

TECHNICAL MANUAL

OPERATION INSTRUCTIONS

BITUMINOUS DISTRIBUTOR

M918, MODEL D-63

NSN 3895-01-028-4390

E. D. ETNYRE & CO

(MANUAL PREPARED BY AM GENERAL CORPORATION)

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HEADQUARTERS, DEPARTMENT OF THE ARMY

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TECHNICAL MANUAL

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5 October 1979

OPERATOR'S MANUAL

**BITUMINOUS DISTRIBUTOR BODY
M918 (MODEL D-63)
NSN 3895-01-028-4390**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes **or** if you know of a way to improve the procedures, please let us know Mail your letter or DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) direct to: Commander, U.S Army Tank-Automotive Command, ATTN- AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope.

This manual is for your use in operating and maintaining the Etnyre Bituminous Distributor, Model D-63, which is mounted on a M918 truck chassis instructions for operating and maintaining the vehicle chassis are contained in TM 9-2320-273-10 Equipment description herein is nonmetric and does not require metric conversion or special tools Tactical instructions will include metric units in addition to U S Standard units Clarity of instructions is not impaired.

1-2. Maintenance Forms and Records.

Equipment maintenance forms and procedures for their use are contained in DA Pam 738-750, *The Army Maintenance Management System (TAMMS)*.

1-3. Reporting Equipment Improvement Recommendations (EIRs).

If your Bituminous Distributor needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (*Quality Deficiency Report*). Mail it to us at Commander, U S Army Tank-Automotive Command, ATTN AMSTA-MP, Warren, MI 48397-5000. We'll send you a reply.

Section II. DESCRIPTION AND DATA

1-4. Description

a. *Component Locations* Figure 1-1 identifies major components and their locations

b. *General* The E. D. Etnyre & Company Bituminous Distributor, Model D 63, consists of a storage tank with a low pressure heating system, hydraulic powered pumping unit, and an adjustable spray bar for distributing bituminous material The equipment is mounted on an M918 truck chassis (see TM 9-2320-273-10 for truck operating procedures).

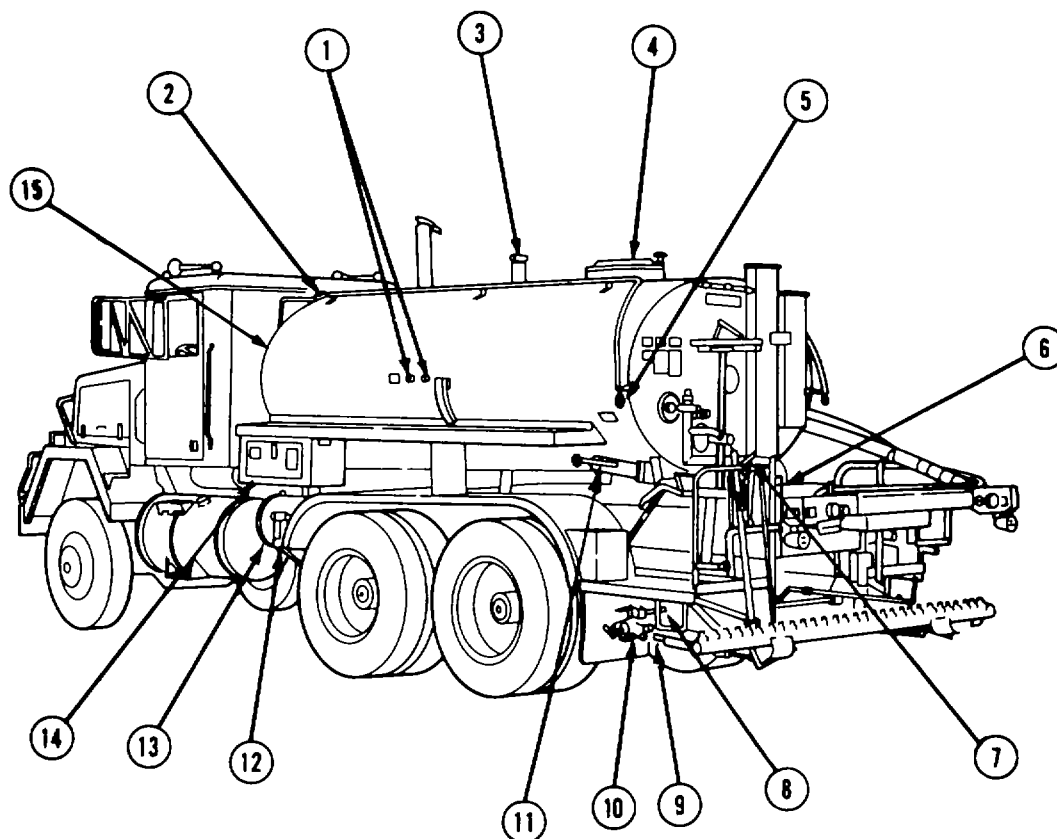
c. *Major Components (Fig 1-1)*

(1) Thermometer and Well (Dry) - Thermometer is inserted in well to check the temperature of the bitumen in the tank.

(2) Signal Bell - Used by the operator on the rear control platform to signal the driver to start and stop the truck.

(3) Overflow and Vent Cover - Permits overflow of bitumen should overfill occur.

Change 2 1-1



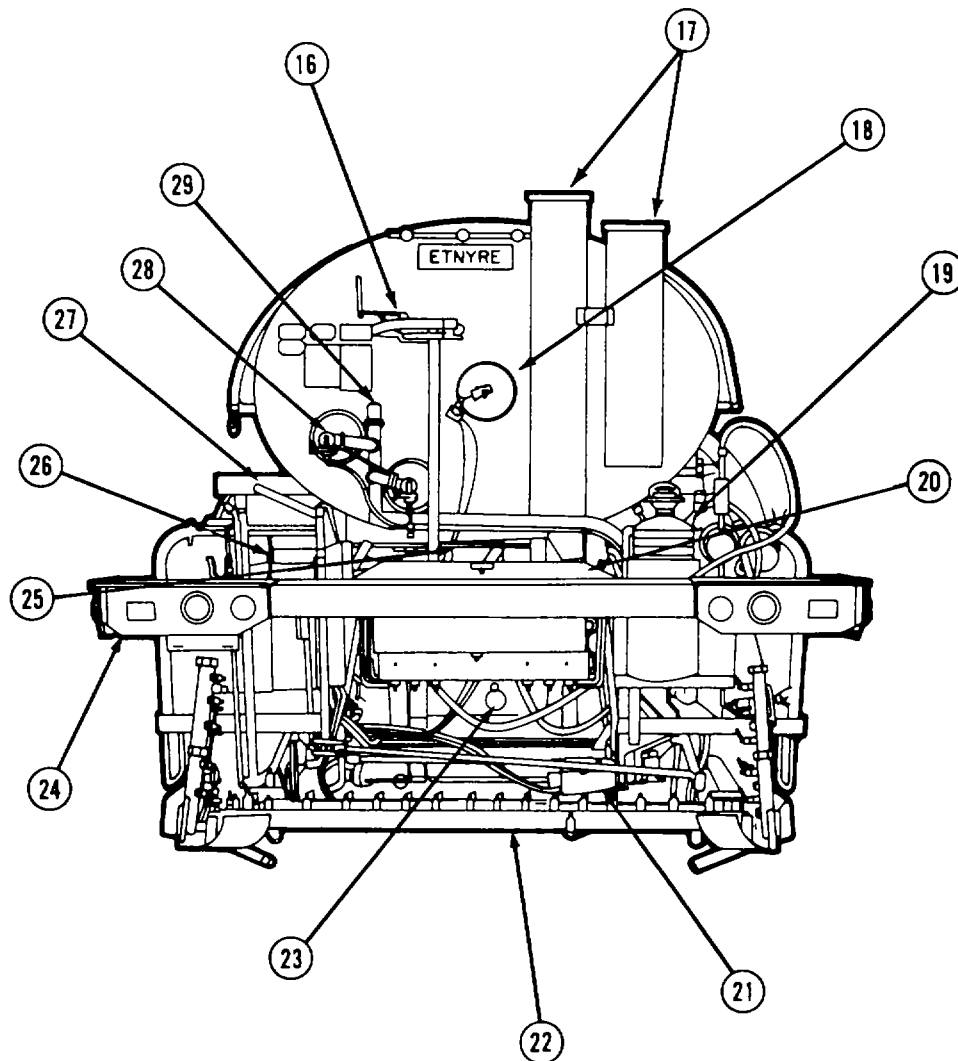
LEGEND.

1	THERMOMETER AND WELL (DRY)	9	HANDSPRAY CONNECTOR
2	SIGNAL BELL	10	TRANSFER VALVE COVER
3	OVERFLOW AND VENT COVER	11	FILL LINE CAP
4	MANHOLE	12	HYDRAULIC FILTER
5	SIGNAL BELL PULL RING	13	HYDRAULIC RESERVOIR
6	AIR CONTROL BOX	14	TOOL BOX
7	BAR TURN UP LEVER	15	MATERIAL STORAGE TANK
8.	TRANSFER VALVE LEVER		

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Figure 1-1. Major Components and their locations (sheet 1 of 3)

Change 2 1-2

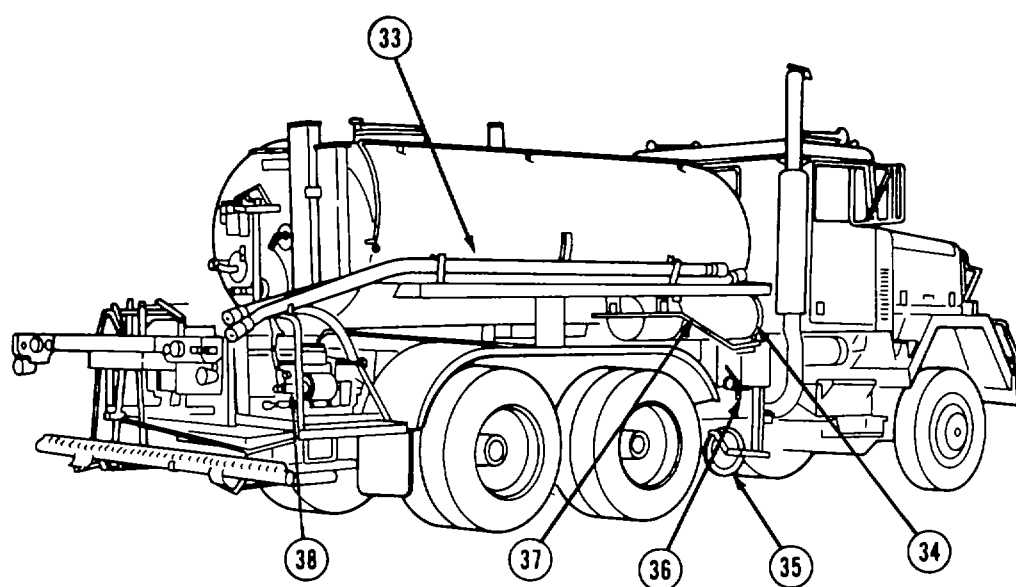
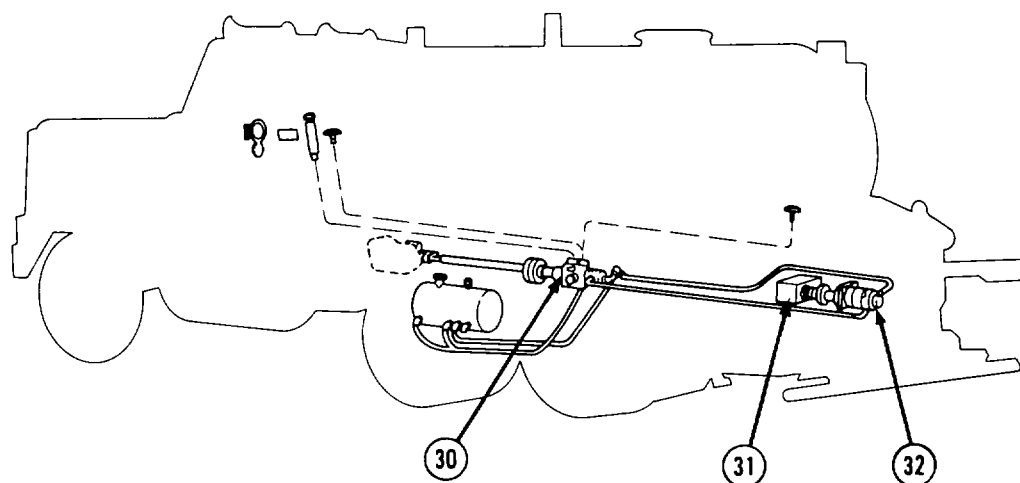


LEGEND

- | | |
|------------------------------|-----------------------------------|
| 16 QUADRANT CONTROL LEVER | 23 DISCHARGE HEADER STRAINER |
| 17 EXHAUST STACKS | 24 LOOM BUMPER |
| 18 TANK GAGE | 25 VACU-FLO VALVE LEVER |
| 19 PORTABLE BURNER | 26 BUTTERFLY VALVE LEVER |
| 20 EXTENSION BAR STOWAGE BOX | 27 INTAKE VALVE LEVER |
| 21 AIR CYLINDER | 28 LOW PRESSURE ATOMIZING BURNERS |
| 22 SPRAY BAR | 29 AIR RELIEF VALVE |

Figure 1-1. Major Components and Their Location (Sheet 2 of 3)

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LEGEND

30	HYDRAULIC PUMP	35	BITUMETER WHEEL
31	BITUMEN PUMP	36	AIR LINE LUBRICATOR
32	HYDRAULIC MOTOR	37	HAND SPRAY GUN
33	AUXILIARY HOSE (2)	38	BURNER FUEL PUMP
34	BURNER FUEL TANK		

Figure 1-1. Major Components and Their Locations (Sheet 3 of 3).

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- (4) Manhole - Provides access to the tank for cleaning the interior and may be used for filling the tank
- (5) Signal Bell Pull Ring - Enables the signal bell to be operated from the control platform at the rear of the unit
- (6) Air Control Box - Air control valves, solenoids and electrical switches are located in the air control box. The electrical switches duplicate the functions of those on the cab control panel so that the operator at the control platform can control air to raise, lower, or shift the spray bar
- (7) Bar Turn Up Lever - A mechanical lever used to turn up the spray bar after spraying operations are complete
- (8) Transfer Valve Lever - A mechanical lever used to position the transfer valve for either filling through the transfer valve rail car connection or operating the hand spray bar
- (9) Handspray Connection - Quick action connection on the transfer valve rail car connection for connecting the handspray bar line
- (10) Transfer Valve Cover - Cover provides access to the transfer valve for filling the system through the transfer valve
- (11) Fill Line Cap - Cap provides access for filling the system through the fill line
- (12) Hydraulic Filter - Filters the hydraulic fluid to prevent contamination of hydraulic motor and pump
- (13) Hydraulic Reservoir - Stores 20 gallons of hydraulic fluid to operate the hydraulic system
- (14) Tool Box - Provides a stowage location for Basic Issue Item Tools and Integral Components of End Item
- (15) Material Storage Tank - The 1500 gallon capacity storage tank is elliptical in shape and is made of welded steel. It contains a surge plate which prevents sudden shifting of contents and also supports the heating flues. The flues are securely supported by the surge plate to eliminate vibration and allow for expansion and contraction. Insulation, consisting of 2 in fiberglass material, reduces heat loss.
- (16) Quadrant Control Lever - Positions the control valves for controlling flow of the bitumen from the bituminous pump
- (17) Exhaust Stacks - Exhaust fumes from the low pressure atomizing burners
- (18) Tank Gage - Indicates the number of gallons of bitumen in the storage tank
- (19) Portable Burner - The portable burner is used to heat components containing bitumen other than the storage tank, e.g., bituminous pump, spray bar, plumbing, etc.
- (20) Extension Bar Stowage Box - The stowage box is used to stow the extension bars when not in use

(21) Air Cylinder - There are a total of five air cylinders that provide directional force to shift, raise, lower, and tilt the spray bar.

(22) Spray Bar - The spray bar can be adjusted from eight to twenty-four feet with one and two foot sections. The end sections are tapered to aid in draining and may be folded for traveling. The bar can be shifted fourteen inches laterally (seven inches each side of center) to follow a given line. Normal operation requires an eight foot spread. The height of the spray bar is adjustable.

(23) Discharge Header Strainer - Strains the bitumen after it leaves the pump and before it is distributed through the control valves. Removes contaminants from the bitumen.

(24) Loom Bumper - Protects the equipment mounted on the rear of the distributor from being hit accidentally. Also houses the rear side marker, backup, turn and clearance, blackout, and tail and stop lights and the wire harness for the lights.

(25) Vacu-Flo Valve Lever - The vacu-flo works in conjunction with the quadrant control to route bitumen from the spray bar and fill system back into the storage tank for filling and cleaning operations. Vacu-flo valve positions are:

(a) Vacuum off for filling

(b) Cleaning left half bar only

(c) Cleaning right half bar only

(d) Cleaning entire bar

(26) Butterfly Valve Lever - Regulates pressure in the right side return line to tank. Butterfly valve is left open for all operations except it is partially closed during hand spray operations to regulate pressure.

(27) Intake Valve Lever - The intake valve shuts off the system at the pump (when operations are complete) to prevent leakage from the tank through the system.

(28) Low Pressure Atomizing Burners - The low pressure burners operate on diesel fuel from a storage tank. The burners are mounted at the rear of the tank with ignition tiles located in the heating flues. The burners are supplied with a combination of air and fuel by a combination burner blower and burner fuel pump.

(29) Air Relief Valve - The air relief valve vents excess air pressure from the burner blower.

(30) Hydraulic Pump - The pump is an axial piston type with an infinitely variable displacement. Minimum displacement is 4.5 cubic inches per revolution. The pump operates off the truck chassis PTO and supplies hydraulic pressure to operate the hydraulic motor.

(31) Bitumen Pump - This heavy-duty gear-type pump is driven by the hydraulic motor through a double universal joint and sealed bearing, with overload protection. The pump has a delivery capacity of 400 gallons per minute and supplies material to a 24 foot spray bar with sufficient pressure to produce an even fan-like spray from all nozzles, at any specified rate between 0.10-1.0 gallons per square yard.

(32) Hydraulic Motor - The motor is an axial piston type with a fixed displacement of 4.88 cubic inches. The motor powers the bitumen pump.

(33) Auxiliary Hoses - Auxiliary hoses are used for filling the distributor or transferring the bitumen.

(34) Burner Fuel Tank - The tank stores diesel fuel for the low pressure atomizing burners used to heat the bitumen.

(35) Bitumeter Wheel - With the wheel lowered and the distributor in motion, the wheel measures ground speed in terms of feet per minute.

(36) Air Line Lubricator - Lubricates air in the system to prevent corrosion of plumbing valves, air cylinders, etc.

(37) Hand Spray Gun - This gun is connected to the transfer valve and is used to spray areas not accessible using the regular spray bar on the distributor.

(38) Burner Fuel Pump - The pump is driven by a direct drive coupling to the blower assembly which is powered by a hydraulic motor. The pump supplies diesel fuel to the burners from the burner fuel tank.

d. Truck Chassis Operation - You will need to become familiar with the truck chassis components. Refer to TM 9 2320-273-10 for operating instructions.

1-5. Tabulated Data

a. Capacities, Weights, and Dimensions. - Table 1-1 lists data on the Bituminous Distributor capacities, weights, and dimensions, which you may need when you are operating the equipment.

b. Instructions,- Data Plates Figure 1-2 identifies the bituminous body instruction and data plates.