

Hydraulic Panel
Pump Control System
Sequence of Operation

Standard Reference Drawings and Documentation:
VMC-5HP, Hydraulic Panel Pump Control System
VM-5HP-W, Hydraulic Panel Pump Control System Schematic
5HP-OM1, Hydraulic Panel Pump Control System Operation, Maintenance, and Installation
Manual Alternate or additional documentation may apply as noted in the customer order

GENERAL:

The opening and closing of the pump control valve is controlled by a hydraulic panel that is wired to the pump controls. The hydraulic panel "Supply" is connected to a source for pressurized lubricated air, hydraulic oil, or clean water (typically 80-150 psig). The "Drain" connection is piped to an open drain or a return line. On the right side of the panel, the "Close" and "Open" connections are piped to the respective cylinder ports on the pump control valve.

PUMP START SEQUENCE:

When the "Start" button is pressed, the control relay CR is energized and its contact energizes the pump motor starter M. The pump builds pressure against the closed pump control valve. When the pressure switch (PS) trips, the 4-Way solenoid valve (5) in the hydraulic panel is energized. The supply media is then directed to open the pump control valve slowly (i.e. 2-3 minutes) as controlled by the "Slow Open" flow control valve (9).

PUMP STOP SEQUENCE:

When the "Stop" button is pressed, the control relay CR is de-energized and its contact de-energizes the 4-Way solenoid valve (5) in the hydraulic panel. The pump continues to run. The supply media is then directed to close the pump control valve slowly (i.e. 2-3 minutes) as controlled by the "Slow Close" flow control valve (9). When the valve reaches the closed position, the closed limit switch (CLS) opens and de-energizes the pump.

EMERGENCY STOP SEQUENCE:

Upon loss of electrical power or pump overload trim, the solenoid valves (4SV & 2SV) are de-energized and the supply media is directed through the 4-Way and the two 2-Way solenoid valves, which closes the pump control valve rapidly (i.e. 10 seconds) as controlled by the "Fast Close" ball valve (13). Note: The fast closing speed of operation is controlled by the "Fast Close" ball valve (13). This valve has an opening set point limit adjustment feature so that it can easily close and re-open to the set point position.

MANUAL OVERRIDE:

Electrically isolate the pump and close pump's isolation valve(s) as appropriate for system safety and approved by the plant operations team. Close the "Emergency Shut- Off" ball valve (22) and the "Fast Close" ball valve (13). Operate the manual override lever on the 4-way solenoid valve (4SV) for manual open or close positioning. To return to normal service fully open the "Emergency Shut-Off" ball valve (22) and the "Fast Close" ball valve (13) to its set point position.

REV 10/4/21

SEQUENCE OF OPERATION

DATE 6-25-08

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