

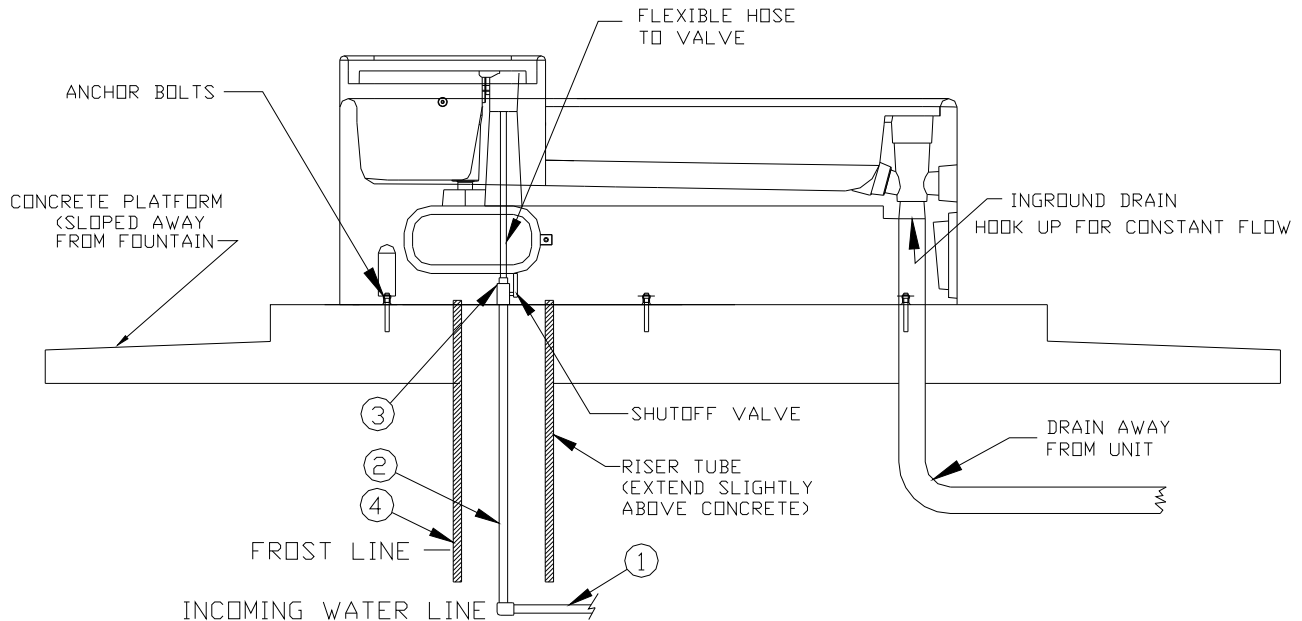
# Installation Instructions for



## 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*

## Models WM1200, WM600, WM96, WM90, WM54 & WM54D WaterMaster Fountain Installation Instructions



WaterMaster fountains are designed to allow for constant flow installation and use; however, if you choose not to constant flow, you may need to use supplemental heat. Please see Supplemental Heat in the Special Situations section of this manual, page 5 for specific recommendations.

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** – The horizontal underground water line (#1) should be sized to account for pressure drop, relating to distance, at least 3/4” (1” recommended) in diameter and 1’ below normal frost depth. A 3/4” (1” recommended) vertical supply pipe (#2) is recommended for WaterMaster units. A shut-off valve (#3) may be installed under the fountain for easier servicing. For optimum serviceability a stop and waste valve can be installed below frost level to drain water back when unit is not in use. A shutoff valve or stop and waste valve can be obtained from your local plumber. Flush water supply line thoroughly before connecting to fountain.

C. **Riser Tube** – Install a riser tube (#4) around pipe to provide room for plumbing and to accommodate optional shut-off valve. Ensure that the water supply line is centered in the riser tube. Do not add any insulation in the riser tube, as it provides a path for frost. For optimum water line protection, use the 12” outside diameter insulated Ritchie Thermal Tube. Use whatever combination of Thermal Tubes is required to reach at least 1’ below frost line.

<b>Ritchie Thermal Tubes</b>	
18158 - 1’ top section	16612 - 4’ top section
16417 - 2’ 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 and you choose not to constant flow. Any electrical service must be installed and maintained by a qualified electrician in compliance with local codes.

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” high step 18” 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 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. **Preparing the Bottom** - Apply the foam weather stripping to the bottom of the unit, around the outside edge of the fountain.

G. **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.

Take this opportunity to check to see that the constant flow drain will align properly with the drainpipe in the ground. (Some replacement installations may require additional fittings and elbows.)

Once all connections are lined up, marking anchor bolt location can easily be done with a drill.

H. **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 unit down. Tighten hold down anchors tight, but do not over tighten as this could damage the plastic feet.

I. **Valve Mounting** – After fountain is in proper place, cut hose to proper length and connect to valve bracket with hose clamp. Place the valve assembly in the slot provided in the wall of the valve chamber and tighten nut. Connect the float to the valve with pin provided. The needle valve outlet on WM54, 54D 90, & 96 has compression fitting to connect the plastic tubing for the water trainer. The other end of the tubing should be pushed tight into the hole provided in the wall of the valve compartment. The needle valve can be opened as desired to provide constant water flow, either to prevent freezing or to insure fresh water at all times in hot weather. The red plastic plug is to be used to plug the water trainer hole when not needed. A valve chamber plug is provided for the hole in the bottom of the valve compartment, (when the valve is not an underwater installation).

J. **Overflow Piping** – With this constant flow fountain, overflow piping must be provided to remove the excess water from the fountain area. An end access opening is provided to aid in connecting drain piping from the overflow. A PVC pipe adapter is provided for the overflow connection. (See drawing on page 1.)

K. **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.

L. **Drain Plug** –Install pre-assembled plugs from the inside of the trough. Wetting the plug can aid in installation.

M. **Float Adjustment** - Turn on water supply, check for and correct any leaks, and adjust float levels. For WaterMaster fountains, the depth should be one inch below the overflow drain for non-constant flow operation, or to your desired level for constant flow.

N. **Access Covers** – The access covers for the fountain require a self-adhesive seal strip to be applied around the cover. The foam adhesive requires a 24-hour cure time; so after placing on cover, install in the base to hold it in place. Do not over tighten bolt.

O. **Water Seal Drain** – For models WM 54, WM 90, WM 96, and WM 1200 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.

P. **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.

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 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.

## Product Specifications

	<b>WM54</b>	<b>WM54D</b>	<b>WM90</b>	<b>WM96</b>	<b>WM600</b>	<b>WM1200</b>
Part #	16542	18355	16467	18007	18171	18053
Drink Height - <i>in/cm</i>	22/55.9	22/55.9	22/55.9	22/55.9	24/61	24/61
Width - <i>in/cm</i>	33/83.8	33/83.8	33/83.8	33/83.8	24/61	24/61
Length - <i>in/cm</i>	54/137.2	54/137.2	90/228.6	96/244	72/182.9	144/365.8
Shipping Weight - <i>lbs/kg</i>	125/56.3	110/50	180/81	200/90	140/63	250/113
Operating Capacity - <i>gal/liter</i>	18/68.1	54/204	30/113.6	75/283.9	28/106	60/277
Herd Capacity - <i>head</i>	200 beef, 100 dairy	200 beef, 100 dairy	300 beef 150 dairy	300 beef 150 dairy	250 beef, 125 dairy	500 beef, 250 dairy

## Special Situations

### Constant Flow

Models WM 54, 54D, 90, and 96 come standard with the petcock valve required for constant flow operation. For model WM 600 a constant flow kit part # 16733 is required and for the WM 1200, part # 18199 is required.

### Walters Ice Preventer

A thermostatically controlled Walters Valve can be added on WaterMasters in constant flow operations to conserve water usage. The part number for the Walters Valve, IP80 is part #17348. Mounting kit part #16583 is used for models WM 54, 54D, 90, and 96; for WM 600 and WM 1200, the mounting kit is part # 18193. **Note:** models WM 600 and WM 1200 must be made constant flow first, see paragraph above.

### Non-Siphoning

The Ritchie WaterMaster fountains meet Grade A dairy non-siphoning guidelines.

### Non-Potable Applications

For non-potable applications only, optional valve mounting hardware is available with a bulkhead fitting, part #17183 for WM 600, WM96, & WM54D or part # 16551 for WM 54, & WM 90 to be installed through the bottom of the valve chamber. Non-potable option is not available for WM 1200.

## Installation Variations

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

### Supplemental Heat

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.

The 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, #16636.

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

### Valves

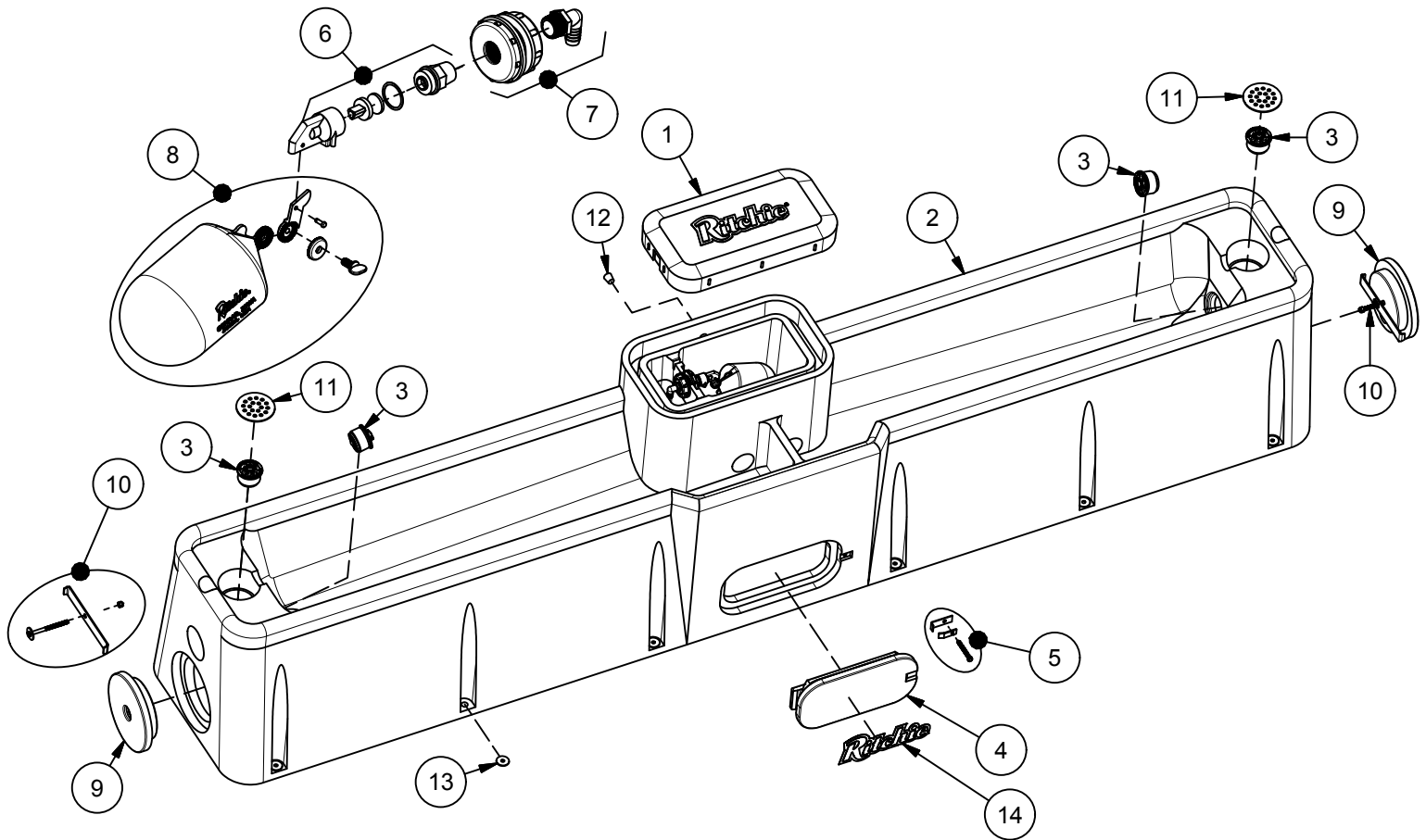
Ritchie valves come in pressure ratings as shown below. Our larger 3/4" valves are used with WaterMasters. A red valve is standard with these units to ensure adequate refill rate at the most common input pressures. The water pressure of your installation may require you to change which valve you are using. Below is a chart of the different valves and their flow rates at various pressures. When a valve with too low a pressure rating is used, the valve may not shut off completely. When a valve with too high a pressure rating is used, there may not be adequate water flow. The standard valve meets the majority of applications.

3/4"	Part #	GPM	Pressure Range
White	16697	33	Low, 5-40 psi
Red	11101	20	Moderate, 40-60 psi
Green	15377	16.5	High, 60-80 psi
Blue	18197	5	Very high, 80-100 psi

If water pressure is very high, and if the valve does not shut off, a pressure-reducing valve may be needed. Your individual situations may require a change from the standard valve supplied with your fountain.

# WaterMaster 1200

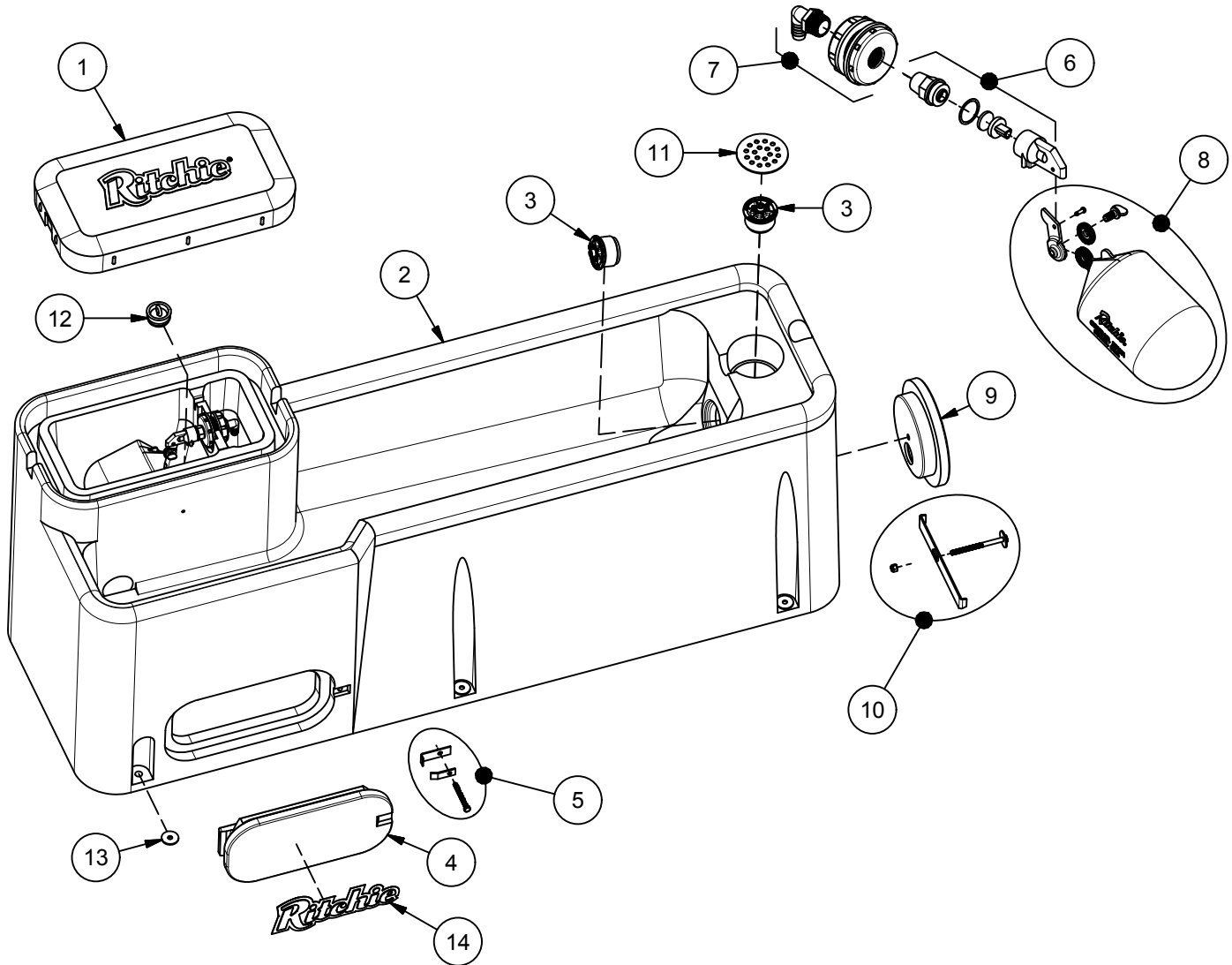
Part # 18053



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	18060	WaterMaster 1200 Cover	1	11	17194	Strainer	1
2	18061	WaterMaster 1200 Base	1	12	18633	Plug #3 - Channel Plug	1 pkg
3	18470	Drain Plug Ritchie 3"	4 pkg	13	18318	Bolt Down Washer (4/pkg)	3 pkg
4	16621	Access Panel 6"x14"	1	14	18653	Ritchie Decal 12" (1/pkg)	1 pkg
5	18147	Access Panel Hardware pkg	1 pkg	NS	14866	Seal Foam 10' Roll	3
6	11101	Red Valve 3/4" Male pkg	1 pkg	NS	18632	Cap for Trainer Hole	1 pkg
7	16898	Bulkhead with Elbow	1	NS	17173	Adapter 3" PVC	1
8	18314	Float with Hardware pkg	1 pkg	NS	15931	Hose Clamp 1" 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	2	NS	18140	WM 1200 Accessory pkg	1 pkg
10	18203	Access Panel Rnd Hardware pkg	2 pkg	NS	18199	Constant Flow pkg - Optional	1 pkg

# WaterMaster 600

Part # 18171

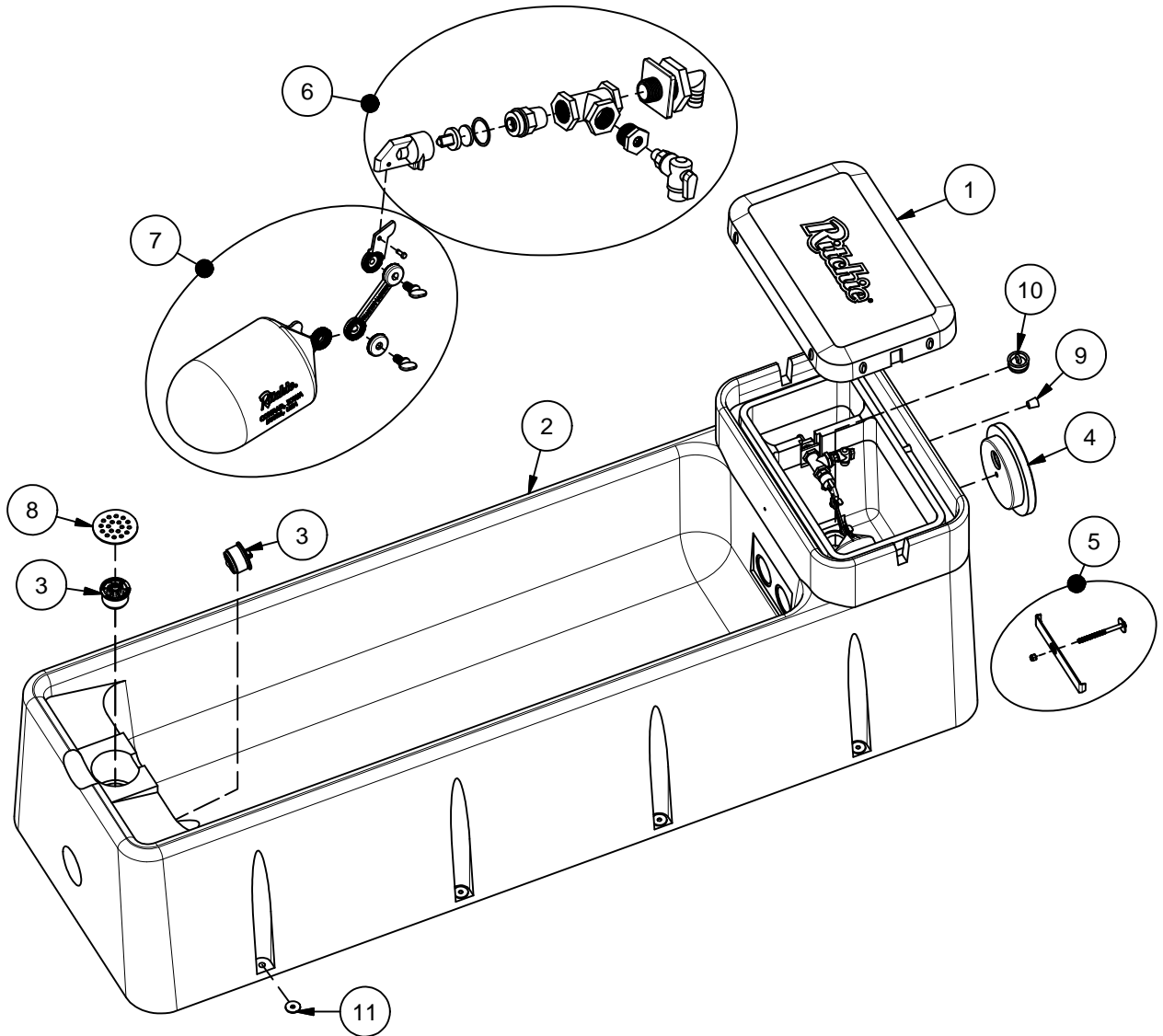


Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	18189	WaterMaster 600 Cover	1	12	18219	Plug #11 pkg	1 pkg
2	18191	WaterMaster 600 Base	1	13	18318	Bolt Down Washer (4/pkg)	2 pkg
3	18470	Drain Plug Ritchie 3"	2 pkg	14	18653	Ritchie Decal 12" (1/pkg)	1 pkg
4	16621	Access Panel 6"x14"	1				
5	18147	Access Panel Hardware pkg	1 pkg	NS	14866	Seal Foam 10' Roll	2
6	11101	Red Valve 3/4" Male pkg	1 pkg	NS	18632	Cap for Trainer Hole	1 pkg
7	16898	Bulkhead with Elbow	1	NS	17173	Adapter 3" PVC	1
8	18314	Float with Hardware pkg	1 pkg	NS	15931	Hose Clamp 1" 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	18192	WM 600 Accessory pkg	1 pkg
10	18203	Access Panel Rnd Hardware pkg	1 pkg	NS	16733	Constant Flow pkg - Optional	1 pkg
11	17194	Strainer	1	NS	18624	Adapter - Opt. Non-potable	1 pkg



# WaterMaster 96

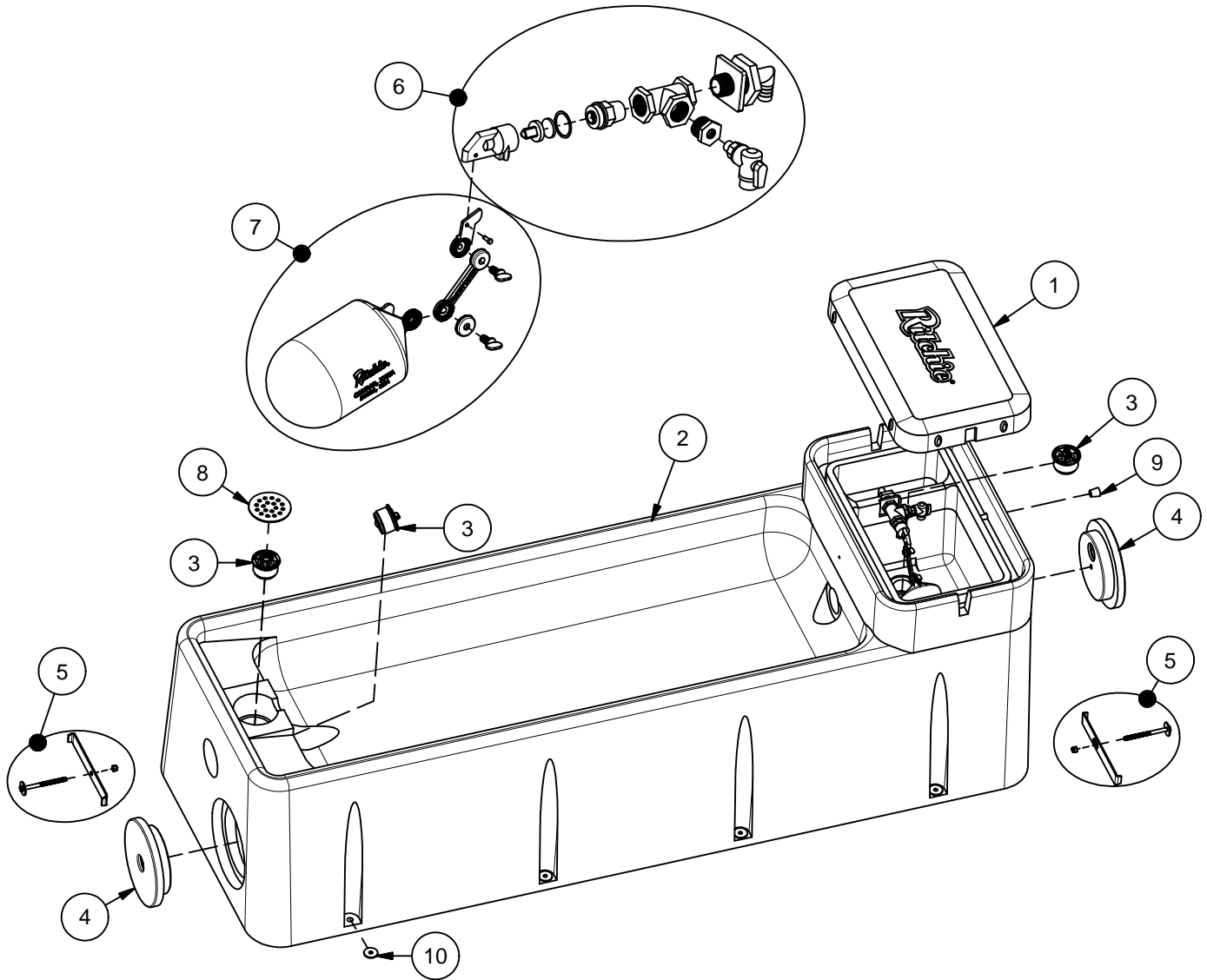
Part # 18007



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16469	WaterMaster Cover	1	8	17194	Strainer	1
2	18040	WaterMaster 96 Base	1	9	18633	Plug #3 - Channel	1 pkg
3	18470	Drain Plug Ritchie 3"	2 pkg	10	18219	Plug #11 pkg	1 pkg
4	16472	Access Panel Round	1	11	18318	Bolt Down Washer (4/pkg)	2 pkg
5	18203	Access Panel Rnd 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
	11101	Red Valve 3/4" Male pkg	1 pkg	NS	17173	Adapter 3" PVC	1
	16508	adapter Tee 3/4" pkg	1 pkg	NS	15931	Hose Clamp 1" SS (5/pkg)	1 pkg
	18458	Petcock PVC w/ adptr pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
	16422	Valve Bracket w/ nut pkg	1 pkg	NS	18041	WM 96 Accessory pkg	1 pkg
7	18314	Float with Hardware pkg	1 pkg	NS	16471	Tube Water Trainer	1
	18313	Hardware for Float pkg	1 pkg	NS	18624	Adapter - Opt. Non-potable	1 pkg

# WaterMaster 90

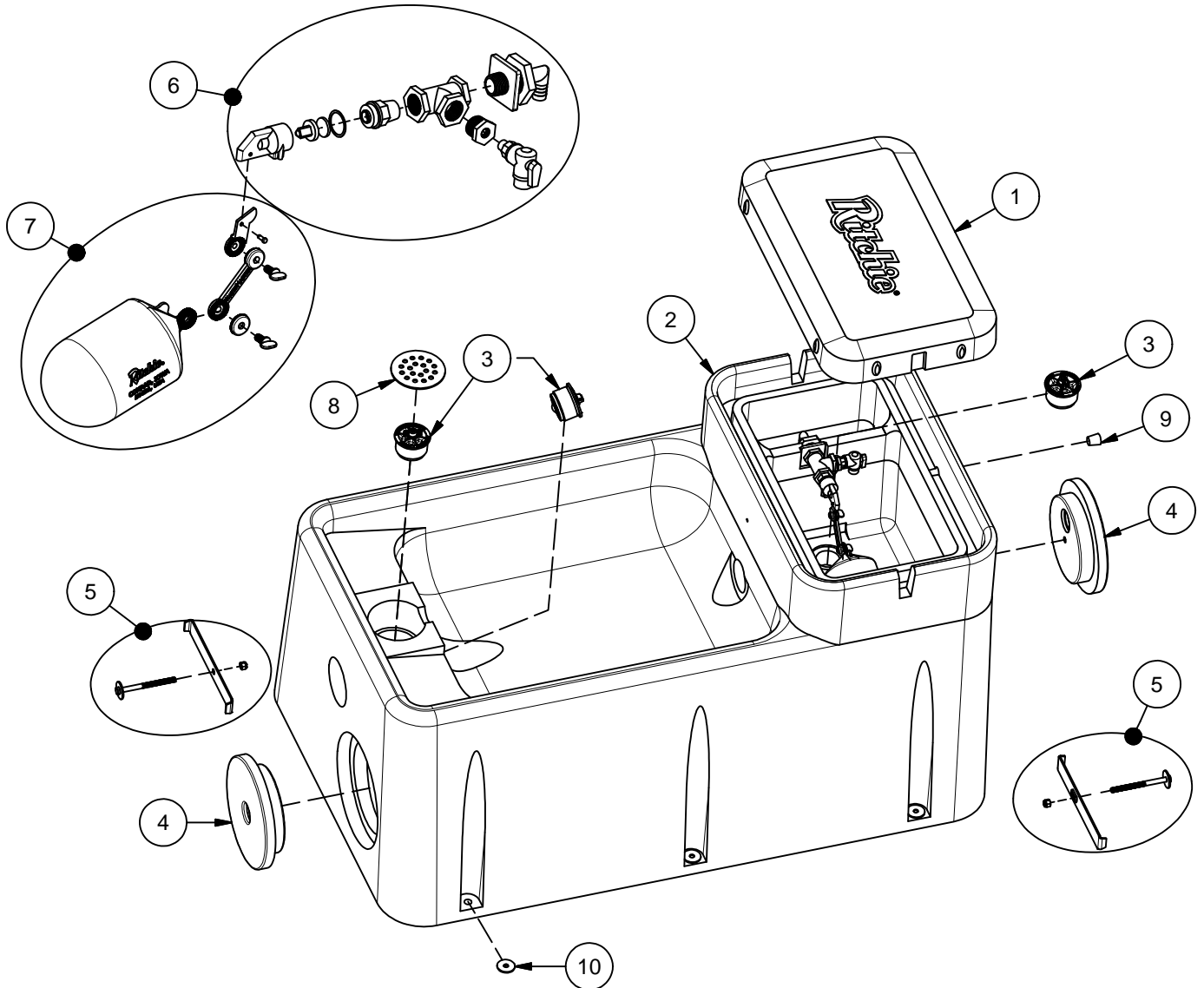
Part # 16467



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16469	WaterMaster Cover	1	8	17194	Strainer	1
2	16468	WaterMaster 90 Base	1	9	18633	Plug #3 - Channel	1 pkg
3	18470	Drain Plug Ritchie 3"	3 pkg	10	18318	Bolt Down Washer (4/pkg)	2 pkg
4	16472	Access Panel Round	2				
5	18203	Access Panel Rnd Hardware pkg	2 pkg	NS	14866	Seal Foam 10' Roll	2
6	16464	Valve WM Assembly pkg	1 pkg	NS	18632	Cap for Trainer Hole	1 pkg
	11101	Red Valve 3/4" Male pkg	1 pkg	NS	17173	Adapter 3" PVC	1
	16508	adapter Tee 3/4" pkg	1 pkg	NS	15931	Hose Clamp 1" SS (5/pkg)	1 pkg
	18458	Petcock PVC w/ adptr pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
	16422	Valve Bracket w/ nut pkg	1 pkg	NS	16479	WM 54/90 Accessory pkg	1 pkg
7	18314	Float with Hardware pkg	1 pkg	NS	16471	Tube Water Trainer	1
	18313	Hardware for Float pkg	1 pkg	NS	16551	Adapter - Opt. Non-potable	1

# WaterMaster 54

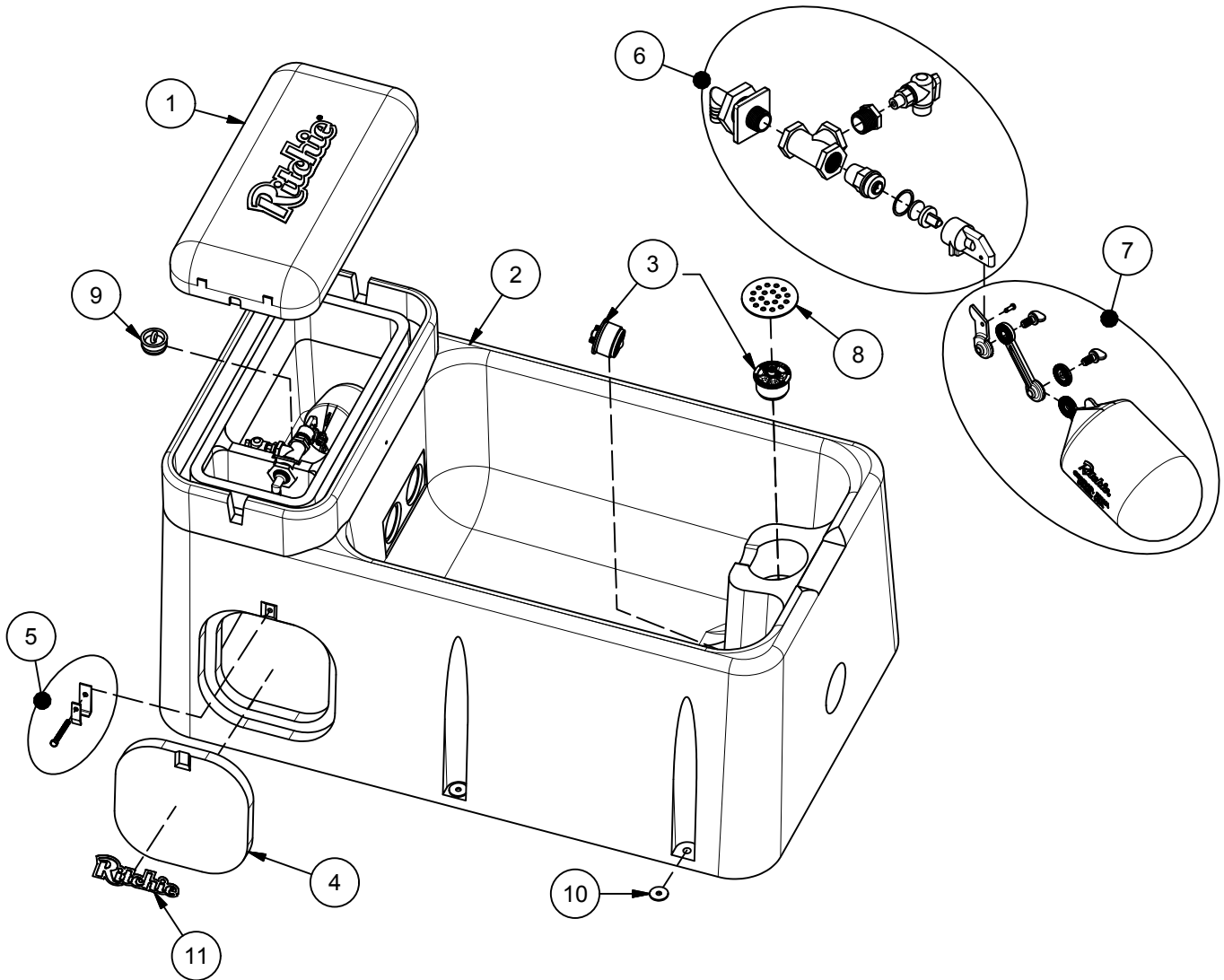
Part # 16542



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	16469	WaterMaster Cover	1	8	17194	Strainer	1
2	16550	WaterMaster 54 Base	1	9	18633	Plug #3 - Channel	1 pkg
3	18470	Drain Plug Ritchie 3"	3 pkg	10	18318	Bolt Down Washer (4/pkg)	2 pkg
4	16472	Access Panel Round	2				
5	18203	Access Panel Rnd Hardware pkg	2 pkg	NS	14866	Seal Foam 10' Roll	2
6	16464	Valve WM Assembly pkg	1 pkg	NS	18632	Cap for Trainer Hole	1 pkg
	11101	Red Valve 3/4" Male pkg	1 pkg	NS	17173	Adapter 3" PVC	1
	16508	Adapter Tee 3/4" pkg	1 pkg	NS	15931	Hose Clamp 1" SS (5/pkg)	1 pkg
	18458	Petcock PVC w/ adptr pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
	16422	Valve Bracket w/ nut pkg	1 pkg	NS	16479	WM 54/90 Accessory pkg	1 pkg
7	18314	Float with Hardware pkg	1 pkg	NS	16471	Tube Water Trainer	1
	18313	Hardware for Float pkg	1 pkg	NS	16551	Adapter - Opt. Non-potable	1

# WaterMaster 54D

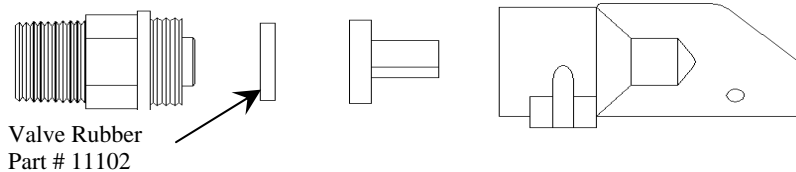
Part # 18355



Item	Part #	Description	Qty	Item	Part #	Description	Qty
1	18419	WaterMaster 54D Cover	1	9	18219	Plug #11 pkg	1 pkg
2	18372	WaterMaster 54D Base	1	10	18318	Bolt Down Washer (4/pkg)	2 pkg
3	18470	Drain Plug Ritchie 3"	2 pkg	11	18655	Ritchie Decal 7.5" (1/pkg)	1 pkg
4	18370	Access Panel 10"x10"	1				
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
	11101	Red Valve 3/4" Male pkg	1 pkg	NS	17173	Adapter 3" PVC	1
	16508	Adapter Tee 3/4" pkg	1 pkg	NS	15931	Hose Clamp 1" SS (5/pkg)	1 pkg
	18458	Petcock PVC w/ adptr pkg	1 pkg	NS	18614	Adapter 3/4" x 5/8" HB	1 pkg
	16422	Valve Bracket w/ nut pkg	1 pkg	NS	18367	WM 54D Accessory pkg	1 pkg
7	18314	Float with Hardware pkg	1 pkg	NS	16471	Tube Water Trainer	1
	18313	Hardware for Float pkg	1 pkg	NS	18624	Adapter - Opt. Non-potable	1 pkg
8	17194	Strainer	1				

## 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 water seal groove is filled with liquid
	Make sure 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>◆ Horizontal supply line is at least 1 foot below frost line</li> </ul>
	If freezing continues, use supplemental heat or constant flow below freezing temperatures.
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 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 See below.
	Turn valve rubber over and re-assemble. See below.
	Check for excessive water system pressure.
	Change to higher-pressure valve.



## Ritchie Limited Warranty

Effective September 2012

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 not 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%.

### Hydrants

#### All component parts:

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