



# Installation & Maintenance Manual

## 3100/3200/5100/5200 Series

Instructions for Assembly, Testing, Operation, Servicing, and Storage  
**12/24V Diaphragm Pump:** For use with agricultural pesticides and other liquids\*\*

### WARNING

**READ and UNDERSTAND the Owner's Manual completely before using this pump.**  
**DO NOT TURN ON POWER to pump until ready to spray in order to avoid unintentional spray release.**  
Improper use of the pump could result in serious injury or illness to the operator or nearby persons/animals, or could cause damage to the environment.

\*\*This pump is recommended for use in spraying non-flammable liquids such as pesticides, water for plants/trees or dust control, ice control chemicals, or water-based non-flammable sealants. However, WE RECOMMEND THAT THE PUMP NOT BE USED FOR OTHER PURPOSES ONCE IT HAS BEEN USED FOR SPRAYING PESTICIDES. Any chemical will leave some residual in the pump, even after the pump has been properly cleaned. These residual chemicals can have unexpected effects on future uses.

### Installation

#### Step One: Mounting

- This pump is self-priming.
- The pump should be located in an area that is dry and provides adequate ventilation.

#### CAUTION

DO NOT locate the motor near low temperature plastics or combustible material. The surface temperature of the motor may exceed 250°F (121 °C).

- The pump may be mounted in any position. However, if mounting the pump vertically the pump head should be in the down position so that in the unlikely event of a leak, fluid will not enter the motor.
- Secure the rubber feet with appropriate fasteners. DO NOT compress the feet, doing so will reduce their ability to isolate vibration/noise.

#### Step Two: Plumbing

NOTE: WE do not recommend the use of metal fittings or rigid pipe to plumb the inlet/outlet ports. Standard plastic threaded fittings are available by calling our Product Support.

- In some cases, the ports may require a suitable thread sealer applied sparingly DO NOT over tighten, max torque is 45in/lb [5 N-m].
- Tubing should be compatible with the spraying fluid. At least 18" [450mm] length is suggested to minimize stress on the fitting/ports and reduce noise. Allow for the shortest possible tubing route and avoid sharp bends that may kink over time.
- Installation of a 50-mesh strainer is recommended to prevent foreign debris from entering the system. Failures due to foreign debris are not covered under the warranty.

NOTE: Restrictions on the inlet may cause a loss in performance. Inlet pressure must not exceed 30 psi [2.1 bar].

- If a check valve is installed in the plumbing, it must have a cracking pressure of no more than 2 psi [0.14bar].

#### Step Three: Connect pump to battery or 12/24V supply

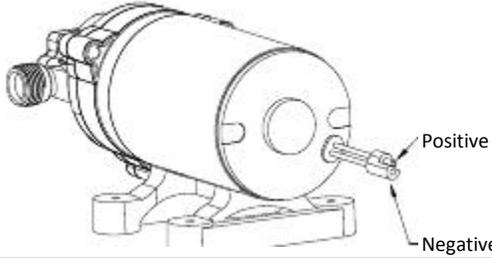
##### 1. Preparatory

Preparatory safety steps:

- ALWAYS use eye protection
- NEVER smoke or work near sparks or other sources of ignition
- NEVER touch both battery terminals at the same or with any non-insulated tools.
- If battery acid contacts skin or clothing, flush immediately with water and neutralize with baking soda.

##### 2. CE requirement

- The pump should be on a dedicated (individual) circuit, controlled with a double pole switch rated at or above the fuse ampere indicated by the pump motor label. Depending on the distance of the power source from the pump and ampere load on the circuit, wire may need to be heavier than indicated by the chart.

<p>3. Connect pump to battery</p>	<p>Procedure:</p> <ol style="list-style-type: none"> <li>Disconnect the vehicle battery ground wire.</li> <li>Connect the pump's red wire to the positive (+) terminal of the battery.</li> <li>Connect the pump's black wire to the negative (-) terminal of the battery.</li> <li>Reconnect the vehicle battery ground wire</li> </ol> <p>Note: Skip steps (a) and (d) if battery is not in a vehicle.  <b>WARNING: Always connect in this sequence to avoid possible shock.</b></p>
	
<p>4. Disconnect after use</p>	<p>AFTER EACH USE, disconnect power to the pump using the procedure:</p> <ol style="list-style-type: none"> <li>Disconnect the vehicle battery ground wire.</li> <li>Disconnect the pump's black wire from the negative (-) terminal of the battery.</li> <li>Disconnect the pump's red wire from the positive (+) terminal of the battery</li> <li>Reconnect the vehicle battery ground wire.</li> </ol> <p>Note: Skip steps (a) and (d) if battery is not in a vehicle.  <b>WARNING: Always disconnect in this sequence to avoid possible shock.</b></p> <p>NOTE: It is important to disconnect power to the pump when not in use for safety reasons. ALWAYS verify that the power has been disconnected before adding chemicals or servicing.</p>

A remote switch is recommended for temporarily shutting off the pump's operation.

Step Four: Check and test completed assembly.

<p>1. Check assembly</p>	<p>Check assembly to assure the pump is properly assembled and in safe working condition:</p>
<p>2. Test with Water</p>	<p>Test the system for leaks with water:</p> <ol style="list-style-type: none"> <li>Fill the tank with water.</li> <li>The pump is an "on demand " pump. When turned on, the pump will prime itself then turn off once reaching pressure. When the flow continues, the pump will automatically re-start.</li> <li>Check for leaks throughout the system. If a leak is detected, fix the leak and re-test the system with water</li> </ol>

## Operation-Using the Pump

Assess wind conditions and clear work area. Before you decide to spray, you must determine whether wind conditions are suitable. You must also restrict access to the work area to ensure the safety of bystanders.

## Storage

Prepare the pump for end-of-season storage by running RV antifreeze through the system. This will keep internal parts lubricated, protect against corrosion, and keep the unit from freezing.

### CAUTION

The pump will be damaged if it freezes.  
 Protect the pump from freezing during storage by following the instruction below.

Preparing for Storage:

<p>1. Add antifreeze</p>	<p>Pour RV antifreeze into the pump system.  <i>Note: R V antifreeze is non-toxic and biodegradable and generally safer for the environment than automotive antifreeze.</i></p>
<p>2. Spray briefly</p>	<p>Turn on the pump and run the pump system briefly until fluid sprays.</p>

Removing from Storage:

1.Drain	Drain the antifreeze left in the pump system into a suitable container.
2.Flush with water	Fill the pump system with fresh water and run through the system. Operate the pump system until the system is completely flushed Be sure to set up containers to capture the antifreeze flush water.
3.Disposal	Dispose of the antifreeze and flush water properly.

### Troubleshooting

PROBLEM	CAUSE	SOLUTION
Pump Will Not Turn On	Bad electrical connection	Check battery connection
	Short in wire	Check condition of wires
	Locked Drive	Replace diaphragm assembly
	Faulty pressure switch	Replace pressure switch assembly
	Incorrect voltage	Check voltage (+10%)
Pump will not prime	Inlet air leak	Tighten fittings/ Replace cracked fittings
	Inlet/Outlet tube restriction	Remove restriction
	Incorrect voltage	Check voltage(± 10%)
Low pressure/flow	Worn wobble plate	Replace diaphragm assembly
	Worn diaphragm	Replace diaphragm assembly
	Worn pressure switch	Replace pressure switch assembly
	Inlet/Outlet tube restriction	Remove restriction
	Incorrect voltage	Check voltage(± 10%)
	Inlet air leak	Tighten fittings/Replace cracked fittings
Pump leaks	Loose fasteners	Tighten fasteners
	Pump seals degraded	Replace pump head assembly
	Leak in diaphragm	Replace diaphragm assembly
Pump cycles while not spraying	Leak in the system	Tighten leaking hose clamps/fittings
	Faulty pressure switch	Replace pressure switch assembly
	Incorrect voltage	Check voltage(+10%)
	Air trapped in system	Purge the air from the system
Rough operation	Flexible mounting surface	Mount pump on rigid surface
	Loose pump head	Tighten fasteners
	Compressed base feet	Decompress base feet
	Rigid plumbing	Plumb pump with flexible plumbing

### Specifications

Component Material\*

Pump Head..... Polypropylene, Viton, Stainless Steel.

Diaphragm..... Santoprene

Valves..... Viton, Polypropylene

The manufacturer reserves the right to make improvement in design and/or changes in specifications at any time without incurring any obligation to install them on units previously sold.

**Any question. Comments. Problems or Parts Orders  
Call Our Product Support**

# Standard Warranty

**REMCO** warrants its products to be free from defects in material and workmanship on all products sold by REMCO for resale or for use in purchasers' own business or original equipment manufacturer. Under normal use, maintenance and service (rental use excluded) the following terms apply:

For all REMCO products, the warranty will last for a period of **one year from date of shipping from a REMCO warehouse**. REMCO's obligation under this warranty shall be limited to replacing or repairing at REMCO's discretion, any such product or part which must be returned to REMCO's factory with a Return Material Authorization Number (RMA), transportation charges approved by REMCO or prepaid, and which upon examination, is found to REMCO's satisfaction to have been defective under the terms of this warranty. No credit will be allowed against future purchases for items returned as defective under the terms of REMCO's warranty. This warranty does not extend to any products, which have been altered or modified outside the REMCO factory, to any products that have not been properly maintained, nor does it apply to units that are returned in an unassembled condition. Furthermore, the warranty does not extend to pumps that are non-compliant with REMCO's Engineering Standards. This includes, but is not limited to, pumps ordered without an integral pressure control mechanism. The warranty guarantees that products will perform to REMCO's flow and pressure specifications throughout the life of the warranty. The warranty does not cover wear, appearance, misuse, abuse, misapplication or external water damage. If the returned product is found not to be defective under the conditions of this warranty, a charge will be made for repair or replacement.

Brush wear may be limited to 1000 hours or less.

This is a Limited Warranty. It covers the product only and the extent of the coverage is limited to the cost of the product. As the manufacturer has no control over shipping, handling and installation, the warranty cannot cover water damage, or any other damage, caused by a leak or other malfunction.

**THIS WARRANTY IS IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OR WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE. NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR ASSUME OBLIGATION OR LIABILITY ON REMCO'S BEHALF. REMCO SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY KIND INCURRED BY THE REASON OF THE USE OR SALE OF ANY DEFECTIVE PRODUCT AND PART. THIS WARRANTY SHALL BE GOVERNED BY THE LAWS OF THE STATE OF MINNESOTA, WITH ANY DISPUTE OR CLAIM VENUED OR HEARD IN THE STATE OF MINNESOTA.**



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