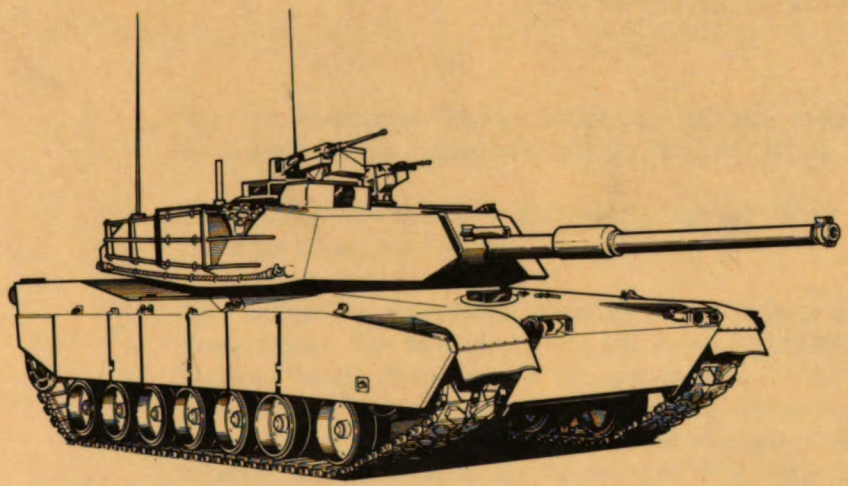
TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

VOLUME I SCHEDULED MAINTENANCE



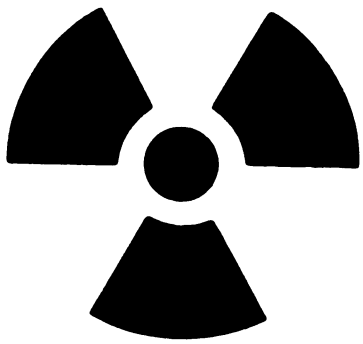
TANK, COMBAT, FULL-TRACKED: 105-MM GUN, M1 (2350-01-061-2445) GENERAL ABRAMS

TURRET

NOTE:
THE STYLE OF THIS TM IS EXPERIMENTAL. IT IS BEING TRIED BY THE ARMY ONLY ON A LIMITED BASIS

HEADQUARTERS, DEPARTMENT OF THE ARMY
AUGUST 1982

WARNING
RADIOACTIVE MATERIAL



HANDLE CAREFULLY

RADIOACTIVE

The M1 Collimator (Muzzle Reference Sensor) used to compensate for gun tube bend contains the radioactive isotope "tritium" (H-3).

The radioactive material is completely encased within the unit and poses no external radiation threat to the user.

The radioactive material is licensed under Federal Law by the Nuclear Regulatory Commission. The licensee is HQ, US Army ARRCOM, Rock Island, IL 61299. The licensed Health Physicist may be contacted at AUTOVON 793-6982/6989/5843 or commercial (309) 794-6982/6989/5843. Material pertaining to the NRC license, information concerning the safe use and storage of the radioactive material, and fire or other emergencies, should be referred to the licensed Health Physicist.

WARNING

The antireflective coating on all infrared optics contains thorium flouride which is slightly radioactive. The only potential hazard involves ingestion (swallowing or inhaling) of this material. Dispose of broken lens, etc., in accordance with AR385-11.

DON'T TAKE CHANCES

WARNING

Ammunition containing explosives must be handled with care at all times. The explosive in primers and fuses is very sensitive to shock and high temperature. If ammunition is dropped, thrown, tumbled, or dragged, an explosion may result, causing death or injury and destruction of equipment. Disassembly of ammunition is not authorized.

ARR82-0141

WARNING

You can be blinded if you look into a laser beam when you are not wearing laser safety goggles. Never aim the laser rangefinder at personnel.

If laser beam reflects from a flat, mirror-like surface it can blind you unless you are wearing laser safety goggles.

All people who work down range of the laser must wear laser safety goggles. Laser safety goggles, NSN 4240-00-258-2054 will protect you.

Treat the rangefinder as a direct-fire weapon, with hazardous range of 8000 meters. Observe the following precautions when the rangefinder is being used:

1. Never fire the rangefinder at a target less than 10 meters away.

2. Never fire the rangefinder at flat glass or mirror-like targets.

3. Fire the rangefinder only at approved laser targets on an approved laser-firing range.

4. Report through the chain of command if:

   (a) An unprotected person may have been in the beam path and closer than 8000 meters when the rangefinder was fired.

   (b) An unprotected person was looking at a flat glass or mirror-like surface when the rangefinder was fired at it.

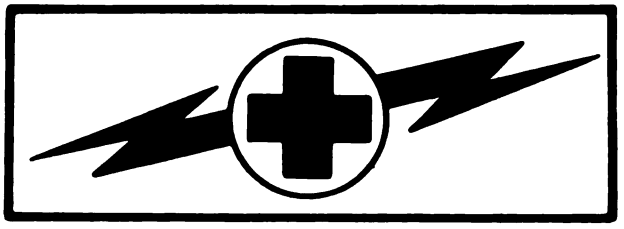
NOTE

Person in charge must arrange for necessary eye examination and report in accordance with AR 385-63 and AR 385-40.

5. Make sure you get laser safety training before you work near an operating laser.

ARR82-0142

WARNING



HIGH VOLTAGE

is used in the operation of this equipment.

DEATH ON CONTACT

may result if personnel fail to observe safety precautions.

Never work on electronic equipment unless there is another person nearby. He should be familiar with the operation and hazards of the equipment. He should also be competent in giving first aid. When the technician is helped by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take special care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever possible, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

Do not be misled by the term "low voltage." Voltages as low as 50 volts may cause death.

For artificial respiration, refer to FM 21-11.

WARNING

Remove rings, bracelets, wristwatches, and neck chains before working around the tank or other vehicles. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is without color or smell, but can kill you. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleeply feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no air movement. Precautions must be followed to insure crew safety when the personnel heater, or main or auxiliary engine of any vehicle is operated for any purpose.

1. **DO NOT** operate personnel heater or engine of vehicle in a closed place unless the place has a lot of moving air.

2. **DO NOT** idle engine for long periods without ventilator blower operation. If tactical situation permits, open hatches.

3. **DO NOT** drive any vehicle with inspection plates, cover plates, or engine compartment doors removed unless necessary for maintenance purposes.

4. **BE ALERT** at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, **IMMEDIATELY VENTILATE** personnel compartments. If symptoms persist, remove affected crew to fresh air; keep warm; **DO NOT PERMIT PHYSICAL EXERCISE;** if necessary, give artificial respiration, and get immediate medical attention.

5. **BE AWARE;** neither the gas particulate filter unit nor the field protection mask for nuclear-biological-chemical protection will protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

ARR82-014

WARNING

Use adhesives, cleaning solvents, and sealing compounds in a well-ventilated area, away from open flame. Adhesives, cleaning solvents, and sealing compounds are harmful to skin and clothing, can burn easily, and may give off harmful vapor.

WARNING

Do not run bare hand on metal braided cables or hoses. Wires on cables or hoses can cut you. Wear protective gloves.

WARNING

Be sure vehicle master power is off, or batteries are disconnected before you work on any part of the electrical system. You can get electrical shock or burns from electrical systems.

WARNING

Heavy parts can crush you. Keep out from under and clear of heavy parts at all times.

TECHNICAL MANUAL

No. 9-2350-255-20-2-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 6 August 1982

SCHEDULED MAINTENANCE

TANK, COMBAT, FULL-TRACKED: 105-MM GUN, M1 TURRET

(2350-01-061-2445)

Reporting Errors and Recommending Improvements

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

TABLE OF CONTENTS (Continued)

CHAPTER 1

SERVICE UPON RECEIPT OF MATERIAL

1-1. General. Refer to TM 9-2350-255-20-1-1, Chapter 1, for information covering service to be done when you get a tank from the issuing organization. (To be published)

1-2. Reporting Equipment Improvement Recommendations (EIR's). If your equipment 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 an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U S Armament Materiel Readiness Command, ATTN: DRSAR-MAO, Rock Island, IL 61299. We'll send you a reply.

CHAPTER 2

PREVENTIVE MAINTENANCE

2-1. General. Preventive maintenance is the care, inspection, and service of the tank to keep it operating and to find troubles before repairs or replacements are needed. Preventive maintenance is performed at crew and organizational levels.

a. Crew. Operator's Manual, TM 9-2350-255-10, and Lubrication Order, LO 9-2350-255-12, tell what Preventive Maintenance Checks and Services (PMCS) are done by the tank crew. All crew PMCS and lubrication tasks must be completed before organizational scheduled maintenance/services are begun.

b. Organizational. This manual tells what preventive maintenance tasks are done by organizational maintenance mechanics, with help of tank crew. Always do preventive maintenance in the same order. Begin at the front of this manual and follow in order to the end of the manual.

2-2. Intervals. Organizational preventive maintenance tasks will normally be done twice a year: every 150 hours, 6 months, or 2400 kilometers, whichever comes first; and every 12 months, 300 hours, or 4800 kilometers, whichever comes first. The two intervals are coded in each frame under the INTERVAL column as follows:

S - semiannually (every 6 months), 2400 kilometers, or 150 hours

A - annually (once a year), 4800 kilometers, or 300 hours

NOTE

- All semiannual preventive maintenance tasks are also done during annual maintenance.
- High temperature is more than 100 degrees F (38 degrees C). Low temperature is less than 0 degrees F (-18 degrees C).
- Salt water is present during fording, sea spray, and morning mist in coastal areas.
- Dust conditions are high when oil level in hubcaps cannot be seen.

Operating the tank in very high or very low temperatures, in dust, mud, or salt water may require preventive maintenance more than twice a year. Commanders are allowed to shorten intervals between preventive maintenance when the tank is operated in these conditions.

2-3. General Procedures.

a. General Cleaning Instructions.

(1) Use dry cleaning solvent, P-D-680, to clean grease, oil, or dirt from all metal parts. If a water hose is available, it may be used to take off heavy dirt. If a steam cleaner is available, it may be used to take off any remaining dirt. Make sure steam or water does not enter optics or hatches. After water or steam cleaning, lubricate the tank. Check all lubricant reservoirs for water droplets. If water is found, drain and refill lubricant reservoirs.

(2) Use mild soap and water to clean or wash parts not made of metal. Rinse thoroughly with clean water after cleaning and then dry.

(3) Remove rust or dirt from fine-machined surfaces with cleaning solvent. Use crocus cloth, P-C-458, if necessary. Do not use any other material. Be careful not to change the dimensions of parts when rubbing off rust. Coat bare metal surfaces after cleaning with lubricating, oil, preservative, MIL-L-3150.

(4) Nameplates, caution plates, and instruction plates may rust quickly. When they are rusty, clean parts with solvent and rags and coat them with lubricating oil, preservative, MIL-L-3150.

b. Precautions. The following precautions will help prevent personal injury or damage to equipment.

(1) Dry cleaning solvent, P-D-680, burns easily and can give off harmful vapors. It must not be used near open flame. Fire extinguishers should be placed nearby when using solvent. Make sure parts are cleaned in well-ventilated places.

(2) Do not spill solvent, fuel, or lubricants on rubber parts. Solvent, fuel, and lubricants may damage rubber parts.

(3) Do not use turbine fuel, diesel fuel, gasoline, paint thinner, or benzene (benzol) for cleaning. These liquids may cause personal injury.

(4) Always wear protective clothing when using solvent. Solvent may dry skin.

(5) Do not clean inside of turret with steam or water under pressure. Some parts inside hull or turret may rust or be damaged.

(6) When washing outside of tank, close and lock all hatches. Cover telescope, periscope, and machinegun port with plastic sheets or plugs; and cap main gun with gun muzzle plug to prevent water from getting in turret. Remove covers and plugs after washing.

(7) Do not use polishing cloths, liquids, pastes, or other rough cleaners to clean instrument lenses, periscope lenses, or mirrors. Use lens tissue paper, NNN-P-40, to clean lenses and mirrors. Take off fingerprints, oil, and dirt with lens cleaning compound MIL-C-43454, and lens tissue paper.

(8) If anything looks wrong and cannot be fixed, report it on DA Form 2404. If something looks dangerous or may cause equipment damage, report it to the maintenance supervisor right away.

c. Services. Services performed by the organizational maintenance mechanic consist of the following tasks:

(1) Adjusting. Make all necessary adjustments and alignments.

(2) Special Cleaning. Clean special tank parts to take off old grease, oil, dirt, and corrosion.

(3) Servicing. This usually means draining and refilling units with oil and changing or cleaning oil filters, fuel filters, and air cleaners.

(4) Tightening. Tighten nuts, bolts, screws, and other types of fasteners with torque wrench to value in maintenance manual. Do not overtighten; this may strip threads and break off part being tightened.

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(a) Replace bent, broken, or stripped bolts, nuts, screws, and washers. Bolts, screws, and nuts may be loose if rust, chipped paint, or bare metal is around them. Tighten loose screws, bolts, and nuts. Replace missing parts.

(b) Look for bad welds where chipped paint, rust, or gaps are present. Have bad welds repaired.

(c) Look at electric wires for cracked, frayed, loose, discolored, or broken insulation. Replace bad parts.

NOTE

When tightening fittings, always hold fitting adapter with one wrench and tighten nut with another wrench until snug. Tighten nut another 1/6 to 1/3 turn. If fitting leaks, unscrew nut a full turn and retighten it. If still leaking, replace leaking parts.

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(e) Fluid leaks affect tank status. Learn the following classes of fluid leaks for scheduled maintenance services.

NOTE

Tank may be operated with Class I or Class II leaks. Class III leaks must be repaired.

Class I	Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
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d. Modification Work Order (MWO) Application. Check the list of current MWO's in DA Pamphlet 310-4. Do not make any tank modifications except as ordered by official Army directive.

2-4. Special Procedures for Semiannual (2400 Kilometer) Preventive Maintenance. Semiannual (S) preventive maintenance includes complete inspection to make sure adjustment, securing, and assembly of all parts of tank are right. All cleaning, replacement, lubrication, and protection of parts and/or assemblies must be done as stated for trouble-free operation until the next preventive maintenance is performed.

a. Maintenance Forms and Records. Refer to TM 38-750.

b. Publications. Be sure all needed publications are on hand before starting task.

c. Special Tools. Be sure all special tools are on hand. Refer to table 2-1.

d. Common Tools. Be sure all common tools are on hand. Refer to table 2-2.

e. Parts and Supplies. Be sure all parts and supplies are on hand. Refer to table 2-3.

f. Lubrication. Lubricate tank. Refer to LO 9-2350-255-12.

Table 2-1. Special Tools Summary List

Item	Part Number	Quantity	Task	Interval
Cleaning Kit, Crosswind Sensor,	12285478	1	2-6f	S
Purge Kit, NSN 4931-00-065-1110	-	1	2-6a, 2-6b, and 2-6c	S
Tank, nitrogen, dry, NSN 6830-00-782-2641	-	1	2-6a, 2-6b, and 2-6c	S
Test Set STE/M1	12303600	1	2-6e	S

Table 2-2. Common Tools Summary List

Item	Quantity	Task	Interval
Brush, wire NSN 7920-00-291-5815	1	2-6d	S
Tool Kit, turret mechanic's, NSN 5180-00-695-0139	1	Various	S

Table 2-3. Parts and Supplies Summary List

Item	Part Number	Quantity	Task	Interval
Dry Cleaning Solvent	P-D-680	Bulk	Various	S
Kit, Traverse and Elevation Servo	5911304	1	2-5b	S
Indicator, pressure differential	12283369	2	2-5b	S
Petrolatum,	VV-P-236	As required	2-6c	S
Rag, wiping	A-A-531	Bulk	Various	S
Service Kit, Laser Rangefinder	5705155	1	2-6c	S
Silicone Compound	MIL-S-8660	As required	2-6d	S
Wire, non-electric (safety)	MS20995	As required	Various	S

2-5. Turret Hydraulic System
a. Elevating Mechanism and Traversing Mechanism

Applicability: All Models

Common Tools:
Screwdriver, flat tip
Wrench, adjustable, 12-inch

Special Tools: None

Supplies:
NOTE: Expendable supplies are defined in appendix A.
Dry Cleaning Solvent, P-D-680 (Item 3)
Packing, preformed (96906) MS28778-8
Rag, wiping (Item 7)

Personnel: One

FRAME 1		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Traverse turret until main gun is over right front fender, and then lock turret.	1. TM 9-2350-255-10.
	2. Service elevation mechanism filter.	2. TM 9-2350-255-20-2-3-2, para. 7-20.(to be published)
	3. Check traversing mechanism oil level.	3. LO 9-2350-255-12.
END OF ELEVATING MECHANISM AND TRAVERSING MECHANISM PREVENTIVE MAINTENANCE		

2-5. Turret Hydraulic System (Continued)

b. Turret Drive and Stabilization System

(1)Filters and Pressure Differential Indicators

Applicability: All Models

Common Tools:

Bar, pry
Handle, socket wrench, ratchet, 3/8-inch square drive
Handle, socket wrench, hinged, 1/2-inch square drive
Socket, socket wrench, 3/8-inch square drive, 7/16-inch
Socket, socket wrench, 1/2-inch square drive, 1-inch
Wrench, torque, 0 to 600 inch-pounds

Special Tools: None

Supplies:

Indicator, pressure differential (19207) 12283369 (two required)
Lockwasher (eight required)
Packing, preformed (96906) MS28778-8 (two required)
Service kit, elevation and traverse servo (19204) 5911304

Personnel: Two

Soldier A: Services turret drive and stabilization system.
Soldier B: Helps soldier A.

NOTE

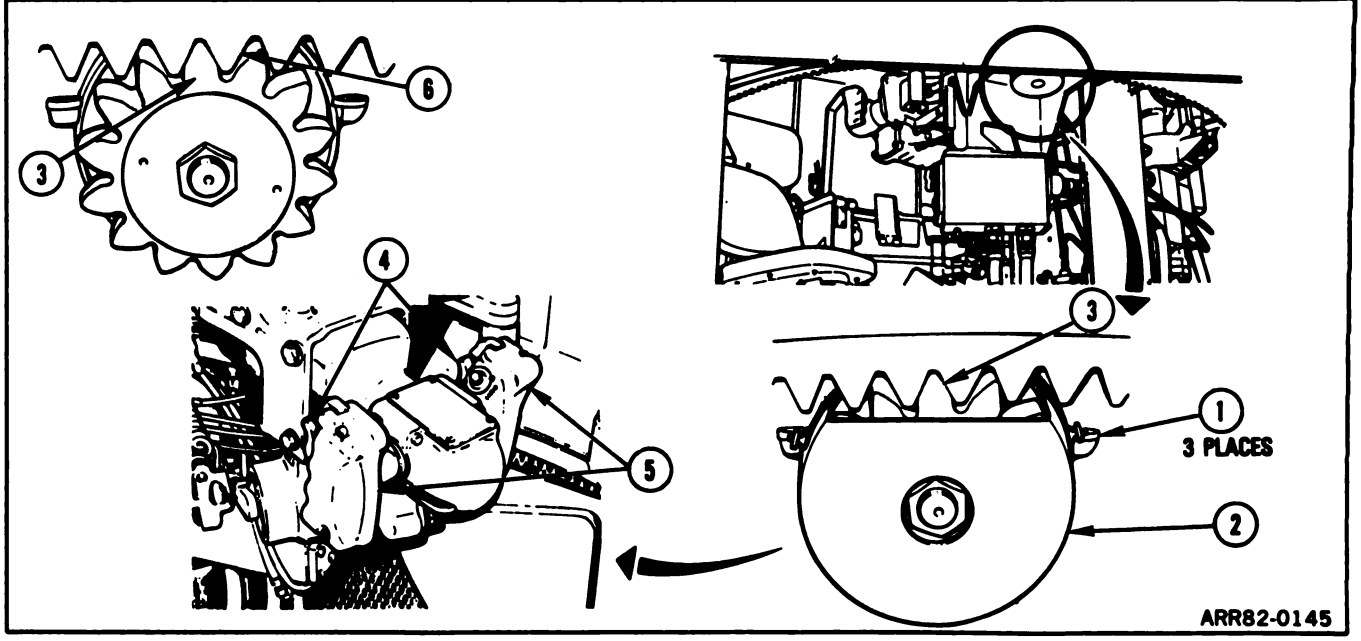
Soldier B is needed in frame 3 only.

FRAME 2

INTERVAL	PROCEDURE	REFERENCE
S	1. Set TURRET POWER switch to ON.	1. TM 9-2350-255-10.
	2. Reduce system hydraulic pressure to zero.	1. TM 9-2350-255-10.
	3. Replace elevation servo filter and pressure differential indicator.	3. TM 9-2350-255-20-2-3-2, para. 4-6.
	4. Replace traverse servo filter and pressure differential indicator.	4. TM 9-2350-255-20-2-3-2, para. 4-5.
	5. Bleed hydraulic system and check for leaks.	5. TM 9-2350-255-20-2-3-2, para. 4-4.
GO TO FRAME 3		

2-5. Turret Hydraulic System (Continued)
b. Turret Drive and Stabilization System (Continued)
(2) Azimuth Gearbox Anti-backlash

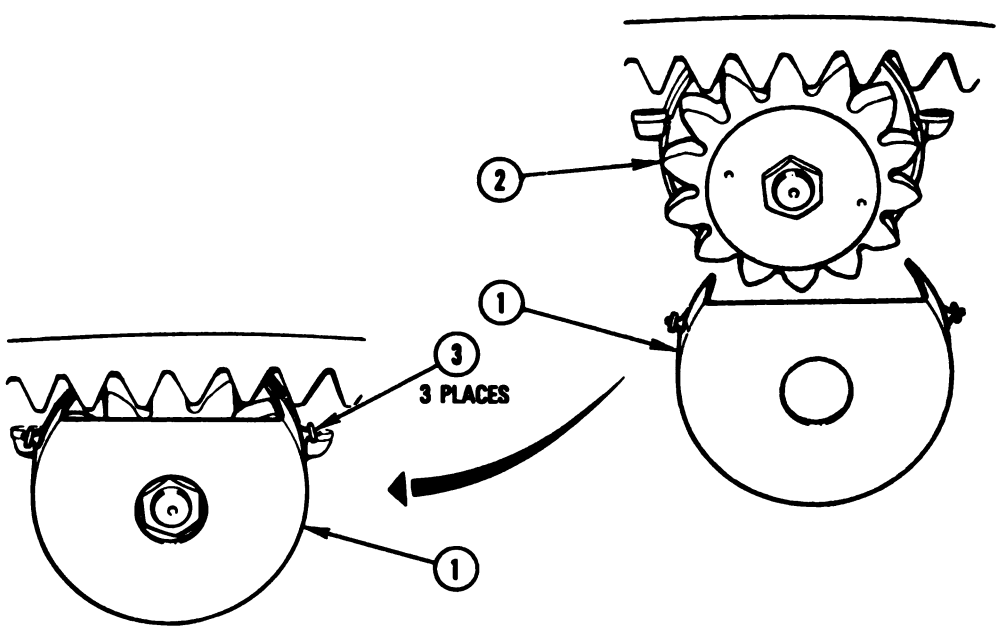
FRAME 3			
INTERVAL	**PROCEDURE**		**REFERENCE**
S	Soldier A:	1. Set TURRET POWER switch to ON.	1. TM 9-2350-255-10.
	Soldier A:	2. Traverse turret until main gun is over left front fender and then lock turret.	2. TM 9-2350-255-10.
	Soldier B:	3. Loosen three knurled nuts (1) and take cover (2) off gear (3).	
	Soldier A, Soldier B:	4. Squeeze palm switches (4) on gunner's handles (5) and turn handles (5) all the way clockwise, then all the counterclockwise. Watch gear (3) for motion between gear (3) and turret ring gear (6). If there is motion, adjust traversing mechanism anti-backlash.	4. TM 9-2350-255-20-2-3-2, para. 7-5.
GO TO FRAME 4			



2-5. Turret Hydraulic System (Continued)
b. Turret Drive and Stabilization System (Continued)
(2) Azimuth Gearbox Anti-backlash (Continued)

FRAME 4

INTERVAL	PROCEDURE	REFERENCE
S	1. Put cover (1) back on gear (2). Tighten three knurled nuts (3).	1. TM 9-2350-255-10.
	2. Set TURRET POWER switch to OFF.	2. TM 9-2350-255-10.
END OF TURRET DRIVE AND STABILIZATION SYSTEM PREVENTIVE MAINTENANCE		



ARR82-0146

2-6. Fire Control System

a. Gunner's Primary and Auxiliary Sights and Commander's Extension

Applicability: All Models

Common Tools:

Pliers, slip joint, conduit style with plastic jaw inserts
Wrench, adjustable, 12-inch
Wrench, combination, 3/8-inch
Wrench, combination, 7/16-inch

Special Tools:

Purge Kit, NSN 4931-00-065-1110
Tank, nitrogen, dry, NSN 6830-00-782-2641

Supplies: None

Personnel: Two

Soldier A: Services gunner's primary and auxiliary sights and commander's extension.
Soldier B: Helps soldier A.

2-6. Fire Control System (Continued)
a. Gunner's Primary and Auxiliary Sights and Commander's Extension (Continued)

FRAME 1		
INTERVAL	**PROCEDURE**	**REFERENCE**
	WARNING • Do not let nitrogen tank drop or fall. High-pressure nitrogen can propel broken tank with great force, and cause injury or death. • Use extreme care when using nitrogen inside turret. Keep hatches open and do not let gas vent more than needed. Breathing nitrogen gas can cause death. **WARNING** RADIATION HAZARD The antireflective coating on all infrared optics contains thorium flouride, which is slightly radioactive. The only potential hazard involves ingestion (swallowing or inhaling) of the material. Dispose of broken lens in accordance with AR385-11. DON'T TAKE CHANCES	
S	1. Service gunner's primary sight.	1. TM 9-2350-255-20-2-3-2, para. 7-5.
	2. Service commander's, gunner's primary sight extension.	2. TM 9-2350-255-20-2-3-2, para. 7-6.
	3. Purge and charge gunner's auxiliary sight.	3. TM 9-2350-255-20-2-3-2, para. 7-13.
	4. Make sure sights are clear after purging. There should not be a yellow/green tint.	4. TM 9-2350-255-20-2-3-2, para. 7-13.
END OF GUNNER'S PRIMARY AND AUXILIARY SIGHTS AND COMMANDER'S EXTENSION PREVENTIVE MAINTENANCE		

2-6. Fire Control System (Continued)
b. Commander's Weapon Station Sight and Unity Periscopes

Applicability: All Models

Common Tools:
Key, socket head screw, 1/8-inch
Wrench, adjustable, 12-inch
Wrench, combination, 3/8-inch
Wrench, combination, 1/2-inch

Special Tools:
Purge Kit, NSN 4931-00-065-1110
Tank, nitrogen, dry, NSN 6830-00-782-2641

Supplies: None

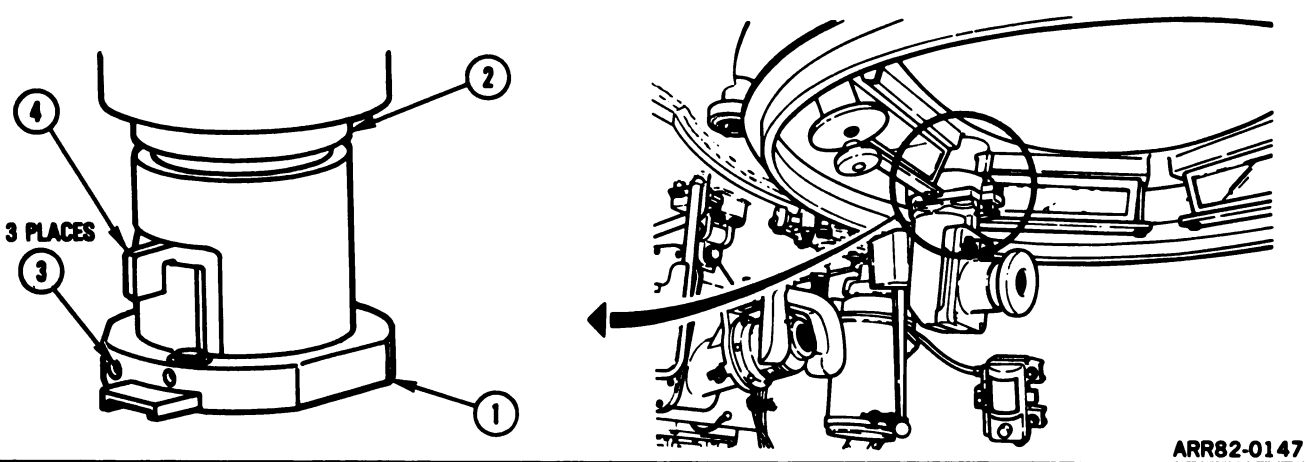
Personnel: Two
Soldier A: Checks collar and purges commander's weapon station sight.
Soldier B: Helps soldier A.

2-6. Fire Control System (Continued)
b. Commander's Weapon Station Sight and Unity Periscopes (Continued)

FRAME 1

INTERVAL	PROCEDURE	REFERENCE
	WARNING • Do not let nitrogen tank drop or fall. High-pressure nitrogen can propel broken tank with great force, and cause injury or death. • Use extreme care when using nitrogen inside turret. Keep hatches open and do not let gas vent more than needed. Breathing nitrogen gas can cause death.	
S	1. Look at collar (1) for cracks. If cracked, replace collar (1). Make sure collar (1) is tight on mount (2). If loose on mount (2), tighten three screws (3) with key.	1. TM 9-2350-255-20-2-3-2, para. 7-11.
	2. Turn barrel (4) to make sure it does not bind on mount (2). If barrel (4) binds, replace it.	2. TM 9-2350-255-10, TM 9-2350-255-20-2-3-2, para. 7-11.
	3. Purge, charge, and leak check commander's weapon station sight.	3. TM 9-2350-255-20-2-3-2, para. 7-11.
	4. Make sure sight is clear after purge.	4. TM 9-2350-255-10.

END OF COMMANDER'S WEAPON STATION SIGHT AND UNITY PERISCOPES PREVENTIVE MAINTENANCE



2-6. Fire Control System (Continued)
c. Laser Rangefinder

Applicability: All Models

Common Tools:
Handle, socket wrench, ratchet, 3/8-inch square drive
Handle, socket wrench, ratchet, 1/2-inch square drive
Screwdriver, cross tip
Socket, socket wrench, 1/2-inch square drive, 1-1/8 inch
Socket, socket wrench, 3/8-inch square drive, 3/8-inch

Special Tools:
Purge Kit, NSN 4931-00-065-1110
Tank, nitrogen, dry, NSN 6830-00-782-2641

Supplies:
NOTE: Expendable supplies are defined in appendix A.
Packing, preformed, sealing screw (two required)
Petrolatum, VV-P-236 (Item 6)
Service kit, laser rangefinder, 5705155

Personnel: Two
Soldier A: Checks pressure and purges optical cavity.
Soldier B: Helps soldier A.

FRAME 3		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Check pressure and purge optical cavity.	1. TM 9-2350-255-20-2-3-2, para. 7-23.
END OF LASER RANGEFINDER PREVENTIVE MAINTENANCE		

2-6. Fire Control System (Continued)
d. Collimator (MRS) Assembly

Applicability: All Models

Common Tools: None

Special Tools: None

Supplies: None

Personnel: One

FRAME 4

INTERVAL	PROCEDURE	REFERENCE
	WARNING • Handle tritium cell with extra care. Cell holds radioactive gas that can make you sick. If cell is cracked or broken: Do not touch cell. Get out of area. Report damaged cell right away. Stay out of area for 15 minutes. • If radioactive liquid from cracked or broken tritium cell gets on skin or clothes, get medical help right away. Dispose of cell in accordance with AR385-11.	

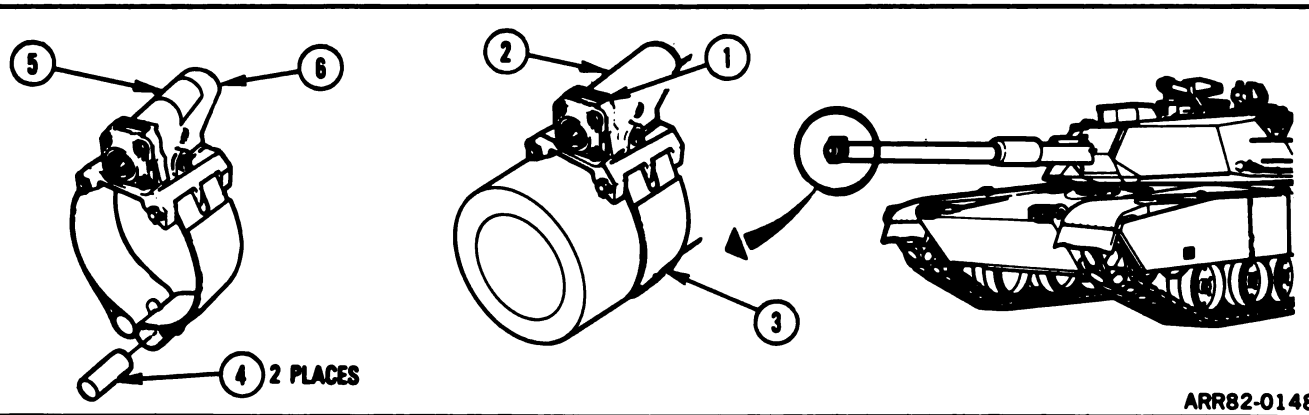
GO TO FRAME 5

2-6. Fire Control System (Continued)
d. Collimator (MRS) Assembly (Continued)

FRAME 5

INTERVAL	PROCEDURE	REFERENCE
S	1. Look at collimator window (1) for wetness inside. If wet notify support maintenance. If OK go to step 2.	
	2. Look at collimator (2) for cracks, breaks, and loose or missing hardware. If bad notify support maintenance. If OK go to step 3.	
	3. Look at strap assembly (3) for cracks, breaks, bends, signs of chafing, and missing or damaged bars (4). If bad replace strap assembly (3).	3. TM 9-2350-255-20-2-3-2, para. 7-27.
	4. Look at caution plate (5) for cracks. If plate (5) is broken or cannot be read, replace plate (5).	4. TM 9-2350-255-20-2-3-2, para. 7-27.
	5. Look at window (6) for cracks or breaks. If bad notify support maintenance.	
	NOTE If muzzle reference sensor and gunner's primary sight cannot be aligned within tolerance, notify support maintenance.	
	6. Update muzzle reference sensor.	6. TM 9-2350-255-10.

END OF COLLIMATOR (MRS) ASSEMBLY PREVENTIVE MAINTENANCE



2-6. Fire Control System (Continued)
e. Stabilization System

Applicability: All Models

Common Tools: None

Special Tools:
Test Set, STE/M1, 12303600

Supplies:
None

Personnel: One

FRAME 6

INTERVAL	PROCEDURE	REFERENCE
S	1. Do stabilization system checkout to test gunner's control, commander's control, manual drive, traverse servo mechanism, elevation servo mechanism, rate gyroscopes, and gun/turret drive electronics unit. Wrong output indicates component is bad. Turn in bad component.	1. TM 9-2350-255-20-2-2-2, para. 16-3. (to be published)
END OF STABILIZATION SYSTEM TESTS PREVENTIVE MAINTENANCE		

2-6. Fire Control System (Continued)
f. Crosswind Sensor

Applicability: All Models

Common Tools:
Extension, socket wrench, 3/8-inch square drive, 5-inch
Handle, socket wrench, ratchet, 3/8-inch square drive
Screwdriver, flat tip
Socket, socket wrench, 3/8-inch square drive, 7/16-inch

Special Tools:
Cleaning Kit, crosswind sensor, 12285478

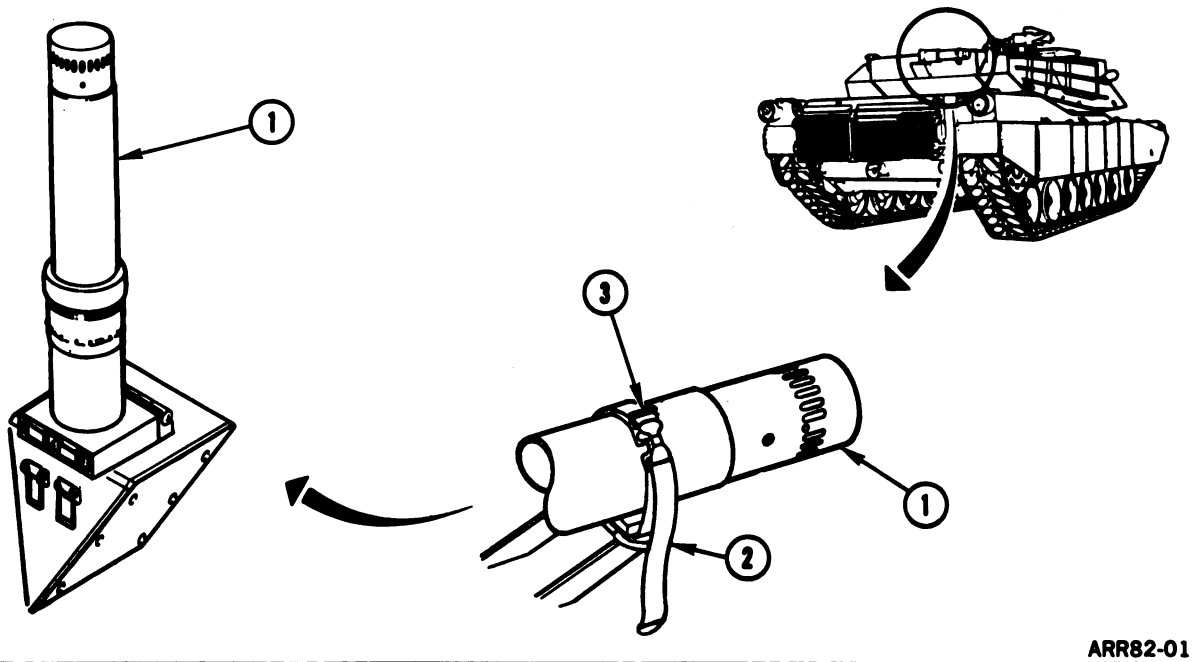
Supplies:
None

Personnel: One

FRAME 7

INTERVAL	PROCEDURE	REFERENCE
S	1. If crosswind sensor (1) is in stowed position, raise sensor (1) to operating position.	1. TM 9-2350-255-10.
	2. Look at strap (2) for cuts, fraying, or missing buckle (3). If bad replace strap (2).	2. TM 9-2350-255-20-2-3-2, para. 7-17.

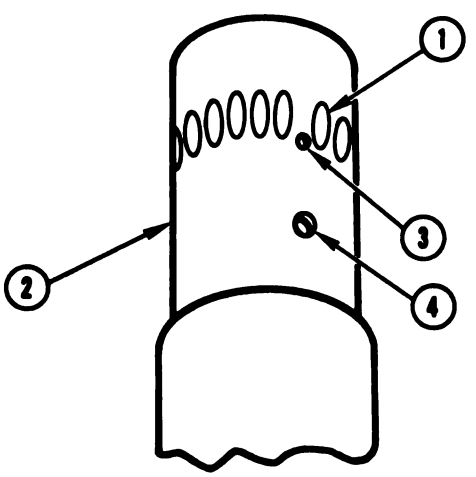
GO TO FRAME 8



ARR82-0149

2-6. Fire Control System (Continued)
f. Crosswind Sensor (Continued)

FRAME 8		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Look at crosswind sensor air ports (1) for buildup of dirt or other debris. Clean dirty ports (1). Look at ports (1) for cracks or dents. If bad, replace crosswind sensor (2).	1. TM 9-2350-255-20-2-3-2, para. 7-17.
	2. Using crosswind sensor cleaning kit, clean sensor ports (1) by inserting squeeze bottle, filled with water, in sensor cleaning hole (3). Squeeze bottle four or five times and watch for water running out of drain hole (4). If water does not come out of drain hole (4), replace crosswind sensor (2).	2. TM 9-2350-255-20-2-3-2, para. 7-17.
GO TO FRAME 9		



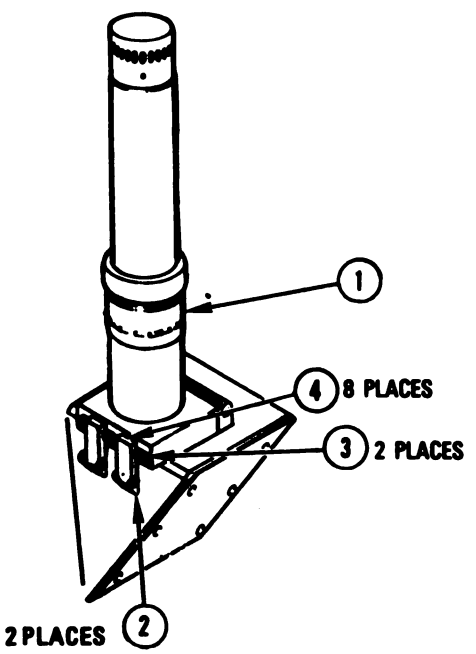
ARR82-0150

2-6. Fire Control System (Continued)
f. Crosswind Sensor (Continued)

FRAME 9

INTERVAL	PROCEDURE	REFERENCE
S	1. Look at mount (1) for cracks. If bad replace mount (1).	1. TM 9-2350-255-20-2-3-2, para. 7-17.
	2. Look at two latch assemblies (2) and strikes (3) for cracks, bends, breaks, or loose or missing screws (4). If loose, tighten screws (4) on latch assemblies (2) or strikes (3) with screwdriver. If bad, replace latch assemblies (2) or strike (3).	2. TM 9-2350-255-20-2-3-2, para. 7-17.
	3. Make sure two latch assemblies (2) lock tightly in place. If latch assemblies (2) are loose when snapped shut, replace two latch assemblies.	3. TM 9-2350-255-20-2-3-2, para. 7-17.

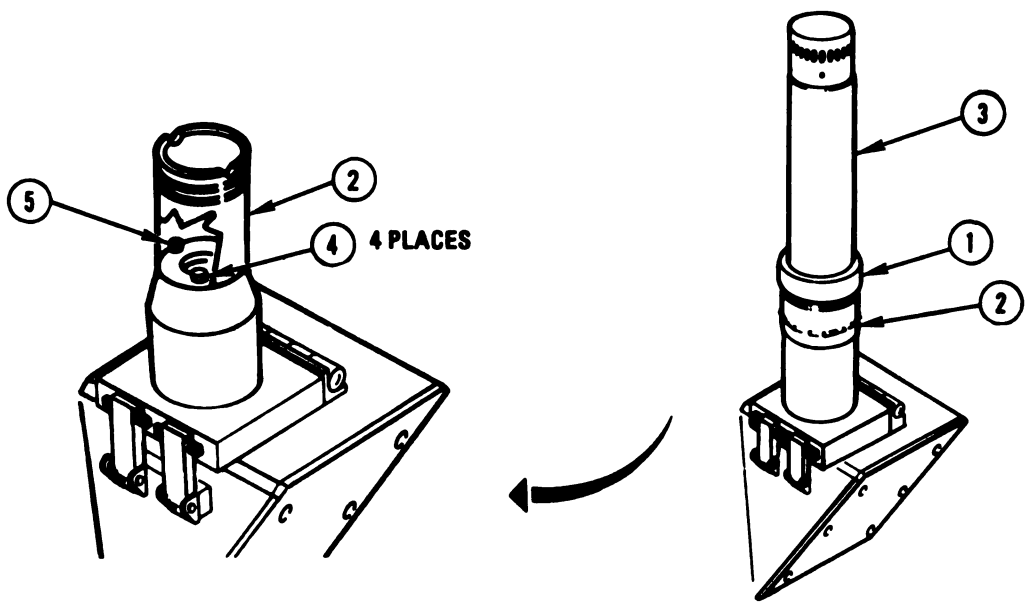
GO TO FRAME 10



ARR82-0151

2-6. Fire Control System (Continued)
f. Crosswind Sensor (Continued)

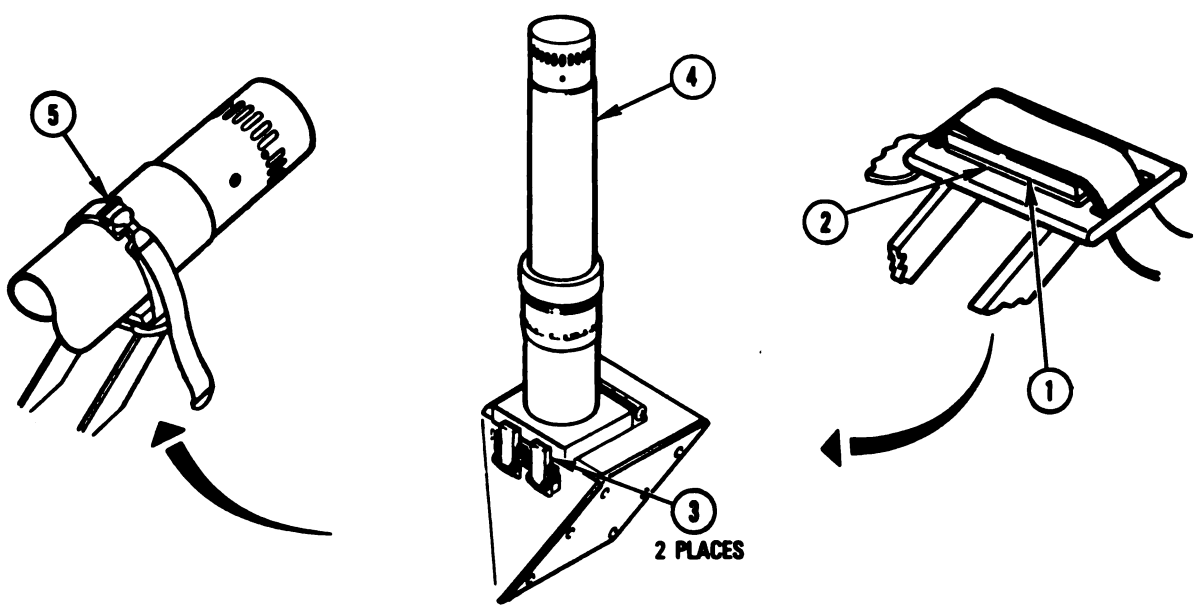
FRAME 10		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Turn coupling (1) clockwise to make sure it is tight. Tighten coupling (1) if loose.	
	2. Make sure retainer (2) is tight when checking coupling (1). If retainer (2) is loose, go to step 3. If OK go to frame 11.	
	3. Remove crosswind sensor (3) and set aside for later use.	3. TM 9-2350-255-20-2-3-2, para. 7-17.
	4. Look at retainer (2) for four loose mounting screws (4) or broken or bent index pin (5). If index pin (5) is broken or bent, replace retainer (2). If screws (4) are loose, tighten four screws (4) with socket, extension, and handle.	4. TM 9-2350-255-20-2-3-2, para. 7-17.
	5. Install crosswind sensor (3).	5. TM 9-2350-255-20-2-3-2, para. 7-17.
GO TO FRAME 11		



ARR82-0152

2-6. Fire Control System (Continued)
f. Crosswind Sensor (Continued)

FRAME 11		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Look at cushion (1) for cuts, tears, or separation from plate (2). If bad replace cushion (1) and plate (2). If OK go to step 2. 2. Pull two latch assemblies (3) out and down. Put sensor (4) in stowed position. Secure with strap (5).	1. TM 9-2350-255-20-2-3-2, para. 7-17. 2. TM 9-2350-255-10.
END OF CROSSWIND SENSOR PREVENTIVE MAINTENANCE		



ARR82-0153

2-6. Fire Control System (Continued)
g. Thermal Image Control Unit

Applicability: All Models

Common Tools:
Wrench, combination, 3/8-inch

Special Tools:
Purge Kit, NSN 4931-00-782-2641
Tank, nitrogen, dry, NSN 6830-00-782-2641

Supplies:
None

Personnel: Two
Soldier A: Purges and charges thermal image control unit.
Soldier B: Helps soldier A.

FRAME 12

INTERVAL	PROCEDURE	REFERENCE
S	1. Purge and charge thermal image control unit.	1. TM 9-2350-255-20-2-3-2, para. 7-24.
END OF THERMAL IMAGE CONTROL UNIT PREVENTIVE MAINTENANCE		

2-7. Nuclear-Biological-Chemical System

Applicability: All Models

Common Tools:
Screwdriver, flat tip

Special Tools: None

Supplies:
NOTE: Expendable supplies are defined in appendix A.
Dry Cleaning Solvent, P-D-680 (Item 3)
Rag, wiping (Item 7)

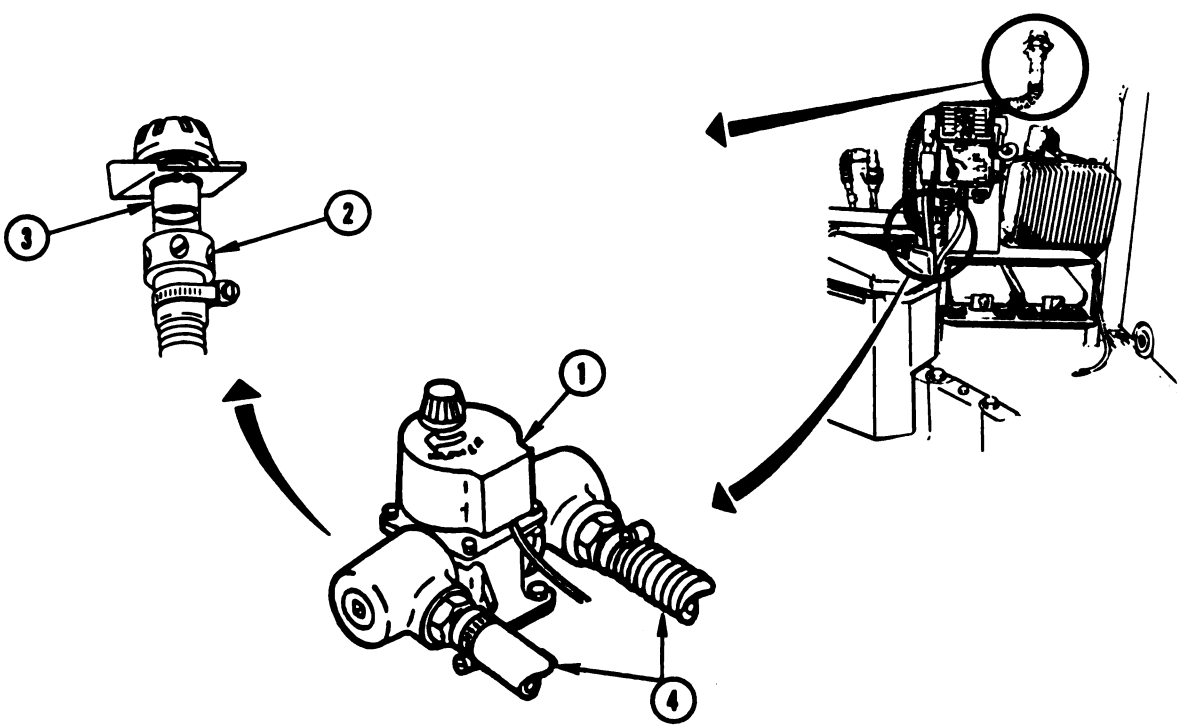
Personnel: One

2-7. Nuclear-Biological-Chemical System (Continued)

FRAME 1

INTERVAL	PROCEDURE	REFERENCE
S	1. Look at commander's heater assembly (1) for cracks, breaks, or dents. If bad replace heater assembly (1).	1. TM 9-2350-255-20-2-3-2, para. 8-4.
	2. Pull coupling (2) off connector (3).	
	3. Look at connector (3) and two hoses (4) for cracks, breaks, leaks, dents, and signs of dry rot. Replace bad connector (3) or hose (4).	3. TM 9-2350-255-20-2-3-2, para. 8-4.

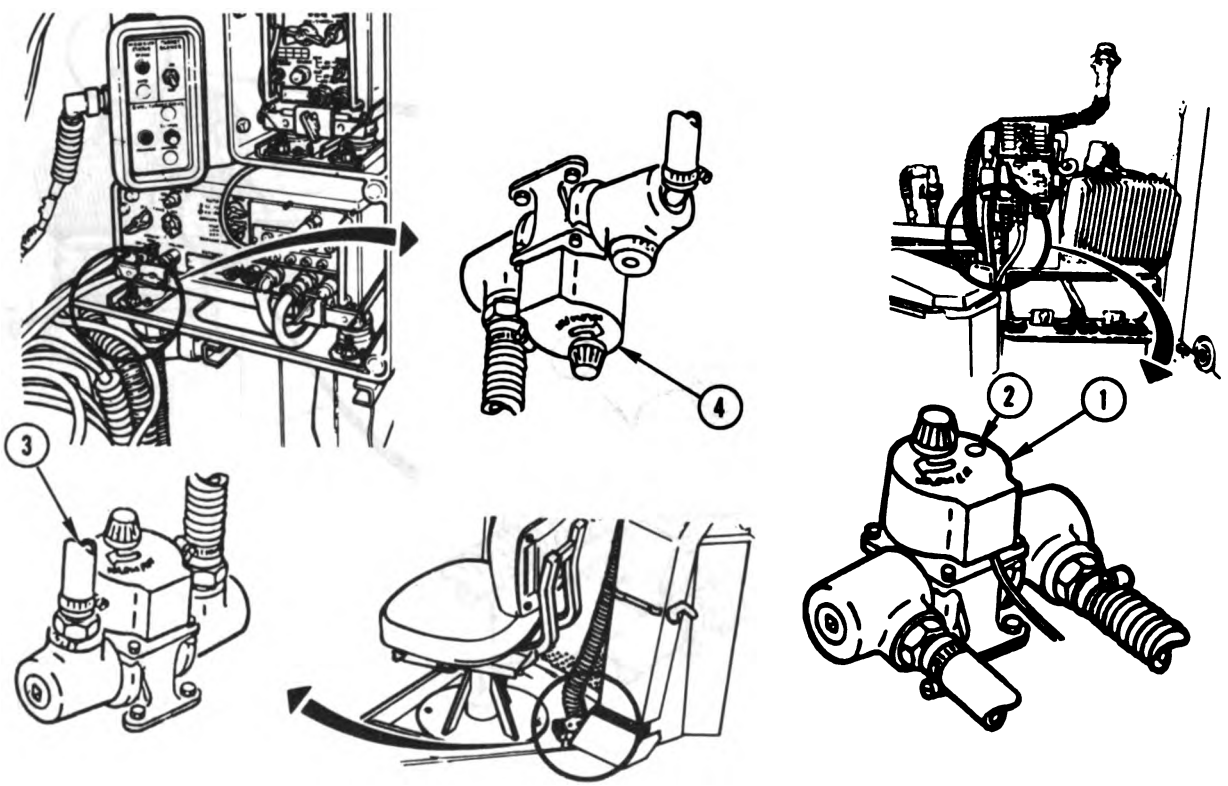
GO TO FRAME 2.



ARR82-0154

2-7. Nuclear-Biological-Chemical System (Continued)

FRAME 2		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	**WARNING** Solvent burns easily. To avoid injury, do not use near open fire. 1. Clean heater assembly (1) with solvent and rags. 2. Check heater assembly (1) and indicator light (2) at commander's station for proper operation. 3. Repeat frames 1, and steps 1 and 2 in this frame, for gunner's (3) and loader's (4) heater assemblies.	2. TM 9-2350-255-10.
GO TO FRAME 3		



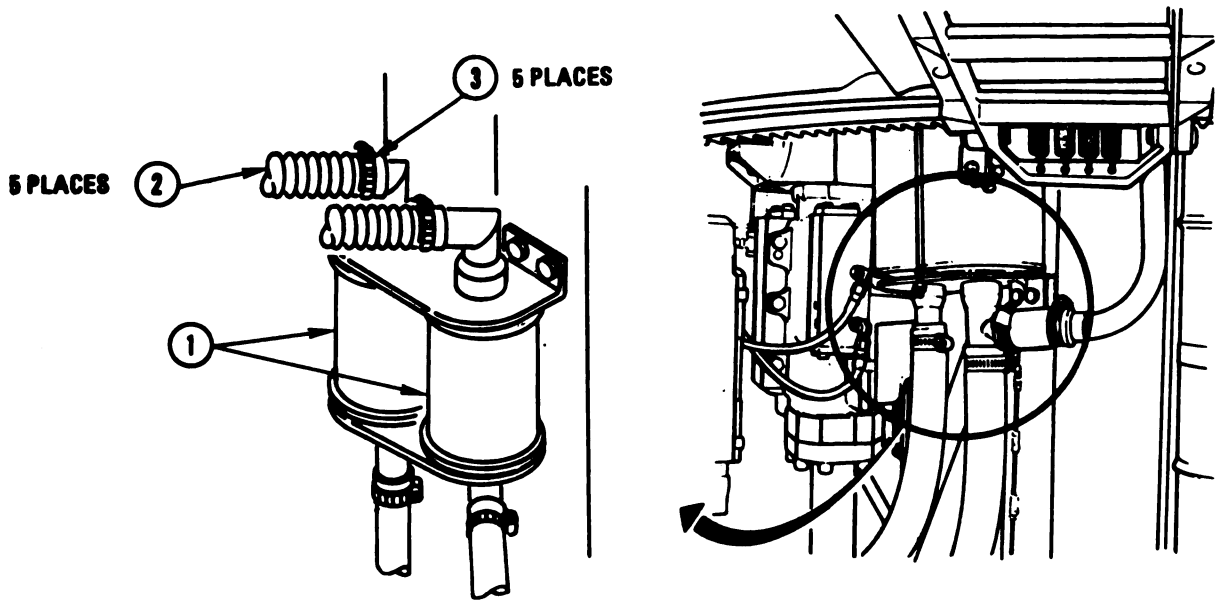
ARR82-0155

2-7. Nuclear-Biological-Chemical System (Continued)

FRAME 3

INTERVAL	PROCEDURE	REFERENCE
	WARNING Use proper precautions, when handling contaminated filters; refer to FM-21-40. To avoid serious illness, contaminated filters must be disposed of by trained personnel. For criteria on changing filters, refer to TM 9-2350-255-10.	
S	1. Look at two gas filters (1) for cracks and breaks. Replace bad gas filters (1). 2. Look at five hoses (2) to make sure they are tight. Tighten loose clamps (3) with screwdriver.	1. TM 9-2350-255-20-2-3-2, para. 8-5.

GO TO FRAME 4



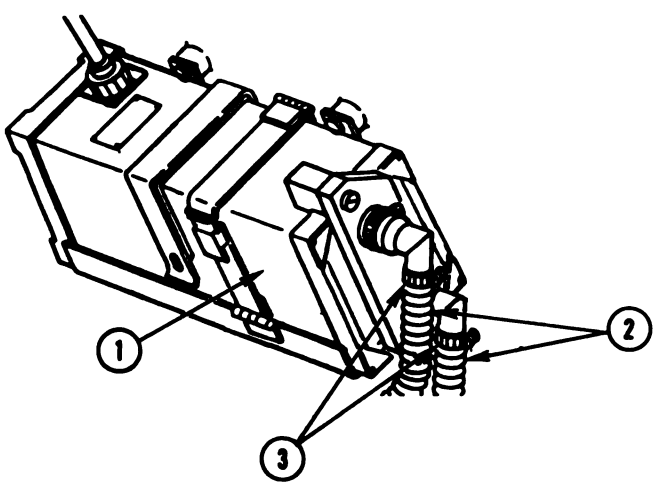
ARR82-0156

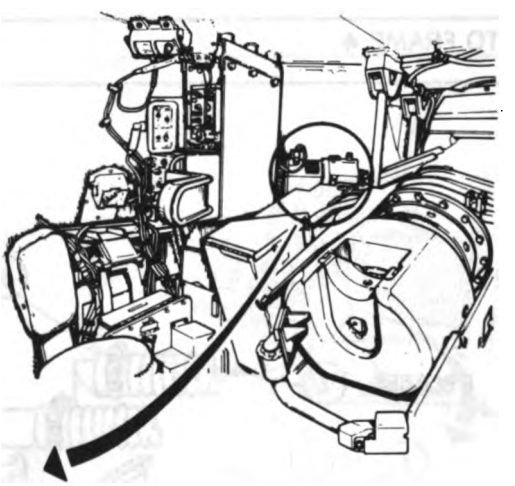
2-7. Nuclear-Biological-Chemical System (Continued)

FRAME 4

INTERVAL	PROCEDURE	REFERENCE
S	1. Look at particulate filter (1) for cracks and breaks. Replace bad particulate filter (1). 2. Look at two hoses (2) to make sure they are tight. Tighten loose clamps (3) with screwdriver.	1. TM 9-2350-255-20-2-3-2, para. 8-5.

END OF NUCLEAR-BIOLOGICAL-CHEMICAL SYSTEM PREVENTIVE MAINTENANCE





ARR82-0157

2-8. Pressure Test Recoil Mechanism, Exercise and Borescope Main Gun

Applicability: All Models

Common Tools: None

Special Tools: None

Supplies: None

Personnel: One

FRAME 1		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Look at Weapon Record Data Log, DA Form 2408-4. If gun has been fired or exercised in the past 6 months, this test need not be done. If gun was not fired or exercised in past 6 months, notify direct support to do recoil mechanism pressure test and exercise of main gun.	1. TM 38-750.
	2. Look at Weapon Record Data Log, DA Form 2408-4 for date of last borescope and pull-over gage reading. Note number of EFC rounds fired since last borescope and pullover gage reading. If 90 days have passed, or more than 200 EFC rounds have been fired since last borescope and pullover reading, notify direct suport.	2. TM 38-750 and TM 9-1000-202-14, para. 3-3 and 3-8c.
	3. Remove collimator assembly.	3. TM 9-2350-255-20-2-3-2, para. 7-27.
	4. Remove chamber and tubes.	4. TM 9-2350-255-20-2-3-2, para. 6-4.
	5. Clean chamber, main gun tube, and gas ports.	5. TM 9-2350-255-10.
	6. Install chamber assembly.	6. TM 9-2350-255-20-2-3-2, para. 6-4.
	7. Install collimator assembly.	7. TM 9-2350-255-20-2-3-2, para. 7-27.
	8. Make sure that DA Form 2408-4 is complete and accurate.	
END OF ARMAMENT PREVENTIVE MAINTENANCE		

2-9. Turret Harness Assemblies

Applicability: All Models

Common Tools:
Wrench, adjustable, 8-inch

Special Tools: None

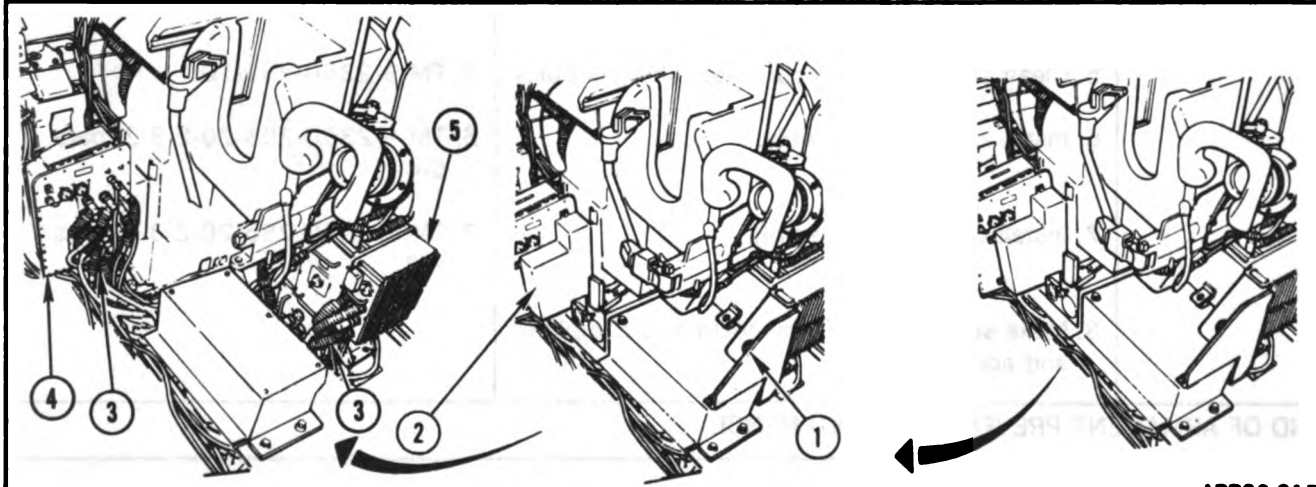
Supplies: None

Personnel: One

FRAME 1

INTERVAL	PROCEDURE	REFERENCE
S	1. Remove electronics rack shield (1).	1. TM 9-2350-255-20-2-3-2, para. 7-7.
	2. Remove turret networks box guard (2).	2. TM 9-2350-255-20-2-3-1, para. 2-7. (to be published)
	3. Look at all visible harness assemblies (3) close to turret networks box (4) and electronics rack (5) for frayed insulation and broken wires. Replace bad harness assemblies.	3. TM 9-2350-255-20-2-3-1, para. 2-13.
	4. Look at all visible ground points for cracks, broken lugs, or loose connections. Tighten loose connections with wrench. Replace bad harness assemblies.	4. TM 9-2350-255-20-2-3-1, para. 2-13.

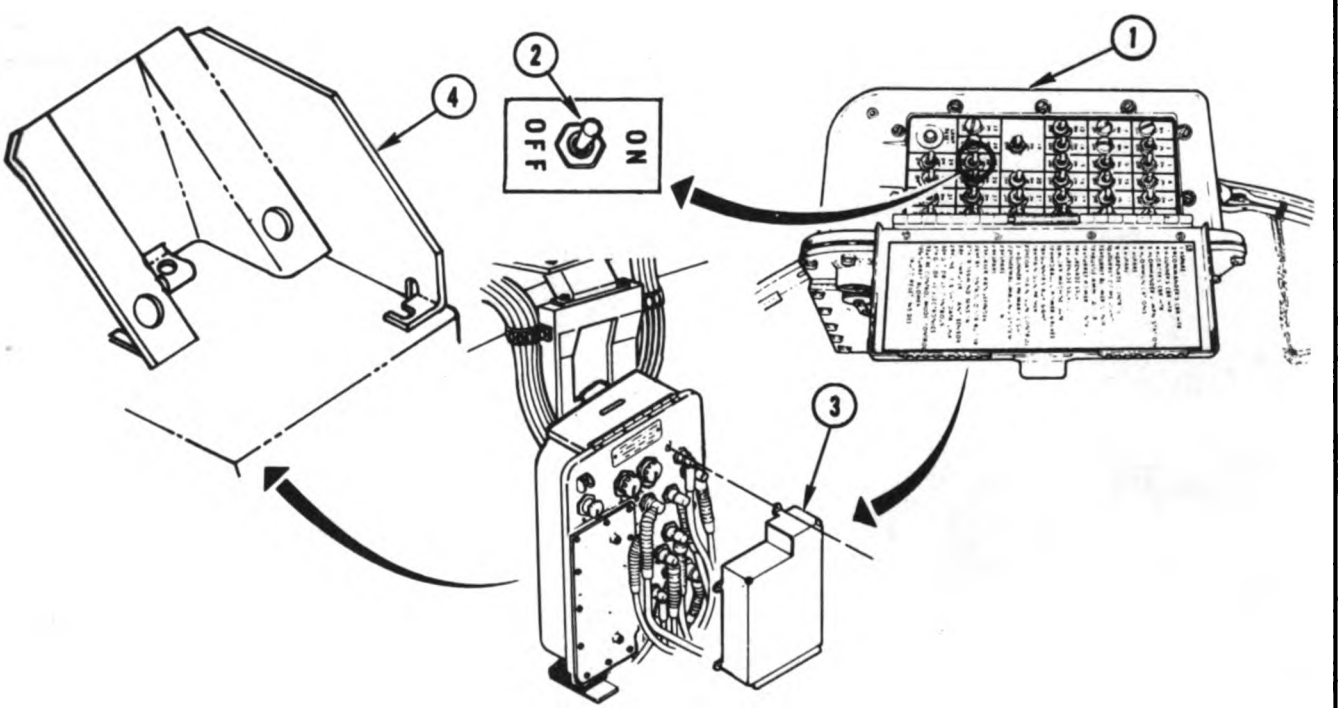
GO TO FRAME 2



ARR82-0158

2-9. Turret Harness Assemblies (Continued)

FRAME 4		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Open turret networks box (1). Make sure all circuit breakers (2) are set to ON.	1. TM 9-2350-255-10.
	2. Install turret networks box guard (3).	2. TM 9-2350-255-20-2-3-1, para. 2-7.
	3. Install electronics rack shield (4).	3. TM 9-2350-255-20-2-3-2, para. 7-7.
END OF TURRET HARNESS ASSEMBLIES PREVENTIVE MAINTENANCE		



ARR82-0159

2-10. Smoke Grenade Launcher

Applicability: All Models

Common Tools:
Multimeter

Special Tools: None

Supplies: None

Personnel: One

FRAME 1

INTERVAL	PROCEDURE	REFERENCE
S	1. Check continuity of smoke grenade launcher with multimeter.	1. TM 9-2350-255-20-2-2-3, para. 7-17. (to be published)
END OF SMOKE GRENADE LAUNCHER PREVENTIVE MAINTENANCE		

2-11. Turret Lock Assembly

Applicability: All Models

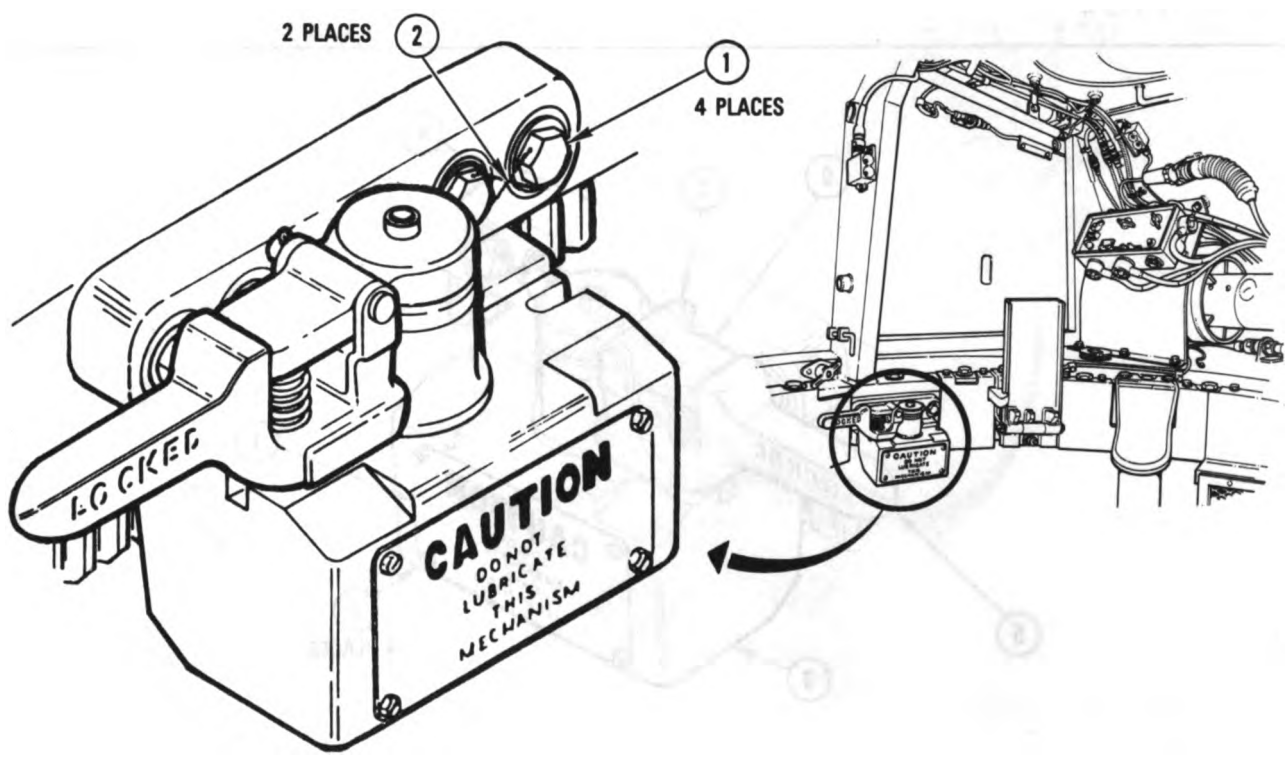
Common Tools:
Flashlight

Special Tools: None

Supplies: None

Personnel: One

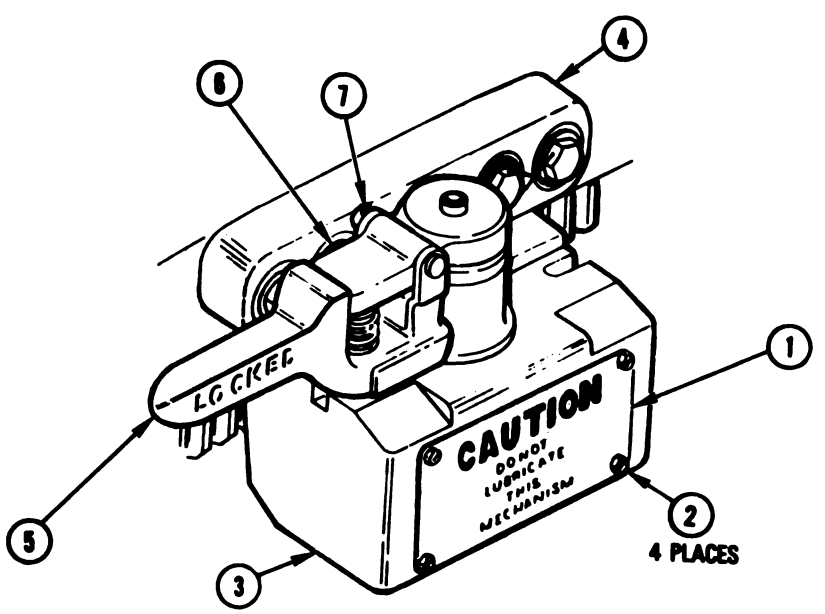
FRAME 1		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Look at four mounting screws (1) for broken, loose, and missing safety wire (2). If safety wire (2) is broken, loose, or missing, torque screws (1) and put on new safety wire (2).	1. TM 9-2350-255-20-2-3-1, para. 3-4.
GO TO FRAME 2		



ARR82-0160

2-11. Turret Lock Assembly (Continued)

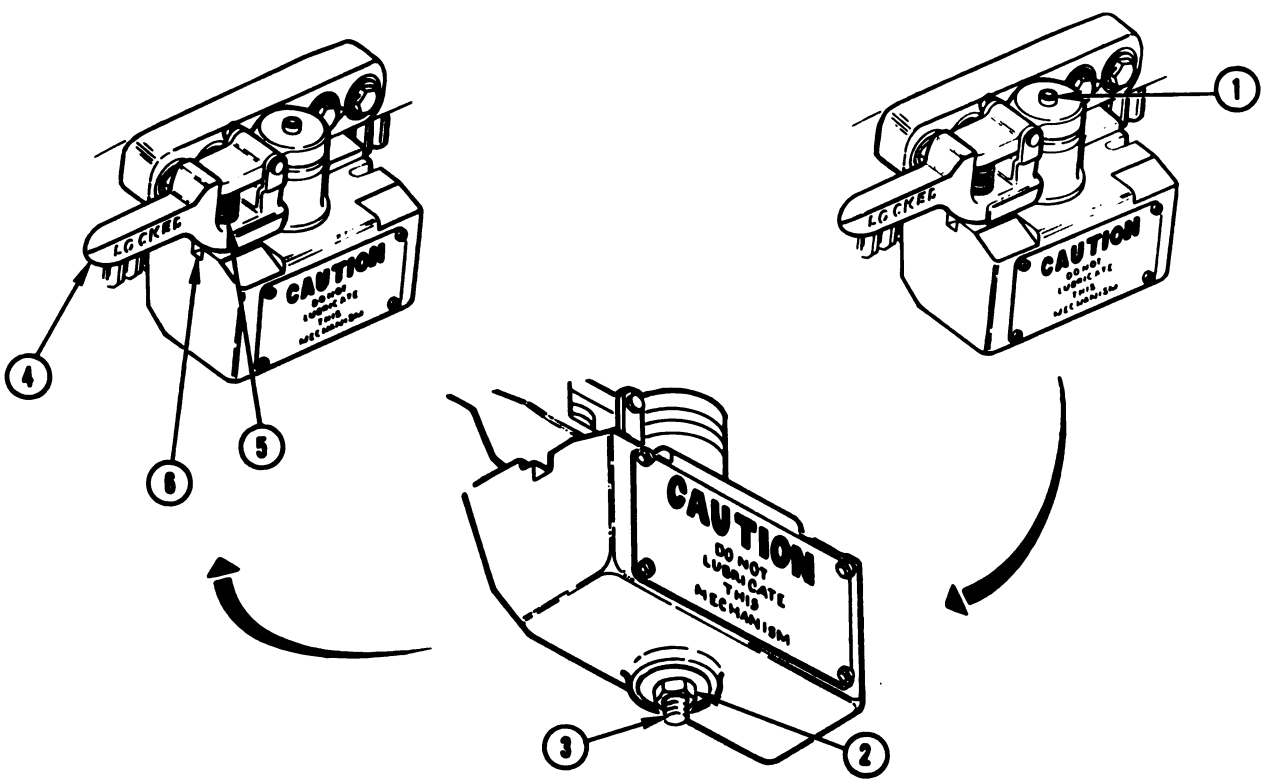
FRAME 2		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Look at cover (1) for cracks, breaks, and loose screws (2). If cover (1) is cracked or broken, replace cover (1). Tighten loose screws (2).	1. TM 9-2350-255-20-2-3-1, para. 3-4.
	2. Look at housing assembly (3) for cracks, and breaks. If housing assembly (3) is cracked or broken, replace turret lock assembly (4).	2. TM 9-2350-255-20-2-3-1, para. 3-4.
	3. Look at handle (5) for cracks and breaks. If handle (5) is cracked or broken, replace handle (5).	3. TM 9-2350-255-20-2-3-1, para. 3-4.
	4. Look at lever (6) for cracks, breaks, and broken pin (7). If lever (6) or pin (7) is cracked or broken, replace lever (6) or pin (7).	4. TM 9-2350-255-20-2-3-1, para. 3-4.
GO TO FRAME 3		



ARR82-0161

2-11. Turret Lock Assembly (Continued)

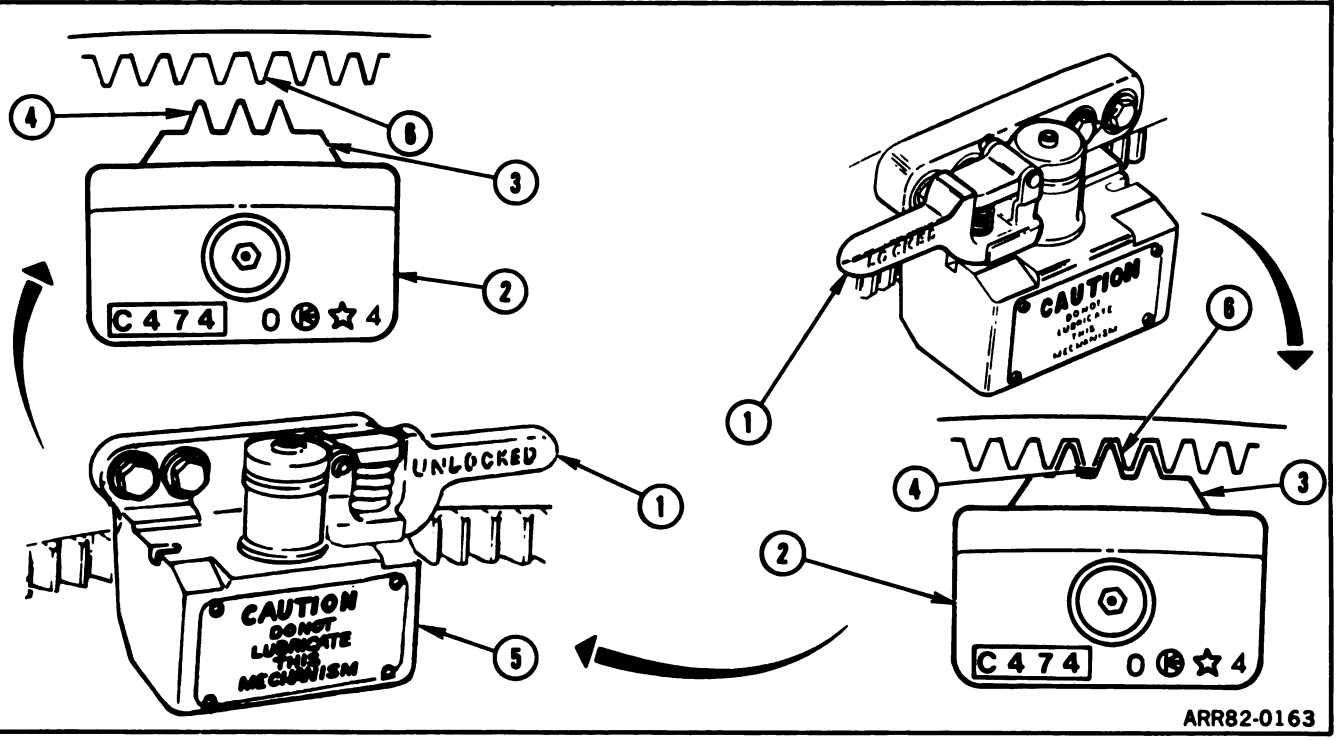
FRAME 3		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Look at shaft (1) and nut (2) for looseness. If loose, unscrew and take off nut (2). Look at shaft (1) for stripped threads (3). If bad, replace shaft (1). Install new nut (2).	1. TM 9-2350-255-20-2-3-2-1, para. 3-4. (to be published at a later date)
	2. Lift handle (4) and feel for spring pressure. There should be no play before spring pressure is felt. Spring (5) should hold handle (4) firmly in detent (6). If spring (5) does not hold handle (4) in detent (6), replace spring (5).	2. TM 9-2350-255-20-2-3-2-1, para. 3-4.
GO TO FRAME 4		



ARR82-0162

2-11. Turret Lock Assembly (Continued)

FRAME 4		
INTERVAL	**PROCEDURE**	**REFERENCE**
S	1. Put handle (1) in LOCKED position. From beneath housing assembly (2) look up at bolt (3) for cracks and broken bolt teeth (4). If bolt (3) is cracked or has broken teeth (4) replace turret lock assembly (5).	1. TM 9-2350-255-20-2-3-1, para. 3-4.
	2. From beneath housing assembly (2) look up at bolt teeth (4) for full engagment in outer race ring teeth (6). If bolt teeth (4) are not fully engaged in outer race ring teeth (6) replace turret lock assembly (5).	2. TM 9-2350-255-20-2-3-1, para. 3-4.
	3. Put handle (1) in UNLOCKED position. From beneath housing assembly (2) look up at bolt (3). Bolt teeth (4) should be out of and not touching, outer race ring teeth (6). If bolt teeth (4) are not out of outer race ring teeth (6), replace turret lock assembly (5).	3. TM 9-2350-255-20-2-3-1, para. 3-4.
END OF TURRET LOCK ASSEMBLY PREVENTIVE MAINTENANCE		



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CHAPTER 3

ALIGNMENT AND ADJUSTMENT

No scheduled alignment and adjustments are required on the M1 tank. Alignment and adjustment procedures required as a result of replacing parts or assemblies are included with the removal/installation procedures.

CHAPTER 4

LUBRICATION

Refer to Lubrication Order LO 9-2350-255-12 for lubrication instructions and required intervals between lubrications.

APPENDIX A

EXPENDABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

A-1. SCOPE

This appendix lists expendable supplies and materials you will need to maintain the M1 tank. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

A-2. EXPLANATION OF COLUMNS

a. Column (1) - Item number. This number is assigned to the entry in the listing for referencing, when required.

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
O - Organizational Maintenance
F - Direct Support Maintenance
H - General Support Maintenance

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.

SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	5350-00-221-0872	Cloth, abrasive (crocus) 50-sheet package: (81348) P-C-458	SH
2	C	6850-00-227-1887	Cleaning Compound (lens) 1-quart can: (81349) MIL-C-43454	QT
3	C	6850-00-285-8011	Dry Cleaning Solvent, Type II, 55-gallon drum: (81348) P-D-680	GL
4	C	9150-00-231-2361	Lubricating Oil, preservative (PL-M) 1-quart can: (81349) MIL-L-3150	QT
5	C	6640-00-597-6745	Paper, lens, Type I, Class 2, 6 x 4 inches, block of 50 (80244) NNN-P-40	EA
6	O	9150-00-250-0926	Petrolatum, technical, 1-pound: (81348) VV-P-236	LB
7	C	7920-00-205-1711	Rag, wiping, 50-pound bale: (58536) A-A-531	LB
8	C	6850-00-880-7616	Silicone Compound, 8-ounce tube: (81349) MIL-S-8660	OZ
9	O	9505-00-293-4208	Wire, nonelectric (safety wire) 0.032-inch diameter, 1-pound roll: (96906) MS20995C32	LB

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INDEX (Continued)

INDEX (Continued)

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
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To be distributed in accordance with DA Form 12-37, Organizational maintenance requirements for M1 Abrams Tank.

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2350-255-20-2-1	6 Aug 82	Scheduled Maintenance Tank, Combat, Full-Tracked: 105MM Gun, M1 Turret

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
3		2		Item 10. Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.
:09		51		Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished.
2-8			2-1	Preventive Maintenance Checks and Services. Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl.
12	1-6a			Since there are both 20- and 30- round magazines for this rifle, data on both should be listed.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
John Smith SP/3 xxx-xxxx

SIGN HERE
John Smith

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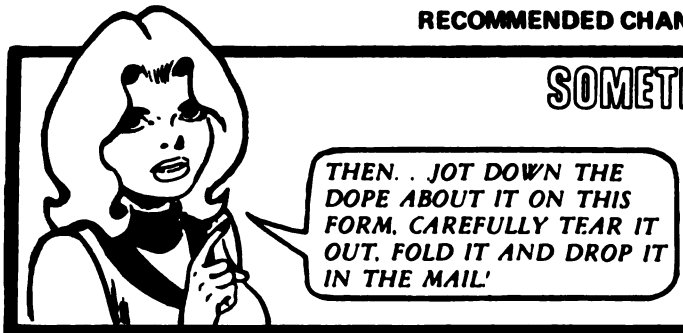

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

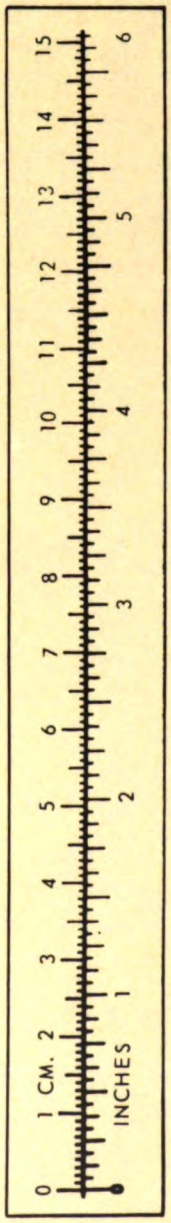
TEMPERATURE

$\frac{5}{9}(°F - 32) = °C$
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
$\frac{9}{5}\,°C + 32 = °F$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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