TABLE OF CONTENTS

IMPORTANT NOTES

- The Pneumatic Foam Unit you are about to use is EXTREMELY heavy. Place wheel chocks under the wheels whenever the Unit is not attached to a towing vehicle.

- When the Pneumatic Foam Unit is in operation, the Engine and Compressor get VERY HOT. Touching either of them will cause a severe burn.

- The chemical pump operates at pressures greater than 500 psi. Many of the pipelines on the Pneumatic Foam Unit are at high pressure. The entire system must be vented prior to doing any maintenance on the Unit.

- The Pneumatic Foam Unit has a water-type solution throughout its piping and in the tank. Therefore, the Unit will freeze when subjected to temperatures below 32˚F for extended periods. Severe damage can result from freezing. Please avoid at all costs.

Section 1: General Equipment Description

The Pneumatic Foam Unit (PFU) 400/25 is designed to apply any of the Rusmar Incorporated Long Duration Foam products as cover material for the control of odors, VOC emissions, dust blowing particulate matter, rain induced erosion and daily cover for the working face of a landfill.

The PFU is completely self-contained and includes a diesel engine, air compressor, solution pump, solution tank, hose reel, fill pump and freeze protection system. The PFU delivers about 500 gallons of foam per minute via a 200 foot long hand held hose and nozzle. The unit will cover 4000 to 7000 square feet per fill-up, depending on the product being applied and the required depth. The unit will pump itself empty in about 16 minutes of continuous foaming.

The PFU is equipped with an electrically operated freeze protection system and severe damage will occur if exposed to temperatures lower than 32 degrees Fahrenheit unless the system is plugged in and operating properly. Please consult the factory if you need additional information.

SECTION 2: Pneumatic Foam Unit Operation

Description of Major Components:

Compressor/Engine Package: Sullair or Sullivan-Palatek 185 CFM Rotary Screw

Engine: John Deere 4045 Diesel
276 Cu. In. Displacement
80 Horsepower
12 VDC

or

John Deere 4039 Diesel
239 Cu.In. Displacement
80 Horsepower
12 VDC

Compressor: Sullair or Sullivan-Palatek
185 CFM @ 100 psi

Hydraulic Pump: Commercial Shearing Model P20A 594 BEYF12-66
18 GPM @ 1750 RPM

Chemical Pumping System

Solution Tank: 400 Gallons

Fill Pump: Sandpiper Air Diaphragm Model EB1-A TB-1-C1; 50 GPM Max.

Solution Pump: Cat Pumps Model 2520 Piston; 25 GPM @ 400 psi

Hydraulic Motor: Commercial Shearing Model M50A 898BEYF17-11; 10 Hp

Coupling: Rexnord EB-20

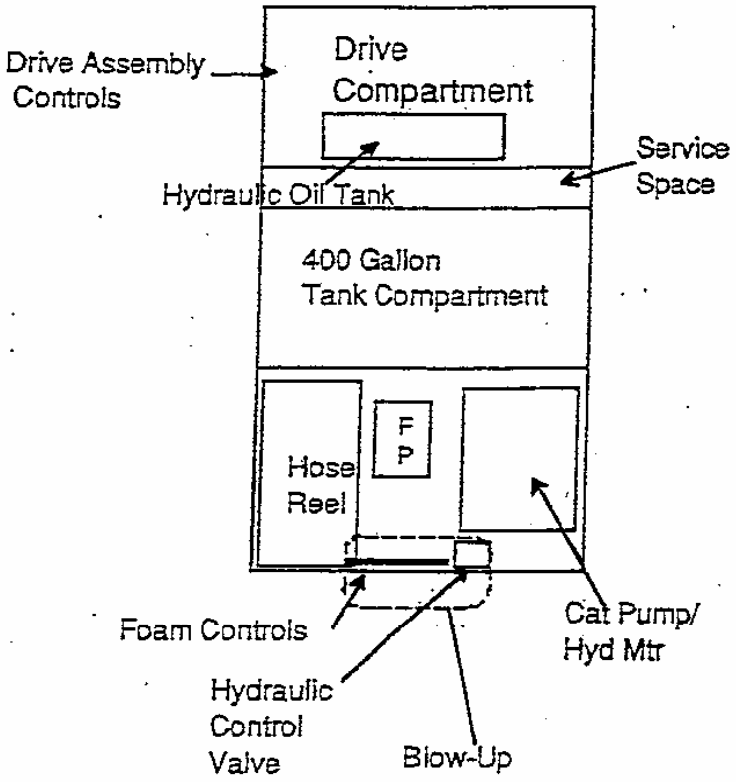
Foam Distribution

Hannay Hose Reel: 12VDC Electric Rewind

GENERALIZED SCHEMATICS

A. PFU Equipment Layout (Top View)

Cat Pump- Chemical Pump
Hyd Mtr - Hydraulic Motor **FP -** Tank-Filling Pump



A. General Preparation for Operation

(1) Inspect system for any leaks or apparent damage that may affect the operation of the unit.

(2) Check, and fill if necessary, the level of oil in each of the following reservoirs: John Deere Diesel Engine, Sullair or Sullivan-Palatek Compressor, Hydraulic Drive System, and Cat Pump. See Section 3 for more details.

(3) Fill the diesel fuel tank.

NOTE: DO NOT RUN THE ENGINE OUT OF FUEL. DOING SO WILL NECESSITATE AIR-VENTING OF THE ENGINE FUEL INJECTORS IN ORDER TO RESTART.

(4) Check the coolant level in the Diesel Engine.

(5) Add a few squirts of oil to each of the small "oil pipe" holes (covered by pipe plugs) on top of the Cat Pump.

(6) Check that the Hydraulic Drive is in "OFF" position (valve handle is in a vertical position, as indicated by "ON/OFF" sign).

(7) Check that the Main Foam Control valves (labeled "COMPR AIR" and "CHEMICAL") are in the "OFF" position.

FILLING THE PFU

The Pneumatic Foam Unit (PFU) 400/25 is filled using the on board Sandpiper air powered pump. The compressor must be making air as described earlier in this section.

The fill port and valve are located beneath the rear control panel on the deck of the trailer (center rear). The valve to operate the Sandpiper pump is located in the center of the right edge of the main control panel. (On some older PFU's, this valve may be located below the panel near the fill port.)

1. Close the chemical valve on the rear control panel.

2. Connect the dip leg to the fill port and insert it into the material to be loaded. Be careful not to get stones and other debris in the dip leg by laying it on the ground. Make sure the drum gasket and seal are removed to eliminate the possibility of their being sucked into the pump.

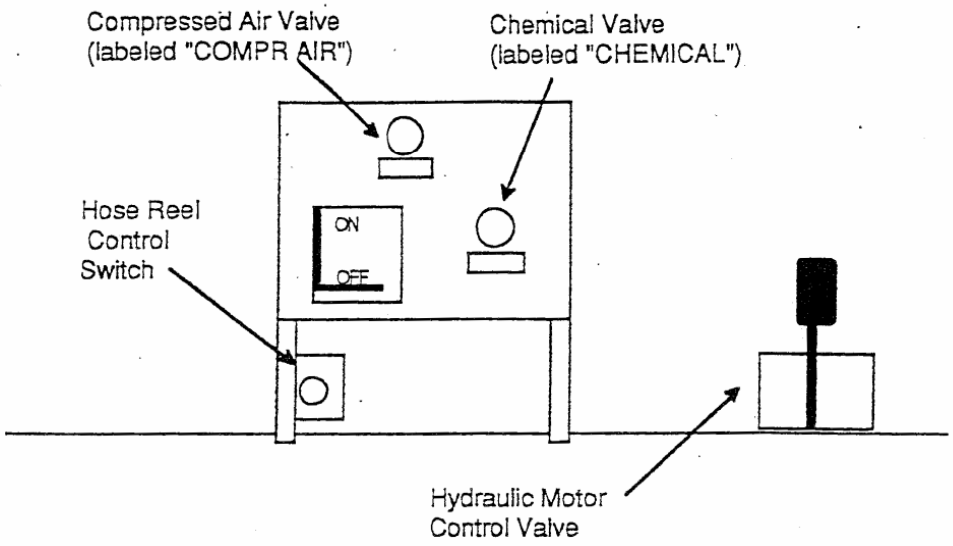
3. Open the fill port valve.

4. SLOWLY open the Sandpiper valve until it is obvious that the pump is lifting material from the drum into the PFU. It may be necessary to do this more than once to get the pump to suck. Sometimes, it is helpful to start by sucking water before trying to pump any of the foam products.

5. AS SOON AS THE SANDPIPER STARTS LIFTING MATERIAL, start the Cat product pump by actuating the hydraulic motor control valve on the deck to the right of the control panel.

6. Once satisfied the PFU is being filled, slowly open the Sandpiper control valve to increase the pump speed. Listen to the pump to be sure it continues to pick up from the drum.

B. Blow-Up


Compressed Air Valve
(labeled "COMPR AIR")
Chemical Valve
(labeled "CHEMICAL")
Hose Reel
Control
Switch
ON
OFF
Hydraulic Motor
Control Valve

STARTING CHEMICAL PUMP AND CHEMICAL CIRCULATION

1. Engage Hydraulic Assembly by putting the hydraulic valve lever into the "ON" position.

2. Check the reading of the Pressure Meter on the top of the hydraulic control vavle. If the hydraulic pressure is greater than 2500 psi, immediately turn the valve "OFF" by positioning hydraulic valve lever into a vertical position. The hydraulic pressure should return to 0 psi. If the pressure gauge does not return to 0 psi, the gauge is defective and must be replaced (replace gauge with a minimum 3000 psi, hydraulic, liquid-filled gauge). If the gauge does return to 0 psi, restart the chemical pump by positioning the hyrdraulic valve lever in the "ON" position. If the pressure again rises above 2500 psi, turn the valve "OFF" and call Rusmar Incorporated (800-733-3626).

3. If required, attach the Nozzle Assembly to the hose line, assuring that the lock rings on the quick-disconnect fitting are in "LOCKING" position. (The two movable levers on the fitting are pushed against the fitting body and secured by sliding the clip or cam lever ring located on the lever through the eye hole which protrudes through the center of the lever. The clip or cam lever ring holds the movable lever in place, against the fitting body.)

4. Begin foam production by turning the "COMPR AIR" and "CHEMICAL" valves on. Foam will emerge after a short delay.

NOTE: HANDLINE NOZZLE ASSEMBLY MUST BE HELD SECURELY DURING FOAM PRODUCTION.

SECTION 8: MAINTENANCE SCHEDULES

QUICK REFERENCE MAINTENANCE INFORMATION

John Deere Diesel Engine

Fuel Type: Any good quality ASTM No. 2-O or 2-D climatized diesel fuel
Oil Type: SAE 10W40
Oil Grade: Use API quality grade CD/SC, CD/SD, CD/SE, or CD/SF
Oil Filter Type: John Deere #JDT19044
Fuel Filter: John Deere #JD14R50041
Primary Air Filter: John Deere #JDAT44378
Secondary Air Filter: John Deere #JDAT44377

Compressor

Contact Rusmar at 800-733-3626 for appropriate filter and lubrication oil information.

Hydraulic System

Oil Type: ISO Grade 32

Cat Pump

Oil Type: Crankcase Oil Cat 6100 (ISO Grade 68…. SAE 10W40)

SECTION 9: FREEZE PROTECTION SYSTEM OPERATION AND RETURN SHIPPING

All of the Rusmar foam products have a freezing point of approximately 32 degrees F. Frozen product can cause extensive damage to the PFU.

An electrically operated freeze protection system is optional on the PFU400/25. Those so equipped are easily identified by the presence of an electrical box mounted to the front of the tank and centrifugal pump in the space between the rear of the compressor and the front of the storage tank.

The PFU400/25 freeze protection system is activated by connecting a source of 110 volt 50 amp power to the receptacle on the electrical box located between the solution tank and the compressor. The white light on top of the box is "on" when the system has power and is ready to operate.

The system uses a 110 volt heat pad to heat the liquid in the tank and either a G&L Model 1ST1C4E4 centrifugal pump or a Tuthill 4C1EV pump to circulate the heated liquid throughout the system. **If the Tuthill pmp has a grease fitting for the shaft seal, it must be lubricated with "chassis lub" type grease each day it is used.** The heat pad (inside the sheet metal cover on the lower front corner of the tank) is controlled by an Asco temperature switch located in the recirculation line near the pump. The temp switch is set to activate the heat pad at approximately 45 degrees F and turn it off at 65 - 70 degrees F.

The electrical box (above) has breakers for the pump, heat pad and power for the heat tracing at the tank fill port. The heat tracing and pump are not controlled by the temperature switch.

In order for the system to operate properly, the liquid level in the tank must cover the surface of the heating pad (approximately 125 - 150 gallons).

The de-activate the freeze protection system and prevent freeze-up damage while waiting for pick-up and during shipment:

Foam out as much solution as possible.

Locate the Cat Pump feed line which comes from the tank to the bottom of the pump head. Trace the line back from the pump towards the tank and locate the Dixon quick disconnect coupling. Break the line at the coupling.

Open the fill-valve half way.

TO ACTIVATE THE FREEZE PROTECTION SYSTEM ON THE PFU400/25

The freeze protection system will require 120V electrical supply. To engage the freeze protection system:

1. Make sure at least 200 gallons of chemical is in the tank.
2. Connect the electrical cord (supplied by Rusmar) from your electrical panel to the receptacle located in the PFU control panel. The electrical cord will come with a pig tail end to make the connection on your electrical panel.
3. Make sure breakers in the PFU control panel are turned on. This will turn on the recirculation pump and heat pad.
4. Once pump is running, crack ball valve and look for solution discharge out of clear tube to verify flow through the system.
5. After 10 minutes, feel heat pad on tank and heat traced hoses on the PFU for warmth and flow through the lines.

If chemical does not seem to be flowing through the system, unplug and call Rusmar at 800-733-3626. Do not allow freeze protection system to continue to run as damage will result to the recirculation pump and other on-board components. Do not leave the PFU400/25 subjected to freezing temperatures without the freeze protection system engaged and operating properly.