

Installation, Operating,  
Maintenance and Safety Instructions *for*  
**FLOMAX-SYSTEM**  
Pressurised water systems for boats

<b>CW343A</b>	<i>FloMax System</i>	<i>12 volt d.c.</i>
<b>CW344A</b>	<i>FloMax System</i>	<i>24 volt d.c.</i>



**To obtain the best performance from your  
'FloMax pressurised water system' please read  
these instructions carefully.**

Failure to observe the recommended procedures  
may result in early and severe damage, and may  
invalidate the supplier's guarantee.






# APPLICATION

The FloMax System has been designed to simplify the installation of pressurised fresh water systems in small vessels. It is supplied complete and ready for installation. It incorporates all the components necessary for a reliable supply of hot and cold running water on board your vessel - at the turn of a tap.

## INSTALLING YOUR FLOMAX-SYSTEM

1. Install the unit in a dry and accessible location in the engine compartment or elsewhere.
2. Keep the inlet pipe from the water supply tank as short as possible (2 metres maximum). The pump is self-priming, and may be mounted above the level of the water supply. Maximum vertical suction lift is 1 metre. A Jabsco strainer is fitted in the inlet pipework.
3. Fix the base plate firmly to a rigid horizontal surface.
4. The inlet pipe bore should be at least 1/2". Use Hep2o or reinforced hose that will not deform or collapse under suction conditions. The special Hep2o CW193W (straight) and CW194W (90°) connectors are designed to fit direct onto the inlet strainer threaded port. They are available from Cleghorn Waring and their stockists.
5. We recommend the use of Hep<sub>2</sub>O fittings to connect the inlet and outlet pipework into your system. Hep2o fittings HX31/15 and HX29/15W can be fitted to the FLOMAX discharge.

<p><b>HEP<sub>2</sub>O PUSH-FIT PIPEWORK IS STRONGLY RECOMMENDED</b></p> <ul style="list-style-type: none"> <li>◆ light-proof to discourage growth of algae</li> <li>◆ tough, flexible, ultra-simple to install</li> <li>◆ joints remain fully watertight, even when rotated under pressure</li> <li>◆ suitable for hot and cold water</li> <li>◆ frost protected to -10°C</li> <li>◆ quiet, non-reverberating</li> <li>◆ low heat loss</li> </ul>	  
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6. Discharge pipe of at least 1/2" bore is recommended: a smaller bore will reduce the flow rate obtained at the outlets.
7. Make sure that the motor voltage corresponds to your supply voltage. Use cable of the recommended size:

	<i>Cable length, Metres</i>		
	0 - 6	6 - 11	11 - 17
	<i>Conductor cross-section area</i>		
<b>12 VOLT</b>	2.5mm <sup>2</sup>	4mm <sup>2</sup>	6mm <sup>2</sup>
<b>24 VOLT</b>	1.5mm <sup>2</sup>	2.5mm <sup>2</sup>	4mm <sup>2</sup>

Note: Cable length is for line and return i.e. **twice** the run distance. If in doubt use the next largest wire size.

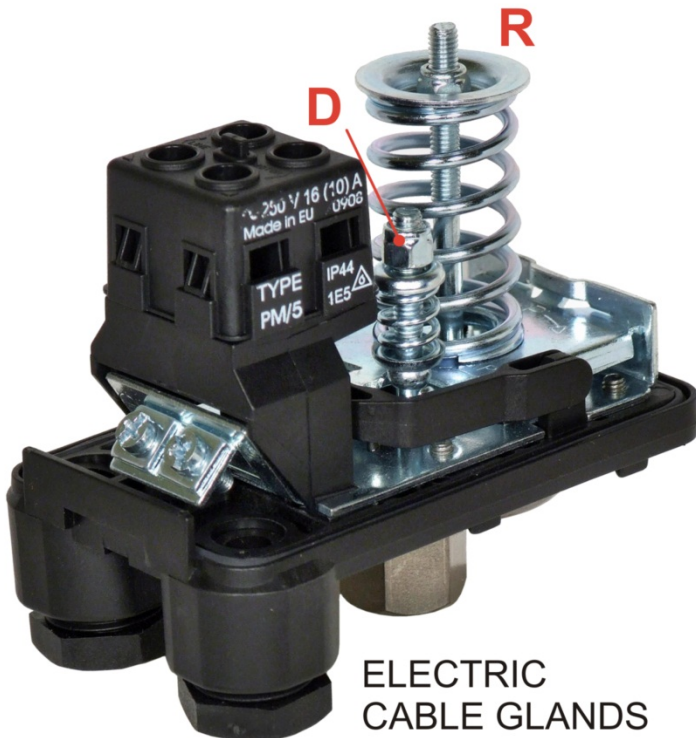
## OPERATION

1. Check that the water supply tank is filled, and that the inlet pipe to the FLOMAX-SYSTEM is connected and airtight. The pressure in the accumulator tank has been pre-set and does not require adjustment.
2. Open all the taps and other outlets in the system. This allows the pump to self-prime easily. Follow the same procedure whenever the pump is restarted after running out of water.
3. Switch on the power at the master switch. The pump should start and prime itself, and water should flow from the open outlets within a short time.
4. Allow air to clear itself from each open outlet, then close it. The pump should run for a short period then stop automatically. The system is now operational.

## ALTERING PUMP PRESSURE SETTINGS

If you need to change pressure settings, proceed as follows: NEVER try to alter settings without a pressure gauge (see below).

1. Switch on system and allow PUMP to start by opening an outlet. Close all outlets. The pressure showing on the gauge is the cut-out pressure of the unit.
2. Open one outlet slightly, allowing water to escape gradually. The pump will run once the pressure has dropped to the cut-in pressure. If the pump does not cut out again reduce the flow of water from the outlet until it does.
3. Using adjusting screw D on the pressure switch, raise or lower the cut out pressure of as required. If in doubt or difficulty, consult your pump supplier. Adjust screw R to alter the cut-in pressure.
4. Switch off the system and open a tap to release the water pressure. Adjust the accumulator tank pressure to approximately 0.2 bar below the cut-in pressure of the pump. Switch FLOMAX back on and allow air to clear itself from each open outlet, then close it. The pump should run for a short period then stop automatically. The system is now operational.



## THE ACCUMULATOR TANK

FLOMAX is equipped with a 8 litre accumulator tank, pressurised with dry non-toxic nitrogen gas. It contains an internal membrane: a rubber bag that holds water. The tank acts as a pressure buffer, absorbing the flow from the pump when demand is low and smoothing outlet pressure. By removing the need for the pump to run immediately an outlet is opened, it extends pump life and reduces battery drain. The pressure in the tank has been pre-set by the manufacturer to approx. 3psi (0.2bar) below the cut-in pressure of the pump. It should not need to be adjusted prior to first use of FLOMAX. If the pumps start and stop instantly on opening or closing an outlet, or if it starts and stops rapidly and repeatedly, the accumulator tank is not working efficiently. Check the internal pressure and adjust it if necessary.

If adjustment of the accumulator tank pressure should become necessary (e.g. when altering working pressure settings on the pressure switches or when fitting a replacement tank) follow this procedure:

- Switch off the power supply to the pressure system and open a tap, allowing water to flow until it stops.
- Remove the valve cover to expose the valve.
- Using a tyre pressure gauge, release nitrogen from the tank until the pressure is approximately 3psi below the cut-in pressure of the pump. This operation should be carried out in a well-ventilated space.
- If the tank has been de-pressurised, or if too much nitrogen has been released from it, pump in air with a car or cycle tyre pump until the correct pressure has been achieved.

Once the correct pressure is established, replace the valve cover and restart the pressure system by the method advised earlier in these instructions.

If the internal tank membrane has ruptured, the accumulator tank will become inefficient. A ruptured membrane will also release water into the 'dry' volume of the tank. Water or bubbles emerging from the tank valve are signs of a ruptured membrane. Traces of rust may eventually appear in the water coming out of the tap. The accumulator tank will need to be replaced.

## MAINTENANCE

Your FLOMAX-SYSTEM is designed to operate without frequent maintenance, but the following procedures will help to ensure that the system gives you lengthy and trouble free service.

1. Check the inlet strainer periodically, and clean if necessary.
2. Every 6 months, check the pressure in the accumulator tank. Disconnect the electrical supply, open a tap until flow ceases and unscrew the end cap from the accumulator tank to expose the air valve. Use a car tyre pressure gauge to check the pressure in the tank. The accumulator tank pressure to be approximately 0.2 bar (3 psi) below the cut-in pressure of the pump. Air may be pumped in to raise the pressure if necessary, using a suitable foot or hand pump.

## TROUBLE SHOOTING

<b>Problem</b>	<b>Possible cause</b>	<b>Action</b>
Pump does not prime: motor runs but no discharge	Restricted or blocked inlet or discharge pipe.	Check pipes & strainer
	Air leak in inlet pipe	Check for leaks
	Dirt under pump valves.	Check valves
	Pump diaphragm leaking	Check diaphragm
Motor fails to start when switched on	Supply tank empty	Fill tank
	Loose wiring connection	Check wiring
	No power in pump circuit	Check power source
	Blown fuse	Check cause and replace
Pump fails to turn off with all outlets closed	Failed pressure switch	Replace pressure switch
	Supply tank empty	Fill tank
	Inlet or discharge pipe leak	Check for leaks and repair
	Insufficient voltage at pump	Check supply voltage & cable
	Failed pressure switch	Replace pressure switch

Pump runs intermittently with all outlets closed

Dirt under valves allowing leakage to suction side of pump  
Leaking pipework on discharge side of pump

Check valves  
Check strainer

Check pipework

## FLOMAX SYSTEM PARTS REFERENCE

KEY	DESCRIPTION	QTY	PART NUMBER
1	ACCUMULATOR TANK	1	CW288
2	PAR-MAX 3 PUMP	1	31600-0292 – 12 VOLT 31600-0294 – 24 VOLT
3	PRESSURE GAUGE	1	CW218
4	PRESSURE SWITCH	1	CW4-A
5	Hep <sub>2</sub> O ELBOW	2	HD5/15A
6	Hep <sub>2</sub> O MALE ADAPTOR	1	HX31/15
7	BASE	1	Z/CW402
8	STRAINER	1	46400-9500

## PRESSURE SWITCH SETTINGS

CUT-IN PRESSURE	CUT-OUT PRESSURE
0.7 bar ( 10 psi )	1.4 bar ( 20 psi )

### INLET CONNECTION – ½ “BSP MALE

### DISCHARGE ½”BSP FEMALE

