TECHNICAL MANUAL
No. 9-759

WAR DEPARTMENT
Washington, August 4, 1942

MEDIUM TANK M4A3

Prepared under the direction of
the Chief of Ordnance
(with the cooperation of the Ford Motor Company)

CONTENTS

MEDIUM TANK M4A3

Section I

INTRODUCTION

1. PURPOSE AND SCOPE.

TM 9-759 dated August 4, 1942, is intended to serve temporarily (pending the publication of a revision now in preparation which will be wider in scope) to give information and guidance to the personnel of the using arms charged with the operation and maintenance of this materiel.

2. CONTENT AND ARRANGEMENT OF THE MANUAL.

Sections I through V contain information chiefly for the guidance of operating personnel. Section VI contains information intended chiefly for the guidance of personnel doing maintenance work.

3. REFERENCES.

Section VII lists all Standard Nomenclature Lists, Technical Manuals, and other publications for the material described herein.

Section II

DESCRIPTION AND TABULATED DATA

4. DESCRIPTION (figs. 1 and 2).

a. The medium tank M4A3 is an armored, full track-laying vehicle, powered by a 500 hp Ford tank engine which is an eight cylinder, liquid cooled, "V" type engine designed specifically for tanks. The engine is located in the rear of the hull. The operator steers the vehicle by means of two levers located in the front end of the hull. The vehicle has five forward speeds and one reverse. The tank is wired for radio installation, and for an interphone system within the tank.

b. The turret armor front is 3 inches thick, sides are 2 inches thick, and rear is 2 inches thick. The top of the turret is 1 inch thick. The armor on the sides of the hull is 1½ inches thick and the front slope is 2 inches thick.

c. The turret can be rotated through 360 degrees by a hydraulic system or by hand. The turret platform rotates with the turret.

d. An auxiliary electrical generating system, consisting of a generating set powered by a one-cylinder two-cycle gasoline engine, charges the batteries when the engine generator is not operating.

5. TABULATED DATA.

a. General

Weight without armament, fuel or crew	59560 lb
Ground clearance	17⅜-in.
Tread (center to center of tracks)	83-in.
Width over-all	103-in.
Length over-all	232½-in.
Height over-all	111¾-in.

b. Engine

Ford tank engine

Rated horsepower	500 at 2600 rpm
Number of cylinders (60°V)	8
Weight of engine, w/accessories	1470 lb

c. Armament

1 gun, 75-mm, M3 (combination turret mount)
1 gun, machine, cal. .30, M1919A4 (combination turret mount)
1 gun, machine, cal. .30, M1919A4
(flexible—ball mount in front plate)

MEDIUM TANK M4A3

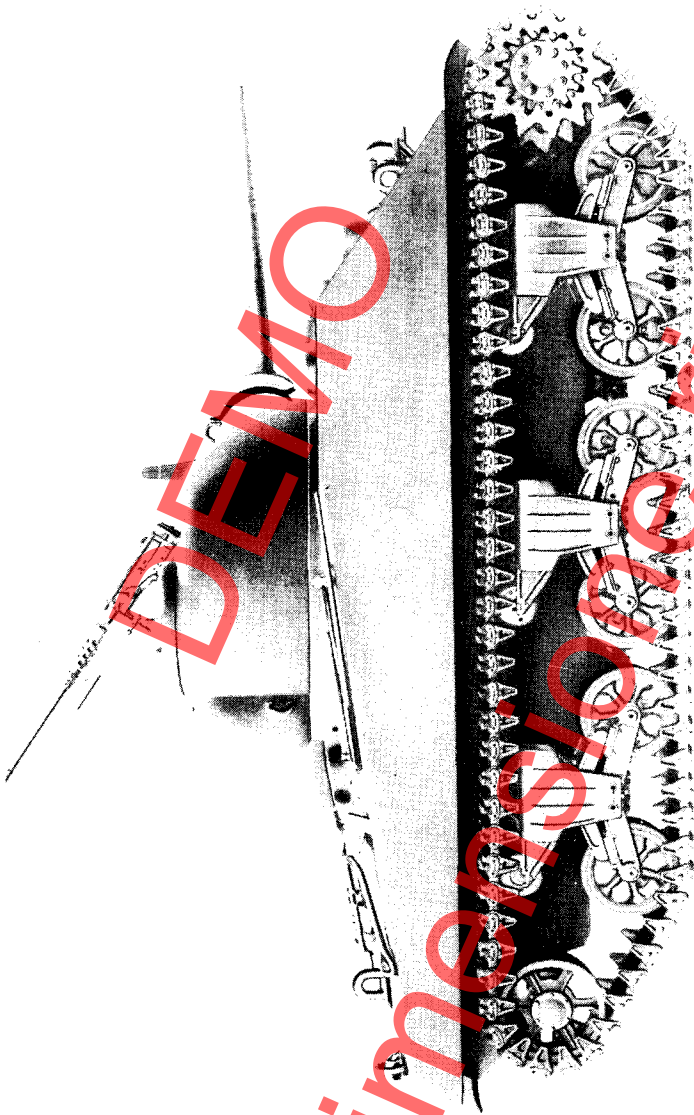

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Figure 1 — Right Side Medium Tank M4A3

DESCRIPTION AND TABULATED DATA

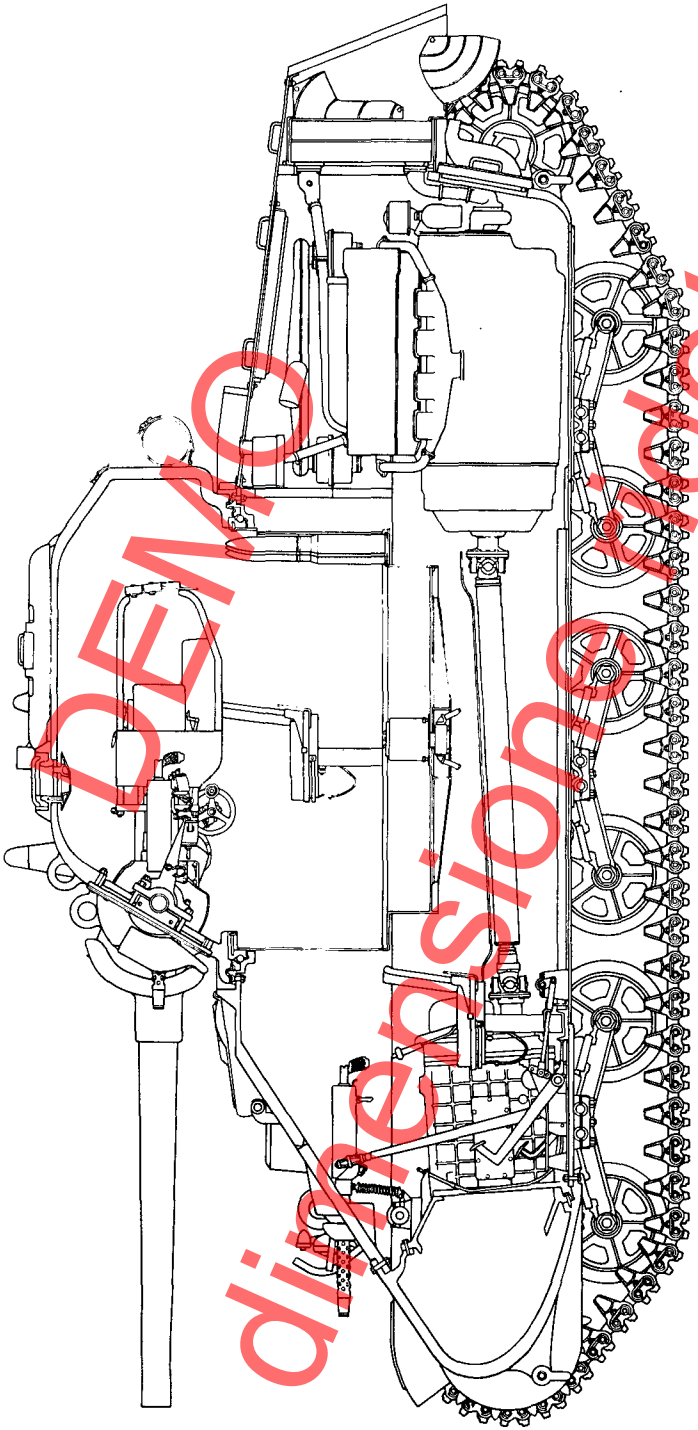

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Figure 2—Longitudinal Sectional View Medium Tank M4A3

1 gun, machine, cal. .50 M2, H.B.
(flexible—race mount on turret hatch)
1 gun, submachine, cal. .45 Thompson, Model 1928A1
(carried on brackets within tank)
1 mount, tripod, machine gun, M1928A1, cal. .30 M2

d. Protected vision. Protected vision is provided for the driver and crew by the use of steel shutters (open and shut type) at vision slots, and by indirect vision devices called periscopes. There are five periscopes on the M4A3 tank. The periscopes for the assistant driver and the gunner are telescope equipped. The remaining three periscopes are of the plain vision type.

e. Seats. Adjustable, padded, chair-type seats, equipped with safety belts, are provided for driver, assistant driver, and gunner. Round, padded seats, equipped with safety belts and of the snap down type, are provided for the loader and tank commander.

f. Protective Padding. Parts of the interior are padded with sponge rubber, to protect the tank crew from injury.

g. Communication

(1) Radio ..... SCR 245 sending and receiving; Voice 15-25 miles; Code 30-45 miles

(2) Telephone ..... Intra-tank

h. Armor thickness

Hull, front slope	2-in.	Bottom, front	1-in.
Rear	1½-in.	Bottom, rear	½-in.
Sides	1½-in.	Turret, front	3-in.
Top	¾-in.	Sides and rear	2-in.
		Top	1-in.
		Rear	2-in.

i. Turret. Cast armor plate ..... 360° traverse

j. Fuel and oil

Full capacity ..... 174 gal
Number of miles without refueling ..... Cross country 110 miles; Highway 155 miles
Octane rating of fuel ..... 80 or higher
Engine oil capacity ..... 32 qts
Lubricants ..... See Lubrication Chart

k. Performance

Maximum sustained speed on hard road ..... 26 mph
Expected cross-country speeds for various terrains ..... 4 to 26 mph
Maximum allowable engine speed ..... 2800 rpm
Minimum engine idling speed ..... 500 rpm

DESCRIPTION AND TABULATED DATA

Maximum grade ascending ability ..... 27°
Maximum grade descending ability ..... 27°
Maximum width of ditch tank will cross ..... 72-in.
Maximum vertical obstacle such as a wall, that the tank will climb over ..... 18-in.
Maximum fording depth (at slowest forward speed) ..... 36-in.

l. Crew ..... 5 men

m. Tracks ..... rubber block or steel
Track shoe width ..... 16-in.
Track pitch ..... 6-in.

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Section III

OPERATING INSTRUCTIONS AND CONTROLS

6. GENERAL INFORMATION ON CONTROLS (figs. 3 and 4).

a. Spark control. The spark control is entirely automatic and requires no attention by the operator of the vehicle.

b. Throttle controls. A foot throttle pedal is located on the floor in front of the driver's seat, convenient to the driver's right foot. In conjunction with the foot pedal, a hand-operated throttle is provided, which is bracket mounted to the differential case above the foot throttle.

c. Steering levers. Two steering levers are mounted on the floor of the vehicle, in front of the driver's seat. To steer the vehicle, pull the steering lever on the side toward which it is desired to turn. Pulling back either one of the levers slows down the track on that side, while the the speed of the other track is increased. Thus the vehicle turns with power on both tracks at all times (fig. 3).

d. Brakes.

(1) **Service brakes.** Pulling back simultaneously on both steering levers slows down or stops the vehicle, depending on the effort applied.

(2) **Parking brake.** The parking brake lever is located on the right side of the driver, at rear of the transmission. **It is a transmission type brake, and should never be used for any purpose other than parking.** Always be sure parking brake is released before moving the tank.

e. Clutch. The clutch pedal is located on the floor in front of driver's seat, convenient to the driver's left foot. To permit shifting of gears, the clutch is disengaged by depressing the clutch pedal.

f. Utility outlet. Two utility outlets are provided at the top of the instrument panel that permit plugging in trouble light, windshield wiper, etc.

g. Light switches. The knob on the instrument panel marked "LIGHTS" controls the service lights and the blackout driving

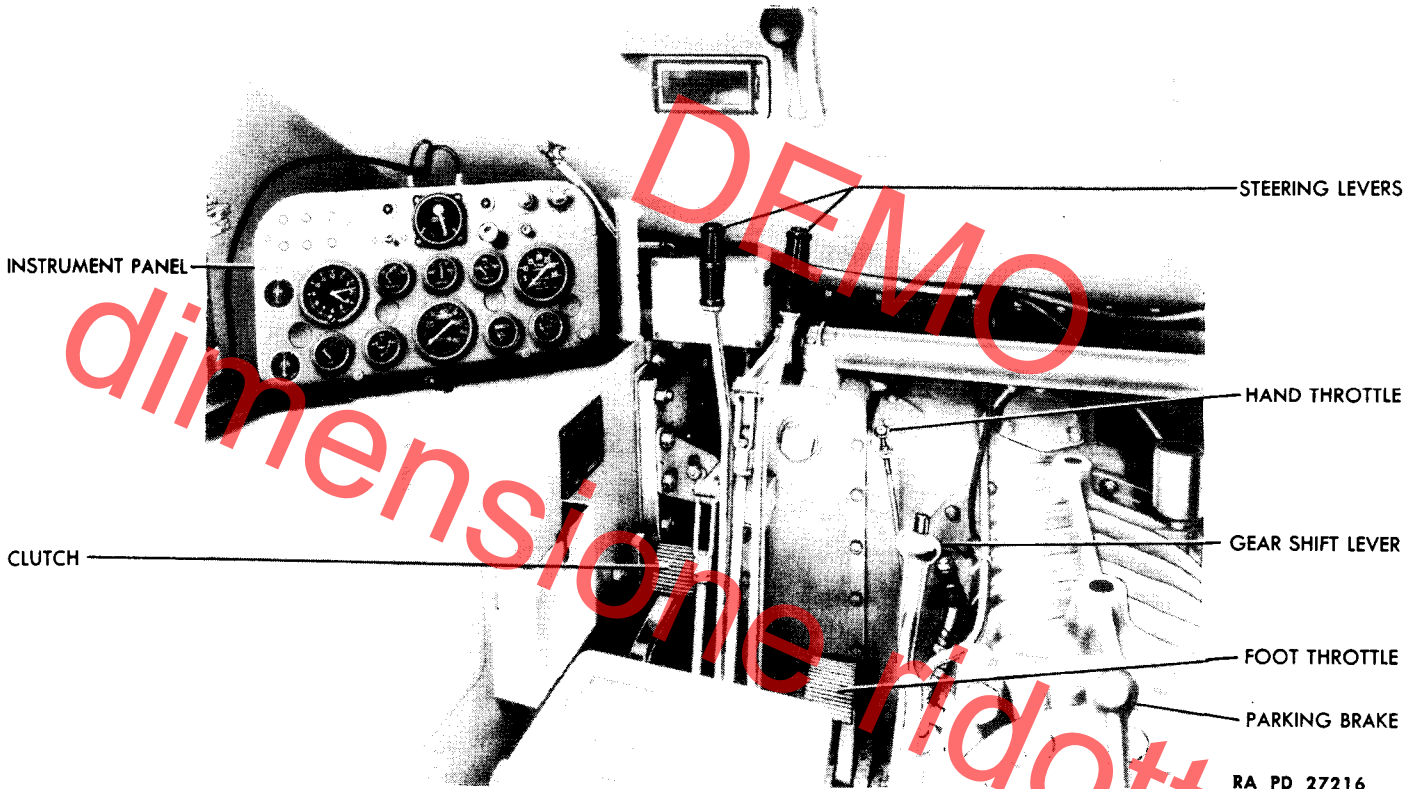

Figure 3 — Driver's Compartment

MEDIUM TANK M4A3

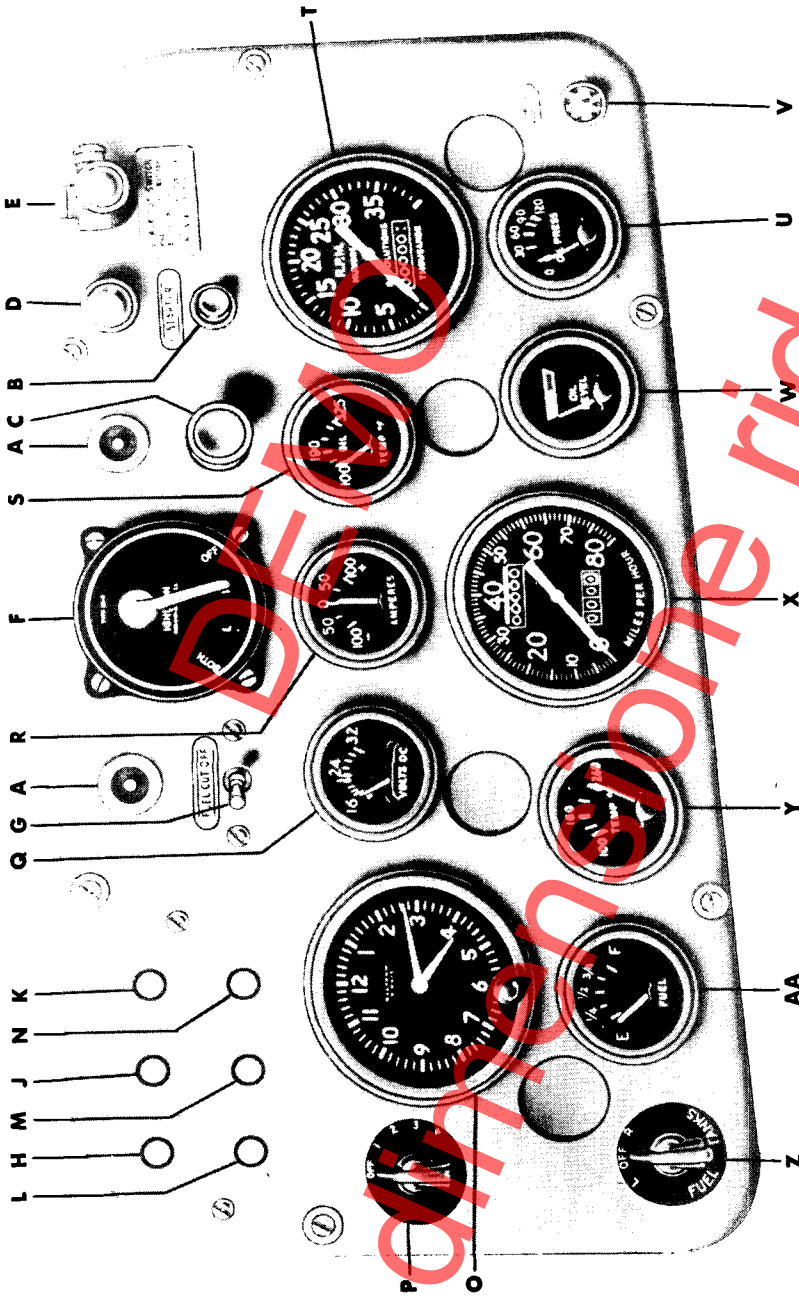

Figure 4—Instrument Panel

A — UTILITY OUTLET
B — STARTER BUTTON
C — PRIMER PUMP
D — BLACKOUT DRIVE SWITCH
E — LIGHT SWITCH
F — IGNITION SWITCH
G — FUEL CUT-OFF SWITCH
H — CIRCUIT BREAKER BUTTON — RIGHT HAND UTILITY OUTLET CIRCUIT
J — CIRCUIT BREAKER BUTTON — LEFT HAND UTILITY OUTLET CIRCUIT
K — CIRCUIT BREAKER BUTTON — BLACKOUT DRIVE SWITCH CIRCUIT
L — CIRCUIT BREAKER BUTTON — SIREN CIRCUIT
M — CIRCUIT BREAKER BUTTON — FUEL CUT-OFF AND HULL LAMPS CIRCUIT
N — CIRCUIT BREAKER BUTTON — CIRCUIT FOR PANEL LIGHTS, FUEL GAGE, WATER TEMPERATURE, LOW PRESSURE LIGHT, OIL LEVEL GAGE, VOLTMETER, AND TRANSMISSION OIL TEMPERATURE GAGE
O — CLOCK
P — PANEL LIGHT RHEOSTAT
Q — VOLTMETER
R — AMMETER
S — TRANSMISSION OIL TEMPERATURE GAGE
T — TACHOMETER
U — ENGINE OIL PRESSURE
V — LOW OIL PRESSURE LAMP
W — ENGINE OIL LEVEL GAGE
X — SPEEDOMETER
Y — ENGINE OIL TEMPERATURE GAGE
Z — FUEL TANK SELECTOR SWITCH
AA — FUEL TANK LEVEL GAGE

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Figure 4A — Instrument Panel Nomenclature

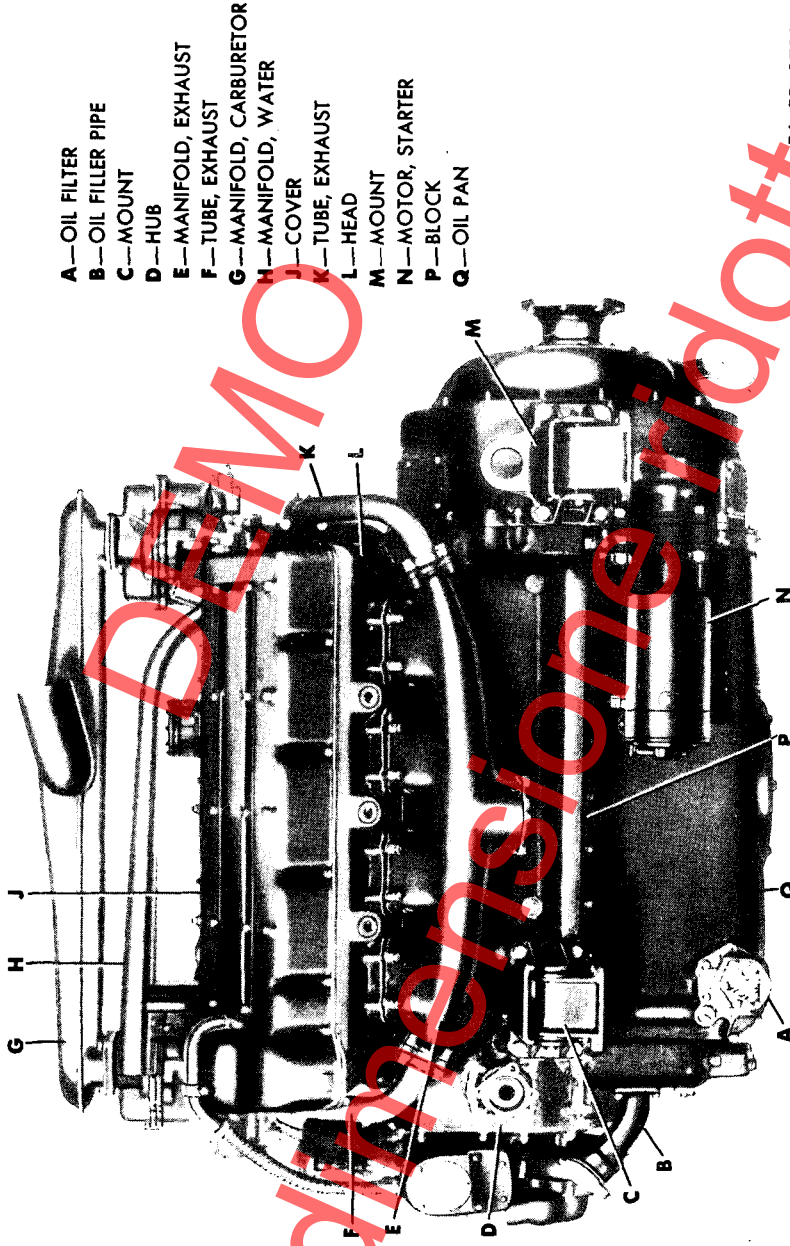

Figure 10 — Right Side of Engine