INITIAL PUMP TEST PROCEDURE

NATIONAL BALANCING COUNCIL™

SAMPLE

PURPOSE

The purposes of these tests are to **first**, test the pump pressures **second**, to plot impeller size and **third**, estimate the pump flow and performance conditions from the manufacturers pump curve data.

SHUT OFF HEAD PRESSURE TEST (Dead Head Test)

- ❑ Close pump discharge valve. Be sure to mark valve position if not fully open to accurately reset the valve after the test.
- ❑ Leave pump suction valve open.
- ❑ Set up hydronic balancing meter by attaching the positive hose to the pressure port installed in the discharge side of the pump and attaching the negative hose to the inlet side of the pump. You may use permanently installed gauges on the system if they are accurate.
- ❑ Turn the pump on.
- ❑ Read and record the Discharge Static Head Pressure in feet of head.
- ❑ Read and record the Inlet Static Head Pressure in feet of head.
- ❑ To determine pump Shut Off Head Pressure, subtract the inlet pressure from the discharge pressure. (Note: If the suction pressure is a negative pressure, add the suction pressure to the discharge pressure. It's usually positive because the pump is below water level)
- ❑ If the gauge reads PSI, multiply inches times 2.31 to convert to feet of head
- ❑ Plot the feet of Shut Off Head Pressure on the vertical axis of the manufacturer's pump curve at 0 GPM. Read the impeller size to the right on the pump curve. This is the approximate impeller size.
- ❑ Open pump discharge valve and set system for normal operation.

PUMP FLOW METER TEST (Pump GPM Test)

- ❑ First, verify pump pressure and impeller size as directed above.
- ❑ Turn on pump. Check motor amperage and verify the motor is not over-amping. If it is, shut down discharge valve and bring the motor down to or below Full Load Amps.
- ❑ Read the pump discharge and suction pressure. Subtract suction pressure from discharge pressure to determine pump pressure in feet of head. (Add inlet pressure if it's a negative reading.)
- ❑ Plot the pump pressure rise on the vertical axis of the matching pump curve.
- ❑ Draw a horizontal line across to where it intersects the impeller size line determined by the Dead-Head Test above.
- ❑ Draw a vertical line from that point down to the bottom of the chart and read the approximate flow of the pump in GPM.
- ❑ You can also plot the operating brake horsepower and pump efficiency from the pump curve chart using the information gathered from these tests.

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