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TM 9-786

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

**13-TON
HIGH-SPEED
TRACTORS
M5, M5A1, M5A2
AND M5A3**

DEPARTMENT OF THE ARMY • APRIL 1950

RESTRICTED

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This manual supersedes TM 9-786, 19 November 1943; TB 9-786-1, 7 May 1945; TB 9-786-2, 30 July 1946; TB 9-786-FE1, 2 November 1944; and those portions of TB ORD 20, 24 January 1944; TB ORD 71, 27 October 1944; TB ORD 126, 19 July 1944; TB ORD 130, 1 August 1944; TB ORD 179, 5 September 1944; TB ORD 200, 20 September 1944; and TB ORD FE40, 8 May 1945, pertaining to the material covered herein.

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HIGH-SPEED TRACTORS
M5, M5A1, M5A2
AND M5A3**



DEPARTMENT OF THE ARMY • APRIL 1950

*United States Government Printing Office
Washington : 1950*

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DEPARTMENT OF THE ARMY

WASHINGTON 25, D. C., 13 April 1950

TM 9-786 is published for the information and guidance of all concerned.

This manual is correct to 17 August 1949.

[AG 300.7 (31 Oct 46)]

BY ORDER OF THE SECRETARY OF THE ARMY:

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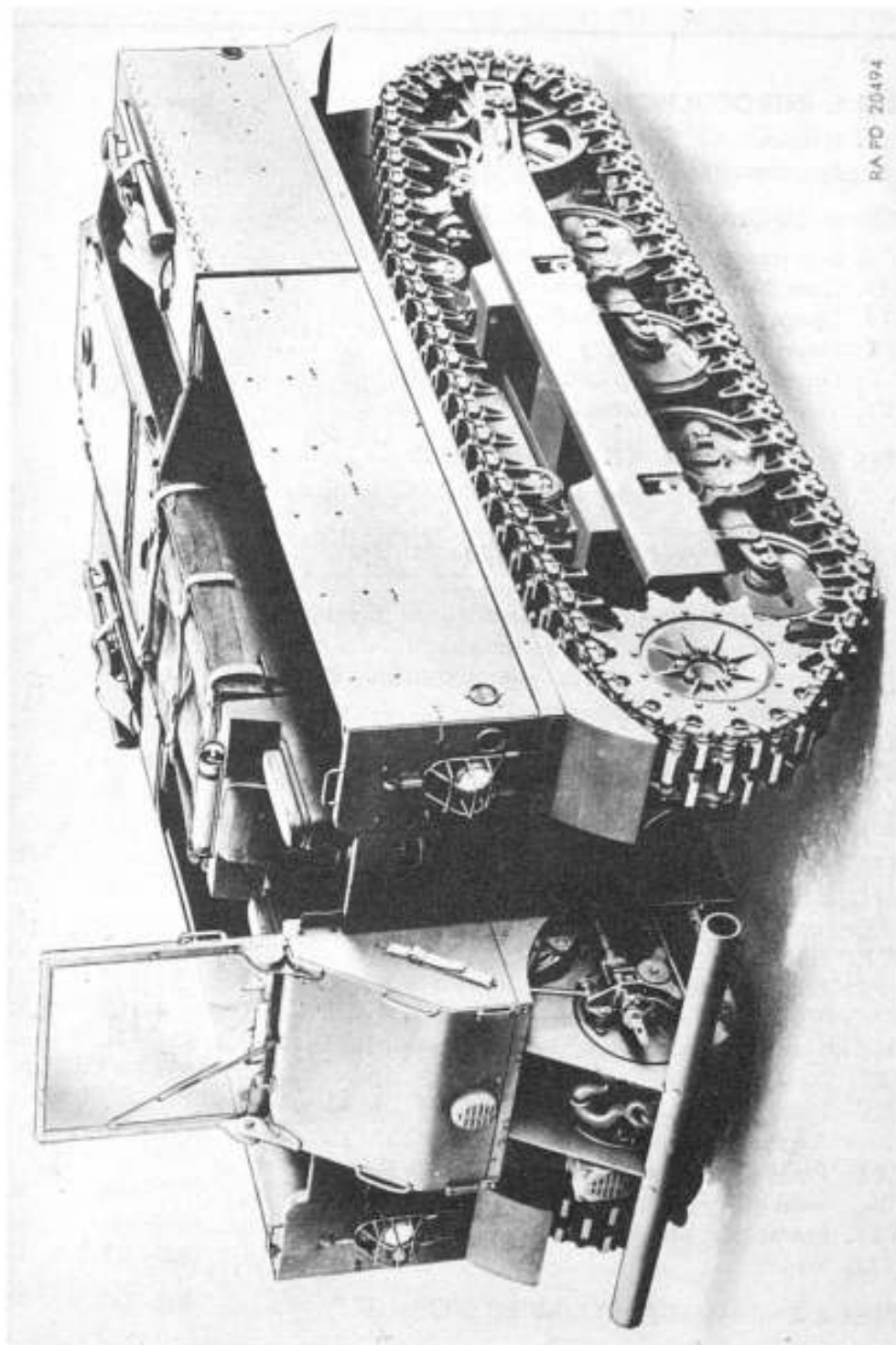


Figure 1. 18-ton high-speed tractor M5—left front view.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the information and guidance of all concerned. They contain information on operation and maintenance of the equipment as well as descriptions of major units and their functions in relation to other components of these vehicles. The instructions apply only to the 13-ton high-speed tractors M5, M5A1, M5A2, and M5A3 unless otherwise specified.

b. A list of references, including standard nomenclature lists, technical manuals, and other publications applicable to these vehicles, is included in the appendix.

c. This manual differs in scope from the previous edition of TM 9-786, in that the M5A1, M5A2, and M5A3 high-speed tractors as well as revised lubrication, preventive maintenance, and trouble-shooting data, have been added.

2. Forms, Records, and Reports

a. GENERAL. Forms, records, and reports are designed to serve necessary and useful purposes. Responsibility for the proper execution of these forms rests upon commanding officers of all units operating and maintaining vehicles. It is emphasized, however, that forms, records, and reports are merely aids. They are not a substitute for thorough practical work, physical inspection, and active supervision.

b. AUTHORIZED FORMS USED WITH THE VEHICLE. The forms, records, and reports generally applicable to units operating and maintaining these vehicles are listed in the appendix. No forms other than approved Department of the Army forms will be used in operating and maintaining the vehicle. Pending availability of all forms listed, old forms may be used. For a current and complete listing of all forms, see current SR 310-20-6.

c. FIELD REPORT OF ACCIDENTS.

- (1) *Injury to personnel or damage to matériel.* The reports necessary to comply with the requirements of the Army safety program are prescribed in detail in the SR 385-10-40 series. These reports are required whenever accidents occur involving injury to personnel or damage to matériel.
- (2) *Ammunition.* Whenever an accident or malfunction occurs involving the use of ammunition, firing of the lot which malfunctions will be discontinued immediately. In addition to any applicable reports required in (1) above, details of the accident or malfunction will be reported as prescribed in SR 385-310-1—AFR 50-13.

d. UNSATISFACTORY EQUIPMENT REPORT (DA AGO FORM 468). Any suggestions for improvement in design, maintenance, safety, and efficiency of operation prompted by chronic failure or malfunction of the matériel, spare parts, or equipment or as to defects in the application or effect of prescribed lubricants, and/or preserving materials will be reported through technical channels to the Chief of Ordnance, Washington 25, D. C., ATTN: ORDFM, using DA AGO Form 468 (Unsatisfactory Equipment Report). Such suggestions are encouraged in order that other organizations may benefit.

Section II. DESCRIPTION AND DATA

3. Description

a. GENERAL. The 13-ton high-speed tractors M5, M5A1, M5A2, and M5A3 (figs. 1 through 7), are heavy-duty, full-track, military towing vehicles, designed principally as prime movers for 105-mm or 155-mm howitzers or a 4.5-inch gun. Normally, the maximum speed of these vehicles is 30 mph; however, in an emergency, they can be operated up to 35 mph. Stowage space is provided for ammunition, essential tools, spare parts, and other necessary equipment.

b. ENGINE. The engine in this vehicle is a six-cylinder, in-line, four-cycle, liquid-cooled, valve-in-head, Continental model R6572 with dual carburetors (figs. 29 and 30) and a full-load rating of 235 horsepower at 2,900 rpm. (on test stand).

c. CLUTCH. The clutch is a heavy-duty, dual-range type which normally is operated by air pressure through a conventional clutch pedal and in emergencies, when air pressure is lacking, through a separate emergency pedal (figs. 9 and 10). The dual-range feature makes it possible to change the drive gear ratio by pushing the clutch pedal to the toeboard and then releasing it.

d. TRANSMISSION. The transmission in these vehicles is a helical-gear, constant-mesh type with four forward speeds and one reverse

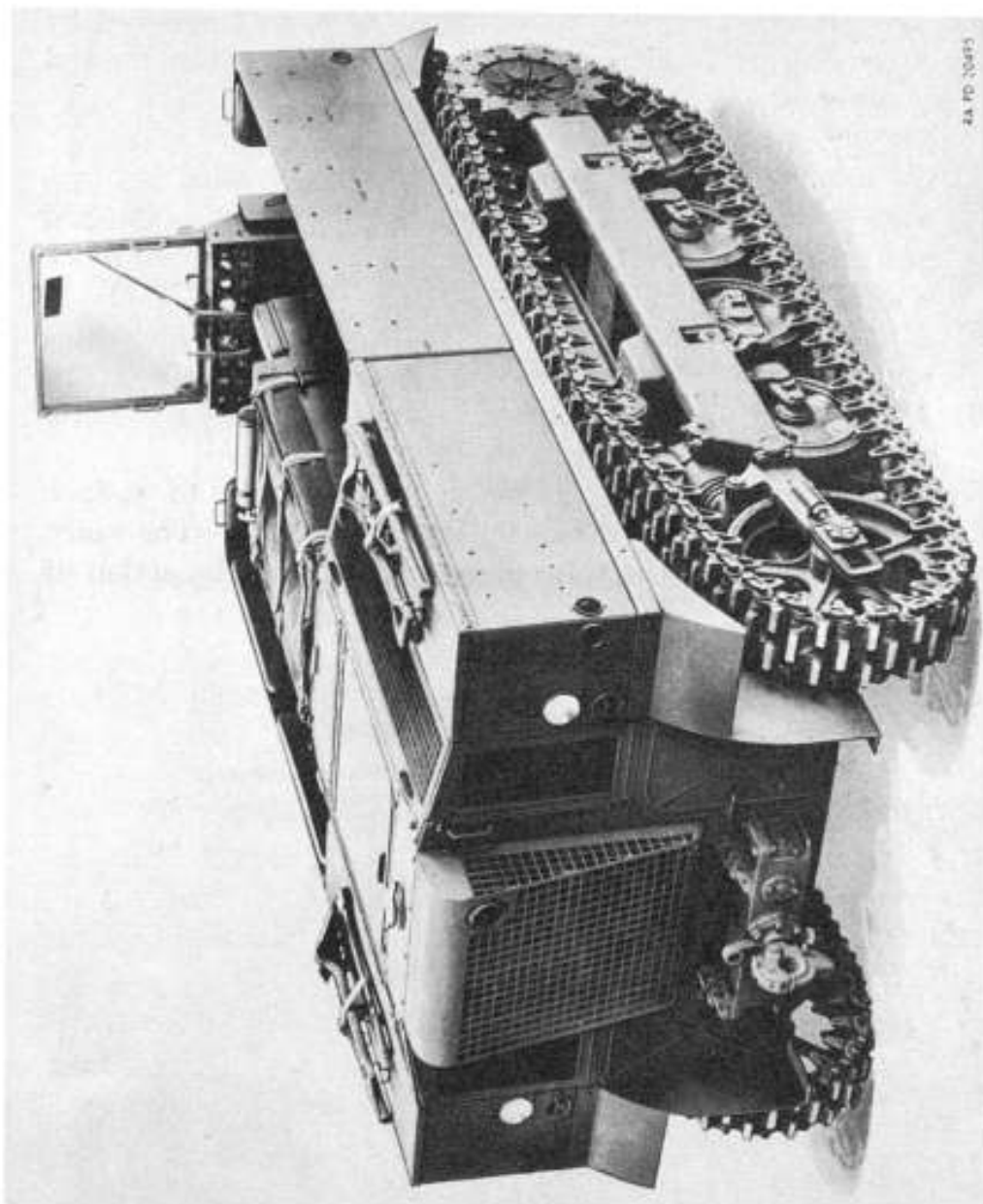


Figure 2. 13-ton high-speed tractor M5—right rear view.

(fig. 17). The transmission, in conjunction with the dual-range clutch, gives the vehicle eight forward and two reverse speeds. However, since there is no appreciable difference between second, third, and fourth speeds with the clutch in low range, and first, second, and third speeds with the clutch in high range, there actually are available five different forward and two different reverse speeds.

e. **DIFFERENTIAL AND FINAL DRIVE.** The differential and final drives (fig. 202) in these vehicles are contained in one housing. The differential is of the controlled type and steering is accomplished by operating the steering levers connected to the brakes (figs. 90 and 223) in the differential.

f. **TRACK.**

- (1) *M5 and M5A1.* These vehicles have the standard 9½-inch wide light tank, steel tracks T36E6 or T55E1 with integral grousers (fig. 232) or the reversible smooth rubber block track T16.
- (2) *M5A1.* The M5A1 vehicle has the standard 9½-inch wide light tank, steel track T36E6 with integral grousers (fig. 232).
- (3) *M5A2 and M5A3.* These vehicles have 21-inch wide center guide, T82, steel tracks (fig. 266).

g. **WINCH.** The front-mounted winch, with 300 feet of ⅝-inch diameter cable, has a capacity of 15,000 pounds (fig. 328). The winch is driven by a shaft from the transmission. Through the action of



Figure 3. 13-ton high-speed tractor M5A1—left front view.