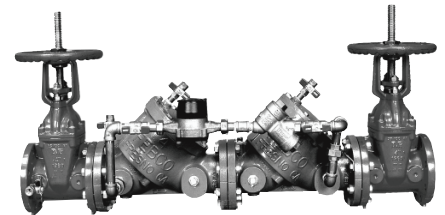


# Maintenance Manual

## Double Check and Double Check Detector Assemblies

Series 805YD, 806YD

2½" - 10" (65 – 250mm)



Series 805, 806

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Read and understand this manual prior to installing, operating or servicing this equipment.



## Feature and Operating Procedures

### Double Check Valves and Double Check Detector Assemblies

This device consists of two independently operating poppet type check valves. Each check valve is spring loaded to maintain a minimum of 1 PSIG differential pressure across the check in a no-flow condition. In a normal-flow condition the checks open an amount corresponding to the flow rate. During a backflow (backpressure) situation, the seat discs close and seal to prevent any flow reversal. Sizes 2½" through 10" (65 – 250mm) (805YD) include two spring loaded Y-pattern check valves with epoxy coated ductile iron bodies and bronze trim, two cast iron shutoff valves and four test-cocks for field testing. All valves are flanged type, and the unit is shipped completely assembled.

The Model 806YD device consists of a mainline double check valve with a metered ¾" by-pass double check valve connected around the mainline checks. The mainline pressure drop is slightly higher than the by-pass, thus all small flow up to the crossover point (3 gpm minimum) is through the by-pass. Above the crossover point flow is through the mainline and the by-pass.

The FEBCO 806YD device main line unit consists of two independent, spring loaded, Y-pattern check valves, two shutoff valves and four test-cocks. The spring loaded poppets in conjunction with soft elastomer discs provide drip tight closure against backflow. The Y-pattern valve design provides low pressure loss at the high flow rates. The shutoff valves are OS&Y type, UL listed for fireline service. The by-pass line assembly consists of a water meter in series with a Model 805YB ¾" double check valve. The meter is the total type with accurate registration between 1 and 20 gpm flow rates. The static pressure drop across both checks is approximately 2psi less than the mainline check valves.

Consult local codes before installing any Backflow Prevention assembly.

### General Service Procedures

**(General service instructions applicable to all sizes.)**

1. Rinse all parts with clean water prior to assembly.
2. DO NOT USE ANY PIPE DOPE, OIL, GREASE OR SOLVENT ON ANY PARTS unless instructed to do so.
3. Do not force parts. Parts should fit freely together. Excess force may cause damage and render the device inoperable.
4. Carefully inspect seals, seating surfaces, etc. for damage or debris.
5. Test unit after servicing to ensure proper operations.
6. Refer to applicable parts list and figures for more information.
7. A table on the back page provides size and material information for standard parts (non-special design). These parts can usually be purchased locally from parts distributors, rather than special order from the factory.
8. Some water conditions can cause a buildup of calcium or similar material deposits on some moving parts. Normally this condition would not occur on devices used in systems with varying flow rates. The scraping action of moving parts helps to remove any deposits. However, with devices used on static systems such as firelines, any deposits would not be scraped away and could interfere with the check valve operation. Devices in these applications should be disassembled and inspected on a periodic basis depending on water quality. Any deposits should be removed from the center guiding stem and bushings. Use care to avoid damage to guiding surfaces.

## Testing

All mechanical devices should be inspected on a regular basis to ensure they are working correctly. The assembly should be tested at time of initial installation, after servicing or maintenance, and at least annually thereafter. Acceptable test procedures are published by Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern

California (USC), The American Water Works Association (AWWA), The American Society of Sanitary Engineering (ASSE Series 5000) and the Canadian Standards Association (CAN/CSA B64.10). Please consult the regulatory authority in your area for more specific information.

## Troubleshooting Guide

<b>SYMPTOM #1</b>	<b>Cause:</b>	<b>Solution:</b>
Check fails to hold 1.0 PSID min.	A. Debris on sealing surfaces	Disassemble and clean
	B. Leaking shutoff valve	Disassemble and clean or repair
	C. Damaged seat disc or seat ring	Disassemble and replace
	D. Damaged guide holding check open	Disassemble and replace guide pin and/or sleeve bushing
	E. Weak or broken spring	Disassemble and replace spring
<b>Symptom #2</b>	<b>Cause:</b>	<b>Solution:</b>
Chatter during flow conditions.	A. Worn or damaged guide	Disassemble & repair or replace guide
<b>Symptom #3</b>	<b>Cause:</b>	<b>Solution:</b>
Low flows passing through the mainline valve (806YD only).	A. Mainline check fouled	Disassemble and clean
	B. Meter strainer plugged	Disassemble and clean
	C. Damaged mainline seat disc or seat	Disassemble and replace
	D. Broken mainline spring	Disassemble and replace

## How to Order Repair Kits

1. Locate item number and kit number in this maintenance manual.
2. Verify the size of the valve the parts are to be used for.
3. Provide full model number located on I.D. plate.
4. Record kit number.
5. A serial number (located on the I.D. plate) will assist in ordering the proper kits.
6. Contact your local FEBCO Parts Distributor.

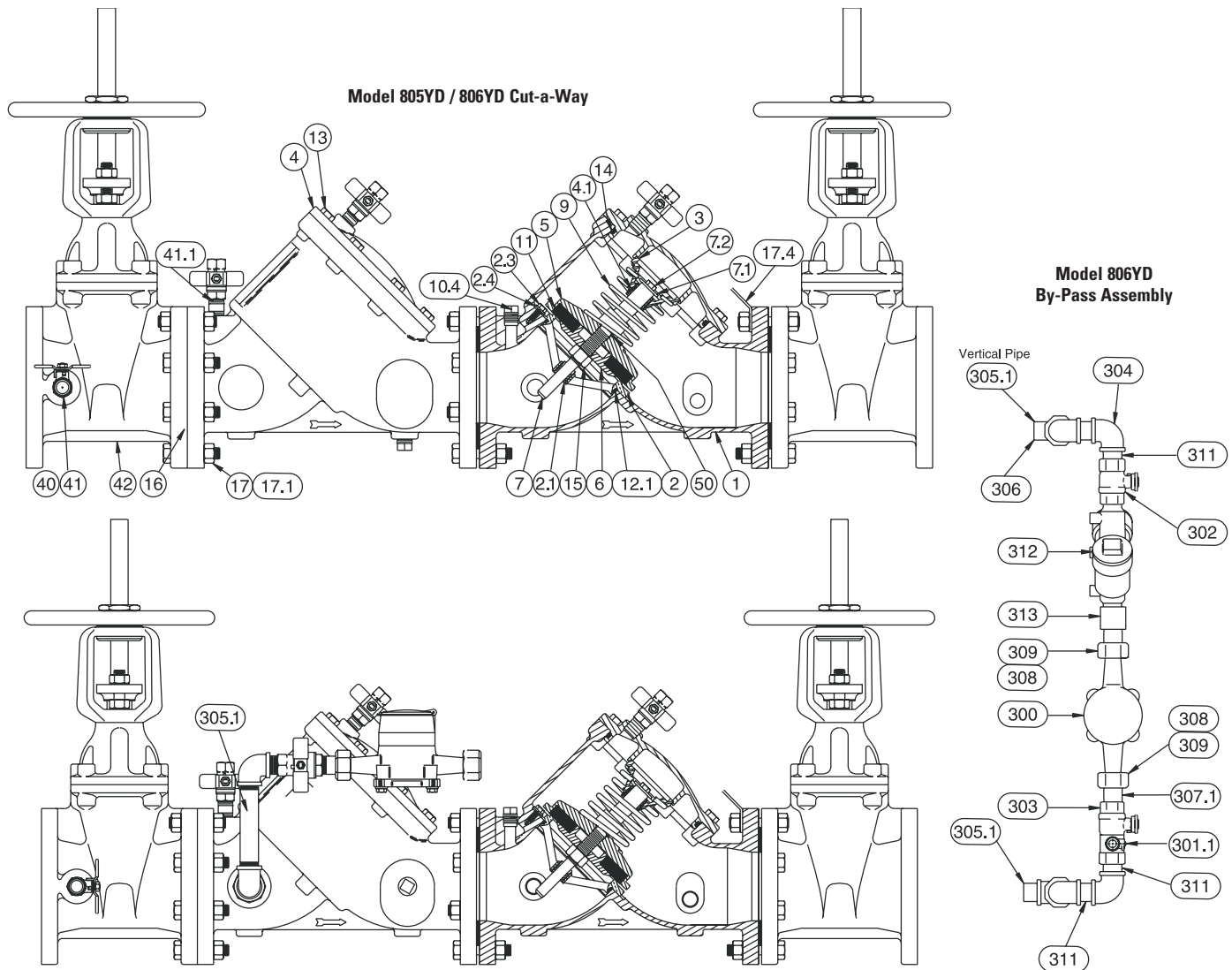
## Repair Kits

### 805YD, 806YD Assemblies / Kits

<b>DESCRIPTION</b>	<b>2½"</b>	<b>3"</b>	<b>4"</b>	<b>6"</b>	<b>8"</b>	<b>10"</b>
<b>Model 805YD Spring Assembly</b> (Items: 3, 4.1, 5, 6, 7, 7.1, 7.2, 9, 11, 15, 50)	905-086	905-088	902-467	902-469	902-471	902-473
<b>Model 805YD, 806YD Rubber Parts</b> (Items: 11, 14, 50)	905-059	905-060	905-061	905-062	905-063	905-064
<b>Model 805YD, 806YD Seat Kit</b> (Items: 2, 2.1, 2.2, 12)	902-386YD	902-385YD	902-384YD	902-383YD	902-382YD	902-381YD
<b>Model 805YD, 806YD Lg. Mounting Kit</b> (Items: 16, 17, 17.1; Both Ends)	905-036	905-037	905-038	905-039	905-040	905-041
<b>Model 805YD, 806YD Cover Assembly</b> (Items: 4, 4.1, 14, Aircock (not shown))	902-497	902-498	902-499	902-500	902-501	902-502
<b>Model 806YD Spring Assembly</b> (Items: 3, 4.1, 5, 6, 7, 7.1, 7.2, 9, 11, 15, 50)	–	–	902-514	902-515	902-516	902-517
<b>Model 806YD By-Pass Kit (without meter)</b> (Items: 301 through 313)	–	905-138	905-138	905-138	905-138	905-138

# Repair Parts — 805YD, 806YD

2½" – 10" (65 – 250mm) Double Check, Double Check Detector Assemblies

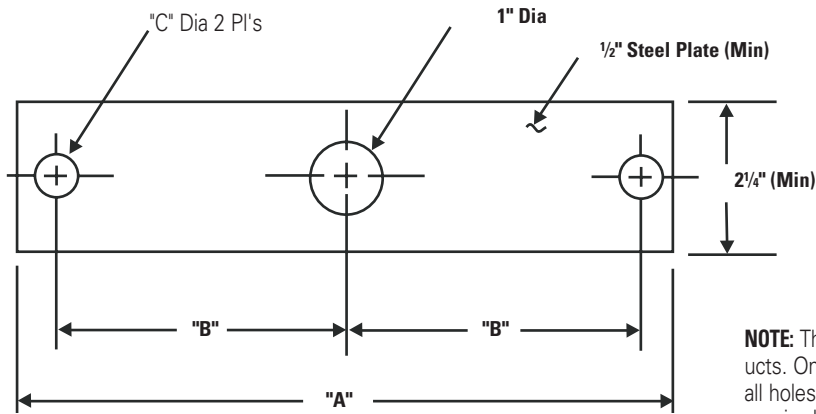


## Model 805YD, 806YD Parts

Fig No.	Description (QTY)	Fig No.	Description (QTY)	Fig No.	Description (QTY)
1	Body (1)	12.1	O-ring (2)	300**	Meter
2	Seat Ring (1)	13	Capscrew (16)	301**	Nipple
2.1	Bushing (1)	14	O-ring (2)	302**	Ball Valve
2.3	Washer (6)	15	Hex Nut (2)	303**	Ball Valve
2.4	Capscrew (6)	16	Gasket (1)	301.1**	Testcock
3	Guide (2)	17	Capscrew (4)	304**	Elbow
4	Cover (4)	17.1	Hex Nut (12)	305**	Nipple
4.1	Bushing (2)	17.4	Lift Strap (2)	306**	Nipple
5	Disc Holder (2)	40	Ball Valve (3)	307.1**	Tailpiece
6	Disc Washer (2)	41	Nipple (1)	308**	Coupling Nut
7	Stem (2)	41.1	Nipple (2)	309**	Meter Washer
7.1	Screw (2)	50	O-ring (2)	311**	Nipple
7.2	Washer (2)	42	NRS Gate Valve	312**	805Y (Less Shutoffs)
9	Spring (2)	42	OS&Y Gate Valve	313**	Coupling
11	Seat Disc (2)				

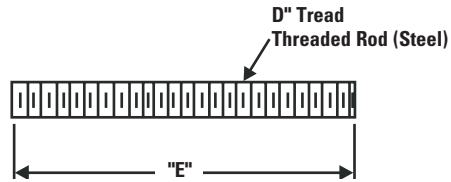
\*\* Used in the Model 806YD only.

### Spring Removal Tool



**NOTE:** This information is provided to expedite servicing of FEBCO products. One tool may be fabricated for use on all required sizes by drilling all holes at appropriate dimensions in a single steel plate of maximum required length.

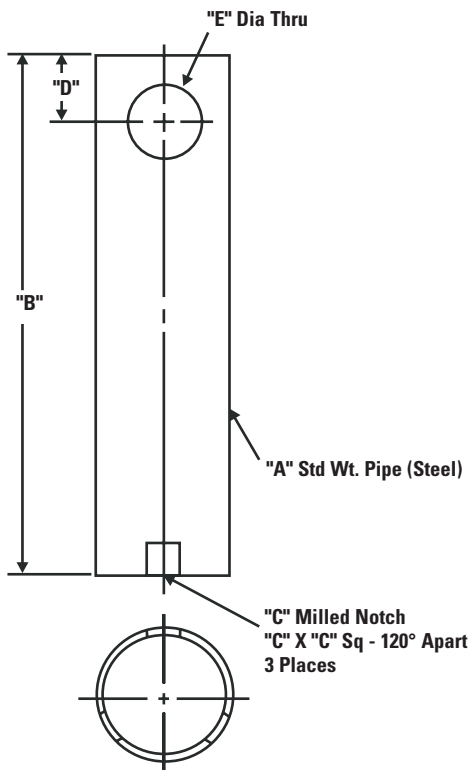
**CAUTION:** To avoid possible injury during use, do not fabricate tool from lesser strength material or to smaller dimensions than minimums shown.



### Spring Removal Tool Dimensions Kit No. 905-121

Size	A	B	C	D	E
4"	9 1/2	4 1/4	5/8	1/2 -13	5 1/2
6"	12 1/2	5 5/8	3/4	5/8 -11	5 1/2
8"	14 1/4	6 3/8	7/8	3/4 -10	7
10"	16 1/2	7 1/2	7/8	3/4 -10	7

### Seat Ring Tool (Models 805 and 806 only)



### Seat Ring Tool Dimensions

Size	A	B	C	D	E
2 1/2"	2 1/2	8	1/2	1	1
3"	3	8	1/2	1	1
4"	4	9	1/2	1	1
6"	6	10	5/8	1	1
8"	8	12	5/8	1	1
10"	10	15	5/8	1	1

## Service Procedures for Models 805YD 2½" – 3" (65 – 80mm)

### Check Valve Disassembly and Reassembly

#### 1. Disassembly - Check Valves

- Close inlet and outlet shutoff valves. Bleed residual pressure by opening #2, #3 and #4 testcocks.
- Remove cover bolts uniformly while holding cover in place. Remove cover.  
**CAUTION:** Spring is retained in body by cover.
- Lift spring and check assembly from body.
- Unscrew bushing (Item 4.1) from cover.

#### 2. Check Assembly Repair

- Unscrew nut on stem and remove disc washer and seat disc.

#### 3. Valve Seat Removal Bolted in Seat Ring Type

- Remove the three capscrews and washers retaining the seat ring.
- Pull the seat ring from the valve body being careful not to damage the internal epoxy coating of valve.
- If necessary, un-thread the bushing (Item 2A) from the seat ring.
- Remove the O-ring.

#### 4. Assembly - Check Valve

- Use reverse procedure for assembly.
- NOTE:** On older valves the disc holder is sealed to the stem with permatex. If seal is broken, the stem and holder must be cleaned and new sealant applied. Newer valves use an O-ring and permatex is not required.
- Do not apply any grease or oil on the rubber seat disc.
- Do not damage epoxy coating.
- Test unit to ensure proper operation.

## Service Procedures for Models 805YD 4" – 10" (100 – 250mm)

### Check Valve Disassembly and Reassembly

#### 1. Disassembly - Check Valves

- Close inlet and outlet shutoff valves. Bleed residual pressure by opening #2, #3 and #4 testcocks.
- Remove cover bolts and cover. Unscrew bolts uniformly to avoid binding of the cover. The spring will push the cover approximately ½" off the top of the valve body.

#### 2. Check Assembly Repair

- Leave check assembly in body.
- Install long studs in body 180° apart. See Spring Removal Tool on page 4.
- Place spring removal tool over stud and retain with nuts. See Spring Removal Tool on page 4.  
**CAUTION:** To avoid possible injury, do not attempt to remove spring tension without the use of this tool.

**NOTE:** Newer devices have the disc holder threaded on the stem. Therefore, the seat disc can be removed without releasing spring tension. Threaded disc holders have four (4) cast lugs, (6 lugs on 10 devices), ½" high located on back side, outside the spring diameter. If the device being serviced does not have these lugs, spring tension must be released before further disassembly.

- Unscrew capscrew (7.1) using ⅝" hex socket.
- Release spring tension by unscrewing nuts on long studs. Use alternating turns to keep tool parallel to valve body.
- Remove spring guide and stem assembly.
- Remove seat disc by unscrewing nut on stem.
- Remove guide bushing by unscrewing.

#### 3. Valve Seat Removal

- Remove check valve as described above.
- Remove the three capscrews and washers retaining the seat ring.
- Pull the seat ring from the valve body.
- Unthread the bushing (Item 2A) from the seat ring.
- Remove the O-ring.

#### 4. Assembly - Check Valve

- Use reverse procedure for assembly.
- Do not damage epoxy coating.
- Test unit to insure proper operation.

## Service Procedures for Models 806YD

This device is serviced using the same procedures as the Model 805Y with the following exceptions:

- Mainline springs are retained on the disc holder with a clamp.
- For bypass Model 805YB service and repair, consult Bulletin F5034 for more information.
- The meter is removed by loosening the two union nuts. For specific meter service information, contact the manufacturer or their representative directly.
- Remove and clean in-line strainer mounted in the meter inlet port.
- Test unit after reassembly to ensure proper operation.

# Repair Parts

## Model 805YD, 806YD Repair Parts

ITEM	DESCRIPTION	MATERIAL	2½"	3"	4"	6"	8"	10"
7.1	Screw	Brass	-	-	¾-16 x 1½	¾ - 16 x 2	¾ - 16 x 2	¾ - 16 x 2
12.1	O-ring	Buna-N	568-238 3½ x 3¾ x ⅛	568-246 4½ x 4¾ x ⅛	568-254 5½ x 5¾ x ⅛	568-264 7½ x 7¾ x ⅛	568-273 9½ x 10 x ⅛	10 <sup>5</sup> / <sub>16</sub> x 10 <sup>9</sup> / <sub>16</sub> x ⅛
13	Cap Screw	SS	7/16 -14 x 1	7/16 -14 x 1	½ -13 x 1¼	5/8 -11 x 1½	¾ -10 x 1½	¾ -10 x 1¾
14	O-ring	Buna-N	568-244 4¼ x 4½ x ⅛	568-252 5¼ x 5½ x ⅛	568-263 7¼ x 7½ x ⅛	568-272 9½ x 9¾ x ⅛	568-451 11 x 11½ x ¼	12¾ x 13 x ⅛
15	Lock-Nut	Brass	¾ -24 Elastic	¾ -24 Elastic	¾ -16 Elastic	¾ -16 Elastic	7/8 -14 Elastic	7/8 -14 Elastic
17	Bolt & Nut	Steel	5/8 -11 x 2¼	5/8 -11 x 2½	5/8 -11 x 2¾	¾ -10 x 3	¾ -10 x 3¼	7/8 - 9 x 3½
40	Ball Valve	Brass	½ IPS 200#	½ IPS 200#	½ IPS 200#	¾ IPS 200#	¾ IPS 200#	¾ IPS 200#
51	O-ring	Buna-N	568-014 ½ x 5/8 x 1/16	568-014 ½ x 5/8 x 1/16	568-116 ¾ x 15/16 x 1/16	568-116 ¾ x 15/16 x 1/16	568-118 7/8 x 11/16 x 3/32	568-118 7/8 x 11/16 x 3/32
41**	Nipple	Bronze	-	-	½ x Close	¾ x Close	¾ x Close	¾ x Close
304**	90o Elbow	Bronze	-	-	½	½	½	¾
305**	Nipple	Bronze	-	-	½ x 5	¾ x 6	¾ x 6	¾ x 6
316**	Bushing	Bronze	-	-	½ x ¾	-	-	-
301**	Nipple	Bronze	-	-	-	¾ x 2½	¾ x 2½	¾ x 2½

\*\* Used in the Model 806YD only.

These parts are commercially available through most hardware distributors or retailers. Shutoff valves, testcocks, flange gaskets, etc., are also commercially available but not listed. The water meter is a 5/8 x 3/4 size. Several brands are USC approved for use on the Model 806YD. Contact the factory for additional information.

For additional information, visit our web site at: [www.FEBCOonline.com](http://www.FEBCOonline.com)

**CALIFORNIA PROPOSITION 65 WARNING**

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)

For more information: [www.watts.com/prop65](http://www.watts.com/prop65)

**Limited Warranty:** FEBCO warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge. This shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the product. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** Any implied warranties that are imposed by law are limited in duration to one year.

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights.



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