TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT

AND GENERAL SUPPORT MAINTENANCE MANUAL

INCLUDING REPAIR PARTS INFORMATION

AND SUPPLEMENTAL

OPERATING, MAINTENANCE AND REPAIR

PARTS INSTRUCTIONS

HEATER, HOT OIL, TRAILER MOUNTED

MODEL 200 STM 77

NSN 3895-01-063-7892

HEADQUARTERS,DEPARTMENT OF THE ARMY

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HEATER, HOT OIL, TRAILER MOUNTED
2, 100, 000 BTU/HR RATED OUTPUT
VOLCANIC HEATER INC., MODEL 200STM77

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HOT OIL HEATER
CHAPTER 1
INTRODUCTION

Section A. GENERAL

1. Scope

a. These Instructions are published for the use of the personnel to whom the Volcanic Hot Oil Heater, Model 200STM77, is issued. Chapters 1 through 5 provide information on the operation, maintenance of the equipment, accessories, components and attachments This manual provides descriptions of the main units and their functions in relationship to other components.

b. This manual covers only the Volcanic Model 200STM77 Hot Oil Heater.

2. Theory of Operation

a. The Volcanic Model 200STM77 Hot Oil Heater is designed to handle heat transfer liquid. Its coil design permits full control over temperature and flow of heat transfer liquid to external users.

b. Outlet fluid temperature is controlled by an Indicating temperature control which has its capillary element mounted in a well in the heater outlet header pipe. This instrument is set for on-off operation.

c. A high temperature limit control also has Its element Installed in the heater outlet header pipe When this limit control is activated, It will shut down the burner.

d. A low level control Is mounted in the rear of the expansion tank. The liquid fluid level must be above this float control for operation of Hot Oil Heater

e. A pressuretrol is Installed with piping connections to the heater outlet header pipe This switch insures that the pump pressure is adequate during operation and that the liquid is flowing through the heater coil

f. The flame program control provides for automatic Ignition, firing operation, and flame failure alarm of the Hot Oil Heater burner In conjunction with the limits, operating controls and interlocking devices, the flame program control programs the burner-blower motor, Ignition transformer, and the fuel valves.

g. The circulating pump provides the capacity and pressure to circulate the heat transfer liquid through the heater coil and external user. The circulating pump motor is activated by push buttons In the starter cover plate. This pump must be started before the firing sequence can begin.

h. The burner provides the flame to heat the oil. It is activated by the burner switch, which when in the "on" position, completes the limit circuit. When all limits are in the "closed" or operating position, the flame program control will activate for automatic firing sequence.

i. An ultraviolet (UV) scanner monitors the flame at all times during the firing cycle. If a loss of flame occurs, fuel valves will close within 2 to 4 seconds and flame program control will go into alarm condition. Reset must be pushed to reactivate control.

j. General. The hot oil heater operates in conjunction with several other units to accomplish its purpose, which is to supply heat for the heating of liquids. It requires an external power source and external fuel supply. Using the liquid transfer hoses, a closed circulating system must be set up between the hot oil heater and the external system requiring heat to carry the heated transfer oil to the external system and return it to the hot oil heater for reheating. The hot oil heater should be installed and operated on a level site and with adequate ventilation.

Section B. DESCRIPTION AND DATA

3. Description

The Volcanic Model 200STM77 Hot Oil Heater (Fig. 1 & 2) is a mobile, heavy duty, high output heater, consisting of the heater unit complete and mounted on a trailer. It normally is used with two asphalt meters operating in parallel or with a heavy duty asphalt plant, and is designed to heat transfer oil and pump this oil to the external systems requiring heat. External electrical power and fuel must be provided for its operation. Power supply should be 15 Kilowatt, 3 Phase, 60 Hertz, 230 Volts capacity.

4. Identification and Tabulated Data

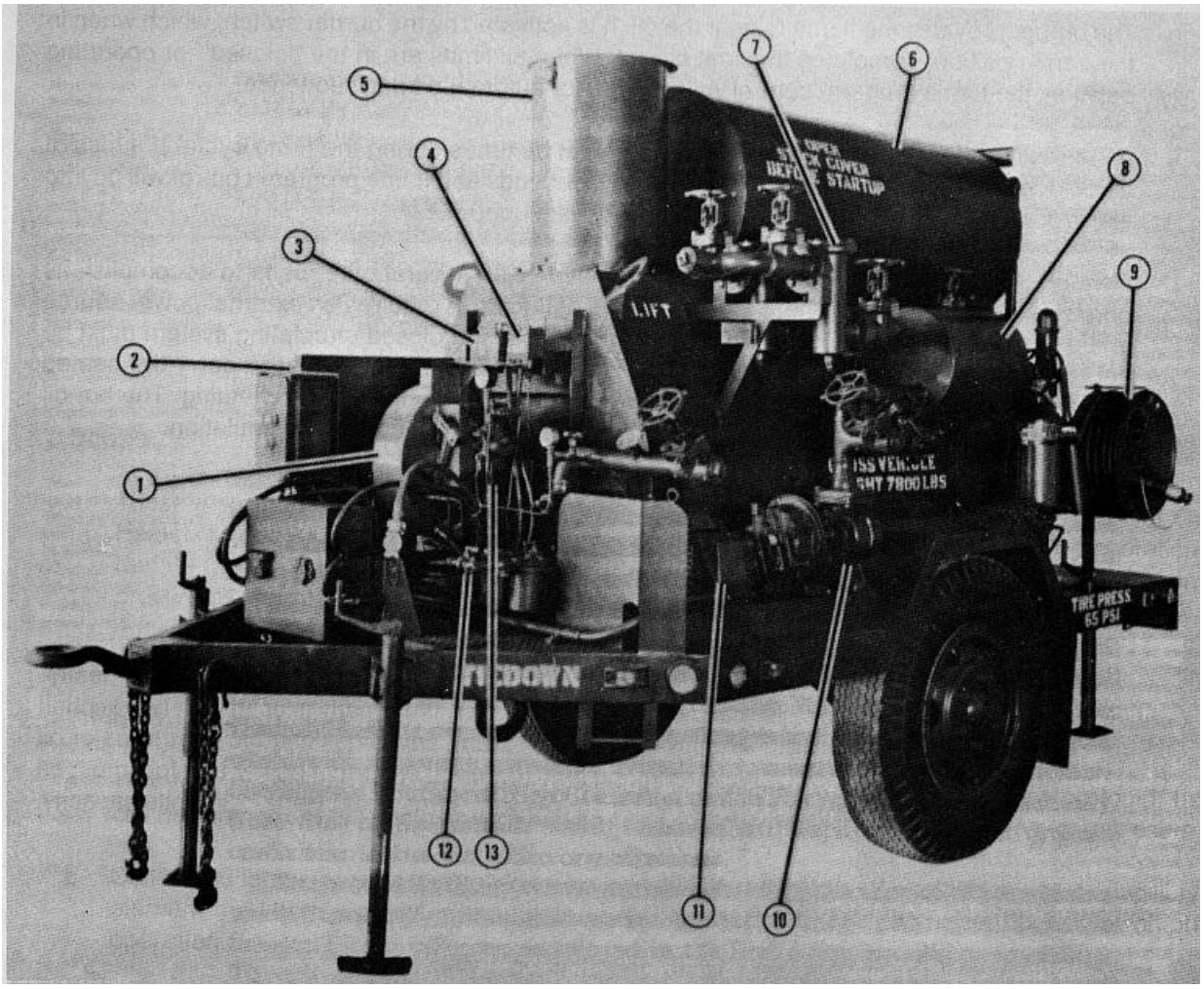
a. Identification. The hot oil heater has six identification plates:

(1) U. S. Army - Located on the hull of the hot oil heater on the left front side. Specifies the nomenclature, serial number, serial number range, manufacturer, model and contract number, and dimensions.

(2) Transportation Date Plate - Located on the hull of the hot oil heater on the left front side. Indicates location and capacity of lifting and tiedown attachments on the hot oil heater.

(3) Burner Plate - Located on the front of the burner. Specifies the manufacturer, size, type, serial number, motor and control amperage, and firing rate.

(4) Circulating Pump Plate - Located on the circulating pump housing. Specifies manufacturer, serial number, figure number, type and ratio number.

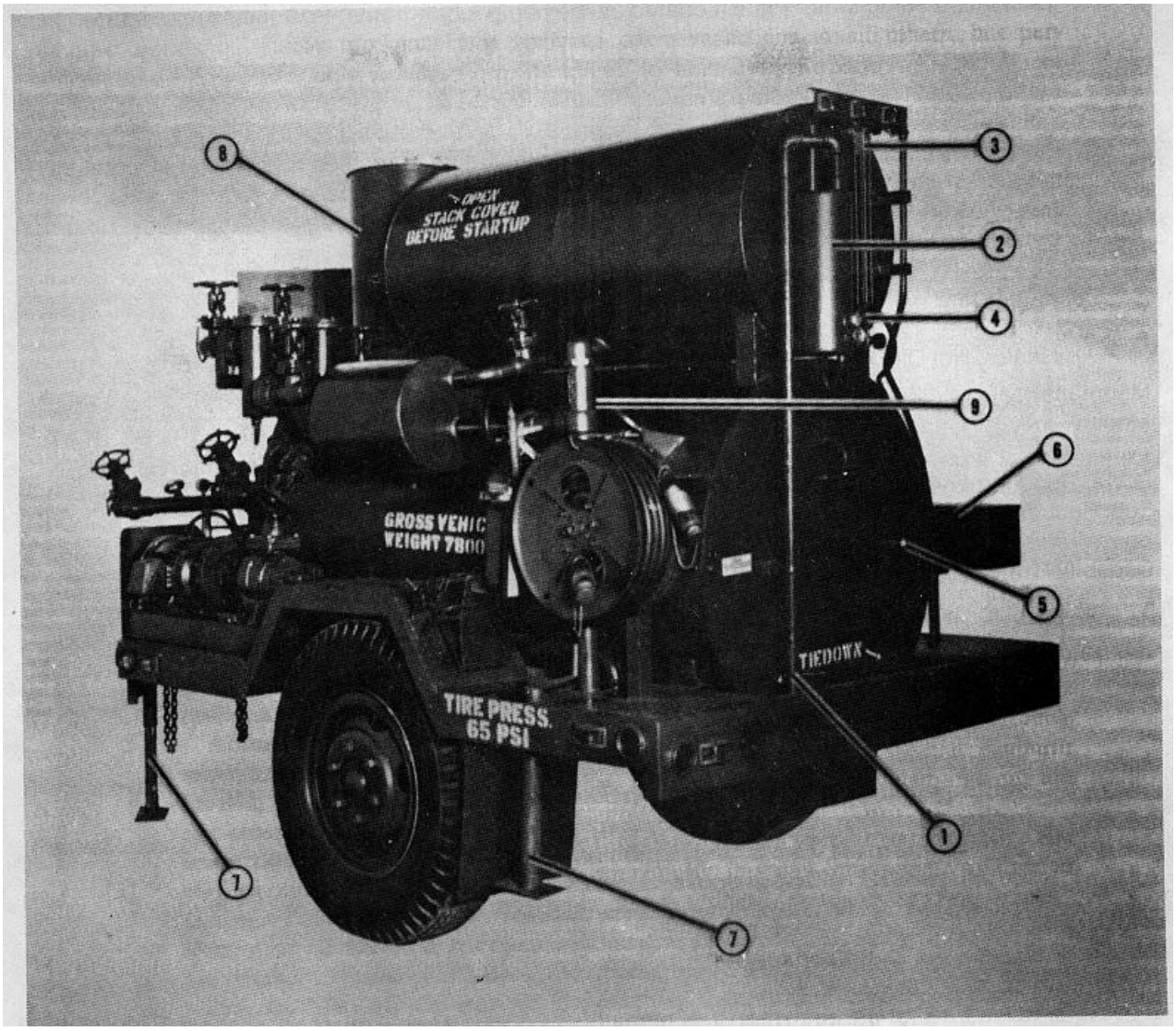


SHIPPING DIMENSIONS
165" LONG
102" HIGH
80" WIDE
780 CUBIC FEET
7800 LBS.

LEGEND FOR FIGURE 1

1. BURNER
2. CONTROL BOX
3. HIGH TEMPERATURE
4. PRESSURETROL
5 EXHAUSE STACK
6 OIL RESEVOIR & EXPANSION TANK
7 DUAL STRAINERS
8 SURGE TANK
9 CABLE REEL & 100 FT CABLE
10 CIRCULATING PUMP
11 MOTOR
12 FUEL OIL SUPPLY CONNECTION
13 FUEL OIL RETURN CONNECTION

Figure 1. HOT OIL HEATER, LEFT FRONT THREE-QUARTER VIEW WITH SHIPPING DIMENSIONS.



LEGEND FOR FIGURE 2

1. VENT PIPE
2. COLD SEAL TANK
3. SIGHT GAUGE
4. LOW LEVEL CONTROL
5. FLAME VIEW SIGHT
6. HOSE CONTAINER
7. LOAD JACKS
8. EXHAUST STACK
   HOT OIL RELIEF VALVE

Figure 2. HOT OIL HEATER, LEFT REAR, THREE-QUARTER VIEW