



# Automatic Refill System User Manual



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30 Day Warranty © 2009 SnowMasters

### **System Description:**

This Automatic Fluid Refill System maintains the fluid levels in small machine reservoirs by refilling them automatically from a bulk storage container. It is especially useful for extended machine operation or in installations that makes reservoir refilling difficult. This unit is not intended for corrosive/explosive fluids.

### **Items Required for Installation:**

Refill System Kit including  
Pump Control Unit  
Float Assembly  
1/4" Hose Clamp  
5/16" Hose Clamp  
Roll Tubing

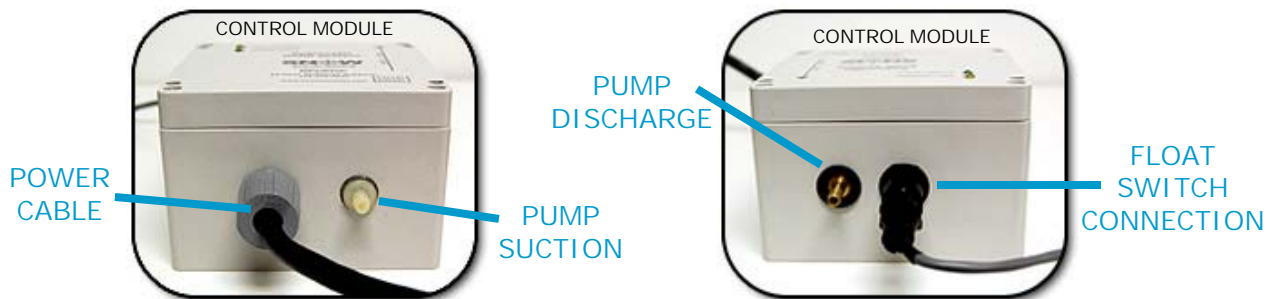
Optional Items  
Mounting hardware  
Outdoor/Wet Cover

Please Note: Attempting to use this product in a manner for which it was not designed may cause improper function, destruction of the product, personal injury and/or voiding of any warranties expressed or implied.

Familiarize yourself with the control module and Float Switch Assembly.

Control Module: Contains the control electronics and the pump. The control module is encapsulated and contains no user-serviceable parts.

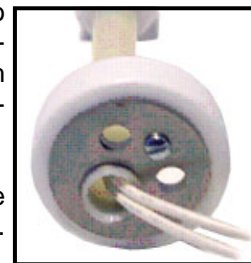
The power cable and the pump suction line are on one side of the pump and the float switch plug and pump outlet are on the other.



Two diagnostic indicators are provided. The green power indicator shows that the unit is operating. The yellow "call for pump" and the "standby" light indicate pump status.

The Float Switch has a wiring harness connector, which is plugged into the control box. A float switch extension cord available as an accessory can be used to extend the float switch wiring harness. The switch is activated when the fluid level in the remote container falls to a pre-defined level.

The float switch also has two holes at the top to allow insertion of the suction line for the machine and the fill line from the pump system. These two holes may be used for either function.



### **Installation of the Control Unit:**

Overview: The "suction" line on the pump control unit is installed into the bulk storage container. The "discharge" line is installed from the pump control unit to the container that is being refilled.

1. The Pump Control Unit should be mounted as close as possible to the bulk storage container as possible and no more than 15 feet of suction line should be used. This will reduce the amount of time needed to prime the pump the first time it is used.

The electronics inside the Pump Control Unit have been encapsulated in urethane. **Care should be used to avoid allowing fluid to enter the enclosure to prevent the fluid from false triggering the pumping system.**

2. Insert the switch extension cord into the pump system and extend the float switch assembly to the machine reservoir. **DO NOT CUT THE SWITCH EXTENSION CORD.** Excess cord can be left rolled up.
3. Place the 1/4" hose clamp over one end of the hose and attach the hose to the barbed outlet of the pump. Fasten the hose clamp over the tubing to secure the hose to the fitting. Extend the hose to the machine reservoir.
4. Attach a short piece of tubing to the suction fitting of the pump and secure that fitting with the 1/4" hose clamp. This is important to prevent air infiltration into the fluid lines. The other end of the suction line should be placed into the bulk storage. Insure that the inlet of the suction let will remain submerged in the fluid even as the container empties.
5. Electrical Power should be 110-volt or 220-volts (approx.) and appropriate for the pump control model you are installing. The system can operate on either 50 or 60 Hertz. 220-volt installations may require "hard-wiring" or installation of a suitable power plug. Installation of a Ground Fault Interrupt is recommended.

#### **Installation of the Float Switch Assembly:**

6. Remove the cap from the machine reservoir and the machine suction tube. It may be a good idea to retain the cap for replacement should the fill system is no longer required. Insert the tube from the machine into one of the holes on the top of the Float Switch Assembly. It may help to cut the end of the tubing at a steep angle to get the tubing started in the hole.
7. Insert the tubing from the Pump Control Module into the other hole. Again, it may help to cut the tubing at a steep angle to get the tubing started.
8. Plug the Float Switch Assembly electrical connection into the switch extension cord.
9. Insert the float switch assembly into the machine reservoir, with the float situated towards the bottom of the reservoir and tighten the float switch onto the reservoir. It is imperative that the float on the switch is free from obstruction and that during the fill cycle the fluid entering the machine reservoir does not spray directly onto the float. Failure to observe this notice may cause improper operation of the refill system.



#### **Testing for Proper Operation:**

When power is applied to the Pump Control Module the green power Indicator will illuminate. When the float on the float switch assembly falls signifying a need to refill the machine reservoir, the yellow "Call for Pump" will illuminate. The control module will then turn on the pump. Under normal circumstances the yellow and green light will always be on together.

The pump system will fill the container within 4-5 inches of the top and then stop filling until the fluid level in the machine reservoir has lowered approximately 1 to 2 inches. This system allows for plenty of time to refill the bulk storage container by providing significant fluid in the machine reservoir at all times.

#### **Troubleshooting:**

The Auto Refill System is designed to tell the user if any error occurred to it. We have different cases that could occur while the pump is in use.

Case 1: Full Level Fluid The pump is off and it is connected to electricity. The power LED (green) is ON and pump-call LED (yellow) is OFF.

Case 2: Low Level Fluid The pump is 1 min ON/ 1 min OFF, power LED (green) is ON and pump call LED (yellow) is ON when pump turns ON and blinks when the pump turns off each minute.

Case 3: Float Sensor Short This is a short in the wire from the pump to the float sensor. If for instance, someone accidentally scraped off the insulation and the un-insulated part of the wire went into a puddle. The pump is connected to electricity. The power LED (green) blinks 2 times then stops for 2 sec and so on. The pump-call LED (yellow) is OFF.

Case 4: Line Cut This is where either one of the two wires are cut or if there is an open circuit. For example, if the float sensor has become disconnected. The pump is connected to electricity. The power LED (green) blinks 3 times then stops for 2 sec and so on. The pump-call LED (yellow) is OFF.

SYMPTOM	SUGGESTION
Green Power Light does not illuminate and pump does not function	Insure proper power is connected to Pump Control Module. There are no serviceable parts in the Module.
Pump is Not Pumping Green Power Light - On Yellow Call for Pump Light - On Yellow Pump light – On  *Float switch is calling for refill	Heat Safety switch tripped typically caused by pump running in excess of 10 minutes continuous. Wait 30 minutes and try again.  Pump damaged. Return to factory for evaluation.
Pump is Not Pumping Green Power Light – On Yellow Call for Pump Light – Off Yellow Pump Light – On  *Float switch not calling for refill	Internal safety switch is tripped and Float Switch is NOT calling for fluid. Disconnect power for 30minutes and try again.  Pump damaged. Return to factory for evaluation.
Pump runs continuous Green Power Light – On Yellow Call for Pump Light – On Yellow Pump Light – On  *Over-filling container	Check for free movement of float switch.  Check for fluid that may be shorting out the Float Switch Assembly, specifically around connections to the extension cord and pump control module. Fluid around the electrical connections will cause a false trigger of the pump system. Check fluids around connectors and the length of the connecting wire. Unplug float-switch at the pump, if the pump remains “ON”, fluid is inside the pump control – disconnect power, with Float-switch plug out, allow liquid to drain through the hole and dry out.
Pumps runs but will not prime	Pump is dry. This system utilizes a magnetically driven piston pump that uses the fluid as a lubricant and buffer. Disconnect inlet line and put a few drops of water in both the suction and discharge end of the pump. Dry operation will damage pump.

**Warnings:**

1. ***The pump assembly is not water proof and should be located in a dry place.***
2. ***Insure the float sensor switch can float freely in the fluid tank.***

**Warranty:**

Automatic Refill System is backed by a 30 Day warranty when installed according to manufacturer instructions and the refill system is not allowed to run without fluid. Defective product must be returned for evaluation and warranty service. Liability limited to repair or replacement of the pump system at Manufacturers sole discretion.