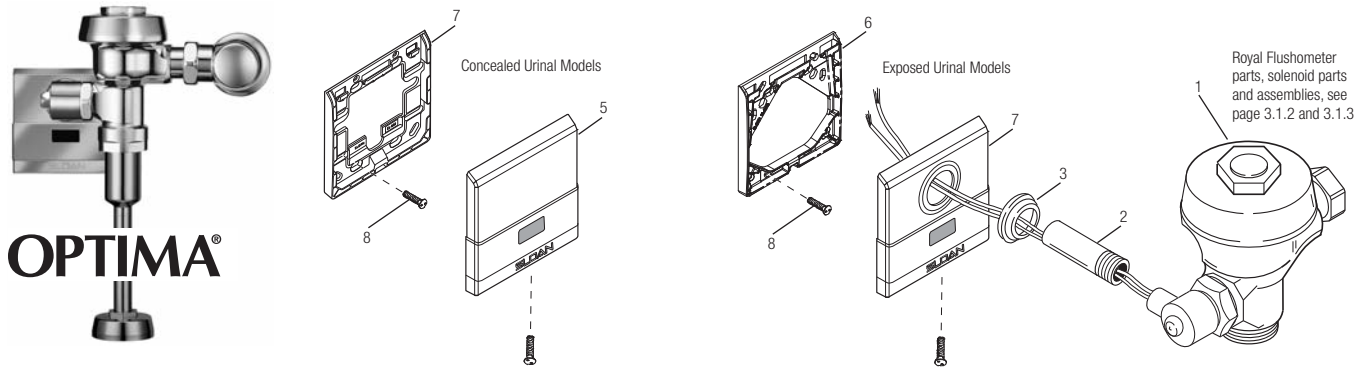


Optima® Flushometers



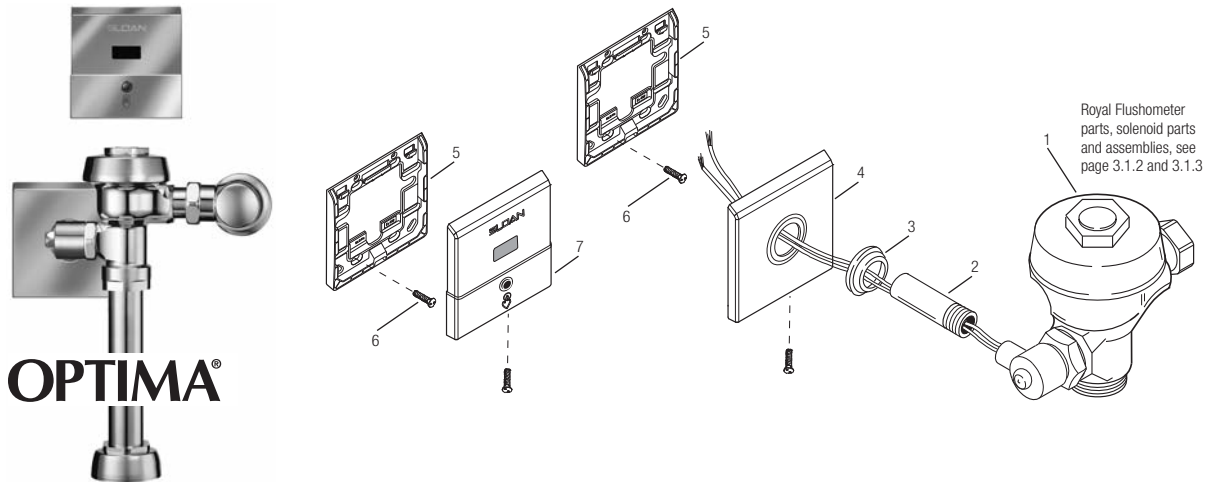
CURRENT COVER AND MOUNTING PLATE PARTS FOR ROYAL® URINAL FLUSHOMETER

Item No.	Code No.	Part No.	Description
1.	‡		Solenoid Operated Valve Assembly
2.	0306249	F-15	Tail Assembly†
3.	0345150	EL-431-A	Flange Assembly
4.	3305100	EL-640-A	CP Cover Plate with Sensor and Mounting Hardware Assembled (Exposed Models) (includes EL-549 mounting plate)

Item No.	Code No.	Part No.	Description
5.	3305101	EL-645-A	CP Cover Plate with Sensor Assembled (Concealed Models)
6.	—	EL-549	Mounting Plate (Exposed Models)
7.	—	EL-592	Mounting Plate
8.	—	EL-177	Screws (requires four (4) screws per mounting plate)
—	3305620	EL-1500	Urinal Sensor Replacement (Exposed and Concealed Models, not shown)

† NOTE: For exposed & concealed solenoids manufactured before 2003 or not shown here, consult factory for individual part assembly.

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



CURRENT COVER AND MOUNTING PLATE PARTS FOR ROYAL® CLOSET FLUSHOMETER

Item No.	Code No.	Part No.	Description
1.	‡		Solenoid Operated Valve Assembly
2.	0306249	F-15	Tail Assembly†
3.	0345150	EL-431-A	Flange Assembly
4.	3305105	EL-625-A	CP Cover Plate with Mounting Hardware Assembled (Closet only) (includes EL-543 mounting plate)
5.	—	EL-592	Mounting Plate

Item No.	Code No.	Part No.	Description
6.	—	EL-177	Screws (requires four screws per mounting bracket)
7.	3305104	EL-595-A	CP Cover Plate with Sensor and Override Switch Assembled (Closet only)
—	3305621	EL-1500-L	Closet Sensor Replacement Kit (Closet only, not shown)

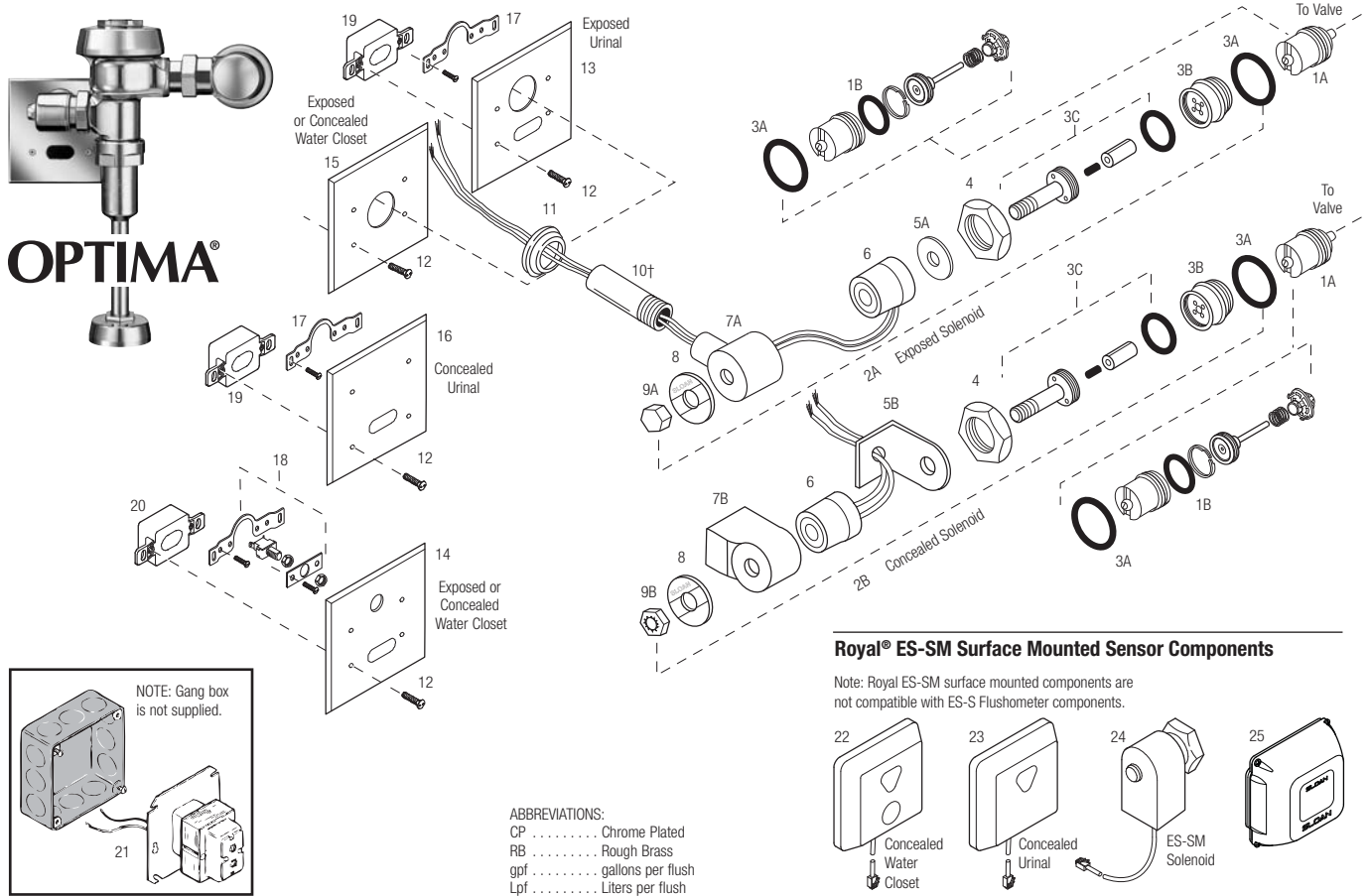
† NOTE: For exposed & concealed solenoids manufactured before 2003 or not shown here, consult factory for individual part assembly.

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

Optima® Flushometers

Old Royal until May, 2009

Current Sloan/Regal Flushometers



SOLENOID/SENSOR PARTS AND ASSEMBLIES LIST

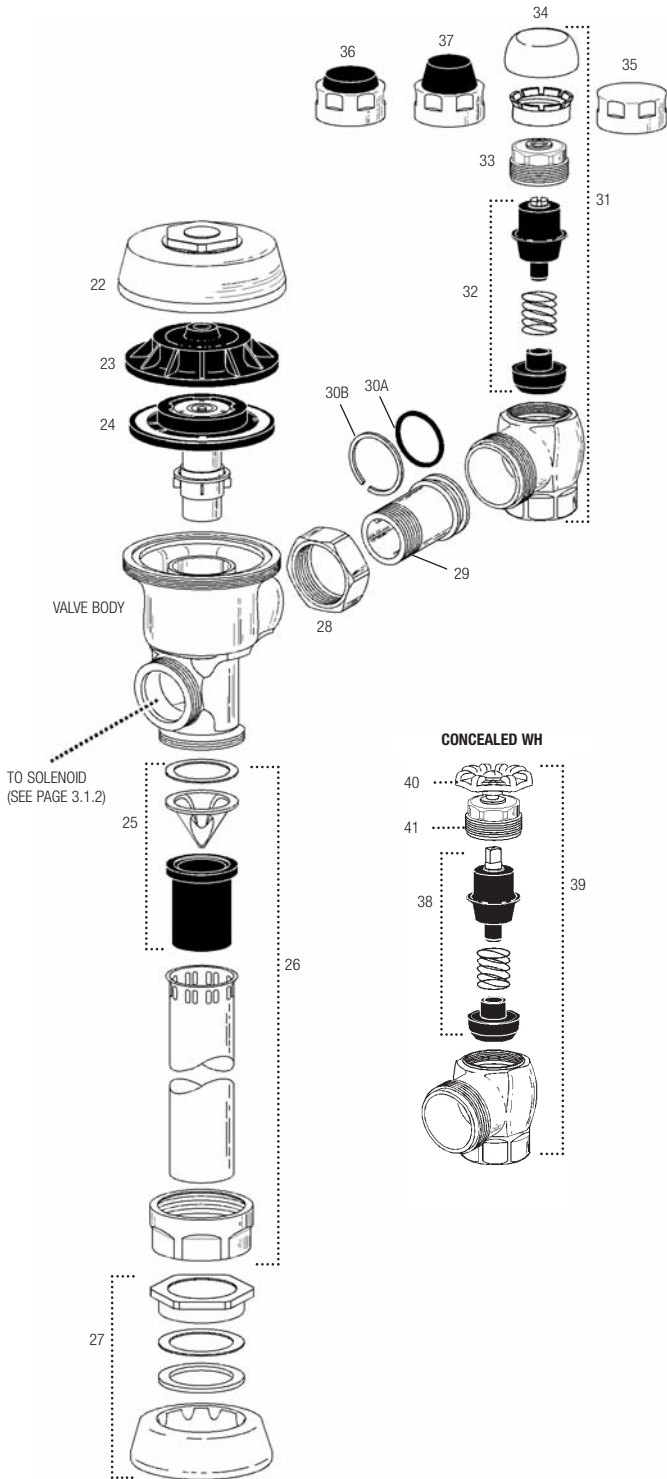
Item No.	Code No.	Part No.	Description
1A.	3305043	EL-128-A	Actuator Cartridge Assembly Repair Kit Includes Spring, Plunger Guide, Solenoid Valve Seat, Valve Piston Assembly, and O-Ring (also available for ES-SM Flushometers)
1B.	0305135	EL-110	O-Ring
2A.	0305329	EL-124-2	24 VAC Solenoid Assembly (exposed installation) Includes Handle Coupling, 24 VAC Coil, Face Plate for 24 VAC Solenoid, Solenoid Adapter, Solenoid Shaft Assembly, Nut for Solenoid, Solenoid Housing, Solenoid Flux Plate, and O-Ring
2B.	0305331	EL-138-2	24 VAC Solenoid Assembly (concealed installation) Includes Handle Coupling, 24 VAC Coil, Face Plate for 24 VAC Solenoid, Solenoid Adapter, Solenoid Shaft Assembly, Nut for Solenoid, Solenoid Base Plate and Solenoid Cover Assembly
3A.	0337086	DO-22	O-Ring
3B.	0305132	EL-104	RB Adapter for Solenoid
3C.	0305165	EL-163-A	Solenoid Shaft Assembly Includes Gasket, Plunger, Plunger Spring, and Solenoid Shaft
4.	0301082	A-6	CP Handle Coupling (exposed installation)
5A.	0305166	EL-164	Solenoid Flux Plate (exposed installation)
5B.	0305332	EL-542	Solenoid Base Plate (concealed installation)
6.	0305118	EL-165-2	24 VAC Coil
7A.	0345120	EL-162-2	CP Solenoid Housing (exposed installation)
	0305164	EL-162-1	CP Solenoid Housing (120V)
7B.	0305336	EL-541-A	Solenoid Cover Assembly (Includes Flux Plate)
8.	0305127	EL-102-2	Face Plate for 24 VAC Solenoid (exposed installation)
9A.	0305125	EL-101	CP Nut for Solenoid (exposed installation)

Item No.	Code No.	Part No.	Description
9B.	0305167	EL-166	Housing Nut for Solenoid (concealed installation)
10.	0306249	F-15	Tail †
11.	0345150	EL-431-A	CP Flange Assembly (exposed installation)
12.	0305152	EL-152	CP Screws (requires four screws per cover plate)
13.	0305151	EL-151	CP Cover Plate for Sensor and Solenoid Operator (Urinal only)
14.	0305219	EL-201	CP Cover Plate for Sensor and Override Button (Closet only)
15.	0318066	HY-66	CP Cover Plate for Solenoid Operator (Closet only)
16.	0305161	EL-161	CP Cover Plate for Sensor
17.	0305323	EL-168-A	Yoke Assembly (Urinal only)
18.	0305324	EL-141-A	Override Switch and Yoke Assembly (Closet only)
19.	3305620	EL-1500	Urinal Sensor Replacement Kit (Urinal only)
20.	3305621	EL-1500-L	Closet Sensor Replacement Kit (Closet only)
21.	0345154	EL-154	Transformer (120 VAC) (also available for ES-SM Flushometers)
	0345999	EL-342	Transformer (240 VAC) (also available for ES-SM Flushometers)
22.	3345047	EL-461	Surface Mounted Sensor and Override Button Assembly (closet only)
23.	3345048	EL-497	Surface Mounted Sensor Assembly (urinal only)
24.	3345048	EL-297	Solenoid Assembly
25.	3365003	ETF-492-A	Control Module

† NOTE: For exposed & concealed solenoids manufactured before 2003 or not shown here, consult factory for individual part assembly.

Optima® Royal® Flushometers

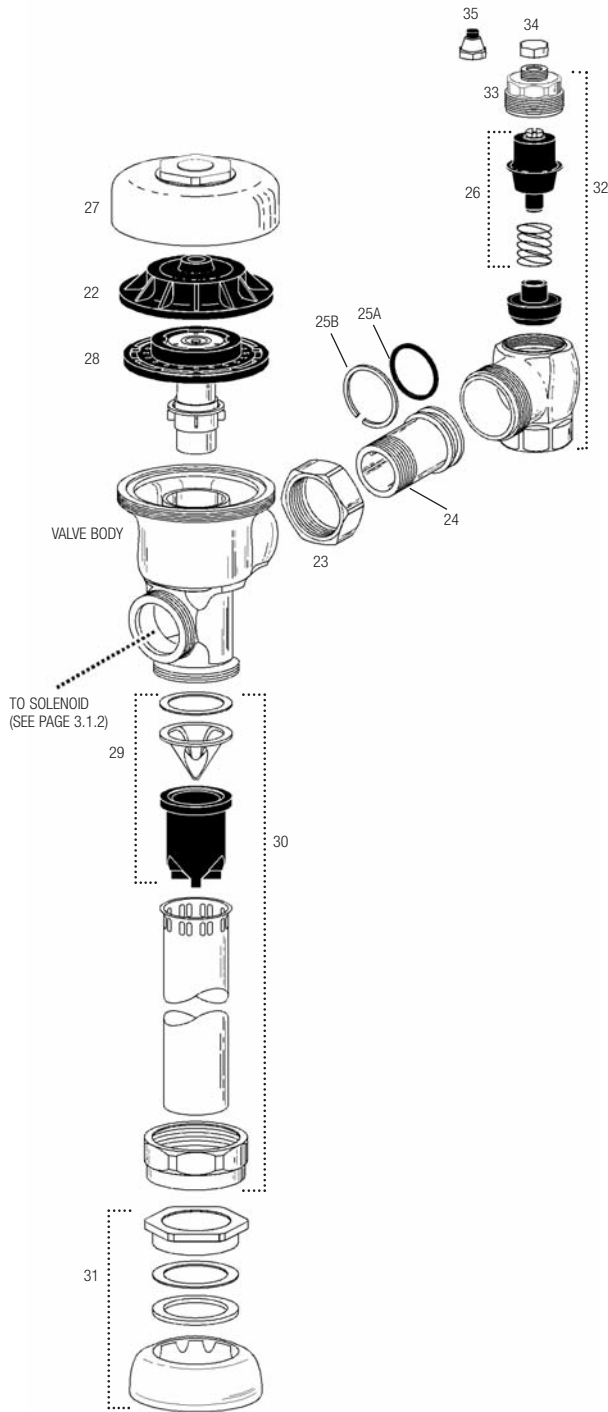
OPTIMA® ROYAL® FLUSHOMETER PARTS LIST



Item No.	Code No.	Part No.	Description
22.	0301172	A-72	CP Cover
23.	0301168	A-71	Inside Cover
24.	SEE DIAPHRAGM ASSEMBLY CHART ON PAGE 3.1.5		
25.	3323182	V-651-A	Vacuum Breaker Repair Kit
26.	3393004	V-600-AA	3/4" (19 mm) x 9" (229 mm) CP Vacuum Breaker
	3393006	V-600-AA	1-1/4" (32 mm) x 9" (229 mm) CP Vacuum Breaker
	3393007	V-600-AA	1-1/2" (38 mm) x 9" (229 mm) CP Vacuum Breaker
27.	0306125	F-5-AW	3/4" (19 mm) CP Spud Coupling Assembly
	0306140	F-5-AU	1-1/4" (32 mm) CP Spud Coupling Assembly
	0306146	F-5-AT	1-1/2" (38 mm) CP Spud Coupling Assembly
28.	0308676	H-550	CP Stop Coupling
29.	0308801	H-551-A	CP Adjustable Tail 2-1/16" (52 mm) long
30A.	5308696	H-553	O-Ring – 24 per package
30B.	5308381	H-552	Locking ring – 12 per package
31.	3308386	H-700-A	1" (25 mm) Screwdriver Bak-Chek® Angle Stop CP – complete
	3308384	H-700-A	3/4" (19 mm) Screwdriver Bak-Chek® Angle Stop CP – complete
32.	3308853	H-541-A-SD	Control Stop Repair Kit for use with 1" (25 mm) H-700-A & 3/4" (19 mm) H-700-A, 1" (25 mm) H-600-A, 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-540-A SD Stops
	3308856	H-543-A-SD	Control Stop Repair Kit for use with 3/4" (19 mm) H-600-A and H-540-A SD Stops
33.	0308612	H-622 CP	Bonnet for use with 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-600-A SD Stops
	0308843	H-577	CP Bonnet for use with 3/4" (19 mm) H-600-A SD Stops
34.	3308772	H-1010-A	1" (25 mm) Vandal Resistant Control Stop Cap Assembly for use with 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-600-A SD Stops
	3308790	H-1009-A	3/4" (19 mm) Vandal Resistant Control Stop Cap Assembly for use with 3/4" (19 mm) H-600-A SD Stops
35.	0308840	H-573	1" (25 mm) Control Stop Cap CP for use with 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-600-A SD Stops
	0308848	H-582	3/4" (19 mm) Control Stop Cap CP for use with 3/4" (19 mm) H-600-A SD Stops
36.	3308866	H-574	1" (25 mm) Control Stop Cap with Bumper for use with 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-600-A SD Stops
37.	3308867	H-576	1" (25 mm) Control Stop Cap with Extended Bumper for use with 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-600-A SD Stops
38.	3308860	H-1006-A	Repair Kit for 1" (25 mm) Stops with Concealed WH for use with 1" (25 mm) H-700-A, H-600-A, and H-543-AWH WH Series Stops
	3308859	H-1007-A	Repair Kit 3/4" (19 mm) Stops with Concealed WH for use with 3/4" (19 mm) H-700-A WH Series Stops
39.	0388010	H-730-A	1" (25 mm) Concealed WH Bak-Chek® Angle Stop RB
	0388011	H-730-A	3/4" (19 mm) Concealed WH Bak-Chek® Angle Stop RB
40.	3308872	H-1011-A	Repair Kit (for Concealed WH only; does not include bonnet)
41.	0208083	H-623	Bonnet
	0308705	H-561	Bonnet

ABBREVIATIONS:
 CP Chrome Plated
 RB Rough Brass
 SD Screwdriver
 WH Wheel Handle
 gpf gallons per flush
 Lpf Liters per flush

Optima® Regal® Flushometers



OPTIMA® REGAL® FLUSHOMETER PARTS LIST

Item No.	Code No.	Part No.	Description
22.	0301168	A-71	Inside Cover
23.	0308676	H-550	CP Stop Coupling
24.	0308801	H-551-A	CP Adjustable Tail 2-1/16" (52 mm) long
25A.	5308696	H-553	O-Ring – 24 per package
25B.	5308381	H-552	Locking ring – 12 per package
26.	3308853	H-541-A-SD	Control Stop Repair Kit for use with 1" (25 mm) H-700-A & 3/4" (19 mm) H-700-A, 1" (25 mm) H-600-A, 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-540-A SD Stops
	3308856	H-543-A-SD	Control Stop Repair Kit for use with 3/4" (19 mm) H-600-A
27.	0317004	R-10	CP Cover
28.	SEE INSIDE PARTS ASSEMBLY CHART ON PAGE 3.1.5		
29.	3323192	V-551-A	Vacuum Breaker Repair Kit
30.	5323005	V-500-AA	3/4" (19 mm) x 9" (229 mm) CP Vacuum Breaker
	5323006	V-500-AA	1-1/4" (32 mm) x 9" (229 mm) CP Vacuum Breaker
	5323007	V-500-AA	1-1/2" (38 mm) x 9" (229 mm) CP Vacuum Breaker
31.	0306102	F-54-A	3/4" (19 mm) CP Spud Coupling Assembly
	0306142	F-55-A	1-1/4" (32 mm) CP Spud Coupling Assembly
	0306145	F-56-A	1-1/2" (38 mm) CP Spud Coupling Assembly
32.	0388029	H-740-A	1" (25 mm) SD Bak-Chek® Stop CP – complete
	0388031	H-740-A	3/4" (19 mm) SD Bak-Chek® Stop CP – complete
33.	0308991	H-639	CP Bonnet for use with 1" (25 mm) & 3/4" (19 mm) H-700-A and 1" (25 mm) H-540-A SD Stops
	0308601	H-538	CP Bonnet for use with H-700-A 3/4" (19 mm) SD Stops
34.	5308156	H-37	CP Cap – 6 per package
35.	5310034	J-2/J-7	Bumper Assembly – 6 per package

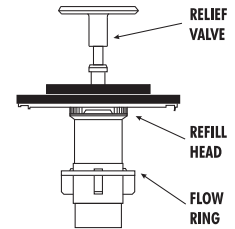
NOTE: Also refer to the Royal®, Regal®, control stop and flush connection sections.

Optima® Flushometers

ROYAL® ESS (ITEM 24) REPAIR KIT

Code No.	Part No.	Description	Relief Valve	Refill Head*	Flow Ring
3345013	EL-1101-A	Low Consumption Water Closets-1.6 gpf (6.0 Lpf)	Green	Gray	Smooth
3345014	EL-1102-A	Water Saver Water Closets-3.5 gpf (13.2 Lpf)	White	Gray	Smooth
3345015	EL-1103-A	9 Liter European Water Closets-2.4 gpf (9.0 Lpf)	Blue	Gray	Smooth
3345016	EL-1106-A	Wash Down Urinals-0.5 gpf (1.9 Lpf)	Green	Black	Smooth & Slotted
3345017	EL-1107-A	Low Consumption Urinals-1.0 gpf (3.8 Lpf)	Green	Black	Slotted
3345018	EL-1108-A	Water Saver Urinals-1.5 gpf (5.7 Lpf)	Black	Black	Smooth

To identify the Flush Volume of a DUAL FILTERED DIAPHRAGM ASSEMBLY, look at the color of the relief valve, the refill head and the shape of flow ring.



*NOTE: Water closet refill heads (gray) have larger slots than urinal refill heads (black).

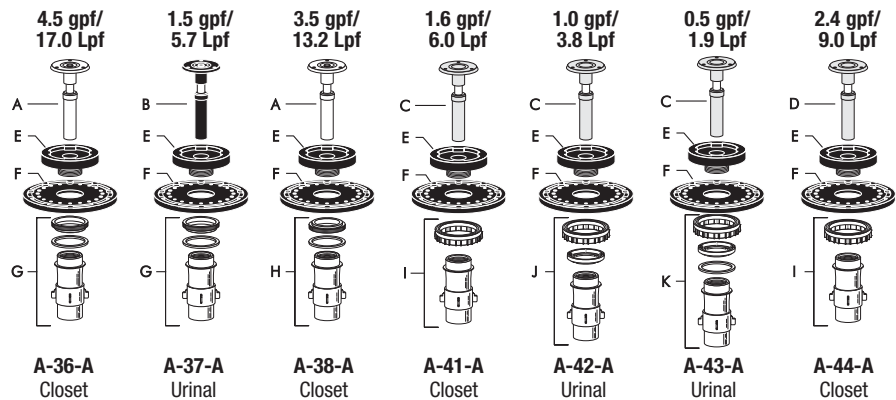
DIAPHRAGM ONLY KIT

Code No.	Part No.	Description	Relief Valve	Refill Head*	Flow Ring
3301502	A-1041-A	Low Consumption Water Closets-1.6 gpf (6.0 Lpf)	Green	Gray	Smooth
3301501	A-1038-A	Water Saver Water Closets-3.5 gpf (13.2 Lpf)	White	Gray	Smooth
3301506	A-1045-A	High Efficiency Water Closets-1.28 gpf (4.8 Lpf)	Blue	Gray	Smooth
3301505	A-1044-A	9 Liter European Water Closets-2.4 gpf (9.0 Lpf)	Blue	Gray	Smooth
3301504	A-1043-A	Wash Down Urinals-0.5 gpf (1.9 Lpf)	Green	Black	Smooth & Slotted
3321503	A-1042-A	Low Consumption Urinals-1.0 gpf (3.8 Lpf)	Green	Black	Slotted
3301500	A-1037-A	Water Saver Urinals-1.5 gpf (5.7 Lpf)	Black	Black	Smooth

*NOTE: Water closet refill heads (gray) have larger slots than urinal refill heads (black).

REGAL® ESS (ITEM 28) INSIDE PARTS KITS ASSEMBLY

Code No.	Part No.	Description
3301036	A-36-A	4.5 gpf/17.0 Lpf-Closet
3301037	A-37-A	1.5 gpf/5.7 Lpf-Urinal
3301038	A-38-A	3.5 gpf/13.2 Lpf-Closet
3301041	A-41-A	1.6 gpf/6.0 Lpf-Closet
3301044	A-42-A	1.0 gpf/3.8 Lpf-Urinal
3301081	A-43-A	0.5 gpf/1.9 Lpf-Urinal
3301024	A-44-A	2.4 gpf/9.0 Lpf-Closet



REGAL® INSIDE PARTS LIST**

Item No.	Code No.	Part No.	Description
A.	5301058	A-19-AC	Relief Valve, White (Closet)
B.	5301059	A-19-AU	Relief Valve, Black (Urinal)
C.	5301211	A-19-ALC	Relief Valve, Green (Closet/Urinal-Low Consumption)
D.	0301143	A-19-AL	Relief Valve, Blue (9 Liter Closet)
E.	5301111	A-15-A	Disc
F.	5301188	A-156-A	Diaphragm
G.	5301236	A-163-A	Guide Assembly 4.5 gpf/17.0 Lpf Closet and 1.5 gpf/5.7 Lpf Urinal
H.	5301032	A-152-A	Guide Assembly 3.5 gpf/13.2 Lpf Closet
I.	5301031	A-151-A	Guide Assembly 1.6 gpf/6.0 Lpf Closet
J.	5301155	A-155-A	Guide Assembly 1.0 gpf/3.8 Lpf Urinal
K.	5301157	A-157-A	Guide Assembly 0.5 gpf/1.9 Lpf Urinal

**NOTE: All Regal® inside part items are supplied in 12 per package.

Optima® Flushometers

SOLENOID/SENSOR KITS LIST

Code No.	Part No.	Description
3305045	EL-124-2A	CP 24 VAC Solenoid Assembly for exposed applications. Includes 24 VAC solenoid assembly and actuator cartridge assembly repair kit.
3305154	EL-1001-A	Closet Flushometer Electronic Accessories Kit with Override. Includes screws, hex wrench, plate for 2-gang electrical box, mounting plate, override switch, yoke assembly, closet sensor replacement kit, an Optima® sticker and sensor Installation Instructions.
3305170	EL-1005-A	Exposed Urinal Flushometer Electronic Accessories Kit. Includes plate for 2-gang electrical box, four screws, yoke, hex wrench, washer, urinal sensor replacement kit, an Optima® sticker and sensor Installation Instructions.
3305172	EL-1007-A	Concealed Urinal Flushometer Accessories Kit. Includes screws, yoke, plate for 2-gang electrical box, hex wrench, washer, urinal sensor replacement kit, an Optima® sticker and sensor Installation Instructions.

WALL BOX KITS CLOSET MODELS

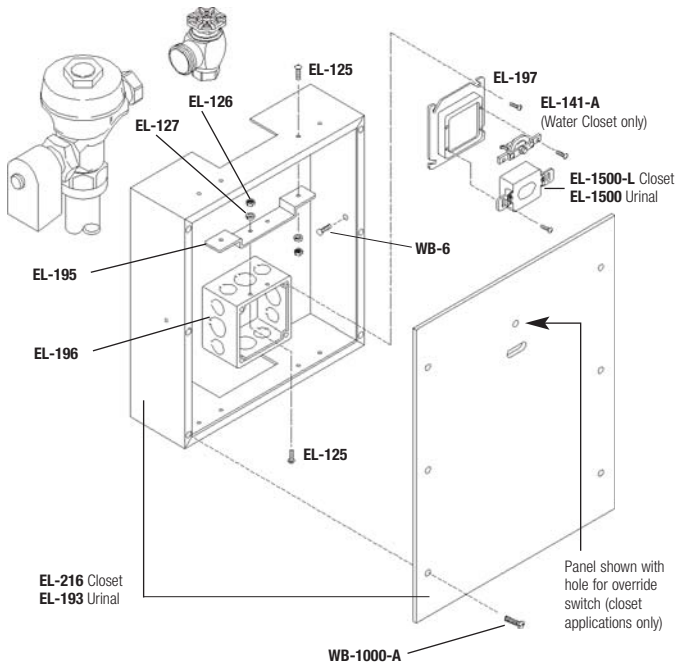
Code No.	Part No.	Description
3305180	EL-192-A	Closet Wall Box Kit – Stainless Steel. Includes four Mounting Screws, four Hex Nuts, four Lock Washers, Mounting Bracket, Electrical Box, Electrical Box Cover, Override Switch Subassembly, Wall Box 13" x 17" (330 mm x 432 mm) with 14.5" x 18.5" (368 mm x 470 mm) Stainless Steel Wall Box Cover with hole for override switch, Spanner Bit and Closet Sensor Replacement Kit.
3305179	EL-192-A	Closet Wall Box Kit – Polished Brass. Includes the same components as 3305180 listed above except unit is furnished with Polished Brass 14.5" x 18.5" (368 mm x 470 mm) Wall Box Cover (instead of Stainless Steel)

WALL BOX KITS URINAL MODELS

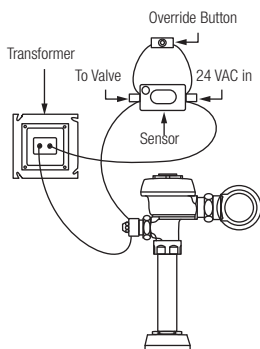
3305178	EL-191-A	Urinal Wall Box Kit – Stainless Steel. Includes Mounting Screws, Hex Nuts, Lock Washers, Wall Box 13" x 17" (330 mm x 432 mm) with 14.5" x 18.5" (368 mm x 470 mm) Stainless Steel Wall Box Cover, Mounting Bracket, Electrical Box, Electrical Box Cover, Spanner Bit, Urinal Sensor Replacement Kit.
3305177	EL-191-A	Urinal Wall Box Kit – Polished Brass. Includes the same components as 3305178 listed above except unit is furnished with Polished Brass 14.5" x 18.5" (368 mm x 470 mm) Wall Box Cover (instead of Stainless Steel)

WALL BOX PARTS

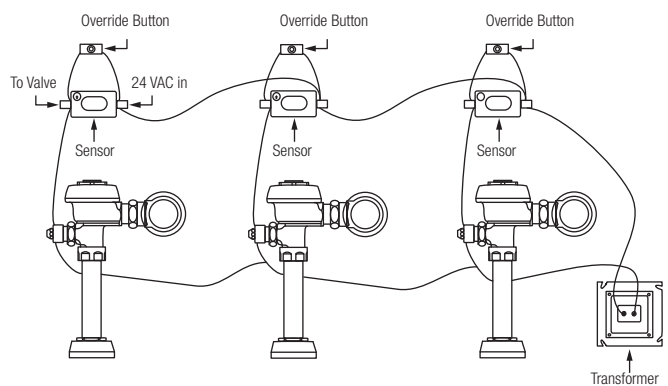
0305845	EL-318	Spanner Bit (used for WB-1000-A)
5334000	WB-1000-A	Mounting Screw (6 per pack)



TYPICAL WIRING DIAGRAM FOR ONE FLUSH VALVE



TYPICAL WIRING DIAGRAM FOR ONE OR MORE FLUSH VALVE(S)



Optima® Flushometers

SENSOR REPLACEMENT

NOTE: The EL-1500 series Optima sensor (a two-wire unit) replaces the older EL-150 series sensors (either three-wire or four-wire units). Refer to the wiring history shown below.

IMPORTANT

- Be certain to disconnect the 24 VAC power supply either at the transformer or the fuse box. Failure to disable the power supply can result in damage to the EL-1500 series sensor.
 - The solenoid operator must be removed from the valve on exposed urinal installations. Do not damage the O-ring seal on the operator assembly.
1. Remove the cover plate (for wall box installation, remove cover panel) and old sensor from the wall installation. Use a 5/64" hex wrench to remove the cover plate screws (or #8 drilled spanner head screwdriver EL-318 to remove the vandal-resistant screws from the wall box cover panel.)

FIGURE 1A

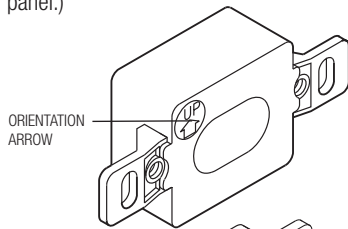
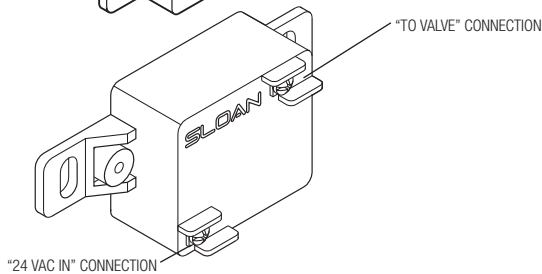


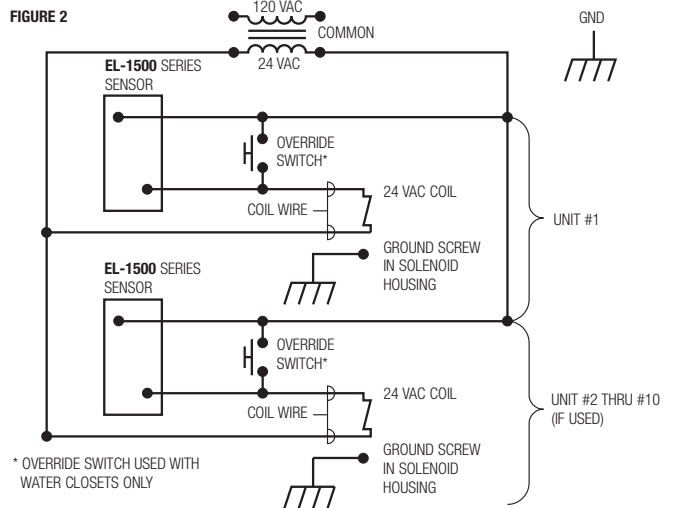
FIGURE 1B



2. Connect one 24 VAC lead to the sensor terminal labeled "24 VAC IN" (see Figure 1B).
 - On an old three-wire series EL-150 sensor, this wire was connected to the BLACK sensor lead.
 - On an old four-wire series EL-150 sensor, this wire was connected to the BROWN sensor lead.
3. Connect one solenoid lead to the sensor terminal labeled "TO VALVE" (see Figure 1B).
 - On an old three-wire or four-wire EL-150 series sensor, this wire was connected to the RED sensor lead.
4. Connect the remaining 24 VAC lead to the remaining solenoid lead.
 - On an old three-wire series EL-150 sensor, these wires were connected to the WHITE sensor leads.
 - On an old four-wire EL-150 series sensor, these wires were connected to the YELLOW and BLUE (or in very early models, the inner BROWN) sensor leads.
5. On Water Closet installations only, connect the override button (shown as the override switch in wiring diagram) parallel to the EL-1500-L sensor.
6. Reinstall the sensor with the orientation arrow on the lens side of the sensor pointing UP (see Figure 1A). Replace the cover plate (or wall box panel) and tighten the cover plate (or wall box panel) screws.
7. Reconnect the 24 VAC power supply at the transformer or the fuse box.

WIRING DIAGRAM

FIGURE 2



* OVERRIDE SWITCH USED WITH WATER CLOSETS ONLY

NOTE: A MAXIMUM OF TEN (10) SENSOR FLUSHMETER UNITS CAN OPERATE FROM ONE (1) SLOAN EL-154 TRANSFORMER. CLASS 2 UL LISTED, 48 VA (MIN.) AT 24 VAC, PLATE MOUNTED.

START-UP MODE

NOTE: It is important that only permanent targets are present at this time.

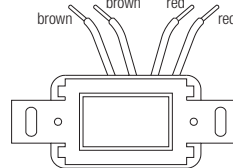
The self-adaptive sensor automatically adjusts to the surrounding environment when the 24 volt supply is activated. No manual adjustment is required. The start-up cycle completes in approximately five (5) minutes. A continuous red light visible in the sensor window indicates the start-up mode. If the red light flashes, the sensor detects 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 a 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 complete, the red light will no longer be visible in the sensor window.

NOTE: If the 24 volt power supply is ever interrupted for longer than fifteen (15) seconds, the start-up mode begins automatically when power is restored.

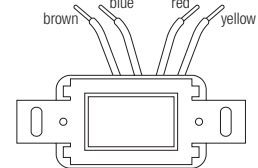
Incorrect wiring or a short in the 24 volt power supply will initiate a warning signal in the sensor window. The visible light flashes a continuous "S-O-S" signal: three (3) fast, three (3) slow, and three (3) fast flashes.

EL-150 Wiring History for 4-wire and 3-wire sensors

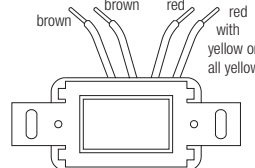
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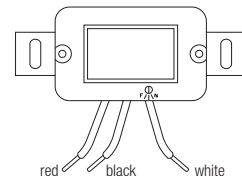
Release date 02/02/87



Release date 08/11/83



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Optima® Flushometers

TROUBLESHOOTING GUIDE

ATTENTION INSTALLERS: With the exception of the control stop inlet, DO NOT USE pipe sealant or plumbing grease on any valve component or coupling! To protect the chrome or special finish of Sloan Flushometers, DO NOT USE toothed tools to install or service these valves. Use our A-50 Super-Wrench™ or other smooth-jawed wrench to secure couplings. Regulations for low consumption fixtures (1.6 gpf/6.0 Lpf closets and 1.0 gpf/3.8 Lpf urinals) prohibit use of higher flush volumes.

NOTE: Upon detection of the user, the red indicator light flashes slowly for a period of eight seconds. When the user leaves the detection range, the indicator light flashes rapidly and the sensor initiates the flush sequence. Then the indicator light stops flashing and the valve flushes. (On water closet models, the valve will flush after a three-second delay).

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/EL-1500-L sensor is not operating. Replace sensor.

2. Valve does not function (red light flashes when user steps in front of sensor).

INDICATOR: The red light stops flashing when user steps away and the 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.

INDICATOR: The red light stops flashing when user steps away but the valve does NOT make a "clicking" sound and does NOT flush.

- A. 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 EL-101 or EL-166 nut from the solenoid operator. Remove the 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.

INDICATOR: The red light flashes three (3) fast flashes, three (3) slow flashes then three (3) fast flashes ("S-O-S") and continues to repeat this cycle even when user steps out of the sensor's detection range.

- A. EL-1500/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.
- B. Wiring to sensor is ground shorted. Find short in wiring circuit and correct.
- C. 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 by-pass 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).

CARE AND CLEANING INSTRUCTIONS

DO NOT USE abrasive or chemical cleaners to clean Flushometers that may dull the luster and attack the chrome or special decorative finishes. Use **ONLY** mild soap and water, then wipe dry with a clean towel or cloth.

When cleaning the bathroom tile, protect the Flushometer from any splattering of cleaner. Acids and cleaning fluids can discolor or remove chrome plating.