

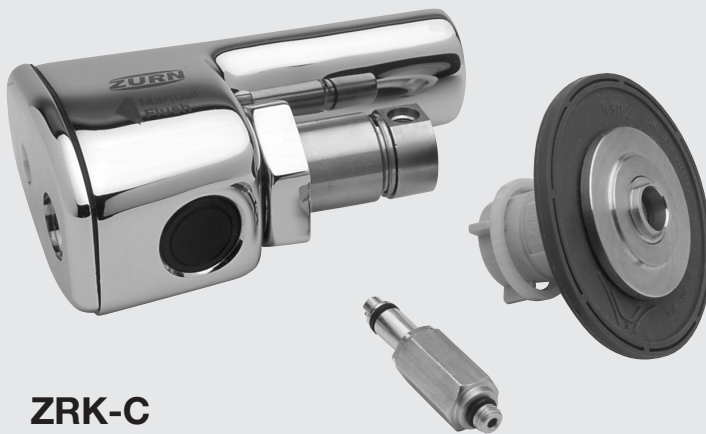


AquaSense® AV ZRK Series

Sensor-Operated, Battery-Powered
Retrofit Flushometer Kit

Installation, Operation,
Maintenance, and Parts Manual

Patented and Patents Pending



ZRK-C



Sensor-Operated Retrofit Closet/Urinal Systems

- ZRK-C-4.5
- ZRK-C-3.5
- ZRK-C-1.6
- ZRK-U-3.0
- ZRK-U-1.5
- ZRK-U-1.0



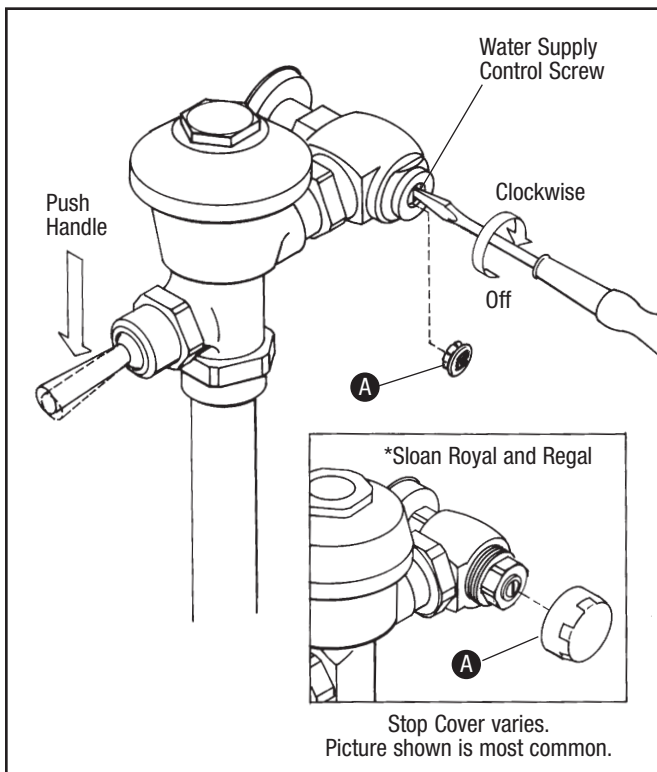
ZRK-U



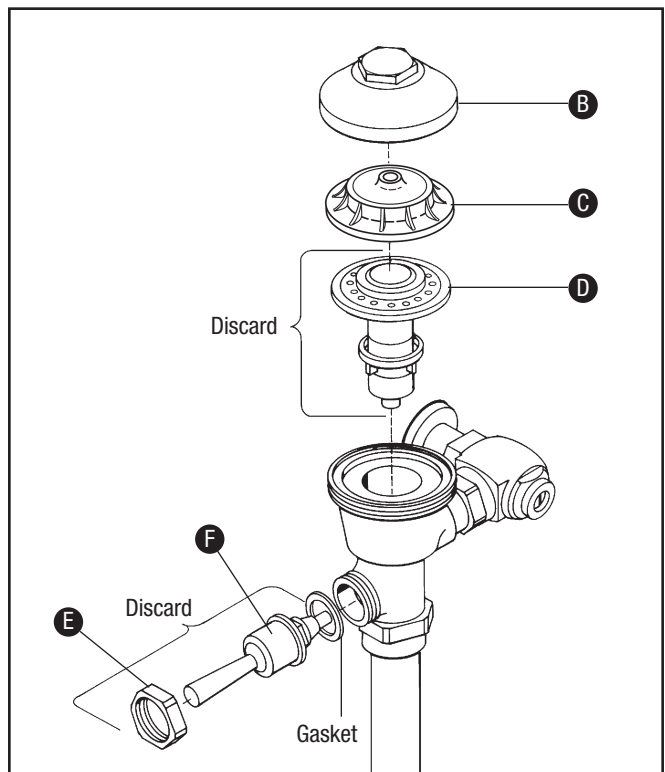
This product is designed to be used in existing restrooms upgrading to sensor operation. Manual flush valves of the Zurn Aquaflush and Sloan Royal/Regal design can be converted into a sensor-activated automatic flush valve in a matter of minutes.

LIMITED WARRANTY

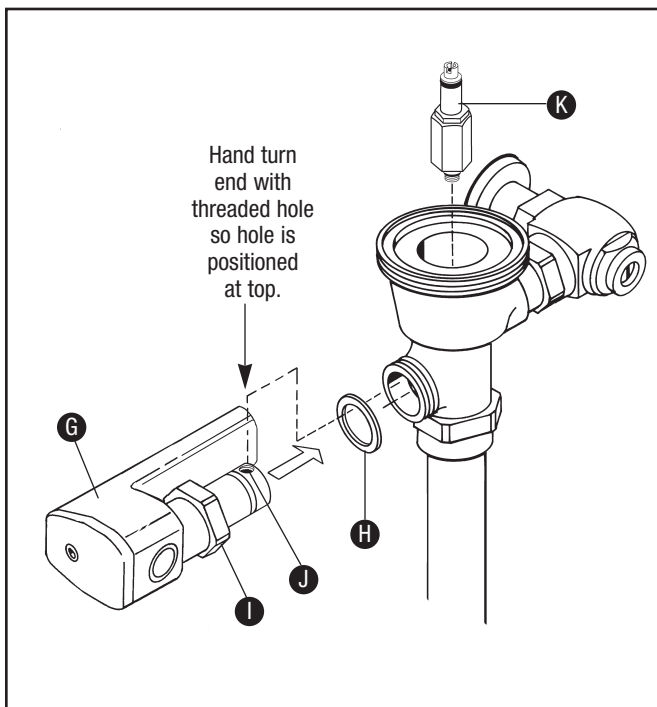
All goods sold hereunder are warranted to be free from defects in material and factory workmanship for a period of three years from the date of purchase. Decorative finishes warranted for one year. We will replace at no cost goods that prove defective provided we are notified in writing of such defect 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.



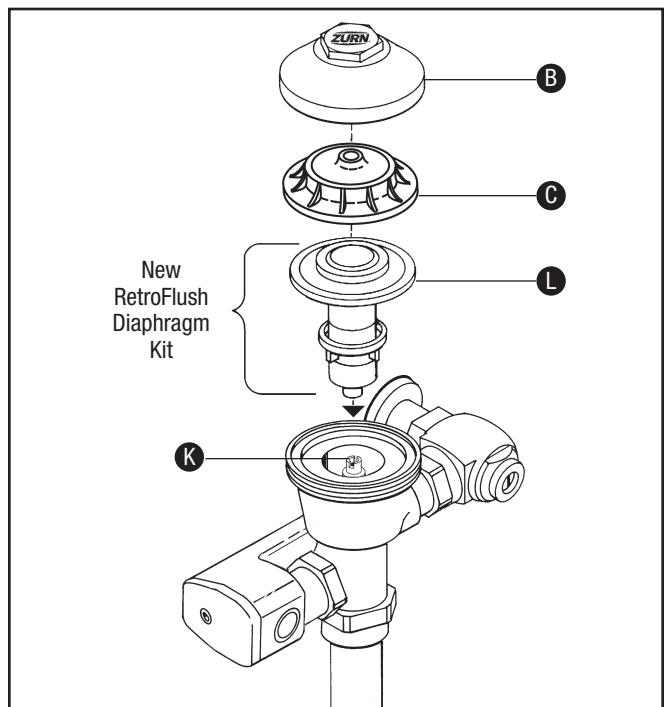
1 Remove control stop cover button **A** or cover **A** and use a slotted screwdriver to close water supply control screw (clockwise rotation). Push handle to relieve pressure in the flushometer's upper chamber and to assure water is completely shut off. Water supply control screw **must be** turned tight to shut off water.



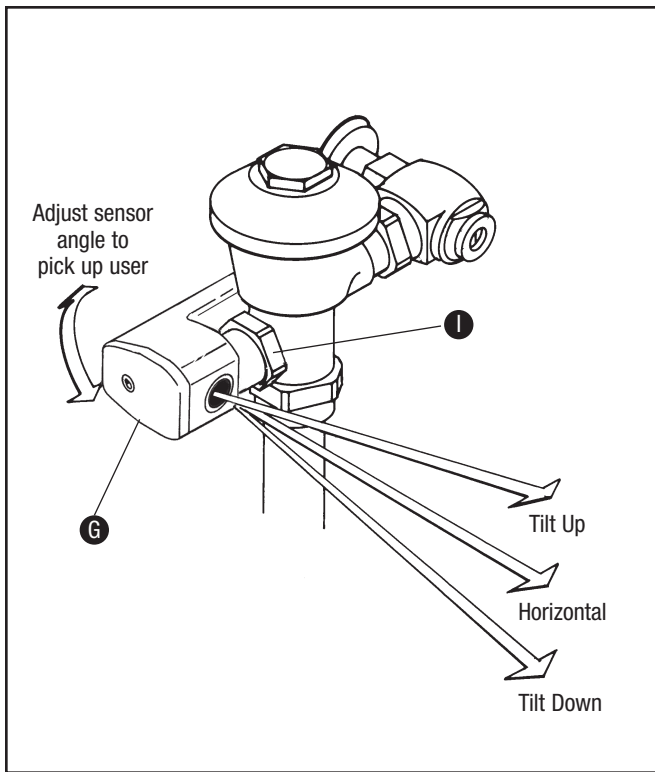
2 Remove existing manual flushometer chrome cover **B** and plastic cap **C** and remove the internal parts assembly **D**. Remove manual flushometer handle nut **E** and handle assembly **F**. Be sure gasket is removed with handle assembly.



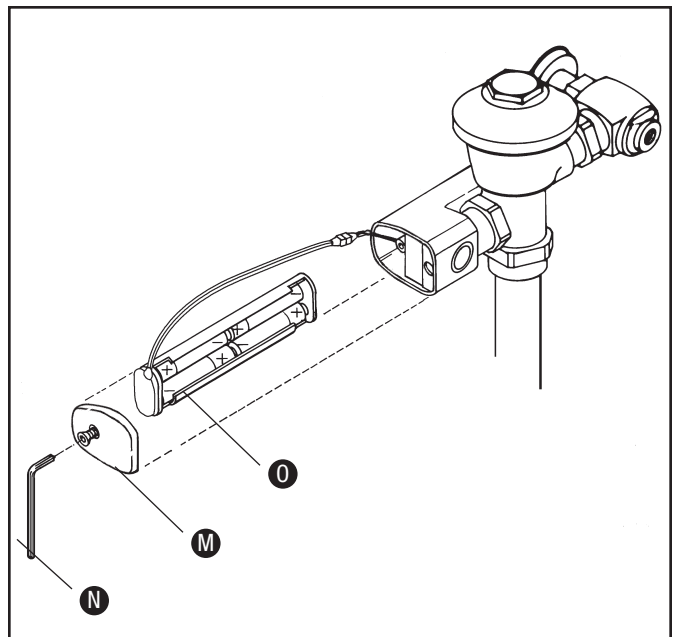
3 Remove blue solenoid valve cap. Attach Zurn RetroFlush sensor assembly **G** with gasket **H** to the handle port of the flushometer. Hand tighten new handle nut **I** – positioning hole **J** to top. Remove blue filtered riser tube cover. Insert Zurn RetroFlush filtered riser tube **K** from the top of the flushometer and screw into solenoid valve – snug with screwdriver. **Do not overtighten.**



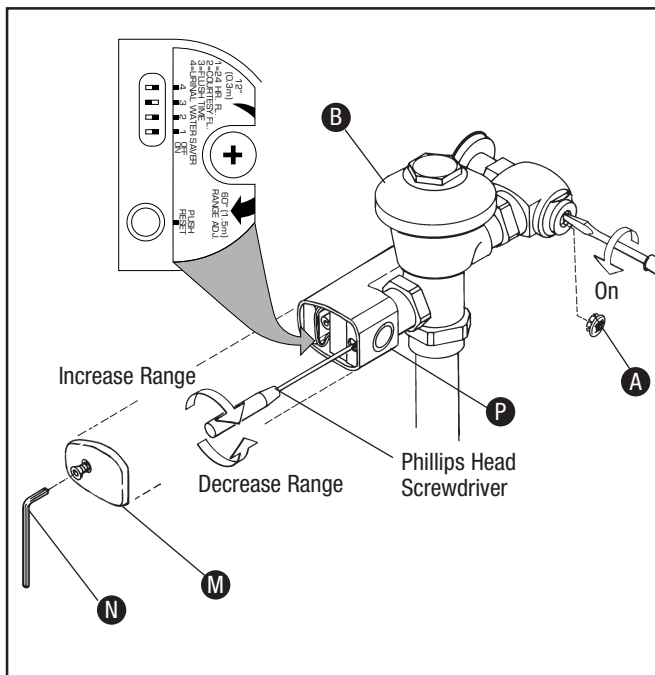
4 Assure riser tube **K** is vertical. Insert new Zurn RetroFlush internal diaphragm kit **L**. Diaphragm kit will slide over riser tube and seat in valve. Replace original plastic cap **C** and fully tighten original brass cover **B**.



5 Aim sensor **G** at desired tilt angle (horizontal, tilt up or tilt down), hold in place and tighten handle nut **L**.



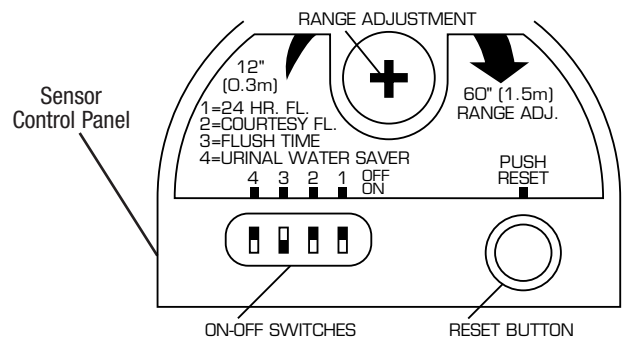
6 Remove electronics access cover **M** with vandal-resistant hex wrench **N** provided. Insert preassembled battery holder **O** into electronics compartment. Connect battery cable connector to electronics cable connector. (**Important: Insert non-connector end of battery holder first, as shown.**)



7 Adjust feature settings as desired. The sensor range is factory set. If adjustment is necessary, use a Phillips head screwdriver and turn **gently**. **SEE SENSOR RANGE ADJUSTMENT**. Replace electronics access cover **M** and tighten securely with vandal-resistant hex wrench **N**. Turn water supply on and adjust for proper fixture evacuations. The final setting for urinals should be such that the fixture will not overflow when the valve is actuated in succession. Reinsert stop cover button **A**. Check to assure cover **B** is leak free.

Sensor Range Adjustment

The range is factory set for urinal or closet applications. If necessary, the sensor range can be adjusted. Slowly rotate range adjustment clockwise to increase range and counterclockwise to decrease range. The range adjustment will stop at minimum and maximum settings. Do not turn beyond these stops. For ten minutes after battery installation, a blinking red light in sensor window **P** will appear when an object is in view. For an additional ten minutes of blinking, push reset button. Stand in front of sensor and move forward and backward to determine range.



Option Setting

Switch 1 - Automatic Flush – The unit will automatically flush 24 hours after the last user. On position = activate; Off position = deactivate.

Switch 2 - Courtesy Flush – When an object has been detected for two seconds, the unit flushes then goes into normal mode. On position = activate; Off position = deactivate. (Always press reset button after changing switches.)

Switch 3 - Flush Time – Factory setting

Switch 4 - Urinal Water Saver – reduces flush volume by 40% during periods of continuous usage.

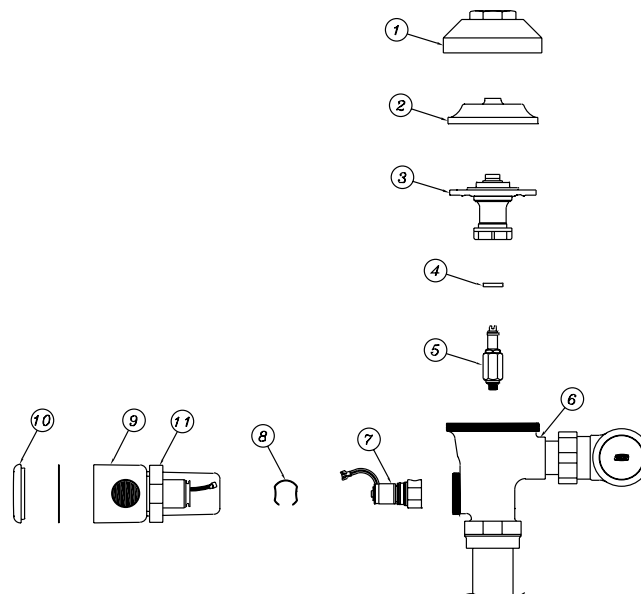
Note: Always press reset button after changing switches.

ZR Flush Valve/ZRK Retrofit Kit

Solenoid Replacement Instructions

Removing The Old Solenoid

1. Turn off water supply to flush valve at shut off (S.O.).
2. Cycle the valve once – flush it to relieve pressure holding the valve closed. If the sound of running water is present, tighten shut off.
3. Remove the main valve body cap (Item #1) from the flush valve (Item #6) using a wrench.
4. Remove the plastic diaphragm cover (Item #2) from the top of the diaphragm assembly.
5. Remove the diaphragm assembly (Item #3) from the flush valve (Item #6).
6. Using a screwdriver, remove the riser tube (Item #5) from the solenoid (Item #7).
7. Remove the RetroFlush sensor assembly (Item #9) from the flush valve handle port using a wrench on the handle nut (Item #11).
8. Remove the solenoid retaining clip (Item #8) and gently pull the solenoid (Item #7) out of the housing. **Note: Pay special attention to the position of the retaining clip ends to ensure proper reassembly into the proper slots.**
9. Disconnect the sensor cable connector from the solenoid. **Note: If the white connector is not fully accessible, then see the special instructions on page 5.**

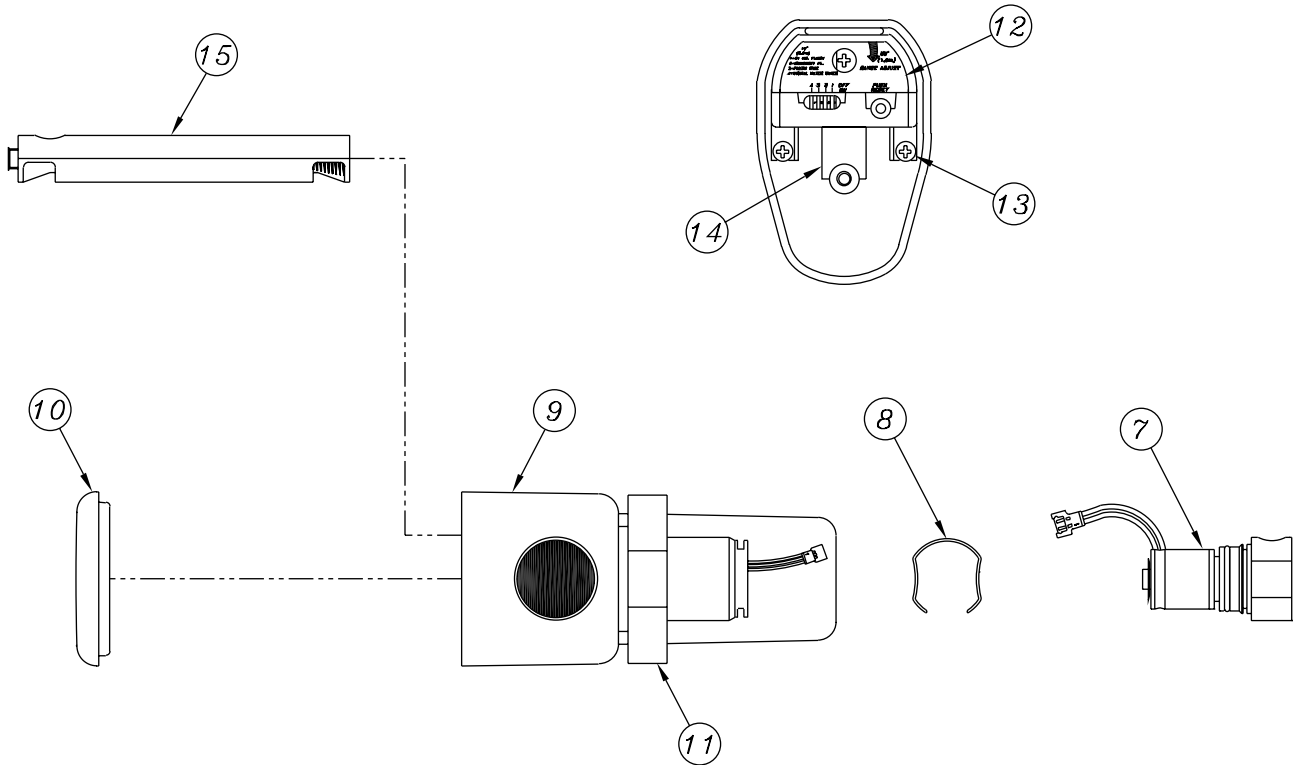


Installing The New Solenoid

1. Connect the cable connector on the solenoid (Item #7) to the sensor cable connector.
2. Lightly lubricate the solenoid O-ring seal with silicone grease provided to prevent damage while reassembling the unit. Insert the solenoid (Item #7) into the housing and install the solenoid retaining clip (Item #8). When installed properly, the end of the solenoid housing is free to rotate. **Note: Be careful not to crimp the battery wires while inserting the solenoid into the housing.**
3. Reinstall the RetroFlush sensor assembly (Item #9) onto the flush valve using a wrench. Be sure the solenoid inlet (threaded hole) is facing upward when installed in the flush valve. If not, remove Item #9 and rotate the solenoid for proper position.
4. Remove old O-ring (Item #4) from the upper part of the riser tube (Item #5). Install new quad ring (Item #4) onto the riser tube (Item #5) making sure the quad ring is not twisted. Lightly lubricate the quad ring with the silicone grease provided.
5. Reinstall the riser tube (Item #5) onto the solenoid (Item #7). Tighten snug with screwdriver, do not overtighten.
6. Reinstall the original diaphragm assembly (Item #3) onto the flush valve (Item #6).
7. Reinstall the original plastic diaphragm cover (Item #2) on top of the diaphragm assembly (Item #3).
8. Reinstall the main valve body cap (Item #1) onto the flush valve (Item #6) using a wrench. Tighten properly.
9. Remove battery cover (Item #10) from RetroFlush sensor assembly (Item #9) with the hex key wrench provided and press reset button located on the sensor module case. Reinstall cover (Item #10).
10. Turn on water supply and cycle flush valve for normal operation. Adjust stop valve for optimal flow to the fixture.

ZR Flush Valve/ZRK Retrofit Kit

Solenoid Replacement Instructions



Special Note On #9 – Removing Old Solenoid Valve

1. If the white connector is not fully accessible then the sensor module must be removed from the case in order to reassemble the solenoid connector to the sensor connector.
2. Remove the battery cover (Item #10) from the RetroFlush sensor assembly (Item #9).
3. Remove the battery case (Item #15) and disconnect from the sensor.
4. Remove the sensor module (Item #12) held in place by two screws (Item #13) and rubber plug (Item #14).
5. To install new solenoid, lightly lubricate the solenoid O-ring seal with silicone grease provided to prevent damage while reassembling the unit. Insert the solenoid (Item #7) into the housing and install the solenoid retaining clip (Item #8). When installed properly, the end of the solenoid is free to rotate.
Notes: Be careful not to crimp the battery wires while inserting the solenoid into the housing. Also, be sure the blue and gray wires of the solenoid valve extend into the sensor module cavity of the housing (Item #9).
6. Connect the sensor module blue and gray wires to the solenoid valve blue and gray wires and reinstall the sensor module.
Note: Be very careful not to crimp the wires when reinstalling the sensor module. Replace the two screws (do not overtighten) and rubber plug holding the sensor module in place.
7. Replace the battery pack and reconnect to the sensor.
8. Continue with Step 3 and beyond under “Installing The New Solenoid” on page 4.

Parts Replacement Guide

Covers

Outside Cover – Chrome Plated (11)
 Inside Cover (12)

Product No.

P6000-LL
 P6000-L

Replacement Kits

Closet Replacement Kit (14-18, 25, 26, 27)
 Water-Saving Closet Replacement Kit (14-18, 25, 26, 27)
 Low-Consumption Closet Replacement Kit (14-18, 25, 26, 27)
 Urinal Replacement Kit (14-18, 25, 26, 27)
 Water-Saving Urinal Replacement Kit (14-18, 25, 26, 27)
 Low-Consumption Urinal Replacement Kit (14-18, 25, 26, 27)

Product No.

PR6000-EC
 PR6000-EC-WS
 PR6000-EC-WS1
 PR6000-EU
 PR6000-EU-WS
 PR6000-EU-WS1

Replacement Parts – Inside Components

Riser Tube (13)
 Closet Volume Control - 4.5 GpF (25)
 Water-Saving Closet Volume Control - 3.5 GpF (25)
 Low-Consumption Closet Volume Control - 1.6 GpF (25)
 Urinal Volume Control - 3.0 GpF (25)
 Water-Saving Urinal Volume Control - 1.5 GpF (25)
 Low-Consumption Urinal Volume Control - 1.0 GpF (25)

Product No.

PR6000-E13F
 PR6000-EC25
 PR6000-EC25-WS
 PR6000-EC25-WS1
 PR6000-EU25
 PR6000-EU25-WS
 PR6000-EU25-WS1

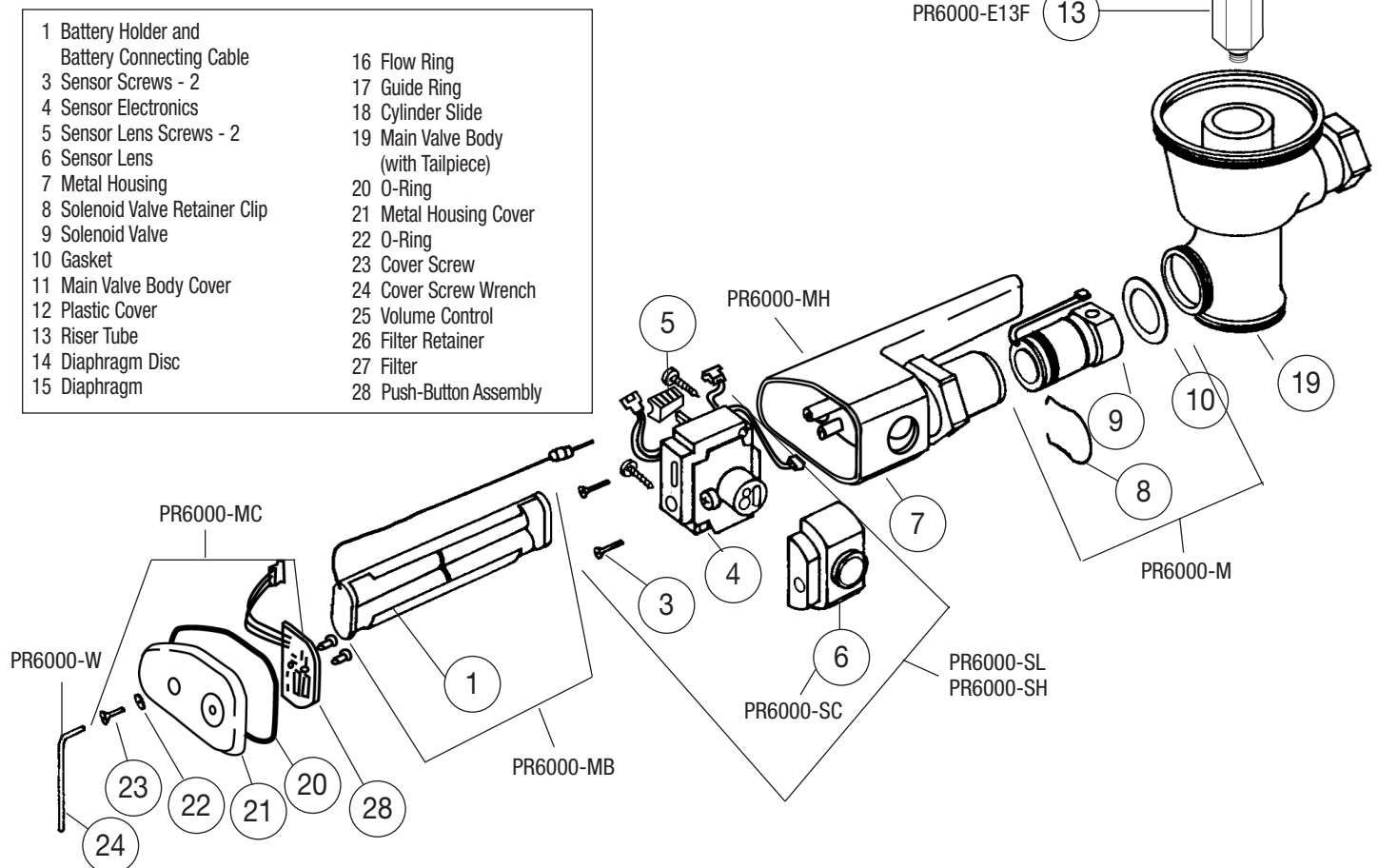
Sensor Module Replacement Kits

Solenoid Valve Replacement Kit (8, 9, 10)
 Sensor Lens Kit (6)
 High Volume Sensor (3, 4, 5, 6)
 Low Volume Sensor (3, 4, 5, 6)
 Battery Holder with Connecting Cable (1)
 Metal Housing (7)
 Metal Cover with Screw and Seals (20, 21, 22, 23)
 Vandal-Resistant Cover Wrench (24)

Product No.

PR6000-M
 PR6000-SC
 PR6000-SH
 PR6000-SL
 PR6000-MB
 PR6000-MH
 PR6000-MC
 PR6000-W

- | | |
|---|-------------------------------------|
| 1 Battery Holder and Battery Connecting Cable | 16 Flow Ring |
| 3 Sensor Screws - 2 | 17 Guide Ring |
| 4 Sensor Electronics | 18 Cylinder Slide |
| 5 Sensor Lens Screws - 2 | 19 Main Valve Body (with Tailpiece) |
| 6 Sensor Lens | 20 O-Ring |
| 7 Metal Housing | 21 Metal Housing Cover |
| 8 Solenoid Valve Retainer Clip | 22 O-Ring |
| 9 Solenoid Valve | 23 Cover Screw |
| 10 Gasket | 24 Cover Screw Wrench |
| 11 Main Valve Body Cover | 25 Volume Control |
| 12 Plastic Cover | 26 Filter Retainer |
| 13 Riser Tube | 27 Filter |
| 14 Diaphragm Disc | 28 Push-Button Assembly |
| 15 Diaphragm | |



SPECIFICATIONS

Sensor Range:	12" to 60" (adjustable)
Battery Type :	AA Alkaline Batteries
Battery Life:	Three years at 4,000 flushes per month
Flush Volume:	ZRK-C-1.6 – 1.6 gallons per flush ZRK-C-3.5 – 3.5 gallons per flush ZRK-C-4.5 – 4.5 gallons per flush ZRK-U-1.0 – 1.0 gallons per flush ZRK-U-1.5 – 1.5 gallons per flush ZRK-U-3.0 – 3.0 gallons per flush
Voltage:	6VDC
Operating Water Pressure:	20-80 psi
Courtesy Flush:	Flush at the beginning of the detection cycle (switchable)
Automatic Flush:	Flush 24 hours after the last use (switchable)
Maintenance Override:	Magnetic flush triggering or inhibiting switch
Indicator Light:	Range Adjustment (first ten minutes) Low Battery Indication Reflective surface in view for greater than 30 minutes
Reset Switch:	To restart ten-minute range adjustment cycle To enter option changes in the electronics after repositioning switches
Operating Temperature:	35°F to 104°F (2°C to 40°C)
Outside Case and Cover:	Chrome-Plated Die Casting

OPERATION

1. Invisible light rays are continually emitted from the RetroFlush sensor.
2. When the user comes into range of the sensor's detection zone (range 12 to 60 inches), the beam is reflected back to the sensor's receiver and changed into a low voltage electrical signal that activates an eight-second time delay circuit. This time delay prevents the unit from activating from a passerby in the restroom. Once this circuit is completed, the output circuit is signaled and continues in a "hold" mode for as long as the user remains within range of the sensor. User must be in sensor's range for at least 10 seconds.
3. After the user moves away from the sensor, the absence of reflected light starts an electrical "one-time" signal that operates the solenoid operator (6VDC) and activates the flushing cycle to flush the fixture. The circuit then automatically resets for the next user.

IMPORTANT NOTE: The Zurn AquaVantage is engineered for quiet operation. Excessive water flow creates noise, while too little water flow may not satisfy the needs of the fixture. Proper adjustment of stop valve is made when:

1. The plumbing fixture is cleansed after each flush without splashing water out from the lip.
2. A quiet flushing cycle is achieved.
3. Sensor units should not be located across from each other or in close proximity to highly reflective surfaces.

After adjustment of the stop adjusting screw, replace the Zurn stop cap screw cover.

CARE AND CLEANING INSTRUCTIONS

Do not use abrasive or chemical cleaners to clean flushometers as they may 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, the flushometer should be protected from splattering of cleaner. Acids and cleaning fluids can discolor or remove chrome plating.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Valve will not operate.	Water supply shut off	Turn on water supply, check control stop and supply.
	Sensor range adjustment set too short	Increase sensor range adjustment
	Expired batteries	Replace batteries
	Difficulty with electronic control module	Check batteries. If problem continues, consult factory.
	Solenoid problem	Replace solenoid
Red light flashes when user is not present.	Obstruction in front of the sensor	Remove the obstruction
	Sensor range set too long Sensor is detecting opposite wall	Shorten sensor range
Red light flashes when user comes into view.	Batteries about to expire	Replace batteries
	Unit is in start-up mode	Light will stop in 10 minutes
	Range adjustment reset button was pressed	Light will stop in 10 minutes
Valve does not shut off.	Dirt in diaphragm bypass hole	Clean bypass hole
	Dirt or debris at valve seat or sealing area	Clean valve seat and clean diaphragm kit
	Solenoid problem	Replace solenoid
Not enough water to fixture.	Wrong RetroFlush unit installed	Install proper RetroFlush unit. Check fixture requirements.
	Control stop improperly adjusted	Adjust control stop
	Diaphragm damaged	Replace diaphragm
	Solenoid problem	Replace solenoid
Too much water for fixture.	Wrong RetroFlush unit installed	Install proper RetroFlush unit. Check fixture requirements.
	Control stop improperly adjusted	Adjust control stop
	Dirt in diaphragm bypass hole	Clean or replace diaphragm
Water drips from chrome cap.	The plastic cover has been cracked by freezing or abuse	Replace plastic cover
	The chrome cap is not tight	Tighten chrome cap.
RetroFlush kit does not fit handle port.	Sloan A-29 copper ring used as handle port gasket	Remove copper ring.

Note: For more detailed trouble shooting, refer to FV1138 or call Customer Service at 1-800-997-3876.



AquaSense Battery
Powered Flush
Valves/Retrofit Kits



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ZURN INDUSTRIES LIMITED 3544 NASHUA DRIVE, MISSISSAUGA, ONTARIO L4V 1L2 PHONE: 905/405-8272 FAX: 905/405-1292