



## P25201 HydroMax Automatic Fresh Water Pump

RV/MARINE

### INSTALLATION AND OPERATION MANUAL

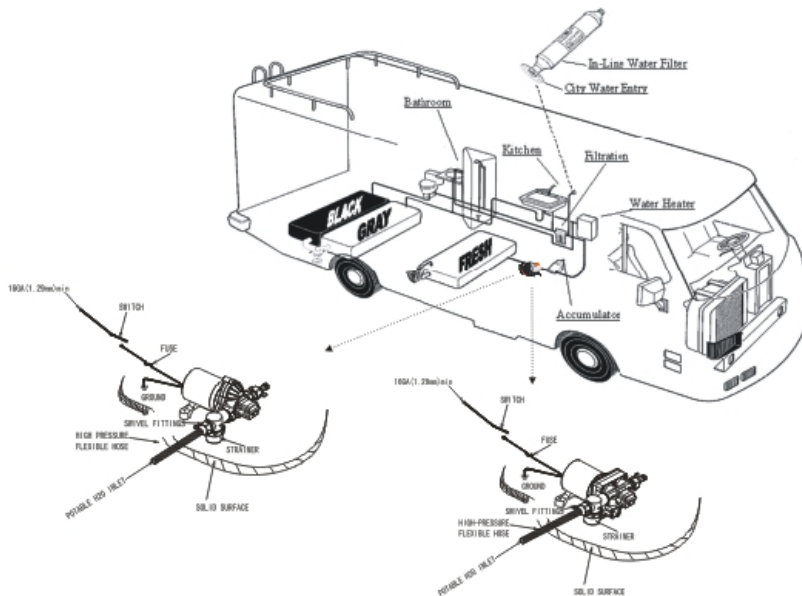
HYDROMAX design delivers smooth, consistent flow at all ranges of operation, while drawing low current. The balanced motor design incorporates precision ball bearings for long life, and is equipped with an integrated thermal breaker. All RV/marine duty pumps have sealed switches and are finished with a Electro Coating to inhibit corrosion. HYDROMAX water pumps have been strictly inspected and can run smoothly. RV/Marine duty fresh water pumps are enclosed to prevent incidental moisture from entering and when installed correctly, RV/Marine Duty Fresh Water Pumps provide years of quiet operation. A HYDROMAX pump in combination with a low backpressure water system can exceed all expectations. All HYDROMAX pumps are CE certified.

### GENERAL INFORMATION

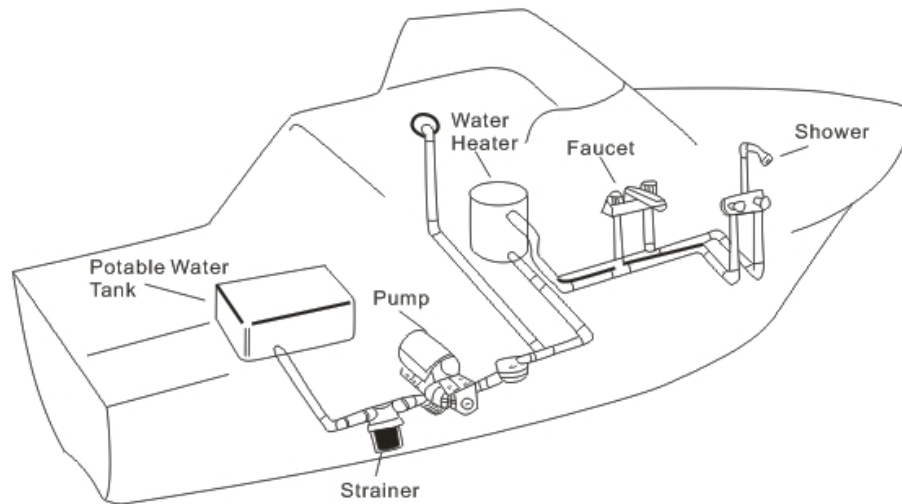
HYDROMAX realizes that in many instances our pump is being installed as a replacement pump within an existing system. The following guides should be considered to achieve optimum pump operation. Always follow all local or national installation codes & standards.

#### Installation instructions: ( RV )

- Solid surface.
- Accessible location away from living quarters.
- Properly sized wiring.
- Proper electrical protection.
- Flexible hose on inlet and outlet.
- Strainer on plumbing elbows and valves near the pump.
- Minimize flow restrictions in the system.



## MARINE



## MOUNTING

·The pump can be at the same level or below the water tank. It may be positioned above the water tank if needed, as it is capable of a 6 ft.(1.8m) vertical prime. Horizontal inlet tubing will allow priming to 30ft(9m)

·Consider a dry location that allows easy access if maintenance is required. The pumps should not be located in an area of less than one cubic foot unless adequate ventilation is provided. Excessive heat may trigger the integrated thermal breaker and interrupt operation. When the temperature drops the breaker will automatically reset and re-start operation.

·The pump can be mounted in any position. If mounting the pump vertically. The pump head should be in the down position.

·The mounting feet are intended to isolate the pump from the mounting surface; over-tightening, flattening, or use of oversized screws will reduce the ability to isolate vibration and noise through the lines.

## ELECTRICAL

- The pump should be on a dedicated (individual) circuit protected by the specified fuse indicated on the motor label.

- A U/L, CE, etc approved marine duty (ignition protected) switch rated at above 20 amps is recommended and must interrupt current flow on the positive (+ red) lead.

- The pump must be grounded to a known ground (battery). The ground wire must be the same size (gauge/mm<sup>2</sup>) as the positive wire.

- Wire Sizing: Proper wire sizing is required for good pump operation. If the wire is too small, low voltage will affect the pump performance and can create a fire hazard.

Minimum Wire Size for a 10% voltage drop on a 12VDC, 10Amp Circuit. Length is the distance from the power source to pump and back to ground.

•The total current draw on the circuit must not exceed 15 amps. If the pump is used in conjunction with other components, overload current protection (fuse or circuit breaker) and wire size must be for the total amp requirements of all devices on the circuit.

Feet	[Meters]	AWG	[mm <sup>2</sup> ]
0-25	[0-7.6]	14	[2.1]
25-50	[7.6-15.2]	12	[3.3]
50-70	[15.2-21.3]	10	[5.3]
70-110	[21.3-33.5]	8	[8.4]

## **PLUMBING**

HYDROMAX recommends at least 1ft[.3m]of 1/2"[13mm]I.D. flexible high pressure tubing to both ports. Ideally the pump's ports/strainer should not be connected to plastic or rigid pipe. The pump's normal oscillation may transmit through rigid plumbing causing noise, and possibly loosen or crack components.

Installation of a 50 mesh strainer such as the HYDROMAX P25206VP is recommended to prevent foreign debris from entering the pump. HYDROMAX P25205VP is a hex/swivel barb fittings that provides easy removal if maintenance or access is required. The fittings are designed with a "taper-seal", creating a water tight connection when hand-tightened. Always secure barb tubing connections with properly sized stainless steel clamps to prevent leaks. Never use Teflon tape or sealing compounds on threads. Sealer may enter the pumps causing a failure. Failure due to foreign debris is not covered under warranty.

Rapid cycling may be caused by excessive back pressure created by one or more of the following within a plumbing system: Water filters and purifiers not on separate feed lines, Flow restrictors in faucets and shower heads, Small ID lines Pipe/tubing should be at least 1/2"(13mm) for main lines, Restrictive fittings and connections (elbows, "T" s, feeder lines to faucets, etc). The pump with by-pass do not need to use pressure tank.

If the pump is cycling rapidly increase the setting by turning the screw clockwise (1 1/2 turn MAX.) until the pump operates for 1 sec. with at least 2 sec." OFF time".

The pump's duty cycle is: intermittently. Do not use the pump under anti-osmosis filtering system. Continuous running under higher pressure may reduce pump life and it is not under the warranty.

## **Operation (only for HYDROMAX Automatic Fresh Water Pumps-42series)**

**This pump is designed for intermittent duty only.**

The pump operates normally up to about 40-psi, where a spring-loaded by-pass valve opens, allowing flow back from the output side to the input side, providing smooth, steady flow with virtually no cycling, all the way down to a trickle. As a faucet is opened back up, the pressure will drop, the by-pass will close and full flow is again obtained. This allows good flow, even with today's restrictive showers and pullout sprayer faucets. Performance will vary, of course, depending on the voltage to the pump; lower voltage=lower flow, higher voltage=higher flow. Remember your electrical safety: It is always best to shut off power to the pump OFF when

leaving the RV unattended

About The By-Pass NOTE: By-pass adjustment should be performed by professional technicians with proper gauge and equipment.

The by-pass is a spring loaded diaphragm that opens up allowing water from the discharge side back to the inlet side. The by-pass is set to begin opening at about 40psi and increasing full by-pass at about 62 psi. The pressure switch on the pump is set to shut off at 55psi. If the switch or by-pass is adjusted too much, the by-pass and switch shut-off can overlap and THE PUMP WILL NOT SHUT OFF. Screwing the switch screw in clockwise will raise the shut-off pressure. Unscrewing the switch screw counterclockwise will lower the pump shut-off pressure. Screwing the by-pass screw in will raise the pressure at which the by-pass starts and raise the full by-pass pressure. Unscrewing the by-pass screw counterclockwise will lower the pressure at which by-pass starts and lower the full by-pass pressure. WARNING: If full by-pass is reached before the shut-off setting, the pump will not shut off. Full by-pass pressure setting should be at least 5psi higher than pump shut off pressure.

### **SANITIZING:**

Potable water systems require periodic maintenance to deliver a consistent flow of fresh water. Depending on use and the environment the system is subject to, sanitizing is recommended prior to storing and before using the water system after a period of storage. Systems with new components, or ones that have been subjected to contamination, should also be disinfected as follows:

1. Use one of the following methods to determine the amount of common household bleach needed to sanitize the tank.

A) Multiply "gallons" of tank capacity by 0.13; the result is the ounces (oz.) of bleach needed to sanitize the tank.

B) Multiply "Liters" of tank capacity by 1.0; the result is the milliliters of bleach needed to sanitize the tank.

2. Mix into solution the proper amount of bleach within a container of water.

3. Pour the solution (water/bleach) into the tank and fill the tank with potable water.

4. Open all faucets (HOT & Cold) allowing the water to run until the distinct odor of chlorine is detected.

### **WINTERIZING**

If water is allowed to freeze in the system, serious damage to the plumbing and the pump may occur. Failures of this type will void the warranty. The best guarantee against damage is to completely drain the water system.

### **NOTE:**

When used per the manufacturer's recommendations non-toxic antifreeze for potable water is safe for use with HYDROMAX pumps. Refer to the manufacturer for their specific winterizing & drainage instructions.

CAUTION: Do not use Automotive Antifreeze to winterize potable water systems. Such solutions

are highly toxic. Ingestion may cause serious injury or death.

To properly drain the system perform the following:

1. Drain the water tank, if the tank doesn't have a drain valve, open all faucets allowing the pumps to operate (15min, ON/15 min. OFF) until the tank is empty.
2. Open all the faucets (including the lowest valve or drain in the plumbing) and allow the pump to purge the water from the plumbing, then turn the pump OFF.
3. Using a pan to catch the remaining water, remove the plumbing at the pump's inlet/outlet ports. Turn the pump ON, allowing it to operate until the water is expelled. Turn OFF power to the pump once the plumbing is emptied. Do not reconnect pump plumbing. Make a note at tank filler as a reminder. "Plumbing is Disconnected".
4. ALL faucets must be left open to guard against any damage.

### **TROUBLESHOOTING**

Vibration induced by sea conditions or transporting can cause plumbing or hardware to loosen. Check for system components that are loose. Many symptoms can be resolved by simply tightening the hardware. Check the following items along with other particulars of your system.

#### **PUMP WILL NOT START / BLOWS CIRCUIT:**

Is the motor hot? Thermal breaker may have triggered: it will reset when cool.

Electrical connections, fuse or breaker, main switch, and ground connection.

Is voltage present at the switch?

Charging System for correct voltage(+/-10%) and good ground.

For an open or grounded circuit, or motor, or improperly sized wire.

For seized or locked diaphragm assembly (water frozen?)

#### **WILL NOT PRIME/SPUTTERS: (No discharge/Motor runs)**

Is the strainer clogged with debris?

Is there water in the tank, or has air collected in the hot water heater?

Is the inlet tubing/plumbing sucking in air at plumbing connections (vacuum leak)?

Is inlet/outlet plumbing severely restricted or kinked?

Proper voltage with the pump operating (+/-10%)

For debris in pump inlet/outlet valves or swollen/dry valves.

Pump housing for cracks or loose drive assembly screws.

#### **LEAKS FROM PUMP HEAD OR SWITCH:**

For loose screws at switch or pump head.

Switch diaphragm ruptured or pinched.

For punctured diaphragm if water is present in the drive assembly.

#### **PUMP WILL NOT SHUT OFF /RUNS WHEN FAUCET IS CLOSED:**

Output side (pressure)plumbing for leaks, and inspect for leaky valves or toilet.

For air trapped in outlet side (water heater) or pump head.

For correct voltage to pump(+/-10%)

For loose drive assembly or pump head screws.

Are the valves or internal check valve held open by debris or is rubber swollen?  
 Pressure switch operation/adjustment incorrect, refer to shut-off adjustment for switch.

**NOISY OR ROUGH OPERATION:**

For plumbing which may have vibrated loose.  
 Is the pump plumbed with rigid pipe causing noise to transmit?  
 Does the mounting surface multiply noise (flexible)?  
 For mounting feet that are loose or are compressed too tight  
 For loose pump head to motor screws. (3 long screws)  
 The motor with pump head removed. Is noise from motor or pump head?

**RAPID CYCLING:**

Pressure switch shut-off adjustment  
 Water filter/purifier should be on separate feed line.  
 For restrictive plumbing, flow restrictors in faucets/shower heads.

**SERVICE KITS**

To insure the correct service kit, order by the complete pump model number, date of manufacturer and other nameplate data. Part kits come with complete repair instructions. Pump illustrations may not be representative of all HYDROMAX potable water pumps and part kits.

NO	Component
1	Pressure switch
2	Pump head
3	Valve plate assembly
4	Diaphragm/ Drive assembly
5	Motor

PSI/Bar	GPM[LPM]	Amps
0/0	3.0[11.3]	3.2
10/0.7	2.3[8.7]	4.7
20/1.4	2.0[7.6]	5.6
30/2.1	1.8[6.8]	6.7
40/2.8	1.5[5.7]	7.9
50/3.4	1.1[4.2]	8.8
55/3.8	0	9.4

