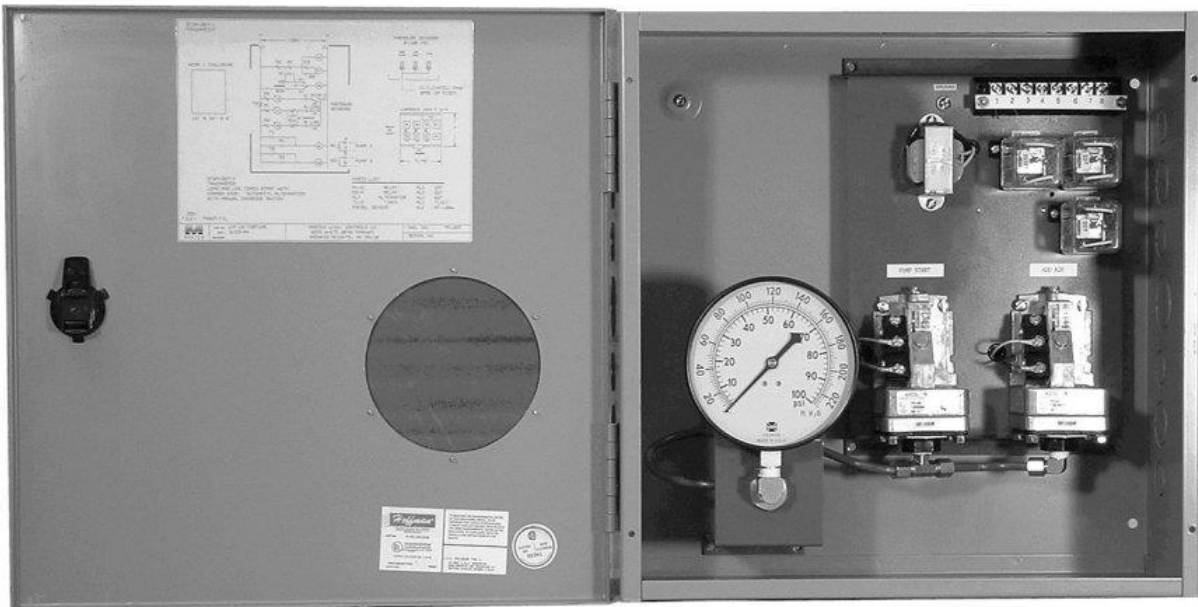


## HYDROMASTER

### HYDROPNEUMATIC TANK CONTROL

The Hydromaster is a controller which senses level, pressure, and maintains a air balance of a hydropneumatic tank and controls one or more pumps. The Hydromaster has adjustable pressure sensors for pump control and add air sensing. The controller provides solid state probe level sensing and a Tank Probe Assembly for front mounting to the hydropneumatic tank. The Hydromaster control can be furnished for add air or a combination add air, air vent operation. Pump alternation for 2 or 3 pumps is also available. Air to the hydropneumatic tank can be supplied directly from an air compressor or by controlling a solenoid valve in the air line.



H1-242-1 Hydromaster one pump controller, Form B, with 4 1/2" pressure gauge visible through the front door. Nema 1 enclosure for indoor wall mounting. R-B Probe Assembly for front mounting to the hydropneumatic tank.



R-B PROBE ASSEMBLY

2" Male Pipe Thread, with Red and Black Probe.

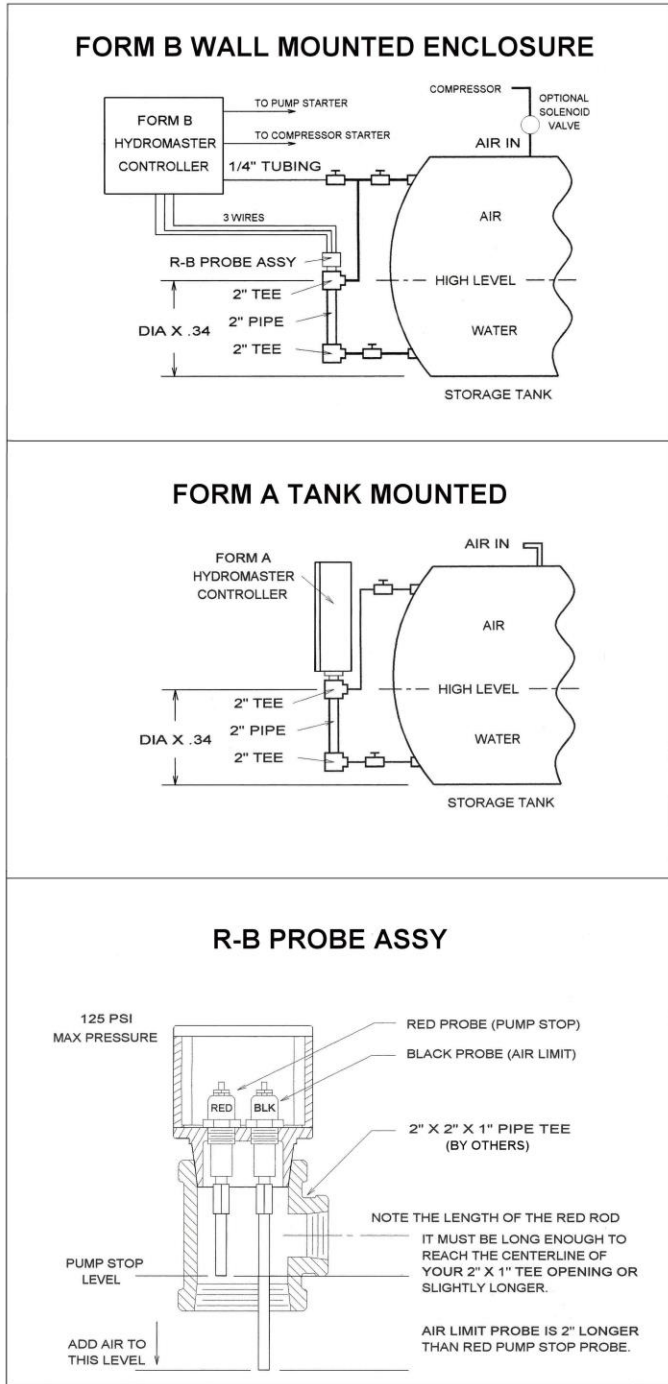
## MASTER LEVEL CONTROLS CO.

19900 County Road 81, Maple Grove, MN 55311

PO Box 427, Rogers, MN 55374

Phone 800-MLC-8020 651-426-9085 Fax 651-426-9354 E-mail info@masterlevel.com

## HYDROMASTER DESCRIPTIVE SPECIFICATIONS



### HYDROMASTER FORM B

There shall be furnished and installed as indicated on the plans, a combination pump and air pressure sensor assembly, having two calibrated pressure sensors. One for low pressure start of the pump and one for high pressure. The high pressure sensor shall control the air compressor (or solenoid valve on the air line). The probe assembly shall be furnished for front mounting on the hydropneumatic tank to control the stopping of the pump at a precise level. The controller and probe assembly shall be a Master Level Controls Co. Model H1-242-1 Hydromaster for one pump, Form B, Nema 1 enclosure, 120V control, pressure range 5-100PSI.

### HYDROMASTER FORM A

There shall be furnished and installed as indicated on the plans, a combination pump and air pressure sensor assembly, having two calibrated pressure sensors. One for low pressure start of the pump and one for high pressure. The high pressure sensor shall control the air compressor (or solenoid valve on the air line). The probe assembly and controller shall be furnished as one assembly and mounted to the front of the hydropneumatic tank to control the stopping of the pump at a precise level. The controller and probe assembly shall be a Master Level Controls Co. Model H1-242-1 Hydromaster for one pump, Form A, Nema 1 enclosure, 120V control, pressure range 5-100PSI.

### R-B PROBE ASSY

The 3 leads from the control to the probes are low voltage and to be 16ga or larger. They should be installed in 1/2" conduit. The R-B probe holder is Nema 4 and gasketed to keep the leads dry. The Red and Black probes are color coded to prevent wiring errors. Provide a red, black and a ground wire. Ground is terminated to the cover of the unit.

### MASTER LEVEL CONTROLS CO.

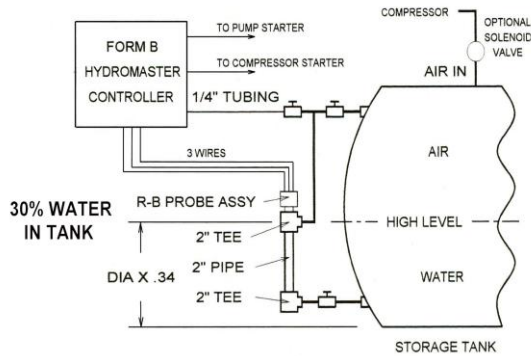
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## HYDROPNEUMATIC TANK ENGINEERING DATA

A hydropneumatic tank is not only a water storage vessel, it must also contain compressed air which makes water flow from the tank under pressure. The most efficient air/water ratio is that which permits maximum withdrawal between high and low pressure settings. A common setting is 40% water in the tank, 60% air, between pressure limits of 40 PSI and 60 PSI. This provides about 22% of the tank volume for use before starting the pump. Raising the water level in the tank will not provide more usable water but less. When the water level is lowered to 30% water in the tank, and 70% air, between pressure limits of 40 PSI and 60 PSI, the usable volume increases to 25%. Decreasing the pressure spread between low and high limits to less than 20 PSI gives less usable water. At least 20 PSI is recommended.

Conversion of depth of water in a horizontal cylindrical tank to volume is as follows:

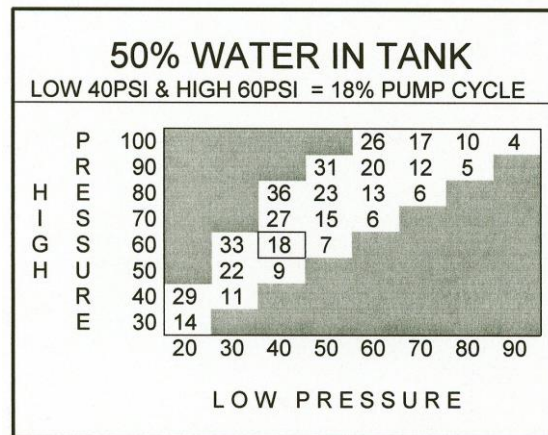
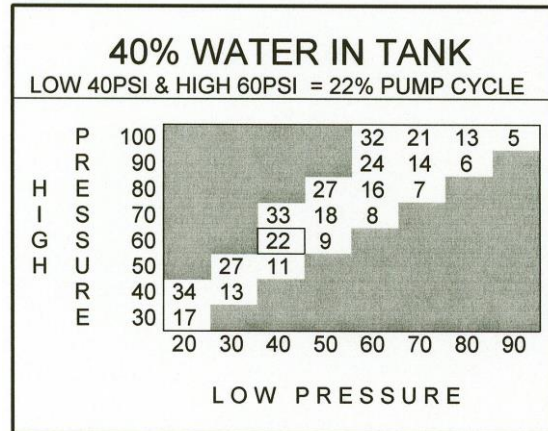
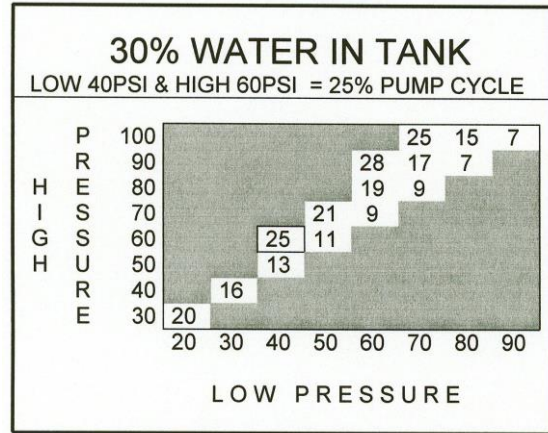
% WATER	% TANK HEIGHT
30%	34%
40%	43%
50%	50%



**EXAMPLE:** For a 30% fill, multiply the tank diameter by .34. If the pressure limits were 40-60 PSI then the usable volume per pump cycle would be 25%. When using a 5000 gallon tank the draw down would be 1250 gallons. (5000 x .25)

### CHARTS

These charts show percentage of the total tank volume that is available on each pump cycle.

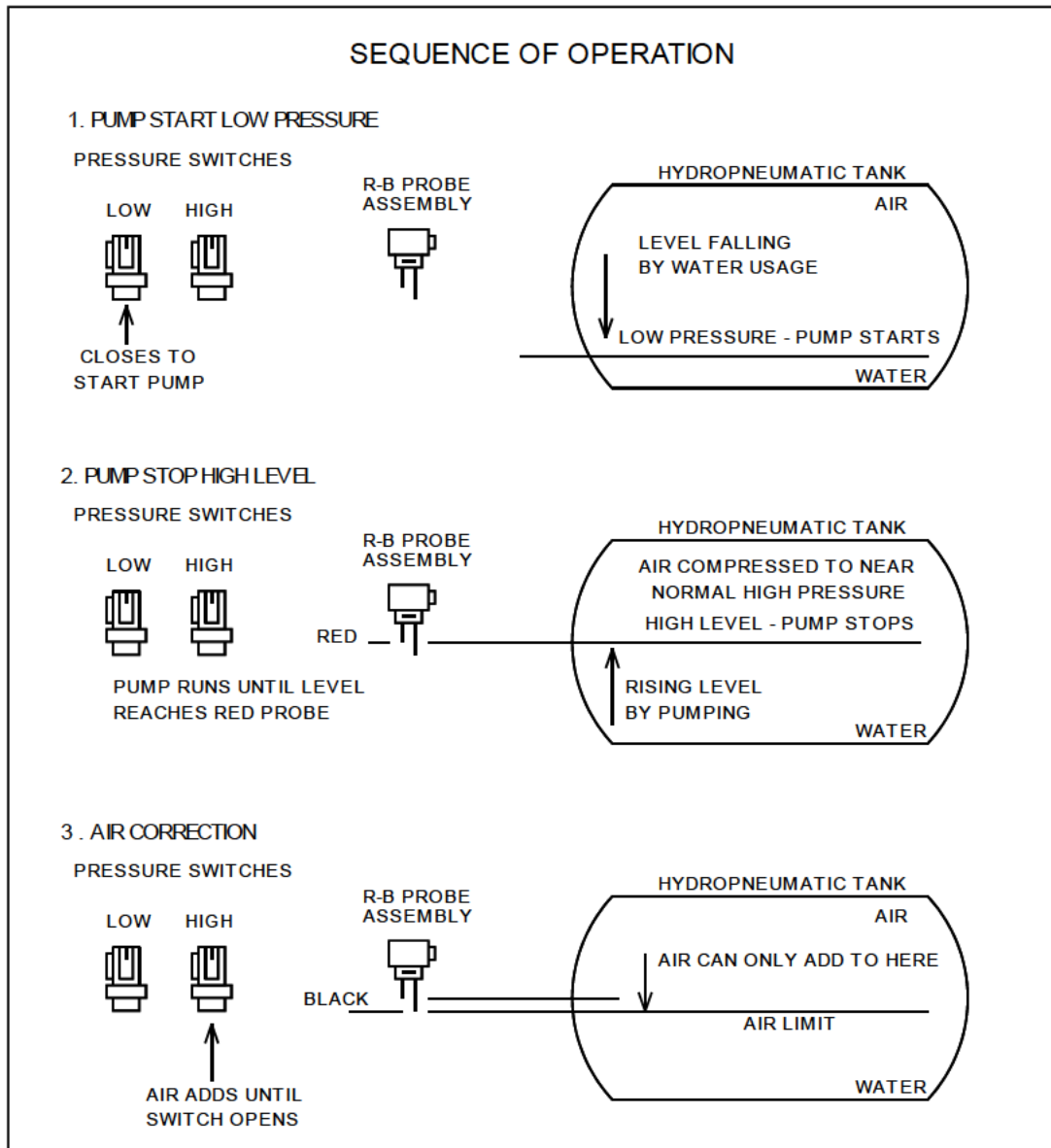


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## HYDROMASTER OPERATION

Pump starts at low level by an adjustable pressure switch. Pump stops at a precise high level by a probe. (Not pressure) A closed pressure switch controls either adding or venting air, depending on the model. The high pressure switch opens to stop the adding of air. After the tank has been balanced the pump starts and stops by pressure until the level reaches the Red probe and requires air to balance the tank.



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# MASTER LEVEL CONTROLS

A3

## HYDROMASTER CONTROL

AUG 2018

R-B Probe Assembly is furnished with the Control Panel, Pressure Range 5-100 PSI.

MODEL NO.	DESCRIPTION	VOLTAGE	PRICE
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### ADD AIR CONTROLLER

H1-242-1A	Hydromaster Control for 1 pump, Nema 1 encl. FORM A, 120v/230v Starter Coil, add air.	120V
H1-242-2A	Hydromaster Control for 1 pump, Nema 1 encl. FORM A, 230v Starter Coil, add air.	230V
H1-242-1	Hydromaster Control for 1 pump, Nema 1 encl. FORM B, 120v/230v Starter Coil, add air.	120V
H1-242-2	Hydromaster Control for 1 pump, Nema 1 encl. FORM B, 230v Starter Coil, add air.	230V
H2-241-1	Hydromaster Control for 2 pumps, Nema 1 encl. FORM B, 120v/230v Starter Coil, add air.	120V
H2A-244-1	Hydromaster Control for 2 pumps, Nema 1 encl. With 2 Pump Alternator, Wall Mounted FORM B, 120v/230v Starter Coil, add air.	120V
H3-244-1	Hydromaster Control for 3 pumps, Nema 1 Encl. FORM B, 120v/230v Starter Coil, add air.	120V

### ADD AIR - AIR VENT

HC1-236-1	Hydromaster Control for 1 pump, Nema 1 encl. FORM B, 120v/230v Starter Coil, Add Air-Air Vent	120V
HC2A-239-1	Hydromaster Control for 2 pumps, Nema 1 encl. With 2 Pump Alternator, Wall Mounted FORM B, 120v/230v Starter Coil, Add Air-Air Vent	120V

### ACCESSORIES MOST USED

PA-503	4 1/2" Pressure Gauge, 0-100PSI, Visible Thru Door
SBV	Shutoff and Bleed Valves
HS-100	Heater and Stat, 100 Watt with Adjustable Stat
Nema 3R	Nema 3R Enclosure for H1, HC1, 14" x 16"
Nema 3R	Nema 3R Enclosure for H2, H2A, HC2A, 20" x 20"

*All Prices Subject To Change Without Notice*

*F.O.B. Rogersl, MN*

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