

M-101-20-90



MANUAL SUPPLEMENT

OPERATION, MAINTENANCE, PARTS and SAFETY

Supplement to

M-101-80R2 Black-Topper Parts Manual and
M-102-73R Black-Topper Operation, Maintenance and
Safety Manual.

Operation/Maintenance:

Safety Instructions
Start-Up Instructions, Hydrostatic Distributor
Acceptable Hydraulic Fluids
Calibration of Distributor
Use of Measuring Stick
Spray Bar Flow Diagrams
Spray Bar Nozzles, Adjustment and Flow Rates
Burner Fuel Consumption and Fuel Data
Washout and Drain Procedure
Service Procedure, Etnyre P-15 Asphalt Pump
High Pressure (Fuel Oil) Burners, Start-Up & Operation

Parts Section:

Heavy Duty Bar Carrier
Hi Pressure (Fuel Oil) Burners
Blower - 36 U-RAI
Blower Drive - Low Pressure Burners
Portable Burner - Liquid Propane, Bottle System
Transmission Asm - Funk 3-Speed (Asphalt Pump)
Hydrostatic Drive System
Tank Gauge Assembly (SAM Style)
Digital Bitumeter
Digital Tachometer Drive

Replaces the following pages of M-101-80R
Blacktopper Parts Manual: 12, 13, 30

Supersedes and Replaces the following previous supplements:

M-101-16-89 Hi Pressure (Fuel Oil) Burners
M-101-17-88R U-Rai Blower with Viking Oil Pump
M-101-19-88 Hydrostatic Drive - Piping and Installation - PTO Drive
Black-Topper Parts Supplement - Heavy Duty Spray Bar Carrier
M-101-S-89 Safety Instructions - Loading Tank/Heating Asphalt

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

Black-Topper® Manual Supplement

OPERATION, MAINTENANCE, PARTS and SAFETY

M-101-20-90

How To Order Parts

To assure prompt delivery when ordering parts, please furnish the following information: 1) Complete name and address of consignee. 2) Method of shipment preferred. 3) Is shipment to be prepaid or collect? 4) Serial numbers of units to which parts apply. 5) Complete part numbers and descriptions. 6) Any special instructions.

SPECIFY UNIT SERIAL NUMBER WHEN ORDERING PARTS

Warranty

E. D. ETNYRE & CO. warrants to the original Purchaser, its new product to be free from defects in material and workmanship for a period of twelve (12) months after date of delivery to original Purchaser. The obligation of the Company is limited to repairing or replacing any defective part returned to the Company and will not be responsible for consequential damages or any further loss by reason of such defect.

THE COMPANY EXCLUDES ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE GOODS CONTAINED IN THIS CONTRACT.

This warranty does not obligate the Company to bear the cost of machine transportation in connection with the replacement or repair of defective parts, nor does it guarantee repair or replacement of any parts on which unauthorized repairs or alterations have been made or for components not manufactured by the Company except to the extent of the warranty given by the original Manufacturer.

This warranty does not apply to:

- (1) Normal start-up services, normal maintenance services or adjustments usually performed by the selling dealer, factory service representative or customer personnel.
- (2) Any product manufactured by E. D. Etnyre & Co. purchased for or subjected to rental use.
- (3) Any product or part thereof which shows improper operation, improper maintenance, abuse, neglect, damage or modification after shipment from factory.
- (4) Any product or part thereof damaged or lost in shipment. Inspection for damage should be made before acceptance or signing any delivery documents releasing responsibility of the delivering carrier.

This warranty and foregoing obligations are in lieu of all other obligations and liabilities including negligence and all warranties of merchantability or otherwise, express or implied in fact or by law.



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Safety Instructions

- 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.


Loading Tank Heating Asphalt

- 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.


WARNING



Do not change asphalt grades without reading operators manual. Explosion can occur causing death or serious injury.

3380637

WARNING



6" min.
150 mm. min.

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

3380636

Safety Instructions

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 situations, 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. ⚠

⚠ DANGER

DANGER - Immediate hazards which WILL result in severe personal injury or death.

- 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.

⚠ WARNING

WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.

- 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.
- 11 To reduce fire hazard, keep spraying area clear of open flames or sparks when spraying with volatile materials.
- 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 pre-

vious 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.
- 20 To prevent an explosion, flues must be covered by a minimum of 6 inches of 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.
- 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.

⚠ CAUTION

CAUTION - Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

- 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.
- 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.
- 12 To prevent possible burns from asphalt spray, do not stand so that accidental opening of spray bar valves will permit contact.
- 13 To eliminate momentary discharge of hot material, fill line cap or connection must be securely attached before opening intake valve lever.
- 14 To guard against accidental spraying, "TUC" bar must be off and remain off when spray bar is rotated upward.
- 15 To prevent being struck by control lever on rear quadrant, remain clear when on/off function is being performed with air control.
- 21 To avoid having hot material overflow from the tank, allow sufficient space in the tank for expansion of the material when heating.
- 25 To prevent possible hand burns, use a torch (not a match or lighter) to light burners.
- 29 To avoid spraying other people with hot material when handspraying, hold handspray gun in proper position and watch for other people.

Hydrostatic Start - Up Instructions

This procedure will help to avoid cavitating the pump and scoring of the moving parts within the pump. Extra care at the crucial start up time will assure a long, trouble free life.

Note: These instructions are for use at initial start up of new machine, after replacement of hydraulic pump, or after major hydraulic system repairs only.

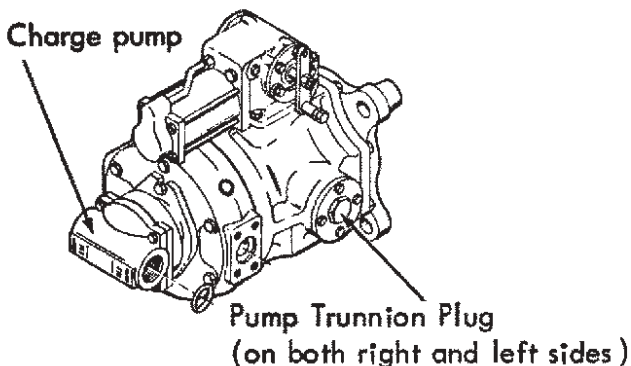
When starting the hydrostatic system on a distributor, the following procedure must be followed.

The hydraulic pump should not be run, even for "a little while" without being sure that there is oil in the case and in the charge pump.

Jog the pump drive shaft by bumping the clutch on PTO drives or the engine starter on crankshaft drive units. On units with automatic transmissions and PTO drives, start the engine with the transmission in neutral. Set the brakes. Shift the transmission into forward gear and engage the PTO. Shift the transmission into and out of neutral quickly while someone checks the PTO rotation.

Check to see that the plumbing matches the direction of rotation of the hydraulic pump drive shaft, as shown in the illustrations included in these instructions.

Remove plug on one pump trunnion (see illustration).



PUMP TRUNNION PLUG LOCATION

Loosen fitting on charge pump inlet.

Fill tank with hydraulic oil.

If oil comes out of the pump trunnion hole, replace the plug and tighten securely.

If oil comes out of the loosened fitting at the charge pump outlet, tighten that fitting.

If oil does not come out of the pump trunnion hole and the charge pump outlet, it will be necessary to pressurize the hydraulic tank.

Install the necessary fittings and an air pressure regulator on the threaded fill neck of the hydraulic tank.

Apply shop air at 10 psi to the hydraulic tank. This will force hydraulic fluid into the charge pump and the pump case.

When oil appears at the trunnion hole and the charge pump outlet, replace and tighten these fittings.

Release the air pressure on the hydraulic tank, remove the fittings and regulator and replace the fill cap.

Check to see that the hydraulic pump is in neutral (plunger all the way up).

Engage the PTO and start the engine at idle.

Check the vacuum gauge on the filter. It should read between 2 and 10 in. Hg.* If it does not, shut off the engine immediately! Find and correct the cause for a vacuum reading outside of this range before proceeding.

* Note: Cold hydraulic oil may cause a high vacuum. The vacuum should come back into range after the oil has warmed.

Run the hydraulic pump in neutral for 2 to 3 minutes with the engine at fast idle (1000 to 1200 RPM). This will let the charge pump fill the system with oil.

CAUTION

Make certain there is oil in the asphalt pump before turning the hydraulic motor.

Slowly move the hydraulic pump out of neutral by pushing down slightly on the plunger.

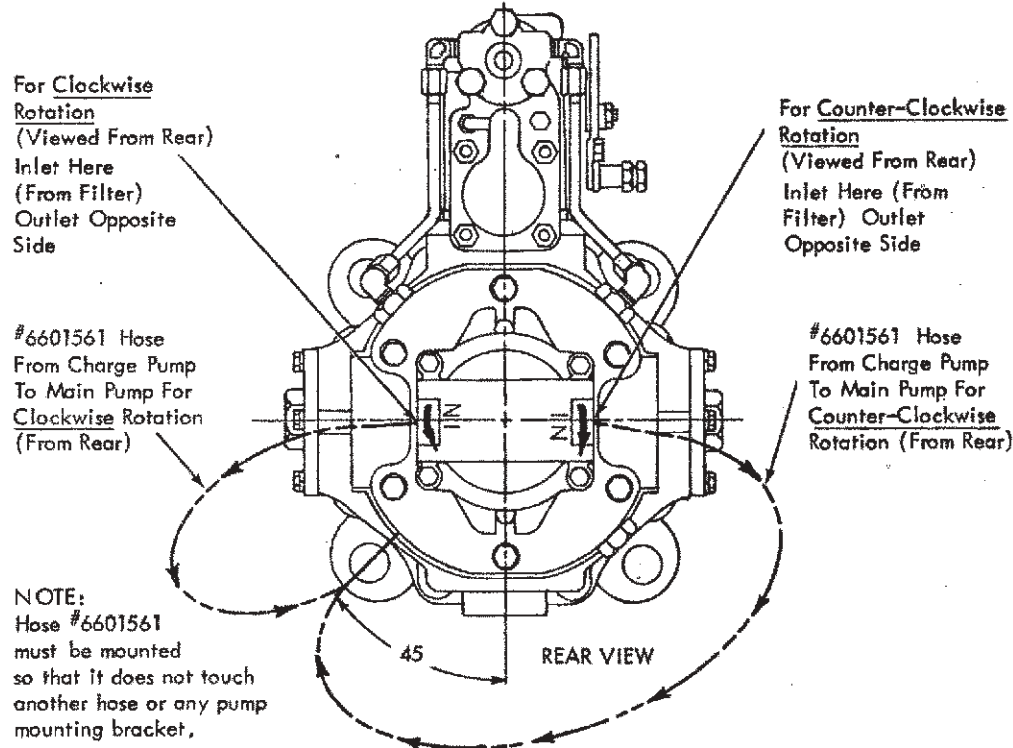
Check to see if the hydraulic motor is turning. If it is not, shut off the engine and determine the cause.

If the motor turns, run the system at low speed for 5 to 10 minutes to allow the air to work out of the oil.

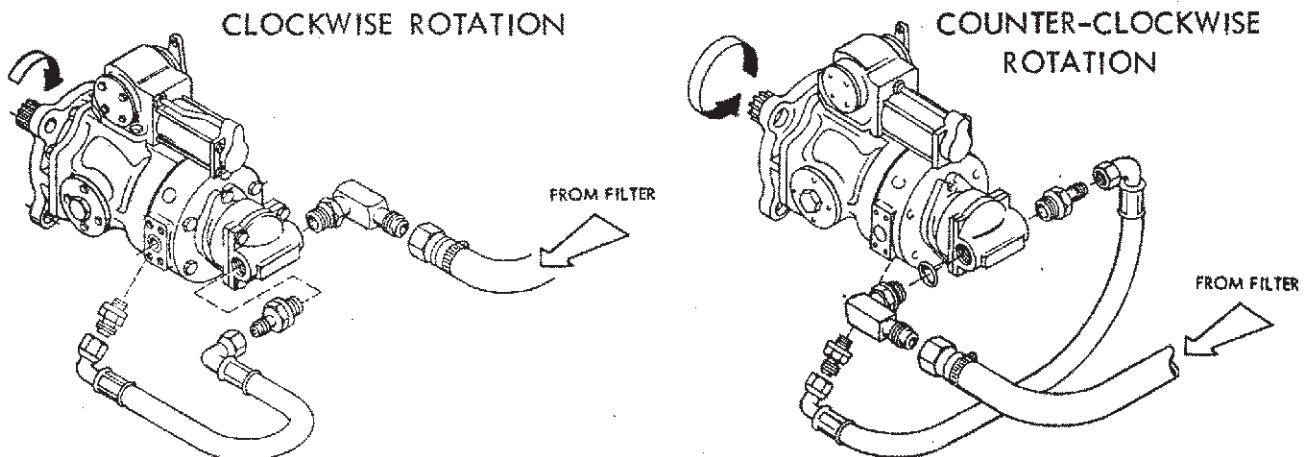
Top off (fill) the hydraulic tank and check for leaks while the system is running.

The system is now ready for testing at a higher speed and pressure.

Dynapower Generation II Pump Rotation Rear View



Generation II Dynapower hydraulic pumps are bi-rotational, that is, the input shaft may be driven either clockwise or counter-clockwise. The only step necessary to change rotation is to attach the hose #6601561 in the proper manner as shown. NOTE: Hose (#6601561) must be mounted so that it DOES NOT TOUCH another hose or any pump mounting bracket.



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	96.0
	Hydra-Flow Dexron II	96.0
Phillips Petroleum	ATF (F)	109.0
	HG Fluid	

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.

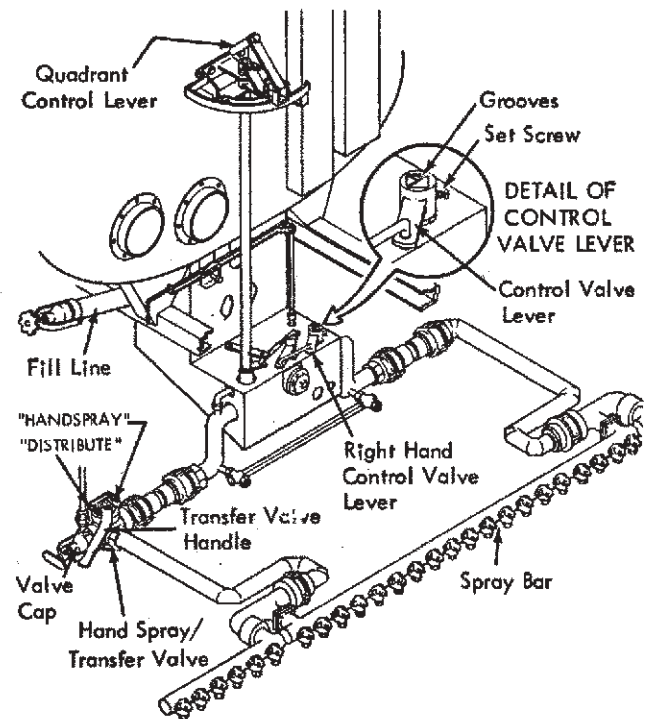
VENDOR	DESCRIPTION	VISCOSITY SSU at 130°F.
Amoco Oil Co.	Rykon Oil 46	119.0
	Amoco AW Oil 46	135.0
Arco Petr'l Prod	AW 46	107.0
	AW 68	151.0
Ashland Petr'l	Ultramax AW-20	89.0
Ashland Oil Inc.	Valvoline ATF Dexron II	111.0
Amalie Refining Co.	R & O 300 AW	154.0
AMS	Anti Wear ISO VG32 SAE 10W	82.0
Boron 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

Instructions For Calibration of Distributor

With material (liquid) in the distributor tank, weigh and record the weight of the unit (with or without the driver in the cab).

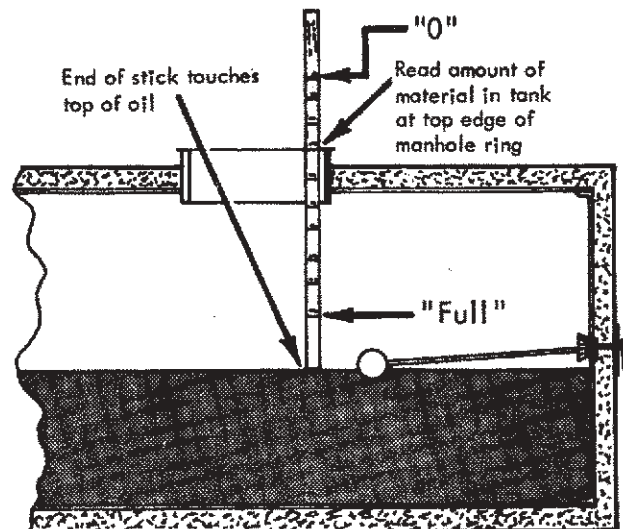
1. Start with all controls set for the filling operation.
2. Locate the arm (lever) with the square socket welded to it that is attached to the top of the right hand control valve (see illustration at right).
3. Loosen the set screw in the square socket end of the arm and lift the socket off the valve.
4. The square top of the control valve has grooves cut from the center to three of the corners and will look like this when the socket is removed:  (see illustration at right)
5. Use a 12" adjustable wrench to rotate the valve 180° so it looks like this: 
6. Connect the pump off line to the hand spray-transfer valve and to the container that is being used to hold the material being pumped off.
7. Move the Transfer Valve Handle from the "Distribute" (pointing left) to the "Hand-spray" position (pointing straight back).
8. Move the Quadrant Control Lever from the "Fill" position to the "Hand Spray" position (pointing straight back, at right angle to the rear of the tank).
9. Adjust the asphalt pump tachometer to the desired gallons per minute.
10. Move the intake valve lever to the down position and simultaneously start timing the discharge.
11. At the end of the predetermined time period, move the intake valve lever to the up position and remove the fill line cap which will allow air to clear the discharge line.
12. Stop the asphalt pump, move the quadrant control lever to the fill position, move the transfer valve lever to distribute position and disconnect the discharge hose.
13. Install caps on fill line and transfer valve.

14. Re-weigh the unit, with the driver if the driver was in the cab originally, and compute the gallons of material pumped off. Remove the connection between transfer valve and the container.
15. Return the right control valve to it's original position and reattach the lever and linkage.
16. Flush asphalt pump with diesel.



Etnyre Measuring Stick

How To Measure Quantity of Material In Tank
(ACCURATE ONLY WHEN TANK IS LEVEL)



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.)

HEATING TERMINOLOGY

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.

Service Procedure
Wear Check - Etnyre P-15 Pump

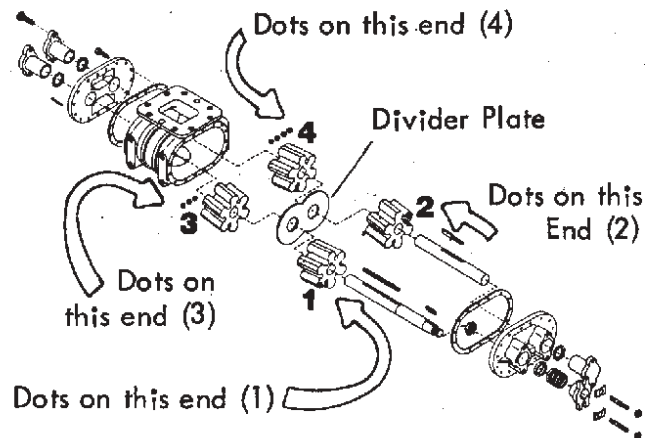
1. Vacuum Check
 - a. Flush pump with 3 quarts of diesel fuel through fill line.
 - b. Set controls in fill position.
 - c. Install vacuum gauge in fill line cap.
 - d. Operate pump at 140 GPM on pump tachometer. Vacuum reading of less than 5 In.Hq. (inches mercury) after two minutes of operation is 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

Etnyre 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

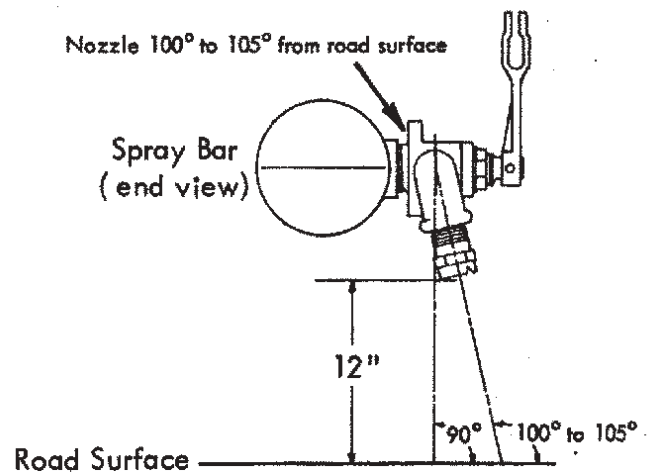
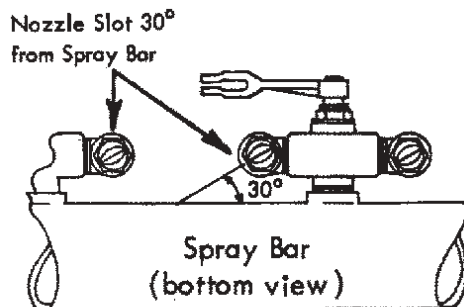
Part Number	Description	Application Per Square Yard	Application (Metric) Liters per Sq. Meter	Flow - Gal. per Min. Per Foot
3351013 **	1/16" Coin Slot	.05 - .20	.19 - .75	3 to 4.5
3351008	S36-4 V Slot	.10 - .35	.38 - 1.30	4 to 7.5
3351009	S36-5 V Slot	.18 - .45		7 to 10
3352368	Multi-Material V Slot	.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



Washout And Drain Procedure
To Prevent Solvent Contamination
Of The Binder Material

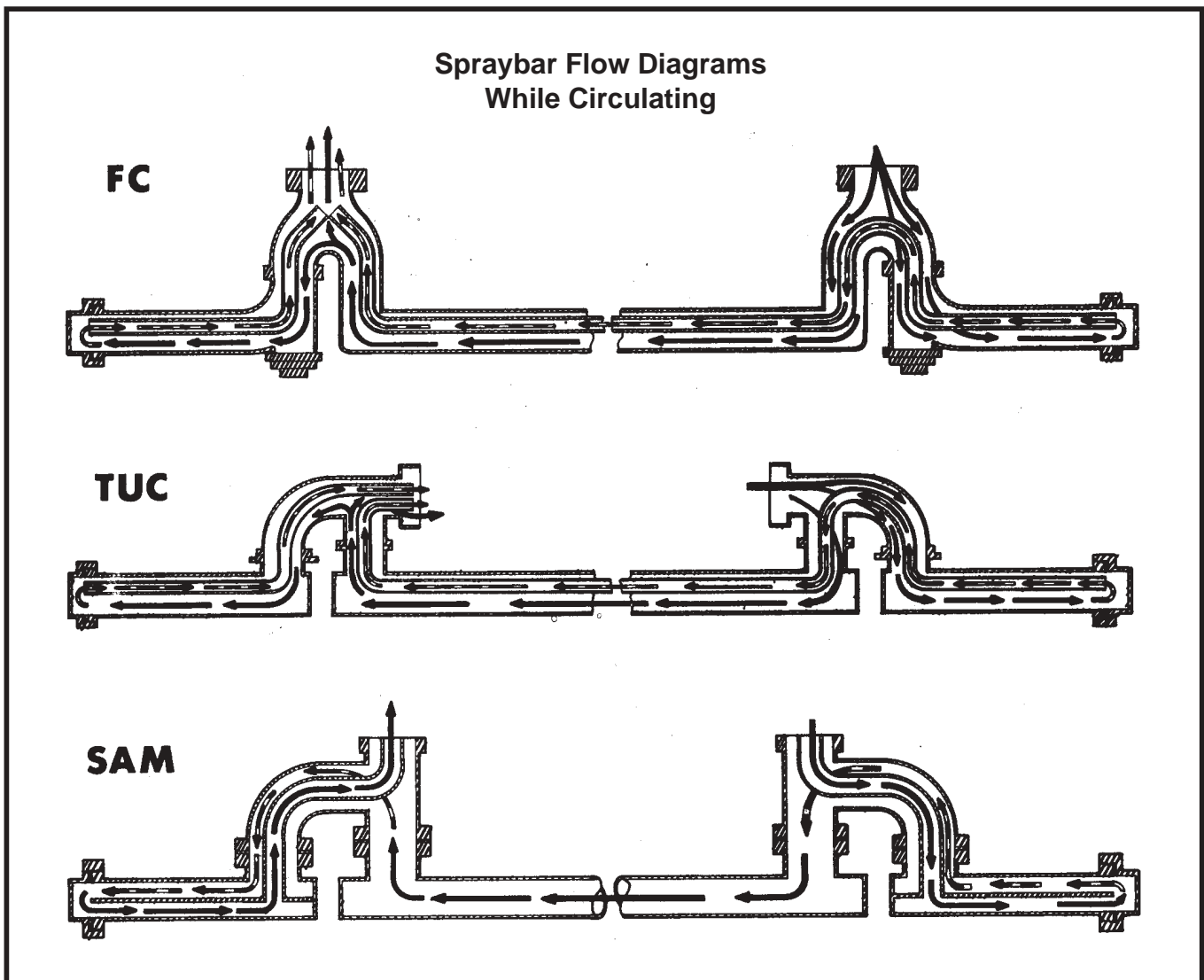
1. Perform the suck back procedure as described on page 19 of Etnyre Operation Manual M-102-73. In order to obtain the maximum vacuum for better cleaning, increase the asphalt pump speed to 250 - 300 GPM.
2. Normally the suck back procedure will remove sufficient material from the circulating system to negate the need for draining as described on page 22 before proceeding with the wash out operation. If difficulty is encountered trying to circulate material through the system on the next startup, it would be advisable to follow the drain procedure prior to flushing the

pump and/or spraybar. Allow the intake valve to remain in the fill position unless complete draining of the tank is desired.

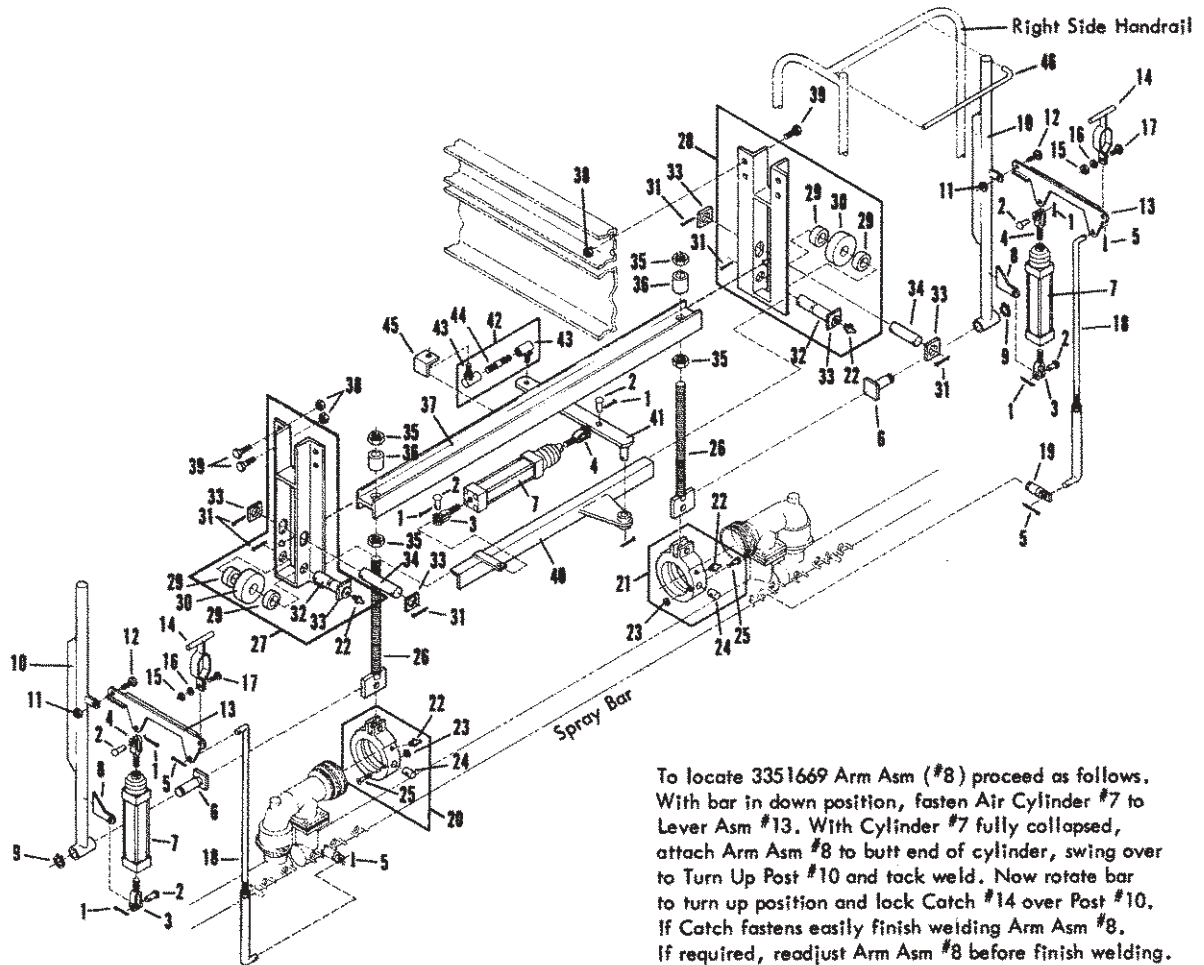
3. The flushing operation as described on page 23 utilizes only three quarts of flushing solvent. This small amount is not sufficient to fill the lines to the tank which prevents solvent from being forced into the tank.

A common practice following completion of flushing procedure and subsequent shut-down is to pour one or two quarts of solvent into the fill line which softens or dissolves residual asphalt in the pump. Allow the solvent to remain in the system overnight.

4. Before start-up, Repeat Item 2. (Drain Procedure).



Turn Up, Shift, and Carrier Assemblies Heavy Duty Spray Bar Carrier

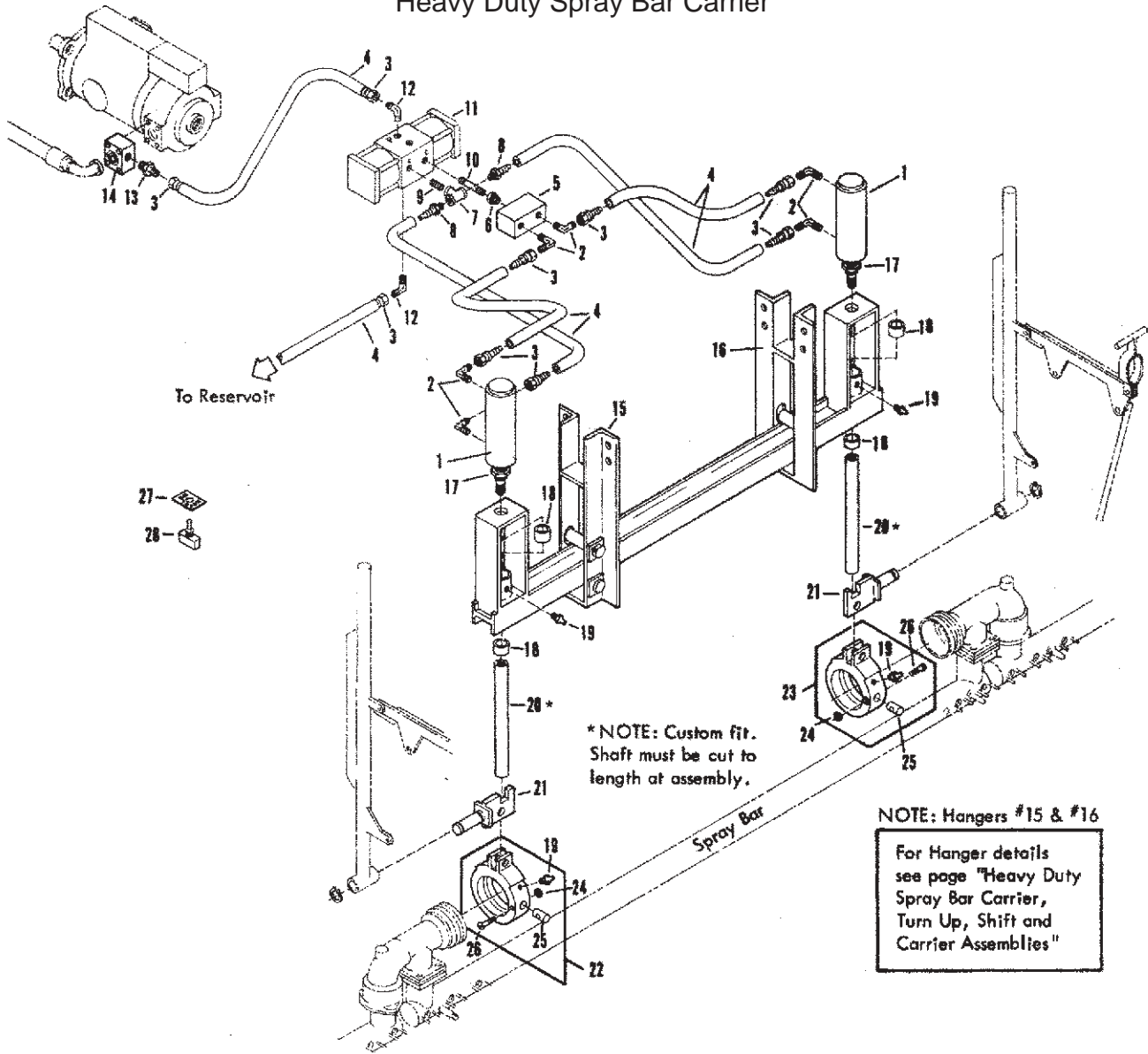


To locate 3351669 Arm Asm (#8) proceed as follows. With bar in down position, fasten Air Cylinder #7 to Lever Asm #13. With Cylinder #7 fully collapsed, attach Arm Asm #8 to butt end of cylinder, swing over to Turn Up Post #10 and tack weld. Now rotate bar to turn up position and lock Catch #14 over Post #10. If Catch fastens easily finish welding Arm Asm #8. If required, readjust Arm Asm #8 before finish welding.

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	0103384	4	Pin-Cotter	25	0133063	2	Screw-Rd Hd, 0.25 X 2.00 Lg.
2	6600295	6	Pin-Yoke, Air Cyl.	26	3351652	2	Screw Asm-Lifting, TUC Bar
3	6600296	3	Yoke	27	3351643	1	Carrier Asm - LH
4	3360367	3	Yoke	28	3352192	1	Carrier Asm - RH
5	0103385	4	Pin-Cotter, 0.12 X 1.00	29	3351647	4	Spacer-Roller
6	3351667	2	Bearing Asm-Turn Up Post, H. D.	30	3351648	2	Roller-Bar Carrier, Heavy Duty
7	6600301	3	Cylinder-Air, 2.5 Bore, 6 Stroke	31	0103388	6	Pin-Cotter, 0.12 X 1.75
	6600293	3	Boot-Air Cylinder	32	3351649	2	Roller Pin-Bottom, Bar Carrier
	7420016	AR	Repair Kit - Air Cylinder	33	3351659	6	Plate-Retaining
8	3351669	2	Arm Asm	34	3351658	2	Roller Pin
9	6100121	2	Snap Ring	35	0220088	4	Nut-Hex, 1.00NC
10	3350499	2	Turn Up Post	36	3351660	2	Elevating Bushing-Bar Carrier
11	9413947	2	Nut-Hex, Lock, 7/16NC	37	3351640	1	Beam Asm
12	0122293	2	Screw-Hex, 7/16 X 1 3/4	38	9411727	8	Nut-Lock, 0.50NC
13	3351668	2	Lever Asm - Turn Up, H.D.	39	0120426	8	Screw-Hex, 0.50 X 1.25
14	3350497	2	Catch	40	3360690	1	Frame Asm-Bar Shift, Heavy Duty
15	0120376	2	Nut-Hex, 5/16NC	41	3360697	1	Arm Asm-Bar Shift, Heavy Duty
16	0120214	2	Washer-Lock, 5/16	42	3360700	1	Rod Asm-Actuating, Bar Shift, H.D.
17	0122027	2	Screw-Hex, 5/16 X 1 1/4	43	6100127	2	Tourek Joint-0.50
18	3350501	2	Adjusting Link-Bar Raise	44	3360701	1	Rod-Actuating, Bar Shift
19	3350147	1	Axis-Toggle, W/Eye	45	3360784	1	Angle-Spray Bar Shift
20	3351650	1	Hanger Asm - Left	46	3351145	1	Bar Shift Guide
21	3351724	1	Hanger Asm - Right				
22	9411027	2	Fitting-Lube, 0.25				
23	9413946	2	Nut-Lock, 0.25				
24	3351651	2	Ptn-Retainer, Ball Brg, Bar Hgr.				

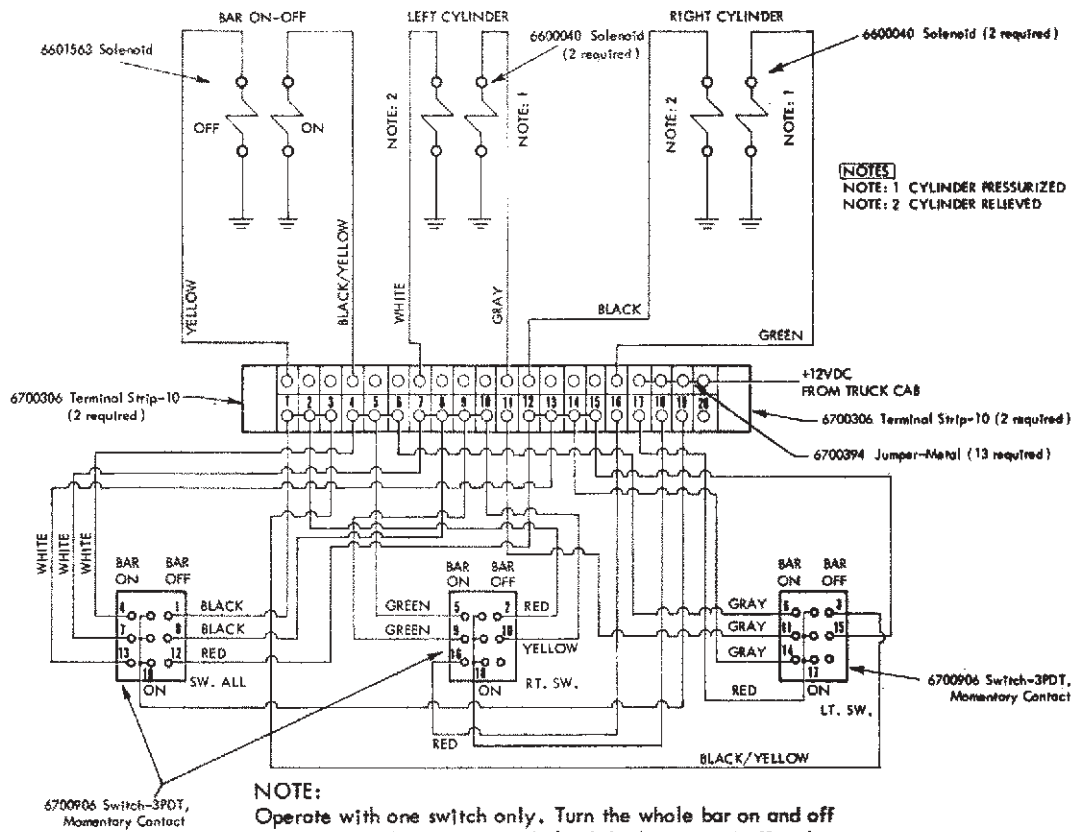
AR = As Required

Hydraulic Spray Bar Raise Heavy Duty Spray Bar Carrier

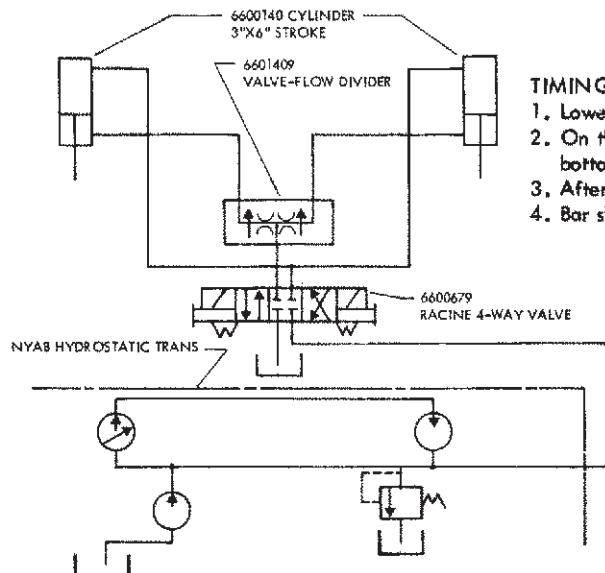


REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6600140	2	Cylinder-Air, Aro 3BX6	19	9411027	4	Fitting-Lube, Strght, 0.50, Type C
2	6200179	6	Elbow-06MS-06MP	20	* 3360761	2	Shaft-Hyd Bar Raise
3	6600306	10	Hose End-06X06FSX, ST	21	3360801	2	Brg Plate Asm-Swivel, Hyd. Raise
4	6600324	AR	Hose-0.38, Per Foot	22	3351650	1	Hanger Asm - Left
5	6601409	1	Valve-Flow Divider	23	3351724	1	Hanger Asm - Right
6	0119931	1	Bushing-Pipe, 0.38 X 0.25NPT	24	9413946	2	Nut-Hex, Lock, 0.25
7	0105417	1	Tee-Pipe, 0.25NPT, PN	25	3351651	2	Ptn-Retainer, Ball Brg, Bar Hgr.
8	6600305	2	Hose End-06X04MP, ST	26	0133063	2	Screw-Rd Hd, 0.25 X 2.00Lg.
9	6200292	1	Nipple-PP, Sch 80, 0.25 X 0.88CL	27	3390581	1	Tag-Control, Bar Raise
10	0121209	1	Nipple-PP, Sch 40, 0.25 X 3.00	28	6700161	2	Switch- #6FC54-73SPDT
11	6600679	1	Valve-4 Way				
12	0118755	2	Elbow-Auto, 90, 04MP-06MS				
13	6200175	1	Union-Hlf, 0.38TU X 0.5MPT				
14	3320994	1	Adapter-Hyd Mtr, Tap, Aux. Equip.				
15	3351643	1	Carrier Asm - LH				
16	3352192	1	Carrier Asm - RH				
17	0427547	2	Nut-Hex, Jam, 1.38NF, PD				
18	3150247	4	Bushing-Oilite				
							AR = As Required
							*NOTE: Custom Fit. Shaft must be cut to length at assembly.

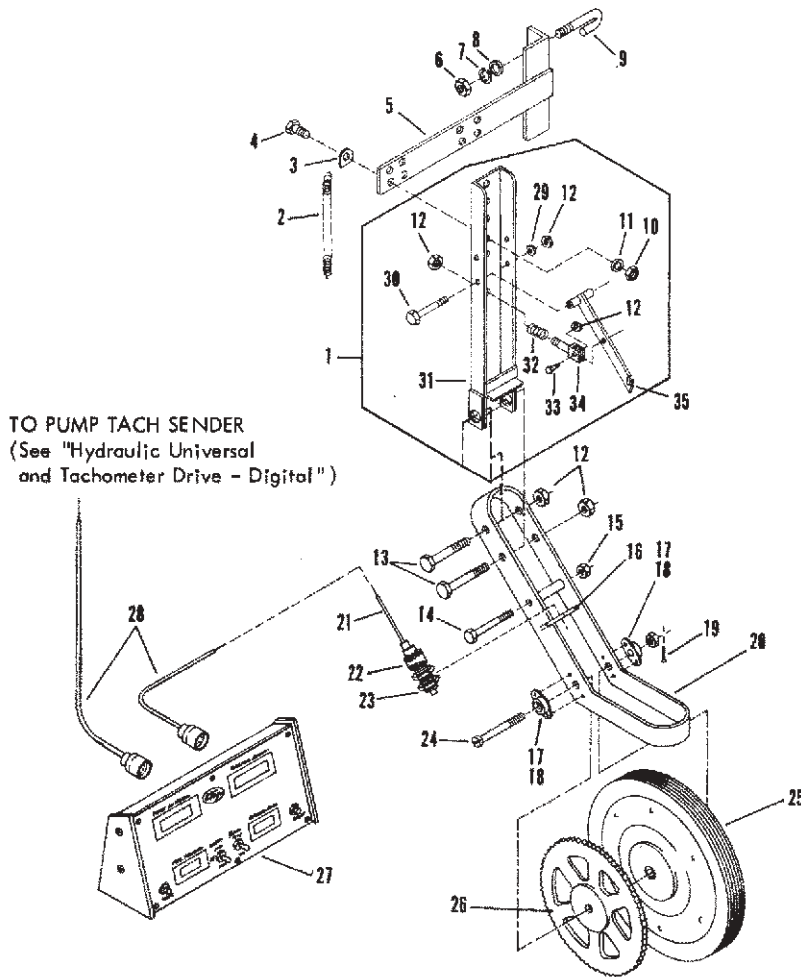
Wiring Diagram - LH & RH Bar On - Off Heavy Duty Bar Carrier



Hydraulic Schematic - Bar Raise Heavy Duty Bar Carrier



Bitumeter Assembly - Digital English & Metric



UNITS WITH METRIC (METERS) MEASURE

Tone Wheel

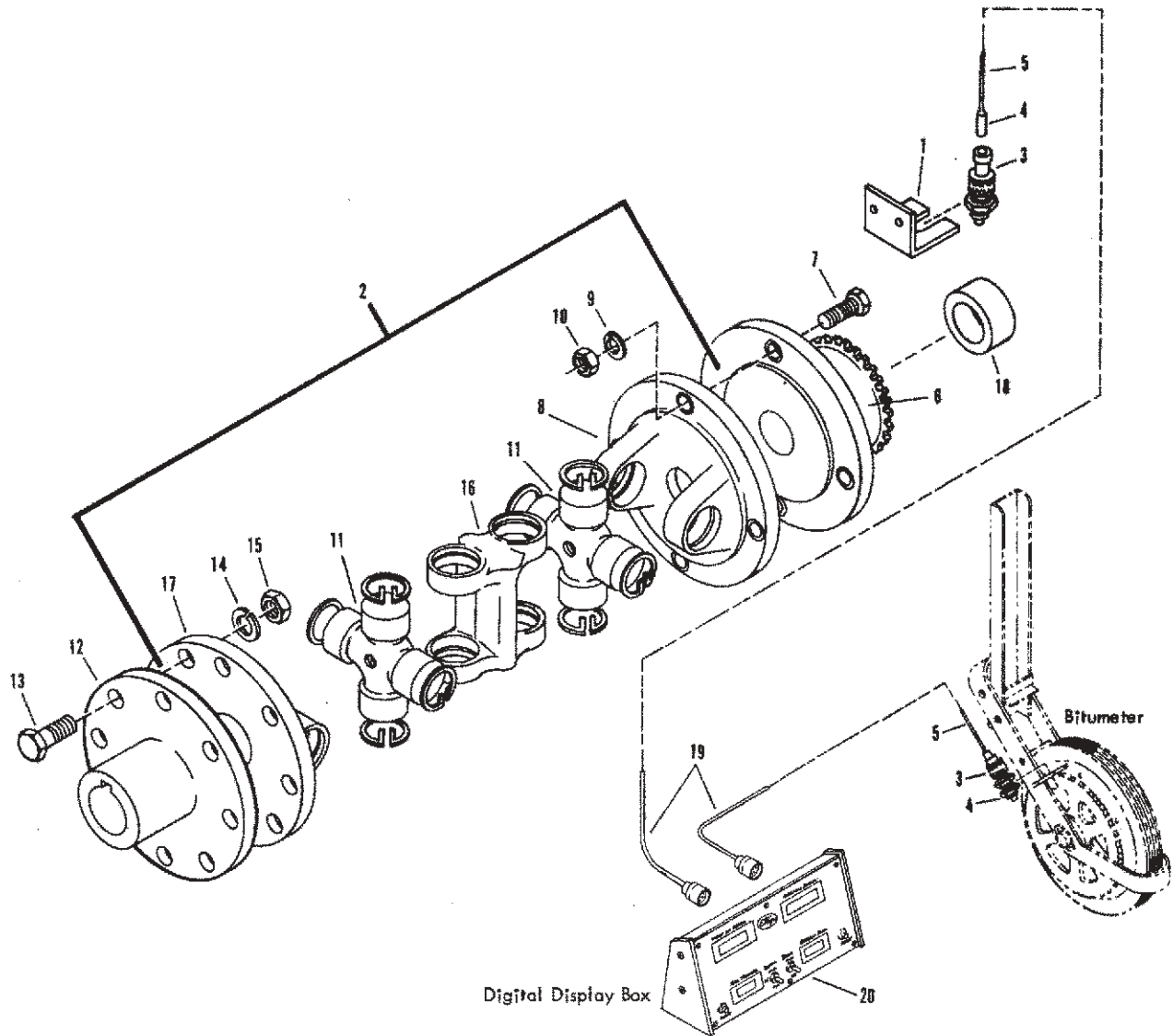
- * Distributors with serial numbers less than J9700, use 228 tooth Tone Wheel, Part No. 3360897.
- * Distributors with serial numbers J9700 and later, use 250 tooth Tone Wheel, Part No. 3360864.

Display Box

- ** Distributors with serial numbers before J9700, use Metric Display Box part number 3370168.
- ** Distributors with serial numbers J9700 and later, use Metric Display Box part number 3370211.

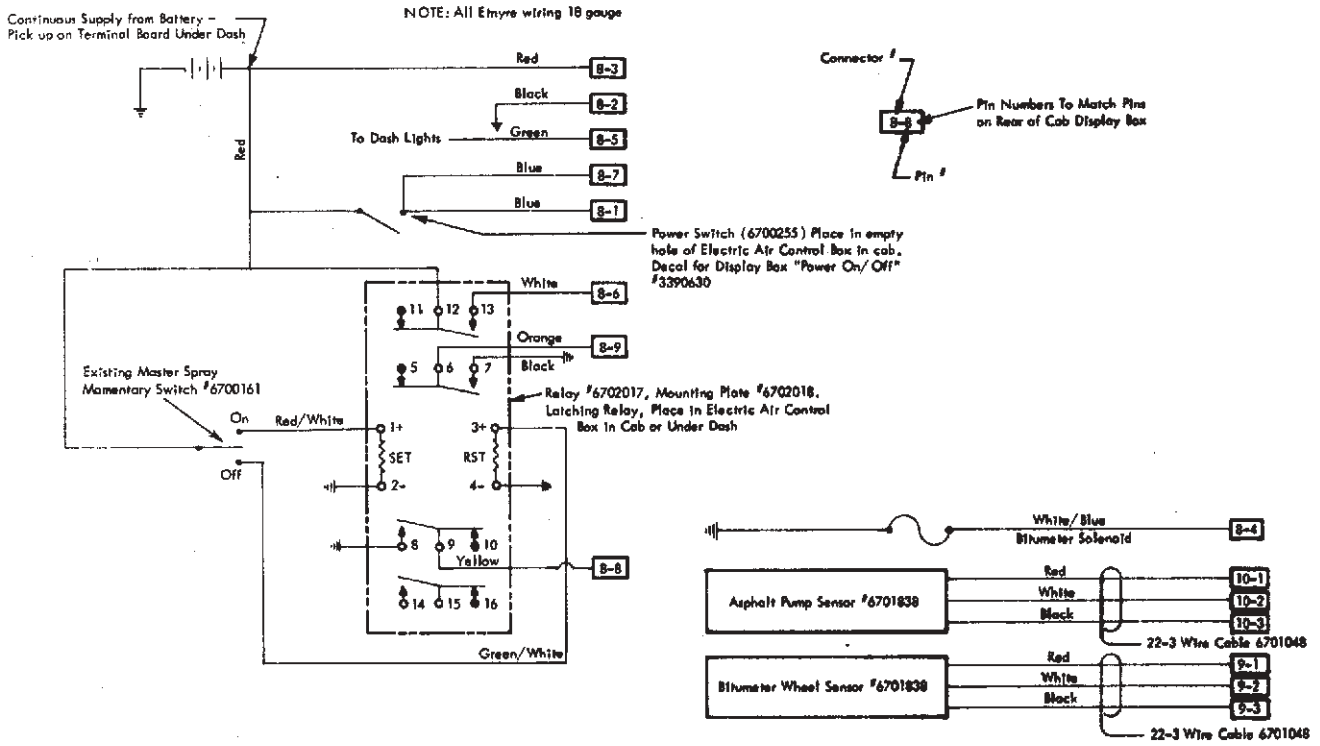
REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3360610	1	Latch & Support Asm - Bit. Wheel	26	* 3360864	1	Tone Wheel-Bitumeter, 250 tooth, for All English Measure units and also Metric Measure units with serial numbers J9700 and after.
2	3360269	1	Spring - Bitumeter Whl, Tach.		* 3360897	1	Tone Wheel-Bitumeter, Metric, for Metric units with serial numbers before J9700 (228 Tooth Wheel).
3	3360293	1	Bracket - Spring Mt., Bit. Wheel	27	3370167	1	Display Box - Digital, English
4	0122433	2	Screw - Hex, 0.50NC X 1.50, GR2, PD	**	3370168	1	Display Box-Digital, Metric, for units with serial numbers before J9700.
5	3360363	1	Bracket Asm - Bitumeter Mounting	**	3370211	1	Display Box-Digital, Metric, for units with serial numbers J9700 and after.
6	0124589	2	Nut-Hex, 0.62NC, PD	28	3370154	1	Connector Kit
7	0121574	2	Washer-Lock, 0.62, Spring, PD	29	0446363	1	Washer-Flat, 0.31A, PD
8	0130999	2	Washer-Flat, 0.62A, PD	30	0125973	1	Screw-Hex, 0.38NC X 3.50, GR2, PD
9	3360304	2	Bolt-Hook, MT. Bitumeter	31	3360264	1	Support Asm - Chan, Bitumeter Wheel
10	9411727	2	Nut-Hex, Lock, 0.50NC, EA, PD	32	3360296	1	Spring-Bitumeter Wheel Latch
11	0120384	2	Washer-Lock, 0.50, Spring, PD	33	0122119	1	Screw-Hex, 0.38NC X 0.75, GR2, PD
12	0274993	3	Nut-Hex, Lock, 0.38NC, EA, PD	34	3360605	1	Yoke Asm-Bit. Latch Operating
13	0111300	2	Screw-Hex, 0.50NC X 4.50, GR2, PD	35	3360601	1	Latch Asm - Bitumeter Wheel
14	0190628	1	Screw-Hex, 0.31NC X 4.50, GR2, PD				
15	0120376	1	Nut-Hex, 0.31NC, PD				
16	3360889	1	Bracket-Mounting, Bit. Magnetic Pickup				
17	3360344	2	Bearing-Outer, Bit. Fork & Wheel				
18	6420035	2	Bearing-Ball, Rad, Sgl, Na, 0.3750				
19	0137204	2	Pin-Cotter, 0.12 X 1.50, PD				
20	3360283	1	Fork Asm-Bit. For 16 in. Dia. Wheel				
21	6701048	1	Cable-Shielded, 22-3, Stranded				
22	6700959	1	Cord Grip-Fitting, 0.75 X 0.75				
23	6701838	1	Sensor-Proximity Pick-up, 12VDC				
24	3360281	1	Spindle-16 inch Bitumeter Wheel				
25	3360886	1	Wheel/Tire Asm - Bitumeter, SAM				

Hydraulic Universal and Tachometer Drive - Digital English and Metric

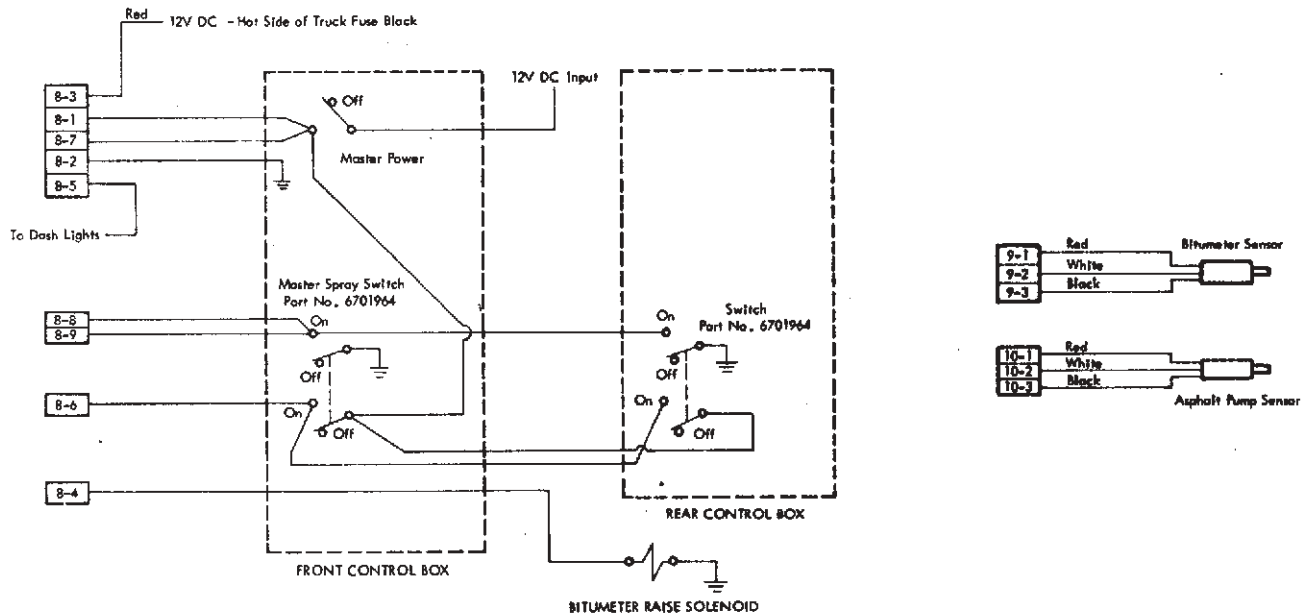


REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3321219	1	Bracket-Mounting, Pick-up	19	3370154	1	Connector Kit
2	6440098	1	Joint (Does Not Include #6 or #12)	20	3370167	1	Display Box - Digital, English
3	6700959	2	Card Grip- 0.75 X 0.75		3370168	1	Display Box - Digital, Metric
4	6701838	2	Sensor-Proximity				
5	6701048	2	Cable-Shielded				
6	3321217	1	Flange-Hyd Univ ,Digital,English 36 tooth				
	3321216	1	Flange-Hyd Univ ,Digital,Metric 70 tooth				
7	0121913	3	Screw-Hex,0.25NC X 1.25, GR2, PD				
8	6440043	1	Yoke-Flange				
9	0120380	3	Washer-Lock,0.25, Spring, PD				
10	0120375	3	Nut-Hex,0.25NC, PD				
11	6440103	2	Cross and Bearing Asm				
12	6440040	1	Flange-Taper Hole				
13	0122027	8	Screw-Hex,0.31NC X 1.25, GR2, PD				
14	0120214	8	Washer-Lock,0.31, Spring, PD				
15	0120366	8	Nut-Hex,0.31NC, PD				
16	6440048	1	Yoke-Double				
17	6440047	1	Yoke-Flange				
18	3320755	1	Spacer-Universal Hyd Drive				

Wiring Diagram - Digital Bitometer/Pump Tachometer Model BT Distributor with FC or TUC Spray Bar



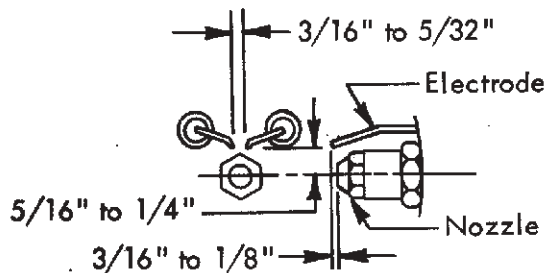
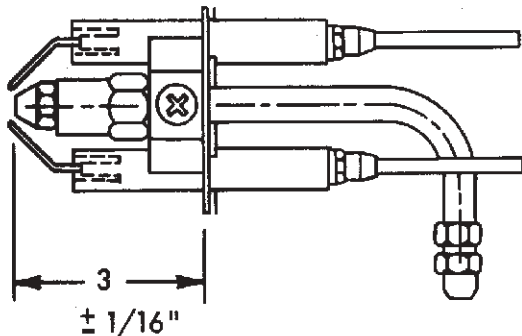
Wiring Diagram - Digital Bitometer/Pump Tachometer Model BT Distributor with SAM Type Spray Bar



High Pressure (Fuel Oil) Burners Burner Start-Up Instructions For A Two Burner Installation

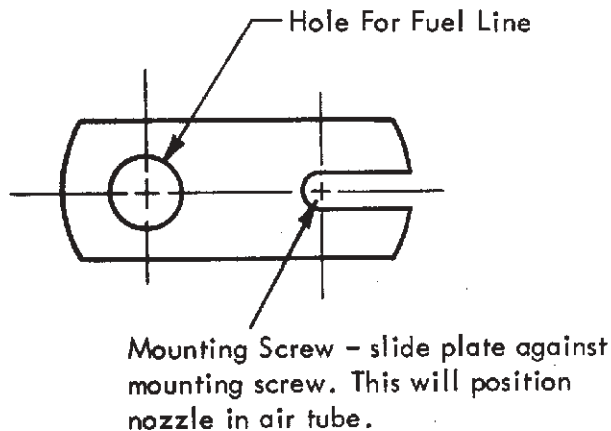
NOTE: Instructions are for initial start-up of new burners, or repair information only.

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.

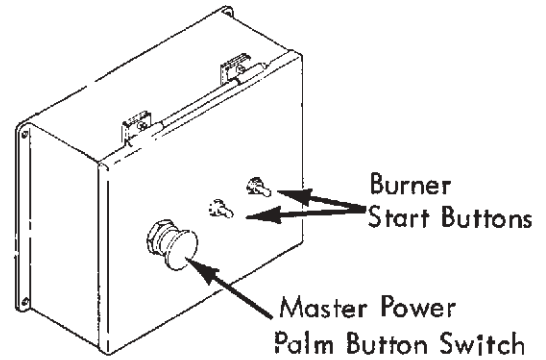
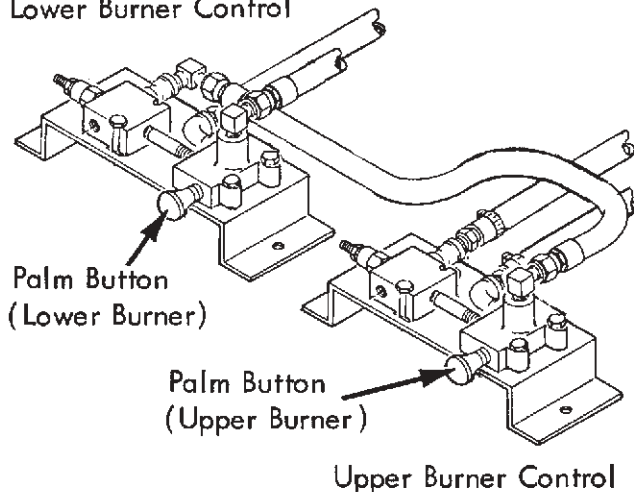
Fire burner by holding ignition switch down until ignition occurs, then keep switch down an additional 2 to 4 seconds before releasing.

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

High Pressure (Fuel Oil) Burners Operating Instructions

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.

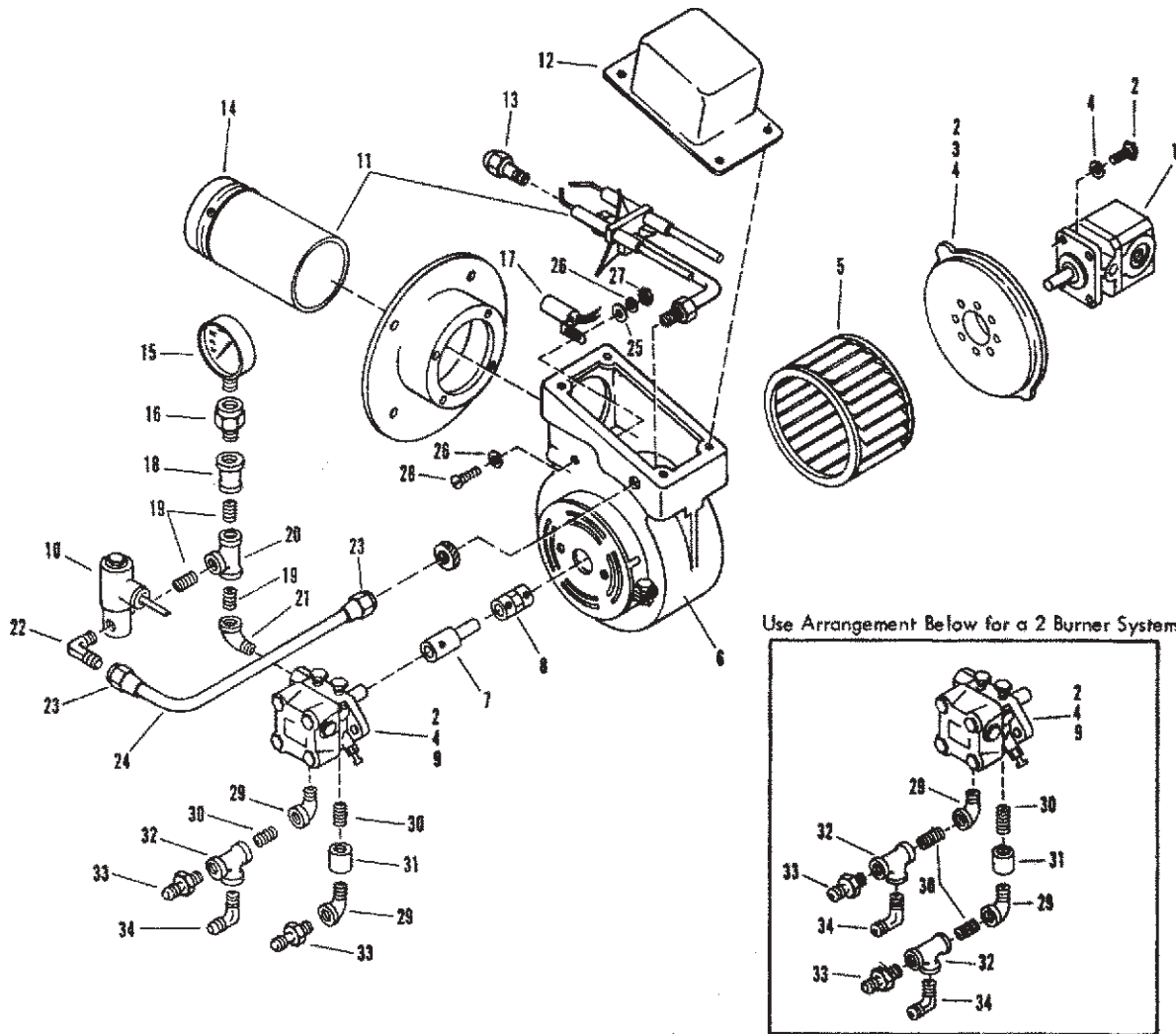
⚠ WARNING



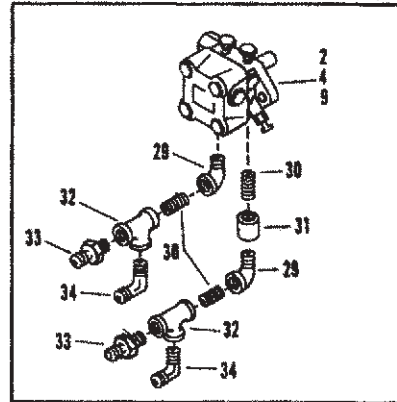
Do not light burners unless flues are covered. Explosion can occur causing death or serious injury.

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High Pressure (Fuel Oil) Burner Installation



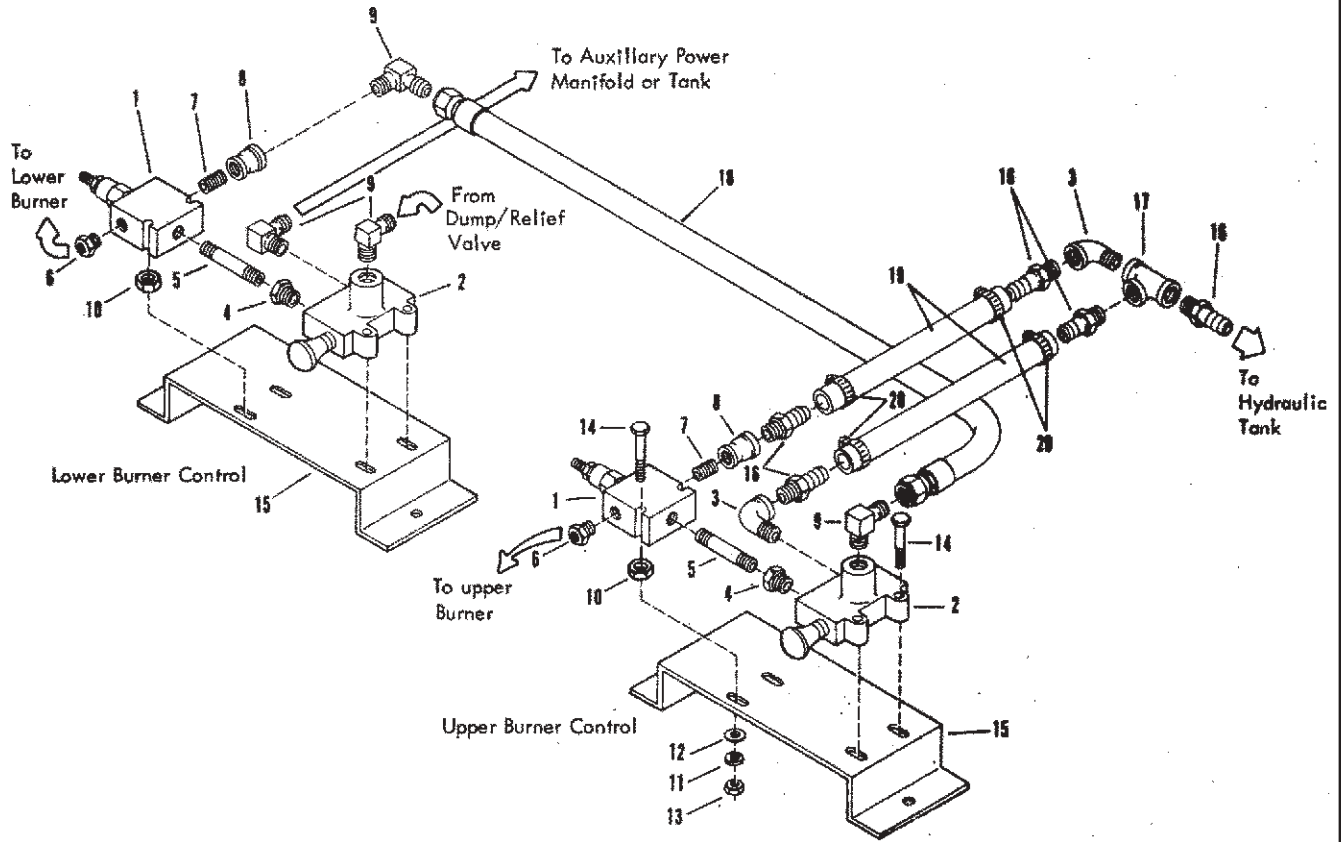
Use Arrangement Below for a 2 Burner System



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-Comb.	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				

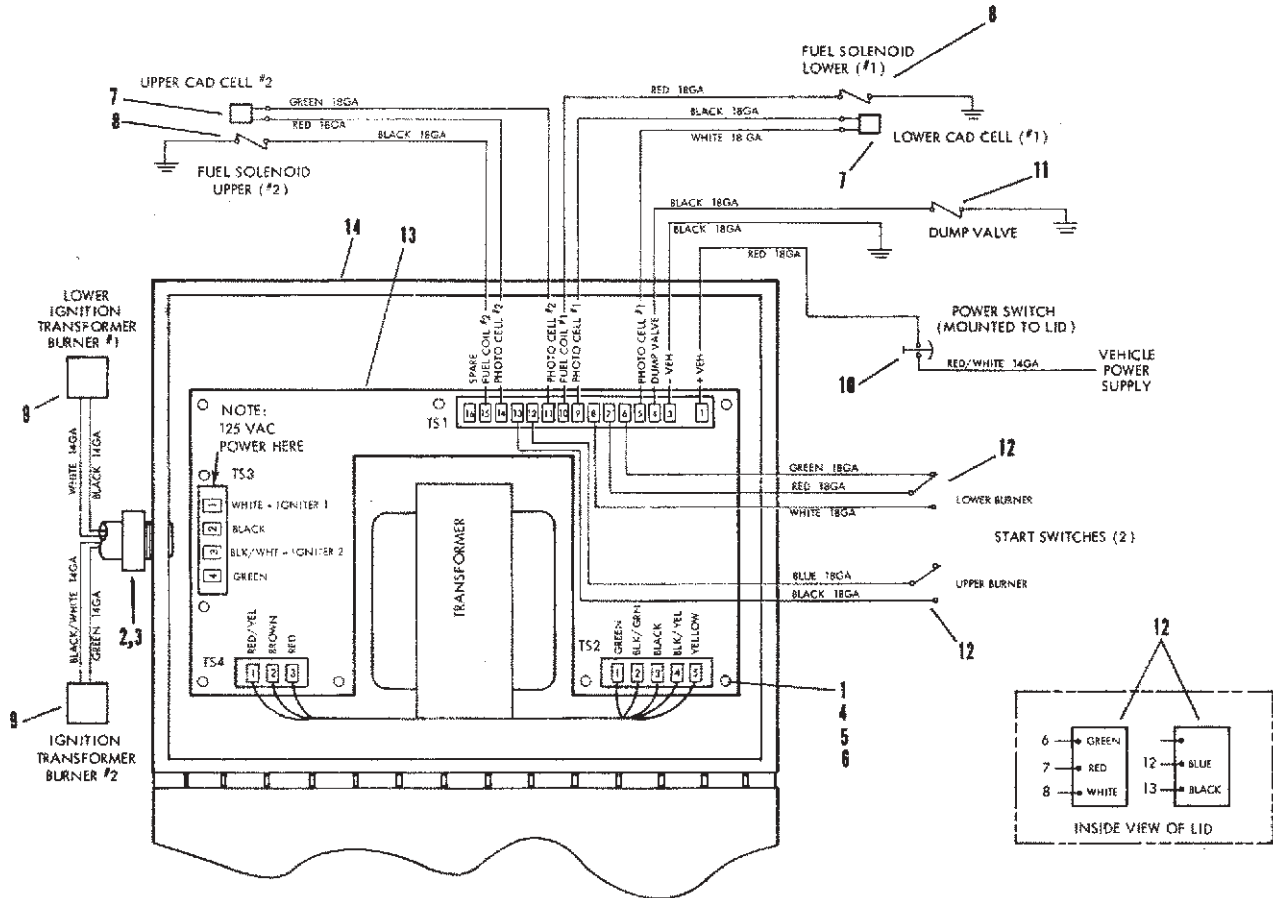
AR = As Required

High Pressure Burner Valve Assembly Hydraulic, 2 Burner System 9301116



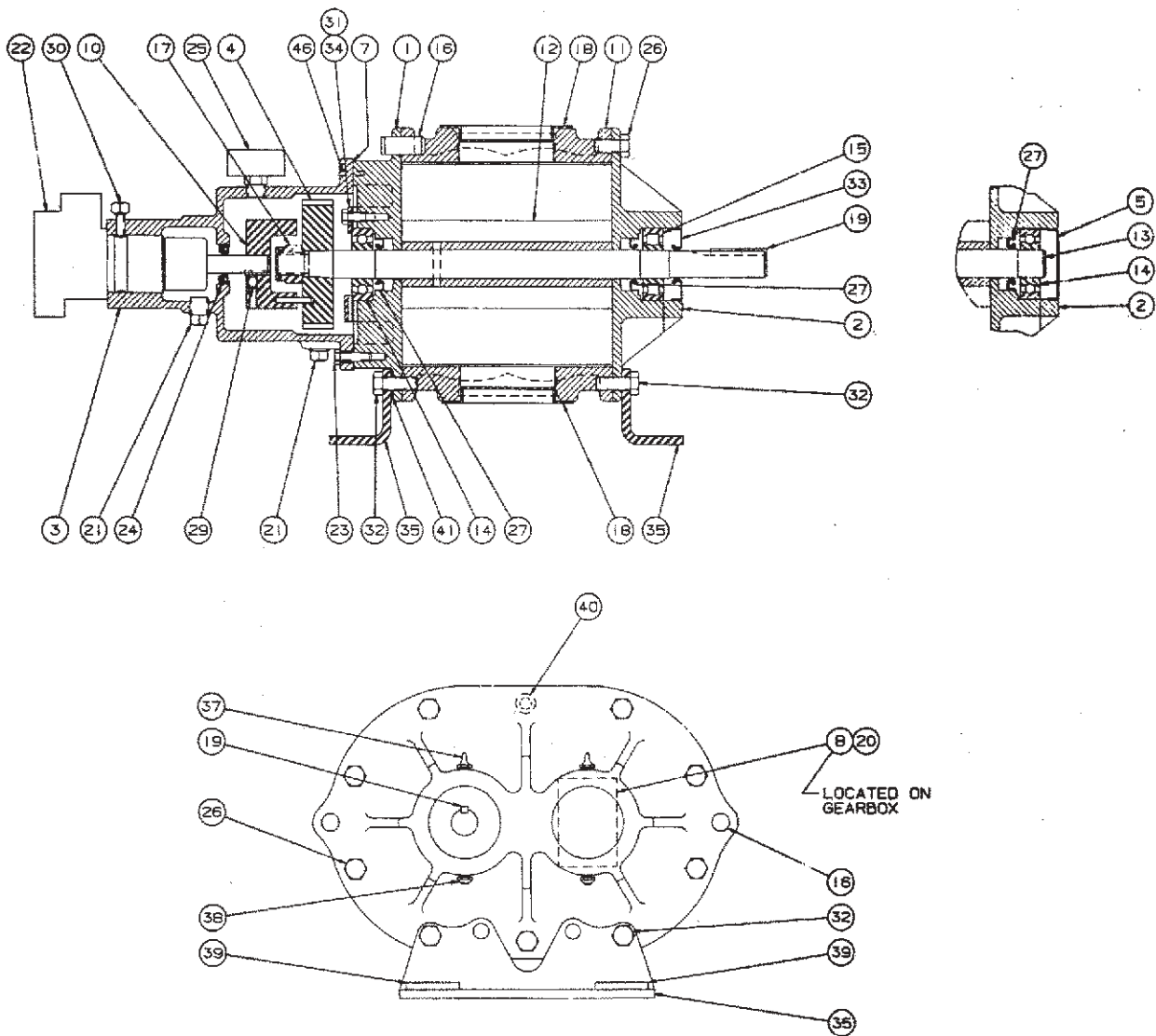
REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6601960	2	Regulator				
2	6601959	2	Valve				
3	0108686	2	Elbow-0.50 Street				
4	0142269	2	Bushing-Red, 0.50 X 0.38				
5	0144603	2	Nipple-Pipe, 0.38 X 3.00				
6	0119931	2	Bushing-Red, 0.38 X 0.25				
7	0111305	2	Nipple-Pipe, 0.38CL				
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	Card-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				

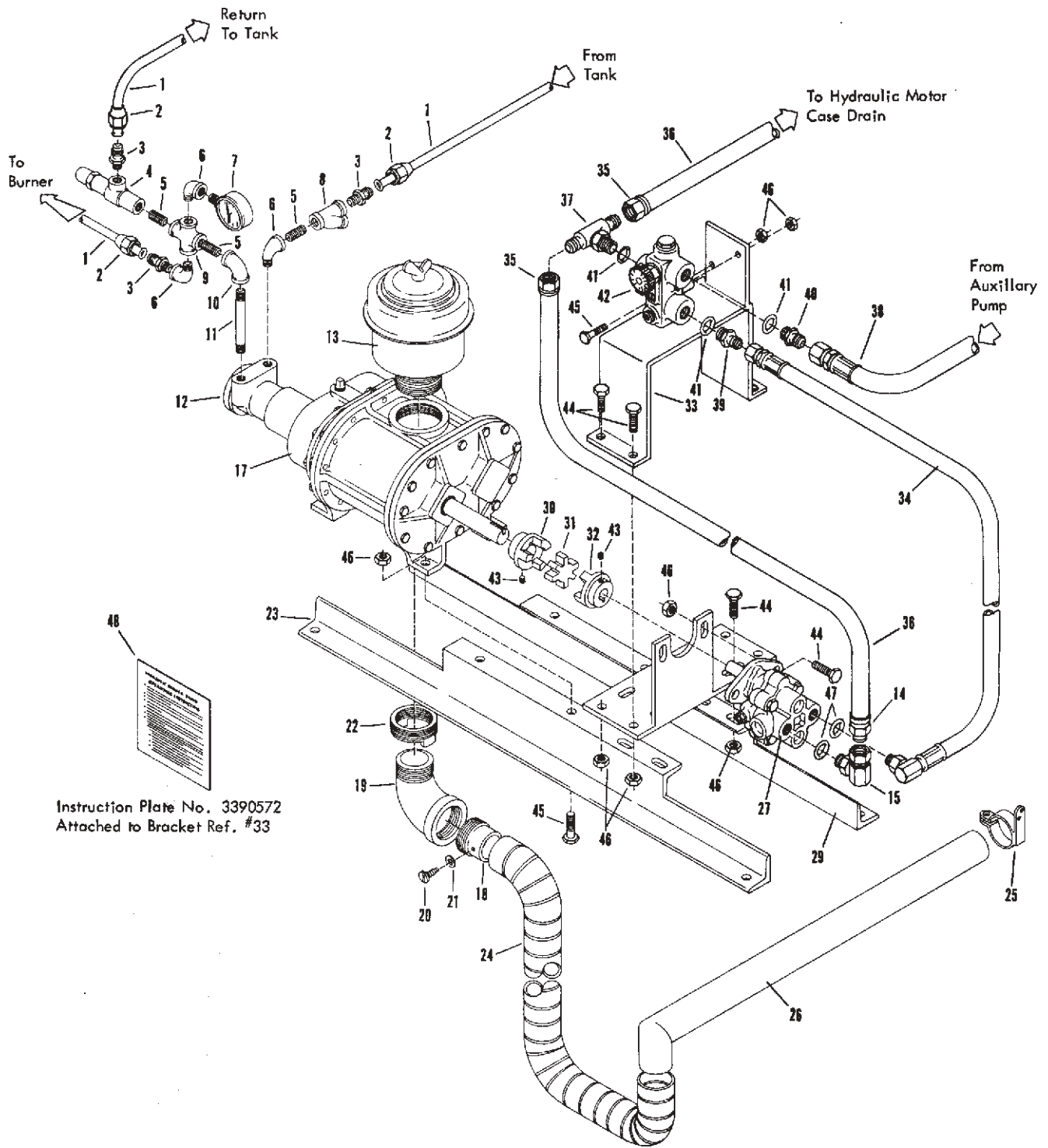
36 U-RAI Blower with Viking Oil Pump - 6601987



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, Soc 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				

Specify Unit Serial No., Part No., & Part Description

Hydrostatic Blower Drive Low Pressure Burners Only



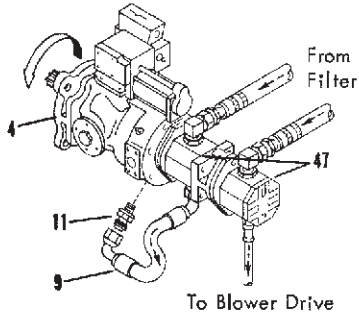
Hydrostatic Blower Drive Low Pressure Burners Only

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, CI, 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 Cpig.				
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-Sight, O Ring X37 Deg. FL				
40	9410205	1	Connector-Sight, 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				

Hydrostatic Drive - PTO Driven With High (Fuel Oil) or Low Pressure Burners

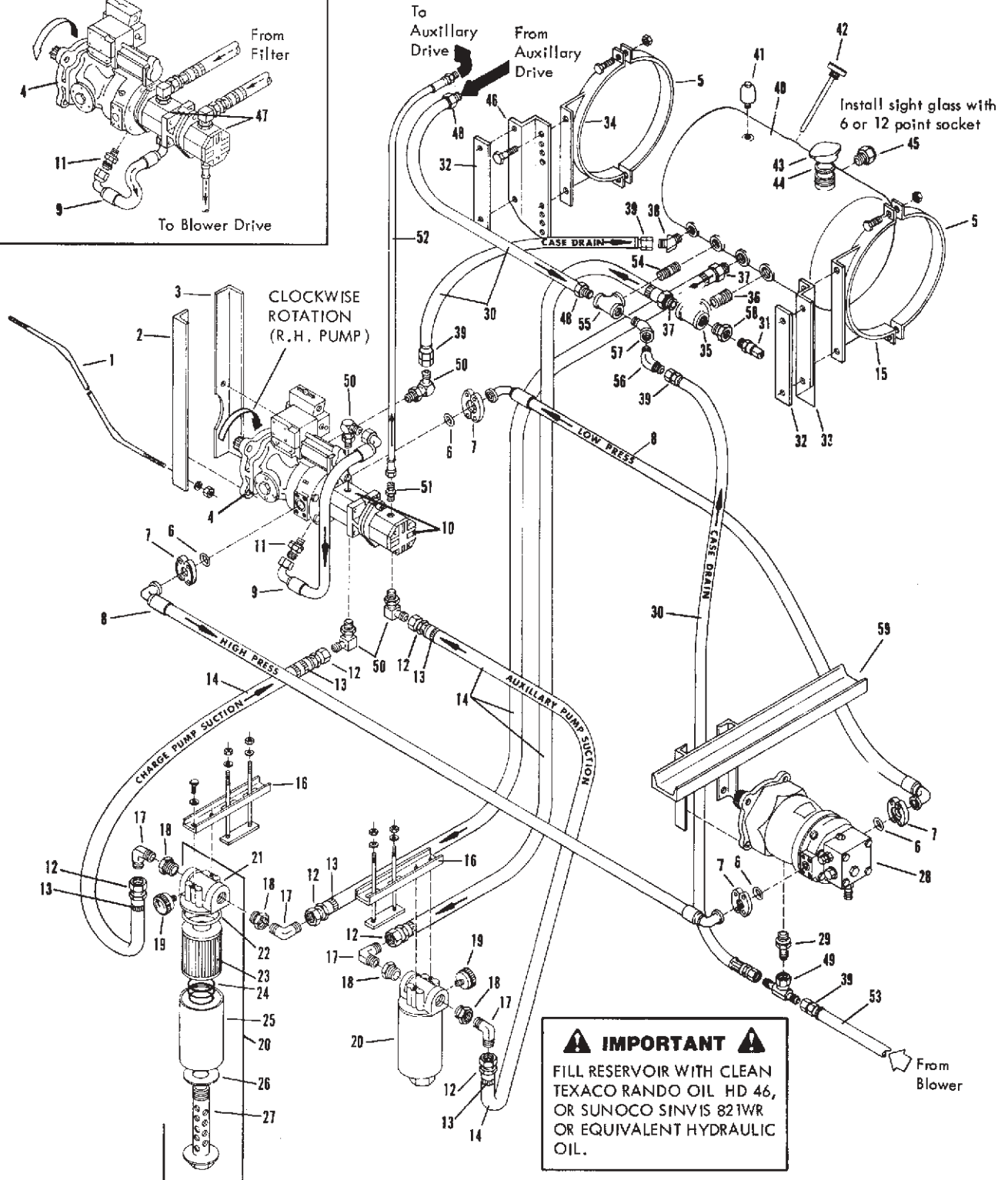
Piping and Installation - With Dynapower Pump and Auxillary Pump Blower Drive Units

COUNTER-CLOCKWISE ROTATION
(L.H. PUMP)



Dynapower R.H. Pump shown.

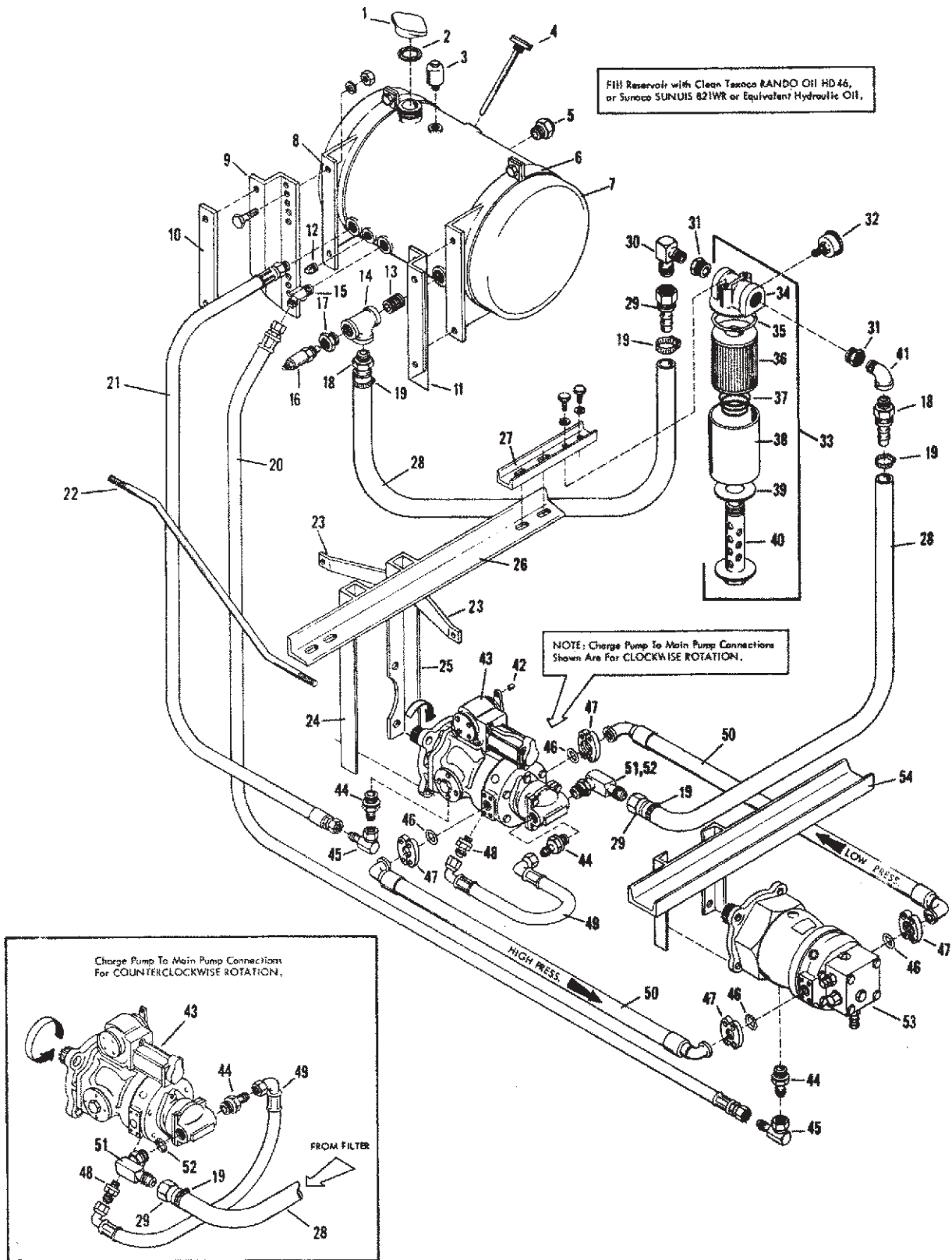
For L.H. Pump - Charge Pump and Auxillary Pump suction are on top. Auxillary discharge to Blower Drive and Charge Pump Discharge to Main Pump are on bottom.



Hydrostatic Drive - PTO Driven With High (Fuel Oil) or Low Pressure Burners
Piping and Installation - With Dynapower Pump and Auxillary Pump Blower Drive Units

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6303119	1	Round-0.50 CR, Ledloy 300, Lb.	46	3320813	1	Bracket-Lt., Hyd Resvr Mtg
2	3320275	1	Angle-Mt., Vert, Lt. Pump Hngr.	47	6601786	1	Pump-Gear, .88/1.17, A Pad R.H.
3	3320276	1	Angle-Mt., Vert, Rt. Pump Hngr.	48	6600647	AR	Hose End-12X12MP, St, LPSP
4	6601939	1	Pump-4.8, Splined, Gen II	49	9410309	1	Tee-Hyd, 12MJ-12MJ-12FJX
5	3320325	2	Clamp-Mtg, Hyd Tank	50	9410979	4	Elbow-Hyd, 90, 12MB-12MJ
6	0274253	6	O Ring-Tube Fitting, 1.50	51	6600921	1	Adapter-Hyd, Str, 8MJ-12MB
7	6600236	8	Flange Asm-1.00, 4 Bolt, Spltt	52	9250605	1	Hose Asm (Specify Length)
8	6600226	AR	Hose-12MCS, 8 Ft.	53	6600646	AR	Hose-Self Grip
	6600227	AR	Hose-12MCS, 9 Ft.	54	0192470	1	Nipple-Pipe, 3/4 X Close
	6600228	AR	Hose-12MCS, 10 Ft.	55	0125988	1	Tee-Pipe, 3/4 NPT
	6600229	AR	Hose-12MCS, 11 Ft.	56	9402828	1	Elbow-Hyd, 45, 12MJ-12MP
	6600230	AR	Hose-12MCS, 12 Ft.	57	0141621	1	Elbow-Pipe, 90, St, 3/4 NPT
	6600231	AR	Hose-12MCS, 13 Ft.	58	0120062	1	Bushing-Pipe, 1.00 X 0.50 NPT
	6600232	AR	Hose-12MCS, 14 Ft.	59	3320268	1	Hanger Asm - Mounting, Motor
	6600233	AR	Hose-12MCS, 15 Ft.				
	6600234	AR	Hose-12MCS, 16 Ft.				
	6600235	AR	Hose-12MCS, 17 Ft.				
9	6601561	1	Hose Asm-12X28, 12FJX90-12FJX90				
10	6601785	1	Pump-Gear, .88/1.17, A Pad, L.H.				
11	6600897	1	Adapter-Hydr, St, 08MB-12MJ				
12	6601566	6	Hose End-16-16FJX, St, LP100R4				
13	6000792	6	Clamp-Hose, Worm Driv, 1.06 to 2				
14	6601564	AR	Hose-Suction, 1.00 ID (Specify Length)				
15	3320322	1	Clamp Asm-Mtg, Rt., Hyd Tank				
16	3320335	2	Channel-Mounting, Filter				
17	6601135	4	Elbow-Hydr, 90, 16MJ-16MP				
18	0125915	4	Bushing-Pipe, 1.25 X 1.00NPT, PN				
19	7420042	2	Indicator-Filter, Gresen 1588				
20	6600225	2	Filter-Gresen 201NR				
21	7420136	2	Head Casting w/ Plug Rel Viv Pt				
22	7420004	2	O Ring-Gresen 1576				
23	7420007	2	Paper-10 Micron Filter, Gresen 1509				
24	7420046	2	Conical Spring-Gresen				
25	7420076	2	Housing-Gresen K23013				
26	7420008	2	Gasket-Seal, Gresen 1575				
27	7420009	2	Post-Center, Gresen 1561				
28	6601557	1	Motor-Hyd., 6.0 Splined				
29	6601418	1	Adapter-Hydr, St, 12MJ-16MB				
30	3320877	AR	Hose Asm-Motor to Resvr., 8 Ft.				
	3320878	AR	Hose Asm-Motor to Resvr., 10 Ft.				
	3320879	AR	Hose Asm-Motor to Resvr., 12 Ft.				
	3320880	AR	Hose Asm-Motor to Resvr., 14 Ft.				
	3320881	AR	Hose Asm-Motor to Resvr., 16 Ft.				
	3320882	AR	Hose Asm-Motor to Resvr., 18 Ft.				
31	6600237	1	Switch-Thermo, GM# TG-6401080				
32	3320814	2	Clip-Frame, Hyd Resvr Mtg.				
33	3320812	1	Bracket-Rt, Hyd Resvr Mtg.				
34	3320323	1	Clamp Asm-Mtg, Lt., Hyd Tank				
35	0115237	1	Tee-Pipe, 1.00NPT, PN				
36	0191492	1	Nipple-PP, Sch 40, 1.00X2.00, PN				
37	6601565	1	Hose End-16-16MP, St, LP100R4				
38	9402828	1	Elbow-Hydr, 45, 12MJ-12MP				
39	6600648	AR	Hose End-12X12FJX, St, Push-Lok				
40	3320319	1	Tank Assembly-Hydraulic				
41	6600223	1	Breather-Crenlo 1577AL				
42	6500039	1	Thermometer-2 In Dial, 9 In Stem				
43	3330026	1	Cap-Filling, Blank				
44	6000233	1	Gasket-2.18 Filler Cap, Leather				
45	6600224	1	Plug-Oil, Eye Site				

Hydrostatic Drive - PTO Drive With Kerosene Generating or LPG Burners
 Piping and Installation - With Dynapower Generation II Pump and Motor Units
 S/N: J7712, J7802 thru J7846, J7848 thru J7859, J7861 thru J7901, J7910 and up.



Hydrostatic Drive - PTO Drive With Kerosene Generating or LPG Burners
 Piping and Installation - With Dynapower Generation II Pump and Motor Units
 S/N: J7712, J7802 thru J7846, J7848 thru J7859, J7861 thru J7901, J7910 and up.

REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3330026	1	Cap-Fill	6600230	AR	Hose-12MCS, 12 Ft.	
2	6000233	1	Gasket	6600231	AR	Hose-12MCS, 13 Ft.	
3	6600223	1	Breather	6600232	AR	Hose-12MCS, 14 Ft.	
4	6500039	1	Thermometer-2 In Dial, 9 In Stem	6600233	AR	Hose-12MCS, 15 Ft.	
5	6600224	1	Plug-Oil, Eye Site.	6600234	AR	Hose-12MCS, 16 Ft.	
6	3320322	1	Clamp Asm-Mounting, RT, Hyd. Tank	6600235	AR	Hose-12MCS, 17 Ft.	
7	3320319	1	Tank Assembly-Hydraulic	51	6601568	1	Elbow-Hydr, 90, 16MB-16MJ
8	3320323	1	Clamp Asm-Mounting, LT, Hyd. Tank	52	0274251	1	O Ring-Tube Fitting, 1.00
9	3320813	1	Bracket-LT, Hyd. Reservoir Mtg.	53	6601557	1	Motor-Hyd, 6.0, Splined
10	3320814	2	Clip-Frame, Hyd. Reservoir Mtg.	54	3320268	1	Hanger Asm-Mounting, Motor
11	3320812	1	Bracket-RT, Hyd. Reservoir Mtg.				AR = As Required
12	0219199	1	Plug-Pipe, Sq. Hd., 0.50NPT, PN				
13	0191492	1	Nipple-Pipe, Sch 40, 1.00NPT x 2.00, PN				
14	0115237	1	Tee-Pipe, 1.00NPT, PN				
15	9402828	1	Elbow-Hydr., 45, 12MJ-12MP				
16	6600237	1	Switch-Thermo				
	6700072	1	Light-Pilot, Red (Replacement Bulb for light in cab)				
17	0128003	1	Bushing-Pipe, 1.00 x 0.75NPT, PN				
18	6601565	2	Hose End- 16-16MP, ST				
19	6000792	4	Clamp-Hose, Worm Driv, 1.06-2.00				
20	3320877	AR	Hose Asm-Motor to Resvr., 8 Ft				
	3320878	AR	Hose Asm-Motor to Resvr., 10 Ft				
	3320879	AR	Hose Asm-Motor to Resvr., 12 Ft				
	3320880	AR	Hose Asm-Motor to Resvr., 14 Ft				
	3320881	AR	Hose Asm-Motor to Resvr., 16 Ft				
	3320882	AR	Hose Asm-Motor to Resvr., 18 Ft				
21	3320871	AR	Hose Asm-Pump to Resvr., 2 Ft				
	3320872	AR	Hose Asm-Pump to Resvr., 3 Ft				
	3320873	AR	Hose Asm-Pump to Resvr., 4 Ft				
22	6303119	1	Round-0.50CR, Ledley 300, LB				
23	3320367	2	Bracket-Override, Pump Hanger				
24	3320275	1	Angle-Mt, Vert., Lt Pump Hanger				
25	3320276	1	Angle-Mt, Vert., Rt Pump Hanger				
26	3320274	1	Angle-Mounting, Pump Hanger				
27	3320335	1	Channel-Mounting, Filter				
28	6601564	AR	Hose-Suction, 1.00ID, Per Foot				
29	6601566	2	Hose End - 16-16FJX, ST				
30	6601135	1	Elbow-Hydr, 90, 16MJ-16MP				
31	0125915	2	Bushing-Pipe, 1.25 x 1.00NPT, PN				
32	7420042	1	Indicator-Filter				
33	6600225	1	Filter Assembly				
34	7420136	1	Head Casting w/plug Rel. Vlv. Pt.				
35	7420004	1	O Ring-Filter				
36	7420007	1	Filter Element				
37	7420046	1	Spring-Conical, Filter				
38	7420076	1	Housing-Filter				
39	7420008	1	Gasket-Seal, Filter Center Post				
40	7420009	1	Post-Center, Filter				
41	0108687	1	Elbow-Pipe, 90, ST, 1.00NPT, PN				
42	3320304	1	Bushing-Control Cable				
43	6601555	1	Pump-4.8, Splined, Generation 2				
44	6601418	3	Adapter-Hydr, ST, 12MJ-16MB				
45	9410283	2	Elbow-Hydr, 90, 12FJX-12MJ				
46	0274253	4	O Ring-Tube Fitting, 1.50				
47	6600236	8	Flange-Split				
48	6600897	1	Adapter-Hydr, ST, 08MB-12MJ				
49	6601561	1	Hose Asm-12 x 28, 12FJX90-13FJX90				
50	6600226	AR	Hose-12MCS, 8 Ft.				
	6600227	AR	Hose-12MCS, 9 Ft.				
	6600228	AR	Hose-12MCS, 10 Ft.				
	6600229	AR	Hose-12MCS, 11 Ft.				

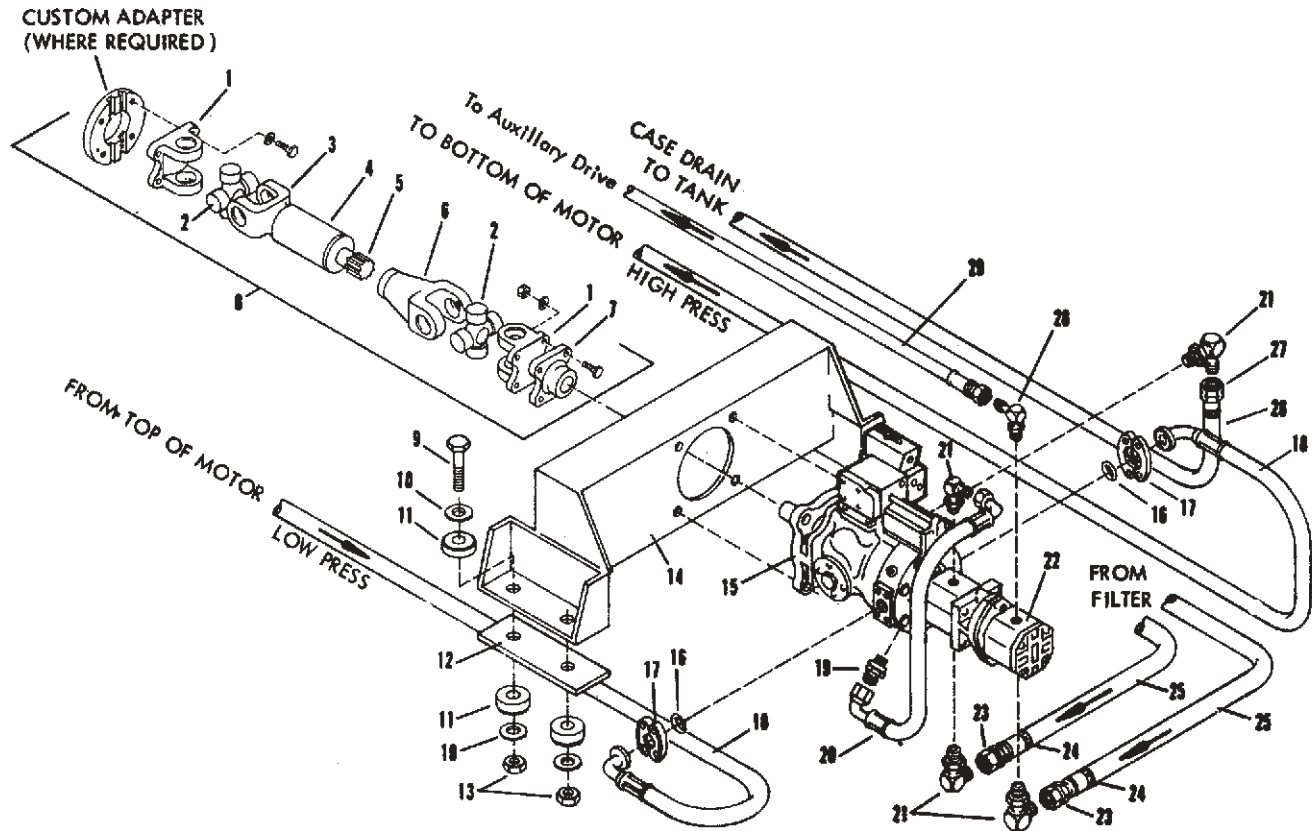
Use Kit No. 7010050 to Install a New Generation II Pump on a Distributor with a PTO Drive.

Use Kit No. 7010052 to Install a New Generation II Motor on a Distributor with an Old Pump.

Use Kit No. 7010053 to Install a New Generation II Motor on a Distributor where a New Pump is also being installed.

Hydraulic Pump Drive Crankshaft Drive

with Low Pressure or High Pressure (Fuel Oil) Burners
With Dynapower And Auxillary Pump Blower Drive Units



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	3170021	2	Yoke-Flange, Spicer 2-2-329	19	6600897	1	Adapter-Hydr, St, 08MB-12MJ
2	3170013	2	Journal and Bearing Kit	20	6601561	1	Hose Asm-12X28, 12FJX90-12FJX90
3	6440161	1	Yoke-Stub, Spicer 2-28-277	21	9410979	4	Elbow-Hydr, 90, 12MB-12MJ
4	6303295	AR	Tube-2.50 X 16GA, Dom, Per Foot	22	6601785	1	Pump-Gear, .88/1.17, A Pad, L.H.
5	3110032	1	Shaft-Slip Stub	23	6601566	4	Hose End-16-16FJX, St, LP100GR4
6	3110034	1	Yoke-SLVASM, Spicer 2-3-1421KX	24	6000792	4	Clamp-Hose, Worm Drive, 1.06 to 2
7	6440162	1	Flange-Companion, Taper Hole	25	6601564	AR	Hose-Suction, 1.00 ID, SAE100R4
8	9300558	1	Line Asm-Drive, Pump Hyd, Crk. Drive	26	3320877	AR	Hose Asm-Motor to Resvr., 8 Ft.
9	0428715	4	Screw-Hex, 0.62NC X 4.00, GR2, PD	3320878	AR	Hose Asm-Motor to Resvr., 10 Ft.	
10	0130999	8	Washer-Flat, 0.62A (0.69X1.75) PD	3320879	AR	Hose Asm-Motor to Resvr., 12 Ft.	
11	6000889	4	Mount-Shock, Hyd Pump, Crk. Drive	3320880	AR	Hose Asm-Motor to Resvr., 14 Ft.	
12	3321004	2	Filler-Mtg, Hyd Pump, Crk. Drive	3320881	AR	Hose Asm-Motor to Resvr., 16 Ft.	
13	9413948	4	Nut-Hex, Lock, 0.62NC, EA, GRA, PD	3320882	AR	Hose Asm-Motor to Resvr., 18 Ft.	
14	3320960	1	Channel-Mtg, Hyd Pump, Crk. Drive	27	6600648	AR	Hose End-12X12FJX, St, Push-Lok
15	6601939	1	Pump-4.8, Splined, Gen II	28	9410281	1	Elbow-Hydr, 90, 8MJ-12MB
16	0274253	2	O Ring - Tube Fitting, 1.50	29	9250605	1	Hose Assembly (Specify Length)
17	6600236	4	Flange Asm - 1.00, 4 Bolt, Split				
18	6600226	AR	Hose-12MCS, 8 Ft.				
	6600227	AR	Hose-12MCS, 9 Ft.				
	6600228	AR	Hose-12MCS, 10 Ft.				
	6600229	AR	Hose-12MCS, 11 Ft.				
	6600230	AR	Hose-12MCS, 12 Ft.				
	6600231	AR	Hose-12MCS, 13 Ft.				
	6600232	AR	Hose-12MCS, 14 Ft.				
	6600233	AR	Hose-12MCS, 15 Ft.				
	6600234	AR	Hose-12MCS, 16 Ft.				
	6600235	AR	Hose-12MCS, 17 Ft.				

AR = As Required - Specify Quantity or Length

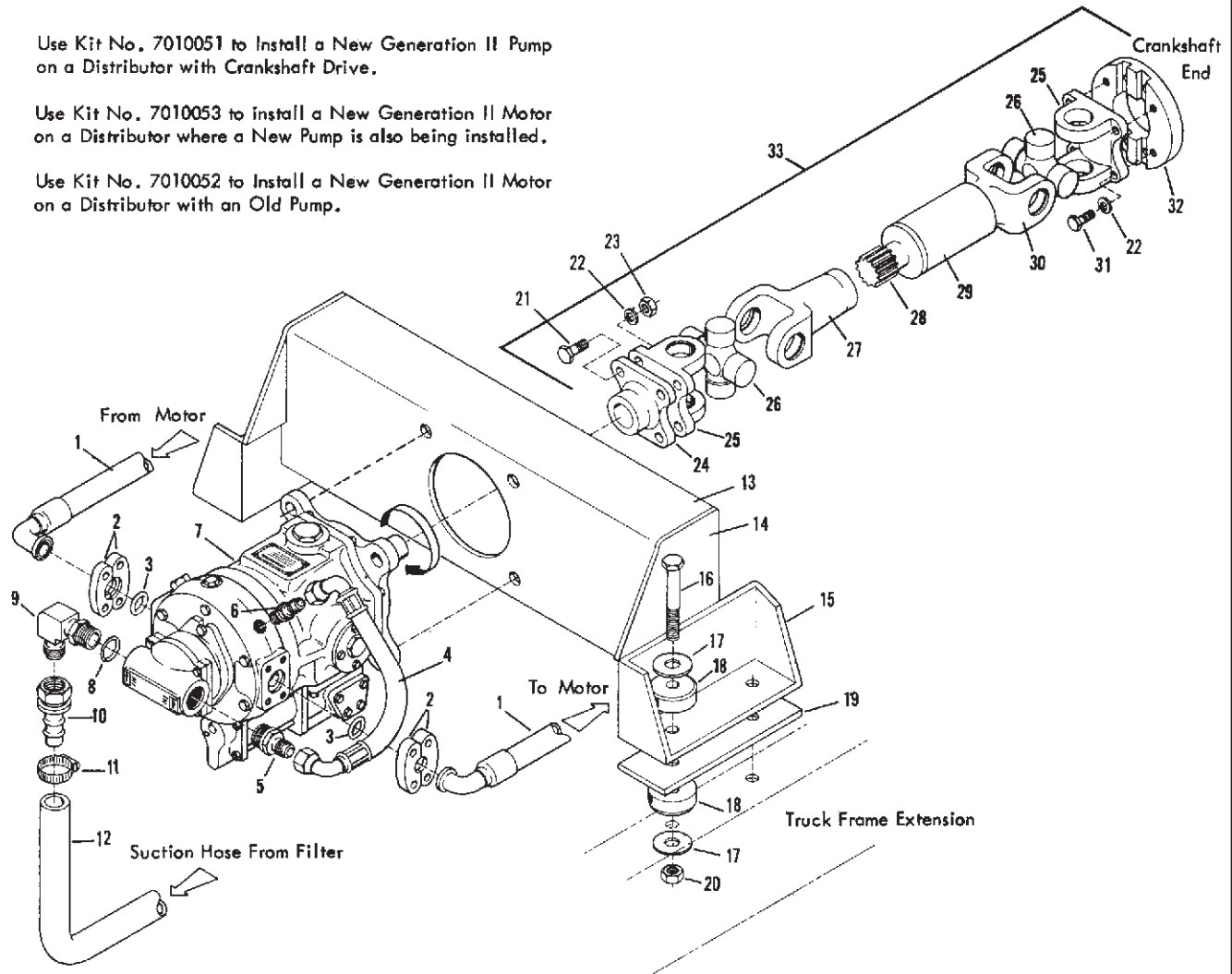
Hydraulic Drive System - Crankshaft Drive Units with Kerosene Generating or LPG Burners with Dynapower Generation II Pump

S/N: J7712 thru J7800, J7802 thru J7846, J7848 thru J7859, J7861 thru J7901, J7910 and up

Use Kit No. 7010051 to Install a New Generation II Pump on a Distributor with Crankshaft Drive.

Use Kit No. 7010053 to install a New Generation II Motor on a Distributor where a New Pump is also being installed.

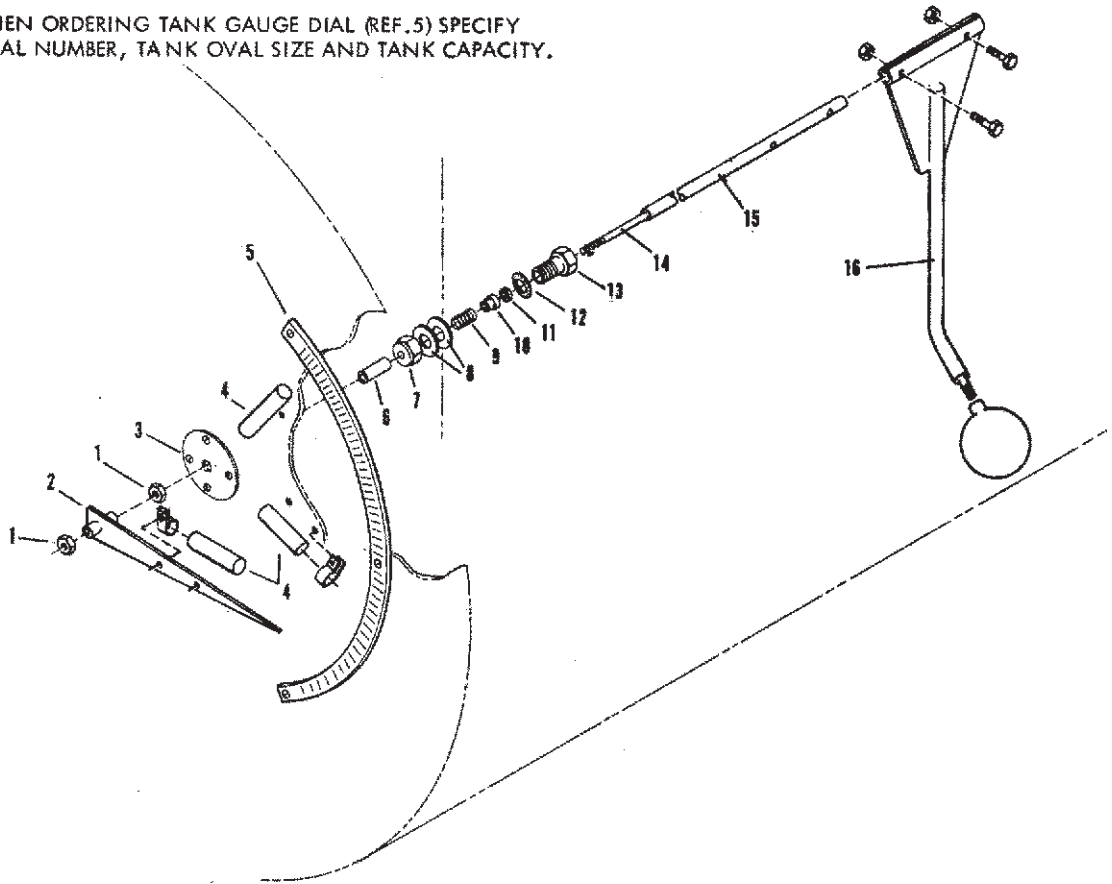
Use Kit No. 7010052 to Install a New Generation II Motor on a Distributor with an Old Pump.



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	9250601	2	Hose Asm-12x16FL45, 16FL90 Specify Length	18	6000889	4	Mount-Shock, Hyd. Pump, Crank. Drive
2	6600236	4	Flange-Split	19	3321004	2	Filler-Mtg., Hyd. Pump, Crank. Drive
3	0274253	2	O Ring-Tube Fitting	20	9413948	4	Nut-Hex, Lock, 0.62NC, EA, GRA, PD
4	6601561	1	Hose Asm-12x28, 12FJX90-12FJX90	21	0186679	4	Screw-Hex, 0.38NC x 1.25, GR8, PD
5	6601418	1	Adapter-Hydr, St, 12MJ-16MB	22	0120382	8	Washer-Lock, 0.38, Spring, PD
6	6600897	1	Adapter-Hydr, St., 08MB-12MJ	23	0120377	4	Nut-Hex, 0.38NC, PD
7	6601555	1	Pump-4.8, Splined, Generation II	24	6440162	1	Flange-Companion, Taper Hole
8	0274251	1	O Ring-Tube Fitting, 1.00	25	3170021	2	Yoke-Flange
9	6601568	1	Elbow-Hydr, 90, 16MB-16MJ	26	3170013	2	Journal and Bearing Kit
10	6601566	1	Hose End-16, 16FJX, St.	27	3110034	1	Yoke and Sleeve Assembly
11	6000792	2	Clamp-Hose, Worm Drive, 1.06-2.00	28	3110032	1	Shaft-Slip Stub
12	6601564	AR	Hose-Suction, 1.00ID, Per Foot	29	6303295	AR	Tube-2.50 x 16GA, Dom. - Per Foot
13	3320960	1	Channel-Mtg., Crank Drive, Hyd. Pump	30	6440161	1	Yoke-Stub
14	3321006	2	Plate-End, Chan. Mtg., Pump	31	0454904	4	Screw-Hex, 0.38NC x 0.75, GR8, PD
15	3321005	2	Angle-Mtg., Hyd. Pump, Crank. Drive	32	-	1	Custom Adapter (Where Required)
16	0428715	4	Screw-Hex, 0.62NCx4.00, GR2, PD	33	9300558	1	Line Asm-Drive, Frt. Take-Off
17	0130999	8	Washer-Flat, 0.62A, PD				AR - As Required

Tank Gauge Assembly

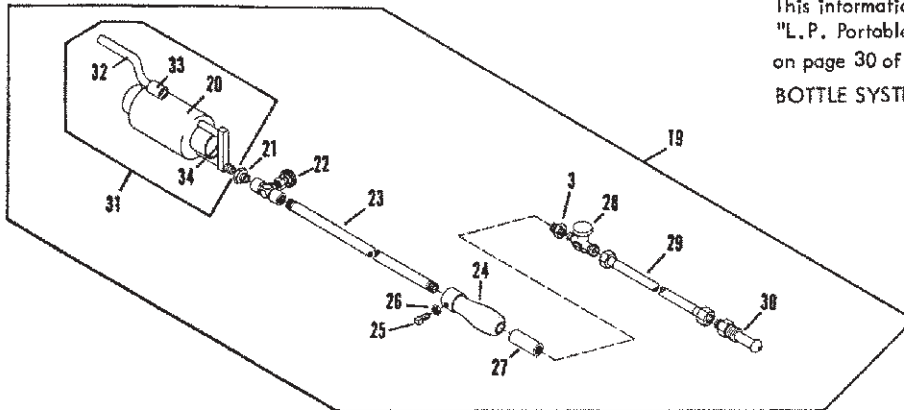
NOTE: WHEN ORDERING TANK GAUGE DIAL (REF.5) SPECIFY UNIT SERIAL NUMBER, TANK OVAL SIZE AND TANK CAPACITY.



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	0120376	2	NUT-HEX,0.31NC,PD				
2	3360851	1	POINTER ASM-SAM DIAL				
3	3341199	1	COVER-JKT,DRIVE,SHAFT TK GAGE				
4	6701832	3	SWITCH-SPDT MAGNETIC,3AMP EF				
5	3380438	1	DIAL-BLANK,SAM				
6	3360826	1	SPACER-POINTER,TANK GAUGE,SAM				
7	3360828	1	NUT ASM-PACKING RETAINER,SAM				
8	0131002	2	WASHER-FLAT,1.00A(1.06X2.50)PD				
9	3360192	1	SPRING-PACKING,TANK GAUGE				
10	3360187	1	SLEEVE-PACKING,TANK GAUGE				
11	3360204	1	PACKING-TANK GAUGE				
12	3360825	1	GASKET-ABS. 1 3/4X1X1/16				
13	3360822	1	SCREW-FITTING TANK GA,1 NC SAM				
14	3360924	1	SHAFT-DRIVE TANK GAGE,SAM				
15	6303353	1	PIPE-SCH 40,0.25,FT				
16	3360837	1	STEM ASM-TANK GAGE 44X64 OVAL				
	3360835	1	STEM ASM-TANK GAGE 46X78 OVAL				
	3360833	1	STEM ASM-TANK GAGE 48X70 OVAL				
	3360839	1	STEM ASM-TANK GAGE 49X83 OVAL				
	3360836	1	STEM ASM-TANK GAGE 50X90 OVAL				
	3360834	1	STEM ASM-TANK GAGE 56X90 OVAL				
	3360838	1	STEM ASM-TANK GAGE 64X90 OVAL				

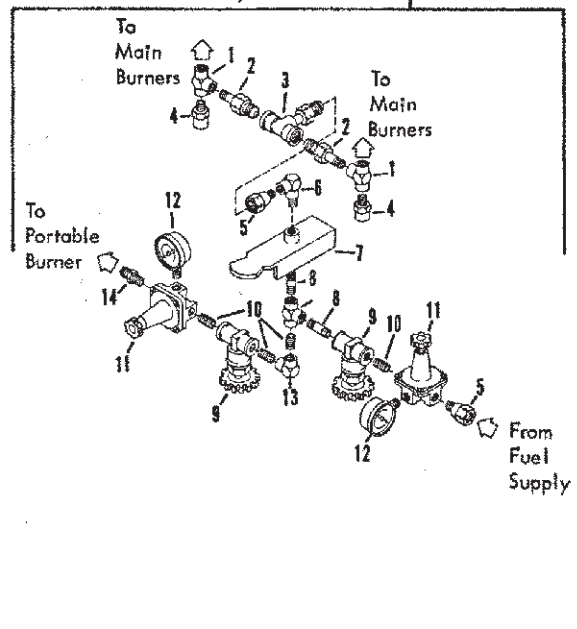
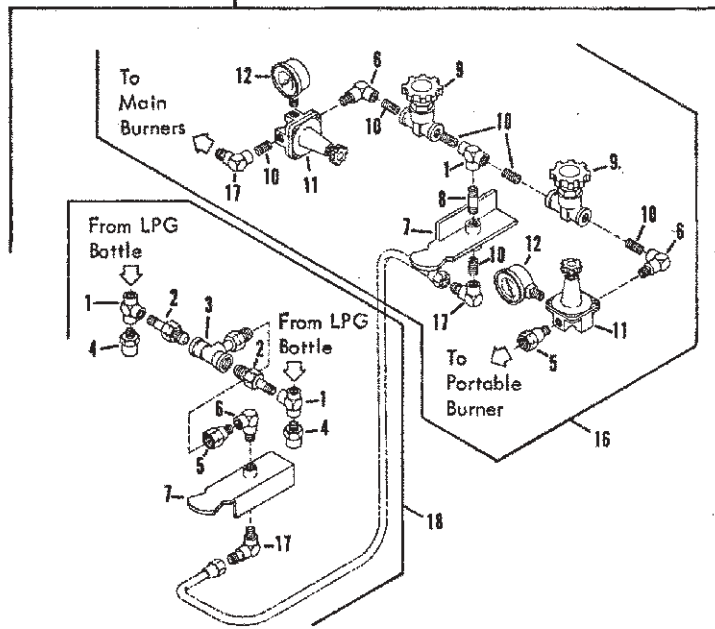
Portable Burner Liquid Propane - Bottle System

This information replaces the information
"L.P. Portable Burner Installation, Bottle System"
on page 30 of M-101-80R Blacktopper Parts Manual.
BOTTLE SYSTEM ONLY.



Control Assembly - LPG
with Portable Burner, Remote Mount
Bottle System

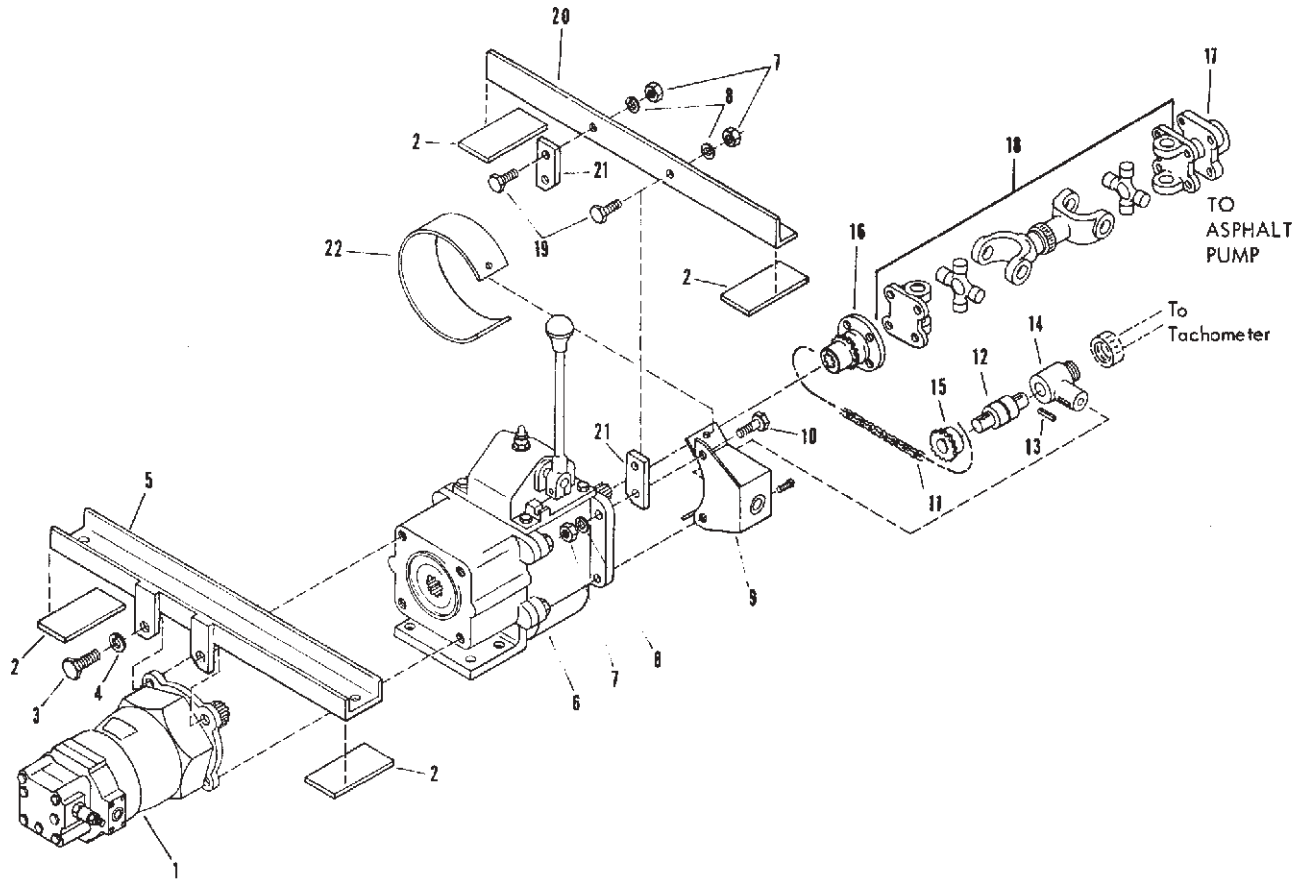
Control Assembly - LPG
with Portable Burner
Bottle System



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	0454121	3	Tee-Auto, 04FP-04FP-04FP	19	3330422	1	LPG Portable Burner Assembly
2	6600043	2	Connector-Tank, LPG	20	6500071	1	Burner Assembly - J-1
3	6602028	1	Throwover Valve-Automatic	21	0119930	2	Bushing-Pipe, 0.25 X 0.12
4	7720014	2	Valve-Relief, 450PSI, LPG, Hydro	22		1	Propane Valve
5	6600785	2	Adapter-POL X 0.25 MPT	23	6200251	1	Nipple-Pipe, 0.25 X 30
6	0454109	AR	Elbow-Auto, 90, 04FP-04MP	24	7700025	1	Handle-Portable Burner
7	2660079	1	Bracket Asm- Thermocontrol, LPG	25	0102872	1	Screw-Set, 0.25 X 0.75
8	6200417	2	Nipple-PP, SCH80, 0.25 X 1.50	26	0120375	1	Nut-Hex, 0.25NC
9	6600786	2	Valve-Globe, Gas Service	27	0187395	1	Coupling-Pipe, 0.25
10	6200292	4	Nipple-Pipe, SCH80, 0.25 X 0.87CL	28	6600200	1	Valve-Shut Off
11	7720018	2	Regulator-Pressure	29	6600201	1	Hose Assembly-Portable Burner
12	6600196	2	Gauge-Pressure, 2in, 0-100 PSIG	30	6600202	1	Connector-LPG Tank
13	0454085	1	Elbow-Auto, 90, 04FP-04FP, PD	31	7700127	1	Burner Asm-LPG
14	0110200	1	Adapter-04MP-06MS	32	3330356	1	Holder-Portable Burner
15	3331246	1	Control Asm-LPG, Liq. with Port. Burner	33	3330423	1	Bushing
16	3331283	1	Control Asm-LPG&Portable, Remote Mtg.	34	7720004	1	Orifice J-1 Burner
17	0118755	2	Elbow-Auto, 90, 4FP-6MS				
18	3331284	1	Relief Asm-LPG&Portable, Remote Mtg.				

AR = As Required

Transmission Assembly - Funk 3 - Speed



REF.	PART NO.	QTY.	DESCRIPTION	REF.	PART NO.	QTY.	DESCRIPTION
1	6601557	1	Motor-Hyd., 6.0, Solined	16	3320801	1	Flange and Sprocket Asm
2	3310209	4	Spacer- Hanger Plate	17	6445006	1	Flange-Taper Hole
3	0428769	2	Screw-Hex, 0.75 X 2.00	18	6445007	1	Driveline-Funk Trans to Pump
4	0131046	2	Washer-Lock, 0.75	19	0120426	2	Screw-Hex, 0.50NC X 1.25
5	3320401	1	Carrier Asm - Funk Transmission	20	3320400	1	Angle-Mounting, Funk Trans
6	6415033	1	Transmission-Funk, 3 Speed	21	3320403	2	Arm-Carrying, Mtg Angle, Funk Trans
	3320802	AR	Collar-Mtg, Funk Trans, (NS)	22	3320396	1	Guard-Chain, Tach Drive, w/ Funk Trans
7	0120378	4	Nut-Hex-0.50NC				
8	0120384	4	Washer-Lock, 0.50, Spring				
9	3320903	1	Housing Asm-Tach Drive, Funk				
10	0122446	4	Screw-Hex, 0.50 X 1.75				
11	3320892	1	Chain				
12	3320343	1	Bearing-Tach Drive				
13	3100302	1	Key-0.25 X 0.25 X 2.00				
14	3320340	1	Housing Asm-Bearing				
15	6430081	AR	Sprocket - 24 Tooth				
	6430082	AR	Sprocket - 40 Tooth				

AR = As Required
NS = Not Shown



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.