

RESEARCH NOTE 84-14

MAINTENANCE PERFORMANCE SYSTEM (ORGANIZATIONAL)
TRAINING MATERIALS FOR ORGANIZATIONAL MAINTENANCE TASKS
ON M60A1/M113A1 EQUIPMENT

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INTRODUCTION

This document was written to help unit-level trainers and training managers identify the training materials needed to conduct effective training on organizational maintenance tasks. Many such resources exist, although unit trainers often have difficulty identifying the precise ones needed in a particular training situation. This document contains an organized listing of these materials, and will considerably simplify the task of finding what is needed.

This document focuses on the training materials available for conducting corrective and preventive maintenance training on two items of equipment--the **M60A1 tank** and **M113** family of armored personnel carriers. The MOS's covered are the following:

<u>MOS CODE</u>	<u>TITLE</u>
11C	Indirect Fire Infantryman
19D	Cavalry Scout
19E	Armor Crew member
(19F	Now combined with 19E)
45N	M60A1/A3 Turret Mechanic
63N	M60A1/A3 Tank System Mechanic
63T	IFV/CFV System Mechanic

Why Do We Need Unit-level Training Materials?

Training goes on continuously at unit level. Personnel from AIT must be trained in tasks not covered at the school. Experienced personnel must also be trained--changes in equipment and procedures require constant updating and improving of skill levels through additional training. Army doctrine requires that this training be done at unit level, with unit resources. Much of the training may be accomplished with self-planned, self-paced individual training programs. This document identifies the training materials available to accomplish such training.

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	



Where Are These Training Materials?

The Skill Development Center (SDC) is run by a training specialist who reports to the battalion S3. The SDC obtains and stores training materials of all kinds, particularly those that can be used on an **individual** basis.

The materials identified in this document should be available in your SDC. If they are not, they can be ordered from the SDC's training resource catalogues. The latest and most useful of these catalogues is **DAPAM 350-100, Extension Training Materials Catalog (CONSOLIDATED MOS CATALOG) 5 March 1982**. This catalog lists training materials for each MOS by Common Tasks, General Subject Areas, and general support of MOS training. It does not, however, list training materials specifically keyed to maintenance tasks.

HOW TO USE THE TRAINING MATERIALS LISTINGS

The listings are keyed by MOS. Each MOS is broken down by equipment. The maintenance tasks for the equipment are listed by corrective tasks and preventive tasks. (To be sure the task description means the same to each reader, the performance steps to accomplish each task are also described.)

The training materials that apply to each maintenance task are identified in a cross-reference matrix by their code number only. If you want to find out the exact title of a training resource, look in the green pages of the report. (Figure 1 shows the breakdown of the listings in graphic form.)

To find materials for a particular task, **follow these steps:**

1. Find the **MOS reference** in the pages that follow.
2. Find the **equipment** of interest.
3. Decide whether you need information on **corrective** or **preventive** maintenance tasks and go to the appropriate section.
4. Find the **task** in the task list.
5. Check the **performance steps** shown under each task to ensure that the task is what you think it is.
6. Go to the fold-out materials matrix and find the **line** listing the task of interest.
7. Each time a **"dot"** is shown in a square on that line, read up and note the **materials listing number**.
8. Take your **materials listing numbers** to the SDC and borrow the materials.
9. If the materials are not in stock in the SDC, look up the full title in the green pages and have the SDC staff order the items.

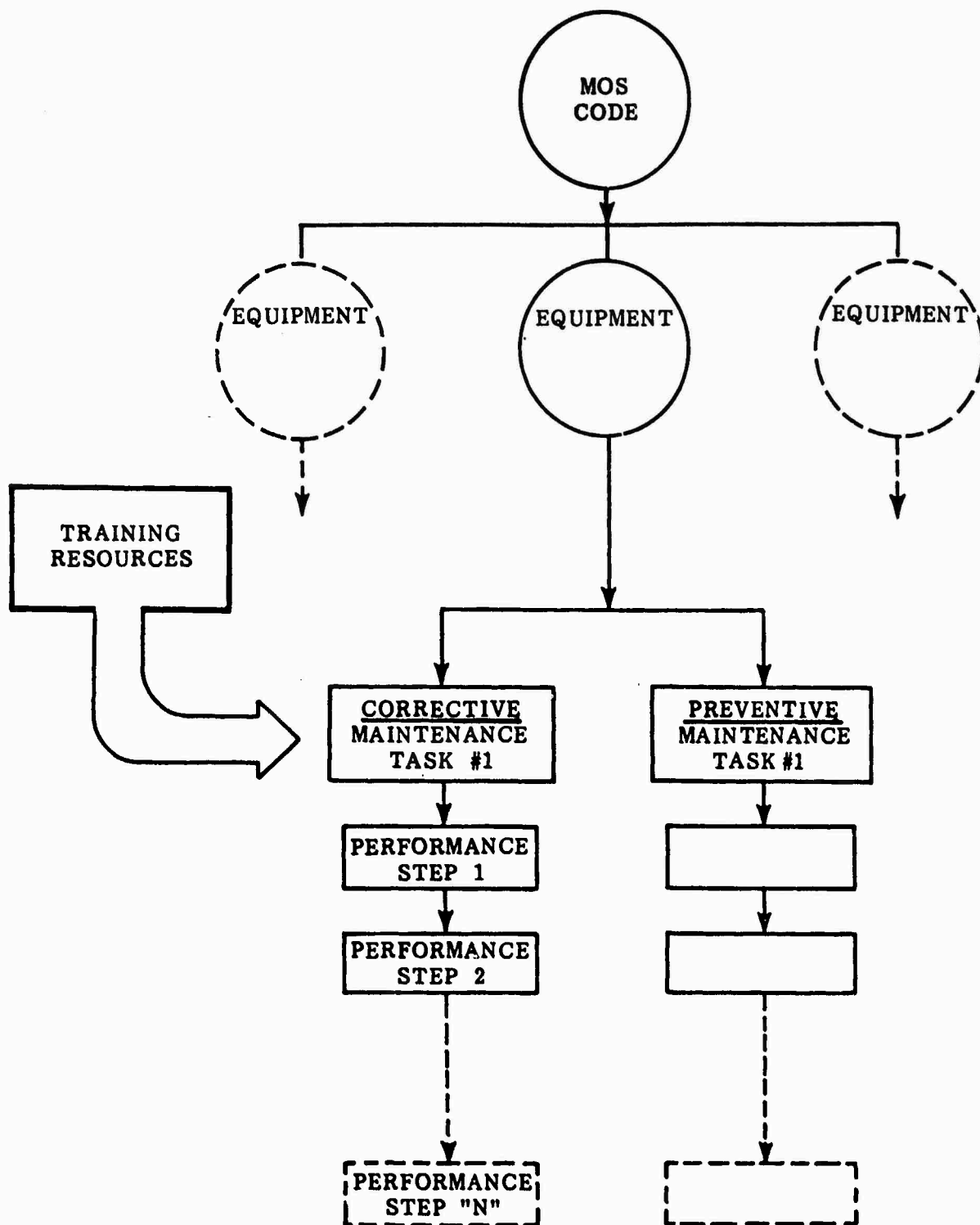


Figure 1. Listing breakdown for training materials identification.

A Note on the Training Materials

This document breaks down training materials into eight different categories. Those categories, and their abbreviations (used in the listings), are as follows:

- COR CRS - Correspondence Course
- FM - Field Manual
- GTA - Graphic Training Aid
- SPA - Skill Performance Aid/Extension
Training Materials
- TEC - Training Extension Course
- TF - Training Films
- TM - Technical Manual
- VTR - Video Tape Recording

**TRAINING MATERIALS FOR M60A1/M113A1 MAINTENANCE TASKS
INDEXED BY MOS TASKS AND PERFORMANCE STEPS**

**CORRECTIVE MAINTENANCE JOB TASKS AND RELATED PERFORMANCE STEPS
FOR
MOS 11C AND MOS 19D**

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	1. REPLACE TRACK SHOES.	a. Remove track shrouds. b. Loosen track tension. c. Install track fixtures. d. Remove pins. e. Remove track fixtures. f. Remove track shoe. g. Install in reverse order. h. Adjust track tension.
	2. REPLACE ROADWHEEL.	a. Remove track shroud. b. Loosen track tension. c. Break track. d. Position lifter under arm. e. Loosen nuts. f. Drive carrier forward to lift wheel. g. Remove nuts. h. Remove wheel. i. Install in reverse order. j. Adjust track tension.
	3. REPLACE AIR CLEANER ELEMENT.	a. Unlatch clamps. b. Remove container. c. Remove element from container. d. Install in reverse order.
	4. MAINTAIN .50 CALIBER HBM2 MACHINEGUN.	a. Disassemble weapon. b. Clean and dry components. c. Lubricate components. d. Reassemble weapon.

**PREVENTIVE MAINTENANCE JOB TASKS AND RELATED PERFORMANCE STEPS
FOR
MOS 11C AND MOS 19D**

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	1. BEFORE OPERATION CHECKS.	a. Make a visual inspection of vehicle exterior.
		b. Check coolant.
		c. Check fire extinguishers.
		d. Check oil levels.
		e. Check and clean periscopes.
		f. Check instrument and warning light panels.
		g. Clean air cleaner restriction indicator.
		h. Start and check engine.
		i. Check communications.
		j. Check machinegun mount.
		k. Check personnel heater.
		l. Check personnel heater electrical circuits.
		m. Check coolant heater.
		n. Check coolant heater electrical circuits.
		o. Check roadwheels.
		p. Check U joints.
		q. Check windshield (cold weather only).
	2. DURING OPERATION CHECKS.	a. Check and clean air cleaner restriction indicator.
		b. Check steering, braking, shifting, and throttle controls.
		c. Check roadwheel, idler wheel, final drive bearings and shock absorbers.
		d. Check instrument panel gauges.
	3. AFTER OPERATION CHECKS.	a. Check tracks.
		b. Check roadwheels, idler wheels, final drive bearings, sprockets, and shock absorbers.
		c. Check V-belts.
		d. Check engine oil level.
		e. Check lights.
		f. Check fuel system and top off.
		g. Check hull access and drain covers, and drain plugs.
		h. Check air cleaner element.
		i. Check exhaust system.

MOS 11C & 19D

1. Replace Track Shoes
2. Replace Roadwheel
3. Replace Air Cleaner Element
4. Maintain 50 cal. HB M2 Machinegun

1. Before Operation Checks
2. During Operation Checks
3. After Operation Checks

FM	TM	TEC	VTR	CO CE
7-11C 1/2				
7-11C/CM				
17-19D 1/2				
17-19D/CM				
23-65				
31-70				
38-750				
9-1005-213-10				
9-2300-224-10				
9-2300-257-10				
945-171-0051				
945-171-0052				
945-171-0053				
945-171-0054				
945-171-0055				
941-071-0116				
941-071-0117				
020-171-0172				
941-171-8071				
ARO 101				
INO 316				

FM	TM	TEC	VTR	COR	CRS	GTA	TF
7-11C 1/2							
7-11C/CM							
17-19D 1/2							
17-19D/CM							
23-65							
31-70							
38-750							
9-1005-213-10							
9-2300-224-10							
9-2300-257-10							
945-171-0051							
945-171-0052							
945-171-0053							
945-171-0054							
945-171-0055							
941-071-0116							
941-071-0117							
020-171-0172							
941-171-8071							
ARO 101							
INO 316							
TC 9-1-178							
9-6-3							
9-4434							
17-4667							
17-4668							

2

**CORRECTIVE MAINTENANCE JOB TASKS AND RELATED PERFORMANCE STEPS
FOR
MOS 19E/F**

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60 A1	1. REPLACE TRACK OR TRACK BLOCK.	a. Diagnose/verify fault. b. Loosen track tension. c. Loosen end connectors and partially remove. d. Position track jacks and tighten. e. Remove end connectors. f. Remove track jacks. g. Remove center guide. h. To replace track block, remove additional end connectors and center guide. i. To remove entire track, back tank up until old track is off. j. Install new track or track block in reverse sequence. k. Adjust track tension.
	2. REPLACE ROAD WHEEL AND/OR BEARINGS.*	a. Diagnose/verify fault. b. Break track, if necessary. c. Remove road wheel. d. Inspect hub and bearings. e. Remove and replace hub/bearings if necessary. f. Install replacement parts in reverse order. g. Join track. h. Adjust track tension.
	3. REPLACE ROAD WHEEL ARM.*	a. Diagnose/verify fault. b. Break track. c. Remove road wheel and hub. d. Remove torsion bar. e. Disconnect retainer. f. Use adapter and puller to remove arm. g. Remove old gaskets and seals, if required. h. Install new gaskets and seals. i. Replace arm, torsion bar and road wheel. j. Join track. k. Adjust track tension.

*Mechanic task - done by crew.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	4. REPLACE TORSION BAR.*	a. Diagnose/verify fault. b. Block up support arm. c. Screw adapter onto end of torsion bar. d. Attach puller. e. Remove torsion bar. f. Partially install replacement torsion bar. g. Align splines of bar and anchor. h. Completely install torsion bar. i. Pack cavity with lubricant.
	5. REPLACE SHOCK ABSORBERS.*	a. Diagnose/verify fault. b. Remove cotter pins. c. Remove shock absorber. d. Install in reverse order.
	6. REPLACE COMPEN- SATING IDLER WHEEL HUB AND ARM.*	a. Diagnose/verify fault. b. Break track. c. Remove compensating idler wheel. d. Remove hub. e. Remove outer bearing. f. Remove inner bearing. g. Replace inner bearing cup. h. Install replacement parts in reverse order. i. Adjust track tension.
	7. REPLACE COMPEN- SATING IDLER ASSEMBLY.*	a. Diagnose/verify fault. b. Break track. c. Remove compensating idler wheel. d. Remove track adjusting link assembly. e. Remove compensating idler. f. Remove packing from hull. g. Disassemble idler. h. Replace components as necessary. i. Install spacer. j. Lubricate all bearing surfaces. k. Install in reverse order. l. Adjust track tension.
	8. REPLACE DRIVE SPROCKET.*	a. Diagnose/verify fault. b. Remove rear fender. c. Break track. d. Remove hub and sprocket assembly. e. Install in reverse order. f. Adjust track tension.

*Mechanic task - done by crew.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	9. REPLACE FINAL DRIVE.*	a. Diagnose/verify fault. b. Remove top deck and transmission shroud. c. Remove powerpack. d. Remove rear fender. e. Remove drain plug and drain oil. f. Break track and remove from sprocket. g. Disconnect final drive adapter. h. Remove final drive. i. Install in reverse order. j. Fill with oil.
	10. REPLACE POWER-PACK.*	a. Diagnose/verify fault. b. Block tank front and rear. c. Traverse turret 90 degrees to left or right. d. Put transmission lever in park and turn off master switch. e. Remove top deck and transmission shroud. f. Remove access plates. g. Disconnect generator air duct. h. Disconnect tachometer. i. Disconnect fuel lines. j. Disconnect air cleaner hoses and fire extinguisher tubing. k. Disconnect brake control rods, steering and shifting linkage. l. Disconnect brake cylinder and lines. m. Disconnect universal joint and final drive adapter. n. Disconnect transmission mounting bracket. o. Install sling and raise power plant slightly. p. Disconnect wiring harness. q. Remove powerpack. r. Install in reverse order.
	11. REPLACE AIR CLEANER FILTER.	a. Open access door. b. Remove filter. c. Clean element as required. d. Install in reverse order.
	12. BORESIGHT THE 105 mm MAIN GUN.	a. With tank level, place cross threads on muzzle.

*Mechanic task - done by crew.

**VEHICLE
TYPE**

JOB TASK

PERFORMANCE STEPS

**TANK
M60A1**

- b. Select target 1200 meters away.
- c. Set tank/target range on range-finder.
- d. Set computer (rangefinder) switch to off.
- e. Set super-elevation counter to zero.
- f. Remove firing pin and use hole in breechblock as sight.
- g. Use right telescope of M17A1 binocular (over hole) to align gun on target.
- h. Align gunner's periscope on target and slip scales.
- i. Align telescope on target and slip scales.
- j. Align rangefinder on target and slip scales.
- k. Replace firing pin assembly.

**13. BORESIGHT A COAX
MACHINEGUN.**

- a. Clear the machinegun and disconnect solenoid lead.
- b. Remove receiver assembly.
- c. Loosen support set-screws in gun-mount collar.
- d. Select target 1200 meters away.
- e. Sight through gun, using M17A1 binoculars, and align on target.
- f. When aligned on target, tighten all lock and jam screws.
- g. Adjust brightness of reticle on M44C infinity sight, and align sight on target.
- h. Replace receiver assembly.

**14. REPLACE EVACUATOR
CHAMBER GROUP.**

- a. Remove retaining ring.
- b. Remove evacuator chamber group.
- c. Clean fouled gun surface.
- d. Replace sealing rings, if required.
- e. Lubricate replacement evacuator.
- f. Install evacuator chamber.
- g. Replace retaining ring.

**15. REPLACE AN M32/M36
PERISCOPE.**

- a. Remove passive elbow.
- b. Remove daylight body.
- c. Install in reverse order.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	16. REPLACE THE M37 PERISCOPE.	a. Hold periscope and push up on release bar. b. Remove periscope. c. Install periscope and push up until release bar locks in place.
	17. BORESIGHT THE SEARCHLIGHT.	a. Loosen azimuth lock screws. b. Loosen azimuth adjustment screws, jam nuts, and center beam on target. c. Adjust elevation adjustment screws and center beam in elevation on target. d. Elevate gun 4 mils. e. Realign searchlight and tighten all screws.
	18. REPAIR BREECH BLOCK.*	a. Diagnose/verify fault. b. Remove breech block. c. Disassemble breech block. d. Replace defective parts. e. Clean and lubricate components. f. Assemble and install in reverse order.
	19. REPAIR BREECH OPERATING MECHANISM.*	a. Diagnose/verify fault. b. Remove firing pin components. c. Install eyebolt. d. Secure breech block with chain hoist. e. Lower breech block onto turret floor. f. Remove and inspect components. g. Clean and lubricate components. h. Replace unserviceable parts. i. Assemble and install in reverse order.
	20. MAINTAIN THE COAX MACHINEGUN.	a. Disassemble the weapon. b. Clean the weapon. c. Replace defective parts. d. Lubricate and reassemble the weapon.

*Mechanic task - done by crew.

**PREVENTIVE MAINTENANCE JOB TASKS AND RELATED PERFORMANCE STEPS
FOR
MOS 19E/F**

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	1. BEFORE OPERATION CHECKS.*	a. Check torsion bars. b. Check fire extinguisher handles (external). c. Check loader's and commander's hatches. d. Check manual traverse, manual elevation and turret lock. e. Check driver's hatch. f. Check driver's seat. g. Check driver's escape hatch. h. Check fire extinguisher system. i. Check hydraulic brake system. j. Check master battery indicator light and power plant warning light. k. Check air cleaner housings and doors. l. Check top deck grille doors. m. Check engine and transmission oil coolers. n. Check air cleaner elbows, hoses, and clamps. o. Check restriction indicators. p. Check engine compartment for presence of oil or fuel. q. Check external telephone.
	2. DURING OPERATION CHECKS (Engine running).	a. Check air cleaner blower fans, right and left sides. b. Check restriction indicators, right and left sides. c. Check engine idle speed and accelerator control. d. Check power plant warning light. e. Check gauges on driver's indicator panel. f. Check steering control.

***NOTE: Common to all tasks:**

Clean as needed
 Check bolts, nuts, screws
 Check welds
 Check wires and connections
 Check hoses and lines

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		g. Check shifting control. h. Check hydraulic brake system. i. Check air induction system. j. Check ammunition stowage racks and ammunition ready racks. k. Check gunner's and commander's seats. l. Check intercom sets C-2297/VRC (driver) and 2298/VRC (commander, gunner, and loader). m. Check azimuth control and elevation control. n. Check fire control (elevation) quadrant M13A3 and light source control. o. Check azimuth indicator M28E2. p. Check turret powered traverse, main gun powered elevation and depression, and hydraulic power. q. Check personnel heater (only when heater is used). r. Check and clean rangefinder lenses, periscope windows, and telescope lens (exterior).
	3. AFTER OPERATION CHECKS.	a. Check engine and transmission oil level (engine still running). b. Check rear grille doors. c. Check final drive and sprockets. d. Check roadwheels and hubs. e. Check roadwheel arms. f. Check shock absorbers. g. Check track support rollers and hubs. h. Check track end connectors and wedges. i. Check track center guides. j. Check track pads. k. Check compensating idler wheels and hubs.
	4. BEFORE-FIRING CHECKS.	a. Check gas-particulate system. b. Check stabilization circuits, emergency shut-off and ventilating blower. c. Check hydraulic power supply. d. Check main gun and breech operating group.

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 19E/F**

**TASKS BY EQUIPMENT
M60A1**

CORRECTIVE MAINTENANCE

	FM	TM	
	17-19E 1/2	17-19E/CM	17-19F 1/2
	17-19F/CM	9-2350-215-10	9-2350-215-20
	9-2350-257-10	9-2350-257-20	020-171-1131
	020-171-1132	020-171-1133	020-171-1656
	020-171-1657		
1. Replace Track or Track Block	•	•	•
2. Replace Road Wheel and/or Bearings	•	•	•
3. Replace Road Wheel Arm	•	•	•
4. Replace Torsion Bar			
5. Replace Shock Absorbers			
6. Replace Compensating Idler Wheel Hub and Arm			
7. Replace Compensating Idler Assembly			
8. Replace Drive Sprocket			
9. Replace Final Drive	•	•	•
10. Replace Powerpack			
11. Replace Air Cleaner Filter			
12. Boresight the 105 mm Main Gun	•	•	•
13. Boresight a Coax Machinegun	•	•	•
14. Replace Evacuator Chamber Group			
15. Replace an M32/M36 Periscope	•	•	•
16. Replace the M37 Periscope	•	•	•
17. Boresight the Searchlight	•	•	•
18. Repair Breech Block	•	•	•
19. Repair Breech Operating Mechanism	•	•	•
20. Maintain the Coax Machinegun	•	•	•

										FM	TM	TEC	VTR
										17-19E 1/2			
										17-19E/CM			
										17-19F 1/2			
										17-19F/CM			
										9-2350-215-10			
										9-2350-215-20			
										9-2350-257-10			
										9-2350-257-20			
										020-171-1131			
										020-171-1132			
										020-171-1133			
										020-171-1656			
										020-171-1657			
										020-171-1686			
										020-171-1684			
										020-171-2101			
										020-171-5305			
										020-171-5306			
										020-171-5349			
										020-171-5350			
										020-171-5351			
										020-171-5352			
										020-171-5354			
										020-171-5355			
										945-171-0400			
										945-171-0401			
										945-171-0402			
										945-171-0403			
										-2E/020-171-0009			
										-2E/020-171-0026			
										-2E/020-171-1112			
										-2E/020-171-5023			
										-2E-171-0010			
										-2E-171-7047			
										020-171-1075			
										020-171-8028			
										020-171-9022			
										020-171-9043			
										020-171-9044			
										611-171-1174			
										611-171-1175			
										611-171-9030			

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 19E/F**

**TASKS BY EQUIPMENT
M60A1**

	COR. CRS.						GTA			
	ARO 451	ARO 452	HC 6306	OD 0007	OD 0085	OD 0411	C 17-2-3	SLC 9-9-4	TC 9-1-167	TC 9-1-169
CORRECTIVE MAINTENANCE										
1. Replace Track of Track Block									•	
2. Replace Road Wheel and/or Bearings					•				•	
3. Replace Road Wheel Arm			•		•				•	
4. Replace Torsion Bar					•				•	
5. Replace Shock Absorbers			•						•	
6. Replace Compensating Idler Wheel Hub and Arm									•	
7. Replace Compensating Idler Assembly									•	
8. Replace Drive Sprocket									•	
9. Replace Final Drive			•		•				•	
10. Replace Powerpack				•					•	
11. Replace Air Cleaner Filter										•
12. Boresight the 105 mm Main Gun						•	•			•
13. Boresight a Coax Machinegun						•	•	•		•
14. Replace Evacuator Chamber Group							•			
15. Replace an M32/M36 Periscope							•			
16. Replace the M37 Periscope							•			
17. Boresight the Searchlight						•	•			
18. Repair Breech Block	•						•			
19. Repair Breech Operating Mechanism	•						•			
20. Maintain the Coax Machinegun							•	•		

COR.CRS.	GTA	TF
ARO 451		
ARO 452		
HC 6306		
OD 0007		
OD 0035		
OD 0411		
C 17-2-3		
SLC 9-9-4		
TC 9-1-167		
TC 9-1-169		
TC 9-1-178		
TC 9-3-86		
TC 17-6-5		
9-4321		
9-4322		
9-4355		
17-3429		
17-4651		

and Arm

2

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 19E/F**

**TASKS BY EQUIPMENT
M60A1**

PREVENTIVE MAINTENANCE

	17-19E 1/2	17-19E/CM	17-19F 1/2	17-19F/CM	9-2350-215-10	9-2350-257-10	9-2350-257-20	020-171-1131	020-171-1132	020-171-1686	020-171-1684	020-171-5305	020-171-5306	020-171-5333	020-171-5334
1. Before Operation Checks	•	•	•	•	•	•	•					•	•	•	
2. During Operation Checks	•	•	•	•	•	•	•					•	•		
3. After Operation Checks	•	•	•	•	•	•	•								
4. Before Firing Checks	•	•	•	•	•	•	•								•
5. During Firing Checks					•	•	•								
6. After Firing Checks					•	•	•	•	•	•					
7. Weekly Checks					•	•	•								

[illegible]

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 19E/F**

**TASKS BY EQUIPMENT
M60A1**

PREVENTIVE MAINTENANCE

	GTA							TF						
	SLC 3-4-9	SLC 9-9-4	TC 9-1-178	TC 9-9-3	TC 17-2-7	TC 17-6-5	TC 17-6-8	9-4321	9-4322	9-4355	17-2726	17-2727	17-3429	17-4651
1. Before Operation Checks			•		•		•						•	
2. During Operation Checks			•		•								•	
3. After Operation Checks					•								•	
4. Before Firing Checks	•	•		•			•	•	•	•	•	•		
5. During Firing Checks		•		•		•	•							
6. After Firing Checks		•		•			•				•	•		•
7. Weekly Checks					•									

CORRECTIVE MAINTENANCE JOB TASKS AND RELATED KEY STEPS
FOR
MOS 45N

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	1. REPLACE TURRET SLIP RING BOX	a. Diagnose/verify fault. b. Remove cover shield. c. Turn off master switch and disconnect upper and lower electrical connectors. d. Remove locking wire, ground strap, and cover plate. e. Remove gas particulate hoses. f. Remove slip ring box and mounting bracket from hull. g. Remove all fittings from box. Reinstall on replacement box. h. Install in reverse order. i. Test operation.
	2. REPLACE SLIP RING INTERFERENCE SWITCH.	a. Diagnose/verify fault. b. Turn off master switch. c. Drain hydraulic system. d. Place gun in travel lock. e. Remove slip ring cover shields and plates. f. Disconnect electrical connectors. g. Remove defective switch. h. Install in reverse order. i. Test and adjust.
	3. REPLACE LOADER SAFETY SWITCH.	a. Diagnose/verify fault. b. Turn off master switch. c. Disconnect electrical connectors. d. Remove safety switch and guard. e. Remove switch lead clamps. f. Remove defective switch. g. Install in reverse order. h. Test operation.
	4. REPLACE RESISTOR ASSEMBLY.	a. Diagnose/verify fault. b. Turn off master switch. c. Disconnect electrical connectors. d. Remove control selector assembly. e. Remove screws and nuts. f. Remove gunner's control cover assembly. g. Remove the traverse control bracket assembly.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		h. Remove the elevation control bracket. i. Remove nut-retaining receptacle. j. Remove the resistor assembly. k. Install in reverse order. l. Test operation.
	5. REPAIR MAIN GUN FIRING CIRCUIT.	a. Diagnose/verify fault. b. Repair faulty circuits. c. Test operation.
	6. REPAIR STABILIZATION SYSTEM.	a. Diagnose/verify fault. b. Replace faulty parts. c. Reconnect all electrical connectors. d. Test operation.
	7. REPLACE SUPER-ELEVATION ACTUATOR.	a. Diagnose/verify fault. b. Release hydraulic pressure. c. Remove flexible shaft. d. Remove drive shaft. e. Disconnect hydraulic line. f. Plug open lines and ports. g. Remove superelevation actuator. h. Install in reverse order. i. Charge and bleed system. j. Test operation.
	8. PRIME (CHARGE) MANUAL ELEVATION SYSTEM.	a. Diagnose/verify fault. b. Release gun travel lock. c. Elevate gun under power operation. d. Bleed manual elevation system. e. Prime manual elevation accumulator and recheck manual elevation.
	9. REPLACE ANTI-BACKLASH CYLINDER.	a. Diagnose/verify fault. b. Release hydraulic pressure. c. Disconnect hydraulic lines. d. Remove backlash cylinder. e. Disassemble defective parts. f. Assemble and install in reverse order. g. Charge and bleed system. h. Test operation.
	10. ADJUST TRAVERSING BACKLASH GEAR.	a. Diagnose/verify adjustment needed. b. Remove traverse backlash assembly cover. c. Remove adjusting screw and spring. d. Remove pinion guard plates.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		e. Remove snap rings and drive pinions. f. Adjust hand-traversing drive. g. Install in reverse order. h. Test operation.
	11. REPAIR PIN LOCK.	a. Diagnose/verify fault. b. Turn off master switch. c. Release hydraulic pressure. d. Drain traversing gearbox. e. Disconnect hydraulic lines. f. Plug open lines and ports. g. Remove pin lock and gasket. h. Replace defective components. i. Install in reverse order. j. Charge and bleed system. k. Test operation.
	12. REPLACE TURRET MOTOR.	a. Diagnose/verify fault. b. Turn off master switch. c. Reduce hydraulic pressure. d. Disconnect electrical connector. e. Remove hoses. f. Disconnect electrical ground lead. g. Remove relay box cover. h. Remove motor. i. Install in reverse order. j. Charge and bleed system. k. Check for leaks.
	13. REPAIR MAGNETIC BRAKE.	a. Diagnose/verify fault. b. Replace defective components. c. Test operation.
	14. SERVICE MAIN ACCUMULATOR.	a. Diagnose/verify service needed. b. Turn off turret power. c. Check accumulator pressure. d. Charge accumulator, if necessary e. Check oil level in reservoir, and fill if necessary. f. Turn on turret power and recharge hydraulic system. g. Bleed air from system, if necessary.
	15. REPLACE HYDRAULIC SYSTEM PRESSURE GAUGE.	a. Diagnose/verify fault. b. Release hydraulic pressure. c. Loosen gauge locking nut. d. Remove gauge and gasket. e. Install in reverse order. f. Charge and bleed system. g. Check for leaks.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	16. REPLACE GUNNER'S/ COMMANDER'S POWER	a. Diagnose/verify fault. b. Turn off master switch. c. Reduce hydraulic pressure. d. Remove connecting rod lever. e. Disconnect hydraulic lines. f. Disconnect electrical connectors. g. Remove gunner's switchbox control selector box and mounting bracket. h. Remove gunner's control from riser. i. Coat replacement packings with fire-resistant hydraulic fluid. j. Install packings into replacement gunner's control. k. Install in reverse order. l. Charge and bleed system. m. Check for leaks.
	17. REPLACE SOLENOID VALVE.	a. Diagnose/verify fault. b. Turn off master switch. c. Release hydraulic pressure. d. Remove tee fitting and packing ("O" ring). e. Remove nipple and packing from valve. f. Remove defective valve. g. Install in reverse order. h. Charge and bleed system. i. Check for leaks.
	18. SERVICE M32/M36 PERI- SCOPE.	a. Diagnose/verify fault. b. Make sure mount is seated. c. Clean eye lens and head window. d. Observe operation throughout full diopter movement. e. Check condition of optics. f. Focus eyepiece to assure clear definition. g. Check reticle illumination. h. Check for presence of parallax.
	19. PERFORM SYNCHRONI- ZATION CHECK - (RAMP METHOD).	a. Diagnose/verify synchronization needed. b. Place tank on level ground with rear toward ramp. c. Remove firing mechanism. d. Select a target at a range of 1,200 meters. e. Remove superelevation from computer. f. Charge manual elevation system.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		g. Determine corrective factors using gunner's quadrant for end test. h. Align boresight cross with target. i. Adjust sights. j. Boresight weapon at 89, 178, and 267 mils. k. Back tank up on ramp. l. Check backlash corrective factor at 89, 178, 267 mils. m. Check superelevation. n. Install firing mechanism.
	20. REPLACE M13A2/M13A1D BALLISTIC COMPUTER.	a. Diagnose/verify fault. b. Turn off master switch. c. Disconnect power cable. d. Remove locking wire from couplings. e. Remove flexible shaft. f. Slide back collar. g. Separate driveshaft and computer output shaft. h. Remove computer. i. Install in reverse order. j. Test and adjust tolerance.
	21. REPLACE BALLISTIC COMPUTER CIRCUIT BREAKER.	a. Diagnose/verify fault. b. Turn off master switch. c. Disconnect power cable. d. Remove housing. e. Remove defective circuit breaker. f. Disconnect electrical leads. g. Install in reverse order. h. Test operation.
	22. REPLACE RANGEFINDER.	a. Diagnose/verify fault. b. Turn off master switch. c. Disconnect electrical lead. d. Disconnect ground lead. e. Disconnect mechanical linkage from rangefinder to computer. f. Disconnect on/off switch to computer from rangefinder. g. Remove ballistic shields. h. Remove end housings. i. Use rangefinder housing puller. j. Remove rangefinder. k. Install in reverse order. l. Test and adjust.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	23. REPLACE FIRING SWITCH IN COMMANDER'S CUPOLA.	a. Diagnose/verify fault. b. Turn off master switch. c. Remove firing trigger switch. d. Install replacement switch. e. Test operation.
	24. REPAIR BREECH BLOCK GROUP.	a. Diagnose/verify fault. b. Remove breech block. c. Disassemble breech block. d. Replace defective parts. e. Clean and lubricate components. f. Assemble and install in reverse order. g. Test operation.
	25. REPLACE BREECH OPERATING MECHANISM	a. Diagnose/verify fault. b. Remove firing pin components. c. Install eyebolt. d. Secure breech block with chain hoist. e. Lower breech block onto turret floor. f. Remove and inspect components. g. Clean and lubricate components. h. Replace unserviceable parts. i. Assemble and install in reverse order. j. Test operation
	26. REPLACE REPLENISHER ASSEMBLY.	a. Diagnose/verify fault. b. Drain oil. c. Remove hose assembly. d. Remove replenisher. e. Remove elbow from replenisher. f. Install in reverse order. g. Fill replenisher. h. Check for leaks.
	27. ADJUST/REPLACE MINOR COMPONENTS.	Performance steps for these minor jobs consist basically of removing the defective part and installing replacement part. (See Technical Manual for details.) Equipment components would include, e.g.: - Deck Clearance Switch - Gas Particulate Heaters - Controller Units - No-back - Magnetic Brake Switch - Tank Commander's Override - Periscopes and Sights - Turret Relay Box - Cupola Periscope Linkage - Elevation Cylinder - Palm Switch

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

CORRECTIVE MAINTENANCE TASKS

	643-091-9401	643-091-9402	643-091-9403	643-091-9404	643-091-9405	643-091-9406	643-091-9408	643-091-9409	643-091-9410	643-091-9411	643-091-9412	643-091-9413	643-091-9414	643-091-9415	643-091-9417	643-091-9418
1. Replace Turret Slip Ring Box	•															
2. Replace Slip Ring Interference Switch	•															
3. Replace Loader Safety Switch																
4. Replace Resistor Assembly															•	
5. Repair Main Gun Firing Circuit			•													
6. Repair Stabilization System																•
7. Replace Super-elevation Actuator						•										
8. Prime (Charge) Manual Elevation System																
9. Replace Anti-Backlash Cylinder													•			
10. Adjust Traversing Backlash Gear									•							
11. Repair Pin Lock														•		
12. Replace Turret Motor																
13. Repair Magnetic Brake																
14. Service Main Accumulator																
15. Replace Hydraulic System Pressure Gauge																
16. Replace Gun's/Commdr.'s Pwr Cntrl Handle																
17. Replace Solenoid Valve				•												
18. Service M32/M36 Periscope										•						
19. Perform Synchronization Check (Ramp Method)								•								
20. Replace M13A2/M13A1D Ballistic Computer							•									
21. Replace Ballistic Computer Circuit Breaker																
22. Replace Range Finder								•								
23. Replace Firing Switch in Commander's Cupola																
24. Repair Breech Block Group		•														
25. Replace Breech Operating Mechanism		•														
26. Replace Replenisher Assembly			•													

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

CORRECTIVE MAINTENANCE TASKS

	FM 9-45N 1/2	FM 9-45N/CM	38-750	750-116	9-2350-215-10	9-2350-215-20	9-2350-257-10	9-2350-257-20	11-6625-366-35	020-171-5334	020-171-5335	029-171-5340	020-171-5341	020-171-5342	020-171-5344	101-113-4775	101-113-4776
1. Replace Turret Slip Ring Box	•	•	•		•		•	•	•							•	•
2. Replace Slip Ring Interference Switch	•	•	•		•		•	•	•							•	•
3. Replace Loader Safety Switch	•	•	•		•		•	•	•							•	•
4. Replace Resistor Assembly	•	•	•		•		•	•	•							•	•
5. Repair Main Gun Firing Circuit	•	•	•		•		•	•	•							•	•
6. Repair Stabilization System	•	•	•		•		•	•	•							•	•
7. Replace Super-elevation Actuator	•	•	•		•		•	•	•							•	•
8. Prime (Charge) Manual Elevation System	•	•	•		•		•	•	•							•	•
9. Replace Anti-Backlash Cylinder	•	•	•		•		•	•	•							•	•
10. Adjust Traversing Backlash Gear	•	•	•		•		•	•	•							•	•
11. Repair Pin Lock	•	•	•		•		•	•	•							•	•
12. Replace Turret Motor	•	•	•		•		•	•	•							•	•
13. Repair Magnetic Brake	•	•	•		•		•	•	•							•	•
14. Service Main Accumulator	•	•	•		•		•	•	•							•	•
15. Replace Hydraulic System Pressure Gauge	•	•	•		•		•	•	•							•	•
16. Replace Gun's/Commdr.'s Pwr Cntrl Handle	•	•	•		•		•	•	•							•	•
17. Replace Solenoid Valve	•	•	•		•		•	•	•							•	•
18. Service M32/M36 Periscope	•	•	•	•	•	•	•	•	•					•			
19. Perform Synchronization Check (Ramp Method)	•	•	•	•	•	•	•	•	•								
20. Replace M13A2/M13A1D Ballistic Computer	•	•	•	•	•	•	•	•	•	•			•			•	•
21. Replace Ballistic Computer Circuit Breaker	•	•	•	•	•	•	•	•	•	•			•			•	•
22. Replace Range Finder			•		•		•	•	•		•	•			•	•	•
23. Replace Firing Switch in Commander's Cupola	•	•	•		•		•	•	•							•	•
24. Repair Breech Block Group	•	•	•		•	•	•	•	•								
25. Replace Breech Operating Mechanism	•	•	•		•	•	•	•	•								
26. Replace Replenisher Assembly	•	•	•		•	•	•	•	•								

FM	TM	TEC	VTR	COR.CRS.
FM 9-45N 1/2				
FM 9-45N/CM				
38-750				
750-116				
9-2350-215-10				
9-2350-215-20				
9-2350-257-10				
9-2350-257-20				
11-6625-366-35				
020-171-5334				
020-171-5335				
020-171-5340				
020-171-5341				
020-171-5342				
020-171-5344				
101-113-4775				
101-113-4776				
101-113-4777				
-2E/020-171-0026				
-2E/020/171-1101				
-2E/020/171-1108				
-2E/020/171-7047				
020-171-9043				
020-171-9044				
610-091-0795				
640-171-9022				
643-091-0148				
643-091-0168				
643-091-0180				
670-091-0042				
ARO 451				
HK 4501				
HK 4502				
HK 4503				
OD 0008				
OD 0102				
SY 6301				

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

	FM	TM	TEC	
	FM 9-45N 1/2			
	FM 9-45N/CM			
	38-750			
	750-116			
	9-2350-215-10			
	9-2350-215-20			
	9-2350-257-10			
	9-2350-257-20			
	11-6625-366-35			
	020-171-5334			
	020-171-5335			
	020-171-5340			
	020-171-5341			
	020-171-5342			
	020-171-5344			
	101-113-4775			
	101-113-4776			
	101-113-4777			
	-2E/020-171-0026			
27. Adjust/Replace Minor Components				
- Desk Clearance Valve Solenoid				
- Gas Particulate Heaters				
- Controller Units				
- No-back				
- Magnetic Brake Switch				
- Tank Commander's Override				
- Periscopes and Sights				
- Turret Relay Box				
- Cupola Periscope Linkage (M36)				
- Elevation Cylinder				
- Palm Switch				

FM	TM	TEC	VTR	COR.CRS.
FM 9-45N 1/2				
FM 9-45N/CM				
38-750				
750-116				
9-2350-215-10				
9-2350-215-20				
9-2350-257-10				
9-2350-257-20				
11-6625-366-35				
020-171-5334				
020-171-5335				
020-171-5340				
020-171-5341				
020-171-5342				
020-171-5344				
101-113-4775				
101-113-4776				
101-113-4777				
-2E/020-171-0026				
-2E/020/171-1101				
-2E/020/171-1108				
-2E/020/171-7047				
020-171-9043				
020-171-9044				
610-091-0795				
640-171-9022				
643-091-0148				
643-091-0168				
643-091-0180				
670-091-0042				
ARO 451				
HK 4501				
HK 4502				
HK 4503				
OD 0008				
OD 0102				
SY 6301				

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

TRAINING MATERIALS FOR MPS(O) TASKS - MOS 45N		SPA														
TASKS BY EQUIPMENT M60A1 Tank		643-091-9401	643-091-9402	643-091-9403	643-091-9404	643-091-9405	643-091-9406	643-091-9408	643-091-9409	643-091-9410	643-091-9411	643-091-9412	643-091-9413	643-091-9414	643-091-9415	
27.	Adjust/Replace Minor Components															
	- Desk Clearance Valve Solenoid															
	- Gas Particulate Heaters															
	- Controller Units															
	- No-back															
	- Magnetic Brake Switch															
	- Tank Commander's Override															
	- Periscopes and Sights															
	- Turret Relay Box															
	- Cupola Periscope Linkage (M36)															
	- Elevation Cylinder															
	- Palm Switch															

SPA	GTA	TF
643-091-9401	TC 9-3-76	MF 9-5818
643-091-9402	TC 9-3-83	MF 9-5840
643-091-9403	TC 9-3-86	9-4322
643-091-9404	TC 9-665	17-4651
643-091-9405	TC 17-6-5	17-6097
643-091-9406		
643-091-9408		
643-091-9409		
643-091-9410		
643-091-9411		
643-091-9412		
643-091-9413		
643-091-9414		
643-091-9415		
643-091-9417		
643-091-9418		

PREVENTIVE MAINTENANCE JOB TASKS AND RELATED KEY STEPS
FOR
MOS 45N

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	1. TURRET INSPECTION	a. Check gun shield cover. b. Check gun shield cover. c. Check ammunition racks and stowage boxes. d. Check main accumulator. e. Check turret traversing and hydraulic system. f. Check elevating mechanism. g. Check dischargers and covers. h. Check grenade launcher harnesses, harness guards, and harness housing assembly cover. i. Check discharger brackets and grenade stowage bins. j. Check push button unit.
	2. INSPECTION OF INFRA-RED SIGHTING AND FIRE CONTROL.	a. Check M36 commander's periscope. b. Check M32 gunner's periscope.
	3. MAIN GUN AND GUN MOUNT INSPECTION.	a. Check bore evacuator chamber. b. Check gun tube. c. Check breech operating mechanism. d. Check breechblock closing mechanism and operating handle. e. Check firing contact. f. Check replenisher assembly. g. Check emergency firing device (blasting machine).
	4. CUPOLA INSPECTION.	a. Check hatch assembly. b. Check cupola access doors. c. Check terminal board assembly. d. Check cupola assembly ring gear. e. Check azimuth lock assembly. f. Check cradle assembly. g. Check cupola attaching screws. h. Check azimuth gear box. i. Check elevation screw jack. j. Check electrical parts.
	5. MACHINE GUN INSPECTION.	a. Check machine gun functioning. b. Lubricate if necessary. c. Check cover assembly. d. Check jacket assembly with flash hider or suppressor. e. Check receiver assembly.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	6. INSPECTION OF CON- VENTIONAL SIGHTING AND FIRE CONTROL SYSTEM.	a. Check M28C commander's periscope. b. Check M31 gunner's periscope. c. Check sighting system super-elevation check. d. Check periscope M31 and periscope mount M115. e. Check infinity sight M44C and 8635446. f. Check telescope M105C or M105D and telescope mount M114. g. Check rangefinder M17A1 or M17L. h. Check ballistic computer M13A1D or M13A2. i. Check gunner's quadrant. j. Check elevation quadrant M13A1 or M13A3. k. Check azimuth indicator M28A1. l. Check sighting system.

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

PREVENTIVE MAINTENANCE TASKS

	FM	TM	TEC
	9-45N 1/2	9-45N/CM	38-750
		9-2350-215-10	9-2350-215-20
		9-2350-257-10	9-2350-257-20
		020-171-5334	020-171-5335
		020-171-5340	
1. Turret Inspection			
a. Check gun shield cover		•	•
b. Check ammunition racks and storage boxes		•	•
c. Check main accumulator	•	•	•
d. Check turret traversing & hydraulic system		•	•
e. Check elevating mechanism		•	•
f. Check dischargers and covers		•	•
g. Check grenade launcher. etc.		•	•
h. Check discharger brackets & grenade storage bins		•	•
i. Check push button unit		•	•
2. Inspection of Infrared Sighting & Fire Control			
a. Check M36 commander's periscope		•	•
b. Check M32 gunner's periscope	•	•	•
3. Main Gun & Gun Mount Inspection			
a. Check bore evacuator chamber		•	•
b. Check gun tube		•	•
c. Check breech operating mechanism		•	•
d. Check breechblock closing mechanism & operating handle		•	•
e. Check firing contact		•	•
f. Check replenisher assembly		•	•
g. Check emergency firing device		•	•

	FM	TM	TEC	VTR	SPA	COR.CRS.
	9-45N 1/2					
	9-45N/CM					
	38-750					
	9-2350-215-10					
	9-2350-215-20					
	9-2350-257-10					
	9-2350-257-20					
	020-171-5334					
	020-171-5335					
	020-171-5340					
	020-171-5341					
	020-171-5344					
	-2E/020-171-0026					
	-2E/020-171-1101					
	-2E/020-171-1108					
	-2E/020-171-7047					
	020-171-0054					
	020-171-0055					
	020-171-8028					
	020-171-9043					
	020-171-9044					
	640-171-9022					
	641-091-0382					
	641-091-0065					
	641-091-0387					
	643-091-0148					
	643-091-0180					
	643-091-0451					
	643-091-1004					
	643-171-0048					
	643-171-0049					
	643-171-0050					
	670-091-0042					
	643-091-9402					
	ARO 451					
	HK 4501					
	HK 4502					
	HK 4503					
	OD 0004					
	OD 0008					
	OD 0102					
	SY 6301					

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

PREVENTIVE MAINTENANCE TASKS

		GTA								TF							
		SLC 9-9-4	TC 9-1-168	TC 9-3-76	TC 9-3-80	TC 9-3-83	TC 9-9-3	TC 9-665	TC 17-6-5	TF 9-3216	TF 9-3334	TF 9-3335	TF 9-4322	TF 17-4651			
1. Turret Inspection																	
a. Check gun shield cover		•															
b. Check ammunition racks and storage boxes		•															
c. Check main accumulator		•															
d. Check turret traversing & hydraulic system		•						•									
e. Check elevating mechanism		•						•									
f. Check dischargers and covers																	
g. Check grenade launcher, etc.																	
h. Check discharger brackets & grenade storage bins																	
i. Check push button unit																	
2. Inspection of Infrared Sighting & Fire Control																	
a. Check M36 commander's periscope				•										•			
b. Check M32 gunner's periscope													•				
3. Main Gun & Gun Mount Inspection																	
a. Check bore evacuator chamber								•									
b. Check gun tube								•									
c. Check breech operating mechanism		•						•								•	
d. Check breechblock closing mechanism & operating handle		•						•								•	
e. Check firing contact								•									
f. Check replenisher assembly		•						•									
g. Check emergency firing device		•						•									

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

PREVENTIVE MAINTENANCE TASKS

	FM	TM	TEC	
	9-45N 1/2	9-45N/CM	38-750	9-2350-215-10
			9-2350-215-20	9-2350-257-10
			9-2350-257-20	020-171-5334
			020-171-5335	020-171-5340
			020-171-5341	020-171-5344
			020-171-5344	-2R/020-171-0026
4. Cupola Inspection				
a. Check hatch assembly				
b. Check cupola access doors				
c. Check terminal board assembly				
d. Check cupola assembly ring gear				
e. Check azimuth lock assembly				
f. Check cradle assembly				
g. Check cupola attaching screws				
h. Check azimuth gear box				
i. Check elevation screw jack				
j. Check electrical parts				
5. Machine Gun Inspection				
a. Check machine gun functioning				
b. Lubricate, if necessary				
c. Check cover assembly				
d. Check jacket assembly with flash hider/suppressor				
e. Check receiver assembly				
6. Conventional Sighting/Fire Control Inspection				
a. Check M28C commander's periscope				
b. Check M31 gunner's periscope				
c. Check sighting system superelevation				
d. Check M31 periscope and M115 mount				
e. Check infinity sight M44C and 8635446				
f. Check telescope M105C/D and mount M114				
g. Check rangefinder M17A1 or M1TL				
h. Check ballistic computer M13A1D				
i. Check gunner's quadrant				
j. Check elevation quadrant M13A1 or M13A3				
k. Check azimuth indicator M28A1				
l. Check sighting system				

FM	TM	TEC	VTR										SPA	COR.CRS.
9-45N 1/2														
9-45N/CM														
38-750														
9-2350-215-10														
9-2350-215-20														
9-2350-257-10														
9-2350-257-20														
020-171-5334														
020-171-5335														
020-171-5340														
020-171-5341														
020-171-5344														
-2E/020-171-0026														
-2E/020-171-1101														
-2E/020-171-1108														
-2E/020-171-7047														
020-171-0054														
020-171-0055														
020-171-8028														
020-171-9043														
020-171-9044														
640-171-9022														
641-091-0382														
641-091-0065														
641-091-0387														
643-091-0148														
643-091-0180														
643-091-0451														
643-091-1004														
643-171-0048														
643-171-0049														
643-171-0050														
670-091-0042														
643-091-9402														
ARO 451														
HK 4501														
HK 4502														
HK 4503														
OD 0004														
OD 0008														
OD 0102														
SY 6301														

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**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 45N**

**TASKS BY EQUIPMENT
M60A1 Tank**

PREVENTIVE MAINTENANCE TASKS

4.	Cupola Inspection																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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CORRECTIVE MAINTENANCE JOB TASKS AND RELATED KEY STEPS
FOR
MOS 63N

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	1. REPLACE POWERPACK.	a. Diagnose/verify fault.
		b. Block tank front and rear.
		c. Traverse turret 90 degrees to left or right.
		d. Put transmission lever in park and turn off master switch.
		e. Remove top deck and transmission shroud.
		f. Remove access plates.
		g. Disconnect generator air duct.
		h. Disconnect tachometer.
		i. Disconnect fuel lines.
		j. Disconnect air cleaner hoses and fire extinguisher tubing.
		k. Disconnect brake control rods, steering and shifting linkage.
		l. Disconnect brake cylinder and lines.
		m. Disconnect universal joint and final drive adapter.
		n. Disconnect transmission mounting bracket.
		o. Install sling and raise power plant slightly.
		p. Disconnect wiring harness.
		q. Remove powerpack.
		r. Install in reverse order.
	2. REPLACE VOLTAGE CONTROL BOX.	a. Diagnose/verify fault.
		b. Turn master switch off and disconnect battery.
		c. Disconnect electrical connectors.
		d. Remove control box.
		e. Install new control box and adjust, if appropriate.
	3. REPLACE STARTER.	f. Reconnect electrical connectors.
		a. Diagnose/verify fault.
		b. Remove powerpack.
		c. Remove cable.
		d. Remove starter.
		e. Install replacement starter.
		f. Check starter operation (via "ground-hop").
		g. Replace powerpack.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	4. REPLACE GENERATOR.	a. Diagnose/verify fault. b. Remove powerpack. c. Remove clamps and boot. d. Disconnect electrical connectors. e. Remove cradle and ground strap. f. Remove generator. g. Install in reverse order.
	5. REPLACE ENGINE OIL COOLER.	a. Diagnose/verify fault. b. Remove powerpack. c. Drain engine oil cooler. d. Disconnect oil lines. e. Remove wiring harness and bracket. f. Remove screen. g. Remove oil cooler. h. Install replacement oil cooler. i. Ground-hop and check for leaks. j. Install powerpack.
	6. REPLACE AIR CLEANER BLOWER MOTOR.	a. Diagnose/verify fault. b. Turn master switch off. c. Remove air cleaner cover. d. Remove rubber bushing. e. Disconnect electrical connectors. f. Disconnect hose. g. Remove blower motor. h. Install in reverse order.
	7. REPLACE FAN TOWER SEAL.	a. Diagnose/verify fault. b. Remove back deck. c. Remove fan tower shield. d. Cut lacing wire. e. Remove bolts. f. Remove fan tower. g. Remove seal. h. Install in reverse order.
	8. REPLACE OIL COOLER LINES.	a. Diagnose/verify fault. b. Remove transmission shroud and back deck. c. Remove line. d. Install in reverse order.
	9. ADJUST STEERING CONTROLS AND LINKAGE.	a. Diagnose/verify fault. b. Remove transmission shroud. c. Disconnect rear steering and shifting rods. d. Disconnect batteries. e. Remove powerpack, if necessary.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		f. Adjust upper steering tube.
		g. Adjust lower tube.
		h. Adjust rear steering rod.
		i. Replace transmission shroud/ powerpack.
		j. Road test.
	10. ADJUST SERVO BANDS.	a. Diagnose/verify fault. b. Remove transmission shroud. c. Remove lock plate. d. Position lock nut. e. Adjust adjusting screw by torquing and backing off. f. Align adjusting screw with lock plate and secure lock nut. g. Install lock plate. h. Adjust as necessary. i. Replace transmission shroud.
	11. ADJUST HYDRAULIC BRAKE CONTROLS AND LINKAGE.	a. Diagnose/verify fault. b. Remove transmission shroud. c. Disconnect cable rod end and bell- crank, and insert pins. d. Remove powerpack. e. Remove brake housing covers. f. Adjust brakes. g. Install in reverse order.
	12. REPLACE FIXED FIRE EXTINGUISHERS.	a. Diagnose/verify fault. b. Unscrew connecting head from cylinder. c. Remove discharge line. d. Release straps and remove. e. Install in reverse order. f. Check and reset release valve if necessary.
	13. REPLACE ROAD WHEELS AND/OR BEARINGS.	a. Diagnose/verify fault. b. Break track, if necessary. c. Remove road wheel. d. Inspect hub and bearings. e. Remove and replace hub/bearings, if necessary. f. Install replacement parts in reverse order. g. Join track. h. Adjust track tension.
	14. REPLACE ROAD WHEEL ARM.	a. Diagnose/verify fault. b. Break track. c. Remove road wheel and hub. d. Remove torsion bar.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		e. Disconnect retainer. f. Use adapter and puller to remove arm. g. Remove old gaskets and seals, if required. h. Install new gaskets and seals. i. Replace arm, torsion bar and road wheel. j. Join track. k. Adjust track tension.
	15. REPLACE TORSION BAR.	a. Diagnose/verify fault. b. Block up support arm. c. Screw adapter onto end of torsion bar. d. Attach puller. e. Remove torsion bar. f. Partially install replacement torsion bar. g. Align splines of bar and anchor. h. Completely install torsion bar. i. Pack cavity with lubricant.
	16. REPLACE SHOCK ABSORBERS.	a. Diagnose/verify fault. b. Remove cotter pins. c. Remove shock absorber. d. Install in reverse order.
	17. REPLACE COMPEN- SATING IDLER WHEEL HUB AND ARM/ BEARING.	a. Diagnose/verify fault. b. Break track. c. Remove compensating idler wheel. d. Remove hub. e. Remove outer bearing. f. Remove inner bearing. g. Replace inner bearing cup. h. Install replacement parts in reverse order. i. Join track. j. Adjust track tension.
	18. REPLACE COMPENSAT- ING IDLER ASSEMBLY.	a. Diagnose/verify fault. b. Break track. c. Remove compensating idler wheels. d. Remove track adjusting link assembly. e. Remove hub. f. Remove compensating idler. g. Remove packing from hull.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1		h. Disassemble idler. i. Replace components as necessary. j. Install spacer. k. Lubricate all bearing surfaces. l. Install in reverse order of removal. m. Adjust track tension.
	19. REPLACE DRIVE SPROCKET/HUB.	a. Diagnose/verify fault. b. Remove rear fender. c. Break track. d. Remove hub and sprocket assembly. e. Install in reverse order. f. Torque mounting bolts. g. Adjust track tension.

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N**

**TASKS BY EQUIPMENT
M60A1 Tank**

TRAINING MATERIALS FOR MPS(O) TASKS - MOS 63N	FM	TM	TEC																		
TASKS BY EQUIPMENT M60A1 Tank	9-63N 1/2	9-63N/CM	11-6625-366-35	38-750	9-2350-215-20	020-171-1656	020-171-1657	101-113-4775	101-113-4776	101-113-4777	101-113-7160	610-091-0085	610-091-6051	610-091-6052	610-091-6053	610-091-6054	610-091-6056	610-091-6057	610-091-6068	610-091-6069	611-091-6101
CORRECTIVE MAINTENANCE TASKS																					
1. Replace Powerpack																					
2. Replace Voltage Control Box																					
3. Replace Starter																					
4. Replace Generator																					
5. Replace Engine Oil Cooler																					
6. Replace Air Cleaner Blower Motor																					
7. Replace Fan Tower Seal																					
8. Replace oil Cooler Lines																					
9. Adjust Steering Controls and Linkage																					
10. Adjust Servo Bands																					
11. Adjust Hydraulic Brake Controls and Linkage																					
12. Replace Fixed Fire Extinguishers																					
13. Replace Road Wheels and/or Bearings																					
14. Replace Road Wheel Arm																					
15. Replace Torsion Bar																					
16. Replace Shock Absorbers																					
17. Replace Compensating Idler Wheel Hub and Arm/Bearing																					
18. Replace Compensating Idler Assembly																					
19. Replace Drive Sprocket/Hub																					

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N**

**TASKS BY EQUIPMENT
M60A1 Tank**

CORRECTIVE MAINTENANCE TASKS

CORRECTIVE MAINTENANCE TASKS		VTR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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610-091-0795			
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611-171-0142			
611-171-0152			
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611-171-1174			
611-171-1175			
611-171-8022			
611-171-8024			
611-171-9030			
646-091-0546			
920-091-0565			
921-091-0012			
HC 6306			
OD 0007			
OD 0082			
OD 0085			
OD 0531			
OD 0727			
OD 0729			
SM 1071			
SM 1076			
SM 1085			
SM 1092			
SS 9448			
SY 6304			
C 9-1-183			
C 9-1-184			
TC 9-1-158			
TC 9-1-167			
TC 9-1-170			
TC 9-1-171			
TC 9-104-39			
TC 9-105-12			
TF 9-3536			
TF 9-3650			
TF 9-4926			
TF 9-4934			

PREVENTIVE MAINTENANCE JOB TASKS AND RELATED KEY STEPS
FOR
MOS 63N

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60 A1 (Hull)	1. BEFORE ROAD TEST INSPECTION.	a. Lubricate the vehicle. b. Check wheels, rollers, arms and hubs, and sprockets. c. Check shock absorber, bumper springs, and torsion bars. d. Check tracks, track components, and tension adjuster. e. Check access covers, fenders, and fender storage boxes. f. Check air cleaner. g. Check external telephone. h. Check tow pintle, hooks, and lifting eyes. i. Check lights. j. Check top deck, grille doors, and gun travel lock. k. Check oil coolers, shroud seal, and air cleaner hoses. l. Check power plant. m. Check oil levels. n. Check engine, transmission, u-joints, final drive, and fuel system. o. Check seats. p. Check batteries and electrical wiring and components. q. Check fire extinguisher system. r. Check gas particulate filter and assembly. s. Check driver's hatches and periscope. t. Check drain valves and hull turret seal. u. Check hydraulic brake system. v. Check personnel heater and interior lights, rheostats, and switches.
	2. DURING ROAD TEST INSPECTION.	a. Check starter switch, fuel shut-off, and purge pump. b. Check instrument gages and warning light. c. Check steering controls. d. Check shifting controls. e. Check brake controls. f. Check RPM of governed engine and performance.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
TANK M60A1	3. AFTER ROAD TEST INSPECTION.	a. Check temperature of wheel hubs and shock absorbers. b. Check for leaks. c. Confirm corrections made for operational deficiencies via final road test.

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N**

**TASKS BY EQUIPMENT
M60A1 Tank**

**PREVENTIVE MAINTENANCE TASKS
BEFORE ROAD TEST INSPECTION**

TRAINING MATERIALS FOR MPS(O) TASKS - MOS 63N		FM	TM	TEC																	
TASKS BY EQUIPMENT M60A1 Tank		9-63N 1/2	9-63N/CM	38-750	9-2350-215-20	020-171-2000	610-091-6051	610-091-6052	610-091-6262	610-091-6263	610-029-6259	611-091-0090	611-091-6103	611-091-6104	611-091-6105	611-091-6109	611-091-6110	611-091-6111	611-171-0141	-2E/020-171-0245	-2E/020-171-0246
PREVENTIVE MAINTENANCE TASKS BEFORE ROAD TEST INSPECTION																					
a.	Lubricate the vehicle			•	•	•															
b.	Check wheels, rollers, arms and hubs, and sprockets			•	•																
c.	Check shock absorber, bumper springs and torsion bars			•	•																
d.	Check tracks, track components, and tension adjuster			•	•																
e.	Check access covers, fenders, and fender storage boxes			•	•																
f.	Check air cleaner			•	•						•										•
g.	Check external telephone			•	•																
h.	Check tow pintle, hooks, and lifting eyes			•	•																
i.	Check lights			•	•																
j.	Check top deck, grille doors, and gun travel lock			•	•																
k.	Check oil coders, shroud seal, and air cleaner hoses			•	•																•
l.	Check power plant			•	•																
m.	Check oil levels and service oil filter			•	•														•		
n.	Check engine, transmission, U-joints, final drive, fuel system, and filters			•	•				•	•	•	•	•	•	•						

TM	TEC	VTR	COR.CRS.
38-750			
9-2350-215-20			
020-171-2000			
610-091-6051			
610-091-6052			
610-091-6262			
610-091-6263			
610-029-6259			
611-091-0090			
611-091-6103			
611-091-6104			
611-091-6105			
611-091-6109			
611-091-6110			
611-091-6111			
611-171-0141			
-2E/020-171-0245			
-2E/020-171-0246			
-2E/020-171-0247			
-2E/020-171-0248			
-2E/020-171-0249			
-2E/020-171-1099			
610-091-0110			
611-171-0045			
611-171-0153			
611-171-0156			
611-171-0165			
611-171-1174			
611-171-1175			
611-171-9030			
TVT 17-106			
ARO 102			
HC 6306			
OD 0007			
OD 0082			
OD 0403			
OD 0412			
OD 0420			
OD 0531			
OD 0727			
OD 0728			
RC 1010			
SM 1071			
SM 1076			

MPS(O) TASKS - MOS 63N

PREVENTIVE MAINTENANCE TASKS DURING ROAD TEST INSPECTION

BEFORE ROAD TEST INSPECTION													
a.	Check starter switch, fuel shutoff, and purge pump				•								
b.	Check instrument gages and warning light				•	•							
c.	Check steering controls	•	•	•	•							•	•
d.	Check shifting controls	•	•	•	•							•	•
e.	Check brake controls	•	•	•	•			•	•	•	•	•	•
f.	Check RPM of governed engine and performance				•								
AFTER ROAD TEST INSPECTION													
a.	Check temperature of wheel hubs and shock absorbers				•							•	
b.	Check for leaks				•								
c.	Confirm corrections made for operational deficiencies via final road test.				•								

FM	TM	TEC	COR CRS	TF	VTP	GTA
9-63N 1/2						
9-63N/CM						
38-750						
9-2350-215-20						
		611-091-6104				
		611-091-6105				
		611-091-6109				
		611-091-6110				
		611-091-6111				
		611-091-6112				
		OD 0420				
		HC 6306				
		TF 9-3650				
		TVT 17-107				
		610-091-0013				
		610-091-0093				
		TC 9-1-146				
		TC 9-1-171				

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N**

**TASKS BY EQUIPMENT
M6OA1 Tank**

**PREVENTIVE MAINTENANCE TASKS
BEFORE ROAD TEST INSPECTION**

- | | SLC 3-4-9 | TC 9-1-146 | TC 9-1-147 | TC 9-1-158 | TC 9-1-167 | TC 9-1-170 | TC 9-1-171 | TC 9-1-178 | TC 9-105-12 | TC 9-109-5 | TF 17-6097 |
|--|-----------|------------|------------|------------|------------|------------|------------|------------|-------------|------------|------------|
| a. Lubricate the vehicle | | | | | | | | | | | |
| b. Check wheels, rollers, arms and hubs, and sprockets | | | | | • | | | | | | |
| c. Check shock absorber, bumper springs and torsion bars | | | | | • | | | | • | | |
| d. Check tracks, track components, and tension adjuster | | | | | • | | | | | | |
| e. Check access covers, fenders, and fender storage boxes | | | | | | | | | | | |
| f. Check air cleaner | | | | | | | | • | | | |
| g. Check external telephone | | | | | | | | | | | |
| h. Check tow pintle, hooks, and lifting eyes | | | | | | | | | | | |
| i. Check lights | | | | | | | | | | | |
| j. Check top deck, grille doors, and gun travel lock | | | | | | | | | | | |
| k. Check oil coders, shroud seal, and air cleaner hoses | | | | | | | | | | | |
| l. Check power plant | | | | | | | | | | | |
| m. Check oil levels and service oil filter | | | | | | | | | | • | |
| n. Check engine, transmission, U-joints, final drive, fuel system, and filters | | • | • | • | • | • | • | | | | |

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N**

**TASKS BY EQUIPMENT
M60A1 Tank**

**PREVENTIVE MAINTENANCE TASKS
BEFORE ROAD TEST INSPECTION**

TASKS BY EQUIPMENT M60A1 Tank		FM		TM	TEC																	
		9-63N 1/2	9-63N/CM	38-750	9-2350-215-20	020-171-2000	610-091-6051	610-091-6052	610-091-6262	610-091-6263	610-029-6259	611-091-0090	611-091-6103	611-091-6104	611-091-6105	611-091-6109	611-091-6110	611-091-6111	611-091-6112	611-171-0141	-2E/020-171-0245	-2E/020-171-0246
PREVENTIVE MAINTENANCE TASKS BEFORE ROAD TEST INSPECTION																						
o.	Check seats				•	•																
p.	Check batteries and electrical wiring and components	•	•	•	•	•	•	•	•	•			•	•							•	
q.	Check fire extinguisher system				•	•																
r.	Check gas particulate filter and assembly				•	•																
s.	Check drivers hatches & periscope				•	•																
t.	Check drain valves and hull-turret seal				•	•																
u.	Check hydraulic brake system	•	•	•	•	•										•	•	•	•			
v.	Check personnel heater and interior lights, rheostats and switches				•	•																

TM	TEC	VTR	COR.CRS.
38-750			
9-2350-215-20			
020-171-2000			
610-091-6051			
610-091-6052			
610-091-6262			
610-091-6263			
610-029-6259			
611-091-0090			
611-091-6103			
611-091-6104			
611-091-6105			
611-091-6109			
611-091-6110			
611-091-6111			
611-091-6112			
611-171-0141			
-2E/020-171-0245			
-2E/020-171-0246			
-2E/020-171-0247			
-2E/020-171-0248			
-2E/020-171-0249			
-2E/020-171-1099			
610-091-0110			
611-171-0045			
611-171-0153			
611-171-0156			
611-171-0165			
611-171-1174			
611-171-1175			
611-171-9030			
TUT 17-106			
ARO 102			
HC 6306			
OD 0007			
OD 0082			
OD 0403			
OD 0412			
OD 0420			
OD 0531			
OD 0727			
OD 0728			
RC 1010			
SM 1071			
SM 1076			

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N**

**TASKS BY EQUIPMENT
M6OA1 Tank**

**PREVENTIVE MAINTENANCE TASKS
BEFORE ROAD TEST INSPECTION**

	SLC 3-4-9	TC 9-1-146	TC 9-1-147	TC 9-1-158	TC 9-1-167	TC 9-1-170	TC 9-1-171	TC 9-1-178	TC 9-105-12	TC 9-109-5	TF 17-6097
o. Check seats											
p. Check batteries and electrical wiring and components											
q. Check fire extinguisher system											
r. Check gas particulate filter and assembly											
s. Check drivers hatches & periscope											
t. Check drain valves and hull-turret seal											
u. Check hydraulic brake system											
v. Check personnel heater and interior lights, rheostats and switches											

*Training materials apply to tasks a - n only.

**CORRECTIVE MAINTENANCE JOB TASKS AND RELATED KEY STEPS
FOR
MOS 63N/T**

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	1. REPLACE POWER PLANT.	a. Diagnose/verify fault.
		b. Turn master switch off.
		c. Disconnect battery ground lead.
		d. Remove bulkhead cables.
		e. Drain cooling system.
		f. Remove air cleaner assembly and hose.
		g. Disconnect exhaust system.
		h. Remove radiator hoses and tubes.
		i. Remove fan and drive belts.
		j. Disconnect fuel hose.
		k. Disconnect accelerator pedal linkage and fuel shutoff.
		l. Disconnect shifting linkages.
		m. Remove propeller shaft, oil temperature wire, and oil hoses from transmission differential.
		n. Disconnect starter ground wire.
		o. Remove mounting bolts.
		p. Attach power plant sling to power plant and remove
		q. Install in reverse order.
	2. REPLACE FUEL TANK.	a. Diagnose/verify fault.
		b. Drain fuel tank.
		c. Lower ramp door.
		d. Disconnect batteries.
		e. Remove fuel filler neck.
		f. Remove wiring harness guard.
		g. Remove fuel line guard and ground strap.
		h. Remove inboard shield and top retaining plate.
		i. Remove fuel tank.
		j. Install in reverse order.
	3. REPLACE FUEL SHUT-OFF CONTROL.	a. Diagnose/verify fault
		b. Remove all engine access panels.
		c. Remove fuel shutoff control.
		d. Install replacement fuel shutoff control.
		e. Check for proper adjustment.
		f. Replace panels.
	4. REPLACE HAND THROTTLE CONTROL.	a. Diagnose/verify fault.
		b. Remove panel in driver's compartment

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY		c. Remove hand throttle control.
		d. Install replacement throttle control.
		e. Check for proper adjustment.
		f. Replace panel.
	5. REPLACE COOLING FAN TOWER.	a. Diagnose/verify fault. b. Turn master switch off. c. Raise engine deck assembly and secure. d. Drain cooling system. e. Disconnect rectifier cable, if installed. f. Disconnect exhaust pipe. g. Remove radiator hoses and fan belts. h. Remove fan assemblies. i. Replace washers, gaskets and bushings. j. Install in reverse order. k. Torque mounting bolts to specifications.
	6. REPLACE RADIATOR.	a. Diagnose/verify fault. b. Drain cooling system. c. Disconnect rectifier cables, if fitted. d. Disconnect exhaust pipe. e. Remove radiator vent hoses. f. Remove fan belts. g. Raise and secure engine deck assembly. h. Remove radiator. i. Install in reverse order. j. Fill cooling system. k. Check for leaks.
	7. REPLACE COOLANT PUMP.	a. Diagnose/verify fault. b. Drain cooling system. c. Remove coolant pump drive belts. d. Remove coolant pump and gasket. e. Install in reverse order. f. Adjust pump drive belt. g. Fill cooling system. h. Check for leaks.
	8. REPLACE STARTER.	a. Diagnose/verify fault. b. Disconnect battery cable. c. Drain cooling system. d. Disconnect radiator tubes. e. Remove exhaust pipes. f. Disconnect electrical leads. g. Remove starter. h. Install in reverse order.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	9. REPLACE VOLTAGE REGULATOR.	a. Diagnose/verify fault. b. Remove voltage regulator. c. Install replacement. d. Adjust voltage.
	10. ADJUST TRANS- MISSION LINKAGE.	a. Diagnose/verify fault. b. Remove driver's compartment engine access panel. c. Place transmission in neutral. d. Remove nuts/bolts on range selector link. e. Adjust range selector link. f. Check selector position. g. Replace link bolt and nut. h. Replace panel.
	11. REPLACE TRANS- MISSION CROSS SHAFT.	a. Diagnose/verify fault. b. Remove engine compartment panel. c. Remove accelerator, pedal link, shift link, and throttle valve link. d. Remove power plant wiring harness. e. Remove cross shaft to transmission. f. Remove cross shaft throttle arm. g. Remove transmission control outer cross shaft. h. Install in reverse order.
	12. REPLACE TRANS- MISSION OIL COOLER HOSE AND FITTINGS.	a. Diagnose/verify fault. b. Remove power plant. c. Remove transmission oil cooler hoses. d. Remove fittings from transmission. e. Replace faulty parts. f. Install in reverse order. g. Check for leaks.
	13. ADJUST DIFFERENTIAL CONTROL.	a. Diagnose/verify fault. b. Lower trim vane. c. Block tracks. d. Disconnect oil inlet line (M578 only). e. Remove differential access plugs. f. Turn brake band adjusting nut and position steering lever. g. Measure steering lever release pressure with a pull scale. h. Adjust brake band nut. i. Install access plugs. j. Connect oil inlet line. k. Check for leaks.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	14. REPAIR POWER PLANT WIRING HARNESS.	a. Diagnose/verify fault. b. Disconnect engine wiring harness. c. Test wires for continuity. d. Isolate faulty wire. e. Install replacement wire and check for continuity. f. Reconnect power plant wiring harness.
	15. ADJUST STEERING BRAKE BAND.	a. Diagnose/verify fault. b. Black tracks. c. Position steering levers. d. Measure pressure required to release levers. e. Adjust differential brake. f. Road test.
	16. REPLACE IDLER WHEEL ARM AND SPINDLE.	a. Diagnose/verify fault. b. Remove track shroud. c. Break track. d. Remove idler wheel and spindle. e. Remove hub bearings and seal. f. Remove track adjuster. g. Tighten screws to specified torque. h. Remove idler wheel arm assembly. i. Install in reverse order. j. Adjust track tension.
	17. ADJUST U-JOINT BOLTS.	a. Diagnose/verify fault. b. Remove left front access cover. c. Torque bolts to specifications. d. Replace cover.
	18. REPLACE HOSES/FUEL LINES/DRAINCOCKS.	a. Diagnose/verify fault. b. Check for leaks. c. Remove power plant if necessary. d. Remove defective hose/fuel line/draincock. e. Install replacement hose/fuel line/draincock in reverse order. f. Replace power plant (if removed).
	19. REPLACE EXHAUST SYSTEM COMPONENTS.	a. Diagnose/verify fault. b. Disconnect exhaust pipe. c. Remove flange from muffler. d. Remove grille. e. Remove muffler. f. Install in reverse order.

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N/T**

**TASKS BY EQUIPMENT
M113A1**

CORRECTIVE MAINTENANCE TASKS

	9-63N 1/2	9-63N/CM	9-63T 1/2	9-63T/CM	38-750	9-2300-224-20	9-2300-257-20	11-6625-366-10	101-113-4775	101-113-4776	101-113-4777
1. Replace Power Plant											
2. Replace Fuel Tank	•	•	•	•	•	•	•	•			
3. Replace Fuel Shutoff Control			•	•	•	•	•	•			
4. Replace Hand Throttle Control			•	•	•	•	•	•			
5. Replace Cooling Fan Tower	•	•			•	•	•	•			
6. Replace Radiator			•	•	•	•	•	•			
7. Replace Coolant Pump			•	•	•	•	•	•			
8. Replace Starter	•	•	•	•	•	•	•	•	•	•	•
9. Replace Voltage Regulator					•	•	•	•	•	•	•
10. Adjust Transmission Linkage	•	•	•	•	•	•	•	•			
11. Replace Transmission Cross Shaft	•	•	•	•	•	•	•	•			
12. Replace Transmission Oil Cooler Hose and Fittings	•	•			•	•	•	•			
13. Adjust Differential Control	•	•			•	•	•	•			
14. Repair Power Plant Wiring Harness	•	•			•	•	•	•	•	•	•
15. Adjust Steering Brake Band	•	•			•	•	•	•			
16. Replace Idler Wheel Arm and Spindle	•	•	•	•	•	•	•	•			
17. Adjust U-joint Bolts					•	•	•	•			
18. Replace Hoses/Fuel Lines/Drain Cocks					•	•	•	•			
19. Replace Exhaust System Components			•	•	•	•	•	•			

FM	TM	TEC										VTR									
9-63N 1/2																					
9-63N/CM																					
9-63T 1/2																					
9-63T/CM																					
38-750																					
9-2300-224-20																					
9-2300-257-20																					
11-6625-366-10																					
101-113-4775																					
101-113-4776																					
101-113-4777																					
101-113-7160																					
610-091-0085																					
610-091-6051																					
610-091-6052																					
610-091-6053																					
610-091-6054																					
610-091-6068																					
610-091-6069																					
610-091-6262																					
611-091-6056																					
611-091-6057																					
611-091-6111																					
611-091-6112																					
113-091-0027																					
610-091-0117																					
610-091-0118																					
610-091-0239																					
610-091-0546																					
610-091-0649																					
610-091-0771																					
610-091-0795																					
611-171-0153																					
611-171-0154																					
611-171-0155																					
611-171-0156																					
611-171-0157																					
611-171-0165																					
611-171-0166																					
611-171-6012																					
611-171-8024																					

2

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N/T**

**TASKS BY EQUIPMENT
M113A1**

CORRECTIVE MAINTENANCE TASKS

COR.CRS.														
	HC 6302	OD 0007	OD 0082	OD 0085	OD 0090	OD 0727	OD 0728	OD 0729	SM 1071	SM 1076	SM 1085	SM 1092	SS 9448	SY 6304
1. Replace Power Plant	•	•						•						
2. Replace Fuel Tank														
3. Replace Fuel Shutoff Control														
4. Replace Hand Throttle Control														
5. Replace Cooling Fan Tower	•													
6. Replace Radiator														
7. Replace Coolant Pump	•													
8. Replace Starter	•	•	•			•			•	•	•	•	•	•
9. Replace Voltage Regulator		•	•			•			•	•		•	•	•
10. Adjust Transmission Linkage	•	•			•									
11. Replace Transmission Cross Shaft		•			•									
12. Replace Transmission Oil Cooler Hose and Fittings		•			•									
13. Adjust Differential Control		•			•									
14. Repair Power Plant Wiring Harness		•	•			•						•	•	
15. Adjust Steering Brake Band	•	•			•									
16. Replace Idler Wheel Arm and Spindle	•		•											
17. Adjust U-joint Bolts														
18. Replace Hoses/Fuel Lines/Drain Cocks														
19. Replace Exhaust System Components	•													

COR.CRS.										GTA	TF
HC 6302	•										
OD 0007	•										
OD 0082											
OD 0085											
OD 0090											
OD 0727											
OD 0728											
OD 0729	•										
SM 1071											
SM 1076											
SM 1085											
SM 1092											
SS 9448											
SY 6304											
SY 6307	•										
C 9-1-183											
TC 9-100-31											
TC 9-104-39											
TF 9-3129	•										
TF 9-3146											
TF 9-3147											
TF 9-3536											
TF 9-3691											

2

PREVENTIVE MAINTENANCE JOB TASKS AND RELATED KEY STEPS
FOR
MOS 63N/T

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	1. BEFORE ROAD TEST INSPECTION.	a. Lubricate the vehicle. b. Check wheels, rollers, arms and hubs, and sprockets. c. Check shock absorber, bumper springs, and torsion bars. d. Check tracks, track components, and tension adjuster. e. Check access covers. f. Check tow pintle, hooks, and lifting eyes. g. Check lights. h. Check trim vane. i. Check power plant door, grille, cargo hatch cover, and ramp door. j. Check cooling system radiator cap, hoses, and drive belts. k. Check air cleaner and hoses. l. Check final drives and universal joints. m. Check oil levels. n. Check oil and fuel filters. o. Check engine. p. Check air box heater. q. Check exhaust system, transmission, differential, and transfer gear-case. r. Check ramp and hydraulic system. s. Check bilge pump and torsion bar anchors. t. Check fuel system. u. Check batteries and electrical wiring, interior light and switches. v. Check fire extinguisher. w. Check commander's cupola, hatch cover, and platform. x. Check seats, stowage boxes, clamps, straps, tables, racks, and map board. y. Check driver's hatch and periscopes. z. Check throttle and accelerator controls and linkage, and neutral start switch.

VEHICLE TYPE	JOB TASK	PERFORMANCE STEPS
CARRIER M113A1 FAMILY	2. DURING ROAD TEST INSPECTION.	a. Check instruments, gages, and warning lights. b. Check differential steering and brakes. c. Check pivot steer and reservoirs. d. Check transmission. e. Check RPM of governed engine and performance.
	3. AFTER ROAD TEST INSPECTION.	a. Check temperature of wheel hubs and shock absorbers. b. Check for leaks. c. Insure correction of operational deficiencies with a short final road test.

TASKS BY EQUIPMENT

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FM	TM	TEC	VTR	COR.CRS.	GTA	TF
9-63N 1/2						
9-63N/CM						
9-63T 1/2						
9-63T/CM						
38-750						
9-2300-224-20						
9-2300-257-20						
610-091-6051						
610-091-6052						
610-091-6259						
610-091-6262						
610-091-6263						
611-171-0141						
-2E/020-171-0245						
-2E/020-171-0246						
-2E/020-171-0247						
-2E/020-171-0248						
-2E/020-171-0249						
-2E/020-171-1099						
610-091-0066						
610-091-0117						
610-091-0118						
611-171-0153						
611-171-0156						
611-171-0165						
HC 6302						
OD 0007						
OD 0082						
OD 0085						
OD 0090						
OD 0403						
OD 0412						
OD 0531						
OD 0728						
RC 1010						
SM 1071						
SM 1076						
SY 6307						
TC 9-1-178						
TC 9-105-12						
TC 9-106-31						
TC 9-109-5						
TF 9-3129						
TF 9-3146						
TF 9-3147						
TF 9-3794						

bars
ter

&

2

**TRAINING MATERIALS FOR
MPS(O) TASKS - MOS 63N/T**

**TASKS BY EQUIPMENT
M113A1**

PREVENTIVE MAINTENANCE

During Road Test Inspection

- a. Check instruments, gages & warning lights
- b. Check differential steering and brakes
- c. Check pivot steer and reservoirs
- d. Check transmission
- e. Check engine performance

After Road Test Inspection

- a. Check temp. of wheel hubs/shocks
- b. Check for leaks
- c. Ensure deficiency correction with short road test

FM	TM	TEC	
9-63N 1/2			
9-63N/CM			
9-63T 1/2			
9-63T/CM			
38-750			
9-2300-224-20			
9-2300-257-20			
610-091-6051			
610-091-6052			
610-091-6259			
610-091-6262			
610-091-6263			
611-171-0141			
-2E/020-171-0245			
-2E/020-171-0246			
-2E/020-171-0247			
-2E/020-171-0248			

FM	TM	TEC	VTR	COR.CRS.	GTA	TF
9-63N 1/2						
9-63N/CM						
9-63T 1/2						
9-63T/CM						
38-750						
9-2300-224-20						
9-2300-257-20						
610-091-6051						
610-091-6052						
610-091-6259						
610-091-6262						
610-091-6263						
611-171-0141						
-2E/020-171-0245						
-2E/020-171-0246						
-2E/020-171-0247						
-2E/020-171-0248						
-2E/020-171-0249						
-2E/020-171-1099						
610-091-0066						
610-091-0117						
610-091-0118						
611-171-0153						
611-171-0156						
611-171-0165						
HC 6302						
OD 0007						
OD 0082						
OD 0085						
OD 0090						
OD 0403						
OD 0412						
OD 0531						
OD 0728						
RC 1010						
SM 1071						
SM 1076						
SY 6307						
TC 9-1-178						
TC 9-105-12						
TC 9-106-31						
TC 9-109-5						
TF 9-3129						
TF 9-3146						
TF 9-3147						
TF 9-3794						

**TRAINING MATERIALS FOR M60A1/M113A1 MAINTENANCE TASKS
LISTED BY CATEGORY, NUMBER, TITLE**

NUMBER**TITLE****CORRESPONDENCE COURSES (COR CRS)**

ARO 100	Operator/Crew Maintenance Fundamentals
ARO 101	Scout Vehicle Maintenance
ARO 102	Tank Crew Maintenance
ARO 451	Tank Gunnery-Materiel
ARO 452	Tank Gunnery-Conduct of Fire
HC 6302	Organizational Maintenance of the M113 Carrier Family
HC 6306	Organizational Maintenance of the M60-Series Tanks and the M728 Combat Engineer Vehicle
HK 4501	Introduction to Tank Turret Maintenance
HK 4502	Fundamentals of Tank Turret Components and System
HK 4503	Introduction to 105MM Gun Tank M60A1 Turret
INO 316	Tracked Vehicles
OD 0004	Tank Turret Materiel
OD 0007	Tracked Vehicle Organizational Maintenance
OD 0008	Organizational Maintenance of Tracked Vehicle Armament
OD 0082	Tracked Vehicle Electrical System
OD 0085	Tracked Vehicle Suspension System
OD 0090	Light Tracked Vehicle Transmissions
OD 0102	Turret Artillery Tanks M60 and M60A1
OD 0403	Principles of Fuels and Fuel Systems
OD 0411	Machine Guns
OD 0412	Tracked Vehicle Engines (Compression Ignition)
OD 0420	Medium Tracked Vehicle Transmission
OD 0531	Mechanical Maintenance of Tactical Wheeled and Tracked Vehicles
OD 0727	Electrical Systems and Components
OD 0728	Mechanic Devices and Components
OD 0729	Tracked Vehicle Maintenance
RC 1010	Lead Acid Battery Maintenance
SM 1071	Use and Care of the Optical Antifreeze and Battery Tester
SM 1076	Use and Care of the Battery Hydrometer
SM 1085	Troubleshooting the Ignition System of Tactical Vehicles
SM 1092	Using the LVCT to Test Batteries Under Load
SS 9448	Multimeter TS-352/U
SY 6301	Organizational Maintenance for the Systems Mechanic of the M60A1 and M60A3 Tank and M728 CEV
SY 6304	Test, Measurement, and Diagnostic Equipment (TMDE) (STE/ICE) for the Systems Mechanic
SY 6307	Organizational Maintenance for the Systems Mechanic of the M113A1 Series Vehicle and the M548 Cargo Carrier

FIELD MANUALS (FM)

7-11C 1/2	Indirect Fire Infantryman
7-11C/CM	Infantryman

NUMBER**TITLE****FIELD MANUALS (FM) (Continued)**

9-45N 1/2	Tank Turret Mechanic
9-45N/CM	Tank Turret Mechanic
9-63N 1/2	M60A1/A3 Tank System Mechanic
9-63N/CM	M60A1/A3 Tank System Mechanic
9-63T 1/2	ITV/M113/IFV/CFV Systems Mechanic
9-63T/CM	ITV/M113/IFV/CFV Systems Mechanic
17-19D 1/2	Cavalry Scout
17-19D/CM	Armor Crewman
17-19E 1/2	Armor Crewman (Gunner Loader) M48A5, M60A1, M60A3 Tanks
17-19E/CM	Armor Crewman
23-65	Browning Machinegun, Caliber .50 HB, M2
31-70	Basic Cold Weather Manual

GRAPHIC TRAINING AIDS (GTA)

C 9-1-183	Starting System - Troubleshooting
C 17-2-3	Troubleshooting Guide M60/M60A1 Tank Crew (Turret)
SLC 3-4-9	Gas Particular Filter Unit, Preventive Maintenance
SLC 9-9-4	Machine Gun 7.62mm M219
TC 9-1-146	CD-850-5, 6, 6A Transmissions - Power Flow
TC 9-1-147	CD-850-5, 6, 6A Transmissions - Oil Flow
TC 9-1-158	AVDS, 1790 Engine (M60 Tank)
TC 9-1-167	Tank, M60A1, Organizational Maintenance - Hull
TC 9-1-168	Tank Combat Full Tracked 105MM Gun M60A1 - Organizational Maintenance - Turret
TC 9-1-169	Tank M60A1, Organizational Maintenance - Fire Control
TC 9-1-170	Engine, AVDS 1790-2A (M60A1 Tank)
TC 9-1-171	Transmission, Organizational Maintenance, M60 Tank
TC 9-1-178	Air Cleaners
TC 9-1-184	Troubleshoot Air Cleaner Blower on M60 Series Tank
TC 9-3-76	Rangefinder M17C (M60 Tank)
TC 9-3-80	Telescope, Mount, M21A1
TC 9-3-83	Computer Ballistic M3
TC 9-3-86	M36 Periscope (M60 Tank)
TC 9-9-3	Machine Gun, Caliber .50, M85
TC 9-100-31	Differential, Controlled-Tracked Vehicle
TC 9-104-39	Generating System, 24 Volt
TC 9-105-12	Torsion Bar Suspension
TC 9-109-5	Filter, Oil, Automobile Engine
TC 9-665	Turret Traversing and Gun Evaluating System M48 and M60 Tanks
TC 17-2-7	M60/M60A1 Walk Around Inspection Card

NUMBER**TITLE****GRAPHIC TRAINING AIDS (GTA) (Continued)**

TC 17-6-5	Tank Gunnery: Detection and Correction of Tank Gun Malfunction
TC 17-6-8	Tank Gunnery: Turret Inspection and Preventive Maintenance Services

SKILL PERFORMANCE AID/EXTENSION TRAINING MATERIALS (SPA)

643-019-9401	Replace Turret Electrical Slipping
643-091-9402	Service 105MM Gun Breech Assembly
643-091-9403	Service 105MM Gun Replenisher
643-091-9404	Troubleshoot Main Gun Firing Circuit
643-091-9405	Replace Elevation Shut-Off Valve Solenoid
643-091-9406	Replace Superelevation Actuator
643-091-9408	Replace M13 Ballistic Computer
643-091-9409	Replace M17 Rangefinder
643-091-9410	Synchronization and Backlash Check
643-091-9411	Replace Gunner M32 Periscope Infinity Sight and Perform Parallel Check
643-091-9412	Replace Gunner's Control Handle Magnetic Brake Switch
643-091-9413	Replace No-back Assembly
643-091-9414	Replace Anti-backlash Cylinder
643-091-9415	Perform Pinlock Test
643-091-9417	Replace Resistor Assembly (Hurdle Shaping)
643-091-9418	Troubleshoot Stabilization System

TRAINING EXTENSION COURSES (TEC)

020-171-1131	Clearing, Disassembly, and Assembly of the Coax Machinegun
020-171-1132	Clean, Inspect, and Lubricate M73/M219 Coaxial Machine Gun
020-171-1133	Troubleshooting the Coax Machinegun
020-171-1656	Remove Track on M60 Series Tank
020-171-1657	Install Track on M60 Series Tank
020-171-1684	Assembly/Disassembly Breechblock of 105MM Gun
020-171-1686	Maintenance of Breechblock and Bore Evacuator
020-171-2000	Use the -10 Tech Manual and -12 Lube Order, M60 Tank
020-171-2101	Boresight Main Gun, Rangefinder, General Telescope, and Periscope
020-171-5305	Air Cleaner Maintenance M60A1/A2, Pt. 1
020-171-5306	Air Cleaner Maintenance M60A1/A2, Pt. 2
020-171-5333	Place Turret in Power Operation M60/M60A1
020-171-5334	Prep Ballistic Computer for Operation; M60A1 Tank
020-171-5335	Operation of the Rangefinder
020-171-5339	Place Turret in Power Operation

NUMBER**TITLE****TRAINING EXTENSION COURSES (TEC) (Continued)**

020-171-5340	Rangefinder, Pt. 1 - Familiarization
020-171-5341	Preparing the Ballistic Computer for Operation
020-171-5342	Preparing the Ballistic Computer for Operation
020-171-5344	Rangefinder, Pt. 2
020-171-5349	Boresighting the Main Gun, M60/M60A1 Tank, Pt. 1
020-171-5350	Boresighting the Main Gun, M60/M60A1 Tank, Pt. 2
020-171-5351	Boresight Main Gun, Rangefinder, Telescope & Periscope
020-171-5352	Boresighting the Machine Guns M60/M60A1 Tank
020-171-5354	Boresighting the Xenon Searchlight, M60/M60A1 Tank
020-171-5355	Boresighting the Main Gun, Rangefinder, Telescope/ Periscope, Pt. II
020-171-5366	Before Operations Maintenance, Pt. 1 (M60A1/A2)
020-171-5367	Before Operations Maintenance, Pt. 2 (M60A1/A2)
020-171-5368	During Operations and at Halt Maintenance Checks and Services (M60A1/A2)
020-171-5369	After Operations Maintenance Checks and Services Pt. 1 (M60A1/A2)
020-171-5370	After Operations Maintenance Checks and Services Pt. 2 (M60A1/A2)
101-113-4775	Multimeter, TS-352, Pt. 1 - Resistance
101-113-4776	Multimeter, TS-352, Pt. 2 - Voltage
101-113-4777	Multimeter, TS-352, Pt. 3 - Current
101-113-7160	Measure Resistance and Voltage Using AN/URM 105
610-091-0085	Tracked Vehicle Charging System Testing
610-091-6051	Use and Care of Optical Antifreeze/Battery Tester
610-091-6052	Use and Care of the Battery Hydrometer
610-091-6053	Using the LVCT to Test Batteries Under Load, Pt. 1
610-091-6054	Using the LVCT to Test Batteries Under Load, Pt. 2
610-091-6259	Use Flow Chart to Troubleshoot and Maintain Fuel, Air and Exhaust System
610-091-6068	Troubleshoot Ignition System - Tactical Vehicle, Pt. 1
610-091-6069	Troubleshoot Ignition System - Tactical Vehicle, Pt. 2
610-091-6262	Inspect, Repair Air Intake, Exhaust Systems
610-091-6263	Inspect Fuel System of Detroit Diesel Engine
611-091-0090	Stall Test M60 Series Tank
611-091-6056	Troubleshooting the Starting System, Pt. 1
611-091-6057	Troubleshooting the Starting System, Pt. 2
611-091-6101	Test/Adjust Generator Output, M60 Series Tank
611-091-6102	Troubleshoot Air Cleaner Blower
611-091-6103	Stall Test M60 Series Tank CD850 Transmission
611-091-6104	CD850 Transmission (M60), Oil Pressure Checks
611-091-6105	CD850 Transmission (M60), Check, Adjust, Shift Linkage
611-091-6106	CD850 Transmission (M60), Adjust Low and Reverse Range Bands

NUMBER**TITLE****TRAINING EXTENSION COURSES (TEC) (Continued)**

611-091-6109	M60A1 Tank Brakes
611-091-6110	M60A1 Tank Brakes
611-091-6111	Aline Service Brake Linkage
611-091-6112	Adjust Service Brakes and Brake Air Valve, Pt. 2
611-171-0141	M60A1, Changing the Main Oil Filter
611-171-0144	Test/Adjust Charging Circuit Voltage, M60A1 Tank
611-171-1600	Remove/Install Suspension System, M60, Pt. 1
611-171-1601	Remove/Install Suspension System, M60, Pt. 2
941-171-0116	Caliber .50 Machinegun, Mechanical Training
941-171-0117	Caliber .50 Machinegun, Head Space and Timing
945-171-0051	Before Operations Maintenance M113A1/M577A1, Pt. 1
945-171-0052	Before Operations Maintenance M113A1/M577A1, Pt. 2
945-171-0053	During Operations Maintenance M113A1, M577A1
945-171-0054	During, After Operation Maintenance M113A1, M577A1
945-171-0055	After Operation Maintenance M113A1, M577A1
945-171-0400	Remove Power Plant M60A1 AVDS 1790 2A
945-171-0401	Install Power Plant M60A1 AVDS 1790 2A
945-171-0402	Remove Power Plant M60A1 RISE
945-171-0403	Install Power Plant M60A1 RISE

TRAINING FILMS (TF)

9-3129	Organizational Maintenance of the A710B Engine (M113 APC)
9-3146	Armored Personnel Carrier M113, Pt. I, Steering Brake Band Adjustments
9-3147	Armored Personnel Carrier M113, Pt. II, Shift, Steering and Throttle Control Linkage Adjustments
9-3216	Machinegun, 7.62mm
9-3334	Machinegun, Cal. 50, M85, Pt. I
9-3335	Machinegun, Cal. 50, M85, Pt. II
9-3536	Low Voltage Circuit Tester
9-3650	Tank, M60 and M60A1 - Adjustment of Steering, Shift- ing and Accelerator Linkages
9-3691	Front End Alignment
9-3794	Lubrication of Military Vehicles - Principles of Engine Lubrication
9-4321	M60/M60A1 and M48A3 Tank Fire Control with Infrared - Part II - Power Supplies and Periscopes
9-4322	M60/M60A1 and M48A3 Tank Fire Control with Infrared - Part III - Care and Handling of Periscopes
9-4355	M60/M60A1 and M48A3 Tank Fire Control with Infrared - Part I - Introduction to Infrared (and Visible) Fire Control System
9-4434	Training Film on Daily Crew Maintenance, M113A1

NUMBER**TITLE****TRAINING FILMS (TF) (Continued)**

9-4926	Low Voltage Circuit Tester - Starting System Testing
9-4934	Low Voltage Circuit Tester - Charging System Testing
9-5818	Gun Stabilization System, M60A1 Tank, Pt. 1
9-5840	The M60A1 Tank Gun Stabilization System - Pt. 2
17-2726	Commander's Cupola, M1, Machinegun
17-2727	Commander's Cupola, M1, Machinegun
17-3429	Crew Maintenance Services, MBT M60 and M60A1
17-4651	Disassembly and Assembly of M68 Tank Gun Breech Mechanism
17-4667	Mechanical Training Cal 50, HB, M2 Machinegun - Part I - Disassembly and Assembly
17-4668	Mechanical Training Cal 50, HB, M2 Machinegun - Part II - Headspace, Timing Operation and Immediate Action
17-6097	Operator Maintenance of Gas-Particulate Filter

TECHNICAL MANUALS

9-1005-213-10	Operator's Manual, Machinegun, Cal .50, Browning, M2
9-2300-224-10	Operator's Manual, M113 Family
9-2300-224-20	Organizational Maintenance Manual, M113 Family
9-2300-257-10	Operator's Manual, M113 Family
9-2300-257-20	Organizational Maintenance Manual, M113 Family
9-2350-215-10	Operator's Manual, M60A1 Tank
9-2350-215-20	Organizational Maintenance Manual, M60A1 Tank
9-2350-257-10	Operator's Manual, M60A1 (RISE) Tank
9-2350-257-20	Organizational Maintenance Manual, M60A1 (RISE) Tank
11-6625-366-10	Multimeter TS-352/U
11-6625-366-35	Multimeter, TS-352/U (Calibration)
38-750	The Army Maintenance Management System (TAMMS)
750-116	Purging and Charging of Fire Control Instruments

VIDEO TAPE RECORDINGS (VTR)

TVT 17-106	M60A1 Quarterly Service, Part 1, Before Road Test Inspection
TVT 17-107	M60A1 Quarterly Service, Part 2, During and After Road Inspection
-2E/020-171-0009	Boresighting and Zeroing the M60A1
-2E/020-171-0026	Searchlight Set and Infrared Sight and Fire Control Equipment M60A1
-2E/020-171-0245	Battery Electrical (PM)
-2E/020-171-0246	Air Induction
-2E/020-171-0247	PM Track Suspension

NUMBER**TITLE****VIDEO TAPE RECORDINGS (VTR) (Continued)**

-2E/020-171-0248	PM Cooling Systems
-2E/020-171-0249	PM Fuel and Oil Filters
-2E/020-171-1099	Suspension and Track
-2E/020-171-1100	Coincidence Rangefinder
-2E/020-171-1101	Coincidence Rangefinder
-23/020-171-1103	M85 Machinegun
-2E/020-171-1108	Recoil System and Computer
-2E/020-171-1109	Placing Turret Into Power Operation
-2E/020-171-1112	Boresighting M68
-2E/020-171-1113	Loading and Cleaning M85 Machinegun
-23/020-171-5013	Familiarization with the Turret Fire Control
-2E/020-171-5014	Turret Power Operation
-2E/020-171-5023	Boresighting the Main Gun
-2E-171-0010	Introduction to Boresighting and Zeroing the M60A1
-2E-171-0182	Primary Direct Fire Control System
-2E-171-7047	Detection and Correction of Tank Gun Malfunction
020-171-0017	M60A1 Operator/Crew Maintenance
020-171-0054	M85 Machinegun Pt. III
020-171-0055	M85 Machinegun Pt. I
020-171-0172	M113A1, Before Operation Check
020-171-1075	Boresighting the M60A1 Tank
020-171-8028	M240 Machinegun, Cleaning, Disassembly and Assembly
020-171-9022	M68 Gun, 105MM, Description and Functioning
020-171-9043	M68, 105MM Gun. Removal and Installation of Breech-block Group
020-171-9044	M68, 105MM Gun, Removal and Installation of Breech Operating Mechanism
113-091-0027	TS 352 Multimeter, Review of Test Equipment Operation
310-091-0013	CD850 Band and Brake Adjustment
610-091-0066	STE/ICE - Preventive Maintenance Checks and Services
610-091-0093	CD850 Transmission, End Cover, Brake Operation
610-091-0110	Introduction to CD850 Transmission
610-091-0117	TX-100-1 Transmission Linkage and Adjustment
610-091-0118	TX-100 Transmission Linkage and APC's
610-091-0239	STE/ICE Basic Connections and Tests
610-091-0546	TS-352 Multimeter, Construction, Function and Use
610-091-0649	TS-352 Multimeter, Demonstration
610-091-0771	Introduction to STE/ICE
610-091-0795	TS-352 Multimeter, Interpretation of Meter Readings
611-171-0043	Preventive Maintenance: Fixed Fire Extinguisher System, M60
611-171-0142	Changing the Vertical Shaft Oil Seal, M60A1
611-171-0152	Polarizing a DC Generator
611-171-0153	Battery Voltage Check

NUMBER**TITLE****VIDEO TAPE RECORDINGS (VTR) (Continued)**

611-171-0154	Voltage Line Loss Check
611-171-0155	Uncontrolled Voltage Check
611-171-0156	Battery Specific Gravity Test
611-171-0157	Continuity Test
611-171-0165	Battery Specific Gravity Test, DUO Check
611-171-0166	Starter Relay Resistance Test
611-171-1092	Troubleshooting TM Procedures M60
611-171-1174	Combat Vehicle Power Plant M60A1 Series, Pt. 1
611-171-1175	Combat Vehicle Power Plant M60A1 Series, Pt. 2
611-171-6012	M113A1 APC Power Plant Removal
611-171-8022	Troubleshooting the M60A1 (RISE) 650 Amp Charging System
611-171-8024	Low Voltage Circuit Tester
611-171-9030	Power Plant Removal and Tests, Part I and II, M60A1
641-091-0065	M73 Machingun, Disassembly and Assembly
641-091-0382	M85 Machinegun, Operation
641-091-0387	M73 Machinegun, Functioning
643-171-0048	M85 Machinegun Pt. II
643-171-0049	M85 Machinegun Pt. IV
643-171-0050	M85 Machinegun P. V
643-091-0148	M60 Tank, Charging the Manual Accumulator
643-091-0168	Synchronization and Alinement of M60 Tank
643-091-0180	M60A1 Tank, 105MM, Replenisher-Disassembly and Assembly
643-091-0451	M60A1 Tank Turret Inspection
643-091-1004	M60 Tank Turret Traversing Mechanism, Installation
646-091-0546	TS-352 Multimeter, Construction, Function, and Use
670-091-0042	Introduction to M13 Series Ballistic Computers
920-091-0565	M60A1, Powerpack Removal, Role of Enlisted Women in Maintenance
921-091-0012	M60A1, Powerpack Removal by All Woman Team
941-171-8071	M2, Cal .5 MB, RB, TT, Clearing, Assembly, Headspace and Timing Adj.