

# McDonnell & Miller Service Parts Catalog



















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### BOILER CONTROL REPLACEMENT PARTS

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## BOILER CONTROL REPLACEMENT PARTS (continued)

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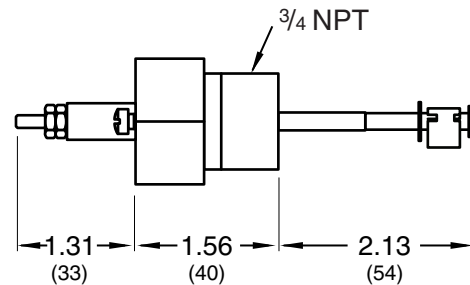
## Replacement Probes

### PA-800

For Model	Repl. Probe Model No.	Part Number	Description	Weight lbs. (kg)
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PS-801-120	PA-800	354081	Probe	0.5 (.23)
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Dimensions, in. (mm)



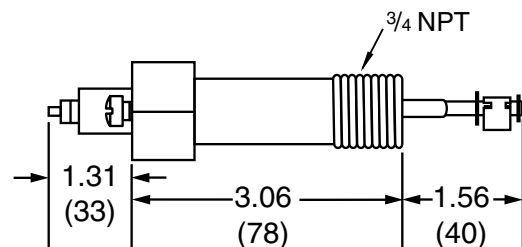
- PS-801-120
- PSE-851-120
- PS-802-24
- PS-852-24
- RS-1-LP
- PS-851-M-120
- PS-852-M-24
- PS-801-M-120
- PS-802-M-24
- 750P-MT-120
- 751P-MT-120
- 751P-MT-24
- PSE-801-120
- PSE-802-24
- PSE-801-M-120
- PSE-802-M-24

### PA-800-U

For Model	Repl. Probe Model No.	Part Number	Description	Weight lbs. (kg)
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PS-801-U-120	PA-800-U	354141	Probe	0.5 (.23)
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Dimensions, in. (mm)



- PS-801-U-120
- PS-802-U-24
- PS-851-M-U-120
- PS-851-U-120
- PS-802-M-U-24
- PS-801-M-U-120
- 750P-MT-U-120
- PSE-801-M-U-120
- PSE-802-M-U-24
- PSE-801-U-120
- PSE-802-U-24
- 751P-MT-U-120
- 752P-MT-U-24

## Replacement Probes

### PA-800-RX2

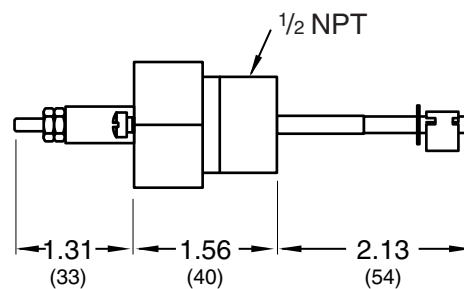
For Model	Repl. Probe Model No.	Part Number	Description	Weight lbs. (kg)
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PS-802-RX2-24	PA-800-RX2	354140	Probe	0.5 (.23)
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PS-851-RX2-120				
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PSE-802-RX2-24				
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**Dimensions, in. (mm)**



### PA-RB-122

For Model	Repl. Probe Model No.	Part Number	Description	Weight lbs. (kg)
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RB-122	PA-RB-122	354083	Probe	0.5 (.23)
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RS-1-LP-S				
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PS-851-SP-120				
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PS-852-SP-24				
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RB-120				
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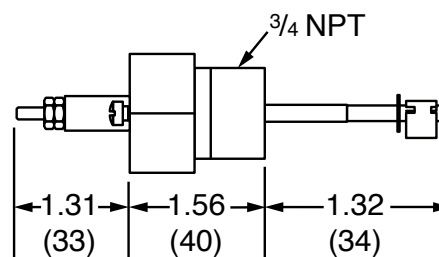
PS-851-M-SP-120				
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PS-852-M-SP-24				
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751P-MT-SP-120				
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752P-MT-SP-24				
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**Dimensions, in. (mm)**



## Low Water Cut-Offs – Float Type For Steam Boilers

### Series 61 Low Water Cut-Offs

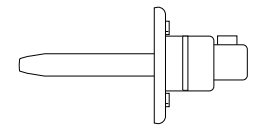


**Series 61**

### Replacement Head Mechanisms

For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
61	61-HD or 6667	140300	Head mechanism	3.5 (1.6)
		153825	Head mechanism	1.5 (0.7)

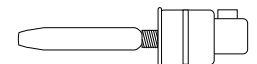
Head mechanisms include a gasket and bolts.



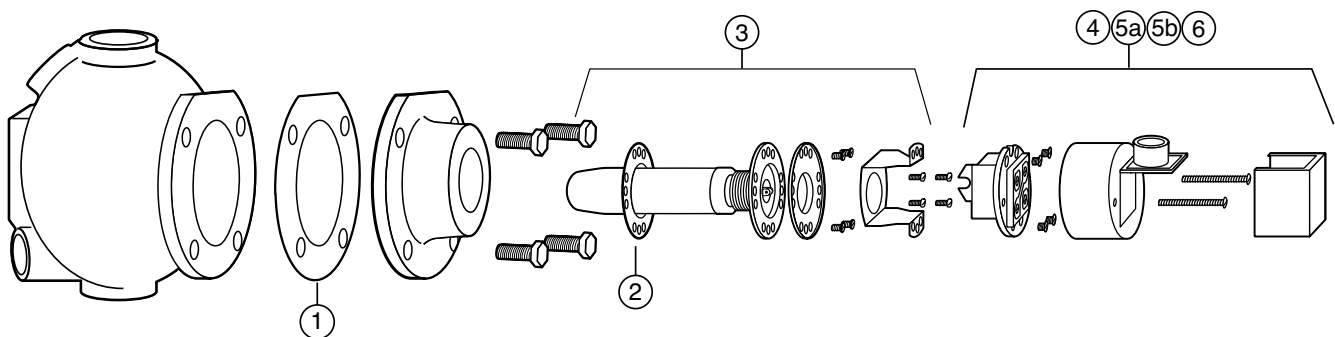
**Model 61-HD**

### Components

Key	Part Number	Catalog Number	Description	Weight lbs. (kg)
1	302700	CO-12	Head Gasket (25 pack)	0.1 (.05)
2	318900	67-12	Gasket (10 pack)	0.1 (.05)
3	344200	SA67-2	Float & Bellows Assembly	0.3 (.14)
4	309100	11	Switch	0.5 (.23)
5a	354000	e-11M-120V	Switch w/Manual Reset 120 Volts	2.5 (1.2)
5b	354001	e-11M-24V	Switch w/Manual Reset 24 Volts	2.5 (1.2)
6	309200	11-MV	Switch for Millivolt Service	0.5 (.23)



**Model 6667**





## Low Water Cut-Offs – Float Type For Hot Water Boilers

### Series 63

#### Low Water Cut-Offs

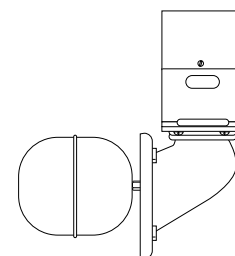


Series 63

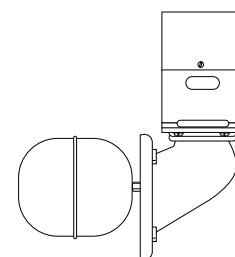
### Replacement Head Mechanisms

For Model	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
63	63-HD	142600	Head mechanism w/ No. 2 switch	7.0 (3.2)
63-B				
63-BM	63-M-HD	143200	63-HD w/manual reset	7.0 (3.2)
63-M				

Head mechanisms include a gasket and bolts.



Model 63-HD



Model 63-M-HD

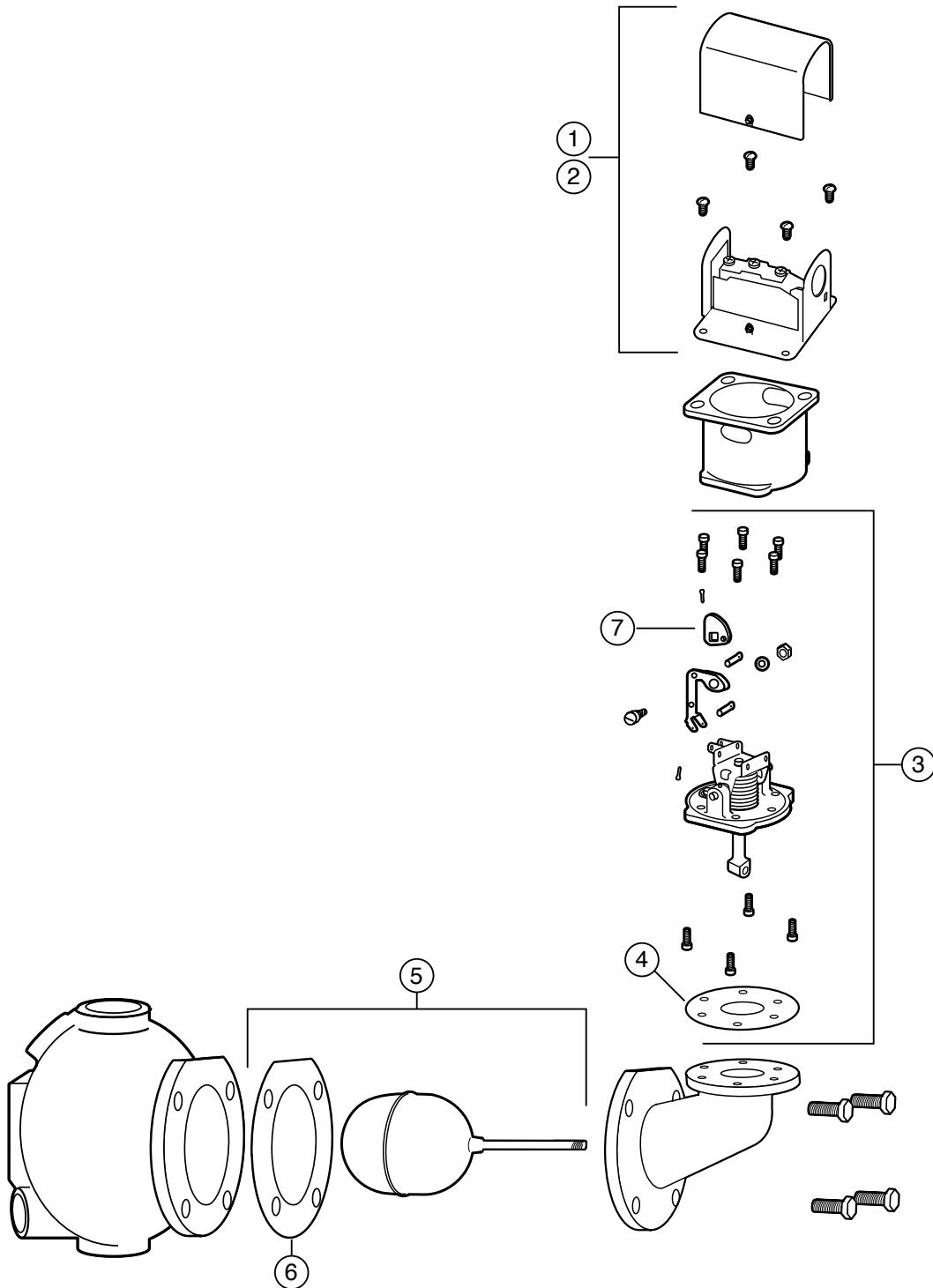
### Components (shown on page 9)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	110000	2	Switch	1.0 (0.5)
2	110100	2-M	Switch w/manual reset	1.0 (0.5)
3	343200	SA63-5	Bellows assembly	1.5 (7.3)
4	303600	CO-11	Gasket (5 pack)	0.1 (.05)
5	343400	SA63-30	Float	1.0 (0.5)
6	302700	CO-12	Head gasket (25 pack)	0.1 (.05)
7	302900	CO-106	Cam	0.1 (.05)

## Low Water Cut-Offs – Float Type For Hot Water Boilers

**Series 63** (continued)  
Low Water Cut-Offs

### Components



## Low Water Cut-Offs – Float Type For Hot Water Boilers

### Series 64

#### Low Water Cut-Offs

#### Replacement Head Mechanisms

For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
64	64-HD	144400	Head mechanism	4.0 (1.8)
64-A				

Head mechanisms include a gasket and bolts.

#### Components (shown on page 11)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	343600	SA64-30	Float assembly	1.0 (0.5)
2	302700	CO-12	Head gasket (25 pack)	0.1 (.05)
3	343500	SA64-2	Bellows assembly (includes item 2)	0.3 (.14)
4	318900	67-12	Gasket (10 pack)	0.1 (.05)
5	309100	11	Switch	0.5 (.23)
6a	354000	e-11M-120V	Switch w/Manual reset 120 Volts	2.5 (1.2)
6b	354001	e-11M-24V	Switch w/Manual reset 24 Volts	2.5 (1.2)
7	309200	11-MV	No. 11 for Millivolt service	0.5 (.23)
8*	332800	MA-259	Quick hook-up fittings (includes item 8, 9, 10)	4.5 (2.0)
9*	351800	SA259-24	Upper quick hook-up	1.7 (.77)
10*	349500	SA159-24	Lower quick hook-up	1.7 (.77)
11*	349400	SA159-17	Black "Y" assembly	2.3 (1.0)

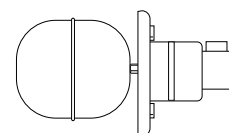
\*Available for 64-A models only



**Series 64**



**Model 64-A**

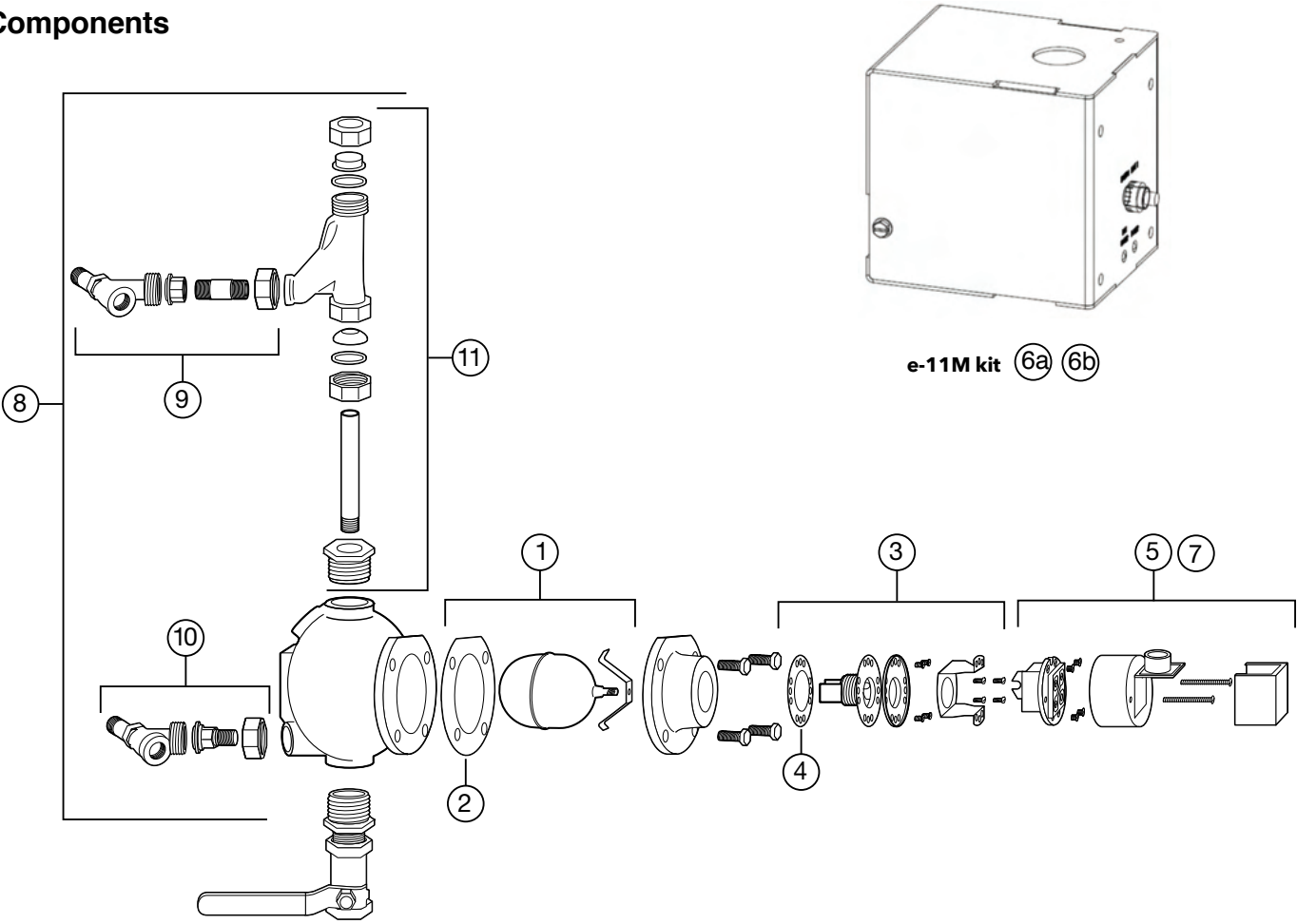


**Model 64-HD**

## Low Water Cut-Offs – Float Type For Hot Water Boilers

**Series 64** (continued)  
Low Water Cut-Offs

### Components



BOILER CONTROLS

## Low Water Cut-Offs – Float Type For Hot Water Boilers

### Series 764

#### Low Water Cut-Offs

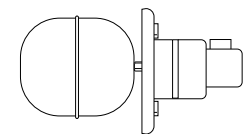
#### Replacement Head Mechanisms

For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
764	64-HD	144400	Head mechanism	4.0 (1.8)

Head mechanisms include a gasket and bolts.



**Series 764**



**Model 64-HD**

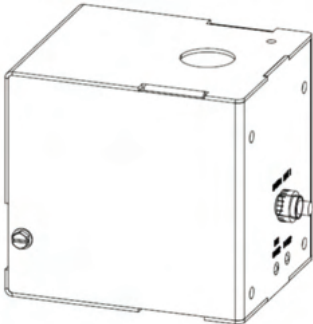
#### Components (shown on page 13)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	343600	SA64-30	Float assembly	1.0 (0.5)
2	302700	CO-12	Head gasket (25 pack)	0.1 (.05)
3	343500	SA64-2	Bellows assembly (includes item 2)	0.3 (.14)
4	318900	67-12	Gasket (10 pack)	0.1 (.05)
5	309100	11	Switch	0.5 (.23)
6a	354000	e-11M-120V	Switch w/Manual reset 120 Volts	2.5 (1.2)
6b	354001	e-11M-24V	Switch w/Manual reset 24 Volts	2.5 (1.2)
7	309200	11-MV	No. 11 for Millivolt service	0.5 (.23)

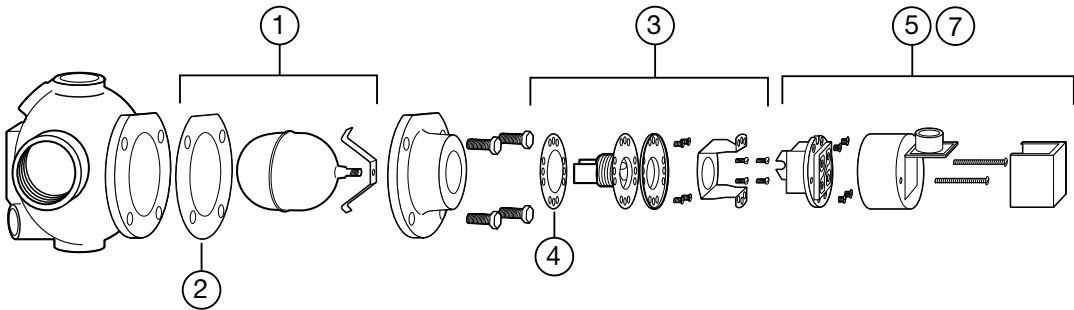
## Low Water Cut-Offs – Float Type For Hot Water Boilers

**Series 764** (continued)  
Low Water Cut-Offs

### Components



e-11M kit (6a) (6b)



BOILER CONTROLS

## Low Water Cut-Offs – Float Type For Steam Boilers

### Series 67

#### Low Water Cut-Offs

#### Replacement Head Mechanisms

For Model	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
67				
67-LQHU	6667	153825	Head mechanism	1.5 (0.7)
67-G	6667MV	153850	6667 for Millivolt service	1.5 (0.7)



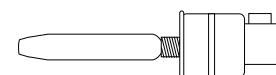
**Series 67**



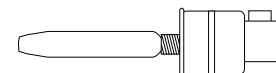
**Model 67-LQHU  
(without quick  
hook-up fittings)**

#### Components (shown on page 15)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	344100	SA66-35	Upper tube assembly	1.0 (0.5)
2	334600	MA559	Quick hook-up fittings	2.5 (1.1)
3	318900	67-12	Gasket (10 pack)	0.1 (.05)
4	344200	SA67-2	Float and bellows assembly	1.0 (0.5)
5	309100	11	Switch	0.5 (.23)
6a	354000	e-11M-120V	Switch w/manual reset 120 Volts	2.5 (1.2)
6b	354001	e-11M-24V	Switch w/manual reset 24 Volts	2.5 (1.2)
7	309200	11-MV	No. 11 for Millivolt service	0.5 (.23)
8	310447	14-B	Blow-down valve	0.5 (.23)
9	313300	37-39	Blow-down valve gasket (10 pack)	0.1 (.05)



**Model 6667**

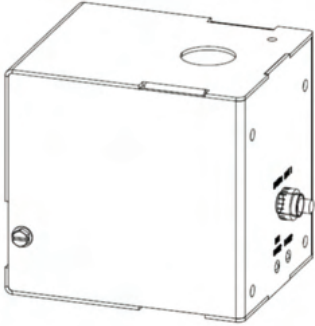
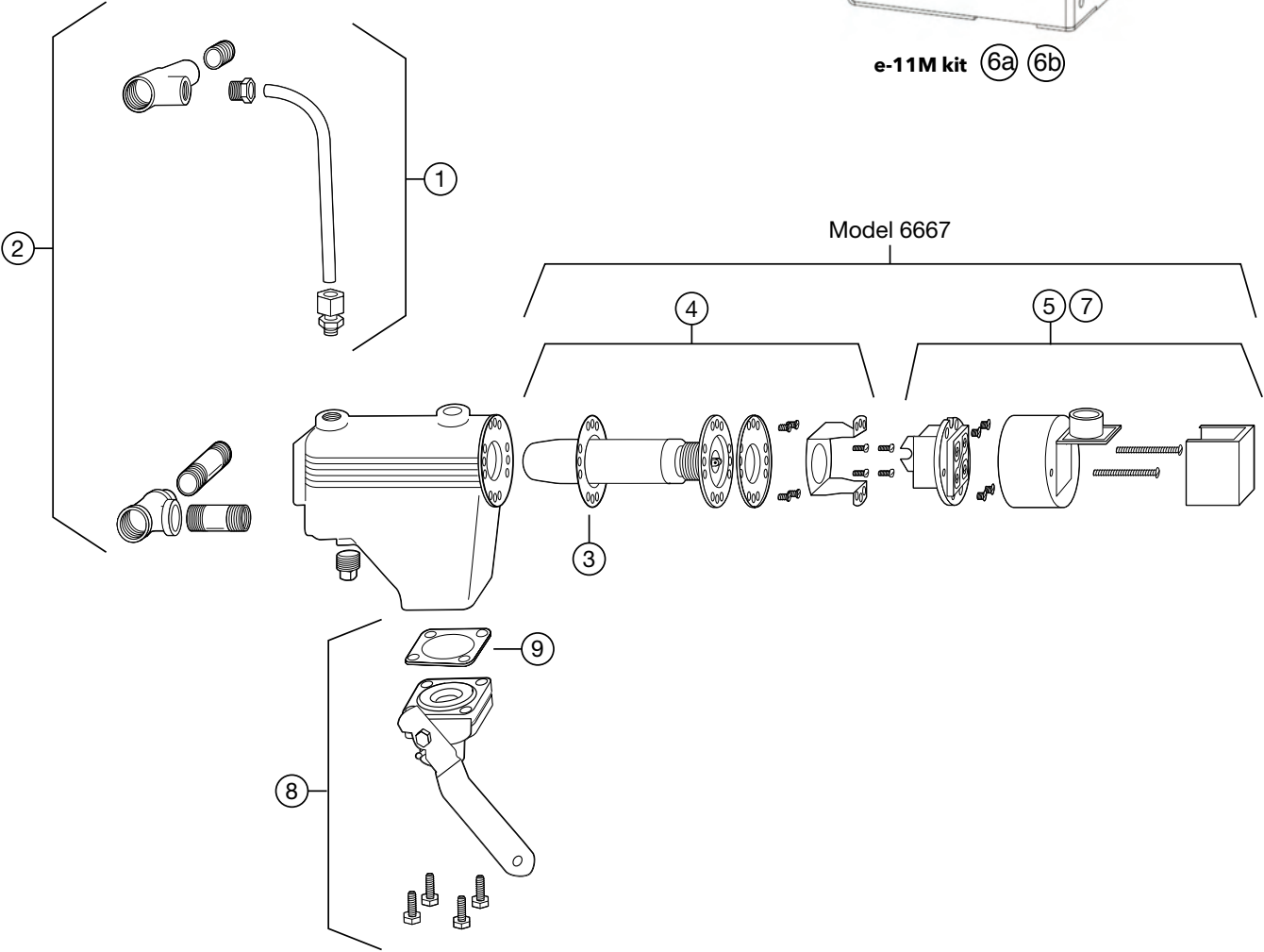


**Model 6667MV**

## Low Water Cut-Offs – Float Type For Steam Boilers

**Series 67** (continued)  
Low Water Cut-Offs

### Components



e-11M kit (6a) (6b)

BOILER CONTROLS



## Low Water Cut-Offs – Float Type For Steam Boilers

### Series 767

#### Low Water Cut-Offs

#### Replacement Head Mechanisms

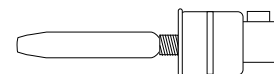
For Model	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
767	6667	153825	Head mechanism	1.5 (0.7)



Series 767

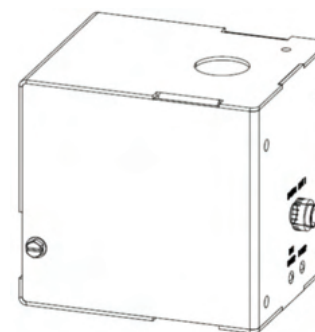
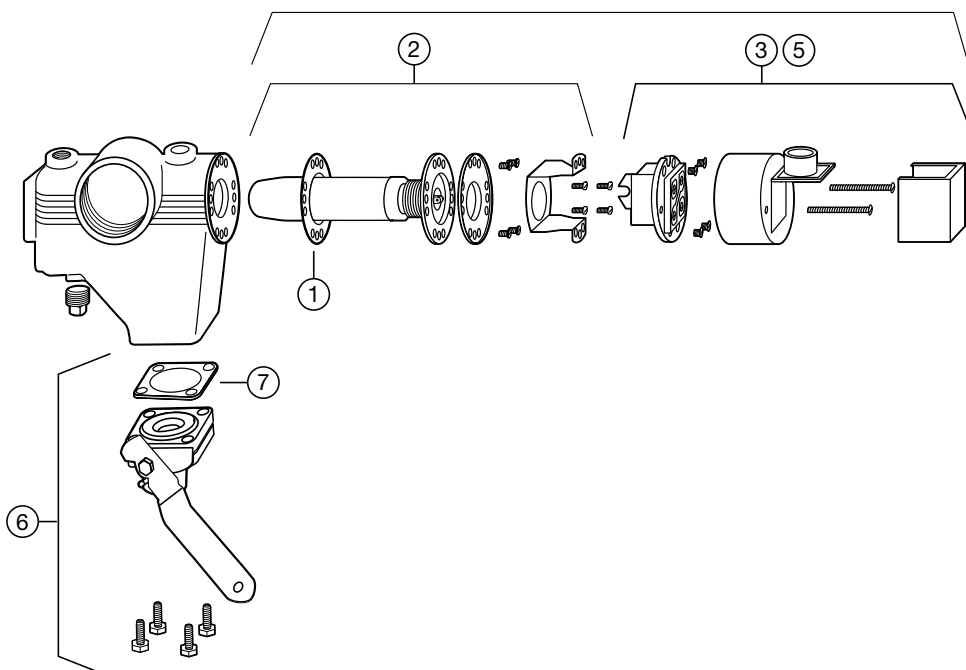
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	318900	67-12	Gasket (10 pack)	0.1 (.05)
2	344200	SA67-2	Float and bellows assembly	1.0 (0.5)
3	309100	11	Switch	0.5 (.23)
4a	354000	e-11M-120V	Switch w/Manual reset 120 Volts	2.5 (1.2)
4b	354001	e-11M-24V	Switch w/Manual reset 24 Volts	2.5 (1.2)
5	309200	11-MV	No. 11 w/Millivolt service	0.5 (.23)
6	310447	14-B	Blow-down valve	0.5 (.23)
7	313300	37-39	Blow-down valve gasket (10 pack)	0.1 (.05)



Model 6667

Model 6667



e-11M kit (4a) (4b)

## Low Water Cut-Offs – Float Type For Steam Boilers

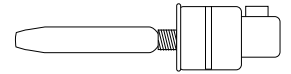
### Series 69 Low Water Cut-Offs

#### Replacement Head Mechanisms

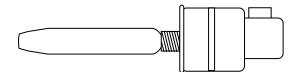
For Model	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
69				
69-J				
169				
269	6667	153825	Head mechanism	1.5 (0.7)
369				
469				
569				
69-MV-P	6667-MV	153850	6667 w/Millivolt service	1.5 (0.7)
369-MV				



**Series 69**



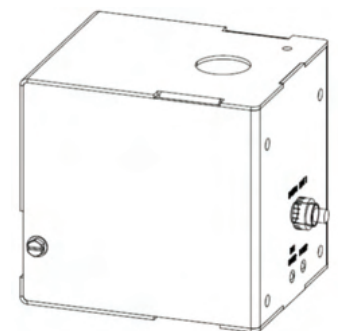
**Model 6667**



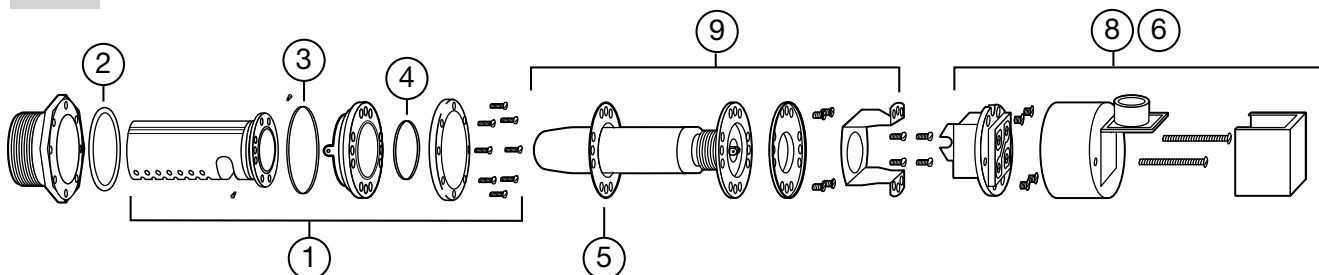
**Model 6667MV**

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	344300	SA69-104	Shield assembly	0.5 (.23)
2	320500	69-112	Gasket (GT Models)	0.1 (.05)
3	318826	69-113	O-ring	.01 (.004)
4	318827	69-114	O-ring	.01 (.004)
5	318900	67-12	Gasket (10 pack)	0.1 (.05)
6	309100	11	Switch	0.5 (.23)
7a	354000	e-11M-120V	Switch w/Manual Reset 120 Volts	2.5 (1.2)
7b	354001	e-11M-24V	Switch w/Manual Reset 24 Volts	2.5 (1.2)
8	309200	11-MV	Switch for Millivolt Service	0.5 (.23)
9	344200	SA67-2	Float & Bellows Assembly	0.1 (.05)



**e-11M kit (7a) (7b)**



## Combination Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 42 and 42S Low Water Cut-Off/Pump Controllers



Series 42S

### Replacement Head Mechanisms

For Model	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
42S	42S-HD	129502	Head mechanism	7.5 (3.4)

Head mechanisms include a gasket and bolts.

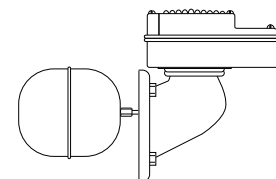
### Components (shown on page 19)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	302700	CO-12	Head gasket (25 pack)	0.1 (.05)
2*	328300	MA-159	Quick hook-up fittings (includes items 4, 5, 6)	6.0 (2.7)
3*	351800	SA259-24	Upper quick hook-up fittings	1.7 (.77)
4*	349500	SA159-24	Lower quick hook-up fittings	1.7 (.77)
5*	349400	SA159-17	Black "Y" assembly	3.0 (1.4)
6	347900	SA150-106R	Bellows Assembly	0.4 (.18)

\* Available for 42S-A models only.



Model 42S-A



Model 42S-HD

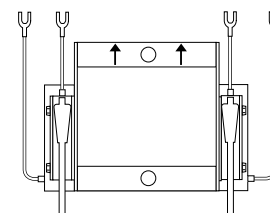
### Replacement Switch Information

**IMPORTANT:**

- Snap switches must be replaced as an assembly.
- We recommend complete head replacement to eliminate the need for field replacement of the switch assembly.
- Series 42 & 42S Replacement Switch Assemblies are not interchangeable and must be selected and ordered for the specific control model(s) on which they will be installed.

### Replacement Switch Assemblies For Series 42S

For Model	Repl. Switch Model No.	Part Number	Description	Weight lbs. (kg)
42S	SWA-42S	310488	Snap-action switch assembly	0.5 (.23)



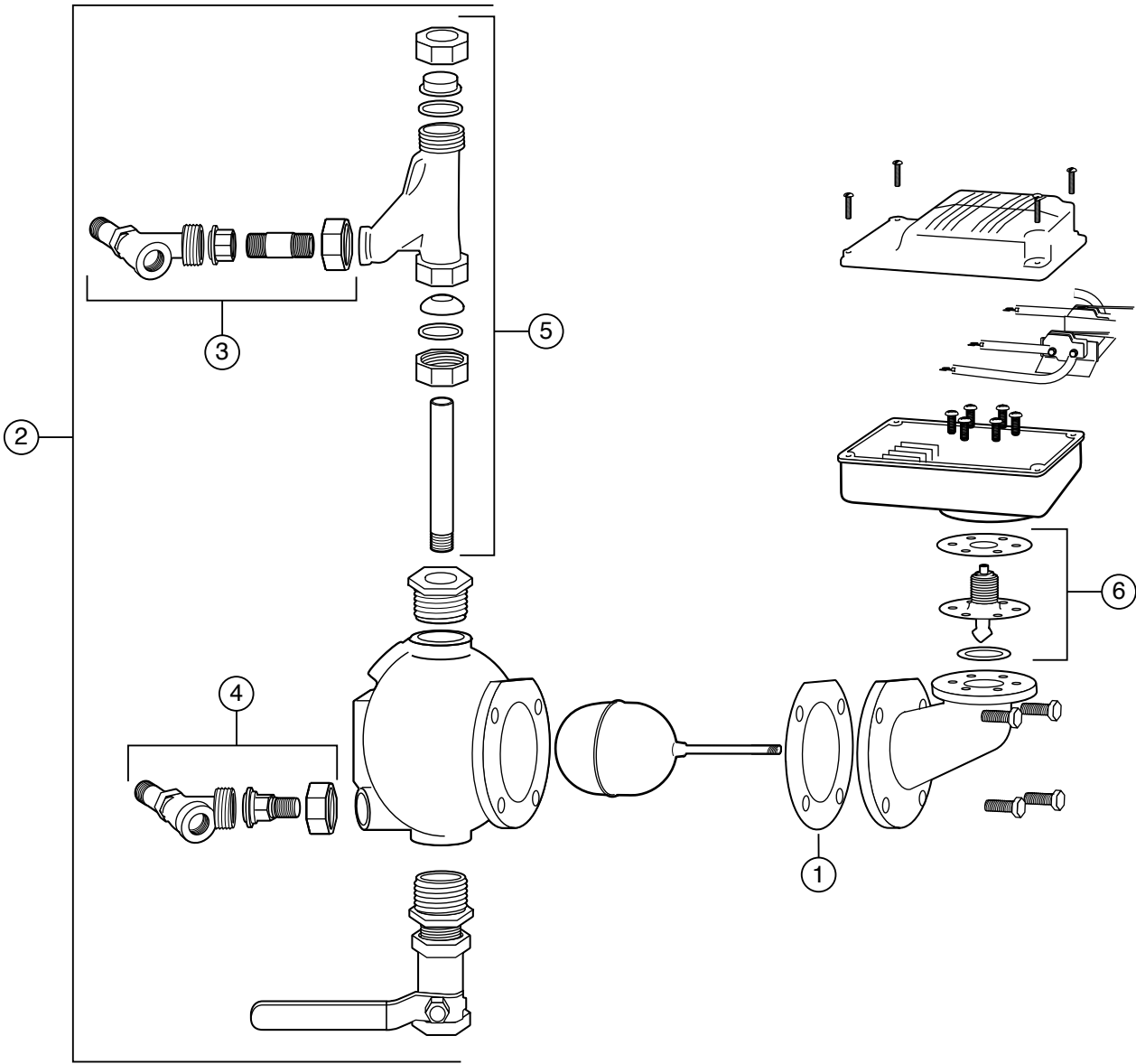
Model SWA-42S

## Combination Low Water Cut-Off/Pump Controllers For Steam Boilers

Series 42 and 42S (continued)  
Low Water Cut-Off/Pump Controllers

### Components

BOILER CONTROLS



## Combination Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 93 & 193

#### Low Water Cut-Off/Pump Controllers

#### Replacement Head Mechanisms

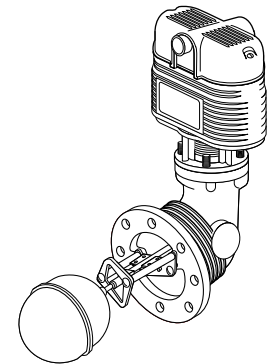
For Model	Part Number	Repl. Head Model No.	Description	Weight lbs. (kg)
93, 193	162400	93-HD	Head mechanism	16 (7.25)
	163200	93-7B-HD	Head mechanism with 7B switch	16 (7.25)
	162600	93-M-HD	Head mechanism, manual reset	16 (7.25)
	163300	93-7B-M-HD	Head mechanism with 7B switch, manual reset	16 (7.25)

#### Components (shown on page 21)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	162402	93-HDLS	Head w/o switch	15.0 (6.8)
2	345700	SA91-60	Float (includes item 3)	0.7 (.32)
3	325700	150-14	Gasket (10 pack)	0.1 (.05)
4	110300	5	Electric switch	3.5 (1.6)
5	110400	5-M	No. 5 w/manual reset	3.5 (1.6)
6	110800	7B	Electric switch/ proportioning control	4.0 (1.8)
7	110900	7B-M	No. 7B w/manual reset	4.0 (1.8)

#### Switch #7B

1	309000	7B-1R	Resistor Slide Wire Assembly	0.1 (0.5)
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**Series 93-HD**



**Series 93**

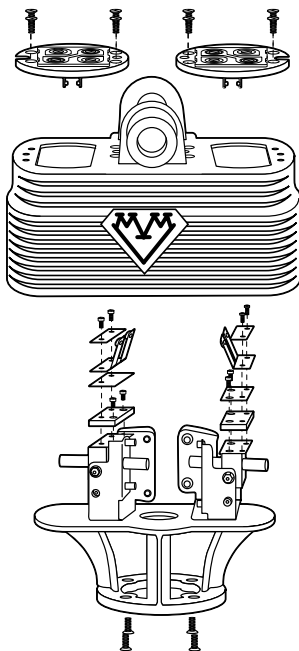
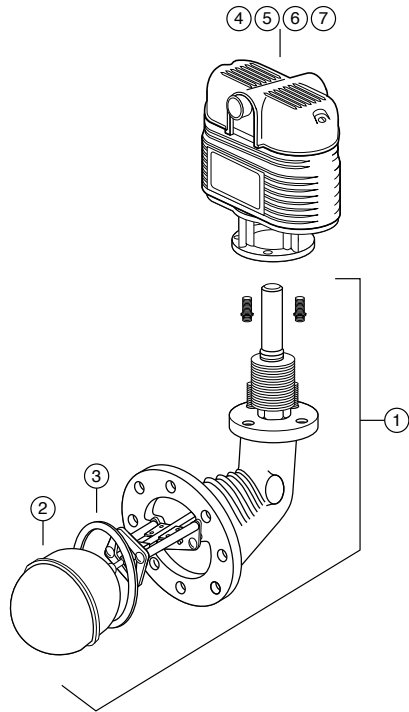


**Series 193**

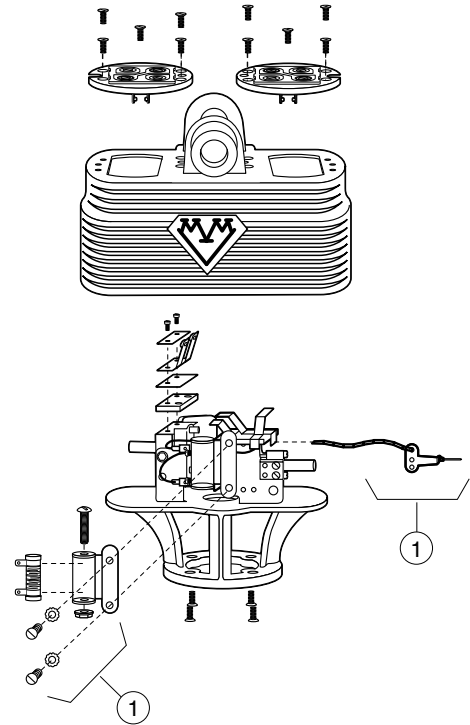
## Combination Low Water Cut-Off/ – Pump Controllers For Steam Boilers

**Series 93 & 193** (continued)  
Low Water Cut-Off/Pump Controllers

### Components



5 Switch



7B Switch

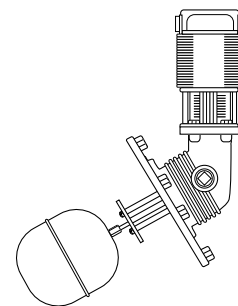
## Combination Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 94 & 194

#### Low Water Cut-Off/Pump Controllers

#### Replacement Head Mechanisms

For Model	Part Number	Repl. Head Model No.	Description	Weight lbs. (kg)
94, 194	165300	94-HD	Head mechanism	21 (9.52)
	166000	94-M-HD	Head mechanism, manual reset	21 (9.52)
	166400	94-7B-HD	Head mechanism with 7B switch	21 (9.52)
	166500	94-7B-M-HD	Head mechanism with 7B switch, manual reset	21 (9.52)



**Series 94-HD**

#### Components (shown on page 23)

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	165302	94-HDLS	Head w/o switch	15.0 (6.8)
2	345700	SA91-60	Float (includes item 3)	0.7 (.32)
3	323400	92-68	Gasket (10 pack)	0.1 (.05)
4	110300	5	Electric switch	3.5 (1.6)
5	110400	5-M	No. 5 w/manual reset	3.5 (1.6)
6	110800	7B	Electric switch/ proportioning control	4.0 (1.8)
7	110900	7B-M	No. 7B w/manual reset	4.0 (1.8)



**Series 94**

#### Switch #7B

1	309000	7B-1R	Resistor Slide Wire Assembly	0.1 (0.5)
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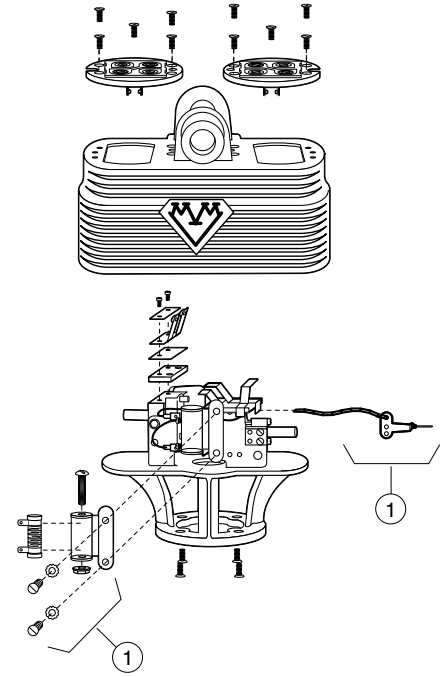
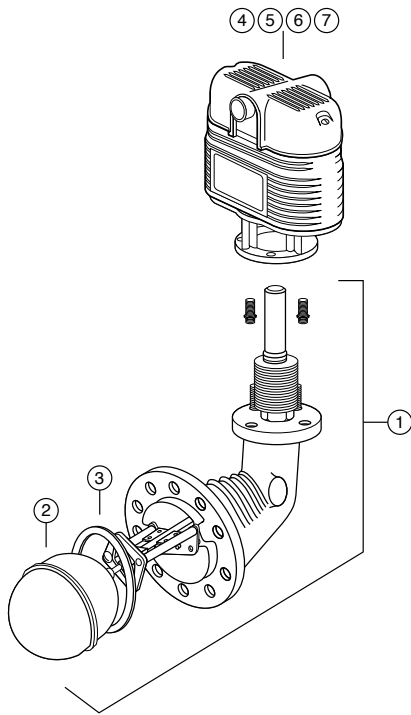


**Series 194**

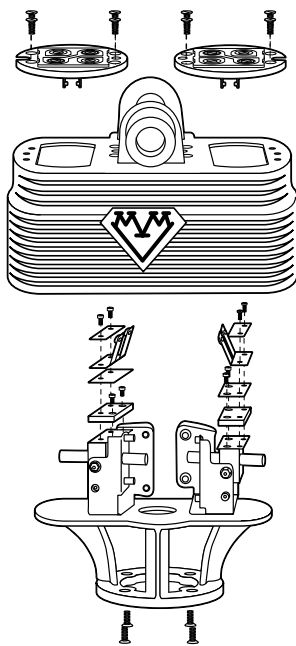
## Combination Low Water Cut-Off/ – Pump Controllers For Steam Boilers

**Series 94 & 194** (continued)  
Low Water Cut-Off/Pump Controllers

BOILER CONTROLS



**7B Switch**



**5 Switch**



## Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 150, 150S Series 157, 157S

The Series 150S is available as an alternative for Series 150 LWCO controls that contain mercury switches. Please keep in mind that in a replacement or repair situation you do not have to change out the entire control. A head replacement (i.e. 150S-HD) is all that's required.

There may be additional letters such as 'B', 'R', 'RL', etc. in the sales catalog designation of the control. These additional letters designate tapping locations and sizes which have no affect on which head mechanism to purchase. All head mechanisms are interchangeable and can be installed on any body.

#### 'MD' Models

The 'MD' model should be used as a replacement head when the boiler operating pressure is less than 50 psi. These were created to provide a control with factory settings to compensate for the narrowing of setpoints. The larger differential between pump on and burner off reduces the potential for nuisance burner shutdown.

#### It is important to understand that there are requirements that lead to the best performance of ALL level controllers and LWCO's:

- Use of properly-sized pump starters/relays in the pump control circuitry
- Pumps that are balanced to the system requirements
- Equalizing piping, per the boiler manufacturer's recommendations, to properly sense the boiler water level
- Industry accepted blowdown piping to provide best cleaning action of the control chamber, float linkage mechanism and/or probes
- Proper periodic blowdown of the boiler controls.
- Proper chemical treatment of boiler water.
- Annually cleaning and careful examination of the float mechanism, probes, and electrical switches or controls. More frequent cleaning may be required for exceptionally dirty steam systems.



150 or 150S  
Float Chamber Body



157 or 157S  
Water Column Body

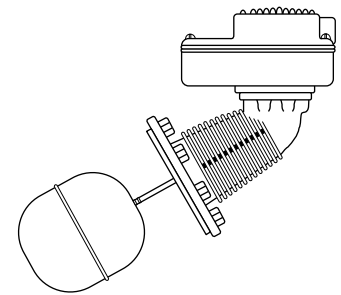
## Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 150, 150S Series 157, 157S

(continued)

#### Replacement Head Mechanisms

For Model	Part Number	Repl. Head Model No.	Description	Weight lbs. (kg)
150S-HD	173003		Head mechanism	11.0 (5.0)
150S-M-HD	172809	150S-HD	w/manual reset	11.0 (5.0)
150S-MD-HD	173103	150S-HD	w/maximum differential	11.0 (5.0)
150S-M-MD-HD	172810	150S-HD	w/manual reset and maximum differential	11.0 (5.0)
158S-HD	178602		Head mechanism	12.5 (5.7)
158S-M-HD	172821	158-S-HD	w/manual reset	12.5 (5.7)
158S-M-MD-HD	172822	158-S-HD	w/manual reset and maximum differential	12.5 (5.7)
159S-HD	172702		Head mechanism	12.0 (5.7)



**Series 150S-HD**

## Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 150, 150S Series 157, 157S

**IMPORTANT:**

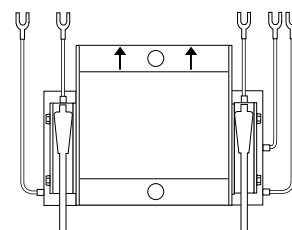
- Snap switches **must** be replaced as an assembly.
- We recommend complete head replacement to eliminate the need for field adjustment of the switch assembly.
- Series 150S and 157S replacement switch assemblies are not interchangeable with Series 150 and 157 mercury switch controls.

**Note:**

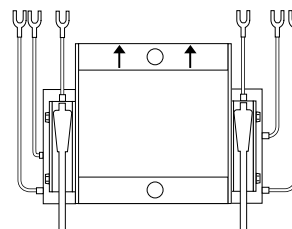
Manual reset models with date code 03K (October 2003) or older require the purchase of a new head.

### Replacement Switch Assemblies for Series 150S and 157S

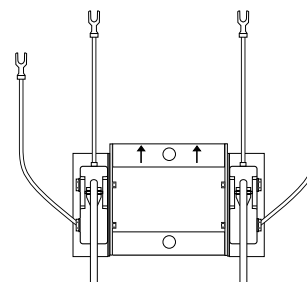
For Model	Repl. Switch Model No.	Part Number	Description	Weight lbs. (kg)
All 150S & 157S Units Except 'MD' Models	SWA-150S	310462	Snap-action switch assembly	0.5 (.23)
	SWA-150S-M	354089	Snap-action switch assembly w/manual reset	0.5 (.23)
All 150S & 157S 'MD' Models	SWA-150S-MD	310464	Snap-action switch assembly for maximum differential models	0.5 (.23)
	SWA-150S-M-MD	354086	Snap-action switch assembly for maximum differential models w/manual reset	0.5 (.23)
All 158S Models	SWA-158S	310468	Snap-action switch assembly for Model 158S	0.5 (.23)
	SWA-158S-M	354087	Snap-action switch assembly w/manual reset	0.5 (.23)
All 159S Models	SWA-159S	310470	Snap-action switch assembly	0.5 (.23)



**Model SWA-150S  
Model SWA-150S-MD  
Model SWA-150S-M  
Model SWA-150S-M-MD**



**Model SWA-158S  
Model SWA-158S-M**



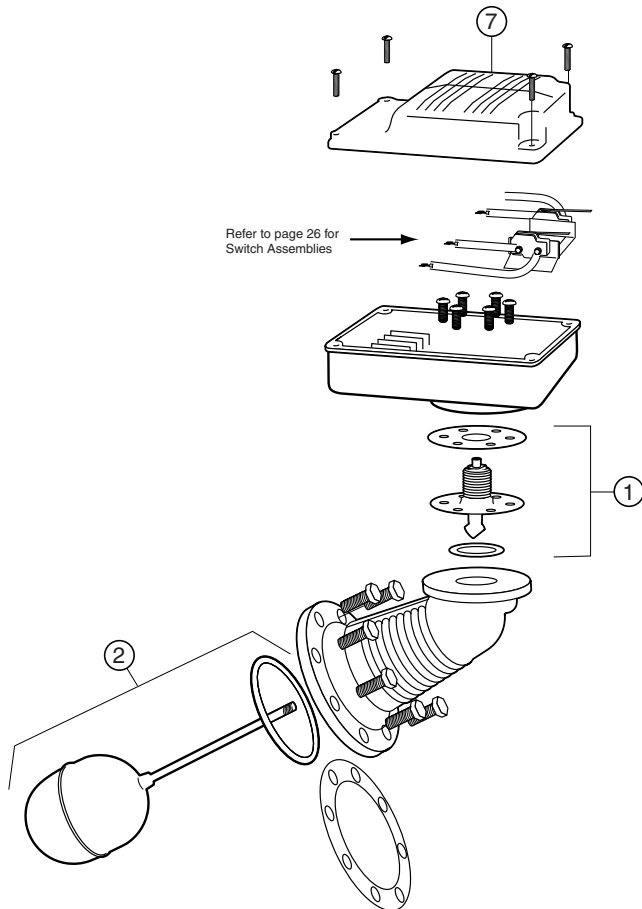
**Model SWA-159S**

Switch assemblies include a mounting bracket and color-coded terminal connection wires.

## Low Water Cut-Off/Pump Controllers For Steam Boilers

**Series 150, 150S**

**Series 157, 157S** (continued)

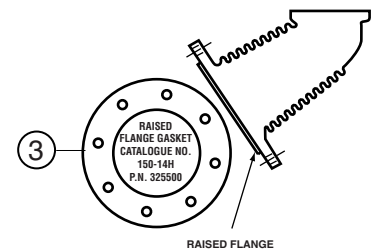


**Series 150S**

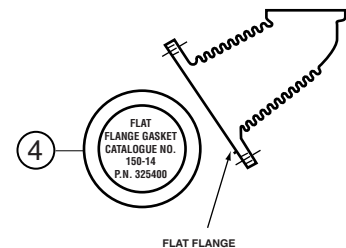
### Components

Item Number	Model Number	Part Number	Description	Weight lbs. (kg)
1	SA150-106R	347900	Bellows assembly	0.4 (.18)
2	SA150-11	347600	Float & rod	1.0 (0.5)
3	150-14H	325600	Head gasket for raised face flange head, 8 holes (25 pack)	0.5 (.23)
4	150-14	325700	Head gasket for flat face flange head, no holes (10 pack)	0.5 (.23)
7	150-436	326950	Cover	.435 (.19)

### Series 150 Head Gasket and Casting



This new gasket, specifically designed for the Raised Flange Heads, may be used.



This gasket **must** be used on the Flat Flange Heads.

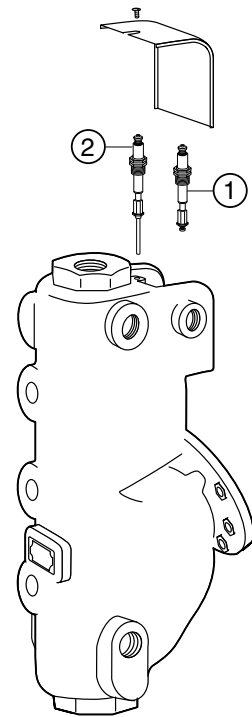
## Low Water Cut-Off/Pump Controllers For Steam Boilers

**Series 150, 150S**

**Series 157, 157S** (continued)

### Components

Item Number	Model Number	Part Number	Description	Weight lbs. (kg)
1	EA-157-S	354106	Short electrode for 157S-RBP	0.5 (.23)
2	EA-157-L	354107	Long electrode for 157S-RBP	0.5 (.23)



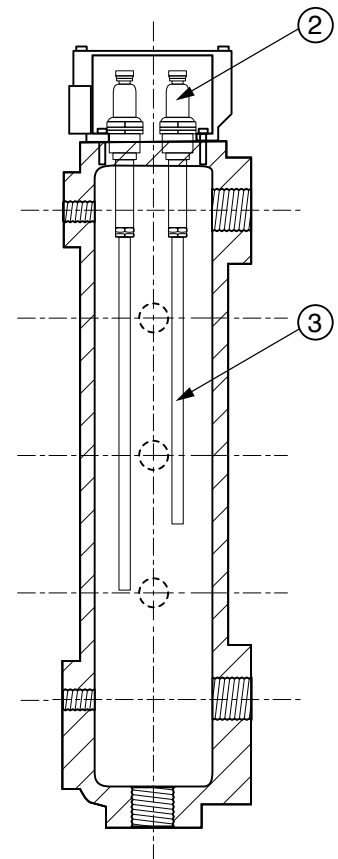
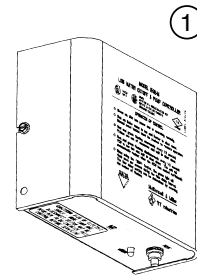
**Model 157S-RBP**

## Low Water Cut-Off/Pump Controllers For Steam Boilers

### Series 1575

#### Components

Item Number	Model Number	Part Number	Description	Weight lbs. (kg)
1	150E-CU	310490	Control unit, automatic reset	2.07 (.96)
2	PA-750-HP	176319	High Pressure Probe	0.5 (0.23)
3	PS-1-SS	179530	Sensing Probe Rod-12"	0.5 (0.23)





## Water Feeders – Electric

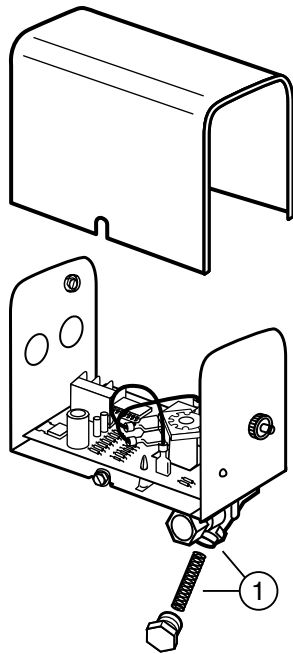
### Series WF2 and WFE Uni-Match® Electric Water Feeders



Uni-Match®

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310473	STR-WF2	Strainer/orifice kit	0.1 (.05)





## Water Feeders – Electric

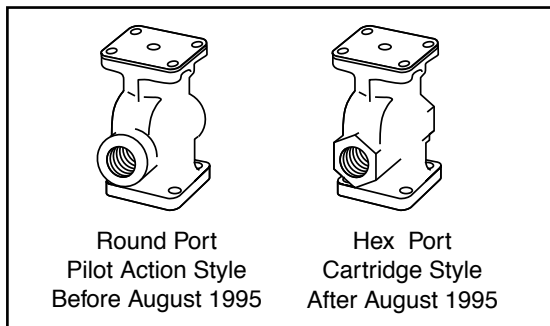
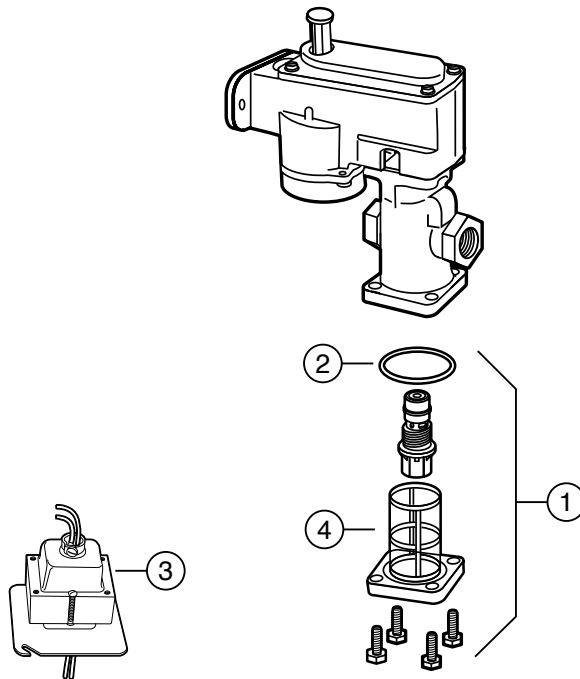
### Series 101-A Electric Water Feeders



Series 101-A

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310453	CTRD-101	Cartridge & strainer kit	0.8 (.36)
2	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
3	324100	101-24V-48	Transformer (24V)	3.5 (1.6)
4	347100	SA-101-38	Strainer (includes item 2)	0.7 (.32)



## Water Feeders – Make-Up

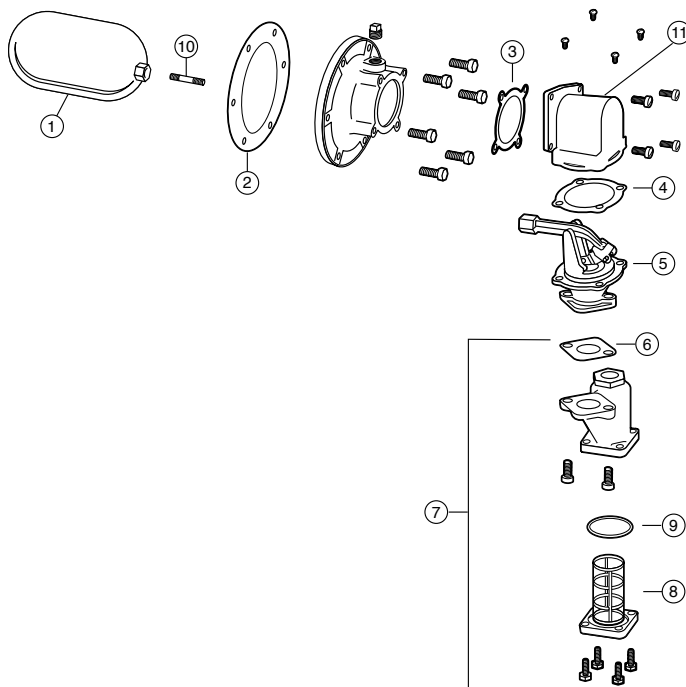
### Series 21 Make-Up Water Feeders

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	311200	21-30	Float (includes item 2)	1.7 (.77)
2	336500	847-26	Gasket (5 pack)	0.1 (.05)
3	312200	21-27	Gasket (5 pack)	0.1 (.05)
4	310800	21-12	Gasket	0.1 (.05)
5	339500	SA21-6	Valve assembly (includes items 2, 3, 4 & 6)	3.0 (1.4)
6	314100	37-28	Gasket (5 pack)	0.1 (.05)
7	342300	SA51-9R	Strainer assembly	3.0 (1.4)
8	339700	SA21-38R	Strainer basket (includes item 9)	1.0 (0.5)
9	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
10	311400	21-109	Connector	0.1 (.05)
11	310600	21-3	Bracket	2.5 (1.1)



**Series 21**



## Water Feeders – Make-Up

### Series 25-A Make-Up Water Feeders

#### Replacement Head Mechanisms

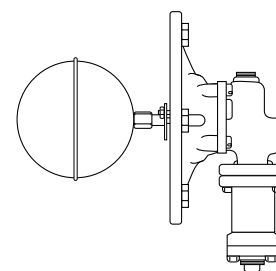
For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
25-A	25A-HD	127100	Head mechanism	20 (9.1)



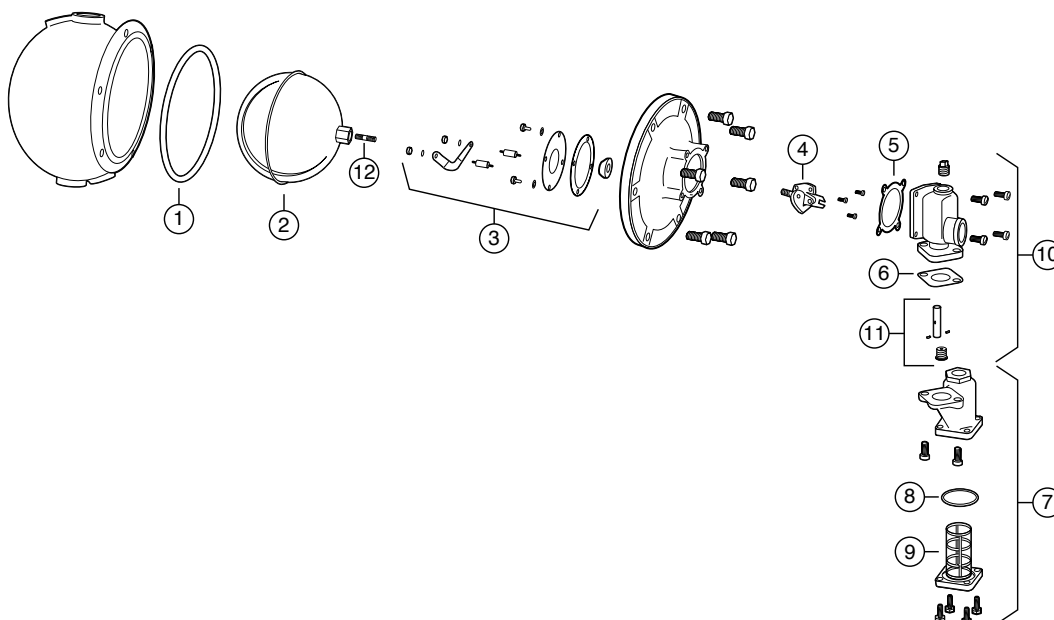
Series 25-A

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	304200	F-26	Gasket (10 pack)	0.1 (.05)
2	334100	421-30	Float (includes item 2)	1.5 (0.7)
3	340400	SA27T-75	Diaphragm seal assembly (includes item 1)	0.1 (.05)
4	339800	SA25-5	Arm assembly	0.1 (.05)
5	312200	21-27	Gasket (5 pack)	0.1 (.05)
6	314100	37-28	Gasket (5 pack)	0.1 (.05)
7	342300	SA51-9R	Strainer assembly (includes item 6)	3.0 (1.4)
8	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
9	339700	SA21-38R	Strainer basket (includes item 8)	1.0 (0.5)
10	339900	SA25A-6	Valve assembly	3.0 (1.4)
11	340000	SA25A-15	Stem, disc & seat assembly (includes item 6)	0.3 (.14)
12	311900	27T-9	Float Rod	0.1 (.05)



Model 25-A-HD



## Water Feeders – Make-Up

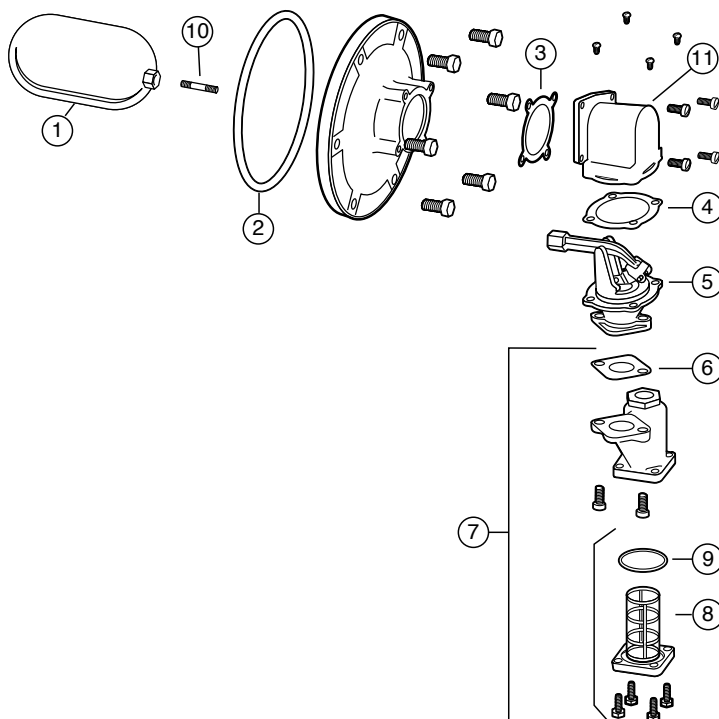
### Series 221 Make-Up Water Feeders

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	311200	21-30	Float (includes item 2)	1.7 (.77)
2	304200	F-26	Gasket (10 pack)	0.1 (.05)
3	312200	21-27	Gasket (5 pack)	0.1 (.05)
4	310800	21-12	Gasket	0.1 (.05)
5	339500	SA21-6	Valve assembly (includes 2,3,4,6)	3.0 (1.4)
6	314100	37-28	Gasket (5 pack)	0.1 (.05)
7	342300	SA51-9R	Strainer assembly	3.0 (1.4)
8	339700	SA21-38R	Strainer basket (includes item 9)	1.0 (0.5)
9	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
10	311400	21-109	Connector	0.1 (.05)
11	310600	21-3	Bracket	2.5 (1.1)



**Series 221**



## Water Feeders – Make-Up

### Series 551-S Make-Up Water Feeders

#### Replacement Head Mechanisms

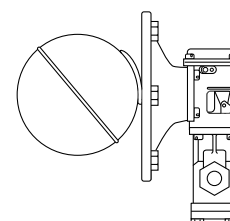
For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
551-S	551S-HD	136600	Head mechanism	25.7 (11.7)



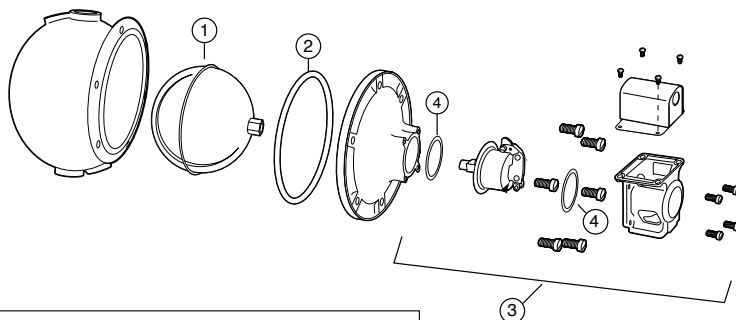
**Series 551-S**

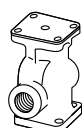
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310437	FLT-51-05	Float (includes item 2) (see note below)	2.5 (1.1)
2	304200	F-26	Gasket (10 pack)	0.1 (.05)
3	310442	BA-551-05	Bellows bracket assembly (see note below)	1.5 (0.7)
4	313900	37-27	Gasket (5 pack)	0.1 (.05)
5*	352600	SA551S-101-102	Valve & strainer kit	4.0 (1.8)
6	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
7	347100	SA101-38	Strainer basket (includes item 6)	0.7 (.32)
8	310452	CTRD-51	Cartridge kit	0.8 (.36)

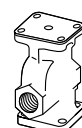


**Series 551-S-HD**





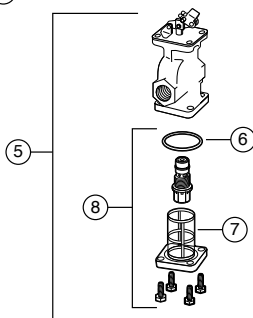
Round Boss  
Pilot Action Style  
Pre August 1995



Hex Boss  
Cartridge Style  
After August 1995

\* Units manufactured prior to August 1995 have a round port pilot valve and a strainer assembly. These valve and strainer assemblies can be replaced with the current hex port cartridge valve and strainer assembly.

**NOTE:**  
One time float and bellows replacement is required when replacing bellows or float assemblies with date codes before February 2005 (05B).



## Water Feeders – Make-Up

### Series 847 Make-Up Water Feeders

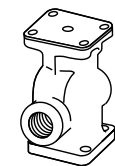
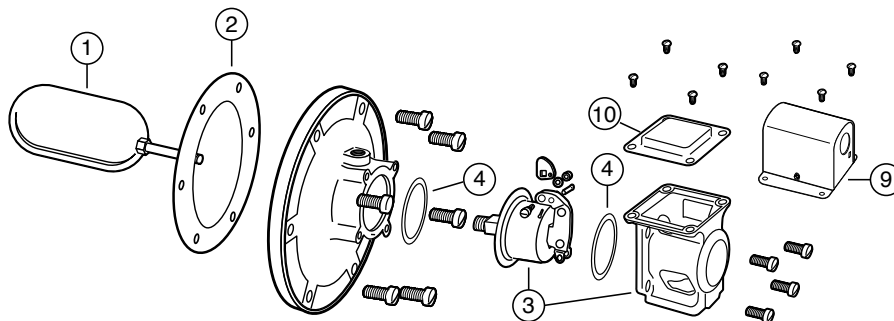
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	313600	37A-130	Float (includes item 2)	2.0 (0.9)
2	336500	847-26	Gasket (5 pack)	0.1 (.05)
3	352800	SA847-4	Bellows bracket assembly (includes item 2 and 4)	1.5 (0.7)
4	313900	37-27	Gasket (5 pack)	0.1 (.05)
5*	341600	SA47-101-102	Valve & strainer kit	3.0 (1.4)
6	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
7	347100	SA101-38	Strainer basket (includes item 6)	0.7 (.32)
8	310453	CTRD-101	Cartridge & strainer kit	0.8 (.36)
9	110000	2	Switch	1.0 (0.5)
10	312600	37-20	Cover	0.1 (.05)

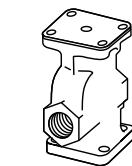


**Series 847**

BOILER CONTROLS

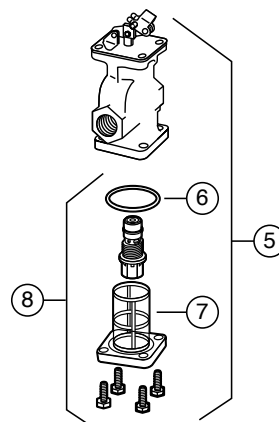


Round Boss  
Pilot Action Style  
Pre August 1995



Hex Boss  
Cartridge Style  
After August 1995

\* Units manufactured prior to August 1995 have a round port pilot valve and a strainer assembly. These valve and strainer assemblies can be replaced with the current hex port cartridge valve and strainer assembly.

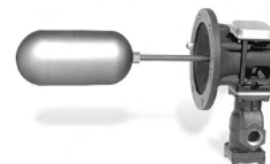


## Water Feeders – Make-Up

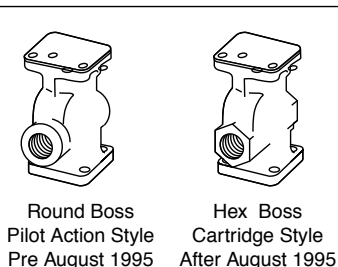
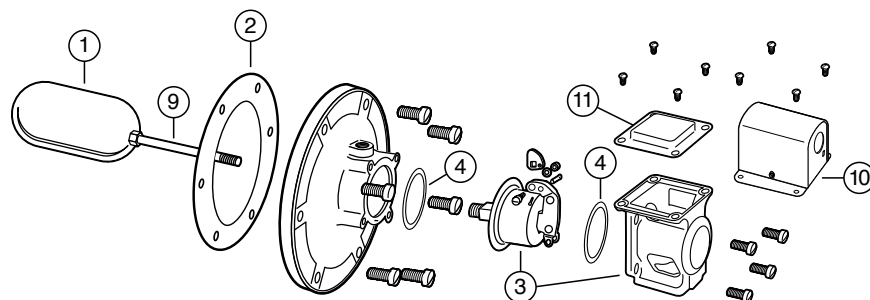
### Series 851 Make-Up Water Feeders

#### Components

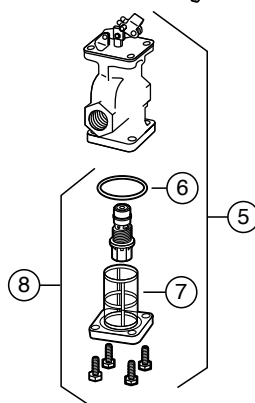
Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	313600	37A-130	Float (includes item 2)	2.0 (0.9)
2	336500	847-26	Gasket (5 pack)	0.1 (.05)
3	352925	SA851-4	Bellows bracket assembly	1.5 (0.7)
4	313900	37-27	Gasket (5 pack)	0.1 (.05)
5*	342500	SA51-101-102	Valve & strainer kit	3.0 (1.4)
6	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
7	347100	SA101-38	Strainer basket (includes item 6)	0.7 (.32)
8	310452	CTRD-51	Cartridge & strainer kit	0.8 (.36)
9	335700	851-105	Float rod	0.3 (.14)
10	110000	2	Switch	1.0 (.05)
11	312600	37-20	Cover	0.1 (.05)



Series 851



\* Units manufactured prior to August 1995 have a round port pilot valve and a strainer assembly. These valve and strainer assemblies can be replaced with the current hex port cartridge valve and strainer assembly.

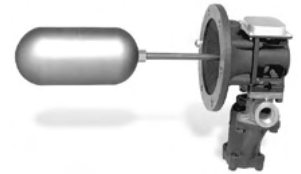


## Water Feeders – Make-Up

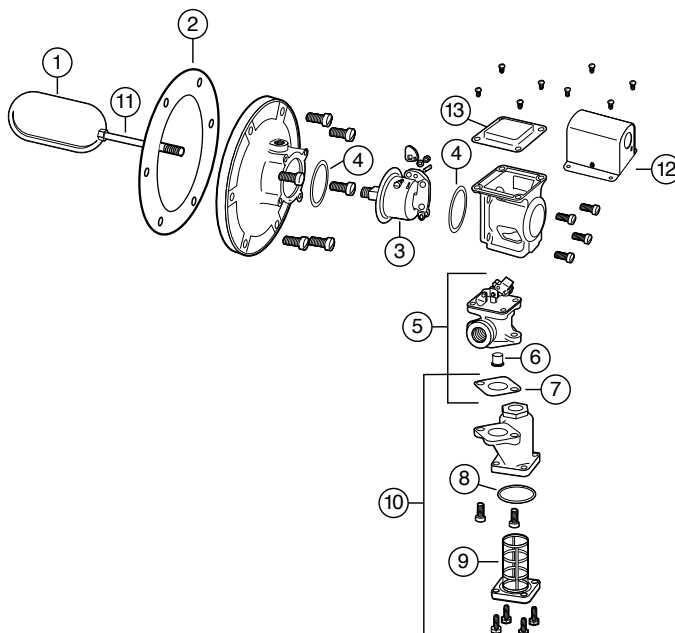
### Series 851-S Make-Up Water Feeders

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	313600	37A-130	Float (includes item 2)	2.0 (.9)
2	336500	847-26	Gasket (5 pack)	0.1 (.05)
3	352925	SA851-4	Bellows bracket assembly (includes item 4)	1.5 (.7)
4	313900	37-27	Gasket (5 pack)	0.1 (.05)
5	342100	SA51S-6	Valve assembly	3.0 (1.4)
6	316200	51S-114	Valve seat	0.1 (.05)
7	314100	37-28	Gasket (5 pack)	0.1 (.05)
8	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
9	340700	SA37-38	Strainer basket (includes item 8))	0.7 (.32)
10	342200	SA51-9	Strainer assembly	3.0 (1.4)
11	335750	851S-105	Float rod	0.3 (.14)
12	110000	2	Switch	1.0 (0.5)
13	312600	37-20	Cover	0.1 (0.5)



**Series 851-S**





## Combination Mechanical Water Feeder/ Low Water Cut-Offs

### Series 47/47-2

#### Mechanical Water Feeder/Low Water Cut-Offs

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310453	CTRD-101	Cartridge and strainer kit	.35 (.16)
2*	341600	SA47-101-102	Valve, cartridge & strainer assembly kit	3.0 (1.4)
3	324500	37-101	Tetraseal o-ring (5 pack)	0.1 (.05)
4	347100	SA101-38	Strainer for hex port valves (includes item 3)	0.7 (.32)
5	341500	SA47-4	Bellows and bracket assembly (includes item 15)	1.5 (0.7)
6	313900	37-27	Gasket (5 pack)	0.1 (.05)
7	302900	CO-106	Cam assembly	0.1 (.05)
8	110000	2	Switch	1.0 (0.5)
9	110100	2-M	Switch with manual reset	1.0 (0.5)
10	332800	MA-259	Quick hook-up fittings (includes item 11, 12, 13)	4.5 (2.0)
11	349400	SA159-17	Black "Y" assembly	2.3 (1.0)
12	351800	SA259-24	Upper quick hook-up fittings	1.7 (.77)
13	349500	SA159-24	Lower quick hook-up fittings	1.7 (.77)
14	340600	SA37-30	Float assembly	2.0 (0.9)
15	313800	37-26	Gasket (10 pack)	0.1 (.05)
16	310447	14-B	Blow-down valve (includes item 17)	1.5 (0.7)
17	313300	37-39	Blow-down valve gasket (10 pack)	1.0 (0.5)



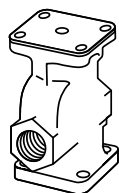
**Series 47**



**Series 47-2**



Round Port  
Pilot Action Style  
Before August 1995



Hex Port  
Cartridge Style  
After August 1995

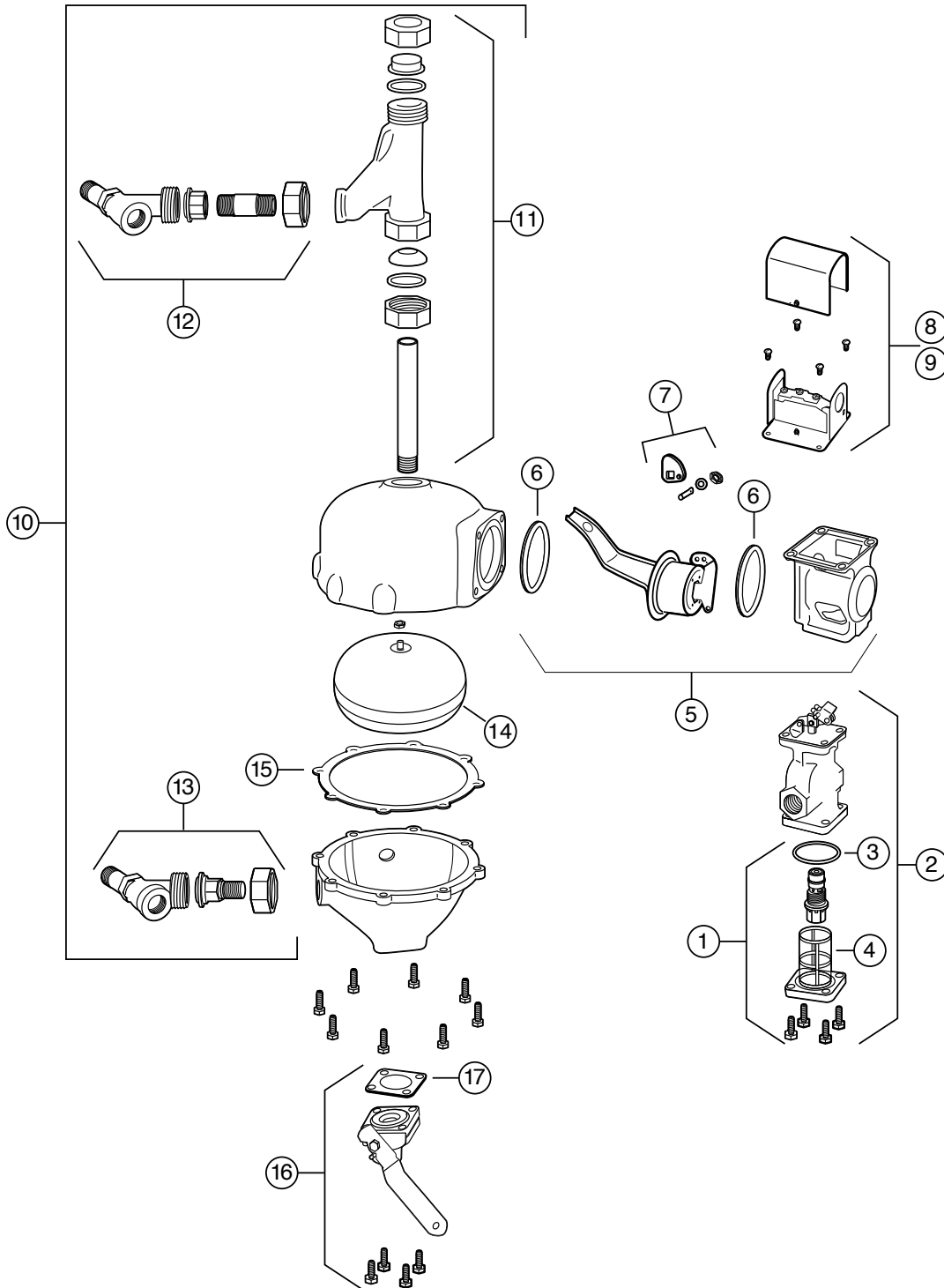
\* Units manufactured prior to August 1995 have a round port pilot valve and a strainer assembly. These valve and strainer assemblies can be replaced with the current hex port cartridge valve and strainer assembly.

## Combination Mechanical Water Feeder/ Low Water Cut-Offs

Series 47/47-2 (continued)

Mechanical Water Feeder/Low Water Cut-Offs

### Components



## Combination Mechanical Water Feeder/ Low Water Cut-Offs

### Series 247/247-2

#### Mechanical Water Feeder/Low Water Cut-Offs

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310453	CTRD-101	Cartridge & strainer kit	.35 (.16)
2*	341600	SA47-101-102	Valve, cartridge & strainer assembly kit	3.0 (1.4)
3	324500	37-101	Tetraseal o-ring (5 pack)	0.1 (.05)
4	347100	SA101-38	Strainer for hex port valves (includes item 3)	0.2 (.09)
5	341900	SA47-104	Bellows & bracket assembly (includes item 11)	1.5 (0.7)
6	313900	37-27	Gasket (5 pack)	0.1 (.05)
7	302900	CO-106	Cam assembly	0.1 (.05)
8	110000	2	Switch	1.0 (0.5)
9	110100	2-M	Switch w/manual reset	1.0 (0.5)
10	340600	SA37-30	Float assembly	2.0 (0.9)
11	313800	37-26	Gasket (10 pack)	0.1 (.05)



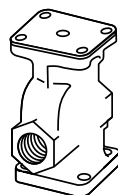
Series 247



Series 247-2



Round Boss  
Pilot Action Style  
Pre August 1995



Hex Boss  
Cartridge Style  
After August 1995

\* Units manufactured prior to August 1995 have a round port pilot valve and a strainer assembly. These valve and strainer assemblies can be replaced with the current hex port cartridge valve and strainer assembly.

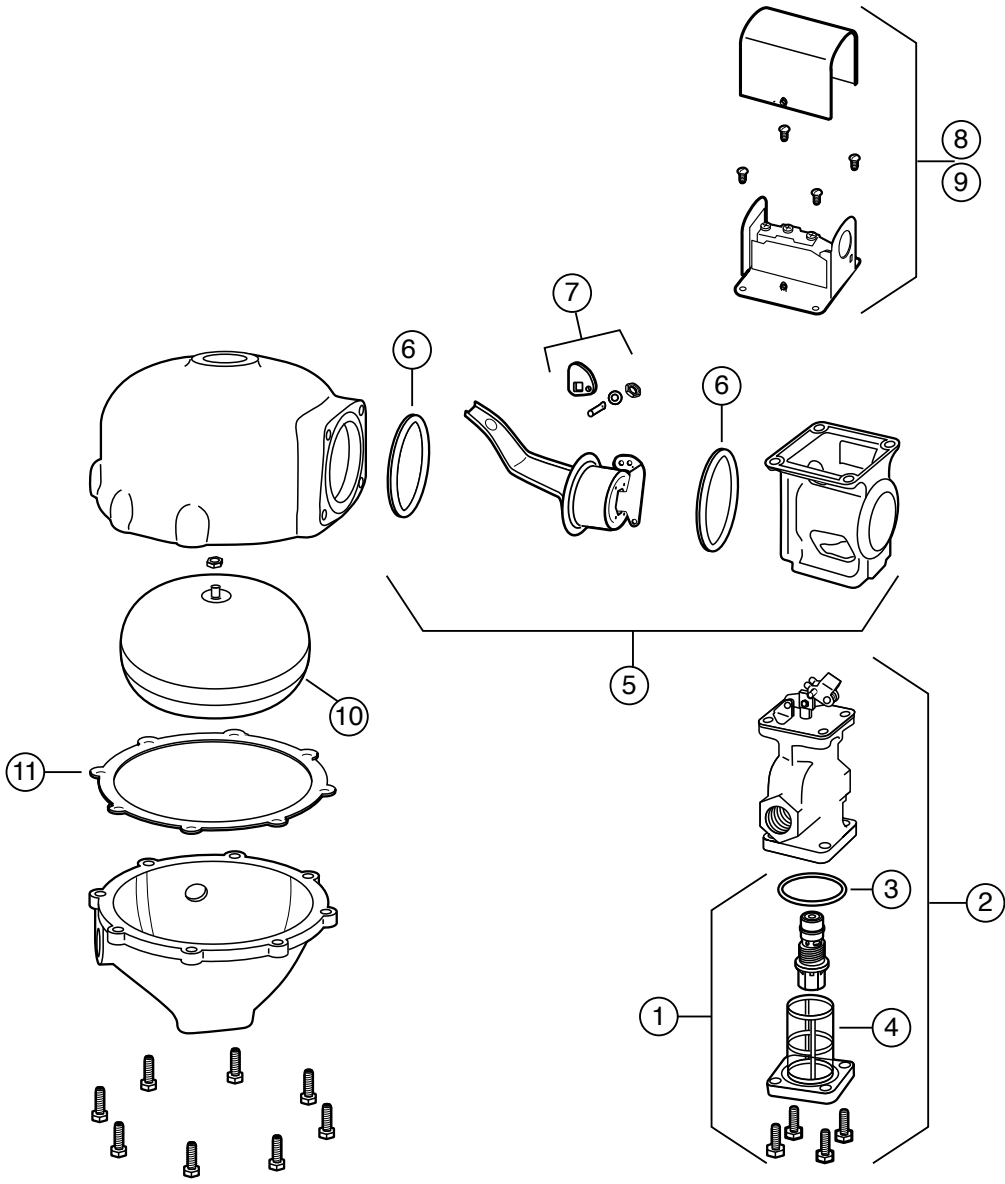


## Combination Mechanical Water Feeder/ Low Water Cut-Offs

Series 247/247-2 (continued)

Mechanical Water Feeder/Low Water Cut-Offs

### Components



BOILER CONTROLS

## Combination Mechanical Water Feeder/ Low Water Cut-Offs

### Series 51/51-2 Water Feeder/Low Water Cut-Offs

#### Replacement Head Mechanisms

For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
51-2	51-2-HD or	135100	Head mechanism w/ No. 2 switch	18.3 (8.3)
	51-2M-HD	135300	51-2-HD w/manual reset	26.0 (11.8)

#### Components (shown on page 43)

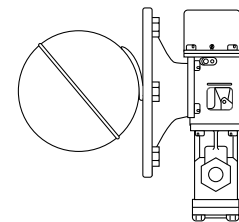
Item	Part	Model	Description	Weight
1	110000	2	Low water cut-off switch	1.0 (0.5)
2	110100	2-M	No. 2 w/manual reset	1.0 (0.5)
3	310437	FLT-51-05	Float (see note following page)	2.5 (1.1)
4	304200	F-26	Gasket (10 pack)	0.1 (.05)
5	313900	37-27	Gasket (5 pack)	0.1 (.05)
6	302900	CO-106	Cam assembly	0.1 (.05)
7	310439	BA-51-05	Bellows bracket assembly (includes item 4) (see note following page)	1.5 (0.7)
8*	342500	SA51-101-102	Valve & strainer kit	3.0 (1.4)
9	310452	CTRD-51	Cartridge & strainer kit	0.8 (.36)
10	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
11	347100	SA101-38	Strainer basket (includes item 10)	0.7 (.32)



**Series 51**



**Series 51-2**

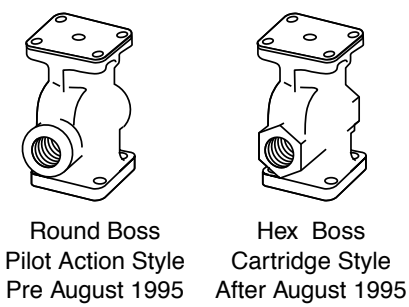
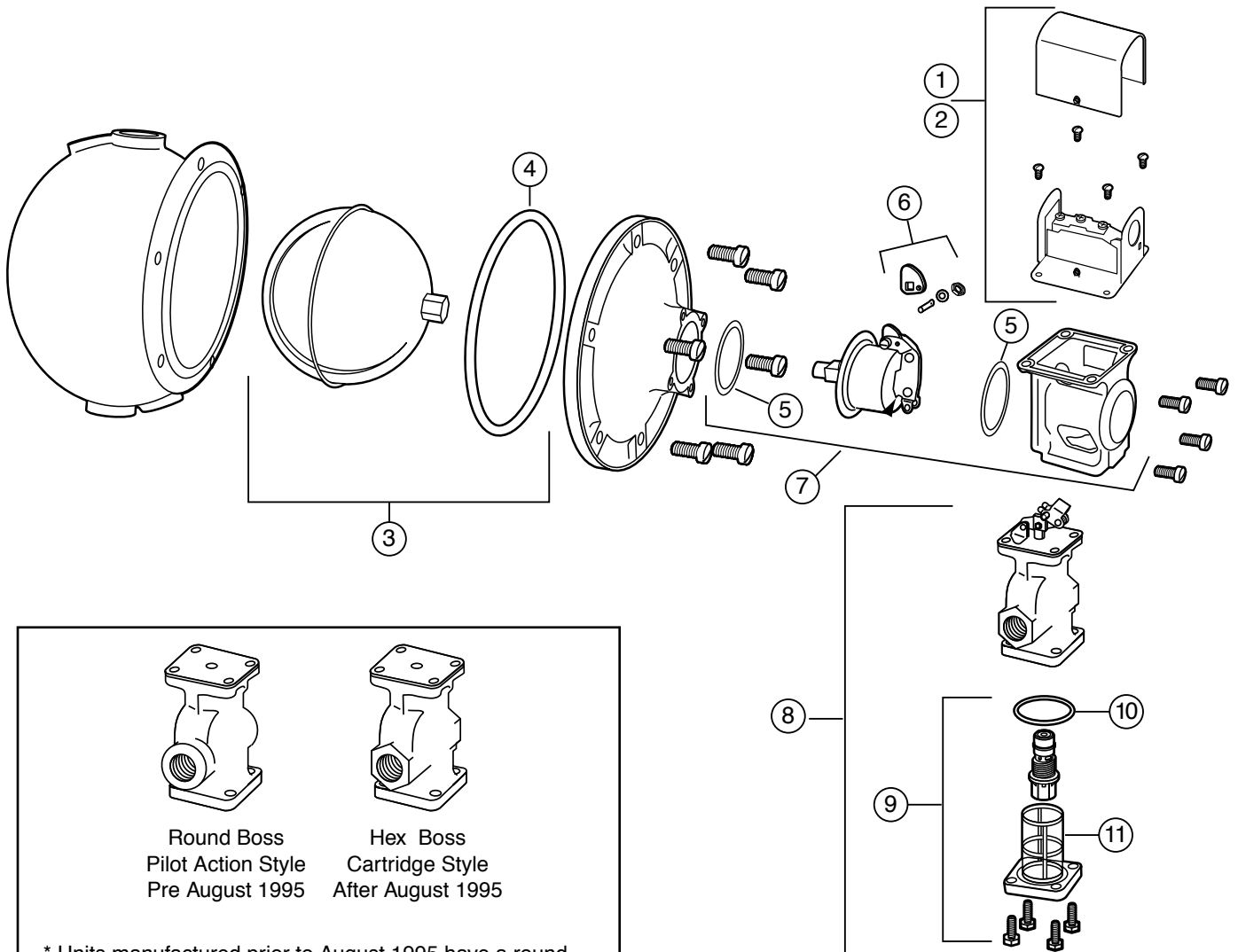


**Model 51-2-HD**

## Combination Mechanical Water Feeder/ Low Water Cut-Offs

**Series 51/51-2** (continued)  
Water Feeder/Low Water Cut-Offs

### Components



\* Units manufactured prior to August 1995 have a round port pilot valve and a strainer assembly. These valve and strainer assemblies can be replaced with the current hex port cartridge valve and strainer assembly.

Note: One time float and bellows replacement is required when replacing bellows or float assemblies with date codes before February, 2005 (05B).

## Combination Mechanical Water Feeder/ Low Water Cut-Offs

### Series 51-S/51-S-2 Water Feeder/Low Water Cut-Offs

#### Replacement Head Mechanisms

For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
51-S	51-S-2-HD or	136200	Head mechanism w/ No. 2 switch	20.5 (9.3)
	51-S-2M-HD	136250	51-S-2-HD w/manual reset	21.7 (9.8)

#### Components (shown on page 47)

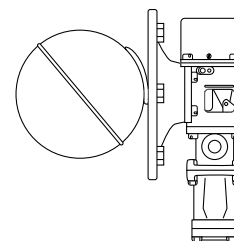
Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	110000	2	Low water cut-off switch	1.0 (0.5)
2	110100	2-M	No. 2 w/manual reset	1.0 (0.5)
3	310437	FLT-51-05	Float (see note following page)	2.5 (1.1)
4	304200	F-26	Gasket (10 pack)	0.1 (.05)
5	313900	37-27	Gasket (5 pack)	0.1 (.05)
6	302900	CO-106	Cam assembly	0.1 (.05)
7	310439	BA-51-05	Bellows bracket assembly (includes item 4) (see note following page)	1.0 (0.7)
8	342100	SA51S-6	Valve assembly	3.0 (1.4)
9	316200	51S-114	Valve seat	0.8 (.36)
10	342200	SA51-9	Strainer assembly	0.1 (.05)
11	314100	37-28	Gasket (5 pack)	0.1 (.05)
12	324500	37-101	Tetraseal O-ring )(5 pack)	0.1 (.05)
13	340700	SA37-38	Strainer basket (includes item 12)	0.7 (.32)



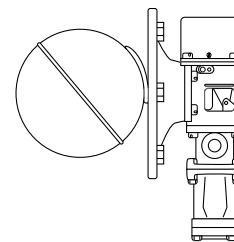
**Series 51-S**



**Series 51-S-2**



**Model 51-S-2-HD**

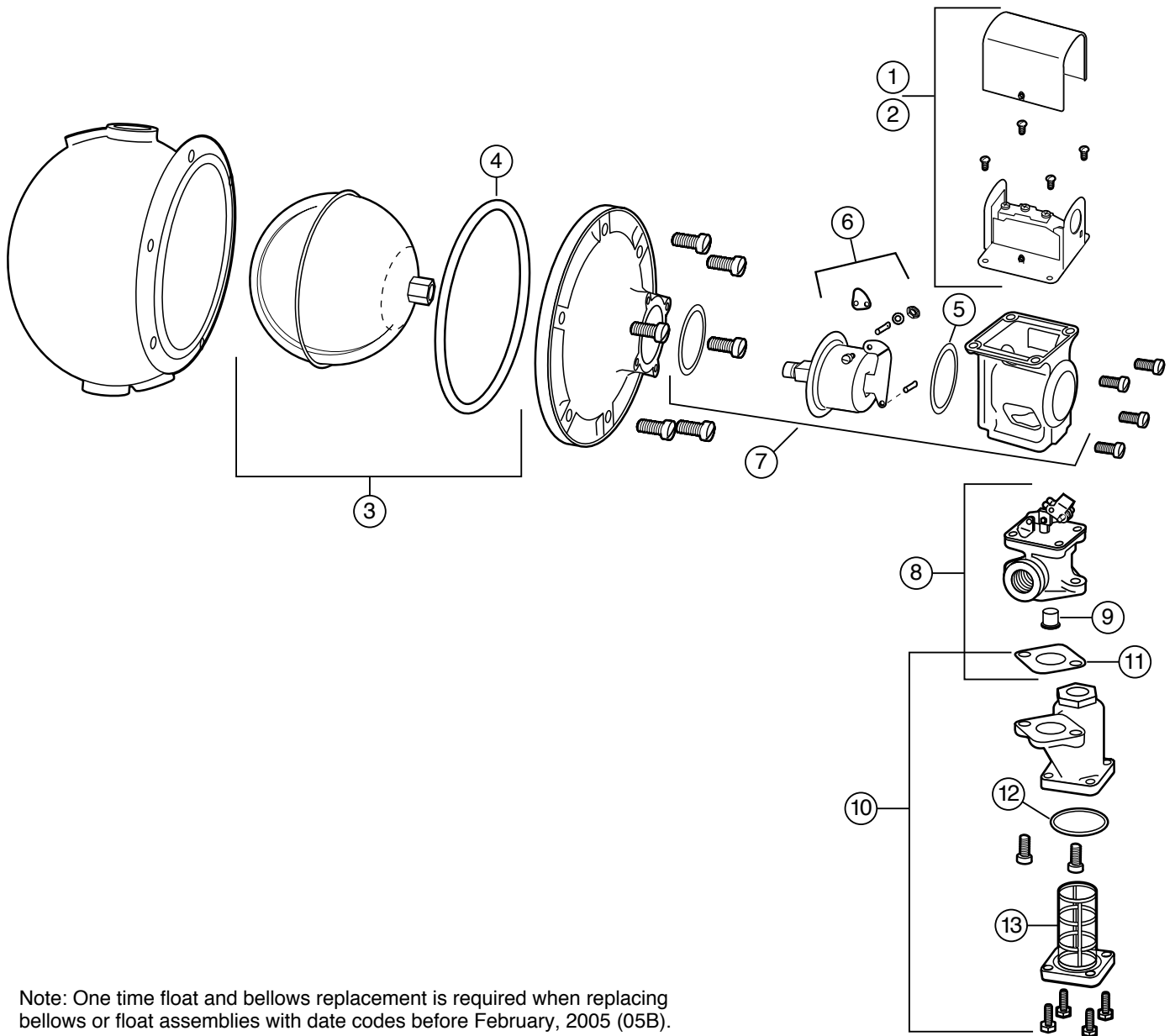


**Model 51-S-2M-HD**

## Combination Mechanical Water Feeder/ Low Water Cut-Offs

Series 51-S/51-S-2 (continued)  
Water Feeder/Low Water Cut-Offs

### Components



Note: One time float and bellows replacement is required when replacing bellows or float assemblies with date codes before February, 2005 (05B).



## Combination Mechanical Water Feeder/ Low Water Cut-Offs

### Series 53/53-2

### Water Feeder/Low Water Cut-Offs

#### Replacement Head Mechanisms

For Series	Repl. Head Model No.	Part Number	Description	Weight lbs. (kg)
53	53-2-HD or	137300	Head mechanism w/ No. 2 switch	20.5 (9.3)
	53-2M-HD	137250	53-2-HD w/manual reset	20.5 (9.3)

#### Components (shown on page 49)

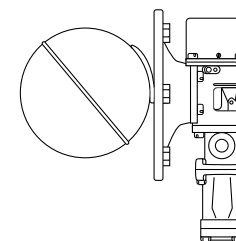
Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	110000	2	Low water cut-off switch	1.0 (0.5)
2	110100	2-M	No. 2 w/manual reset	1.0 (0.5)
3	304200	F-26	Gasket (10 pack)	0.1 (.05)
4	310438	FLT-53-05	Float (See note following page)	4.0 (1.8)
5	302900	CO-106	Cam assembly	0.1 (.05)
6	313900	37-27	Gasket (5 pack)	0.1 (.05)
7	310441	BA-53-05	Bellows bracket assembly (includes item 3) (See note following page)	1.5 (0.7)
8	342800	SA53-6	Valve assembly	3.0 (1.4)
9	314100	37-28	Gasket (5 pack)	0.1 (.05)
10	324500	37-101	Tetraseal O-ring (5 pack)	0.1 (.05)
11	340700	SA37-38	Strainer basket	0.7 (.32)



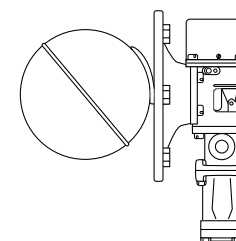
**Series 53**



**Series 53-2**



**Model 53-2-HD**

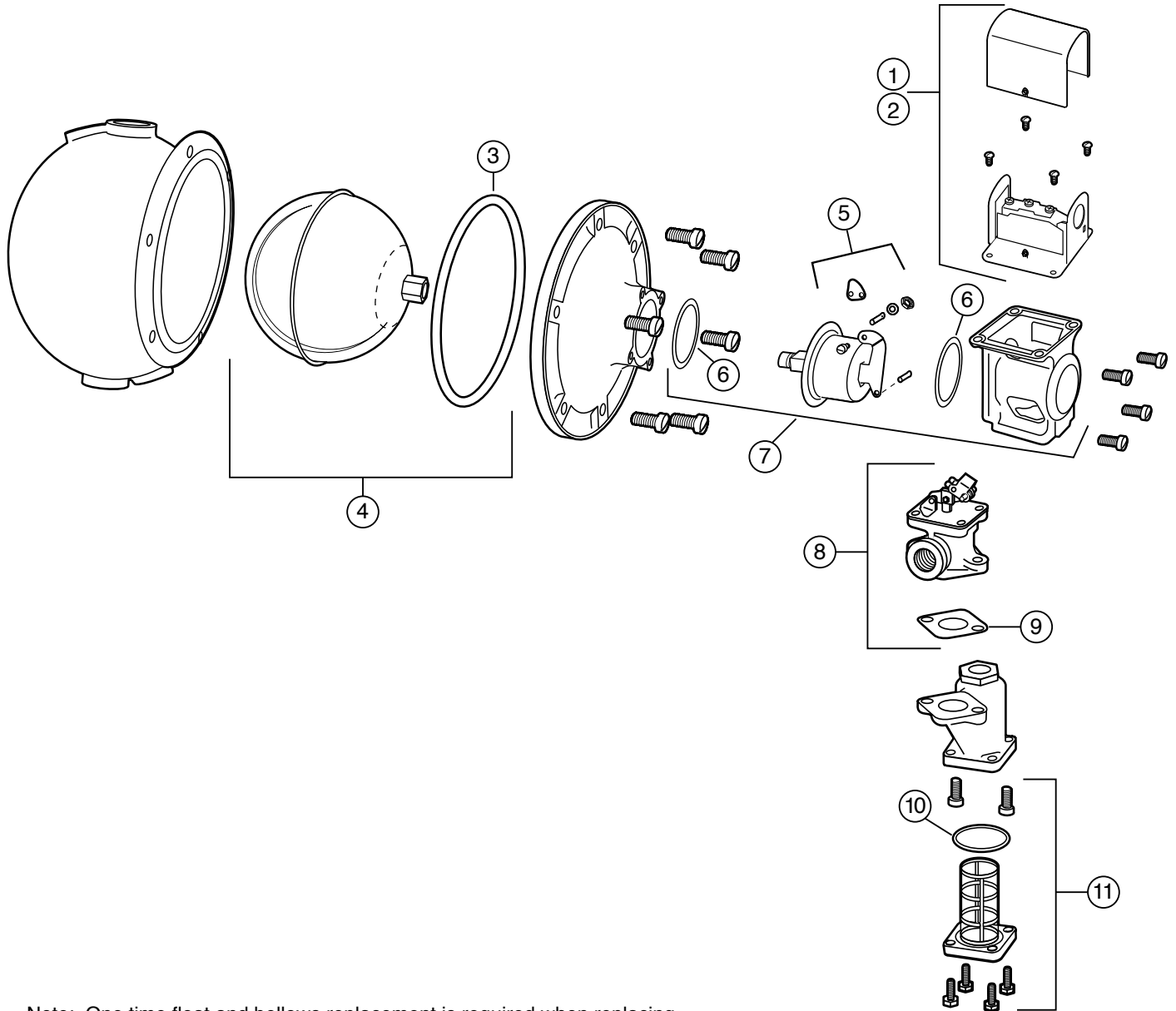


**Model 53-2M-HD**

## Combination Mechanical Water Feeder/ Low Water Cut-Offs

Series 53/53-2 (continued)  
Water Feeder/Low Water Cut-Offs

### Components



Note: One time float and bellows replacement is required when replacing bellows or float assemblies with date codes before February, 2005 (05B).

BOILER CONTROLS

## Valves

### Series TC-4 Test-N-Check® Valves



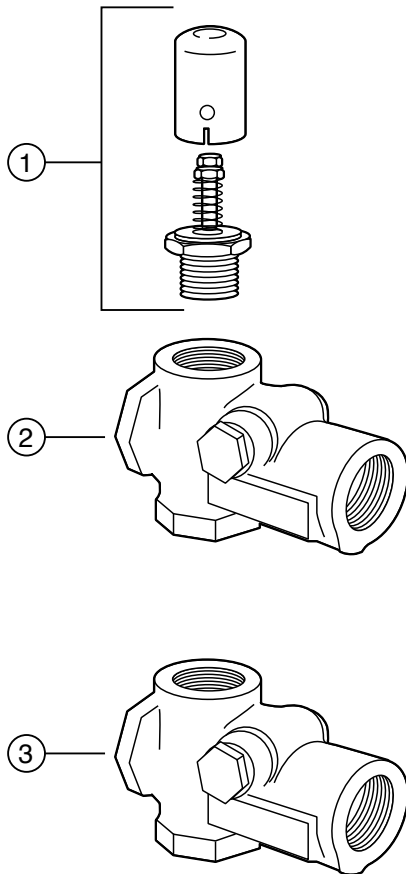
**Series TC-4  
Upper Valve**

### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	317354	TC-V	Vacuum breaker w/gasket	0.3 (.14)
2	317350	TC-U	Upper valve (includes item 1)	2.7 (1.2)
3	317353	TC-L	Lower valve	2.7 (1.2)



**Series TC-4  
Lower Valve**



## Probe Type Remote Sensors

### Components for Remote Sensors

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	354370	GSKT-RS-1	Cover gasket	0.3 (.14)
2	354401	EA-RS	Electrode	0.5 (.23)
3	354081	PA-800	Probe	0.5 (.23)
4	354410	GSKT-RS-2	Cover gasket	0.3 (.14)



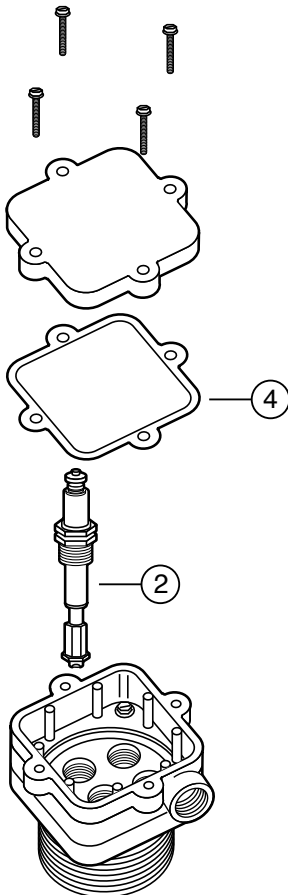
**Remote Sensor  
Model RS-1-BR-1**



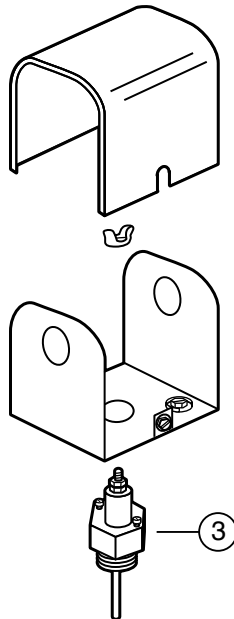
**Remote Sensor  
Model RS-1-LP**



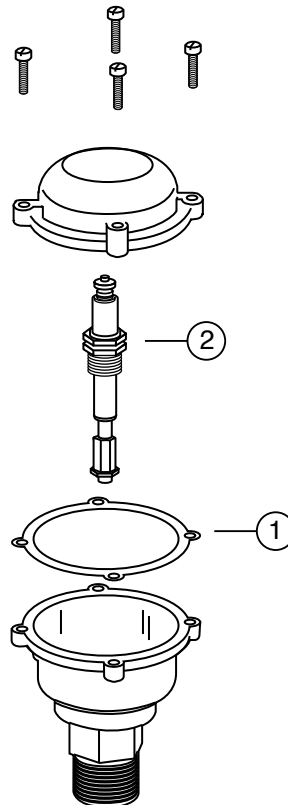
**Remote Sensor  
Series RS**



**Series RS**



**Model RS-1-LP**



**Model RS-1-BR-1**

## Pneumatic Actuated

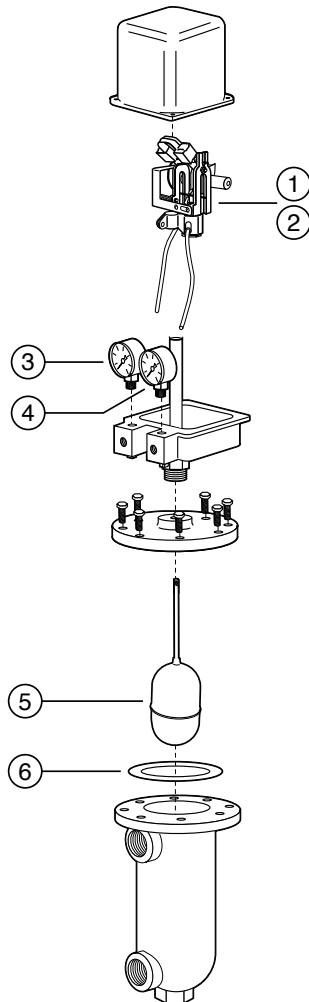
### Series PFC Liquid Level Controls

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310471	SWA-PFC-D	Valve assembly-DA	2.0 (0.9)
2	310472	SWA-PFC-R	Valve assembly-RA	2.0 (0.9)
3	354411	G-PFC-S	Supply gauge	0.3 (.14)
4	354412	G-PFC-O	Output gauge	0.3 (.14)
5	354320	FLT-PFC	Float (includes item 6)	0.5 (.23)
6	354310	GSKT-PFC	Gasket	0.2 (.09)



**Series PFC**



LIQUID LEVEL CONTROLS

## Float Actuated

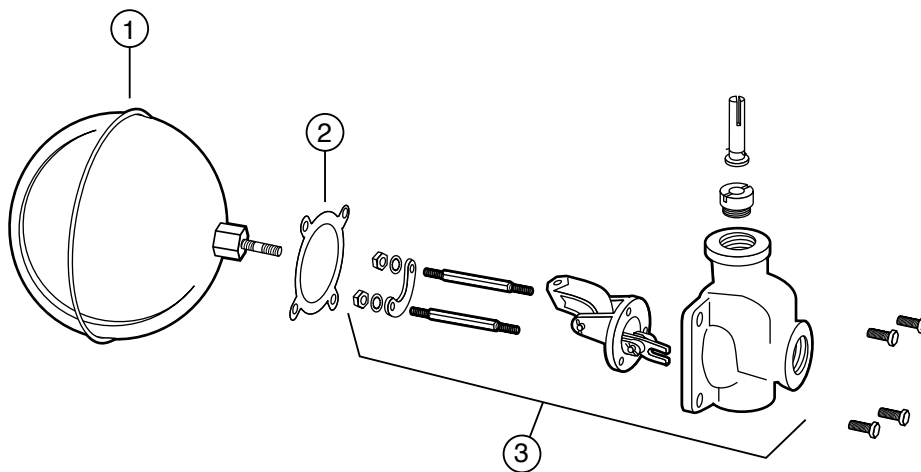
### Series 27-W Liquid Level Controls



**Series 27-W**

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	334100	421-30	Float & Nipple (includes item 2)	1.5 (0.7)
2	312200	21-27	Gasket (5 pack)	0.1 (.05)
3	340100	SA27W-6	Valve assembly (includes item 2)	3.5 (1.6)





## Flow Switches – Liquid

### Series FS4-3 General Purpose Liquid Flow Switches

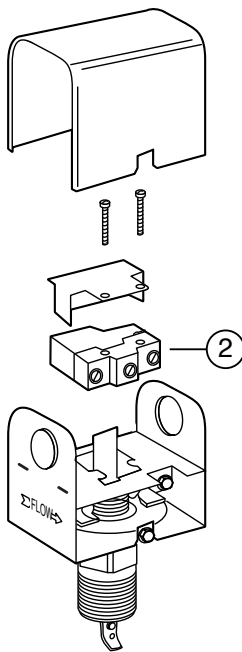
#### Components

For Model	Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
All models (except those below)	1	310451	FS4-15SS	Stainless steel paddle kit	0.1 (.05)
	2	305200	FS4-33	SPDT switch	0.3 (.14)
FS4-3D	3	305512	FS4-3D-17	SPDT switch	0.3 (.14)
	4	304300	FS1-17	SPDT switch (next to adjustment screw)	0.3 (.14)

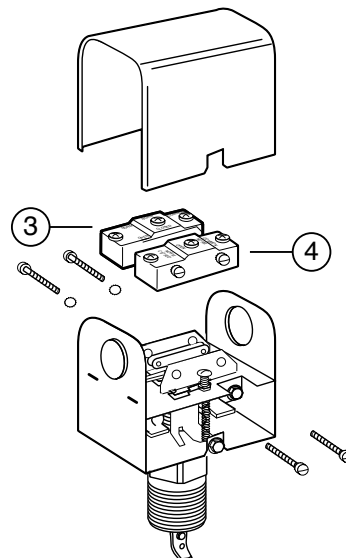


**Series FS4-3**

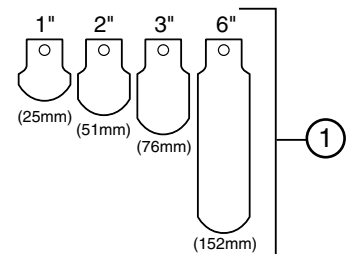
Note: Paddle kits include screws and washers.



**Series FS4-3**



**Series FS4-3D**



**Paddle Kit**



## Flow Switches – Liquid

### Series FS4-3T General Purpose Liquid Flow Switches

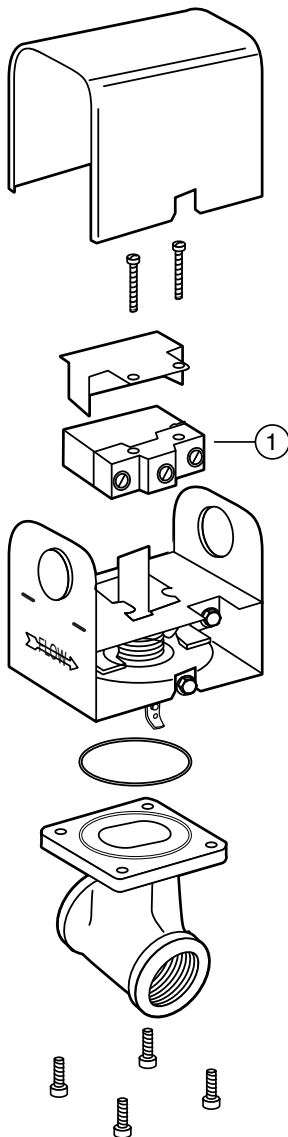
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	305200	FS4-33	SPDT switch	0.3 (.14)
2	336900	FS4-3T-25	Paddle kit (includes O-ring)	0.1 (.05)

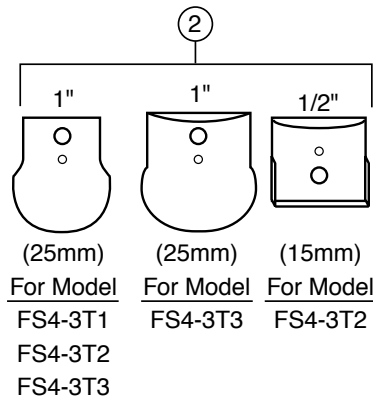


Series FS4-3T

Note: Paddle kits include screws and washers.



FS4-3T



Paddle Kit

FLOW SWITCHES

## Flow Switches – Liquid

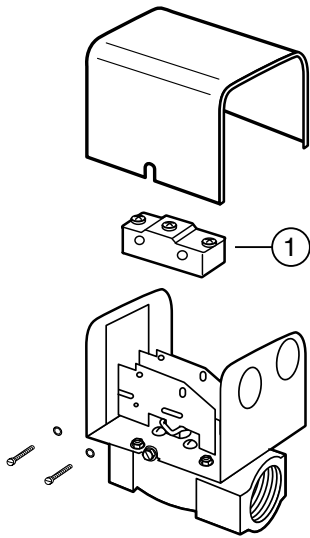
### Series FS5 General Purpose Liquid Flow Switches

#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	304300	FS1-17	Switch	0.3 (.14)



**Series FS5**



**Series FS5**

## Series FS8-W General Purpose Liquid Flow Switches

### Components

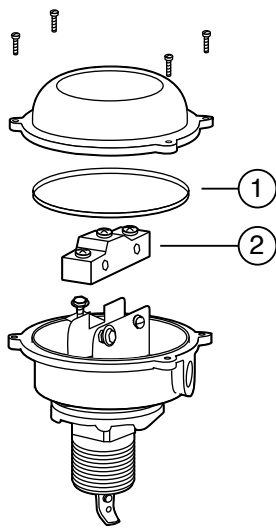
Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	307400	GSKT-FS8W	O-ring	0.1 (.05)
2	310478	FS8-33	Switch	0.3 (.14)
3	310451	FS4-15SS	Stainless steel paddle kit	0.1 (.05)



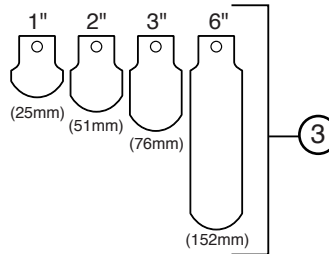
**Series FS8-W**

Note: Paddle kits include screws and washers.

FLOW SWITCHES



**Series FS8-W**



**Paddle Kit**

# Flow Switch Replacement Parts

## Series FS250 General Purpose Liquid Flow Switches

### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	310801	GSKT-FS254	O-Ring	0.1 (.05)
2	310802	SW-FS250	Switch	0.3 (0.14)
3	310451	FS4-15SS	Stainless steel paddle kit	0.1 (.05)

Note: Paddle kits include screws and washers.

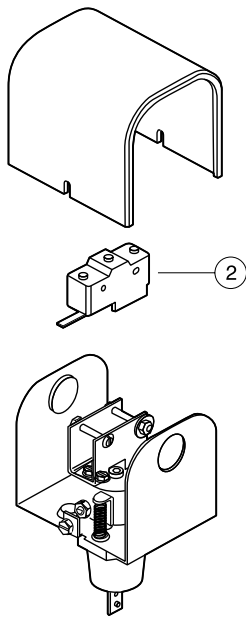


**FS251**

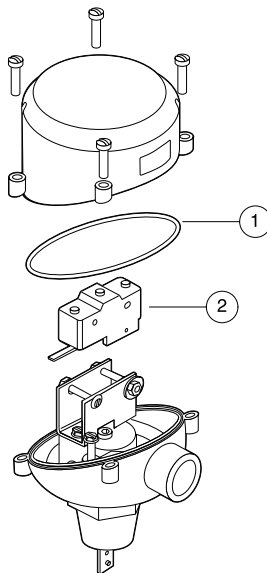


**FS254**

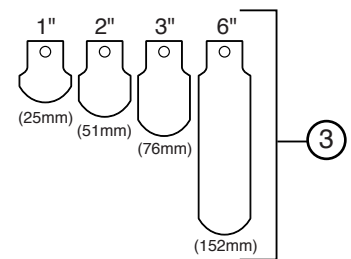
FLOW SWITCHES



**FS251**



**FS254**



**Paddle Kit**

## Flow Switches – Liquid

### Series FS1 & FS1-W High Sensitivity Liquid Flow Switches

#### Components

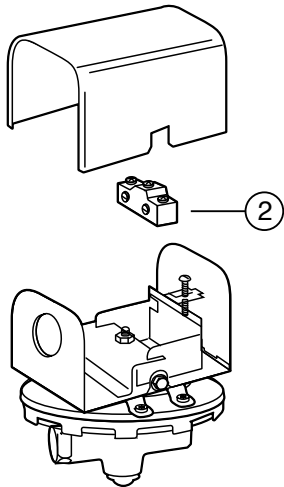
Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	300311	GSKT-FS1/6W	O-ring	0.1 (.05)
2	304300	FS1-17	Switch	0.3 (.14)



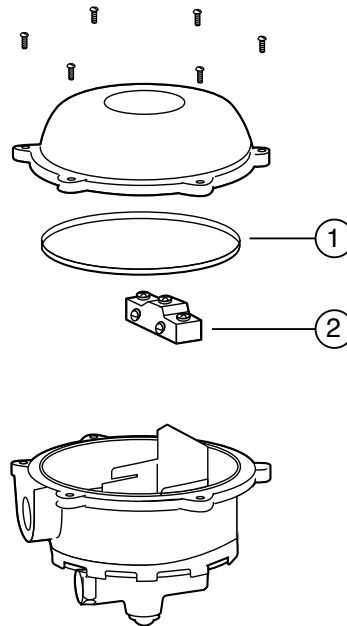
Series FS1



Series FS1-W



Series FS1



Series FS1-W

FLOW SWITCHES

## Flow Switches – Liquid

### Series FS6 & FS6-W High Sensitivity Liquid Flow Switches

#### Components

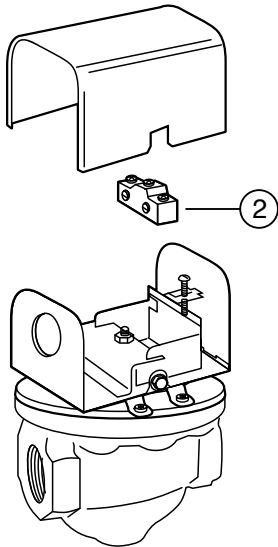
Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	300311	GSKT-FS1/6W	O-ring	0.1 (.05)
2	304300	FS1-17	Switch	0.3 (.14)



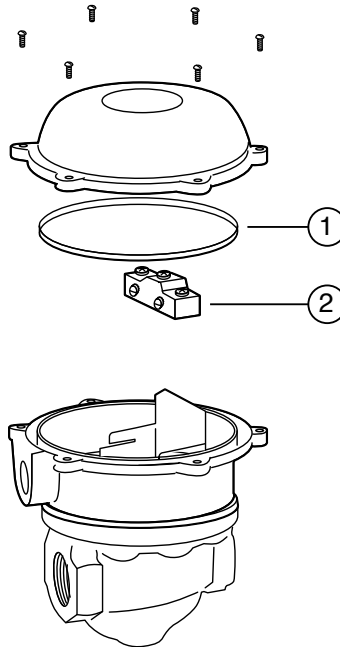
**Series FS6**



**Series FS6-W**



**Series FS6**



**Series FS6-W**

## Flow Switches – Liquid

### Series FS7-4, FS7-4L & FS7-4S Industrial Liquid Flow Switches

#### Components

For Series	Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
FS7-4					
FS7-4S	1	307000	FS7-31	SPDT switch	0.3 (.14)
FS7-4L					
FS7-4					
FS7-4S	2	337550	FS7S-4R-4	Paddle arm	0.5 (.23)
FS7-4	3	306700	FS7-28	Bronze paddle kit	0.1 (.05)
FS7-4S	4	306800	FS7-28S	Stainless steel paddle kit	0.1 (.05)
FS7-4L	5*	337900	FS7-28L	Bronze paddle kit	0.1 (.05)
FS7-4L	6*	337650	FS7-VL-4R-4	Paddle arm	0.5 (.23)

Note: Paddle kits include screws and washers.

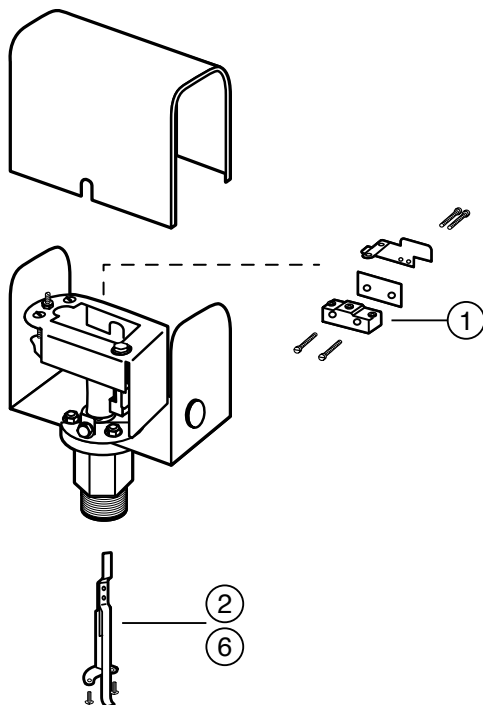
\* Available on L models only.



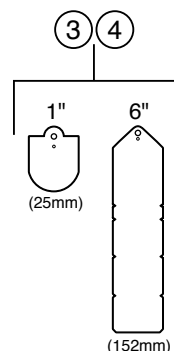
**Series FS7-4**



**Series FS7-4L**



**Series FS7-4, FS7-4L & FS7-4S**



**Series FS7-4 & FS7-4S Paddle Kit**



**Series FS7-4L Paddle Kit**

FLOW SWITCHES

## Flow Switches – Liquid

### Series FS7-4E & FS7-4W Industrial Liquid Flow Switches

#### Components

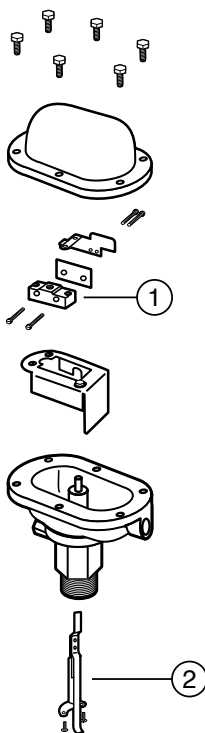
For Series	Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
All models	1	307000	FS7-31	SPDT switch	0.3 (.14)
	2	337550	FS7S-4R-4	Paddle arm	0.4 (.18)
FS7-4E FS7-4W	3	306700	FS7-28	Bronze paddle kit	0.1 (.05)
FS7-4SE FS7-4SW	4	306800	FS7-28S	Stainless steel paddle kit	0.1 (.05)
FS7-4W FS7-4SW	5	307200	FS7-W-43	Gasket	0.1 (.05)



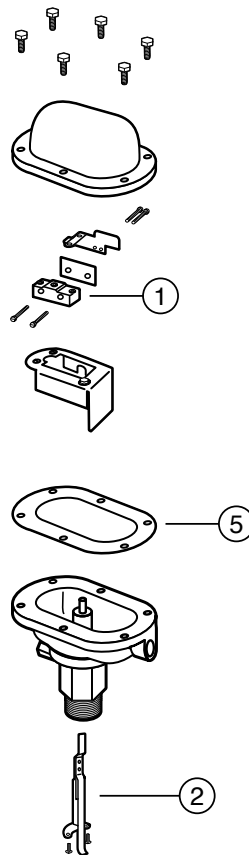
Series FS7-4E & FS7-4W

FLOW SWITCHES

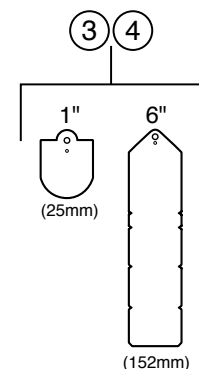
Note: Paddle kits include screws and washers.



Series FS7-4E



Series FS7-4W



Paddle Kit



## Flow Switches – Air

### Series AF1 Air Flow Switches

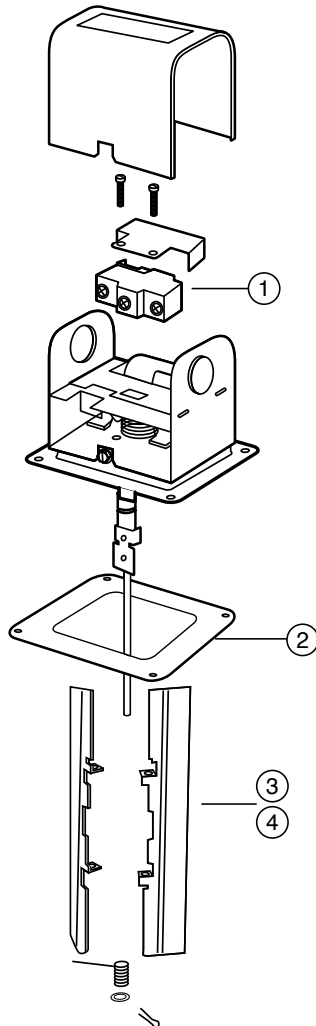
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	307000	FS7-31	SPDT switch	0.3 (.14)
2	301200	AF1-21	Gasket	0.1 (.05)
3	336000	AF1-122	Paddle kit for model AF1 & AF1-J (includes item 2)	0.1 (.05)
4	336050	AF1-S-122	Paddle kit for model AF1-S (includes item 2)	0.1 (.05)



**Series AF1**

Note: Paddle kits include screws and washers.



FLOW SWITCHES

## Flow Switches – Air

### Series AFE-1 Air Flow Switches

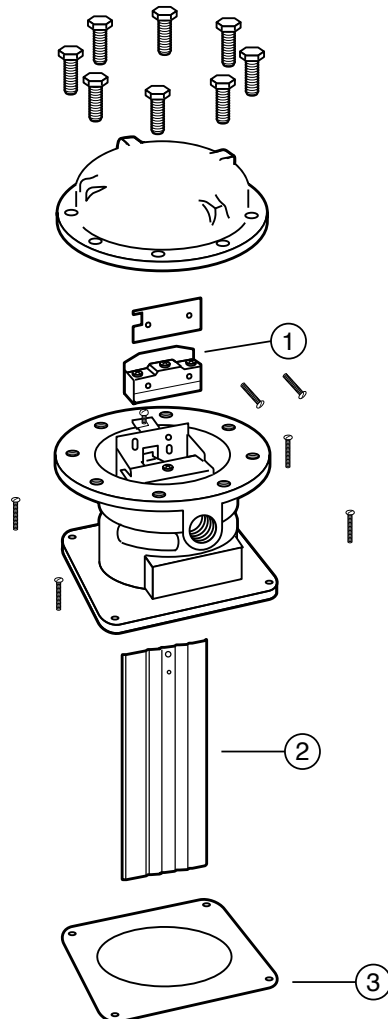
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	304300	FS1-17	SPDT switch	0.3 (.14)
2	308300	AFE-1-122	Paddle kit (includes item 3)	0.1 (.05)
3	317352	AFE-1-21	Gasket	0.1 (.05)

Note: Paddle kits include screws and washers.



**Series AFE-1**



## Flow Switches – Air

### Series AF2 Air Flow Switches

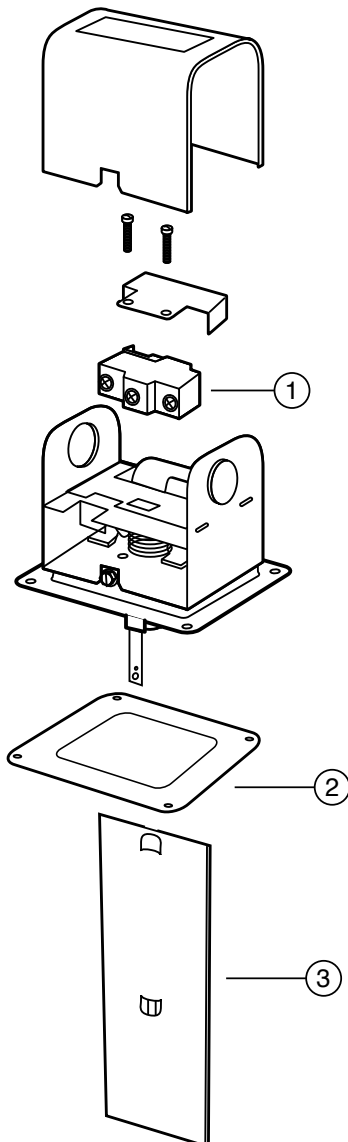
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	307000	FS7-31	SPDT switch	0.3 (.14)
2	301200	AF1-21	Gasket	0.1 (.05)
3	301400	AF2-122	Paddle kit (includes item 2)	0.1 (.05)



**Series AF2**

Note: Paddle kits include screws and washers.



FLOW SWITCHES

## Flow Switches – Air

### Series AF3 Air Flow Switches

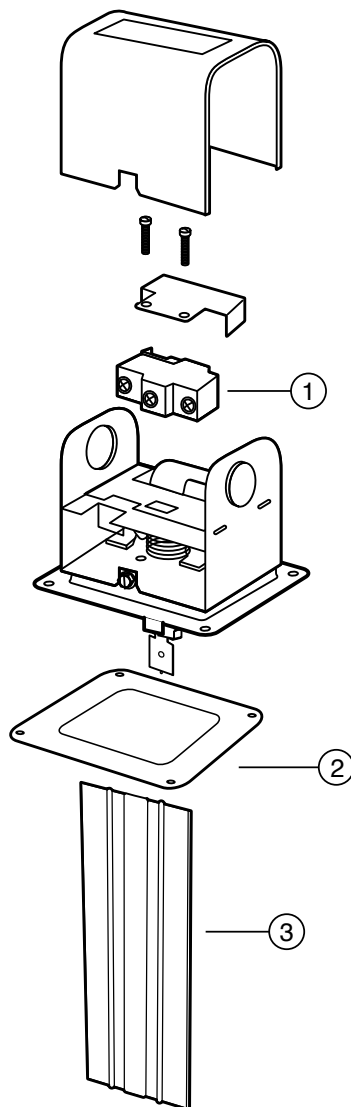
#### Components

Item Number	Part Number	Model Number	Description	Weight lbs. (kg)
1	307000	FS7-31	SPDT switch	0.3 (.14)
2	301200	AF1-21	Gasket	0.1 (.05)
3	301450	AF3-122	Paddle kit (includes item 2)	0.1 (.05)

Note: Paddle kits include screws and washers.



**Series AF3**



## Warranty Policy

McDonnell & Miller warrants for a period of two (2) years from the date of manufacture or one (1) year from date of installation, whichever comes first, that all McDonnell & Miller and all Hoffman Specialty products furnished by it are free from defects in materials and workmanship.

McDonnell & Miller's liability for any breach of this Warranty shall be limited solely to replacement or repair at the sole option of McDonnell & Miller, of any part or parts found to be defective during the Warranty Period providing the Product is properly installed and is being used for its intended purpose. Buyer must notify McDonnell & Miller of any breach of this warranty, within the aforementioned Warranty Period by notifying the McDonnell & Miller representative with responsibility for servicing the Buyer's account. Further, product alleged to be defective must be shipped by buyer to McDonnell & Miller's representative, transportation charges prepaid.

It is expressly agreed that this shall be the sole and exclusive remedy of the buyer, under no circumstances shall McDonnell & Miller be liable for any costs, loss, expense, damages, special damages, incidental damages or consequential damages arising directly or indirectly from the design, manufacture, sale, or use or repair of the product whether based upon warranty, contract, negligence or strict liability. In no event will liability exceed the purchase price of the product.

The warranty and limits of liability contained herein are in lieu of all other warranties and liabilities expressed or implied. All implied warranties or merchantability and fitness for a particular purpose are hereby disclaimed by McDonnell & Miller and excluded from the warranty.

McDonnell & Miller neither assumes nor authorizes any person to assume for it, any other Warranty obligation in connection with the sale of the Product. This Warranty shall not apply to any product or parts of products which (a) have been repaired or altered outside of authorized McDonnell & Miller facilities; (b) have been subject to misuse, negligence or accident; or (c) have been used in a manner contrary to McDonnell & Miller instructions.

In the case of Products not manufactured by McDonnell & Miller, there is no warranty from McDonnell & Miller, but McDonnell & Miller will extend to the buyer any Warranty from McDonnell & Miller's supplier of such products

### Warranty Procedure

Return product to place of purchase or contact our local Manufacturer's Representative.

## Return Goods Policy

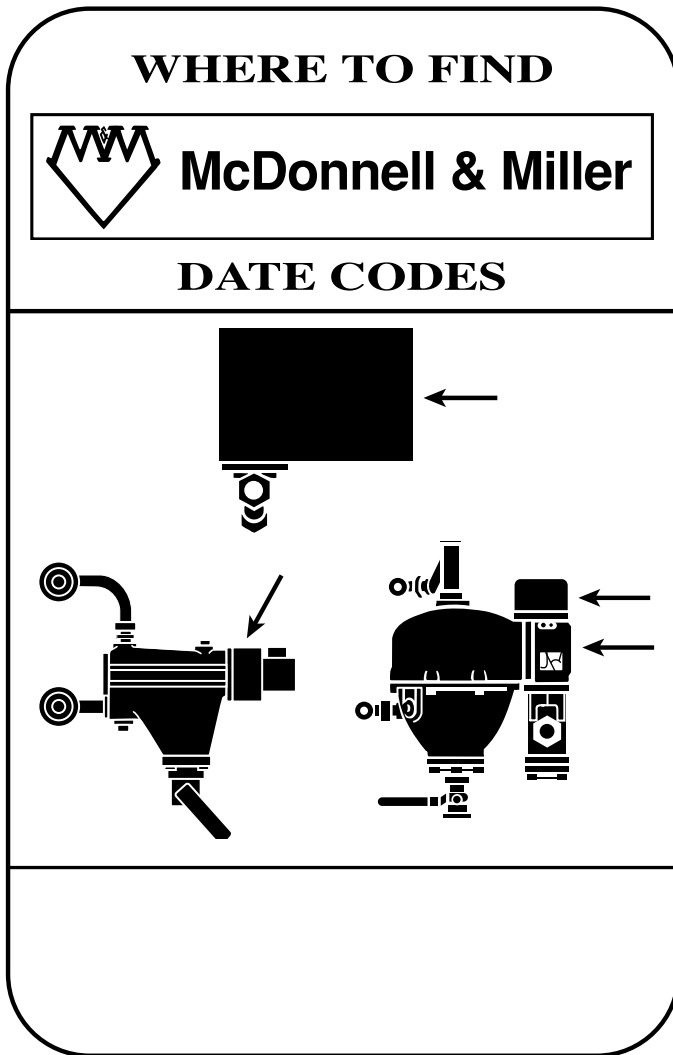
Unused material may be returned for credit only with the written or oral consent of McDonnell & Miller. This consent is in the form of an RGA number issued by McDonnell & Miller, and is subject to the following conditions.


1. Materials must be unused, of current design, and in original cartons.
2. Credit will be issued based upon either a referenced invoice or product date code if an invoice is not referenced. Requestor is to supply copy of the referenced invoice if requested.
3. A 25% restocking charge will apply.
4. Unauthorized material returned to McDonnell & Miller will be either refused or sent back to the sender freight collect by a carrier chosen by McDonnell & Miller.
5. If material is received but subsequently found not to have met the above conditions, it will be sent back to the sender freight collect by a carrier chosen by McDonnell & Miller.
6. Products which are obsolete or made to special order are not returnable.

# Date Codes

McDonnell & Miller controls manufactured after 1972 feature a stamped date code, so you can easily check the life expectancy and recommended replacement intervals. **If a control has no date stamp replace it!**

See chart for more specific information on maintenance and replacement intervals. Below are guides to help you quickly locate and translate the date code on McDonnell & Miller controls.





**McDonnell & Miller**

**Product Date Code Translation**

Month	Year	Example
A = January	97 = 1979	<b>K09</b> Translates to <b>October 1990</b>
B = February	08 = 1980	
	18 = 1981	
C = March	28 = 1982	
	38 = 1983	
D = April	48 = 1984	
	58 = 1985	
E = May	68 = 1986	
	78 = 1987	
F = June	88 = 1988	
	98 = 1989	
G = July	09 = 1990	
H = August	19 = 1991	
J = September	29 = 1992	
	39 = 1993	
K = October	49 = 1994	
	59 = 1995	
L = November	96 = 1996	
	97 = 1997	
	98 = 1998	
	99 = 1999	
	00 = 2000	
M = December	01 = 2001	Beginning 2009 month designator proceeds year and year designator is again reversed.  <b>K21</b> Translates to <b>October 2012</b>
	02 = 2002	
	03 = 2003	
	04 = 2004	
	05 = 2005	
	06 = 2006	
	07 = 2007	
	08 = 2008	
	09 = 2009	
	01 = 2010	
	11 = 2011	
	21 = 2012	
	31 = 2013	
	41 = 2014	
	51 = 2015	
	61 = 2016	
	71 = 2017	
	81 = 2018	
	91 = 2019	

## IMPORTANT

- Product repairs made with non-McDonnell & Miller parts will invalidate our warranty as well as any agency recognitions. Without this recognition the product would no longer be eligible for use in listed end-use equipment.
- Previously used controls should never be installed on a new system. Always install new controls on a new boiler or system.
- A more frequent replacement interval may be necessary based on the condition of the unit at time of inspection. McDonnell & Miller's warranty is one (1) year from date of installation or two (2) years from the date of manufacture.
- Use of water treatment can diminish product life. In such cases, components should be replaced on a more frequent basis.
- Visually inspect the inside of the float chamber during the annual inspection. Partial disassembly may be required.

**Inspect all controls annually, and replace, repair or clean, as needed.** All chambered units are to be blown down per manufacturers instructions and local code requirements. These requirements are to be determined by the local service company, and are based on water quality and system operation variables. Refer to the installation instructions provided with the product for specific assembly and test procedures.

**McDonnell & Miller products must also be maintained in accordance with the following ASME Code.**

## ASME Boiler and Pressure Vessel Code – Section VI Paragraph 7.07 G

**Low-Water Fuel Cut-Off and Water Feeder Maintenance.** Low-water fuel cut-offs and water feeders should be dismantled annually, by qualified personnel, to the extent necessary to insure freedom from obstructions and proper functioning of the working parts., Inspect connecting lines to boiler for accumulation of mud, scale, etc., and clean as required. Examine all visible wiring for brittle or worn insulation and make sure electrical contacts are clean and that they function properly. Give special attention to solder joints on bellows and float when this type of control is used. Check float for evidence of collapse and check mercury bulb (where applicable) for mercury separation or discoloration. Do not attempt to repair mechanisms in the field. Complete replacement

mechanisms, including necessary gaskets and installation instructions are available from the manufacturer. After reassembly, test as per 7.05H.

## Recommended Replacement Intervals

Product	Series	Recommended Maintenance	Recommended Replacement Interval (Maximum)
Low Water Cut-Offs	1575, 150S, 157S, 158S, 159S	Blow down and test daily inspect annually.	15 years
	69, 169, 269, 369, 469	Inspect and test annually.	10 years
	67, 767	Blow down weekly. Inspect and test annually.	10 years
	61, 63, 64, 764	Blow down weekly. Inspect and test annually.	10 years
	42S	Blow down daily. Inspect and test annually.	10 years
	93, 94, 193, 194	Blow down and test daily. Inspect and test annually.	15 years
	750, 751P/752P, PSE-800 RB-122E	Inspect and test annually.	15 years
	RB-24E	Inspect and test annually.	10 years
Water Feeders Inspect Annually	WFE/Uni-Match®	Inspect and test annually.	10 years
	21, 221, 25-A, 51-S, 53, 851-S, 3155	Inspect and test annually.	15 years
	101-A, 47, 51, 247 847, 551-S, 851	Blow down weekly. Inspect and replace cartridge valve annually.	10 years
Liquid Level Controls	PFC	Inspect and test annually. Blow down weekly	15 years
	27-W	Inspect and test annually.	5 years
Replacement Blow Down Valves	14-B	Inspect and test annually.	10 years
Replacement Probes	751P/752P, PSE-800 RB-122E	Self cleaning probes. Inspect 5 years.	10 years
Replacement Head Mechanisms for Commercial/Industrial Applications	25-A, 42S, 51, 51-S, 53, 61, 63, 64, 67, 93 94, 150S, 157S, 193, 194	Inspect and test annually.	5 years
Flow Switches	FS1, FS4-3, FS5, FS43T, FS6, FS7-4, FS8W, AF, FS-250	Inspect and test annually.	10 years









# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

**For more information on how Xylem can help you, go to [www.xylem.com](http://www.xylem.com)**

## The Little Red Schoolhouse® - Training the Industry



Bell & Gossett has long been known for its dedication to training. The "Little Red Schoolhouse®" has graduated over 60,000 students since it was founded in 1954.

Graduates from the "Little Red Schoolhouse" may be found throughout North America, Europe, Africa, Asia and Australia.

For applications to attend these seminars, please contact a Bell & Gossett Representative in your area. They will have the schedule dates for all seminars and will make all the arrangements for you. As a service and a continuing educational source to the HVAC industry, these seminars are offered free of charge. IACET certified CEU credits are awarded for each seminar.

\* The USGBC has approved the technical and instructional quality of the Modern Hydronic Heating Systems - Basic Seminar (15 GBCI CE Hours) and the Large Chilled Water Design Seminar (11 GBCI CE Hours). These courses are approved for GBCI Continuing Education Hours towards LEED Credential Maintenance Programs.



Seminars currently offered are:

- Modern Hydronic System Design - Basic\*
- Modern Hydronic System Design - Advanced\*
- Design & Application of Water Based HVAC Systems
- Large Chilled Water System Design\*
- Pump Service & Maintenance School
- Steam Systems Design & Applications
- Steam System Operation & Maintenance
- Plumbing Systems Design

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