



# INSTALLATION INSTRUCTIONS FOR RETROFIT AND COMPLETE SLOAN ECOS® DUAL FLUSH ONLY VALVE INSTALLATION







### 8100 HET Complete Flushometer Models

8100 Series Sloan ECOS® Electronic Flush valves are complete Flushometer valves and ideal for new installations.

### Reducing Your Water Footprint™



### **RESS Series Retrofit Conversion Kit Models**

RESS Sloan ECOS® Electronic models are used to convert existing Royal, Sloan, and Regal style Flushometers to sensor operation.

Sloan ECOS® Electronic Dual Flush Water Closet Model is furnished for the following:

1.6 gpf/1.1 gpf (6.0 Lpf/4.2 Lpf) For Low Consumption Bowls

### **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 date of 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. This warranty extends only to persons 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 INSTALLING THE SLOAN ECOS® DUAL-FLUSH ELECTRONIC FLUSHOMETER

Prior to installing the Sloan ECOS® Electronic Flushometer, install the items listed below as illustrated in the Rough-in Diagram. (New installations only.)

- Closet 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 Sloan ECOS® is designed to operate with 15 to 80 PSI (103 to 552 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 High Efficiency water closets require a minimum flowing pressure of 25 psi (172 kPa). Many building codes and the ASME A112.19.2 fixture standard list Maximum static water pressure as 80 PSI (552 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 Sloan ECOS® Electronic to valve body.
- 7/64" hex wrench (supplied) to secure Sloan ECOS® Electronic cover to base plate.

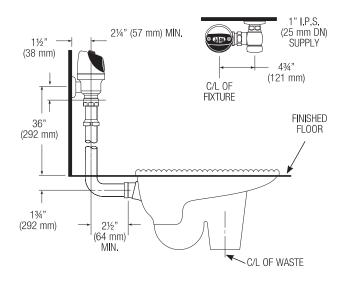
### **VALVE ROUGH-IN**

### Typical Water Closet Installation Model 8110/8111 Reference for RESS-C Retrofit

### 21/4" (57 mm) MIN. 1" I.P.S. (25 mm DN) SUPPLY 4¾" 16½" (121 mm) (419 mm) C/L OF 11½" FIXTURE (292 mm) $\forall$ C/L OF WASTE FINISHED **FINISHED FLOOR** WALL

When installing the Sloan ECOS $^{\circledR}$  Electronic 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.

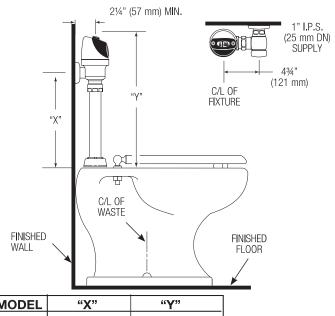
### **Squat Toilet Water Closet Installation Model 8137**



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.

### High Rough-in Water Closet Installation Models 8113, 8115 & 8116



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 !!!

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

#### !!! 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 !!!**

WITH THE EXCEPTION OF CONTROL STOP INLET, DO NOT USE PIPE SEALANT OR PLUMBING GREASE ON ANY VALVE COMPONENT OR COUPLING!

#### !!! IMPORTANT !!!

THE STRAP WRENCH PROVIDED WITH SLOAN ECOS® ELECTRONIC IS A CONVENIENCE TOOL AND IS NOT TO BE USED TO REMOVE OR INSTALL THE FLUSHOMETER COUPLINGS. USE STRAP WRENCH ONLY TO INSTALL SLOAN ECOS® ELECTRONIC LOCKING RING.

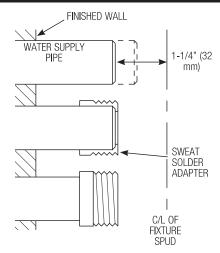
When further assistance is required, please contact your local Sloan Representative or call Sloan Technical Support at: 1-888-SLOAN-14 (1-888-756-2614)

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

- Measure from finished wall to C/L of Fixture Spud. Cut pipe 11/4" (32 mm) shorter than this measurement. Chamfer O.D. and I.D. of water supply pipe.
- B) Slide Threaded Adapter fully onto pipe.
- C Sweat solder the Adapter to pipe.

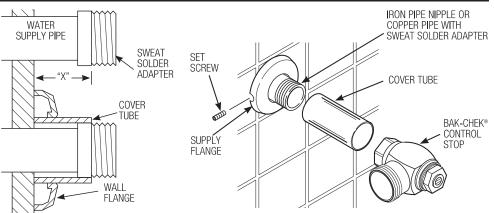
### !!! IMPORTANT !!!

WITH THE EXCEPTION OF CONTROL STOP INLET, DO NOT USE PIPE SEALANT OR PLUMBING GREASE ON ANY VALVE COMPONENT OR COUPLING!



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

- 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.
- 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.

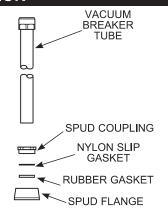


### 4 - INSTALL VACUUM BREAKER FLUSH CONNECTION

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.



### **5 - INSTALL FLUSHOMETER**

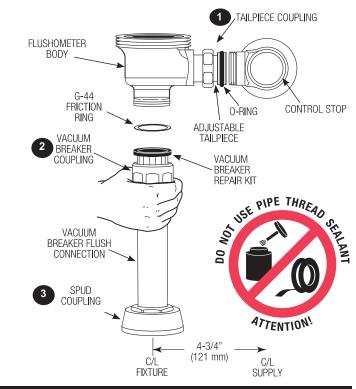
- A Lubricate tailpiece O-ring with water. Insert Adjustable Tailpiece into Control Stop. Tighten Tailpiece Coupling by hand.
- Align Flushometer directly above the Vacuum Breaker Flush
  Connection by sliding the Flushometer Body IN or OUT as needed.
  Tighten Vacuum Breaker Coupling by hand.

#### 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.

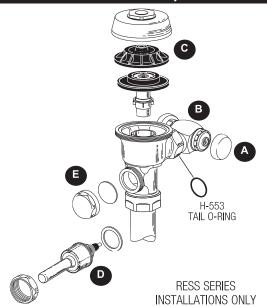
Align Flushometer Body and securely tighten first the Tailpiece Coupling (1), then the Vacuum Breaker Coupling (2), and finally the Spud Coupling (3). Use a wrench to tighten these couplings in the order shown.



# 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-553 Tail O-ring is included in the event leakage occurs if the valve is repositioned during the installation of the new Sloan ECOS® Electronic. Use only as needed.



## 7 - SLOAN ECOS® ELECTRONIC DUAL-FLUSH VOLUMES (RESS RETROFIT INSTALLATIONS ONLY)

The Dual-Flush Volume of the Sloan ECOS® Electronic is controlled by the Flex Tube Diaphragm Kit. Regulators are identified by color.

O-RING (MUST BE INSTALLED PAST O-RING)

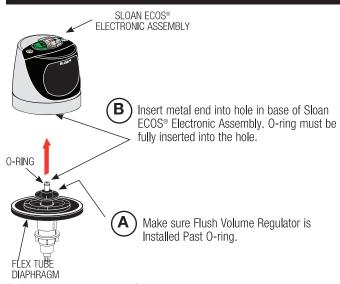
FLEX TUBE DIAPHRAGM

RESS-C Sloan ECOS® Electronic valves are supplied with it's lowest flush volume configuration.

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 will not function properly on excess water.

### 8 - ASSEMBLE FLEX TUBE DIAPHRAGM TO SLOAN ECOS® DUAL-FLUSH ELECTRONIC ASSEMBLY



Push Diaphragm securely against underside of Sloan ECOS® Electronic Assembly. Place entire Assembly onto the Valve Body.



To facilitate installation, the 0-ring on the diaphragm assembly must be wet for easier insertion. NOTE: Sensor Lens must face directly forward. Rotating the Sensor to either side will decrease the Sensor's ability to detect a target.

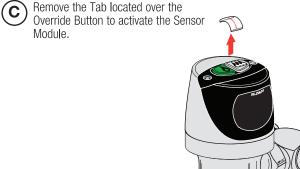
### 9 - TIGHTEN LOCKING RING AND REMOVE TAB TO ACTIVATE SENSOR MODULE



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 Sloan ECOS Electronic onto a Zurn valve body, a special Locking Ring must be used (identified by a machined groove around the ring)

Order the Sloan ECOS<sup>TM</sup> Electronic Dual Flush with the "Z" variation to receive the unit supplied with this Ring.



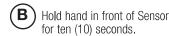
For the first ten (10) minutes of operation, a Visible Light flashes in the Sensing Window of the Sloan ECOS™ Electronic Flushometer when a user is detected.

## 10 - TEST SENSOR OPERATION, ADJUST CONTROL STOP AND INSTALL VANDAL RESISTANT STOP CAP

The Sloan ECOS® Electronic has a factory set sensing range: Water Closet Models - 22" to 42" (559 mm to 1067 mm)



Test Sensor with Cover in Place.





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

Open Control Stop COUNTERCLOCKWISE ½ turn from closed position.







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

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. Follow the instructions packaged with the Free Spinning Vandal Resistant Stop Cap.

### !!! IMPORTANT !!!

SLOAN FLUSHOMETERS ARE 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 CLEANSED 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.

### **OPERATION**

 A continuous, INVISIBLE light beam is emitted from the Sloan ECOS® Electronic Sensor.



2. As the user enters the beam's effective range, water closets 22 to 42 inches (559 mm to 1067 mm), 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. If the user stays longer than 65 seconds, a full flush will automatically initiate when the user leaves.



 Once a user is detected, if the user leaves in 65 seconds or less, a reduced flush will automatically initiate. The circuit automatically resets and is ready for the next user.









### RANGE ADJUSTMENT (ADJUST ONLY IF NECESSARY)

The Sloan ECOS® Electronic has a factory set sensing range:

Water Closet Models - 22" to 42" (559 mm to 1067 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 Light flashes in the Sensing Window of the Sloan ECOS when a user is detected. This Visible 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 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 ¾ 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.

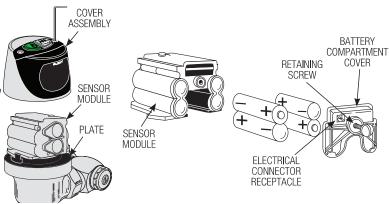
### **BATTERY REPLACEMENT**

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 GUIDE

- 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.
- Valve Does Not Flush; Sensor Picking Up Opposite Wall or Surface, or Only Flushes When Someone Walks By. 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.Red light Blinks 4 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 section 7 of these instructions).
- B. Wrong Sloan ECOS® Electronic model installed; i.e., 1.6 gpf model installed on 3.5 gal. closet fixture.
- 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. 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 Sloan ECOS.

When further assistance is required, please contact your local Sloan Representative or Sloan Technical Support at: 1-888-SLOAN-14 (1-888-756-2614)

or visit us online at: www.sloanvalve.com

#### !!! IMPORTANT !!!

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### !!! IMPORTANT !!!

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### !!! IMPORTANT !!!

LAWS AND REGULATIONS PROHIBIT THE USE OF HIGHER FLUSHING VOLUMES THAN LISTED ON FIXTURE OR FLUSHOMETER

### !!! 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,

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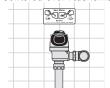
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### RECOMMENDED WALL PLATE LOCATIONS

Centered over Flushometer



On stall door



### 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.

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V-600-AA

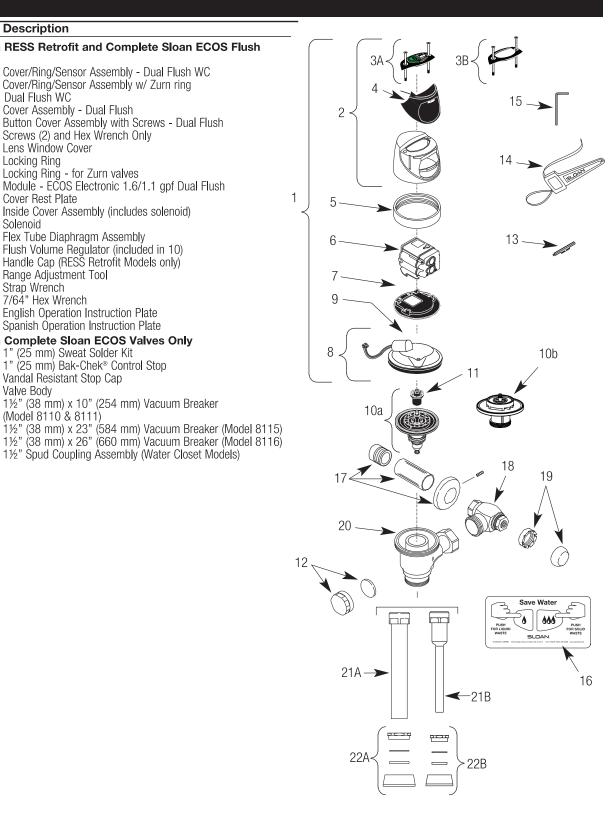
V-600-AA V-600-AA

F-5-AT

### Description

Itelli 1	t Fail#	Description
Items Included with RESS Retrofit and Complete Sloan ECOS Flush Valves		
1	WES-55-A WES-60-A	Cover/Ring/Sensor Assembly - Dual Flush WC Cover/Ring/Sensor Assembly w/ Zurn ring Dual Flush WC
2	EBV-191-A	Cover Assembly - Dual Flush
	WES-23-A	Button Cover Assembly with Screws - Dual Flush
3B	EBV-132-A	Screws (2) and Hex Wrench Only
4	EBV-131	Lens Window Cover
5	EBV-14	Locking Ring
	EBV-30	Locking Ring - for Zurn valves
6	EBV-196-A	
7	EBV-134	Cover Rest Plate
8	EBV-145-A	Inside Cover Assembly (includes solenoid)
9	EBV-136-A	Solenoid
10	EBV-1020-A	Flex Tube Diaphragm Assembly
11		Flush Volume Regulator (included in 10)
12	EBV-1017-A	Handle Cap (RESS Retrofit Models only)
	EBV-91	Range Adjustment Tool
	EBV-22	Strap Wrench
	EBV-137	7/64" Hex Wrench
16	WES-19	English Operation Instruction Plate
	WES-22	Spanish Operation Instruction Plate
Items Included with Complete Sloan ECOS Valves Only		
	H-633-AA	1" (25 mm) Sweat Solder Kit
18A	H-700-A	1" (25 mm) Bak-Chek® Control Stop
19	H-1010-A	Vandal Resistant Stop Cap
20	EBV-36-A	Valve Body

1½" (38 mm) x 10" (254 mm) Vacuum Breaker (Model 8110 & 8111)



Manufactured in the U.S.A. by Sloan Valve Company under one or more of the following patents: U.S. Patents. 4,839,039; 5,195,720; 5,295,655; 5,542,718; 5,558,120; 5,564,460; 5,887,848; 5,967,182; 6,212,697; 6,382,586; 6,619,614; 6,685,158; 6,691,979; Des. 411,609. Other Pats. Pending. BAK-CHEK®, CID®, COURTESY FLUSH®, PARA-FLO®, PERMEX®, TURBO-FLO®.

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