



AquaSense® ZTR Series

Automatic Sensor-Operated,
Battery-Powered Flushometer

Installation, Operation, Maintenance, and
Parts Manual



Models:

ZTR6200EV 1.28 gpf

ZTR6200-WS1 1.6 gpf

Sensor-Operated, Battery-Powered Valve

ZTR6203-WS1 1.0 gpf

ZTR6203-EWS 0.5 gpf

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

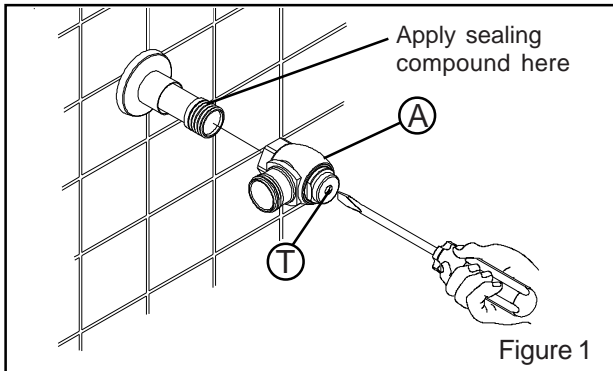
Prior to installing the ZTR flushometer valve, install the items listed below:

- Water Closet Fixture
- Drain line
- Water supply line

IMPORTANT:

- All Plumbing is to be installed in accordance with applicable codes and regulations.
- Water supply lines must be sized to provide an adequate volume of water for each fixture.
- Flush all water lines prior to operation (See Step 2).
- Dirt and debris can cause flush valve to run continuously.
- Sensor units should not be located across from each other or in close proximity to highly reflective surfaces.

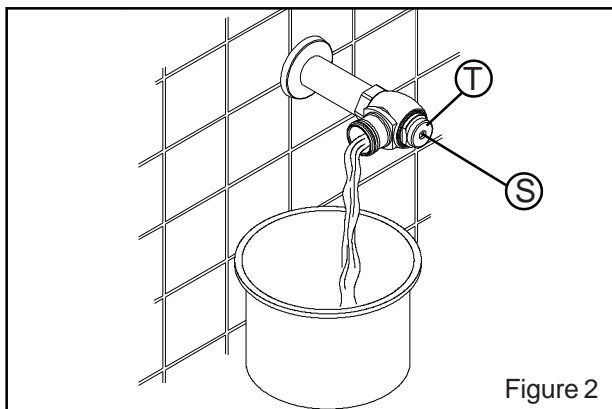
The ZTR valve operates optimally between 35 and 80 psi water pressure (running). The minimum pressure required for the valve to work properly is determined by the fixture selected. Please consult fixture manufacturer for pressure requirements. To protect the chrome finish, **do not use toothed tools to install or service the flush valve.**



1.) Install stop valve assembly

Install stop valve assembly (A) using proper size supply escutcheon and sweat solder adapter kit if applicable. Thread sealing compounds should be used only on this connection. **See Figure 1**

Before the supply water is turned on, be sure all stop valves are closed off tight. The stop valves can be opened and closed by using the adjusting screw (S) located at the center of the stop valve cap (T). Stop valve adjustments can only be made by using the adjusting screw (S). **It is not necessary to remove the stop valve cap (T) when making adjustments. If for any reason it becomes necessary to remove the stop valve cap (T), be certain the water is shut off at the main supply valve. See Figure 2**



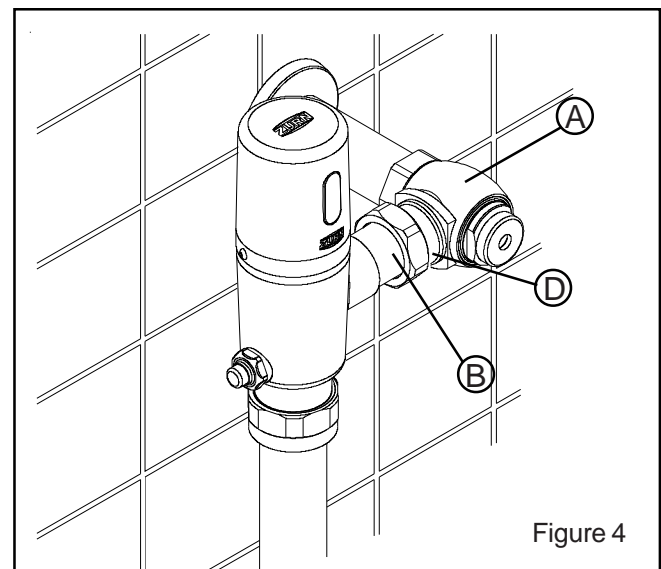
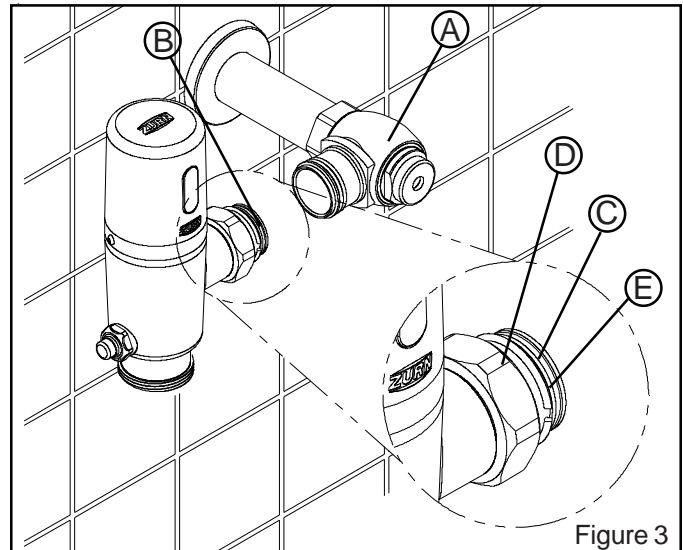
2.) Flush Water Supply

When all stops are connected to the water supply and water pressure is available, the supply piping must be flushed to remove dirt, metal chips, etc., from the system. Due to the small passages and orifices, in the valve it is not possible to flush the piping through the valve.

- Before the valve is installed, open each stop fully for a brief time and catch the water in a two gallon or larger bucket. For multiple installations, start with the stop valve closest to the water supply and work toward the most remote valve.
- Once the lines are flushed, the valve can be installed.

3.) Prepare Flush Valve for Assembly to Stop

Prior to inserting the flush valve tailpiece (B) into stop valve (A), be certain that the O-ring seal (C) is located in O-ring seal groove at the end of the tailpiece and that the locking nut (D) and locking snap ring (E) are located as shown. Care should be taken not to damage the O-ring when inserting the tailpiece into the stop valve. If lubrication is needed, wetting the O-ring with water will be sufficient. Tighten all connections with a non-toothed wrench. **See Figure 3**



4.) Assemble Valve to Stop

Insert the flush valve tailpiece (B) into the stop valve (A) and hand tighten the lock nut (D) to the stop valve. Plumb the entire unit. **See Figure 4**

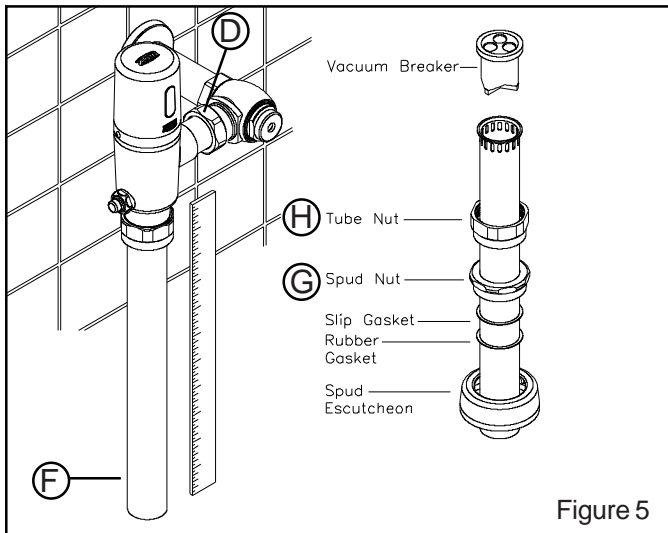


Figure 5

5.) Assemble Vacuum Breaker Tube

Determine the length of vacuum breaker tube (F) required to join the flush valve and fixture spud. Cut the vacuum breaker tube, if required, to this length. Assemble the vacuum breaker tube assembly and spud nut assembly to the flush valve and fixture spud. The minimum rough-in height from the top of the fixture to the centerline of the stop valve is 11.5".

6.) Assemble Spud Nut and Vacuum Breaker Tube Nut

Hand tighten spud nut (G) and vacuum breaker tube nut (H) to fixture and flush valve. Adjust the valve assembly for plumb. Tighten fixture spud nut (G), vacuum breaker tube nut (H) and lock nut (D) with a wrench. Tighten all connections with a non-toothed wrench. Turn on water supply.

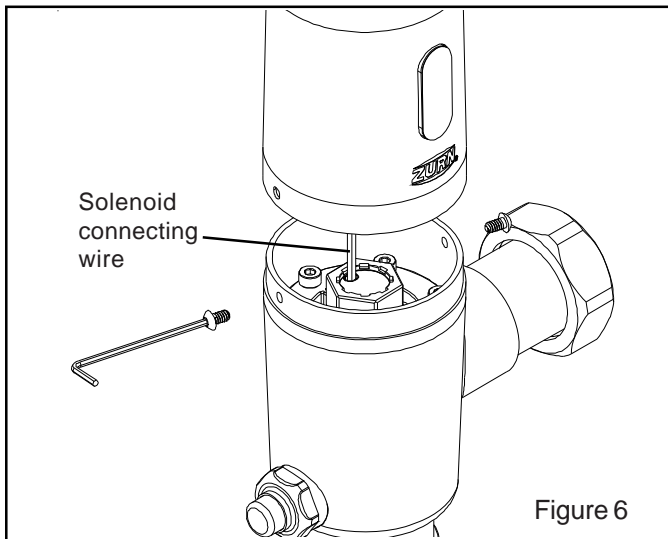


Figure 6

7.) Installation of Batteries

- Using the 2mm allen wrench supplied with the valve in the package containing the stop valve cover, remove the two 6-32 button head screws holding the top assembly in place. (Be sure to place the screws somewhere safe so they do not get lost.) **See Figure 6**
- Remove the top cover carefully and disconnect the solenoid connecting wire. The cover and battery case can now be accessed to install the AA cell batteries provided. **See Figure 7**

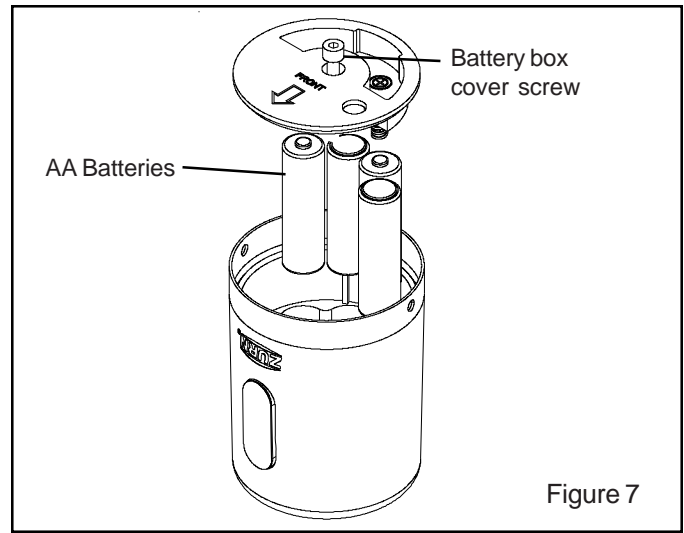


Figure 7

- Loosen the battery box cover screw using the 3mm allen wrench provided to access battery compartment.
- Load the 4 AA alkaline batteries following the battery orientation guide on the outside of battery box cover. **Note that the coil springs always contact the flat (negative) end of the battery.**
- Assemble o-ring to bottom of battery box cover.
- Align battery box cover arrow with sensor face.
- Insert cover to fit battery box guides (Opposite lens)
- Press battery box cover down-check to determine if fully seated.
- While pressing, tighten center screw to positive stop.
- With target in front of sensor, unit should provide a red flash within 60 seconds
- **Reconnect the solenoid wire to the cap assembly. Note that the flats of the two connectors must align.**
- Secure the top assembly to the valve housing using the original screws.
- Reinstall cover to the valve body from which it was removed.

8). Sensor Activation

- Normal activation of the valve will occur when the valve senses an object (person). The LED will blink dimly four times about a second apart. There will be a pause and then a double blink. At this point, the valve has acquired a target.
- When the target leaves the view of the sensor, the valve will actuate within 2-3 seconds.
- The target must remain in the sensing field for at least 6 seconds to charge the valve. This sensing cycle will prevent the valve from flushing needlessly when someone walks by.

• **NOTE: The flush valve is designed for use on a water closet. If the water closet is in a restroom, e.g. men's restroom with a limited number of urinals, the distance should be extended in order to detect stand up users of the water closet. Reference Section 11**

- If special circumstances require the use of the manual override button (MOB), press and hold the MOB for at least 2 seconds in order to assure a complete flush. (The ZTR MOB delivers a manual, mechanical flush which is independent of the sensor and battery voltage.)

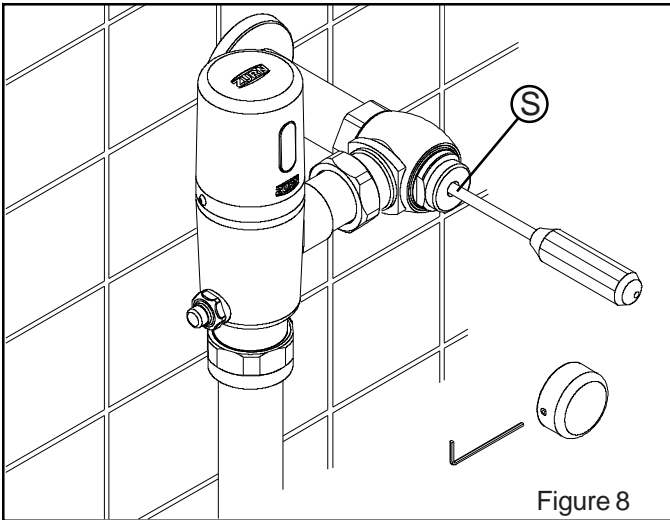


Figure 8

9.) Activate the Flush Valve

The ZTR6200EV flush valve comes preset for both flow volume and sensing distance. Each valve is preset at the factory using water to insure proper function before being packed for shipment.

To set the flush valve for proper operation, open the stop valve completely by using the adjusting screw and flush several times. Gradually adjust the stop valve, using the adjusting screw, so that the rate of water flow into the fixture is not excessive, yet is sufficient enough to adequately evacuate the waste. The stop cap cover should be secured after final adjustments have been made. **See Figure 8.**

10.) LOW VOLTAGE WARNINGS

- The red LED will flash every 10 seconds once certain low battery levels are reached:
 - a. Low battery level - valve continues to flush. Change batteries to avoid flush valve malfunction – reference Section 13.
 - b. Insufficient solenoid power level – valve no longer flushes – change batteries to reestablish flush valve service.
 - c. Note: battery levels are selected to insure that every time the flush valve operates, there is sufficient battery power to close the flush valve.
- **Reference Section 13 for instructions on replacing the batteries.**

11.) To Change the Sensor Activation Range

The detection / calibration range is the distance an object can be away from the sensor in order to activate the valve. The sensor is factory preset to 33" +/- 3.0". The valve does not have to be disabled in any way to change the detection range. Included with each valve is a Zurn "Magic Magnet" that is used to initiate the auto-calibration mode. If necessary, calibration is accomplished as follows:

1. Place a light color target the desired distance away from the sensor.
2. Place the Zurn "Magic Magnet" on the front of the valve as shown in Figure 10 and move slightly until the LED flashes.
3. The LED will begin to flash consecutively. Once the LED has flashed 4 times, remove the magnet.
4. The LED will continue to flash as it is registering the new target distance. After a total of 10 flashes, the new distance is calibrated.
5. The new calibration should be tested using targets with different color clothing to ensure calibration accuracy.
6. After sensor activation range calibration has been performed, verify that the sensor does not detect stall doors or other reflective surfaces.

12.) Courtesy Flush Function

The courtesy flush feature allows the user to set the time interval between last flush and a bowl freshening/trap exchange flush. The interval choices are (off), 24 hours, 48 hours and 72 hours. The factory setting is off (0 hrs). Dip switches 2 and 3 control this function. The settings are achieved by positioning 2 dip switch toggles per figure 9. Please note that the remaining dip switch toggles are preset at the factory. See Figure 9.

13.) Battery Replacement

- Using the 2mm allen wrench supplied with the valve, remove the two 6-32 button head screws holding the top assembly in place. (Be sure to place the screws somewhere safe so they do not get lost.) **See Figure 6**
- Remove the top cover carefully and disconnect the solenoid wire connector from the cap assembly connector. Always pull on the connector and never the wires. The cover and battery case can now be accessed to change the batteries.

See Figure 7

- **NOTE: the sensor contained in the cover and battery case has been specially matched to the valve body to achieve the specific flow volume. The top cap assembly should be returned to the specific valve after battery installation & battery replacement.**
- Loosen the battery box cover by unscrewing the cover screw using the 3mm allen wrench provided to access the battery compartment.
- Remove and discard the spent batteries.
- If the sensor will not activate the flush valve at the time of the battery replacement, a sensor reset is required:
 - Follow the instructions on the battery compartment cover.
- Load the 4 AA alkaline batteries following the battery orientation guide on the outside of battery box cover. **Note that the coil springs always contact the flat (negative) end of the battery.**
- Assemble the o-ring to the bottom of the battery box cover.
- Align the battery box cover arrow with the sensor face.
- Insert the cover to fit the battery box guides (opposite lens).
- Press and hold battery cover against battery box – determine if the battery cover is seated.
- Tighten cover screw to positive stop.
- With target in view of sensor, the sensor should flash within 60 seconds.
- Insert the solenoid wire connector into the cap assembly. Note that the flats of the two connectors must align.
- Secure the top assembly to the valve housing using the original screws.

14.) 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.**

Courtesy Flush Settings (para 12)

Courtesy Flush	Dip Switch	
Interval hours	2	3
0 – factory setting	On	On
24	On	Off
48	Off	On
72	Off	Off

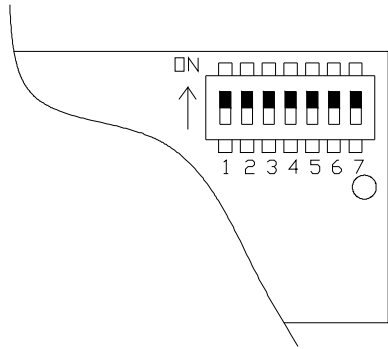


Figure 9

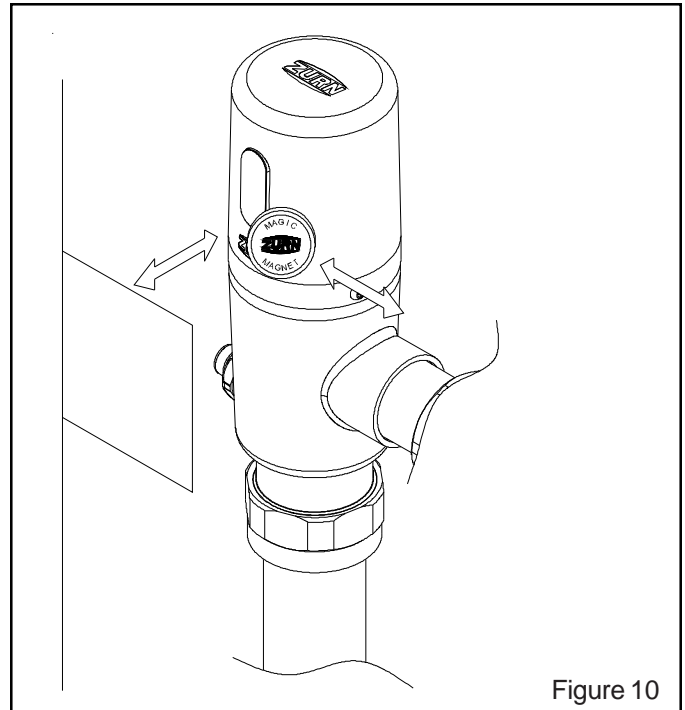


Figure 10

TROUBLE SHOOTING GUIDE

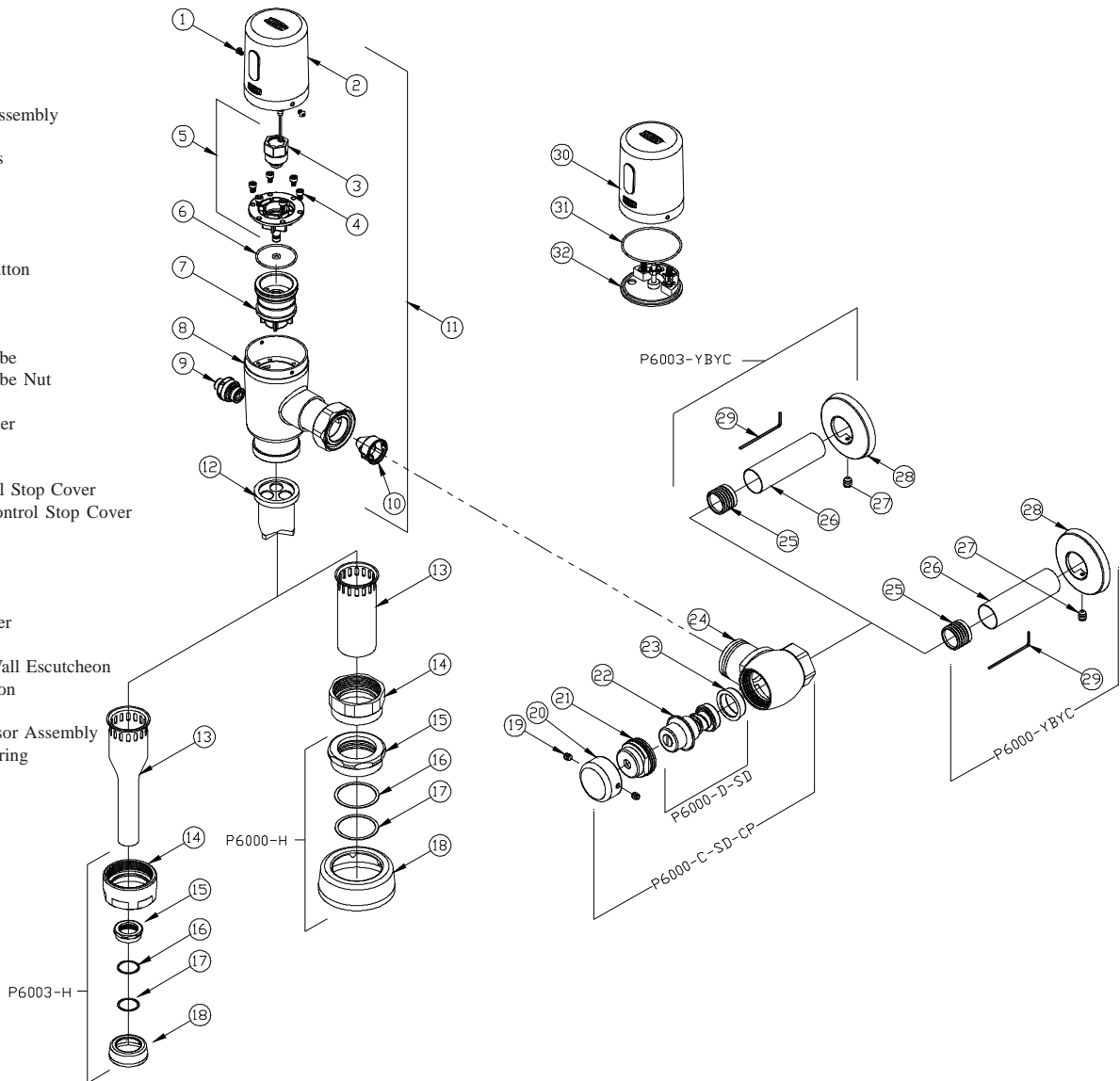
Problem	Indicator	Cause	Solution
Red sensor flash every 10 seconds	Sensor flashes (red) every 10 seconds	Low battery voltage indication	Replace batteries – reference section 13.
Valve Does Not Flush	Sensor flashes (red) every 30 seconds	Continuous target detection	Identify and remove target from sensor field
		Dirty, Scratched or Damaged Sensor Lens	Inspect & Clean Lens; if damaged, replace sensor
	No "10 second red sensor flash" and No "30 second red sensor flash" and Target detected but failed to flush upon target removal	Battery level too low to activate full flush – sensor shuts down valve to avoid open flush	Replace batteries & reset sensor – reference section 13.
		Dirty Lens	Clean lens
		Sensor failure	Replace sensor & batteries
	Target detected but fails to flush upon target removal	Loose or damaged Solenoid Connection	Re-insert / repair solenoid to sensor connection
		Stuck Solenoid Plunger	Remove solenoid – inspect, repair and clean plunger. Insure spring is vertical. Use scale removal material if needed.
No Target detection with target in range	Range too short	Re-calibrate range	
	Dead batteries	Replace batteries	
	Sensor Failure	Replace sensor	
Valve Does Not Shut Off Water	Normal Target detection (With or without 10 second flash)	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 Replace Solenoid Assembly
		Stuck Plunger	Remove Solenoid – inspect & repair & clean plunger. Insure spring is vertical. Use scale removal material if needed.
		Debris in Plunger	Remove Solenoid – inspect & repair & clean plunger. Insure spring is vertical. Use scale removal material if needed.
		Piston Kit Clogged	Replace Piston Kit
		Piston Kit Gasket Damaged	Replace Piston Kit
		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
		Electronics Failure	Replaced Valve Cap Assembly



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 O-ring
32. Battery Cover



Valve and Components	Product No.
Valve Housing, Items 8 & 9	PTR6200-HSA
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
Solenoid Replacement Kit, Item 5	PTR6200-M
Piston Kit (1.28/1.6 GPF), Item 7	PTR6200-EC
Piston Kit (0.5/1.0 GPF), Item 7	PTR6203-EU
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

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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