AquaSense® ZTR Series

Automatic Sensor-Operated Piston Type Flushometer for Water Closets and Urinals

Installation, Operation, Maintenance, and Parts Manual





Water Closet Models:

ZTR6200-ONE	1.1 gpf
ZTR6200EV	1.28 gpf
ZTR6200-WS1	1.6 gpf

Urinal Models:

ZTR6203-ULF	0.125 gpf
ZTR6203-QRT	0.25 gpf
ZTR6203-EWS	0.5 gpf
ZTR6203-WS1	1.0 gpf

Power Options:

Battery (Standard)
-LL (Long Life Battery)
-HW (Hardwired using 7.6 VDC Power Supply Input)

ADA DESIGNED

LIMITED WARRANTY

All goods sold hereunder are warranted to be free from defects in material and factory workmanship for a period of three years from the date of purchase. Decorative finishes warranted for one year. We will replace at no costs goods that prove defective provided we are notified in writing of such defect and the goods are returned to us prepaid at Sanford, NC, with evidence that they have been properly maintained and used in accordance with instructions. We shall not be responsible for any labor charges or any loss, injury or damages whatsoever, including incidental or consequential damages. The sole and exclusive remedy shall be limited to the replacement of the defective goods. Before installation and use, the purchaser shall determine the suitability of the product for his intended use and the purchaser assumes all risk and liability whatever in connection therewith. Where permitted by law, the implied warranty of merchantability is expressly excluded. If the products sold hereunder are "consumer products," the implied warranty of merchantability is limited to a period of three years and shall be limited solely to the replacement of the defective goods. All weights stated in our catalogs and lists are approximate and are not guaranteed.

Prior to Installation

Prior to installing ZTR flushometer, install items listed below as illustrated in the Rough-in Diaphragm. (New installations only)
· Water Closet or Urinal Fixture
· Drain Line
· Water Supply Line

Important:

- **ALL PLUMBING SHOULD BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES & REGULATIONS.**
- **WATER SUPPLY LINES MUST BE SIZED TO PROVIDE AN ADEQUATE VOLUME OF WATER FOR EACH FIXTURE.**
- **WHEN INSTALLING A FLUSHOMETER, IT IS IMPORTANT THAT THE FLUSH MODEL MATCHES THE REQUIREMENTS OF THE PLUMBING FIXTURE.**
- **FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.**
- **DO NOT INSTALL SENSOR UNITS ACROSS FROM EACH OTHER OR IN CLOSE PROXIMITY TO HIGHLY REFLECTIVE SURFACES.**

The ZTR flushometer is designed to operate optimally with 35 and 80 psi (241 to 552 kPa) of running water pressure. **THE MINIMUM PRESSURE REQUIRED TO THE VALVE IS DETERMINED BY THE TYPE OF FIXTURE SELECTED.** Consult fixture manufacturer for pressure requirements.

The ZTR flush valve should be used with a WaterSense® labeled fixture with the same rated flush volume to ensure the complete system meets the requirements of the WaterSense® specification for water efficiency and performance

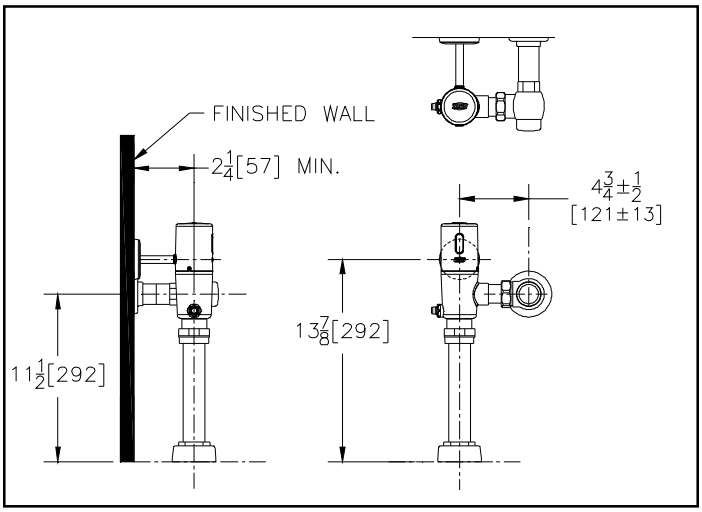
- **ZTR6200-ONE (1.1 gpf) MUST ONLY BE PAIRED WITH ZURN Z5615 WATER CLOSET FIXTURE.**
- **TO PROTECT CHROME FINISH DO NOT USE TOOTHED TOOLS TO INSTALL OR SERVICE THE FLUSHOMETER.**

Tools Required for Installation

- Flathead screwdriver to adjust control stop
- Zurn Wonder-Wrench® or smooth jawed spud wrench for couplings
- Magic Magnet® (supplied) to adjust sensor range, if necessary
- 5/64" Allen wrench (supplied) to secure sensor cap to valve
- Philips head screwdriver to install batteries, if necessary

ZTR Rough-In, Product Specification, Models and Options

Engineering Specification:
Exposed, chrome plated brass automatic sensor-operated piston-type flushometer for water closets and urinals. Utilizes mechanical override pushbutton (MOB) for alternative flushing methods. The flush valve incorporates a filtered bypass, high back pressure vacuum breaker, adjustable tailpiece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection, vandal resistant stop cap, sweat solder kit, and cast wall flange with set screw. All internal and external gaskets and seals are chloramine resistant.



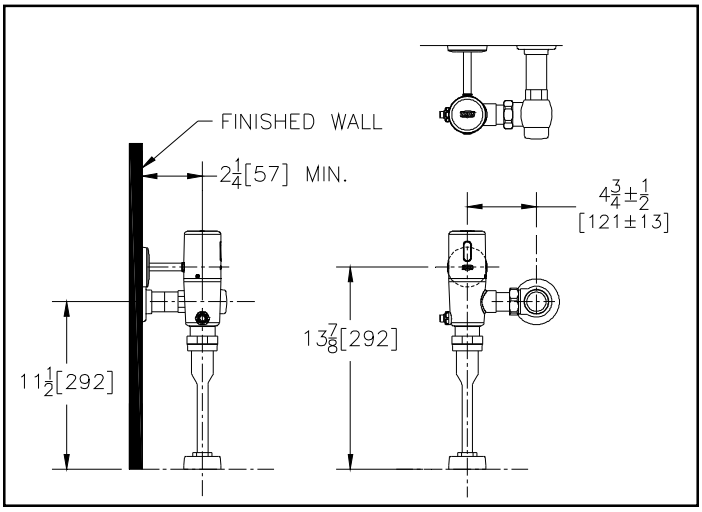
Water Closet Models:

ZTR6200-ONE	1.1 GPF
ZTR6200EV	1.28 GPF
ZTR6200-WS1	1.60 GPF

Urinal Models:

ZTR6203-ULF	0.125 GPF
ZTR6203-QRT	0.25 GPF
ZTR6203-EWS	0.50 GPF
ZTR6203-WS1	1.0 GPF [enter]

(Use ZTR6201 for urinals with 1-1/4" top spud)

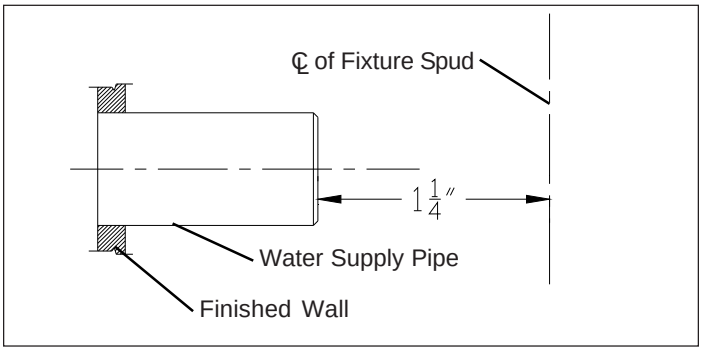


Options:

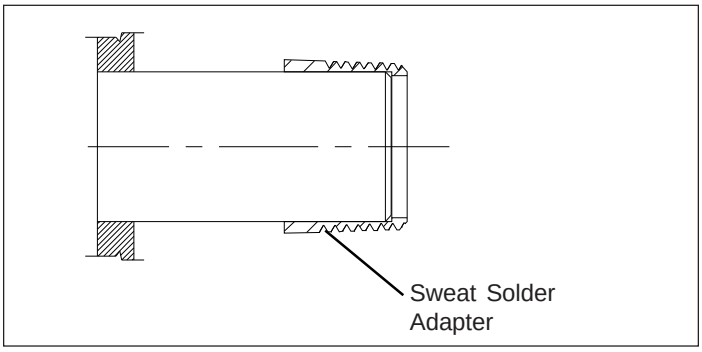
-HW	Hardwired to 7.6VDC Power Supply
-LL	10 Year Long Life Battery
-YJ	Split Ring Pipe Support
-YK	Solid Ring Pipe Support
-YO	Bumper on Angle Stop

Sweat Solder Adapter Installation Instructions

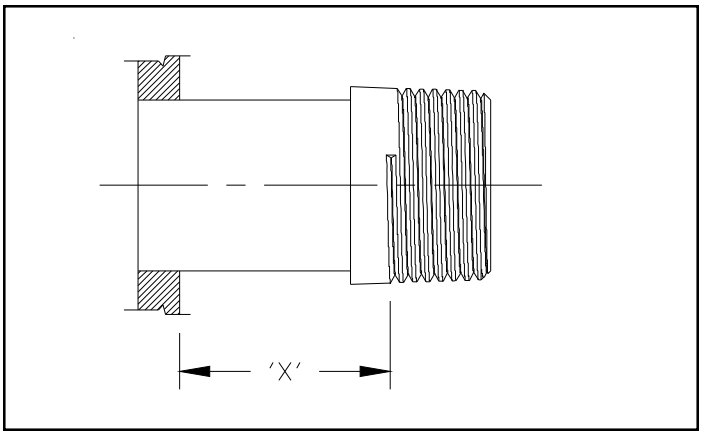
STEP 1
Measure distance from finished wall to the center line of the fixture spud. If necessary, cut water supply pipe 1-1/4" shorter than this measurement. Deburr by chamfering O.D. and I.D of end of water supply pipe.



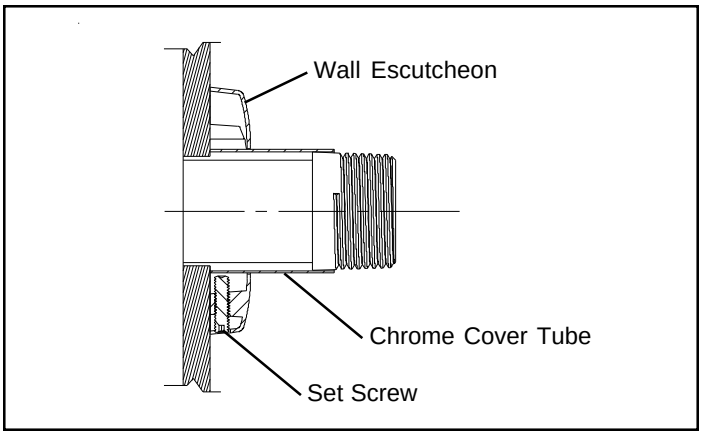
STEP 2
Slide threaded sweat solder adapter onto water supply pipe until shoulder stops on end of pipe. Then sweat-solder the adapter to water supply pipe.



STEP 3
Measure distance from finished wall to first thread of sweat solder adapter. If necessary, cut chrome cover tube this length.



STEP 4
Slide wall escutcheon over chrome cover tube and slide both items over water supply pipe. Press wall escutcheon flush against finished wall and tighten set screw with hex wrench (supplied) to secure it in place.



Control Stop Installation Instructions

STEP 1
Install control stop assembly by threading it onto water supply pipe and tightening with a smooth jawed wrench. Apply thread sealing compound or pipe tape to male NPT thread on sweat solder adapter only.

Prior to turning on main water supply line ensure all stop valves are closed off tight by using a flathead screwdriver and turning the stop valve adjustment screw Clockwise.

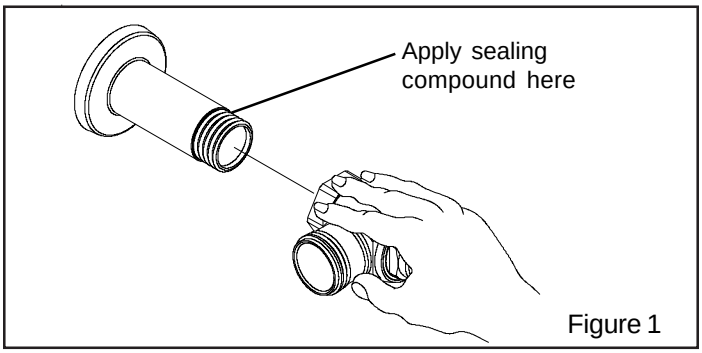


Figure 1

STEP 2
When all stop valves are properly connected to the water supply line and water pressure is available open the control stop using a flathead screwdriver and turning the stop valve adjustment screw Counter Clockwise.

Allow the water supply line to flush any debris or sediment that may be present in the line.
Close the control stop once the lines are completely flushed.

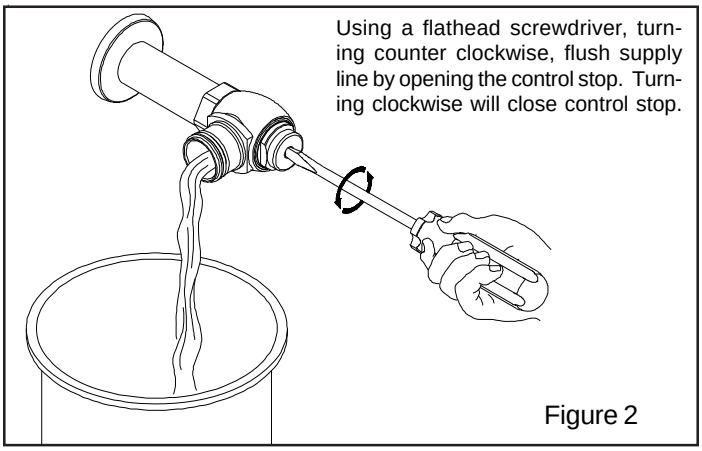


Figure 2

Flush Valve Installation

STEP 1
Prior to attaching flush valve to control inspect and verify that the O-ring seal is located within the O-ring groove at the tailpiece. Ensure the locking nut and locking snap ring are also present on the tailpiece. See Figure 3.

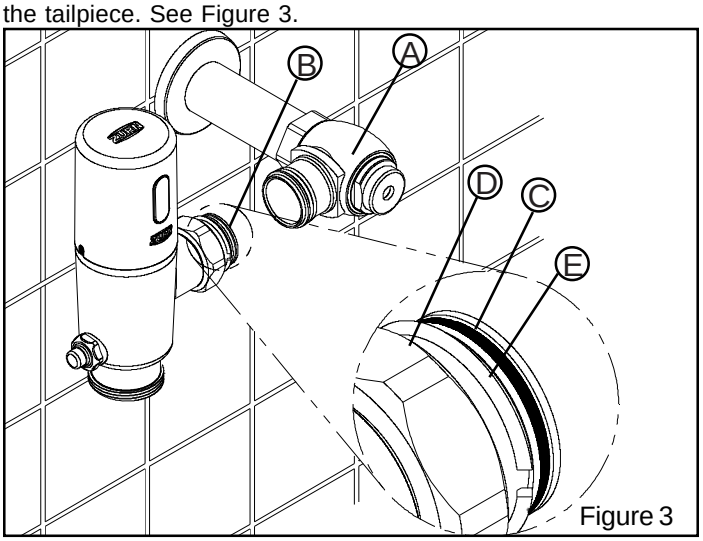


Figure 3

STEP 3
Determine the length of vacuum breaker tube (F) required to join the flush valve and fixture sput, and cut if necessary. See Figure 5.

STEP 4
Assemble and secure the vacuum breaker tube assembly and spud nut assembly to the flush valve and fixture spud by hand tightening the spud nut (G) and vacuum breaker tube nut (H).

Adjust and plumb the valve assembly. Tighten all connections with smooth jawed wrench and turn on water supply at the control stop. See Figure 5.

IMPORTANT
DO NOT cut vacuum breaker tube below the C/L indicator mark, as vacuum breaker must typically be 6" above the fixture. Consult plumbing Codes & Regulations for specific details.

STEP 2
Lubricate O-ring with water if necessary and insert flush valve tailpiece into the control stop valve. Tighten locking nut using a smooth jawed wrench. See Figure 4.

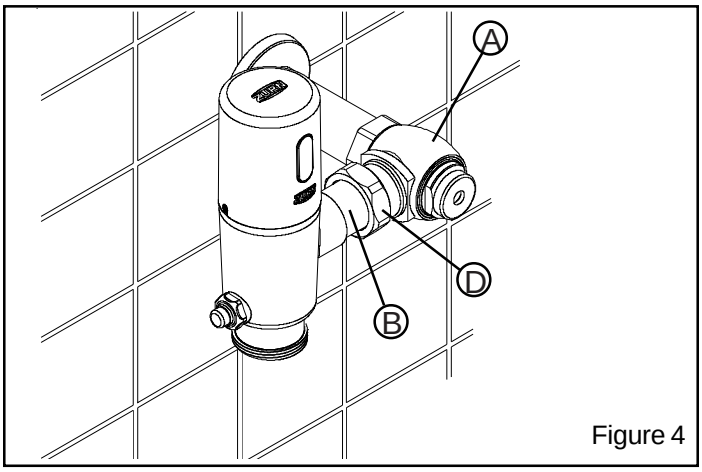


Figure 4

IMPORTANT
DO NOT use pipe sealant or plumbing grease on any valve component or coupling with the exception of the Control Stop Inlet! Ensure Vacuum Breaker does not twist or warp when tightening Vacuum Breaker Coupling Nut.

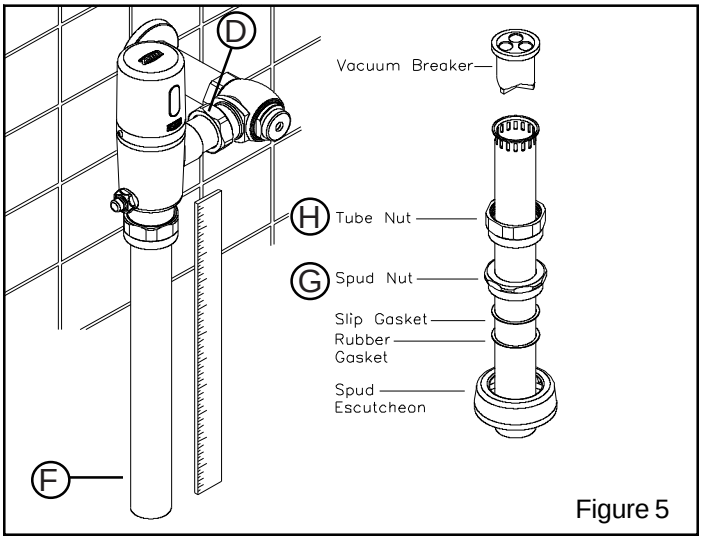


Figure 5

Remove Sensor Cap (Applies to all versions)

STEP 1
Use the 5/64" Allen wrench (supplied in the stop valve cover package) to loosen the two cap screws and remove the sensor cap. See Figure 6.

Important
The sensor cap has been designed to be removed without completely unscrewing the cap screws. This prevents loss of screws during installation and maintenance.

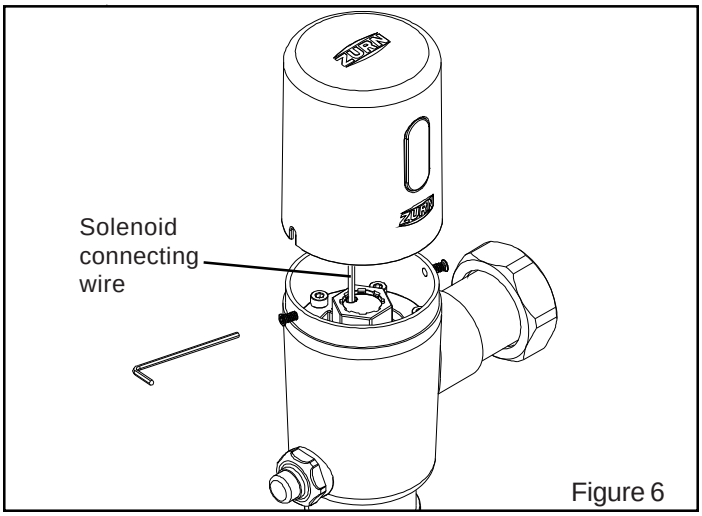


Figure 6

Battery Installation (Applies to standard battery and -LL versions only)

STEP 1
Remove sealed battery housing from sensor cap and remove top of sealed battery housing using philips head screwdriver. Insert four standard batteries (supplied) or long life batteries (supplied) into sealed battery housing and ensure the batteries are inserted in the correct orientation. Reattach top to the sealed battery housing.

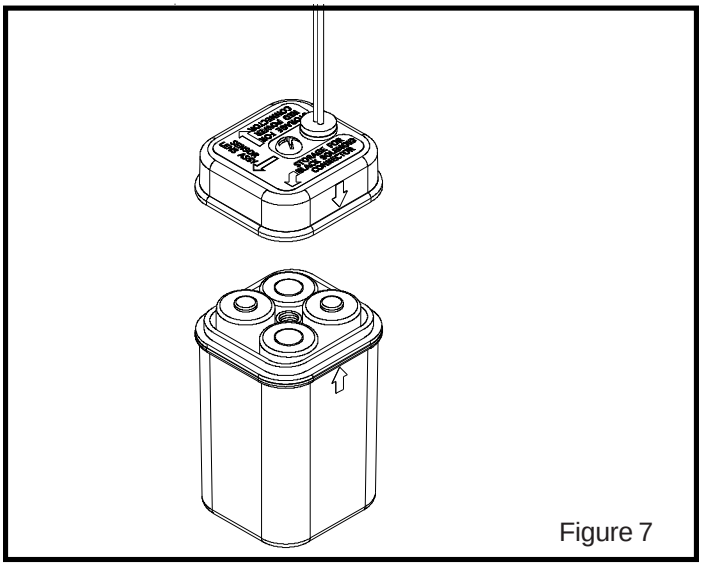


Figure 7

IMPORTANT
Only use one battery type for installation. **DO NOT** mix and match Standard (Alkaline) and Long Life (Lithium) Batteries.

STEP 2
Connect sealed battery housing to sensor lens via **RED** connectors by aligning arrows and pressing together.

Insert sealed battery housing into sensor cap. Ensure sticker on top of sealed battery housing is oriented properly with the **WHITE** arrow pointing toward the sensor lens.

Utilize open space within the sensor cap to store the connected RED power connectors and BLACK solenoid connectors.

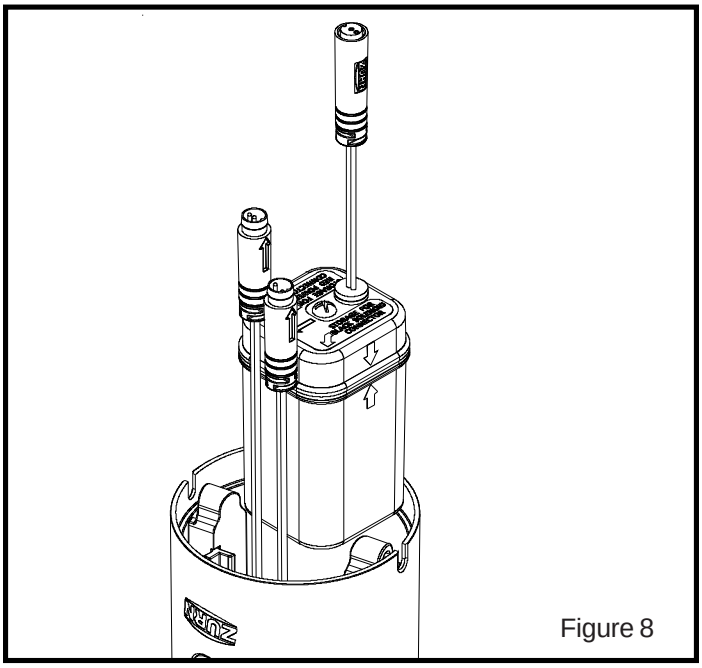


Figure 8

Hardwire Installation (Applies to -HW versions only)

STEP 1
Route 10' power supply cable (supplied) through the wall escutcheon (supplied), wire supply tube (supplied) and the opening on the back of sensor cap.

Connect power supply cable to sensor lens via **RED** connectors by aligning arrows and pressing together.

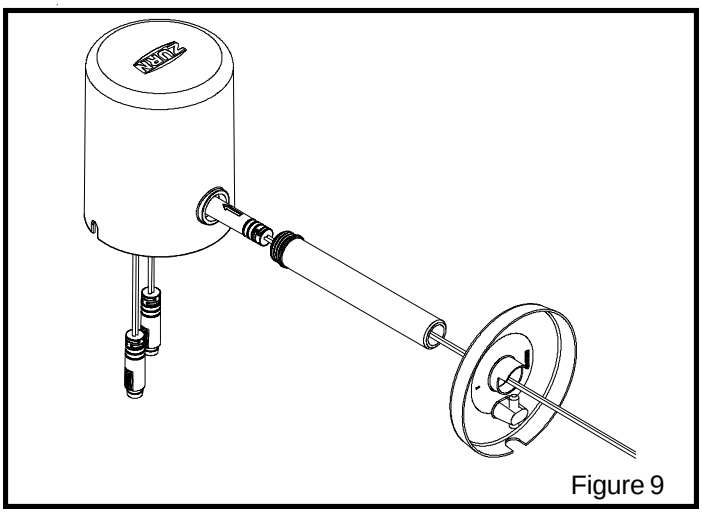


Figure 9

Hand-tighten wire supply tube into the back of the sensor cap. Slide wall escutcheon along wire supply tube until it is against the sensor cap.

Reattach the sensor cap to the flushometer valve body while ensuring wire supply tube is properly inserted into thru-hole in wall.

Tighten the cap screws using 5/64" Allen wrench to secure sensor cap. Slide wall escutcheon flush with wall and secure using set screw and Allen wrench (supplied).

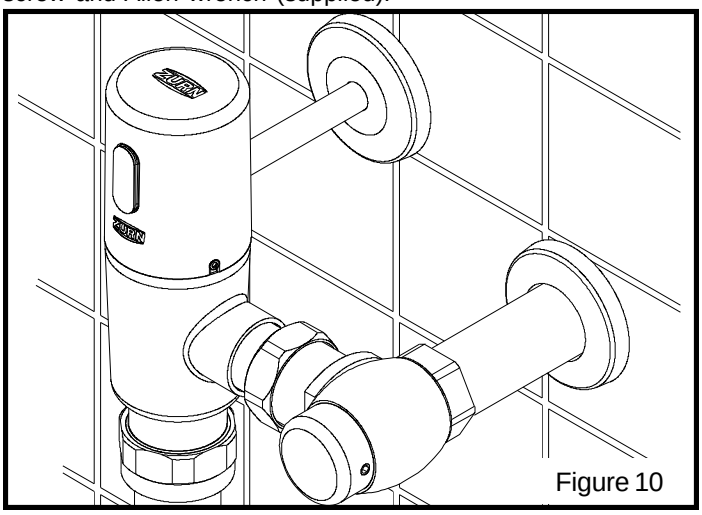
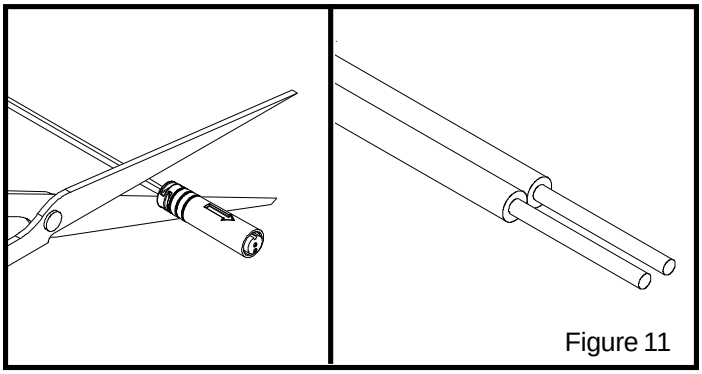


Figure 10

Hardwire Installation Cont. (Applies to -HW versions only)

Connect ZTR-HW directly to HW6 Power Converter. (Recommended if one to two ZTR flush valves are powered by one HW6.)

STEP 1
Cut **RED** power connector from end of power supply cable not connected to the Sensor Cap and strip back the wire insulation by minimum of 1/4".


Figure 11

STEP 2
Secure **RED** wire to Positive (+) and **BLACK** wire to Negative (-) screw terminals on HW6.

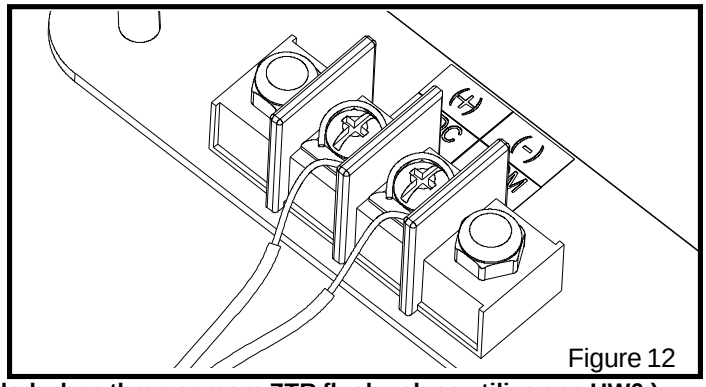
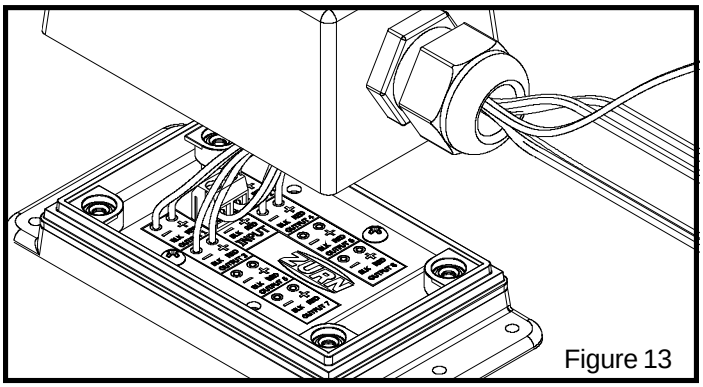


Figure 12

Connect ZTR-HW to Power Junction Box and HW6. (Recommended when three or more ZTR flush valves utilize one HW6.)

STEP 1
Remove top of Power Junction Box (4 and 8 output versions available) from the base and route 18-24 AWG 2-conductor wire (not supplied) through the cord-grip.
Secure the wire to the Positive (+) and Negative (-) INPUT screw terminals located on internal circuit board.


Figure 13

STEP 2
Secure other end of 2-conductor wire cable to Positive (+) and Negative (-) screw terminals on HW6.

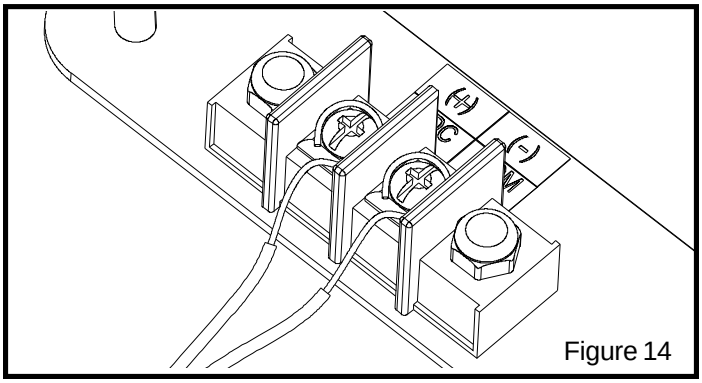
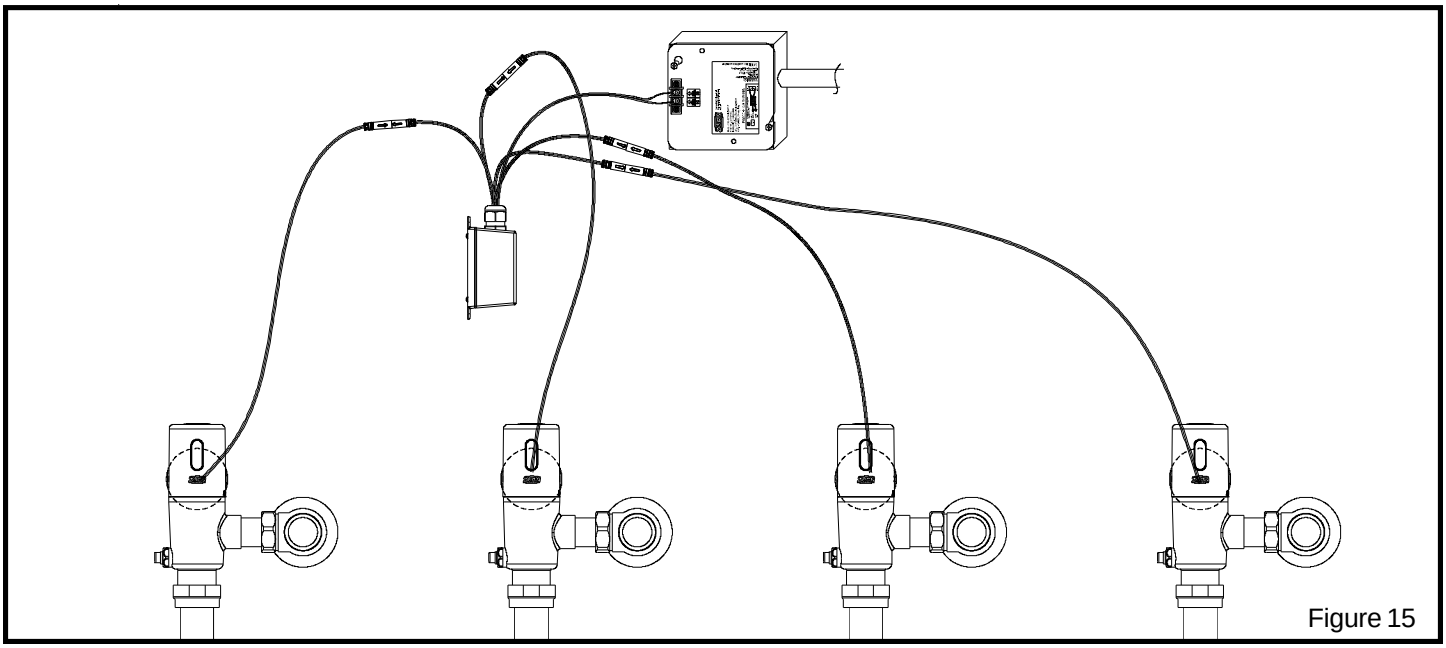


Figure 14

STEP 3
Connect **RED** power connector from Sensor Cap to one of the **RED** output connectors on the Power Junction Box.


Figure 15

Remove Protective Lens Cover

STEP 1
Remove clear protective cover from sensor lens.

IMPORTANT
Failure to remove protective Cover will hinder sensor performance and may not detect users properly.

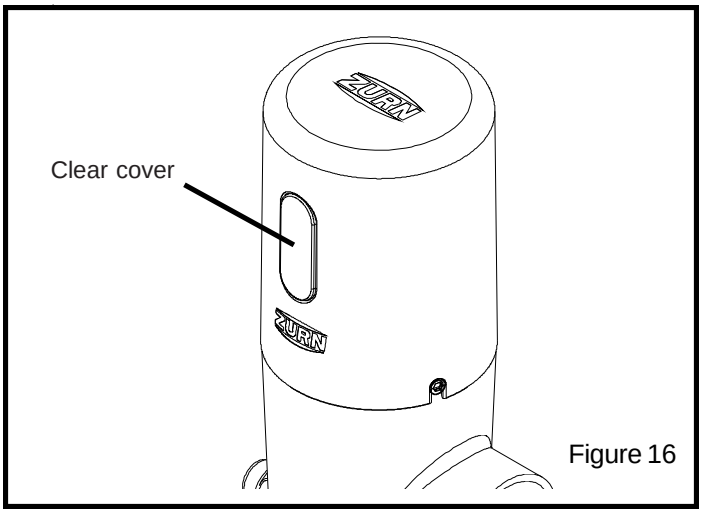


Figure 16

Courtesy Flush Settings

STEP 1
A courtesy flush can be enabled for the ZTR flushometer where the valve will automatically flush at a specified interval based on customer preference. Simply manipulate Dipswitches #2 and #3 located on the Sensor Lens found on the inside of the Sensor Cap to change the courtesy flush interval.

Courtesy Flush Interval	Dipswitch #2	Dipswitch #3
Disabled (Default Setting)	ON	ON
24 hours	ON	OFF
48 hours	OFF	ON
72 hours	OFF	OFF

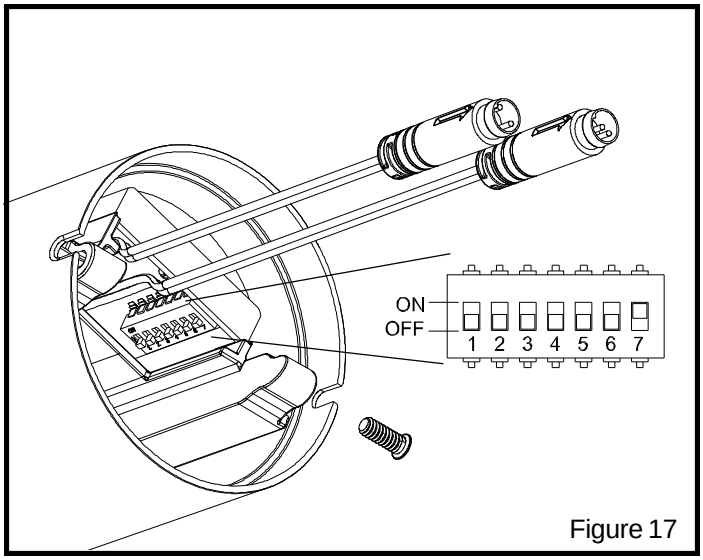


Figure 17

Sensor Range Adjustment

STEP 1
Place the Zurn MagicMagnet® (supplied) against the cap at the lower left corner of the Zurn logo under the sensor lens. Hold in place until red LED light flashes 2 times and an automatic flush will follow which signifies that the sensor has entered calibration mode.

Place light-colored target at desired detection range away from sensor. After 10 more LED flashes the new sensor range distance will be calibrated and set.

IMPORTANT
Test new calibrated sensor range using targets of various material types/textures to ensure calibration accuracy. Verify that sensor range does not detect stall doors or other reflective surfaces.

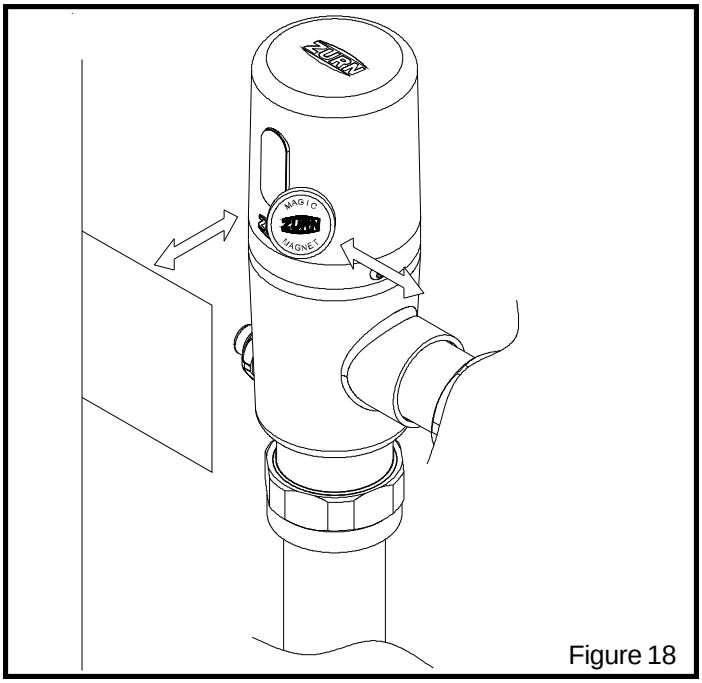


Figure 18

TROUBLE SHOOTING GUIDE

PROBLEM	INDICATOR	POTENTIAL CAUSE	SOLUTION
Red sensor flashes every 10 seconds	Sensor flashes (red) every 10 seconds	Low battery voltage indication	Replace batteries – see Step G for reference
Valve does not flush	Sensor flashes (red) every 30 seconds	Continuous target detection of object within sensor range	Identify and remove any target from sensor field
		Continuous target detection due to reflective partitions or surfaces	Reduce sensor range distance
		Continuous target detection due to dirty, scratched, or damaged sensor lens.	Inspect and clean lens; replace sensor lens if damaged
	Sensor detects user but fails to flush upon exiting sensor range	Battery power level too low to activate full	Replace batteries – see Step G for reference
		Dirty lens	Clean lens until free of debris
		Sensor failure	Replace sensor & batteries
		Loose or damage solenoid connection	Re-insert solenoid to sensor connection or replace solenoid
		Stuck solenoid plunger in the CLOSED position	Remove solenoid – inspect, repair, and clean plunger. Ensure all parts are present during reassembly. Use scale removal material if needed
	User not detected within sensor range	Sensor range too short	Re-calibrate sensor range – see Sensor Range Adjustment
		Dead batteries	Replace batteries
		Sensor failure	Replace sensor cap assembly
		Protective lens cover obstructing sensor	Remove protective lens cover
Valve does not shut off water (continuous flow)	Normal target detection	Water pressure either too high or too low	Adjust water pressure to recommended range of 20-80 psi
		Clogged orifice in solenoid diaphragm	Remove solenoid, inspect rubber diaphragm for clogged holes, clear holes, & reassemble solenoid
		Stuck plunger in the OPEN position	Remove solenoid – inspect, repair, and clean plunger. Ensure all parts are present during reassembly. Use scale removal material if needed
		Debris in plunger	
		Piston kit orifice clogged	Replace piston kit
		Piston kit cup seal or face seal damaged	
		Bad solenoid / solenoid connection	Replace solenoid assembly
		MOB damaged / leaking	Replace MOB
	Sensor not flashing with "Target in View" and no 10-second or 30-second flashes	Dead batteries	Replace batteries
		Sensor electronics failure	Replace sensor cap assembly

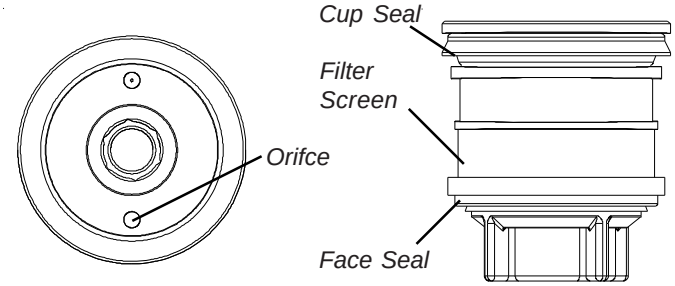
Care and Cleaning Instructions

DO NOT use abrasive or chemical cleaners to clean flush valves as they will dull the luster and attack the chrome or special decorative finishes. Use only mild soap and water, then wipe dry with a clean cloth or towel. While cleaning the bathroom tile and floor, the flush valve and sensor should be protected from splattering of water, cleaner, acids, and cleaning fluids that can damage the sensor flush valve. DO NOT PRESSURE WASH THE VALVE.

Accessing Piston Kit

1.) Remove valve cap and base to expose solenoid. Using M3 Allen wrench remove the six screws and the solenoid flange.

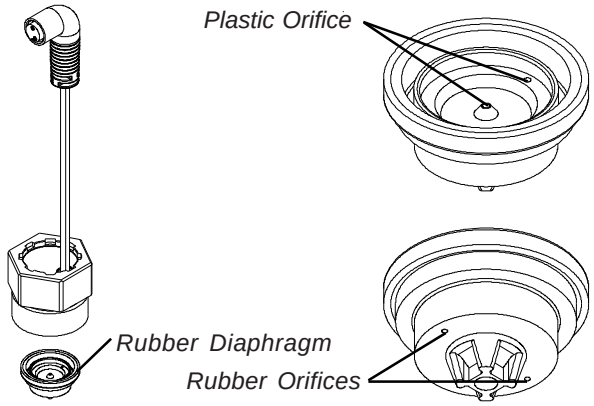
2.) Remove the piston kit from the valve body and inspect for damage to the seals or debris in the orifice. Exccessive build up of debris may occur on filter screen.



Accessing Solenoid

1.) Unscrew the solenoid from the flange and remove the rubber diaphragm.

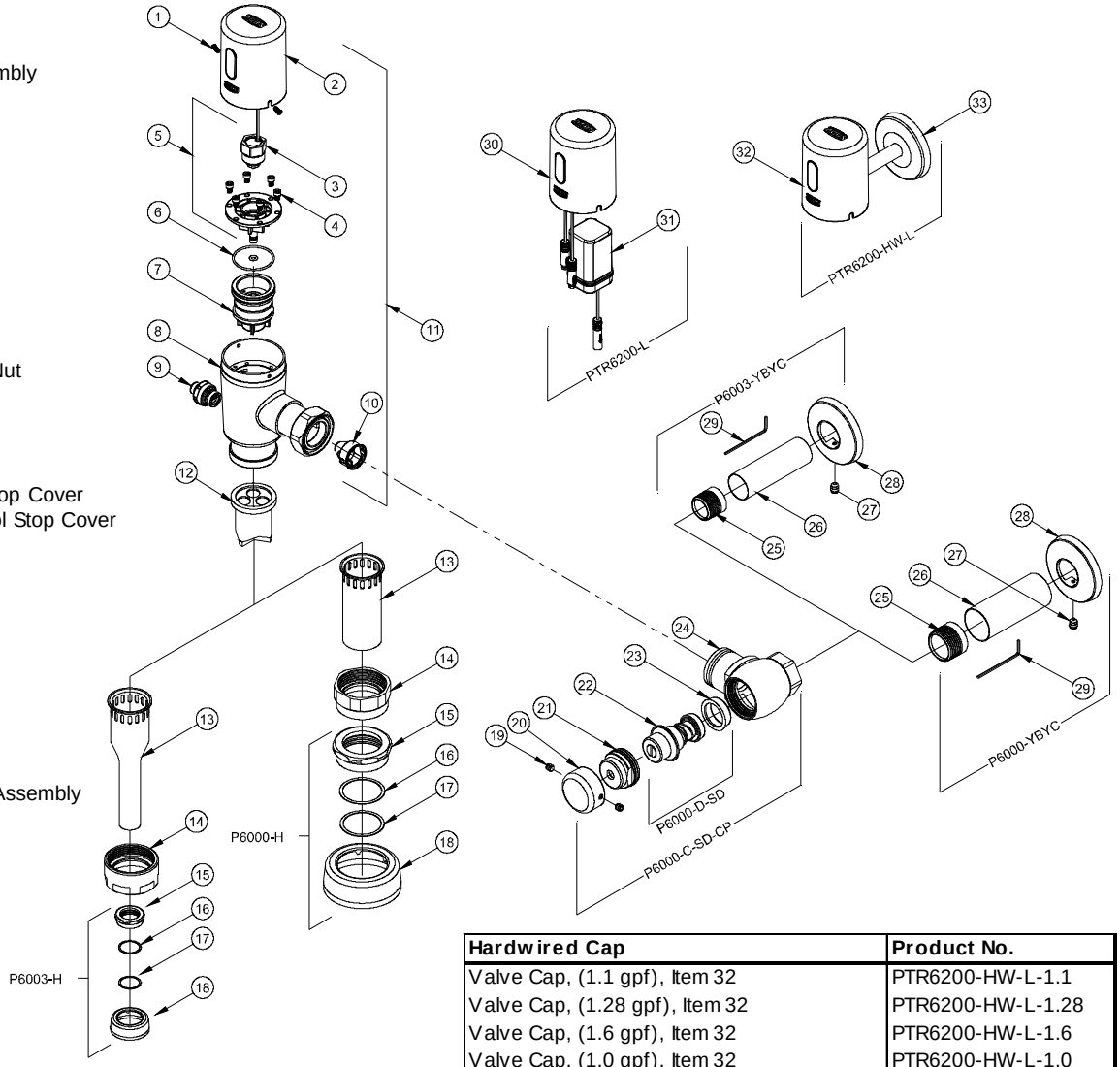
2.) Inspect the plastic orifices for debris and clean. If necessary, peel back the rubber from the plastic piece to reveal the rubber orifices and inspect for debris.



ZTR6200EV Series Parts Breakdown

Parts Identification

1. Cover screw
2. Valve Cap/Sensor Assembly
3. Solenoid
4. Piston Cover Screws
5. Solenoid Kit
6. Flange O-rings
7. Piston Kit
8. Valve Housing
9. Manual Override Button
10. Filter
11. Valve Assembly
12. Vacuum Breaker
13. Vacuum Breaker Tube
14. Vacuum Breaker Tube Nut
15. Spud Nut
16. Spud Friction Washer
17. Spud Sleeve
18. Spud Escutcheon
19. Setscrew for Control Stop Cover
20. Vandal-Resistant Control Stop Cover
21. Stop Cap Bonnet
22. Stop Internals
23. Piston Seal
24. Stop Body
25. Sweat Solder Adapter
26. Supply Cover Tube
27. Setscrew for Cast Wall Escutcheon
28. Cast Wall Escutcheon
29. Hex Wrench
30. Top Valve Cap/Sensor Assembly
31. Battery Housing
32. Hardwired Top Valve Cap/Sensor Assembly
33. Wire Supply Tube and Escutcheon



Valve and Components	Product No.
Valve Housing, Items 8 & 9	PTR6200-HSA
Valve Cap, (1.1 gpf), Item 2	PTR6200-L-1.1
Valve Cap, (1.28 gpf), Item 2	PTR6200-L-1.28
Valve Cap, (1.6 gpf), Item 2	PTR6200-L-1.6
Valve Cap, (1.0 gpf), Item 2	PTR6200-L-1.0
Valve Cap, (0.5 gpf), Item 2	PTR6200-L-0.5
Valve Cap, (0.25 gpf), Item 2	PTR6200-L-0.25
Valve Cap, (0.125 gpf), Item 2	PTR6200-L-0.125
Solenoid Replacement Kit, Item 5	PTR6200-M
Piston Kit (1.1/1.28/1.6 GPF), Item 7	PTR6200-EC
Piston Kit (0.5/1.0 GPF), Item 7	PTR6203-EU
Piston Kit (0.125/0.25 GPF), Item 7	PTR6203-EU-ULF
Manual Override Button Assy, Item 9	PTR6200-24
Flange O-Ring, Item 6	PTR6200-M-ring
Flange Screw , Item 4	PTR6200-M-S
Filter, (1.28/1.6 gpf), Item 10	P6000-FA
Filter, (1.0/0.5 gpf), Item 10	PTR6203-FA
Cover screw , Item 1	PTR6200-L-S
Sealed Battery Housing, Item 31	PTR6200-BATT

Hardwired Cap	Product No.
Valve Cap, (1.1 gpf), Item 32	PTR6200-HW-L-1.1
Valve Cap, (1.28 gpf), Item 32	PTR6200-HW-L-1.28
Valve Cap, (1.6 gpf), Item 32	PTR6200-HW-L-1.6
Valve Cap, (1.0 gpf), Item 32	PTR6200-HW-L-1.0
Valve Cap, (0.5 gpf), Item 32	PTR6200-HW-L-0.5
Valve Cap, (0.25 gpf), Item 32	PTR6200-HW-L-0.25
Valve Cap, (0.125 gpf), Item 32	PTR6200-HW-L-0.125

Flush Connections and Spud Coupling Kits	Product No.
Flush Connection and Spud Coupling, Items 15-18	P6000-H P6003-H
Vacuum Breaker Repair Kit, Items 11	P6000-B
Vacuum Breaker Tube	P6000-A-CP
Vacuum Breaker Tube Nut	P6000-AA-CP

Control Stop Repair Kit and Parts	Product No.
Control Stop Repair Kit for 1” and 3/4”, Includes Items 14-20	P6000-C-SD-CP
Seal Seat for 1” and 3/4”, Includes Item 23	P6000-D42
Sweat Solder Adapter, Includes Item 25	P6000-YBA
Vandal resistant control stop cover Items 19-20	P6000-VC
Sweat solder kit, Items 25-29	P6000-YBYC
Sweat solder kit, Items 25-29	P6003-YBYC

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