

# TM 9-731E

WAR DEPARTMENT TECHNICAL MANUAL

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## CARRIAGE, MOTOR, 105-MM HOWITZER, M7

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This Technical Manual supersedes TM 9-731E, dated 5 January 1943, including Changes No. 1, dated 23 February 1944; and WDTB 9-731E-8, dated 18 February 1944. It also includes all pertinent information from OFSTB 700-15, dated 21 July 1942; OFSTB 700-30, dated 9 January 1943; OFSTB 700-66, dated 11 June 1943; WDTB ORD 20, dated 24 January 1944; WDTB ORD 41, dated 12 February 1944; WDTB ORD 83, dated 25 April 1944; and WDTB ORD 126, dated 19 July 1944.

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105-MM HOWITZER,  
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*WAR DEPARTMENT*

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*15 AUGUST 1944*

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**WAR DEPARTMENT**  
Washington 25, D. C., 15 August 1944

TM 9-731E, Carriage, Motor, 105-mm Howitzer, M7, is published for the information and guidance of all concerned.

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**BY ORDER OF THE SECRETARY OF WAR:**

**G. C. MARSHALL,**  
*Chief of Staff.*

**OFFICIAL:**

**J. A. ULIO,**  
*Major General,*  
*The Adjutant General.*

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**(For explanation of symbols, see FM 21-6.)**

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**PART ONE — GENERAL**

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**Section I****INTRODUCTION****1. SCOPE.**

a. These instructions are published for the information and guidance of the personnel to whom this equipment is assigned. It contains information on the operation and maintenance of the 105-mm Howitzer Motor Carriage M7, as well as descriptions of the major units and their functions in relation to the other components of this vehicle.

b. This manual has the following arrangement:

(1) Part One, General, contains description and data. It lists the tools, spare parts, and equipment carried on the vehicle. It also lists organizational special tools for the vehicle.

(2) Part Two, Operating Instructions, contains instructions for the operation of the vehicle with description and location of the controls and instruments.

(3) Part Three, Maintenance Instructions, contains information needed for the performance of the scheduled lubrication and preventive maintenance services, and instructions for maintenance operations which are the responsibility of the using organizations (first and second echelons). Stock numbers in this part were obtained from the ORD 7 (Organizational Spare Parts and Equipment List) of SNL G-128.

(4) Part Four, Armament, lists the authorized ammunition and sighting equipment, and contains the essential instructions for the operation of the 105-mm Howitzer M2A1.

(5) The appendix contains instructions for shipment and limited storage, and a list of references which includes standard nomenclature lists, technical manuals, and other publications applicable to the vehicle.

**2. RECORDS.**

a. Forms and records applicable for use in performing prescribed operations are listed below with brief explanations of each.

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(1) **STANDARD FORM No. 26, DRIVER'S REPORT—ACCIDENT, MOTOR TRANSPORTATION.** One copy of this form will be kept with the vehicle at all times. In case of an accident resulting in injury or property damage, it will be filled out by the driver on the spot, or as promptly as practical thereafter.

(2) **WAR DEPARTMENT FORM No. 48, DRIVER'S TRIP TICKET AND PREVENTIVE MAINTENANCE SERVICE RECORD.** This form, properly executed, will be furnished to the driver when his vehicle is dispatched on nontactical missions. The driver and the official user of the vehicle will complete in detail appropriate parts of this form. These forms need not be issued for vehicles in convoy or on tactical missions. The reverse side of this form contains the driver's daily and weekly preventive maintenance service reminder schedule.

(3) **W.D., A.G.O. FORM No. 478, MWO AND MAJOR UNIT ASSEMBLY REPLACEMENT RECORD.** This form will be used by all personnel completing a modification or major unit assembly (engine, transmission, transfer case, and tracks) replacement to record clearly the description of work completed, data, vehicle hours and/or mileage, and MWO number or nomenclature of unit assembly. Personnel performing the operation will initial in the column provided. Minor repairs, parts, and accessory replacements, will not be recorded.

(4) **W.D., A.G.O. FORM No. 6, DUTY ROSTER.** This form, slightly modified, will be used for scheduling and maintaining a record of vehicle maintenance operations. It may be used for lubrication records.

(5) **W.D., A.G.O. FORM No. 462, PREVENTIVE MAINTENANCE SERVICE AND TECHNICAL INSPECTION WORK SHEET FOR FULL-TRACK AND TANK-LIKE WHEELED VEHICLES.** This form will be used for all 50-hour (500-mile) or 100-hour (1,000-mile) services, and for technical inspections of these vehicles.

(6) **W.D., O.O. FORM No. 7353, SPOT-CHECK INSPECTION REPORT FOR ALL MOTOR VEHICLES.** This form may be used by all commanding officers or their staff representatives in making spot-check inspections on all vehicles.

(7) **W.D., A.G.O. FORM No. 468, UNSATISFACTORY EQUIPMENT RECORD.** This form will be used for reporting manufacturing, design, or operational defects in materiel with a view to improving and correcting such defects, and for use in recommending modifications of materiel. This form will not be used for reporting failures, isolated materiel defects, or malfunctions of materiel resulting from fair wear and tear or accidental damage, nor for the replacement, repair, or the issue of parts and equipment. It does not replace currently authorized operational or performance records.

(8) **W.D., O.O. FORM No. 7370, EXCHANGE PART OR UNIT**



**DESCRIPTION AND DATA**

**IDENTIFICATION TAG.** This tag, properly executed, may be used when exchanging unserviceable items for like serviceable assemblies, parts, vehicles, and tools.

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**Section II****DESCRIPTION AND DATA****3. DESCRIPTION.**

**a. General.** The 105-mm Howitzer Motor Carriage M7 is a gasoline-engine-powered, armored, full-track-laying vehicle. It is designed to give more protection to the crew than earlier models. The chassis is similar to Medium Tank M4.

**b. Principal Armament.** The principal armament of the vehicle consists of the 105-mm howitzer (fig. 1), located in the front end of the crew compartment to the driver's right and the caliber .50 machine gun in the machine gun turret on the right wall of the hull. Provisions are made for three caliber .45 submachine guns and hand grenades.

**c. Crew.** The vehicle crew consists of seven men: driver, chief of section, gunner, and four cannoneers.

**d. Access.** Access to the vehicle is gained by mounting at either side of the crew compartment. Each side has two pairs of grip bars (fig. 2) which serve as ladders to the crew compartment. The folding armor plate on each side may be kept lowered, except during tactical situations, to make access easier.

**e. Direct and Indirect Vision.** Both direct and indirect vision are provided for the driver of the vehicle. Direct vision is through a removable windshield. Indirect vision is through a protectoscope located on the indirect vision door.

**f. Weather Protection.** A fabric top is provided for the vehicle to shelter the crew in case of bad weather (fig. 4).

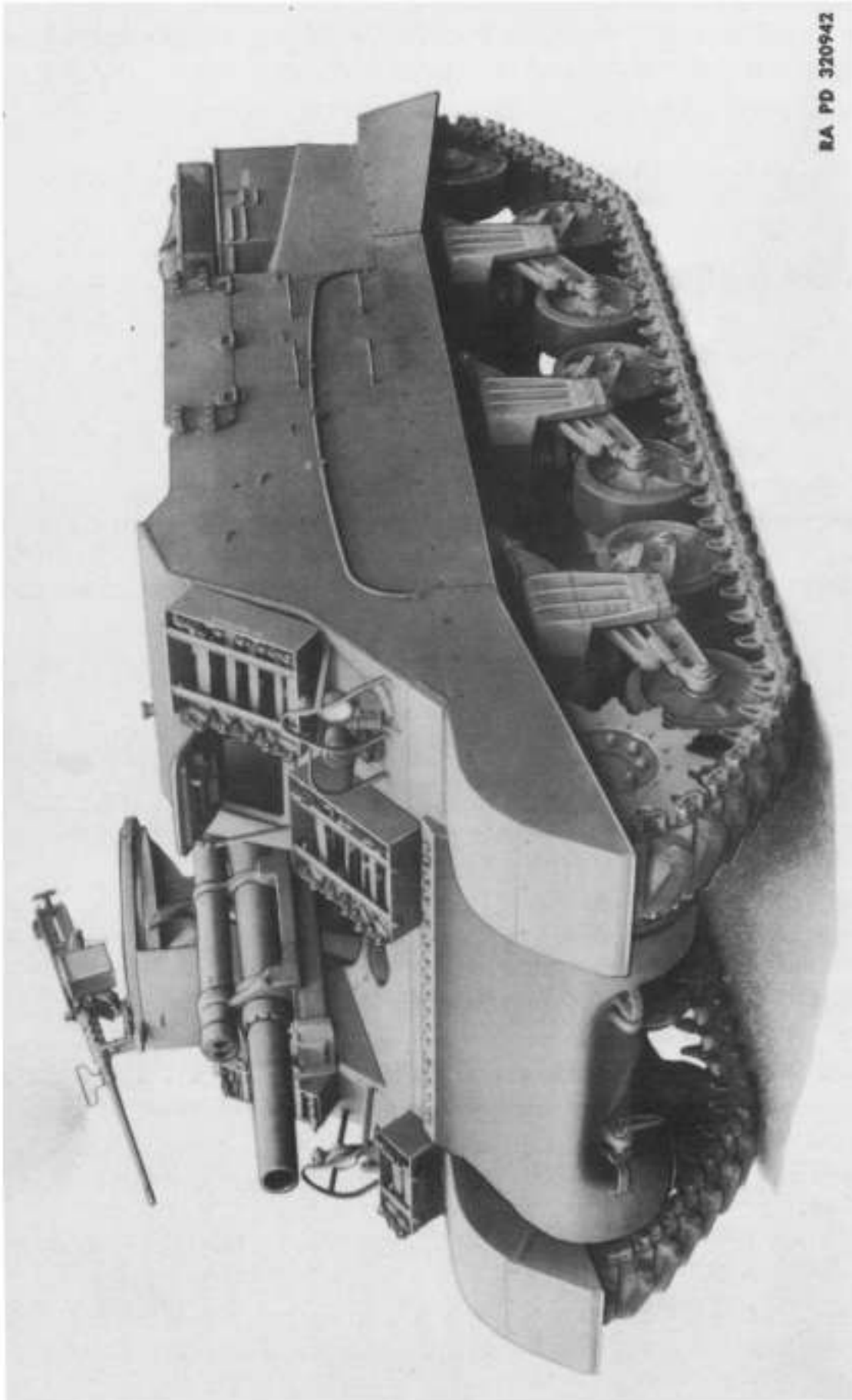
**g. Towing Facilities.** The vehicle has four towing shackles, two at the front and two at the rear. A pintle is provided at the rear below the rear engine door. The pintle is designed for a maximum drawbar pull of 10,000 pounds and is intended for towing light trailers. When the gross weight of the towed vehicle is unknown, or exceeds 10,000 pounds, use the towing shackles.

**h. Power Plant.** The vehicle is powered by a 400-horsepower, static, 9-cylinder, radial, aircraft-type engine. Access to the engine is provided through two engine compartment top plates (fig. 5), the rear engine doors (fig. 3), and the inspection plate located beneath

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CARRIAGE, MOTOR, 105-MM HOWITZER, M7



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Figure 1 — 105-mm Howitzer Motor Carriage M7 — Left Front View