Flushometer Care & Service 101

Part 2: Manual Piston Flushometers

SLOAN®

Presenters

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Agenda

This presentation will cover:

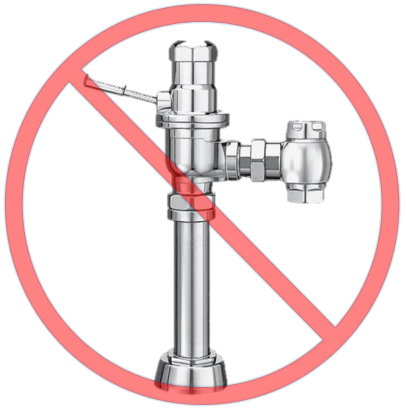
- Manual piston flushometer overview
- Most common field service issues and solutions
- Maintenance recommendations

Understand how to extend the service life of Sloan products

Crown

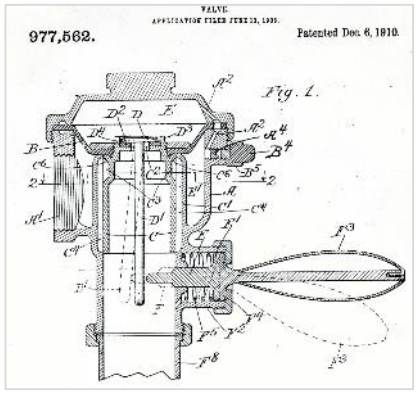
Gem

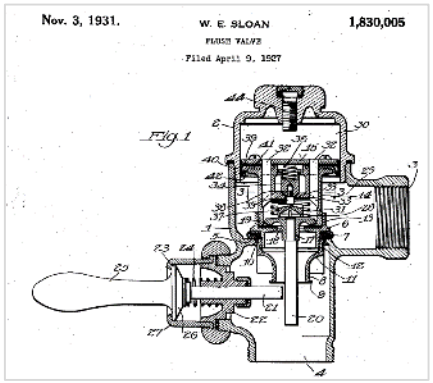
Naval



Dolphin

History





1906
Sloan invents the Diaphragm Flushometer

- Replaced overhead tanks
- Relied on water pressure, not gravity
- Used less water and energy

1928
Sloan invents the Piston Flushometer

- Withstood hard water*
- Better under low pressure
- Tolerated debris*

*Not piston advantages today

Which Sloan Flushometers are Diaphragm or Piston?

Diaphragm

Regal

Sloan

Royal

Piston

Gem

Crown

Naval

Dolphin

Manual Piston Flushometer Applications

Water Closets

Urinals

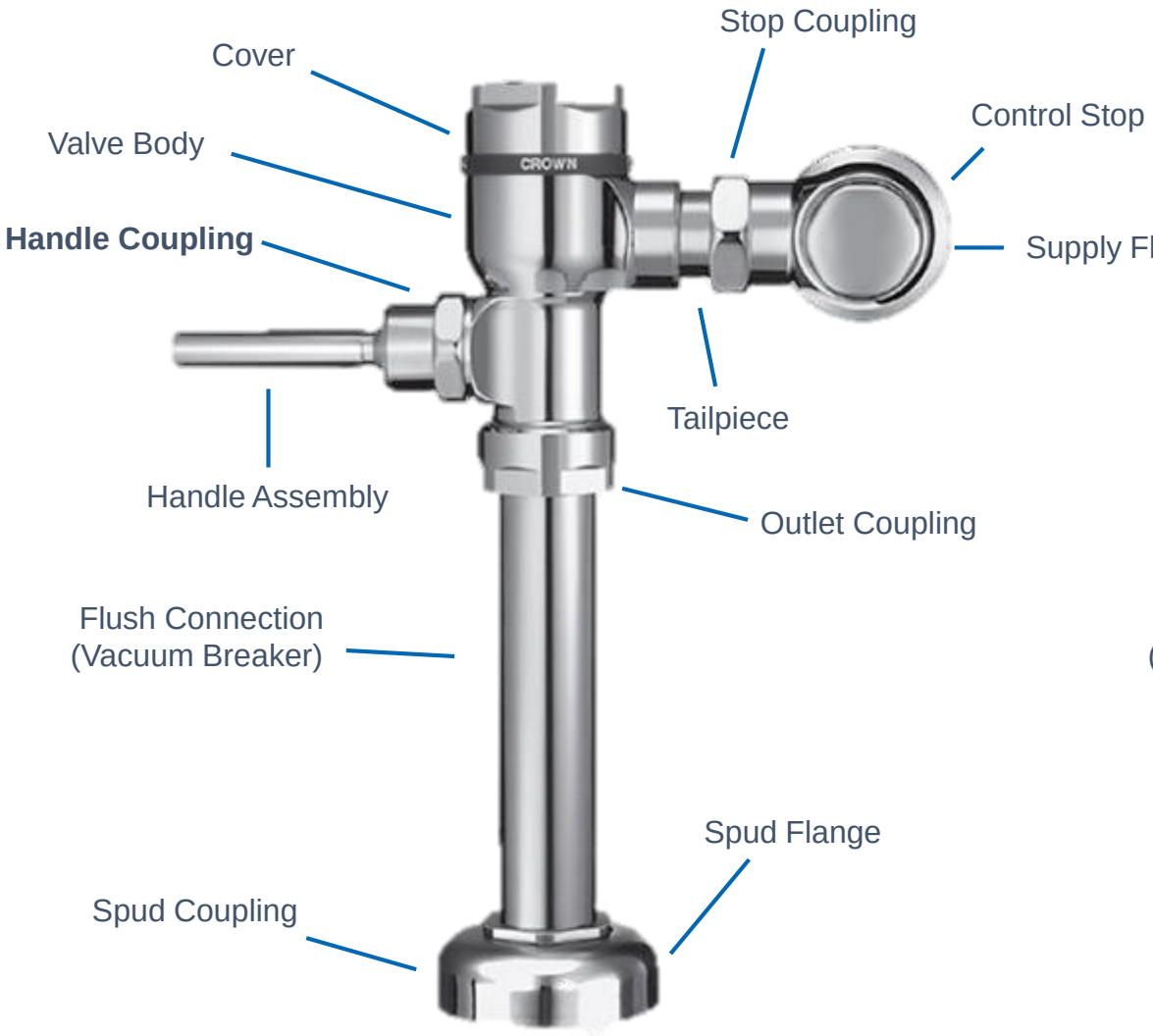
Maritime*

Bedpan Washers

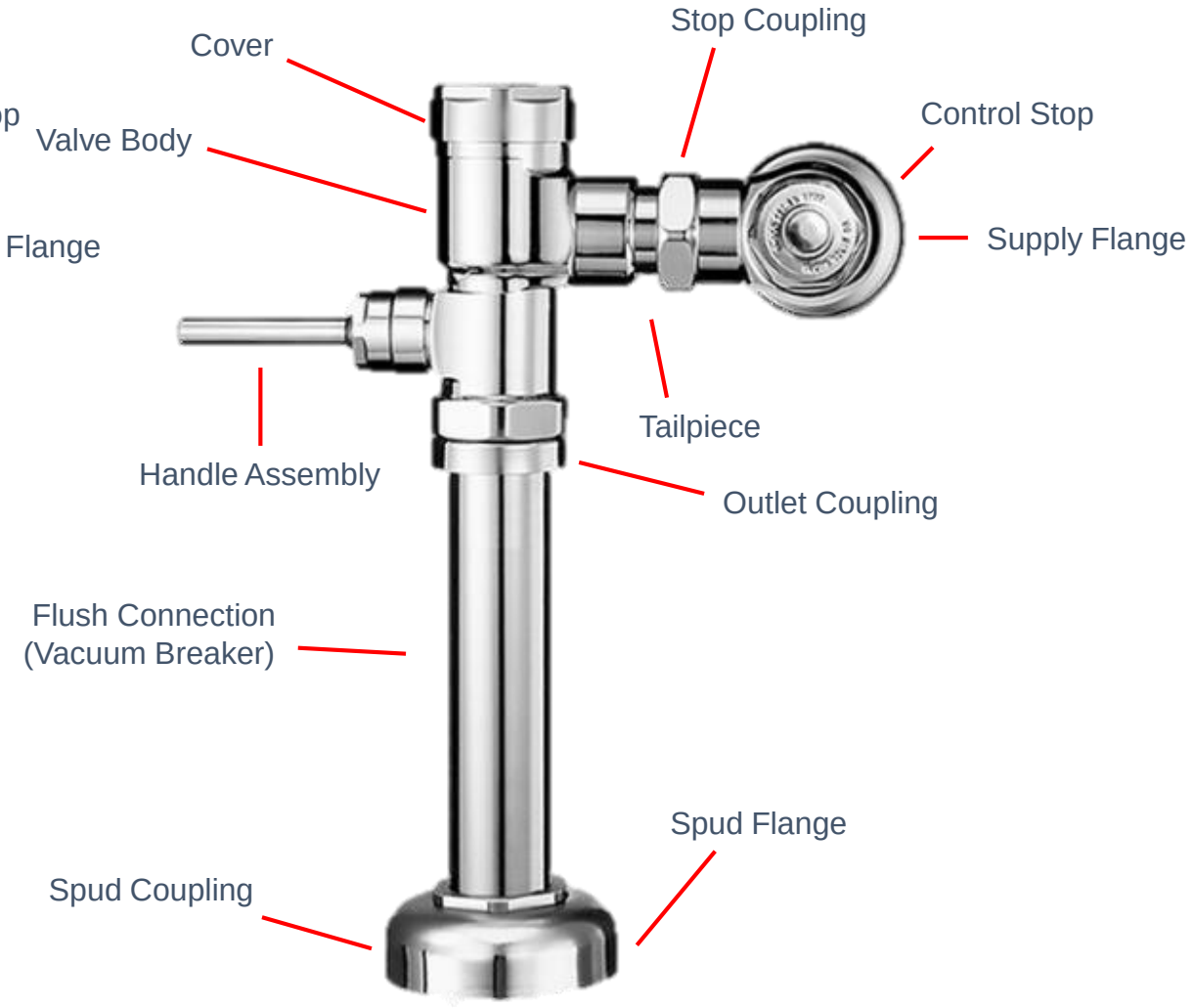
Squat Toilets**

- Naval and Dolphin only
- Gem Exposed and Naval Concealed only

Manual Piston Flushometer Components

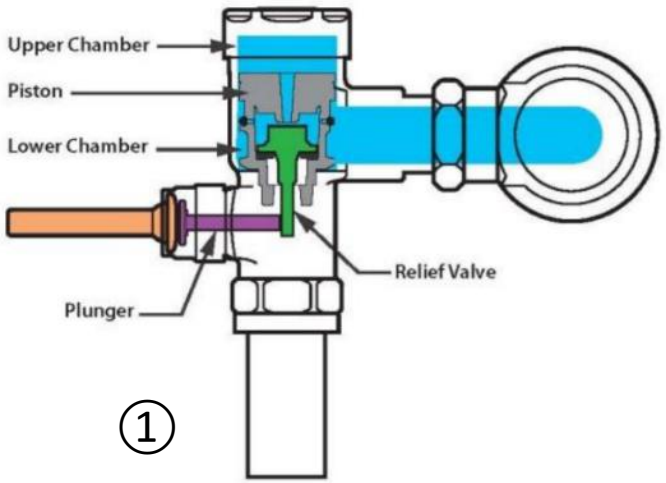


Crown

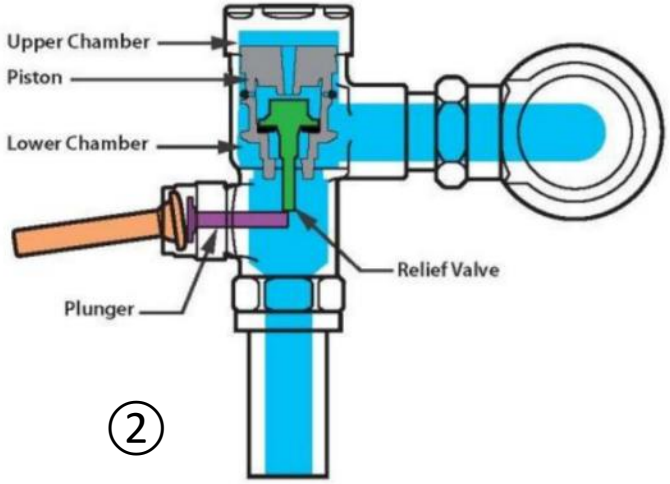


Gem

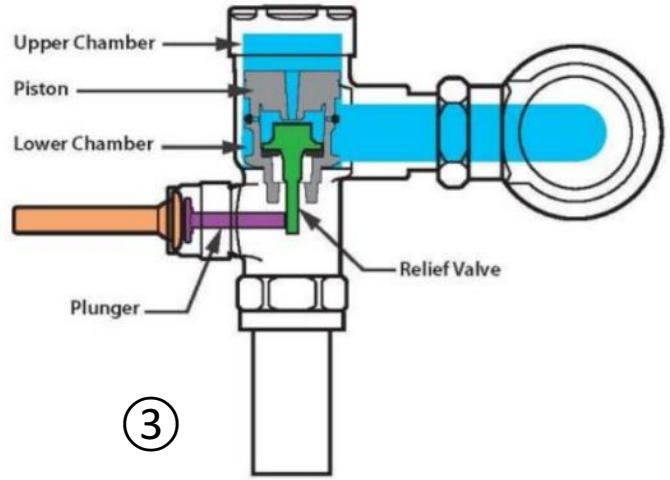
Basic Piston Function



Incoming pressure to the upper chamber seals the piston down over the main seat



Moving the handle causes the piston to slide up, releasing water into the fixture



The piston re-seats as the upper chamber re-pressurizes

All Sloan Piston flushometers are “non-hold open” design

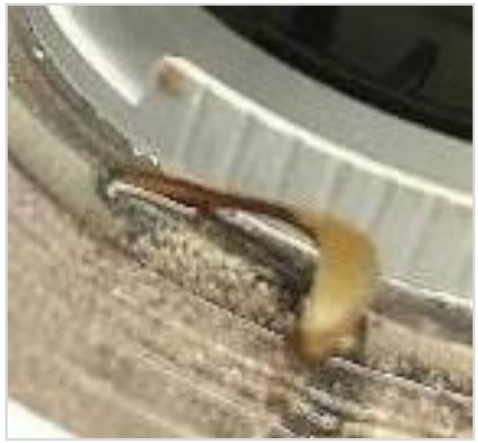
[Sloan Piston vs Diaphragm Flushometer Training Webinar]

Field Issues & Solutions

from most common to least common

Run-ons

Debris blocking bypass



Debris under piston

Degraded relief valve seat

Low pressure drop

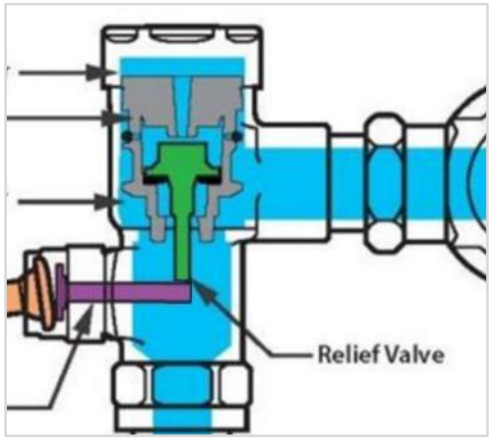
Symptom	Cause	Solution
Continuous flush with no shut-off	Debris blocking bypass	Clean piston to clear bypass orifice
	Debris under piston	Remove debris
	Degraded relief valve seat	Replace the piston assembly
	Low pressure drop	Check facility or municipal line pressure

In all cases, it's good to flush debris from the line

No Flush

High static pressure

Worn out handle



Frozen or stuck relief valve

Symptom	Cause	Solution
No activation when handle is depressed	High Static Pressure (above 80 psi / 5.5 bar)	Adjust pressure regulator Bring static pressure below 80 psi/5.5 bar
	Worn out handle	Repair or replace handle
	Frozen or stuck relief valve	Clean or replace relief valve

Short Flush

Piston lip seal degradation

Worn out handle

High flow pressure

Incorrect piston

Symptom	Cause	Solution
Low volume delivered when handle is depressed	Piston lip seal degradation	Replace piston assembly
	Worn out handle	Repair or replace handle
	High flow pressure	Adjust control stop to reduce flow pressure
	Incorrect piston installed	Match piston gpf (Lpf) to fixture gpf (Lpf)

Long Flush

Low flow pressure

Worn out handle

Incorrect piston

Symptom	Cause	Solution
High volume delivered when handle is depressed	Low flow pressure (Below 20 psi/1.5 bar)	Adjust control stop to increase flow pressure Increase plumbing system flow pressure
	Worn out handle	Repair or replace handle
	Incorrect piston installed	Match piston gpf (Lpf) to fixture gpf (Lpf)

Noise at Shut-off

High flow pressure

Piston lip seal degradation

Incorrect piston

Loose plumbing

Symptom	Cause	Solution
“Thump” or “Bang” upon valve shut-off	High flow pressure	Adjust control stop to decrease flow pressure Decrease plumbing system flow pressure
	Piston lip seal degraded	Replace piston assembly
	Incorrect piston installed	Match piston gpf (Lpf) to fixture gpf (Lpf)
	Loose plumbing	Secure piping properly Check hammer arrestors

No Evacuation

Low pressure

Incorrect piston

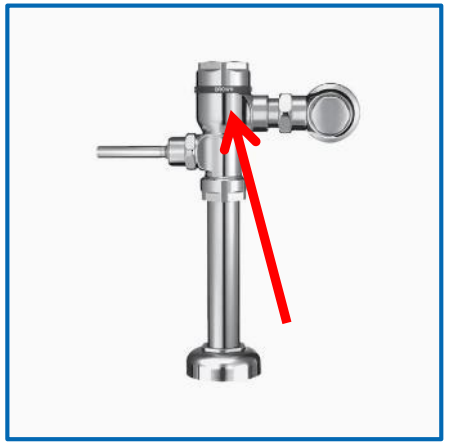
Piston lip seal degradation

Symptom	Cause	Solution
No evacuation when handle is depressed	Low pressure (<25 psi/<1.7 bar)	Adjust control stop to increase flow pressure Address plumbing system deficiencies
	Incorrect piston installed	Match piston gpf (Lpf) to fixture gpf (Lpf)
	Piston lip seal degraded	Replace piston assembly

Contact Tech Service for a list of piston kits

Cover Leak

Always use a fixed smooth jaw wrench….



Cover not tight enough

Worn cover gasket (Gem)

Worn inside cover (Crown/Naval)

Worn cover gasket (Naval)

Symptom	Cause	Solution
Water leaking from threads beneath flushometer cover	Cover not tight enough	Turn off water and tighten cover
	Worn cover gasket (Gem)	Replace cover gasket (G106)
	Cracked inside cover (Crown)	Replace inside cover (CR124A)
	Worn cover gasket (Naval)	Replace cover gasket (CN76/CN105)

Tailpiece Leak

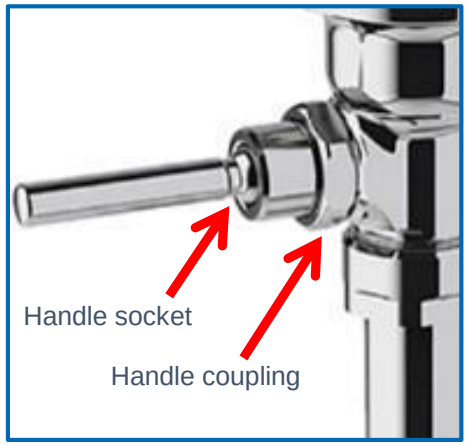
Tailpiece with O-ring

Sloan H553 O-ring

Symptom	Cause	Solution
Leaking at tailpiece next to control stop	Worn or degraded O-ring	Replace H553 O-ring

Clean the tailpiece O-ring groove and the control stop bore before replacing the O-ring. Use 100% silicone grease (not petroleum based).

Handle Socket or Handle Coupling Leaks



Worn handle seal

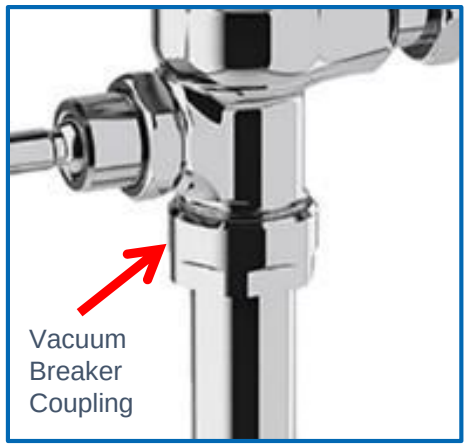
Worn handle gasket (Crown/Naval)

Worn handle gasket (Gem)

Symptom	Cause	Solution
Leak from handle socket	Worn handle seal	Replace with proper handle repair kit
	Cracked handle bushing	Replace with proper handle repair kit
Leak from handle coupling	Loosened handle coupling	Tighten handle coupling
	Worn handle gasket	Replace A31 (Crown/Naval) or G35 (Gem) handle gasket

Always use a fixed smooth jaw wrench….

Vacuum Breaker Leak



Worn vacuum breaker sack

Sloan V651A repair kit

Sloan V551A repair kit

Symptom	Cause	Solution
Dripping from **above** the vacuum breaker coupling during or after flush	Vacuum breaker sack damaged by over-tightening the vacuum breaker coupling	Clean vacuum breaker tube and replace vacuum breaker sack with V551A or V651A high backpressure VB repair kit
Dripping from **below** the vacuum breaker coupling during or after flush	Worn or degraded vacuum breaker sack	

Wet the gasket prior to installation and hand tighten then “snug” with wrench

Control Stop Leak

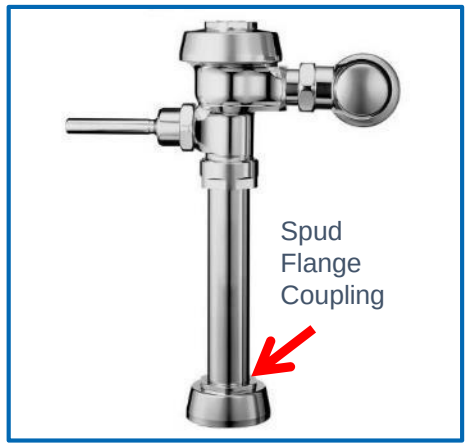
Sloan H541ASD repair kit

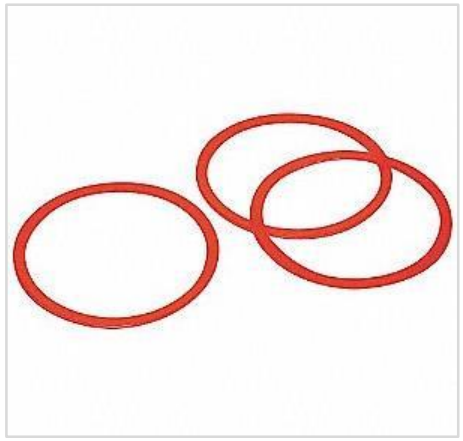
Sloan H543ASD repair kit

Symptom	Cause	Solution
Leaking from control stop adjustment screw	O-ring inside the control stop is worn	Replace with H541ASD control stop repair kit (for older urinals, use H543ASD control stop repair kit)

If unsure of which urinal control stop kit you have for units manufactured between 1964 and 1994, contact Sloan Tech Service

Spud Flange Coupling Leak





Sloan F3 friction ring

Sloan VBF5 gasket

Sloan F5 gasket

Symptom	Cause	Solution
Leaking from spud flange coupling	The spud flange coupling has loosened	Tighten spud flange coupling
	Spud flange coupling gaskets have become worn	Replace F3 friction ring and VBF5 gasket (1-1/4” or 1-1/2”) or F5 gasket (3/4” or 1”)

Clean the threads prior to installation and never use pipe dope or grease!

Inconsistent Flush

Always use a fixed smooth jaw wrench….

Sloan B73A
Standard Handle
(Crown/Naval)

Sloan B73A-CV
CuVerro (Crown/Naval)

Sloan B73A-SG
Sani-Guard
(Crown/Naval)

Sloan G143A (Gem)

Symptom	Cause	Solution
Flush duration is randomly normal, long, or short	Handle is worn out due to age or abuse	Replace handle using a B73A or G143A kit
	Relief valve is worn out due to age or high static water pressure	Replace relieve valve or piston assembly
	Pressure fluctuation within the facility	Check plumbing system pressure and flow capacity

Maintenance Recommendations

Best Practices

- No pipe dope
- No Teflon tape
- Tighten couplings and covers by hand, then “snug” with a wrench
- Fixed smooth-jawed wrench
- Avoid compression wrenches
- Carry 100% silicone grease
- Clean threads with a brass bristle brush
- Wet the gaskets before installing
- Clean with soap and water only


“Snug” – don’t over tighten


Clean with soap and water


Use Genuine Sloan Parts

Maintenance Schedules

[Sloan Flushometer Maintenance Schedule Brochure]

Maintenance Schedule

Manual Diaphragm Flushometer Parts	Maintenance Indicator	Life Expectancy: 3/4+ years (Industry Standard / Sloan Standard)	3/5+ years	15/20+ years
Handle assembly Internal parts	• Leaking around the handle • Drooping handle • Short, erratic flush	✓		
Vacuum breaker Internal (baffle and sack)	• Leaking around the vacuum breaker vent holes during flush cycle	✓		
Inside cover	• Slow leaks into the fixture • Flush cycle too long or too short • Grooves cut into inner cover from diaphragm segments	✓		
Diaphragm kit Regal	• Slow leaks into the fixture • Flush cycle too long or too short	✓		
Diaphragm kit Royal/Sloan	• Slow leaks into the fixture • Flush cycle too long or too short		✓	
Stop assembly Internal parts	• Leaking around the stop • Failure to completely shut off water • Excessive wrench marks on bonnet		✓	
Brass parts Body, outside cover, stop and vacuum breaker tube	• Compromised chrome finish • Missing or distorted threads			✓
Flanges & connections	• Compromised chrome finish • Missing or distorted threads • Excessive wrench marks on coupling			✓
Manual Piston Flushometer Parts (Same as manual diaphragm flushometer with exception of piston kits)				
Piston kit-GEM-2	• Slow leaks into the fixture • Flush cycle too long or too short	✓		
Piston kit-Crown	• Slow leaks into the fixture • Flush cycle too long or too short		✓	

Part Supply

- USA made
- Readily available
- No planned obsolescence
- Interchangeability of components
- Easy upgrade to sidemount sensor
- Genuine Sloan Parts (how do you know?)
- Beware of knock-offs (what are the risks?)

Summary

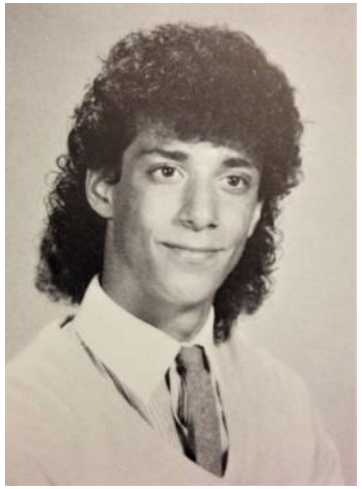
- Sloan invented the piston flushometer in 1928
- Made in the USA
- Easy access to Genuine Sloan Parts
- World class Tech Support team
- Vast network of reps to provide assistance
- Follow best practices

Next Sections in this Series

Part 2 – Manual Piston
Part 3 – Top Mount Sensor
Part 4 – Side Mount Sensor
Part 5 – ESS Exposed
Part 6 – ESS Concealed
Part 7 – Hydraulic 900 Series
Part 8 – CX Sensor
Part 9 – CX Manual
Part 10 – Bedpan Washers

Companion Webinars

- Piston vs Diaphragm
- Regal vs Sloan vs Royal
- Flushometer Components 101
- Converting Manual to Sensor
- Battery Truths and Myths



Dominick after Part 1

Dominick after Part 5

Dominick after Part 10

Product Installation & Maintenance Materials

Product Installation, Repair and Maintenance Guides

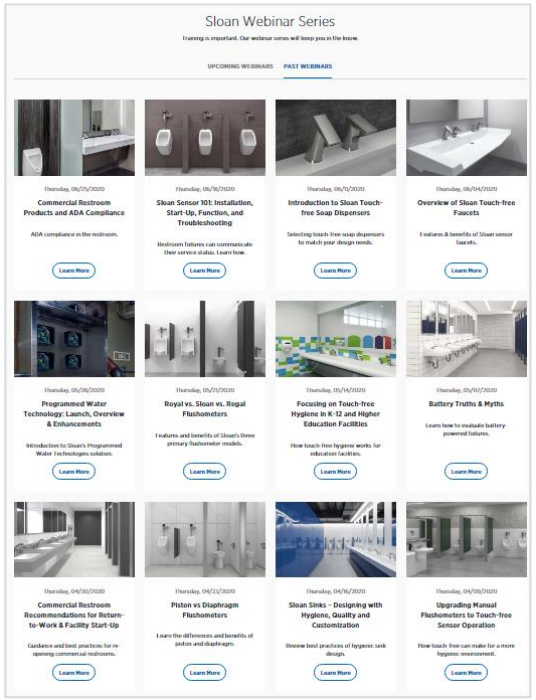
- Gem-2 Repair and Maintenance Guide
- Crown Repair and Maintenance Guide
- Sloan Piston Type Flushometer Installation Guide
- Sloan Naval Exposed Flushometer Installation Guide
- Sloan Manual Flushometer Maintenance Schedule Guide
- Control Stop Repair and Maintenance Guide
- Flush Connection Flanges Repair and Maintenance Guide
- Tail Piece Repair and Maintenance Guide

Videos

- Identifying Sloan Piston Flushometers
- Gem Piston Flushometer Basics
- Crown Piston Flushometer Basics

Sloan Online Training Materials Catalog

Sloan Webinar Series




Questions?

Find your local Sloan representative for more information

Sloan Rep Locator tool

- Local code knowledge
- Familiarity with existing sites
- Product knowledge
- Available for onsite consultation

Sloan Customer Care Center
Phone: 800.982.5839
Hours: 7:00 AM - 5:00 PM (CST) Monday – Friday
customer.service@sloan.com

Sloan Technical Support
P: 888.756.2614
F: 800.737.3061
techsupport@sloan.com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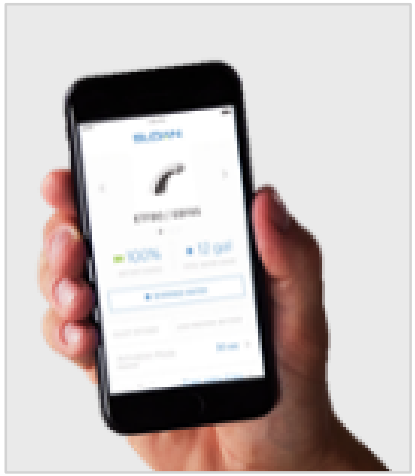
Sloan Mobile Showroom


Seattle, WA USA

Upcoming Sloan Training Webinars



November 19th

Sloan Wireless Product Technologies Overview and Updates

December 10th

Top Mount Sensor Flushometers – Part 3, Flushometer Care and Service 101

December 17th

Introducing the new Sloan “Clark Street” and “Rush Street” Faucet Collections

Training Comments, Questions, or Suggestions?

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