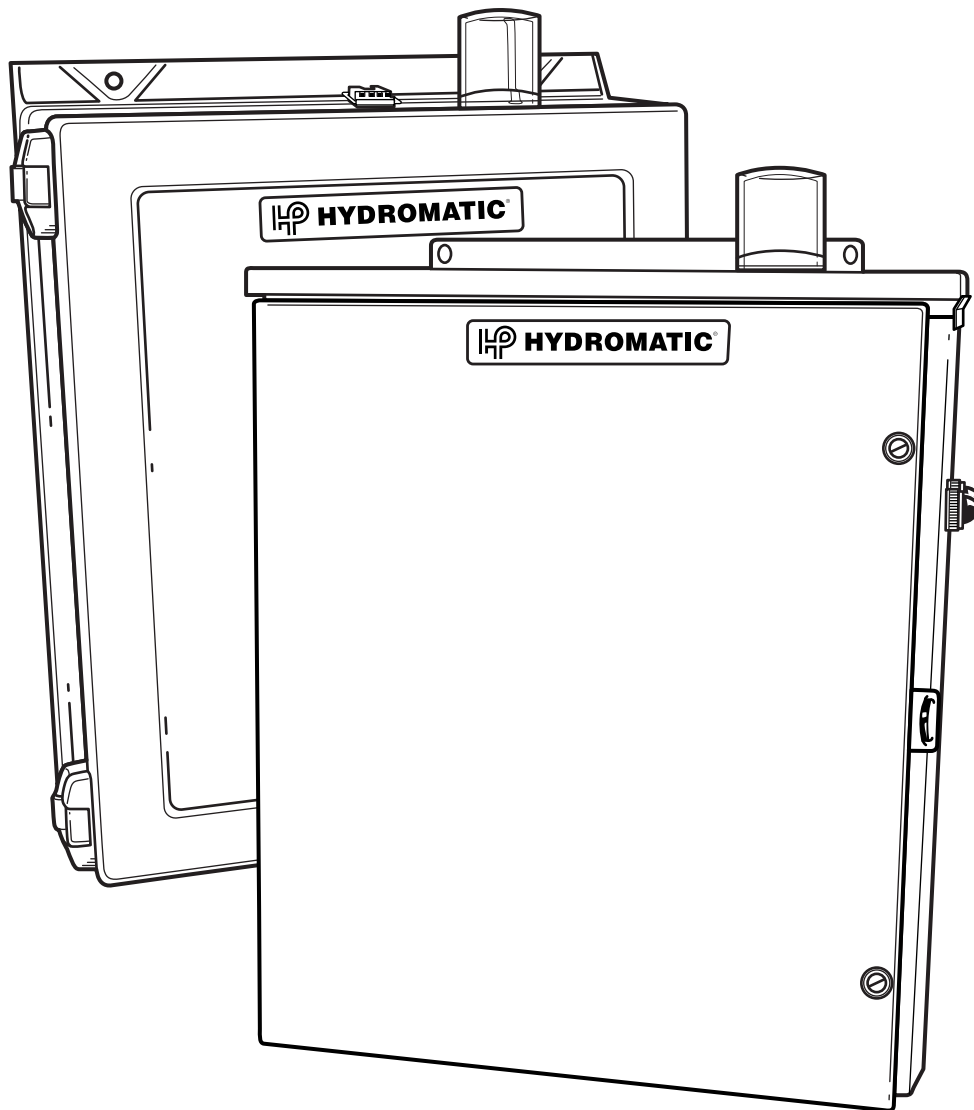




# HYDROMATIC®

## PANELS

Electrical Panels with Intrinsically Safe Circuit Extensions



NOTE! To the installer: Please make sure you provide this manual to the owner of the pumping equipment or to the responsible party who maintains the system.



**Pentair  
Water™**

## General Information

Thank you for purchasing your Hydromatic® panel. To help ensure years of trouble-free operation, please read the following manual carefully.

### Before Operation:

Read the following instructions carefully. Reasonable care and safe methods should be practiced. Check local codes and requirements before installation.

### Attention:

This manual contains important information for the safe use of this product. Read this manual completely before using this product and refer to it often for continued safe product use. **DO NOT THROW AWAY OR LOSE THIS MANUAL.** Keep it in a safe place so that you may refer to it often.

**WARNING: Before handling pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.**

### Unpacking Panel:

Remove panel from carton. When unpacking unit, check for concealed damage. Claims for damage must be made at the receiving end through the delivery carrier. Damage cannot be processed from the factory.

## Panel Installation

### Electrical Connections:

**Panel Opening-Wiring:** The enclosure opening for intrinsically safe wires must not be used for non-intrinsically safe wiring. This is to be the only opening in the intrinsically safe area of the enclosure. If this is not done the UL Listing for the control panel will be void.

**Electrical Connections:** The contractor must conform to the latest requirements of the National Electrical Code. All conduit and cables shall have conduit per NEC Code NFPA #70, where conduit and cable leave the hazardous locations.

Prior to conducting any installation, repair or service with regard to the control panel, refer to the schematic appropriate for that panel. The schematic will provide guidance with regard to terminal block connections. Electrical ratings are indicated on the schematic for terminal blocks used in interfacing with controls remote from the control panel. If these ratings are violated, the UL Listing for the control panel will be void.

### Make the Following Electrical Connections:

Connect the pump heat sensor and seal failure leads to the appropriate terminal blocks in the non-intrinsically safe area outside the barrier in the control panel. Connect all the float control leads to the appropriate panel terminal blocks in the intrinsically safe area within the barrier in the

control panel. If guaranteed submergence of the pumps is critical to this installation, contractor must be very careful in locating the floats at the proper elevations. The maximum distance between the control panel and the floats is the lesser of 300 feet or the maximum distance recommended for the pump.

Connect the pump leads to the overload relay on the control panel. When connecting the pump leads it is very critical that the proper sequence be maintained.

***On single phase pumps, the white, black, and red pump leads must be connected to the pump terminal blocks in the panel exactly as shown on panel markings and on the schematic.***

**NOTE: Pump will run only if leads are connected as shown.**

On three-phase pumps, ensure proper phase sequence while connecting to the overload relay in the control panel. Incorrect phase sequence will result in the reverse rotation of the pump.

**NOTE: Make sure pump ground wire is connected to the panel pump ground lug.**

*Before connecting power to the control panel, make sure all control switches (ex. H-O-A switch) and protective devices (ex. breakers) are in the Off position. Now connect power to main power terminal blocks or the circuit breaker as directed by the schematic. Control panel must be grounded properly per nec and/or local codes. To facilitate this a ground lug is provided on the control panel.*

## Panel Check List

**WARNING:** Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

### Check List:

Check junction box for moisture. Moisture may cause chattering of relays/contactors.

Check O/L relay settings and verify reset mode.

With H-O-A switch(s) in Off position, energize power to panel.

Check voltage to the panel and at secondary of control transformer using a voltmeter.

Check float operation and response of control panel to the float operation. For sequence of operation refer to design specification.

Check full load current with amprobe and compare it with the nameplate rating. (Clamp amprobe around one phase.)

With pump running, check discharge to verify the pump is running.

Check voltage with voltmeter and amperage with amprobe at overload.

Make sure H-O-A switch is left in the Auto position after start-up is completed.

Check the pump manuals.

## Panel Maintenance

**WARNING:** Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.

### Maintenance:

The periodicity of the maintenance schedule will vary with operating and environmental conditions. It will also vary with the specific type of control supplied. The list herein is a guide only.

Exercise breaker through one cycle. Be careful not to over exercise as the breaker is not a switching device. Excessive operations tend to affect the trip curve of the breaker.

Check contactors and relays for excessive humming. This can be accomplished by turning pumps on and off in the Hand and Off modes with H-O-A switch.

Check bulbs in all fixtures.

Check continuity through the control fuses.

Check voltage at primary and secondary of control transformer.

Check the pump full load amps.

If applicable, check the single phase start relay by using an amprobe around the red wire (start winding). Amprobe should display a very brisk action from zero to locked rotor and back to operating load. This action occurs on pump start and the action must show no lazy movement. For further details, consult the factory.

Check junction boxes for moisture. Moisture may cause chattering of relays and contactors.

If enclosure has a door gasket, check door gasket for integrity. This can be a visual inspection.

Check labels to verify they have not been damaged.

Lubricate enclosure hinges.

Pull floats and check for proper operation and ensure there is no foreign buildup on them.

## Panel Spare Parts List

The following is a list of recommended spare parts; however, conditions of service vary significantly and a general list may not in its entirety be applicable to a given installation. The user should exercise judgment in defining his specific requirements based on this guide.

1. Fuses for control transformer(s) primary and secondary.
2. Intrinsically safe relay.
3. Contactor.
4. Bulbs for alarm lights.

### Conditions That Void UL Listing

The intrinsically safe control panel as manufactured per the Hydromatic standard is a UL Listed device. In order to protect the UL Listing, it is imperative that no component, layout, wiring or barrier changes be made without prior consent of the factory.

# Panel Troubleshooting

**WARNING: Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) or possible septic sump.**

1. Pump does not run in Hand position.
  - a. Check pump circuit breaker, control circuit breaker and control fuses for tripped or blown condition.
  - b. Check overload relay to see if it is tripped. Reset relay if tripped.
  - c. If supplied, check heat sensor reset to verify thermal overload of motor has not tripped.
  - d. Check wiring of pump to control panel. It should agree with the schematic.
2. Pump does not run in Auto position.
  - a. Check items a. through d. per Item #1 above.
  - b. Floats may not be hanging free or may have a buildup. Pump the level down with the selector switch on Hand, so floats can be observed.
  - c. Floats may be miswired to control panel. Check float wiring and hookup by referring to the schematic. If the start and stop floats are hooked in reverse, pump will short cycle and will not pump the level down.
  - d. The floats or the alternator could be defective. Check the floats with a continuity check and operate panel through a few cycles to check alternator operation.
- e. Is water level sufficiently high in wet well to activate appropriate floats?
- f. Check the electrical operation of each float. First disconnect the main power. Then disconnect each float one at a time and check operation with an ohmmeter by manually raising and lowering the float.
4. Pump runs but red run light does not energize.
  - a. Check the run light.
  - b. Check for loose wire at light or in panel.
5. Pump runs but does not pump down the wet well.
  - a. Pump rotation may be wrong. Wiring of pump to control panel may be reverse sequenced.
  - b. Impeller may be dragging in volute due to solids. High ampere draw would identify this.
  - c. Refer to the pump manual for other possibilities such as closed discharge gate valve, etc.
6. Severe humming/chatting of contactors and control relays.
  - a. There may be low voltage. Check voltage at primary and secondary of control transformer using a voltmeter. This low voltage condition may even cause severe chattering and burn-up of relays. The utility needs to increase voltage.
  - b. Contactor may have dust around magnet of coil structure. Clean and/or dry as required.
  - c. Check voltage to the control panel. Contactors require a minimum of 85% of full voltage to pull in without chatter. If the problem is a chronic one, measure voltage with recorder on a 24 hour basis.
- d. Make sure floats are located away from any turbulence.
- e. Dry out the junction box (if furnished); moisture in the junction box will tend to cause the intrinsically safe relays to energize intermittently.
7. Nuisance tripping of overload on motor starters or circuit breakers.
  - a. Check all reset buttons and tripped breakers.
  - b. Check pump amp draw with amprobe and compare to nameplate amps on pump.
  - c. The impeller may be locked up due to excessive debris or solids.
  - d. Possible motor failure (fault on windings).
  - e. Pump may be miswired to terminal block.
8. Short cycling pump.
  - a. Check float controls.
9. Run light stays on.
  - a. Selector switch may be in the Hand position.
10. Red seal failure light comes on.
  - a. Pump seal has failed and allowed contaminant to enter pump housing. Refer to pump manual for appropriate action.
11. Test for blown fuse.
  - a. With main power turned off, check fuses with V-O-M set on ohm scale.



## LIMITED PRODUCT WARRANTY

**HYDROMATIC**® warrants that its products are free from defects in material and workmanship for a period of twelve (12) months from the date of purchase or eighteen (18) months from the date of manufacture, whichever occurs first.

During the warranty period and subject to the conditions hereinafter set forth, **HYDROMATIC**, will repair or replace to the original user or consumer parts which prove defective due to defective materials or workmanship of **HYDROMATIC**. Contact the nearest authorized **HYDROMATIC** distributor, **HYDROMATIC** authorized service center or **HYDROMATIC** for warranty service. At all times, **HYDROMATIC** shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components.

Start up reports and electrical system schematics may be required to support warranty claims. Warranty is effective only if **HYDROMATIC** supplied or authorized control panels are used, where applicable. All dual seal pumps must have seal failure and heat sensors attached, functional and monitored for the warranty to be in effect. If a seal failure should occur, **HYDROMATIC** will only cover the lower seal and labor thereof. If the heat sensor and seal fail sensor is not attached and functional, the warranty is void.

**LABOR, ETC. COSTS: HYDROMATIC** shall in NO EVENT be responsible or liable for the cost of field labor, removal and/or reinstallation charges of any **HYDROMATIC** product, part or component thereof, or the expense of freight.

**THIS WARRANTY WILL NOT APPLY:** (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and the parts used in connection with such service; (d) to units which are not installed in accordance with applicable local codes, ordinances and good trade practices; or (e) if the unit is moved from its original installation location; (f) unit is used for purposes other than for what it was designed and manufactured; (g) to any unit which has been repaired or altered by anyone other than **HYDROMATIC**, a **HYDROMATIC** distributor or a **HYDROMATIC** authorized service center and (h) to any unit which has been repaired using non factory specified parts/OEM parts.

**RETURN OR REPLACED COMPONENTS:** any item to be replaced under this Warranty must be returned to **HYDROMATIC** in Ashland, Ohio, or such other place as **HYDROMATIC** may designate, freight prepaid.

**PRODUCT IMPROVEMENTS: HYDROMATIC** reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such a change or improvement.

**WARRANTY EXCLUSIONS: HYDROMATIC** MAKES NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. **HYDROMATIC** SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE.

Some states do not permit some or all of the above warranty limitations and, therefore, such limitations may not apply to you. No warranties or representations at any time made by any representatives of **HYDROMATIC** shall vary or expand the provision hereof.

**LIABILITY LIMITATION: IN NO EVENT SHALL HYDROMATIC BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY HYDROMATIC PRODUCT OR PARTS THEREOF. PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY RESULT FROM IMPROPER INSTALLATION. HYDROMATIC DISCLAIMS ALL LIABILITY, INCLUDING LIABILITY UNDER THIS WARRANTY, FOR IMPROPER INSTALLATION — HYDROMATIC RECOMMENDS INSTALLATION BY PROFESSIONALS.**

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

In the absence of suitable proof of this purchase date, the effective date of this warranty will be based upon the date of manufacture.

– Your Authorized Local Distributor –



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