

HydroTherm[®]

PB SERIES BOILER/BURNER BECKETT OIL BURNER

BECKETT BURNERS WITH “F” STYLE COMBUSTION HEAD

BURNER IS SET TO OPERATE AT 140 P.S.I. FUEL PUMP PRESSURE BY FACTORY.

There are times when increased fuel pump pressure will improve burner reliability.

Lower oil temperature and/or ambient boiler space temperature make it difficult to light flame retention burners. Poor flame retention can also result from cold air, cold oil and cold combustion area environment. The problems noted above can also occur with too much air velocity from high static pressure burners.

Higher pump pressure makes these conditions less troublesome. The fuel is atomized into smaller droplets. The smaller droplets permit the fuel to light easier. Flame speed is increased by smaller droplets. This increases heat in front of the flame retention ring. Consequently, flame retention is improved.

The fuel flow for most simplex nozzles is rated at 100 P.S.I. When pressure is increased over 100 P.S.I., the fuel flow through the nozzle also increases; therefore, if one increased the pump pressure to 140 P.S.I. on a 1.00 gallon per hour nozzle, the actual flow rate will be about 1.18 gallons per hour.

Whenever the pump pressure is increased over 100 P.S.I., the nozzle size will have to be reduced to maintain the same fuel input.

THESE INSTRUCTIONS TO BE LEFT WITH THE BOILER FOR REFERENCE PURPOSES.

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PB SERIES BOILER – BECKETT BURNER

BURNER SPECIFICATIONS

Section Number	Nozzle Size	Nozzle Type	Firing Rate, Pump Pressure @ 140 PSI	Ret. Head	Air Shutter	Air Band	Static Plate	Low Firing Rate Baffle
3	.50	DEL80A	.59	F3	7	0	3 3/8	INSTALLED
3	.65*	DEL80A	.77	F3	9	0	3 3/8	INSTALLED
3, 4	.75	DEL80A	.89	F3	10	1	3 3/8	INSTALLED
4	.85**	DEL80A	1.01	F6	9	0	3 3/8	NONE
4, 5	1.00	DEL80A	1.18	F6	10	1	3 3/8	NONE
5	1.10***	DEL80A	1.30	F6	10	2	3 3/8	NONE
5, 6	1.25	DEL80B	1.48	F12	10	2	3 3/8	NONE
5, 6	1.35	DEL80B	1.60	F12	10	4	3 3/8	NONE
6	1.50****	DEL80B	1.77	F12	10	3	3 3/8	NONE
6	1.65	DEL80B	1.95	F16	10	4	NONE	NONE

* Shipped with 3-section boiler

** Shipped with 4-section boiler

*** Shipped with 5-section boiler

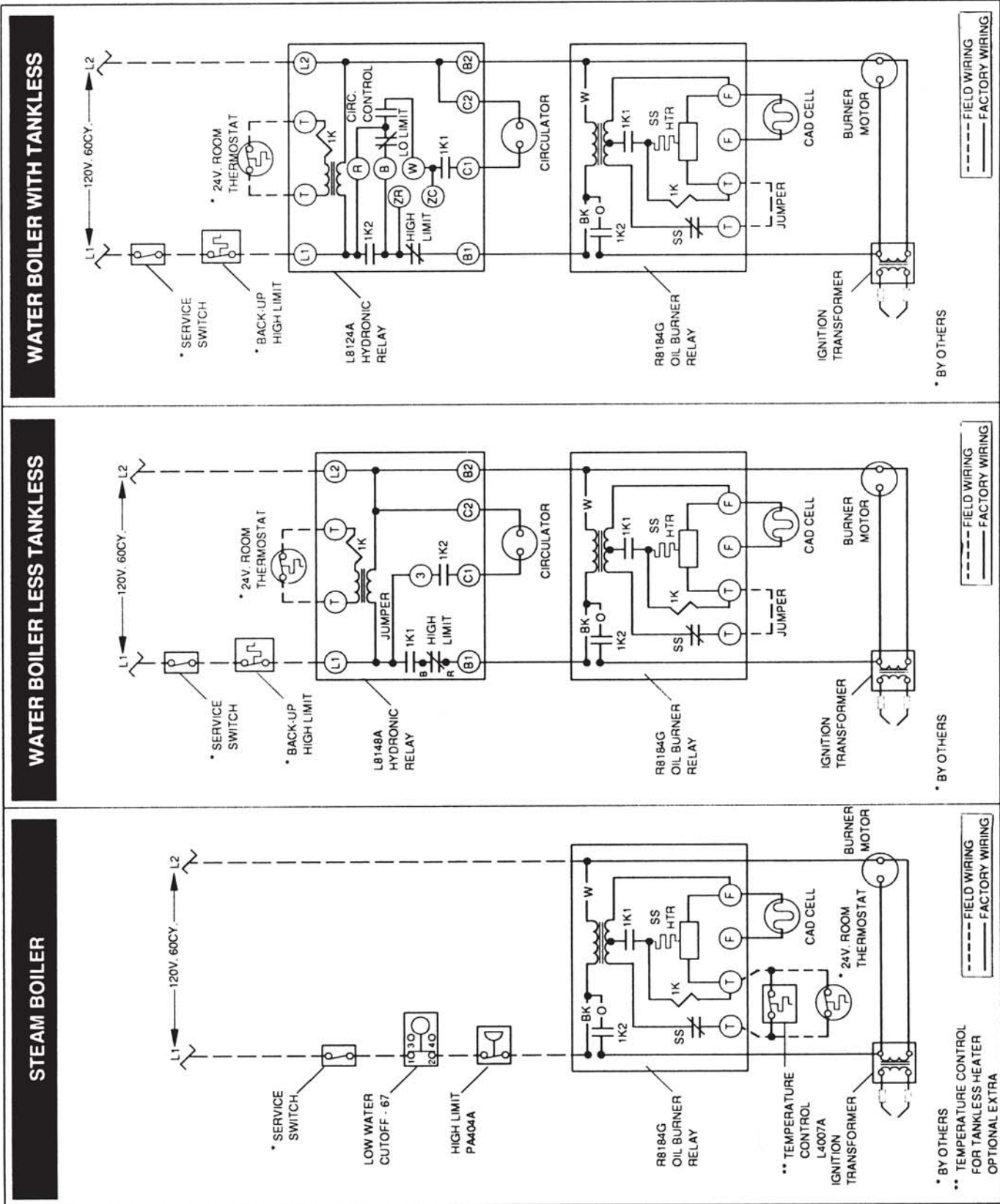
**** Shipped with 6-section boiler

Please note the chart below when sizing nozzles for increased fuel pressure.

GALLONS PUMPED PER HOUR						
Nozzle Size	PUMP PRESSURE (PSI)					
	100	110	120	130	140	150
0.50	0.50	0.52	0.55	0.57	0.59	0.61
0.60	0.60	0.63	0.66	0.68	0.71	0.73
0.65	0.65	0.68	0.71	0.74	0.77	0.80
0.75	0.75	0.79	0.82	0.86	0.89	0.92
0.85	0.85	0.89	0.93	0.97	1.01	1.04
0.90	0.90	0.94	0.99	1.03	1.06	1.10
1.00	1.00	1.05	1.10	1.14	1.18	1.22
1.10	1.10	1.15	1.21	1.25	1.30	1.35
1.20	1.20	1.26	1.31	1.37	1.42	1.47
1.25	1.25	1.31	1.37	1.43	1.48	1.53
1.35	1.35	1.42	1.48	1.54	1.60	1.65
1.50	1.50	1.57	1.64	1.71	1.77	1.84
1.65	1.65	1.73	1.81	1.88	1.95	2.02
1.75	1.75	1.84	1.92	2.00	2.07	2.14
2.00	2.00	2.10	2.19	2.28	2.37	2.45
2.25	2.25	2.36	2.46	2.57	2.66	2.76

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WIRING DIAGRAMS



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BURNERS FIRESIDES MUST BE CLEANED AT LEAST ANNUALLY

The following safety checks must be made at initial start-up and on an annual basis thereafter:

High Limit Operation	_____	Set at	_____
Operating Limit Operation	_____	Set at	_____
Low Water Cutoff	_____		
Backup Low Water Cutoff	_____		
Service Switches	_____		
All additional limits	_____		
Safety Valve Capacity*	_____		
Burner Motor Amps	_____		
Flame Failure	_____		
CO ₂	_____		
Smoke	_____		
Draft in Smokehood	_____		
Draft Overfire**	_____		
Stack Temperature	_____		
Efficiency	_____		
Combustion Makeup Air***	_____		

* Safety valve capacity must be at least equal output of boiler.

** Draft should be adjusted to -0.02 W.C. pressure if possible. Overfire draft should not be over 0.05" positive pressure.

*** There must be at least 15 sq. in. of free area per gallon of oil burned. When louvers are used, double the figure listed above.

In the absence of local codes NFPA 31 "Installation of Oil Burning Equipment" should be followed.

Proper operating and safety instructions must be given to boiler operator.