

TECHNICAL MANUAL)
 No. 9-2300-216-20)

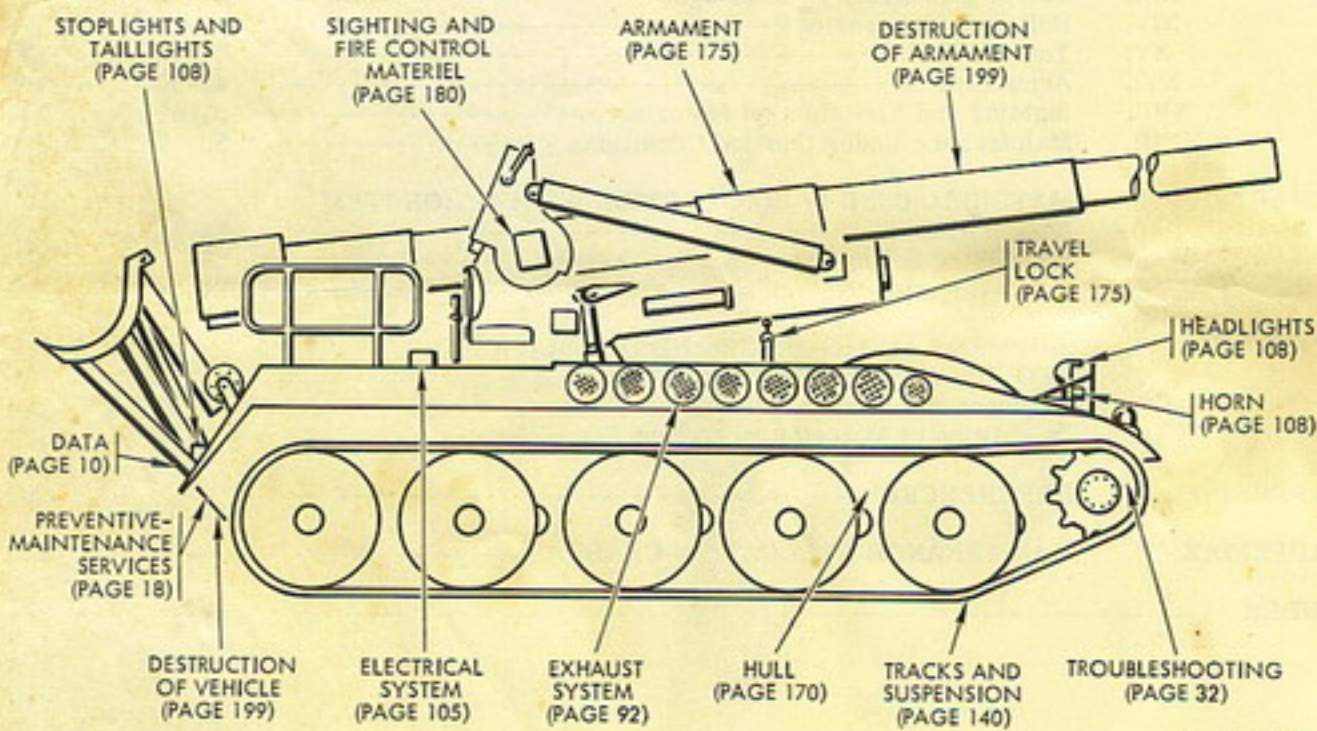
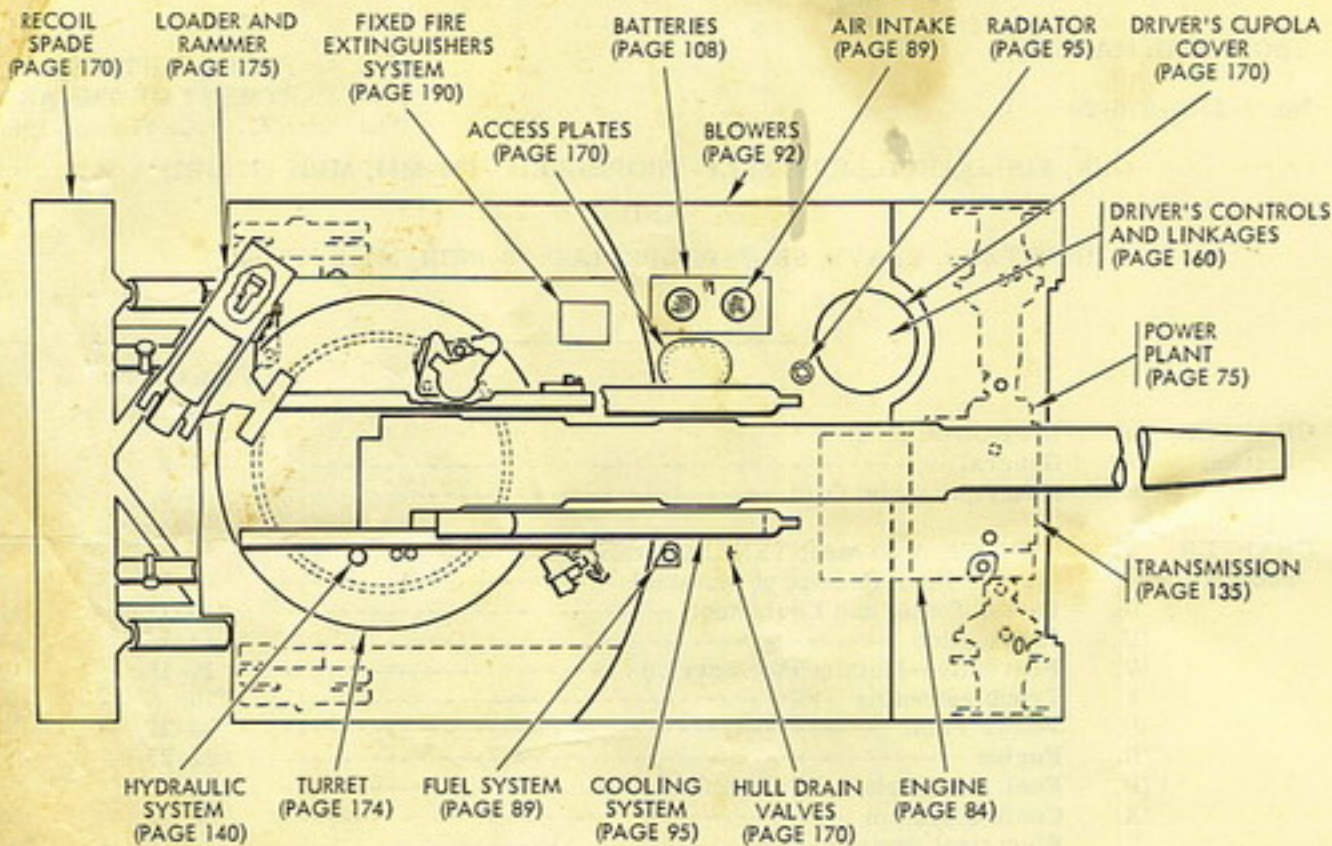
HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 Washington 25, D.C. 17 June 1962

GUN, FIELD ARTILLERY, SELF-PROPELLED: 175-MM, M107 (T235E1)

AND

HOWITZER, HEAVY, SELF-PROPELLED: 8-INCH, M110 (T236E1)

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VISUAL GUIDE TO CONTENTS

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. This technical manual contains instructions for organizational maintenance of the 175-MM Self-Propelled Field Artillery Gun M107 and the 8-Inch Self-Propelled Heavy Howitzer M110, as well as description of major units.

b. Appendix I contains a list of current references, including supply manuals, technical manuals, forms, and other publications applicable to the M107 Gun and the M110 Howitzer.

c. Appendix II contains the maintenance allocation chart which lists the maintenance responsibilities allocated to each echelon of maintenance.

d. TM 9-2300-216-20P contains the repair parts and special tools list for the M107 Gun and the M110 Howitzer.

e. This first edition is being published in advance of complete technical review. Any errors or omissions will be forwarded on DA Form 2028 direct to Commanding Officer, U. S. Army Ordnance Arsenal, Raritan, Metuchen, New Jersey, ATTN: ORDJR-OPRA.

2. Maintenance Allocation

In general, the prescribed maintenance responsibilities will apply as reflected in the maintenance allocation charts (app. II). In all cases, where the nature of repair, modification, or adjustment is beyond the scope or facilities of organizational maintenance, the supporting unit should be informed in order that trained personnel with suitable tools and

equipment may be provided or other instructions issued.

3. Forms, Records, and Reports

a. Authorized Forms. The forms generally applicable to units maintaining this materiel are listed in appendix I. For a listing of all forms, refer to DA Pam 310-2. For instructions on use of these forms, refer to FM 9-3, FM 9-4, and TM 9-2810.

b. Field Report of Accidents.

- (1) Injury to personnel or damage to materiel. The reports necessary to comply with requirements of the Army safety program are prescribed in detail in AR 385-40. These reports are required whenever accidents involving injury to personnel or damage to materiel occur.
- (2) Ammunition. Whenever an accident or malfunction involving the use of ammunition occurs, firing of the lot which malfunctions will be immediately discontinued. In addition to any applicable reports required in (1) above, details of the accident or malfunction will be reported as prescribed in AR-700-1300-8.

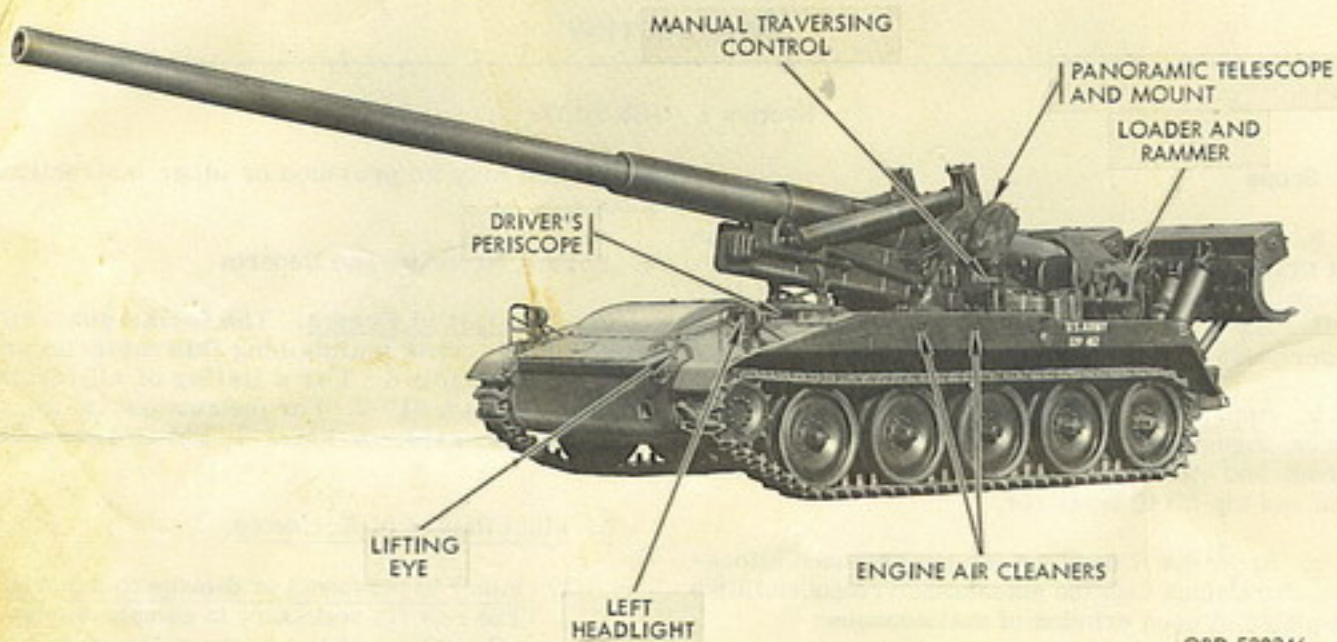
c. Report of Unsatisfactory Equipment and Materials. Any deficiencies detected in the equipment covered herein which occur under the circumstances indicated in AR 700-38 should be immediately reported in accordance with the applicable instructions in these regulations.

Section II. DESCRIPTION AND DATA

4. Description

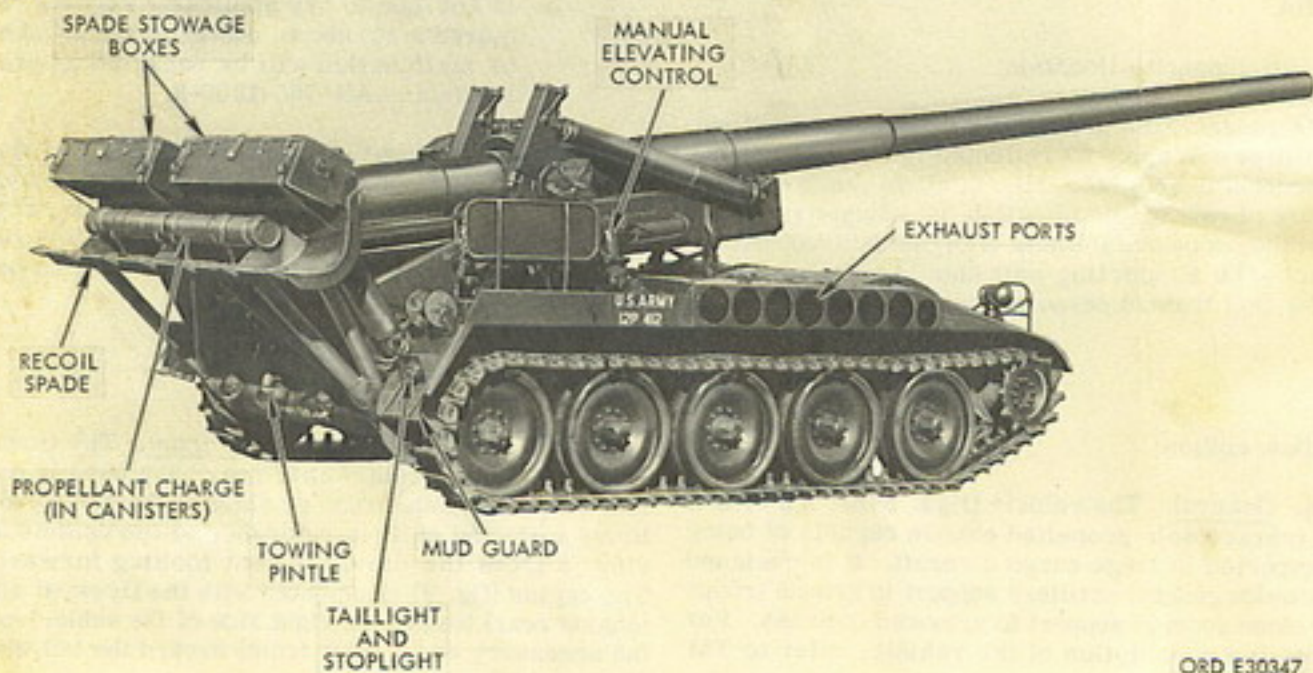
a. General. The vehicle (figs. 1 through 8) is a full tracked self-propelled cannon capable of being transported in large cargo aircraft. It is designed to provide general artillery support to ground troops and close general support to armored columns. For a detailed description of the vehicle, refer to TM 9-2300-216-10.

b. Definition of Locational Terms. The terms "right," "left," "front," and "rear" are used in this manual to designate areas or sides of the vehicle and items installed on it in reference to the vehicle as viewed from the driver's seat looking forward. The engine (fig. 9) is mounted with the flywheel end (engine rear) toward the right side of the vehicle and the accessory end (engine front) toward the left side of the vehicle.



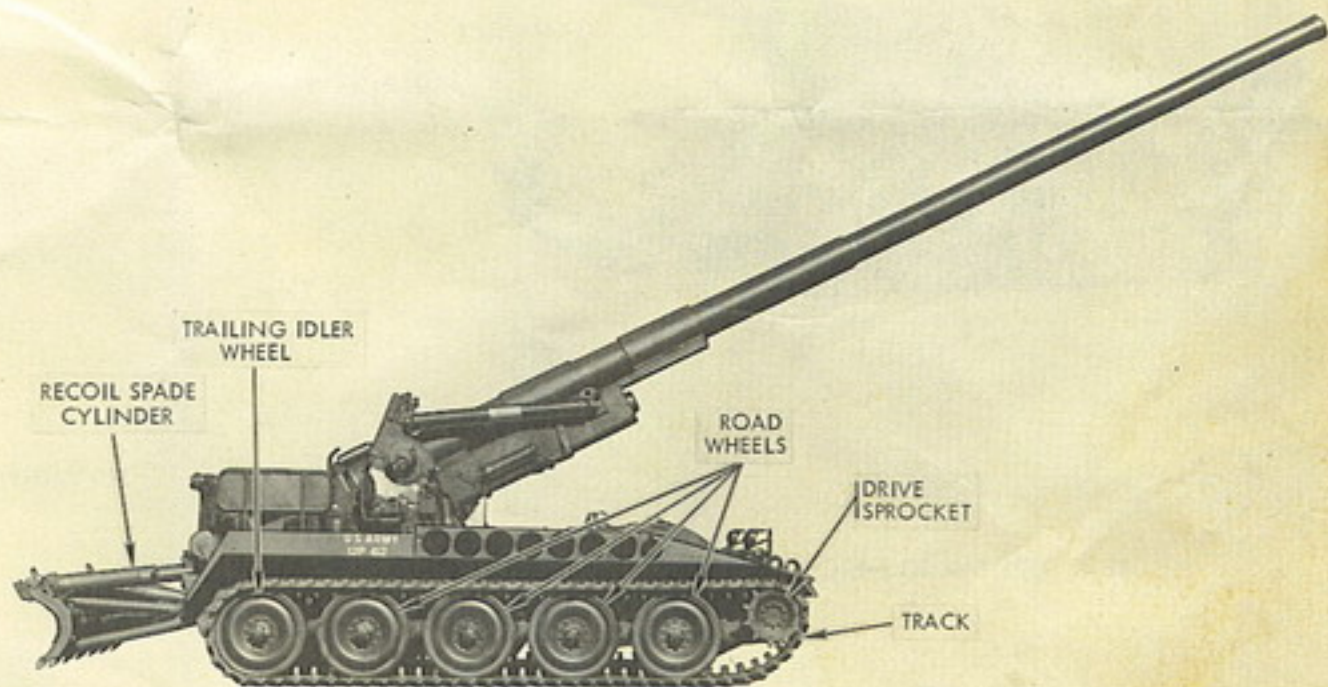
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FIGURE 1. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - CANNON IN TRAVEL POSITION - LEFT FRONT VIEW.



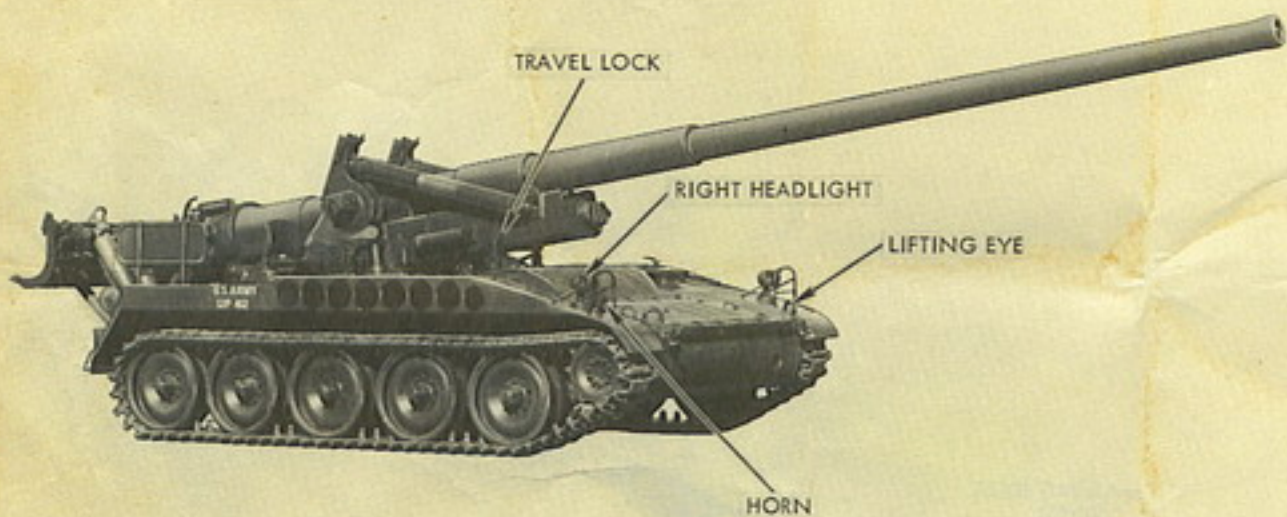
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FIGURE 2. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - SPADE RAISED AND CANNON IN TRAVEL POSITION - RIGHT REAR VIEW.



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FIGURE 3. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - CANNON ELEVATED - RIGHT SIDE VIEW.



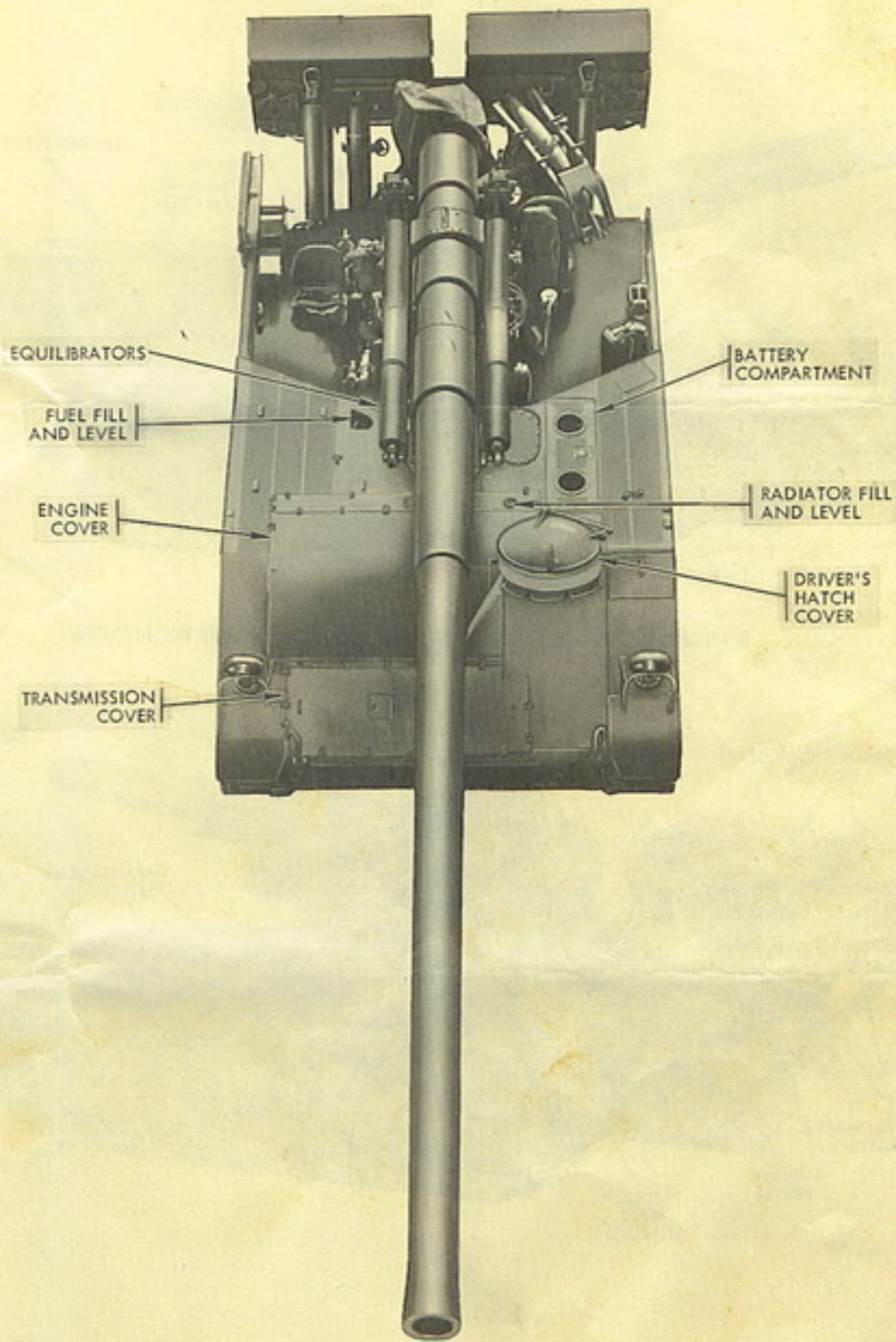
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FIGURE 4. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - SPADE RAISED - RIGHT FRONT VIEW.



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FIGURE 5. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - LEFT SIDE VIEW.



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FIGURE 6. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - TOP VIEW.

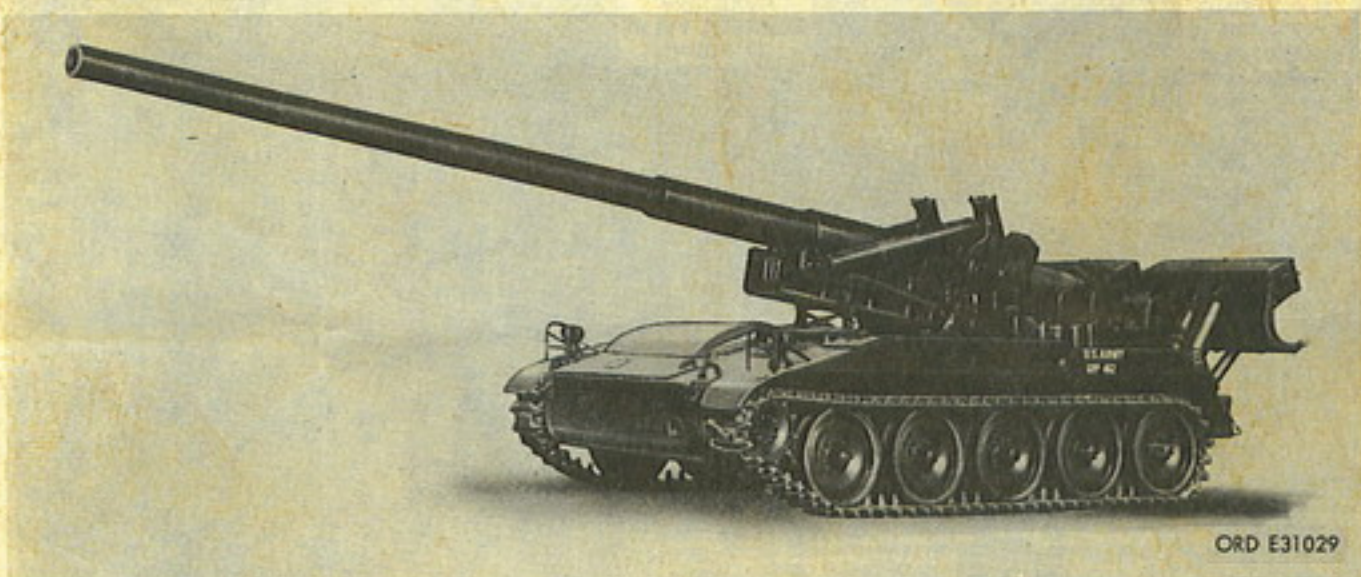


FIGURE 1. 175-MM SELF-PROPELLED FIELD ARTILLERY GUN M107 - LEFT FRONT VIEW.

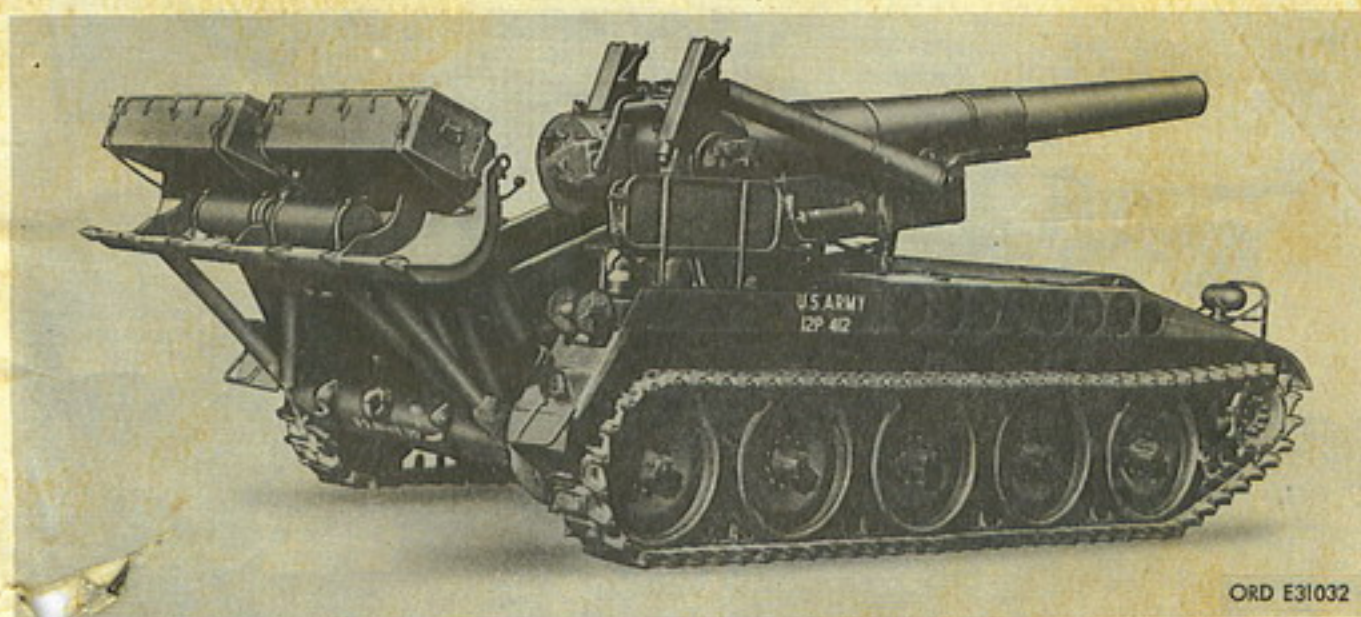


FIGURE 2. 8-INCH SELF-PROPELLED HEAVY HOWITZER M110 - RIGHT REAR VIEW.

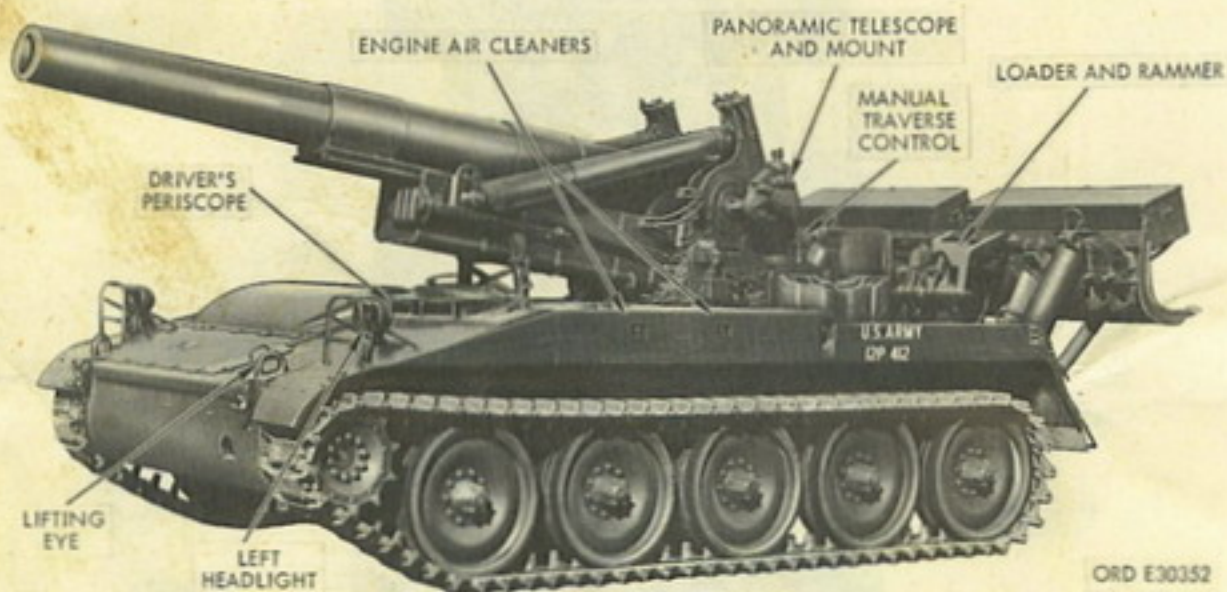


FIGURE 7. 8-INCH SELF-PROPELLED HEAVY HOWITZER M110 - LEFT FRONT VIEW.

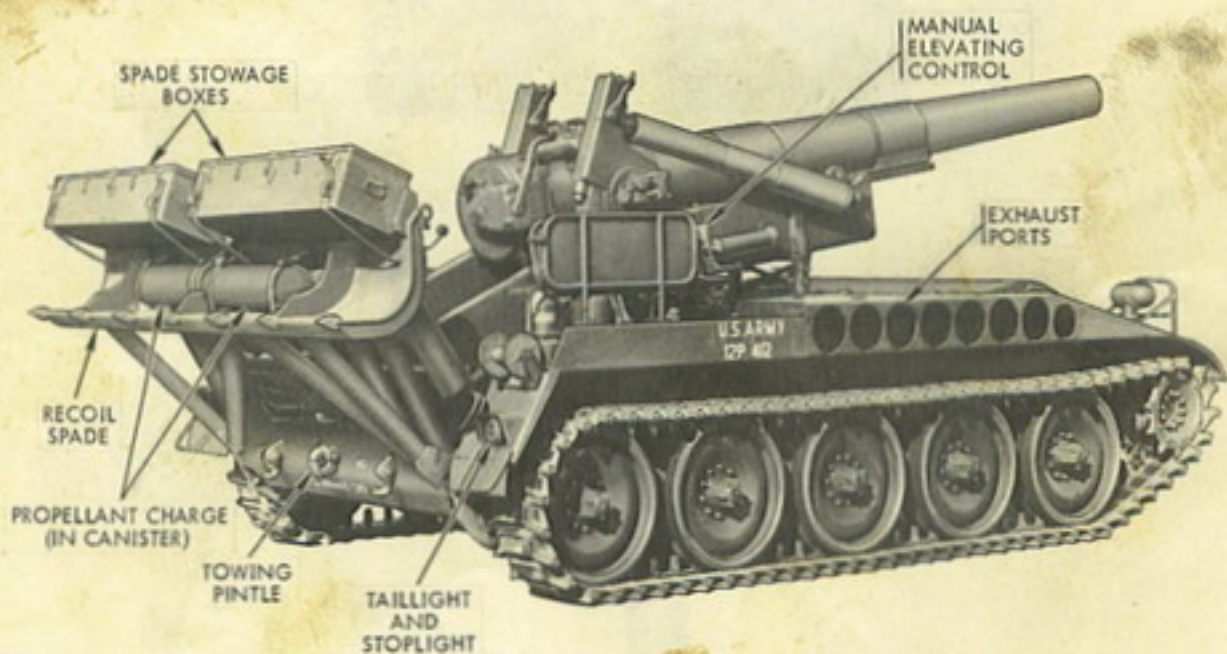


FIGURE 8. 8-INCH SELF-PROPELLED HEAVY HOWITZER M110 - RIGHT REAR VIEW.

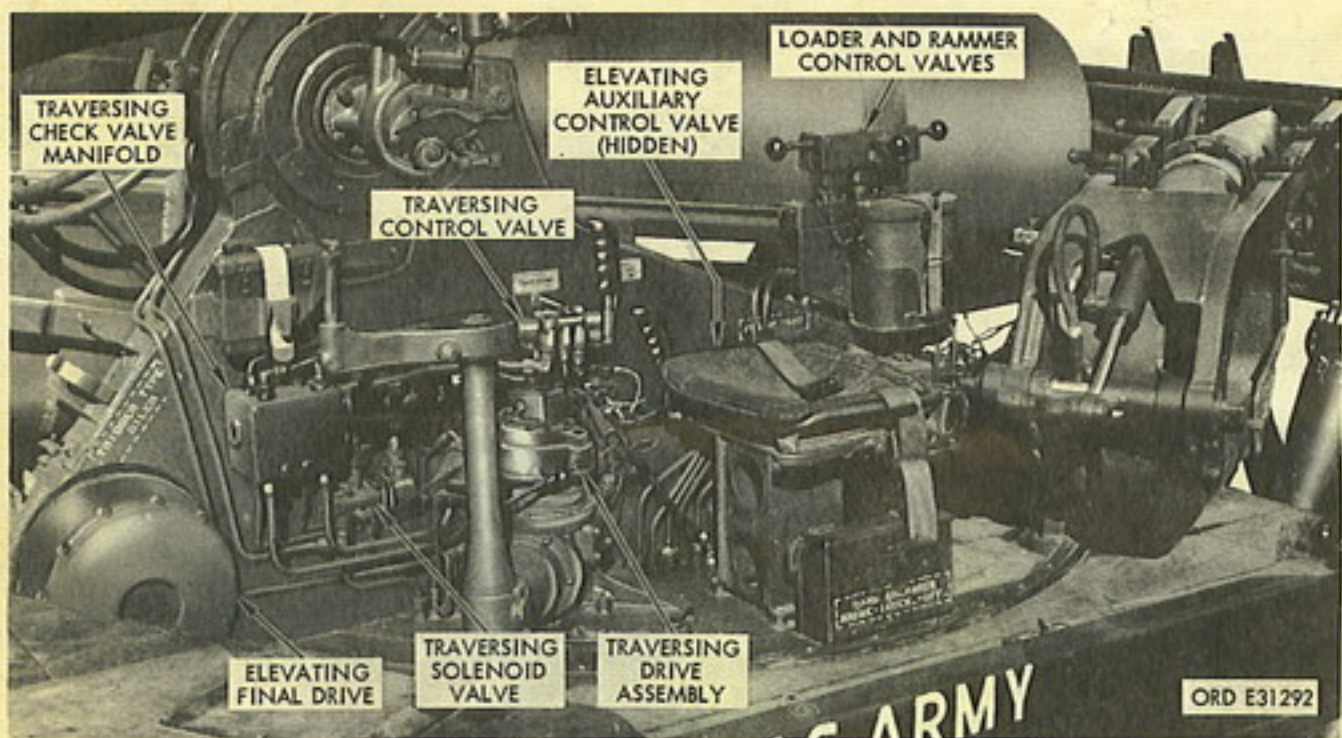


FIGURE 3. TURRET - LEFT FRONT VIEW (TURRET INSTALLED).

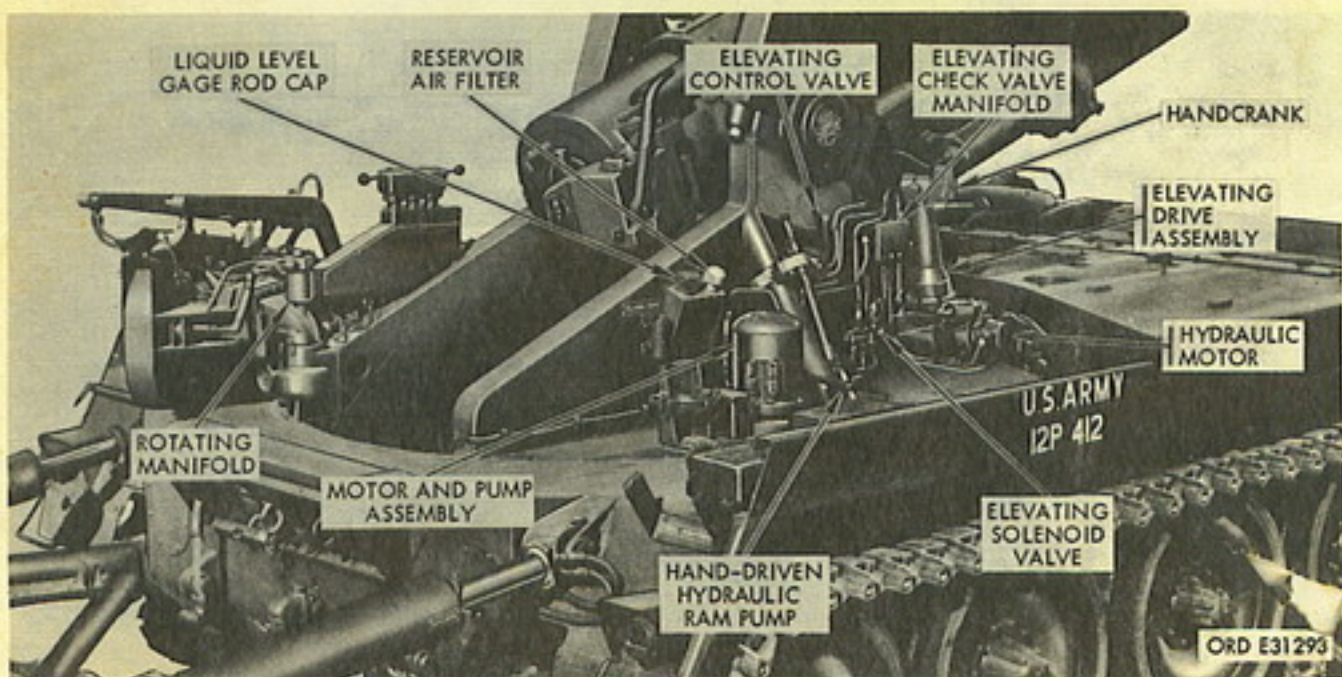


FIGURE 4. TURRET - RIGHT REAR VIEW (TURRET INSTALLED).

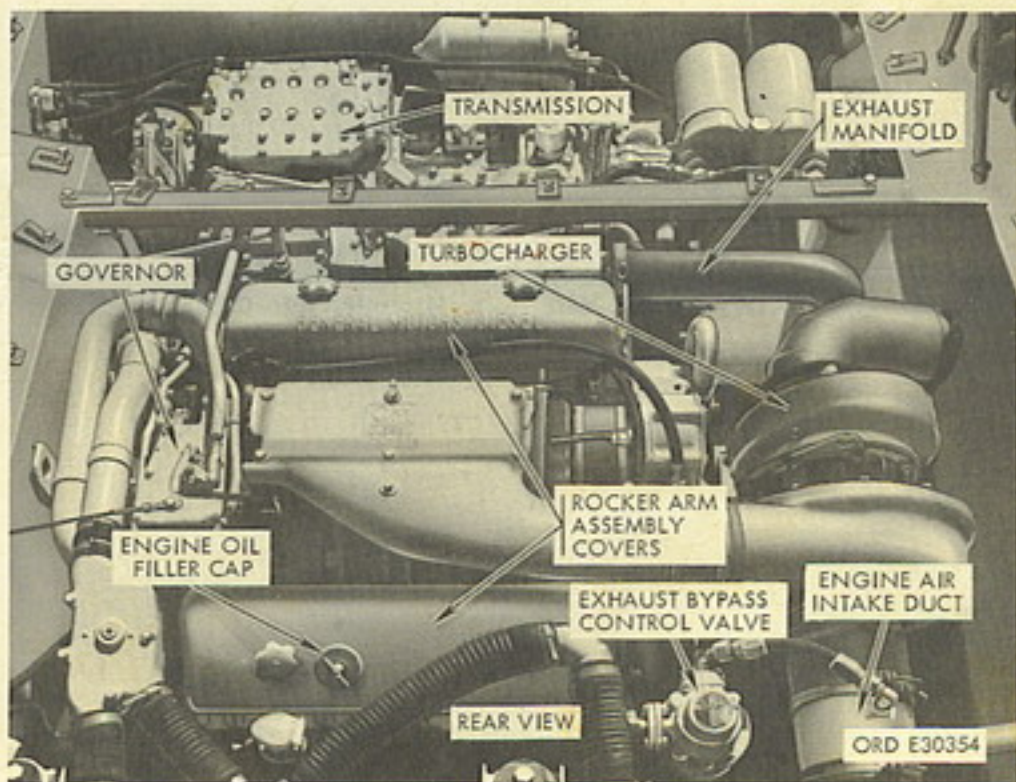
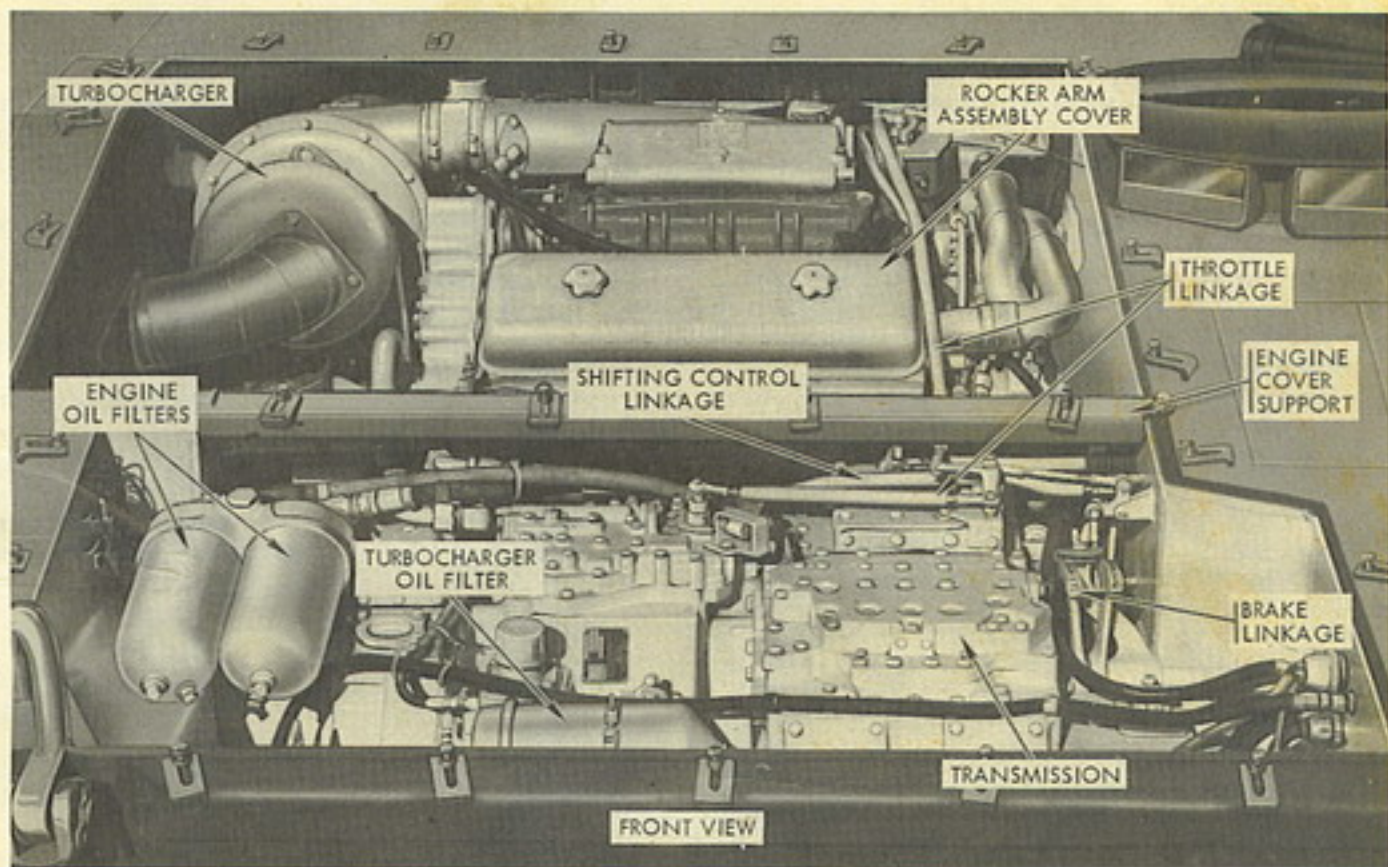


FIGURE 9. POWER PLANT INSTALLED.

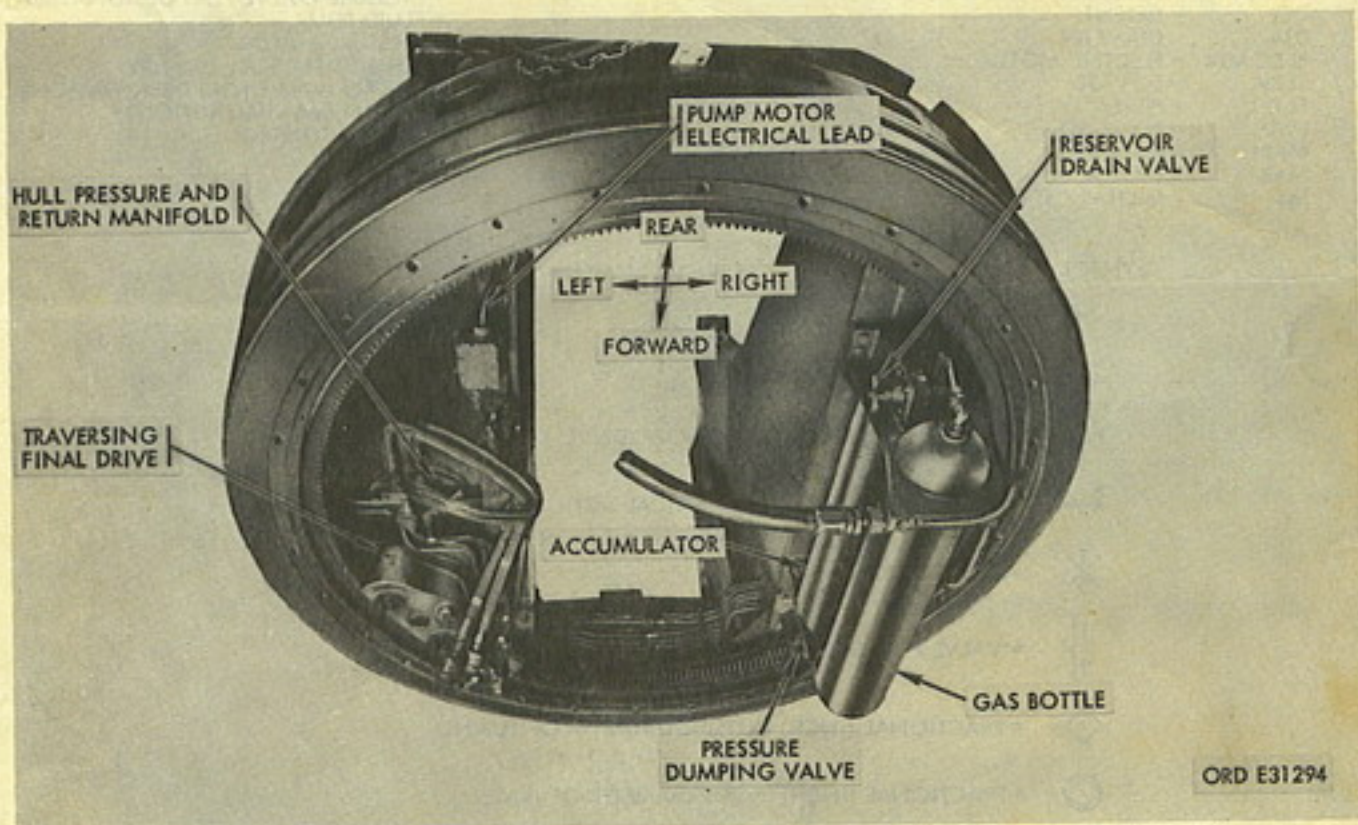













FIGURE 5. TURRET - BOTTOM VIEW (TURRET REMOVED).

LEGEND

ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
AN	= ARMY-NAVY	MV	= MOTOR VALVE
ASS'Y	= ASSEMBLY	P	= PRESSURE (VALVE PORT DESIGNATION)
DET	= DETENT	PF	= FLUID PUMP
DIA	= DIAMETER	PR SW	= PRESSURE SWITCH
ELEC MTR	= ELECTRIC MOTOR	PSI	= POUNDS PER SQUARE INCH
ELEV	= ELEVATE	R	= RETURN (VALVE PORT DESIGNATION)
FLT	= FILTER	RET	= RETURN (MANUAL ACTION)
FWD	= FORWARD	SC	= STROKE CONTROL
MAN	= MANUAL	SOL	= SOLENOID
MAX	= MAXIMUM	STR	= STRAINER
MS	= MILITARY STANDARD		

SYMBOL	DESIGNATION
N_2	= NITROGEN
	= PUMP
	= DIRECTION OF POWER TAKE-OFF (DRIVE) ROTATION
R →	= RAM (DIRECTION OF MECHANICAL ACTION)
	= TEST STATION
	= VALVE PORT DESIGNATION
	= FRACTIONAL (INCH) OUTSIDE DIAMETER OF TUBING
	= FRACTIONAL (INCH) INSIDE DIAMETER OF HOSE
	= MANUAL SHUTOFF VALVE
	= ORIFICE
	= MANUAL (TRIGGER) SWITCH
	= INTERLOCK SWITCH
	= SPRING
————	= HYDRAULIC TUBES, HOSES, AND FITTINGS AND ELECTRICAL LEADS AND HARNESSSES
-----	= HYDRAULIC CONTROL TUBES, HOSES, AND FITTINGS
-----	= HYDRAULIC DRAIN TUBES, HOSES, AND FITTINGS
→→→	= INDICATES DIRECTION OF HYDRAULIC FLOW
—+—	= INDICATES HYDRAULIC TUBE, HOSE, OR FITTING CONNECTION OR ELECTRICAL LEAD OR HARNESS CONNECTION
—⊥—	= INDICATES HYDRAULIC TUBE, HOSE, OR FITTING CROSS

NOTE. A NUMBER PRECEDING A PART NAME INDICATES THE QUANTITY OF THAT PART. NUMBERS FOLLOWING PART NAMES, OTHER THAN AN AND MS NUMBERS, ARE ORDNANCE PART NUMBERS.

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FIGURE 6. HYDRAULIC SYSTEM - SCHEMATIC DIAGRAM (SHEET 1 OF 2).

5. Tabulated Data

The following paragraphs list data for performing organizational maintenance. Other data, pertinent to the operation and service of the vehicle, are contained in TM 9-2300-216-10 and LO 9-2300-216-10.

a. General.

Type of vehicle ----- self-propelled, full tracked
Use ----- ground troops and armored
column support

Communication equipment:

Interphone communications set ----- AN/UIC-1

b. Engine.

Type ----- 2-cycle, V, turbocharged, diesel
Model ----- General Motors 8V71T
Weight, dry, as installed ----- 2,422 lb
Number of cylinders ----- 8
Displacement ----- 567.5 cu in.
Bore ----- 4.25 in.
Stroke ----- 5 in.
Compression ratio ----- 17:1
Maximum net brake horsepower ----- 350
Maximum gross brake horsepower ----- 420
Maximum rpm (governed) ----- 2,450
Cylinder cooling ----- liquid
Crankshaft rotation ----- clockwise, as viewed from
accessory end of engine
Firing order ----- 1L-3R-3L-4R-4L-2R-2L-1R
Fuel cetane rating ----- diesel 35 minimum
Lubrication type ----- pressure
Oil capacity ----- 26 qt

c. Transmission.

Type ----- X-drive
Model ----- Allison XTG-411-2A
Transmission control --- hydraulic and mechanical
Dry weight ----- 2,390 lb
Overall length ----- 61.386 in.
Overall height ----- 26.07 in.
Overall width ----- 59.08 in.

Torque converter type --- hydraulic, single stage,
polyphase, four element

Maximum input:

Input torque ----- 880 lb-ft
Input power ----- 360 hp
Input speed ----- 2,300 rpm

Steering system:

Clutches applied by ----- oil pressure
Clutches released by ----- spring pressure
Brakes applied (for steering) --- oil pressure
Brakes, service and parking- mechanical, foot-
pedal operated

Oil pumps ----- 5
Type of pump ----- gear, positive displacement

Oil capacity:

Initial dry fill (approx) ----- 21.5 gal
Refill (approx) ----- 14 gal
Oil screen ----- reusable, disk type
Lubrication pressure -- 10 psi at 1,000 engine rpm

d. Final Drives.

Manufacturer ----- Allison Division, GMC
Final drive ratio ----- 5.35:1
Dry weight:
Left final drive ----- 718 lb
Right final drive ----- 633 lb
Oil capacity:
Left final drive ----- 8 qt
Right final drive ----- 6 qt

e. Operating Ranges.

Engine water temperature, normal ----- 180° F
Engine oil pressure:
Normal ----- 60-70 psi
Minimum at 450 rpm ----- 15 psi
Minimum at 1,800 rpm ----- 30 psi
Transmission oil temperature:
Normal ----- 220° F
Maximum ----- 300° F
Transmission oil pressure:
Normal ----- 30 psi
Minimum at 1,000 rpm ----- 10 psi