

OPERATION AND MAINTENANCE MANUAL

SERIES 52SC
CHECK VALVE



AMERICAN

FLOW CONTROL

THE RIGHT WAY

INDEX

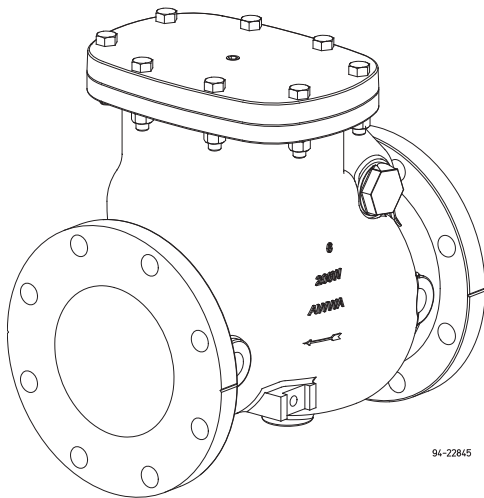


SERIES 52-SC SWING CHECK VALVE

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AMERICAN FLOW CONTROL SERIES 52-SC SWING CHECK VALVE



AMERICAN Flow Control has incorporated many innovative design changes that prolong service life for swing check valves in water and sewage service. AMERICAN Flow Control SERIES 52-SC swing check valves are available in standard configurations, with lever and spring or with lever and weight.

SERIES 52-SC FEATURES AND BENEFITS



AMERICAN Flow Control has incorporated significant design changes to prolong service life for swing check valves in water and sewage service. AMERICAN Flow Control 52-SC swing check valves incorporate the following design features to increase service life.

BODIES AND BONNETS

Valve bodies and bonnets are made of gray cast iron. Internal contours are specifically designed to provide a smooth flow passage and reduce head loss through the valve. The entire clapper arm and disc assembly can be removed through the bonnet opening while the valve is installed in the line.

CLAPPER ARMS

The clapper arms are made of impact resistant ductile iron. The area through which the clapper arm shaft and in which the disc stud is attached, contain bushings for improved wear and corrosion resistance.

CLAPPER ARM SHAFTS

The clapper arm shafts are made of corrosion resistant stainless steel for strength and durability.

RETAINING PLUGS

The clapper arm shaft is held in place by corrosion resistant bronze retaining plugs. The plugs also act as a wear-resistant bearings for the clapper arm assembly. The unique design allows for easy removal and disassembly of internal parts, should the need arise.

DISCS

Discs on check valves 4 in. and larger are made of gray iron with bronze seat rings securely fastened into grooves machined in the disc. The connection between the disc and clapper arm is designed with sufficient clearance to allow the disc to adjust to the seat.

AMERICAN Flow Control 52-SC Swing Check Valves have these features:

- Gray Cast Iron Valve Bodies
- Comply with ANSI/AWWA C508
- Stainless Steel Clapper Arm Shafts
- Full Size Waterway
- Solid Ductile Iron Clapper Arm
- Bronze Retaining Plugs
- Optional Fusion-Bonded Epoxy Coating Inside and Out
- Certified to NSF/ANSI 61 & 372

SERIES 52-SC SPECIFICATIONS



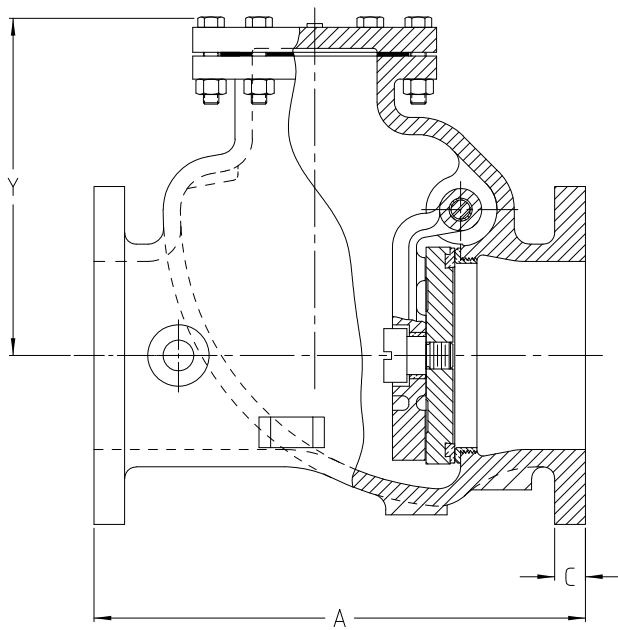
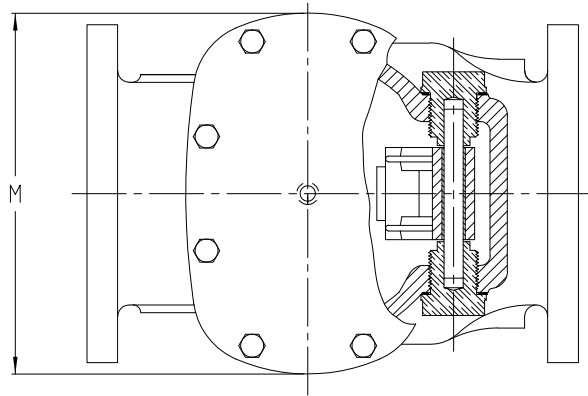
Swing check valves shall be manufactured from gray cast iron meeting or exceeding ASTM A126 Grade B. Valves shall comply with ANSI/AWWA C508, latest revision. Valves shall be designed to permit an adequate waterway opening for utilization of pipeline cleaning apparatus. Disassembly of valve internals to require no special tools other than standard socket wrenches. Clapper arm shall be made of ductile iron conforming to ASTM A536.

Check valve shafts are to be constructed stainless steel and be equipped with corrosion-resistant bronze bearings at each end. Shaft and bearings are to be completely replaceable, if necessary, with valve remaining in the pipeline. If the valve shaft is extended outside the body, a double O-ring seal fully contained within the shaft bearing shall be provided. There shall be a grease fitting for lubrication between the O-rings for double protection against foreign matter reaching bearing surfaces. Different lever orientation shall be possible in the field in increments of 45° without shaft modifications or extra drilling.

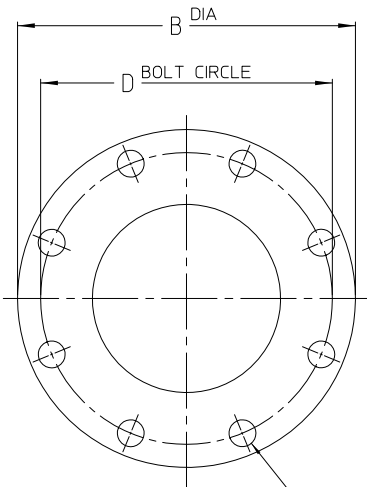
Check valve seating surfaces shall be bronze. Valve design shall be such that the valve remains in the closed position when installed in horizontal pipeline under no-flow condition.

Check valves to be AMERICAN Flow Control 52-SC Swing Check Valves.

SERIES 52-SC STANDARD DIMENSIONS



← FLOW

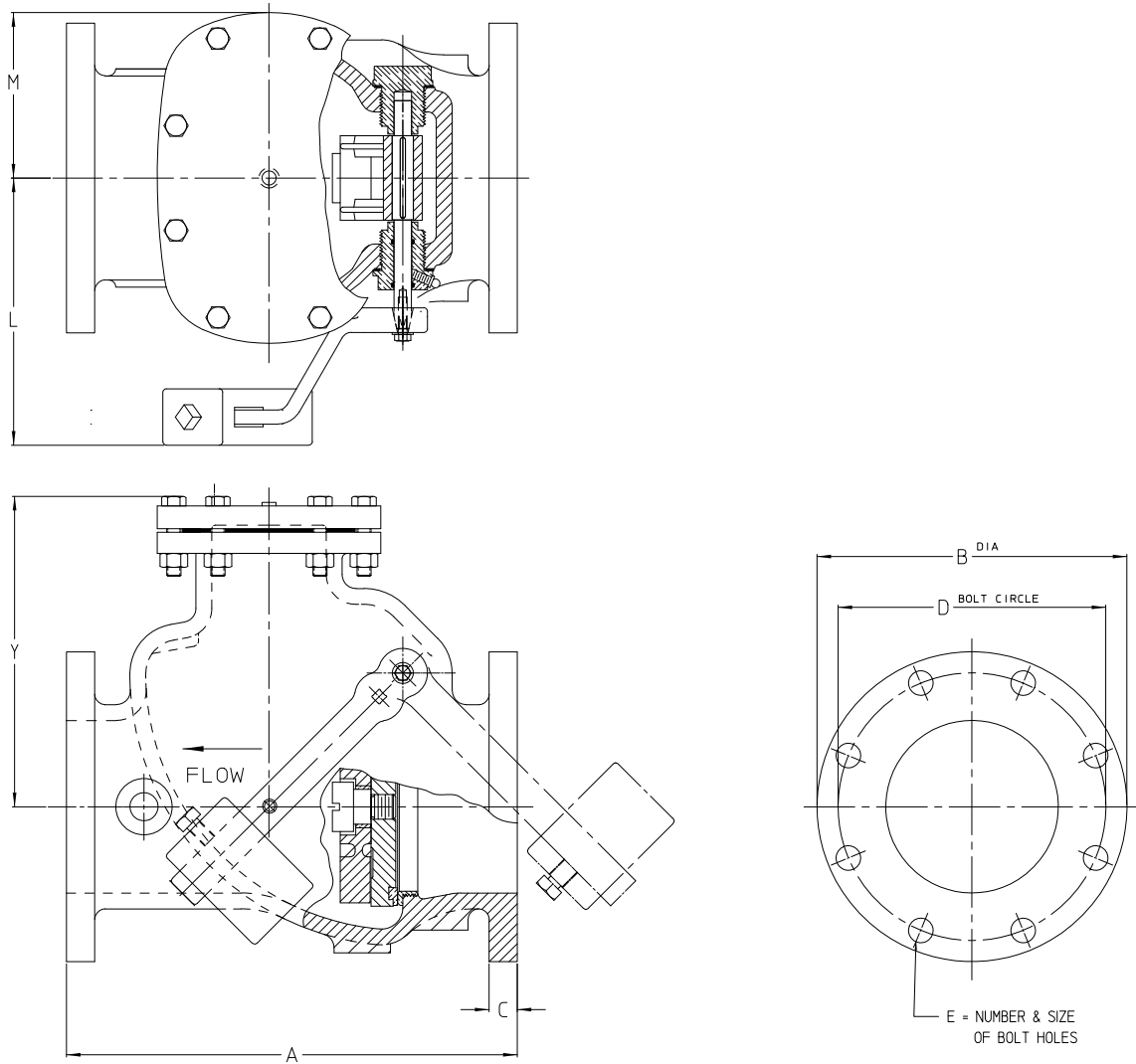


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E = NUMBER & SIZE OF BOLT HOLES

Valve Size	A	B	C	D	E	M	Y
3"	11.00	7.50	.75	6.00	4 - 0.75	7.88	7.38
4"	13.00	9.00	.94	7.50	8 - 0.75	9.00	9.00
6"	16.00	11.00	1.00	9.50	8 - 0.88	11.75	10.75
8"	19.50	13.50	1.13	11.75	8 - 0.88	14.25	12.75
10"	24.50	16.00	1.19	14.25	12 - 1.00	16.38	14.75
12"	27.50	19.00	1.25	17.00	12 - 1.00	18.75	18.00
14"	31.00	21.00	1.38	18.75	12 - 1.13	22.50	20.38
16"	36.00	23.50	1.44	21.25	16 - 1.13	24.50	21.75

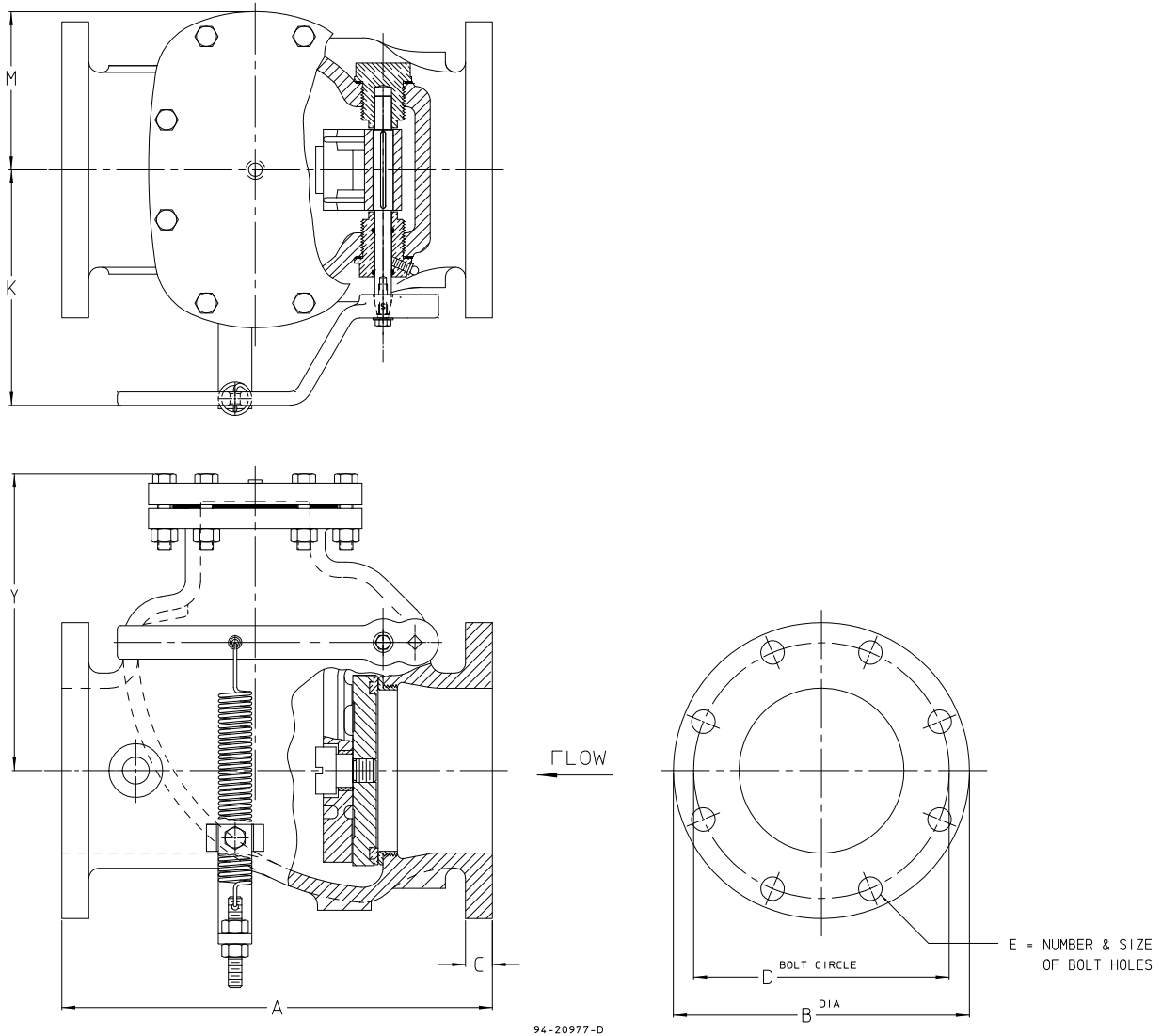
SERIES 52-SC LEVER AND WEIGHT DIMENSIONS



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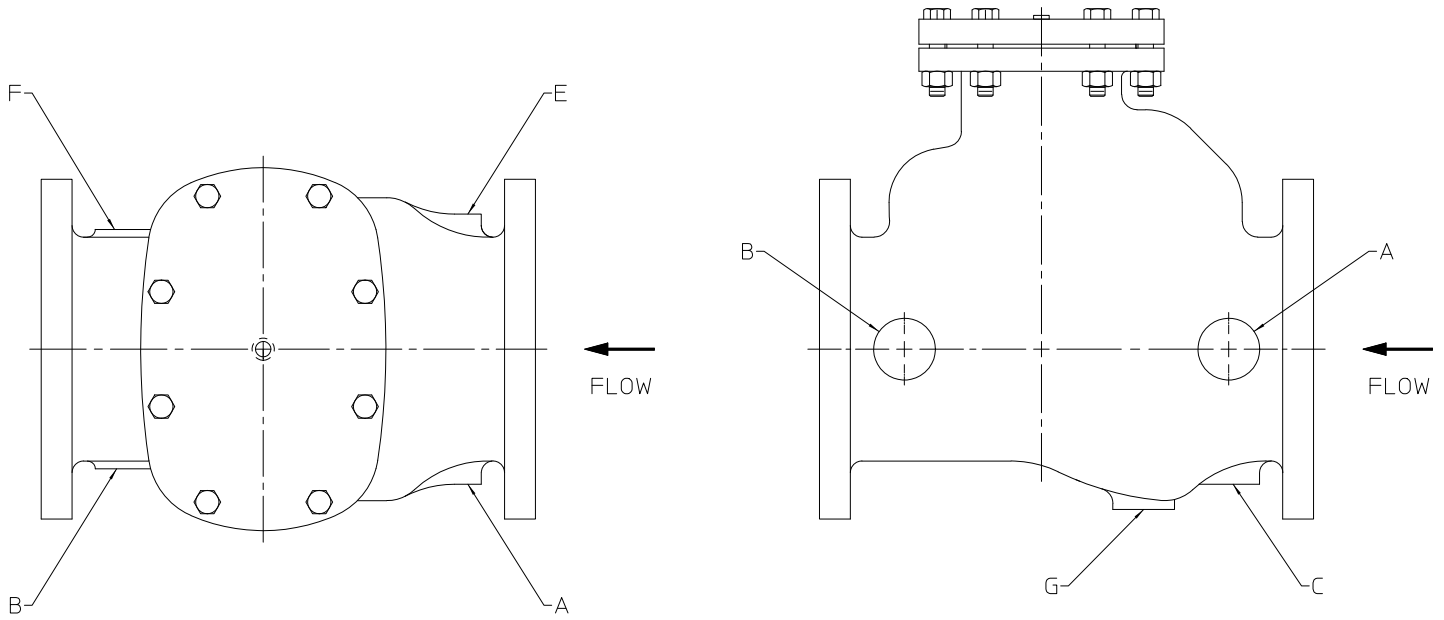
Valve Size	A	B	C	D	E	H	L	M	Y
3"	11.00	7.50	.75	6.00	4 - 0.75	8.50	5.85	3.94	7.38
4"	13.00	9.00	.94	7.50	8 - 0.75	9.50	6.57	4.50	9.00
6"	16.00	11.00	1.00	9.50	8 - 0.88	11.13	9.43	5.88	10.75
8"	19.50	13.50	1.13	11.75	8 - 0.88	14.13	10.66	7.13	12.75
10"	24.50	16.00	1.19	14.25	12 - 1.00	15.00	12.35	8.19	14.75
12"	27.50	19.00	1.25	17.00	12 - 1.00	15.00	13.01	9.38	18.00
14"	31.00	21.00	1.38	18.75	12 - 1.13	16.00	15.56	11.25	20.38
16"	36.00	23.50	1.44	21.25	16 - 1.13	18.00	16.96	12.25	21.75

SERIES 52-SC LEVER AND SPRING DIMENSIONS



Valve Size	A	B	C	D	E	K	M	Y
3"	11.00	7.50	.75	6.00	4 - 0.75	5.35	3.94	7.38
4"	13.00	9.00	.94	7.50	8 - 0.75	6.06	4.50	9.00
6"	16.00	11.00	1.00	9.50	8 - 0.88	8.68	5.88	10.75
8"	19.50	13.50	1.13	11.75	8 - 0.88	9.66	7.13	12.75
10"	24.50	16.00	1.19	14.25	12 - 1.00	11.16	8.19	14.75
12"	27.50	19.00	1.25	17.00	12 - 1.00	11.82	9.38	18.00
14"	31.00	21.00	1.38	18.75	12 - 1.12	13.94	11.25	20.38
16"	36.00	23.50	1.44	21.25	16 - 1.12	15.33	12.25	21.75

SERIES 52-SC OPTIONAL TAP LOCATIONS



IL1483-3

Valve Size	Maximum Tap Size for Bosses A, B, C, E, F, & G
3"	1/2 NPT
4"	3/4 NPT
6"	1 NPT
8"	1 NPT
10"	2 NPT
12"	2 NPT
14"	2 NPT
16"	2 NPT

SERIES 52-SC WEIGHTS



Valve Size	Standard	Lever / Spring	Lever / Weight
3"	61	63	64
4"	98	102	104
6"	167	170	173
8"	274	288	295
10"	445	450	470
12"	620	655	655
14"	1010	1080	1080
16"	1180	1250	1250

NOTE: All weights are in pounds

SERIES 52-SC INSTALLATION AND MAINTENANCE



INSTALLATION

This information is provided as a recommendation to the customer for the proper use and installation of swing check valves.

1. When received, the valves should be unloaded carefully and in the case of Series 52-SC, stored with clapper braced in closed position. If provided, leave end protectors in place after initial examination. Protect stored valves from the elements and from undue damage in handling.
2. At the time of installation, remove any bracing from the swing check valve. Make sure the valve and flange gasket surfaces are clean and free of damage. Clean the inside of the valve to remove all debris and/or contaminants that may affect performance, or fluid quality. Check for free movement of clapper and inspect valve seal. Check the direction of flow in the pipeline and make sure the arrow cast on the side of the valve body agrees with the direction of flow through the valve.
3. Valves without lever and weight, or spring, are to be installed with the centerline of the valve port in a horizontal position and with the bonnet facing upward. Check valves will operate satisfactorily if not oriented more than 45° from the horizontal and with the flow upward.
4. To help prevent check valve slam, the valve can be supplied with an optional extended shaft configuration, equipped with either lever and weight, or lever and spring. The principle behind either of these options is to close the valve before the fluid establishes a reverse flow. The torque required to close the valve is unique to each system. The torque can be adjusted by changing the position and/or number of springs, or weights, used to aid valve closure. In any service where the possibility of slamming exists, it is recommended that check valves be equipped with lever and spring, or lever and weight.
5. Check valves equipped with lever and spring can be used in a horizontal pipeline or in a vertical pipeline only when flow is upward. Check valves equipped with lever and weight can also be used in either a horizontal pipeline or a vertical pipeline. The lever must be positioned correctly to achieve valve closure. In the case of the Series 52-SC, the correct position of the lever and weight, when valve is installed in a horizontal line is 45° below the horizontal centerline of pipe, on the downstream side of the check valve disc. If the check valve is to be installed in a vertical line with upward flow, the lever should be moved 90° counterclockwise from this position.
6. Check valves should be installed in accordance with Standard Practice MSS SP-92.

7. DO NOT INSTALL CHECK VALVES IN A VERTICAL LINE WITH DOWNWARD FLOW.

8. At the time of installation, make sure piping is properly aligned and supported to avoid stress on the valve body. Under no circumstances should the installation of the valve be used to correct alignment errors.

TESTING

Check to see that all valve joints and pressure-containing bolts are tight. After testing, relieve excess pressure from the line.

OPERATION

1. On swing check valves without lever or weight, there are no special instructions regarding the operation since the valve is actuated by line flow.
2. If supplied with a lever or weight, the check valve can be adjusted to counteract sudden closure due to changes in flow conditions. Adjustment may be accomplished by adjusting the tension on the spring, or the position, and/or amount, of weight on the valve.

MAINTENANCE

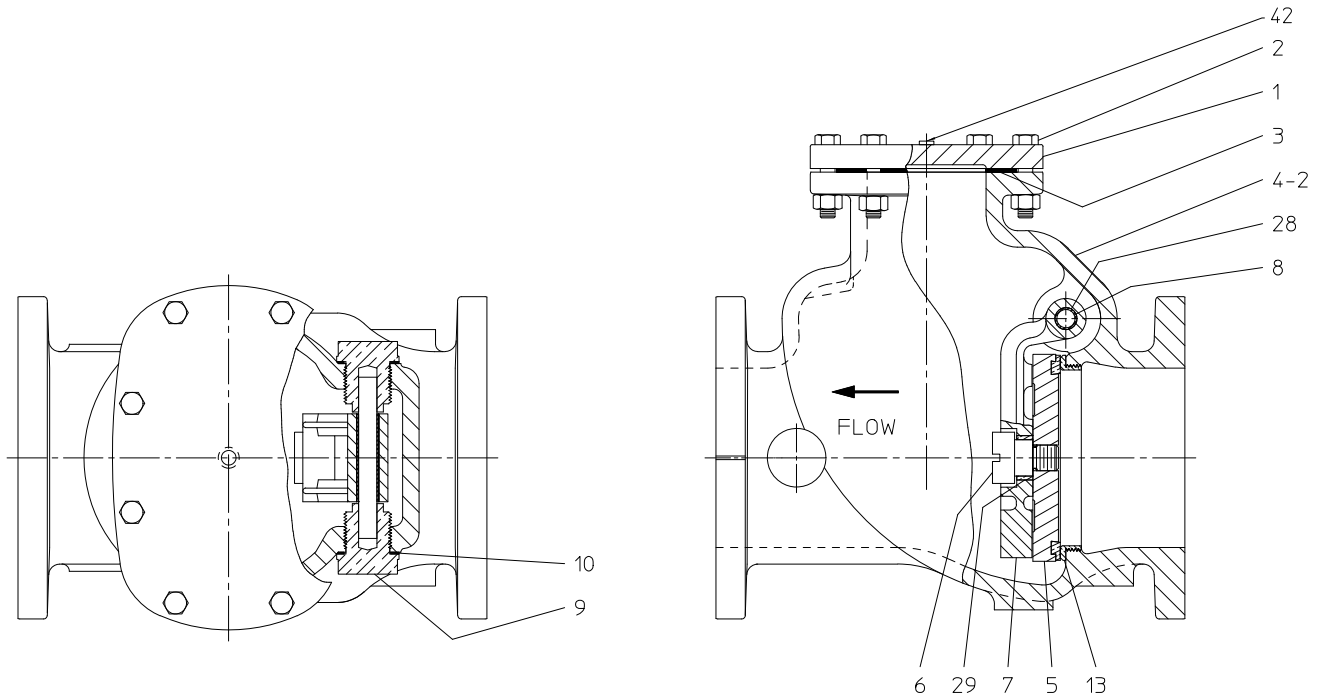
1. Normally there is very little maintenance on a check valve. On standard check valves it is suggested the valve be disassembled once a year. Depressurize the valve for inspection. Check for wear at all oscillating locations.
2. On the Series 52-SC Check Valves with extended shaft designs (i.e. equipped with lever and weight or spring) should be inspected every six months for adequate lubrication. To ensure adequate lubrication, add an AMERICAN Flow Control recommended grease between O-rings until resistance to flow of the lubricant into the grease fitting (32-7) is felt on the grease gun lever. If leakage occurs due to oscillation, replace O-rings by removing retainer plug. Be sure to pressurize space between o-rings with grease after reassembly. Look for excessive wear on extended shaft and bearing bore that would prevent O-ring sealing.

SPARE PARTS

Under most conditions the only spare parts needed for swing check valves would be bonnet gasket, and any applicable retaining plug gaskets and O-rings, if valve is equipped with extended shaft. Under conditions where very frequent oscillation of a clapper is experienced, and/or sever, service conditions, other parts may be kept in stock.

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while check valve is under pressure.

SERIES 52-SC STANDARD PARTS LIST



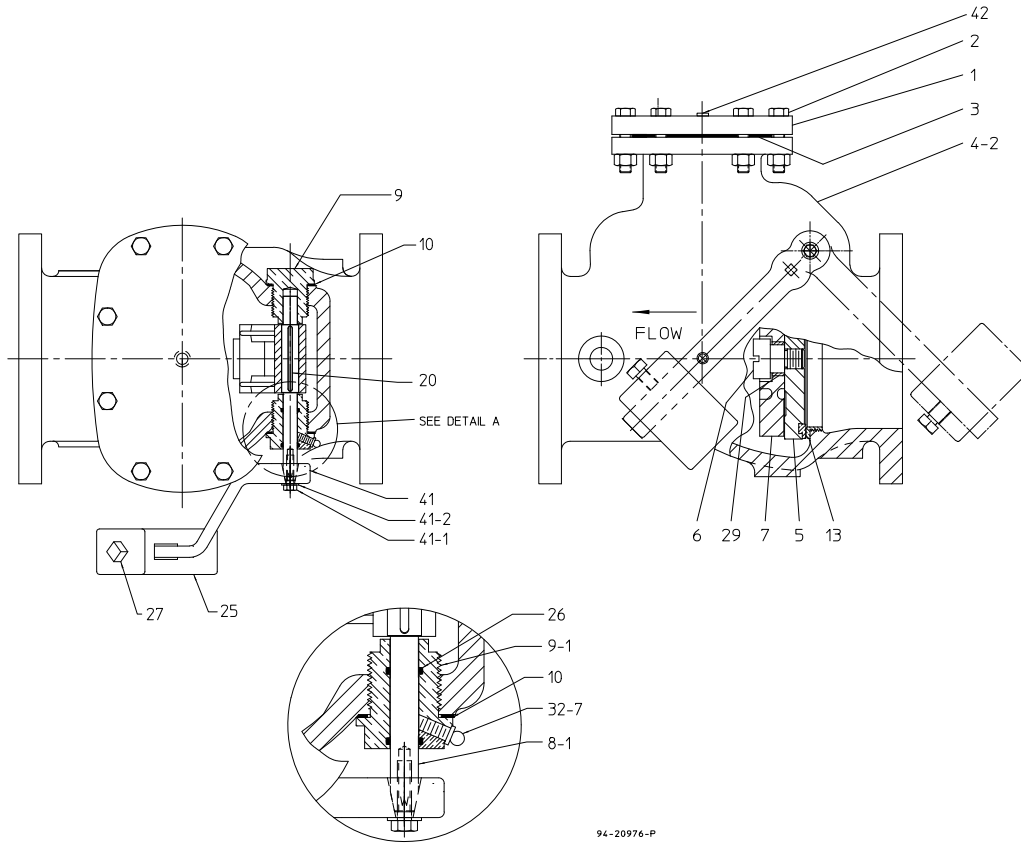
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Ref. No.	Description	Material	Quantity
1	Bonnet	Gray Iron (See Note 4)	1
2	Bonnet Bolt & Nut	0304 Stainless Steel	Varies
3	Bonnet Gasket	Composition Rubber	1
4-2	Flanged End Case	Gray Iron (See Note 4)	1
5	Disc	See Note 5	1
6	Disc Stud	Bronze	1
7	Clapper Arm	Ductile Iron	1
8	Clapper Arm Shaft	Stainless Steel	1
9	Retainer Plug	Bronze	2
10	Retainer Plug Gasket	Composition Rubber	2
13	Seat Ring	Bronze	1
28	Shaft Bushing	Bronze (See Note 6)	1
29	Disc Stud Bushing	Bronze	1
42	Pipe Plug	0304 Stainless Steel	1

NOTES:

1. Construction, materials and testing comply with ANSI/AWWA C508.
2. Bolt patterns of Class 125 flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1 Class 125).
3. Valves have manufacturer's name, pressure class and year of manufacture cast on side of case.
4. All gray iron is ASTM A126 Class B.
5. Discs on 3 in. are bronze, 4 in. and above are gray iron with bronze face disc that has lug on O.D. to prevent rotation.
6. Shaft bushings for valves 3 in.–10 in. are bronze, 12 in.–16 in. are nylon with molybdenum disulphide uniformly dispersed.
7. Certified to NSF/ANSI 61 & 372.

SERIES 52-SC LEVER AND WEIGHT PARTS LIST

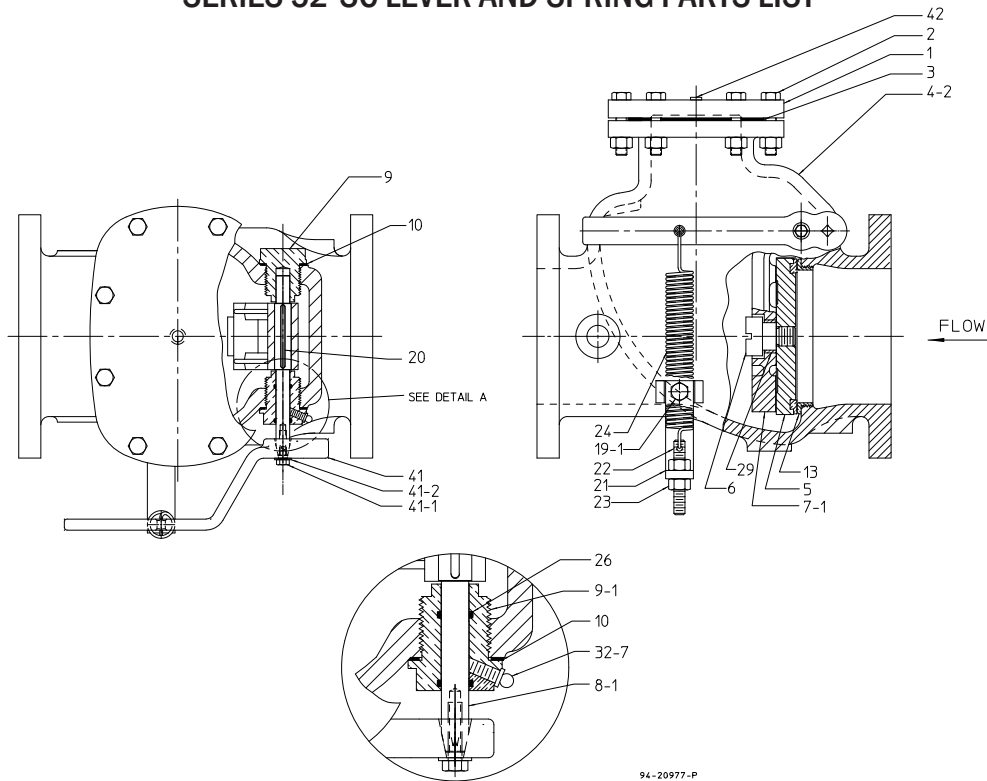


DETAIL A

Ref. No.	Description	Material	Qty.
1	Bonnet	Gray Iron	1
2	Bonnet Bolt & Nut	0304 Stainless Steel	Varies
3	Bonnet Gasket	Composition Rubber	1
4-2	Flanged Ends Case	Gray Iron	1
5	Disc	(See Note 6)	1
6	Disc Stud	Bronze	1
7-1	Clapper Arm for Lever	Ductile Iron	1
8-1	Clapper Arm Shaft Assembly	Stainless Steel (See Note 5)	1
9	Retainer Plug	Bronze	1
9-1	Retainer Plug for Lever	Bronze	1
10	Retainer Plug Gasket	Composition Rubber	2
13	Seat Ring	Bronze	1
20	Shaft Key	Stainless Steel	1
25	Weight for Lever	Gray Iron	1
26	O-ring	Rubber	2
27	Weight Set Screw	0304 Stainless Steel	1
29	Disc Stud Bushing	Bronze	1
32-7	Grease Fitting	Steel	1
41	Lever	Ductile Iron	1
41-1	Lever Bolt	0304 Stainless Steel	1
41-2	Lever Washer	0304 Stainless Steel	1
42	Pipe Plug	0304 Stainless Steel	1

1. Construction, materials and testing comply with ANSI/AWWA C508.
2. Bolt patterns of Class 125 flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1 Class 125).
3. Valves have manufacturer's name, pressure class and year of manufacture cast on side of case.
4. All gray iron is ASTM A126 Class B.
5. Clapper arm shaft is stainless steel. As-sembly includes lever, bolt, washer and key.
6. Disc on 3 in. is bronze. 4 in. and above are gray iron with bronze face. Disc has lug on O.D. to prevent rotation.
7. Lever is furnished on side and position shown unless otherwise specified. Lever shown by dot and dash lines is the position furnished when valve is to be installed in a vertical line with upward flow for lever and weight.
8. Certified to NSF/ANSI 61 & 372.

SERIES 52-SC LEVER AND SPRING PARTS LIST



94-20977-P

Ref. No.	Description	Material	Qty.
1	Bonnet	Gray Iron	1
2	Bonnet Bolt & Nut	0304 Stainless Steel	Varies
3	Bonnet Gasket	Composition Rubber	1
4-2	Flanged Ends Case	Gray Iron	1
5	Disc	(See Note 6)	1
6	Disc Stud	Bronze	1
7-1	Clapper Arm for Lever	Ductile Iron	1
8-1	Clapper Arm Shaft Assembly	Stainless Steel (See Note 5)	1
9	Retainer Plug	Bronze	1
9-1	Retainer Plug for Lever	Bronze	1
10	Retainer Plug Gasket	Composition Rubber	2
13	Seat Ring	Bronze	1
19-1	Bracket Cap Screw	0304 Stainless Steel	1
20	Shaft Key	Stainless Steel	1
21	Spring Bracket	Steel	1
22	Spring Link	0304 Stainless Steel	1
23	Link Nut	0304 Stainless Steel	2
24	Spring for Lever	Steel	1
26	O-ring	Rubber	2
29	Disc Stud Bushing	Bronze	1
32-7	Grease Fitting	Steel	1
41	Lever	Ductile Iron	1
41-1	Lever Bolt	0304 Stainless Steel	1
41-2	Lever Washer	0304 Stainless Steel	1
42	Pipe Plug	0304 Stainless Steel	1

1. Construction, materials and testing comply with ANSI/AWWA C508.
2. Bolt patterns of Class 125 flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1 Class 125).
3. Valves have manufacturer's name, pressure class and year of manufacture cast on side of case.
4. All gray iron is ASTM A126 Class B.
5. Clapper arm shaft is stainless steel. Assembly includes lever, bolt, washer and key.
6. Disc on 3 in. is bronze. 4 in. and above are gray iron with bronze face. Disc has lug on O.D. to prevent rotation.
7. Lever is furnished on side and position shown unless otherwise specified.
8. Certified to NSF/ANSI 61 & 372.

**SERIES 52-SC STANDARD FIELD DISASSEMBLY/ASSEMBLY INSTRUCTIONS
STANDARD METAL SEATED**



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while check valve is under pressure.

Recommended Tools, Supplies

Tools:

- Combination wrench(s)
- Wood block
- Mallet

Supplies:

- Grease (food grade)
- Emory cloth
- Loctite 243

Replacement Parts For Leakage Past Shaft:

- (2) Part #10 Retainer Plug Gasket
- (Optional) Part #9 Retainer Plug

Replacement Parts For Full Internal Rebuild:

- (1) Part #3 Bonnet Gasket
- (1) Part #5 Disc with Stud
- (1) Part #6 Disc Stud
- (1) Part #7 Clapper Arm with Bushing
 - Includes (1) Part #29 Stud Bushing
- (1) Part #8 Clapper Arm Shaft
- (2) Part #9 Retainer Plug
- (2) Part #10 Retainer Plug Gasket

SERIES 52-SC STANDARD FIELD DISASSEMBLY/ASSEMBLY INSTRUCTIONS

STANDARD METAL SEATED

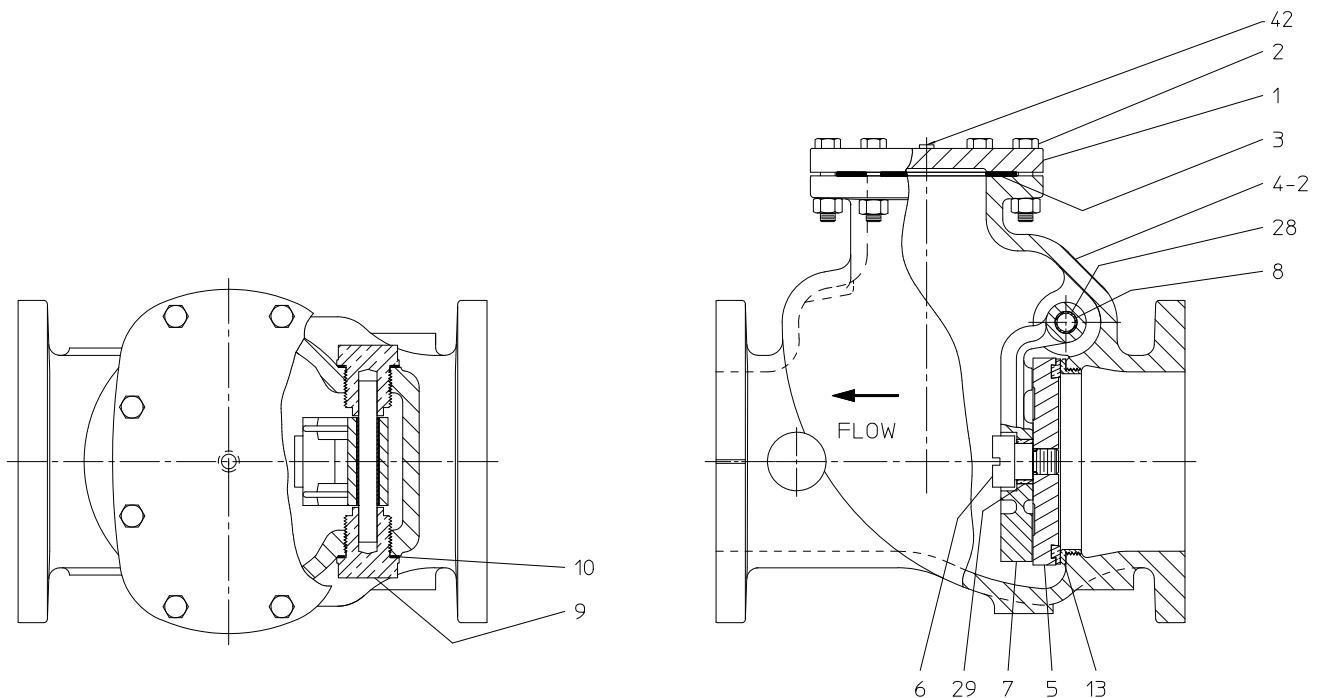


Disassembly

1. Shut off water supply and relieve internal pressure.
2. Remove bonnet bolts & nuts #2.
3. Remove bonnet #1.
4. Remove bonnet gasket #3 and discard. Clean surface.
5. Remove retainer plugs #9.
6. Remove retainer plug gaskets #10 and discard. Clean surfaces.
7. Remove clapper arm shaft #8 by tapping on mallet with wood block between shaft and mallet. Direct impact can cause end of shaft to deform and prevent shaft from passing through clapper arm #7.
8. Pull clapper arm #7, disc #5, and disc stud #6 out of valve.
9. Disc stud may be unscrewed from disc if necessary.

Assembly

1. Thread disc stud #6 through clapper arm #7 into disc #5, applying Loctite 243 to threads.
2. Re-using the existing shaft, clean surfaces with emory cloth. Re-insert shaft through the #7 clapper arm the way that it came out.
3. Use new retainer plug gasket #10. Lubricate each retainer plug with AFC recommended food grade grease to ease assembly. Install #9 retainer plug into valve body and align with clapper arm #7. Slide retainer plug #9 over shaft, lift internal parts assembly, align retainer plug with threads in body and tighten retainer plug #9.
4. Install new bonnet gasket #3 and install cover #1 using bolts and nuts #2.
5. Recharge line and test assembly.



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SERIES 52-SC LEVER AND WEIGHT FIELD DISASSEMBLY/ASSEMBLY INSTRUCTIONS

STANDARD METAL SEATED



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** Do not make repairs while check valve is under pressure.

Recommended Tools, Supplies

Tools:

- Combination wrench(s)
- Wood block
- Mallet

Supplies:

- Grease (food grade)
- Emory cloth
- Loctite 243

Replacement Parts For Leakage Past Shaft:

- (2) Part #26 Retainer Plug O-Ring
- (2) Part #10 Retainer Plug Gasket
- (Optional) Part #9 Retainer Plug and/or Part #9-1 Retainer Plug for Outside Shaft (both include two (2) Part #26)

Replacement Parts For Full Internal Rebuild*:

- (1) Part #3 Bonnet Gasket
- (1) Part #5 Disc with Stud
- (1) Part #6 Disc Stud
- (1) Part #7-1 Clapper Arm with Bushing
- (1) Part #8-1 Clapper Arm Shaft Assembly
- (1) Part #9 Retainer Plug
- (1) Part #9-1 Retainer Plug – Lever
 - o Includes (2) Part #26 O-ring
- (2) Part #10 Retainer Plug Gasket

*Additional Parts May Be Required for Series 52-SC valves manufactured prior to 2008:

- (1) Part #41 Lever
- (1) Part #41-1 Lever Bolt
- (1) Part #41-2 Lever Washer

SERIES 52-SC LEVER AND WEIGHT FIELD DISASSEMBLY/ASSEMBLY INSTRUCTIONS STANDARD METAL SEATED

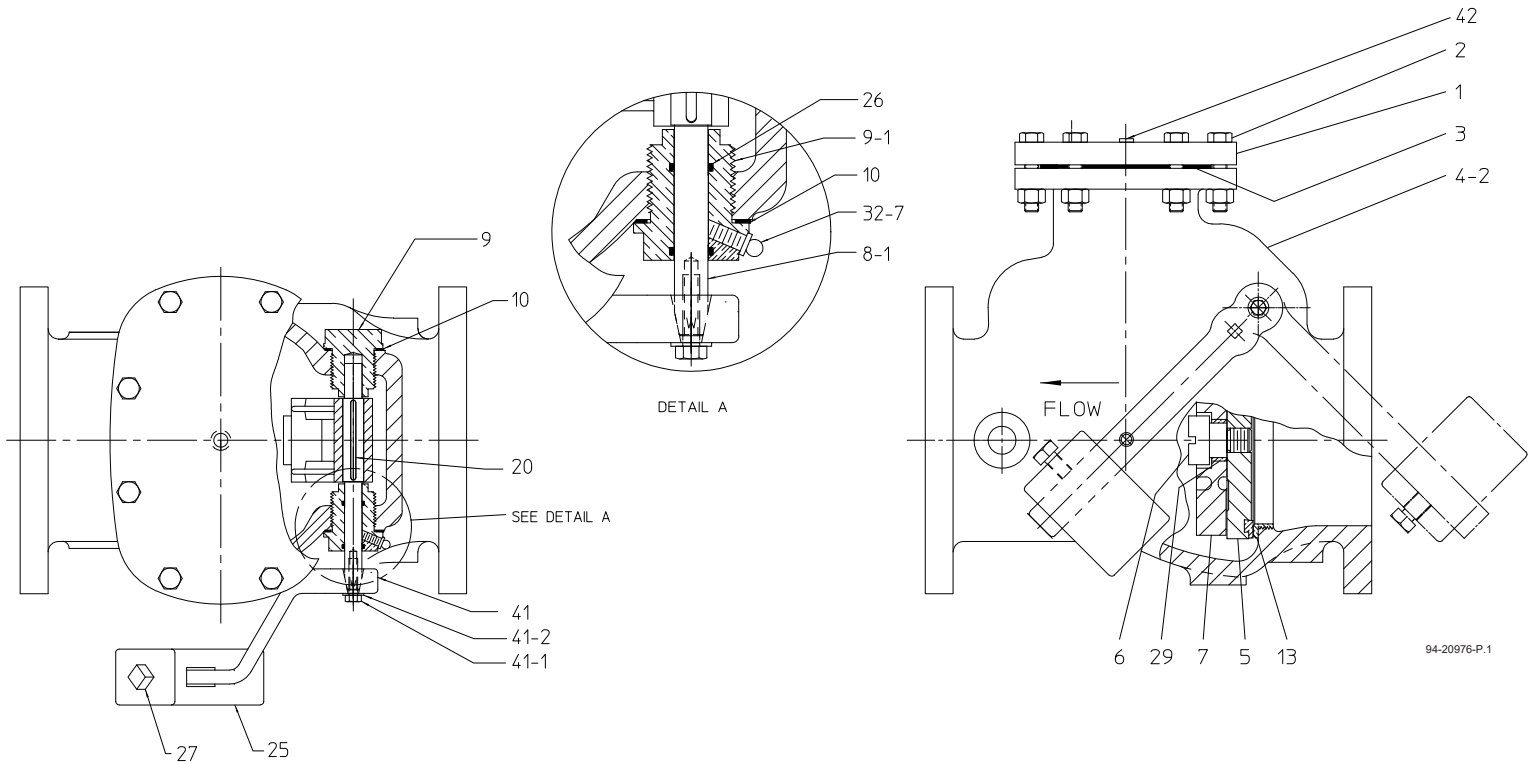


Disassembly

1. Shut off water supply and relieve internal pressure.
2. Remove bonnet bolts & nuts #2.
3. Remove bonnet #1.
4. Remove bonnet gasket #3 and discard. Clean surface.
5. Remove spring weight #25 and weight set screw #27
6. Remove #41-1 lever bolt & #41-2 lever washer.
7. Remove retainer plugs #9-1 & #9. Discard #26 O-rings from #9-1.
8. Remove retainer plug gaskets #10 and discard. Clean surfaces.
9. Remove clapper arm shaft #8-1 by tapping on mallet with wood block between shaft and mallet.
10. Direct impact can cause end of shaft to deform and prevent shaft from passing through clapper arm #7-1. Pull clapper arm #7-1, disc #5, and disc stud #6 out of valve.
11. Disc stud may be unscrewed from disc if necessary.

Assembly

1. Thread disc stud #6 through clapper arm #7-1 into disc #5, applying Loctite 243 to threads.
2. Re-using the existing shaft, clean surfaces with emory cloth to insure there will be no damage to the retainer plug O-rings #26 when slid over shaft. Insert shaft key #20 in shaft and re-insert shaft through the #7-1 clapper arm the way that it came out.
3. Use new retainer plug gasket #10. Lubricate each retainer plug with AFC recommended food grade grease to ease assembly. Install new #26 O-rings into retainer plug #9-1. Install #9 retainer plug into valve body and align with clapper arm #7-1. Slide retainer plug #9-1 over shaft, lift internal parts assembly, align retainer plug with threads in body and tighten retainer plug #9-1.
4. Install new bonnet gasket #3 and install cover #1 using bolts and nuts #2.
5. Re-install weight #25 with weight set screw #27.
6. Recharge line and test assembly.



SERIES 52-SC LEVER AND SPRING FIELD DISASSEMBLY/ASSEMBLY INSTRUCTIONS

STANDARD METAL SEATED



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. **FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH.** Do not make repairs while check valve is under pressure.

Recommended Tools, Supplies

Tools:

- Combination wrench(s)
- Wood block
- Mallet

Supplies:

- Grease (food grade)
- Emory cloth
- Loctite 243

Replacement Parts For Leakage Past Shaft:

- (2) Part #26 Retainer Plug O-Ring
- (2) Part #10 Retainer Plug Gasket
- (Optional) Part #9 Retainer Plug and/or Part #9-1 Retainer Plug for Outside Shaft (both include two (2) Part #26)

Replacement Parts For Full Internal Rebuild:

- (1) Part #3 Bonnet Gasket
- (1) Part #5 Disc with Stud
- (1) Part #6 Disc Stud
- (1) Part #7-1 Clapper Arm with Bushing
- (1) Part #8-1 Clapper Arm Shaft Assembly
- (1) Part #9 Retainer Plug
- (1) Part #9-1 Retainer Plug – Lever
 - o Includes (2) Part #26 O-ring
- (2) Part #10 Retainer Plug Gasket

*Additional Parts May Be Required for Series 52-SC valves manufactured prior to 2008:

- (1) Part #41 Lever
- (1) Part #41-1 Lever Bolt
- (1) Part #41-2 Lever Washer

SERIES 52-SC LEVER AND SPRING FIELD DISASSEMBLY/ASSEMBLY INSTRUCTIONS

STANDARD OF METAL SEATED

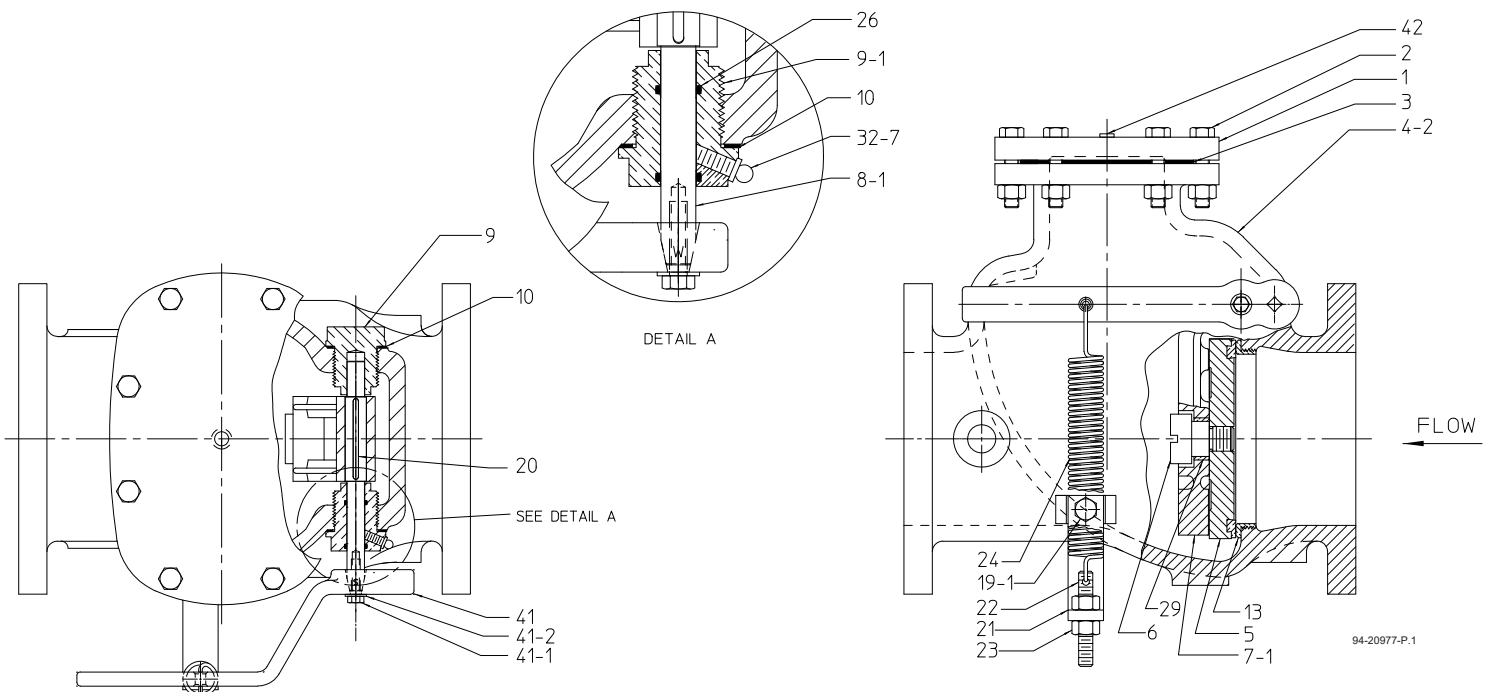


Disassembly

1. Shut off water supply and relieve internal pressure.
2. Remove bonnet bolts & nuts #2.
3. Remove bonnet #1.
4. Remove bonnet gasket #3 and discard. Clean surface.
5. Remove spring assembly #24, #22, #21, #23.
6. Remove #41-1 lever bolt & #41-2 lever washer.
7. Remove retainer plugs #9-1 & #9. Remove #26 O-rings from #9-1 and discard.
8. Remove retainer plug gaskets #10 and discard. Clean surfaces.
9. Remove clapper arm shaft #8-1 by tapping on mallet with wood block between shaft and mallet.
10. Direct impact can cause end of shaft to deform and prevent shaft from passing through clapper arm #7-1. Pull clapper arm #7-1, disc #5, and disc stud #6 out of valve.
11. Disc stud may be unscrewed from disc if necessary.

Assembly

1. Thread disc stud #6 through clapper arm #7-1 into disc #5, applying Loctite 243 to threads.
2. Re-using the existing shaft, clean surfaces with emory cloth to insure there will be no damage to the retainer plug O-rings #26 when slid over shaft. Insert shaft key #20 in shaft and re-insert shaft through the #7-1 clapper arm the way that it came out.
3. Use new retainer plug gasket #10. Lubricate each retainer plug with AFC recommended food grade grease to ease assembly. Install new #26 O-rings into retainer plug #9-1. Install retainer plug #9 into valve body and align with clapper arm #7-1. Slide retainer plug #9-1 over shaft, lift internal parts assembly, align retainer plug with threads in body and tighten retainer plug #9-1.
4. Install new bonnet gasket #3 and install cover #1 using bolts and nuts #2.
5. Re-install spring assembly.
6. Recharge line and test assembly. Adjust spring tension to location providing smoothest operation.





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