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### ***Caution***

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The default or operating values used in this manual and in the program of the AccuLoad are for factory testing only and should not be construed as default or operating values for your metering system. Each metering system is unique and each program parameter must be reviewed and programmed for that specific metering system application.

### ***Disclaimer***

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FMC Technologies Measurement Solutions, Inc. hereby disclaims any and all responsibility for damages, including but not limited to consequential damages, arising out of or related to the inputting of incorrect or improper program or default values entered in connection with the AccuLoad.

## Section I – Installation

### Installation

The Hydraulic Power Pack (HPP) is a stand alone unit with no assembly required other than filling the hydraulic reservoir with fluid. The unit should be located as close as possible to the valve(s) it will operate. The area in which the unit is fixed should be a flat level hard surface (such as concrete) that gives protection against exposure to standing or runoff water. The bottom flange bracket provides four bolt holes which should be used to fix the unit in place, minimizing vibration (*See Figure 1*).

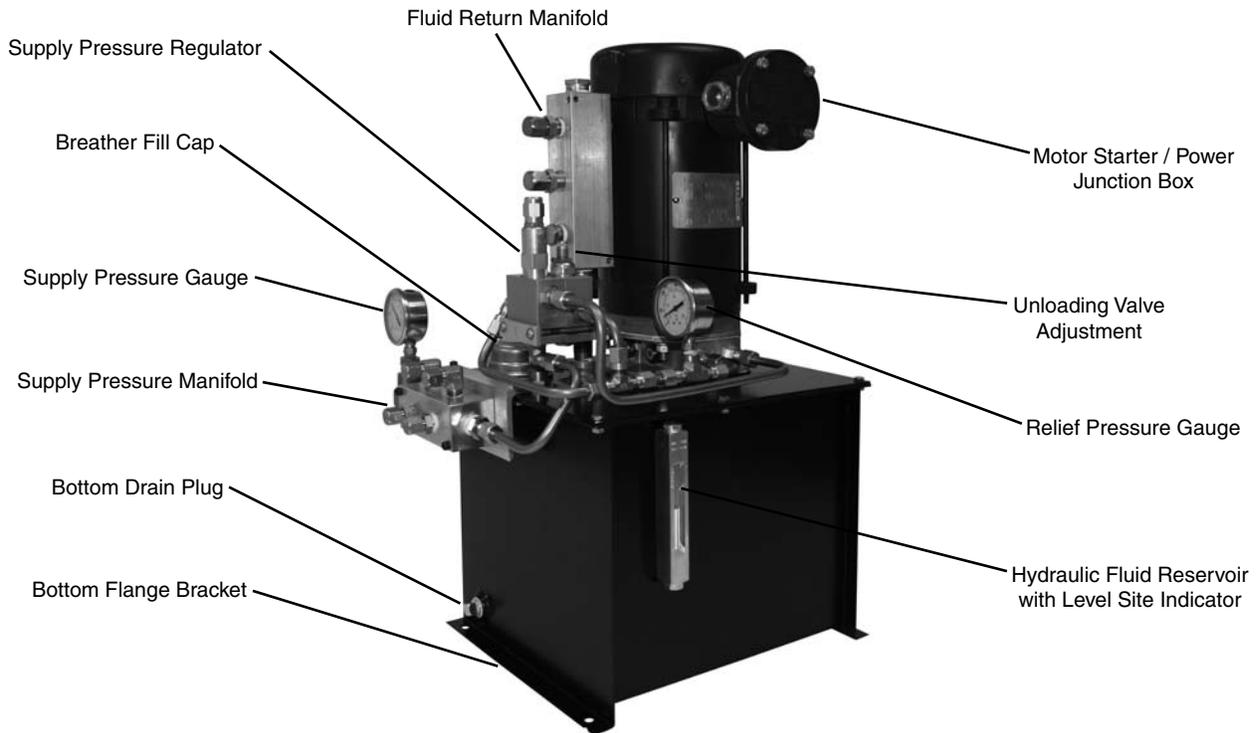


Figure 1

The unit operates on hydraulic fluid which is pumped to supply the desired pressure to actuate the control valve(s). **CAUTION: Assure that the supply pressure from the power unit does not exceed the design rating pressure of the control valve actuator, reference the Maintenance Section of this manual for supply pressure adjustment.** Fill the reservoir to the mid point between the High and Low level of the Site Indicator (*see Figure 1*). Monitor the fluid level during start up as the system, (tubing, valve actuators, etc), will consume a volume of hydraulic fluid from the reservoir. Alternate hydraulic fluids can be used if they fall within the viscosity range of 100 to 2,000 SUS in the operating temperature range of your system. Reference specification sheet SS03044 on the Hydraulic Power Pack.

The (HPP) can drive up to six FMC brand 215B V-ball control valve actuators. Consult our factory if other types of control valves are being used, as the number of valves that can be controlled may be reduced. Follow the plumbing diagram in Figure 2, associating only the number of connections for your application. Each control valve requires a supply line and a relief line. The supply line provides the hydraulic pressure and the relief line directs fluid from the valve actuator back to the HPP reservoir. The supply line(s) are to be 3/8 inch (10 mm) diameter and the return line(s) 1/2 inch (13 mm) to optimize the control valve response. Both lines are to be rated at 200-400 psig (1380 kPa) minimum. Stainless steel tubing is preferred though flexible hydraulic lines may be used as long as they meet the required minimum pressure rating and inside diameter size of the stainless steel tubing. It is important that these lines do not rust or corrode in the environment. When connecting the tubing between the HPP and the valve bending may be required to route the path. Minimize the number of bends in the lines to allow for ease of fluid flow and fast control valve response time. No bends should have an angle bigger than 90 degrees as this could pinch the line not allowing the hydraulic fluid to flow properly and slowing the control valve response time.

<sup>1</sup> R&O is Rust and Oxidation Inhibitor

# Section I – Installation

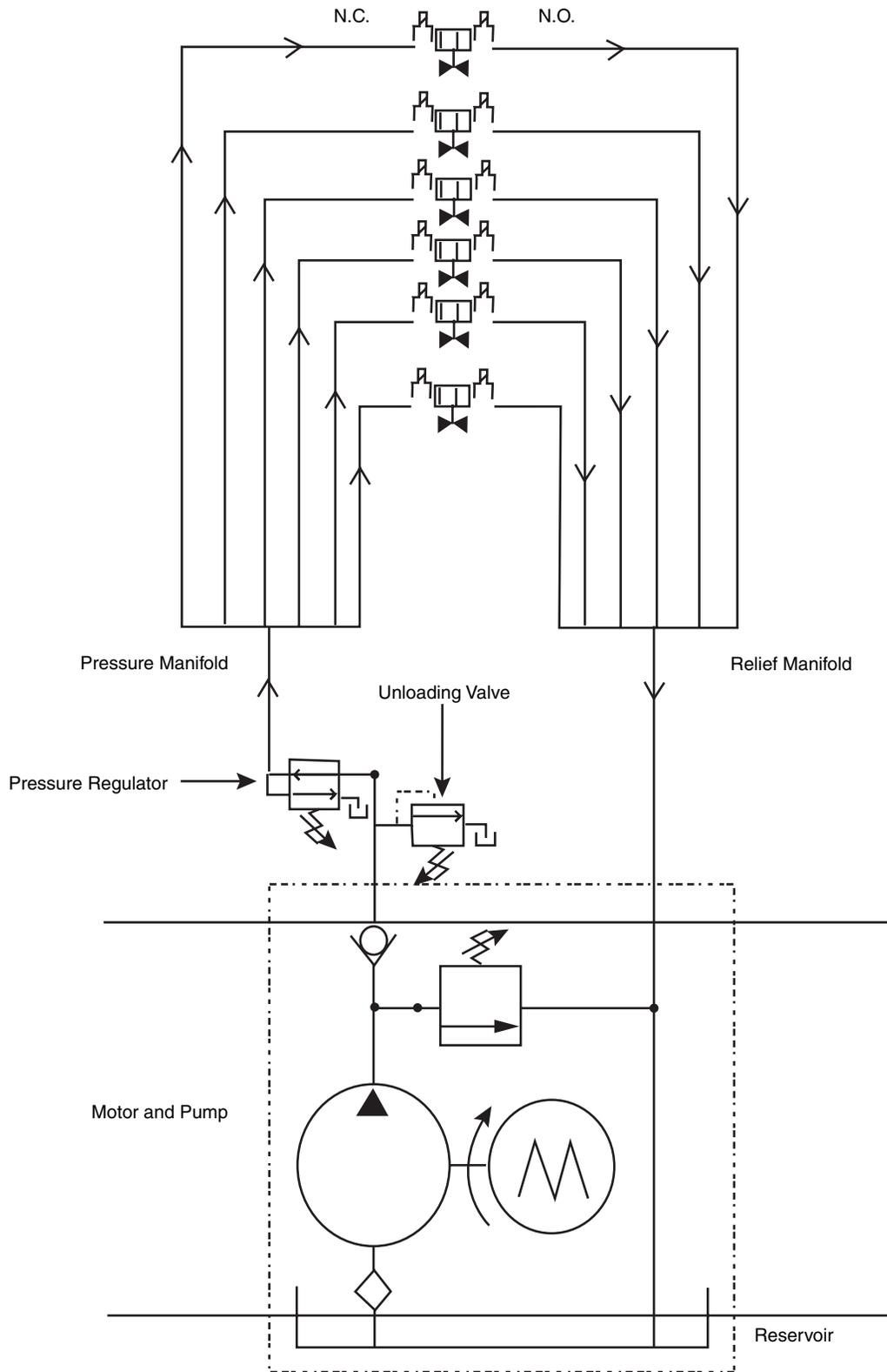


Figure 2

## Section I – Installation

Once the reservoir is filled with hydraulic fluid, the supply and relief lines are connected, the unit should be wired both to power and the preset (AccuLoad). The wiring diagram shown in *Figure 3* should be followed for the unit to operate properly. All wiring should follow all local, state and country codes for the area classification.

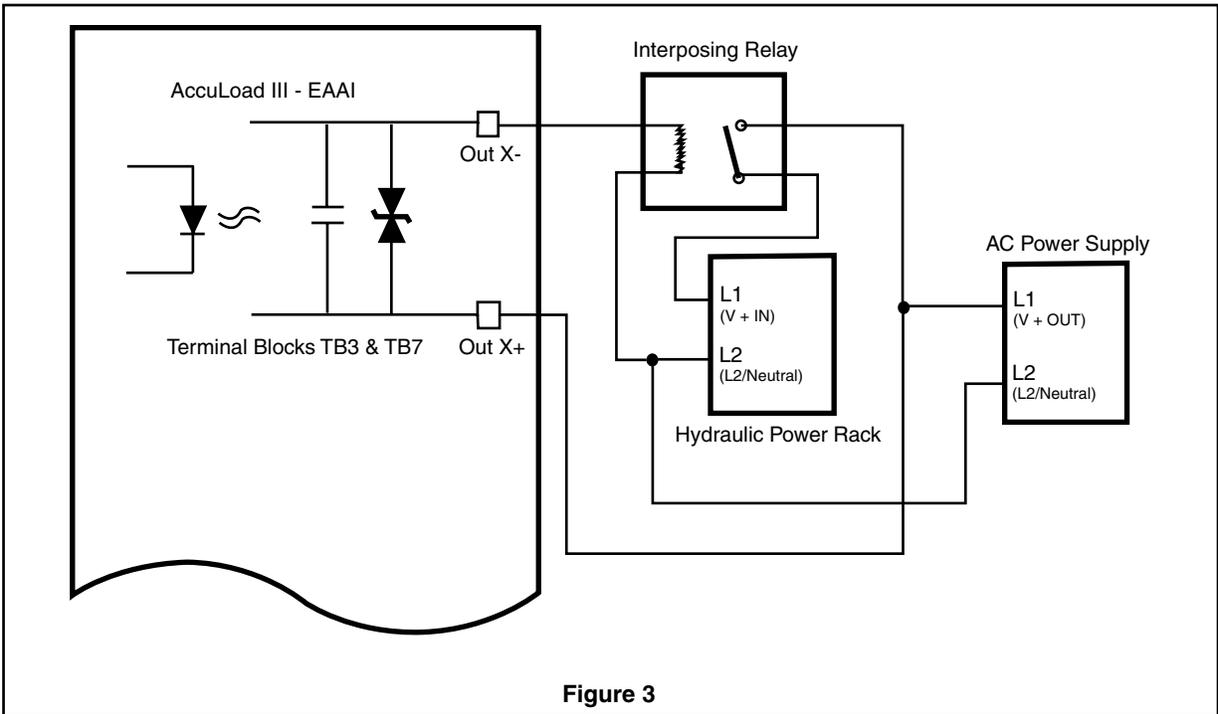


Figure 3

The hydraulic fluid system must now be bled. **CAUTION: While bleeding the actuator the valve may open, allowing the process fluid to flow through the valve.** Bleeding the air out of a hydraulic fluid system is critical to the operation and response of the system. Entrapped air in the supply line(s) and/or control valve actuator will result in poor control valve response and flow control. The bleeding process should be done one valve at a time during commissioning, prior to operation. *(NOTE: if you have valves installed at different heights relative to one another, start the bleeding process with the highest valve, working your way down to ground level)*. To bleed the hydraulic system, begin by circulating the hydraulic fluid through the tubing and valve actuator of each individual valve by energizing the inlet solenoid to make it open since it is normally closed (N.C.). To do this, refer to the AccuLoad or preset Program Mode Diagnostics and Digital Output Test section of the Operator Reference Manual. The relief solenoid is normally open and does not require energizing (see *Figure 4*).

### Model 215 Control Valve

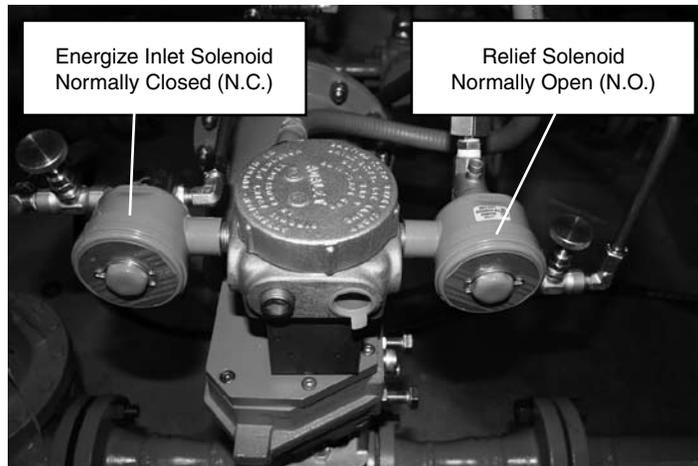


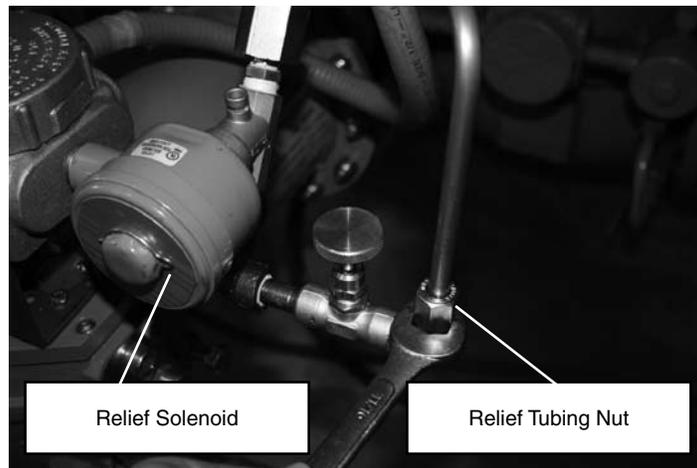
Figure 4

## Section I – Installation

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Circulate hydraulic fluid through each control valve actuator individually by turning on the (HPP) and allowing it to circulate fluid for 15 minutes. To do this, refer to the preset Program Mode Diagnostics and Digital Output Test section of the Operator Reference Manual. Circulating the hydraulic fluid through the actuator should eliminate most of the air in the system, however, it is recommended that the relief tubing nut on the valve actuator being bled, be loosened until hydraulic fluid bleeds from the joint in a solid stream (see *Figure 5*). Once this is achieved, re-tighten the tubing nut and de-energize the inlet solenoid. Repeat this process for each valve. (*NOTE: Use a small container to capture the hydraulic fluid during the bleeding process to avoid fluid spilling into the environment*). Once all valves have been bled, turn off the Hydraulic Power Pack. The Hydraulic System should now be operational, see the Operations section of this document.

**Model 215 Control Valve**



**Figure 5**

## Section II – Operation

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### ***Operation***

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During normal operation, the hydraulic power pack is designed to operate on demand in parallel with the system pump associated with the control valve(s). When product is required through the control valve(s) the AccuLoad or other preset signals the (HPP) to turn on and actuate the control valve(s). When the complete product volume has been delivered the control valve is closed and the hydraulic power pack turns off. This process minimizes the run time of the hydraulic unit, which decreases wear and power consumption.

## Section III – Maintenance

### Maintenance

A periodic maintenance program should be established for the hydraulic power pack. It is recommended that at least every year, the hydraulic fluid in the reservoir be changed. The internal reservoir should also be cleaned to remove any sediment or particles that have accumulated and could enter into the pump. Externally, examine the reservoir for any signs of rust or corrosion, sand and paint the areas to reduce further corrosion. It is recommended that the unit be mounted in a clean and dry location, void of standing water or accumulated run off.

Once per month or every 30 days, examine all tubing on the (HPP) and in your system looking for damage (dents or kinks) that would restrict the flow of hydraulic fluid, replace any damaged tubing. The Hydraulic fluid in the reservoir should also be checked each month to assure the liquid level is at a midpoint between High and Low indicator levels (see Figure 6) and is free of debris.

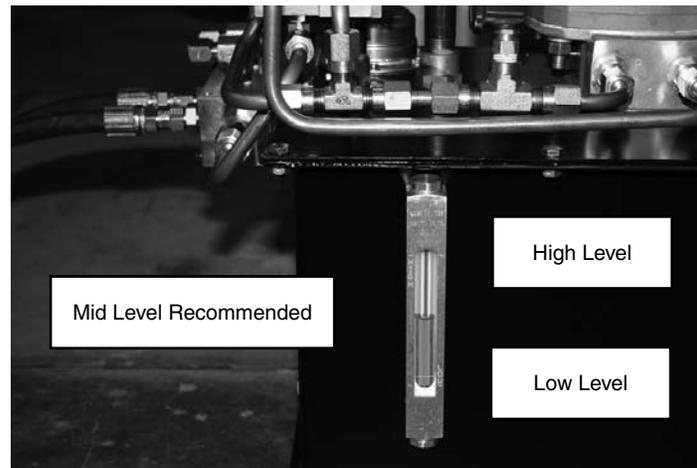


Figure 6

For the first 3 days of usage, after installation, assure that the power pack pump gauge readings are as follows (reference Figures 7A and 7B):

**Supply Pressure = 100 psig +/- 5 psig**



Figure 7A

**Unloading Valve = 300 psig +/- 5psig**



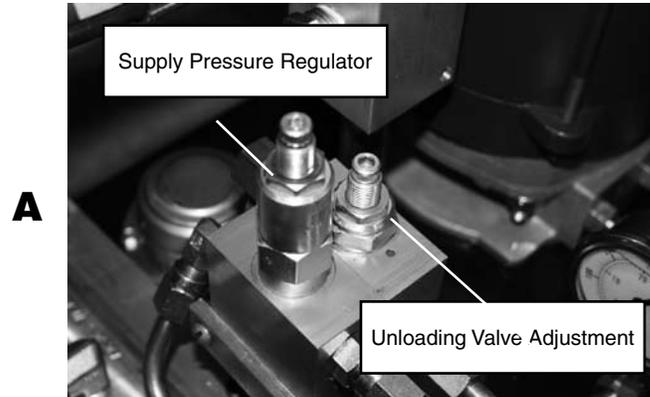
Figure 7B

**Note:** The gauges should be read when all associated control valves are in the closed position and the power pack is turned ON. It is recommended that after initial start up, the pressure gauge readings should be checked 1 time per month or 30 days.

## Section III – Maintenance

If the gauge readings do not match what is recommended, adjustment is required. Follow these 5 steps:

1. Close all control valves connected to the hydraulic power pack.
2. Turn power pack on through AccuLoad or other preset controls.



3. Use a  $\frac{3}{4}$ " wrench to remove the adjustment cover (B) and loosen the locking nut on the adjustment screw (C).



4. Use a  $\frac{3}{16}$ " hex head wrench to turn the adjustment screw in order to reach the correct gauge pressures (D).  
*Note: Turning the adjustment screw Clockwise will increase pressure and Counter Clockwise will decrease pressure.*



5. Once the pressure has been adjusted, tighten the locking nut and replace the adjustment cover.  
**NO SEAL WIRE WILL BE SUPPLIED.**

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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