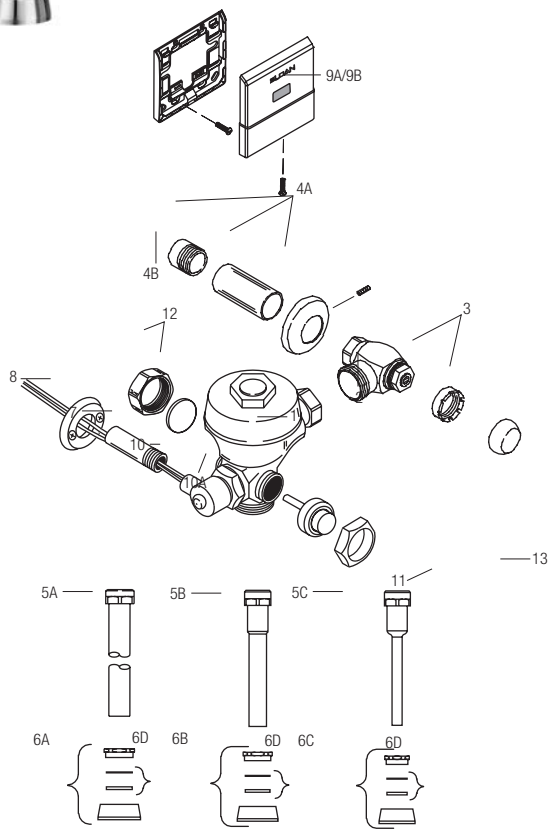
Optima® Royal® ES-S TMO Exposed Flushometers





ROYAL® OPTIMA® ES-S TMO EXPOSED FLUSHOMETER PARTS LIST

Item No.	Code No.	Part No.	Description
1.	‡		Solenoid Activated Valve Assembly
2.	‡	H-700-A	Bak-Chek® Control Stop
3.	**3308772**	H-1010-A	Vandal Resistant Stop Cap
4A.	**3308782**	H-633-AA	1" (25 mm) Sweat Solder Kit
4B.	**3308603**	H-532	Adapter, 1" NPT to 1" Tube
	3308607	H-535.	Adapter, 3/4" NPT to 3/4" Tube
5A.	—	V-600-AA	1-1/2" (38 mm) Vacuum Breaker Assembly CP (Models 110/111, 115, and 116)
5B.	—	V-600-AA	1-1/4" (32 mm) x 9" (229 mm) Vacuum Breaker Assembly CP (Model 180 ES-S)
5C.	—	V-600-AA	3/4" (19 mm) x 9" (229 mm) Vacuum Breaker Assembly CP (Model 186 ES-S)
6A.	**0306146**	F-5-AT	1-1/2" (38 mm) Spud Coupling Assembly CP (Models 110/111, 115, and 116)
6B.	**0306140**	F-5-AU	1-1/4" (32 mm) Spud Coupling Assembly CP (Model 180)
6C.	**0306125**	F-5-AW	3/4" (19 mm) Spud Coupling Assembly CP (Model 186)
6D.	**SEE SLIP JOINT GASKETS AND RINGS ON TABLE BELOW**		
7.	‡	F-15	Tail Assembly
8.	**0302323PK**	B-110-A	Flange Assembly
9A.	**3305107**	EL-635-A	CP Cover Plate with Sensor (Mounting Plate and Screws included) (Models 110/111, 115, and 116)
9B.	**3305101**	EL-645-A	CP Cover Plate with Sensor (Mounting Plate and Screws included) (Models 180 and 186)
10.	**0305329**	EL-124-2	CP 24V Solenoid Assembly Only
10A	**3305043**	EL-128-A	Actuator Cartridge Assembly Only
	3305045	EL-1028-A	Solenoid Assembly w/ Cartridge Assembly
11.	**0303009**	C-2-A	True Mechanical Override Button
12.	**3325814**	EBV-1017-A	CP Valve Handle Cap
13.	**0301082PK**	A-6	CP Nut
–	**3345080**	EL-1026-A	ES-S to ES-S-TMO Conversion Kit Exposed includes Body/Tail assembly (no inside parts or covers) #11, #12, #13, DO-22 and EL-110 o-rings
–	**3305043**	EL-128-A	Actuator Cartridge
14.	**3302306**	B-51-A	Triple Seal Handle Repair Kit
15.	**3345080**	EL-126-A	ESS to TMO Retrofit Conversion Kit (Exposed*)
	3388015	H-1015-A	Flow Control Kit (HEU Only (not Shown)

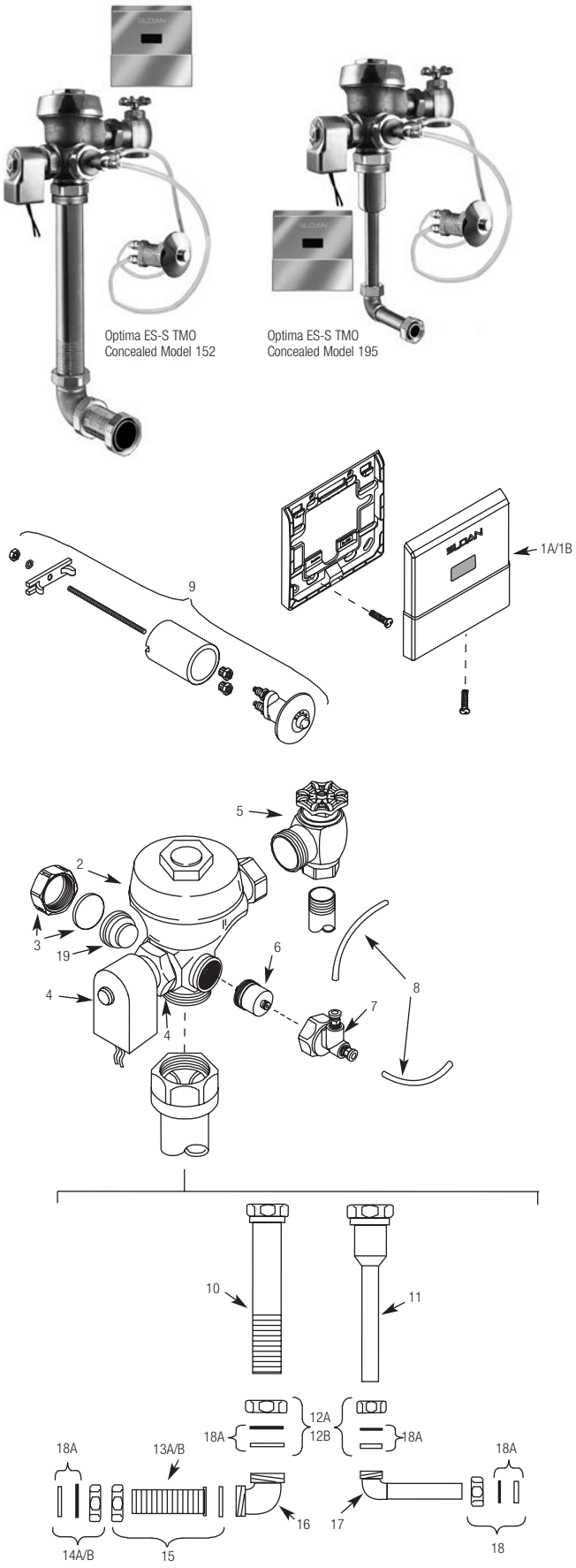
‡ Part number varies with valve model variation; consult factory.

* Not shown

ITEM 6D. SLIP JOINT GASKETS AND RINGS

Size	Code No.	Part No.	Description
1-1/2"	**5306058**	F-3	Red Friction Ring
	5322001	VBF-5	Black Slip Joint Gasket
	0319086/5319086	S-30	Flexible Seat
	0319079	S-21	Rigid Seat (rubber over brass)
1-1/2" x 1-1/4"	**0396062**	F-105	Slip Joint Gasket – Rigid
1-1/4"	**5306057**	F-3	Red Friction Ring
	5322176	VBF-5	Black Slip Joint Gasket
	0307052/5307052	G-21	Rigid Seat (rubber over brass)
1"	**5306056**	F-3	Red Friction Ring
	5306115	F-5	Black Slip Joint Gasket
3/4"	**5306055**	F-3	Red Friction Ring
	5306113	F-5	Black Slip Joint Gasket

Optima® Royal® ES-S TMO Concealed Flushometers



ROYAL® OPTIMA® ES-S TMO CONCEALED FLUSHOMETER PARTS LIST

Item No.	Code No.	Part No.	Description
1A.	**3305107**	EL-635-A	CP Cover Plate with Sensor (Mounting Screws included) (Model 152)
1B.	**3305101**	EL-645-A	CP Cover Plate with Sensor (Mounting Screws included) (Model 195)
2.	**‡**	—	Valve Assembly
3.	**3301093**	A-1013-A	Concealed Valve Handle Cap RB
4.	**0305331**	EL-138-2	RB Concealed 24V Solenoid Assembly
4A.	**3305043**	EL-128-A	Actuator Cartridge Assembly Only
5.	**‡**	H-730-A	RB Bak-Chek® Control Stop
6.	**3318001**	HY-83-A	Actuator Cartridge
7.	**3318005**	HY-109-A-1	Valve Actuator Assembly
8.	**0318093**	HY-30	1/4" (6 mm) x 48" (1219 mm) Connecting Tubes
9.	**0318117**	HY-100-A-1	Metal Push Button Assembly
10.	**‡**	V-500-AA	1-1/2" (38 mm) Vacuum Breaker Assembly RB (Model 152)
11.	**‡**	V-500-AA	3/4" (19 mm) Vacuum Breaker Assembly RB (Model 192)
12A.	**0306088**	F-2-AT	1-1/2" (38 mm) Slip Joint Coupling Assembly RB (Model 152)
12B.	**0306054**	F-2-AW	3/4" (19 mm) Slip Joint Coupling Assembly RB (Model 192)
13A.	**‡**	F-110	1-1/4" (32 mm) Outlet Tube with Flange and Scoring (Model 152)
13B.	**‡**	F-100	1-1/2" (38 mm) Outlet Tube with Flange and Scoring (Model 152)
14A.	**0306059**	F-2-AU	1-1/4" (32 mm) Slip Joint Coupling Assembly RB (Model 152)
14B.	**0306088**	F-2-AT	1-1/2" (38 mm) Slip Joint Coupling Assembly RB (Model 152)
15.	**0306091**	F-2-A	1-1/2" (38 mm) Coupling with S-21 Gasket (Model 152)
16.	**0206146PK**	F-21	1-1/2" (38 mm) Double Male Slip Joint Elbow
17.	**‡**	F-15-A	ELL with 3/4" (19 mm) Tail
18.	**0306054**	F-2-AW	3/4" (19 mm) Slip Joint Coupling
18A.	**SEE SLIP JOINT GASKETS AND RINGS TABLE BELOW**		
19.	**0305190**	EL-190-A	Handle Adapter Assembly
20.	**3345020**	EL-1033-A	ESS to TMO Retrofit Kit (Concealed)*
	3388015	H-1015-A	Flow Control Kit (HEU Only (not Shown)

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

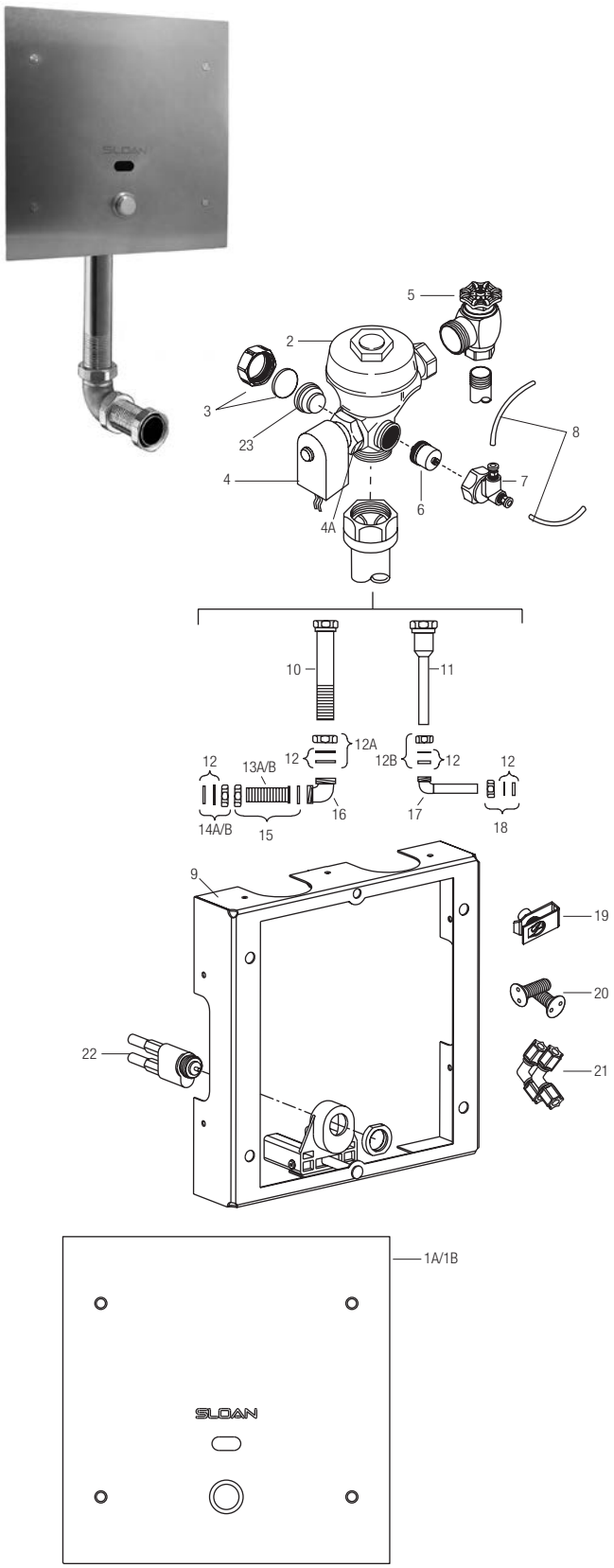
* Not Shown

ITEM 18A. SLIP JOINT GASKETS AND RINGS

Size	Code No.	Part No.	Description
1-1/2"	**5306058**	F-3	Red Friction Ring
	5322001	VBF-5	Black Slip Joint Gasket
	0319086/5319086	S-30	Flexible Seat
	0319079	S-21	Rigid Seat (rubber over brass)
1-1/2" x 1-1/4"	**0396062**	F-105	Slip Joint Gasket – Rigid
1-1/4"	**5306057**	F-3	Red Friction Ring
	5322176	VBF-5	Black Slip Joint Gasket
	0307052/5307052	G-21	Rigid Seat (rubber over brass)
1"	**5306056**	F-3	Red Friction Ring
	5306115	F-5	Black Slip Joint Gasket
3/4"	**5306055**	F-3	Red Friction Ring
	5306113	F-5	Black Slip Joint Gasket

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Optima® Royal® ES-S TMO with SWB Concealed Flushometers



ROYAL® OPTIMA® ES-S TMO WITH SWB PARTS LIST

Item No.	Code No.	Part No.	Description
1A.	—	WB-55-A	Wall Box Cover Plate Assembly (Model 152)
1B.	—	WB-60-A	Wall Box Cover Plate Assembly (Model 195)
2.	‡	—	Valve Assembly
3.	**3301093**	A-1013-A	Concealed Valve Handle Cap RB
4.	**0305331**	EL-138-2	RB Concealed 24V Solenoid Assembly
4A.	**3305043**	EL-128-A	Actuator Cartridge Assembly Only
5.	‡	H-730-A	RB Bak-Chek® Control Stop
6.	**3318001**	HY-83-A	Actuator Cartridge
7.	**3318005**	HY-109-A-1	Valve Actuator Assembly
8.	**0318117**	HY-30	1/4" (6 mm) x 48" (1219 mm) Connecting Tubes
10.	‡	V-500-AA	1-1/2" (38 mm) Vacuum Breaker Assembly RB (Model 152)
11.	‡	V-500-AA	3/4" (19 mm) Vacuum Breaker Assembly RB (Model 192)
12.	**SEE SLIP JOINT GASKETS AND RINGS TABLE BELOW**		
12A.	**0306088**	F-2-AT	1-1/2" (38 mm) Slip Joint Coupling Assembly RB (Model 152)
12B.	**0306054**	F-2-AW	3/4" (19 mm) Slip Joint Coupling Assembly RB (Model 192)
13A.	‡	F-110	1-1/4" (32 mm) Outlet Tube Flanged and Scored (Model 152)
13B.	‡	F-100	1-1/2" (38 mm) Outlet Tube Flanged and Scored (Model 152)
14A.	**0306059**	F-2-AU	1-1/4" (32 mm) Slip Joint Coupling Assembly RB (Model 152)
14B.	**0306088**	F-2-AT	1-1/2" (38 mm) Slip Joint Coupling Assembly RB (Model 152)
15.	**0306091**	F-2-A	1-1/2" (38 mm) Coupling with S-21 Gasket (Model 152)†
16.	**0206146PK**	F-21	1-1/2" (38 mm) Double Male Slip Joint Elbow
17.	**0306366**	F-15-A	ELL with 3/4" (19 mm) Tail (Model 195)†
18.	**0306054**	F-2-AW	3/4" (19 mm) Slip Joint Coupling
19.	**0334017**	WB-18	U-Type Nuts (4) 1/4-20
20.	—	WB-49	Tamper Resistant Screws (4) 1/4-20 x 1-1/2
21.	—	HY-126	Elbow Fitting (2)
22.	**0318123**	HY-71-A	Hydraulic Actuator Assembly
23.	**0305190**	EL-190-A	Handle Adapter Assembly

† "L" Dimension available between the lengths of 2" and 10¾"
‡ Part number varies with valve model variation; consult factory.

ITEM 12. SLIP JOINT GASKETS AND RINGS

Size	Code No.	Part No.	Description
1-1/2"	**5306058**	F-3	Red Friction Ring
	5322001	VBF-5	Black Slip Joint Gasket
	0319086/5319086	S-30	Flexible Seat
	0319079	S-21	Rigid Seat (rubber over brass)
1-1/2" x 1-1/4"	**0396062**	F-105	Slip Joint Gasket – Rigid
1-1/4"	**5306057**	F-3	Red Friction Ring
	5322176	VBF-5	Black Slip Joint Gasket
	0307052/5307052	G-21	Rigid Seat (rubber over brass)
1"	**5306056**	F-3	Red Friction Ring
	5306115	F-5	Black Slip Joint Gasket
3/4"	**5306055**	F-3	Red Friction Ring
	5306113	F-5	Black Slip Joint Gasket

Optima® Royal® ES-S TMO (SWB) Flushometers

TROUBLESHOOTING GUIDE

Urinals (EL-1500 Sensor)

When the sensor detects a user, a slow flashing red light appears in the sensor window. After eight (8) to ten (10) seconds, the light flashes rapidly to indicate that the sensor is armed. When the sensor no longer detects a user, the sensor immediately activates the solenoid valve after a 0.5 second delay.

Water Closets (EL-1500-L Sensor)

Detection and activation are the same as for the urinal EL-1500 sensor (ABOVE) except when the sensor no longer detects an user, the sensor activates the solenoid valve after a three (3) second delay.

The EL-1500 urinal and EL-1500-L closet self-adaptive sensors are equipped with a "Sentinel Flush" feature. These units automatically activate the solenoid every twenty-four (24) hours after the last user.

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-L Sensor is not operating. Replace the EL-1500-L Sensor.
2. **Valve does not function (red light flashes when user steps in front of sensor).**

   INDICATOR: 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 the water supply is turned "ON" and the Control Stop is open. 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-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) 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.
   - A. 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 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.
6. **Leakage occurring at the Push Button (Concealed models only).**
   - A. Damaged or worn seals or lime build up in the actuator cartridge. Replace with new HY-32-A cartridge.
7. **The flushometer does not flush or flushes only once and will not flush a second time when the button is pushed (Concealed models only).**
   - A. The plunger is lodged in the actuator cartridge or the plunger by-pass hole is clogged. Remove the actuator housing and cartridge from the flushometer. Clean under running water. If cartridge parts are worn, deteriorated or limed up and problem persists after cleaning, replace with new HY-83-A cartridge.
     1. Turn off water at the control stop.
     2. Unscrew the housing coupling nut from the flushometer.
     3. Remove the actuator housing from the flushometer. The tubing connections can be left intact.
     3. Remove the actuator cartridge from the flushometer body. Care should be taken so that upon removal the actuator does not abruptly separate due to spring compression within. If the actuator cartridge is lodged in the body cavity, grip the exposed portion gently with a pair of channel lock pliers and rotate back and forth to loosen the "O" ring seal.
     5. Separate the actuator housing to reveal the spring and plunger.
   - B. Plastic Tubing Installed Incorrectly. Install Plastic Tubing Correctly.
8. **The flushometer does not flush and a small amount of leakage is visible below the valve (Concealed models only).**
   - A. Foreign material lodged in the cartridge. Remove the cartridge and inspect for foreign material. Clean under running water.
   - B. Damaged or worn seals or lime build up in the actuator cartridge. Replace with new HY-32-A cartridge.
     1. Remove the button or actuator assembly from the wall or fixture.
     2. Disassemble the flange or button assembly from the actuator body.
     3. Unscrew the cartridge from the actuator body. Note: The metal push button was designed to be vandal-proof and thus requires removal from the wall for servicing.
   - C. Plastic Tubing installed incorrectly. Install Plastic Tubing Correctly.

CARE AND CLEANING INSTRUCTIONS

DO NOT USE abrasive or chemical cleaners to clean flushometers or sensor 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.

When assistance is required, please contact Sloan Technical Support at: 1-888-SLOAN-14 (1-888-756-2614).

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