SLOAN®

## INSTALLATION INSTRUCTIONS FOR OPTIMA® SYSTEMS SENSOR ACTIVATED ROYAL® CONCEALED CLOSET AND URINAL FLUSHOMETERS WITH WALL BOX
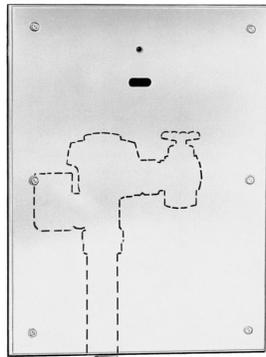
CLOSET FLUSHOMETER
WITH WALL BOX
Model 152 WB ES-S Shown
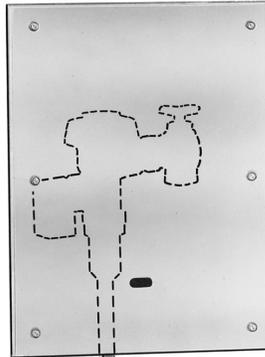
URINAL FLUSHOMETER
WITH WALL BOX
Model 195 WB ES-S Shown

Concealed Closet Flushometer with Wall Box — 1-1/2" Back Spud
Model 152 WB ES-S

Concealed Closet Flushometer with Wall Box — 1-1/2" Top Spud
Model 153 WB ES-S

Concealed Urinal Flushometer with Wall Box — 1-1/4" Back Spud
Model 190 WB ES-S

Concealed Urinal Flushometer with Wall Box — 1-1/4" Top Spud
Model 192 WB ES-S

Concealed Urinal Flushometer with Wall Box — 3/4" Back Spud
Model 195 WB ES-S

Concealed Urinal Flushometer with Wall Box — 3/4" Top Spud
Model 197 WB ES-S

Made in the U.S.A.

PRIOR TO FLUSHOMETER INSTALLATION

Prior to installing the Sloan OPTIMA equipped Flushometer with Wall Box, install the items listed below as illustrated in the Rough-in diagrams on Pages 2 and 3.

- 2-gang electrical box — 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) for transformer; see paragraph entitled "Transformer Installation" (mount in a convenient location)
- Electrical wiring to the transformer box (120 VAC, 2 amp service required for each EL-154, 24 VAC, 50 VA transformer used)
- Closet or urinal fixture
- Drain line
- Water supply line

Important:
- INSTALL ALL ELECTRICAL WIRING IN ACCORDANCE WITH NATIONAL/ LOCAL CODES AND REGULATIONS.
- INSTALL ALL PLUMBING IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS.

- WATER SUPPLY LINES MUST BE SIZED TO PROVIDE AN ADEQUATE VOLUME OF WATER FOR EACH FIXTURE.
- A 24 VAC STEP-DOWN TRANSFORMER MUST BE USED.
- USE APPROPRIATE PRECAUTIONS WHILE CONNECTING TRANSFORMER TO 120 VAC POWER SOURCE.
- FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.

Sloan Flushometers are 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 minimum pressure requirements.

Most Low Consumption water closets (1.6 gallon/6.0 liter) require a minimum flowing pressure of 25 psi (172 kPa).

Protect the Chrome or Special finish of this Flushometer — DO NOT USE TOOTHED TOOLS TO INSTALL OR SERVICE THE VALVE. Also, see "Care and Cleaning" section of this manual.

IMPORTANT: EXCEPT FOR CONTROL STOP INLET, DO NOT USE PIPE SEALANT OR PLUMBING GREASE ON ANY VALVE COMPONENT OR COUPLING!

Transformer Installation

Install Transformer (EL-154) on a 2-Gang Electrical Box, 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) in a convenient location.

2-GANG ELECTRICAL BOX -
4" x 4" x 2½" (102 mm x 102 mm x 64 mm)

EL-154 TRANSFORMER †

† MOUNT TRANSFORMER
WITHIN 50 FEET (15 m)
OF FLUSHOMETER
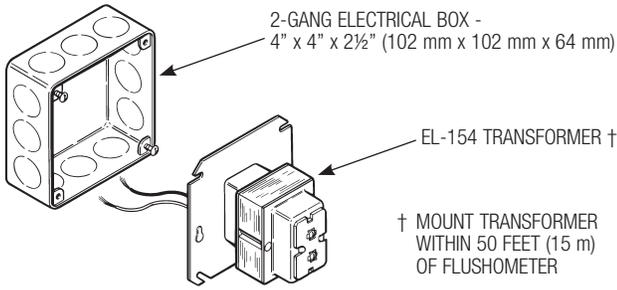
Note: One Sloan EL-154 transformer can operate up to ten OPTIMA equipped Flushometers. Run 18-gauge wire from transformer to Flushometer(s). Wire supplied by others. DO NOT supply power to transformer until installation of Flushometer is complete.

Note: A maximum of ten (10) Flushometer units can operate from one (1) Sloan EL-154 Transformer, Class 2, UL Listed, 50 VA (min.) at 24 VAC, plate mounted.

For 220/240 VAC electrical service, use Sloan Transformer EL-342.

Sensor Location (refer to Rough-in diagrams on Pages 2 and 3)

SENSOR LOCATION IS CRITICAL — Failure to properly position the electrical box to the plumbing rough-in will result in improper installation and impair product performance. All tradesmen (plumbers, electricians, tile setters, etc.) involved with the installation of this sensor activated flushometer must be familiar with the requirements of its installation. Improper installation may void the manufacturer's warranty.

Tools Required for Installation

• Slotted screwdriver
• Adjustable wrench
• Wire stripper/crimping tool
• Sloan A-50 Super-Wrench™, Sloan A-109 Plier Wrench or smooth jawed spud wrench
• #8 Drilled Spanner Head screwdriver for wall box cover plate (supplied)

!!! IMPORTANT !!!

Carefully read this manual to ensure proper product installation and longevity. Also, please visit our website www.sloanvalve.com to download our most recent documentation for this product.

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

Never open Control Stop to 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.

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.

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.

If you have questions about how to install your Sloan Flushometer, consult your local Sloan Representative or call Sloan Installation Engineering Department at:

1-888-SLOAN-14 (1-888-756-2614) OR 1-847-233-2016

VALVE ROUGH-IN

Model 152-1.6 WB ES-S — Low Consumption, 1.6 gpf (6.0 Lpf)
Model 152-2.4 WB ES-S — 2.4 gpf (9.0 Lpf)
Model 152 WB ES-S — Water Saver, 3.5 gpf (13.2 Lpf)
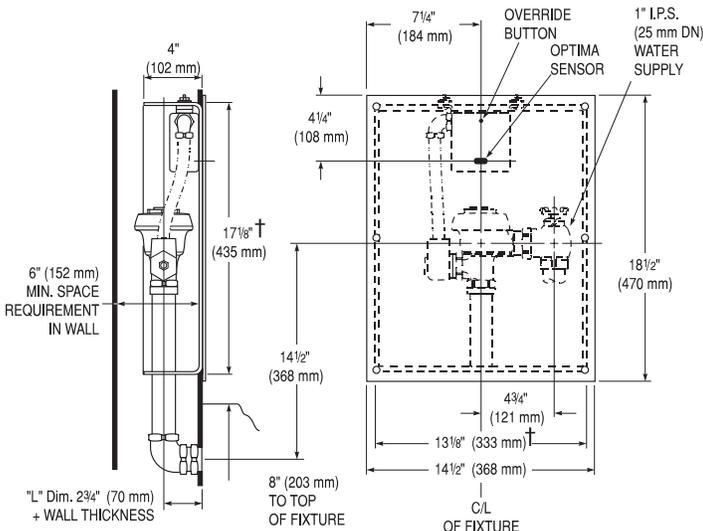
† Required Wall Opening.

**Model 153-1.6 WB ES-S — Low Consumption, 1.6 gpf (6.0 Lpf)**
Model 153-2.4 WB ES-S — 2.4 gpf (9.0 Lpf)
Model 153 WB ES-S — Water Saver, 3.5 gpf (13.2 Lpf)

† Required Wall Opening.

VALVE ROUGH-IN (continued)

Model 190-1.0 WB ES-S — Low Consumption, 1.0 gpf (3.8 Lpf)
Model 190-1.5 WB ES-S — Water Saver, 1.5 gpf (5.7 Lpf)
Model 190 WB ES-S — Conventional, 3.5 gpf (13.2 Lpf)

† Required Wall Opening.

Model 192-1.0 WB ES-S — Low Consumption, 1.0 gpf (3.8 Lpf)
Model 192-1.5 WB ES-S — Water Saver, 1.5 gpf (5.7 Lpf)
Model 192 WB ES-S — Conventional, 3.5 gpf (13.2 Lpf)

† Required Wall Opening.

Model 195-0.5 WB ES-S — 0.5 gpf (1.9 Lpf)
Model 195-1.0 WB ES-S — Low Consumption, 1.0 gpf (3.8 Lpf)
Model 195 WB ES-S — Water Saver, 1.5 gpf (5.7 Lpf)

† Required Wall Opening.

Model 197-0.5 WB ES-S — 0.5 gpf (1.9 Lpf)
Model 197-1.0 WB ES-S — Low Consumption, 1.0 gpf (3.8 Lpf)
**Model 197 WB ES-S — Water Saver, 1.5 gpf (5.7 Lpf)**


† Required Wall Opening.

1 Assemble and Install Wall Box into Wall

A Remove Cover from Wall Box frame using a #8 Drilled Spanner Head screwdriver (supplied).

B Mount the 4" x 4" x 3/4" (102 mm x 102 mm x 19 mm) Electrical Box Device Cover (EL-197) to the 4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) Outlet Electrical Box (EL-196) using two (2) Screws provided.

4" (102 mm) SQ. BOX DEVICE COVER 3/4" (19 mm) HIGH (EL-197)

4" (102 mm) SQ. x 2-1/2" (64 mm) DEEP OUTLET BOX (EL-196)
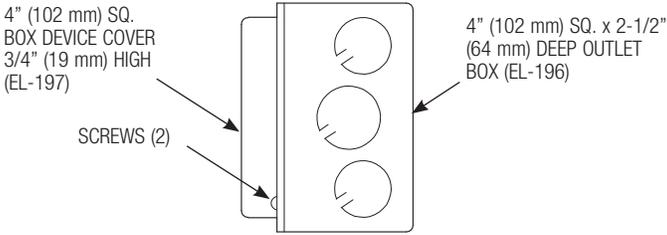
SCREWS (2)

C Install Electrical Box into Wall Box as follows
Assemble Mounting Bracket to Electrical Box using two (2) Screws (EL-125), internal tooth Lock Washers (EL-127) and Nuts (EL-126) provided.
Assemble Mounting Bracket with Electrical Box to Wall Box using two (2) Screws (EL-125), internal tooth Lock Washers (EL-127) and Nuts (EL-126) provided.

LOCK WASHER (EL-127) NUT (EL-126)

SCREW (EL-125)
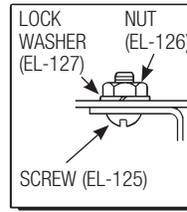
TYPICAL 4 PLACES

FOR CLOSET INSTALLATION – MODELS 152 & 142

TOP OF WALL BOX

MOUNTING BRACKET (EL-195)

OVERRIDE BUTTON

EL-1500-L SENSOR LOCATION

SCREW (EL-125)

LOCK WASHER (EL-127) NUT (EL-126)
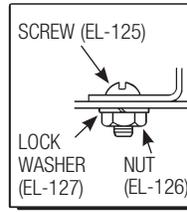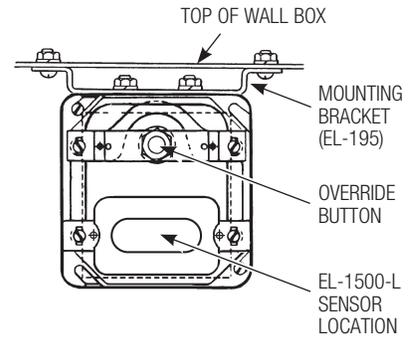
TYPICAL 4 PLACES

FOR URINAL INSTALLATION – MODELS 190, 192, 195 & 197

EL-1500 SENSOR LOCATION

MOUNTING BRACKET (EL-195)

BOTTOM OF WALL BOX
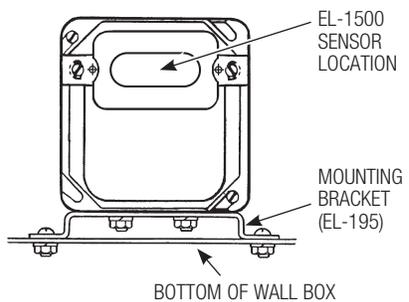
D Install Wall Box into wall in the exact location as illustrated in the Rough-in diagrams on Pages 2 and 3. Secure Wall Box using Drive Screws provided or other appropriate fasteners.

2 Install Optional Sweat Solder Adapter (only if your supply pipe does not have a male thread) and Install Control Stop

A For Sweat Solder applications, slide Threaded Adapter onto water supply pipe until end of pipe rests against shoulder of Adapter. Sweat solder the Adapter to water supply pipe.

THREADED ADAPTER
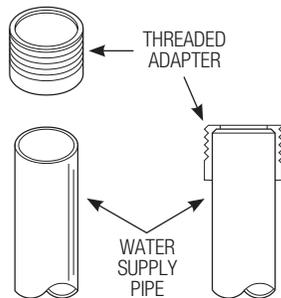
WATER SUPPLY PIPE

Note: Concealed valves are supplied with double handle opening to allow for installation of Control Stop on either the left or right side of the valve (refer to illustration in Step 4).

B Install the Sloan Bak-Chek® Control Stop to the water supply line with the outlet positioned as required.

OUTLET

BAK-CHEK® CONTROL STOP

IRON PIPE NIPPLE OR COPPER PIPE WITH SWEAT SOLDER ADAPTER
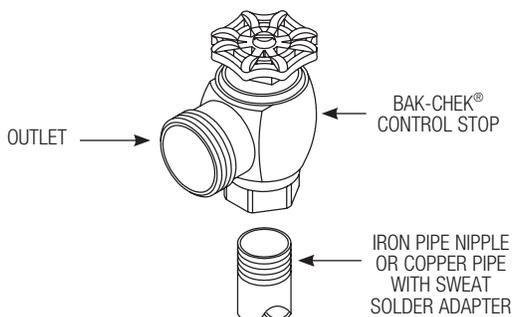
3 Install Vacuum Breaker Flush Connection

A Assemble Pipe, Elbows, Couplings, Nylon Slip Gaskets, Rubber Gaskets and Flanges as illustrated.

B Insert Tube into Fixture Spud.

C Hand tighten all Couplings.

MODEL 152 WB ES-S

INSTALL WITH FLANGE AGAINST SPUD

MODEL 195 WB ES-S

VACUUM BREAKER TUBE

MODEL 190 WB ES-S

INSTALL WITH FLANGE AGAINST ELBOW

MODEL 192 WB ES-S

MODEL 153 WB ES-S

MODEL 197 WB ES-S

1-1/4" (32 mm) MIN.

IMPORTANT: WHEN CUTTING SCORED PIPE TO LENGTH LEAVE A MINIMUM OF 1-1/4" (32 mm) OF SCORING TO ENSURE PROPER ENGAGEMENT

SPUD COUPLING

NYLON SLIP GASKET

RUBBER GASKET

SPUD FLANGE

4 Install Flushometer

NOTE

For high efficiency urinal flushometers (0.5, 0.25 and 0.125 gpf), it is necessary to first insert the flow control component into the tailpiece assembly. See the H1015A flow control kit and separate instructions for details on how to install.

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.

4-1/4"
(108 mm)
MAX.

5-1/4"
(133 mm)
MAX. ‡
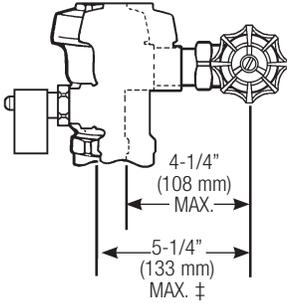
‡ **IMPORTANT:** IF INSTALLED AT MAXIMUM DISTANCE, STOP MAY INTERFERE WITH WALL BOX FRAME.

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. Assemble Vacuum Breaker Flush Connection to Flushometer. Tighten Vacuum Breaker Coupling by hand.

Important: Use a Sloan A-50 "Super-Wrench™", Sloan A-109 Plier Wrench or smooth jawed spud wrench to secure all couplings. This will eliminate damage to chrome or special finish that normally occurs when slip-joint pliers, pipe wrenches or other "toothed" tools are used.

**C** Use a wrench to tighten the following couplings in the order shown. Align Flushometer Body and securely tighten first the Tailpiece Coupling (1), then the Vacuum Breaker Coupling (2), then all Flush Connection Couplings (3) and finally the Spud Coupling (4).

A-31 GASKET
TAILPIECE COUPLING 1
CONTROL STOP
FLUSHOMETER BODY
ADJUSTABLE TAILPIECE
G-44 FRICTION RING
VACUUM BREAKER COUPLING 2
VACUUM BREAKER REPAIR KIT
VACUUM BREAKER FLUSH CONNECTION
SPUD COUPLING 4
FLUSH CONNECTION COUPLINGS 3
C/L FIXTURE
C/L SUPPLY
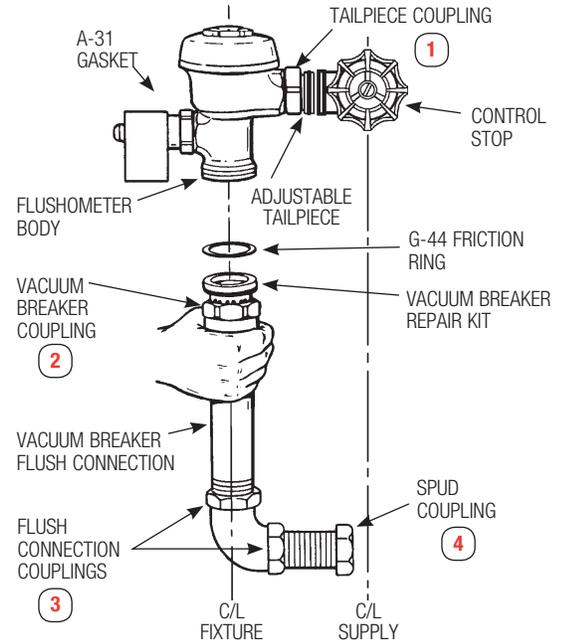
5 Electrical Hook-Up

A Be certain power is OFF to prevent damage to electrical components. Connect Sensor to Transformer and Solenoid Coil EXACTLY as shown.

**B** Connect 24 volt source lead to terminal labeled "24 VAC IN" of Sensor.

**C** Connect solenoid lead to terminal labeled "TO VALVE" of Sensor.

**D** Connect remaining solenoid lead to remaining 24 volt source lead.

E **CLOSET INSTALLATIONS ONLY —** Connect override button parallel to the EL-1500-L sensor. Use 18 gauge wire between override button terminals and the connection of the EL-1500-L sensor.

EL-1500 SENSOR (URINAL INSTALLATIONS)
EL-1500-L SENSOR (CLOSET INSTALLATIONS)
"TO VALVE" CONNECTION
"24 VAC IN" CONNECTION

Wiring Diagram for One Flush Valve
OVERRIDE SWITCH (CLOSET INSTALLATIONS ONLY)
SENSOR
TRANSFORMER
VALVE
SOLENOID

Wiring Diagram

120 VAC
24 VAC

EL-1500 SENSOR (URINAL)
EL-1500-L SENSOR (CLOSET)
OVERRIDE SWITCH (CLOSET INSTALLATIONS ONLY)
COIL WIRE
24 VAC COIL
UNIT #1

EL-1500 SENSOR (URINAL)
EL-1500-L SENSOR (CLOSET)
OVERRIDE SWITCH (CLOSET INSTALLATIONS ONLY)
COIL WIRE
24 VAC COIL
UNIT #2 THRU #10 (IF USED)

Note: A maximum of ten (10) sensor Flushometer units can operate from one (1) Sloan EL-154 transformer. Class 2 UL Listed, 48 VA (min.) at 24 VAC, plate mounted.

Wiring Diagram for Multiple Flush Valves
OVERRIDE SWITCH (CLOSET INSTALLATIONS ONLY)
OVERRIDE SWITCH (CLOSET INSTALLATIONS ONLY)
OVERRIDE SWITCH (CLOSET INSTALLATIONS ONLY)
SENSOR
SENSOR
SENSOR
TRANSFORMER
VALVE
VALVE
VALVE
SOLENOID
SOLENOID
SOLENOID
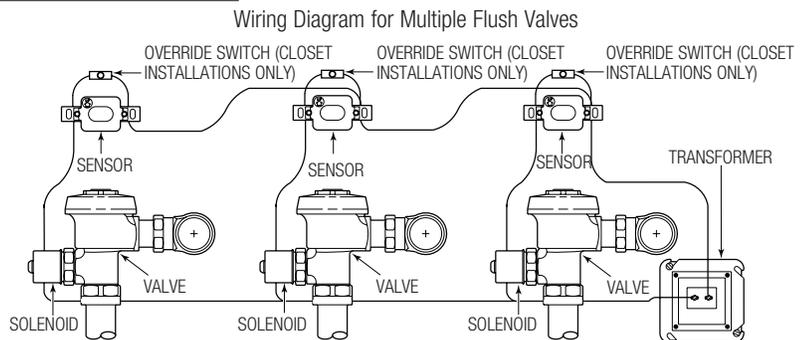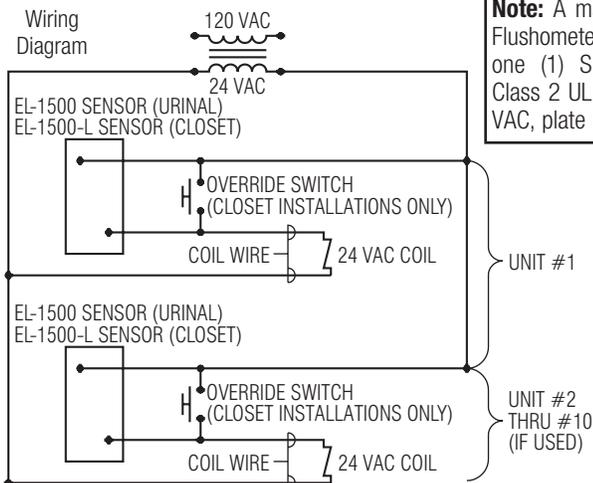
6 Install Optima Sensor and Yoke Assembly (Closet Installations)

A Install OPTIMA Sensor EL-1500 (urinal installation) or EL-1500-L (closet installation) into the 2-gang electrical box using two (2) long screws provided. Ensure that sensor lens faces outward and horizontally from finished wall.

ELECTRICAL BOX
YOKE
OVERRIDE BUTTON
INNER NUT
BRACKET
OUTER NUT
OPTIMA SENSOR
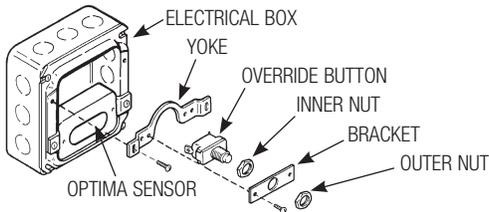
Install Yoke Assembly — Closet Installations Only

**B** Assemble Inner Nut, Bracket and Outer Nut on threaded shaft of Override Button.

C Mount Bracket to Yoke using two (2) Screws provided.

D Adjust distance that override button will protrude through wall box cover plate using the nut on each side of the bracket. Threaded shaft end of override button and lens of sensor should rest against wall box cover plate.

E Connect Override button parallel to the EL-1500-L sensor.

F Mount assembled yoke to electrical box using two (2) Screws provided.

7 Flush Out Supply Line

A Make sure Control Stop is CLOSED.
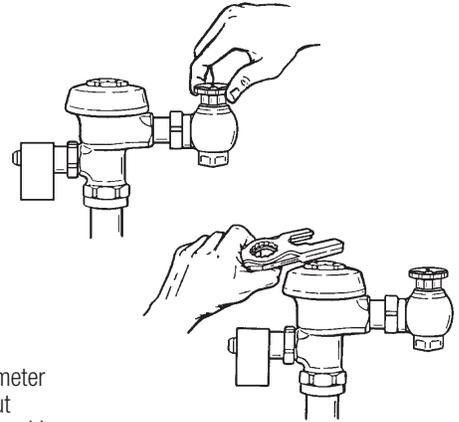
B Remove Flushometer Cover and lift out Inside Parts Assembly. Install Flushometer Cover wrench tight.
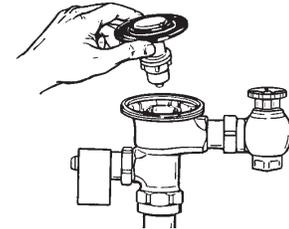
C Open Control Stop. Turn on water supply to flush line of any debris or sediment.

D Shut off Control Stop, remove Cover and reinstall Inside Parts Assembly. Install Flushometer Cover wrench tight. Do Not open Control Stop until Step 10.

8 Power and Start-up Mode

Note: It is recommended that all electronic connections be tested with the water supply OFF.

A Turn Power ON. The self adaptive sensor automatically adapts to the surrounding environment when 24 volt supply is activated. No manual adjustments are required.

B Start-up mode will take approximately five (5) minutes to complete its cycle and is important that no non-permanent target is present at this time. A continuous red light visible in sensor window indicates sensor is in the start-up mode. If the red light is flashing, this indicates that the sensor is picking up a target. Unless this target is a permanent fixture in the sensor's environment (i.e., a wall or stall door), it must be removed from the view of the sensor. If this target is permanent, the sensor will adapt itself around this target. In this case, the start-up mode may take up to ten (10) minutes. When the start-up cycle is completed, no light is visible in sensor window.

Note: If 24 volt power supply is interrupted at any time for more than fifteen (15) seconds, the start-up mode automatically repeats itself when power is restored.

C If indicator light flashes three (3) times slowly, three (3) times rapidly and again three (3) times slowly and continually repeats this signal, this indicates incorrect wiring or a short in the 24 volt supply.
The self-adaptive sensor is equipped with the sentinel flush feature (automatically flushes every twenty-four (24) hours after last use).

9 Detection/Activation

A When an object is detected, a slowly flashing red light will appear in the sensor window. After approximately sixteen (16) seconds for closet/eight (8) seconds for urinal, the light will flash rapidly indicating sensor is armed and ready to activate solenoid when the object leaves the detection area. For Urinal installations, the solenoid will activate immediately after non-detection. For Closet installations, the solenoid will activate within two (2) to four (4) seconds after non-detection.

WALL BOX COVER PLATE

SENSOR WINDOW
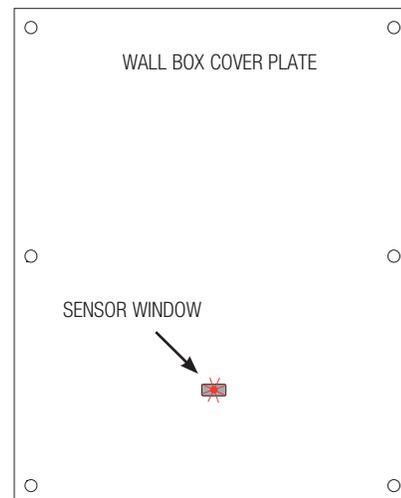
10 Turn Water on and Adjust Control Stop

A Adjust Control Stop to meet the flow rate required for proper cleansing of the fixture. Open Control Stop COUNTERCLOCKWISE one (1) FULL turn from the closed position.

TURN COUNTER-
CLOCKWISE TO OPEN

TURN CLOCKWISE
TO CLOSE
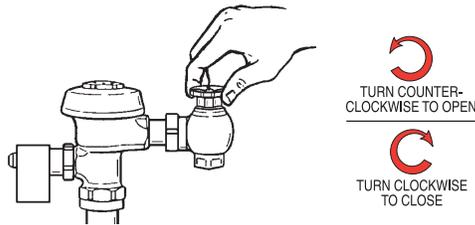
B Activate Flushometer by placing hand in front of OPTIMA Sensor Lens for ten (10) seconds and then moving it away.

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

!!! IMPORTANT !!!

All 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.

Never open Control Stop to 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 After adjustment, install Wall Box Cover Plate using six (6) Drilled Spanner Head tamper-proof screws. Tighten screws securely.

Operation

1. A continuous, invisible light beam is emitted from the OPTIMA Sensor.
2. As the user enters the beam's effective range, (25 to 40 inches (635 to 1016 mm) for closet installations and 15 to 30 inches (381 to 762 mm) for urinal installations), the beam is reflected into the OPTIMA's scanning window and transformed into a low voltage electrical signal that activates a sixteen (16) second (closet) /eight (8) second (urinal) time delay circuit. The time delay circuit eliminates false operation from passers-by in the rest room. Once the time delay is completed, the output circuit is alerted and 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 from the OPTIMA sensor, the loss of reflected light initiates an electrical "one-time" signal that energizes the solenoid operator, and activates the Flushometer to flush the fixture. For closet installations, this occurs approximately 3 seconds after indication. This delay is built into the sensor to help prevent false flushing due to movement by the user of the commode. The circuit then automatically resets and is ready for the next
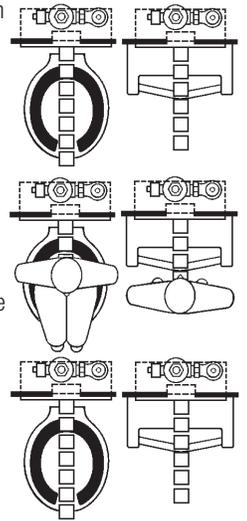
Care and Cleaning

DO NOT use abrasive or chemical cleaners (including chlorine bleach) to clean Flushometers that 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.

TROUBLESHOOTING GUIDE

1. Valve does not function (red light does not flash when user steps in front of sensor).
   A. No power is being supplied to sensor. Ensure that the main power is turned "ON." Check Transformer, leads and connections. Repair or replace as necessary.
   B. EL-1500 (urinal installations) or EL-1500-L (closet installations) sensor not operating. Replace EL-1500 or EL-1500-L sensor.

2. Valve does not function (red light flashes when user steps in front of Sensor).
   Red light stops flashing when user steps away and valve makes a "clicking" sound but does not flush.
   A. No water is being supplied to the valve. Make certain that water supply is turned "ON" and the Control Stop is open.
   B. EL-128-A Cartridge is fouled or jammed. Turn electronic power to valve "OFF" (failure to do so could result in damage to the solenoid coil). Remove the Solenoid Operator from the valve and remove the EL-128-A Cartridge. Clean and/or repair as necessary.
   The red light stops flashing when user steps away but the valve does NOT make a "clicking" sound and does NOT flush.
   C. EL-163-A Solenoid Shaft assembly is fouled or jammed. Turn electronic power to valve "OFF" (failure to do so could result in damage to the Solenoid Coil). Remove Nut and Coil from the Solenoid Operator. Use a spanner wrench or pliers to remove the EL-163-A Solenoid Shaft Assembly from valve. Clean and/or replace as necessary. Be sure to replace Plunger Spring when reassembling Solenoid Shaft Assembly.
   The red light flashes three (3) short flashes, three (3) long flashes then three (3) short flashes ("S-O-S") and continues to repeat this cycle even when user steps out of the sensor's detection range.
   D. EL-1500 or EL-1500-L Sensor wiring connections are incorrect. Rewire Sensor to valve. One solenoid lead connects to the "TO VALVE" connection on Sensor. One transformer lead connects to the "24 VAC IN" connection on Sensor. Second solenoid lead and second transformer lead connect together.
   E. Wiring to Sensor is ground shorted. Find short in wiring circuit and correct.
   F. EL-165-2 Solenoid Coil is burnt out or Coil is not connected to Solenoid Plunger Shaft. Reinstall or replace Coil as necessary.

3. Volume of water is insufficient to adequately siphon fixture.
   A. Control Stop is not open wide enough. Adjust Control Stop for desired water delivery.
   B. Low Consumption unit is installed on Water Saver or Conventional fixture. Replace Diaphragm component parts of valve with kit that corresponds to appropriate flush volume of fixture.
   C. Inadequate water volume or pressure available from supply. Increase pressure or supply (flow rate) to the valve. Consult factory for assistance.

4. Length of flush is too long (long flushing) or valve fails to shut off.
   A. Water Saver Valve is installed on Low Consumption fixture. Replace Diaphragm component parts of valve with kit that corresponds to appropriate flush volume of fixture.
   B. Relief valve in Diaphragm is not seated properly or bypass hole in Diaphragm is clogged. Disassemble inside Diaphragm component parts and wash parts thoroughly. Replace worn parts if necessary.

5. Water splashes from fixture.
   A. Supply flow rate is more than necessary. Adjust Control Stop to meet flow rate required for proper cleansing of the fixture.
   B. Closet valve is installed on urinal fixture. Replace closet Diaphragm component parts with proper urinal kit (Inside Diaphragm Assembly or Inside Parts Kit).

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

1-888-SLOAN-14 (1-888-756-2614) or 1-847-233-2016

PARTS LIST
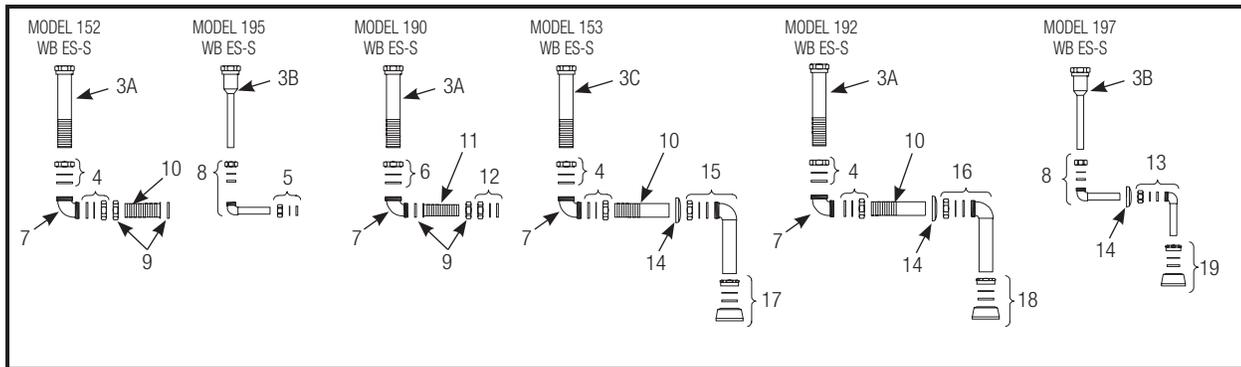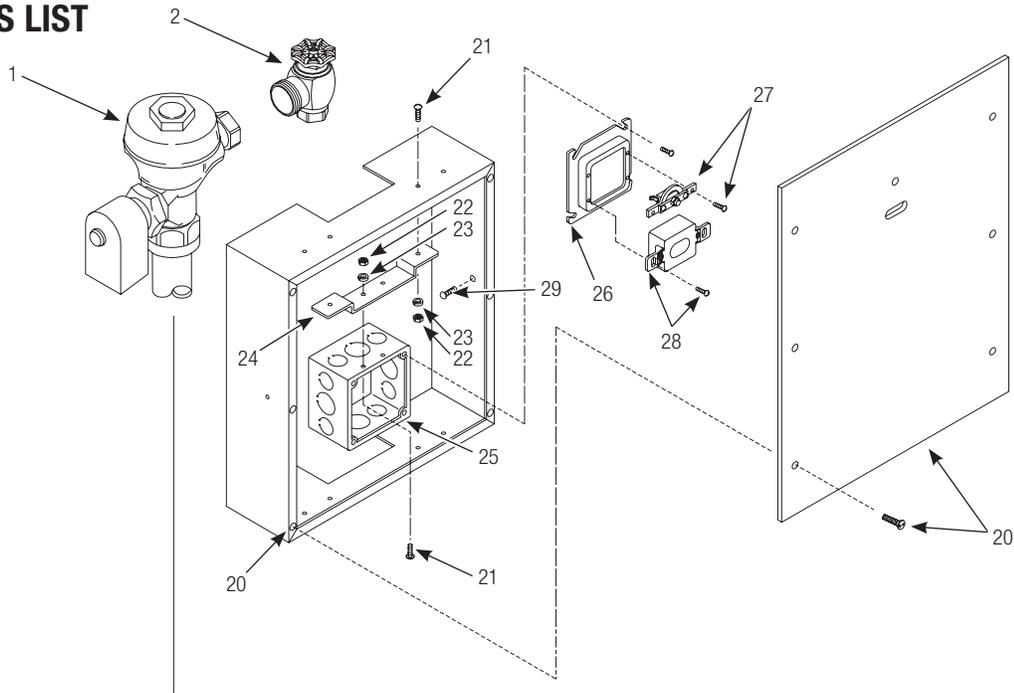
Item No.	Part No.	Description
1	‡	Solenoid Operated Valve Assembly
2	H-730-A	Bak-Chek® Control Stop
3A	V-500-AA	1-1/2" x 11-1/2" (38 mm x 292 mm) Vacuum Breaker Assembly RB (Models 152, 190 & 192 WB ES-S)
3B	V-500-AA	3/4" x 10-1/2" (19 mm x 267 mm) Vacuum Breaker Assembly RB (Models 195 & 197 WB ES-S)
3C	V-500-AA	1-1/2" x 7-1/2" (38 mm x 191 mm) Vacuum Breaker Assembly RB (Model 153 WB ES-S)
4	F-2-AA	1-1/2" Slip Joint Coupling (Set of Two)
5	F-2-AW	3/4" Slip Joint Coupling
6	F-2A	1-1/2" Slip Joint Coupling
7	F-21	1-1/2" Double Slip Elbow
8	F-15-A	ELL with 3/4" Tail
9	F-2A	1-1/2" Coupling with S-21 Gasket
10	F-102	1-1/2" Outlet Tube CP
11	F-110	1-1/4" O.D. Outlet
12	F-2-A-U	1-1/4' Slip Joint Coupling
13	F-15-A	ELL with 3/4" Tail CP
14	F-7	Flange
15	F-25-A	1-1/2" Elbow Assembly
16	F-25-A	1-1/4" Elbow Assembly
17	F-5-A	1-1/2" Spud Coupling Assembly CP
18	F-5-A	1-1/4" Spud Coupling Assembly CP
19	F-5-A	3/4" Spud Coupling Assembly CP

Item No.	Part No.	Description
20	EL-216	13" x 17" (330 mm x 432 mm) Stainless Steel Wall Box with Cover Plate (152 and 142 WB ES-S) and (6) #8-32 x 3/4" Drilled Spanner Screws
	EL-193	13" x 17" (330 mm x 432 mm) Stainless Steel Wall Box with Cover Plate (190, 192, 195 and 197 WB ES-S) and (6) #8-32 x 3/4" Drilled Spanner Screws
21	EL-125	#8-32 x 3/8" Screw (4 Required)
22	EL-126	#8-32 Hex Nut (4 Required)
23	EL-127	#8 Internal Tooth Lock Washer (4 Required)
24	EL-195	Mounting Bracket
25	EL-196	4" x 4" x 2-1/2" (102 mm x 102 mm x 64 mm) 2-Gang Electrical Box
26	EL-197	4" x 4" x 3/4" (102 mm x 102 mm x 19 mm) Electrical Box Device Cover
27	EL-141-A	Yoke and Override Button Assembly (Models 152 and 142 WB ES-S)
28	EL-1500-L	Closet Sensor (Models 152 and 142 WB ES-S)
	EL-1500	Urinal Sensor (Models 190, 192, 195 and 197 WB ES-S)
29	WB-6	Drive Screw (4 Required)

Complete Wall Box Assembly (Item Numbers 20 - 29):
EL-192-A   Models 152 and 142 WB ES-S
EL-191-A   Models 190, 192, 195 and 197 WB ES-S

‡ Part number varies with valve model variation; consult factory.

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