



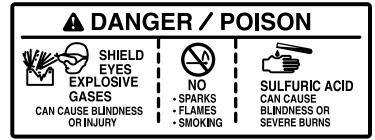
Regulated Hose Supply Installation, Operation, and Maintenance Manual



For Models:
BA-MS-320-00
BA-MS-320-05
BA-MS-320-20

General Information & Precautions

This publication provides detailed instructions for installing the regulated hose supply. Thoroughly review this document before any installation procedures are performed.



The following safety statements must be read, understood, and heeded before a kit is installed. Failure to do so could result in personal injury and/or property damage.

Danger

- Battery – Explosive gases! Do not smoke. Keep sparks and flames away from vehicle and service areas. Ventilate when charging or operating vehicle in an enclosed space. Wear safety glasses and rubber gloves when working on or near batteries.
- Battery – Poison! Contains acid! Causes severe burns. Avoid contact with skin, eyes, or clothing.

Antidotes:

- External: Flush with water. Call a physician immediately.
- Internal: Drink large quantities of milk or water. Follow with milk of magnesia or vegetable oil. Call a physician immediately.
- Eyes: Flush with water for 15 minutes. Call a physician immediately.

Warning

- Follow the procedures exactly as stated in this instruction, and heed all DANGER, WARNING, and CAUTION statements in this instruction manual as well as those on the vehicle and battery charger.
- Only trained technicians should service or repair the single point watering system. Anyone doing even simple repairs or service should have knowledge and experience in plumbing, electrical, and mechanical repair. The appropriate instructions must be used when performing maintenance, service, or accessory installation.
- Prior to servicing the vehicle or leaving the vehicle unattended, turn the key switch OFF, remove the key, and chock the wheels when servicing the vehicle.
- Wear safety glasses or approved eye protection when servicing any part of the watering system. Wear safety glasses and rubber gloves when working on or near batteries.
- Do not wear loose clothing or jewelry such as rings, watches, chains, etc., when servicing the vehicle or battery charger.
- Moving parts! Do not attempt to service the vehicle while it is running.
- Use insulated tools when working near batteries or electrical connections. Use extreme caution to avoid shorting of components or wiring.
- If wires are removed or replaced, make sure wiring and wire harness are properly routed and secured. Failure to properly route and secure wiring could result in vehicle malfunction, property damage, personal injury, or death.

Package Contents

Note: Pictures may differ slightly from your specific application.



Hose End Assembly

Qty = 1



Hose

BA-MS-320-00 Qty = (0)

BA-MS-320-05 Qty = (1) 5 ft

BA-MS-320-20 Qty = (1) 20 ft

Installation

Step 1

Determine Location

Proper facility water supply requirements found on page 8. Ensure that the facility water supply does not have an unusually high demand that could affect its pressure and flow performance.

Step 2

Make Connection

Connect inlet hose to a dedicated Step 2 water spigot.

Step 3

Qualify Water Supply

Check flow rate through included purger by mating purger with hose end assembly. Verify that a minimum of 2 GPM (gallons per minute) is achieved. This can be measured with a bucket and a stop watch or a watch with a second hand.

Note: Should a 2 GPM flow rate not be produced, refer to the troubleshooting guide in your water supply's instruction booklet.

Watering Procedures

Water After Charge

Electrolyte levels drop during discharge and rise during charge. In addition, charging generates heat, fluid expansion, and explosive gases. Watering a battery before charge (or with a low charge level) can lead to boil over, resulting in potential damage to the watering system, battery, and vehicle. When needed, water must only be added to a fully charged battery. If the battery has been neglected and water levels have fallen below the plates, water should be manually added to just cover the plates. After the battery has been charged, you can finish filling with the watering system.

Watering Intervals

Watering intervals are dependent on the local climate, charging methods, application, and age of batteries. Flow-Rite recommends checking consumption rates manually or with the optical indicator (when equipped). New batteries should be checked once a month and older batteries weekly until water consumption rates are known.

Typically for a heavy use application, watering a maximum of once per week is recommended, and for light use applications once per month. Do not water a battery that has been sitting for an extended period of time with no activity (non-use or not on charge) such as a battery that has sat idle over the weekend. It is best to water a warm battery that has just been fully charged.



Important: *Water quality is important to maintain the life of your battery and watering system. Always use water that meets the quality requirements of your battery's manufacturer.*

Battery Watering Operation

Step 1

Open Spigot

Ensure that the water spigot is fully open.

Step 2

Qualify Water Supply

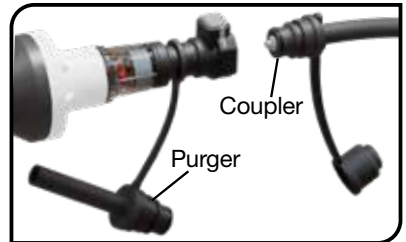
Check flow rate through included purger by mating purger with hose end assembly. Verify that a minimum of 2 GPM (gallons per minute) is achieved. This can be measured with a bucket and a stop watch or a watch with a second hand.

Note: Should a 2 GPM flow rate not be produced refer to the troubleshooting guide in your water supply's instruction booklet.

Step 3

Remove Dust Cover & Mate Couplers

Insert the male coupler on the SPW system into the female coupler on the end of the water supply.



Step 4

Observe Flow Indicator

The red balls inside the flow indicator will begin to spin indicating that water is flowing into the battery. As the cells fill and the valves shut off, the balls will begin to spin slower until they come to a stop. This indicates that all valves have shut off and filling is complete.



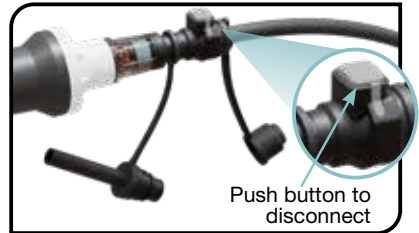
Step 5

Disconnect

When the balls stop spinning, and not before, immediately disconnect the couplers by depressing the push button on the female coupler.

Warning! If the water supply is left connected after the filling process is finished, it could lead to an overflow. Disconnecting before the balls come to a complete stop will lead to under-filled cells.

Caution: If at any time during the filling process you have a valve failure, disconnect immediately and refer to the troubleshooting section.



Step 6

Replace Dust Cover

Place dust cover back over the male coupler.

Regular Maintenance

Your water supply requires regular preventative maintenance on at least a quarterly basis.

Water Supplies

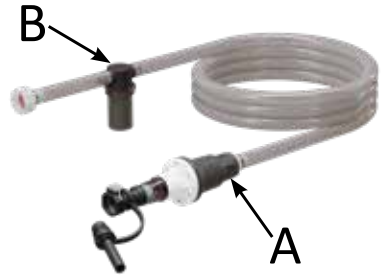
Clean or replace all filters / line strainers as necessary. Failure to do so can cause a reduction in the water pressure and flow rates needed to operate the system properly. A filter screen can be found on the inlet of the regulator, and inside line strainer on all regulated hose supplies.



(A) Regulator Filter Screen



(B) Line Strainer



Watering Systems

Please refer back to your specific system instructions for proper routine maintenance of the battery mounted components.

Seasonal Maintenance

Water Supplies

Water supplies must be drained and stored in an empty state if they will be exposed to freezing temperatures. Failure to do so can cause permanent damage.

Watering Systems

If you have vehicles that are taken out of service or put into storage for a period of 6 weeks or longer, your single point watering system will require seasonal maintenance. To winterize the SPW system simply drain any remaining water from the feed tube. Additionally the following steps need to be followed when bringing your vehicle back into service.

- 1.** After the batteries have been fully charged/equalized, connect the system to its water supply for 3-5 seconds then disconnect regardless of whether or not the batteries are completely full.
- 2.** Return the vehicle back to normal operation.
- 3.** Place the vehicle back into its regular watering schedule (waiting at least one week until next watering).

Operating Specifications

Operating Requirement of SPW system

Flow Rate:	2.0 - 5.0 gallons per minute* 7.6 - 19.0 liters per minute
Pressure Range:	3.0 - 35.0 PSI (no flow, static) .21 - 2.4 bar
Temp. Range:	Freezing - 150° F Freezing - 65.5° C

Water Supply Operating Requirements

Inlet Pressure Range:	40 - 100 PSI (no flow, static)
Temp. Range:	33 - 150° F 1 - 65.5° C

All product specifications and requirements should be met for proper operation of your Flow-Rite SPW system. Contact your battery supplier or Flow-Rite if you have any questions regarding product specifications or how to verify a water supply.

*Flow rate should be measured at the end of a purger (female/male coupler combination).

Troubleshooting

In the event that a valve does not shut off, qualify water supply to ensure that it is producing a minimum of 2 GPM (measured through the purger). If the issue persists and the water supply qualifies, call for service. If it does not qualify, perform maintenance procedures on the water supply and re-qualify. If it does not qualify after performing maintenance, call for service.



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