equipment or injury to personnel; and conducted emplacement of the system to allow the squad to engage targets in accordance with FM 23-34.

### **Performance Steps**

1. The squad leader gives the command to dismount the TOW.
2. The squad dismounts the M220 launcher system from the M901 and assembles the TOW for tripod-mounted operation. (See table 1).

## Performance Steps

| SEQUENCE | SQUAD LEADER                                   | GUNNER                      | LOADER                                                                                                                                                                                                                                                                                                   | DRIVER |
|----------|------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 4        | Observes the target area for possible targets. | Prepares to engage targets. | Gives the TA-312 to the squad leader and loads the encased missile in the launcher. Returns to the carrier for the WD-2 communication wire and more missiles. As he returns to the ground firing position, lays the communications wire, connects it to the TA-312, and assumes duty position as loader. |        |

Table 1. Dismount procedures for M901-series-mounted TOW (continued).

## Performance Steps

| SEQUENCE | SQUAD LEADER                                                                                                                                                         | GUNNER                                                                                                                                                                                                                                                                      | LOADER                                                                                                                                                                                                                                                                                                                                 | DRIVER                                                                                                                                                                                                         |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | Commands, "DISMOUNT THE TOW."                                                                                                                                        |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                        | Halts vehicle in a covered and concealed position (or as directed by squad leader) and lowers the ramp.                                                                                                        |
| 2        | Removes tripod, BPC, and binoculars from stowage locations and moves to the ground firing position.                                                                  | Removes MGS from mounting brackets (with battery assembly installed); removes TVPC and installs battery assembly; and carries MGS and launch tube to the ground firing position.                                                                                            | Moves out of squad leader's way. Removes launch tube and places it on the ground at the right rear of the vehicle. Removes traversing unit from stowage location and carries it to the ground firing position.                                                                                                                         | Removes optical sight and nightsight, lays them on the top of the carrier, closes sight access cover, replaces nightsight eyepiece, moves to the ground, and carries the sights to the ground firing position. |
| 3        | Sets up and levels the tripod so it is oriented in the direction of fire and places the BPC near the tripod. Connects BPC cable and places it within gunner's reach. | Installs the sights, connects the MGS, connects BPC cable and PA cable and turns on BPC. Turns the nightsight on, conducts a system self-test (steps 10 through 15 and steps 22 through 34). Connects collimator power cable to nightsight, and prepares to engage targets. | Installs the traversing unit on the tripod. Installs the launch tube. Returns to the carrier for an encased missile, the collimator, and (if the ground firing position is beyond voice range) the TA-312 telephone. Installs collimator on nightsight, hooks up power cable to the collimator, and removes and stows when collimated. | Returns to the carrier, closes the driver's hatch, secures more machine gun ammunition (if necessary). Opens the gunner's hatch, loads and mans the machine gun, and monitors the radio.                       |

Table 1. Dismount procedures for M901-series-mounted TOW.

Note: For the M901A1, omit the power cable and TOW vehicle power conditioner (VPC), add battery on collimator and nightsight, and add coolant cartridge.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and materials as outlined in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier as a member of a TOW squad, to dismount the TOW and all required equipment to include an encased missile, mount the TOW on the tripod, and prepare for firing.

| <b>Performance Measures</b>                                                                 | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Complied with all vehicle and launcher system safety precautions.                        | _____            | _____               |
| 2. Ensured vehicle is in a covered and concealed position with ramp lowered and engine off. | _____            | _____               |
| 3. Squad leader gave the command to dismount the TOW.                                       | _____            | _____               |
| 4. Dismounted the TOW and an encased missile.                                               | _____            | _____               |
| 5. Mounted the TOW on the tripod and prepare for firing.                                    | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 23-24  
TM 9-1425-450-12  
TM 9-1425-472-12



## Select Firing Positions for an M220 Launcher System

071-056-0059

**Conditions:** Given an M220A1 or M220A2 launcher system mounted on a vehicle, a TOW crew, a sector of fire, and a general location for the launcher system.

**Standards:** Selected a primary position allowing the best coverage of the assigned sector of fire, an alternate position that covers the same sector of fire, and a supplementary position to engage any targets outside the primary sector of fire that cannot be engaged from either the primary or alternate position; selected firing positions that do not restrict observation and target engagement in the assigned sector of fire. Provided concealment from hostile ground and air observation, designated covered and concealed routes into and between positions; and allowed mutual support between squad positions and with other elements.

### Performance Steps

1. The section leader designates the sector of fire for primary, alternate, and supplementary positions.
2. The section/squad leader selects the firing positions.
3. The squad leader briefs the section leader on the squad leader's TOW firing positions.
4. Ensure positions selected provide the following:
  - a. Cover, especially to the front.
  - b. Concealment from ground and aerial observation.
  - c. Observation and fields of fire into the assigned sector of fire or engagement areas.
  - d. Covered and concealed routes to and between positions.
  - e. Mutual support between squad positions and other elements.
5. Select positions below ridgelines and crests, preferably on the sides of hills. Choose positions and routes to the positions that are as dry and level as possible. Avoid swampy areas and steep hillsides. Avoid positions on or near prominent terrain features. Ensure routes to and between positions offer cover and concealment.
6. At night or during other limited visibility, TOW squads should be positioned where they can detect and engage targets. Leaders should not assume that darkness will hide their firing positions. After selecting a position, a unit should work to improve it as long as it is occupied. A unit remaining in a position for a long time can make extensive improvement, especially with the help of engineers.
7. Each squad should choose a primary firing position and as many alternate positions as practical. Depending on its terrain and mission, the squad may be assigned a supplementary position (Figure 1). Primary and alternate positions are used both in the attack and in the defense. A supplementary position is used only in the defense.

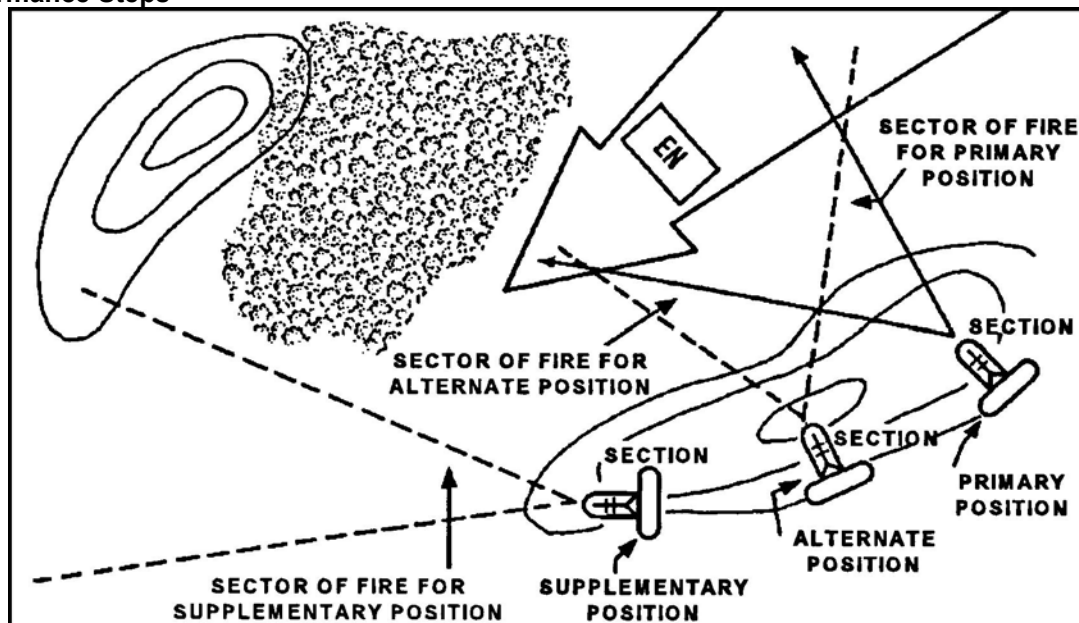
**Performance Steps**

Figure 1. Primary, alternate, and supplementary positions.

- a. Select primary position. This is the initial firing position from which a squad covers an assigned sector or an engagement area. It should be the best location from which to engage the vehicles. The platoon leader or section leader normally designates the general location of the primary position.
  - (1) Whenever possible, select alternate positions at least 300 meters from the primary position. This keeps enemy artillery fires on the primary position from hitting the alternate position. Terrain restrictions may prevent dispersion, but the leader should always consider dispersion when choosing alternate positions.
  - (2) When the squad leader selects the alternate position(s), he should report each location to the section and platoon leaders. During the battle, he should also report whenever he moves to an alternate position. Besides moving to the alternate position when the primary position begins receiving fire, a squad may also move to it to confuse the enemy. If time permits, the squad should prepare each alternate position with as much care as the primary position.
  - (3) Supplementary position. Select this position to cover an area or possible enemy avenue of approach that cannot be covered from the primary or the alternate position such as areas or approaches to the flank or rear of a unit. As the least, reconnoiter a supplementary position and prepare a range card (DA Form 5517-R) for it. At times, the OPORD will specify that that the position is to be prepared. Normally, a supplementary position is only occupied on order.
- b. Exploit TOW accuracy to 3,750 meters. This long range gives the TOW an advantage at ranges greater than 1,500 meters. The TOW system can engage enemy tanks but at the same time remain safe from return tank fire. This is due to the standoff achieved at maximum range.
  - (1) Exploiting the range this way takes advantages of one of the key features of the weapon (its standoff range) and protects the crew from return tank fire.
  - (2) Positioning the TOW to the flank, farther to the rear of the line of enemy contact, or farther from its sector of fire, gives you another 1,500 meters of range.
- c. Arrange for mutual support. Provide some protection for the TOW crew by ensuring continuous coverage of enemy armored vehicles. This consists of two parts:
  - (1) Use the TOW section so that its fires interlock with and support each other and other antiarmor weapons. Both TOWs within the section should cover as much of the sector of fire as possible.
  - (2) Try to position the TOWs within the section's sector of fire so they can engage enemy

**Performance Steps**

- armored vehicles assaulting other TOW positions.
- d. Integrate with nearby infantry for security. Lone TOW crews are vulnerable to attacks against their position by armor and dismounted infantry. Therefore, they should integrate with nearby infantry wherever possible.
- e. Engage enemy from flank and avoid frontal fire. The armor on the frontal glacis is the hardest to defeat. Also, tanks equipped with reactive armor in their frontal 60 percent arcs are easier to defeat from the flank or rear. When tanks are advancing, their firepower and observation are oriented to the front. This makes detecting and retracing a missile launched from its flanks difficult. In addition to firing from the flank, site the TOW so that it is not only concealed, but also in defilade from the direction of the enemy. Concealing the flash, not only from the following tanks, but also from the enemy's OPs is also essential.

**Evaluation Preparation:** SETUP: Provide the section leader an area where a TOW section can be used in a primary position, with alternate and supplementary positions.

BRIEF SOLDIER: Tell the soldier to select the best position for coverage of the primary sector of fire, an alternate position that covers the same sector of fire, and a supplementary position to engage targets that cannot be engaged from the primary or alternate position.

| Performance Measures                                                                         | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Ensured the primary position allows maximum coverage of the sector of fire.               | _____     | _____        |
| 2. Ensured the primary position's sector of fire can be covered from the alternate position. | _____     | _____        |
| 3. Ensured a minimum of 300 meters is between the primary and alternate positions.           | _____     | _____        |
| 4. Ensured the routes into, out of, and between positions have cover and concealment.        | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-91

## Conduct Placement of a Dismounted M220 Launcher System into Action

### 071-056-0060

**Conditions:** Given M220 launcher system components, encased missile, squad members, position for launcher location, and a sector of fire.

**Standards:** The squad leader assisted and supervised setting up the launcher system so that it was:  
 -Correctly assembled at the designated location and positioned to provide antiarmor fire in assigned sector.  
 -Operational and safe to fire.

### Performance Steps

1. Assign each squad member specific equipment to transport to the firing site.
2. Instruct each squad member on specific duties to be performed at the firing site.
3. Direct squad movement to the firing site.
4. Supervise, assist, and make on-the-spot corrections so that:
  - a. Tripod is set up, level, and stable.
  - b. Traversing unit (TU) is installed on the tripod.
  - c. Optical sight is installed on the traversing unit.
  - d. Nightsight is mounted on the optical sight.
  - e. Postamplifier cable is connected to the nightsight (post-amplifier if equipped with the M220A2 launcher system).
  - f. Launch tube is installed and latched to the traversing unit.
  - g. Battery assembly is installed in the missile guidance set (MGS).
  - h. Coil cord from TU is connected to J1 connector on the MGS.
  - i. Battery power conditioner cable is connected to the night-sight if equipped with the M220A2 launcher system.
  - j. Nightsight is collimated to the optical sight.
  - k. System self-test is performed and the system is operational.
  - l. Launcher system is sited to provide antiarmor fire in assigned sector, has sufficient backblast area, and affords maximum available cover and concealment for the squad.

**Evaluation Preparation:** SETUP: At the test site provide the soldier with all the equipment given in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to conduct placement of a dismounted M220 Launcher System into action.

| Performance Measures                                                              | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------------------------------------|-----------|--------------|
| 1. Assigned each squad member specific equipment to transport to the firing site. | —         | —            |
| 2. Instructed each squad member on specific duties to perform at the firing site. | —         | —            |
| 3. Directed squad movement to the firing site.                                    | —         | —            |
| 4. Supervised, assisted, and made on-the-spot corrections.                        | —         | —            |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References  
Required**

**Related**  
FM 23-34  
FM 7-91

## Conduct Mounting of an M41 Launcher on an M1121 Vehicle

### 071-056-0065

**Conditions:** Given a TOW ITAS with all components, M1121 HMMWV, an encased missile, a TOW crew, and a requirement to prepare the TOW ITAS for firing.

**Standards:** Assembled the TOW ITAS so that it was safe to fire and allowed application of system checkout procedures.

### Performance Steps

NOTE: Select either the stowed configuration or tripod mounted configuration.

1. Setup the M1121 HMMWV to mount the TOW ITAS.
  - a. Release three latches securing the hatch cover to hatch on M1121 HMMWV (Figure 1).

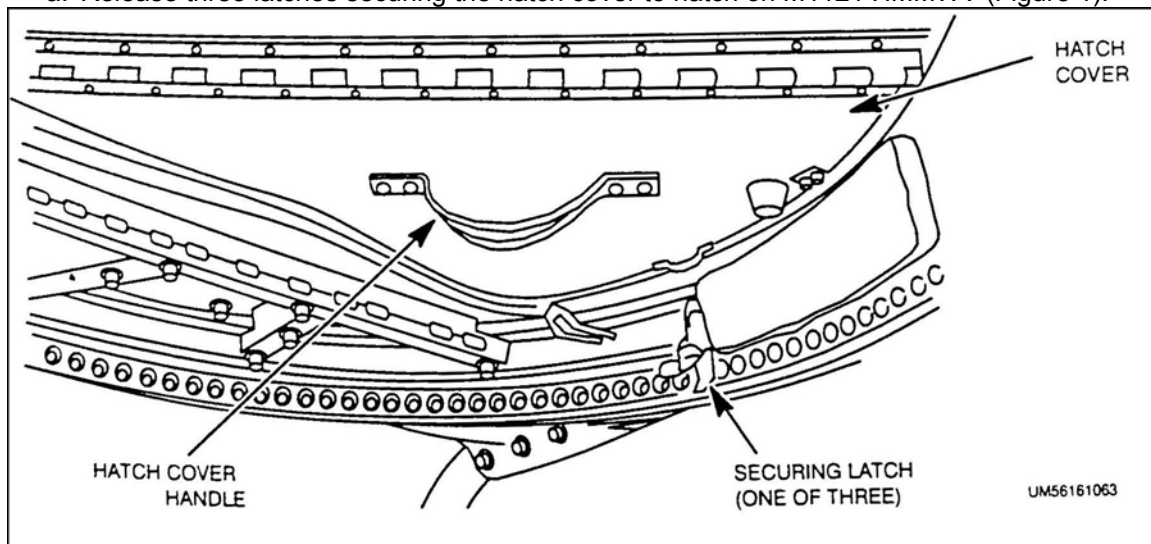
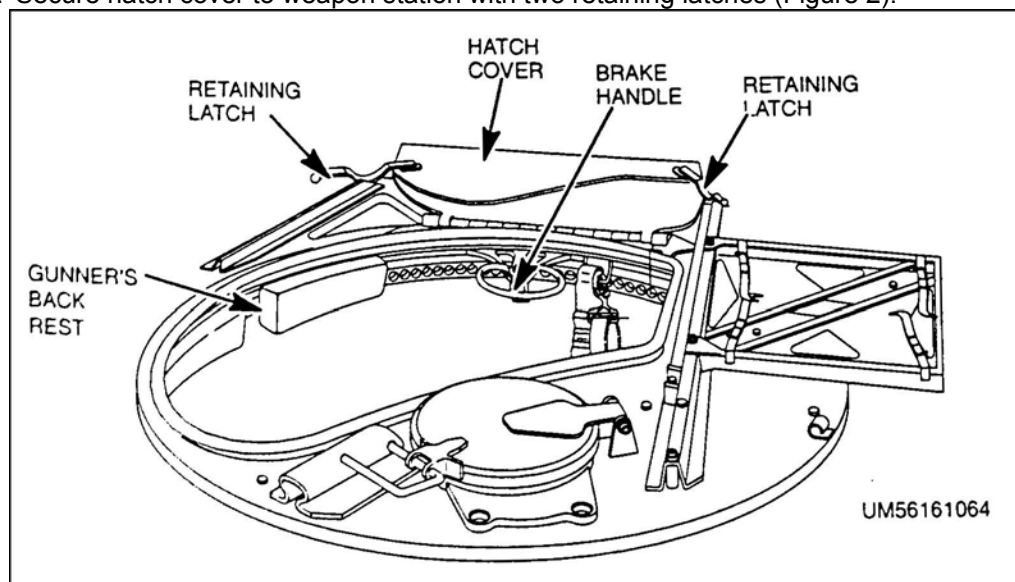


Figure 1. Hatch cover.

- b. Grab hatch cover handle, open hatch, and enter weapon station.
  - c. Unstrap fire control system (FCS) from gunner's platform and push aside.
  - d. Secure hatch cover to weapon station with two retaining latches (Figure 2).



**Performance Steps**

Figure 2. Securing weapon station hatch open.

- e. Rotate weapon station so gunner's back rest is toward rear of vehicle.
- f. Move brake handle down to lock weapon station in place. Rotate the weapon station slightly, if necessary, to allow the brake pin to engage the hole.
- g. Make sure gunner's platform is set to correct height to accommodate gunner.
- h. Release latch securing pedestal mount, open cover away from pedestal mount, and secure cover open with retaining pin (Figure 3).

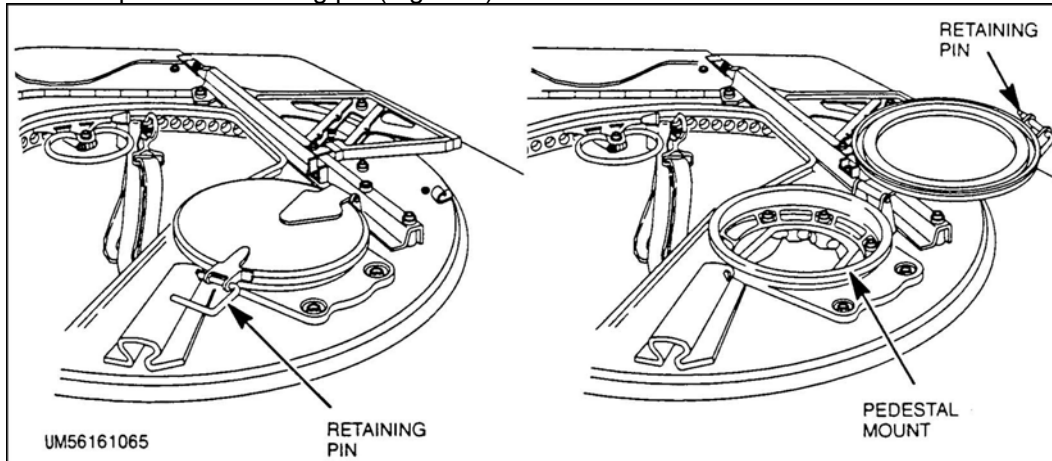


Figure 3. Securing pedestal mount cover open.

- 2. Mount traversing unit (TU) on weapon station pedestal mount.
  - a. Release lower coupling clamp handle securing TU adapter to stowage pedestal (Figure 4).

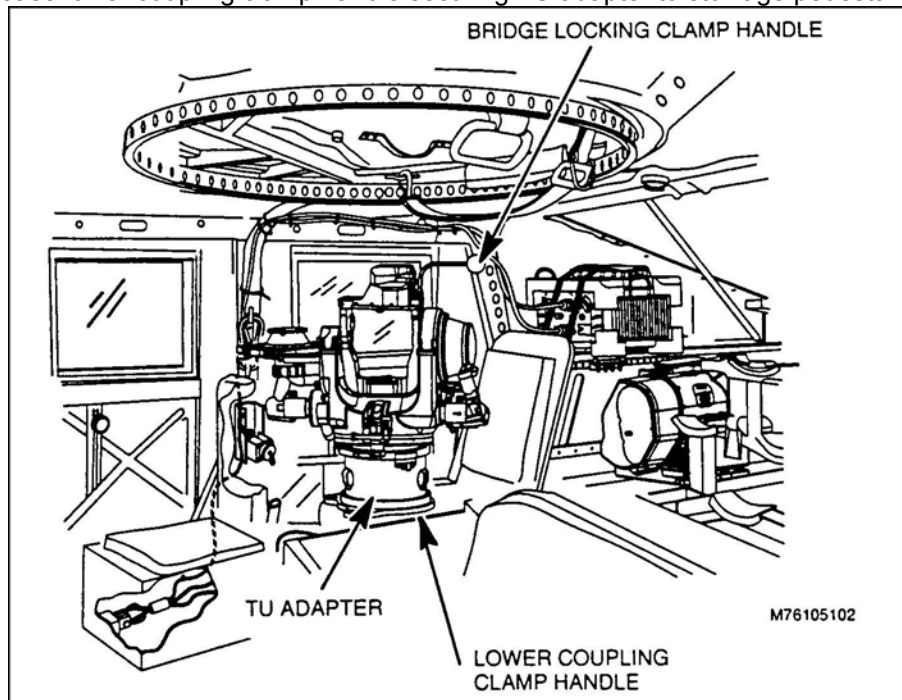


Figure 4. TU stowed on TU adapter.

**CAUTION:** Do not lift TU by the gunner hand grip handles. Do not set TU down on coil cable.

- b. Pick up the TU and adapter and pass up to the weapon station.

### Performance Steps

- c. Lay the TU and adapter down next to the pedestal mount (Figure 5).

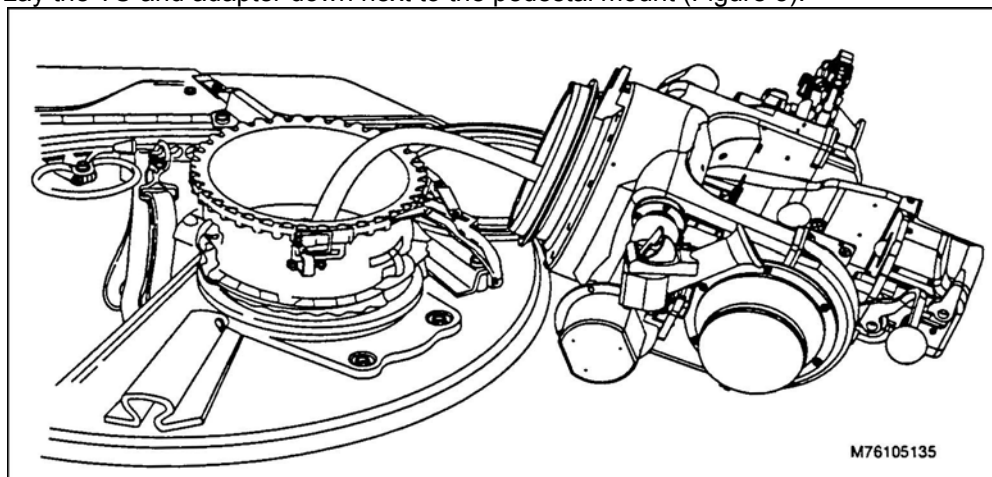


Figure 5. Lay TU down.

- (1) Remove the coil cable from inside the TU retainer cup.
  - (2) Pass the coil cable down through the hole in the pedestal mount.
- d. Hold TU and TU adapter over pedestal mount and carefully place TU adapter on pedestal mount.
- (1) Close lower coupling clamp handle and secure with locking spring to secure the TU adapter on the pedestal mount.
  - (2) Make sure both elevation and depression stops are in the up position and pinned (Figure 6).

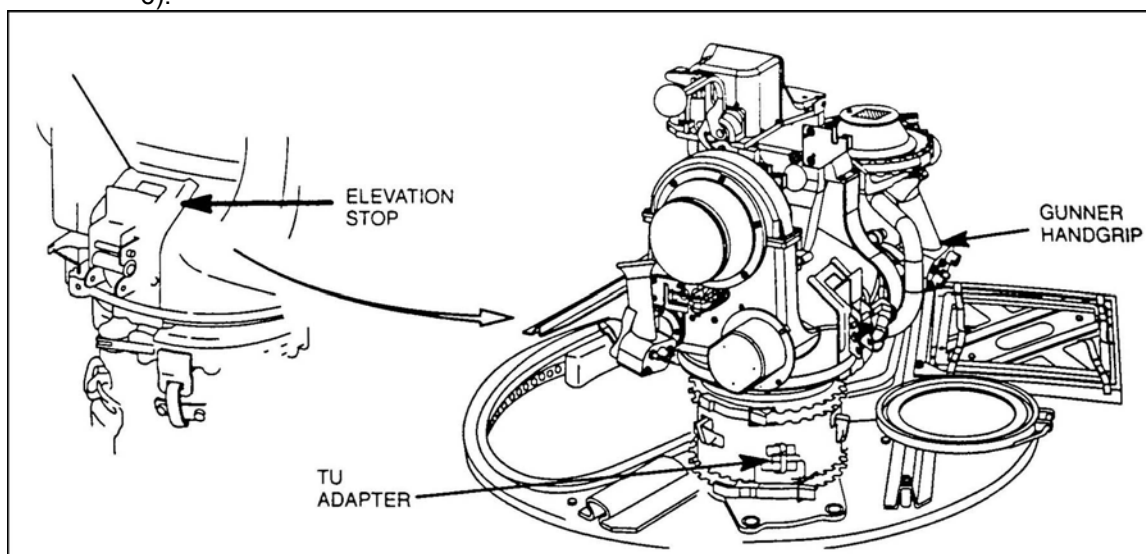


Figure 6. TU and TU adapter installation on pedestal mount.

- e. Open upper coupling clamp handle. Turn TU so azimuth lock is toward the rear of the HMMWV.
- f. Close upper coupling clamp handle and secure with locking spring to secure TU to TU adapter.
- g. Ensure azimuth and elevation locks are in the LOCK position. Ensure TU is locked by attempting to turn left and right.
- h. Rotate gunner's handgrips to the operate position (Figures 7 and 8).



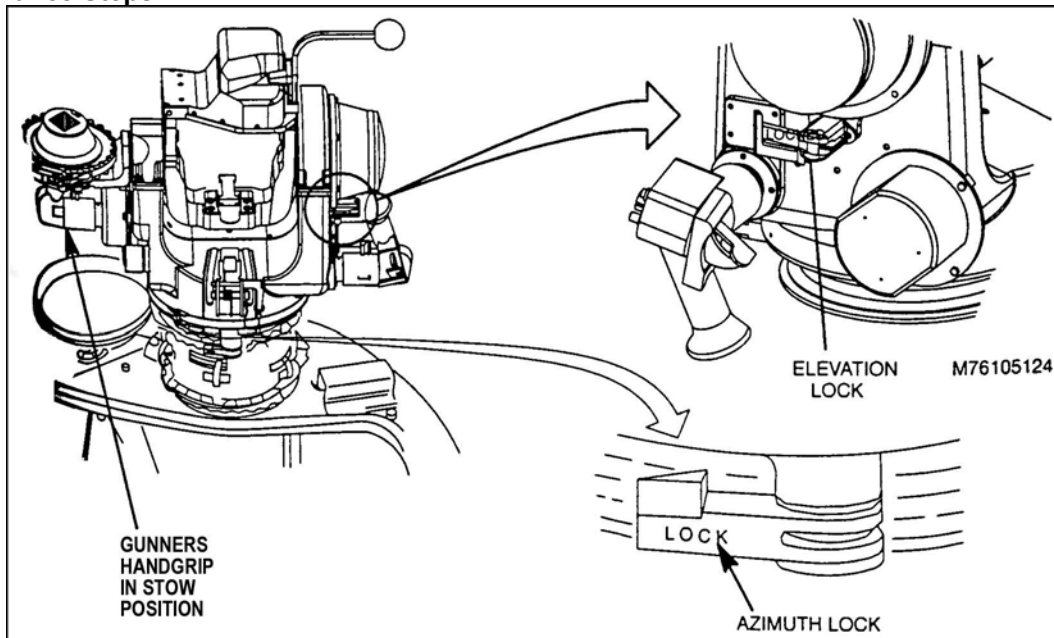
**Performance Steps**

Figure 7. Locking the TU azimuth lock.

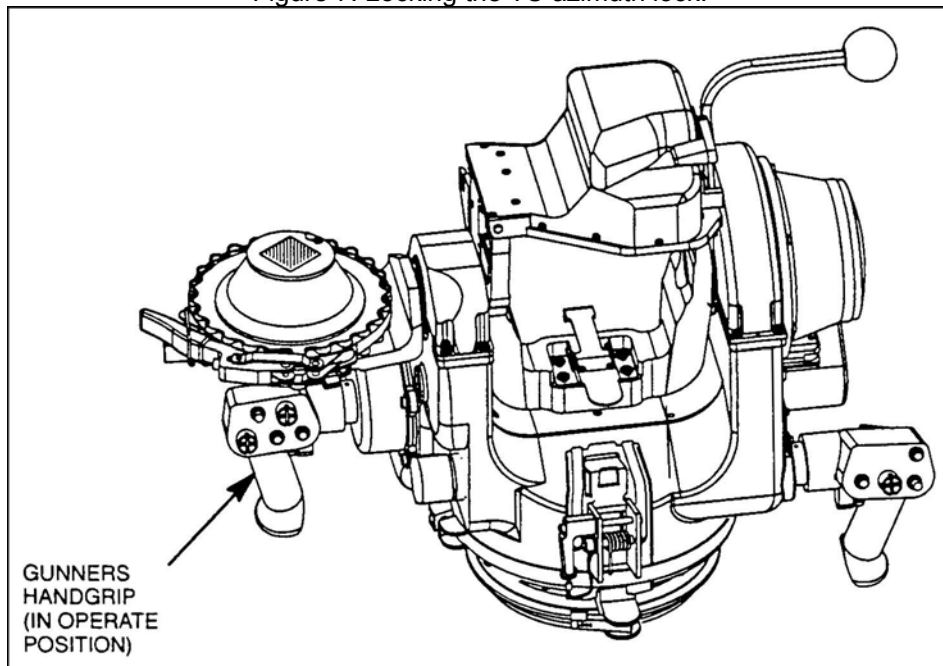


Figure 8. Handgrips in the operate position.

- i. Make sure both the TU and TU adapter coupling clamps are closed and correctly adjusted by attempting to turn the TU.

**WARNING:** Never open one end of cargo shell door without first ensuring that opposite end is securely closed. Both ends open at the same time causes injury to personnel, damage to equipment, or mission abort.

3. Install launch tube on TU (Figure 9).

## Performance Steps

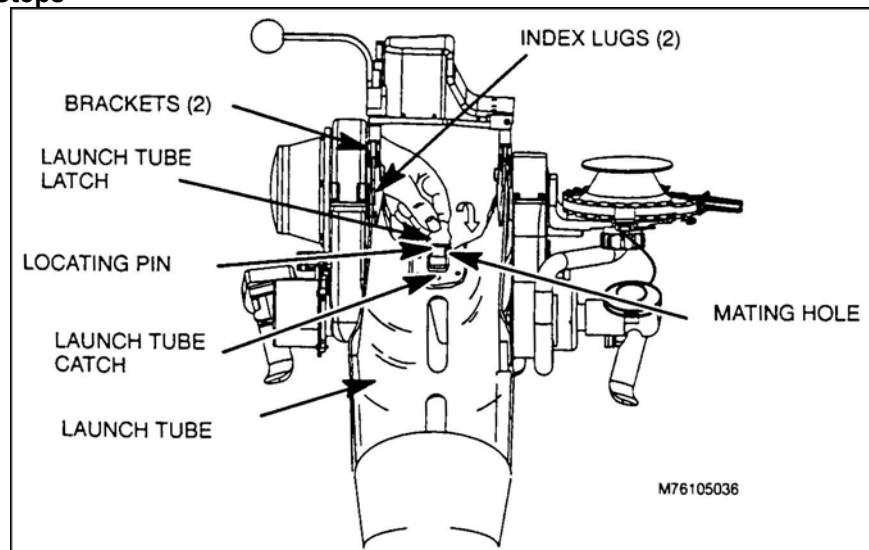


Figure 9. Installing launch tube.

- a. Release cargo shell door using forward latch and raise cargo shell door.
- b. Release strap securing launch tube to cargo shell door and remove launch tube.
- c. Move launch tube to top of vehicle.
- d. Make sure launch tube breech is up.
- e. Lift up launch tube latch.
- f. Install launch tube on TU by sliding index pins into brackets in TU.
- g. Line up locating pin on TU with mating hole in launch.
- h. Place launch tube latch in launch tube catch.
- i. Press launch tube latch down until it latches.

### 4. Install TAS on TAS mount.

**CAUTION:** Ensure the electrical connector on the TAS mount is free of dirt and foreign material before installing TAS.

- a. Ensure TAS mount connector is free of dirt and foreign matter and is not in the raised position.

**CAUTION:** Ensure the TAS mount connector is in the lowered position by turning the TAS mount connector knob counterclockwise until it stops.

- b. Open TAS mount coupling clamp if not opened.
- c. Release the TAS straps and lift the TAS from the TAS cradle (Figure 10).

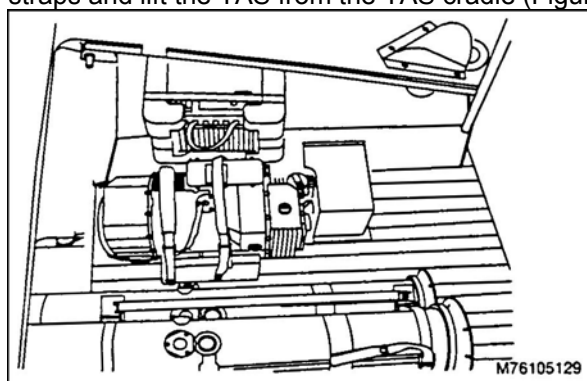


Figure 10. TAS stow position.

- d. Hand the TAS up to the weapons station (Figure 11).

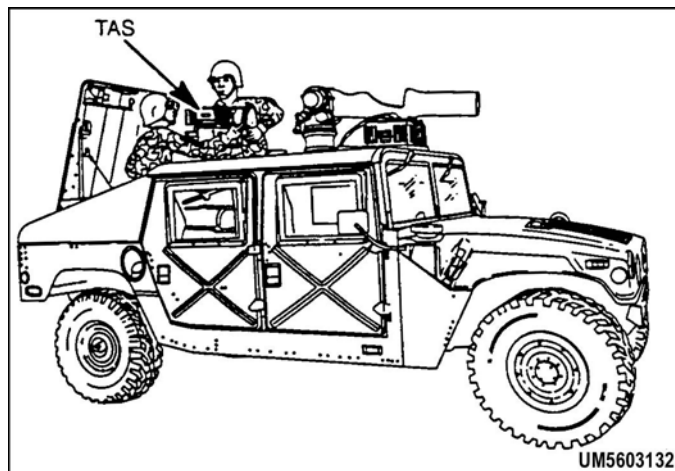
**Performance Steps**

Figure 11. TAS install.

- e. Close the cargo shell hatch.
- f. Place the TAS onto TAS mount with the front window facing forward (Figure 12).

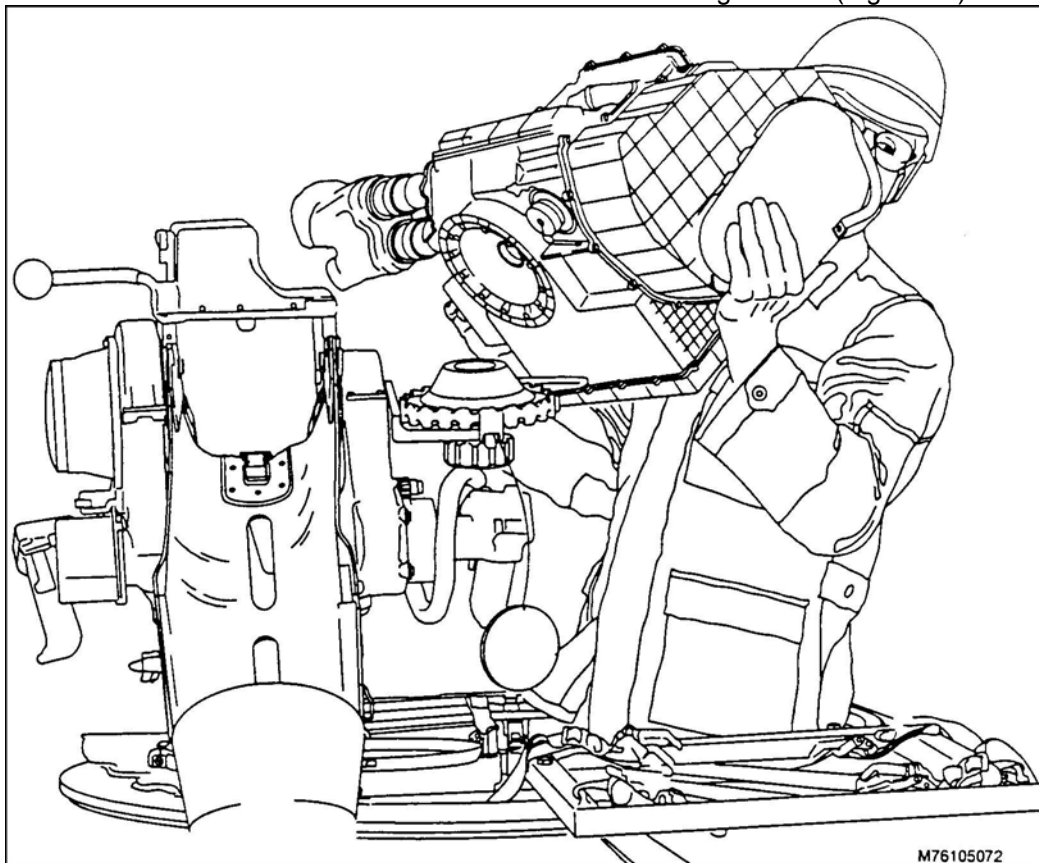


Figure 12. Installing TAS on TAS mount.

- g. Rotate the TAS on the TAS mount until the index lug slot on the bottom of the TAS fits over the index lug on the TAS mount (Figure 13).

## Performance Steps

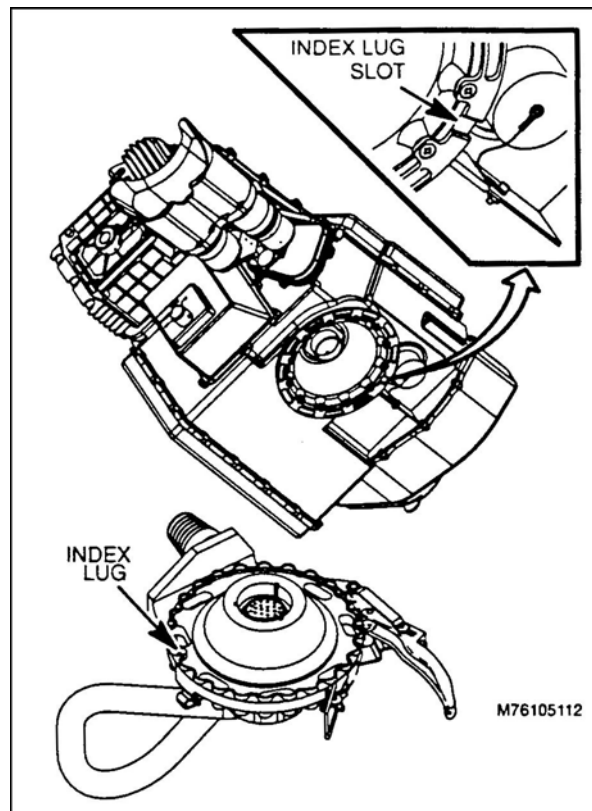


Figure 13. Index lug and lug slot.

- h. Lock TAS into position (Figures 14 and 15).

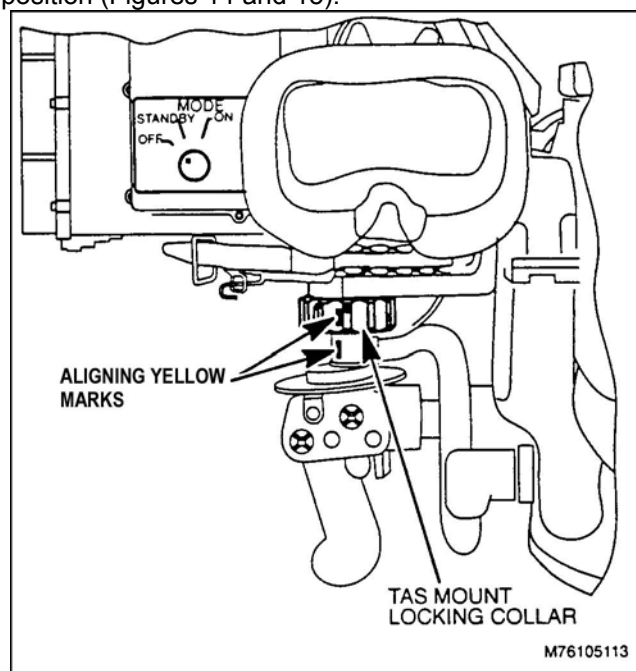


Figure 14. Aligning yellow marks.

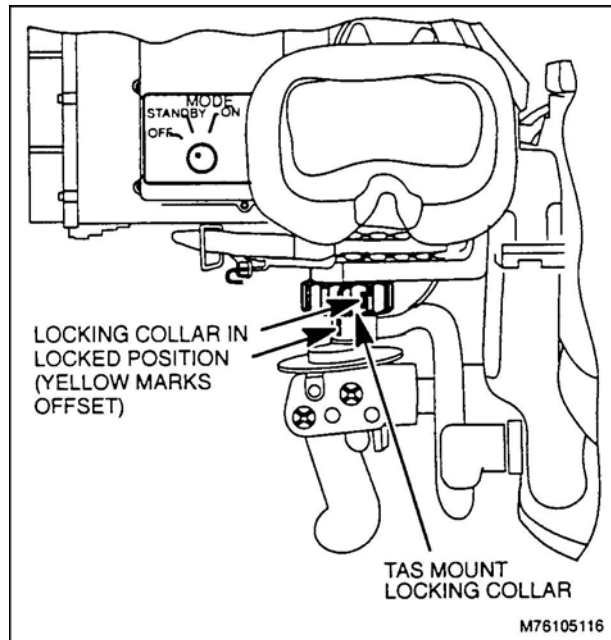
**Performance Steps**

Figure 15. Locking collar in locked position.

- (1) Close coupling clamp handle and place locking spring over coupling clamp handle.
  - (2) Rotate TAS mount locking collar counterclockwise until it stops.
  - (3) Apply upward pressure on the TAS mount connector knob while rotating counterclockwise to align yellow mark on the TAS mount connector knob with the yellow mark on the locking collar.
  - (4) When yellow marks are properly aligned both the locking collar and connector knob will move up into the interlock tab of the TAS mount.
  - (5) Remove TAS front window cover and secure it to the retainer knob to shade the SADA II cooler from direct sunlight.
  - (6) Attach TAS mount cover to hook pile tape on the back of gunner's left handgrip.
5. Mount FCS in FCS mounting bracket on the weapon station (Figure 16).

## Performance Steps

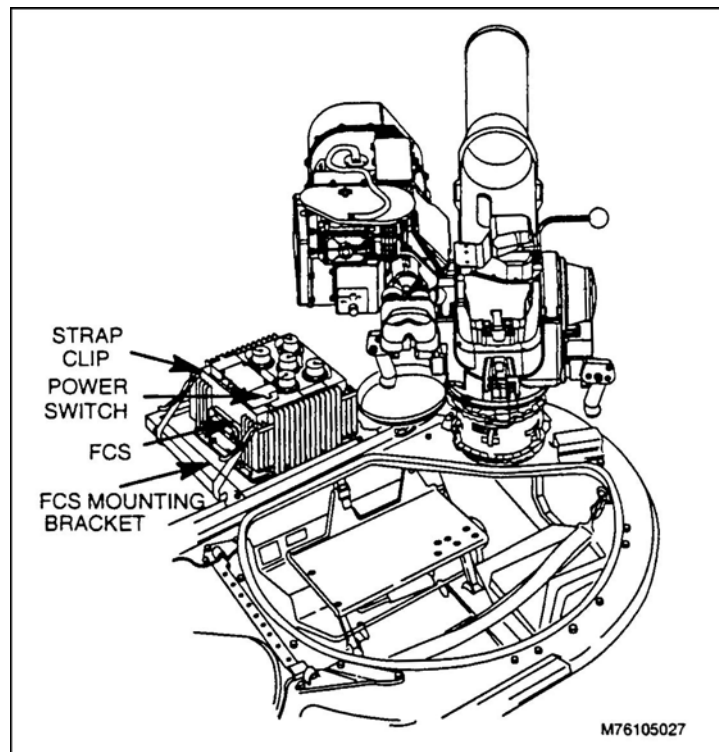


Figure 16. FCS mounted on FCS mounting bracket.

- a. Remove FCS from stow bag.
  - b. Move FCS to top of HMMWV.
  - c. Position FCS in the FCS mounting bracket with the power switch facing the gunner.
  - d. Secure FCS to FCS mounting bracket with four straps attached to mounting bracket by attaching the strap clips to the FCS and tightening the straps.
6. Connect cables.
- a. Connect coil cable with pin saver adapter to FCS (Figure 17).

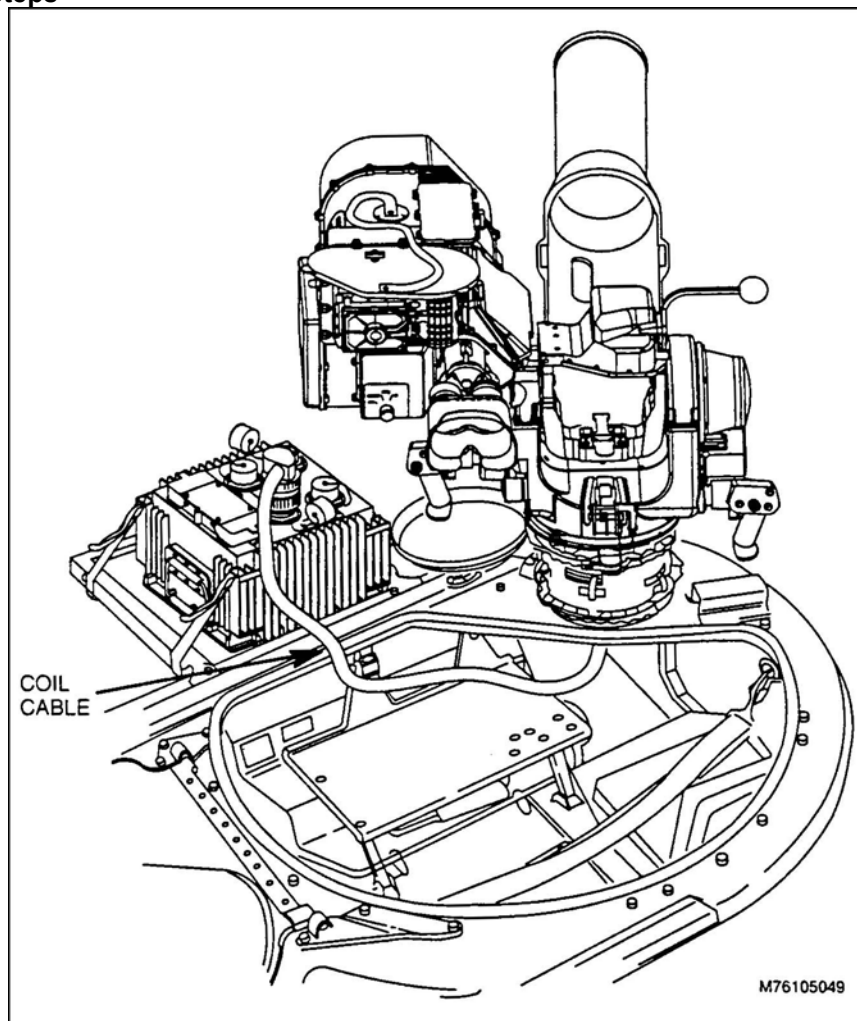
**Performance Steps**

Figure 17. Coil cable.

(1) Working from inside of the vehicle, reach up and remove coil cable connector from TU retainer cup.

(2) Remove the J2 and J1 connector covers on the FCS.

**CAUTION:** Insure there is no dirt or foreign material in the end of coil cable connector.

The coil cable pins are fragile. Use no side- to- side pressure when installing coil cable as this can cause misalignment and bent or broken pins.

(3) Connect the coil cable with pin saver adapter to the J2 connector on the FCS (Figure 18).

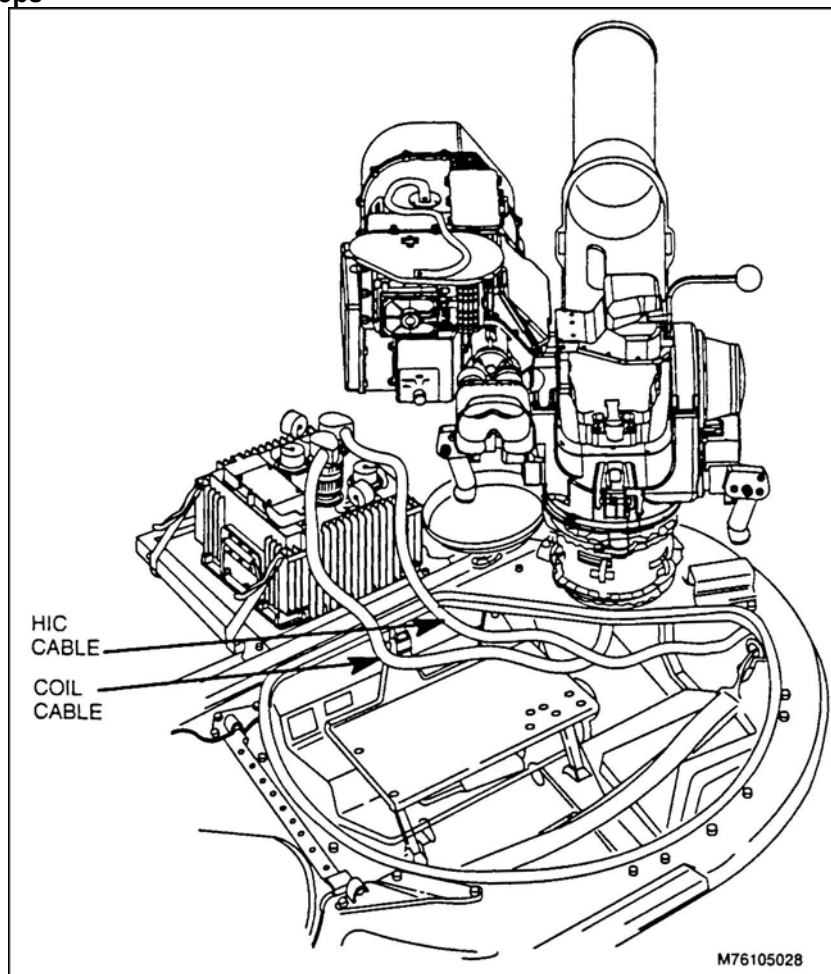
**Performance Steps**

Figure 18. Connecting BPS to FCS.

- (a) Remove HMMWV interface cable (HIC) from the cable bracket inside the vehicle.
- (b) Connect P2 connector of HIC to FCS J1 connector.
- (c) Ensure vehicle power cable P1 connector is securely connected to battery power source (BPS) J1 connectors.
- (d) Ensure HIC cable P1 connector is securely connected to BPS J2 connector.

**Evaluation Preparation:** SETUP: At the test site, provide the soldier with all the equipment given in the task condition statement.

BRIEF SOLDIER: Tell the soldier that he must mount the TOW ITAS on a M1121 HMMWV.

**Performance Measures**

1. Setup the M1121 HMMWV.
2. Mounted TU on weapon station.
3. Installed launch tube on TU.
4. Installed TAS on TAS mount.
5. Mounted FCS on FCS mount.

**GO**      **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |



**Performance Measures****GO**      **NO GO**

- 6. Connected cables.
  - a. Connected coil cable to FCS.
  - b. Connected vehicle power cable to BPS.
  - c. Connected BPS to FCS.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

## Conduct Dismounting of an M41 Launcher on an M1121 Vehicle

### 071-056-0066

**Conditions:** As a member of a TOW ITAS crew, given a TOW ITAS in the ready to fire configuration on a M1121 HMMWV, an encased missile, and a requirement to dismount the TOW ITAS.

**Standards:** Dismounted the TOW ITAS from an M1121 HMMWV and remounted the TOW ITAS in the tripod configuration without damage to components.

### Performance Steps

1. Dismount from the ready to fire configuration.

**WARNING:** Never open one end of cargo shell door without first ensuring that opposite end is securely closed. Both ends open at the same time causes injury to personnel, damage to equipment, or mission abort.

- a. Open cargo loader door.
- b. Remove tripod from stow position. Carry to designated firing position.
- c. Power down TOW ITAS.
- d. Lock TOW ITAS in 8 degree down position.
- e. Remove encased missile if one is loaded.
- f. Disconnect cables.
  - (1) Disconnect coil cable and stow.
  - (2) Disconnect and stow HMMWV interface cable (HIC).
- g. Remove battery power source (BPS) from stow position and carry to tripod.
- h. Remove fire control system (FCS) from FCS mounting bracket and carry to tripod.
- i. Remove launch tube and carry to tripod.
- j. Remove target acquisition system (TAS) from traversing unit (TU) and set on the ground

**CAUTION:** Do not lift TU by gunner hand grip handles.

- k. Remove TU from the adapter.
  - (1) Release upper coupling clamp handle of the TU adapter.
  - (2) Lift TU from TU adapter and pass over side of vehicle and set on the ground.
  - (3) Close upper coupling clamp handle of the TU adapter.
  - (4) Open lower coupling clamp handle and remove TU adapter from pedestal mount.
  - (5) Stow TU adapter on stowage pedestal on gunner's platform. Close lower coupling clamp handle and secure with locking spring.
- l. Move TU and TAS to tripod.
- m. Close cargo shell door and secure gunner hatch.

2. Assemble in tripod mount configuration.

- a. Install TU on tripod.
- b. Install launch tube on TU.
- c. Install TAS on TAS mount.
- d. Place FCS next to tripod.
- e. Place BPS next to FCS.
- f. Connect cables.
- g. Conduct system checkout procedures.

**Evaluation Preparation:** SETUP: Provide the soldier with the equipment and materials listed in the condition statement.

**BRIEF SOLDIER:** Tell the soldier to dismount the TOW ITAS from the M1121 HMMWV.

### Performance Measures

1. Dismounted TOW ITAS from the ready to fire configuration.
  - a. Opened cargo loader door.

**GO**      **NO GO**

\_\_\_\_\_

**Performance Measures****GO**    **NO GO**

- b. Removed tripod from stow position and set up tripod at designated location.
- c. Powered down TOW ITAS.
- d. Removed encased missile if loaded.
- e. Locked TOW ITAS in the 8 degree down position.
- f. Disconnected cables.
- g. Removed BPS and carried to tripod.
- h. Removed FCS from FCS mounting bracket and carried to tripod.
- i. Removed launch tube and carried to tripod.
- j. Removed TAS from TU and set on the ground.
- k. Removed TU from the adapter.
- l. Moved TU and TAS to tripod.
- m. Closed cargo shell door and secured gunner hatch.

## 2. Assembled in tripod configuration.

\_\_\_\_\_

- a. Installed TU on tripod.
- b. Installed launch tube on TU.
- c. Installed TAS on TAS mount.
- d. Positioned FCS and BPS next to tripod.
- e. Connected cables to BPS and FCS.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**Perform Immediate-Action Procedures on the TOW System on an M2A3/M3A3 BFV**  
**071-056-0067**

**Conditions:** Given an M2A3/M3A3 BFV with basic issue items; the master power, turret power, and turret drive system switches are ON; all hatches are closed; the ramp is closed; and a TOW missile that fails to launch.

**Standards:** Performed immediate action so that the TOW missile fired or was disposed of properly without damaging equipment or injuring personnel.

**Performance Steps**

Note: A misfire is the failure of the missile to fire within 5 seconds after the trigger is depressed.

1. Perform misfire procedures on the TOW system.
  - a. Announce to the crew over the intercom, "TOW MISSILE HAS MISFIRED AND ANOTHER ATTEMPT WILL BE MADE TO FIRE TOW missile."
  - b. Immediately resqueeze the palm switch and the trigger on the gunner's hand station (GHS) and continue to track the target for 5 seconds (Figure 1).

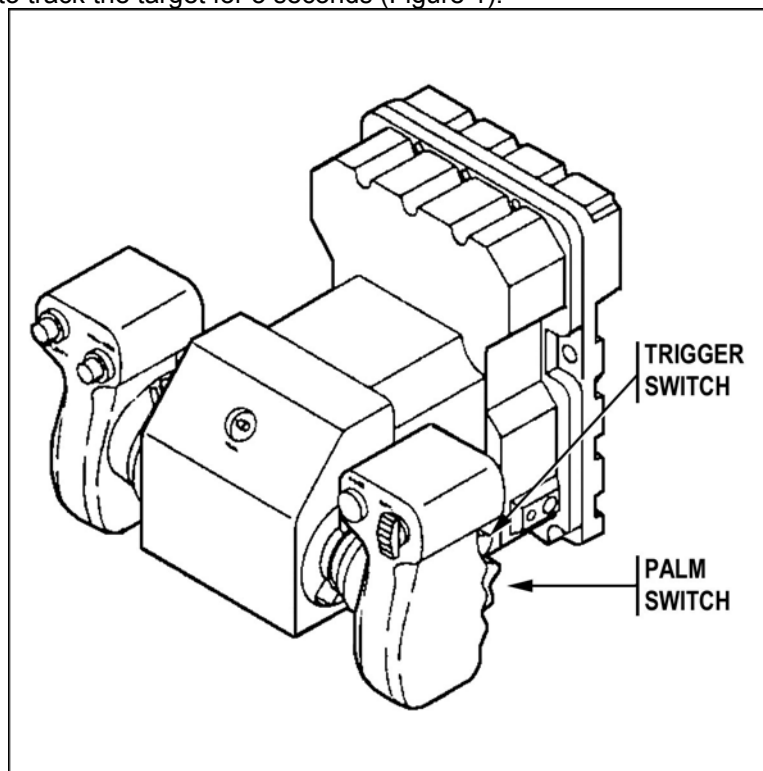


Figure 1. Gunner's hand station.

- c. If the TOW missile fires, the task is over.
  - d. If the TOW missile does not fire, immediately perform remedial action on a misfired TOW missile.
2. Perform remedial action on a misfired TOW missile.
  - a. Move the ARM-SAFE-RESET switch to RESET, then to SAFE (Figure 2).

## Performance Steps

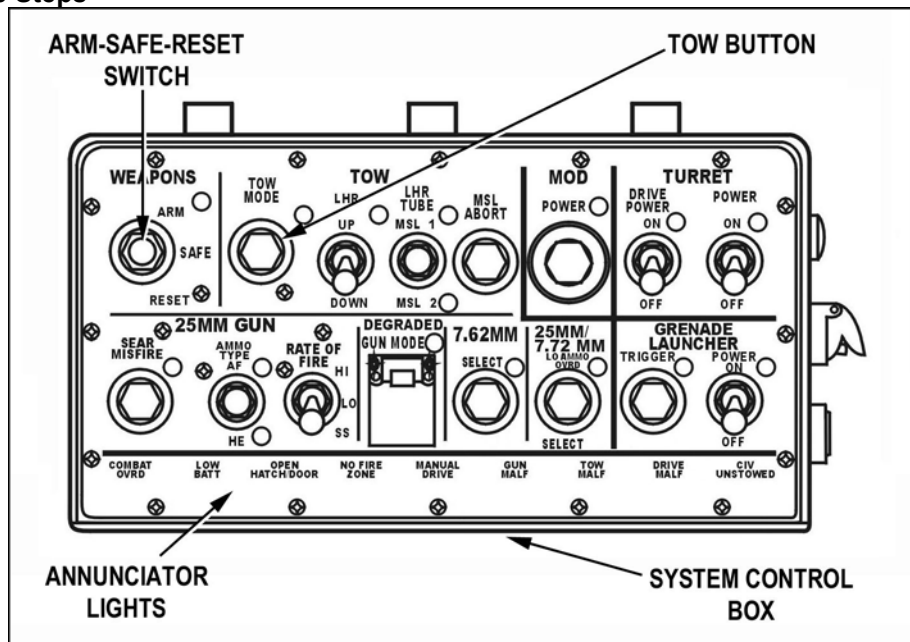


Figure 2. TOW button.

NOTE: ARM-SAFE-RESET switch deselects TOW when the switch is moved to the RESET position.

- b. Press and release TOW mode button.
- c. Observe the system control box (SCB).
  - (1) If any annunciator lights come on go to step d.
  - (2) If no annunciator lights come on go to step k.
- d. Move ARM-SAFE-RESET switch to RESET then to SAFE.
- e. Move turret drive switch to OFF (Figure 3).

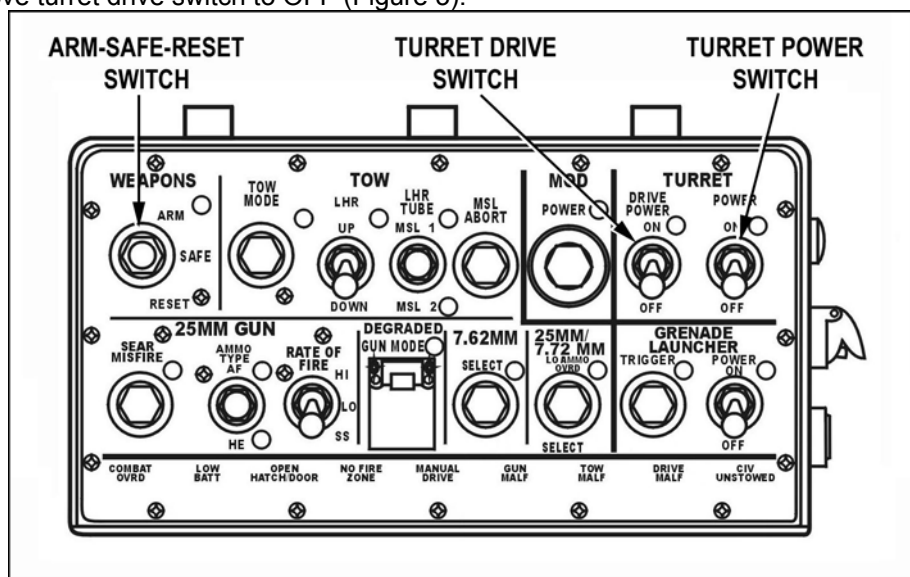


Figure 3. TURRET POWER and DRIVE switch.

- f. Move turret power switch to OFF.
- g. Open turret shield door.
- h. Ensure crew exits the turret but remain, in the squad area for 30 minutes.
- i. Close turret shield door.

**Performance Steps**

- j. Notify unit maintenance of the TOW misfire condition.
- k. Reselect misfired TOW missile by moving the missile select switch to the missile that was selected when the TOW missile misfired (Figure 4).

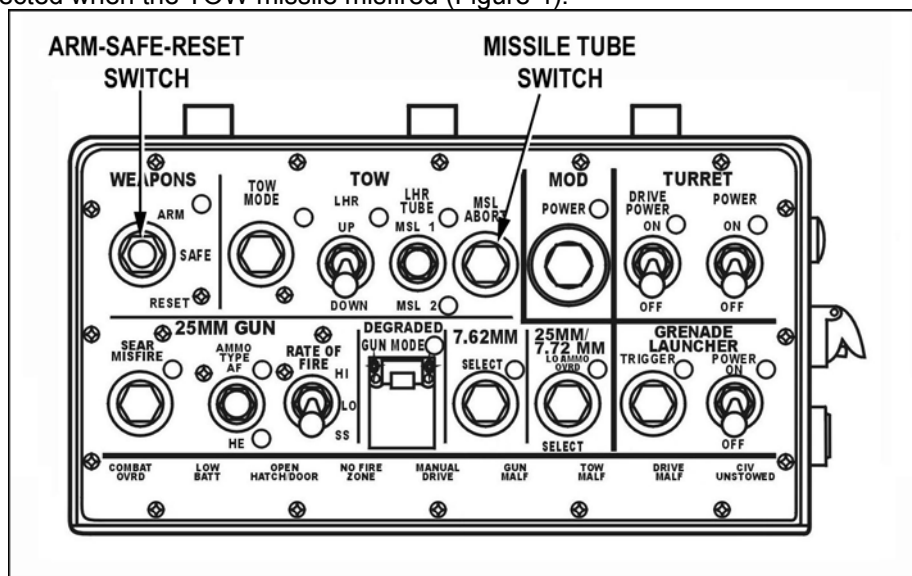


Figure 4. MISSILE TUBE switch.

**WARNING:** Accidental firing of weapons can kill or seriously injure personnel. Make sure ARM-SAFE-RESET switch is set to SAFE until ready to fire.

- l. Move ARM-SAFE-RESET switch to ARM.

**WARNING:** TOW backblast could kill or injure soldiers. All vehicle personnel must be inside the vehicle when TOW missile is fired. Close all hatches and ramp. Keep everyone at a minimum of 246 feet (75 meters) from TOW blast area.

**WARNING:** Misfired TOW missile could seriously injure or kill personnel. Keep all personnel inside the vehicle or 246 feet away from vehicle for 30 minutes after last attempt. Be sure all hatches and ramp are closed.

**WARNING:** Firing TOW missile through bushes and trees or over bodies of water can cause premature explosion or loss of missile control. Do not fire TOW missile through bushes and trees or over bodies of water.

**WARNING:** TOW wire can shock you if it contacts an electrical wire. Soldiers could be killed or injured. Do not fire a TOW missile over electric power lines.

**WARNING:** Noise from firing weapons can permanently damage hearing. All personnel in or near vehicle must wear double hearing protection when weapons are being fired.

**WARNING:** Noise and back blast from weapon firing can permanently damage hearing. Ensure driver's, gunner's, and cargo hatches are closed during weapon firing.

- m. Squeeze and hold palm switches, then squeeze and hold trigger switches.
  - (1) If TOW missile fires, end remedial action.
  - (2) If TOW missile does not fire in 5 seconds, select and fire the second TOW missile (refer to Figure 4).
  - (3) If second TOW missile fails to fire, repeat steps a and b of Perform Misfire Procedures and steps a - j of Perform Remedial Action on a misfired TOW missile.
  - (4) If second TOW missile does fire, go to step 3.

### Performance Steps

3. Perform removal of misfired TOW missile.
  - a. Move ARM-SAFE-RESET switch to RESET then to SAFE.
  - b. Traverse turret to 6400 mils.
  - c. Move turret drive switch to OFF.
  - d. Move turret power switch to OFF.
  - e. Open turret shield door and exit the turret but remain in the squad area for 30 minutes.
  - f. Close turret shield door.
  - g. Open turret shield door after 30 minutes and reenter the turret.
  - h. Move turret power switch to ON.
  - i. Move turret drive switch to ON.
  - j. Traverse the turret to 1600 or 4800 mils.
  - k. Elevate the TOW launcher to maximum elevation.
  - l. Move turret drive switch to OFF.
  - m. Move turret power to OFF.
  - n. Exit vehicle through ramp access door.
  - o. Climb on top of the hull.
  - p. Unlock TOW launcher (Figure 5).

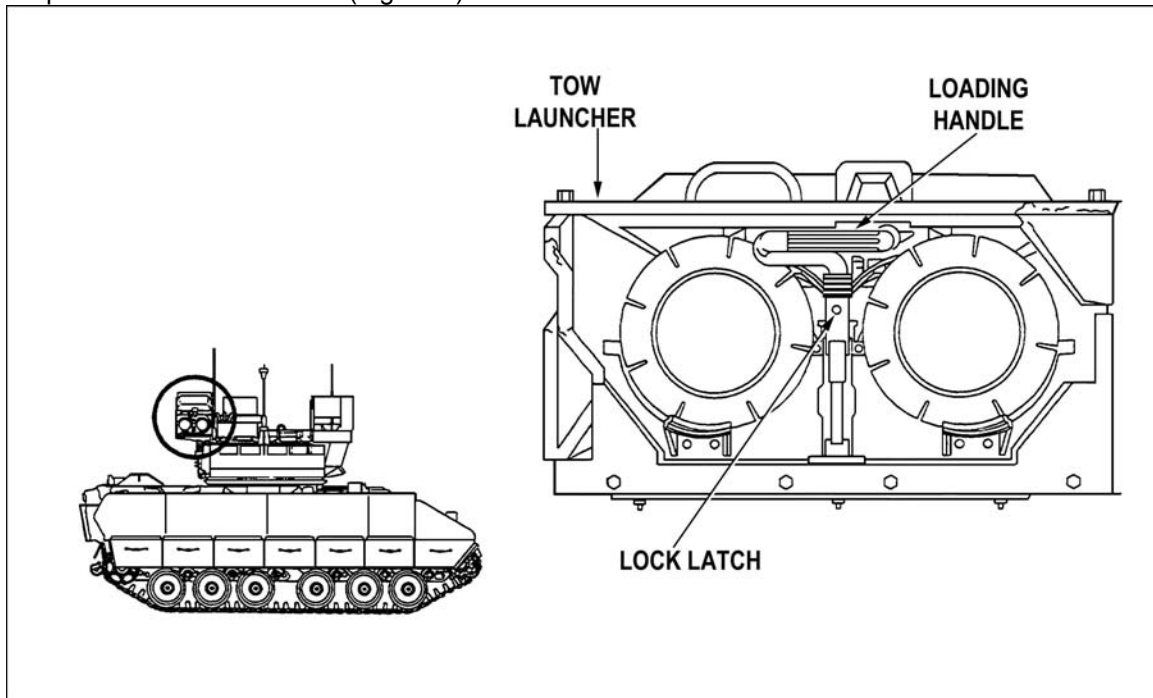


Figure 5. TOW launcher lock latch.

- (1) Push and hold lock latch on loading handle.
- (2) Pull loading handle down and release lock latch.

**WARNING:** Misfired TOW missile could fire and kill or seriously injure personnel or damage equipment. Keep all personnel away from the front and the rear of encased missile. Do not drop missile.

- q. Remove misfired TOW missile from TOW launcher (Figure 6).

## Performance Steps

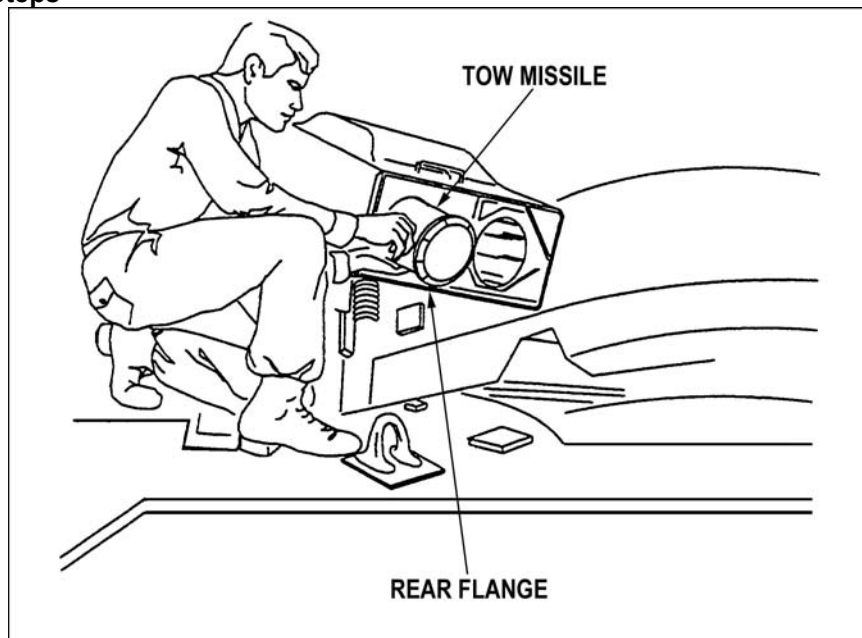


Figure 6. TOW missile rear flange.

- (1) Hold TOW missile by the edges of the rear flange.
- (2) Carefully pull TOW missile straight out of the TOW launcher.
- (3) If TOW missile does not come out, go to step s.
- (4) Hand TOW missile to helper.
- (5) Place TOW missile on the ground.
- r. Move misfired TOW missile to a safe place.
  - (1) Move misfired TOW missile at least 650 feet (200 meters) from vehicles, buildings, personnel, and equipment.
  - (2) Position TOW missile in such a direction so if the TOW missile fires, neither the backblast nor the TOW missile will strike vehicles, buildings, personnel, or equipment.
- s. Place a stake with a yellow flag at the misfired TOW missile location (Figure 7).

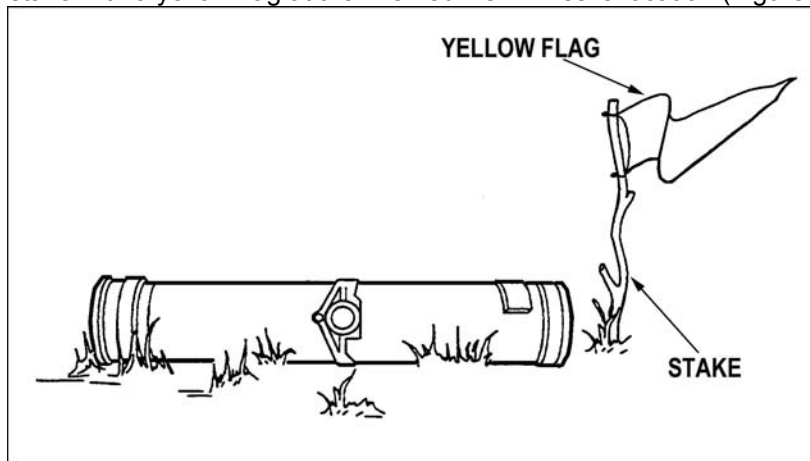


Figure 7. TOW misfire marker.

- t. Notify chain of command of existence and location of misfired TOW missile.

**Evaluation Preparation:** SETUP: Provide the soldier with an M2A3/M3A3 BFV loaded with dummy TOW missiles and a simulated TOW missile misfire.



**BRIEF SOLDIER:** Tell the soldier that he will be evaluated on his ability to perform immediate action on the TOW weapon system.

| <b>Performance Measures</b>                                                     | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------|------------------|---------------------|
| 1. Performed misfire procedures on the TOW system.                              | _____            | _____               |
| 2. Performed remedial action on a misfired TOW missile.                         | _____            | _____               |
| 3. Performed removal of a misfired TOW missile.                                 | _____            | _____               |
| 4. Notified chain of command of existence and location of misfired TOW missile. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

##### **Required**

##### **Related**

TM 9-2350-294-10-2-1

TM 9-2350-294-10-2-2

**Operate the TOW Launcher on an M2A3/M3A3 BFV**  
**071-056-0068**

**Conditions:** Given an M2A3/M3A3 BFV with the TOW launcher in the stowed position, basic issue items, and a requirement to operate the launcher.

**Standards:** Operated the TOW launcher to the ERECT position and back to the STOWED position in the power and manual mode without causing harm to the equipment or injury to personnel.

**Performance Steps**

1. Operate the TOW launcher in the POWER mode.
  - a. Move the turret power and turret drive system switches to the ON position (Figure 1).

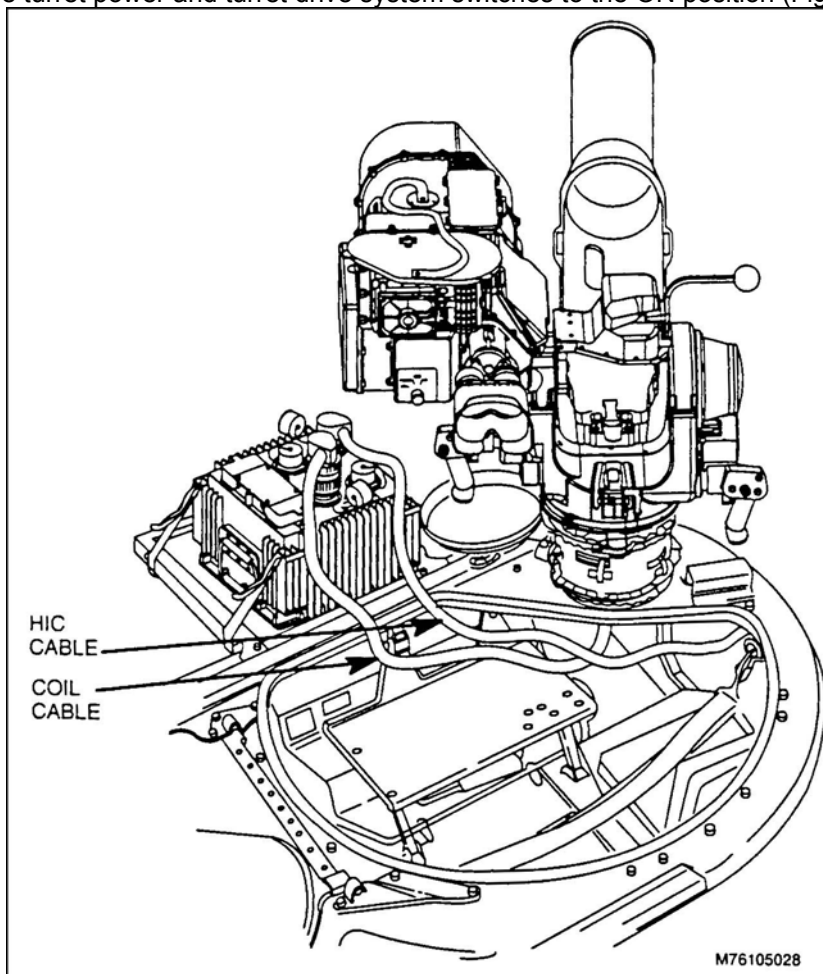


Figure 1. Turret power switch.

- b. Ensure the turret traverse, gun elevation, and TOW elevation drive select levers are in the POWER mode (Figure 2).

## Performance Steps

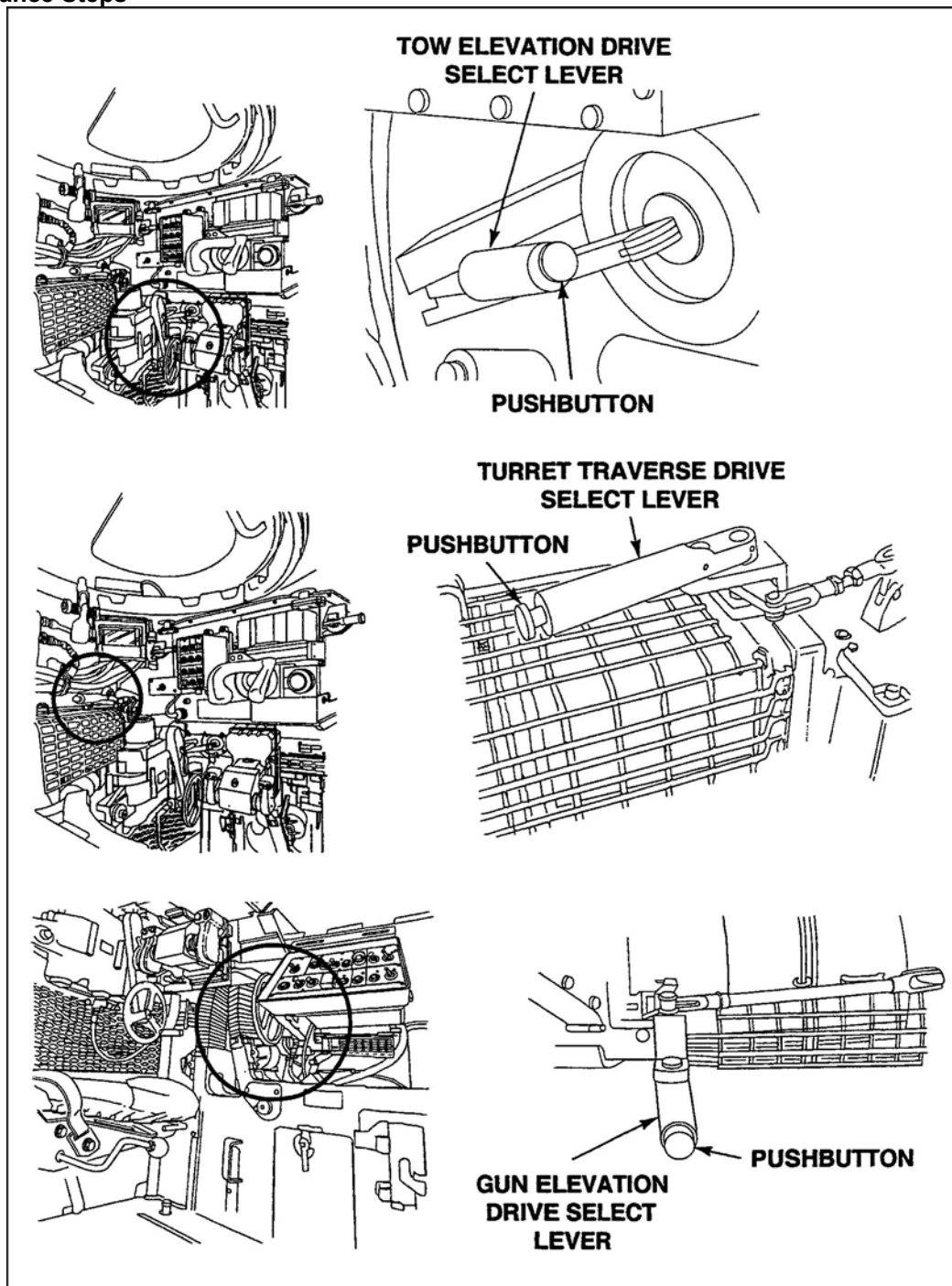


Figure 2. Selector levels.

**WARNING:** Ensure soldiers and equipment are not in the path of the moving TOW launcher.

**CAUTION:** Do not squeeze the palm switches for more than 10 seconds; to do so can cause damage to the TOW elevation drive motor. If the launcher UP-DN indicator light does not come on in 10 seconds, release the palm switches and notify unit maintenance.

c. Raise the TOW launcher (Figure 3).

## Performance Steps

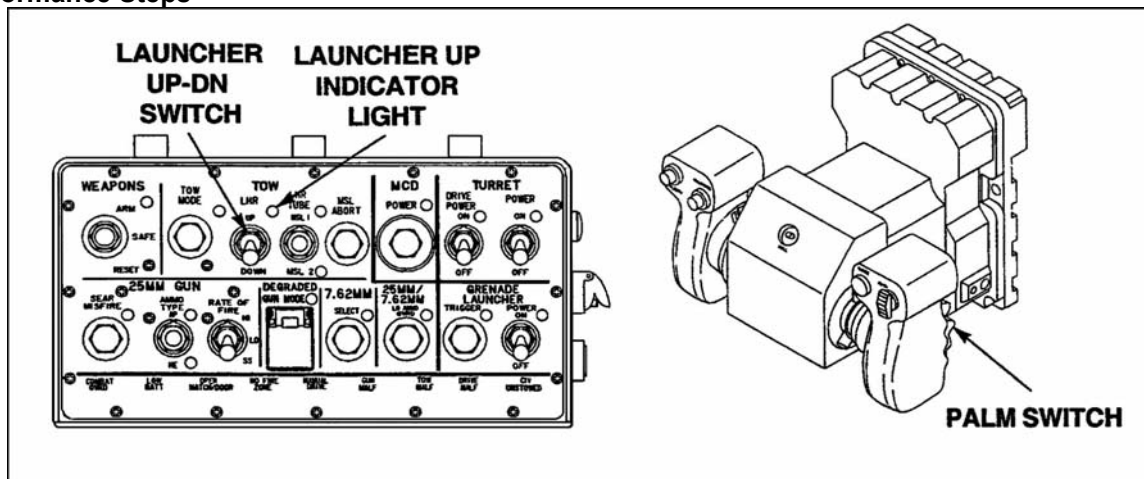


Figure 3. TOW launcher switch.

- (1) Move the launcher UP-DN switch to the UP position located on the system control box (SCB).
- (2) Squeeze and hold the palm switches on the gunner's hand station (GHS) until the indicator light comes on, but do not hold the switches for more than 10 seconds.

NOTE: Each line on the elevation indicator equals 10 mils. Each number equals 100 mils.

d. Elevate the TOW launcher.

- (1) Squeeze and hold the palm switches.
- (2) Pull back on the GHS until the launcher reaches the desired angle or stops.
- (3) Center the GHS and release the palm switches.

NOTE: At maximum depression (-180 mils), the elevation indicator pointer will be about 1 inch below number 10.

e. Depress the TOW launcher.

- (1) Squeeze and hold the palm switches.
- (2) Push forward on the GHS until the launcher reaches the desired angle or stops.
- (3) Center the GHS and release the palm switches.

f. Lower the TOW launcher.

- (1) Move the launcher UP-DN switch to DN position.
- (2) Squeeze the palm switches until the TOW launcher stows against the turret and the indicator light goes out.

2. Operate the TOW manually by moving the turret power switch to ON and the turret drive system switch to the OFF position.

- a. Move the turret traverse drive select lever to MANUAL position.
  - (1) Press and hold the push button.
  - (2) Move the select lever left to the MANUAL position and release the push button.
- b. Move the gun elevation drive select lever to the POWER position.
  - (1) Press and hold the push button.
  - (2) Move the gun select lever to the right and release the push button.

**CAUTION:** Linkage between the TOW launcher and gun elevation systems can be damaged if the gun elevation handwheel is turned while both levers are in the manual position. Never turn the gun elevation handwheel with both the TOW elevation drive select lever and gun elevation drive select lever in the manual position.

- c. Move the TOW elevation drive select lever to MANUAL .
  - (1) Press and hold the push button.
  - (2) Move the TOW select lever to MANUAL and release the push button.
- d. Remove the spring from the handle of the gun elevation handwheel (Figure 4).

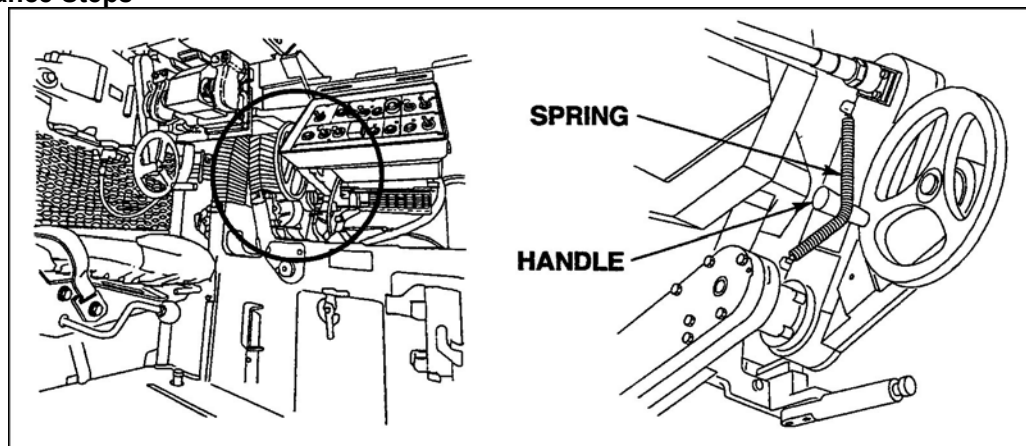
**Performance Steps**

Figure 4. Gun elevation drive (GED) handwheel.

- e. Depress the TOW launcher by turning the handwheel forward to clear the stow pin from the saddle (Figure 5).

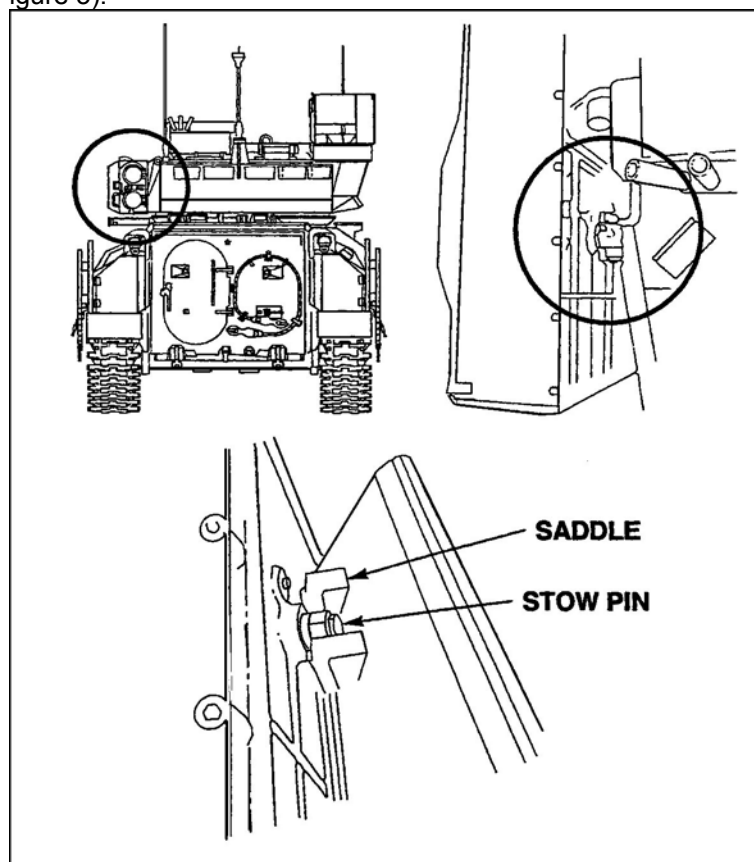


Figure 5. Saddle and stow pin.

- f. Raise the TOW launcher to the firing position by using the 14-mm ratchet wrench on the TOW manual lift drive shaft by turning clockwise until the launcher is fully elevated and the TOW light comes on (Figure 6).

## Performance Steps

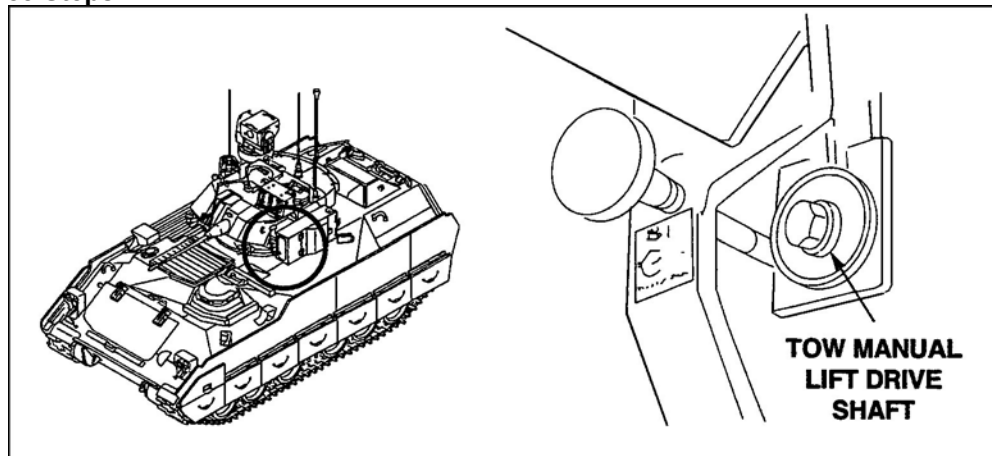


Figure 6. TOW manual lift drive shaft.

NOTE: Elevation of the TOW launcher to 500 mils is done for loading or unloading of TOW missiles.

- g. Elevate the launcher by turning the handwheel counterclockwise.
- h. Depress the launcher by turning the handwheel clockwise.
- i. Lower the launcher by pulling out the TOW manual lift release handle (Figure 7).

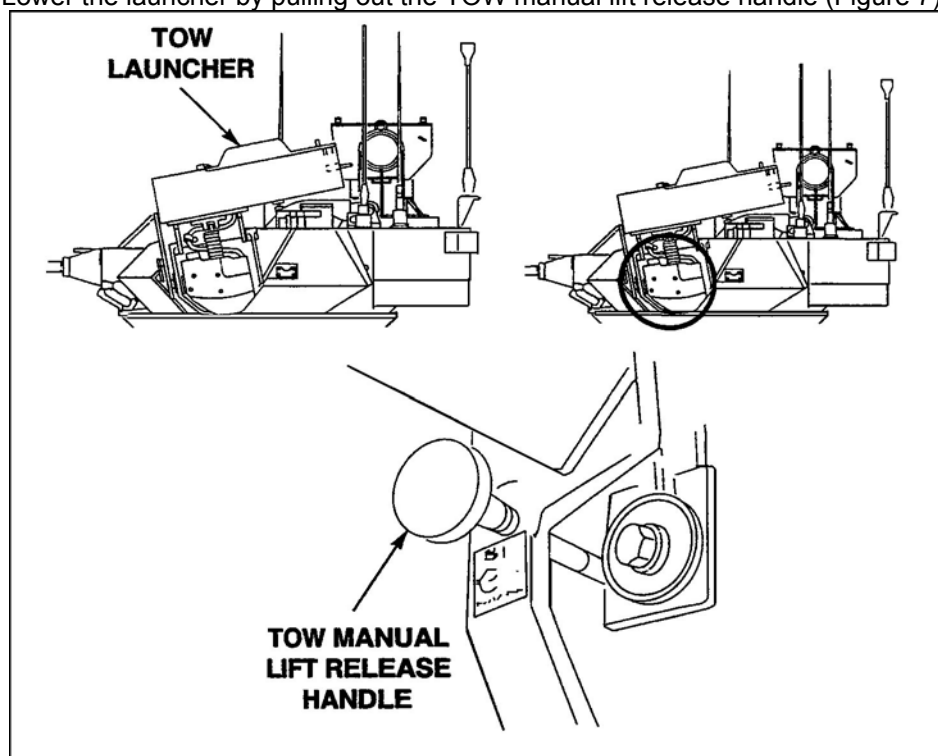


Figure 7. TOW manual lift release handle.

- j. Elevate the launcher to move the stow pin into the saddle.
- k. Move the turret traverse and TOW elevation drive select levers to the POWER position, and install the spring on the handle of the gun elevation handwheel.

**Evaluation Preparation:** SETUP: Provide the soldier with all the material and equipment listed in the task condition statement.

BRIEF SOLDIER: Tell the soldier to operate the TOW launcher in power and manual modes.

| Performance Measures                                                                                                                                              | <u>GO</u> | <u>NO GO</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Operated the TOW launcher in the POWER mode.<br>a. Raised the launcher.<br>b. Elevated the launcher.<br>c. Depressed the launcher.<br>d. Stowed the launcher.  | _____     | _____        |
| 2. Operated the TOW launcher in the MANUAL mode.<br>a. Raised the launcher.<br>b. Elevated the launcher.<br>c. Depressed the launcher.<br>d. Stowed the launcher. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                    |
|-------------------|--------------------|
| <b>References</b> | <b>Related</b>     |
| Required          | TM 9-2350-252-10-2 |

# **Perform Misfire Procedures on the TOW System on a BFV** **071-316-3002**

**Conditions:** Given a BFV with the master power, turret power, and turret drive system switches ON; all hatches closed; rear ramp closed; STAB switch OFF; and a TOW missile that fails to launch.

**Standards:** Performed misfire procedures without damaging equipment or injuring personnel.

## **Performance Steps**

Note: A misfire is the failure of the missile to fire within 5 seconds after the trigger is depressed.

1. Announce, "Misfire," over the intercom and attempt to fire again.
2. Immediately resqueeze the palm switch and the trigger on the gunner's control handles and continue to track the target for 5 seconds.
  - a. If the TOW missile fires, the task is over.
  - b. During training, if the TOW missile does not fire, move the ARM-SAFE-RESET switch to RESET, then to SAFE (Figure 1).

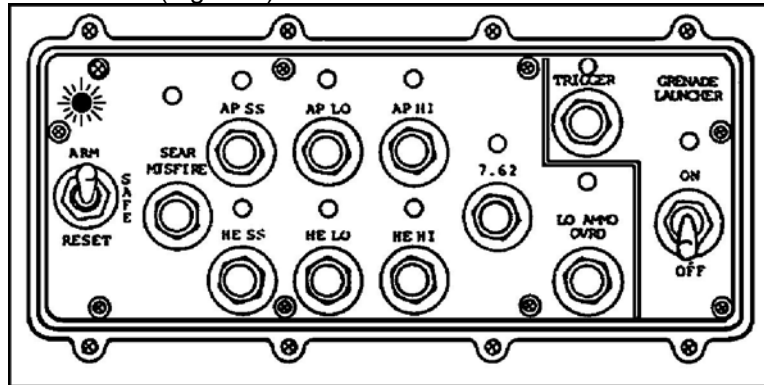


Figure 1. Weapon control box.

3. Press the TOW button on the TOW control box. During training, perform the following steps:
  - a. If any annunciator light on the TOW control box or annunciator box comes on, the TOW cannot be fired; take corrective action.
  - b. If no annunciator light comes on, reselect the misfired TOW missile. Press the missile tube button on the TOW control box that was pressed the first time (Figure 2).



## Performance Steps

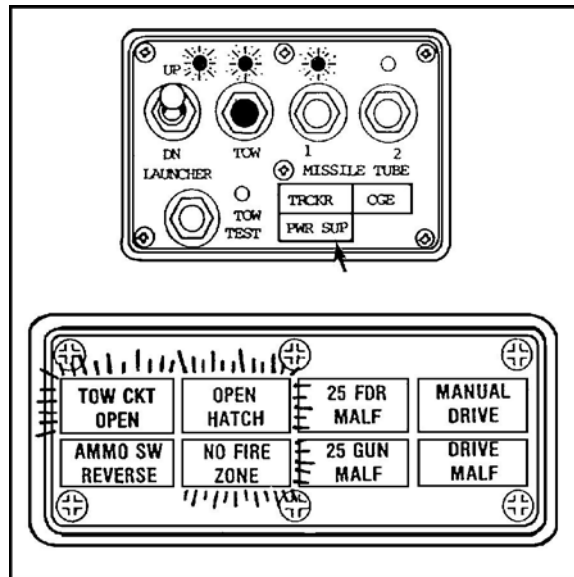


Figure 2. M2 TOW control box and annunciator box.

Note: There are two kinds of TOW control boxes and annunciator lights. Step 3 applies to both. The M2 control box is used in Figure 2.

Note: If the light above the missile tube button flashes when the missile tube button is pressed, that missile tube is empty.

4. Resqueeze and hold the palm switches and the triggers on the gunner's control handles.
  - a. If the TOW missile fires within 5 seconds, the task is completed.

Note: The misfired TOW missile is taken care of when the tactical situation permits, or the TOW missile is immediately removed and discarded.

- b. If the TOW does not fire after 5 seconds, select and fire the other missile.
    - (1) If the second missile fires, continue with the mission.
    - (2) If the second missile fails to fire after resqueezing the trigger, go to step 5.
5. Select the 25-mm and prepare to move to a new position.
6. Notify the chain of command that the TOW missiles have misfired on the second attempt.
7. As soon as the situation permits, unload the misfired TOW missile and reload (Figure 3). (In training, exit the turret through the turret shield door; stay in the squad area for 30 minutes.) If the turret has to be positioned to 6400 mils, make sure that no friendly troops are in the line of fire. Refer to appropriate task when removing the misfired missile from the launcher

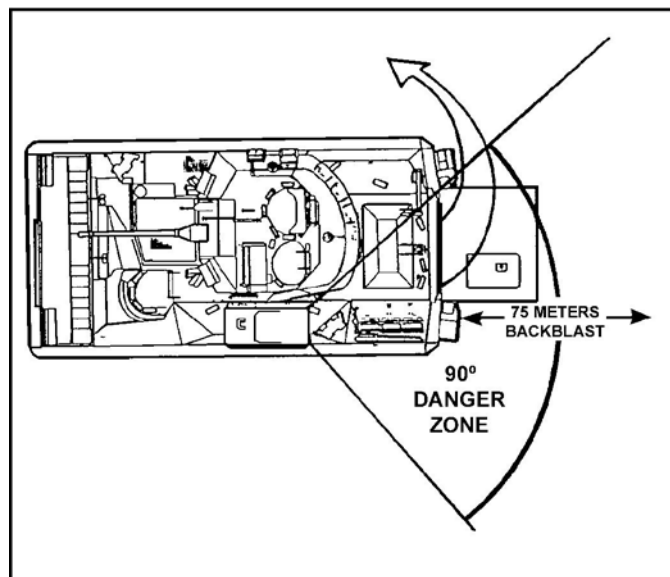
**Performance Steps**

Figure 3. Troop exit.

**WARNINGS**

1. A soldier could be injured or killed by the TOW backblast. The backblast area covers all but the right rear portion of the vehicle. If soldiers must leave the vehicle when the TOW is to be fired, keep everyone at least 75 meters from the TOW backblast area.

2. If a defective TOW missile explodes, soldiers could be seriously hurt or killed. All defective TOW missiles must be considered armed.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV loaded with dummy TOW missiles and a simulated TOW missile misfire.

**BRIEF SOLDIER:** Tell the soldier that he will be evaluated on his ability to perform misfire procedures on the TOW weapon system.

**Performance Measures**

1. Alerted the team of a misfire.
2. Refired the missile and continued tracking.
3. Moved the ARM-SAFE-RESET switch to RESET, then to SAFE.
4. Reselected the TOW system and waited 12 seconds.
5. Reselected the misfired TOW missile.
6. Moved the ARM-SAFE-RESET switch to ARM.
7. Attempted to fire.

**GO**      **NO GO**

|   |   |
|---|---|
| — | — |
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| — | — |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

## References Required

**Related**  
TM 9-2350-252-10-2

### Boresight the TOW Launcher on a BFV 071-316-3005

**Conditions:** Given a BFV parked on level ground with the 25-mm automatic gun and the coax machine gun boresighted, a complete boresight kit, an aiming point at least 1,200 meters away with horizontal and vertical lines, and one helper.

**Standards:** Boresighted the TOW launcher so that the aiming point, as seen through the viewing eyepiece of the boresight telescope, were aligned with the same aiming point as seen through the integrated sight unit (ISU).

## Performance Steps

**WARNING:** Looking at the sun through the ISU may cause blindness.

### NOTES:

1. A square shape makes the best target to boresight the TOW launcher.
2. Boresighting requires two soldiers. One soldier looks through the boresight adapter and the other soldier moves the turret and adjusts the ISU. The soldier on the outside of the vehicle is the helper.

**CAUTION:** Do not boresight the TOW launcher until the 25-mm gun and the M240C machine gun are boresighted.

1. Select a suitable target 1,200 meters away. Pick an aiming point on the target that has vertical and horizontal lines.
2. Set the daysight controls (Figure 1).

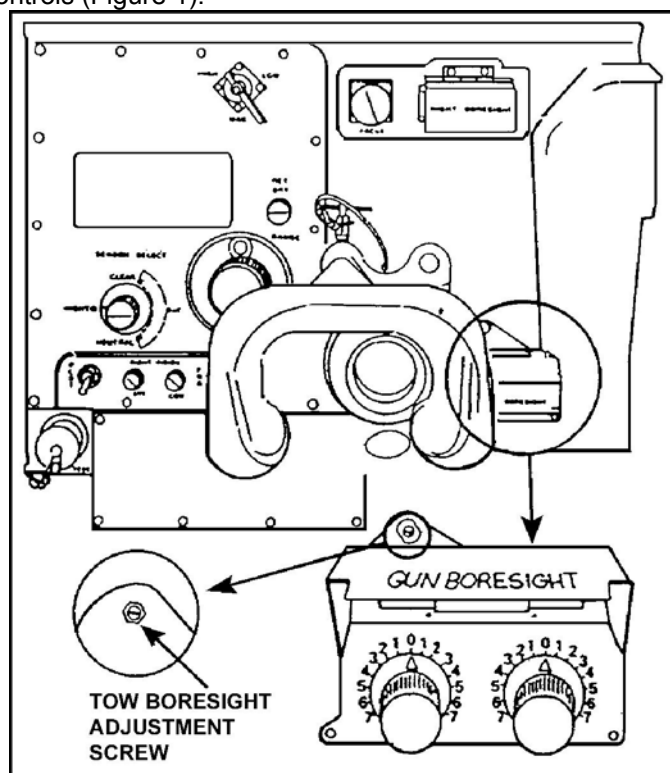


Figure 1. Daysight controls.

## Performance Steps

- a. Set the range knob to 0 meters.
  - b. Set the MAG switch to HIGH (until it clicks).
  - c. Move the sensor selector switch to CLEAR or NEUTRAL.
3. Move the turret drive system switch to ON (Figure 2).

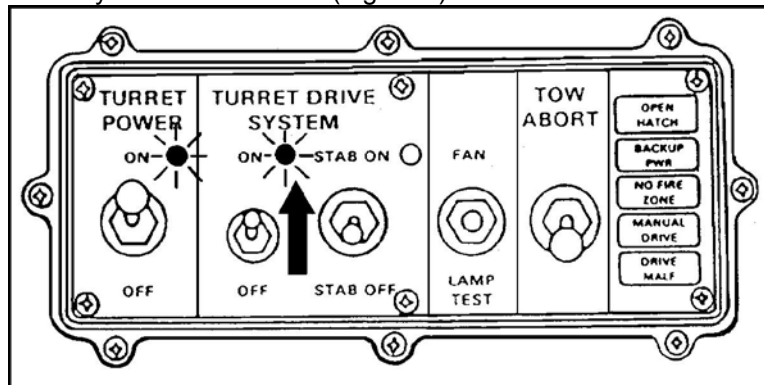


Figure 2. Turret drive system and indicator light.

**WARNING:** Soldiers on top of the vehicle in the path of the moving TOW launcher could be injured or killed. Check the top of the vehicle and ensure that no soldiers or equipment are in the path of the moving TOW launcher.

**NOTE:** There are two kinds of TOW control boxes. The TOW button is the same for both. The M2 TOW control box is shown in this task.

4. Raise the TOW launcher (Figure 3).

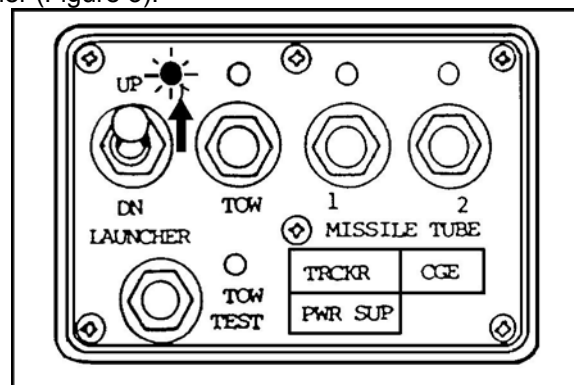


Figure 3. TOW launcher UP-DN switch and indicator lights.

5. Move the turret drive system switch to OFF. Hang a red streamer on the turret drive system switch.
6. Press the TOW push button to ON and wait 12 seconds.
7. Check that the TOW indicator light stays on when the TOW test indicator light goes out (Figure 4).

## Performance Steps

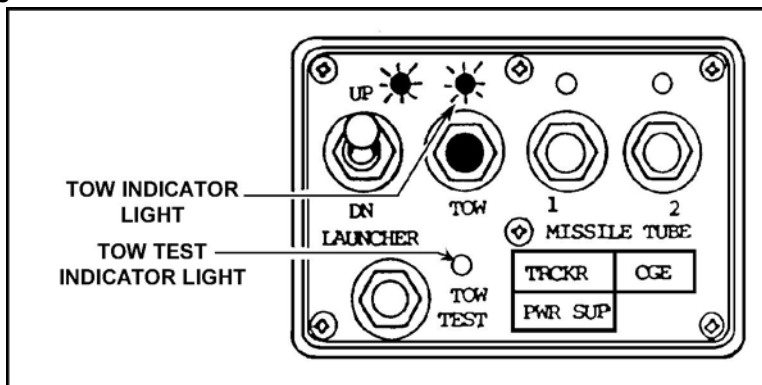


Figure 4. TOW indicator light and TOW test indicator light.

8. Look through the gunner's eyepiece and check the TOW reticle on the status indicator. If TOW does not appear in the status indicator, notify organizational maintenance.
9. Move the TOW elevation select lever to the manual position.
10. Move the gun elevation drive select lever to power position and move the turret traverse drive select lever to manual position (Figure 5).

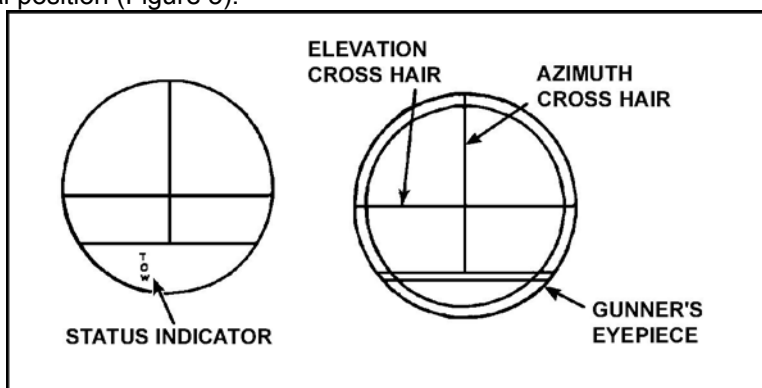


Figure 5. TOW status indicator.

**WARNING:** The fast motion of the TOW launcher during boresighting may result in an injury. Ensure the TOW launcher and turret are in the manual mode. Move the TOW launcher slowly during boresighting.

**CAUTION:** Do not jam the boresight telescope into the boresight adapter. Too much force will damage the boresight telescope.

### NOTES:

1. The boresight mounting hole is on the front of the TOW launcher between the launcher tubes.
2. The boresight telescope shank is tapered. Slide the shank into the TOW launcher far enough so that the boresight telescope will hold its own weight.

11. The helper installs the boresight telescope (Figure 6).

## Performance Steps

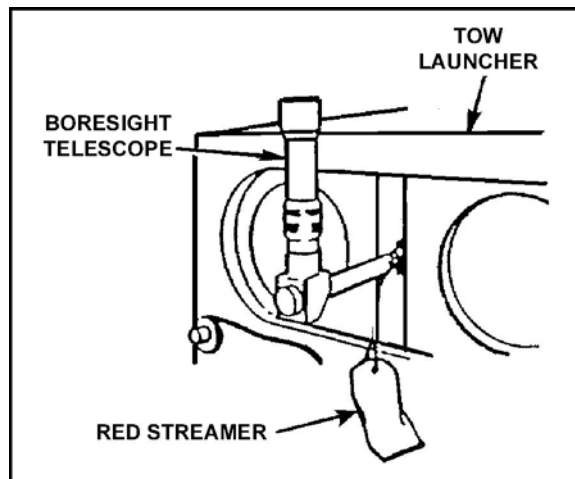
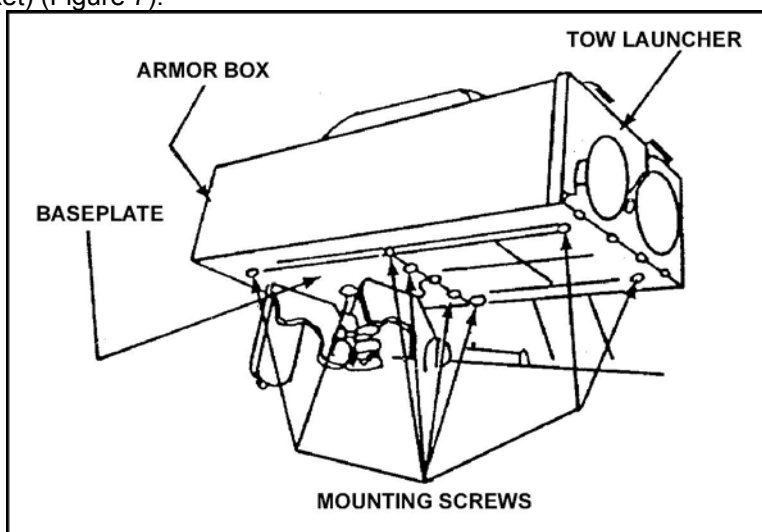


Figure 6. Boresight kit.

- a. Installs the boresight telescope shank in the boresight mounting hole on the TOW launcher and pushes the shank gently into the TOW launcher until it is seated.
- b. Turns the boresight telescope so that the eyepiece is at the top and tells the gunner that the boresight telescope is installed.
- c. Hangs a red streamer on the boresight telescope and informs the gunner that the boresight telescope is installed.

**CAUTION:** Do not operate the elevation handwheel with both the TOW elevation select lever and gun elevation select lever in manual position; to do so will break the linkage. Ensure that the gun elevation select lever is in power position during manual TOW operation.

12. Align the azimuth crosshair of the ISU TOW reticle onto the aiming point on the target by using the turret traverse handwheel.
13. The helper moves the vernier focus dial on the boresight telescope up or down to focus on the target.
14. The helper checks the alignment of the boresight telescope reticle on the aiming point on the target.
  - a. If the azimuth crosshair of the boresight telescope reticle does not align on the aiming point on the target, align the azimuth crosshair of the boresight reticle on the aiming point.
    - (1) Loosen the eight mounting screws on the baseplate of the TOW launcher (use a 9/16-inch socket) (Figure 7).



## Performance Steps

Figure 7. Mounting screws.

- (2) Gently pivot the TOW launcher within the armor box until the boresight telescope azimuth crosshair aligns on the aiming point (use the 3/8-inch flat-tip screwdriver).
- (3) Tighten the four center TOW launcher mounting screws so that the launcher will not pivot on the baseplate.
- (4) Tighten the four end TOW launcher mounting screws so that the launcher will not pivot on the baseplate.
- (5) The helper rechecks the azimuth alignment of the boresight telescope on the aiming point on the target.

NOTE: If necessary, repeat step 14b until the boresight telescope is aligned in azimuth on the aiming point on the target.

15. The helper checks elevation alignment of the boresight telescope reticle on the aiming point on the target.
  - a. If the elevation crosshair of the boresight telescope reticle aligns on the aiming point, the launcher is boresighted.
  - b. If the elevation crosshair of the boresight telescope reticle does not align on the aiming point of the target, use the elevation handwheel to elevate or depress the TOW launcher, as directed by the helper, to align the elevation crosshair in the reticle of the boresight telescope on aiming point.
16. Align the elevation crosshair in the gunner's reticle on the aiming point on the target.
  - a. Turn the TOW boresight adjustment screw, using 1/8-inch flat-tip screwdriver, until the elevation crosshair aligns on the aiming point (Figure 8).

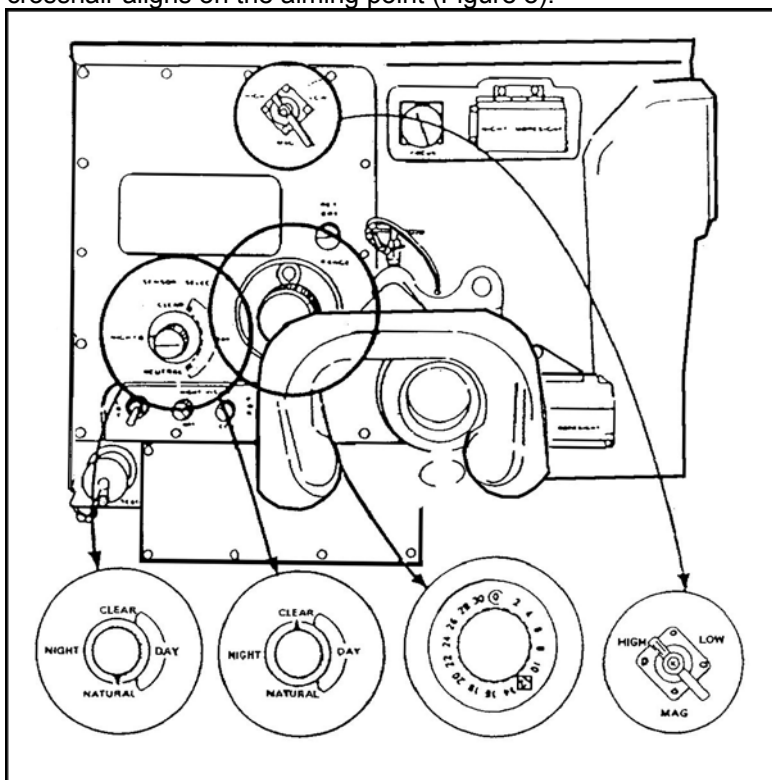


Figure 8. TOW boresight adjustment screw.

- b. Remove the screwdriver after aligning the elevation crosshair.
- c. If the aiming point image moves up or down from the crosshair after removing the screwdriver, notify unit maintenance.

**Performance Steps**

17. Press the TOW button on the TOW control box to deselect the TOW system.

CAUTION: Pull the boresight telescope from the TOW launcher with care. Too much force will damage the boresight telescope.

18. The helper removes the boresight telescope from the TOW launcher.
  - a. Pulls the boresight telescope out gently from the TOW launcher.
  - b. Removes the red streamer.
  - c. Tells the gunner that the boresight telescope is out.
19. Move the turret traverse drive select lever to POWER position and the gun elevation drive select lever to POWER position.
20. Move the TOW elevation select lever to POWER position.
21. Remove the red streamer and move the turret drive system switch to ON.
22. Lower the TOW launcher.

**Evaluation Preparation:** SETUP: Provide the soldier all the equipment and materials outlined in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to boresight the TOW launcher so that the aiming point of the boresight telescope is focused on the same aiming point as seen through the ISU.

| <b>Performance Measures</b>                                                                | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Selected a suitable aiming point.                                                       | _____            | _____               |
| 2. Set the daysight controls.                                                              | _____            | _____               |
| 3. Moved the turret drive system switch to ON.                                             | _____            | _____               |
| 4. Erected the TOW launcher.                                                               | _____            | _____               |
| 5. Moved the turret drive system switch to OFF and displayed the red streamer.             | _____            | _____               |
| 6. Pressed the TOW push button to ON and waited 12 seconds.                                | _____            | _____               |
| 7. Selected a TOW and ensured that the reticle and the status indicator were correct.      | _____            | _____               |
| 8. Moved the TOW elevation select lever to the MANUAL position.                            | _____            | _____               |
| 9. Moved the gun elevation drive select lever to the POWER position.                       | _____            | _____               |
| 10. Talked the helper through the boresight telescope installation and accuracy procedure. | _____            | _____               |
| 11. Boresighted the TOW launcher and reticle.                                              | _____            | _____               |
| 12. Deselected the TOW.                                                                    | _____            | _____               |
| 13. Talked the helper through the boresight telescope removal procedure.                   | _____            | _____               |
| 14. Lowered the TOW launcher.                                                              | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.



**References  
Required**

**Related**  
TM 9-2350-252-10-2

## Engage Targets with the TOW System on a BFV

071-316-3006

**Conditions:** Given a BFV with the TOW launcher loaded with missiles and a target identified at 65 to 3,000 meters (65 to 3,750 meters for TOW 2).

**NOTE:** The TOW requires a minimum of 65 meters to arm.

**Standards:** Engaged targets with the TOW so that each target was identified and immobilized, or destroyed.

### Performance Steps

#### WARNINGS:

1. The TOW backblast may cause injury or death. All vehicle personnel must be inside the vehicle with the hatches closed when the TOW is fired. Dismounted personnel should be at least 75 meters away from the TOW blast area.
2. A TOW or TOW wire touching a high-tension wire may cause injury or death. Do NOT fire the tow over high-tension wires.

**NOTE:** Ensure both of the ISU ballistic shield doors are open for TOW usage, and the turret is operating in the POWER mode.

1. Prepare the TOW for operation.

**NOTE:** If moving, stop the vehicle in a hull defilade position.

- a. The Bradley commander and gunner check the slope indicators to make sure that the vehicle is within the 10-degree slope warning. If the air bubble touches the outer (red) ring, do not fire the TOW. Direct the driver to move the vehicle to more even ground (Figure 1).

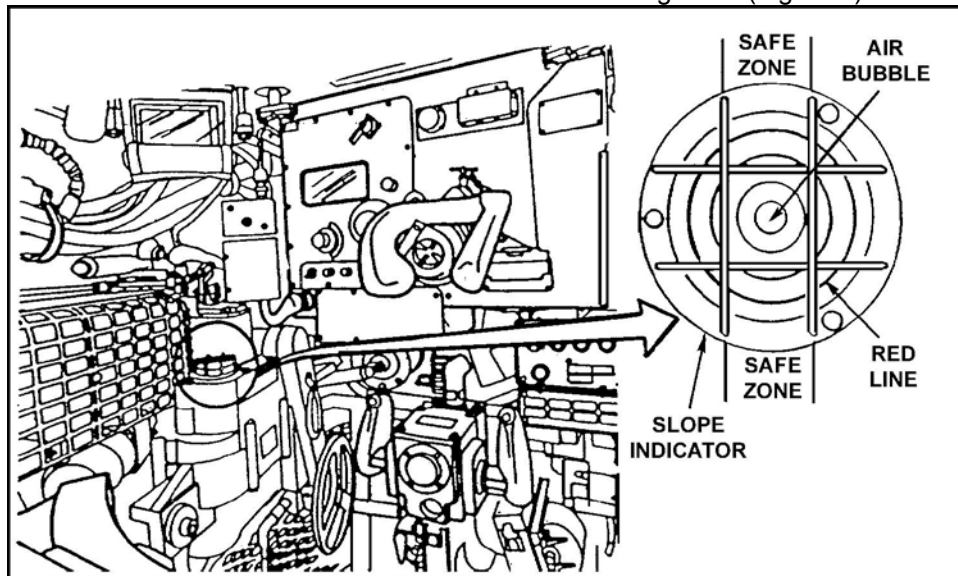


Figure 1. Slope indicator.

- b. Prepare the ISU for normal or thermal operation.
- c. Turn the MAG switch on the ISU to HIGH until it clicks (Figure 2).

## Performance Steps

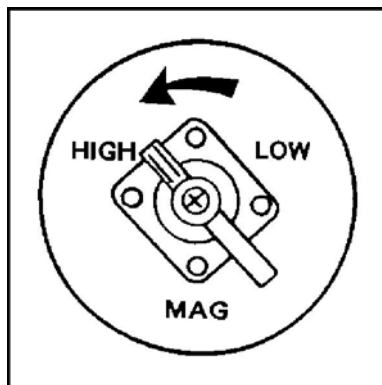


Figure 2. MAG switch.

NOTE: The TOW system will not function with the MAG switch in the LOW position.

d. Raise the TOW launcher (Figure 3).

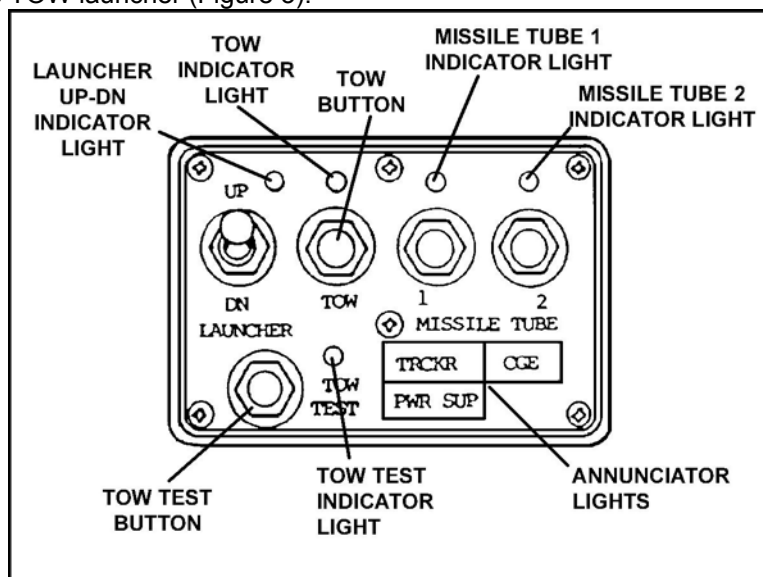


Figure 3. M2 TOW control box.

- (1) Move the launcher UP-DN switch to UP.
- (2) Depress the gunner's palm switches.

NOTE: The TOW control box on the M2A1 and M3A1 is different from the one on the M2 and M3, except for the TOW button and indicator light, and the TOW test button and TOW indicator light are the same.

WARNING: (M2A1 AND M3A1) Do not fire the TOW 2 missile if the vertical TOW reticles are not between the electronic alignment reticles. Do not fire the TOW 2 missile if the horizontal TOW reticle is not on the electronic alignment reticle. Soldiers can be killed or injured and equipment can be damaged.

### NOTES:

1. Step e applies to the M2A1 and M3A1 only when firing TOW 2 missiles. If standard TOW missiles are to be fired, go to step f.
2. Electronic alignment reticles appear during the self-test and turn off after the self-test is completed.

e. Look into the gunner's eyepiece and press the TOW button (Figure 4).

## Performance Steps

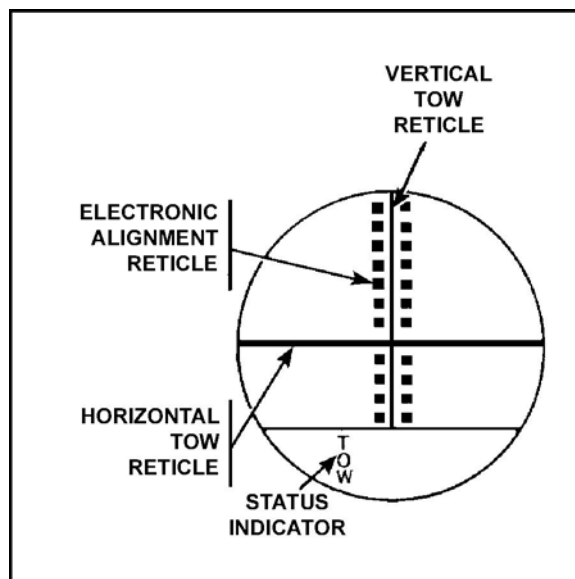


Figure 4. M2A1 eyepiece.

- (1) Make sure that the vertical TOW reticle is between the electronic alignment reticles.
  - (2) Make sure that the horizontal TOW reticle is on the electronic alignment reticle.
  - (3) If the reticles cannot be seen, readjust the brightness and contrast and press the TOW test button.
- f. Press the TOW button. The system performs a self-test (Figure 5).

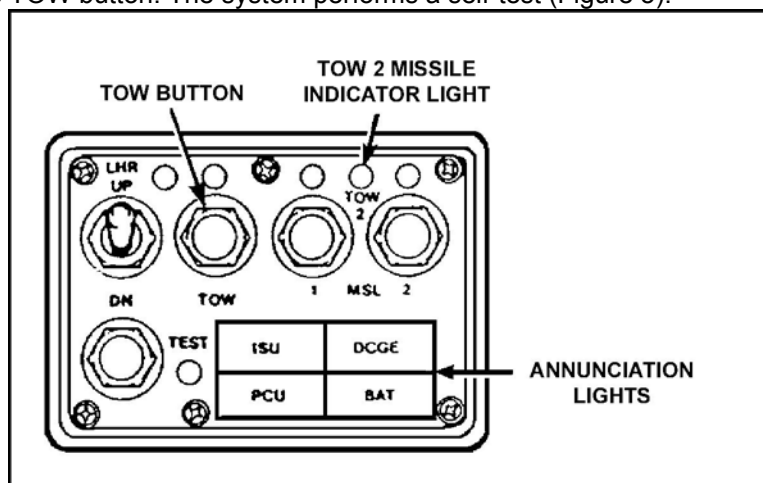


Figure 5. M2A1 TOW control box.

NOTE: The TOW self-test lasts for 12 seconds (20 seconds for M2A1 and M3A1); the TOW test light should then go out. If time is limited, override the self-test by selecting a missile that the TOW test indicator is still on.

2. Check the annunciator lights on the TOW control box.
  - a. If the indicator light goes off in 12 seconds (20 seconds for A1 series), go to step 3.
  - b. If the TOW indicator light stays on, press the TOW test button on the control box.
3. Make sure that the annunciator lights on the annunciator box are off (Figure 6).

NOTE: If the NO FIRE ZONE, OPEN HATCH, or TOW CKT OPEN lights are on, the TOW cannot be selected.

## Performance Steps

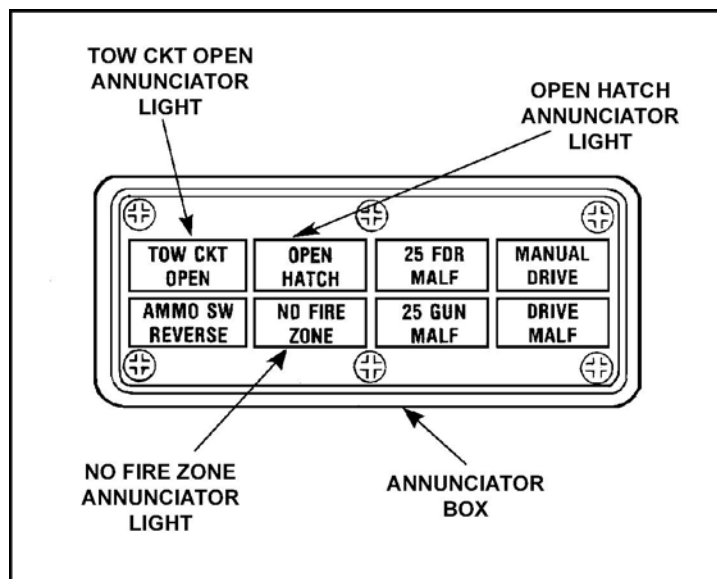


Figure 6. Annunciator box.

4. Check the status indicator.
  - a. Look through the gunner's eyepiece at the reticle.
  - b. Check that TOW appears.
5. Push the missile tube number 1 button.
  - a. If the indicator light above missile tube number 1 button flashes, missile tube number 1 on the TOW missile launcher is empty.
  - b. If the indicator light comes ON but does not flash, move the ARM-SAFE-RESET switch to ARM position.

## NOTES:

1. On the M2A1 and M3A1 control boxes, the TOW 2 indicator light will come on when a TOW 2 missile is in the missile tube selected.
2. After the Bradley commander identifies the target, he moves the turret using the Bradley commander's control handle to bring the gunner's view on to the target. As the Bradley commander moves the turret, he issues an initial fire command, GUNNER, MISSILE, TANK.

6. The gunner acquires the target using the ISU.

7. When the gunner announces "identified," the Bradley commander releases his grip on the control handle. The gunner may now track the target using his control handles.

NOTE: For TOW engagements, the gunner will not acquire range to target.

8. Center the reticle cross hairs on the target (Figure 7).

## Performance Steps

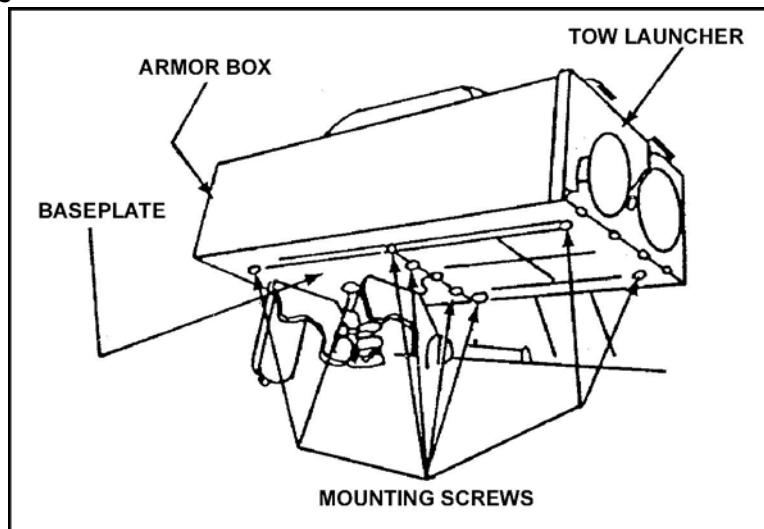


Figure 7. Cross hairs on target.

### NOTES:

1. Make sure the target is engageable.
2. If the area between the vertical cross hair and the edge of the sight in the direction of travel is clear of obstructions, the target can be engaged. If it is not clear of obstructions, the target cannot be engaged.

NOTE: Gunner will receive the command FIRE from the Bradley commander.

9. Gunner announces, "On the way."
10. Fire at the targets using the trigger; squeeze and hold the PALM switch and the trigger on the gunner's control handle.
11. Keep the cross hairs on the center of visible mass of the target, tracking, as necessary, until the missile impacts. When engaging a target at 3,750 meters, the missile takes about 35 seconds to reach the target.

NOTE: If the missile has not fired after 5 seconds, announce "Misfire," and apply misfire procedures.

12. When the firing mission is completed, move the ARM-SAFE-RESET switch to RESET, then to SAFE.

**Evaluation Preparation:** SETUP: Provide the soldier a BFV with a functional TOW launcher and ISU, two rounds of TOW ammunition or subcaliber ammunition, and targets at the following ranges on a live-fire range complex or applicable subcaliber range:

- One T-72-size target between 1,000 and 1,500 meters.
- One T-72-size target between 2,000 and 3,000 meters.

**BRIEF SOLDIER:** Tell the soldier to successfully engage a designated target and achieve a kill using the ISU.

## Performance Measures

1. Prepared the TOW for operation.
2. Checked the annunciator lights on the TOW control box, the Bradley commander's annunciator panel, and the gunner's annunciator panel.
3. Checked the status indicator.

GO      NO GO

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Performance Measures**

**GO**    **NO GO**

- 4. Engaged a target successfully.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 23-1  
TM 9-2350-252-10-2

Subject Area 44: WEAPONS: M240C MACHINE GUN (COAX)

**Load the M240C Coaxial Machine Gun on a BFV**

**071-026-0001**

**Conditions:** Given a BFV with an installed M240C coaxial machine gun and 800 rounds of belted 7.62-mm ammunition, master power and turret power switches ON, and turret drive system switch OFF. The ARM-SAFE-RESET switch is on SAFE.

**Standards:** Loaded the M240C coaxial ammunition box and M240C machine gun with 7.62-mm ammunition so that the machine gun is ready to fire. Ensured all safety precautions are followed.

**Performance Steps**

1. Access the 7.62-mm coax ammunition chute. Remove any debris from the coaxial ammunition box (Figure 1).

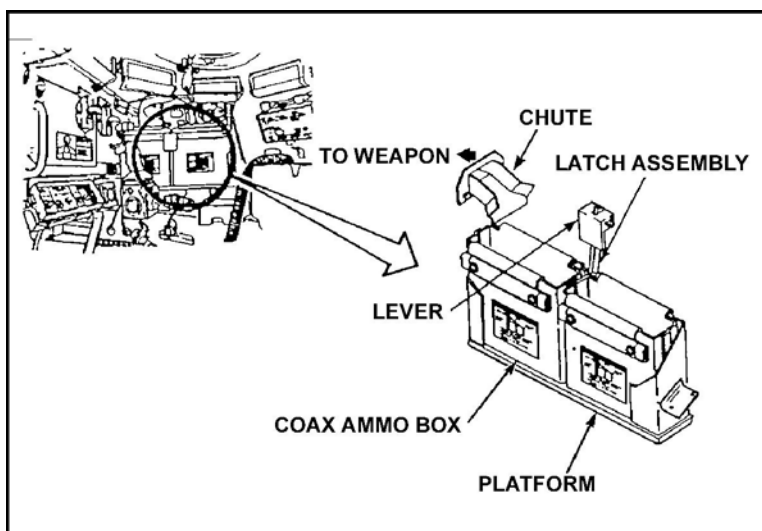


Figure 1. 7.62-mm access chute.

2. Clear the M240C coaxial machine gun.
    - a. Open the M240C coaxial machine gun access doors by-
      - (1) Pulling down the handle on the right door and pushing the door inward.
      - (2) Pulling down the handle on the left door and pulling the door outward.
    - b. Set the manual safety and inspect the M240C coaxial machine gun.
- NOTE: Safety (S) or fire (F) is pushed through one side of the gun to the other side. Safety (S) is seen on the right side of the gun. Fire (F) is seen on the left side of the gun.
- (1) Pull charger handle back firmly.
  - (2) Push manual safety through to "S" position (Figure 2).



## Performance Steps

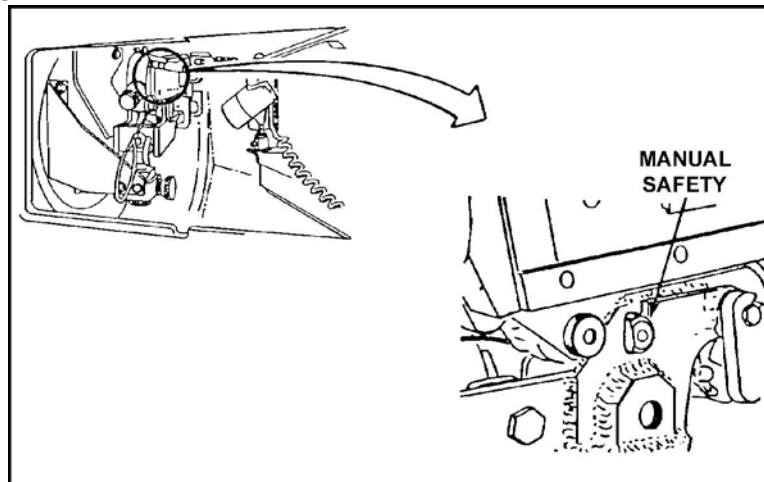


Figure 2. Manual safety.

(3) Open the cover assembly and the feed tray, and inspect and feel the chamber.

3. Load the ammunition box (Figure 3).

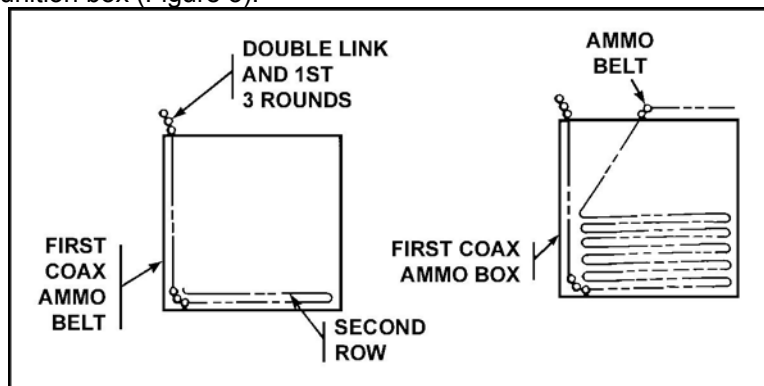


Figure 3. 100-round belt of ammunition loaded in ammunition box.

- a. Take one 100-round belt of ammunition from a box of 7.62-mm ammunition. Inspect the rounds and links for alignment or damage. Realign if necessary. DO NOT load unserviceable ammunition.
- b. Feed the first 100-round belt into the first section of the ammunition box (compartment nearest the chute) by placing, links down, a full link next to the left wall of the ammunition box, cartridges pointing away from the loader. Fold the layers of the belt into the first section of the ammunition box.
- c. Continue loading 100-round belts into the ammunition box by linking new belts to the loaded belt, snapping the single link to the last cartridge of the new belt. As other ammunition boxes are opened and 100-round belts are taken out, inspect rounds and links for misalignment or damage. Again, realign if necessary, and DO NOT load unserviceable ammunition. Continue to load until the first section of the ammunition box is full, then the second section (Figure 4).

## Performance Steps

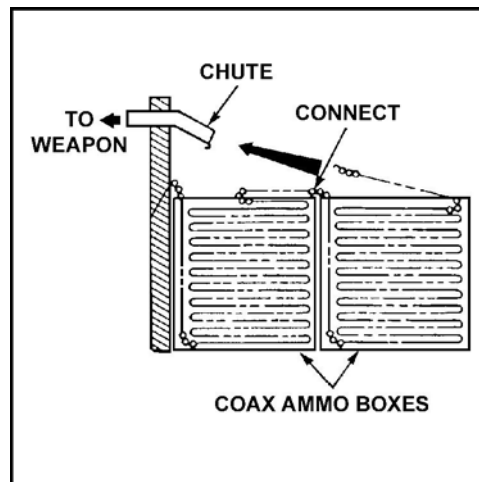


Figure 4. Load second and third sections.

- d. When the second section is full, guide the belt back across all sections. Loading the ammunition box in this manner will use seven 100-round belts.
4. Load the ammunition chute.
  - a. Feed the ammunition belt into the chute from the ammunition box, with the cartridges pointing away from the loader and the single link leading (Figure 4).
  - b. Forward ammunition up the chute until first round stops at the feed tray of the weapon.
  - c. Hold the belt in place at the feed tray to prevent the belt from sliding.
5. Load the weapon.
  - a. Ensure the charger handle is pulled to the rear and the bolt locked to the rear.
  - b. Lower the feed tray.
  - c. Place the ammunition belt in the feed tray with the first cartridge resting against the cartridge stop (Figure 5).

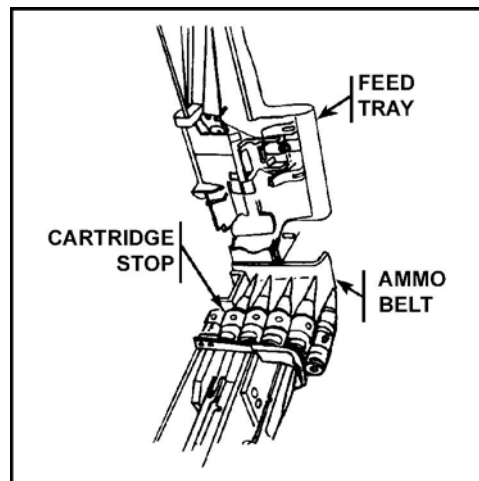


Figure 5. Cartridge stop.

- d. Close the cover assembly.
- NOTE: Leave the manual safety on SAFE until cleared to move the manual safety to the FIRE position.
- e. Close the machine gun access doors.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV with an installed M240C coaxial machine gun and belted 7.62-mm ammunition.

BRIEF SOLDIER: Tell the soldier to load the M240C coaxial machine gun so that it is ready to fire.

| Performance Measures                           | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------|-----------|--------------|
| Performance measures must be done in sequence. |           |              |
| 1. Cleared the weapon.                         | _____     | _____        |
| 2. Loaded the ammunition box.                  | _____     | _____        |
| 3. Loaded the chute.                           | _____     | _____        |
| 4. Loaded the weapon.                          | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

| References | Related            |
|------------|--------------------|
| Required   | TM 9-2350-252-10-2 |

## Unload the M240C Coaxial Machine Gun on a BFV

### 071-026-0002

**Conditions:** Given a BFV with an installed M240C coaxial machine gun loaded with belted 7.62-mm ammunition, master power and turret power switches ON.

**Standards:** Unload and clear the M240C machine gun so that no ammunition is in the chamber and ammunition is stowed into ammunition cans, without causing damage to equipment or injury to personnel.

### Performance Steps

**WARNING:** Accidental firing of the M240C machine gun could result in death or injury. Make sure that the ARM-SAFE-RESET switch is at the SAFE position.

1. On the weapon control panel, move the ARM-SAFE-RESET switch to RESET, then to SAFE. Move the turret drive system switch to OFF (Figure 1).

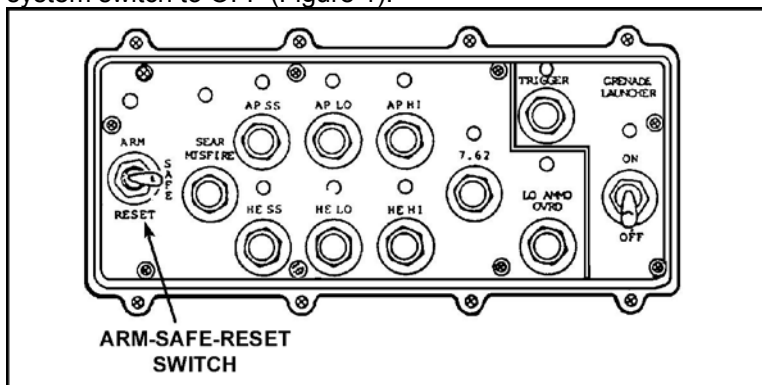


Figure 1. ARM-SAFE-RESET switch.

2. Clear the M240C machine gun.
3. Unload the feed chute.
  - a. Pull the ammunition out of the ammunition feed chute back into the M240C ready box.
  - b. Inspect the ammunition feed chute to ensure it is clear of ammunition.
  - c. Close the coax machine gun access door.
4. Unload the ammunition box.
  - a. Unstow empty 7.62-mm ammunition cans.
  - b. Count off 100 cartridges on the belt. Twist the belt and separate the belt at the 100th cartridge.
  - c. Place a 100-round belt of ammunition in the ammunition can ensuring that the double link is placed in first.
  - d. Repeat steps b and c until the 7.62-mm ammunition can is full.
  - e. Close the lid on the ammunition can.
  - f. Unload the remaining 7.62-mm ammunition from the M240C ready box and stow in the 7.62-mm ammunition cans.
  - g. Repeat steps a through f until the 7.62-mm ready box is empty.
  - h. Stow the 7.62-mm ammunition cans.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV with an installed M240C machine gun loaded with belted 7.62-mm ammunition.

**BRIEF SOLDIER:** Tell the soldier to unload and clear the M240C machine gun and to follow all safety precautions.

| Performance Measures                        | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------|-----------|--------------|
| 1. Moved the ARM-RESET-SAFE switch to SAFE. | _____     | _____        |
| 2. Cleared the weapon.                      | _____     | _____        |
| 3. Unloaded the feed chute.                 | _____     | _____        |
| 4. Unloaded the ammunition box.             | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                    |
|-------------------|--------------------|
| <b>References</b> | <b>Related</b>     |
| <b>Required</b>   | TM 9-2350-252-10-2 |

### Zero the M240C Coaxial Machine Gun on a BFV 071-026-0003

**Conditions:** Given a boresighted and mounted M240C machine gun on a BFV, loaded with linked 7.62-mm ammunition, and a target at 800 meters.

**Standards:** Zeroed the M240C machine gun to the ISU so that the strike of the rounds coincided with the aiming point as seen through the sight reticle.

#### Performance Steps

**NOTE:** When a target at a range of 800 meters is not available, a target at a minimum range of 400 meters can be used.

1. The Bradley commander selects a target 800 meters away.
2. The gun is prepared for firing.
  - a. Turn the range control knob to 8 (800 meters).
  - b. Push the 7.62 button on the weapon control box. The 7.62 indicator light should come on (Figure 1).

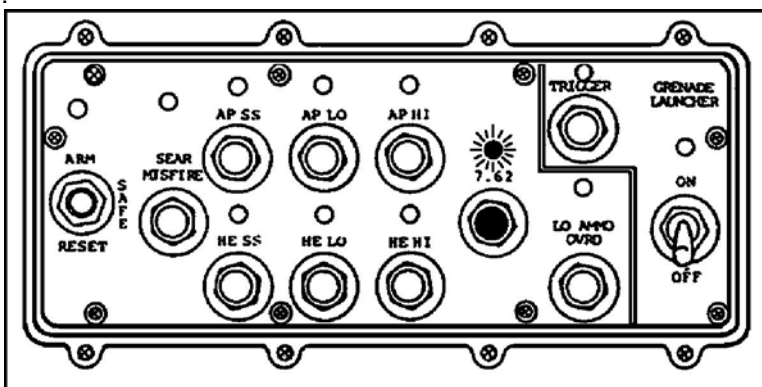


Figure 1. 7.62 button and indicator.

- c. Look through the gunner's eyepiece and elevate and traverse in the power mode to align the reticle on the center of the target (Figure 2).

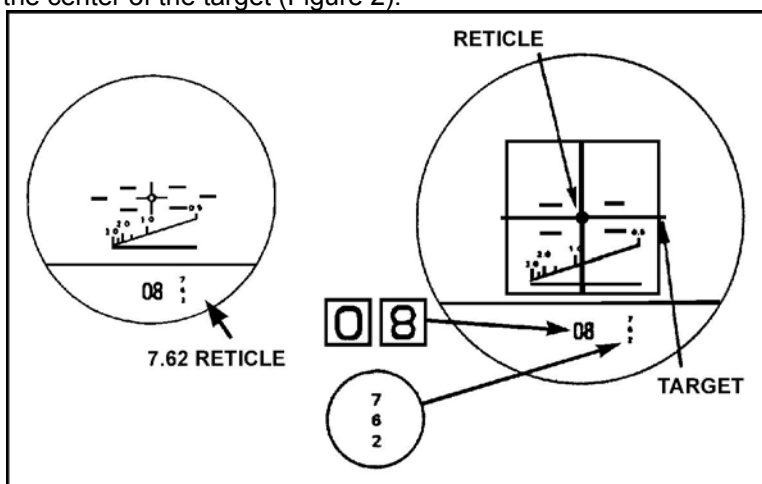


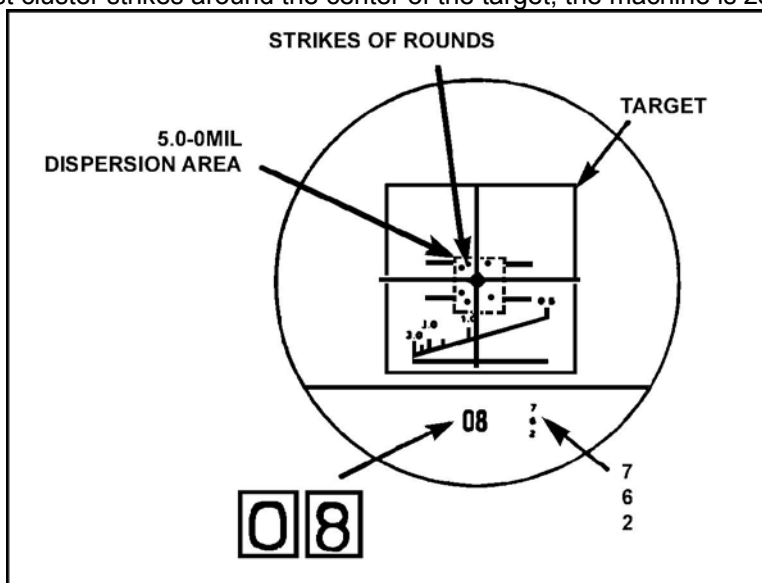
Figure 2. 7.62 reticle.

- d. Move the ARM-SAFE-RESET switch to ARM.

**WARNING:** Gases from the weapons are poisonous. Close the coax machine gun access doors before firing the coax.

### Performance Steps

3. Fire a short burst (10 to 15 rounds) at the target. Observe the tracer's impact or flight in relation to the target.
  - a. If the burst cluster strikes around the center of the target, the machine is zeroed (Figure 3).



3. Rounds on aiming point.

- b. If the burst strikes off center, adjust the machine gun (Figure 4).

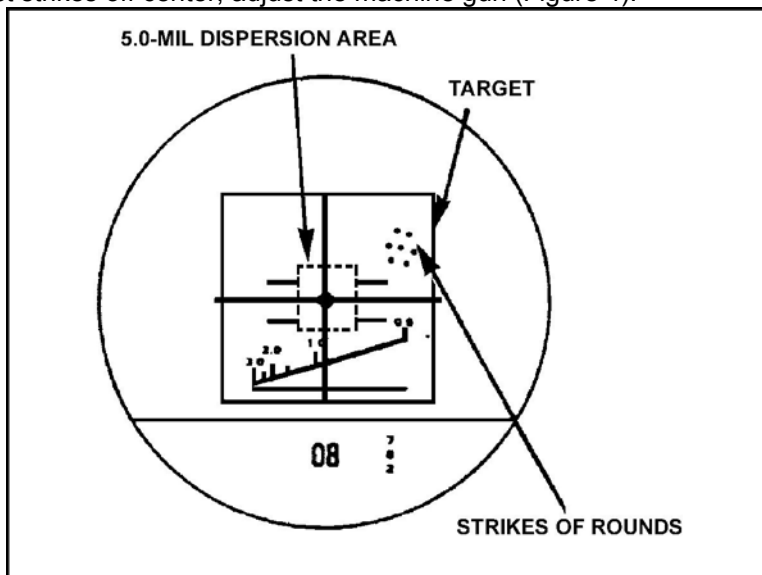


Figure 4. Rounds off center.

4. Estimate the number of mils of elevation and the number of mils of azimuth between the strikes of the rounds and the center of the reticle. In the sight reticle, each lead line and each space between the lead lines are 2.5 mils. Each cross hair is 5 mils.
- NOTE: To zero the M240C machine gun, adjust the gun so that it points to the center of the zero target. Do not move the boresight controls on the ISU. Do not move the turret.
5. Move the ARM-SAFE-RESET switch to SAFE before making gun adjustments.

## Performance Steps

6. Make adjustments to move the strike of the rounds into the target area (Figure 5).

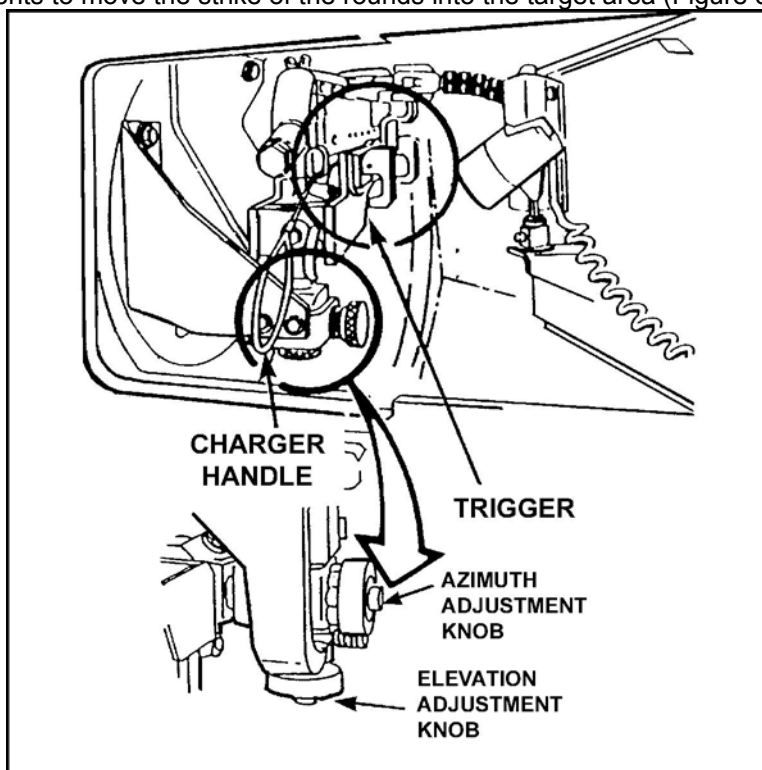


Figure 5. Elevation and azimuth adjustment knobs.

- a. Open the machine gun access door.

NOTE: Each click of the elevation adjustment knob equals 0.5 mils on the reticle.

- b. Turn the elevation adjustment knob right or left to center the strike of rounds on the target.  
Turning the elevation adjustment knob to the right elevates the strikes of the rounds. Turning the elevation knob to the left depresses the strikes of the rounds.
- c. Turn the azimuth adjustment knob backward or forward to center the strike of the round.  
Turning the azimuth adjustment knob backward moves the strikes of the rounds to the right. Turning the azimuth adjustment knob forward moves the strikes of the rounds to the left.
- d. Close the machine gun access doors.
- e. Repeat the zeroing procedures until the M240C machine gun is zeroed.

**Evaluation Preparation:** SETUP: Provide the soldier with all the equipment and materials as outlined in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to zero the M240C machine gun to the ISU so the round dispersion is centered on the aiming point of the ISU.

## Performance Measures

1. Selected the M240C machine gun target 800 meters away.
2. Sets the ISU controls.
3. Selected the 7.62-mm ammunition on the weapon control panel.
4. Observed the strike of the rounds.
5. Adjusted the M240C machine gun, as necessary, to coincide the strike of rounds

**GO**      **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |



**Performance Measures**

with ISU aiming point.

**GO****NO GO**

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

TM 9-2350-252-10-2

**Perform a Function Check on the M240C Coaxial Machine Gun on a BFV**  
**071-026-0004**

**Conditions:** Given an assembled M240C coaxial machine gun, mounted in a BFV with the bolt to the rear, and a requirement to check the gun to ensure that it functions as designed.

**Standards:** Checked the M240C coaxial machine gun; ensured that when the manual safety is in the "S" (Safe) position, the bolt is to the rear, and when the trigger is pulled, the bolt does not go forward; when the safety is removed and the trigger is pulled, the bolt goes forward without causing damage to the equipment.

**Performance Steps**

1. Place the manual safety in the firing position with the "S" not showing.
2. Pull the charger handle to the rear, charging the gun.
3. Close the cover assembly. Place the manual safety in the safe position with the "S" showing and pull the trigger. The gun should not fire. If the coaxial machine gun fires with the manual safety in the safe position, notify your supervisor.
4. Place the manual safety in the firing position with the "S" not showing. While holding the charger handle, pull the trigger and allow the bolt to ease forward. If the bolt does not go forward, you must disassemble, inspect, and reassemble the weapon.

**Evaluation Preparation:** SETUP: At the test site, provide all the materials given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to perform a function check on the M240 coaxial machine gun.

**Performance Measures**

**GO**      **NO GO**

1. Performed a function check on the M240C coaxial machine gun.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

TM 9-1005-313-10

## Load the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV

071-026-0007

**Conditions:** Given an M2A3/M3A3 BFV with an installed M240C coaxial machine gun and 800 rounds of belted 7.62-mm ammunition, master power switch ON, the turret power switch OFF, and turret drive system switch OFF. The ARM-SAFE-RESET switch is on SAFE and the travel lock is engaged.

**Standards:** Loaded the M240C coaxial machine gun ammunition box and the M240C machine gun with 7.62-mm ammunition so that the machine gun was ready to fire. Ensured all safety precautions were followed.

### Performance Steps

1. Access the 7.62-mm coax ammunition chute. Remove any debris from the coaxial ammunition box (Figure 1).

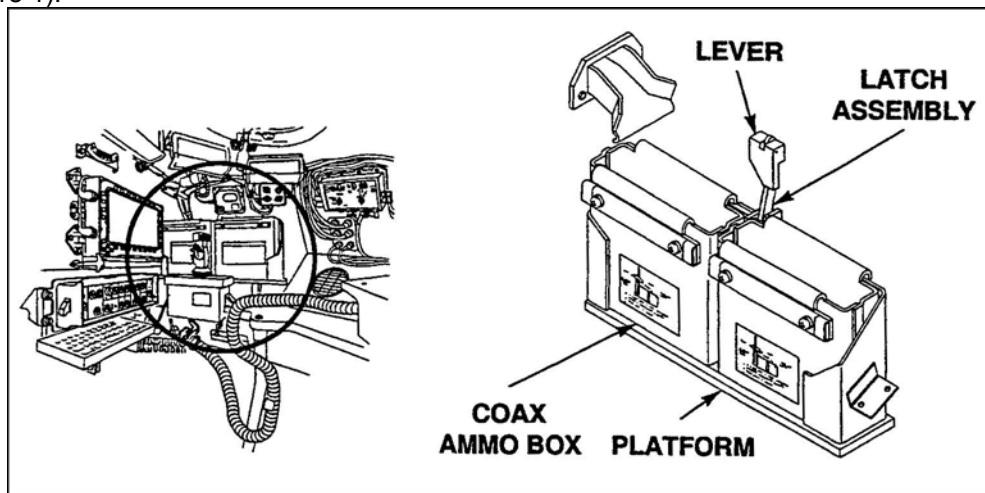


Figure 1. M240C coaxial ammo box.

2. Clear the M240C coaxial machine gun.
  - a. Open the M240C coaxial machine gun access doors (Figure 2).

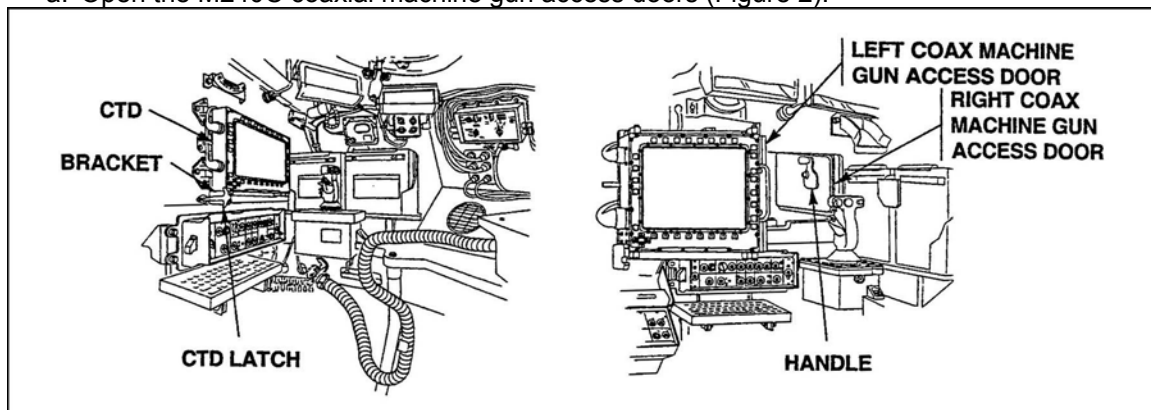


Figure 2. M240C access doors.

- (1) Unlatch the commander's tactical display (CTD) from its bracket.
  - (2) Unlatch the release handle on the right side access door.
  - (3) Pull out on the left side of the CTD to open the left access door.
  - (4) Push in on the right side access door to open.
- b. Set the manual safety and inspect the M240C coaxial machine gun.

### Performance Steps

Note: Safety (S) or fire (F) is pushed through one side of the gun to the other side. Safety (S) is seen on the right side of the gun. Fire (F) is seen on the left side of the gun.

- (1) Pull charger handle back firmly.
- (2) Push manual safety through to "S" position (Figure 3).

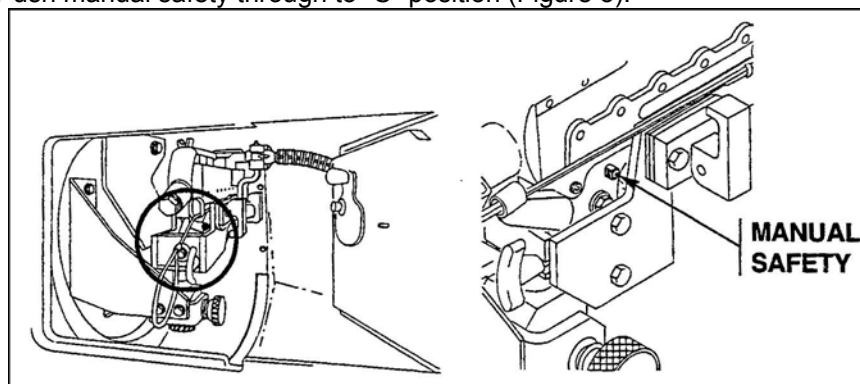


Figure 3. Manual safety.

- (3) Open the cover assembly and the feed tray, and inspect and feel the chamber.

### 3. Load the ammunition box (Figure 4).

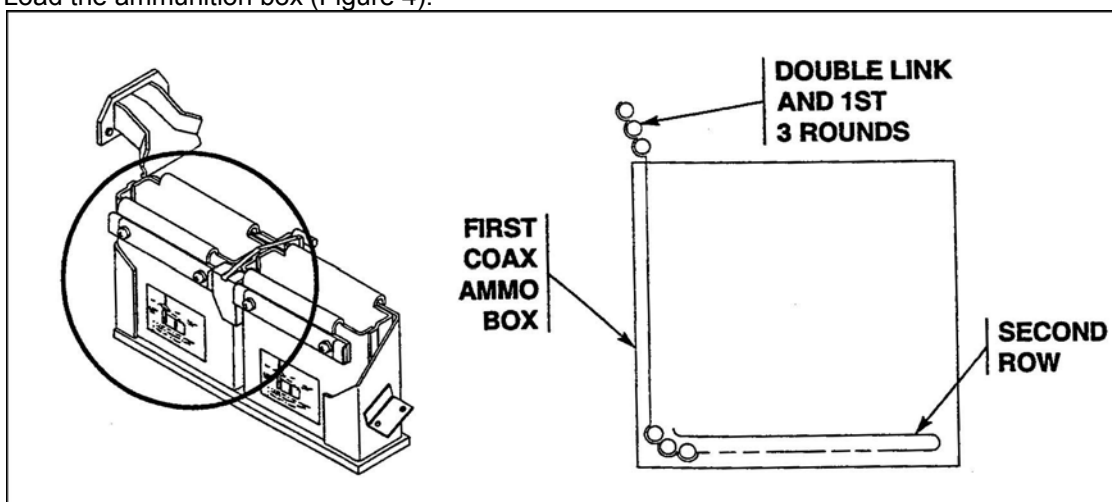


Figure 4. Ammo box first section.

- a. Take one 100-round belt of ammunition from a box of 7.62-mm ammunition. Inspect the rounds and links for alignment or damage. Realign if necessary. DO NOT load unserviceable ammunition.
- b. Feed the first 100-round belt into the first section of the ammunition box (compartment nearest the chute) by placing, links down, a full link next to the left wall of the ammunition box, cartridges pointing away from the loader. Fold the layers of the belt into first section of the ammunition box.
- c. Continue loading 100-round belts into the ammunition box by linking new belts to the loaded belt, snapping the single link to the last cartridge of the new belt. As other ammunition boxes are opened and 100-round belts are taken out, inspect rounds and links for misalignment or damage. Again, realign if necessary and DO NOT load unserviceable ammunition. Continue to load until the first section of the ammunition box is full, then the second section (Figure 5).

## Performance Steps

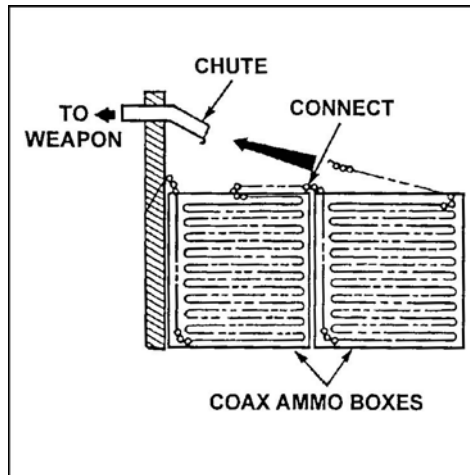


Figure 5. Load second and third sections.

- d. When the section is full, guide the belt back across all sections. Loading the ammunition box in this manner will use seven 100-round belts.
4. Load the ammunition chute.
  - a. Feed the ammunition belt into the chute from the ammunition box, with the cartridges pointing away from the loader and the single link leading (Figure 5).
  - b. Forward ammunition up the chute until first round stops at the feed tray of the weapon.
  - c. Hold the belt in place at the feed tray to prevent the belt from sliding.
5. Load the weapon.
  - a. Ensure the charger handle is pulled to the rear and the bolt locked to the rear.
  - b. Lower the feed tray.
  - c. Place the ammunition belt in the feed tray with the first cartridge resting against the cartridge stop (Figure 6).

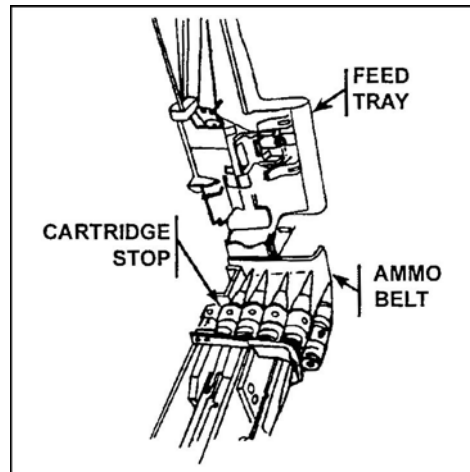


Figure 6. Cartridge stop.

- d. Close the cover assembly.
- Note: Leave the manual safety on SAFE until cleared to move the manual safety to the FIRE position.
- e. Close the machine gun access doors (refer to Figure 2).
    - (1) Pull in on the right side access door to close.
    - (2) Push out on the left side of the CTD to close the left access door.
    - (3) Latch the release handle on the right side access door.
    - (4) Latch the commander's tactical display (CTD) to its bracket.

**Evaluation Preparation:** SETUP: Provide the soldier with an M2A3/M3A3 BFV with an installed M240C coaxial machine gun and belted 7.62-mm ammunition.

BRIEF SOLDIER: Tell the soldier to load the M240C coaxial machine gun so that it is ready to fire.

| <b>Performance Measures</b>                                  | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------------|------------------|---------------------|
| Performance measures must be done in sequence.               |                  |                     |
| 1. Accessed the 7.62-mm coaxial ammunition chute for debris. | _____            | _____               |
| 2. Cleared the M240C coaxial machine gun.                    | _____            | _____               |
| 3. Loaded the M240C coaxial ammunition boxes.                | _____            | _____               |
| 4. Loaded the ammunition chute.                              | _____            | _____               |
| 5. Loaded the M240C coaxial machine gun.                     | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-2350-294-10-2-1  
TM 9-2350-294-10-2-2

## Unload the M240C Coaxial Machine Gun on an M2A3/M3A3 BFV

071-026-0008

**Conditions:** Given an M2A3/M3A3 BFV with basic issue items and an installed M240C coaxial machine gun which is loaded with 300 rounds of belted 7.62-mm ammunition.

**Standards:** Unloaded and cleared the M240C machine gun so that no ammunition is in the chamber and the ammunition is stowed into ammunition cans; and completed all steps without causing damage to equipment or injury to personnel.

### Performance Steps

**WARNING:** Accidental firing of the M240C machine gun could result in death or injury. Make sure that the ARM-SAFE-RESET switch is at the SAFE position.

1. Clear the M240C machine gun.
  - a. Move the ARM-SAFE-RESET switch on the system control box (SCB) to the SAFE position (Figure 1).

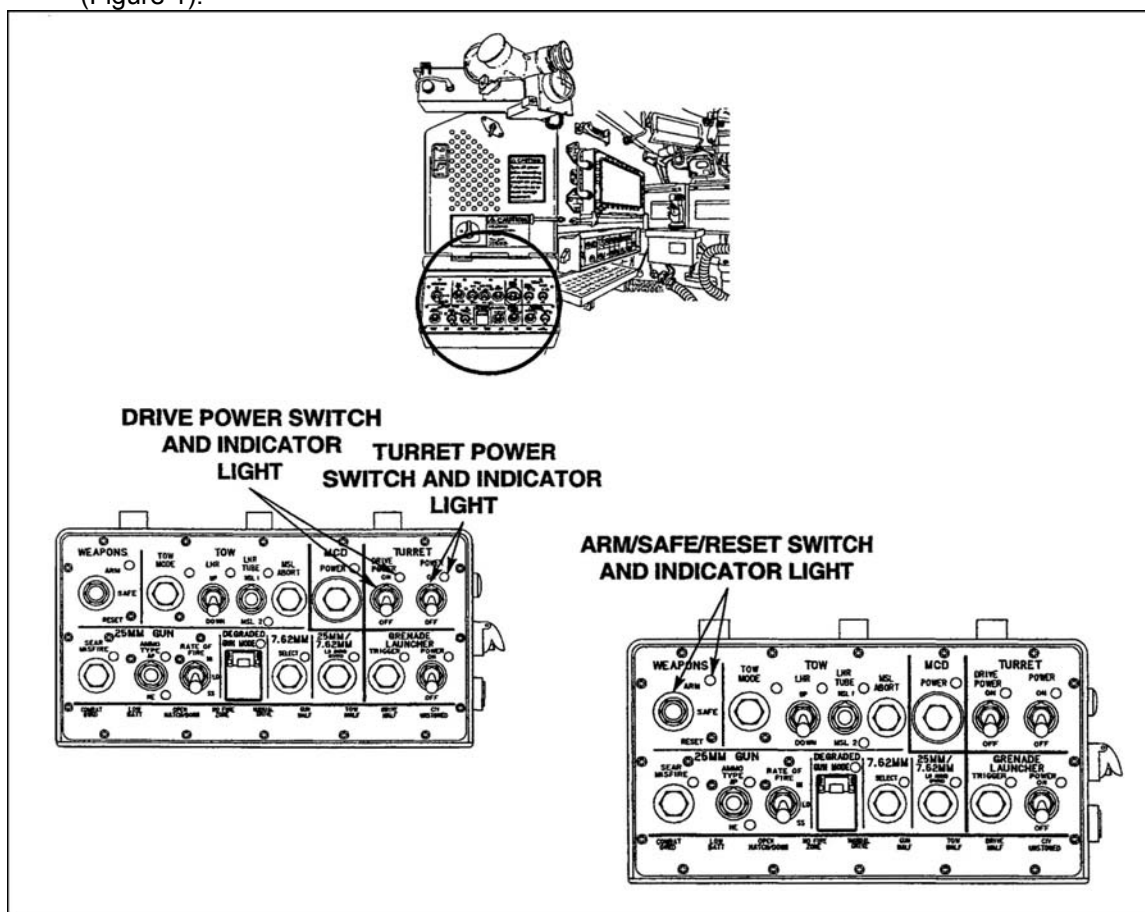


Figure 1. ARM-SAFE-RESET switch.

- b. Ensure the turret drive switch is in the OFF position and the turret travel lock is engaged (Figure 2).

## Performance Steps

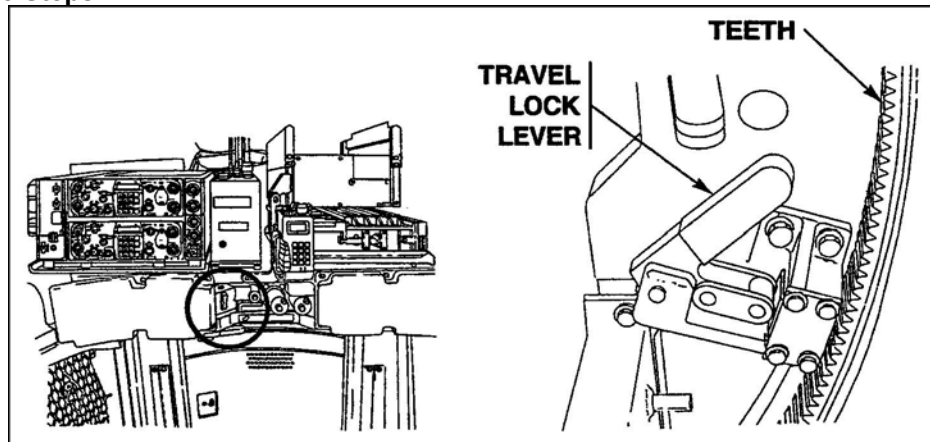


Figure 2. Turret travel lock.

- c. Open the M240C coaxial machine gun access doors (Figure 3).

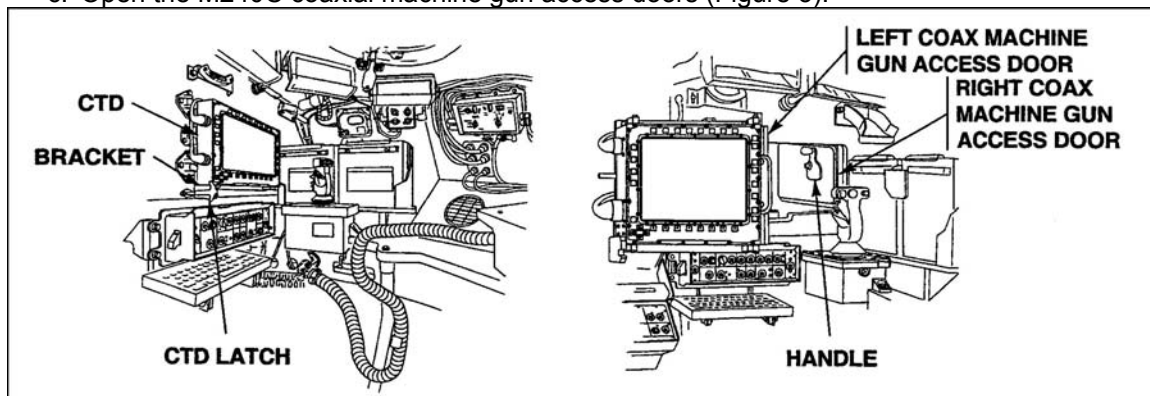


Figure 3. Coaxial machine gun access doors.

- (1) Unlatch the commander's tactical display (CTD) from its bracket.
  - (2) Release the handle on the right access door to open.
  - (3) Pull out on the left side of the CTD to open the left access door.
- d. Lock the bolt to the rear (Figure 4).

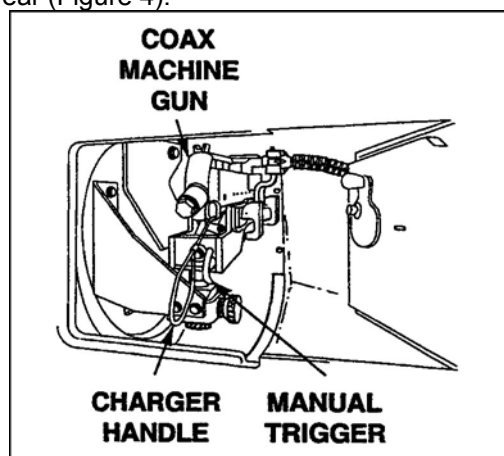


Figure 4. Charger handle.

- (1) Pull the charging cable on the right side of the M240C coaxial machine gun firmly to the rear.



**Performance Steps**

- (2) Release the charging cable to ensure the bolt is locked into the rear position.
- e. Place the M240C coaxial machine gun on SAFE (S)(Figure 5).

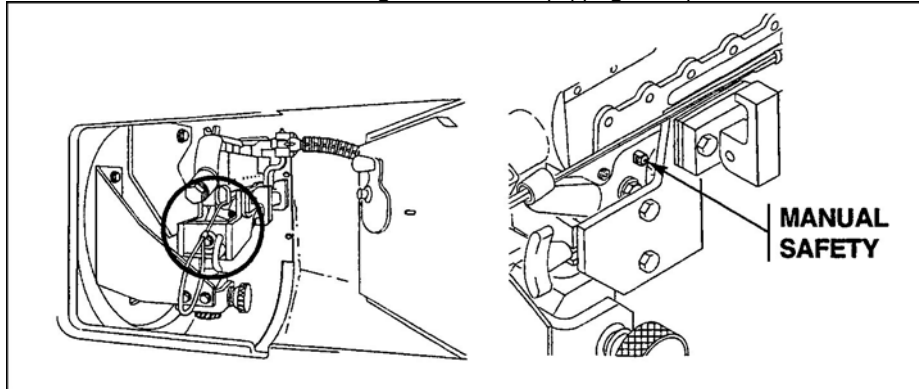


Figure 5. Manual safety.

- (1) Press the manual safety lever to the right.
- (2) Ensure the S is visible on the right side of the lever.
- f. Remove ammunition belt from the feed tray assembly.
- (1) Open the feed tray cover (Figure 6).

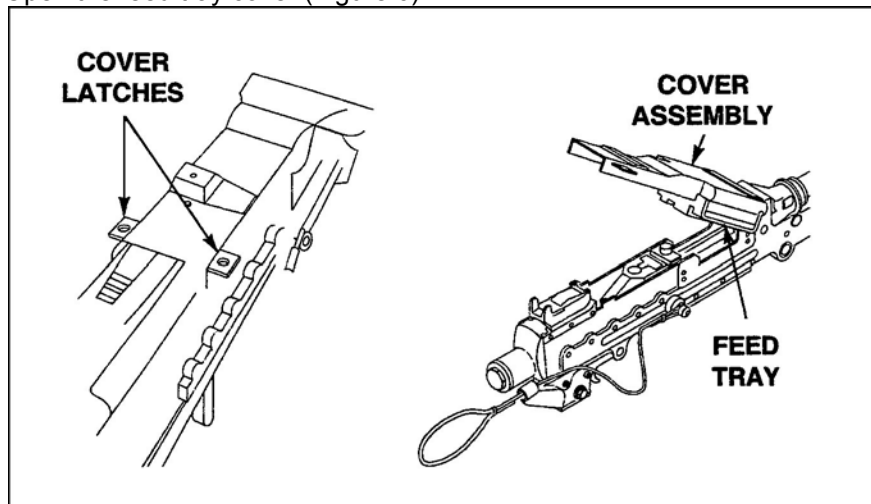


Figure 6. Feed tray and feed tray cover.

- (a) Press inward on the two detent buttons located on and to the rear of the feed tray cover.
- (b) Lift up on the feed tray cover, moving it to the forward position.
- (2) Push the ammunition or empty links to the right, clearing the feed tray.
- g. Clear chamber of the M240C coaxial machine gun (Figure 7).

## Performance Steps

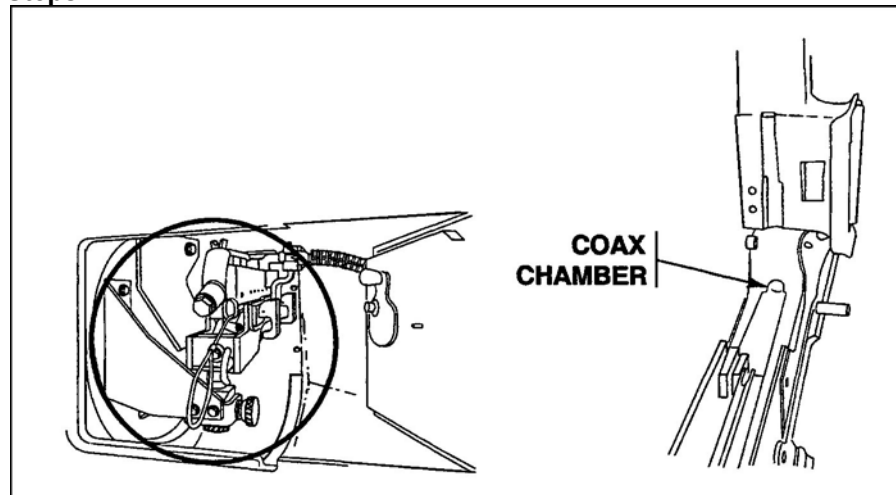


Figure 7. Chamber.

- (1) Lift up the feed tray.
- (2) Observe the chamber for any ammunition.
- h. Close the feed tray and feed tray cover.
- i. Place the M240C coaxial machine gun on fire (F)(Figure 5).
  - (1) Press the manual safety lever to the left.
  - (2) Ensure the F is visible on the left side of the lever.
- j. Dry fire the weapon (Figure 8).

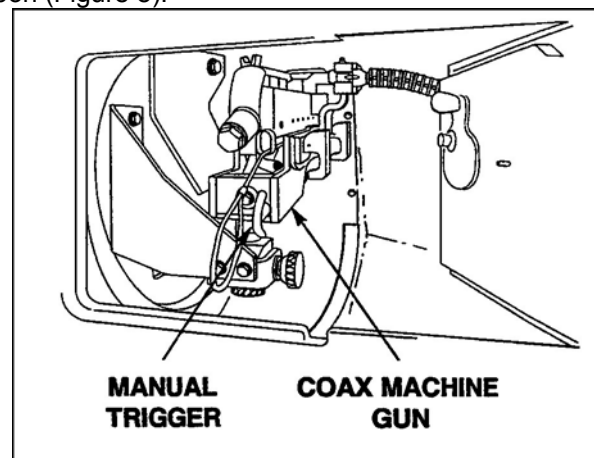


Figure 8. Manual trigger.

- (1) Pull and hold the charging cable to the rear.
- (2) Manually squeeze the trigger sliding the bolt to the forward position.
- (3) Ensure the bolt does not slam into the chamber as this could cause damage to the weapon or injure someone.
- k. Close the M240C coaxial machine gun access doors (Figure 3).
  - (1) Pull on the right side access door to close.
  - (2) Push in on the left side of the CTD to close the left access door
  - (3) Latch the handle on the right side access door.
  - (4) Latch the CTD to its bracket.
2. Unload and store the 7.62mm ammunition.
  - a. Pull the ammunition out of the ammunition feed chute and place it back into the M240C ready box (Figure 9).

## Performance Steps

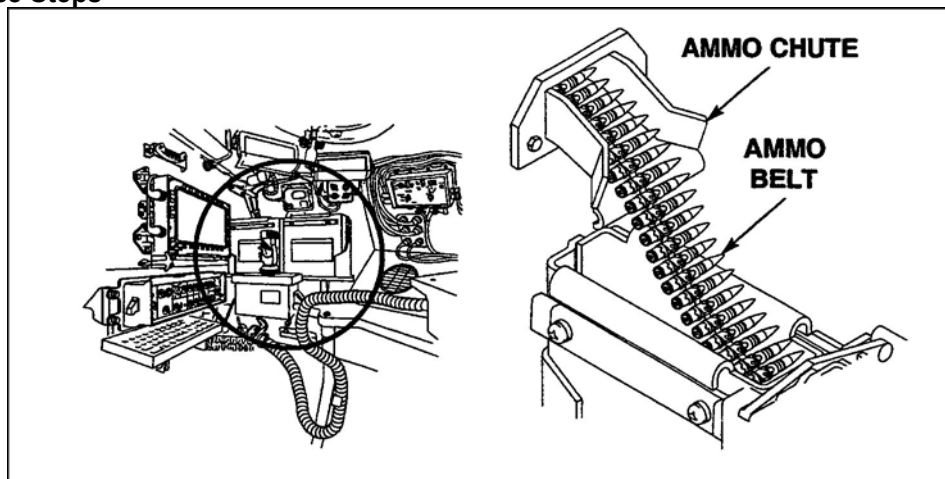


Figure 9. Ammo chute.

b. Unload the ammunition ready box (Figure 10).

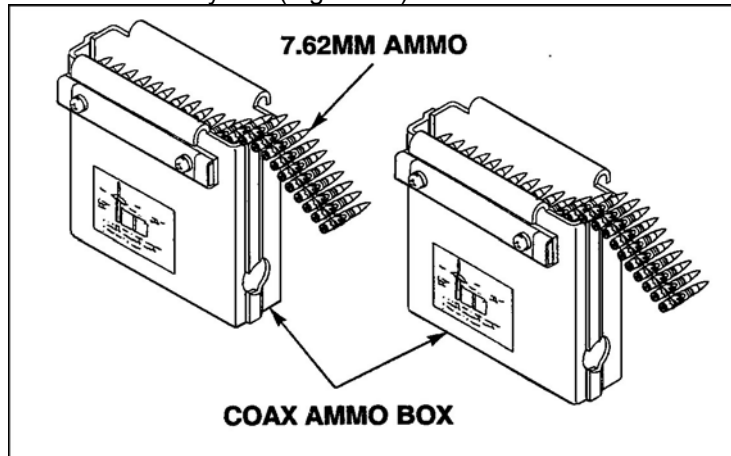


Figure 10. Coax ammunition ready box.

- (1) Unstow empty 7.62-mm ammunition cans.
- (2) Count off 100 cartridges on the belt. Twist the belt and separate the belt at the 100th cartridge (Figure 11).

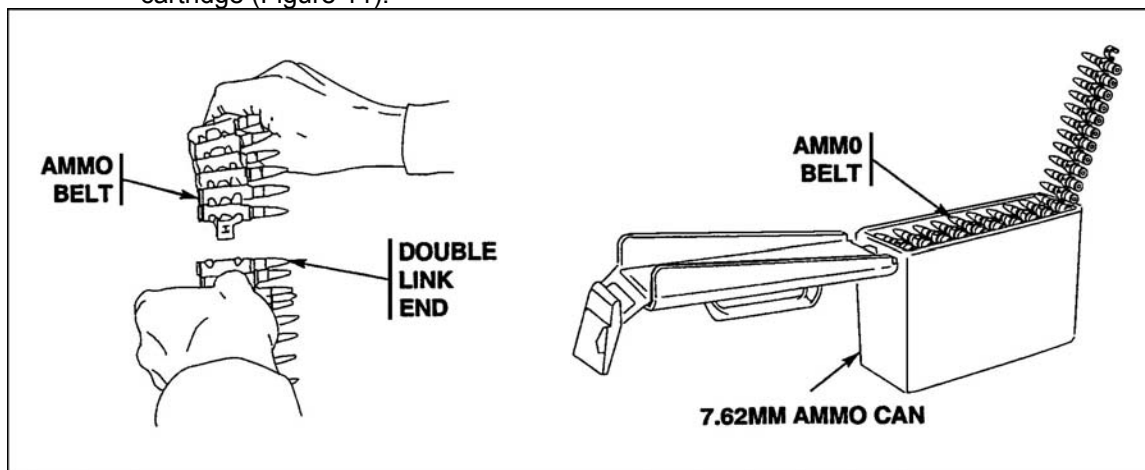


Figure 11. 7.62mm ammo belt.

## Performance Steps

- (3) Place a 100-round belt of ammunition in the ammunition can ensuring that the double link is placed in first.
- (4) Repeat steps (2) and (3) until the 7.62-mm ammunition can is full.
- (5) Close the lid on the ammunition can (Figure 12).

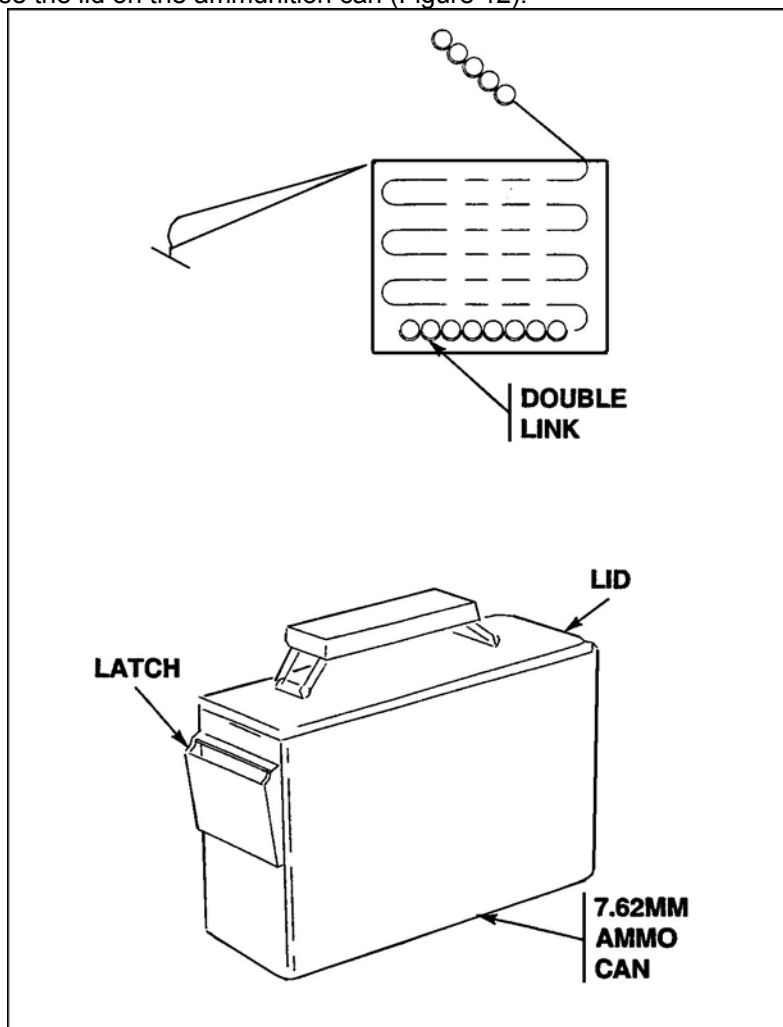


Figure 12. 7.62mm ammo can.

- (6) Unload the remaining 7.62-mm ammunition from the M240C ready box and stow in the 7.62-mm ammunition cans.
  - (7) Repeat steps (1) through (6) until the 7.62-mm ready box is empty.
- c. Stow the 7.62-mm ammunition cans.

**Evaluation Preparation:** SETUP: Provide the soldier with an M2A3/M3A3 BFV with an installed M240C machine gun loaded with 300 rounds of belted 7.62-mm ammunition.

**BRIEF SOLDIER:** Tell the soldier to unload and clear the M240C machine gun and to follow all safety precautions.

## Performance Measures

1. Cleared the M240C coaxial machine gun.
  - a. Moved the ARM-RESET-SAFE switch to SAFE.

GO      NO GO

—      —

**Performance Measures****GO**    **NO GO**

- b. Ensured the turret drive switch was in the OFF position and the turret travel lock was engaged.
- c. Opened the M240C coaxial machine gun access doors.
- d. Locked the bolt to the rear.
- e. Placed the M240C coaxial machine gun on SAFE (S).
- f. Removed ammunition belt from the feed tray assembly.
- g. Cleared the chamber of the M240C coaxial machine gun.
- h. Closed the feed tray and feed tray cover.
- i. Placed the M240C coaxial machine gun on FIRE (F).
- j. Dry fired the M240C coaxial machine gun.
- k. Closed the M240C coaxial machine gun access doors.

## 2. Unloaded and stored the 7.62mm ammunition.

\_\_\_\_\_

- a. Pulled the ammunition out of the feed chute and placed it back into the M240C coaxial machine gun ready box.
- b. Unloaded the ammunition ready box.
- c. Stowed the 7.62mm ammunition according to the vehicle stowage diagram.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

TM 9-2350-294-10-2-1

TM 9-2350-294-10-2-2



**Performance Steps**

- (a) Unlatch the commander's tactical display (CTD) from its bracket.
  - (b) Release the handle on the right side access door to unlatch door.
  - (c) Pull out on the left side of the CTD to open the left access door.
  - (d) Push in on the right side access door to open.
- (5) Pull the charger handle back until bolt locks to the rear (Figure 3).

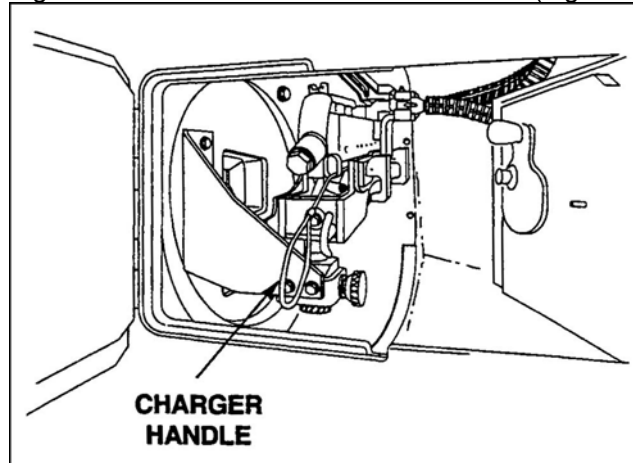


Figure 3. Charger handle.

- (6) Close the M240C coaxial machine gun access doors.
  - (a) Pull in on right side access door to close.
  - (b) Push in on left side of the CTD to close the left access door.
  - (c) Latch the handle on the right side access door to latch the door.
  - (d) Latch the CTD to its bracket.
- (7) Turn the turret drive system switch on the SCB to ON.
- (8) Move the ARM-SAFE-RESET switch on the SCB to ARM.
- (9) Ensure the 7.62 select light is lit. If it is not lit then press the 7.62 push button on the SCB (Figure 4).

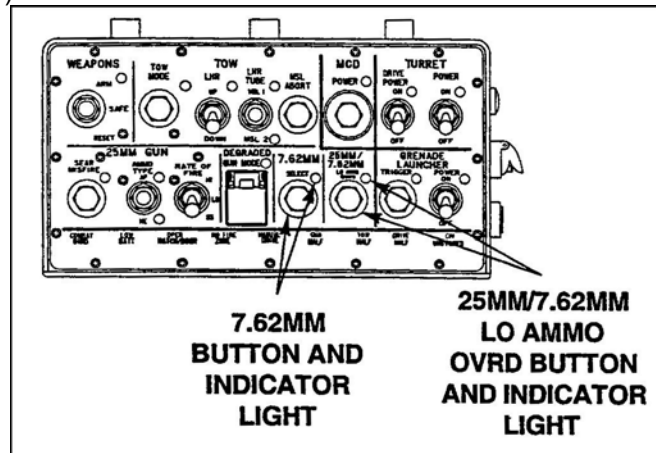


Figure 4. 7.62-mm select button.

- (10) Squeeze the palm switch and trigger on the gunner's hand station (GHS) or the commander's hand station (CHS) to fire the weapon (Figure 5). If the gun fires, continue with the mission. If the gun fails to charge or fire, perform remedial action (Step b).

## Performance Steps

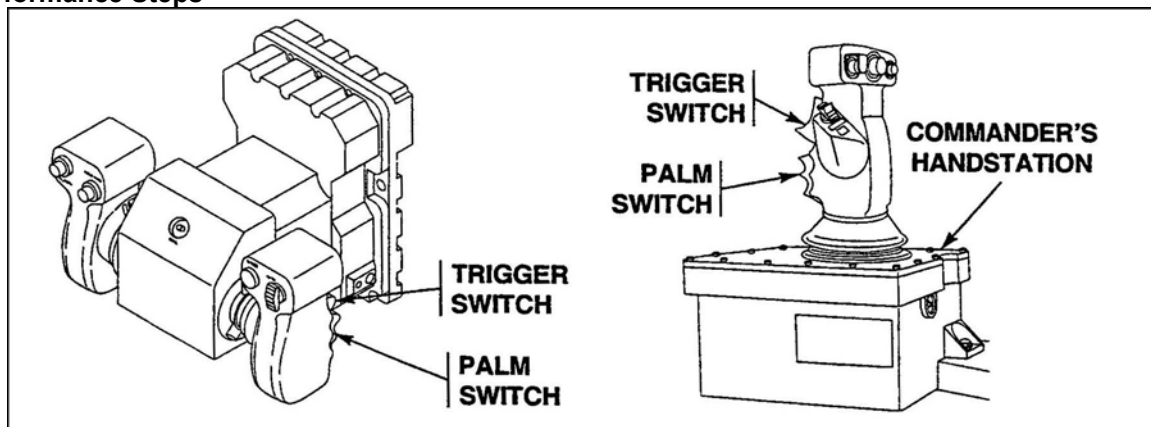


Figure 5. Commander's and gunner's hand station.

- b. Perform remedial action on the M240C coaxial machine gun.
  - (1) Move the ARM-SAFE-RESET switch on the SCB to RESET, then to SAFE.
  - (2) Move the turret drive system switch on the SCB to OFF.
  - (3) Open the M240C coaxial machine gun access doors.
  - (4) Pull the charger handle to the rear, locking the bolt in the rear position.
  - (5) Push the manual safety switch to the right to the safe position (S) (Figure 6).

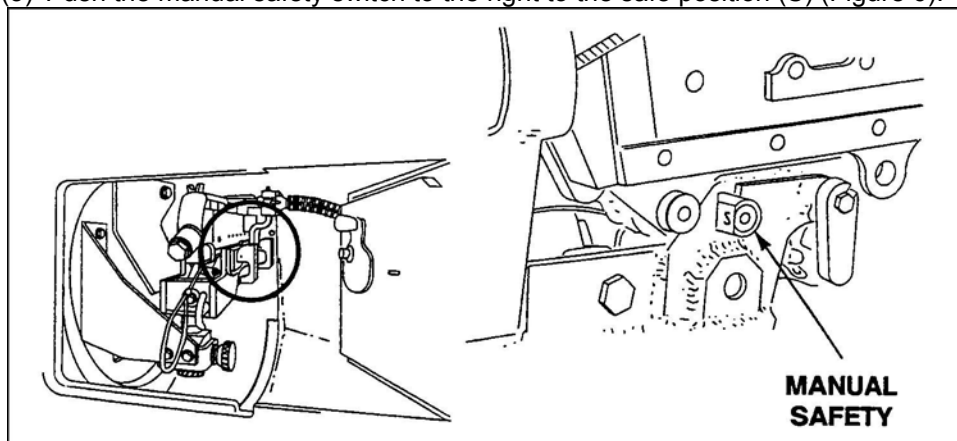


Figure 6. M240C manual safety.

- (6) Open the feed tray assembly (Figure 7). Remove the residue.

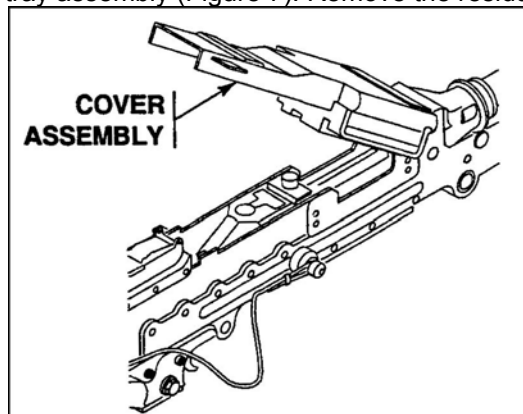


Figure 7. M240C cover assembly.



**Performance Steps**

- (7) Check the receiver and the chamber for jammed rounds or links (Figure 8).

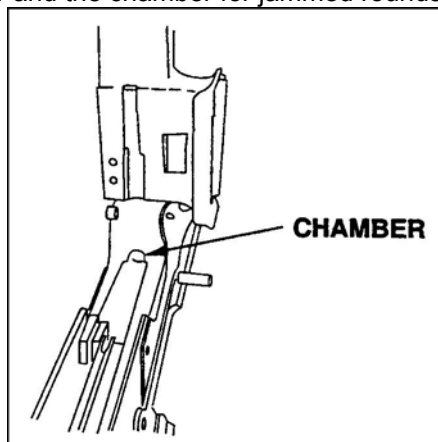


Figure 8. M240C chamber.

- (8) Make sure the rounds are aligned evenly on the ammunition belt.  
(9) Check that both feed chute latches are secure (Figure 9).

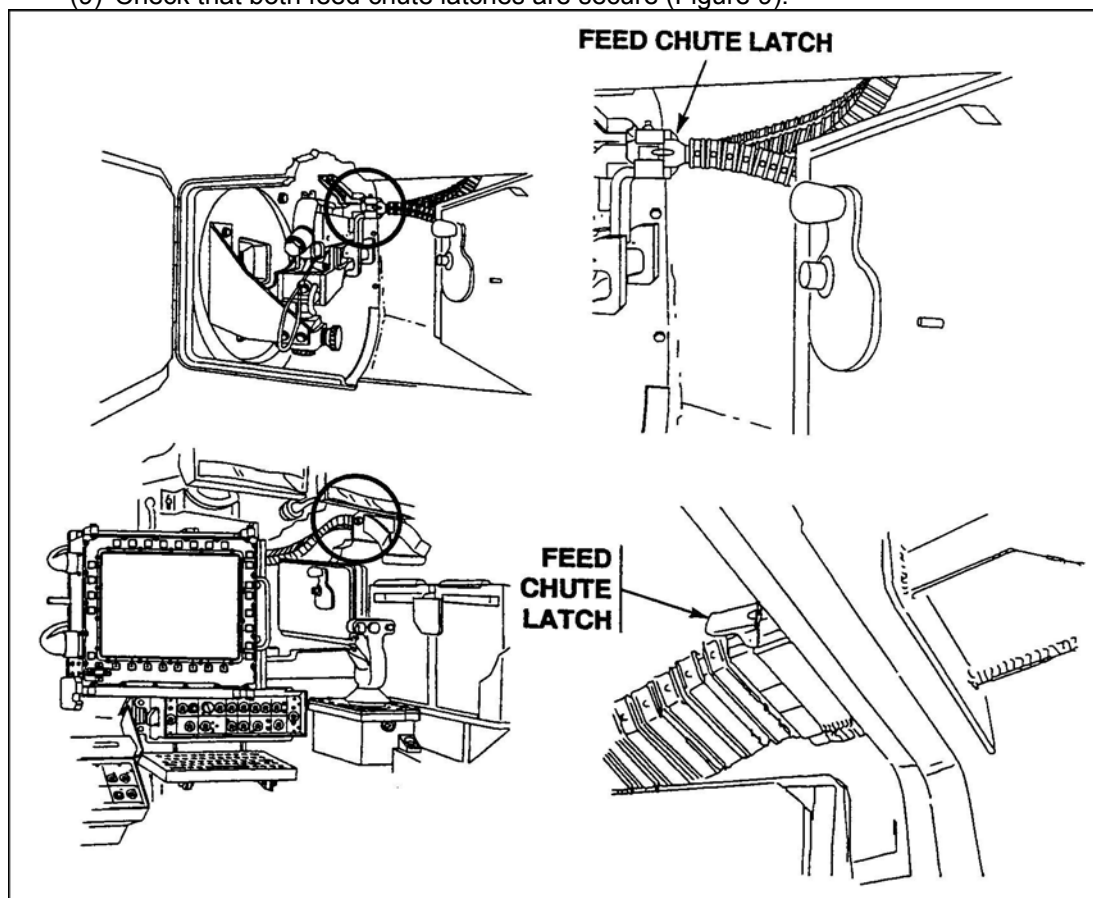


Figure 9. Feed chute latch.

- (10) Reload the M240C coaxial machine gun.  
(a) Charge the weapon.  
(b) Push the manual safety switch to the right to S.  
(c) Open the feed tray cover.

# **Performance Steps**

- (d) Place the ammunition on the feed tray, ensuring the ammunition is resting fully against the cartridge stop (Figure 10).

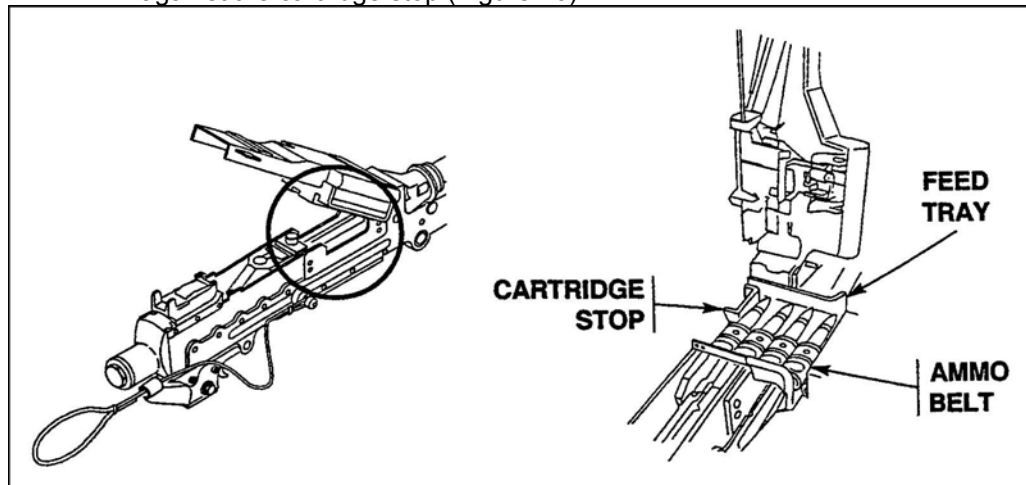


Figure 10. M240C feed tray.

- (e) Close the feed tray cover.
  - (11) Press the manual safety to the left to fire (F).
  - (12) Close the machine gun access doors.
  - (13) Move the turret drive system switch on the SCB to ON.
  - (14) Move the ARM-SAFE-RESET switch on the SCB to ARM.
  - (15) Press the 7.62 push button on the SCB, observing that the 7.62 select light is lit.
  - (16) Squeeze the palm switch and trigger on the GHS or CHS to fire the weapon.
  - (17) If the gun fails to fire and the primer on the ejected rounds is not dented, check the firing pin to see if it is broken.
2. Adjust a sluggish firing M240C coaxial machine gun.
    - a. Check the gas regulator and adjust as required (Refer to TM 9-1005-313-10).
      - (1) Move the ARM-SAFE-RESET switch on the SCB to RESET, then to SAFE.
      - (2) Move the turret drive system switch on the SCB to OFF.
      - (3) Move gun elevation drive lever to manual (Figure 11).

## Performance Steps

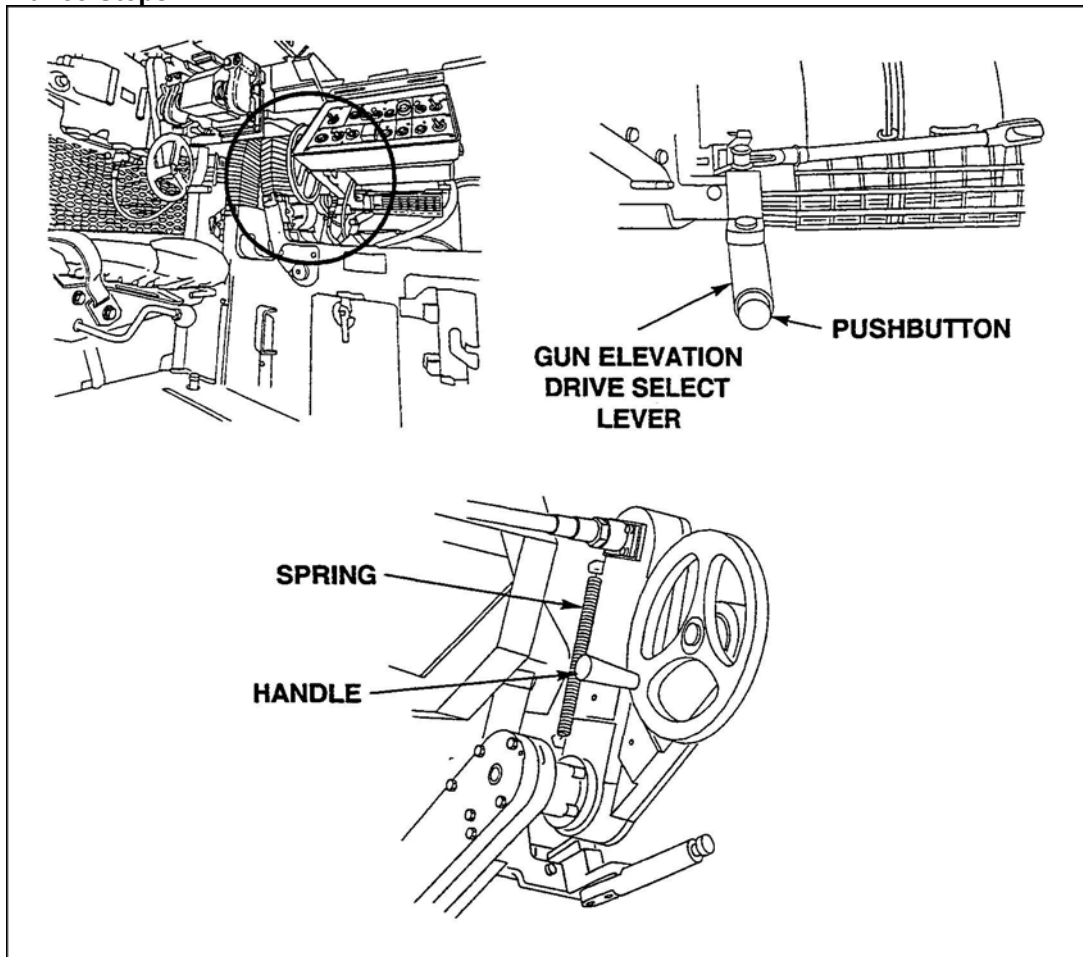


Figure 11. Gun elevation select lever and handwheel.

- (4) Manually elevate the gun rotor to 300 mils by turning the gun elevation drive hand wheel (clockwise to elevate and counterclockwise to depress).
- (5) Open the M240C coaxial machine gun access doors.
- (6) Clear the M240C coaxial machine gun.
  - (a) Pull the charger handle to the rear, locking the bolt in the rear position.
  - (b) Push the manual safety switch to the right to S.
  - (c) Open the feed tray cover and remove all ammunition and residue from the machine gun.
  - (d) Check the chamber by lifting up the feed tray and inspecting for ammunition.
  - (e) Close the feed tray and feed tray cover.
- (7) Press the manual safety to the left to F.
- (8) Pull back on and hold the charger handle to the rear.
- (9) Manually fire the weapon and slowly guide the bolt forward.
- (10) Lift up on the retaining pin handles to unlock and pull the retaining pins out of the M240C coaxial machine gun alignment holes.
- (11) Lift up and pull back on the M240C coaxial machine gun to remove it from the plenum.
- (12) Depress the barrel locking latch and hold.
- (13) Turn barrel release to upright position.
- (14) Remove barrel (Figure 12).

## Performance Steps

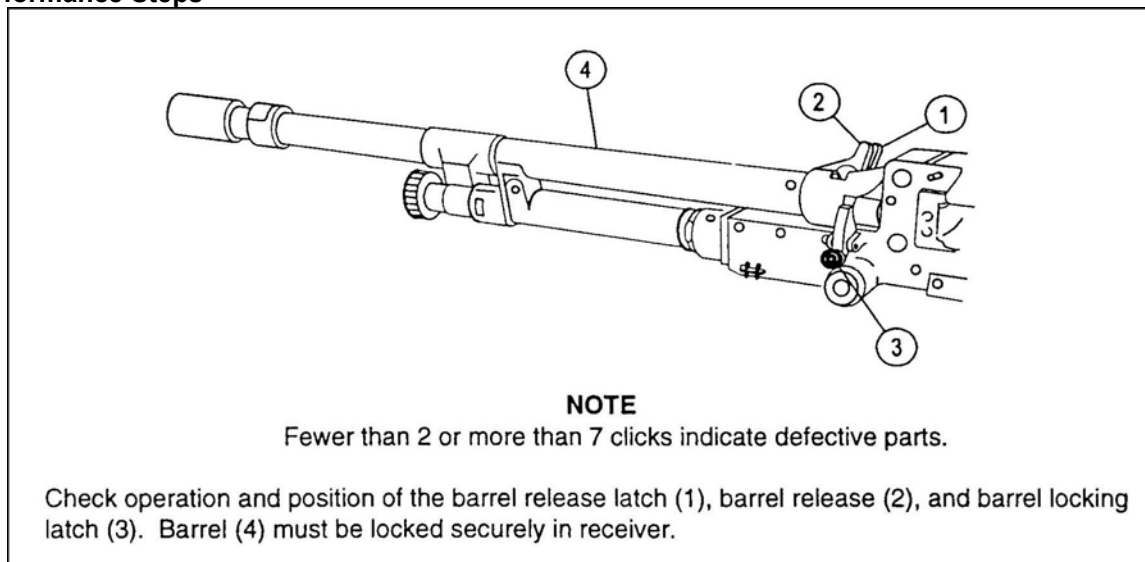


Figure 12. Barrel latch release.

- (15) Press in and turn counterclockwise on the gas regulator collar.
- (16) Lift up and remove the collar and the gas regulator from the barrel.
- (17) Pull gas regulator plug from gas hole bushing.
- (18) Check for carbon build up. If it has carbon build up, clean as prescribed in TM 9-1005-313-10.
- (19) Place gas regulator plug with gas inlet setting number 1 hole facing the barrel (Figure 13).

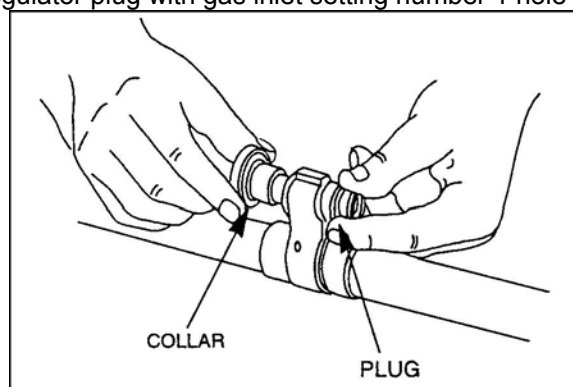


Figure 13. Gas regulator.

- (20) Place the collar on the regulator by pressing in firmly and rotate clockwise until it stops and locks in place.
  - (21) Insert barrel fully into socket and push barrel release to the right as far as it will go to lock (fewer than 2 or more than 7 clicks indicate defective parts).
  - (22) Install M240C coaxial machine gun.
  - (23) Load the M240C coaxial machine gun.
  - (24) Press the manual safety to the left to F.
  - (25) Close M240C coaxial machine gun access doors
  - (26) Move gun elevation drive lever to power.
  - (27) Move the turret drive system switch on the SCB to ON.
  - (28) Move the ARM-SAFE-RESET switch on the SCB to ARM.
  - (29) Press the 7.62 push button on the SCB, observing that the 7.62 select light is lit.
  - (30) Squeeze the palm switch and trigger on the GHS or CHS to fire the weapon.
- b. Clean and lubricate the M240C coaxial machine gun.

Performance Steps

- (1) Move the ARM-SAFE-RESET switch on the SCB to RESET, then to SAFE.
  - (2) Move the turret drive system switch on the SCB to OFF.
  - (3) Move gun elevation drive lever to manual.
  - (4) Manually elevate the gun rotor to 300 mils by turning the gun elevation drive hand wheel (clockwise to elevate and counterclockwise to depress).
  - (5) Open the M240C coaxial machine gun access doors.
  - (6) Clear the M240C coaxial machine gun.
  - (7) Remove the M240C coaxial machine gun from the plenum.
  - (8) Clean and lubricate as required in TM 9-1005-313-10.
  - (9) Install the M240C coaxial machine gun.
  - (10) Load the M240C coaxial machine gun.
  - (11) Press the manual safety to the left to F.
  - (12) Close M240C coaxial machine gun access doors.
  - (13) Move gun elevation drive lever to power.
  - (14) Move the turret drive system switch on the SCB to ON.
  - (15) Move the ARM-SAFE-RESET switch on the SCB to ARM.
  - (16) Press the 7.62 push button on the SCB, observing that the 7.62 select light is lit.
  - (17) Squeeze the palm switch and trigger on the GHS or CHS to fire the weapon.
3. Stop a run away M240C coaxial machine gun.
- WARNING: Ensure the weapon system is oriented on the target until the problem is eliminated or ammunition is expended.
- a. Move the ARM-SAFE-RESET switch on the SCB to RESET, then to SAFE.
  - b. Grasp the ammunition belt at the ammunition box. Twist and break link or jam 3/8-inch flat-tip screw driver into the link to stop ammunition feed so that the M240C coaxial machine gun stops firing.
  - c. Tell the crew there is a cook off danger.
  - d. In a training situation, wait 30 minutes before taking corrective action on the weapon.
  - e. Clear and unload the weapon.
  - f. Check for a broken, worn, or burred sear. If timely corrective action cannot be performed.
  - g. Select another belt of ammunition and continue to engage targets. Keep the chain of command informed of the situation at all times.
  - h. Notify unit maintenance.

**Evaluation Preparation:** SETUP: Provide the soldier with an M2A3/M3A3 BFV and an installed M240C machine gun loaded with dummy rounds that fail to fire. The turret power is ON, the turret drive is OFF, and the travel lock is engaged. Ensure the M240C coaxial machine gun bolt is in the forward position and dummy 7.62mm ammunition is loaded.

BRIEF SOLDIER: Tell the soldier he will be required to correct a malfunction of the M240C coaxial machine gun without damaging the equipment or injuring himself or other personnel.

| Performance Measures                                                             | GO    | NO GO |
|----------------------------------------------------------------------------------|-------|-------|
| 1. Corrected malfunctions.                                                       | _____ | _____ |
| a. Performed immediate action on the M240C coaxial machine gun.                  |       |       |
| b. Performed remedial action on the M240C coaxial machine gun.                   |       |       |
| 2. Adjusted a sluggish M240C coaxial machine gun.                                | _____ | _____ |
| a. Checked and adjusted the gas regulator on the M240C coaxial machine gun.      |       |       |
| b. Cleaned and lubricated the M240C coaxial machine gun                          |       |       |
| 3. Stopped the continuous firing (runaway gun) of the M240C coaxial machine gun. | _____ | _____ |
| a. Moved the ARM-SAFE-RESET switch on the SCB to RESET, then SAFE.               |       |       |
| b. Broke the 7.62mm ammunition link.                                             |       |       |
| c. Informed the crew of a cook off danger.                                       |       |       |

**Performance Measures**

**GO**    **NO GO**

- d. Waited for 30 minutes before taking corrective action.
- e. Cleared and unloaded the weapon.
- f. Checked for a broken, worn, or burred sear.
- g. Notified unit maintenance.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

TM 9-1005-313-10  
TM 9-2350-294-10-2-1  
TM 9-2350-294-10-2-2

**Install an M240C Coaxial Machine Gun on an M2A3/M3A3 BFV****071-026-0010**

**Conditions:** In a field or garrison environment, given a stationary M2A3 BFV with the turret power switched off, the turret travel lock set, and a cleared M240C coaxial machine gun. The BFV commander has given an order to install the M240C coaxial machine gun.

**Standards:** Installed the M240C coaxial machine gun without causing damage to the machine gun and mount.

**Performance Steps**

**WARNING:** Accidental firing of the coax machine gun could kill or injure soldiers. Clear the coax machine gun before installing it in the vehicle.

1. Manually elevate the gun rotor to 300 mils (Figure 1).

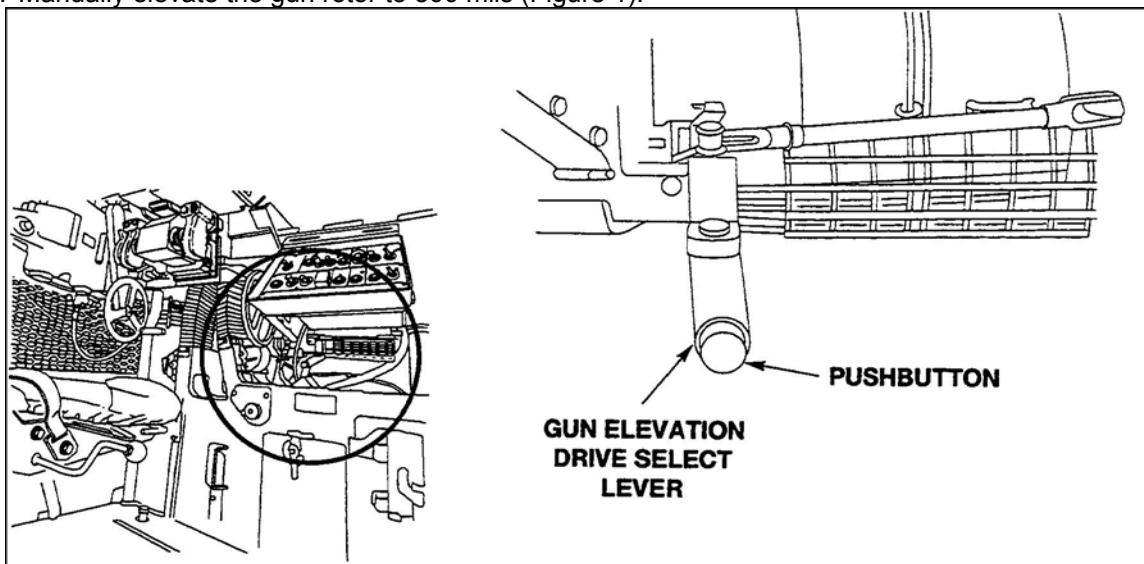


Figure 1. Gun elevation drive and handwheel.

2. Open the coax machine gun access doors (Figure 2).

## Performance Steps

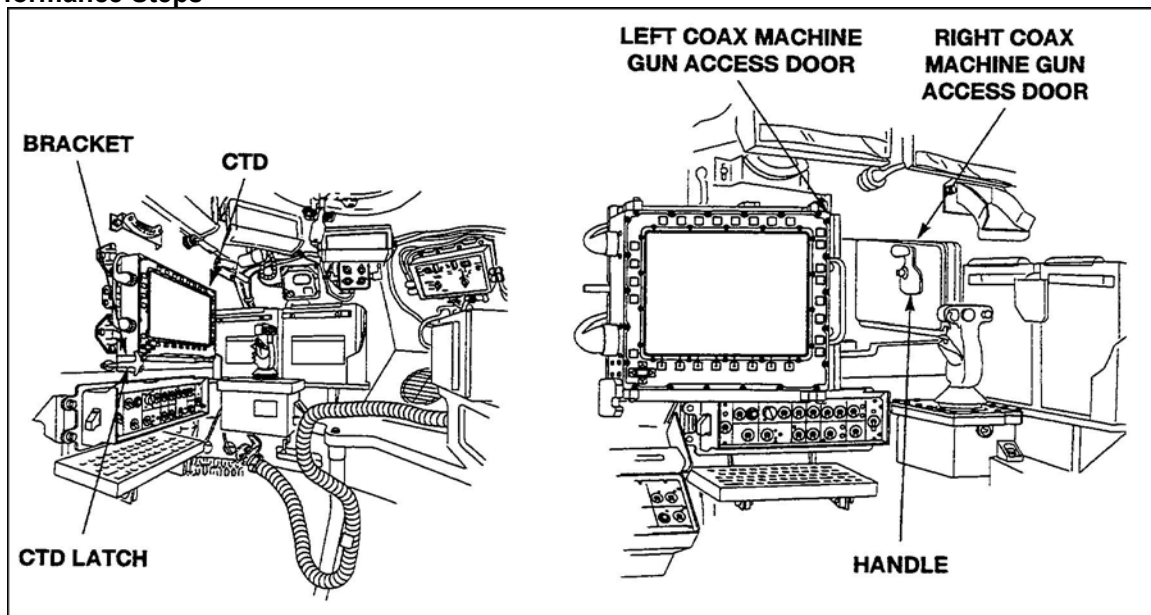


Figure 2. CTD latch and access doors.

- a. Unlatch the commander's tactical display (CTD) from its bracket.
- b. Release handle on right access door to open.
- c. Pull out on left side of CTD to open the left access door.
- d. Push in right side access door to open.

### 3. Mount the coax machine gun (Figure 3).

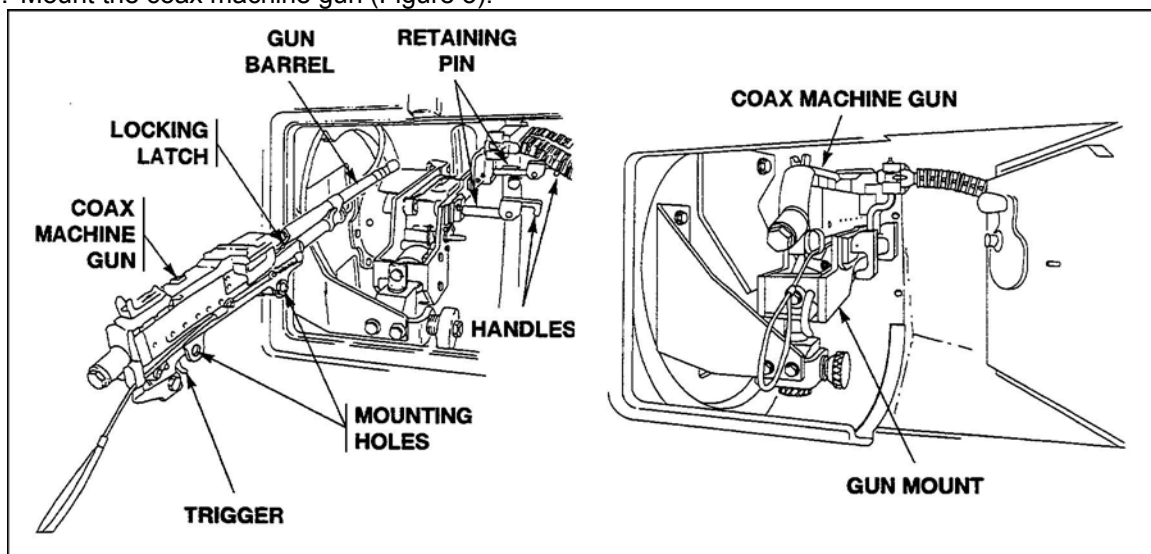


Figure 3. Coax machine gun mount.

- a. Place the coax machine gun on gun mount with the gun barrel pointing forward and the trigger pointing down.
- b. Slide coax machine gun forward, aligning mounting holes on coax machine gun with the retaining pins on gun mount.
- c. Push the retaining pins fully into the mounting holes of the coax machine gun.
- d. Push down on the handles to lock the retaining pins into place.
- e. Check that the coax barrel locking latch is locked and the gun barrel does not turn.



Performance Steps

- 4. Close the coax machine gun access doors (Refer to Figure 2).
  - a. Pull in the right coax machine gun access door.
  - b. Push in on the left side of the CTD to close the left access door.
  - c. Latch handle on the right access door.
  - d. Latch the CTD onto its bracket.

**Evaluation Preparation:** SETUP: Provide the soldier with a fully operational M2A3/M3A3 BFV and an M240C coaxial machine gun that is not damaged. Ensure front and rear mounting brackets and pins are present and not damaged. Ensure turret power and drive are in the off position, the travel lock is locked and the turret is in the manual mode. Ensure the coax access doors are closed and the commander's tactical display (CTD) bracket is latched.

**BRIEF SOLDIER:** Tell the soldier that he will be evaluated on his ability to install the M240C coaxial machine gun.

| Performance Measures                                                                                                                                                                                                                                                                  | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Installed the coax machine gun. <ul style="list-style-type: none"><li>a. Manually elevated the gun rotor to 300 mils.</li><li>b. Opened the coax machine gun access doors.</li><li>c. Mounted the coax machine gun.</li><li>d. Closed the coax machine gun access doors.</li></ul> | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

References

**Required**  
TM 9-1005-313-10

**Related**  
FM 23-1  
TM 9-2350-294-10-2-1  
TM 9-2350-294-10-2-2

## Remove an M240C Coaxial Machine Gun on an M2A3/M3A3 BFV 071-026-0011

**Conditions:** In a field or garrison environment, given a stationary M2A3/M3A3 BFV with the turret power switched off, the turret travel lock set, and a cleared M240C coaxial machine gun. The BFV commander has given an order to remove the M240C coaxial machine gun.

**Standards:** Removed the M240C coaxial machine gun without causing damage to the machine gun and mount.

### Performance Steps

1. Remove the coax machine gun.
  - a. Manually elevate the gun rotor to 300 mils (Figure 1).

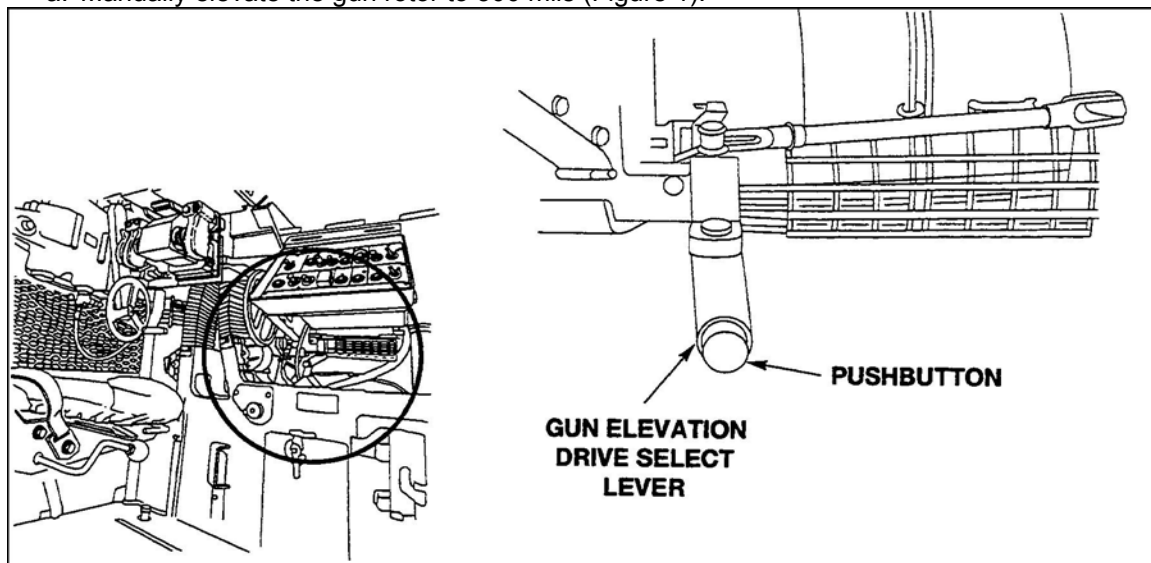
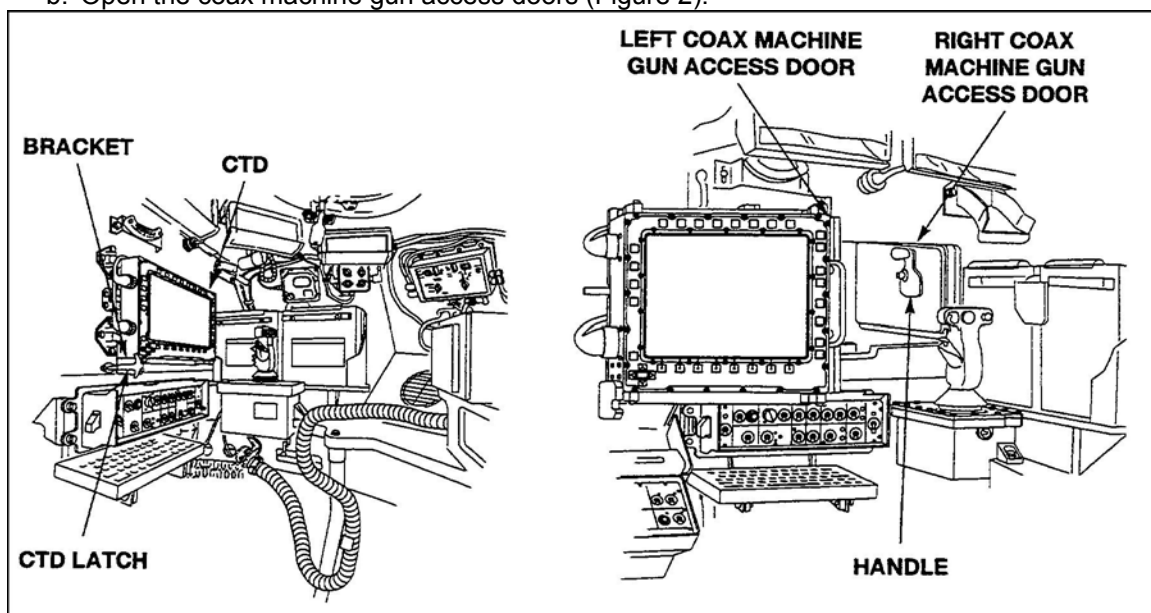


Figure 1. Gun elevation drive and handwheel

- b. Open the coax machine gun access doors (Figure 2).



Performance Steps

Figure 2. CTD latch and access doors.

- (1) Unlatch the commander's tactical display (CTD) from its bracket.
  - (2) Release handle on right access door to open.
  - (3) Pull out on left side of CTD to open the left access door.
  - (4) Push in right side access door to open.
- c. Remove the coax machine gun from its mount (Figure 3).

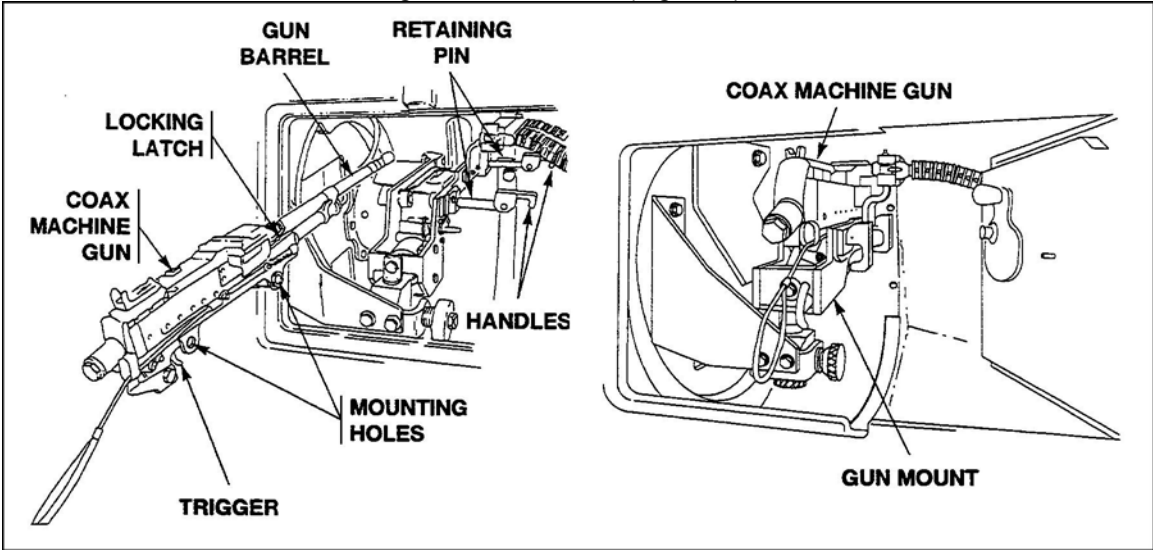


Figure 3. Coax machine gun mount.

- (1) Unlock the retaining pins by lifting up on the handles.
  - (2) Pull out the retaining pins from the mounting holes of the coax machine gun.
  - (3) Slide the coax machine gun to the rear of the plenum.
- d. Close the coax machine gun access doors (Refer to Figure 2).
- (1) Pull in the right coax machine gun access door.
  - (2) Push in on the left side of the CTD to close the left access door.
  - (3) Latch handle on the right access door.
  - (4) Latch the CTD onto its bracket.

**Evaluation Preparation:** SETUP: Provide the soldier with a fully operational M2A3/M3A3 BFV and an M240C coaxial machine gun that is not damaged. Ensure front and rear mounting brackets and pins are present and not damaged. Ensure turret power and drive are in the off position, the travel lock is locked and the turret is in the manual mode. Ensure the coax access doors are closed and the CTD bracket is latched.

**BRIEF SOLDIER:** Tell the soldier that he will be evaluated on his ability to remove the M240C coaxial machine gun.

Performance Measures

- 1. Removed the coax machine gun.
  - a. Manually elevated the gun rotor to 300 mils.
  - b. Opened the coax machine gun access doors.
  - c. Removed the coax machine gun from its mount.
  - d. Closed the coax machine gun access doors.

| <u>GO</u> | <u>NO GO</u> |
|-----------|--------------|
| —         | —            |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

TM 9-1005-313-10

**Related**

FM 23-1

TM 9-2350-294-10-2-1

TM 9-2350-294-10-2-2

## Boresight the M240C Coaxial Machine Gun on a BFV

**071-313-4004**

**Conditions:** Given a BFV parked on level ground, with a boresighted 25-mm automatic gun, an M240C machine gun installed and cleared, a complete boresight kit, an aiming point at least 1,200 meters with horizontal and vertical lines, and one helper.

**Standards:** Boresighted the M240C machine gun so that the crosshairs were aligned with the ISU crosshairs on the same aiming point.

### Performance Steps

**WARNING:** Looking at the sun through the ISU may cause blindness. Do not look at the sun through the unit.

#### NOTES:

1. The M240C machine gun should be boresighted immediately after boresighting the 25-mm gun. Turret controls and ISU controls should not be operated until the M240C machine gun is boresighted.

2. Boresighting requires two soldiers. One soldier looks through the boresight telescope and the other soldier adjusts the M240C machine gun. The soldier on the outside of the vehicle is the helper.

1. Prepare to boresight the M240C machine gun.
  - a. Press the 7.62 button. Check that 7.62 appears in the status indicator (Figure 1).

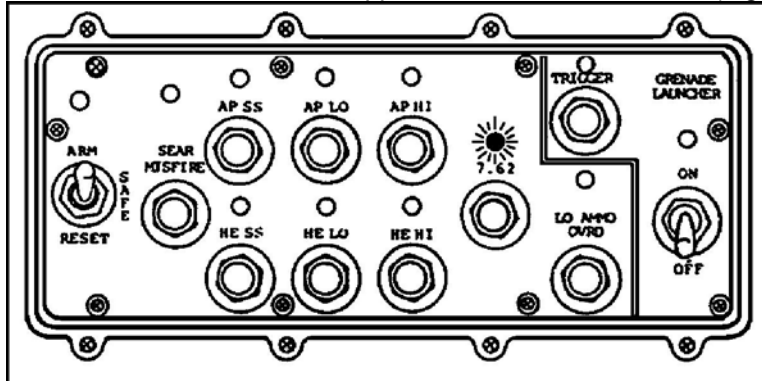


Figure 1. 7.62 button and indicator light.

- b. Check the alignment of the gun reticle on the aiming point of the target. If the reticle is aligned, continue with the task; if the reticle is not aligned, notify unit maintenance.
  - c. Move from the gunner's seat to the Bradley commander's seat.

2. Helper: Install the boresight adapter into the muzzle end of the M240C machine gun barrel.

**CAUTION:** Do not jam the boresight telescope into the boresight adapter. Too much force will damage the boresight telescope.

**NOTE:** The boresight telescope shank is tapered. Slide the shank into the boresight adapter far enough so that the telescope will hold its own weight.

3. Helper: Install the boresight telescope (Figure 2).

**Performance Steps**

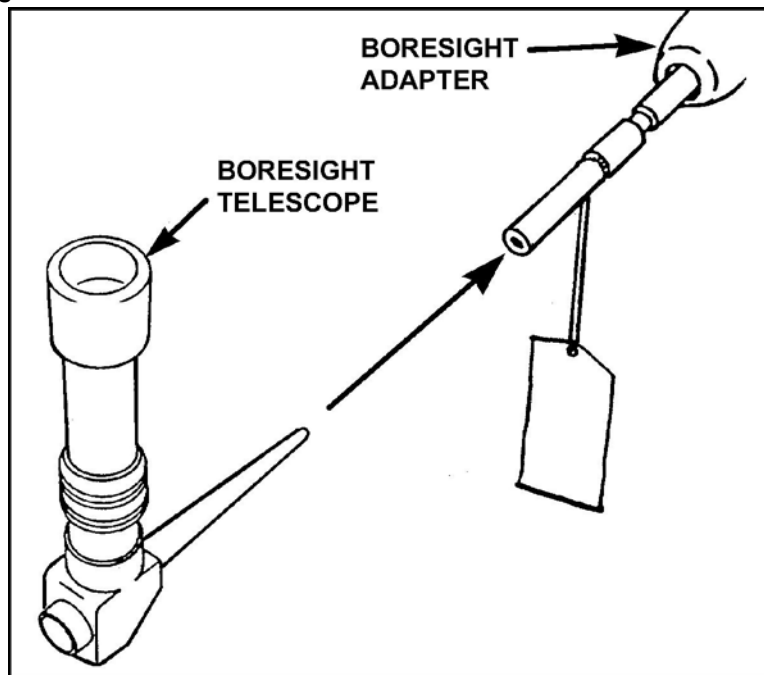


Figure 2. Boresight kit.

- a. Install the shank of the boresight telescope into the boresight adapter.
  - b. Turn the boresight telescope so that the eyepiece is to the top.
  - c. Hang a red streamer on the boresight adapter.
  - d. Tell the gunner that the boresight telescope and adapter are in.
4. Helper: Move the vernier focus dial on the boresight telescope up or down to focus on the target.
  5. Helper: Look at the aiming point image in the boresight reticle (Figure 3).

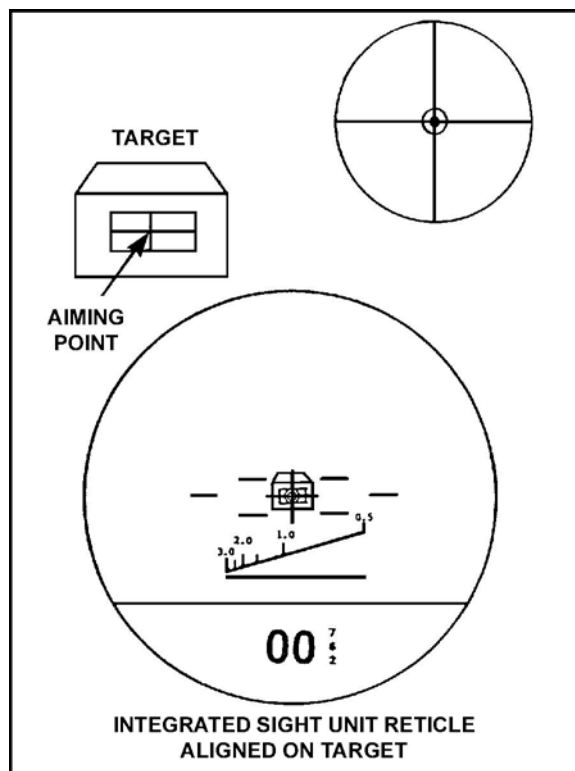
**Performance Steps**

Figure 3. Aiming point image in the boresight reticle.

- a. If the aiming point image is in the center of the reticle where the crosshairs intersect, the M240C machine gun is boresighted (Figure 4).

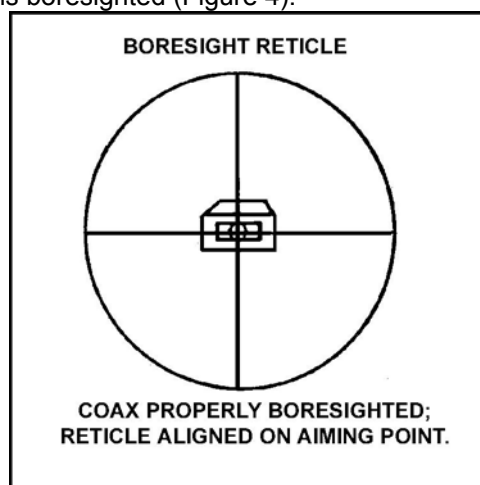


Figure 4. Reticle aligned on the aiming point.

- b. If the aiming point image is not in the center, tell the gunner to adjust the coax mount.

6. Open the machine gun access doors.

**NOTES:**

1. The azimuth adjustment knob on the rear gun mount is turned backward to move the M240C machine gun to the right or forward to move it to the left.

2. The inner ring of the boresight reticle is 1 mil across when the boresight reticle is centered on the

## Performance Steps

aiming point of target.

7. Elevate or depress the M240C machine gun using the elevation adjustment knob as directed by the helper to align the elevation crosshair in the reticle of the boresight telescope on the aiming point of the target (Figure 5).

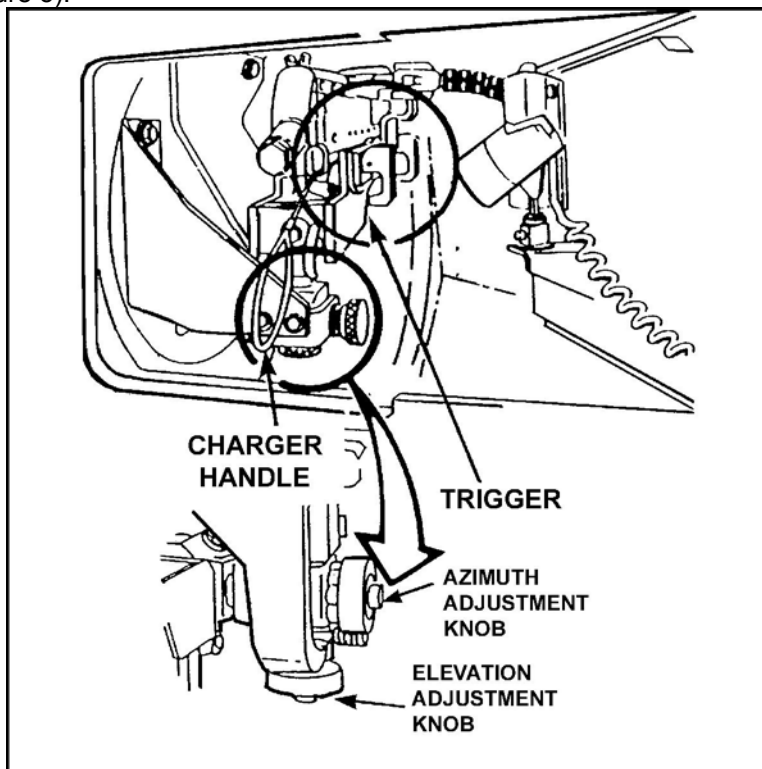


Figure 5. Azimuth and elevation adjustment knobs.

8. Traverse the M240C machine gun to the left or right using the azimuth adjustment knob as directed by the helper to align the azimuth crosshair in the reticle of the boresight telescope on the aiming point of the target (Figure 5).

**CAUTION:** Be careful when pulling the boresight telescope from the boresight adapter. Too much force will damage the boresight telescope.

9. Helper: Remove the boresight kit and inform the gunner that the boresight kit has been removed.

**NOTE:** Boresight the TOW launcher after boresighting the M240C machine gun. Integrated sight unit controls should not be operated until after boresighting the TOW launcher.

10. Close the M240C machine gun access doors.

**Evaluation Preparation:** **SETUP:** Provide the soldier with the equipment outlined in the condition statement.

**BRIEF SOLDIER:** Tell the soldier to boresight the M240C machine gun to the same aiming point as seen through the ISU.

## Performance Measures

1. Prepared to boresight the M240C machine gun.
2. Talked the helper through the installation of the boresight adapter and telescope.

**GO**      **NO GO**

—      —

—      —



| Performance Measures                                                             | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------------------------------|-----------|--------------|
| 3. Identified the aiming point.                                                  | _____     | _____        |
| 4. Boresighted the M240C machine gun.                                            | _____     | _____        |
| 5. Talked the helper through the removal of the boresight telescope and adapter. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                    |
|-------------------|--------------------|
| <b>References</b> | <b>Related</b>     |
| Required          | TM 9-2350-252-10-2 |

## Correct Malfunctions of the M240C Coaxial Machine Gun on a BFV 071-313-4006

**Conditions:** Given a BFV with basic issue items, belted 7.62-mm ammunition, an installed M240C machine gun that fails to fire, but is not a hot gun.

**Standards:** Corrected the interruption of the cycles of function on the M240C machine gun without damaging equipment or injuring troops.

### Performance Steps

NOTE: The machine gun is considered hot when 200 rounds have been fired in 2 minutes or less.

1. If the M240C machine gun stops firing, perform immediate action if the M240C is not in cookoff condition.
  - a. Move the ARM-SAFE-RESET switch to RESET, then to SAFE (Figure 1).

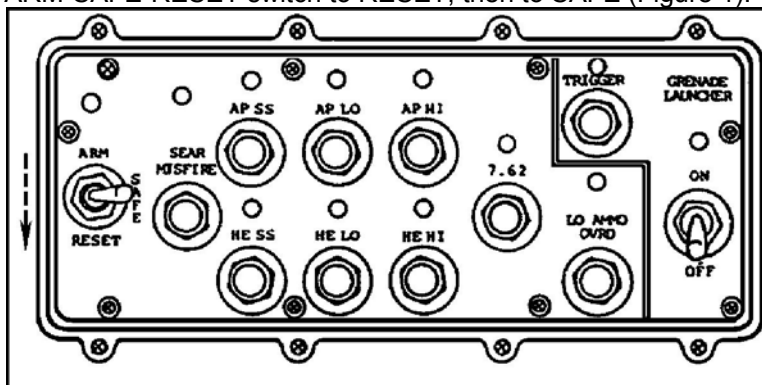


Figure 1. ARM-SAFE-RESET switch.

- b. Move the turret drive system switch to OFF.
  - c. Announce over the intercommunications set that the coax has misfired.

NOTE: Steps that are to be accomplished by an individual on the Bradley commander's side are marked as "BC".

- d. (BC) Open the coax access doors.
  - e. (BC) Pull the charger handle to the rear and charge the weapon. If the machine gun fails to charge or to feed, perform remedial action (Step 2).
  - f. (BC) Close the machine gun access doors.
  - g. Turn the turret drive system switch to ON.
  - h. Move the ARM-SAFE-RESET switch on the weapon control box to ARM.
  - i. Press the 7.62 push button on the weapon control box.
  - j. Squeeze the triggers on the control handles.

NOTE: If the gun fires continue with the mission. If the gun fails to charge or fire, perform remedial action (Step 2).

2. If the gun fails to charge or fire after performing immediate action, perform remedial action.  
**WARNING:** Cookoff of a live round could result in death or injury. If the M240C machine gun is hot, do NOT inspect the feed tray, remove the round, or recharge the machine gun. Close the machine gun access doors, and keep the doors closed for 15 minutes.

- a. Move the ARM-SAFE-RESET switch on the weapon control box to RESET, then to SAFE.
  - b. Move the turret drive system switch on the turret control box to OFF.
  - c. (BC) Open the machine gun access doors.
  - d. (BC) Charge the machine gun.
  - e. (BC) Push the manual safety through to "S" (safe position) (Figure 2).

## Performance Steps

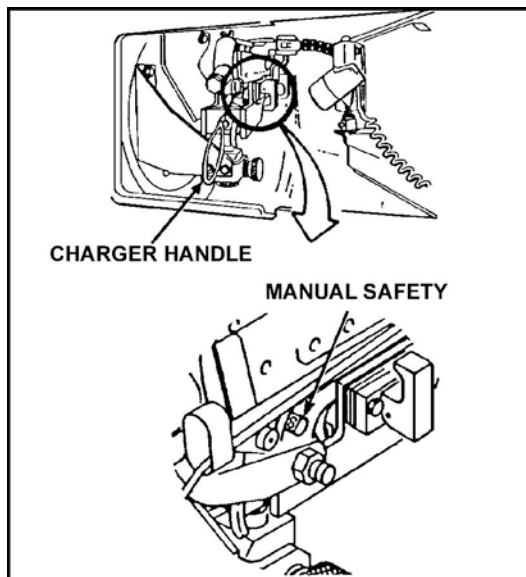


Figure 2. Manual safety.

- f. (BC) Open the feed tray.
- g. (BC) Check the receiver and the chamber for jammed rounds or links. Remove the residue.
- h. (BC) Make sure the rounds are aligned evenly on the ammunition belt.
- i. (BC) Check that both feed chute latches are secure (Figure 3).

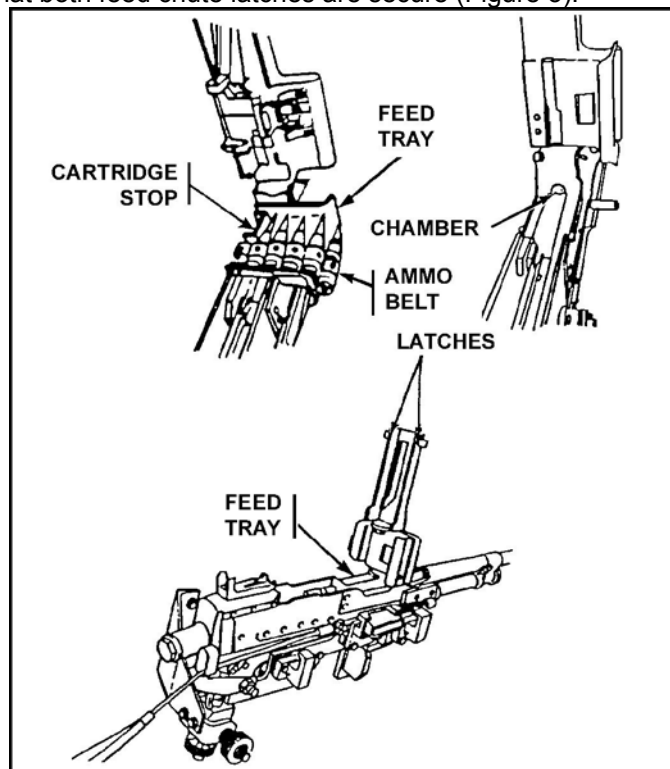


Figure 3. Feed chute latches.

- j. (BC) Reload the machine gun.
- k. (BC) Press the manual safety through to "F" (fire).
- l. (BC) Close the machine gun access doors.

**Performance Steps**

- m. Move the turret drive system switch on the turret control box to ON.
  - n. Move the ARM-SAFE-RESET switch on the weapon control box to RESET, then to ARM.
  - o. Press the 7.62 push button on the weapon control box.
  - p. Squeeze the triggers on the control handles.
  - q. If the gun fails to fire and the primer on the ejected rounds are not dented, check the firing pin to see if it is broken.
3. When the weapon is firing sluggishly --
    - a. Check for insufficient gas pressure for the weapon to function.
    - b. Check the gas regulator and adjust as required.
  4. If the feeding mechanism is sticking, the weapon needs to be cleaned and lubricated as soon as possible.
  5. When there is a short recoil of the bolt, the bolt and operating rod assembly need cleaning.
  6. In the event of a runaway gun, keep the weapon oriented on the target until the problem is eliminated or ammunition is expended.
    - a. Move the turret power switch to OFF.
    - b. (BC) Grasp the ammunition belt at the ammunition box. Twist the belt and hold it until the coax stops firing.
    - c. Tell the crew there is a cookoff danger.
    - d. In a training situation, wait 30 minutes before taking corrective action on the weapon.
    - e. (BC) Clear and unload the weapon.
    - f. Check for a broken, worn, or burred sear.

NOTE: If corrective action cannot be performed within a specified time, select another belt of ammunition and continue to engage targets. Keep the chain of command informed of the situation at all times.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV and an installed M240C machine gun, loaded with dummy rounds that failed to fire.

BRIEF SOLDIER: Tell the soldier to correct a malfunction of the M240C machine gun without damaging the equipment or injuring him/herself or other personnel.

**Performance Measures**

|                                                            | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------------------|-----------|--------------|
| 1. Moved the ARM-SAFE-RESET switch to RESET, then to SAFE. | _____     | _____        |
| 2. Turned the turret drive system OFF.                     | _____     | _____        |
| 3. Told the BC to charge the weapon manually.              | _____     | _____        |
| 4. Turned the turret drive system switch to ON.            | _____     | _____        |
| 5. Moved the ARM-SAFE-RESET switch to ARM.                 | _____     | _____        |
| 6. Pressed the 7.62 push button on the weapon control box. | _____     | _____        |
| 7. Attempted to fire.                                      | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

TM 9-1005-313-10  
TM 9-2350-252-10-2



## Engage Targets with the M240C Coaxial Machine Gun on a BFV

071-313-4007

**Conditions:** Given a BFV with an operational ISU, an M240C coaxial machine gun installed and loaded with 7.62-mm ammunition, and a target identified with a range of 0 to 900 meters.

**Standards:** Engaged targets with the M240C coaxial machine gun using the ISU, so that each target is suppressed or destroyed without causing damage to equipment or injury to personnel.

**Note:** This task is for firing the machine gun electrically. To fire in the manual mode, see TM 9-2350-252-10-2.

### Performance Steps

**NOTE:** A target is considered suppressed when rounds are striking in the target area.

**WARNING:** Keep the weapon on electrical safe until ready to fire.

**NOTE:** After the Bradley commander identifies the target, he moves the turret using the Bradley commander's control handles to bring the gunner's field of view on the target. As the Bradley commander moves the turret, he issues the initial fire command GUNNER, COAX, TROOPS, SIX HUNDRED.

1. The gunner presses the 7.62-mm button on the weapon control box. He checks that the indicator light comes on (Figure 1).

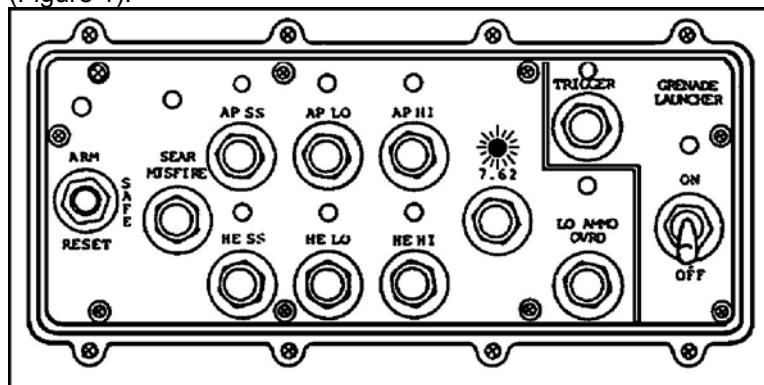


Figure 1. 7.62 indicator and button.

2. Look into the gunner's eyepiece (Figure 2).

## Performance Steps

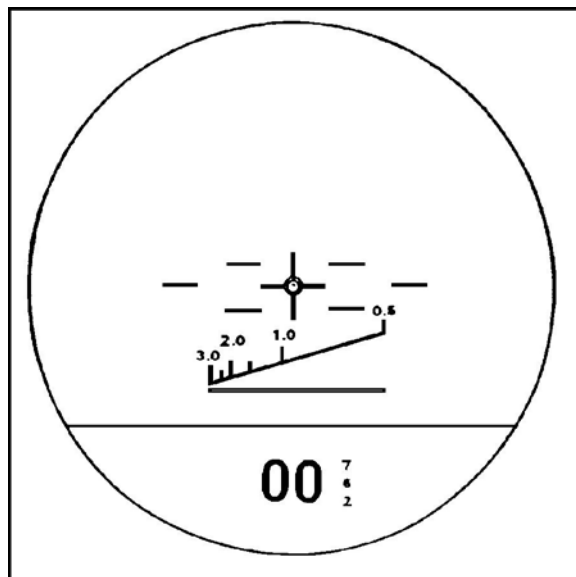


Figure 2. Status indicator.

NOTE: Status indicator on the reticle in the gunner's eyepiece should read 7.62.

3. Move the ARM-SAFE-RESET switch on the weapon control box to ARM. Check that the indicator light comes on (Figure 3).

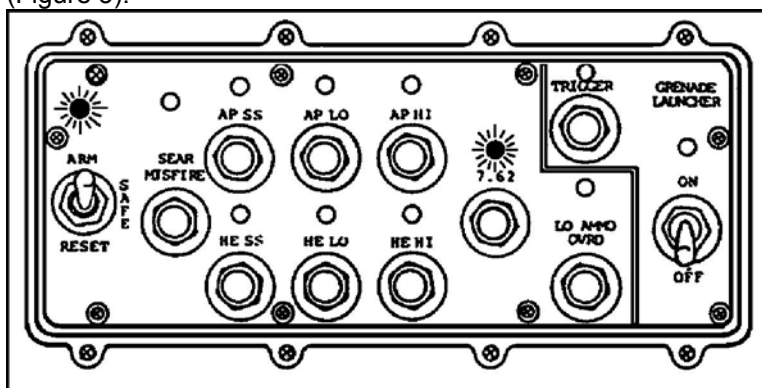


Figure 3. ARM-SAFE-RESET switch.

4. The Bradley commander finds the range of the target using the range finder in the reticle and announces the range to the gunner-for example, "Six hundred" (Figure 4).

## Performance Steps

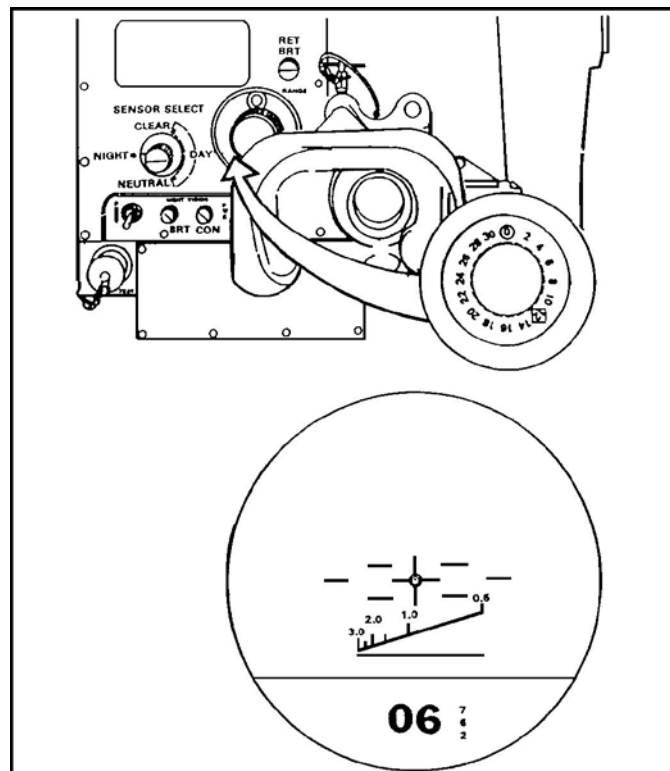


Figure 4. Range control knob and status indicator.

- a. Gunner sets the range control on the sight to the number of meters obtained from the fire command.

NOTE: Range is set at 200-meter increments up to 800 meters for the M240C coaxial machine gun. Targets can be engaged up to 900 meters (tracer burnout).

5. Gunner announces "Identified."

NOTE: When the gunner announces, "identified," the Bradley commander releases his grip on the control handle. The gunner may now track the target using his control handle.

6. Gunner moves the magnification switch to HIGH (12X) until it clicks (Figure 5).

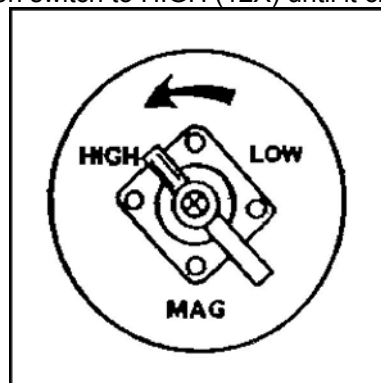


Figure 5. MAG switch.

7. Bradley commander commands FIRE or, if he wishes to delay the engagement, he commands AT MY COMMAND, FIRE.
8. Gunner uses the control handles to center the reticle crosshairs on the target in the sight reticle.



## Performance Steps

9. Gunner announces "On the way" (only for the initial burst).
10. Fire at the target by squeezing the trigger switches on the gunner's control handles (Figure 6).

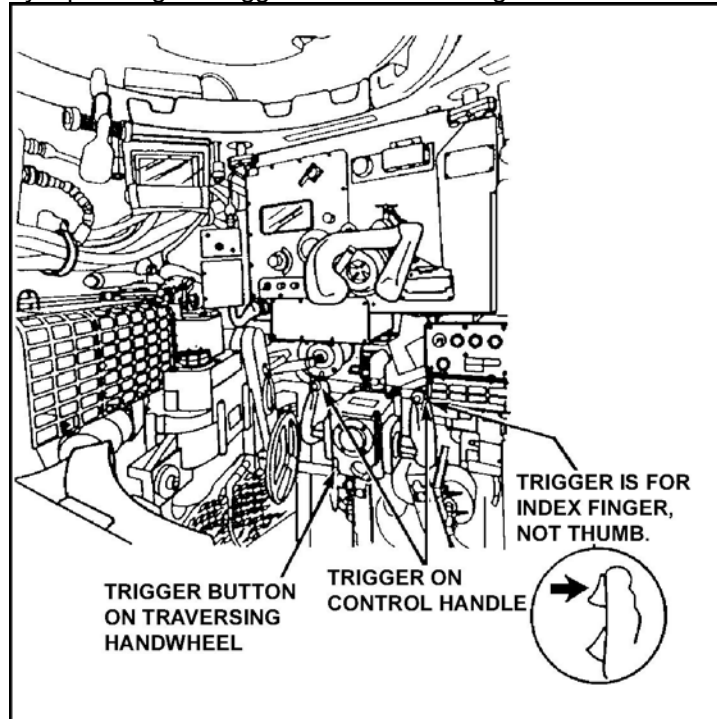


Figure 6. Gunner's control handles.

11. Sense tracers and adjust 20- to 25-round bursts onto the target area in a Z pattern from the near to far edge of the target until the target is destroyed or suppressed, or until CEASE FIRE is given by the Bradley commander (Figure 7).

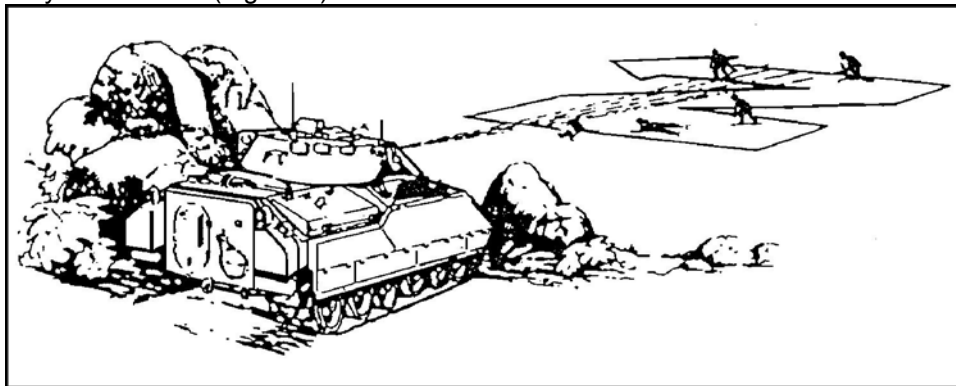


Figure 7. Z pattern of fire.

12. If the M240C fails to fire, apply misfire procedures.
13. If the LO AMMO OVRD button flashes on the weapon control box, either push the LO AMMO OVRD button and continue firing until the gun runs out of ammunition or stop firing and reload.
14. Move the ARM-SAFE-RESET switch to RESET, then to SAFE.
15. Move the magnification switch to LOW.

### Performance Steps

16. Continue to scan for other targets.

**Evaluation Preparation:** SETUP: Provide the soldier a BFV with an installed, functional M240C machine gun and ISU, 500 rounds of 7.62-mm ammunition, and targets at the following ranges on a live-fire range complex:

- Five E-type targets between 50 and 150 meters.
- Five E-type targets between 150 and 250 meters.
- Ten E-type targets between 250 and 400 meters.
- Ten E-type targets between 400 and 600 meters.
- Ten E-type targets between 600 and 900 meters.

**BRIEF SOLDIER:** Tell the soldier to successfully engage all the sets of targets using the ISU and achieve target suppression on at least three of the five target sets.

Note: Target suppression is defined as tracer coverage of at least four-fifths of the target area.

### Performance Measures

**GO**      **NO GO**

1. Successfully engaged three of five target sets.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

#### Required

#### Related

FM 23-1

TM 9-2350-252-10-2

TM 9-2350-284-10-2

**Install/Remove an M240C Coaxial Machine Gun on an M3 BFV**  
**171-132-1004**

**Conditions:** In a field/garrison environment, given a stationary M3-series BFV with the turret power switched off, the turret locked, and a cleared M240C machine gun. The BFV commander has given an order to install or remove the M240C machine gun.

**Standards:** The M240C machine gun is installed and secured in the mount without causing damage to the machine gun and mount. It passes the function check. The M240C machine gun is removed without causing damage to the machine gun or mount.

**Performance Steps**

1. Install the coax machine gun.  
WARNING: Accidental firing of the coax machine gun could kill or injure soldiers. Clear the coax machine gun before installing it in the vehicle.
  - a. Manually elevate the gun rotor to 200 mils.
  - b. Open the coax machine gun access doors.
  - c. Mount the coax machine gun.
    - (1) Place the coax machine gun in the plenum with the gun barrel pointing forward and the trigger to the right.
    - (2) Align the coax machine gun alignment lugs with the cradle slots.
    - (3) Push the coax machine gun until it locks behind the release latch.
    - (4) Check that the alignment lugs are locked in position by pulling on the rear of the machine gun.
    - (5) Pull the rear mount pin handle down.
    - (6) Move the rear mount to the left and align the rear mount with the pin holes in the coax machine gun.
    - (7) Push the mount pin handle up until it is fully seated.
  - d. Connect the solenoid cable plug to the plenum jack (only if firing solenoid is installed on the coax machine gun).
  - e. Close the coax machine gun access doors.
2. Remove the coax machine gun.
  - a. Manually elevate the gun rotor to 200 mils.
  - b. Open the coax machine gun access doors.
  - c. Clear the M240C machine gun.
  - d. Disconnect the solenoid cable plug from the plenum jack (only if firing solenoid is installed on the coax machine gun).
  - e. Disconnect rear mount pin handle from mount pin hole.
  - f. Remove the coax machine gun from the plenum.
  - g. Close the coax machine gun access doors.
  - h. Stow the coax machine gun in accordance with unit SOP.

**Evaluation Preparation:**

| Performance Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Install the coax machine gun. <ol style="list-style-type: none"><li>a. Manually elevates the gun rotor to 200 mils.</li><li>b. Opens the coax machine gun access doors.</li><li>c. Mounts the coax machine gun.</li><li>d. Joins and secures the rear mount to coax machine gun.</li><li>e. Connects the solenoid cable plug to the plenum jack (only if the firing solenoid is installed on the coax machine gun).</li><li>f. Closes the coax machine gun access doors.</li></ol> | —         | —            |

**Performance Measures**

|                                                                                                                                 | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| g. Performs an electrical function check.                                                                                       |           |              |
| 2. Removes the coax machine gun.                                                                                                | _____     | _____        |
| 2. Remove the coax machine gun.                                                                                                 | _____     | _____        |
| a. Manually elevates the gun rotor to 200 mils.                                                                                 |           |              |
| b. Opens the coax machine gun access doors.                                                                                     |           |              |
| c. Clears the M240C machine gun.                                                                                                |           |              |
| d. Disconnects the solenoid cable plug from the plenum jack (only if the firing solenoid is installed on the coax machine gun). |           |              |
| e. Disconnects rear mount pin handle from mount pin hole.                                                                       |           |              |
| f. Removes the coax machine gun from the plenum.                                                                                |           |              |
| g. Closes the coax machine gun access doors.                                                                                    |           |              |
| h. Stows the coax machine gun in accordance with unit SOP.                                                                      |           |              |

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier scores NO-GO, show him what was done wrong and how to do it correctly.

**References**

**Required**

TM 9-1005-313-10

**Related**

FM 23-1

TM 9-2350-252-10-2

TM 9-2350-284-10-2

## Subject Area 45: WEAPONS: M242 25-MM GUN

**Maintain the 25-mm Automatic Gun on a BFV**  
**071-024-0005**

**Conditions:** Given a BFV with basic issue items and the turret set at 6400 mils, an installed and cleared 25-mm gun, lubricants and cleaning supplies as required, TM 9-2350-252-10-2, and helpers as required.

**Standards:** Using the procedures described in TM 9-2350-252-10-2, removed the 25-mm gun from the BFV, disassembled, cleaned, inspected, replaced, lubricated, assembled, and reinstalled the gun on the BFV without causing damage to the equipment. Recorded and reported uncorrected deficiencies.

**Performance Steps**

NOTE: Comply with all warnings and cautions as listed in TM 9-2350-252-10-2 that are applicable to the performance of maintenance of the 25-mm gun.

1. Remove the 25-mm gun from the BFV.
  - a. Disconnect the power cable from the gun.
  - b. Disconnect the feed and link eject chutes.
  - c. Remove the feeder.
  - d. Remove the barrel.
  - e. Use helpers to remove the weapon from the BFV to the maintenance area.
2. Disassemble the 25-mm gun.
  - a. Put all parts in a container or in a certain area so that they do not get misplaced.
  - b. Do not use any type of force that will damage the weapon when disassembling.
3. Clean the 25-mm gun.
  - a. Use the proper materials and equipment for cleaning the weapon.
  - b. Ensure that no solvent is used on electrical connectors, rubber and plastic parts of the feeder assembly, feed select, solenoid, and the bolt position indicator cover. Solvent can damage these parts.
4. Inspect the 25-mm gun.
  - a. Ensure that the parts are properly cleaned.
  - b. Inspect all parts for accountability and serviceability.
  - c. Replace the defective parts and the firing pin after 8,000 rounds.
5. Lubricate the weapon.
  - a. Use only the proper lubricant.
  - b. Make sure that the lubricant is not used in the electrical connectors or any other parts that can become damaged.
6. Assemble and reinstall the 25-mm gun on the BFV.
  - a. Use helpers to move the weapon when re installing.
  - b. Make sure that the feeder is timed.
  - c. Make sure that the weapon is assembled and re installed so that it functions as designed.
7. Record and report any uncorrected deficiencies in accordance with unit SOP.

**Evaluation Preparation:** SETUP: Provide the soldier with all the equipment and materials as outlined in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to maintain the 25-mm gun using the procedures described in TM 9-2350-252-10-2.

**Performance Measures**

1. Removed and disassembled the 25-mm gun from the BFV.
2. Cleaned, inspected, and lubricated the 25-mm gun.
3. Assembled and reinstalled the 25-mm gun on the BFV.
4. Recorded and reported uncorrected deficiencies IAW unit SOP.

**GO**    **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required**

TM 9-2350-252-10-2

**Related**

## Perform a Function Check on the 25-mm Automatic Gun on a BFV

071-024-0006

**Conditions:** Given a BFV, an installed and cleared 25-mm automatic gun, and a requirement to check the functioning of the 25-mm automatic gun.

**Standards:** Checked to ensure the 25-mm automatic gun functions as designed without damaging the equipment.

### Performance Steps

1. Prepare the 25-mm automatic gun for a function check.
  - a. Move the turret power and turret drive system switches to OFF.
  - b. Remove and open the gun cover.
  - c. Move the manual safe handle to SAFE.
  - d. Move the turret power and turret drive system switches to ON.
2. Perform a function check on the 25-mm automatic gun using the gunner's control handles (Figure 1).

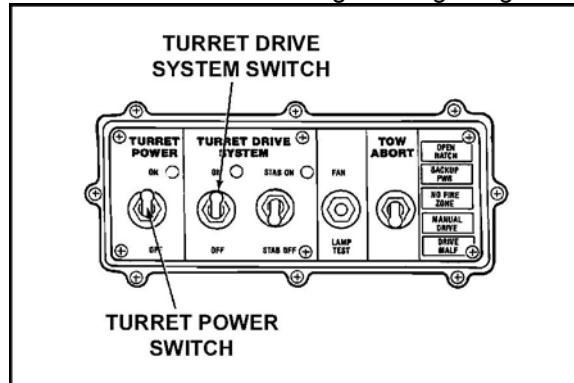


Figure 1. 25-mm gun and turret control box.

- a. Check to ensure that the bolt position indicator is in the SEAR position.
- NOTE: If the bolt position indicator is not in the SEAR position, the feeder needs to be timed.
- b. Check to ensure that the drive shaft handle turns by turning it counterclockwise.
- NOTE: If the drive shaft handle turns over 1/2 inch, the gun bolt is not locked in the SEAR position.
- c. Dry fire the 25-mm automatic gun in the AP SS mode (Figure 2).

## Performance Steps

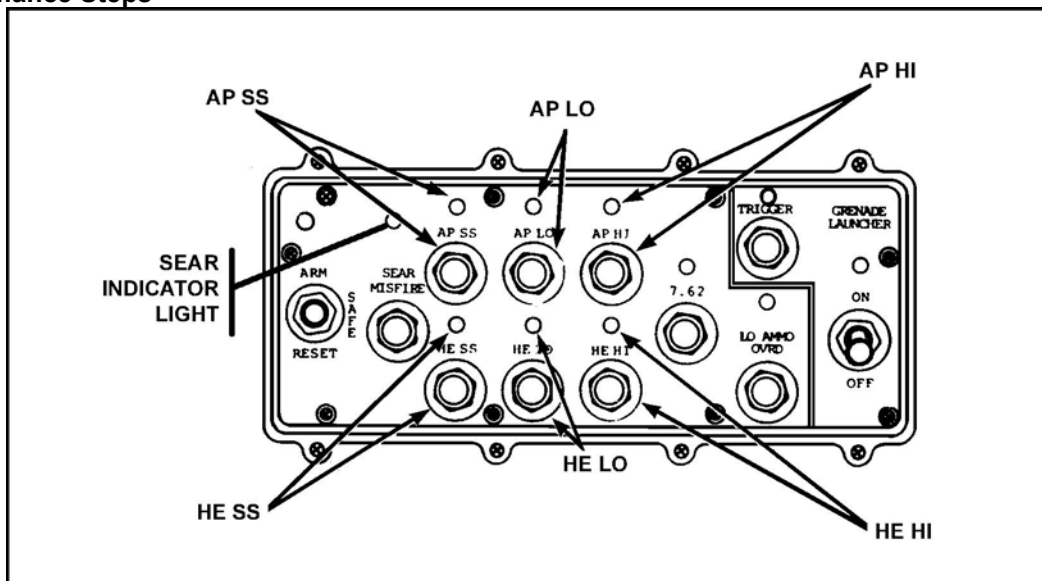


Figure 2. Weapon control box.

- (1) Press the AP SS button.
- (2) Move the ARM-SAFE-RESET switch to the ARM position.
  - (a) The SEAR indicator light should come on.
  - (b) The LO AMMO indicator light should be flashing.
- (3) Press the LO AMMO OVRD button. The LO AMMO, AP SS, and SEAR lights should be on and not flashing.
- (4) Squeeze the trigger switches on the gunner's control. The bolt position indicator should be in the MISFIRE position (Figure 3).

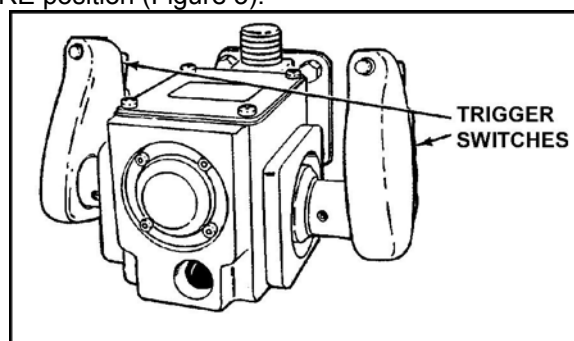


Figure 3. Gunner's control handles.

NOTE: When the trigger switches are squeezed, the 25-mm automatic gun will dry fire and cycle to MISFIRE position because no ammunition is in the 25-mm automatic gun.

- (5) Press the AP SS button.
- (6) Press the MISFIRE button.
- (7) Re-squeeze the trigger. The bolt should be in the SEAR position and the SEAR indicator light should come on.
- d. Dry fire the 25-mm automatic gun in the HE SS mode by pressing the HE SS button.
- e. Dry fire in the AP LO mode.
- f. Dry fire in the AP HI mode.
- g. Dry fire in the HE LO mode.
- h. Dry fire in the HE HI mode.

3. Perform a function check on the 25-mm automatic gun using the commander's control handle



**Performance Steps**  
(Figure 4).

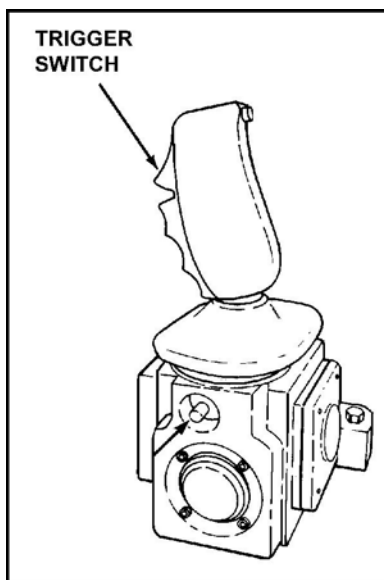


Figure 4. Commander's control handle.

4. Perform a function check on the 25-mm automatic gun using the trigger switch in the handle on the turret traverse handwheel (Figure 5).

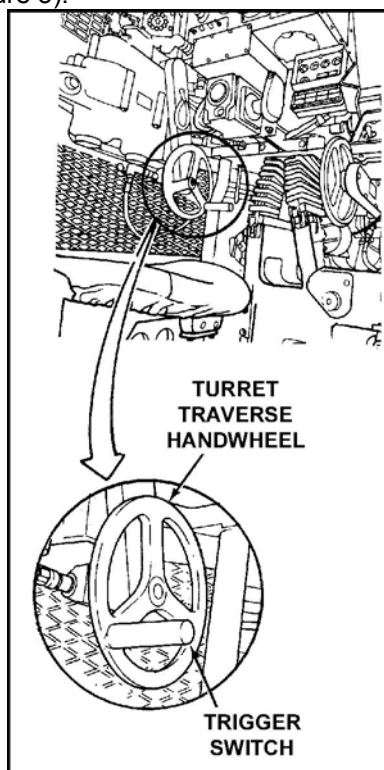


Figure 5. Turret traverse handwheel.

**Evaluation Preparation:** SETUP: Provide the soldier with the equipment and materials outlined in the task condition statement.

BRIEF SOLDIER: Tell the soldier to dry fire the 25-mm automatic gun to ensure it functions as designed.

| <b>Performance Measures</b>                                                                    | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Prepared the 25-mm automatic gun for a function check.                                      | _____            | _____               |
| 2. Performed a function check on the 25-mm automatic gun using the gunner's control handles.   | _____            | _____               |
| 3. Performed a function check on the 25-mm automatic gun using the commander's control handle. | _____            | _____               |
| 4. Performed a function check on the 25-mm automatic gun using the traverse handwheel.         | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-2350-252-10-2

## Load the 25-mm Automatic Gun on a BFV

071-024-0007

**Conditions:** Given a BFV with basic issue items, installed 25-mm automatic gun, feeder timed, and belted 25-mm ammunition loaded into ammunition cans.

**Standards:** Loaded the 25-mm automatic gun so it is ready to fire without causing damage to equipment or injury to personnel.

### Performance Steps

1. Prepare the 25-mm gun for loading.

- a. Place the gun elevation drive select lever in the MANUAL position.

NOTE: The TOW elevation drive select lever must be in the POWER mode.

- b. Remove the gun guard and open the gun cover (Figure 1).

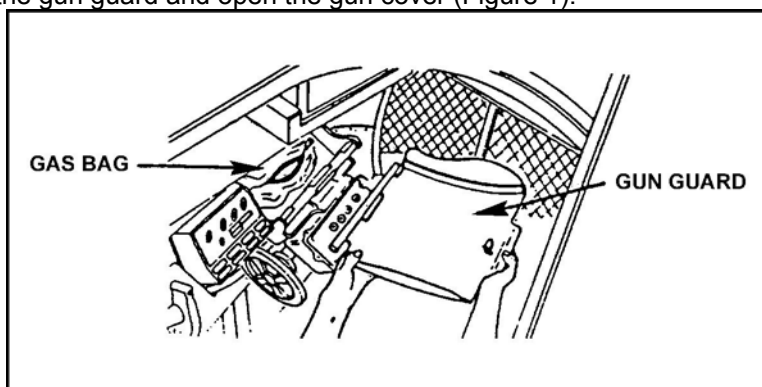


Figure 1. Gun guard and gun cover.

- c. Make sure the bolt position indicator is in the SEAR position.

#### WARNING

Accidental firing of the 25-mm gun could kill or injure soldiers. Make sure the manual safe handle is in the SAFE position.

- d. Place the manual safe handle in the SAFE position (Figure 2).

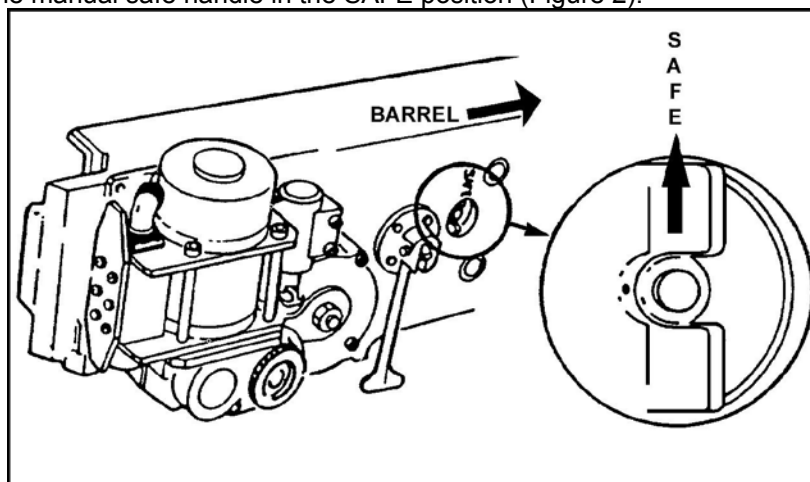


Figure 2. Manual safe handle in the SAFE position.

- e. Manually elevate the gun to 200 mils.

2. Load the HE ammunition

CAUTION: Cycling the 25-mm gun feeder with the feed select solenoid knob part way in AP or HE

# **Performance Steps**

positions can damage the feeder.

- a. Pull out the feed select solenoid knob to the HE position (Figure 3).

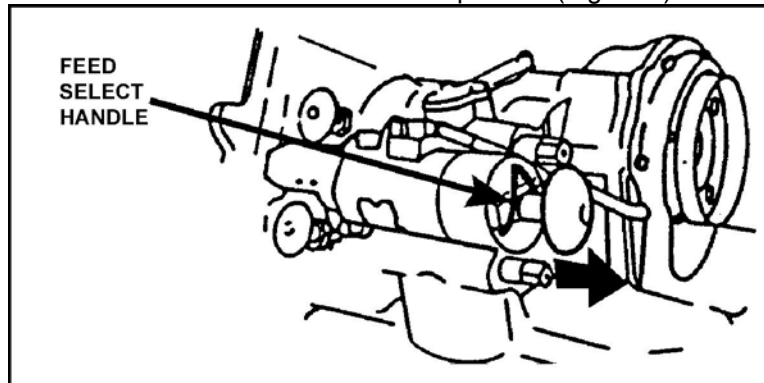


Figure 3. Feed select solenoid knob.

- b. Use the 14-mm ratchet wrench and forward the HE ammunition up the feed chutes until the lower clutch override knob starts to come out (Figure 4).

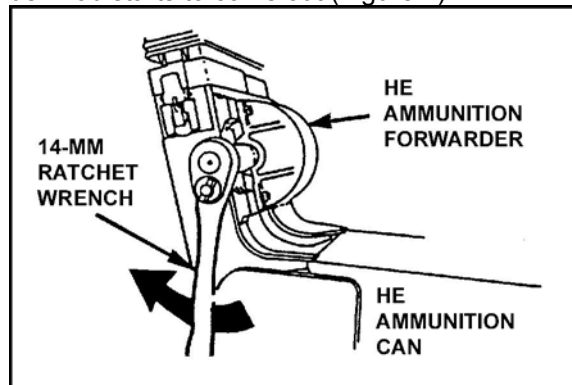


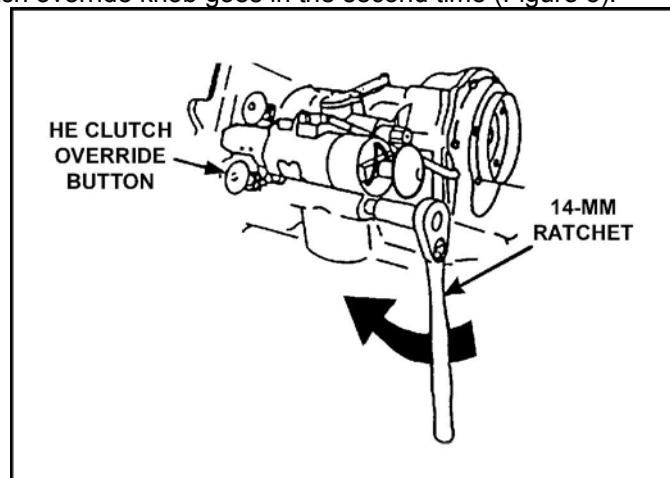
Figure 4. HE ammunition forwarder and 14-mm ratchet wrench.

NOTE: If the lower clutch override knob does not come out, notify the chain of command.

- c. If the HE ammunition jams, down load the ammunition and reload it.

NOTE: The lower clutch override knob will come out about 1/4 inch and go back in as each round is loaded.

- d. Use the 14-mm ratchet wrench on the lower feed shaft extension and turn the shaft right until the lower clutch override knob goes in the second time (Figure 5).



## Performance Steps

Figure 5. Lower clutch override knob.

- e. Take tension off the HE ammunition.

### 3. Load the AP ammunition.

- a. Select AP feed by pushing forward on the feed select solenoid knob.
- b. Use the 14-mm ratchet wrench and forward the AP ammunition up the feed chute until the upper clutch override knob starts to come out (Figure 6).

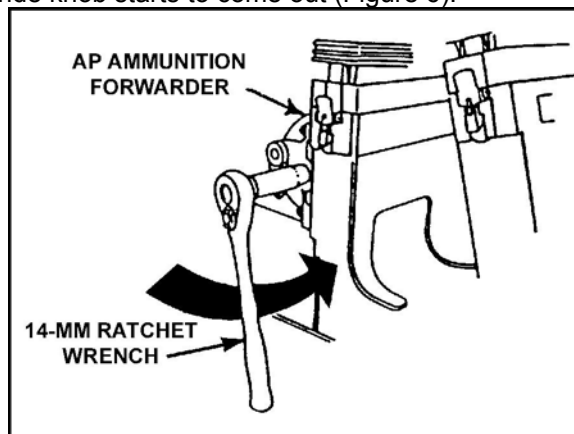


Figure 6. AP ammunition forwarder.

NOTE: If the upper clutch override knob does not come out, notify the chain of command.

- c. If the AP ammunition jams, down load the ammunition and reload it.

NOTE: The upper clutch override knob will come out about 1/4 inch and go back in as each round is loaded.

- d. Use the 14-mm ratchet wrench on the upper feed shaft extension and turn the shaft extension left until the upper clutch override knob goes back in the first time (Figure 7).

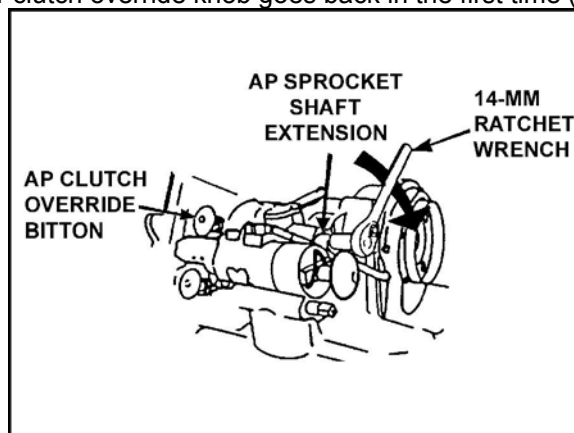


Figure 7. Upper feed shaft extension.

- e. Take tension off the AP ammunition.

4. Close the gun cover and install the 25-mm gun guard. Inform the chain of command that the weapon has been up loaded.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV, basic issue items, an installed 25-mm automatic gun, and belted 25-mm HE and AP ammunition.

**BRIEF SOLDIER:** Tell the soldier to load and clear the 25-mm automatic gun feed chutes and feeder on a BFV.

| <b>Performance Measures</b>                     | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------------|------------------|---------------------|
| 1. Prepared the 25-mm gun for loading.          | _____            | _____               |
| 2. Loaded the HE ammunition side.               | _____            | _____               |
| 3. Loaded the AP ammunition side.               | _____            | _____               |
| 4. Closed the cover and installs the gun guard. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-2350-252-10-2

**Unload the 25-mm Automatic Gun on a BFV****071-024-0008**

**Conditions:** Given a BFV, basic issue items, a loaded 25-mm automatic gun, ammunition in the HE and AP feed chutes, and a requirement to unload the 25-mm gun.

**Standards:** Placed the 25-mm automatic gun on manual SAFE and removed the ammunition from the feeder without causing damage to the equipment or injury to personnel.

**Performance Steps**

1. Prepare the turret.
  - a. Set the ARM-SAFE-RESET switch to SAFE.
  - b. Set the turret drive system switch to OFF.
  - c. Remove the gun guard and open the cover.
  - d. Be sure that the gun bolt position indicator is in SEAR (Figure 1).

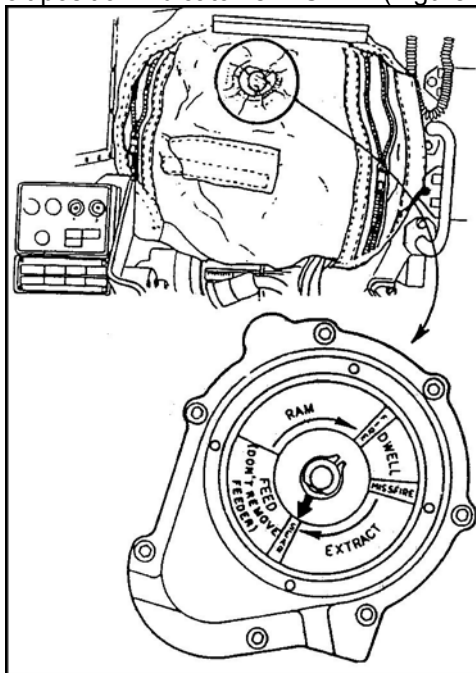


Figure 1. Bolt position indicator.

- e. Move the manual safe handle to SAFE.
- f. Open the M240C machine gun access doors.
- g. Disconnect the AP and HE links from the links in the AP and HE link eject chutes (Figure 2).

## Performance Steps

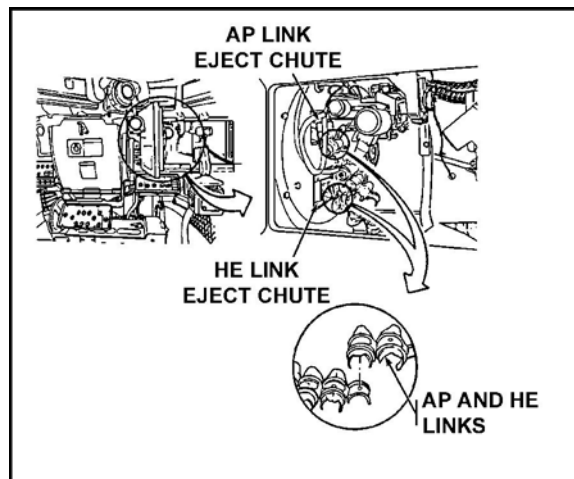


Figure 2. AP link eject chute and HE link eject chute.

h. Close the M240C machine gun access doors.

2. Unload the AP side of the feeder.

NOTE: To unload or clear the AP ammunition, select HE. To unload the HE ammunition, select AP.

a. Elevate the gun.

(1) Move the gun elevation drive select lever left to manual position.

(2) Manually elevate to 200 mils.

b. Detach the AP link eject chute.

NOTE: Remove all loose links from the AP link eject chute.

(1) Squeeze the latches (Figure 3).

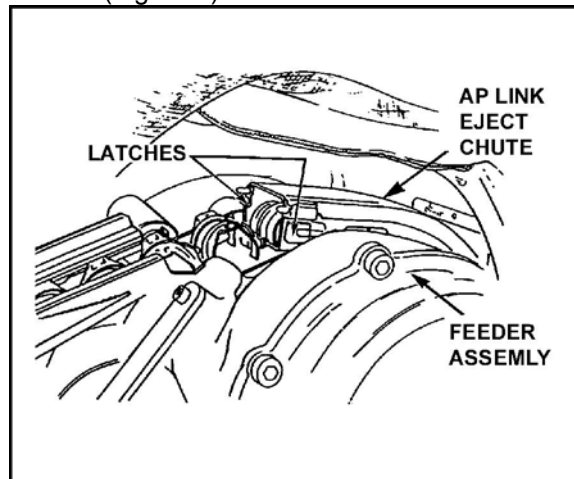


Figure 3. Latches.

(2) Pull the link eject chute away from the 25-mm gun area (Figure 4).



## Performance Steps

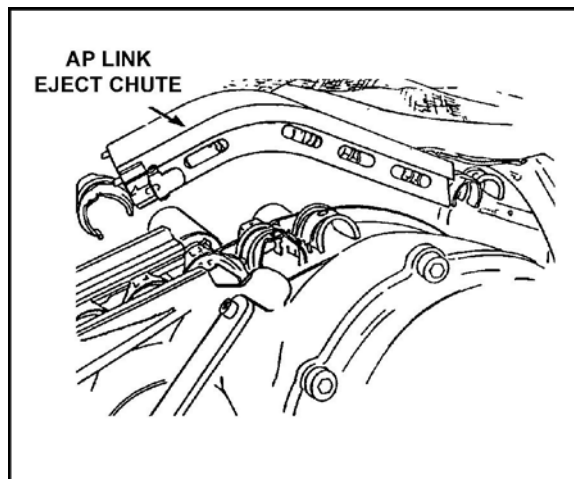


Figure 4. AP link eject chute.

- c. Pull out the feed select solenoid knob to the HE position.
- d. Clear the feeder of AP ammunition.
  - (1) Put the 14-mm ratchet wrench on the upper feed shaft extension.
  - (2) Pull out the upper clutch override knob. Hold the knob out while turning the upper feed shaft extension with the 14-mm ratchet wrench until the ammunition clears feeder.
  - (3) Press the AP forwarder release lever, as needed, to release the tension on the links in the AP ammunition chute.
  - (4) Release the upper clutch override knob. Keep turning the upper feed shaft extension until the knob is seated.
- e. Clear the AP chute.
  - (1) Put the 14-mm ratchet wrench on the AP ammunition forwarder, with the wrench handle to the right.
  - (2) Put upward pressure on the 14-mm ratchet wrench and pull the AP release handle to the left.
  - (3) Hold the AP release handle to the left while moving the ratchet wrench to the straight down position until only two rounds are visible in the AP feed chute (Figure 5).

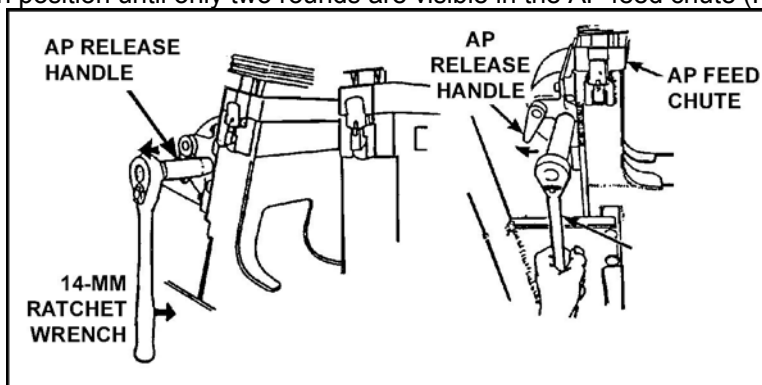


Figure 5. AP release handle.

- f. Remove the AP feed chute.
  - (1) Squeeze the AP chute latches (Figure 6).

## Performance Steps

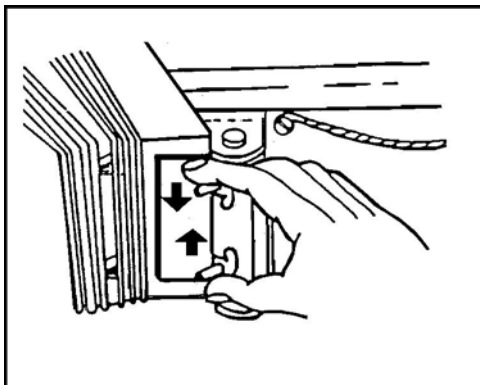


Figure 6. Latches.

- (2) Twist the AP chute to the open position.

NOTE: Push the AP feed chute to the left as far as possible to keep it out of the way.

- (3) Pull the AP feed chute to remove the chute front pin from the front guide pin hole.

### 3. Unload the HE side of the feeder.

- a. Manually depress the gun to maximum depression.
- b. Detach the HE link eject chute (Figure 7).

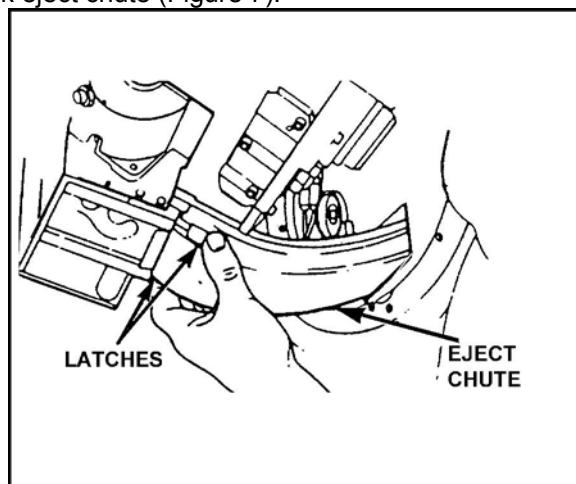


Figure 7. Latches and HE link eject chute.

NOTE: Remove all loose links from the HE links eject chute.

- (1) Squeeze the latches.
- (2) Pull the chute away from the feeder assembly.
- c. Push in the feed select solenoid knob to the AP position.
- d. Clear the feeder of HE ammunition.
  - (1) Put the 14-mm ratchet wrench on the lower feed shaft extension.
  - (2) Pull out and hold the lower clutch override knob.
  - (3) Turn the HE extension counterclockwise with the 14-mm ratchet wrench until the ammunition clears feeder.
  - (4) Press the HE forwarder release lever, as needed, to release the tension on the links in the HE ammunition chute.
  - (5) Release the lower clutch override knob. Keep turning the lower feed shaft extension until the knob is seated.
- e. Clear the HE chute.
  - (1) Put the 14-mm ratchet wrench on the HE ammunition forwarder, with the wrench handle to the left.

**Performance Steps**

- (2) Turn the 14-mm ratchet wrench to move the ammunition up the chute slightly. Put upward pressure on the wrench and pull the HE release handle to the right.
- (3) Hold the HE release handle to the right while moving the wrench to the straight down position (Figure 8).

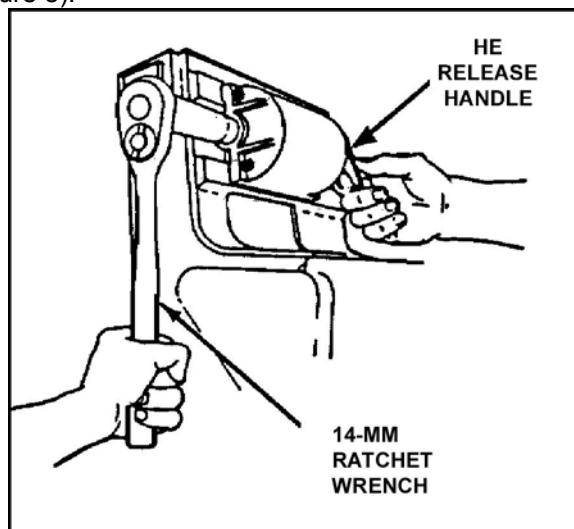


Figure 8. HE release handle.

- (4) Let go of the HE release handle and turn the ratchet wrench right until the HE release handle pops back into place and until only two rounds are visible in the HE feed chute.
- f. Remove the HE feed chute.
4. Clear the 25-mm feeder and receiver.
  - a. Remove the 25-mm gun feeder.
  - b. Remove the 25-mm ammunition from the 25-mm gun feeder.
    - (1) Press the timer release rod (Figure 9).
    - (2) Rotate the worm shaft nut to the left until two clicks can be heard (Figure 9).

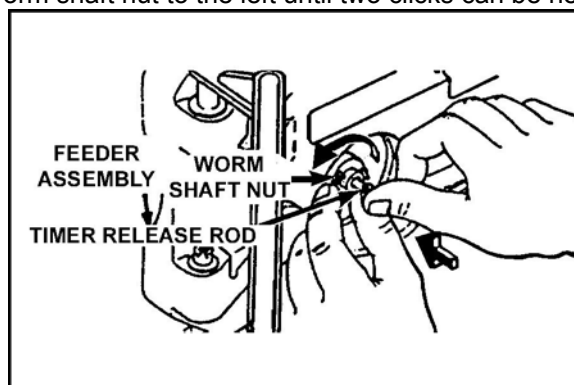


Figure 9. Timer release rod and worm shaft nut.

- (3) This turns the feeder sprocket on whatever selection is being used, AP or HE, and turns the rotor.
- (4) The rounds drop out of the rotor area as the worm shaft nut is turned. This allows the rounds to be taken out.

NOTE: If the worm shaft nut cannot be turned manually, notify the chain of command and unit maintenance.

- (5) Continue turning until the ammunition drops into the helper hand.
- c. Time the 25-mm gun feeder.

### Performance Steps

d. Clear the 25-mm gun receiver.

(1) Check the face of the bolt, chamber, and forward eject port (Figure 10).

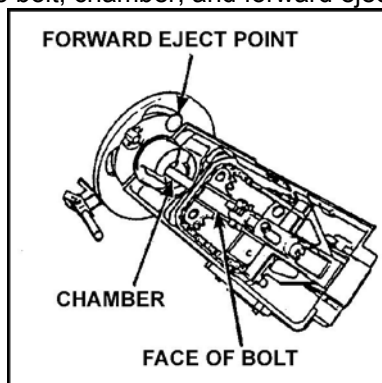


Figure 10. Face of bolt, chamber, and forward eject port.

(2) Remove any ammunition from the receiver.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV, basic issue items, a loaded 25-mm automatic gun, and ammunition in the HE and AP feed chutes.

BRIEF SOLDIER: Tell the soldier he must unload the 25-mm automatic gun feed chutes and feeder on a BFV.

### Performance Measures

1. Prepared the turret.
2. Unloaded the AP side of the feeder.
3. Unloaded the HE side of feeder.
4. Cleared the 25-mm feeder and receiver.

**GO**      **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

**Required**

### Related

TM 9-2350-252-10-2

## Zero the 25-mm Automatic Gun on a BFV

071-024-0009

**Conditions:** Given a BFV with a bore sighted 25-mm automatic gun, loaded ammunition cans, an identified target at a range of 1,200 meters, and a requirement to zero the 25-mm automatic gun.

**Standards:** The 25-mm automatic gun is zeroed so that the point of aim and the strike of the round impacted at the same point on the target.

### Performance Steps

1. Zero the day sight to the 25-mm automatic gun.
  - a. Select an aiming point 1,200 meters away.
  - b. Set the integrated sight unit controls (Figure 1).

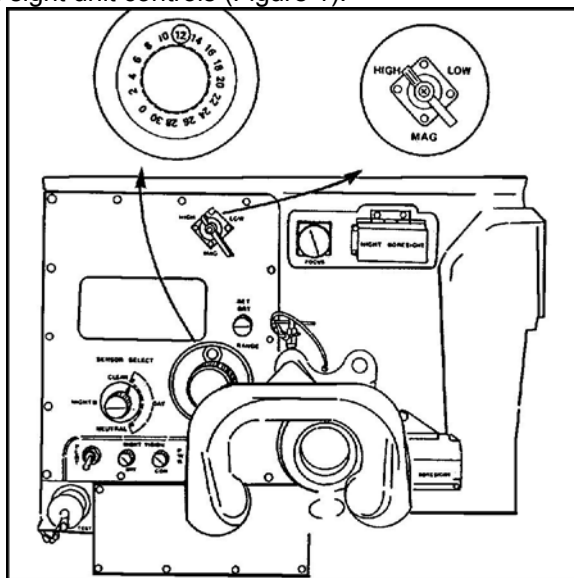


Figure 1. Range control knob and MAG switch.

(1) Turn the RANGE control knob to 12 (1,200 meters).

(2) Move the MAG switch to HIGH (12X) (until it clicks).

**CAUTION:** HE ammunition will explode the target. Do not use HE ammunition to zero the ISU and 25-mm automatic gun.

- c. Move the manual safe handle to the FIRE position.
- d. Push the AP SS or HE SS button on the weapon control box (Figure 2).

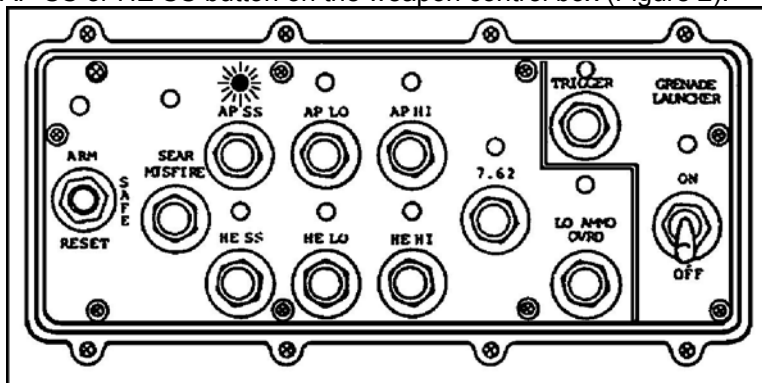


Figure 2. AP SS button and indicator.

# **Performance Steps**

- e. Look through the gunner's eyepiece. Use the gunner's controls to align the reticle on the center of the target (Figure 3).

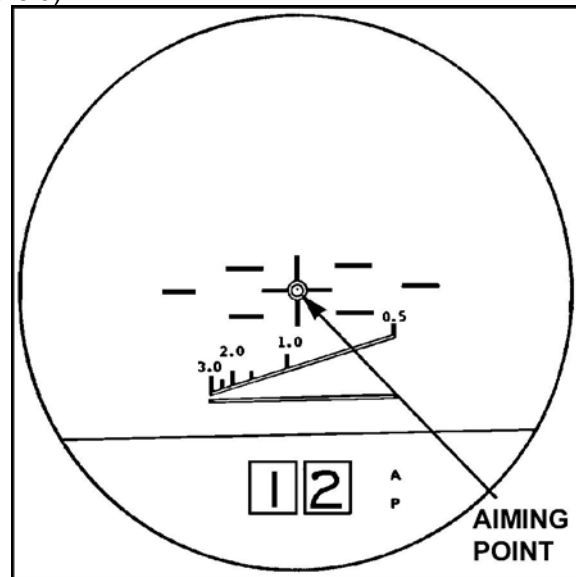


Figure 3. Reticle.

- f. Move the ARM-SAFE-RESET switch to ARM (Figure 4).

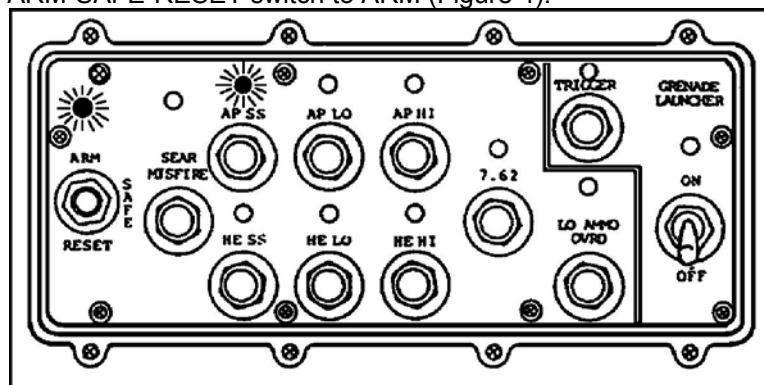


Figure 4. ARM-SAFE-RESET switch and indicator light.

- g. Fire one round at the target.
- h. Look at the strike of the round through the gunner's eyepiece (Figure 5).

## Performance Steps

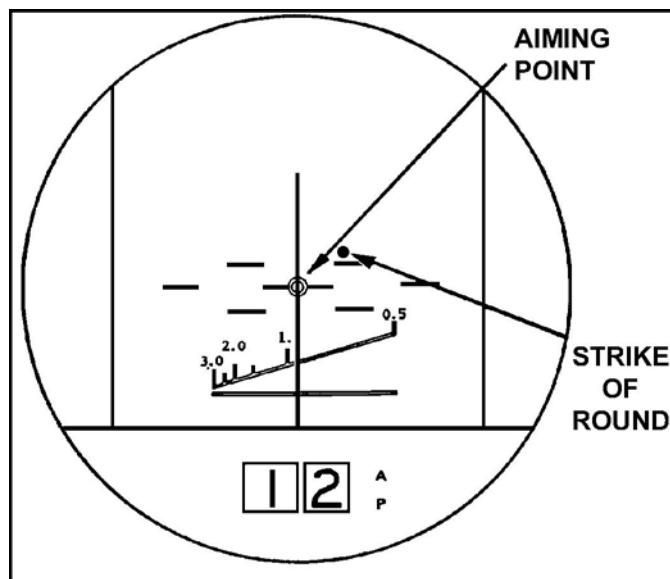


Figure 5. Strike of round.

- (1) If the round strikes in the aiming point, the gun is zeroed.
- (2) If the round strikes off-center, adjust the reticle to the strike of the round to obtain a zero.
- i. To adjust the reticle to the strike of the rounds-
  - (1) Open the gun boresight cover (Figure 6).

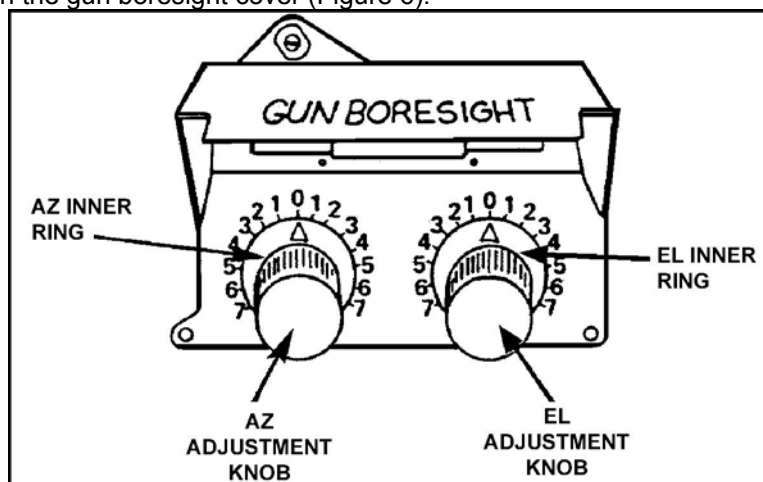


Figure 6. Gun boresight cover.

- (2) To adjust the reticle, turn the elevation and azimuth boresight adjustment knobs to center the reticle cross hairs on the strike of the round.
  - (3) Close the gun boresight cover (Figure 6).
  - j. Use the gunner's controls to align the reticle aiming point on target.
  - k. Repeat zeroing procedures until the 25-mm automatic gun is zeroed or zeroing has been attempted three times. If the 25-mm automatic gun cannot be zeroed after three times, report to organizational maintenance.
  - l. After zeroing with AP SS, select HE HI and fire a burst of three to five rounds; the rounds should impact within 5 mils of the aiming point.
- NOTE: Remember, the first round fired will be the ammunition of the previous selection (AP).
- m. Move the ARM-SAFE-RESET switch to RESET, then to SAFE.
2. Align the night sight reticle to the day sight reticle. One 25-mm AP round is fired to confirm the night

### Performance Steps

sight zero.

**Evaluation Preparation:** SETUP: Provide the soldier with the equipment and materials outlined in the condition statement.

**BRIEF SOLDIER:** Tell the soldier to zero the 25-mm automatic gun so that the strike of the round is the same as the point of aim.

| Performance Measures                                                                    | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------------------------------------------|-----------|--------------|
| 1. Selected an aiming point 1,200 meters away.                                          | _____     | _____        |
| 2. Set the integrated sight unit controls.                                              | _____     | _____        |
| 3. Selected proper ammunition and rate of fire on the weapon control panel.             | _____     | _____        |
| 4. Observed the strike of the round.                                                    | _____     | _____        |
| 5. Adjusted the integrated sight unit reticle to the strike of the round, if necessary. | _____     | _____        |
| 6. Confirmed zero of the night sight with ammunition.                                   | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

Required

### Related

TM 9-2350-252-10-2



## Perform Misfire Procedures on the 25-mm Automatic Gun on an M2A3/M3A3 BFV 071-024-0011

**Conditions:** Given an M2A3/M3A3 BFV with basic issue items, belted 25-mm ammunition, and an installed 25-mm automatic gun that fails to fire.

**Standards:** Performed misfire procedures so that the 25-mm automatic gun fires without causing damage to equipment or injury to personnel.

### Performance Steps

NOTE: A loss of vehicle or turret power will cause the 25-mm gun to fire slowly or to stop firing.

1. Announce the 25-mm misfire to the crew.
2. Ensure the ARM-SAFE-RESET switch is in the ARM position. Release the trigger and wait 5 seconds.
3. Move the rate of fire switch on the system control box to SS (Figure 1).

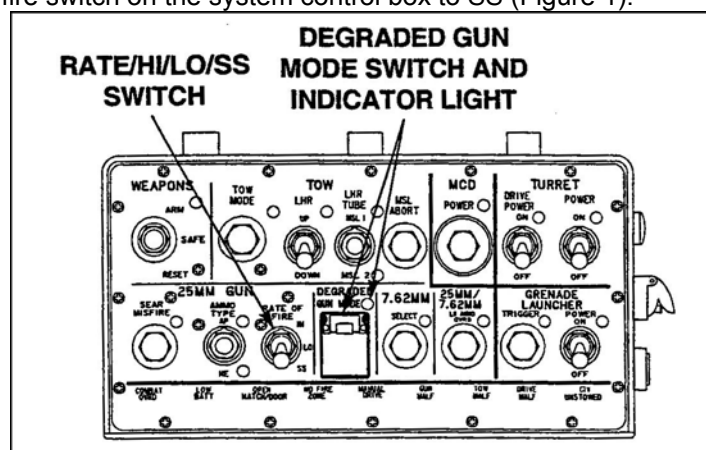


Figure 1. Rate of fire.

4. Press the MISFIRE button (Figure 2).

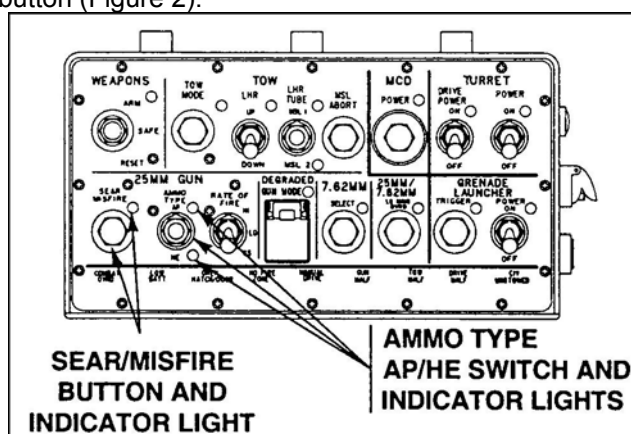


Figure 2. SEAR/MISFIRE button and indicator light.

5. Squeeze the trigger on the gunner's control handles (Figure 3).

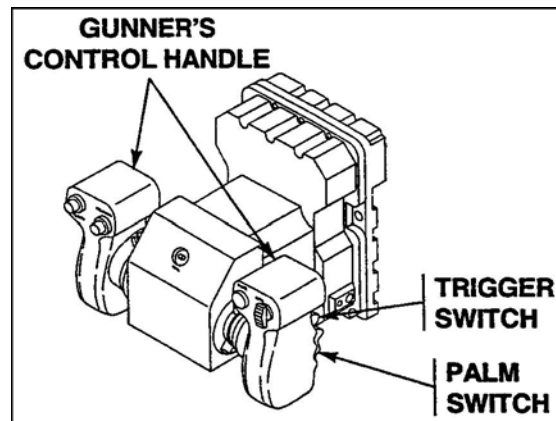
**Performance Steps**

Figure 3. Gunner's control handle.

NOTE: The 25-mm gun should cycle from the MISFIRE to the SEAR position when the triggers are squeezed. The sear indicator light should come on.

6. Check that the SEAR indicator light is on.
  - a. If the SEAR indicator light is on, squeeze the trigger switches on the gunner's control handles and continue firing.
  - b. If the SEAR indicator light is on, but the 25-mm gun will not fire, follow the troubleshooting procedures in TM 9-2350-294-10-2-1, TM 9-2350-294-10-2-2.
  - c. If the SEAR indicator light is off, go to the next step.
7. Remove the gun guard.
8. Check the bolt position indicator (Figure 4).

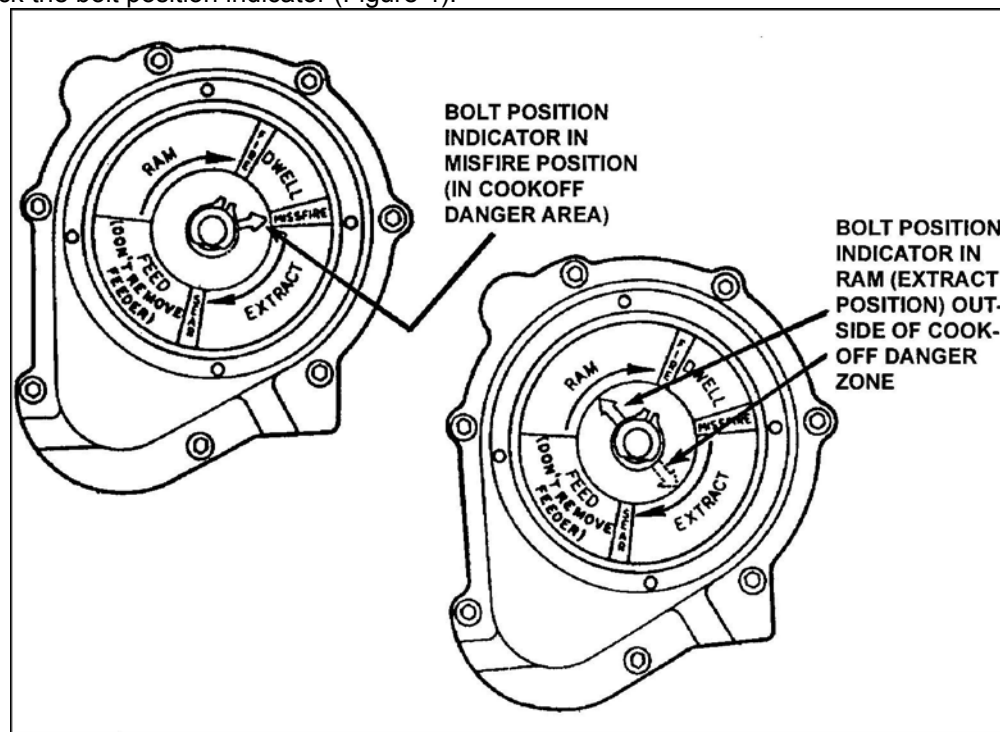


Figure 4. Bolt position indicator.

**WARNING**

**Performance Steps**

Soldiers can be injured by the 25-mm gun cookoff. If more than 100 rounds have been fired in 15 minutes (hot gun), there is a cookoff danger.

- a. If the bolt position indicator is in SEAR, close the gun guard, squeeze the trigger on the gunner's hand controls, and continue firing.
- b. If the bolt position indicator is in any position other than SEAR and the gun is cold, troubleshoot and perform remedial action.

**WARNING**

A 25-mm gun cookoff could kill or injure personnel. During a training exercise, do not inspect the feeder, remove the round, or recycle the gun. All personnel must leave the vehicle for 30 minutes before starting troubleshooting and remedial action. The driver must not exit through the driver's hatch.

- c. If the 25-mm gun is hot and the bolt position indicator is not in the cookoff danger zone, troubleshoot and perform remedial action. If the bolt position indicator is in the cookoff danger zone, go to another weapon system and take corrective action as soon as the tactical situation permits.

**Evaluation Preparation:** SETUP: Provide the soldier with a BFV fully equipped with a misfired gun loaded with AP dummy ammunition.

**BRIEF SOLDIER:** Tell the soldier that he will be evaluated on his ability to perform misfire procedures on the 25-mm gun.

| <b>Performance Measures</b>                               | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------|------------------|---------------------|
| 1. Ensured ARM-SAFE-RESET switch was in the ARM position. | _____            | _____               |
| 2. Announced the 25-mm misfire to the crew.               | _____            | _____               |
| 3. Released trigger switches and waited 5 seconds.        | _____            | _____               |
| 4. Moved rate switch on system control box to SS.         | _____            | _____               |
| 5. Pressed the MISFIRE button.                            | _____            | _____               |
| 6. Squeezed the trigger.                                  | _____            | _____               |
| 7. Ensured the SEAR indicator light was on.               | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

| <b>Required</b>      | <b>Related</b> |
|----------------------|----------------|
| TM 9-2350-284-10-2   |                |
| TM 9-2350-294-10-2-1 |                |
| TM 9-2350-294-10-2-2 |                |

## **Boresight the 25-mm Automatic Gun on a BFV**

**071-314-0008**

**Conditions:** Given a stationary BFV parked on level ground with an installed and cleared 25-mm automatic gun, a complete boresight kit; an aiming point at least 1,200 meters away with horizontal and vertical lines, and one assistant.

**Standards:** Boresight the 25-mm automatic gun so that the cross hairs are aligned with the integrated sight unit (ISU) cross hairs on the same aiming point.

### **Performance Steps**

**WARNING:** Looking at the sun through the ISU may cause blindness.

1. Move the turret power switch to ON.

Note 1. Boresighting requires two soldiers, one looking through the boresight telescope and the other moving the turret and adjusting the ISU. The soldier on the outside of the vehicle is the assistant.

Note 2. Night vision controls need 10 minutes to cool before being operated.

2. To boresight the daysight, move the NIGHT VISION PWR switch on the ISU to ON.

Note 3. A square shape makes the best target to boresight the 25-mm gun.

3. Select a suitable target 1,200 meters away. Pick an aiming point on the target that has vertical and horizontal lines.
4. Open the ballistic sight cover doors.
5. Set the daysight controls on the ISU (Figure 1).

## Performance Steps

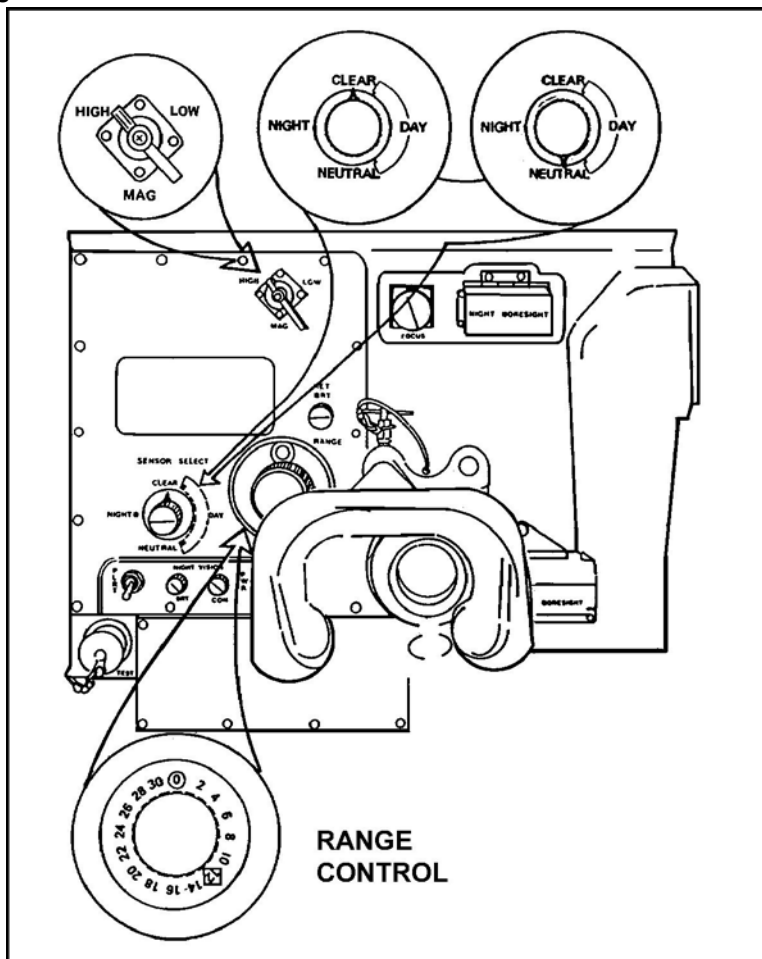


Figure 1. MAG switch, sensor select switch, and range control knob.

- a. Set the range control knob to 0.
  - b. Set the MAG switch to HIGH until it clicks.
  - c. Move the sensor select switch to CLEAR or NEUTRAL.
6. Press the AP SS button on the weapon control box (Figure 2).

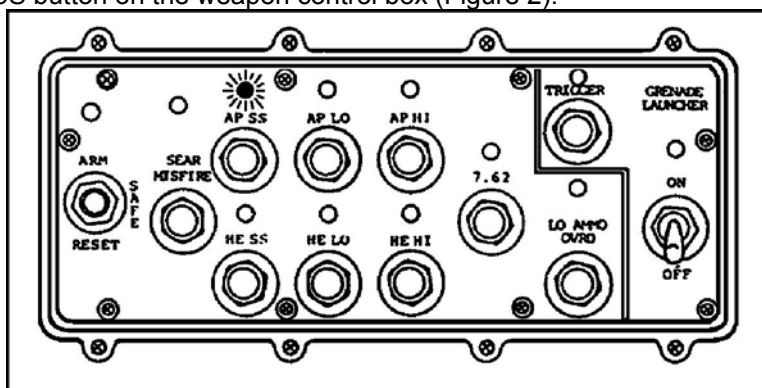


Figure 2. AP SS button and indicator light.

7. Check the status indicator on the AP reticle and adjust reticle brightness (Figure 3).

## Performance Steps

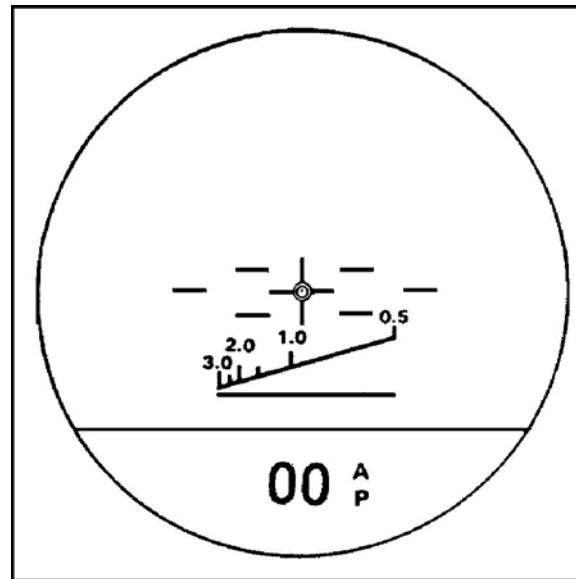


Figure 3. Status indicator.

8. Move the turret traverse drive select lever to the MANUAL position.

9. Move the gun elevation drive select lever to the MANUAL position.

### CAUTIONS

1. Never turn the gun elevation with both TOW elevation select lever and gun elevation select lever in the manual position. Linkage between the TOW and the gun elevation system can be damaged if the gun elevation handwheel is turned while both levers are in the manual position.
2. Do not jam the boresight telescope into the 25-mm boresight adapter. Too much force will damage the boresight telescope.

10. Move the TOW elevation drive select lever to the POWER position.

Note 4. The boresight telescope shank is tapered. Slide the shank into the 25-mm boresight adapter far enough so that the boresight telescope can be turned and the telescope will hold its own weight.

11. Center the gun reticle on the aiming point of the target, and pull out the travel lock lever and release the turret.

12. Helper: Install the 25-mm boresight kit (Figure 4).

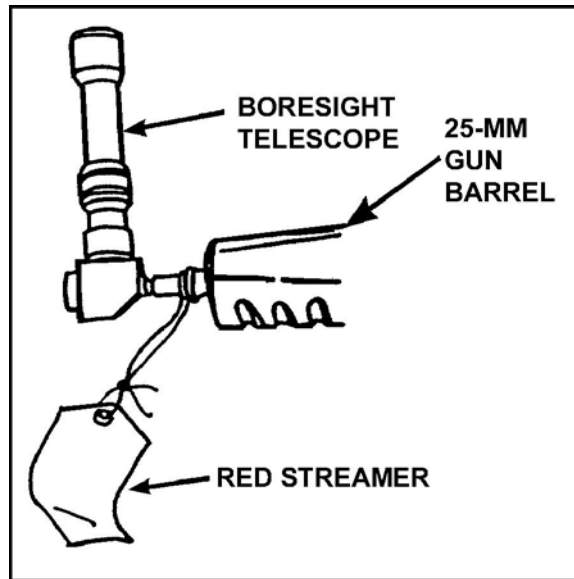
**Performance Steps**

Figure 4. Boresight kit.

- a. Install the 25-mm boresight adapter into the muzzle end of the 25-mm gun barrel with UP to the top. Push the 25-mm adapter into the muzzle until it is seated.
- b. Install the shank of the boresight telescope in the 25-mm boresight adapter. Push the boresight telescope gently into the 25-mm adapter until seated.
- c. Turn the boresight telescope so that the eyepiece is on top.
- d. Hang a red streamer on the 25-mm boresight adapter.

Note 5. A red streamer is used to let the helper know that the boresighting adapter is still in the barrel and must be removed before firing.

13. Helper: Move the vernier focus dial on the boresight telescope to focus on the target.

WARNING: Fast motion of the 25-mm gun during boresighting may result in injury. Ensure that the 25-mm gun and turret are in the manual. Move the 25-mm gun very slowly during boresighting.

14. Elevate or depress the 25-mm gun with the elevation handwheel, as directed by the helper, to align the elevation cross hair in the reticle of the boresight telescope on the aiming point of the target.

Note 6. The gun elevation handwheel is turned backward to elevate the 25-mm gun and forward to depress the 25-mm gun.

15. Traverse the turret left or right with the traverse handwheel, as directed by the helper, to align the azimuth cross hair in the reticle of the boresight telescope on the aiming point of the target (Figure 5).

## Performance Steps

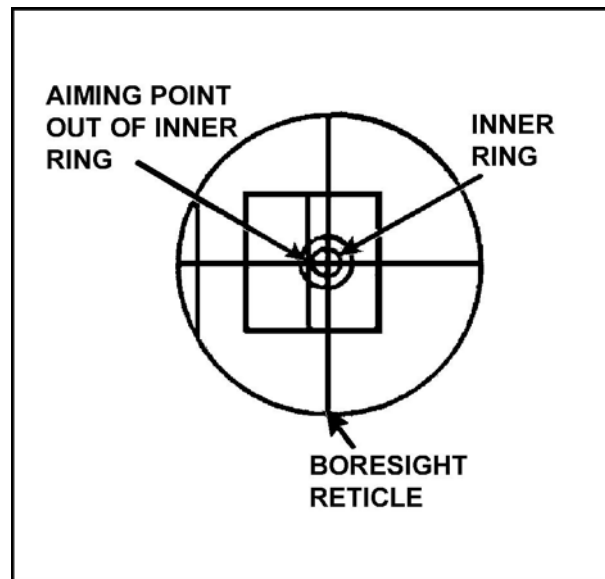


Figure 5. Boresight reticle.

16. The helper checks for accuracy of the boresight telescope.
  - a. Rotates the boresight telescope 90 degrees to the right and looks at the aiming point in the reticle.
  - b. Rotates the boresight telescope 90 degrees to the left and looks at the aiming point in the reticle. If the aiming point does not stay in the inner ring of the reticle, the boresight telescope is not accurate. Insert another boresight telescope and repeat the boresight procedures.
17. Turn the focus barrel to focus the gun reticle.
18. Check to see if the reticle in the gunner's eyepiece is aligned on the target.
  - a. If the reticle in the gunner's eyepiece is aligned on the target, the boresight is correct.
  - b. If the reticle in the gunner's eyepiece is not aligned on the target, align the gun reticle on the aiming point of the target.
    - (1) Lift the gun boresight cover on the ISU (Figure 6).



## Performance Steps

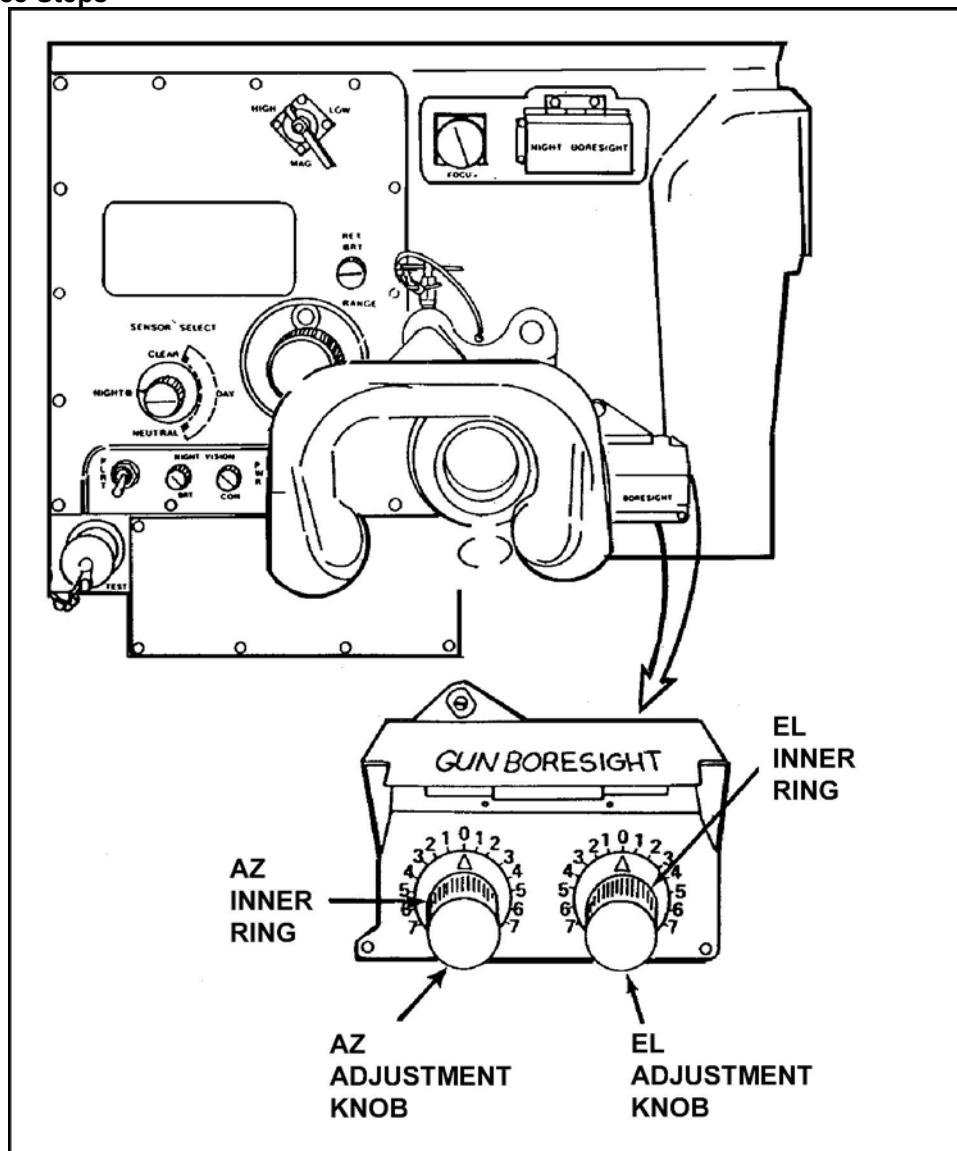


Figure 6. Gun boresight cover.

- (2) Turn the EL knob to align the elevation cross hair of the gun reticle on the aiming point of the target (Figure 7).

## Performance Steps

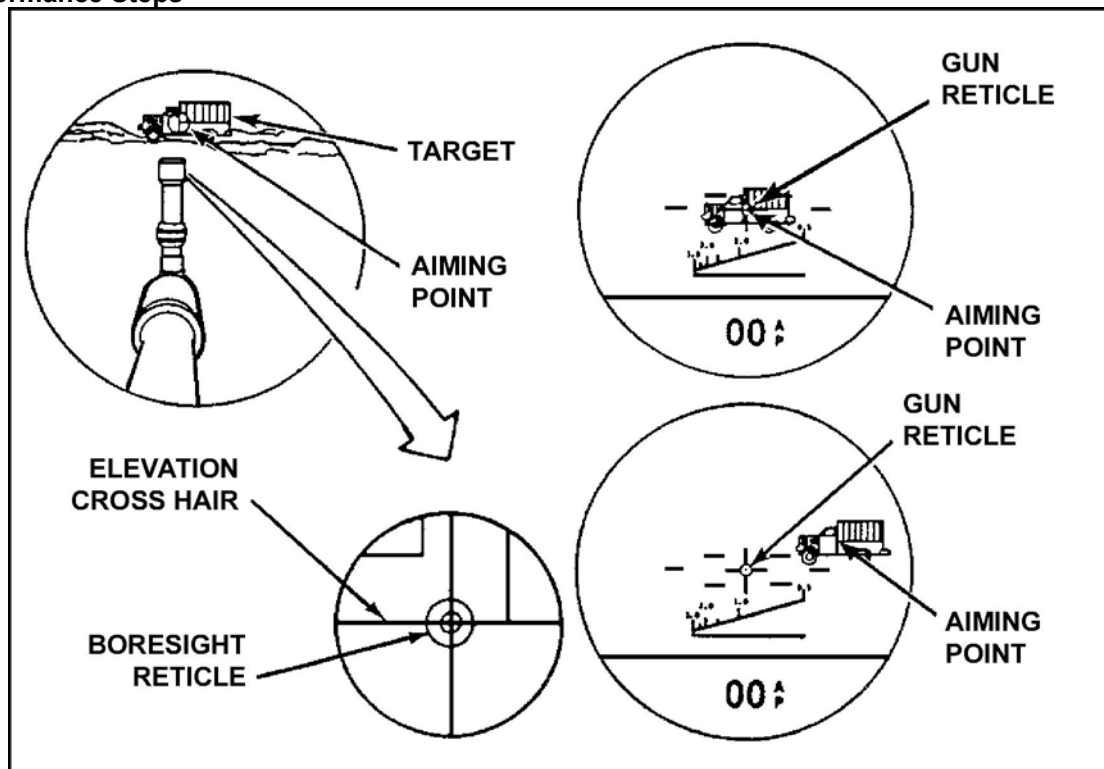


Figure 7. Alignment.

Note 7. Turning the EL adjustment knob to the right moves the reticle up. Turning the EL adjustment knob to the left moves the reticle down.

(3) Turn the AZ knob to align the azimuth cross hair of the gun reticle on the aiming point of the target (Figure 7).

Note 8. Turning the AZ adjustment knob to the right moves the reticle to the right. Turning the AZ adjustment knob to the left moves the reticle to the left.

(4) Close the gun boresight cover.

Note 9. If the reticle does not align on the aiming point of the target, notify the chain of command and unit maintenance.

CAUTION: Be careful when pulling the boresight telescope from the 25-mm boresight adapter. Too much force will damage the boresight telescope.

19. The helper removes the boresight kit and informs the gunner that the boresight kit is removed.

Note 10. ISU controls should not be operated until after the nightsight is boresighted.

Note 11. To prevent loss of nightsight accuracy, when outside air temperature changes by 20 degrees Fahrenheit (11 degrees Centigrade), either up or down, boresight nightsight to daysight. A square shape makes the best target to boresight the nightsight.

20. To boresight the nightsight, select the same target 1,200 meters away. Pick an aiming point on the target that has vertical and horizontal lines, such as a house.

21. Move the sensor select switch to NIGHT position.

22. Adjust the nightsight controls for a clear view of the aiming point image on the target (Figure 8).

Performance Steps

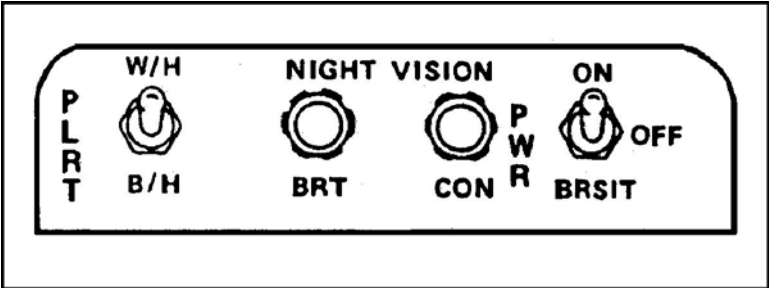


Figure 8. Nightsight controls.

- a. Turn the night BRT control knob to adjust the brightness.
  - b. Turn the CON control knob to adjust the contrast.
  - c. Turn the FOCUS to focus the aiming point image.
- Note 12. A free-wheeling effect will be noticed if the focus knob is turned to the left (counterclockwise) more than seven to nine turns from a fully right position.

23. Look at the aiming point in the gunner's eyepiece.
- a. If the aiming point is in the center of the reticle, the nightsight is boresighted.
  - b. If the aiming point is not in the center of the reticle, align the reticle on the aiming point of the target.
    - (1) Lift the night boresight cover.
    - (2) Turn the EL adjustment knob to the right to move the reticle up. Turn the EL adjustment knob to the left to move the reticle down.
    - (3) Turn the AZ adjustment knob to the right to move the reticle to the right. Turn the AZ adjustment knob to the left to move the reticle left.
24. Move the sensor select switch to CLEAR or NEUTRAL position after boresighting.
25. Look at the aiming point in the gunner's eyepiece.
- a. If the reticle cross hairs are aligned on the aiming point, shut down the turret.
  - b. If the reticle cross hairs will not align, notify organizational maintenance.

Note 13. The M240C machine gun should be boresighted immediately after boresighting the 25-mm gun. Turret controls and ISU controls should not be operated until the M240C machine gun is boresighted.

26. Close the night boresight cover.

**Evaluation Preparation:** SETUP: Provide the soldier all the equipment and materials outlined in the condition statement.

BRIEF SOLDIER: Tell the soldier to boresight the 25-mm automatic gun and the ISU to the same aiming point. Soldier will also talk helper through installation and removal of the boresight telescope.

| Performance Measures                                                                | GO    | NO GO |
|-------------------------------------------------------------------------------------|-------|-------|
| 1. Moved the turret power switch to ON.                                             | _____ | _____ |
| 2. Moved the NIGHT VISION PWR switch to ON.                                         | _____ | _____ |
| 3. Selected a suitable aiming point.                                                | _____ | _____ |
| 4. Set the daysight controls.                                                       | _____ | _____ |
| 5. Selected the appropriate button on the weapon control box.                       | _____ | _____ |
| 6. Ensured that the turret is in manual mode.                                       | _____ | _____ |
| 7. Talked the helper through boresight telescope installation and accuracy checkout | _____ | _____ |

| <b>Performance Measures</b>                                                                                       | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| procedures.                                                                                                       |                  |                     |
| 8. Talked the helper through boresight telescope removal procedure.                                               | —                | —                   |
| 9. Adjusted the ISU to the thermal night mode and adjusts the nightsight controls for a clear view of the target. | —                | —                   |
| 10. Adjusted the nightsight boresight controls, as necessary, to align the nightsight to the daysight.            | —                | —                   |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-2350-252-10-2

**Perform Misfire Procedures on the 25-mm Automatic Gun on a BFV**  
**071-314-0011**

**Conditions:** Given a BFV with basic issue items, belted 25-mm ammunition, and an installed 25-mm automatic gun that fails to fire.

**Standards:** Performed misfire procedures so that the 25-mm automatic gun fires, without causing damage to equipment or injury to personnel.

**Performance Steps**

Note: A loss of vehicle or turret power will cause the 25-mm gun to fire slowly or to stop firing.

1. Announce the 25-mm misfire to the crew.
2. Make sure the ARM-SAFE-RESET switch is in the ARM position. Release the trigger and wait 5 seconds.
3. Press the single-shot button on the weapon control box for the type of ammunition that was being fired before the misfire.
4. Press the MISFIRE button.
5. Squeeze the trigger on the gunner's control handles (Figure 1).

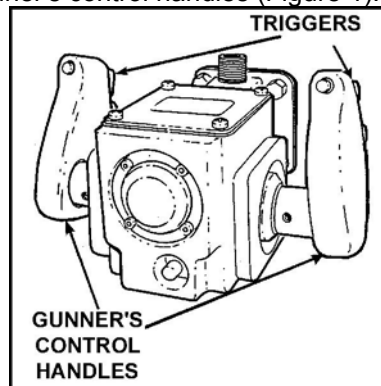


Figure 1. Gunner's control handles.

Note: The 25-mm gun should cycle from the MISFIRE to the SEAR position when the triggers are squeezed. The sear indicator light should come on.

6. Check that the sear indicator light is on (Figure 2).

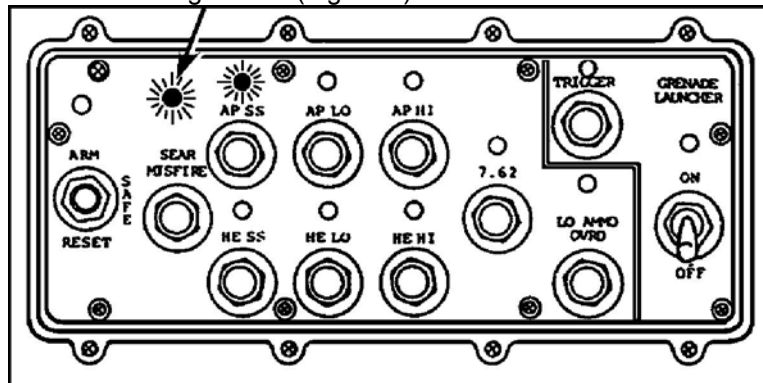


Figure 2. Sear indicator light.

- a. If the sear indicator light is on, squeeze the trigger switches on the gunner's control handles

### Performance Steps

- and continue firing.
  - b. If the sear indicator light is on, but the 25-mm gun will not fire, follow the troubleshooting procedures in the TM.
  - c. If the sear indicator light is off, go to the next step.
7. Remove the gun guard.
  8. Check the bolt position indicator (Figure 3).

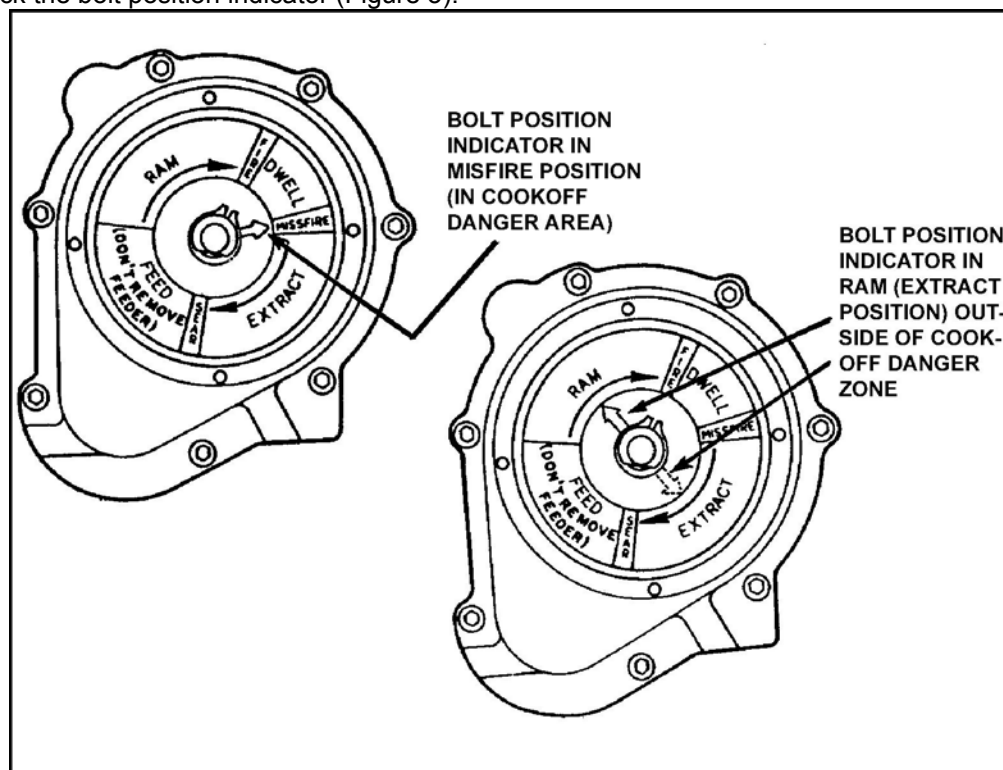


Figure 3. Bolt position indicator.

**WARNING:** Soldiers can be injured by the 25-mm gun cookoff. If more than 100 rounds have been fired in 15 minutes (hot gun), there is a cookoff danger.

- a. If the bolt position indicator is in SEAR, close the gun guard, squeeze the trigger on the gunner's hand controls, and continue firing.
- b. If the bolt position indicator is in any position other than SEAR and the gun is cold, troubleshoot and perform remedial action.

**WARNING:** A 25-mm gun cookoff could kill or injure personnel. During a training exercise, do not inspect the feeder, remove the round, or recycle the gun. All personnel must leave the vehicle for 30 minutes before starting troubleshooting and remedial action. The driver must not exit through the driver's hatch.

- c. If the 25-mm gun is hot and the bolt position indicator is not in the cookoff danger zone, troubleshoot and perform remedial action. If the bolt position indicator is in the cookoff danger zone, go to another weapon system and take corrective action as soon as the tactical situation permits.

**Evaluation Preparation:** **SETUP:** Provide the soldier with a BFV fully equipped with a misfired gun loaded with AP dummy ammunition.

**BRIEF SOLDIER:** Tell the soldier that he will be evaluated on the ability to perform misfire procedures on the 25-mm gun.

| Performance Measures                                                           | <u>GO</u> | <u>NO GO</u> |
|--------------------------------------------------------------------------------|-----------|--------------|
| 1. Announced the 25-mm misfire to the crew.                                    | _____     | _____        |
| 2. Ensured ARM-SAFE-RESET switch is in the ARM position.                       | _____     | _____        |
| 3. Checked the sear indicator light. Released the trigger and waits 5 seconds. | _____     | _____        |
| 4. Selected single shot for the type of 25-mm ammunition being fired.          | _____     | _____        |
| 5. Pressed the misfire button.                                                 | _____     | _____        |
| 6. Squeezed the trigger.                                                       | _____     | _____        |
| 7. Checked the sear indicator light.                                           | _____     | _____        |
| 8. Squeezed the trigger.                                                       | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                    |
|-------------------|--------------------|
| <b>References</b> | <b>Related</b>     |
| Required          | TM 9-2350-252-10-2 |

## Engage Targets with the 25-mm Automatic Gun on a BFV 071-314-0012

**Conditions:** Given a BFV with a 25-mm automatic gun installed and loaded with belted 25-mm ammunition, and a target identified within range. The manual safety is on the FIRE position.

**Standards:** Engaged targets with the 25-mm automatic gun using the integrated sight unit (ISU) so that the target is destroyed.

### Performance Steps

#### NOTES:

1. This task is for firing the 25-mm automatic gun electrically.
2. After the Bradley commander identifies the target, he moves the turret using the Bradley commander's control handle to bring the gunner's field of view on the target. As the Bradley commander moves the turret, he issues an initial fire command, GUNNER, SABOT, PC, TWELVE HUNDRED METERS.

1. Select AP and rate of fire (SS, LO, HI) by pressing the button on the weapon control box (Figure 1).

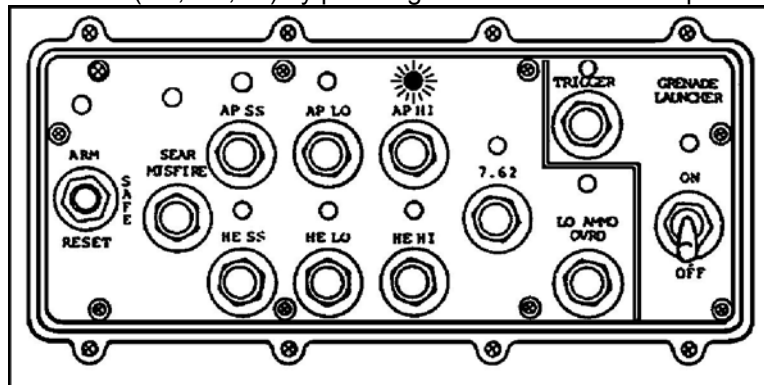


Figure 1. Weapon control box.

2. Ensure that the sear indicator light is on.
  3. Move the ARM-SAFE-RESET switch to ARM.
  4. Acquire the target using the ISU.
  5. Gunner announces, "Identified."
- NOTE: When the gunner announces, "Identified," the Bradley commander releases his grip on the control handle. The gunner may now track the target using his control handles.
6. Move the MAG switch to HIGH (Figure 2).



## Performance Steps

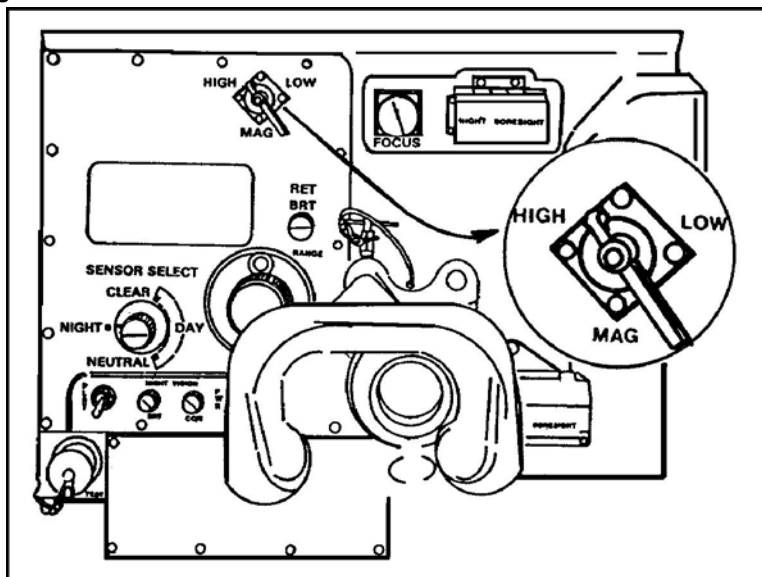


Figure 2. Magnification switch.

7. Acquire the range to the target.
  - a. Use the controls to align the stadia line and baseline so that the target appears between the stadia line and baseline (chokesight) in the reticle.
  - b. Read the target's range at the point where the top of the target or the top of the hull appears to touch the stadia line (Figure 3).

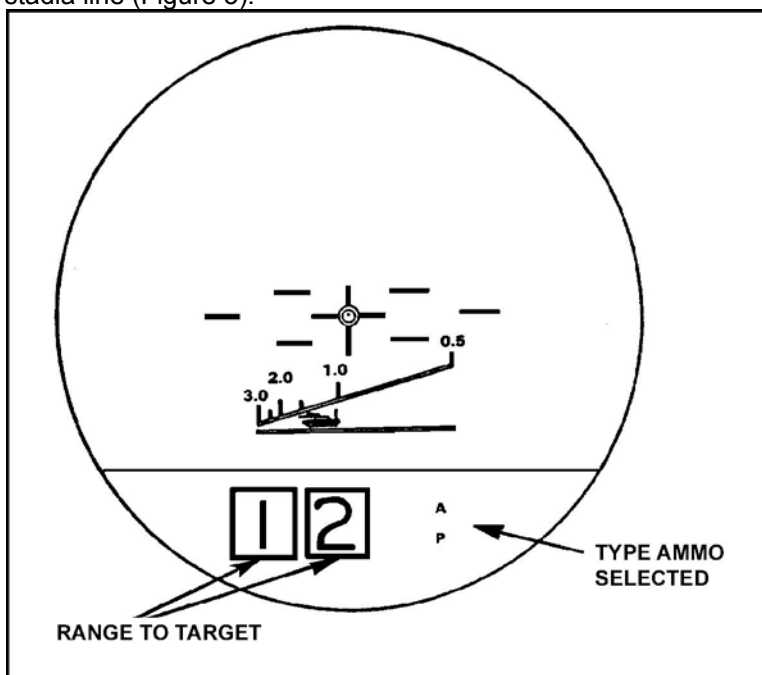


Figure 3. Stadia line.

NOTE: If the entire target is not visible, compensate for the portion of the target that is not in view.

8. Turn the range control knob on the ISU to the estimated range (Figure 4).

## Performance Steps

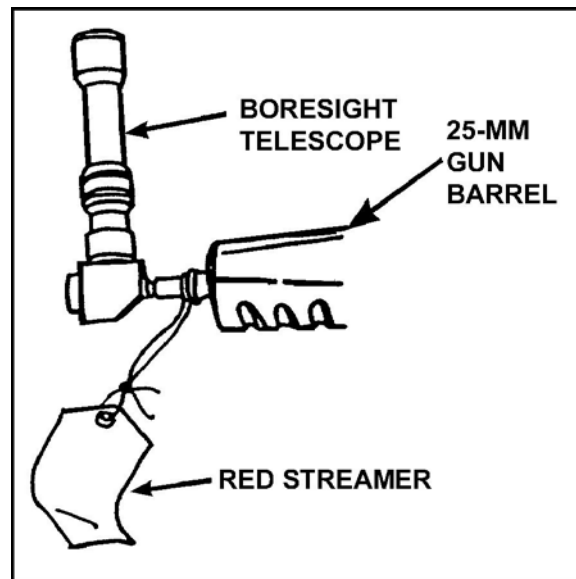


Figure 4. Range control knob.

NOTE: The status indicator in the bottom of the reticle shows the type of ammunition selected (HE or AP) and the range to target selected on the range control knob (12 equals 1,200 meters). Do not move from the sight while setting the range on the ISU (See Figure 3).

9. Use the control handles to align the sight reticle on the target.

NOTE: The gunner will receive the command FIRE from the Bradley commander.

10. Gunner announces, "On the way."

11. Fire at the target by squeezing the trigger switches on the gunner's control handles. Fire one round at a time for sensing (Figure 5).

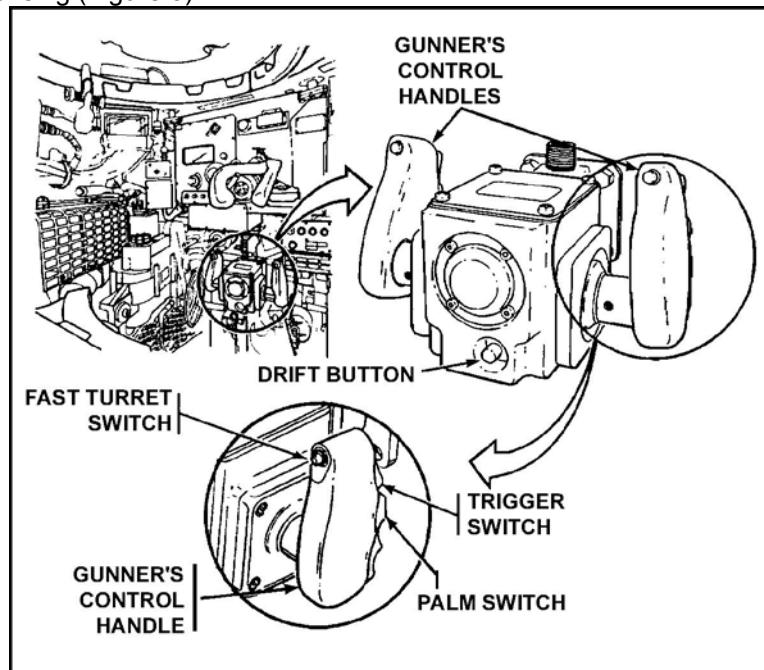


Figure 5. Gunner's control handle.

Performance Steps

12. Sense the round impact.
- NOTE: When the ammunition change is made, the first round is fired the same as the previous round. However, automatic elevation correction for the range is set for the new ammunition selection. If one HE round is fired using the AP superelevation correction, the round will fall short of the target. If one AP round is fired using the HE superelevation correction, the round will fall past the target.
13. When the sensing round hits the target, the Bradley commander commands TARGET. The gunner maintains the initial sight picture and fires and adjusts three- to five-round bursts until given the command CEASE FIRE by the Bradley commander (Figure 6).

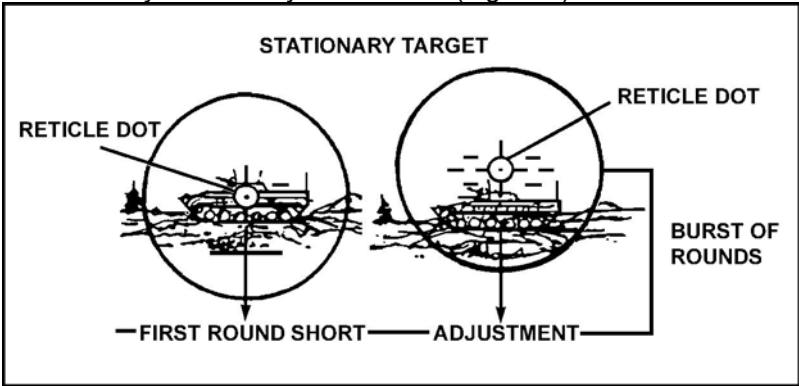


Figure 6. Round adjustment.

14. If the gun fails to fire, perform misfire procedure.
15. If the LO AMMO OVRD indicator light flashes on the weapon control box, either push the LO AMMO OVRD button and continue firing or stop firing and reload.
16. Move the ARM-SAFE-RESET switch to RESET, then to SAFE.
17. Move the MAG switch to LOW.
18. Continue to scan for other targets.

**Evaluation Preparation:** SETUP: Provide the soldier a BFV with an installed, functional 25-mm automatic gun and ISU, 50 rounds of 25-mm ammunition, and targets at the following ranges on a live-fire range complex:

- One BMP-size target between 250 and 500 meters.
- Two BMP-size targets between 500 and 1,000 meters.
- One BMP-size target between 1,000 and 1,500 meters.
- One BMP-size target between 1,500 and 2,000 meters.

BRIEF SOLDIER: Tell the soldier to successfully engage all the targets using the ISU and achieve kills (three to five rounds hitting the target) on at least three of the five targets.

Performance Measures

GO      NO GO

1. Successfully engaged three of five targets.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

STP 7-11B24-SM-TG

**References  
Required**

**Related**  
FM 23-1  
TM 9-2350-252-10-2

## Subject Area 53: WEAPONS: SMOKE GRENADE LAUNCHER

**Fire the M257 Smoke Grenade Launcher on an M2A3/M3A3 BFV****071-034-0009****Conditions:** Given an M2A3/M3A3 BFV with all power on and the M257 launch tubes loaded.**Standards:** Fired the smoke grenades from the M257 grenade launcher to prevent enemy observation of the BFV without damage to equipment or injury to personnel.**Performance Steps**

Note: If the tactical situation permits, remove the discharger caps before firing the smoke grenades.

WARNING: Before firing, close all hatches, and make sure no friendly personnel or obstacles are in front of or above the BFV.

1. The Bradley Commander alerts the crew that the grenade launcher is to be fired by announcing "grenade launcher!"
2. Move the grenade launcher switch to ON (Figure 1) (gunner).

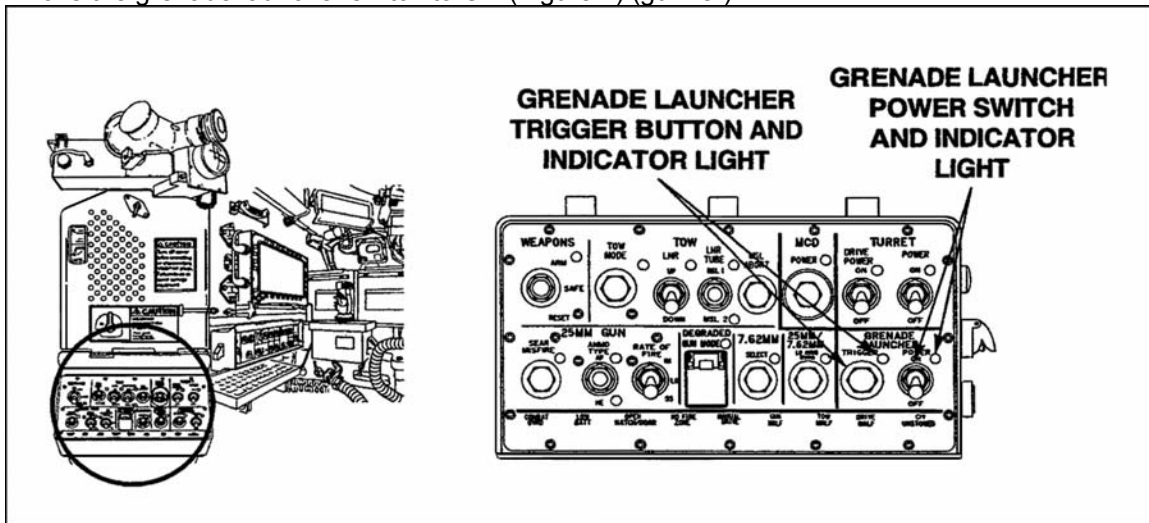


Figure 1. Grenade launcher trigger button.

3. On the command FIRE, press the smoke grenade trigger button to fire the smoke grenades and check the trigger indicator light.
  4. If the trigger indicator light is ON, the Bradley commander announces, "grenades launched!" The gunner moves the grenade launcher switch to OFF.
  5. If the trigger indicator light is not ON, the gunner takes immediate action.
    - a. Press the trigger button again.
    - b. Look through the periscopes for smoke.
- Note: Seeing smoke does not mean that all grenades have launched.
- c. Move the grenade launcher switch to OFF.

6. When the tactical situation permits, the gunner checks the launch tubes for misfired smoke grenades (gunner).
  7. Notify the chain of command of the situation (Bradley Commander).
- Note: To remove smoke grenades from the launch tubes, see task 071-034-0005, Load and Unload the

### Performance Steps

M257 Smoke Grenade Launcher on a BFV.

**Evaluation Preparation:** SETUP: At the test site, provide the soldier with all the equipment given in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to fire the M257 smoke grenade launcher without damaging equipment or injuring personnel.

| Performance Measures                                                                            | <u>GO</u> | <u>NO GO</u> |
|-------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Moved the smoke grenade launcher switch to ON.                                               | _____     | _____        |
| 2. Announced, "Grenade launcher," and ensured that all hatches were closed (Bradley Commander). | _____     | _____        |
| 3. Pressed the smoke grenade trigger button.                                                    | _____     | _____        |
| 4. Checked the trigger indicator.                                                               | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

#### Required

#### Related

FM 23-1

TM 9-2350-252-10-2

**Perform Misfire Procedures on the M257 Smoke Grenade Launcher on a BFV**  
**071-324-4004**

**Conditions:** In a field or combat environment, given a BFV with mounted M257 smoke grenade launchers, smoke grenades in the launcher that have misfired, and a helper. All hatches are closed.

**Standards:** Immediate action procedures are performed, and misfired grenades are removed from the launcher without causing damage to equipment or injury to personnel. The misfired grenades are disposed of in accordance with unit SOP.

**Performance Steps**

1. Perform immediate action. Repeat firing sequence. If smoke grenades do not discharge from the grenade launchers when firing is attempted, perform the following steps in sequence:
  - a. Reset the system by turning the grenade launcher switch to OFF, then to ON position.
  - b. Press trigger button on weapons control box.
  - c. Look for smoke through periscope.
2. Check smoke grenade launchers for misfire when tactical situation permits.
  - a. If all smoke grenades have fired, end of task.
  - b. If one or more smoke grenades are still in grenade launcher, go to step 3.

**WARNING:** Electrical malfunction could cause smoke grenades to fire during unloading, and soldiers in area could be killed or injured. For training purposes only, make sure that turret power and smoke grenade launcher switches are off before unloading. Do not place any part of your body in front of smoke grenade launchers.

3. Move grenade launcher switch to OFF position.
4. Move turret drive system switch to OFF position.
5. Move turret traverse select lever to MANUAL position.
6. Push the travel lock lever to locked position.
7. By intercom, tell squad members in crew compartment to unload misfired smoke grenade.

**WARNING:** Misfired smoke grenades must not be stowed on vehicle. Squad members must move misfired grenades 200 meters away from soldiers and equipment.

**NOTE:** Squad members who unloaded misfired smoke grenades from grenade launcher inform gunner when they are finished and are clear of turret.

8. Report location of misfired smoke grenades.
9. Report malfunction of smoke grenade launcher.

**Evaluation Preparation:** **SETUP:** Provide the gunner an M2/M3 Bradley vehicle, with smoke grenades loaded in the M257 smoke grenade launcher.

**BRIEF SOLDIER:** Tell gunner he must correctly perform misfire procedures on an M257 smoke grenade launcher in sequence, without causing damage to equipment or injury to personnel.

| <b>Performance Measures</b>                                                                                                                                                          | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Used the intercom, told the driver to move the vehicle to an area away from friendly troops, vehicles, or buildings. The minimum distance, if situation permitted, is 125 meters. | —                | —                   |
| 2. Moved the GRENADE LAUNCHER switch to the ON position.                                                                                                                             | —                | —                   |

| <b>Performance Measures</b>                                                                                           | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 3. Attempted to refire the grenade launcher.                                                                          | _____            | _____               |
| 4. Moved the GRENADE LAUNCHER switch to the OFF position.                                                             | _____            | _____               |
| 5. Checked the smoke grenade launchers for misfired smoke grenades.                                                   | _____            | _____               |
| 6. Moved TURRET POWER switch to OFF.                                                                                  | _____            | _____               |
| 7. Told driver to move MASTER POWER switch to OFF.                                                                    | _____            | _____               |
| 8. Removed misfired smoke grenades from smoke grenade launcher.                                                       | _____            | _____               |
| 9. Notified the chain of command of the exact location, type, and number of smoke grenades left at the safe location. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

##### **Required**

##### **Related**

TM 9-2350-252-10-2

TM 9-2350-284-10-2



Skill Level 3

Subject Area 9: MOVE: BASIC TACTICS

**Conduct Movement Techniques by an M220 Antiarmor Section**  
**071-056-0056**

**Conditions:** As an M220 antiarmor section sergeant directing tactical movement during combat operations, conduct a movement technique.

**Standards:** Movement techniques have been executed that allowed the section to support the commander's plan of action and provided security for the section.

**Performance Steps**

1. Assume techniques of movement designated by unit commander when part of the march column. Support the move or combat operation, considering the movement technique the unit is using and the commander's plan of action.
2. In all combat operations, moving forward or rearward, observe the following fundamentals of movement:
  - a. Use terrain for protection (select routes and firing positions that provide maximum cover and concealment).
  - b. Avoid possible kill zones (open areas, high ground, prominent terrain features, and obvious avenues of approach into threat territory).
  - c. Maintain dispersion based on the threat situation, terrain, visibility, and ability to maintain mutual support.
  - d. Use countermeasures (smoke or camouflage).
3. Enforce terrain driving techniques.

**Evaluation Preparation:** SETUP: At the test site, provide the section leader with all the equipment and information stated in the task conditions statement.

BRIEF SOLDIER: Tell the section leader to provide the correct overwatch method for the moving elements.

| Performance Measures                                                                                                | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. In the over watch role, the antiarmor section covered the bounding element and moved with the overwatch element. | —         | —            |
| 2. Maintained the correct distance between over watch positions.                                                    | —         | —            |
| 3. The driver used terrain driving techniques.                                                                      | —         | —            |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-91

## Direct a Driver Over a Terrain Route

071-326-3001

**Conditions:** Given a tactical vehicle, a driver, a 1:50,000-scale topographic map of the area, an enemy situation, and a mission to move from one point to another.

**Standards:** Selected the best route from one point to another and directed the movement of the vehicle over this route, observing all terrain driving rules.

### Performance Steps

1. Give the driver clear, specific instructions as to the route that affords the best use of available cover and concealment (Figure 1).

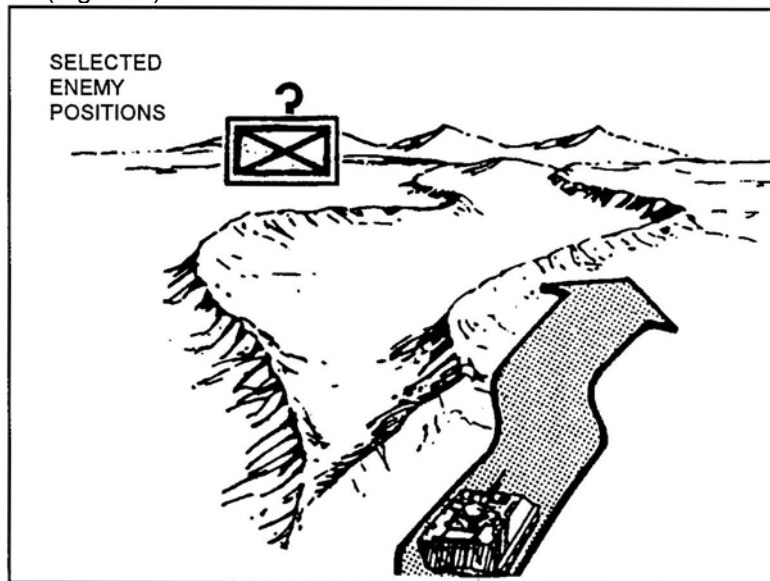


Figure 1. Choose route cover and concealment.

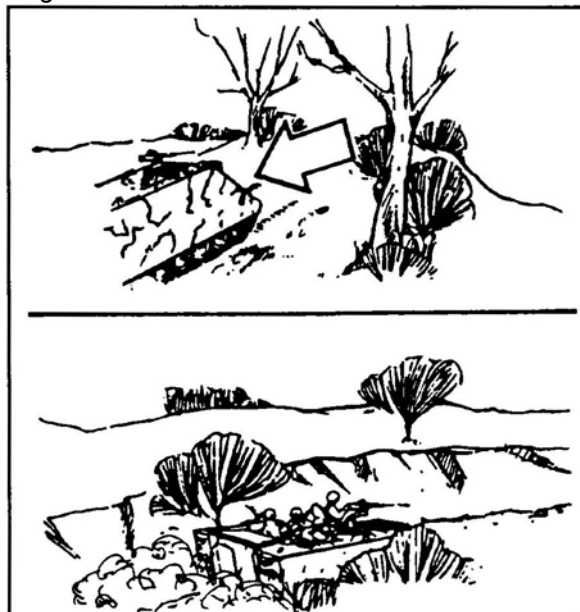


Figure 2. Move from defilade or hull-down firing position.

**Performance Steps**

2. Follow these terrain-driving rules to reduce exposure to effective enemy fire and detection:
  - a. Never skyline or move directly forward from a defilade or hull-down firing position (Figure 2).
  - b. Avoid dusty terrain when possible, since it betrays the movement of armored vehicles (Figure 3).



Figure 3. Select terrain.

- c. Use all available cover and concealment.
- d. Try to leave the terrain looking as natural as possible to make tracking by the enemy harder (Figure 4).

## Performance Steps

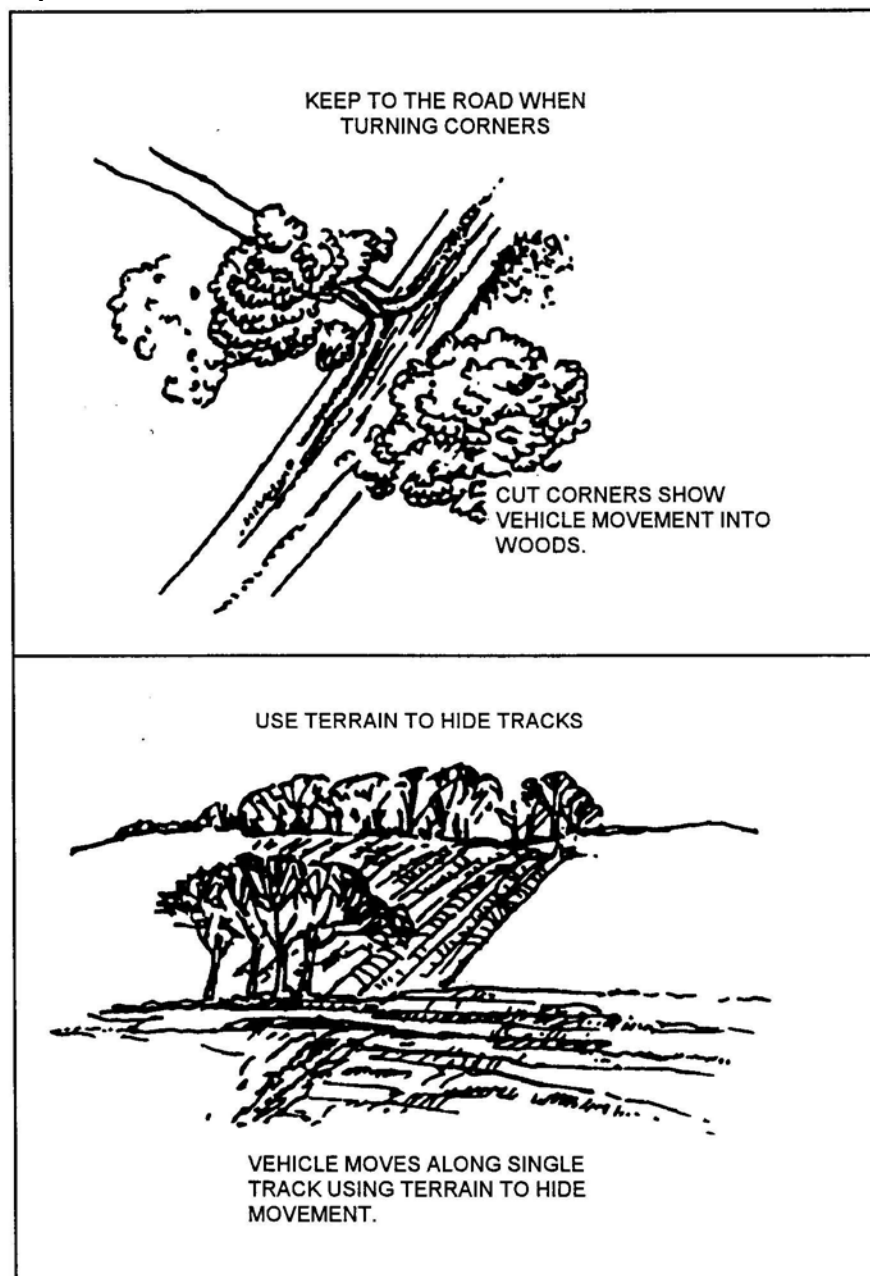


Figure 4. Hide tracks.

- e. To cross an open area (as in emerging from a woodline, crossing a ridge, and so forth), check it first for possible enemy positions, then cross it quickly (Figure 5). If enemy locations are identified or suspected, suppress or smoke them before crossing. Cross the open area as rapidly as possible from one covered position to the next.

Performance Steps

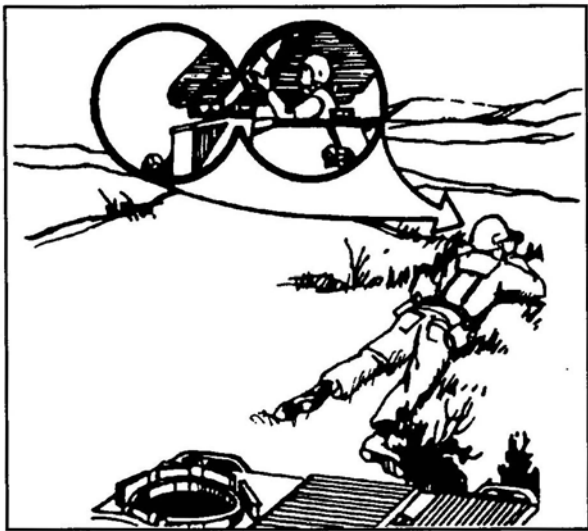


Figure 5. Plan routes.

- f. Where covered or concealed routes are not available, or when their use would be time consuming, plan routes that have "escape valves" available (Figure 6). The figure shows how a dense tree line provides protection from Sagger.

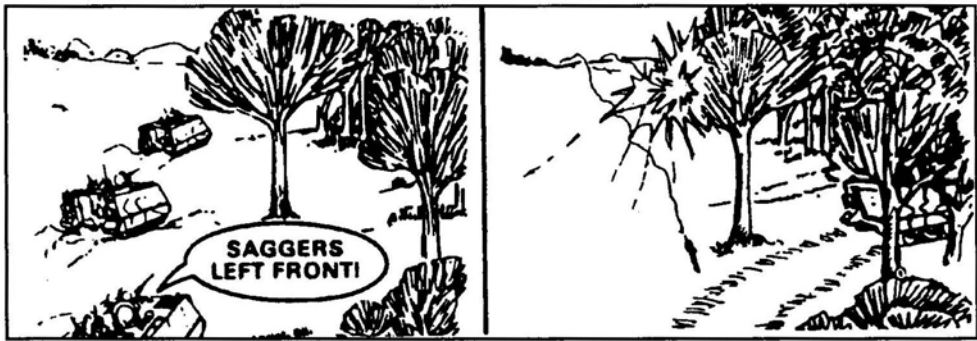


Figure 6. Use terrain.

**Evaluation Preparation:** SETUP: At the test site, provide a vehicle, driver, map, and all information given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to select the exact terrain route for the vehicle and direct the driver over the route. The soldier will be given the enemy situation, the mission, a vehicle, and a driver to move from one point to another.

| Performance Measures                                                                               | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Gave clear and specific instructions as to routes that afforded the best cover and concealment. | —         | —            |
| 2. Followed the correct terrain driving rules.                                                     | —         | —            |
| a. Did not skyline or move directly forward from a defilade or hull-down firing position.          |           |              |
| b. Avoided dusty terrain.                                                                          |           |              |
| c. Used available cover and concealment.                                                           |           |              |
| d. Left terrain looking as natural as possible.                                                    |           |              |

**Performance Measures**

**GO**      **NO GO**

3. Used proper procedures to cross open areas.

\_\_\_\_\_

4. Planned routes with escape valves available.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-7

FM 7-7J

**Conduct Movement Techniques by a Squad**  
**071-326-5610**

**Conditions:** In a combat environment, given a rifle squad, the general route to a pre-designated point, and a requirement to move the squad to that point without being observed by the enemy or sustaining casualties.

**Standards:** The rifle squad leader moved the rifle squad to a pre-designated point on the ground, varying the formation and movement techniques to meet METT-TC requirements and using cover and concealment, without being observed by the enemy or sustaining casualties.

**Performance Steps**

1. Based on METT-TC, select key individual positions within the formation, automatic rifleman, grenadier, and squad leader.
  2. Adjust the interval between team members to suit the visibility and terrain.
- NOTE 1: The normal interval between squad members is 10 meters, but may be adjusted to fit the situation and terrain.

NOTE 2: The position of the squad leader depends on his judgment as to how he can best control the squad, maintain visual contact with the platoon leader, and navigate. The squad leader will normally lead when using the traveling technique,

3. Adjust the formation as the terrain dictates.
4. Enforce noise and light discipline throughout the movement.
5. Know the location of the platoon leader if moving as a portion of a larger element.
6. Maintain visual and/or radio contact with the platoon leader.
7. Enforce security measures throughout the entire movement phase.
8. React to instructions from the platoon leader.
9. Lead by example.

**Evaluation Preparation:** SETUP: At the test site provide all the men and equipment given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to conduct movement techniques with a squad.

| Performance Measures                                               | GO    | NO GO |
|--------------------------------------------------------------------|-------|-------|
| 1. Selected individual positions.                                  | _____ | _____ |
| 2. Adjusted the interval between team members.                     | _____ | _____ |
| 3. Adjusted the formation as the terrain dictates.                 | _____ | _____ |
| 4. Enforced noise and light discipline.                            | _____ | _____ |
| 5. Knew the location of the platoon leader.                        | _____ | _____ |
| 6. Maintained visual and/or radio contact with the platoon leader. | _____ | _____ |
| 7. Enforced security measures throughout the entire movement phase | _____ | _____ |
| 8. Reacted to instructions from the platoon leader.                | _____ | _____ |

**Performance Measures**

**GO**

**NO GO**

9. Led by example.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-7



## Establish a Helicopter Landing Point

071-334-4002

**Conditions:** Given an area to be prepared for the landing site; smoke grenades; strobe lights, flashlights, or vehicle lights; marker panels; and equipment and personnel to clear the site when required.

**Standards:** The site is large enough for a helicopter to land and take off. All obstacles that cannot be removed are marked or identified, and the touchdown site is identified.

### Performance Steps

#### CAUTION:

1. During training, dispose of all batteries IAW unit SOP.
2. Comply with unit SOP and or local regulations concerning the cutting of live vegetation, digging holes, and or erosion prevention.

1. Select a landing site. The factors which should be considered are:

- a. The size of the landing site.

- (1) A helicopter requires a relatively level landing area 30 meters in diameter. This does not mean that a loaded helicopter can land and take off from an area of that size. Most helicopters cannot go straight up or down when fully loaded. Therefore, a larger landing site and better approach and departure routes are required.
- (2) When obstacles are in the approach or departure routes, a 10 to 1 ratio must be used to lay out the landing site (Figure 1). For example, during the approach and departure, if the helicopter must fly over trees that are 15 meters high, the landing site must be at least 150 meters long ( $10 \times 15 = 150$  meters).

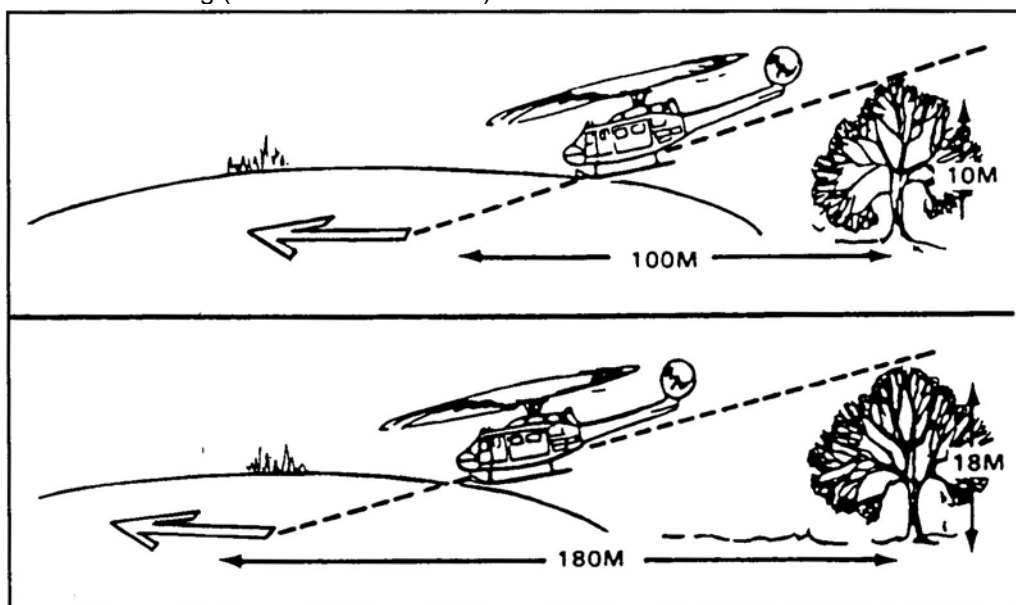


Figure 1. Landing site distance from obstacles.

- b. The ground slope of the landing site (Figure 2). When selecting the landing site, the ground slope must be no more than 15 degrees. Helicopters cannot safely land on a slope of more than 15 degrees.

## Performance Steps

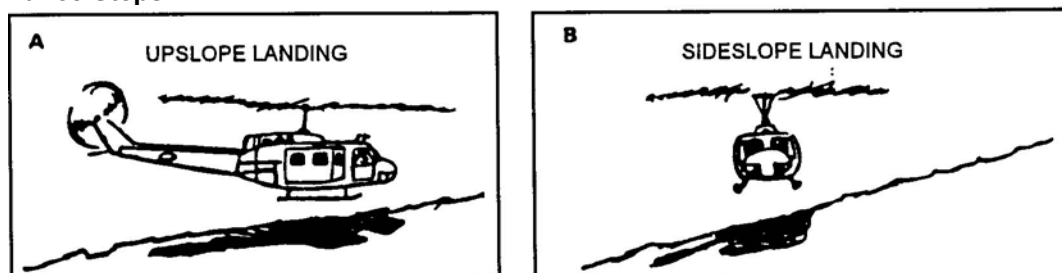


Figure 2. Ground slope of landing site.

- (1) When the ground slope is under 7 degrees, the helicopter should land up slope (Figure 2, A).
  - (2) When the ground slope is 7 to 15 degrees, the helicopter must land side slope (Figure 2, B).
- c. Surface conditions.
  - (1) The ground must be firm enough that the helicopter does not bog down during loading or unloading. If firm ground cannot be found, the pilot must be told. He can hover at the landing site during the loading or unloading.
  - (2) Rotor wash on dusty, sandy, or snow-covered surfaces may cause loss of visual contact with the ground. Therefore, these areas should be avoided.
  - (3) Loose debris that can be kicked up by the rotor wash must be removed from the landing site. Loose debris can cause damage to the blades or engines.
- d. Obstacles.
  - (1) Landing sites should be free of tall trees, telephone lines, power lines or poles, and similar obstructions on the approach or departure ends of the landing site.
  - (2) Obstructions that cannot be removed (such as large rocks, stumps, or holes) must be marked clearly within the landing site.
2. Establish security for the landing site. Landing sites should offer some security from enemy observation and direct fire. Good landing sites will allow the helicopter to land and depart without exposing it to unneeded risks. Security is normally established around the entire landing site.
3. Mark the landing site and touchdown point.
  - a. When and how the landing site should be marked is based on the mission, capabilities, and situation of the unit concerned. Normally, the only mark or signals required are smoke (colored) and a signalman. VS-17 marker panels may be used to mark the landing site, but **MUST NOT** be used any closer than 50 feet to the touchdown point. In addition to identifying the landing site, smoke will give the pilot information on the wind direction and speed.
  - b. At night, the landing site and touchdown points are marked by an inverted "Y" composed of four lights. Strobe lights, flashlights, or vehicle lights may also be used to mark the landing site. The marking system used will be fully explained to the pilot when contact is made.

Performance Steps

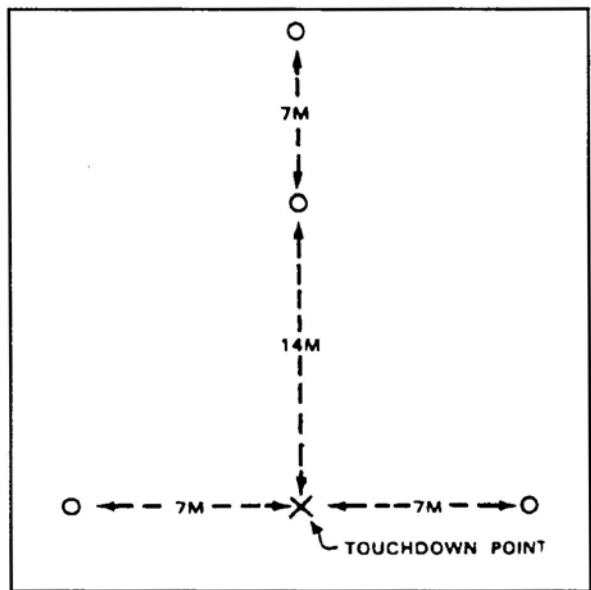


Figure 3. Landing site marked at night.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment, information, and personnel given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to select and prepare a helicopter landing site.

| Performance Measures                                                           | GO | NO GO |
|--------------------------------------------------------------------------------|----|-------|
| 1. Selected a site large enough to permit the helicopter to land and take off. | —  | —     |
| 2. Removed or mark all obstacles and debris.                                   | —  | —     |
| 3. Marked or identified the landing site and the touchdown point.              | —  | —     |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

| References         | Related  |
|--------------------|----------|
| Required<br>FM 7-8 | FM 21-60 |

**Conduct a Leader's Reconnaissance****071-410-0010**

**Conditions:** Given a squad-sized element occupying an objective rally point (ORP) and a requirement to conduct final preparation for the leader's reconnaissance and actions at the objective.

**Standards:** The reconnaissance confirms the best covered and concealed routes, avenues of approach, overwatch positions, threat positions, surveillance points, and other mission-essential requirements.

**Performance Steps**

1. Upon occupying the ORP and establishing security, the squad leader conducts his map reconnaissance and prepares to conduct the leader's reconnaissance. The squad leader tells the soldier in charge of the ORP:
  - a. Who will be going with him.
  - b. How long he will be gone.
  - c. What to do if he fails to return.
  - d. What to do if the reconnaissance party makes contact with the enemy.
  - e. What to do if the ORP makes contact with the enemy.
2. The squad leader takes a compass man and the team leaders with him on the leader's reconnaissance of the objective.
3. During the leader's reconnaissance, the squad leader points out the objective and picks the positions for the squad members. He determines the best covered and concealed routes and avenues of approach. He selects overwatch positions and surveillance points. He determines threat positions, and gets any other information that can be used to either confirm or alter the plan, based on METT-TC.
4. After the reconnaissance is completed, everyone returns to the ORP. There the squad leader shares the information obtained and completes his plans.

**Evaluation Preparation:** SETUP: This task should be evaluated during a field training exercise. Otherwise, assign an objective and an ORP and provide troops to be team leaders and compass man.

**BRIEF SOLDIER:** Tell the soldier to conduct a leader's reconnaissance of the assigned objective. Issue an operation order containing the information that would have been provided when the mission was assigned.

**Performance Measures**

|                                                                                                                                                                                                                                                                       | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Updated the map reconnaissance.                                                                                                                                                                                                                                    | _____            | _____               |
| 2. Selected the personnel to accompany you on the reconnaissance.                                                                                                                                                                                                     | _____            | _____               |
| 3. Moved to the objective.                                                                                                                                                                                                                                            | _____            | _____               |
| 4. Evaluated each of the following using METT-TC. <ol style="list-style-type: none"> <li>a. Covered and concealed routes.</li> <li>b. Avenues of approach.</li> <li>c. Overwatch positions.</li> <li>d. Threat positions.</li> <li>e. Surveillance points.</li> </ol> | _____            | _____               |
| 5. Returned to the ORP.                                                                                                                                                                                                                                               | _____            | _____               |
| 6. Shared information.                                                                                                                                                                                                                                                | _____            | _____               |
| 7. Completed the plan.                                                                                                                                                                                                                                                | _____            | _____               |

| Performance Measures                      | <u>GO</u> | <u>NO GO</u> |
|-------------------------------------------|-----------|--------------|
| 8. Prepared to move out to the objective. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

| References | Related |
|------------|---------|
| Required   | FM 7-7  |
|            | FM 7-7J |
|            | FM 7-8  |

**Direct Dismount from an M113 Vehicle**

**071-410-0015**

**Conditions:** In a combat environment, given a loaded combat M113, with a TO&E squad, and a requirement to dismount.

**Standards:** Vehicle commander issued the dismount alert and method of dismount, then direct the vehicle to a covered and concealed position, terrain permitting.

**Performance Steps**

1. Give the dismount alert:
  - a. Warning.
  - b. Dismount team composition.
  - c. Dismount team leader.
  - d. Dismount method.
  - e. Deployment instructions.
2. Direct the driver to move the vehicle to a covered and concealed position, terrain permitting.
3. Give the dismount order.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment IAW task condition statement.

BRIEF SOLDIER: Tell the soldier to dismount an M113 vehicle.

| <b>Performance Measures</b>                                                                         | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Gave the dismount alert.                                                                         | _____            | _____               |
| 2. Directed the driver to move the vehicle to a covered and concealed position, terrain permitting. | _____            | _____               |
| 3. Gave dismount order.                                                                             | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**Conduct Reconnaissance for an M220 Antiarmor Support Mission**  
**071-410-0017**

**Conditions:** Given a combat situation, a M220 antiarmor section with all combat equipment, an area of operations and a mission requiring antiarmor support.

**Standards:** Conducted reconnaissance of the area of operations; identified possible threat positions, avenues of approach, obstacles, and danger areas; selected covered and concealed routes, overwatch, and firing positions that best supported the commander's concept and allowed for the best fire support.

**Performance Steps**

1. Analyze the tactical aspects of the terrain in the area of operations.
2. Based on terrain analysis and the commander's concept and fire support, perform the following:
  - a. Identify likely threat avenue of approach and positions.
  - b. Identify key terrain, danger areas, target reference points, phase lines, sectors of fire, and engagement areas.
  - c. Select routes that afford cover and concealment, and avoid obstacles that could impede movement.
  - d. Select overwatch and firing positions that allows good observation and engagement of threat targets at maximum range.
3. Coordinate with unit commander to confirm that positions and routes support the commander's concept of operations and fire support.

**Evaluation Preparation:** SETUP: At the test site, issue the soldier a military map or show him the actual terrain of the area of operations.

BRIEF SOLDIER: Tell the soldier to reconnoiter the area of operations for possible threat positions, avenues of approach, obstacles and danger areas.

| <b>Performance Measures</b>                                                                                                    | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Identified best covered and concealed routes.                                                                               | _____            | _____               |
| 2. Coordinated with the commander to ensure firing positions selected best supported the commander's concept and fire support. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

| <b>References</b> | <b>Related</b> |
|-------------------|----------------|
| <b>Required</b>   | FM 7-7         |
|                   | FM 7-8         |

Subject Area 10: MOVE: DEFENSE/OFFENSE

**Conduct the Maneuver of a Squad**

**071-326-5611**

**Conditions:** Given a squad that has just encountered an enemy position.

**Standards:** 1. Fixed the enemy with all available suppressive fire.

2. Assaulted the enemy's flank, rear, or other weak points, using fire and movement and all available cover and concealment.

3. As leader, took appropriate action to maneuver the squad in order to prevent serious injuries or casualties to personnel.

**Performance Steps**

1. Act on contact. When unexpected contact is made with an enemy, locate and exploit his weaknesses without needlessly exposing the squad to his fire. When contact is made, DEPLOY (Figure 1a), SUPPRESS, and REPORT (Figure 1b). Lead elements DEPLOY into positions from which they can fire, observe, or move to defeat the enemy. If elements in contact receive direct fire, they immediately SUPPRESS enemy weapons. If the enemy is located, but fire is not received, hold fire until friendly elements are in the best position to engage the enemy. Immediately REPORT the enemy contact to the platoon leader in as much detail as is available, and continually update reports.



Figure 1a. Deploy.



Figure 1b. Suppress and report.

2. Determine enemy location, disposition, and strength. The squad gains information, not revealed by the initial contact, by careful maneuver against the enemy to determine his flanks or weak points (Figure 2). This process of fighting through enables the squad to continue to advance against the enemy without undue risks. If the initial contact reveals that the enemy is clearly superior, the squad does not risk moving toward him. Instead, it holds in place, returns fire, and serves as a base-of-fire



**Performance Steps**  
for the platoon.

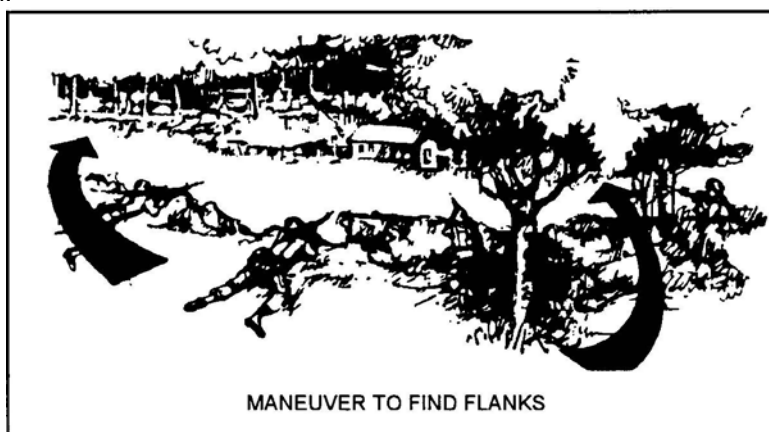


Figure 2. Determine enemy location.

3. Choose a course of action. The squad leader must decide whether to assault the enemy or to hold in place and return fire. Of course, he may be given another course of action by the platoon leader.
4. Fix the enemy. To close with the enemy, the assaulting force must suppress the enemy's fire (Figure 3). This is done by blocking the enemy's vision by smoke, or by shooting at him with enough accuracy and volume of fire to drive him from his firing positions. Once the enemy is suppressed, the assaulting force can maneuver toward his positions without a lot of casualties. The assaulting force always tries to concentrate against the enemy flank, rear, or other weak points. The enemy is normally aware of weak points and will reinforce them when he realizes that they will be assaulted. Suppressive fire will fix the enemy so he cannot reinforce these weak points. However, smoke and direct fire will not keep him from redeploying along interconnecting trenches. To stop this from happening, the use of airburst indirect fires is required. Each situation will be different. Remember that the enemy must be **FIXED BY SUPPRESSIVE FIRE**.

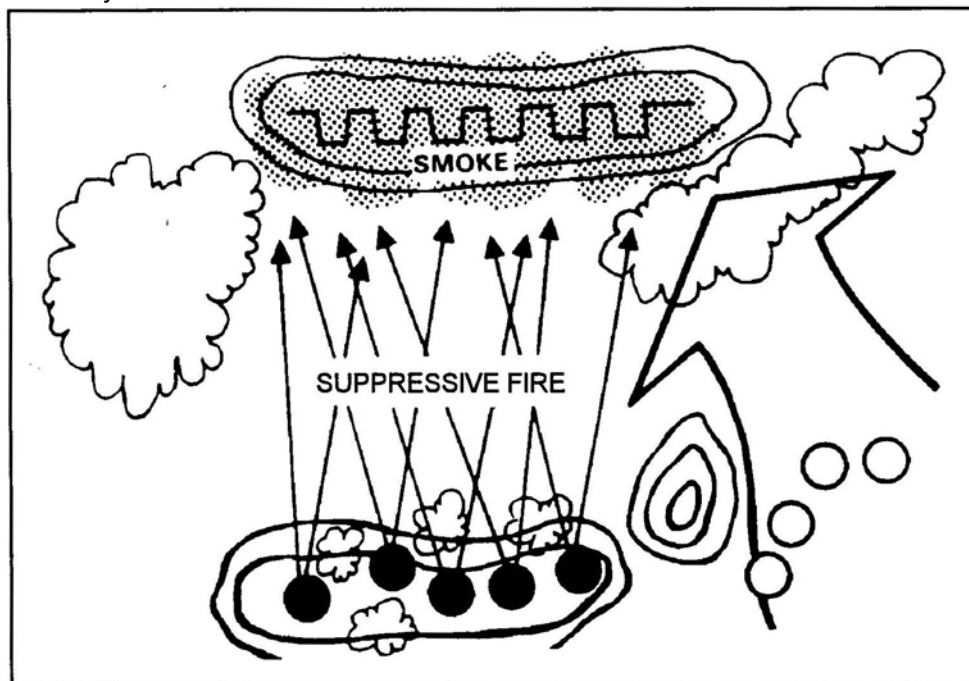


Figure 3. Fix the enemy.

## Performance Steps

5. Fight the enemy.
  - a. Open terrain. On open terrain, there are no significant natural or manmade features that restrict the fire or movement of the squad. For example, in a sparsely vegetated area, a squad or platoon may assault using FIRE and MOVEMENT. Elements of the squad and platoon alternate roles as fire support and assault elements while they close with the enemy.
  - b. Restrictive terrain. Restrictive terrain has significant natural or manmade features that will restrict the fire or movement of the squad. Examples include fortified areas, areas fenced with barbed wire, mined areas, built-up areas, and extremely rugged ground. In restrictive terrain, platoons and squads normally organize by task into:
    - (1) An assault element, to close with and destroy the enemy.
    - (2) A support element, to suppress and fix the enemy by fire.
    - (3) A breach element, to clear or mark a path through enemy obstacles or to blow holes in walls for the assault element.
6. Use assault techniques. The squad moves forward as rapidly as possible by crawling, by making a series of short rushes, or by making a single rush. The fire team leader chooses a movement technique based on the situation. The fire team members follow his example, using every advantage offered by the terrain.
  - a. Crawling (Figure 4) may be required when the fire team faces intense enemy fire and has little cover. Individuals use either the low or high crawl, depending upon their particular situation and the requirement for speed. This method is slow, but reduces exposure to enemy observation and fire. Individuals must place fire on the enemy to suppress him when they are not moving forward. If necessary, the members of the squad may advance all the way into and through enemy positions using the crawl method.

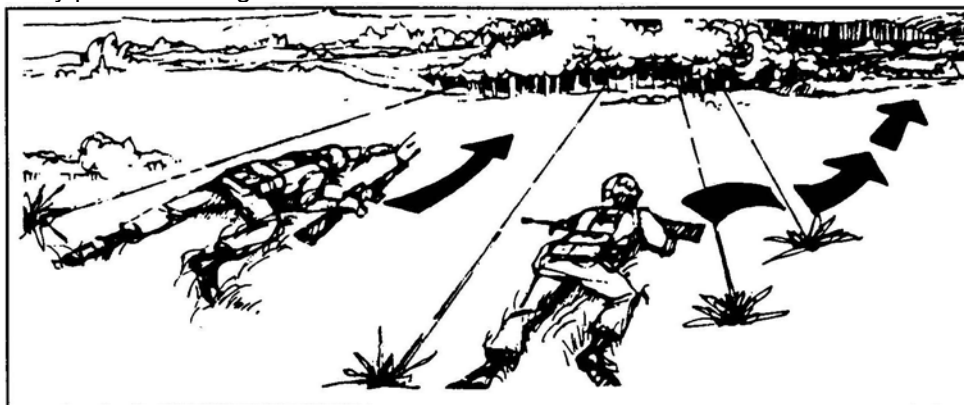


Figure 4. Crawling.

- b. The squad uses rushing fire by standing up and moving directly to the enemy position as quickly as possible. This does not mean a parade field-dress-right-dress formation, but rather a staggered line with enough lateral clearance between men to allow them to deliver effective fire to their front. Movement must be rapid and it must be accompanied by a heavy volume of fire. The assault should be conducted over a short distance that can be covered quickly. It must be concentrated where the enemy's defense may be quickly overrun.
  - (1) Short rushes may be used when cover is available (Figure 5). Fire and movement can be conducted using this method. Assaulting fire teams or individuals may advance by making a series of short (three- to five-second) rushes to avoid accurate enemy fire.

Performance Steps



Figure 5. Short rushes.

- (2) A single rush is rarely used. It should be used only--
  - (a) When the squad is receiving indirect fire, in which case immediate decisive movement is necessary to prevent the squad from being destroyed completely.
  - (b) When the squad is receiving direct fire and the lack of cover and concealment leave no other course of action.
- 7. Control fire. It is vital that fires be heavy enough to suppress the enemy. It would be fatal, however, to allow this suppressive fire to use all of a squad's ammunition before an assault is made or before a possible counterattack is dealt with. Fires must be rigidly controlled to ensure that a steady rate of fire is maintained throughout the assault. Maximum use should be made of supporting fires such as artillery, mortars, and gunships. Ammunition should be quickly redistributed on the objective to help a squad fight off a counterattack or continue an attack on order.
- 8. Use teamwork and control. A squad without teamwork and control is nothing more than a small mob with weapons. Success depends on a high level of teamwork and control within the squad. Methods of control are normally established by SOP. These may include arm-and-hand signals, oral commands, whistles and other sound devices, pyrotechnics, and "do as I do" techniques. Once methods are established, training and practice will develop teamwork. This training should cover reaction to as many different battlefield situations and conditions as possible. If a member of the squad loses contact with his squad leader and team leader, his intense training will remind him what he was taught to do. It is the squad leader's responsibility to maintain the control and teamwork of his squad in all situations.

**Evaluation Preparation:** SETUP: At the test site, given the information in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to fix and assault. The leader must take appropriate action to maneuver the element in order to prevent serious injury or casualties to personnel. The leader will be given the enemy situation.

| Performance Measures                                     | GO | NO GO |
|----------------------------------------------------------|----|-------|
| 1. Acted on contact.                                     | —  | —     |
| 2. Determined enemy location, disposition, and strength. | —  | —     |
| 3. Choose a course of action.                            | —  | —     |
| 4. Fixed the enemy.                                      | —  | —     |
| 5. Fought the enemy.                                     | —  | —     |
| 6. Used assault techniques.                              | —  | —     |

**Performance Measures**

7. Controlled fire.

**GO**

**NO GO**

\_\_\_\_\_

\_\_\_\_\_

8. Used teamwork and control.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-7

FM 7-7J

FM 7-8

**Conduct the Maneuver of an M2 BFV Section/Squad****071-420-0007****Conditions:** Given a fire team attacking an enemy position.**Standards:** Led the fire team through the enemy position, selected the best movement technique, controlled Dragon fire, controlled the rate and distribution of fire, and maintained contact with the dismount element leader by visual signals or radio.**Performance Steps**

1. Assault techniques. Move forward as rapidly as possible using the best method for the situation: crawling, short rushes, or single rush. Team members follow the leader's example, using every advantage offered by the terrain. Move aggressively.
  - a. Use crawling when faced with intense enemy fire and little cover. Individuals use either the low or high crawl, depending on their individual situation and the need for speed. This method is slow, but it reduces exposure to enemy observation and fire. When not moving forward, individuals must place fire on the enemy to suppress him. If necessary, the team may advance all the way into and through enemy positions using the crawl method.
  - b. Use short rushes from cover to cover when enemy fire allows brief exposure. Soldiers rush singly or in pairs in 3- to 5-second rushes. A rush is kept short to keep enemy machine gunners from tracking rushing men.
  - c. Use the single rush by fire team only under the following conditions:
    - When receiving a heavy concentration of indirect fire.
    - When the lack of cover and concealment prohibits another course of action.
    - When not receiving fire.
 Use single rush by standing up and moving directly to the enemy position as quickly as possible. Movement must be rapid and accompanied by suppressive fire. The assault should be conducted over a short distance that can be covered quickly and concentrated where the enemy's defense can be quickly overrun.
2. Control of Dragon fire. When a Dragon is carried, it is kept under direct control. It is fired only at important point targets, such as enemy armored vehicles and key weapons. Designate what type targets are to be engaged with Dragon fire. Lacking proper Dragon targets, the antiarmor specialist fires his rifle.
3. Control of fire. Fires must be heavy enough to suppress the enemy. However, allowing suppressive fire to consume all of a squad's ammunition before an assault is made or a possible counterattack is dealt with would be fatal. Firers must be rigidly controlled to ensure that a steady rate of fire is maintained throughout the assault. Rapid redistribution of ammunition upon the immediate objective will enable the fire team to fight off a counterattack or continue the attack on order.
  - a. Fire the M203 into the center of the fire team's objective to mark the target. The team fires to the right and left sides of the point where the M203 rounds are hitting. One technique is to fire a colored smoke round to mark the center of the team's objective.
  - b. The team leader fires his weapon to mark the center of the team's objective or has the machine gunner (M249) fire at the objective tracers.
4. Maintaining contact. To prevent masking the fires of another fire team and to ensure that he can respond to changes in orders by the dismount element leader, the fire team leader maintains contact with the dismount element leader either by radio or by visual contact.
5. Teamwork and control.
  - a. Methods of control are normally established by SOP. These may include arm-and-hand signals, oral commands, whistles and other sound devices, pyrotechnics, and "do as I do" techniques. It is the team leader's responsibility to obtain and maintain the control and teamwork of his team in all situations.
  - b. The fire team leader should lead by example. He normally positions himself in the lead to

### Performance Steps

facilitate this method of leadership.

**Evaluation Preparation:** SETUP: This task will be evaluated during the conduct of a platoon or larger tactical exercise. The fire team will maneuver as part of the dismount element conducting either a platoon dismounted movement to contact or deliberate dismounted attack.

BRIEF SOLDIER: Tell the soldier that he is the fire team leader moving as part of the dismount element of the platoon. Upon enemy contact, the soldier must maneuver the fire team using correct assault techniques and control the team's suppressive fires.

### Performance Measures

|                                                                         | <u>GO</u> | <u>NO GO</u> |
|-------------------------------------------------------------------------|-----------|--------------|
| 1. Used the correct assault techniques.                                 | _____     | _____        |
| 2. Controlled the fire team's suppressive fires.                        | _____     | _____        |
| 3. Maintained contact with adjoining teams and dismount element leader. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

**Required**  
FM 7-7J

### Related

**Conduct a Defense by an M2 BFV Section/Squad****071-430-0024**

**Conditions:** Given an M2 BFV and a platoon operations order that specifies an area within the platoon defensive position that the squad must defend.

**Standards:** 1. Developed a plan that included the location of specific firing positions, including one for the BFV, unless the platoon retains control of it, work priority, early warning device locations, squad sector sketch, and any special signaling requirements. Coordinated with adjoining units. Planned squad firing that to support the platoon defensive plan.

2. Supervised the mission preparations. Issued an order that included the situation, mission, position locations, and special coordination requirements, to include signals. Made a range card (DA Form 5517-R), checked weapons, and obtained needed supplies and ammunition. Inspected the squad to ensure it was ready to defend the designated sector.

3. Conducted the defense. Controlled organic fires to ensure the best use of assets. As the situation developed issued fragmentary orders. The enemy was killed, captured or forced to withdraw.

**Performance Steps**

1. Analyze the mission.
2. Issue a warning order.
3. Select fighting positions (firing, hide, and rifle team).
4. Issue an operations order at the time and location specified in the warning order.
5. Establish priority of work.
6. Prepare fighting positions (firing, hide, and rifle team).
7. Reconnoiter.
8. Select a remount position.
9. Request supplies.
10. Receive supplies.
11. Conduct final inspection.
12. Direct the initiation of fires. Employ squad fires (BFV and dismount team) in accordance with the defensive plan.
13. Develop the situation.
14. Direct a cease fire.

**Evaluation Preparation:** SETUP: Prepare the training site according to the condition statement. Evaluate this task in a field environment.

BRIEF SOLDIER: Tell the soldier what task to do and how well he must do it.

**Performance Measures**

1. Planned the mission.
  - a. Analyzed the mission.
  - b. Reconnoitered.

**GO**      **NO GO**

—      —

| <b>Performance Measures</b>                            | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|--------------------------------------------------------|------------------|---------------------|
| c. Issued an order.                                    |                  |                     |
| 2. Supervised mission preparation.                     | _____            | _____               |
| a. Established priority of work.                       |                  |                     |
| b. Supervised equipment maintenance.                   |                  |                     |
| c. Inspected.                                          |                  |                     |
| 3. Conducted the defensive.                            | _____            | _____               |
| a. Controlled fires.                                   |                  |                     |
| b. Issued fragmentary orders as the situation changed. |                  |                     |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

**Required**  
DA FORM 5517-R

**Related**  
FM 7-7J



**Reorganize a Unit**  
**071-430-0029**

**Conditions:** Given a squad leader with squad, or platoon sergeant with platoon, or mortar section sergeant, or acting platoon leader defending as part of a larger unit; your element has just repelled an enemy assault.

**Standards:** Reorganized the unit (squad, platoon, or mortar section) in the defense following enemy contact.

**Performance Steps**

1. The platoon leader must plan the required reorganization of the platoon while defending (either deliberate or hasty). He must include his plan in the order to the squad leaders. The plan must be tentative and flexible and may be changed as the situation evolves. The leader's plan must be complete and detailed as possible.
2. Reorganize a unit:
  - a. Reestablish the chain of command; fill all key positions from the remaining element members and ensure the new chain of command is disseminated down to the last member of your element.
  - b. Evacuate the dead and seriously wounded according to your casualty evac plan; ensure all positions and sectors remain mutually supporting; check all sectors of fire after all casualties are evacuated to ensure all sectors are covered; If necessary, shift positions or reassign sectors to cover any gaps in your sector.
  - c. Redistribute or resupply ammunition, weapons, and fuel; ensure the squad leaders pass out additional ammunition (if available), or divide the remainder equally throughout the squad or platoon; conduct a quick inventory and submit a supply request to higher if necessary.
  - d. Ensure all enemy prisoners of war (EPWs), enemy material, and enemy information are collected, reported, and evacuated. (if possible)
  - e. Ensure all crew-served weapons are manned and positioned on likely avenues of approach.
  - f. Issue to higher headquarters, a LACE report to include:
    - (1) L - Liquid, how much water each soldier has left (canteens per).
    - (2) A - Ammunition, how much ammunition does the squad or platoon have per man (after redistribution).
    - (3) C - Casualties, how many casualties did the squad or platoon encounter.
    - (4) E - Equipment, how much special equipment does the squad and platoon have remaining.
3. For mortar section:
  - a. Reestablish section communications.
  - b. Reestablish the FDC

**Evaluation Preparation:** SETUP: Provide a squad or platoon in an established defensive position, simulated casualties, simulated EPWs, simulated destroyed crew-served weapons, blank ammunition, and a communication network.

**BRIEF SOLDIERS:** This task should be conducted and evaluated in a realistic field environment using a realistic combat scenario.

| Performance Measures                                    | GO    | NO GO |
|---------------------------------------------------------|-------|-------|
| 1. Reestablished and disseminated the chain of command. | _____ | _____ |
| 2. Evacuated the dead and seriously wounded.            | _____ | _____ |
| 3. Ensured all positions remained mutually supporting.  | _____ | _____ |

| <b>Performance Measures</b>                                                                   | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------------------|------------------|---------------------|
| 4. Checked sectors of fire.                                                                   | _____            | _____               |
| 5. Redistributed or resupplied ammunition, weapons, and fuel if needed.                       | _____            | _____               |
| 6. Ensured squad leaders and platoon sergeants passed out additional ammunition if available. | _____            | _____               |
| 7. Ensured all EPWs were reported and evacuated ASAP.                                         | _____            | _____               |
| 8. Ensured all crew-served weapons were manned.                                               | _____            | _____               |
| 9. Issued a LACE report to higher headquarters.                                               | _____            | _____               |
| 10. Reestablished section communications (mortar section).                                    | _____            | _____               |
| 11. Reestablished the FDC (mortar section).                                                   | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

**Required**  
FM 7-8

**Related**  
FM 23-90  
FM 7-10  
FM 7-7  
FM 7-7J

## Subject Area 13: MOVE: SPECIALIZED MISSIONS

**Conduct a Point Antiarmor Ambush by an M2 BFV Section/Squad**  
**071-326-5804**

**Conditions:** As the leader of an M2 Bradley section/squad task -organized to conduct an antiarmor ambush, given the ambush site.

**Standards:** Destroyed or disabled enemy armor vehicles without being discovered beforehand.

**Performance Steps**

The conduct of an antiarmor ambush must be well planned and thought out. The situation and mission may not always allow the M2 section/squad leader to observe all of the following guidelines, but he must try.

1. Reconnoiter the site on the ground or by air when possible. As a minimum, conduct a thorough map reconnaissance.
2. Conduct rehearsals, time permitting. These can include what to do if engaged by the enemy before arrival at the site, what to do if the site is attacked by enemy infantry, how to approach the site, and how to leave the site. Ensure all members of each element understand what they are to do. If only able to conduct a map reconnaissance, plan and rehearse the contingency missions.
3. The successful ambush will depend on, among other things, how quickly the unit arrives at the site, executes the ambush, and departs. At any time, the M2 may be lost to hostile action or mechanical failure. Be prepared to use another means of transportation for withdrawal, whether it be by foot, another vehicle (cross-load), or helicopter.
4. Upon arriving at the site, post security and reconnoiter the exact location of the ambush. A good ambush site should be where-
  - a. Enemy vehicles are likely to enter. Do not plan kill zones in places where the enemy may not cross (Figure 1).

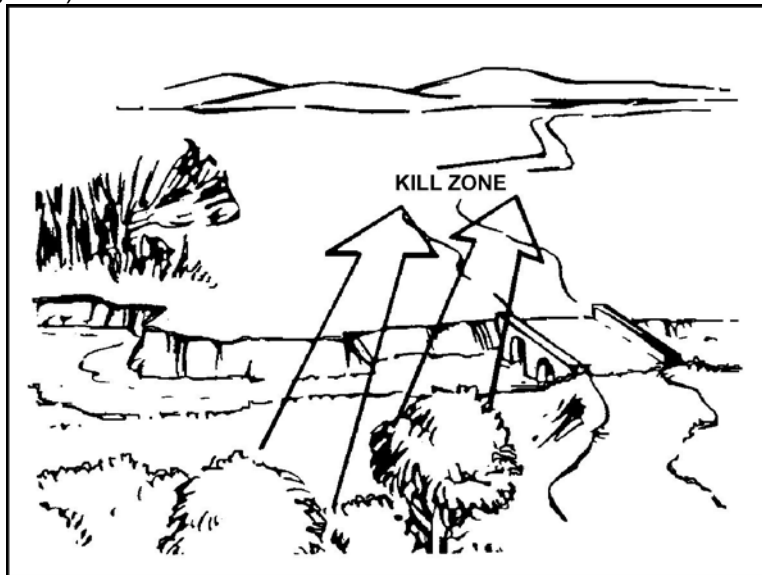


Figure 1. Kill zone where enemy vehicles are likely to cross.

- b. The terrain makes it difficult for other armor vehicles to bypass a destroyed vehicle and assault the ambush squad (Figure 2).

## Performance Steps

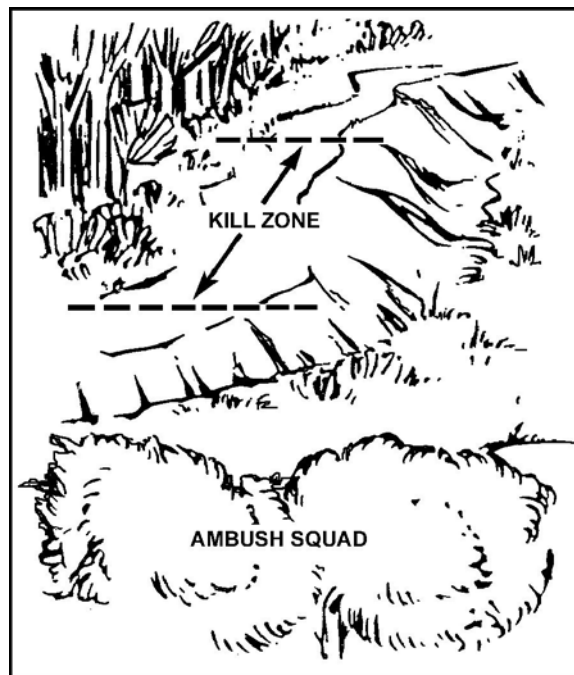


Figure 2. Kill zone in difficult terrain.

- c. The kill zone permits the M2 or Dragon gunner to hit the flank of a target vehicle (Figure 3).



Figure 3. Gunner has flank shot at target vehicle.

- d. A natural obstacle is between the kill zone and the ambush squad/section. If there are no natural obstacles and if time permits, the squad/section can make artificial obstacles, such as minefields (Figure 4).

## Performance Steps



Figure 4. Kill zone with natural obstacles.

- e. The kill zone is large enough to permit the M2 or Dragon gunner to acquire, fire, track, and hit a target vehicle. Generally, if the gunner looks through his sights at the kill zone and no obstructions are in the field of view, the kill zone is large enough (Figure 5).

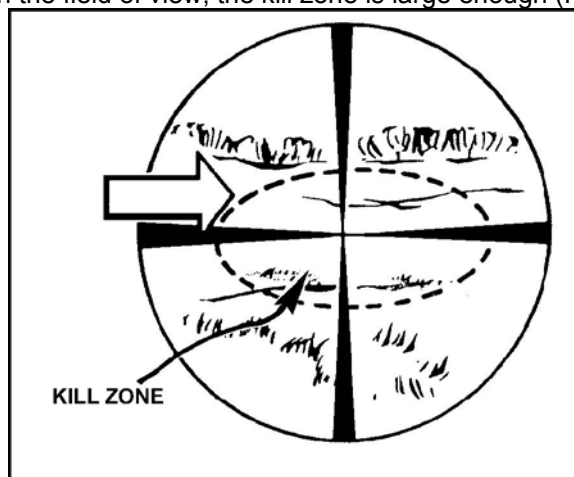


Figure 5. Large kill zone.

Note: With the TOW, the half-sight method is used to determine if the kill zone is large enough. However, if the Dragon is to be used to supplement the TOW (M2), use the full-sight method for the Dragon to determine the adequacy of the kill zone.

- f. A target vehicle is isolated and has no other enemy armor over watching it (Figure 6).

## Performance Steps

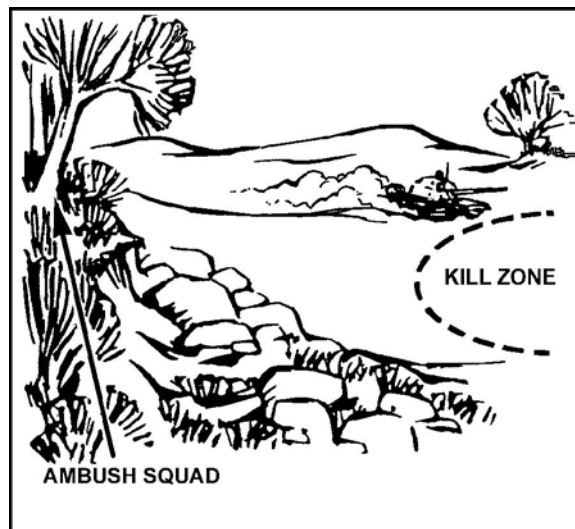


Figure 6. Isolated enemy vehicle.

Note: If the M2 is used in the armor-killer team, an M2 hull-down or hide position must be available.

5. The support and security team moves into position to establish security. These elements may have to be repositioned after the armor-killer team sets up. Once the ambush site is secure, the squad leader positions the armor-killer team. Since the primary weapon system available to the antiarmor ambush is the M2, the squad leader should always try to locate the kill zone at the maximum effective range (3,000 meters) from the ambush site.
  - a. The section leader and gunner choose the best firing position and move to it. When the vehicle is in position, the gunner ensures that all weapon systems are loaded and ready to fire, to include conducting the TOW self-test. He also ensures the cargo hatch is closed completely.
  - b. When a long-range ambush (1,000 to 3,000 meters) is established, the role of the dismount team is to provide security. In positioning the support/security team, consider the distance between fighting vehicle and dismount team. Position them far enough out to provide security, yet close enough to allow for a quick remount and to provide adequate protection from enemy indirect fire.
  - c. If the dismount team is used as the armor--killer team, then the Dragon becomes the primary weapon system. The squad leader should locate the kill zone at the maximum effective range (1,000 meters) from the ambush site. When a medium ambush is established (200 to 1,000 meters), the squad leader positions the antiarmor weapon (Dragon) and then the machine gun to cover the kill zone. The remainder of the dismount team provides security for these two weapons.
  - d. If conducting a close-in ambush (within 200 meters), plan for the use of all available light antitank weapons (LAW/AT4). Position the individual members of the squad, ensuring that each position has-
    - (1) Good fields of fire into the kill zone.
    - (2) Cover and concealment.
    - (3) An obstacle between it and the kill zone.
    - (4) Covered and concealed withdrawal routes for the squad.
  - e. Once in position, designate positions within the kill zone to be covered by the various weapon systems. Plot indirect fires on the kill zone or your own position and along the route of withdrawal.

Note: In establishing the ambush, you must provide a position for the M2, whether it be in the armor-killer team or support and security team.

6. Improve the ambush position as time permits. Prepare and improve the M2 position and individual positions.

**Performance Steps**

- a. Place Claymore mines, explosives, or smoke pots on fake firing positions and rig for remote firing. They will deceive the enemy as to the location and size of the ambush force and confuse him.
  - b. If sure that the enemy cannot see the impact, call for check rounds from whatever indirect fire unit(s) is in support. In most cases, a forward observer (FO) will not be with your BFV squad, so call for fire through the FO attached to the platoon.
  - c. Rehearse so that each man knows his job before, during, and after the ambush.
7. Execute the ambush.
- a. Execute long-range ambushes by firing the TOW. Once the round impacts, cover withdrawal with smoke. To increase the speed of withdrawal, dismount only those men needed to ensure local security of the BFV.
  - b. Execute medium-range ambushes by firing either the TOW (if the M2 is used as the killer team) or the Dragon (if the dismount team is used as the killer team). Once the round impacts, team members whose weapons have the range to reach the kill zone fire their weapons to cover the withdrawal of the antiarmor specialist. Other members of the dismount team who are providing security shoot if they see enemy within their sector. As soon as the antiarmor specialist has moved to where he cannot be fired at by the enemy, the remainder of the dismount team moves to the remount point and links up with the M2.
  - c. Conduct a close-in ambush when fields of fire are short (200 meters or less). Plan for the use of all LAWs by the dismount team. If the vehicle is to be used, the 25-mm automatic gun using armor-piercing discarding sabot (APDS) ammunition should be its selected weapon. In a close-in ambush, you must mass a high volume of antiarmor weapons to ensure destruction of the enemy vehicle.
  - d. Position yourself with the armor-killer team in order to initiate the ambush.
  - e. Have indirect fires impact on the kill zone as the ambush is executed.
8. Decide if enemy dismounted infantry preceding the armored vehicles into the kill zone pose a threat to the ambush. If they can outflank the ambush site before the enemy armor can be hit, you may decide to withdraw without making contact and try to set up another ambush along the avenues of approach somewhere else. If the enemy infantry is an immediate threat to the squad or appears to be ready to find or trip any mechanical devices, initiate the ambush with automatic weapons. The M2 engages the enemy with the 7.62-mm coax machine gun. All actions are executed exactly as planned, to include smoke and indirect fire, except that the armor-defeating weapons are not fired. When mounted enemy infantry approaches the kill zone of the armor ambush, the carriers are treated like light tanks. They are allowed to close, then destroyed one at a time.
9. Because of the speed with which other enemy armored vehicles may react to the ambush, and the responsiveness of enemy artillery, spring the ambush, break contact, and get out of the area as rapidly as possible. The support and security team's role varies with the type of ambush.
- a. In the long-range ambush, the support and security team provides local security only because its weapons cannot affect action in the kill zone. Determine the necessary security and how far out it needs to be placed. Balance this against a quick withdrawal. The larger the force and the greater the distance from the vehicle, the slower the withdrawal.
  - b. When a medium-range ambush is conducted, most of the dismount team provides security, since most of their weapons will be unable to influence the action in the kill zone. The leader may elect to position the machine gun to engage dismounted infantry preceding the enemy armor.
  - c. When a close-in ambush is conducted, the support and security team provides both security and support. It must provide flank security and also supporting fires into the kill zone to mass fires. It must also engage any secondary vehicles that enter the kill zone. It provides suppressive fires to withdraw the killer team.
10. The section/squad withdraws under the cover of indirect fire and smoke. If the M2 can be detected in a long-range ambush, it should fire its smoke grenades. In a medium-range or close-in ambush, the chances of detection are greater, and it normally would fire its smoke grenades. The

**Performance Steps**

section/squad withdraws along predesignated routes to the remount point. Once linkup has been accomplished, the squad withdraws along a previously reconnoitered route.

11. If possible, maintain communication with your higher headquarters at all times.

**Evaluation Preparation:** SETUP: Provide the squad leader with the support necessary to successfully conduct an antiarmor ambush.

BRIEF SOLDIER: Tell the squad leader that he has been provided an ambush site and he is to conduct an antiarmor ambush.

**Performance Measures**

|                                                                                       | <u>GO</u> | <u>NO GO</u> |
|---------------------------------------------------------------------------------------|-----------|--------------|
| 1. Posted security and reconnoiter exact location of ambush site.                     | _____     | _____        |
| 2. Selected the right team to conduct ambush based on terrain and distance of ambush. | _____     | _____        |
| 3. Destroyed or disabled enemy armor vehicles without being discovered.               | _____     | _____        |
| 4. Employed indirect fire into kill zone as ambush is executed.                       | _____     | _____        |
| 5. Withdrew successfully under cover of indirect fire and smoke.                      | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.



## Conduct a Point Antiarmor Ambush by a Squad

**071-450-0014**

**Conditions:** In a combat environment, given a squad equipped for a mission, an attached armor team, and a mission to conduct an antiarmor ambush.

**Standards:** 1. Developed a plan which considered the factors of METT-TC and included the mission, organization, preparation, routes, movement techniques, actions on contact, actions on the objective, any signals to be used, and departure from and reentry of friendly lines.

2. Supervised preparations for the operation including the cleaning and test firing of weapons, equipment maintenance, required resupply, rehearsals, and inspections.

3. Controlled the ambush and established the designated ambush point. Destroyed enemy armored vehicles as soon as they entered the kill zone, or forced them to withdraw and returned to friendly lines.

### Performance Steps

1. Plan.
  - a. Receive the mission.
  - b. Make a tentative plan.
  - c. Start appropriate preparations IAW SOP.
  - d. Reconnoiter on the ground, if possible, or conduct a map reconnaissance.
  - e. Develop the final plan.
  - f. Issue the operation order at the time and place designated in the warning order.
2. Supervise.
  - a. Continue preparations.
  - b. Request supplies.
  - c. Receive and distribute supplies.
  - d. Depending on time available, include "actions at the ambush" and actions on enemy contact" in the rehearsal. Rehearse the plan enough that each member knows his own mission thoroughly.
  - e. Conduct final inspection.

NOTE: Troop leading procedures are a series of interrelated and overlapping events not necessarily done in order.

3. Conduct the ambush.
  - a. Depart through friendly lines (if required).
  - b. Confirm rally points.
  - c. Cross danger areas.
  - d. Occupy objective rally point.
  - e. Occupy the ambush position.
  - f. Check the positioning of the armor-killer and security-support teams. Reposition them if needed.
  - g. Execute the ambush.
  - h. Withdraw from the ambush site.
  - i. Reenter friendly lines.

**Evaluation Preparation:** SETUP: Provide the squad leader with the support necessary to successfully conduct an antiarmor ambush. This task should be performed in a field environment as part of a STX or FTX.

**BRIEF SOLDIER:** Tell the squad leader that he has been provided an ambush site and to conduct an antiarmor ambush.

| <b>Performance Measures</b>                                                                                                                          | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Planned the mission.                                                                                                                              | _____            | _____               |
| a. Received the mission.                                                                                                                             |                  |                     |
| b. Made tentative plan.                                                                                                                              |                  |                     |
| c. Started preparations.                                                                                                                             |                  |                     |
| d. Conducted reconnaissance.                                                                                                                         |                  |                     |
| e. Developed the final plan and issued the order.                                                                                                    |                  |                     |
| 2. Supervised mission preparations. Troop leading procedures are interrelated and overlapping processes not necessarily done in order.               | _____            | _____               |
| a. Ensured weapons and equipment was maintained.                                                                                                     |                  |                     |
| b. Enforced rest plan.                                                                                                                               |                  |                     |
| c. Conducted rehearsals and inspections.                                                                                                             |                  |                     |
| d. Requested, received and distributed supplies.                                                                                                     |                  |                     |
| 3. Controlled the mission. Controlled movement to the ambush, initiated the ambush, supervised the kill zone search, and withdrew to friendly lines. | _____            | _____               |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7

## Conduct an Area Ambush by an M2 BFV Platoon

**071-450-0024**

**Conditions:** In a combat environment, given an M2 BFV platoon and a mission to conduct an area ambush.

**Standards:** 1. Developed a plan that included mission, task organization, control measures, routes, movement techniques, actions on contact, actions on the objective, and withdrawal from and reentry of friendly lines.

2. Supervised preparations, cleaned and test fired weapons, maintained vehicles and equipment, re-supplied, rehearsed, and inspected.

3. Controlled the ambush by issuing fragmentary orders and controlling fires. During execution, selected general ambush site and organized squad ambushes around them. Initiated the ambushes which prevented enemy troops from escaping the ambush (or prevented enemy reinforcements from entering the area) by delivering fire to isolate, trap, and destroy the targets. Destroyed, captured, or forced the enemy to withdraw.

### Performance Steps

1. Plan.
  - a. Receive the mission.
  - b. Issue a warning order to give subordinate elements as much time as possible to prepare.
  - c. Make a tentative plan.
  - d. Start preparing the SOP (if appropriate).
  - e. Reconnoiter on the ground to verify terrain, if possible. If not, conduct a map reconnaissance.
  - f. Reconnoiter.
  - g. Develop the final plan.
  - h. Issue the operation order at the time and place specified in the warning order.
2. Supervise.
  - a. Continue preparation.
  - b. Request supplies.
  - c. Receive and distribute supplies.
  - d. Rehearse.
  - e. Conduct final inspections.
3. Conduct the ambush.
  - a. Depart friendly lines.
  - b. Confirm rally points.
  - c. Cross danger area.
  - d. Occupy ORP objective rally point.
  - e. Select sites for central and outlying ambushes.
  - f. Have ambush elements leave ORP, occupy their positions, and await the target.
  - g. Give the signal to initiate the ambush.
  - h. Issue fragmentary orders when needed.
  - i. When the assault element must assault the kill zone, the leader of the patrol gives the signal to lift or shift fire, which initiates the assault.
  - j. Besides destroying the enemy force, the assault element may have other tasks in the kill zone, such as to search for items of intelligence value, capture enemy prisoners, or complete the destruction of enemy equipment.
  - k. When the assault element has finished its mission in the kill zone, or when the element need not assault the kill zone, the leader gives the signal to withdraw the ambush, move to the ORP, and reenter friendly lines.

**Evaluation Preparation:** SETUP: Provide the ambush leader with all the equipment, personnel, suitable terrain, and information (as stated in the task conditions) to allow the mission to succeed.

BRIEF SOLDIER: Tell the soldier he must place the ambush element where the enemy cannot detect it. Use a casualty producing device to initiate the ambush. Use separate signals to lift or shift fires and to withdraw from the ambush site. Reassemble the ambush element and occupy the ORP. Move to a prearranged location to disseminate information.

| Performance Measures                                                         | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------------------------------------|-----------|--------------|
| 1. Planned the ambush.                                                       | _____     | _____        |
| a. Reconnoitered ambush site by air or ground if possible.                   |           |              |
| b. Conducted a map reconnaissance.                                           |           |              |
| 2. Supervised preparations.                                                  | _____     | _____        |
| a. Ordered and distributed required supplies.                                |           |              |
| b. Maintained weapons, equipment, and vehicles.                              |           |              |
| c. Rehearsed critical events.                                                |           |              |
| d. Conducted an inspection.                                                  |           |              |
| 3. Conducted the ambush by issuing fragmentary orders and controlling fires. | _____     | _____        |
| a. Used control in movement to the ambush site.                              |           |              |
| b. Used control in withdrawal from the ambush site.                          |           |              |
| c. Used a signal to alert the ambush leader of the enemy's approach.         |           |              |
| d. Used a casualty producing signal to initiate the ambush.                  |           |              |
| e. Used a signal to lift or shift fire.                                      |           |              |
| f. Used a signal to withdraw from the ambush site.                           |           |              |
| g. Used an ORP.                                                              |           |              |
| h. Disseminated information to everyone in the ambush element.               |           |              |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

#### References

Required

Related

FM 7-7J

## Conduct a Passage of Lines

### 071-450-0030

**Conditions:** In a combat environment, given a platoon and a mission requiring a passage of lines.

**Standards:** Identified routes to assembly area, occupied the assembly area, contacted the friendly unit, and exchanged recognition signals, linked up with guides, moved through the friendly lines and obstacles.

### Performance Steps

1. Occupy the assembly area (or initial rally point). Contact the forward unit.
2. Coordinate the passage of lines with the forward unit commander or with a designated representative.
  - a. Provide the stationary unit with the passing unit's-
    - (1) Identification and size.
    - (2) Departure and return times.
    - (3) Area of operation.
    - (4) Any other special information.
  - b. Obtain information about the current situation, to include-
    - (1) Known or suspected enemy locations.
    - (2) Likely enemy ambush sites.
    - (3) Latest enemy activity.
    - (4) Detailed location information of all nearby friendly forces.
    - (5) Obstacle locations.
    - (6) Fire plan.
    - (7) Friendly support available.
    - (8) Signal operation instructions (SOI).
    - (9) Locations of contact and passage points.
    - (10) Primary and alternate routes.
    - (11) Contingency plans.
    - (12) Guides (if needed).
3. Control the passage of lines.
  - a. Move to initial rally point, if required. Conduct final coordination with forward commander and guide (if any).
  - b. Move the unit to a covered and concealed position near the passage point.
  - c. When necessary, have the security team clear the area forward of the passage point to the first covered and concealed position. Signal the unit.
  - d. Move unit to passage point.
  - e. Guide is told how long to wait at release point and running password is confirmed.
  - f. Make a security halt beyond friendly units direct fire support.

**Evaluation Preparation:** SETUP: At the test site, provide the materials and information according to the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to identify routes to the assembly area, occupy the assembly area, contact the friendly unit, and link up with guides.

### Performance Measures

|                                                                             | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------------------------------|-----------|--------------|
| 1. Occupied assembly area (or initial rally point). Contacted forward unit. | _____     | _____        |
| 2. Coordinated with the forward unit.                                       | _____     | _____        |
| 3. Controlled the passage of lines.                                         | _____     | _____        |
| a. Moved unit to covered and concealed position near the passage point.     |           |              |

**Performance Measures**

**GO**    **NO GO**

- b. Ensured that security team cleared and secured the first covered and concealed position forward of the passage point.
- c. Moved the unit through the passage point.
- d. Made a security halt.

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

ARTEP 7-8-MTP  
FM 7-20  
FM 7-7J

**Conduct a Point Ambush****071-450-0041**

**Conditions:** As the leader of an ambush element, given sufficient personnel to accomplish the mission, suitable terrain and weapons. Organization and preliminary coordination for the mission has been accomplished.

**Standards:** Killed or captured the enemy, or forced him to withdraw.

**Performance Steps**

1. Plan the ambush.
  - a. Conduct map reconnaissance.
  - b. Reconnoiter ambush site (by air or ground if possible).
  - c. Plan indirect fire support.
  - d. Issue order.
2. Supervise ambush preparations.
  - a. Order, receive, and distribute needed ammunition, supplies, and equipment.
  - b. Ensure soldiers get all the rest the situation allows.
  - c. Rehearse actions.
    - (1) En route to and from the ambush site.
    - (2) Chance engagement.
    - (3) Crossing a danger area.
    - (4) At the ambush site.
  - d. Maintain all equipment and weapons.
  - e. Inspect.
  - f. Control movement to the ambush site.
  - g. Place the ambush element where the enemy cannot see it.
3. Execute the ambush.
  - a. Initiate the ambush with a casualty producing weapon
  - b. Lift or shift fire.
  - c. Search enemy casualties.
4. Withdraw to objective rally point. Give any intelligence to all soldiers.

**Evaluation Preparation:** SETUP: Provide the ambush leader with the equipment, personnel, terrain, and information listed in the task condition statement.

BRIEF SOLDIER: Tell the soldier to place the ambush element in position, so the enemy cannot see it. Use a casualty-producing device to initiate the ambush, to lift or shift fires, and to withdraw from the ambush site. Reassemble the ambush element and occupy the objective rally point, then move to a prearranged location to disseminate information.

**Performance Measures**

|                                                                                 | <u><b>GO</b></u> | <u><b>NO GO</b></u> |
|---------------------------------------------------------------------------------|------------------|---------------------|
| 1. Planned the ambush.                                                          | _____            | _____               |
| 2. Supervised ambush preparations.                                              | _____            | _____               |
| 3. Executed the ambush.                                                         | _____            | _____               |
| 4. Withdrew to objective rally point and gave any intelligence to all soldiers. | _____            | _____               |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References  
Required**

**Related**  
FM 7-7  
FM 7-7J  
FM 7-8



**Conduct a Point Antiarmor Ambush by an M220 Antiarmor Section**  
**071-450-0042**

**Conditions:** Given a mission to organize an antiarmor ambush.

**Standards:** Killed, captured, or forced the enemy to withdraw.

**Performance Steps**

1. Plan.
  - a. Received the mission
  - b. Made a tentative plan.
  - c. Started SOP preparations (as appropriate).
  - d. Reconnoitered the ambush site. Conduct a ground reconnaissance, if you can. At the least, conduct a map reconnaissance.
  - e. Develop the final plan.
  - f. Issue the order.
2. Supervise.
  - a. Request supplies.
  - b. Receives and distribute supplies.
  - c. Rehearse. Time permitting, continue rehearsing until each squad member performs his and one other soldiers mission task to standard.
  - d. Conduct final inspection.
3. Conduct the mission.
  - a. Depart friendly lines.
  - b. Confirm rally points.
  - c. Cross danger areas.
  - d. Occupy the object rally point.
  - e. Occupy the ambush site.
  - f. Execute the ambush.
  - g. Withdraw from the ambush site.
  - h. Reenter friendly lines.

**Evaluation Preparation:** SETUP: Provide the antiarmor ambush leader with the men, equipment, and information given in the task condition statement.

BRIEF SOLDIER: Tell the ambush leader to organize an antiarmor ambush.

| <b>Performance Measures</b> | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------|------------------|---------------------|
| 1. Planned the ambush.      | _____            | _____               |
| 2. Supervised the ambush.   | _____            | _____               |
| 3. Conducted the ambush.    | _____            | _____               |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
 FM 7-7

## Subject Area 14: MOVE: URBAN OPERATIONS

### Conduct an Attack on a Building by an M2 BFV Section/Squad During an Urban Operation 071-440-0014

**Conditions:** As the leader of an M2 Bradley squad, part of a company or company team, conducting an attack on a building with a BFV section in urban terrain.

**Standards:** Secured a building so that no enemy soldiers remained in the building.

#### Performance Steps

1. Before seizing a building, decide on the makeup of the fighting vehicle element and the dismount element.
  - a. Choose a security team to remain with the fighting vehicle element. You must give special consideration to security because of the vehicle's vulnerability in urban terrain.
  - b. Arrange the dismount element into two- or three--man assault teams. Designate a part of the dismount element as a demolitions team.
2. The attack is conducted in three steps.
  - a. Isolate the building (Figure 1). The fighting vehicle element, supported by indirect and direct fire, isolates the building. Place the fighting vehicle element in an overwatch position. Then direct the fires of the M2s and adjust indirect fires to suppress enemy troops in the building and those in nearby buildings who can fire at the dismount element.

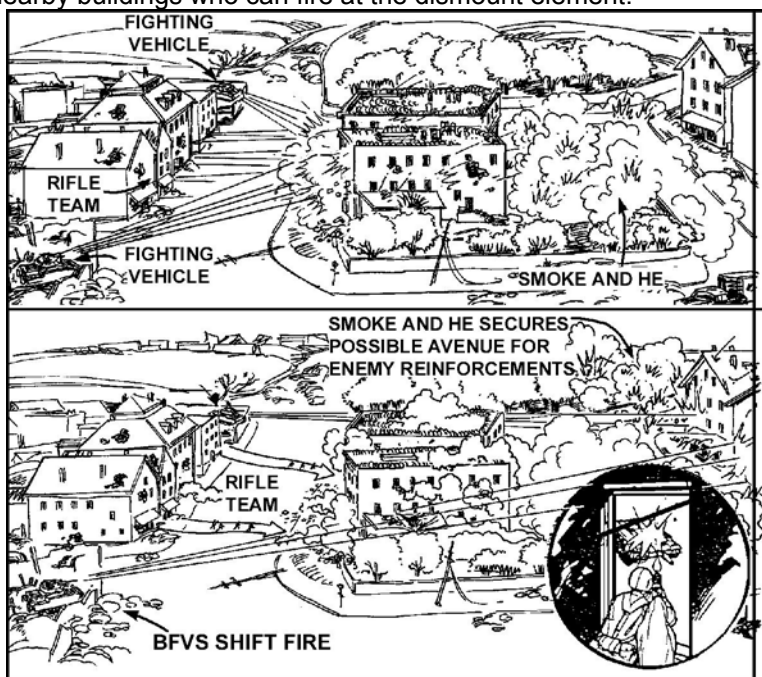


Figure 1. Isolating a building.

**NOTE:** To use Dragons and TOWs in urban areas, targets must be beyond minimum arming distance, or 65 meters.

- b. Seize a foothold. Have the dismount element enter the building and seize a foothold. The element leader directs the movement to the building along covered and concealed routes. He then directs a dismount team to enter the building at the highest point possible because-
  - (1) The ground floor and basement are usually the enemy's strongest point.
  - (2) The roof of a building is normally weaker.

**Performance Steps**

- (3) Fighting down the stairs is easier than fighting up the stairs (Figure 2).

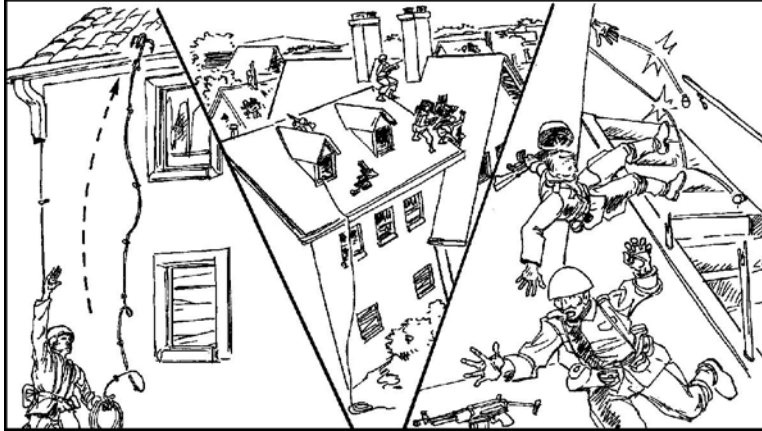


Figure 2. Fighting down stairs.

- c. Clear the building (Figure 3). The dismount element leader directs an assault team (covered by fire) to the point of entry. One man throws a grenade into the room. After the explosion, the assault team enters one man at a time, overwatched by the rest. The first man rushes in, firing his weapon in two- to three-round bursts, and takes a position that allows him to cover the whole room. The other men enter the room and make a quick, thorough search. One man remains inside the room to secure it.

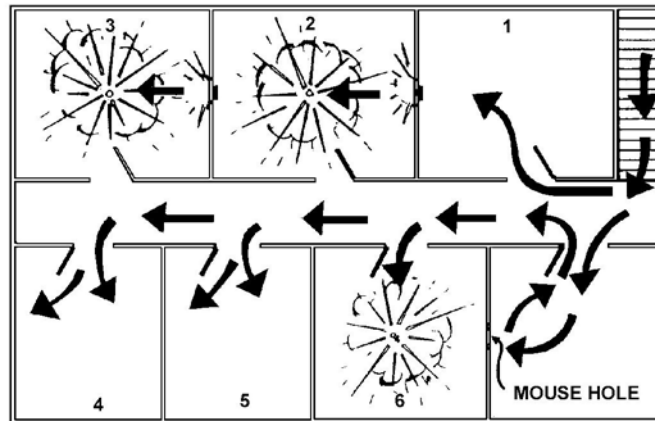


Figure 3. Clearing a building.

- (1) The same procedure is repeated from room to room and floor to floor (including the basement, if there is one) until the building is clear of all the enemy. Only then is it considered secured.
- (2) If there is no covered route to the roof, have the dismount element enter at a lower story or at ground level (Figure 4). In this case, the fighting element seizes a foothold, quickly fights to the highest story, and then clears the building room by room from the top down.

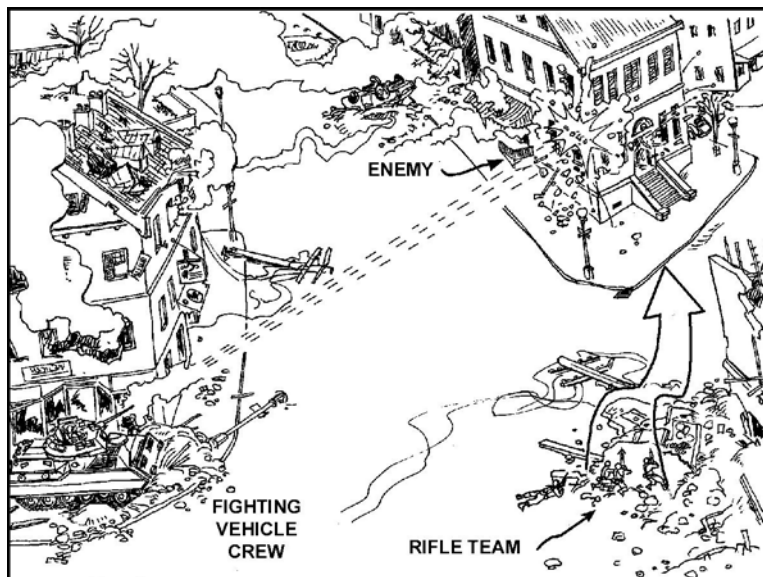
**Performance Steps**

Figure 4. Entering a building at ground level.

**Evaluation Preparation:** SETUP: Provide the squad leader an urban operation training site and an M2 Bradley squad with basic equipment needed to enter and secure a building.

**BRIEF SOLDIER:** Tell the squad leader to organize his squad into teams to enter and secure a building and clear out all enemy soldiers.

**Performance Measures****GO**    **NO GO**

1. Organized the squad.
  - a. Designated a security element for the vehicle team.
  - b. Designated the dismount team into two- or three-man assault teams.
  - c. Designated a part of the dismount team as a demolitions team.
2. Isolated the building.
3. Seized a foothold.
4. Cleared the building.

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

FM 7-7J

**Conduct a Defense by an M2 BFV Section/Squad During an Urban Operation****071-440-0016**

**Conditions:** Given a specified area within the platoon defensive position, in an urban combat environment, given an M2 BFV squad, with a mission to conduct a defense.

**Standards:** 1. Developed a plan that included the priority of work, locations of primary, alternate and supplementary positions, method for emplacing obstacles and early warning devices, and special signals to be used.

2. Established local security, emplaced key weapons, cleared fields of fire, emplaced obstacles, emplaced warning devices, prepared fighting positions, and stockpiled supplies and ammunition.

3. Engaged the enemy in accordance with the defensive plan, controlled fires, and developed the situation as appropriate, retained the terrain, and the enemy was destroyed or repelled.

**Performance Steps**

1. Analyze the mission.
2. Issue a warning order.
3. Make a tentative plan.
4. Conduct a reconnaissance. Consider the effects of fire, building structure, positions for vehicles, anti armor weapons, and engagement areas in squad zone. Reconnoiter on the ground, if you can. Otherwise, conduct a map reconnaissance. Try to get blueprints, photographs, and building floor plans.
5. Start the necessary movement or preparation.
6. Complete or revise the plan. Issue the operations order at the time and place designated in the warning order.
7. Establish local security.
8. Position key weapons.
9. Clear fields of fire.
10. Select primary fighting positions.
11. Emplace a hasty minefield, obstacles or both.
12. Establish a local communications system.
13. Emplace early warning devices.
14. Improve fighting positions.
15. Prepare alternate and supplementary positions.
16. Stockpile ammunition, water, and food.
17. Conduct maintenance.
18. Cover friendly obstacles with fires.
19. Destroy/ repel the enemy.

**Evaluation Preparation:** SETUP: Provide the urban operation site and all training aids/devices necessary to complete task.

**BRIEF SOLDIER:** Tell the leader he is part of a larger force defending in urban terrain and to defend a specified sector.

| <b>Performance Measures</b>                                                                              | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|----------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Employed the fighting vehicle teams and dismount teams in their proper roles.                         | —                | —                   |
| 2. Positioned the section/squad, using the urban terrain to take advantage of the weapons' capabilities. | —                | —                   |
| 3. Positioned obstacles to reduce enemy mobility and allow longer engagement time for weapon systems.    | —                | —                   |
| 4. Selected most defensible buildings within his sector.                                                 | —                | —                   |
| 5. Placed weapon systems so as to best support defensive position.                                       | —                | —                   |
| 6. Controlled the squad by issuing fragmentary orders as the situation developed.                        | —                | —                   |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**  
FM 7-7J

**Related**  
FM 3-06  
FM 3-06.11

Subject Area 18: RECON-SECURITY: GENERAL

**Conduct Operation of a Patrol Base**  
**071-720-0006**

**Conditions:** In a combat environment, given a mission requiring an extended stay in enemy territory.

**Standards:** (1) Developed a plan that included routes, key terrain, fire support, formations, control measures, and security measures for the patrol.

(2) Reconnoitered and secured the patrol base before it was occupied, removed signs of entry, established OPs, and designated withdrawal routes.

(3) Kept the patrol base secured, maintained communications, maintained weapons and equipment; performed personal hygiene tasks, and implemented rest and feeding plans.

**Performance Steps**

1. Receive the mission.
2. Make a tentative plan.
3. Conduct map reconnaissance. Check aerial photos when available.
4. Develop the final plan. The final plan provides a location from which the mission can be accomplished. The location is of little tactical value to the enemy, difficult to approach, near water if possible, easily defended, and offers good cover and concealment. A security plan providing for observation, defense, sleep, and active/passive security measures.
5. OCCUPY.
  - a. Conduct the approach. Enters with a right angle turn. METT-TC dependent (this step is not done if there is no tactical reason).
  - b. Move to vicinity of patrol base site with a soldier from each squad.
  - c. Conduct the reconnaissance. Entry point designated as six o'clock, one soldier from each squad is left as a guide. Squad patrol base will cigar shaped.
  - d. Secure the patrol base.
6. CONDUCT.
  - a. Enforce security measures. Active measures include an OP and an established alert level. Passive includes noise and light discipline, camouflage.
  - b. Institute defense measures.
  - c. Maintain communications.
  - d. Supervise maintenance.
  - e. Supervise sanitation and personal hygiene.
  - f. Supervise eating.
  - g. Implements sleep and rest plan.
  - h. Continue planning and mission preparation.

**Evaluation Preparation:** SETUP: At the test site, provide the leader with material and information given in task condition statement.

**BRIEF SOLDIER:** Tell the leader to set up the operation of a patrol base ensuring that an alternate patrol base site has been established.

**Performance Measures**

- |                            | <u><b>GO</b></u> | <u><b>NO GO</b></u> |
|----------------------------|------------------|---------------------|
| 1. Selected a patrol base. | —                | —                   |

**Performance Measures**

2. Reconned the patrol base.
3. Secured the patrol base.
4. Occupied a patrol base.
5. Operated a patrol base.

**GO**    **NO GO**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**
**Related**  
 FM 7-7J  
 FM 7-8



## Subject Area 20: RECON-SECURITY: OPSEC AND COMSEC

**Protect Classified Information and Material****301-348-6001**

**Conditions:** Given classified material, AR 380-5, local standard operating procedures (SOP), Standard Forms (SF) 700, 702, 703, 704, 705, and standard office supplies and equipment. This task is performed in all environments.

**Standards:** Maintained classified material under physical control and prevent unauthorized access 100 percent of the time.

**Performance Steps**

1. Determine official requirement for individual access to classified material.
  - a. Identify the specific documents needed to accomplish official duties.
  - b. Determine need-to-know. Ensure that access to classified information or material is required to perform official duties.

Note: No one has a right to have access to classified information solely by virtue of rank or position.

- c. Determine security clearance. Ensure that personal security clearance is equal to or exceeds the classification level of the material required to perform official duties.
2. Arrange to receive the documents from the document custodian.
3. Prevent unauthorized persons from gaining access to classified material.
  - a. Place one of the following cover sheets on the classified material:
    - (1) SF 705 for CONFIDENTIAL material.
    - (2) SF 704 for SECRET material.
    - (3) SF 703 for TOP SECRET material.
  - b. Review documents for proper classification markings.
    - (1) Ensure that each portion of a classified document is marked according to its content.
    - (2) Ensure that each page is marked top and bottom according to the highest classification of information contained on that page.
  - c. Examine all classified documents for completeness.
  - d. Keep all classified documents under constant observation when removed from storage.
  - e. Keep all classified documents face down or covered when not in use.
  - f. Use one of the following methods when uncleared personnel enter the work area:
    - (1) Place all classified material face down.
    - (2) Cover the classified material.
    - (3) Place classified material in a General Services Agency (GSA) approved security container.
  - g. Use one of the following methods when departing the work area temporarily:
    - (1) Give the classified material to a properly cleared individual who has a need-to-know.
    - (2) Place the classified material in an approved security container.
  - h. Do not give classified material to other persons without determining their-
    - (1) Need-to-know.
    - (2) Security clearance.
  - i. Prevent display of classified material in public places.
4. Do not discuss classified information over nonsecure telephones. Conduct classified discussions only on-
  - a. Approved secure communications circuits.
  - b. Protected distribution systems installed in accordance with (IAW) National Communication Security (COMSEC) Instruction 4009.
5. Use the following procedures when working papers containing classified information are created:

### Performance Steps

- a. Date the document.
  - b. Mark the document with the words "Working Papers".
  - c. Mark each page, top and bottom, according to content.
  - d. When the document is no longer needed, destroy the document IAW the SOP for that document's level of classification.
  - e. Bring working papers under control as a finished document when-
    - (1) Retained more than 90 days from date of origin.
    - (2) Released outside the originator's agency.
    - (3) Transmitted electrically or electronically.
    - (4) Filed permanently.
    - (5) Papers contain TOP SECRET information.
6. Use the following procedures when presenting a classified briefing:
- a. Ensure that the briefing area has been cleared to the highest level of material to be discussed.
  - b. Check the attendance roster to ensure all personnel are cleared and have a need-to-know.
  - c. Establish a sign-in roster at the main entrance to the briefing area and control access at all other entrances.
  - d. Ensure that all training aids are marked with security classification according to their content.
  - e. At the beginning of the briefing, inform the audience of the security classification of the briefing, and the policy concerning note taking.
  - f. Repeat the security classification at the end of the briefing.
7. Protect classified material when transporting outside of a building.
- a. Double wrap classified material in opaque envelopes or similar wrapping
    - (1) Mark the inner envelope with the overall classification of the contents.
    - (2) Do not mark the outer envelope with any indication of the contents.
  - b. During transportation, do not display classified material in public places.
  - c. During transportation, do not store classified material in any detachable storage compartment, such as automobile trailers or luggage racks.
  - d. During transportation, maintain constant observation of the classified package.
8. Secure all classified material in a proper storage container when that material is not in use.
- a. Return all classified material to the original custodian, if applicable.
  - b. Secure all classified material in an appropriate security container, if applicable.
    - (1) Place all classified material, to include typewriter ribbons, computer disks, notes, and similar materials in an approved security container.
    - (2) Lock the security container.
    - (3) Write date, time, and initials in the appropriate block of SF 702.
    - (4) Turn the "OPEN/CLOSED" sign located on the front of the security container to the "CLOSED" position.
    - (5) Ensure that another person checks the container to make sure it is locked and initials the SF 702.
9. Take action upon discovery of unsecured classified material.
- a. Use the following procedure when discovering a security container open and unattended:
    - (1) Keep the container under guard or surveillance.
    - (2) Immediately notify one of the persons listed on the SF 700 affixed to the container.
- Note: If one of the individuals listed on the SF 700 cannot be contacted, notify the duty officer or commander.
- b. Use the following procedure when discovering unattended classified documents:
    - (1) Take custody of the classified material.
    - (2) Protect the material to prevent unauthorized access.
    - (3) Immediately notify the Security Manager.
10. Destroy classified material when no longer needed IAW AR 380-5.

**Evaluation Preparation:** SETUP: Provide the soldier with the materials listed in the condition statement of this task.

**BRIEF SOLDIER:** Tell the soldier to protect the classified material. Note to the trainer: If this task is to be evaluated during training, prepare and provide the soldier material which is classified "FOR TRAINING PURPOSES ONLY". Ensure that the material is marked to this effect.

| <b>Performance Measures</b>                                                                              | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|----------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Determined requirement for access.                                                                    | _____            | _____               |
| 2. Prevented unauthorized access to classified information.                                              | _____            | _____               |
| a. Placed cover sheet on classified material.                                                            |                  |                     |
| b. Reviewed document for proper classification.                                                          |                  |                     |
| c. Accounted for all pages of document.                                                                  |                  |                     |
| d. Kept classified material under constant observation.                                                  |                  |                     |
| e. Kept documents face down or covered when not in use.                                                  |                  |                     |
| f. Took appropriate action when uncleared persons enter the work area.                                   |                  |                     |
| g. Took appropriate action when temporarily departing the work area.                                     |                  |                     |
| h. Determined need-to-know and security clearance before releasing classified material to other persons. |                  |                     |
| i. Prevented display of classified material in public places.                                            |                  |                     |
| 3. Prevented classified material from being discussed on the telephone.                                  | _____            | _____               |
| 4. Protected classified material during transportation.                                                  | _____            | _____               |
| 5. Secured classified material when not being used.                                                      | _____            | _____               |
| a. Returned documents to original custodian, if applicable.                                              |                  |                     |
| b. Locked classified material in an appropriate security container, if applicable.                       |                  |                     |
| 6. Took appropriate action upon discovery of unsecured classified material.                              | _____            | _____               |
| a. Secured classified material.                                                                          |                  |                     |
| b. Notified appropriate official.                                                                        |                  |                     |
| 7. Destroyed classified material if applicable in accordance with SOP for that level of classification.  | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

**Required**  
AR 380-5

#### **Related**

## Subject Area 22: SUSTAIN: GENERAL

**Charge a Battery Using a PP-7382/TAS Battery Charger**  
**071-316-2538**

**Conditions:** Given a PP-7382/TAS battery charger, one to six nickel cadmium batteries, an AC or DC power source, and a requirement to charge a battery.

**Standards:** The batteries have been charged as a result of placing the PP-7382/TAS battery charger into operation.

**Performance Steps**

1. Remove battery cover.
2. Place the input power on/off circuit breaker switch to the OFF position.
3. Remove power cable from battery cover.

NOTE: Power cable W1 is used with a DC power source, power cable W2 is used with an AC power source.

4. Remove connector cover from connector J7.
5. Connect the end of power cable which mates with connector J7 to the J7 input power connector.
6. Set input power on/off circuit breaker to ON.
7. Check to ensure that the input power indicator light illuminates.

NOTE: If input power indicator light fails to light, remove and replace lamp.

8. Releases latch and opens one or both battery covers.
9. Insert one to six batteries into battery charger, engaging battery connectors with battery charger connectors J1 - J6.

NOTE: Batteries should be clean before inserting them into battery charger.

10. Close battery covers and secure latch.
11. Rotate timers reset select switch and watch for the appropriate channel indicator light to illuminate.
12. Repeat steps 10 and 11 for each of remaining batteries that were installed.
13. Rotate timers reset select switch to zero.

NOTE: Charging is complete when channel charging indicator goes out.

**Evaluation Preparation:** SETUP: At the test site, provide the soldier with all the equipment given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to charge a battery using a PP-7382 battery charger.

**Performance Measures**

1. Prepared charger for operation.
2. Correctly placed batteries into charger.
3. Placed charger into operation.
4. Charged batteries.

**GO**      **NO GO**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-5855-254-14

## Direct Vehicle and Equipment Recovery Operations

### 091-309-0711

**Conditions:** Given an applicable vehicle with crew, appropriate basic issue items (BII), necessary safety equipment, and applicable references. Additional similar vehicles with crew and equipment may or may not be available. Another vehicle in your platoon or section is mired, overturned, nosed in, bellied, or mechanically disabled.

**Standards:** The vehicle is recovered onto solid ground using either self or field expedient recovery techniques so that: 1. Personnel are not injured 2. Vehicle/equipment is not damaged 3. Vehicle is prepared for cross-country tow, if necessary.

### Performance Steps

1. Determine the appropriate recovery technique.
  - a. Mission, enemy, terrain, troops and time (METT-T) dictates the most effective recovery technique. If a similar vehicle is available it is usually the quickest recovery technique. However, if the available vehicle's mission is more time sensitive than the mired vehicle's mission the mired vehicle should attempt self recovery or request recovery vehicle support.
  - b. If the vehicle is disabled, expedient repair should be considered. If the METT-T situation allows, similar vehicle towing should be considered before requesting recovery vehicle support
2. Prepare for recovery.
  - a. Select and use the applicable publications.
  - b. Prepare vehicle for recovery; for example, disconnect drive shaft or final drive, if necessary.
  - c. Inspect equipment for serviceability.
3. Perform the recovery.
4. If self/similar vehicle recovery is not effective or practical, notify the company maintenance team (CMT).

### Performance Measures

|                                                                                                                                                                                                              | <u>GO</u> | <u>NO GO</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Analyze the situation to determine if vehicle can be recovered by self/field expedient means.                                                                                                             | —         | —            |
| a. Reconnoiter the area.                                                                                                                                                                                     |           |              |
| (1) Locate possible anchors.                                                                                                                                                                                 |           |              |
| (2) Select the best route of approach to the disabled vehicle to prevent possible disablement of the recovery vehicle.                                                                                       |           |              |
| b. Estimate the degree of vehicle disablement.                                                                                                                                                               |           |              |
| (1) Is the vehicle overturned partially or completely?                                                                                                                                                       |           |              |
| (2) Is the vehicle nosed-in at a moderate angle or a severe angle?                                                                                                                                           |           |              |
| (3) Is the vehicle mired deeply?                                                                                                                                                                             |           |              |
| c. Inspect all of the equipment for serviceability.                                                                                                                                                          |           |              |
| d. If self/similar vehicle recovery is not effective or practical, notify the company maintenance team (CMT) or troop maintenance section.                                                                   |           |              |
| 2. Determine the appropriate recovery technique.                                                                                                                                                             | —         | —            |
| a. Winching Select winching if your scout platoon has HMMWVs. Tank and BFVs are not equipped with winches. In rare cases, these platoons may have a special purpose vehicle, with a winch, attached to them. |           |              |
| b. Towing Select towing if similar vehicles are available.                                                                                                                                                   |           |              |
| c. Expeditents Select a field expedient method when similar vehicle(s) are not available or when other methods are not adaptable to the situation.                                                           |           |              |
| 3. If towing by one or more similar vehicles, perform the following actions:                                                                                                                                 | —         | —            |

**Performance Measures****GO    NO GO****a. For a mired vehicle:**

- (1) Determine the number of vehicles based on the resistance to be overcome and the terrain conditions.
- (2) Direct the crew of the disabled vehicle to rotate or elevate the gun tube.
- (3) Direct recovery vehicle(s) into position to perform the recovery operation.
- (4) Direct vehicle operator(s) to shut down engine(s) and set vehicle brake(s).
- (5) Direct crews to cross the tow cables and attach them to the tow hooks of both vehicles.
- (6) Move to a position that affords an unobstructed view of all rigging and drivers.

**CAUTION:** Tow hooks are mounted throat up to restrict rigging movement downward in case of equipment failure.

- (7) Direct operators to watch for and act on signals.
- (8) Observe recovery operation and correct any errors immediately.
- (9) Direct driver of pulling vehicle(s) to slowly move forward until disabled vehicle is on solid ground.
- (10) Direct crew to perform spot checks to determine if evacuation is necessary.

**b. For a nosed-in vehicle:**

- (1) Determine the number of vehicles based on the resistance to be overcome and the terrain conditions.
- (2) Move to a position that affords an unobstructed view of all rigging and drivers.
- (3) Observe recovery operation and correct any errors immediately.
- (4) Direct the pulling vehicle(s) to face the rear of the nosed vehicle.
- (5) If a lifting vehicle is necessary, direct it to face the front of the nosed vehicle.
- (6) Direct the crew to connect the cables of the recovering vehicles in the same way as for recovering a mired vehicle.
- (7) Ensure that dismounted personnel move away from the recovery site to a distance of the longest cable in the rigging in the opposite direction of the angle of pull.
- (8) Ensure that power is applied to all assisting vehicles at the same time.
- (9) Direct the pulling vehicle(s) to slowly move forward.
- (10) Ensure that the lifting vehicle maintains support until the recovery is complete.

**CAUTION:** If oil or fuel has spilled in the nosed vehicle, ensure the engine is not started until the spill has been cleaned up.

- (11) Direct crew to perform spot checks to determine if evacuation is necessary.

**c. For an overturned vehicle:**

**WARNING:** Do not permit smoking or open flames near the overturned vehicle due to chance of spilled oil, fuel, or battery acid. **WARNING:** Typically, three similar vehicles are required to upright an overturned vehicle. One vehicle becomes the pulling vehicle, while the other two hold and retard the fall of the overturned vehicle so that it does not crash down on its suspension system.

- (1) Ensure that tow cables are connected together to allow a safe working distance.
- (2) Move to a position that affords an unobstructed view of all rigging and drivers.
- (3) Observe recovery operations and correct any errors immediately.
- (4) Position pulling vehicle 90 degrees and centered on the overturned vehicle.

**Performance Measures****GO**    **NO GO**

- (5) Direct the crew to connect the cable used for uprighting to the nearest center road wheel arm support housing on the upper side of the overturned vehicle.

**CAUTION:** Never connect to any other part of the suspension system, turret, or tie-down eyes.

- (6) Position the two holding vehicles opposite the pulling vehicle at a 30 to 45-degree angle from the overturned tank with their cables connected to the tow hooks on the high side of the overturned vehicle.

**WARNING:** Before continuing with the recovery operation, all injured personnel and loose ammunition must be removed from the overturned vehicle.

- (7) Ensure that the holding vehicles are positioned in such a way as to prevent damage to the cables, fenders, and lights of the overturned vehicle as it is uprighted.
- (8) Ensure that personnel move away from the recovery site to a distance of the longest cable in the rigging in the opposite direction of the angle of pull.
- (9) Direct drivers of the holding vehicles to shift to low range.
- (10) Direct the pulling vehicle to apply power gradually in reverse, while the holding vehicles move forward only enough to keep their cables taut until the overturned vehicle passes through the balance point.
- (11) As the overturned vehicle passes through the balance point, direct the holding vehicles to move forward slowly, supporting the overturned vehicle and lowering it onto its suspension system.
- (12) Direct crew to perform spot checks to determine if evacuation is necessary.

**WARNING:** Always position vehicles so that their exhausts point away from the overturned vehicle.

- 4. If recovering a tracked vehicle by field expedient self-recovery, perform the following actions:

- a. Select the desired field expedient self-recovery method.
- b. For the log expedient method of recovery:

- (1) Direct crew to obtain a log as long as the width of the vehicle and of sufficient diameter to support the weight of the vehicle.
- (2) Direct crew to place the log against the tracks, front or back, depending on the direction of required movement for the disabled vehicle.
- (3) Direct crew to place a tow cable so that one end of the cable goes over the log and through the track from the inside.
- (4) Direct crew to place the other end of the tow cable underneath the log and connect the ends together with a tow hook on the outside of the track to make disconnecting the cable easier.
- (5) Direct crew to follow the same preparation procedure for the opposite side of the vehicle.
- (6) Direct the other crew members to a safe distance of at least twice the length of the log.
- (7) Move to a position that affords an unobstructed view of the rigging and driver.
- (8) Observe recovery operation and correct any errors immediately.
- (9) Direct driver to start his vehicle and accelerate slowly until the ground guide signals him to stop when the leading roadwheel contacts the log.
- (10) Signal driver to apply power slowly to take up slack.
- (11) If the log does not solidly anchor to solid ground, obtain a larger log.

**CAUTION:** To prevent damage to the fenders and tow cables, stop the vehicle before the log reaches the fenders or the cable reaches to the drive sprocket.

- (12) When the vehicle has traction on solid ground, direct the driver to



**Performance Measures****GO**    **NO GO**

- continue moving the vehicle until the log is no longer supporting.
- (13) Direct driver to shut down engine and set parking brake.
- (14) Direct crew to perform spot checks on the suspension system to determine if evacuation is necessary.
- c. For the tow cable sling field expedient method:
  - (1) Direct crew to connect two tow cables together using a tow hook assembly.
  - (2) Direct crew to lay connected tow cables underneath the front or rear track slope of the vehicle.
  - (3) Direct crew to attach the tow cables to both tracks by passing the ends of the cables through the track from the outside to the inside.
  - (4) Attach the ends of the cables to the standing parts of the cables using tow hook assemblies or lifting shackles.
  - (5) Direct crew members to move to a safe location.
  - (6) Observe recovery operations and correct any errors immediately.
  - (7) Direct driver to start engine.
  - (8) Signal driver to apply power slowly to take up the slack.

CAUTION: As tow cables tighten around obstruction, the vehicle will catapult off of obstruction. CAUTION: Vehicle motion must be stopped before tow cables reach the fenders or drive sprockets. Damage to equipment will result if tow cables are pulled through suspension/drive system.

- (9) Direct driver to stop vehicle when clear of obstruction, shut down vehicle, and set parking brake.
  - (10) Direct crew to remove equipment used and store in original location on the vehicle.
  - (11) Perform spot checks on recovered vehicle to determine if evacuation is required.
5. If recovering a wheeled vehicle by field expedient means, perform the following actions: \_\_\_\_\_
- a. For a lightweight truck in a ditch (either both front or both rear wheels are in the ditch and the vehicle has bottomed out) use the simple lever method:
    - (1) Instruct the driver to set the parking brake, place the shift control in neutral, and shut off the engine.
    - (2) Direct crew to locate a pole at least 8" long and 5" in diameter.
    - (3) Direct crew to place the pole under the disabled end of the truck, between the vehicle and firm ground.
    - (4) Direct crew to lift or push down (as necessary), while the driver applies slow and steady power to the vehicle in the opposite direction of original travel.
  - b. For a mired vehicle, use one wheel as an expedient winch.
    - (1) Instruct the driver to set the parking brake, place the shift control in neutral, and shut off the engine.
    - (2) Direct crew to use the vehicle BII, and place a bar through the hole in the end of the axle flange or tie down bracket.
    - (3) Direct crew to locate a fixed object (tree, fence post, etc., within the length limits of the rope).
    - (4) Direct crew to attach the rope to the wheel(s) by fastening it to the bar(s) with figure eight hitches.
    - (5) Direct crew to secure the rope end to the fixed object using a clove hitch.
    - (6) Instruct other crew members to move a safe distance away.
    - (7) Move to a position that affords an unobstructed view of rope(s) and driver.
    - (8) Observe the recovery operation and correct any errors immediately.

**Performance Measures****GO**    **NO GO**

- (9) Direct that the driver start the vehicle and apply slow and steady pressure, to wind the ropes around the hub(s) and pull the vehicle out in the opposite direction of original travel.
- (10) Direct crew to perform spot checks to determine if evacuation is necessary.
- c. For a mired vehicle (equipped with dual wheels), use the dual wheels as an expedient winch:
  - (1) Instruct the driver to set the parking brake, place the shift control in neutral, and shut down the engine.
  - (2) Direct a crew to locate a fixed object (tree, fence post, etc.) within the length limits of the rope).
  - (3) Direct crew to place the rope between the dual wheels.
  - (4) Direct crew to thread the rope to the outside, through the outer wheel opening, and secure the rope to the axle flange using a square knot.
  - (5) Direct crew to wrap the rope around the fixed object.
  - (6) Repeat steps (3) and (4) on the other set of dual wheels.
  - (7) Instruct the crew members to move a safe distance away.
  - (8) Move to a position that affords an unobstructed view of rope(s) and driver.
  - (9) Observe recovery operation and correct any errors immediately.
  - (10) Direct that the driver start the vehicle and apply slow, steady pressure, to wind the ropes between the dual wheels and pull the vehicle out in the same direction it entered, until the vehicle is again on firm ground.
  - (11) Direct crew to perform spot checks to determine if evacuation is necessary.
- d. For vehicles requiring additional traction (equipped with dual wheels), perform the following actions:
  - (1) Instruct the driver to set the parking brake, place the shift control in neutral, and shut down the engine.
  - (2) Direct crew to locate a log, large enough to extend beyond the dual wheels (single set).
  - (3) Direct crew to position the log forward of and against the wheels.
  - (4) Direct crew to thread the rope under the log, and through the outer wheel.
  - (5) Direct crew to secure the free end of the rope to the portion under the log with a square knot.
  - (6) Instruct the crew members to move a safe distance away.
  - (7) Move to a position that affords an unobstructed view of the riggings and driver.
  - (8) Observe recovery operation and correct any errors immediately.
  - (9) Direct that the driver start the vehicle and apply slow, steady pressure in the same direction of travel.
  - (10) Stop the driver before the log rotates up and under the bed of the truck.
  - (11) Repeat steps (3) through (10) until the vehicle is again on firm ground.
  - (12) Direct crew to perform spot checks to determine if evacuation is necessary.

6. If evacuation is required, direct preparation of vehicle for towing.

\_\_\_\_\_

7. When the vehicle is recovered and/or prepared for towing, notify platoon/section leader.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all task steps are passed. Score the soldier NO-GO if any steps are failed. If the soldier scores NOGO, show him what was done wrong and how to do it correctly.

**References**  
**Required**  
TM 9-4020-200-10

**Related**

## Subject Area 24: SUSTAIN: NBC

**Supervise Operational Decontamination**  
**031-507-3003**

**Conditions:** Given a requirement to supervise hasty decontamination (decon), a contaminated unit with organic decon equipment and a battalion power-driven decontaminating equipment (PDDE) crew, an M12A1 power-driven decontaminating apparatus (PDDA) or M17 light weight decontaminating system (LDS), unit SOP, and FM 3-5.

**Standards:** 1. Coordinate with all necessary personnel to obtain required supplies, equipment, and support. 2. Ensure hasty decon procedures are performed in accordance with (IAW) unit Standard Operating Procedure (SOP) and FM 3-5. 3. Ensure hasty decon operation is completed in a timely manner, based on mission requirements.

**Performance Steps**

1. Coordinate operational decon.
  - a. Ensure coordination with battalion for decon support.

Note: If Battalion assets are not available to provide decon support, battalion should coordinate with division (or brigade) for help.

- b. Ensure coordination with battalion/higher on site location and rendezvous.
  - c. Ensure coordination with company supply section to deliver additional water requirements.

2. Supervise the operation of a hasty decon site.
  - a. Make maximum use of the area to include overhead concealment.
  - b. Monitor water consumption.

NOTE: If a water source is not available at the site, plan to use about 100 gallons of water for each armored personnel carrier.

- c. If existing facilities are being used, such as car washes and swimming pools, ensure facilities are able to handle the numbers of vehicles and/or largest vehicle.
  - d. Ensure the proper drainage is maintained during decon operations.
  - e. Ensure vehicles ENTER and EXIT the site properly.
  - f. Ensure crews are briefed before performing decon:
    - (1) Vehicles are concealed while awaiting washdown.
    - (2) Maintain proper intervals between vehicles as they move through the site.
    - (3) Wheeled vehicle crews dismount before washdown.
    - (4) Tracked vehicle crews remain buttoned up during washdown.

Note: Local SOP should describe the rendezvous procedures for all parties involved to avoid confusion, delay, or confrontation with enemy forces.

- g. Ensure MOPP gear exchange runs concurrent with vehicle washdown.

3. Supervise the closure of the hasty decon site.
  - a. Ensure the battalion PDDA crew properly marks the site and reports contamination.
  - b. Ensure the battalion PDDA crew properly disposes contaminated items.

**Evaluation Preparation:** Setup: Evaluate this task during a field exercise or normal training session. Choose a site that has already been setup and/or operating. Have communications available for coordination of teams/materials.

Brief Soldier: Tell the soldier he will be evaluated on the ability to supervise hasty decon operations.

**Performance Measures**

**GO**    **NO GO**

1. Coordinated an operational decon.

\_\_\_\_\_

| Performance Measures                                     | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------|-----------|--------------|
| 2. Supervised an operational decon site.                 | _____     | _____        |
| 3. Supervised the closure of the operational decon site. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If any step is failed, show the soldier what was done wrong and how to do it correctly.

| References         | Related |
|--------------------|---------|
| Required<br>FM 3-5 |         |

## Subject Area 26: VEHICLES

**Operate the Commander's Tactical Display on an M2A3/M3A3 BFV****071-001-0003**

**Conditions:** Given an M2A3/M3A3 BFV with basic issue items, master power and turret power is ON.

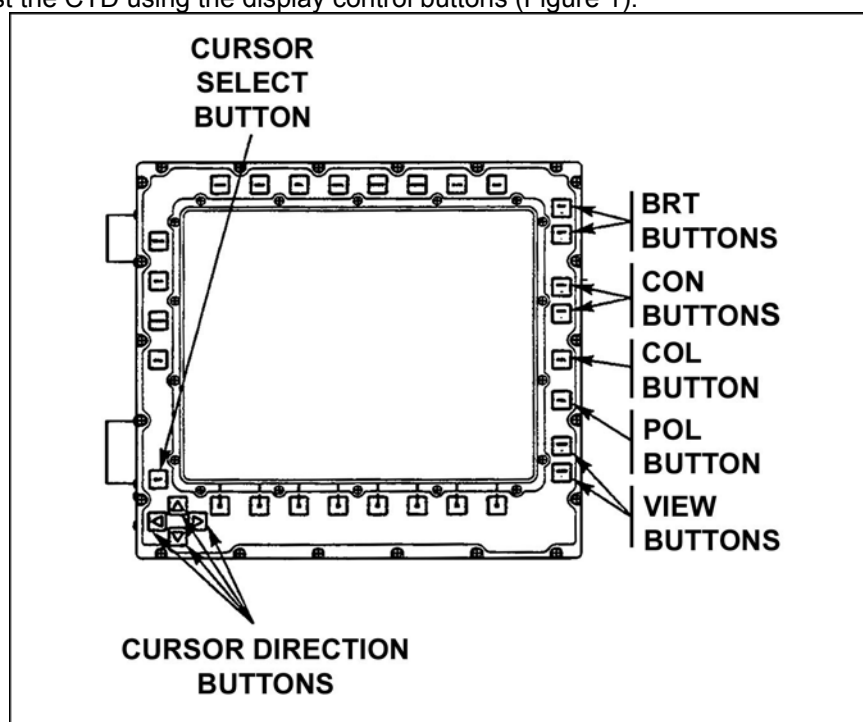
**Standards:** Prepared the commander's tactical display (CTD) for operation, selected the desired input device, and selected the desired function on the CTD without causing damage to equipment or injury to personnel.

**Performance Steps**

1. Prepare the commander's tactical display (CTD) for operation.

NOTE: Pressing the COL and POL buttons will have no effect on the CTD.

- a. Adjust the CTD using the display control buttons (Figure 1).



Display control buttons.

- (1) Adjust the brightness (BRT) of the screen.

NOTE: Pressing and holding either BRT+ or BRT- button down for approximately 1 second will accelerate the button function.

- (a) Press and release the BRT+ button to increase screen brightness.
- (b) Press and release the BRT- button to decrease screen brightness.
- (c) Repeat steps (1) and/or (2) to achieve the desired brightness.

- (2) Adjust the contrast (CON) of the screen.

NOTE: Pressing and holding either CON+ or CON- button down for approximately 1 second will accelerate the button function.

- (a) Press and release the CON+ button to increase screen contrast.
- (b) Press and release the CON- button to decrease screen contrast.
- (c) Repeat steps (1) and/or (2) to achieve the desired contrast.

- (3) Adjust the viewing angle (VIEW) of the screen.

NOTE: Each press and release of either button increases or decreases the viewing angle by a 1/2

**Performance Steps**

degree.

NOTE: Pressing and holding either VIEW+ or VIEW- button down for approximately 1 second will accelerate the button function.

- (a) Press and release the VIEW+ button to increase the viewing angle of the screen.
  - (b) Press and release the VIEW- button to decrease the viewing angle of the screen.
  - (c) Repeat steps (1) and/or (2) to achieve the desired viewing angle.
- b. Adjust the CTD using the secondary buttons (Figure 2).

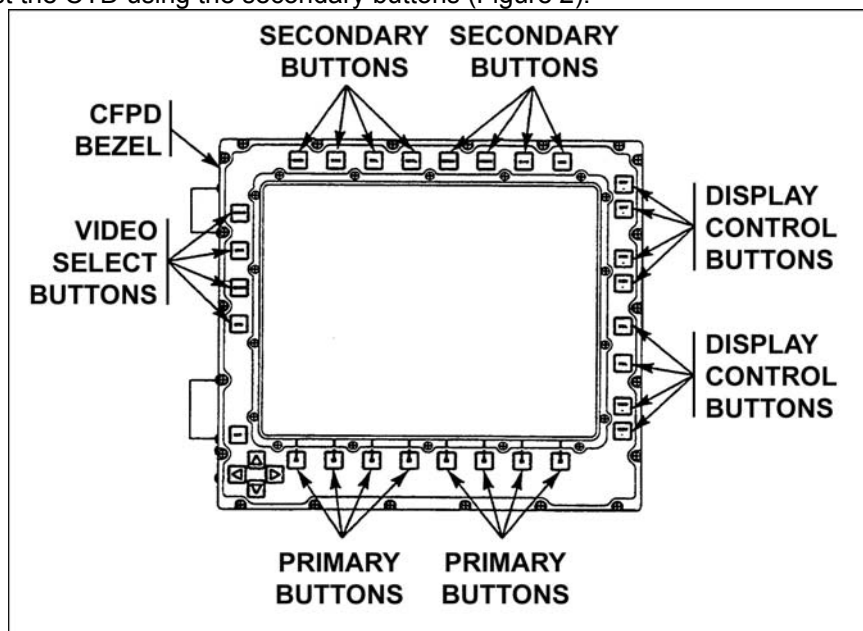


Figure 2. Secondary buttons.

NOTE: The remaining five secondary buttons across the top of the display (MSG, SCL, SCRL, ZOOM, and HOME) are inactive with the implementation of Force XXI Battle Command Brigade and Below (FBCB2).

- (1) Adjust the backlighting using the D/N button.
  - (a) Press and release the D/N button to change the backlight from day (D) to night vision imagery system (NVIS) (N), with reduced backlighting.

NOTE: This mode is for use with night vision devices.

- (b) Observe the CTD backlighting.
- (c) Press and release the D/N button again to change the backlight from night vision imagery system (NVIS) (N) to day (D), with increased backlighting.
- (d) Observe the CTD backlighting.

- (2) Adjust the CTD security lighting function using the secure (SEC) button.

NOTE: The secure mode is automatically entered when the ramp or the ramp door is opened.

- (a) Press and release the SEC button to place the CTD backlighting in a secure mode.
- (b) Press and release the SEC button to remove the CTD backlighting from secure mode.

- (3) Manipulate the MAIN button.

- (a) Press and release the secondary button MAIN (top left corner).
- (b) Observe that the main menu screen is displayed.

2. Select the desired input device to use with the CTD.

- a. Use the cursor direction and select buttons (Figure 3).

## Performance Steps

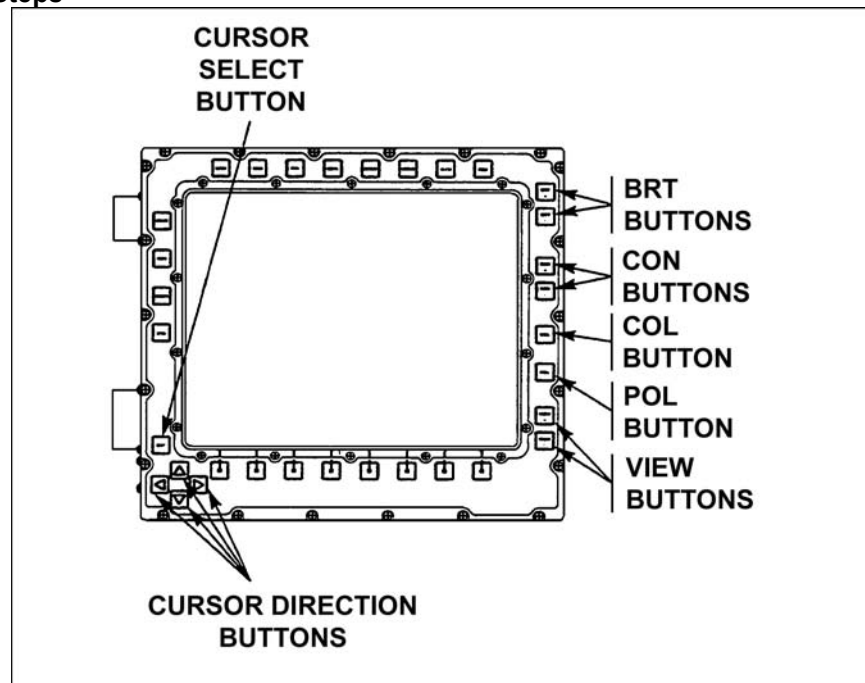


Figure 3. Cursor direction and select buttons.

NOTE: The cursor direction and cursor select buttons work the same as the Commander's Data Entry Tool (CDET) arrow and enter keys. The CDET can be used in conjunction with the cursor direction and select buttons.

- (1) Press and release the enter (ENT) button to select or enter data.
- (2) Press and release the up arrow to move the cursor up a small distance.
- (3) Press and release the right arrow to move the cursor right a small distance.
- (4) Press and release the down arrow to move the cursor down a small distance.
- (5) Press and release the left arrow to move the cursor left a small distance.
- (6) Press and hold any of the arrow buttons for approximately 1second, the cursor will move at an accelerated rate.

b. Use the commander's data entry tool (CDET)(Figure 4).



## Performance Steps

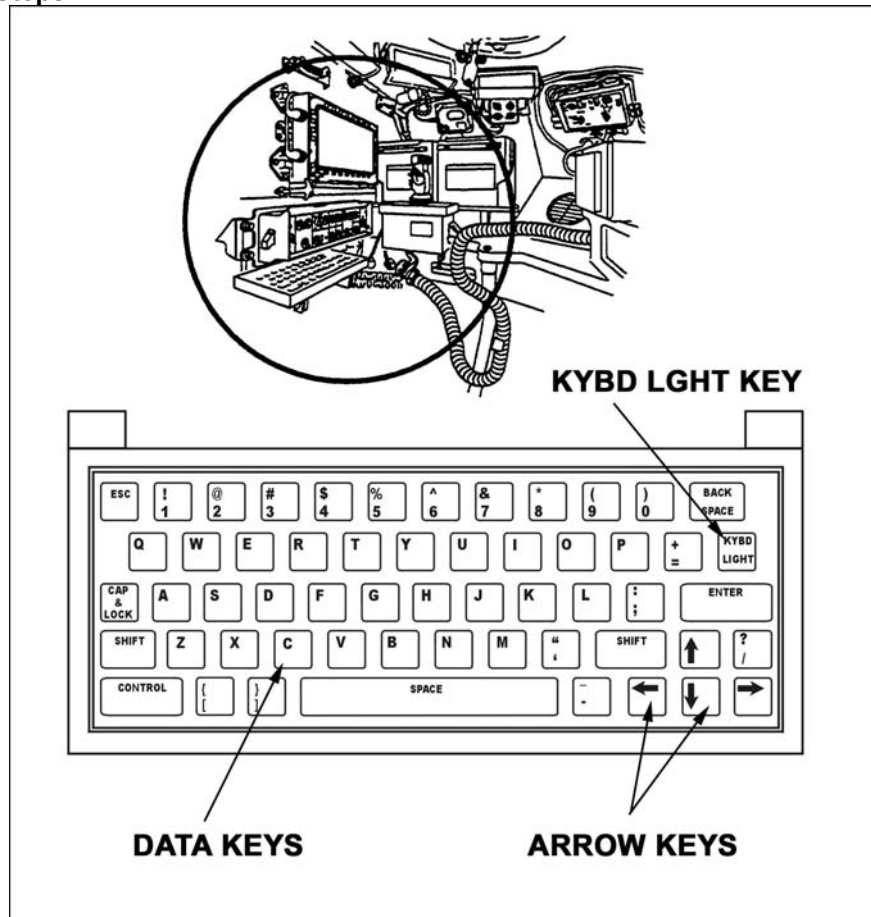


Figure 4. Commander's data entry tool (CDET).

NOTE: The CDET works just like a keyboard on a computer. It also works in conjunction with the cursor control button and the cursor direction and select buttons.

- (1) Press and release the data keys to input the desired information into the selected field.
  - (2) Observe the CTD data field.
  - (3) Press and release the arrow keys to move the cursor to the desired position.
  - (4) Observe the cursor movement on the CTD.
  - (5) Press and release the keyboard light key to adjust the lighting for the keyboard.
  - (6) Observe the lighting on the keyboard.
- c. Use the cursor control button on the commander's hand station (CHS)(Figure 5).

### Performance Steps

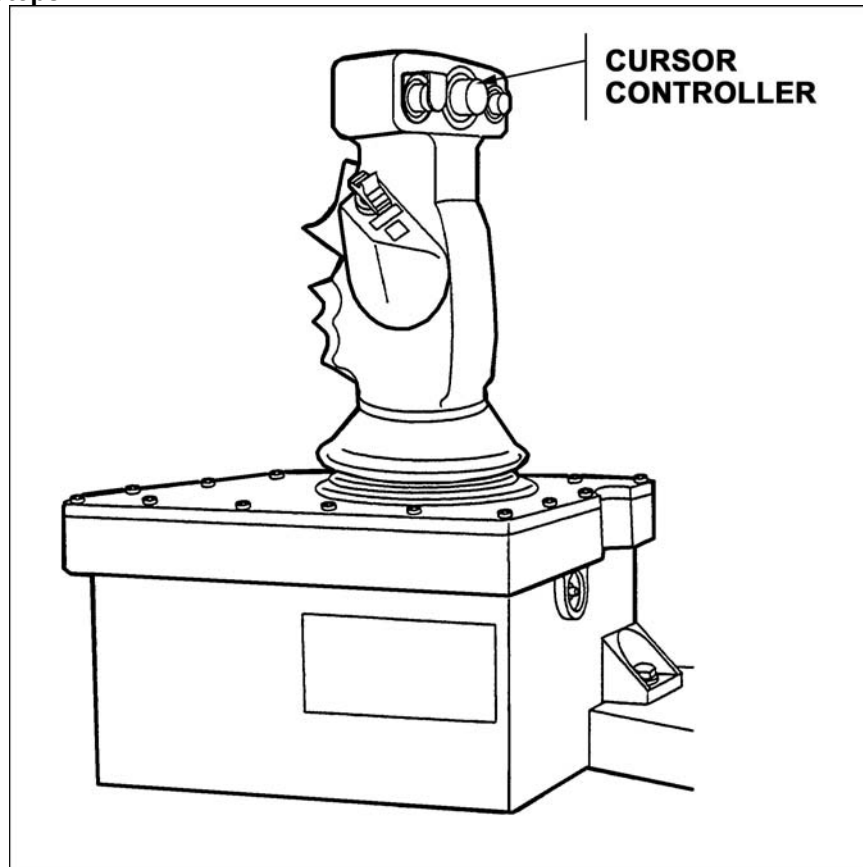


Figure 5. Cursor control.

- (1) Move the cursor control button on the CHS in the desired direction and release.
- (2) Observe the cursor movement.
- (3) Press and release the cursor control button to enter desired data or to highlight a desired field.
- (4) Observe the selected field or data being entered on the CTD.

3. Select the desired function on the CTD (Figure 6).

Performance Steps

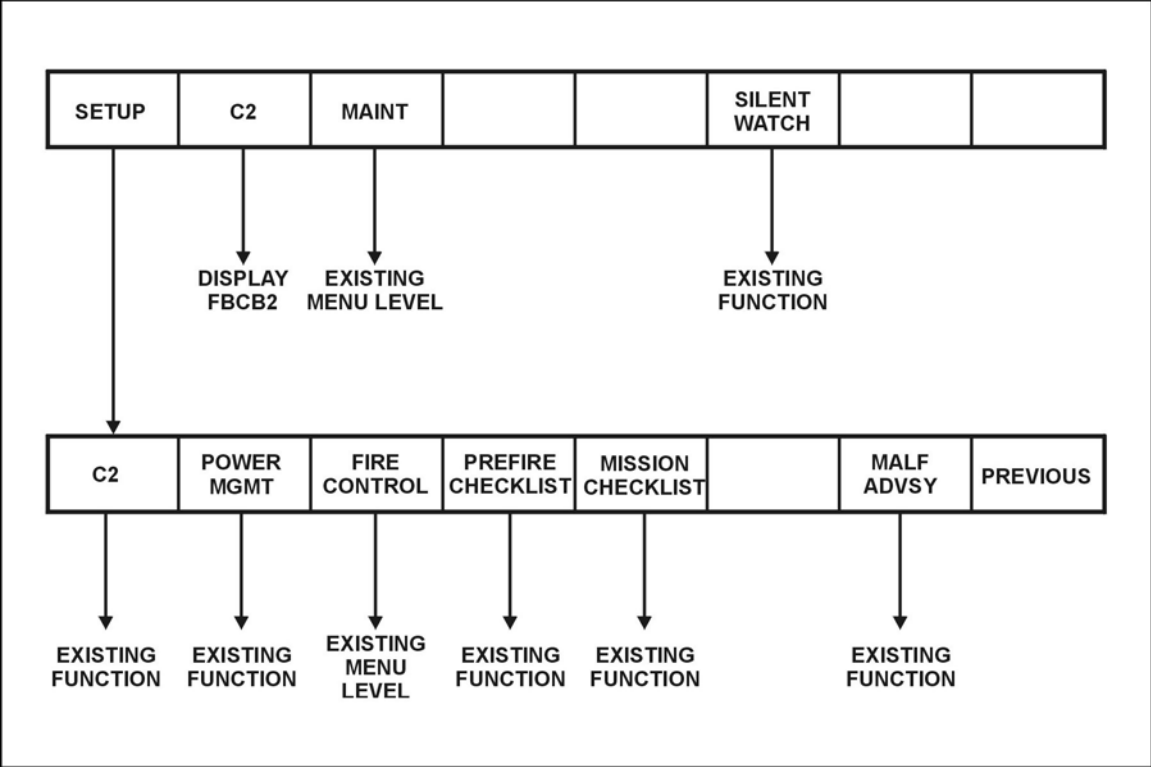


Figure 6. CTD menu structure.

NOTE: The preferred method of selecting the desired menu is by using the primary buttons (softkeys). The menus can also be selected by using the cursor control and the cursor direction and enter button.

a. Select the setup menu (Figure 7).

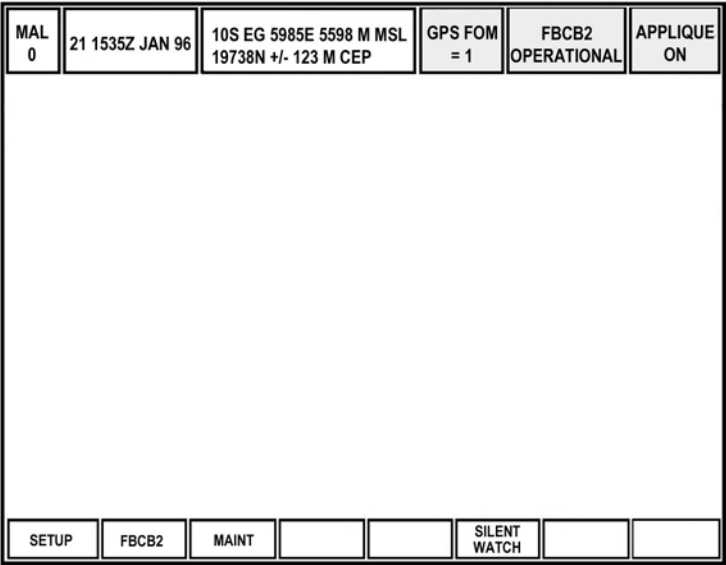


Figure 7. SETUP menu.

- (1) Press and release the SETUP softkey.
- (2) Observe the setup menu screen.

**Performance Steps**

NOTE: The setup menu softkeys consist of navigation (NAV), power management (POWER MGMT), FIRE CONTROL, PREFIRE CHECKLIST, MISSION CHECKLIST, malfunction advisory (MALF ADVSY), and PREVIOUS.

- (3) Press and release the PREVIOUS softkey to return to the main menu.
- (4) Select the navigation (NAV) function (Figure 8).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |                                                 |                |                      |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <b>CURRENT LOCATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |                                                 |                |                      |                |
| <div style="display: flex; justify-content: space-between;"> <div>USE LOCATION</div> <div> <div style="border: 1px solid black; padding: 2px;">10S</div> <div style="border: 1px solid black; padding: 2px;">EG</div> <div style="border: 1px solid black; padding: 2px;">59835</div> <div style="border: 1px solid black; padding: 2px;">E</div> <div style="border: 1px solid black; padding: 2px;">19738</div> <div style="border: 1px solid black; padding: 2px;">N</div> <div style="border: 1px solid black; padding: 2px;">5598</div> <div style="border: 1px solid black; padding: 2px;">M</div> </div> </div>                                                                                                                                                   |                 |                                                 |                |                      |                |
| <div style="display: flex; justify-content: space-between;"> <div>SOURCE</div> <div style="border: 1px solid black; padding: 2px;">GPS</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                                                 |                |                      |                |
| <b>COORDINATE UNITS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |                                                 |                |                      |                |
| <div style="display: flex; justify-content: space-between;"> <div> <div style="display: flex; align-items: center;"> <span style="font-size: 0.8em;">◆</span> MGRS           </div> <div style="display: flex; align-items: center;"> <span style="font-size: 0.8em;">◇</span> LAT/LON           </div> <div style="display: flex; align-items: center;"> <span style="font-size: 0.8em;">◇</span> UTM           </div> </div> <div> <div style="display: flex; align-items: center;"> <span style="font-size: 0.8em;">MGRS FORMAT</span> <div style="border: 1px solid black; padding: 2px; margin-left: 5px;">EG 5984E 1974N (SHORT)</div> <div style="border: 1px solid black; padding: 2px; margin-left: 5px;">10SEG 59835E 19738N (FULL)</div> </div> </div> </div> |                 |                                                 |                |                      |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |                                                 |                |                      | SAVE           |

Figure 8. Navigation function screen.

- (a) Press and release the NAV softkey.
  - (b) Observe the navigation screen.
  - (c) If necessary, enter new data.
  - (d) Select SAVE to accept the changes.
  - (e) Select PREVIOUS to return to the setup menu.
- (5) Select the power management function (Figure 9).

|                                                                                                                     |                 |                                                 |                |                      |                |
|---------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                                            | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <b>POWER MANAGEMENT STATUS</b>                                                                                      |                 |                                                 |                |                      |                |
| <div style="border: 1px solid black; padding: 10px; min-height: 100px;"> EQUIPMENT<br/>CIRCUIT BREAKERS-PASS </div> |                 |                                                 |                |                      |                |
|                                                                                                                     |                 |                                                 |                |                      | PREVIOUS       |

Figure 9. Power management screen.

## Performance Steps

- (a) Press and release POWER MGMT softkey.
  - (b) Observe the power management status screen.
  - (c) If power management status is PASS, press PREVIOUS to return to the setup menu.
  - (d) If power management status is FAIL, press PREVIOUS to return to the setup menu.
  - (e) Press MAINT softkey, press POWER MGMT softkey.
  - (f) Press RESET to turn the tripped/off circuit breakers ON.
  - (g) Observe the status of the power management.
  - (h) If status changes to PASS, then go to step b.
  - (i) If status remains FAIL, press PREVIOUS to return to the setup menu and notify unit maintenance.
- (6) Select fire control function (Refer to Figure 6).
- (a) Press and release the FIRE CONTROL softkey.
  - (b) Observe the fire control menu.
  - (c) Select fire control mode by pressing the FIRE CNTL MODE softkey (Figure 10).

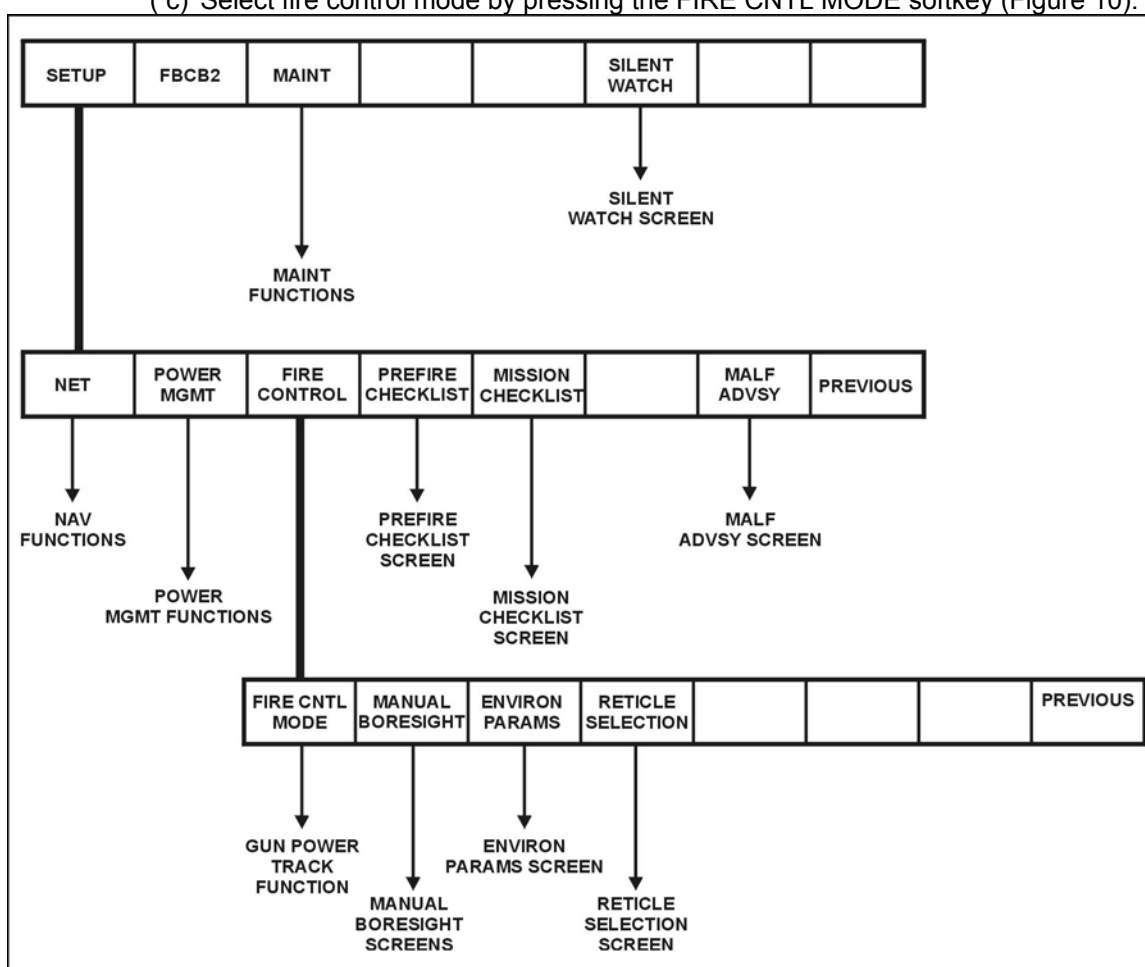


Figure 10. Fire control mode.

### NOTE:

1. The power track mode is only used when both the target acquisition system (TAS) and commander's independent viewer (CIV) malfunction, with the CTD and gunner's hand station (GHS)/commander's hand station (CHS) still operational. If the CTD malfunctions (no screen navigation), then the degrade gun mode must be used. If the GHS/CHS malfunction, then manual mode must be used.

2. In power track mode, only 25mm or coax guns can be used. TOW cannot be used since it requires an

**Performance Steps**

operational TAS. However, the launcher (LHR) UP-DOWN switch can still be used to stow the TOW launcher.

- (d) Observe fire control mode screen.
- (e) To select gun power track mode, press and release the POWER TRACK softkey (Figure 11).

|                                                                                                                                        |                 |                                                 |                |                      |                |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                                                               | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">STOW CIV BEFORE SELECTING POWER TRACK</div> |                 |                                                 |                |                      |                |
| INDEP<br>SEARCH                                                                                                                        |                 | POWER<br>TRACK                                  |                |                      | EXIT           |

Figure 11. POWER TRACK.

NOTE: Use the auxiliary sight (backup sight) to acquire, range, and engage targets with the 25mm gun or coax machine gun.

- (f) To deselect gun power track mode, press and release independent search (INDEP SEARCH) softkey.
- (g) Press PREVIOUS to return to the fire control menu.
- (h) Select manual boresight by pressing the MANUAL BORESIGHT softkey (Refer to Figure 6).
- (i) Observe the manual boresight menu.
- (j) Follow all menu and screen instructions to complete the manual boresight and zero procedures.
- (k) Upon completion of boresighting and zeroing press PREVIOUS to return to the fire control menu.
- (l) Select environmental parameters by pressing the ENVIRON PARAMS softkey (Figure 12).

## Performance Steps

|                                  |                        |                                                 |                |                      |                |
|----------------------------------|------------------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                         | 21 1535Z JAN 96        | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| METEOROLOGICAL PARAMETERS        |                        |                                                 |                |                      |                |
|                                  | STANDARD<br>CONDITIONS | CURRENT<br>CONDITIONS                           |                |                      |                |
| Cross Wind<br>(0 to 23 m/s)      | 0.0                    | <input type="text"/>                            | ◇ From RIGHT   | ◇ from Left          |                |
| Range Wind<br>(0 to 23 m/s)      | 0.0                    | <input type="text"/>                            | ◇ TOWARDS You  | ◇ AWAY from You      |                |
| Air Temp<br>(-31 to 51 °C)       | 15.0                   | <input type="text"/>                            |                |                      |                |
| Air Pressure<br>(503 to 1080 mb) | 1013                   | <input type="text"/>                            |                |                      |                |
| Grain Temp<br>(-31 to 51 °C)     | 21.0                   | <input type="text"/>                            |                |                      |                |
| USE<br>STANDARD                  |                        | APPLY<br>CURRENT                                |                |                      |                |
| MANUAL<br>BORESIGHT              |                        |                                                 |                |                      | PREVIOUS       |

Figure 12. Environmental parameters screen.

- (m) Observe the environmental parameters screen.
- (n) If environmental parameters are within standard conditions press USE STANDARD then press PREVIOUS to return to the fire control menu.
- (o) If environmental parameters are not within standard conditions input current conditions and select APPLY CURRENT button and then press PREVIOUS to return to the fire control menu.
- (p) Select appropriate reticles by pressing RETICLE SELECTION button (Refer to Figure 6).
- (q) Observe the reticle selection screen.
- (r) Select the reticles that apply by moving the cursor over the reticle that is to be selected and press the cursor control button on the CHS.
- (s) After selecting all appropriate reticles press PREVIOUS and return to the fire control menu.
- (t) Press PREVIOUS again and return to the setup menu.
- (7) Select prefire checklist function (Refer to Figure 6).
  - (a) Press and release the PREFIRE CHECKLIST softkey.
  - (b) Observe the prefire checklist screen.
  - (c) Complete the prefire checklist by pressing the CHECK/CLEAR softkey which places a check in the appropriate box.
  - (d) Press NEXT PAGE to continue the prefire checklist.
  - (e) Press PREVIOUS to return to the setup menu.
- (8) Select mission checklist function (Figure 13).

## Performance Steps

|                                                                                  |                 |                                                 |                                     |                                     |                                     |                                     |          |
|----------------------------------------------------------------------------------|-----------------|-------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------|
| MAL<br>0                                                                         | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1                      | FBCB2<br>OPERATIONAL                | APPLIQUE<br>ON                      |                                     |          |
| PRE-MISSION CHECKLIST                                                            |                 |                                                 | BC                                  | GNR                                 | DRV                                 | SL                                  |          |
| 1. Check exterior for presence of drain plugs and remove debris.                 |                 |                                                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |          |
| 2. Verify rations, water, fuel, and ammo are sufficient for mission.             |                 |                                                 | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |          |
| 3. Open sight shield doors and remove periscope covers.                          |                 |                                                 | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |          |
| 4. Check and clean TAS, CIV, backup sight, and periscope windows.                |                 |                                                 | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |          |
| 5. Check interior for presence of fire extinguisher and drain plugs, and damage. |                 |                                                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |          |
| 6. Check FIRE SUPPRESSION switch.                                                |                 |                                                 |                                     |                                     | <input type="checkbox"/>            |                                     |          |
| 7. Check instrument panel gauges and lights.                                     |                 |                                                 | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |                                     |          |
| 8. Perform lamp test.                                                            |                 |                                                 |                                     |                                     | <input type="checkbox"/>            |                                     |          |
| 9. Check pedal, gear selector, hand brake, and steering yoke.                    |                 |                                                 |                                     |                                     | <input type="checkbox"/>            |                                     |          |
|                                                                                  | ↑               | ↓                                               | →                                   | CHECK/<br>CLEAR                     | READINESS<br>TEST                   | NEXT<br>PAGE                        | PREVIOUS |

Figure 13. Mission checklist.

- (a) Press and release the MISSION CHECKLIST softkey.
- (b) Observe the mission checklist start screen.
- (c) Select the appropriate mission checklist.
- (d) Complete the mission checklist by pressing the CHECK/CLEAR softkey which places a check in the appropriate box.
- (e) Press NEXT PAGE to continue the mission checklist.
- (f) Press the READINESS TEST softkey to start the vehicle diagnostic maintenance system (VDMS) readiness test.
- (g) Press PREVIOUS to return to the mission checklist start screen.
- (h) Press PREVIOUS again to return to the setup menu.
- (9) Select malfunction advisory function (Figure 14).

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                 |                |                      |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| MALFUNCTION ADVISORY LIST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |                                                 |                |                      |                |
| <p><u>SAFETY SENSOR &amp; INTERLOCK</u>      DEGRADED      314404, 21243, 21300<br/> LOSS: N0-fire-zone protection<br/> MALF: Hatch/door</p> <p><u>WEAPON CONTROL</u>      HOOD      214484, 14311<br/> LOSS: Gnr weapon firing: Large bin default to AP; Weapon selection; 25mm default to HI rate:<br/> Small bin default to HE</p> <p>ADVSY: AP ammo recommended<br/> MALF: 25MM Gun; Weapon select</p> <p><u>FIRE CONTROL</u>      GO</p> <p><u>TURRET DRIVE</u>      GO</p> <p><u>GUNNER SIGHT</u>      DEGRADED      314059, 14167, 14017<br/> MALF: Overtemp - gunner sight</p> <p><u>CDR SIGHT</u>      VERIFY</p> |                 |                                                 |                |                      |                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ↑               | ↓                                               |                |                      | CLOSE          |

Figure 14. Malfunction advisory.



## Performance Steps

NOTE: The malfunction advisory list (MAL) will display malfunctions and mission status information under eight mission capabilities. The MAL displays a status of LOSS, ADVSY, and MALF.

- (a) Press and release the MALF ADVSY softkey.
- (b) Observe the malfunction advisory screen.
- (c) Report any LOSS which can not be fixed or repaired by the crew to unit maintenance.
- (d) Select PREVIOUS to return to the setup menu.
- (10) Select PREVIOUS to return to the main menu.
- b. Select the Force XXI Battle Command Brigade and Below (FBCB2) function.
- c. Select the maintenance function (Figure 15).

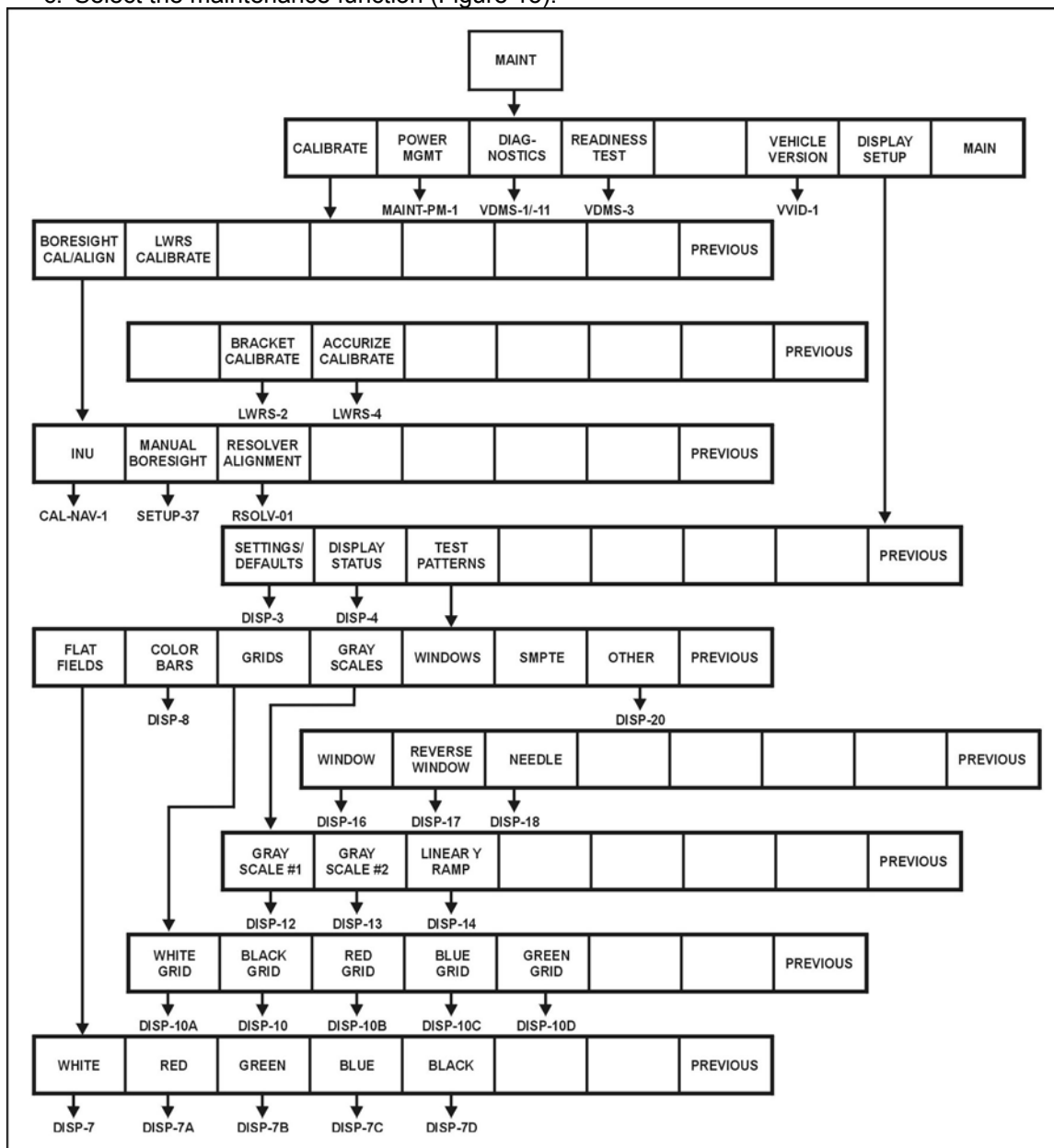


Figure 15. Maintenance menu structure.

NOTES:

**Performance Steps**

1. The only three functions within the maintenance menu that a crew member will operate are the calibrate function which is used to restore the inertial navigation unit (INU), the power management function which is used to reset different components, and the readiness test function which is used to check the system for failures.

2. Changes that are made in the power management function will be loss if turret power is recycled.

3. The remaining functions, diagnostics, vehicle version, and display setup are to be used by maintenance personnel only.

- (1) Press and release the MAINT softkey.
- (2) Observe the maintenance menu screen.
- (3) To restore the INU, press and release CALIBRATE softkey.
- (4) Press and release BORESIGHT CAL/ALIGN softkey.
- (5) Press and release the INU softkey.
- (6) Input the appropriate vehicle boresight data.

NOTE: The INU boresight data is located on a data plate next to the gunner. Each vehicle has its own unique boresight data.

- (7) Recycle turret power to store the updated information.

NOTE: To recycle turret power the crew must turn off turret power, wait for the system to shutdown, then turn on turret power and then setup the system for operation.

- d. Select the silent watch function (Figure 16).

|          |                 |                                                 |                |                      |                |
|----------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0 | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
|          |                 |                                                 |                |                      |                |
| SETUP    | FBCB2           | MAINT                                           |                | SILENT<br>WATCH      |                |

Figure 16. Silent watch.

NOTE: In silent watch mode, communications system defaults to receive but will not transmit messages.

- (1) Press and release the SILENT WATCH softkey.
- (2) Observe the silent watch menu screen.
- (3) Press the SILENT WATCH softkey again to continue or press CLOSE to return to full operations (Figure 17).

Performance Steps

|                                                                                                   |                 |                                                 |                |                      |                |
|---------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                          | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <div>Press "SILENT WATCH" to continue<br/>or<br/>Press "CLOSE" to return to full operations</div> |                 |                                                 |                |                      |                |
| SILENT<br>WATCH                                                                                   |                 |                                                 |                |                      | CLOSE          |

Figure 17. SILENT WATCH warning message.

NOTE: In Silent Watch Mode, the CIV image is displayed on both the remote biocular display (RBD) and the TAS Biocular Display. The CTD will display SILENT WATCH IS ACTIVE label across the top of the map area.

- (4) Squeeze the palm switch on the CHS or GHS to control the CIV.
- NOTES:
- 1. The CIV can be controlled from either the CHS or GHS.
  - 2. CIV image contrast and brightness can only be controlled with the CSCP DISPLAY and ADJUST switches.
- (5) To exit silent watch mode, press EXIT SW softkey (Figure 18).

|                                   |                 |                                                 |                |                      |                |
|-----------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                          | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <div>SILENT WATCH IS ACTIVE</div> |                 |                                                 |                |                      |                |
| SETUP                             | FBCB2           | MAINT                                           |                | EXIT SW              |                |

Figure 18. Exit SILENT WATCH.

**Performance Steps**

- (6) Observe the silent watch screen.
- (7) Press EXIT SW softkey again to return to full operations and the main menu or press CLOSE to remain in the silent watch mode (Figure 19).

|                                                                                                                                                                                                           |                 |                                                 |                |                      |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------|----------------|----------------------|----------------|
| MAL<br>0                                                                                                                                                                                                  | 21 1535Z JAN 96 | 10S EG 5985E 5598 M MSL<br>19738N +/- 123 M CEP | GPS FOM<br>= 1 | FBCB2<br>OPERATIONAL | APPLIQUE<br>ON |
| <div style="border: 1px solid black; padding: 10px; margin: 20px auto; width: 80%;">           Press EXIT SW to return to full operation<br/>or<br/>Press "CLOSE" to stay in Silent Watch.         </div> |                 |                                                 |                |                      |                |
| EXIT<br>SW                                                                                                                                                                                                |                 |                                                 |                |                      | CLOSE          |

Figure 19. Exit SW warning message.

**Evaluation Preparation:** SETUP: Provide the soldier with the equipment and materials outlined in the condition statement.

**BRIEF SOLDIER:** Tell the soldier to operate the commander's tactical display (CTD) according to the performance steps.

**Performance Measures**

1. Prepared the commander's tactical display (CTD) for operation.
  - a. Adjusted the CTD using the display control buttons.
  - b. Adjusted the CTD using the secondary buttons.
2. Selected the desired input device to use with the CTD.
  - a. Used the cursor direction and select buttons.
  - b. Used the commander's data entry toll (CDET).
  - c. Used the cursor control button on the commander's hand station (CHS).
3. Selected the desired function on the CTD.
  - a. Selected the setup menu.
    - (1) Selected the navigation function
    - (2) Selected the power management function.
    - (3) Selected the fire control function.
    - (4) Selected the prefire checklist function.
    - (5) Selected the mission checklist function.
    - (6) Selected the malfunction advisory function.
  - b. Selected the Force XXI Battle Command Brigade and Below (FBCB2) function.
  - c. Selected the maintenance function.
  - d. Selected the silent watch function.

**GO****NO GO**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-2350-294-10-1  
TM 9-2350-294-10-2-1  
TM 9-2350-294-10-2-2

## Operate the Commander's Independent Viewer on an M2A3/M3A3 BFV

071-001-0004

**Conditions:** Given an M2A3 BFV with basic issue items, master power and turret power switches ON, turret travel lock engaged, a gunner, and an enemy target within the Bradley commander's sector.

**Standards:** Operated the commander's independent viewer (CIV), the commander's sight control panel, and the target designate (TD) function and caused no damage to equipment or injury to personnel.

### Performance Steps

1. Operate the commander's independent viewer (CIV)(Figure 1).

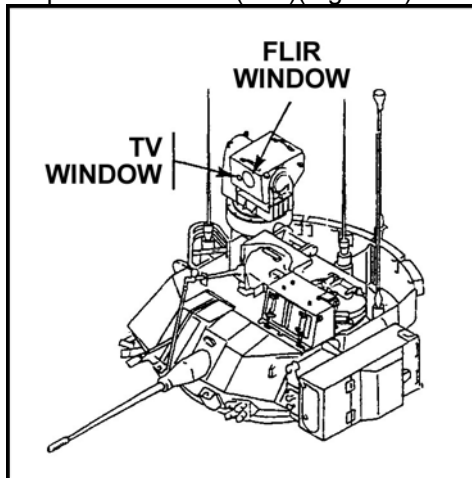


Figure 1. Commander's independent viewer.

### WARNINGS

- CIV motion can crush hands, startle personnel, or push them off the vehicle. Falling from the vehicle can kill or seriously injure personnel.
- Make sure personnel are clear of CIV path before moving CIV, nulling fire control system, exiting from diagnostics, or shutting down turret power.
- CIV movement can be unexpected to commander or persons on top of the vehicle when palm switch is depressed during nulling of fire control system and when exiting from diagnostics mode.
- CIV stows automatically without palm switch use when TURRET PWR switch is moved to OFF.
  - a. Unstow the CIV (Figure 2).

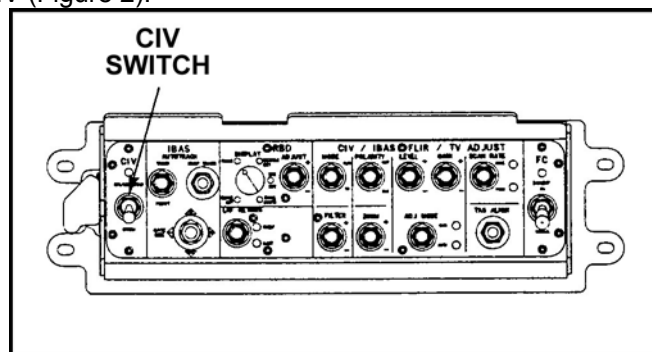


Figure 2. Commander's independent viewer controls.

- (1) Move the CIV UNSTOW/STOW switch to the UNSTOW position.

**Performance Steps**

- (2) Squeeze and hold the palm switches on the commanders hand station (CHS)(Figure 3).

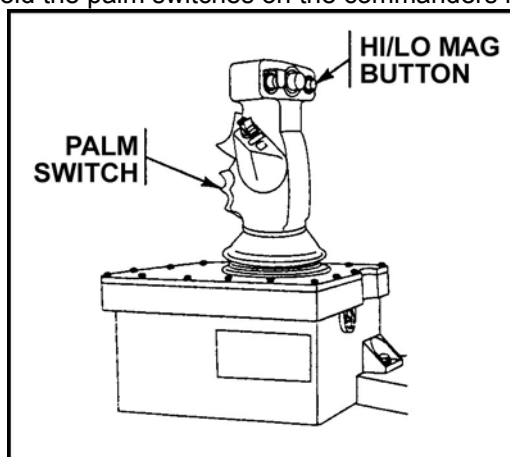


Figure 3. Commander's hand station.

- (3) Ensure the UNSTOW indicator light is lit.  
 (4) Release the palm switches.  
 b. Select CIV on the remote biocular display (RBD)(Figure 4).

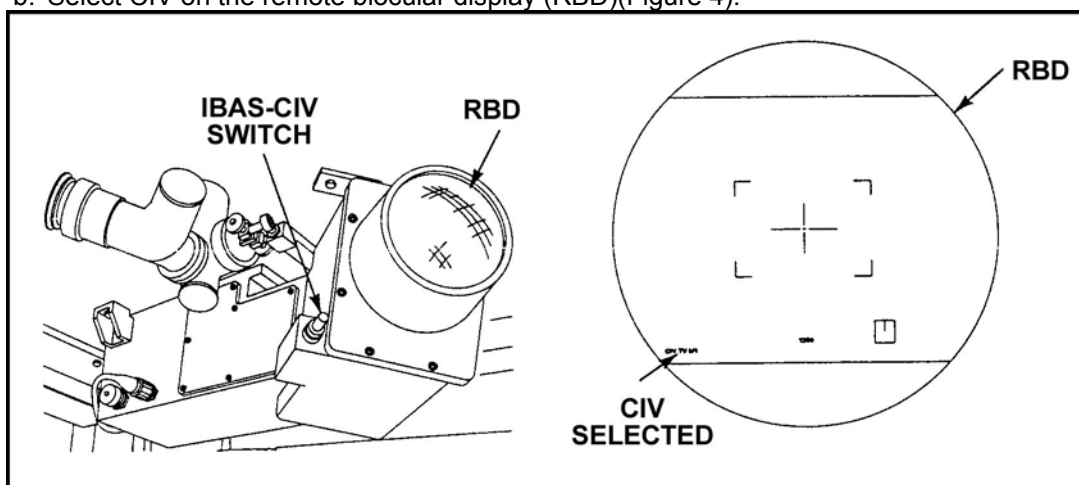


Figure 4. Remote biocular display.

- (1) Pull down the improved Bradley acquisition system (IBAS)-CIV switch to the CIV position and release.  
 (2) Observe that CIV TV appears in the lower left corner of the RBD.  
 c. Rotate the CHS left to turn the CIV to the left and right to turn it to the right.  
 d. Rotate the CHS forward to depress the CIV and backward to elevate the CIV.  
 2. Adjust the CIV using the commander's sight control panel (CSCP)(Figure 5).

## Performance Steps

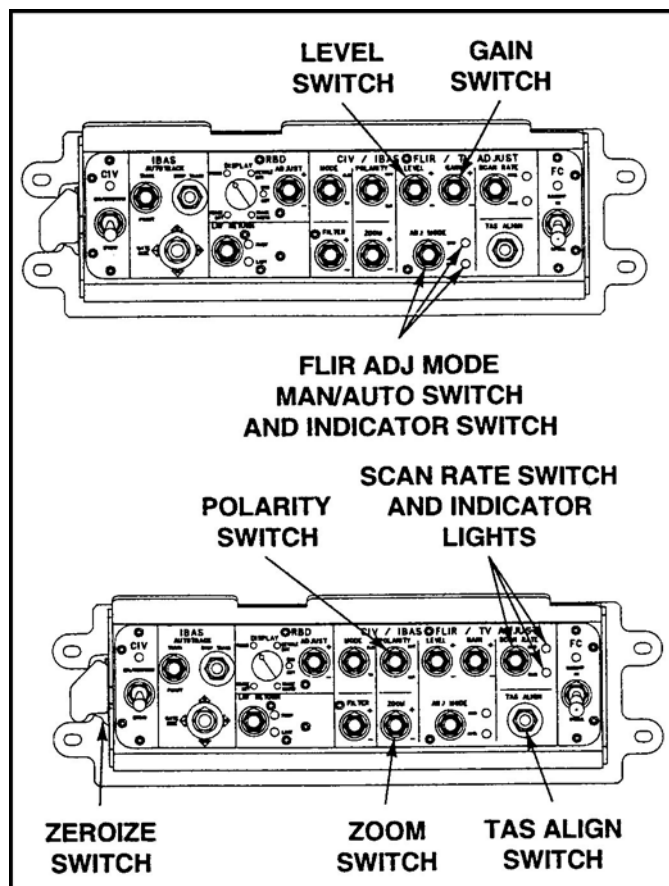


Figure 5. Commander's sight control panel.

- a. Press and release the ADJ MODE switch down to AUTO.
- b. Ensure the AUTO indicator light is lit.
- c. Observe the RBD sight picture.
- d. Adjust the scan rate.
  - (1) If 30hz scan rate is desired.
    - (a) Move the SCAN RATE switch up for 30hz refresh rate.
    - (b) Ensure the 30hz indicator light is lit.
  - (2) If 60hz scan rate is desired.
    - (a) Move the SCAN RATE switch down for 60hz refresh rate.
    - (b) Ensure the 60hz indicator light is lit.
- e. Adjust the polarity.
  - (1) Press and release the POLARITY switch upward for white hot.
  - (2) Press and release the POLARITY switch downward for black hot.
- f. Adjust the CIV TV.

NOTE: When the CIV is on (unstow position), CIV TV is the default sight setting.

- (1) Press up and release the mode switch located on the CSCP to select the MANUAL position.
- (2) Ensure the MANUAL indicator light is lit.
- (3) Move the LEVEL toggle switch up or down to adjust the LEVEL in the sight.
- (4) Observe the momentary level adjustment bar on the left side of the screen in the sight.
- (5) Move the GAIN toggle switch up or down to adjust the GAIN in the sight.
- (6) Observe the momentary gain adjustment bar on the left side of the screen in the sight.
- (7) Repeat steps (3) through (6) until the picture is at the desired setting.
- g. Adjust the CIV forward looking infrared ( FLIR) sight.



**Performance Steps**

- (1) Move the FLIR/TV switch up and release to change to the FLIR sight (Figure 6).

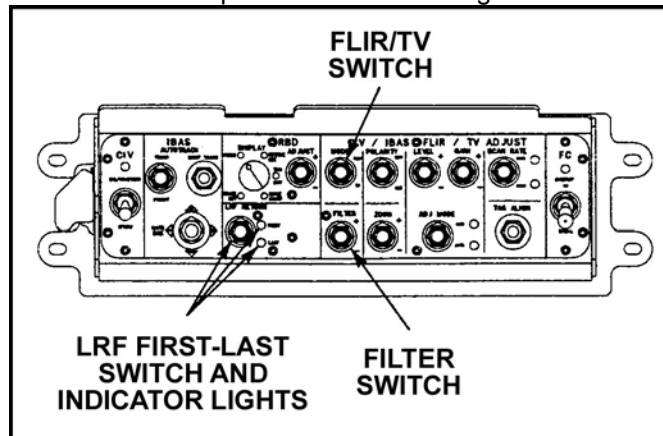


Figure 6. FLIR sight controls.

- (2) Ensure the manual indicator light is still lit.  
 (3) Move the LEVEL toggle switch up or down to adjust the LEVEL in the sight.  
 (4) Observe the momentary level adjustment bar on the left side of the screen in the sight.  
 (5) Move the GAIN toggle switch up or down to adjust the GAIN in the sight.  
 (6) Observe the momentary gain adjustment bar on the left side of the screen in the sight.  
 (7) Rotate the biocular display knob to the FOCUS position (Figure 7).

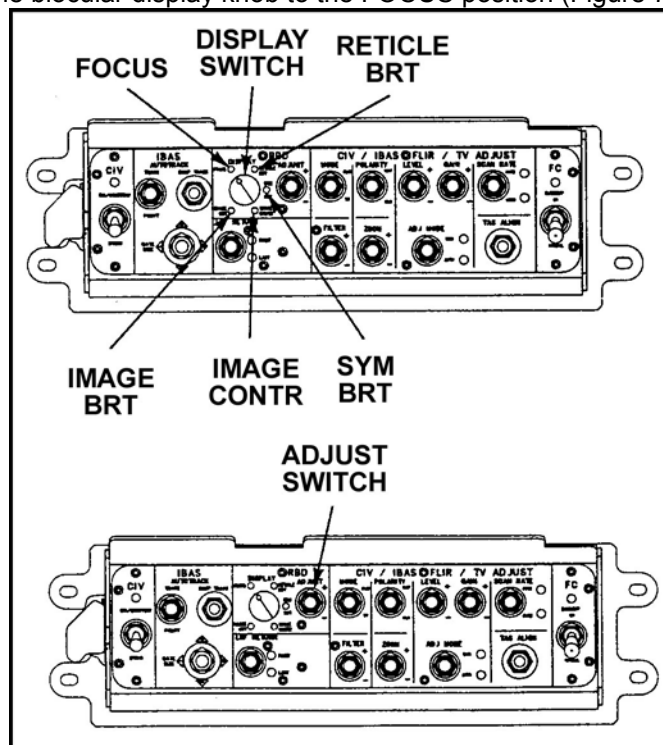


Figure 7. Biocular display knob.

- (8) Move the adjust switch up and down until the sight is focused.  
 (9) Observe the momentary focus adjustment bar on the left side of the screen in the sight.  
 (10) Rotate the biocular display knob to image contrast (IMAGE CON).  
 (11) Move the adjust switch up and down until the sight has sufficient image contrast.  
 (12) Observe the momentary gray scale on the right side of the screen in the sight.

### Performance Steps

- (13) Rotate the biocular display knob to image brightness (IMAGE BRT).
- (14) Move the adjust switch up and down until the sight has sufficient image brightness.
- (15) Observe the momentary gray scale on the right side of the screen in the sight.
- (16) Repeat, if necessary, steps (1) through (15) until sight is adjusted.
- h. Adjust the reticle brightness (refer to Figure 7).
  - (1) Rotate the biocular display knob to reticle brightness (RETICLE BRT).
  - (2) Move the adjust switch up and down until the reticle has sufficient brightness.
  - (3) Observe the reticle through the sight.
- i. Adjust the symbology brightness.
  - (1) Rotate the biocular display knob to symbology brightness (SYM BRT).
  - (2) Move the adjust switch up and down until the reticle has sufficient brightness.
  - (3) Observe the symbology through the sight.

### 3. Operate the target designate (TD) function.

NOTE: All weapon firing is disabled when the turret is moving during CIV target handoff. Handoff may take up to 6 seconds before the target acquisition system (TAS) line of sight (LOS) is aligned with the CIV LOS. For this reason, target priority and handoff time must be included in the situation evaluation.

- a. Center CIV reticle crosshairs on target (Figure 8).

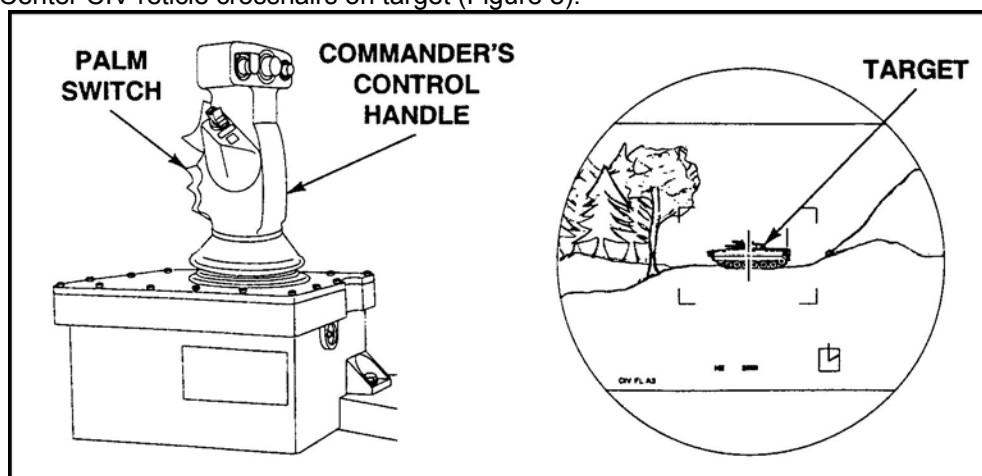


Figure 8. CIV reticle crosshairs.

- (1) Squeeze and hold palm switch on( CHS).
- (2) Move hand station left or right to traverse CIV.
- (3) Move hand station forward and backward to elevate or depress the CIV.
- (4) Repeat, if necessary, steps (1) through (3) until the crosshairs are centered on the target.
- (5) Release palm switches.
- b. Announce to the gunner "DESIGNATE."
- c. Gunner returns the gunner's hand station (GHS) to the neutral position (Figure 9).

## Performance Steps

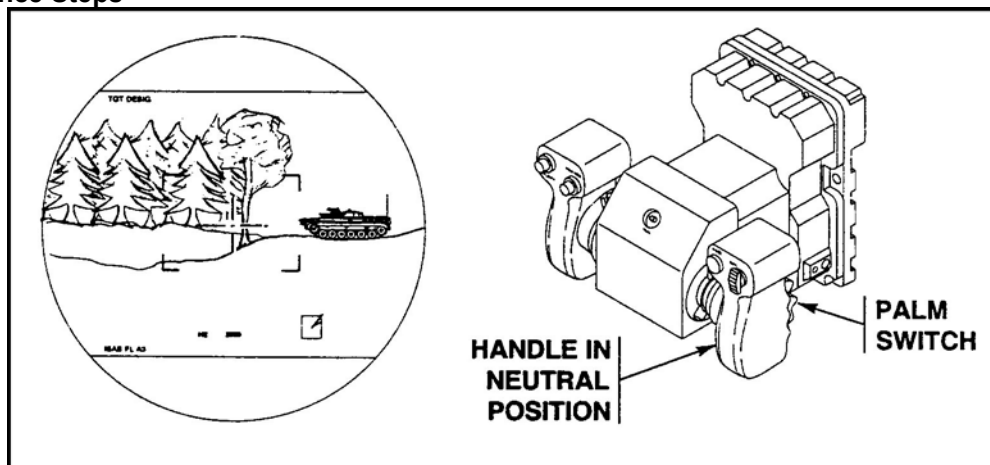


Figure 9. Gunner's hand station.

NOTE: During TD, the GHS palm switch may be squeezed, ready for target tracking when the sights are aligned and turret/gun control returns to the gunner.

d. Designate the gunner on target (Figure 10).

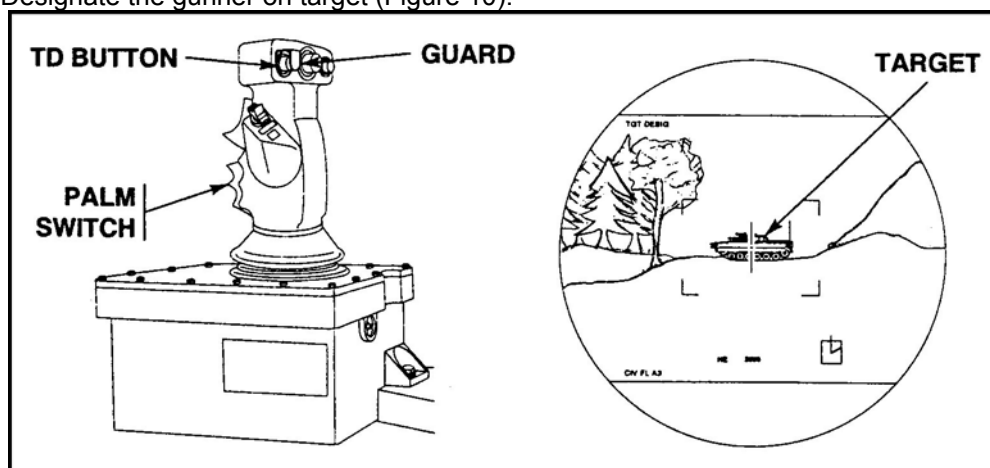


Figure 10. Gunner on target.

## WARNINGS

-- Turret may move suddenly when the commander hands off the target by pressing the target designate button. Unexpected turret movement can injure personnel.

-- Commander should notify the gunner before designating to the target. Ensure top of vehicle is clear before designating the target.

- (1) Squeeze and hold palm switch on CHS.
- (2) Lift the TD button guard.
- (3) Press and release the TD button.
- (4) Observe the TGT DESIG symbology in the upper left corner of the RBD and TAS display.
- (5) Observe that the turret and gun have moved to align the TAS LOS with the CIV LOS.
- (6) Continue to squeeze palm switch on the CHS and track the target until sights are aligned.
- (7) Release palm switch.
  - (a) When the turret/CIV position indicators are aligned and the TGT DESIG symbology has been removed from the sight (Figure 11).

## Performance Steps

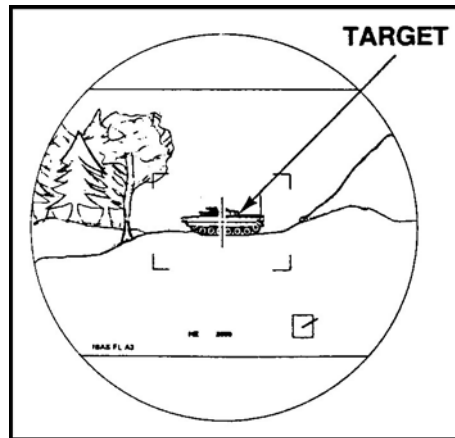


Figure 11. Aligned turret/CIV position indicators.

- (b) When the gunner announces "IDENTIFIED."
- (c) To abort the (TD) function and return turret control back over to the gunner.
- (8) Gunner engages target while the commander scans the sector.
- 4. Perform CIV shutdown.
  - a. Move the CIV ON/UNSTOW-STOW switch to the STOW position.
  - b. Squeeze and hold palm switch on CHS until the CIV ON/UNSTOW light goes off.
  - c. Release palm switch.

**Evaluation Preparation:** SETUP: Provide the soldier with all the equipment stated in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to operate the commander's sight control panel and the TD function.

| Performance Measures                                                    | <u>GO</u> | <u>NO GO</u> |
|-------------------------------------------------------------------------|-----------|--------------|
| 1. Operated CIV.                                                        | _____     | _____        |
| 2. Adjusted CIV sight using the commander's sight control panel (CSCP). | _____     | _____        |
| 3. Operated TD function.                                                | _____     | _____        |
| 4. Performed CIV shutdown.                                              | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
TM 9-2350-294-10-1

## Subject Area 38: WEAPONS: HG/MINES/DEMOLITIONS

**Conduct a Breach a Minefield****052-192-3060**

**Conditions:** Given individual weapons, a tactical map, mechanical and/or explosive breaching equipment, and squad personnel.

**Standards:** You will rapidly open lane(s) through the minefield to maintain the momentum of the attack.

**Performance Steps**

1. You are a squad leader tasked to conduct a breach of a minefield under direct or indirect fire.
2. Plan the minefield breach.
  - a. Perform a reconnaissance of the minefield.
  - b. Determine the breaching means available.
  - c. Select the breaching means which will best accomplish the mission.
  - d. Coordinate for suppression, obscuration, security, and reduction (SOSR) support.
  - e. Organize the squad to perform the breach using the selected means.
  - f. Issue the operations order (OPORD) to the squad.
3. Rehearse the breach with maneuver units.
4. Breach lanes through the minefield.
  - a. Use explosive methods. These include, but are not limited to, the following:

(1) Bangalore torpedo.

NOTE: The bangalore torpedo is used only for anti-personnel (AP) mines.

- (a) The squad moves to the firing point.
  - (b) Soldier #1 carries the dummy nose section and one live section to the breaching site, pushes the sections into the minefield, and stays to help soldier #2.
  - (c) Soldier #2 carries two live sections to the breaching site. Soldiers #1 and #2 connect the two sections to those already in place and pushes them into the minefield.
  - (d) Soldier #3 carries two live sections to the breaching site. Soldier #1 now provides security. Soldiers #2 and #3 connect the two sections to those already in place and pushes them into the minefield.
  - (e) Soldier #4 carries two live sections to the breaching site. Soldiers #3 and #4 connect the two sections, and soldier #2 helps soldiers #3 and #4 push them into the minefield.
  - (f) Soldier #5 carries two live sections to the breaching site. Soldiers #4 and #5 connect the two sections. Soldiers #3, #4, and #5 push the sections into the minefield. Soldier #1 returns to the firing point.
  - (g) Soldiers #2, #3, and #4 return to the firing point. Soldier #5 remains at the breaching site to provide security. This process continues until all sections are brought forward to the breaching site. No more than four soldiers should be at the breaching site at any one time; one to provide security and three to push the bangalore further into the minefield.
  - (h) Soldier #6, while at the firing point, prepares the initiating/detonating assembly, which is attached to the last bangalore section. He then brings it forward, and soldiers #5 and #6 connect it to the last section. All soldiers then return to the firing point and the charge is detonated.
  - (i) After using bangalore torpedos, check as thoroughly as the tactical situation will allow to see that the lane is free of mines.
- (2) M173 line charge. This charge is used for AT-impulse, pressure-type mines.
- (a) Assemble the number of kits needed.
  - (b) Have the projected line charge towed by a vehicle or helicopter to the edge of the

**Performance Steps**

minefield.

(c) Detonate the line charge.

(d) Proof the lane using a mine plow or mine roller, or by sweeping with mine detectors, as the tactical situation allows.

NOTE: This line charge will clear a path 70 meters (230 feet) deep and 4 to 6 meters wide.

(3) M548 Mine Clearing Line Charge (MICLIC). This charge is used for anti-tank (AT) impulse, pressure-type mines.

(a) Prepare the MICLIC for firing.

(b) Tow the MICLIC to the breach site.

(c) Fire the MICLIC.

(d) Detonate the MICLIC line charge.

(e) Proof the lane.

NOTE: The line charge will clear a path 100 meters long by 14 meters wide.

(4) Hand clearing. A minefield can be breached using individual soldiers probing and sweeping. Any mines found can be blown in place using explosives connected to a ring main or line main of detonating cord.

b. Mechanical means. A tank employing a mine plow, mine roller, or mine rake can clear a lane through a minefield. Engineers supporting such an effort would have the task of minesweeping and proofing the breached lane.

c. Grappling hooks can be used to detonate mines with trip wires and anti-handling devices (AHD); to drag mines out of a lane; or, when used in conjunction with hand clearing, to conserve explosives.

5. Once lanes have been cleared using any of the methods above, they will be marked using the hand emplaced minefield marking set (HEMMS) or other expedient means.

**Evaluation Preparation:** SETUP: Provide the soldier with a realistic scenario of a simulated minefield and explosives. Use simulated explosives if necessary.

BRIEF SOLDIER: Tell the soldier to use the information in the scenario to conduct a breach of a minefield.

**Performance Measures****GO** **NO GO**

1. Plans the breach.

\_\_\_\_

\_\_\_\_

2. Rehearses the breach.

\_\_\_\_

\_\_\_\_

NOTE: Not every method needs to be tested during one session.

3. Conducts the breach using explosive methods.

\_\_\_\_

\_\_\_\_

4. Conducts the breach using mechanical means.

\_\_\_\_

\_\_\_\_

5. Marks the breached lanes.

\_\_\_\_

\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly.**References****Required**  
FM 20-32**Related**

## Subject Area 42: WEAPONS: M220-SERIES TOW

**Recommend Employment of M220 Launcher Systems**  
**071-316-2651**

**Conditions:** As an M220 antiarmor section leader, given a mission to provide antiarmor fire in support of a combat operation, a 1:50,000-scale military map of the area of operation, and a briefing on the supported unit's concept of the operation.

**Standards:** Analyzed the supported unit's area of operations and scheme of maneuver. Recommended to the supported unit commander that TOW employment permitted engagement of threat armor targets in the area of operations at maximum range; provided effective overwatch or base of fire; avoided conspicuous terrain features; provided for flank engagement (when possible); provided for dispersion; provided for mutual support between squad positions and other elements; and provided maximum protection and concealment for the launcher system during operations.

**Performance Steps**

1. Overlap sectors of fire to provide for mutual support. To do this, you may use primary and secondary sectors of fire. Use secondary sectors of fire to achieve mutual support when--
  - a. Units are widely dispersed.
  - b. Fields of fire are restricted by terrain.
  - c. More than one armor avenue of approach exists.
  - d. Use TOWs in pairs (by section). To be sure that a sector of fire has continuous antiarmor coverage, use TOWs in pairs with overlapping sectors of fire. Used this way, they can support each other. One system can fire while the other is reloading or moving to an alternate position. Use TOWs separately only when that is the only way to cover the armor approaches or to overwatch the attacking company's zone (Figure 1).

## Performance Steps

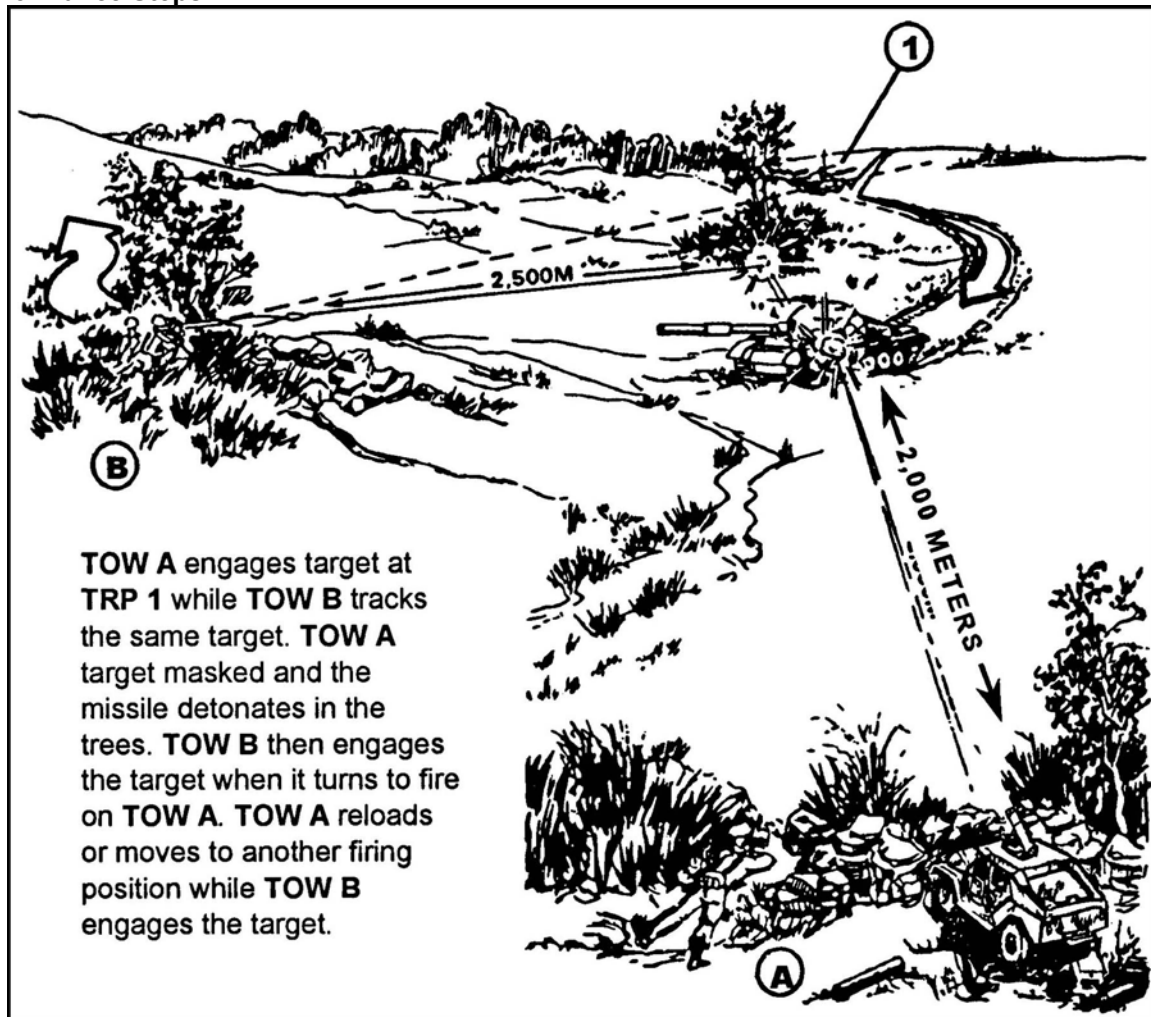


Figure 1. Employ TOWs in pairs.

- e. Combine TOW fires with fires of other antiarmor weapons. Position TOWs and other weapons to support each other. Position TOWs and tanks to provide long-range coverage along the high-speed armor approaches to ensure continuous antiarmor fires. Position Dragons and LAWs along the armor avenues of approaches with more restrictive fields of fire. Use TOWs to engage the long-range targets and to add depth to the defense.
- f. Integrate TOWs with nearby infantry for security. TOW crews by themselves are vulnerable to attacks by mounted and dismounted infantry. To provide security against such attacks, position TOWs to take advantage of the infantry, who will block dismounted and concealed mounted approaches leading to TOW positions (Figure 2).



## Performance Steps

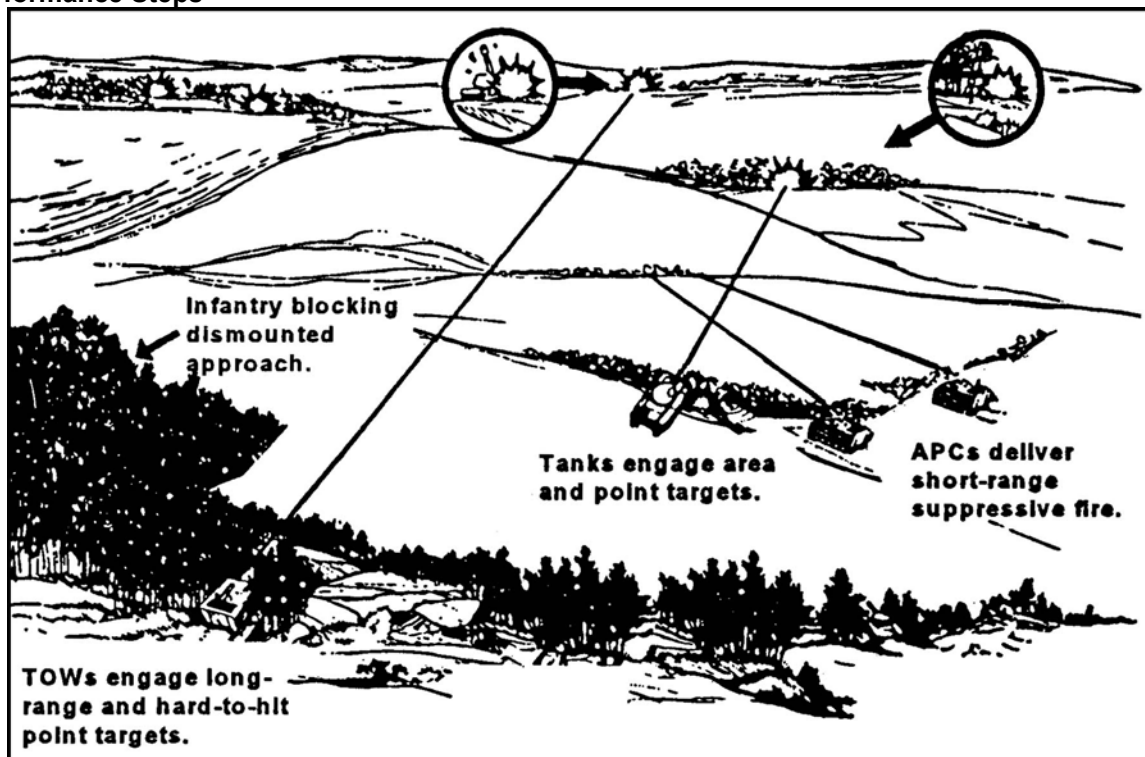


Figure 2. Integrate TOWs with nearby infantry.

2. Exploit TOW range. The greatest advantage of the TOW is its accuracy over most tanks at ranges beyond 1,500 meters. The major limitation is that the TOW crew is exposed to enemy suppressive fires while firing. Therefore, the principal factors to consider when positioning TOW for employment are twofold (Figure 3):
  - a. Exploit the capabilities of the weapon.
  - b. Protect the crew from countermeasures such as artillery and tank fire.

## Performance Steps

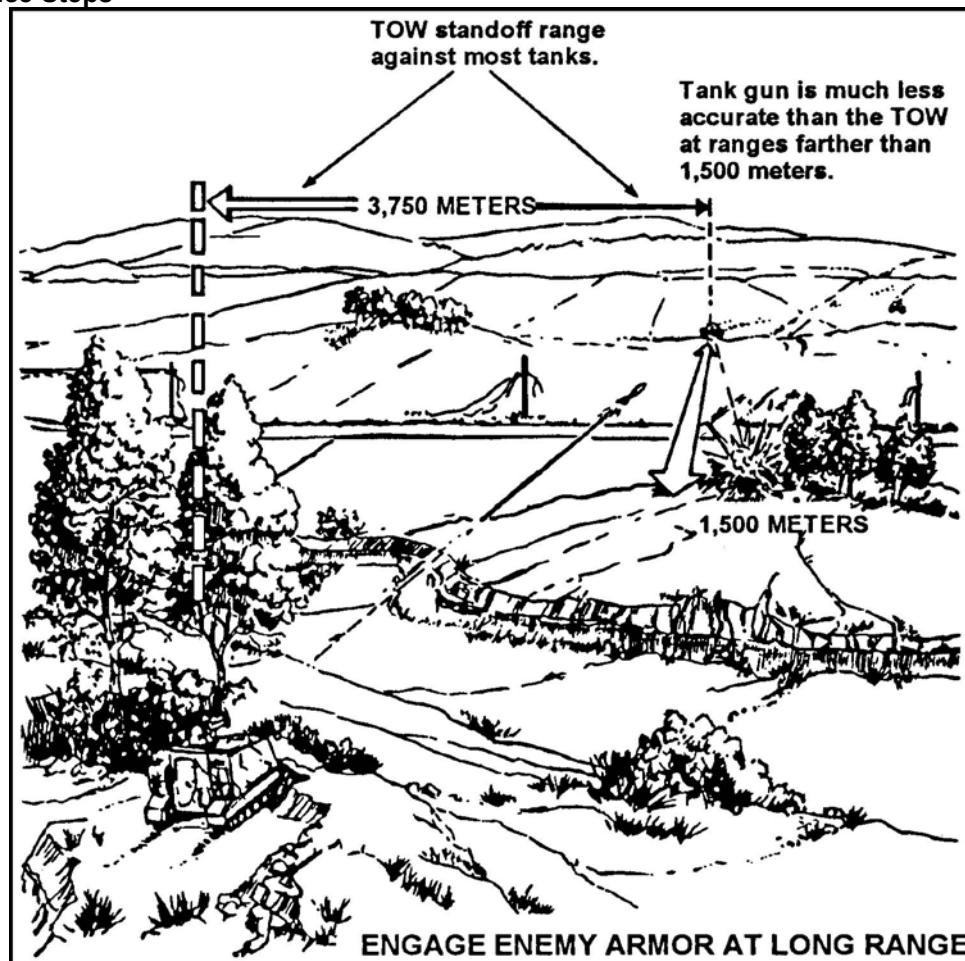


Figure 3. Exploit TOW range.

3. Avoid conspicuous terrain features. Use terrain to the best advantage. Every piece of terrain has features that can enhance or degrade TOW mission accomplishment. Conspicuous terrain features, such as road junctions, hilltops, and lone buildings or trees, attract the enemy's attention. Also, the enemy may have registered their weapons on them. As a leader, you must recognize key terrain features that can increase the TOW's chances for success and lessen its vulnerability to detection (Figure 4).

## Performance Steps

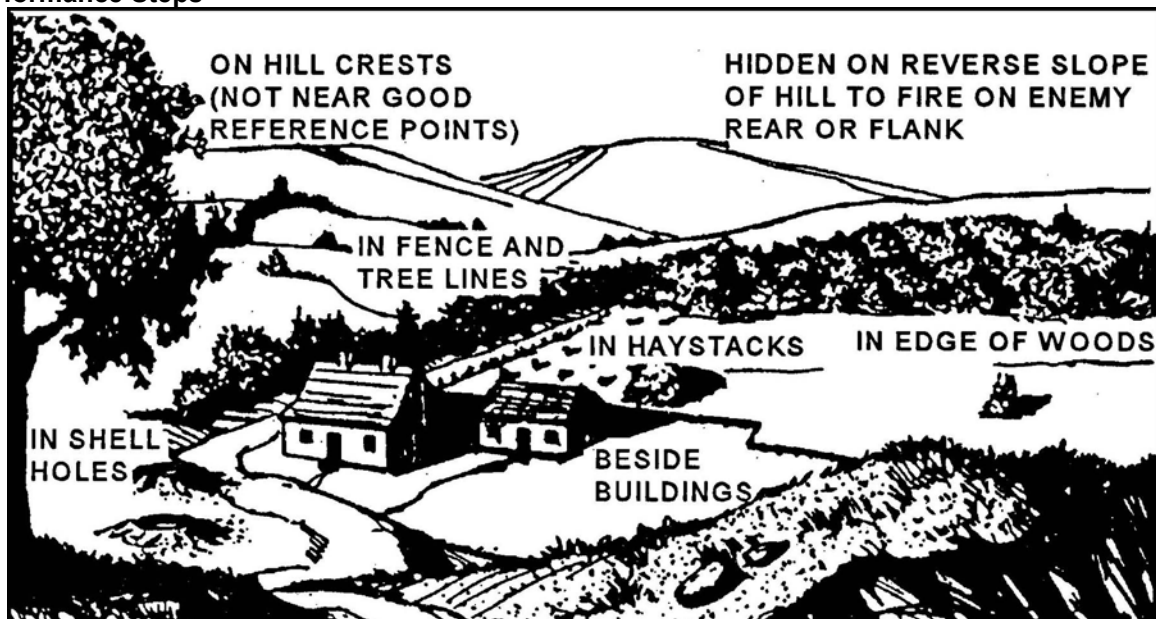


Figure 4. Avoid conspicuous terrain features.

4. Provide for flank engagement. Avoid TOW frontal fire against tanks, since the TOW crew is vulnerable, especially at shorter ranges. The firepower and observation of an advancing enemy tank are oriented to the front. Therefore, detecting and tracing a missile launched from its flank is difficult (Figure 5). However, a trailing enemy tank may see the launch signature or crew movement, and stalk or destroy the weapon from the rear. Thus, in addition to firing from the flank, the crew must site the weapon so that it is in defilade when viewed from the direction of the enemy. Also, the crew must put something between itself and the tanks--something the tanks are unlikely to shoot at. This could include a parapet, a wall, or natural cover. Flank concealment is necessary, but flank defilade, which provides cover from fire, is preferred. Concealment of flash is also essential, not only from the following tanks, but also from the enemy's OP.

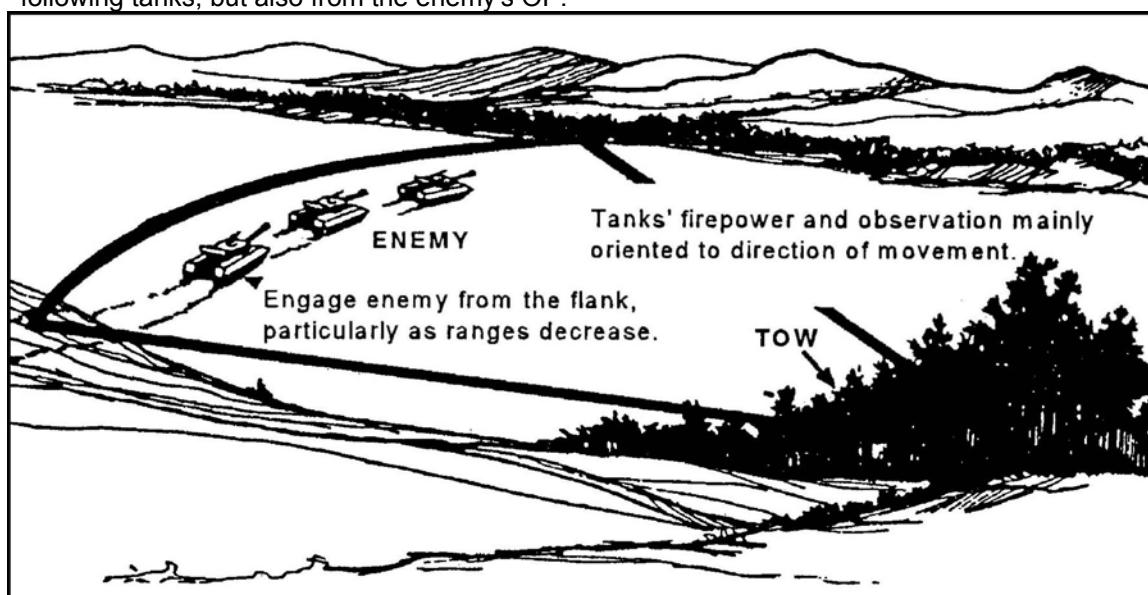


Figure 5. Provide for flank engagement.

### Performance Steps

5. Provide for dispersion. If the section leader can control the fires of both TOW squads, he should separate them at least 300 meters (either laterally or in depth). This distance prevents squads from being suppressed at the same time by the fires of a single volley of artillery from one enemy battery. This separation depends upon the terrain and the section leader's capability to control the fire and movement of the squads (Figure 6).

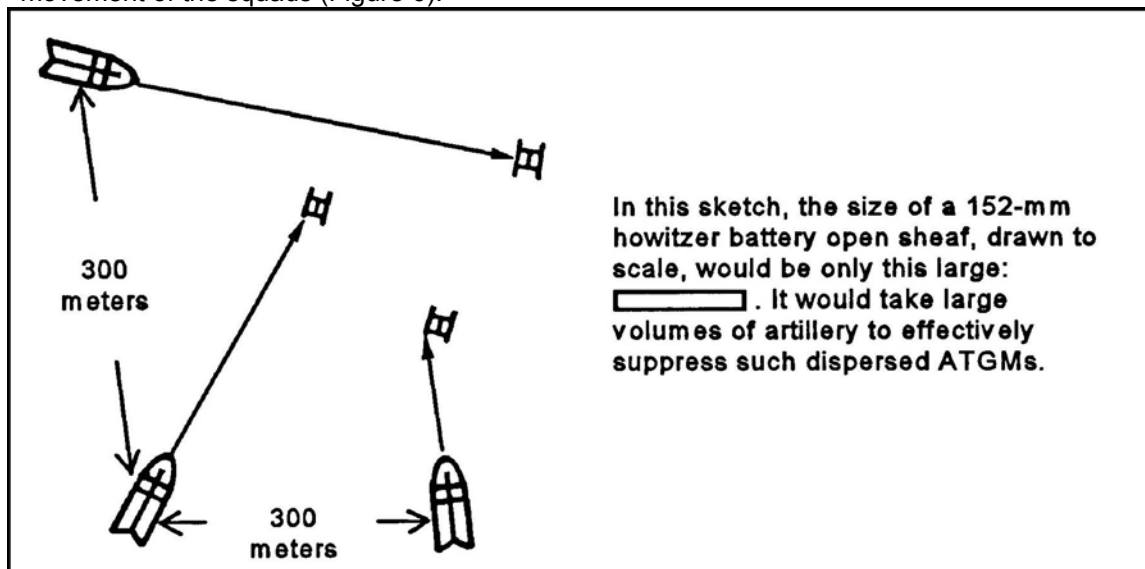


Figure 6. Provide for dispersion.

**Evaluation Preparation:** SETUP: Provide the soldier with equipment and materials listed in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to provide for recommendation for support, flank engagement and dispersion.

### Performance Measures

1. Provided for mutual support.
2. Used TOWs in pairs.
3. Avoided conspicuous terrain features.
4. Provided for flank engagement when possible.
5. Provided for dispersion.

**GO**      **NO GO**

|   |   |
|---|---|
| — | — |
| — | — |
| — | — |
| — | — |
| — | — |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

### References

#### Required

#### Related

FM 3-90.1  
FM 7-91

## Skill Level 4

## Subject Area 1: COMMAND AND STAFF

**Prepare an Oral Operation Order****071-326-5626**

**Conditions:** Having received the unit commander's oral operation order (OPORD) and map overlay, given a platoon, pencil, paper, and a map of the operational area.

**Standards:** 1. Within the time allotted, developed a clear and concise order and issued it to subordinate leaders. The order must be issued so that all subordinate leaders understand their missions and any coordinating instructions.

2. The order followed the standard OPORD format.

**Performance Steps**

1. Receiving an OPORD. The most important part of receiving an order is a clear understanding of what your unit has to accomplish in relation to the ground and to the other platoons. You must know exactly what you are supposed to, what the other units are doing, and where and when these actions are to be done, to succeed. Ask questions to clarify commander's intent.
2. Think through the order. As soon as you receive the order and understand the leader's plan, review your notes. As you think about the order, answer these questions:
  - What mission(s) did I receive?
  - How much do I know about the enemy?
  - How does the terrain and weather influence the operation?
  - What supplies or equipment do I need?
  - Do I need to assign special tasks to anyone?
  - a. Mission.
    - (1) In analyzing your mission, identify exactly what your unit is to accomplish. Be sure you know how much time you have to prepare. Make sure you are aware of any restrictions or special tasks that apply to your platoon.
    - (2) A thorough understanding of the mission will allow you to establish a time schedule for your preparation. You will be told what time the operation is to begin and what time your unit must be ready to go. This allows you to allocate time to prepare for the mission. Identify the things that must be done to get ready and, working backwards from the "ready" time, allow your soldiers time to accomplish each task. This technique is called the reverse planning sequence. An example of this for a platoon leader might be as follows:
      - 1420: Company commander said to be ready.
      - 1415: Inspect assembly area.
      - 1400: Inspect platoon.
      - 1315: Issue order to platoon.
      - 1300: Finalize platoon order.
      - 1200: Reconnoiter with company commander and receive order.
      - 1100: Issue warning order to platoon.
      - 1040: Receive company warning order.
  - b. Enemy.
    - (1) Develop the best picture of exactly where the enemy is located, what his strength is, and what kind of weapons and equipment he has. Tell your men as much as you know about how to destroy or suppress the kind of enemy you are likely to meet.
    - (2) Sometimes the enemy in a certain area will repeat the same pattern. For example, if you know that the enemy habitually ambushes in the vicinity of trail junctions, make sure all of your men know about it.
  - c. Terrain and weather.

## Performance Steps

- (1) Most decisions pertaining to route, objective, sectors of fire, positioning of key weapons, and movement techniques are made by the unit leader. However, both the company commander and the subordinate leaders must closely study the ground if they are to properly employ their men and equipment, and gain an advantage over the enemy.
  - (2) Proper use of terrain will:
    - (a) Provide cover and concealment before, during, and after the battle.
    - (b) Increase the effectiveness of your fire.
    - (c) Decrease the effectiveness of the enemy's weapons.
  - (3) You must also understand how weather can influence your men. Cold, heat, rain, or snow can create problems if you don't properly prepare your platoon.
  - d. Supplies, equipment, and special tasks. If you have been given a task that requires a special skill, such as setting demolitions to blow a building, make sure you know how to do it. You must have the right weapons, equipment, and supplies. If you need specialized personnel or equipment, tell your leader or commander.
3. Issuing an OPORD. After you have received an OPORD, think it through and prepare your own order. You must issue that order. Leaders should issue their orders from a position that allows the subordinate leaders to see the ground on which they are going to operate.
  4. Structure of the OPORD.
    - a. The OPORD contains five paragraphs and always follows the same sequence. An outline and brief explanation of each paragraph follows:
      - (1) Paragraph 1.
        - (a) Situation: This paragraph contains all available information concerning the enemy and friendly situations.
        - (b) Enemy forces: Any available information such as strengths, weaknesses, probable courses of action, weather, and terrain.
        - (c) Friendly forces: All available information concerning the missions of next higher and adjacent forces.
        - (d) Attachments and detachments: Information concerning any units that have been attached to or detached from the platoon.
      - (2) Paragraph 2. Mission: A clear, concise statement of the task that must be accomplished by the platoon.
      - (3) Paragraph 3. Execution: Contains the mission for each section and attached element (if any). This paragraph also contains any special instructions that apply to a specific section or to the platoon as a whole, and the plan for fire support.
      - (4) Paragraph 4. Service support: Administrative details to include ammunition supply, ration resupply, and the evacuation of casualties.
      - (5) Paragraph 5. Command and signal: Communications instructions to include visual signals, radio frequencies and call signs, and the platoon leader and company commander's location during the operation.
    - b. In preparing your platoon order, look for those items in the company order that you must alter to fit the platoon's mission. For example, if paragraphs 2 and 3 of the company order are given as:
      - (1) Paragraph 2. Mission: Company A attacks 240600 May to seize Hill 492 and Hill 475 and continues the attack, on order, to seize Hill 510.
      - (2) Paragraph 3. Execution: 2d platoon makes the main attack on the right to seize Objective 1 and, on order, Objective 3.
    - c. Subordinate leaders should also try to issue their orders from vantage points that overlook the terrain. However, many times this will not be possible, and they will have to sketch the terrain on the ground. Terrain models are easy to construct and allow the leader to associate his order and terrain features so that each man will have an idea of what to expect.
    - d. The OPORD. An OPORD is the presentation of the information and instructions needed to accomplish a specific mission. The amount of detailed information included in your OPORD depends on the information you received and the time you have to prepare.

**Performance Steps**

e. As 2d platoon leader, you might alter your paragraphs 2 and 3 as follows:

- (1) Mission: 2d platoon attacks 240600 May to seize Hill 492 and, on order, Hill 475.
- (2) Execution: From the line of departure (LD) to the final coordinating line (FCL), we use bounding overwatch. Heavy Team, you will overwatch initially, and light team will bound. Heavy Team, at the FCL you link up with 3d platoon on the right. Light Team, you link up with the 1st platoon on the left. Movement from the FCL is on my command. Heavy Team, after consolidation, you...

5. Paragraph 1 should contain the mission of the company, which was stated in paragraph 2 of the company OPORD. Paragraphs 4 and 5 of the company order are narrowed down to apply only to your platoon. For example, if paragraph 4 of the company order gives you the location of the battalion field trains, your platoon order will probably not contain that information because it does not directly affect your squads. Your responsibility as a platoon sergeant or acting platoon leader is to give your men the information that pertains to them. The five-paragraph order format should be used as a checklist to avoid omitting important information. It is not all inclusive, however, and may be modified as necessary.

**Evaluation Preparation:** SETUP: Provide at the test site a complete written company OPORD; also provide pencil and paper.

**BRIEF SOLDIER:** Tell the soldier to develop a platoon OPORD by using the written company order and upon completion to orally give it to you.

**Performance Measures****GO** **NO GO**

1. Developed a clear and concise oral platoon OPORD that includes the following: — —

- a. The mission of the company.
- b. The mission of the platoon.
- c. The concept of how the battle would be fought, to include:
  - (1) Location of the objective.
  - (2) Time of the attack.
  - (3) Location of the LD.
  - (4) Location of the assault position.
  - (5) Route and order of march.
  - (6) Consolidation instructions.
- d. Critical signal instructions.
- e. The location of platoon sergeant or acting platoon leader during the attack.

NOTE: In order to receive a "pass" for performance measure 1c, all subelements must be included in the OPORD.

2. Issued the order in a clear and concise manner and that clarified question(s). — —

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required**

FM 101-5-1

FM 7-7

FM 7-8

**Related**

**Extract Information from a Route Reconnaissance Report**  
**071-332-5034**

**Conditions:** During combat operations, CPS, FTX, or peacetime contingency, given commander's/S3's planning guidance, unit SOP, and a complete route reconnaissance report.

**Standards:** As a minimum, extract information concerning existing routes and their physical characteristics; distances between critical points; and suitable rates of march for tactical daylight and motor blackout marches.

**Performance Steps**

1. Route selection.
  - a. Every march plan is based on as complete and accurate a route reconnaissance as the time and situation permit. Maps and aerial reconnaissance support are valuable when selecting a route(s), but whenever practical, a ground reconnaissance should be conducted.
  - b. The S3 has primary unit staff responsibility for planning tactical troop movements. He develops courses of action based on the commander's planning guidance, the mission, the tactical plan, weather, terrain, available transportation, enemy capabilities, and the disposition of his own forces. He studies and compares his own course of action to determine the route or combination of routes to use. In some cases, before he recommends the route(s) and the organization of the march, the S3 may wait for additional information from a reconnaissance party.
  - c. The S3 coordinates with the S2 for route intelligence and information to support his march planning. The S2 uses all available agencies and sources to obtain route information and intelligence. He supervises the route reconnaissance to supplement, confirm, or obtain information about possible routes and intelligence not available for existing sources.
2. Route reconnaissance report.
  - a. Route Reconnaissance Planning. Reconnaissance instructions must be as detailed as possible and include exactly what information is to be obtained, the time by which the information is to be reported, where the information is to be reported, where the information is to be sought, action to be taken on enemy contact, and when the mission is to be executed. Essential details include:
    - (1) Pertinent known information of the enemy, friendly troops, and the area of operations.
    - (2) Proposed plans of higher commands to include anticipated traffic flow along the route and types of vehicles to be employed.
    - (3) Specific information desired.
    - (4) Route or tours to be reconnoitered.
    - (5) When, where, and how information is to be reported.
    - (6) Time of departure.
    - (7) Appropriate control measures.
    - (8) Action to be taken when the mission is completed.
    - (9) Special equipment requirements.
  - b. Terrain Considerations. The following factors of terrain are important in routes reconnaissance and require consideration when applicable.
    - (1) Existing routes and their physical characteristics.
    - (2) Gradients and radii of curvatures.
    - (3) Bridges.
    - (4) Vehicular fording, ferrying, and swimming sites.
    - (5) Tunnels, underpasses, and similar obstructions to traffic flow.
    - (6) Artificial obstacles such as areas of chemical, biological, and radiological contamination; roadblocks; craters; and minefields.
    - (7) Rock falls and slide areas.
    - (8) Drainage.
    - (9) Other natural or manmade features, such as wooded and built-up areas, which may affect



**Performance Steps**

movement.

- c. Specific Items. Specific items the reconnaissance might be tasked to report include:
- (1) Recommended rates of march.
  - (2) Selection of start point (SP) and release point (RP) or confirmation of suitability of SP and RP selected by map reconnaissance.
  - (3) Location of critical points.
  - (4) Confirmation of location and suitability of the assembly or bivouac area.
  - (5) Road distance between critical points on the route and total road distance from the SP and RP.
  - (6) Location of obstacles.
  - (7) Estimation of necessary men and equipment to repair and maintain routes.
  - (8) Recommended bypass routes, as required.
  - (9) Number of guides and their location.

| ROUTE                             | KILOMETER FROM SP | SUITABLE RATE MOTOR BLACKOUT | REMARKS                                                             |
|-----------------------------------|-------------------|------------------------------|---------------------------------------------------------------------|
| SP; RJ 5th Div Rd - Super Highway | –                 | 16 kmph                      | Bridge; hard surface; 2 guides                                      |
| RJ Dexter - Simpson Road          | 3.40              | 16 kmph                      | Traffic light; 1 guide; Simpson Rd: grade 1, poor traction when wet |
| RJ Dexter - Upton Roads           | 8.24              | 16 kmph                      | Traffic heavy; 2 guides; Dexter bears to right                      |
| RJ Dexter - Tony Roads            | 9.70              | 16 kmph                      | 2 guides                                                            |
| RJ Dexter - Bradshaw Roads        | 11.50             | 16 kmph                      | 2 guides                                                            |
| RJ Dexter - Logal Roads           | 13.30             | 16 kmph                      | 2 guides                                                            |
| RJ Dexter - Yeager Roads          | 15.60             | 16 kmph                      | Traffic heavy; 2 guides                                             |
| RP; RJ Yeager - Resa Roads        | 18.50             | 16 kmph                      | 2 guides                                                            |

Figure 1. Format for recording information.

- d. Format. One type format for recording essential information extracted from the route reconnaissance report is shown in Figure 1. An overlay report is useful and may be prepared by the reconnaissance element. The report format and specific information included will normally be specified in the unit SOP and certainly will be indicated by the specific mission requirements.

### 3. Analyze Route Reconnaissance Report.

- a. Before making his final recommendation, the S3 analyzes the reconnaissance report to confirm and supplement route intelligence and data already available from existing sources. He analyzes the report for the data listed in paragraph 2 with emphasis on the information in

**Performance Steps**

- paragraph 2c.
- b. After checking and reviewing the report and coordinating with other staff officers, the S3 presents the coordinated recommendation to the commander. After the commander's approval and during the development of detailed movement planning, the information obtained on the route reconnaissance will be used to--
- (1) Determine and select a route(s).
  - (2) Determine the SP.
  - (3) Determine critical points en route.
  - (4) Determine refueling and other scheduled halt areas.
  - (5) Determine rates of march.
  - (6) Determine total road distance and the RP.

**Evaluation Preparation:** SETUP: Provide the soldier with all materials listed in the condition statement.

**BRIEF SOLDIER:** Tell the soldier to extract all necessary information from the route reconnaissance report and provide a detailed breakdown of the existing routes and their physical characteristics so that the best route can be chosen for either a day or night tactical march.

**Performance Measures**

**GO**      **NO GO**

1. Extracted information from a route reconnaissance report.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 55-30

**Post a Daily Staff Journal****071-332-5051**

**Conditions:** In a combat environment, given DA Form 1594, Daily Staff Journal or Duty Officer's Log, information on the unit's activities, and a pen.

**Standards:** For each entry, complete the five columns in the body of the form. Post the journal entries immediately upon receipt/dispatch/occurrence of events. In each entry accurately and concisely describe the information received or dispatched or the event that occurred. Specify actions to take upon the receipt or dispatch of information, or when an event occurred.

**Performance Steps**

1. Record the item number, using next sequential number after the preceding entry.
2. Record the time.
3. Record incidents, messages or orders. Describe purpose, subjects, and conclusions of command conferences. Set down command decisions and summarize plans. Describe all movements of units down to company, battery, and troop level in such a manner as to enable other to pin point and trace their locations. Describe all changes in unit status, activation, inactivation, redesignation, reduction to zero strength, and assignment.
4. Record the action taken and add a legend after the journal summary.
5. Initial the entry.

**Evaluation Preparation:** SETUP: At the test site, provide the soldier with materials listed in the task condition statement.

**BRIEF SOLDIER:** Give the soldier a DA Form 1594 and unit information and tell the soldier to prepare a daily staff journal.

| <b>Performance Measures</b>                                                             | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Recorded the next sequential number following the last event that required an entry. | —                | —                   |
| 2. Recorded the time.                                                                   | —                | —                   |
| 3. Recorded the incident, message or order.                                             | —                | —                   |
| 4. Recorded the action taken.                                                           | —                | —                   |
| 5. Initialed the entry.                                                                 | —                | —                   |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

FM 101-5

# **Prepare an Operation Plan** **071-900-0001**

**Conditions:** In a combat environment, given the commander's decision and S3's guidance, TOE equipment, FM 101-5, and AR 380-5.

**Standards:** Included the following in the operation plan:

1. Classification IAW current AR 380-5.
2. Format as shown in the current FM 101-5.
3. Authentication by the commander or the S3.

## **Performance Steps**

1. Determine the classification of the operation plan. The first page of the plan must be marked top and bottom with the highest classification used anywhere in the plan. Mark each paragraph immediately following the numerical designation.
2. Prepare the operation plan heading. The heading must include the following information:
  - a. The reference to oral orders.
  - b. Copy number.
  - c. Issuing headquarters.
  - d. Location of command post.
  - e. Date/time group.
  - f. Message reference number.
  - g. Time and number of the order.
  - h. References.
  - i. Time zone used.
3. Prepare the operation plan body. The plan format is as provided in FM 101-5 and includes task organization and the following major paragraphs: Situation, Mission, Execution, Service Support, and Command and Signal.
4. Prepare the operation plan ending. The operation plan ending must include the following elements:
  - a. Acknowledgement instructions (may be detailed instructions or just the word "Acknowledge").
  - b. Signature of commander. Authentication procedures must be used when the commander's signature cannot be reproduced.

**Evaluation Preparation:** SETUP: At the test site provide material according to the task condition statement.

BRIEF SOLDIER: Tell the soldier the unit has identified a mission and to establish an operations plan.

| Performance Measures                                                                                                                                                                                                               | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Determined the classification of the operation plan. Marked top and bottom of the first paged with the highest classification used anywhere in the plan. Marked each paragraph immediately following the numerical designation. | —         | —            |
| 2. Prepared the operation plan heading. All required items were properly prepared.                                                                                                                                                 | —         | —            |
| 3. Prepares the operation plan body. The plan format was as provided in FM101-5 and included task organization and the following major paragraphs Situation, Mission, Execution, Service Support, and Command and Signal.          | —         | —            |
| 4. Prepared the operation plan ending. The operation plan ending included the following elements: <ol style="list-style-type: none"> <li>a. Acknowledgement instructions (may be detailed instructions or just the word</li> </ol> | —         | —            |

**Performance Measures****GO****NO GO**

"Acknowledge").

- b. Signature of commander. Authentication procedures must be used when the commander's signature cannot be reproduced.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

AR 380-5

FM 101-5

# **Prepare a Battalion Operation Order** **071-900-0003**

**Conditions:** Given the commander's and or the S3's guidance, TOE equipment, FM 101-5 and AR 380-5.

**Standards:** Prepared the operation order in time to allow subordinate elements to complete their planning and preparation. The order included the following:

1. Classification IAW current AR 380-5.
2. The format as shown in the current FM 101-5.
3. Authentication by the commander or the S-3.

## **Performance Steps**

1. Determine the classification of the operation order. The first page of the order must be marked top and bottom with the highest classification used anywhere in the order. Each paragraph must have the classification markings immediately following the numerical designation of the paragraph (preceding the first word for unnumbered paragraphs).
2. Prepare the operation order heading. It must include the following:
  - a. The reference to oral order.
  - b. Copy number.
  - c. Issuing headquarters.
  - d. Location of command post.
  - e. Date/Time group.
  - f. Message reference number.
  - g. Time and number of order.
  - h. References.
  - i. Time zone used.
3. Prepare the operation order body. The body must include the task organization and the following five major subparagraphs: Situation, Mission, Execution, Service Support, and Signal and Command.
4. Prepare the operation order ending. The operation order ending must include the following elements:
  - a. Acknowledgement instructions (may be detailed or just say the word "Acknowledge").
  - b. Signature of commander. Authentication procedures must be used when the commander's signature cannot be reproduced.

**Evaluation Preparation:** SETUP: Provide all the materials and equipment given in the task condition statement.

BRIEF SOLDIER: Tell soldier to prepare a battalion operation order.

## **Performance Measures**

1. Determined the classification of the operation orders.
2. Prepared the operation order heading, which included the following:
  - a. The reference to oral order.
  - b. Copy number.
  - c. Issuing Headquarters.
  - d. Location of CP.
  - e. Date/Time group.
  - f. Message reference number.
  - g. Time and number of order.

**GO**      **NO GO**

\_\_\_\_\_

\_\_\_\_\_

| Performance Measures                    | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------|-----------|--------------|
| h. References.                          |           |              |
| i. Time zone used.                      |           |              |
| 3. Prepared the operation order body.   | _____     | _____        |
| 4. Prepared the operation order ending. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

| References | Related  |
|------------|----------|
| Required   | AR 380-5 |
|            | FM 101-5 |

**Establish a Tactical Operations Center**  
**071-900-0004**

**Conditions:** In a combat environment, given TO&E equipment and a requirement to establish a tactical operations center (TOC).

**Standards:** The TOC must have: local security, communications with maneuver elements and higher headquarters, the situation map posted and the staff journal open.

**Performance Steps**

1. Establish local security.
2. Establish communications.
3. Open or continue the staff journal.
4. Post SITMAP.

NOTE: Perform any local or SOP requirements.

**Evaluation Preparation:** SETUP: At the test site, provide an area in which a tactical operations center can be established. Test this task during a battalion or larger tactical exercise.

BRIEF SOLDIER: Tell the soldier to establish a tactical operations center.

| <b>Performance Measures</b>               | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------|------------------|---------------------|
| 1. Established local security.            | _____            | _____               |
| 2. Established communications.            | _____            | _____               |
| 3. Opened or continued the staff journal. | _____            | _____               |
| 4. Posted SITMAP.                         | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-20



**Conduct Resupply of a Platoon**  
**071-940-0002**

**Conditions:** In a combat environment, given a platoon.

**Standards:** 1. Developed a plan that provides for operational security; covered and concealed routes to company trains and platoon positions with enough replacement of personnel, water, rations, lubricants, ammunition, and repair parts to meet expected needs until the next resupply.

2. Preparations must have included preparing the resupply point to include marking and securing of landing zone when required.

3. The unit was resupplied without restricting its security, communications, movement, delivery of direct fire, or ability to provide indirect fire support.

**Performance Steps**

1. Order supplies.
2. Receive supplies.
3. Control movement to the platoon resupply point.
4. Control the resupply.
5. Maintain flexibility.

**Evaluation Preparation:** SETUP: At the test site, provide an area in which a resupply can be conducted. Test this task during a platoon or larger tactical exercise.

BRIEF SOLDIER: Tell the soldier that he is the leader of a platoon conducting a resupply.

| <b>Performance Measures</b>                           | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------------------|------------------|---------------------|
| 1. Ordered supplies.                                  | _____            | _____               |
| 2. Received supplies.                                 | _____            | _____               |
| 3. Controlled movement to the platoon resupply point. | _____            | _____               |
| 4. Controlled the resupply.                           | _____            | _____               |
| 5. Maintained flexibility.                            | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7

Subject Area 9: MOVE: BASIC TACTICS

**Conduct Movement Techniques by a Platoon**

**071-326-5630**

**Conditions:** You are directed to conduct a movement to contact. Given a platoon size unit, an operations order (OPORD), a map of the area, an overlay of the area, and control measures, such as phase lines, boundaries, routes, and an axis of advance.

- Standards:**
1. Complied with control measures (such as the times planned for crossing phase lines) unless or until you contact an enemy force.
  2. Kept at least one squad prepared to maneuver or at least prepared to provide suppressive force.
  3. Controlled movement continuously.
  4. Selected the movement technique based on the likelihood of contact.

**Performance Steps**

1. Proper use of terrain. Because dismounted soldiers are vulnerable to all weapons, they can survive and accomplish their mission on the battlefield ONLY if they can operate without being seen. The platoon's best protection is terrain. Maximum use must be made of available cover and concealment at all times, especially when moving against a hidden enemy.
2. Selection of movement technique when not in contact. The platoon adjusts its technique of movement to the likelihood of making contact with the enemy.
  - a. LIKELIHOOD OF CONTACT - MOVEMENT TECHNIQUE
    - (1) Not Likely - Traveling
    - (2) Possible - Traveling Overwatch
    - (3) Expected - Bounding Overwatch
3. Movement techniques.
  - a. Traveling. Use the traveling technique when speed is important and contact with the enemy is not likely. All squads use the traveling technique and move in a column, keeping about 20 meters apart, depending on the terrain and visibility. When the platoon is traveling the platoon leader will normally be behind the lead squad to make control easier. The platoon sergeant normally travels at the head of the trail squad to help the platoon leader control the trail elements of the platoon. A machine gun, a Dragon, or both may move with the platoon sergeant if the platoon leader determines this would provide an advantage.
  - b. Traveling overwatch. Use the traveling overwatch technique when enemy contact is possible, but not expected. In this technique, only the lead squad contacts the enemy, leaving the platoon free to support the lead squad by fire or to maneuver against the enemy. This technique also gives the platoon some time and space in which to react to unexpected enemy fire.
    - (1) The platoon leader increases the distance between the lead squad and the platoon. Terrain and visibility determine the distance. The distance must be short enough to permit visual contact between the lead squad and the platoon, yet great enough that the platoon will not be pinned to down by enemy fire directed at the lead squad. To the extent permitted by terrain and visibility, the platoon lead should strive to maintain a distance of at least 50 meters and preferably 100 meters or more.
    - (2) The lead squad uses the traveling overwatch technique. The platoon leader is normally at the head of the platoon for control and observation. All elements of the platoon use the traveling technique.
    - (3) Crew-served weapons (Dragons and machine guns) may be dispersed throughout the column by attaching them to the platoon sergeant or to trail squads. Regardless of how the platoon is organized, the platoon leader normally retains direct control over at least one machine gun and one Dragon, which travel directly behind him. Placing crew-served weapons in these locations in the column:

**Performance Steps**

- (a) Provides immediate responsiveness to the platoon leader.
- (b) Lets them better support the lead squad.
- (c) Ensures that they will not be pinned down by enemy fire directed at the lead squad.
- c. Bounding overwatch. Use the bounding overwatch technique when contact is expected. The basic pattern of this technique is a three-legged walk, with squads rotating the following mission.
  - (1) One squad overwatching. One squad covers the advance of the platoon from covered and concealed positions. The positions must offer observation and fire against potential enemy positions. The squad can support the bounding squad by fire immediately if that squad makes contact. The overwatching squad's leader must know:
    - (a) The direction of the enemy threat.
    - (b) The location of his overwatch position.
    - (c) The route and destination of the bounding squad.
    - (d) The location of the platoon leader.
    - (e) The action he can expect to take next.
    - (f) The manner in which he will receive his orders.
  - (2) One squad bounding. One squad moves to a farther position from which it will take overwatch mission, unless it makes contact enroute. This squad should find the enemy. The length of its bound depends on the terrain, the range of the overwatching squad's weapons, and the ability of the platoon leader to control his squads. This squad normally uses the bounding overwatch technique since contact is expected. The bounding squad leader must know:
    - (a) The route and destination of the squad.
    - (b) The movement technique to use (dependent upon speed required).
    - (c) The action to take when he gets to the overwatch position.
    - (d) The location of the overwatching squad and the platoon leader.
    - (e) The action he can expect to take next.
    - (f) The manner in which he will receive his orders.
  - (3) One squad awaiting orders. One squad is committed and available for employment as the platoon leader directs. The squad leader awaiting orders must know how he will receive his orders. He should know:
    - (a) The events that are taking place.
    - (b) The actions he can expect to take next.

The platoon leader normally positions crew-served weapons with the overwatch element, along with any fire support team member who is able to call for and adjust indirect fire.

NOTE: The above technique can be varied to fit the situation. A platoon may move the squad awaiting orders to an overwatch position, thus having two squads in overwatch and one squad bounding. Where there is not a suitable squad overwatch position, the platoon leader may have the lead squad use squad bounding overwatch, with the trailing squads using traveling or traveling overwatch.

**Evaluation Preparation:** SETUP: Provide the soldier with the personnel and equipment listed in the condition statement.

**BRIEF SOLDIER:** Tell the soldier to lead a platoon-sized element in a movement to contact. Tell him to adhere to the information given in the OPORD and the overlay while maintaining control of the element and using the proper movement techniques to prove security and best use of terrain. During the movement, tell the soldier the likelihood of contact.

**Performance Measures**

1. Organized element into squad-sized elements.
2. Followed the OPORD and overlay.

**GO**      **NO GO**

\_\_\_\_      \_\_\_\_  
 \_\_\_\_      \_\_\_\_

| <b>Performance Measures</b>                                                             | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------------|------------------|---------------------|
| 3. Used the proper movement techniques based on the situation, terrain, and visibility. | _____            | _____               |
| 4. Used the terrain's cover and concealment to the best advantage.                      | _____            | _____               |
| 5. Maintained proper position in formation to maintain control.                         | _____            | _____               |
| 6. Maintained control throughout the movement.                                          | _____            | _____               |
| 7. Made proper reports as required by the OPORD.                                        | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

##### **Required**

FM 3-90.1  
FM 7-7  
FM 7-7J  
FM 7-8

##### **Related**

## Conduct Movement Techniques by an M2 BFV Dismount Platoon

071-326-5910

**Conditions:** As the leader of a dismount element moving in various tactical situations, change formations and movement techniques.

**Standards:** 1. Selected the formation that-

- Provided security (as dictated by the tactical situation).
- Allowed the fighting vehicle element to support the dismount element whenever possible.
- Dispersed fire teams.
- Provided a position from which maximum firepower can be placed on a known enemy position without jeopardizing security.

2. Employed the correct movement technique based on the mission and the likelihood of contact.

### Performance Steps

- The three basic formations for the dismount element are the column, the line, and the wedge.
  - Select the dismount element column as the primary movement formation (Figure 1). It has good dispersion in depth and makes control easier. It provides limited fire to the front but a high volume of fire to the flanks. The lead fire team is usually designated as the base team. The other fire teams guide on the base team.

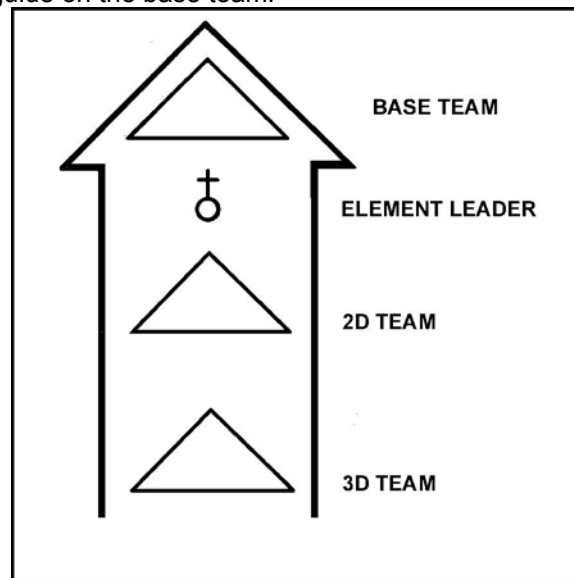


Figure 1. Dismount element column.

- Select the dismount element line to assault an objective and designate the base fire team (Figure 2). In this formation, the dismount element can deliver maximum fire to the front but little to the flanks.

## Performance Steps

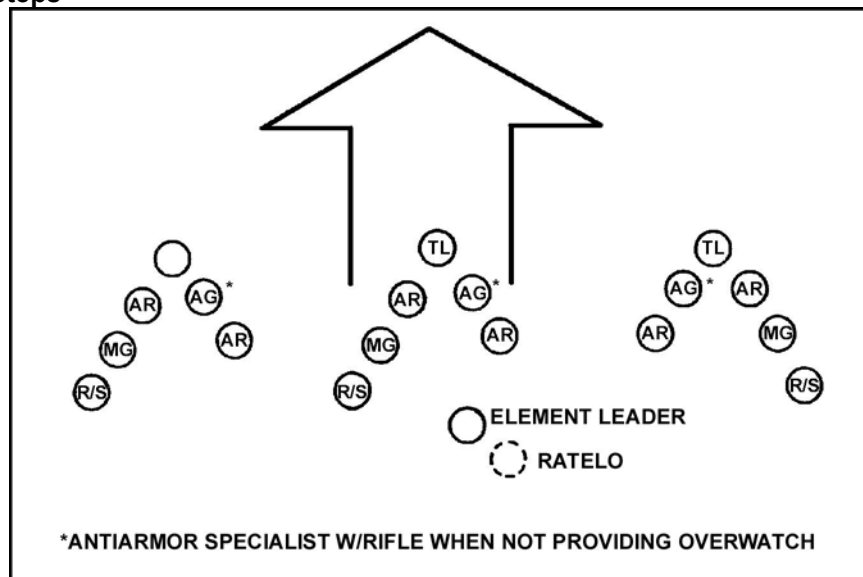


Figure 2. Dismount element line.

- c. Use the wedge formation when the situation is uncertain (Figure 3). This formation allows a large volume of fire to the front and to both flanks. It will usually ensure that, on contact with the enemy, at least one fire team will be free to maneuver.

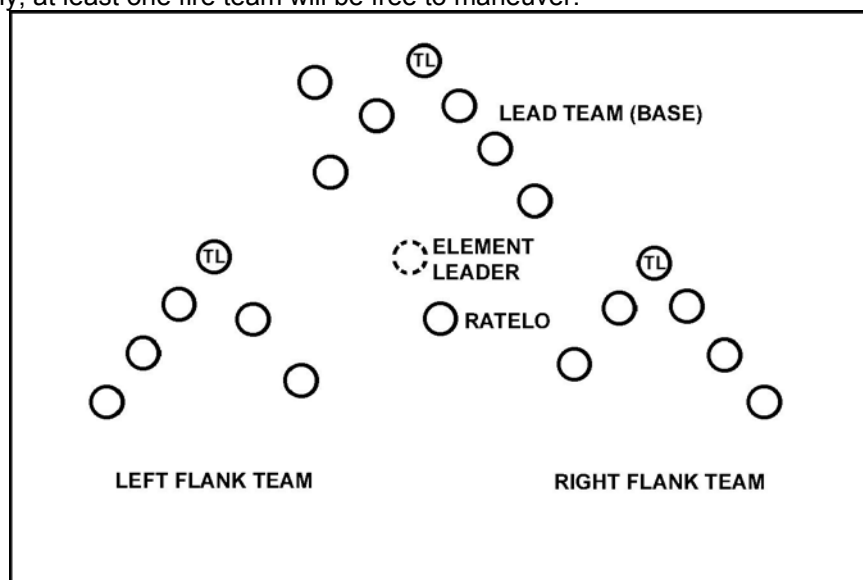


Figure 3. Dismount element wedge.

2. The dismount element will normally use variations of the column and wedge formations.
3. Select movement techniques based on the likelihood of contact. Use of the formations is not fixed or rigid. Distances between fire teams vary based on the terrain and visibility. As the terrain becomes more rugged, as vegetation becomes denser, or if visibility is reduced, the distance between the fire teams is reduced.

### LIKELIHOOD OF CONTACT

### MOVEMENT TECHNIQUE

Not likely

Traveling

**Performance Steps**

Possible

Traveling overwatch

Expected

Bounding overwatch

- a. Use the traveling technique when speed is important and contact with the enemy is not likely (Figure 4). The dismount element's formation is adjusted to fit the situation. The fire team leaders normally move at the head of their teams so they have better control and can see the dismount element leader. The fighting vehicle element should be in position to support the dismount element, when possible.

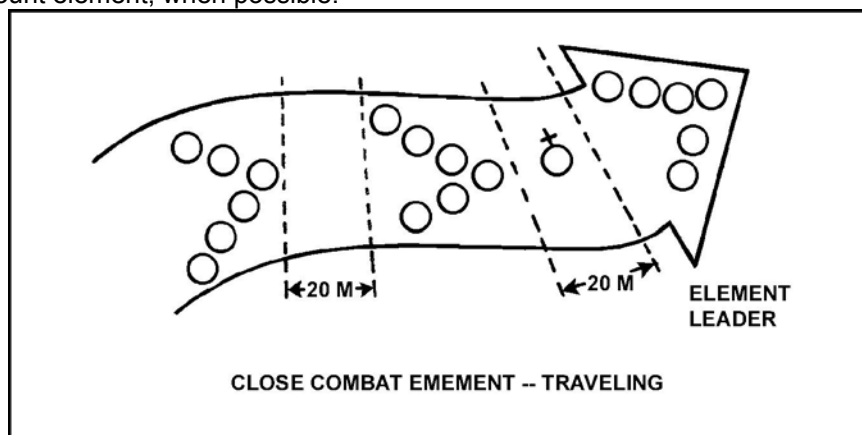


Figure 4. Dismount element--traveling.

- b. Use the traveling overwatch technique when enemy contact is possible, but not expected. Use caution, but move quickly. This technique provides more time and distance in which to react if the lead team runs into enemy fire. The dismount element normally uses a column or wedge formation. The lead fire team tries to move at least 50 meters, but preferably 100 meters or more, in front of the rest of the platoon dismount element. The fighting vehicle element may be even farther to the rear or to a flank but should be in position to overwatch the dismount element, particularly the lead fire team.
- c. Use the bounding overwatch technique when contact is expected and the terrain will not permit mounted movement, or when the dismount element is separated from the fighting vehicle element (Figure 5). This is the most deliberate and cautious of the movement techniques. The platoon leader directs the overwatching force to cover the progress of the bounding force from a covered, concealed position offering observation and fields of fire against likely enemy positions. The overwatching force must be able to immediately support the bounding force by providing suppressive fire and maneuver if the bounding force makes contact. The bounding force moves forward to a preselected position covered by the overwatching force. It secures the new position so that the overwatching force can then move forward. The length of each bound is tied to the observation, fields of fire, and range of weapons of the overwatching force.

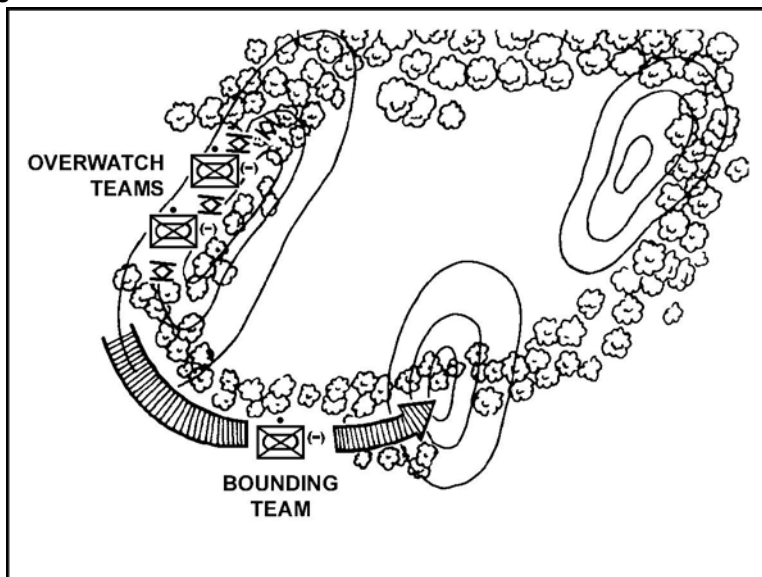
**Performance Steps**

Figure 5. Dismount element--bounding overwatch.

**Evaluation Preparation:** SETUP: Provide the platoon sergeant or acting platoon leader with three fire teams, a company operation order depicting a scheme of maneuver, and a tactical situation.

BRIEF SOLDIER: Tell the leader to control the dismount element while moving in various tactical situations that will require changes in formation and movement techniques.

**Performance Measures****GO** **NO GO**

1. Selected the formation that-
  - a. Provided security (as dictated by the tactical situation).
  - b. Allowed the fighting vehicle element to support the dismount element whenever possible.
  - c. Dispersed fire teams.
  - d. Provided a position from which maximum firepower can be placed on a known enemy position without jeopardizing security.
2. Employed the correct movement technique based on the mission and the likelihood of contact.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References  
Required****Related**  
FM 7-7J



## Conduct Movement Techniques by an M2 BFV Platoon While Mounted

### 071-326-5911

**Conditions:** As the leader of an M2 BFV platoon moving mounted in various tactical situations that require a change in formations.

**Standards:** Selected the formation that provides security, maximum firepower dispersion, and mutual support.

### Performance Steps

1. The four basic formations for movement are column, line, echelon, and wedge. These formations are an aid to command and control. The specific shape of the platoon formation is determined primarily by the mission, enemy situation, and terrain. The formation in which it is traveling prescribes its form only in a general way.
  - a. Select the column formation for road marches, for movement during limited visibility, and when passing through defiles or thick woods (Figure 1).

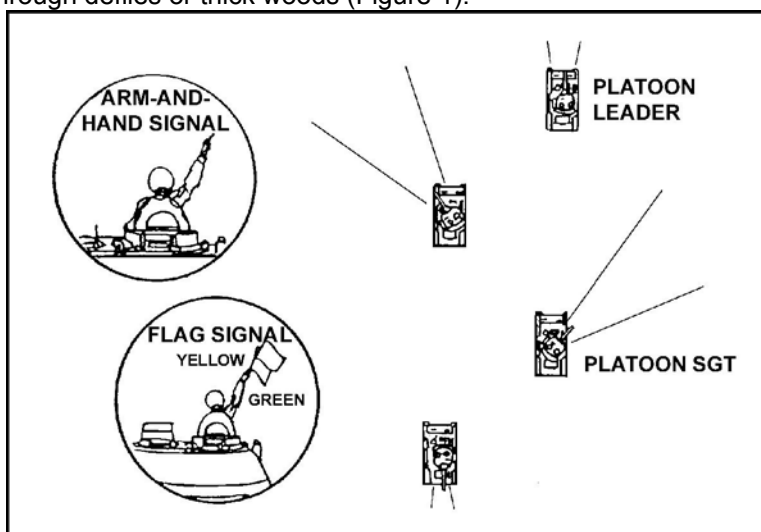
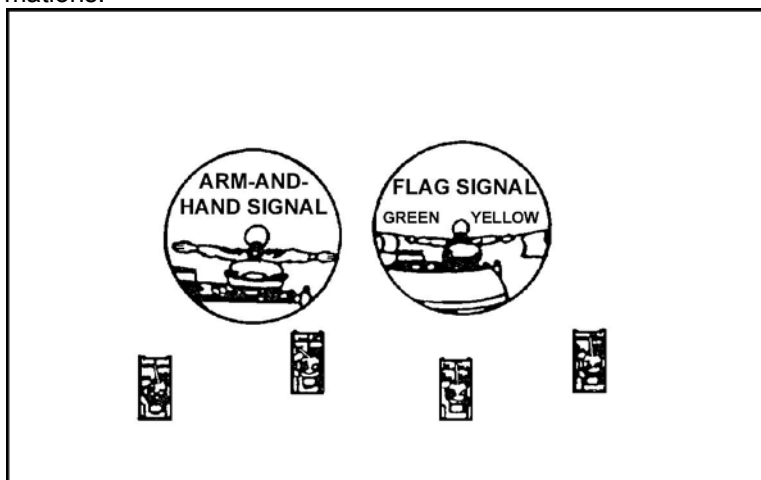


Figure 1. Column formation.

- b. Select the line formation when assaulting an objective, crossing open areas, leaving a woodline, or emerging from smoke (Figure 2). Use this formation to cross an objective rapidly with maximum fire to the front. This formation lacks depth when compared to the column or wedge formations.



**Performance Steps**

Figure 2. Line formation.

- c. Select the echelon formation when it is necessary to cover an exposed flank of a larger force (Figure 3). This formation permits excellent firepower to the front and to either right or left flank.

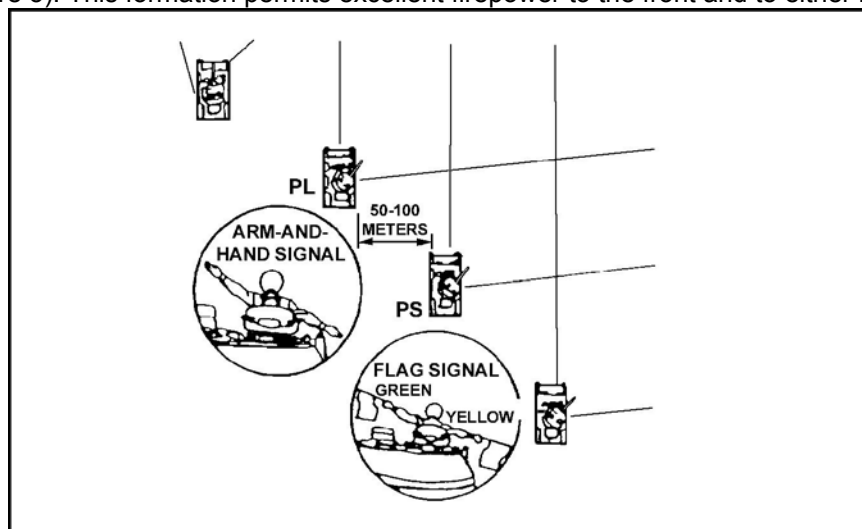


Figure 3. Echelon formation.

- d. Select the wedge formation when the enemy situation is vague (Figure 4). This formation provides excellent fire to the front and good fire to each flank. It also allows control of the BFVs and rapid deployment into other formations. The orientation of the pairs is left and right. The platoon leader and platoon sergeant control the other BFV (wingman) of their pair by directing it to follow to the outside and to orient its weapons toward the flank.

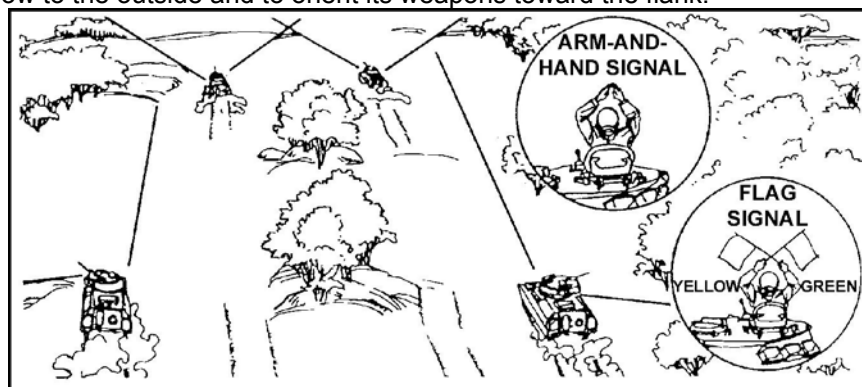


Figure 4. Wedge formation.

NOTE: Although the depicted visual signal conforms to doctrine, it is not suitable. The configuration of the M2 turret makes it difficult for other BFV commanders to see the signal. An alternative, established by SOP, is to extend the arms upward at a 45-degree angle.

2. The two basic stationary formations are herringbone and coil.
  - a. When traveling in a column formation, select the herringbone formation to disperse the platoon (Figure 5). Direct this formation during an air attack or when the platoon must stop during movement. Direct the BFVs to be repositioned, as necessary, to take advantage of the best cover, concealment, and fields of fire as time permits. Direct fire teams to establish security during limited visibility or when the halt is more than temporary. Normally, this formation is executed without a radio command.

## Performance Steps

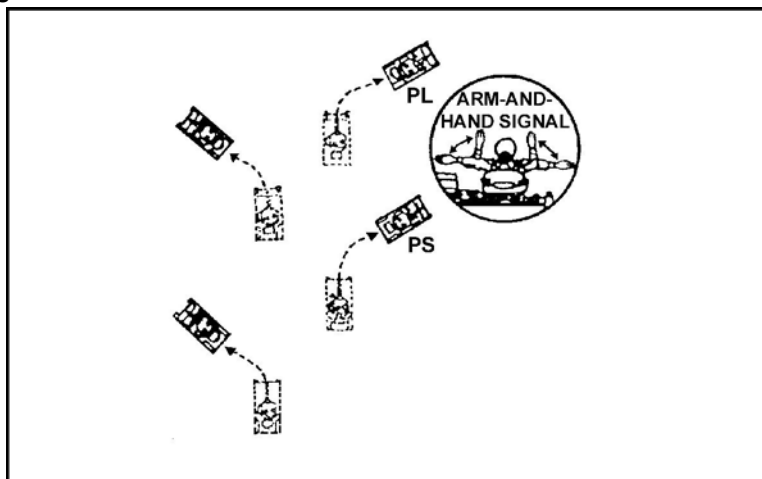


Figure 5. Herringbone.

- b. Select the coil formation for tactical refueling and resupply (Figure 6). Do not use it for long periods during daylight, because it presents a lucrative target. Post security elements, to include air guards and fire teams, and ensure the BFV turrets are manned. The two methods to form a coil are as follows:
- (1) When visibility is limited, the platoon leader forms the coil by leading the platoon in a circle. When the circle is completed, all BFVs stop, turn 90 degrees outward, and post security.
  - (2) The platoon leader signals his BFV to quickly move into position and stop. The other vehicles move directly to their assigned position according to the platoon's SOP, seek cover and concealment, and post security. This technique is used during daylight or whenever speed is required.

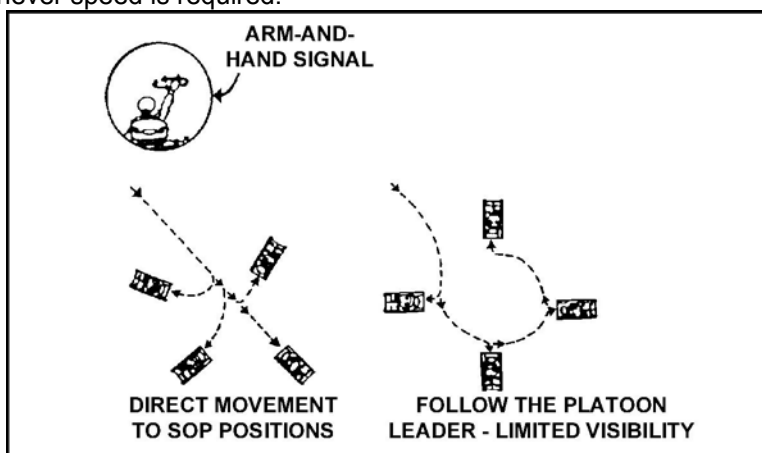


Figure 6. Coil.

**Evaluation Preparation:** SETUP: Provide the platoon sergeant or acting platoon leader a test site, and a flag set containing red, green, and yellow flags.

**BRIEF SOLDIER:** Tell the platoon sergeant or acting platoon leader to demonstrate the correct arm-and-hand signals for various tactical situations that require a change in formations.

## Performance Measures

1. Gave correct signal and corrected explanation of when column formation is used.

GO    NO GO

—    —

| <b>Performance Measures</b>                                                         | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------------------------------------------------|------------------|---------------------|
| 2. Gave correct signal and corrected explanation of when line formation is used.    | _____            | _____               |
| 3. Gave correct signal and corrected explanation of when echelon formation is used. | _____            | _____               |
| 4. Gave correct signal and corrected explanation of when wedge formation is used.   | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References**

**Required**

**Related**

FM 7-7J

**Employ an M2 BFV Platoon in the Aerial Defense Role**  
**071-326-5913**

**Conditions:** In a combat situation, given an M2 BFV Platoon, and a threat aircraft.

**Standards:** The platoon took the following air defense actions: passive measures such as constantly seeking cover and concealment, keeping vehicles dispersed, making frequent changes in speed and direction, maintaining light discipline and communications security; active measures such as aerial targets were destroyed or suppressed by organic small arms fire.

**Performance Steps**

1. Employ passive air defense.
2. Employ air guards.
3. Engage fast moving aircraft.
4. Engage slow moving aircraft.

**Evaluation Preparation:** SETUP: At the test provide all material and equipment according to the task condition statement.

BRIEF SOLDIER: Tell the soldier, he will be evaluated on passive and active measures IAW the standards.

| <b>Performance Measures</b>      | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|----------------------------------|------------------|---------------------|
| 1. Employed passive air defense. | _____            | _____               |
| 2. Employed air guards.          | _____            | _____               |
| 3. Engaged fast moving aircraft. | _____            | _____               |
| 4. Engaged slow moving aircraft. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7J

## Conduct Movement Techniques by a Mechanized (M113) Platoon While Mounted

### 071-410-0003

**Conditions:** In a combat environment, given an M113 Platoon and a mission requiring mounted movement.

**Standards:** Moved so as to make contact with the smallest possible element; made use of cover and concealment afforded by the terrain; and constantly maintained all-round security.

#### Performance Steps

1. Select movement techniques based on probability of enemy contact.
  - a. Contact not likely: chose to move in column, wedge, vee, or echelon.
  - b. Contact possible: maintain lead squad 50-100 meters in front of the platoon. Formations are the same.
  - c. Contact likely: use bounding overwatch, one or two vehicles bound and dismount local security (If required) the remainder of the platoon overwatches.
2. Ensure vehicles maintain formation, based on the factors of METT-TC. Change formation based on METT-TC, particularly on enemy capabilities.
3. Ensure vehicles maintain dispersion. Vehicles should move far enough apart that a single round could destroy no more than one vehicle, yet they should move close enough together to provide mutual support. The space between vehicles changes as terrain and enemy deployment change.
4. Maintain all-round security at all times. Air guards watch for enemy aircraft. Soldiers dismount and clear overwatch positions that offer a lot of cover and concealment.
5. Maintain direction. Maintain orientation on the platoon objective. Report when you reach locations designated in control measures.

**Evaluation Preparation:** SETUP: Provide the soldiers with an M113 platoon, a training area, and a mission to move.

BRIEF SOLDIER: Tell the leader to use the formation(s) based on METT-TC

| Performance Measures                                                             | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------------------------------|-----------|--------------|
| 1. Selected movement techniques based on METT-TC.                                | —         | —            |
| 2. Maintained and changed the formation as the factors of METT-TC changed.       | —         | —            |
| 3. Maintained dispersion between vehicles based on the factors of METT-TC.       | —         | —            |
| 4. Maintained all-round security throughout the movement. Designated air guards. | —         | —            |
| 5. Maintained general direction to the objective throughout the movement.        | —         | —            |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### References

Required

Related  
FM 7-7

## Conduct Movement Techniques by a Mechanized (M113) Platoon While Dismounted

### 071-410-0004

**Conditions:** In a combat environment, given a platoon and a requirement to move dismounted.

**Standards:** Moved so the smallest possible force made contact with the enemy, while at the same time maintaining security.

#### Performance Steps

1. Select movement technique. Select the formation type based on the likelihood of enemy contact.
  - a. Traveling formation - contact unlikely.
  - b. Traveling overwatch - contact possible.
  - c. Bounding overwatch - contact expected.
2. Select and ensure the platoon maintains the formation.
3. Ensure platoon remains dispersed.
4. Maintain security.
5. Maintain direction.

**Evaluation Preparation:** SETUP: Evaluate task during a platoon tactical exercise.

**BRIEF SOLDIER:** Tell the soldier that he is the platoon sergeant, and that the situation requires the platoon conduct a dismounted movement.

| Performance Measures                                         | <u>GO</u> | <u>NO GO</u> |
|--------------------------------------------------------------|-----------|--------------|
| 1. Selected movement technique.                              | _____     | _____        |
| a. Traveling.                                                |           |              |
| b. Traveling overwatch.                                      |           |              |
| c. Bounding overwatch.                                       |           |              |
| 2. Selected the formation and ensured platoon maintained it. | _____     | _____        |
| 3. Ensured platoon maintained dispersion.                    | _____     | _____        |
| 4. Maintained security.                                      | _____     | _____        |
| 5. Maintained direction.                                     | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### References

Required

Related

FM 7-7

## Plan for Use of Supporting Fires

071-410-0020

**Conditions:** Given a mission, unit fire support plan, a forward observer (FO), and a military map of the operational area.

**Standards:** All available supporting fires are integrated into mission planning.

### Performance Steps

1. The platoon is normally supported by weapons organic to its unit--the company and battalion TOWs and mortars and the platoon's own machine guns. Tanks may be attached to the company and provide support for the platoon. Battalion usually has an artillery platoon or battery in direct support of it. Tactical air strikes may be used for some missions.
2. The battalion and company commanders plan for targets. The platoon leader must decide on any more targets that he wants planned. The assigned FO helps the platoon leader and platoon sergeant plan the support.
3. Fires on known, suspected, or likely enemy positions and on prominent terrain features should be planned. A planned target can be used as a reference point for quickly getting fire on targets of opportunity. Targets should not be plotted closer together than 400 meters. Targets are numbered and recorded by the FO.
4. In the offense, fires are planned to keep the enemy from reinforcing and to protect the unit from counterattack. Targets should be planned--
  - a. On the approaches short of the objective.
  - b. On the objective.
  - c. Beyond the objective.
  - d. To the flanks of the objective.
5. In the defense, fires are planned to break up the enemy's formations, disrupt his control, slow down his maneuvers, and break up his assault. Targets should be planned--
  - a. On enemy avenues of approach.
  - b. On obstacles.
  - c. On, behind, and to the flanks of friendly positions.
  - d. On the final protective fire line (FPF), where it will break up an enemy assault on the position.
6. The platoon leader and all NCOs in the platoon should be able to call for and adjust fires from direct and indirect fire weapons supporting the platoon. Squad leaders need to be informed of the target numbers assigned in their sectors.
7. Planning the fires of the weapons within the platoon begins as soon as a mission is received.
  - a. Defensive fire planning is normally well thought out and detailed:
    - (1) Each squad and each weapon is assigned a primary and one or more alternate firing positions. Each is assigned a sector of fire. This applies to vehicles and mounted weapons, if any are assigned to the unit. Point and area targets are chosen. Control measures, such as TRPs, engagement areas, or target priorities are used to plan the fires of the platoon.
    - (2) Target information is obtained from the squad leaders, usually in the form of sector sketches and range cards (DA Form 5517-R).
    - (3) The fire plan is finished and a copy of the sector sketch is given to the company commander.
  - b. Offensive fire planning is less detailed than defensive fire planning. Planning is required, however, to ensure that the platoon knows how to engage known and suspected enemy targets and targets of opportunity.
8. As the mission progresses, the fire support must be changed based on the tactical situation. Mission



**Performance Steps**

and fire planning are both ongoing jobs. The leader must stay abreast of what is taking place and must evaluate the situation constantly using METT-TC.

**Evaluation Preparation:** SETUP: This task should be evaluated during a field training exercise. Provide the soldier with the equipment, information, and personnel given in the task condition statement.

BRIEF SOLDIER: Tell the soldier that he is to plan for fires supporting his platoon for the given mission.

| <b>Performance Measures</b>                                                                    | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Determined the weapons available for support from the OPORD and unit fire support plan.     | _____            | _____               |
| 2. Selected targets that are not already on the unit fire support plan to support the mission: | _____            | _____               |
| a. Known, suspected, and likely enemy positions.                                               |                  |                     |
| b. Prominent terrain features.                                                                 |                  |                     |
| c. Targets no closer together than 400 meters.                                                 |                  |                     |
| 3. Assigned each squad, weapon, and vehicle a sector of fire.                                  | _____            | _____               |
| 4. Assigned primary and alternate positions.                                                   | _____            | _____               |
| 5. Found the TRPs and name target priorities to plan platoon fire.                             | _____            | _____               |
| 6. Used sector sketches and range cards (DA Form 5517-R) for the platoon sector sketch.        | _____            | _____               |
| 7. Obtained the TRP and target numbers from the FO.                                            | _____            | _____               |
| 8. Updated the fire plan as the mission progresses.                                            | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required**

FM 7-7  
FM 7-7J  
FM 7-8

**Related**

DA FORM 5517-R

## **Conduct the Maneuver of a Platoon**

### **071-420-0005**

**Conditions:** Given a platoon conducting a movement to contact. The platoon encounters an enemy position.

**Standards:** 1. Determined the strength and disposition of the enemy.

2. Fixed the enemy with all available suppressive fire.

3. Assaulted the enemy's flank, rear, or other weak points, using fire and movement, all organic and supporting weapons, and all available cover and concealment.

4. As leader, took appropriate actions to maneuver the platoon in order to prevent serious injuries or casualties, and accomplish the mission.

### **Performance Steps**

1. Develop the situation. When the lead platoon makes contact with the enemy, develop the situation. Try to gain knowledge about the enemy's strengths, weaknesses, and disposition that was not learned from the initial contact. Exploit weak points aggressively. Use all available fire support, cover, and concealment to maintain forward momentum.
2. Take action on contact.
  - a. Using the proper movement techniques, one squad in the platoon should make contact. This leaves the rest of the platoon free to support the squad in contact, which tries to fight through the enemy. To do so, the squad uses fire and movement. Members of the squad move singly, in buddy teams, or in fire teams, depending on the terrain and enemy situation. Soldiers fire and move completely through the enemy position if possible, making short rushes (three to five seconds long) from one covered position to the next, minimizing their exposure.
  - b. Even if the squad cannot overcome the enemy, its effort to do so gives the platoon leader information on the enemy's strength and disposition. He fights through at the platoon level by moving one or two squads forward under the overwatching fire of his remaining squad(s), his key weapons, and all the fire support he can get through his forward observer and his company commander.
  - c. As the platoon maneuvers against the enemy, its leader continuously reports to the company commander. If a platoon cannot overcome the resistance, it may become an overwatch element for a continuation of the attack by the entire company or take other action directed by the company commander.
  - d. Included in the platoon leader's orders (by example or direct contact) may be instructions for:
    - (1) The lead squad to either maneuver against the enemy resistance, supported by other elements of the platoon, or to hold in position and overwatch.
    - (2) The leaders of the other squads to either overwatch the lead squad or to move along a specified route, deploy in an assault position the platoon leader selects, and assault on the platoon leader's signal.
    - (3) The forward observer of the fire support team to get all the indirect fire he can on the enemy position (objective) and on nearby positions from which the enemy can shoot at the platoon as it attacks, and to shift that fire to adjacent positions as the platoon advances.
3. Prepare reports. Make frequent reports of the platoon's progress to the company commander. Make them accurately and in time to be useful.
4. Assault.
  - a. The assault is the final move toward the enemy under fire. The purpose of the assault is to destroy the enemy position. The assault is characterized by noise and confusion. A successful

**Performance Steps**

- assault is usually due to the actions of men or teams who exploit terrain and enemy weaknesses in their immediate areas.
- b. As the platoon deploys and moves through the assault position, supporting fire should increase to its greatest rate. Machine guns may be deployed near the assault position to provide continuous supporting fire. As elements of the platoon close with the enemy, they may alternate as overwatch and assault elements.
  - c. Assaulting troops should move as close to supporting fire as possible. As fire is shifted, men in the assaulting element deliver intense small-arms fire, throw hand grenades, and close with and kill the enemy. The assault continues until the enemy resistance is destroyed.
  - d. To close with the enemy, the overwatch element must suppress the enemy fire. This is done by blocking the enemy's vision with smoke or by shooting at him with enough accurate fire to drive him from his firing positions. The enemy will probably continue to fire, but his fires will be inaccurate and ineffective.
  - e. The assaulting troops avoid or move quickly through unsuppressed enemy fire. When the enemy fire is suppressed, they can move toward enemy positions without taking excessive casualties.
  - f. The assaulting element seeks to concentrate against the enemy flank, rear, or other weak points. The enemy may try to reinforce those points; use fire to fix him so that he cannot. Smoke and direct fire may suppress the enemy, but it will not keep him from redeploying along interconnecting trenches. To stop this movement, airburst indirect fires are required. Remember that the enemy must be FIXED BY SUPPRESSIVE FIRE.
5. Fight in restrictive terrain.
- a. In very rugged terrain and in areas heavily fortified or with a lot of obstacles, the fire of the platoon may be severely restricted.
  - b. In restrictive terrain, the platoon may organize squads into:
    - (1) An assault element, to close with and destroy the enemy.
    - (2) An overwatch element, to suppress and fix the enemy by fire.
    - (3) A breaching element (when required), to clear or mark a path through enemy obstacles for the assault element.
  - c. Enemy positions may be in trenches, buildings, or fortified bunkers. Most restrictive areas require the same general techniques:
    - (1) Organize into assault, overwatch, and (if necessary) breaching elements.
    - (2) Maintain control by seizing one objective at a time.
    - (3) After seizing an objective, secure it with an element and continue the assault with the rest of the platoon.
6. Perform common tasks. Three of the most common tasks that face the platoon in restrictive terrain are to clear a trench system, knock out bunkers, and clear buildings.
- a. Clearing a trench system:
    - (1) Trench systems allow the defender to move his troops from one defensive position to another. A system usually has two or more main trenches with connecting secondary trenches. Each trench is narrow and has fighting positions or bunkers constructed at intervals along it.
    - (2) Because one trench supports another, the enemy can continue to fire on the assault element even after the element has secured one trench in a system.
    - (3) The platoon normally assaults a trench while part of a larger force; its objective is a specific section or point in the trench. The platoon leader assigns these tasks:
      - (a) Penetrate the trench system.
      - (b) Hold the initial trench.
      - (c) Clear the trench system.
    - (4) In the assault of a trench:
      - (a) Key weapons should be used against the fighting positions and bunkers to destroy and suppress the enemy's fire.
      - (b) Grenade launchers should be fired into the trench during the assault.

## Performance Steps

- (c) Hand grenades should be used before and after entering the trench to clear enemy positions.
- (5) When the platoon enters the trench, one element should secure the penetrated point. That element covers the rear while two- or three-man buddy teams clear the trench. They clear it--
  - (a) In only one direction.
  - (b) Along the main trench, leaving an element to hold each connecting trench.
  - (c) Only as much as the unit can hold against counterattack.
- (6) Each bunker in a trench system must be cleared in succession.
- b. Knocking out bunkers:
  - (1) The enemy also uses bunkers in built-up areas in conjunction with buildings and trenches. The techniques for clearing bunkers and buildings are the same. The assault of a bunker in a trench system and the assault of a bunker in a fortified area are the same.
  - (2) Whenever possible, use artillery or airstrikes to destroy bunkers. When available, the combat engineer vehicle can neutralize fortified positions and bunkers. When the platoon must assault a bunker:
    - (a) Approach it from its blind side.
    - (b) Have part of the platoon shoot into the entrance, ports, and other openings, while the rest of the platoon closes on it with grenades, flame weapons, or demolitions to destroy it.
- c. Clearing buildings:
  - (1) Farm complexes, villages, industrial sites, cities, and other built-up areas may become objectives. The rifle platoon may have the mission of seizing a farm complex or a section of buildings in a larger built-up area.
  - (2) Plans to clear buildings will provide for:
    - (a) Organizing the platoon into an assault element(s), overwatch element(s), and breaching element(s) (as required).
    - (b) Isolating the objective by using all available direct and indirect fire.
    - (c) Seizing a foothold or entry into the building(s).
    - (d) Clearing the building(s) in the objective.
  - (3) For the attack, the assault element, the overwatch element, and if necessary the breach element should be used.
  - (4) The assault element, consisting of riflemen and demolition men:
    - (a) Assaults to gain a foothold in the building(s).
    - (b) Clears the building(s) in the objective area.
  - (5) The overwatch element, consisting of automatic riflemen, grenadiers, machine guns, fighting vehicles, and attached tanks and other direct fire weapons:
    - (a) Shoots suppressive fire for the assault element.
    - (b) Secures cleared parts of the building(s).
    - (c) Reinforces the assault element as necessary.
  - (6) To clear a building:
    - (a) Enter at the highest point possible. Use ladders, drainpipes, vines, or grappling hooks.
    - (b) Use fighting vehicles for movement between buildings. Movement may be from roof to roof when buildings are close together.
    - (c) When enemy fire prevents entry at upper levels, create new entrances with tanks, fighting vehicles, demolitions, or antiarmor weapons.
    - (d) Do not enter by a door or a window unless you can fire heavy weapons into it to destroy any mines and kill any enemy infantry.
    - (e) Work from the top of the building to the bottom. Even when a building must be entered on the ground floor, proceed to the top and clear down.
    - (f) Use two- or three-man buddy teams to clear rooms and hallways.
    - (g) The breaching force must breach obstacles or use demolitions to open entry points in buildings for the assault element.
    - (h) To clear a room, one man throws a grenade into it, waits for the explosion, and

**Performance Steps**

enters the room. A second man enters and, covered by the first, searches the room. When you can't use the doorway, create a new door by blowing a hole in the wall with demolitions.

- ( i) If movement is restricted to the ground move from one doorway to another, always hugging walls or any other available structure. Avoid crossing open streets, alleys, and vacant lots; crawl under windows; and be careful when crossing in front of doors.

**Evaluation Preparation:** SETUP: This task should be evaluated during a field training exercise. Provide the soldiers with the equipment, information, and personnel given in the task condition statement.

BRIEF SOLDIER: Tell the platoon to conduct a movement to contact.

| Performance Measures              | GO    | NO GO |
|-----------------------------------|-------|-------|
| 1. Developed the situation.       | _____ | _____ |
| 2. Took action on contact.        | _____ | _____ |
| 3. Prepared reports.              | _____ | _____ |
| 4. Assaulted.                     | _____ | _____ |
| 5. Fought in restrictive terrain. | _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**  
FM 7-7  
FM 7-7J  
FM 7-8

**Related**

Subject Area 10: MOVE: DEFENSE/OFFENSE

**Conduct a Disengagement by a Platoon While Under Enemy Pressure**

**071-326-5832**

**Conditions:** Given a 1:50,000 map of the area of operations, and a requirement to plan for a withdrawal under enemy pressure as part of a larger force.

**Standards:** Prepared a plan that included, as a minimum, the sequence of withdrawal and methods of disengagement.

**Performance Steps**

1. A platoon's withdrawal under enemy pressure is conducted as part of a company's withdrawal. The withdrawal is conducted when the company is forced from its defensive positions, to either continue the defense or disengage and move elsewhere for another mission. Each platoon tries to disengage from the enemy by fire and maneuver to the rear. Once a platoon has disengaged and move to the rear of its original position, the company commander will direct what it is to do next. This may include covering the rearward movement of other platoons, occupying a new defensive position, or moving to perform another mission.
2. The company commander controls the sequence of withdrawal of the platoons. His decision on which platoon to withdraw first is usually based on where the enemy attacks and how heavily each platoon is engaged. Once the decision is made to withdraw, the company commander will normally order the least heavily engaged platoon to withdraw first. That platoon then disengages and moves to a position where it can overwatch the disengagement of the more heavily engaged platoons. The platoons then change roles and leapfrog to the rear using fire and maneuver. This leapfrogging continues until contact is broken or the company reaches a new defensive position (Figure 1).

## Performance Steps

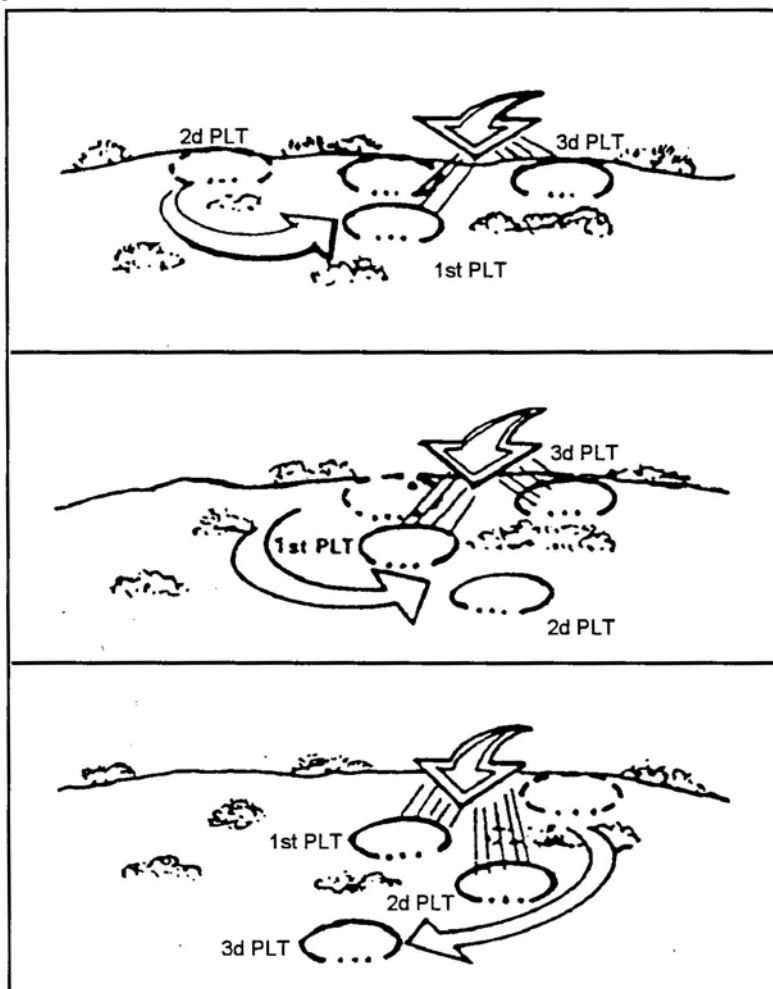


Figure 1. Withdrawal under pressure.

3. Platoons have three basic methods of disengaging from the enemy: by thinning the lines, by fire teams, and by squads. Fire and maneuver and bounding overwatch are keys to each method. The degree of fire and maneuver and bounding overwatch depends on how closely the enemy follows and the pressure he applies.
  - a. Disengagement by thinning the lines. The first state of the fire and maneuver rearward is in the squads. Squad and team leaders have men move rearward singly to where each takes a firing position to cover the move of the others as they, in turn, move back (Figure 2).

## Performance Steps



Figure 2. Thinning the lines.

- b. Disengagement by fire teams. If enemy fire is such that thinning the lines is unnecessary, or if the squads have moved back far enough to make it unnecessary, the squads move back by fire teams. One team fires and the other moves. They alternate roles with each move (Figure 3).



Figure 3. Disengagement by fire teams.

- c. Disengagement by squad. If enemy fire is such that fire and maneuver by fire teams is unnecessary, or if squads have moved back to a point where it is no longer necessary, the platoon moves back by squads. The platoon leader has each squad, in turn, move back covered by the fire of the others (Figure 4).



## Performance Steps

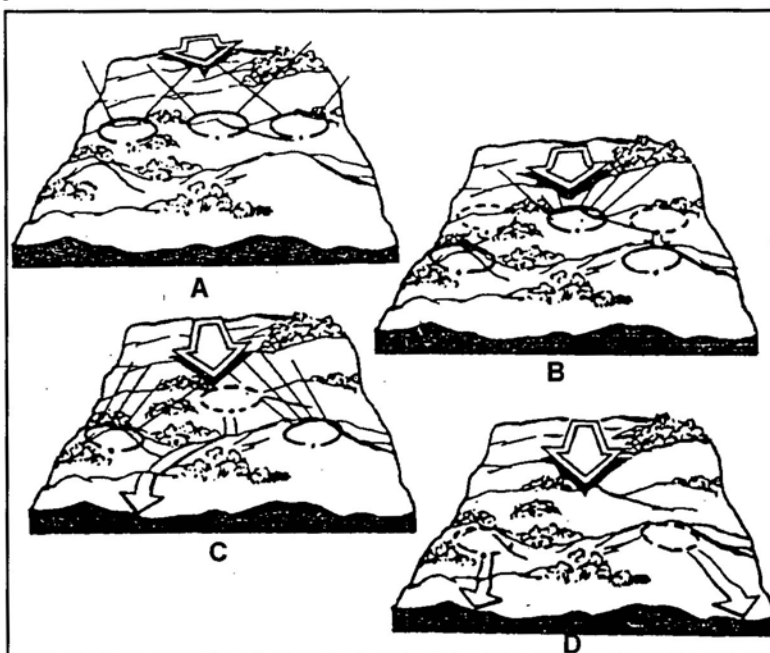


Figure 4. Disengagement by squad.

4. The platoon may use all three methods of disengaging as it moves rearward. As enemy fire lessens, the platoon changes to the next faster method of disengagement (first by thinning the lines, then by fire team, and then by squads). It uses only those methods necessary for its safety while moving.
5. At some point in the action, the platoon can stop fire and maneuver. It then continues its withdrawal by bounding overwatch to the rear (Figure 5). This occurs when the platoon is no longer under enemy direct fire or when another platoon is covering its move. Once disengagement is complete, the platoon moves as directed by the company commander.

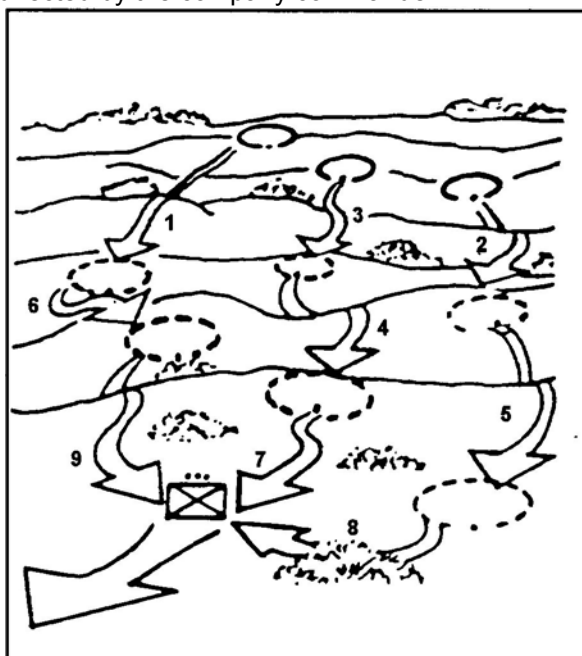


Figure 5. Bounding overwatch to the rear.

## Performance Steps

6. Because the actions taken during a withdrawal under enemy pressure depend a lot on the enemy's action (for example, which squad is the most heavily engaged, and the uncertainty of when the enemy will attack), you may have little time, if any, to plan for the withdrawal. You should therefore prepare a contingency plan for a withdrawal each time a platoon moves into a defensive position. Control measures, such as the signal to begin the withdrawal, the location of the next position, and routes to that position, should be planned, and each member of the platoon should know them. Also, if time and the situation permit, and before a plan for the platoon's withdrawal is begun, you should check with the company commander and find out what the company's plan is; this will ensure that your plan will support the company's

**Evaluation Preparation:** SETUP: At the test site, with information given in the task condition statement.

**BRIEF SOLDIER:** Tell the rifle platoon leader to fix and assault the enemy. The leader must take appropriate action to maneuver the element in order to prevent serious injury or casualties to personnel. The leader will be given the enemy situation.

| <b>Performance Measures</b>                   | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------|------------------|---------------------|
| 1. Platoon withdrew under pressure.           | _____            | _____               |
| 2. The lines were thinned as required         | _____            | _____               |
| 3. Controlled the platoon through the action. | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

## References

### Required

### Related

FM 7-7  
FM 7-7J  
FM 7-8

**Conduct the Maneuver of a Mechanized M113 Platoon**  
**071-420-0006**

**Conditions:** Given a combat environment, an M113 platoon, and contact with the enemy.

**Standards:** Moved and used supporting fires to gain a marked advantage over the enemy.

**Performance Steps**

1. Analyze the situation.
  2. Select an overwatch position that provides cover and concealment. Situate it so that the occupying force can fire along and beyond the route of the moving element. The overwatch position must allow the overwatch element to maneuver in support of the bounding force, and must allow forward observers to adjust indirect fire from it. Leaders try to preselect positions before moving. As the fight develops, leaders may have to use situation-dependent locations.
  3. Select a route for the moving force that uses all available cover and concealment. If you can, have dismounted soldiers clear good ambush locations.
  4. Alternate the moving and overwatching elements. Select location and control techniques based on METT-TC. Considers the effects of working with tanks.
- NOTE: Troop leading procedures are interrelated and overlapping events that you need not do in order.
- a. Mounted.
    - (1) Without tanks, the platoon may remain mounted when no antiarmor threat exists. The vehicles may move as a platoon or as two sections depending on METT-TC
    - (2) With tanks, the platoon receives fire support from the tanks during movement.
  - b. Dismounted. How soldiers move dismounted depends on the intensity of enemy fire. They may have to crawl when under intense enemy fire. They use high crawl or low crawl, depending on available cover and concealment. They can move in three - to five - second rushes when enemy fire allows movement from cover to cover.
    - (1) Without tanks, the leader decides where to place carriers, depending on METT-TC. Thick vegetation normally requires clearing by the dismount element.
    - (2) With tanks, in terrain that favors the enemy with an antiarmor capability, the Infantry may need to dismount and clear areas, so they can avoid antiarmor ambushes.

**Evaluation Preparation:** SETUP: At the test site, issue the leader all materials listed in the task condition statement.

**BRIEF SOLDIER:** Tell the leader that contact had been made and maneuver the element to gain the advantage for friendly forces.

| Performance Measures                                                                    | GO    | NO GO |
|-----------------------------------------------------------------------------------------|-------|-------|
| 1. Analyzed the situation.                                                              | _____ | _____ |
| 2. Selected an overwatch position that provided cover and concealment.                  | _____ | _____ |
| 3. Selected a route for the moving force that used all available cover and concealment. | _____ | _____ |
| 4. Alternated the moving and overwatching elements.                                     | _____ | _____ |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

STP 7-11B24-SM-TG

**References  
Required**

**Related  
FM 7-7**

**Conduct a Mounted Assault by an M2 BFV Platoon****071-420-0010**

**Conditions:** Given a combat environment, an M2 BFV platoon, and a mission to seize an objective(s) with unknown antiarmor weapons positions.

**Standards:** 1. Developed a plan that identified the objective and that provided for the coordination of fires, routes to the objective, suppressive direct fire and indirect fires, prevention of bypassed threat infantry, and coordination with attached elements (armor) and adjacent elements conducting the attack.  
 2. Cleaned and test-fired weapons, maintained vehicles and equipment, resupplied ammunition and needed equipment, and rehearsed critical events.  
 3. Secured the objective by controlling the maneuver and fires.

**Performance Steps****1. PLAN.**

- a. Receive and analyze the mission.
- b. Make a tentative plan
- c. Start preparations.
- d. Reconnoiter.

**NOTE:** As a minimum, a map reconnaissance must be conducted; time and the situation permitting, a ground reconnaissance should be conducted.

- e. Prepare the final plan and issue an order.

**2. SUPERVISE.**

- a. Continue preparations.
- b. Order supplies.
- c. Receive supplies.
- d. Rehearse.
- e. Conduct final inspection.

**3. CONDUCT THE ATTACK.**

- a. Control movement to the objective area.
- b. Control the assault.
- c. Control fires.
- d. Maintain flexibility.
- e. Fight through the objective(s).

**Evaluation Preparation:** **SETUP:** Provide the platoon sergeant or acting platoon leader with an M2 Bradley platoon and a company operation order for an attack on an enemy position.

**BRIEF SOLDIER:** Tell the leader to conduct a mounted assault on an enemy that is occupying hasty fighting positions.

**Performance Measures****GO**      **NO GO**

- |                                                                            |       |       |
|----------------------------------------------------------------------------|-------|-------|
| 1. Developed a plan.                                                       | _____ | _____ |
| 2. Issued an order.                                                        | _____ | _____ |
| 3. Supervised preparation for combat activities.                           | _____ | _____ |
| 4. Conducted the assault.                                                  | _____ | _____ |
| a. Controlled the movement of the M2 Bradleys.                             |       |       |
| b. Directed platoon fires.                                                 |       |       |
| c. Controlled indirect fire.                                               |       |       |
| d. Occupied positions and prepared for enemy counterattack upon completion |       |       |

**Performance Measures**

of assault across objective.

**GO**

**NO GO**

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-7J

## Conduct an Attack by an M2 BFV Platoon

### 071-420-0020

**Conditions:** In a combat environment, given an M2 BFV Platoon.

**Standards:** 1. Developed a plan that included objectives, missions for each squad, routes along the direction of attack, key terrain, fire support, formations, and control measures.

2. Supervised the preparations including: cleaning and test firing of weapons, maintenance of vehicles and equipment, and resupply of ammunition or equipment, and rehearsed as needed.

3. Destroyed or captured the threat force and seized the key terrain.

### Performance Steps

1. Plan.
  - a. Receive and analyze the mission.
  - b. Issue a warning order.
  - c. Make a tentative plan.
  - d. Start preparations.
  - e. Conduct reconnaissance.
  - f. Prepare the final plan. Include squad missions and a fire support plan IAW METT-TC. The leader may choose to remain mounted if he knows that no antiarmor threat exists and the terrain allows that option.
  - g. Issue the operations order.
2. Supervise.
  - a. Continue preparations.
  - b. Request supplies.
  - c. Receive supplies.
  - d. Rehearse.
  - e. Conduct final inspection.
3. Conduct the attack.
  - a. Control movement to the objective area.
  - b. Occupy the overwatch position with BFVs.
  - c. Control supporting fires.
  - d. Conduct dismounted movement.
  - e. Conduct the breach.
  - f. Conduct the assault.

**Evaluation Preparation:** SETUP: In a field environment provide the leader with an M2 Bradley platoon, and give him the mission to conduct an attack.

BRIEF SOLDIER: Tell the leader that he must control the movement of his Bradley platoon, while operating as part of a larger element to the objective.

| Performance Measures                                                                                                                                                                                                                                           | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Planned the attack IAW METT-TC.                                                                                                                                                                                                                             | —         | —            |
| 2. Supervised preparation. Ensured soldiers maintained equipment and weapons. Ensured soldiers rested and ate. Requested, received and distributed supplies. Rehearsed and conducted a final inspection. Delegated many of these tasks to subordinate leaders. | —         | —            |
| 3. Conducted the attack by controlling fires and movement. Adjusted the plan as the                                                                                                                                                                            | —         | —            |

**Performance Measures**  
situation developed.

**GO**   **NO GO**

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7J



**Conduct an Attack by a Platoon**  
**071-420-0023**

**Conditions:** In a combat environment, given a platoon whose company has received an order to attack.

**Standards:** 1. Developed a plan that includes objectives, missions for each squad, squad routes along the direction or main route of attack, key terrain, fire support, formations, and other required control measures.

2. Prepared for an attack by cleaning and test firing weapons, maintaining weapons and equipment, re-supplying ammunition or needed equipment, and rehearsing the mission.

3. Destroyed or captured the enemy force and seized the platoon objective.

**Performance Steps**

1. Receive and analyze the mission.

2. Make a tentative plan.

3. Start preparations.

NOTE: As a minimum, a map reconnaissance must be conducted. Time and the situation permitting, a ground reconnaissance should be conducted.

4. Conduct a reconnaissance.

5. Prepare the final plan and issue an operations order.

6. Continue preparations.

7. Request supplies.

8. Conduct rehearsals.

9. Conduct final inspection.

10. Control movement to the objective area.

11. Occupy the overwatch position with BFVs.

12. Control organic fires.

13. Conduct dismounted movement.

14. Conduct the breach.

15. Conduct the assault.

**Evaluation Preparation:** SETUP: At the test site, provide an area in which an attack can be conducted and test this task during a platoon or larger tactical exercise.

BRIEF SOLDIER: Tell the soldier that he is the leader of a platoon conducting an attack.

| <b>Performance Measures</b>                                                       | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------------|------------------|---------------------|
| 1. Planned the attack IAW METT-TC                                                 | —                | —                   |
| a. Identified the mission for each squad.                                         |                  |                     |
| b. Identified fire support requirements.                                          |                  |                     |
| 2. Supervised the mission preparations. Ensured soldiers maintained equipment and | —                | —                   |

**Performance Measures**

weapons. Ensured supplies were received and distributed. Conducted rehearsals and inspections.

**GO**

**NO GO**

3. Controlled the attack. Controlled the organic weapons fires. Issued fragmentary orders (FRAGOs) as the situation developed.

\_\_\_\_\_

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-8

## **Conduct a Defense by an M2 BFV Platoon**

### **071-430-0017**

**Conditions:** In a combat environment, given an M2 BFV platoon with a mission to defend.

**Standards:** 1. Developed a plan that included the missions for subordinate elements, priority of work, fire support, control measures, placement of obstacles, early warning devices, special signals to be used, and location of command post.

2. Established local security, positioned key weapons, cleared fields of fire, emplaced obstacles, emplaced warning devices placed, prepared primary, alternate and supplementary fighting positions, stockpiled ammunition and supplies, prepared and occupied positions for BFVs.

3. The threat was engaged in accordance with the defensive plan, fires were controlled as appropriate, the terrain was retained, and the threat was destroyed or repelled.

### **Performance Steps**

1. Analyze the mission. Troop leading procedures are a series of interrelated and overlapping events done in no particular sequence

NOTE 1: Troop leading procedures are a series of interrelated and overlapping events that you need not do in order.

2. Issue a warning order to provide subordinate elements with as much preparation time as possible.
3. Make a tentative plan.
4. Reconnoiter on the ground, if you can. At the least, conduct a map reconnaissance.
5. Start necessary movement and preparation.
6. Complete or revise the plan.
7. Issue the operations order at the time and place designated in the warning order.
8. Establish security.
9. Position key weapons.
10. Ensure fields of fire are cleared.
11. Select primary fighting positions.
12. Emplace hasty minefield/ obstacles.
13. Establish local communications system.
14. Ensure early warning devices are emplaced.
15. Ensure fighting positions are improved.
16. Ensure alternate and supplementary positions are prepared.
17. Stockpile ammunition, water and food and conduct maintenance.
18. Direct the initiation of fires.
19. Control and adjust fires.
20. Cover friendly obstacles with fire.
21. Develop the situation.

**Evaluation Preparation:** SETUP: Select an area in the field that has varying terrain, cover and concealment.

BRIEF SOLDIER: Tell the soldier to conduct a defense on the provided terrain.

| <b>Performance Measures</b>                                          | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|----------------------------------------------------------------------|------------------|---------------------|
| 1. Analyzed the mission.                                             | _____            | _____               |
| 2. Made a tentative plan.                                            | _____            | _____               |
| 3. Conducted reconnaissance.                                         | _____            | _____               |
| 4. Started movement/preparation.                                     | _____            | _____               |
| 5. Issued the operations order.                                      | _____            | _____               |
| 6. Established security.                                             | _____            | _____               |
| 7. Positioned key weapons.                                           | _____            | _____               |
| 8. Ensured fields of fire were cleared.                              | _____            | _____               |
| 9. Selected primary fighting positions.                              | _____            | _____               |
| 10. Emplaced hasty minefield and obstacles.                          | _____            | _____               |
| 11. Established local communications.                                | _____            | _____               |
| 12. Ensured early warning devices were emplaced.                     | _____            | _____               |
| 13. Ensured fighting positions were improved.                        | _____            | _____               |
| 14. Ensured alternate and supplementary positions were prepared.     | _____            | _____               |
| 15. Stockpiled ammunition, water and food and conducted maintenance. | _____            | _____               |
| 16. Directed the initiation of fires.                                | _____            | _____               |
| 17. Covered friendly obstacles.                                      | _____            | _____               |
| 18. Developed the situation.                                         | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7J

## Subject Area 13: MOVE: SPECIALIZED MISSIONS

**Conduct a Screen by a Platoon****071-450-0005**

**Conditions:** As the platoon sergeant or acting platoon leader of a scout platoon, given a 1:50,000 map, a lensatic compass, and a mission to conduct either a stationary or mobile screen.

**Standards:** Planned and conducted a screening mission by performing the following actions:

1. Organized squads into two-man observer-scout teams under the control of the squad leader and fire team leaders.
2. Selected the proper screening technique for the battalion mission.
3. Established OPs along major avenues of approach into the battalion sector to provide early warning of enemy approach.
4. Engaged the enemy with long-range fires impeded his advance and inflicted maximum casualties.
5. Reported the location, strength, disposition, and movement of the enemy force.

**Performance Steps**

CAUTION: Dispose of all belt links and spent brass IAW unit SOP.

1. A platoon assigned a screen mission provides limited security for the parent battalion by participating in guard operations and screening operations, and by maintaining contact between friendly forces.
  - a. Because it can offer only minor resistance to a sizable enemy threat, the major responsibility of the platoon is early warning, which allows the battalion to react quickly to an enemy approach and to employ weapons at their greatest ranges. The platoon is positioned between the battalion and the known or suspected enemy. It is far enough forward to give the battalion time to react to an early warning. The platoon must move as the battalion moves.
  - b. Early detection requires continuous surveillance of the area forward of the platoon. Once the enemy has been discovered, the platoon will attempt to conduct a thorough reconnaissance to gain more specific details or identification.
2. A screening force surveys an extended area to the front, flanks, or rear of a moving or stationary force to provide early warning. This is done by constantly observing and reporting on the location and activity of all enemy forces observed.
  - a. The platoon completes a screening mission by establishing a series of OPs and by conducting patrols. The actual area of the screen is determined by:
    - (1) The limit of observation afforded by the terrain and weather.
    - (2) The overall mission of the battalion.
    - (3) The vehicles and personnel available to the platoon. Normally, the platoon occupies four OPs, but for short periods (generally during daylight only) it can occupy up to one OP per vehicle.
  - b. The purpose of the OPs is to provide early warning of enemy approach; to report the location, strength, disposition, and movement of the enemy; to adjust long-range fires to force the enemy to deploy early; and to inflict casualties. The platoon fires its organic weapons in self-defense or, within its ability, to destroy or disperse small reconnaissance elements that attempt to penetrate the screen. The platoon will impede the advance of any major enemy threat by using organic and supporting indirect fires.
3. In a stationary screen operation, the platoon leader will first select the general location of OPs by making a map reconnaissance. The OPs must have overlapping fields of observation on likely enemy avenues of approach. Visual dead space is covered by mounted and dismounted patrols moving to preselected contact points. These contact points are set up between and forward of the OPs, and the patrols will make contact with them at designated intervals.
  - a. The squad leader chooses the specific location for the OPs. In addition to the above, look for

**Performance Steps**

- concealment, ease of movement to and from the OPs, and good communications. He avoids landmarks when possible. The OPs should be manned by dismounted soldiers, whose vehicles are in covered and concealed positions to the rear.
- b. If space permits, successive lines of OPs are planned and depicted as phase lines. Individual OPs must receive permission to withdraw and must maintain contact with the enemy during any movement to successive lines. Supporting fires should be planned to support the OPs on short notice when necessary.
  - c. In the situation shown in Figure 1, a platoon at 100 percent strength has the mission of screening the right flank for a battalion's attack.
    - (1) OPs were selected and occupied using the previously discussed considerations. Four OPs were found to be sufficient with no elements attached to the platoon. Space does not permit successive screen lines.
    - (2) The squads occupy their OPs as the lead elements of the attacking team pass them. Coordination between the platoon leader and the attacking team commander ensures that the routes into the OPs do not interfere with the scheme of maneuver of the attacking force.
    - (3) As each squad approaches the area assigned as its OP, it stops in a covered and concealed position and conducts a dismounted visual reconnaissance of the area, as if it were moving by bounding overwatch. The squad leader and the observer from his vehicle then conduct a quick security check of the OP area and select the exact site for the OP. The fire team leader brings both vehicles forward to a safe and secure, covered and concealed defilade position. The fire team leader posts his observer as security, instructs the drivers to camouflage the vehicles, and moves forward to the squad leader's position with the observation devices and a radio. Once the OP is set in, the squad leader reports to the platoon leader by radio, checks the overall condition of his OP, and prepares to conduct his portion of the contact patrolling.
    - (4) Once all four OPs have been manned, an appropriate report is sent to the battalion CP. The platoon leader has initially chosen to collocate with the squad occupying the third OP from the LD because it covers the most likely avenue of approach into the flanks. The platoon sergeant occupies a position near the LD to relay all transmissions to battalion.
    - (5) At each OP, two persons observe at any one time. If the operation continues into the night, when security requires 100 percent participation, two people are permitted to sleep. The remaining two conduct the patrol. Patrols make contact at points 3 and 9 at even hours and at point 5 at odd hours. All patrols are dismounted initially, and one patrol member carries an M60 machine gun.
    - (6) The two people manning the OP use an AN/GRC-160 in the AN/PRC-77 mode of communications, and all vehicles remain on the reverse slope in covered and concealed positions. One of the two observers continually checks the area with the naked eye for any movement. The other observer systematically checks the same area with binoculars or a starlight scope. The two observers employ teamwork and trade duties periodically.
    - (7) Situation reports are submitted to the platoon leader every 30 minutes, or as required, and relayed to the battalion by the platoon sergeant. Before the end of evening nautical twilight (EENT), warning devices are emplaced by the dismounted patrols. Night surveillance devices are used if the platoon is required to remain in position throughout the night.
    - (8) If the platoon is operating at reduced strength, its ability to occupy OPs and conduct the required patrolling is severely restricted. Unless observation is limited and patrols are not needed, the reduced-strength platoon must occupy fewer than four OPs.

## Performance Steps

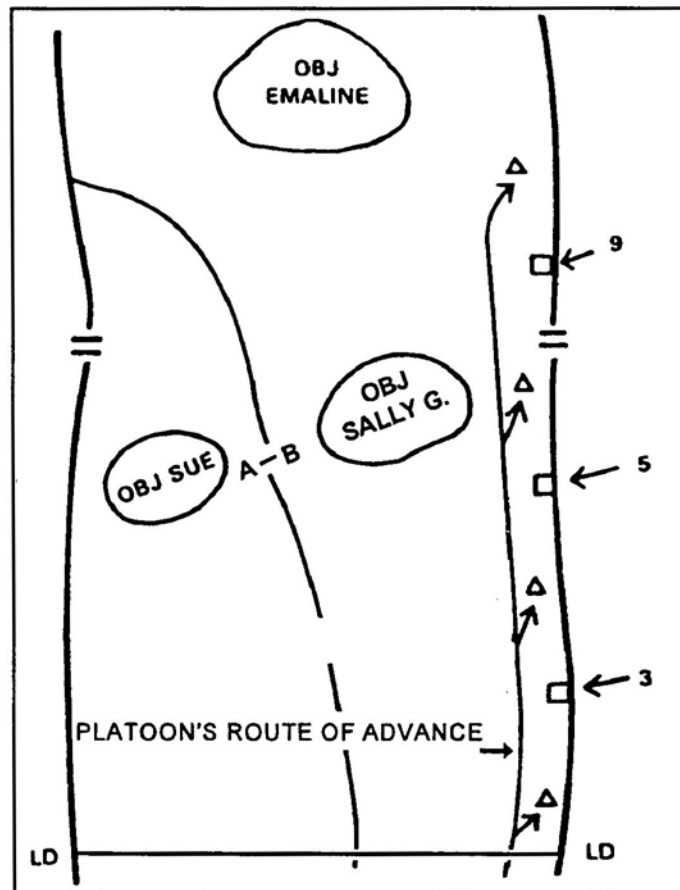


Figure 1. Selecting OPs.

4. Mobile screen. Although the previous scenario depicted a relatively limited attack, the mechanized battalion is often required to conduct such attacks over 10 or more kilometers. Under these circumstances, a mobile screen may be required. It is set up in much the same way as the stationary screen, except that the platoon leader plans additional OPs. Based on the enemy threat, the desires of the battalion commander, and the lack of time to patrol between OPs, the observers may occupy only those OPs overlooking the major avenues of approach into the battalion's flank. The occupation of those OPs can take various forms.

- a. During a slow-moving attack, the platoon leader will have to displace certain squads in order to keep abreast of the main thrust of the attack. This can be accomplished by the leapfrog technique. For example, in Figure 2, the platoon has already occupied OPs 1, 2, 3, and 4. The main thrust of the attacking force has already seized Objectives 1 and 2 and is beginning its attack on Objective 3. Because the attack is rather slow, the platoon leader displaces the squad at OP 1 and has it move to and occupy OP 5, thus giving the main body continuous flank security. Once OP 5 is occupied, the squad at OP 2 is displaced and occupies OP 6. The squads continue to leapfrog this way, keeping abreast of the attacking force, until Objective 3 is reached. This technique, although time-consuming and dependent on trafficability, affords the commander three permanent OPs constantly watching his flank and no more than one in motion.

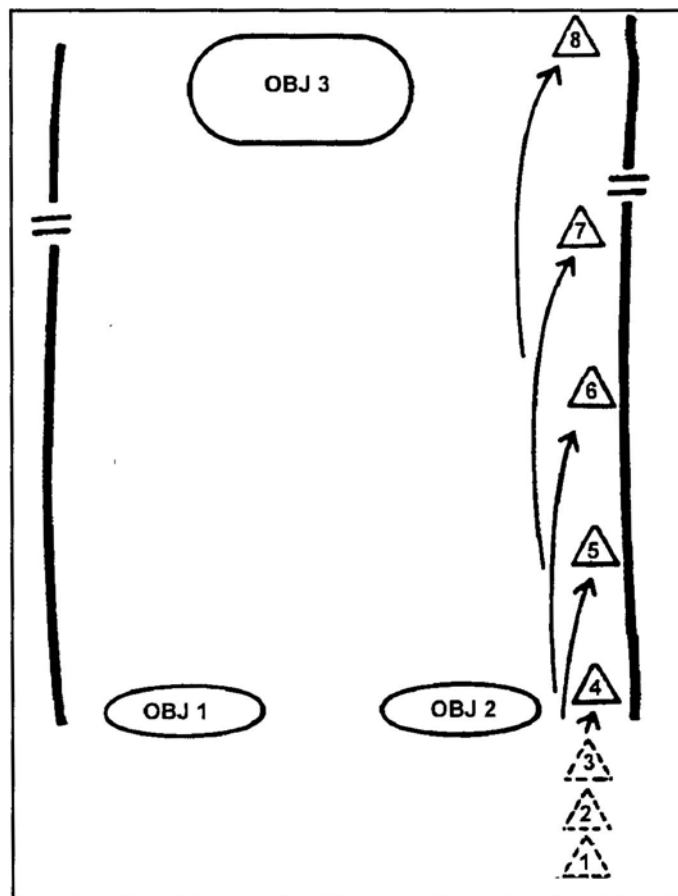
**Performance Steps**

Figure 2. Leapfrog technique.

- b. The continuous marching technique can be used when the protected force is advancing rapidly at a constant rate and the enemy resistance to the flank is very light. The screening force uses a column formation and moves without halting, adjusting its rate of advance to the movement of the protected force. Continuous marching should not be thought of as the only traveling movement technique. The movement technique will, of course, be dependent on the likelihood of contact. For example, in Figure 3, Objectives 1 and 2 have already been seized and the momentum of the attack has increased substantially toward Objective 3. The leader must screen a fast-moving main force, and he decides to use continuous marching. This method, although it detracts from selecting and occupying OPs, gives the platoon leader the ability to screen a fast-moving force.



Performance Steps

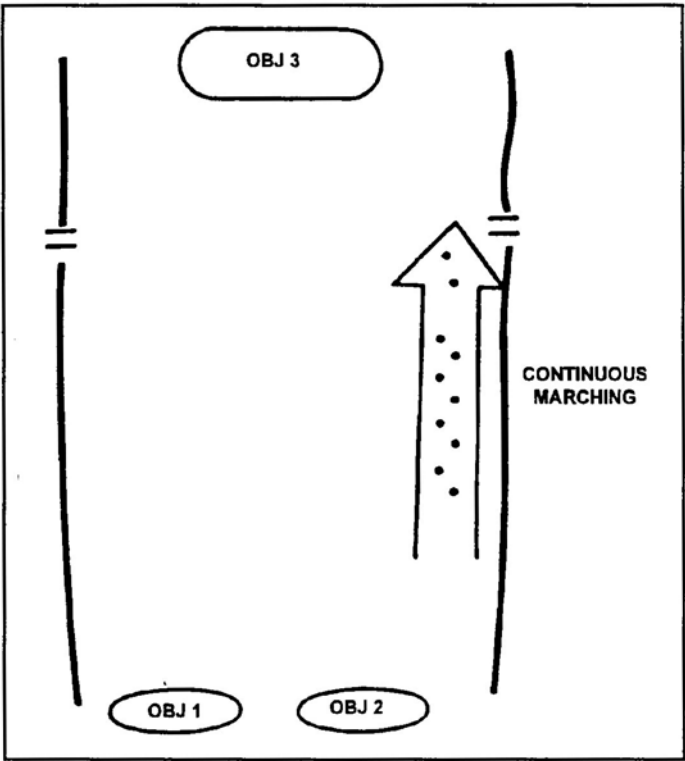


Figure 3. Continuous marching technique.

**Evaluation Preparation:** **SETUP:** Provide a test site that includes the materials and equipment indicated in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to be a platoon sergeant or acting platoon leader and to organize the platoon as described in the standards for the mission.

| Performance Measures                                                                                                     | GO | NO GO |
|--------------------------------------------------------------------------------------------------------------------------|----|-------|
| 1. Organized the squads into two-man observer-scout teams, under the control of the squad leader and fire team leaders.  | —  | —     |
| 2. Selected the proper screening technique for the battalion mission.                                                    | —  | —     |
| 3. Established OPs along major avenues of approach into the battalion sector to provide early warning of enemy approach. | —  | —     |
| 4. Engaged the enemy with long-range fires to impede his advance and to inflict maximum casualties.                      | —  | —     |
| 5. Reported the location, strength, disposition, and movement of the enemy force.                                        | —  | —     |

**Evaluation Guidance:** Score then Soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong, and how to do it correctly.

**References**  
**Required**  
FM 7-7

**Related**

**References**

**Required**

FM 7-7J

FM 7-8

**Related**

**Conduct an Antiarmor Area Ambush by an M2 BFV Platoon**  
**071-450-0011**

**Conditions:** In a combat environment, given an M2 BFV platoon and a mission requiring an antiarmor ambush.

**Standards:** 1. Developed a plan that considered the factors of METT-TC and that included the mission, organization, preparation, routes, movement techniques, actions on contact, actions on the objective, and withdrawal from and reentry of friendly lines.

2. Included the cleaning and test-firing of weapons, maintenance of vehicles and equipment, resupply required, rehearsals, and inspections during mission preparations.

3. Executed the ambush and destroyed the enemy armored vehicles using a controlled, coordinated fire antiarmor ambush.

**Performance Steps**

1. Plan.
  - a. Receive the mission.
  - b. Issue a warning order to provide subordinate elements with as much time as possible to prepare.
  - c. Make a tentative plan.
  - d. Start preparations IAW SOP (if appropriate).
  - e. Reconnoiter on the ground if you can. Otherwise, conduct a map reconnaissance.
  - f. Develop the final plan.

NOTE: Issue the operation order at the time and place stated in the warning order.

2. Supervise.
  - a. Continue preparation.
  - b. Request supplies.
  - c. Receive and distribute supplies.
  - d. Rehearse.
  - e. Conduct final inspections.
3. Conduct the ambush.
  - a. Depart friendly lines.
  - b. Confirm rally points.
  - c. Cross danger areas.
  - d. Confirm the ambush site and kill zone.
  - e. Occupy the ambush position.
  - f. Position the armor-killer and support teams.
  - g. Signal to initiate the ambush.
  - h. Signal to withdraw the ambush.

**Evaluation Preparation:** SETUP: At the test site, provide the leader with all material and information listed in the task condition statement. This task requires a field environment.

BRIEF SOLDIER: Tell the soldier, he has received an order to conduct an antiarmor ambush.

| Performance Measures                | GO    | NO GO |
|-------------------------------------|-------|-------|
| 1. Planned the mission.             | _____ | _____ |
| 2. Prepared to conduct the mission. | _____ | _____ |
| 3. Conducted the ambush.            | _____ | _____ |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

FM 7-7J

**Related**

## Conduct a Raid

### 071-450-0017

**Conditions:** In a combat environment, given a unit, and a mission to conduct a raid.

**Standards:** Planned the mission, including organization and preparation, routes, movement techniques, actions on contact, actions on the objective, and withdrawal and re-entry of friendly lines.

Supervised preparations included cleaning and test-firing of weapons, maintaining of weapons and equipment, re-supplying, rehearsing, and inspecting.

Controlled a raid, accomplished the following criteria: destroyed an objective, captured troops or equipment, or freed friendly personnel.

### Performance Steps

1. Analyze the mission.
2. If time permits issue a warning order to provide subordinate elements with as much preparation time as possible.
3. Make a tentative plan.
4. Reconnoiter on the ground, if you can. If not, conduct a map reconnaissance.
5. Supervise preparations.
  - a. Complete or revise the plan.
  - b. Order and distribute mission specific equipment and supplies.
  - c. Issue the operations order (OPORD) at the time and place designated in the warning order.
  - d. Rehearse.
  - e. Conduct final inspections.
6. Conduct the raid.
  - a. Issue fragmentary orders.
  - b. Control fires as the situation develops.
  - c. Depart through friendly lines.
  - d. Confirm rally points.
  - e. Cross danger areas.
  - f. Occupy objective rally point (ORP).
  - g. Execute the raid.
  - h. Reenter friendly lines.

**Evaluation Preparation:** SETUP: At a test site where the unit can conduct a raid, provide all materials and personnel given in the task condition statement.

BRIEF SOLDIER: Tell the soldier to lead a raid based on the raid plan provided.

### Performance Measures

|                             | <u>GO</u> | <u>NO GO</u> |
|-----------------------------|-----------|--------------|
| 1. Analyzed the mission.    | _____     | _____        |
| 2. Issued a warning order.  | _____     | _____        |
| 3. Made tentative plan.     | _____     | _____        |
| 4. Reconnoitered.           | _____     | _____        |
| 5. Supervised preparations. | _____     | _____        |

**Performance Measures**

**GO**      **NO GO**

6. Conducted the raid.

\_\_\_\_\_

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-8

## Conduct a Relief

### 071-450-0027

**Conditions:** In a tactical environment, as the acting platoon leader in a BFV platoon, given a mission to conduct a relief as part of the company.

**Standards:** The platoon's specified and implied task received and analyzed from the company's operation order is accomplished. A warning order is issued to start initial preparation and movement.

### Performance Steps

1. The plan for the relief considers the subsequent mission for both the relieved and relieving platoon.
2. Detailed planning is executed concerning the time required to conduct the relief.
3. The plan allows for both a daylight and night reconnaissance, so that all leaders are able to identify positions, routes, and assembly areas.
4. Planning considered as a minimum:
  - a. Times for starting and completing the platoon's routes.
  - b. Routes, guides, and assembly areas for each squad/section.
  - c. Critical control measures (signals, contact points, and checkpoints).
  - d. Sequence of squad/section relief.
  - e. Maximum use of limited visibility.
  - f. Adjustment for dissimilarities in unit equipment.
  - g. Provisions to maintain unit and tactical integrity.
  - h. When change of sector responsibility would occur.
  - i. Assembly areas and appropriate of guides.
5. Supervision for the relief included rehearsal of all approved phases of the plan when time, troop availability, and tactical situation allowed.

**Evaluation Preparation: SETUP:** This task will be evaluated during the conduct of a platoon or larger tactical exercise. The fire team or BFV section will maneuver as part of the platoon or larger element conducting a movement to contact or deliberate relief in place.

**BRIEF SOLDIER:** Tell the soldier that he is the platoon leader moving as part of a larger element of the company. Upon contact the soldier must maneuver the platoon/section and conduct a deliberate relief in place.

| Performance Measures                                                                                                              | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Conducted movement minimizing use of checkpoints without massing troops.                                                       | —         | —            |
| 2. Exchanged current enemy information between leaders.                                                                           | —         | —            |
| 3. Accomplished communications security through the use of wire.                                                                  | —         | —            |
| 4. Exchanged range cards (DA Form 5517-R), target lists, and sector sketches with the incoming squad/section and platoon leaders. | —         | —            |
| 5. Transferred key weapons where identified and coordinated.                                                                      | —         | —            |
| 6. Coordinated and transferred all classes of supplies.                                                                           | —         | —            |
| 7. Coordinated responsibility for sector as planned.                                                                              | —         | —            |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 3-90.1  
FM 7-20



## Conduct an Area Ambush by a Platoon

### 071-450-0035

**Conditions:** Given a combat environment, a platoon with TO&E equipment, weapons and ammunition, attached weapons and personnel as required, and a requirement to conduct a platoon-sized area ambush.

**Standards:** 1. Developed a plan that included the application of troop-leading procedures, the mission, organization, command and control measures, routes, movement techniques, actions at and withdrawal from the ambush sites, passage of lines, fire support available, and actions on enemy contact while moving to or from the ambush site.

2. Prepared for the ambush, cleaned and test fired all weapons, performed vehicle and equipment maintenance (if required), inspected equipment, resupplied and rehearsed.

3. During the execution phase, the platoon conducted passages of lines (if required) and moved to occupy the objective rally point (ORP). From there, selected a central kill zone and setup a squad-sized point ambushes on routes leading into the ambush area. Upon initiation of the central ambush, the outlying ambushes sealed off the ambush area and prevented enemy troops from escaping the ambush area (or enemy reinforcements from entering the area). Upon completion of the mission, the platoon took actions to return to friendly lines.

### Performance Steps

1. Prepare the unit for the mission.

a. Upon receipt of the operation order, develop a preliminary plan.

NOTE 1: Ensure that all key members of the unit and any attachments are available throughout the planning phase.

b. Issue a warning order.

NOTE 2: Someone other than the patrol leader/ platoon sergeant may be conduct coordination.

c. Conduct coordination as required for fire support, friendly forward unit, and adjacent patrols.

NOTE 3: The leader must make a map (ground, or aerial reconnaissance) prior to completing his plan.

d. Conduct reconnaissance.

e. Complete the plan.

f. Issue operation order.

NOTE 4: The leader must, as part of his planning, establish a priority of rehearsals which takes into consideration the time and resources available.

NOTE 5: Rehearsals are repeated to ensure a thorough understanding of the plan by all platoon and attached members.

g. Conduct rehearsals as time permits.

h. Conduct a final inspection before leaving the planning area.

2. Conduct movement to the objective area.

a. Move to and occupy the initial rally point.

b. Conduct final coordination to exit friendly unit.

c. Move through the friendly forward unit's position(s).

d. Conduct a security halt outside of the friendly forward unit's positions and final protective fire's limits.

NOTE 6: As the platoon moves, the possibility of chance enemy contact increases; therefore, the platoon must be prepared to execute its contact drills.

e. Conduct actions on enemy contact (if contact is made).

NOTE 7: As the platoon moves, the leader will identify and announce enroute rally points.

NOTE 8: The leader will direct the actions to take upon identifying a suspected danger area enroute to the objective area.

### Performance Steps

- f. Conduct movement techniques en route to the objective.
- g. Upon reaching the vicinity of the tentative ORP, conduct a security halt and dispatch a reconnaissance element to secure the ORP.
- h. Confirm and occupy the ORP.

NOTE 9: The platoon leader will conduct a leader's reconnaissance of all ambush sites if time, terrain, and the situation permit. At a minimum, the leader will give specific instructions to the leaders of the outlying ambushes as to their time to be in position and any changes to the original plan.

- i. If possible, conduct a leader's reconnaissance of all ambush sites.

#### 3. Conduct actions at the ambush area.

NOTE 10: Direct the various leaders participating in the actions at the objective to time their movement to and from the ORP and to estimate how long it will take to get their elements into position.

- a. Upon completion of the leader's recon, issue an operations order or change the original plan. Allow sufficient time for subordinate leaders to brief their elements as required.

NOTE 11: Elements will depart the ORP based on the leader's estimate of how long it will take for them to get in position.

- b. Direct that the various elements of the central ambush force move to their positions.

NOTE 12: Throughout the waiting period (which may be lengthy), ensure that troops maintain their alertness.

NOTE 13: The outlying ambushes will alert the leader (located in the vicinity of the central kill zone) by use of prearranged signals when enemy troops are entering the target area. The leader of the outlying ambush force will attempt to notify the platoon sergeant/ patrol leader of the number of enemy troops, type equipment and vehicle and, if possible, their rate of movement as well as any other information that the leader requested in his original order.

NOTE 14: The signal to initiate the ambush should be from a casualty producing weapon, demolitions, machine gun, TOW system, Dragon, or a volley of AT-4s (the manner in which the ambush is determined by the assets available and the nature of the target). All weapons should be firing at the maximum rate of fire for a pre-designated period of time, or until the order to shift or lift fire is given.

- c. Upon determining that the desired target is in the kill zone, give the signal to initiate the ambush.

NOTE 15: When the assault element is required to assault the kill zone, the leader will give the signal to either shift or lift fire. This signal also may be used to signal the assault element to move into the kill zone.

Besides destruction of the enemy force, additional tasks may include:

- Searching the dead and wounded.
- Capturing and security enemy personnel.
- Completing the destruction of enemy equipment.

If the mission does not allow for the taking of wounded enemy personnel, direct that first aid is required and within the limits of the unit's capabilities be provided.

NOTE 16: Ensure that security is maintained throughout the entire operation prior to the withdrawal.

- d. Upon determining that the target has been suppressed and no return fire is being received, and if the situation allows, direct that the assault element moves into and searches the kill zone.

NOTE 17: The leaders of the outlying ambushes and the various element leaders in the central ambush position will render a status report to the platoon leader immediately upon entering the ORP.

- e. Account for all personnel and equipment.

NOTE 18: Dissemination of information may be accomplished during movement back to a friendly controlled area.

- f. Disseminate information as quickly as possible to inform all personnel of the information obtained during the actions at the objective.
- g. Based on the situation, the leader may call for indirect fire support to cover the platoon's withdrawal from the objective area.

**Performance Steps**

NOTE 19: The mission may require the unit to either return to friendly lines or be given another mission.  
h. Comply with instructions for actions to take upon completion of the mission.

**Evaluation Preparation:** SETUP: At the test site, provide the leader with materials and information according to the task condition statement.

BRIEF SOLDIER: Issue the leader a mission.

| Performance Measures                         | <u>GO</u> | <u>NO GO</u> |
|----------------------------------------------|-----------|--------------|
| 1. Prepared the unit for the mission.        | _____     | _____        |
| 2. Conducted movement to the objective area. | _____     | _____        |
| 3. Conducted actions at the ambush area.     | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References  
Required**

**Related**  
FM 7-7  
FM 7-8

**Conduct an Antiarmor Area Ambush by a Platoon**  
**071-450-0036**

**Conditions:** Given a combat environment, given an Infantry platoon with organic weapon systems, and a mission to conduct an antiarmor area ambush.

**Standards:** 1. Plan. Developed a plan that defined the mission, task organization, control measures, signals, routes, movement techniques, actions on contact, actions on the objective, withdrawal, and reentry of friendly lines.

2. Prepare. Cleaned and test fired weapons, performed scheduled maintenance on vehicles (if any) and equipment, re-supplied platoon, and conducted rehearsals and inspections.

3. Execute. Selected a general ambush site and organized squad ambushes around it and initiated an ambush. Squad actions prevented the enemy from escaping the ambush(es), prevented enemy reinforcements from entering the area or both and delivered isolating fire that trapped and destroyed the target.

**Performance Steps**

1. Make a tentative plan.

NOTE: A warning order should be issued to provide subordinate elements maximum time to prepare.

2. Start SOP preparations (if appropriate).

3. Reconnoiter.

NOTE: Ground reconnaissance is the preferred method of terrain verification. A map reconnaissance must be conducted as a minimum.

4. Develop the final plan.

5. Continue preparations.

NOTE: The operation order is issued at the time and place specified in the warning order.

6. Request any supplies needed.

7. Receive and distribute supplies.

8. Rehearse.

9. Inspect (final inspections).

10. Depart friendly lines.

11. Confirm rally points.

12. Cross danger areas.

13. Occupy ORP (objective rally point).

14. Select central and outlying ambush sites.

15. Ambush elements leave ORP, occupy their positions, and await target.

16. Give the signal to initiate the ambush.

NOTE: When the assault element is required to assault into the kill zone, the leader gives the signal to lift or shift fire.

This is the signal for the assault to start. Besides destruction of the enemy force, additional tasks in the kill zone may include:

**Performance Steps**

- search for items of intelligence value.
- capturing enemy prisoners.
- completing the destruction of enemy equipment.

When the assault element has finished its mission in the kill zone or when the assault element is not required to assault the kill zone, the leader gives the signal to withdraw to the ORP.

17. Give the signal to withdraw the ambush.

**Evaluation Preparation:** SETUP: At the site, provide all materials and equipment according to the task condition statement.

**BRIEF SOLDIER:** Tell the leader a plan was developed that included the mission, task organization, control measures and actions on the objective and he will conduct an antiarmor area ambush.

| <b>Performance Measures</b>                                                 | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-----------------------------------------------------------------------------|------------------|---------------------|
| 1. Made a tentative plan.                                                   | _____            | _____               |
| 2. Started SOP preparations, if appropriate.                                | _____            | _____               |
| 3. Reconnoitered.                                                           | _____            | _____               |
| 4. Developed the final plan.                                                | _____            | _____               |
| 5. Continued preparations.                                                  | _____            | _____               |
| 6. Requested any supplies needed.                                           | _____            | _____               |
| 7. Received and distributed supplies.                                       | _____            | _____               |
| 8. Rehearsed.                                                               | _____            | _____               |
| 9. Inspected (final inspection).                                            | _____            | _____               |
| 10. Departed friendly lines.                                                | _____            | _____               |
| 11. Confirmed rally points.                                                 | _____            | _____               |
| 12. Crossed danger areas.                                                   | _____            | _____               |
| 13. Occupied ORP (objective rally point).                                   | _____            | _____               |
| 14. Selected central and outlying ambush sites.                             | _____            | _____               |
| 15. Ambush elements left ORP, occupied their positions, and awaited target. | _____            | _____               |
| 16. Gave the signal to initiate the ambush.                                 | _____            | _____               |
| 17. Gave the signal to withdraw the ambush.                                 | _____            | _____               |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
 FM 7-7J  
 FM 7-8

## **Conduct an Area Ambush by an M220 Antiarmor Platoon**

**071-450-0039**

**Conditions:** Given an M220 platoon and a mission to conduct an area ambush.

**Standards:** 1. Developed a plan which includes mission, organization, control measures, routes, movement techniques, action on contact, actions on the objective, withdrawal, and re-entry of friendly lines.

2. Supervised the preparations, included cleaning and test firing of weapons, maintenance of vehicles and equipment, required re-supply, rehearsed, and inspected.

3. Controlled the ambush by issuing fragmentary orders (FRAGO) and controlling fires. During execution, selected general ambush site around which squad ambushes were organized; once the ambush was initiated, the squad ambushes prevented enemy troops from escaping the ambush (or enemy reinforcements from entering the area) by delivering fire to isolate, trap, and destroy the targets. Destroyed, captured, or forced, the enemy to withdraw.

### **Performance Steps**

1. Plan the ambush.
  - a. Receive the mission.
  - b. Issue a warning order.
  - c. Make a tentative plan.
  - d. Start SOP preparations (if appropriate).

NOTE: Ground reconnaissance is the preferred method of terrain verification. A map reconnaissance must be conducted.

- e. Reconnaissance.
- f. Develop the final plan.

NOTE: Issue an oral operations order.(OPORD)

2. Supervise preparation on the ambush.
  - a. Continue preparation.
  - b. Request supplies.
  - c. Receive and distributes supplies.
  - d. Conduct rehearsals.
  - e. Conduct final inspections.
3. Conduct the ambush.
  - a. Depart friendly lines.
  - b. Confirm rally points.
  - c. Cross danger areas.
  - d. Occupies objective rally point (ORP).
  - e. Select central ambush site and outlying ambushes.
  - f. Ambush elements leave ORP, occupy their positions, and await target.
  - g. Give signal to initiate the ambush.
  - h. Issue FRAGOs when needed.
  - i. Signals to withdraw the ambush.
  - j. Conducts reentry of friendly lines.

**Evaluation Preparation:** SETUP: Provide the ambush leader all the equipment, personnel, suitable terrain, and information contained in the task condition that will enable him to have a successful mission.

BRIEF SOLDIER: Tell the soldier to place the ambush element in position so it cannot be detected. He must use a casualty producing device to initiate the ambush, and use separate signals to lift or shift fires,

and to withdraw from the ambush site. He must reassemble the ambush element and occupy the ORP, then move to a prearranged location for dissemination of information.

| Performance Measures                                             | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------------------------|-----------|--------------|
| 1. Planned the ambush.                                           | _____     | _____        |
| 2. Supervised preparations.                                      | _____     | _____        |
| 3. Conducted the ambush by issuing FRAGOs and controlling fires. | _____     | _____        |

**Evaluation Guidance:** Score the soldier a GO if all performance measures are passed. Score the soldier a NO-GO if any performance measure is failed. If the soldier scores a NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                |
|-------------------|----------------|
| <b>References</b> | <b>Related</b> |
| <b>Required</b>   | FM 7-8         |

## Conduct an Antiarmor Area Ambush by an M220 Antiarmor Platoon 071-450-0040

**Conditions:** Given an M220 platoon and a mission requiring an antiarmor ambush.

**Standards:** 1. Developed a plan, considered the factors of METT-TC and included the mission, organization, preparation, routes, movement techniques, actions on contact, action on the objective, withdrawal and reentry of friendly lines.  
2. Included the cleaning and test firing of weapons, maintenance of vehicles and equipment, re-supply required, rehearsed, and inspected during mission preparations.  
3. Executed the ambush and destroyed the enemy armored vehicles using a controlled coordinated fire antiarmor ambush.

### Performance Steps

1. Plan the ambush.
  - a. Receive the mission.
  - b. Issue a warning order.
  - c. Make a tentative plan.
  - d. Start SOP preparations (if appropriate).
  - e. Conduct reconnaissance. On the ground reconnaissance is preferred although the situation may dictate that only a map reconnaissance can be done.
  - f. Develop the final plan.
  - g. Issue an oral operations order.
2. Supervise preparation for the ambush.
  - a. Continue preparation.
  - b. Request supplies.
  - c. Receive and distribute supplies.
  - d. Conduct rehearsals.
  - e. Conduct final inspection.
3. Conduct the ambush.
  - a. Depart friendly lines.
  - b. Confirm rally points.
  - c. Cross danger areas.
  - d. Confirm the ambush site and kill zone.
  - e. Occupy the ambush position.
  - f. Position the armor-killer and support teams.

NOTE: When possible, the first and last enemy vehicles of a column should be destroyed to keep other vehicles from escaping. If enemy troops precede armored vehicles into the kill zone, the platoon leader must decide if they withdraw without making contact and set up another ambush someplace else.

- g. Signal to initiate the ambush.
- h. Signal to withdraw the ambush.

**Evaluation Preparation:** SETUP: At the site provide the leader with all material and information according to the task conditions statement. This task requires a field environment.

BRIEF SOLDIER: Tell the soldier that he has received an order to conduct an antiarmor ambush.

| Performance Measures                                                                                                                                         | <u>GO</u> | <u>NO GO</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| 1. Planned the mission to include a mission for each platoon and a plan for fire support.                                                                    | —         | —            |
| 2. Supervised mission preparation to include, cleaning and test firing weapons and maintenance of vehicles and equipment. Re-supplied the platoon, conducted | —         | —            |



| Performance Measures                                                                                                                                                                                                                                                                     | <u>GO</u> | <u>NO GO</u> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| rehearsal for key events, conducted the inspections and issued an order.                                                                                                                                                                                                                 |           |              |
| 3. Conducted the ambush to include, passage of lines. Confirmed rally points, crossed danger areas when required, confirmed the ambush site and kill zone, occupied the ambush position, positioned the armor kill team and support teams, and signaled the start and stop ambush times. | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

|                   |                |
|-------------------|----------------|
| <b>References</b> | <b>Related</b> |
| Required          | FM 7-7         |

Subject Area 14: MOVE: URBAN OPERATIONS

**Conduct a Defense by an M2 BFV Platoon During an Urban Operation**

**071-440-0019**

**Conditions:** As the leader of an M2 Bradley platoon, part of a larger force defending in urban terrain, and given a sector to defend.

**Standards:** Employed the fighting vehicle teams and dismount teams in their proper roles. Positioned the platoon, used the urban terrain to maximize weapons capabilities.

**Performance Steps**

NOTE: Building the platoon's defense around the M2 in urban areas is more difficult than in other types of terrain, but the fighting vehicle element's role is still important. A platoon normally defends from positions in one to three buildings.

1. To maximize the capabilities of the dismount and fighting vehicle teams, assign missions for which they are suited. Typical missions for the dismount element in defensive military urban operations include:
  - a. Preparing defensive positions.
  - b. Emplacing demolitions and obstacles (supported by combat engineers).
  - c. Observing to provide security and prevent enemy infiltration.
  - d. Engaging and defeating assaulting enemy forces.
  - e. Acquiring targets for engagement by tanks and M2 weapons.
  - f. Protecting tanks and M2s from close-in antiarmor weapons.
2. Execute typical missions for the fighting vehicle element in the urban operation defense, to include:
  - a. Providing fire support for the dismount teams and mutual support to other M2s.
  - b. Destroying enemy armored vehicles and direct-fire artillery pieces.
  - c. Neutralizing or suppressing enemy positions with 25-mm automatic gun and 7.62-mm coax machine gun fire in support of local counterattacks.
  - d. Destroying or making untenable enemy footholds by fire of the vehicle weapons systems.
  - e. Providing rapid, protected transport to the dismount teams, as required.
  - f. Reinforcing threatened areas by movement through covered and concealed routes to new firing positions.
  - g. Providing mutual support to other antiarmor fires.
  - h. Covering obstacles by fire.
  - i. Providing smoke screens with the M2 smoke screen generator.
  - j. Resupplying ammunition and other supplies to the dismount teams.
  - k. Evacuating casualties.

NOTE: Weigh the overall value of the M2 to the defense against the need to resupply or evacuate casualties.

3. When you select where and how you are going to defend, consider the following:
  - a. Protection. Reinforced concrete and brick buildings provide the best protection. A reinforced cellar is especially good. Avoid wooden buildings.
  - b. Dispersion. It is better to have positions in two mutually supporting buildings than in one building that can be bypassed.
  - c. Concealment. Buildings provide excellent concealment. Avoid obvious positions, especially at the edge of an urban area, because they are the most likely to receive the heaviest enemy fire.
  - d. Fields of fire. Positions should have good fields of fire in all directions. Wide streets and open areas, such as parks, may offer excellent fields of fire.
  - e. Observation. The buildings selected should permit observation into the adjacent sector. The higher stories may offer the best observation, but they may also attract enemy fire.
  - f. Covered routes. Routes that go through or behind buildings are best.
  - g. Fire hazard. Avoid buildings that will burn easily.

### Performance Steps

- h. Time. Buildings that need extensive preparation are undesirable for defense when time is short.
  - i. Strength. Buildings in which M2s or tanks are to be placed must be able to withstand the weight of the vehicles and the effects of firing their weapons.
4. Position fighting vehicle teams and dismount teams once you pick the building(s) you will defend. Position dismounted machine guns to have grazing fire, when possible. Position Dragons and light antitank weapons (LAWs) on upper stories for long range and to permit firing at the tops of tanks. Designate primary and, if feasible, supplementary and alternate positions for dismount teams and fighting vehicle teams. These positions should permit continuous coverage of the primary sector and all-round defense.
  5. Integrate the M2 into the platoon sector sketch. The 25-mm automatic gun and 7.62-mm coax machine gun fields of fire should cover streets and open areas. Once placed in position, M2s should not be moved for logistical or administrative functions. Other vehicles should accomplish these functions, when possible.
  6. Use the 25-mm automatic gun and the 7.62-mm coax machine gun more than the TOW, due to the close engagement ranges on urban terrain. The antitank capability of the M2 is degraded by the short ranges characteristic of urban terrain. Therefore, Dragons and LAWs/AT4s will be used more frequently. Place Dragons and LAWs/AT4s where they can support an M2, but not attract enemy attention to the location of the M2 (Figure 1). Use the TOW only when absolutely necessary.

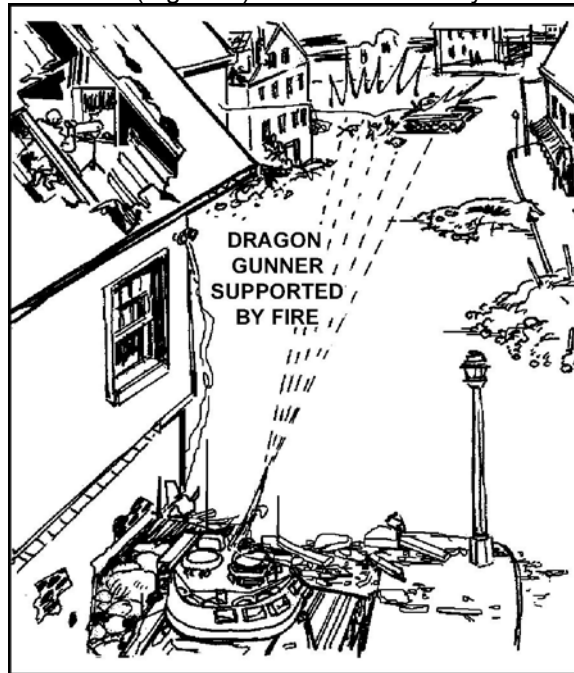


Figure 1. Dragon position supporting BFV.

7. Designate where obstacles are placed to reduce enemy mobility and allow longer engagement time for tanks and M2s. Plan mines and demolitions on the outside and inside of buildings to neutralize an enemy force attempting to gain a foothold. Buildings can be selectively destroyed to improve fields of fire and create obstacles.
8. Consider backblast when firing the LAW, AT4, Dragon, or TOW. In urban combat, the backblast is more hazardous due to rubble and channeling caused by buildings, narrow streets, and alleys. Antitank weapons should not be fired from any enclosed spaces. See Table 1 for minimum room dimensions.

**Performance Steps**

| <b>MINIMUM DIMENSIONS</b> |                                |                       |                       |                         |
|---------------------------|--------------------------------|-----------------------|-----------------------|-------------------------|
| <b>WEAPON</b>             | <b>ROOM SIZE</b>               | <b>CEILING HEIGHT</b> | <b>VENT SIZE</b>      | <b>MUZZLE CLEARANCE</b> |
| <b>Dragon</b>             | <b>15 feet x 12 feet</b>       | <b>7 feet</b>         | <b>20 square feet</b> | <b>6 inches</b>         |
| <b>LAW</b>                | <b>4 feet to the back wall</b> | <b>7 feet</b>         | <b>20 square feet</b> |                         |

Table 1. Minimum dimensions.

9. If possible, position M2s so they can engage the enemy at the longest possible ranges. M2s can be initially placed forward on the edge of the urban area to gain long-range shots, and then displace to the rear before becoming decisively engaged. If this technique is used, provide security for the vehicles. Concealed routes to supplementary and alternate positions should be selected and reconnoitered by the fighting vehicle teams. The speed of the M2 can assist in the rapid movement from one position to another.

**Evaluation Preparation:** SETUP: Provide the urban operation site and all training aids and devices necessary to complete task.

**BRIEF SOLDIER:** Tell the leader, he is part of a larger force defending in urban terrain and to defend a specified sector.

**Performance Measures**

|                                                                                                      | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Employed the fighting vehicle teams and dismount teams in their proper roles.                     | _____            | _____               |
| 2. Positioned the platoon, using the urban terrain to maximize weapons' capabilities.                | _____            | _____               |
| 3. Positioned obstacles to reduce enemy mobility and allow longer engagement time to weapon systems. | _____            | _____               |
| 4. Selected best buildings possible, within sector, to defend.                                       | _____            | _____               |
| 5. Placed weapon systems to best support defensive position.                                         | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

FM 3-06  
FM 3-06.11  
FM 7-7J

## Conduct a Defense by a Platoon During an Urban Operation

**071-440-0009**

**Conditions:** As a platoon sergeant or acting platoon leader of an infantry platoon, given one to three buildings to prepare for defense in urban terrain, a rifle platoon (plus or minus) with all TOE weapons, equipment, ammunition, hand grenades, explosives, and construction material (for example, sandbags or timbers).

**Standards:** Selected and prepared key weapon positions and individual rifleman positions to repel an attacked or counterattacked and prevent infiltration of the building.

### Performance Steps

1. Select building(s) to defend.
  - a. Upon being given the area to defend, determine where the defense will be set up. A rifle platoon will normally defend using one to three buildings. How many buildings used depends on the size, strength, and layout of the building? Consider the following points when selecting buildings for defense.
    - (1) Protection. Reinforced concrete or brick buildings protect best. A reinforced cellar is good. Avoid wooden buildings when possible.
    - (2) Dispersion. It is better to have a position in two or three mutually supporting buildings than in one building.
    - (3) Concealment. Avoid obvious positions, especially at the edge of an urban area.
    - (4) Fields of fire. Positions should have good fields of fire in all directions.
    - (5) Observation. The building(s) should permit observation into the adjoining defensive positions.
    - (6) Covered routes. These are used for movement and re-supply. The best covered routes are through or behind a building(s).
    - (7) Fire hazard. Avoid buildings that will burn easily.
    - (8) Time. When time is short, do not use buildings that need a lot of preparation.
  - b. Once you have picked the building(s) to defend, select positions for the key weapons within the platoon.
2. Select and prepare positions.
  - a. M60 machine gun. In the defense, machine guns are best used to cover streets and alleys with grazing fire. Plan final protective lines (FPLs) or a principal direction of fire (PDF) to exploit the longest unobstructed fields of fire (Figure 1). Whenever possible, emplace machine guns at the lowest level of the building to attain grazing fire (Figure 2). Consider emplacing machine guns in basement windows or loopholes in walls. If fields of fire are blocked by rubble, plunging fires may be attained at higher levels.

**Performance Steps**

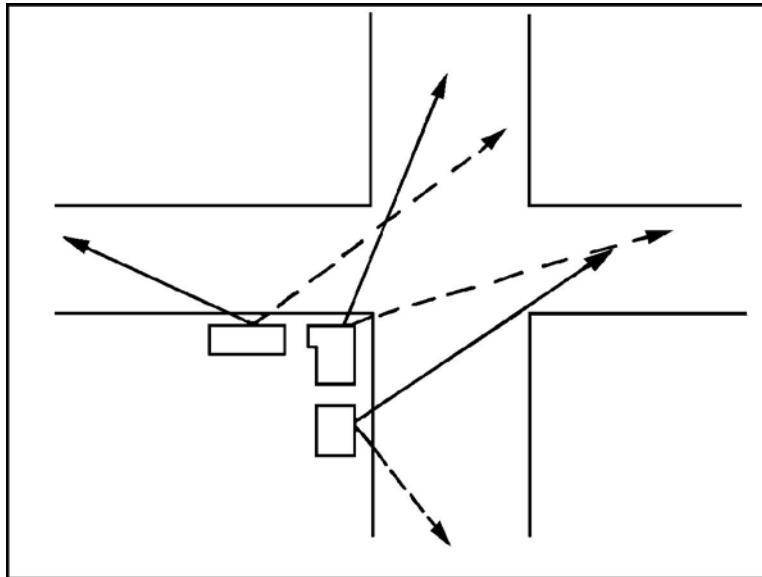


Figure 1. Machine gun final protective fire.



Figure 2. Machine guns at lowest level of building.

- b. TOW, Dragon, or AT4. Position the antitank weapons, whether within the platoon or attached, on upper stories for longer range, coverage, and to permit firing at the deck of tanks (Figure 3).

## Performance Steps



Figure 3. Antitank weapon positions on upper stories.

- (1) Consider backblast in employing these antitank weapons.
- (2) None of the antitank weapons described here can be fired from an unvented or completely enclosed room. For them to be fired from inside a building, the following conditions must be met:
  - (a) The building must be of sturdy construction.
  - (b) The ceiling must be at least 7 feet high.
  - (c) The floor size of the room must be at least 17 by 24 feet for a TOW and 15 by 12 feet for a Dragon. Allow at least 4 feet for an AT4's backblast.
  - (d) There must be at least 20 square feet of ventilation (room openings) to the rear of the weapon. An open 7- by 3-foot door would provide adequate ventilation.
  - (e) All glass must be removed from windows, and all loose objects must be removed from the room.
  - (f) All soldiers within the room must be forward of the rear of the weapon.
  - (g) All soldiers in the room must protect their ears when the weapon is fired.
  - (h) The clearance between the muzzle of the weapon and the opening it is fired from should be 9 inches for a TOW and 6 inches for a Dragon (Figure 4).

## Performance Steps



Figure 4. Muzzle clearance.

- (3) As stated earlier, the TOW and Dragon are best employed from the upper stories to attain the longest fields of fire. When deciding whether to dismount the TOWs, consider the advantages of long range versus the disadvantages of loss of mobility.
    - (4) When emplacing the TOW or Dragon, consider the 75-meter minimum firing distance (arming distance).
  3. Prepare positions in building(s).
    - a. When defending from more than one building, pick a point within one of the buildings to be the control center. Run phone lines from the control center to the other building(s), burying them when possible and at least concealing them. Hide radio antennas by placing them out windows and next to the sides of the building.
    - b. Stockpile the platoon's food, water, and ammunition at each defensive position or at the control center in each building.
    - c. If dirt can be easily obtained, cover the floors of the rooms being defended with a light layer. (Do not place dirt on the floors of rooms from which antitank weapons will be fired.)
    - d. Reinforce and camouflage all firing positions. Dampen dusty areas with water to keep dust from rising when weapons are fired (Figures 5 and 6).



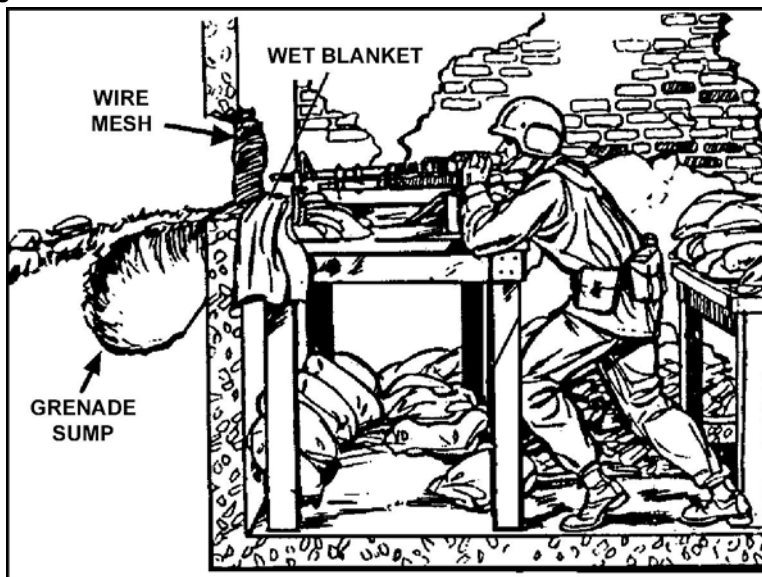
**Performance Steps**

Figure 5. Reinforced firing position.

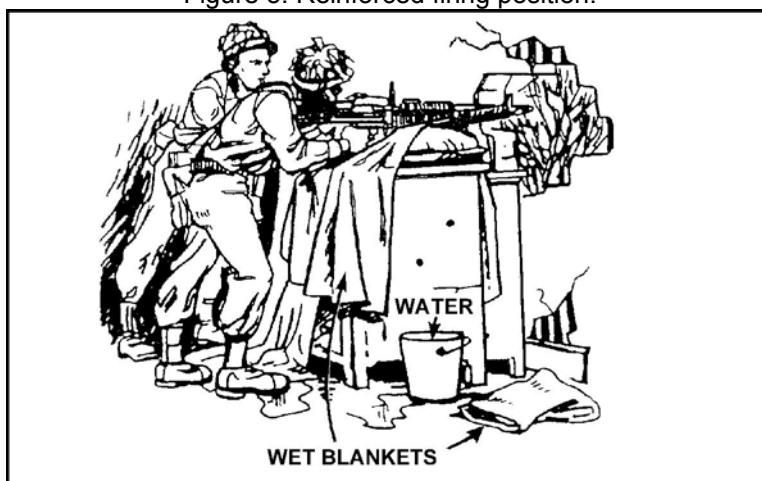


Figure 6. Dusty areas wet down to control dust.

## 4. Prepare outside of building(s).

- a. When preparing the outside of the building(s), consider using mines and or obstacles to cover dead space and to keep the enemy from using streets, alleys, or rooftops.
- b. When possible, cover mines and obstacles by fire.

**Evaluation Preparation:** SETUP: Provide a test site with all the materials and equipment indicated in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier that he will select key weapon positions in a designated building and the soldier that he will prepare a key weapon position.

**Performance Measures****GO**    **NO GO**

1. Selected buildings to defend.
  - a. Determined defense positions. Evaluate:
    - (1) Protection.
    - (2) Dispersion.

\_\_\_\_\_

\_\_\_\_\_

| <b>Performance Measures</b>                                         | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------|------------------|---------------------|
| (3) Concealment.                                                    |                  |                     |
| (4) Fields of fire.                                                 |                  |                     |
| (5) Observation.                                                    |                  |                     |
| (6) Covered routes.                                                 |                  |                     |
| (7) Fire hazard.                                                    |                  |                     |
| (8) Time.                                                           |                  |                     |
| b. Selected key weapon positions.                                   |                  |                     |
| 2. Selected and prepare positions for:                              | _____            | _____               |
| a. M60 machine gun.                                                 |                  |                     |
| b. TOW, Dragon, LAW.                                                |                  |                     |
| 3. Prepared positions in buildings.                                 | _____            | _____               |
| a. Picked a control center and establish phone lines.               |                  |                     |
| b. Stockpiled food, water, and ammunition.                          |                  |                     |
| c. Covered floors with dirt (if no antitank weapons will be fired). |                  |                     |
| d. Reinforced and camouflaged firing positions.                     |                  |                     |
| 4. Prepared outside of building.                                    | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### References

##### Required

##### Related

FM 3-06  
FM 3-06.11  
FM 7-8

## Conduct an Attack by a Platoon During an Urban Operation

**071-440-0012**

**Conditions:** As a platoon sergeant or acting platoon leader of an infantry platoon, directed to conduct an attack in urban terrain; given a rifle platoon with all TOE weapons and equipment to include ammunition, hand grenades, LAWs, Dragons, and any special weapons (for example, flame weapons, shaped charges, and explosives).

**Standards:** Organized the platoon into an assault force and a support force, briefed the forces on their mission, and controlled the platoon thorough out the operation.

### Performance Steps

**NOTE:** The composition of the support force or the assault force will vary according to the situation and the platoon's mission.

1. Organize the rifle platoon into two forces.
  - a. Select the assault force.
    - (1) The assault force normally consists of two rifle squads (+ or -) carrying only the fighting-load components of their load-carrying equipment, with a maximum load of ammunition, extra hand grenades, and LAWs. The platoon leader or acting platoon leader will move with the assault elements.
    - (2) Once the assault force enters its assigned building, it splits into smaller assault or support teams to search and secure the building. This action provides a support/securing team for the assault force inside the building.
  - b. Select the support force. The support force will consist of the platoon sergeant and the remaining squad (+ or -) carrying only the fighting-load components of their load-carrying equipment, with a maximum load of ammunition and hand grenades. In addition, the squad will have two machine guns, three Dragons or LAWs, and flame weapons.
2. Designate additional or special weapons. The following factors will determine if a platoon should have additional or non-organic weapons attached.
  - a. The platoon's mission.
  - b. The number of troops and types of weapons the platoon has to cover its sector of fire.
  - c. Whether the platoon is expected to be attacked by enemy armor vehicles.
  - d. Whether the platoon's position offers good fields of fires against distant enemy targets.
3. Assign responsibilities to the support and assault forces.
  - a. The support force--
    - (1) Occupies an overwatch position to support the assault force.
    - (2) Isolates the objective or building to prevent the enemy from re-supplying, reinforcing, or escaping.
  - b. The assault force--
    - (1) Assaults the building to enter and seize a foothold.
    - (2) Searches and clears the building room by room.
    - (3) Marks all searched and cleared rooms.

**Evaluation Preparation:** SETUP: Provide a test site with the materials and equipment as indicated in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier he will be acting as a platoon leader. He will organize the platoon into an assault force and a support force, and brief the forces on their mission.

### Performance Measures

1. Organized the rifle platoon into two forces.
  - a. Selected the assault force. (Normally consists of two rifle squads [+ or -]).

**GO**    **NO GO**

\_\_\_\_\_

| <b>Performance Measures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| <ul style="list-style-type: none"> <li>(1) Platoon leader moves with assault force.</li> <li>(2) Entered building and split into smaller assault or support teams.</li> <li>b. Selected the support force. (Normally consists of the remaining squad [+ or - ]).</li> </ul>                                                                                                                                                                                      |                  |                     |
| 2. Designated additional or special weapons. Determine if platoon should have weapons attached.                                                                                                                                                                                                                                                                                                                                                                  | _____            | _____               |
| 3. Assigned responsibilities to support and assault forces.                                                                                                                                                                                                                                                                                                                                                                                                      | _____            | _____               |
| <ul style="list-style-type: none"> <li>a. Ensured the support force-- <ul style="list-style-type: none"> <li>(1) Occupied overwatch position.</li> <li>(2) Isolated objective or building.</li> <li>(3) Adjusted indirect fire.</li> </ul> </li> <li>b. Ensured the assault force-- <ul style="list-style-type: none"> <li>(1) Assaulted building.</li> <li>(2) Searched and cleared room by room.</li> <li>(3) Marked all cleared rooms.</li> </ul> </li> </ul> |                  |                     |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-8

## Conduct an Attack by an M2 BFV Platoon During an Urban Operation

071-440-0022

**Conditions:** As the leader of an M2 Bradley platoon operating as part of a larger unit moving through urban terrain, given a mission to move through an urban area to an objective.

**Standards:** Employed the proper movement techniques into and through the urban terrain.

### Performance Steps

1. Use the same general platoon and squad movement techniques in urban terrain as used in other terrain.
  - a. Use traveling overwatch when moving toward an urban area and contact is possible. Upon entering the urban area, dismount teams should be deployed, and the platoon should move using the bounding overwatch. Dismount teams should move alongside and through buildings, avoiding open areas whenever possible. When moving down streets, dismount teams should be staggered on alternate sides of a street.
  - b. Guard against ground-level positions along the street. Assign two or three men to observe the upper floors of the buildings on the opposite side of the street. Fighting vehicle teams, overwatching the movement of the dismount teams, also travel staggered on alternate sides of the street (Figure 1).

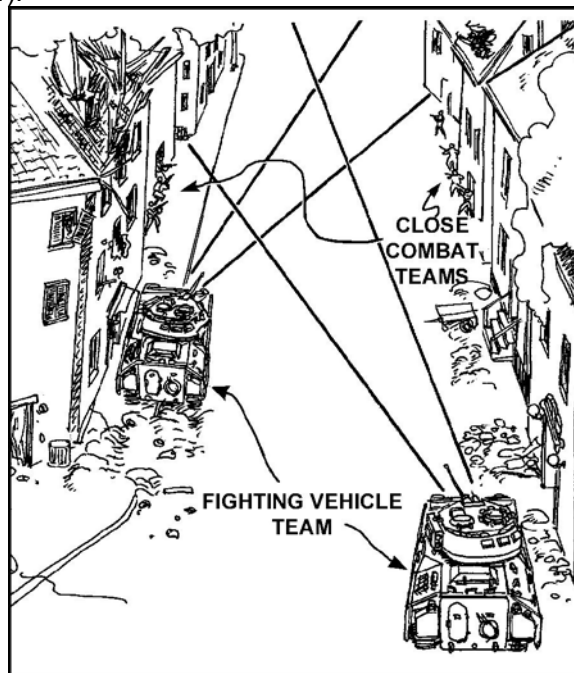


Figure 1. Cover for dismount teams.

2. Use the M2 to provide direct fire support for the dismount team (Figure 2). Have fighting vehicle teams move behind the dismount teams and move up to engage targets located by the dismount teams.

## Performance Steps

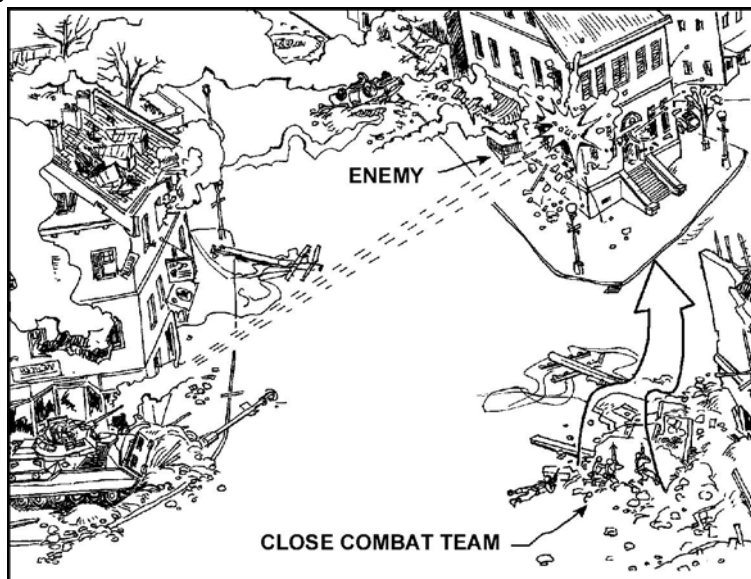


Figure 2. M2 providing direct fire support.

3. Use the fighting vehicle teams to-
  - a. Destroy enemy positions within a building with the direct fire of the 25-mm automatic gun (using armor-piercing discarding sabot [APDS] ammunition) and the 7.62-mm coax machine gun (when the building is constructed of light material).
  - b. Suppress enemy gunners within the objective building and adjacent structures (Figure 3).



Figure 3. Suppression by fire.

- c. Breach walls en route to and in the objective structure. This is best accomplished with the 25-mm automatic gun, using a spiral firing pattern (Figure 4).

## Performance Steps

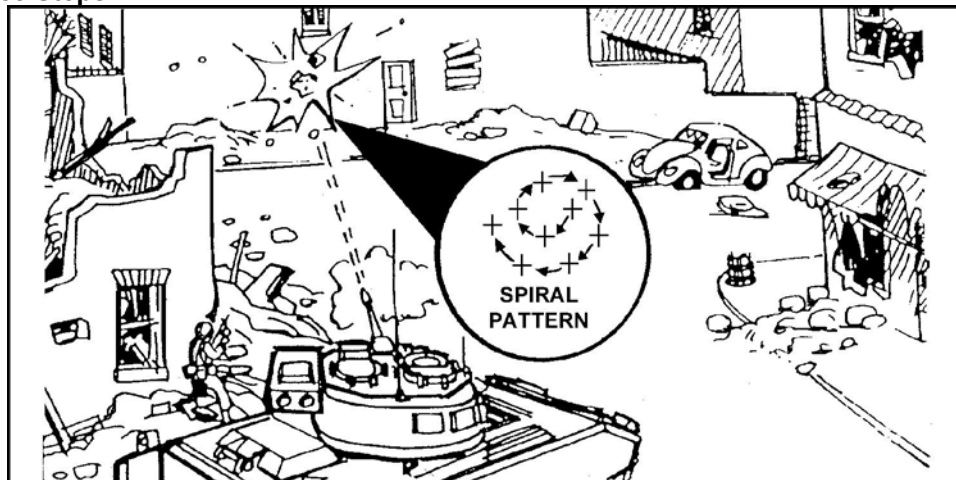


Figure 4. Spiral firing pattern.

4. Use the 25-mm automatic gun, the most effective weapon on the M2, while fighting in urban terrain. Use of the 25-mm automatic gun in support of the dismount teams requires the following safety considerations:
  - a. High-explosive 25-mm rounds arm 10 meters from the automatic gun and explode on contact.
  - b. APDS rounds discard plastic sabots to the front of the automatic gun when fired. (This requires a 175-meter safety fan to the front of the 25-mm automatic gun.)
  - c. When possible, the dismount teams should stay away from the front of the 25-mm automatic gun so that it may be fired as required.
5. Direct the vehicle teams to use their smoke generators to cover the movement of the dismount teams (Figure 5).

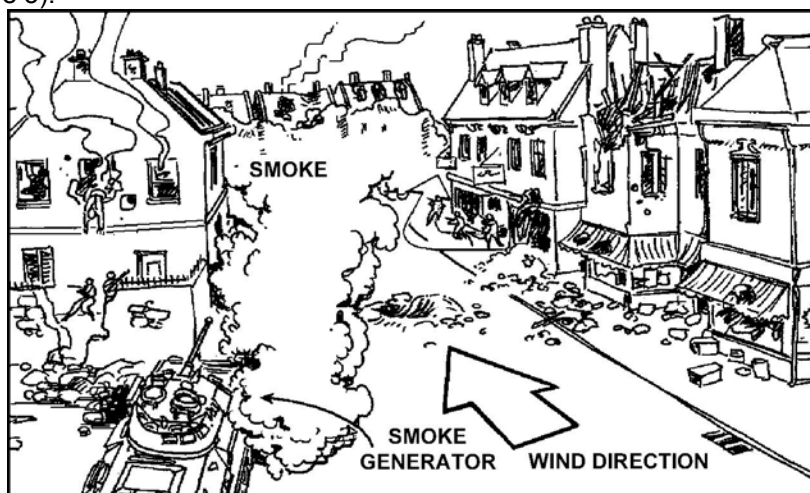


Figure 5. Smoke screens movement of dismount team.

**NOTE:** The use of smoke requires additional care, because wind currents can be unpredictable between buildings.

**Evaluation Preparation:** **SETUP:** Provide the leader an M2 Bradley platoon and give him the mission to move through urban terrain.

**BRIEF SOLDIER:** Tell the leader to control the movement of his M2 Bradley platoon through urban terrain while operating as part of a larger unit moving through an urban area to an objective.

**Performance Measures**

Employed the proper movement techniques into and through the urban terrain, to include:

1. Used staggered formation while moving through streets.
2. Used the M2 to provide direct fire support for the close combat team.
3. Deployed close combat teams upon entering the urban area.

**GO**

**NO GO**

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**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**

**Required**

**Related**

FM 7-7J



## Subject Area 18: RECON-SECURITY: GENERAL

**Conduct a Zone Reconnaissance by a Platoon****071-720-0012**

**Conditions:** As the platoon sergeant or acting platoon leader of a rifle platoon, given a 1:50,000 map, a lensatic compass, and a mission to conduct a zone reconnaissance of an area specified on the map.

**Standards:** Satisfactorily performed the following within the time specified by the commander:

1. Organized the platoon into command, reconnaissance, and security elements necessary to accomplish the mission.
2. Employed one of the three basic methods of zone reconnaissance (fan, converging routes, or successive sectors).
3. Obtained and reported information about the terrain and enemy within the specified area.
4. Entered and left the target area without being detected by the enemy.

**Performance Steps**

1. Estimate of the situation. Upon receipt of the reconnaissance mission, the platoon leader develops an estimate of the situation. That estimate is based on all current intelligence available about the enemy in the vicinity of the target area, and on the capabilities of the unit. While planning for the mission, the unit is engaged in normal preparation for the mission. The organization is tailored to best support the mission. The reconnaissance element of a platoon will normally be no larger than a squad.
2. Planning details. The overall plan is developed, based on the following considerations:
  - a. Intelligence. All reconnaissance operations must be based on the best information available about conditions in the objective area.
  - b. Deceptive measures. The success of reconnaissance operations depends, to a large extent, on deception measures and on undetected infiltration and exfiltration.
  - c. Use of the smallest possible unit to accomplish the mission. This decreases the possibility of detection by the enemy. While only a small element may do the actual reconnoitering, the parent unit must be large enough to provide security or support if the reconnaissance element is detected or engaged by an enemy force.
  - d. The importance of remaining undetected. The unit uses stealth, camouflage, concealment, and sound and light discipline while taking advantage of limited visibility to avoid contact and to get near or on the objective.
  - e. Use of STANO devices. The unit uses surveillance, target acquisition, and night observation (STANO) devices to help it to move and to gain information about the enemy. Based on intelligence reports, however, consideration must be given to the enemy's detection devices. When detection devices are available to the enemy, passive devices should be used by reconnoitering forces to decrease the probability of enemy detection.
  - f. Rehearsals. After all intelligence has been analyzed, the plan developed, special items of equipment procured and issued, and the troops have been briefed, the unit then rehearses the plan. The rehearsal increases the probability of the operation's success. Rehearsals are as detailed as time will allow and include dry runs and briefings, with appropriate repetition, and questioning to ensure understanding of the plan. Contingency plans are also rehearsed where applicable; as a minimum, those plans must be repeated by the reconnaissance members to ensure they are understood.
  - g. The need for minimizing audio and electronic communications. Constraints on communication depend upon enemy detection capabilities and upon how quickly the information obtained about the enemy must be acted on. There may be instances where the importance of the information may require an immediate report that could threaten the unit's existence. Often, a onetime radio contact during the mission is necessary.
  - h. Inspections. The planning phase of the operation will include at least one inspection of all

### Performance Steps

members of the reconnaissance force, to include their equipment. Only equipment identified by the platoon leader as essential for mission accomplishment will be carried. Special equipment must be closely inspected and safeguarded to ensure its functioning during the mission. Personnel and equipment assigned to augment the unit must also be carefully inspected and monitored before and during the operation. Every shortcoming found in personnel or equipment is corrected before the operation begins. Thorough inspections and supervision of personnel and equipment before the operation make compromise or failure less likely.

3. Organization of the unit for a zone reconnaissance patrol. Regardless of the type of reconnaissance, the unit normally is organized into three elements: command and control element, reconnaissance element, and security element.
  - a. Command and control. The commander of the unit conducting a reconnaissance normally will require a small command group. The command group helps communicate with higher headquarters, subordinate elements, and supporting forces; helps coordinate and control supporting elements, fire support, and air or water transport; and helps provide logistical support for the operation. For small operations, this group may consist of only the commander and a radio operator. For larger operations, the commander may require intelligence, logistics, and fire support elements, with communication personnel adequate for sustained 24-hour operations. The command group is always kept as small as possible.
  - b. Reconnaissance of the objective. The reconnaissance element approaches the target using stealth and concealment. The element must acquire the needed information while remaining undetected. It must skillfully avoid all known and discovered enemy sensing devices; therefore, patience is important. Passive STANO devices will be used to observe activities at the objective. Reconnaissance personnel may electronically transmit information about the target to the appropriate headquarters as it is observed, or they may withdraw from the target and disseminate the information by other means. The reconnaissance site should be sterilized before the reconnaissance elements withdraw from it. Withdrawal from the area must be as skillful, patient, and precise as was the movement into it.
  - c. Security of the force. The element(s) responsible for security must give the commander sufficient warning of the location and movement of enemy forces to permit the friendly force to take evasive action. When it is not possible to give warning, covering fires must be provided to permit withdrawal of the reconnaissance element. Only timely warning and accurate information can give the commander the time and space to react. If the enemy detects the reconnaissance element, the commander must have correct information quickly in order to support the element with suppressive fires, or to give it enough time to evade and withdraw.
4. Zone reconnaissance. In a zone reconnaissance, the platoon is tasked to obtain information about the terrain and enemy within a clearly defined boundary (Figure 1). The techniques presented below can be used regardless of the nature of the intelligence objective. The major differences would result from the movement techniques involved.



Figure 1. Zone reconnaissance.

- a. Once given a zone reconnaissance mission, the platoon will move to the designated area in the shortest possible time. This normally involves traveling along existing roads and, of course, employing the appropriate movement techniques. During this movement to an area, the platoon

### Performance Steps

should report and bypass enemy opposition unless ordered to take other action.

- b. The choice of the techniques that follow should be based on the distribution of intelligence objectives within the area and the time allocated for their reconnaissance. Objective rally points (ORPs) and rendezvous points are used to facilitate control.

- (1) The fan method (Figure 2). The element leader first selects a series of ORPs throughout the zone from which to operate. When the unit arrives at the first ORP, it halts and establishes security. The leader confirms the unit's location. He then selects reconnaissance routes to and from the ORP. (These routes form a fan-shaped pattern around the ORP. The routes must overlap to ensure that the entire area has been reconnoitered.) The leader sends out reconnaissance elements along the routes. He does not send out all of his elements at once. He keeps a small reserve in the ORP. (For example, if the unit has three reconnaissance elements, only two are sent out. The other one is kept as a reserve.) Additionally, the patrol leader sends the elements out on adjacent routes. This avoids having the unit make contact in two different directions. After the entire area (fan) has been reconnoitered, all information acquired during the reconnaissance is disseminated. The unit moves to the next ORP. This action is reported at each successive ORP.

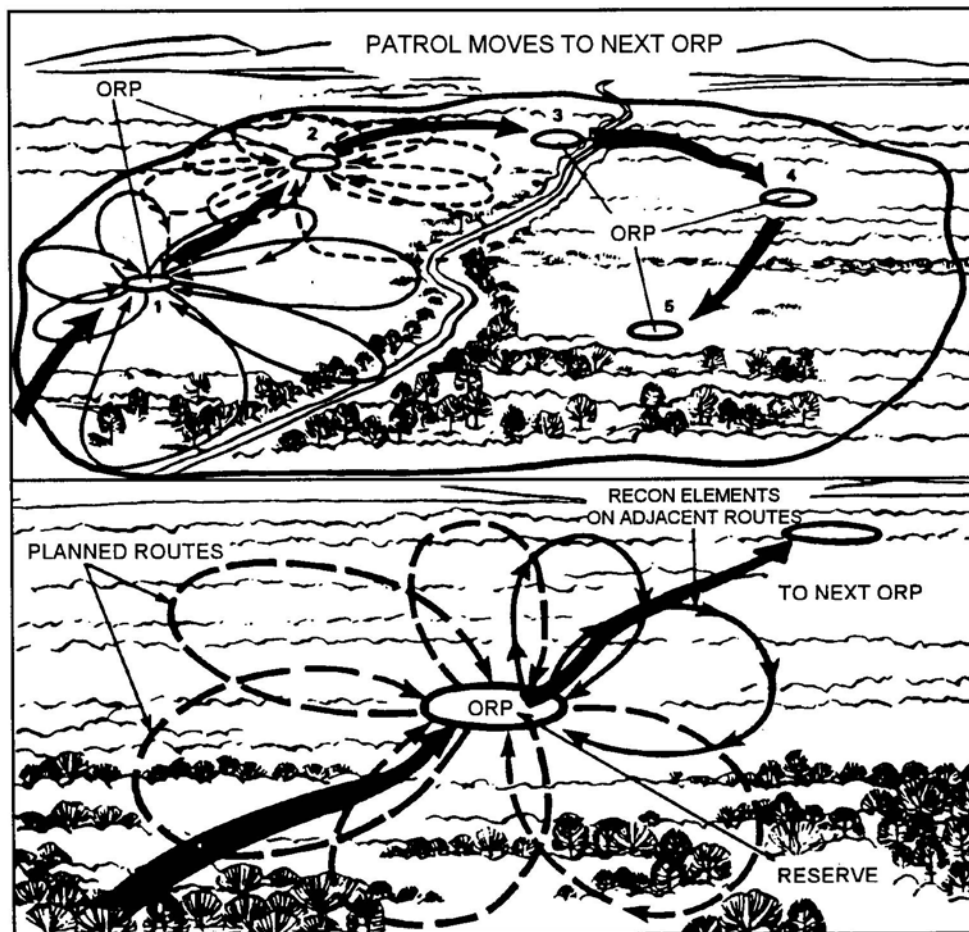


Figure 2. The fan method.

- (2) The converging routes method (Figure 3). In this method, the unit moves to its zone of operation. Once there, they halt at the designated ORP and establish security. The leader confirms his location and the unit is broken down into smaller elements. The leader gives each element a reconnaissance route, the location for the rendezvous point, and a linkup time at the rendezvous point. All elements depart for their designated routes. The leader

**Performance Steps**

normally travels with the center element. Each element normally reconnoiters its route using the fan method. After the zone has been reconnoitered, the elements link up at the rendezvous point at the designated time. Security is established in the same manner as it was in the ORP. All of the information gathered will be given to the soldiers. The unit returns to friendly lines.

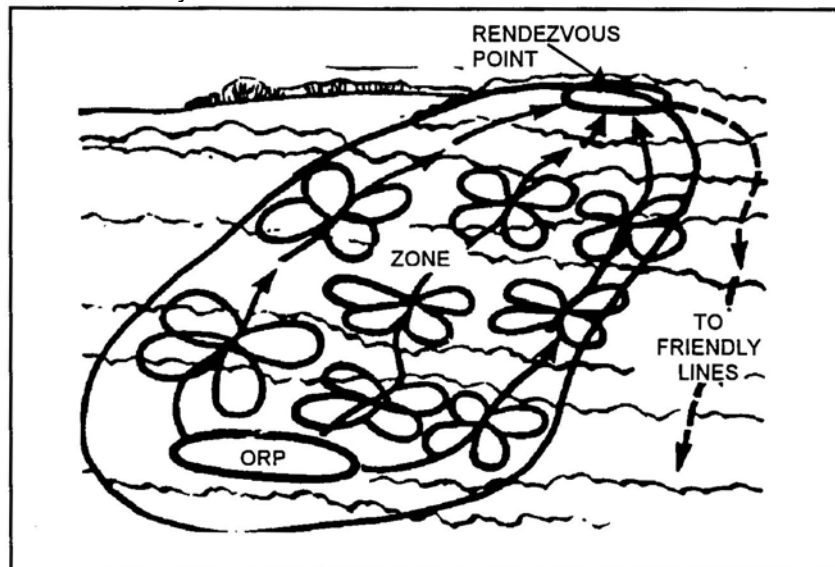


Figure 3. The converging routes method.

- (3) The successive sector method (Figure 4). The successive sector method of area reconnaissance is a continuation of the converging routes method. The unit moves to its zone of operation and selects an ORP, a series of reconnaissance routes, and rendezvous points. The action of the unit at each ORP and rendezvous point is the same as is used for the converging routes method. At each rendezvous point, information is disseminated. That point becomes the ORP for the next phase. This action continues until the entire zone has been reconnoitered. Once the reconnaissance is completed, the unit returns to friendly lines.

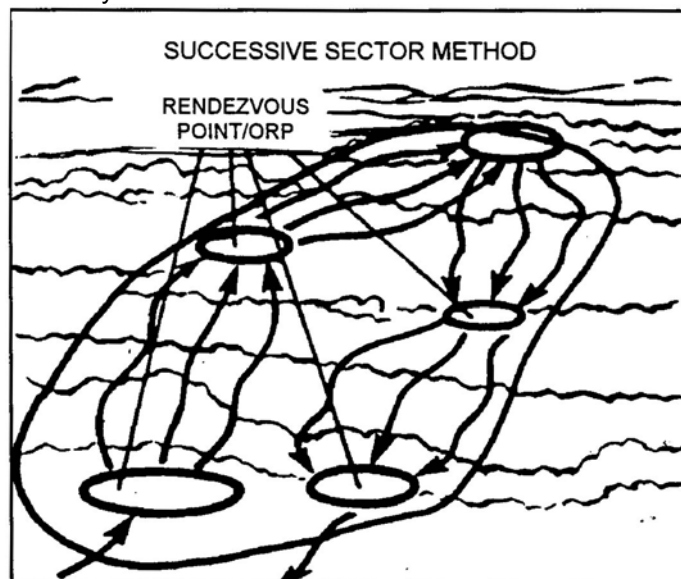


Figure 4. The successive sector method.

**Evaluation Preparation:** SETUP: At the test site, provide all equipment and material given in the task condition statement.

**BRIEF SOLDIER:** Tell the soldier to organize and conduct a zone reconnaissance. Tell the soldier to complete the mission within the time specified by the commander. You will act as the battalion intelligence officer (S2) to provide answers to any questions the soldier may ask.

| <b>Performance Measures</b>                                                                                         | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Organized the platoon in the command, reconnaissance, and security elements necessary to accomplish the mission. | _____            | _____               |
| 2. Employed one of the three basic methods of zone reconnaissance (fan, converging routes, or successive sectors).  | _____            | _____               |
| 3. Obtained and reported information about the terrain and enemy within the specified area.                         | _____            | _____               |
| 4. Entered and left the target area without being detected by the enemy.                                            | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References**  
**Required**

**Related**  
FM 7-7  
FM 7-7J  
FM 7-8

Subject Area 20: RECON-SECURITY: OPSEC AND COMSEC

**Plan Installation of a Platoon Early Warning System AN/TRS-2**  
**071-730-0004**

**Conditions:** Given a set of operational platoon early warning systems (PEWS) and a defensive position in an area with varying terrain, recording form, a compass, and a map.

**Standards:** Planned the installation of the PEWS to augment the unit's observation posts (OP) and covered dead space.

**Performance Steps**

**CAUTION:** During training, dispose of all batteries IAW unit SOP.

1. Plan installation. When planning the installation of PEWS, consider the following items.

- a. Size of area to be covered (how many detectors will be needed).

**NOTE:** The receiver in the radio frequency (RF) mode can handle only 16 detectors.

- (1) The detector's maximum detection range is 10 meters.
- (2) The maximum distance that the detector can be from the receiver is 1,500 meters.
- (3) With the above two items in mind and the limited number of detectors normally available, care must be taken in selecting the installation sites of the detectors.
- (4) Because of other surveillance devices within a unit, such as night observation devices, infrared (IR) viewing devices, and thermal sights, PEWS should be used to cover areas the other devices cannot cover.
- (5) When a large area must be covered and a large number of detectors is available, detectors can be emplaced using the hot-loop method (maximum of 16 detectors per loop).
- (a) In the wire mode, the receiver can handle nine wires, but by connecting more detectors on each wire, or as many wires as needed, a much larger area can be covered. Figure 1 shows the correct procedure to hook up a hot loop.

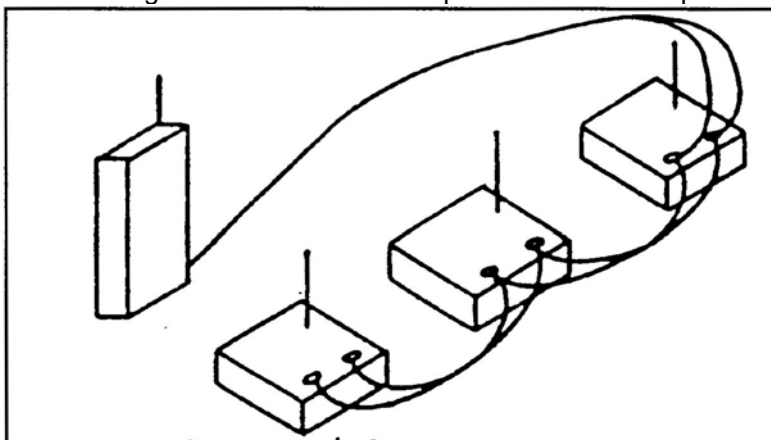


Figure 1. Hooking detectors in a hot loop.

- (b) As the example in Figure 2 shows, the area to be covered has a road junction. To cover this road junction, the hot loop would be the best method to use. This will not only let you know an intruder is on the road, but which way the intruder is moving. By observing the sequence in which the detectors are activated, the direction of movement can be determined. If the sequence is 1, 2, 7, and 8, the intruder is personnel moving north on Rooster Road, then turning west on Larkshead Lane toward your position.

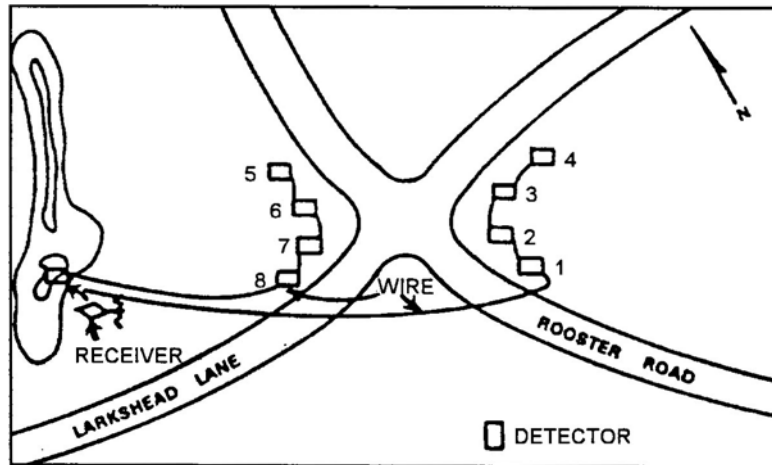
**Performance Steps**

Figure 2. Installation of detectors in hot loops.

NOTE: When used as shown in Figure 2, the detectors should be at least 100 meters apart.

b. Type of terrain.

- (1) Trees and heavy vegetation decrease the operating range in the RF mode.
- (2) Since the PEWS works on radio line of sight, hills or buildings block the signal in the RF mode.
- (3) When line-of-sight emplacement of detectors cannot be accomplished, the wire mode must be used for those detectors.

NOTE: When using the wire line, the receiver can handle detectors in both the wire mode and RF mode at the same time.

- (4) When installing detectors to cover ditches or gullies, the detector must be placed in the bottom of the ditch or gully rather than on the edge (Figure 3).

## Performance Steps

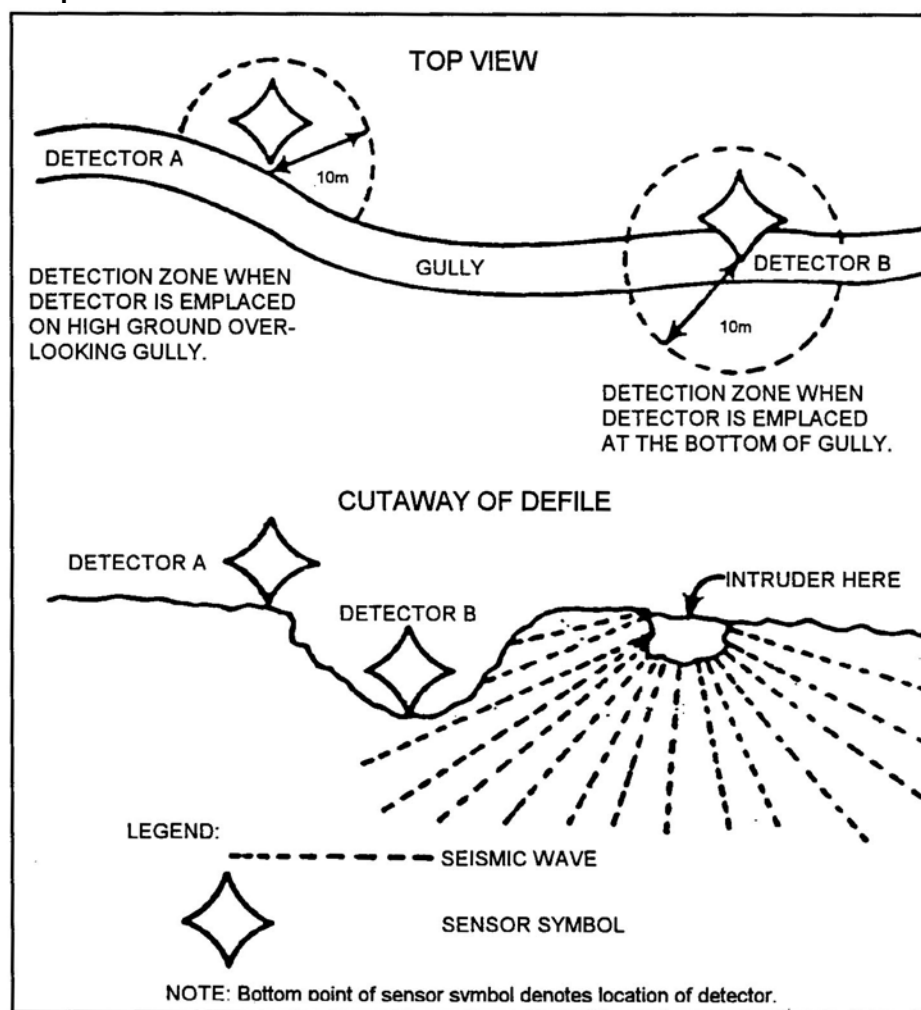


Figure 3. Installation in ditches or gullies.

- (5) Do not place the detector near running water, such as streams or rivers. The vibrations caused by the running water could cause a false activation of the detector.
- c. Type of soil in the area.
  - (1) For the best detection, the detectors should be placed in hard-packed soil, grassy or weedy areas, or wet soil. When placed in these types of soil, the detectors cover the 10-meter radius as designed.
  - (2) Areas having loose, dry soil; sandy, dry soil; and rock formations should be avoided when possible. The detectors still work in such areas, but the detection range of the detectors is greatly reduced.

## 2. Record detector locations.

- a. Draw a rough sketch (Figures 4 and 5).
  - (1) On the sketch, include easily identifiable natural and manmade features.
  - (2) Label features, such as roads, trails, rivers, and manmade objects, that can be used to identify the area of emplacement of detectors.
  - (3) Identify the start point of the emplacement of detectors.
  - (4) Include on the sketch the following items:
    - (a) Direction of likely enemy approach.
    - (b) Direction of indicator (north arrow).
    - (c) Unit designation (no higher than company/troup).



## Performance Steps

- (d) The area code of the detectors.
- (e) Date detectors are installed.
- (f) Whether detectors are in RF or wire mode.
- (g) Pace count per 100 meters of soldier recording pace count.

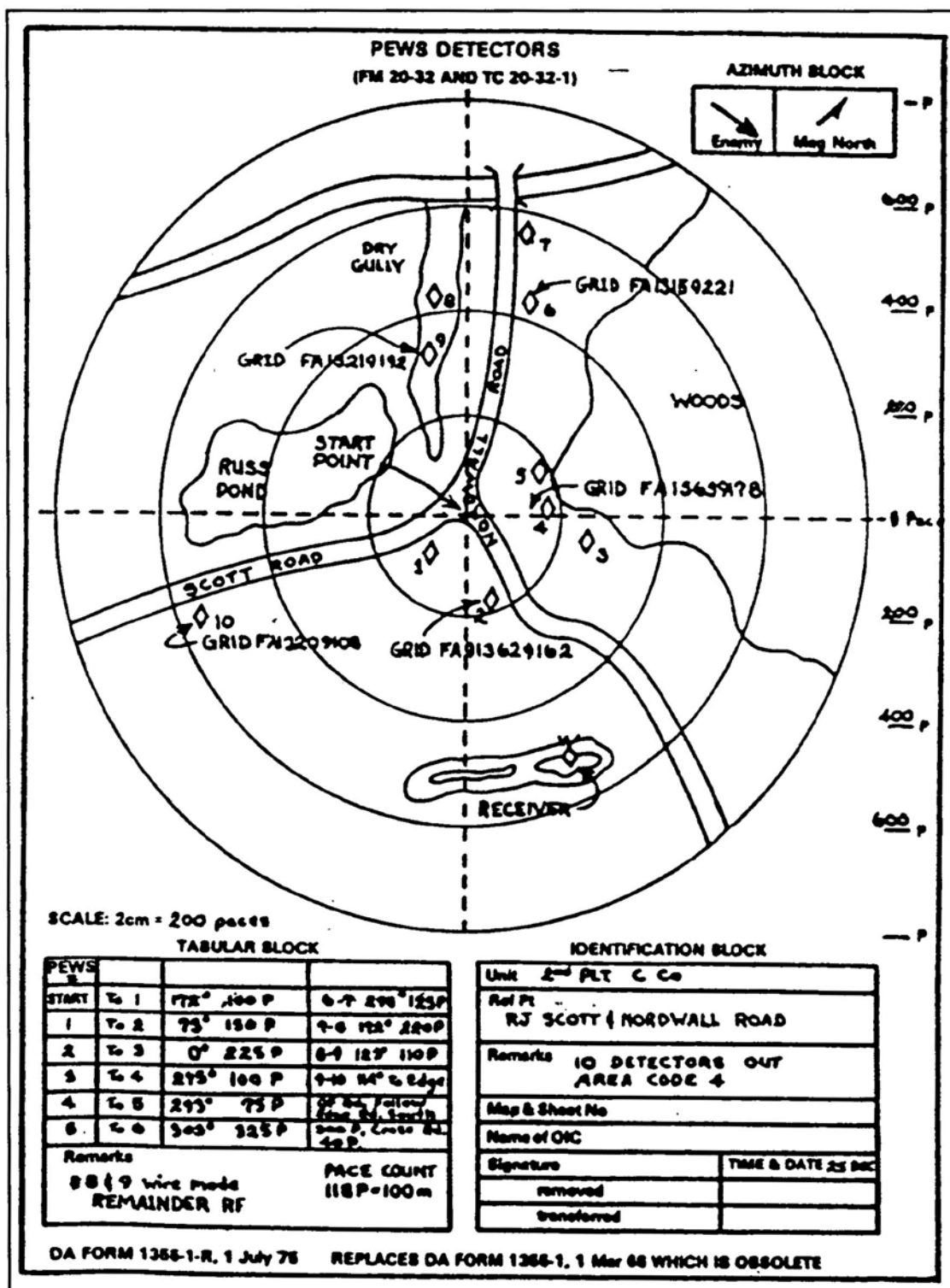


Figure 4. PEWS detector record using hasty protective minefield record.

# Performance Steps

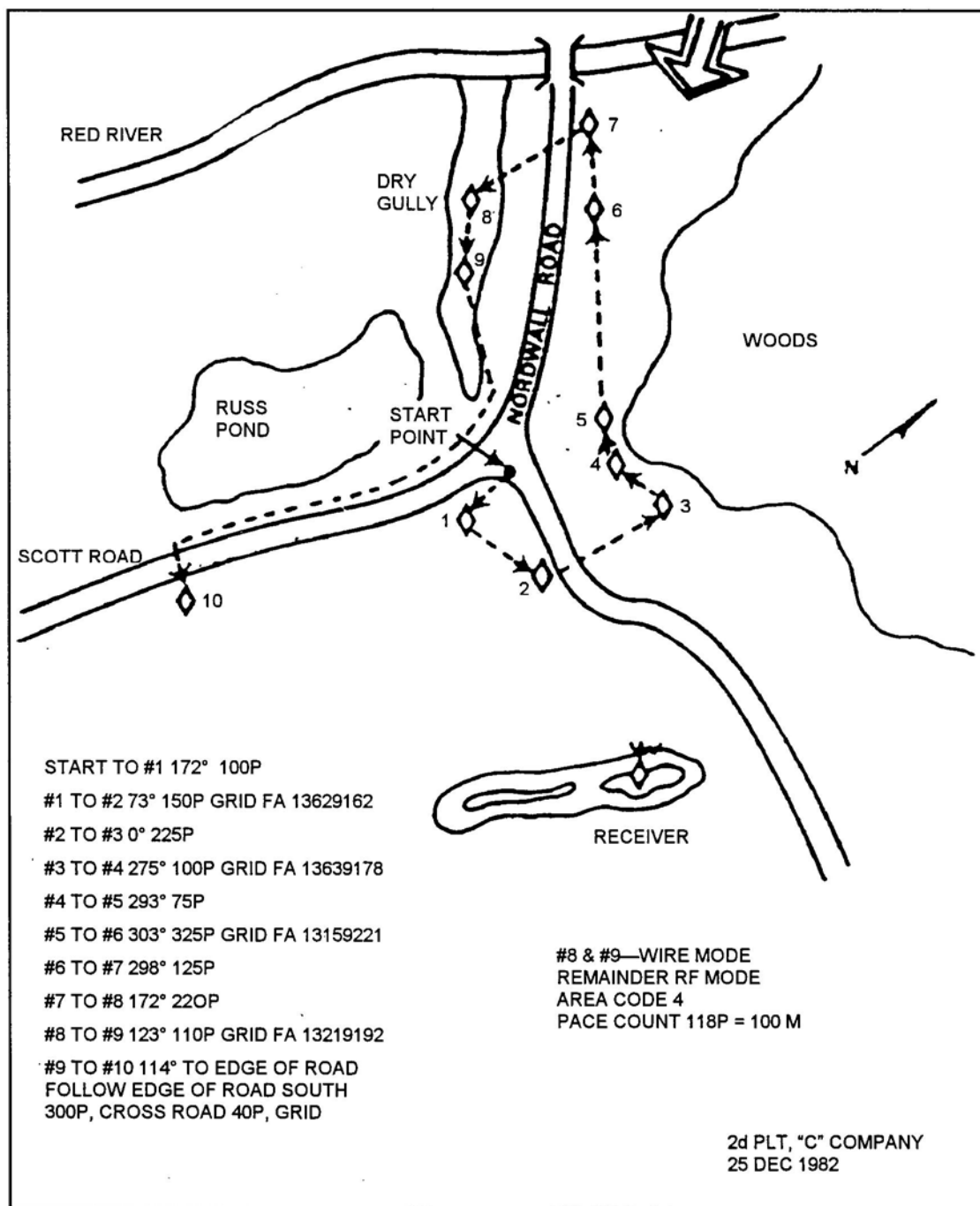


Figure 5. PEWS detector record on plain paper.

- b. Record the detectors on the sketch.
  - (1) Record the detectors as they are being laid.
  - (2) Lay the detectors out in sequence.
  - (3) From the start point, determine the direction to the first detector to be emplaced.
  - (4) Count the paces to the emplacement site.
  - (5) Record the direction, pace count, and the location of the detector on sketch.

**Evaluation Preparation:** SETUP: At the test site, provide a complete set of operational PEWS. The test site must be large enough to realistically emplace the detectors. Provide a DA Form 1355-1-R (Hasty Protective Minefield Record) or a blank sheet of paper, pencils, a compass, and a map.

**BRIEF SOLDIER:** Tell the soldier that from a map and terrain analysis to plan the installation, install and record the installation sites of the PEWS.

| <b>Performance Measures</b>                                                                                                           | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Planned the installation to cover the area of concern to include any dead space.                                                   | —                | —                   |
| 2. Started the installation from an identifiable terrain feature (natural or man-made).                                               | —                | —                   |
| 3. Recorded mils (or degrees) and distance (paces) from the start point to the first detector to the remaining detector, in sequence. | —                | —                   |
| 4. Included all required information on the detector sketch.                                                                          | —                | —                   |
| a. Direction of likely enemy approach.                                                                                                |                  |                     |
| b. North arrow.                                                                                                                       |                  |                     |
| c. Unit designation.                                                                                                                  |                  |                     |
| d. Area code of detectors.                                                                                                            |                  |                     |
| e. Date.                                                                                                                              |                  |                     |
| f. RF or wire mode.                                                                                                                   |                  |                     |
| g. Pace count per 100 meters.                                                                                                         |                  |                     |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

#### **References** **Required**

**Related**  
TM 11-5895-1047-10

## Subject Area 22: SUSTAIN: GENERAL

**Coordinate with Supported Units****071-600-0009**

**Conditions:** Given an assignment as the section sergeant, platoon sergeant, or acting platoon leader of a TOW platoon or section attached to a unit participating in an offensive or defensive operation.

**Standards:** Coordinated with the supported unit, included the time and reporting location, the unit's mission, the friendly and enemy situation, and the logistical support your platoon or section will need.

**Performance Steps**

After receiving an order of attachment to a unit for an offensive or defensive operation, coordinate with the commander or leader of the supported unit. If you receive the order while other leaders are present, take that opportunity to coordinate as much as possible. This will help avoid delays in the operation. While many of the details will vary with the situation, essential items must always be coordinated.

1. In the offense, coordinate the following:
  - a. Movement routes. Ensure that you and the supported unit can provide mutual support-by-fire, that you can maintain maneuver, and can cover the supported unit's movement routes.
  - b. Visual signals such as arm and hand signals and pyrotechnics.
  - c. Radio frequencies and call signs.
  - d. Resupply.
2. In the defense, coordinate to ensure that you can provide interlocking TOW fires and mutually coordinate those fires with the supported unit. Coordinate--
  - a. The location of the supported unit's primary, alternate, and supplementary positions.
  - b. The sector(s) of fire.
  - c. Dead spaces.
  - d. TRPs.
  - e. The location of any troops or vehicles forward of the FEBA.
  - f. Signals.
  - g. Patrols and ambushes (size, type, time of departure and return, and routes).
  - h. Radio frequencies and call signs.
  - i. Resupply.

**Evaluation Preparation:** SETUP: In the offense, provide a field location with varying terrain and give an operational briefing. In the defense, provide a field location with varying terrain, give an operational briefing, and assign sectors of fire.

**BRIEF SOLDIER:** Inform the element leader to coordinate with the commander/leader of the unit of attachment. Tell him whether the mission is to be an offensive or defensive operation.

**Performance Measures****GO      NO GO**

- |                                                                    |       |       |
|--------------------------------------------------------------------|-------|-------|
| 1. Coordinated with the commander/leader for offensive operations. | _____ | _____ |
| a. Movement routes.                                                |       |       |
| b. Visual signals.                                                 |       |       |
| c. Radio frequencies and call signs.                               |       |       |
| d. Resupply.                                                       |       |       |
| 2. Coordinated with commander/leader for defensive operations.     | _____ | _____ |
| a. Location of primary position.                                   |       |       |
| b. Location of alternate position.                                 |       |       |
| c. Location of supplementary position.                             |       |       |
| d. Sector(s) of fire.                                              |       |       |

**Performance Measures****GO**    **NO GO**

- e. Dead space(s).
- f. Locations of troops or vehicles forward of the FEBA.
- g. Signals.
- h. Patrols and ambushes (times and sites).
- i. Radio frequencies and call signs.
- j. TRPs.
- k. Resupply.

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

**References****Required****Related**

FM 7-8  
FM 7-91

Subject Area 42: WEAPONS: M220-SERIES TOW

**Manage an M220 Launcher System Battery Program**  
**071-316-2800**

**Conditions:** Given TOW battery charger(s) (PP-4884 [XO-1]/T), TOW batteries, an AN/TAS-4 nightsight battery charger(s) (PP-7382/TAS), and batteries as well as TMs.

**Standards:** As a minimum, ensured that the TOW batteries were recharged monthly and the AN/TAS-4 nightsight batteries were recharged after two hours of use or when discharged; battery accountability were maintained; defective batteries were identified and replaced; and required preventive maintenance on both batteries and chargers were performed IAW applicable TMs.

**Performance Steps**

1. Manage TOW battery program. To effectively manage a unit battery program--
  - a. Develop a way to identify when batteries need recharging. Create a battery control log, chart, or table that shows battery numbers, condition of the batteries, and the date when the batteries were last charged (Figure 1). Maintain the log to ensure all batteries are recharged regularly. The log will help to identify batteries that require excessive charging (indicating that they might be defective), and to maintain battery accountability.

| BATTERY CONTROL                                                                      |                  |           |                  |                |
|--------------------------------------------------------------------------------------|------------------|-----------|------------------|----------------|
| BATTERY NO.                                                                          | CONDITION/STATUS | CHARGED   | DUE FOR RECHARGE | DATE TURNED IN |
| 1                                                                                    | Good             | 16 Mar 99 | 16 Apr 99        |                |
| 2                                                                                    | Defective        | -----     | -----            | 17 Mar 99      |
|  |                  |           |                  |                |

Figure 1. Example format for battery control log.

- b. Label all batteries after recharging.

NOTE: Batteries normally have a plastic coated plate attached with spaces provided in which the day, month, and year can be written with a grease pencil or a strip of masking tape can be attached to the batteries and the date recorded (day, month, and year.)

- c. Ensure personnel turn in TOW batteries for recharging every 30 days (whether the batteries were used or not).
  - d. Ensure personnel rotate the use of batteries. A battery that was never charged or discharged may lose its ability to hold a full charge.
  - e. Batteries for the AN/TAS-4 nightsight (when issued) should be charged for a duration of 15 hours (+ or - 45 minutes) for about 2 hours of use.

NOTE: When the battery monitor in the nightsight indicates that the charge is down to less than 10 minutes, the battery should be recharged.

2. Perform preventive maintenance of batteries and chargers.
  - a. Ensure batteries are kept clean.
  - b. Visually inspect for damage and water.
  - c. Spot paint as needed.
  - d. Perform operator's and unit maintenance on the TOW battery charger PP-4884 (XO-1/T) of appropriate technical manual (TM).

**Evaluation Preparation:** SETUP: Provide the soldier with all the equipment listed in the condition statement.

BRIEF SOLDIER: Tell the soldier to manage an M220-series launcher system battery program IAW Section III of the appropriate TM.

| Performance Measures                                | <u>GO</u> | <u>NO GO</u> |
|-----------------------------------------------------|-----------|--------------|
| 1. When are batteries recharged?                    | _____     | _____        |
| 2. Battery numbers, condition and date were logged. | _____     | _____        |
| 3. How long should the AN/TAS-4 battery be charged? | _____     | _____        |
| 4. Monitored charging batteries.                    | _____     | _____        |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.

ANSWERS

- 1. Monthly (every 30 days).
- 2. a. Battery numbers.  
b. Condition of the batteries.  
c. Date when the batteries were last charged.
- 3. 15 hours + or - 45 minutes.
- 4. When the battery monitor in the nightsight indicates that the charge is down to less than 10 minutes.
- 5. Day, month, and year charged.

References

**Required**

- TM 9-2350-259-10
- TM 9-5855-254-14
- TM 9-6130-470-12

**Related**

**Conduct Movement Techniques by an M220 Antiarmor Platoon**  
**071-056-0057**

**Conditions:** As an M220 antiarmor platoon sergeant directing tactical movement during combat operations

**Standards:** Movement techniques were executed that allowed the platoon to support the commander's plan of action and provided security for the platoon.

**Performance Steps**

1. Direct the platoon in assuming the technique of movement designated by unit commander when part of the march column.
2. Ensure continuous antiarmor support is provided during the move or combat operation, considering the movement technique the unit is using and the commander's plan of action.
3. In all combat operations, moving forward or rearward, ensure platoon members observe the following fundamentals of movement:
  - a. Use terrain for protection (select routes and firing positions that provide maximum cover and concealment).
  - b. Avoid possible kill zones (open areas, high ground, prominent terrain features, and obvious avenues of approach into threat territory).
  - c. Maintain dispersion based on the threat situation, terrain, visibility, and ability to maintain mutual support and control.
  - d. Use countermeasures (smoke or camouflage).
4. Enforce terrain driving techniques.

**Evaluation Preparation:** SETUP: Provide the platoon sergeant the equipment, personnel, and information needed to execute the task.

BRIEF SOLDIER: Tell the platoon sergeant to provide the correct method for the moving elements.

| <b>Performance Measures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b><u>GO</u></b> | <b><u>NO GO</u></b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| 1. Directed the platoon to assume the technique of movement designated by unit commander when part of the march column.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | _____            | _____               |
| 2. Ensured continuous antiarmor support is provided during the move or combat operation, considering the movement technique the unit is using and the commander's plan of action.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | _____            | _____               |
| 3. Moved forward or rearward and ensured platoon members observe the following fundamentals of movement in all combat operations: <ol style="list-style-type: none"> <li>a. Used terrain for protection (select routes and firing positions that provide maximum cover and concealment).</li> <li>b. Avoided possible kill zones (open areas, high ground, prominent terrain features, and obvious avenues of approach into threat territory).</li> <li>c. Maintained dispersion based on the threat situation, terrain, visibility, and ability to maintain mutual support and control.</li> <li>d. Used countermeasures (smoke or camouflage).</li> </ol> | _____            | _____               |
| 4. Enforced terrain driving techniques.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | _____            | _____               |

**Evaluation Guidance:** Score the soldier GO if all performance measures are passed. Score the soldier NO-GO if any performance measure is failed. If the soldier scores NO-GO, show the soldier what was done wrong and how to do it correctly.



**References  
Required**

**Related  
FM 7-91**



## GLOSSARY

### **Section I** **Acronyms & Abbreviations**

|               |                                                       |
|---------------|-------------------------------------------------------|
| <b>BNCOC</b>  | Basic Noncommissioned Officer Course                  |
| <b>DAP</b>    | decontamination apparatus, portable                   |
| <b>HAW</b>    | heavy antitank weapon                                 |
| <b>HMMWV</b>  | high-mobility, multipurpose wheeled vehicle           |
| <b>ICOM</b>   | intercommunications                                   |
| <b>ITEP</b>   | Individual Training Evaluation Program                |
| <b>LAW</b>    | lubricating oil, Arctic weapon; light antitank weapon |
| <b>MAW</b>    | medium antitank weapon                                |
| <b>METT-T</b> | mission, enemy, terrain, troops and time available    |
| <b>MOUT</b>   | Military Operations on Urban Terrain                  |
| <b>NATO</b>   | North Atlantic Treaty Organization                    |
| <b>OSUT</b>   | One-station Unit Training                             |
| <b>SAW</b>    | squad automatic weapon                                |
| <b>TOW</b>    | tube-launched, optically tracked, wire-guided         |

### **Section II** **Terms**

**AC**  
Active Component; assistant commandant; alternating current

**ACCP**  
Army Correspondence Course Program

**AGS**  
a 30-mm automatic grenade launcher developed by the former Soviet Union

**AIT**  
Advanced Individual Training

**AKM**  
a 7.62-mm assault rifle developed by the former Soviet Union

**AKMS**  
a 7.62-mm assault rifle developed by the former Soviet Union

**ALT**

alternate

**ammo**

ammunition

**APC**

armored personnel carrier

**AR**

Army Regulation; Army Reserve

**ARNG**

Army National Guard

**ARTEP**

Army Training and Evaluation Program

**AT**

antitank

**ATGM**

antitank guided missile

**BATT**

battery

**beaten zone**

the pattern formed where rounds or bursts have struck the ground or a target

**BMD**

a vehicle developed by the former Soviet Union

**BML**

by-product materials license

**BMP**

a fighting vehicle developed by the former Soviet Union

**BRDM**

a scout car developed by the former Soviet Union

**BT**

basic training

**C**

centigrade

**CB**

circuit breaker; chemical, biological

**centigray**

a unit of absorbed dose of radiation equal to a rad

**cGy**

Centigray

**cGyph**  
centigray per hour

**CLP**  
cleaner, lubricant, preservative

**cm**  
centimeter; control monitor

**COMSEC**  
communications security

**CP**  
command post

**CRT**  
cathode ray tube

**CSS**  
combat service support

**CTA**  
common table of allowance

**CTT**  
Common Task Test

**CX**  
blister agent; coaxial cable designator

**DA**  
Department of the Army

**defile**  
a narrow passage in which troops can march only in a file

**DS**  
direct support

**DS2**  
decontaminating solution No. 2

**DTG**  
date-time group

**ECCM**  
Electronic Counter-Counter Measures

**ECM**  
Electronic Countermeasures

**EENT**  
end of evening nautical twilight

**ENCODED**

(a message) converted into code

**EOD**

explosive ordnance disposal

**EPW**

enemy prisoner of war

**ERF**

electronic remote fill (offset frequency)

**EW**

electronic warfare

**F**

fahrenheit; fail

**FDC**

fire direction center

**FH**

frequency hopping

**FM**

field manual; frequency modulated (radio)

**FO**

forward observer

**FOV**

field of view

**FPF**

final protection fires

**FPL**

final protection line

**FRAGO**

fragmentary order

**FREQ**

frequency

**ft; FT**

feet; firing table

**gnd**

ground

**GSR**

ground surveillance radar

**HE**

high-explosive

**IAW**

in accordance with

**ID**

identification

**IEDK**

individual equipment decontamination kit

**IET**

initial entry training

**IL**

Illinois

**in; IN**

Infantry

**ir; IR**

infrared; intelligence requirements; information requirement

**ITP**

individual training plan

**JB**

job book

**km**

kilometer

**LBE**

load-bearing equipment

**LD**

line of departure

**LSA**

lubricating oil, semifluid, automatic weapon; logistics support analysis

**LZ**

landing zone

**m**

meter(s)

**MANPACK**

designed to be carried by one person

**MEDEVAC**

medical evacuation

**METL**

mission-essential task list

**MG**

machine gun

**MIJI**

meaconing intrusion jamming interference

**mm**

millimeter

**MOPP**

mission-oriented protective posture

**MOS**

military occupational specialty

**MOSC**

military occupational specialty code

**MPRJ**

Military Personnel Records Jacket, US Army

**MRL**

multiple rocket launcher

**MTP**

mission training plan

**NBC**

nuclear, biological, and chemical

**NCO**

noncommissioned officer

**NCOIC**

Noncommissioned Officer In Charge

**NCS**

net control station

**NSN**

national stock number; nonstandard number

**OEG**

operational exposure guidance

**OIC**

officer in charge

**OP**

observation post

**OPCODE**

operations code

**OPLAN**

operation plan

**OPORD**

operation order



**OPSEC**

operations security

**ORP**

objective rally point

**PDF**

principal direction of fire

**PEWS**

Platoon Early Warning System

**PIR**

priority intelligence requirement

**PKM**

a general-purpose machine gun developed by the former Soviet Union

**PL**

phase line

**PLAINTEXT**

the intelligible form of an encrypted text or of its elements

**PLDC**

Primary Leadership Development Course

**PMCS**

preventive maintenance checks and services

**PSI**

pounds per square inch

**PSYOP**

psychological operations

**PTT**

push-to-talk

**RATELO**

radiotelephone operator

**RBC**

rifle bore cleaner

**RCU**

remote control unit

**RDF**

radio direction finding

**RF**

Reserve Forces; radio frequency

**RPG**

a rocket-propelled grenade launcher developed by the former Soviet Union

**RPK**

a 7.62-mm light machine gun developed by the former Soviet Union

**RPK-74**

a 5.45-mm light machine gun developed by the former Soviet Union

**RPO**

radiation protection officer

**RT**

receiver/transmitter

**SC**

Signal Corps; single-channel

**SI**

skill identifier; set indicator

**SINCGARS**

single-channel ground-air radio system

**SL**

squad leader; skill level

**SM**

soldier's manuals

**SMCT**

soldier's manual of common tasks

**SOI**

signal operating instructions

**SOP**

standing operating procedure

**SPG-9**

a 73-mm antitank recoilless gun developed by the former Soviet Union

**STP**

soldier training plan

**SVD**

a 7.62-mm sniper rifle developed by the former Soviet Union

**T&E**

traversing and elevating

**TC**

training circular

**TEK**

traffic encryption key

**TG**

trainer's guide

**TMDE**

test measurement and diagnostic equipment

**TOE**

table of organization and equipment

**TP**

target practice; tank platoon

**TRIP WIRE**

a low-placed concealed wire used to trip an enemy or trespasser and to trigger an alarm or explosive device

**TRP**

target reference point

**TW**

target width

**US**

United States

**USAIS**

United States Army Infantry School

**USAR**

United States Army Reserve

**w**

with; wire

**ZULU TIME**

Greenwich mean time



## REFERENCES

### Required Publications

Required publications are sources that users must read in order to understand or to comply with this publication.

#### Army Regulations

|          |                                                                      |
|----------|----------------------------------------------------------------------|
| AR 380-5 | Department of The Army Information Security Program 25 February 1988 |
|----------|----------------------------------------------------------------------|

#### Department of Army Forms

|                |                                                |
|----------------|------------------------------------------------|
| DA FORM 2404   | EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET |
| DA FORM 5517-R | Standard Range Card                            |

#### Department of Army Pamphlets

|                |                                                                                          |
|----------------|------------------------------------------------------------------------------------------|
| DA PAM 738-750 | Functional Users Manual for the Army Maintenance Management System (TAMMS) 1 August 1994 |
|----------------|------------------------------------------------------------------------------------------|

#### Field Manuals

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| FM 101-5-1 | Operational Terms and Graphics 30 September 1997                   |
| FM 20-32   | Mine/Countermine Operations 29 May 1998                            |
| FM 23-14   | M249 Light Machine Gun in the Automatic Rifle Role 26 January 1994 |
| FM 23-27   | MK 19, 40-mm Grenade Machine Gun, MOD 3 27 December 1988           |
| FM 23-34   | TOW Weapon System 17 August 1994                                   |
| FM 23-65   | Browning Machine Gun, Caliber .50 HB, M2 19 June 1991              |
| FM 3-06    | Urban Operations 1 June 2003                                       |
| FM 3-06.11 | Combined Arms Operations in Urban Terrain 28 February 2002         |
| FM 3-5     | NBC Decontamination 28 July 2000                                   |
| FM 3-90.1  | Tank and Mechanized Infantry Company Team 9 December 2002          |
| FM 7-7     | The Mechanized Infantry Platoon and Squad (APC) 15 March 1985      |
| FM 7-7J    | The Mechanized Infantry Platoon and Squad (Bradley) 7 May 1993     |
| FM 7-8     | The Infantry Platoon and Squad 22 April 1992                       |

#### Graphic Training Aids

|               |                                                                   |
|---------------|-------------------------------------------------------------------|
| GTA 17-02-011 | Combat Vehicle Identification (CVI) Training Cards 1 January 1984 |
| GTA 17-02-013 | Armored Vehicle Recognition 1 May 1987                            |

#### Technical Manuals

|                    |                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------|
| TM 11-5805-201-12  | OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL FOR TELEPHONE SET, TA-312/PT AND TA-312A/PT |
| TM 9-1005-201-10   | OPERATOR'S MANUAL FOR MACHINE GUN, 5.56-MM, M249                                             |
| TM 9-1005-213-10   | MACHINE GUN, CAL. .50, BROWNING, M2, HEAVY BARREL (AUG 92) 1 August 1992                     |
| TM 9-1005-313-10   | OPERATOR'S MANUAL FOR MACHINE GUN, 7.62-MM, M240, M240C, AND M240E1 19 July 1996             |
| TM 9-1005-317-10   | OPERATOR'S MANUAL FOR PISTOL, SEMI-AUTOMATIC, 9-MM, M9                                       |
| TM 9-2350-252-10-2 | OPERATOR'S MANUAL FOR THE FIGHTING VEHICLE, CAVALRY, M3, M3A1, TURRET 22 September 1986      |

|                      |                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TM 9-2350-259-10     | OPERATOR'S MANUAL FOR COMBAT VEHICLE, ANTITANK, IMPROVED TOW VEHICLE M901                                                                                                |
| TM 9-2350-284-10-2   | OPERATOR'S MANUAL FOR FIGHTING VEHICLE, INFANTRY M2A2 AND FIGHTING VEHICLE, CAVALRY M3A2 HULL 30 January 1992                                                            |
| TM 9-2350-294-10-2-1 | Operator's Manual for Fighting Vehicle, Infantry M2A3, 2350-01-436-0005 (EIC APG) and Fighting Vehicle, Cavalry M3A3, 2350-01-436-0007 (EIC APH) Turret 1 June 2000      |
| TM 9-2350-294-10-2-2 | Operator's Manual for Fighting Vehicle, Infantry M2A3, 2350-01-436-0005 (EIC APG) and Fighting Vehicle, Cavalry M3A3, 2350-01-436-0007 (EIC APH) Turret 1 June 2000      |
| TM 9-4020-200-10     | Operator's Manual For Allied Kinetic Energy Recovery Rope (AKERR) Kit 31 January 1989                                                                                    |
| TM 9-5855-254-14     | OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL FOR CHARGER, BATTERY, PP-7382/TAS (NSN 6130-01-056-1955) 24 March 1995                   |
| TM 9-6130-470-12     | OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL FOR BATTERY CHARGER PP-4884A/T (TOW HEAVY ANTITANK/ASSAULT WEAPON SYSTEM) (REPRINTED W/BASIC INCL C1-2) 5 December 1975 |

### Related Publications

Related publications are sources of additional information. They are not required in order to understand this publication.

### Army Regulations

|          |                                                                      |
|----------|----------------------------------------------------------------------|
| AR 380-5 | Department of The Army Information Security Program 25 February 1988 |
|----------|----------------------------------------------------------------------|

### Army Training and Evaluation Program

|               |                                                                               |
|---------------|-------------------------------------------------------------------------------|
| ARTEP 7-8-MTP | Mission Training Plan for the Infantry Rifle Platoon and Squad 5 October 2001 |
|---------------|-------------------------------------------------------------------------------|

### Department of Army Forms

|                  |                                                           |
|------------------|-----------------------------------------------------------|
| DA FORM 1355-1-R | HASTY PROTECTIVE MINEFIELD RECORD 1 September 2001        |
| DA FORM 1594     | Daily Staff Journal or Duty Officer's Log 1 November 1962 |
| DA FORM 5517-R   | Standard Range Card 1 February 1986                       |

### Department of Army Pamphlets

|                |                                                                                          |
|----------------|------------------------------------------------------------------------------------------|
| DA PAM 738-750 | Functional Users Manual for the Army Maintenance Management System (TAMMS) 1 August 1994 |
|----------------|------------------------------------------------------------------------------------------|

### Field Manuals

|            |                                               |
|------------|-----------------------------------------------|
| FM 100-10  | Combat Service Support 3 October 1995         |
| FM 101-5   | Staff Organization and Operations 31 May 1997 |
| FM 20-32   | Mine/Countermining Operations 29 May 1998     |
| FM 21-10   | Field Hygiene and Sanitation 21 June 2000     |
| FM 21-10-1 | Unit Field Sanitation Team 11 October 1989    |
| FM 21-60   | Visual Signals 30 September 1987              |

|            |                                                                           |
|------------|---------------------------------------------------------------------------|
| FM 21-75   | Combat Skills of the Soldier 3 August 1984                                |
| FM 23-1    | Bradley Gunnery 18 March 1996                                             |
| FM 23-24   | Dragon Medium Antitank/Assault Weapon System M47 3 April 1990             |
| FM 23-34   | TOW Weapon System 17 August 1994                                          |
| FM 23-90   | Mortars 1 March 2000                                                      |
| FM 24-18   | Tactical Single-Channel Radio Communications Techniques 30 September 1987 |
| FM 3-06    | Urban Operations 1 June 2003                                              |
| FM 3-06.11 | Combined Arms Operations in Urban Terrain 28 February 2002                |
| FM 31-70   | Basic Cold Weather Manual 12 April 1968                                   |
| FM 3-22.31 | 40-mm Grenade Launcher, M203 13 February 2003                             |
| FM 3-23.25 | Light Antiarmor Weapons 30 August 2001                                    |
| FM 3-23.35 | Combat Training with Pistols, M9 and M11 25 June 2003                     |
| FM 3-3     | Chemical and Biological Contamination Avoidance 16 November 1992          |
| FM 3-5     | NBC Decontamination 28 July 2000                                          |
| FM 3-90.1  | Tank and Mechanized Infantry Company Team 9 December 2002                 |
| FM 4-25.11 | First Aid 23 December 2002                                                |
| FM 5-250   | Explosives and Demolitions 15 June 1992                                   |
| FM 55-30   | Army Motor Transport Units and Operations 27 June 1997                    |
| FM 6-30    | Tactics, Techniques, and Procedures for Observed Fire 16 July 1991        |
| FM 7-10    | The Infantry Rifle Company 14 December 1990                               |
| FM 7-20    | The Infantry Battalion 6 April 1992                                       |
| FM 7-7     | The Mechanized Infantry Platoon and Squad (APC) 15 March 1985             |
| FM 7-7J    | The Mechanized Infantry Platoon and Squad (Bradley) 7 May 1993            |
| FM 7-8     | The Infantry Platoon and Squad 22 April 1992                              |
| FM 7-91    | Tactical Employment of Antiarmor Units 30 September 1987                  |

#### Other Product Types

|        |                                |
|--------|--------------------------------|
| SF 700 | Security Container Information |
| SF 702 | Security Container Check Sheet |
| SF 703 | Top Secret Cover Sheet         |
| SF 704 | Secret Cover Sheet             |
| SF 705 | Confidential Cover Sheet       |

#### Soldier Training Publications

|               |                                                             |
|---------------|-------------------------------------------------------------|
| STP 21-1-SMCT | SOLDIER'S MANUAL OF COMMON TASKS SKILL LEVEL 1 1 April 2003 |
|---------------|-------------------------------------------------------------|

#### Technical Manuals

|                     |                                                                                                                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TM 11-5820-1025-10  | Operator's Manual Radio Set AN/PRC-126 1 February 1988                                                                                                                                                  |
| TM 11-5820-890-10-1 | OPERATOR'S MANUAL FOR SINCGARS GROUND COMBAT NET RADIO, ICOM MANPACK RADIO AN/PRC-119A, AN/VRC-87A, AN/VRC-87C, AN/VRC-88A, AN/VRC-88C, AN/VRC-89A, AN/VRC-90A, AN/VRC-91A, AN/VRC-92A 9 September 1991 |
| TM 11-5820-890-10-3 | OPERATOR'S MANUAL FOR SINCGARS GROUND COMBAT NET RADIO, NON ICOM MANPACK RADIO AN/PRC-119, AN/VRC-87, AN/VRC-87D, AN/VRC88, AN/VRC-88D, AN/VRC-89, AN/VRC-90, AN/VRC-91, AN/VRC-92 9 January 1992       |
| TM 11-5855-213-10   | OPERATOR'S MANUAL FOR NIGHT VISION SIGHT, INDIVIDUAL SERVED WEAPON AN/PVS-4                                                                                                                             |

|                      |                                                                                                                                                                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TM 11-5855-238-10    | OPERATOR'S MANUAL: NIGHT VISION GOGGLES, AN/PVS-5, AN/PVS-5A, AN/PVS-5B, AND AN/PVS-5C                                                                                                                                                                          |
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| TM 11-5855-262-10-2  | OPERATOR'S MANUAL FOR NIGHT VISION GOGGLES AN/PVS (NSN 5855-01-228-0937) (EIC: IPS) [TO 12S10-2PVS7-11; TM 09500A-10/1; NAVSEASW215-AT-OMI-010]                                                                                                                 |
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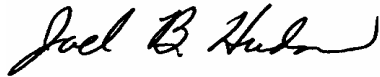
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By Order of the Secretary of the Army:

**PETER J. SCHOOMAKER**  
*General, United States Army*  
*Chief of Staff*

Official:



**JOEL B. HUDSON**

*Administrative Assistant to the*  
*Secretary of the Army*  
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