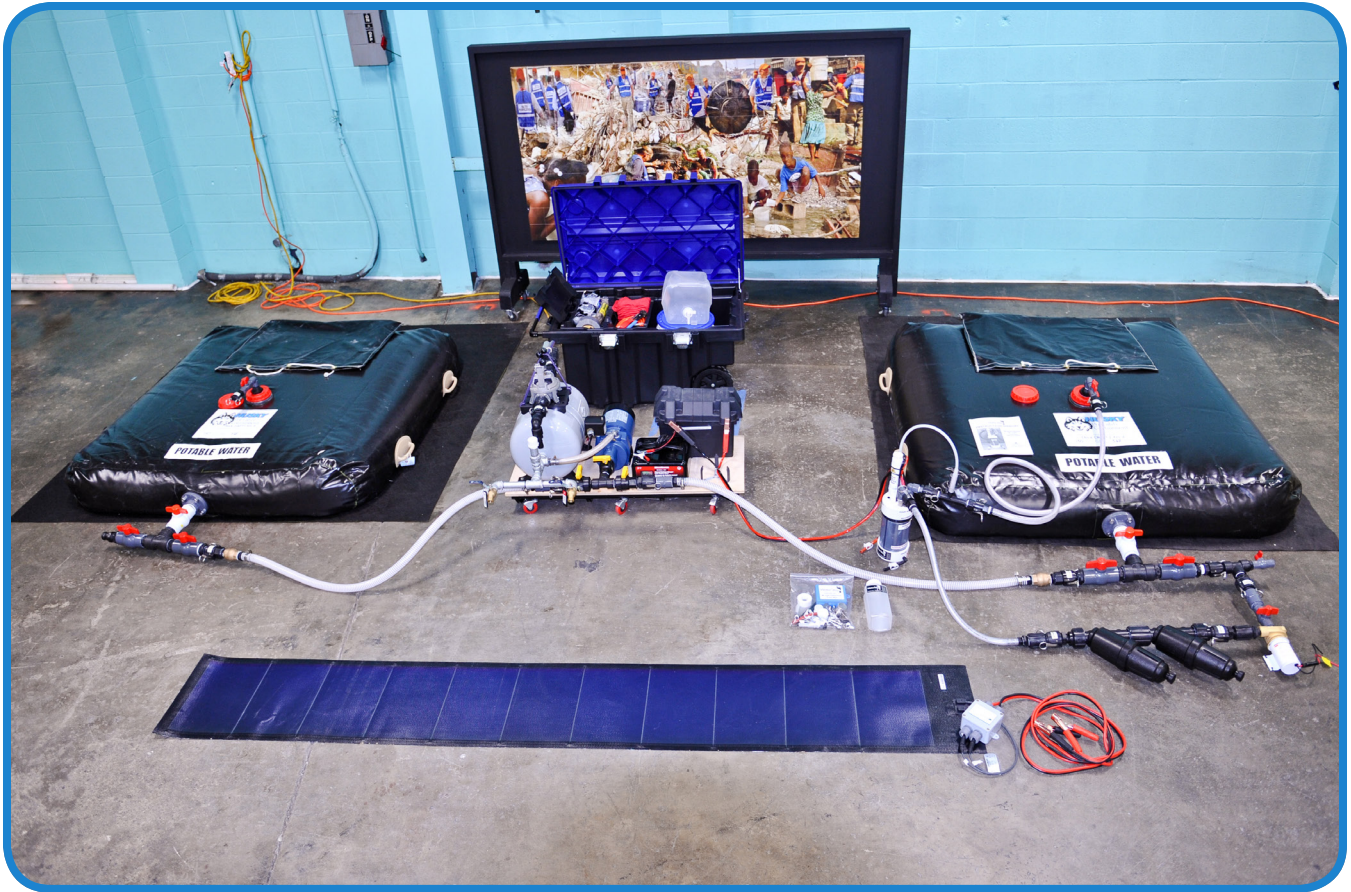


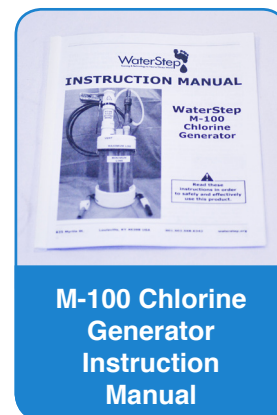


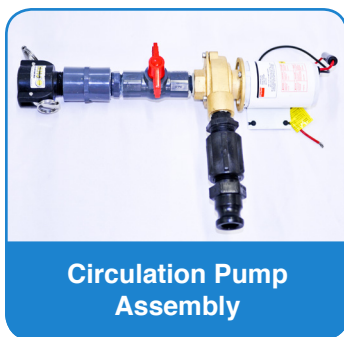
Emergency Management Portable Water System Set-up and Operations Manual



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Included in the Emergency Management Portable Water System







Accessories: Adjustable wrench, screw driver, caution tape, bungee cords, zip ties, latex gloves, 2 pair safety glasses, duck tape, extension cord, ground fault interrupter (GFI), shop rags



Rolling Case with Accessories

Introduction

WaterStep's Emergency Management Portable Water System is a mini-water chlorination plant designed to provide potable water in a crises. It is compact, easily transportable, quickly assembled (components are built as quick connect modules), operates off of AC or DC electrical power (or the enclosed solar panel), includes filters and bladder water tanks and only requires table salt (included in the kit) to operate the chlorinator. The system also comes with an AC powered pressurized distribution pump to deliver the chlorinated water to where you need it for consumption.

The Emergency Management Portable Water System includes everything you need to set-up and operate the system immediately upon arrival at the emergency site. This includes not only the main components of the system but also plastic containers to fill and carry the sanitized water, 5 gallon bucket to wash equipment, basic tools, towels, bungee cords, zip ties and other essential items often needed in an emergency. Accessories are packed in a heavy duty plastic container with wheels for easy transportation.

Our goal is to provide you with the equipment and the training for to successfully provide safe water during an emergency situation. We value your feedback and invite you to contact us if you have any questions about the system.

Assembly

Assembly of the Emergency Management Portable Water System consists of laying out the Bladder tanks, screwing in the manifold to the tank(s) and connecting the rest of the hoses and fittings according to the color coding on the fittings. All of the fittings are quick disconnects (qd) and the system is designed so that only the proper male and female connections will fit together.

The system contains at least two bladder tanks. Each tank has its own manifold and tank lid. However, the rest of the parts are interchangeable between the tanks. The concept is that the operator will completely set up the system for one tank, sanitize the water, use the quick disconnects to move the component parts to set-up the second tank. For purposes of this manual, we will provide detail instructions on how to set-up the tank on the operator's right when facing the tanks. The same process is used to set-up the tank to the operator's left.

Laying Out the Water Bladder Tanks

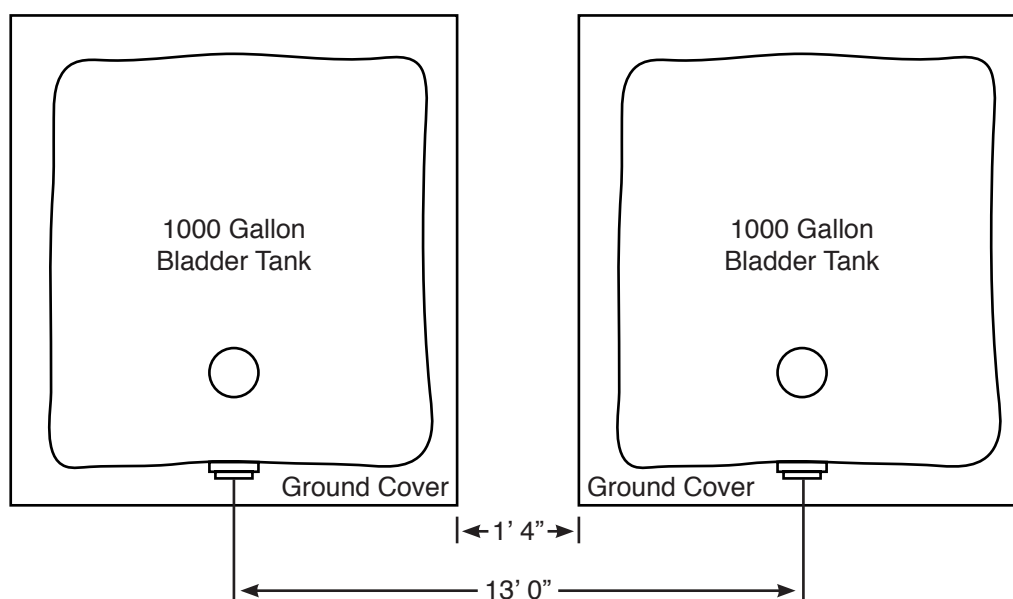
There are at least two bladder (pillow) tanks included with the system. The size of the tanks is dependent upon what was purchased. The illustrations in this manual are 150 gallon tanks.

Step 1: Remove the bladder tank and the felt ground cover from the carrying bag.

Step 2: Layout the felt ground covering. Avoid placing the felt ground covering over any sharp objects. There should be at least 1' 4" between the two felt ground covers

Step 3: Unroll the bladder tanks over the felt ground cover. Make sure that the 2" hose connector on the bladder tank is facing the same direction for both tanks as illustrated below.

Example: 1000 gallon tank and ground cloth



Example: Tank sizes may vary. A good rule of thumb is to set the entire system up with all hose connections made before water is introduced in to the tanks.

Putting Together the Sub-Assemblies

Step 1:



Screw the 1" 'T' into the blue A/C pump sitting on the rolling cart until it is hand snug. Do not over tighten.

Note: This step may already be completed in the system you purchase.

Step 2:



Left Bladder Tank

Right Bladder Tank

Screw the 1 1/2" 'T' manifold into the 1 1/2" hole on the bladder tank until it is hand snug. Do not over tighten.

Note: As you face the right bladder tank, the 'T' valve color coded green should be facing to the right. As you face the left bladder tank, the 'T' valve color coded green should be facing to the left.

Step 3:



On the right tank, connect the 1" 'T' assembly to the manifold that you just screwed into the bladder tank. The green colored quick disconnects should be connected and the yellow male quick disconnect should be facing to the front.

Step 4:



Connect the 12 volt pump assembly to the 'T' assembly that you just connected. The yellow colored quick disconnects should be joined together.

Step 5:



Connect the short 5/8" hose to the 12 volt pump assembly using the red colored quick disconnects.

Step 6:



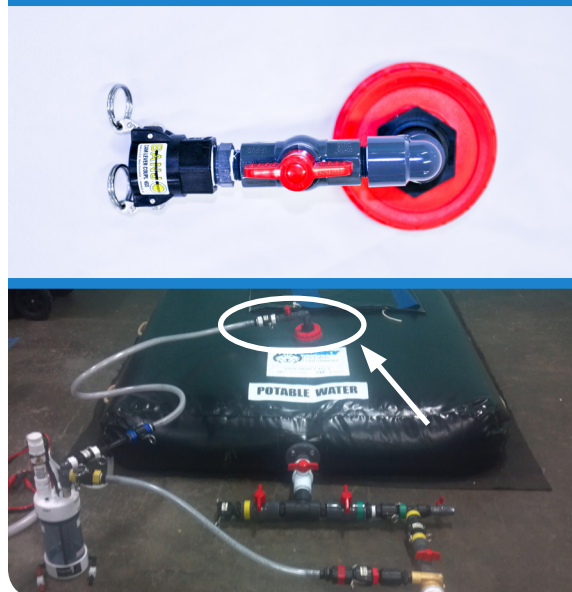
Connect the other end of the 5/8" hose to the silver heat exchanger (the silver "U" shaped tube) that goes into the chlorine generator. The yellow colored quick disconnects should be connected. Attach the white end of the venturi to the other end of the heat exchanger using the quick disconnects.

Step 7:



Attach the long 5/8" hose to the venturi (blue to blue) using the quick disconnects.

Step 8:



Attach the other end of the 5/8" hose to the inlet valve assembly and cap that goes on the top of the bladder tank.

Step 9:



Connect the 1" hose with the brass check valve to the 1 1/2" Manifold. The green colored quick disconnects should be connected (Yellow to the left tank, Red to the right tank).

Step 10:



Connect the other end of the 1" hose to the 1" 'T' manifold connected to the blue AC pump on the rolling cart. The red colored quick disconnects should be connected.

The right bladder tank is now ready to be used.

Note: Follow the same assembly procedure when you are ready to use the left bladder tank.

Electrical Power for the System

The Emergency Management Portable Water System is designed to operate off of standard 110 volt AC electrical power and the 12 volt battery charger/inverter included with the system. When AC power is not available, the system can be operated (except for the main distribution pump – use the hand pump as the alternative) on DC power via a 12 volt battery. A solar panel is included to keep the battery charged when AC power is not available.

AC

Step 1 and 2:



Battery Charger

Plug the enclosed battery charger /inverter into an AC outlet. Plug the distribution pump into an AC outlet.

Battery

A 12 volt battery is required to operate the circulation pump and the M-100 chlorine generator. The ideal battery is a marine or deep cycle battery (included with the system). However, a car battery may be used. A battery charger is included with the system to keep the battery charged. For optimal performance, the battery should be kept fully charged at all times.

Step 1: Connect the black battery clip from the:

- Battery charger/inverter
- Circulation pump
- M-100 chlorinator

to the negative terminal on the battery.

Step 2: Connect the red battery clip from the:

- Battery charger/inverter
- Circulation pump
- M-100 chlorinator

Solar Panel

Only use the solar panel when AC power is not available. The voltage regulator on the solar panel will keep the solar panel from overcharging the 12 volt battery.

Step 1: Connect the black battery clip from the solar panel onto the negative terminal on the 12 volt battery.

Step 2: Connect the red battery clip from the solar panel to the positive terminal on the 12 volt battery.

Operating the System

Putting Water into the Water Bladder Tanks

Filtered or unfiltered water can be put into the bladder tank. If your water is coming from a known source, such as a municipal system, that has not been compromised nor have particulates, you may fill the tanks directly without filtering. If you are unsure of the water source or if it is known to have particulates, use the filters included with the system.

Filling the Bladder Tank Without Filtering

Remove the red cap (part of the inlet assembly) on top of the bladder tank. Fill the tank to the desired level. Screw the red cap back onto the bladder tank.

Filtering as You Fill the Tank

From a RV/Potable Water Hose

Step 1:



Attach the quick disconnect hose converter (female end) to the end of the garden hose.

Step 2:



Join the quick disconnect hose converter to the female quick disconnect end of the filter assembly.

Step 3: (option 1)



Step 3: (option 2)



You have two options to get the water from the filter into the tank:

- Use the short hose the quick disconnects (with the red tape) and connect it with the filter assembly. Place the other end (with the yellow tape) into the inlet hole in the bladder tank.

OR

- Use the male end of the RV/potable water hose converter and connect it to the filter assembly using the quick disconnects. Attach a garden hose and fill the bladder tank through the inlet hole.

Filtering After You Fill the Tank

The water in the bladder tank may be filtered before or after the tank has been filled and before it is chlorinated.

Step 1:



Insert the filter assembly between the circulating pump assembly and the hose going to the M-100 chlorinator (match the red markings on the quick disconnects).

Step 2:



Open all of the valves in the circuit from the bladder tank, through the filters and back to the bladder tank.

Step 3: Turn on the circulating pump by connecting the battery leads to the 12 volt battery. **DO NOT TURN ON THE M-100 CHLORINATOR.**

Step 4: Circulate the water through the filters long enough for all of the water in the bladder tank to be processed. Turn off the circulating pump by disconnecting the battery clips.

Step 5: Remove the filter assembly and replace the hose going to the M-100 chlorinator and the circulating pump.

Chlorinating the Water

Follow the instructions for the M-100 chlorinator (included) on how to chlorinate the water in the bladder tank. Make sure that all of the valves are open in the circuit from the bladder tank to the M-100 chlorinator and back to the bladder tank.

Distributing the Water

Once the water in the bladder tank has been chlorinated, let sit for 2 hours and then retested using the pool tester for at least 2ppm of chlorine, it may be distributed for consumption.

Step 1:



Connect the 1" hose with the brass check valve to the 2" 'T' manifold (yellow colored tape) which is attached to the bladder tank.

Step 2:



Connect the other end of the 1" hose to either the electric pressure pump or the manual pump (red colored tape).

Electric Pressure Pump

Step 1: Connect the 1" hose to the 1 ½" 'T' manifold attached to the electric pressure pump (red colored quick disconnect connection).

Step 2: Make sure all of the valves are opened between the bladder tank and the electric pressure pump. All of the other valve should be in the closed position.

Step 3: Prime the bladder tank and electric pressure pump.

Step 4: Plug the electric pressure pump into an AC source.

Manual Pump

Connect the 1" hose to the 1 ½" 'T' manifold attached to the manual pump (red colored quick disconnect connection).

Note: The handle points in the direction of the water flow.

Care and Maintenance of the System

M-100 Chlorinator

See the M-100 Operation Manual for instructions on the care and maintenance of the chlorinator.

Filters

The 100 micron (yellow) and 25 micron (green) disc filters can be easily cleaned for continuous use.

Step 1: Loosen the drain valve on the bottom of the filter housing and let the water drain out.

Step 2: Unscrew the black housing unit and remove either the yellow or green disc inside of the housing.

Note: The yellow 100 micron filter comes in contact with the water to be filtered first. The green 25 micron filter comes in contact second.

Batteries

Batteries should never be stored directly on the ground. They should be kept clean and dry. The 12 volt DC Marine battery supplied with your Disaster Relief System should be kept on a trickle charge at **all** times to insure function when it is needed.

Note: Batteries that are kept out of sight are **OUT OF MIND!**

Water Bladder Tanks (WBT)

Water Bladder Tanks should never be stored wet. After use, remove water from bladder and suspend with valve opening down until dry. Care must be taken when transporting so as not to rip, tear or poke a hole in it. Never attempt to pick up or move WBT with water in it. Never drag a WBT across the cement or asphalt.

Solar Panel

Although the solar panel is very durable, refrain from walking on, driving over or puncturing with sharp or blunt objects. Store in a secure area.

Storage

Store all equipment when not in use in the same way in which it was packaged when you received it from WaterStep. After the disaster or training is over, make sure **all** hoses, pumps, filters, containers, tanks, etc. are emptied of all water, chlorine or sodium hydroxide **AND DRY** before packing and re-storing. Replace anything that was used or misplaced such as hand tools, electrical cords, gloves, safety glasses, etc.