OPERATING INSTRUCTIONS

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ALPHABETICAL INDEX Index 1

FIGHTING VEHICLE, INFANTRY, M2 (2350-01-048-5920)
AND
FIGHTING VEHICLE, CAVALRY, M3 (2350-01-049-2695)
TURRET

HEADQUARTERS,
DEPARTMENT OF THE ARMY

JULY 1984
SUMMARY OF WARNINGS
AND FIRST AID

This list summarizes critical WARNINGS in this manual. They are repeated here to let you know how important they are. Study these WARNINGS carefully; they can save your life and the lives of soldiers with whom you work.

WARNING

Radiation Hazard

The antireflective coating on all infrared optics contains thorium fluoride which is slightly radioactive. The only potential hazard involves ingestion (swallowing or inhaling) of this coating material. Dispose of broken lenses, etc., in accordance with AR 385-11.

WARNING

Cleaning solvent is poisonous and can burn. Continued exposure to solvent can cause skin problems.

Always use in area with good air flow, away from heat or flames.
Do not breathe solvent fumes.
Do not put hands in solvent.
Apply solvent with brush.
If solvent gets on hands, wash them.
If solvent gets in eyes, flush eyes with fresh water and get medical help.
Keep fire extinguisher nearby.
WARNING

Noise from vehicle or weapons can damage hearing of soldiers in vehicle. All personnel in vehicle MUST WEAR DOUBLE HEARING PROTECTION when gun or vehicle is operated. Hearing protection devices must be properly worn to provide effective protection.

If DOUBLE HEARING PROTECTION is not worn, the safe level of noise exposure will be exceeded in a short time. Hearing loss occurs gradually. Each noise exposure that exceeds the ear protection guidelines below will cause a temporary hearing loss. Over time, the loss in hearing will become permanent. Plan each day’s operation, and be sure all crew and riders have the required ear protectors. Spare earplugs must be available.

DEFINITIONS:

DH-132 — The “tankers helmet,” also called “CVC” helmet. Must be in good condition, with liner and earcups fitted tightly, and chin strap worn at all times.

EARPLUGS — Only standard issue earplugs are acceptable. All of the dismounted squad soldiers must be trained in how to use them. Since they may be removed and lost, spares must be carried.

H-251 HEADSET — The listen-only headset provided for the dismounted squad while in the vehicle.

DOUBLE HEARING PROTECTION — Use of two hearing protection devices at the same time. For this vehicle, use earplugs with either the DH-132 helmet or the H-251 headset.
EAR PROTECTION GUIDELINES

DRIVER
1. Must wear DH-132 at all times.
2. Must wear DH-132 plus earplugs for operations exceeding 14 miles (23 km) in 24 hours.
3. Must close hatch immediately if 25mm gun is fired over front part of vehicle (4980 mils to 710 mils).
4. Must close hatch for TOW firing.
5. Hatch may remain popped during all other firing and vehicle operation.

GUNNER AND COMMANDER
1. Must wear DH-132 at all times.
2. Must wear DH-132 plus earplugs for all operations exceeding 14 miles (23 km) in 24 hours.
3. Hatches may be open at all times.

REMAINING SQUAD AND RIDERS
1. Must wear DH-132 or H-251 headset at all times.
2. Soldiers with DH-132 or H-251 headset must also wear earplugs for all operations exceeding 14 miles (23 km) in 24 hours.
3. Must close cargo hatch if over 10 rounds of 25mm are fired to sides of vehicle and personnel have only DH-132 or H-251 headset (4700-5400 mils and 800-2100 mils).
4. Must close cargo hatch immediately if 25mm gun is fired over rear of vehicle, even with double hearing protection (2100-4700 mils).
5. Hatch may be open for all other firing and vehicle operation.

USE OF RADIO WITH EARPLUGS
Wearing earplugs in addition to your DH-132 helmet or headset can actually improve your ability to hear the radio in a high level noise area. DO NOT remove the earplugs to use the radio.
WARNING

If you enter turret when turret power is on, you could be killed or injured. Do not enter turret while turret power is on.

If turret is operated when turret shield door is open, soldiers could be killed or injured. Close and latch turret shield door before you operate turret.

WARNING

Soldiers near moving turret or guns could be killed or injured. Equipment could be damaged. Clear soldiers and equipment from top of vehicle before you move turret or guns.

WARNING

Gases from weapons could poison you. Make sure vent fans are on when weapons are fired.
WARNING

Looking at sun through integrated sight unit (ISU) could cause blindness. Do not look at sun through ISU.

WARNING

Accidental firing of 25mm gun could kill or injure soldiers. Make sure manual SAFE handle is in SAFE.

Accidental firing of weapons during boresighting could kill or injure soldiers. Clear weapons of ammo or missiles before boresighting.

WARNING

A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.
WARNING

You could be injured by moving 25mm gun if 25mm gun guard is not in place during operation. Keep 25mm gun guard in place during operation of 25mm gun.

WARNING

An open bolt explosion could kill or injure soldiers. Misfire could be hang fire. If gun mistires, do not immediately press MISFIRE button on weapon control box. Instead, release trigger and wait 5 seconds before proceeding.

25mm gun cookoff could kill or injure soldiers. If gun is hot, do not try to inspect feeder, remove round, or recycle gun. All soldiers must leave vehicle for 30 minutes before you start corrective action. Driver must not exit through driver’s hatch.

Cookoff of live round could kill or injure soldiers. If machine gun is hot, do not inspect tray, remove round, or recharge gun. Close machine gun access doors. Leave vehicle for 30 minutes. Driver must not exit through driver’s hatch.
WARNING

Accidental firing of coax machine gun could kill or injure soldiers. Clear coax machine gun of ammo before you remove coax machine gun from vehicle.

Accidental firing of coax machine gun could kill or injure soldiers. Make sure manual safety is in safe position with "S" showing.

WARNING

Soldiers on top of vehicle in path of moving TOW launcher could be killed or injured. Check top of vehicle. Make sure no soldiers or equipment are in path of moving TOW launcher.
WARNING

Accidental firing of TOW missile could kill or injure soldiers. Make sure ARM-SAFE-RESET switch is in SAFE.

TOW backblast could kill or injure soldiers. All vehicle personnel must be inside of vehicle when TOW missile is fired. Close all hatches and ramp. Keep everyone at least 246 feet (75 meters) from TOW blast area.

Misfired TOW missiles could kill or injure soldiers. Wait 30 minutes after last firing attempt before you unload missile. Follow all orders carefully.

WARNING

Reaching into rotor when turret power is on can result in injury to soldiers. Turn off turret power before reaching into rotor.
WARNING

Electrical trouble could cause smoke grenades to fire and kill or injure soldiers. Before you load smoke grenades, make sure TURRET POWER and GRENADE LAUNCHER switches are OFF. Do not place any part of your body in front of smoke grenade launchers.

If mishandled, misfired smoke grenades could kill or injure soldiers. Very carefully, hand smoke grenades to helper standing outside of vehicle.

If misfired smoke grenades fire during unloading, soldiers in the area could be killed or injured. Keep turret pointed downrange until smoke grenades are removed.

WARNING

Heat could set off smoke grenades and kill or injure soldiers. Do not place smoke grenades on hot surfaces.

For artificial respiration and first aid, see FM 21-11.
REPORTING ERRORS AND RECOMMENDING IMPROVEMENT

You can help improve this manual. If you find any mistakes, or if you know a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, directly to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS Rock Island, IL 61299. A reply will be sent to you.

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[ALPHABETICAL INDEX] .................. Index 1

DA FORM 2028-2

METRIC CONVERSION CHART
HOW TO USE THIS MANUAL

This manual tells you how to use the Infantry Fighting Vehicle (IFV) and the Cavalry Fighting Vehicle (CFV) turret. The hull operation is covered in TM 9-2350-252-10-1.

Before starting a task or applying power to the turret, read HOW TO USE THIS MANUAL and CHAPTER 2, Section I. DESCRIPTION AND USE OF OPERATOR’S CONTROLS AND INDICATORS.

WHAT’S IN THE MANUAL — FRONT TO BACK

SUMMARY OF WARNINGS AND FIRST AID lists the warnings and first aid information in this manual. The warnings cover hazards that could kill or injure personnel. Shorter versions of these warnings may appear in the task procedures.

TABLE OF CONTENTS tells you where each chapter, section, and appendix starts. Information you need most often is listed on the front cover.

CHAPTER 1 covers general information. It also gives a brief description of major parts and features of the vehicles.

CHAPTER 2 covers descriptions and functions of all controls and indicators. It also includes preventive maintenance checks and services (PMCS) and operation procedures.

CHAPTER 3 covers troubleshooting and maintenance procedures authorized for crew performance.

CHAPTER 4 covers maintenance of auxiliary equipment on the vehicles.

CHAPTER 5 covers information about ammo.

APPENDIX A lists references to be used by personnel in operating and maintaining the turret. These references include technical manuals and other publications.

APPENDIX B lists components of end item and basic issue items. Components of end item are those items which are assembled and become a permanent part of the vehicle. Basic issue items are items needed to put the vehicle in operation, operate it, and do emergency repairs.
HOW TO USE THIS MANUAL (cont)

APPENDIX C lists additional items required to support the turret during operation.

APPENDIX D lists expendable supplies and materials.

APPENDIX E shows you where to stow equipment in the turret.

ALPHABETICAL INDEX lists the page number where major controls, procedures, indicators, systems, and subsystems are found in this manual.

DA FORM 2028-2 is used to report errors and to recommend improvements for procedures in this manual. Three blank DA Forms 2028-2 are in the back of this manual. A sample is provided to show you how to fill out the DA Form 2028-2.

Metric conversion chart converts US customary measurements to their metric equivalents. Measurements in this manual are given in both US customary and metric units.
Which type of procedure do you use?

There are four different types of procedures or tasks in this manual. They are: operation tasks, maintenance tasks, Preventive Maintenance Checks and Services (PMCS) tasks, and troubleshooting tasks. Decide which of the four types of tasks you need to use.

How do you find the correct task or procedure?

Pick a key word from the turret part or system to be used during the task. Look in the ALPHABETICAL INDEX for this key word or the name of the action you will perform. Turn to the page indicated.

The ALPHABETICAL INDEX lists each task under one or more headings. The task, SHUT DOWN TURRET could be found:

Under “S”
Shut down turret .............................................. 2-423

Under “T”
Turret:
Shut down ....................................................... 2-423

How do you read the tasks?

Pay attention to all warnings, cautions, and notes. These can appear in all four types of tasks. These help you avoid harm to yourself, other personnel, and equipment. They also tell you things you should know about the task. Before you start, get all the tools, supplies, and personnel you need to do the task.

Start with step 1 and do each step in the order given. Numbered (or primary) steps tell you WHAT to do. Substeps tell you HOW to do it.

Look at the illustrations. These show you where the equipment and parts are located on the vehicle. Illustrations in this manual show you closeups of equipment, special tools, parts, and other helpful information.
HOW TO USE THIS MANUAL (cont)

The following examples show you what to look for when reading a task.

Operation Tasks and Maintenance Tasks

Operation tasks tell you how to operate the turret and its parts. Each operation task details steps which need to be performed to complete the task.

Maintenance tasks help the crew keep the turret in operating condition. Crew members are authorized to remove, clean, inspect, lubricate, and install certain parts in the turret.

Both operation tasks and maintenance tasks use the same format. Look at the sample given below.

Sample of Setup Items

The sample below shows the DESCRIPTION and INITIAL SETUP sections on the first page of a task. Items to watch for are listed in the legend. Match them with the sample.

1. BORESIGHT WEAPONS SYSTEM

   DESCRIPTION

   The task covers Bore sight 25mm Gun (page 2.184) Bore sight Coax Machine Gun (page 2.184) Bore sight Night Sight Day 5pm using Convenient Target Method (page 2) 196 Bore sight Night Sight Day Sight using Budy Bore sight Method (page 2.202) Bore sight TOV Launcher (page 2.219)

   INITIAL SETUP

   Tests

      25mm bore sight adaptor
      item 11 App B
      Item 12 App B
      Firing screwdriver 1/8 inch
      Item 5 App B
      Socket wrench extension 1/2
      inch Item 25 App B
      Socket wrench plain handle
      1/2 inch 50 items Item 56 App B
      Socket wrench socket 1/2 inch
      80 or 90 or 12 or opening
      Item 66 App B
      Firing screwdriver 3/8 inch
      wide blade Item 64 App B

   Materials/Parts

      Wiping rag item 10 App D

   Personnel Required

      Gunner
      Heeler

   Reference

      TM 9 2355 252 10 1

   Equipment Conditions

      Engine stopped
      (TM 9 2355 252 10 1)
      25mm gun unloaded (page 2.303)
      Coax machine gun unloaded
      (page 2.355)
      TOV missile launcher unloaded
      (page 2.455)
      Gunner’s hatch cover open
      (page 2.455)
      Turret traverse lock engaged
      (page 2.541)
      MASTER POWER switch ON
      (TM 9 2355 252 10 1)
Legend to Sample Above

1) **TITLE**
   This is the name of the task.

2) **DESCRIPTION**
   This describes the overall actions you will perform. It also gives you the page where each action begins.

3) **TOOLS**
   These are the tools and equipment you will need to do the task.

4) **MATERIALS/PARTS**
   These are the supplies and parts you will need to do the task. These can be obtained from organizational maintenance.

5) **PERSONNEL REQUIRED**
   These are the personnel needed to do the task.

6) **REFERENCES**
   These are the other technical publications you will need to do the task.

7) **EQUIPMENT CONDITIONS**
   These are the conditions the equipment must be in before you start the task. You will be referred to the task or technical publication needed to meet each equipment condition. This reference will be given in parentheses after each equipment condition.

Some tasks will include all of the above items. Other tasks will include only some of the above items.

Read the INITIAL SETUP section carefully before you start any task. Get the tools and supplies listed and the personnel needed. Be sure the equipment is in the condition required.
HOW TO USE THIS MANUAL (cont)

Sample of Task Steps

The sample below shows you things to watch for when performing a task. Read all steps, substeps, warnings, cautions, and notes before starting the task. Items to watch for are listed in the legend. Match them with the sample.

Legend to Sample Above

1 WARNING This describes danger to yourself and other personnel.

2 CAUTION This describes possible damage to equipment.

3 NOTE This tells you about conditions that affect the step immediately following it.

4 STEP This tells you WHAT to do.
Some tasks will include all of the above items. Some will not.

Read all of the task before starting. Follow the steps in the order given. The words END OF TASK will tell you when you have finished the task.

Preventive Maintenance Checks and Services

Preventive Maintenance Checks and Services (PMCS) are made on a daily and weekly basis. Preventive maintenance must be performed to keep your turret operating.

There are four types of PMCS as follows:

The BEFORE (B) PMCS should be done just before you operate the turret.

The DURING (D) PMCS should be done when you operate the turret. Monitor the turret and its systems as you operate the turret. Perform DURING (D) PMCS on a system only when the system is required to complete your mission.

The AFTER (A) PMCS should be done after completing your mission.

The WEEKLY (W) PMCS should be done weekly.

If anything seems wrong with the turret or its systems and you cannot fix it yourself, notify organizational maintenance. Common things to watch for in every area inspected are loose bolts or damaged welds.
HOW TO USE THIS MANUAL (cont)

The sample below shows you what to look for when you read a PMCS procedure. For more information on PMCS, see page 2-39.

**Legend to Sample Above**

1. **TITLE**
   - This is the name of the turret system, part, or function being checked.

2. **STEP(S)**
   - This tells you what needs to be done before you do the check.

3. **CHECK**
   - This tells you what to check.

4. **ITEM NUMBER**
   - This tells you the sequence for doing the PMCS.

5. **NOT READY/AVAILABLE CONDITION**
   - This tells you what conditions will have to be corrected before you perform your mission.
Troubleshooting Tasks

Troubleshooting tasks help the crew solve common problems and malfunctions. The Troubleshooting Symptom Index on page 3-1 lists some malfunctions common to your turret. You will be guided to the Troubleshooting Table by the Troubleshooting Symptom Index.

Sample of Troubleshooting Task

The samples below show you things to watch for when performing a troubleshooting task. Items to watch for are listed in the legend. Match them with the samples.

Legend to Sample Above

1 SYSTEM This tells you which turret system the troubleshooting task is covering.

2 MALFUNCTION This tells you the turret malfunction.
HOW TO USE THIS MANUAL (cont)

TROUBLESHOOTING TABLE (cont)

<table>
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<th>TEST OR INSPECTION</th>
<th>CORRECTIVE ACTION</th>
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<td>COAX MACHINE GUN SYSTEM (cont)</td>
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1. Move manual safety to safe (S).
2. Open feed tray.
3. Step 1: Check that chamber is clear of ammo.
4. If chamber is not clear of ammo, remove ammo from chamber.
5. "Legend to Sample Above"
6. This tells you what test or inspection you should make to find the cause of the malfunction.
7. This tells you what to do to fix the malfunction.
8. This helps you locate equipment in the turret.
9. This shows you a closeup of the equipment.

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DEFINITION OF TASK TERMS

WARNINGS, CAUTIONS, AND NOTES

Pay attention to all warnings and cautions within the task. Ignoring a warning could cause death or injury to yourself or other personnel. Ignoring a caution could cause damage to equipment. Notes contain facts to make the task easier. Warnings, cautions, and notes always appear just above the step to which they apply.

**WARNINGs**: Call attention to things that could kill or injure personnel. Warnings are also listed at the front of the manual.

**CAUTIONs**: Call attention to actions or materials that could damage equipment.

**NOTEs**: Contain important facts to make the task easier.

**HELPER**

Helpers are needed in tasks that require more than one person. A helper may be needed to help lift heavy objects or act as an outside observer.

If a helper is needed to perform a task, the INITIAL SETUP will tell you.

Example: Personnel Required:

Driver
Helper (H)
HOW TO USE THIS MANUAL (cont)

If a helper assists with a step, the step will include: "Have helper assist."

Example: 3. PUSH UP TRIM VANE.
HAVE HELPER ASSIST.

If a helper performs the action alone, the step will start with "(H)".

Example: 2. (H) MOVE MASTER POWER SWITCH TO ON.

LOCATIONAL TERMS

The terms "front", "rear", "left", and "right" are used to indicate where items are located on the vehicle and turret. Think of these locations as if you were standing on the ramp facing the inside of the vehicle or sitting in the turret facing the 25mm gun.
CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

TURRET FOR INFANTRY FIGHTING VEHICLE (IFV), M2 / CAVALRY FIGHTING VEHICLE (CFV), M3

Left Front View
SCOPE

This manual tells you how to operate and maintain the turret in the IFV and the CFV. It contains information you need to know in order to operate and maintain the turret and weapons system. It tells you what to do and what not to do, and how to protect the safety of yourself and others. TM 9-2350-252-10-1 tells how to operate and maintain the automotive and hull part of the IFV and the CFV.

MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

HAND RECEIPT

Hand receipts for Components Of End Item (COEI), Basic Issue Items (BII); and Additional Authorization List (AAL) items are in TM 9-2350-252-10-HR. This manual is to aid in property accountability and is available through: US Army Adjutant General, Publications Center, 2800 Eastern Blvd., Baltimore, MD 21220.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your IFV or CFV needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on a Quality Deficiency Report (SF 368). Mail it to us: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAF-AA, Rock Island, IL 61299. We'll send you a reply.
The following manuals tell you how and when to destroy Army materiel to prevent enemy use:

- TM 750-244-2
- TM 750-244-5-1
- TM 750-244-6

**HEARING PROTECTION**

You must use ear plugs and other approved hearing protectors while you are aboard the IFV and CFV. The CVC helmet does not have enough hearing protection. Make sure you know how to use the ear plugs and hearing protectors that are issued to you. Keep them clean and ready to use.

**NOMENCLATURE CROSS REFERENCE LIST**

This listing includes nomenclature cross references used in this manual.

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<th>OFFICIAL NOMENCLATURE</th>
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<td>Dry cleaning solvent, PD-680</td>
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<tr>
<td>Coax ammo box cover</td>
<td>Coax ammo panel cover</td>
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<td>Coax machine gun</td>
<td>Machine gun, 7.62mm, M240C</td>
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<td>Fast turret switch</td>
<td>Slew, gradient, or rate switch</td>
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<td>25mm gun</td>
<td>Gun, automatic, 25mm, M242</td>
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<td>Track and bolt assembly</td>
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</tr>
<tr>
<td>Upper clutch</td>
<td></td>
</tr>
<tr>
<td>override knob</td>
<td></td>
</tr>
</tbody>
</table>

1-4
### LIST OF ABBREVIATIONS

The following alphabetical list gives definitions for uncommon abbreviations used in this manual.

<table>
<thead>
<tr>
<th>ABBREVIATION</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>Armor-Piercing</td>
</tr>
<tr>
<td>AZ</td>
<td>Azimuth</td>
</tr>
<tr>
<td>AZ Boresight</td>
<td>Azimuth Boresight</td>
</tr>
<tr>
<td>B/H</td>
<td>Black-on-Red Display</td>
</tr>
<tr>
<td>BRSIT</td>
<td>Boresight</td>
</tr>
<tr>
<td>BRT</td>
<td>Brightness</td>
</tr>
<tr>
<td>CGE</td>
<td>Command Guidance Electronics</td>
</tr>
<tr>
<td>CHG</td>
<td>Charge</td>
</tr>
<tr>
<td>CKT BKR</td>
<td>Circuit Breaker</td>
</tr>
<tr>
<td>CON</td>
<td>Contrast</td>
</tr>
<tr>
<td>CVC</td>
<td>Combat Vehicle Crewman</td>
</tr>
<tr>
<td>DN</td>
<td>Down</td>
</tr>
<tr>
<td>EL</td>
<td>Elevation</td>
</tr>
<tr>
<td>EL Boresight</td>
<td>Elevation Boresight</td>
</tr>
<tr>
<td>EOD</td>
<td>Explosive Ordnance Disposal</td>
</tr>
<tr>
<td>EP</td>
<td>Externally Powered</td>
</tr>
<tr>
<td>FDR</td>
<td>Feeder</td>
</tr>
<tr>
<td>INT</td>
<td>Intercom</td>
</tr>
<tr>
<td>INT ONLY</td>
<td>Intercom Only</td>
</tr>
<tr>
<td>ISU</td>
<td>Integrated Sight Unit</td>
</tr>
<tr>
<td>MALF</td>
<td>Malfunction</td>
</tr>
<tr>
<td>OVRD</td>
<td>Override</td>
</tr>
<tr>
<td>PLRT</td>
<td>Polarity</td>
</tr>
<tr>
<td>PWR SUP</td>
<td>Power Supply</td>
</tr>
<tr>
<td>RAD</td>
<td>Radio</td>
</tr>
<tr>
<td>RET BRT</td>
<td>Reticle Brightness</td>
</tr>
<tr>
<td>RFI</td>
<td>Radio Frequency Interference</td>
</tr>
<tr>
<td>SS</td>
<td>Single Shot</td>
</tr>
<tr>
<td>STAB</td>
<td>Stabilization</td>
</tr>
<tr>
<td>TOW</td>
<td>Tube Launched, Optically Tracked, Wire Guided</td>
</tr>
<tr>
<td>TRCKR</td>
<td>Tracker</td>
</tr>
<tr>
<td>W/H</td>
<td>Red-on-Black Display</td>
</tr>
</tbody>
</table>
Section II. EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT PURPOSE, CAPABILITIES, AND FEATURES

The purpose of the turret is to provide a two-man weapon station for the IFV and the CFV. These vehicles are able to defeat enemy armored vehicles because of the turret’s firepower and assault features. Its components can also be used against low-flying aircraft, gun emplacements, and other targets.

The turret can traverse in either direction at a high rate of speed. Either the commander or the gunner can select, arm, and fire the following weapons: a 25mm gun (the main gun), coax machine gun, or TOW launcher. In addition, two smoke grenade launchers are provided. Crew members are assigned individual weapons which are stowed in the squad area.

An integrated sight unit (ISU) is in front of the gunner. The ISU allows day and night viewing from inside the turret. A relay sight extends from the ISU to the commander’s station.
PURPOSE, CAPABILITIES, AND FEATURES:

25mm gun is a rotor installed, externally powered, automatic gun.

25mm gun can fire armor-piercing (AP) ammunition or high-explosive (HE) ammunition.

25mm gun can fire single shots, 100 ± 25 rounds per minute, or 200 ± 25 rounds per minute.

Weapon control box allows selection of ammunition and rate of fire.

25mm gun can be operated with electrical power or manually.

Vehicle interlocks prevent 25mm gun from firing electrically if:

- 25mm gun is below — 1° over rear deck
- 25mm gun is over cargo hatch cover, and cargo hatch cover is open past POP-UP position
- 25mm gun is over driver's hatch cover, and driver's hatch cover is open past POP-UP position

ISU allows day and night vision for aiming 25mm gun.
PURPOSE, CAPABILITIES, AND FEATURES:

Ammo feed system is powered by coax machine gun.

7.62mm, rotor installed, gas operated, air cooled, fully automatic machine gun.

Operated manually or with electrical power.

Vehicle interlocks prevent coax machine gun from firing electrically if:

- Coax machine gun is below −1° over rear deck
- Coax machine gun is over cargo hatch cover, and cargo hatch cover is open past POP-UP position
- Coax machine gun is over driver’s hatch cover, and driver’s hatch cover is open past POP-UP position

ISU allows day and night vision for aiming coax machine gun.
TOW LAUNCHER

PURPOSE, CAPABILITIES, AND FEATURES:

TOW missile is tube launched, optically tracked, and wire guided.

TOW launcher holds two TOW missiles. One TOW missile is fired at a time.

Select lever allows both power and manual TOW rotor operation.

Elevation handwheel allows manual elevation of TOW launcher.

TOW control box allows launcher to be moved electrically to firing or stowed position, missile tube selection, and TOW guidance system testing.

Indicator lights tell when TOW test fails, which system fails, and condition of TOW.

TOW will not fire if:

- TOW is below - 13° over rear deck
- Driver's hatch cover or cargo hatch cover are in POP-UP or OPEN position.
- Vehicle is moving more than 3 miles per hour
- ISU is not in higher power

ISU allows day and night vision for aiming TOW.
INTEGRATED SIGHT UNIT

PURPOSE, CAPABILITIES, AND FEATURES:

Night sight unit uses super-cooled circuits. It must be on for 10 minutes before it is used.

Day/night viewer moves with weapons when soldier is sighting and aiming.

ISU unity window allows location of target in daylight (for tracking with ISU).

Gunner's and commander's eyepieces magnify target. They enable both the gunner and the commander to see the same thing at the same time.

Select switches allow controlled day and night viewing. Select switches also allow aiming with the use of reticle displays.

Reticule displays tell which weapon, range, and ammo have been selected.

Boresight controls and kits help you boresight guns and TOW launcher.
PURPOSE, CAPABILITIES, AND FEATURES:

Turret can be moved 360° to the right or left.

Travel lock allows turret to be locked when not in use.

Select levers permit either manual or power operation of turret.

Handwheels enable manual operation of the turret by the gunner.

Gunner's control handles enable electric power operation of the turret by the gunner.

Drive system power enables the commander to override gunner’s control of turret.

1-12
PERISCOPE AND SUPPORT SIGHTS

PURPOSE, CAPABILITIES, AND FEATURES:

Eight periscopes for daylight viewing in all directions by commander.

Two periscopes for daylight viewing to right and left of main sight by gunner.

Blackout covers for periscopes. Closed blackout covers prevent the interior light from being seen from outside.

Front ring sight is used when aiming and firing at low-flying aircraft. It is also used as an emergency sight for ground targets.

Vane sight is used by commander in order to quickly align turret with target.
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

- Ring Sight
- Coax Machine Gun
- Smoke Grenade Launcher
- Vane Sight
- ISU
- 25mm Gun
- TOW Launcher
- Radio Antennas

Turret Exterior

- Annunciator Lights
- Gunner's Controls
- Commander's Controls

Turret Interior
The following items describe the turret components seen above:

**RADIO ANTENNAS.** Two antenna mounts are on the turret. One is to the right of the commander's hatch cover. The other is at the rear, on the center line of the turret.

**PERISCOPIES.** Seven wide-vision M17 periscopes and one M27 periscope allow 360° vision at the commander's station. These periscopes have blackout covers. The gunner has two periscopes with blackout covers.

**RING SIGHT.** The ring sight is mounted on the outside of the turret. It is used to track flying targets and also as backup for the ISU. The eyepiece alines the ring sight on the target. A thumbscrew adjusts the eyepiece. The ring sight tracks with the 25mm gun.

**VANE SIGHT.** The commander uses the vane sight in order to quickly aline the turret with the target.

**INTEGRATED SIGHT UNIT (ISU).** The ISU has both day and night vision sight relay for the commander and gunner.

**BACKUP SIGHT.** The backup sight is a mechanical sight used in the event of an ISU failure. It allows aimed daylight firing of 25mm gun in AP or HE mode.

**COAX MACHINE GUN.** The coax machine gun uses 7.62mm ammo. It is lightweight, gas operated, and air cooled. It is fed by a metallic link belt.

**SMOKE GRENADE LAUNCHER.** Two electrically fired smoke grenade launchers are located on the turret, one on the right front and one on the left front. Each launcher fires four smoke grenades.

**25MM GUN.** The 25mm gun is an electrically powered, chain driven weapon. It is controlled for single shot and low and high automatic rates of fire. It is fed by a metallic link belt.

**GUNNER'S CONTROLS.** Gunner's controls include control handles, levers, and handwheels. They are for either manual or power operation of the turret and weapons. Control boxes, indicator lights, slope indicators, elevation indicators, azimuth indicator, and a floor switch are used.

**COMMANDER'S CONTROLS.** The commander's controls consist of a weapon and turret override control handle, a relay sight eyepiece, and periscopes. Also included are slope indicators, elevation indicators, azimuth indicators, intercom system, turret and weapon control boxes.
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (cont)

ANNUNCIATOR LIGHT SYSTEM. The annunciator light system is a built-in warning light system for the turret. Annunciator lights are located on the turret control box, TOW control box, and annunciator box. The lights indicate something is wrong in the turret.

TOW LAUNCHER. The TOW launcher is located on the left side of the turret. The launcher tube carries two TOW missiles.

TURRET ELECTRICAL SYSTEM. The turret is powered by four 12 volt wet cell batteries located in the hull. Power from the batteries is supplied to the turret through a slip ring. Two 12 volt wet cell batteries provide emergency power to the turret. The two emergency batteries are located in the turret under the left floor plate.

DIFFERENCE BETWEEN MODELS

<table>
<thead>
<tr>
<th></th>
<th>IFV</th>
<th>CFV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>3 crew members</td>
<td>3 crew members</td>
</tr>
<tr>
<td></td>
<td>6 squad members</td>
<td>2 squad members</td>
</tr>
<tr>
<td>Firing Ports</td>
<td>6</td>
<td>None</td>
</tr>
<tr>
<td>Missiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOW</td>
<td>2 ready</td>
<td>2 ready</td>
</tr>
<tr>
<td></td>
<td>10 stowed</td>
<td>10 stowed</td>
</tr>
<tr>
<td>TOW DRAGON</td>
<td>5 stowed, any combination</td>
<td>No DRAGON</td>
</tr>
<tr>
<td>LAW</td>
<td>3 stowed</td>
<td>3 stowed</td>
</tr>
<tr>
<td>Ammunition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25mm</td>
<td>300 ready</td>
<td>300 ready</td>
</tr>
<tr>
<td></td>
<td>600 stowed</td>
<td>1200 stowed</td>
</tr>
<tr>
<td>7.62mm (M240C)</td>
<td>800 ready</td>
<td>800 ready</td>
</tr>
<tr>
<td></td>
<td>1540 stowed</td>
<td>3600 stowed</td>
</tr>
<tr>
<td>7.62mm (M60)</td>
<td>2200 stowed</td>
<td>5060 stowed</td>
</tr>
<tr>
<td>5.56mm (M231)</td>
<td>4200 stowed</td>
<td>None</td>
</tr>
<tr>
<td>5.56mm (M16A1)</td>
<td>2520 stowed</td>
<td>1460 stowed</td>
</tr>
</tbody>
</table>
EQUIPMENT DATA

TURRET (TWO-MAN)

Armament ........................................... 25mm gun
TOW missile launcher
Coax machine gun

Traverse ............................................. 360° continuous

Elevation
25mm gun and coax machine gun .................. +59° to -9°
TOW missile launcher .............................. +29° to -19°

Slew rate, maximum elevation and traverse ...... 60°/sec
Slew rate, TOW ..................................... 15°/sec

Tracking rate, minimum ............................ 0.05 mil/sec

Stabilization system ............................... Electric

Ring gear, pitch diameter ................................ 60 in (152.4 cm)

COMMUNICATIONS (COMMANDER'S VEHICLE)

Radio, IFV (standard) .............................. AN/VRC-46, 1 set
AN/GRC-160, 1 set

Radio, CFV (standard) .............................. AN/VRC-12, 1 set
AN/PRC-77, 1 set

Other configurations exist

NIGHT VISION EQUIPMENT

Sight, gunner ........................................ Thermal imagery
Sight, commander ................................. Optical relay from gunner's sight

BACKUP SIGHT

Depth ................................................. 11.62 in (29.5 cm)
Width ............................................... 5.25 in (13.3 cm)
Height ............................................. 16.75 in (42.5 cm)
Weight ............................................. 49.5 lb (22.5 kg)

Line of sight, elevation ........................... -10° to +60°

True field of magnification ...................... 10°

Magnification ...................................... 5X

Focus ............................................... -4° diopters to +4° diopters

25MM GUN

Caliber ............................................. .25mm dual feed

Weight
Receiver Assembly .................................. 95 lb (43.1 kg)
Barrel Assembly ................................... 90 lb (40.9 kg)
**EQUIPMENT DATA (cont)**

25MM GUN

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeder Assembly</td>
<td>58 lb (26.3 kg)</td>
</tr>
<tr>
<td>Total Gun System</td>
<td>243 lb (110.3 kg)</td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length Overall</td>
<td>107.5 in (2730 mm)</td>
</tr>
<tr>
<td>Width</td>
<td>13.0 in (330 mm)</td>
</tr>
<tr>
<td>Height</td>
<td>15.0 in (380 mm)</td>
</tr>
<tr>
<td>Length Behind Front of Feed</td>
<td>22.2 in (563 mm)</td>
</tr>
<tr>
<td>Barrel Length</td>
<td>80 in (2032 mm)</td>
</tr>
</tbody>
</table>

Rate of Fire

- Single Shot: 200 rdspm
- Change barrel every minute: 100 rdspm (4-5 sec burst)
- Change barrel every 10 minutes: 200 rdspm (2-3 sec burst)
- Change barrel every 2 minutes

Peak Recoil Force

- Absolute Hangfire Protection
- Forward: 9000 lb/40,032 Newtons

COAX MACHINE GUN

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caliber</td>
<td>7.62mm</td>
</tr>
<tr>
<td>Weight</td>
<td>22.2 lb (10.3 kg)</td>
</tr>
<tr>
<td>Weapon Complete</td>
<td>5.92 lb (2.7 kg)</td>
</tr>
</tbody>
</table>

Length

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weapon</td>
<td>41.161 in (1045.5 mm)</td>
</tr>
<tr>
<td>Barrel Assembly</td>
<td>24.742 in (628.45 mm)</td>
</tr>
</tbody>
</table>

Rate of Fire

- Cyclic: 650-950 rdspm
- Sustained: 100 rdspm (4-5 sec burst)
- Rapid: 200 rdspm (2-3 sec burst)

Range

- Maximum: 3725 meters
- Maximum effective: 900 meters (tracer burnout)
- Maximum grazing: 600 meters
**SMOKE GRENADE LAUNCHER**

**Discharger**
- Weight: 11.2 lb (5.1 kg)
- Width: 11.5 in (292 mm)
- Height: 9.5 in (241 mm)
- Depth: 6.31 in (160 mm)
- Tubes: (4 each)
  - Length: 7.13 in (181 mm)
  - Inner diameter: 2.62 in (67 mm)

**Discharger Cap (1 per discharger tube)**
- Weight: 0.1 lb (0.05 kg)
- Outer diameter: 3.37 in (86 mm)
- Depth: 2.75 in (70 mm)

**TOW MISSILE SYSTEM**

**Integrated Sight Unit**
- Weight: 190 lb (86.4 kg)
- Length: 8.3 in (21.1 cm)
- Height: 26.2 in (66.6 cm)
- Width: 41.3 in (105.9 cm)

**Command Guidance Electronics**
- Weight: 27 lb (12.2 kg)
- Length: 12.9 in (32.6 cm)
- Height: 10.3 in (26.0 cm)
- Width: 8.6 in (21.7 cm)

**Launcher Assembly**
- Weight: 130 lb (58 kg)
- Length: 47.5 in (120.7 cm)
- Height: 13.7 in (34.8 cm)
- Width: 20.3 in (51.5 cm)

**Power Control Unit**
- Weight: 18 lb (8.2 kg)
- Length: 13.5 in (34.2 cm)
- Height: 5.0 in (12.7 cm)
- Width: 7.0 in (17.7 cm)
EQUIPMENT DATA (cont)

RADIO SET AN/VRC-46

Weight .................................................. 56 1/4 lb (25.5 kg)
Height .................................................... 6 3/4 in (17.2 cm)
Depth ..................................................... 13 3/8 in (34.3 cm)
Width ..................................................... 15 3/8 in (39.4 cm)
Frequency range ....................................... From 30.00 to 75.95 MHz
..................................................... 0.05-MHz intervals

Number of frequency settings .......................................................... 920
Tuning facility ........................................ Manual tuning
Operating conditions .................................... Push-to-talk and release-to-receive
Modes of operation .................................. Voice (radiotelephone), retransmission (radio relay), and X-mode

Audio input and output .................................. Five-pin panel receptacles:
control facilities .................................. rear mounted receptacle for remote control by radio-intercom
and C-2299/VRC; A-mode operation facility

Operating power ......................................... 22 to 30 volts dc
Used in ................................................ Vehicles provided with 24 volt battery system
Transmission distance .................................. Approximately 5 miles (8 km)
(using whip antenna) .................................. on lower power
Squelch tone signal ...................................... Transmitted on all settings of SQUELCH switch except OLD ON position

Duty cycle ............................................. Capable of operating continuously on high power in 120° ambient temperature with input power of 22 volts dc; and for 1 hour with input power of 30 volts dc

Squelch types:
Carrier (operative in OLD SQUELCH) .............. Responsive to carrier noise
Tone (operative in NEW SQUELCH) ................. Responsive to squelch tone signal

Antennas:
Frequency range .................................... 30.00 to 76.00 MHz
Antenna type ........................................ Whip antenna
Frequency matching networks ....................... 10 sets which are automatically selected by tuning controls of receiver-transmitter
RADIO SET AN/PRC-77

Weight .................................................. 13 lb (5.9 kg)
Height .................................................. 4 in (10.2 cm)
Width .................................................. 11 in (27.6 cm)
Depth .................................................. 11 in (27.6 cm)
Frequency range:
   Low band ........................................... 30.00 to 52.95 mc
   High band .......................................... 53.00 to 75.95 mc
Number channels .................................... 920
Types of transmission and reception:
   Transmission ....................................... Voice
   Reception .......................................... Voice
Distance range ...................................... 5 miles (8 kilometers)
   (varies with conditions)
Types of antennas:
   Long antenna ...................................... Antenna AT-271A/PRC;
   .................................................... 10 feet long, multisection whip

RADIO SET AN/GRC-160

Frequency range:
   Low band ........................................... 30.00 to 52.95 mc
   High band .......................................... 53.00 to 75.95 mc
Number of channels ................................ 920
Type of squelch ...................................... Tone operated by 150-cps tone
Audio transmission and reception
   Capability:
      Method ............................................. Push-to-talk and release-to-receive
      Transmission .................................... Voice
      Reception ........................................ Voice
Antenna ................................................. Antenna AS-1729/VRC
Amplifier-Power Supply Groups
   OA-3633/GRC and OA-3633A/GRC:
      Weight ........................................... 21 lb (45.5 kg)
      Length .......................................... 6 1/4 in (15.9 cm)
      Depth ........................................... 12 in (30.5 cm)
      Height .......................................... 12 in (30.5 cm)
      Input voltage ................................... 22 to 28 volts dc
      Output voltage ................................ 13 volts dc (regulated);
                                           3 volts dc (regulated);
                                           2.6 volts dc (unregulated)
      Frequency response of loudspeaker ............ 300 to 3,000 cps

1-21 (1-22 blank)
Section III. TECHNICAL PRINCIPLES OF OPERATION

TURRET

Hatches

Two torsion bar-assisted hatch covers serve the commander and gunner. Both hatch covers can be latched in OPEN or CLOSED positions. The commander's hatch cover can also be latched in POP-UP position. From this position, the commander can see 360°. Both hatch covers have inside locks which prevent entry from the outside.

The commander's hatch cover has an emergency cable release in the squad area. In the event that the commander and gunner are injured, the hatch cover can be popped by pulling the cable release. This permits entry to the turret from the outside when both hatch covers are locked inside.

Turret Drive System

The turret drive system consists of azimuth, gun elevation, and TOW elevation drives. It also has the TOW launcher mechanism, electronic control assembly, gunner's and commander's handstations, gun gyro, and hull/turret gyro.

An electric motor drives a gearbox which connects with the azimuth drive, TOW and rotor elevation, or TOW launcher lift mechanism. Three gyro assemblies signal vehicle rate of movement to the electronic control assembly. Turret drives can be activated from handstations. To prevent accidental control action, palm switches on the hand controls must be pressed while the handstation is moved. All drives can be manually operated by the rotation of handwheels at the gunner's station.

Turret Travel Lock

A turret travel lock is located above the turret entrance. The travel lock's linkage and gear mechanism can lock the turret in a stationary position. It can also prevent turret rotation when the azimuth drive is in action.
TECHNICAL PRINCIPLES OF OPERATION (cont)

Turret Shield

A metal shield surrounds the turret basket. The shield keeps the turret basket swing area free of obstructions. It also gives the crew members safe access from the rear of the vehicle to the driver’s station. In addition, it also holds stowage items. The shield has a sliding door facing rear. Personnel can open the door from inside or outside the turret. The door should be closed when the turret is moving under power.

Coax Machine Gun Access Doors

Coax machine gun access doors give access to the coax machine gun when it is mounted in the turret. Foam rubber seals on the door prevent toxic fumes from entering the turret. The doors also give protection from ballistic fragments.

25mm Gun Guard

A metal guard to the rear of the 25mm gun prevents the weapon from hitting crew members during stabilized turret operation. However, in case of gun failure, the metal guard does not offer protection from toxic fumes nor from a blast and fragmentation.

TOW Missile System

The TOW missile system is tube launched, optically tracked, and wire guided. The four major components of the TOW are the Integrated Sight Unit (ISU), the Command Guidance Electronics (CGE), the Power Control Unit (PCU), and the TOW Launcher. In addition, there are controls, displays, and logic and power interfaces. Modular parts contribute to the maintenance of the ISU.

The ISU has a day vision telescopic sight and a night vision sight which gives a television type picture of the scene that is viewed. Through the TOW tracker, the CGE continuously corrects the missile flight’s trajectory by sending pitch and yaw signals. These signals indicate the line of sight to the target.

The CGE gives signals to the TOW missile. These guidance interfaces and commands activate the missile before it is launched and guide the missile during flight.
All of these events occur when the gunner presses the trigger to fire the missile. A timer controls events during before launch and after launch periods.

The PCU connects and supplies various kinds of direct current and alternating current voltages. These voltages are supplied to the ISU, CGE, and other fire control components. The PCU circuitry includes overvoltage, undervoltage, and overcurrent protection as well as built-in tests for the various types of power.

The TOW missile launcher holds two TOW missiles. It is located on the left side of the turret. The launcher can be placed in either retracted position to stow the launcher or an erected position before the missile is fired. In the retracted position, the launcher is tilted so that missiles can be loaded from the cargo hatch opening. Armor gives protection from small arms damage to the TOW launcher and the missiles.

25mm Gun

The 25mm gun can be installed or removed in three parts: barrel, feeder, and receiver. It has both electrical and manual fire control. The 25mm gun is externally powered.

The 25mm gun has dual feed capability. The 25mm ammo cans have 70 rounds of AP and 230 rounds of HE ammo. It can also fire single shot 100 + 25, or 200 + 25 rounds per minute.

When the trigger signal is received, an electric motor drives the track and bolt assembly and the feeder. The feeder places a live round in front of the bolt, and the bolt moves forward and locks. The round is fired, the bolt unlocks, and the spent case is extracted by the rearward motion of the bolt. The rotor turns to place the spent round into the ejection chute while a new round is placed in front of the bolt. On the next forward motion of the bolt, the spent round is ejected by a finger on the bolt carrier.

To prevent the firing of a round in the open bolt position, a hangfire protection system has been provided. If the round in the breech does not immediately, the bolt will stop in the misfire position, just before locking.
TECHNICAL PRINCIPLES OF OPERATION (cont)

25mm Gun Feed System

Linked belt ammo is stored below the 25mm gun in an ammunition box that has two sections. The first section stores 70 rounds of armor-piercing (AP) ammo. The second section stores 230 rounds of high explosive (HE) ammo. Each ammo belt feeds through its own forwarder and chute. The forwarders are manually operated. They are used only during the loading of ammo. The ammunition box has two sensors that tell when the 25mm gun is low on ammunition. These sensors cause the LO AMMO indicator light to go on and automatically stop the firing of the 25mm gun. This leaves the end of the ammunition belt in a position that is easy to reload. The new ammunition can be easily attached to the old belt. In an emergency, the gunner can override the automatic shutoff by pressing the LO AMMO OVRD button on the weapon control box.

Coax Machine Gun

The coax machine gun is gas operated and belt fed. It feeds from open bolt position. The barrel is air cooled. The rate of fire is controlled by three gas regulator settings. Regardless of bolt position, the feeder cover can be opened or closed without damage to feeder cover or ammo.

A trigger sear releases the operating rod and bolt assembly. The bolt strips a round from the belt in the feed tray and stops when the round is fully chambered. The operating rod forces locking lugs into the receiver. Then the firing pin strikes the primer. Burning gases go from the barrel through the gas port to the gas piston at the front end of the operating rod. Gas pressure forces the operating rod back which retracts the firing pin, raises the locking levers, and removes the spent case. As the bolt moves to the rear, the spent case is ejected, and the live round moves into the feed tray. The bolt continues to the rear until it strikes the buffer assembly. The cycle is repeated as long as the trigger is held.
Coax Machine Gun Feed System

Eight hundred rounds of ammo are stored in the ammo can which is behind the coax machine gun located on the right side of the turret. The ammo is in a belt held together by links. The belt feeds through the forwarder, feed chute, feed tray, and then to the coax machine gun. The projectile is fired through the barrel. The links and expended casings eject into a plenum chamber around the weapon. A sensor detects when the last rounds are about to be fired and stops firing. This leaves the end of the belt in a position for easy reloading. The reloader can link a new belt to the old belt. In emergencies, the gunner may continue firing by overriding the automatic shutoff.

Coax Machine Gun Mounting

The coax machine gun is rigidly mounted into the front cradle assembly by two lug mounts on the receiver. The rear of the coax machine gun is secured to the rear mount on the 7.62mm rotor.

Turret Ventilation System

When one of the weapons is electrically operated, toxic gases from the coax machine gun and 25mm gun are vented automatically. When guns are manually fired, fans on the right side of the rotor can also be manually operated.

Smoke Grenade Launcher

Two electrically fired smoke grenade launchers are located on the front sides of the turret: one on the right and one on the left. Each launcher carries four smoke grenades. A signal switch on the weapon control box launches all eight smoke grenades at the same time. When fired, the smoke grenades form a smoke curtain some distance from the vehicle.

Radios

Radio installation is the responsibility of the user. Two antenna mounts and MT-1029/VRC radio mount are provided with the vehicle. Both antenna mounts are on the turret, one to the right of the commander's hatch and the other on the center line of the turret at the rear.
CHAPTER 2
OPERATING INSTRUCTIONS
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

GUNNER'S HATCH CONTROLS

HATCH COVER HANDLE

Hand grip raises and lowers gunner's hatch cover.

HATCH COVER LATCH

Locks or releases gunner's hatch cover.

HINGE LATCH HANDLE

Locks gunner's hatch cover in FULL OPEN position.

QUICK RELEASE PIN

Locks and unlocks hinge latch handle.
HATCH COVER HANDLE
Hand grip raises and lowers commander's hatch cover.

HATCH COVER LATCH
Locks or releases commander's hatch cover.

HATCH PIN LEVER
Allows commander's hatch cover to be moved to LEVEL position.

HINGE LATCH HANDLE
Allows commander's hatch cover to be moved to POP-UP, UPRIGHT, or FULL OPEN position.

QUICK RELEASE PIN
Locks and unlocks hinge latch handle.
COAX MACHINE GUN

MANUAL SAFETY
Prevents coax machine gun from firing when in up position with "S" showing.

TRIGGER
Fires coax machine gun.

CHARGER HANDLE
Charges coax machine gun.

AZ KNOB
Manually adjusts coax machine gun left and right.

EL KNOB
Manually adjusts elevation of coax machine gun.
COMMANDER'S LIGHTS

UTILITY LIGHT OFF-DIM-BRIGHT SWITCH

Turns utility light on or off and allows for brightness control.

UTILITY LIGHT SIGNAL BUTTON

Allows utility light to be used for signaling.

UTILITY LIGHT FLOOD-SPOT TWIST RING

Focuses utility light to narrow or wide beam.

UTILITY LIGHT BLACKOUT-WHITE SWITCH

Allows utility light to be changed from blackout to white light for blackout or normal operating conditions.
SERVICE LIGHT KNOB

Turns service light on or off.

SERVICE LIGHT LENSES

Allow service light to be changed from red to white light for blackout or normal operating conditions.
LIGHT SELECTOR SWITCH

Selects blackout or white light.

BLACKOUT RELEASE BUTTON

Releases light selector switch from blackout position.
LIGHT SELECTOR SWITCH

Selects blackout or white light.

BLACKOUT RELEASE BUTTON

Releases light selector switch from blackout position.
HATCH INTERLOCK OVERRIDE

HATCH INTERLOCK OVERRIDE SWITCH

Allows turret operation in combat situation if cargo or driver's hatch switch fails.
TURRET TRAVEL LOCK

TRAVEL LOCK LEVER

Locks turret in position when engaged.
Unlocks turret when disengaged.
MONITOR SWITCH  Allows selection of intercom channels.

VOLUME KNOB  Controls intercom volume.

INTERCOM AMPLIFIER  Amplifies power of intercom.

RADIO-INTERCOM SWITCH  Selects radio or intercom.
GUNNER'S INTERCOM CONTROLS

MONITOR SWITCH

VOLUME KNOB

FLOOR SWITCH

MONITOR SWITCH

VOLUME KNOB

FLOOR SWITCH

Allows selection of intercom channels.

Controls intercom volume.

Allows gunner to speak over intercom.
**COMMANDER'S TURRET POSITION INDICATORS**

- **TURRET POSITION INDICATOR**
  Indicates turret position in relation to vehicle.

- **AZIMUTH INDICATOR AND POINTER**
  Indicate position of turret from 0 to 6400 mils in relation to vehicle.

- **SLOPE INDICATOR**
  Vehicle is level when bubble is centered in black circle. Vehicle is on 5 degree slope when bubble touches blue circle. Vehicle is on 10 degree slope when bubble touches red circle.
GUNNER'S TURRET POSITION INDICATORS

TURRET POSITION INDICATOR
Indicates turret position in relation to vehicle.

GUN ELEVATION INDICATOR AND POINTER
Indicate elevation of 25mm gun and coax machine gun in hundreds of mils. For example, a reading of "10" on gun elevation indicator is equal to 100 mils.

SLOPE INDICATOR
Vehicle is level when bubble is centered in black circle. Vehicle is on 5 degree slope when bubble touches blue circle. Vehicle is on 10 degree slope when bubble touches red circle.
SELECT LEVER CONTROLS

- **TURRET TRAVERSE DRIVE SELECT LEVER**
  - Selects POWER or MANUAL mode for traversing turret.

- **TOW ELEVATION DRIVE SELECT LEVER**
  - Selects POWER or MANUAL mode for elevation and depression of TOW missile launcher. In MANUAL mode, only TOW electrical operation will be disabled.

- **GUN ELEVATION DRIVE SELECT LEVER**
  - Selects POWER or MANUAL mode for elevation of 25mm gun and coax machine gun.
GUNNER'S HANDWHEEL CONTROLS

**TURRET TRAVERSE HANDWHEEL**
Manually traverse turret right or left.

**TRIGGER SWITCH**
Fires 25mm gun, coax machine gun, or TOW missile.

**GUN ELEVATION HANDWHEEL**
Manually elevates or depresses 25mm gun, coax machine gun, or TOW launcher.
ON position is for normal operation. Moves automatically to OFF position when power surge occurs. Must be manually moved to ON position for return to normal operation.

Turns turret power ON or OFF. Indicator light goes on when power is on.

Powers turret traverse and elevation of TOW launcher and 25mm gun system. Indicator light goes on when power is on.
STAB SWITCH AND INDICATOR LIGHT

Turns on stabilization drive for turret drive and elevation. Maintains turret on target while vehicle is turning or climbing. When indicator light goes on, turret and gun are ready to operate in stabilized mode.

FAN-LAMP TEST SWITCH

FAN position (up) manually turns on gun fans. At center position gun fans automatically turn on when gun fires. LAMP TEST position (down) turns on all indicator lights in turret for bulb check.

TOW ABORT SWITCH

Causes TOW missile wire to be cut so missile aborts.
OPEN HATCH
Annunciator light on indicates open driver’s or cargo hatch cover.

BACK UP PWR
Annunciator light on indicates firing control system is operating on emergency batteries and that turret drive system cannot operate electrically.

NO FIRE ZONE
Annunciator light on indicates weapon(s), if fired, is (are) in a position that could cause damage to vehicle.

MANUAL DRIVE
Annunciator light on indicates a select lever is in MANUAL mode.

DRIVE MALF
Annunciator light on indicates drive system is malfunctioning.
COMMANDER'S HANDSTATION

COMANDER'S CONTROL HANDLE

Controls turret elevation, traverse, 25mm gun, coax machine gun, and TOW missile systems. Overrides gunner's control handles when palm switch is squeezed if TOW missile is not in flight.

PALM SWITCH

Activates turret drive and releases turret drive brakes. Arms trigger switch.

FAST TURRET SWITCH

Increases speed of turret traverse and weapon elevation.

TRIGGER SWITCH

Fires 25mm gun, coax machine gun, or TOW missile when depressed.

DRIFT BUTTON

Reduces drift in turret stabilization system.
GUNNER’S HANDSTATION

GUNNER’S CONTROL HANDLES

Control traversing of turret and elevation of weapon system.

TRIGGER SWITCHES

Fire 25mm gun, coax machine gun, or TOW missiles.

FAST TURRET SWITCHES

Increase speed of turret traverse and weapon elevation.

PALM SWITCHES

Activate turret drive and release turret drive brakes.

DRIFT BUTTON

Reduces drift in turret stabilization system.
WEAPON CONTROL BOX

ARM-SAFE-RESET SWITCH AND INDICATOR LIGHT

SEAR INDICATOR LIGHT
Indicates 25mm gun bolt is in SEAR position. Blinking indicator light indicates 25mm gun bolt is in MISFIRE position.

ARM-SAFE-RESET SWITCH AND INDICATOR LIGHT
Selects ARM and SAFE positions for 25mm gun, coax machine gun, and TOW missiles. RESET position will clear all weapons selected. Indicator light goes on when weapon is armed.

MISFIRE BUTTON
Brings 25mm gun bolt back to SEAR position after trigger is depressed when 25mm gun misfires.

PNL LIGHT DIMMER KNOB
Adjusts panel lights on weapon control box from bright to DIM-OFF.
WEAPON CONTROL BOX (cont)

Selects 25mm AP single shot mode. Indicator light goes on when AP SS is selected.

Selects 25mm AP low rate of fire (about 100 rounds per minute). Indicator light goes on when AP LO is selected.

Selects 25mm AP high rate of fire (about 200 rounds per minute). Indicator light goes on when AP HI is selected.

Selects 25mm HE single shot mode. Indicator light goes on when HE SS is selected.

Selects 25mm HE low rate of fire (about 100 rounds per minute). Indicator light goes on when HE LO is selected.

Selects 25mm HE high rate of fire (about 200 rounds per minute). Indicator light goes on when HE HI is selected.
7.62 BUTTON AND INDICATOR LIGHT
Selects coax machine gun firing mode. Indicator light goes on when coax machine gun is selected.

LO AMMO OVRD BUTTON
Allows 25mm or coax machine gun to fire remaining ammo after LO AMMO indicator light flashes.

LO AMMO INDICATOR LIGHT
Starts flashing and 25mm or coax machine gun stops firing when end of belt passes sensors on ammo can. Stays on when LO AMMO OVRD button is pressed.

GRENADE LAUNCHER SWITCH AND INDICATOR LIGHT
Selects power ON or OFF to smoke grenade launcher. Indicator light goes on when smoke grenade launcher is armed.

TRIGGER BUTTON AND INDICATOR LIGHT
Fires all eight smoke grenades. Indicator light goes on when trigger button is pressed.
TOW CONTROL BOX

MISSILE TUBE 1 BUTTON AND INDICATOR LIGHT

TOW BUTTON AND INDICATOR LIGHT

MISSILE TUBE 2 BUTTON AND INDICATOR LIGHT

LAUNCHER UP-DN SWITCH AND INDICATOR LIGHT

TOW BUTTON AND INDICATOR LIGHT

MISSILE TUBE 1 AND 2 BUTTONS AND INDICATOR LIGHTS

TOW TEST BUTTON AND INDICATOR LIGHT

Raises or lowers TOW missile launcher when palm switches on commander's or gunner's control handle(s) are squeezed. Indicator light goes on when launcher is in raised position.

Selects TOW missile firing mode. Indicator light goes on when TOW mode is activated.

Select TOW missile launcher tube 1 or 2 for firing. Indicator light goes on when its tube is selected and flashes when selected tube is empty.

Indicator light goes on for 12 seconds when TOW TEST button is pressed. Indicator light goes off when test is done.
Annunciator light on indicates malfunction in TOW tracking system.

Annunciator light on indicates malfunction in Command Guidance Electronics system.

Annunciator light on indicates malfunction in power supply of TOW missile system.
ANNUNCIATOR BOX

TOW CKT OPEN
Annunciator light on indicates a malfunction in TOW electrical system.

OPEN HATCH
Annunciator light on indicates driver’s hatch or cargo hatch is open.

25 FDR MALF
Annunciator light on indicates a malfunction in 25mm gun feeder.

MANUAL DRIVE
Annunciator light on indicates turret drive unit select lever is in manual position.

AMMO SW REVERSE
Annunciator light on indicates AP and HE ammo switches are reversed.

NO FIRE ZONE
Annunciator light on indicates weapon(s), if fired, are in a position that could damage vehicle. Triggers do not work if annunciator light is on.

25 GUN MALF
Annunciator light on indicates misfire protection system is malfunctioning.

DRIVE MALF
Annunciator light on indicates drive system is malfunctioning.
FOCUS BARREL

Adjusts focus of reticle in commander's eyepiece.
ISU

Sight system that enables gunner and commander to locate and track targets during day or night operations.

MAG SWITCH

Selects HIGH or LOW magnification of scene for both day and night vision. LOW setting is 4X magnification. HIGH setting is 12X magnification.

RET BRT KNOB

Controls brightness of TOW and gun reticles in DAY and NIGHT mode.
RANGE CONTROL KNOB
Sets range of 25mm gun from 0 to 3000 meters.

SENSOR SELECT SWITCH
Filters light entering ISU. NIGHT setting allows target viewing at night using night vision system. There are two DAY settings: CLEAR and NEUTRAL. CLEAR setting allows target viewing under normal daylight conditions. NEUTRAL setting filters bright sunlight and protects eyes against damage from laser light.

FOCUS BARREL
Adjusts focus of reticle in gunner's eyepiece.
GUNNER’S ISU CONTROLS (cont)

- **FOCUS KNOB**: Adjusts the focus of the night vision scene.
- **BRT KNOB**: Adjusts the brightness of the night vision scene.
- **CON KNOB**: Adjusts the contrast of the night vision scene.
- **NIGHT VISION PLRT SWITCH**: WT setting produces red images on a black background. B/H setting produces black images on a red background.
- **NIGHT VISION PWR SWITCH**: ON position turns on night sight. BRSIT position turns on night sight boresight lamp and thermal resistor for buddy boresight procedure.

2-30
NIGHT BORESIGHT CONTROLS

GUN BORESIGHT CONTROLS

TOW BORESIGHT CONTROL

Knobs adjust azimuth and elevation of gun reticle.

Knobs adjust the gun reticle in azimuth and elevation when in GUN mode.

Adjusts the scene in elevation when in TOW mode.
GUNNER'S ISU CONTROLS (cont)

DAY SIGHT COVER HANDLE

Releases day sight cover door for day sight.

NIGHT SIGHT COVER HANDLE

Releases night sight cover door for night sight.

FAN DEFOGGER SWITCH

Defogs ISU day and night windows.

2-32
25MM GUN CONTROLS

SEAR RELEASE

Allows sear solenoid plunger to be depressed manually so 25mm gun can be manually cycled.

MANUAL SAFE HANDLE

Prevents 25mm gun from firing when handle is in SAFE position.

SEAR RETRACTOR LEVER

Allows sear solenoid plunger to be depressed and locked out manually so 25mm gun can be manually fired.
UPPER CLUTCH OVERRIDE KNOB

Provides upper feed shaft of 25mm gun with a manual release so shaft can be rotated backward during unloading.

LOWER CLUTCH OVERRIDE KNOB

Provides lower feed shaft of 25mm gun with a manual release so shaft can be rotated backward during unloading.

FEED SELECT SOLENOID KNOB

Provides manual selection of 25mm AP or HE ammo.

BOLT POSITION INDICATOR

Shows position of bolt.
AMMO CAN CONTROLS

HE-AP SELECTOR SWITCH

Signals to ISU which ammo is loaded in ammo chutes.
MAIN FUEL MANUAL SHUTOFF VALVE

Starts and stops fuel flow to engine. Main fuel manual shutoff valve is accessed when turret is traversed to 4100 mils.
DUST COVER

Protects TOW launcher tubes from dust and debris. Dust cover is removed for TOW firing.

TOW MANUAL LIFT RELEASE HANDLE

Lowers TOW launcher.
NOTE
Backup sight is in gunner's position.

LOCK LEVER
Holds eyepiece and flange assembly in gunner's or commander's position.

FLANGE JOINT
Permits rotation of eyepiece housing assembly from one position to another.

EYECUP
Provides cushion for operator's eye. Prevents injury to eye from vehicle motion. Can be deflated for use with gas mask.

EYEPIECE ASSEMBLY
Adjusts focus of backup sight. Range is from –4 to +4 diopters.

DIOPTER SCALE
Permits reading diopter setting for each operator.
Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

SCOPE

This section details preventive maintenance checks and services (PMCS) required for the turret (including "before firing" checks and services). Refer to TM 9-2350-252-10-1 for the PMCS required for the hull.

MAINTENANCE FORMS AND RECORDS

Every mission begins and ends with paperwork. There isn't much of it, but you have to keep it up. The forms and records you fill out have many uses. They are a permanent record of the services, repairs, and changes made to your vehicle. They are reports to organizational maintenance and to your commander. They are checklists that tell you what was wrong with the vehicle after its last use. They also tell you whether those faults have been repaired. For information on forms and records see TM 38-750.

PMCS PROCEDURES

1 Obey all WARNINGs and CAUTIONs when you do your PMCS.

2 Do your BEFORE (B) PMCS just before you operate the IFV/CFV.

3 Do your DURING (D) PMCS during turret operation. Monitor the turret and its component systems while you are actually operating your vehicle. Perform a (D) check of component system only when actual operation of that system is required for a mission.

4 Do your AFTER (A) PMCS right after operating the turret.

5 Do your WEEKLY (W) PMCS weekly.

6 If something does not work, troubleshoot it using the Troubleshooting Symptom Index on page 3-1 of this manual. Notify your supervisor.

7 Always do your PMCS in the same order so it gets to be a habit. With practice, you will spot anything that is wrong.
8 If you find anything wrong which will make your vehicle NOT READY/AVAILABLE, notify organizational maintenance right away. If you find something wrong, but you can still complete your mission, write it up. Use the DA Form 2404 (Equipment Inspection and Maintenance Worksheet). Use item numbers from the PMCS chart for the "TM Number" column on the form.

9 When you do your PMCS, take along the tools you will need to make all the checks. You will always need wiping rags.

10 Keep the turret clean. Dirt, grease, oil, and debris only get in the way, and may cover up a serious problem. Clean your turret as you work and as needed.

**WARNING**
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

11 Use dry cleaning solvent (Item 11, App D) on metal surfaces. Use scrubbing soap (Item 23, App D) and water when you clean rubber or plastic surfaces. Use denatured alcohol (Item 15, App D) or clean water with scrubbing soap (Item 23, App D) when you clean optical surfaces.

**NOTE**
Step 12 does not apply to gun elevation drive preload nut or to traverse drive mounting hardware. These have preset values.

12 Bolts, nuts, and screws: Check for looseness and missing, bent, or broken parts. If you find a loose one, tighten it. If you can't tighten it, notify organizational maintenance. Look for chipped paint, bare metal, or rust around bolt heads.

13 Welds: Look for loose or chipped paint, rust, cracks, or gaps where parts are welded together. If you find a bad weld, notify organizational maintenance.
NOTE
Connectors on traverse drive should be hand tightened.

14 Electrical wires and connectors: Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors. Make sure wires are in good shape. If you find cracked or broken insulation, bare wires, or broken connectors, notify organizational maintenance.

NOTE
Perform WEEKLY (W) PMCS, as well as BEFORE (B) PMCS, if:
(1) You are the assigned turret operator and have not operated the turret since the last WEEKLY (W) PMCS, or
(2) You are operating the turret for the first time.
BEFORE (B) OPERATION CHECKS

You may need to clean the turret or weapons in order to perform the required checks. If you clean the turret or weapons, be sure to observe the following:

WARNING

Solvent fumes can burn and could poison you. Read warning on front page of this manual.

Benzene (benzol), paint thinner, gasoline, and diesel fuel oil can burn and could poison you. Do not use benzene (benzol), paint thinner, gasoline, or diesel fuel oil for cleaning.

CAUTION

Steam, water, or air under pressure can damage sighting and fire control equipment gears and bearings. Do not clean inside of turret with steam, water, or air under pressure.

Petroleum products will damage rubber that is not resistant to petroleum. Do not get petroleum products on rubber parts.

NOTE

The word "damage" used in the PMCS tables is defined more clearly on page 2-39 of this manual. Be sure to read and understand these definitions before doing your PMCS.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TURRET EXTERIOR</td>
<td></td>
</tr>
</tbody>
</table>

**Equipment will be reported NOT READY/AVAILABLE if:**

1. Check area outside of turret for objects that will block traversing turret.
   - a. If an object is found, move it out of the way.

2. Check that front ring sight is clean and not damaged.
   - a. If front ring sight is dirty, clean it. See task: CLEAN FRONT RING SIGHT, page 3-116.

3. Check muzzle brake of 25mm gun for obstructions.
4. Check TOW launcher for dents and other external damage. Remove dust cover from TOW launcher.

5. Check for debris and damage inside TOW launcher tubes.
   
   a. If debris is found in TOW launcher tubes, clean TOW launcher tubes. See task: CLEAN/INSPECT TOW LAUNCHER, page 3-106.

6. Check dust cover for tears.
   
   Install dust cover on TOW launcher.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
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</table>

**WARNING**
You can be burned if you touch antenna during radio transmission. Do not touch antenna when signal is being transmitted.

**NOTE**
Both IFV and CFV normally have rear antenna installed and side antenna mount covered. If vehicle is Unit Command Vehicle, it will have both antennas installed.

7 Check antenna mounts for damage to antenna support bases and contact points.
TURRET EXTERIOR (cont)

Remove rubber caps from grenade launcher tubes.

8
Check rubber caps for damage.

9
Check smoke grenade launchers for debris and damage.
   a. If unfired smoke grenades are found in grenade launcher tubes, remove unfired smoke grenades. See task: UNLOAD/STOW SMOKE GRENADES, page 2-419.
   b. If smoke grenade launcher is damaged, do not load it.
   c. If debris or dirt is found inside smoke grenade launchers, clean smoke grenade launchers. See task: CLEAN/INSPECT SMOKE GRENADE LAUNCHERS, page 3-112.

Install rubber caps on grenade launcher tubes.

10
Check smoke grenade stowage bins for debris and damage.
   a. If debris or dirt is found inside smoke grenade stowage bins, remove debris. Wipe inside of smoke grenade stowage bins with clean, lint-free cloth.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURRET SHIELD DOOR</td>
<td>Procedure</td>
<td></td>
</tr>
</tbody>
</table>

Open and close turret shield door. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

Check that turret shield door locks in closed position.

Turret shield door will not lock in closed position.
### TURRET INTERIOR

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Check turret interior for objects that should not be there, like spent casings, mechanic's tools, and debris.</td>
<td></td>
</tr>
</tbody>
</table>
  
  a. If objects are found, remove them.  
  
  Operate travel lock lever. See task: OPERATE TURRET TRAVEL LOCK, page 2-141. |
<p>| 13       | Check that turret travel lock is not damaged or broken, and make sure that it engages. | Turret travel lock does not engage and lock turret in desired position. |</p>
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Traverse turret to HE load position (2150 mils). See task: OPERATE TURRET IN POWER MODE, page 2-152.</td>
<td></td>
</tr>
</tbody>
</table>

**TURRET DRIVE SYSTEM SWITCH**

Move TURRET DRIVE SYSTEM switch to OFF.

**HANDLE**

**HE AMMO CAN DOOR**

Have helper check HE ammo can door to see that it opens, closes, and latches.

a. (H) Turn handle and remove HE ammo can door.

b. (H) Install HE ammo can door and turn handle to latch.

HE ammo can door cannot be closed and latched, or turret cannot be traversed.

2-49
PREVENTIVE MAINTENANCE CHECKS AND SERVICES
BEFORE (B) OPERATION CHECKS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
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<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
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</thead>
<tbody>
<tr>
<td>TURRET INTERIOR (cont)</td>
<td></td>
<td></td>
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</table>

Turn handle and remove HE top ammo can door. Rotate roller rapidly on roller retainer.

**NOTE**
Roller retainer will lock when moved all the way to the right. Unlock roller retainer by moving it to the left.

Grasp roller and move roller retainer to the right and to the left.

Check that roller and roller retainer operate freely.

a. If roller or roller retainer drags or binds, try rotating roller on roller retainer, or moving roller retainer back and forth.

b. If roller or roller retainer still drags or binds, notify organizational maintenance. Do not load or fire HE ammo during mission.
Check HE ammo can loading rails and retroreflector.

a. If loading rails in HE ammo can are dirty, wipe with clean cloth.

b. If retroreflector on HE top ammo can door is dirty, wipe with clean, lint-free cloth.

Install HE top ammo can door and turn handle to latch.
Move TURRET DRIVE SYSTEM switch to ON.

 Traverse turret to AP load position (4350 mils). See task: OPERATE TURRET IN POWER MODE, page 2-152.

Move TURRET DRIVE SYSTEM switch to OFF.
<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Procedure</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>LOAD HANDLES</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>HANDLE RETROREFLECTOR</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>AP AMMO CAN DOOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have helper check AP ammo can door to see that it opens, closes, and latches.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(H) Turn handle and remove AP ammo can door.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(H) Install AP ammo can door, and turn handle to latch.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AP ammo can door cannot be closed and latched, or turret cannot be traversed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have helper turn handle and remove AP ammo can door.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have helper check AP ammo can loading rails and retroreflector.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. (H) If loading rails in AP ammo can are dirty, wipe with clean cloth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. (H) If retroreflector on AP ammo can door is dirty, wipe with clean, lint-free cloth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have helper install AP ammo can door, and turn handle to latch.</td>
</tr>
</tbody>
</table>
Move TURRET DRIVE SYSTEM switch to ON.
Traverse turret to 6400 mils. See task: OPERATE TURRET IN
POWER MODE, page 2-152.
Have crew move MASTER POWER switch to OFF. See
TM 9-2350-252-10-1.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Adjust commander's seat. See task: ADJUST GUNNER'S/COMMANDER'S SEATS, page 2-144.</td>
</tr>
<tr>
<td>19</td>
<td>COMMANDER'S SEAT</td>
<td>Check that commander's seat can be moved freely and locked in raised and lowered positions.</td>
</tr>
<tr>
<td></td>
<td>COMMANDER'S HATCH COVER</td>
<td>Open and close commander's hatch cover. See task: OPEN/CLOSE COMMANDER'S HATCH COVER, page 2-145.</td>
</tr>
<tr>
<td>20</td>
<td>COMMANDER'S HATCH COVER</td>
<td>Check that commander's hatch cover can be locked in OPEN or CLOSED position.</td>
</tr>
</tbody>
</table>

Commander's hatch cover cannot be locked in OPEN or CLOSED position.
### TURRET INTERIOR (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Check commander’s seven/eight periscopes and gunner’s two periscopes for dirty or cracked periscope lenses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. If periscope lenses are dirty, wipe with clean, lint-free cloth.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open and close blackout covers. See task: CLOSE/OPEN BLACKOUT COVERS, page 2-176.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Check that blackout covers are not torn and stay in place when fastened.</td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Adjust gunner's seat. See task: ADJUST GUNNER'S/COMMANDER'S SEATS, page 2-144.</strong></td>
</tr>
<tr>
<td>23</td>
<td><strong>GUNNER'S SEAT</strong></td>
<td><strong>23 Check that gunner's seat can be moved freely and locked in raised and lowered positions.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>GUNNER'S HATCH COVER</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>24 Check that gunner's hatch cover can be locked in OPEN or CLOSED position.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Gunner's hatch cover cannot be locked in OPEN or CLOSED position.</strong></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------</td>
<td>--------------------------------------------------</td>
</tr>
</tbody>
</table>

**TURRET INTERIOR (cont)**

- **DAY SIGHT COVER HANDLE**
- **NIGHT SIGHT COVER HANDLE**
- **SIGHT COVER HINGES**
- **BALLISTIC SIGHT COVER DOORS**

Pull day and night sight cover handles and open ballistic sight cover doors.

- **Check that ballistic sight cover doors open and close smoothly. Have helper check outside of vehicle.**
  - **a. If sight cover hinges are dirty, clean with wiping rag.**

Ballistic sight cover doors do not open.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
<td></td>
</tr>
</tbody>
</table>

**ISU WINDOWS**

**CAUTION**
ISU window coating is easily damaged. Do not breathe on window surface. Do not use any cleaning material that is not specially approved for cleaning ISU windows.

26 Have helper check to see if ISU windows are dirty or broken.

a. If ISU windows are dirty, have helper clean ISU windows. See task: CLEAN ISU, page 3-101.

ISU windows are broken.
### PREVENTIVE MAINTENANCE CHECKS AND SERVICES

**BEFORE (B) OPERATION CHECKS (cont)**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>25MM GUN SYSTEM</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
<td></td>
</tr>
</tbody>
</table>

**Procedure**

Remove 25mm gun guard and open gun cover. See task: OPERATE 25MM GUN GUARD AND GUN COVER, page 2-169.

27

Check gun cover, zippers, and bolt position indicator for dirt and damage.

- a. If bolt position indicator is dirty, wipe with clean, lint-free cloth.

---

**Diagram:**
- ZIPPER
- GUN COVER
- BOLT POSITION INDICATOR
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25MM GUN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GUN POWER CABLE</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Check that gun power cable on 25mm gun is attached and not damaged.</td>
<td>Gun power cable is cut or damaged.</td>
</tr>
</tbody>
</table>

Check that gun power cable on 25mm gun is attached and not damaged.
### PREVENTIVE MAINTENANCE CHECKS AND SERVICES

**BEFORE (B) OPERATION CHECKS (cont)**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 25MM GUN SYSTEM (cont)

**AP FEED CHUTE**

**HE FEED CHUTE**

Check AP and HE feed chutes for damage.

Both AP and HE feed chutes are cracked or separated.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Check AP and HE link eject chutes for damage.</td>
<td>Both AP and HE link eject chutes have broken pins.</td>
</tr>
</tbody>
</table>

- **AP LINK EJECT CHUTE**
- **HE LINK EJECT CHUTE**

T.M. 9-2350-252-16-2
### 25MM GUN SYSTEM (cont)

#### Dry cycle 25mm gun manually in HE. See task: DRY CYCLE 25MM GUN MANUALLY, page 2-449.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Check 25mm gun for damage.</td>
<td></td>
</tr>
</tbody>
</table>

25mm gun cannot be dry fired manually using handcrank assembly.
ITEM NO. | ITEM TO BE INSPECTED Procedure | Equipment will be reported NOT READY AVAILABLE if:
---|---|---

**COAX MACHINE GUN SYSTEM**

Open and close coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

32 Check that handles secure coax machine gun access doors in closed position.

Coax machine gun access doors cannot be closed and secured.

Open coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

33 Check seals on coax machine gun access doors for damage.
### BEFORE (B) OPERATION CHECKS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>7.62mm ammo feed chute and two latches</td>
<td>Check 7.62mm ammo feed chute and two latches for damage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. If two latches are broken or do not secure 7.62mm ammo feed chute in place, do not load or fire coax machine gun during mission.</td>
</tr>
<tr>
<td>35</td>
<td>REAR GUN MOUNT</td>
<td>Check rear gun mount.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. If rear gun mount is cracked, or if bracket is broken, do not load or fire coax machine gun during mission.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. If rear gun mount is rusty, lubricate with lubricating oil (Item 19, App D).</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED Procedure</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turn boresight knobs for coax machine gun back and forth.</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>Check boresight knobs on coax machine gun for rust, dirt, and free movement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. If boresight knobs are rusty or dirty, wipe with clean cloth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. If boresight knobs are rusty, lubricate with lubricating oil (Item 19, App D).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. If boresight knobs still do not move freely, notify organizational maintenance. Do not load or fire coax machine gun during mission.</td>
</tr>
</tbody>
</table>
Check elevation pin.

a. If elevation pin is rusty, lubricate with lubricating oil (Item 19, App D).
ITEM NO. | ITEM TO BE INSPECTED | Procedure |
--- | --- | --- |

Equipment will be reported NOT READY/AVAILABLE if:

- COAX MACHINE GUN
- REAR MOUNTING PIN

Move rear mounting pin for coax machine gun up and down, and install in coax machine gun.

Check operation of rear mounting pin for coax machine gun.

- a. If rear mounting pin falls out or is missing, notify organizational maintenance. Do not install, load, or fire coax machine gun during mission.

- b. If rear mounting pin does not move up and down freely, exercise rear mounting pin until it moves freely.

- c. If rear mounting pin still does not move freely, notify organizational maintenance. Do not install, load, or fire coax machine gun during mission.
### PREVENTIVE MAINTENANCE CHECKS AND SERVICE BEFORE (B) OPERATION CHECKS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>TURRET MANUAL OPERATION</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Diagram of gun elevation and drive select lever" /></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>CAUTION</strong></td>
<td>TOW elevation and gun elevation linkage is easily damaged. Never turn gun elevation handwheel with both TOW elevation drive select lever and gun elevation drive select lever in MANUAL position.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manually elevate and depress 25mm gun. See task: OPERATE TURRET MANUALLY, page 2-439.</td>
</tr>
<tr>
<td>39</td>
<td>Check operation of gun elevation drive select lever and gun elevation handwheel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Box diagram highlighting gun elevation drive select lever" /></td>
<td>Gun elevation drive select lever cannot be locked in MANUAL position. Turning gun elevation handwheel does not elevate or depress 25mm gun.</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED</td>
<td>Procedure</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
</tbody>
</table>

- **TURRET TRAVERSE DRIVE SELECT LEVER**
- **TURRET TRAVERSE HANDWHEEL**

Traverse turret manually. See task: OPERATE TURRET MANUALLY, page 2-439.

Check operation of turret traverse drive select lever and turret traverse handwheel.

Turret traverse drive select lever cannot be locked in MANUAL position. Turning turret traverse handwheel does not traverse turret.
PREVENTIVE MAINTENANCE CHECKS AND SERVICES
BEFORE (B) OPERATION CHECKS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Check radio system. See TM 11-5820-401-12.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Radio system does not work.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operate intercom system. See page 2-173, and TM 9-2350-252-10-1. Set commander’s, gunner’s and driver’s intercom control boxes to ALL positions.</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Check intercom system to make sure that commander, gunner, and driver can communicate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commander and driver cannot communicate.</td>
<td></td>
</tr>
</tbody>
</table>

COMMUNICATIONS EQUIPMENT AND INTERCOM

INTERCOM CONTROL BOX

Check radio system. See TM 11-5820-401-12.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>Check that HATCH INTERLOCK OVERRIDE switch is OFF.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DURING (D) OPERATION CHECKS

You may need to clean the turret or weapons in order to perform the required checks. If you clean the turret or weapons, be sure to observe the following:

WARNING
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

CAUTION
Petroleum products will damage rubber that is not resistant to petroleum. Do not get petroleum products on rubber parts.

NOTE
Turret electrical motors may overheat when operating under severe conditions. If DRIVE MALF annunciator light comes on, recycle turret drive system. If light comes on again, shut down turret power and wait for at least 3 minutes. If light comes on again, notify organizational maintenance.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSpected</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISU MIRROR CONTROL KNOB</td>
<td>Procedure</td>
<td></td>
</tr>
</tbody>
</table>

**CAUTION**

ISU will be damaged if turret power is turned on with mirror control knob in locked or engaged (in) position. Make sure mirror control knob is in unlocked or disengaged (out) position before you turn on turret power.

Check that mirror control knob is in unlocked position, and that quick release pin is installed and safety wired.

Mirror control knob is not safety wired in unlocked position.
ISU COOLDOWN

Move MASTER POWER switch to ON. See TM 9-2350-252-10-1.
Move TURRET POWER switch to ON.

Check that TURRET POWER indicator light goes on.

TURRET POWER indicator light does not go on.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Equipment will be reported NOT READY/AVAILABLE if:</strong></td>
</tr>
</tbody>
</table>

**NOTE**

ISU night sight requires 10 minutes to cool down after NIGHT VISION PWR switch is moved to ON. You should perform other turret checks while ISU is cooling down.

Move NIGHT VISION PWR switch to ON.

Check that closed cycle cooler is operating and can be heard.

Closed cycle cooler cannot be heard.
INDICATOR LIGHTS AND GUN FANS

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>Move FAN-LAMP TEST switch to LAMP TEST and hold.</td>
<td>Check that all lights on weapon control box are on.</td>
</tr>
<tr>
<td></td>
<td>Check that all lights on weapon control box are on.</td>
<td></td>
</tr>
</tbody>
</table>

Move FAN-LAMP TEST switch to LAMP TEST and hold.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
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<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>48</td>
<td>Check that all lights on turret position indicator at gunner's and commander's station are on.</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>49</td>
<td>Check that all lights on TOW control box are on.</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
</tbody>
</table>

All lights on TOW control box are not on.
## PREVENTIVE MAINTENANCE CHECKS AND SERVICES
### DURING (D) OPERATION CHECKS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### INDICATOR LIGHTS AND GUN FANS (cont)

![Diagram of turret control box with light indicators and FAN-LAMP TEST switch]

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>Procedure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Check that all lights on turret control box go on.</td>
<td>No lights on turret control box are on.</td>
</tr>
<tr>
<td>51</td>
<td>Check that gun fans can be heard.</td>
<td>Gun fans cannot be heard.</td>
</tr>
</tbody>
</table>

Move FAN-LAMP TEST switch to FAN.

### TURRET POWER OPERATION

![Diagram of turret drive system with indicator light and TURRET DRIVE SYSTEM switch]

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>Procedure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>Check that TURRET DRIVE SYSTEM indicator light is on.</td>
<td>TURRET DRIVE SYSTEM indicator light is not on.</td>
</tr>
</tbody>
</table>

Start engine. See TM 9-2350-252-10-1. Move TURRET DRIVE SYSTEM switch to ON.
ITEM TO BE INSPECTED

Equipment will be reported NOT READY/AVAILABLE if:

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>Procedure</th>
</tr>
</thead>
</table>

**COMMANDER'S CONTROL HANDLE**


Use intercom to tell all crew members that turret is to be operated in POWER mode. See task: OPERATE INTERCOM SYSTEM, page 2-173 and TM 9-2350-252-10-1.

Release turret travel lock. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

Traverse turret right and left with commander's control handle. See task: OPERATE TURRET IN POWER MODE, page 2-152.

53 Check that turret traverses to right and left.

Turret will not traverse.

Fast traverse turret to left and then to right with commander's control handle. Then traverse turret to 6400 mils. See task: OPERATE TURRET IN POWER MODE, page 2-152.

54 Check that turret traverses at a fast speed to left and then to right.

Elevate and depress 25mm gun. See task: OPERATE TURRET IN POWER MODE, page 2-152.

55 Check that 25mm gun elevates and depresses.

25mm gun does not elevate or depress.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GUNNER'S CONTROL HANDLES</td>
</tr>
</tbody>
</table>

GUNNER'S CONTROL HANDLES

Traverse turret to right and to left with gunner's control handles. See task: OPERATE TURRET IN POWER MODE, page 2-152.

56 Check that turret traverses to right and to left.

Turret does not traverse.

With gunner's control handles, fast traverse turret to left, and then to right. Then traverse turret to 6400 mils. See task: OPERATE TURRET IN POWER MODE, page 2-152.

57 Check that turret traverses at a fast speed to left and then to right.

With gunner's control handles, elevate and depress 25mm gun. See task: OPERATE TURRET IN POWER MODE, page 2-152.

58 Check that 25mm gun depresses and elevates.

25mm gun does not depress or elevate.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OPEN HATCH ANNUNCIATOR LIGHT</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td></td>
<td>ANNUNCIATOR BOX</td>
<td></td>
</tr>
</tbody>
</table>

**DECK CLEARANCE SYSTEM**

Open driver’s hatch cover to POP-UP position. See TM 9-2350-252-10-1.

59

Check that OPEN HATCH annunciator light on annunciator box is on.

Close driver’s hatch cover. See TM 9-2350-252-10-1. Open cargo hatch cover to POP-UP position. See TM 9-2350-252-10-1.

60

Check that OPEN HATCH annunciator light on annunciator box is on.

OPEN HATCH annunciator light is not on.
### DECK CLEARANCE SYSTEM (cont)

#### WARNING

25mm gun barrel can hit soldiers and open hatches if turret is operated with HATCH INTERLOCK OVERRIDE SWITCH in ON position. Soldiers can be killed or injured. Equipment can be damaged. Make sure HATCH INTERLOCK OVERRIDE SWITCH is in OFF position before you operate turret.

Depress 25mm gun to -180 mils. See task: OPERATE TURRET IN POWER MODE, page 2-152.

With 25mm gun depressed to -180 mils, traverse turret to left and right in full circle. See task: OPERATE TURRET IN POWER MODE, page 2-152.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>Check that 25mm gun elevates and depresses by itself when passing over rear deck.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turret will not traverse. Turret stops traversing when 25mm gun reaches deck. 25mm gun strikes rear deck.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elevate 25mm gun to 0 mils. See task: OPERATE TURRET IN POWER MODE, page 2-152.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open driver’s hatch cover to UPRIGHT position. See TM 9-2350-252-10-1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Try to traverse turret to left and right. See task: OPERATE TURRET IN POWER MODE, page 2-152.</td>
</tr>
<tr>
<td>62</td>
<td>With driver’s hatch cover in UPRIGHT position, check that turret does not move when gunner’s control handles are used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turret moves when gunner’s control handles are used with driver’s hatch cover in UPRIGHT position.</td>
</tr>
</tbody>
</table>

**NOTE**

Barrel of 25mm gun will elevate by itself before reaching rear deck. Barrel will pass over rear deck, then depress by itself — 180 mils. Check that HATCH INTERLOCK OVERRIDE switch is OFF.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DECK CLEARANCE SYSTEM (cont)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="https://example.com/diagram.png" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CARGO HATCH COVER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GUNNER'S CONTROL HANDLES</td>
</tr>
</tbody>
</table>

Close driver's hatch cover. See TM 9-2350-252-10-1. Open cargo hatch cover to UPRIGHT position. See TM 9-2350-252-10-1. Try to traverse turret left and right. See task: OPERATE TURRET IN POWER MODE, page 2-152.

With cargo hatch cover in UPRIGHT position, check that turret does not move when gunner's control handles are used.

Turret moves when gunner's control handles are used with cargo hatch cover in UPRIGHT position.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOW BUTTON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOW TEST INDICATOR LIGHT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO FIRE ZONE ANNUNCIATOR LIGHT</td>
<td></td>
</tr>
</tbody>
</table>

Open cargo hatch cover. See TM 9-2350-252-10-1.
Press TOW button.
Wait 12 seconds until TOW TEST indicator light goes off.

64 Check that NO FIRE ZONE annunciator light is on.

- NO FIRE ZONE annunciator light is not on.

Close cargo hatch cover. See TM 9-2350-252-10-1.

65 Check that NO FIRE ZONE annunciator light is off.

- NO FIRE ZONE annunciator light is not off.

Lower TOW launcher. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.
### ISU Operation

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item to Be Inspected</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>GUNNER'S EYEPiece</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RETICLE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATUS INDICATOR</td>
<td></td>
</tr>
</tbody>
</table>

**WARNING**
Looking at sun through 'S' may cause blindness. Do not look at sun through ISU.

**NOTE**
When HE SS button is pressed, HE SS indicator light should come on.

Press HE SS button.
Check that reticle is present in gunner's eyepiece, and that status indicator reads HE.

Reticle is not present in gunner's eyepiece.
Move MAG switch to HIGH until it clicks.

Check view through gunner's eyepiece.

View through gunner's eyepiece is not much larger than view through unity window.
Look through gunner's eyepiece. Move SENSOR SELECT switch to NEUTRAL, and then to CLEAR.

Check that reticle view in gunner's eyepiece gets darker in NEUTRAL and brighter in CLEAR.

Turn RET BRT knob to right and to left.

Check that reticle in gunner's eyepiece becomes brighter, and then dimmer.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>NOT READY/AVAILABLE if:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Equipment will be reported</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RETICLE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>GUNNER'S EYEPiece</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>FOCUS BARREL</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>COMMANDER'S EYEPiece</strong></td>
</tr>
</tbody>
</table>

Turn focus barrel on gunner's eyepiece.

70 Check that focus barrel focuses reticle in gunner's eyepiece.

Turn focus barrel on commander's eyepiece.

71 Check that focus barrel focuses reticle in commander's eyepiece.

Focus barrel does not focus reticle in gunner's or commander's eyepiece.
### Preventive Maintenance Checks and Services During (D) Operation Checks (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISU OPERATION (cont)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANGE CONTROL KNOB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GUNNER'S EYEPICE</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CAUTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elevating gun to maximum with ISU range control knob at 0 will damage ISU. Set range control knob to 30 for all operations except firing, adjustment, and troubleshooting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>Check that lamp behind RANGE control knob is lit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Look into gunner's eyepiece.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turn RANGE control knob from 0 to 30.</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>Check that status indicator shows same range setting as on RANGE control knob.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range on status indicator is not the same as range on RANGE control knob.</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>Check that view rises in elevation as range setting increases.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>View does not rise in elevation as range setting increases.</td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Procedure</td>
<td></td>
</tr>
</tbody>
</table>

Equipment will be reported NOT READY/AVAILABLE if:
- AP SS INDICATOR LIGHT
- AP SS BUTTON
- GUNNER'S EYEPIECE
- RETICLE
- STATUS INDICATOR

**NOTE**
AP SS indicator light should come on when AP SS button is press.

Press AP SS button.

Check that reticle is present in gunner's eyepiece and that status indicator reads AP.
### ISU OPERATION (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GUNNER'S EYEPICE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RANGE CONTROL KNOB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATUS INDICATOR</td>
<td></td>
</tr>
</tbody>
</table>

#### Procedure:

1. Look into gunner's eyepiece. Turn RANGE control knob from 30 to 0.
2. Check that status indicator shows the same range setting as on RANGE control knob.

#### Notes:

- Range on status indicator is not the same as range on RANGE control knob.
- View does not lower in elevation as range setting decreases.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Procedure</td>
<td></td>
</tr>
</tbody>
</table>

7.62 INDICATOR LIGHT

7.62 BUTTON

GUNNER'S EYEPiece

RETICLE

00

STATUS INDICATOR

**NOTE**
When 7.62 button is pressed, 7.62 indicator light should come on.

Press 7.62 button.

Check that reticle is present in gunner's eyepiece and that status indicator reads 7.62.
### ISU OPERATION (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>RANGE CONTROL KNOB</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>STATUS INDICATOR</td>
<td></td>
</tr>
</tbody>
</table>

**Turn RANGE control knob from 0 to 10.**

- **Check** that status indicator shows the same range setting as on RANGE control knob.

- **Check** that view rises in elevation as range setting increases.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
</table>

**Note**
Night sight can operate only after cooling down for 10 minutes.

Move SENSOR SELECT switch to NIGHT.

81 Check that night view can be seen through gunner's eyepiece.

Night view cannot be seen through gunner's eyepiece after night sight has cooled down for 10 minutes.

Move NIGHT VISION PLRT switch from W/H to B/H.

82 Check that night view in gunner's eyepiece changes from red-on-black to black-on-red.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISU OPERATION (cont)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRT KNCB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIGHT VISION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON KNCB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GUNNER'S EYEPiece</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOCUS KNOB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn BRT and CON knobs to adjust brightness and contrast of view in gunner's eyepiece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check that BRT and CON knobs adjust brightness and contrast of view in gunner's eyepiece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRT and CON knobs do not adjust brightness and contrast of view in gunner's eyepiece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A freewheeling effect will be noticed if focus knob is turned left more than seven to nine turns from a fully right position.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn FOCUS knob to focus view in gunner's eyepiece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check that view comes into focus in gunner's eyepiece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>View does not come into focus in gunner's eyepiece.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Procedure**

  1. Move NIGHT VISION PWR switch to OFF.
  2. Move SENSOR SELECT switch to CLEAR.

- **Check**

  Check that view changes from night to day.

- **View**

  View does not change from night to day.
TM 9-2350-252-10-2
PREVENTIVE MAINTENANCE CHECKS AND SERVICES
DURING (D) OPERATION CHECKS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DRY FIRE OPERATION OF 25MM GUN</td>
</tr>
</tbody>
</table>

**WARNING**
If 25mm gun fires during dry fire operation, soldiers could be killed or injured. Before you dry fire 25mm gun, check that 25mm gun is unloaded and manual SAFE handle is in SAFE.

**CAUTION**
25mm gun is easily damaged. Checks should be made in exact order shown.

Move TURRET POWER switch to OFF.
Move TURRET DRIVE SYSTEM switch to OFF.
Remove 25mm gun guard and open gun cover. See task: OPERATE 25MM GUN GUARD AND GUN COVER, page 2-169.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAFE MANUAL SAFE HANDLE</td>
<td>Move manual SAFE handle to SAFE position.</td>
</tr>
<tr>
<td></td>
<td>Manual SAFE handle will not move to SAFE position.</td>
<td></td>
</tr>
</tbody>
</table>

Check that manual SAFE handle moves to SAFE position.

Move manual SAFE handle to SAFE position.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>DRY FIRE OPERATION OF 25MM GUN (cont)</strong></td>
</tr>
</tbody>
</table>

Move TURRET POWER switch to ON.
Move TURRET DRIVE SYSTEM switch to ON.

**CAUTION**
25mm gun can jam if 25mm gun is cycled when bolt and feeder are not in SEAR. Before you dry fire 25mm gun, check that bolt and feeder are timed to SEAR.

**87** Check that bolt position indicator is in SEAR position.
   a. If bolt position indicator is not in SEAR position, see task: TIME 25MM GUN FEEDER, page 2-240.

**88** Check that drive shaft handle turns.
   a. If drive shaft handle turns over 1/2 inch, see task: POSITION 25MM GUN BOLT IN SEAR POSITION, page 2-243.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Press AP SS button.**
- Move ARM-SAFE-RESET switch to ARM.

89  
Check that SEAR indicator light is on.

90  
Check that LO AMMO indicator light flashes.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DRY FIRE OPERATION OF 25MM GUN (cont)</td>
<td></td>
</tr>
</tbody>
</table>

Press LO AMMO OVRD button.

Check that LO AMMO, AP SS, and SEAR indicator lights are on, but not flashing.

LO AMMO, AP SS, and SEAR indicator lights are not on, or are flashing.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROCEDURE</td>
<td></td>
</tr>
</tbody>
</table>

**TRIGGER SWITCHES**

**GUNNER'S CONTROL HANDLES**

**BOLT POSITION INDICATOR**

**NOTE**

When trigger switches are squeezed, 25mm gun will dry fire and cycle to MISFIRE position because no ammo is in 25mm gun.

Squeeze trigger switches on gunner's control handles.

Check that bolt position indicator is in MISFIRE position.

Bolt position indicator is not in MISFIRE position.
Dry Fire Operation of 25mm Gun (cont)

**NOTE**
Do not operate 25mm gun in POWER mode when sear retractor is engaged. 25mm gun will shut down.

Press AP SS button.

**NOTE**
SEAR indicator light will go off when MISFIRE button is pressed.

Press MISFIRE button.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td></td>
<td><strong>BOLT POSITION INDICATOR</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TRIGGER SWITCHES</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GUNNER'S CONTROL HANDLES</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SEAR INDICATOR LIGHT</strong></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**
When trigger switches are squeezed, 25mm gun will cycle to SEAR position and SEAR indicator light will come on.

Squeeze trigger switches on gunner's control handles.

Check that bolt position indicator is in SEAR position, and that SEAR indicator light is on.

Bolt position indicator is not in SEAR position, or SEAR indicator light is not on.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRY FIRE OPERATION OF 25MM GUN (cont)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AP SS BUTTON**

**AP LO BUTTON**

**AP HI BUTTON**

**HE SS BUTTON**

**HE LO BUTTON**

**HE HI BUTTON**

<table>
<thead>
<tr>
<th>94</th>
<th>Check dry fire operation of 25mm gun in HE SS mode by repeating check 89 and pressing HE SS button instead of AP SS button. After completing check, repeat checks 90 thru 93.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOTE</strong></td>
<td>When firing 25mm gun in AP LO or AP HI, press AP SS button before pressing MISFIRE button. When firing 25mm gun in HE LO or HE HI, press HE SS button before pressing MISFIRE button.</td>
</tr>
<tr>
<td>95</td>
<td>Check dry fire operation of 25mm gun in AP LO mode by repeating checks 89 thru 93 and pressing AP LO button.</td>
</tr>
<tr>
<td>96</td>
<td>Check dry fire operation of 25mm gun in AP HI mode by repeating checks 89 thru 93 and pressing AP HI button.</td>
</tr>
<tr>
<td>97</td>
<td>Check dry fire operation of 25mm gun in HE LO mode by repeating checks 89 thru 93 and pressing HE LO button.</td>
</tr>
<tr>
<td>98</td>
<td>Check dry fire operation of 25mm gun in HE HI mode by repeating checks 89 thru 93 and pressing HE HI button.</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED Procedure</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td></td>
<td>TRIGGER SWITCH</td>
</tr>
<tr>
<td></td>
<td>PALM SWITCH</td>
</tr>
<tr>
<td>99</td>
<td>COMMANDER'S CONTROL HANDLE</td>
</tr>
</tbody>
</table>

**NOTE**

To operate 25mm gun with commander's control handle, trigger and palm switches must be pressed at the same time.

Repeat checks 87 thru 98. Use commander's control handle instead of gunner's control handles.
## DRY FIRE OPERATION OF COAX MACHINE GUN

**WARNING**

If coax machine gun fires during dry fire operation, soldiers could be killed or injured. Before you dry fire coax machine gun, check that coax machine gun is unloaded and feed chute is empty.

Open coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

Push manual safety down to fire position.

Pull charger handle back firmly.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Check that manual safety moves down into fire position.</td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Check that charger handle moves smoothly and charges coax machine gun.</td>
<td></td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED Procedure</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **ARM INDICATOR LIGHT**
- **7.62 INDICATOR LIGHT**
- **COAX MACHINE GUN ACCESS DOORS**
- **LO AMMO INDICATOR LIGHT**
- **ARM-SAFE-RESET SWITCH**
- **7.62 BUTTON**
- **LO AMMO OVRD BUTTON**

Close coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

102 Check that coax machine gun access doors can be closed and latched securely.

Coax machine gun access doors cannot be closed and latched securely.

Press 7.62 button.
Move ARM-SAFE-RESET switch to ARM.

103 Check that ARM indicator light comes on.

ARM indicator light does not go on.

104 Check that 7.62 indicator light comes on.

105 Check that LO AMMO indicator light flashes.
Press LO AMMO OVRD button.

106 Check that LO AMMO indicator light stays on but stops flashing.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DRY FIRE OPERATION OF COAX MACHINE GUN (cont)</td>
<td></td>
</tr>
</tbody>
</table>

(C) Open coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

(C) Pull back and hold charger handle.

(G) Squeeze and release trigger switches on gunner's control handles.

(C) Slowly allow charger handle to move forward until bolt is forward and fully seated.

Check that coax machine gun has dry fired.

a. If bolt does not move forward and seat fully, troubleshoot coax machine gun. See TM 9-1005-313-10.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TRIGGER SWITCH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PALM SWITCH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COMMANDER'S CONTROL HANDLE</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

To operate coax machine gun with commander's control handles, trigger and palm switches must be pressed together.

108

Repeat check 107. Use commander's control handle instead of gunner's control handles.
## SMOKE GRENADE LAUNCHER OPERATION

### WARNING

Smoke grenades could kill or injure soldiers. Before you make this check, make sure smoke grenade launchers are empty.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>109</td>
<td>Check that GRENADE LAUNCHER indicator light comes on.</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>Check that TRIGGER indicator light comes on when TRIGGER button is pressed.</td>
<td></td>
</tr>
</tbody>
</table>

a. If GRENADE LAUNCHER indicator light does not come on, do not load smoke grenades.

b. If TRIGGER indicator light does not come on, do not load smoke grenades.

Move GRENADE LAUNCHER switch to OFF.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>TOW LAUNCHER OPERATION</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Diagram of TOW system" /></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOW INDICATOR LIGHT</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOW BUTTON</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>MAG SWITCH</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOW TEST INDICATOR LIGHT</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOW TEST BUTTON</strong></td>
<td></td>
</tr>
</tbody>
</table>


111 Check that TOW indicator light comes on and stays on.

112 Check that TOW TEST indicator light comes on and then goes off after 12 seconds.

a. If TOW indicator light does not go on, or TOW TEST indicator light does not go off after 12 seconds, press TOW TEST button and repeat checks 111 and 112.

b. If TOW indicator light does not stay on or TOW TEST indicator light does not go off after 12 seconds following repeat of checks 111 and 112, do not load TOW missiles.
TOW LAUNCHER OPERATION (cont)

ARM-SAFE-RESET SWITCH

ANNUNCIATOR LIGHTS

WARNING
Accidental firing of TOW missile could kill or injure soldiers. Make sure TOW launcher is unloaded.

Move ARM-SAFE-RESET switch to ARM.

Check that TRCKR, CGE, and PWR SUP annunciator lights stay off.

a. If TRCKR, CGE, or PWR SUP annunciator lights come on, do not load TOW missiles.
ITEM  
NO.  

ITEM TO BE INSPECTED  
Procedure  

Equipment will be reported NOT READY/AVAILABLE if:

**TOW CKT OPEN ANNUNCIATOR LIGHT**

**ANNUNCIATOR BOX**

114  
Check that annunciator lights on annunciator box stay off.  

a. If TOW CKT OPEN annunciator light comes on, do not load TOW missiles.

![GUNNER'S EYEPiece](image)  

**WARNING**  
Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

Look into gunner's eyepiece.  
Turn RET BRT to right.

115  
Check that reticle is illuminated in gunner's eyepiece.

116  
Check that status indicator reads TOW.
## TOW LAUNCHER OPERATION (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
</tbody>
</table>

### MISSILE TUBE 1 INDICATOR LIGHT

- Press MISSILE TUBE 1 button.
- Press MISSILE TUBE 2 button.

**117** Check that MISSILE TUBE 1 and MISSILE TUBE 2 indicator lights flash when MISSILE TUBE 1 and MISSILE TUBE 2 buttons are pressed.

- Press TOW button.

**118** Check that TOW indicator light goes off.

- Lower TOW launcher. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

**119** Check that TOW launcher bangs against side of turret and LAUNCHER UP indicator light goes off.

  a. If TOW launcher does not bang against turret, or LAUNCHER UP indicator light stays on, lower TOW launcher manually. See task: OPERATE TURRET MANUALLY, page 2-439.
TABLE OF CONTENTS

 items to be inspected procedure
 equipment will be reported not ready/available if:

STABILIZATION CONTROLS

STAB SWITCH
STAB INDICATOR LIGHT

CAUTION
Drive system can get damaged. Do not operate turret in STAB mode if gun barrel has been removed.

NOTE
Commander may override gunner's control handles by squeezing palm switch on commander's control handle. To return control to gunner's control handles, gunner must center gunner's control handles and commander must release palm switch on commander's control handle.

Turret power must be on for at least 15 seconds prior to STAB operation. This will allow time for gyro spinup.

Gunner's control handles must be at centered position when measuring drift.

Vehicle must be stationary when you check drift.

Move STAB switch to ON.

Check that STAB indicator light is on.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>STABILIZATION CONTROLS (cont)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TURRET CONTROL BOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DRIVE MALF ANNUNCIATOR LIGHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANNUNCIATOR BOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DRIVE MALF ANNUNCIATOR LIGHT</td>
</tr>
</tbody>
</table>

**NOTE**

Turret electrical motors may overheat when operating under severe conditions. If DRIVE MALF annunciator light comes on, recycle turret drive system. If DRIVE MALF annunciator light comes on again, shut down turret power and wait for at least 3 minutes. If DRIVE MALF annunciator light comes on again, notify organizational maintenance.

Check that DRIVE MALF annunciator lights on turret control and annunciator boxes are not on.
Look through gunner's eyepiece and select target. Press AP SS or HE SS button.

Squeeze and hold palm switches on gunner's control handles. Center AP or HE reticle on target using gunner's control handles. Center gunner's control handles and release palm switches.
### STABILIZATION CONTROLS (cont)

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
</table>

Press DRIFT button and hold for at least 1 second and then release.

Center gunner's control handles and squeeze palm switches for 10 seconds and then release.

**NOTE**

The center ring in reticle is 1 mil wide. You should use the width of the center ring to estimate amount of stabilization drift.

If DRIFT button is pressed while vehicle is moving, stabilization drift will increase. Stop vehicle before correcting stabilization drift. Vehicle must be stationary before pressing DRIFT button.

122 Check that reticle does not move off target more than 1 mil in 10 seconds.

a. If center ring of reticle moved more than 1 mil away from point aimed at on target, repeat check 122, a second time to verify.

b. If center ring of reticle moved more than 1 mil away from point aimed at on target during repeat of check 122, notify organizational maintenance.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>RETICLE moves off target more than 1 mil in 10 seconds.</td>
<td></td>
</tr>
</tbody>
</table>

NOTE
Perform check 123 only if reticle moves off target more than 1 mil in 10 seconds.

a. If reticle still moves off target more than 1 mil in 10 seconds after repeating check 122 twice, notify organizational maintenance.
AFTER (A) OPERATION CHECKS

You may need to clean the turret or weapons in order to perform the required checks. If you clean the turret or weapons, be sure to observe the following:

**WARNING**
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

Benzene (benzol), paint thinner, gasoline, and diesel fuel oil can burn and could poison you. Do not use benzene (benzol), paint thinner, gasoline, or diesel fuel oil for cleaning.

**CAUTION**
Steam, water, or air under pressure can damage sighting and fire control equipment gears and bearings. Do not clean inside of turret with steam, water, or air under pressure.

Petroleum products will damage rubber that is not resistant to petroleum. Do not get petroleum products on rubber parts.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25MM GUN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOTE</td>
<td></td>
</tr>
<tr>
<td>25mm gun must be cleaned, inspected, and lubricated daily when it has been fired.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove 25mm gun feeder. See page 3-34.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove 25mm gun barrel. See page 3-39.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove 25mm gun receiver. See page 3-41.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove track and bolt assembly. See page 3-44.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disassemble track and bolt assembly. See page 3-48.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>Clean, inspect, and lubricate 25mm gun. See page 3-52.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25mm gun is damaged.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assemble track and bolt assembly. See page 3-69.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install track and bolt assembly. See page 3-73.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install 25mm gun receiver. See page 3-77.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install 25mm gun barrel. See page 3-80.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install 25mm gun feeder. see page 3-83.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COAX MACHINE GUN</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>Clean, inspect, and lubricate coax machine gun. See page 3-96.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install coax machine gun. See page 3-97.</td>
<td></td>
</tr>
</tbody>
</table>
### Preventive Maintenance Checks and Services
#### After (A) Operation Checks

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMOKE GRENADE LAUNCHERS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoke grenade launchers must be cleaned and inspected daily when smoke grenades have been launched.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>126</td>
<td>Clean and inspect smoke grenade launchers. See page 3-112.</td>
<td></td>
</tr>
<tr>
<td><strong>TOW MISSILE LAUNCHER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOW missile launcher must be cleaned and inspected daily when TOW missiles have been fired.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Clean and inspect TOW launcher. See page 3-106.</td>
<td></td>
</tr>
</tbody>
</table>
WEEKLY (W) OPERATION CHECKS

You may need to clean the turret or weapons in order to perform the required checks. If you clean the turret or weapons, be sure to observe the following:

**WARNING**
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

Benzene (benzol), paint thinner, gasoline, and diesel fuel oil can burn and could poison you. Do not use benzene (benzol), paint thinner, gasoline, or diesel fuel oil for cleaning.

**CAUTION**
Steam, water, or air under pressure can damage sighting and fire control equipment gears and bearings. Do not clean inside of turret with steam, water, or air under pressure.

Petroleum products will damage rubber that is not resistant to petroleum. Do not get petroleum products on rubber parts.
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<tr>
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<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TURRET EMERGENCY BATTERIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>Check turret emergency batteries. See page 3-120.</td>
<td></td>
</tr>
</tbody>
</table>

**25MM GUN**

**NOTE**

25mm gun must be cleaned, inspected, and lubricated weekly, whether it has been fired or not.

- Remove 25mm gun feeder. See page 3-34.
- Remove 25mm gun barrel. See page 3-39.
- Remove 25mm gun receiver. See page 3-41.
- Remove track and bolt assembly. See page 3-44.
- Disassemble track and bolt assembly. See page 3-48.

| 129     | Clean, inspect, and lubricate 25mm gun. See page 3-52. | 25mm gun is damaged. |
|         |                                                           |                     |
|         | Assemble track and bolt assembly. See page 3-69.       |                     |
|         | Install track and bolt assembly. See page 3-73.        |                     |
|         | Install 25mm gun receiver. See page 3-77.              |                     |
|         | Install 25mm gun barrel. See page 3-80.                |                     |
|         | Install 25mm gun feeder. See page 3-83.                |                     |

**COAX MACHINE GUN**

**NOTE**

If coax machine gun is not used, it still needs complete cleaning and lubricating at least every 90 days. If unusual conditions exist, shorten this interval.

- Remove coax machine gun. See page 3-91.

<p>| 130     | Clean, inspect, and lubricate coax machine gun. See page 3-96. |                     |
|         | Install coax machine gun. See page 3-97.                     |                     |</p>
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOW MISSILE LAUNCHER</td>
<td>Clean and inspect TOW launcher. See page 3-106.</td>
<td><strong>NOTE</strong> &lt;br&gt;TOW missile launcher must be cleaned weekly, whether it has been fired or not.</td>
</tr>
<tr>
<td>SMOKE GRENADE LAUNCHER</td>
<td>Clean and inspect smoke grenade launchers. See page 3-112.</td>
<td><strong>NOTE</strong> &lt;br&gt;Smoke grenade launchers must be cleaned and inspected weekly, whether smoke grenades have been fired or not.</td>
</tr>
<tr>
<td>ITEM NO.</td>
<td>ITEM TO BE INSPECTED</td>
<td>Equipment will be reported NOT READY/AVAILABLE if:</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>133</td>
<td>COMMANDER'S HATCH COVER CUSHIONING PAD</td>
<td></td>
</tr>
</tbody>
</table>

Check cushioning pad on commander's hatch cover for cracks and missing pieces.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td>134</td>
<td>COMMANDER'S HATCH COVER HATCH PIN LEVER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Open commander's hatch cover. See task: OPEN/CLOSE COMMANDER'S HATCH COVER, page 2-145.

Check that hatch pin lever on commander's hatch cover moves freely and is operating correctly.

Close commander's hatch cover. See task: OPEN/CLOSE COMMANDER'S HATCH COVER, page 2-145.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Equipment will be reported NOT READY/AVAILABLE if:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GUNNER'S HATCH COVER CUSHIONING PAD</td>
<td></td>
</tr>
</tbody>
</table>

Check cushioning pad on gunner's hatch cover for cracks and missing pieces.
MONTHLY (M) OPERATION CHECKS

You may need to clean the inside of your vehicle in order to perform the required checks. If you clean the inside of your vehicle, be sure to observe the following:

**WARNING**

Solvent fumes can burn and could poison you. Read warning on front page of this manual.

Benzene (benzol), paint thinner, gasoline, and diesel fuel oil can burn and could poison you. Do not use benzene (benzol), paint thinner, gasoline, or diesel fuel oil for cleaning.

**CAUTION**

Steam, water, or air under pressure can damage sighting and fire control equipment gears and bearings. Do not clean inside of vehicle with steam, water, or air under pressure.

Water entering engine exhaust system can damage engine. Do not allow water to enter engine exhaust system.

Petroleum products will damage rubber that is not resistant to petroleum. Do not get petroleum products on rubber parts.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM TO BE INSPECTED</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Equipment will be reported NOT READY/AVAILABLE if:</strong></td>
</tr>
</tbody>
</table>

136

**MANUALLY TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.**

Check that color of indicator is blue.

**MANUALLY TRAVERSE TURRET TO 3200 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.**

Color of indicator is white.

END OF PMCS
## Section III. OPERATION UNDER USUAL CONDITIONS

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<td>Load/Reload 25mm HE Ammo</td>
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<tr>
<td></td>
<td></td>
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SAFETY INSTRUCTIONS FOR WEAPONS

SAFE WEAPONS CONDITIONS

1. The 25mm gun is safe when:
   Bolt is in SEAR position.
   The ARM-SAFE-RESET switch on weapon control box is in SAFE.
   The manual SAFE handle on 25mm gun is in SAFE.

2. The coax machine gun is safe when:
   The ARM-SAFE-RESET switch on weapon control box is reset to SAFE, and manual safety is set to "S" (safe).
   Ammo is removed from feed tray and firing chamber is clear of ammo.
   See page 2-354 for clearing coax machine gun.

3. TOW missile launcher is safe when:
   The ARM-SAFE-RESET switch on weapon control box is reset to SAFE.

4. Smoke grenade launchers are safe when:
   The GRENADE LAUNCHER switch is OFF.

BORESIGHTING

All weapons listed in paragraphs 1 thru 4 must be cleared before bore-sighting is attempted.
CLEAR 25MM GUN

1. The 25mm gun is cleared by:
   - Unloading ammo from AP and HE sides of 25mm gun.
   - Removing ammo rounds from 25mm gun.
   - Inspecting face of bolt and chamber.

2. See page 2-303 to unload and clear 25mm gun.
OPERATE TURRET SHIELD DOOR

DESCRIPTION
This task covers: Operate Turret Shield Door From Squad Area (page 2-139). Operate Turret Shield Door From Inside of Turret (page 2-140).

INITIAL SETUP
Personnel Required:
Crew member

Equipment Conditions:
Turret travel lock set (page 2-141)
Turret traversed to 6400 mils (page 2-152)

OPERATE TURRET SHIELD DOOR FROM SQUAD AREA

WARNING
If turret is operated with turret shield door open, soldiers could be killed or injured. Close and latch turret shield door before you operate turret.

1. CLOSE TURRET SHIELD DOOR.
   a. Lift up outside turret shield door latch and slide turret shield door closed.
   b. Check that outside turret shield door latch locks turret shield door closed.

GO TO NEXT PAGE
WARNING
If you enter or exit turret with turret power on, you may be injured or killed. Do not enter or exit turret while turret power is on. Keep turret shield door closed and latched while turret power is on.

2. OPEN TURRET SHIELD DOOR.
   a. Push outside turret shield door latch down and slide turret shield door open.
   b. Check that outside turret shield door latch locks turret shield door open.

3. CLOSE TURRET SHIELD DOOR.
   a. Push inside turret shield door latch down and slide turret shield door closed.
   b. Check that inside turret shield door latch locks turret shield door closed.

4. OPEN TURRET SHIELD DOOR.
   a. Push inside turret shield door latch down and slide turret shield door open.
   b. Check that inside turret shield door latch locks turret shield door open.

END OF TASK
OPERATE TURRET TRAVEL LOCK

INITIAL SETUP

Personnel Required:

Gunner

WARNING
A soldier in turret opening could be killed or injured if turret moves. Turret travel lock must be locked when you enter or exit turret.

1. SET TURRET TRAVEL LOCK IN LOCKED POSITION.
   a. Push travel lock lever to LOCKED position.

2. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever to MANUAL position.
   c. Release pushbutton.
3. REMOVE SPRING FROM HANDLE.

4. TURN TURRET TRAVERSE HANDWHEEL SLOWLY WHILE PUSHING ON TRAVEL LOCK LEVER TO INSURE THAT TEETH MESH. RELEASE TURRET TRAVERSE HANDWHEEL.
5. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever to POWER position.
   c. Release pushbutton.

6. INSTALL SPRING ON HANDLE.
   a. Turn turret traverse handwheel so that handle is at top.
   b. Install spring on handle.

   CAUTION
   Ring gear can get damaged if travel lock is not fully disengaged. Make sure travel lock is fully disengaged.

7. RELEASE TRAVEL LOCK LEVER.
   a. Pull travel lock lever all the way back to OPEN position.
ADJUST GUNNER'S/COMMANDER'S SEATS

INITIAL SETUP

Personnel Required:
Gunner
Commander

Equipment Conditions:
Gunner or commander seated in turret

NOTE
Adjustment of gunner's and commander's seats is the same.

1. RAISE GUNNER'S OR COMMANDER'S SEAT.
   a. Pull up control handle and hold while seat rises. Release control handle. Check that seat is locked in place.

2. LOWER GUNNER'S OR COMMANDER'S SEAT.
   a. Pull up control handle and hold.
   b. Push down on seat. Release control handle. Check that seat is locked in place.

END OF TASK
OPEN/CLOSE COMMANDER'S HATCH COVER

INITIAL SETUP

Personnel Required:
Commander

Equipment Conditions:
Commander seated in turret

WARNING
Unlatched hatch cover could swing and injure soldiers. Make sure gunner's and commander's hatch covers are latched and secure.

1. OPEN COMMANDER'S HATCH COVER.

a. Press pushbutton and remove quick release pin from bottom holes.

b. Push hatch cover latch to open commander's hatch cover to POP-UP position.

GO TO NEXT PAGE
2. MOVE COMMANDER'S HATCH COVER TO LEVEL POSITION.
   a. Move hatch pin lever to left and swivel commander's hatch cover to LEVEL position.
   b. Move hatch pin lever to right to lock commander's hatch cover in LEVEL position.

3. MOVE COMMANDER'S HATCH COVER TO UPRIGHT OR FULL OPEN POSITION.
   a. Pull down and hold hinge latch handle inside turret.
   b. Move commander's hatch cover to desired position and release hinge latch handle

4. LOCK HINGE LATCH HANDLE.
   a. Move hinge latch handle up.
b. Press pushbutton, and install quick release pin in bottom holes.

5. UNLOCK HINGE LATCH HANDLE.
   a. Press pushbutton, and remove quick release pin from bottom holes.
   b. Press pushbutton, and install quick release pin in top holes.

WARNING
Commander's hatch cover can swing and injure you. Make sure you support commander's hatch cover with one hand before pushing hinge latch handle down.

6. MOVE COMMANDER'S HATCH COVER TO POP-UP POSITION.
   a. Hold hatch cover handle in one hand to support commander's hatch cover. Push hinge latch handle down with other hand.
   b. Pull commander's hatch cover to LEVEL position, and release hinge latch handle.
c. Move hatch pin lever to left and swivel commander's hatch cover to POP-UP position.

d. Move hatch pin lever back to right.

**CAUTION**

If commander's hatch cover is closed when in LEVEL position, hatch pin lever mechanism can get damaged. Make sure commander's hatch cover is in POP-UP position before closing.

7. **CLOSE COMMANDER'S HATCH COVER.**

   a. Grasp hatch cover handle with one hand.
b. Pull down on hinge latch handle with other hand, and release commander's hatch cover.

c. Pull commander's hatch cover down to CLOSED position, and release hinge latch handle.

d. Press pushbutton, and remove quick release pin from top holes.

e. Press pushbutton, and install quick release pin in bottom holes.

END OF TASK
OPEN/CLOSE GUNNER'S HATCH COVER

INITIAL SETUP

Personnel Required:  
Gunner

Equipment Conditions:  
Gunner seated in turret

WARNING

Unlatched hatch cover could swing and injure soldiers. Make sure gunner's and commander's hatch covers are latched and secure.

1. OPEN GUNNER'S HATCH COVER.
   a. Push hatch cover latch to release gunner's hatch cover.

2. PUSH GUNNER'S HATCH COVER BACK TO FULL OPEN POSITION.
   a. Hold hatch cover handle, and push cover up and back to FULL OPEN position.

3. LOCK GUNNER'S HATCH COVER IN FULL OPEN POSITION.
   a. Push gunner's hatch cover until it locks in place.
   b. Press pushbutton and remove quick release pin from bottom holes.
   c. Press pushbutton and install quick release pin in top holes to lock hinge latch handle.
4. RELEASE GUNNER'S HATCH COVER FROM LOCKED POSITION.
   a. Press pushbutton and remove quick release pin from top holes.
   b. Press pushbutton and install quick release pin in bottom holes.
   c. Pull up hinge latch handle.

5. CLOSE GUNNER'S HATCH COVER.
   a. Grip hatch cover handle and pull gunner's hatch cover closed.
   b. Check that hatch cover latch is locked.

END OF TASK
OPERATE TURRET IN POWER MODE

DESCRIPTION

This task covers: Traverse Turret (page 2-153). Elevate and Depress Gun Rotor (page 2-158). Operate in STAB Mode (page 2-160).

INITIAL SETUP

Personnel Required:

Gunner
Commander

Equipment Conditions:

MASTER POWER switch ON (TM 9-2350-252-10-1)
25mm gun receiver installed (page 3-77).
25mm gun feeder installed (page 3-83)
25nim gun barrel installed (page 3-80)

REFERENCES:

TM 9-2350-252-10-1

WARNING

If you enter turret with turret power on, you may be injured or killed. Do not enter turret while turret power is on. Keep turret shield door closed and latched while turret power is on.

If turret is operated with turret shield door open, soldiers could be killed or injured. Close and latch turret shield door before you operate turret.

Unlatched hatch cover could swing and injure soldiers. Make sure gunner's and commander's hatch covers are latched and secured.

2-152
CAUTION
Feed chutes and connectors can get damaged. Make sure feed chutes are installed on feeder before traversing turret.

ISU will be damaged if turret power is turned on with mirror control knob in the locked or engaged (in) position. Make sure mirror control knob is in the unlocked or dis-engaged (out) position before you turn on turret power.

NOTE
Turret electrical motors may overheat when operating under severe conditions. If DRIVER MALF annunciator light comes on, recycle turret drive system. If DRIVE MALF annunciator light comes on again, shut down turret power and wait for at least 3 minutes. If DRIVE MALF annunciator light comes on again, notify organizational maintenance.

TRAVERSE TURRET

1. CHECK THAT DRIVER'S HATCH COVER IS IN CLOSED OR POP-UP POSITION. See TM 9-2350-252-10-1.

2. CHECK THAT CARGO HATCH COVER IS IN CLOSED OR POP-UP POSITION. See TM 9-2350-252-10-1.

3. CLOSE AND LATCH TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

4. RELEASE TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.
WARNING
Sudden vehicle movement can throw you out of vehicle. Do not stand on seat while vehicle is in motion.
Wear lap safety belt while vehicle is in motion.

CAUTION
Lap safety belts hanging from seat can get caught in turret shield door opening and damage turret. Secure lap safety belts.

5. PUT ON LAP SAFETY BELTS.

NOTE
Both gun elevation drive select lever and turret traverse drive select lever must be in POWER mode to enable power operation. If either gun elevation drive select lever or turret traverse drive select lever is in MANUAL mode, power operation will be disabled.

6. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever right to POWER position.
   c. Release pushbutton.

7. MOVE TOW ELEVATION DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move TOW elevation drive select lever right to POWER position.
   c. Release pushbutton.
8. MOVE GUN ELEVATION DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move gun elevation drive select lever right to POWER position.
   c. Release pushbutton.

9. MOVE TURRET POWER SWITCH TO ON.

WARNING
25mm gun barrel can hit soldiers and open hatches if turret power is operated with HATCH INTERLOCK OVERRIDE SWITCH in ON position. Soldiers can be killed or injured. Equipment can be damaged. Make sure HATCH INTERLOCK OVERRIDE SWITCH is in OFF position before you operate turret.

10. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.
WARNING
Soldiers near moving turret or guns could be killed or injured. Equipment could be damaged. Clear soldiers and equipment from top of vehicle before you move turret or guns.

NOTE
Azimuth indicator shows position of turret in mils. It also shows position for HE LOAD, AP LOAD, and TOW LOAD.

Turret position indicator shows position of turret in relation to vehicle. Numbered lights 1 thru 12 will go on as turret reaches each position.

11. TRAVERSE TURRET.

a. Squeeze and hold palm switch(es) on gunner's control handles or commander's control handle.

b. Turn gunner's control handles or commander's control handle to left or right. Turret will traverse left or right.
c. Note position of turret on azimuth indicator or turret position indicator while traversing turret.

d. When turret has traversed to desired position, center gunner's control handles or commander's control handle. Release palm switch(es).

**NOTE**

If fast turret switch(es) are released before control handle(s) are centered, turret will stop immediately. For smooth operation of turret, control handle(s) should be centered before releasing fast turret switch(es).

12. TRAVERSE TURRET AT HIGH SPEED.

   a. Squeeze and hold palm switch(es) on gunner's control handles or commander's control handle.

   b. Depress and hold fast turret switch(es) on gunner's control handles or commander's control handle.

   c. Turn gunner's control handles or commander's control handle to left or right. Turret will traverse to left or right at a high rate of speed.
d. Note position of turret on azimuth indicator or turret position indicator while traversing turret.

e. When turret has traversed to desired position, center gunner's control handles or commander's control handle. Release fast turret and palm switch(es).

**ELEVATE AND DEPRESS GUN ROTOR**

**WARNING**
Soldiers near moving turret or guns could be killed or injured. Equipment could be damaged. Clear soldiers and equipment from top of vehicle before you move turret or guns.

**NOTE**
25mm gun and coax machine gun are mounted in turret so they both point in same direction. When gun rotor elevates, both gun systems elevate. When gun rotor depresses, both gun systems depress.

Gun rotor can elevate to 1050 mils and depress to –180 mils. Each line on elevation indicator equals 10 mils. Each number on elevation indicator equals 100 mils.

It is normal for 25mm gun to drop to mechanical stop when operating over rough terrain.

The gun elevation drive is designed to slip if loads in excess of 110 lbs. (50 kgs.) are applied to barrel. Slippage under these conditions are normal.
13. ELEVATE AND DEPRESS GUN ROTOR.
   a. Squeeze and hold palm switch(es) on gunner's control handles or commander's control handle.
   b. Rotate and hold gunner's or commander's control handle(s) back or forward until gun rotor reaches desired position.
   c. Center gunner's control handles or commander's control handle and release palm switch(es).

   **CAUTION**
   If you release fast turret switch(es) before you center control handle(s), rotor drive may be damaged. Center control handle(s) before you release fast turret switch(es).

14. ELEVATE AND DEPRESS GUN ROTOR AT HIGH SPEED.
   a. Squeeze and hold palm switch(es) on gunner's control handles or commander's control handle.
   b. Depress and hold fast turret switch(es) on gunner's control handles or commander's control handle.
   c. Rotate and hold gunner's or commander's control handle(s) back or forward. Gun rotor will elevate or depress at high speed.
d. When gun rotor reaches desired position, center gunner's control handles or commander's control handle. Release fast turret and palm switch(es).

**OPERATE IN STAB MODE**

**WARNING**
You could be injured by moving 25mm gun if 25mm gun guard is not in place during stabilized mode operation.
Keep 25mm gun guard in place during stabilized mode operation of 25mm gun.

**CAUTION**
Drive system can get damaged. Do not operate turret in STAB mode if gun barrel has been removed.

**NOTE**
Turret electrical motors may overheat when operating under severe conditions. If DRIVE MALF annunciator light comes on, recycle turret drive system. If DRIVE MALF annunciator light comes on again, shut down turret power and wait for at least 3 minutes. If DRIVE MALF annunciator light comes on again, notify organizational maintenance.

15. MOVE STAB SWITCH TO ON.
WARNING
If either DRIVE MALF annunciator light comes on, weapons will not stay on target. Soldiers could be killed or injured if weapons are fired. Move TURRET POWER switch to OFF if either DRIVE MALF annunciator light comes on.

16. CHECK THAT DRIVE MALF ANNUNCIATOR LIGHTS ON TURRET CONTROL AND ANNUNCIATOR BOXES ARE NOT ON.

a. If DRIVE MALF annunciator lights are not on, go to step 27.

b. If either DRIVE MALF annunciator light is on, go to step 17.

17. MOVE STAB SWITCH TO OFF.

18. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF, THEN BACK TO ON.
19. CHECK THAT DRIVE MALF ANNUNCIATOR LIGHTS ON TURRET CONTROL AND ANNUNCIATOR BOXES ARE NOT ON.
   a. If DRIVE MALF annunciator lights are not on, move STAB switch to ON, then go to step 27.
   b. If either DRIVE MALF annunciator light is on, go to step 20.

20. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

21. MOVE TURRET POWER SWITCH TO OFF.

WARNING
Accidental firing of weapons could kill or injure soldiers. Make sure ARM SAFE - RESET switch is in SAFE.

22. MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN TO SAFE.

23. WAIT 2 TO 3 MINUTES, THEN MOVE TURRET POWER SWITCH TO ON.

24. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.
25. MOVE STAB SWITCH TO ON.

WARNING
If either DRIVE MALF annunciator light comes on, weapons will not stay on target. Soldiers could be killed or injured if weapons are fired. Move TURRET POWER switch to OFF if either DRIVE MALF annunciator light comes on.

26. CHECK THAT DRIVE MALF ANNUNCIATOR LIGHTS ON TURRET CONTROL BOX AND ANNUNCIATOR BOX ARE NOT ON.
   a. If either DRIVE MALF annunciator light is on, do not continue task. Notify organizational maintenance.
   b. If DRIVE MALF annunciator lights are not on, go to step 27.

27. PRESS HE SS OR AP SS BUTTON.
WARNING
Looking at sun through ISU could cause blindness. Do not look at sun through ISU.

NOTE
Gunner or commander must turn control handle(s) to track target.

Stabilization controls assist gunner or commander in tracking target. Once reticle is centered on target and palm switch(es) is (are) held, stabilization controls assist in maintaining reticle on target while vehicle is moving.

STAB is designed for use when vehicle is moving. However, vehicle does not have to be moving for STAB to operate.

28. SELECT TARGET THROUGH GUNNER'S EYEPIECE.
29. ALINE RETICLE ON TARGET.

a. Squeeze and hold palm switch(es) on gunner's or commander's control handle(s).

b. Turn gunner's or commander's control handle(s) right or left until target azimuth is aligned in reticle.

c. Rotate gunner's or commander's control handle(s) forward or back until target elevation is aligned in reticle.

d. Release palm switch(es).

**NOTE**
Center ring in all gun reticles is 1 mil wide. Use width of center ring to estimate amount of stabilization drift.

30. CHECK FOR STABILIZATION DRIFT.

a. Squeeze and hold palm switch(es) on gunner's or commander's control handle(s). Keep control handle(s) centered.

b. Check that reticle does not move off target more than 1 mil in 10 seconds.

c. If reticle does not move off target, go to step 34.

d. If reticle moves off target more than 1 mil in 10 seconds, go to step 31.

GO TO NEXT PAGE
31. RELEASE PALM SWITCHES.

**NOTE**
If DRIFT button is pressed while vehicle is moving, stabilization drift will increase. Stop vehicle before correcting stabilization drift. Vehicle must be stationary before pressing DRIFT button.

32. PRESS DRIFT BUTTON AND HOLD FOR 1 SECOND.

33. CHECK FOR STABILIZATION DRIFT.
   a. Repeat step 30.
   b. If reticle still moves off target more than 1 mil in 10 seconds after repeating step 30 twice, notify organizational maintenance.


36. MOVE STAB SWITCH TO OFF.
37. TRAVERSE TURRET TO 6400 MILS. SEE STEP 11.

38. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

WARNING
If you exit turret when turret power is on, you could be killed or injured. Do not exit turret while turret power is on.

39. MOVE TURRET POWER SWITCH TO OFF.

40. SET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

41. RELEASE LAP SAFETY BELTS.

42. OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

END OF TASK
IMMEDIATE ACTION TO STOP RUNAWAY TURRET

INITIAL SETUP

Personnel Required:
- Gunner
- Commander (C)
- Driver

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Turret traversing out of control

1. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.
   a. If turret does not stop, go to step 2.
   b. If turret stops, go to step 4.

2. (C) USING INTERCOM, TELL DRIVER TO MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.
   a. If turret does not stop, go to step 3.
   b. If turret stops, go to step 4.

3. (C) MOVE TURRET POWER SWITCH TO OFF.

4. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

5. DO NOT OPERATE TURRET IN POWER MODE. NOTIFY ORGANIZATIONAL MAINTENANCE.

END OF TASK

2-168
OPERATE 25MM GUN GUARD AND GUN COVER

INITIAL SETUP

Personnel Required: Gunner

Equipment Conditions: Turret power off (page 2-16)

WARNING
You could be injured by moving 25mm gun if 25mm gun guard is not in place during POWER mode operation. Keep 25mm gun guard in place during POWER mode operation of 25mm gun.

1. REMOVE 25MM GUN GUARD.
   a. Turn gun guard latch to right and lower 25mm gun guard.
   b. Remove 25mm gun guard from gun guard support mount.

GO TO NEXT PAGE
2. OPEN GUN COVER.
   a. Lift tab from over left and right zippers. Unzip left and right zippers.
   b. Pull gun cover window away from bolt position indicator.
   c. Fold gun cover down and out of way of 25mm gun.

3. CLOSE GUN COVER.
   a. Pull gun cover up and over rear of 25mm gun.
   b. Place gun cover window over bolt position indicator.
   c. Zip left and right zippers closed. Lower tabs over left and right zippers.

4. INSTALL 25MM GUN GUARD.
   a. Place 25mm gun guard in gun guard support mount.
b. Close 25mm gun guard. Turn gun guard latch to left to lock 25mm gun guard.

END OF TASK
OPERATE COAX MACHINE GUN ACCESS DOORS

INITIAL SETUP

Personnel Required:
Commander

1. OPEN COAX MACHINE GUN ACCESS DOORS.
   a. Pull down two handles.
   b. Pull out left coax machine gun access door.
   c. Push in right coax machine gun access door.
   d. Release two handles.

2. CLOSE COAX MACHINE GUN ACCESS DOORS.
   a. Pull down two handles.
   b. Pull out right coax machine gun access door.
   c. Push in left coax machine gun access door.
   d. Release two handles.

END OF TASK

2-172
OPERATE INTERCOM SYSTEM

INITIAL SETUP

Personnel Required:
- Gunner
- Commander

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- MASTER POWER switch ON (TM 9-2350-252-10-1)
- TURRET POWER switch ON
- Relay box assembly switch ON. (page 2-16)
- Radio-intercom switch in INTERCOM position (page 2-10)
- Intercom amplifier ON. (page 2-10)

NOTE
Procedure for operating intercom system is same for gunner and commander except for step 6 (gunner only).

1. PLUG IN CVC HELMET.
   a. Plug helmet cord into quick disconnect plug.

GO TO NEXT PAGE
2. PUT ON CVC HELMET.
   a. Place CVC helmet on head. Adjust chin strap as needed.

   **NOTE**
   ALL position operates radios and intercom. INT ONLY position operates only intercom. Use ALL position when talking to another vehicle.

3. SELECT CHANNEL ON INTERCOM CONTROL BOX.

4. MOVE HELMET SWITCH ON LEFT OF HELMET TO REAR TO TALK AND LISTEN.

5. ADJUST VOLUME KNOB ON INTERCOM CONTROL BOX.
6. HAVE GUNNER PRESS FLOOR SWITCH TO TALK. RELEASE FLOOR SWITCH TO LISTEN.

END OF TASK
CLOSE/OPEN BLACKOUT COVERS

INITIAL SETUP

Personnel Required:
Gunner or Commander

NOTE
There is one blackout cover for each of the 10 turret periscopes on IFV/CFV. The one shown here is in gunner's area.

1. CLOSE BLACKOUT COVER.
   a. Pull blackout cover tab up.
   b. Press edges of blackout cover against periscope glass to secure in place.

2. OPEN BLACKOUT COVER.
   a. Pull blackout cover down.
   b. Press blackout cover against bottom of periscope to secure.

END OF TASK

2-176
OPERATE TURRET LIGHTS

DESCRIPTION


INITIAL SETUP

Personnel Required: Commander Gunner

Equipment Conditions: MASTER POWER switch ON (TM 9-2350-252-10-1)

References:
TM 9-2350-252-10-1

OPERATE SERVICE LIGHT

NOTE
There are five bases from which service light can be operated.

Service light is normally stowed on base to right of 25mm gun guard.

Service light can be mounted on any one of three bases behind 25mm gun guard: 25mm gun guard must be removed and gun cover must be opened. Step 1 applies only if service light is to be mounted behind 25mm gun guard.

Steps 2 and 3 tell you how to move service light from one base to another. You should place service light where you need it.

2. PULL SERVICE LIGHT FROM BASE.

3. PUSH SERVICE LIGHT ONTO BASE.

Blackout light is used in night operations. White light is used in day operations.

4. OPERATE SERVICE LIGHT.

a. If using service light during day operations, pull out blackout service light lens.

b. Turn service light knob to left or right to turn on service light.

c. Turn service light knob to left or right to turn off service light.

d. Snap in blackout service light lens.
5. PULL SERVICE LIGHT FROM BASE, IF INSTALLED, BEHIND 25MM GUN GUARD.
6. PUSH SERVICE LIGHT ONTO BASE.

**OPERATE UTILITY LIGHT**

**NOTE**
There are five bases from which utility light can be operated. Utility light can also be operated in hand.

Utility light is normally stowed on base on right coax machine gun access door.

Utility light can be mounted on any one of three bases behind 25mm gun guard. 25mm gun guard must be removed and gun cover must be opened. Step 8 applies only if utility light is to be mounted behind 25mm gun guard.

Steps 9 and 10 tell how to move utility light from one base to another. You should move light where you need it.

9. PULL UTILITY LIGHT FROM BASE.
10. PUSH UTILITY LIGHT ONTO BASE.

GO TO NEXT PAGE
NOTE
Blackout light is used in night operations. White light is used in day operations.

FLOOD-SPOT twist ring on utility light may be used to increase light cover area.

11. OPERATE UTILITY LIGHT.

a. Move utility light blackout-white switch to blackout (red) position or white position.

b. Turn utility light OFF-DIM-BRIGHT switch all the way to right for bright light.

c. Turn utility light FLOOD-SPOT twist ring to left.

d. Press utility light signal button to operate utility light manually.

e. Turn utility light FLOOD-SPOT twist ring to right.

f. Turn utility light OFF-DIM-BRIGHT switch to right.

g. Turn utility light OFF-DIM-BRIGHT switch to far left to turn off utility light.
12. PULL UTILITY LIGHT FROM BASE, IF INSTALLED, BEHIND 25MM GUN GUARD.

13. PUSH UTILITY LIGHT ONTO BASE.


**OPERATE DOME LIGHTS**

**NOTE**
Ramp must be closed to operate white and blackout dome lights.  
All white dome lights are operated in the same way.

15. OPERATE WHITE DOME LIGHTS.
b. Press blackout release button. Turn light selector switch past stop to off position.

NOTE
All blackout dome lights are operated in the same way.

16. OPERATE BLACKOUT DOME LIGHTS.
   a. Turn light selector switch toward center of dome light.
   b. Turn light selector switch past stop to off position.

END OF TASK
BORESIGHT WEAPONS SYSTEM

DESCRIPTION


INITIAL SETUP

Tools:
- 25mm boresight adapter (Item 13, App B)
- 7.62mm boresight kit (Item 39, App B)
- Flat-tip screwdriver, 1/8 inch (Item 61, App B)
- Socket wrench extension, 1/2 inch (Item 25, App B)
- Socket wrench ratchet handle, 1/2 inch sq dr (Item 36, App B)
- Socket wrench socket, 1/2 inch sq dr, 9/16 inch 12 pt opening (Item 68, App B)
- Flat-tip screwdriver, 3/8 inch wide blade (Item 64, App B)

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Engine stopped (TM 9-350-252-10-1)
- 25mm gun unloaded (page 2-303)
- Coax machine gun unloaded (page 2-359)
- TOW missile launcher unloaded (page 2-400)
- Gunner's hatch cover open (page 2-150)
- Turret travel lock engaged (page 2-141)
- MASTER POWER switch ON (TM 9-2350-252-10-1)

Personnel Required:
- Gunner
- Helper (H)
WARNING
Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

Accidental firing of 25mm gun may result in death or injury. Make sure ARM-SAFE-RESET switch is in SAFE position.

Accidental firing of 25mm gun during boresighting could result in death or injury. Clear and unload 25mm gun before boresighting.

1. START ENGINE. See TM 9-2350-252-10-1.

NOTE
A square shape makes the best target to boresight 25mm gun.

2. DRIVE VEHICLE TO WITHIN 3960 FEET (1200 METERS) OF SUITABLE TARGET, AND POSITION VEHICLE FACING TARGET. See TM 9-2350-252-10-1.

3. STOP ENGINE. See TM 9-2350-252-10-1.

4. MOVE TURRET POWER SWITCH TO ON.
NOTE
ISU needs 10 minutes to cool down after NIGHT VISION PWR switch is moved to ON. If night sight is to be boresighted to day sight, NIGHT VISION PWR switch should be turned on now.

5. MOVE NIGHT VISION PWR SWITCH TO ON.

6. RAISE BALLISTIC SIGHT COVER DOORS.
   a. Pull down on day and night sight cover handles.

7. MOVE RANGE CONTROL KNOB TO 0.
8. MOVE MAG SWITCH TO HIGH UNTIL IT CLICKS.

9. MOVE SENSOR SELECT SWITCH TO CLEAR OR NEUTRAL.

NOTE
25mm gun can be boresighted by pressing either AP SS or HE SS button. AP SS will be used in this task. LO AMMO light will flash when AP SS or HE SS button is pressed.

10. PRESS AP SS BUTTON.
11. CHECK THAT AP APPEARS ON STATUS INDICATOR.
   a. If AP appears on status indicator, go to step 12.
   b. If AP does not appear on status indicator, notify organizational maintenance.

12. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever to MANUAL position.
   c. Release pushbutton.
13. MOVE GUN ELEVATION DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move gun elevation drive select lever to MANUAL position.
   c. Release pushbutton.

14. MOVE TOW ELEVATION DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move TOW elevation drive select lever to POWER position.
   c. Release pushbutton.
15. CENTER GUN RETICLE ON AIMING POINT OF TARGET.
   a. Manually elevate or depress 25mm gun and traverse turret as needed. See task: OPERATE TURRET MANUALLY, page 2-439.

   CAUTION
   Too much force will damage boresight telescope. Do not jam boresight telescope into 25mm boresight adapter.

   NOTE
   Shank of boresight telescope is tapered. You should slide shank into 25mm boresight adapter far enough so that you can turn boresight telescope and boresight telescope will hold its own weight.

16. (H) INSTALL 25MM BORESIGHT ADAPTER AND BORESIGHT TELESCOPE.
   a. Push 25mm boresight adapter into 25mm gun barrel until seated.

   b. Push shank gently into 25mm boresight adapter until seated.

   c. Turn boresight telescope so that eyepiece is at top.
d. Tell gunner that boresight telescope and 25mm boresight adapter are in.
e. Hang red streamer on 25mm boresight adapter.

17. **FOCUS BORESIGHT TELESCOPE ON TARGET.**
   a. Look into eyepiece and move vernier focus dial up or down.
   b. Rotate eyepiece.

18. **RELEASE TURRET TRAVEL LOCK.** See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

**WARNING**

Fast motion of 25mm gun during boresighting could cause injury. Make sure turret is in **MANUAL** mode.

Move 25mm gun very slowly during boresighting.

**NOTE**

Gunner and helper do steps 19 and 20 together.

19. **ALINE ELEVATION CROSSHAIR IN BORESIGHT RETICLE ON AIMING POINT OF TARGET.**
   a. Tell gunner to manually elevate or depress 25mm gun as needed. See task: OPERATE TURRET MANUALLY, page 2-439.
20. (H) ALINE AZIMUTH CROSSHAIR IN BORESIGHT RETICLE ON AIMING POINT OF TARGET.

a. Tell gunner to manually traverse turret as needed. See task: OPERATE TURRET MANUALLY, page 2-439.

21. (H) CHECK ACCURACY OF BORESIGHT TELESCOPE.

a. Rotate boresight telescope 90° to right, and look at aiming point in boresight reticle.

b. Rotate boresight telescope 90° to left, and look at aiming point in boresight reticle.

c. If aiming point stayed in inner ring of boresight reticle for both steps a and b above, go to step 22.

d. If aiming point moved out of inner ring of boresight reticle, boresight telescope is not accurate. Insert another boresight telescope and repeat steps 17 thru 21.
22. TURN FOCUS BARREL TO FOCUS GUN RETICLE.

**NOTE**
Bore-sight reticle and gun reticle must be focused on same aiming point of target.

23. CHECK ALIGNMENT OF GUN RETICLE ON AIMING POINT OF TARGET.
   a. If gun reticle is aligned on aiming point of target, go to step 25.
   b. If gun reticle is not aligned on aiming point of target, go to step 24.

24. ALINE GUN RETICLE ON AIMING POINT OF TARGET.
   a. Lift GUN BORESIGHT cover.
b. Turn EL knob to align elevation of gun reticle on aiming point of target.

c. Turn AZ knob to align azimuth of gun reticle on aiming point of target.

d. If gun reticle does not align on aiming point of target, notify organizational maintenance.

e. Close GUN BORESIGHT cover.

25. (H) REMOVE BORESIGHT TELESCOPE AND 25MM BORESIGHT ADAPTER FROM 25MM GUN BARREL.

a. Pull boresight telescope gently from 25mm boresight adapter.

b. Pull 25mm boresight adapter and red streamer out of 25mm gun barrel.

c. Tell gunner that boresight telescope and 25mm boresight adapter are out.
WARNING

Accidental firing of coax machine gun may result in death or injury. Make sure ARM-SAFE-RESET switch is in SAFE position.

Accidental firing of coax machine gun during boresighting could result in death or injury. Clear and unload coax machine gun before boresighting.

Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

NOTE
LO AMMO indicator light will flash when 7.62 button is pressed.

26. PRESS 7.62 BUTTON.
27. CHECK THAT 7.62 APPEARS IN STATUS INDICATOR.
   a. If 7.62 appears in status indicator, go to step 28.
   b. If 7.62 does not appear in status indicator, notify organizational maintenance.

28. CHECK ALINEMENT OF GUN RETICLE ON AIMING POINT OF TARGET.
   a. If gun reticle is alined on aiming point of target, go to step 29.
   b. If gun reticle is not alined on aiming point of target, notify organizational maintenance.

**NOTE**

Coax machine gun can be boresighted on same target as 25mm gun. While moving to commander's station, handwheels or controls should not be moved.

29. SIT IN COMMANDER'S SEAT.
CAUTION
Too much force will damage boresight telescope. Boresight telescope should not be jammed into boresight adapter.

30. (H) INSTALL BORESIGHT ADAPTER AND BORESIGHT TELESCOPE.
   a. Push boresight adapter into coax machine gun barrel.
   b. Push shank of boresight telescope into boresight adapter.
   c. Turn boresight telescope so that eyepiece is at top.
   d. Tell gunner that boresight telescope and boresight adapter are in.
   e. Hang red streamer on boresight adapter.

31. (H) FOCUS BORESIGHT TELESCOPE ON TARGET.
   a. Look into eyepiece and move vernier focus dial up or down.
   b. Rotate eyepiece.
32. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

NOTE
To move coax machine gun to right, AZ knob is turned back toward you. To move coax machine gun to left, AZ knob is turned forward.

33. ALIGN AZIMUTH CROSSHAIR OF BORESIGHT RETICLE ON AIMING POINT OF TARGET.

a. To move coax machine gun left or right, tell gunner to move AZ knob.

b. If gun reticle cannot be boresighted, notify organizational maintenance.
34. (H) ALINE ELEVATION CROSSHAIR IN BORESIGHT RETICLE ON AIMING POINT OF TARGET.

a. To move coax machine gun up or down, tell gunner to move EL knob.

b. If gun reticle cannot be boresighted, notify organizational maintenance.

35. (H) REMOVE BORESIGHT TELESCOPE AND BORESIGHT ADAPTER.

a. Pull boresight telescope gently from boresight adapter.

b. Pull boresight adapter and red streamer from coax machine gun barrel.

c. Tell gunner that boresight telescope and boresight adapter are out.

d. Remove red streamer.

36. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
BORESIGHT NIGHT SIGHT TO DAY SIGHT USING CONVENIENT TARGET METHOD

WARNING
Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

CAUTION
Outside air temperature changes of 20°F (11°C) can cause night sight to lose accuracy. When outside air temperature changes by 20°F (11°C), boresight night sight to day sight.

NOTE
There are two methods of boresighting night sight to day sight. Convenient target method (steps 37 thru 44) should be used when visibility is good for 3280 feet (1000 meters). Buddy boresighting method (steps 45 thru 64) should be used when visibility is poor, but not less than 656 feet (200 meters).

Night sight to day sight should not be boresighted until 25mm gun is boresighted.

37. CHECK THAT NIGHT VISION PWR SWITCH IS ON.

38. MOVE SENSOR SELECT SWITCH TO NIGHT.
39. TURN BRT KNOB TO ADJUST BRIGHTNESS.

40. TURN CON KNOB TO ADJUST CONTRAST.

NOTE
A freewheeling effect will be noticed if focus knob is turned left more than seven to nine turns from a fully right position.

41. TURN FOCUS KNOB TO FOCUS GUN RETICLE.

NOTE
When boresighting night sight to day sight after boresighting 25mm gun, status indicator will show either AP SS or HE SS. If coax machine gun has been boresighted after boresighting 25mm gun, status indicator will show 7.62 when boresighting night sight to day sight.

42. ALINE ELEVATION CROSSHAIR AND AZIMUTH CROSSHAIR IN GUN RETICLE ON AIMING POINT OF TARGET.
a. Lift NIGHT BORESIGHT cover.
b. Turn EL knob to aline elevation crosshair on aiming point of target.
c. Turn AZ knob to aline azimuth crosshair on aiming point of target.

43. MOVE SENSOR SELECT SWITCH TO CLEAR OR NEUTRAL.

44. CHECK ALINEMENT OF GUN RETICLE ON AIMING POINT OF TARGET.
   a. If elevation crosshair and azimuth crosshair in gun reticle aline on aiming point, night sight is boresighted to day sight.
   b. If elevation crosshair and azimuth crosshair in gun reticle do not aline on aiming point, notify organizational maintenance.
c. Close NIGHT BORESIGHT cover.

**BORESIGHT NIGHT SIGHT TO DAY SIGHT USING BUDDY BORESIGHT METHOD**

**WARNING**
Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

**CAUTION**
Outside air temperature changes of 20°F (11°C) can cause night sight to lose accuracy. When outside air temperature changes by 20°F (11°C), boresight night sight to day sight.

**NOTE**
There are two methods of boresighting night sight to day sight. Convenient target method (steps 37 thru 44) should be used when visibility is good for 3280 feet (1000 meters). Buddy boresighting method (steps 45 thru 64) should be used when visibility is poor, but not less than 656 feet (200 meters). You should not boresight night sight to day sight until 25mm gun has been boresighted.

45. START ENGINES OF TWO VEHICLES. See TM 9-2350-252-10-1.
46. DRIVE TWO VEHICLES TO LEVEL GROUND AND POSITION THE TWO VEHICLES FACING EACH OTHER, NO LESS THAN 656 FEET (200 METERS) APART. See TM 9-2350-252-10-1.

47. STOP ENGINES OF TWO VEHICLES. See TM 9-2350-252-10-1.

48. MOVE TURRET POWER SWITCHES IN BOTH VEHICLES TO ON.

NOTE
After NIGHT VISION PWR switch is turned on, night vision control need 10 minutes to cool down.

49. MOVE NIGHT VISION PWR SWITCHES IN BOTH VEHICLES TO ON.
NOTE
25mm gun can be boresighted by pressing either AP SS or HE SS button. AP SS will be used in this task. LO AMMO indicator light will flash when AP SS or HE SS button is pressed.

50. PRESS AP SS BUTTON.

51. CHECK THAT AP APPEARS ON STATUS INDICATOR.
   a. If AP appears on status indicator, go to step 52.
   b. If AP does not appear on status indicator, notify organizational maintenance.

52. TURN FOCUS BARREL TO FOCUS GUN RETICLE.
53. MOVE NIGHT VISION PWR SWITCH TO BRSIT.

NOTE
Day sight gun reticle is aligned with boresight lamp on other vehicle. Night sight gun reticle is aligned with thermal resistor on other vehicle.

54. (H) ALINE ELEVATION CROSSHAIR IN GUN RETICLE ON BORESIGHT LAMP OF OTHER VEHICLE.
   a. Tell boresighting gunner to manually elevate or depress 25mm gun as needed. See task: OPERATE TURRET MANUALLY, page 2-439.

55. ALINE AZIMUTH CROSSHAIR IN GUN RETICLE ON BORESIGHT LAMP OF OTHER VEHICLE.
   a. Tell boresighting gunner to manually traverse turret as needed. See task: OPERATE TURRET MANUALLY, page 2-439.

56. MOVE SENSOR SELECT SWITCH TO NIGHT.
57. TURN BRT KNOB TO ADJUST BRIGHTNESS.

58. TURN CON KNOB TO ADJUST CONTRAST.

**NOTE**
A freewheeling effect will be noticed if focus knob is turned left more than seven to nine turns from a fully right position.

59. TURN FOCUS KNOB TO FOCUS GUN RETICLE.

60. CHECK ALINEMENT OF GUN RETICLE ON THERMAL RESISTOR OF OTHER VEHICLE.
   a. If elevation crosshair and azimuth crosshair in gun reticle are aligned on thermal resistor of other vehicle, night sight is boresighted. Go to step 62.
   b. If elevation crosshair and azimuth crosshair in gun reticle are not aligned on thermal resistor of other vehicle, go to step 61.
61. ALINE ELEVATION CROSSHAIR AND AZIMUTH CROSSHAIR IN GUN RETICLE ON THERMAL RESISTOR OF OTHER VEHICLE.
   a. Lift NIGHT BORESIGHT cover.
   b. Turn EL knob to aline elevation crosshair on thermal resistor of other vehicle.
   c. Turn AZ knob to aline azimuth crosshair on thermal resistor of other vehicle.
   d. Close NIGHT BORESIGHT cover.

62. MOVE SENSOR SELECT SWITCH TO CLEAR OR NEUTRAL.
63. CHECK ALIGNMENT OF GUN RETICLE ON BORESIGHT LAMP OF OTHER VEHICLE.

a. If crosshairs in gun reticle are aligned on boresight lamp of other vehicle, go to step 64.

b. If elevation crosshair and azimuth crosshair in gun reticle are not aligned on boresight lamp of other vehicle, notify organizational maintenance.

64. MOVE NIGHT VISION PWR SWITCH TO OFF.
BORESIGHT TOW LAUNCHER

WARNING

Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

Accidental firing of TOW missile could result in death or injury. Make sure ARM-SAFE-RESET switch is in SAFE position.

Accidental firing of TOW missile could result in death or injury. Unload and clear TOW launcher before boresighting.

65. SELECT A SUITABLE TARGET 3960 FEET (1200 METERS) AWAY FROM YOU. REPEAT STEPS 1 THRU 5.

66. MOVE MAG SWITCH TO HIGH UNTIL IT CLICKS.

GO TO NEXT PAGE
67. MOVE SENSOR SELECT SWITCH TO CLEAR OR NEUTRAL.

**WARNING**

Soldiers on top of vehicle in path of moving TOW launcher could be killed or injured. Check top of vehicle. Make sure no soldiers or equipment is in path of moving TOW launcher.

68. RAISE TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

69. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

70. PRESS TOW BUTTON.
NOTE
After depressing TOW button, TOW indicator light will come on. TOW TEST indicator light will come on for about 12 seconds and then go out.

71. CHECK THAT TOW INDICATOR LIGHT STAYS ON WHEN TOW TEST INDICATOR LIGHT GOES OUT.

72. CHECK THAT TOW APPEARS ON STATUS INDICATOR.
   a. If TOW appears on status indicator, go to step 73.
   b. If TOW does not appear on status indicator, notify organizational maintenance.
WARNING

Soldiers on top of vehicle in path of moving TOW launcher could be killed or injured. Check top of vehicle. Make sure no soldiers or equipment is in path of moving TOW launcher.

Fast motion of TOW launcher during boresighting could cause injury. Make sure TOW launcher and turret are in MANUAL mode. Move TOW launcher very slowly during boresighting.

CAUTION

Operating TOW elevation handwheel with both TOW elevation drive select lever and gun elevation drive select lever will break linkage. Check that gun elevation drive select lever is in MANUAL position is in POWER position before manual TOW operation.

73. MOVE TOW ELEVATION DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move TOW elevation drive select lever to MANUAL position.
   c. Release pushbutton.
74. MOVE GUN ELEVATION DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move gun elevation drive select lever to POWER position.
   c. Release pushbutton.

75. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever to MANUAL position.
   c. Release pushbutton.
CAUTION
Too much force will damage boresight telescope. Do not jam boresight telescope into TOW launcher.

NOTE
Shank of boresight telescope is tapered. Slide shank into TOW launcher far enough so that boresight telescope will hold its own weight.

76. (H) INSTALL BORESIGHT TELESCOPE.
   a. Push shank of boresight telescope gently into TOW launcher until seated.
   b. Turn boresight telescope so that eyepiece is at top.
   c. Tell gunner that boresight telescope is in.
   d. Hang red streamer on boresight telescope.

77. RELEASE TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.
WARNING
Fast motion of TOW launcher during boresighting may result in injury. Make sure TOW launcher and turret are in MANUAL mode. Move TOW launcher very slowly during boresighting.

CAUTION
Manual operation of TOW launcher with both TOW and gun elevation drive select levers in MANUAL position will break linkage. Check that gun elevation drive select lever is in POWER position before manual operation of TOW launcher.

78. ALIGN AZIMUTH CROSSHAIR OF TOW RETICLE ON AIMING POINT OF TARGET.

79. (H) FOCUS BORESIGHT TELESCOPE ON TARGET.
   a. Look into eyepiece and move vernier focus dial up or down.
   b. Rotate eyepiece.
80. (H) CHECK ALIGNMENT OF BORESIGHT TELESCOPE RETICLE ON AIMING POINT OF TARGET.
   a. If the azimuth crosshair of the boresight telescope reticle aligns on the aiming point of the target, tow launcher is boresighted in azimuth. Go to step 82.
   b. If the azimuth crosshair of the boresight telescope reticle does not align on aiming point of target, go to step 81.

81. (G) ALIGN TOW MISSILE LAUNCHER IN AZIMUTH.
   a. Loosen eight tow launcher mounting screws. Use socket wrench socket, extension and handle.
   b. Pivot tow missile launcher within its armor box until boresight telescope azimuth crosshair aligns on aiming point of target. Use 3/8 inch flat-tip screwdriver.
   c. Tighten four center tow launcher mounting screws so tow launcher will not pivot on base plate. Use socket wrench socket, extension, and handle.
   d. Tighten four end tow launcher mounting screws so launcher will not pivot on base plate. Use socket wrench socket, extension, and handle.
e. Repeat step 80 to check alignment of boresight telescope on aiming point of target.

82. (H) CHECK ELEVATION ALIGNMENT OF BORESIGHT TELESCOPE RETICLE ON AIMING POINT OF TARGET.

a. If elevation crosshair of the boresight telescope reticle aligns on the aiming point of the target, go to step 84.

b. If the elevation crosshair of the boresight telescope reticle does not align on the aiming point of the target, go to step 83.

CAUTION
Operating gun elevation handwheel with both TOW elevation drive select lever and gun elevation drive select lever in MANUAL position will break linkage. Check that gun elevation drive select lever is in POWER position before manual TOW operation.

83. (H) ALIGN ELEVATION CROSSHAIR OF BORESIGHT TELESCOPE RETICLE ON AIMING POINT TO TARGET.

a. Tell gunner to manually elevate or depress TOW launcher as needed. See task: OPERATE TURRET MANUALLY, page 2-439.

GO TO NEXT PAGE
84. CHECK ELEVATION ALIGNMENT OF TOW RETICLE ON AIMING POINT OF TARGET.
   a. If elevation crosshair of TOW reticle aligns on aiming point of target, TOW launcher is boresighted in elevation, go to step 86.
   b. If elevation crosshair of TOW reticle does not align on aiming point of target, go to next step.

85. ALINE ELEVATION CROSSHAIR OF TOW RETICLE ON AIMING POINT OF TARGET.
   a. Turn TOW boresight adjustment screw until elevation crosshair aligns on aiming point of target. Use flat-tip screwdriver.
   b. Remove screwdriver after aligning elevation crosshair.
   c. If aiming point of target moves up or down from elevation crosshair after removing screwdriver, notify organizational maintenance.

86. PRESS TOW BUTTON.
87. (H) REMOVE BORESIGHT TELESCOPE.
   a. Pull boresight telescope and red streamer gently from TOW launcher.
   b. Tell gunner that boresight telescope is out.
   c. Remove red streamer.

88. LOWER TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

89. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

END OF TASK
BORESIGHT BACKUP SIGHT

INITIAL SETUP

Tools:

- Socket head key hex drive wrench, 9/64 inch (Item 84, App B)
- Flat-tip screwdriver, 3/16 in. (Item 62, App B)
- Open end wrench, 7/16 inch (Item 78, App B)
- Socket wrench socket, 7/16 inch (Item 67, App B)

Equipment Conditions:

- Engine stopped (TM 9-2350-252-10-1)
- 25mm gun unloaded (page 2-303)
- Coax machine gun unloaded (page 2-359)
- TOW missile launcher unloaded (page 2-400)
- Gunner's hatch cover open (page 2-150)
- Turret travel lock engaged (page 2-141)
- MASTER POWER switch ON (TM 9-2350-252-10-1)

Personnel Required:

- Gunner

References:

- TM 9-2350-252-10-1

WARNING

Looking at the sun through backup sight unit may cause blindness. Do not look at sun through unit.

WARNING

Accidental firing of gun could kill or injure soldiers. Make sure manual safety handle is at SAFE.

Accidental firing of gun during boresighting could kill or injure soldiers. Clear gun of ammo before boresighting.

2-220
WARNING
Your hands could be injured if they strike objects when you crank 25mm gun manually. Keep your hands clear of objects near hand crank.

Fast motion of gun during boresighting could cause injury. Make sure turret is in manual mode. Move gun very slowly during boresighting.

NOTE
Backup sight should be boresighted immediately after boresighting 25mm gun. Turret and ISU controls should not be operated until backup sight is boresighted.

Backup sight is boresighted on same target as 25mm gun. Do not move hand-wheels or controls.

1. BORESIGHT 25MM GUN. See page 2-183.

2. REPOSITION BACKUP SIGHT TO COMMANDER’S POSITION. See task: REPOSITION BACKUP SIGHT EYEPIECE, page 2-225.


GO TO NEXT PAGE
4. LOOK AT AIMING-POINT IMAGE IN BACKUP SIGHT RETICLE.
   a. If aiming-point image is in center of reticle crosshairs, backup sight is correctly boresighted.
   b. If aiming-point image is not in center of backup sight reticle crosshairs, do steps 5 thru 9.

5. PERFORM ELEVATION LINKAGE ADJUSTMENT.
   a. Loosen locknut on crank. Use open end wrench.
   b. Aline backup sight reticle crosshair with target.
   c. Adjust thumbscrews on crank until reticle crosshair comes to horizontal line of aiming-point cross.
   d. If adjustment cannot be done by using thumbscrews, contact organizational maintenance.
   e. Tighten locknut on crank. Use socket wrench socket.
6. LOOSEN HORIZONTAL ADJUSTMENT LOCK SCREW.
   a. Turn horizontal adjustment lock screw about one turn to left. Use 9/64 inch socket head key wrench.

   NOTE
   Turning horizontal adjustment screw to the right moves reticle to the right. Turning horizontal adjustment screw to the left moves reticle to the left.

7. CENTER AIMING-POINT IMAGE.
   a. Turn horizontal adjustment screw to center aiming-point image. Use 3/16 inch screwdriver.

8. LOCK HORIZONTAL ADJUSTMENT LOCK SCREW.
   a. Tighten horizontal adjustment lock screw. Use 9/64 inch socket head key wrench.
9. CHECK AIMING-POINT IMAGE.
   a. If aiming-point image is centered, backup sight is correctly boresighted.
   b. If aiming-point image is not centered, repeat steps 5 thru 8.

END OF TASK
REPOSITION BACKUP SIGHT EYEPIECE

INITIAL SETUP

Personnel Required:
Gunner or Commander

1. REPOSITION EYEPIECE.
   a. Press lock lever toward eyepiece housing assembly.
   b. Swivel eyepiece housing assembly downward. Release lock lever.
   c. Push eyepiece housing assembly into new position.

2. CHECK THAT EYEPIECE IS LOCKED IN NEW POSITION.
   a. Lock lever is spring lock loaded. Check that lock lever has snapped into slot on flange joint.
ADJUST EYEPiece DIYOPTER

INITIAL SETUP

Personnel Required:
Gunner or Commander

NOTE
The eyepiece diopter focuses the backup sight. Eyepiece diopter must be adjusted for each operator.

1. FOCUS EYEPiece DIYOPTER
   a. Look through eyepiece on backup sight.
   b. Turn focus ring left and right until backup sight reticle is in focus.

   NOTE
   Each operator has a different diopter setting. When you operate the backup sight, turn the focus ring to your setting.

2. FIND EYEPiece DIYOPTER SETTING.
   a. Find diopter scale behind eyepiece.
   b. Read number on diopter scale opposite white mark on focus ring. This is diopter setting.

END OF TASK
DEFLATE/INFLATE EYECUP

INITIAL SETUP

Personnel Required:
Gunner or Commander

NOTE
When gas mask is used, eyecup must deflate so operator will see eyepiece reticle in focus.

1. DEFLATE EYECUP.
   a. Lift flap on eyecup and pull from hole.
   b. Tilt plug behind eyecup.

2. INFLATE EYECUP.
   a. Lift flap and insert plug firmly in hole.

END OF TASK
ZERO ISU AND 25MM GUN

INITIAL SETUP

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- MASTER POWER switch ON
  (TM 9-2350-252-10-1)
- Turret operating in power mode
  (page 2-152)
- 25mm gun feeder loaded
  (page 2-246)
- 25mm gun boresighted
  (page 2-184)

WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

1. SELECT TARGET THAT IS 1200 METERS (3960 FEET) AWAY FROM YOU.

2. TURN RANGE CONTROL KNOB TO 12.

3. MOVE MAG SWITCH TO HIGH UNTIL IT CLICKS.
4. MOVE MANUAL SAFETY DOWN TO FIRE POSITION.

CAUTION
HE ammo will explode target. Do not use HE ammo to zero ISU and 25mm gun.

NOTE
If using TP-T ammo in AP system, HE-AP selector switch must be in HE. AP SS button must be selected on weapon control box.
If using TP-T ammo in HE system, HE-AP selector switch must be in HE. HE SS button must be selected on weapon control box.

5. PRESS AP SS BUTTON OR HE SS BUTTON (TP-T ONLY).

6. TRAVERSE TURRET AND ELEVATE OR DEPRESS 25MM GUN TO ALINE RETICLE ON TARGET. See task: OPERATE TURRET IN POWER MODE, page 2-152.

7. MOVE ARM-SAFE-RESET SWITCH TO ARM.
8. FIRE ONE ROUND AT TARGET.
   a. Squeeze trigger switches on gunner's control handles.

9. LOOK AT STRIKE OF ROUND THROUGH GUNNER'S EYEPIECE.
   a. If strike of round is centered on target and reticle, 25mm gun is zeroed.
   b. If strike of round is not centered on target and reticle, go to step 10.
10. ALINE RETICLE ON CENTER OF STRIKE OF ROUND.
   a. Open GUN BORESIGHT cover.
   b. Turn EL control knob to aline elevation crosshair on strike of round.
   c. Turn AZ control knob to aline azimuth crosshair on strike round.
   d. Close GUN BORESIGHT cover.

11. TRAVERSE TURRET AND ELEVATE OR DEPRESS 25MM GUN TO ALINE RETICLE BACK ON TARGET. See task: OPERATE TURRET IN POWER MODE, page 2-152.

12. REPEAT STEPS 7 AND 8 UNTIL 25MM GUN IS ZEROED.

13. NOTIFY ORGANIZATIONAL MAINTENANCE IF 25MM GUN CANNOT BE ZEROED.

END OF TASK
ZERO COAX MACHINE GUN

INITIAL SETUP

Personnel Required:
Gunner

References:
TM 9-2350-252-10-1

Equipment Conditions:
MASTER POWER switch ON
(TM 9-2350-252-10-1)
Coax machine gun boresighted
(page 2-194)
Coax machine gun loaded
(page 2-333)
ARM-SAFE-RESET switch in
SAFE (page 2-21)

WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

1. CHOOSE TARGET 800 METERS (2624 FEET) FROM VEHICLE.

2. TURN RANGE CONTROL KNOB TO 8.
3. MOVE MAG SWITCH TO HIGH UNTIL IT CLICKS.

4. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

5. CHECK POSITION OF MANUAL SAFETY ON COAX MACHINE GUN.
   a. If manual safety is in position with "S" showing, push manual safety down to firing position. Go to step 7.
   b. If manual safety is in firing position with "S" not showing, go to step 6.
6. CHARGE COAX MACHINE GUN.
   a. Pull charger handle back until bolt locks to the rear.

   **WARNING**
   Gases from weapons are poisonous. Close coax machine gun access doors before you fire coax machine gun.

7. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

**NOTE**
7.62 indicator light comes on when 7.62 button is pressed.

8. PRESS 7.62 BUTTON.

9. TRAVERSE TURRET AND ELEVATE OR DEPRESS GUN ROTOR TO ALINE RETICLE ON CENTER OF TARGET. See task: OPERATE TURRET IN POWER MODE, page 2-152.
10. MOVE ARM-SAFE-RESET SWITCH TO ARM.

11. FIRE SHORT BURST FROM COAX MACHINE GUN.

a. Squeeze trigger switch(es) on gunner's control handles or commander's control handle.
CAUTION

Boresight for weapons system will be inaccurate if gun boresight controls are moved. Do not move gun boresight controls on ISU to zero coax machine gun.

NOTE

Each lead line and each space between lead lines is 2.5 mils. Each crosshair is 5.0 mils.

12. EXAMINE STRIKES OF ROUNDS ON TARGET.

a. If strikes of rounds are centered on target and reticle, coax machine gun is zeroed. Go to step 18.

b. If strikes of rounds are not centered on target and reticle, go to steps c and d below.

c. Estimate the number of mils elevation between strikes of rounds and center of reticle.
d. Estimate the number of mils azimuth between strikes of rounds and center of reticle.

13. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

**NOTE**
Each click of EL knob equals 0.5 mil adjustment on reticle.

Turning EL knob to right elevates strikes of rounds. Turning EL knob to left depresses strikes of rounds.

14. TURN EL KNOB TO ADJUST ELEVATION.

a. Turn EL knob right or left the number of clicks required to adjust elevation ($2 \times$ estimated mils $=$ elevation).

GO TO NEXT PAGE
NOTE

Each click of AZ knob equals 0.5 mil adjustment on reticle.

Turning AZ knob back moves strikes of rounds to right. Turning AZ knob forward moves strikes of rounds to left.

15. TURN AZ KNOB TO ADJUST AZIMUTH.
   a. Turn AZ knob back or forward the number of clicks required to adjust azimuth (2 x estimated mils = azimuth).

16. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

17. CHECK FOR PROPER ZERO OF COAX MACHINE GUN.
   a. Repeat steps 11 thru 16 until strikes of rounds are centered on target.

18. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
19. PUSH MANUAL SAFETY UP TO SAFE POSITION WITH "S" SHOWING.

20. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

END OF TASK
**INITIAL SETUP**

**Personnel Required:**
- Gunner

**References:**
- TM 9-2350-252-10-1

**Equipment Conditions:**
- Vehicle parked (TM 9-2350-252-10-1)
- 25mm gun cleared and unloaded (page 2-303)
- 25mm gun feeder removed (page 3-34)

1. **PUSH IN FEED SELECT SOLENOID KNOB TO AP POSITION.**

2. **TURN WORM SHAFT NUT.**
   a. Press in timer release rod.
   b. Hold timer release rod in and turn worm shaft nut one complete turn.
   c. Release timer release rod.
3. CYCLE 25MM GUN FEEDER TO SEAR POSITION.
   
   a. Turn worm shaft nut left until there is a click and timer release rod pops out.

   b. While turning worm shaft nut, check bolt position indicator to ensure that it does not bind while cycling 25mm gun feeder to SEAR.

   c. Check that rotor moves one-third turn and stops, and that sprockets move continuously.
4. **CHECK BOLT POSITION INDICATOR.**
   a. If bolt position indicator is not in SEAR position, notify organizational maintenance.

5. **PULL OUT FEED SELECT SOLENOID KNOB TO HE POSITION. REPEAT STEPS 2 THRU 4.**

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**END OF TASK**
POSITION 25MM GUN BOLT IN SEAR POSITION

INITIAL SETUP

Personnel Required:
Gunner

Equipment Conditions:
25mm gun feeder removed  
(page 3-34)
Vehicle parked  
(TM 9-2350-252-10-1)

References:
TM 9-2350-252-10-1

1. CHECK POSITION OF DRIVE SHAFT HANDLE.
   a. If drive shaft handle is out, go to step 3.
   b. If drive shaft handle is not out, go to step 2.

2. PULL OUT DRIVE SHAFT HANDLE.
   a. Press lock button.
   b. Pull out drive shaft handle.
   c. Release lock button.
3. LOCK BOLT IN SEAR POSITION.
   a. Turn drive shaft handle forward until it stops turning.
   b. If drive shaft handle stops turning, go to step 5.
   c. If drive shaft handle does not stop turning, sear is not engaging. Go to step 4.

NOTE
Bolt will not lock in SEAR position when sear retractor lever is engaged.

4. RELEASE SEAR RETRACTOR LEVER.
   a. Press hard on upper right tab of sear retractor lever.

5. CHECK THAT DRIVE SHAFT HANDLE WILL NOT TURN.
   a. If drive shaft handle will not turn, bolt is locked in SEAR position.
b. If drive shaft handle turns, bolt is not locking in SEAR position. Notify organizational maintenance.

6. INSTALL 25MM GUN FEEDER. See page 3-83.

END OF TASK
LOAD 25MM GUN FEEDER

INITIAL SETUP

Tools:
14mm ratchet wrench
(Item 83, App B)

Personnel Required:
Gunner

Equipment Conditions:
25mm HE ammo loaded
(page 2-254)
25mm AP ammo loaded
(page 2-267)


2. CHECK THAT BOLT POSITION INDICATOR IS IN SEAR POSITION.
   a. If bolt position indicator is in SEAR position, go to step 3.
   b. If bolt position indicator is not in SEAR position, time 25mm gun feeder. See task: TIME 25MM GUN FEEDER, page 2-240.
WARNING
Accidental firing of 25mm gun could kill or injure soldiers. Make sure manual safe handle is in SAFE.

3. CHECK THAT MANUAL SAFE HANDLE IS IN SAFE POSITION.


CAUTION
25mm gun feeder can be damaged if feed select solenoid knob is not all the way in AP or HE position. Do not cycle 25mm gun feeder with feed select solenoid knob part way in AP or HE position.

5. PULL OUT FEED SELECT SOLENOID KNOB TO HE POSITION.

GO TO NEXT PAGE
NOTE
If lower clutch override knob does not start to come out, notify organizational maintenance.

6. FORWARD HE AMMO TO 25MM GUN FEEDER.
   a. Put 14mm ratchet wrench on shaft of HE ammo forwarder with wrench handle pointing down.
   b. Turn HE ammo forwarder shaft right until lower clutch override knob starts to come out.
   c. If HE ammo jams, do step 7.
   d. If HE ammo does not jam, remove 14mm ratchet wrench and go to step 8.
7. DOWNLOAD HE AMMO.
   a. Put upward pressure on 14mm ratchet wrench and turn HE release handle to right.
   b. Hold HE release handle up while turning HE ammo forwarder shaft left.
   c. Let go of HE release handle and turn HE ammo forwarder shaft left until HE release handle pops back into place.
   d. Repeat steps a thru c above until HE ammo is free from 25mm gun feeder.
   e. Repeat step 6.

   **NOTE**
   Lower clutch override knob will come out about 1/4 inch, then go back in as each round is loaded.

8. LOAD 25MM GUN FEEDER WITH TWO ROUNDS OF HE AMMO.
   a. Put 14mm ratchet wrench on lower feed shaft extension.
   b. Turn lower feed shaft extension to right until lower clutch override knob goes in the second time.
9. TAKE TENSION OFF HE AMMO.
   a. Move 14mm ratchet wrench to HE ammo forwarder.
   b. Turn HE ammo forwarder shaft slightly right, and lift HE release handle.
   c. Turn HE ammo forwarder shaft to left to take tension off HE ammo.
   d. Turn HE ammo forwarder shaft right until lower clutch override knob is fully seated.

10. PUSH IN FEED SELECT SOLENOID KNOB TO AP POSITION.

   NOTE
   If upper clutch override knob does not start to come out, report to organizational maintenance.

11. FORWARD AP AMMO TO 25MM GUN FEEDER.
   a. Put 14mm ratchet wrench on shaft of AP ammo forwarder with wrench handle pointing down.
b. Turn AP forwarder shaft left until upper clutch override knob starts to come out.

c. If AP ammo jams, do step 12.

d. If AP ammo does not jam, go to step 13.

12. DOWNLOAD AP AMMO.
   a. Put upward pressure on 14mm ratchet wrench and turn AP release handle.
b. Hold AP release handle up while moving 14mm ratchet wrench to straight down position.

c. Let go of AP release handle, and turn AP forwarder shaft right until AP release handle pops back into place.

d. Repeat steps a thru c above until AP ammo is free from 25mm gun feeder.

e. Repeat step 11.

NOTE
Upper clutch override knob will come out about 1/4 inch, then go back in, as each round is loaded.

13. LOAD 25MM GUN FEEDER WITH ONE ROUND OF AP AMMO.

a. Put 14mm ratchet wrench on upper feed shaft extension.

b. Turn upper feed shaft extension left until upper clutch override knob goes back in the first time.
14. TAKE TENSION OFF AP AMMO.
   a. Move 14mm ratchet wrench to AP ammo forwarder.
   b. Turn AP forwarder shaft slightly left, and lift AP release handle.
   c. Turn AP forwarder shaft right to take tension off AP ammo.
   d. Turn AP forwarder shaft left until upper clutch override knob is fully seated.

LOAD/RELOAD 25MM HE AMMO

INITIAL SETUP

Tools:
14mm ratchet wrench (Item 83, App B)

References:
TM 9-2350-252-10-1

Personnel Required:
Gunner
Helper (H)

References:
TM 9-2350-252-10-1

Equipment Conditions:
Vehicle parked (TM 9-2350-252-10-1)
MASTER POWER switch ON (TM 9-2350-252-10-1)

NOTE
The 25mm HE ammo is loaded and reloaded in the same way. Total number of rounds required during reload depends on number of rounds left in ammo can.

If using TP-T ammo in AP system, HE-AP selector switch must be in HE and HE SS selected.

1. TRAVERSE TURRET TO HE LOAD POSITION (2150 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

2. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

3. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

4. MOVE TURRET POWER SWITCH TO OFF.
5. (H) OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

6. TURN HANDLE AND REMOVE 25MM AMMO CAN DOOR.

7. TURN HANDLE AND REMOVE ACCESS DOOR.

8. CLEAN LOADING RAILS. WIPE LOADING RAILS WITH CLEAN CLOTH.

9. (H) TURN HANDLE AND REMOVE HE AMMO CAN DOOR.

10. STOW SQUAD SEATS. See TM 9-2350-252-10-1.
WARNING
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

NOTE
Seven 25mm ammo boxes, AP or HE, can be stowed in IFV floor. Eight 25mm ammo boxes, AP or HE, can be stowed in CFV floor.

11. (H) UNSTOW HE AMMO BOXES FROM FLOOR.
   a. Lift and turn nine fastener handles.
   b. Remove three floor plates.
   c. Unstow HE ammo boxes.
   d. Install three floor plates.
   e. Lift and turn nine fastener handles.
12. STACK HE AMMO BOXES.

13. UNSTOW SQUAD SEATS. See TM 9-2350-252-10-1.

**WARNING**
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

**NOTE**
Thirteen ammo boxes, AP or HE, can be stowed in IFV ammo racks. Thirty-two ammo boxes, AP or HE, can be stowed in CFV ammo racks.

14. (H) UNSTOW HE AMMO BOXES FROM IFV AMMO RACKS, IF NECESSARY.

a. Fold down backrests of seats No. 4, No. 5, and No. 8.

b. Unbuckle straps on ammo racks.

c. Unstow HE ammo boxes from ammo racks.

d. Fasten and tighten straps on ammo racks.

e. Raise backrests of seats No. 4, No. 5, and No. 8.
15. (H) STACK HE AMMO BOXES.

16. (H) UNSTOW HE AMMO BOXES FROM CFV AMMO RACKS, IF NECESSARY.
   a. Unbuckle straps on ammo racks.
   b. Unstow HE ammo boxes from ammo racks.
   c. Fasten and tighten straps on ammo racks.

17. (H) STACK HE AMMO BOXES.

   CAUTION
   Rounds not correctly aligned can jam in 25mm ammo can and chutes. Jams can damage feed system. Check that rounds are aligned and even at tips.

18. (H) PREPARE FIRST AMMO BELT.
   a. Place first ammo belt on vehicle floor with links on bottom. Point rounds to left side of vehicle. Empty single link should be to rear of vehicle.
b. Check for misaligned rounds. Align all misaligned rounds with other rounds.

19. (H) PREPARE SECOND AMMO BELT.

a. Place second ammo belt on vehicle floor with links on bottom. Point rounds to left side of vehicle. Double link should be next to empty single link of first ammo belt.

b. Check for misaligned rounds. Align all misaligned rounds with other rounds.

CAUTION

Links can bend if you do not remove rounds properly. Bent links can jam feeder. Hold one round down while pulling other round up and free.

20. (H) REMOVE FIRST ROUND FROM SECOND AMMO BELT.

a. Hold one round down while pulling other round up and free.

b. If round does not release from link, stop pulling on round. To free round from link, twist and pull up on round at same time.
21. (H) JOIN SECOND AMMO BELT TO FIRST AMMO BELT.

a. Place empty single link on top of empty double link.

b. Aline alinement lips of empty single link with alinement grooves of empty double link.

c. Press down on empty single link until it is fully seated in empty double link.

d. Place loose round on top of joined links. Aline alinement groove on loose round with alinement tangs on double link.

e. Press down on loose round until it is fully seated.

22. (H) CHECK AMMO BELT FOR MISALIGNED ROUNDS.

a. Aline all misaligned rounds with other rounds.

23. (H) JOIN AMMO BELTS AS REQUIRED.

a. Repeat steps 19 thru 22 until no more than 230 rounds are in ammo belt.
NOTE
Ammo belt must be loaded with links to top and rounds pointed to right of vehicle. Rounds are counted as you load.

24. (H) LOAD FIRST 44 ROUNDS IN AMMO CAN.
   a. Turn ammo belt over, so links are on top. Rounds should point to right of vehicle.
   b. Count out 5th and 19th rounds. Feed ammo belt with double links first into ammo can. Hang first five rounds on loading rail.
   c. Hang 19th round on loading rail.

25. RELEASE UPPER ROLLER.
   a. Pull upper roller to rear of ammo can.

GO TO NEXT PAGE
26. FORWARD AMMO BELT.

a. Push first five rounds under upper roller. Guide rounds up into forwarder until first round is engaged in sprocket.

b. Place 14mm ratchet wrench on HE forwarder shaft.

c. Turn forwarder clockwise using 14mm ratchet wrench until 19th round drops off loading rail.

d. Remove 14mm ratchet wrench.
27. LOCK UPPER ROLLER.
   a. Push upper roller toward forwarder.

28. (H) LOAD NEXT GROUP OF ROUNDS ON AMMO BELT INTO AMMO CAN.
   b. Hang both 24th and 25th rounds on loading rail.

29. (G) (H) LIFT AMMO BELT LOOPS OVER BAFFLE.
   a. Reach under first loop of ammo belt through front access door opening.
   b. Lift first loop up. Move first loop to left over baffle.
   c. Lift second loop over baffle by repeating steps a and b above.
30. (H) LIFT AMMO BELT LOOPS OVER ROLLER.
   a. Reach under third loop of ammo belt through right side access door opening.
   b. Lift third loop up. Move third loop to left over roller.
   c. Lift fourth loop over roller by repeating steps a and b above.

   **NOTE**
   Total number of rounds required during reload depends on number of rounds left in ammo can.
   There must be a single empty link at end of ammo belt.

31. (H) LOAD AMMO BELT UNTIL AMMO CAN IS FULL.
   a. Count rounds in groups of 25.
   b. Hang both 24th and 25th rounds on loading rail.
   c. Continue to load ammo belt until all 230 rounds are in ammo can.
   d. Place single empty link under last loop of ammo belt.
32. (H) INSTALL HE AMMO CAN DOOR AND TURN HANDLE.

33. INSTALL ACCESS DOOR AND TURN HANDLE.

34. INSTALL 25MM AMMO CAN DOOR AND TURN HANDLE.

WARNING
If HE-AP selector switch is at AP with HE ammo loaded, rounds will fall short. Soldiers could be killed or injured. Check that HE-AP selector switch is at HE when you load HE ammo.

NOTE
If mission requires AP-DS or AP ammo to be loaded in HE ammo cans, HE-AP selector switch must be in AP.

35. (H) MOVE HE-AP SELECTOR SWITCH TO HE.

36. (H) STOW EMPTY AMMO CANS. See TM 9-2350-252-10-1.
37. (H) CLOSE TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

**WARNING**

Soldiers near moving turret or guns could be killed or injured. Equipment could be damaged. Clear soldiers and equipment from top of vehicle before you move turret or guns.

38. MOVE TURRET POWER SWITCH TO ON.

39. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

40. RELEASE TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

41. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

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END OF TASK
LOAD/RELOAD 25MM AP AMMO

INITIAL SETUP

Tools:
14mm ratchet wrench
(Item 83, App B)

Materials/Parts:
Lint-free cloth
(Item 14, App D)

Personnel Required:
Gunner
Helper (H)

References:
TM 9-2350-252-10-1

Equipment Conditions:
Vehicle parked
(TM 9-2350-252-10-1)
MASTER POWER switch ON
(TM 9-2350-252-10-1)

NOTE
The 25mm AP ammo is loaded and reloaded in the same way. Total number of rounds required during reload depends on number of rounds left in ammo can.

If using TP-T ammo in AP system, be sure HE-AP selector switch is in HE and AP SS is selected.

1. TRAVERSE TURRET TO AP LOAD POSITION (4350 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

2. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

3. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

4. MOVE TURRET POWER SWITCH TO OFF.

GO TO NEXT PAGE
5. (H) OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

6. (H) OPEN AND REMOVE AP AMMO CAN DOOR FROM AP AMMO CAN.
   a. Turn handle and remove AP ammo can door.

7. CLEAN LOADING RAILS. WIPE LOADING RAILS WITH CLEAN CLOTH.

8. STOW SQUAD SEATS. See TM 9-2350-252-10-1.

**WARNING**
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

**NOTE**
Seven ammo boxes, AP or HE, can be stowed in IFV floor. Eight ammo boxes, AP or HE, can be stowed in CFV floor.

9. UNSTOW AP AMMO BOXES FROM FLOOR.
   a. Lift and turn nine fastener handles.
   b. Remove three floor plates.

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c. Unstow AP ammo boxes.
d. Install three floor plates.
e. Lift and turn nine fastener handles.

9. STACK AP AMMO BOXES.

11. UNSTOW SQUAD SEATS, IF NECESSARY. See TM 9-2350-252-10-1.

**WARNING**
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

**NOTE**
Thirteen ammo boxes, AP or HE, can be stowed in IFV ammo racks. Thirty-two ammo boxes, AP or HE, can be stowed in CFV ammo racks.

12. UNSTOW AP AMMO BOXES FROM IFV AMMO RACKS, IF NECESSARY.

a. Fold down backrests of seats No. 4, No. 5, and No. 8.

b. Unbuckle straps on ammo racks.
c. Unstow AP ammo boxes from ammo racks.

d. Fasten and tighten straps on ammo racks.

e. Raise backrests of seats No. 4, No. 5, and No. 8.

13. STACK AP AMMO BOXES.

14. UNSTOW AP AMMO BOXES FROM CFV AMMO RACKS, IF NECESSARY.

a. Unbuckle straps on ammo racks.

b. Unstow AP ammo boxes from ammo racks.

c. Fasten and tighten straps on ammo racks.

15. STACK AP AMMO BOXES.
CAUTION
Rounds not correctly aligned can jam in ammo can and chutes. Jams can damage feed system. Check that rounds are aligned and even at tips.

NOTE
Steps 16 thru 23 apply to loading 25mm AP ammo for the first time.
Step 24 applies to re-loading 25mm AP ammo.

16. (H) PREPARE FIRST AMMO BELT.
   a. Place first ammo belt on vehicle floor with links on bottom. Point rounds to left side of vehicle. Empty single link should be to rear of vehicle.
   b. Check for misaligned rounds. Aline all misaligned rounds with other rounds.

17. (H) PREPARE SECOND AMMO BELT.
   a. Place second ammo belt on vehicle floor with links on bottom. Point rounds to left side of vehicle. Double link should be next to empty single link of first ammo belt.
   b. Check for misaligned rounds. Aline all misaligned rounds with other rounds.
CAUTION
Links can bend if you do not remove rounds properly. Bent links can jam feeder.

18. (H) REMOVE FIRST ROUND FROM SECOND AMMO BELT.
   a. Hold one round down while pulling the other round up and free.
   b. If round does not release from link, stop pulling on round. To free round from link, twist and pull up on round at same time.

19. (H) JOIN SECOND AMMO BELT TO FIRST AMMO BELT.
   a. Place empty single link on top of empty double link.
   b. Aline alinement lips of empty single link with alinement grooves of empty double link.
   c. Press down on empty single link until it is fully seated in empty double link.
   d. Place loose round on top of joined links. Aline alinement groove on loose round with alinement tangs on double link.
   e. Press down on loose round until it is fully seated.
20. (H) CHECK AMMO BELT FOR MISALIGNED ROUNDS.
   a. Aline all misaligned rounds with other rounds.

21. (H) JOIN AMMO BELTS AS REQUIRED.
   a. Repeat steps 17 thru 20 until no more than 70 rounds are in ammo belt.

CAUTION
If ammo is not correctly loaded, it can jam in chutes and damage feed system. Always place end of ammo belt with double links in ammo can first. The empty single link will go in ammo can last.

NOTE
Ammo belt must be loaded with links down and rounds pointed to left side of ammo can.

22. (H) LOAD AMMO BELT ONTO LOADING RAIL.
   a. Aline ammo belt with ammo can and hang first double linked round onto loading rail.
   b. Count out the first 25 rounds. Hang both 25th and 26th rounds onto loading rail.
23. FORWARD AMMO BELT.
   a. Lift single linked end of ammo belt up into forwarder. Push last round up until it is engaged in sprocket.
   b. Place 14mm ratchet wrench on shaft on forwarder.
   c. Turn forwarder to right using 14mm ratchet wrench. Have helper tell you when two lowest rounds hang down the same distance from loading rail.
   d. Remove 14mm ratchet wrench from forwarder. Go to step 25.

   NOTE
   Step 24 applies to reloading 25mm AP ammo.

24. JOIN AMMO BELT TO ROUND HANGING FROM AP FEED CHUTE.
   a. Count rounds on loaded ammo belt below loading rail. Forty-nine, less amount below loading rail, will give you amount of rounds that can be added.
b. Join ammo belts as required. Repeat steps 16 thru 20 until you get desired amount of new rounds.

c. Join empty single link of new ammo belt to empty double link of loaded ammo belt hanging from AP feed chute.

d. Place loose round in joined links. Aline alinement groove on loose round with alinement tangs on double links. Press down until it is fully seated.

e. Hang first double linked round (end of ammo belt) onto loading rail.

f. Hang both 25th and 26th rounds onto loading rail.
25. (H) INSTALL AND CLOSE AP AMMO CAN DOOR.
   a. Install AP ammo can door on AP ammo can. Turn handle.

   **WARNING**
   If HE-AP selector switch is at HE with AP ammo loaded, rounds will fall long. Soldiers could be killed or injured.
   Check that HE-AP selector switch is at AP when you load AP ammo.

26. (H) MOVE HE-AP SELECTOR SWITCH TO AP.

27. (H) STOW EMPTY AMMO CANS. See TM 9-2350-252-10-1.

28. (H) CLOSE TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

29. MOVE TURRET POWER SWITCH TO ON.

30. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

31. RELEASE TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

32. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

END OF TASK
FIRE 25MM GUN

INITIAL SETUP

Personnel Required:
Gunner
Commander

References:
TM 9-2350-252-10-1

Equipment Conditions:
ISU and 25mm gun boresighted (page 2-183).
ISU and 25mm gun zeroed (page 2-228).

Equipment Conditions (cont):
25mm AP ammo loaded (page 2-267).
25mm HE ammo loaded (page 2-254).
25mm gun feeder loaded (page 2-246).
Turret operating in power mode (page 2-152).
ARM:SAFE-RESET switch in SAFE (page 2-21).
Engine running (TM 9-2350-252-10-1)

WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

CAUTION
If steps are taken out of order, 25mm gun will not cycle properly and could be damaged. Follow steps in order.

NOTE
When you prepare to fire 25mm gun, watch indicator lights on control boxes. See that proper lights go on and off when you use buttons and switches. If they do not, notify organizational maintenance.
NOTE
If 25mm gun is to be fired at night, NIGHT VISION PWR switch on ISU
must be moved to ON 10 minutes before operation of ISU. See step 19.

1. IF DAY FIRING, PULL DAY SIGHT
COVER HANDLE TO OPEN DAY
SIGHT COVER DOOR. IF NIGHT
FIRING, PULL NIGHT SIGHT
COVER HANDLE TO OPEN
NIGHT SIGHT COVER DOOR. See
page 2-33.

2. MOVE TURRET DRIVE SYSTEM
SWITCH TO OFF.

3. REMOVE 25MM GUN GUARD,
AND OPEN GUN COVER. See
task: OPERATE 25MM GUN
GUARD AND GUN COVER,
page 2-169.

4. MOVE MANUAL SAFE HANDLE
TO FIRE POSITION.

5. CLOSE GUN COVER, AND
INSTALL 25MM GUN GUARD.
See task: OPERATE 25MM GUN
GUARD AND GUN COVER,
page 2-169.
WARNING

The first round of ammo after feed change can fall long or short. Soldiers can be killed or injured. Be sure that range safety procedures include consideration of this hazard before firing.

If ammo cannot be selected, trigger switch may be sticking. Gun may fire accidently. Soldiers may be killed or injured. Check that switch does not stick. If switch sticks, download all weapons and notify organizational maintenance.

NOTE

When feed change is made, the first round fired will be the same as previous rounds. However, automatic elevation correction for range will be set for the new ammo selection. If one HE round is fired using AP superelevation correction, the round will fall short. If one AP round is fired using HE superelevation correction, the round will fall long.

If using TP-T ammo in HE system, select HE SS on weapon control box.

6. SELECT AMMO AS REQUIRED.
   a. Press AP SS or HE SS button for single shot AP or HE ammo.
   b. Press AP LO or HE LO button for 100 rounds/minute AP or HE ammo.
   c. Press AP HI or HE HI button for 200 rounds/minute AP or HE ammo.
7. CHECK SEAR INDICATOR LIGHT.
   a. If sear indicator light is on, go to step 18.
   b. If sear indicator light is not on, go to step 8.

8. MOVE TURRET POWER SWITCH TO OFF.

10. RAISE FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Raise feeder handle up.
   c. Release feeder handle latch. Feeder handle should be locked up.

11. RELEASE SEAR RETRACTOR LEVER.
   a. Push in hard on left side of sear retractor lever until you hear a click.

12. PRESS IN AND HOLD SEAR RELEASE.
13. LOWER FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Lower feeder handle down.
   c. Release feeder handle latch. Feeder handle should be locked down.

14. CHECK BOLT POSITION INDICATOR.
   a. If bolt position indicator is just out of SEAR, manually back up drive shaft handle until bolt position indicator is in SEAR position.

15. CLOSE GUN COVER, AND INSTALL 25MM GUN GUARD.
WARNING

If you enter turret with turret power on, you may be injured or killed. Do not enter turret while turret power is on. Keep turret shield door closed and latched while turret power is on.

NOTE

If 25 FDR MALF annunciator light comes back on after TURRET POWER switch is moved back to ON, notify organizational maintenance.

16. MOVE TURRET POWER SWITCH TO ON.

17. CHECK SEAR INDICATOR LIGHT.
   a. If sear indicator light is on, go to step 18.
   b. If sear indicator light is not on when checked a second time, notify organizational maintenance.

18. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.
   a. If night firing, go to step 19.
   b. If day firing, go to step 25.
NOTE
Night vision controls need 10 minutes to cool down after NIGHT VISION PWR switch is moved to ON.

19. MOVE NIGHT VISION PWR SWITCH TO ON.

20. MOVE SENSOR SELECT SWITCH TO NIGHT.
NOTE
W/H position on NIGHT VISION PLRT switch shows red image on black background in gunner's and commander's eyepiece. B/H position on NIGHT VISION PLRT switch shows black image on red background in gunner's and commander's eyepiece.

21. MOVE NIGHT VISION PLRT SWITCH TO W/H OR B/H AS DESIRED.

22. TURN CON KNOB TO ADJUST CONTRAST.

23. TURN BRT KNOB TO ADJUST BRIGHTNESS.

24. TURN FOCUS KNOB TO FOCUS IMAGE IN GUNNER'S EYEPIECE. GO TO STEP 26.

25. MOVE SENSOR SELECT SWITCH TO CLEAR OR NEUTRAL.

26. TURN RET BRT KNOB TO ADJUST RETICILE BRIGHTNESS.

GO TO NEXT PAGE
27. **MOVE MAG SWITCH TO HIGH UNTIL IT CLICKS.**

**NOTE**
Stadia line is calibrated for a target that is about 5 feet (1.5 meters) in height. This height is the same as that of most tracked vehicles and medium size cargo trucks.

28. **FIND RANGE OF TARGET USING RANGE FINDER IN RETICLE.**
   a. Traverse turret and/or elevate or depress 25mm gun as needed to center target between stadia line and baseline in reticle. See task: OPERATE TURRET IN POWER MODE, page 2-152.
   b. Read range of target at point where target touches both stadia line and baseline.
NOTE
Status indicator in bottom of reticle should show type of ammo selected (AP or HE) and range of target selected on range control knob (10 equals 1000 meter).

29. TURN RANGE CONTROL KNOB TO RANGE ESTIMATED IN STEP 28.

30. CENTER TARGET IN RETICLE.
   a. Traverse turret and/or elevate or depress 25mm gun as needed to center target in reticle. See task: OPERATE TURRET IN POWER MODE, page 2-152.

WARNING
Accidental firing of weapon can kill or injure soldiers. Weapon will fire if you press trigger switch when ARM-SAFE-RESET switch is in ARM. Take care not to depress trigger switches on gunner’s control handles, commander’s control handle, or turret traverse handwheel. Make sure spring is installed on turret traverse handwheel.

Gun can fire accidentally when you arm weapon if trigger switch is sticking. Soldiers can be killed or injured. Check that switch is not sticking. If switch is stuck, download all weapons and notify organizational maintenance.

31. MOVE ARM-SAFE-RESET SWITCH TO ARM.

GO TO NEXT PAGE
WARNING
An open bolt explosion can kill or injure soldiers. If 25mm gun stops firing, see step 34 for misfire procedure.

Noise from vehicle or weapons could damage hearing of soldiers in or near vehicle. Use earplugs and other hearing protectors when vehicle or gun is operated. Read warning at front of manual.

CAUTION
Plenum must be cleared of links after 200 rounds fired.

NOTE
If 25mm gun has been uploaded, pulling trigger switch will result in misfire. This is normal because no round was put into feed rotor during uploading. Use misfire procedure for first cycle. 25mm gun should fire on second cycle.

32. FIRE 25MM GUN AT TARGET.
   a. Squeeze trigger switches on gunner's control handles or palm and trigger switches on commander's control handle.
b. If turret is operating in manual mode, fire gun using trigger switch on turret traverse handwheel.

c. If gun fires, go to step 37.

d. If gun fails to fire, go to step 33.

33. CHECK SEAR INDICATOR LIGHT.

a. If sear indicator light is flashing, go to task: IMMEDIATE ACTION WHEN 25MM GUN MISFIRES, page 2-295.

b. If sear indicator light is not flashing, go to step 34.

35. CHECK BOLT POSITION INDICATOR.
   a. If bolt position indicator is in COOKOFF DANGER ZONE, go to task: IMMEDIATE ACTION WHEN 25MM GUN IS IN COOKOFF ZONE (BUT NOT IN MISFIRE), page 2-300.
   c. If bolt position indicator is in any position other than SEAR, MISFIRE, or COOKOFF DANGER ZONE, go to trouble-shooting task: 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN, page 3-2.

NOTE
Vibration during firing may cause 25 FDR MALF annunciator light to come on. Corrective action must be performed before 25mm gun will function.

37. CHECK 25 FDR MALF ANNUNCIATOR LIGHT.
   a. If 25 FDR MALF annunciator light is on, go to next step.
   b. If 25 FDR MALF annunciator light is not on, go to step 43.

38. MOVE TURRET POWER SWITCH TO OFF.

39. MOVE TURRET POWER SWITCH TO ON.

GO TO NEXT PAGE
WARNING

The first round of ammo after feed change can fall long or short. Soldiers can be killed or injured. Be sure that range safety procedures include consideration of this hazard before firing.

NOTE

When feed change is made, the first round fired will be the same as previous round. However, automatic elevation correction for range will be set for the new ammo selection. If one HE round is fired using AP superelevation correction, the round will fall short. If one AP round is fired using HE superelevation correction, the round will fall long.

If using TP-T ammo in HE system, select HE SS on weapon control box.

Steps 40 and 41 can be performed if feed change is desired when firing 25mm gun.

40. RESELECT AMMO AS REQUIRED.

   a. Press AP SS or HE SS button for single shot AP or HE ammo.

   b. Press AP LO or HE LO button for 100 rounds/minute AP or HE ammo.

   c. Press AP HI or HE HI button for 200 rounds/minute AP or HE ammo.
41. CHECK 25 FDR MALF ANNUNCIATOR LIGHT.
   a. If 25 FDR MALF annunciator light is on, notify organizational maintenance.
   b. If 25 FDR MALF annunciator light is not on, resume firing.

   NOTE
   Steps 42 thru 47 should be performed when firing is completed.

42. MOVE ARM-SAFE-RESET SWITCH TO SAFE.

43. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

44. MOVE TURRET POWER SWITCH TO OFF.

WARNING
Accidental firing of 25mm gun could kill or injure soldiers. Clear and safe 25mm gun when fire mission is completed.


END OF TASK
IMMEDIATE ACTION WHEN 25MM GUN MISFIRES

INITIAL SETUP

Personnel Required:
- Gunner (G)
- Commander (C)

Equipment Conditions:
- Turret operating in power mode (page 2-152)
- 25mm gun failed to fire and SEAR indicator light is flashing (page 2-277)

References:
- TM 9-2350-252-10-1

WARNING
Accidental firing of weapon can kill or injure soldiers. Weapon will fire if you press trigger switch when ARM- SAFE-RESET switch is in ARM. Take care not to depress trigger switch accidentally. Make sure spring is installed on turret traverse handwheel handle.

25mm gun cookoff could kill or injure soldiers. If gun is hot, do not try to inspect feeder, remove round, or recycle gun. All soldiers must leave vehicle for 30 minutes before you start corrective action. Driver must not exit through driver's hatch.

GO TO NEXT PAGE
NOTE

25mm gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 15 minutes.

1. CHECK THAT ARM-SAFE-RESET SWITCH IS IN ARM.

WARNING

An open bolt explosion could kill or injure soldiers. Misfire could be hang fire. If gun misfires, do not immediately press MISFIRE button on weapon control box.

2. (G) RELEASE TRIGGER SWITCHES ON GUNNER'S CONTROL HANDLES AND WAIT 5 SECONDS.
3. PRESS AP SS OR HE SS BUTTON.

4. (G) PRESS MISFIRE BUTTON.

NOTE
25mm gun should cycle from MISFIRE to SEAR position when trigger switches are squeezed.

5. (G) SQUEEZE TRIGGER SWITCHES ON GUNNER’S CONTROL HANDLES.

6. (G) CHECK THAT SEAR INDICATOR LIGHT IS ON.
   a. If SEAR indicator light is on, squeeze trigger switches on gunner’s control handles and continue firing.
   b. If SEAR indicator light is on, but 25mm gun will not fire, go to troubleshooting task: 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN, page 3-2.
   c. If SEAR indicator light is not on, go to step 7.
WARNING
25mm gun cook-off could kill or injure soldiers. If gun is hot, do not inspect feeder, remove round, or recycle gun. All soldiers must leave vehicle for 30 minutes before corrective action. Driver must not exit through driver's hatch.

NOTE
25mm gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 15 minutes.


8. (G) CHECK BOLT POSITION INDICATOR.
   a. If bolt position indicator has not cycled out of MISFIRE position and 25mm gun is cold, go to troubleshooting task: 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN, page 3-2.
   b. If bolt position indicator has not cycled out of MISFIRE position and 25mm gun is hot, go to step 10.

10. (C) TELL CREW AND DRIVER THERE IS COOKOFF DANGER. TELL THEM THEY MUST EXIT VEHICLE IMMEDIATELY. See TM 9-2350-252-10-1.

11. (G) OPEN GUNNER’S HATCH COVER. See task: OPEN/CLOSE GUNNER’S HATCH COVER, page 2-150.

12. (C) OPEN COMMANDER’S HATCH COVER. See task: OPEN/CLOSE COMMANDER’S HATCH COVER, page 2-145.

13. (C) (G) EXIT VEHICLE. STAY CLEAR OF 25MM GUN BARREL AND CLIMB DOWN FROM VEHICLE.
   a. Stay away from vehicle for 30 minutes or until cookoff. Make sure no one enters aiming area.
   b. After 30 minutes (25mm gun is cold), go to troubleshooting task: 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN, page 3-2.

END OF TASK
IMMEDIATE ACTION WHEN 25MM GUN IS IN COOKOFF ZONE (BUT NOT IN MISFIRE)

INITIAL SETUP

Personnel Required:
- Gunner (G)
- Commander (C)

Equipment Conditions:
- Turret operating in power mode (page 2-152).
- 25mm gun has failed to fire and bolt position indicator is in COOKOFF DANGER ZONE after more than 100 rounds have been fired within 15 minutes (page 2-277).

WARNING

Accidental firing of 25mm gun could kill or injure soldiers. Make sure 25mm gun is aimed in safe direction. Be sure no soldier or equipment is in the line of fire.

25mm gun cookoff could kill or injure soldiers. If gun is hot, do not inspect feeder, remove round, or recycle gun. All soldiers must leave vehicle for 30 minutes before corrective action. Driver must not exit through driver's hatch.

GO TO NEXT PAGE
NOTE
25mm gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 15 minutes.

1. (C) TELL CREW AND DRIVER THERE IS COOKOFF DANGER. TELL CREW AND DRIVER THEY MUST EXIT VEHICLE IMMEDIATELY. See TM 9-2350-252-10-1.


3. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

4. (C) MOVE TURRET POWER SWITCH TO OFF.
5. (G) OPEN GUNNER'S HATCH COVER. See task: OPEN/CLOSE GUNNER'S HATCH COVER, page 2-150.

6. (C) OPEN COMMANDER'S HATCH COVER. See task: OPEN/CLOSE COMMANDER'S HATCH COVER, page 2-145.

7. (G) (C) EXIT VEHICLE. STAY CLEAR OF 25MM GUN BARREL, AND CLIMB DOWN FROM VEHICLE.
   
   a. Stay away from vehicle for 30 minutes or until cookoff. Make sure no one enters aiming areas. See troubleshooting task: 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN, page 3-2.

END OF TASK
UNLOAD 25MM GUN FEEDER

DESCRIPTION

This task covers:

- Prepare 25mm Gun Feeder For Unloading (page 2-303).
- Remove AP Link Eject Chute From 25mm Gun Feeder (page 2-306).
- Unload AP Ammo From 25mm Gun Feeder (page 2-307).
- Remove HE Link Eject Chute From 25mm Gun Feeder (page 2-309).
- Unload HE Ammo From 25mm Gun Feeder (page 2-311).
- Remove 25mm Ammo From 25mm Gun Feeder (page 2-313).

INITIAL SETUP

Tools:

- Handcrank assembly (Item 5, App B)
- 14mm ratchet wrench (Item 23, App B)
- Flat-tip screwdriver, 3/8 inch (Item 64, App B)

References:

- TM 9-2350-252-10-1
- Equipment Conditions:
  - 25mm gun feeder loaded (page 2-246).
  - Vehicle parked (TM 9-2350-252-10-1)

Personnel Required:

- Gunner
- Helper (H)

PREPARE 25MM GUN FEEDER FOR UNLOADING

WARNING

Accidental firing of gun could kill or injure soldiers. Make sure ARM-SAFE-RESET switch is in SAFE.

1. MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN TO SAFE.

GO TO NEXT PAGE

4. MOVE TURRET POWER SWITCH TO OFF.

5. MOVE MANUAL SAFE HANDLE TO SAFE POSITION.
6. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

7. DISCONNECT AP AND HE LINKS FROM LINKS IN AP AND HE LINK EJECT CHUTES. USE SCREWDRIVER TO PRY LINKS APART IF NECESSARY.

8. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
REMOVE AP LINK EJECT CHUTE FROM 25MM GUN FEEDER

### WARNING

Hands can be crushed if gun rotor moves. Turn turret power off before you reach into gun rotor.

9. REMOVE AP LINK EJECT CHUTE FROM 25MM GUN FEEDER.

   a. Squeeze latches and pull AP link eject chute to right, away from 25mm gun feeder.

   b. Release latches.

   c. Disconnect AP link in AP link eject chute from AP link coming out of 25mm gun feeder. Use screwdriver to pry links apart, if necessary.

   d. Pull AP link eject chute up and left to remove chute from journal.

   e. Remove AP link eject chute from 25mm gun area.

   f. Remove and discard AP links from AP link eject chute.
10. PULL OUT FEED SELECT SOLENOID KNOB TO HE POSITION.

UNLOAD AP AMMO FROM 25MM GUN FEEDER

CAUTION
Empty ammo links can jam 25mm gun feeder if links do not align in stripper rail. Guide empty ammo links onto stripper rail while ammo is being unloaded from 25mm gun feeder.

NOTE
It may be necessary to move forwarder back and forth to release upper clutch override knob.

Upper clutch override knob should be checked to make sure it goes back in after 25mm gun feeder is unloaded.

11. UNLOAD AP AMMO FROM 25MM GUN FEEDER.

a. Place 14mm ratchet wrench on upper feed shaft extension with wrench handle up and to right.

b. Pull out and hold upper clutch override knob.

GO TO NEXT PAGE
c. Guide AP ammo links onto stripper rail while unloading 25mm gun feeder.

d. Turn 14mm ratchet wrench left until last round of AP ammo is clear of feeder.

e. Press AP forwarder release lever as needed to release tension on links in AP ammo chute.

f. Release upper clutch override knob.

g. Turn 14mm ratchet wrench left until upper clutch override knob is seated.

h. Remove 14mm ratchet wrench.

13. REMOVE HE LINK EJECT CHUTE FROM 25MM GUN FEEDER.
   a. Squeeze latches and pull HE link eject chute to right, away from 25mm gun feeder.
   b. Release latches.
   c. Disconnect HE links in HE link eject chute from HE link coming out of 25mm gun feeder.
d. Pull HE link eject chute down and left, and remove chute from journal.

e. Turn HE link eject chute and pull out of 25mm gun receiver area.

f. Remove and discard HE links from chute.

14. PUSH IN FEED SELECT SOLENOID KNOB TO AP POSITION.
UNLOAD HE AMMO FROM 25MM GUN FEEDER

CAUTION
Empty ammo links can jam 25mm gun feeder if links do not align in stripper rail. Guide empty ammo links onto stripper rail while ammo is being unloaded from 25mm gun feeder.

NOTE
It may be necessary to move forwarder back and forth to release lower clutch override knob.

Lower clutch override knob should be checked to make sure it goes back in after 25mm gun feeder is loaded.

13. UNLOAD HE AMMO FROM 25MM GUN FEEDER.

a. Place 14mm ratchet wrench on lower feed shaft extension with wrench handle straight down.

b. Pull out and hold lower clutch override knob.
c. Guide HE ammo links onto stripper rail while unloading 25mm gun feeder.

d. Turn 14mm ratchet wrench left until last round of HE ammo is clear of feeder.

e. Press HE forwarder release lever as needed to release tension on links in HE ammo chute.

f. Release lower clutch override knob.

g. Turn 14mm ratchet wrench left until lower clutch override knob is seated.

h. Remove 14mm ratchet wrench.

16. REMOVE 25MM GUN FEEDER. See page 3-34.
WARNING
Soldiers could be killed or injured by ammo. Make sure all ammo is removed immediately.

17. PUSH IN AND HOLD TIMER RELEASE ROD.

NOTE
If worm shaft nut can not be turned manually, then use handcrank assembly to turn manual drive gear hub to the left until you hear two clicks.

13. TURN WORM SHAFT NUT TO LEFT UNTIL YOU HEAR TWO CLICKS.

19. RELEASE TIMER RELEASE ROD.
WARNING
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

NOTE
If handcrank assembly was used in step 18, continue to turn handcrank assembly until round drops into helper's hand.

20. CONTINUE TO TURN WORM SHAFT NUT UNTIL ROUND DROPS INTO HELPER'S HAND.

REMOVE 25MM AMMO FROM GUN RECEIVER

22. REMOVE AMMO FROM FACE OF BOLT.

23. CHECK CHAMBER FOR AMMO.
   a. If ammo is found in chamber, remove ammo.

24. CHECK FORWARD EJECT PORT FOR AMMO.
   a. If ammo is found in forward eject port, remove ammo.

END OF TASK
UNLOAD/STOW 25MM HE AMMO

INITIAL SETUP

Tools: 14mm ratchet wrench (Item 83, App B)

Equipment Conditions: Vehicle parked (TM 9-2350-252-10-1) MASTER POWER switch ON (TM 9-2350-252-10-1)

Personnel Required: Gunner Helper (H)

References: TM 9-2350-252-10-1


3. TRAVERSE TURRET TO HE LOAD POSITION (2150 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

4. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.
5. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

6. MOVE TURRET POWER SWITCH TO OFF.

7. (H) OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

8. REMOVE HE AMMO CAN DOOR.
   a. Turn handle to right.
   b. Remove HE ammo can door from HE ammo can.
WARNING
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

9. UNLOAD HE AMMO FROM HE FEED CHUTE.

a. Place 14mm ratchet wrench on shaft of HE forwarder, with wrench handle to the left.

b. Put upward pressure on 14mm ratchet wrench and pull HE release handle to the right.

c. Hold HE release handle to right while moving 14mm ratchet wrench to straight down position.

d. Let go of HE release handle and turn 14mm ratchet wrench right until HE release handle pops back into place.

e. Remove 14mm ratchet wrench from shaft.

f. Repeat steps a thru e above until only two rounds are visible in HE feed chute.
10. MOVE HE AMMO ONTO LOADING RAIL.
   a. Remove 25mm ammo can door from HE ammo can.
   b. Reach into HE ammo can and grasp round nearest HE forwarder.
   c. Pull round onto loading rail while releasing last two rounds from HE feed chute.
   d. Install 25mm ammo can door on HE ammo can.

11. (H) PULL AMMO BELT FROM HE AMMO CAN. STRETCH AND PLACE AMMO BELT ON VEHICLE FLOOR.

   NOTE
   If HE round does not release from link, stop pulling HE round. HE round is freed by twisting and pulling up on HE round at same time.

12. (H) REMOVE 15TH ROUND.
   a. Start at end of ammo belt, nearest turret and count 15 rounds.
   b. Pull 15th round from link.

GO TO NEXT PAGE
13. (H) SEPARATE LINKS.
   a. Lift right side of ammo belt and pull out single link from double link.

14. (H) PLACE LOOSE ROUND IN EMPTY DOUBLE LINKS.
   a. Aline alinement groove on loose round with alinement tang on double link.
   b. Press down on round until it is fully seated.

   **NOTE**
   Last ammo belt may have less than 15 HE rounds.

15. REPEAT STEPS 12 THRU 14 UNTIL ALL AMMO IS SEPARATED INTO 15 ROUND BELTS.

16. STOW FIRST 15 ROUNDS OF AMMO IN HE AMMO BOX.
   a. Unlatch and open ammo box lid.
   b. Remove separator from HE ammo box.
NOTE
Large inserts should be used. Be sure that round number matches insert number.

**c.** Hold separator with projectile side up and place first ammo belt in numbered inserts. Place rounds 1 thru 4 in middle of separator and rounds 5 thru 15 in outer inserts.

**NOTE**
Notch in center of separator must align with mating tab in body of HE ammo box.

**d.** Turn separator and ammo belt upside down and insert into HE ammo box with notch and tab aligned.

**e.** Close and latch HE ammo box lid.

**CO TO NEXT PAGE**
17. **STOW SECOND 15 ROUNDS OF AMMO IN HE AMMO BOX.**
   a. Turn HE ammo box upside down.
   b. Unlatch and open second HE ammo box lid.
   c. Remove separator from HE ammo box.
   d. Repeat steps 16c, d, and e above to load second 15 rounds.

18. **INSTALL HE AMMO CAN DOOR.**
   a. Place HE ammo can door on HE ammo can.
   b. Turn handle left.

19. **STOW HE AMMO.** See TM 9-2350-252-10-1.

20. **(H) CLOSE TURRET SHIELD DOOR.** See task: OPERATE TURRET SHIELD DOOR, page 2-139.
WARNING
If you enter turret with turret power on, you may be injured or killed. Do not enter turret while turret power is on. Keep turret shield door closed and latched while turret power is on.

21. MOVE TURRET POWER SWITCH TO ON.

22. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

23. RELEASE TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

24. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

25. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

27. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

MOVE TURRET POWER SWITCH TO OFF.

28. (H) OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

END OF TASK
UNLOAD/STOW 25MM AP AMMO

INITIAL SETUP

Tools:
14mm ratchet wrench
(Item 83, App B)

Equipment Conditions:
Vehicle parked
(TM 9-2350-252-10-1)
MASTER POWER switch ON
(TM 9-2350-252-10-1)

Personnel Required:
Gunner
Helper (H)

References:
TM 9-2350-252-10-1


3. TRAVERSE TURRET TO AP LOAD POSITION (2150 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

4. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

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5. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

6. MOVE TURRET POWER SWITCH TO OFF.

7. (H) OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

8. REMOVE AP AMMO CAN DOOR.
   a. Turn handle to right.
   b. Remove AP ammo can door from AP ammo can.
WARNING
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

9. UNLOAD AP AMMO FROM AP FEED CHUTE.

a. Place 14mm ratchet wrench on shaft of AP forwarder, with wrench handle to the right.
b. Put upward pressure on 14mm ratchet wrench, and pull AP release handle to the left.
c. Hold AP release handle to left while moving 14mm ratchet wrench to straight down position.
d. Let go of AP release handle and turn 14mm ratchet wrench left until AP release handle pops back into place.
e. Repeat steps a thru d above until only two rounds are visible in AP feed chute.
10. (H) MOVE AP AMMO ONTO LOADING RAIL.
   a. Reach into AP access area and grasp round nearest AP forwarder.
   b. Pull round onto loading rail while releasing last two rounds from AP feed chute.
   c. Remove 14mm ratchet wrench from shaft of AP forwarder.

11. (H) PULL AMMO BELT FROM AP AMMO CAN. STRETCH AND PLACE AMMO BELT ON VEHICLE FLOOR.
TM 9-2350-252-10-2

NOTE

If AP round does not release from link, stop pulling AP round. AP round is freed by twisting and pulling up on AP round at same time.

12. (H) REMOVE 15TH ROUND.
   a. Start at end of ammo belt nearest turret and count 15 rounds.
   b. Pull 15th round from link.

13. (H) SEPARATE LINKS.
   a. Lift right side of ammo belt and pull out single link from double link.

14. (H) PLACE LOOSE ROUND IN EMPTY DOUBLE LINK.
   a. Aline alinement groove on loose round with alinement tang on double link.
   b. Press down on round until it is fully seated.
NOTE
Last ammo belt may have less than 15 AP rounds.

15. REPEAT STEPS 12 THRU 14 UNTIL ALL AMMO IS SEPARATED INTO 15 ROUND BELTS.

16. STOW FIRST 15 ROUNDS OF AMMO IN AP AMMO BOX.
   a. Unlatch and open ammo box lid.
   b. Remove separator from AP ammo box.

   NOTE
Large inserts should be used. Be sure that round number matches insert number.

   c. Hold separator with projectile side up and place first ammo belt in numbered inserts. Place rounds 1 thru 4 in middle of separator and rounds 5 thru 15 in outer inserts.
NOTE
Notch in center of separator must align with mating tab in body of AP ammo box.

d. Turn separator and ammo belt upside down and insert into AP ammo box with notch and tab aligned.

e. Close and latch AP ammo box lid.

17. STOW SECOND 15 ROUNDS OF AMMO IN AP AMMO BOX.
   a. Turn AP ammo box upside down.
   b. Unlatch and open second AP ammo box lid.
   c. Remove separator from AP ammo box.
   d. Repeat steps 16c, d, and e above to load second 15 rounds.
18. INSTALL AP AMMO CAN DOOR.
   a. Place AP ammo can door on AP ammo can.
   b. Turn handle left.

19. STOW AP AMMO. See TM 9-2350-252-10-1.

20. (H) CLOSE TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

   WARNING
   If you enter turret with turret power on, you may be injured or killed. Do not enter turret while turret power is on.
   Keep turret shield door closed and latched while turret power is on.

21. MOVE TURRET POWER SWITCH TO ON.

22. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

23. RELEASE TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.
24. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

25. SET TURRET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

26. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

27. MOVE TURRET POWER SWITCH TO OFF.

28. (H) OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

END OF TASK
LOAD/RELOAD COAX MACHINE GUN AMMO

INITIAL SETUP

Personnel Required:
- Gunner
- Helper (H)

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- MASTER POWER switch ON (TM 9-2350-252-10-1)
- TURRET POWER switch ON (page 2-16)
- TURRET DRIVE SYSTEM switch OFF (page 2-16)
- ARM-SAFE-RESET switch in SAFE (page 2-21)

WARNING
Accidental firing of coax machine gun could result in death or injury. Make sure ARM-SAFE-RESET switch is in SAFE.

NOTE
Step 1 is done if LO AMMO indicator light on weapon control box flashes. Then step 6 is done.

1. OPEN FORWARDER ACCESS DOOR.
   a. Squeeze two latches at bottom of forwarder access door. Forwarder access door will spring open.

GO TO NEXT PAGE
b. Remove all debris from coax ammo box.

2. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

WARNING
Accidental firing of coax machine gun could kill or injure soldiers. Make sure manual safety is in SAFE.

3. SET MANUAL SAFETY ON COAX MACHINE GUN.
   a. Pull charger handle back firmly.
   b. Push manual safety up to "S" position.
4. OPEN COVER ASSEMBLY AND FEED TRAY.
   a. Push in two latches.
   b. Open cover assembly.
   c. Release two latches.
   d. Open feed tray.

5. INSPECT CHAMBER FOR ROUND. USE UTILITY LIGHT AS NEEDED.
   a. If there is no round in chamber, go to step 6.
   b. If there is a round in chamber, see troubleshooting task: COAX MACHINE GUN FAILS TO FEED AND IS NOT A HOT GUN, page 3-27.

WARNING
A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

NOTE
End of ammo belt with double link always goes in coax ammo box first. End with single link goes last.

7. LOAD AMMO BELT IN FIRST SECTION OF COAX AMMO BOX.

a. (H) Remove one ammo belt (100 rounds) and inspect ammo belt for alinement and damaged links. Pass ammo belt to gunner.

b. Point rounds away from you. Feed ammo belt, double link first, into first section of coax ammo box until first row is filled.

c. Fold ammo belt over to make second row.
d. Fold ammo belt back and forth in first section of coax ammo box. Leave end of ammo belt outside of coax ammo box.

8. LINK AMMO BELTS.
   a. Insert first round of new ammo belt into loaded ammo belt. Check that round is aligned.
   b. Fold ammo belt back and forth until first section of coax ammo box is filled to guide.
   c. Repeat step a above as needed to complete steps 9 and 10.

9. LOAD SECOND AND THIRD SECTIONS OF COAX AMMO BOX.
   b. Guide ammo belt straight down wall to bottom of second section.
c. Fold ammo belt back and forth until second section of coax ammo box is filled to guide.

d. Repeat steps a thru c above to load third section of coax ammo box.

10. LOAD TOP AREA OF COAX AMMO BOX.

a. Guide ammo belt back across all three sections and fold back and forth.

b. Form three layers of ammo on top of coax ammo box over the three sections.

NOTE
If you are loading, go to step 12. If you are reloading, go to step 11.

11. LINK LOADED AMMO BELT TO AMMO BELT IN CHUTE.

a. Insert first round of ammo belt in chute into loaded ammo belt.

b. Go to step 16.
12. CLOSE FEED TRAY.

13. INSTALL AMMO BELT ON FEED TRAY.
   a. Place end of ammo belt up to forwarder. Turn forwarder to left until first round rests on cartridge stop on feed tray.

14. CLOSE COVER ASSEMBLY.
   a. If cover assembly doesn’t close, press ammo flat on feed tray.

15. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

16. CLOSE FORWARDER ACCESS DOOR.

END OF TASK
FIRE COAX MACHINE GUN

INITIAL SETUP

Personnel Required:

Gunner
Commander

References:

TM 9-2350-252-10-1

Equipment Conditions:

Equipment Conditions (cont):

Turret operating in power mode (page 2-152)
ARM-SAFE-RESET switch in SAFE (page 2-21)
ISU and coax machine gun boresighted (page 2-183)
Coax machine gun zeroed (page 2-232)
Coax machine gun loaded (page 2-333)

WARNING

Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire.

Clear target area of all troops.

Noise from vehicle or weapons could damage hearing of soldiers in or near vehicle. Use earplugs and other hearing protectors when vehicle or gun is operated. Read warning at front of manual.

1. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
2. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

3. (C) MOVE TURRET POWER SWITCH TO OFF.

4. CHECK POSITION OF MANUAL SAFETY ON COAX MACHINE GUN.
   a. If manual safety is in safe position with "S" showing, push manual safety down to firing position. Go to step 6.

   b. If manual safety is in firing position with "S" not showing, go to step 5.

GO TO NEXT PAGE
5. CHARGE COAX MACHINE GUN.
   a. Pull charger handle back until bolt locks to the rear.

   **WARNING**
   Gases from weapons are poisonous. Close coax machine gun access doors before you fire coax machine gun.

6. CLOSE COAX MACHINE GUN ACCESS DOOR. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

7. (C) MOVE TURRET POWER SWITCH TO ON.

8. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

9. PRESS 7.62 BUTTON.
WARNING

Looking at sun through ISU may cause blindness. Do not look at sun through ISU.

NOTE

Status indicator on reticle in gunner's eyepiece should read 7.62.

10. LOOK INTO GUNNER'S EYEPIECE.

11. FIND RANGE OF TARGET USING RANGE FINDER IN RETICLE.

   a. Traverse turret and/or elevate or depress coax machine gun as needed to center target between stadia line and baseline in reticle. See task: OPERATE TURRET IN POWER MODE, page 2-152.

   b. Read range of target at point where target touches both stadia line and baseline.

12. TURN RANGE CONTROL KNOB TO RANGE ESTIMATED IN STEP 11.

GO TO NEXT PAGE
13. CENTER TARGET IN RETICLE.

a. Traverse turret and/or elevate or depress coax machine gun as needed to center target in reticle. See task: OPERATE TURRET IN POWER MODE, page 2-152.

WARNING

Accidental firing of weapon can kill or injure soldiers. Weapon will fire if you press trigger switch when ARM-SAFE-RESET switch is in ARM. Take care not to depress trigger switch accidentally. Make sure spring is installed on turret traverse handwheel handle.

14. MOVE ARM-SAFE-RESET SWITCH TO ARM.
WARNING
An open bolt explosion could kill or injure soldiers. If gun misfires, stop firing. Follow misfire procedures.

Cookoff of live round could kill or injure soldiers. If machine gun is hot, do not inspect tray, remove round, or recharge gun. Close machine gun access doors and keep closed.

NOTE
If LO AMMO indicator light on weapon control box flashes, you can push LO AMMO OVRD button and fire the remaining ammo. You can also stop firing and reload.

Machine gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 2 minutes.

15. FIRE COAX MACHINE GUN.
   a. Squeeze trigger switches on gunner's control handles or trigger switch and palm switch on commander's control handle. Press trigger on turret traverse handwheel if turret is in manual mode.
   
   b. If gun fails to fire or misfires, go to task: IMMEDIATE ACTION WHEN COAX MACHINE GUN FAILS TO FIRE, page 2-347.
WARNING
Accidental firing of coax machine gun could kill or injure soldiers. Make sure ARM-SAFE-RESET switch is in SAFE after you fire coax machine gun.

16. MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN TO SAFE.

17. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

18. AFTER FIRING IS COMPLETED, CLEAR COAX MACHINE GUN. See task: CLEAR COAX MACHINE GUN, page 2-354.

END OF TASK
IMMEDIATE ACTION WHEN COAX MACHINE GUN FAILS TO FIRE

INITIAL SETUP

Personnel Required:
Commander (C)
Gunner (G)

Equipment Conditions:
MASTER POWER switch ON
(TM 9-2350-252-10-1)
TURRET POWER switch ON
(page 2-16)
TURRET DRIVE SYSTEM
switch ON (page 2-16)

References:
TM 9-2350-252-10-1

WARNING
Accidental firing of coax machine gun could kill or injure soldiers. Check that ARM-SAFE-RESET switch is in SAFE.

1. (G) MOVE ARM-SAFE-RESET SWITCH TO SAFE.

2. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

NOTE
Machine gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 2 minutes.

3. TELL DRIVER AND CREW THERE IS A COAX MISFIRE.
   a. If coax gun is in cookoff condition, go to step 4.
   b. If coax gun is not in cookoff condition, go to step 5.

GO TO NEXT PAGE
WARNING
Cookoff of live round could kill or injure soldiers. If machine gun is hot do not inspect tray, remove round, or recharge gun. Close machine gun access doors and keep closed.

4. KEEP COAX MACHINE GUN ACCESS DOORS COMPLETELY CLOSED FOR 30 MINUTES UNTIL COAX MACHINE GUN IS NOT HOT ENOUGH TO COOK-OFF AMMO.

5. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

WARNING
Accidental firing of coax machine gun may result in death or injury. Do not charge coax machine gun until you are ready to fire.

6. (G) PULL CHARGER HANDLE BACK UNTIL BOLT LOCKS TO THE REAR.
   a. If coax machine gun fails to charge, see troubleshooting task: COAX MACHINE GUN FAILS TO FEED AND IS NOT A HOT GUN, page 3-27.
   b. If coax machine gun charges, go to step 7 to fire manually, or go to step 8 to fire in power mode.

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WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

Rounds may be fired into open hatches and cause death or injury. Close driver and cargo hatch covers before you fire coax machine gun.

7. FIRE COAX MACHINE GUN.
   b. If coax machine gun does not fire, see troubleshooting task: COAX MACHINE GUN FAILS TO FEED AND IS NOT A HOT GUN, page 3-27.

WARNING
Gases from weapons are poisonous. Close coax machine gun access doors before you fire coax machine gun in power mode.

8. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

9. TURN TURRET DRIVE SYSTEM SWITCH TO ON.

GO TO NEXT PAGE
WARNING
Accidental firing of weapon can kill or injure soldiers. Weapon will fire if you press trigger switch when ARM-SAFE-RESET switch is in ARM. Take care not to depress trigger switch accidentally.

10. (G) MOVE ARM-SAFE-RESET SWITCH TO ARM.

WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

Rounds may be fired into open hatches and cause death or injury. Close driver and cargo hatch covers before you fire coax machine gun.

11. (C) SQUEEZE PALM SWITCH AND TRIGGER SWITCH ON COMMANDER'S CONTROL HANDLE.

a. If coax machine gun does not fire, see troubleshooting task: COAX MACHINE GUN FAILS TO FEED AND IS NOT A HOT GUN, page 3-27.

END OF TASK
IMMEDIATE ACTION TO STOP RUNAWAY COAX MACHINE GUN

INITIAL SETUP

Personnel Required:
Gunner (G)
Commander (C)

Equipment Conditions:
Turret operating in power mode (page 2-152)
Coax machine gun continues firing when trigger is released

References:
TM 9-2350-252-10-1

WARNING
Runaway coax machine gun could kill or injure soldiers. Keep coax machine gun aimed down range.

1. KEEP COAX MACHINE GUN POINTED DOWN RANGE, AND TELL DRIVER TO STOP VEHICLE. See TM 9-2350-252-10-1.

2. (C) MOVE TURRET POWER SWITCH TO OFF.
3. **(C) STOP COAX MACHINE GUN FROM FIRING.**

   a. Grasp 7.62mm ammo belt at 7.62mm ammo box. Twist ammo belt and hold it until coax machine gun stops firing.

   **WARNING**

   Cookoff of live round could kill or injure soldiers. If coax machine gun is hot, do not inspect feed tray, remove round, or recharge coax machine gun. Close coax machine gun access doors, and keep closed.

   **NOTE**

   Machine gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 2 minutes.

   If coax machine gun is hot, steps 4 thru 7 should be done. If coax machine gun is not hot, go to step 8.

4. **(C) TELL CREW AND DRIVER THERE IS COOKOFF DANGER.**
5. MAKE SURE THAT THE GUN ACCESS DOORS ARE KEPT COMPLETELY CLOSED. DO NOT OPEN THE GUN ACCESS DOORS AND RECHARGE THE WEAPON.

6. KEEP THE FEED TRAY CLOSED. DO NOT INSPECT OR REMOVE ROUNDS.

7. WAIT 30 MINUTES UNTIL COAX MACHINE GUN IS NOT HOT ENOUGH TO CAUSE A COOK-OFF CONDITION.

8. CLEAR COAX MACHINE GUN. See page 2-354.


10. NOTIFY ORGANIZATIONAL MAINTENANCE.
CLEAR COAX MACHINE GUN

INITIAL SETUP

Personnel Required:
- Gunner

Equipment Conditions:
- TURRET POWER switch ON (page 2-16)
- MASTER POWER switch ON (TM 9-2350-252-10-1)
- Coax machine gun installed (page 3-97)
- Coax machine gun loaded (page 2-333)

WARNING
Cookoff of live round could kill or injure soldiers. If machine gun is hot do not inspect tray, remove round, or recharge gun. Close machine gun access doors and keep closed.

Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

NOTE
Coax machine gun barrel is considered hot enough to cause cookoff if 100 rounds have been fired in 2 minutes.
1. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

2. PULL CHARGER HANDLE BACK FIRMLY.
   a. If all ammo has been fired, gun bolt will be in forward position. Pull back firmly on charger handle to charge coax machine gun.
   b. If all ammo has not been fired, gun bolt will be to the rear. Coax machine gun is already charged.

WARNING
Accidental firing of coax machine gun could kill or injure soldiers. Make sure manual safety is in safe position with "S" showing.

NOTE
"S" on manual safety will be visible on top of coax machine gun when locked in safe position.

3. MOVE MANUAL SAFETY UP TO SAFE POSITION.
4. OPEN COVER ASSEMBLY.
   a. Press in two latches.
   b. Open cover assembly.
   c. Release two latches.

NOTE
If ammo has been left in coax machine gun, go to step 5. If all of ammo has been fired, go to step 6.

5. REMOVE AMMO BELT FROM FEED TRAY.
   a. Turn forwarder knob right to back ammo belt through forwarder until ammo belt is clear of feed tray.
6. OPEN FEED TRAY.

7. CHECK THAT CHAMBER IS CLEAR OF AMMO. USE UTILITY LIGHT AS NEEDED.
   a. If chamber is clear of ammo, go to step 8.
   b. If ammo is present in chamber, remove ammo. See TM 9-1005-313-10.

8. CLOSE FEED TRAY.

9. CLOSE COVER ASSEMBLY.
   a. Press in two latches.
   b. Close cover assembly.
   c. Release two latches.

GO TO NEXT PAGE
10. MOVE MANUAL SAFETY DOWN TO FIRE POSITION.

NOTE
Coax machine gun should be dry fired twice to check that no ammo is left in coax machine gun.

11. DRY FIRE COAX MACHINE GUN.
   a. Squeeze trigger.
   b. Keep hold of charger handle and let bolt assembly return to forward position slowly.

12. PULL CHARGER HANDLE BACK FIRMLY.

13. REPEAT STEP 11.

14. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
UNLOAD 7.62MM AMMO

INITIAL SETUP

Materials/Parts:
- 7.62mm ammo cans (4 minimum)

Personnel Required:
- Gunner
- Helper (H)

Equipment Conditions:
- MASTER POWER switch OFF (TM 9-2350-252-10-1)
- TURRET POWER switch OFF (page 2-16)
- TURRET DRIVE SYSTEM switch OFF (page 2-16)
- Coax machine gun cleared (page 2-354)
- Turret shield door open (page 2-139)

References:
- TM 9-2350-252-10-1

1. OPEN FORWARDER ACCESS DOOR.
   a. Squeeze two latches on forwarder access door. Forwarder access door will spring open.

2. CLEAR COAX AMMO FORWARDER.
   a. Turn forwarder knob to right to back coax ammo belt through coax ammo forwarder.
   b. Pull coax ammo belt from coax ammo forwarder. Fold coax ammo belt into coax ammo box.
3. **CLOSE FORWARDER ACCESS DOOR.**
   a. Squeeze two latches on forwarder access door.
   b. Close forwarder access door.
   c. Release two latches.

   **NOTE**
   A fully loaded coax ammo box holds about 800 rounds of 7.62mm ammo. You will need at least four empty 7.62mm ammo cans to unload a full coax ammo box.

4. **UNSTOW EMPTY 7.62MM AMMO CANS.** See TM 9-2350-252-10-1.

5. **(H) OPEN EMPTY 7.62MM AMMO CANS.**
   a. Pull up on latch and raise lid on 7.62mm ammo can.

   **WARNING**
   A cartridge explosion could kill or injure soldiers. Handle ammo with care. Do not bump primers against any hard surface.

6. **REMOVE ABOUT 100 ROUNDS OF 7.62MM AMMO FROM COAX AMMO BOX.**
   a. Reach into coax ammo box and lift out about 100 rounds of 7.62mm ammo.
b. Twist ammo belt to separate about 100 rounds of 7.62mm ammo and hand to helper.

**NOTE**
Each 7.62mm ammo can will hold about 220 rounds.

7. (H) **STOW 100 ROUND BELT IN 7.62MM AMMO CAN.**
   a. Put double link end of 100 round belt into 7.62mm ammo can first.
   b. Fold ammo belt back and forth into 7.62mm ammo can.

8. **Fill AND CLOSE 7.62MM AMMO CAN.**
   a. Repeat steps 6 and 7 to fill 7.62mm ammo can.
   b. (H) Close lid and snap down latch on 7.62mm ammo can.

9. **UNLOAD REMAINING 7.62MM AMMO FROM COAX AMMO BOX AND STOW IN 7.62MM AMMO CANS.**
   a. Repeat steps 6 thru 8 until coax ammo box is empty.

10. **STOW 7.62MM AMMO CANS.**
    See TM 9-2350-252-10-1.

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**END OF TASK**
OPERATE TOW LAUNCHER IN POWER MODE

INITIAL SETUP

Personnel Required:
  Gunner

1. MOVE MASTER POWER SWITCH TO ON.

2. MOVE TURRET POWER SWITCH TO ON.

3. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

4. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever right to POWER position.
   c. Release pushbutton.
WARNING
Soldiers on top of vehicle in path of moving TOW launcher could be killed or injured. Check top of vehicle. Make sure no soldiers or equipment are in path of moving TOW launcher.

CAUTION
TOW elevation drive motor can get damaged if you squeeze palm switches for more than 10 seconds. If LAUNCHER UP indicator light does not come on in 10 seconds, release palm switches. Notify organizational maintenance.

5. RAISE TOW LAUNCHER.
   a. Move LAUNCHER UP-DN switch to UP.

b. Squeeze palm switches until TOW launcher stows against turret.
NOTE
Each line on elevation indicator equals 10 mils. Each number on elevation indicator equals 100 mils.

2. ELEVATE TOW LAUNCHER.
   a. Squeeze and hold palm switches.
   b. Rotate gunner’s control handles toward you until TOW launcher reaches desired position or stops.
   c. Center gunner’s control handles and release palm switches.

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

3. DEPRESS TOW LAUNCHER.
   a. Squeeze and hold palm switches.
   b. Rotate gunner’s control handles away from you until TOW launcher reaches desired position or stops.
   c. Center gunner’s control handles and release palm switches.
WARNING
Soldiers on top of vehicle in path of moving TOW launcher could be killed or injured. Check top of vehicle. Make sure no soldiers or equipment are in path of moving TOW launcher.

CAUTION
TOW elevation drive motor can get damaged if you squeeze palm switches for more than 10 seconds. If LAUNCHER UP indicator light does not come on in 10 seconds, release palm switches. Notify organizational maintenance.

8. LOWER TOW LAUNCHER.
   a. Move LAUNCHER UP-DN switch to DN.

   b. Squeeze palm switches until TOW launcher stows against turret.

END OF TASK
**FIRE TOW MISSILES**

**INITIAL SETUP**

**Personnel Required:**
- Gunner or Commander
- Driver

**Equipment Conditions:**
- Weapon system boresighted (page 2-183)
- Ballistic sight cover doors open (page 2-32)
- Cargo hatch cover closed (TM 9-2350-252-10-1)
- Driver's hatch cover closed (TM 9-2350-252-10-1)
- Commander's hatch cover closed (page 2-145)
- Gunner's hatch cover closed (page 2-150)
- Dust cover removed (page 2-37)
- TOW missiles loaded (page 2-387)

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**WARNING**

Noise from vehicle could damage hearing of soldiers in or near vehicle. All crew members should use earplugs and other hearing protectors when vehicle or gun is operated. Read warning at front of manual.
NOTE
Firing TOW missile from a tilted vehicle can cause TOW missile to miss target. Do not fire TOW missile if air bubble is touching left or right side of outer ring (red line) of slope indicator.

1. CHECK SLOPE INDICATOR.
   a. If air bubble is touching left or right side of outer ring (red line), do not fire TOW missile. Tell driver to move vehicle to level ground. See TM 9-2350-252-10-1.

NOTE
Night firing procedure begins with step 2. Day firing procedure begins with step 8. Night vision controls need 10 minutes to cool down after NIGHT VISION PWR switch is moved to ON.

2. MOVE NIGHT VISION PWR SWITCH TO ON AND WAIT 10 MINUTES.
3. MOVE SENSOR SELECT SWITCH TO NIGHT.

4. TURN CON KNOB TO ADJUST CONTRAST.

5. TURN BRT KNOB TO ADJUST BRIGHTNESS.

NOTE
A freewheeling effect will be noticed if focus knob is turned left more than seven to nine turns from a fully right position.

6. TURN FOCUS KNOB TO FOCUS IMAGE IN GUNNER'S EYEPiece.
NOTE
W/H position NIGHT VISION PLRT switch shows as red image on black background in gunner's eyepiece. B/H position of NIGHT VISION PLRT switch shows as black image on red background.

7. MOVE NIGHT VISION PLRT SWITCH TO W/H OR B/H AS DESIRED.
   a. If firing TOW missiles at night, go to step 9.

WARNING
Looking at sun through ISU could cause blindness. Do not look at sun through ISU.

8. MOVE SENSOR SELECT SWITCH TO NEUTRAL OR CLEAR AS REQUIRED.

NOTE
MAG switch must be in HIGH or TOW system will not work.

9. MOVE MAG SWITCH TO HIGH UNTIL IT CLICKS.

10. RAISE TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.
NOTE
TOW system will perform a self-test when TOW button is pressed. This self-test will last for about 12 seconds, and TOW TEST indicator light should then go out.

11. PRESS TOW BUTTON.

12. CHECK TOW AND TOW TEST INDICATOR LIGHTS.
   a. Check that TOW indicator light comes on and stays on.
   b. Check that TOW TEST indicator light comes on and goes out after 12 seconds.
   c. If both indicator lights work properly, go to step 14.
   d. If TOW indicator light does not stay on, or TOW TEST indicator light does not go out after 12 seconds, go to step 13.

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13. CHECK TOW CONTROLS.
   a. Press TOW button again, and then press TOW TEST button.
   b. If TOW indicator light stays on and TOW TEST indicator light goes out after 12 seconds, go to step 14.
   c. If TOW indicator light does not stay on, or if TOW TEST indicator light stays on, do not fire TOW missile. Notify organizational maintenance.

14. CHECK THAT ANNUNCIATOR LIGHTS ON ANNUNCIATOR BOX ARE OFF.
   a. If TOW CKT OPEN, NO FIRE ZONE, and OPEN HATCH annunciator lights are off, go to step 15.
   b. If TOW CKT OPEN annunciator light is on, notify organizational maintenance.
   c. If NO FIRE ZONE annunciator light is on, check cargo hatch cover to make sure it is closed. If it is closed and NO FIRE ZONE annunciator light remains on, notify organizational maintenance.
   d. If OPEN HATCH annunciator light is on, check all hatch covers to be sure they are closed. If all hatch covers are closed and OPEN HATCH annunciator light remains on, notify organizational maintenance.
WARNING
If you fire TOW missile with any TOW control box annunciator light on, you can lose control of TOW missile. Soldiers can be killed or injured. Equipment can get damaged. Do not fire TOW missile if any TOW control box annunciator light is on.

15. CHECK THAT ANNUNCIATOR LIGHTS ON TOW CONTROL BOX ARE OFF.
   a. If any annunciator light is on, do not fire TOW missile. Notify organizational maintenance.

NOTE
In night firing, night image will appear in gunner's eyepiece. In day firing, clear image will appear in gunner's eyepiece.

16. LOOK INTO GUNNER'S EYEPIECE.
   a. If TOW appears on status indicator, go to step 17.
   b. If TOW does not appear on status indicator, notify organizational maintenance.
NOTE
Second TOW missile must not be selected while TOW missile is in flight. Otherwise, first TOW missile will abort.

17. PRESS BUTTON OF MISSILE TUBE 1 OR MISSILE TUBE 2.
   a. If MISSILE TUBE 1 or MISSILE TUBE 2 indicator light flashes, missile tube 1 or 2 is empty. Load TOW missiles. See task: LOAD/RELOAD TOW LAUNCHER, page 2-387.

WARNING
Accidental firing of weapon can kill or injure soldiers. Weapon will fire if you press trigger switch when palm switches are squeezed. Take care not to press trigger switch accidentally. Make sure spring is installed on turret traverse handwheel handle.

18. MOVE ARM-SAFE-RESET SWITCH TO ARM.
19. CENTER RETICLE CROSSHAIRS ON TARGET.

   a. Traverse turret and/or elevate or depress TOW launcher as needed. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

   **WARNING**
   
   Noise from TOW missile firing could damage soldiers' hearing. All crew members should use earplugs and other hearing protectors when TOW missiles are fired. Read warning at front of manual.

   TOW backblast could kill or injure soldiers. All vehicle personnel must be inside vehicle when TOW missile is fired. Close all hatches and ramp. Keep everyone at least 246 feet (75 meters) from TOW blast area.

   TOW missile may explode when it touches trees or bushes. TOW missile explosion could kill or injure soldiers. Do not fire TOW missile through trees or bushes.

   If TOW missile wire touches water, you could lose control of TOW missile. Loss of control could cause death or injury. Do not fire TOW missile over body of water so large that wire touches or drags in water.
WARNING
If TOW missile or TOW missile wire touches electric power lines, soldiers could be killed or injured. Do not fire TOW missiles over electric power lines.

20. SQUEEZE AND HOLD TRIGGER AND PALM SWITCHES ON GUNNER'S CONTROL HANDLES.

a. If TOW missile does not fire in 5 seconds, squeeze trigger again. If missile still does not fire, see task: IMMEDIATE ACTION WHEN TOW MISSILE HANG FIRES/ MISFIRE, page 2-377.

b. When TOW missile fires, continue to squeeze palm switches on gunner's control handles.

21. TRACK TARGET WITH GUNNER'S CONTROL HANDLES UNTIL TOW MISSILE IMPACTS.
WARNING
Aborting TOW missile in an unsafe area could kill or injure soldiers. Check path of TOW missile for soldiers and equipment before you abort TOW missile.

22. ABORT TOW MISSILE IF REQUIRED.
   a. If TOW missile flight path is safe, move TOW ABORT switch up.
   b. If TOW missile flight path is not safe, go to step 23.

23. WITH GUNNER'S CONTROL HANDLES, GUIDE TOW MISSILE TO SAFE AREA UNTIL TOW MISSILE IMPACTS.

24. FIRE SECOND TOW MISSILE. REPEAT STEPS 17 THRU 23.

END OF TASK
IMMEDIATE ACTION WHEN TOW MISSILE HANG FIRES/MISFIRES

INITIAL SETUP

Personnel Required:
- Gunner (G)
- Commander (C)
- Driver (D)
- Helper (H) (2)

Equipment Conditions:
- Vehicle stopped (TM 9-2350-252-10-1)
- Turret operating in power mode (page 2-152)
- Driver’s hatch cover closed (TM 9-2350-252-10-1)
- Cargo hatch cover closed (TM 9-2350-252-10-1)
- Ramp raised (TM 9-2350-252-10-1)
- Gunner's hatch cover closed (page 2-150)
- STAB switch OFF (page 2-17)
- TOW missile just misfired

WARNING
Misfi red TOW missiles could kill or injure soldiers. All vehicle personnel must stay inside of vehicle for 30 minutes after firing attempt. Close ramp and all hatch covers. Keep everyone at least 246 feet (75 meters) from TOW blast area.

1. (C) TELL CREW OVER INTERCOM TOW MISSILE HAS MISFIRED AND ANOTHER ATTEMPT WILL BE MADE TO FIRE TOW MISSILE. See task: OPERATE INTERCOM SYSTEM, page 2-173.
WARNING
Accidental firing of TOW missile could kill or injure soldiers. Make sure ARM-SAFE-RESET switch is in SAFE.

2. (G) MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN TO SAFE.

3. (G) PRESS TOW BUTTON.
   a. If any annunciator light on TOW control box or annunciator box comes on, go to step 4.
   b. If no annunciator lights come on, go to step 11.
4. (G) MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN TO SAFE.

5. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

6. (C) MOVE TURRET POWER SWITCH TO OFF.

7. OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

8. (G) (C) EXIT TURRET FOR 30 MINUTES.

9. CLOSE TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

10. (C) NOTIFY ORGANIZATIONAL MAINTENANCE OF TOW MISFIRE CONDITION.

GO TO NEXT PAGE
11. (G) RESELECT MISFIRED TOW MISSILE.
   a. Press MISSILE TUBE button that was selected when TOW missile misfired.

   **WARNING**
   Accidental firing of weapon can kill or injure soldiers. Weapon will fire if you press trigger switch when palm switches are squeezed. Take care not to press trigger switch accidentally. Make sure spring is installed on turret traverse handwheel handle.

12. (G) MOVE ARM-SAFE-RESET SWITCH TO ARM.
WARNING

TOW backblast could kill or injure soldiers. All vehicle personnel must be inside vehicle when TOW missile is fired. Close all hatches and ramp. Keep everyone at least 246 feet (75 meters) from TOW blast area.

TOW missile may explode when it touches trees or bushes. TOW missile explosion could kill or injure soldiers. Do not fire TOW missile through trees or bushes.

If TOW missile wire touches water, you could lose control of TOW missile. Loss of control could cause death or injury. Do not fire TOW missiles over body of water so large that wire touches or drags in water.

If TOW missile or TOW missile wire touches electric power lines, soldiers could be killed or injured. Do not fire TOW missiles over electric power lines.

13. (G) SQUEEZE AND HOLD PALM SWITCHES, THEN SQUEEZE AND HOLD TRIGGER SWITCHES.

a. If TOW missile fires, end of immediate action.

b. If TOW missile does not fire in 5 seconds, select and fire other TOW missile.
c. If second TOW missile does not fire, repeat steps 1, 2, and 5 thru 10.

d. If second TOW missile does fire, go to step 14.

WARNING
Accidental firing of TOW missile could kill or injure soldiers. Make sure ARM-SAFE-RESET switch is in SAFE.

14. (G) MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN SAFE.

WARNING
Firing of TOW missile could kill or injure soldiers. Make sure TOW missile is kept pointed away from friendly troops so that no equipment is damaged or personnel hurt.

15. (D) IF TRAVERSING TURRET CAN DIRECT LINE OF FIRE TOWARD FRIENDLY TROOPS, REPOSITION VEHICLE AWAY FROM EQUIPMENT OR PERSONNEL.
16. (G) IF NEEDED, TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

17. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

18. (C) MOVE TURRET POWER SWITCH TO OFF.

19. OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

20. (G) (C) EXIT TURRET. STAY IN SQUAD AREA FOR 30 MINUTES.

21. CLOSE TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.

22. AFTER 30 MINUTES, OPEN TURRET SHIELD DOOR. See task: OPERATE TURRET SHIELD DOOR, page 2-139.
23. (G) (C) RE-ENTER TURRET.

24. (C) MOVE TURRET POWER SWITCH TO ON.

25. (C) MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

**WARNING**

Firing of TOW missile could kill or injure soldiers. Make sure TOW missile is kept pointed away from friendly troops so that no equipment is damaged or personnel hurt.

26. (D) IF TRAVERSING TURRET CAN DIRECT LINE OF FIRE TOWARD FRIENDLY TROOPS, REPOSITION VEHICLE TO DIRECT LINE OF FIRE AWAY FROM EQUIPMENT OR PERSONNEL. See TM 9-2350-252-10-1.

27. (G) TRAVERSE TURRET TO 1600 OR 4800 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

28. (G) ELEVATE TOW LAUNCHER TO MAXIMUM ELEVATION. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

29. (C) MOVE TURRET POWER SWITCH TO OFF.
WARNING
Misfired TOW missiles could kill or injure soldiers. Wait 30 minutes after last firing attempt before you unload missile. Follow all orders carefully.

30. (H) (D) EXIT VEHICLE THROUGH RAMP ACCESS DOOR. See TM 9-2350-252-10-1.

31. (D) CLIMB ON TOP OF HULL.

32. (D) UNLOCK TOW LAUNCHER.
   a. Push and hold lock handle to left.
   b. Pull loading handle down. Release lock handle.

WARNING
Firing of TOW missile could kill or injure soldiers. Equipment could be damaged. While carrying misfired TOW missile, keep body away from front and rear of encased missile. Do not drop missile.

33. (D) (H) REMOVE MISFIRED TOW MISSILE FROM TOW LAUNCHER.
   a. Hold TOW missile by edges of rear flange.

GO TO NEXT PAGE
b. Carefully pull TOW missile straight out of TOW launcher.
c. If TOW missile does not come out, go to step 36.
d. Hand TOW missile to helper.
e. Have helper place TOW missile on ground.

34. (H) MOVE MISFIRED TOW MISSILE TO SAFE PLACE.
   a. Move misfired TOW missile at least 650 feet (200 meters) from vehicles, buildings, personnel, and equipment.
   b. Position TOW missile so if TOW missile fires, neither backblast nor TOW missile will strike vehicles, buildings, personnel, or equipment.

35. (H-2) PUT CLEARLY VISIBLE STAKE AND FLAG AT MISFIRED TOW MISSILE LOCATION.

36. NOTIFY CHAIN OF COMMAND OF EXISTENCE AND LOCATION OF MISFIRED TOW MISSILE.
LOAD/RELOAD TOW LAUNCHER

INITIAL SETUP

Personnel Required:
Gunner
Helper (H)

References:
TM 9-2350-252-10-1

Equipment Conditions:
Turret operating in power mode
(page 2-152)

1. TRAVERSE TURRET TO TOW LOAD POSITION (5950 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

2. RAISE TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

3. ELEVATE TOW LAUNCHER TO 500 MILS. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

4. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

5. MOVE TURRET POWER SWITCH TO OFF.

6. (H) MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.
7. SET TURRET TRAVEL LOCK.
   See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

8. (H) OPEN CARGO HATCH COVER TO MID POSITION. See TM 9-2350-252-10-1.
   
   **NOTE**
   Top load TOW missiles, go to step 9.  
   To reload TOW missiles, go to step 15.

9. (H) REMOVE DUST COVER.
   a. Pull dust cover from top of TOW launcher.
   b. Pull three snap fasteners from bottom of TOW launcher.

10. (H) PREPARE TOW LAUNCHER FOR LOADING.
    a. Push and hold two lock handles to left.
    b. Pull down two loading handles.
11. (H) REMOVE ANY OBSTRUCTIONS OR DEBRIS FROM TOW LAUNCHER TUBES.

CAUTION
TOW missile and CGE system could be damaged if umbilical connector is extended down into TOW launcher when TOW missile is loaded. If extended umbilical connector cannot be withdrawn, do not load TOW missiles. Notify organizational maintenance.

12. (H) CHECK THAT UMBILICAL CONNECTORS DO NOT EXTEND DOWN INTO TOW LAUNCHER TUBES.

a. If umbilical connector extends down into TOW launcher tube, go to step 13.

b. If umbilical connector does not extend down into TOW launcher tube, go to step 18.
13. WITHDRAW UMBILICAL CONNECTORS FROM TOW LAUNCHER TUBES.
   a. (H) Move MASTER POWER switch to ON. See TM 9-2350-252-10-1.
   b. Move TURRET POWER switch to ON.
   c. Move ARM-SAFE-RESET switch to RESET, then to SAFE.
   d. Move TURRET POWER switch to OFF.
   e. (H) Move MASTER POWER switch to OFF. See TM 9-2350-252-10-1.
f. If umbilical connector still extends down into TOW launcher tube, do not load TOW launcher. Notify organizational maintenance.

g. If umbilical connector withdraws, go to step 18.

14. IF SPENT TOW MISSILE CASING HANGS UP IN TOW LAUNCHER TUBE, PULL DOWN HARD ON LOADING HANDLES TO ALINE LUG CHANNELS.

15. (H) PULL SPENT TOW MISSILE CASING FROM TOW LAUNCHER TUBE.
   a. If spent TOW missile casing comes out of TOW launcher, go to step 17.
   b. If spent TOW missile casing does not come out of TOW launcher tube, go to step 16.

16. WITHDRAW UMBILICAL CONNECTORS FROM TOW LAUNCHER TUBES. REPEAT STEP 13.
   a. If umbilical connectors do not withdraw from TOW launcher tubes, notify organizational maintenance.

17. (H) DISCARD SPENT TOW MISSILE CASING.
CAUTION
Handle TOW missiles with extreme care to avoid damage to plastic diaphragm at each end of TOW missile. If a TOW missile with damaged diaphragm is loaded and fired, it could misfire. Restow damaged TOW missiles and turn them in to chain of command.

18. (H) (IFV ONLY) UNSTOW TOW MISSILES FROM VERTICAL STOWAGE.
   a. Turn cam lever.
   b. Raise top stowage cone to lock position.
   c. Lift TOW missile clear of TOW stowage well.
19. (H) (IFV ONLY) UNSTOW TOW MISSILES FROM HORIZONTAL STOWAGE.

a. Pull down latch on strap at each end of TOW missile.

b. Remove TOW missile from upper missile rack.

c. Raise upper missile rack and lock into latch.
d. Pull down latch on strap at each end of TOW missile on lower missile rack.
e. Remove TOW missile from lower missile rack.

20. (H) (CFV ONLY) UNSTOW TOW MISSILES FROM HORIZONTAL STOWAGE.
   a. Pull down latch on strap at each end of two TOW missiles on upper missile rack. Remove two TOW missiles.
b. Release latch at each end of upper missile rack.

c. Remove two front TOW missiles from middle missile rack.

d. Release latch on strap at each end of rear TOW missile on middle missile rack. Remove TOW missile.

e. Repeat steps b, c, and d above to remove TOW missiles from lower missile rack.
NOTE
Forward handling rings and electrical connector covers must be saved for later use if unfired TOW missiles are unloaded from launcher.

21. (H) REMOVE FORWARD HANDLING RING FROM NOSE END OF TOW MISSILE.
   a. Release clamp and remove forward handling ring. Save forward handling ring until TOW missiles are fired.

22. (H) REMOVE ELECTRICAL CONNECTOR COVER FROM TOW MISSILE ELECTRICAL CONNECTOR. SAVE COVER UNTIL TOW MISSILES ARE FIRED.

   WARNING
   Damaged TOW missile can hang fire. Soldiers could be killed or injured. Except in combat situation, do not load TOW missile if either end is damaged or if humidity indicator on rear diaphragm is pink.

23. INSPECT TOW MISSILE FOR DAMAGE.
   a. Inspect nose end diaphragm for damage.
b. Inspect rear diaphragm for damage.


24. LUG CHANNELS IN THE TOW LAUNCHER CAN GET OUT OF ALINEMENT AND BLOCK TOW MISSILE LOADING. IF TOW MISSILE MEETS RESISTANCE ABOUT HALFWAY INTO TOW LAUNCHER, PULL DOWN HARD ON LOADING HANDLE TO REALINE LUG CHANNELS.

25. (H) LOAD TOW MISSILE INTO TOW LAUNCHER.

   a. Lift TOW missile out of cargo hatch nose end first, with electrical connector at top.
b. Slide lugs on sides of TOW missile nose end into TOW launcher lug channels.

c. Carefully slide TOW missile all the way into TOW launcher.

d. Hold TOW missile in TOW launcher and push up loading handle until it locks.

26. (H) CLOSE CARGO HATCH COVER. TELL GUNNER THAT CARGO HATCH COVER IS CLOSED. See TM 9-2350-252-10-1.

27. (H) MOVE MASTER POWER SWITCH TO ON. See TM 9-2350-252-10-1.

NOTE
When turret power is turned on, TOW indicator light may remain on. This does not mean that TOW has been selected. TOW button must be pushed to select TOW.

28. MOVE TURRET POWER SWITCH TO ON.

29. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.
30. TRAVERSE TURRET TO 6400 MILS: See task: OPERATE TURRET IN POWER MODE, page 2-152.

31. LOWER TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

END OF TASK
UNLOAD TOW LAUNCHER

INITIAL SETUP

Personnel Required:
- Gunner
- Helper (H)

Equipment Conditions:
- Turret operating in power mode (page 2-152).

References:
- TM 9-2350-252-10-1

1. TRAVERSE TURRET TO TOW LOAD POSITION (5950 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

2. RAISE TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

3. ELEVATE TOW LAUNCHER TO 500 MILS. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

4. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

5. MOVE TURRET POWER SWITCH TO OFF.

6. (H) MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.
7. SET TURRET TRAVEL LOCK.
See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

8. (H) OPEN CARGO HATCH COVER TO TOW LOAD POSITION. See TM 9-2350-252-10-1.

CAUTION
Handle TOW missiles with care to avoid damaging plastic diaphragms at each end of TOW missile. If damaged TOW missile is loaded and fired, it could misfire. Stow all damaged TOW missiles, and turn them in to chain of command.

9. INSPECT REAR END OF TOW MISSILES FOR DAMAGE.
a. Check rear diaphragms for tears or other damage.

10. UNLOAD TOW MISSILE FROM TOW LAUNCHER.
a. Push lock handle to left and then hold lock handle.
b. Pull loading handle down. Release lock handle. If loading handle does not go all the way down, do steps 11 thru 16. If loading handle does go all the way down, do steps c and d below. Then go to step 17.

c. Carefully pull TOW missile out of TOW launcher.
d. Lower TOW missile through cargo hatch to floor of squad compartment.

GO TO NEXT PAGE
11. (H) MOVE MASTER POWER SWITCH TO ON. See TM 9-2350-252-10-1.

12. MOVE TURRET POWER SWITCH TO ON.

13. MOVE ARM-SAFE-RESET SWITCH TO RESET, THEN TO SAFE. WAIT 10 SECONDS.

14. MOVE TURRET POWER SWITCH TO OFF.

15. (H) MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.

NOTE
If loading handle still does not come down after step 16, notify organizational maintenance.

16. UNLOAD SECOND TOW MISSILE FROM TOW LAUNCHER. REPEAT STEP 10.
17. PREPARE TOW MISSILE FOR STOWAGE.
   a. Check nose end diaphragm for damage.
   b. Install forward handling ring on TOW missile and close clamp.
   c. Install electrical connector cover and turn it to locked position.

18. STOW TOW MISSILES. See TM 9-2350-252-10-1.
19. INSTALL DUST COVER ON TOW LAUNCHER.
   a. Fasten dust cover to bottom of TOW launcher.
   b. Stretch dust cover up and over rear of TOW launcher.
   c. Press top edge of dust cover onto top of TOW launcher.

20. (H) CLOSE CARGO HATCH COVER AND TELL GUNNER THAT CARGO HATCH IS CLOSED. See TM 9-2350-252-10-1.

21. (H) MOVE MASTER POWER SWITCH TO ON. See TM 9-2350-252-10-1.

22. MOVE TURRET POWER SWITCH TO ON.

23. MOVE TURRET DRIVE SYSTEM SWITCH TO ON.

24. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

25. LOWER TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

END OF TASK

2-404
LOAD/STOW/RELOAD SMOKE GRENADES

DESCRIPTION

This task covers:
- Load and Stow Smoke Grenades (page 2-405).
- Reload Smoke Grenades (page 2-409).

INITIAL SETUP

Materials/Parts:
- Rubber caps (8) (App C)
- Smoke grenades (16) (App C)

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Vehicle parked (TM 9-2350-252-10-1)

Personnel Required:
- Gunner
- Helper (H)

LOAD AND STOW SMOKE GRENADES

NOTE
This task must be done upon receipt of smoke grenades. There is no interior stowage for smoke grenades.

1. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.
2. MOVE TURRET POWER SWITCH TO OFF.

GO TO NEXT PAGE
3. (H) MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.

4. (H) OPEN RIGHT SIDE SMOKE GRENADE STOWAGE BIN.
   a. Unlatch and open right side smoke grenade stowage bin.
   b. Check that inside is free of debris.

5. (H) REMOVE FOUR RUBBER CAPS FROM RIGHT SIDE GRENADE LAUNCHER TUBES.
   a. Remove rubber cap from each grenade launcher tube.
   b. Check that each grenade launcher tube is free of damage or debris.
WARNING
Heat could set off smoke grenades and injure or kill soldiers. Do not place smoke grenades on hot surfaces.

NOTE
There are four smoke grenades in each ammo box.

6. UNPACK EIGHT SMOKE GRENADES FROM TWO AMMO BOXES.
   a. Unlatch and open two ammo boxes.
   b. Carefully remove packing materials. Lift out smoke grenades one at a time.

7. (H) STOW FOUR SMOKE GRENADES IN RIGHT SIDE SMOKE GRENADE STOWAGE BIN.
   a. Carefully insert four smoke grenades, one at a time, into smoke grenade stowage bin with metal ends down.
   b. Close and latch smoke grenade stowage bin.

GO TO NEXT PAGE
WARNING

Electrical trouble could cause smoke grenades to launch and kill or injure soldiers. Make sure TURRET POWER and SMOKE GRENADE LAUNCHER switches are OFF before you load smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

8. (H) LOAD FOUR SMOKE GRENADES INTO RIGHT SIDE GRENADE LAUNCHER TUBES.

a. Carefully insert four smoke grenades, one at a time, into grenade launcher tubes with metal ends down.

b. Gently push on each smoke grenade until you feel two clicks. This tells you that smoke grenade is seated securely on firing pin.

c. Turn each smoke grenade one-half turn to insure good electrical contact.

9. (H) INSTALL FOUR RUBBER CAPS ON RIGHT SIDE GRENADE LAUNCHER TUBES.
10. (H) STOW FOUR SMOKE GRENADES IN LEFT SIDE SMOKE GRENADE STOWAGE BIN. LOAD FOUR SMOKE GRENADES IN LEFT SIDE GRENADE LAUNCHER TUBES. REPEAT STEPS 4 THRU 9.

11. PREPARE VEHICLE FOR RELOADING SMOKE GRENADES. REPEAT STEPS 1 THRU 3.

12. (H) REMOVE FOUR SMOKE GRENADES FROM RIGHT SIDE SMOKE GRENADE STOWAGE BIN.
   a. Unlatch and open smoke grenade stowage bin.
   b. Remove four smoke grenades, one at a time, from smoke grenade stowage bin.

13. RELOAD FOUR SMOKE GRENADES IN RIGHT SIDE GRENADE LAUNCHER TUBES. REPEAT STEPS 8 AND 9.

14. (H) UNSTOW AND RELOAD FOUR SMOKE GRENADES IN LEFT SIDE GRENADE LAUNCHER TUBES. REPEAT STEPS 12, 8, AND 9.

END OF TASK
LAUNCH SMOKE GRENADES

INITIAL SETUP

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Smoke grenade launchers loaded (page 2-405)

Equipment Conditions (cont):
- Rubber caps removed from smoke grenade launchers
- TURRET POWER switch ON (page 2-16)
- Squad FAN CONTROL switch OFF (TM 9-2350-252-10-1)
- MASTER POWER switch ON (TM 9-2350-252-10-1)

WARNING
Smoke grenades explode and burn. Handle them with care. Except when using your hand to load grenade launcher, never put any part of your body in front of loaded launcher tubes. You could be hurt or killed. Check that soldiers are clear of firing lines when launching grenades.

1. CLOSE GUNNER'S HATCH COVER. See task: OPEN/CLOSE GUNNER'S HATCH COVER, page 2-150.

2. CLOSE COMMANDER'S HATCH COVER. See task: OPEN/CLOSE COMMANDER'S HATCH COVER, page 2-145.

3. CLOSE CARGO HATCH COVER. See TM 9-2350-252-10-1.

4. CLOSE DRIVER'S HATCH COVER. See TM 9-2350-252-10-1.
5. MOVE GRENADE LAUNCHER SWITCH TO ON.

NOTE
Before firing smoke grenades, insure rubber caps have been removed and stowed.

6. PRESS TRIGGER BUTTON TO FIRE SMOKE GRENADES.
   a. Check that TRIGGER indicator light is on. If TRIGGER indicator light is not on, go to step 7.
   b. If TRIGGER indicator light is on, go to step 8.

7. TAKE IMMEDIATE ACTION IF SMOKE GRENADES FAIL TO FIRE. See task: IMMEDIATE ACTION WHEN SMOKE GRENADES FAIL TO LAUNCH, page 2-413.

8. MOVE GRENADE LAUNCHER SWITCH TO OFF.
9. AS SOON AS TACTICAL SITUATION PERMITS, CHECK THAT ALL SMOKE GRENADES HAVE FIRED.

a. If one or more smoke grenades are still in smoke grenade launchers, take immediate action. See task: IMMEDIATE ACTION WHEN SMOKE GRENADES FAIL TO LAUNCH, page 2-413.

b. If all smoke grenades have fired, reload smoke grenade launchers as required by mission. See task: LOAD/STOW/RELOAD SMOKE GRENADES, page 2-405.

END OF TASK
IMMEDIATE ACTION WHEN SMOKE GRENADES FAIL TO LAUNCH

INITIAL SETUP

Personnel Required:
- Gunner (G)
- Commander (C)
- Helper (H) (2)
- Driver (D)

Equipment Conditions:
- Turret operating in power mode (page 2-152)
- Grenade launcher trigger pressed, but smoke grenades not launched (page 2-410)
- Rubber caps removed from smoke grenade launchers

WARNING

If misfired smoke grenades launch during unloading, soldiers in the area could be killed or injured. Keep turret pointed down range until grenades are removed.

NOTE

A misfire is the failure of a smoke grenade to launch from grenade launcher tube.

1. (C) USING INTERCOM, TELL DRIVER TO DRIVE VEHICLE TO A SAFE AREA. VEHICLE MUST BE AT LEAST 410 FEET (125 METERS) FROM NEAREST VEHICLE, BUILDING, PERSONNEL, OR EQUIPMENT. See TM 9-2350-252-10-1.
2. (G) MOVE GRENADE LAUNCHER SWITCH TO ON.

3. (G) FIRE SMOKE GRENADES.
   a. Press TRIGGER button.
   b. Look for smoke through periscopes.

4. (C) OPEN COMMANDER'S HATCH COVER. See task: OPEN/CLOSE COMMANDER'S HATCH COVER, page 2-145.
NOTE
Smoke does not mean that all eight smoke grenades have fired. Check smoke grenade launchers for misfired smoke grenades.

5. (C) CHECK SMOKE GRENADE LAUNCHERS FOR MISFIRED SMOKE GRENADES.
   a. Stand on commander's seat to inspect smoke grenade launchers. Raise seat if necessary.
   b. If smoke grenade launchers are empty, task is completed.
   c. If you see smoke grenades in smoke grenade launchers, go to step 6.

6. (D) HAVE TWO HELPERS LEAVE VEHICLE. See TM 9-2350-252-10-1.
7. (C) MOVE TURRET POWER SWITCH TO OFF.

8. (D) MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.

**WARNING**

Misfired smoke grenades could kill or injure soldiers if mishandled. Very carefully hand smoke grenades to helper standing outside vehicle.

Heat could set off smoke grenades and kill or injure soldiers. Do not place smoke grenades on hot surfaces.

If misfired smoke grenades launch during unloading, soldiers could be killed or injured. Do not place any part of your body in front of smoke grenade launchers.

9. (H) REMOVE MISFIRED SMOKE GRENADES FROM RIGHT SIDE SMOKE GRENADE LAUNCHER.

a. Hold smoke grenade from the side. Carefully pull and twist smoke grenade left and remove from grenade launcher tube.
b. Pass smoke grenade to helper standing on ground.

c. Repeat steps a and b above until all misfired smoke grenades are removed from smoke grenade launcher.

10. (H) REMOVE MISFIRED SMOKE GRENADES FROM LEFT SIDE SMOKE GRENADE LAUNCHER. REPEAT STEP 9.

11. (H) TELL GUNNER THAT SMOKE GRENADE LAUNCHERS ARE CLEAR OF MISFIRED SMOKE GRENADES AND THAT HELPERS ARE CLEAR OF TURRET.

12. (H) MOVE SMOKE GRENADES TO A WELL-MARKED SPOT AT LEAST 650 FEET (200 METERS) FROM NEAREST VEHICLE, BUILDING, PERSONNEL, OR EQUIPMENT.
3. NOTIFY CHAIN OF COMMAND OF EXACT LOCATION, TYPE, AND NUMBER OF SMOKE GRENADES LEFT AT SAFE LOCATION.

14. NOTIFY ORGANIZATIONAL MAINTENANCE THAT SMOKE GRENADE LAUNCHERS ON YOUR VEHICLE HAVE MALFUNCTIONED.

END OF TASK
UNLOAD/STOW SMOKE GRENADES

INITIAL SETUP

Personnel Required:

Gunner
Helper (H)

Equipment Conditions:

Vehicle stopped
(TM 9-2350-252-10-1)
Hand brake set
(TM 9-2350-252-10-1)

References:

TM 9-2350-252-10-1

NOTE

If smoke grenade launchers have been fired, but not reloaded, only steps 1 thru 3 apply. Eight smoke grenades are left stowed in smoke grenade stowage bins. Empty grenade launcher tubes are capped.

1. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

2. MOVE TURRET POWER SWITCH TO OFF.
WARNING

Electrical trouble could cause smoke grenades to launch and kill or injure soldiers. Make sure TURRET POWER and SMOKE GRENADE LAUNCHER switches are OFF before you load smoke grenades. Do not place any part of your body in front of smoke grenades launchers.

Heat could set off smoke grenades and kill or injure soldiers. Do not place smoke grenades on hot surfaces.

3. (H) INSTALL EIGHT RUBBER CAPS ON GRENADE LAUNCHER TUBES.

4. (H) UNLATCH AND OPEN RIGHT SIDE SMOKE GRENADE STOWAGE BIN.

5. (H) REMOVE FOUR RUBBER CAPS FROM RIGHT SIDE GRENADE LAUNCHER TUBES.
6. (H) REMOVE FOUR SMOKE GRENADES FROM RIGHT SIDE GRENADE LAUNCHER TUBES.
   a. Hold smoke grenade from side. Carefully pull and twist smoke grenade from grenade launcher tube.

7. (H) STOW FOUR SMOKE GRENADES IN RIGHT SIDE SMOKE GRENADE STOWAGE BIN.
   a. With metal end pointing down, carefully insert smoke grenades, one at a time, into smoke grenade stowage bin.
   b. Close and latch smoke grenade stowage bin.
8. (H) INSTALL FOUR RUBBER CAPS ON RIGHT SIDE GRENADE LAUNCHER TUBES.

9. (H) REPEAT STEPS 4 THRU 8 TO UNLOAD, AND STOW SMOKE GRENADES ON LEFT SIDE OF TURRET.

END OF TASK
SHUT DOWN TURRET

INITIAL SETUP

Personnel Required:
- Gunner
- Commander

Equipment Conditions:
- MASTER POWER switch ON
  (TM 9-2350-252-10-1)
- Turret operating in power mode (page 2-152)

References:
- TM 9-2350-252-10-1

1. ELEVATE OR DEPRESS GUN ROTOR TO 0 MILS.
   a. Squeeze and hold palm switch(es) on gunner's control handles or commander's control handle.
   b. Rotate and hold gunner's or commander's control handle(s) back or forward until gun rotor reaches 0 mils.
   c. Center gunner's control handles or commander's control handle and release palm switch(es).
2. TRAVERSE TURRET TO 6400 MILS.
   a. Squeeze and hold palm switch(es) on gunner's control handles or commander's control handle.
   b. Turn gunner's control handles or commander's control handle to left or right. Turret will traverse left or right.
   c. Note position of turret on azimuth indicator or turret position indicator while traversing turret.
d. When turret azimuth indicator is at 6400 mils and turret position indicator is at 12, center gunner’s control handles or commander’s control handle. Release palm switch(es).

**WARNING**

A soldier in turret opening could be killed or injured if turret moves. Turret travel lock must be locked when you enter or exit turret.

3. SET TURRET TRAVEL LOCK IN LOCKED POSITION.
   a. Push travel lock lever to LOCKED position.
4. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever left to MANUAL position.
   c. Release pushbutton.

5. TURN TURRET TRAVERSE HANDWHEEL SLOWLY WHILE PUSHING ON TRAVEL LOCK LEVER TO INSURE THAT TEETH MESH.
6. MOVE STAB SWITCH TO OFF.

7. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

8. MOVE TURRET POWER SWITCH TO OFF.

9. CLOSE BOTH BALLISTIC SIGHT COVER DOORS.
   a. Push down two ballistic sight cover doors until doors lock in closed position.
WARNING
When moving hinge latch handle, commander's hatch cover can fall and hurt you. Keep hands and head clear.

10. UNLOCK HINGE LATCH HANDLE.
   a. Press pushbutton and remove quick release pin from bottom holes.
   b. Press pushbutton and install quick release pin in top holes.

WARNING
Commander's hatch cover can swing and injure you. Make sure you support commander's hatch cover with one hand before pushing hinge latch handle down.

NOTE
If commander's hatch cover is in LEVEL position, step 11 should be done. If commander's hatch cover is not in LEVEL position, step 12 should be done.

11. MOVE COMMANDER'S HATCH COVER TO POP-UP POSITION.
   a. Hold hatch cover handle in one hand to support commander's hatch cover. Push hinge latch handle down with other hand.
b. Pull commander's hatch cover to LEVEL position, and release hinge latch handle.

c. Move hatch pin lever to left, and swivel commander's hatch cover to POP-UP position.

d. Move hatch pin lever back to right.
CAUTION

If commander's hatch cover is closed when in LEVEL position, hatch pin lever mechanism can get damaged. Make sure commander's hatch cover is in POP-UP position before closing.

12. CLOSE COMMANDER'S HATCH COVER.
   a. Grasp hatch cover handle with one hand.
   b. Pull down on hinge latch handle with other hand, and release commander's hatch cover.
   c. Pull commander's hatch cover down to CLOSED position, and release hinge latch handle.
13. RELEASE GUNNER'S HATCH COVER FROM LOCKED POSITION.

a. Press pushbutton, and remove quick release pin from top holes.

b. Press pushbutton, and install quick release pin in bottom holes.

c. Pull up hinge latch handle.
14. CLOSE GUNNER'S HATCH COVER.
   a. Grip hatch cover handle and pull gunner's hatch cover closed.
   b. Check that hatch cover latch is locked.

15. MOVE POWER SWITCH ON COMMANDER'S RADIO TO OFF.

16. MOVE POWER SWITCH ON GUNNER'S RADIO TO OFF.
17. MOVE POWER CKT BKR SWITCH ON INTERCOM AMPLIFIER TO OFF.

18. OPEN TURRET SHIELD DOOR.
   a. Push inside turret shield door latch down and slide turret shield door open.
   b. Check that outside turret shield door latch locks turret shield door open.
19. TURN TWO WHITE DOME LIGHTS OFF.
   a. Press blackout release button. Turn light selector switch past stop to off position.

20. TURN TWO BLACKOUT DOME LIGHTS OFF.
   a. Turn light selector switch against stop to off position.

END OF TASK
Section IV. OPERATION UNDER UNUSUAL CONDITIONS

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INITIAL SETUP

Personnel Required: Commander

Equipment Conditions:
- Commander's hatch cover open (page 2-145)
- Turret operating in power mode (page 2-152)

NOTE
Turret may be traversed and elevated in MANUAL or in POWER mode.

1. RAISE FRONT RING SIGHT.

2. RAISE APERTURE RING.
3. **LOCATE TARGET USING FRONT RING SIGHT.**
   
a. Traverse turret until target is located between front ring sight crosshairs and outermost ring. See task: OPERATE TURRET IN POWER MODE, page 2-152.

![Diagram](image)

**NOTE**
Weapons should be fired before target reaches center crosshairs in front ring sight and pointer post in aperture ring.

4. **TRACK TARGET FROM OUTERMOST RING TO CENTER CROSSHAIRS ON FRONT RING SIGHT AND POINTER POST IN APERTURE RING.**

5. **LOWER APERTURE RING.**

6. **LOWER FRONT RING SIGHT.**

END OF TASK
OPERATE VANE SIGHT

INITIAL SETUP

Personnel Required: Commander

Equipment Conditions:
Turret operating in power mode (page 2-152)
Commander's hatch cover open (page 2-145)

NOTE
Commander uses vane sight to quickly align turret with target.

1. TRAVERSE TURRET TO ALINE TARGET WITH VANE SIGHT. See task: OPERATE TURRET IN POWER MODE, page 2-152.

2. DETERMINE ELEVATION OF TARGET.
   a. Look through vane sight. Aline rods of rear sight between two wires of front sight and with center of target.
   b. If rods aline between bottom wires and with center of target, elevation of target is 0 mils.
   c. If rods aline between middle wires and with center of target, elevation is 180 mils.
   d. If rods aline between top wires and with center of target, elevation is 360 mils.

END OF TASK

2-438
OPERATE TURRET MANUALLY

DESCRIPTION


INITIAL SETUP

Tools:
14mm ratchet wrench (Item 83, App B)

Equipment Conditions:

TURRET DRIVE SYSTEM switch OFF (page 2-16)
TURRET POWER switch OFF (page 2-16)
ARM-SAFE-RESET switch in SAFE (page 2-21)

Personnel Required:
Gunner

TRAVERSE TURRET MANUALLY

WARNING
If turret is operated with turret shield door open, soldiers could be killed or injured. Close and latch turret shield door before you operate turret.

1. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever left to MANUAL position.
   c. Release pushbutton.

GO TO NEXT PAGE
2. RELEASE TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

3. REMOVE SPRING FROM HANDLE.

4. TRAVERSE TURRET MANUALLY.
   a. Turn turret traverse handwheel forward to traverse turret to right.
   b. Turn turret traverse handwheel back to traverse turret to left.

5. SET TRAVEL LOCK. See task: OPERATE TURRET TRAVEL LOCK, page 2-141.

6. MOVE TURRET TRAVERSE DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move turret traverse drive select lever right to POWER position.
   c. Release pushbutton.

7. INSTALL SPRING ON HANDLE.
   a. Turn turret traverse handwheel so that handle is at top.
   b. Install spring on handle.

2-440
CAUTION
Linkage between TOW and gun elevation systems can be damaged if gun elevation handwheel is turned while both levers are in MANUAL position. Never turn gun elevation handwheel with both TOW elevation drive select lever and gun elevation drive select lever in MANUAL position.

8. MOVE GUN ELEVATION DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move gun elevation drive select lever left to MANUAL position.
   c. Release pushbutton.

9. REMOVE SPRING FROM HANDLE.
10. MANUALLY ELEVATE AND DEPRESS 25MM GUN.
   a. Turn gun elevation handwheel back to elevate 25mm gun.
   b. Turn gun elevation handwheel forward to depress 25mm gun.

11. INSTALL SPRING ON HANDLE.
   a. Turn gun elevation handwheel so that handle is forward.
   b. Install spring on handle.

12. MOVE GUN ELEVATION DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move gun elevation drive select lever right to POWER position.
   c. Release pushbutton.
OPERATE TOW MANUAL LIFT, RAISE TOW LAUNCHER

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

13. MOVE TOW ELEVATION DRIVE SELECT LEVER TO MANUAL POSITION.
   a. Press and hold pushbutton.
   b. Move TOW elevation drive select lever to MANUAL position.
   c. Release pushbutton.

14. REMOVE SPRING FROM HANDLE.
15. MANUALLY DEPRESS TOW LAUNCHER TO CLEAR STOW PIN FROM SADDLE.
   a. Turn gun elevation handwheel forward until it will no longer turn.
   b. Check that stow pin is clear of saddle.
16. MANUALLY RAISE TOW LAUNCHER TO FIRING POSITION.
   a. Place 14mm ratchet wrench on TOW MANUAL LIFT drive shaft.
   b. Turn TOW MANUAL LIFT drive shaft clockwise until TOW launcher is fully elevated.
   c. Remove 14mm ratchet wrench.

**OPERATE TOW MANUAL ELEVATION**

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

17. MANUALLY ELEVATE TOW LAUNCHER.
   a. Turn gun elevation handwheel back to elevate TOW launcher.
18. MANUALLY DEPRESS TOW LAUNCHER.
   a. Turn gun elevation handwheel forward to depress TOW launcher.

19. LOWER TOW LAUNCHER TO STOWED POSITION.
   a. Pull TOW MANUAL LIFT release handle out and let TOW launcher lower itself into stowed position.

20. ELEVATE TOW LAUNCHER TO MOVE STOW PIN INTO SADDLE.
   a. Turn gun elevation handwheel back until it will no longer turn.
b. Check that stow pin has moved into saddle.

21. MOVE TOW ELEVATION DRIVE SELECT LEVER TO POWER POSITION.
   a. Press and hold pushbutton.
   b. Move TOW elevation drive select lever right to POWER position.
   c. Release pushbutton.
22. INSTALL SPRING ON HANDLE.
   a. Turn gun elevation handwheel so that handle is forward.
   b. Install spring on handle.

END OF TASK
FIRE 25MM GUN MANUALLY

INITIAL SETUP

Tools:
Handcrank assembly
(Item 5, App B)

Personnel Required:
Gunner
Commander

Equipment Conditions:
Turret in MANUAL mode
(page 2-439)
25mm gun feeder loaded
(page 2-246)

WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire. Clear target area of all troops.

WARNING
You could be injured and damage equipment while manually firing 25mm gun. Do not operate turret in POWER mode while manually firing 25mm gun.

WARNING
Gun gases are poisonous. If tactical situation permits, open commander's and gunner's hatch covers before firing 25mm gun.
WARNING
Noise from vehicle or weapons could damage hearing of soldiers in or near vehicle. Use earplugs and other hearing protectors when vehicle or gun is operated. Read warning at front of manual.


2. MOVE MANUAL SAFE HANDLE TO FIRE POSITION.

SAFE

MANUAL SAFE HANDLE
3. LOCK SEAR RETRACTOR LEVER.
   a. Press sear release.
   b. Push hard on left side of sear retractor lever until locked.
   c. Release sear release.

4. SELECT AP OR HE AMMO AS REQUIRED.
   a. Push in feed select solenoid knob to select AP ammo or pull out feed select solenoid knob to select HE ammo.

5. INSTALL HANDCRANK ASSEMBLY ON MANUAL DRIVE GEAR HUB.
   a. If ISU is working, go to step 8.

7. USE RING SIGHT TO ENGAGE TARGET. See task: OPERATE RING SIGHT, page 2-436.

**WARNING**

Your knuckles could be injured when turning handcrank assembly. Be sure hands clear 25mm gun guard opening and 25mm gun receiver when manually firing 25mm gun.

**NOTE**

25mm gun will fire every nine turns of handcrank assembly.

Gunner and commander must work together during manual firing of 25mm gun.

If 25mm gun feeder is fully loaded, 25mm gun will fire when bolt position indicator reaches FIRE position. If 25mm gun feeder is not fully loaded, 25mm gun will dry fire. Bolt position indicator will stop in MISFIRE position.

8. FIRE 25MM GUN.
   a. Turn handcrank assembly to the right.
   b. Locate strikes of rounds.
c. Tell gunner to elevate or depress 25mm gun and traverse turret as needed. See task: OPERATE TURRET MANUALLY, page 2-439.

d. When firing is completed, go to step 15.

e. If 25mm gun does not fire, go to step 9.

9. RAISE FEEDER HANDLE.

   a. Push and hold feeder handle latch down.

   b. Raise feeder handle up.

   c. Release feeder handle latch. Feeder handle should be locked up.

10. RELEASE SEAR RETRACTOR LEVER.

    a. Push in hard on right side of sear retractor lever until you hear a click.
11. PRESS IN AND HOLD SEAR RELEASE.

12. LOWER FEEDER HANDLE.
   a. Push and hold feeder latch handle down.
   b. Lower feeder handle down.
   c. Release feeder handle latch. Feeder handle should be locked down.

13. CYCLE BOLT OUT OF MIS-FIRE POSITION.
   a. Turn handcrank assembly right one-half turn. Release sear release.
b. Keep turning handcrank assembly until bolt locks in SEAR position. Bolt position indicator will stop in SEAR position.

**NOTE**
If last round was a misfire, live round will be present in eject tube.

14. **CYCLE 25MM GUN UNTIL 25MM GUN FIRES.**

a. Lock sear retractor lever.

b. Repeat step 8.

c. If 25mm gun does not fire at end of second cycle, see troubleshooting task: 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN, page 3-2.
15. WHEN FIRING IS COMPLETED, CYCLE BOLT POSITION INDICATOR TO SEAR POSITION AND REMOVE HANDCRANK ASSEMBLY.
DRY CYCLE 25MM GUN MANUALLY

INITIAL SETUP

Tools:
Handcrank assembly (Item 5, App B)

Personnel Required:
Gunner

Equipment Conditions:
Turret in MANUAL mode (page 2-439)
25mm gun feeder unloaded and cleared (page 2-306)


**NOTE**
Sear retractor lever is locked when you hear a click.

2. LOCK SEAR RETRACTOR LEVER.
   a. Press sear release.

   b. Push hard on left side of sear retractor lever until locked.

   c. If lever does not lock, notify organizational maintenance.

GO TO NEXT PAGE 2-457
3. INSTALL HANDCRANK ASSEMBLY ON MANUAL DRIVE GEAR HUB.

WARNING
Your knuckles could be injured when turning handcrank assembly. Be sure hands clear 25mm gun guard opening and 25mm gun receiver when dry cycling 25mm gun.

NOTE
25mm gun will dry cycle every nine turns of handcrank assembly.
Handcrank assembly will be hard to turn when bolt position indicator passes through FIRE position.
Handcrank assembly will stop turning when bolt position indicator is in MIS-FIRE position.

4. DRY CYCLE 25MM GUN.
a. Turn handcrank assembly to the right.
5. RAISE FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Raise feeder handle up.
   c. Release feeder handle latch. Feeder handle should be locked up.

6. RELEASE SEAR RETRACTOR LEVER.
   a. Push in hard on right side of sear retractor lever until you hear a click.
   b. If you do not hear a click, notify organizational maintenance.

7. PRESS IN AND HOLD SEAR RELEASE.
8. LOWER FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Lower feeder handle down.
   c. Release feeder handle latch. Feeder handle should be locked down.

9. CYCLE BOLT OUT OF MISFIRE POSITION.
   a. Turn handcrank assembly right one-half turn. Release sear release.
   b. Keep turning handcrank assembly until bolt locks in SEAR position. Bolt position indicator will stop in SEAR position.
10. REMOVE HANDCRANK ASSEMBLY.


END OF TASK
FIRE COAX MACHINE GUN MANUALLY

INITIAL SETUP

Personnel Required:
- Gunner
- Commander

Equipment Conditions:
- MASTER POWER switch ON (TM 9-2350-252-10-1)
- TURRET DRIVE SYSTEM switch OFF (page 2-16)
- TURRET POWER switch OFF (page 2-16)
- 7.62mm ammo loaded (page 2-333)
- Turret operating in manual mode (page 2-439)
- Coax machine gun installed (page 3-97)

WARNING
Live ammo can kill or injure soldiers. Choose suitable target area. Make sure no soldier or obstacle is in line of fire.

Clear target area of all troops.

WARNING
Manual firing of coax machine gun with turret in power mode could injure soldiers. Do not operate turret in power mode when you fire coax machine gun manually.
WARNING
Noise from vehicle or weapons could damage hearing of soldiers in or near vehicle. Use earplugs and other hearing protectors when vehicle or gun is operated. Read warning at front of manual.

WARNING
Rounds may be fired into open hatches and cause death or injury. Close driver and cargo hatch covers before you fire coax machine gun.

WARNING
Firing coax machine gun at the same time 25mm gun is fired could result in injury. Do not fire coax machine gun when 25mm gun is being fired.

1. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

WARNING
Accidental firing of coax machine gun may result in death or injury. Do not charge coax machine gun until you are ready to fire.

2. CHARGE COAX MACHINE GUN.
   a. Pull charger handle back until bolt locks to the rear.

GO TO NEXT PAGE

NOTE
Elevation of ISU mirror will lock in position when turret power goes off for any reason. Commander may have to use ring sight to engage target.

4. USE RING SIGHT TO ENGAGE TARGET. See task: OPERATE RING SIGHT, page 2-436.

NOTE
Gunner and commander must work together during manual firing of coax machine gun.

5. FIRE COAX MACHINE GUN.
   b. Locate strikes of rounds.
   c. Tell gunner to traverse turret and elevate or depress coax machine gun as needed to hit target. See task: OPERATE TURRET MANUALLY, page 2-439.
   d. If coax machine gun fails to fire, see task: IMMEDIATE ACTION WHEN COAX MACHINE GUN FAILS TO FIRE, page 2-347.

6. AFTER FIRING IS COMPLETED, CLEAR COAX MACHINE GUN. See task: CLEAR COAX MACHINE GUN, page 2-354.

END OF TASK

2-464
IMMEDIATE ACTION TO OVERRIDE HATCH SWITCHES

INITIAL SETUP

Tools: Cross-tip screwdriver, No. 2 (Item 60, App B)

Equipment Conditions: Turret operating in power mode (page 2-152)

Personnel Required: Gunner

WARNING

Moving turret or firing weapons with hatch interlock override switch ON and hatch covers open could kill or injure soldiers.

Weapons can fire into open hatches. Noise from 25mm gun can damage hearing. Noise, heat, and blast from firing TOW can kill or injure soldiers. 25mm gun barrel can hit soldiers or open hatch. Brass ejected from firing weapons can injure soldiers.

When hatch interlock override switch is ON:

Do not fire guns unless all hatch covers are closed or in POP-UP position. Do not fire TOW unless all hatch covers are closed. Move hatch interlock override switch to OFF before you leave turret.
NOTE
If hatch interlock override switch can be moved without removing hatch interlock override switch guard, go to step 2.

1. REMOVE HATCH INTERLOCK OVERRIDE SWITCH GUARD
   a. Remove screw, washer, and hatch interlock override switch guard. Use cross-tip screwdriver.

2. TURN ON HATCH INTERLOCK OVERRIDE SWITCH.

3. REPORT FAULTY HATCH INTERLOCK OVERRIDE SYSTEM TO ORGANIZATIONAL MAINTENANCE.

4. WHEN FAULTY HATCH INTERLOCK OVERRIDE SYSTEM IS REPAIRED, MOVE IT TO OFF.

5. INSTALL HATCH INTERLOCK OVERRIDE SWITCH GUARD.
   a. Install hatch interlock override switch guard, washer, and screw. Use cross-tip screwdriver.

END OF TASK
GAIN ACCESS TO TURNED TURRET IN AN EMERGENCY

INITIAL SETUP

Personnel Required:
- Soldier

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)
- Commander's hatch cover closed (page 2-145)
- Gunner's hatch cover closed (page 2-150)
- Turret in any position except 6400 mils

WARNING
If you enter turret with turret power on, you may be injured or killed. Do not enter turret while turret power is on. Keep turret shield door closed and latched while turret power is on.

1. OPEN TURRET SHIELD DOOR.
   a. Push outside turret shield door latch down and slide turret shield door open.
   b. Check that outside turret shield door latch locks turret shield door open.

2. PULL HARD AND QUICK ON EMERGENCY RELEASE CABLE TO RELEASE COMMANDER'S HATCH COVER.

END OF TASK
IMMEDIATE ACTION TO STOP RUNAWAY ENGINE

INITIAL SETUP

Personnel Required:

- Gunner
- Driver (D)

Equipment Conditions:
- Engine running away

References:
- TM 9-2350-252-10-1

NOTE

If vehicle is not moving when runaway condition exists, go to step 2.

1. (D) STOP VEHICLE.
   a. Press down hard on brake pedal and hold.

2. (D) TURN OFF FUEL CONTROL.
   See TM 9-2350-252-10-1.

3. TRAVERSE TURRET TO 4100 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

BRAKE PEDAL
4. TURN OFF MAIN FUEL MANUAL SHUTOFF VALVE.
   a. Turn main fuel manual shut-off valve to right.

5. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

6. (D) MOVE GEAR SELECTOR TO NEUTRAL. See TM 9-2350-252-10-1.

7. (D) SET HAND BRAKE. See TM 9-2350-252-10-1.

END OF TASK
OPERATION IN EXTREME COLD

DESCRIPTION

This task covers: Operation of turret components and weapons systems during extremely cold weather.

INITIAL SETUP

Materials/Parts: Tarpaulin (Item 74, App B)  
Personnel Required: Gunner

WARNING
Contact with cold metal can cause frostbite. Do not touch cold metal with bare skin.

CAUTION
Turret motors and drives can get damaged if turret is operated in extremely cold temperature. Do not operate turret in extremely cold temperature without running engine and personnel heater.

NOTE
Turret interior and exterior should be kept dry and free of debris.

Turret power drains batteries quickly in extreme cold.

1. OPERATE TURRET MANUALLY WHEN ENGINE IS NOT RUNNING. See task: OPERATE TURRET MANUALLY, page 2-439.
2. PERFORM PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON A REGULAR BASIS. See page 2-39.

WARNING
Soldiers can be killed or injured if gun is fired when barrel is obstructed by ice. Make sure 25mm and coax machine gun barrels are clear of ice obstructions before firing.


4. KEEP BALLISTIC SIGHT COVER DOORS CLOSED WHEN ISU IS NOT IN USE.

5. KEEP TARPALIN ON VEHICLE WHEN VEHICLE IS NOT IN USE.

GO TO NEXT PAGE
6. Keep rubber caps on commander's and gunner's eyepieces when ISU is not in use.

WARNING
On bright, snowy days sunshine reflecting off snow can harm your eyes. Sensor select switch should be set to neutral when using ISU on bright, snowy days.

7. Set sensor select switch to neutral position when using ISU on bright, snowy days.
NOTE
Commander's and gunner's eye-pieces, unity windows, and perisopes can fog up and cloud your view. You should not breathe on them.

8. CHECK THAT BOTH ISU WINDOWS ARE FREE OF ICE, SNOW, AND FROST.
   a. If they are free of ice, snow, and frost, go to step 9.
   b. If they are not, use FAN DEFOGGER switch with covers closed to melt ice formations before firing missile.

9. USE FAN DEFOGGER SWITCH IF ISU FOGS UP.

NOTE
TOW missile may miss target if fired at temperatures less than –25°F (–31°C).
TOW missile may miss target if target cannot be seen or tracked through ISU.

CAUTION
TOW missile may be damaged if electrical connectors get wet when TOW launcher is unloaded. Install covers on electrical connectors after unloading TOW launcher so that connectors do not get wet.

11. REPLACE ELECTRICAL CONNECTOR COVER AFTER UNLOADING TOW LAUNCHER. See task: UNLOAD TOW LAUNCHER, page 2-400.

WARNING
Soldiers can be killed or injured if smoke grenades are fired when ice is holding grenades in launchers. Do not fire smoke grenades when grenades are held in launcher tubes by ice.

12. CHECK GRENADE LAUNCHER TUBES FOR ICE BUILDUP. KEEP RUBBER CAPS ON GRENADE LAUNCHER TUBES UNTIL READY FOR FIRING.

END OF TASK
OPERATION IN EXTREME HEAT

DESCRIPTION
This task covers: Operation of turret components and weapons systems during extremely hot weather, with or without high humidity.

INITIAL SETUP
Materials/Parts:  
Tarpaulin (Item 74, App B)  

Personnel Required:  
Gunner

WARNING
Very hot metal surfaces can burn you. Wear heat protective mittens when you touch metal surfaces that have been in sunlight.

CAUTION
Turret electrical motors may overheat when operating under severe conditions. If DRIVE MALF annunciator light comes on, shut down turret electrical systems. Let systems cool for at least 3 minutes before recycling power to turret.

NOTE
Mold, mildew, and fungus grow very quickly on glass, rubber, and leather in hot, humid weather. Keep all glass, rubber, and leather surfaces clean and dry in hot, humid weather.
1. PERFORM PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON A REGULAR BASIS. See page 2-39.

2. KEEP BALLISTIC SIGHT COVER DOORS CLOSED WHEN ISU IS NOT IN USE.

3. KEEP TARPAULIN ON VEHICLE WHEN VEHICLE IS NOT IN USE.

4. KEEP RUBBER CAPS ON COMMANDER'S AND GUNNER'S EYEPIECES WHEN ISU IS NOT IN USE.
WARNING
Looking at sun through ISU may cause blindness. Do not look at sun through ISU. Check position of sun through ISU unity window before using ISU.

5. CHECK POSITION OF SUN THROUGH ISU UNITY WINDOW BEFORE USING ISU.

5. CHECK POSITION OF SUN THROUGH ISU UNITY WINDOW BEFORE USING ISU.

6. SET SENSOR SELECT SWITCH TO NEUTRAL POSITION WHEN USING ISU ON BRIGHT, SUNNY DAYS.

GO TO NEXT PAGE
WARNING

Hot gun parts can burn you. Gun parts stay hot much longer in hot weather. Wear heat protective mittens when you work on guns after firing.

NOTE

TOW missile may miss target if fired at temperatures above 140°F (60°C).

TOW missile may miss target if target cannot be seen or tracked through ISU.

7. FIRE TOW MISSILE ONLY WHEN TEMPERATURE IS LESS THAN 140°F (60°C) AND TARGET CAN BE SEEN OR TRACKED THROUGH ISU. See task: FIRE TOW MISSILES, page 2-366.

CAUTION

TOW missile may be damaged if electrical connectors get wet when TOW launcher is unloaded. Install covers on electrical connectors after unloading TOW launcher so that connectors do not get wet.

8. REPLACE ELECTRICAL CONNECTOR COVER AFTER UNLOADING TOW LAUNCHER. See task: UNLOAD TOW LAUNCHER, page 2-400.

END OF TASK
CHAPTER 3
MAINTENANCE INSTRUCTIONS
Section I. TROUBLESHOOTING PROCEDURES

GENERAL

The TROUBLESHOOTING TABLE lists two common malfunctions found while operating 25mm gun and coax machine gun.

The TROUBLESHOOTING TABLE has three divisions: MALFUNCTION, TEST OR INSPECTION, and CORRECTIVE ACTION. The MALFUNCTIONS, or symptoms, are numbered in sequences through the TROUBLESHOOTING TABLE. A MALFUNCTION will bring you to the TROUBLESHOOTING TABLE.

The TEST OR INSPECTION is a step you take to isolate the MALFUNCTION. Each TEST OR INSPECTION has a CORRECTIVE ACTION. These are the "if" statements which tell you what to do when the MALFUNCTION is not fixed.

When you think you have solved the problem, go back to MALFUNCTION and recheck all steps. Check that original MALFUNCTION is no longer there.

The manual cannot list all possible malfunctions, nor all tests and inspections, and corrective actions. If a malfunction is not listed, or is not corrected by the listed corrective action, notify your supervisor.

The TROUBLESHOOTING SYMPTOM INDEX is below. Note that the MALFUNCTIONS are listed in alphabetical order.

TROUBLESHOOTING SYMPTOM INDEX

COAX MACHINE GUN

Fails to feed and is not a hot gun ......................... 3-27

25MM GUN

Stalls or fails to fire and is not a hot gun .............. 3-2
TROUBLESHOOTING TABLE

MALFUNCTION
test or inspection
CORRECTIVE ACTION

25MM GUN SYSTEM

1. 25MM GUN STALLS OR FAILS TO FIRE AND IS NOT A HOT GUN.

NOTE
25mm gun is hot if 100 or more rounds have been fired within 15 minutes.

Move TURRET DRIVE SYSTEM switch to OFF.
Move TURRET POWER switch to OFF.
Malfunction
Test or Inspection
Corrective Action

Remove 25mm gun guard and open gun cover. See task: OPERATE 25MM GUN GUARD AND GUN COVER, page 2-169.

Warning
Reaching into rotor when turret power is on can result in injury to soldiers. Turn off power before reaching into rotor.

Accidental firing of gun could kill or injure soldiers. Make sure manual safe handle is at SAFE.

Move manual safe handle to SAFE.

Go to next page
Step 1. Check that lockpin is not jammed.

Push No. 4 cross-tip screwdriver in lockpin and release.

a. If lockpin does not spring back out, notify organizational maintenance.

b. If lockpin is not jammed, go to step 2.
Step 2. Check lockring and cable for loose connection.

a. If lockring or cable is loose, notify organizational maintenance.

b. If lockring or cable is not loose, go to step 3.

**NOTE**

If 25mm gun stalls or fails to fire in AP mode, steps 3 through 7 must be done.

If 25mm gun stalls or fails to fire in HE mode, steps 8 thru 12 must be done.

Open coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
Step 3. Check that AP ammo links are not jammed in plenum.

a. If AP ammo links are jammed in plenum, separate AP ammo links and push them out of plenum.


b. If AP ammo links are not jammed in plenum, go to step 4.
Step 9. Check that HE ammo links are not binding in HE link eject chute.

a. If HE ammo links are binding in HE link eject chute, 25mm gun will stop.

Manually depress 25mm gun to maximum depression. See task: OPERATE TURRET MANUALLY, page 2-439.

Remove HE link eject chute from 25mm gun feeder.

Squeeze latches, and pull HE link eject chute to right, away from 25mm gun feeder. Release latches.
TROUBLESHOOTING TABLE (cont)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

25MM GUN SYSTEM (cont)

Disconnect HE ammo links in HE link eject chute from HE ammo link coming out of 25mm gun feeder.

Pull HE link eject chute down and left, and remove HE link eject chute from journal.
Turn HE link eject chute, and pull out of 25mm gun receiver area.
Remove and discard HE ammo links from chute.

b. If HE ammo links are not binding, close coax machine gun access doors. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172. Go to step 10.
**TROUBLESHOOTING TABLE (cont)**

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<tr>
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### 25MM GUN SYSTEM (cont)

Step 10. Check that HE feed chute latches at 25mm gun feeder and HE forwarder are latched.

b. If HE feed chute latches are latched, go to step 11.
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Step 11. Check that HE feed chute has no binding ammo, or broken or separated ammo belt. Check that loading rails do not have link tabs binding against chute guide before stripper rail.

Unzip three zippers on chute cover.

a. Manually depress 25mm gun to maximum depression. See task: OPERATE TURRET MANUALLY, page 2-439.
b. If HE feed chute has binding ammo, or broken or separated ammo belt, or loading rails have binding link tabs:


Load HE rounds in feeder. See task: LOAD 25MM GUN FEEDER, page 2-246.

c. If HE feed chute has no binding ammo, or broken or separated ammo belt, or loading rails have no binding link tabs, zip three zippers on chute cover. Go to step 12.
25MM GUN SYSTEM (cont)

Step 12. Check that HE forwarder is not jammed.
Put 14 mm ratchet wrench on HE forwarder shaft of HE forwarder.
Turn 14 mm ratchet wrench to left one-quarter turn.

a. If ammo forwards into HE feed chute, go to step 13.
a. If ammo forwards into AP feed chute, go to step 13.

b. If ammo does not forward into AP feed chute, reach into ammo access area of AP ammo can. Move ammo belt to check that ammo is not binding in AP ammo can.

If ammo is binding, traverse turret to AP LOAD position. See task: OPERATE TURRET IN POWER MODE, page 2-152.

Have helper unload AP ammo from AP ammo can. See task: LOAD/RELOAD 25MM AP AMMO, page 2-267.

Make sure rounds are even and damaged rounds are replaced.


Load 25mm gun feeder. See page 2-246.

Go to step 13.
Step 8. Check that HE ammo links are not jammed in plenum.

a. If HE ammo links are jammed in plenum, separate HE ammo links and push them out of plenum.

b. If HE ammo links are not jammed in plenum, go to step 9.
b. If ammo does not forward into HE feed chute, turn handle on ammo can access door to right. Move ammo can access door to right. Reach into ammo access area of HE ammo can. Move ammo belt to make sure ammo is not binding in HE ammo can. Check side slope retainer for free movement. Go to step 13.

Place ammo can access door on HE ammo can, and turn handle to left.

If ammo is binding, traverse turret to HE LOAD position. See task: OPERATE TURRET IN POWER MODE, page 2-152.
Have helper unload HE ammo from HE ammo can. See task: LOAD/RELOAD 25MM HE AMMO, page 2-254.
Make sure rounds are even and damaged rounds are replaced.
Check rails for dirt, and clean if dirty.
Load 25mm gun feeder. See page 2-246.
Go to step 13.
## Troubleshooting Table (cont)

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Depress 25mm gun to —10 mils. See task: OPERATE TURRET MANUALLY, page 2-439.

**Step 13.** Check that bolt position indicator is in SEAR position.

1. Press sear release.

![Diagram showing sear release](image-url)
b. If bolt position indicator is not in SEAR but is before COOK-OFF ZONE, insert handcrank assembly and turn crank to right until bolt position indicator is in SEAR.

![Diagram of handcrank assembly and bolt position indicator]

Fire 25mm gun. See page 2-277. If gun fires, end troubleshooting. If gun does not fire, or sear retractor lever does not stay in SEAR position, notify organizational maintenance.

c. Press sear release.

![Diagram of sear release]
d. If bolt position indicator is not in SEAR and has stopped between MISFIRE and SEAR, insert handcrank assembly and turn handcrank to right until bolt position indicator is in SEAR.

Fire 25mm gun. See page 2-277.
If gun fires, end troubleshooting.
If gun does not fire, notify organizational maintenance.

e. If bolt position indicator is in SEAR, fire 25mm gun. See page 2-277.

If gun fires, end troubleshooting.
If gun does not fire, notify organizational maintenance.
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

COAX MACHINE GUN SYSTEM

2. COAX MACHINE GUN FAILS TO FEED AND IS NOT A HOT GUN.

NOTE
Charger handle is held to prevent forward movement of bolt. Coax machine gun is hot if 100 rounds or more have been fired within 2 minutes.

Hold charger handle. Pull back on charger handle until you feel tension, and open cover assembly. Check and note if malfunction exists. Pull back charger handle.
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<td>Move manual safety to safe (S).</td>
<td>Open feed tray.</td>
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Step 1. Check that chamber is clear of ammo.

a. If chamber is not clear of ammo, remove ammo from chamber.
Step 2. Check that both feed chute latches are secure.

a. If feed chute latches are not secure, latch feed chute latches.
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<tr>
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**COAX MACHINE GUN SYSTEM** (cont)

Step 3. Check that ammo is aligned in feed chute.

- If ammo is misaligned, realine ammo.

![Diagram of feed chute](image)

**7.62MM AMMO BELT**

Step 4. Check that feed chute is not broken:

- If feed chute is broken, notify organizational maintenance.
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Squeeze two latches, and open forwarder access door. Unload 7.62mm ammo. See page 2-359.

Step 5. Check that rounds are aligned evenly in 7.62mm ammo belt.

a. If 7.62mm ammo belt contains any misaligned rounds, align them with other rounds in 7.62mm ammo belt.

Load/reload coax machine gun ammo. See page 2-333.
Fire coax machine gun. See page 2-340.
If gun fires, end troubleshooting.
If gun still does not feed, see TM 9-1005-313-10 for further troubleshooting steps.

b. Check for free movement of ammo forwarder. If it does not move, remove ammo from chute. Identify and correct malfunction of ammo.

END OF TROUBLESHOOTING

3-31 (3-32 blank)
## Section II. MAINTENANCE PROCEDURES

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3-33
REMOVE 25MM GUN FEEDER

INITIAL SETUP

Personnel Required:
- Gunner
- Helper (H)

Equipment Conditions:
- Vehicle parked
  (TM 9-2350-252-10-1)

References:
- TM 9-2350-252-10-1

1. UNLOAD 25MM GUN FEEDER.
   See page 2-303.

2. REMOVE AP FEED CHUTE FROM 25MM GUN FEEDER.
   a. Squeeze two latches together and remove AP feed chute from front guide pin hole.
   b. Push AP feed chute to left away from 25mm gun feeder.
3. REMOVE HE FEED CHUTE FROM 25MM GUN FEEDER.
   a. Squeeze two latches together and remove HE feed chute from front guide pin hole.
   b. Push HE feed chute to left away from 25mm gun feeder.


5. PULL OUT DRIVE SHAFT HANDLE.
   a. Push in lock button.
   b. Pull out drive shaft handle as far as it will go.
   c. Release lock button.
CAUTION
25mm gun feeder can be damaged if it is dropped. Use both hands when removing 25mm gun feeder.

6. (H) RAISE FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Raise feeder handle up.
   c. Release feeder handle latch. Feeder handle should be locked up.

7. WITH RIGHT HAND, GET A FIRM GRIP ON FEEDER HANDLE. SLIDE OUT 25MM GUN FEEDER ABOUT 12 INCHES.
8. LOWER FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Lower feeder handle down.
   c. Release feeder handle latch. Feeder handle should be locked down.

9. WITH LEFT HAND, GET A FIRM GRIP ON STEPPED SPACER. LIFT AND PULL 25MM GUN FEEDER FROM 25MM GUN RECEIVER.

WARNING
Soldiers could be killed or injured by ammo. Make sure all ammo is removed immediately.

10. REMOVE 25MM GUN FEEDER FROM TURRET TO SQUAD AREA. HAVE HELPER ASSIST.

12. STAND 25MM GUN FEEDER ON END ON FLAT SURFACE.

WARNING
Soldiers could be killed or injured by ammo. Make sure all ammo is removed immediately.

13. PUSH IN DRIVE SHAFT HANDLE ON 25MM GUN RECEIVER.
   a. Push in lock button.
   b. Push in drive shaft handle as far as it will go.
   c. Release lock button.

END OF TASK
REMOVE 25MM GUN BARREL

INITIAL SETUP

Personnel Required:
Gunner
Helper (H)

Equipment Conditions:
Engine stopped
(TM 9-2350-252-10-1)
Turret shut down (page 2-423)
25mm gun feeder removed
(page 3-34)

References:
TM 9-2350-252-10-1

1. LOWER TRIM VANE. See TM 9-2350-252-10-1.

2. TAKE POSITIONS TO REMOVE 25MM GUN BARREL.
   a. Climb on top front of vehicle.
   b. Stand on right side of 25mm gun barrel near rotor extension.
   c. (H) Stand on left side of 25mm gun barrel.

   **WARNING**
   Gun barrel assembly could burn you. Wear heat protective mittens when you handle 25mm gun barrels and hot gun parts.

3. UNLOCK 25MM GUN BARREL.
   a. Pull out and hold 25mm gun barrel release latch.
b. (H) Hold 25mm gun barrel with both hands and rotate 25mm gun barrel to left until ALINE arrow is on top.

c. Release gun barrel release latch.

**CAUTION**
25mm gun barrel is easily damaged. Slide 25mm gun barrel straight out of rotor extension.

4. REMOVE 25MM GUN BARREL.

a. (H) Move to front of 25mm gun barrel to share weight distribution.

b. Slide 25mm gun barrel straight out of rotor extension.

c. Carry 25mm gun barrel slowly and carefully down vehicle to trim vane.

5. PLACE 25MM GUN BARREL ON TRIM VANE.

END OF TASK
REMOVE 25MM GUN RECEIVER

INITIAL SETUP

Personnel Required:
- Gunner
- Helper (H) (2)

Equipment Conditions:
- Turret shut down (page 2-423)
- Vehicle parked (TM 9-2350-252-10-1)
- 25mm gun feeder removed (page 3-34)
- 25mm gun barrel removed (page 3-39)

References:
- TM 9-2350-252-10-1


2. UNLOCK 25MM GUN RECEIVER.
   a. Pull anti-rotation latch handle toward you to unlock 25mm gun receiver.
WARNING
25mm gun receiver weighs 92 lbs and can cause back injury if handled improperly. Be sure to use two helpers to remove receiver. Follow instructions properly.

CAUTION
25mm gun receiver could slide out as soon as you twist it. Use both hands and two helpers to remove 25mm gun receiver.

3. REMOVE 25MM GUN RECEIVER FROM TRUNNION. HAVE HELPERS ASSIST.
   a. Rotate 25mm gun receiver to left as far as possible to align locking lug with opening.

   b. Pull 25mm gun receiver straight out of trunnion. Support 25mm gun receiver with both hands. Have helper assist.

4. REMOVE 25MM GUN RECEIVER FROM TURRET.
   a. Have helper in squad area support rear end of 25mm gun receiver.
b. Have helper in turret exit turret while holding barrel support end of 25mm gun receiver.
NOTE
Procedure for removing track and bolt assembly from 25mm gun receiver in turret or on workbench is the same.

1. PULL OUT DRIVE SHAFT HANDLE.
   a. Push in lock button.
   b. Pull out drive shaft handle.
   c. Release lock button.
2. CYCLE BOLT OUT OF SEAR POSITION.
   a. Push up and hold sear release.
   b. Turn drive shaft handle until bolt moves to rear of 25mm gun receiver.
   c. Release sear release.

WARNING
Chain can move and crush your fingers in sprockets. Use care when you remove track and bolt assembly.

3. MOVE BOLT TOWARD BREECH.
   a. Turn drive shaft handle left (towards gunner), and move bolt carrier forward until rear of bolt is 1/2 inch (12.70 mm) from outside edge of chain.
4. REMOVE TRACK AND BOLT ASSEMBLY.
   a. Push down on track latch handle until it is all the way down.
   b. Push and hold sear release.
   c. Grasp bolt carrier and pull straight out.
   d. Release sear release.
e. Lift track and bolt assembly out of 25mm gun receiver.
f. Place track and bolt assembly on smooth clean surface.
DISASSEMBLE TRACK AND BOLT ASSEMBLY

INITIAL SETUP

Personnel Required: Gunner

Equipment Conditions: 25mm gun track and bolt assembly on workbench (page 3-44)

1. HOLD REAR OF BOLT CARRIER WITH RIGHT HAND FINGERS AND THUMB. KEEP FINGERS CLEAR OF CHAIN.

2. WRAP FINGERS OF OTHER HAND AROUND OUTSIDE OF CHAIN AT LOWER LEFT SPROCKET.

3. MOVE CHAIN TO RIGHT UNTIL BOLT CARRIER IS AT REAR OF TRACK.
   a. Turn lower left sprocket to right with left hand thumb.
b. Control movement of chain with left hand fingers.
c. Pull bolt carrier back slowly.

4. REMOVE BOLT CARRIER FROM TRACK.
   a. Place right hand on top and wrap fingers around bolt carrier. Keep fingers clear of chain.
   b. Continue to turn lower left sprocket and move chain to right. Slider on chain master link will move towards center of cross slot in bolt carrier.

GO TO NEXT PAGE
c. Pull bolt carrier free when slider reaches either left or right of cross slot.

**NOTE**

Used wiping cloth can be used to protect hand. Wrap cloth around bolt before grasping it.

5. **UNLOCK BOLT FROM FORWARD LOCKING POSITION.**

   a. Hold bolt carrier by ejector arm with cross slot down, and rear of bolt carrier pointed toward you.

   b. Move manual SAFE handle to FIRE position.

   c. Slide bolt carrier to rear of track.

   d. Rapidly slide bolt carrier forward and off of track to unlock bolt.
6. PLACE BOLT HEAD ON EDGE OF WORK SURFACE WITH EJECTOR OFF WORK SURFACE.

7. PUSH DOWN ON FIRING PIN SLEEVE.

CAUTION
Firing pin sleeve keeper is small and can be lost. Handle firing pin sleeve keeper with care.

8. REMOVE FIRING PIN SLEEVE KEEPER. USE FINGERTIPS.

9. PULL FIRING PIN SLEEVE UP AND OUT OF BOLT.

10. PULL FIRING PIN ASSEMBLY OUT OF BOLT.

11. TURN BOLT CARRIER OVER AND REMOVE CAM PIN.

12. REMOVE BOLT FROM BOLT CARRIER.

END OF TASK
CLEAN/INSPECT/LUBRICATE 25MM GUN

DESCRIPTION


INITIAL SETUP

Tools:
- Oval brush (Item 22, App D)
- 25mm chamber brush (Item 4, App B)
- 25mm bore brush (Item 3, App B)
- 25mm cleaning rod assembly (Item 6, App B)

Materials/Parts:
- Rifle bore cleaner (RBC) (Item 13, App D)
- Dry cleaning solvent PD-680 (Item 11, App D)
- Small arms cotton swab (Item 25, App D)
- Wiping rag (Item 27, App D)

Materials/Parts (cont):
- GMD grease (Item 16, App D)
- Lubrication (PL-S) (Item 21, App D)
- Lubrication oil (LAW) (Item 20, App D)

Personnel Required:
- Gunner

Equipment Conditions:
- 25mm gun system disassembled (page 3-48)
WARNING
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

NOTE
Special attention should be given to gun barrel support bearing and locking lugs.

When cleaning solvent is used instead of RBC, you do not have to remove cleaning agent. Parts can be air dried or wiped dry with clean dry wiping rag.

1. CLEAN OUTSIDE OF 25MM GUN BARREL.
   a. Dip wiping rag in RBC.
   b. Scrub dirt and rust from outside of 25mm gun barrel, gun barrel support bearing, and locking lugs.

2. APPLY RBC TO BORE.
   a. Apply RBC to swab.
   b. Put swab in swab holder of cleaning rod.
   c. Run cleaning rod through 25mm gun barrel and back out.
   d. Remove and discard swab.
3. LOOSEN CARBON DEPOSITS FROM BORE.
   a. Apply RBC to bore brush.
   b. Screw bore brush onto cleaning rod.
   c. Push cleaning rod through 25mm gun barrel and pull out until carbon deposits are loosened.
   d. Remove bore brush from cleaning rod.
   e. Clean chamber by repeating steps a thru d above. Use chamber brush.

4. REMOVE CARBON FROM BORE.
   a. Apply RBC to swab.
   b. Put swab in swab holder of cleaning rod.
   c. Run cleaning rod through 25mm gun barrel and back out.
   d. Remove and discard swab.
   e. Repeat steps a thru d above until swabs that come out of 25mm gun barrel are clean.
5. DRY BORE OF 25MM GUN BARREL.
   a. Put clean, dry swab in swab holder of cleaning rod.
   b. Push cleaning rod down and pull back through length of 25mm gun barrel.

6. CHECK OUTSIDE OF 25MM GUN BARREL FOR CRACKS.
   a. If 25mm gun barrel is cracked, notify organizational maintenance.

7. CHECK MUZZLE BRAKE FOR DAMAGE OR MISSING PIN.
   a. If muzzle brake is loose or broken, or if pin is missing, notify organizational maintenance.

8. LOOK DOWN BORE AND CHECK FOR BENDS IN 25MM GUN BARREL.
   a. If 25mm gun barrel is bent, notify organizational maintenance.

9. CHECK FOR PITS IN BORE OF 25MM GUN BARREL.
   a. If bore is pitted, notify organizational maintenance.

10. CHECK FOR CRACKED OR CHIPPED LOCKING LUGS.
    a. If locking lugs are cracked or chipped, notify organizational maintenance.
11. LUBRICATE BORE.
   a. Soak clean swab with PL-S.
   b. Put swab in swab holder of cleaning rod.
   c. Push cleaning rod down and pull back through length of 25mm gun barrel. Discard swab.
   d. Remove excess oil with clean swab on swab holder. Repeat step c above.

12. LUBRICATE OUTSIDE OF 25MM GUN BARREL.
   a. Dampen wiping rag with PL-S.
   b. Rub PL-S on outside of 25mm gun barrel.
   c. Remove excess oil from 25mm gun barrel with clean wiping rag.

   **CAUTION**
   If a grease other than GMD is used during normal operations, 25mm gun could be damaged. Only GMD should be used during normal operations.

13. PUT COAT OF GMD ON LOCKING LUGS. USE OVAL BRUSH.

14. PUT LIGHT COAT OF GMD ON GUN BARREL SUPPORT BEARING. USE OVAL BRUSH.
CLEAN 25MM GUN FEEDER

WARNING
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

CAUTION
Cleaning solvent can damage electrical connectors and rubber and plastic parts on 25mm gun feeder assembly. Keep solvent away from feed select solenoid, electrical connector, and bolt position indicator cover.

15. CLEAN SURFACES OF 25MM GUN FEEDER.
   a. Dip clean wiping rag in cleaning solvent.
   b. Clean exposed surface of 25mm gun feeder with wiping rag. Keep cleaning solvent away from feed select solenoid, electrical cable, and bolt position indicator.

INSPECT 25MM GUN FEEDER

16. CHECK FOR CRACKS AND BENT OR BROKEN PARTS OF 25MM GUN FEEDER.
   a. If you find cracked, bent, or broken parts, notify organizational maintenance.

17. CHECK FOR BROKEN LOCK WIRE OR LOOSE SCREWS ON 25MM GUN FEEDER.
   a. If you find broken lock wire or loose screws, notify organizational maintenance.

GO TO NEXT PAGE
18. CHECK FOR DAMAGED ELECTRICAL PARTS.
   a. Check for cracked or broken shielding on outside of electrical cable.
   b. Check for bent or broken pins on electrical connector.
   c. If damage is found, notify organizational maintenance.

LUBRICATE 25MM GUN FEEDER

CAUTION
Lubrication oil can damage electrical parts. Keep lubrication oil from feed select solenoid, electrical connector, electrical cable, and bolt position indicator cover.

19. LUBRICATE 25MM GUN FEEDER SURFACES.
   a. Put PL-S on clean wiping rag.
   b. Put light coat of PL-S on surfaces of 25mm gun feeder. Keep PL-S off feed select solenoid, electrical connector, electrical cable, bolt position indicator, rotor, and sprockets.
CLEAN 25MM GUN RECEIVER

WARNING
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

CAUTION
Cleaning agents can damage electrical parts. Keep solvents from sear solenoid, sear solenoid cable, electrical connectors, and drive motor.

NOTE
When cleaning solvent is used instead of RBC, you do not have to remove cleaning agent. Parts can be air dried or wiped dry with clean dry wiping rag.

20. CLEAN SURFACES OF 25MM GUN RECEIVER.
   a. Put cleaning solvent on clean wiping rag.
   b. Clean exposed surfaces of 25mm gun receiver with cleaning solvent. Keep solvent away from electrical connectors, sear solenoid, sear solenoid cable, and drive motor.
   c. Dip chamber brush in cleaning solvent.
   d. Clean chamber with chamber brush. Let 25mm gun receiver air dry or wipe dry with clean, dry wiping rag.

GO TO NEXT PAGE
INSPECT 25MM GUN RECEIVER

21. CHECK FOR CRACKS, BENDS, OR BREAKS ON MECHANICAL INTERLOCK ROCKER ASSEMBLY, TRACK LATCH HOOK, AND SEAR.
   a. If you find cracked, bent, or broken parts, notify organizational maintenance.

22. CHECK FOR STRIPPED OR BROKEN DRIVE SHAFT SPLINES AND DRIVE GEAR SPLINES.
   a. If you find stripped or broken drive shaft splines, or drive gear splines, notify organizational maintenance.

23. CHECK BARREL SUPPORT AND BREECH TAB FOR CRACKS, BENDS, AND LOOSE NUTS.
   a. If you find cracks, bends or loose nuts, notify organizational maintenance.
24. CHECK PISTON ROD.
   a. If piston rod is not visible, notify organizational maintenance.

25. CHECK FOR DAMAGED OR BROKEN ELECTRICAL PARTS.
   a. Check that protective housing around electrical connectors is not cracked or damaged.
   b. Check for cracked or broken shielding on outside of sear solenoid cable.
   c. Check for bent or broken pins on electrical connectors.
   d. If damage is found, notify organizational maintenance.
26. CHECK FOR OTHER CRACKS, BENDS, OR BROKEN PARTS.
   a. If you find cracked, bent, or broken parts, notify organizational maintenance.

LUBRICATE 25MM GUN RECEIVER

CAUTION
PL-S and GMD can damage electrical parts. Do not let PL-S or GMD get on electrical connectors, sear solenoid, sear solenoid cable, or drive motor.

27. LUBRICATE MECHANICAL INTERLOCK ROCKER ASSEMBLY, DRIVE GEAR SPLINES, DRIVE SHAFT SPLINES, REAR TRACK, CHAIN GUIDES, AND TRACK LATCH HOOK.
   a. Put GMD on oval brush.
   b. Place light coat of GMD on all parts of mechanical interlock rocker assembly, drive gear splines, drive shaft splines, rear track, chain guides, and track latch hook.
28. LUBRICATE SURFACE OF 25MM GUN RECEIVER.
   a. Dampen wiping rag with PL-S.
   b. Rub a light coat of PL-S over surfaces of 25mm gun receiver. Keep PL-S away from electrical connectors, sear solenoid, sear solenoid cable, and drive motor.

   **CAUTION**
   When temperature is below -25°F (32°C), GMD can cause barrel support bearing and breech locking lugs to stick. When temperature is below -25°F (-32°C), use LAW on barrel support bearing and breech locking lugs.

29. LUBRICATE BARREL SUPPORT BEARING AND BREECH LOCKING LUGS.
   a. If temperature is above -25°F (-32°C), put heavy coat of GMD on barrel support bearing and breech locking lugs. Use oval brush.
   b. If temperature is below -25°F (-32°C), put heavy coat of LAW on barrel support bearing and breech locking lugs. Use oval brush.
WARNING
Solvent fumes can burn you and could poison you. Read warning on front page of this manual.

Chain can move and crush fingers in drive sprocket. Hold track assembly level while lifting and moving track assembly.

CAUTION
Preformed packings can be damaged by cleaning solvent. Do not soak track and bolt assembly in cleaning solvent. Use wiping rag only.

30. CLEAN TRACK AND BOLT ASSEMBLY.
   a. Apply cleaning solvent to clean wiping rag.
   b. Clean track assembly, firing pin sleeve, firing pin sleeve keeper, firing pin, bolt, bolt carrier, and cam pin.
   c. Wipe dry with clean wiping rag.
31. CHECK IF FIRING PIN MUST BE REPLACED.
   a. Check firing pin tip, spring, and firing pin tang. If any items are worn or broken, install a new firing pin when track and bolt assembly is assembled.
   b. Check the Weapon Record Data Log — DA Form 2408-4 for number of rounds fired. Firing pin must be replaced after every 8,000 rounds.

   **WARNING**
   Chain can move and crush fingers in drive sprocket. Hold track assembly level while lifting and moving track assembly.

32. CHECK TRACK ASSEMBLY FOR DAMAGE TO CHAIN, DRIVE SPROCKET, IDLER SPROCKET, FIRING PIN PAWL, AND SAFETY PAWL.
   a. If any damage is found, notify organizational maintenance.
33. CHECK ANVIL FOR FOREIGN OBJECTS AND LOoseness.
   a. Carefully remove any foreign object from anvil.
   b. If object cannot be removed, notify organizational maintenance.
   c. If anvil is loose, notify organizational maintenance.

**LUBRICATE TRACK AND BOLT ASSEMBLY**

**WARNING**

Chain can move and crush fingers in drive sprocket. Hold track assembly level while lifting and moving track assembly.

**CAUTION**

Grease on face of bolt causes dirt to collect in anvil. 25mm gun could fail to fire. Do not lubricate face of bolt.

34. LUBRICATE NON-SLIDING SURFACES OF TRACK RAILS AND BOLT CARRIER.

   a. Put PL-S on wiping rag.
   b. Place light coat of GMD on flat surfaces at both sides of track rails. Use oval brush.
   c. Lightly oil outside of bolt carrier.
   d. Remove excess oil from flat surfaces at sides of track rails and outside of bolt carrier.
CAUTION
When temperature is below \(-25^\circ F\) \((-32^\circ C\)), GMD can cause track rails, slider, master link, and chain to stick. When temperature is below \(-25^\circ F\) \((-32^\circ C\)), use LAW on track rails, slider, master link, and chain.

NOTE
Step 35 is done if temperature is above \(-25^\circ F\) \((-32^\circ C\)). Step 36 is done if temperature is below \(-25^\circ F\) \((-32^\circ C\)).

35. LUBRICATE TRACK AND BOLT ASSEMBLY IF TEMPERATURE IS ABOVE \(-25^\circ F\) \((-32^\circ C\)).

a. Put light coat of GMD on firing pin, firing pin sleeve, bolt body, cross slot, carrier track (on bolt carrier), and firing pin pawl. Use oval brush.

36. LUBRICATE TRACK AND BOLT ASSEMBLY IF TEMPERATURE IS BELOW \(-25^\circ F\) \((-32^\circ C\)).

a. Put light coat of LAW on firing pin, firing pin sleeve, bolt body, cross slot, carrier track (on bolt carrier), firing pin pawl, cam pin groove, and firing pin sleeve keeper.
b. Put light coat of LAW on track rails, slider, master link, and chain. Use oval brush.

**CAUTION**
When temperature is below $-25^\circ F (-32^\circ C)$, GMD can cause bolt lugs to stick. When temperature is below $-25^\circ F (-32^\circ C)$, use LAW on bolt lugs.

**NOTE**
Step 37 is done if temperature is above $-25^\circ F (-32^\circ C)$.

Step 38 is done if temperature is below $-25^\circ F (-32^\circ C)$.

37. IF TEMPERATURE IS ABOVE $-25^\circ F (-32^\circ C)$, LUBRICATE BOLT LUGS.
   a. Put heavy coat of GMD on bolt lugs. Use oval brush.

38. IF TEMPERATURE IS BELOW $-25^\circ F (-32^\circ C)$, LUBRICATE BOLT LUGS.
   a. Put heavy coat of LAW on bolt lugs. Use oval brush.

END OF TASK
ASSEMBLE TRACK AND BOLT ASSEMBLY

DESCRIPTION

This task covers:
- Assemble Bolt and Bolt Carrier (page 3-69).
- Assemble Track and Bolt Assembly (page 3-72).

INITIAL SETUP

Materials/Parts:
- Wiping rag (Item 27, App D)

Equipment Conditions:
- Track and bolt assembly disassembled (page 3-48)
- 25mm gun receiver cleaned, inspected for damage, and lubricated (page 3-52)

Personnel Required:
- Gunner
- Helper (H)

ASSEMBLE BOLT AND BOLT CARRIER

1. HOLD REAR TRACK OF BOLT CARRIER WITH CAM PIN SLOT FACING UP.

2. SLIDE BOLT INTO BOLT CARRIER WITH CAM PIN HOLE FACING UP.

3. ALINE CAM PIN HOLE WITH CAM PIN SLOT.

4. INSTALL CAM PIN.
   a. Place cam pin into cam pin hole.
   b. Push in cam pin until fully seated in bolt.

GO TO NEXT PAGE 3-69
5. PLACE BOLT HEAD ON EDGE OF WORK SURFACE WITH EJECTOR OFF WORK SURFACE.

NOTE
New firing pin must be installed if firing pin is worn, broken or 8,000 rounds have been fired. (Item 29, App D).

6. SLIDE FIRING PIN INTO BOLT WITH FIRING PIN TANG FACING REAR.

7. INSTALL FIRING PIN SLEEVE OVER FIRING PIN AND INTO BOLT.
8. PUSH FIRING PIN SLEEVE DOWN.

**CAUTION**
Firing pin sleeve key is small and can be lost. Handle firing pin sleeve key with care.

9. INSTALL FIRING PIN SLEEVE KEY INTO FIRING PIN SLEEVE THROUGH BOLT.
   a. Clean firing pin sleeve key with wiping rag.
   b. Insert and press firing pin sleeve key into hole in bolt.
   c. (H) Push down on rear of firing pin sleeve until firing pin sleeve key pops into hole in bolt.

10. LOCK BOLT IN FORWARD POSITION.
   a. Hold rear of track carrier in one hand.
   b. Hold bolt lugs in other hand. Pull bolt all the way to forward position until firing pin tang locks.
11. HOLD BOLT CARRIER IN RIGHT HAND.

12. LIFT REAR OF TRACK ASSEMBLY WITH LEFT HAND.

13. CENTER CUTOUT AREA OF BOLT CARRIER OVER SLIDER.

14. ALINE BOLT CARRIER WITH TRACK.

15. MOVE SLIDER TO LEFT UNTIL BOLT CARRIER BEGINS TO MOVE FORWARD.

END OF TASK
INSTALL TRACK AND BOLT ASSEMBLY

INITIAL SETUP

Personnel Required:
Gunner

Equipment Conditions:
25mm gun receiver installed in turret (page 3-77)
or
25mm gun receiver on workbench (page 3-41)

NOTE
Track and bolt assembly is installed the same whether 25mm gun receiver is on workbench or installed in turret. This task shows 25mm gun receiver installed in turret.

1. PULL OUT DRIVE SHAFT HANDLE.
   a. Press in lock button.
   b. Pull out drive shaft handle.
   c. Release lock button.

2. PULL UP ON TRACK LATCH HANDLE.
3. POSITION TRACK AND BOLT ASSEMBLY FOR INSTALLATION.
   a. Hold lower left sprocket with left hand.
   b. Hold rear of bolt carrier with right hand.
   c. Turn lower left sprocket to left until rear of bolt carrier is about 1/2 inch (12.70 mm) from outside edge of chain.

   WARNING
   Chain can move and crush fingers in sprockets. Hold track and bolt assembly level while lifting.

4. INSTALL TRACK AND BOLT ASSEMBLY IN 25MM GUN RECEIVER.
   a. Hold lower left sprocket with left hand so chain will not move.
   b. Lift track and bolt assembly.
c. Place track and bolt assembly in 25mm gun receiver.

d. Press sear release.

e. Push down and wiggle track and bolt assembly until it is seated in 25mm gun receiver.

f. Release sear release.
5. PUSH DOWN HARD ON TRACK LATCH HANDLE UNTIL TRACK AND BOLT ASSEMBLY IS LOCKED IN 25MM GUN RECEIVER.

6. MOVE BOLT TO SEAR POSITION.
   a. Turn drive shaft handle until bolt moves to rear and locks in SEAR position.

7. PUSH IN DRIVE SHAFT HANDLE.
   a. Press lock button.
   b. Push in drive shaft handle.
   c. Release lock button.

END OF TASK
INSTALL 25MM GUN RECEIVER

INITIAL SETUP

Personnel Required:
- Gunner
- Helper (H) (2)

Equipment Conditions:
- Turret shut down (page 2-423)
- 25mm gun guard removed and gun cover unzipped and folded back out of way (page 2-169)
- 25mm gun receiver in squad area (page 3-41)

1. PULL OUT ANTI-ROTATION LATCH HANDLE AS FAR AS IT WILL GO.

WARNING

25mm gun receiver weighs 92 lbs and can cause back injury if handled improperly. Be sure to use two helpers to install receiver.

CAUTION

25mm gun receiver could be damaged if you drop it. Use two helpers when you carry and install 25mm gun receiver.

3. (H) (2) LIFT 25MM GUN RECEIVER INTO TURRET.
   a. (H-1) Enter turret holding barrel support end of 25mm gun receiver.
   b. (H-2) Support rear end of 25mm gun receiver.
4. INSTALL 25MM GUN RECEIVER IN TRUNNION. HAVE HELPER ASSIST.
   a. Aline recoil mechanism housing with opening in trunnion.
   b. Push 25mm gun receiver all the way into trunnion. Have helper in turret assist.
   c. Rotate 25mm gun receiver to right until it stops.

5. LOCK 25MM GUN RECEIVER IN PLACE.
   a. Push anti-rotation latch handles forward.

6. MANUALLY DEPRESS 25MM GUN TO 0 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.

END OF TASK
INSTALL 25MM GUN BARREL

INITIAL SETUP

Tools:
- Oval brush (Item 22, App D)

Materials/Parts:
- GMD grease (Item 16, App D)
- Wiping rag (Item 27, App D)

Personnel Required:
- Gunner
- Helper (H)

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Turret shut down (page 2-423)
- Vehicle parked (TM 9-2350-252-10-1)
- Trim vane lowered (TM 9-2350-252-10-1)
- 25mm gun receiver installed (page 3-77)
- 25mm gun barrel removed (page 3-39)

WARNING
Sharp edges can cut hands. Use rags or brush to lubricate.

1. CLEAN AND GREASE 25MM GUN BARREL AND SUPPORT BEARING.
   a. Wipe off all old grease from locking lugs and support bearing. Use wiping rag.
   b. Put a heavy coat of new GMD grease on locking lugs and support bearing. Use oval brush.
2. CLEAN AND GREASE GUN BARREL SUPPORT ASSEMBLY.
   a. Wipe off all old grease from gun barrel support assembly in rotor extension. Use wiping rag.
   b. Put a heavy coat of new GMD grease on gun barrel support assembly until grooves are full of grease. Use oval brush.

   **WARNING**
   You can be hurt if gun barrel support assembly slips from your hands. Clean your hands before you lift gun barrel assembly.

   **CAUTION**
   25mm gun barrel is easily damaged. Slide 25mm gun barrel straight into gun barrel support assembly.

3. (H) INSTALL 25MM GUN BARREL.
   a. Lift and carry 25mm gun barrel to top front of vehicle.
   b. Place gun barrel support assembly in rotor extension with ALINE arrow on top.
   c. Slide 25mm gun barrel straight into gun barrel support assembly as far as it will go.
WARNING

If gun barrel is not locked in place, soldiers could be killed or injured. Make sure gun barrel is locked and does not turn.

4. LOCK 25MM GUN BARREL.
   a. Turn 25mm gun barrel in direction of lock arrow until you hear loud click.

   b. Look at gun barrel release latch. When 25mm gun barrel is locked, you should not be able to see the word UNLOCK on gun barrel release latch.

   c. Check that 25mm gun barrel is locked by turning it in the opposite direction of lock arrow.

END OF TASK
INSTALL 25MM GUN FEEDER

INITIAL SETUP

Materials/Parts:
- Lint-free cloth (Item 14, App D)

Personnel Required:
- Gunner
- Helper (H)

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Vehicle parked
- 25mm gun feeder removed
  (TM 9-2350-252-10-1, page 3-34)

1. TIME 25MM GUN FEEDER. See page 2-240.

2. CLEAR 25MM GUN ROTOR AREA OF OBSTRUCTIONS.
   a. Push AP and HE feed chutes to left, and out of 25mm gun rotor area.
   b. Fold 25mm gun cover back out of way.
   c. Push gun power cable down and out of way.
3. PULL OUT DRIVE SHAFT HANDLE.
   a. Push in lock button and hold.
   b. Pull out drive shaft handle as far as it will go.
   c. Release lock button.

4. CHECK THAT 25MM GUN BOLT IS IN SEAR POSITION.
   a. If 25mm gun bolt is not in SEAR position, position 25mm gun bolt in SEAR position. See page 2-243.

6. (H) RAISE FEEDER HANDLE.
   a. Push and hold down feeder handle latch.
   b. Raise feeder handle up.
   c. Release feeder handle latch. Feeder handle should be locked up.

7. POSITION 25MM GUN FEEDER ON 25MM GUN RECEIVER.
   a. (H) With right hand, get a firm grip on feeder handle.
   b. (H) With left hand, get a firm grip on stepped spacer. Lift and pass 25mm gun up to gunner.
   c. With left hand, get a firm grip on stepped spacer.
   d. With right hand, get a firm grip on feeder handle. Position 25mm gun feeder on right knee.
   e. Lift up and place front of 25mm gun feeder on 25mm gun receiver and guide rail.
   f. Push in 25mm gun feeder until it stops.
8. LOWER FEEDER HANDLE.
   a. Push and hold feeder handle latch down.
   b. Lower feeder handle down.
   c. Release feeder handle latch. Feeder handle should be locked down.

9. LOCK DRIVE SHAFT HANDLE.
   a. Push in and wiggle lock button.
   b. Push in drive shaft handle as far as it will go.
   c. Release lock button.

10. MANUALLY DEPRESS 25MM GUN TO 50 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.

11. INSTALL HE FEED CHUTE ON 25MM GUN FEEDER.
   a. Insert front guide pin into front pin hole.
   b. Squeeze two latches together and move to right until latches rest in slots.
   c. Aline two feed chute latches over latch holes.
   d. Lift two latches from slots, squeeze together, move to left and release.
12. INSTALL AP FEED CHUTE ON 25MM GUN FEEDER.
   a. Insert front guide pin into front pin hole.
   b. Squeeze two latches together and move to right until latches rest in slots.
   c. Aline two feed chute latches over latch holes.
   d. Lift two latches from slots, squeeze together, move to left and release.

   **NOTE**
   AP link eject chute is longer than HE link eject chute. AP link eject chute extends down from top of 25mm gun feeder.

13. INSTALL AP LINK EJECT CHUTE ON 25MM GUN FEEDER.
   a. Push eject end of AP link eject chute through journal.
b. Hold AP link eject chute in right hand with thumb and index finger over two link eject chute latches.

c. Aline two pins on AP link eject chute with two holes on 25mm gun feeder.

d. Squeeze open two link eject chute latches and push pins into holes. Release link eject chute latches.

e. Check AP link eject chute to be sure it is properly attached.

14. DEPRESS 25MM GUN TO 0 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.

15. INSTALL HE LINK EJECT CHUTE ON 25MM GUN FEEDER.

   a. Push eject end of HE link eject chute through journal.
b. Hold HE link eject chute in left hand with thumb and index finger over two link eject chute latches.

c. Aline two pins on HE link eject chute with two holes on 25mm gun feeder.

d. Squeeze open two link eject chute latches and push pins into holes. Release link eject chute latches.

e. Check HE link eject chute to be sure it is properly attached.

16. (H) RAISE FEEDER HANDLE.

a. Push and hold down feeder handle latch.

b. Raise feeder handle up.

c. Release feeder handle latch. Feeder handle should be locked up.
17. CHECK CABLE PLUG AND RECEIVER JACK FOR DIRT, CORROSION, MOISTURE, AND DAMAGE.
   a. If cable plug or receiver jack is dirty or moist, wipe with clean, lint-free cloth.
   b. If cable plug or receiver jack is corroded or damaged, notify organizational maintenance.

18. INSTALL GUN POWER CABLE ON RECEIVER JACK.
   a. Align cable plug with receiver jack.
   b. Push and wiggle cable plug into receiver jack. Turn cable plug to right until locked.

19. (H) LOWER FEEDER HANDLE.
   a. Push and hold down feeder handle.
   b. Lower feeder handle down.
   c. Release feeder handle latch. Feeder handle should be locked down.


END OF TASK

3-90
REMOVE COAX MACHINE GUN

INITIAL SETUP

Personnel Required: 
Gunner

Equipment Conditions: 
Turret shut down (page 2-423)

1. MANUALLY ELEVATE COAX MACHINE GUN TO 200 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.

2. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

WARNING

Accidental firing of coax machine gun could kill or injure soldiers. Make sure manual safe handle is in SAFE.

Accidental firing of coax machine gun could kill or injure soldiers. Clear gun of ammo before you remove gun from vehicle.

3. CLEAR COAX MACHINE GUN. See page 2-354.
CAUTION
Solenoid cable could be damaged when you remove coax machine gun. Remove solenoid cable plug from plenum jack before you remove coax machine gun.

NOTE
There are two configurations for the coax machine gun. If solenoid is installed on the gun, go to step 4. If solenoid is installed to gun mount, go to step 5.

4. REMOVE SOLENOID CABLE PLUG FROM PLENUM JACK.
   a. Turn solenoid cable plug left until threads clear plenum jack.
   b. Remove solenoid cable plug from plenum jack.
Procedures to disconnect rear mount handle from pin hole are the same for both configurations.

5. DISCONNECT REAR MOUNT PIN HANDLE FROM MOUNT PIN HOLE.
   a. Pull rear mount pin handle down and clear of mount pin hole.
   b. Turn rear mount pin handle forward and out of way.
NOTE
If solenoid is installed on gun, go to step 6. If solenoid is installed on gun mount, go to step 7.

6. REMOVE COAX MACHINE GUN FROM PLENUM.
   b. Pull out coax machine gun until alinement lugs are clear of cradle.
   c. Pull coax machine gun back and out of plenum.
   d. Place coax machine gun on turret floor.
   e. Go to step 8.
7. REMOVE COAX MACHINE GUN FROM PLENUM.
   b. Pull out coax machine gun until quick release pin is clear of cradle.
   c. Remove quick release pin from bracket and install in rotor.
   d. Pull coax machine gun back and out of plenum.
   e. Place coax machine gun on turret floor.

8. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.
CLEAN/INSPECT/LUBRICATE COAX MACHINE GUN

INITIAL SETUP

Personnel Required: 
Gunner

Equipment Conditions: 
Coax machine gun removed (page 3-91)

References: 
TM 9-1005-313-10

1. FIELD STRIP, CLEAN, INSPECT, AND LUBRICATE COAX MACHINE GUN. See TM 9-1005-313-10.

END OF TASK
INSTALL COAX MACHINE GUN

INITIAL SETUP

Personnel Required: Gunner

Equipment Conditions: MASTER POWER switch OFF (TM 9-2350-252-10-1)

References:
TM 9-2350-252-10-1

1. MANUALLY ELEVATE GUN ROTOR TO 200 MILS. See task: OPERATE TURRET MANUALLY, page 2-439.

2. OPEN COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

WARNING
Accidental firing of coax machine gun could kill or injure soldiers. Clear coax machine gun before you install it in vehicle.

If gun barrel is not locked in place, soldiers could be killed or injured. Make sure gun barrel is locked and does not turn.
NOTE
There are two configurations for coax machine gun. If firing solenoid is installed on the gun, go to step 3. If firing solenoid is installed on the gun mount, go to step 4.

3. MOUNT COAX MACHINE GUN.
   a. Place coax machine gun in plenum with gun barrel pointing forward and trigger to right.
   b. Aline alinement lugs with cradle slots.
   c. Push coax machine gun in all the way.
   d. Check that coax machine gun is fully seated by pulling on rear of coax machine gun.
   e. Check that alinement lugs are locked in position by pulling on rear of coax machine gun.
   f. Go to step 5.
4. MOUNT COAX MACHINE GUN.
   a. Place coax machine gun in plenum with gun barrel pointing forward and trigger to the right.
   b. Remove quick release pin from rotor. Insert quick release pin in bracket.
   c. Push coax machine gun in all the way.
   d. Check that coax machine gun is fully seated by pulling on rear of coax machine gun.
   e. Check that quick release pin is locked in position by pulling on rear of coax machine gun.

NOTE
There are two configurations for coax machine gun. Procedure for joining and securing rear mount to gun is the same.

5. JOIN AND SECURE REAR MOUNT TO COAX MACHINE GUN.
   a. Pull mount pin handle down.
   b. Move rear mount left and align rear mount with mount pin holes in coax machine gun.
   c. Push mount pin handle up until it is fully seated.
NOTE
If firing solenoid is installed on coax machine gun, go to step 6. If firing solenoid is installed on gun mount, go to step 7.

6. INSTALL SOLENOID CABLE PLUG ON PLENUM JACK.
   a. Place solenoid cable plug on plenum jack.
   b. Turn solenoid cable plug to right to secure.

7. CLOSE COAX MACHINE GUN ACCESS DOORS. See task: OPERATE COAX MACHINE GUN ACCESS DOORS, page 2-172.

END OF TASK
CLEAN ISU

INITIAL SETUP

Materials/Parts:
- Small arms cotton swabs (Item 25, App D)
- Denatured alcohol (Item 15, App D)
- Clean water

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)

1. RAISE BOTH BALLISTIC SIGHT COVER DOORS.
   a. Pull down on day and night sight door control handles.

WARNING

Antireflective coating on all infrared optics contains thorium fluoride which is slightly radioactive. The only potential hazard involves ingestion (swallowing or inhaling) of this coating material. Dispose of broken lenses, etc., in accordance with AR 385-11.
CAUTION

ISU window and eyepiece surface coatings are easily damaged. Use extreme care to protect them from dirt, dust, fingerprints, and humidity whenever possible. Do not breathe on ISU window and eyepiece surfaces. Use only approved materials and procedures for cleaning ISU windows and eyepieces.

Outside ISU night window may fail to work if you use anti-fogging kit. Do not use anti-fogging kit on outside ISU night window.

NOTE

During freezing weather, ISU windows and eyepieces may be cleaned with cleaning solution mixed with clean warm water.

2. CLEAN ISU WINDOWS (OUTSIDE VEHICLE).

   a. Remove dust and dirt from ISU windows. Use clean water.

   b. Clean ISU windows. Use cotton swabs and alcohol.

   c. Flush off alcohol. Use clean water.

   d. Dry ISU windows by wiping lightly in a single direction with clean cotton swabs.

ISU WINDOWS
3. CLEAN ISU UNITY WINDOW AND EYEPIECES (INSIDE VEHICLE).
   a. Clean grease and dirt from gunner's eyepiece, commander's eyepiece, and ISU unity window. Use cotton swabs and alcohol.

4. CLOSE BOTH BALLISTIC SIGHT COVER DOORS.
   a. Push down ballistic sight cover doors until doors lock in closed position.

END OF TASK
CLEAN OPTICAL GLASS SURFACES

INITIAL SETUP

Tools:
- Artist's brush (Item 1, App D)

Personnel Required:
- Gunner

Materials/Parts:
- Lens tissue (Item 18, App D)
- Lens cleaning solution (Item 17, App D)

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)
- Turret shut down (page 2-423)

1. REMOVE DUST AND DIRT FROM OPTICAL GLASS SURFACES.
   a. Sweep dust and dirt from optical glass surfaces. Use artist's brush.

2. PREPARE LENS TISSUE.
   a. Fold lens tissue in half three times, parallel to short side.
   b. Moisten one end of lens tissue with lens cleaning solution.
3. REMOVE OIL AND GREASE FILMS.
   b. Discard dirty lens tissue.
   c. Repeat steps 2, 3a, and 3b as necessary to clean optical glass surfaces.

4. DRY OPTICAL GLASS SURFACES.
   a. Fold lens tissue as in step 2a. Do not moisten tissue.
   b. Dry optical glass surfaces by wiping gently in a circular motion.
   c. If any film is left on optical glass surfaces, repeat steps 2 thru 4.

END OF TASK
CLEAN/INSPECT TOW LAUNCHER

INITIAL SETUP

Materials/Parts:
- Wiping rag (Item 27, App D)
- Rifle bore cleaner (RBC) (Item 13, App D)

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- TOW launcher unloaded (page 2-400)
- Vehicle parked (TM 9-2350-252-10-1)
- Turret operating in power mode (page 2-152)

1. TRAVERSE TURRET TO TOW LOAD POSITION (5950 MILS). See task: OPERATE TURRET IN POWER MODE, page 2-152.

2. RAISE TOW LAUNCHER. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

3. DEPRESS TOW LAUNCHER TO - 100 MILS. See task: OPERATE TOW LAUNCHER IN POWER MODE, page 2-362.

4. MOVE TURRET DRIVE SYSTEM SWITCH TO OFF.

5. MOVE TURRET POWER SWITCH TO OFF.

6. MOVE MASTER POWER SWITCH TO OFF. See TM 9-2350-252-10-1.
7. REMOVE DUST COVER.
   a. Pull top edge of dust cover from top of TOW launcher.
   b. Pull snap fasteners from bottom of TOW launcher.

8. INSPECT DUST COVER FOR DAMAGE.
   a. Inspect snap fasteners.
   b. Inspect strips on TOW launcher and dust cover.
   c. Inspect dust cover for rips or holes.
   d. If dust cover is damaged, notify organizational maintenance.

   WARNING
   Solvent fumes can burn and could poison you. Read warning on front page of this manual.

9. CLEAN TOW LAUNCHER TUBES.
   a. Clean inside of TOW launcher tubes with wiping rag.
   b. Dry inside of TOW launcher tubes with clean wiping rag.
10. INSPECT TOW LAUNCHER FOR DAMAGE.
   a. If TOW launcher is damaged, notify organizational maintenance.

11. CHECK THAT UMBILICAL CONNECTORS DO NOT EXTEND DOWN INTO TOW LAUNCHER TUBES.
   a. If umbilical connector extends down into TOW launcher tube, go to step 12.
   b. If umbilical connector does not extend down into TOW launcher tube, go to step 13.

12. REMOVE UMBILICAL CONNECTORS FROM TOW LAUNCHER TUBES.
   a. Move MASTER POWER switch to ON. See TM 9-2350-252-10-1.
   b. Move TURRET POWER switch to ON.
c. Move ARM-SAFE-RESET switch to RESET, then to SAFE. Wait 10 seconds.

d. Move TURRET POWER switch to OFF.

e. Move MASTER POWER switch to OFF. See TM 9-2350-252-10-1.

f. If umbilical connectors still extend down into TOW launcher tubes, notify organizational maintenance.

13. INSPECT LOADING HANDLES AND HANDLE LOCKS FOR DAMAGE.

a. Check that handle locks lock loading handles in place.

b. Check that loading handles pull down and align lug channels.

c. Check that lug channels are blocked when loading handles are locked.

d. If loading handles or handle locks are damaged, notify organizational maintenance.
14. INSTALL DUST COVER.
   
a. Install snap fasteners on bottom of TOW launcher.
   
b. Stretch dust cover up and over rear of TOW launcher.
   
c. Press top edge of dust cover onto top of TOW launcher.
   
15. INSPECT TOW ELEVATION SYSTEM FOR DAMAGE.
   
a. Pull out and hold TOW MANUAL LIFT release handle and let TOW launcher lower itself all the way down.
   
b. If TOW launcher does not lower all the way down, notify organizational maintenance.

17. TRAVERSE TURRET TO 6400 MILS. See task: OPERATE TURRET IN POWER MODE, page 2-152.

END OF TASK
CLEAN/INSPECT SMOKE GRENADE LAUNCHERS

INITIAL SETUP

Tools:
- 25mm bore brush (Item 3, App B)
- 25mm cleaning rod assembly (Item 6, App B)

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Materials/Parts:
- Rifle bore cleaner (RBC) (Item 13, App D)
- Wiping rag (Item 27, App D)
- Pipe cleaner (Item 12, App D)

Equipment Conditions:
- Vehicle parked (TM 9-2350-252-10-1)
- Turret shut down (page 2-399)
- Smoke grenade launchers unloaded (page 2-395)

1. REMOVE RUBBER CAPS FROM GRENADE LAUNCHER TUBES.

2. CLEAN DRAIN HOLES.
   a. Use pipe cleaner to get into drain hole at bottom of each grenade launcher tube.
   b. Loosen and push out any dirt or debris from drain holes.
WARNING
Solvent fumes can burn and could poison you. Read warning on front page of this manual.

3. CLEAN INSIDE OF GRENADE LAUNCHER TUBES.
   a. Put RBC on 25mm bore brush.
   b. Screw bore brush onto cleaning rod.
   c. Clean inside of grenade launcher tubes. Use 25mm bore brush.
   d. Dry with clean wiping rag.

NOTE
Report any damaged grenade launcher tubes to organizational maintenance.

4. INSPECT GRENADE LAUNCHER TUBES FOR DAMAGE.
   a. Check smoke grenade launcher for crushed or bent grenade launcher tube.
   b. Check that electrical firing pin is not corroded.
   c. Check that grenade launcher tube is secure on smoke grenade launcher.

5. INSTALL RUBBER CAPS ON GRENADE LAUNCHER TUBES.

END OF TASK
1. FOLD DOWN APERTURE SIGHT AND FRONT RING SIGHT.

2. REMOVE REAR RING SIGHT ARM FROM REAR BRACKET.
   a. Press pushbutton and hold in.
   b. Remove quick release pin from rear bracket and rear ring sight arm.
   c. Release pushbutton.
3. REMOVE FRONT RING SIGHT ARM FROM FRONT BRACKET.
   a. Press pushbutton and hold in.
   b. Remove quick release pin from front bracket and front ring sight arm.
   c. Release pushbutton.

4. FOLD AND STOW RING SIGHT ASSEMBLY.

END OF TASK
CLEAN FRONT RING SIGHT

INITIAL SETUP

Materials/Parts:
- Lint-free cloth (Item 14, App D)
- Scrubbing soap (Item 23, App D)

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Equipment Conditions:
- Engine stopped
  (TM 9-2350-252-10-1)

CAUTION
Sight glass can be clouded or scratched by strong or gritty cleaners. To clean front ring sight, use mild mixture of soap and water only.

1. WIPE FRONT RING SIGHT WITH MILD MIXTURE OF SOAP AND WATER.

2. WIPE FRONT RING SIGHT DRY WITH LINT FREE CLOTH.

END OF TASK
INSTALL RING SIGHT ASSEMBLY

INITIAL SETUP

Personnel Required:
  Gunner

Equipment Conditions
  Engine stopped
  (TM 9-2350-252-10-1)

TURRET POWER switch OFF
  (page 2-16)

References:
  TM 9-2350-252-10-1

CAUTION
Front ring sight is easily scratched and broken. Use care when you handle front ring sight. Do not touch face of front ring sight.

1. INSTALL FRONT RING SIGHT ARM.
   a. Aline hole in front ring sight arm with holes in front bracket.
   b. Press pushbutton and hold in.
   c. Push quick release pin through holes in front bracket and front ring sight arm.
   d. Release pushbutton.
2. INSTALL REAR RING SIGHT ARM.
   a. Aline hole in rear ring sight arm with holes in rear bracket.
   b. Press pushbutton and hold in.
   c. Push quick release pin through holes in rear bracket and rear ring sight arm.
   d. Release pushbutton.

END OF TASK
REPLACE ANTENNA MOUNT COVERS

INITIAL SETUP

Tools: Open end wrench, 9/16 inch (Item 79, App B)

Equipment Conditions: Engine stopped (TM 9-2350-252-10-1)

References:
TM 9-2350-252-10-1

NOTE
There are two antenna mounts on vehicle. One is on rear of turret and one is on right side of turret. The procedure for replacing either antenna mount is the same. Antenna mount on rear of turret is shown here.

1. REMOVE ANTENNA MOUNT COVER.
   a. Remove four screws from antenna mount cover. Use 9/16 inch open end wrench.
   b. Remove antenna mount cover.

2. INSTALL ANTENNA MOUNT COVER.
   a. Place antenna mount cover on antenna mount. Aline screw holes.
   b. Install four screws on antenna mount cover. Use 9/16 inch open end wrench.

END OF TASK
CHECK TURRET EMERGENCY BATTERIES

INITIAL SETUP

Tools:
- Flashlight
- Socket wrench ratchet handle, 1/2 inch drive (Item 36, App B)
- Socket, 7/16 inch (Item 67, App B)

Personnel Required:
- Gunner

References:
- TM 9-2350-252-10-1

Materials/Parts:
- Wiping rag (Item 27, App D)

Equipment Conditions:
- Engine stopped (TM 9-2350-252-10-1)

1. RAISE GUNNER'S SEAT. See task: ADJUST GUNNER'S/COMMANDER'S SEATS, page 2-144.

2. REMOVE LEFT REAR TURRET FLOOR PLATE.
   a. Remove four screws, washers, and left rear turret floor plate from turret. Use socket and socket wrench.
WARNING
Battery posts and cables touched by metal objects can short circuit and burn you or injure you. Use caution when you work with tools or other metal objects. Do not wear jewelry when you work on electrical system.

NOTE
Terminal posts and clamps are protected by rubber covers which are not illustrated here.

3. CHECK BATTERY HOLD DOWN.
   a. Grasp battery hold down with both hands, and try to move it.
   b. If batteries move or seem loose, report to organizational maintenance.

4. CHECK BATTERY CONNECTIONS.
   a. Check that each clamp is all the way down on terminal post.
   b. Try to twist each clamp with thumb and first two fingers.
c. Check to see if cables are securely connected to clamp.

d. If any clamp or connection is loose, report to organizational maintenance.

**WARNING**

Gas from batteries can explode and injure you. Do not allow sparks or flames near batteries. Do not smoke near batteries. Battery acid can burn or blind you. Do not get acid on your skin or eyes.

5. CHECK BATTERY ELECTROLYTE LEVEL.

a. Remove filler cap from each battery cell.

b. Using a flashlight, look down into each battery cell and check for "eye shape".

c. If you don't see "eye shape" in each battery cell, battery electrolyte level is low. Notify organizational maintenance.

d. Put filler cap back on each battery cell.
6. INSTALL LEFT REAR TURRET FLOOR PLATE.
   a. Install left rear turret floor plate, four washers, and screws on turret floor. Use socket and socket wrench.

7. ADJUST GUNNER'S SEAT. See task: ADJUST GUNNER'S/COMMANDER'S SEATS, page 2-144.

END OF TASK
CHAPTER 4

MAINTENANCE OF AUXILIARY EQUIPMENT

SCOPE

This chapter tells you where to find maintenance instructions for auxiliary equipment.

COAX MACHINE GUN

See TM 9-1005-313-10.

AN/GRC-160 RADIO

See TM 11-5820-498-12.

AN/PRC-77 RADIO

See TM 11-5820-667-12.

AN/VRC-46 RADIO

See TM 11-5820-401-12.
CHAPTER 5

AMMUNITION

GENERAL

WARNING
Ammo can explode if ammo is damaged or exposed to electric sparks and high heat. Do not use damaged ammo. Do not drop or bump ammo. Keep ammo away from electric sparks and high heat.

CAUTION
Ammo can jam in weapons if ammo is dirty or greasy. Keep ammo clean of dirt and grease.

NOTE
For care, handling, preservation, and destruction of ammo, in addition to the following, also refer to TM 9-1300-206.

CARE
Keep ammo clean of dirt and grease. Do not use damaged ammo.

HANDLING
Keep ammo away from electric sparks and high heat. Do not drop or bump ammo.

PRESERVATION
Do not open sealed ammo containers until you are ready to use ammo.

PACKING
Pack unused ammo in its original container. Use that ammo first the next time you fire.
## 25MM AMMO

<table>
<thead>
<tr>
<th>AUTHORIZED</th>
<th>CLASSIFICATION</th>
<th>IDENTIFICATION (see picture)</th>
<th>FUZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEI-T M792</td>
<td>High-explosive, incendiary tracer</td>
<td>Yellow</td>
<td>M758</td>
</tr>
<tr>
<td>Dummy M794</td>
<td>Dummy</td>
<td>Gold projectile</td>
<td>None</td>
</tr>
<tr>
<td>TP-T M793</td>
<td>Target practice, tracer</td>
<td>Blue projectile</td>
<td>None</td>
</tr>
<tr>
<td>APDS-T M791</td>
<td>Armor-piercing, discarding sabot, tracer</td>
<td>Black tip</td>
<td>None</td>
</tr>
</tbody>
</table>

| NUMBER AUTHORIZED: | 600 rounds stowed, 300 ready, 900 total IFV | 1200 rounds stowed, 300 ready, 1500 total CFV |

- **HEI-T**: High-explosive, incendiary tracer, **YELLOW**
- **Dummy**: Dummy M794, **GOLD**
- **TP-T**: Target practice, tracer M793, **BLUE**
- **APDS-T**: Armor-piercing, discarding sabot, tracer M791, **BLACK**

![HEI-T](image1) ![Dummy](image2) ![TP-T](image3) ![APDS-T](image4)
### 7.62MM AMMO

<table>
<thead>
<tr>
<th>AUTHORIZED ROUNDS</th>
<th>IDENTIFICATION (see picture)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridge, 7.62mm, Ball, M59 or M80</td>
<td>None</td>
</tr>
<tr>
<td>Cartridge, 7.62mm, Tracer, M62</td>
<td>Orange tip</td>
</tr>
<tr>
<td>Cartridge, 7.62mm, Armor-piercing, M61</td>
<td>Black tip</td>
</tr>
<tr>
<td>Cartridge, 7.62mm, Dummy, M63</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NUMBER AUTHORIZED:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1400 stowed, 800 cartridges ready, 2200 total for IFV</td>
<td></td>
</tr>
<tr>
<td>3400 stowed, 800 cartridges ready, 4200 total for CFV</td>
<td></td>
</tr>
</tbody>
</table>

- **M59**
- **M80**
- **M61** BLACK
- **M62** ORANGE
- **M63**

**COMBAT MIX**

4 TO 1
MISSILES

WARNING
Soldiers can be killed or injured if launcher motor fires accidentally. Equipment can get damaged. Make sure electrical connector cover stays secure until missile is used.

CARE
Keep missiles dry. See that missiles are always free from grease and oil. Make sure electrical connector cover stays secure until missile is used.

WARNING
Damaged TOW missiles can misfire and kill or injure soldiers. Do not load and fire damaged missiles. Do not drop or damage missiles. Take care not to dent missile case. Take care not to damage missile diaphragms.

CAUTION
Missiles can fail to fire. Protect missiles from moisture. Do not load missiles if humidity indicator shows pink.

HANDLING
Do not drop or damage missiles in any way. Missile case must not be dented. Missile diaphragms should not be torn or damaged during handling.
The following table lists missile stowage for the IFV and CFV.

<table>
<thead>
<tr>
<th></th>
<th>IFV</th>
<th>CFV</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOW</td>
<td>2 in launcher</td>
<td>2 in launcher</td>
</tr>
<tr>
<td>TOW DRAGON</td>
<td>5 stowed, any combination</td>
<td>10 TOW stowed, No DRAGON</td>
</tr>
<tr>
<td>LAW</td>
<td>3 stowed</td>
<td>3 stowed</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>
MISSILES (cont)

MISSILE HANDLING AND STORAGE

Improper or careless handling may damage missile, causing it to malfunction when launched.

WARNING

Accidental firing of launcher motor can kill or injure soldiers. Equipment can get damaged. Do not remove missile from launch container.

Do not attempt to remove missile from its launch container.

WARNING

Damaged TOW missiles can misfire and kill or injure soldiers. Do not load and fire damaged missiles. Do not drop or damage missiles. Take care not to dent missile case. Take care not to damage missile diaphragms.

Do not drop or mishandle missile.
CAUTION

Missiles can fail to fire. Protect missiles from sun, weather, and moisture. Do not use missile if 30 days have passed since front cap was removed. Return missile to supply point if 30 days have passed since front cap was removed.

Protect missiles during storage from sun, weather, and moisture.

Launch-ready life of a TOW missile is 30 days from time front cap has been removed. If 30 days have been exceeded, return missile to supply point.

**MISSILE INSPECTION AND UNCRATING**

Proper procedures for inspection and uncrating are as follows:

Check wooden container for damage caused by rough handling.
NOTE
See pictures on page 5-9.

Check for proper markings.

NOTE
See table on pages 5-10 thru 5-13.

Check TOW markings with shipping documents.

Check humidity indicator. If pink, missile may be degraded. Return missile to ammo supply point.

During combat situations, missiles with pink humidity indicators or damaged diaphragms may be fired.

Cut and remove steel bands. Open wooden overpack.

Check aft diaphragm. If plastic diaphragm is broken, do not fire missile. Return to ammo supply point.

Check launch container markings.
# TOW MISSILE COLOR CODING SHIPMENT AND STORAGE DATA

<table>
<thead>
<tr>
<th>NOMENCLATURE</th>
<th>GUIDED MISSILE SURFACE ATTACK, BGM-71A</th>
<th>GUIDED MISSILE SURFACE ATTACK, BGM-71A-1</th>
<th>GUIDED MISSILE SURFACE ATTACK, BGM-71C</th>
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<tbody>
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<td>National Stock Number (NSN)</td>
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<td>1410-01-007-2507</td>
<td>1410-01-106-8514</td>
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<tr>
<td>Part Number</td>
<td>10189999</td>
<td>11500160</td>
<td>13060893</td>
</tr>
<tr>
<td>Basic Color of Missile</td>
<td>Olive Drab</td>
<td>Olive Drab</td>
<td>Olive Drab</td>
</tr>
<tr>
<td>Color of Data Markings On Missile</td>
<td>White or Yellow</td>
<td>White or Yellow</td>
<td>White or Yellow</td>
</tr>
<tr>
<td>Color Code Marking of Warhead (Nose End)</td>
<td>*Four 2 Inch Yellow Squares, 90° Apart</td>
<td>*Four 2 Inch Yellow Squares, 90° Apart</td>
<td>*Four 2 Inch Yellow Squares, 90° Apart</td>
</tr>
<tr>
<td>Color Code Marking of Launch Motor</td>
<td>*Four 2 Inch Brown Squares, 90° Apart</td>
<td>*Four 2 Inch Brown Squares, 90° Apart</td>
<td>*Four 2 Inch Brown Squares, 90° Apart</td>
</tr>
<tr>
<td>Basic Color of Wooden Overpack Container</td>
<td>Olive Drab or Unpainted</td>
<td>Olive Drab or Unpainted</td>
<td>Olive Drab or Unpainted</td>
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*Squares may be replaced by 2 inch solid stripes of the color indicated.
<table>
<thead>
<tr>
<th>NOMENCLATURE</th>
<th>GUIDED MISSILE PRACTICE, (INERT WARHEAD, LIVE MOTOR), BTM-71A</th>
<th>GUIDED MISSILE PRACTICE, (INERT WARHEAD, LIVE MOTOR), BTM-71A-1</th>
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<tr>
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<td>Part Number</td>
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<td>11500162</td>
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<td>Basic Color of Missile</td>
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</tr>
<tr>
<td>Color of Data Markings On Missile</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>Color Code Marking of Warhead (Nose End)</td>
<td>*Four 2 Inch Blue Squares, 90° Apart</td>
<td>*Four 2 Inch Blue Squares, 90° Apart</td>
</tr>
<tr>
<td>Color Code Marking of Launch Motor</td>
<td>*Four 2 Inch Brown Squares, 90° Apart</td>
<td>*Four 2 Inch Brown Squares, 90° Apart</td>
</tr>
<tr>
<td>Basic Color of Wooden Overpack Container</td>
<td>Olive Drab or Unpainted</td>
<td>Olive Drab or Unpainted</td>
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*Squares may be replaced by 2 inch solid stripes of the color indicated.
**TM 9-2350-252-10-2**

**TOW MISSILE COLOR CODING SHIPMENT AND STORAGE DATA**

(cont)

<table>
<thead>
<tr>
<th>NOMENCLATURE</th>
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<th>GUIDED MISSILE SURFACE ATTACK, BGM-71A-1</th>
<th>GUIDED MISSILE SURFACE ATTACK, BGM-71C</th>
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<tr>
<td>Color of Data Marking On Wooden Overpack</td>
<td>White or Black</td>
<td>White or Black</td>
<td>White or Black</td>
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<tr>
<td>CC Placard Style</td>
<td>Explosive</td>
<td>Explosive</td>
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<tr>
<td>Quantity-Distance Classification</td>
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<td>1.1</td>
<td>1.1</td>
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<tr>
<td>Storage Compatibility Group</td>
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<td>E</td>
<td>E</td>
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<tr>
<td>Explosive Hazard Class</td>
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<td>A</td>
<td>A</td>
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<td>NOMENCLATURE</td>
<td>GUIDED MISSILE PRACTICE, (INERT WARHEAD, LIVE MOTOR), BTM-71A</td>
<td>GUIDED MISSILE PRACTICE, (INERT WARHEAD, LIVE MOTOR), BTM-71A-1</td>
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<tr>
<td>--------------</td>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
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</tr>
<tr>
<td>Color Code Marking Wooden Overpack</td>
<td>Blue 4 Inch Squares On Corners</td>
<td>Blue 4 Inch Squares On Corners</td>
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<tr>
<td>Color of Data Marking On Wooden Overpack</td>
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<td>White or Black</td>
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<tr>
<td>CC Marking On Wooden Overpack</td>
<td>Rocket Ammo Class A Explosive</td>
<td>Rocket Ammo Class A Explosive</td>
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<tr>
<td>CC Placard Style</td>
<td>Explosive</td>
<td>Explosive</td>
<td></td>
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<tr>
<td>Quantity-Distance Classification</td>
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<td>1.1</td>
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<tr>
<td>Storage Compatibility Group</td>
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<td>C</td>
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<tr>
<td>Explosive Hazard Class</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>
SMOKE GRENADES

WARNING
Smoke grenades can explode and kill or injure soldiers. Handle grenades with care. Do not drop or throw grenades. Do not use damaged grenades. Keep grenades away from electric sparks and high heat. Keep containers sealed until you are ready to use grenades.

CAUTION
Smoke grenades can fail to fire. Keep grenades free of dirt and grease. Do not let firing contacts be damaged.

CARE
Keep grenades clean of dirt and grease. Do not use damaged grenades.

HANDLING
Keep grenades away from electric sparks and high heat. Do not drop or throw grenades. Do not let firing contacts be damaged.

PRESERVATION
Keep containers sealed until you are ready to use the grenades.

PACKING
Pack unused grenades in original containers. Use those grenades first the next time you fire.
<table>
<thead>
<tr>
<th>AUTHORIZED ROUND</th>
<th>IDENTIFICATION</th>
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</thead>
<tbody>
<tr>
<td>Grenade Launchers, Smoke Screening RP, L8A1/A3</td>
<td>See picture</td>
</tr>
<tr>
<td>NUMBER</td>
<td></td>
</tr>
<tr>
<td>AUTHORIIZED:</td>
<td></td>
</tr>
<tr>
<td>8 grenades ready, 8 stowed, 16 total for IFV</td>
<td></td>
</tr>
<tr>
<td>8 grenades ready, 8 stowed, 16 total for CFV</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of grenade launchers, smoke screening RP, L8A1/A3 with metal head and rubber case.]
APPENDIX A

REFERENCES

SCOPE

This appendix lists all forms, field manuals, and technical manuals referenced in this manual.

FORMS

Equipment Inspection and Maintenance Work Sheet .................................................. DA Form 2404
Quality Deficiency Report, Category 2 ................................................................. SF 368
Recommended Changes to DA Publications ....................................................... DA Form 2028

REGULATIONS

Safety ionizing protection .......................................................... AR 385-11

FIELD MANUALS

First Aid for Soldiers .......................................................... FM 21-11

OTHER PUBLICATIONS

Expendable Items (Except Medical Class V, Repair Parts, and Heraldic Items) ............. CTA 50-970

TECHNICAL MANUALS

Ammunition and Explosive Standards .................................................. TM 9-1300-206
Destruction of Conventional Ammunition and Improved Conventional Munitions to Prevent Enemy Use .................................................. TM 750-244-5-1

A-1
APPENDIX A (cont)

TECHNICAL MANUALS (cont)

General Ammunition .......................................... TM 9-1300-200
Hand Receipt Covering Contents of Components
of End Item (COEI), Basic Issue Items (BII),
and Additional Authorization List (AAL) for
Fighting Vehicle, Infantry, M2 (2350-01-048-5920)
and Fighting Vehicle, Cavalry, M3
(2350-01-049-2695) ........................................ TM 9-2350-252-10-HR

Procedures for Destruction of Electronics
Materiel to Prevent Enemy Use ............................. TM 750-244-2

Procedures for Destruction of Tank-Automotive
Equipment to Prevent Enemy Use ...................... TM 750-244-6

Operating and Organizational Maintenance

Operator's Manual: Fighting Vehicle,
Infantry, M2 (2350-01-048-5920) and
Cavalry, M3 (2350-01-049-2695), Hull ............. TM 9-2350-252-10-1

Operator's Manual: Machine Gun, 7.62mm,
M240 (1005-0-025-8095) and Machine
Gun, 7.62mm M240C (1005-01-085-4758) ............. TM 9-1005-313-10

The Army Maintenance Management System (TAMMS) .... TM 38-750
APPENDIX B

COMPONENTS OF END ITEM AND BASIC ISSUE 
ITEMS LISTS

Section I. INTRODUCTION

SCOPE

This appendix lists components of end item and basic issue items for the IFV and CFV to help you inventory items required for safe and efficient operation.

GENERAL

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the IFV and CFV in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the IFV and CFV during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request requisition replacement BII, based on TOE/MTOE authorization.

EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus. No.). This column indicates the number of the illustration in which the item is shown.
INTRODUCTION (cont)

b. Column (2) - National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) — Description. Indicates the National item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On" heading in this column. These codes are identified as:

<table>
<thead>
<tr>
<th>Code</th>
<th>Used On</th>
</tr>
</thead>
<tbody>
<tr>
<td>J63</td>
<td>IFV only</td>
</tr>
<tr>
<td>J38</td>
<td>CFV only</td>
</tr>
</tbody>
</table>

d. Column (4) — Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr).

e. Column (5) Quantity Required (Qty Rs). Indicates the quantity of the item authorized to be used with/on the equipment.
## Section II. COMPONENTS OF END ITEM

<table>
<thead>
<tr>
<th>ILLUSTRATION NO.</th>
<th>NATIONAL STOCK NUMBER</th>
<th>DESCRIPTION</th>
<th>FSCM and Part Number</th>
<th>Usable On Code</th>
<th>U/M</th>
<th>QTY RQR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2540-01-096-4559</td>
<td>BOX, VEHICULAR ACCESSORIES STOWAGE (EXTERIOR) (81361) D13-12-40</td>
<td></td>
<td>EA</td>
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<tr>
<td>2</td>
<td>1005-01-086-1400</td>
<td>GUN, AUTOMATIC, 25MM, M242 W/BII CONSISTING OF (INTERIOR)</td>
<td></td>
<td>EA</td>
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<tr>
<td>3</td>
<td>1005-01-121-2391</td>
<td>BRUSH, BORE, 25MM (19200) 12524014</td>
<td></td>
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<tr>
<td>4</td>
<td>1005-01-121-2390</td>
<td>BRUSH, CHAMBER, 25MM (19200) 12524013</td>
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<tr>
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<td>1005-01-119-7269</td>
<td>CRANK, HAND (19200) 12524015</td>
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<td>ROD ASSEMBLY, CLEANING, 25MM (19200), 12524020</td>
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<td>5820-01-056-0992</td>
<td>INSTALLATION HARNESS, ELECTRONIC EQUIPMENT (INTERIOR) (80063), PPL-5233</td>
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<td>U/M</td>
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<tr>
<td>7</td>
<td>6650-00-704-3549</td>
<td>PERISCOPE, M17 (INTERIOR)</td>
<td>(19207) 7043549</td>
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<tr>
<td>8</td>
<td>6650-00-344-4643</td>
<td>PERISCOPE, M27 (INTERIOR)</td>
<td>(19200) 7633132</td>
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<td>9</td>
<td>6650-01-098-7386</td>
<td>PERISCOPE, 15° UP-LOOK (INTERIOR)</td>
<td>(19207) 12294254</td>
<td>J63</td>
<td>EA</td>
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<td>(19200) 12297131</td>
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<td>11</td>
<td>4030-00-162-7545</td>
<td>SHACKLE, ANCHOR (2 IN FRONT TOWING EYE, 2 IN REAR TOWING EYE)</td>
<td>(19207) 12298579</td>
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<td>5855-01-105-7793</td>
<td>VIEWER, DRIVER'S NIGHT VISION (80058, AN/VVS-2.1V3)</td>
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## Section III. BASIC ISSUE ITEMS

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<th>U/M</th>
<th>QTY RQR</th>
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<tbody>
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<td>1005-01-120-0449</td>
<td>ADAPTER ASSEMBLY, BORESIGHT, 25MM (TOOL BAG)</td>
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<td>(19207) 6300333</td>
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<td>4930-00-204-2550</td>
<td>ADAPTER, GREASE GUN COUPLING, 6 IN. LONG (TOOL BAG)</td>
<td>(19207) 5349744</td>
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<tr>
<td>16</td>
<td>5110-00-293-2336</td>
<td>AX, SINGLE BIT, 4 LB HEAD, 31 IN. HANDLE (EXTERIOR, TOP LEFT)</td>
<td>(81346) GGG-A-926</td>
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<td>2540-00-670-2459</td>
<td>BAG ASSEMBLY, PAMPHLET (DRIVER'S STATION)</td>
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<td>18</td>
<td>5140-00-473-6256</td>
<td>BAG TOOL SATCHEL, 19 IN. LONG, 6 IN. WIDE, 8 1/2 IN. HIGH (POWER UNIT COMPARTMENT)</td>
<td>(19207) 11655579</td>
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<td>(19207) 12361278</td>
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### BASIC ISSUE ITEMS (cont)

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<th>U/M</th>
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<td>5110-00-595-6229</td>
<td>CUTTER, WIRE ROPE, HAND OPERATED W/INSULATED HANDLES (POWER UNIT COMPARTMENT TOOL BAG) (19207) 11655981</td>
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<td>22</td>
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<td>DIAGRAM, STRAP LOCATION (IN PAMPHLET BAG) (19207) 12307494</td>
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<td>DRIFT PIN, TRACK (EXTERNAL, LEFT HULL SLOPE) (60064: 2590:157)</td>
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<td>25</td>
<td>5120-00-243-7326</td>
<td>EXTENSION, SOCKET WRENCH, RIGID, 1/2 IN. SQ DR, 5 IN. LONG (TOOL BAG) (81348: GGG-W-641)</td>
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<td>ILLUSTR. NO.</td>
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<td>DESCRIPTION</td>
<td>FSCM and Part Number</td>
<td>Usable On Code</td>
<td>U/M</td>
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<tr>
<td>26</td>
<td>4210-00-555-8837</td>
<td>EXTINGUISHER, FIRE, VAPORIZING LIQUID (LEFT REAR INTERIOR ABOVE SPONSION, RIGHT FVID, INTERIOR ABOVE HEATER)</td>
<td>(18876) 10596569-1</td>
<td>EA 2</td>
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<td></td>
</tr>
<tr>
<td>27</td>
<td>5110-00-156-0059</td>
<td>FILE, HAND, SMOOTH, 10 IN. LONG TOOL BAG</td>
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<td>(19207) 7063799</td>
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<td>6230-00-264-8261</td>
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<td>7530-01-065-0156</td>
<td>FOLDER, EQUIPMENT RECORD, 8 IN. BY 10 IN. (IN PAMPHLET BAG)</td>
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## BASIC ISSUE ITEMS (cont)

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<td>PIN, GROOVED, HEADLESS, 4 1/2 IN. LONG BY 1 1/2 IN. DIA (TOOL KIT)</td>
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APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

SCOPE

This appendix lists additional items you are authorized for the support of the IFV and CFV.

GENERAL

This list identifies items that do not have to accompany the IFV and the CFV, and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you. If the item you require differs between serial numbers of the same model, effective serial numbers are shown in the last line of the description. If item required differs for different models of this equipment, the model is shown under the “Usable On” heading in the description column. These codes are identified as:

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Section II. ADDITIONAL AUTHORIZATION LIST

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<td>SET, SPARE PARTS FOR 5.56MM M231 FIRING PORT WEAPON CONSISTING OF.</td>
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<td>SET, TOOLS AND CLEANING EQUIPMENT FOR M240C MACHINE GUN, M50 MACHINE GUN, M16A1 RIFLE, M231 FIRING PORT WEAPON, M242 25MM GUN CONSISTING OF.</td>
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<td>(19203) 8797996</td>
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<td>TRACKER, INFRARED, GUIDED MISSILE, SU-36</td>
<td>(18879) 5422779</td>
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<td>WRENCH AND GAGE COMBINATION</td>
<td>(19204) 844835</td>
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APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the IFV and CFV. These items are authorized to you by CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

EXPLANATION OF COLUMNS

a. Column 1-Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Dry cleaning solvent (Item 11, App D)").

b. Column 2-Level. This column identifies the lowest level of maintenance that requires the listed item.

   C — Operator/Crew

c. Column 3-National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

d. Column 4-Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column 5-Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

D-1 (D-2 blank)
# Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

## EXPENDABLE SUPPLIES AND MATERIALS LIST

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APPENDIX E

STOWAGE GUIDE

Section I. INTRODUCTION

SCOPE

This appendix shows where to stow equipment in turret of IFV and CFV. For other stowage, see TM 9-2350-252-10-1.

GENERAL

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Section II. TURRET STOWAGE
Section II. TURRET STOWAGE
TURRET STOWAGE (cont)

TURRET — LOWER RIGHT VIEW
TURRET — UPPER RIGHT VIEW

CVC HELMET

AMPLIFIER
TURRET STOWAGE (cont)

TURRET - UPPER REAR VIEW
TURRET — UPPER LEFT VIEW

COAX MACHINE GUN
BORESIGHT KIT

CVC HELMET

RADIO SET

GOGGLES
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THINK IT OVER!

PFC HENRY JAMES
CO A 2/6 CAV
FORT KNOX, KY 40121
DATE SENT: 31 JAN 1984

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IFV.CFV. TURRET

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

Step 64. Step says to move gun guard latch to left, and it should say to move gun guard latch to right.

Step 65. Step says to select a target 100 meters away. It should be 1000 meters. Change to 1000 meters.

Turret Drive Switch is shown in "ON" position and it should be shown in "OFF" position. Have Switch to "OFF" position.

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<th>PARA</th>
<th>FIGURE NO</th>
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ATTN DESARMAS
Rock Island, Illinois 61299
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<td>IFV/CFV, TURRET</td>
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IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

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### THE METRIC SYSTEM AND EQUIVALENTS

#### LINEAR MEASURE

<table>
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<tr>
<th>Metric</th>
<th>Equivalent in</th>
<th>Conversion Factor</th>
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</thead>
<tbody>
<tr>
<td>1 Centimeter</td>
<td>0.01 Meters</td>
<td>100 Centimeters = 1 Meters</td>
</tr>
<tr>
<td>1 Meter</td>
<td>0.3937 Inches</td>
<td>1 Meters = 100 Centimeters</td>
</tr>
<tr>
<td>1 Kilometer</td>
<td>0.621 Miles</td>
<td>1 Kilometer = 1000 Meters</td>
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#### SQUARE MEASURE

<table>
<thead>
<tr>
<th>Metric</th>
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<th>Conversion Factor</th>
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<tbody>
<tr>
<td>1 Square Centimeter</td>
<td>0.155 Square Inches</td>
<td>100 Square Centimeters = 1 Square Meters</td>
</tr>
<tr>
<td>1 Square Meter</td>
<td>10.76 Square Feet</td>
<td>10000 Square Centimeters = 1 Square Meters</td>
</tr>
<tr>
<td>1 Square Kilometer</td>
<td>0.3861 Square Miles</td>
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#### CUBIC MEASURE

<table>
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<tr>
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<tbody>
<tr>
<td>1 Cubic Centimeter</td>
<td>0.061 Fluid Ounces</td>
<td>1000 Cubic Centimeters = 1 Cubic Meter</td>
</tr>
<tr>
<td>1 Cubic Meter</td>
<td>1.308 Cubic Feet</td>
<td>1 Cubic Meter = 1000 Cubic Centimeters</td>
</tr>
<tr>
<td>1 Cubic Kilometer</td>
<td>661.5 Cubic Yards</td>
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#### WEIGHTS

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<tbody>
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<td>0.001 Kilograms</td>
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</tr>
<tr>
<td>1 Kilogram</td>
<td>2.2046 Pounds</td>
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</tr>
<tr>
<td>1 Metric Ton</td>
<td>1.102 Short Tons</td>
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#### LIQUID MEASURE

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<td>1 Liter</td>
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#### APPROXIMATE CONVERSION FACTORS

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<tr>
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<td>0.305</td>
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<tr>
<td>Yards</td>
<td>Meters</td>
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<tr>
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<tr>
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<td>Square Kilometers</td>
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<tr>
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<table>
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<td>Square Meters</td>
<td>Square Feet</td>
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<tr>
<td>Square Kilometers</td>
<td>Square Meters</td>
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