

Installation Instructions for



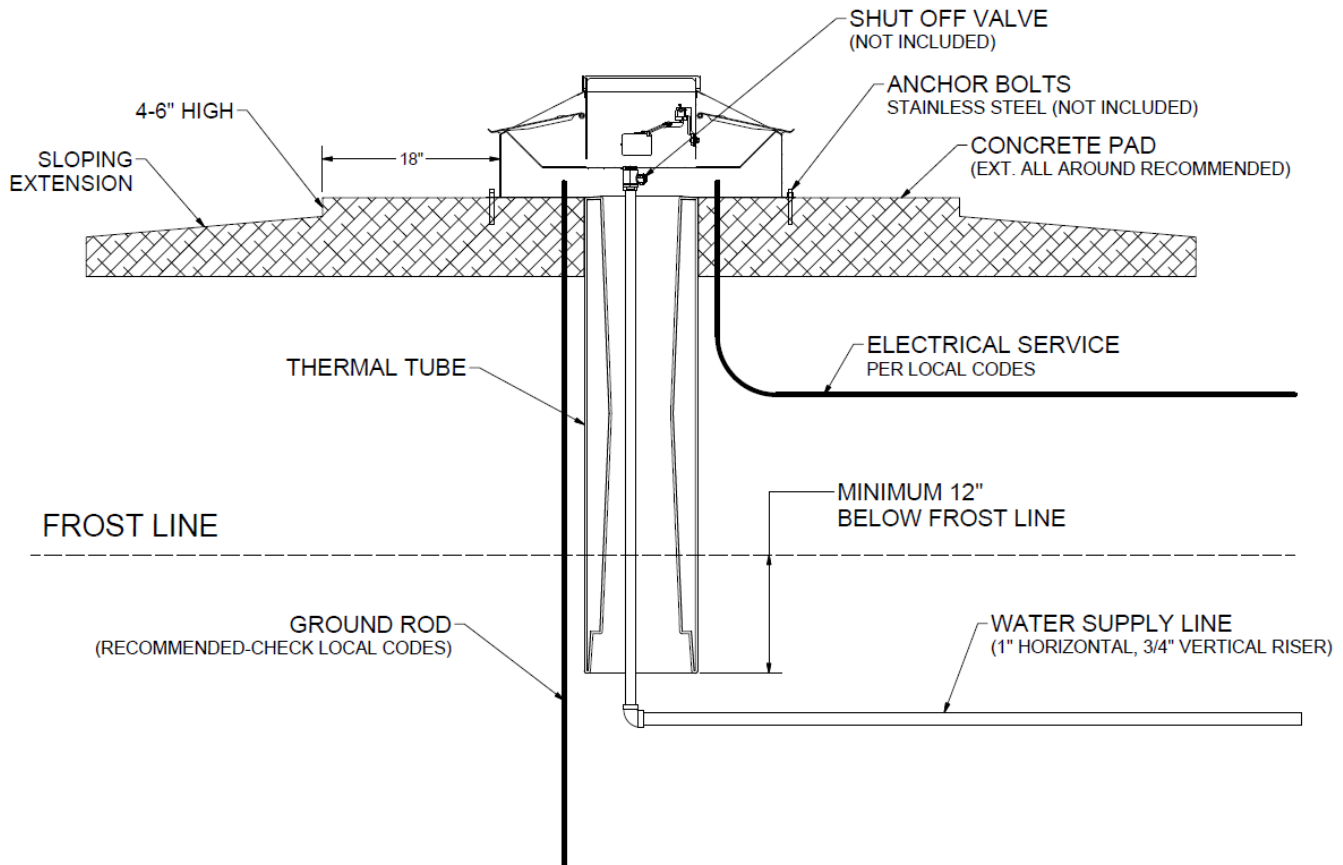
Pork King Series

Congratulations, you have just purchased the finest watering fountain on the market. This unit is built to give you excellent service when properly installed and maintained. Please follow instructions carefully. Read and understand all instructions before installing.

Ritchie Industries, Inc.
800-747-0222
www.ritchiefount.com

Part # 17836
5 March, 2022

Pork King Series Installation Instructions



A. Location - Putting the fountain in a location that offers protection from the wind will enhance the performance of the fountain. Livestock will tend to gather in this protected area, enticing them to drink more. Access panel should be opposite of prevailing winter wind to give additional protection to the supply line.

B. Water Supply Line - Horizontal underground water line should be sized to account for pressure drop, relating to distance, and placed one foot below frost line. A one-inch vertical supply pipe is recommended. A shut-off valve should be installed under fountain to allow for easier servicing. For optimum serviceability, a stop and waste valve can be installed below frost level to drain water when unit is not in use. Vertical supply line must be centered in riser tube to provide an air space between the line and frozen ground outside of tube. Flush water supply line thoroughly before connection to fountain. Water supplies with foreign material such as sand, rust, etc. may require a filter to keep fountain valve working properly.

C. Electric Supply – It is generally most cost effective to run your electrical supply line at the same time you are trenching for your water supply.

Item No.	Description	Watts	Amps
16456	Pork King 1 - 120V	298W	2.5A@120V
16457	Pork King 2 - 120V	298W	2.5A@120V
16458	Pork King 2-1 - 120V	298W	2.5A@120V
16459	Pork King 4 - 120V	548W	2.5A@120V

Item No.	Description	Watts	Amps
16848	Pork King 1 - 240V	348W	1.5A@240V
16847	Pork King 2 - 240V	448W	1.9A@240V
16846	Pork King 2-1 - 240V	448W	1.9A@240V
16845	Pork King 4 - 240V	848W	3.5A@240V

D. Riser Tube - Install a riser tube and extend it at least one foot below frost line or down to horizontal underground water line. For optimum water line protection, use the 12" diameter insulated *Ritchie Thermal Tube*, part numbers and sizes are shown to the right. Tube opening must be kept clear.

Ritchie Thermal Tube	
Part #	Description
18158	1' Top Section
16417	2' Top Section
16612	4' Top Section
16416	2' Extension

NOTE: *The supply line touching the riser tube is the most common cause of the supply line freezing. Do not surround the supply line with insulation, wood, or other foreign material. Any foreign material in the tube may cause frost to migrate to the supply line causing it to freeze.*

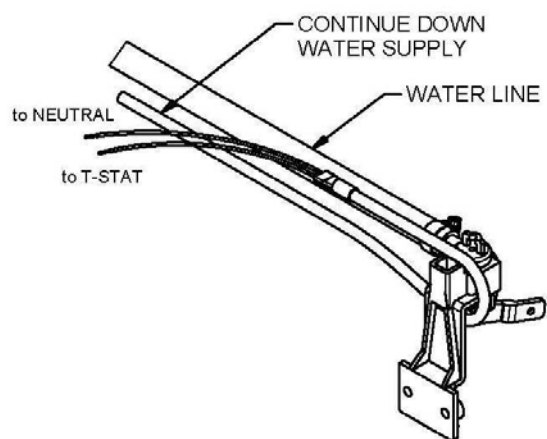
E. Mounting Platform - A concrete platform must be provided for all fountains. Use a minimum of 4" thick, (6" recommended thickness), large enough to accommodate fountain, and additional 4" step (on top of the platform) extending 18" out from each side of the unit. This will protect the unit from manure handling equipment, as well as discouraging animals from defecating in the fountain. Extending the platform provides animals a place to stand while drinking, consider the size of your animals when determining the dimensions of your platform. The concrete step and platform should slope away from the fountain for drainage. A rough broom finish to concrete surface provides better footing for livestock.

F. Hose Connection - Connect hose fitting to shut-off valve at top of concrete. Slip on barb fitting with furnished clamps. Hose should not touch insulation or outside surface of fountain. Place the hose under the fountain as you move the unit in place over the riser tube.

G. Anchoring Fountain - Pork King 2 & 4 are provided with built in hold-downs to anchor your unit securely to the concrete. Pork King 1 and 2-1 have built in hold-downs as well as 2 stainless steel hold down angles which are provided. Screw the hold down angles on to the unit as needed, then anchor down the unit. Use of 3/8" x 3-1/2" stainless steel expansion anchor bolts (not included) is recommended for concrete installations. Anchor bolts are available from Ritchie in a two pack, part # 14261. Use an all-weather sealant under the outside edge when anchoring to concrete to keep air from leaking under fountain.

H. Cable Heater - Uncoil cable heater, and loop around the valve. Attach the remaining part of the cable heater to the water supply, as far down the riser tube as possible with the cable twist ties provided. This heater is watertight but should not be immersed in water. Heater may cross over itself but should not be tightened at those locations.

CAUTION: Installation must not cause any strain on heater wiring connections. Avoid heater damage caused by hot spots due to its leads lying too close to each other. Also, do not wrap additional insulation around heater.



I. Electrical Connection - The electrical installation should be made and maintained by a qualified electrician conforming to national and local codes. A means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules. For wiring connections, see wiring diagram. Make connections according to the wiring diagram below.

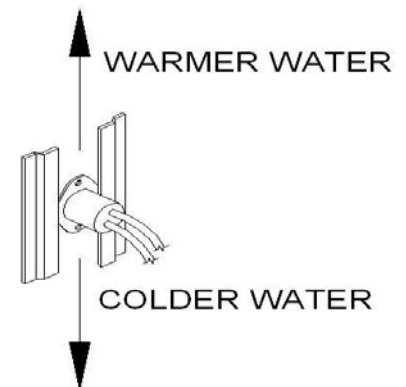
WARNING: ANY ELECTRICAL SERVICE MUST BE INSTALLED AND MAINTAINED BY A QUALIFIED ELECTRICIAN.

WARNING: DISCONNECT POWER IF THE WATER SUPPLY IS TO BE SHUT OFF FOR AN EXTENDED AMOUNT OF TIME. FAILURE TO TURN OFF POWER CAN RESULT IN DAMAGE TO THE WATERING FOUNTAIN.

WARNING: THIS INSTALLATION MUST BE MADE AND MAINTAINED IN STRICT CONFORMITY WITH NATIONAL/LOCAL PLUMBING CODES AND NATIONAL/LOCAL ELECTRICAL CODES (CSA IN CANADA). THE APPLICABLE PROVISIONS OF THESE CODES TAKE PRECEDENT. FAILURE TO MAKE AND MAINTAIN ALL INSTALLATIONS PROPERLY MAY RESULT IN LOSS OF LIVESTOCK, PERSONAL INJURY, OR DEATH.

NOTE: *National/Local electrical codes may require livestock waterers installed in feedlots in open feeding area to be grounded by a separate stranded copper grounding conductor or at least no.6 AWG terminating at a point where the branch circuit receives its supply. Check with local authorities.*

J. Disc Thermostat – The disc thermostat is mounted in a bracket under the trough, which allows it to be moved relative to the heater. To ease movement of thermostat, turn 1/4 turn. To lock in position after adjustment, turn 1/4 turn back. **As the thermostat is moved toward the heater, the water temperature in the trough is lowered.** The best location is determined by checking the trough temperature several times during the heating season.



K. Final Water Connection – Connect the top of the supplied hose to the valve, cut hose to proper length and slip onto the barb fitting of the valve assembly. Clamps and fittings are furnished to secure the connection.

L. Seal the Base - After the unit is completely installed, apply a bead of caulking around the base of the fountain to ensure no wind enters through the base of the unit.

NOTE: *Sealing the bottom of the unit from cold air is an important aspect of the unit's thermal performance.*

M. Drain Plug – Insert the drain plug firmly into the drain hole in the center of the trough.

N. Float Adjustment – Open water-supply shut-off valve, check for and fix any leaks. Adjust float for a water depth of 2 inches below top of trough by adjusting the wing-nut. With the valve functioning properly and the water level set at the proper level, you may install the valve cover. The water seal groove between the frame and valve cover must be filled with liquid to create a protective seal from cold winter air getting to the valve.

O. Install Cover – Once all water line connections have been checked for leaks and electrical hook-up is complete, drop the valve cover into the groove on the top of the unit.

P. Children should be supervised to ensure that they do not play with the appliance – This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instructions concerning use of the appliance by a person responsible for their safety.

Q. Cleaning Your Fountain – To clean your watering fountain you will need a good stiff bristled brush. Remove the cover then brush the water seal groove to remove any build-up then brush the tank. Remove the plug that is in the valve chamber area under the float to drain out the water and debris. You can shut off the water with the shut-off valve located under the unit or by holding the float in the up position. After the water and debris has drained reinstall the plug and let the tank refill. Now is a good time to readjust the float if needed. Reinstall cover and you are done.

Ritchie Valves

Ritchie valves come in various sizes and pressure ratings as shown below - green for high supply line pressure, red for moderate supply pressure, and white for low-pressure applications. Differences in the size of trough also impacts valve choice. Your individual situations may require a change from the standard valve supplied with your fountain, see your Ritchie Dealer if this is needed.

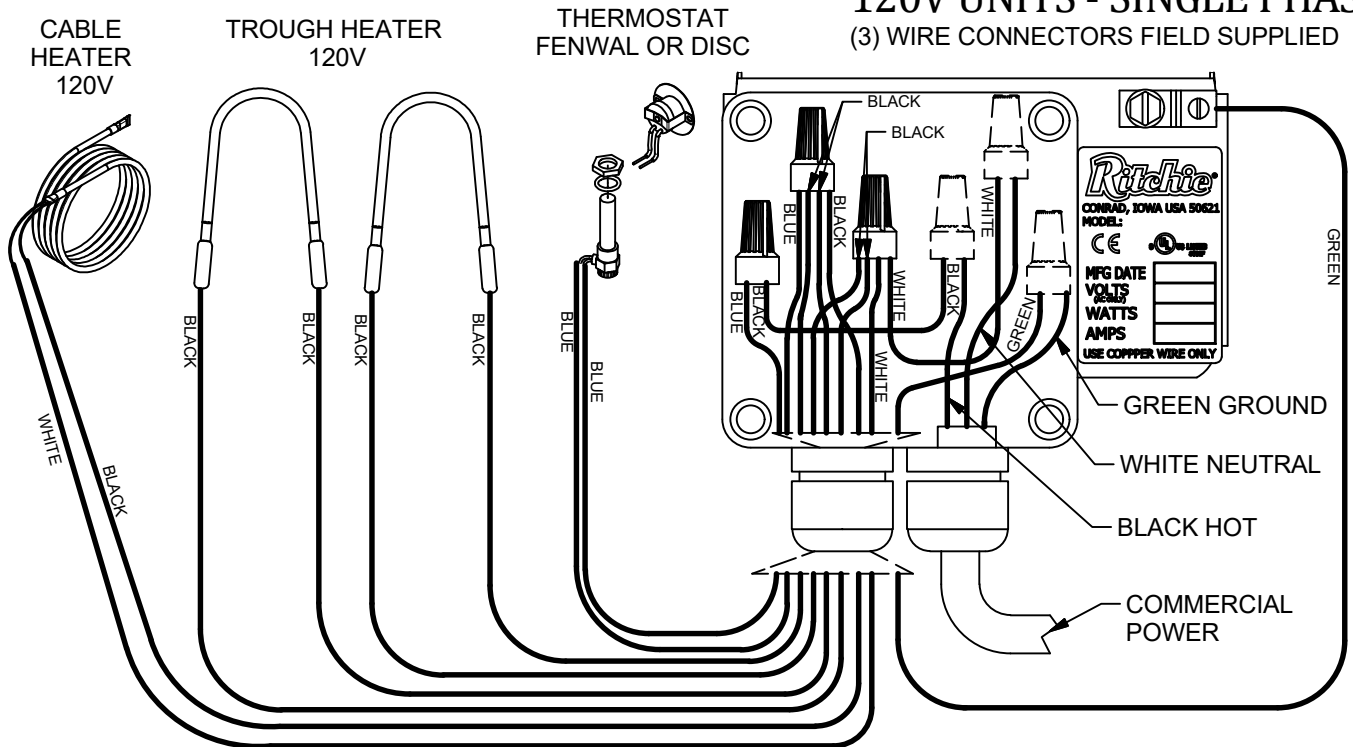
NOTE: *The red ½" valve is standard on the Pork King 1, 2, 2-1, and 4*

1/2"	Part #	GPM	Pressure Range
White	12574	4.8	Low, 5-40 psi. (34-275 kPa)
Red	12575	3.4	Moderate, 40-60 psi. (275-414 kPa)
Green	13597	1.45	High, 60-80 psi. (414-552 kPa)

NOTE: *Maximum inlet water pressure for each valve is shown above. If water pressure is extremely high, and if the valve does not shut off, a pressure-reducing valve may be needed.*

WIRING DIAGRAM FOR HEATED UNITS

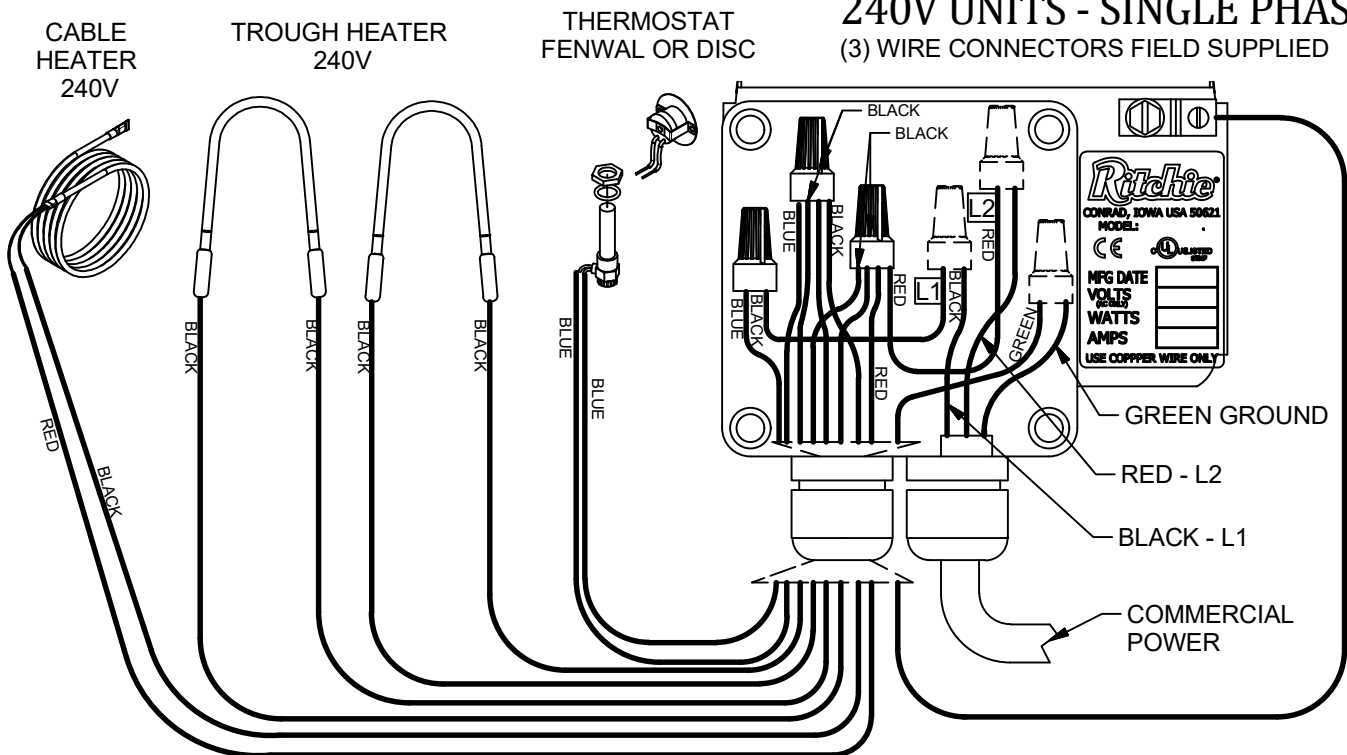
120V UNITS - SINGLE PHASE (3) WIRE CONNECTORS FIELD SUPPLIED



WARNING - CHECK NAMEPLATE FOR CORRECT VOLTAGE. ONLY CONNECT 120VAC TO 120V UNITS. WIRING DIAGRAM SHOWN WITH 2 HEATERS - QUANTITY MAY VARY

NOTE: Power cord may be supplied on select units to simplify installation. Use of a moisture resistant, exterior grade outlet is recommended in these units. Do not use extension cords.

240V UNITS - SINGLE PHASE (3) WIRE CONNECTORS FIELD SUPPLIED

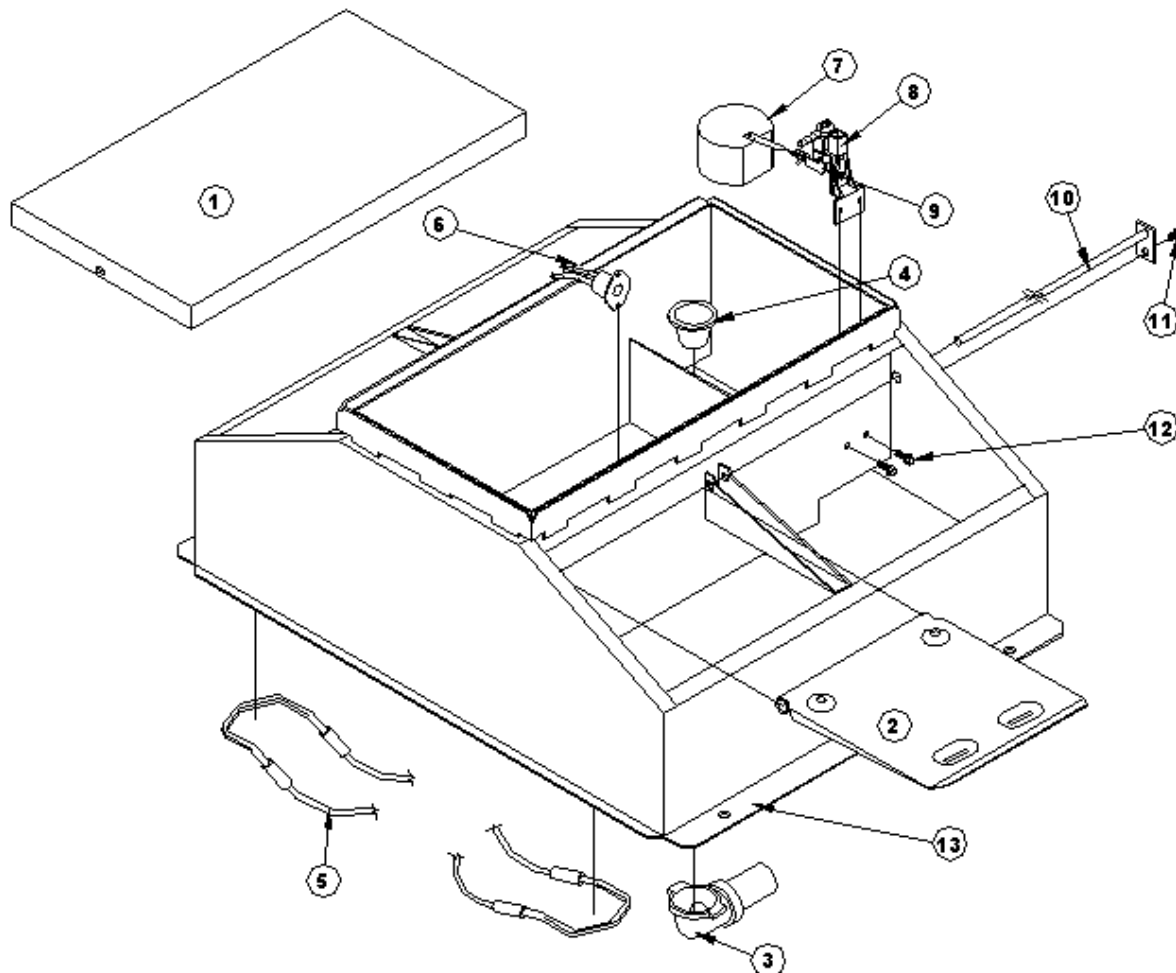


WARNING - CHECK NAMEPLATE FOR CORRECT VOLTAGE. ONLY CONNECT 230-240VAC TO 240V UNITS. WIRING DIAGRAM SHOWN WITH 2 HEATERS - QUANTITY MAY VARY

8/16/2021
Wiring-2021.dwg
TDU - Sheet: 1 of 1

Pork King 4

Part # 16459



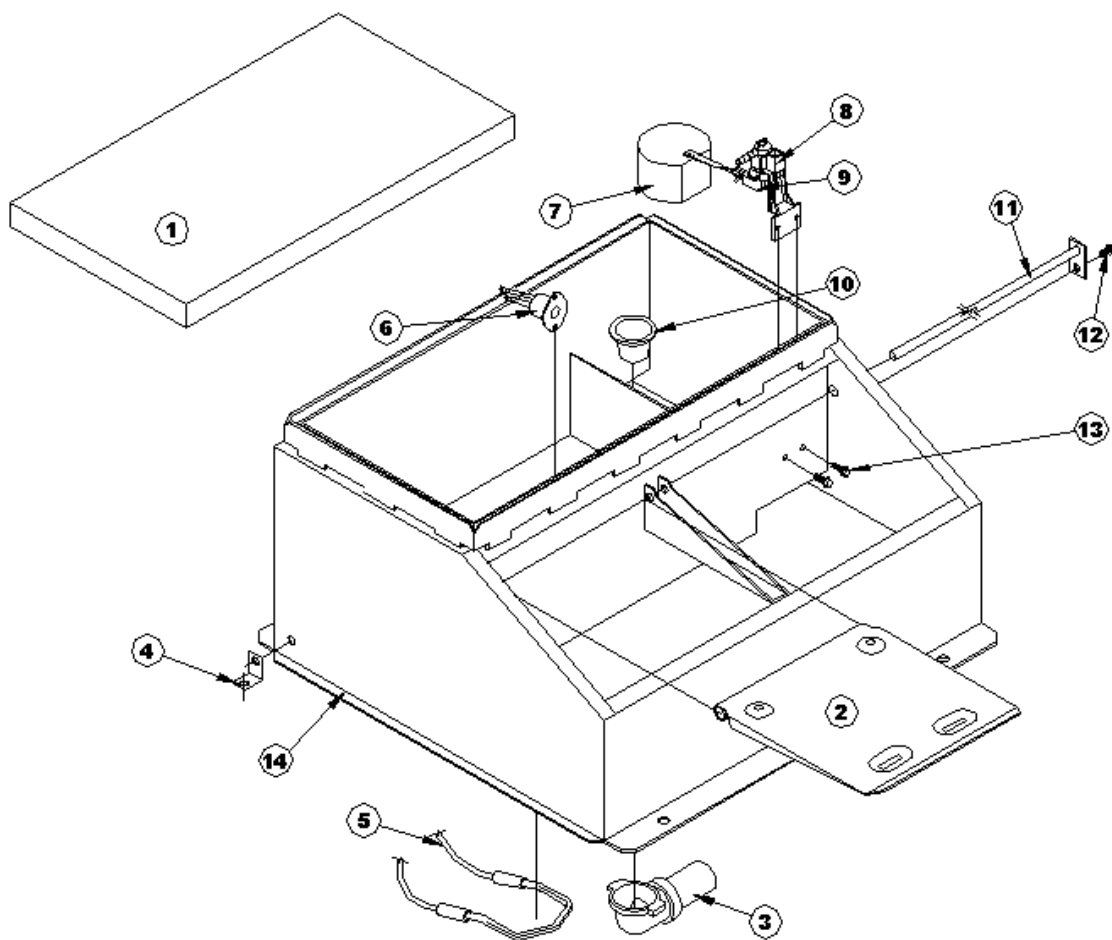
Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16451	Cover – PK 4	1	12	15154	Screw – Valve Bracket (10/Pkg.)	1 Pkg.
2	16092	Lifting Lid Only PK	4	13	16576	Casing W/Insulation	1
3	16172	Drain W/Elbow	1	NS	16366	Insulation Pkg.	1 Pkg.
4	18628	Drain Plug (2/Pkg.)	1 Pkg.	NS	13830	48W Cable Heater (120 Volt)	1 Pkg.
5	14150	125W Element (120 Volt)	4 Pkg.	NS	12584	Supply Hose Assembly	1 Pkg.
6	11885	Disc Thermostat – Red	1 Pkg.	NS	18075	Drain Washers (6/Pkg.)	1 Pkg.
7	13613	Float W/ Short Arm	1 Pkg.	NS	16128	Complete Accessory Pkg.	1 Pkg.
8	11515	Valve Bracket 1/2" Pkg.	1 Pkg.	For 240 Volt Pork King 4 Part #16845, See Parts Below			
9	12575	Red Valve 1/2" Pkg.	1 Pkg.				
10	16326	Hinge Rod Only PK4	2	NS	16664	200W Element (240 Volt)	4 Pkg.
11	15155	Screw – Hinge Rod (10/Pkg.)	1 Pkg.	NS	16424	48W Cable Heater (240 Volt)	1 Pkg.

NS = Not Shown

Italicized text = Not included or optional configuration add-ons

Pork King 2-1

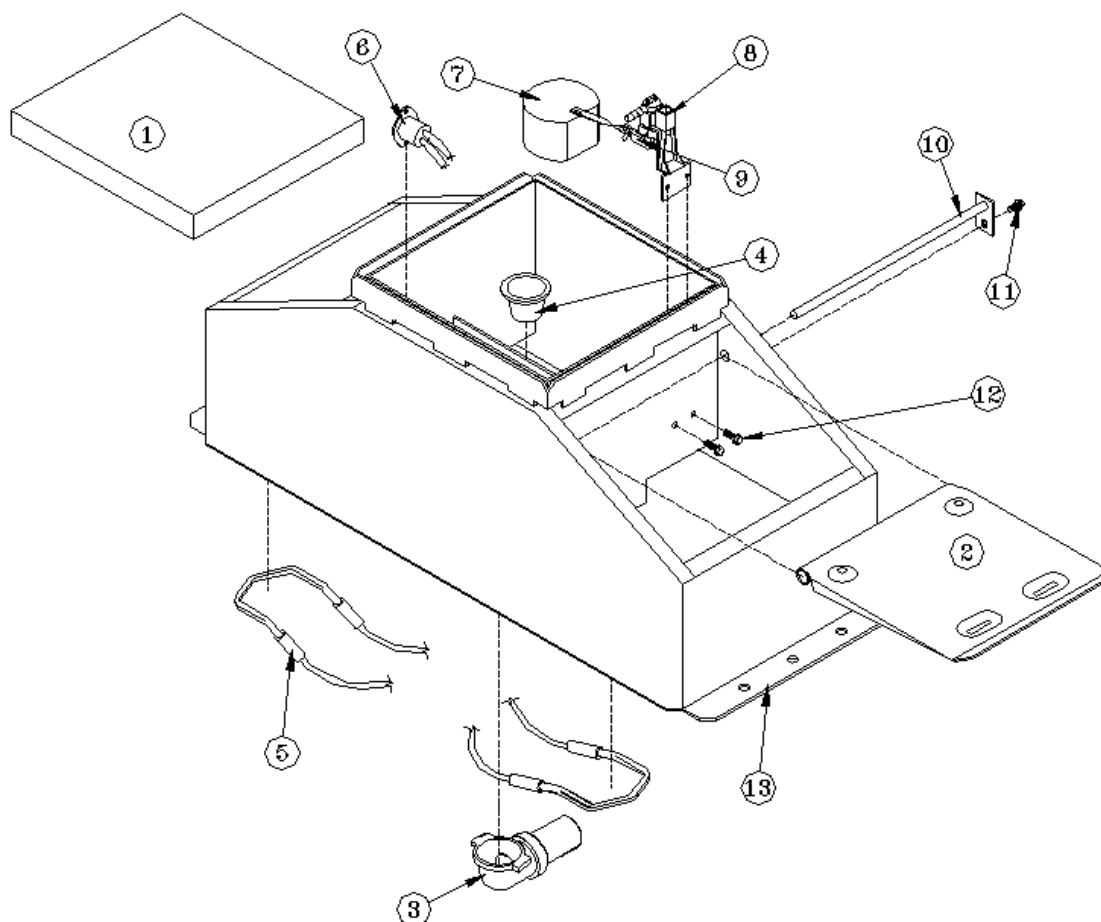
Part # 16458



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16451	Cover – PK 2-1	1	12	15155	Screw Hinge Rod (10/Pkg.)	1 Pkg.
2	16092	Lifting Lid Only – PK	2	13	15154	Screw – Valve Bracket (10/Pkg.)	1 Pkg.
3	16172	Drain W/Elbow	1	14	16575	Casing W/Insulation	1
4	13775	SS Hold Down W/Bolt (4/Pkg.)	1 Pkg.	NS	16365	Insulation Pkg.	1 Pkg.
5	14150	125 W Element (120 Volt)	2 Pkg.	NS	13830	48W Cable Heater (120 Volt)	1 Pkg.
6	11885	Disc Thermostat – Red	1 Pkg.	NS	12584	Supply Hose Assembly	1 Pkg.
7	13613	Float W/ Short Arm	1 Pkg.	NS	18075	Drain Washers (6/Pkg.)	1 Pkg.
8	11515	½” Valve Bracket Pkg.	1 Pkg.	NS	16123	Complete Accessory Pkg.	1 Pkg.
9	12575	½” Red Valve Pkg.	1 Pkg.	For 240 Volt Pork King 2-1 Part #16846, See Parts Below			
10	18628	Drain Plug (2/Pkg.)	1 Pkg.	NS	16664	200W Element (240 Volt)	2 Pkg.
11	16326	Hinge Rod Only PK 2-1	1	NS	16424	48W Cable Heater (240 Volt)	1 Pkg.

Pork King 2

Part # 16457



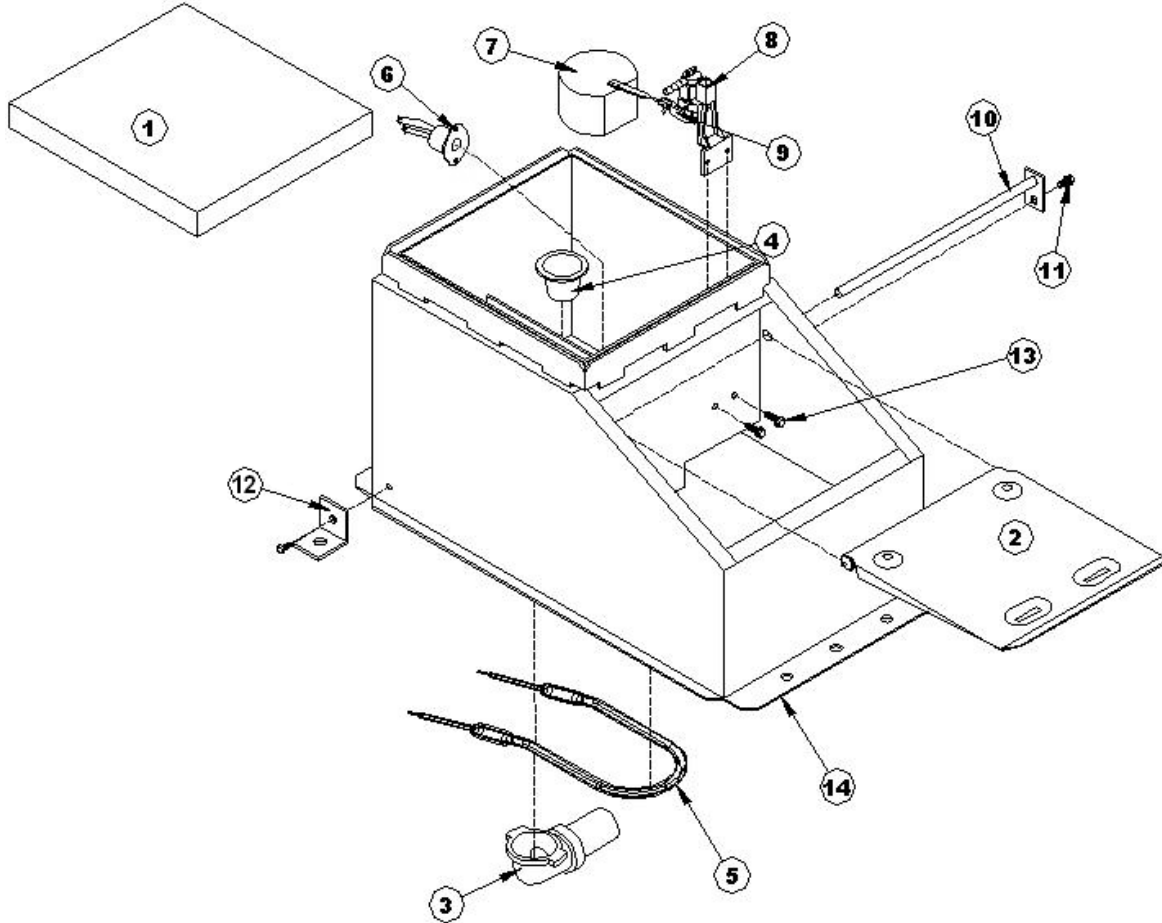
Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16449	Cover – PK2	1	12	15154	Screw – Valve Bracket (10/Pkg.)	1 Pkg.
2	16092	Lifting Lid Only – PK	2	13	16574	Casing W/Insulation	1
3	16172	Drain W/Elbow	1	NS	16364	Insulation Pkg.	1 Pkg.
4	18628	Drain Plug (2/Pkg.)	1 Pkg.	NS	13830	48W Cable heater (120 Volt)	1 Pkg.
5	14150	125 W Element (120 Volt)	2 Pkg.	NS	12584	Supply Hose Assembly	1 Pkg.
6	11885	Disc Thermostat – Red	1 Pkg.	NS	18075	Drain Washers (6/Pkg.)	1 Pkg.
7	13613	Float W/ Short Arm	1 Pkg.	NS	16128	Complete Accessory Pkg.	1 Pkg.
8	11515	½" Valve Bracket Pkg.	1 Pkg.				
9	12575	½" Red Valve Pkg.	1 Pkg.	For 240 Volt Pork King 2 Part #16847, See Parts Below			
10	16093	Hinge Rod Only – PK2	2	NS	16664	200W Element (240 Volt)	2 Pkg.
11	15155	Screw – Hinge Rod (10/Pkg.)	1 Pkg.	NS	16424	48W Cable Heater (240 Volt)	1 Pkg.

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Pork King 1

Part # 16456

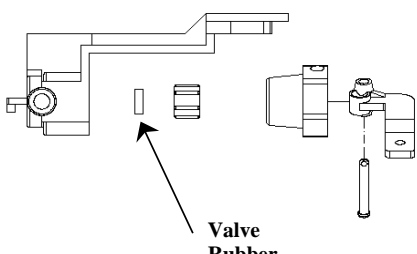


Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16449	Cover – PK1	1	12	13775	SS Hold Down W/Bolt (4/Pkg.)	1 Pkg.
2	16092	Lifting Lid Only – PK	1	13	15154	Screw – Valve Bracket (10 Pkg.)	1 Pkg.
3	16172	Drain W/Elbow	1	14	16573	Casing W/Insulation	1
4	18628	Drain Plug (2/Pkg.)	1 Pkg.	NS	16363	Insulation Pkg.	1 Pkg.
5	11419	250W Element (120 Volt)	1 Pkg.	NS	12584	Supply Hose Assembly	1 Pkg.
6	11885	Disc Thermostat – Red	1 Pkg.	NS	18075	Drain Washers (6/Pkg.)	1 Pkg.
7	13613	Float W/ Short Arm	1 Pkg.	NS	16123	Complete Accessory Pkg..	1 Pkg.
8	11515	½" Valve Bracket Pkg.	1 Pkg.	For 240 Volt Pork King 1 Part #16848, See Parts Below			
9	12575	½" Red Valve Pkg.	1 Pkg.	NS	11403	300W Element (240 Volt)	1 Pkg.
10	16093	Hinge Rod Only – PK1	1	NS	16424	48W Cable Heater (240 Volt)	1 Pkg.
11	15155	Screw – Hinge Rod (10/Pkg.)	1 Pkg.				

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Trouble Shooting

Problem	Solution	
Water in Trough Too Warm	Adjust thermostat to lower temperature by moving towards heater	
	Check to see if thermostat has failed by contacts burning closed	
Ice in Trough	Check fuses or circuit breakers	
	Check all heating elements to make sure they are working and hot	
	Adjust thermostat to higher temperature by moving the disc away from the heaters	
	Check for voltage from thermostat output	
	Check voltage to fountain with and without electrical load	
	Check that heaters are wired properly	
Valve Freezing	Check that cable heater is installed properly and fastened to water supply line and is working when heaters are hot	
	Check for missing or damaged insulation	
	Check for air gaps for wind penetrations	
Supply line Freezing	Check that the cable heater is uncoiled and fastened around valve, to supply line and is working when heaters are hot	
	Check that supply piping is centered in riser tube	
	Check that riser tube is free of water and mud that may freeze	
	Check that flexible hose does not touch side of casing or frame	
	Check casing for air leaks	
	Check for air gaps between casing and concrete floor	
Valve won't stop dripping	Check float adjustment. Check for waterlogged float, or float rubbing on side of valve compartment	<div><div><div>1/2" Valve</div><div>Valve Rubber</div><div>Pin must be pushed out of valve to disassemble</div></div></div>
	Disassemble valve and check for sand or scale in valve rubber. Also check valve orifice outlet for wear and damage. A screen or filter may be required with sandy or scaly water.	
	Turn valve rubber over and re-assemble	
	Check for excessive water system pressure	
Low water flow	Check that valve inlet is not plugged or supply hose is not kinked	
	Check system pressure from supply hose by installing a tee and a pressure gauge directly in front of the valve to check pressure drop when valve is open. A severe pressure drop indicates a restriction or undersized supply system.	
	Check that shutoff valves are fully open	

Ritchie Limited Warranty

Effective June 2021

Ritchie Industries, Inc. warrants its products to be free of defective materials and workmanship. Defective part(s) will be repaired or replaced at the option of Ritchie Industries. **This warranty specifically excludes all labor and shipping charges.**

This warranty does not apply to any appearance items, to any product whose exterior has been damaged or defaced, to any product that has been improperly installed, to any product subjected to misuse, abnormal service or handling, and to any products altered or repaired with other than original equipment or manufacturer's parts.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

All warranty claims must be processed through an Authorized Ritchie Dealer/ Distributor. **Proof of purchase is required. This warranty is transferable.** The period of warranty begins at original date of purchase as follows:

Poly Units

Base, top and ball closures

10 year limited against manufacturing defect. 100% first five years, then declining 20% per year for the remaining five years.

Stainless Steel Units

Stainless trough and stainless valve chamber frame:

Ten years against manufacturing defect or corrosion. 100% all ten years.

Casing and cover:

10 year limited against manufacturing defect. 100% first year, then declining 10% per year for the remaining nine years.

Component Parts

All component parts, such as floats, valves, heating elements:

One year from the date of purchase against manufacturing defect, 100%.



Part #17836
5 March, 2022