B100 Biofuel Addendum and Burner Cross Reference Guide

B100 CERTIFIED

For carbon conscious consumers, Biofuel is an alternative to traditional fuel oil. However, these fuels require the technician to set up and monitor the installation to ensure proper operation.

The maximum biodiesel content in traditional #2 type fuel oil as described in CAN/CGSB-3.2 is **5%**. When considering higher blends of biodiesel, careful consideration should be given to cold temperature properties to allow for proper operation of the equipment, especially in areas where colder weather has had historical precedent for the type of fuel selected.

B100 UL Approved Burner Recommendations

Extra filtration (10-Micron) and one pipe installation is preferred with an oil deaerator-during the transition, more frequent filter changes may be necessary since the Biofuel may loosen any potential sludge in the tank.

During burner set-up, the CO_2 should be set at 12.25%-12.5% CO_2 with #2 fuel oil if transitioning to B100. The pump pressure will also need to be reduced 6-8 psi once on B100 to maintain the same GPH flow rate as #2 oil.

Additional information and best practices when using Biofuel blends can be found on the National Oilheat Research Alliance (NORA) website.

Cross Reference Guide - Burner Part Numbers

Table 1 Burner Part Numbers

Column 1	Description	Column 3
#2 Oil-B20		**#2 Oil-B100**
BB-BLR-095	Beckett Oil Burner - OWB/OWT/OSB-3	BB-BLR-095-B1
BB-BLR-120	Beckett Oil Burner - OWB/OWT/OSB-4	BB-BLR-120-B1
BB-BLR-145	Beckett Oil Burner - OWB/OWT/OSB-5	BB-BLR-145-B1
BB-BLR-175	Beckett Oil Burner - OWB/OWT/OSB-6	BB-BLR-175-B1
CB-BLR-095	Carlin Oil Burner - OWB/OWT/OSB-3	CB-BLR-095-B1
CB-BLR-120	Carlin Oil Burner - OWB/OWT/OSB-4	CB-BLR-120-B1
CB-BLR-145	Carlin Oil Burner - OWB/OWT/OSB-5	CB-BLR-145-B1
CB-BLR-175	Carlin Oil Burner - OWB/OWT/OSB-6	CB-BLR-175-B1

Beckett Burners - #2 Oil through B20

Table 2 Setup specifications for Column 1 Beckett Burners in Table 1

Burner Spec.	Boiler Model & Firing Rate	Nozzle Brand	Nozzle Type	Pump Pressure (PSI)	Burner Head	Static Plate	Drawer Setting	Air Tube Combinations	Fan Size	Air Shutter	Air Band
WT701	OWB-3 @ 0.70 GPH	Delavan Hago	0.75 x 70° B 0.75 x 70° ES	100	L1	3-3/8 U	Z=1-3/8	AFG50MBAS	4-1/4	6	0
	OWT-3 @ 0.70 GPH										
	OWB-3 @ 0.95 GPH	Delavan Hago	0.85 x 45° B 0.85 x 45° B	140	L1	3-3/8 U	Z=1-3/8	AFG50MBAS	4-1/4	10	0
	OWT-3 @ 0.95 GPH										
	OSB-3 @ 0.95 GPH										
WT703	OWB-4 @ 1.00 GPH	Delavan Hago	0.85 x 80° B 0.85 x 80° B	140	F-4	2-3/4 U	Z=1-1/8	AF44WH	4-1/4	10	0
	OWT-4 @ 1.00 GPH										
	OWB-4 @ 1.20 GPH	Delavan Hago	1.25 x 80° B 1.25 x 80° B	100	F-4	2-3/4 U	Z=1-1/8	AF44WH	4-1/4	10	0
	OWT-4 @ 1.20 GPH										
	OSB-4 @ 1.20 GPH										
WT703	OWT-5 @ 1.20 GPH	Delavan Hago	1.00 x 70° W 1.00 x 70° B	140	F-6	3-3/8 U	Z=1-1/8	AF44YY	4-1/4	8	0
	OWB-5 @ 1.20 GPH										
	OWT-5 @ 1.45 GPH	Delavan Hago	1.50 x 80° B 1.50 x 80° B	100	F-6	3-3/8 U	Z=1-1/8	AF44YY	4-1/4	10	2.5
	OSB-5 @ 1.45 GPH										
	OWB-5 @ 1.45 GPH										
WT704	OWT-6 @ 1.40 GPH	Delavan Hago	1.20 x 70° W 1.20 x 70° B	140	F-12	2-3/4 U	Z=1-1/8	AF44XO	4-1/4	9	0
	OWB-6 @ 1.40 GPH										
	OWT-6 @ 1.75 GPH	Delavan Hago	1.75 x 80° B 1.75 x 80° SS	100	F-12	2-3/4 U	Z=1-1/8	AF44XO	4-1/4	10	3
	OWB-6 @ 1.75 GPH										
	OSB-6 @ 1.75 GPH										

Carlin Burners - #2 Oil through B20

Table 3 Setup specifications for Column 1 Carlin Burners in Table 1

Boiler Model	Input (GPH)	Burner Model	Nozzle Specifications			Oil Pump Pressure (PSIG)	Head Bar	Air Band Setting
			Size	Type	Manufacturer			
OWB/OWT-3	0.70	EZ-1HP	0.60	70B	Delavan	140	1	30%
OWB/OWT/OSB-3	0.95	EZ-1HP	0.75	60B	Delavan	160	2	40%
OWB/OWT-4	1.00	EZ-1HP	0.85	70B	Delavan	140	3	50%
OWB/OWT/OSB-4	1.20	EZ-1HP	1.00	60B	Delavan	145	3	65%
OWB/OWT-5	1.20	EZ-1HP	1.00	70B	Delavan	140	3	70%
OWB/OWT/OSB-5	1.45	EZ-1HP	1.20	60B	Delavan	150	4	75%
OWB/OWT-6	1.40	EZ-1HP	1.20	60B	Delavan	140	4	75%
OWB/OWT/OSB-6	1.75	EZ-1HP	1.50	70B	Delavan	140	4	45%

Beckett Burners - #2 Oil through B100

Table 4 Setup specifications for Column 3 Beckett Burners in Table 1

Burner Spec.	Boiler Model & Firing Rate	Nozzle Brand	Nozzle Type	Pump Pressure (PSI)	Burner Head	Static Plate	Drawer Setting	Air Tube Combinations	Fan Size	Air Shutter	Air Band
WT801	OWB-3 @ 0.70 GPH*	Delavan	0.55 x 70° B	175	L2	2-3/4	Z=1-3/4	AFG50MPASN	4-1/4	10	0
	OWT-3 @ 0.70 GPH*										
	OWB-3 @ 0.95 GPH	Delavan	0.75 x 70° B	170	L2	2-3/4	Z=1-3/4		4-1/4	10	5
	OWT-3 @ 0.95 GPH										
	OSB-3 @ 0.95 GPH										
WT803	OWB-4 @ 1.00 GPH*	Delavan	0.75 x 80° W	175	F6	3-3/8 R	Z=1-1/8	AF44WN	4-1/4	8.5	0
	OWT-4 @ 1.00 GPH*										
	OWB-4 @ 1.20 GPH	Delavan	1.00 x 80° W	150	F6	3-3/8 R	Z=1-1/8		4-1/4	10	0
	OWT-4 @ 1.20 GPH										
	OSB-4 @ 1.20 GPH										
WT803	OWT-5 @ 1.20 GPH	Delavan	0.85 x 80° W	175	F4	3-3/8	Z=1-1/8	AF44WP	4-1/4	7.5	0
	OWB-5 @ 1.20 GPH										
	OWT-5 @ 1.45 GPH	Delavan	1.20 x 70° B	175	F6	3-3/8	Z=1-1/8	AF44YY	4-1/4	10	1
	OSB-5 @ 1.45 GPH										
	OWB-5 @ 1.45 GPH										
WT804	OWT-6 @ 1.40 GPH	Delavan	1.20 x 60° W	150	V1	2-3/4 M	Z=1-3/4	AFG50MKAS	4-1/4	10	0
	OWB-6 @ 1.40 GPH										
	OWT-6 @ 1.75 GPH	Delavan	1.50 x 60° B	150	V1	2-3/4 M	Z=1-3/4		4-1/4	10	2
	OWB-6 @ 1.75 GPH										
	OSB-6 @ 1.75 GPH										

NOTES:

1) Set up of burner may require replacing the nozzle and adjustments to the burner settings
2) Burner is shipped with lower firing rate nozzle installed

*Low firing rate baffle installed

Carlin Burners - #2 Oil through B100

Table 5 Setup specifications for Column 3 Carlin Burners in Table 1

Boiler Model	Input (GPH)	Burner Model	Nozzle Specifications			Oil Pump Pressure (PSIG)	Head Bar	Air Band Setting
			Size	Type	Manufacturer			
OWB/OWT-3	0.70	EZ-1HP	0.60	70B	Delavan	140	1	25%
OWB/OWT/OSB-3	0.95	EZ-1HP	0.75	60B	Delavan	160	2	47%
OWB/OWT-4	1.00	EZ-1HP	0.85	70B	Delavan	140	3	40%
OWB/OWT/OSB-4	1.20	EZ-1HP	1.00	70B	Delavan	145	3	60%
OWB/OWT-5	1.20	EZ-1HP	1.00	70B	Delavan	140	3	50%
OWB/OWT/OSB-5	1.45	EZ-1HP	1.20	70B	Delavan	145	4	60%
OWB/OWT-6	1.40	EZ-1HP	1.20	60B	Delavan	140	5	60%
OWB/OWT/OSB-6	1.75	EZ-1HP	1.50	70B	Delavan	140	5	35%

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