

 **WARNING:** Any electrical service must be installed and maintained by a qualified electrician. Must conform to all national and local codes. Use a properly sized wire for the distance and current draw for your specific unit. Circuit protection may be required and should be sized according to the unit ratings.

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

 **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.

 **CAUTION:** This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge **if** they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children being supervised not to play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

 **CAUTION:** 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.

 **CAUTION:** For cord connected units, connection must be made only to a properly earthed circuit protected by a Residual Current Device (RCD).

 **CAUTION:** Assure that there is water in the trough before turning on power to the heating system and immersion heater as applicable. Running this unit or immersion heater without water in the trough could cause damage to some components.

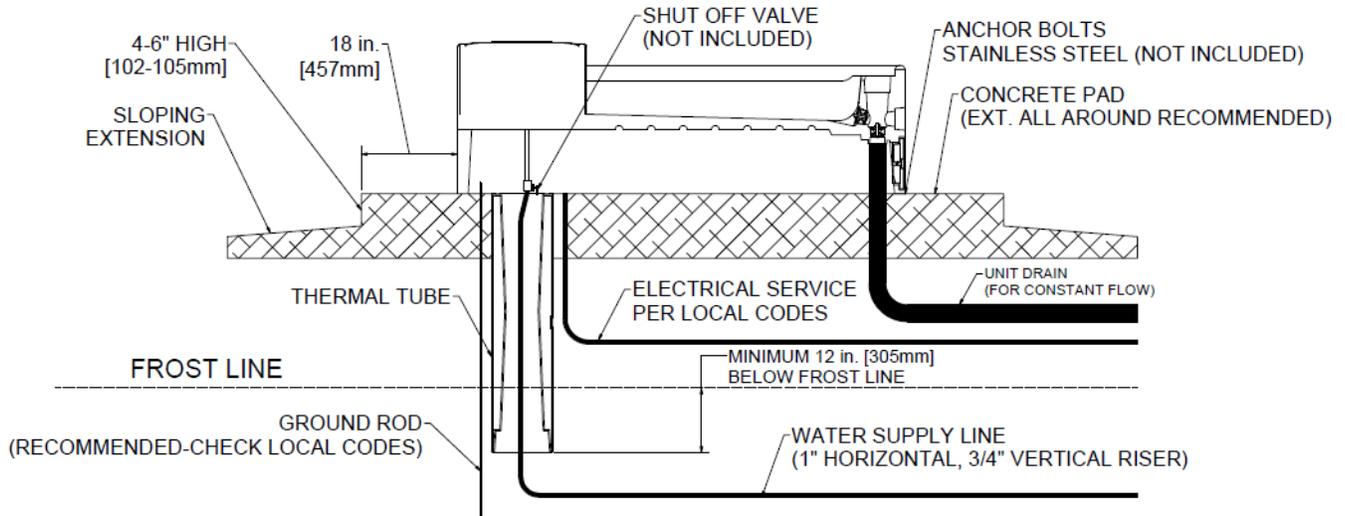
 **CAUTION:** When using the immersion heater for supplemental heat, assure that heater will be completely below the water surface.

 **CAUTION:** Maximum water supply pressure should not exceed hose rating of 200 psi (13.8 Bar). Use of a pressure reducer may be required for extreme pressures.

 **CAUTION:** Access panel can only be removed by service personnel or similarly qualified person.

**NOTE:** A means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

# WaterMaster 600, 96, 90, 54, 54D Fountain Installation Instructions



WaterMaster fountains are designed to allow for optional constant flow installation that can be used to prevent freezing. A constant flow accessory package is required prior to installation to accommodate this option. If you choose not to constant flow, you may need to use supplemental heat in areas that will experience freezing temperatures. Please see Special Situations section of this manual.

**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. If possible, the side that supply line enters the fountain 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 [305mm] below frost line. A one-inch supply pipe is recommended. A shut-off valve should be installed under the 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. The vertical supply line must be centered in the riser tube to provide an air space between the line and frozen ground outside of tube. Flush water supply line thoroughly before connecting to fountain. Water supplies with foreign materials such as sand, rust, etc. may require a filter to keep fountain valve working properly.

**C. Riser Tube** – Install a riser tube and extend it at least one-foot [305mm] below frost line or down to horizontal underground water line. For optimum water line protection, use the 12” [305mm] diameter insulated *Ritchie Thermal Tube*, part numbers and sizes are shown to the right. The tube opening must be kept clear.

Ritchie Thermal Tube	
Part #	Description
18158	1' 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.*

**D. Electrical Connection (Optional)** – Although WaterMaster fountains will not require supplemental heat when using constant flow, there are circumstances where supplemental heat may be required. If electricity is available, it is a good management decision to run the electrical line for future use in the event your operation changes.

**E. Mounting Platform** – A concrete platform should be provided for all fountains. It should be at least 4” thick and large enough to accommodate fountain. An additional 4-6 in. [102-105mm] high step 18 in. [457mm] out from each side of the unit will protect the unit from manure handling equipment, as well as discouraging animals from defecating in the fountain. Extending the platform provides animals with a place to stand while drinking, consider the size of your animals when determining the dimensions of your platform. Slope the platform away from the fountain for drainage. A rough broom finish on the concrete surface provides better footing for animals.

**F. Head/Neck Rail** – Ritchie recommends the use and installation of a head/neck rail with the Watermaster family of products. This prevents animal injury and protects your waterer from potential animal damage to the waterer. Improper installation may void your warranty.

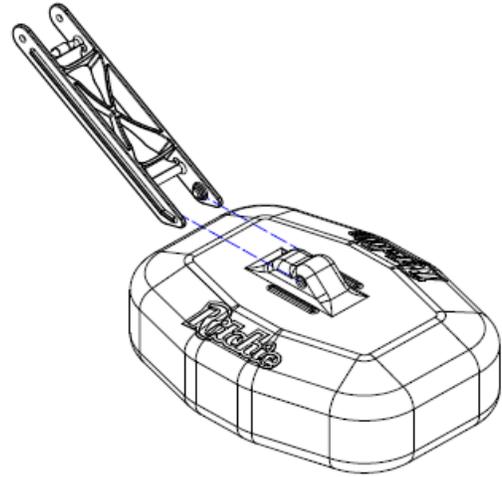
**G. Preparing the Bottom** - Apply the foam weather stripping to the bottom of the unit, around the outside edge of the fountain.

**H. Position Fountain** - Connect hose to the top of the supply line, or the customer supplied shutoff valve at the top of the concrete. Place fountain on the concrete platform over the riser tube so the supply hose is centered in riser tube. Set the fountain on the concrete pad to inspect positioning of the installation. Once all connections are lined up, marking anchor bolt location can easily be done with a drill.

**I. Hold-Downs** - WaterMaster Fountains have mounting pockets molded into the base. Use of Ritchie stainless steel anchor bolts (not included) is recommended for concrete installations. Anchor bolts are available from any Ritchie authorized dealer, in packages of two, part # 16555. Once you have verified the positioning of the fountain, drill, install, and tighten down anchor bolts. Use the large washers provided to hold the unit down. Tighten hold down anchors tight, but do not over tighten as this could damage the plastic feet.

**J. Assemble Valve** – Follow the steps to assemble the high-pressure valve included with your waterer.

1. Insert valve rubber into the valve rubber retainer.
2. Attach float arm to float as shown in diagram. The raised emboss on top of float should be orientated as shown.
3. Screw thumb screw into cam arm. To adjust water level, tighten thumb screw to lower, loosen thumb screw to raise.
4. Insert the valve rubber retainer into the valve body with the valve rubber up. Align the cam arm to the valve body and insert first pin.
5. Align the float arm and attached float to the cam arm and insert second pin.

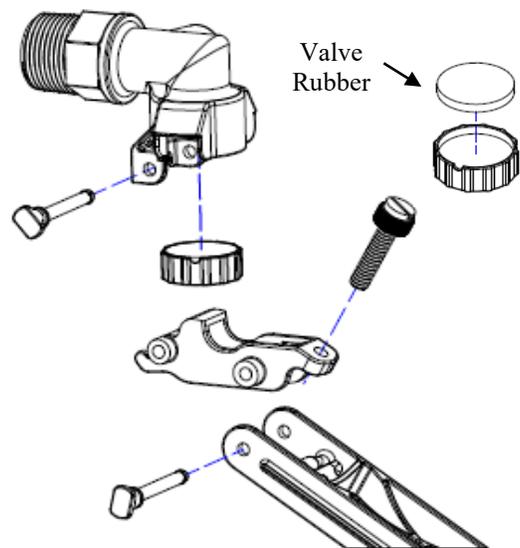
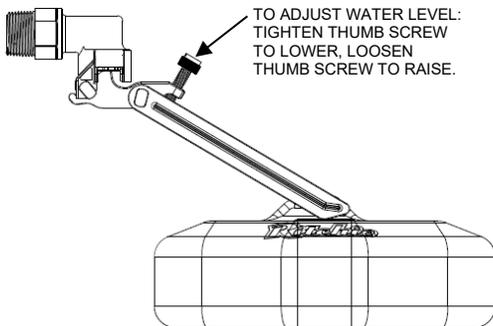


**K. Valve Mounting** – After fountain is in proper place, place rubber washer, plastic washer and nut on bulkhead, cut hose to proper length and connect to valve bracket with hose clamp. Place the valve and bracket assembly in the slot provided in the wall of the valve chamber and tighten nut.

**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. Plugs** – Install pre-assembled plugs from the inside of the trough. Wetting the plug can aid in installation. Tighten wing nut to secure.



**N. Float Adjustment** - Turn on water supply, check for and correct any leaks. Adjust valve thumb screw to adjust water level. To lower the water level, manually adjust float with hand and then set thumb screw. The proper depth should be one-two inches below the overflow drain.

**O. Access Covers** –Reinstall all access panels in the base. Do not overtighten bolt.

**P. Water Seal Drain** –Install the small drain plug into the drain hole in the water seal trough around the valve chamber seal. This plug may be removed during non-freezing periods to allow water seal to drain.

**Q. Install Cover** - Fill the water seal groove with liquid to seal against air infiltration before assembling. Drop in the valve chamber cover. Note: Serial number or date code is found on underneath side of top red valve cover.

**Tip:** *You may use vegetable oil to fill the water seal groove or coat the inside of the groove with baking pan coating spray before filling with water to make the cover easier to remove and reinstall during freezing weather. For areas with high evaporation, using vegetable oil may be necessary.*

**R. 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 drain plug that is located at the end of the trough 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.

**S. Maintenance** – Regular maintenance is required for optimal performance. The valve rubber in your valve can be removed and either flipped for a new seal surface or replaced to prevent dripping. Higher pressure will require more frequent replacements. Remove any mineral build up on the valve components to allow for free movement of the valve. Heaters, cable heaters and thermostats should be checked for functionality prior to cold weather. Remove any debris accumulation in the riser tube. Sealant around the base should be checked for cracking and replaced as needed to prevent air permeation.

## Special Situations

### Constant Flow

To utilize the optional constant flow application on WaterMasters, a specific constant flow kit is available for this unit. This kit includes the petcock valve, drainpipe adapter and trainer tube. For WM54, WM54D, WM90, WM96, WM600, part # 18877 is required.

### Non-Siphoning

The Ritchie WaterMaster fountains meet Grade A dairy non-siphoning guidelines. Construction of the unit and location of the valve to the overflow provides an air gap to prevent back siphoning. No additional device is required.

### Non-Potable

For non-potable applications only: Optional valve mounting hardware is available to relocate the valve in the additional hole in the bottom of the valve chamber. Not available on all units. Contact your Ritchie authorized dealer for more information. An additional back siphoning device would be recommended to prevent contamination of your water supply.

## Installation Variations

Incoming water temperature and pressure will vary and will affect the performance of your fountain. Well water may be between 45° F [7° C] and 50° F [10° C] but rural water from a water tower may be substantially cooler. Supplemental heaters and alternate valves are available for these variations.

### Supplemental Heat

Immersion Heaters			Self-Regulating Heat Cable		
Part #	Volts	Watts	Part #	Volts	Watts
16311	120	250	16276	120	30
17960	220-240	250	16713	220-240	30
14158	120	500			

Both the valve chamber and the water supply line should be protected from freezing. To protect the valve chamber, immersion heaters should be placed flat on the bottom of the chamber. Ensure the heater and power cable does not

interfere with the motion of the float. Self-regulating heat cables protect the supply line from freezing. Heat cables should wrap around the valve and follow the supply line down into the riser tube. You may use nylon ties to anchor the cable to the supply line. Both immersion heaters and supply line heaters are thermostatically controlled, using power only when needed. Neither heater will get hot enough to melt the plastic of the fountain.

Higher power heaters should be used for larger troughs or where there may be electrical losses in the line due to long transmission distances. A stainless-steel heater stand is included and should be used with the Ritchie 500W heater to protect the fountain in the event of water supply failure. The stand may be purchased separately to be used with any immersion heater, part #16636.

### Ritchie Valves

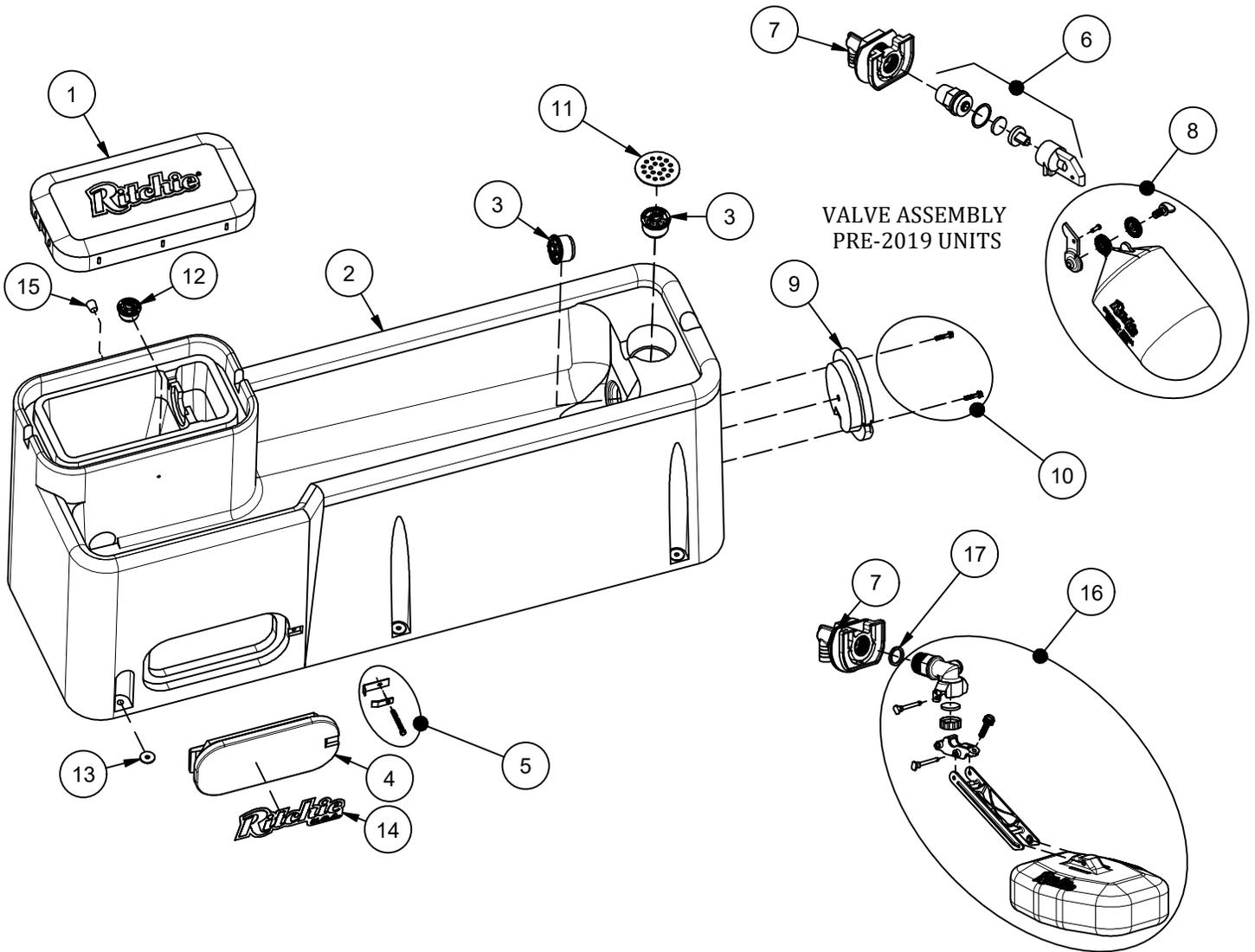
The Ritchie WaterMaster family comes standard with our 3/4" yellow high-pressure valve that is rated up to 110 psi [758 Kpa]. If water pressure is very high and the valve does not shut off consistently, a pressure-reducing valve (Ritchie #18649) may be needed.

### Trouble Shooting

Problem	Solution
Water Freezing in the Valve or Supply Line	Make sure the fountain is sealed from wind between the concrete platform and bottom of unit.
	Make sure the water seal groove is filled with liquid.
	Make sure the supply line is properly installed: <ul style="list-style-type: none"> <li>◆ Riser tube with supply line centered, and air space between riser tube and supply line. Ritchie Thermal Tubes are recommended as they have optimum inside and outside diameter to maximize insulation.</li> <li>◆ The horizontal supply line is at least 1 foot [305mm] below frost line.</li> </ul>
	If freezing continues, use supplemental heat or constant flow below freezing temperatures.
Low Water Flow	Check that the valve inlet is not plugged or supply hose is not kinked.
	Check the system pressure from the supply hose by installing a tee and pressure gauge 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 shut off valves are fully open.
Valve won't stop dripping	Check float adjustment. Ensure float moves freely.
	Take valve apart and check for sand or scale in valve rubber.
	Turn valve rubber over and re-assemble.
	Check for excessive water system pressure and install pressure reducing valve.

# WaterMaster 600

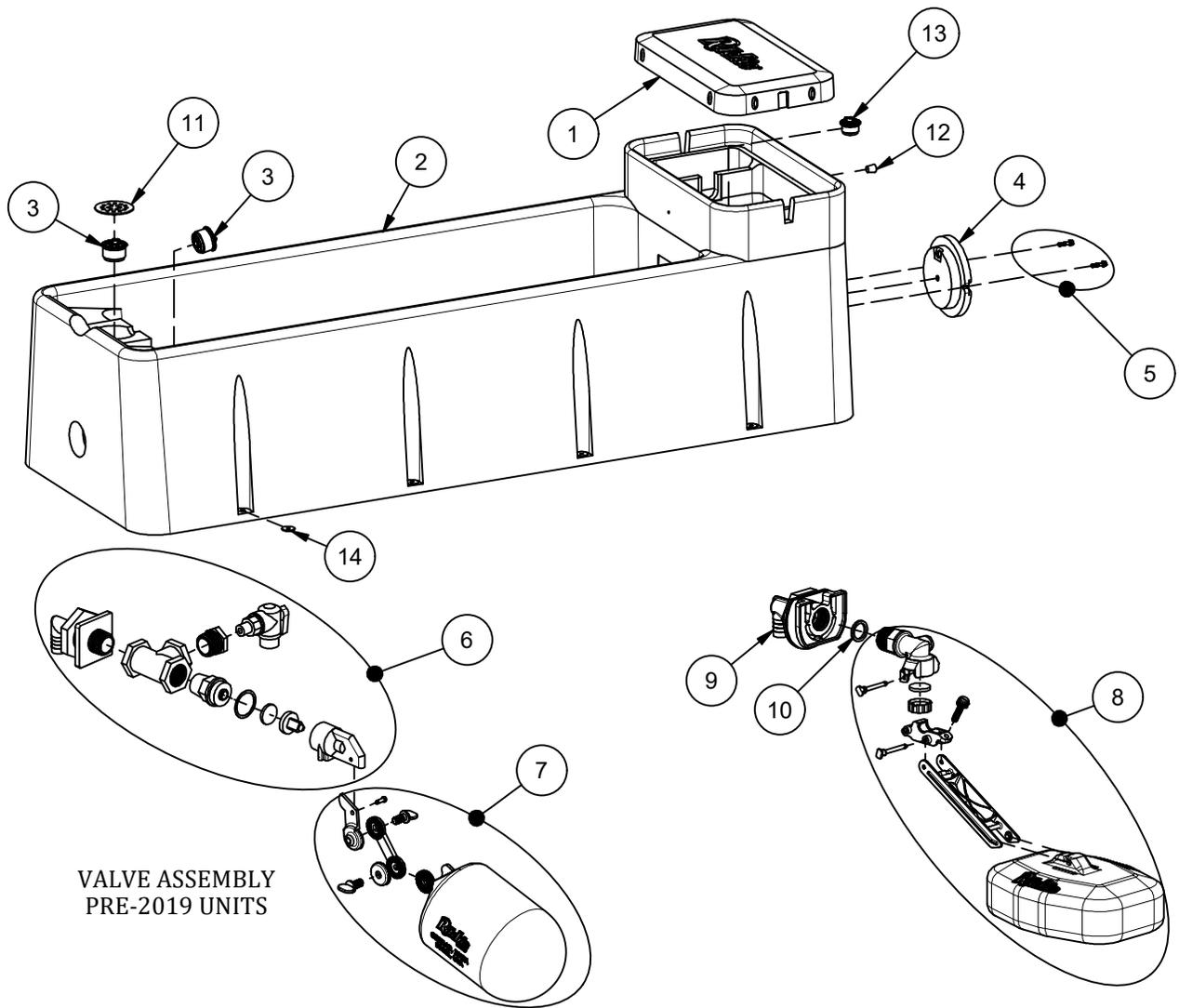
Part # 18171



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	18189	WaterMaster 600 Cover	1	13	18318	Bolt Down Washer (4/pkg)	2 pkgs
2	18191	WaterMaster 600 Base	1	14	18653	Ritchie Decal 12" (1/pkg)	1 pkg
3	18470	Drain Plug Ritchie 3"	2 pkgs	15	18633	Plug #3 - Water Channel	1 pkg
4	16621	Access Panel 6"x14"	1	16	18832	HP 3/4" Valve Assembly	1
5	18147	Access Panel Hardware pkg	1 pkg	17	18475	O-Ring Valve Seal Pkg (4/pkg)	1
6	15377	Green Valve 3/4" Male pkg	1 pkg	NS	14866	Seal Foam 10' Roll	2
7	18838	VLV HP Brkt Assy pkg	1	NS	18632	Cap for Trainer Hole	1 pkg
8	18314	Float with Hardware pkg	1 pkg	NS	15931	Hose Clamp SS (5/pkg)	1 pkg
	18313	Hardware for Float pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
9	16472	Access Panel Round	1	NS	18903	WM Accessory pkg	1 pkg
10	18878	Screw Pkg Access Panel	1 pkg	NS	18877	Constant Flow pkg - Optional	1 pkg
11	17194	Strainer	1	NS	18624	Adapter - Opt. Non-potable	1 pkg
12	18849	Drain Plug Ritchie 2"	1 pkg	NS	18203	AP Rnd Hardware OLD STYLE	1 pkg

# WaterMaster 96

Part # 18007

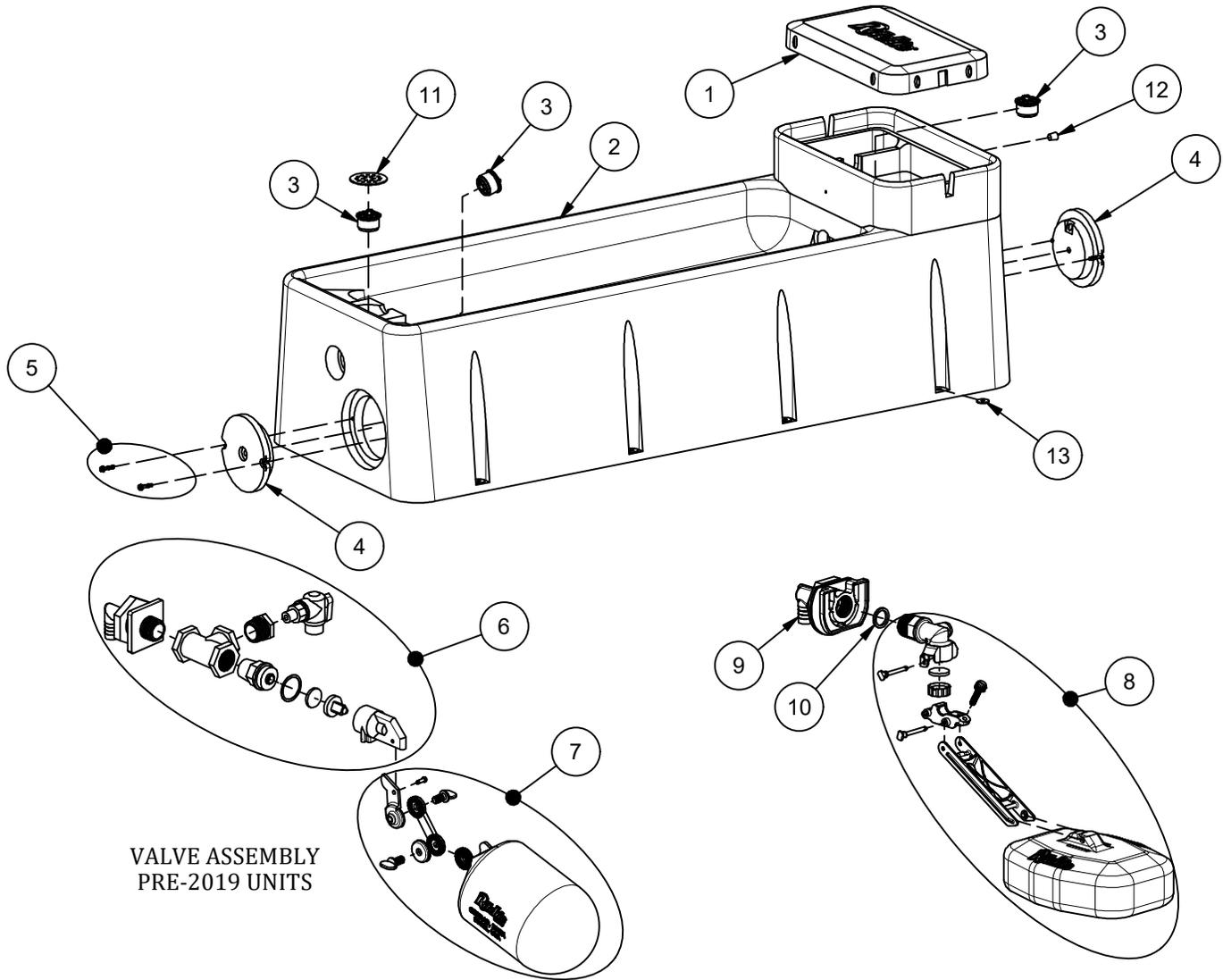


VALVE ASSEMBLY  
PRE-2019 UNITS

Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16469	WaterMaster Cover	1	12	18633	Plug #3 - Channel	1 pkg
2	18040	WaterMaster 96 Base	1	13	18849	Drain Plug Ritchie 2"	1 pkg
3	18470	Drain Plug Ritchie 3"	2 pkgs	14	18318	Bolt Down Washer (4/pkg)	2 pkgs
4	16472	Access Panel Round	1	NS	14866	Seal Foam 10' Roll	2
5	18878	Screw Pkg Rnd Access Panel	1 pkg	NS	18632	Cap for Trainer Hole	1 pkg
6	16464	Valve WM Assembly pkg	1 pkg	NS	18877	Constant Flow Pkg	1
7	18314	Float with Hardware pkg	1 pkg	NS	15931	Hose Clamp SS (5/pkg)	1 pkg
	18313	Hardware for Float pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
8	18832	HP 3/4" Valve Assembly	1	NS	18903	WM Accessory pkg	1 pkg
9	18838	VLV HP Brkt Assy pkg	1	NS	18624	Adapter - Opt. Non-potable	1 pkg
10	18475	O-Ring Valve Seal Pkg (4/pkg)	1 pkg	NS	18203	AP Rnd Hardware OLD STYLE	1 pkg
11	17194	Strainer	1				

# WaterMaster 90

Part # 16467

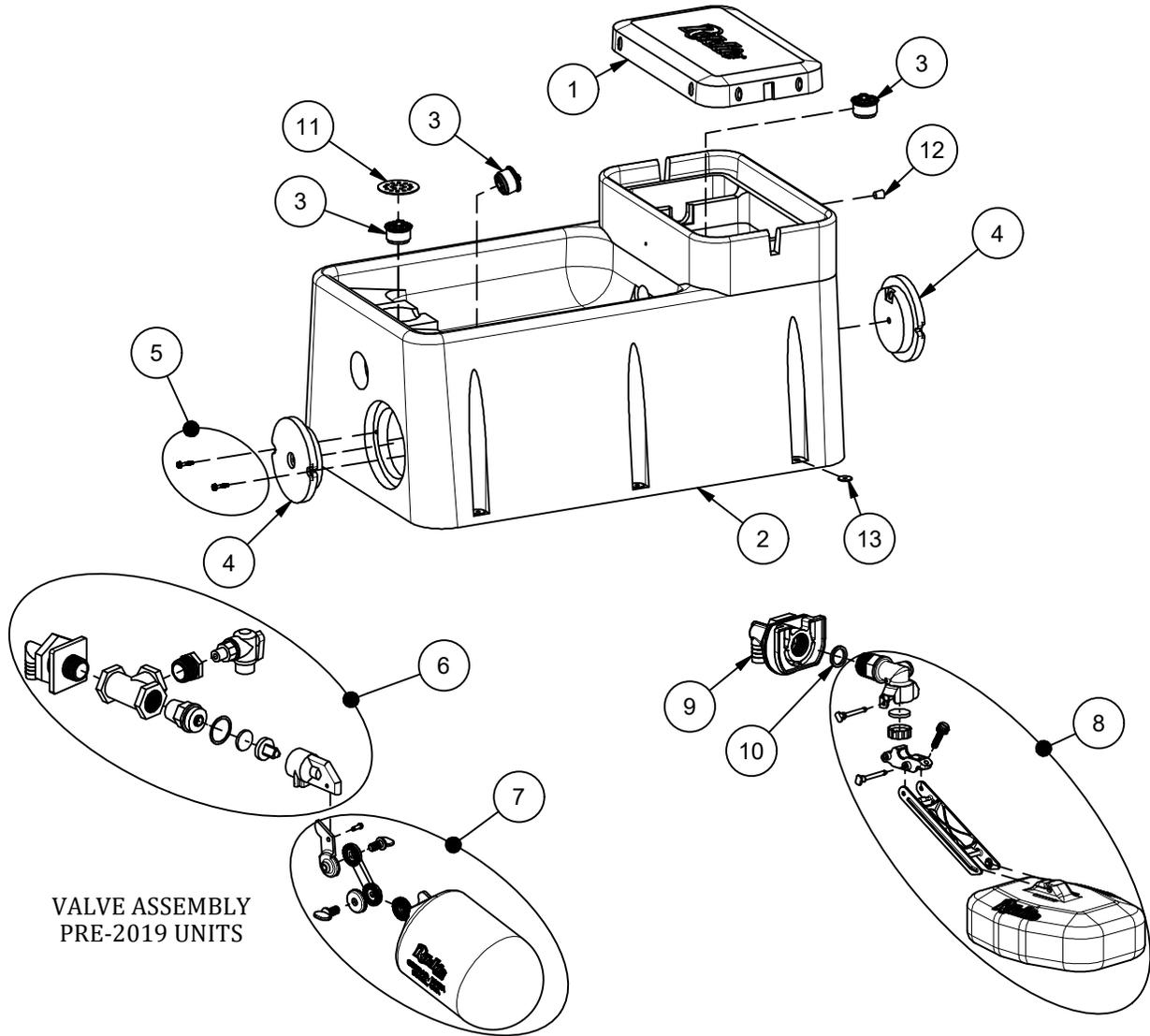


VALVE ASSEMBLY  
PRE-2019 UNITS

Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16469	WaterMaster Cover	1	11	17194	Strainer	1
2	16468	WaterMaster 90 Base	1	12	18633	Plug #3 - Channel	1 pkg
3	18470	Drain Plug Ritchie 3"	3 pkgs	13	18318	Bolt Down Washer (4/pkg)	2 pkgs
4	16472	Access Panel Round	2	NS	14866	Seal Foam 10' Roll	2
5	18878	Screw Pkg Rnd Access Panel	2 pkgs	NS	18632	Cap for Trainer Hole	1 pkg
6	16464	Valve WM Assembly pkg	1 pkg	NS	18877	Constant Flow Pkg	1
7	18314	Float with Hardware pkg	1 pkg	NS	15931	Hose Clamp SS (5/pkg)	1 pkg
	18313	Hardware for Float pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
8	18832	HP 3/4" Valve Assembly	1	NS	18903	WM Accessory pkg	1 pkg
9	18838	VLV HP Brkt Assembly pkg	1	NS	16551	Adapter - Opt. Non-potable	1
10	18475	O-Ring Valve Seal Pkg (4/pkg)	1	NS	18203	AP Rnd Hardware OLD STYLE	2 pkgs

# WaterMaster 54

Part # 16542

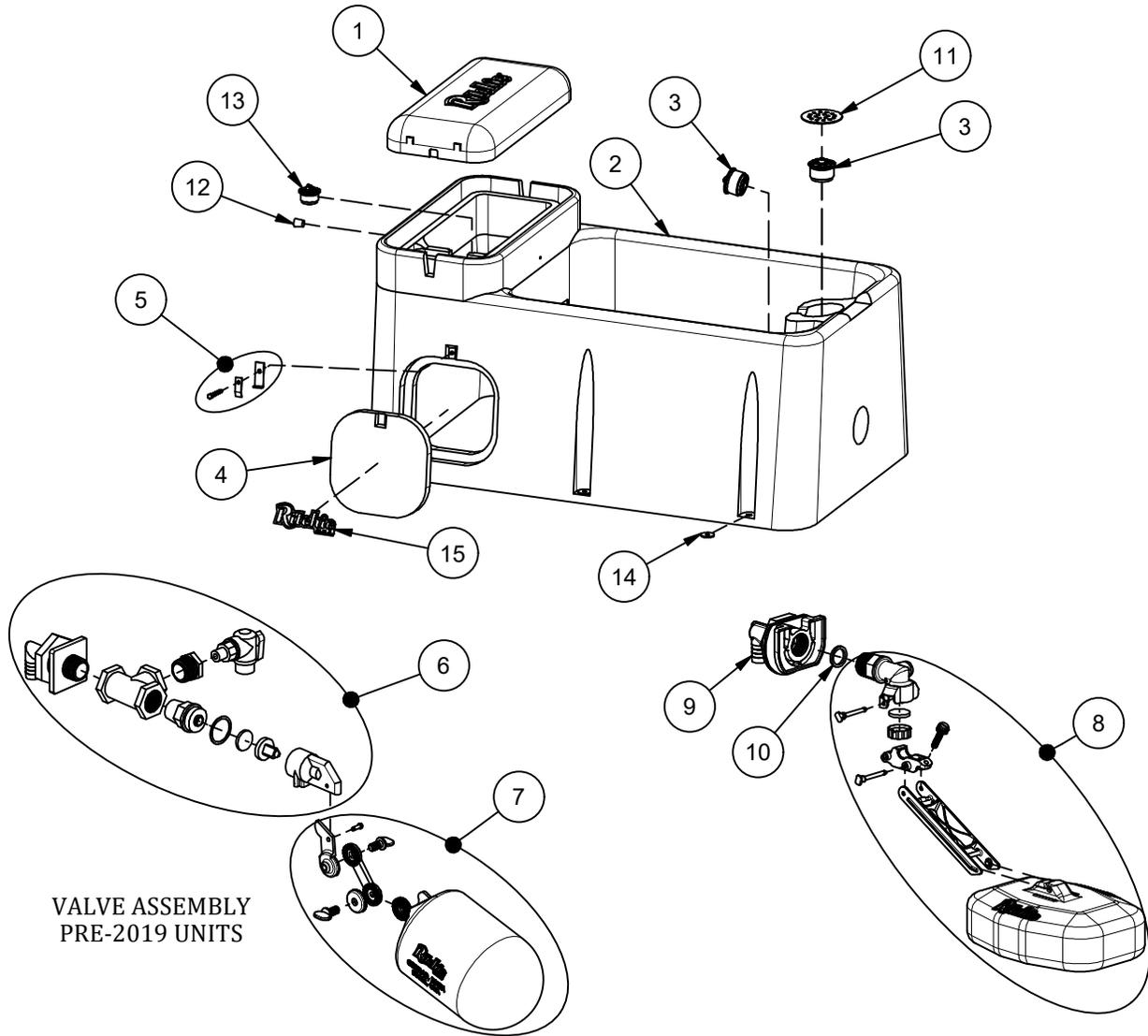


VALVE ASSEMBLY  
PRE-2019 UNITS

Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16469	WaterMaster Cover	1	11	17194	Strainer	1
2	16550	WaterMaster 54 Base	1	12	18633	Plug #3 - Channel	1 Pkg
3	18470	Drain Plug Ritchie 3"	3 pkgs	13	18318	Bolt Down Washer (4/pkg)	2 pkgs
4	16472	Access Panel Round	2	NS	14866	Seal Foam 10' Roll	2
5	18878	Screw Pkg Rnd Access Panel	2 pkgs	NS	18632	Cap for Trainer Hole	1 pkg
6	16464	Valve WM Assembly pkg	1 pkg	NS	18877	Constant Flow Pkg	1
7	18314	Float with Hardware pkg	1 pkg	NS	15931	Hose Clamp SS (5/pkg)	1 pkg
	18813	Hardware for Float Pkg	1 Pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
8	18832	HP 3/4" Valve Assembly	1	NS	18903	WM Accessory pkg	1 pkg
9	18838	VLV HP Brkt Assembly pkg	1	NS	18203	AP Rnd Hardware OLD STYLE	2 pkgs
10	18475	O-Ring Valve Seal Pkg (4/pkg)	1				

# WaterMaster 54D

Part # 18355



VALVE ASSEMBLY  
PRE-2019 UNITS

Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	18419	WaterMaster 54D Cover	1	12	18633	Plug #3 - Water Channel	1 pkg
2	18372	WaterMaster 54D Base	1	13	18849	Drain Plug Ritchie 2"	1 pkg
3	18470	Drain Plug Ritchie 3"	2 pkgs	14	18318	Bolt Down Washer (4/pkg)	2 pkgs
4	18370	Access Panel 10"x10"	1	15	18655	Ritchie Decal 7.5" (1/pkg)	1 pkg
5	18147	Access Panel Hardware pkg	1 pkg	NS	14866	Seal Foam 10' Roll	2
6	16464	Valve WM Assembly pkg	1 pkg	NS	18632	Cap for Trainer Hole	1 pkg
7	18314	Float with Hardware pkg	1 pkg	NS	18877	Constant Flow pkg	1
	18313	Hardware for Float pkg	1 pkg	NS	15931	Hose Clamp SS (5/pkg)	1 pkg
8	18832	HP 3/4" Valve Assembly	1	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
9	18838	VLV HP Brkt Assembly pkg	1	NS	18903	WM Accessory pkg	1 pkg
10	18475	O-Ring Valve Seal Pkg (4/pkg)	1 pkg	NS	18624	Adapter - Opt. Non-potable	1 pkg
11	17194	Strainer	1				



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## RITCHIE INDUSTRIES, INC.

### LIMITED WARRANTY

Ritchie Industries, Inc., hereinafter referred to as Ritchie Industries, gives a LIMITED WARRANTY for the period of time(s) stated herein, subject to certain limitations, on your new watering system against defects in material or workmanship when properly installed, set up, operated, and maintained in accordance with the instructions and recommendations set forth by Ritchie Industries, including in the Installation Instructions. **The warranty excludes labor and shipping charges.**

The warranty is transferable to the next purchaser of the watering system prior to expiration of the warranty period, but any such transfer will not extend the original warranty term. Proof of purchase must be submitted with any warranty claim, and all warranty claims shall be processed through an Authorized Ritchie Dealer or Distributor.

Ritchie Industries' liability for any defects in material or workmanship with respect to accepted goods shall be limited to repairing the goods or replacing them as Ritchie Industries shall elect. Parts used in warranty repairs will be warranted for the balance of the water system's warranty period, with all parts replaced under warranty becoming the property of Ritchie Industries.

The limited warranty periods begin upon delivery of the watering system to the original purchaser. Upon delivery of the goods, purchaser assumes all liability, including but not limited to all personal injury and property damage, resulting from the handling, possession, or use of the goods.

### WARRANTY COVERAGE AND LIMITATIONS

#### Limitations of Warranties and Remedies

Ritchie Industries' watering systems are designed and manufactured to provide years of reliable use when installed and operated consistent with Ritchie Industries' instructions and recommendations. However, the potential for improper installation, modifications and misuse of the goods exists. Therefore, the limited warranty provided shall be as follows:

This limited warranty shall not apply to any appearance items and shall not apply to any product which has been subject to misuse, abuse, abnormal service or handling, negligence, or accident, nor to any product that is installed and/or used contrary to Ritchie Industries' installation instructions and instructions for use. The limited warranty shall also not apply to any product whose exterior has been damaged or otherwise defaced, that has been repaired, altered, or modified by anyone, other than Ritchie Industries, in a way so as in Ritchie Industries' judgment it adversely affects the product's operation, performance, durability, or intended use, nor to any product where removal of parts, modification(s) or use of parts or accessories not manufactured or approved by Ritchie Industries has caused damage.

#### Coverage and Warranty Periods

Unit Type	Coverage and Warranty Period
Poly Units	Base, top, and ball closures. Ten-year limited warranty: 100% for first five years, then declining 20% per year for remainder of the 10-year period.
Stainless Steel Units	Stainless trough and stainless valve chamber frame. Ten-year limited warranty, plus ten years of corrosion coverage, at 100% for entire 10-year period.
Component Parts	One-year limited warranty on all component parts, such as floats, valves, and heating elements.

#### Exclusions of Liability

EXCEPT AS OTHERWISE EXPRESSLY STATED HEREIN, RITCHIE INDUSTRIES MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND, EXPRESSED OR IMPLIED. **THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED FROM THIS LIMITED WARRANTY.** TO THE EXTENT THEY CANNOT BE DISCLAIMED, THE IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE LIFE OF THE EXPRESS WARRANTY. **THIS LIMITED WARRANTY EXCLUDES INCIDENTAL, CONSEQUENTIAL, AND SPECIAL DAMAGES. THIS EXCLUSION OF CONSEQUENTIAL, INCIDENTAL, AND SPECIAL DAMAGES IS INDEPENDENT FROM AND SHALL SURVIVE ANY FINDING THAT THE EXCLUSIVE REMEDY FAILED OF ITS ESSENTIAL PURPOSE.** THE REMEDIES SET FORTH IN THIS LIMITED WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON UNDER THIS WARRANTY. SOME STATES/PROVINCES DO NOT ALLOW FOR THE DISCLAIMERS, LIMITATIONS, AND EXCLUSIONS IDENTIFIED ABOVE AND, AS A RESULT, THEY MAY NOT APPLY TO YOU.

No agent, employee or representative of Ritchie Industries, and no Ritchie Industries Dealer/Distributor, is authorized to bind Ritchie Industries to any representation or warranty regarding the goods except as specifically included in this limited warranty.

# Installation Instructions for



## WaterMaster Series Fountains

*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](http://www.ritchiefount.com)



Alternate formats for this manual are available at:  
[www.Ritchiefount.com](http://www.Ritchiefount.com)

18903  
WM BAG ASSY  
847987089037

A rectangular box containing a barcode at the top, the number '18903' in large font, the text 'WM BAG ASSY', another barcode, and the number '847987089037' at the bottom.