

TM 9-1727F

R E S T R I C T E D

WAR DEPARTMENT

TECHNICAL MANUAL



ORDNANCE MAINTENANCE

**ELECTRICAL SYSTEM, INSTRUMENTS, AND,
AUXILIARY GENERATOR FOR LIGHT TANKS
M5, M5A1, AND 75-MM HOWITZER MOTOR
CARRIAGE M8**

J U N E 4, 1943

FOR ORDNANCE PERSONNEL ONLY

*TM 9-1727F

RESTRICTED

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WAR DEPARTMENT
Washington, June 4, 1943

ORDNANCE MAINTENANCE
ELECTRICAL SYSTEM, INSTRUMENTS, AND AUXILIARY
GENERATOR FOR LIGHT TANKS M5, M5A1, 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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ORDNANCE MAINTENANCE — ELECTRICAL SYSTEM, INSTRUMENTS, AND AUXILIARY GENERATOR FOR LIGHT TANKS M5, M5A1, AND 75-MM HOWITZER MOTOR CARRIAGE M8**Section I****INTRODUCTION**

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1. PURPOSE AND SCOPE.

a. Technical Manual TM 9-1727F is published for the information and guidance of all ordnance personnel charged with the maintenance and overhauling of the Light Tanks M5, M5A1, and the 75-mm Howitzer Motor Carriage M8, and all of their mechanical components.

b. Technical Manual TM 9-1727F covers the Light Tank M5, Light Tank M5A1, and 75-mm Howitzer Motor Carriage M8. It includes complete maintenance information on electrical system, instruments, and auxiliary generator. The other Technical Manuals covering these vehicles are listed in section XI at the back of the book.

2. DESCRIPTION OF VEHICLES.

a. The Light Tanks M5 and M5A1 (figs. 1 and 2) are armored, full track-laying combat vehicles which carry a crew of four men. They are powered by two liquid-cooled, 90-degree, V-type, 8-cylinder Cadillac engines, located in a compartment in the rear of the hull. Power is transmitted to the final drives and tracks through two Hydra-Matic transmissions, two propeller shafts, a two-speed transfer unit, and the controlled differential (fig. 4).

b. The 75-mm Howitzer Motor Carriage M8 (fig. 3) is an armored, full track-laying, self-propelled mount for a 75-mm howitzer. It carries a crew of four men and is powered by the same engines, transmissions, and power train as the Light Tanks M5 and M5A1 (fig. 5).

3. DESCRIPTION OF COMPLETE ELECTRICAL SYSTEM.

a. The electrical systems of the Light Tanks M5, M5A1, and the 75-mm Howitzer Motor Carriage M8 are basically the same. Each system consists of a 12-volt battery, apparatus, instrument panel, lighting system, filters, starters, generators, regulators, and the necessary conduits, wires, and junction boxes to connect these units. The starters, generators,

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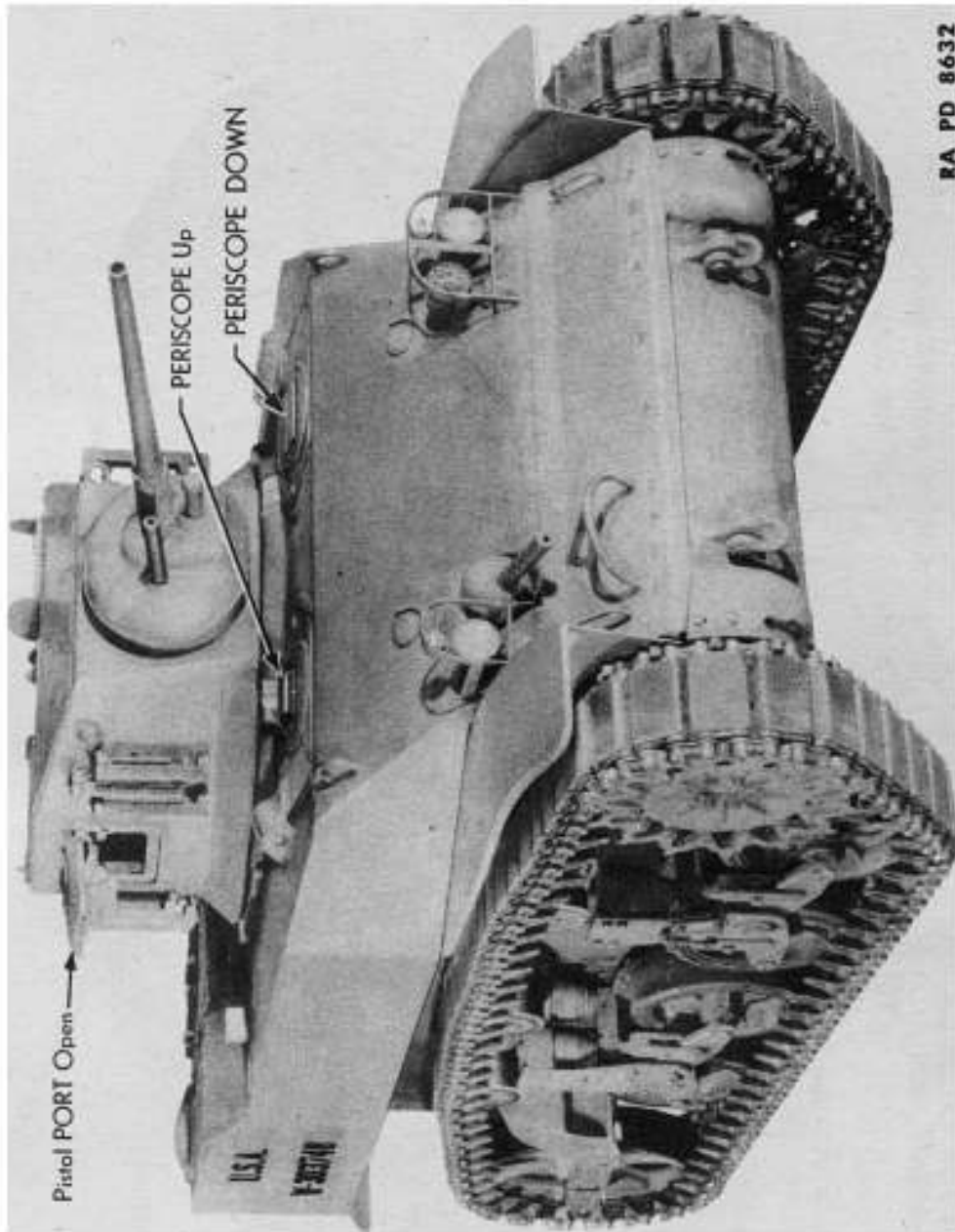
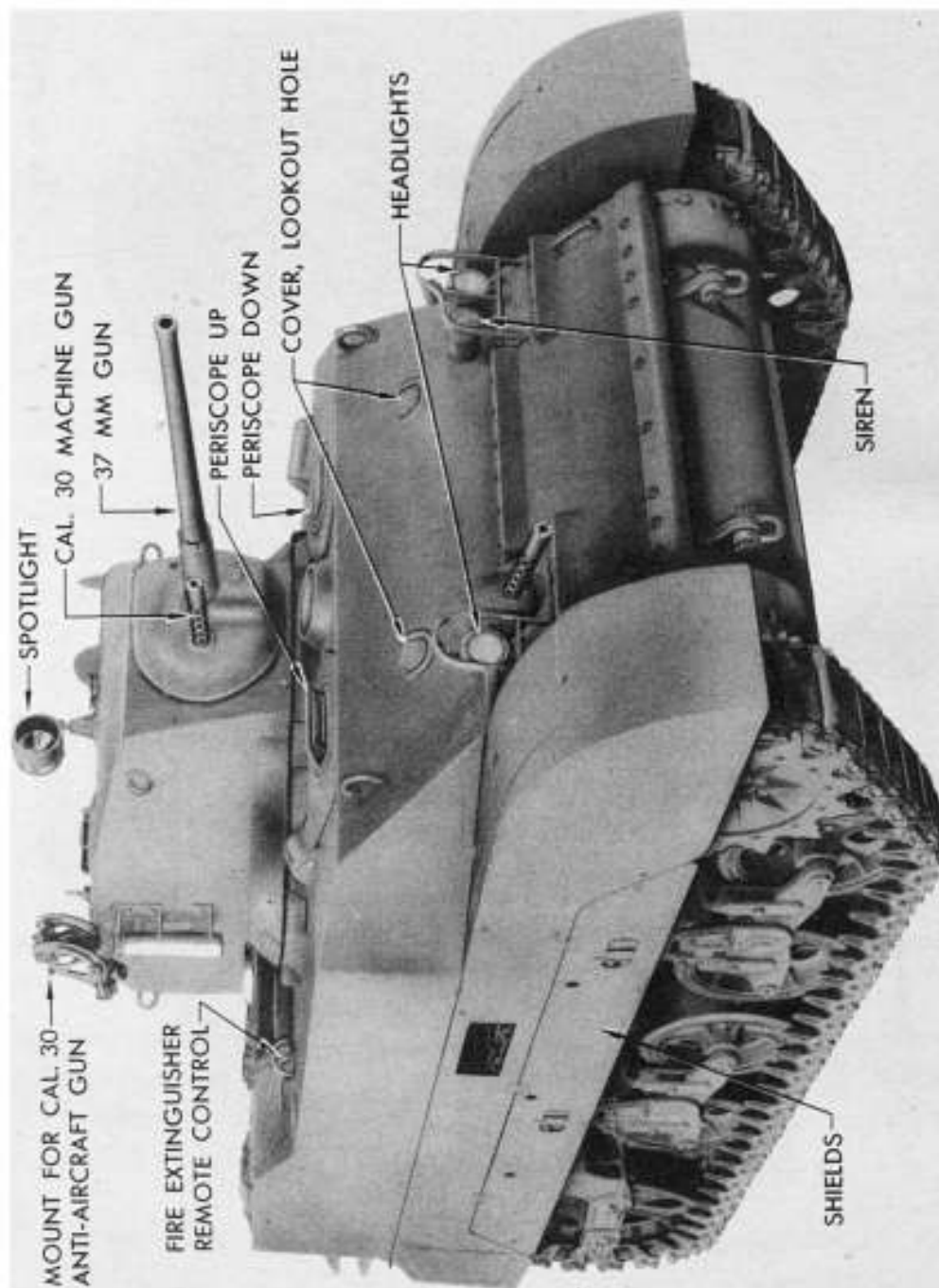


Figure 1 – Light Tank M5, Right Front View

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Figure 2 — Light Tank M5A1, Right Front View

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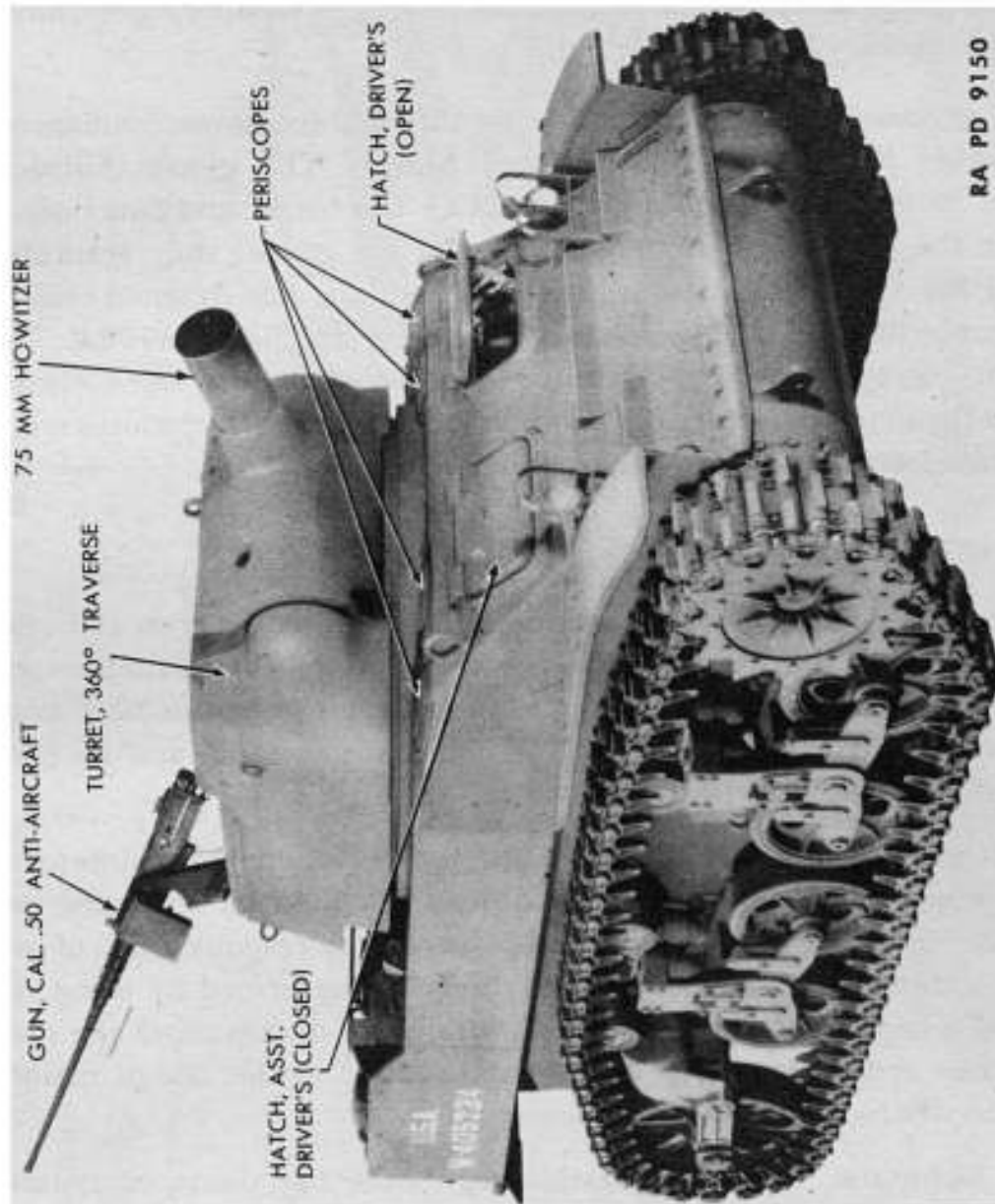


Figure 3—75-mm Howitzer Motor Carriage M8, Right Front View

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and regulators form a part of the engine electrical system, which is completely covered in TM 9-1727B, and will receive no detailed treatment in this manual.

b. The Light Tanks M5 and M5A1 have an auxiliary generator for supplementing the vehicle battery in times of heavy current draft due to the use of the gyro-stabilizer and the hydraulic turret traverse motor. This unit is also used for charging the battery. The auxiliary generator is covered in section X of this manual.

c. A gyro-stabilizer and a hydraulic turret traverse mechanism are incorporated in Light Tanks M5 and M5A1. The gyro-stabilizer is attached to the combination gun mount in the turret and functions to maintain the positioning of the guns so that the gunner may accurately aim and fire them while the vehicle is in motion. For detailed maintenance procedure on the gyro-stabilizer, refer to TM 9-1798A. The hydraulic turret traverse mechanism is powered by the same electric motor as the gyro-stabilizer. For complete maintenance procedures on the turret traverse mechanism refer to TM 9-1727K.

4. ECHELON BREAKDOWN OF MAINTENANCE.

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

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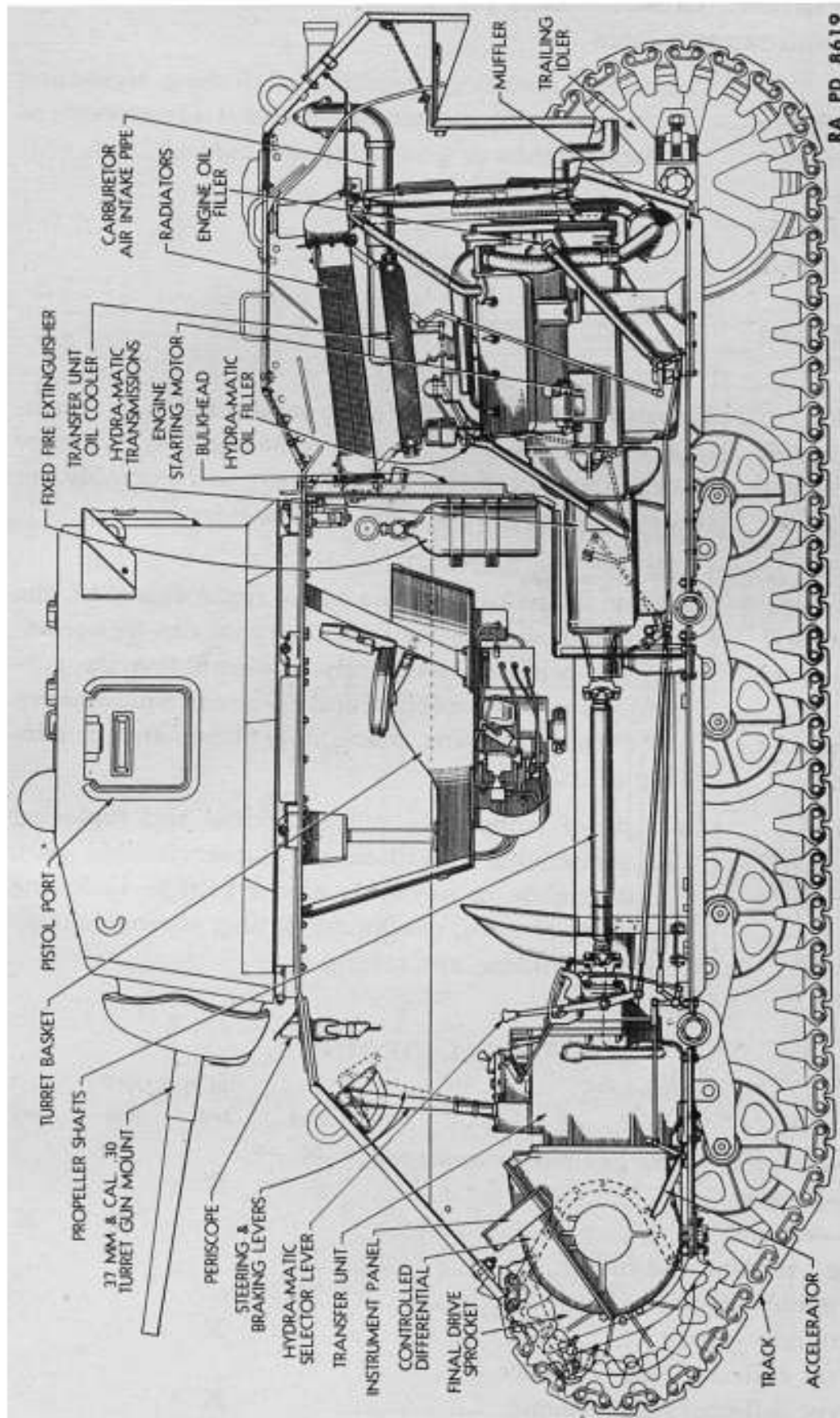


Figure 4 — Light Tank M5, Longitudinal Section

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

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

REPLACE: 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.
Refer to AR 850-15, paragraph 23 a (4).

REPAIR: 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.
Refer to AR 850-15, paragraph 23 a (3) and (5), in part.

REBUILD: 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.
Refer to AR 850-15, paragraph 23 a (5) in part, and (6).

ELECTRICAL GROUP

	2nd	ECHELONS		
		3rd	4th	5th
Battery—service, recharge, and/or replace....	X			
Battery—repair		X		
Battery—rebuild			E	X
Box, fuse—replace and repair.....	X			
Box, terminal—replace	X			
Box, terminal—repair		X		
Box, turret collector ring—replace.....	X			
Box, turret collector ring—repair.....		X		
Box, turret collector ring—rebuild			X	