

RAYPAK REPLACEMENT KIT INSTRUCTIONS

FLOW SWITCH KIT (#007142F) & FLOW SWITCH
PADDLE KIT (#010026F) – ALL RAYPAK APPLIANCES

IMPORTANT NOTICE

These instructions are primarily intended for use by qualified personnel specifically trained and experienced in the installation of this type of heating equipment and related system components. Installation and service personnel may be required to be licensed in some states. Persons not qualified shall not attempt to install this equipment nor attempt repairs according to these instructions.

DANGER - SHOCK HAZARD

Make sure electrical power to the heater is disconnected to avoid damage to components, potential serious personal injury or death. Make sure the gas to the heater has been shut off.

WARNING

Make sure **Water, Gas & Power** have been turned **OFF** before making any repairs or servicing this equipment.

SCOPE

This kit provides for a field installation of the Raypak IFS01-BN-S2 Flow Switch kit, which is a direct replacement for the OEM flow switch. This instruction also covers the Flow Switch Paddle kit for all Raypak appliances equipped with a flow switch, except the HPPH.

KIT 010026F CONTENTS:		
(1)	"A" Paddle	1-13/16"
(1)	"B" Paddle	2-1/8"
(1)	"C" Paddle	2-3/8"
(1)	"D" Paddle	3-3/8"
(1)	"E" Paddle	2-9/16"
(1)	"F" Paddle	1-7/8"
(1)	"G" Paddle	2-9/16"
(1)	"H" Paddle	2-1/64"
(1)	"J" Paddle	1-53/64"
(1)	"K" Paddle	2-3/4"
(1)	"M" Paddle	3-1/4"
(1)	"N" Paddle	3"
(1)	"P" Paddle	3-3/4"
(1)	"Q" Paddle	4-1/2"
(1)	"R" Paddle	6-17/32"
(1)	Mounting Screw	
(1)	Instructions	
(1)	"U" Paddle	1.83"
(1)	"V" Paddle	2.32"

KIT 007142F CONTENTS:

- (1) Flow Switch (IFS01-BN-S2)
- (1) Outdoor Flow Switch Cover
- (1) **010026F Paddle Kit**



Figure 1 Kit 007142F

LIST OF REQUIRED TOOLS:

1. Phillips screwdriver
2. slotted screwdriver
3. needle nose pliers



Figure 2 Tools

NOTE: The flow switch may be located on either the water connection side, near the inlet/outlet header, or on the opposite end, on the return header.

INSTRUCTIONS:

1. Relieve the pressure in the system by opening the PRV (Pressure Relief Valve)
2. Locate flow switch on the heater.
3. Loosen and remove the cover from the flow switch.
4. Remove the wire terminals connected to the flow switch. (See Fig. 3)
5. Loosen and remove the conduit lock-nut. (See Fig. 3.)
6. Remove wires and conduit completely from the flow switch housing.
7. Rotate the complete flow switch assembly counter-clockwise. (See Fig. 3.)
8. Select the correct size paddle. (See pages 13 or 14)
9. Attach the paddle to the existing IFS01-BN-S2 or new flow switch stem by using the stainless steel screw supplied.
10. Attach suitable Teflon tape or pipe sealant to threads of flow switch, leaving the first two threads bare.
11. Install the new flow switch/paddle and reassemble by reversing the above steps.

NOTE: Outdoor installations must use the outdoor flow switch cover.

CAUTION: The McDonnell & Miller FS4-3-RP paddles and the Raypak IFS01-BN-S2 paddles are not interchangeable.

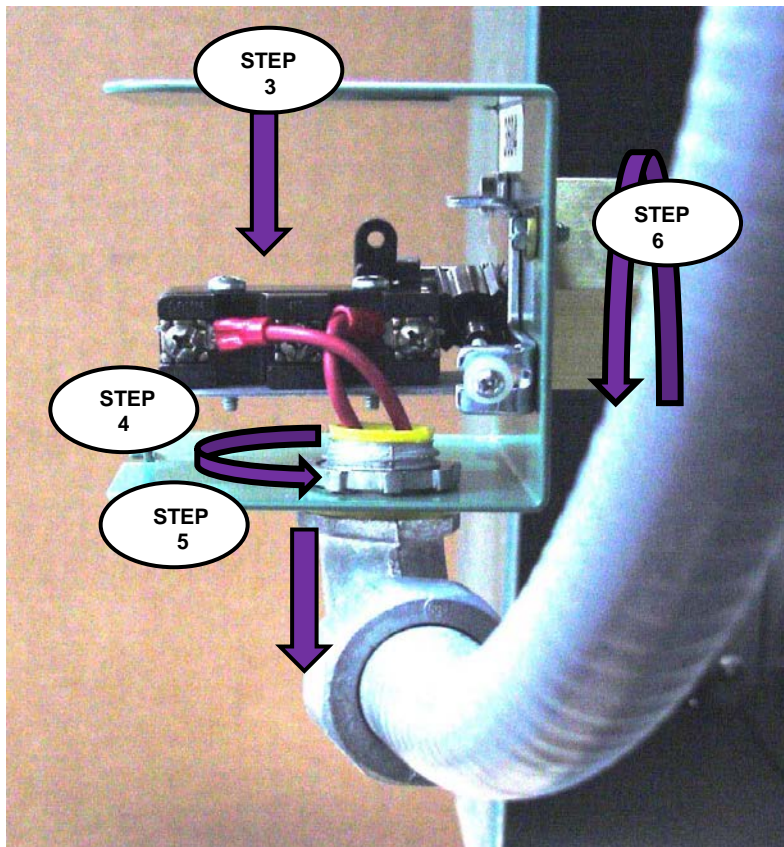
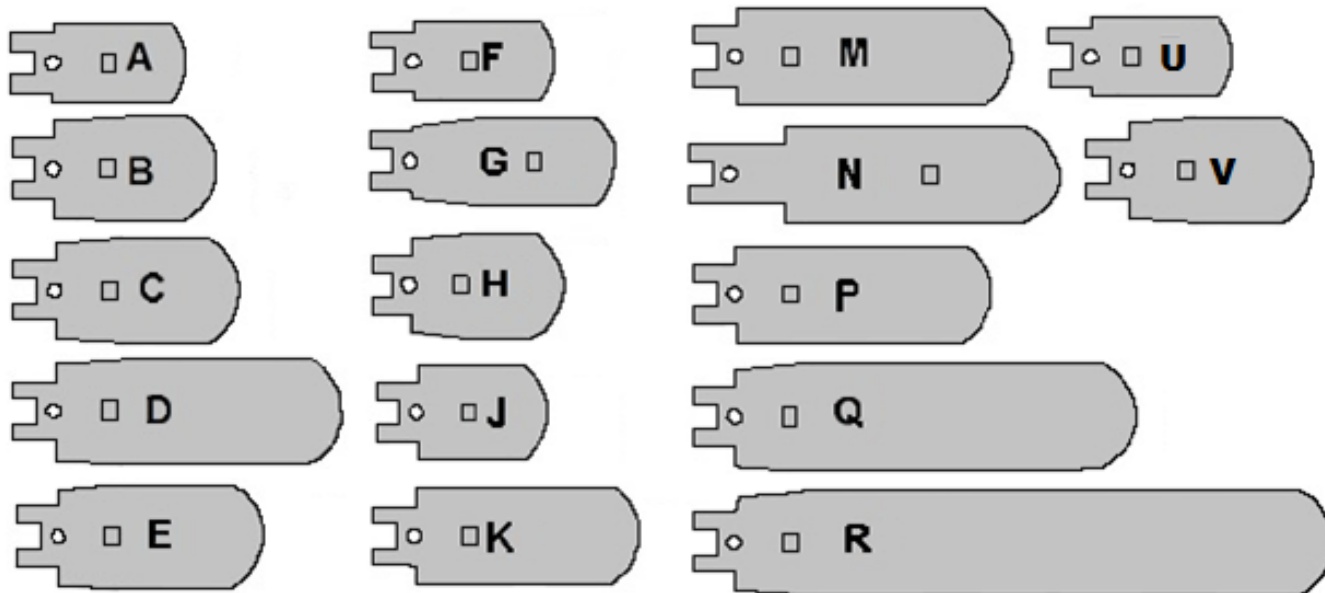


Figure 3 Flow Switch Installation

Table 1

Paddle Designation	Paddle Size
A	1-13/16"
B	2-1/8"
C	2-3/8"
D	3-3/8"
E	2-9/16"
F	1-7/8"
G	2-9/16"
H	2-1/64"
J	1-53/64"
K	2-3/4"
M	3-1/4"
N	3"
P	3-3/4"
Q	4-1/2"
R	6-17/32"
U	1.83"
V	2.32"



RAYTHERM MODELS



Figure 4
Raytherm Boiler Without Pump
Outdoor model with cover



Figure 5 Raytherm Econopak



Raytherm Boiler
Front-Mounted
Flow Switch

Raytherm Models Without Pump
Flow switch must be horizontal as shown.

Figure 6

RAYTHERM MODELS



RAYTHERM Models 514-1826 with Integral Pump

Flow switch must be tilted $25^\circ \pm 5^\circ$
From Horizontal

Figure 7



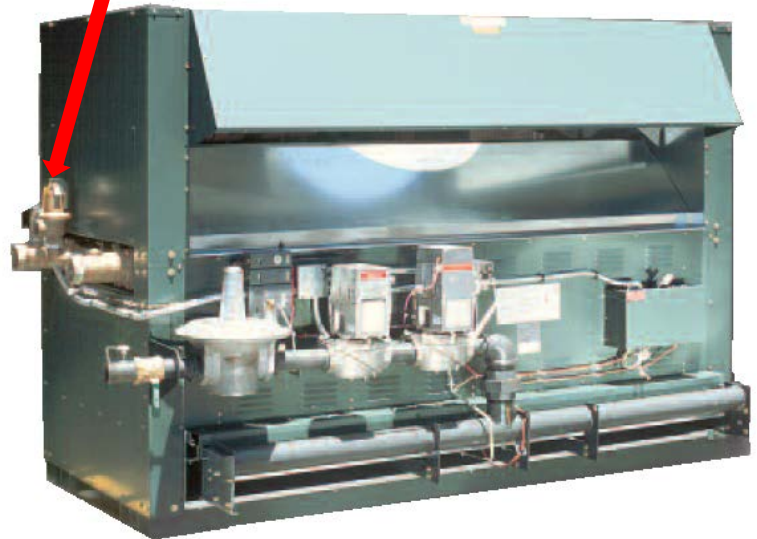
Figure 8



**RAYPAK Professional Pool Heater
Models 268 & 408**

Front-Mounted Flow Switch

Figure 9



RAYTHERM Models 2100-4001

Flow switch must be mounted Perpendicular to
Flow

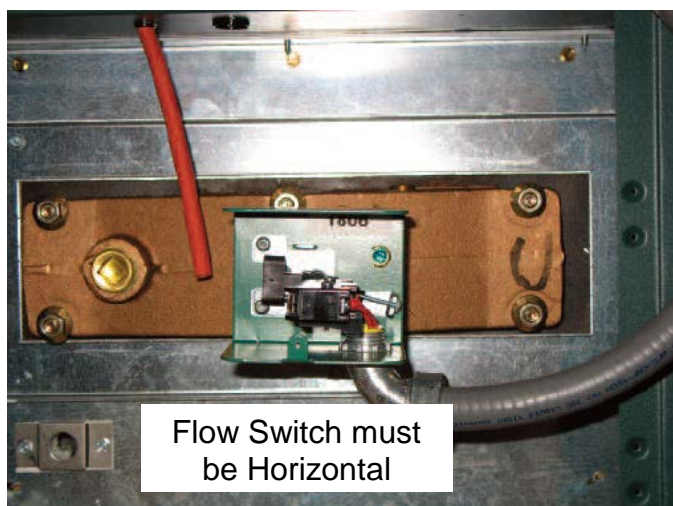
Figure 10

HI-DELTA MODELS 302-902A, B & C 992A, B & C – 2342A, B & C

HI-DELTA Models without pump
Flow Switch must be Horizontal
Figure 11



HI-DELTA MODELS
302A,B & C - 2342A,B & C



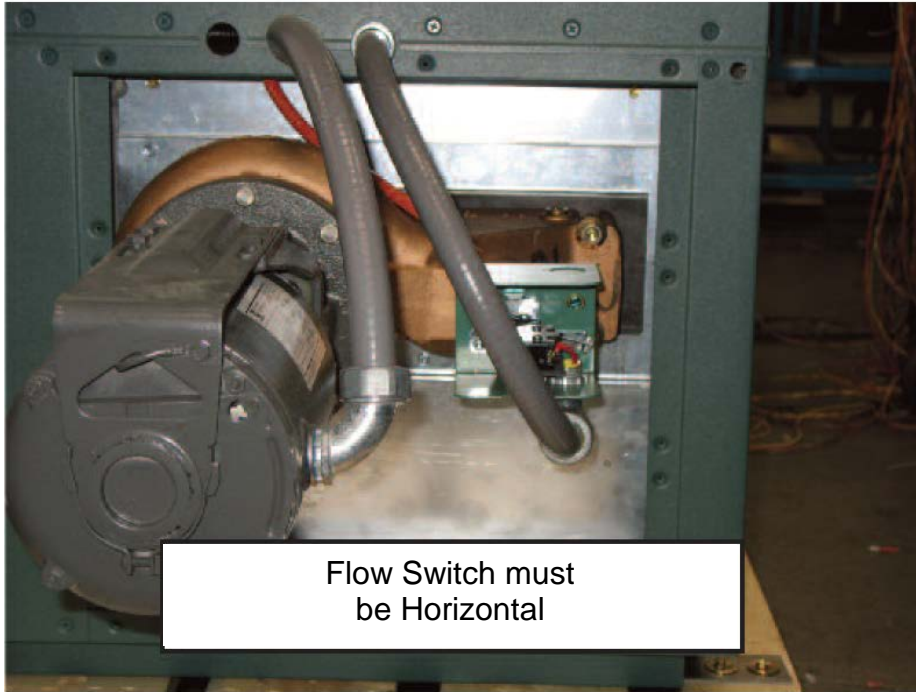
HI-DELTA Models without pump
Flow Switch must be Horizontal



HI-DELTA Models HD101- 401
Figure 13

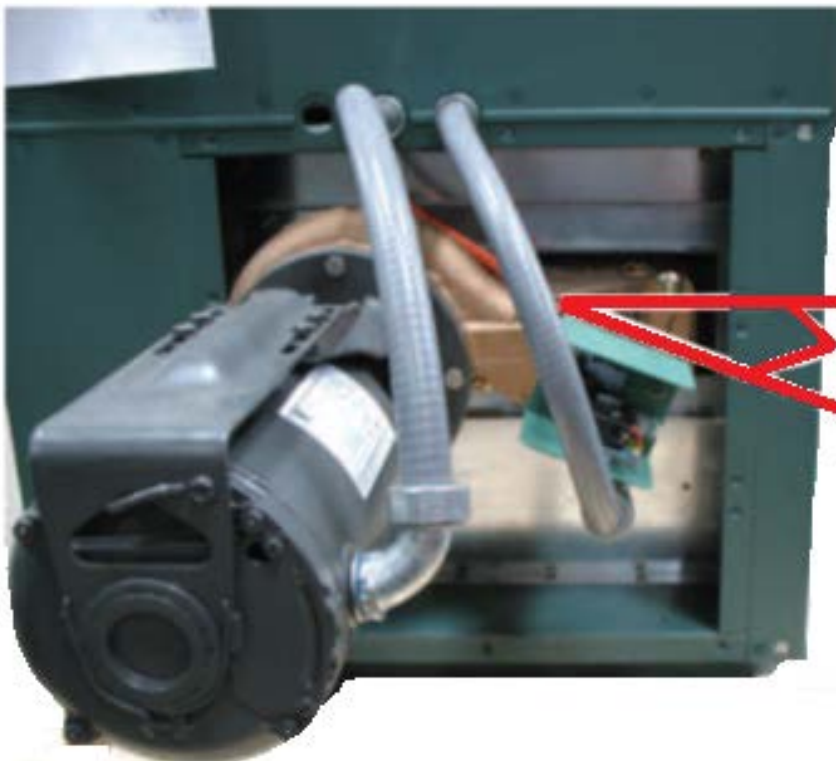
Flow Switch is Mounted Perpendicular to Flow
Figure 12

HI-DELTA MODELS
302-902A,B &C
992A,B & C -2342A,B &C



HI-DELTA Models
302A,B &C – 902A,B&C With Pump
Flow Switch Must be Horizontal

Figure 14



HI-DELTA Models
992A,B &C – 2342A,B &C
with Integral Pump
Flow switch must be tilted 25° ± 5°
From Horizontal

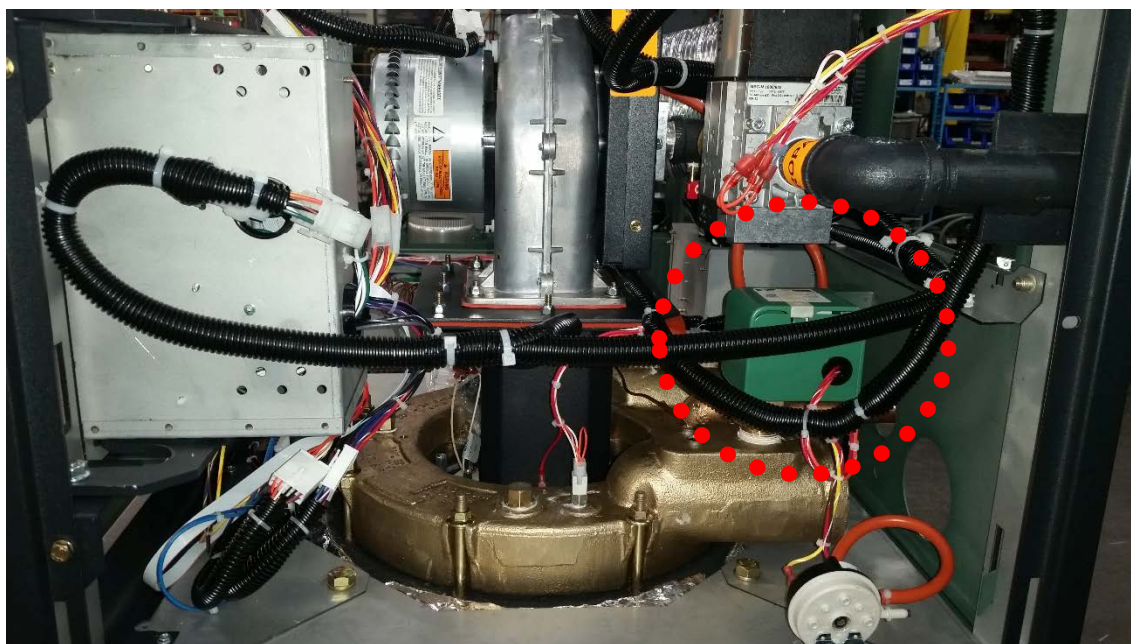
Figure 15



MVB MODELS
503-2004, 503A-2004A
2503-4003
Figure 16



Figure 17



**XVERS MODELS
856-3006
XVERS L MODELS 406L-856L**



FRONT VIEW XVERS

Figure 18



XVERS L

Figure 19



Figure 20

REAR VIEW

CLOSE UP

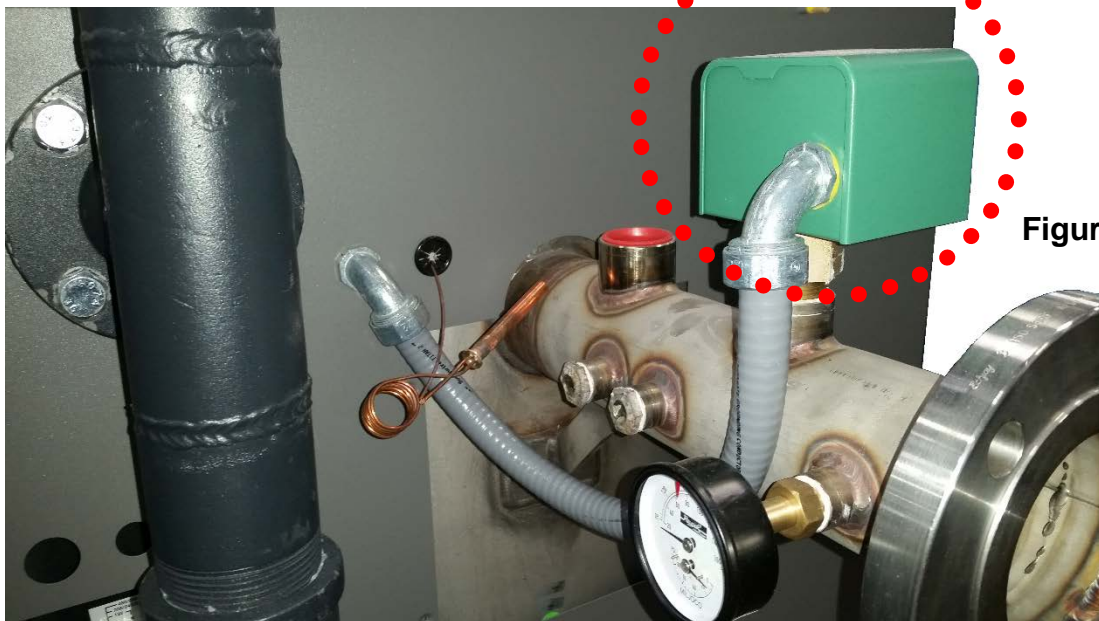


Figure 21

XTHERM MODELS 1005, 1005A, 1505, 1505A, 2005, 2005A, 2505, 3005, 3505 & 4005 AND INDIRECT XTHERM MODELS



Figure 22

NOTE:

There are two separate Flow Switches provided on XTherm Indirect Pool Heaters.

The Flow Switch mounted to the Inlet/Outlet Header uses "A" and "B" paddles. Check the Paddle size chart for the correct Model.

The Flow Switch mounted to the piping uses paddle size "K".

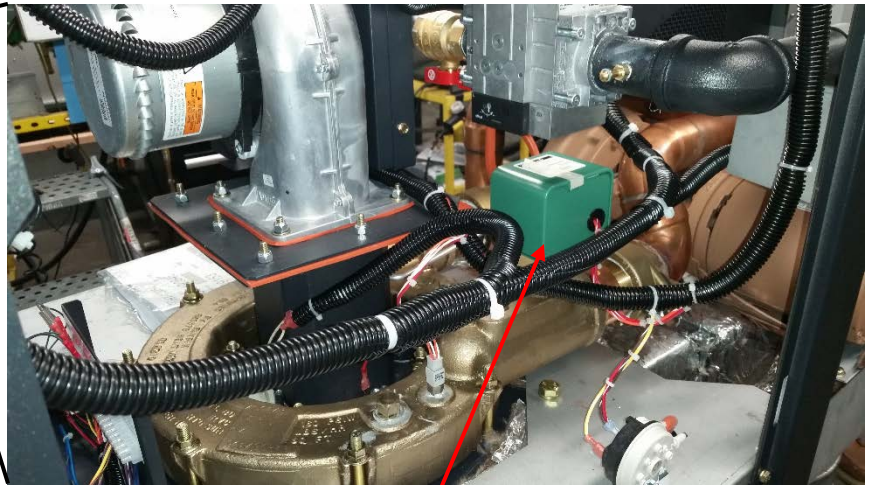


Figure 23

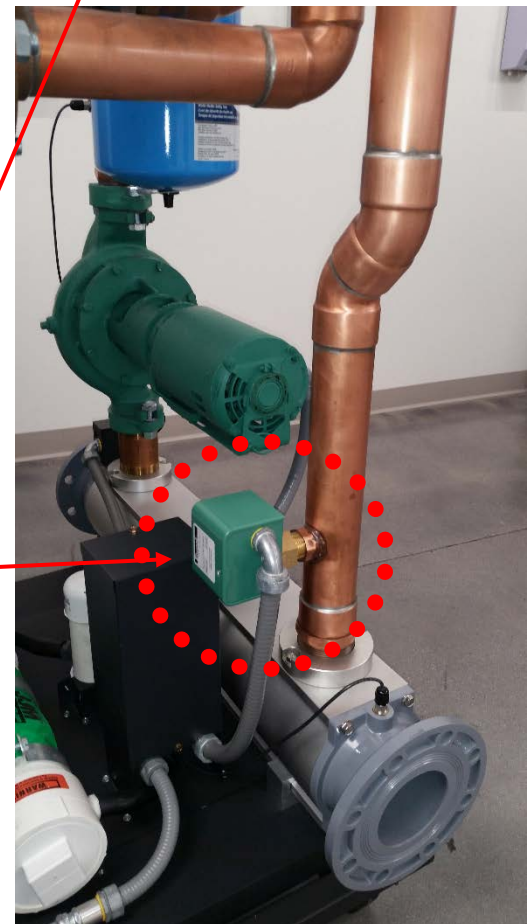


Figure 24

XFYRE MODELS 300A – 850A & XFIIRE MODELS 300B-1000B

XFYRE



Figure 23



Figure 25

XFIIRE



Figure 24

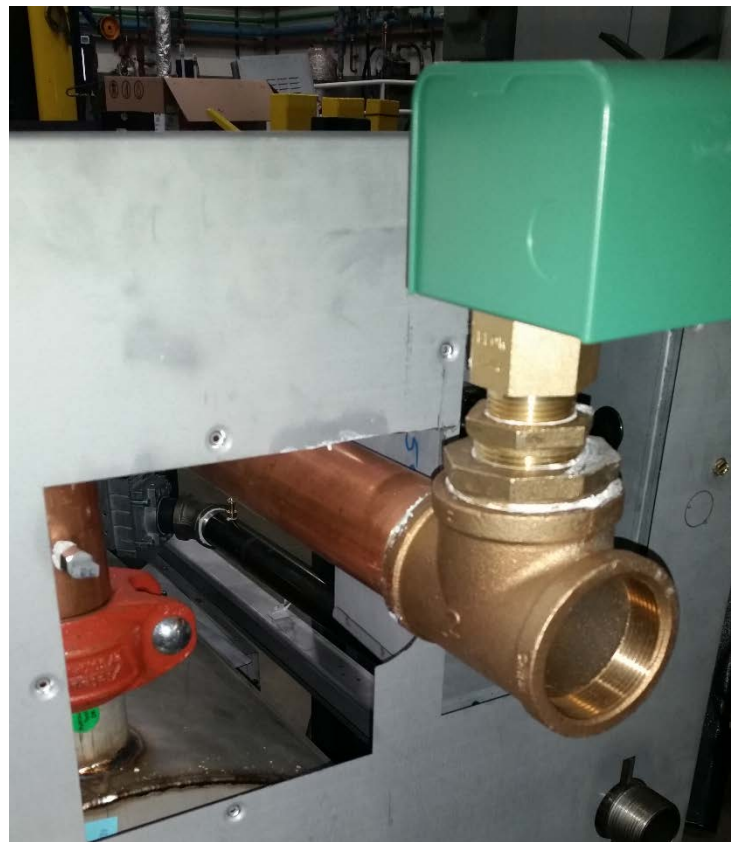


Figure 26

XPAK FT MODELS 088A -398A



Figure 27

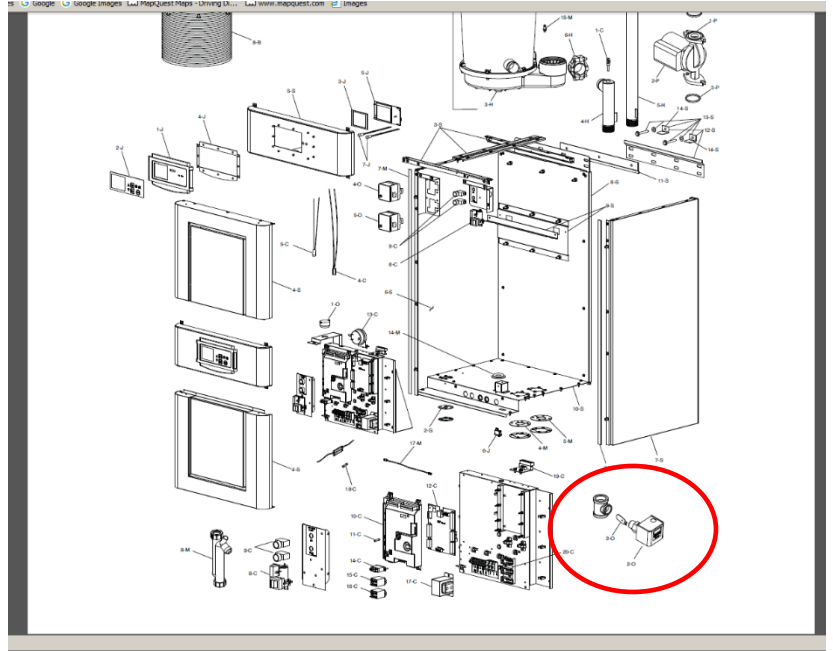


Figure 28

NOTE:

The Flow Switches provided on XPAK FT boilers are shipped loose and must be installed in the system piping.

Check the Paddle size chart for the correct Model.



APPROVED
PADDLE SIZES

241225 Rev 11
Effective 02-22-21
Replaces 7-1-19

NOTE: All volute/pump headers should use the "A" paddle.
* Flow Switch is installed into pipe Tee, factory mounted.

Table 2

Model No.	Product Line	Paddle
088A	XPak FT	J
101	Hi Delta SS	B
108A	XPak FT	J
122*	Hi Delta	B
133*	Atmospheric	B
136*	Atmospheric	B
151	Hi Delta SS	B
162*	Hi Delta	B
181*	Atmospheric	C
182*	Atmospheric	C
183*	Atmospheric	C
198A	XPak FT	H
201	Hi Delta SS	B
202*	Hi Delta	B
203*	Atmospheric	C
242	Hi Delta	B
251	Hi Delta SS	B
259	84 Professional	G
260*	Atmospheric	C
261*	Atmospheric	C
263*	Atmospheric	C
268	Professional ASME (Prior to 12/2019)	F
278A	XPak FT	H
300B	XFIIRE	G
300	XFyre	C
301	Hi Delta SS	B
302*	Hi Delta	D
322*	Hi Delta	B
330*	Atmospheric	C
331*	Atmospheric	C
333*	Atmospheric	C
334	Atmospheric	D
398A	XPak FT	G
399	Delta LTD	D
400	Atmospheric	D
400*	Atmospheric	C
400	XFyre	E
401	Hi Delta SS	A
401*	Atmospheric	C
268	Professional ASME (12/19 onwards)	V
408	Professional ASME (12/19 onwards)	U

Model No.	Product Line	Paddle
400B	XFIIRE	G
402	Hi Delta	D
403*	Atmospheric	C
404	Atmospheric	D
406L	XVers L	G
408	Professional ASME (prior to 12/2019)	A
409	84 Professional	F
410	X94 Professional	A
499	Delta LTD	D
500	ADB	C
500	XFyre	C
500B	XFIIRE	G
502	Hi Delta	D
503	MVB	C
504	MVB	C
506L	XVers L	G
510	Atmospheric	D
514	Atmospheric	D
606L	XVers L	G
624	Atmospheric	D
649	Delta LTD	D
650B	XFIIRE	G
652	Hi Delta	D
700	XFyre	B
724	Atmospheric	D
726L	XVers L	G
749	Delta LTD	D
750	ADB	C
751	ADB	C
752	Hi Delta	D
753	MVB	C
754	MVB	C
800B	XFIIRE	G
824	Atmospheric	D
825	Atmospheric	D
850	XFyre	B
856	XVers	P
856L	Xvers L	G
899	Delta LTD	D
902	Hi Delta	D
1000B	XFIIRE	G

NOTE: Atmospheric units are either Raytherm or Hurricane models.

- 1) Units manufactured up to 1990.
- 2) Units manufactured in 1991 or later.

NOTE : XTherm Indirect Pool Heaters uses paddle "K" for sensing flow in bypass assembly.

POOL HEATERS OR UNITS INSTALLED WITH CHX (CONDENSING HEAT EXCHANGER)

1. When installing a flow switch on models 514 to 824 pool heaters, utilize a 2 x 2 x 1 Tee and a "B" paddle.
2. When installing a flow switch on models 926 to 1223 pool heaters, utilize a 2-1/2 x 2-1/2 x 1 Tee and a "C" paddle.
3. For CHX's installed with parallel and separate pumping, utilize either a 2 x 2 x 1 Tee or a 2-1/2 x 2-1/2 x 1 Tee and a "C" paddle. Keep the selected Tee size the same as the CHX inlet and outlet water connections.

NOTE: All volute/pump headers should use the "A" paddle.
* Flow Switch is installed into pipe Tee, factory mounted.

Table 3

Model No.	Product Line	Paddle	Model No.	Product Line	Paddle
856	XVers	P	1756	XVers	P
962	Atmospheric	C	1758	Atmospheric	C
989	Delta LTD	C	1799	Delta LTD	C
992	Hi Delta	C	1802	Hi Delta	C
1000	ADB	B	1826	Atmospheric	C
1001	ADB	B	1999	Delta LTD	C
1003	MVB	B	2001	Atmospheric	A
1004	MVB	B	2002	Hi Delta	C
1005	XTherm	B	2003	MVB	A
1006	XVers	P	2004	MVB	A
1083	Atmospheric	C	2005	XTherm	A
1104	MVB	B	2006	XVers	P
1125	Atmospheric	C	2069	Delta LTD	C
1178	Atmospheric	C	2072	Hi Delta	C
1223	Atmospheric	C	2100*	Atmospheric	A
1253	MVB	A	2339	Delta LTD	C
1256	XVers	P	2342	Hi Delta	C
1259	Delta LTD	C	2500*	Atmospheric	A
1262	Hi Delta	C	2503	MVB	A
1287	Atmospheric	C	2505	XTherm	A
1336	Atmospheric	C	2506	XVers	P
1414	Atmospheric	C	3000	Atmospheric	A
1468	Atmospheric	C	3001*	Atmospheric	A
1500	ADB	A	3003	MVB	A
1501	ADB	A	3005	XTherm	A
1503	MVB	A	3006	XVers	P
1504	MVB	A	3291	Atmospheric	A
1505	XTherm	A	3500*	Atmospheric	A
1506	XVers	P	3503	MVB	A
1529	Delta LTD	C	3505	XTherm	A
1532	Hi Delta	C	4000	Atmospheric	A
1571	Atmospheric	C	4001*	Atmospheric	A
1631	Atmospheric	C	4003	MVB	A
1753	MVB	A	4005	XTherm	A

NOTE: Atmospheric units are either Raytherm or Hurricane models.

3) Units manufactured up to 1990.

4) Units manufactured in 1991 or later.

NOTE : XTherm Indirect Pool Heaters may use paddles "Q" & "R" optionally for sensing flow in pool water system main pipe that is 4" or 6" respectively.

POOL HEATERS OR UNITS INSTALLED WITH CHX (CONDENSING HEAT EXCHANGER)

2. When installing a flow switch on models 514 to 824 pool heaters, utilize a 2 x 2 x1 Tee and a "B" paddle.
4. When installing a flow switch on models 926 to 1223 pool heaters, utilize a 2-1/2 x 2-1/2 x 1 Tee and a "C" paddle.
5. For CHX's installed with parallel and separate pumping, utilize either a 2 x 2 x 1 Tee or a 2-1/2 x 2-1/2 x 1 Tee and a "C" paddle. Keep the selected Tee size the same as the CHX inlet and outlet water connections.