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TM 9-752A

RESTRICTED

WAR DEPARTMENT

TECHNICAL MANUAL

3-INCH GUN MOTOR CARRIAGE M10

SEPTEMBER 12, 1942

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TECHNICAL MANUAL
No. 9-752A

WAR DEPARTMENT,
Washington, September 12, 1942

ORDNANCE OFFICE

3-INCH GUN MOTOR CARRIAGE M10

Prepared under the direction of the Chief of Ordnance

CONTENTS

PART I — OPERATING INSTRUCTIONS

			Paragraphs	Pages
SECTION	I:	Introduction	1-3	2
	II:	Description and tabulated data	4-5	3-8
	III:	Operation instructions and controls	6-13	9-17
	IV:	Inspections	14-19	18-22
	V:	Lubrication systems	20-24	23-27
	VI:	Lubrication instructions	25-29	28-33
	VII:	Operation under unusual conditions	30	34
	VIII:	Care and preservation	31-32	35
	IX:	Painting	33-38	36-38
	X:	Materiel affected by gas	39-42	39-41

PART II — ORGANIZATION INSTRUCTIONS

	XI:	General information on maintenance	43	42-44
	XII:	Tools and equipment	44-45	45-48
	XIII:	Organization spare parts and accessories	46-47	49
	XIV:	Power unit and accessories	48-77	50-120
	XV:	Fuel supply system	78-83	121-126
	XVI:	Cooling system	84-89	127-131
	XVII:	Clutch	90-99	132-142
	XVIII:	Propeller shaft	100-102	143-144
	XIX:	Power train unit	103-106	145-147
	XX:	Turret and hull	107-109	148-149
	XXI:	Electrical system and instruments	110-127	150-161
	XXII:	Suspension and track	128-131	162-174
	XXIII:	References	132-133	175-176
INDEX				177-182

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3-INCH GUN MOTOR CARRIAGE M10

PART I — OPERATING INSTRUCTIONS

Section I

INTRODUCTION

Paragraph

Purpose and scope 1
Content and arrangement of the manual 2
References 3

1. PURPOSE AND SCOPE.

This manual 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.

a. Sections I through X contain information chiefly for the guidance of operating personnel. Section XI contains information intended chiefly for the guidance of personnel doing maintenance work.

b. Illustrations herein, in some cases (particularly in the sections covering the power unit), show surrounding or adjacent parts that differ from those in the 3-Inch Gun Motor Carriage. These illustrations, made from photographs of the same subjects in previous vehicles, are used herein because sections of this Technical Manual were necessarily prepared before a 3-Inch Gun Motor Carriage was completed and available for photographing.

3. REFERENCES.

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

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Section II

DESCRIPTION AND TABULATED DATA

Paragraph

Description 4
Tabulated data 5

4. DESCRIPTION (figs. 1 and 2).

a. General. The 3-Inch Gun Motor Carriage M10 is a heavily armored, full track-laying vehicle powered by twin six-cylinder two-cycle liquid-cooled Diesel engines. Its chief armament consists of a 3-inch gun M7, in a semiopen-top turret of welded armor plate, which is mounted on an all-welded hull of armor plate. A cal. .50 antiaircraft machine gun is mounted at the rear of the turret opening. A consistent use of sloping surfaces on both hull and turret greatly reduces the vulnerability of the vehicle to damage by gunfire. The turret has no revolving turret platform (basket) such as is used in tanks.

b. Controls. The vehicle is steered by means of levers, which operate steering brakes in the one-piece differential housing. Braking is effected by pulling back both steering brake levers at once. A hand-operated parking brake operates on a drum on the transmission output shaft. The synchromesh transmission has five forward speeds and one reverse. A single clutch pedal operates the clutches of both engines, and a single accelerator (foot throttle) controls their speed.

c. Communication. The tank is equipped with a two-way radio for outside communication, and with an intravehicle telephone system (interphone) serving all of the crew with the exception of the loader.

d. Supply Tanks. The power unit cooling system, Diesel oil fuel tanks, and lubricating oil tanks are filled from the top of the vehicle. Each filler opening is marked with a metal plate having raised letters.

e. Trailer for Ammunition. Provision is made for attaching a two-wheel ammunition cart carrying munitions to supplement the supply stowed within the vehicle, to a special pintle at the rear of the vehicle.

f. Similarities to Medium Tank M4A2.

(1) Many of the principal units of the 3-Inch Gun Motor Carriage M10 are identical with the corresponding units of the Medium Tank M4A2, including the following:

Diesel power unit
- Twin engines
- Clutches
- Fuel supply system
- Cooling system
- Lubrication system
- Electrical system

Propeller shaft

Power train unit
- Transmission
- Differential
- Final drives

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Controls	Suspension
Foot throttle	Bogie assemblies
Hand throttles	Idlers
Throttle linkage	Tracks
Clutch linkage	Instrument panel

(2) Personnel seeking additional information on these units should consult SNL's, TM's, and other publications listed in section **XXIII**, as pertaining to Medium Tank M4A2 or to the individual units.

5. TABULATED DATA.

a. General.

Weight without armament, auxiliary armor, water, fuel, and crew (approximate)	56,000-lb
Weight fully equipped (approximate)	60,000-lb
Ground pressure, per square inch (approximate)	13½-lb
Width, over-all	10-ft
Length, over-all	19-ft, 7⅛-in.
Ground clearance (under final drive housing)	17⅜-in.
Tread (center to center of tracks)	83-in.
Height, over-all	8-ft, 1$\frac{5}{16}$-in.

b. Power Unit (GM Diesel, Series 71, Model 6046, twin six)

Type	Two-cycle, in-line
Dynamometer horsepower	Each engine 210
Rated horsepower, maximum at 2,100 rpm, governed speed	375
Number of cylinders	Each engine 6
Bore and stroke	4¼ x 5-in.
Displacement	Each engine 425
Speed range	400-2,100 rpm
Compression ratio (nominal)	16 to 1
Firing order	1-4-2-6-3-5

c. Weights.

Power unit with accessories	4,855-lb
Power train unit (transmission, differential, and final drives, without sprocket and hub assemblies)	7,690-lb

d. Armament.

1 gun, 3-inch, M7
1 gun, machine, cal. .50, AA, M1918A1
1 gun, submachine, cal. 45, Thompson
1 rifle, cal. .30, M1903
4 carbines, cal. .30
1 adapter, grenade, for cal. .30 rifle

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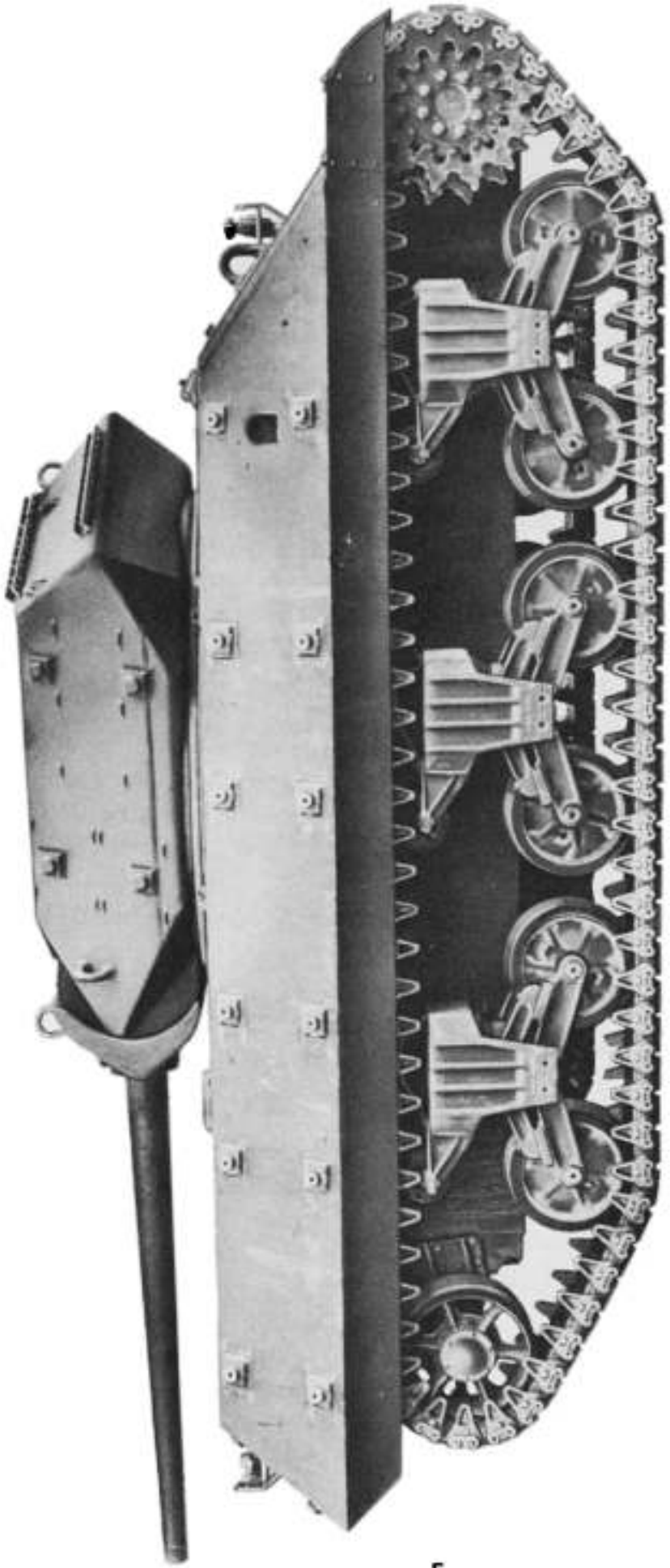
DESCRIPTION AND TABULATED DATA



RA PD 36021

Figure 1 — 3-Inch Gun Motor Carriage M10, Right Side, Gun in Traveling Position

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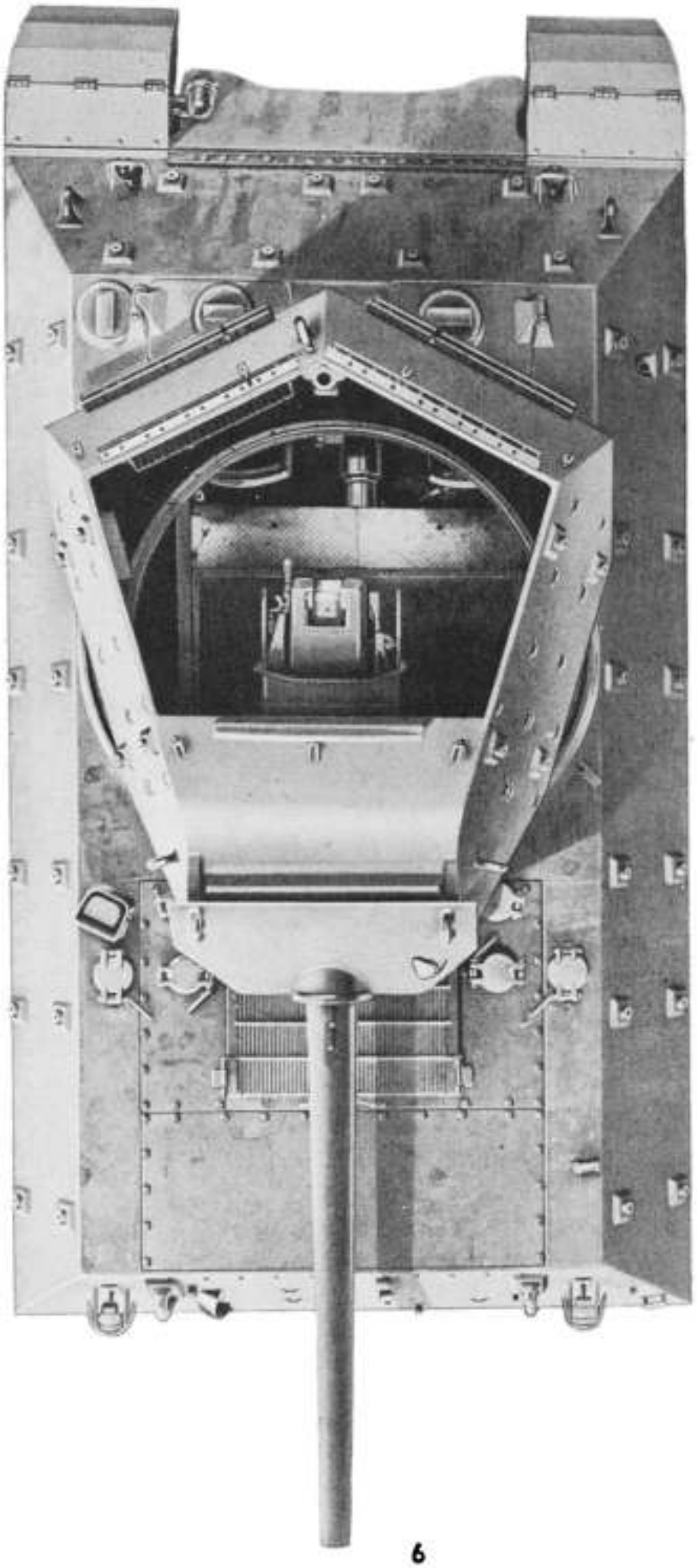

RA PD 36020

Figure 2 — 3-Inch Gun Motor Carriage M10, Top

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DESCRIPTION AND TABULATED DATA

e. Ammunition Carried.

	ROUNDS
3-inch (AP and HE)	54
Cal. .50 (in 50-round boxes)	350
Cal. .30 (carbine, in 30-round clips)	360
Cal. .30 (rifle, M1903, in bandolier)	60
Cal. .45 (in 30-round clips)	510
Grenades (smoke, 5; rifle, M9A1, 10; fragmentation, 5; Thermite, 2)	22
Smoke pots	2

f. Communication.

Radio	SCR 510, sending and receiving
Intravehicle	Telephone
Flags, signal	1 set
Light, recognition	1

g. Armor Thickness.

Hull:	Front bow plate	1½-in.
	Lower side plates	1-in.
	Upper side plates	¾-in.
	Top plate	¾-in.
	Rear cover plates	⅜-in.
	Bottom plate (floor)	½-in.
	Deflector (above track)	¼-in.
Turret:	Gun shield	2¼-in.
	Sides	1-in.
	Top	¾-in.
	Plate, trunnion support	2½-in.

h. Turret. Cast armor, 360 degree traverse.

i. Crew. Five men.

j. Tracks (rubber block or all-steel).

Track shoe width (tread)	12 1/16-in.
Track pitch	6-in.
Ground contact	3,346 sq in.
Blocks per track	79

k. Diesel Fuel Oil and Lubricating Oil.

Diesel fuel oil capacity	150-gal
Grade of fuel	No. 1
Number of miles without refueling (at 18 mph)	75
Cetane rating of fuel	102
Engine lubricating oil consumption (approximate)	miles per qt
Engine lubricating system oil capacity (28 qt, each engine)	56-qt
Power train unit (transmission, differential, final drives) lubricating oil capacity	36-gal

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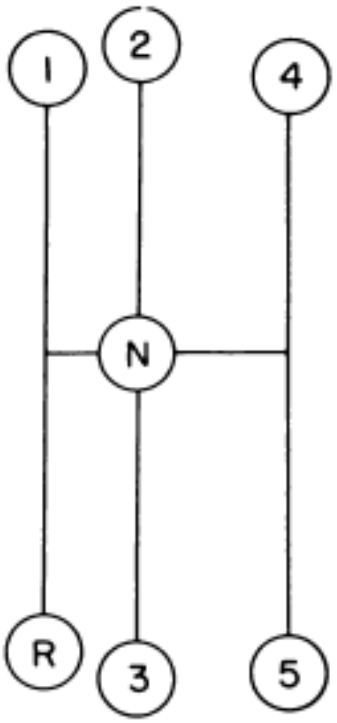
3-INCH GUN MOTOR CARRIAGE M10



RA PD 2712

Figure 3 — Gearshift Positions

1. Performance.

Maximum recommended sustained speed (on hard road)	25 mph
Maximum speed, short periods	30 mph
Maximum allowable engine speed	2,100 rpm
Engine governed idling speed	400-450 rpm
Recommended idling speed during halts	600 rpm
Maximum grade ascending ability	30-in.
Maximum grade descending ability	30-in.
Maximum width of ditch vehicle will cross	7-ft 5-in.
Maximum vertical obstacle, such as a wall, that vehicle with rubber tracks without grousers will climb over	18-in.
Maximum fording depth (at slowest speed)	36-in.
Allowable list	degree