

B100 Biofuel Addendum and Burner Cross Reference Guide



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.

UL approved burners must used for B100

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 CO₂ should be set at 12.25%-12.5% CO₂ with #2 fuel oil if transitioning to B100. The pump pressure will also need to be reduced 6-8psi once on B100 to maintain the same GPM 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
386-700-424	Carlin Oil Burner - GO-2	521-100-037
386-700-428	Carlin Oil Burner - GO-3	521-100-039
386-700-432	Carlin Oil Burner - GO-4	521-100-041
386-700-436	Carlin Oil Burner - GO-5	521-100-043
386-700-440	Carlin Oil Burner - GO-6	521-100-045
521-100-021	Carlin Oil Burner - UO3-5	521-100-033
386-700-392	Beckett Oil Burner - GO-2	521-100-038
386-700-396	Beckett Oil Burner - GO-3	521-100-040
386-700-400	Beckett Oil Burner - GO-4	521-100-042
386-700-404	Beckett Oil Burner - GO-5	521-100-044
386-700-408	Beckett Oil Burner - GO-6	521-100-046
386-700-412	Beckett Oil Burner - GO-7	521-100-047
386-700-416	Beckett Oil Burner - GO-8	521-100-048
386-700-420	Beckett Oil Burner - GO-9	521-100-049
521-100-030	Beckett AFG Oil Burner - UO-3	521-100-034
521-100-031	Beckett AFG Oil Burner - UO-4	521-100-035
521-100-032	Beckett AFG Oil Burner - UO-5	521-100-036
521-100-020	Beckett Oil Burner w/2stage pump - GO-2	521-100-057
521-100-013	Beckett Oil Burner w/2stage pump - GO-3	521-100-050
521-100-014	Beckett Oil Burnerw/2stage pump - GO-4	521-100-051
521-100-015	Beckett Oil Burner w/2stage pump - GO-5	521-100-052
521-100-016	Beckett Oil Burner w/2stage pump - GO-6	521-100-053
521-100-017	Beckett Oil Burnerw/2stage pump - GO-7	521-100-054
521-100-018	Beckett Oil Burner w/2stage pump - GO-8	521-100-055
521-100-019	Beckett Oil Burnerw/2stage pump - GO-9	521-100-056



Beckett Burners - #2 Oil through B20

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

Boiler Model	Burner Spec. #	Input / GPH	Nozzle GPH/Type					Pump Pressure (PSIG)	Burner Head Type	Static Plate	Drawer Setting	Air Tube Combinations	Blower Size (*)	Starting Air Shutter Position	Starting Air Band Position
			Delavan	Hago	Monarch	Steinen	Danfoss								
GO-2	WL-6202	0.70	0.75 x 70° B	0.75 x 70° ES	0.75 x 70° AR	0.75 x 70° S	N/A	100	L1	3-3/8 U	1-3/8	AFG50MBAS	4-1/4	6	0
GO-3R	WL-7503	0.80	0.65 x 60W	0.65 x 60B	N/A	N/A	N/A	150	L1	3-3/8 U	1-3/8	AFG50MBAS	4-1/4	8	1
GO-3		0.95	0.85 x 45° B	0.85 x 45° B	N/A	N/A	0.85 x 45°AS	140	L1	3-3/8 U	1-3/8	AFG50MBAS	4-1/4	10	0
GO-4R	WL-7504	1.00	0.85 x 80B	0.85 x 80B	N/A	N/A	N/A	140	F-4	2-3/4 U	1-1/8	AF44WH	4-1/4	10	0
GO-4		1.20	1.25 x 80° B	1.25 x 80° B	N/A	N/A	1.25 x 80°AS	100	F-4	2-3/4 U	1-1/8	AF44WH	4-1/4	10	0
GO-5R	WL-7505	1.20	1.00 x 70W	1.00 x 70B	N/A	N/A	N/A	140	F-6	3-3/8 U	1-1/8	AF44YY	4-1/4	8	0
GO-5		1.45	1.50 x 80° B	1.50 x 80° B	N/A	N/A	1.50 x 80°AS	100	F-6	3-3/8 U	1-1/8	AF44YY	4-1/4	10	2.5
GO-6R	WL-7506	1.40	1.20 x 70W	1.20 x 70B	N/A	N/A	N/A	140	F-12	2-3/4 U	1-1/8	AF44XO	4-1/4	9	0
GO-6		1.75	1.75 x 80° B	1.75 x 80° SS	1.75 x 80° R	1.75 x 80° S	N/A	100	F-12	2-3/4 U	1-1/8	AF44XO	4-1/4	10	3
GO-7R	WL-7507	1.60	1.35 x 60B	1.35 x 60B	N/A	N/A	N/A	140	V1	2-3/4 M	3	AFG50MKAS	4-1/4	7	2
GO-7		2.00	2.00 x 60° B	2.00 x 60° B	N/A	N/A	2.00 x 70°AS	100	V1	2-3/4 M	4	AFG50MKAS	4-1/4	10	4
GO-8	WL-6208	2.30	2.25 x 60° B	2.25 x 45° P	2.25 x 60°PLP	N/A	N/A	100	V1	2-3/4 M	5	AFG50MKAS	4-1/4	10	5
GO-9	WL-6209	2.55	2.50 x 60° B	2.50 x 60° P	N/A	N/A	2.50 x 45°AS	100	V1	2-3/4 M	5	AFG50MKAS	4-1/4	10	8

Boiler Model	Burner Spec. #	Firing Rate (GPH)	Air Tube Combinations	Burner Head Type	Insertion	Primary Nozzle	Alternate Nozzle	Fuel Pump Pressure (PSIG)
UO-3 CV	WL-6603 (Note 1)	0.80	AFG70MPASN	N/A	1-3/4"	0.65 x 60° B Delavan	0.65 x 60° B Hago	140
UO-3 CV	WL6603	1.00	AFG70MPASN	N/A	1-3/4"	0.85 x 60° B Delavan	0.85 x 60° B Hago	140
UO-4 CV	WL6604	1.20	AFG70MDASN	0	1-3/4"	1.00 x 60° B Delavan	1.00 x 60° B Hago	140
UO-5 CV	WL6605	1.40	AFG70MDASN	0	1-3/4"	1.10 x 60° B Delavan	1.10 x 60° B Hago	160

Note 1: Requires the 5880 Low Firing Rate Baffle to be installed



Beckett Burners - #2 Oil through B100

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

Boiler Model	Burner Spec. #	Input / GPH	Nozzle Brand	Nozzle GPH	Pump Pressure (PSIG)	Burner Head Type	Static Plate	Drawer Setting	Air Tube Combinations	Blower Size (*)	Starting Air Shutter Position	Starting Air Band Position
GO-2	WL7602	0.70	Delavan	0.55 x 70° B	175	L2	2-3/4	1-3/4	AFG50MPASN	4-1/4	10	0
GO-3R	WL-7603	0.80	Delavan	0.60 x 80W	175	F3	3-3/8 R	1-1/8	AF44BN	4-1/4	10	1
GO-3		0.95	Delavan	0.75 x 80W	175	F3	3-3/8 R	1-1/8	AF44BN	4-1/4	9	0
GO-4R	WL-7604	1.00	Delavan	0.75 x 80W	175	F6	3-3/8 R	1-1/8	AF44WN	4-1/4	8.5	0
GO-4		1.20	Delavan	1.00 x 80W	150	F6	3-3/8 R	1-1/8	AF44WN	4-1/4	10	0
GO-5R	WL-7605	1.20	Delavan	0.85 x 80W	175	F4	3-3/8	1-1/8	AF44WP	4-1/4	7.5	0
GO-5		1.45	Delavan	1.20 x 70° B	175	F6	3-3/8	1-1/8	AF44YY	4-1/4	10	1
GO-6R	WL-7606	1.40	Delavan	1.20 x 60° W	165	V1	2-3/4 M	3	AFG50MKAS	4-1/4	10	0.5
GO-6		1.75	Delavan	1.50 x 60° B	150	V1	2-3/4 M	4	AFG50MKAS	4-1/4	10	2
GO-7R	WL-7607	1.60	Delavan	1.25 x 60° B	170	V1	2-3/4 M	3	AFG50MKAS	4-1/4	10	2
GO-7		2.00	Delavan	1.50 x 60° B	175	V1	2-3/4 M	4	AFG50MKAS	4-1/4	10	4
GO-8	WL7808	2.30	Delavan	1.75 x 60° B	175	V1	LESS	4	AFG50MLASN	4-3/4	10	0
GO-9	WL7809	2.55	Delavan	2.00 x 60° B	150	V1	LESS	6	AFG50MLASN	4-3/4	10	2.5

Boiler Model	Burner Spec. #	Firing Rate (GPH)	Air Tube Combinations	Burner Head Type	Insertion	Primary Nozzle	Alternate Nozzle	Fuel Pump Pressure (PSIG)
UO-3 CV	WL7703 (Note 1)	0.80	AFG70MPASN	N/A	1-3/4"	0.60 x 60° B Delavan	0.60 x 60° A Hago	180
UO-3 CV	WL7703	1.00	AFG70MPASN	N/A	1-3/4"	0.75 x 60° B Delavan	0.75 x 60° W Hago	180
UO-4 CV	WL7704	1.20	AFG70MPASN	0	1-3/4"	0.90 x 70° B Delavan	0.90 x 70° W Hago	180
UO-5 CV	WL7705	1.40	AFG70MPASN	2	1-3/4"	1.10 x 60° W Delavan	1.10 x 60° B Hago	180

Note 1: Requires the 5880 Low Firing Rate Baffle to be installed



Carlin Burners - #2 Oil through B20

Table 4 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			
GO-2	0.70	EZ-1HP	0.60	70B	Delavan	140	1	30%
GO-3R	0.80	EZ-1HP	0.65	70A	Delavan	140	1	40%
GO-3	0.95	EZ-1HP	0.75	60B	Delavan	160	2	40%
GO-4R	1.00	EZ-1HP	0.85	70B	Delavan	140	3	50%
GO-4	1.20	EZ-1HP	1.00	60B	Delavan	145	3	65%
GO-5R	1.20	EZ-1HP	1.00	70B	Delavan	140	3	70%
GO-5	1.45	EZ-1HP	1.20	60B	Delavan	150	4	75%
GO-6R	1.40	EZ-1HP	1.20	60B	Delavan	140	4	75%
GO-6	1.75	EZ-1HP	1.50	70B	Delavan	140	4	45%

Boiler Model	Input (GPH)	Burner Model	Air Tube & Flange		Air Band	Nozzle Specifications			Oil Pump Pressure (PSIG)	Air Shutter	Head Position "Dimension A"	Air Band Setting
			Part No.	UTL"		Size	Type	Manufacturer				
UO-3	0.80	EZ-1HPW	50688	3-1/8	EZ-1HPW	0.65	60A	Delavan	150	Blank	1	45%
UO-3	1.00	EZ-1HPW	50688	3-1/8	EZ-1HPW	0.85	60A	Delavan	150	Blank	3	60%
UO-4	1.20	EZ-1HPW	50688	3-1/8	EZ-1HPW	1.00	60B	Hago	150	Blank	3	75%
UO-5	1.40	EZ-1HPW	50688	3-1/8	EZ-1HPW	1.10	60B	Hago	165	Blank	4	80%



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			
GO-2	0.70	EZ-1HP	0.60	70B	Delavan	140	1	25%
GO-3L	0.95	EZ-1HP	0.75	70B	Delavan	160	2	47
GO-3R	0.80	EZ-1HP	0.65	70A	Delavan	150	2	25%
GO-3	0.95	EZ-1HP	0.75	60B	Delavan	160	2	35%
GO-4R	1.00	EZ-1HP	0.85	70B	Delavan	140	3	40%
GO-4	1.20	EZ-1HP	1.00	70B	Delavan	145	3	60%
GO-5R	1.20	EZ-1HP	1.00	70B	Delavan	140	3	50%
GO-5	1.45	EZ-1HP	1.20	70B	Delavan	145	4	60%
GO-6R	1.40	EZ-1HP	1.20	60B	Delavan	140	5	60%
GO-6	1.75	EZ-1HP	1.50	70B	Delavan	140	5	35%

Boiler Model	Input (GPH)	Burner Model	Air Tube & Flange		Air Band	Nozzle Specifications			Oil Pump Pressure (PSIG)	Air Shutter	Head Position "Dimension A"	Air Band Setting
			Part No.	UTL"		Size	Type	Manufacturer				
UO-3RE	0.80	EZ-LF	99780	1-7/8	EZ-1	0.60	70A	Delavan	180	Blank	2	45%
UO-3E	1.00	EZ-LF	99780	1-7/8	EZ-1	0.85	70A	Delavan	150	Blank	3	60%
UO-4E	1.20	EZ-LF	99780	1-7/8	EZ-1	1.00	70B	Delavan	145	Blank	3	80%
UO-5E	1.40	EZ-LF	99780	1-7/8	EZ-1	1.10	70B	Delavan	165	Blank	4	85%



