



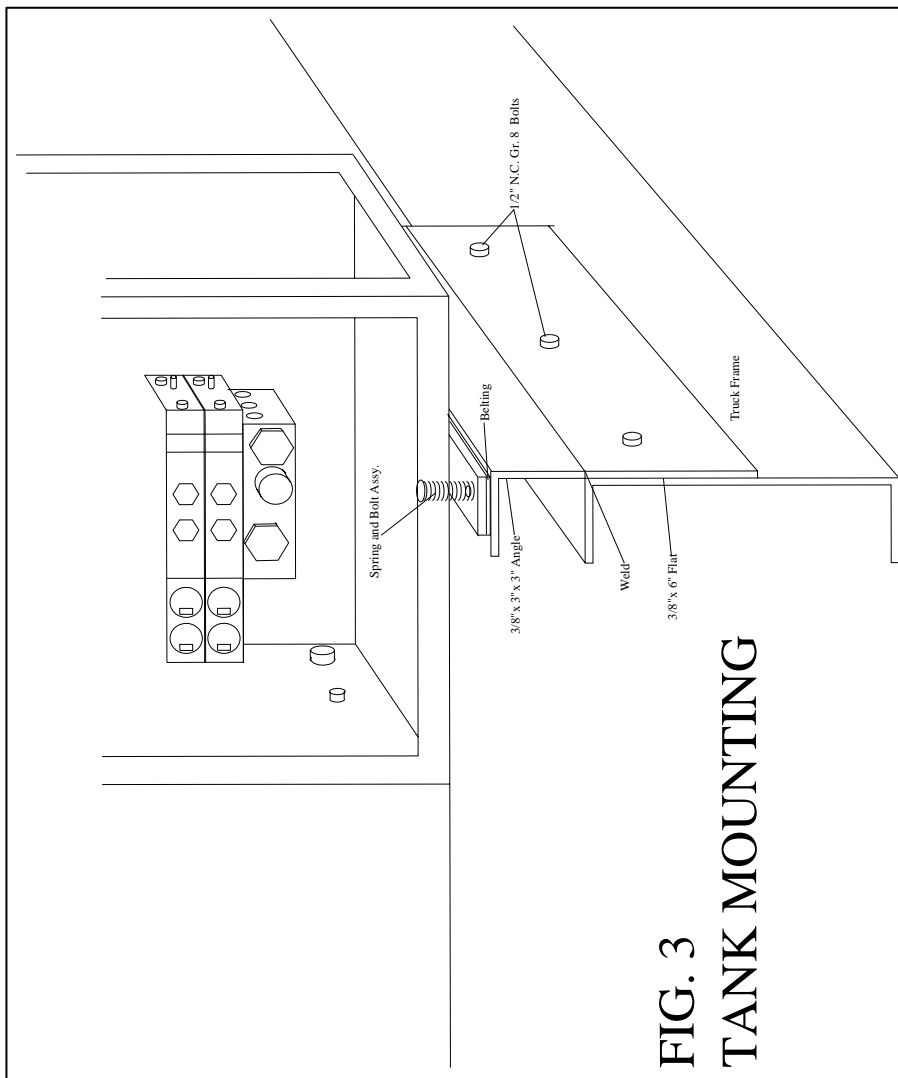
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ACCU-CAST SYSTEM INSTALLATION INSTRUCTIONS

Please carefully read through all of these instructions before starting your actual installation, as failure to follow all of these directions could cause some or all of your warranty to be voided.

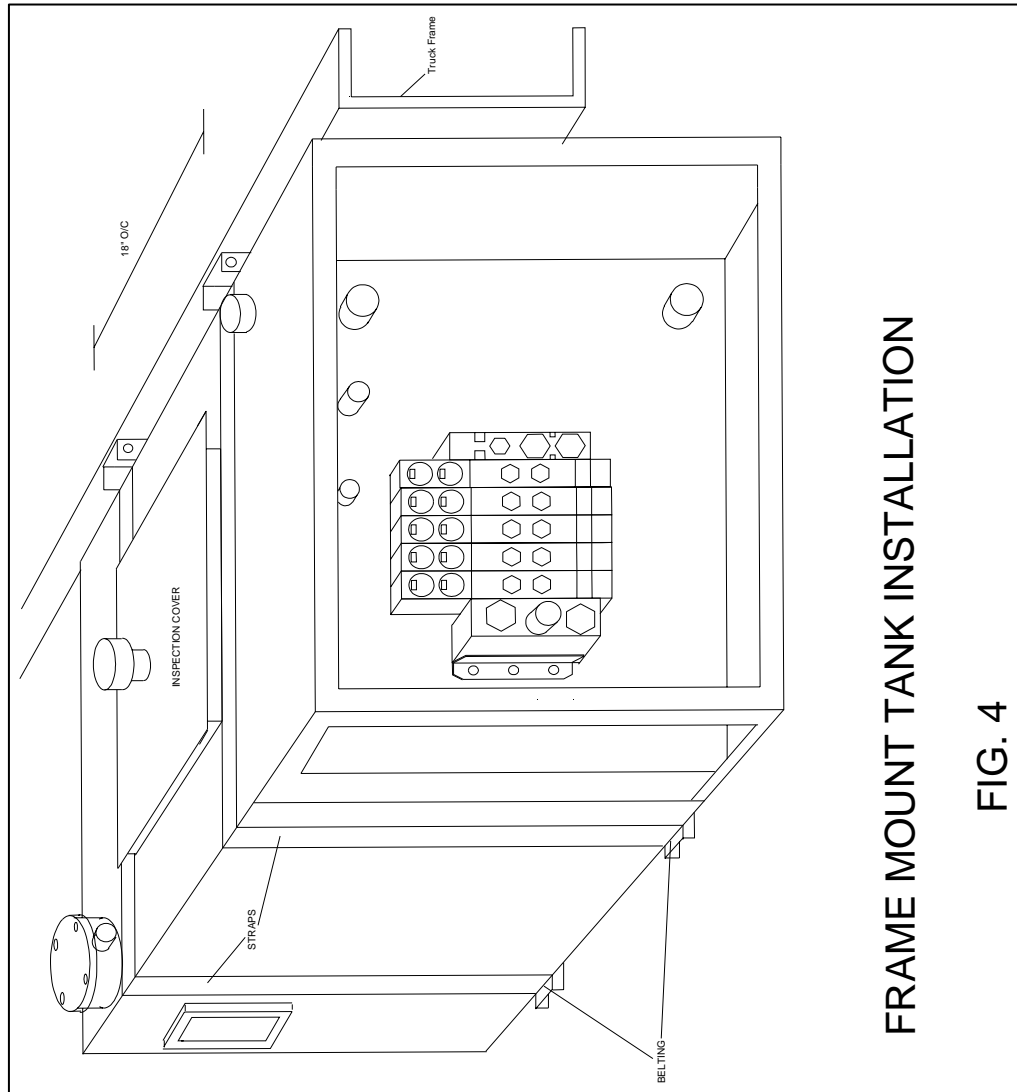
Tank and Valve Compartment (behind cab):

The **ACCU-CAST** tank assembly must be mounted using the bolts and springs provided. Brackets should be fabricated and bolted to the frame in such a manner that the tank will clear any obstacles such as exhaust and air fittings etc. (see fig 3.) **NOTE: THE TOP AND BOTTOM FRAME FLANGES MUST NOT BE DRILLED OR WELDED.**



Frame Mounted Tank:

Clean off the area of the frame where the tank will be mounted. This may require relocating several items such as air dryer and battery box. Drill the frame and



brackets for 3 -5/8" NC grade 8 bolts per bracket as per drawing fig 4. Mount the brackets to the frame then set the tank on the brackets with strips of belting between, so that the straps will lie on each side of the inspection cover. Tighten down the hold down straps.

Electrical:

Install the pedestal and console in an appropriate position that is convenient for the operator and brace the post as necessary to prevent it from vibrating.

Locate the lighting and sensing junction boxes in a convenient location in the cab, such as the front or side of the passenger seat base, or the back of the cab between the seats.

Using a hole saw of an appropriate size, drill a hole through the floor for the valve harness and sensing wires. Run the sensing wires to the rear sensing junction box which should be mounted in a convenient place close to the conveyor motor and/or Baluff gate sensor. If the conveyor motor and/or gate sensor are on the front of a hopper that has a hoist cylinder you will have to route the sensing wires around the hinge with the hydraulic hoses. Ideally the sensing wires should have no plugs on them and should run in one piece from the sensing junction box in the cab to the sensing junction box near the conveyor motor and/or gate sensor, this will prevent most problems related to poor connections and corrosion. The valve harness goes up into the valve compartment through the hose opening and is plugged into the solenoids in the proper order (see drawings, valve harness in section 3 and tank assembly in section 2).

On 3000V systems with closed loop gate control you must ensure that the gate cylinder is positioned such that when it is fully extended the rubber at the bottom of the gate is exactly ½” above the cross bars, and that there is only a maximum of 1” of rubber below the bottom of the gate (this will prevent inaccuracies due to the rubber flexing). The Baluff sensor must be attached in such a way that the connecting rod is attached to the gate as close as possible to the attachment point of the cylinder horizontally and that when the gate is closed the magnet is above the arrow on the sensor. Common sense would also dictate that the cylinder stroke must be sized correctly so that it will open the gate completely but not allow the gate to come out of its guide rails. If multiple units are being fitted it is imperative that all of the gates and sensors be mounted identically so that calibration parameters can be copied from one to the other.

You will have to run two 10-gauge wires directly from the battery pos. and neg. to feed the lighting relay box. Be sure to protect the positive wire with a 35-amp fuse or breaker at the battery. Then you can string the lighting cable between the relay box and the console, and plug them into their respective sockets.

All of the lighting can now be hooked into the relay box according to the engraving on the PC board and the drawing (relay board) in section 3.

Next you will have to run the speed sense cable from the speedo signal to the sensing junction box in the cab. If you do not know where to locate this signal your local

truck dealer should be able to help you. In many cases you can install your own sensor in the spare port in the transmission or replace the existing single sensor with a dual one.

Install the mercury switch on one of the box sills near the box hinge, in such a manner that it can be adjusted to open the circuit just before the box gets to its maximum dumping height, the wiring for this will have to be run back around the hinge, and then to the valve compartment of the *ACCU-CAST* tank, and plugged into the cannon connector which is in series with the hoist up solenoid. (If a pressure switch is used to prevent hoist – up until the air bags are dumped this can be run in series with the mercury switch at the same time.)

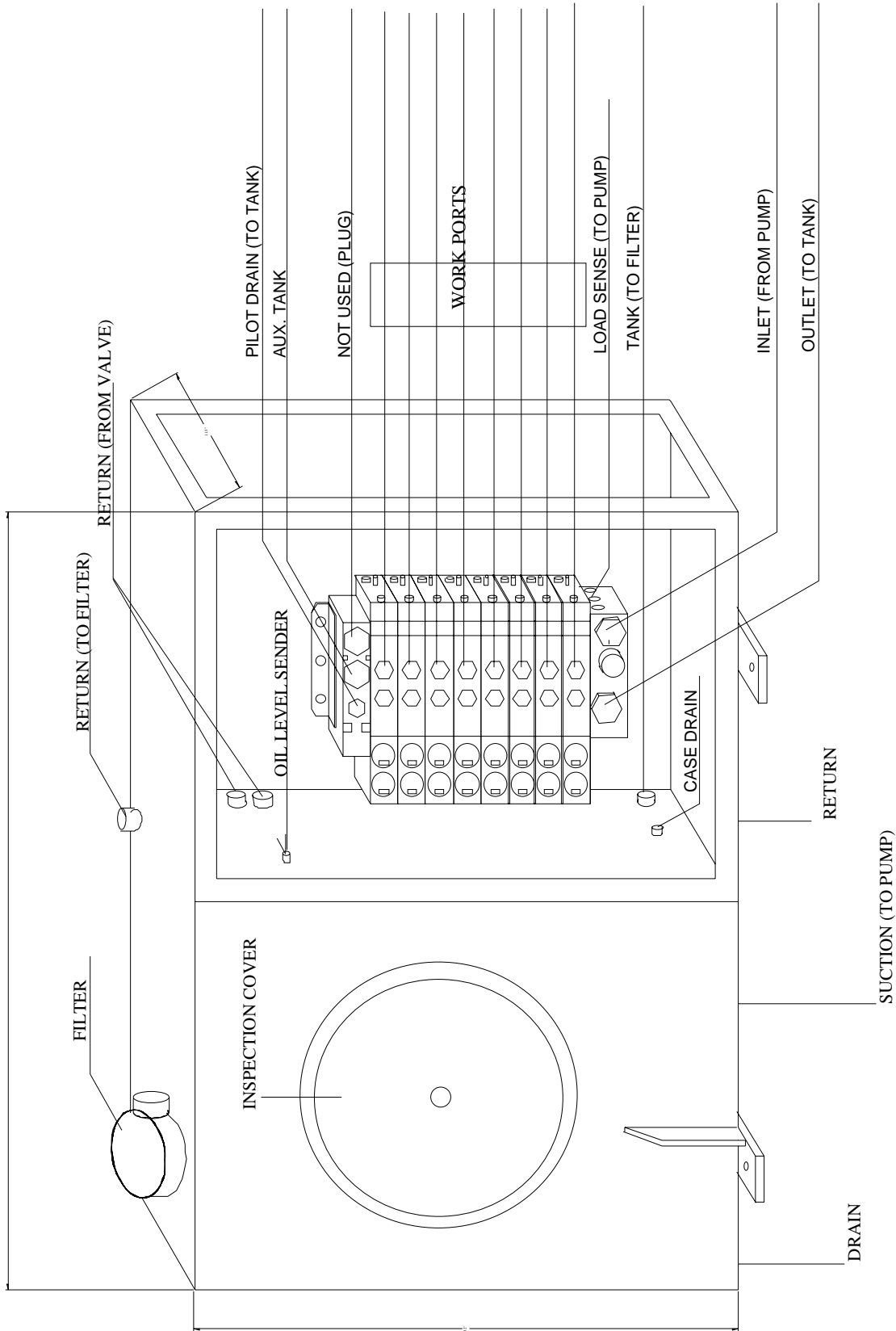
Plumbing and Hoses:

The hoses and plumbing on every installation will be different, however there are a few simple rules that should be followed.

Suction hoses for piston pumps should be 2" minimum inside diameter. For gear pumps this may be reduced to 1 1/2" diameter. Pressure lines should be 1" double braid hose, and return lines can be 1" single braid hose.

Be sure that all hoses are protected at points where they may rub against other components and that they are solidly tied up to prevent sagging when they are laden with ice and snow.

An opening is provided in the bottom of the valve compartment both inside and outside of the frame to allow the various hoses and wires to be easily run to there respective locations. After all hoses and wires have been run you should seal off these openings with a spray foam in order to keep the valve compartment relatively weather tight.



ACCU-CAST TANK ASSY.

NOTE: TANK INSTALLATION REQUIRES 18" OF FRAME SPACE BEHIND THE CAB

Pump Installation

Before beginning pump installation be sure that your pump is set up to rotate in the proper direction.

Most engines turn clockwise as you are looking at them from the front. Pump rotation is stated as looking at the shaft end. So if you are installing the pump on the front of the engine you will require a CCW rotation. If you are installing to a PTO on the rear it will most often be the same rotation as the engine and so will require CW rotation however it is a good idea to check.

Front Mounted Pump (Crankshaft Driven):

For front pump installation first remove the front bumper and anything else that may be in the way (such as tow hooks or horns etc.) so that the pump mounting plate can be mounted between the frame members. Use 1/2"x 8"x 8" long flat bar, bolted to the inside of the frame with the mounting plate welded to the inside of them on the proper angle as shown in figures 1 & 2. Be absolutely sure that the pump face is parallel to the face of the crankshaft. It is desirable for the pump to be a few inches higher or lower than the centerline of the crank as long as the angle is not more than about 8 degrees or less than about 3 degrees and the two **faces are parallel**. Measure the length required for the driveshaft and order it locally, (Prairie Hydraulic Equipment does not supply this item). **Important!** To prevent possible pump damage, voided pump warranty and/or personal injury, do not install driveshaft until all plumbing is complete, tank is full of oil, pump case is full and the following start up procedure is read, understood and followed.

Please ensure that the following start up procedure is strictly adhered to:

Before starting engine install gauges in the following locations: 0 to 30, 0 to -30 compound gauge in suction at pump, 0 to 6000 gauge in pressure line at pump, 0 to 300 gauge in case line at pump, 0 to 3000 in Hoist or plow up line. Fill hydraulic tank to the middle of the site gauge. Open ball valve on suction line. Open air bleed on top of pump case until oil runs out, check again to be sure that gate valve is completely open and tank is full.

Start engine and allow to idle until standby pressure stabilizes. Run engine at governed speed and read gauges on suction and case, case pressure in all cases must not exceed 5 PSI higher than suction pressure. For example: if suction is -3 psi, case must not be greater than 2 psi. Run engine at 1200 RPM Fully extend plow or hoist cylinder and read maximum circuit pressure. Set main relief on valve to 2200 PSI. Set Pump compensator to 1800 PSI. See instructions for setting system pressures elsewhere in this section.

Remove test gauges and check system for leaks to complete start up procedure.

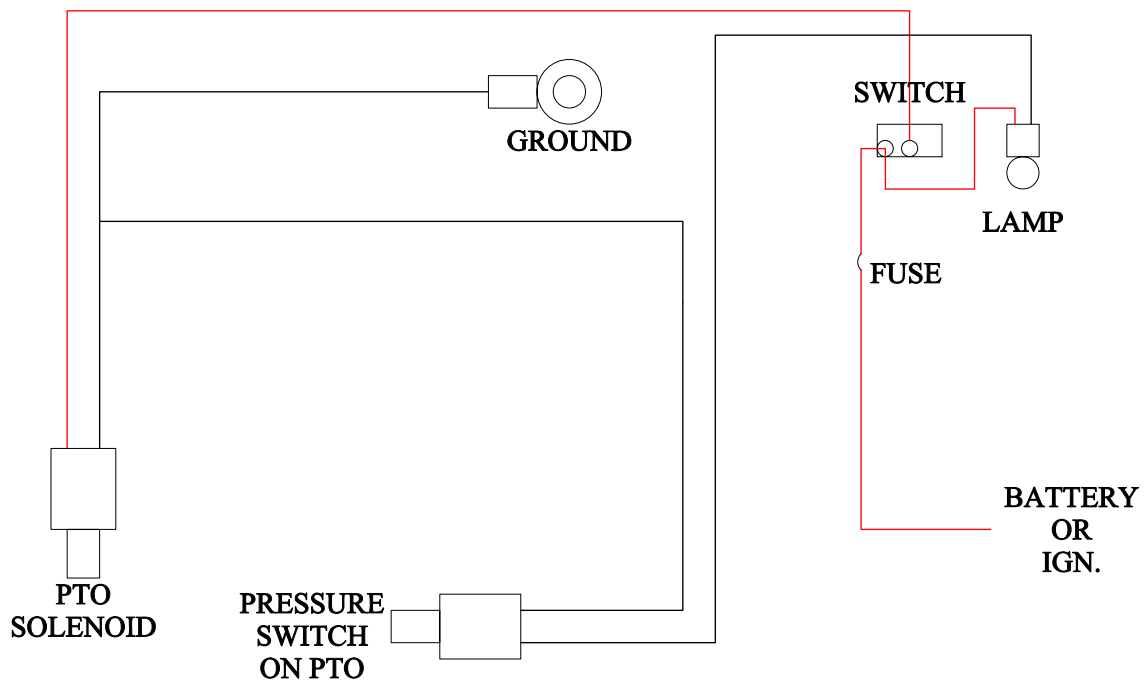
PTO Driven Pump:

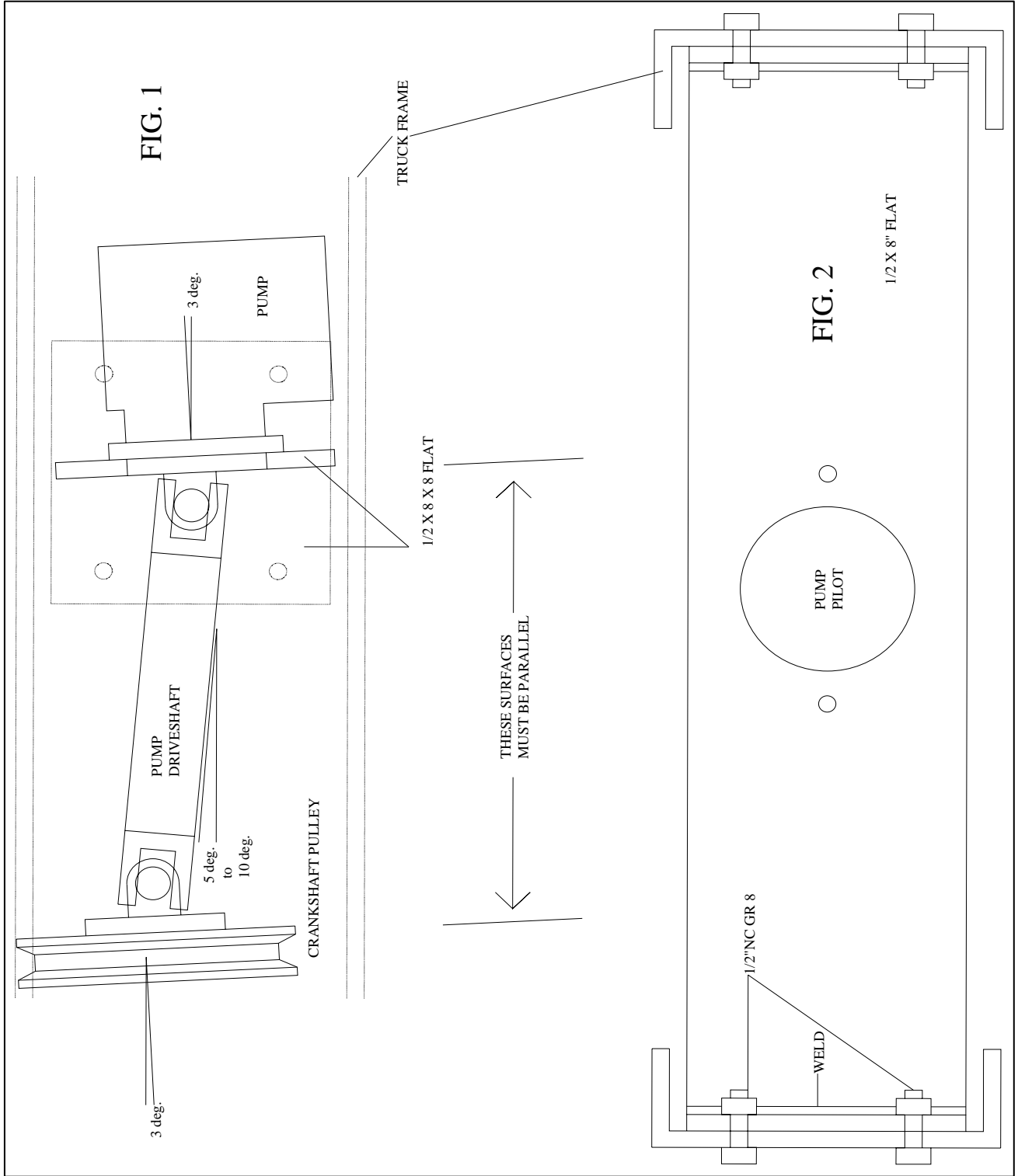
ACCU-CAST does not normally recommend a PTO driven pump for our system. However if the pump can not be driven from the crankshaft on your vehicle a "hot shift" PTO on an Allison transmission is acceptable. If none of the above options can be used contact ACCU-CAST at 1-800-363-0091.

Some piston pumps can not be direct mounted to a PTO. Other options may have to be looked at. **Note: when required a good quality driveshaft is strongly recommended. Also be sure to check the rotation of the PTO against the rotation of the pump.**

When you are ready for startup be sure to read and follow the procedure found under "startup directions" above.

A wiring diagram for a typical "Hot Shift" PTO is illustrated below.





All working lines such as plows and spinner etc. can be 1/2" double braid except for the conveyor and box hoist which should be 3/4" double braid. The sensing line for a piston pump should be 3/8" and the case drain should be 3/4" minimum, single braid.

**** It is very important to clean out hoses after assembly and to keep them clean during the installation process.**

Once all of the hoses have been made up and installed the job should be thoroughly inspected to insure that nothing is rubbing or too close to the driveshaft or exhaust etc. Once all looks well you should purchase a can of expanding foam and use it to seal the area where the hoses enter the valve compartment.

Now you can fill the tank with hydraulic oil. (Telus 22 or equivalent) Install the pump driveshaft (which should have been left off until now for safety reasons). Fill the case on piston pumps. Then start the engine and immediately check for leaks. Leave the engine at idle speed for 5 or 6 minutes to allow the pump to come on line and purge the air from the pressure and return circuit. Then you can slowly begin operating each function to in turn purge the air and check for proper operation and direction.

Set the relief and compensator pressures as per the instructions on page 5.

Maintenance:

Read through the maintenance and troubleshooting section 7 in your manual. Recheck the oil level in the tank and recheck all hydraulic and lighting functions for proper operation and leaks etc. Prairie Hydraulic Equipment Ltd. strongly recommends that you change the hydraulic oil and filters after the first 100 hours of operation, to insure that any dirt that has been inadvertently introduced to the system during installation is removed.

This completes the installation of your *Accu-Cast*® Sanding system. If you have followed these instructions and kept everything clean you should be able to look forward to many years of trouble free service.

If you should encounter problems that you require help with, you can contact us anytime toll free at Phone 1-800-363-0091 Fax 1-403-236-2658 or in Calgary at 279-2070.

INSTRUCTIONS FOR ADJUSTING SYSTEM PRESSURE WITH PRESSURE COMPENSATED PUMP

Determine the system pressure required. This would normally be the highest pressured required by any of the functions. (1850 psi for systems on Viking Proline bodys)

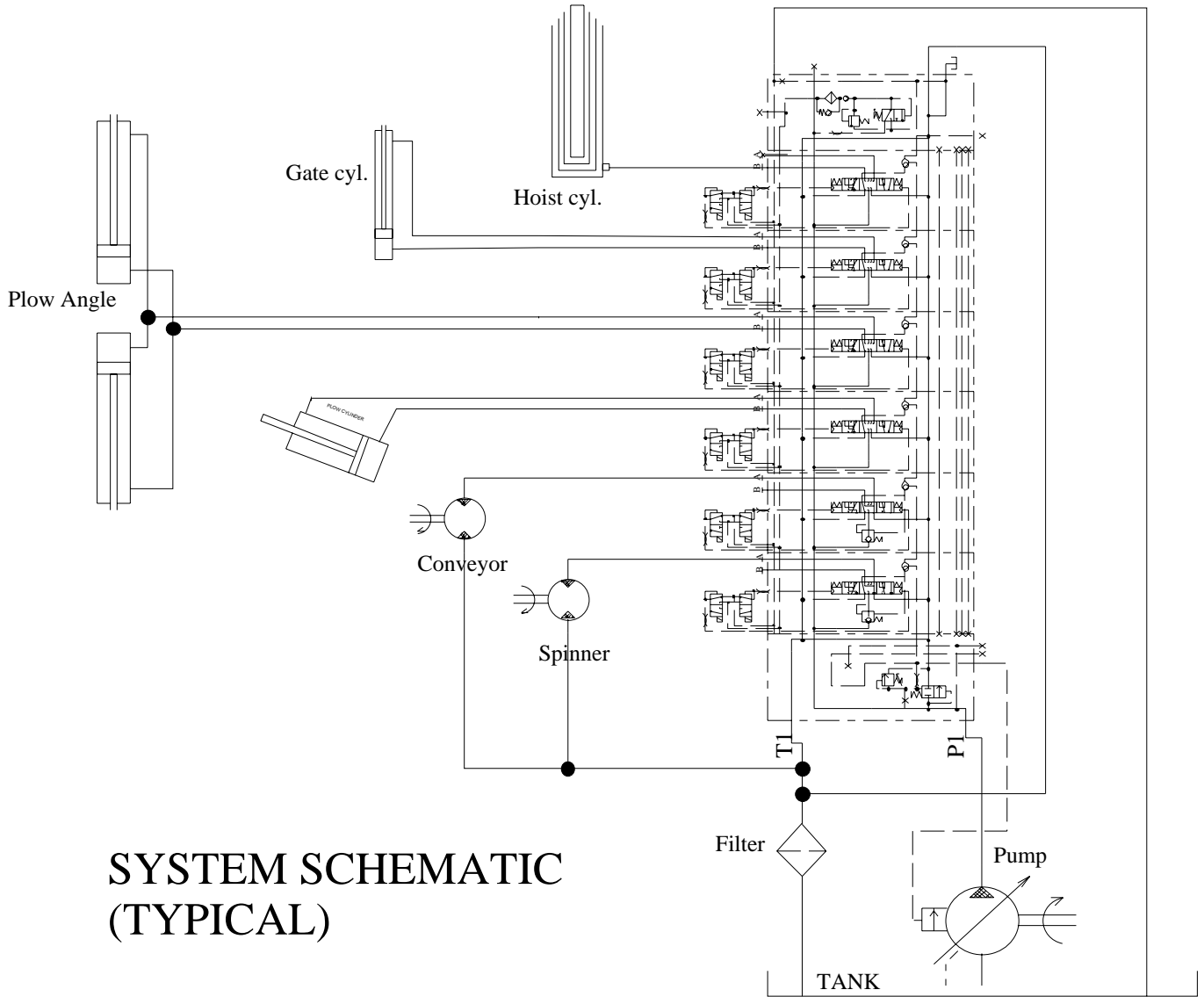
The pump compensator will have to be set at this system pressure, and the main relief in the valve will have to be set a few hundred PSI above this, so that it will act as a safety in the system, without constantly bleeding off under normal operating conditions.

In order to perform these adjustments you will have to install a gauge of known accuracy (at least 3000 PSI) into the main pressure line, between the pump outlet and the valve inlet.

Break the jam nut on the pump compensator loose. Start the truck engine and engage the PTO if necessary to get the pump turning. Set engine to 1200 RPM. Have a helper raise the plow, or other function, in order to deadhead the system. **(Do not use underbody plow down or any other function that may have a circuit relief)**. The pressure gauge will now read system pressure. Move the compensator adjustment in and out slightly to insure that what you are reading is the compensator adjustment and not the relief setting. Turn the compensator adjustment clockwise to increase the setting past the point where the gauge stops increasing. You should now hear the main relief in the directional control valve squealing as it is passing oil at high pressure to tank. Once you are sure that you are reading the relief pressure you can set it to 2200 PSI by loosening the jam nut on the main relief and turning the set screw (normally clockwise to increase and counter clockwise to decrease). Once the main relief is set, you can tighten the jam nut on the set screw and go back to the compensator. Back the compensator off to the required system pressure and tighten the jam nut.

It is extremely important that the main relief be set 200 to 300 PSI higher than the compensator. If it is not, the oil passing to tank at high pressure over the relief will cause high temperatures that can permanently damage the system.

Remove your gauge from the main pressure line and clean up spilled oil etc. That's it you're done.



**SYSTEM SCHEMATIC
(TYPICAL)**

POWER FLOAT INSTALLATION INSTRUCTIONS

Thank you for purchasing an **ACCU-CAST** power float system. The following instructions should allow you to install and set up the system without a problem.

If you are not installing this power float on a PHE II, PHE III, PHE IV , PHE V or **ACCU-CAST** system, please consult with **ACCU-CAST** about the compatibility of this system with your pump and valve.

ACCU-CAST recommends that you use this system with a double acting plow cylinder, however it should also work with a single acting cylinder.

Please check over the contents of your installation kit to insure that it contains the following items before beginning.

1. Power float manifold, (there are two types of manifold, these are remote mount, and integral which is mounted as its own section into our VOAC valve) complete with 3 solenoid valves, pressure and flow adjusters, and pressure switch.
2. Power float electronic module, complete with wire harness and combination switch and pilot lamp
3. 16 pin CPC panel mount receptacle (non integral units)
4. Valve harness C/W CPC plug (harness is integral with the valve harness in late model integral units).
5. Shuttle valve if required
6. Instruction manual

The following instructions are divided into two headings, one for the electrical part and one for the hydraulics.

ELECTRICAL:

Begin the electrical installation by installing the circuit board in a convenient location inside the control console. The combination switch and lamp is next, if you do not have a vacant hole for it you will have to provide a 3/4" square hole for this purpose. (If this is a PHE or ACCU-CAST console you can remove the hot oil lamp, which is not used and install the power float switch in its place.) Cut a suitable hole and install the 16 pin CPC panel plugs in the console bottom. (If this is a PHE IV or ACCU-CAST console you can use the pin locations provided for this purpose in the sensing plug.)

Please install the wire colors in the following pin locations so that they will match up properly with the cable. The pins are already installed for you. You must use caution here because if you install a pin in the wrong hole and have to remove it you will require a special tool.

COLOR	PIN POSITION	FUNCTION
Orange	12	Sol. A
White	13	Sol. B&C
Black	14	Sol. Gnd.
Red	15	Pressure sw. Pos
Grey	16	Pressure sw. Sig.

Now that you have everything else hooked up you can tie the remaining red and black wires to 12 volt pos. Next, ground the blue and yellow wires to their respective sides of the double pole switch, and the brown wires to the lamp terminals of the switch as shown on the wiring diagram. The only wire left without a home now is the green one, which has to be tied in to the plow down side of the plow switch or joystick so that it is energized when you lower the plow.

Plug the new cable in to the new socket that you installed in the console and feed it through the cab floor with the other valve cables to the area that you have chosen to mount the valve manifold and secure it with cable ties along its entire length. (If your truck has a P.H.E. IV, V or ACCU-CAST system you may be using the existing space in the sensing socket as described above, in which case you will have to plug the cable pins into their proper locations in the existing sensing plug and then proceed as above.)

The colors and pin locations for the plug on the valve cable are as follows.

Blue	12	Sol. A
White	13	Sol. B&C
Black	14	Sol. Gnd

Red 15
Green 16

Pressure sw. Pos
Pressure sw. Pos

Again be careful not to put a pin in the wrong hole, as you will never get it out without the proper tool.

This completes the electrical part of the installation.

HYDRAULIC:

Integral units do not require any external lines to be run other than the regular up and down lines to the plow cylinder.

To begin the hydraulic part of the installation for non integral units, find a suitable location to mount the power float manifold. This block can be mounted to the side of the frame or any place else that is convenient. (1/4" all thread rod works well for this). Keep in mind when locating this block that you need to have enough room around it to easily hook up the entire hoses etc. It is generally best to mount it fairly close to the valve to save on hose. If you are close enough you may be able to disconnect the cylinder hoses from the valve and connect them directly to the block. Then you will have to make up two more hoses to go from the block to the valve, at the same time you can make up a new pressure, tank and 1/4" sensing line.

Check the hydraulic schematic diagram to ensure that all lines are routed to the proper ports. The pressure will probably have to be tee'd into the main pressure line from the pump. The tank line can be installed into a spare port in the tank or tee'd into an existing line.

To hook up the sensing line you will have to disconnect the small 1/4" line from the directional control valve and hook it up to the middle port on the supplied shuttle valve. One end of the shuttle can then be plumbed to the port on the directional valve and the remaining end can be routed via hose to the power float block.

NOTE:

All ports on the float block are clearly marked as follows:

<u>PORT</u>	<u>DESCRIPTION</u>
V1	PLOW UP FROM DIRECTIONAL VALVE
V2	PLOW DOWN FROM DIRECTIONAL VALVE
C1	PLOW UP TO BOTTOM OF PLOW CYL.
C2	PLOW DOWN TO TOP OF PLOW CYL.
P	PRESSURE FROM PUMP
T	RETURN LINE TO TANK

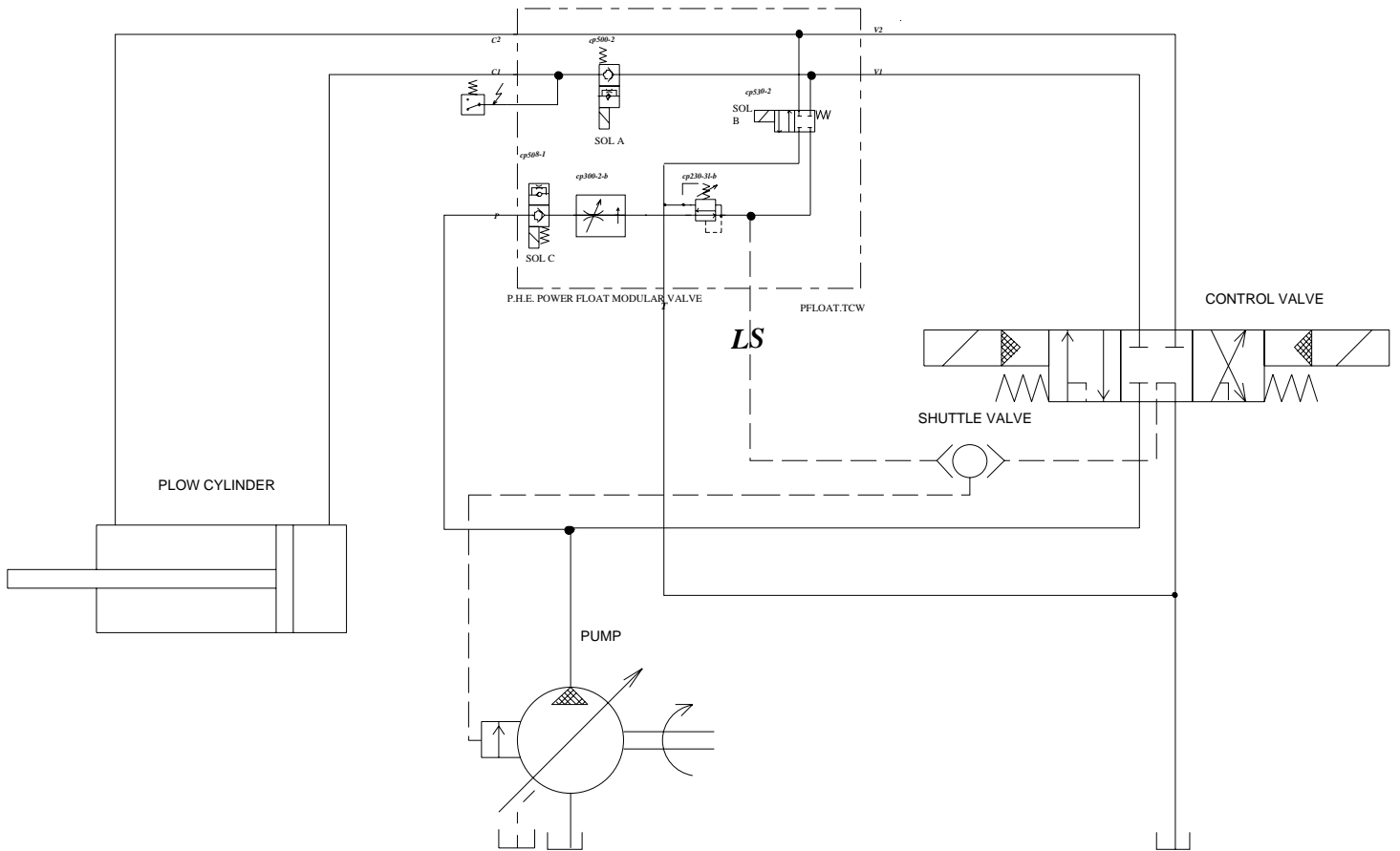
LS
PSSENSE LINE TO SHUTTLE VALVE
FOR PRESSURE SWITCH**ADJUSTMENTS:**

Begin the adjustments by identifying the three points that will need to be tweaked. On the face of the float valve next to the solenoid is the flow control, it has a 1/4" Allen head set screw and a jam nut. Next to it and slightly above is the pressure reducing and relieving valve. It has a 5/16" Allen plug with an adjustment screw underneath. The pressure switch is on top of the block in the port marked PS, it may be one of several types with the adjustment in a box or on the end of the cartridge.

Start the truck and turn on the power float and select plow down several times. Observe the speed with which the slack in the plow cable or chain is taken up. Use the flow control to adjust this speed to a nice rate so as not to have the arm bang against the plow weight. Now adjust the reducing valve so that the float system is taking the required amount of plow weight off the ground (this amount is arbitrary and will differ according to company requirements, plow weight and / or operator preference. Once the pressure is set you can jump in the cab and raise the plow while observing the float pilot lamp. Once the hydraulics take up the full weight of the plow the lamp should turn off and the plow should stay up. If the lamp does not go out reduce the value on the pressure switch until it does. (The pressure switch must be set at a value between the pressure set on the float and that which it takes to carry the plow.) If it is set too low the float pressure will turn it off and the lamp will not be on during normal float operation. If it is set too high it will not be turned off by the carry weight of the plow and the reducing relieving valve will allow the plow to descend from the carry position to the ground. Any time the reducing valve pressure is changed you will have to check the setting on the pressure switch.

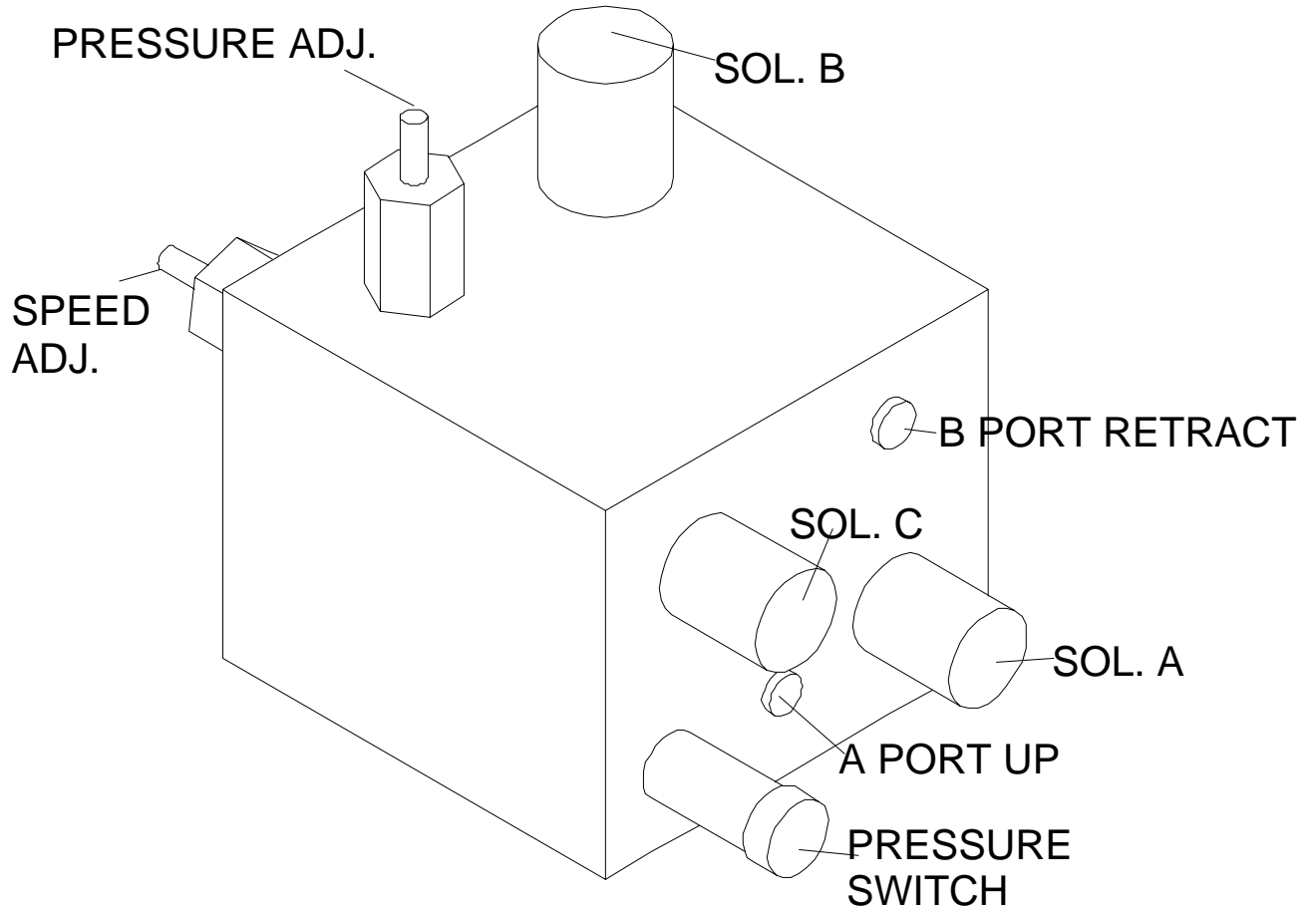
This concludes the installation of your *ACCU-CAST* Power float. It should give you many seasons of trouble free service.

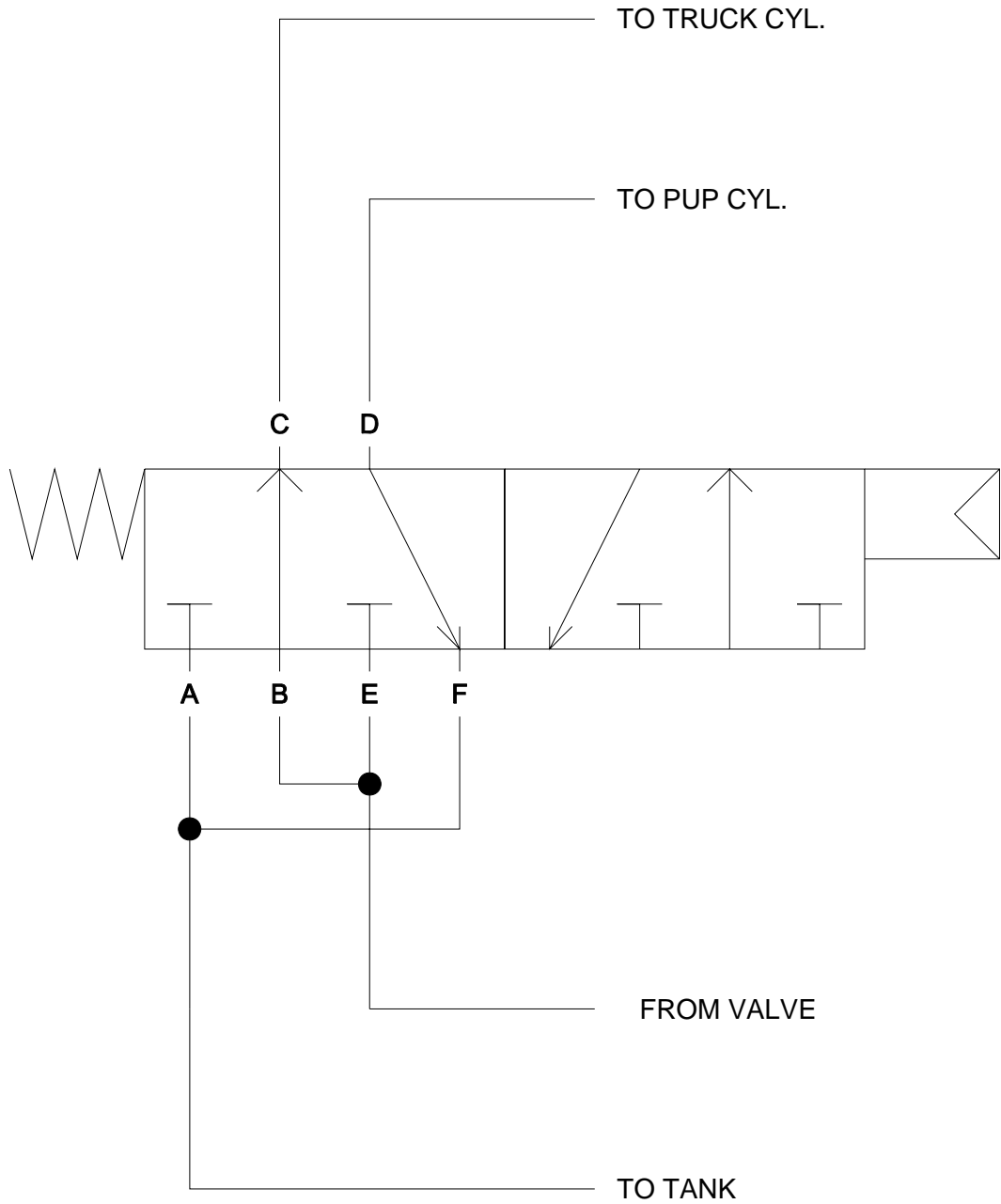
POWER FLOAT SCHEMATIC



PFLAYOUT

Integral Power Float layout





DIVERTER VALVE CIRCUIT