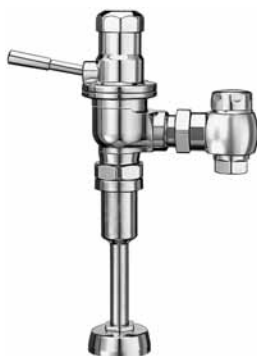


## INSTALLATION INSTRUCTIONS FOR STANDARD EXPOSED DOLPHIN® WATER CLOSET AND URINAL FLUSHOMETERS



Models 110/111



Model 186



Model 120

### STANDARD MODELS

**Exposed Closet Flushometer**  
**1½" (38 mm) Top Spud**  
 MODELS 110/111 & 115

**Exposed Closet Flushometer**  
**1½" (38 mm) Back Spud**  
 MODEL 120

**Exposed Urinal Flushometer**  
**¾" (19 mm) Top Spud**  
 MODEL 186

### SHIPBOARD MODELS

**Model Type I Class A**  
 Exposed Shock Proof  
 Closet Flushometer  
 1½" (38 mm) Shock Proof Scored Outlet

**Model Type I Class B**  
 Exposed Rigid Installation  
 Closet Flushometer  
 1½" (38 mm) Rigid Installation

**Model Type II Class A**  
 Exposed Shock Proof  
 Urinal Flushometer  
 ¾" (19 mm) Shock Proof Scored Outlet

**Model Type II Class B**  
 Exposed Rigid Installation  
 Urinal Flushometer  
 ¾" (19 mm) Rigid Installation

#### LIMITED WARRANTY

Unless otherwise noted, Sloan Valve Company warrants this product, manufactured and sold for commercial or industrial uses, to be free from defects in material and workmanship for a period of three (3) years (one (1) year for special finishes, SF faucets, PWT electronics and 30 days for PWT software) from date of first purchase. During this period, Sloan Valve Company will, at its option, repair, replace, or refund the purchase price of any product which fails to conform with this warranty under normal use and service. This shall be the sole and exclusive remedy under this warranty. Products must be returned to Sloan Valve Company, at customer's cost. No claims will be allowed for labor, transportation or other costs. This warranty extends only to persons or organizations who purchase Sloan Valve Company's products directly from Sloan Valve Company for purpose of resale. This warranty does not cover the life of the batteries.

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

### SHIPBOARD MODELS

For Saltwater, Seawater and all Shipboard Flushometers, Sloan Valve Company recommends furnishing Dolphin Valves with a Ground Joint Supply Stop. Specify "-GJ" (Ground Joint) variation. Standard Shipboard Flushometers use Ground Joint Supply Stops.

Saltwater and other non-potable water supplies do not typically require the use of Vacuum Breakers.

To order a Flushometer without a Vacuum Breaker, specify "-XYV" variation.

Shipboard Flushometer Valves can be supplied with a Sil-Braze Inlet Adapter. Please specify when ordering. For Type I Water Closet applications, use a 1" (25 mm) adapter. For Type II Urinal applications, use a 1/2" (13 mm) adapter.

**Type I and Type II Shipboard Models: For U.S. Navy per Military Specification MIL-V-0015010F (Ships)**

### PRIOR TO INSTALLATION

Before you install the Sloan Dolphin Flushometer, install the items listed below. Also, refer to the rough-in diagrams on Page 2.

- Closet or urinal fixture
- Drain line
- Water supply line

#### IMPORTANT:

- **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.**
- **FLUSH ALL WATER LINES PRIOR TO MAKING CONNECTIONS.**
- **A GROUND JOINT STOP IS RECOMMENDED FOR ALL SALTWATER AND SEAWATER APPLICATIONS. SPECIFY "-GJ" VARIATION WHEN ORDERING.**

- **A VACUUM BREAKER IS USUALLY NOT REQUIRED WHEN WATER SUPPLY IS NON-POTABLE. SPECIFY "-XYV" VARIATION WHEN ORDERING.**
- **A VACUUM BREAKER IS NOT SUPPLIED WITH SHIPBOARD MODELS.**

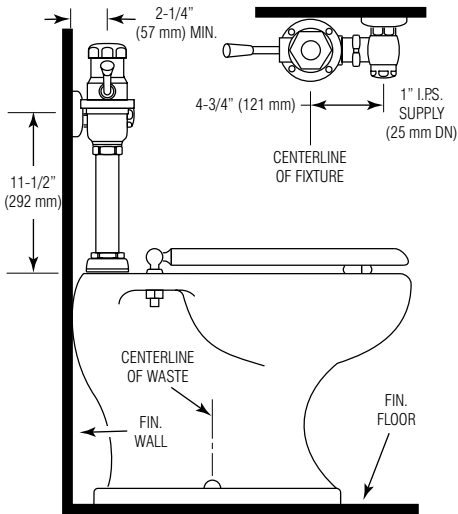
The Sloan Dolphin Flushometer is an adjustable valve designed to operate with 10 to 100 psi (69 to 689 kPa) of water pressure. **THE MINIMUM PRESSURE REQUIRED TO THE VALVE IS DETERMINED BY THE TYPE OF FIXTURE SELECTED.** Consult fixture manufacturer for minimum pressure requirements. Most Low Consumption water closets (1.6 gpf/6.0 Lpf) require a minimum flowing pressure of 25 psi (172 kPa).

### TOOLS REQUIRED FOR INSTALLATION

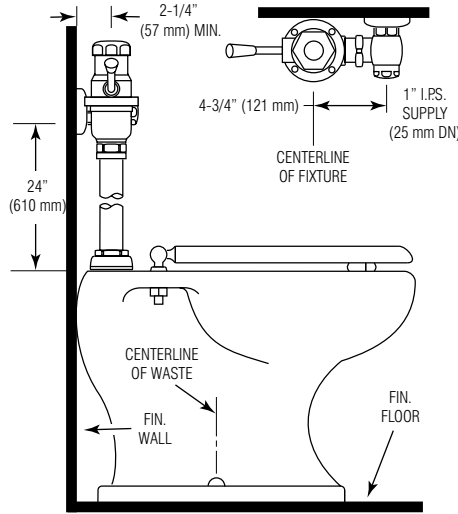
- Straight blade screwdriver
- 1/16" hex wrench for wall flange
- Sloan A-50 Super-Wrench™, Sloan A-109 Plier Wrench or smooth jawed spud wrench

# VALVE ROUGH-INS

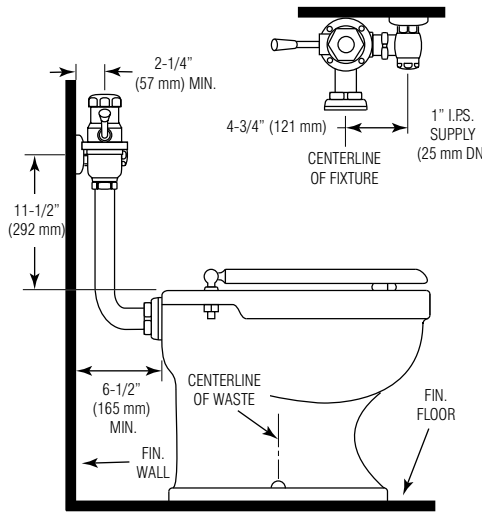
**MODEL 110/111**



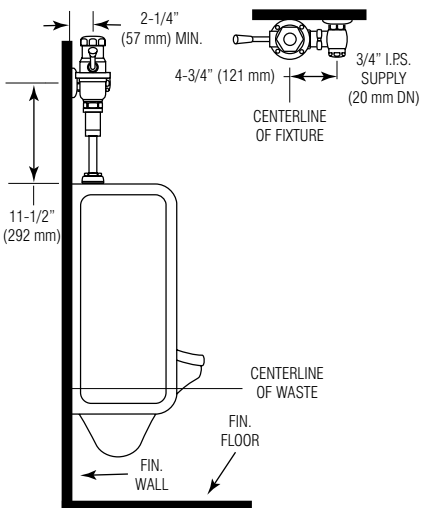
**MODEL 115**



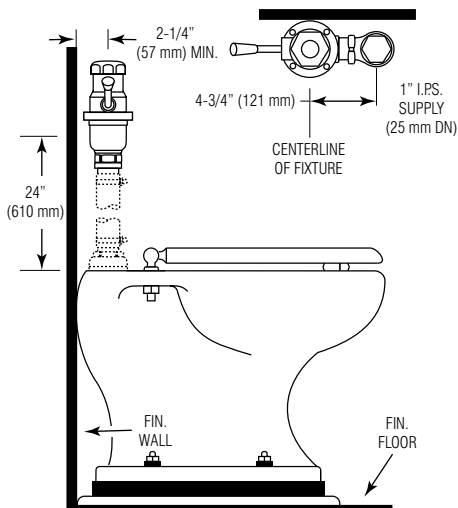
**MODEL 120**



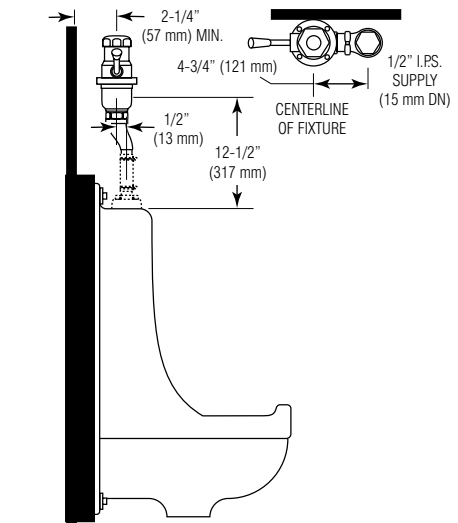
**MODEL 186**



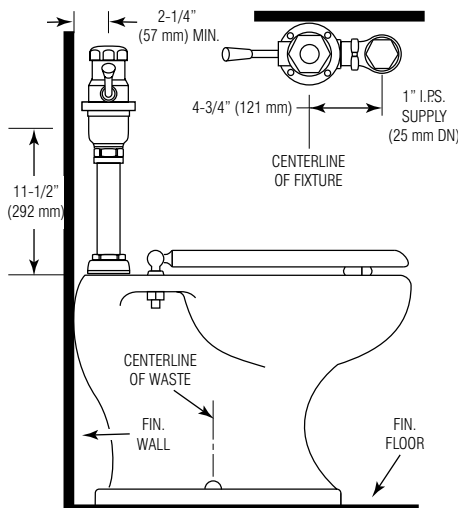
**SHIPBOARD MODEL TYPE I CLASS A SHOCK PROOF**



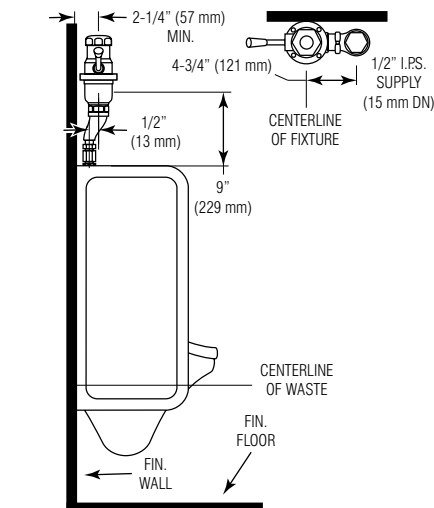
**SHIPBOARD MODEL TYPE II CLASS A SHOCK PROOF**



**SHIPBOARD MODEL TYPE I CLASS B RIGID INSTALLATION**



**SHIPBOARD MODEL TYPE II CLASS B RIGID INSTALLATION**



**NOTES**

Dolphin Flushometer factory settings are made at 40 psi (275 kPa). Actual flush volume will vary with pressure and flow rate.  
**VALVE FLUSH VOLUME ADJUSTMENT RANGE**  
 Closet: 0.5 to 16.0 gpf (1.9 to 60.6 Lpf)  
 Urinal: 0.25 to 12.0 gpf (0.9 to 45.4 Lpf)

Items shown by dotted lines are NOT supplied by Sloan Valve Company. Shock Proof Installations do NOT include fixture connections, clamps or rubber hoses.

For Saltwater, Seawater and all Shipboard Flushometers, Sloan Valve Company recommends furnishing Dolphin Valves with a Ground Joint Supply Stop. Specify "-GJ" (Ground Joint) variation. Standard Shipboard Flushometers use Ground Joint Supply Stops.

Saltwater and other non-potable water supplies do not typically require the use of Vacuum Breakers. To order a Flushometer without a Vacuum Breaker, specify "-XV" variation.

Shipboard Flushometer Valves can be supplied with a Sil-Braze Inlet Adapter. Please specify when ordering. For Type I Water Closet applications, use a 1" (25 mm) adapter. For Type II Urinal applications, use a 1/2" (13 mm) adapter.

**!!! IMPORTANT !!!**

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

**!!! IMPORTANT !!!**

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.

**!!! IMPORTANT !!!**

This product contains mechanical and/or electrical components that are subject to normal wear. These components should be checked on a regular basis and replaced as needed to maintain the valve's performance.

**!!! IMPORTANT !!!**

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.

Please take the time to read this manual to ensure proper product installation and longevity. Also, please visit our website to download our most recent documentation for this product.

If you have questions about how to install your Sloan flushometer, consult your local Sloan Representative or call Sloan Technical Support at:

**1-888-SLOAN-14 (1-888-756-2614)**

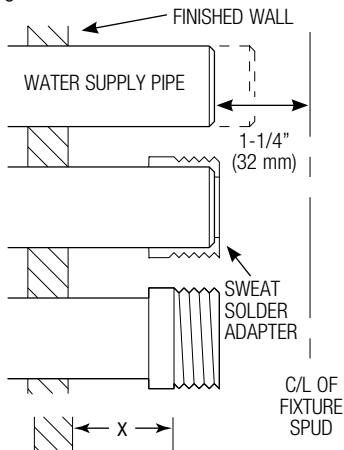
**1 - INSTALL OPTIONAL ADAPTER**

Sweat Solder Adapter (DO NOT USE in Saltwater Applications)

**NOTE**

Install Sweat Solder Adapter **ONLY** if supply pipe does not have a male thread. If your installation includes a supply line with a threaded iron pipe nipple, proceed to Step 2.

- A** Measure from finished wall to C/L of Fixture Spud. Cut pipe 1¼" (32 mm) shorter than this measurement. Chamfer O.D. and I.D. of water supply pipe.
- B** Slide Threaded Adapter fully onto pipe. Sweat solder the Adapter to pipe.
- C** Measure from finished wall to first thread of Adapter or threaded supply pipe (dimension "X"). Cut Cover Tube to this length.
- D** Slide Cover Tube over pipe. Slide Wall Flange over Cover Tube until against wall. Secure the Wall Flange and Cover Tube with the Setscrew. Tighten with a 1/16" hex wrench.



**2 - INSTALL CONTROL STOP**

**NOTE**

Stops furnished with a Sil-Braze Inlet Adapter have a straight thread with an O-ring seal. **DO NOT** use pipe thread sealant on this connection.

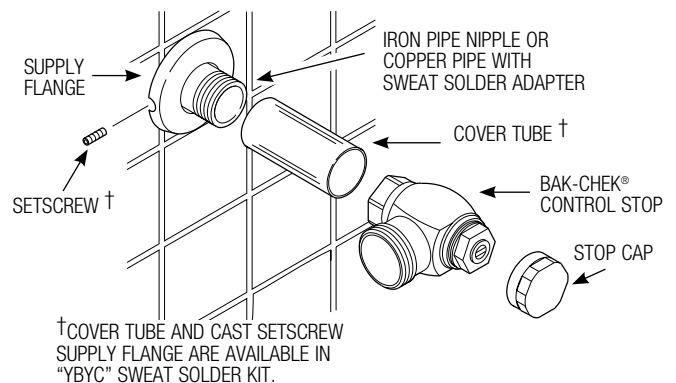
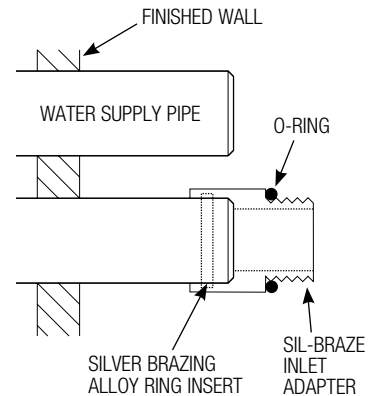
- A** Install the Sloan Bak-Chek® Control Stop to the water supply pipe. Tighten the Control Stop coupling with a wrench. Position the outlet as required. **DO NOT** install Vandal Resistant Stop Cap at this time.

Sil-Braze Inlet Adapter (For Shipboard Models Only)

**NOTE**

If you are **NOT** installing the Sil-Braze Inlet Adapter that can be furnished with a Shipboard flushometer, proceed to Step 2.

- A** Insert Silver Brazing Ring into Sil-Braze Inlet Adapter.
- B** Place adapter over end of copper pipe. Diameter of copper pipe varies depending upon your application:  
Shipboard Type I Closet Valves: Pipe Diameter = 1" (25 mm)  
Shipboard Type II Urinal Valves: Pipe Diameter = 1/2" (13 mm)
- C** Solder adapter to copper pipe. Allow pipe and adapter to cool before proceeding.
- D** Place o-ring over male thread of the adapter. Make sure that the o-ring is seated against the shoulder of the adapter.
- E** Make sure that the Control Stop 1" (25 mm) straight thread fits tight against the o-ring.



### 3 - INSTALL FLUSH CONNECTION

#### NOTE

Vacuum Breakers are usually NOT required with non-potable water supplies. When ordering a Flushometer without a Vacuum Breaker, please specify the “-XYV” variation.

Depending on your application, refer to the appropriate Step(s) in this section.

If a Class A Shock Mount is already installed, proceed to Step 4.

#### 3A — Install Vacuum Breaker Flush Connection

For all installations except Shipboard Shock Mount and Type II Class B Rigid Installations.

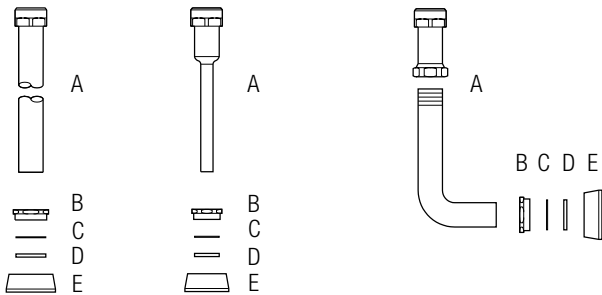
**A** Slide the Spud Coupling (B), Nylon Slip Gasket (C), Rubber Gasket (D), and Spud Flange (E) over the Vacuum Breaker Tube (A).

**B** Insert Tube into Fixture Spud. Hand tighten the Spud Coupling (B) onto Fixture Spud.

MODELS 110/111, 115, & SHIPBOARD TYPE I CLASS B

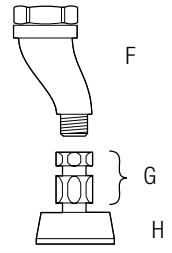
MODEL 186

MODEL 120



#### 3B — Shipboard Model Type II Class B Rigid Installations

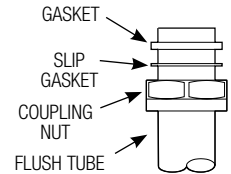
**A** Position the 3/4" Spud Flange (H), then attach the 3/4" to 1/2" Reducer (G) to the 1/2" Spud and to the 3/4" Flush Connection with 1/2" Offset (F).



#### 3C — “-XYV” Variation Installations

For Models WITHOUT a Vacuum Breaker

**A** Slide Coupling Nut, Slip Gasket, and Gasket over Flush Tube. Slide Flush Tube into Bottom of Flushometer Body. Hand tighten Coupling Nut to secure.

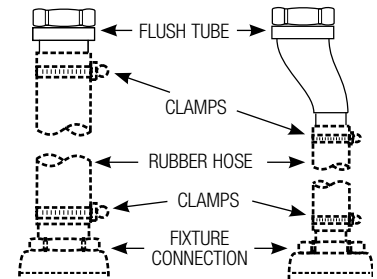


#### 3D — Class A Shock Mount Installations

For Class A Shock Mount Models ONLY — NOTE: Clamps, Rubber Hose and Fixture Connections are NOT supplied by Sloan

**A** Cut Flush Tube to proper length at the site of installation. Allow MIN. length of 5" (127 mm) between Tube ends when using Rubber Hose.

**B** Clamp Hose to scored end of Flush Tube. If Tube needs to be shortened, do NOT cut off all of the scoring.



### 4 - INSTALL FLUSHOMETER

**SLOAN ADJUSTABLE TAILPIECE** — The Sloan Adjustable tailpiece compensates for “off-center” roughing-in on the job. Maximum adjustment of the Sloan Adjustable Tailpiece is 1/2" (13 mm) IN or OUT from the standard 4 3/4" (121 mm) (c/l of Valve to c/l of Control Stop). If roughing-in measurement exceeds 5 1/4" (133 mm), consult factory for longer tailpiece.

**SLOAN GROUND JOINT TAILPIECE** — If a Ground Joint tailpiece has been specified (recommended for saltwater and seawater applications), there is no lateral adjustment. Therefore, the 4 3/4" (121 mm) rough-in must be EXACT.

**NOTE:** With the exception of Control Stop inlet, DO NOT use pipe sealant or plumbing grease on any valve component or coupling.

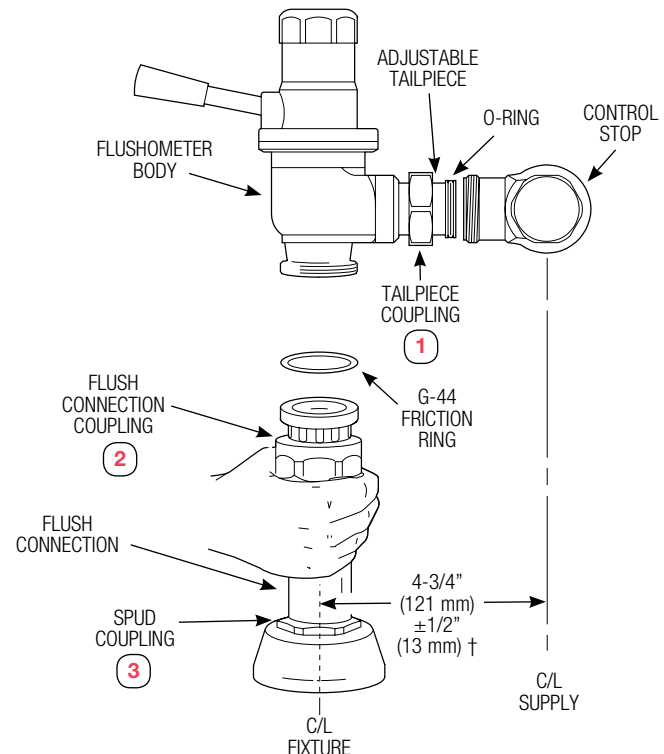


**A** SLOAN ADJUSTABLE TAILPIECE — Lubricate tailpiece O-ring with water. Insert Adjustable Tailpiece into Control Stop. Tighten Tailpiece Coupling by hand.

SLOAN GROUND JOINT TAILPIECE — Place end of Ground Joint Tailpiece against Control Stop. Tighten Tailpiece Coupling by hand.

**B** Align Flushometer directly above the Flush Connection. Tighten Coupling by hand.

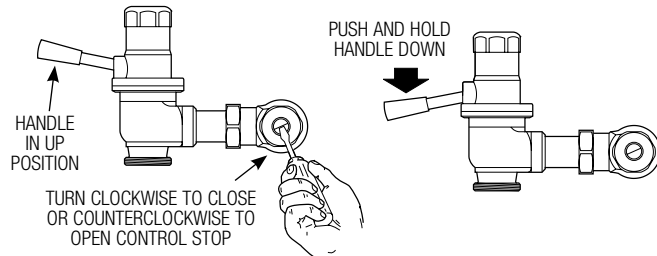
**C** Align Flushometer Body. Using a wrench, securely tighten couplings in the order given: (1) Tailpiece Coupling, (2) Flush Connection Coupling and (3) Spud Coupling.



† This measurement can vary +/-1/2" (13 mm) only when an adjustable tailpiece is used.

## 5 - FLUSH OUT SUPPLY LINE, ADJUST CONTROL STOP, AND INSTALL STOP CAP

- A** Make sure Control Stop is CLOSED. Turn on water supply.
- B** Open Control Stop. Activate Dolphin Flushometer Valve by pushing Handle down. Hold the Handle down until all dirt and debris is flushed out from the supply line and the water flowing into the fixture is clean.
- C** Release the Handle to begin the flush cycle. When the Handle returns to the UP position, the flush cycle will finish.



- D** Open Control Stop COUNTERCLOCKWISE one FULL turn from closed position. Activate Flushometer.
- E** Adjust Control Stop after each flush until the rate of flow delivered properly cleanses the fixture.

### !!! IMPORTANT !!!

The Sloan Dolphin Flushometer is 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 the 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.

- F** After Control Stop adjustment is complete, install Stop Cap onto the Control Stop. Wrench tighten Stop Cap to prevent vandalism.

## 6 - ADJUST DURATION OF FLUSH

The Sloan Dolphin Flushometer can be adjusted to meet the flushing requirements of any plumbing fixture. The flush volume, in gallons per flush (gpf) or liters per flush (Lpf), is adjusted by turning the Regulating Screw. Flush volumes will vary with pressure and flow rate.

DOLPHIN FLUSHOMETER VALVE ADJUSTMENT RANGES	FACTORY SETTING †	MINIMUM FLUSH VOLUME	MAXIMUM FLUSH VOLUME
CLOSET MODELS: 110, 115, 120, Type I Class A Shock Proof, and Type I Class B Rigid Installation	3.5 gpf (13.2 Lpf)	0.5 gpf (1.9 Lpf)	16.0 gpf (60.6 Lpf)
CLOSET MODELS: 111, 115-1.6 and 120-1.6	1.6 gpf (6.0 Lpf)	0.5 gpf (1.9 Lpf)	16.0 gpf (60.6 Lpf)
CLOSET MODEL: 111-1.28	1.28 gpf (4.8 Lpf)	0.5 gpf (1.9 Lpf)	16.0 gpf (60.6 Lpf)
URINAL MODELS: 186-1.0, Type II Class A Shock Proof, and Type II Class B Rigid Installation	1.0 gpf (3.8 Lpf)	0.25 gpf (0.9 Lpf)	12.0 gpf (45.4 Lpf)

† Factory settings are made at 40 psi (275 kPa). Flush volume will vary with pressure and flow rate.

- A** Remove the Cover Nut from the Valve body. Using a flat blade screwdriver, slightly rotate the Regulating Screw located in the center of the oil chamber.

CLOCKWISE increases both length of flush and flush volume



COUNTERCLOCKWISE decreases both length of flush and flush volume



- B** When the delivered water properly cleanses the fixture, replace the Cover Nut and tighten with a wrench.



## 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** mild soap and water, then wipe dry with clean cloth or towel.

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

## TROUBLESHOOTING GUIDE

### 1. Flushometer does not function (no flush).

- A. Control Stop or Main Valve is Closed. Open Control Stop or Main Valve.
- B. Handle Socket Assembly is damaged. Replace Handle Socket Assembly (DO-20).

### 2. Volume of water is not sufficient to siphon fixture.

- A. Control Stop is not open enough. Adjust Control Stop for desired delivery of water volume.
- B. Timing of Flushometer closure is set too fast. Remove DO-1 Cover Nut. Use a small blade screwdriver to turn DO-3 Regulating Screw clockwise. Flushometer should be set so that valve closure occurs between 7 and 12 seconds.
- C. Water supply volume or pressure is inadequate. If no gauges are available to properly measure supply pressure or volume of water at the Valve, then completely open the Control Stop and hold down the Flushometer Handle without allowing it to close.
  - If the supply is adequate to siphon the fixture, increase timing of closure. Remove DO-1 Cover Nut. Using small blade screwdriver, turn DO-3 Regulating Screw clockwise until a 7 to 12 second flush is achieved.
  - If the supply is **NOT** adequate to siphon the fixture, steps should be taken to increase the supply pressure and/or volume. Contact the fixture manufacturer for minimum water supply requirements of the fixture.

### 3. Flushometer closes immediately.

- A. Oil chamber of upper body is empty. Remove DO-1 Cover Nut. Fill oil chamber with SAE 10 Oil.
- B. Piston seal is worn or damaged. Replace DO-6 Piston O-ring seal. Refer to Dolphin Maintenance Guide for complete instructions.

### 4. Length of flush is too short (short flush).

- A. Volume of oil in oil chamber of upper body is low. Remove DO-1 Cover Nut. Fill oil chamber with SAE 10 Oil.
- B. Timing of Flushometer closure is not adequately adjusted. Remove DO-1 Cover Nut. Using small blade screwdriver, turn DO-3 Regulating Screw clockwise until a 7 to 12 second flush is achieved.

### 5. Length of flush is too long (long flush).

- A. Timing of Flushometer closure is not adequately adjusted. Remove DO-1 Cover Nut. Using small blade screwdriver, turn DO-3 Regulating Screw COUNTERCLOCKWISE until a 7 to 12 second flush is achieved.

### 6. Oil is leaking from handle.

- A. Stem seals are worn or damaged. Replace two (2) SH-75 Throttle Seal O-rings.

### 7. Valve does not close completely (water trickle).

- A. Compression Spring is worn or damaged. Replace DO-16 Compression Spring. Refer to Dolphin Maintenance Guide for complete instructions.
- B. Flex-Sac Assembly is worn. Replace DO-15 Flex-Sac. Refer to Dolphin Maintenance Guide for complete instructions.

When assistance is required, please contact the Sloan Technical Support at:

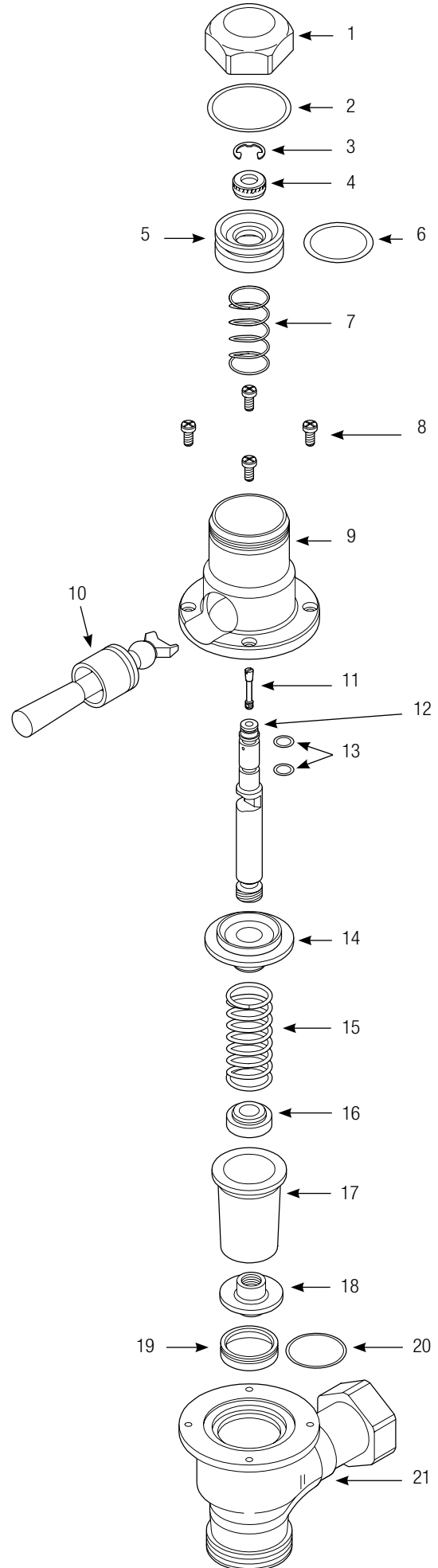
**1-888-SLOAN-14 (1-888-756-2614)**

# PARTS LIST

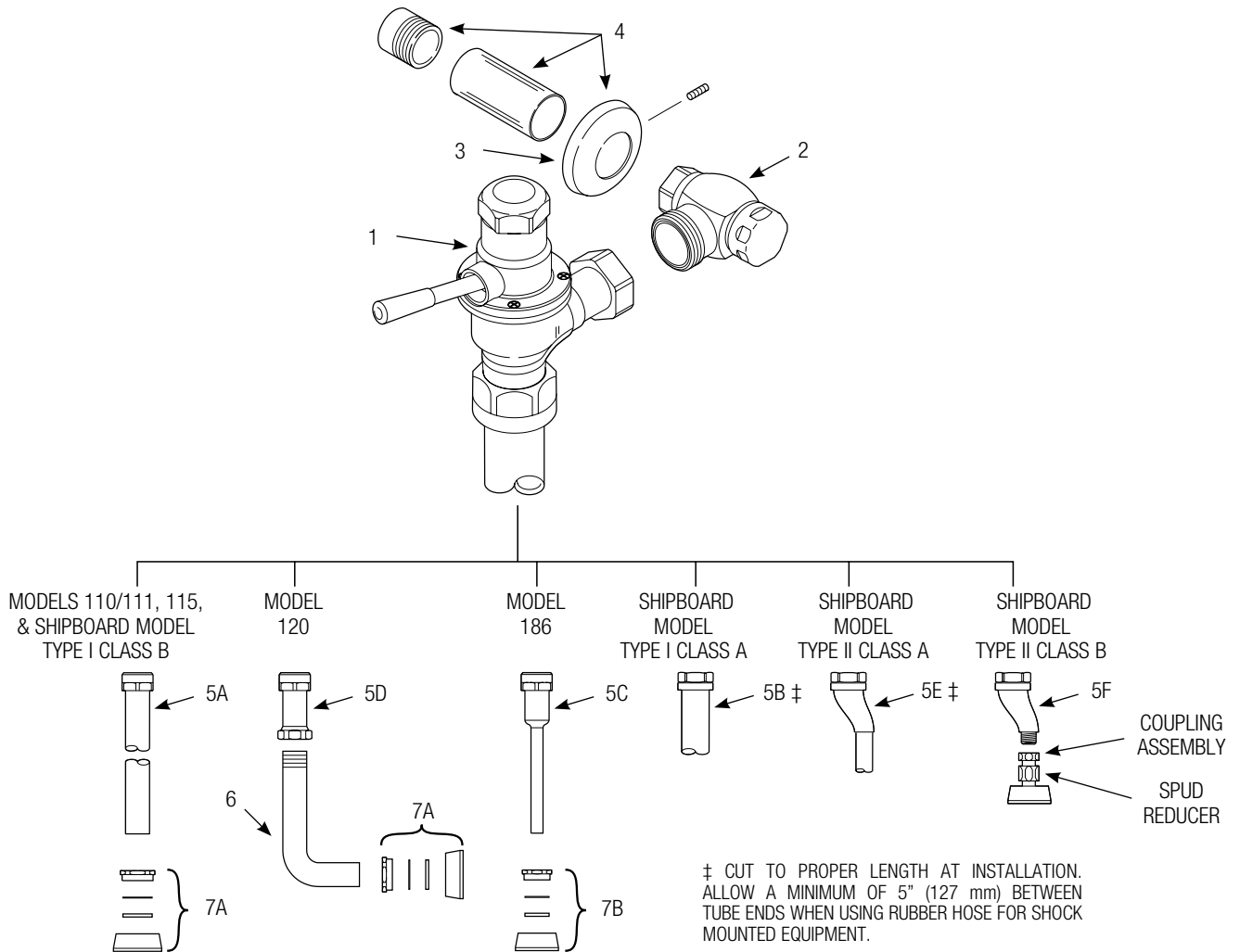
Item No.	Part No.	Description
1	DO-1	Cover Nut NP
2	DO-2	O-ring Seat (1 required; 6 per package) (Cover Gasket)
3	DO-28	Retaining Ring (1 required; 24 per package)
4	DO-4	Stem Nut RB (1 required; 6 per package)
5	DO-5	Piston
6	DO-6	O-ring Piston (1 required; 6 per package)
7	DO-7	Piston Spring (1 required; 6 per package)
8	DO-11	Cover Screw CP (4 required; 24 per package)
9	DO-10	Upper Body NP
10	DO-20	Handle and Socket Assembly
11	DO-3	Regulating Screw RB (1 required; 6 per package)
12	DO-9	Stem
13	SH-75	O-ring Throttle Seal (2 required)
14	DO-14	Bushing RB
15	DO-16	Compression Spring (Main Spring)
16	DO-17	Insert RB (1 required; 6 per package)
17	DO-15	"Flex-Sac"
18	DO-18	Seating Nut
19	DO-21	Main Seat, Delrin
20	DO-22	O-ring Seat Assembly
21a	DO-13-NC	Lower Body NP-Closet
21b	DO-13-NU	Lower Body NP-Urinal

## Replacement and Repair Kits

A	DO-1000-A	Piston with O-ring Component parts: Items 5 and 6
B	DO-1001-A	Repair Kit — Dolphin Handle Component parts: Items 10, 11, 12 and 13
C	DO-32	"Flex-Sac" Assembly Component parts: Items 17 and 18
D	DO-32-AA	Repair Kit — "Flex-Sac" Assembly Component parts: Items 2, 6, 13, 17 and 18
E	DO-32-AAN	Repair Kit — "Flex-Sac" and Stem Component parts: Items 2, 6, 7, 13, 15, 17, 18, 19b and 20
F	DO-19-A	Seat Assembly with O-ring Component parts: Items 19b and 20
G	DO-12-A	Upper Body Assembly Component parts: Items 1 through 7 and 9 through 18
H	DO-13-A-NC	Lower Body Assembly for Closet Component parts: Item 21a, H-6 Coupling, CP, and NH-5 Ground Joint Tail, CP
	DO-13-A-NU	Lower Body Assembly for Urinal Component parts: Item 21b, H-6 Coupling, CP, and NH-5 Ground Joint Tail, CP



# PARTS LIST (CONTINUED)



Item No.	Part No.	Description
1	†	Valve and Handle Assembly
2	H-710-A	Bak-Chek® Control Stop (Adjustable or Ground Joint)
3	F-7	Supply Flange (supplied when Valve is not ordered with Sweat Solder Kit)
4	H-633-AA	1" (25 mm) Sweat Solder Kit and Cast Flange with Setscrew ("YBYC" variation)
	H-636-AA	¾" (19 mm) Sweat Solder Kit and Cast Flange with Setscrew ("YBYC" variation)
5A	V-600-AA	1½" (38 mm) x 9" (229 mm) Vacuum Breaker Assembly CP (Models 110/111 and Shipboard Model Type I Class B)
	V-600-AA	1½" (38 mm) x 21" (533 mm) Vacuum Breaker Assembly CP (Model 115)
5B	NF-1	1½" (38 mm) Scored Outlet (Shipboard Model Type I Class A)
5C	V-600-AA	¾" (19 mm) x 9" (229 mm) Vacuum Breaker Assembly CP (Model 186)
5D	V-600-AA	1½" (38 mm) Vacuum Breaker Assembly CP (Model 120)
5E	NF-29-A	¾" (19 mm) Scored Outlet with 1/2" Offset (Shipboard Model Type II Class A)
5F	F-29-A	¾" (19 mm) Flush Connection with 1/2" Offset and 3/4" x 1/2" Reducer for 1/2" Spud (Shipboard Model Type II Class B)
6	F-109	1½" (38 mm) Elbow Flush Connection CP
7A	F-5-A	1½" (38 mm) Spud Coupling Assembly (Models 110/111, 115, 120)
7B	F-5-A	¾" (19 mm) Spud Coupling Assembly (Model 186)
NOT SHOWN		
	F-40	½" (13 mm) Sil-Braze Adapter
	F-40	1" (25 mm) Sil-Braze Adapter

† Part number varies with valve model variation; consult factory

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

**SLOAN HEADQUARTERS • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131**

Phone: 1-800-982-5839 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380 • [www.sloanvalve.com](http://www.sloanvalve.com)