

INSTALLATION INSTRUCTIONS FOR RETROFIT AND COMPLETE VALVE INSTALLATION



8100 Series Complete Flushometer Models

8100 Series Optima Plus valves are complete flushometer valves and ideal for new installations.



RESS Series Retrofit Conversion Kit Models

RESS Optima Plus models are used to convert existing Royal, Regal and Sloan style flushometers to sensor activation.

Optima Plus Water Closet Models can be furnished for the following:

1.6 gpf/6.0 Lpf	For Low Consumption Bowls
2.4 gpf/9.0 Lpf	For 9 Liter European Water Closets
3.5 gpf/13.2 Lpf	For older Water Closets

Optima Plus Urinal Models can be furnished for the following:

0.5 gpf/1.9 Lpf	For Wash Down Urinals
1.0 gpf/3.8 Lpf	For Low Consumption Urinals
1.5 gpf/5.7 Lpf	For older Siphon Jet Urinals
3.5 gpf/13.2 Lpf	For older Blow Out Urinals

Made in the U.S.A.



LIMITED WARRANTY

Unless otherwise noted, Sloan Valve Company warrants this product, manufactured and sold for commercial or industrial uses, to be free from defects in material and workmanship for a period of three (3) years (one (1) year for special finishes, SF faucets, PWT electronics and 30 days for PWT software) from the date of first purchase. During this period, Sloan Valve Company will, at its option, repair, replace, or refund the purchase price of any product which fails to conform with this warranty under normal use and service. This shall be the sole and exclusive remedy under this warranty. Products must be returned to Sloan Valve Company, at customer's cost. No claims will be allowed for labor, transportation or other costs. Damage caused by misuse or improper installation are all excluded from this warranty. This warranty extends only to person or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale. This warranty does not cover the life of the batteries.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.

PRIOR TO INSTALLATION

Prior to installing the Optima Plus flushometer, install the items listed below as illustrated in the Rough-in Diagram. (New installations only.)

- Closet or Urinal fixture
- Drain line
- Water supply line

Important:

- **ALL PLUMBING SHOULD 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.**
- **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.**

The Optima Plus is designed to operate with 15 to 100 PSI (104 to 689 kPa) of water pressure. **THE MINIMUM PRESSURE REQUIRED TO THE VALVE IS DETERMINED BY THE TYPE OF FIXTURE SELECTED.** Consult fixture manufacturer for pressure requirements.

Most Low Consumption water closets (1.6 gallon/6 liter) require a minimum flowing pressure of 25 psi (172 kPa).

TOOLS REQUIRED FOR INSTALLATION

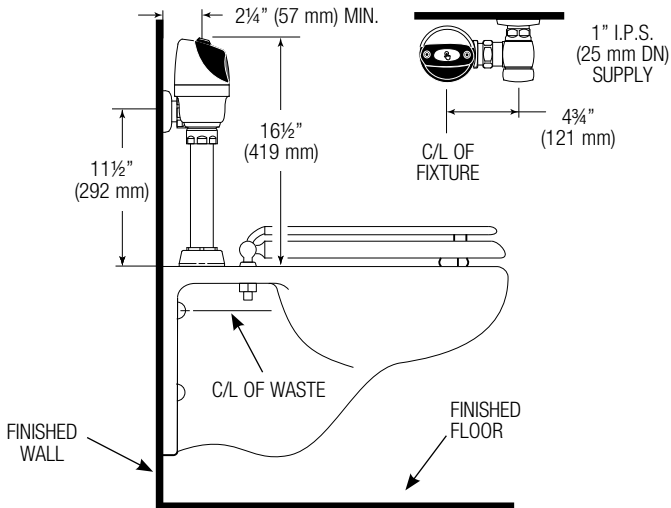
- Slotted screwdriver to adjust control stop.
- Sloan A-50 Super-Wrench™, Sloan A-109 Plier Wrench or smooth jawed spud wrench for couplings.
- Trimpot adjustment screwdriver (supplied) to adjust range, if necessary.
- Strap wrench (supplied) to install Optima Plus to valve body.
- 7/64" hex wrench (supplied) to secure Optima Plus cover to base plate.

VALVE ROUGH-IN

Typical Water Closet Installation

Model 8110/8111

Reference for RESS-C Retrofit

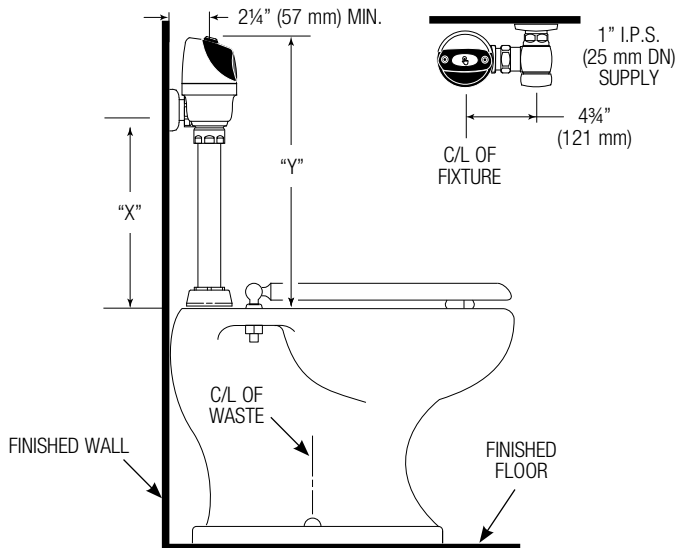


When installing the Optima Plus in a handicap stall:

Per the ADA Guidelines (section 604.9.4) it is recommended that the grab bars be split or shifted to the wide side of the stall.

High Rough-in Water Closet Installation

Models 8113, 8115 & 8116



Model 8115 & 8116 valves are designed for installations where the water supply is roughed-in 24" - 27" (610 mm - 686 mm) above the top of the water closet.

For new installations, Sloan strongly recommends the use of our Model 8111 which has a shorter installation height.

Model	"X"	"Y"
8113	16" (406 mm)	21" (533 mm)
8115	24" (610 mm)	29" (737 mm)
8116	27" (686 mm)	32" (813 mm)

!!! IMPORTANT !!!

With the exception of Control Stop Inlet, **DO NOT** use pipe sealant or plumbing grease on any valve component or coupling!

!!! IMPORTANT !!!

Protect the chrome or special finish of Sloan Flushometers – **DO NOT USE** toothed tools to install or service these valves. Use a Sloan A-50 Super-Wrench™, Sloan A-109 Plier Wrench or smooth jawed spud wrench to secure all couplings. Also see "Care and Cleaning" section of this manual.

!!! IMPORTANT !!!

LAWS AND REGULATIONS PROHIBIT THE USE OF HIGHER FLUSHING VOLUMES THAN LISTED ON FIXTURES OR FLUSHOMETERS.

!!! IMPORTANT !!!

This product contains mechanical and/or electrical components that are subject to normal wear. These components should be checked on a regular basis and replaced as needed to maintain the valve's performance.

!!! IMPORTANT !!!

The Strap Wrench provided with Optima Plus is a convenience tool and is not to be used to remove or install the Flushometer Couplings. Use Strap Wrench **ONLY** to install Optima Plus Locking Ring.

When assistance is required, please contact

Sloan Technical Support at:

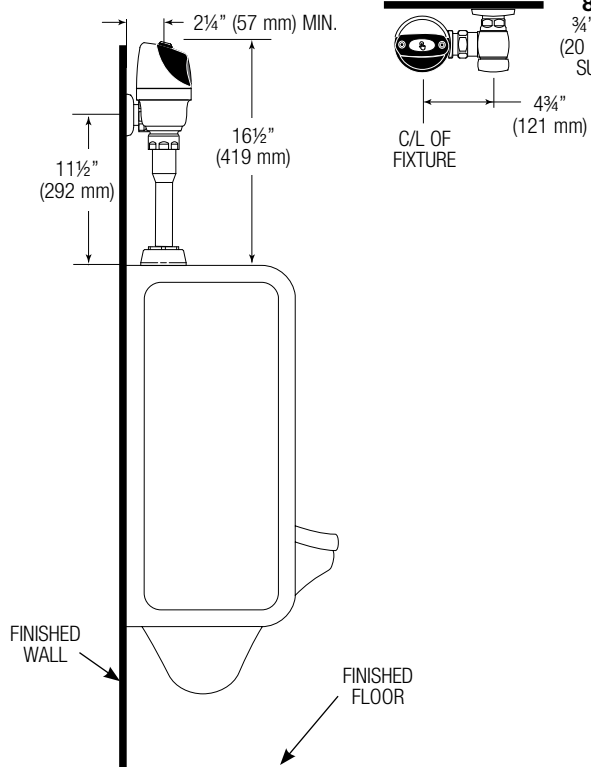
1-888-SLOAN-14 (1-888-756-2614)

or visit us online at: www.sloanvalve.com

Typical Urinal Installation

Models 8180 & 8186

Reference for RESS-U Retrofit



8180

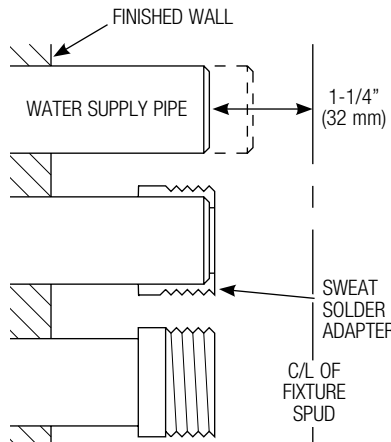
1" I.P.S.
(25 mm DN)
SUPPLY

8186

3/4" I.P.S.
(20 mm DN)
SUPPLY

1 - FOR COMPLETE VALVE INSTALLATION START HERE. FOR RESS RETROFIT INSTALLATION, START AT STEP 6. INSTALL OPTIONAL SWEAT SOLDER ADAPTER (ONLY IF YOUR SUPPLY PIPE DOES NOT HAVE A MALE THREAD)

- A** Measure from finished wall to C/L of Fixture Spud. Cut pipe 1 1/4" (32 mm) shorter than this measurement. Chamfer O.D. and I.D. of water supply pipe.



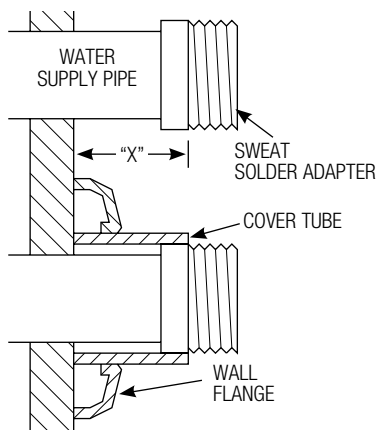
- C** Sweat solder the Adapter to pipe.

!!! IMPORTANT !!!
With the exception of Control Stop Inlet, **DO NOT** use pipe sealant or plumbing grease on any valve component or coupling!

- B** Slide Threaded Adapter fully onto pipe.

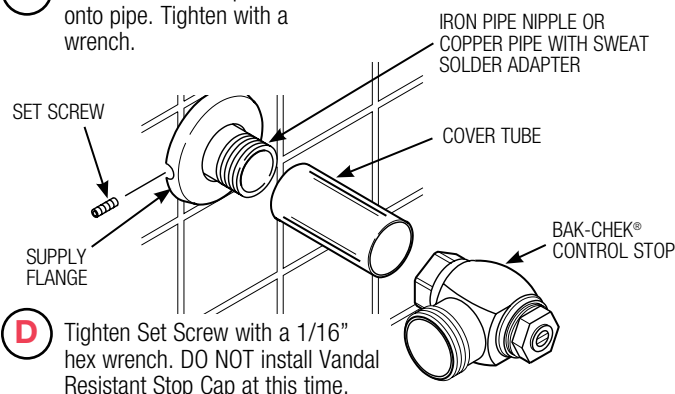
2 - INSTALL COVER TUBE, WALL FLANGE AND CONTROL STOP TO SUPPLY PIPE

- A** Measure from finished wall to first thread of Adapter or threaded supply pipe (dimension "X"). Cut Cover Tube to this length.



- B** Slide Cover Tube over pipe. Slide Wall Flange over Cover Tube until against wall.

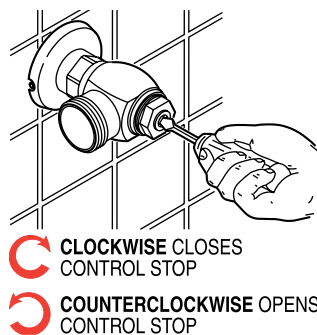
- C** Thread Control Stop onto pipe. Tighten with a wrench.



- D** Tighten Set Screw with a 1/16" hex wrench. **DO NOT** install Vandal Resistant Stop Cap at this time.

3 - FLUSH OUT SUPPLY LINE

- A** Open Control Stop.



- B** Turn on water supply to flush line of any debris or sediment.

- C** Close Control Stop.

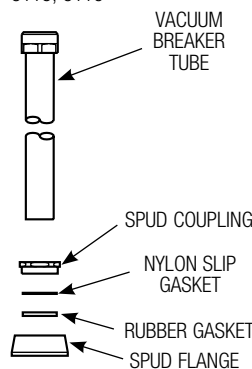
4 - INSTALL VACUUM BREAKER FLUSH CONNECTION

NOTE

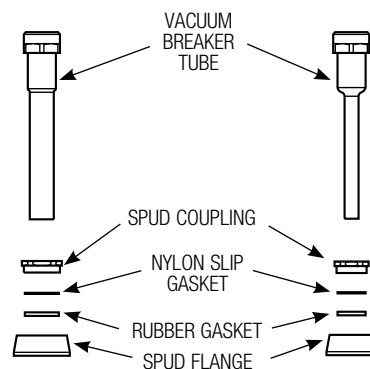
If cutting Vacuum Breaker Tube to size, note that Critical Line (C/L) on Vacuum Breaker must typically be 6" (152 mm) above fixture. Consult Code for details.

- A** Slide Spud Coupling, Nylon Slip Gasket, Rubber Gasket and Spud Flange over Vacuum Breaker Tube.
- B** Insert Tube into Fixture Spud.
- C** Hand tighten Spud Coupling onto Fixture Spud.

MODELS
8110/8111,
8115, 8116



MODEL 8180



MODEL 8186

5 - INSTALL FLUSHOMETER

- A** Lubricate tailpiece O-ring with water. Insert Adjustable Tailpiece into Control Stop. Tighten Tailpiece Coupling by hand.

- B** Align Flushometer directly above the Vacuum Breaker Flush Connection by sliding the Flushometer Body IN or OUT as needed. Tighten Vacuum Breaker Coupling by hand.

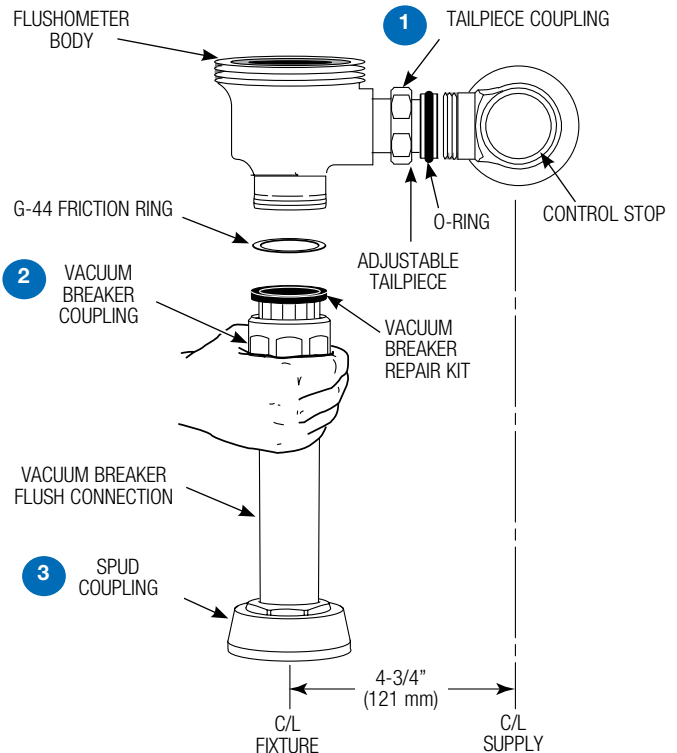


NOTE

Maximum adjustment of the Sloan Adjustable Tailpiece is 1/2" (13 mm) IN or OUT from the standard 4-3/4" (121 mm) (centerline of Flushometer to centerline of Control Stop).

If roughing-in measurement exceeds 5-1/4" (133 mm), consult factory for longer tailpiece.

- C** Align Flushometer Body and securely tighten first the Tailpiece Coupling (1), then the Vacuum Breaker Coupling (2), and finally the Spud Coupling (3). Use a wrench to tighten these couplings in the order shown.

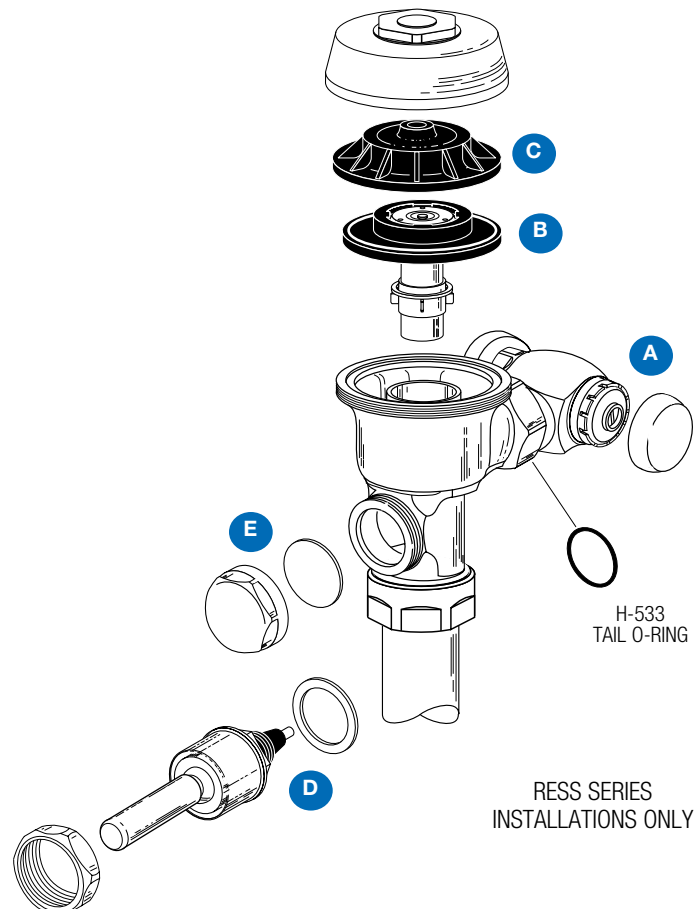


6 - WHEN RETROFITTING AN EXISTING VALVE, START HERE. REMOVE COMPONENTS FROM EXISTING FLUSHOMETER (RESS RETROFIT INSTALLATIONS ONLY)

- A** Remove Control Stop Cap.
- B** Turn off water supply at Control Stop. Push Valve Handle to relieve water pressure.
- C** Remove Outside and Inside Covers and old Inside Parts Kit.
- D** Remove old Handle Assembly and Gasket.
- E** Install Chrome Handle Cap with Gasket to handle opening on Flushometer Body. Tighten Chrome Handle Cap securely.

NOTE

An extra H-533 Tail O-ring is included in the event leakage occurs if the valve is repositioned during the installation of the new Optima Plus. USE ONLY AS NEEDED.

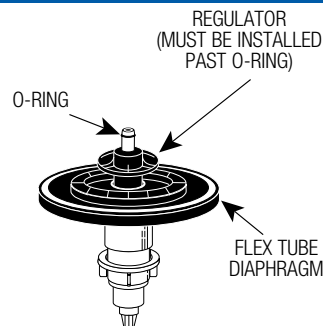


RESS SERIES
INSTALLATIONS ONLY

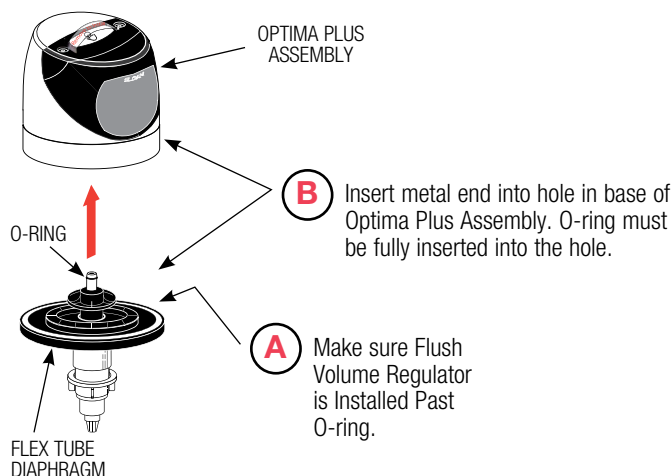
7 - OPTIMA PLUS FLUSH VOLUME

The Flush Volume of the Optima Plus is controlled by the Regulator in the Flex Tube Diaphragm Kit. Regulators are identified by color.

!!! IMPORTANT !!!
**LAWS AND REGULATIONS PROHIBIT THE USE OF
 HIGHER FLUSHING VOLUMES THAN LISTED
 ON FIXTURES OR FLUSHOMETERS.**

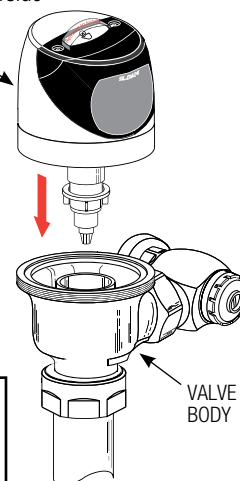


8 - ASSEMBLE FLEX TUBE DIAPHRAGM TO OPTIMA PLUS ASSEMBLY



To facilitate installation, wet the diaphragm assembly (on top or completely).

- C** Push Diaphragm securely against underside of Optima Plus Assembly. Place entire Assembly onto the Valve Body.

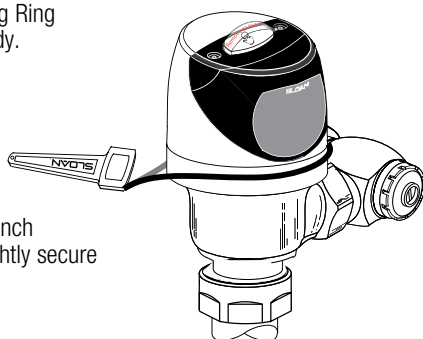


NOTE
 Sensor Lens must face directly forward. Rotating the Sensor to either side will decrease the Sensor's ability to detect a target.

9 - TIGHTEN LOCKING RING

- A** Thread Locking Ring onto Valve Body.

- B** Use Strap Wrench provided to tightly secure Locking Ring.



!!! IMPORTANT !!!
 The Locking Ring must be installed down past the valve body threads by at least one thread. If difficulty is experienced installing the Locking Ring, turn the Locking Ring back and forth, each time working it further down the threads. The Locking Ring will act as a thread chaser in the event there has been a build-up of matter on the threads of the old valve body.

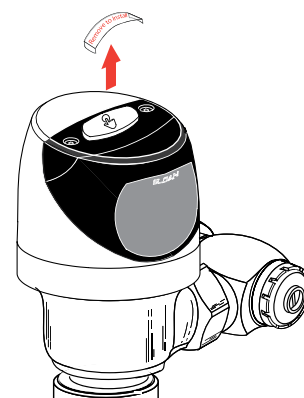
If retrofitting the Optima Plus onto a Zurn valve body, a special Locking Ring must be used (identified by a machined groove around the ring).

Order the Optima Plus with the "Z" variation to receive the unit supplied with this Ring.

10 - REMOVE TAB TO ACTIVATE SENSOR MODULE

- A** Remove the Tab located over the Override Button to activate the Sensor Module.

- B** For the first ten (10) minutes of operation, a Visible Red Light flashes in the Sensing Window of the Optima Plus Flushometer when a user is detected.



11 - TEST SENSOR OPERATION

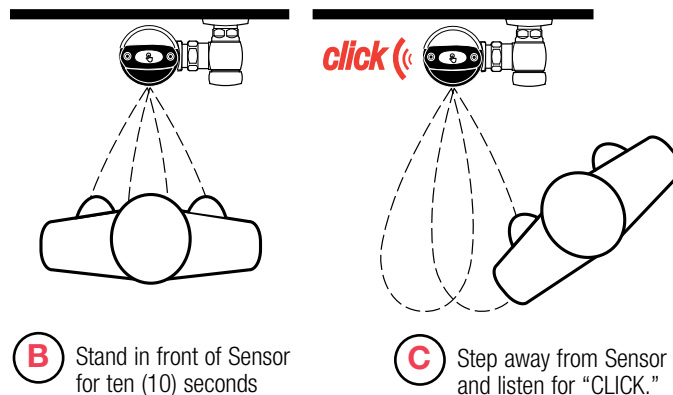
The Optima Plus has a factory set sensing range:

Water Closet Models - 22" to 42" (559 mm to 1067 mm)

Urinal Models - 15" to 30" (381 mm to 762 mm)

The factory setting should be satisfactory for most installations. If a range adjustment is required, refer to the Range Adjustment instructions on this page.

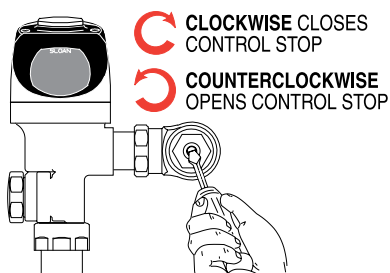
A Test Sensor with Cover in Place.



12 - ADJUST CONTROL STOP AND INSTALL VANDAL RESISTANT STOP CAP

A Open Control Stop COUNTERCLOCKWISE ½ turn from closed position.

B Activate Flushometer by placing hand in front of Optima Plus Sensor Lens for ten (10) seconds (or press override button) and then moving it away.



C Adjust Control Stop after each flush until the rate of flow delivered properly cleanses the fixture.

!!! IMPORTANT !!!

The flushometer 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 is made when plumbing fixture is cleaned after each flush without splashing water out from the lip AND a quiet flushing cycle is achieved.

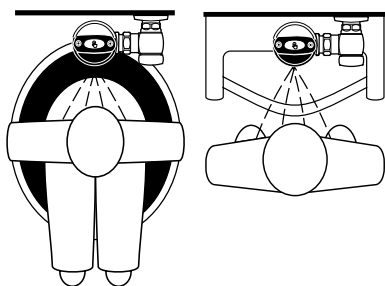
!!! IMPORTANT !!!

The Control Stop should never be opened to the point where the flow from the valve exceeds the flow capability of the fixture. In the event of a valve failure, the fixture must be able to accommodate a continuous flow from the valve.

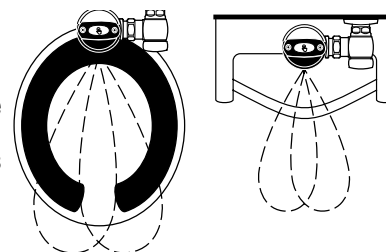
D Install Control Stop Cap onto Control Stop. For RESS retrofit applications, reuse Stop Cap from existing valve. In complete valve installations, a new Stop Cap is provided. For G2 models, follow the instructions packaged with the Free Spinning Vandal Resistant Stop Cap.

OPERATION

1. A continuous, INVISIBLE light beam is emitted from the Optima Plus Sensor.
2. As the user enters the beam's effective range, 22 to 42 inches (559 mm to 1067 mm) for closet installations and 15 to 30 inches (381 mm to 762 mm) for urinal installations, the beam is reflected into the Scanner Window to activate the Output Circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the sensor.



3. When the user steps away, the loss of reflected light initiates an electrical "one-time" signal that activates the flushing cycle to flush the fixture. The Circuit automatically resets and is ready for the next user.



RANGE ADJUSTMENT (ADJUST ONLY IF NECESSARY)

The Optima Plus has a factory set sensing range:

Water Closet Models - 22" to 42" (559 mm to 1067 mm)

Urinal Models - 15" to 30" (381 mm to 762 mm)

The Factory setting should be satisfactory for most installations.

If the range is too short (i.e., not picking up users) or too long (i.e., picking up opposite wall or stall door) the range can be adjusted.

Note: Water does not have to be turned off to adjust range.

Refer to Illustration on Next Page.

Loosen the two Screws on top of the unit. Remove the Override Button. Remove the Rubber Plug from top of Electronic Sensor Module to uncover the Potentiometer.

RANGE ADJUSTMENT PROCEDURE

For the first ten (10) minutes of operation, a Visible Red Light flashes in the Sensing Window of the Optima Plus Flushometer when a user is detected. This Visible Red Light feature can be reactivated after ten (10) minutes by opening and closing the Battery Compartment Door.

(Continued on next page.)

RANGE ADJUSTMENT (ADJUST ONLY IF NECESSARY) - CONTINUED

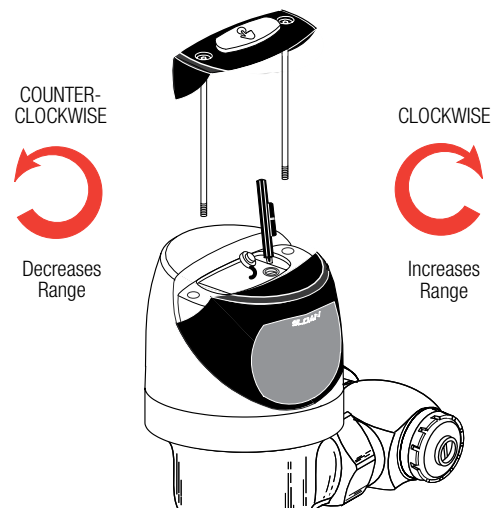
Check the range by stepping toward the unit until the Red Light flashes, indicating the Sensor's maximum detection limit. Adjust the Range Potentiometer Screw located on top of the Sensor Module a few degrees **CLOCKWISE** to increase the range or a few degrees **COUNTERCLOCKWISE** to decrease the range. Repeat this adjustment until the desired range is achieved.

Always Determine the Sensing Range with Metal Cover and Lens Window On Top of the Unit.

!!! IMPORTANT !!!

Adjust in small increments only! Range Potentiometer Adjustment Screw rotates only $\frac{1}{4}$ of a turn; DO NOT over-rotate.

When range adjustment is satisfactory, replace the Rubber Plug. Reinstall Override Button and tighten the two Screws on top of the unit.

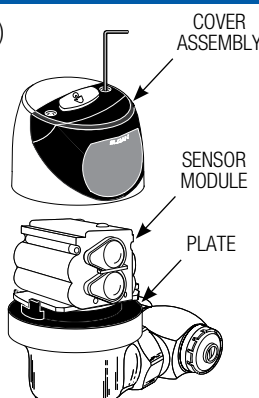


BATTERY REPLACEMENT

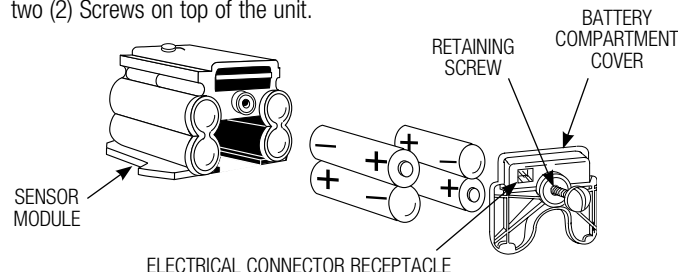
When required, replace batteries with four (4) Alkaline AA-Size Batteries.

Note: Water does not have to be turned off to replace Batteries.

Loosen the two (2) Screws on top of unit. Remove the complete Cover Assembly. Lift the Sensor Module from its Plate. Unplug the Electrical Connector from Battery Compartment Cover. Loosen the Retaining Screw on Battery Compartment Cover and remove Battery Compartment Cover. Install four (4) Alkaline AA-Size Batteries exactly as illustrated.



Install Battery Compartment Cover and secure with Retaining Screw. Make certain that Battery Compartment Cover is fully compressed against Gasket to provide a seal; Do Not overtighten. Plug the Electrical Connector into the Battery Compartment Cover. Reinstall the Sensor Module onto the Plate. Reinstall the complete Cover Assembly onto the Plate. Tighten the two (2) Screws on top of the unit.



TROUBLESHOOTING

1. Sensor Flashes Continuously Only When User Steps Within Range.

- A. Unit in Start-Up mode; no problem. This feature is active for the first ten (10) minutes of operation.

2. Valve Does Not Flush; Sensor Not Picking Up User.

- A. Range too short; increase the range.

3. Valve Does Not Flush; Sensor Picking Up Opposite Wall or Surface, or Only Flushes When Someone Walks By. Red Light Flashes Continuously for First 10 Minutes Even with No One in Front of the Sensor.

- A. Range too long; shorten range.

4. Valve Does Not Flush Even After Adjustment.

- A. Range Adjustment Potentiometer set at full "max" or full "min" setting. Readjust Potentiometer away from full "max" or "min" setting.
- B. Batteries completely used up; replace batteries.
- C. Problem with Electronic Sensor Module; replace Electronic Sensor Module.

5. Unit Flashes 4 Quick Times When User Steps Within Range.

- A. Batteries low; replace batteries.

6. Valve Does Not Shut Off.

- A. Bypass orifice in diaphragm is clogged with dirt or debris, or bypass is clogged by an invisible gelatinous film due to "over-treated" water. Remove flex tube diaphragm and wash under running water.

Note: Size of Orifice in the Bypass is of utmost importance for the proper metering of water by the valve. DO NOT ENLARGE OR DAMAGE THIS ORIFICE. Replace flex tube diaphragm if cleaning does not correct the problem.

- B. Dirt or debris fouling stem or flex tube diaphragm. Remove flex tube diaphragm and wash under running water.
- C. O-ring on stem of flex tube diaphragm is damaged or worn. Replace O-ring if necessary.
- D. Problem with Electronic Sensor Module; replace Sensor Module.

7. Not Enough Water to Fixture.

- A. Wrong Flush Volume Regulator installed in Flex Tube Diaphragm Kit. Install the correct Regulator (see Step 7 of these instructions).
- B. Wrong Optima Plus model installed; i.e., 1 gpf. urinal installed on 3.5 gal. closet fixture. Replace with proper Optima Plus model, or refer to the G2 Optima Plus Conversion Guide to convert existing unit to the proper model.
- C. Enlarged Bypass in Diaphragm. Replace Flex Tube Diaphragm.
- D. Control Stop not adjusted properly. Readjust Control Stop.
- E. Inadequate volume or pressure at supply. Increase water pressure or supply (flow) to valve. Consult factory for assistance.

8. Too Much Water to Fixture.

- A. Wrong flush volume regulator installed in flex tube diaphragm kit. Install the correct regulator (see Step 7 of these instructions).
- B. Control Stop not adjusted properly. Readjust Control Stop.
- C. Wrong Optima Plus model installed; i.e., 3 gpf. model installed on 1.0 or 1.5 gal. urinal fixture. Replace with proper Optima Plus model, or refer to the G2 Optima Plus Conversion Guide to convert existing unit to the proper model.
- D. Dirt in diaphragm bypass. Clean under running water or replace flex tube diaphragm.

Note: The EBV-46-A Beam Deflector is no longer required or available for the G2 Optima Plus.

When further assistance is required,
please contact Sloan Technical Support at:
1-888-SLOAN-14 (1-888-756-2614)
or visit us online at: www.sloanvalve.com

!!! IMPORTANT !!!

LAWS AND REGULATIONS PROHIBIT THE USE OF HIGHER FLUSHING VOLUMES THAN LISTED ON FIXTURES OR FLUSHOMETERS.

PARTS LIST

Item # Part # Description

Items Included with RESS Retrofit and Complete Optima Plus Valves

1	—	Cover/Ring/Sensor Assembly
2A	EBV-142-A	Cover Assembly (G2 Optima Plus models)
2B	EBV-192-A	Cover Assembly (Sloan Optima Plus models)
3	EBV-130-A	Override Button Assembly (includes screws & hex wrench)
	EBV-132-A	Screws (2) and Hex Wrench Only
4	EBV-131	Lens Window Cover
5	EBV-168	Locking Ring
	EBV-172	Locking Ring - for Zurn valves
6	EBV-129-A-C	Electronic Module - Water Closet
	EBV-129-A-U	Electronic Module - Urinal
7	EBV-134	Cover Rest Plate
8	EBV-145-A	Inside Cover Assembly (includes solenoid)
9	EBV-136-A	Solenoid
10A	†	G2 Optima Plus Flex Tube Diaphragm Assembly
10B	†	Sloan Optima Plus Flex Tube Diaphragm Assembly
11	†	Flush Volume Regulator
12	EBV-1017-A	Handle Cap
13	EBV-91	Range Adjustment Tool
14	EBV-22	Strap Wrench
15	EBV-137	7/64" Hex Wrench

Items Included with Complete Optima Plus Valves Only

16	H-633-AA	1" (25 mm) Sweat Solder Kit
	H-636-AA	¾" (19 mm) Sweat Solder Kit
17	H-700-A	1" (25 mm) Bak-Chek® Control Stop
	H-700-A	¾" (19 mm) Bak-Chek® Control Stop
18	H-1010-A	Vandal Resistant Stop Cap
19	EBV-36-A	Valve Body
20A	V-600-AA	1½" (38 mm) Vacuum Breaker
20B	V-600-AA	1¼" (32 mm) Vacuum Breaker (Model 8180)
20C	V-600-AA	¾" (19 mm) Vacuum Breaker (Model 8186)
21A	F-5-AT	1½" Spud Coupling Assembly (Models 8110, 8111, 8115 & 8116)
21B	F-5-AU	1¼" Spud Coupling Assembly (Model 8180)
21C	F-5-AW	¾" Spud Coupling Assembly (Model 8186)

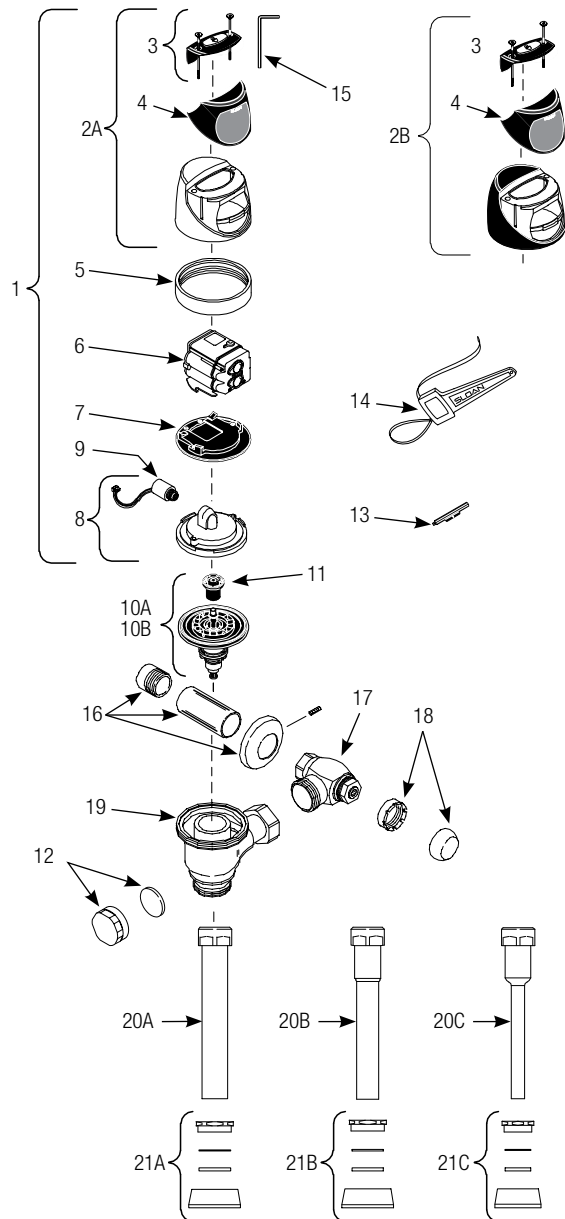
† Part No. varies depending on valve model, please contact your local Sloan Representative or Sloan Technical Support at: 1-888-SLOAN-14 (1-888-756-2614)

CARE AND CLEANING

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 soap and water, then wipe dry with clean cloth or towel. While cleaning the bathroom tile, the Flushometer should be protected from any splattering of cleaner. Acids and cleaning fluids can discolor or remove chrome plating.

Manufactured in the U.S.A. by Sloan Valve Company under one or more of the following patents: U.S. Patents: D598,975; 7,124,997. Other Patents Pending. BAK-CHEK®, PARA-FLO®, PERMEX®, TURBO-FLO®.

The information contained in this document is subject to change without notice.



Optima Plus Valve Models Feature Sloan's Exclusive Flex Tube Diaphragm for the ultimate in valve performance, reliability and chloramines resistance.

SLOAN HEADQUARTERS • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131

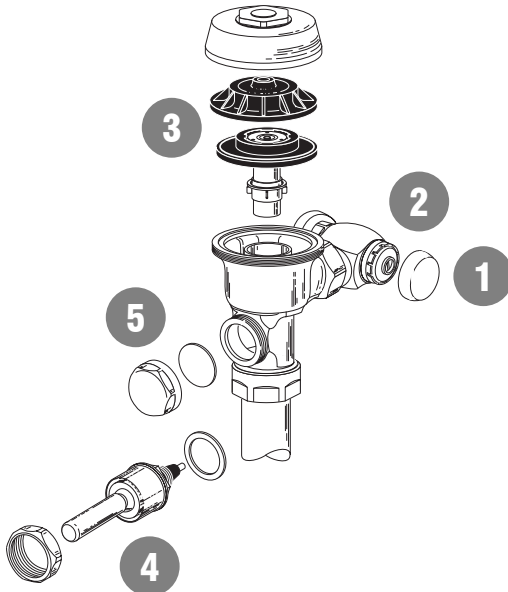
Phone: 1-800-9-VALVE-9 or 1-800-982-5839 • Fax: 1-800-447-8329 or 1-847-671-4380 • www.sloanvalve.com

VISUAL INSTALLATION GUIDELINES FOR SLOAN

G2 OPTIMA^{plus} FLUSHOMETERS



RESS UNIT INSTALLATION



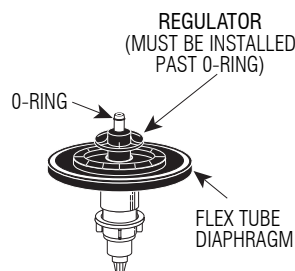
- 1 Remove Control Stop Cap.
- 2 Turn off water supply at Control Stop. Push valve Handle to relieve pressure.
- 3 Remove Outside and Inside Covers and old Inside Parts Assembly.
- 4 Remove old Handle Assembly and Gasket.
- 5 Install new Handle Seal and Handle Cap to Flushometer Valve Body.

G2 Optima Plus Flush Volume For RESS-C and RESS-U Retrofit Models

The Flush Volume of the Optima Plus is controlled by the Regulator in the Flex Tube Diaphragm Kit. Regulators are identified by color.

Reference Chart

Fixture & Flush	Regulator Color
0.5 gpf (1.9 Lpf) Urinal	Green
1.0 gpf (3.8 Lpf) Urinal	Green
1.5 gpf (5.7 Lpf) Urinal	Black
1.6 gpf (6.0 Lpf) Closet	Green
3.5 gpf (13.2 Lpf) Closet	White
4.5 gpf (17.0 Lpf) Closet	White
3.5 gpf (13.2 Lpf) Urinal	White
2.4 gpf (9.0 Lpf) Closet	Blue



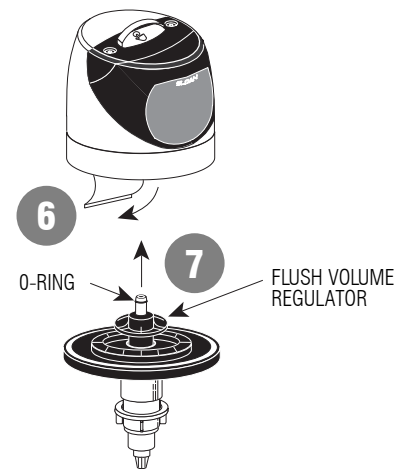
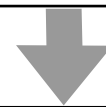
Notes: For a 4.5 gpf (17.0 Lpf) Water Closet flush, use the EBV-1020-A kit with the White Regulator. Cut and remove the A-164 Flow Ring from the Guide.

A 0.5 gpf (1.9 Lpf) Urinal kit can be converted to a 1.0 gpf (3.8 Lpf) by cutting and removing the smooth A-164 Flow Ring from the Guide.

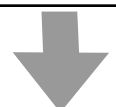
RESS-C and RESS-U G2 Optima Plus valves are supplied with multiple Regulators to address multiple flushing applications. The product is shipped with it's lowest flush volume configuration. To convert the flush to a higher flushing volume, simply change the Regulator.

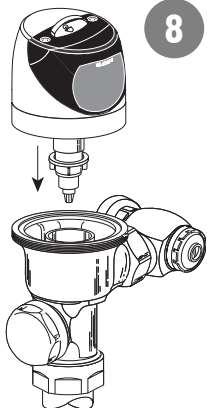
When installing a new Regulator on a Flex Tube Diaphragm Kit, be sure to push the Regulator past the O-ring when Installing.

Note: Never use more water than needed. Low Consumption water closets and urinals will not function properly on excess water.

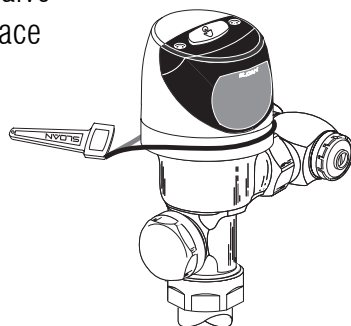


- 6 Remove Tab.
- 7 Make sure Flush Volume Regulator is installed past O-ring. Insert metal end of Flex Tube Diaphragm Assembly into hole at the base of the Sensor Module. O-ring must be fully inserted into hole.



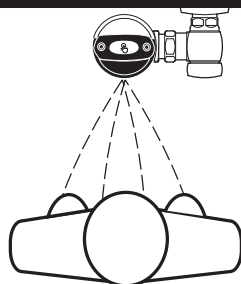
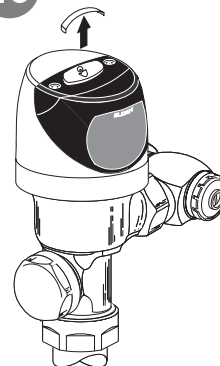


- 8** Install Assembly onto the Flushometer Valve Body. Lens must face directly forward.

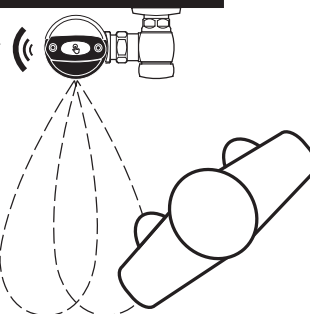


- 9** Tighten with Strap Wrench.

- 10** Pull Tab to activate.

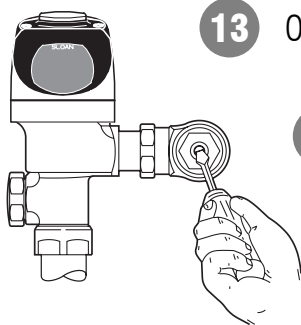


Click ((



- 11** Test Sensor by standing in front of Sensor for Ten (10) Seconds.

- 12** Step away from Sensor and listen for "CLICK."



- 13** Open Control Stop (counterclockwise) $\frac{1}{2}$ turn from closed position.

- 14** Place hand over lens for 10 seconds or press override button to activate.

- 15** Adjust Control Stop to meet the flow rate requirement for proper cleansing of the fixture.

- 16** Install Control Stop Cap.

Activate Flushometer and adjust Control Stop after each flush until rate of flow delivered properly cleanses the fixture. The Control Stop should never be opened to the point where the flow from the valve exceeds the flow capability of the fixture. In the event of a valve failure, the fixture must be able to accommodate a continuous flow from the valve.

GO

- 17** Test your Flushometer!

Range adjustment is factory set and typically does not require adjustment.

If range adjustment is required, refer to the Installation Instructions furnished with the G2 Optima Plus Flushometer.

The information contained in this document is subject to change without notice.

any questions

?

- We recommend that you review our G2 OPTIMA Plus Installation Instruction Manual and Maintenance Guides for complete instructions including Rough-in Dimensions, Specifications, Troubleshooting Guide, and Replacement Parts.
- Call our Installation Engineers for additional information at 1-800-9-VALVE-9 or fax them at 1-800-737-3061.

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SLOAN[®]

FLUSHOMETERS

Maintenance Guide • SENSOR OPERATED VALVES



FOR USE WITH SLOAN'S ORIGINAL OPTIMA[®] PLUS FLUSHOMETER PRODUCED FROM 1992 - 2003 AND REGAL PRO[®] OPTIMA PLUS PRODUCED AFTER MAY, 2003

The Sloan Valve Company introduced its OPTIMA *Plus* Battery Operated Sensor Flushometer in 1992 revolutionizing the flushing of water closets and urinals. In both new construction and retrofit applications the use of the OPTIMA *Plus* has become the standard method for many facilities to improve restroom hygiene and ensure handicap accessibility compliance.

In May, 2003 Sloan introduced the G2[®] OPTIMA *Plus*.

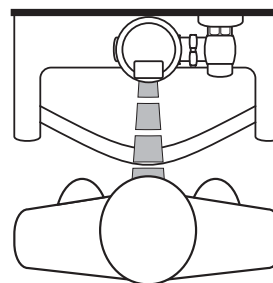
The Sloan OPTIMA *Plus* automatic battery powered Flushometer relies on an infrared sensor to detect a user and activate a flushing cycle. No physical contact with the Flushometer surface is necessary, assuring sanitary protection. OPTIMA *Plus* Flushometers are ADA compliant devices and are available in both Royal[®] and Regal[®] Flushometer models.



**ORIGINAL
OPTIMA PLUS
FLUSHOMETER
AND REGAL PRO[®]
OPTIMA PLUS**



**G2[®] OPTIMA PLUS
FLUSHOMETER**



The G2 OPTIMA *Plus* builds on the success of the original product and offers many technological advancements to further improve on performance and reliability expected of sensor operated plumbing. In addition to a new aesthetic design, the G2 OPTIMA *Plus* features a new state-of-the-art electronic and optical package and a unique Solenoid Operator that keeps the moving components of the Solenoid completely isolated from the water supply. This ensures long life and low maintenance regardless of local water conditions.

The G2 OPTIMA *Plus* replaces the original OPTIMA *Plus* product, which was phased out of production in mid 2003. Regal Pro OPTIMA *Plus* Valves produced after May, 2003 include G2 Interior Components with the old style OPTIMA *Plus* Cover.

Many of the new technologies developed for the G2 have been integrated into the repair parts available for the older OPTIMA *Plus* product. This Maintenance & Repair Guide reflects these new components and includes crossover information for the old components.

Use this Maintenance & Repair Guide for OPTIMA *Plus* Valves produced from 1992 - 2003 and Regal Pro Optima *Plus* Valves produced after May, 2003 only.

For the G2 OPTIMA *Plus*, use Maintenance & Repair Guide #0816456.

If further assistance is required, please contact the Sloan Valve Company Installation Engineering Department at:

Phone: 1-888-SLOAN-14 (1-888-756-2614)

Email: productsupport@sloanvalve.com

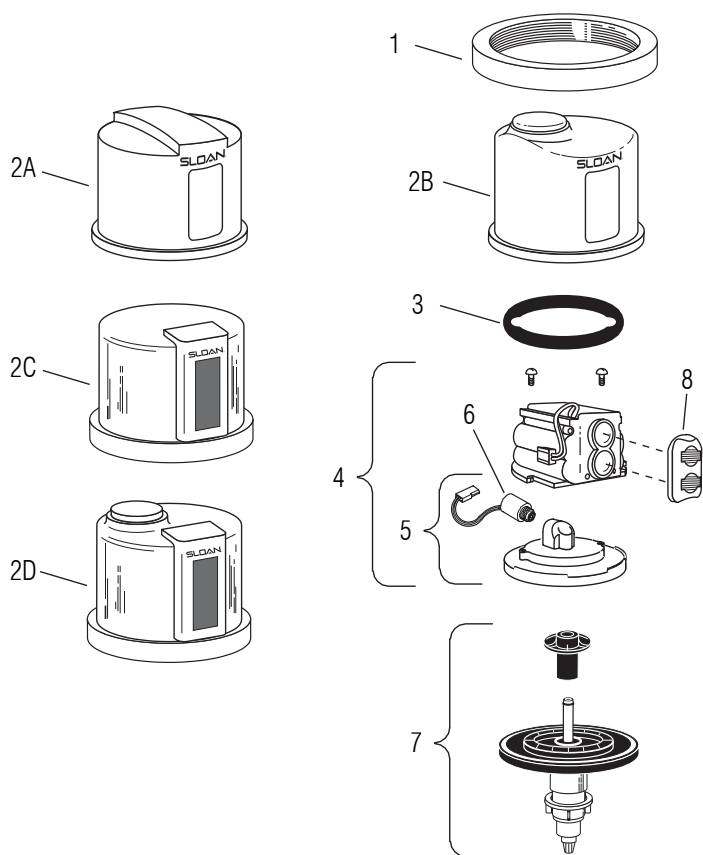
The Flushometer is triggered by means of an active infrared Sensor. The OPTIMA *Plus* Sensor emits a continuous invisible light beam. When a user enters the beam's effective range, the beam is reflected into the OPTIMA *Plus* Scanner Window. The user is now detected. After the user moves out of the effective range of the Sensor, a signal is sent to the Flushometer Solenoid and, after appropriate arming and/or flush delays, the flush cycle is initiated.

LIMITED WARRANTY

Sloan Valve Company warrants its Flushometer Products to be made of first class materials, free from defects of material or workmanship under normal use and to perform the service for which they are intended in a thoroughly reliable and efficient manner when properly installed and serviced, for a period of three years (one year for special finishes) from date of purchase. During this period, Sloan Valve Company will, at its option, repair or replace any part or parts which prove to be thus defective if returned to Sloan Valve Company, at customer's cost, and this shall be the sole remedy available under this warranty. No claims will be allowed for labor, transportation or other incidental costs. This warranty extends only to persons or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.

**For all Optima Plus produced from 1992 - 2003
And Regal Pro Optima Plus produced after May, 2003**



SENSOR MODULE COMPONENT PARTS

Item No.	Code No.	Part No.	Description
1.	0325804	EBV-14	Locking Ring
	3325524	EBV-31-A	Locking Ring for Zurn Valve Bodies
2A.	0325806	EBV-11	Cover (Urinal)
2B.	3325538	EBV-38-A	Cover w/Override Button (Water Closet)
2C.	3325012	EBV-55-A	Metal Cover Assembly (Urinal)
	3325017	EBV-1034-A	Metal Cover Assembly for Zurn Valve Body (Urinal)
2D.	3325013	EBV-60-A	Metal Cover Assembly with Override Button (Water Closet)
	3325016	EBV-1033-A	Metal Cover Assembly w/Override Button for Zurn Valve Body (Water Closet)
3.	5325011	EBV-67	Cover Gasket — 12 per package
4.	SEE CHART BELOW — ELECTRONIC MODULE		
5.	0325814	EBV-21-A	Inside Cover Assembly (Includes Solenoid)
6.	3325462	EBV-144-A	Isolated Solenoid Operator †
7.	SEE CHART on PAGE 3 — Flex Tube Diaphragm Kit		
8.	3325537	EBV-46-A	Beam Deflector ‡

† The new EBV-144-A Isolated Solenoid replaces the Solenoid used with the old style Black EBV-26-A Modules only.

For Blue EBV-146-A G2 Modules, use the EBV-136-A (code #3325453) Isolated Solenoid Operator.

Refer to Page 4 for instructions regarding Solenoid replacement.

‡ Beam deflectors are for use on Black, old style Modules. They are not required (and will not work) on Blue G2 Modules.

ELECTRONIC MODULE ASSEMBLY CHART

The electronic and optical improvements of the G2 OPTIMA Plus have been incorporated into the Electronic Modules for use with older OPTIMA Plus products.

Optima Plus Modules can be identified by color.

Old style Modules are Black and have a wire that runs along the side of the unit.

G2 Modules are Blue and have a wire only on the back of the unit.



ELECTRONIC
SENSOR
MODULE

There are now only two Electronic Module Assembly variations for use with older OPTIMA Plus valves:

- EBV-146-A-U Urinal
- EBV-146-A-C Water Closet

This chart cross references the part numbers and code numbers of our new Electronic Modules over from our old Module numbers.

The EBV-146-A Modules include the Isolated Solenoid, Inner Cover and Electronic Module.

These Modules are for use with older OPTIMA Plus and Regal Pro OPTIMA Plus Valves only. Consult Maintenance & Repair Guide #0816456 for G2 OPTIMA Plus Electronic Modules.

Description	USE		TO REPLACE	
	New Part No.	Code No.	Old Part No.	Code No.
Electronic Module — 0.5 gpf/1.9 Lpf Urinal	EBV-146-A-U	0325177	EBV-26-A-U-0.5	3325039
Electronic Module — 1.0 gpf/3.8 Lpf Urinal			EBV-26-A-U-1.0	3325540
Electronic Module — 1.5 gpf/5.7 Lpf Urinal			EBV-26-A-U-1.5	3325541
Electronic Module — 3.5 gpf/13.2 Lpf Urinal			EBV-26-A-U-3.5	3325543
Electronic Module — 1.6 gpf/6.0 Lpf Closet	EBV-146-A-C	0325176	EBV-26-A-C-1.6	3325542
Electronic Module — 2.4 gpf/9.0 Lpf Closet			EBV-26-A-C-2.4	3325643
Electronic Module — 3.5 gpf/13.2 Lpf Closet			EBV-26-A-C-3.5	3325544
Electronic Module — 4.5 gpf/17.0 Lpf Closet			EBV-26-A-C-4.5	3325545

Note: EBV-26-A Modules are no longer available. Use the EBV-146-A Module shown.

DIAPHRAGM INSIDE PARTS KITS

FLEX TUBE DIAPHRAGM ASSEMBLY

In early 2003 Sloan introduced the Flex Tube Diaphragm kit into the OPTIMA Plus. This design completely replaced the old OPTIMA Plus Diaphragm Kit that featured the metal shaft with the Quad Ring. This change further improved the reliability of the OPTIMA Plus as it replaced a wearable dynamic seal (the Quad Ring) with a non-moving static O-ring seal.

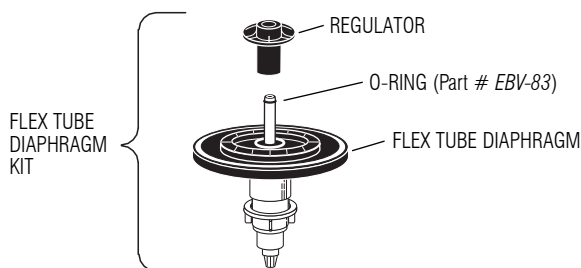
The Flex Tube Diaphragm Kit also features Sloan's exclusive Dual Filter Diaphragm. The Dual Filter Diaphragm helps to protect the valve from water bourn sediment that can cause the valve to stick open and run on. The Dual Filter diaphragm is also made from Sloan's Permex Synthetic Rubber material for resistance against chloramines and other water treatment chemicals.



FLEX TUBE DIAPHRAGM INSIDE PARTS KIT (INTRODUCED FEB., 2003)

The Flex Tube Diaphragm can be used to replace all generations of Sloan OPTIMA Plus Diaphragm Kits. The same Flex Tube Diaphragm kits are used in the G2 OPTIMA Plus valve.

FLEX TUBE DIAPHRAGM KITS



5325056 EBV-83 O-ring — 6 per package

APPLICATION	USE			TO REPLACE	
	FLEX TUBE DIAPHRAGM KIT †			DIAPHRAGM KIT W/ QUAD RING (OBSOLETE)	
	KIT NO.	COLOR ♦	CODE NO.	KIT NO.	CODE NO.
URINAL-0.5 gpf/1.9 Lpf	EBV-1023-A	GREEN	3325003	EBV-32-A-U-0.5	3325038
URINAL-1.0 gpf/3.8 Lpf ‡	EBV-1022-A	GREEN	3325000	EBV-32-A-U-1.0	3325851
URINAL-1.5 gpf/5.7 Lpf	EBV-1022-A	BLACK	3325000	EBV-32-A-U-1.5	3325818
URINAL-3.5 gpf/13.2 Lpf	EBV-1020-A	WHITE	3325001	EBV-10-A-U-3.5	3325841
CLOSET-1.6 gpf/6.0 Lpf	EBV-1020-A	GREEN	3325001	EBV-10-A-C-1.6	3325850
CLOSET-2.4 gpf/9.0 Lpf	EBV-1021-A	BLUE	3325014	EBV-10-A-C-2.4	3325033
CLOSET-3.5 gpf/13.2 Lpf	EBV-1020-A	WHITE	3325001	EBV-10-A-C-3.5	3325841
CLOSET-4.5 gpf/17.0 Lpf §	EBV-1020-A	WHITE	3325001	EBV-10-A-C-4.5	3325842

† The EBV-1020-A and EBV-1022-A Kits are supplied with multiple Regulators.

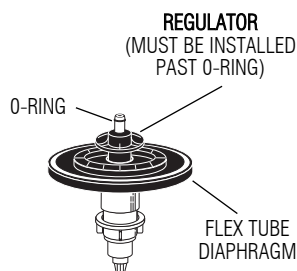
‡ A 0.5 gpf (1.9 Lpf) Urinal kit can be converted to a 1.0 gpf (3.8 Lpf) by cutting and removing the smooth A-164 Flow Ring from the Guide.

§ For a 4.5 gpf (17.0 Lpf) Water Closet flush, use the EBV-1020-A Kit with the White Regulator, and cut and remove the A-164 Flow Ring from the Guide.

♦ Color of Regulator to be used with Flex Tube Diaphragm to obtain the listed flush volume.

REGULATORS

The flush volume of the Flex Tube Diaphragm Kit is control by the Regulator. Regulators are identified by color. Some Flex Tube Diaphragm Kits are supplied with multiple Regulators. The installer must make sure the proper regulator is used when installing the Flex Tube Diaphragm Kit.



REGULATOR (Sold 6 per package)

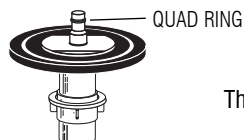
FLUSH VOLUME AND FIXTURE	REGULATOR COLOR	PART NO.	CODE NO
URINAL-0.5 gpf/1.9 Lpf	GREEN	EBV-95	5325122
URINAL-1.0 gpf/3.8 Lpf	GREEN	EBV-95	5325122
URINAL-1.5 gpf/5.7 Lpf	BLACK	EBV-102-2	5325129
URINAL-3.5 gpf/13.2 Lpf	WHITE	EBV-102-1	5325130
CLOSET-1.6 gpf/6.0 Lpf	GREEN	EBV-95	5325122
CLOSET-3.5 gpf/13.2 Lpf	WHITE	EBV-102-1	5325130
CLOSET-2.4 gpf/9.0 Lpf	BLUE	EBV-101	5325128

The EBV-1020-A and EBV-1022-A Kits are supplied with multiple Flush Volume Regulators. The Installer must use the correct Regulator when installing the kit.

OLD STYLE DIAPHRAGM INSIDE PARTS



OLD STYLE KITS ARE OBSOLETE. SEE CHART FOR REPLACEMENT.



The EBF-18 Quad Ring is still available.

5325813 EBV-18 Quad Ring — 12 per package

ADJUSTING THE OLD STYLE INSIDE DIAPHRAGM ASSEMBLY

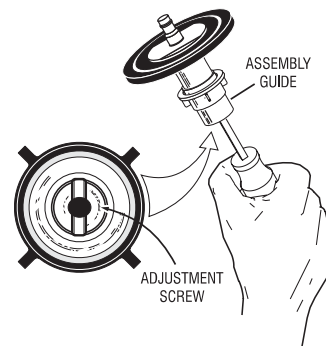
The Inside Diaphragm Assembly was set at the factory to ensure an accurate flush cycle over a range of water pressures.

If adjustment is required, remove the Inside Diaphragm Assembly and turn it upside down. Inside the Assembly Guide is an Adjustment Screw. Insert a slotted screwdriver and turn the Adjustment Screw according to the Conversion Guidelines.

Turning the Adjustment Screw clockwise $\curvearrowright$ **DECREASES** the flush volume.

Turning the Adjustment Screw counterclockwise $\curvearrowleft$ **INCREASES** the flush volume.

For full adjustment procedures, see OPTIMA Plus Conversion Guide #0816511.



SOLENOID REPLACEMENT



EBV-144-A

CODE #3325462

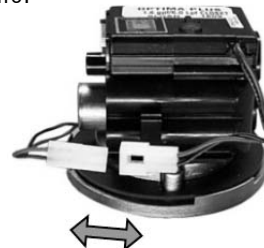
ISOLATED SOLENOID OPERATOR

For use with Black Optima Plus EBV-26-A Modules only (produced 1992-2003)
For G2 Optima Plus Modules (identified by a Blue Module) use the EBV-136-A Solenoid

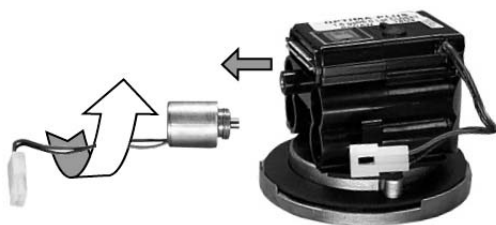
- 1** Remove Battery Cover and Batteries from existing Sensor Module.



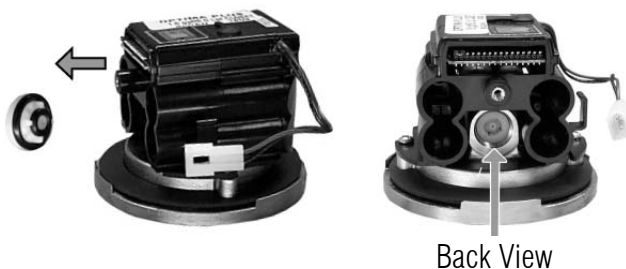
- 2** Disconnect the White Plastic Connector that connects the Black and Red Wires on the side of the Module.



- 3** Unscrew (counterclockwise) the existing Solenoid Valve from the Base Plate.



- 4** Remove White Plastic Seat and O-rings that are located inside the Housing.



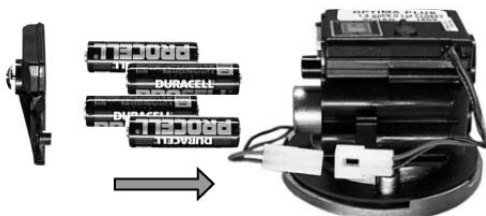
- 5** Remove Clear Plastic Housing from the threaded end of new Isolated Operator by unscrewing (counterclockwise). It is normal to find water inside this housing.



- 6** Make sure O-ring is installed on the Black Housing of the new Isolated Operator. Install Isolated Operator by threading it (clockwise) into the Housing. Tighten with fingers beyond just snug.



- 7** Reinstall batteries in the correct position and reattach Battery Door.



- 8** Reconnect the White Plastic Connectors on the side of the Module. Slide the White Connector into the Clip to secure. Tuck Wiring in close to Module.



**For all Optima Plus produced from 1992 - 2003
And Regal Pro Optima Plus produced after May, 2003**

OTHER VALVE COMPONENT PARTS

Item No.	Code No.	Part No.	Description
9.	3325814	EBV-1017-A	Handle Cap — Metal
10.	3325815	EBV-1018-A	Handle Cap — Decorative
11.	3323182	V-651-A	Vacuum Breaker Repair Kit
12.	0393004	V-600-A	¾" (19 mm) x 9" (229 mm) CP Vacuum Breaker
	0393006	V-600-A	1¼" (32 mm) x 9" (229 mm) CP Vacuum Breaker
	0393007	V-600-A	1½" (38 mm) x 9" (229 mm) CP Vacuum Breaker
13.	0306125	F-5-A	¾" (19 mm) CP Spud Coupling
	0306140	F-5-A	1¼" (32 mm) CP Spud Coupling
	0306146	F-5-A	1½" (38 mm) CP Spud Coupling
14.	0308676	H-550	CP Stop Coupling
15.	0308801	H-551-A	CP Adjustable Tailpiece 2-1/16" (52 mm) long
16.	5308696	H-553	O-ring — 24 per package
17.	3308386	H-700-A	1" (25 mm) Screwdriver Bak-Chek® Stop CP — complete
	3308384	H-700-A	¾" (19 mm) Screwdriver Bak-Chek® Stop CP — complete
18.	3308853	H-541-A	Control Stop Repair Kit †
	3308856	H-543-A	Control Stop Repair Kit ‡
19.	0308612	H-622	CP Bonnet †
	0308843	H-577	CP Bonnet ‡
20.	3308791	H-1010-A	Vandal Resistant Control Stop Cap Assembly †
	3308790	H-1009-A	Vandal Resistant Control Stop Cap Assembly ‡
21.	3325816	EBV-1019-A	¾" (19 mm) Decorative Stop Cap
	3308866	H-574	1" (25 mm) Decorative Stop Cap

Accessories

22.	0325107	EBV-91	Trimpot Adjustment Screwdriver
23.	0325823	EBV-22	Disposable Strap Wrench

† For use w/H-700-A 1" & ¾" and H-600-A 1" Screwdriver Bak-Chek® Control Stops.

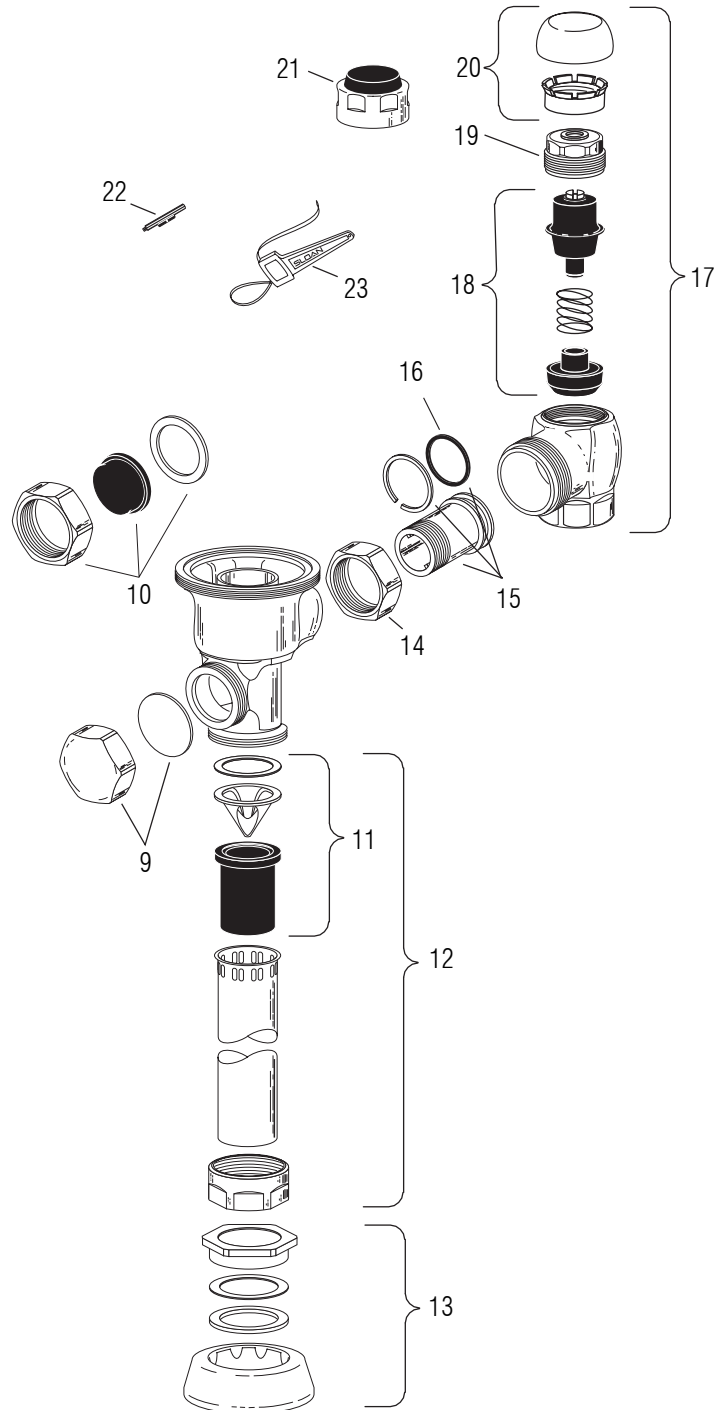
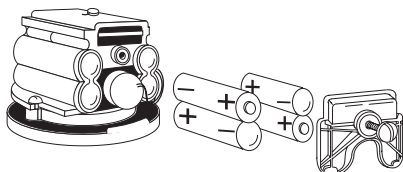
‡ For use w/H-600-A ¾" Screwdriver Bak-Chek® Control Stops.

Battery Replacement

When OPTIMA Plus has approximately 4,000 flushes left, the same red light that appears at start-up will flash four (4) times quickly whenever an object is detected. When this occurs, we recommend changing the batteries.

Separate Locking Ring, Cover and Flex Tube Diaphragm from Electronic Sensor Module.

Loosen Retaining Screw on Battery Compartment Door and remove Battery Compartment Door. Install four (4) Alkaline, AA Batteries **exactly** as illustrated. Install Battery Compartment Door and secure with Retaining Screw. Make certain that Battery Compartment Door is fully compressed against Gasket to provide a seal; Do Not overtighten.



FOR USE WITH SLOAN'S ORIGINAL OPTIMA PLUS FLUSHOMETER PRODUCED FROM 1992 - 2003

Troubleshooting and Maintaining the Sloan OPTIMA Plus Flushometer

I. Sensor Flashes Continuously Only When User Steps Within Range.

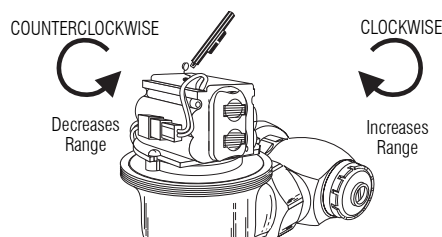
- A. Unit in Start-Up mode; no problem. This feature is active for the first 10 minutes of operation.

II. Valve Does Not Flush; Sensor Not Picking Up User.

- A. Range too short; increase the range.
B. OPTIMA Plus installed on a high rough-in fixture (beam is shooting over the user's head). Install the Sloan EBV-46-A Beam Deflector (black modules only).

III. Valve Does Not Flush; Sensor Picking Up Opposite Wall or Surface, or Only Flushes When Someone Walks By. Red Light Flashes Continuously for First 10 Minutes Even with No One in Front of the Sensor.

- A. Range too long; shorten range.



- B. Sensor is picking up mirror or highly reflective wall or surface in front of fixture. Install OPTIMA Plus slightly "off-center" (2 to 5 degrees) to eliminate direct reflection off of mirror or opposite wall or surface.

IV. Valve Does Not Flush Even After Adjustment.

- A. Range Adjustment Potentiometer set at full "max" or full "min" setting. Readjust Potentiometer away from full "max" or "min" setting.
B. Batteries completely used up; replace batteries.
C. Problem with Electronic Sensor Module; replace Electronic Sensor Module.

V. Unit Flashes 4 Quick Times When User Steps Within Range.

- A. Batteries low; replace batteries.

VI. Valve Does Not Shut off.

- A. Bypass orifice in diaphragm is clogged with dirt or debris, or bypass is clogged by an invisible gelatinous film due to "over-treated" water. Remove Flex Tube Diaphragm and wash under running water.

Note: Size of orifice in the Bypass is of utmost importance for the proper metering of water by the valve. **DO NOT ENLARGE OR DAMAGE THIS ORIFICE.** Replace Flex Tube Diaphragm if cleaning does not correct the problem.

- B. Dirt or debris fouling Stem or Flex Tube Diaphragm. Remove Flex Tube Diaphragm and wash under running water.
C. Problem with Solenoid. If cleaning does not correct the problem, replace with new Isolated Solenoid Operator.

VII. Not Enough Water to Fixture.

- A. Wrong OPTIMA Plus Flex Tube Diaphragm installed; i.e., 1.0 gpf urinal installed on 3.5 gpf closet fixture. Replace with proper Diaphragm Assembly.

- B. Enlarged Bypass in Diaphragm. Replace with Flex Tube Diaphragm Kit.

- C. Control Stop not adjusted properly. Readjust Control Stop.

- D. Inadequate volume or pressure at supply. Increase water pressure or supply (flow) to valve. Consult factory for assistance.

VIII. Too Much Water to Fixture.

- A. Control Stop not adjusted properly. Readjust Control Stop.

- B. Wrong OPTIMA Plus Flex Tube Diaphragm installed; i.e., 3.0 gpf model installed on 1.0 or 1.5 gpf urinal fixture. Replace with proper OPTIMA Plus Diaphragm Assembly.

- C. Dirt in Diaphragm Bypass. Clean under running water or replace with new Flex Tube Diaphragm.

IX. Men's Room Closet Bowls Unflushed.

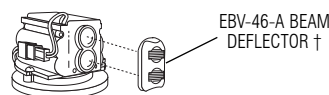
- A. Closet being used as urinal. Angle Sensor slightly off fixture centerline to detect standing person in front of fixture.

X. High Vacuum Breaker Installation (Model 8115/8116) — Unit Not Flushing.

- A. EBV-46-A Beam Deflector not installed. Install EBV-46-A Beam Deflector (black modules only) to divert Sensor beams.

XI. Elementary School Urinals Not Flushing.

- A. Unusually short users not being detected. Install EBV-46-A Beam Deflector (black modules only) to divert Sensor beams.



† **Note:** Use on Black Modules Only.

BATTERIES

When required, replace batteries with four (4) Alkaline Type AA batteries.

For information and instructions on field converting OPTIMA Plus Module settings or to activate the Stadium Flush™ Feature in urinal models, see the Sloan OPTIMA Plus Conversion Guide (0816511).

This manual and the OPTIMA Plus Repair and Maintenance Guide are available at www.sloanvalve.com

CARE AND CLEANING OF CHROME AND SPECIAL FINISHES

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** soap and water, then wipe dry with clean cloth or towel.

While cleaning the bathroom tile, the Flushometer should be protected from any splattering of cleaner. Acids and cleaning fluids can discolor or remove chrome plating.

Refer to the OPTIMA Plus Flushometer Maintenance Guide for additional Troubleshooting and Repair Part information.

If further assistance is required, please contact the Sloan Valve Company Installation Engineering Department at 1-888-SLOAN-14 (1-888-756-2614).

Manufactured in the U.S.A. by Sloan Valve Company under one or more of the following patents: U.S. Patents: 4,893,039; 5,169,118; 5,244,179; 5,295,655; Des. 345,113; Des. 355,478. Other Patents Pending. BAK-CHEK®, PARA-FLO®, PERMEX®, TURBO-FLO®.

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Phone: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380 • www.sloanvalve.com



FOR USE WITH SLOAN'S G2 OPTIMA Plus[®] FLUSHOMETER INTRODUCED MAY, 2003

The Sloan Valve Company introduced its OPTIMA Plus Battery Operated Sensor Flushometer in 1992 revolutionizing the flushing of water closets and urinals. In both new construction and retrofit applications the use of the OPTIMA Plus has become the standard method for many facilities to improve restroom hygiene and ensure handicap accessibility compliance.

The Sloan G2 OPTIMA Plus Automatic Battery Powered Flushometer relies on an Infrared Sensor to detect a user and activate a flushing cycle. No physical contact with the Flushometer surface is necessary, assuring sanitary protection. G2 OPTIMA Plus Flushometers are ADA compliant devices.

In May, 2003 Sloan introduced the G2 OPTIMA Plus[®].



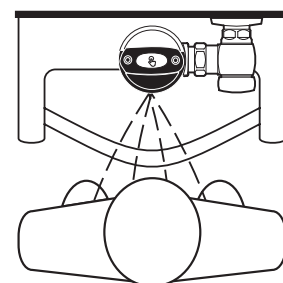
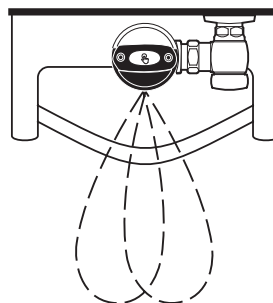
**Original
OPTIMA Plus
Flushometer and
Regal Pro[®] OPTIMA
Plus**



**G2[®] OPTIMA Plus
Flushometer**

The G2 OPTIMA Plus builds on the success of the original product and offers many technological advancements to further improve on performance and reliability expected of sensor operated plumbing. In addition to a new aesthetic design, the G2 OPTIMA Plus features a new state-of-the-art electronic and optical package and a unique Solenoid Operator.

The G2 OPTIMA Plus replaces the original OPTIMA Plus product, which was phased out of production in mid 2003.



The Flushometer is triggered by means of an active Infrared Sensor. The OPTIMA Plus Sensor emits a continuous invisible Light Beam. When a user enters the Beam's effective range, the Beam is reflected into the OPTIMA Plus Scanner Window. The user is now detected. After the user moves out of the effective range of the Sensor, a signal is sent to the Flushometer Solenoid and, after appropriate arming and/or flush delays, the flush cycle is initiated.

Use this Maintenance & Repair Guide for G2 OPTIMA Plus Valves only.

For older OPTIMA Plus Valves (produced from 1992 - 2003) and Regal Pro OPTIMA Plus Valves use Maintenance and Repair Guide #0816193.

If further assistance is required, please contact the Sloan Valve Company Installation Engineering Department at:

Phone: 1-888-SLOAN-14 (1-888-756-2614)

Email: productsupport@sloanvalve.com

LIMITED WARRANTY

Sloan Valve Company warrants its Flushometer Products to be made of first class materials, free from defects of material or workmanship under normal use and to perform the service for which they are intended in a thoroughly reliable and efficient manner when properly installed and serviced, for a period of three years (one year for special finishes) from date of purchase. During this period, Sloan Valve Company will, at its option, repair or replace any part or parts which prove to be thus defective if returned to Sloan Valve Company, at customer's cost, and this shall be the sole remedy available under this warranty. No claims will be allowed for labor, transportation or other incidental costs. This warranty extends only to persons or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale.

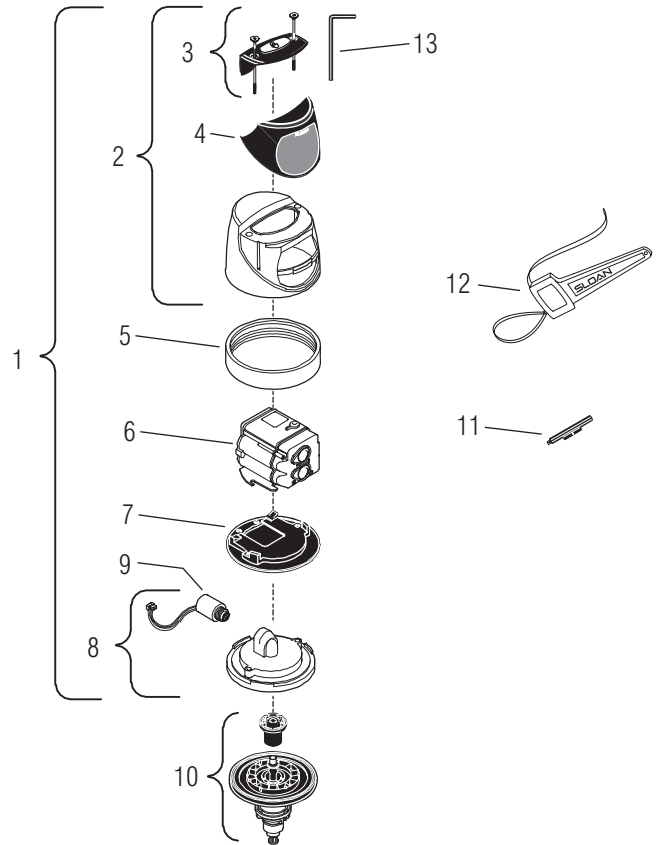
THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.

SENSOR MODULE COMPONENT PARTS

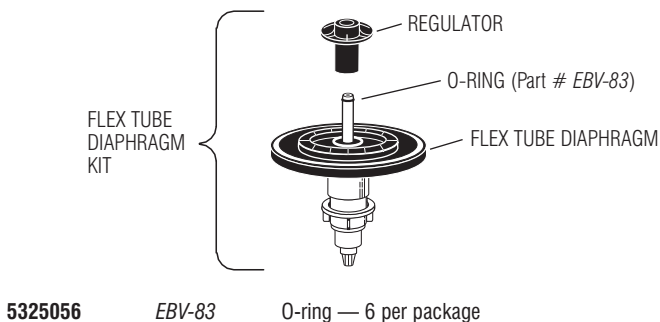
Item No.	Code No.	Part No.	Description
1.	0325160	EBV-138-A	G2 Cover/Ring/Sensor Assembly — Water Closet
	0325161	EBV-139-A	G2 Cover/Ring/Sensor Assembly — Urinal
	0325166	EBV-149-A	G2 Cover/Ring/Sensor Assembly — Water Closet w/ Zurn Ring
	0325167	EBV-150-A	G2 Cover/Ring/Sensor Assembly — Urinal w/ Zurn Ring
2.	0325168	EBV-142-A	Cover Assembly
3.	0325172	EBV-130-A	Override Button Assembly (includes screws & hex wrench)
	0325170	EBV-132-A	Screws (2) and Hex Wrench Only
4.	0325169	EBV-131	Lens Window Cover
5.	0325804	EBV-14	Locking Ring
	3325524	EBV-31-A	Locking Ring — for Zurn Valves
6.	3325450	EBV-129-A-C	G2 Electronic Module — Water Closet
	3325451	EBV-129-A-U	G2 Electronic Module — Urinal
7.	0325171	EBV-134	Cover Rest Plate
8.	3325456	EBV-145-A	G2 Inside Cover Assembly (includes solenoid)
9.	3325453	EBV-136-A	Solenoid (For G2 Modules only)
10.	SEE CHART		Flex Tube Diaphragm Kit

Accessories

11.	0325107	EBV-91	Trimpot Adjustment Screwdriver
12.	0325823	EBV-22	Strap Wrench
13.	0325159	EBV-137	7/64" Hex Wrench



FLEX TUBE DIAPHRAGM INSIDE PARTS KITS



5325056 EBV-83 O-ring — 6 per package

FLEX TUBE DIAPHRAGM KIT †		APPLICATION	REGULATOR
KIT NO.	CODE NO.		COLOR ♦
EBV-1023-A	3325003	URINAL-0.5 gpf/1.9 Lpf	GREEN
EBV-1022-A	3325000	URINAL-1.0 gpf/3.8 Lpf ‡	GREEN
EBV-1022-A	3325000	URINAL-1.5 gpf/5.7 Lpf	BLACK
EBV-1020-A	3325001	URINAL-3.5 gpf/13.2 Lpf	WHITE
EBV-1020-A	3325001	CLOSET-1.6 gpf/6.0 Lpf	GREEN
EBV-1021-A	3325014	CLOSET-2.4 gpf/9.0 Lpf	BLUE
EBV-1020-A	3325001	CLOSET-3.5 gpf/13.2 Lpf	WHITE
EBV-1020-A	3325001	CLOSET-4.5 gpf/17.0 Lpf §	WHITE

† The EBV-1020-A and EBV-1022-A Kits are supplied with multiple Regulators.

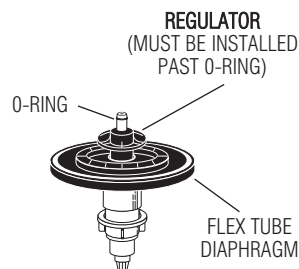
‡ A 0.5 gpf (1.9 Lpf) Urinal kit can be converted to a 1.0 gpf (3.8 Lpf) by cutting and removing the smooth A-164 Flow Ring from the Guide.

§ For a 4.5 gpf (17 Lpf) Water Closet flush use the EBV-1020-A Kit with the White Regulator, and cut and remove the A-164 Flow Ring from the Guide.

♦ Color of Regulator to be used with Flex Tube Diaphragm to obtain the listed flush volume.

REGULATORS

The flush volume of the Flex Tube Diaphragm Kit is control by the Regulator. Regulators are identified by color. Some Flex Tube Diaphragm Kits are supplied with multiple Regulators. The installer must make sure the proper Regulator is used when installing the Flex Tube Diaphragm Kit.



REGULATOR (Sold 6 per package)

FLUSH VOLUME AND FIXTURE	REGULATOR COLOR	PART NO.	CODE NO
URINAL-0.5 gpf/1.9 Lpf	GREEN	EBV-95	5325122
URINAL-1.0 gpf/3.8 Lpf	GREEN	EBV-95	5325122
URINAL-1.5 gpf/5.7 Lpf	BLACK	EBV-102-2	5325129
URINAL-3.5 gpf/13.2 Lpf	WHITE	EBV-102-1	5325130
CLOSET-1.6 gpf/6.0 Lpf	GREEN	EBV-95	5325122
CLOSET-3.5 gpf/13.2 Lpf	WHITE	EBV-102-1	5325130
CLOSET-2.4 gpf/9.0 Lpf	BLUE	EBV-101	5325128

The EBV-1020-A and EBV-1022-A Kits are supplied with multiple Flush Volume Regulators. The Installer must use the correct Regulator when installing the kit.

VALVE COMPONENT PARTS

Item No.	Code No.	Part No.	Description
14.	3323182	V-651-A	Vacuum Breaker Repair Kit
15.	0393046	V-600-AA	3/4" x 9" CP Vacuum Breaker
	0393006	V-600-AA	1 1/4" x 9" CP Vacuum Breaker
	0393007	V-600-AA	1 1/2" x 9" CP Vacuum Breaker
16.	0306125	F-5-AW	3/4" CP Spud Coupling
	0306140	F-5-AU	1 1/4" CP Spud Coupling
	0306146	F-5-AT	1 1/2" CP Spud Coupling
17.	0308676	H-550	CP Stop Coupling
18.	0308801	H-551-A	CP Adjustable Tailpiece 2-1/16" long
19.	5308696	H-553	O-ring — 24 per package
20.	3308386	H-700-A	1" Screwdriver Bak-Chek® Stop CP — complete
	3308384	H-700-A	3/4" Screwdriver Bak-Chek® Stop CP — complete
21.	3308853	H-541-A	Control Stop Repair Kit †
	3308856	H-543-A	Control Stop Repair Kit ‡
22.	0308612	H-622	CP Bonnet †
	0308843	H-577	CP Bonnet ‡
23.	3308791	H-1010-A	Vandal Resistant Control Stop Cap Assembly †
	3308790	H-1009-A	Vandal Resistant Control Stop Cap Assembly ‡
24.	3325816	EBV-1019-A	3/4" Decorative Stop Cap
	3308866	H-574	1" Decorative Stop Cap
25.	3325815	EBV-1018-A	Handle Cap — Decorative
26.	3325814	EBV-1017-A	Handle Cap — Metal

† For use w/H-700-A 1" & 3/4" and H-600-A 1" Screwdriver Bak-Chek® Control Stops.

‡ For use w/H-600-A 3/4" Screwdriver Bak-Chek® Control Stops.

Battery Replacement

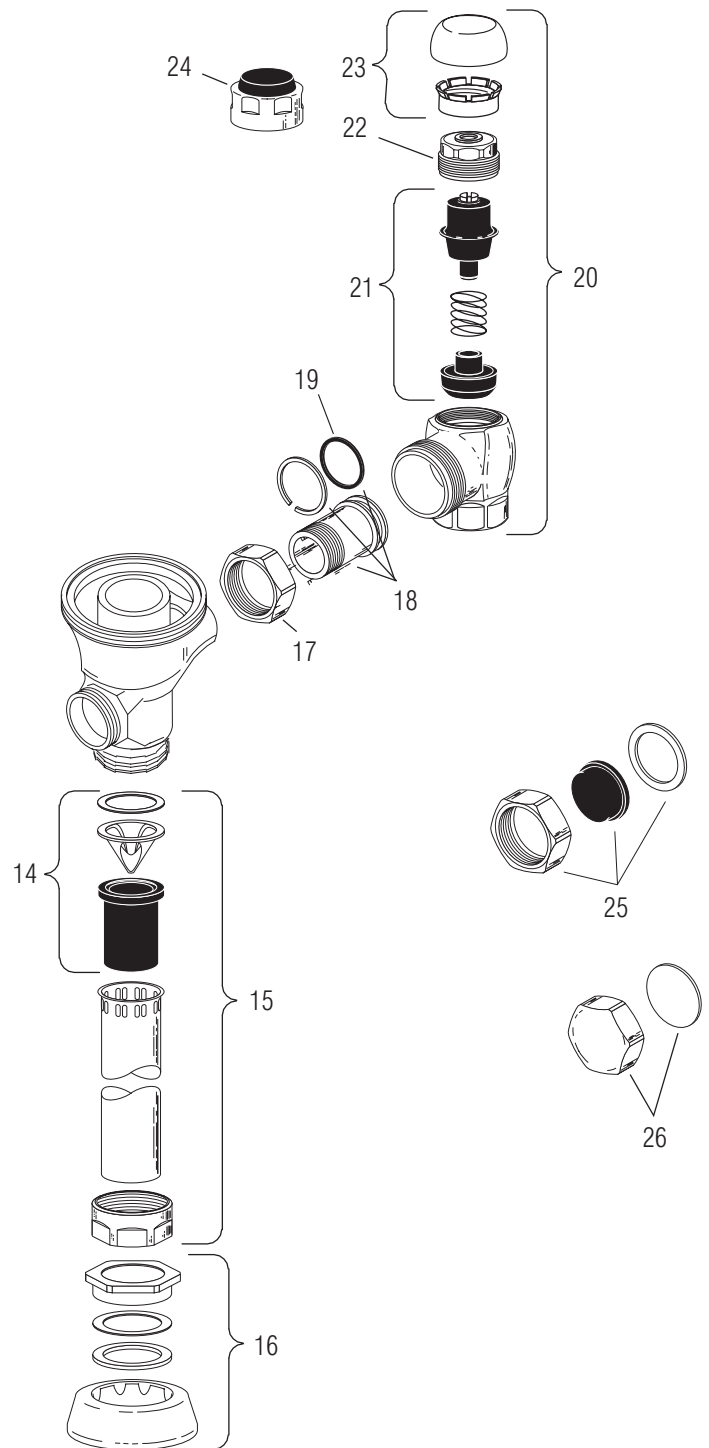
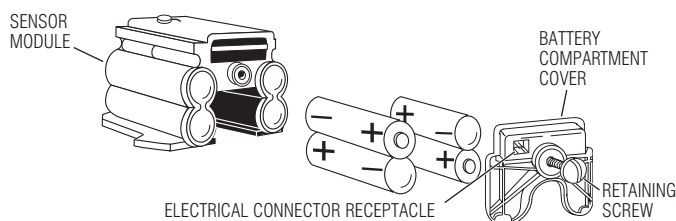
When G2 OPTIMA Plus has approximately 4,000 flushes left, the same Red Light that appears at start-up will flash four (4) times quickly whenever an object is detected. When this occurs, we recommend changing the batteries as follows:

When required, replace Batteries with four (4) Alkaline Type AA Batteries.

Note: Water does not have to be turned off to replace Batteries.

Loosen the two (2) Screws on top of unit. Remove the complete Cover Assembly. Lift the Sensor Module from its Plate. Unplug the Electrical Connector from Battery Compartment Cover. Loosen the Retaining Screw on Battery Compartment Cover and remove Battery Compartment Cover. Install four (4) Alkaline Type AA Batteries exactly as illustrated at right.

Install Battery Compartment Cover and secure with Retaining Screw. Make certain that Battery Compartment Cover is fully compressed against Gasket to provide a seal; Do Not overtighten. Plug the Electrical Connector into the Battery Compartment Cover. Reinstall the Sensor Module onto the Plate. Reinstall the complete Cover Assembly onto the Plate. Tighten the two (2) Screws on top of the unit.



Care and Cleaning Instructions

DO NOT use abrasive or chemical cleaners to clean the G2 OPTIMA Plus, they may dull the luster and attack the Plastic Cover and the chrome finish of the Flushometer. Use **ONLY** soap and water, then wipe dry with clean cloth or towel. While cleaning the bathroom tile, the OPTIMA Plus should be protected from any splattering of cleaner. Acids and cleaning fluids can discolor or remove chrome plating.

Troubleshooting and Maintaining the Sloan G2 OPTIMA Plus® Flushometer

I. Sensor Flashes Continuously Only When User Steps Within Range.

- A. Unit in Start-Up mode; no problem. This feature is active for the first ten (10) minutes of operation.

II. Valve Does Not Flush; Sensor Not Picking Up User.

- A. Range too short; increase the range.

III. Valve Does Not Flush; Sensor Picking Up Opposite Wall or Surface, or Only Flushes When Someone Walks By. Red Light Flashes Continuously for First 10 Minutes Even with No One in Front of the Sensor.

- A. Range too long; shorten range.

IV. Valve Does Not Flush Even After Adjustment.

- A. Range Adjustment Potentiometer set at full "max" or full "min" setting. Readjust Potentiometer away from full "max" or "min" setting.
- B. Batteries completely used up; replace Batteries.
- C. Problem with Electronic Sensor Module; replace Electronic Sensor Module.

V. Unit Flashes 4 Quick Times When User Steps Within Range.

- A. Batteries low; replace Batteries.

VI. Valve Does Not Shut Off.

- A. Bypass Orifice in Diaphragm is clogged with dirt or debris, or Bypass is clogged by an invisible gelatinous film due to "over-treated" water. Remove Flex Tube Diaphragm and wash under running water.

Note: Size of Orifice in the Bypass is of utmost importance for the proper metering of water by the valve. **DO NOT ENLARGE OR DAMAGE THIS ORIFICE.** Replace Flex Tube Diaphragm if cleaning does not correct the problem.

- B. Dirt or debris fouling Stem or Flex Tube Diaphragm. Remove Flex Tube Diaphragm and wash under running water.
- C. O-ring on Stem of Flex Tube Diaphragm is damaged or worn. Replace O-ring if necessary.
- D. Problem with Solenoid. If cleaning does not correct problem, replace with new Isolated Solenoid Operator.

VII. Not Enough Water to Fixture.

- A. Wrong Flush Volume Regulator installed in Flex Tube Diaphragm Kit. Install the correct Regulator (see Step 6 of Installation Instructions 0816452).
- B. Wrong OPTIMA Plus model installed; i.e., 1 gpf. urinal installed on 3.5 gal. closet fixture. Replace with proper OPTIMA Plus model, or refer to the G2 OPTIMA Plus Conversion Guide (0816453) to convert existing unit to the proper model.
- C. Enlarged Bypass in Diaphragm. Replace Flex Tube Diaphragm.
- D. Control Stop not adjusted properly. Readjust Control Stop.
- E. Inadequate volume or pressure at supply. Increase water pressure or supply (flow) to Valve. Consult factory for assistance.

VIII. Too Much Water to Fixture.

- A. Wrong Flush Volume Regulator installed in Flex Tube Diaphragm Kit. Install the correct Regulator (see Step 6 of Installation Instructions 0816452).
- B. Control Stop not adjusted properly. Readjust Control Stop.

- C. Wrong OPTIMA Plus model installed; i.e., 3 gpf model installed on 1.0 or 1.5 gpf urinal fixture. Replace with proper OPTIMA Plus model, or refer to the G2 OPTIMA Plus Conversion Guide (0816453) to convert existing unit to the proper model.

- D. Dirt in Diaphragm Bypass. Clean under running water or replace Flex Tube Diaphragm.

Note: The EBV-46-A Beam Deflector is no longer required or available for the G2 OPTIMA Plus.

For information and instructions on field converting G2 OPTIMA Plus Module settings or to activate the Stadium Flush™ Feature in urinal models, refer to the Sloan G2 OPTIMA Plus Conversion Guide (0816453).

This manual and the OPTIMA Plus Repair and Maintenance Guide are available at www.sloanvalve.com.

RANGE ADJUSTMENT (Adjust only If Necessary)

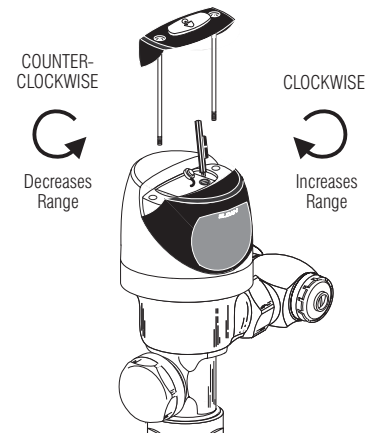
The G2 OPTIMA Plus has a factory set sensing range:
Water Closet Models — 22" to 42" (559 mm to 1067 mm)
Urinal Models — 15" to 30" (381 mm to 762 mm)

The Factory setting should be satisfactory for most installations.

If the range is too short (i.e., not picking up users) or too long (i.e., picking up opposite wall or stall door) the range can be adjusted.

Note: Water does not have to be turned off to adjust range.

Loosen the two Screws on top of the unit. Remove the Override Button. Remove the Rubber Plug from top of Electronic Sensor Module to uncover the Potentiometer.



RANGE ADJUSTMENT PROCEDURE

For the first ten (10) minutes of operation, a Visible Red Light flashes in the Sensing Window of the G2 OPTIMA Plus Flushometer when a user is detected. This Visible Red Light feature can be reactivated after ten (10) minutes by opening and closing the Battery Compartment Door.

Check the range by stepping toward the unit until the Red Light flashes, indicating the Sensor's maximum detection limit. Adjust the Range Potentiometer Screw located on top of the Sensor Module a few degrees CLOCKWISE to increase the range or a few degrees COUNTERCLOCKWISE to decrease the range. Repeat this adjustment until the desired range is achieved.

Always Determine the Sensing Range with Metal Cover and Lens Window On Top of the Unit.

Important: Adjust in small increments only! Range Potentiometer adjustment screw rotates only 3/4 of a turn; DO NOT over-rotate.

When range adjustment is satisfactory, replace the Rubber Plug. Reinstall Override Button and tighten the two Screws on top of the unit.

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ECOS



G2 OPTIMA plus



Sloan OPTIMA plus

Maintenance Guide

ECOS, G2 and Sloan OPTIMA PLUS TROUBLESHOOTING FLOW CHART

ITEMS TO HAVE ON HAND:

- New AA Alkaline Batteries
- New Solenoid (EBV-136-A)
- New Module
 - Closet (EBV-196-A) ECOS
 - Closet (EBV-129-AC) G2, Sloan Optima Plus
 - Urinal (EBV-129-AU) G2, Sloan Optima Plus
- New Button
 - ECOS (WES-23-A)
 - G2, Sloan Optima Plus (EBV-130-A)
- New Diaphragm
 - Closet (EBV-1020-A)
 - Urinal (EBV-1022-A)
- Flat Screwdriver
- 7/64" Hex Wrench

UNIT DOES NOT FLUSH AT ALL

Press Silver button.
Did you hear 2 clicks,
2 seconds apart?

YES

Check if water is on.
Inspect, clean or replace
diaphragm kit.
Make sure inner cover is free
of debris.

NO

Stand in front of the unit.
Press and hold the Silver button for at
least 40 seconds. Release button.

Do you see a flashing
light while standing in front of
the unit?

NO

Remove cover.
Did the light start to flash?

NO

Replace batteries.
Light should now flash. If not,
replace module.

YES

Batteries are good.

Remove Cover. Disconnect installed solenoid from
the back of the module.
Plug a new solenoid into the module (leave solenoid
on top of module). Step away from the unit.

YES

Replace button assembly.

Did the new
solenoid click twice, 2
seconds apart?

NO

Replace module.
Remove Magnet.
Connect existing solenoid.
Replace cover. Press button
to activate flush.

YES

Turn off water at the stop. Remove module. Unscrew
solenoid from the inner cover. Make sure both large and small
O-rings have been removed from the solenoid mounting hole.
Remove black cap from the new solenoid. Ensure that both large
and small O-rings are in place. Screw new solenoid into the inner
cover "hand tight." Install solenoid connector into the back of the
module. Reinstall cover. Press button to activate new solenoid.
Turn water back on. Press button to flush bowl. If unit continues
to flush, go to page 2.

UNIT IS CONTINUOUSLY FLUSHING

Turn water off at the stop.
Press Silver button.
Did you hear 2 clicks, 2 seconds apart?

YES

Clean or replace diaphragm kit. Make sure inner cover is free of debris.
(If the solenoid has been serviced, hand tighten the solenoid, check for missing or double O-rings on the top of the solenoid.)

NO

Stand in front of the unit.
Press and hold the Silver button for at least 40 seconds.
Release button.

Do you see a flashing light while standing in front of the unit?

NO

Replace batteries (alkaline only).
Ensure batteries are oriented correctly.
Light should now flash, if not replace module.

YES

Batteries are good.
Remove Cover.
Disconnect installed solenoid from the back of the module.
Plug a new solenoid into the module (leave solenoid on top of module).
Step away from the unit.

Remove the module.
Unscrew solenoid from the inner cover. Make sure both large and small O-rings have been removed from the solenoid mounting hole. Remove black cap from the new solenoid. Ensure that both large and small O-rings are in place. Screw new solenoid into the inner cover "hand tight." Install solenoid connector into the back of the module. Reinstall cover. Press button to activate new solenoid. Turn water back on. Press button to flush bowl.

If unit does not flush, check for multiple O-rings.

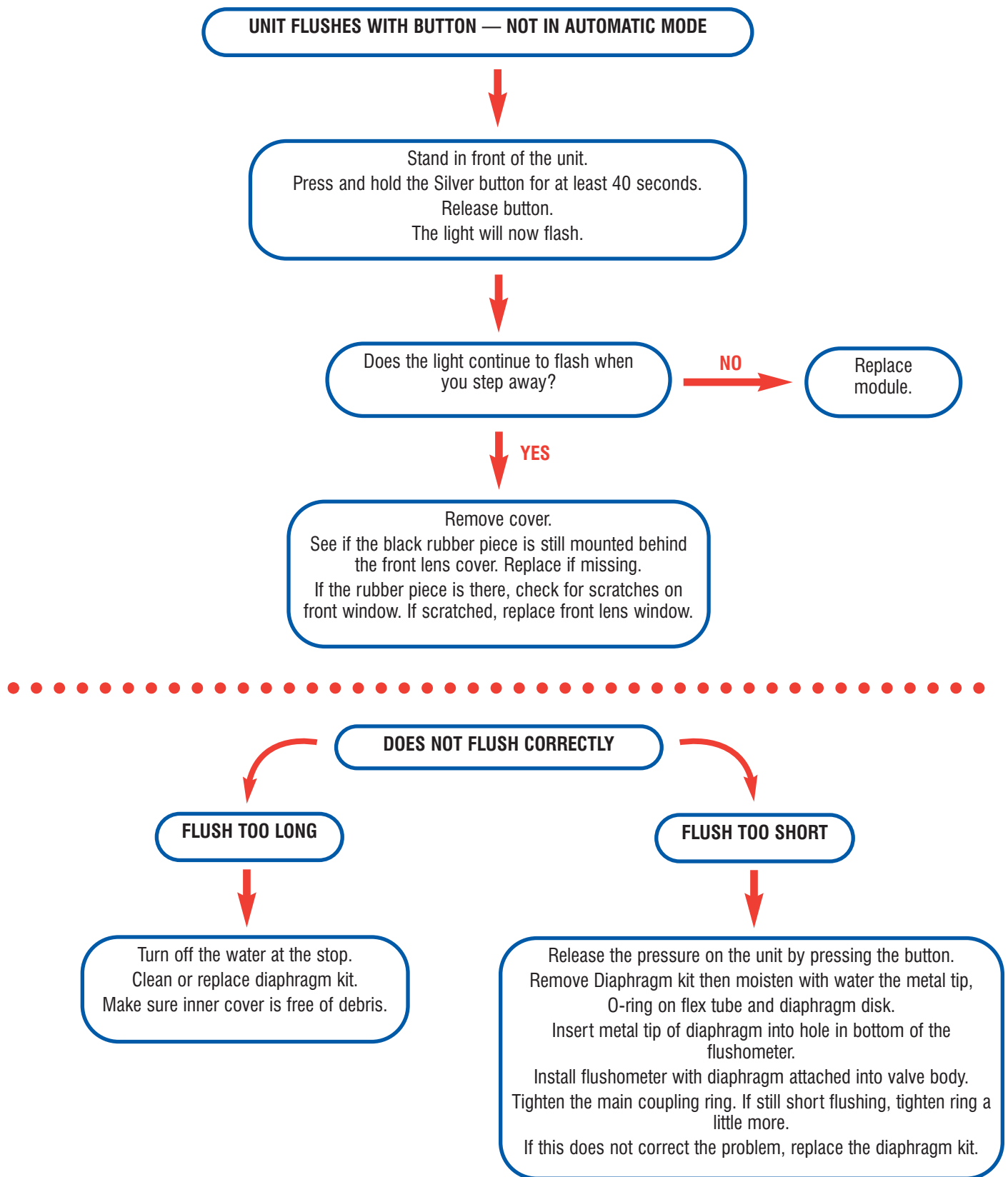
If unit still continues to flush, repeat this procedure.

Did the new solenoid click twice, 2 seconds apart?

YES

NO

Replace module.
Remove Magnet.
Replace cover.
Press button to activate flush.



The information contained in this document is subject to change without notice.

SLOAN VALVE COMPANY • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131

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