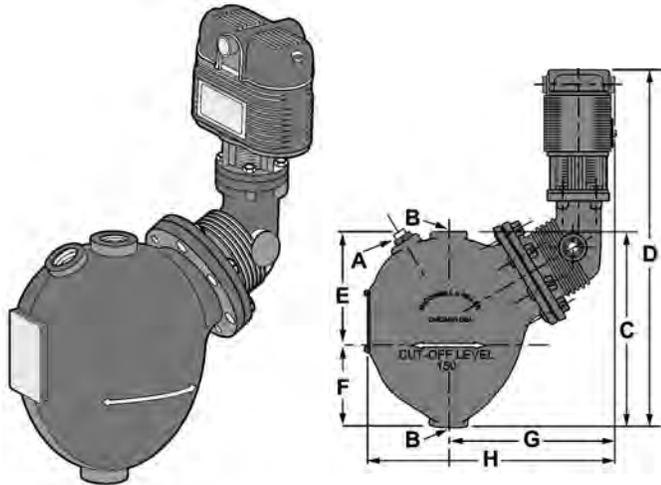


# McDonnell-Miller 93, 94, 193 & 194 Controls

No. 93 and 94 Pictured Below



Rated to 150 psi steam

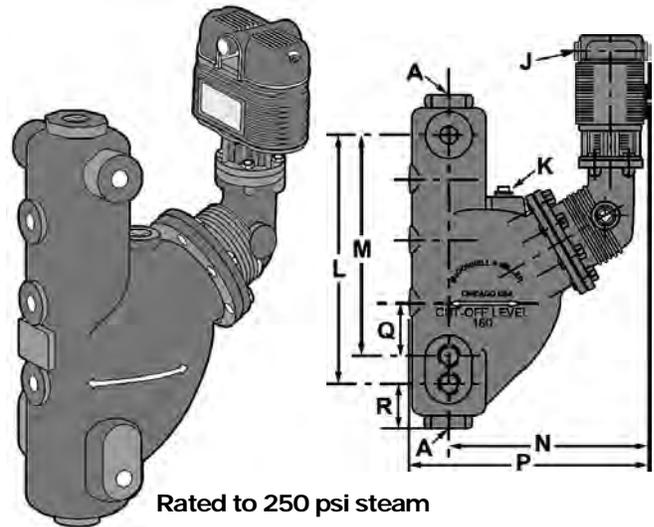
Dimensions for Model 93 and 94							
A	B	C	D	E	F	G	H
3/4 pipe	1 pipe	10-1/16	18 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	5-5/8	8-7/8	12-7/8

## 93 & 193 Cut-Off & Pump Control Features:

■ For high pressure steam boilers of any steaming capacity up to **150 psig**. 1" pipe connections. ■ The standard No. 5 switch has two SPDT switches for operation at two different water levels. Manual re-set switch (5M) after low-water conditions available. ■ The No. 7B switch has one SPDT switch for low water cut-off or alarm; the proportional signal ensures a constant water line. Manual re-set switch (7BM) available. ■ The switch is isolated from steam cavity. ■ Maintains consistent water regardless of pressure. ■ Magnetic repulsion operation eliminates the need for a bellows assembly, ensuring dependable operation at the higher pressures encountered. ■ The 193 series has a built-in water column with tappings for gauge glass and tri-cocks.

Complete Model 93 and 193		
Model No.	Description	Order No.
93	Cut-Off/Controller with No. 5 switch	<b>MH1075</b>
93-M	No. 93 with Manual Reset 5M switch	<b>MH1074</b>
93-7B	No. 93 with No. 7B switch	<b>MH1076</b>
93-7B-M	No. 93 with Manual Reset 7BM switch	<b>MH1077</b>
193	Cut-Off/Controller with No. 5 switch	<b>MH1105K</b>
193-M	No. 193 with Manual Reset 5M switch	<b>MH1105L</b>
193-7B	No. 193 with No. 7B switch	<b>MH1105M</b>
193-7BM	No. 193 with Manual Reset 7BM switch	<b>MH1105X</b>
193A	No. 193 with 1/2" gauge glass tappings	<b>MH1105N</b>
193A-M	No. 193A with Manual Reset	<b>MH1105P</b>
193A-7B	No. 193A with 7B Switch	<b>MH1105R</b>
193A-7BM	No. 193A-7B with Manual Reset	<b>MH1105S</b>
193B	No. 193 with 3/4" gauge glass tappings	<b>MH1105T</b>
193BM	No. 193B with Manual Reset	<b>MH1105U</b>
193B-7B	No. 193B with 7B Switch	<b>MH1105V</b>
193B-7BM	No. 193-7B with Manual Reset	<b>MH1105W</b>

No. 193 and 194 Pictured Below



Rated to 250 psi steam

Dimensions for Model 193 and 194							
A	J	K	L	M	N	P	Q
1 pipe	1/2 pipe	3/4 pipe	12 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	10 <sup>13</sup> / <sub>16</sub>	13	2 <sup>1</sup> / <sub>4</sub>

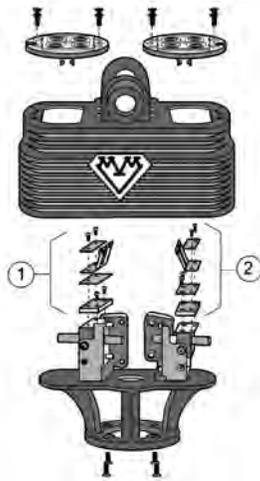
## 94 & 194 Cut-Off & Pump Control Features:

■ For high pressure steam boilers of any steaming capacity up to **250 psig**. 1-1/4" pipe connections. ■ The standard No. 5 switch has two SPDT switches for operation at two different water levels. Manual re-set switch (5M) after low-water conditions available. ■ The No. 7B switch has one SPDT switch for low water cut-off or alarm; the proportional signal ensures a constant water line. Manual re-set switch (7BM) available. ■ The switch is isolated from steam cavity. ■ Maintains consistent water regardless of pressure. ■ Magnetic repulsion operation eliminates the need for a bellows assembly, ensuring dependable operation at the higher pressures encountered. ■ The 194 series has a built-in water column with tappings for gauge glass and tri-cocks.

Complete Model 94 and 194		
Model No.	Description	Order No.
94	Cut-Off/Controller with No. 5 switch	<b>MH1080</b>
94-M	No. 94 with Manual Reset 5M switch	<b>MH1079</b>
94-A	No. 94 with additional 1-1/4" tappings	<b>MH1078</b>
94-AM	No. 94-A with Manual Reset	<b>MH1082</b>
94-7B	No. 94 with No. 7B switch	<b>MH1081</b>
94-7B-M	No. 94 with Manual Reset 7BM switch	<b>MH1081A</b>
194	Cut-Off/Controller with No. 5 switch	<b>MH1106</b>
194-M	No. 194 with Manual Reset 5M switch	<b>MH1106A</b>
194-7B	No. 194 with No. 7B switch	<b>MH1106B</b>
194-7BM	No. 194 with Manual Reset 7BM switch	<b>MH1106C</b>
194-A	No. 194 with 1/2" gauge glass tappings	<b>MH1106D</b>
194A-7B	No. 194-A with 7B switch	<b>MH1106E</b>

Head Assemblies & Parts found on the following page.

# McDonnell-Miller 93, 94, 193 & 194 Repair Parts



No. 5 Replacement Switch



No. 7B Replacement Switch

## Switches & Repair Parts

### No. 5 Switch and Parts

1	Burner switch contact assembly	MI 1320
2	Pump switch contact assembly	MI 1325
No. 5 switch complete, Automatic reset		MI 1008
No. 5M (manual reset) switch complete		MI 1008A

### No. 7B Switch and Parts

1	Burner switch contact assembly	MI 1320
2	Resistor Wire Assembly	MI 1009B
No. 7B switch complete, Automatic Reset		MI 1009
No. 7BM switch complete, Manual Reset		MI 1009A

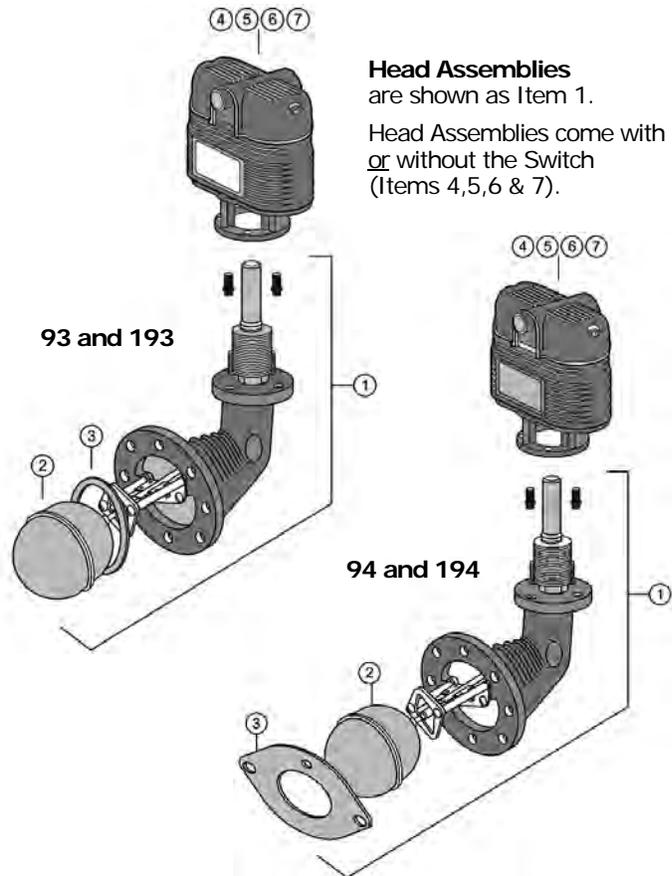
## Repair Parts for 93, 94, 193 & 194

Item	Description	Order No.
<b>Repair Parts for 93 and 193</b>		
1 & 4	Head Assembly, No. 5 switch	MI 1130
1	Head Assembly, <u>less</u> switch	MI 1132
1 & 6	Head Assembly, No. 7B switch	MI 1131
2	Float and gasket (item no. 3)	MI 1336
3	Gasket	MI 1140
4	No. 5 switch assembly	MI 1008
5	No. 5M switch assembly	MI 1008A
6	No. 7B switch assembly	MI 1009
7	No. 7BM switch assembly	MI 1009A
<b>Repair Parts for 94 and 194</b>		
1 & 4	Head Assembly, No. 5 switch	MI 1133
1	Head Assembly, <u>less</u> switch	MI 1133A
1 & 6	Head Assembly, No. 7B switch	MI 1134
2	Float and gasket (item no. 3)	MI 1336
3	Gasket	MI 1125
4	No. 5 switch assembly	MI 1008
5	No. 5M switch assembly	MI 1008A
6	No. 7B switch assembly	MI 1009
7	No. 7BM switch assembly	MI 1009A

**No. 5 and 7B switches** automatically re-set after a low-water condition.

**No. 5M and 7BM** need to be manually re-set after a low-water condition.

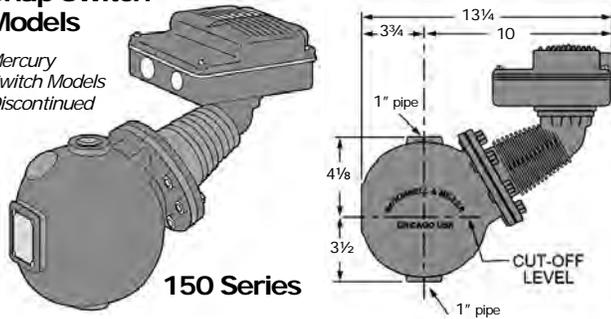
## Repair Parts for 93, 94, 193 and 194



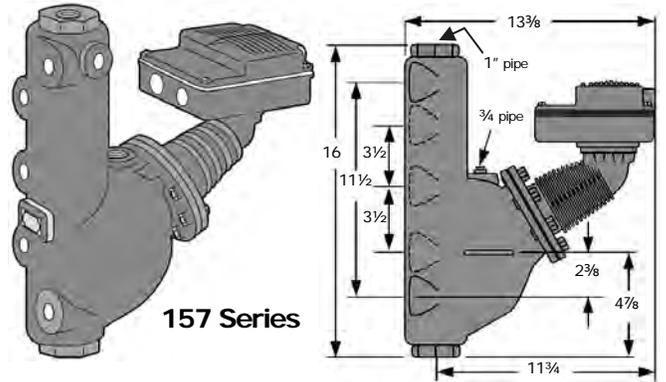
# McDonnell-Miller 150 & 157 Cut-Off/Pump Control

## Snap Switch Models

Mercury Switch Models Discontinued



150 Series



157 Series

## Complete Model 150, 157 and Head Mechanisms

Model No.	Description	Complete Order No.	Head Assembly Only
150S	Cut-Off/Pump Controller	MH1095	MI 1145
150S-M	150S With manual reset	MH1097	MI 1147
150S-MD	150S with Maximum Differential — Prevents nuisance burner shutdown	MH1096	MI 1147A
150S-M-MD	150S-MD with manual reset	MH1094A	MI 1147B
157S	150S with built-in water column	MH1100	MI 1145
157S-M	157S with manual reset	MH1102	MI 1147
157S-MD	157S with Maximum Differential — Prevents nuisance burner shutdown	MH1103	MI 1147A
157S-M-MD	157S-MD with manual reset	MH1099B	MI 1147B
157S-RBP-MD	157S-MD w/integral sensing probes	MH1104	*MI 1147A
158-S	150S with 2 SPDT switches	MH1105D	MI 1148B
158-S-M	150S with manual reset	MH1099B	MI 1148C
159-S	150S with 2 SPST switches	MH1105F	MI 1149B

## Features of 150 and 157 Snap-Switch Models

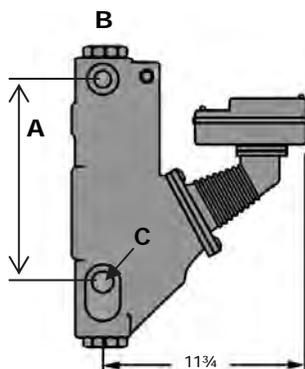
- Mercury switch models are no longer available for sale as of April 7, 2007 due to "hazardous material" classification.
- For steam boilers any steaming capacity in low or high pressures.
- 157 models have a built-in water column.
- Units with Snap Switches are Mercury Free! The snap switch replaces the old, hazardous material mercury switches.
- Units with Manual Reset need to be "manually reset" to an operational condition after a low-water condition shuts down burner.
- Max. steam operating pressure, 150 psi.

## Head Assembly

Convert your old mercury models into Snap-Switch Models. **Simply replace the head mechanism!**



\*Order the integral sensing electrode probes separately on the following page.



## 157R & 157RL side-mount gage glass tappings

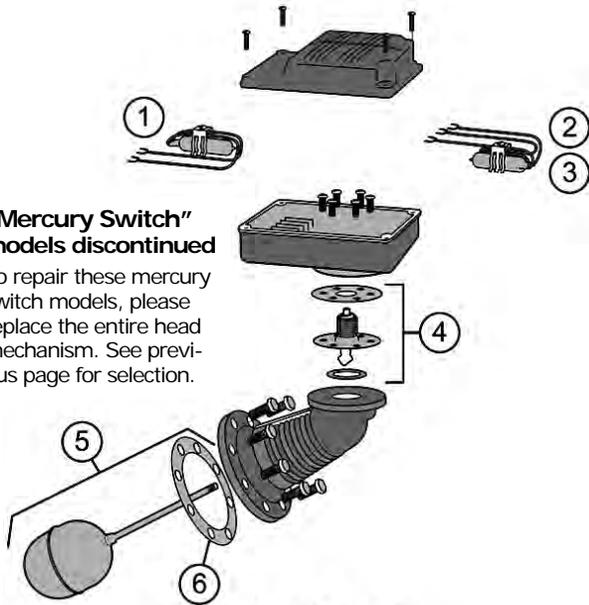
Gauge glass tappings are located on the side of the body on both the 157R and 157RL.

## Tapping Sizes and "A" for Series 157

Product No.	157	157A	157RL
A Dimension	11 1/2"	11 1/2"	12 3/4"
B Equalizing tappings	1" npt	1 1/4" npt	1 1/4" npt
C Gauge glass & tri-cock tappings	1/2" npt	3/4" npt	1/2" npt

# McDonnell-Miller 150 & 157 Repair Parts

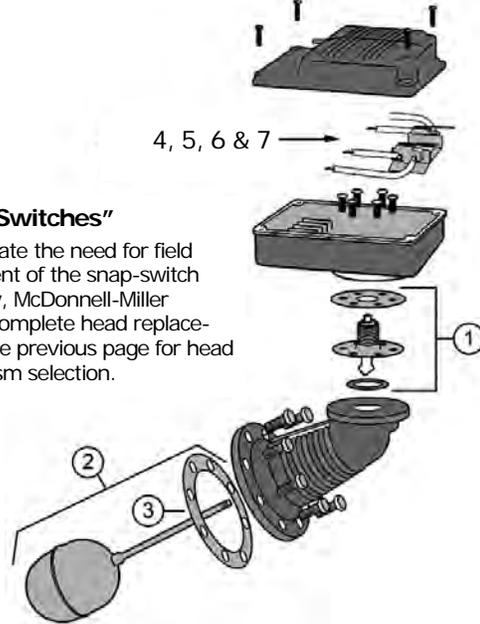
## No. 150 & 157 Repair Parts — Mercury Switches



### “Mercury Switch” models discontinued

To repair these mercury switch models, please replace the entire head mechanism. See previous page for selection.

## No. 150S & 157S Repair Parts — Snap Switches



### “Snap-Switches”

To eliminate the need for field adjustment of the snap-switch assembly, McDonnell-Miller advises complete head replacement. See previous page for head mechanism selection.

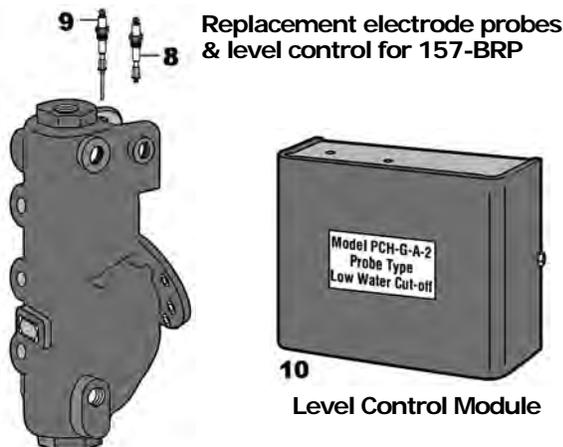
### Repair Parts for 150 & 157 Mercury Switch

Part No.	*Mercury Discontinued 04/07/07	Order No.
1	Mercury switch, 2-wire	No longer available.
2	Mercury switch, 3-wire	
3	Mercury switch, 3-wire, manual reset	
4	Bellows assembly	MI 1360
5	Float & rod assembly (includes gasket)	MI 1355
6	Head Gasket	MI 1140

Head Mechanisms on preceding page

### Repair Electrodes for the 157-BRP

8	Short electrode for 157-RBP only	MI 1176A
9	Long electrode for 157-RBP only	MI 1176
10	Level control module for 157-RBP only	MI 1530



### Repair Parts for 150S & 157S Snap Switch

Part No.	Description	Order No.
1	Bellows assembly	MI 1360
2	Float & rod assembly (includes gasket)	MI 1355
3	Head Gasket (8-hole bolt gasket)	MI 1140
4	Snap switch for 150S	MI 1376
—	Snap switch for 150S-MD <i>Not shown</i>	MI 1377A
5	Snap switch for 150S-M styles	*N/A
6	Snap switch for 158S styles	MI 1378
7	Snap switch for 158S-M styles	310469
—	Snap switch for 159S <i>Not shown</i>	MI 1378B

### Replacement Snap Switches

