

# **JUG** *Waterers*

## Operation Manual



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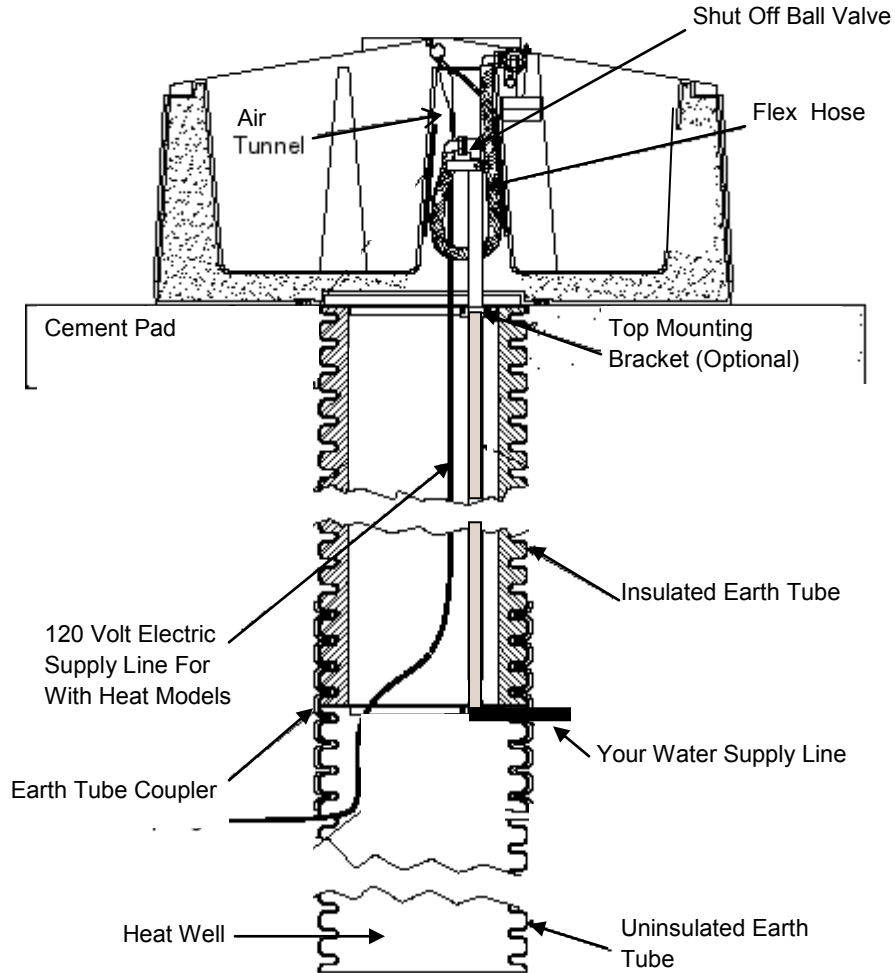
## PRODUCT WARNINGS-ELECTRICAL

1. To prevent electrical shock, disconnect the main power before servicing electrical components.
2. Be sure all electrical equipment is connected according to local and national electrical guidelines.
3. Never stand in water when handling electrical equipment.

## Excavation and Installation of JUG Earth Tubes-Water Line Electrical Line-Cement Pad

The Water Supply Line servicing the JUG Livestock Waterer must be buried at a sufficient depth below the frost line to prevent it from freezing. The vertical water line going from the buried horizontal underground waterline up into the JUG will generally be 3/4" inch or 1" inch in diameter. Contact your plumber or excavator for proper sizing. For With Heat JUG Waterers, run the Electrical Line along with the Water Line, leaving the proper distance between the two lines, as recommended by your electrician, plumber or excavator. Contact your electrician for the proper sizing of electric line to be used to accommodate the 65 Watt 120 Volt Heater in a With Heat JUG.

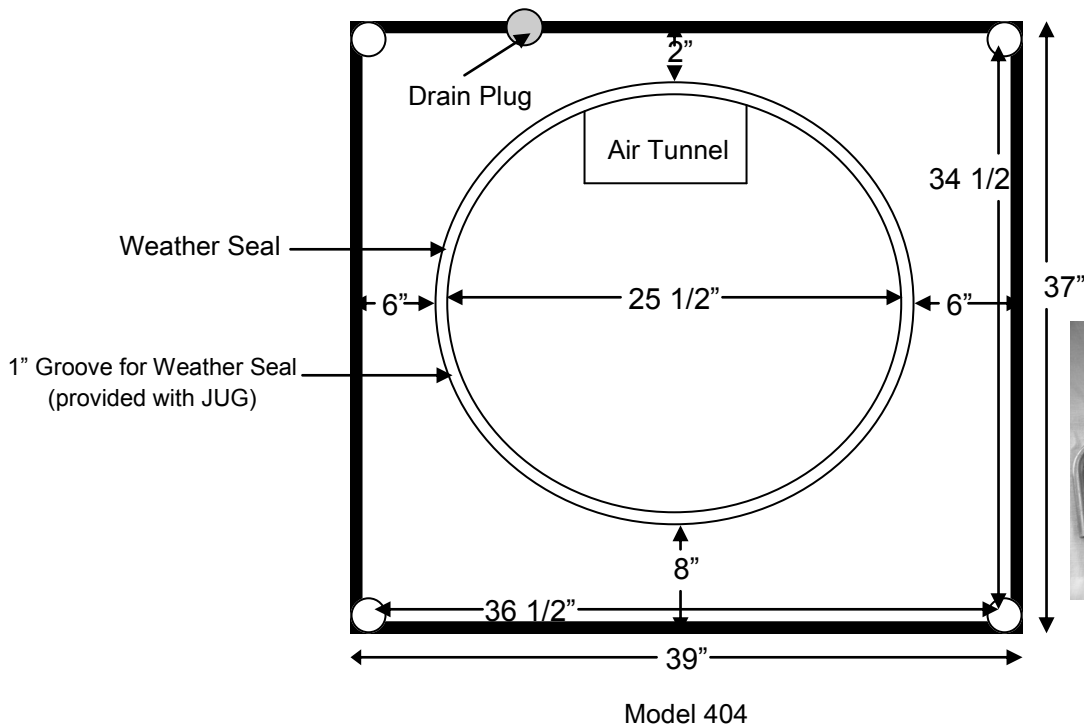
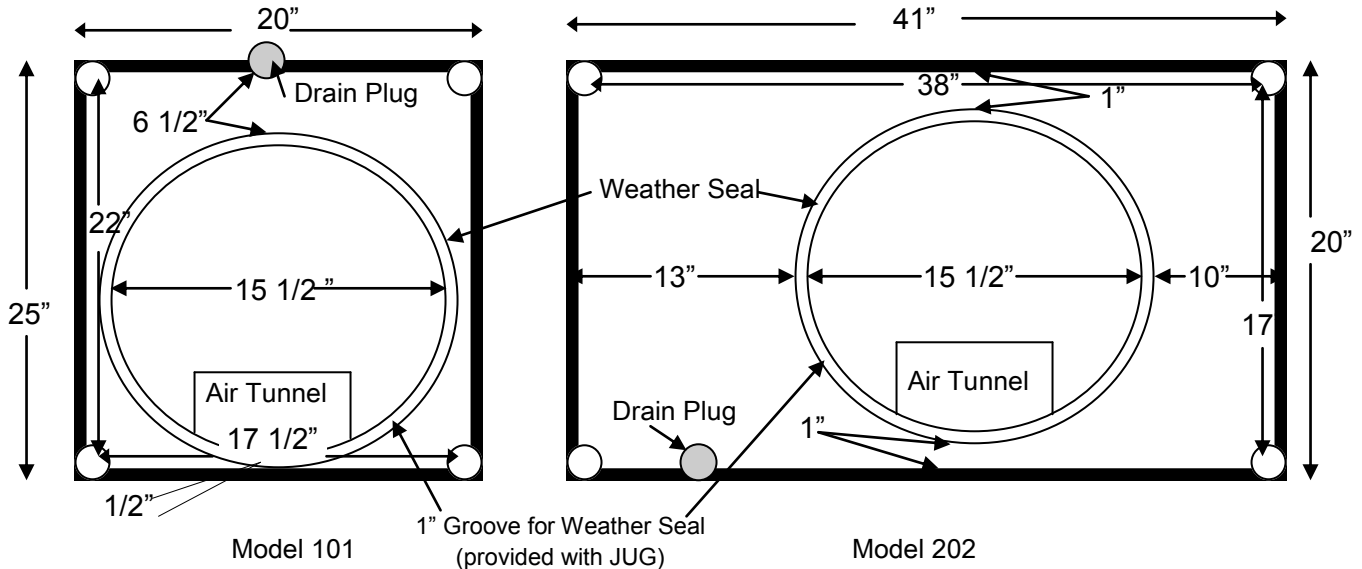
Select the proper combination of Insulated and Uninsulated JUG Earth Tubes, (Insulated on Top Uninsulated on Bottom) and attach them together with an Earth Tube Coupler. In warmer climates, with shorter bury depths, only one Earth Tube (Insulated) will be used. Run the Water Line and the Electrical Line (if With Heat Model) up through the Earth Tube(s). The incoming Water Line should extend about 8-10 inches up into the Air Tunnel of the JUG. Although not required, it is a good idea to create a heat well below the point where the Water Line enters the Earth Tubing of about 1 or 2 feet. This can be done by using a length of Earth Tube combinations equal to 1 or 2 feet longer than the bury depth of the Water Line.



Back fill dirt around the Earth Tube(s). Make sure to leave enough Insulated Earth Tube above ground so that when the cement base is poured (generally 6-8 inches) it will be leveled flush with the top of the Insulated Earth Tube.

The backfilled dirt should be allowed to settle for a number of days before the cement pad is poured. If the soil is not well compacted it will later settle and cause the Concrete Mounting Pad to tilt or crack. The Mounting Pad must be level for the JUG to operate properly. Pour the cement pad to the desired size making sure it is at least large enough to accommodate the JUG Waterer being placed on it. A larger cement pad will help prevent dirt loss, and thus freezing potential under the JUG.

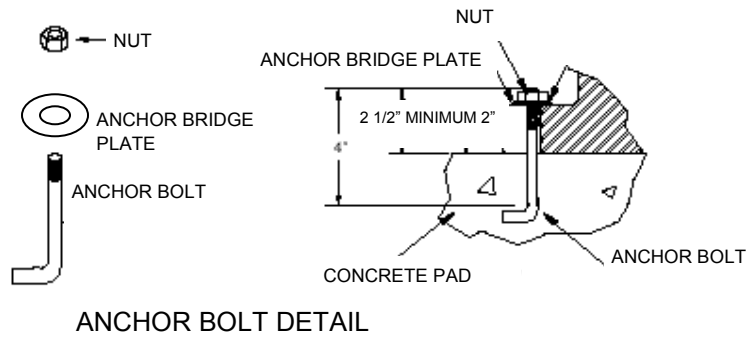
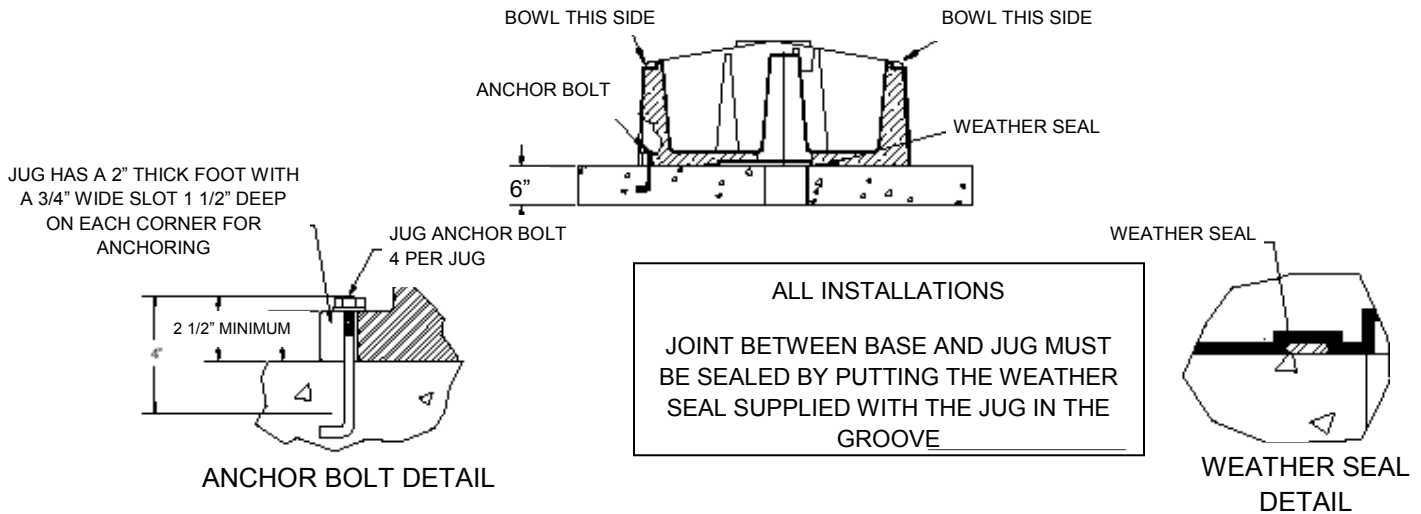
### JUG Bottom View Drawings



**Anchor Bolt Kit  
#10525**

The preferred method of anchoring the JUG to the Cement Mounting Pad is with a JUG Stainless Steel Anchor Bolt Kit #10525. A handy tip for placing the L shaped anchor bolts into the wet cement is to draw a template of the bottom of the JUG on a piece of cardboard with a marker and cut it out. Then gently place it on the wet cement. Once the anchor bolts are placed, remove and discard the cardboard template.

## JUG Mounting Pad Information



## Installation of The JUG Livestock Waterer

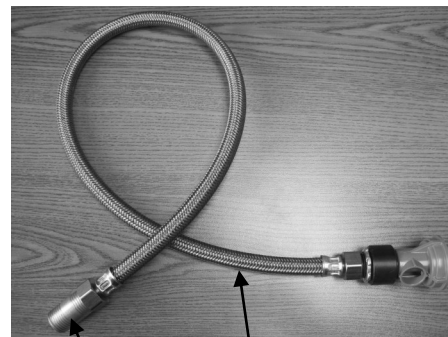
Remove the entire Lid of the waterer and set it aside. Find and remove all of the components that are shipped with the JUG, inside of the water reservoir.

Connect a Shut Off Ball Valve #10500 to your incoming Water Line with a hose barb reducer combination fitting. (supplied by the customer)



Shut Off Ball Valve #10500

Connect the Brass Nipple (supplied with Jug) to the other side of the Shut Off Ball Valve. Connect the Flex Hose to the Brass Nipple.



Flex Hose #10711  
Brass Nipple #10783

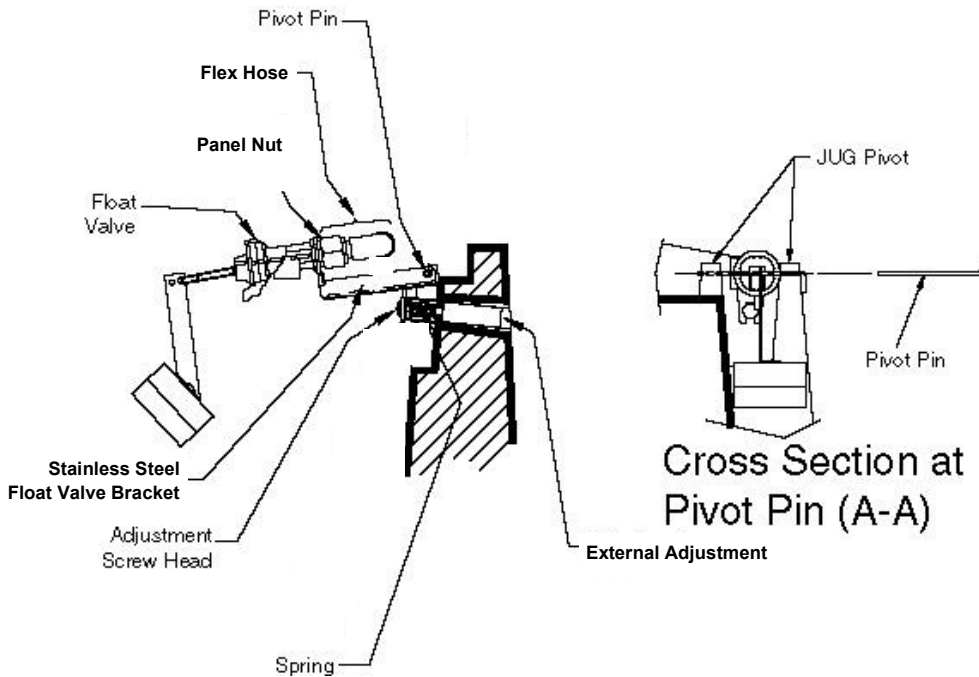
Turn the Jug upside down and clean the round groove on the bottom with a clean cloth. Install the Weather Seal into the groove by peeling the paper backing off of the seal as you go along.

Set the JUG on the Concrete Mounting Pad over the four Anchor Bolts. Make sure that the Flex Hose, Water Line and Electrical Line (if With Heat) extend freely up into the air tunnel of the JUG.



Bottom Weather Seal  
#10850

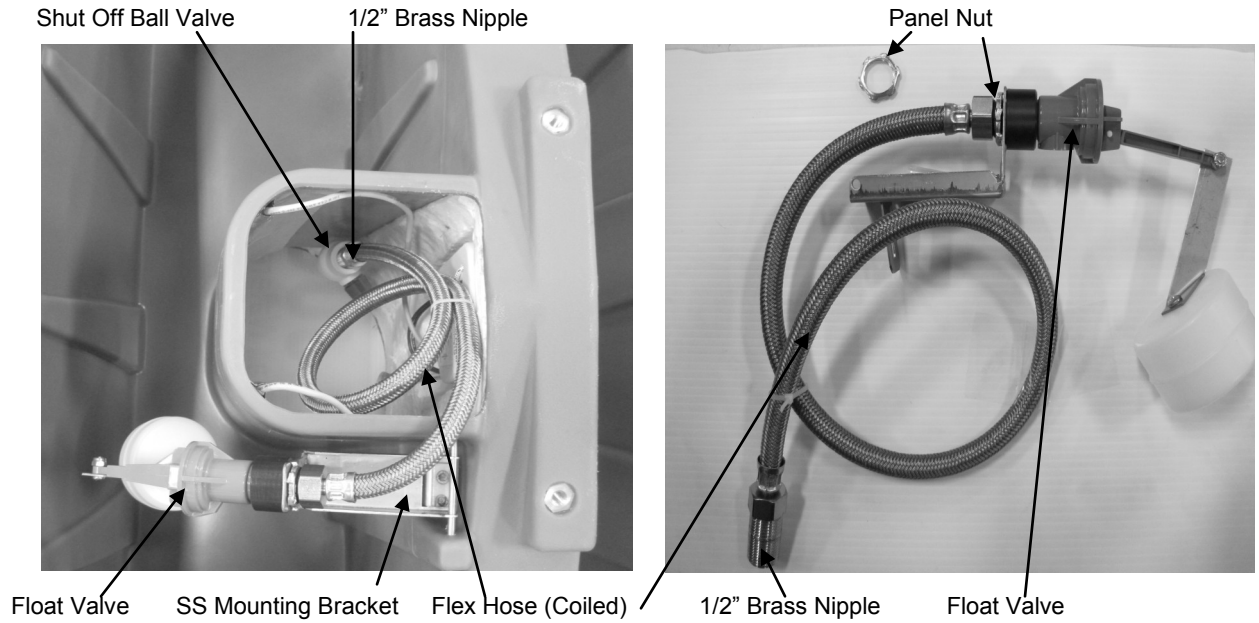
Install the Float Valve on the Stainless Steel Float Valve Bracket by placing the threaded end of the Float Valve through the hole in the bracket. Then secure the Float Valve in place using the Panel Nut provided. Attach the Flex Hose to the threads of the Float Valve and tighten securely. Note: the Flex Hose is long enough to be “coiled” around, so as to allow for variations in the length of the incoming water line, and for underground frost movement. Also, make sure that the float valve is aligned properly. If necessary, the valve can be turned slightly to allow for free travel of the Float Ball, and to insure the water does not spray into the Air Tunnel.



Installation diagram of the Float Valve into the JUG  
(side and front views)



Flex Hose  
(Attached to Float Valve Base)  
#10711



Anchor Bolts  
Anchor Bridge Plates  
Nuts

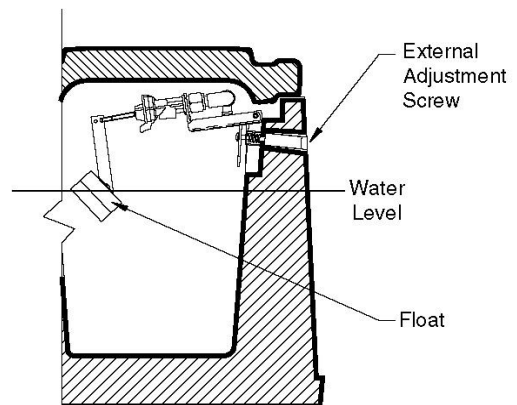
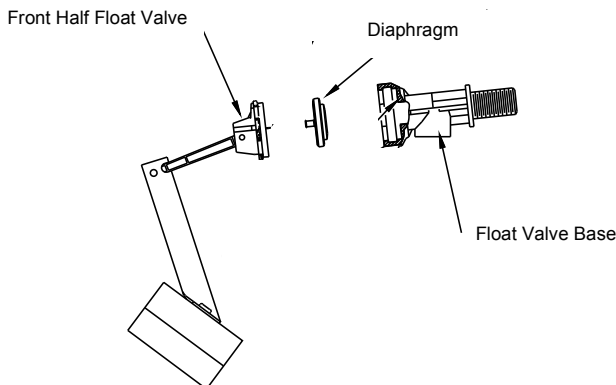


Place the Anchor Bridge Plates over the four Anchor Bolts followed by the nuts. Tighten the nuts on the Anchor Bolts.

Remove the Front Half Float Valve by turning it counter clockwise 1/4 turn and pulling it out of the Float Valve Base. Turn on your incoming Water Supply and let it run freely for 5 minutes. The water reservoir will need to be drained away at this time by removing the External Drain Plug.



External Drain Plug



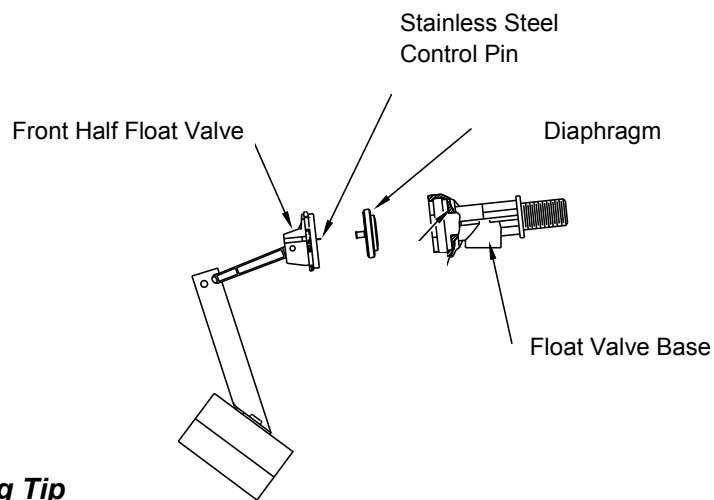
Turn the water off and reinstall the Front Half Float Valve and the External Drain Plug. On a With Heat JUG, attach the electrical wire, as shown on the following pages of this manual. Make sure the power is disconnected while working on the electrical components. Install the JUG Lid, **being careful not to cross thread the bolts as they are turned into the brass inserts.** Turn the water on and fill the reservoir to the desired level. The External Adjustment Shaft shows the directions for adjusting the water level. Ideally the water level out in the drinking bowls will be about 1/2" above the highest part (back side) of the drinking hole.

## Special Float Valve Instructions

The Fluidmaster Float Valve used on the JUG Livestock Waterer is among the most reliable, trouble free valves available today. Because of the precision qualities built into the valve, it is to your benefit to see that at the time of installation your water supply is clean. Please follow these guidelines to ensure proper installation.

1. Flush sufficient water through the water line before attaching the Float Valve.
2. Attach the Float Valve to the Water Line.
3. Turn on the water supply.
4. Let the reservoir fill a few times.
5. Turn off the water supply.
6. Remove the Front Half Float Valve. This is done by giving the tabs at the base of the gray arm a 1/4 turn counter clockwise and removing it from the base of the valve.
7. Remove the rubber Diaphragm from the stainless pin and wash all components. Reinstall the Diaphragm on the stainless pin.
8. Reinstall the Front Half Float Valve by placing it back into the Float Valve Base, and turning it 1/4 turn clockwise.
9. Turn on the water supply.
10. We recommend that you do this procedure a few times. If you still realize dripping water you need to do it again.
11. Also, at this time, check all water fittings, and connections for leaks.

By following these instructions you should realize the trouble free performance of the JUG Livestock Waterer that customers have come to expect over the years.



### ***Trouble Shooting Tip***

If at sometime you find the drinking bowls over flowing:

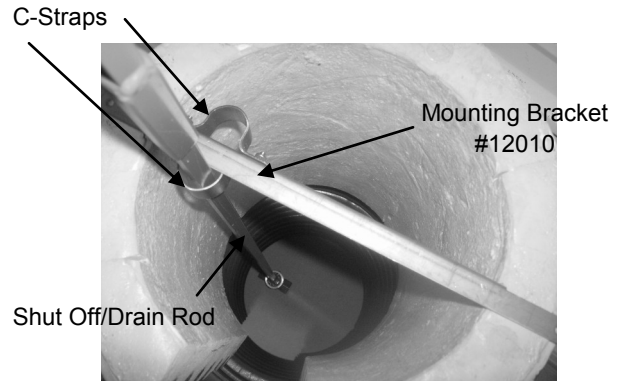
1. Clean and or replace the diaphragm, as this will almost always be the cause of a JUG over flowing. It is recommended that the diaphragm be replaced every year.
2. Check all connections and fittings for leaks.



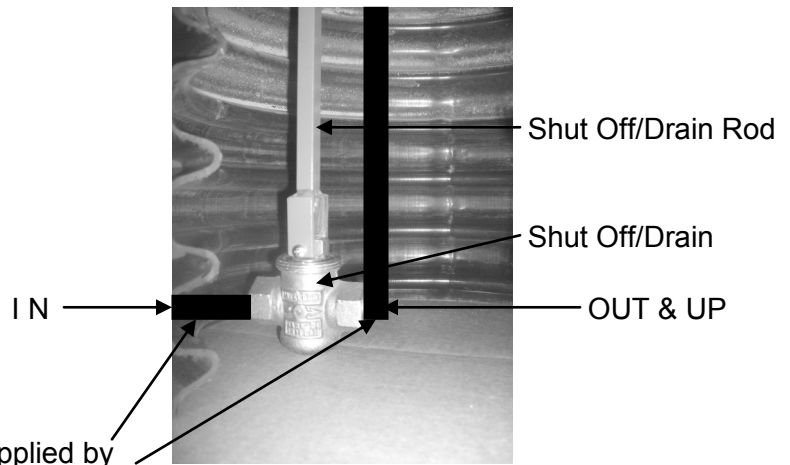
## HD Shut Off/Drain Instructions



Over View of HD Shut Off/  
Drain and Mounting Bracket



View of Shut Off/Drain



Water Line Supplied by  
Customer

If a new JUG Waterer is being installed with an optional Heavy Duty Shut Off/Drain,  
please follow these Installation Instructions

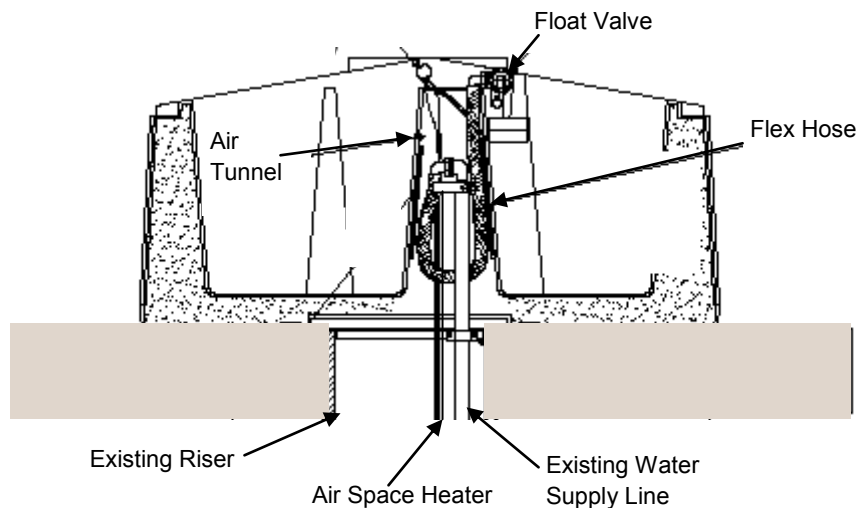
Center the Mounting Bracket over the Insulated Earth Tube and fasten with the screws provided. There are two C-Straps on the Mounting Bracket. The Largest one is for the Water Line supplied by customer and the Smaller one is for the Shut Off Rod to pass through. Mount the Shut Off Drain in the Insulated Earth Tube so that the Shut Off Rod and Water Line extend above the Mounting Bracket about 10 inches (up into the Air Tunnel of the JUG). Drill a hole towards the bottom of the Earth Tube to bring in the Incoming Water Line to be connected to the Brass Valve. The incoming water line also acts as the Bottom Mounting Bracket. Allow for the necessary 10 inches of Shut Off/Drain Rod above the Top Mounting Bracket, this should leave about 6 inches of Earth Tube below the drilled hole. This will allow the Shut Off/Drain to operate free of dirt, sand and water. This will also create a heat well below the Shut Off/Drain. Make sure to attach water lines to the brass valve according to the arrows indicated on the valve. If water does not pass through the valve in the proper direction, it will malfunction. It is **highly recommended** that you run water through the Shut Off/Drain before final placement to check for leaks and proper operation. A little extra time at this point to check for proper installation and operation could save a lot of time and expense later.

## Replacing An Existing Waterer with a JUG Livestock Waterer

Remove the existing waterer and cut off the anchor bolts.

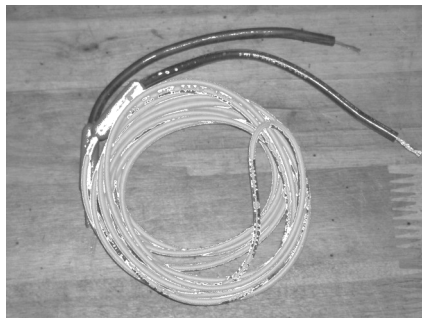
Measure the existing pad to see if it meets the requirements of the JUG waterer being installed on it.

When the pad dimensions are correct, plumb the existing water supply line to the center of the service well. Install the Shut Off Ball Valve at the proper height.



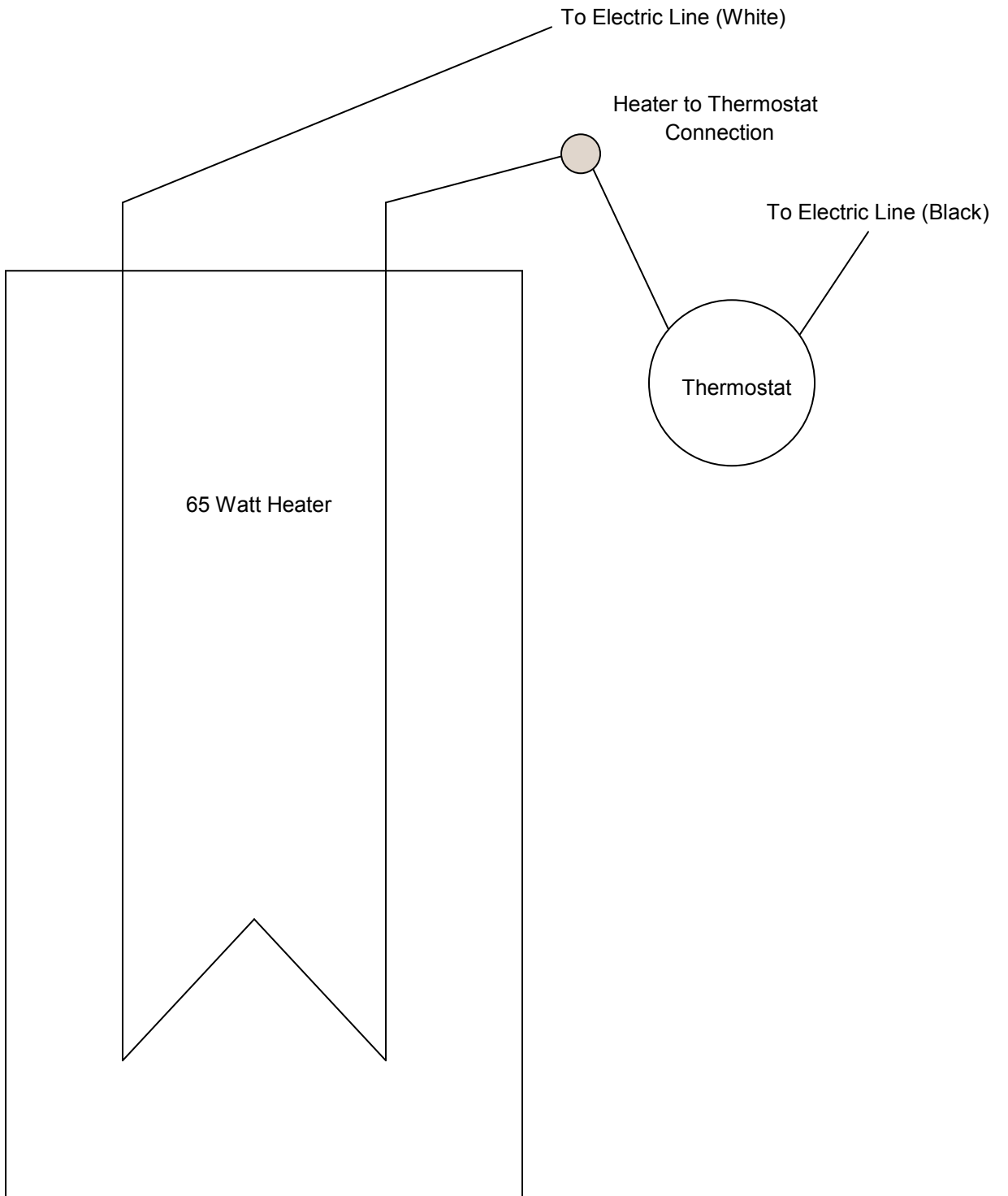
### A JUG Installation onto an existing mounting pad

If the existing Rise Tube is less than 10 inches in diameter or if Uninsulated, an air space heater of either 3 Foot, 4 Foot or 5 Foot should be installed. The length of the air space heater depends upon the length of the existing riser tube.



Air Space Heater

# Heater Thermostat Wiring Diagram



## Instructions for Installing (Replacing) a 65 Watt Heater in a JUG Livestock Waterer, and for converting an Energy Free (EF) JUG to a With Heat (WH) JUG.

### Parts Required:

#10665 65 Watt Heater

#10640 JUG Thermostat

3 Wire Nuts

**CAUTION: Remember you are working with electricity. Always disconnect the power before working with electrical wires, and have wire connections covered with wire nuts at all times.**

Make sure that the JUG Thermostat is securely located in the hole that is bored through the insulation, located directly below the junction box. It should be pushed all the way through the hole, so that it rests against the inside wall of the JUG.

Heater Replacement: Make sure the old heater is removed and the air tunnel is clean and dry.

Converting an EF JUG to a WH JUG: Make sure the air tunnel is clean and dry.

Before installing the heater, or connecting it to the thermostat, hook it up directly to the power source. Let the heater power up and run "direct" for about 10 minutes. This will warm it up to help insure a good stick. With the heater still running (it should be warm now) remove the peel off backing. Install the heater vertically on the inside of the air tunnel. (Not on the water side). With your fingers, apply direct pressure to all parts of the heater, working them up and down and back and forth. Leave the heater run direct for 10 minutes. This extra heating time will help insure a good stick. Disconnect the power, and tie the heater into the thermostat, as shown in the wiring diagram on the previous page. It is also a good idea to put a piece of foil tape up one side and down the other side of the Foil Heater. If foil tape is not available, duct tape will work fine.

### **Special Note for With Heat JUG Waterers in Cold Climate Areas**

If you live in an area with extremely cold temperatures, and icing up in the bowls is experienced, please contact your JUG Dealer for information on installing a Northern Bowl De-Icer which will eliminate any icing up in the outer bowls, on the rare occasions when that may be happening.

### **Special Note for Energy Free JUG Waterers**

If you live in a marginally cold climate, and you have an Energy Free (No Heat) JUG, you should have at least 15 head per drinking bowl to keep water rotating sufficiently throughout the day. It is not recommended that an Energy Free JUG be used in extremely cold climates.

### **Feed Trap Maintenance**

Because of its "Draw Tube" design, the JUG Livestock Waterer will provide the cleanest water available to your animals. The JUG Feed Trap (where the Draw Tubes attach to the bottom of the lid) will catch most of the feed that falls off the animals face. Because of the suction action created in the feed trap while drinking, most animals will "self clean" the JUG. However, over a period of time, feed will accumulate in the feed trap. A proven and quick method of removing that feed from the feed trap is with a wet/dry vac. A vac as small as 2 gallons will work well. One or two "sucks" with the vac will do an excellent job of cleaning the feed trap.

## JUG Specifications

Specifications	101	202	404
	20"x25"x22"	20"x41"x22"	37"x39"x22"
Energy Free	Model 101 EF	Model 202 EF	Model 404 EF
Energy Efficient (With Heat)	Model 101 WH	Model 202 WH	Model 404 WH
Tank Capacity	7 gallons	14 gallons	45 gallons
Animal Capacity			
Dairy	25 Head	50 Head	125 Head
Beef	50 Head	100 Head	250 Head
Sheep	75 Head	150 Head	300 Head
Maximum 24 hr electrical use on With Heat JUG	1.56 kwh on model 101, model 202 and model 404		
Weight	50 lbs.	75 lbs.	110 lbs.
Shipping	FOB Glenwood, MN	FOB Glenwood, MN	FOB Glenwood, MN

### Flow Rates For the JUG's (Fluidmaster) Float Valve

Static Pressure (PSI)	3	7	15	43	73
Flow Rate (gal/minute)	.5	1.5	2.5	5	6



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