

M-111-2-91



**SAM
BLACK-TOPPER®**

MANUAL SUPPLEMENT

OPERATION, MAINTENANCE, PARTS and SAFETY

Supplement to M-111-87R
SAM Blacktopper Operation, Maintenance Parts and Safety Manual

Supersedes and replaces the following previous supplements:

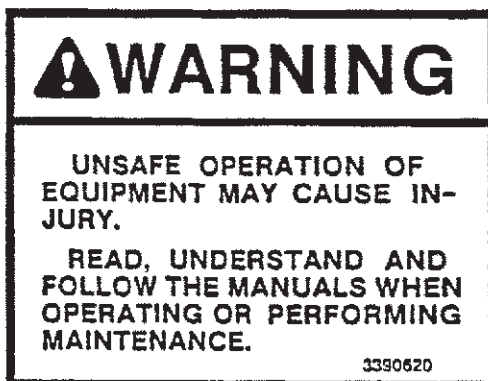
M-111-2-88 SAM with manual 4way Valve
M-101-5-89 Safety Instructions
M-101-16-89 High Pressure Burners
M-101-17-88R U-RAI Blower

E. D. ETNYRE & CO., Oregon, Illinois 61061

Introduction

The Sam Model Etnyre Distributor has been designed to include the accuracy obtainable with the BTH models plus time and work saving functions never before available. The following sections will assist you in understanding the unique features of the Sam.

Please note the same safety practices followed to prevent personal injury apply to any Asphalt Distributor.



Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying E. D. Etnyre & Co.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or E. D. Etnyre & Co.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, D.C. 20696. You can also obtain other information about motor vehicle safety from the hotline.

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WARNING

Safety Precautions

The use of a bituminous distributor normally requires the handling of liquid materials at elevated temperatures. Additionally, these materials may be of a volatile nature. A heating system is supplied to provide or maintain these

temperatures and these systems use highly combustible fuels. The bituminous distributor is a piece of operating equipment and must be carefully maintained and operated. Because these requirements involve potentially hazardous situ-

ations, we are calling attention to them for your safety. Appropriate cautions are listed below; and, wherever they occur in the operating instructions, they will be identified by a Caution Symbol.

- 1** To quickly extinguish any fire, always have dry chemical type extinguisher available and in good condition.
- 2** After one week, and then monthly, check on all body tie downs and fasteners. On trailer units check king pin plate fasteners and all suspension and running gear components.
- 3** To reduce fire hazard, burning cigarettes or other sources of combustion must be kept clear of open manholes and overflow vents.
- 4** To prevent ignition of volatile gases, eliminate sparks from engine exhausts.
- 5** To prevent becoming entangled in machinery, remain clear of rotating drives.
- 6** To prevent burns to the hands, use gloves or insulated material when handling heated spray bar sections or hoses.
- 7** To insure that overflow tube has not become clogged, inspect monthly and clean if necessary.
- 8** Since pressure may build up in asphalt tank, always open manhole cover slowly.
- 9** To eliminate leaks which may spray hot bitumen on yourself or others, secure all pipe and hose connections before opening valves.
- 10** To prevent fire hazards, burns and falls, keep unit clean for safe operation.
- 11** To reduce fire hazard, keep spraying area clear of open flames or sparks when spraying with volatile materials.
- 12** To prevent possible burns from asphalt spray, do not stand so that accidental opening of spray bar valves will permit contact.
- 13** Disconnect all cables on distributor control panels before welding on Distributor or truck.
- 14** Before removing fill line cap, pump off or suction strainer lid, relieve pressure in system by turning asphalt pump if electric flushing pump has been running.
- 15** Operation of spraybar valves, suction and return valves and 4-way valve causes rapid movement. Stay clear at all times to prevent injury.
- 16** To prevent foaming or violent eruption, do not load with material over 200°F if water is present in the tank or if an emulsion was used in the previous load. Clean and thoroughly drain first. When filling a unit in which moisture or emulsion may be present in the spray bar or circulating system, allow a small portion of hot material to circulate in bar before filling tank.
- 17** To prevent foaming or violent eruption, do not heat material over 200°F if moisture or emulsion is present.
- 18** To avoid volatile fumes drifting toward burners, position unit broadside to wind when heating material.
- 19** To avoid an extreme fire hazard or explosion, do not use gasoline instead of kerosine or fuel oil on generating or low pressure burners.
- 20** To prevent an explosion, flues must be covered by a minimum of 6 inches of material when heating.
- 21** To avoid having hot material overflow from the tank, allow sufficient space in the tank for expansion of the material when heating.
- 22** To prevent an explosion from exposure of hot flues, do not remove material from the tank while burners are in operation.
- 23** To prevent an explosion or possible fire from raw fuel from an extinguished burner flame, do not operate burners unattended, while vehicle is in motion or in a confined area.
- 24** To avoid a possible fire, do not heat material in a leaking tank.
- 25** To prevent possible hand burns, use a torch (not a match or lighter) to light burners.
- 26** To prevent possible hand or facial burns, light inside burner first. Do not reach across a lit burner to relight inside burner. Shut off outer burner and restart sequence.
- 27** To avoid a possible explosion, when burners go out, allow flues to ventilate for several minutes before relighting burners.
- 28** To prevent a possible explosion, do not heat material beyond manufacturers recommended temperature.
- 29** To avoid spraying other people with hot material when handspraying, hold handspray gun in proper position and watch for other people.

Safety Instructions

Loading Tank - Heating Asphalt

- 1** Do not start burners unless flues are covered with at least 6 inches (150 mm) of asphalt.

If tank is not level, front of flue might be uncovered even if rear of flue is covered.

Be sure the flues are covered with at least 6 inches (150 mm) of asphalt over their full length to avoid a tank explosion.

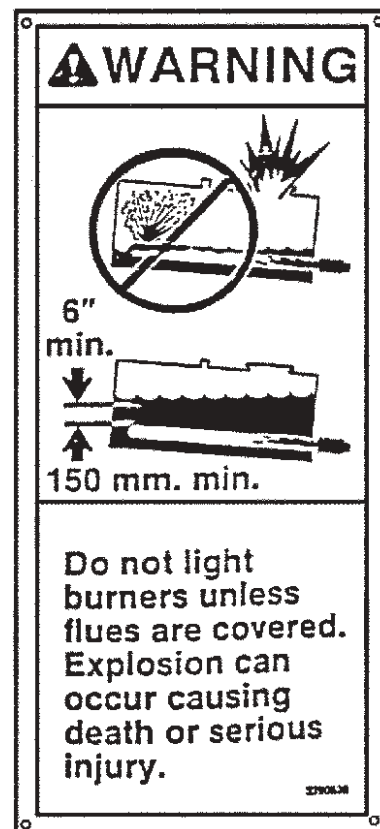
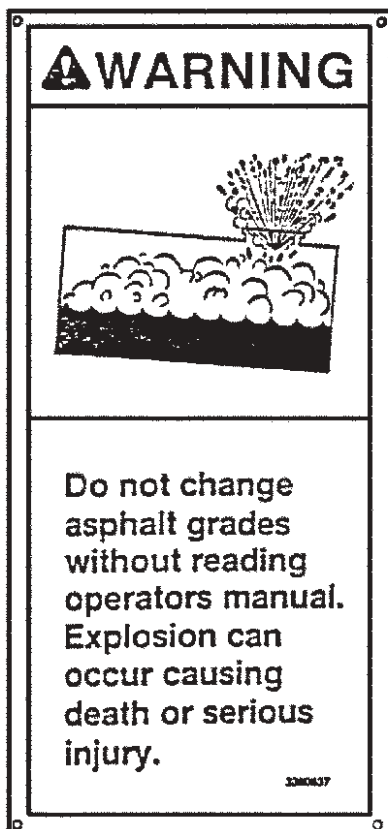
- 2** If the last load in the tank was emulsion, or there is moisture in the tank, do not load hot asphalt over 200° F. (95° C.).

Clean the tank before loading hot asphalt to avoid a tank eruption or boil over.

- 3** If the last load in the tank was emulsion, there may be moisture in the piping, pump, or spraybar even after the tank has been cleaned.

Load 100 gallons (400 litres) of hot asphalt and circulate it through the piping, pump, and spraybar before filling the tank.

Let the tank stand until the foam is gone. Then, finish loading the tank.



Control Panel Identification

Located in the truck cab are two instrument control panels containing switches and dials for selecting the desired functions plus two digital counters. On the left a counter for tracking the distance sprayed and on the right a counter displaying the gallons sprayed. See Figure 1.

Across the top of the main panel are toggle switches for selecting the portion of the main spray bar to be used.

Just below these switches are switches for selecting the portion of the bar wings to be used. Each switch controls a one foot section. Switches in the up position are open, down closed.

To the left of the 8 main bar switches is the master spray switch which will open all of the spray bar sections where the individual switches are in the "on" position. The red light will warn of excessive hydraulic oil temperature. If this light turns on, the Distributor should be shut down. It should not be restarted until after the hydraulic oil cools and the cause of the overheating is cured.

To the right of the 8 main bar switches are the high/low level indicator light, selector switch and the master power switch.

Along the center of the main panel, left to right are: the spray bar side shift switch, the spray bar height control switch, the left and right wing raise/lower switches, and on the right side the optional bar latch switch.

At the bottom left are two control knobs: one for setting the pump speed for spraying, the other for setting pumping speed for other operations. Between the knobs is the load rate/spray rate switch. In the "load rate" position the asphalt pump speed or flow rate will depend on the setting of the load rate knob. In the "spray rate" position the asphalt pump speed will be set by the spray rate knob and the number of bar switches selected. With the load rate/spray rate switch in the "auto" position, the pump speed will automatically change from the load rate setting to the spray rate setting when the master spray switch is turned on. It will change back to the load rate setting when the master spray is turned off.

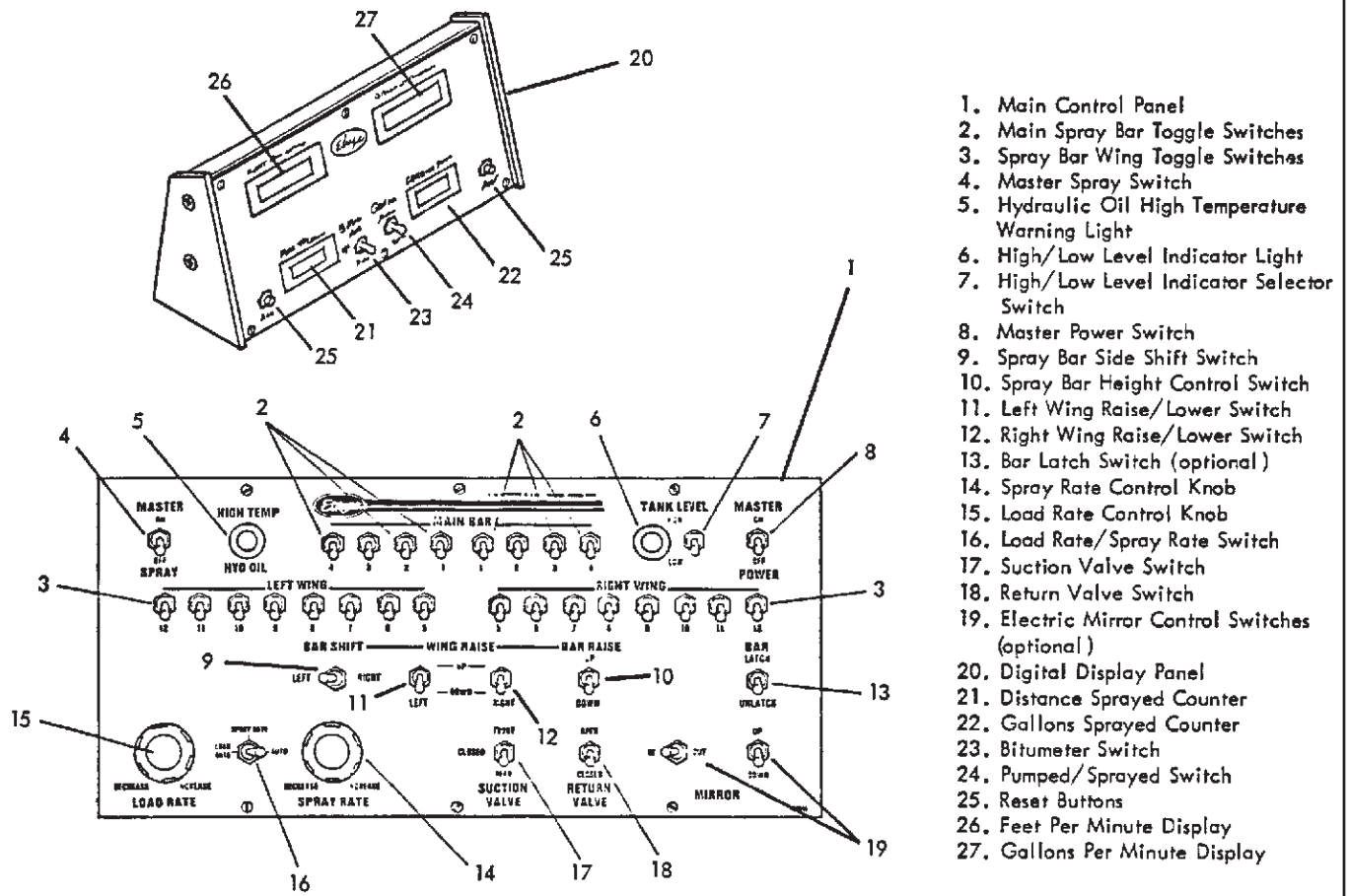
At the right of these knobs are switches for operating the suction and return valves and optional electric mirror switches.

On the digital display are four switches. The bitumeter switch will raise and lower the bitumeter wheel in the up and down position. In the "auto" position, the wheel will come down when the master spray switch is turned on and raise when the master spray is shut off.

The gallons/litres accumulator will count all the asphalt pumped or only the asphalt which has been sprayed, depending on the position of the gallons pumped/sprayed switch.

The reset buttons will set the accumulators back to zero when pressed.

FIGURE 1.
Cab Control Panel Identification - STANDARD MODEL SAM DISTRIBUTOR



1. Main Control Panel
2. Main Spray Bar Toggle Switches
3. Spray Bar Wing Toggle Switches
4. Master Spray Switch
5. Hydraulic Oil High Temperature Warning Light
6. High/Low Level Indicator Light
7. High/Low Level Indicator Selector Switch
8. Master Power Switch
9. Spray Bar Side Shift Switch
10. Spray Bar Height Control Switch
11. Left Wing Raise/Lower Switch
12. Right Wing Raise/Lower Switch
13. Bar Latch Switch (optional)
14. Spray Rate Control Knob
15. Load Rate Control Knob
16. Load Rate/Spray Rate Switch
17. Suction Valve Switch
18. Return Valve Switch
19. Electric Mirror Control Switches (optional)
20. Digital Display Panel
21. Distance Sprayed Counter
22. Gallons Sprayed Counter
23. Bitumeter Switch
24. Pumped/Sprayed Switch
25. Reset Buttons
26. Feet Per Minute Display
27. Gallons Per Minute Display

Rear Control Panel

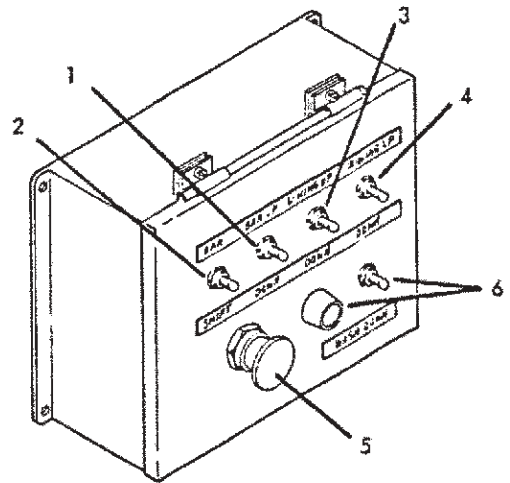
See Figure 2.

This panel is located near the left rear truck wheel and contains the following switches:

1. Spray bar height control.
2. Spray bar side shift control.
3. & 4. Left and right wing controls.
5. Red push/pull switch: Must be on to furnish power for all other switches, exterior or interior.
6. Power washdown switch. Red indicator light to indicate wash down pump is operating.

FIGURE 2. REAR CONTROL PANEL

1. Spray bar height control.
2. Spray bar side shift control.
3. & 4. Left and right wing controls.
5. Red push/pull switch: Must be on to furnish power for all other switches, exterior or interior.
6. Power washdown switch. Red indicator light to indicate wash down pump is operating.



Preparing For Operation

CAUTION

Do not attempt operation of your Sam Distributor until you have read and understand the preceding information.

Filling The Product Tank

Through the Manhole

Switch Positions:

1. Red switch on rear panel on.
2. System power in cab on.
3. 4-way valve in circulate in tank position.
4. Return valve closed.
5. Suction valve closed.
6. Tank level switch in high mode.

4-WAY VALVE POSITIONS

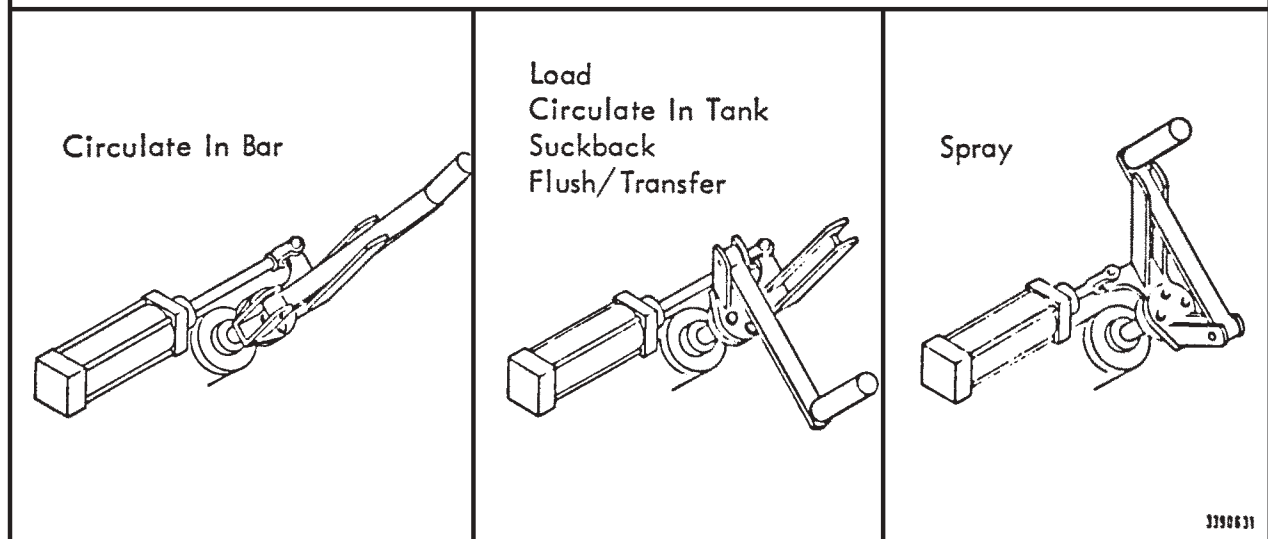


FIGURE 3. 4-WAY VALVE POSITIONS

CAUTION

If moisture is present in the tank or circulating system, do not fill with product having a temperature in excess of 200 degrees F (93 deg. C). Load the tank with approximately 10% of capacity and circulate the high temperature material through the spray bar. After the foaming has subsided proceed with the filling procedure. Allow room for expansion if additional heating is required.

Through the Suction Lines with the Distributor Pump

Switch positions:

1. Both front and rear power switches on.
2. Suction valve closed.
3. Tank level switch in high mode.
4. 4-way valve in circulate in tank position.
5. With the truck engine running at a fast idle, engage the P.T.O., if used.
6. Place the load rate/spray rate switch in the auto position.
7. Open the return valve.
8. Turn the load rate knob until 200-250 GPM is indicated on the pump tachometer on the dashboard.
9. Connect a loading hose between the product source and to either the right or left suction port. The unused suction port remains closed.
10. Open the valve at the product source end of the loading hose.
11. When loaded, close the product source valve and open the bleeder valve or loosen the loading hose to allow air to help clear the hose.
12. Disconnect the hose from the source and elevate the end to clear the remaining product.
13. Replace the suction port cap.
14. Turn the load rate knob counter-clockwise to reduce the pump speed.

Through the Suction Lines with An External Pump

Switch Positions:

1. Both front and rear power switches on.
2. Tank level switch in high mode.
3. 4-way valve in circulate in tank position.
4. Connect a loading hose between the product source to either the right or left suction port. The unused suction port remains closed.
5. Open the rear suction valve.
6. Open valves on storage tank and start external pump.
7. When tank is nearly full, shut off external pump and close valves at storage tank.
8. Open the return valve; close the suction valve.

9. Adjust pump rate to 200 gallons per minute with Load Rate knob.
10. Open bleeder valve at storage tank end of hose to clean out hose.
11. Follow same procedure as load with distributor pump for disconnecting.

Circulate In Tank

1. 4-way valve in circulate in tank position.
2. Open suction and return valves.
3. Place load rate/spray rate switch in load rate position.
4. Adjust the pump discharge rate to the desired value using the Load Rate knob.

(Circulate in tank is used while setting up to spray and heating).

Circulate In Spray Bar

1. Move the 4-way valve to circulate in the bar position.
2. Open the suction and return valves.
3. Place the Load Rate/Spray Rate switch in auto position.
4. Adjust the pump discharge rate to the desired valve using the Load Rate knob.
5. Circulate until the entire spray bar is as hot as the product flowing through it.

Operating Instructions

Set-Up For Spraying

1. To determine the proper speed and pump discharge use the Etnyre computator. On the top scale find the spray bar length to be used.
2. At the end of the computator, grasp the black portion and move the center slide until the desired application rate is directly below the spray bar length, i.e. 16 feet over .35.
3. In a straight line below the application rate you will find the distributor speed in feet per minute and directly below the feet per minute the pump discharge in gallons per minute.

Example:	Width of spray	16'
	Application rate	.35
	Distributor speed	260 FPM
	Pump discharge	160 GPM

4. Select a transmission gear that will provide 260 FPM at 1200-1400 RPM on the truck engine.
5. Place the load rate/spray rate switch in the spray rate position.
6. With the master spray switch in the off position, turn on all of the individual spray bar switches to be used.
7. Set the valves to circulate in tank.
8. Put the Bitumeter Wheel down.
9. Adjust the pump discharge rate to the desired value using the Spray Rate knob, while driving at the pre-determined distributor speed.
10. Place the load rate/spray rate switch in auto position.

Spraying

1. Set the valves to circulate in bar.
2. Place load rate/spray rate switch in auto position.
3. Start the distributor moving in the pre-selected gear.
4. At the start line move the master spray switch to the On position. While the unit is spraying, the truck speed does not have to remain constant to maintain accuracy and individual or multiply one foot sections may be turned off or on without affecting the accuracy of the application.

(The Load Rate knob should be left at the position for the desired circulate in bar rate).

Suckback

1. On completion of the spraying operation, set the 4-way valve to circulate in tank position.
2. Close the suction valve; open the return valve.
3. Raise and fold the spray bar to travel position.
4. Open the suck back valves.
5. Rotate the load rate control to a pump speed of 200 GPM.

Flushing

Flushing oil may be put into the system in two ways. It may be pumped in with the electric fuel pump. Turn the switch in the rear control box on for about 5 minutes. Be sure to shut off when finished. Flushing oil may also be poured into the fill line. Be sure to use diesel fuel or kerosene. Do not use gasoline. The flushing oil may be circulated in the circulating system (not spraybar) as follows:

1. On the left rear of the unit are two manual handspray valves. Turn these valves so that both handles are pointing to the right (passenger's side).
2. Open the transfer gate valve.
3. Close the suction & return valves.
4. Adjust pump output to 50 G.P.M. Circulate as long as desired
5. Turn both manual valve handles to point rearward.

Unload Distributor To Storage

Prior to connecting a hose to the unloading port, suckback for several minutes, then close all valves and stop the asphalt pump.

1. Suck back the bar and piping thoroughly.
2. Close the hand operated gate valve on the left side discharge line.
3. Place manual handspray valves with both handles straight back (off).
4. Connect a transfer hose to the discharge line and storage tank.
5. Open the valve at the storage tank and on the discharge line.
6. Open the suction valve.
7. The load rate/spray rate switch in "auto" position.
8. Increase the pump output to 200 GPM with the load rate control.
9. When unloading is complete, decrease the pump rate to zero and close the suction valve; open the return valve.
10. Close the valve at the storage tank.
11. Turn both manual handspray valve handles to point to the right (passenger's side).
12. Increase the pump output to 200 GPM to suck back the unloading hose.
13. Open the bleeder valve on the storage tank end of the hose to allow air to clear the line.
14. Close the bleeder valve and the manual gate valve on the discharge line after the hose is emptied.
15. Turn both manual handspray valve handles to point to the rear (off).

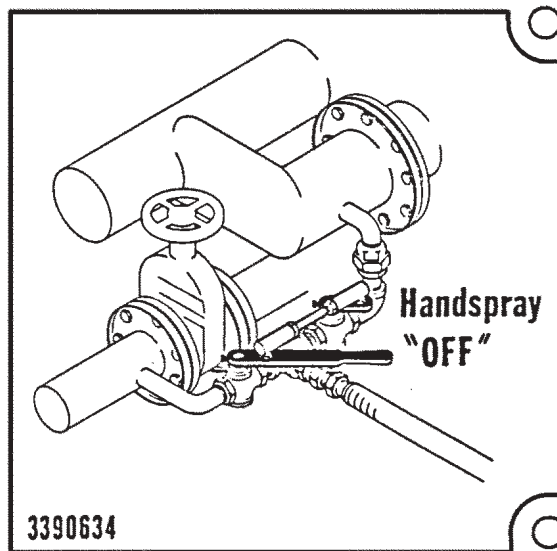
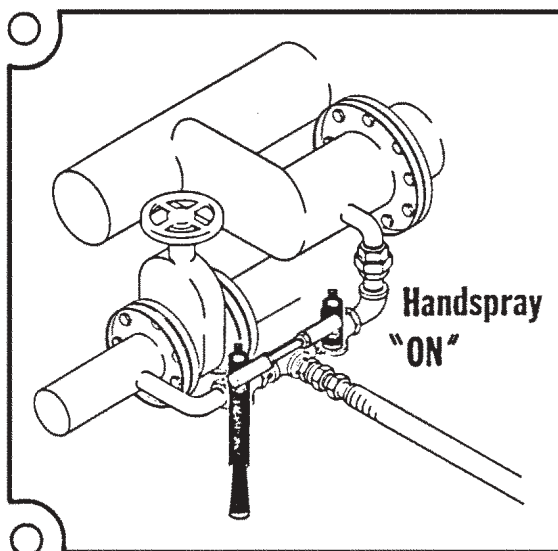
16. Decrease the pump rate to zero and turn the asphalt flow control to off.
17. Disconnect the transfer hose.

Handspray

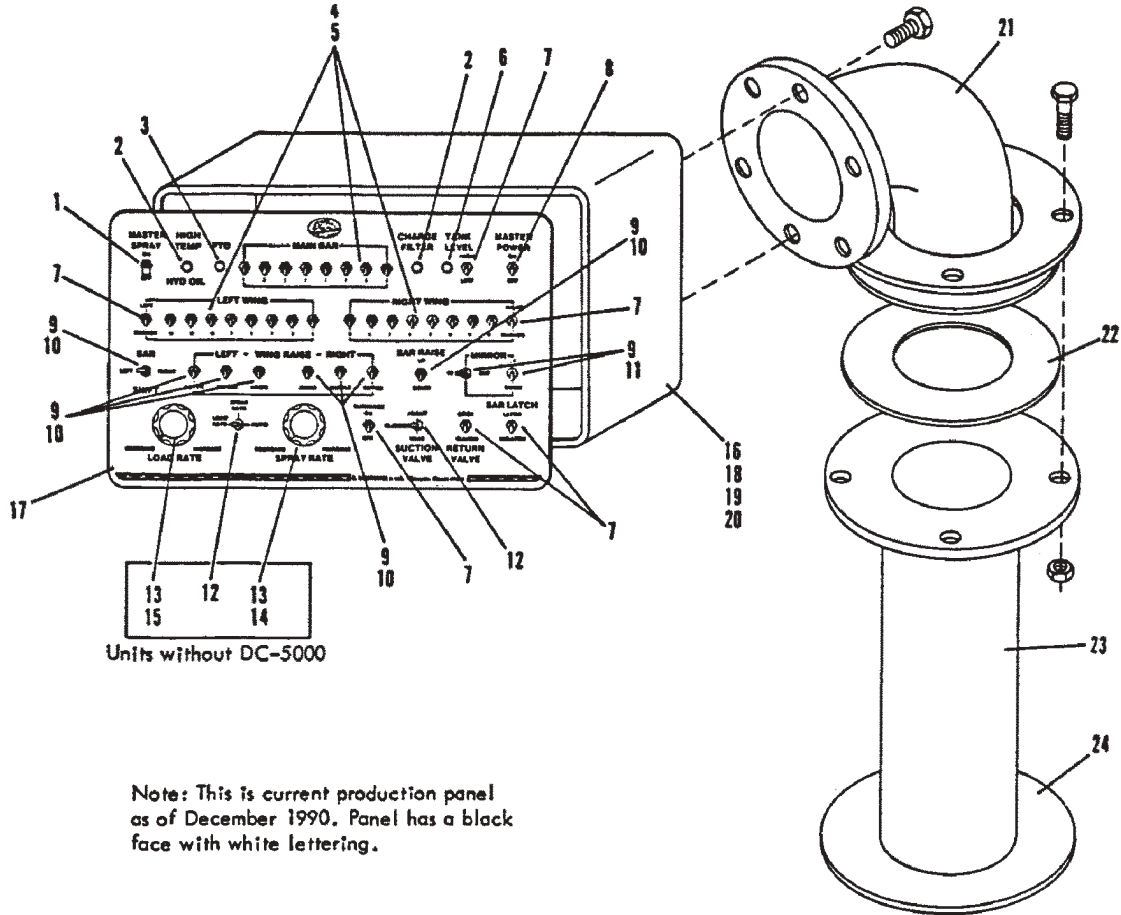
1. On the left rear of the unit, there are two manual valves. When setting up for the hand spray operation, the handle of the valve nearest to the center of the unit should be pointed to the right (passenger's side). The left valve handle should be pointed to the left (driver's side).
2. Open the suction valve and close the return valve, only after the manual valves in #1 are set.
3. Adjust the pump output using the load rate knob to 50 to 75 gallons per minute to get the desired fan from the handspray gun.

Suckback Handspray

1. Upon completion of the hand spray operation, open the return valve and close the suction valve.
2. Set the right manual hand spray valve handle pointing to the right (passenger's side).
3. Set the left valve handle pointing to the rear.
4. Increase the asphalt pump speed to approximately 200 GPM.
5. Elevate the hand spray gun and hose with the valve on the gun open to evacuate residual product.
6. Close the suction & return valves.
7. Set both manual valves pointing to the rear to avoid filling the handspray hose with material.



Control Panel and Stand (Standard Model SAM)

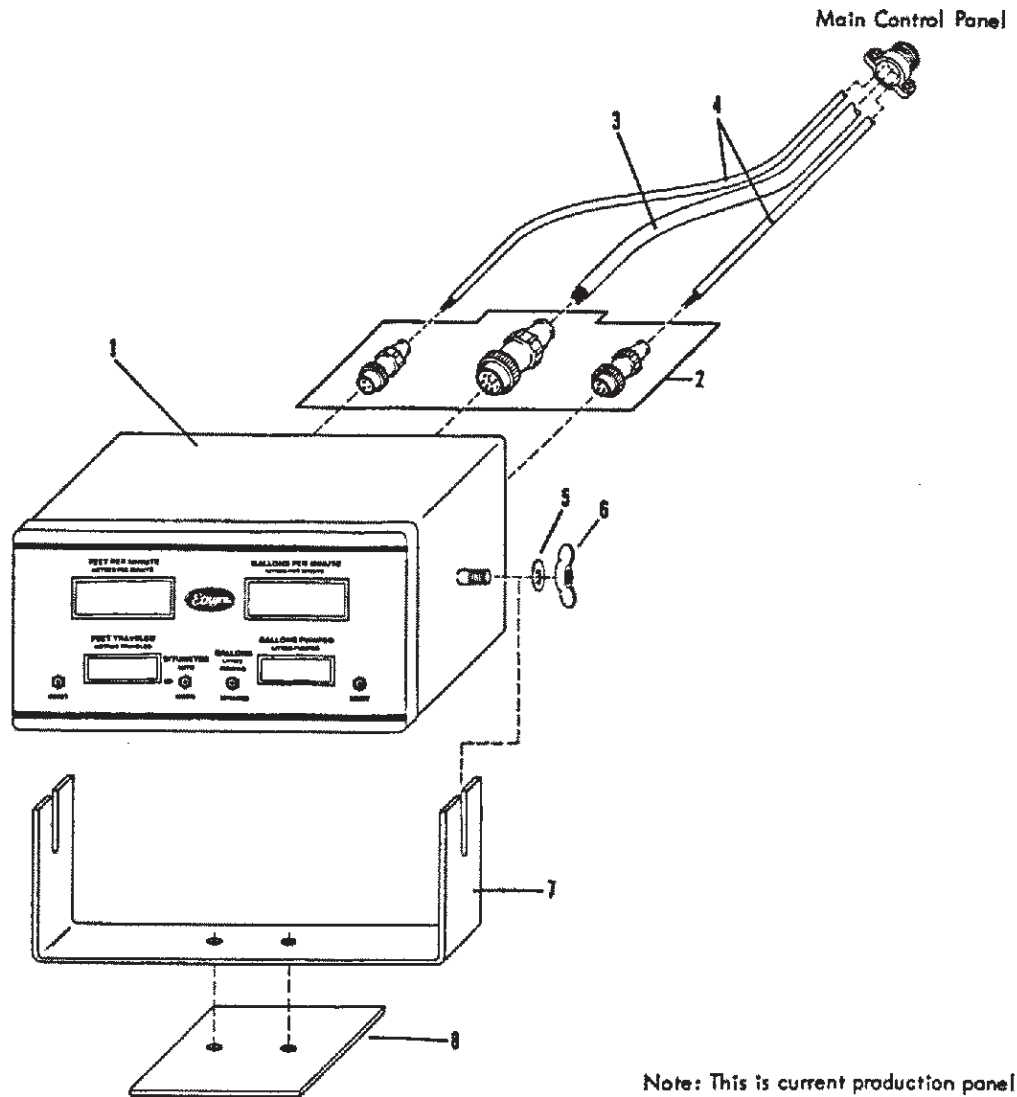


Note: This is current production panel as of December 1990. Panel has a black face with white lettering.

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6702079	1	Switch-3PDT, Maintained, 5 Amp	21	3321307	1	Elbow Asm - Panel Stand
2	6702075	1	Light Fixture - Red, 12V	22	3321306	1	Gasket - Control Panel Stand
3	6702077	AR	Light Fixture - Green, 12V	23	3321308	1	Tube Asm - Control Panel Stand
4	6702080	AR	Switch-DPDT, Maintained, 5 Amp	24	6000068	1	Flange - Floor Mtg, Panel Stand
5	6702081	AR	Cap-Toggle, Yellow				
6	6702076	1	Light Fixture - Amber, 12V				AR = As Required
7	6702084	AR	Switch-DPDT, Maintained, 5 Amp				
8	6702078	1	Switch-DPDT, Maintained, 10 Amp				
9	6702082	AR	Switch-DPDT, Momentary, 5 Amp				
10	6702083	AR	Cap - Toggle, Blue				
11	6702092	AR	Cap - Toggle, Green				
12	6702085	AR	Switch-SPDT, Maintained, 5 Amp				
13	6701907	2	Knob (units without DC-5000 only)				
14	6701973	1	Pot - 10K (units without DC-5000)				
15	6701972	1	Pot - 1K (units without DC-5000)				
16	3370221	1	Enclosure-Control Panel				
17	6702095	1	Front Panel				
18	6702072	3	Terminal Strip - 20 Pole				
19	6702094	1	Circuit Breaker - 15 Amp				
20	6701978	AR	Circuit Board - Without DC-5000				
	3370191	AR	Circuit Board - With DC-5000				

Digital Display Assembly

For Pump Tachometer, Speed and Distance Travelled

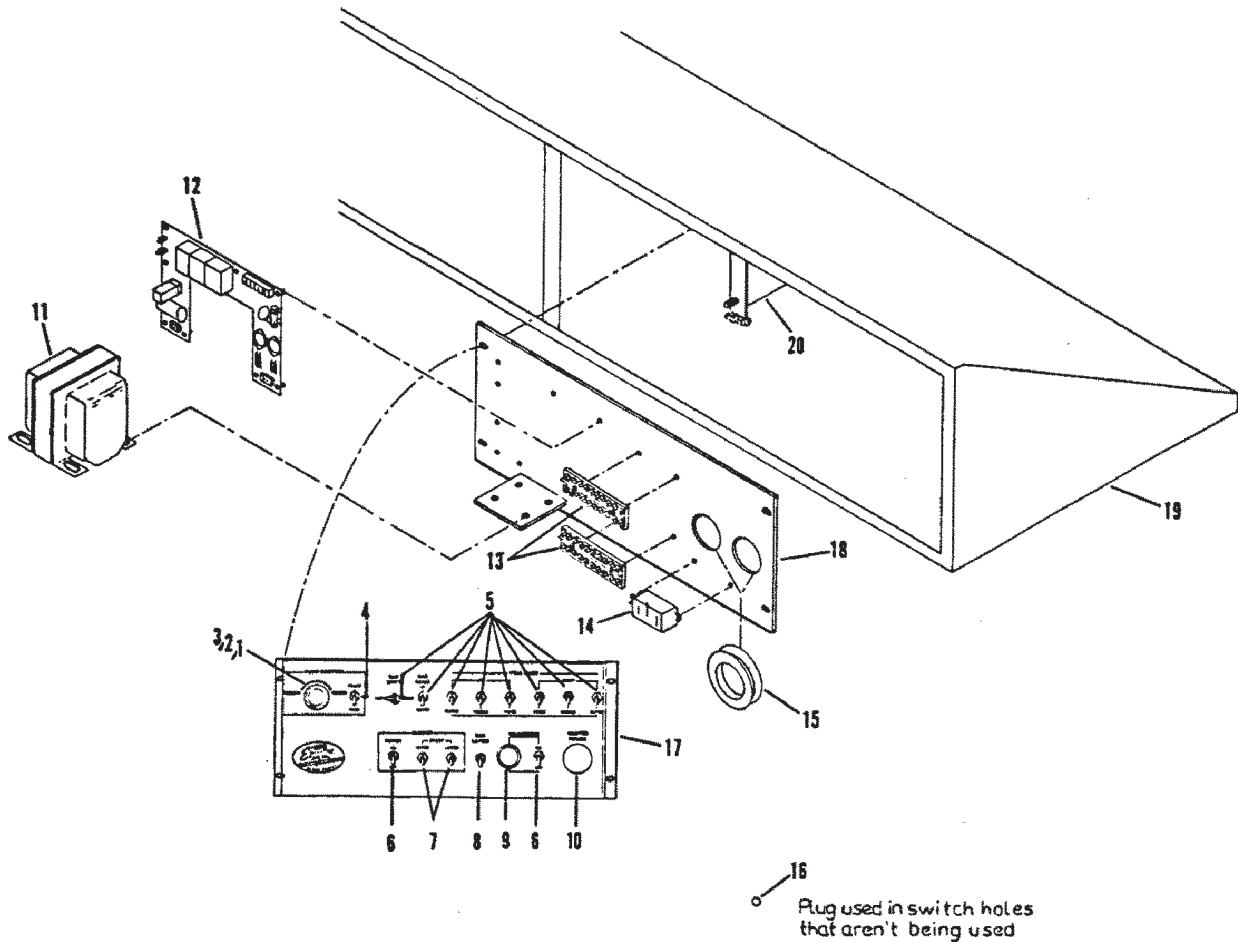


Note: This is current production panel as of December 1990. Panel has a black face with white lettering.

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3370210	1	Remote Display Box Asm-Complete				
2	3370154	1	Connector Kit				
3	6701862	1	Cable-9 Conductor				
4	6701048	2	Cable-3 Conductor				
5	0446363	2	Washer-Flat				
6	0142745	2	Wing Nut				
7	3361022	1	Bracket-Mtg, Digital Display				
8	3321337	1	Plate-Stiffener				

Rear Control Box - SAM

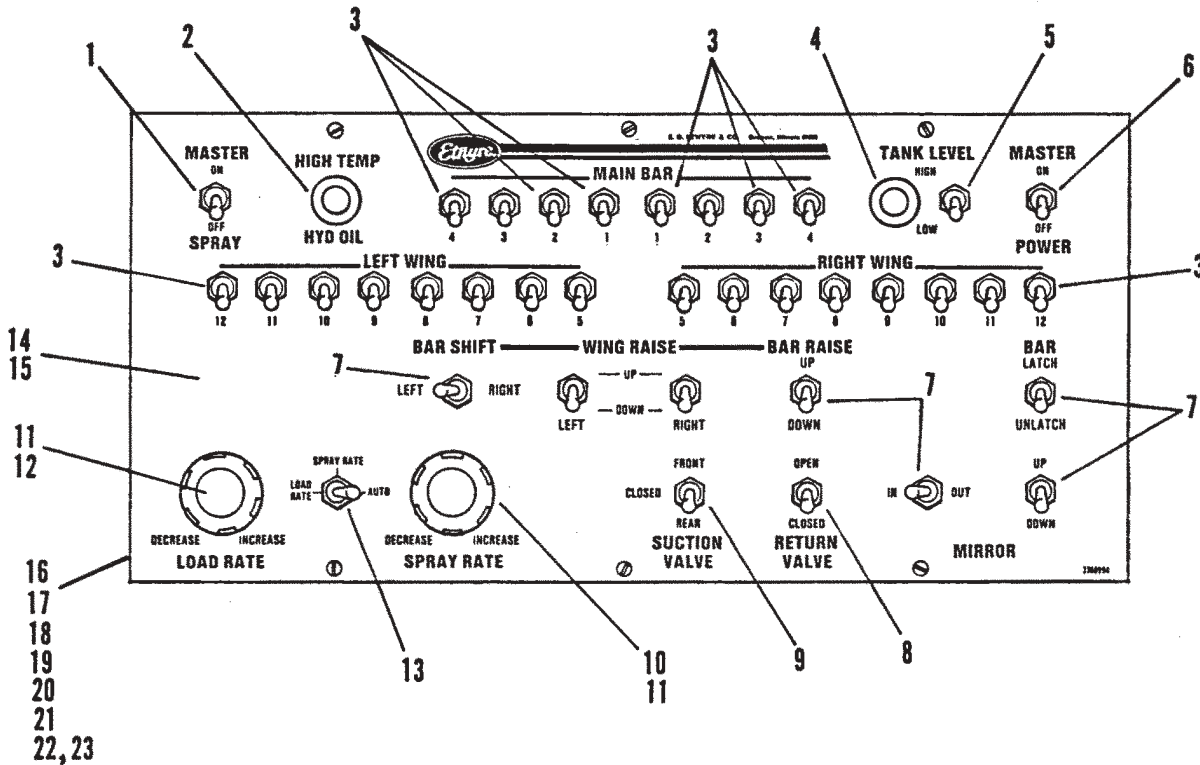
Effective with Serial Numbers C1143 & Up



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6701907	1	Knob	16	0142017		Plug Button
2	6701972	1	POT-1K	17	3361023	1	Cover Rear Control Box
3	6702033	1	Resistor-100 OHM 1/2W 5 Per	18	3361026	1	Plate Asm Mt.
4	6701976	1	Switch-Toggle, 3PDT, 2 Pos.	19	3311547	1	Toolbox Asm-Left Side
5	6701897	4, Std	Switch-Toggle, DPDT, 3 Pos.	20	3380582	1	Shield Rear Toolbox
		6	If Bifold				
		8	If Trifold				
6	6700255	2	Switch-Toggle				
7	6701966	1	Switch-Toggle, DPDT, ON/MOM/ON				
8	3160005	1	Switch-2 SPD, Axle #1TLI-3				
9	6700875	1	Warning Device-Audio-Visual				
10	6701979	1	Switch-PALM Button, Red DPST				
11	6701975	1	Transformer				
12	3370164	1	Circuit Board-Burner Igniter				
13	6700306	2	Strip Terminal, 10 Bar				
14	6702000	1	Relay-3PDT, 10 A, 6VDC Coil				
15	6700878	2	Grommet-Rubber 1.5 ID x .375 x 2 OD				

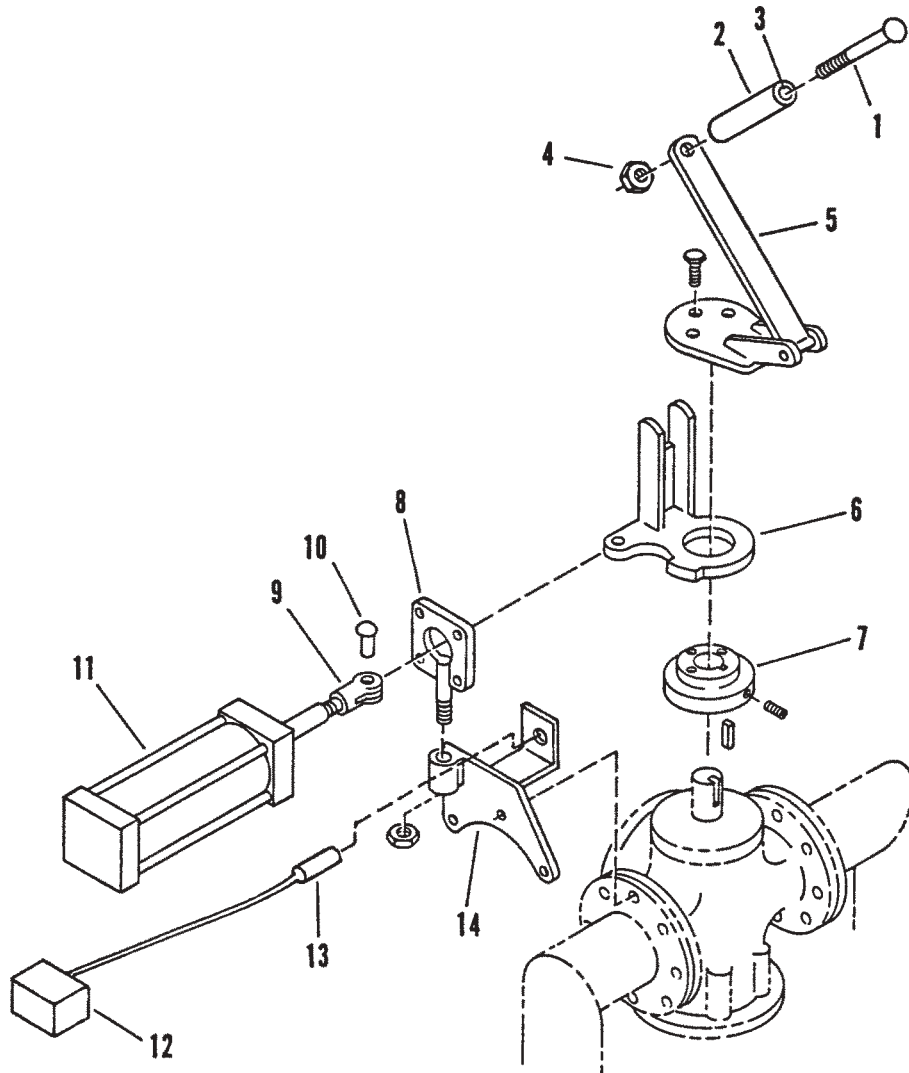
Control Box Assembly - SAM HW

Units Built Prior to December 1990



REF.	PART NO.	QTY.	DESCRIPTION
1	6701976	1	SWITCH-TOGGLE, 3PDT, 2 POS.
2	6700072	1	LIGHT-PILOT, RED, NO. PL-19
3	6701974	24	SWITCH-TOGGLE, DPDT, DRY CIRCUIT
4	6700750	1	LIGHT-PILOT, AMBER, NO. PL-20
5	3160005	1	SWITCH- #1TL1-3
6	6701975	1	SWITCH-TOGGLE, DPST, 2 POS.
7	6701897	10	SWITCH-TOGGLE, DPDT, 3POS, MOM.
8	6700255	1	SWITCH-TOGGLE, MCBILL #90-0001
9	6701977	1	SWITCH-TOGGLE, 3PDT, 3 POS.
10	6701973	1	POT-10K, 10 TURN, PANEL MT
11	6701907	2	KNOB-CONTROL
12	6701972	1	POT-1K, 10TURN, PANEL MT
13	6700771	1	SWITCH-MICRO SWITCH NO ITL-1
14	3370171	1	FACE PLATE-CONTROL BOX, SAM HW
15	3360994	1	PLATE-FACE, SAM JR.
16	6701933	1	BOX-CONTROL FT BX17X3 BT/SAM
17	3160040	2	FUSEHOLDER-BUSS PANEL MOUNTED
18	6700139	2	B/FUSE-20AMP. #SFE20SAE SP#J554
19	6700306	4	STRIP-TERMINAL, 10 BAR
20	6700749	1	SWITCH-FLASHER LOW LEVE IND
21	6700878	2	BROMMET-RUBBER, 1.5IDX. 375X2 DD
22	6701978	1	CIRCUIT BOARD-SAM II, HW
23	6701980	4	SPACER-CIRC. BD MTB, O. SLX. 2500

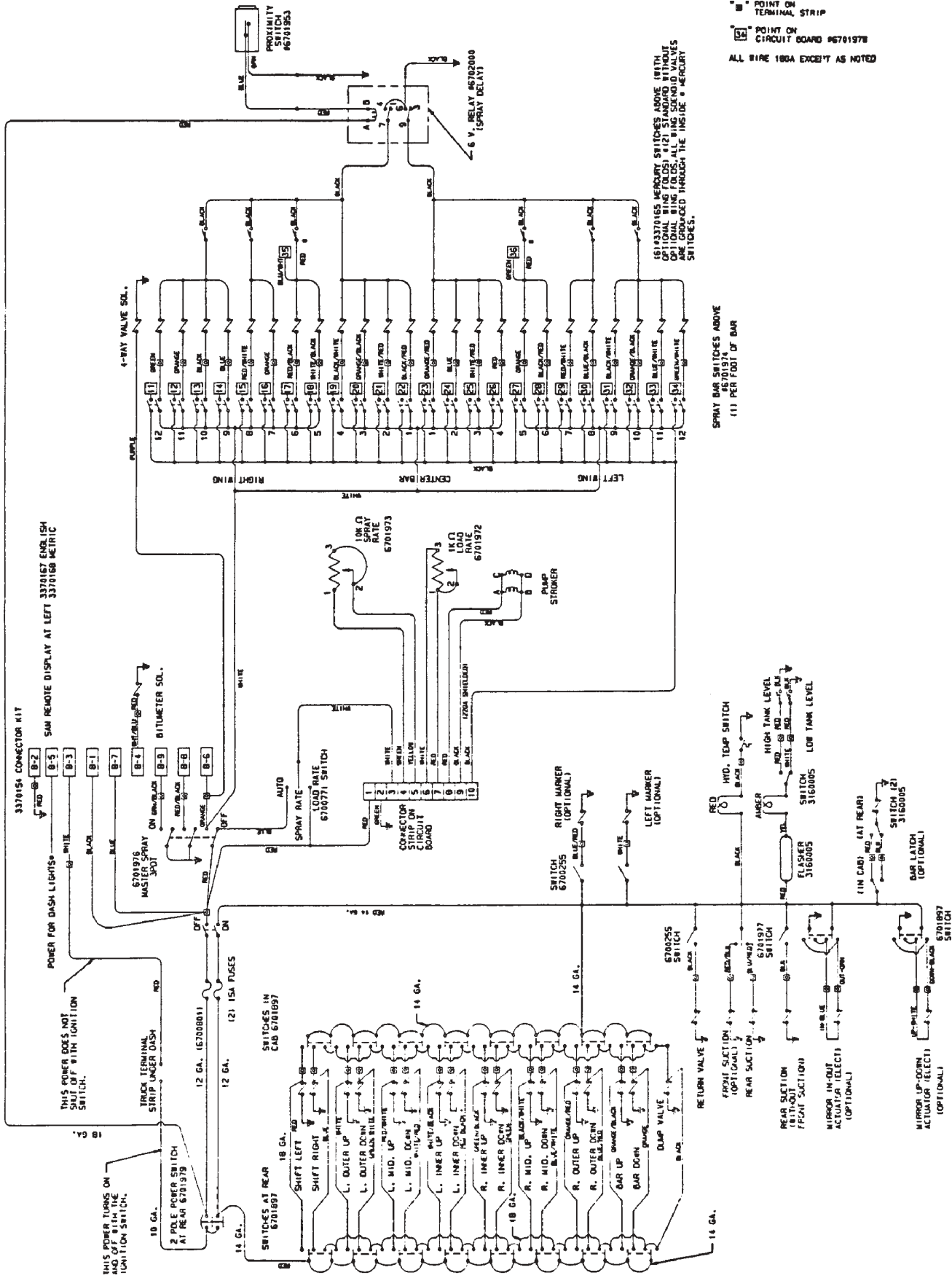
Valve Control - Manual, 4 Way



REF.	Part No.	Qty.	Description
1	3350917	1	Bolt-Carriage, 0.50 X 5.00 lg
2	3350919	1	Hub
3	3350918	1	Bushing
4	9411727	1	Nut-Hex, Lock, 0.50NC
5	3360984	1	Plate Asm - Lever
6	3360987	1	Plate Asm - 4 Way Cylinder Lever
7	3360978	1	Hub - 4 Way Valve
8	3360988	1	Mount Asm - Cylinder Pivot
9	3360369	1	Yoke
10	6600295	1	Pin
11	6601289	1	Cylinder - Air, 2.5 Bore
12	6702000	1	Relay - DPDT, 10A, 6VDC Coil
13	6701953	1	Sensor - Inductive Proximity
14	3360975	1	Plate Asm - Cylinder Mount

Wiring Diagram - Standard Model SAM Distributor

- REFERENCES:
- POINT ON TERMINAL STRIP
 - POINT ON CIRCUIT BOARD #670197B
 - ALL WIRE 180A EXCEPT AS NOTED

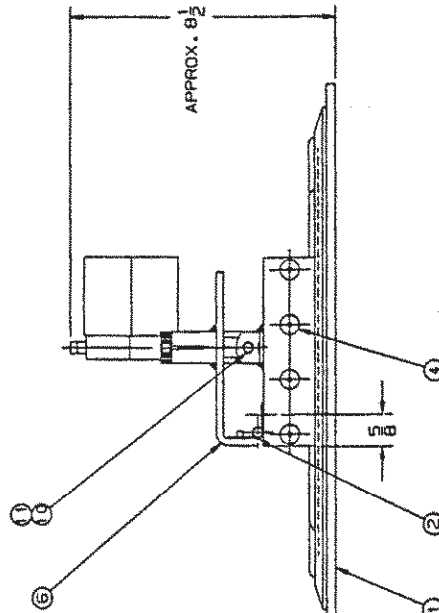
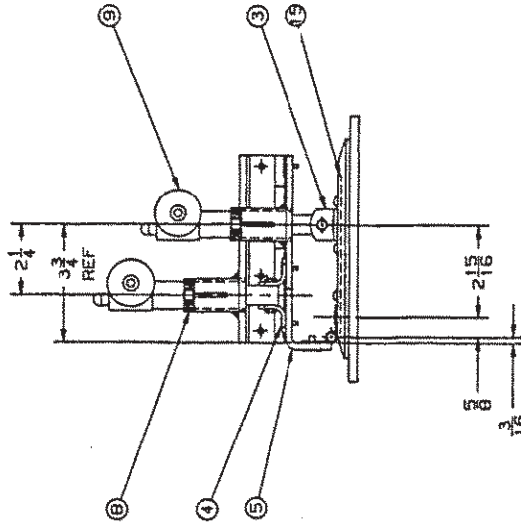
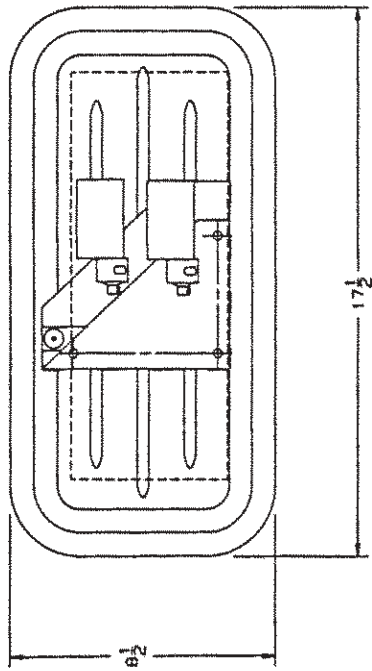


16143370165 MERCURY SWITCHES ABOVE WITH OPTIONAL WIRE FOLDS AT 21 STANDARD WINDS. OPTIONAL WIRE FOLDS AT 21 STANDARD WINDS ARE GROUNDED THROUGH THE INSIDE MERCURY SWITCHES.

SPRAY BAR SWITCHES ABOVE
#670197A
(1) PER FOOT OF BAR

Mirror ASM - Electric, SAM HW

REV	DATE	REVISION
A	8/21/68	REV. 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000
B	3/23/68	NON 15" X 18" SIZE COMPLETED
C	10/13/68	ADDED STIFFENER PLATE 18

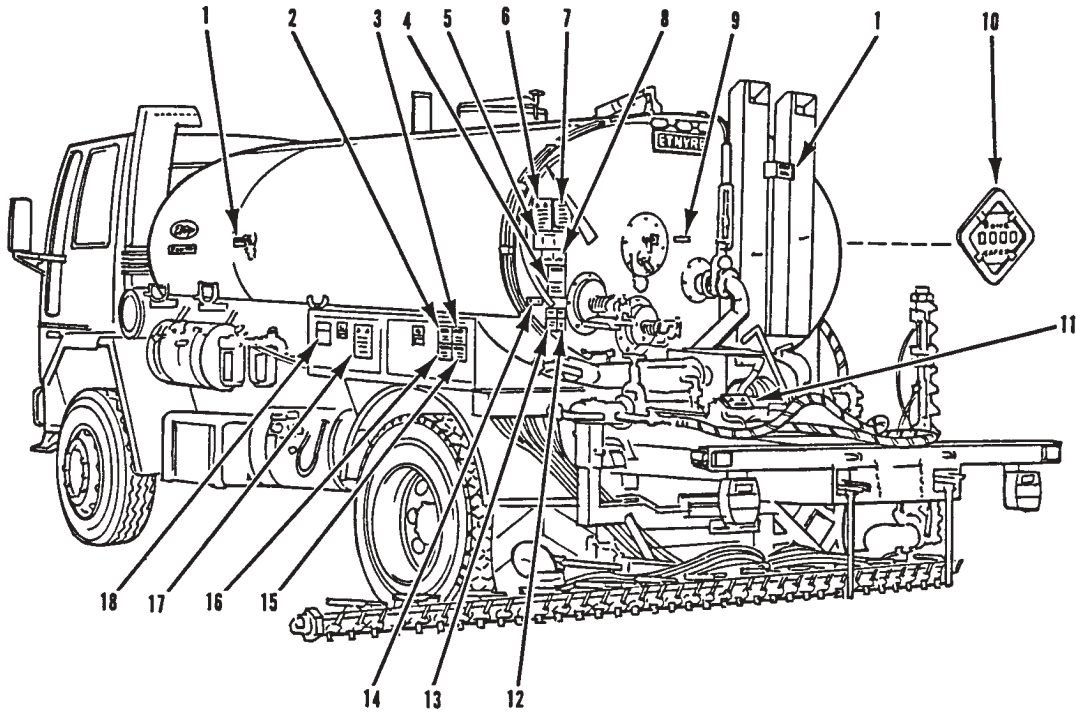


REF	REQ	PART NO	DESCRIPTION
15	1	3380565	STIFFENER PLATE 5 X 13
14	1	6001096	GASKET-9 X 18 MIRROR
13	1	6001095	RUBBER RIM-9 X 18 MIRROR
12	1	6001094	GLASS-9 X 18 TRUCK MIRROR
11	2	0120375	NUT-LOCK, HEX, 0.25X1.25NC, PD
10	2	0121913	SCREW-HEX, 0.25X1.25NC
9	2	6701699	ACTUATOR-LINEAR, 12V
8	2	6000087	CLAMP-HOSE, .56-1.06
7			
6	1	3380556	BASE PLATE ASM-IN/OUT
5	1	3380557	BASE PLATE ASM-UP/DOWN
4	20	4421181	RIVET-POP, .187 X .687
3	4	3380521	MOUNTING TAB
2	2	3380519	HINGE-MIRROR PIVOT
1	1	6001097	FRAME-9 X 18 TRUCK MIRROR
REF	REQ	PART NO	DESCRIPTION

E. D. EINHREZCO., OREGON, ILL. 61061
 DIVISION, ILL.
 WORKING DRAWING
 METRIC 0.148
 DO NOT SCALE
 SCALE 3/8" = 1"
 DATE 7-9-67
 DRAWN W/SJ
 CHECKED
 DIVISION 3380554

MIRROR ASM- ELECTRIC, SAM HW

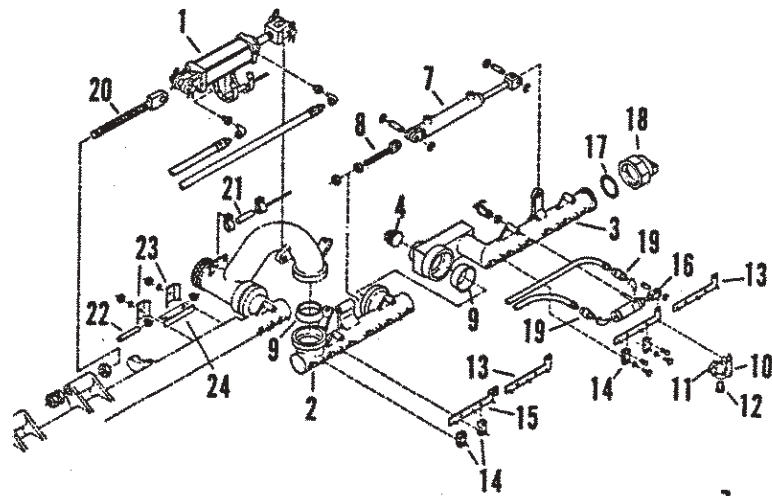
Caution And Instruction Plates Model SAM Distributor



- ⚠ For operator safety and possible liability protection, all Safety and Instruction plates should remain in place and be legible.
- ⚠ Should a plate be removed, lost, or become illegible, reorder and replace immediately.
- ⚠ If plates become difficult to read because of material coating the surface, clean with solvent.

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3561030	2	Plate-Caution, Hot Surface	13	3390636	1	Plate-Warning, Flues Covered
2	3561027	1	Plate-Caution, Before Starting	14	3390534	1	Plate-Warning, Fill Cap
3	3561029	1	Plate-Caution, Shields In Place	15	3390620	1	Plate-Warning, Read Manuals
4	3390612	1	Plate-Warning, Electric Flushing Pump	16	3561028	1	Plate-Caution, Remain Clear
5	3390631	1	Plate-Instr, 4 Way Valve Positions	17	3390533	1	Plate-Warning, Safety, General
6	3390537	1	Plate-Warning, Burner General	18	3360414	1	Nameplate-Serial No, Brass (Specify Unit Serial Number)
7	3390538	*	Plate-Directions, Generating Burner				AR = As Required
	3390539	*	Plate-Directions, Lo Pressure Burner				* = Use Appropriate Plate For Specific Burner Type
	3390540	*	Plate-Directions, LPG Burner				
	3390629	*	Plate-Directions, High Pressure Burner				
8	3390634	1	Plate-Instruction, Handspray, SAM				
9	3390531	1	Plate-Warning, Sampling Valve				
10	6320056	AR	Placard System (Optional)				
11	3390536	1	Plate-Warning, Quad Lever, Air				
12	3390637	1	Plate-Warning, Asphalt Grades				

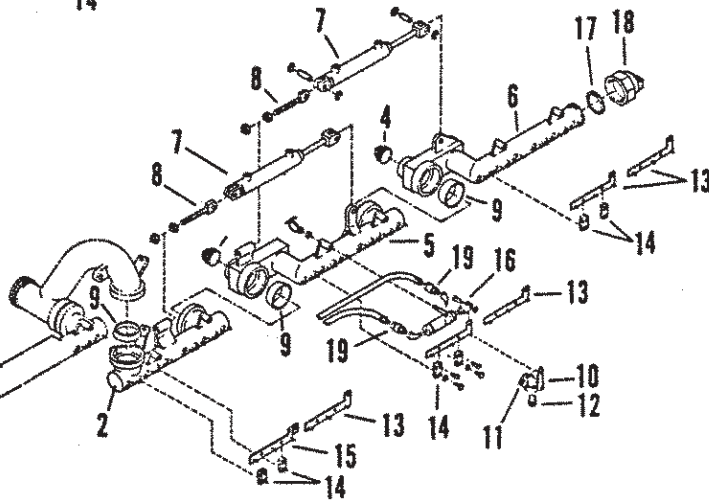
Optional Spray Bar Multiple Folding Wings



3352365 Spray Bar Asm
- 16 ft, Double Fold
RIGHT SIDE SHOWN

3352366 Spray Bar Asm
- 20 ft, Triple Fold

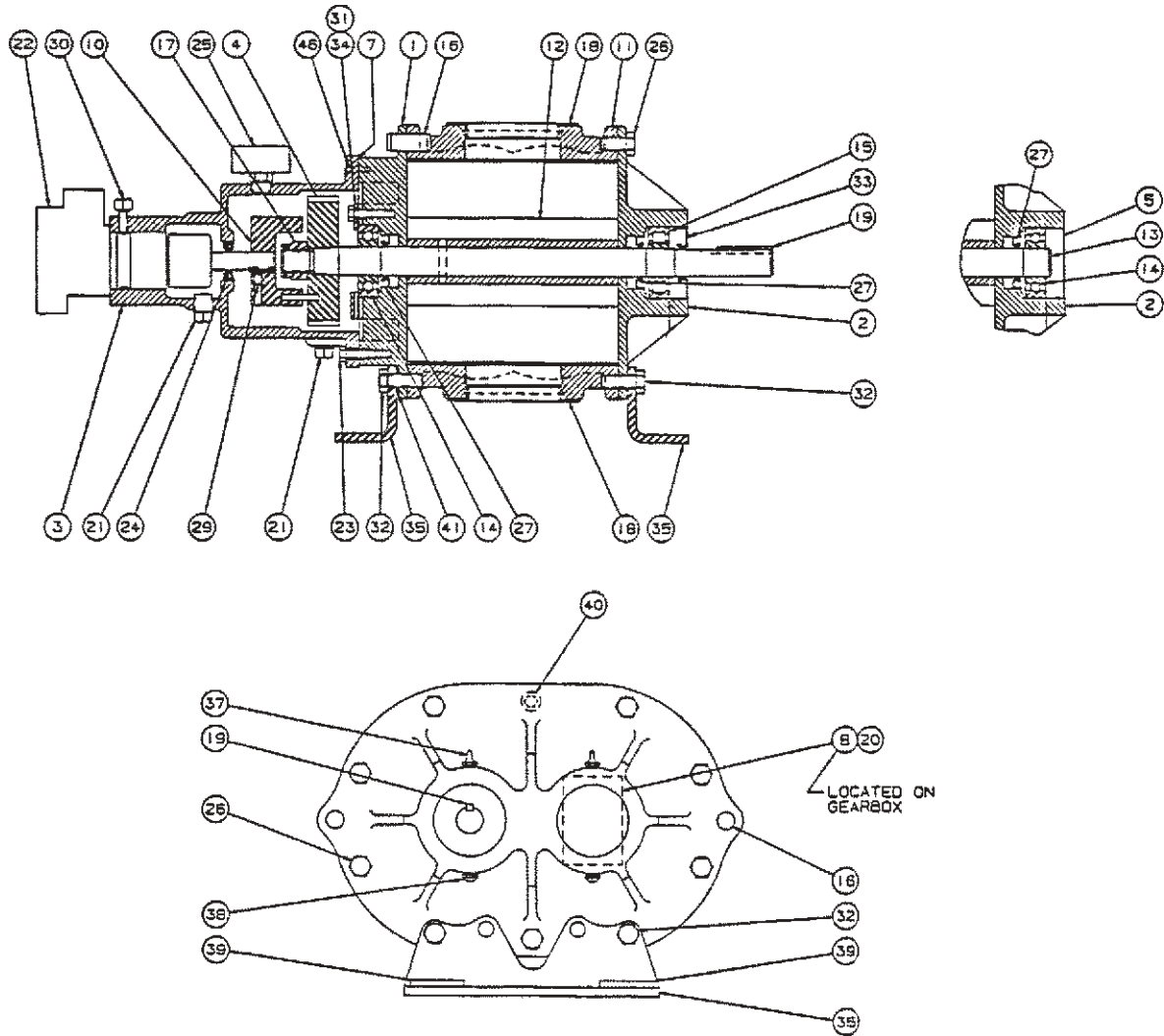
RIGHT SIDE SHOWN



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6601775	2	Cylinder-Hydraulic, 2 X 12	13	3352219	AR	Buss Bar Asm-Spray Bar, SAM
2	7230186	1	Hinge Section-Right (shown)	14	3352259	AR	Guide Lever Asm
	7230185	1	Hinge Section-Left (NS)	15	3352268	1	Buss Bar Asm-RT Hinge Section
3	7230188	1	Wing Asm-Right (Shown)		3352264	1	Buss Bar Asm-Left End
	7230187	1	Wing Asm-Left (NS)	16	6601768	AR	Cylinder-Air, 1.06 X 2
4	0219309	2	Plug-Pipe, 2"	17	3352214	2	Gasket-3.50 X 3, Copper Asb.
5	7230190	1	Middle Wing Asm-Right (Shown)	18	3352217	1	End Cap Asm-Spray Bar, Right
	7230189	1	Middle Wing Asm-Left (NS)		3352216	1	End Cap Asm-Spray Bar, Left
6	7230192	1	End Wing Asm-Triple Fold, Right	19	6601820	AR	Nipple-Quick Connect, 1/4
	7230191	1	End Wing Asm-Triple Fold, Left (NS)		6601821	AR	Coupling-Quick Connect, 1/4 NPT
7	6602011	AR	Cylinder Asm-Wing Fold	20	3360863	2	Rod End Asm-Cylinder Mt., SAM
	7420232	AR	Seal Kit-Wing Fold Cylinder	21	6701869	2	Switch-Mercury, 5 Amp
8	3352358	AR	Rod End-Wing Fold Cylinder	22	6701832	2	Switch-SPDT, Magnetic, 3 Amp
9	3352251	AR	Liner-Swivel Joint, Spray Bar	23	3370147	4	Clamp-Mtg. Brkt., Mag. Switch
10	3350579	AR	Flip Valve Asm-Center Tube	24	3370148	2	Bracket Asm-MTG, Mag. Switch
	3350488	AR	Valve Asm-Flip, End Section				
11	3350316	AR	Gasket-Nozzle Valve				
12	3351009	AR	Nozzle-5/16				
	3351008	AR	Nozzle-1/4				
	3351014	AR	Nozzle-3/16				
	3351011	AR	Nozzle-1/8				
	3351015	AR	Nozzle-.093				
	3351013	AR	Nozzle-1/16				

AR = AS REQUIRED
NS = NOT SHOWN

36 U-RAI Blower with Viking Oil Pump - 6601987

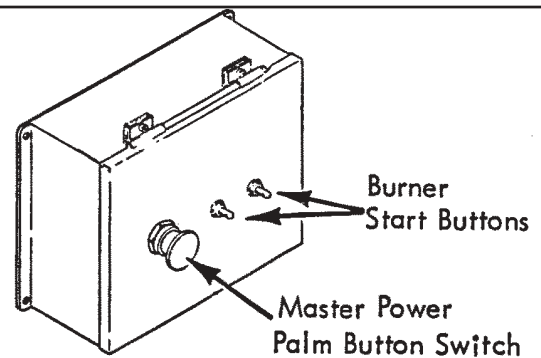
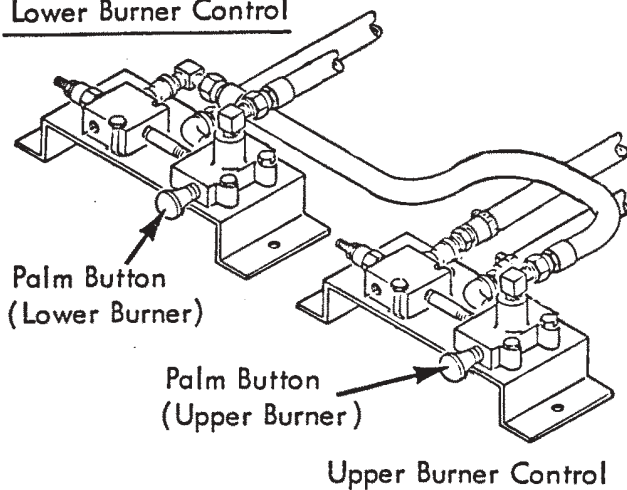


REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	7030135	1	Headplate - Gear End	22	7030150	1	Pump-Oil
2	7030136	1	Headplate - Drive End	23	7030151	8	Screw-Cap, Hex Hd
3	7030137	1	Gearhouse	24	7030152	1	Seal-Lip (BUNA-N)
4	7030138	1	Gear Assembly	25	7030153	1	Cap-Breather
5	7030139	1	Plug - Opening	26	7030133	14	Screw-Cap, Hex Hd
7	7030140	1	Gasket, Gearbox	27	7030154	4	Seal-Lip (VITON)
8	7030131	1	Nameplate - Serial Number	29	7030155	1	Plug-Pipe, SQ HD
9	7030141	1	Nameplate - Lube	30	7030156	2	Screw-Set, SQ HD
10	7030142	1	Coupling Asm - Viking Oil Pump	31	7030157	4	Screw-Cap, Hex
11	7030128	1	Cylinder	32	7030158	4	Screw-Cap, Hex
12	7030129	1	Impeller & Shaft, Drive	33	7030159	1	Seal-Lip (BUNA-N)
13	7030130	1	Impeller & Shaft, Driven	34	7030160	2	Plate-Clamp
14	7030143	3	Bearing - Ball	35	7030161	2	Blower-Foot
15	7030144	1	Bearing - Roller	37	7030162	2	Fitting-Grease
16	7030145	4	Pin - Dowel	38	7030163	2	Fitting-Press Relief
17	7030146	2	Nut - Stop-Hex	39	7030164	4	Washer-Oblong
18	7030132	2	Plug - Opening	40	7030134	2	Screw-Cap, Sac Hd
19	7030147	1	Key-Square	41	7030165	2	Washer
20	7030148	2	Screw-Drive, RD HD	46	7030166	2	Pin-Spring
21	7030149	5	Plug-Pipe, SQ HD				

Operating Instructions High Pressure (Fuel Oil) Burners

1. Open covers or dampers on exhaust stacks.
2. Set Truck Parking Brake.
3. Put truck transmission in neutral.
4. Engage P.T.O. (if so equipped).
5. Set engine throttle at 1500 RPM.
6. Pull out Palm Button on lower burner hydraulic valve (located in tool box).
7. Pull out Palm Button on Upper Burner Hydraulic Valve (located in tool box) if upper burner operation is desired.
8. Pull out Master Palm Button switch (located in burner control panel at rear of unit).
9. To light, push lower burner start button (located in burner control panel at rear of unit) and hold until burner has lit.
10. If upper burner operation is desired, push Upper Burner Start Button (located in burner control panel) and hold until burner has lit.
11. Do not heat material higher than the spraying temperature recommended by the asphalt supplier.
12. To shut down, push in master power palm button switch.
13. Push in hydraulic valve palm buttons.

Lower Burner Control



Burner Control Panel at rear of unit

⚠ WARNING

- ⚠ Do not start burners unless flues are covered with at least 6 inches (150 mm) of asphalt.
- ⚠ If tank is not level, front of flue might be uncovered even if rear of flue is covered.
- ⚠ Be sure the flues are covered with at least 6 inches (150 mm) of asphalt over their full length to avoid a tank explosion.

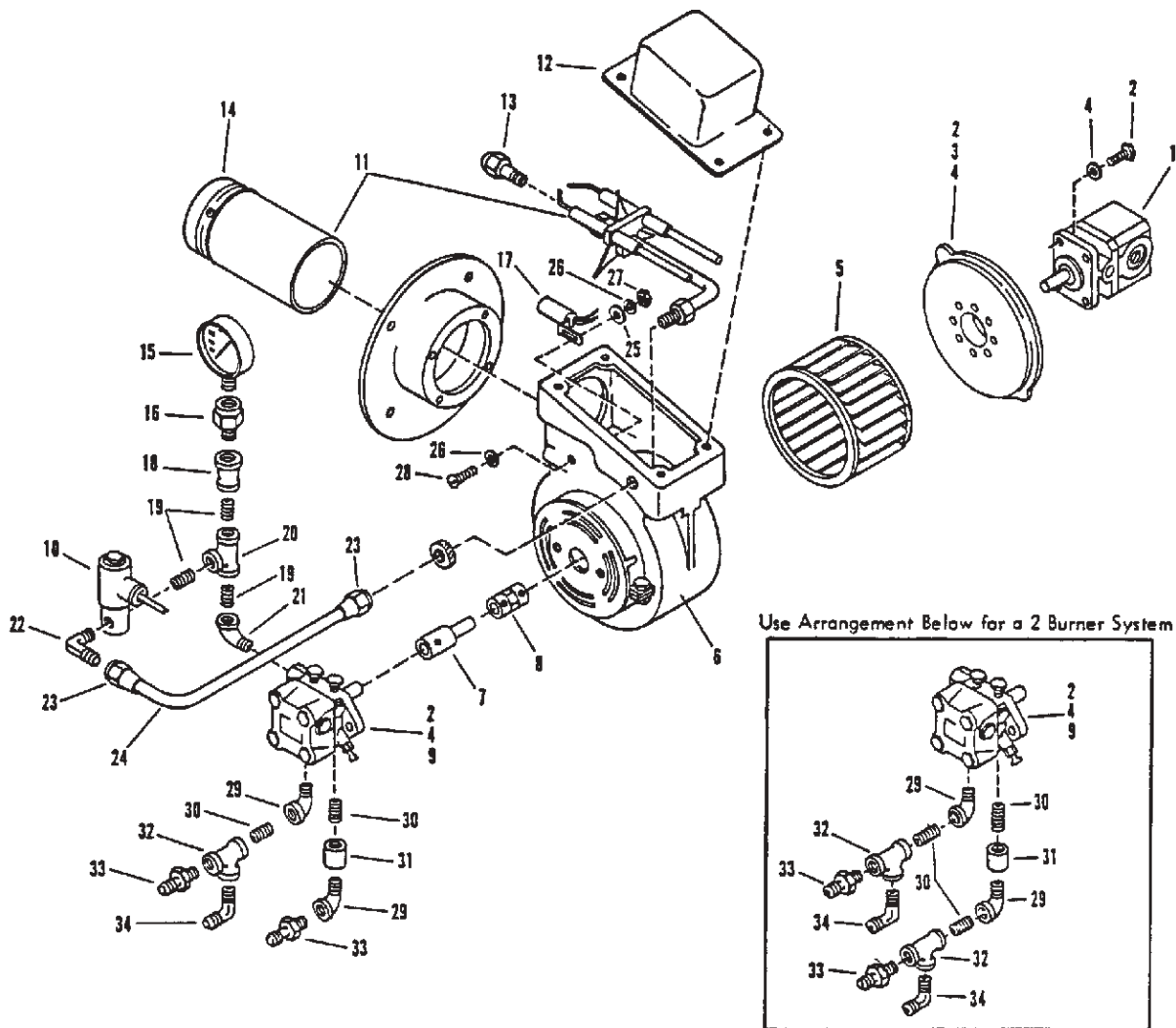
⚠ WARNING



Do not light burners unless flues are covered. Explosion can occur causing death or serious injury.

3390638

High Pressure (Fuel Oil) Burner Installation



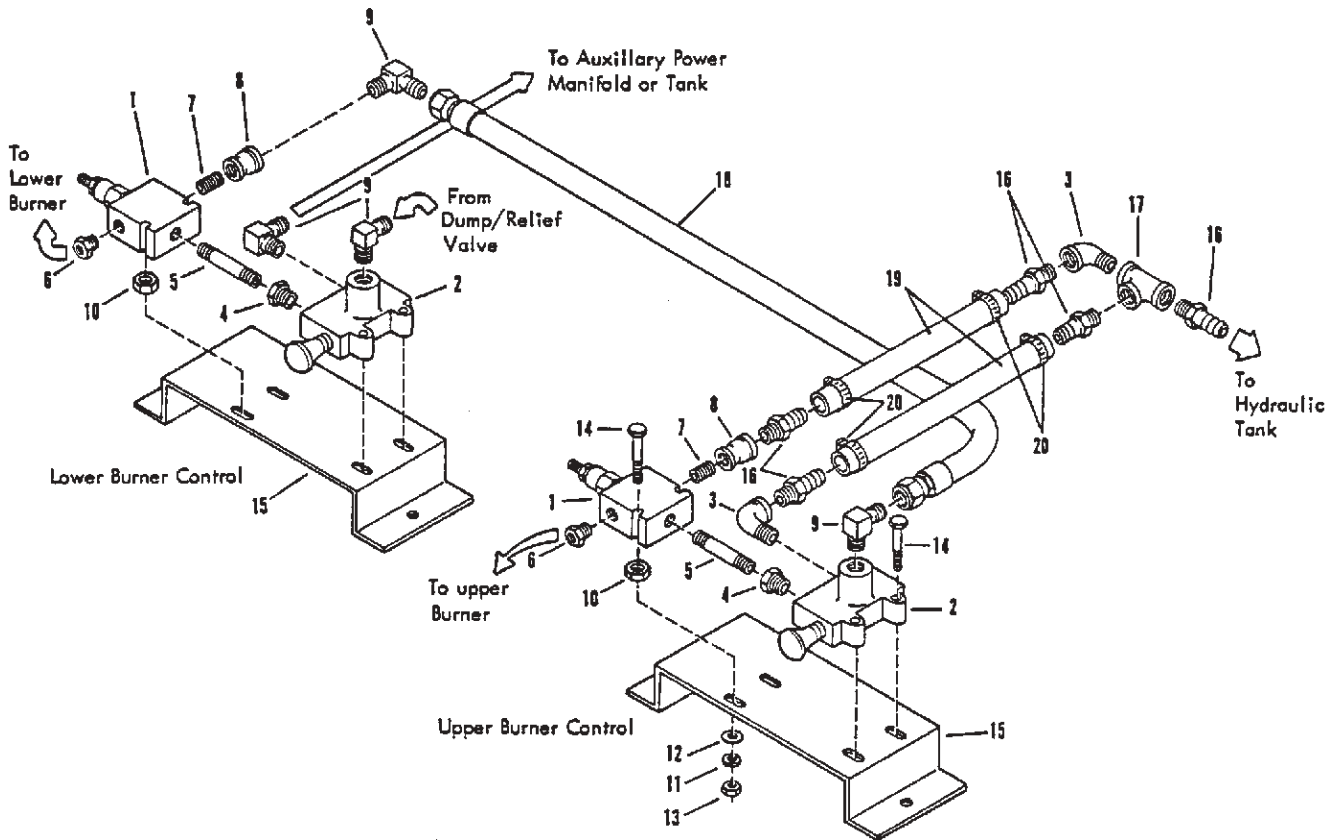
REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6601961	1	Motor-Hyd, .065 cu.in., LH	23	0120704	2	Nut-Flared Tube, 0.18 X 0.81
2	0122007	8	Screw-Hex, 0.31NC X 0.75	24	6309067	1 Ft	Tube-0.19 Copper, Per Foot
3	3331257	1	Plate-Motor Mount, Beckett Burn	25	0120386	1	Washer-Flat, 0.25
4	0120214	1	Washer-Lock, 0.31, Spring	26	0120391	2	Washer-Flat, 0.19
5	6500345	1	Blower Wheel - Burner, 6.25 Dia.	27	6100137	1	Nut-Hex, Lock, 10NC
6	6500343	1	Housing Asm-Burner, Hi Press	28	0120620	1	Screw-Mach, 10NC X 0.75
7	3331263	1	Shaft-Burner, Beckett	29	0105423	2	Elbow-St., 0.25NPT
8	6601956	1	Coupling-Type L, 0.50 In.	30	0105405	AR	Nipple-Pipe, 0.25NPT
9	6500347	1	Pump-Fuel, Burner, Hi Press	31	0105409	1	Coupling-Pipe, 0.25NPT
10	6500335	1	Valve-Fuel Oil, 12V NC, 0.12NPT	32	0105417	2	Tee-Pipe, 0.25NPT
11	6500337	1	Burner Air Tube-Camb.	33	0118750	2	Adapter-Auto, St, 04MP-06MS
12	6500344	1	Transformer-Ignition	34	0118755	2	Elbow-Auto, 90, 04MP-06MS
13	6500350	1	Nozzle-Burner, 3.0 GPH, 80, S-S				
14	6500351	1	Burner Head - No. F-313				
15	6600168	1	Gauge-Pressure				
16	6600874	1	Snubber				
17	6500346	1	Cad Cell-Burner, Hi Press				
18	0119930	1	Bushing-Red., 0.25X0.12				
19	0105404	3	Nipple-Pipe, 0.12NPT				
20	0105416	1	Tee-Pipe, 0.12NPT				
21	0105422	1	Elbow-St, 0.12NPT				
22	6200362	1	Elbow-90, 0.19 Tube X 0.12NPT				

AR = As Required

High Pressure Burner Valve Assembly

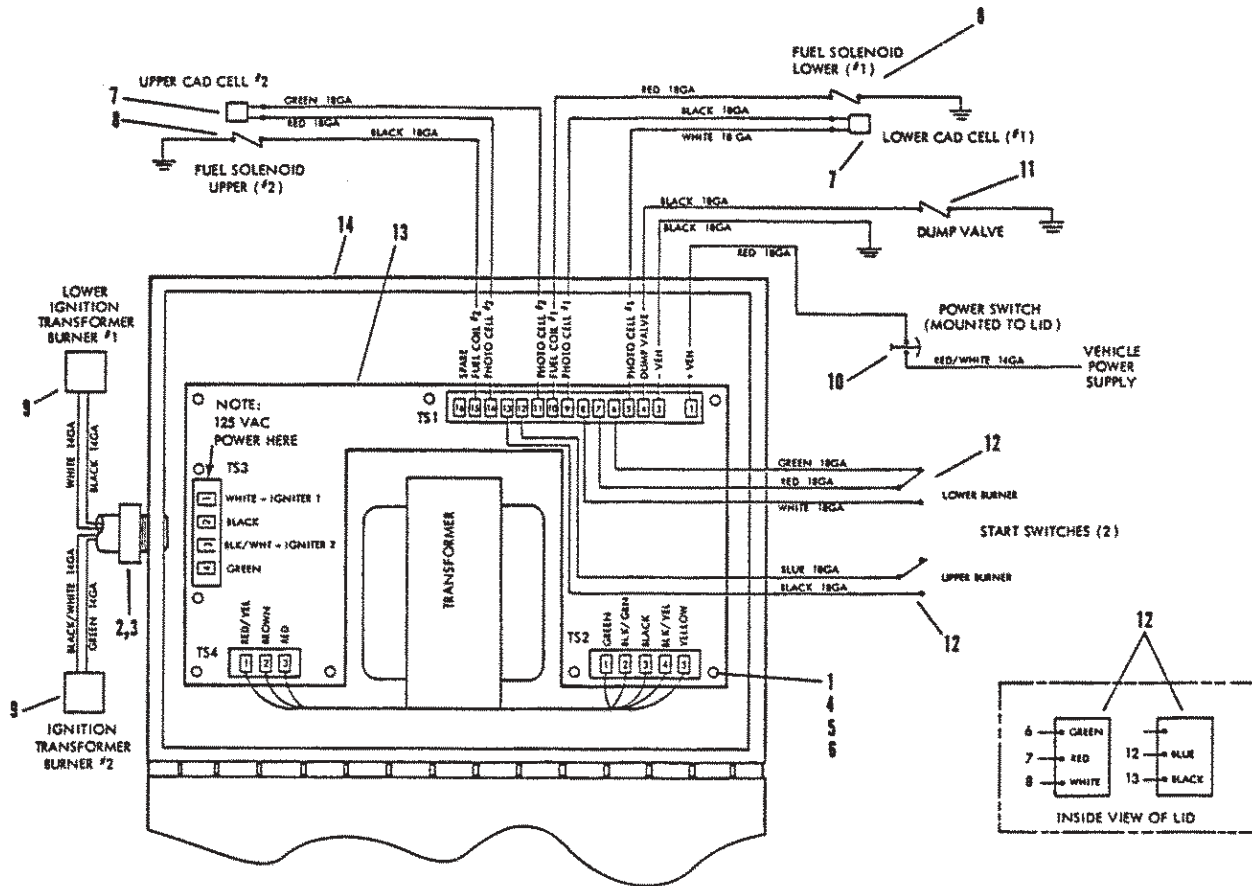
Hydraulic, 2 Burner System

9301116



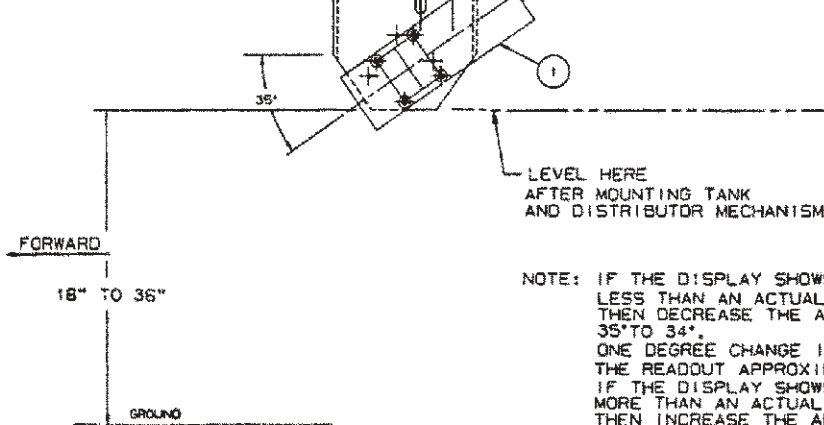
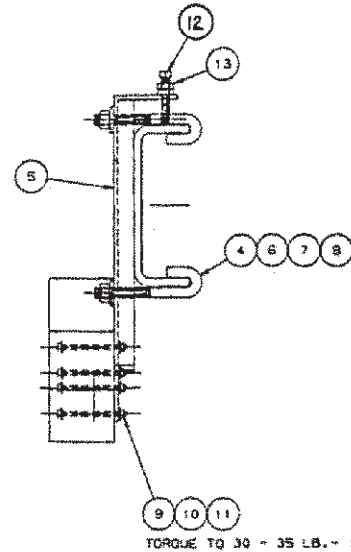
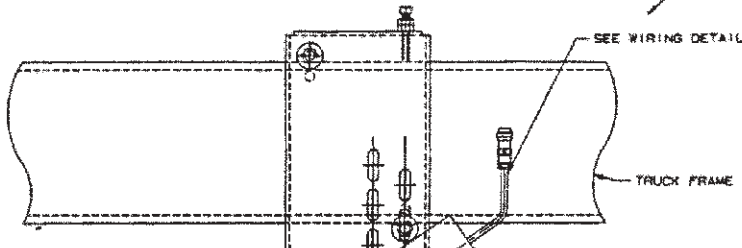
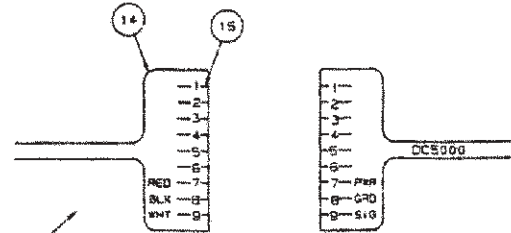
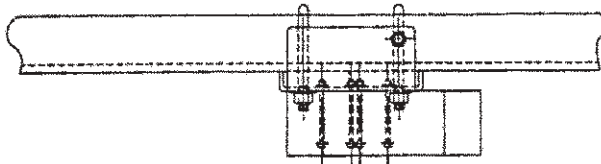
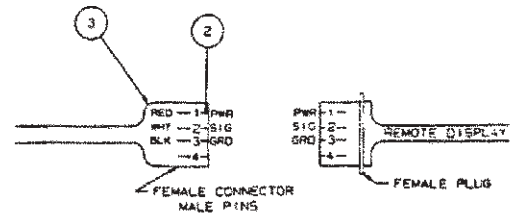
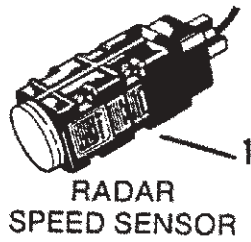
REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6601960	2	Regulator				
2	6601959	2	Valve				
3	0108686	2	Elbow-0.50 Street				
4	0142269	2	Bushing-Red, 0.50 X 0.38				
5	0144603	2	Nipple-Pipe, 0.38 X 3.00				
6	0119931	2	Bushing-Red, 0.38 X 0.25				
7	0111305	2	Nipple-Pipe, 0.38CL				
8	0142834	2	Coupling-Pipe, Red, 0.38 X 0.50				
9	6600958	4	Elbow-08MJ X 08MP				
10	0120377	4	Nut-Hex, 0.38NC (Spacer)				
11	1020380	8	Washer-Lock, 0.25, Spring				
12	0120386	8	Washer-Flat, 0.25A				
13	0120367	8	Nut-Hex, 0.25NC				
14	0121966	8	Screw-Hex, 0.25NC X 2.50				
15	3331264	2	Plate-Mtg, Burn C Vlv				
16	6600663	5	Hose End-08X08MP, ST				
17	0120279	1	Tee-Pipe, 0.50NPT, PN				
18	6601196	1	Hose Asm-08X24, 08FJX-08FJX				
19	6600662	4 Ft	Hose-Push Lok, Parker 801-8				
20	6000294	4	Clamp-Hose				

Igniter Burner Wiring - High Pressure (Fuel Oil) Burners



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6701980	9	Spacer-Circuit Board Mt.				
2	6700959	1	Cord-Grip Fitting, 0.75 X 0.75				
3	6700581	1	Nut-Conduit, 0.75				
4	0436669	9	Screw-Mach, PUSL, 6NC X 1.00, PD				
5	0134530	9	Nut-Hex, Mach, 6NC, PD				
6	0121841	9	Washer-Lock, No. 8, Spring, PD				
7	6500346	2	Cad Cell-Burner, Hi Press				
8	6500335	2	Valve-Fuel Oil, 12V, NC, .12NPT				
9	6500344	2	Transformer-Ignition				
10	6701871	1	Switch-Palm Button, Push-Pull				
11	6601798	1	Valve Asm-Hyd, RX/Dump, 12VDC				
12	6701966	2	Switch-Toggle, DPDT, On/Mom/On				
13	3370164	1	Circuit Board				
14	3370175	1	Control Box				

Radar Speed Sensor Installation

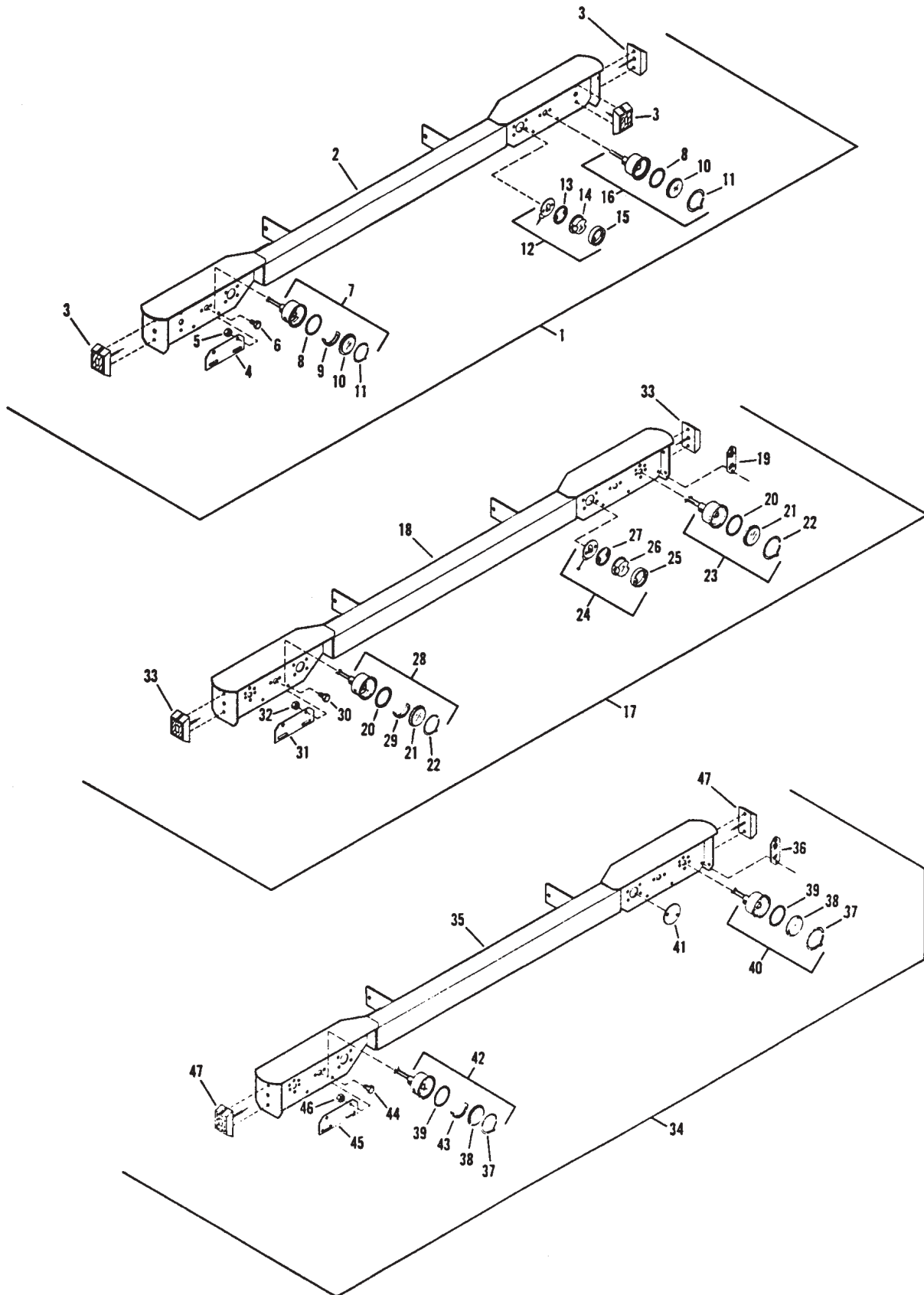


NOTE: IF THE DISPLAY SHOWS FEET TRAVELED LESS THAN AN ACTUAL MEASURED COURSE THEN DECREASE THE ANGLE, CHANGE FROM 35° TO 34°. ONE DEGREE CHANGE IN ANGLE CHANGES THE READOUT APPROXIMATELY ONE PERCENT. IF THE DISPLAY SHOWS FEET TRAVELED MORE THAN AN ACTUAL MEASURED COURSE THEN INCREASE THE ANGLE, CHANGE FROM 35° TO 36°. ONE DEGREE CHANGE IN ANGLE CHANGES THE READOUT APPROXIMATELY ONE PERCENT.

3	1	6702043	PLUG-4 PIN STD
2	4	6701947	SOCKET-PIN, 18-16 GA.
1	1	3370212	RADAR HEAD-SPEED SENS, W/O PLUG
REF/REQ	PART NO	DESCRIPTION	
GENERAL NOTES:		E.D. ETNYRE & CO.	
REMOVE ALL BURRS		OREGON, IL. 61061	
BREAK SHARP EDGES		ALL DIMENSIONS IN INCHES DO NOT SCALE DWG	
MINIMUM BEND RAD.		DRAWING TITLE	
UNLESS SPECIFIED		INSTALL-RADAR TO TRUCK	
BEND RELIEF SHOP		FRAME	
OPTION		DWS	
TOLERANCE		DRAWING NO.	
FRACTIONAL 1/16		9301190	
DECIMAL .001		REV	
.0025 .01			
.004 .010			
FINISH CHART		SCALE 1/2"=1" DATE 3/13/90 SHEET 1 OF 1	
ANGLES ±0° 30'			

15	REF	3370204	PIN CRIMP SNAP IN D SUB
14	REF	3370203	HOOD BLACK 9 PIN SUB D
13	1	0120378	NUT-HEX, .50NC, PD
12	1	0110458	SCREW-SQHD, .50NCX3.00, CWP, PN
11	4	0120380	WASHER-LOCK, .25 SPRING PD
10	8	9414920	WASHER-FLAT, .025B PD
9	4	0432903	SCREW-HEX, .025 NCX 1.00, GR.2 PD
8	2	0130999	WASHER-FLAT, .62A PD
7	2	0124589	NUT-HEX, .62, PD
6	2	0121574	WASHER-LOCK, .62, SPRING, PD
5	1	3361019	PLATE ASM.-MTG, UNIVERSAL RADAR
4	2	3360726	BOLT-HOOK BIT, FRAME TRUCK 3/4

Loom Bumper Assemblies

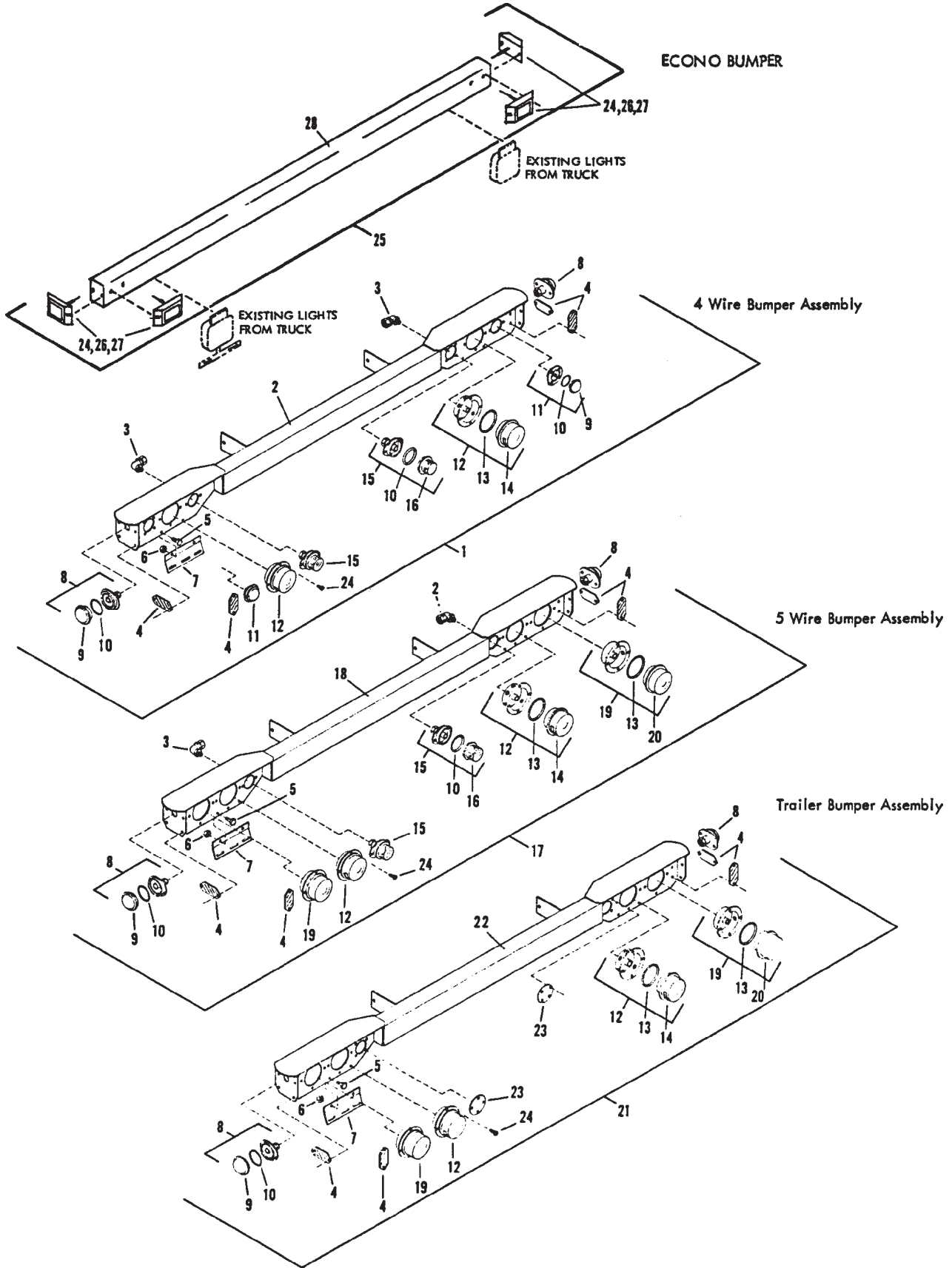


Loom Bumper Assemblies

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3310907	1	BUMPER ASM=TRUCK MT,4 WR,COMPL				
2	3310901	1	BUMPER ASM=LOOM,TRUCK MT				
3	6700854	4	LIGHT=CLEARANCE,w/REFLECT,RED				
4	3310897	1	BRACKET=LICENSE PLATE MTG				
5	0120375	2	NUT=HEX,0.25NC,PD				
6	0120706	2	SCREW=HEX,0.25NCX0.50,GR2,PD				
7	6700390	1	LIGHT=STOP,TAIL,TURN + LICENSE				
8	7500007	AR	GASKET=LENS,STT,LOOM				
9	7500006	1	WINDOW=LICENSE,STT,LOOM				
10	6700450	AR	LENS=RED				
11	7500008	AR	RING=RET,LENS,STT,LOOM				
12	6700392	2	LIGHT=BACK UP,12 VOLT				
13	7500010	AR	GASKET=LENS,BACK UP LIGHT,LOOM				
14	7500009	AR	LENS=CLEAR,BACK UP LIGHT,LOOM				
15	7500011	AR	RIM=LENS,BACK UP LIGHT,LOOM				
16	6700391	1	LIGHT ASM=STOP,TAIL + TURN				
17	3310902	1	BUMPER ASM=TRUCK MT,5 WR,COMPL				
18	3310901	1	BUMPER ASM=LOOM,TRUCK MT				
19	6000685	2	REFLECTOR=RED				
20	7500007	AR	GASKET=LENS,STT,LOOM				
21	6700450	AR	LENS=RED				
22	7500008	AR	RING=RET,LENS,STT,LOOM				
23	6700391	3	LIGHT ASM=STOP,TAIL + TURN				
24	6700392	2	LIGHT=BACK UP,12 VOLT				
25	7500011	AR	RIM=LENS,BACK UP LIGHT,LOOM				
26	7500009	AR	LENS=CLEAR,BACK UP LIGHT,LOOM				
27	7500010	AR	GASKET=LENS,BACK UP LIGHT,LOOM				
28	6700390	1	LIGHT=STOP,TAIL,TURN + LICENSE				
29	7500006	1	WINDOW=LICENSE,STT,LOOM				
30	0120706	2	SCREW=HEX,0.25NCX0.50,GR2,PD				
31	3310897	1	BRACKET=LICENSE PLATE MTG				
32	0120375	2	NUT=HEX,0.25NC,PD				
33	6700854	2	LIGHT=CLEARANCE,w/REFLECT,RED				
34	3310918	1	BUMPER ASM=TRLR MT,COMPLETE				
35	3310906	1	BUMPER ASM=TRAILER MOUNT				
36	6000685	2	REFLECTOR=RED				
37	7500008	AR	RING=RET,LENS,STT,LOOM				
38	6700450	AR	LENS=RED				
39	7500007	AR	GASKET=LENS,STT,LOOM				
40	6700391	3	LIGHT ASM=STOP,TAIL + TURN				
41	3310915	2	COVER=BACK UP LIGHT HOLE,LOOM				
42	6700390	1	LIGHT=STOP,TAIL,TURN + LICENSE				
43	7500006	AR	WINDOW=LICENSE,STT,LOOM				
44	0120706	2	SCREW=HEX,0.25NCX0.50,GR2,PD				
45	3310897	1	BRACKET=LICENSE PLATE MTG				
46	0120375	2	NUT=HEX,0.25NC,PD				
47	6700854	2	LIGHT=CLEARANCE,w/REFLET,RED				

AR = AS REQUIRED

Bumper Assemblies - Econo and Environmental

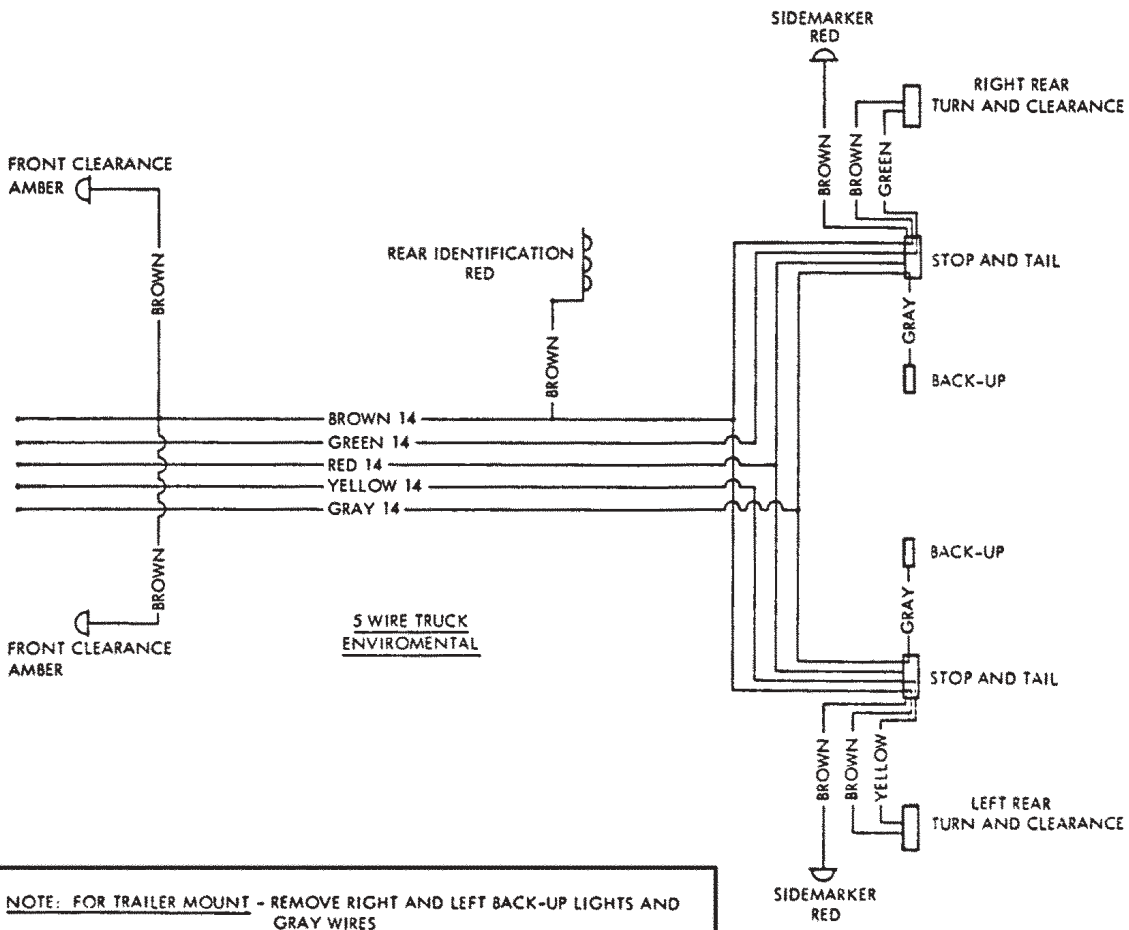
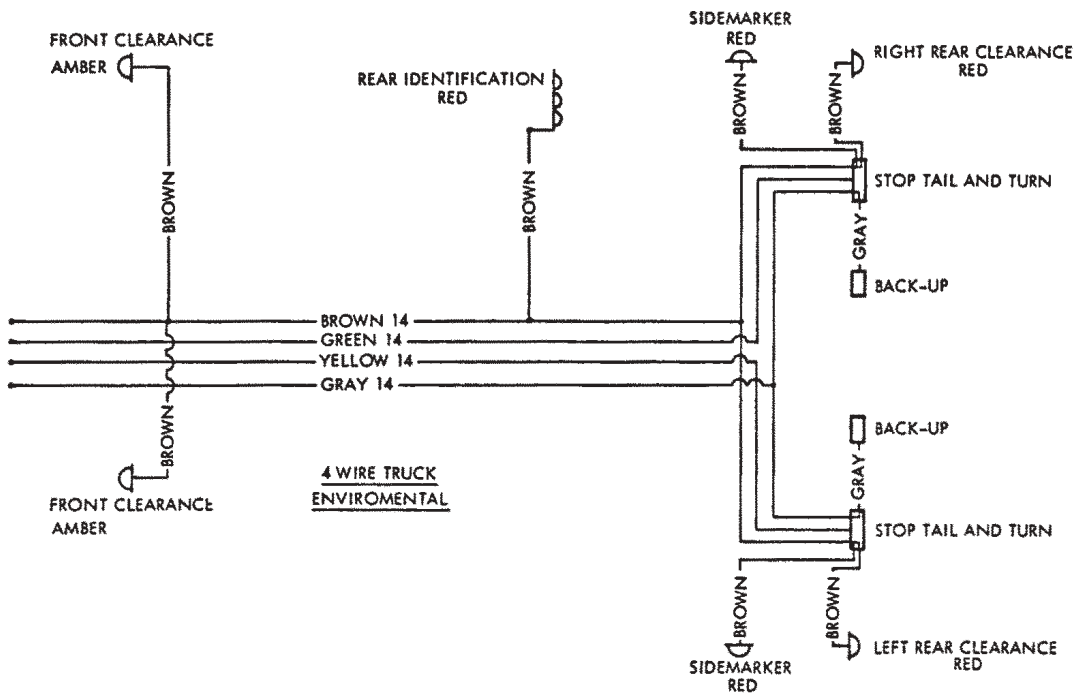


Bumper Assemblies - Econo and Environmental

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3370044	1	BUMPER ASM-COMPL, 4 WIRE W/LGTS				
2	3310883	1	FRAME ASM-BUMPER, 4 WIRE				
3	6701076	2	ELBOW-AUTO, 90, 04PP-06T, POLY				
4	6000625	4	REFLECTOR-RED				
5	0120706	2	SCREW-HEX, 0.25NCX0.50, GR2, PD				
6	9413946	2	NUT-HEX, LOCK, 0.25NC, EA, PD				
7	3310879	1	BRACKET-LICENSE, REAR				
8	6700037	2	LIGHT-CLEARANCE, 12V, RED LENS				
9	6700083	2	LENS-RED, CLEARANCE LIGHT				
10	6700230	AR	O RING				
11	6700039	2	LIGHT-CLEARANCE, 12V, RED LENS				
12	3310888	2	LIGHT ASM-STOP TAIL TURN + LIC				
13	6700229	AR	O RING				
14	6700080	2	LENS-STOP TAIL TURN+LIC LIGHT				
15	6701073	2	LIGHT ASM-BACKUP				
16	6701074	2	LENS-CLEAR, BACKUP				
17	3370045	1	BUMPER ASM-COMPL, 5 WIRE W/LGTS				
18	3310887	1	FRAME ASM-BUMPER, 5 WIRE				
19	3310889	2	LIGHT ASM-TURN + CLEARANCE				
20	6700081	2	LENS-TURN + CLEARANCE LIGHT				
21	3370059	1	BUMPER ASM-COMPL, TRAILER, W/LYS				
22	3310919	1	FRAME ASM-BUMPER, ENV TRAILER				
23	3310916	2	COVER-BACK UP LIGHT HOLE, ENV				
24	0447835	AR	SCREW-TAP, PNSL, 10NFX0.50, F, PD				
25	3311340	1	BUMPER ASM-COMPL, ECONO				
26	6700854	4	LIGHT-CLEARANCE, W/REFLECT, RED				
27	6000721	4	GROMMET-RUBBER				
28	3311339	1	BUMPER ASM				

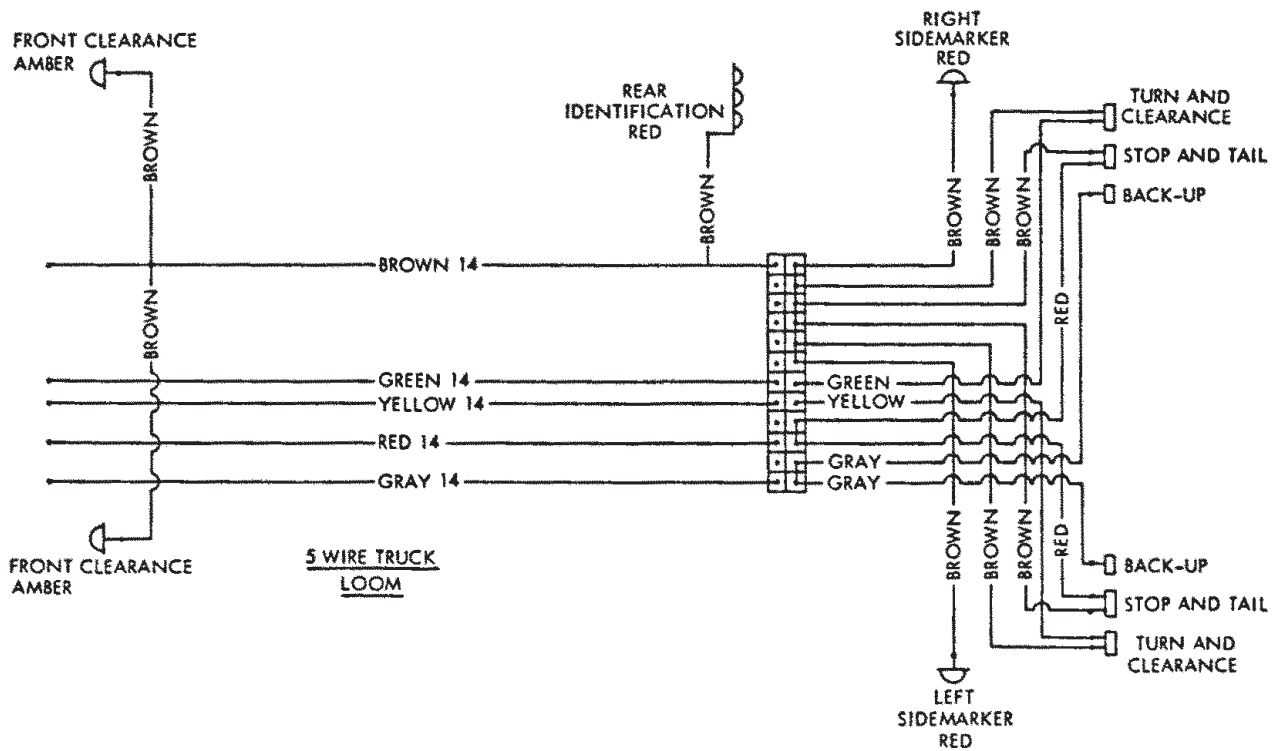
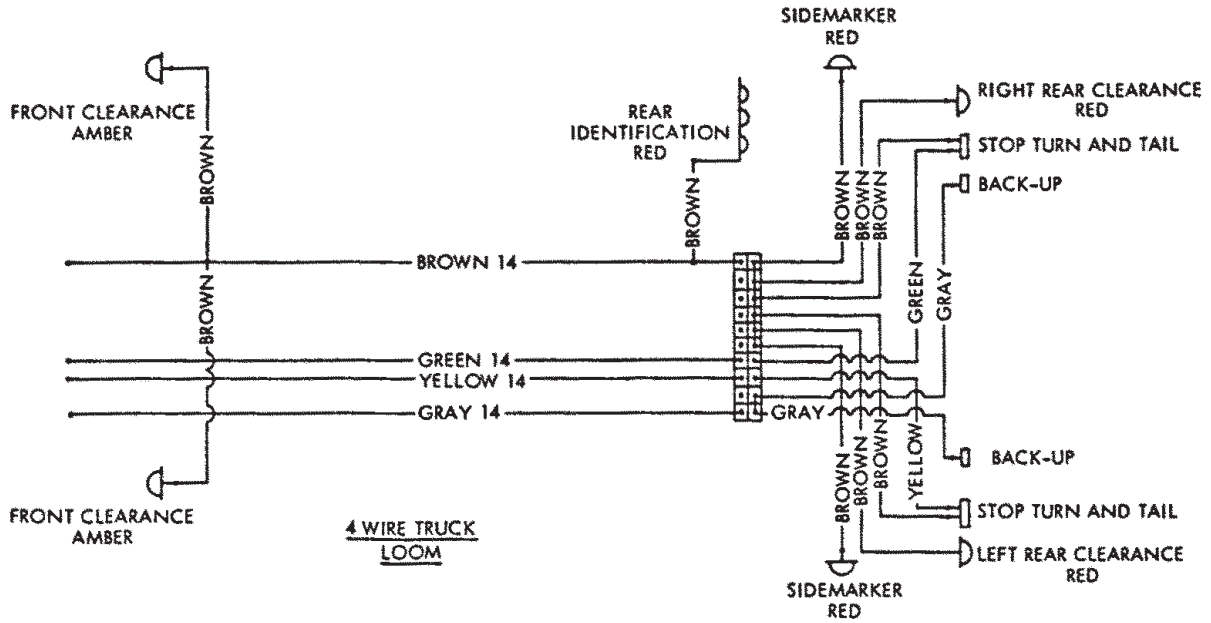
AR = AS REQUIRED

Wiring Diagram - Lighting - Environmental



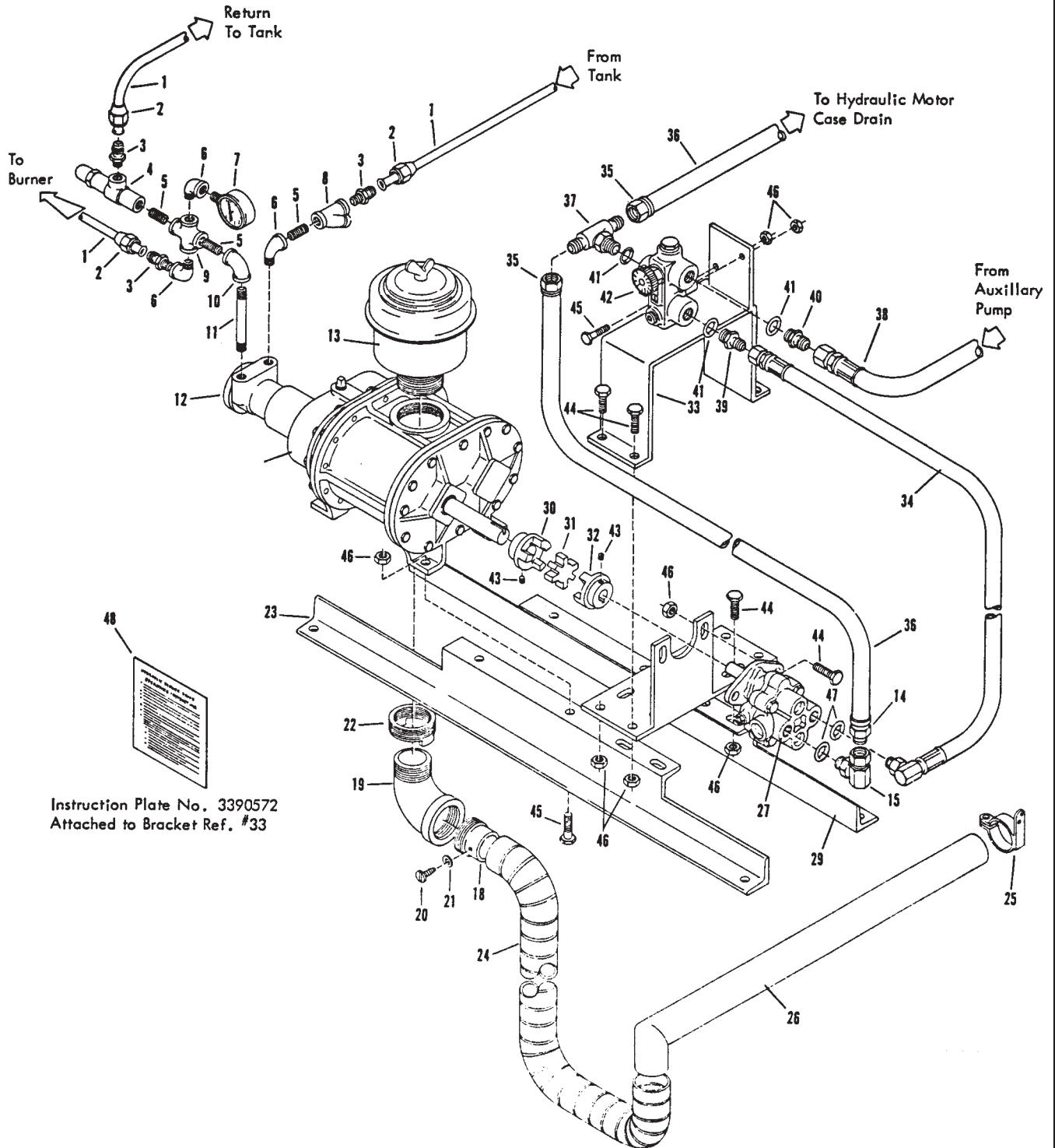
NOTE: FOR TRAILER MOUNT - REMOVE RIGHT AND LEFT BACK-UP LIGHTS AND GRAY WIRES

Wiring Diagram - Lighting - Loom System



NOTE: FOR TRAILER MOUNT - REMOVE RIGHT AND LEFT BACK-UP LIGHTS AND GRAY WIRES AND RETURN TO 10-BAR TERMINAL STRIP

Hydrostatic Blower Drive - Low Pressure Burners Only



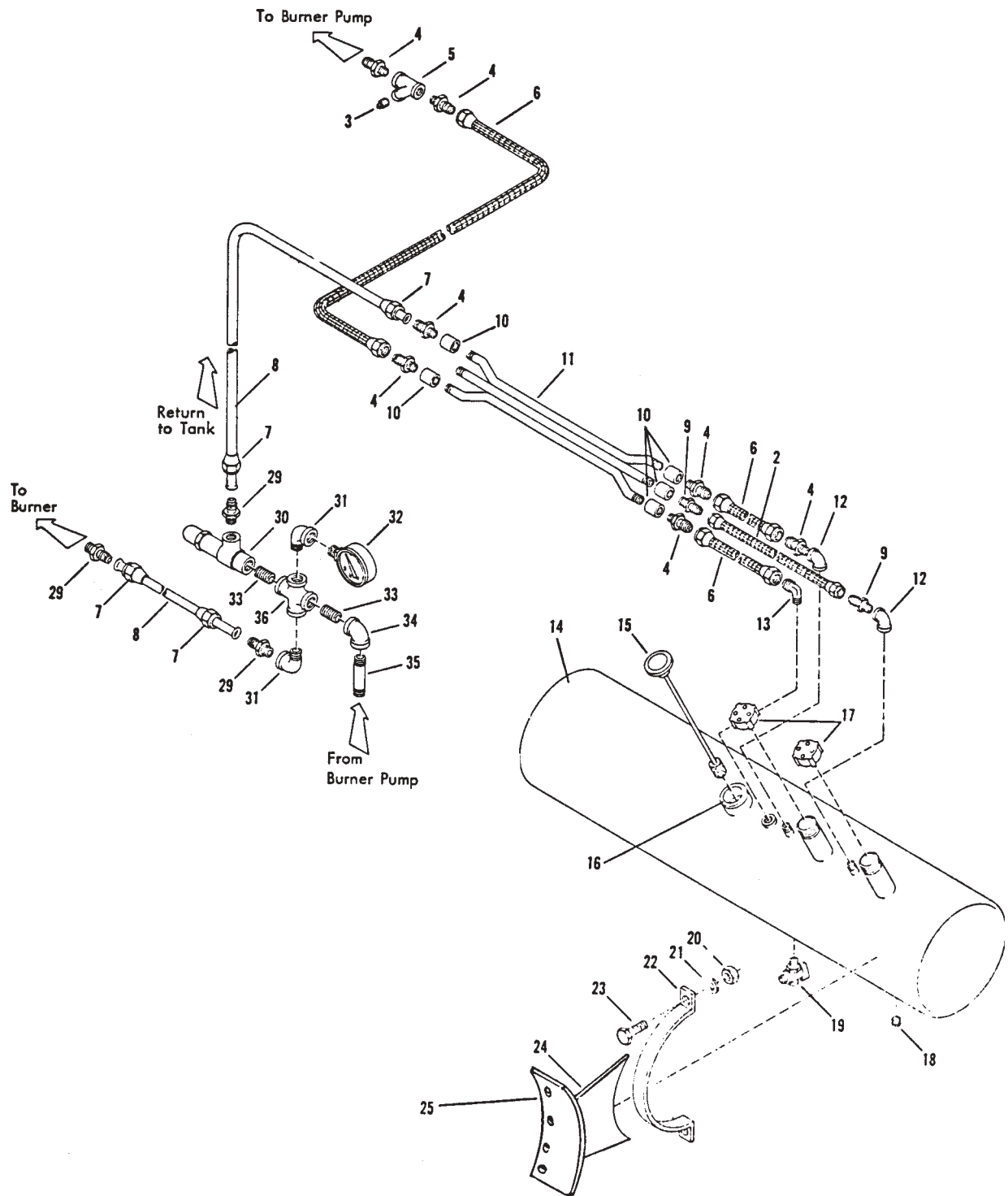
Hydrostatic Blower Drive - Low Pressure Burners Only

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
		**					
1	6309070	AR	Tube-0.38 In, Copper, Per Foot				
2	0118539	6	Nut-Auto, 06MS				
3	6000656	3	Adapter-ARBK, St, 06MJ-06MP				
4	6600197	1	Valve-Relief, 0.38 In				
5	0121207	3	Nipple-Sch 40, 0.38X1.00, Cl, PN				
6	0120063	3	Elbow-Pipe, 90, St, 0.38NPT, PN				
7	6600196	1	Gauge-Pressure, 2 In, 100 lbs				
8	6600199	1	Strainer-Style B, Type Y *				
9	0115193	1	Cross-Pipe, 0.38NPT, Pn				
10	0119097	1	Elbow-Pipe, 90, 0.38NPT, Pn				
11	0190697	1	Nipple-Pipe, 0.38NPT X 4.00, PN				
12	7030029	1	Pump-Oil				
13	6600136	1	Filter-Air, Blower				
14	6600647	1	Hose End-12X12MP, St, LPSP				
15	6600896	1	Elbow-Hyd, 90, 8MB-12FPX				
16	6600871	1	Hose Asm-Pipe/O-Ring, 0.50				
17	6601987	1	Blower 36U-RAI				
18	3330202	1	Adapter Asm-Blower Discharge				
19	0187154	1	Elbow-Pipe, 90, St, 2.00NPT, PN				
20	9426110	1	Screw-Tap, PNSL, 10X0.75, AB, PD				
21	0120386	1	Washer-Flat, 0.25A (0.31X0.73) PD				
22	6200047	1	Bushing-Pipe, Face, 2.50X2.00NPT				
23	3331155	1	Support Asm-Blower Mtg, Right				
24	6309095	*1	Hose-Flexhust, 2 In ID, Type CWS				
25	3330214	1	Cradle Asm-Hauck Burner				
26	3330213	1	Connect Tube Asm-Low Press Burn				
27	6600878	1	Motor-Blower Drive				
	7010069	1	Rebuild Kit (Minor)				
28	3331159	1	Mounting Asm-Hydraulic Motor				
29	3331154	1	Support Asm-Blower Mtg., Left				
30	3321254	1	Coupling-Blower Drive Half				
31	6445009	1	Spider-Neoprene, Blo. Drive Cplg.				
32	3320983	1	Coupling-Half, Hyd Mtr, Blwr Drive				
33	3331162	1	Bracket Asm-Control Valve Mtg.				
34	6600872	1	Hose Asm-37FL to 37FL, 0.50				
35	6600648	2	Hose End-12X12FJX, St, Push-Lok				
36	6600646	AR	Hose-Self Grip				
37	9411120	1	Tee-Hydr, 12MJ-12MJ-12MB				
38	9250605	1	Hose Asm-High Press (Specify Length)				
39	6600921	1	Connector-Stght, O RingX37 Deg. FL				
40	9410205	1	Connector-Stght, O Ring, 0.75				
41	0274249	3	O Ring-Tube Fitting, 0.75				
42	6600877	1	Valve-Motor Control				
43	0115321	2	Screw-Sock, 0.31NC X 0.31, Cup, PN				
44	0120233	14	Screw-Hex, 0.38NC X 1.00, GR2, PD				
45	0120918	6	Screw-Hex, 0.38NC X 1.50, GR2, PD				
46	0274993	20	Nut-Hex, Lock, 0.38NC, EA, PD				
47	0274247	2	O Ring-Tube Fitting, 0.50				
48	3390572	1	Plate-Hyd Blower Drive Instructions				

* Per Foot, Specify Length

** AR = As Required. Specify Quantity or Length

Fuel Tank And Lines - Top Draw

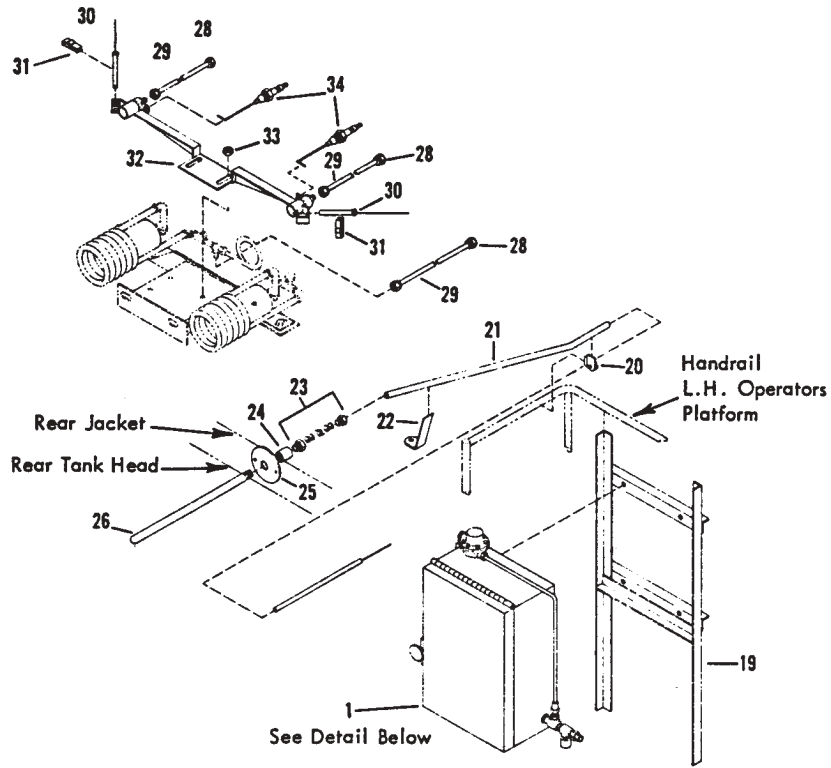


Fuel Tank And Lines - Top Draw

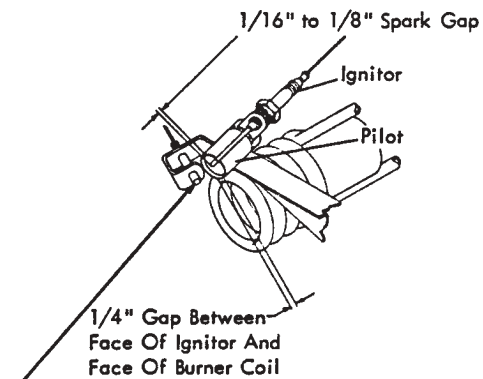
REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
2	9250128	AR	TUBE ASM-COP,0.3100,PER FOOT				
3	0219191	1	PLUG=PIPE,SQ HD,0.38NPT,PN				
4	0118750	8	ADAPTER=AUTO,ST,04MP=06MS				
5	6600199	1	STRAINER=STY B,TYP 4				
6	9250129	AR	TUBE ASM-COP,0.3800,PER FOOT				
7	0118539	4	NUT-FLARED,0.38X1.31				
8	6309070	15	TUBE=0.38IN,COP,PER FOOT				
9	0110200	3	ADAPTER=AUTO,ST,04MP=05MS				
10	0105409	6	COUPLING=PIPE,0.25NPT,PN				
11	3330463	AR	PIPE ASM-FUEL LINE,65 IN				
	3330464	AR	PIPE ASM-FUEL LINE,73 IN				
	3330465	AR	PIPE ASM-FUEL LINE,90 IN				
	3330466	AR	PIPE ASM-FUEL LINE,110 IN				
	3330467	AR	PIPE ASM-FUEL LINE,118 IN				
	3330468	AR	PIPE ASM-FUEL LINE,127 IN				
	3330469	AR	PIPE ASM-FUEL LINE,160 IN				
12	0105413	2	ELBOW=PIPE,90,0.25NPT,PN				
13	0118755	1	ELBOW=AUTO,90,04MP=06MS				
14	3331114	AR	TANK ASM-FUEL,12X42,2 COMP				
	3331115	AR	TANK ASM-FUEL,12X42,1 COMPT				
	3331116	AR	TANK ASM-FUEL,14X54,2 COMPT				
	3331117	AR	TANK ASM-FUEL,14X54,1 COMPT				
	3331118	AR	TANK ASM-FUEL,16X48,2 COMPT				
	3331119	AR	TANK ASM-FUEL,16X60,2 COMPT				
15	6601306	1	GAUGE=LIQUID LEVEL,12 IN TANK				
	6601307	1	GAUGE=LIQUID LEVEL,14 IN TANK				
	6601308	1	GAUGE=LIQUID LEVEL,16 IN TANK				
16	6601309	1	TANK NECK=GAUGE,GAS,PECH				
17	6100235	2	CAP=FILLER,FUEL TANK				
18	0143997	1	PLUG=PIPE,SOCK,0.25NPT,PN				
19	6600162	1	COCK=DRAIN,0.25 IN				
20	0120371	4	NUT=HEX,0.5UNC,PD				
21	0120384	4	WASHER=LOCK,0.50,SPRING,PD				
22	3311022	2	BAND=SUPPORT,FUEL TANK,14 IN				
23	0122459	4	SCREW=HEX,0.50NCX2.00,GR2,PD				
24	3380489	2	Gusset-Tank Mt, 44X64 Oval				
	3380487	2	Gusset-Tank Mt, 46X78 Oval				
	3380486	2	Gusset-Tank Mt, 48X70 Oval				
	3380484	2	Gusset-Tank Mt, 49X83 Oval				
	3380485	2	Gusset-Tank Mt, 50X90 Oval				
	3380488	2	Gusset-Tank Mt, 56X90 Oval				
	3380483	2	Gusset-Tank Mt, 64X90 Oval				
25	3300815	2	Plate-Mounting, Tank				
29	6000656	3	ADAPTER=ARBK,ST,06MC=06MP				
30	6600197	1	VALVE=RELIEF,0.38 IN				
31	0120063	2	ELBOW=PIPE,40,ST,0.38NPT,PN				
32	6600196	1	GAUGE=PRESS,2IN 100 LBS				
33	0121207	2	NIPPLE=SCH 40,0.38X1.00,CL				
34	0119097	1	ELBOW=PIPE,90,0.38NPT,PN				
35	0190697	1	NIPPLE=PIPE,0.38NPT,X4.00,PN				
36	0115193	1	CROSS=PIPE,0.38NPT,PN				

AR = AS REQUIRED

Thermocontrol -12 Volt Etnyre L.P.G. Burners

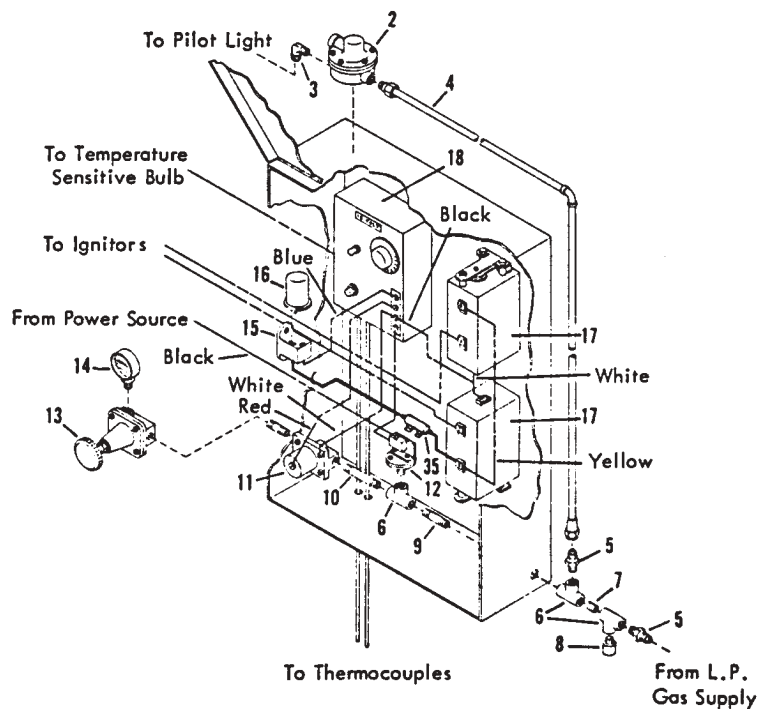


Set-up both burners as shown below



Thermocouple - Place In Hole In
Bracket Until Shoulder
On Thermocouple
Engages Bracket; Then
Insert Retaining Clip
To Hold In Place.

Detail Of Thermocontrol Box

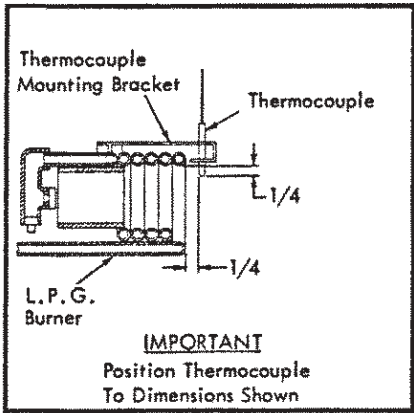
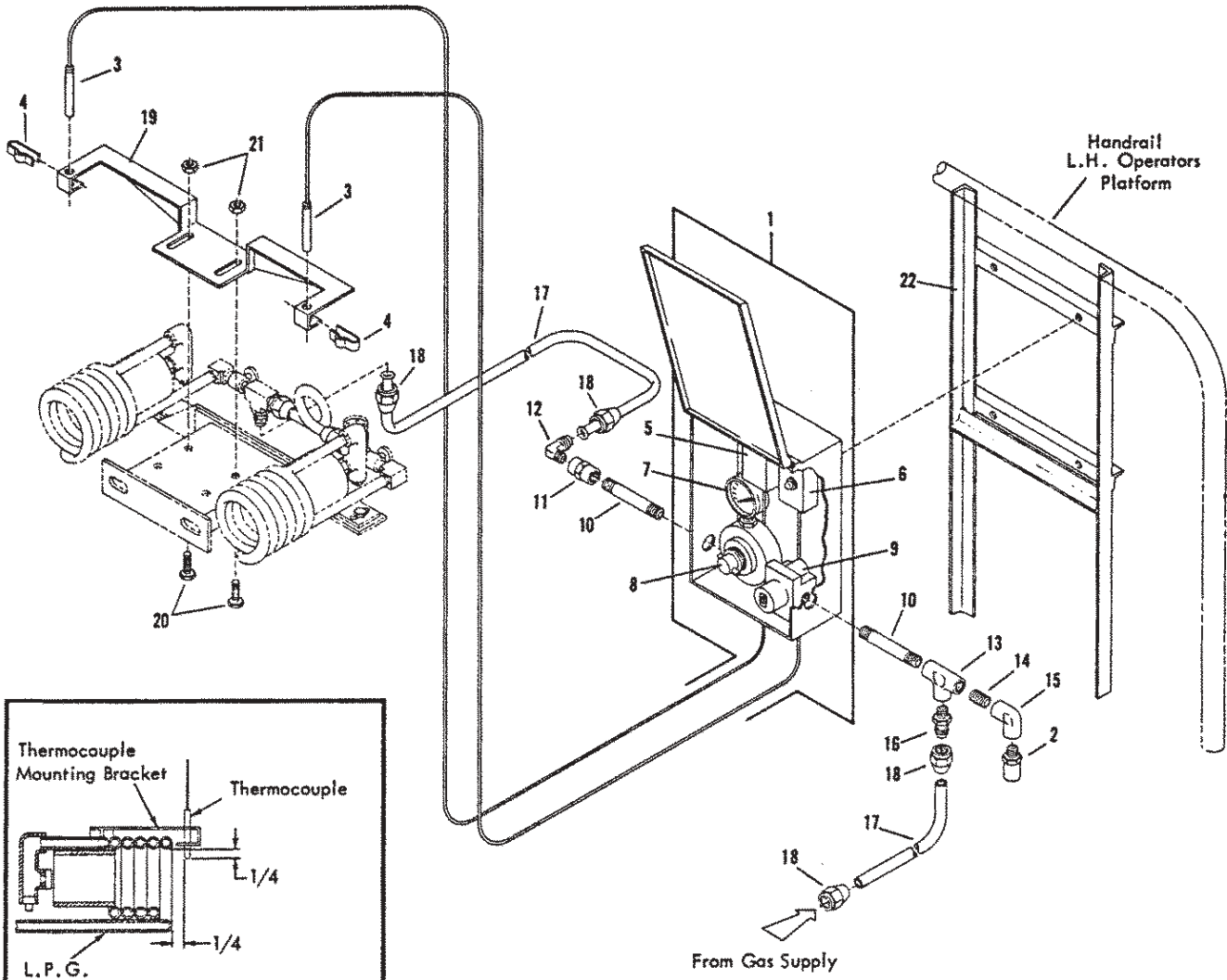


Thermocontrol -12 Volt Etnyre L.P.G. Burners

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
	7720037	1	THERMOCONTROL AND CIRCUIT INSTALLATION=COMPLETE				
1	6500192	1	CONTROL=FLAME CUT+TEMP, LPG BRN (INCLUDES ITEMS 2-31)				
2	7720023	1	REGULATOR=PILOT				
3	6200414	1	ELBOW=BALL+SLEEVE, .375NPTX.25T				
4	7720035	1	TUBE ASM=PILOT, SUPPLY				
5	0118750	3	CONNECTOR=FL TH, .375X.25NPT				
6	0105417	3	TEE=PIPE, 0.25NPT, PN				
7	0105405	1	NIPPLE=SCH 40, 0.25X0.87 CL, PN				
8	7720014	1	VALVE RELIEF, 450PSI LPG HYDRO				
9	0105407	2	NIPPLE=PP, SCH 40, 0.25X1.50, PN				
10	0144594	1	NIPPLE=PP, SCH 40, 0.25X3.50, PD				
11	7720011	1	VALVE=GAS, ELECT, 250PSI=12V				
12	7720008	1	SWITCH=PRESS, THERMO OUTFIRE				
13	7720018	1	REGULATOR=PRESSURE				
14	6600196	1	GAUGE=PRESSURE, 2IN=100 LBS				
15	7720021	1	BRACKET=FLASHER				
16	6700318	1	FLASHER=12V				
17	7720017	2	COIL=IGNITION, THERMO CONTROL				
18	7720055	1	SAFETY RELAY, THERMOSTAT				
19	3330522	1	BRKT ASM=MT, CONT THERM B=3BURN				
20	3330583	1	BRACKET ASM=RN IGN MANIFOLD				
21	3330589	1	GUIDE=CAPILLARY TUBE				
22	3330590	1	BRACKET=GUIDE TUBE CPLG				
23	6500105	1	GLAND=PACK, TEMP SEN BULB TC				
24	0120755	1	COUPLING=PIPE, 0.38NPT, PN				
25	3300405	1	RING=FIN, THERMOMETER WELL				
26	3300044	1	WELL=THERMOMETER, 12 IN. LG.				
27	7720020	1	BULB=THERMOSTATIC				
28	0121758	4	NUT=FLARED, 0.375 OD, TPG X 1 LG				
29	6309071	AR	TUBE=0.38X0.25 COPPER, TYPE L, FT				
30	6500113	1	THERMOCOUPLE=B-3, SHUTOFF				
31	7720016	1	CLIP=RETAINING THERMOCOUPLE				
32	3360669	1	GUSSET=PILOT MT BRACKET				
33	9411638	4	NUT=HEX, LOCK, 0.31NC, EA, PD				
34	7720022	1	PLUG=SPARK				
35	7720043	1	RESISTOR				

AR = AS REQUIRED

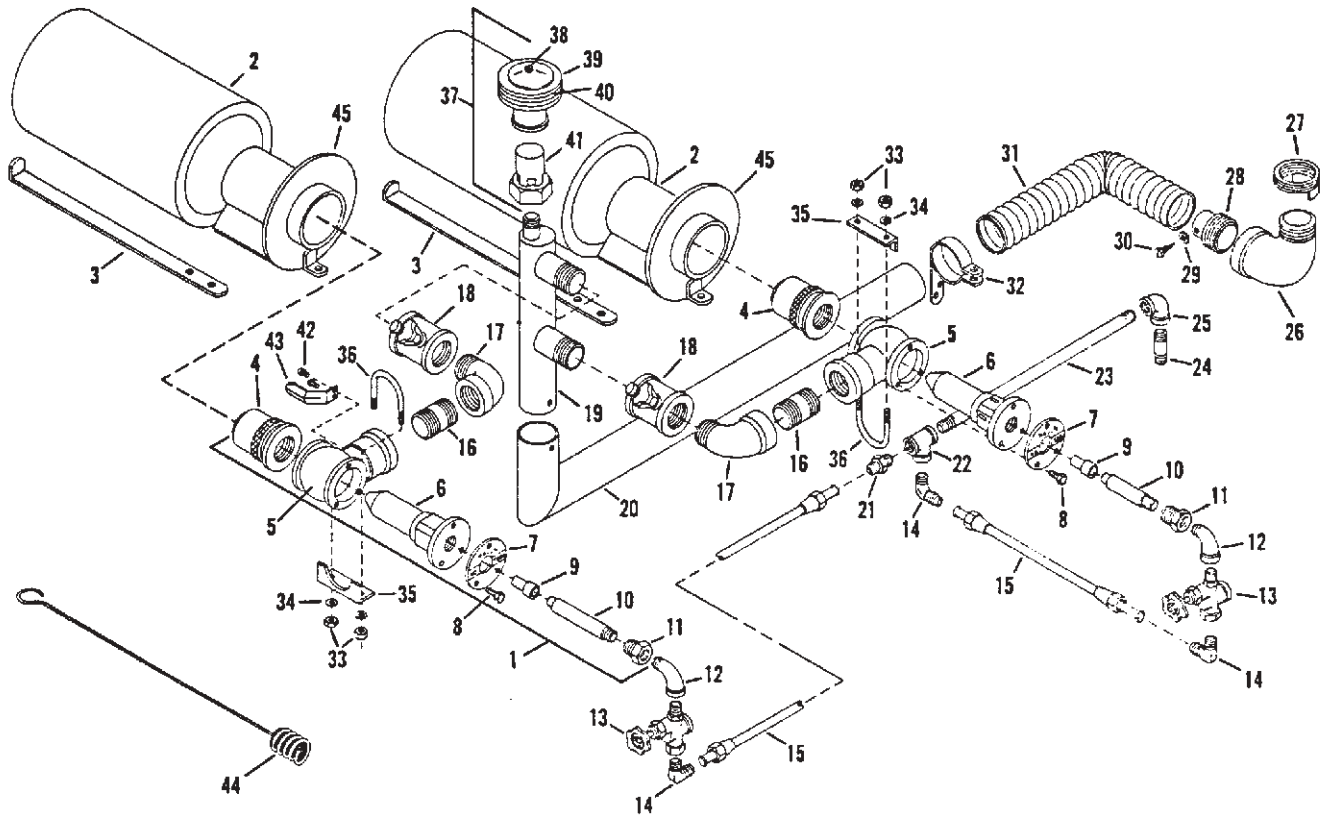
Shut-Off -12 Volt Etnyre L.P.G. Burners



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6500020	1	SHUT OFF-12V, 8-3 BURNER (INCL ITEMS 2-4)	18	0121758	4	NUT-FLARED, 0.380D TBG X 1.00LG
2	7720014	1	VALVE-RELIEF, 450 PSI LPG HYDRO	19	3360661	1	BRACKET ASM-THERMOCOUPLE MFG
3	6500113 *	2	THERMOCOUPLE-8-3, SHUTOFF	20	0122017	2	SCREW-HEX, 0.31NCX1.00, GR2, PD
4	7720016	2	CLIP-RETAINING, THERMOCOUPLE	21	9411638	2	NUT-HEX, LOCK, 0.31NC, EA, PD
5	6500133	1	SWITCH-SAFE RELAY, W/C ST BUTON	22	3330522	1	BRKT ASM-MT, CONT THERM, 8-3BURN
6	7720045	1	SWITCH-SAFE RELAY, W/ ST BUTTON				
7	6600196	1	GAUGE-PRESS, 2 IN 100 LBS				
8	7720013	1	REGULATOR-PRESSURE, 83, SHUTOFF				
9	7720011	1	VALVE-GAS, ELECT, 250PSI-12V				
10	6200419	2	NIPPLE-PP, SCH 80, 0.25X3.50, PD				
11	0444097	1	ADAPTOR-AUTO, ST, 04FP-04FP, PD				
12	0118755	1	ELBOW-AUTO, 90, 04FP-06MS				
13	0454121	1	TEE-AUTO, 04FP-04FP-04FP, PD				
14	6200292	1	NIPPLE-PP, SCH 80, 0.25X.87CL, PD				
15	0454085	1	ELBOW-AUTO, 90, 04FP-04FP, PD				
16	0118750	1	ADAPTER-AUTO, ST, 04FP-06MS				
17	6309071	AR	TUBE-0.38X0.25COP, TYPE L, P/PY (SPECIFY LENGTH)				
							AR = AS REQUIRED

* NOTE: Units manufactured prior to 9-1-72 use Thermocouple #7720012 with eyelet type connection. Units manufactured after 9-1-72 use #6500113 Thermocouple with nut type connection for Baso relay.

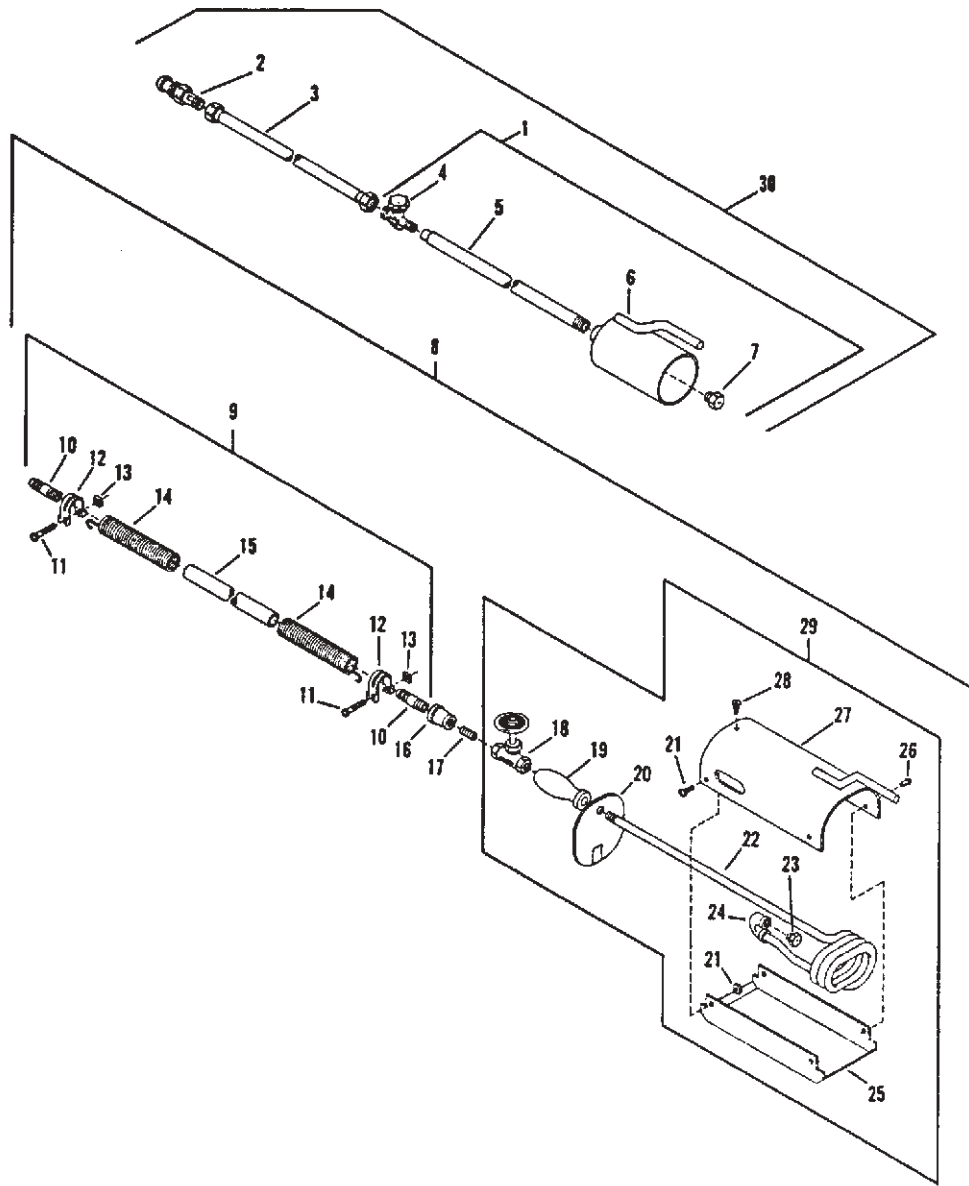
Burners - Low Pressure



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3331143	2	BURNER ASM-COMLETE (INCL ITEMS 4=11,18,42 AND 43)	24	0119920	1	NIPPLE-0.25X2.00, LG, PN
2	6500041	2	TUBE-COMBUSTION	25	0105413	1	ELBOW-PIPE, 90, 0.25NPT, PN
3	3330061	2	HOLDER-COMBUSTION TUBE	26	0187154	1	ELBOW-PIPE, 90, ST, 2.00NPT, PN
4	7700129	2	KIT-NOZZLE, LOW PRESS BURNER	27	6200047	1	BUSHING-PIPE, FACE, 2.50X2NPT
5	7700128	2	KIT-BODY, LOW PRESS BURNER (INCL ITEM 43)	28	3330202	1	ADAPTOR ASM-BLOWER DISCHG
6	7700037	2	NOZZLE	29	0120386	1	WASHER-FLAT, 0.25, PD,
7	7700068	2	PLATE	30	9426196	1	SCREW-RD HD, 0.25-14 X0.75
8	7700040	6	SCREW	31	6309095	1	TUBING-FIX, 20D/FT (SPECIFY LENGTH)
9	7700039	2	TIP	32	3330214	1	CRADLE ASSEMBLY
10	7700038	2	BODY	33	9413946	4	NUT-HEX, LOCK, 0.25NC, FA, PU
11	7700067	2	BUSHING	34	0120380	4	WASHER, LOCK, 0.25, SPRING, PD
12	0105423	2	ELBOW-PIPE, 90, ST, 0.25NPT, PN	35	3330218	2	CLAMP-BURNER
13	6600205	2	VALVE-0.25, NEEDLE (INCLUDING STRAINER)	36	3330219	1	BAR-SUPPORT-NS
	7700042	2	STRAINER-NS	37	3330220	2	U-BOLT
14	0142664	3	ELBOW-90, 0.31TUBE X0.25NPTF	38	0436730	1	SCREW-MACH, PNSL, 10NC X0.38
15	9250128	2	TUBE ASM-CORP, 3100 X W/O L. (SPECIFY LENGTH)	39	3330074	1	DISC-AIR RELIEF VALVE
16	0219358	AR	NIPPLE-1.25X2.50LG, PN	40	7430064	4	RING-AIR RELIEF VALVE-NS
	0219359	AR	NIPPLE-1.25X3.00LG, PN	41	7430065	1	VALVE-AIR RELIEF VALVE
	6200488	AR	NIPPLE-1.25X3.25LG, PN	42	7700069	4	SCREW-8-32 X318 HAUCK
17	0111001	AR	ELBOW-PIPE, 90, ST, 1.25NPT, PN	43	3331144	2	STOP-BURNER, LOW PRESSURE
18	6600204	2	VALVE-1.25 BUTTERFLY	44	3330077	1	LIGHTER-ASSEMBLY-BURNER
19	7700130	1	KIT-FEED TUBE, LOW PRESSURE	45	3330042	2	BLOCK ASM-COMBUST L.P. BURN
20	3330213	AR	CONNECT TUBE ASM, STGHT, 21IN				
	3330591	AR	CONNECT TUBE ASM, STGHT, 36IN				
	3330546	AR	BURN TBE ASM-OFFSET, 28IN-NS				
	3330547	AR	BURN TBE ASM-OFFSET, 37IN-NS				
21	0110200	1	CONNECTOR-0.310D X 0.25FPT				
22	0105417	1	TEE-PIPE, 0.25NPT, PN				
23	6200204	1	NIPPLE-0.25X3.4, 40, PN				

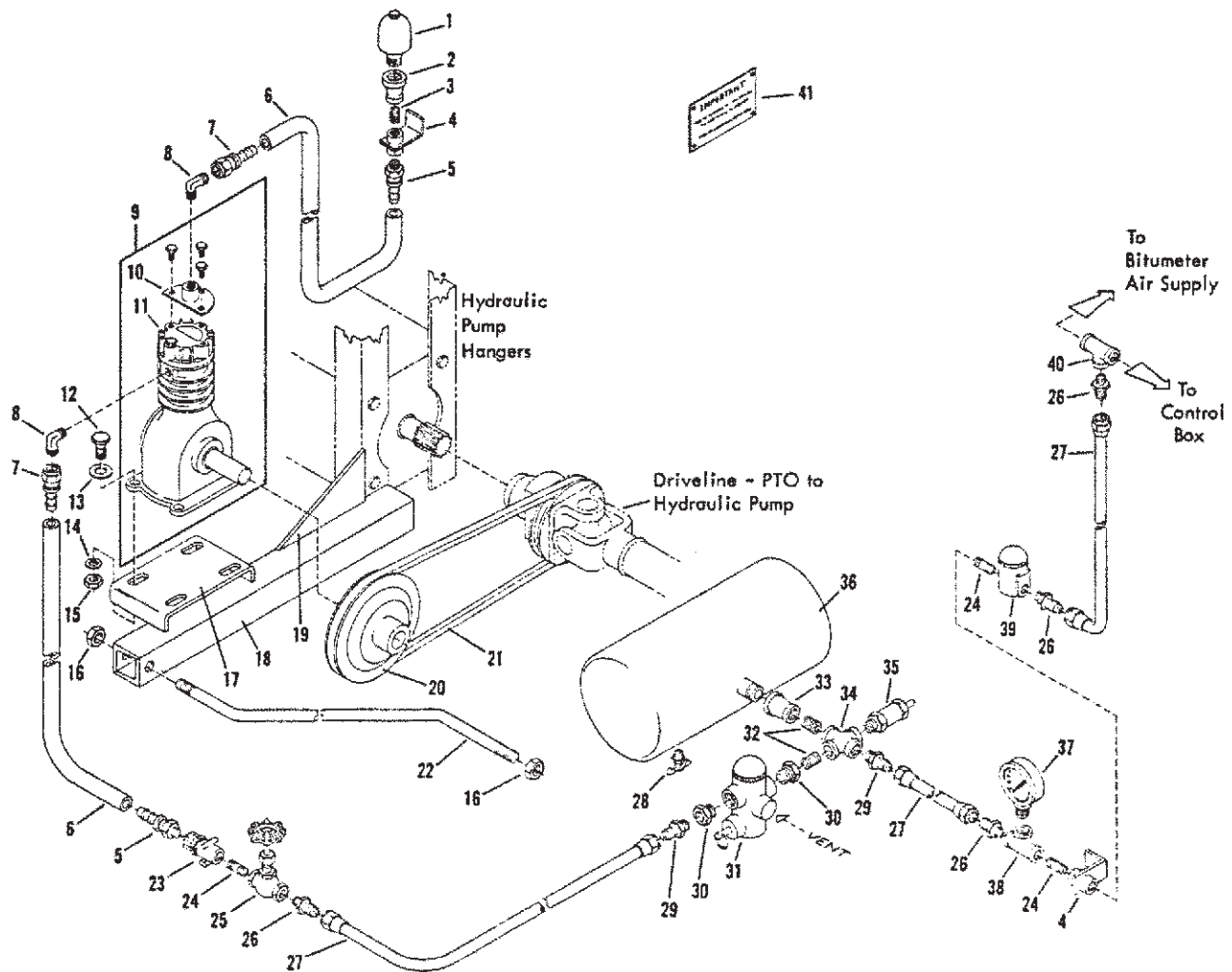
AR=AS REQUIRED
NS=NOT SHOWN

Portable Burners - Vapor Propane - Kerosene Generating



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3330296	1	BURNER ASM=PORTABLE,LPG VAPOR	21	7700027	2	BOLT-HAUCK,H/NUT
2	6400202	1	CONNECTOR=TYPE E	22	7700087	1	COIL-HAUCK
3	6400201	1	HOSE=BURNER PORT,PROPANE LP+VP	23	7700031	AR	PLUG=80 OCTANE
4	6500064	1	VALVE=SHUT-OFF	7700029	AR	PLUG=KEROSENE	
5	3330301	1	HANDLE ASM=PORTABLE BURNER	7700030	AR	PLUG=DISEL FUEL	
6	3330299	1	SHROUD ASM=PORTABLE BURNER	7700088	AR	PLUG=100 OCTANE	
7	3330001	1	PLUG=VAPORIZING	24	7700028	1	HOLDER-PLUG
8	3330351	1	BURNER ASM=PORTABLE GENERATING	25	7700032	1	FAN
9	3330331	1	HOSE ASM=20 PORTABLE BURNER	26	7700034	2	RIVET
10	3330028	2	ADAPTOR=HOSE,PORTABLE BURNER	27	3330461	1	SHELL ASM=PORT BURNER,GEN
11	0436754	2	SCREW=MACH,PNL,10NFx1.00,PD	28	7700035	2	BOLT-HAUCK
12	6000294	2	CLAMP=HOSE,0.88 IDEAL	29	3330447	1	BURNER ASM
13	0120614	2	NUT=HEX,MACH,10NF,PD	30	7720042	1	BURNER ASM=LPG VAPOR, COMPLETE
14	3330329	2	SHEATH=PORTABLE BURNER HOSE				
15	6400318	AR	HOSE=KERO,0.5 X 1 BRAID /FT				
16	0105420	1	COUPLING=PIPE,0.25X0.12NPT,PN				
17	0105406	1	NIPPLE=PP,SCH 40,0.12X1.50,PN				
18	7700024	1	VALVE=HAUCK				
19	7700025	1	GRIP=HAND,HAUCK				
20	7700026	1	PLATE=BACK,HAUCK				
							AR = AS REQUIRED

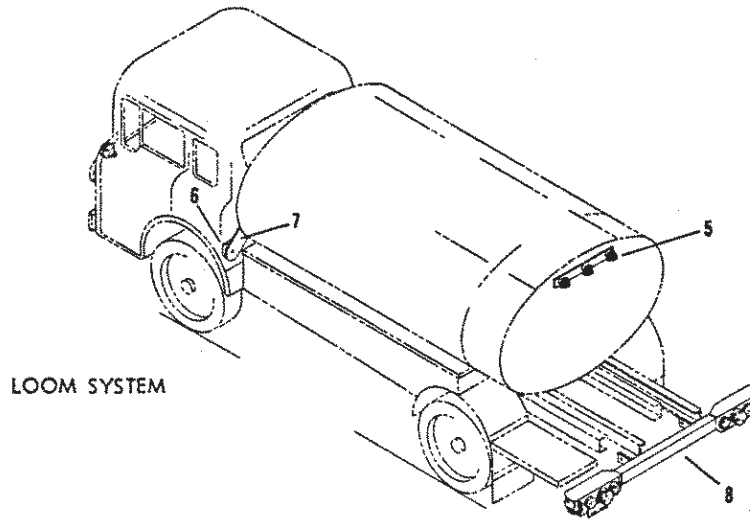
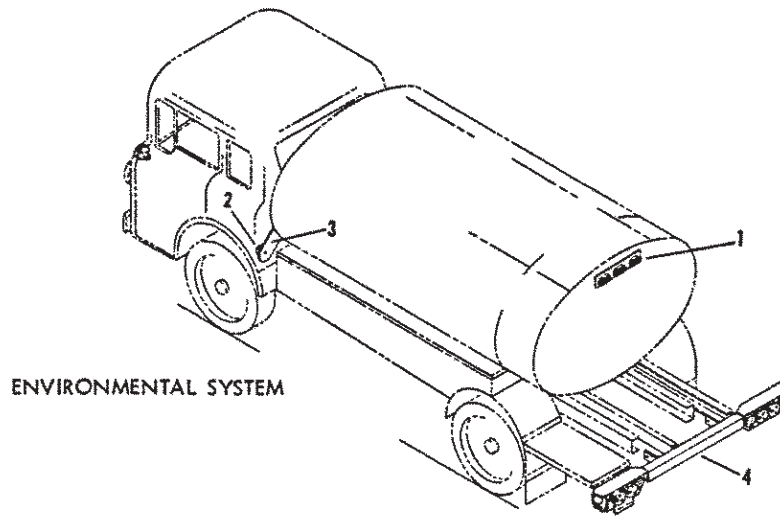
Air Compressor Installation - Hydraulic Distributor



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6600865	1	FILTER=INTAKE,AIR COMPRESSOR	27	9250129	3	TUBE ASSEMBLY=COPPER,0.38 OD (SPECIFY LENGTH)
2	0122865	1	COUPLING=PIPE,0.50X0.25NPT,PN	28	6600162	1	COCK=DRAIN,0.25 IN.
3	0105405	1	NIPPLE=SCH 40,0.25X0.87 CL,PN	29	6200174	2	UNION=HALF,0.38TUX0.38MPT
4	3330239	2	BRACKET ASSEMBLY=REGULATOR	30	0142269	2	BUSHING=PIPE,0.50X0.38NPT,PN
5	6600305	2	HOSE END=06X04MP,ST,LPS	31	6600836	1	UNLOADER=AIR COMPRESSOR
6	6600324	AR	HOSE=0.38,PER FOOT	32	0121207	2	NIPPLE=SCH40,0.38X1.00,CL,PN
7	6600306	2	HOSE END=06X06FSX,ST,LPS	33	0144093	1	COUPLING=PIPE,0.75X0.38NPT,PN
8	0118755	2	ELBOW=AUTO,90,04MP=06MS	34	0115193	1	CROSS=PIPE,0.38NPT,PN
9	7030126	1	COMPRESSOR ASM=AUX,HYD+FCRD172	35	6600299	1	VALVE=SAFETY
10	3320995	1	ADAPTER ASM=AIR COMP,SPD AIRE	36	3360165	1	TANK=AIR,DRILLED
11	6600835	1	COMPRESSOR=1/2 HP,2.7 CFM	37	6600168	1	GAUGE=PRESS,2.5IN X 160 LBS
12	0122027	4	SCREW=HEX,0.31NCX1.25,GR2,PD	38	0218233	1	TEE=PIPE,0.25X0.25X0.38NPT,PN
13	0446363	4	WASHER=FLAT,0.31A(0.38X0.88)PD	39	6600137	1	OILER
14	0120214	4	WASHER=LOCK,0.31,SPRING,PD	74	20225	1	REPLACEMENT BOWL
15	0120376	4	NUT=HEX,0.31NC,PD	40	0105417	1	TEE=PIPE,0.25NPT,PN
16	9411727	2	NUT=HEX,LOCK,0.50NC,EA,PD	41	3390586	1	TAG=CHECK AIR COMP. OIL+FILTER
17	3321024	1	PLATE=MTG,AIR COMP,HYD+DIST.				
18	3321025	2	ANGLE ASM=MTG,AIR COMP.				
19	3360685	1	GUSSET=MTG ANGLE,AIR COMP.				
20	6435280	1	SHEAVE=3L4.7/4L5.0,1.1.00				
21	6435120	1	V BELT=442,0.50X2.00 LONG				
22	9250307	1	ROUND,0.50CR,0.50NC THD B+E.				
23	6600304	1	VALVE=PRESSURE REGULATOR				
24	0105407	3	NIPPLE=PP,SCH 40,0.25X1.50,PN				
25	6600194	1	VALVE=GLOBE,0.25 IN.				
26	0118750	4	ADAPTER=AUTO,ST,04MP=06MS				

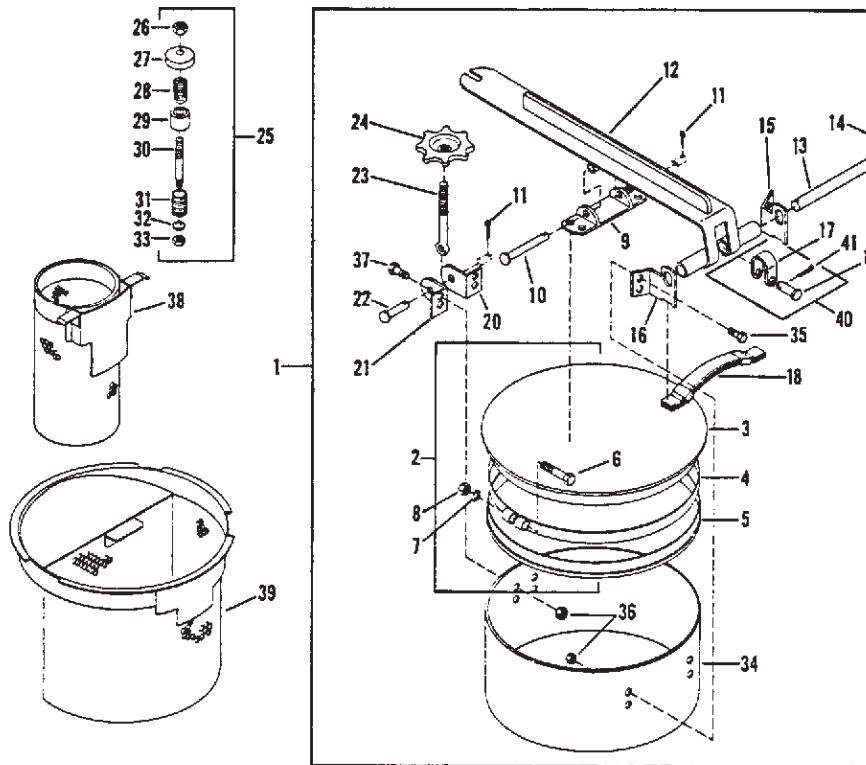
AR = AS REQUIRED

Identification and Clearance Lights - Environmental and Loom



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	670008*	1	LAMP ASM=IDENTIFICATION, ENV.	3310902		1	BUMPER ASM=TRUCK MT, 5 WR COMPL WITH LIGHTS, LOOM
	6700455	AR	O-RING	3310918		1	BUMPER ASM=COMPL, LOOM TRAILER
	6700224	AR	LENS=RED				
2	6700038	2	LIGHT ASM=CLEARANCE, ENVIRON.				
	6700229	AR	O-RING				
	6700082	AR	LENS=AMBER				
3	3370047	2	BRACKET=MT, FRT CL LGT, ENV.				
4	3370044	1	BUMPER ASM=COMPL, 4 WIRE W/LGTS ENVIRONMENTAL TRUCK MOUNT				
	3370045	1	BUMPER ASM=COMPL, 5 WIRE W/LGTS ENVIRONMENTAL TRUCK MOUNT.				
	3370059	1	BUMPER ASM=COMPL, ENV TRAILER				
5	6700040	1	LIGHT=CLUST, 12V, IDENT				
	6700041	AR	LENS=RED				
6	6700855	2	LIGHT=CLR, W/REFLECT, AMBER				
7	3370048	2	BRACKET=MT, FRT CL LGT, LOOM				
8	3310907	1	BUMPER ASM=TRUCK MT, 4 WR COMPL WITH LIGHTS, LOOM				
							AR = AS REQUIRED

Manhole - 20 Inch

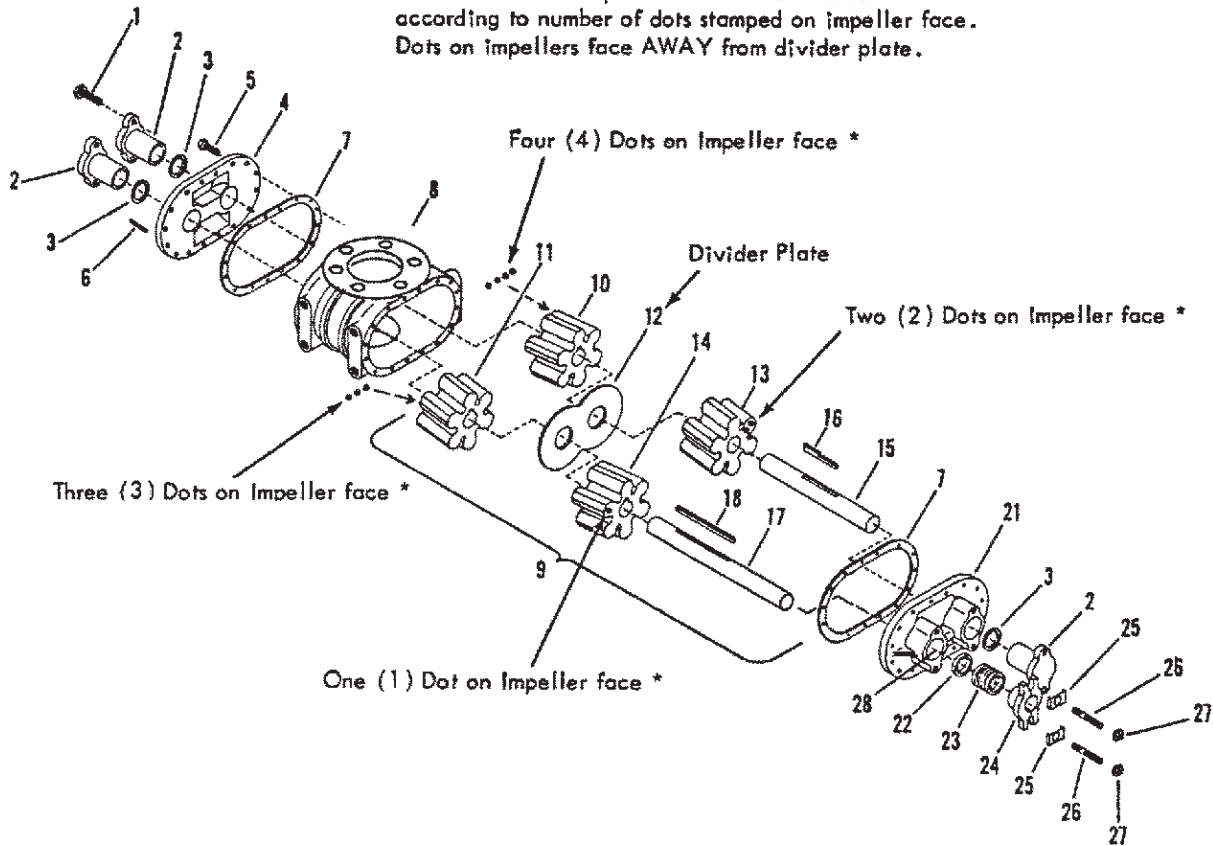


REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3300135	1	MANHOLE ASSEMBLY, COMPLETE	30	3300223	1	STEM
	3300356	1	MANHOLE W/RELIEF VALVE =NS	31	3300226	1	NIPPLE
	2700047	1	MANHOLE ASM W/RELIEF VALVE AND LIGHT WEIGHT COLLAR (TAPERED DIST ONLY) NS	32	3300224	1	BEVEL PLUG
2	3300361	1	MANHOLE COVER, COMPLETE	33	0120368	1	NUT=HEX, 0.31NC
	3300362	1	MANHOLE COVER W/RELIEF VALVE	34	3300159	1	COLLAR=MANHOLE, 20 INCH
3	3300142	1	COVER ASSEMBLY	35	0120741	4	SCREW=HEX, 0.31NCX0.75
	3300759	1	COVER ASM W/RELIEF VALVE =NS	36	0120368	16	NUT=HEX, 0.31NC
4	3300146	1	RING ASSEMBLY=RETAINER	37	0122017	8	SCREW=HEX, 0.31NCX1.00
5	6600334	1	GASKET	38	3390173	1	STRAINER=SMALL
6	0122083	1	SCREW=HEX, 0.31NCX2.75	39	3390095	1	STRAINER=LARGE
7	0120214	1	WASHER=LOCK, 0.31, SPRING, PD	40	3300152	1	SLEEVE YOKE ASSEMBLY
8	0120374	1	NUT=HEX, 0.31NC, PD	41	0103386	1	PIN=COTTER, 0.12X1.25
9	3300172	1	BEARING ASSEMBLY				
10	3300125	1	PIN=COVER				
11	0103373	3	PIN=COTTER, 0.09X0.75				
12	3300136	1	TONGUE ASM				
13	3300171	1	PIN=HINGE				
14	0103385	2	PIN=COTTER, 0.12X1.00				
15	3300018	1	BRACKET=HINGE, LEFT				
	2750299	1	HINGE BRKT=NONRELIEVING, LEFT				
16	3300019	1	BRACKET=HINGE, RIGHT				
	2750298	1	HINGE BRKT=NONRELIEVING, RT.				
17	3300154	1	SLEEVE YOKE				
18	3300151	1	SPRING=RELEASE				
19	3300254	1	PIN=SLEEVE YOKE				
20	3300148	1	LATCH BEARING=LEFT				
21	3300149	1	LATCH BEARING=RIGHT				
22	3300293	1	PIN=LATCH				
23	3300150	1	BOLT=LATCH				
24	3300170	1	HANDWHEEL				
25	3300221	2	VALVE ASM=VACUUM RELIEF				
26	0120369	1	NUT=HEX, 0.38NC				
27	3300227	1	CAP=VALVE STEM				
28	3300225	1	SPRING				
29	3300222	1	BUDY				

NS = NOT SHOWN

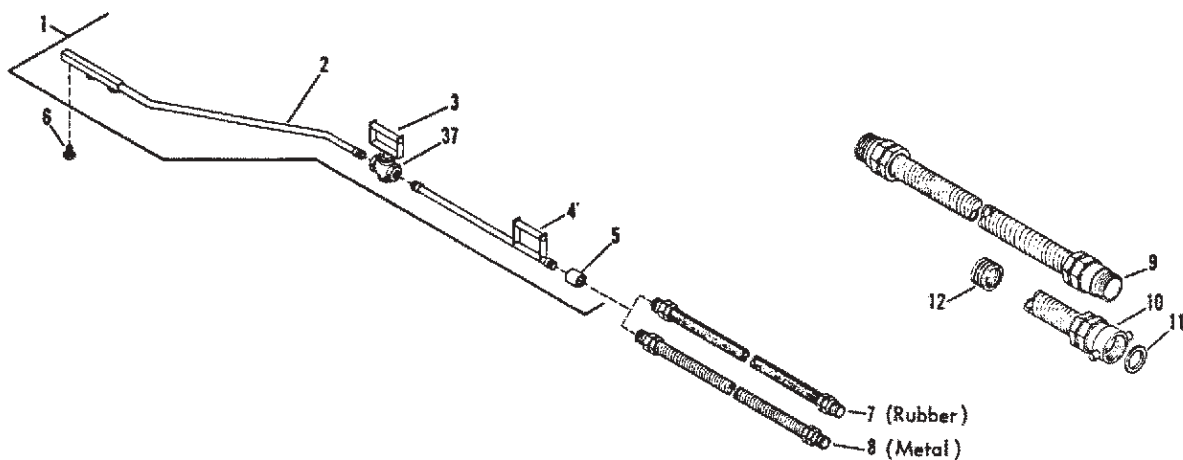
Pump P-15 (SAM)

* NOTE : Install impellers in numerical order according to number of dots stamped on impeller face. Dots on impellers face AWAY from divider plate.

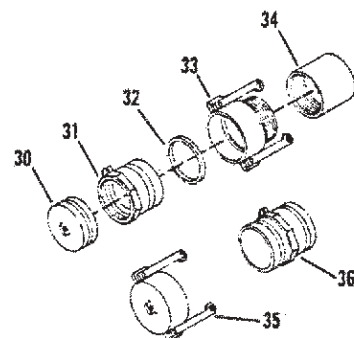


REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
	33*1215	1	PUMP WITH TAPERED SHAFT	26	6600311	2	STUD
1	6000573	6	CAP SCREW	27	9*13569	2	LOCK NUT
2	33*0286	3	BLIND BEARING	28	33*029*	1	WEARING SLEEVE
3	6600308	3	GASKET				
4	33*0281	1	FACE PLATE				
5	0120233	40	CAP SCREW 3/8 NC X 1				
6	0103615	4	TAPER PIN 25 X 1 1/4				
7	33*0287	2	GASKET				
8	33*1216	1	PUMP CASE				
9	33*1346	1	IMPELLER SET				
10	33*0279	1	IMPELLER				
11	33*0277	1	IMPELLER				
12	33*0298	1	DIVISION PLATE				
13	33*0275	1	IMPELLER WITH SHOULDER				
14	33*0272	1	IMPELLER WITH SHOULDER				
15	33*0289	1	IDLER SHAFT				
16	33*0300	1	KEY				
17	33*1110	1	SHAFT-TAPERED END				
18	6000*66	1	KEY				
21	33*0283	1	FACE PLATE				
22	33*0305	1	LANTERN RING				
23	6600310	5	PACKING				
24	33*0307	1	PACKING GLAND				
25	33*0308	2	PACKING GLAND RETAINER				

Miscellaneous Attachments

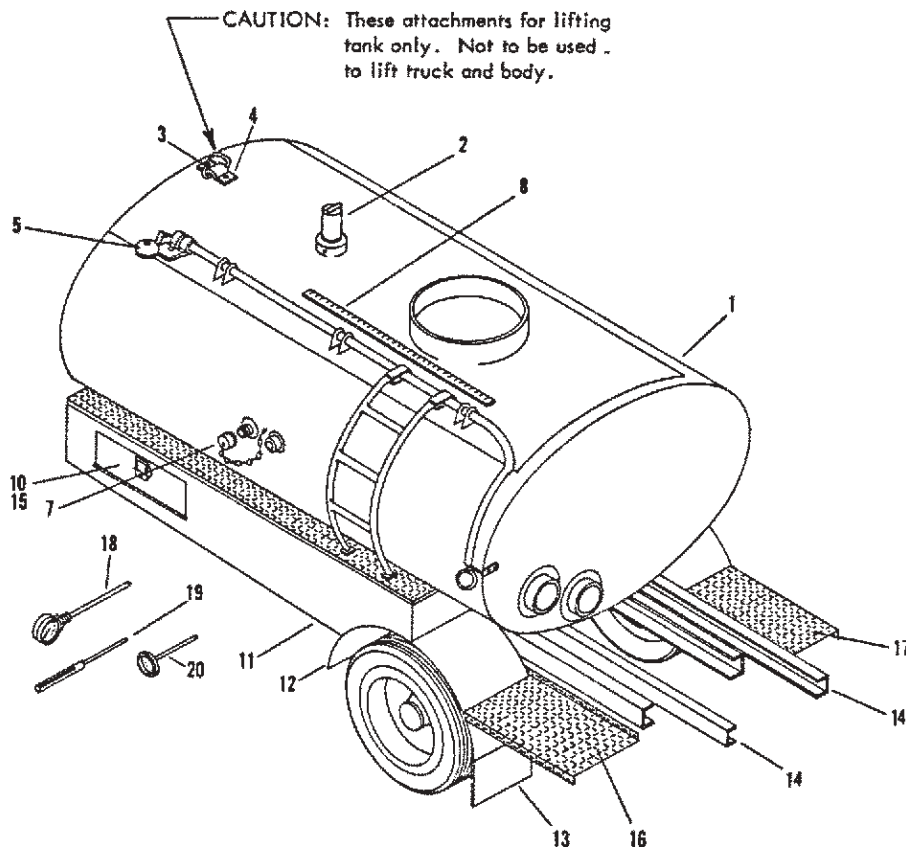


CAUTION: Replace Rubber Handspray Hose Only with Original Equipment Hose from E. D. Etnyre & Company.



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3380017	1	GUN ASSEMBLY=HAND SPRAY				
2	3380024	1	TUBE ASM=OFFSET, HANDSPRAY GUN				
3	3380390	1	HANDLE-HANDSPRAY GUN				
4	3380022	1	TUBE ASM=HANDSPRAY GUN				
5	0128137	1	COUPLING=PIPE, 1.00NPT, PN				
6	3351011	3	NOZZLE=0.12, SPRAY BAR				
	3352209	3	NOZZLE=0.31, SPRAY BAR				
7	6600392	1	HOSE ASM=HANDSPRAY, 25 FT. RUBBER				
8	6600252	1	HOSE=1, T A X25, W/MALE PO CPLG				
9	6600273	1	HOSE=3, T A, W/MALE CPLG, 15FT,				
10	6600265	1	HOSE ASM=TA, 3.31 IN X 15 FT, M/F CPL				
	7400004	1	LOADING HOSE=3 IN, RUBBER				
11	6600267	2	GASKET=3.50 X 2.88 X 0.13, ASB.				
12	7220028	1	CORD=ASBESTOS, 0.06, 1 LB SPOOL				
	6600280	AR	PLUG=DUST, 3 IN, ALUMINIUM				
	6600277	AR	ADAPTOR=3 IN, ALUM, PART A				
	6600248	AR	ADAPTOR=1.00 IN, BRASS, PART A				
32	6600279	AR	GASKET=3.00 ID PIPE, SILICONE				
	6600251	AR	GASKET=1.00 ID PIPE, SILICONE				
33	6600278	AR	COUPLER=3 IN, ALUM, PART B				
	6600249	AR	COUPLER=BRASS, 1.00 IN, PART B				
34	6200059	AR	COUPLING=PIPE, 3.00NPT, PN				
	0128137	AR	COUPLING=PIPE, 1.00NPT, PN				
35	6600281	AR	CAP=DUST, 3 IN, ALUMINIUM				
	6600250	AR	CAP ASM=DUST, 1.00 IN, ALUM, WITH GASKET AND CHAIN				
							AR = AS REQUIRED

Miscellaneous



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	*	1	REAR JACKET HEAD-ALUMINIUM	17	3310808	1	RIGHT PLATFORM
	*	1	REAR JACKET HEAD-STEEL	18	6500036	1	THERMOMETER-ANGLE, F. A. H.
	*	1	REAR JACKET HEAD-STAIN. STEEL		6500194	1	THERMOMETER-ANGLE, DIAL, 31 IN, F.
2	3300024	1	DOME ASSEMBLY-COVERFLOW		6500037	1	THERMOMETER-ANGLE, CNT.
3	3300106	2	RING-LIFTING ATTACHMENT		6500195	1	THERMOMETER-ANGLE, DIAL, 31 IN, C.
4	3300104	2	BRACKET-LIFTING ATTACHMENT		0144034	AR	BUSHING-PIPE, RED, 0.75 X 0.50
5	3390058	1	HELL AND BRACKET ASSEMBLY	19	6500034	1	THERMOMETER-PENCIL, 50-6000. F.
6	3390061	1	RING ASM-PULL, SIGNAL BELL		6500035	1	THERMOMETER-PENCIL, 10-3150. C.
7	3300038	1	CAP ASSEMBLY-THERMOMETER	20	6500038	1	THERMOMETER-DIAL, 50-5000 DEG. F.
8	3390434	1	MEASURING STICK		6500040	1	THERMOMETER-DIAL, 0-300 DEG. C.
9	3330200	2	RING-OUTER, BURNER BOX		6500039	1	THERMOMETER-2 IN DIAL, 9 IN STEM
	3330201	2	RING-INNER, BURNER BOX				
10	3310087	1	DOOR ASM-TOOL BOX				
11	3310761	1	LEFT SKIRTING				
	*	1	RIGHT SKIRTING -NS				
12	*	2	FENDER				
13	6450095	2	GUARD-SPLASH, CHEVRON, 24 X 20				
14	3310748	2	FRAME ASM-REAR ENGINE				
	3310749	2	FRAME ASM-HYD. MTR.				
15	3310080	1	TOOL BOX ASM-36 IN, w/DOOR, NS				
	3310095	1	TOOL BOX ASM-48 IN, w/DOOR, NS				
	2610034	1	TOOL BOX ASM-12X36 -NS				
16	3310808	1	LEFT PLATFORM				

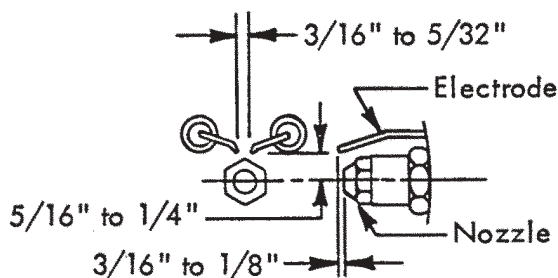
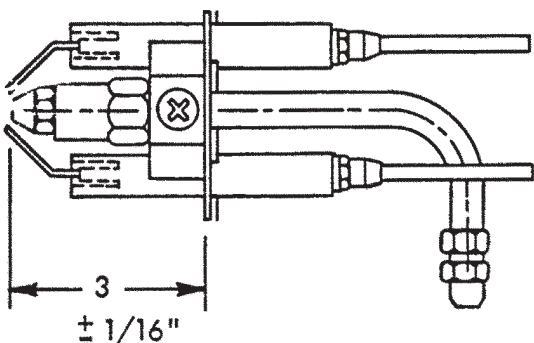
* = SPECIFY UNIT SERIAL NUMBER
 NS = NOT SHOWN
 AR = AS REQUIRED

High Pressure (Fuel Oil) Burners Start Up Instructions

For A Two Burner Installation

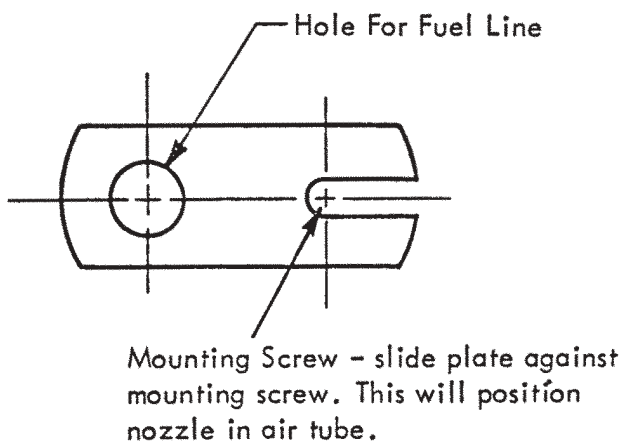
NOTE: Instructions are for initial start-up of new burners, or repair information only.

1. Electrode Assembly Adjustments



ELECTRODE ADJUSTMENTS

2. Install electrode assembly into air tube unit (use escutcheon plate for mounting).



NOTE: DO NOT CONNECT FUEL LINES TO ELECTRODE ASSEMBLY AT THIS TIME.

3. Burner Air Band Settings

- A. Bulk Air Band (outside diameter band) - to be closed.
- B. End Air Band - to be set between 3.5 and 4 on scale.

4. Open covers or dampers on exhaust systems.

5. Check initial setting of burner hydraulic flow controls - approximately 1/4" of thread from end of adjustment screw to locking nut should be showing. (This setting is needed to make sure initial speed of fan is not too high and yet fast enough to insure the fuel pump will work properly.)

6. Initial Check Of Blower Wheel - Turning By Hand.

- Is wheel free to turn with no interferences?
- Are all set screws tight?

7. Setting Of Hydraulic System Relief Pressure.

- A. Set truck parking brake.
- B. Put truck transmission in neutral.
- C. Engage P.T.O. (if so equipped).
- D. Set engine throttle for 1500 R.P.M.
- E. Set relief valve in dump valve between 1,975 and 1,500 P.S.I.G. (This can be done by bottoming out shifting of spray bar)

8. Setting Of Burner Blower Wheel Speeds.

- A. On both burners, swing ignition transformer out of position so blower wheel can be seen.
- B. Engine throttle must be set at 1500 RPM.
- C. On system control box in cab, switch power on.
- D. On burner control box on side of machine, pull master power palm button switch out.
- E. On hydraulic control assembly, pull out Palm button of hydraulic valve for the lower burner - then immediately check for the following:

E1. Is blower wheel turning?

If not, check as follows:

Is there any hydraulic leakage? Take screw driver place on side of O.D. of blower wheel and turn forward.

CAUTION: Blower Wheel May Then Accelerate Rapidly.

Is there hydraulic flow from dump valve to burner hydraulic control assembly?

Is there hydraulic flow to burner motor?

Is there hydraulic flow from burner motor back to hydraulic tank?

E2. Is there any fuel coming out where fuel line is disconnected to burner nozzle assembly?

If fuel is seen, shut down system immediately - check solenoid valve electrically. **NOTE:** Fuel pump is piped for a two-pipe system (a 1/16" by-pass plug should have been installed) thus, air bleeding is automatic. Fuel oil pressure should build within one to one and a half minutes. If fuel pump does not start to build pressure after 1 1/2 minutes, shut system down.

Check all fuel line fittings for tightness.

Check over fuel system in general.

E3. On hydraulic control assembly, pull out palm button of hydraulic valve for the upper burner - immediately check for the following:

Repeat E1 and E2.

E4. Run both burners hydraulically until a temperature of 145 to 150 degrees is reached in the hydraulic reservoir. During this time, shut burners on and off approximately 10 times (both hydraulically and electrically). Check stability of system.

After temperature is reached, set lower burner speed first - 3450 to 3475 RPM.

NOTE: Upper burner must be running hydraulically.

Next set upper burner speed - 3450 to 3475 RPM.

9. Reconnect fuel lines to burner nozzle assembly.

10. Check Of Ignition Transformer Spark.

Shut off hydraulics to burners.

On burner control box on side of machine, pull master power palm button switch out. Place insulated screwdriver over the two wire springs on transformer.

Hold ignition switch down - should be able to jump spark of 1 to 1 1/2 from screwdriver to one of the springs.

If unable to generate spark, check voltage at terminal spades in 12 volt ignition control box. Voltage must be 110 volt AC minimum. If not 110 volt AC minimum, check ground wiring.

11. Reposition ignition transformer and secure to burner housing.

12. Fire Burners.

Check to make sure fuel oil pressure is 100 PSIG.

Fire burner by holding ignition switch down until ignition occurs, then keep switch down an additional 2 to 4 seconds before releasing.

Run burner for 15 to 20 seconds, then shut down.

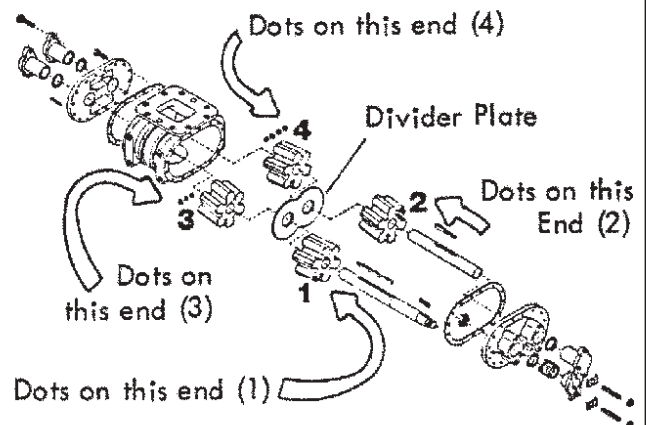
Service Procedure Wear Check - Etnyre P-15 Pump

1. Vacuum Check
 - a. Flush pump with 3 quarts of diesel fuel through fill line.
 - b. Set controls in fill position.
 - c. Install vacuum gauge in fill line cap.
 - d. Operate pump at 140 GPM on pump tachometer. Vacuum reading of less than 5 In.Hg. (inches mercury) after two minutes of operation is poor, and indicates either a vacuum leak or a worn pump.
2. Pump Disassembly for Visual Inspection
 - a. Remove double universal joint between motor and asphalt pump.
 - b. Remove sheet metal housing for access to pump.
 - c. Remove 20 capscrews from perimeter of the end plate.
 - d. Install two of the capscrews in the threaded holes near the outer edge of the end plate located at approximately "5 o'clock" and "11 o'clock". Tighten the capscrews to force the endplate away from the pump case.
 - e. Remove the endplate, impeller shafts and impellers (gears) as an assembly.
 - f. Clean the interior of the pumpcase and slide your fingers across the inside surface of the case. If you can detect a narrow raised area on the surface midway between the front and rear of the case, the entire pump should be replaced.
 - g. If you cannot feel a raised area, measure the bore of the case at it's widest point side to side (horizontal). The measurement should not exceed 9.910 inches.
 - h. Next, measure the case bore vertically at a point 2.8 inches from each side. The vertical measurement should not exceed 5.660 inches. If measurements exceed the measurements given in paragraphs "g." or "h." above, replace the complete pump
 - i. If inspection indicates the pump case is serviceable, the next step is to measure the outside diameter of the impeller gears, from point of tooth to point of tooth on teeth directly opposite each other. The

outside diameter of the gear should be no less than 5.635 inches.
The length of the gear should be no less than 3.628 inches.
If any impeller gear is undersize, the entire four impeller set should be replaced. End plate gasket thickness should be no more than .016" and no less than .014" and divider plate thickness should be .128" to .127" (it is unusual that the divider plate would be worn).

Impeller Installation P-15 Pump

Number of dots on impeller face indicate position of impeller in pump as shown below. Dots on impeller face away from division plate. Install impellers in numerical order.



Etnyre Spraybar Nozzles

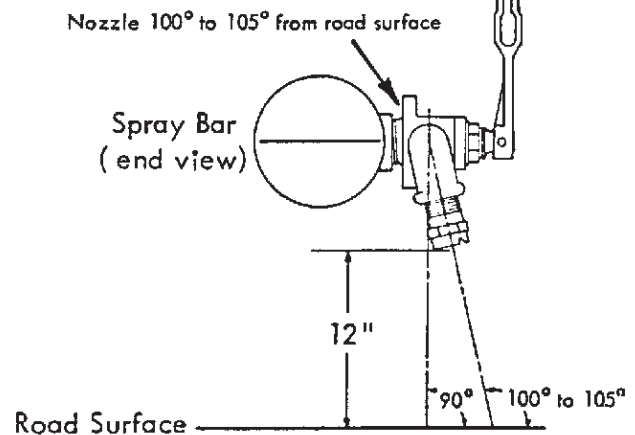
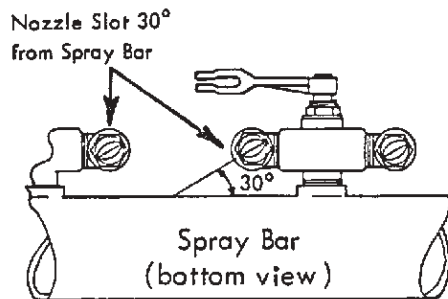
Part Number	Description	Application Per Square Yard	Application (Metric) Liters per Sq. Meter	Flow - Gal. per Min. Per Foot
3351013 **	1/16" Coin Slot	.05 - .20	.19 - .75	3 to 4.5
3351008	S36-4 V Slot	.10 - .35	.38 - 1.30	4 to 7.5
3351009	S36-5 V Slot	.18 - .45		7 to 10
3352368	Multi-Material V Slot	.15 - .40	.57 - 1.50	6 to 9
3351015	3/32" Coin Slot	.15 - .40	.57 - 1.50	6 to 9
3351011 ++	1/8" Coin Slot	.20 - .55		9 to 12
3351006 ++	1/8" End Nozzle	.20 - .55		9 to 12
3352204 *	Multi-Material V Slot	.35 - .95		
3352205 *	Multi-Material V Slot	.20 - .55	.75 - 2.08	7.5 to 12
3351014	3/16" Coin Slot	.35 - .95	1.30 - 3.60	12 to 21
3352204	Multi-Material V Slot	.35 - .95	1.30 - 3.60	12 to 21
3352210	3352205 End Nozzle	.20 - .55	.75 - 2.08	7.5 to 12
3351010	1/4" Coin Slot	.40 - 1.10	1.50 - 4.16	15 to 24

* Recommended nozzles for seal and chip with emulsified asphalts.

** For fog application prior to laying a hot mix mat.

++ Discontinued nozzles.

Spraybar Nozzle Adjustment



General Fuel Data And Heating Terminology

Fuel	Weight Per Gallon	BTU Content
Propane	4.38 lbs.	91,800 per gallon
#2 Fuel Oil	7.49 lbs.	144,300 per gallon
Kerosene	6.97 lbs.	134,500 per gallon
Natural Gas		Nominal 1,000 BTU Per Cubic Foot
Electric		3,412 BTU per KW (1KWHR = 1,000 Watts per hour)

Approximate Burner Fuel Consumption

Propane - 1,000,000 BTU @ 40PSI (91,500 BTU Gal.)
 One 100# bottle contains 23 gallons
 For each burner @ 15PSI - 5 GPH
 @ 20PSI - 6 GPH
 @ 25PSI - 7 GPH
 @ 30PSI - 8.2 GPH
 @ 35PSI - 9.5 GPH
 @ 40PSI - 11 GPH

Low Pressure Fuel Oil -
 935,000 BTU @ 20PSI
 6.5 GPH per burner
 (144,000 BTU Gal.)

Kerosene Generating -
 575,000 BTU @ 40PSI
 4.25 GPH per burner
 (135,000 BTU Gal.)

FLASH POINT: (Cleveland Open Cup) The temperature at which a flammable liquid, in an open container, emits vapor that will flash when exposed to a direct flame. This temperature is lower than that required for the liquid mass to ignite.

CLOSED FLASH POINT: The temperature at which a flammable liquid, in a closed container, emits vapor that will flash when exposed to a direct flame. This temperature is lower than that required for the liquid mass to ignite. The closed flash point is generally 30. F lower than the open cup flash point.

FIRE POINT: The temperature at which a flammable liquid emits vapor at a rate that will continue to burn after it has been flashed.

IGNITION TEMPERATURE: (Kindling Temperature) The lowest temperature at which a combustible material will continue to burn once ignited.

CONVECTION: (Applies to both heating and cooling) Heat transfer by a flow of a liquid or gas over a solid material. Example: Flues in an asphalt tank are heated from hot gasses passing through them, or, heat transfer coils in a tank are heated from steam or hot oil passing through them.

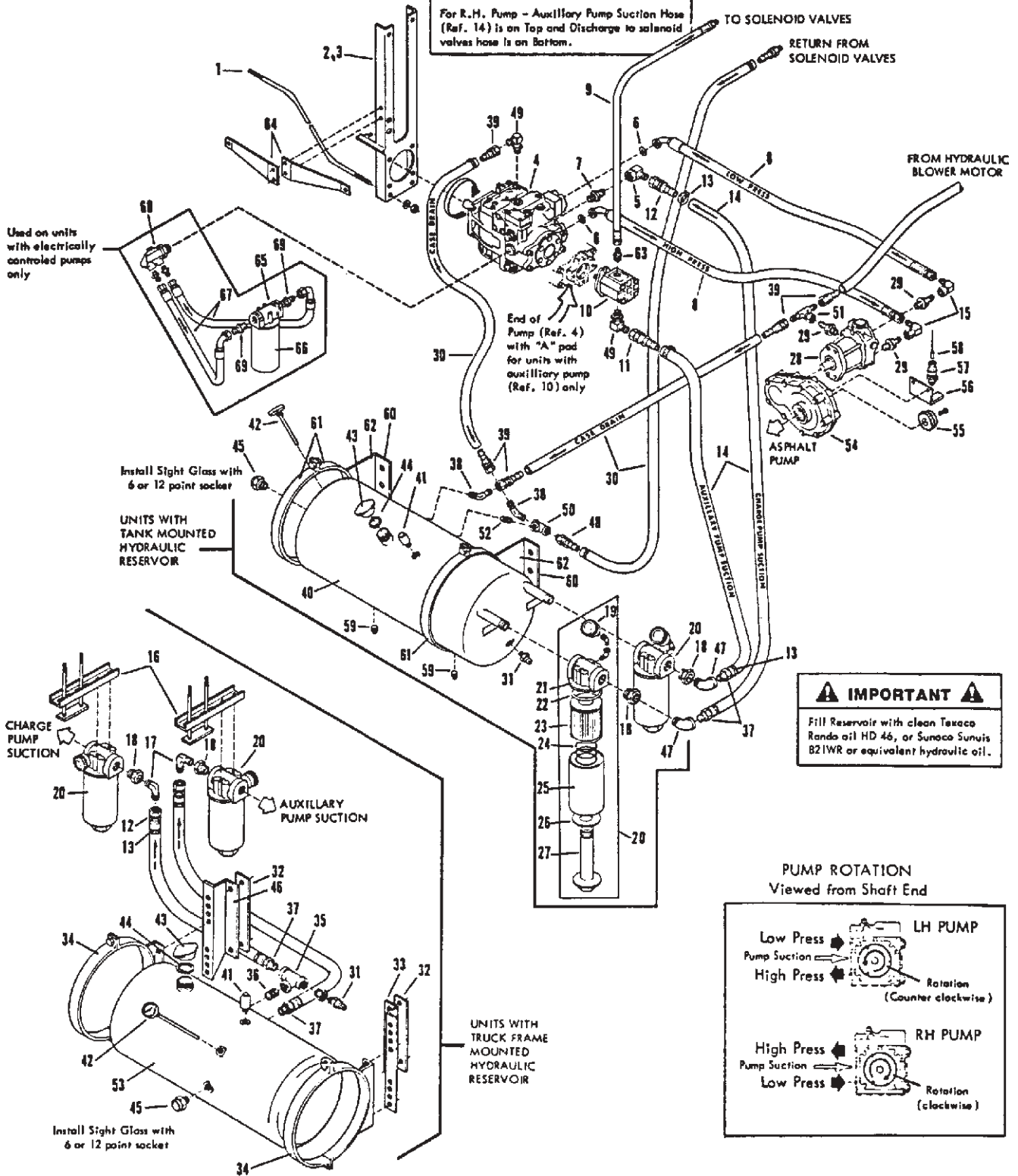
CONDUCTION: (Applies to both heating and cooling) Heat transfer through a solid mass mass by direct molecular contact. Example: Heat applied only to one end of a metal rod will be transferred throughout the entire rod by molecular transfer.

Hydrostatic Drive - Piping And Installation - PTO Driven

All Units with Sundstrand Pump

NOTE: SOME ITEMS SHOWN ARE OPTIONAL EQUIPMENT

SUNSTRAND L. H. PUMP SHOWN
 For R.H. Pump - Auxiliary Pump Suction Hose (Ref. 14) is on Top and Discharge to solenoid valves hose is on Bottom.



Hydrostatic Drive - Piping And Installation - PTO Driven

All Units with Sundstrand Pump

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6303119	1	Round-0.50 CR, Ledloy 300, LA.	39	6600648	AR	Hose End-12X12FJX, St, Push-Lok
2	3321323	1	Angle-Mt., No Hydraulic Overrides (Electrically Controlled Pumps)	40	3321183	1	Tank Asm-Hydraulic, 25 Gal
3	3321325	1	Angle Asm-Mtg, With Hyd. Overrides (Manually Controlled Pumps)	41	6600223	1	Breather-Crenlo #1577AL
4	6602120	AR	Pump-4.57, RH Man, No Pad	42	6500039	1	Thermometer-2 In Dial, 9 In Stem
	6602121	AR	Pump-4.57, LH Man, No Pad	43	3330026	1	Cap-Filling, Blank
	6602122	AR	Pump-4.57, RH Man, "A" Pad *	44	6000233	1	Gasket-2.18 Filler Cap, Leather
	6602123	AR	Pump-4.57, LH Man, "A" Pad *	45	6600224	1	Plug-Oil, Eye Site, Tch Dev HM34
	6602124	AR	Pump-4.57, RH Elect, No Pad	46	3320813	1	Bracket-Lt Hyd Resvr Mtg
	6602125	AR	Pump-4.57, LH Elec, No Pad	47	0108687	2	Elbow-Pipe, 90, ST, 1.00NPT
	6602126	AR	Pump-4.57, RH Elect, "A" Pad *	48	6600647	2	Hose End-12X12MP, Str, LPSP
	6602127	AR	Pump-4.57, LH Elect, "A" Pad *	49	9410979	2	Elbow-Hydr, 90, 12MB-12MJ
			* Pumps with "A" Pad used on units with auxillary hydraulic pump (Ref. 10) "A" Pad is provision on rear of hydraulic pump (Ref. 4) for mounting of auxillary hydraulic pump (Ref. 10).	50	0125988	1	Tee-Pipe, 0.75NPT
5	9410285	1	Elbow-Hyd, 90, 16FJX-16MJ	51	9410309	1	Tee-Hydr, 12MJ-12MJ-12FJX
6	0274253	2	O Ring-Tube Fitting, 1.50	52	0192470	1	Nipple-Pipe, 0.75 X CI
7	9410207	1	Adapter-Hyd, Str, 16MB-16MJ	53	3321176	1	Tank Asm-Hydraulic, 20 Gal
8	6602100	AR	Hose Asm-8 Ft. Long	54	6415103	1	Gear Reducer-Shaft Mt, 3:1
	6602101	AR	Hose Asm-9 Ft. Long	55	6430322	1	Sprocket-RC25N, 36T, B, Stock
	6602102	AR	Hose Asm-10 Ft. Long		6425022	1	Gear-Spur, 70T, 20D.P., 0.38 Wide
	6602103	AR	Hose Asm-11 Ft. Long		3360803	1	Bushing-Sprocket, Pump Tach
	6602104	AR	Hose Asm-12 Ft. Long	56	3360820	1	Bracket-Mtg, Sensor, Pump
	6602105	AR	Hose Asm-13 Ft. Long	57	6701838	1	Sensor-Proximity, Pickup
	6602106	AR	Hose Asm-14 Ft. Long	58	6700959	1	Cord Grip-Fitting, 0.75X0.75
	6602107	AR	Hose Asm-15 Ft. Long	59	0219301	2	Plug-Pipe, 0.75, SqHd
	6602108	AR	Hose Asm-16 Ft. Long	60	3300815	2	Plate-Mounting, Tank
	6602109	AR	Hose Asm-17 Ft. Long	61	3311022	4	Band-Support, Tank Mtg
9	9250605	1	Hose Asm-0.50, Specify Length	62	3380489	2	Gusset-Tank Mt, 44X64 Oval
10	6601787	1	Pump-Gear, .88, A Pad+Shaft		3380487	2	Gusset-Tank Mt, 46X78 Oval
11	6601812	1	Hose End-12FJ X 1.00 In Hose		3380486	2	Gusset-Tank Mt, 48X70 Oval
12	6601566	4	Hose End-16FJX-16, ST, LP100R4		3380484	2	Gusset-Tank Mt, 49X83 Oval
13	6000792	8	Clamp-Hose, Worm Driv, 1.06 to 2		3380485	2	Gusset-Tank Mt, 50X90 Oval
14	6601564	AR	Hose-Suction, 1.0 ID, SAE 100R4		3380488	2	Gusset-Tank Mt, 56X90 Oval
15	9410283	2	Elbow-Hyd, 90, 12FJX-12MJ		3380483	2	Gusset-Tank Mt, 64X90 Oval
16	3320335	2	Channel-Mounting, Filter	63	6600921	1	Adapter-St, 08MJ-12MB
17	6601135	2	Elbow-Hydr, 90, 16MJ-16MP	64	3321324	2	Override Bracket
18	0125915	4	Bushing-Pipe, 1.25X1.00NPT, PN	65	6601921	1	Filter Head
19	7420042	2	Indicator-Filter, Gresen #1588	66	6601922	1	Element-Filter, .003 Micron
20	6600225	2	Filter-Gresen, #201NR	67	6601210	2	Hose-12FJX-12FJX
21	7420136	2	Head Casting W/ Plug Rel Viv Pt	68	---	1	Adapter-Filter (Included with Electric Pumps, see Ref. 4)
22	7420004	2	O Ring-Gresen #1576	69	9410205	2	Adaptor-Hydr, St, 12MB-12MJ
23	7420007	2	Paper-#10 Micron, Gresen #1509				
24	7420046	2	Conical Spring				
25	7420076	2	Housing-Gresen #K23013				
26	7420008	2	Gasket-Seal, Gresen #1575				
27	7420009	2	Post-Center, Gresen #1561				
28	6601769	1	Motor-Hyd, Piston, 2.5 Cu. In.				
29	6601418	3	Adapter-Hyd, Str, 16MB-12MJ				
30	6600646	AR	Hose-Self Grip, Parker H-801				
31	6600237	1	Switch-Thermo, GM#TG-6401080				
32	3320814	2	Clip-Frame, Hyd Resvr Mtg				
33	3320813	1	Bracket-Lt, Hyd Resvr Mtg				
34	3320323	2	Clamp Assembly-Mtg, Hyd Tank				
35	0115237	1	Tee-Pipe, 1.00 NPT				
36	0191492	1	Nipple-PP, Sch 40, 1.00X2.00, PN				
37	6601556	4	Hose End-16-16MP, St, LP100R4				
38	9402828	1	Elbow-Hydr, 45, 12MJ-12MP				

AR = As Required
Some Items Shown Are Optional Equipment

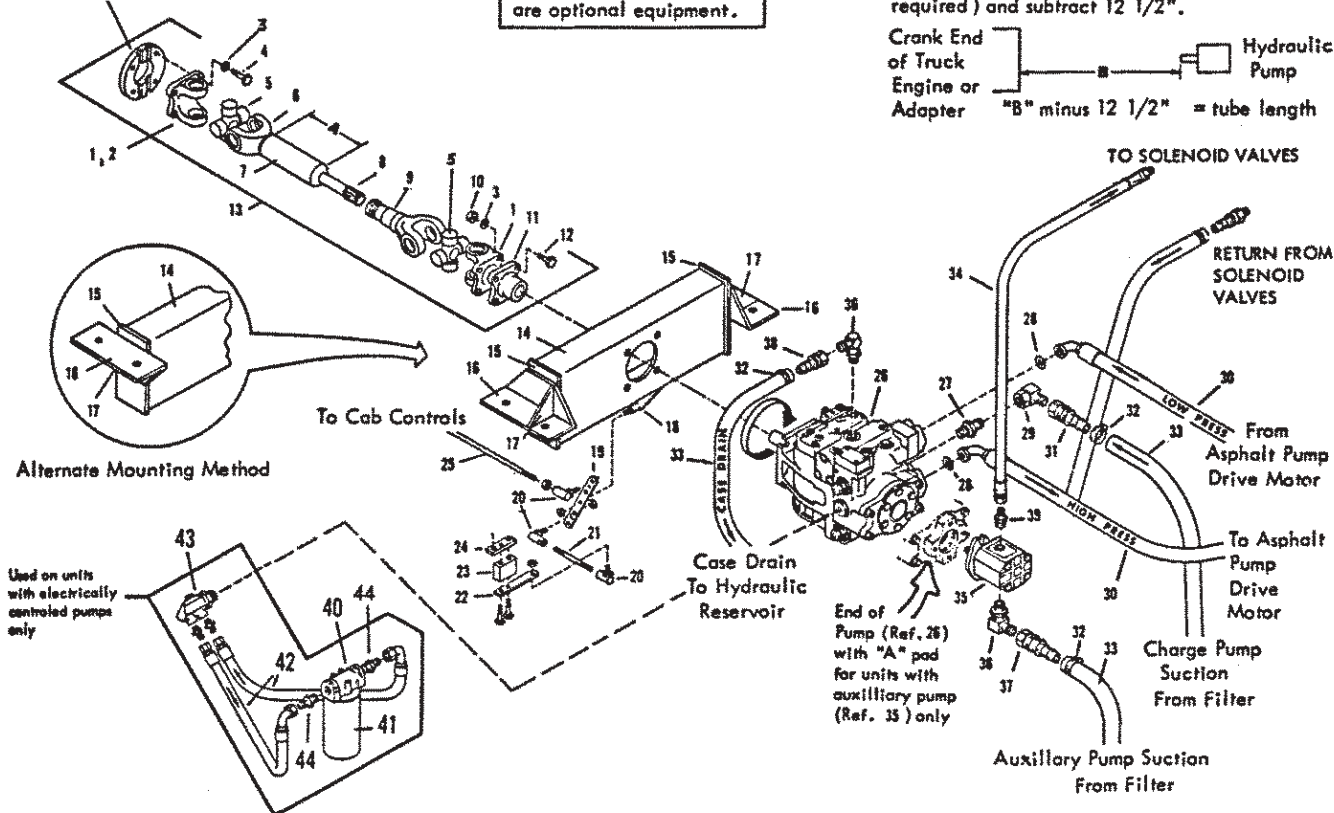
Hydraulic Pump Drive - Crankshaft Driven with Sundstrand Pump

Custom Adapter
(where required)
Specify Distributor
Serial Number

NOTE: Some items shown
are optional equipment.

To obtain tube length "A", measure pump shaft
to crank end of truck engine (or adapter if
required) and subtract 12 1/2".

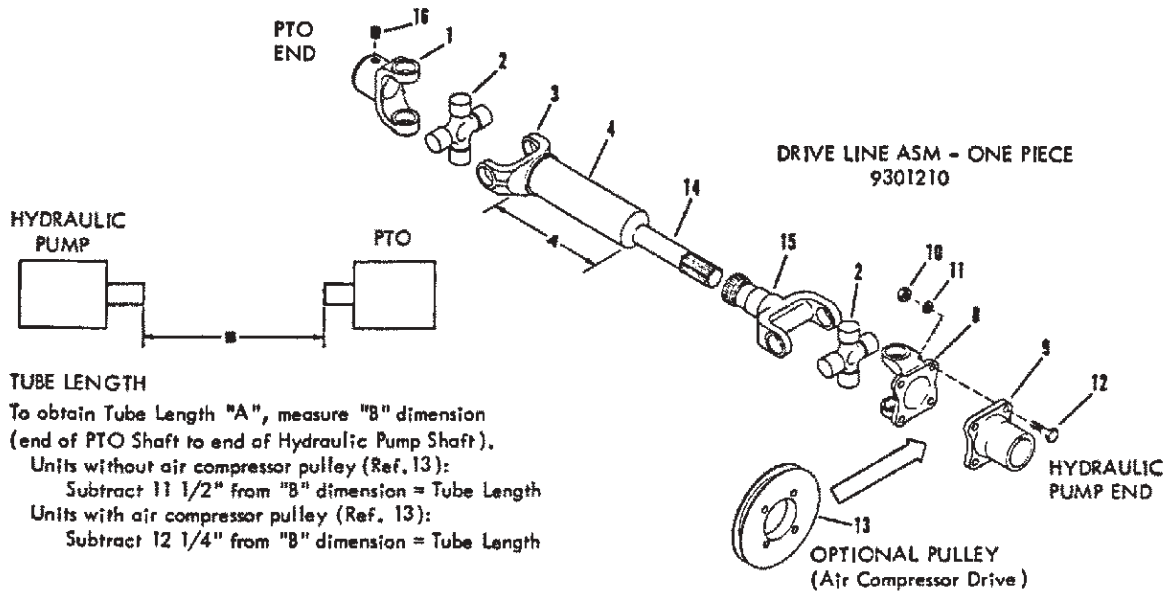
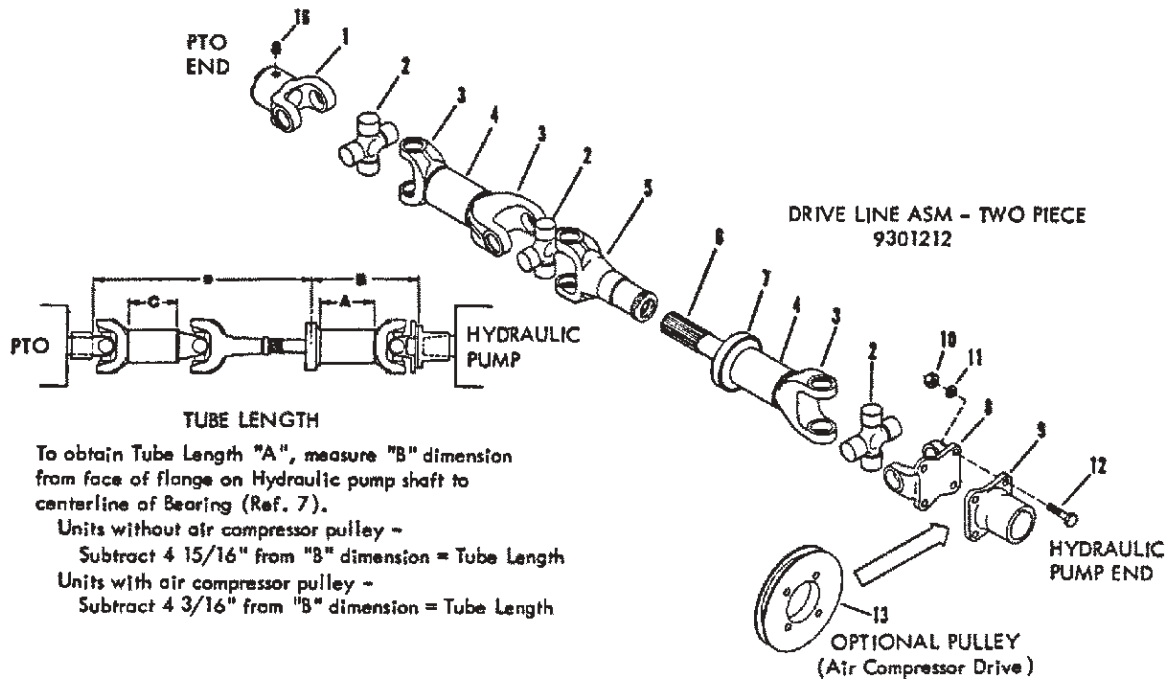
Crank End of Truck Engine or Adapter ———— Hydraulic Pump
"B" minus 12 1/2" = tube length



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3170021	1	Yoke-Flange, with 2 3/8" Male Pilot	27	9410207	1	Adapter-Hyd, Str, 16MB-16MJ
2	6440172	1	Yoke-Flange, with 2 3/4" Male Pilot	28	0274253	2	O Ring-Tube Fitting, 1.50
3	0120382	8	Washer-Lock, 0.38, Spring, PD	29	9410285	1	Elbow-Hyd, 90, 16FJX-16MJ
4	0454904	4	Screw-Sock, 0.38NC X 0.75, GR 8, PD	30	6602100	AR	Hose Asm-8 ft. Long
5	3170013	2	Journal & Bearing, Spicer 5-200X	6602101	AR	Hose Asm-9 ft. Long	
6	6440164	1	Yoke-Stub, Spicer 2-28-357	6602102	AR	Hose Asm-10 ft. Long	
7	6303278	AR	Tubing-2" OD X 14 GA, Specify Length	6602103	AR	Hose Asm-11 ft. Long	
8	6440199	1	Shaft-Slip Stub, Spicer 2-40-1741	6602104	AR	Hose Asm-12 ft. Long	
9	3110034	1	Yoke-Sleeve, Spicer 2-3-1421KX	6602105	AR	Hose Asm-13 ft. Long	
10	0120377	4	Nut-Hex, 0.38NC, PD	6602106	AR	Hose Asm-14 ft. Long	
11	6440162	1	Flange-Companion, Spicer 2-1-684	6602107	AR	Hose Asm-15 ft. Long	
12	0186679	4	Screw-Hex, 0.38NC X 1.25, GR8, PD	6602108	AR	Hose Asm-16ft. Long	
13	9301215	1	Drive Line Asm - Sunstrand, Crank Drive	6602109	AR	Hose Asm-17 ft. Long	
14	3321327	1	Mounting Channel-Pump	31	6601566	2	Hose End-16FJX-16, ST, LP100R4
15	3321331	2	End Plate-Mounting Channel	32	6000792	6	Clamp-Hose, Worm Drive, 1.06 to 2
16	3321330	2	Mounting Angle-Pump	33	6601564	AR	Hose-Suction, 1.0 Id, SAE 100R4
17	3321332	2	Gusset-Pump	34	9250605	1	Hose Asm-0.50, Specify Length
18	3321328	1	Pivot Asm-Crank Drive	35	6601787	1	Pump-Gear, .88, A Pad & Shaft
19	3321312	1	Lever-Pivot, Pump Stroker	36	9410979	2	Elbow-Hydr, 90, 12MB-12MJ
20	9422787	3	Joint-Ball, 0.31NC	37	6601812	1	Hose End, 12FJ - 1.00 In. Hose
21	3321319	1	Rad-T.B. Joint, Hyd. Pump Control	38	6600648	AR	Hose End-12X12FJX, ST, Push-Lok
22	3321311	1	Lever-Pump Stroker	39	6600921	1	Adapter-ST, 8MJ-12MB
23	3321316	1	Spacer-Pump Stroker	40	6601921	1	Filter Head
24	9301218	1	Pump Lever (Tapping)	41	6601922	1	Element-Filter, .003 Micron
25	9250304	1	Rad-0.31NC, Specify Length	42	6601210	2	Hose- 12FJX-12FJX
26	6602121	AR	Pump-4.57, LT, Man, No Pad	43	---	1	Adapter-Filter (Included with Electric Pumps, see Ref. 26)
	6602123	AR	Pump-4.57, LT, Man, A Pad	44	9410205	2	Adaptor-Hydr, St, 12MB-12MJ
	6602125	AR	Pump-4.57, LT, Elect, No Pad				
	6602127	AR	Pump-4.57, LT, Elect, A Pad				AR = As Required

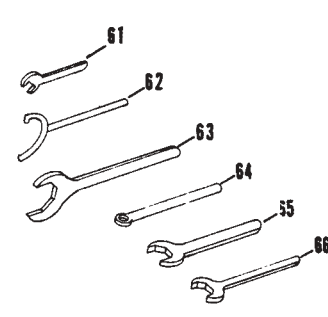
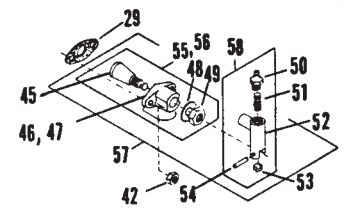
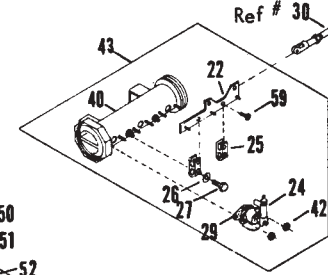
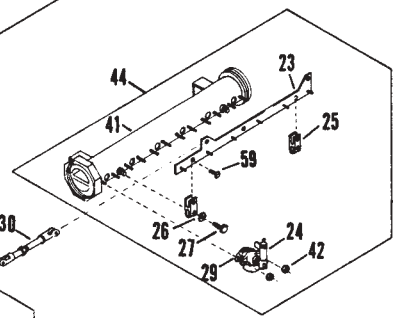
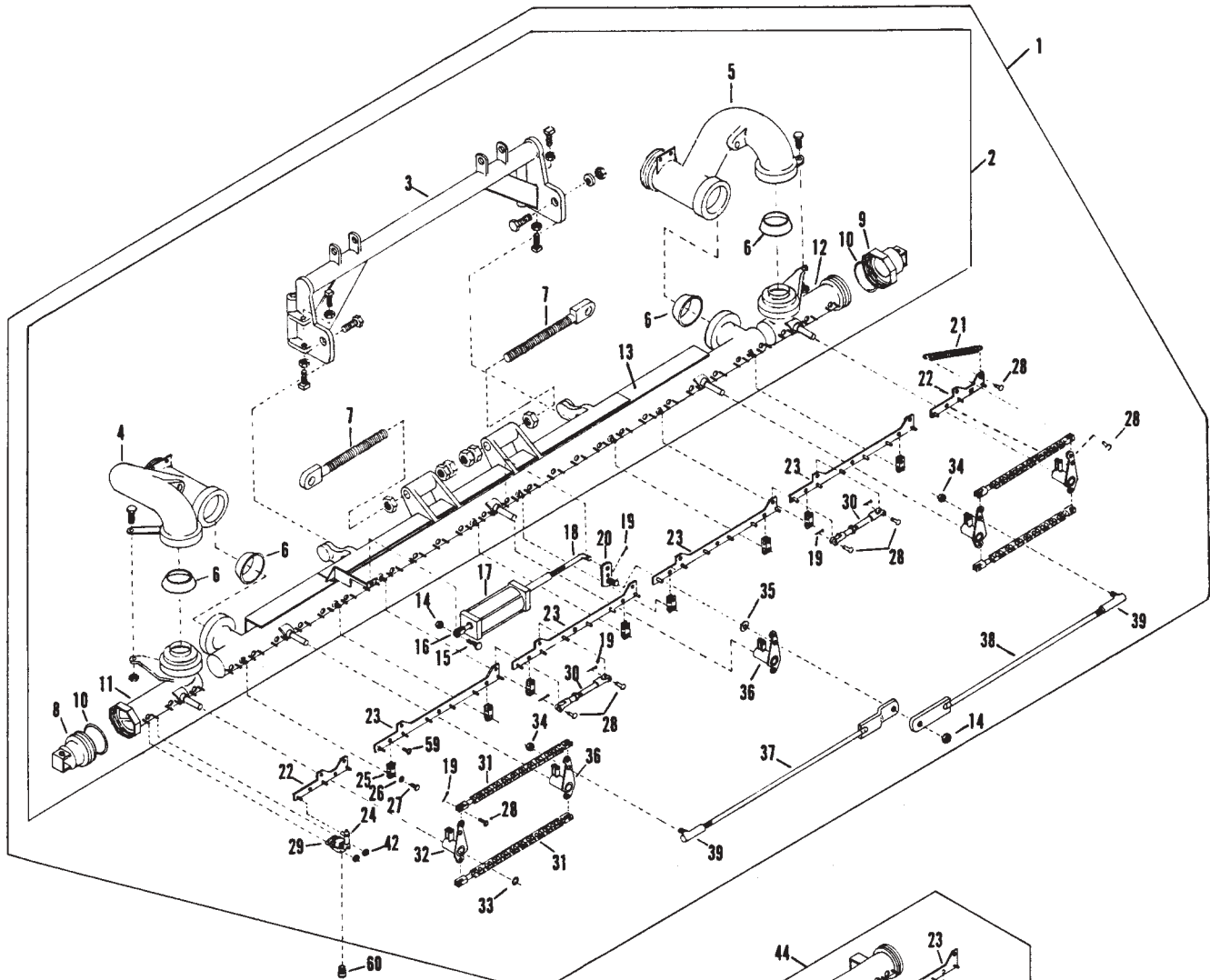
Drive Lines - PTO to Hydraulic Pump

Units with Sundstrand Pump



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6440170	1	Yoke-End, Spicer 2-4-663	12	0186679	4	Screw-Hex, 0.38NC X 1.25, GR8, PD (Units Without Air Compressor Pulley)
2	3170013	AR	Journal & Bearing, Spicer 5-200X		0454907	4	Screw-Hex, 0.38NC X 2.25, GR8, PD (Units With Air Compressor Pulley)
3	6440164	AR	Yoke-Stub, Spicer 2-28-357	13	3321269	1	Pulley-Dr. Line PTO Hyd Pump
4	6303278	AR	Tubing-2" O.D.X14GA. (Specify Length)	14	6440199	1	Shaft-Slip Stub, Spicer 2-40-1741
5	6440165	1	Yoke Asm, Spicer 2-3-128KX	15	3110034	1	Yoke-Sleeve, Spicer 2-3-1421KX
6	6440166	1	Shaft-Stub, Spicer 2-53-121	16	6100284	1	Screw-Sock, 0.50NC X 0.50 Lg
7	6440167	1	Cnt. Bearing Asm, Spicer 210088-1X				AR = As Required
8	3170021	1	Yoke-Flange, Spicer 2-2-239				
9	6440162	1	Flange-Companion, Spicer 2-1-684				
10	0120377	4	Nut-Hex, 0.38NC, PD				
11	0120382	4	Washer-Lock, 0.38, Spring, PD				

Spraybar Assembly - SAM Type, Gang On/Off



ATTENTION: Nozzles not included with Spray Bar Sections. Nozzles must be ordered separately.

Spraybar Assembly - SAM Type, Gang On/Off

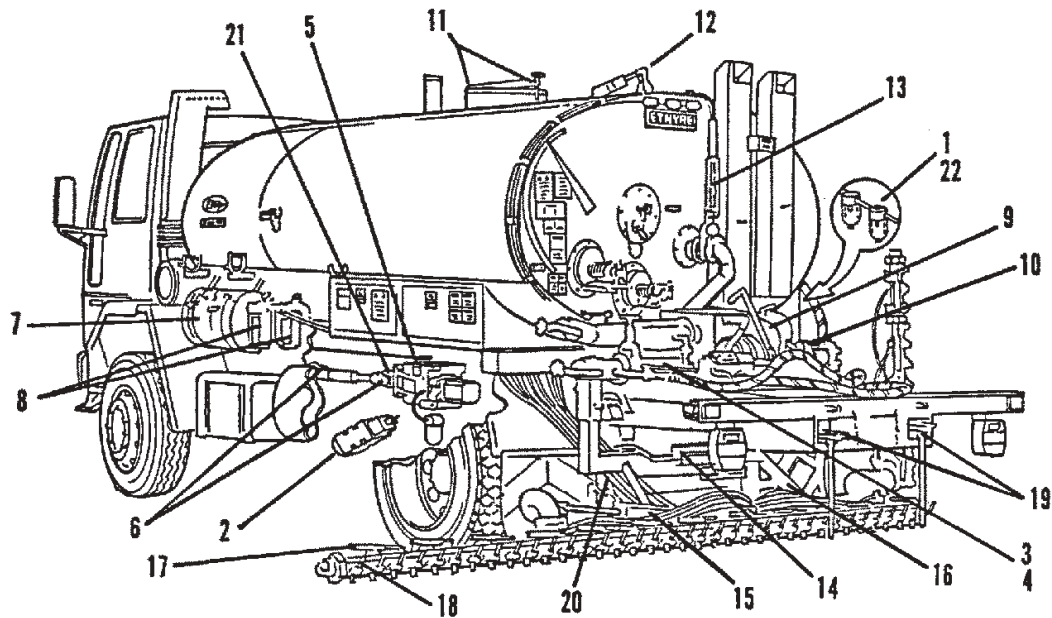
REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3352475	1	Spraybar Asm-Ctr, 10 Ft, Gang, Sam	60	3351008	AR	Nozzle-1/4, Spraybar
2	3352471	1	Welding Asm-Spbar, Ctr, 10 Ft, Sam		3352204	AR	Nozzle-3/16, Spraybar
3	3352470	1	Carry Asm-Spraybar, Mech, Gang		3351011	AR	Nozzle-1/8, Spraybar
4	7230197	1	Hinge-End, Ft, Asm, Spbar, Sam, 10 Ft.		3351013	AR	Nozzle-1/16, Spraybar
5	7230196	1	Hinge-End, Lt, Asm, Spbar, Sam, 10 Ft.		3351015	AR	Nozzle-.093, Spraybar
6	3352251	4	Liner-Swivel Joint, Spraybar		3352205	AR	Nozzle-5/16, Spraybar
7	3360863	2	Rod End Asm-Cylinder Mt, Sam	61	6000376	1	Wrench-#5 Armstrong
8	3352216	1	End Cap Asm, Spraybar Lt.	62	3380081	1	Wrench Asm-Spanner, Ball Joint
9	3352217	1	End Cap Asm, Spraybar Rt.	63	3380443	1	Wrench-Open End, 4.25, Sam
10	3352214	2	Gasket-3.50 x 3.00, Copper ASB	64	3380090	1	Pin Assembly Aligning
11	7230195	1	Bar End, Lt., Sam, Spbar, Sam, 10 Ft.	65	3380459	1	Wrench-Open End 2.00, Sam
12	7230194	1	Bar End, Rt, Asm, Spbar, Sam, 10 Ft.	66	3380442	1	Wrench-Open End, 1.25, Sam
13	7230209	1	Bar Ctr Asm Sam, Gang ON/OFF 8 Ft.				
14	9413947	2	Nut-Hex, Lock, 0.44NC, EA, PD				
15	0122279	1	Screw-Hex, 0.44NC x 1.50, GR 2, PD				
16	6600296	1	Yoke-Cyl, HD, MIDLND #N-13-X-669				
17	3360795	1	Cylinder Asm-Air, Dist Control				
18	3320411	1	Link-Conn, Bar ON/OFF				
19	0103376	17	Pin-Cotter, 0.09 x 1.50, PD				
20	3352463	1	Extension Asm-Toggle Arm				
21	6001146	1	Spring-Extension, 0.75 x OD x 4.00				
22	3350226	2	Control Bar Asm-Valve				
23	3352473	4	Bar Asm-Cntrl, Vlv, Ctr, Lt, Gang				
24	3350579	30	Flip Valve Asm-Center Tube				
25	3350324	8	Guide-Lever, Detach Lever				
26	0120388	8	Washer-Flat, 0.375, Wide				
27	0122181	8	Screw-Hex, 0.38NC x 2.00, GR2, PD				
28	6000397	17	Rivet-RD.HD, 0.25 x 0.88, Drilled				
29	3350316	30	Gasket-Nozzle Valve				
30	3350567	2	Link Asm-Adjusting				
31	3352476	4	Chain Asm-Spraybar, Gang, Sam				
32	3352454	2	Toggle Asm-Rt, Spraybar				
33	6000571	5	Ring-Retaining, Truarc 5160-87				
34	0274636	2	Nut-Hex, Lock, 0.44NF, EA, PD				
35	0120389	3	Washer-Flat, 0.44 A(0.50 x 1.25)PD				
36	3352453	3	Toggle Asm-Lt, Spraybar				
37	3352467	1	Rod Asm-Control, OFFSET				
38	3352466	1	Rod Asm-Control				
39	6100126	2	Joint-Ball 0.44NF, #SR-110G				
40	3352215	1	Tube Asm-Basic, 1 Ft. Sam				
41	3352218	1	Tube Asm-Basic, 2 FT. Sam				
42	0120376	60	Nut-Hex, 0.31NC, PD				
43	3352409	AR	Bar Ext-Sam 1 Ft. Gang ON/OFF				
44	3352410	AR	Bar Ext-Sam 2 Ft. Gang ON/OFF				
45	3350454	AR	Plug-Noz. Vlv, W/3.50 Taper, Sect				
46	3350453	AR	Body-Valve, Nozzle, 11156 RAD				
47	3350577	AR	Body-Valve, 1.406 RAD, TUC, Center				
48	3351620	AR	Washer-Valve, Nozzle Spraybar				
49	0274637	AR	Nut-Hex, Lock, 0.50NF, EA, GRA, PD				
50	6001009	AR	Fitting-Lube ST, 0.12PTF x 0.69 PN				
51	3350319	AR	Spring-Detach, Lvr, SB Nozzle				
52	3352380	AR	Lever Asm-Detach, Nozzle Valve				
53	3352379	AR	Plunger-Detach Lvr, SB Nozzle				
54	0443139	AR	Pin-Grooved, 0.16 x 0.75, E, PD				
55	3351572	AR	Valve Asm-1.1562 RAD, TUC				
56	3351573	AR	Valve Asm-1.406 RAD, TUC Ctr				
57	3350579	AR	Flip Valve Asm-Ctr Tube				
58	3352381	AR	Lever Asm-Detach, Nozzle Valve				
59	0133046	8	Screw-Mach, RDSL, 0.25NC x 0.88, PD				

ATTENTION: Nozzles not included with Spray Bar Sections. Nozzles must be ordered separately.

AR = AS REQUIRED

Lubrication Chart

ETNYRE BITUMINOUS DISTRIBUTOR - MODEL SAM



INTERVAL	POINT	IDENTIFICATION	LUBRICANT	QUANTITY
DAILY	1	Air System Oiler	SAE 10 Non-Detergent	Fill Check Daily - Fill Weekly
	2	Radar Bitometer	Clean Lens as Needed	
	3	Oil Bath Air Cleaner - Blower	EO	Fill to Line
	4	Blower Gear Case	EO	7 Oz.
	5	Control Linkage	EO*	Sparingly
	6	Driveline Universals	#2M-AG	Sparingly
	7	Hydraulic Reservoir	HTF	3/4 Full**
	8	Hydraulic Oil Filter	Replace if vacuum gauge shows in red area.	
WEEKLY	22	Air Reservoir	Drain Water From Air Reservoir Daily	
	9	Pump Discharge Strainer	Clean Weekly	
30 DAYS	10	Asphalt Pump Transmission	SAE 90 Gear Oil	Check Weekly - Fill. Change every 2500 hours or 6 months
	11	Manhole Cover	EO*	Sparingly
	12	Inside Valve Cylinder	Wipe Air and Hydraulic Cylinder Rods clean and Lubricate with Light Machine Oil	
	13	Return Valve Cylinder		
	14	Shift Cylinder		
	15	Wing-Up Cylinders (2)		
	16	Bar Raise Cylinders (2)		
	17	Spray Bar Nozzle Cylinders - Optional Equipment (AR)		
18	Flip Valve Levers	MPG	Sparingly	
19	Bar Carry Latches (2)	EO*	Sparingly	
ANNUALLY	20	Bar Up and Carry Mechanisms - All Wear Surfaces	EO*	Sparingly
	21	Pump Spline Fitting Yoke	#67-71	Sparingly

#67-71: Anti-seize Compound
 #2M-AG: #2 Molub Alloy Transmission Grease
 MPG: Multipurpose Type Grease
 HTF: Hydraulic Transmission Fluid - Type A
 EO: Engine Crankcase Oil
 EO*: Engine Crankcase Oil - Applied with Oil Can

* Engine Crankcase Oil applied with oil can
 ** Fill completely for winter storage. This will
 prevent condensation in reservoir. Drain
 down to thermometer hole prior to use.

Acceptable Hydraulic Fluids

The following are considered to be **ACCEPTABLE** for use in DYNAPOWER hydraulic pumps and motors.

Source: Dynapower Engineering Bulletin
No. DEB-101
January 3, 1989

Acceptable fluids are not necessarily recommended to be combined. Please check with your oil or fluid distributor for mixable fluids.

ACCEPTABLE FLUIDS

VENDOR	DESCRIPTION	VISCOSITY SSU at 130°F.
AMS-Oil, Inc.	Synthetic Multi Functional Farm Tractor Hydraulic Oil	170.0
	Synthetic Hydraulic Oil	98.0
Ashland Oil Co.	"Unitrac" Valvoline Fluid	155.0
Amalie Refining Co.	XLO SAE 10W	102.0
	Dexron II	105.0
	AMA-Oil R&O 200 AW	95.0
Allied Tire Co.	Allied Superior AW Ind Hyd 100	194.0
Chevron USA, Inc.	Tractor Hyd. Fluid	134.0
CITGO Petr'l Corp.	CITGO ATF Dexron II	106.0
	ATF Type F	107.0
Exxon Co. USA	Univis N46	132.0
Fiske Bros.	Lubriplate UTF-C-3 Oil	133.0
Gopher Oil Co.	Univ. Super Tractor Fluid	150.0
Lubrication Engineers	1107 ATF Fluid Dexron II	97.0
Mobil Oil Corp.	Mobil SHC 626 Oil	181.0
	Mobil Fluid 300	89.0
	Mobil Universal ATF	113.0
	Mobil Delvac 1110	101.0
	Mobil Delvac 1310	107.0
	Mobil SHC 525	136.0
	Mobil SHC 526	158.0
	Mobil DTE 16M	157.0
	Mobil DTE-24	90.0
	Mobil SHC-524	88.0
	Mobil DTE 15M	131.0
	Mobil DTE-25	125.0
	Mobil DTE-26	157.0
	Penzoil Prod.	Hydra-Tranz
Hydra-Flow Dexron II		96.0
Phillips Petroleum	ATF (F) HG Fluid	109.0

Sun Refining	Hyd. Sun Oil 2105	122.0
Shell Canada Ltd.	Shell Tellus 32	92.0
Texaco, Inc.	Rando HD46	111.0
	ATF Dexron II Code #1841	117.0
	Texaco 2319 Merops 68PA 1026	164.0

The following fluids are considered to be **ACCEPTABLE** for the 4.5, 6.0, 12.0 and 21.0 CIR Qualified Products List units, when operating within the maximum operating conditions for which they were qualified, as shown on Qualified Products List QPL-17869 (Dynapower).

VENDOR	DESCRIPTION	VISCOSITY SSU at 130°F.
MIL-L-17672	2075-T-11	82.0
Houghton	1177 (2075)	85.0

UNACCEPTABLE FLUIDS

The following fluids are considered **UNACCEPTABLE** for use in DYNAPOWER transmission applications, operating over the design range of speeds, pressures and temperatures and requiring the design life of the transmission.

VENDOR	DESCRIPTION	VISCOSITY SSU at 130°F.
Amaco Oil Co.	Rykon Oil 46	119.0
	Amaco AW Oil 46	135.0
Arco Petr'l Prod	AW 46	107.0
	AW 68	151.0
Ashland Petr'l	Ultramax AW-20	89.0
Ashland Oil Inc.	Valvoline ATF Dexron II	111.0
Amalie Refining Co.	R & O 300 AW	154.0
AMS	Anti Wear ISO VG32 SAE 10W	82.0
Boron Oil Co.	Autran Universal ATF	109.0
B P Oil Co.	Autran Universal ATF	109.0
Chevron USA, Inc.	AW Hydraulic Oil 32	85.0
	Delo 300 (SAE 10W)	118.0
	Delo 400 (SAE 10W)	111.0
	ATF Dexron II D21681	104.0
	AW Hydraulic Oil 46	113.0
	AW Hydraulic Oil 68	154.0
Citgo Petr'l Corp.	Citgo AW All Temperature	90.0
	Citgo AW 46	112.0
Dumas Oil Co.	UNAX ISO VG32	95.0
De Bois Ind. Chem.	MPO-10	92.0
	MPO-20	157.0
Esso Oil Limited	UNIVIS 22	98.0
Exxon Co. USA	NUTO H46	120.0
Lubrication Engr's	Monolec 6402 Turbine Oil	136.0
Kendall Ref. Co.	Super D 111 SAE 10	95.0
	Dexron II	105.0
	Kenoil R&O	103.0
Mobil Oil Co.	Mobil ATF 210	115.0
	Mobil 350	119.0
	Mobil Hi/Syn. Univ. ATF	92.0
	Mobil Rarus 824	78.0
Petro-Canada	Type H, Dexron II	51.0
Phillips Petr'l Co.	Magnus A-46	114.0
Shell Oil Co.	Aeroshell Turbine Oil 500	78.0
Texaco, Inc.	Ursa Super Plus 10	110.0
	Texaco HD 68	164.0
	Texaco AZ	102.0
	Rando HD 32	93.0