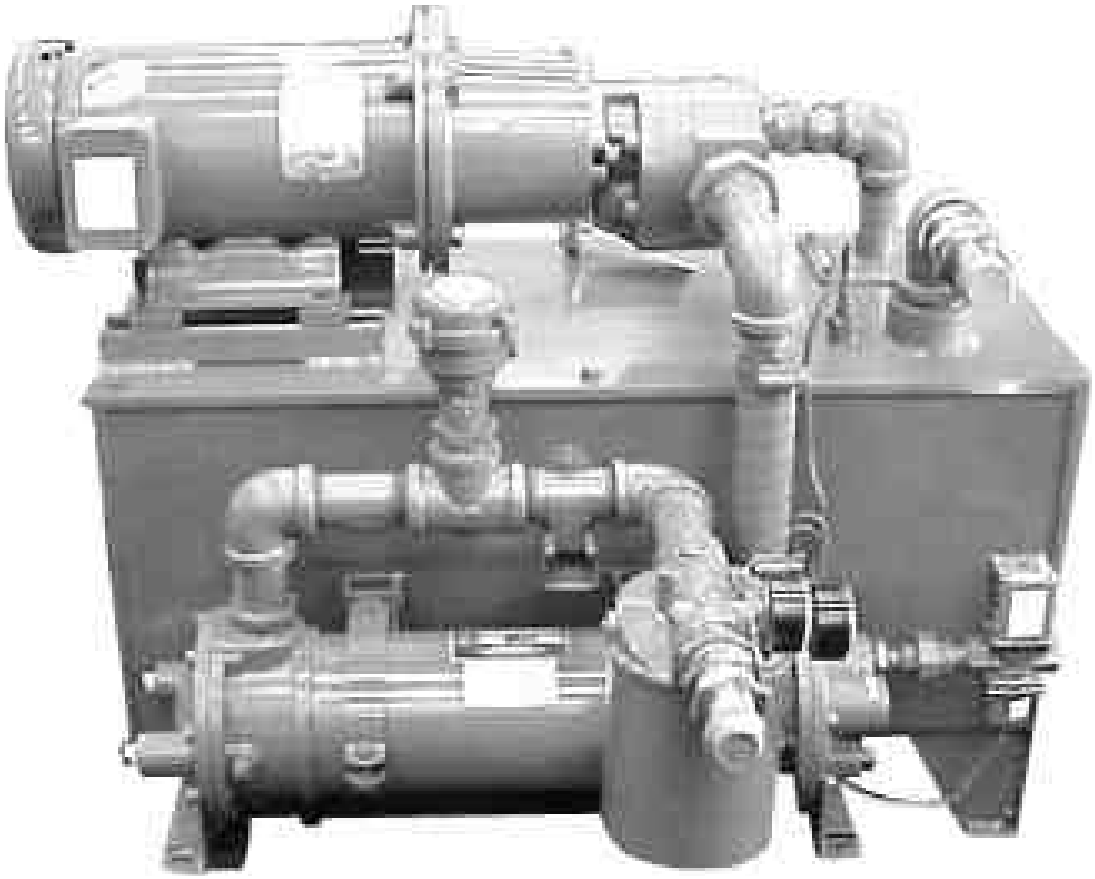
ISO 9001 CERTIFIED

502-FLCU-001-01

INSTRUCTION MANUAL

FOR

Forced Lube Cooling Unit



WARNING - Read this manual before any installation, maintenance or operation.

FORCE CONTROL®

FORCE CONTROL INDUSTRIES, INC.

MANUFACTURERS OF MECHANICAL AND ELECTRICAL POWER TRANSMISSION EQUIPMENT

LIMITED WARRANTY

SPECIAL 24 MONTH WARRANTY

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Section 1 - Description and Operation

1-1 COOLING SYSTEM PRINCIPLE

(See Figure I.1)

In Force Control's Oil Shear Drives, coolant fluid is circulated through the disc stack to flood the working surfaces of the friction discs and drive plates. The coolant fluid picks up and absorbs the heat that has been generated by the working surfaces sliding against each other during engagement (dynamic condition) of the drive.

On lower thermal horsepower drives the cooling system is an internal and integral part of the drive, but on larger units such as ***Positorq*** **Absorber and Dynamometer Brakes** where the generated heat, during engagement, exceeds the capacity of a self contained internal cooling system, an External Closed Loop Forced Lube Cooling Unit is required to maintain a satisfactory cooling level. *Figure 1.1* shows a ***Positorq*** **Absorber Brake** connected to an external **Forced Lube Cooling Unit** which delivers a high volume of cooled and filtered fluid to the brake stack in the ***Positorq*** **Absorber Brake.**

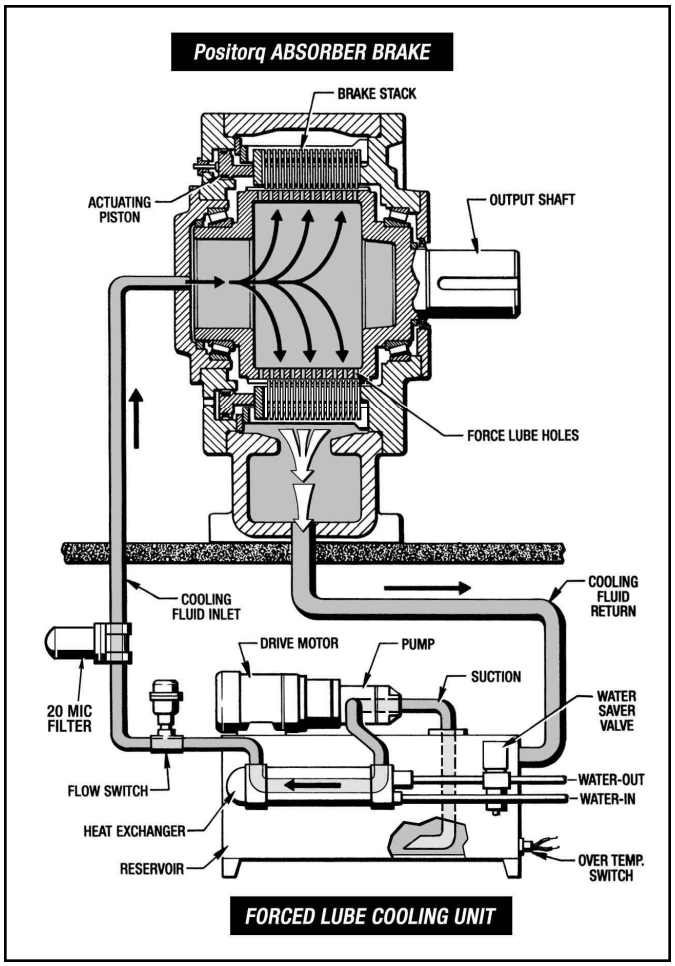

Figure 1.1 - Forced Lube Cooling System

1-2 UNIT DESCRIPTION

(See Figure 1.2)

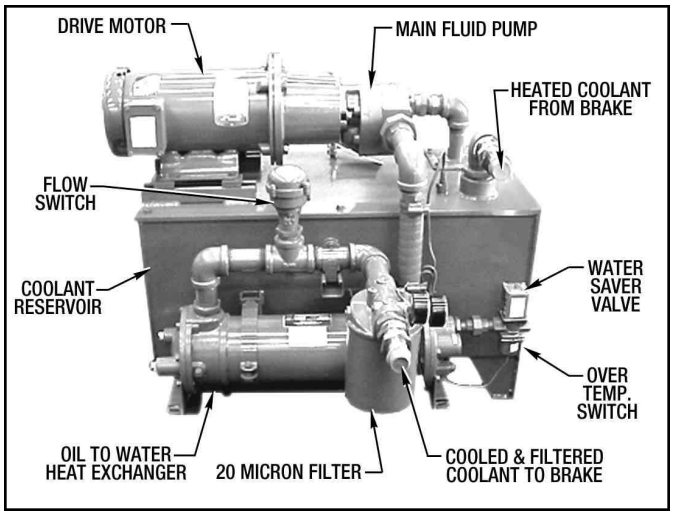

Figure 1.2 - Typical Forced Lube Cooling Unit

The **Force Lube Cooling Unit *(FLCU)*** is a self contained hydraulic fluid reservoir and associated equipment to take the heated and aerated fluid from the drive. It cools and filters it and returns it to the drive to be reused. When connected with a drive it becomes a complete system. The drive either transmits torque from a prime mover to a driven load for acceleration and running or provides torque for deceleration and holding the load (or both). In either case heat is developed during the dynamic (slipping) condition. The ***FLCU*** completes the system by assuring the sufficient cooled fluid is always present to keep the working surfaces in the drive stack(s) both cooled and lubricated at all times. *Figure 1.2* above shows a typical Forced Lube Cooling Unit with the following components:

1. **Main Fluid Pump -** Either a Rotary Screw Type Pump or a Gear Type Pump is used based on flow requirements.
2. **Heat Exchanger -** Oil-to-Water or Oil-to-Air. The oil to water type of heat exchanger will require a water modulating valve.
3. **Flow Switch -** This Flow Switch is wired into the system to stop the prime mover in case of loss of fluid flow.
4. **Over Temperature Switch -** This is wired into an alarm system to warn of an over temperature condition.
5. **Filter System -** A standard spin-on 25 mic filter is used for systems with a flow capacity of less than 60 GPM. For larger systems, a kidney filtration system is used that includes another small pump and motor to

re-circulate the fluid through a filter. A vacuum gauge or pressure gauge is included to identify a dirty filter. When using the kidney filtration system a ball valve arrangement is used to allow use of the filter system to pump old fiuid out of the reservoir and new fluid in. Fluid coming in is pumped through a filter before going into the reservoir. This Kidney Filter System is shown in *Figures 1.4 and 1.6.*

6. **Reservoir -** A reservoir is sized to hold all the fluid and contains special baffles to cause sediment to drop down and also de-aerates the fluid.

1-3 OPERATION

The ***FLCU*** is mounted to allow the heated fluid from the drive to return to the reservoir by gravity feed. The reservoir is a holding tank for the fluid with internal baffles to slow down fluid circulation to help settle out dirt particles and give air a chance to escape. It also houses the high temperature switch, which shuts down the prime mover in the event of a malfunction in the cooling system allowing the fluid to get too hot. As the fluid is picked up by the pump, it is pulled through a relieving type suction strainer to further remove dirt particles. From the pump the fluid goes to a heat exchanger where heat is removed by the cooling medium (usually air or water). A flow switch is installed down stream from the heat exchanger to insure that the required flow is always going to the drive.

1-4 BASIC FORCED LUBE COOLING SYSTEMS

There are four basic Forced Lube Cooling Systems and they are as follows:

1. Oil to Water without Kidney Filtration. *(See Figure 1.3)*
2. Oil to Water with Kidney Filtration. *(See Figure 1.4)*
3. Oil to Air without Kidney Filtration *(See Figure 1.5)*
4. Oil to Air with Kidney Filtration *(See Figure 1.6)*

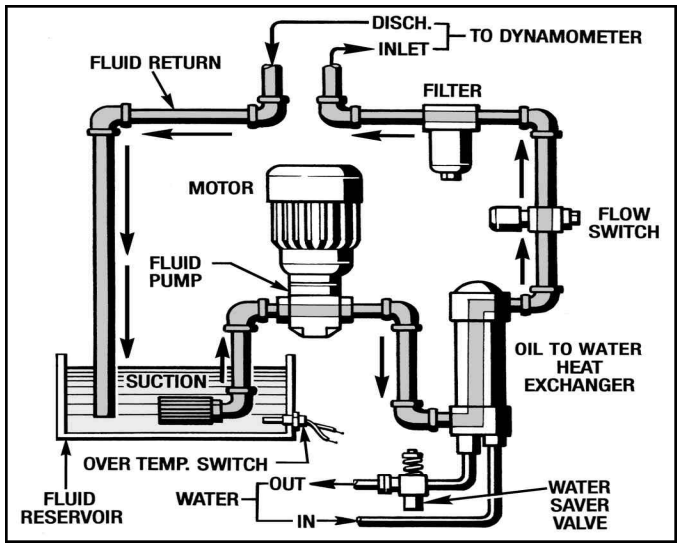

Figure 1.3 - Oil to Water Without Kidney Filtration

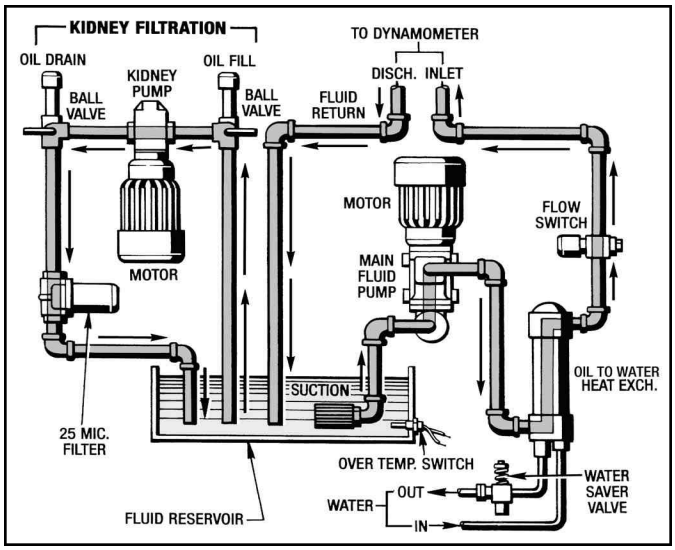

Figure 1.4 - Oil to Water With Kidney Filtration

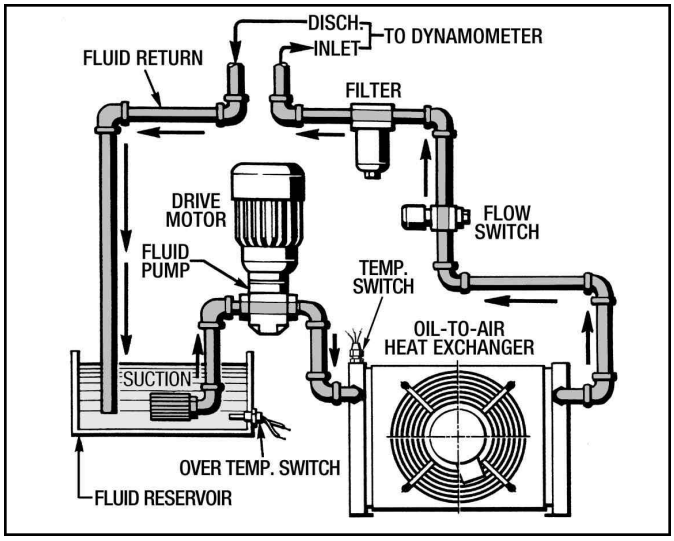

Figure 1.5 - Oil to Air Without Kidney Filtration

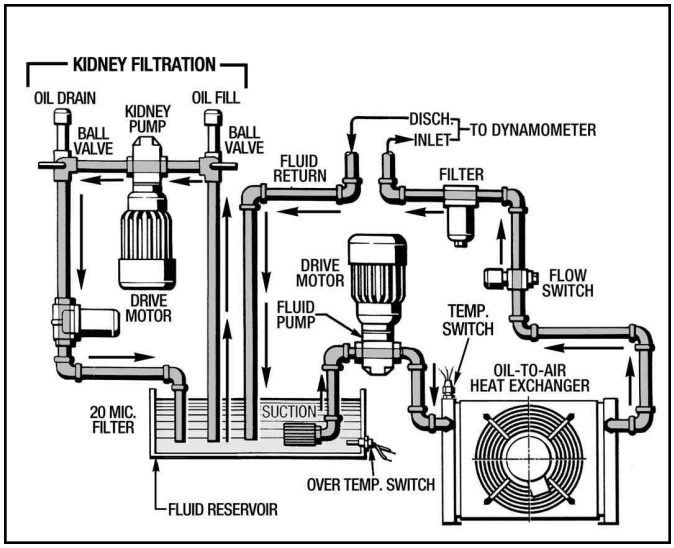

Figure 1.6 - Oil to Air With Kidney Filtration

Section 2 - Installation

2-1 RECEIVING THE UNIT

Check the unit for shortage or damage immediately after arrival. Prompt reporting to the carrier's agent, with notations made on the freight bill will expedite satisfactory adjustment by the carrier. If the unit is not to be installed and operated soon after arrival, store it in a clean, dry place having slow, moderate change in ambient temperature.

Turn the motor shaft every six months for bearing protection while the unit is in storage. If the motor has been in storage for an extended period, the insulation should be checked with a megohm-meter; see motor maintenance section.

2-2 LOCATION

The ***FLCU*** should be mounted as close as practical to the drive and low enough that the drain hole in the drive is higher than the inlet to the reservoir. The ***FLCU*** should be mounted to a firm level base. Care must be taken to allow access to the components on the unit.

2-3 ELECTRICAL

A. Recomnnended System Interlock/ Switch Handling *(See Figure 2. 1)*

B. Motor Wiring

Check power supply to make certain that voltage, frequency and current carrying capacity are in accord with the motor nameplate.

Connect the motor to the power supply according to the diagram on the connection plate. Connections should be clean and tightly bolted. **Important** - **Set the motor rotation as shown by the arrow on the pump.** To reverse the direction of rotation of a three-phase motor, interchange any two of the line wires to the motor leads.

C. Air Cooled Drive

The air-cooled heat exchanger has a temperature switch installed near the oil inlet port of the *Posidyne* or *Positorq*. The heat exchanger fan motor temperature control switch is to be wired in series with the 115 volt motor. Wire the temperature switch in series with the motor starter for 3-phase motors. Use N.O. connections and tape unused wire.

Check power supply to make certain that voltage, frequency and current carrying capacity are in accord with the motor nameplate. Connect the motor to the power supply according to the diagram on the connection plate. Connections should be clean and tightly bolted.

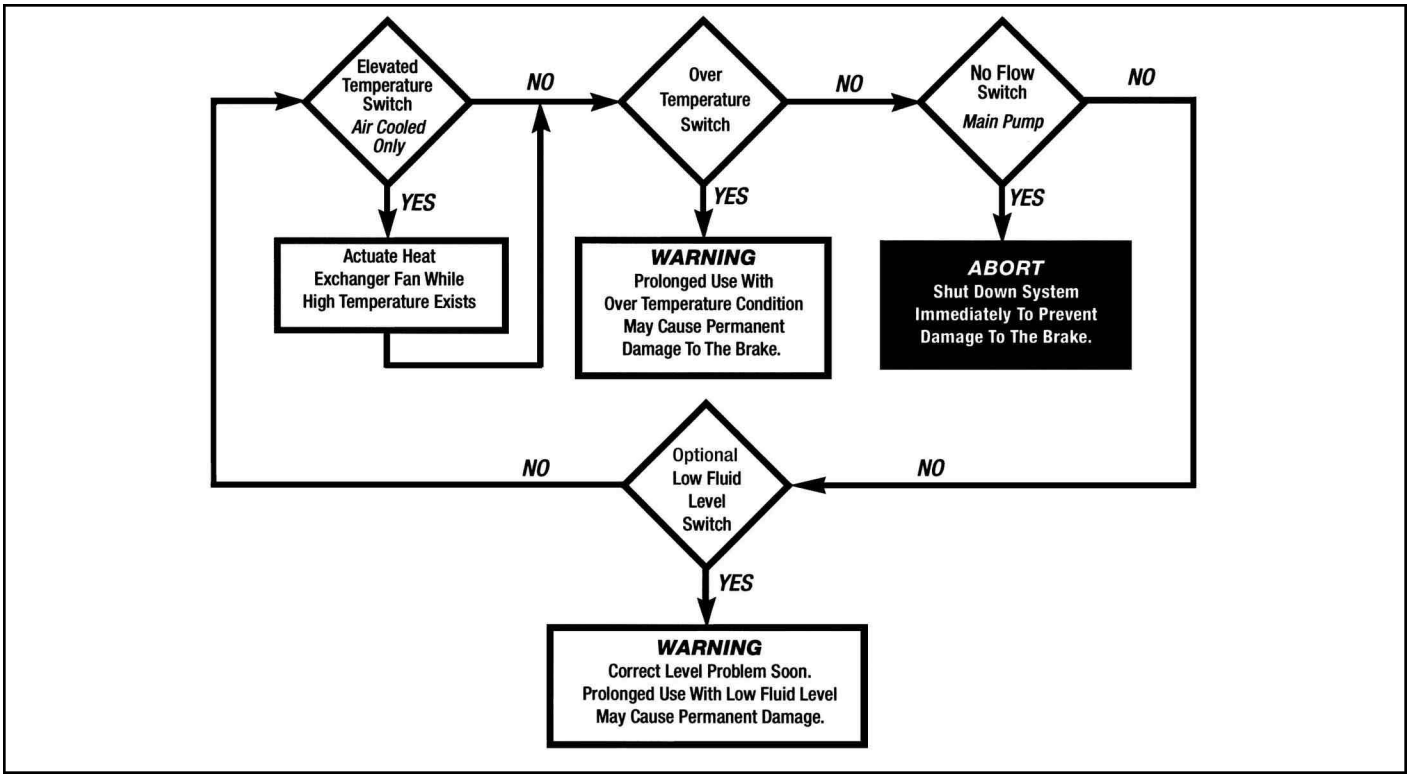

Figure 2.1 - Recommended System Interlock/ Switch Handling

Provide adequate space around the heat exchanger for unrestricted flow of air at entrance to the fan and discharge from the coil. In harsh conditions, a filter on the heat exchanger may be required.

After initial wiring of fan, start the fan momentarily. Observe the rotation of the blade to be sure rotation is in proper direction. Do not allow the fan to run backward except momentarily.

CAUTION - Do not remove fan guard except when fan is not running and power is disconnected.

2-4 PLUMBING

Check installation drawings for location and sizes of connections for the interconnecting lines. The lines may either be hose or black pipe. In either case clean fittings and/or hose insides thoroughly before installing. Excessive tums or length will cause additional pressure drops in the lines. If this condition exists the lines should be enlarged then reduced as they go into the drive and ***FLCU.***

A. Water Cooled Drive

1. Connect oil supply line from the cooling unit (oil outlet) to the drive (oil inlet). *(See Figures 2.2 and 2.4)* Hose must have a minimum recommended working pressure of 100 P.S.I.
2. Connect drain line from the drive (oil outlet) to the reservoir (oil iniet). *(See Figures 2.2 and 2.4*)

NOTE: In order to insure proper drainage of the drive housing and insure adequate reserve in the reservoir the drain should be as straight as possible with a down hill slope toward the cooling unit.

3. Connect vent line (when required) from the drive to the reservoir. This line should be elevated to insure that it does not fill with fluid so that air is free to flow back and forth between the drive and reservoir. *(See Figures 2.2 and 2.4)*
4. Connect galvanized pipe or hose to the two ports on the end of the heat exchanger. For best heat transfer bring water supply in to the left hand port (viewing the end) and drain out of right hand port. It is recommended that a water strainer be installed ahead of the exchanger when the source of water is other that a municipal water supply to avoid plugging the exchanger. Maximum water pressure is 150 PSI. Water flow required is .1 to .4 GPM/THP @ 80 degrees F. max water supply.

B. Air Cooled Drive

1. Connect oil supply line from the cooling unit (oil outlet) to the heat exchanger (oil inlet). Connect oil supply line from the heat exchanger (oil outlet) to the drive (oil inlet). *(See Figures 2.3 and 2.4)*
2. Connect drain line from the drive (oil outlet) to the reservoir (oil inlet). *(See Figures 2.3 and 2.4)*

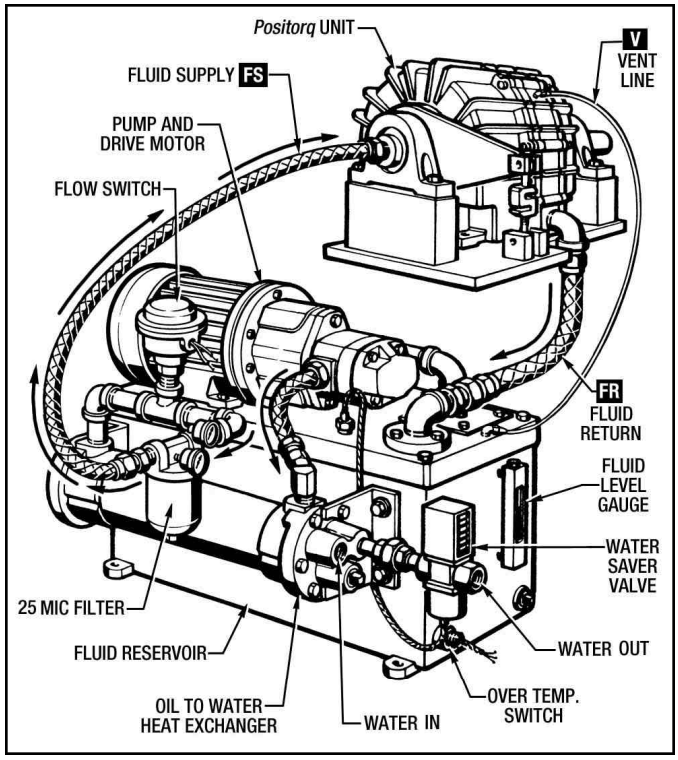

Figure 2.2 - Drive & Water Cooled FLCU Connecting Lines

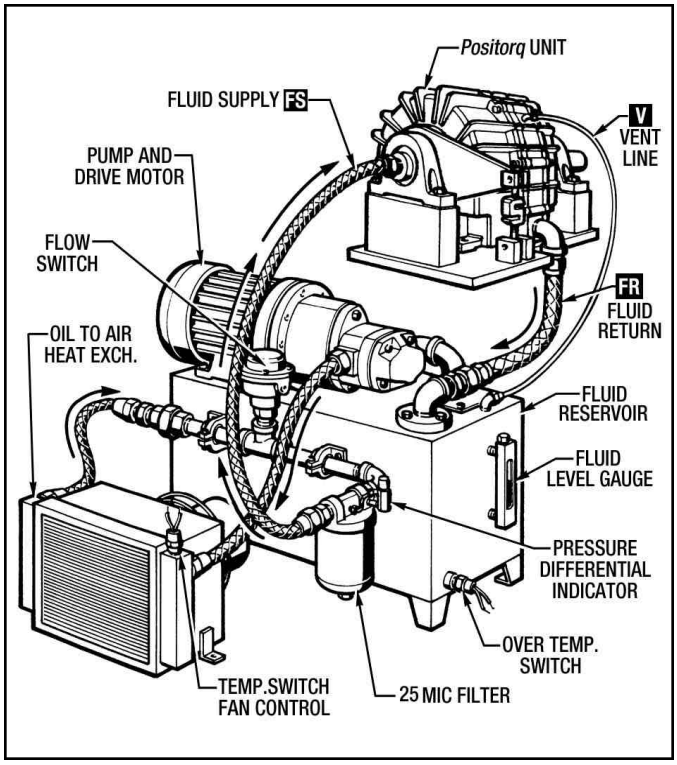

Figure 2.3 - Drive & Air Cooled FLCU Connecting Lines

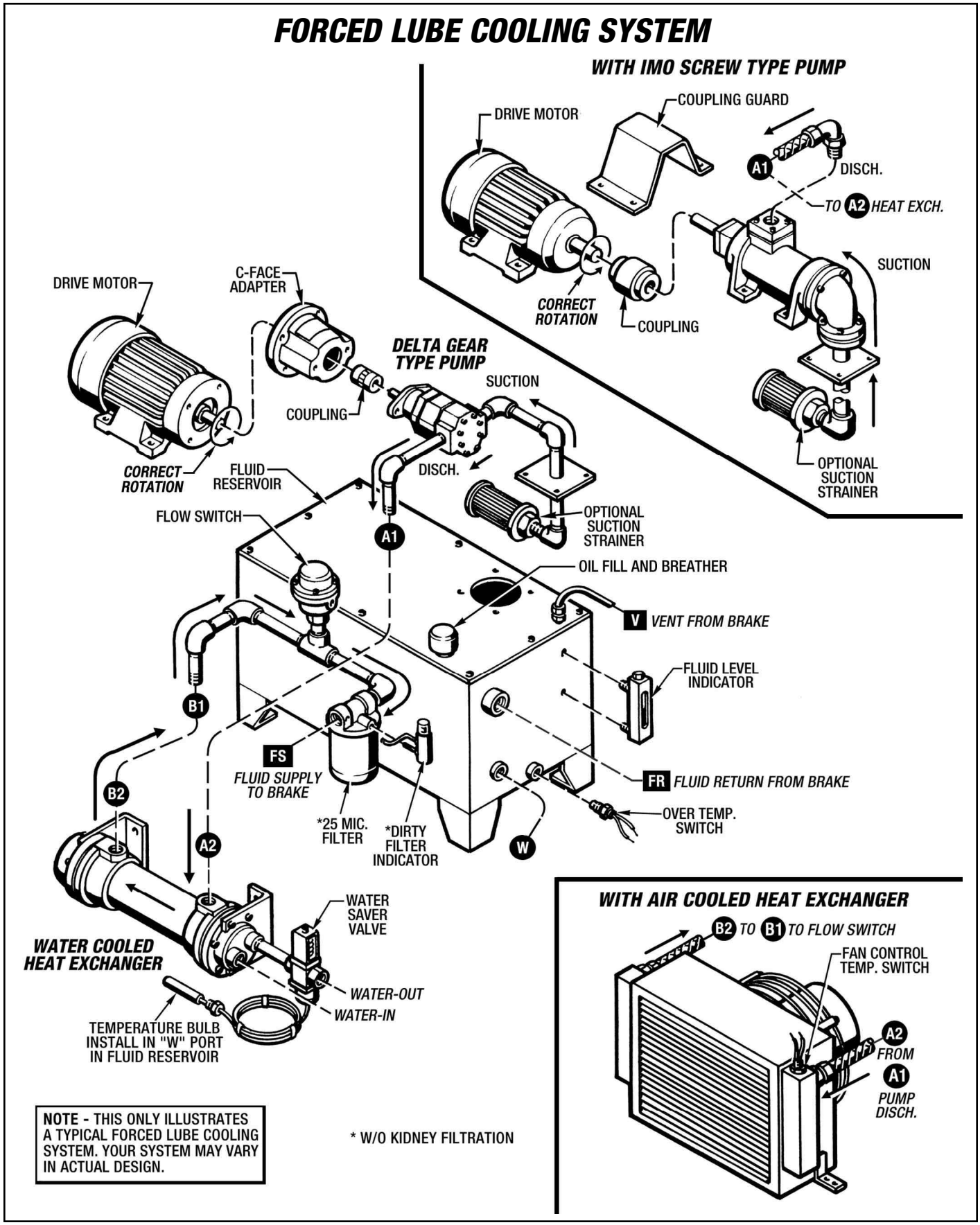

Figure 2.4 - Forced Lube Cooling System

NOTE: In order to insure proper drainage of the drive and insure adequate reserve in the reservoir, the drain should be as straight as possible with a downhill slope toward the cooling unit.

3. Connect vent line (when required) from the drive to the reservoir. This line should be elevated to insure that it does not fill with fiuid so that air is free to flow back and forth between the drive and resen/oir. *(See Figures 2.3 and 2.4)*

2-5 FINAL CHECK & FILL

1. Before starting the cooling unit, make sure that all hookups are complete. Check motor, temperature switch and flow switch wiring. Check hookups between the drive and cooling unit. Check both ends of the supply, drain and vent lines to make sure they are connected properly. Check heat exchanger connections, water inlet and outlet. Check mounting to make sure it is secured.
2. Fill the reservoir to the full mark. Bump cooling oil pump motor and check rotation with arrow on pump mounting bracket. To reverse the direction of rotation of a three-phase motor, interchange any two of the line wires to the motor leads. Start the cooling oil pump to purge air out of the lines and components of the cooling system. Stop the motor and allow oil to drain back to the sump. Check out level and add oil as required. Weekly thereafter (until experience dictates otherwise) check the oil level. When the drive is stationary the oil level should be at the full mark. When running do no allow the level to drop below the low-level mark.

   Fluid in the drive is to be changed every six months or 2,500 hours of operation, whichever occurs first.

   NOTE: During the break-in period the oil will turn dark from carbon during the "bumishing-in" period. When this happens, the oil and filter should be changed regardless of the amount of usage.

OIL SPECIFICATIONS:

Mobilfluid 424, which meets John Deere specifications J20D. Force Control's Part Number for this fluid is 710-02-015. In extreme cold conditions use Mobilfuid LT.

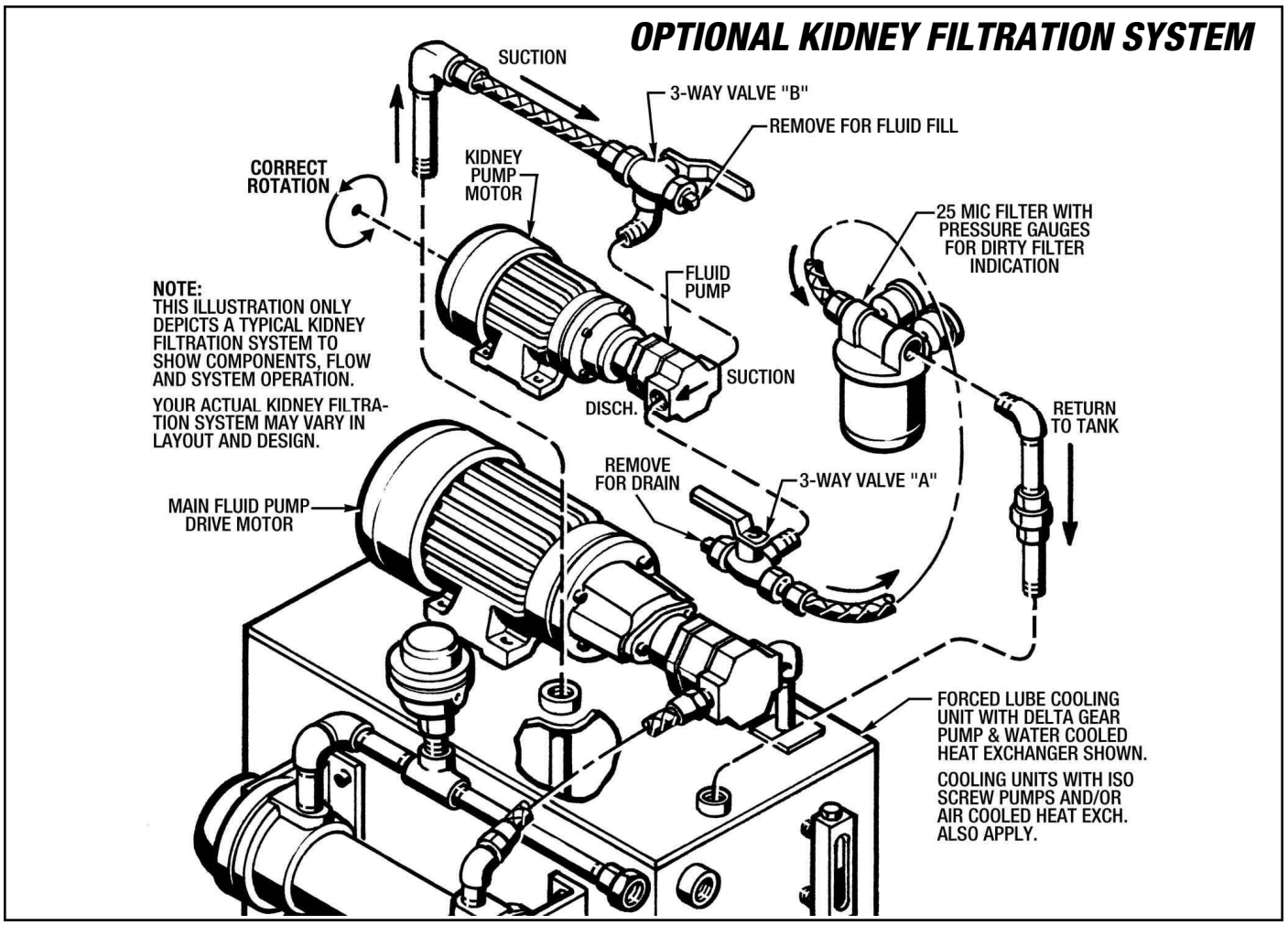

Figure 2.5 - Optional Kidney Filtration System

2-6 KIDNEY FILTRATION SYSTEM

The Kidney Filtration System is an independent filtering system that continually filters the fluid while the main fluid pump is operating.

IMPORTANT - In case of a complete failure of the *Positorq* Unit, filter the fluid with the kidney pump for approx. 1 hr. before turning on the main fluid pump.

A. Draining tne Reservoir with the Kidney Pump

(See Figure 2.6)

1. Remove the pipe plug from Valve “A” and install a suitable drain hose in the port.
2. Leave the handle on Valve “B” in the Normal Position .
3. Turn the handle on Valve “A” to the Drain Position as shown in *Figure 2.6*.
4. Start-up the Kidney Pump Motor and pump all of the fluid into a suitable container. Discard the used fluid.
5. Turn off the Kidney Pump Motor.
6. Remove the drain hose and re-install the pipe plug back into Valve “A”. Turn the handle on Valve “A” back to the Normal Position.

B. Filling the Resenroir with the Kidney Pump

(See Figure 2.6)

1. Remove the pipe plug from Valve “B” and install a suitable hose connected to a fresh oil supply.
2. Turn the handle on Valve “B” to the Fill Position as shown on *Figure 2.6*.
3. Leave Valve “A” in the Normal Position.
4. Start up the Kidney Pump Motor and pump fresh fluid into the reservoir to the fill line on the level indicator.
5. Turn the handle on Valve “B” back to the Normal Position.
6. Turn on the Main Drive Motor and pump the fresh fluid into the supply lines and the Positorg Unit. The fluid level in the reservoir should drop some.
7. Turn the handle on Valve “B” back to the Fill Position and refill the reservoir back up to the fill level line again.
8. Turn the handle on Valve “B” back to the Normal Position.
9. Turn on the Main Pump and resume operation.

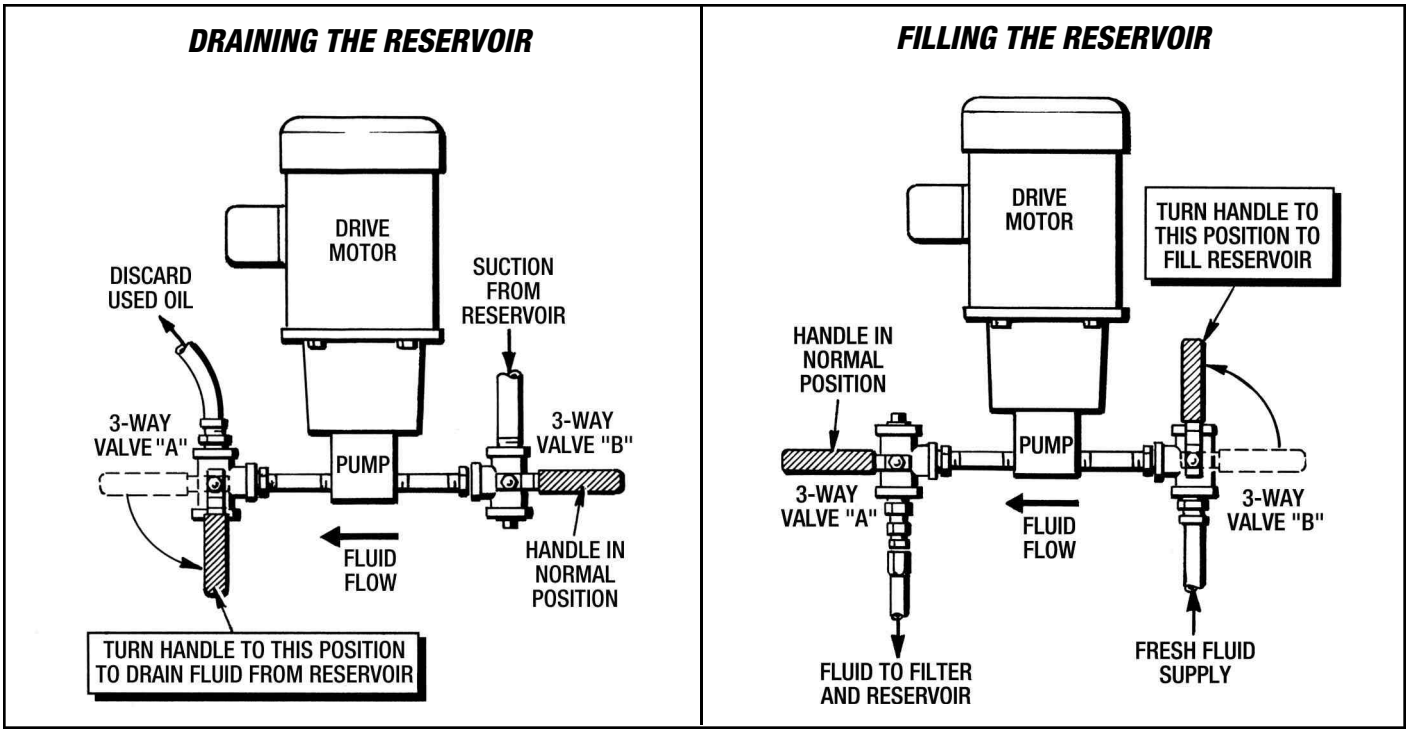

Figure 2.6 - Filling and Draining Reservoir With Kidney Filtration System

Section 3 - Maintenance

3-1 FILTERS AND INDICATORS

The Filter uses a 25 micron Filter Element . This type of filter has an internal pressure relief valve set a 25 psi. When the filter element gets too dirty and when the pressure differential reaches 25 psi the filter is completely bypassed and dirty coolant will be allowed to flow through the system. This is a necessary and required feature so the filter element housing can not explode under extreme pressure conditions.

A. Dirty Filter Indicators

There are two basic ways to determine when a filter is dirty and needs replaced.

1. **Using (2) pressure gauges installed on the filter.** One on the filter inlet and one on the filter outlet. When the inlet pressure differential reaches 10 psi, it is time to replace the filter element. *(See Figure 3. 1)*

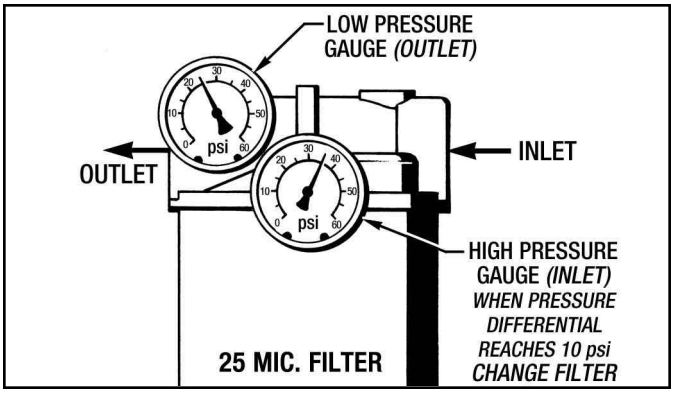

Figure 3.1 - Filter and Pressure Gauges

NOTE - All liquid filled pressure gauges are sealed for shipment. They must be vented to atmosphere as per manufacturers instructions on each type of pressure gauge.

2. **A Pressure Differential (Dirty Filter) Indicator** is installed on the filter as shown in *Figure 3.2.*

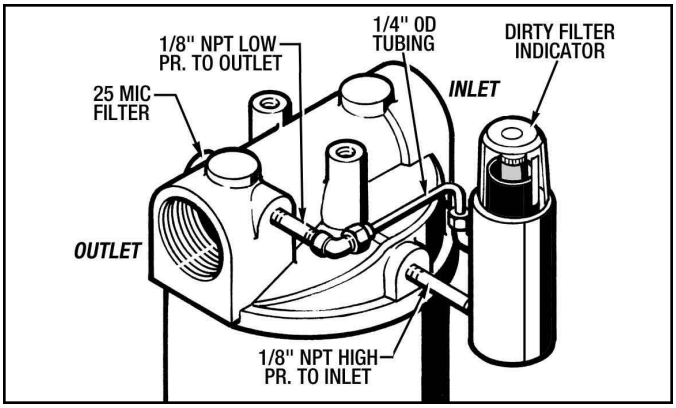

Figure 3.2 - Installing Dirty Filter Indicator

When the red indicator is showing on top of the Dirty Filter Indicator, it is time to replace the Filter Element. A yellow indicator says that the filter is still clean. *(See Figure 3.3)*

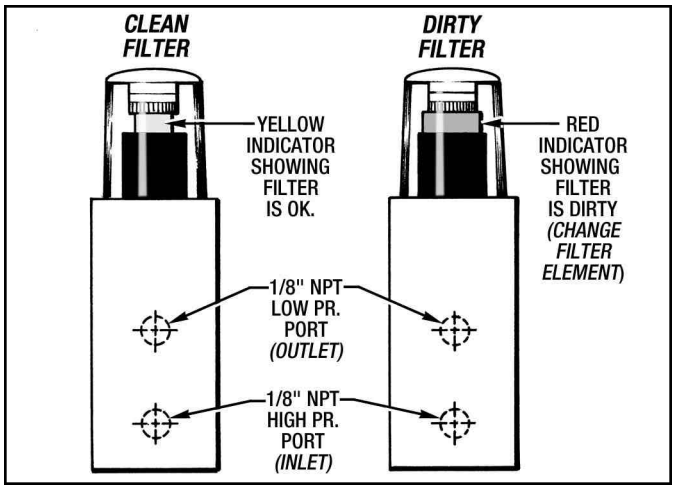

Figure 3.3 - Dirty Filter Indicator

B. Replacing the Filter Element

1. Turn-off and lock-out power to the pump motor.

   NOTE - When the hydraulic pump is shut down the Flow Switch will lock-out the Positorq load.

2. Remove the Filter Element from the Filter Body with a strap wrench, turning it CCW.
3. Replace the filter rubber seal ring when replacing the element. Lubricate the seal with a light weight oil first.
4. Screw on the new Filter Element CW by hand until it is fairly tight. Use a strap wrench to turn the element another 3/4 turn of a full rotation. This will insure that the filter will not leak.

3-2 COOLING FLUID PUMP MOTOR

1. **Cleaning and inspection.** A clean motor runs cooler. The motor should be cleaned and inspected at regular intervals. Inspect bearings for roughness by uncoupling the motor from the pump and turning shaft by hand.

   CAUTION - Open the disconnect switch to the cooling motor and lock out to avoid the possibility of personal injury.

If the bearings feel “rough” or stick in spots, replace them. Always check bearings when any unusual noise or vibration develops in motor.

2. **Lubrication.** See **Section 4** for motor lubrication instructions. Motors with provision for lubrication

should be lubricated periodically. For specific lubricating instructions, check lubrication tag on motor or consult manufacturer. Motors with no provision for lubrication are equipped with sealed bearings and require no maintenance.

3-3 COOLANT PUMP

1. **Inspection:** Inspect bearings for roughness by uncoupling the pump from the motor and turning shaft by hand. If bearings feel "rough" or stick in spots, replace the pump. Always check bearings when any unusual noise or vibration develops in the pump.

   CAUTION - Open the disconnect switch to the cooling motor and lock out to avoid the possibility of personal injury

2. **Maintenance:**

   Delta Gear Pump - The manufacturer of this pump recommends only the hydraulic shaft seal be replaced. All other items require matching if they should wear. Therefore, a new pump would be the solution.

   IMO Screw Pump - Consult Manufacturers' Service Manual for all Maintenance Procedures.

3-4 WATER COOLED HEAT EXCHANGER

Performance information should be noted and recorded on newly installed units so that any reduction in effectiveness can be detected. Any loss in effectiveness can be traced to an accumulation of oil sludge or water scale.

Corrosive cooling water, such as salt or brackish water, can have an adverse effect on the metal in the exchanger. Zinc anodes are installed to combat corrosion. Anodes will be found in the end cover opposite the water connections and should be removed periodically for inspection. Replace them before the zinc element has eroded away.

The oil chamber of the exchanger may become filled with sludge accumulation and require cleaning.

CAUTION:

1. Before attempting repairs on the cooling unit, open the disconnect switch to the drive motor and lock it out to avoid the possibility of personal injury.

2. Petroleum base cleaning solvents are flammable, and open flame or smoking by personnel in the vicinity of the solvents is extremely hazardous and must not be permitted.

Disconnect oil lines.

It is recommended that the exchanger be flooded with a commercial solvent, such as Trichloroethylene, and left to soak for one-half hour. Back flushing with the solvent or regular oil will remove the sludge.

3-5 AIR COOLED HEAT EXCHANGER

1. To clean the tube side, flush out the tubes using a solvent compatible with the copper tubes and aluminum turbulators. Then flush out the solvent with clean **Mobil Fluid 424.**

   CAUTION - Turbulators are non-removable. Do not rod or attempt to push through.

2. Periodically check coil fins for accumulation of dirt and other debris. Clean if necessary.

3. Low pressure compressed air may be used to remove most of the accumulated dirt. More thorough cleaning can be accomplished by removing the coil from the assembly and flushing with a solvent compatible with aluminum.

CAUTION:

1. Before attempting repairs on the heat exchanger, open the disconnect switches to the fan motor and cooling oil motor and lock them out to avoid the possibility of personal injury.

2. Petroleum base cleaning solvents are flammable and open flames or smoking by personnel in the vicinity of the solvent becomes extremely hazardous and should not be permitted.

3-6 WATER SAVER VALVE *(Optional)*

(See Figure 3.4)

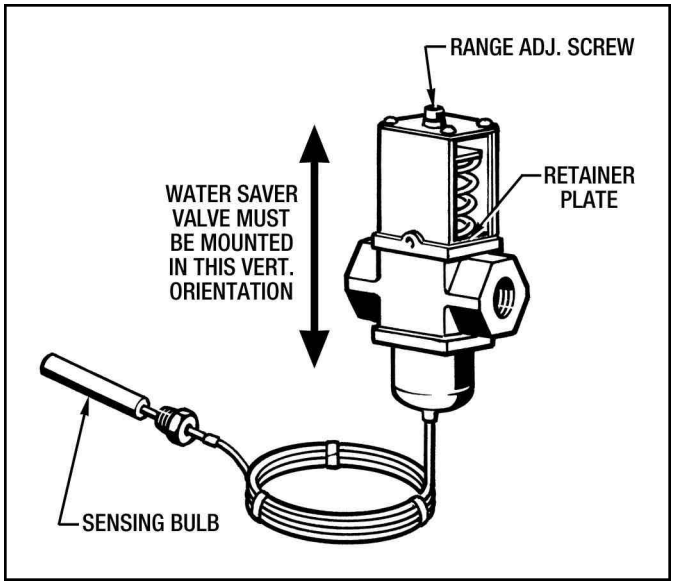

Figure 3.4 - Water Saver Valve

The water saver valve is used on the water-cooled heat exchanger to conserve water by throttling it under mild

heat loads and to maintain a constant running temperature of the drive under varying heat load conditions. The sensing bulb senses the temperature of the oil in the reservoir and increase or decrease water passing through the heat exchanger to maintain a constant temperature.

The valve may be manually flushed by using two screwdrivers and inserting them at opposite sides under the retainer plate at the bottom of the spring and prying up on it. This does not change the valve adjustment. Two inserts are supplied with the valve. One is completely closed and the other one has a small orifice in it. The one with the orifice should be used where the water could freeze.

3-7 FLOW SWITCH

A flow switch is used to prevent running the drive without oil. If flow is not present in the supply line, the switch wiil shut down the prime mover until corrections have been made. See **Section 2-3-A** for electrical hookup. The switch should be wired normally open.

A. Paddle Type flow Switch

Adjustment: Remove cap and turn adjusting screw in clockwise direction for a higher velocity switch point. This is only a typical Flow Switch. Consult the manufacturers Installation and Maintenance Literature for detailed information on proper adjustment procedure. *(See Figure 3.5)*

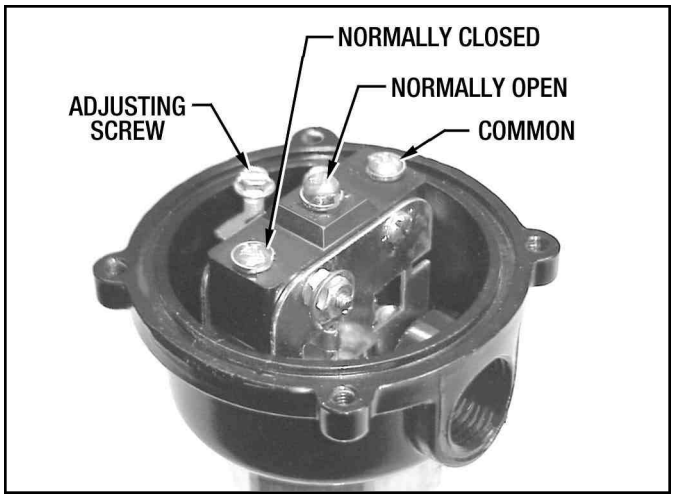

Figure 3.5 - Typical Paddle Type Flow Switch

B. Differential Pressure type Flow Switch

Adjustment: Turn the adjusting screw CW to raise the differential pressure setting and CCW to lower the differential pressure setting. (A 1/2 turn of the adjusting screw adjusts the pressure differential 3/4 PSI) The High Pr. side is connected to the inlet side of the heat exchanger and the Low Pr. side is connected to the outlet side of the heat exchanger. *(See Figure 3.6)*

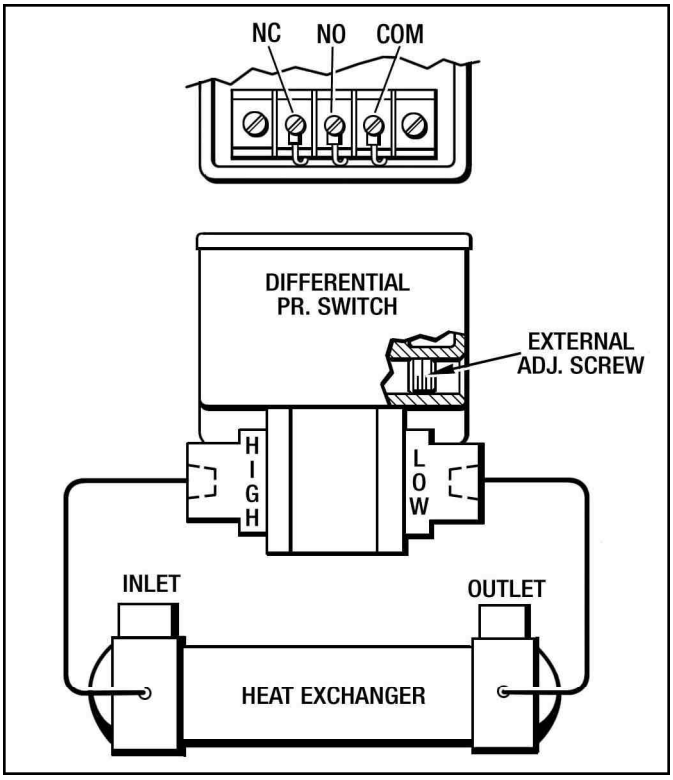

Figure 3.6 - Typical Differential Pressure Flow Switch

Differential Flow Switches ordered from Force Control will be factory set.

If you purchase one from the manufacturer, consult the manufacturers Installation and Maintenance Literature for detailed information on proper adjustment procedure.

If there is any question concerning the proper Differential Pressure Setting, consult the Force Control Factory.

3-8 TEMPERATURE SWITCH

The snap action, non adjustable, temperature switch is used to shut down the prime mover in the event of the fluid overheating before any damage is done to the drive.

A. Electrical Specifications:

Action: SPDT

Rating: 28 V.D.C., 120 V.A.C., 5 amp resistance, 3 amp inductive.

Temperature: 180 degrees F (Non-adjustable)

Actuation/De-actuation Differential:10 degrees F to 25 degrees F (Non-adjustable)

The switch is a sealed unit and should be replaced if it malfunctions.

3-9 SUCTION STRAINER *(Optional)*

When the strainer is furnished it has a relief valve which insures that the pump will not starve for fluid when strainer is clogged. To insure against pumping dirty fluid through the drive, remove the flange on the top of the reservoir and break union in the pump suction line and remove and clean with solvent.

CAUTION:

1. Open the disconnect switch to the cooling motor and lock out to avoid the possibility of personal injury.

2. Petroleum base cleaning solvents are flammable and open flames or smoking by personnel in the vicinity of the solvents becomes extremely hazardous and should not be permitted.

Section 4 - Lubrication of Ball Bearing Motors

4-1 LUBRICATION

This is a ball bearing motor. No lubrication need be added before start up. The bearings have been lubricated at the factory.

A. Re-Lubrication Intervals

The following intervals are suggested as a guide:

HOURS OF SERVICE PER YEAR	H.P. RANGE	SUGGESTED RE-LUBE INTERVAL
5,000	1/8 to 1/2 10 to 40 50 to 150	5 Years 3 Years 1 Year
CONTINUOUS Normal Application	1/8 to 1/2 10 to 40 50 to 150	2 Years 1 Year 9 Months
SEASONAL SERVICE Motor is Idle for 6 Months or More	All	1 Year (Beginning of Season)
CONTINUOUS High Ambient,Dirty or Moist Locations, High Vibrations or Where Shaft End is Hot (Pumps and Fans)	1/8 to 40 50 to 150	6 Months 3 Months

B. Type of Lubricant

Use high quality ball bearing grease. Use consistency of grease suitable for class of insulation stamped on nameplate as follows:

REGULATION CLASS	CONSISTENCY	TYPE	TYPICAL GREASE	FRAME TYPE
A & B	#2	Lithium Base	Shell Alvania	215T & Smaller
A & B	Medium	Polyurea	Shell Dolium	54 & Larger
F & H	Medium	Polyurea	Shell Dolium R	All

C. Lubrication Procedure

If motor is equipped with Alemite fitting, clean tip of fitting and apply grease gun. Use 1 to 2 full strokes on motors in NEMA 215 frame and smaller. Use 2 to 3 strokes on NENlA254 through NEMA365 frame. Use 3 to 4 strokes on NEMA404 frames and larger. On motors having drain plugs, remove grease drain plug and operate motor for 20 minutes before replacing drain plug.

On motors equipped with slotted head grease screw, remove screw and apply grease tube to hole. lnsert 2 to 3 inch length of grease string into each hole on motors in NEMA 215 frame and smaller. lnsert 3 to 5 inch length on larger motors. Motors having grease drain plugs, remove plug and operate motor for 20 minutes before replacing drain plug.

CAUTION: Keep grease clean. Lubricate motors at stand-still. Remove and replace drain plugs at stand-still. Do not mix petroleum grease and silicone grease in motor bearings.

Section 5 - Ordering Repair Parts

5-1 GENERAL INFORMATION

An Assembly Drawing and Bill of Material was supplied with your Forced Lube Cooling Unit. All parts are assigned a Part Reference Number, which are shown on the Assembly Drawing and listed on the Bill of Material. Specify this Part Reference Number, Part Name and Qty. Req'd. when ordering any replacement parts.

5-2 DRIVE MOTORS

The motors used with these Drive Units are standard and may be repaired or replaced by any qualified motor re-build facility or supplier.

5-3 ORDERING REPLACEMENT PARTS

When ordering replacement parts, please specify all of the following information:

1. FLCU Model Number (On the name plate.)
2. FLCU Serial Number (On the name plate.)
3. Part Reference Number (From the assembly drawing and bill of material.)
4. Part Name (From the bill of material.)
5. Quantity (From the bill of material.)
6. Complete Shipping lnformation

Failure to include information for items 1 thru 6 will only delay your parts order. Unless another method is specified for item 6, parts less than 150 pounds will be shipped United Parcel Service, parts over 150 pounds will be shipped Motor Freight. Air freight and other transportation services are available but only if specified on your order.

If the Bill of Material and Assembly Drawing are missing, get the Serial Number off the Name Plate and contact Force Control for ordering any repair parts.

Force Control Industries, Inc.
3660 Dixie Highway
Fairfield, Ohio 45014

Telephone: 513-868-0900
Fax No.: 513-868-2105
E-Mail: info@forcecontrol.com
Web Site: www.forcecontrol.com

5-4 NAME PLATE AND MODEL NUMBERS

The Name Plate shown is located on the Fluid Reservoir Tank.

Force Control Industries, Inc.

FORCE CONTROL

Fairfield, Ohio
For Service/Parts Call
513-868-0900

Model No. _____

Serial No. _____

Fluid Type _____

IMPORTANT: Do not substitute fluid.

Manual Revision & Printing History

Instruction Manual For Forced Lube Cooling Unit

REVISION NUMBER	REVISION DATE *(Mo./Yr.)*	PRINTING DATE *(Mo./Yr.)*	REVISION/ACTION DESCRIPTION	REVISION INITIATED BY *(Name)*	REVISION MADE BY *(Name)*
502-FCLU-001-01	11/2003	---------	Added Differential Pressure Type Flow Switch to Section 3-6. Removed Detroit address. Added Revision History	T. Vonderhaar	J. Brooks
			Corrected numerous errors and clarified correct and latest manual.	Jerry Yater	J. Brooks

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