

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DS, GS, AND DEPOT MAINTENANCE MANUAL

TRUCK, FIREFIGHTING
POWERED PUMPER; FOAM AND WATER
500-GPM; CENTRIFUGAL PUMP
POWER TAKEOFF DRIVEN;
400-GAL WATER TANK
40-GAL WATER TANK
(WARD LAFRANCE MODEL M44A1WLF)
FSN 4210-225-9127

HEADQUARTERS, DEPARTMENT OF THE ARMY
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TECHNICAL MANUAL

No. 5-4210-205-35

HEADQUARTERS
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TRUCK, FIREFIGHTING: POWERED PUMPER; FOAM AND WATER, 500-GPM CAP;
CENTRIFUGAL PUMP, POWER TAKEOFF DRIVEN; 400-GAL WATER TANK,
40-GAL FOAM CHEMICAL TANK (WARD LAFRANCE MODEL M44A1WLF)
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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the use of direct support, general support, and depot maintenance personnel maintaining the Model NM44A1WLF Ward Lafrance Firefighting Truck. They provide information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available to using organizations.

b. Appendix contains a list of publications applicable to this manual. The maintenance allocation chart is located in the operators and organizational maintenance manual (TM 5-4210-205-12).

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. The direct reporting by the individual user, of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will

be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to the Commanding Officer, U.S. Army Mobility Equipment Center, ATTN: SMiOME-NMMI, P.O. Drawer 58, St. Louis, Mo. 63166. One information copy will be provided to the individual's immediate supervisor (e.g., officer, noncommissioned officer, supervisor, etc.).

e. Report all equipment improvement recommendations as prescribed by TM 38-750.

2. Record and Report Forms

For other record and report forms applicable to direct support, general support, and depot maintenance, refer to TM 38-750.

Note. Applicable forms, excluding standard Form 46 which is carried by the operator, will be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. Description

A general description of the Ward Lafrance Model M44A1WLF Fire-Truck, the location, and the description of the identification and instruction plates, and detailed description of the components is contained in TM 5-4210-205-12. The repair and maintenance instructions are described in appropriate sections of this manual. For truck engine and chassis maintenance instructions, refer to TM 9-2320-235-35.

4. Tabulated Data

a. Primer Pump.

Suction side pipe ¾ in. (inch) (es)
Discharge pipe..... 1 5/16 in. diameter

b. Water Pump.

Relief valve regulator limit.....	250 psi (pounds per square inch)
Rated capacity maximum.....	500 gpm (gallons per minute)
Type	Centrifugal
Pump ratio	1 to 2:28
Shaft diameter	12 in.
Taper per foot	1 in.

c. *Time Standards.* Table 1 lists the number of man-hours required under normal conditions to perform the indicated maintenance and repair for the firetruck. Components are listed under the appropriate functional index. The times listed are not intended to be rigid standards. Under adverse conditions, the operations will take longer; but under ideal conditions with highly skilled mechanics, most of the operations can be accomplished in considerably less time.

Table 1. Time Standards

	Removal and replacement	Man-hours
03	FUEL SYSTEM	
	0312 THROTTLE CONTROL	
	Controls, throttle	0.7
06	ELECTRICAL SYSTEM	
	0607 INSTRUMENT OR ENGINE CONTROL	
	PANEL	
	Switches	0.5
	Gages	0.5
	Hourmeter	0.5
	Box, instrument	1.2
	Tachometer	0.5
	Lampholder	0.4
	Panel	
	(includes removal and installation of gages, levers, linkage, couplings, switches.)	3.5
	Cable assembly wiring (includes removal and installation of panel.)	5.0
	0608 MISCELLANEOUS ITEMS	
	Receptacle, slave	0.4
	Switch, turn signal	0.5
	0609 LIGHTS	
	Lights	0.6
	Lens; door; gasket	0.4
	Light, rotating	1.8
	0611 SIREN	
	Siren	2.6
	Switch	0.5
	0612 BATTERIES	
	Box, battery	
	(includes removal and installation of batteries; cables.)	1.3
	0613 CHASSIS WIRING HARNESS	
	Harness, wiring	4.5
	0615 RADIO INTERFERENCE SUPPRESSION	
	Components	
	(includes removal and installation of siren or light, rotating.)	0.8
12	BRAKES	
	1208 AIR BRAKE SYSTEM	
	Fittings; tubing	0.5 ea
18	BODY	
	1808 HOSE REELS	
	Reels, hose	4.5
	1812 SPECIAL PURPOSE BODIES	
	Body	
	(includes removal and installation of accessory items; lights; wiring.)	7.5
	Doors	0.4
	Apron	
	(includes removal and installation of lights, fire extinguisher bracket, receptacle, plug.)	1.8
	Tank, water	2.0
	Bracket	0.3
	Grating	0.2
	Holder, nozzle	0.3

	Removal and replacement	Man-hours
40	ELECTRIC MOTORS	
	4000 MOTORS, ELECTRIC	
	Major assemblage	
	(includes removal and installation of wiring; strap.)	0.8
	4006 STARTING AND PROTECTIVE DEVICES	
	Switches	0.5
	Solenoid	0.4
47	GAGES	
	4702 GAGES, MOUNTING, LINES AND FITTINGS	
	Gages	0.5
55	PUMPS	
	5500 PUMP ASSEMBLY	
	Pump, primer	3.5
	Pump, fire	
	(includes removal and installation of instrument panel, pump housing, lines, fittings, universal.)	11.5
	5501 IMPELLERS, ROTORS	
	Rotor, primer	
	(pump removed from unit.)	1.0
	Impeller, fire pump	
	(pump out of unit.)	1.5
	5505 SUCTION AND/OR DISCHARGE SYSTEMS	
	Manifolds	
	(pump removed from unit.)	
	(removal and installation of headers, linkage, valves.)	11.0
	Valves	
	(includes removal and installation of control panel.)	3.5
	Head, suction	
	(includes removal and installation of control panels.)	3.0
	Solenoid	0.5
	Tubing	0.5
	5507 PUMP DRIVES	
	Gears; shafts; seals; bearings	
	(includes removal and installation of universal joint.)	2.1
	Universal joint	1.0
	Controls, clutch	
	(includes removal and installation of tool box.) -	1.5
	5513 FLUID LINES	
	Fittings; lines	0.8
	Valves; controls	0.5
76	FIREFIGHTING EQUIPMENT COMPONENTS	
	7601 FOAM MAKING UNITS	
	Tank, storage	
	(includes removal and installation of pipes and fittings, hose.)	1.3
	Valve	
	(includes removal and installation of control panel, linkage.)	4.5
	Rod, valve operating	
	(includes removal and installation of control panel.)	4.0
	Pipes; fittings; baffles	
	(includes removal and installation of control panel.)	4.5

CHAPTER 2

GENERAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

5. Special Tools and Equipment

No special tools or equipment are required by direct support, general support, and depot maintenance personnel for maintenance of the firetruck.

6. Specially Designed Tools

No specially designed tools are required by direct support, general support, and depot maintenance personnel for maintenance of the firetruck.

Section II. TROUBLESHOOTING

7. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the pumping unit or any of its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause.

8. Water Pump Will Not Operate

Probable cause	Possible remedy
Pump impeller shaft damaged	Repair or replace impeller shaft (paras. 55-57).
Pump gearbox damaged	Replace or repair gearbox (paras. 49-51).
Key sheared in pump drive	Replace or repair key (paras. 49-51).

9. Water Pump Fails To Prime or Loses Prime

Probable cause	Possible remedy
Primer pump defective	Replace or repair primer pump (paras. 42-44).
Primer valve defective	Replace or repair primer valve (paras. 45-47).
Microswitch defective	Replace microswitch (TM 5-4210-205-12).
Air leaks	Repair or replace leaking pipes or fittings (paras. 17-19).

10. Water Pump Fails To Deliver Rated Flow or Develop Desired Pressure

Probable cause	Possible remedy
Relief valve defective	Replace or repair defective relief valve (paras. 52-54).
Water pump impeller defective	Replace impeller (paras. 55-57).

Water pump impeller vanes ..	Clean blades (para. 56). fouled with foreign matter.
Relief valve control defective.	Replace or repair defective relief valve (paras. 32-34).

11. Pumping Unit Will Not Produce Foam

Probable cause	Possible remedy
Metering valve defective	Replace or repair foam metering valve (paras. 38-40).
Defective foam valve	Replace or repair foam valve (paras. 35-37).
Foam lines damaged or broken	Replace defective foam lines (paras. 17-19).

12. Hose Reel Inoperative

Probable cause	Possible remedy
Drum will not turn	Replace or repair shaft bearings or defective drum (paras. 59-61).
Sprocket teeth broken	Replace or repair defective sprocket (paras. 59-61).
Drive motor or chain defective	Replace motor or chain (TM 5-4210-205-12).

13. Water Tank Leaks or Fails To Drain Properly.

Probable cause	Possible remedy
Defective drain valve	Repair drain valve (paras. 26-28).
Drain filled with foreign matter	Remove cover and clean draining system (paras. 63-65).
Discharge line damaged	Remove cover and replace discharge line (paras. 63-65).