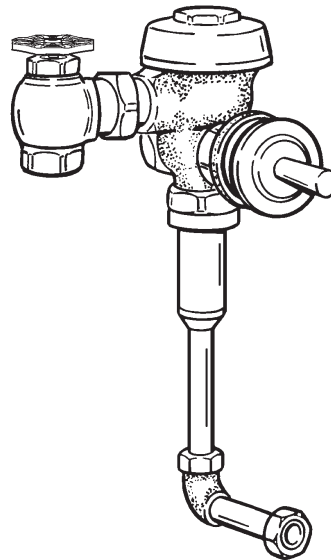
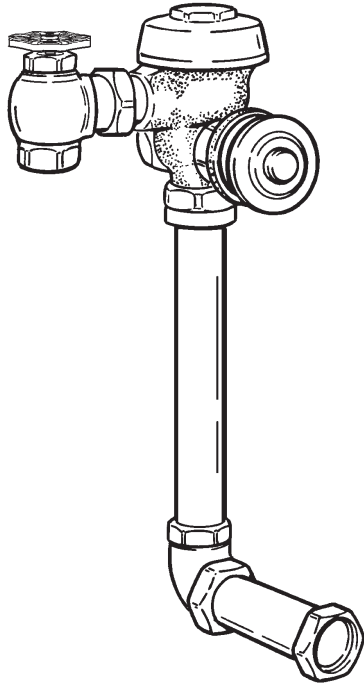


# SLOAN®

## Royal® Regal®

### INSTALLATION INSTRUCTIONS FOR STANDARD CONCEALED CLOSET AND URINAL FLUSHOMETERS



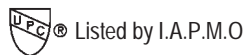
Concealed Closet Flushometer —  
1-1/2" Exposed Back Spud  
MODEL 140  
MODEL 154

Concealed Closet Flushometer —  
1-1/2" Exposed Top Spud  
MODEL 142  
MODEL 153

Concealed Closet Flushometer —  
1-1/2" Back Spud  
MODEL 143  
MODEL 144  
MODEL 150  
MODEL 152

Concealed Urinal Flushometer —  
Back Spud  
MODEL 190  
MODEL 195

Concealed Urinal Flushometer —  
Exposed Top Spud  
MODEL 192  
MODEL 197



Made in the U.S.A.

Installation of the Sloan Royal® and Regal® Flushometers provide the quality, long life and water economy that makes Sloan the most dependable Flushometers ever. Royal and Regal Flushometers provide outstanding water saving capabilities by precisely metering every flush and have been engineered to deliver a consistent, quiet flush, time after time. No internal adjustment of the Flushometer is required. Patented features provide unequalled performance on today's new generation of low consumption fixtures. Sloan Concealed Flushometers are directly actuated by use of a handle or push button.

Sloan Royal and Regal Concealed Flushometers are designed for easy installation and maintenance and comes complete with a lever or push button actuator, Bak-Chek® control stop, adjustable tailpiece, vacuum breaker flush connection, spud coupling, and wall and spud flanges for exposed piping.

The following instructions will serve as a guide when installing the Sloan Flushometer. As always, good safety practices and care are recommended when installing your new Flushometer. If further assistance is required, contact your nearest Sloan Representative office.

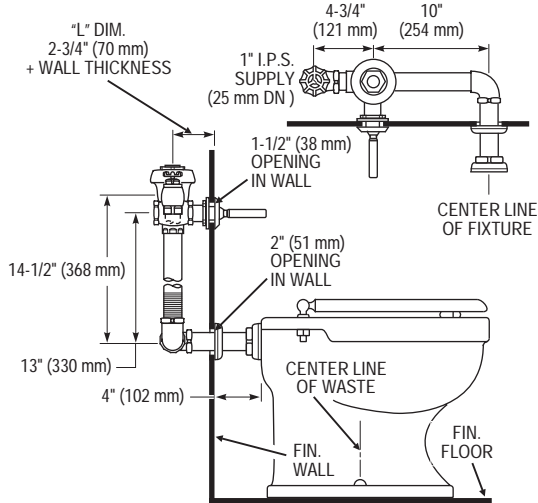
#### LIMITED WARRANTY

Sloan Valve Company warrants its Concealed Royal and Regal Flushometers to be made of first class materials, free from defects of material or workmanship under normal use and to perform the service for which they are intended in a thoroughly reliable and efficient manner when properly installed and serviced, for a period of three years (1 year for special finishes) from date of purchase. During this period, Sloan Valve Company will, at its option, repair or replace any part or parts which prove to be thus defective if returned to Sloan Valve Company, at customer's cost, and this shall be the sole remedy available under this warranty. No claims will be allowed for labor, transportation or other incidental costs. This warranty extends only to persons or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale.

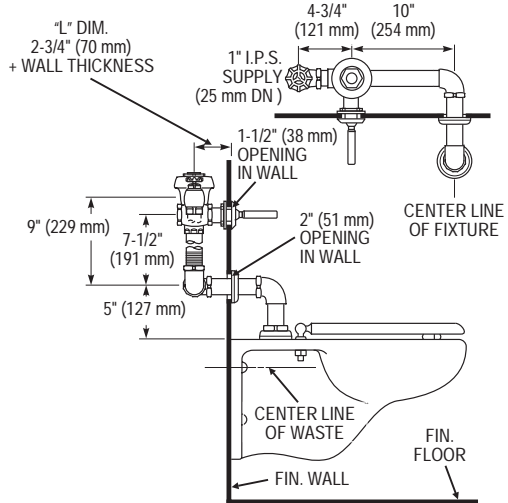
**THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO EVENT IS SLOAN VALVE COMPANY RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY MEASURE WHATSOEVER.**

# VALVE ROUGH-IN — Figure 1

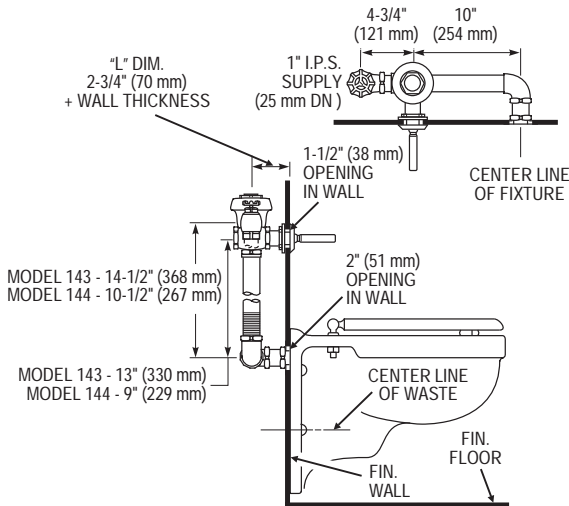
MODEL 140 — Water Saver, 3.5 gpf (13.2 Lpf)  
 MODEL 140-1.6 — Low Consumption, 1.6 gpf (6.0 Lpf)



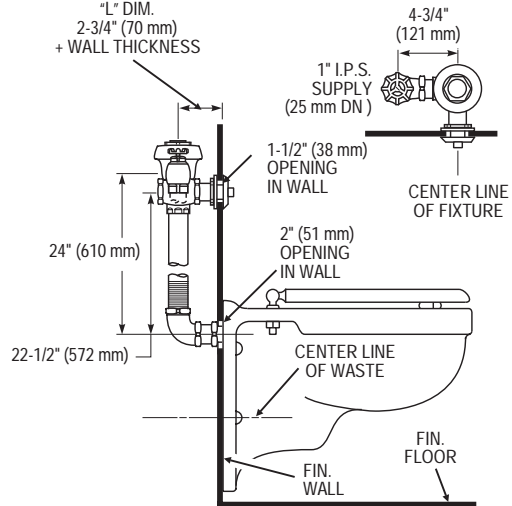
MODEL 142 — Water Saver, 3.5 gpf (13.2 Lpf)  
 MODEL 142-1.6 — Low Consumption, 1.6 gpf (6.0 Lpf)



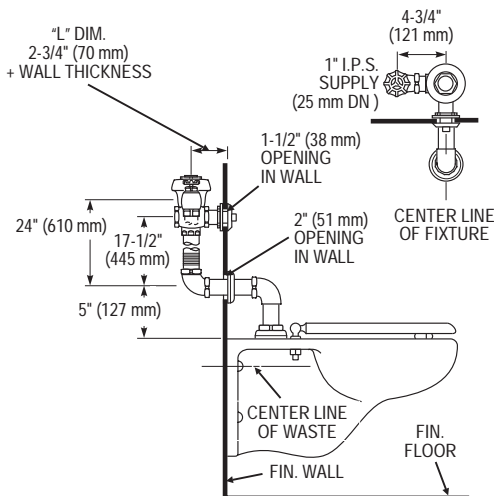
MODEL 143/144 — Water Saver, 3.5 gpf (13.2 Lpf)  
 MODEL 143/144-1.6 — Low Consumption, 1.6 gpf (6.0 Lpf)



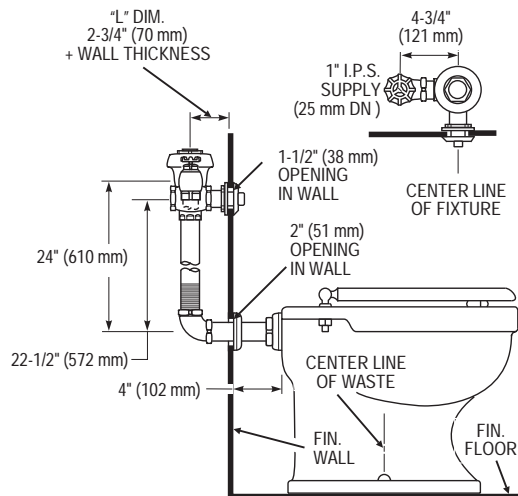
MODEL 152 — Water Saver, 3.5 gpf (13.2 Lpf)  
 MODEL 152-1.6 — Low Consumption, 1.6 gpf (6.0 Lpf)



MODEL 153 — Water Saver, 3.5 gpf (13.2 Lpf)  
 MODEL 153-1.6 — Low Consumption, 1.6 gpf (6.0 Lpf)

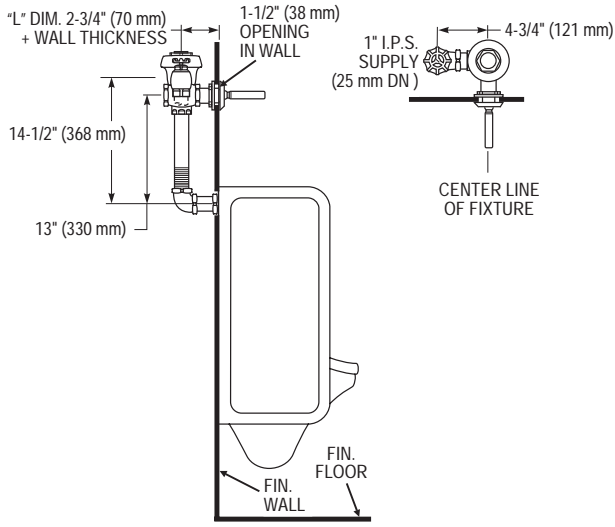


MODEL 154 — Water Saver, 3.5 gpf (13.2 Lpf)  
 MODEL 154-1.6 — Low Consumption, 1.6 gpf (6.0 Lpf)

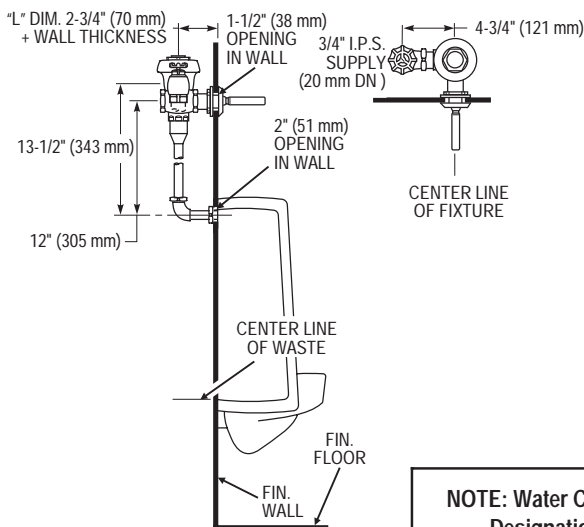


## VALVE ROUGH-IN — Figure 1 (Continued)

MODEL 190 — Conventional, 3.5 gpf (13.2 Lpf)  
 MODEL 190-1.5 — Water Saver, 1.5 gpf (5.7 Lpf)  
 MODEL 190-1 — Low Consumption, 1.0 gpf (3.8 Lpf)  
**NOTE: Requires 1" I.P.S. (25 mm DN) SUPPLY**

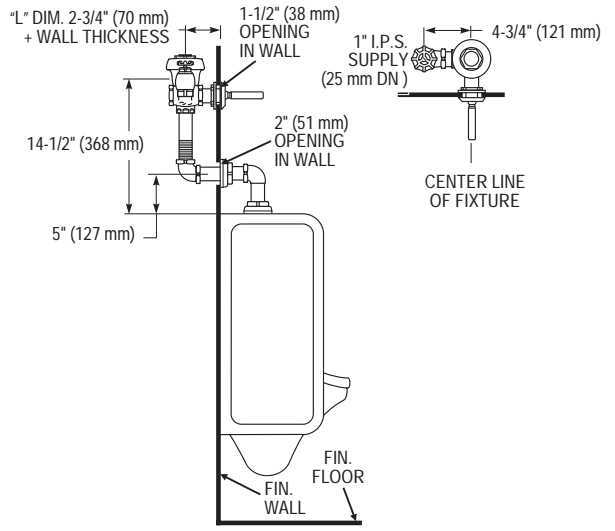


MODEL 195-1.5 — Water Saver, 1.5 gpf (5.7 Lpf)  
 MODEL 195-1.0 — Low Consumption, 1.0 gpf (3.8 Lpf)  
 MODEL 195-0.5 — 0.5 gpf (1.9 Lpf)

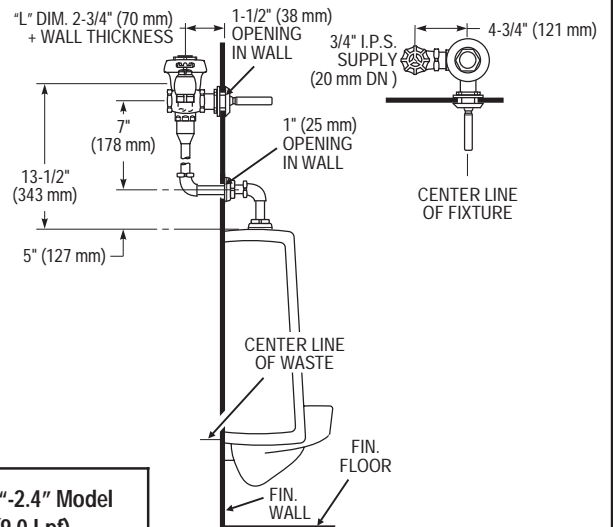


**NOTE: Water Closet Valves with "-2.4" Model Designation Deliver 2.4 gpf (9.0 Lpf)**

MODEL 192 — Conventional, 3.5 gpf (13.2 Lpf)  
 MODEL 192-1.5 — Water Saver, 1.5 gpf (5.7 Lpf)  
 MODEL 192-1 — Low Consumption, 1.0 gpf (3.8 Lpf)  
**NOTE: Requires 1" I.P.S. (25 mm DN) SUPPLY**



MODEL 197-1.5 — Water Saver, 1.5 gpf (5.7 Lpf)  
 MODEL 197-1.0 — Low Consumption, 1.0 gpf (3.8 Lpf)  
 MODEL 197-0.5 — 0.5 gpf (1.9 Lpf)



## PRIOR TO INSTALLATION

Check to make certain that "L" dimension shown on the Flushometer package is correct for your application. Determine the "L" dimension for your application by using the following formula:

$$\text{"L" dimension} = \text{Wall Thickness (To Nearest Whole Inch)} + 2\text{-}3/4\text{"}$$

Prior to installing the Sloan Concealed Flushometer, perform the following functions as illustrated in Figure 1.

- Bore a 1-1/2" (38 mm) opening in wall for actuator.
- Bore a 2" (51 mm) opening in wall for piping (if required).
- Install fixture.
- Install drain line.
- Install water supply line.

### Important:

- ALL PLUMBING IS TO 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.
- FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.

The Sloan ROYAL<sup>®</sup> and REGAL<sup>®</sup> are designed to operate with 10 to 100 psi (69 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 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: WITH THE EXCEPTION OF CONTROL STOP INLET, DO NOT USE PIPE SEALANT OR PLUMBING GREASE ON ANY VALVE COMPONENT OR COUPLING!**

## TOOLS REQUIRED FOR INSTALLATION

- Sloan A-50 "Super-Wrench™" or smooth jawed spud wrench

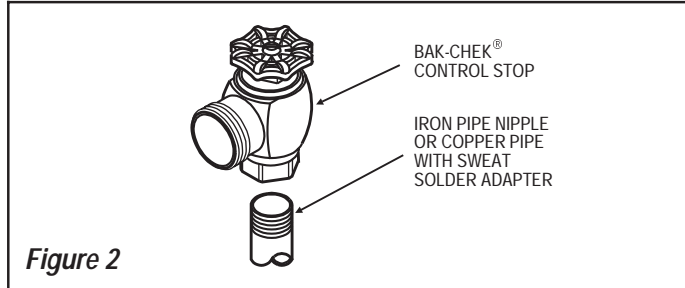
## INSTALLATION

### Step 1 — Control Stop Installation (Figure 2)

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

For Sweat Solder applications, solder adapter to copper pipe prior to assembling control stop.

**Note:** Concealed valves are supplied with double handle opening to allow for



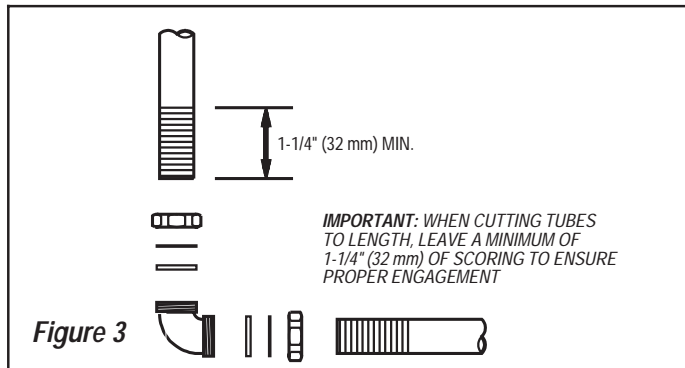
installation of Control Stop on either the left or right side of the valve (refer to Figure 6).

### Step 2 — Install Vacuum Breaker Flush Connection (Figure 3)

**Note:** When cutting scored pipe to fit, leave a minimum of 1-1/4" (32 mm) of scoring to ensure proper engagement with compression coupling (see Figure 3).

Assemble Pipe, Elbow(s), Couplings, Nylon Slip Gaskets, Rubber Gaskets and Flanges as illustrated on back page. Hand tighten all Couplings.

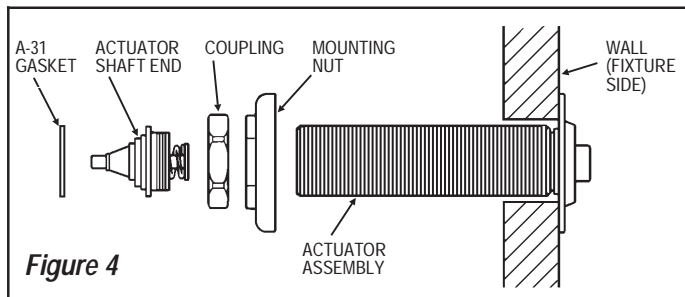
**IMPORTANT: WITH THE EXCEPTION OF CONTROL STOP INLET, DO NOT**



**USE PIPE SEALANT OR PLUMBING GREASE ON ANY VALVE COMPONENT OR COUPLING!**

### Step 3 — Mount Actuator Assembly to Wall (Figure 4)

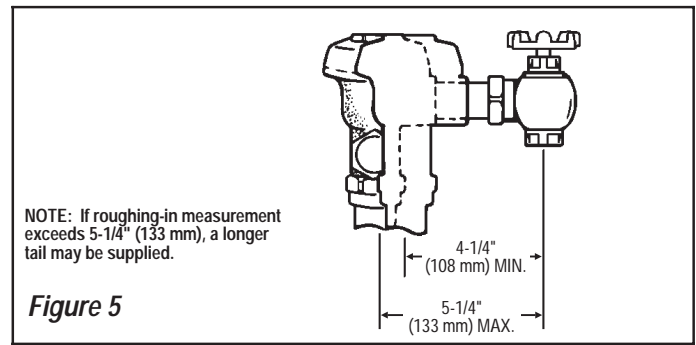
Remove Actuator Shaft End, Coupling and Mounting Nut from Actuator assembly. Insert Actuator Shaft through the 1-1/2" (38 mm) wall opening from fixture side of wall. Install Mounting Nut, Coupling and Actuator Shaft End to



Actuator assembly. Hand tighten Mounting Nut to wall. Securely tighten Actuator Shaft End to Actuator assembly.

### Step 4 — Install Flushometer SLOAN ADJUSTABLE TAILPIECE (Figure 5)

The Sloan Adjustable Tailpiece compensates for "off-center" roughing-in on the



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

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

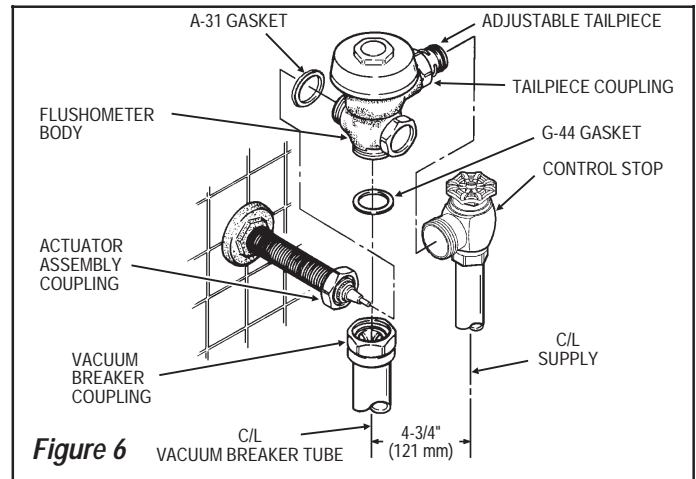
### ALL FLUSHOMETER INSTALLATIONS (Figure 6)

Insert Adjustable Tailpiece into Control Stop while mounting Flushometer to Actuator assembly. Wet O-ring seal of Adjustable Tailpiece with water to lubricate. Secure by hand tightening Actuator and Tailpiece Couplings.

Align Flushometer on top of Vacuum Breaker Flush Connection and secure by hand tightening Vacuum Breaker Coupling.

Align Flushometer Body and securely tighten Tailpiece Coupling, Actuator Coupling, Vacuum Breaker Coupling, Flush Connection Couplings, and Spud Coupling, respectively. Securely tighten Actuator Mounting Nut to wall.

**Important Note:** Use a Sloan A-50 "Super- Wrench™" or smooth jawed spud

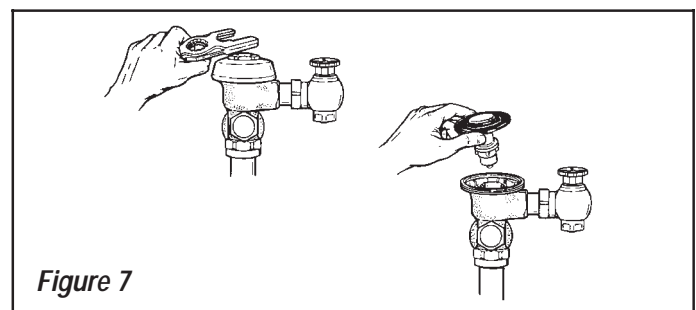


wrench to secure all couplings. This will eliminate damage to chrome or special finish that normally occurs when slip-joint pliers, pipe wrenches or other "toothed" tools are used.

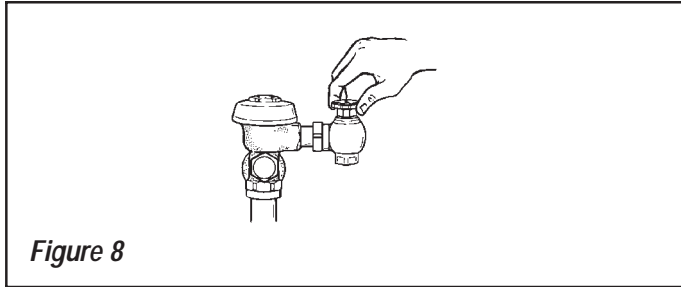
### Step 5 — Flush Out Supply Line (Figure 7)

Shut off Control Stop and remove Flushometer Cover. Lift out the Inside Parts Assembly. Install Flushometer Cover wrench tight and open Control Stop. Turn on water supply to flush line of any debris or sediment.

After completion, shut off Control Stop, remove Flushometer Cover and reinstall



Inside Parts Assembly. Install Flushometer Cover wrench tight. Open Control Stop and activate Flushometer Valve.



### Step 6 — Adjust Control Stop (Figure 8)

Adjust Control Stop to meet the flow rate required for the proper cleansing of the fixture. Open Control Stop COUNTERCLOCKWISE 1/2 turn from the closed position. Activate Flushometer. Adjust Control Stop after each flush until the rate of flow delivered properly cleanses the fixture.

**Important:** The Sloan Royal<sup>®</sup> and Regal<sup>®</sup> 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:

1. The plumbing fixture is cleansed after each flush without splashing water out from the lip.
2. A quiet flushing cycle is achieved.

### CARE AND CLEANING OF CHROME AND SPECIAL FINISHES

DO NOT use abrasive or chemical cleaners to clean Flushometers as they may dull the luster and attack the chrome or special decorative finishes. Use ONLY soap and water, then wipe dry with clean cloth or towel.

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

### TROUBLESHOOTING GUIDE

#### I. Flushometer does not function.

- A. Control Stop or Main Valve is Closed. Open Control Stop or Main Valve.
- B. Handle or Push Button Assembly is worn. Install Sloan Handle Repair Kit (C-70-A) or replace handle or push button.
- C. Relief Valve is worn. Replace Inside Parts Kit.

#### II. Insufficient volume of water to adequately siphon fixture.

- A. Control Stop not open enough. Adjust Control Stop for desired delivery of water.
- B. Urinal Flushometer Parts inside a Closet Flushometer. Replace Inside Urinal Parts with proper Closet Flushometer Parts.
- C. Low Consumption Flushometer installed on a non-Low Consumption fixture. Replace A-41-A Inside Parts Kit with A-38-A Water Saver Kit.
- D. Water Saver Kit installed in old, non-Water Saver bowl. Position Refill Head A-170 so that SIDE 1 is in the UP Position.
- E. Inadequate volume or pressure at supply.
  - If no gauges are available to properly measure supply pressure or volume of water at the Flushometer, then remove the Relief Valve from the Inside Parts Kit, reassemble the Flushometer and open the Control Stop. If the fixture siphons, more water volume is required. If a 3.5 gpf Inside Parts Kit is installed in the Flushometer, then first flip the Refill Head (under the Diaphragm) to obtain a 4.5 gpf volume. If this volume is still inadequate, remove the Flow Ring from the Guide to obtain a 6.5 gpf Kit. If additional flow is still required, try a Low Pressure Guide Kit A-175-A (#0301104). **IMPORTANT - Laws and Regulations requiring Low Consumption Fixtures (1.6 gpf Water Closets and 1.0 gpf Urinals) prohibit the use of higher flushing volumes.**
  - If fixture does not siphon or if a Low Consumption fixture is installed, or if the above steps do not prove satisfactory, steps must be taken to increase the pressure and/or supply.

#### III. Flushometer closes off immediately.

- A. Ruptured or damaged Diaphragm. Install Inside Parts Kit to correct problem and update Flushometer.
- B. Enlarged By-pass orifice from corrosion or damage. Install Inside Parts Kit to correct problem and update Flushometer.

#### IV. Length of flush is too short (Short Flushing).

- A. Diaphragm Assembly and Guide Assembly are not hand-tight. Screw the two assemblies hand-tight.
- B. Enlarged By-pass orifice from corrosion or damage. Install NEW Inside Parts Kit to correct problem and update Flushometer.
- C. A-19-AU (Black) Urinal Relief Valve in Closet Flushometer. Replace Relief Valve with A-19-AC (White) Closet Relief Valve.
- D. A-41-A Low Consumption Kit installed in non-Low Consumption fixture. Replace with proper Inside Parts Kit.
- E. Handle Assembly is worn. Install Handle Repair Kit C-70-A or replace the Handle.

**V. Length of flush is too long (Long Flushing) or fails to close off.**

- A. Relief Valve is not seating properly or By-pass orifice is clogged because of foreign material, or By-pass orifice is closed by an invisible gelatinous film from "over-treated" water.

Disassemble the working parts and wash thoroughly. NOTE: SIZE OF THE ORIFICE IN THE BY-PASS IS OF UTMOST IMPORTANCE FOR THE PROPER METERING OF WATER INTO THE UPPER CHAMBER OF THE FLUSHOMETER. DO NOT ENLARGE OR DAMAGE THIS ORIFICE. REPLACE INSIDE KIT IF CLEANING DOES NOT CORRECT PROBLEM.

- B. Line pressure has dropped and is not sufficient to force Relief Valve to seat. Shut off all control stops until pressure has been restored, then open them again.
- C. A-19-AC (White) Closet Relief Valve has been used in a 1 or 1-1/2 gpf Urinal. Replace with A-19-AU (Black) Relief Valve.
- D. Inside Cover is cracked or damaged. Replace the Inside Cover (A-71).

**VI. Chattering noise in Flushometer.**

- A. The A-156-A Segment Diaphragm has been installed upside-down. Replace the Segment Diaphragm to the proper position as instructed by markings on the Diaphragm.
- B. The Inside Cover has become distorted from wear, freezing or abuse. Replace Inside Cover.

**VII. Leaking at Handle or Push Button Assembly.**

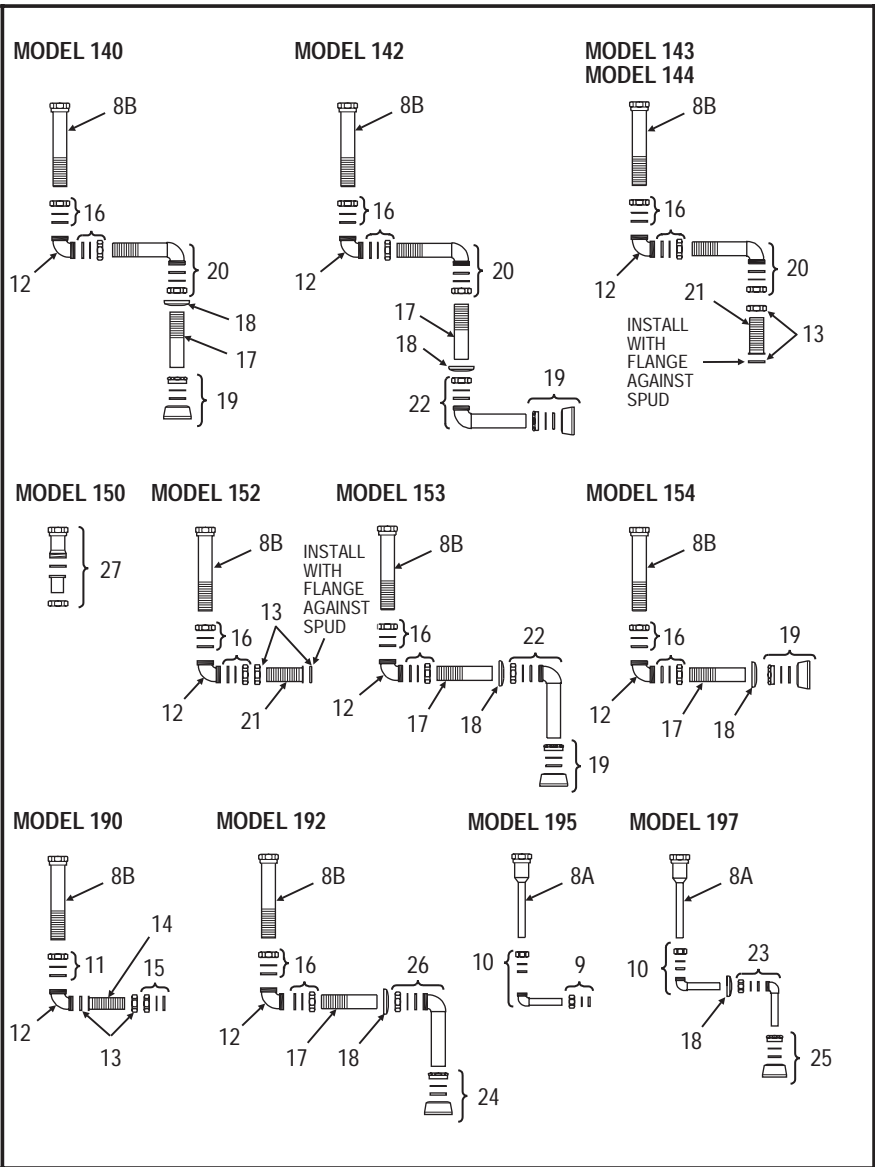
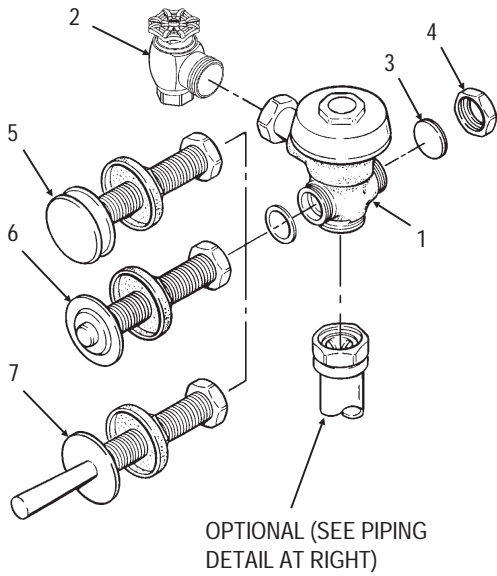
- A. The B-39 Seal is worn or deteriorated. Install new B-39 Seal. NOTE: The B-39 Seal will easily slide onto the B-40 Bushing if it is wet.
- B. Handle gasket has been omitted. Install A-31 Handle Gasket or Sloan Handle Repair Kit (C-70-A).
- C. Valve Handle Bushing is worn. Install Sloan Handle Repair Kit (C-70-A).

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

If further assistance is required, please contact the Sloan Valve Company Installation Engineering Department at 847/671-4300.

Manufactured in the U.S.A. by Sloan Valve Company under one or more of the following patents: U.S. Pats. 5,295,655; 5,542,718; 5,558,120; 5,564,460. Other Pats. Pending. BAK-CHEK<sup>®</sup>, PARA-FLO<sup>®</sup>, PERMEX<sup>®</sup>, TURBO-FLO<sup>®</sup>

# PARTS LIST



| Item No. | Part No. | Description   |
|----------|----------|---|
| 1        | †        | Valve Body  |
| 2        | H-730-A  | Bak-Chek® Control Stop  |
| 3        | K-46     | Gasket  |
| 4        | A-6      | Coupling  |
| 5        | C-43-A   | 3" (76 mm) Push Button Actuator Assembly  |
| 6        | C-9-A    | Blind Nut Push Button Actuator Assembly   |
| 7        | B-12-A   | Lever Actuator Assembly   |
| 8A       | V-500-AA | 3/4" (19 mm) x 10-1/2" (267 mm) Vacuum Breaker Assembly RB (Models 195 and 197)             |
| 8B       | V-500-AA | 1-1/2" (38 mm) x 11-1/2" (292 mm) Vacuum Breaker Assembly RB (Models 140, 143, 190 and 192) |
|          | V-500-AA | 1-1/2" (38 mm) x 7-1/2" (191 mm) Vacuum Breaker Assembly RB (Model 144)                     |
|          | V-500-AA | 1-1/2" (38 mm) x 6" (152 mm) Vacuum Breaker Assembly RB (Model 142)                         |
|          | V-500-AA | 1-1/2" (38 mm) x 22" (559 mm) Vacuum Breaker Assembly RB (Models 152, 153 and 154)          |
| 9        | F-2-AW   | 3/4" (19 mm) Slip Joint Coupling RB   |
| 10       | F-15-A   | ELL with 3/4" (19 mm) Tail RB (Models 195 and 197)  |
| 11       | F-2-A    | 1-1/2" (38 mm) Slip Joint Coupling  |
| 12       | F-21     | 1-1/2" (38 mm) Double Slip Elbow  |

| Item No. | Part No. | Description   |
|----------|----------|---|
| 13       | F-2-A    | 1-1/2" (38 mm) Coupling with S-21 Gasket (for Model 154, Order Part Number F-5-A) |
| 14       | F-110    | 1-1/4" (32 mm) Outlet Tube  |
| 15       | F-2-AU   | 1-1/4" (32 mm) Slip Joint Coupling RB   |
| 16       | F-2-AA   | 1-1/2" (38 mm) Slip Joint Coupling (Set of Two)                                   |
| 17       | F-102    | 1-1/2" (38 mm) Outlet Tube CP (for Models 143 and 144, Order Part Number F-100)   |
| 18       | F-7      | Flange (Not Furnished with Models 143 and 144)                                    |
| 19       | F-5-A    | 1-1/2" (38 mm) Spud Coupling Assembly CP  |
| 20       | F-25-A   | 1-1/2" (38 mm) Elbow Assembly   |
| 21       | F-100    | 1-1/2" (38 mm) Outlet Tube RB (for Model 154, Order Part Number F-102)            |
| 22       | F-15-A   | 1-1/2" (38 mm) Elbow Assembly CP  |
| 23       | F-15-A   | ELL with 3/4" (19 mm) Tail CP (Model 197)   |
| 24       | F-5-A    | 1-1/4" (32 mm) Spud Coupling Assembly CP  |
| 25       | F-5-A    | 3/4" (19 mm) Spud Coupling Assembly CP  |
| 26       | F-25-A   | 1-1/4" (32 mm) Elbow Assembly   |
| 27       | V-500-A  | 1-1/2" (38 mm) Vacuum Breaker Assembly RB (Model 150)                             |
|          | F-22     | 1" I.P.S. (25 mm DN) Female Outlet RB   |
|          | F-2-A    | 1-1/2" (38 mm) Coupling with S-21 Gasket  |

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