



## DIAPHRAGM PUMP MANUAL - 4.0L/MIN 70PSI

The RapidLine 4.0L/min diaphragm pumps are hardened and prepared for extreme conditions. The pump head and components utilize a completely integrated design, requiring minimal labor to replace. They are compact and designed for a wide range of applications including liquid transfer, spraying, circulation, filtration and dispensing.

### FEATURES

- 2 chamber diaphragm pump
- Intermittent duty
- Self priming
- Run dry capable for normal workloads
- Automatic: controlled by pressure switch
- Industry standard mounting pattern
- Quiet Operation
- Ignition protected

### APPLICATIONS

- Yacht/RV/Caravan pressurised water system
- Sprayer fixtures (vehicle mounted sprayers, electric sprayers)
- Cleaning machines, humidifier, water purification, medical apparatus
- Food beverage filling and liquid transfer
- Any other pressurised system

### INSTALLATION

#### MATERIALS

- 1 diaphragm pump with related accessories
- 2 (at least) pieces of flexible, reinforced hose piping, with collapsing strength of twice the inlet collapsing pressure (hose must be minimum  $\frac{3}{8}$ " ID)
- 4 stainless steel hose clamps and screws
- 4 screws to fasten the pump to the mounting surface
- 1 electrical cutoff switch
- 1 fuse
- 1 screwdriver
- 1 strong cutting implement for tubing  
(if desired) Teflon tape or sealant

#### SETUP

1. The pump may be mounted in any position. If mounted vertically, the pump head should be in the down position to avoid leakage into the motor casing in the event of a malfunction.
2. Secure the feet, but do not compress them. Over tightening the securing screws may reduce their ability to dissipate noise and vibration.
3. Intake hose must be minimum  $\frac{3}{8}$ " (10 mm) ID reinforced hose. Main distribution line from pump outlet should also be  $\frac{3}{8}$ " (10 mm) ID with branch and individual supply lines to outlets no smaller than  $\frac{3}{8}$ " (10 mm).

**SETUP CONTINUED.**

- 4. Plumb the system using high pressure (2x pump rating), braided, flexible tubing to minimize vibration/noise.
- 5. Do not apply inlet pressure in excess of 30 psi. In general, try to avoid any inlet pressure completely.
- 6. Avoid any kinks or fittings which could cause excessive restrictions.
- 7. Strainer should be attached to the inlet side.
- 8. The fittings must be secured to avoid leakage.
- 9. Use clamps at both ends of hose to prevent air leaks into the water line.
- 10. If a check valve is installed in the plumbing, it must have a cracking pressure of no more than 2 psi.
- 11. If applying a sealer or plumbing tape, be careful to not over-tighten, as they may be sucked into pump.
- 12. This pump should be wired on its own dedicated circuit. Connect the positive lead (red) to the positive terminal of your battery and the negative wire (black) to the negative terminal of your battery.
- 13. In an easily accessible location, install a switch to control electricity to the pump. Turn the pump off when not used for extended periods or when the tank is empty.
- 14. The electrical circuit should be protected with an over-current protection device (fuse) in the positive lead. This pump requires a 8 amp fuse.
- 15. The pump circuit should not include any other electrical loads.
- 16. As the water supply pump is non-essential, reference the wire chart under the electrical information. Be sure to have the correct wire sizing for the length of wire you are using.
- 17. After installation, check the voltage at the pump motor. Voltage should be checked when pump is operating. Full voltage must be available at the pump motor at all times.

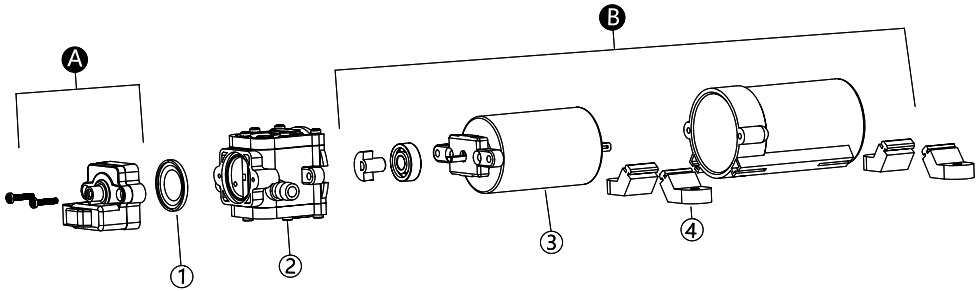
**NOTES**

- 1. Flexible potable water hose or PEX tubing is recommended instead of rigid piping at pump. If you choose to use rigid piping, provide a short length of hose between pipe and the pump to avoid noise and vibration.
- 2. We do not recommend the use of metal fittings. When possible, use the provided plastic fittings.
- 3. Do not adjust the bypass personally without the help of technician.
- 4. Lack of sanitizing and maintenance is one of the main reasons of under performance of the pump. Please do maintenance and winterize the pump at appropriate times, especially before and after a period of storage.

**ELECTRICAL INFORMATION**

Ft. (M)	AWG (mm <sup>2</sup> )
0 - 50 (0 - 15)	16 AWG
50 - 65 (15 - 19)	14 AWG
65 - 100 (19 - 30)	12 AWG
100 - 130 (30 - 39)	10 AWG

## REPAIR KIT



Key	Description	Qty
<b>A</b>	Pressure Switch	1
<b>B</b>	Motor Assembly	1
1	Diaphragm of Pressure Switch	1

Key	Description	Qty
2	Pump Head Assembly	1
3	Motor	1
4	Rubber Feet	4

## TROUBLESHOOTING

### PULSATING FLOW - PUMP CYCLES ON & OFF

- Check lines for kinks.
- Plumbing lines or fittings may be too small.
- Clean faucets and filters.
- Check fitting tightness for air leaks.

### FAILURE TO PRIME BUT MOTOR OPERATES - NO PUMP DISCHARGE

- Restricted intake or discharge line.
- Air leak in intake line.
- Punctured pump diaphragm.
- Initial amp supply is not enough to sufficiently start the motor.
- Debris clogged in the valves.
- Crack in pump housing.

### MOTOR FAILS TO TURN ON

- Loose or improper wiring.
- Pump circuit has no power.
- Blown fuse.
- Failed pressure switch.
- Defective motor.

## PUMP FAILS TO TURN OFF AFTER ALL FIXTURES ARE CLOSED

- Punctured diaphragm.
- Discharge line leak.
- Defective pressure switch.
- Insufficient voltage.
- Clogged valves in pump head.

## LOW FLOW AND PRESSURE

- Air leak at pump intake.
- Accumulation of debris inside pump or plumbing.
- Worn pump bearing (possibly accompanied by loud noise).
- Punctured diaphragm.
- Defective motor.

## NOISY

- Check if the mounting feet are compressed too tightly.
- Is the mounting surface flexible? If so, it may be adding noise.
- Check for loose head/screws.
- If the pump is plumbed with rigid pipe, then it may transmit noise more easily.



### CAUTION

- Please do follow the instruction manual to install the product. Any action outside what is recommended in this manual may bring damage to the pump. Any inappropriate installation or operation that causes the pump damage is not covered by warranty.
- If do not use the pump or store for a long time, there will be a high potential that the valve stick with valve seat, which will cause the pump not pumping water. To solve the problem, it is necessary to fill the water into the inlet of the pump to separate the valve and valve seat. It is recommended that the pump should not be stored for more than one year.



See <https://www.rapidspray.net/resources/warranty-registration> to register your Rapid Spray product for warranty or call 1800 011 000.

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35 Enterprise Cres, Singleton NSW 2330  
PO BOX 3119 Singleton NSW 2330

Telephone: 1800 011 000  
Facsimile: 02 6571 2951

Call us on 1800 011 000 or visit [www.rapidspray.net](http://www.rapidspray.net)