

**TM 9-1727B**

**RESTRICTED**

**W A R   D E P A R T M E N T**

**TECHNICAL MANUAL**



**ORDNANCE MAINTENANCE**

**ENGINE COOLING, ENGINE ELECTRICAL  
AND ENGINE FUEL SYSTEMS FOR LIGHT  
TANK M5 AND 75-MM HOWITZER  
MOTOR CARRIAGE M8**

**JANUARY 4, 1943**



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**WAR DEPARTMENT**  
**Washington, January 4, 1943**

**ORDNANCE MAINTENANCE**

**ENGINE COOLING, ENGINE ELECTRICAL AND ENGINE  
 FUEL SYSTEMS FOR LIGHT TANK M5 AND 75-MM  
 HOWITZER MOTOR CARRIAGE M8**

**Prepared under the direction of  
 the Chief of Ordnance**  
 (with the cooperation of the Cadillac Motor Car Division,  
 General Motors Corporation)

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\* This manual contains such information from TB 700-20, October 13, 1942, and TB 700-23, November 11, 1942, as is applicable to this materiel.

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**ORDNANCE MAINTENANCE — ENGINE COOLING, ENGINE ELECTRICAL AND ENGINE FUEL SYSTEMS  
FOR LIGHT TANK M5 AND 75-MM HOWITZER MOTOR CARRIAGE M8**

**Section I**

**INTRODUCTION**

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**1. SCOPE.**

a. This manual is published for the information and guidance of ordnance maintenance personnel charged with maintenance and overhauling of the Light Tank M5 and the 75-mm Howitzer Motor Carriage M8. It includes complete maintenance information on the engine cooling system, engine electrical system, and the engine fuel system. The other technical manuals covering these vehicles are listed in section V.

**2. CHARACTERISTICS.**

a. **Light Tank M5.** The Light Tank M5 (fig. 1) is an armored, full track-laying combat vehicle carrying a crew of 4 men. It is powered by 2 liquid-cooled, 90-degree, V-type, 8-cylinder Cadillac engines located in the engine compartment in the rear of the hull. Power is transmitted to the final drives and tracks through 2 Hydra-matic transmissions, 2 propeller shafts, a 2-speed, step-down transfer unit, and the controlled differential (fig. 3).

b. **75-mm Howitzer Motor Carriage M8.** The 75-mm Howitzer Motor Carriage M8 (fig. 2) is an armored, full track-laying, self-propelled mount for a 75-mm howitzer. It carries a crew of 4 men. It is powered by the same type of equipment as the Light Tank M5.

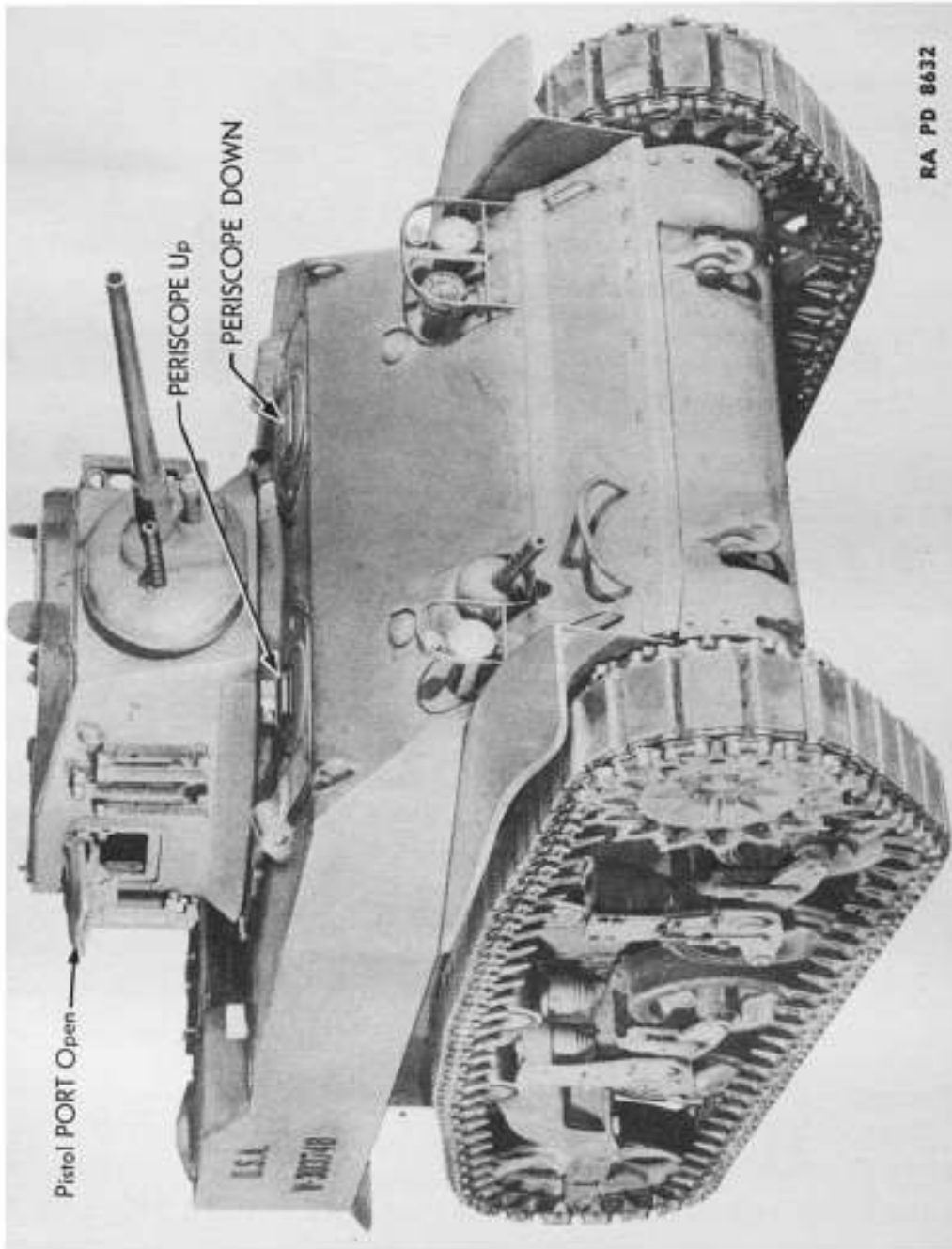
**3. ARRANGEMENT OF MANUAL.**

a. Section II covers the inspection, disassembly, assembly, maintenance, repair, and shipping and storage of all components of the engine cooling system. Section III covers the components of the engine electrical system, and section IV covers the components of the fuel system in the same detail. Section V lists all standard nomenclature lists, technical manuals and other publications pertinent to the materiel described herein.

**4. ORGANIZATION MAINTENANCE.**

a. **Scope.** The scope of maintenance and repair by the crew and other units of the using arms is determined by the availability of suitable

# INTRODUCTION



**Figure 1 — Light Tank, M5 — Right Front View**

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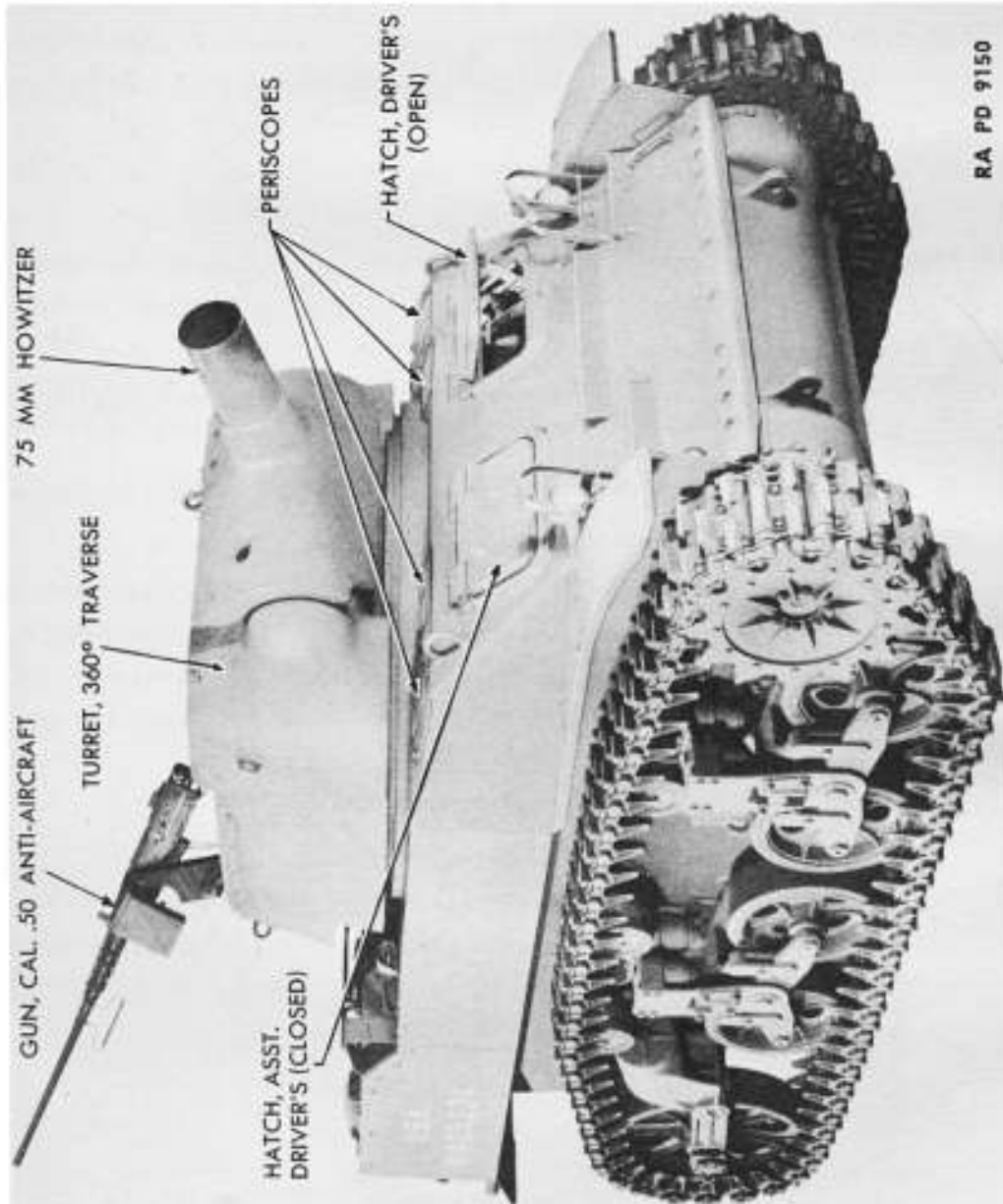


Figure 2 — 75-MM Howitzer Motor Carriage M8 — Right Front View

## INTRODUCTION

tools, availability of necessary parts, capabilities of the mechanics, time available, and the tactical situation. All of these are variable and no exact system of procedure can be prescribed.

**b. Allocation.** Indicated below are the maintenance duties for which tools and parts have been provided for the using arm personnel. Other replacements and repairs are the responsibility of ordnance maintenance personnel but may be performed by using arm personnel when circumstances permit, within the discretion of the commander concerned. Echelons and words as used in this list of maintenance allocations are defined as follows:

**SECOND ECHELON:** Line organization regiments, battalions, companies, detachments, and separate companies.

**THIRD ECHELON:** Ordnance light maintenance companies, ordnance medium maintenance companies, ordnance divisional maintenance battalions, and post ordnance shops.

**FOURTH ECHELON:** Ordnance heavy maintenance companies, and service command shops.

**FIFTH ECHELON:** Ordnance base regiments, ordnance bases, arsenals, and manufacturers' plants.

**SERVICE:**

(Including preventive maintenance.) Refer to AR 850-15, paragraph 23 a (1) and (2). Consists of servicing, cleaning, lubricating, tightening bolts and nuts, and making external adjustments of subassemblies or assemblies and controls.

**REPLACE:**

Refer to AR 850-15, paragraph 23 a (4). Consists of removing the part, subassembly or assembly from the vehicles and replacing it with a new or reconditioned or rebuilt part, subassembly or assembly, whichever the case may be.

**REPAIR:**

Refer to AR 850-15, paragraph 23 a (3) and (5), in part. Consists of making repairs to, or replacement of the part, subassembly or assembly that can be accomplished without completely disassembling the subassembly or assemblies, and does not require heavy welding, or riveting, machining, fitting and/or alining or balancing.

**REBUILD:**

Refer to AR 850-15, paragraph 23 a (5) in part, and (6). Consists of completely reconditioning and replacing in serviceable condition any unserviceable part, subassembly or assembly of the vehicle, including welding, riveting, machining, fitting, alining, balancing, assembling and testing.

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ENGINE	ECHELONS			
	2nd	3rd	4th	5th
Bearing, transmission mainshaft, pilot—replace . . .		X		
Bearings, camshaft—replace . . . . .			E	X
Bearings, connecting rod—replace . . . . .		E	E	X
Bearings, crankshaft, main—replace . . . . .		E	E	X
Block, cylinder and crankcase assembly—rebuild (recondition) . . . . .			E	X
Carburetor—replace . . . . .	X			
Carburetor—repair . . . . .		X		
Carburetor—rebuild . . . . .			E	X
Chain, timing—replace . . . . .		E	X	
Crankshaft, flywheel and flywheel cover—replace as a complete assembly . . . . .			E	X
(NOTE: These parts must be balanced as a complete assembly.)				
Eccentric, fuel pump drive—replace . . . . .		X		
*Engine transmission assembly—replace . . . . .		X		
Engine transmission assembly—repair . . . . .		E	X	
Engine transmission assembly—rebuild . . . . .			E	X
Float and screen, oil pump—replace . . . . .	E	X		
Gage, oil pressure, unit—replace . . . . .	X			
Gaskets, cylinder head—replace . . . . .	X			
Gear, idler, distributor drive—replace . . . . .		E	X	
Generator—replace . . . . .	X			
Generator—repair . . . . .		X		
Generator—rebuild . . . . .			X	
Heads, cylinder—replace . . . . .	E	X		
Lifter assemblies, valve—replace . . . . .	E	X		
Lifter assemblies, valve—repair . . . . .		E	X	
Lifter assemblies, valve—rebuild . . . . .			E	X
Lines, oil external—clean, repair and replace . . .	X			
Manifold, exhaust, intake, and gaskets—replace . .	E	X		
Muffler, exhaust pipe, and gaskets—replace . . . .	E	X		

\*The second echelon is authorized to remove and reinstall engine transmission assemblies, transfer unit controlled differential assembly, and other items marked by asterisk. When it is necessary, however, to replace an item marked by an asterisk with a new or rebuilt part, subassembly or unit assembly, the assembly marked by asterisk will not be removed from the vehicle by the second echelon until authorization is received from a higher echelon.



**INTRODUCTION**

ENGINE	2nd	ECHELONS		
		3rd	4th	5th
Pan, oil—clean and replace gaskets.....	X			
Pins, piston—replace .....		E	E	X
Pistons—replace .....		E	E	X
Pulley, crankshaft, fan, generator, and water pump drive—replace .....	E	X		
Pumps, fuel—replace .....	X			
Pumps, fuel—repair .....		X		
Pumps, fuel—rebuild .....			X	
Pump, oil—replace .....	E	X		
Pump, oil—repair .....		E	X	
Pump, oil—rebuild .....			E	X
Rings, piston—replace .....		E	E	X
Rods, connecting—replace .....		E	E	X
Shaft, oil pump, and distributor drive—replace...		E	X	
Springs, valve—replace .....	E	X		
Sprockets, timing—replace .....		E	E	X
Starter, assembly—replace .....	X			
Starter, assembly—repair .....		X		
Starter, assembly—rebuild .....			X	
Valve, guide, bushings—replace .....		E	E	X
Valve, plunger unit assembly—replace.....		E	X	
Valve, plunger unit assembly—repair.....			E	X
Valves—replace .....		E	X	
Valves—reface .....		E	E	X
Valves, seat—reseat .....		E	E	X
Ventilator, crankcase, and lines—service or replace		X		
<b>ENGINE COOLING SYSTEM</b>				
Belts, generator, water pump, and fan—replace..	X			
Fan and hub assembly—replace.....	E	X		
Fan and hub assembly—rebuild.....		E	X	
Fan shroud assembly—replace.....	X			
Fan shroud assembly—repair.....		X		
Pump, water—replace .....	X			
Pump, water—repair .....		X		
Pump, water—rebuild .....			X	
Radiator and connections—service (cleaning and flushing) and replace.....	X			

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	ECHELONS			
	2nd	3rd	4th	5th
<b>ENGINE COOLING SYSTEM</b>				
Radiator core and/or assembly—rebuild.....			E	X
Radiator assembly — repair (replace core and gaskets) .....		E	X	
Radiator thermostat—replace .....	X			
<b>ELECTRICAL SYSTEM</b>				
Apparatus box assembly (generator regulator) — replace .....	X			
Apparatus box assembly (generator regulator) — adjust, repair .....		X		
Apparatus box assembly (generator regulator) — rebuild .....			X	
Auxiliary generator—replace .....	X			
Auxiliary generator—repair .....		X		
Auxiliary generator—rebuild .....			E	X
Battery—replace, recharge, and service.....	X			
Battery—repair .....		X		
Battery—rebuild .....			E	X
Conduits and wiring, electrical—replace.....	E	X		
Conduits and wiring, electrical—repair.....		E	X	
Filters, electrical—replace .....	X			
Filters, electrical—repair .....		E	X	
Lights, all—service and replace .....	X			
Lights, all—rebuild .....		E	X	
Siren—replace .....	X			
Siren—repair .....		X		
Siren—rebuild .....			X	
Switch, battery—replace .....	X			
Switch, battery—repair .....		X		
Switch, siren—replace .....	X			
Switch, siren—repair .....		X		
<b>IGNITION (ELECTRICAL SYSTEM)</b>				
Coil, ignition—replace .....	X			
Condenser, distributor—replace .....	X			
Distributor and cap assembly—replace.....	X			
Distributor assembly—repair .....		X		