

OIL FIRED WARM AIR FURNACES

INSTALLATION, OPERATION & MAINTENANCE MANUAL

LOW BOY MODEL LBO - WLBO 03LD-NORDYNE
HIGH BOY MODEL HBO - WHBO (N/A)
COUNTER FLOW MODEL CFO - WCFO (N/A)

BELT DRIVE
DIRECT DRIVE

CAUTION

CAUTION: Ventilate House while operating furnace for the first time.

Read all instructions carefully before starting the installation

FOR YOUR SAFETY

Do not store or use gasoline or other Flammable vapors
or liquids in the vicinity of this or any other appliance

ALL INSTALLATIONS MUST MEET ALL LOCAL, PROVINCIAL AND
STATE CODES WHICH MAY DIFFER FROM THIS MANUAL

WARNING: IMPROPER INSTALLATION, ADJUSTMENT,
ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE INJURY
OR PROPERTY DAMAGE. FOR ASSISTANCE OR ADDITIONAL
INFORMATION CONSULT A QUALIFIED HEATING PROFESSIONAL

SAVE THIS MANUAL FOR FUTURE REFERENCE

Metzger Machine Corporation

REV. B

NOTICE TO THE **INSTALLER**

INSTALLATION OF THIS OIL FURNACE AND OIL-BURNER MUST BE DONE BY A QUALIFIED INSTALLER IN ACCORDANCE WITH REGULATIONS OF THE NATIONAL FIRE PROTECTION STANDARD FOR OIL-BURNING EQUIPMENT, NFPA NO.31, AND IN COMPLETE ACCORDANCE WITH ALL LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.

A QUALIFIED INSTALLER IS AN INDIVIDUAL OR AGENCY WHO IS RESPONSIBLE FOR THE INSTALLATION AND ADJUSTMENT OF THE EQUIPMENT AND WHO IS PROPERLY **LICENSED** AND **EXPERIENCED** TO INSTALL OIL-BURNING EQUIPMENT IN ACCORDANCE WITH ALL CODES AND ORDINANCES.

A properly designed chimney of adequate size and height and adequate combustion air supply are essentials for the proper operation of any heating plant.

When installing the furnace and/or burner be sure to provide adequate space for easy service and maintenance.

RE-CHECK ALIGNMENT OF THE COMBUSTION CHAMBER AND OIL BURNER BEFORE FIRING AS IT IS POSSIBLE FOR THE COMBUSTION CHAMBER TO SHIFT IF THERE HAS BEEN ROUGH HANDLING WHILE IN TRANSIT.

For the safe, efficient and proper operation of this appliance be sure to follow the instruction procedures for both the furnace and oil burner. Furthermore, annual furnace inspection and service is required for safe and proper operation.

The oil burner provided requires **inspection, set-up and proper adjustment.** (See manual).

Oil Burner **must** be set-up and adjusted with combustion instruments.

<p>CAUTION: VENTILATE HOUSE WHILE OPERATING FURNACE FOR THE FIRST TIME.</p>

GENERAL

REPORT DAMAGE IMMEDIATELY

In case of damage to this unit caused by shipping, please immediately request TRANSPORTATION COMPANY to inspect the unit and issue a concealed damage report. The claim for such damage should be filed by you.

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

Please read these instructions completely and carefully before installing and operating the furnace.

The installation of the equipment shall be in accordance and conform with all local, State and National Electric Building and Fire Codes having jurisdiction and the latest edition of the national Fire Protection Association Standard for the "Installation of Oil Burning Equipment" NFPA No. 31. Regulations of these authorities take precedence over the general instruction provided in this installation manual.

WARNING:

The manufacturer of this equipment will not be liable for any damage resulting from not following existing codes or these instructions; nor for any alterations made in the field to the furnace or any component thereof, without factory authorization.

LOCATION AND INSTALLATION OF FURNACE

The furnace should be located such that the flue connection to the chimney is short and consists of as few elbows as possible. The furnace should be well centralized with respect to the heat distribution system. Adjustable legs are furnished on the furnace for leveling.

Furnace **MUST** be level. The six leveling legs provided must equally support the furnace to prevent undue noise or vibration.

STANDARD CLEARANCES are those clearances to combustible construction which must be complied with for the installation of these furnaces. ACCESSIBILITY CLEARANCES MUST TAKE PRECEDENCE OVER FIRE PROTECTION CLEARANCE.

LBO-WLBO/Low boy - HBO-WHBO/High boy and CFO-WCFO/Counter Flow Series Furnaces

ALCOVE from Front of Unit.

18" from Flue Pipe in any direction

*6" from Rear of furnace

*6" from Left Side of furnace

2" Above Horizontal Warm Air Duct within 6 feet of furnace

6" from any side of Plenum

Non-Combustible Floor beneath unit

*On Low-Boy units enough space must be provided on one side (18" minimum) and in the rear to get to, and service or replace the filters, Blowers and motors.

* On Counter-Flow Furnaces the optional base **MUST** be used for installation on combustible surfaces.

Model

Part

WCFO/CFO 85	6100-CFSB 85
WCFO/CFO 105-120	6100-CFSB 105-120
WCFO/CFO 140-175	6100-CFBS140-175
WCFO/CFO 210-245	6100-CFBS210-245

Target marks are embossed on the left and right side of high-boy furnaces. Cut between target marks for cold air and filter rack installation.

AIR FOR COMBUSTION & VENTILATION

Chloride, fluoride, iodide and bromide bearing compounds, when present in certain concentrations in air supplied for combustion to the furnace, can result in an accelerated and severe corrosion condition in the heat exchanger and/or venting systems. This condition can occur with less efficient furnaces but is more likely to happen on furnaces with efficiencies of 80% or greater.

The most common chemicals found in the household are chloride bearing compounds. There are many compounds representative of this classification of chemicals. Shown below are just a few examples.

Cleaning solvents
Varnish and paint removers
Bleaches
Fabric softeners
Water softener salt
Tile adhesive

Avoid installing the furnace in areas where it is evident that these chemicals are being stored or used in the vicinity of the furnace. Further advise that if in doubt as to the chemical nature of the compound is to avoid storing or using in the proximity of the furnace. If it is necessary to store or use

these compounds in the same space as the furnace, all containers should be sealed when not in use, or, if possible, also keep chemicals in a space closed off with a door.

The unit shall be installed in a location in which the facilities for ventilation permit satisfactory combustion and proper venting under normal condition of use. While all forms of building construction cannot be covered in detail, this requirement may usually be met by application of one of the following methods in ordinary building construction. Local codes take precedence and must be followed, if available.

1. ALCOVE INSTALLATION

a. In buildings of unusually tight construction, such as those where weather stripping and storm sash windows are used, an opening connection to a well-ventilated crawl space, attic, or to the outdoors shall have a minimum free area of one (1) sq. inch per 5000 BTU per hour of the total input rating of all appliances to be installed in the building, and should preferably be located near the floor.

2. FULL BASEMENT

a. Where a furnace is installed in a full basement, infiltration is normally adequate to provide air for combustion.

b. In buildings of unusually tight construction, such as those where weather-stripping and storm sash windows are also weather-stripped, one opening communicating with a well-ventilated attic or with the outdoors shall be provided, using a minimum free area opening of one (1) sq. inch per 5000 BTU per hour of the total input rating of all appliances to be installed in the basement.

FLUE CONNECTION

Chimney should be cleaned before installing furnace unit. Any accumulation of dirt at the bottom of the chimney should be removed. Flue piping must not be inserted beyond the inside wall of the chimney flue. Do not install damper in flue pipe. The flue pipe should have a rise at least 1" per foot from furnace to chimney.

The flue pipe must clear all combustible surfaces by at least 18". Where flue pipe passes thru a wall or ceiling, a metal safety thimble 8" larger in diameter than the flue must be installed. The furnace should be located as near the chimney as possible, with the least possible number of elbows and angles in the flue pipe.

Install the barometric regulator at least 2 feet from outlet of furnace, preferable in highest part of flue pipe near the chimney.

CAUTION: THE FURNACE MUST BE CONNECTED TO FLUE HAVING SUFFICIENT DRAFT AT ALL TIMES TO ENSURE SAFE AND PROPER OPERATION OF THIS APPLIANCE

FURNACE LIMIT AND BLOWER CONTROLS

The furnace is supplied with a limit and blower control. The limit control has a setting which will not permit a discharge air temperature above 200°F.

The blower control should be set so that the greatest efficiency of the furnace is obtained. We have found that a blower "ON" setting of 140°F and blower "OFF" setting of 90°F generally gives the best results. After the burner shuts down, the blower will stay on until the temperature inside the cabinet falls below the lower setting on the fan control. If a longer cool down period is desired, the fan control may be set to give any length of cycle desired.

On the Counterflow furnaces only, an auxiliary limit control is provided to prevent the blower motor and filters from becoming overheated. Often times the filters become clogged with dirt, a motor fails, or the blower belt breaks, which tends to cause excessive heat in the blower compartment. Should the furnace become inoperative, it is necessary to remove the Blower and Filter access Door to examine for any of the above mentioned failures. After the correction has been made normal operation will ensue. Be sure to replace Blower and Filter Access Door.

OIL BURNER AND ACCESSORY INFORMATION

The refractory type Combustion Chamber, Oil Burner and Nozzle are installed at the factory. Run the oil supply line from the oil tank to the burner. We require installation of a Filter in the oil line.

Refer to the "Oil Burner Operating instructions" for information on the following:

Oil Storage Tank
Air Supply
Starting of Burner
Adjustment of Burner
Fuel Pump
Setting Draft Control

OIL BURNER ADJUSTMENT

(See Oil Burner Instruction Manual)

Turn the main electrical switch to the "OFF" position. Set the room thermostat above the room temperature. Be sure the oil tank is full. Open all valves in the oil line. Open the inspection door above the burner. Turn on the electrical switch and prime the oil pump according to the pump manufacturers recommendations. Set the oil pump pressure to 100 PSI. (This is not set at the factory).

CAUTION: Do not run the pump dry for more than two (2) minutes.

When ignition is established make a temporary air adjustment for a clean smoke free flame. Close the inspection door above the burner. At this point the final burner adjustment should be made using test instruments to measure draft, smoke, carbon dioxide (CO₂) and stack temperature. In order to achieve the most ideal combustion efficiency the following procedure must be followed:

- 1.) Draft - Draft readings should be taken over the fire (through the hole in the inspection door) and in the flue pipe not more than 12 inches away from the furnace flue outlet. The over fire draft should be -.01" to -.02" Water Column Pressure and the flue draft should be -.02' to -.04" Water Column Pressure. The overfire draft reading takes precedence over the flue draft reading when adjusting the barometric draft control.
- 2.) Smoke - A smoke sample should be taken in the same opening that the flue draft was taken. If the first reading is "0", close burner air shutter until a No. 1 smoke reading is obtained. Open the air shutter just enough to obtain a "0" smoke reading. Tighten the air shutter in position.
- 3.) Carbon Dioxide (CO₂) - In order to assure that proper combustion is taking place a CO₂ reading must be taken. A reading of from 10% to 11.5% is considered normal.

While CO₂ settings in excess of 11.5% may be attainable they are not recommended. Excessive CO₂ readings can lead to Oil Burner choke or end cone problems.

Use calibrated combustion instruments for burner set-up.

- 4.) Flue Gas Temperature - The flue gas temperature will vary with BTU inputs, duct design and air flow across the Heat Exchanger. The net stack temperature should not be below 350°F. A net stack temperature below 350°F could result in condensation in the flue pipe.

CAUTION: BEFORE OPERATING THE FURNACE CHECK BURNER ALIGNMENT WITH COMBUSTION CHAMBER. THE END CONE OF THE AIR TUBE MUST FIT SNUG TO THE ACCOMMODATING RING PROVIDED IN THE DESIGN OF THE COMBUSTION CHAMBER. ADJUST AS NECESSARY.

BURNER ELECTRODE & FIRING ASSEMBLY

Correct adjustment of the electrode tips with respect to each other, to the fuel, oil nozzle, and to the rest of the burner is very important. An electrode gap of 5/32 in. should be maintained with tips 7/16 in. above the center of the nozzle and 1/16 in. ahead of the nozzle. Check and adjust the distance from the front of the end cone to the face of the fuel oil nozzle to 1-1/8 in., see Oil Burner Manual for more information (Z-Dimension).

BURNER PRIMARY (SAFETY) CONTROL

The furnace is equipped with a primary combustion control or burner relay which uses a light sensing device (located in the burner housing) and an appropriate thermostat to provide automatic control of the oil heating system. Dust of combustion residuals can, over a long period of time, interfere with proper operation of the light sensing device.

CAUTION: ALL CONTROLS ON THE FURNACE ARE SENSITIVE DEVICES AND SHOULD NOT BE TAMPERED WITH. CALL YOUR SERVICEMAN.

Refer to Oil Burner Manual for additional information.

COMBUSTION CHAMBER

This furnace is equipped with a combustion chamber made of a very high quality refractory. It is positively located in the heat exchanger strapped to the tube connected to the burner mounting plate. **RE-CHECK ALIGNMENT OF THE COMBUSTION CHAMBER AND OIL BURNER BEFORE FIRING AS IT IS POSSIBLE FOR THE COMBUSTION CHAMBER TO SHIFT IF THERE HAS BEEN ROUGH HANDLING WHILE IN TRANSIT.** When your service person

removes the oil burner for inspection or maintenance, he should inspect the combustion chamber for damage or carbon deposits.

CIRCULATING AIR BLOWER

The circulating air blower adjustment must be such as to obtain an air temperature rise of 70° F (47° C) THROUGH THE FURNACE.

BELT DRIVE:

If the blower is a belt driven type with a pulley and V-belt arrangement, air delivery and air temperature rise may be varied by adjusting the pulley on the motor. Loosen the set screw in the pulley outer flange, close the pulley to increase speed and decrease air temperature rise; open the pulley to decrease the speed and increase air temperature rise. Align the motor and pulley to minimize noise and belt wear. Check belt tension by flexing belt midway between the pulleys. Correct belt tension permits approximately 2" flexing. Too much tension will cause motor overload and bearing wear, too little tension will permit belt slippage. The recommended minimum return air temperature is 50° F (10° C).

DIRECT DRIVE:

Furnaces equipped with a direct drive blower are supplied with an air conditioning relay to accommodate a wide range of duct static pressures.

However, should the duct be excessively tight or an air conditioning coil be in the system, a higher speed may be used. Simply change the speed by disconnecting the (non-white) lead from the block and re-connect it to another winding lead.

WARNING: Never connect power leads between windings (non-white leads).

CAUTION: OPEN THE DISCONNECTOR IN THE ELECTRICAL SUPPLY LINE BEFORE REMOVING THE BLOWER ACCESS DOOR, AND DO NOT ATTEMPT TO SERVICE THE FAN OR FAN MOTOR UNLESS THIS SWITCH IS OPEN AND ELECTRIC POWER IS OFF.

ELECTRICAL

(Refer to sketches and wiring diagrams in this Instruction Manual)

All wiring must conform to Local, State and National

Codes and all electrical connections must conform to National Electrical Code, ANSI/NFPA No. 70.

A separate electric line should be run directly from the main house panel to the leads in the furnace junction box. A fused manual switch should be installed in this line.

The electrical rating for all LBO/HBO/CFO/WLBO/WHBO/WCFO units are 120v, 60Hz.

Models
LBO/HBO/CFO/WLBO/WHBO/WCFO 85, 105, 120
Belt Drive 10Amps.

LBO/HBO/CFO/WLBO/WHBO/WCFO 140, 175 Belt Drive 12Amps.

LBO/HBO/CFO/WLBO/WCFO 210, 245 Belt Drive 18.5Amps.

LBO/HBO/CFO/WLBO/WHBO/WCFO 315, 350, 420 Belt Drive 20Amps.

Models
LBO/HBO/CFO/WLBO/WHBO/WCFO 85, 105, 120
Direct Drive 10Amps.

LBO/HBO/CFO/WLBO/WHBO/WCFO 140, 175 Direct Drive 12Amps.

Connect the thermostat wires to the terminals on the primary combustion control (burner relay).

ROOM THERMOSTAT

The thermostat should be placed on an inside wall of a room on the principal floor at approximately five feet above the floor where it is responsive to changes in temperature and free from drafts. The living room or dining room is a generally acceptable location. Keep it set at desired room temperature and no higher. If windows are to be opened or heat is not needed, turn thermostat back. Most thermostats are equipped with Heat Anticipation. Check the AMP DRAW of the oil burner relay (usually marked inside the cover of the relay) and make certain the thermostat Heat Anticipator matches it.

FURNACE LIMIT AND BLOWER CONTROL

The Furnace is supplied with a limit control. The limit control has a setting which will not permit an air temperature above 200° F.

TO START UNIT:

1. Set the thermostat to call for heat. The burner should start.

NOTE: It may be necessary to press the RESET button on the primary combustion control relay.

2. After a short period of time the blower should start.
3. Set the thermostat down to lowest setting. The burner should stop.
4. The air circulation blower remains in operation as long as the temperature in the furnace is higher than the "Fan OFF" setting on the fan control. If the air at the room registers is uncomfortably high upon blower start up, or shut down, set the temperature on the fan control to a lower setting.
5. To check the operation of the limit switch, remove the blower drive belt and set the thermostat to call for heat. After three or four minutes of burner operation, the limit control should turn the burner off. The blower motor will run until the heat exchanger cools down. Replace the belt.

CAUTION: DO NOT ATTEMPT TO START THE BURNER WHEN EXCESS OIL HAS ACCUMULATED, WHEN THE FURNACE IS FULL OF VAPOR, OR WHEN THE COMBUSTION CHAMBER IS VERY HOT. NEVER BURN GARBAGE OR PAPER IN THE FURNACE, AND NEVER LEAVE PAPER OR ANY COMBUSTIBLE MATERIAL AROUND THE UNIT.

TO SHUT DOWN UNIT:

1. Set the thermostat to the lowest possible setting.
2. Set the manual switch (if installed) in the Electrical Power Supply Line to "OFF".
3. If the burner is to shut down for an extended period of time, close the oil valves tightly.

MAINTENANCE INSTRUCTIONS

OIL BURNER: The oil burner on this furnace **MUST** be checked, cleaned and serviced at least once a year by a qualified oil heat technician. (See Oil Burner Installation Manual)

FILTER: The filters should be replaced at least twice each year and preferably more often. When installing filters, make certain the arrows on the edge of filter points toward blower. The correct size for replacement filter is plainly marked on edge of filter and in the parts list in this instruction.

BLOWER AND MOTOR: Each time filters are inspected, the blower and motor should be checked. Make certain the blower and motor pulleys are in good condition. Follow the motor manufacturer's oiling instructions, otherwise oil annually with 3 drops of S.A.E. #10 oil. Do not over oil as this can be as harmful as no lubrication. Blower bearings are permanently lubricated and require no additional lubrication.

DIRECT DRIVE BLOWER: Motor is factory oiled. Under normal operating conditions it does not require oiling for at least the first two years after installation. Oil sparingly as required with two drops of SAE 20 motor oil thereafter. Over oiling may cause premature motor failure.

HEAT EXCHANGER: The Heat Exchanger and oil burner **MUST** be cleaned and inspected at least once each year. With a mirror inserted thru the Inspection Door Opening above the Burner, you can determine the amount of soot that has collected on the inside of the cylindrical primary heat exchanger surface. If this requires cleaning you can do the following procedure:

1. Remove the burner and mounting plate. Using a brush on a flexible handle loosen any soot on the inside of the Heat Exchanger. Remove the soot with a vacuum. CAUTION - Use care in cleaning to avoid damage to the Combustion Chamber.

To clean the wrap around Radiator, remove the heat exchanger cleanout covers. With a long flexible handled brush and vacuum, the soot can be loosened and removed from this area.

TROUBLESHOOTING PROCEDURES

MALFUNCTION	CAUSE	REMEDY
Too much smoke	Improper burner air adjustment or insufficient stack pressure.	Adjust burner air shutter (increase air intake) and adjust barometric stack control to give highest CO ₂ with a clear flame to give Bacharach No. 1 smoke.
Using too much oil (Check fuel line for leakage).	Too high stack pressure. Heat being taken up through chimney. Leak in fuel oil lines	Check stack temperature and stack pressure of -0.02 in. w.c. draft (before barometric regulator). Tighten or replace fittings or fuel piping.
Unit cutting out necessitates resetting of primary control.	Dirty oil filter. Ignition failure. No flame. Oil pressure too low.	Install new filter. Clean and set electrodes. Check all nozzle. Adjust oil pressure to 100 psi.
Unit sputtering at nozzle.	Fuel pump pumping air through leak in line or dirt in line.	Clean fuel line and tighten joints. Purge oil pipe and burner.
Unit won't come on.	Faulty thermostat.	Cross thermostat wires to confirm failure. Replace thermostat.
Unit cutting out (before thermostat is satisfied).	Blower speed incorrect.	Adjust fan belt to correct tension and/or adjust pulley on motor. Adjust dampers in ducts. Check air temperature rise of 85°F. (MAX.) Check Direct Drive Blower motor speed.
Blowing cold air.	Fan control setting (Sometimes due to high duct heat loss).	Remove cover of fan control and set fan "OFF" to higher temperature. Insulate ducts.
First gush of air at register too hot.	Improper fan control setting.	Remove cover of fan control and set fan "ON" to a lower temperature.
Cutting out.	Cold air plenum is too big. Motor overheating.	Lubricate blower motor and burner motor. Check current draw.
Some rooms too hot (others too cold).	Improper warm air distribution.	Balance warm air distribution to suit user by adjusting dampers in ducts.
Thermostat calling for heat, unit will come on when reset actuated on primary control.	Nozzle plugged. No fuel oil.	Replace nozzle and put filter on fuel line. Check fuel oil tank and valves in fuel supply pipes.

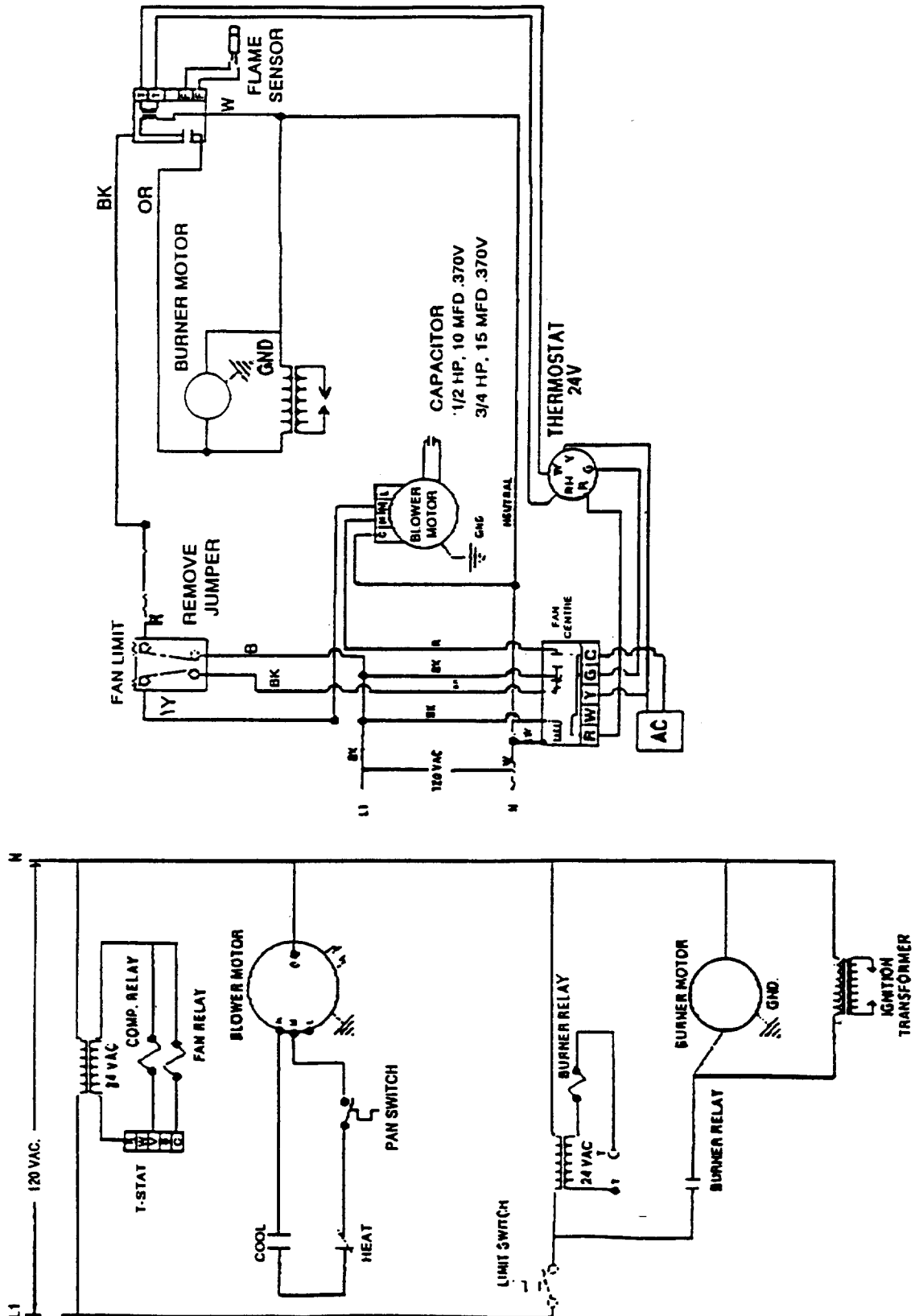
NOTE: IF THE ABOVE STEPS DO NOT REMEDY THE COMPLAINT, CALL YOUR SERVICE PERSON AS LISTED. FOR ADDITIONAL TROUBLESHOOTING POINTERS, REFER TO THE MANUAL ENCLOSED WITH THE BURNER AND PAMPHLETS ENCLOSED WITH THE CONTROLS.

DO NOT TAMPER WITH THE UNIT OR CONTROLS - CALL YOUR SERVICE PERSON.

FOR SERVICE CONTACT: NAME _____ TELEPHONE _____ DATE _____

ADDRESS _____

LBO - WLBO - HBO - WHBO
WIRING DIAGRAM
Oil Fired Warm Air Furnace
DIRECT DRIVE

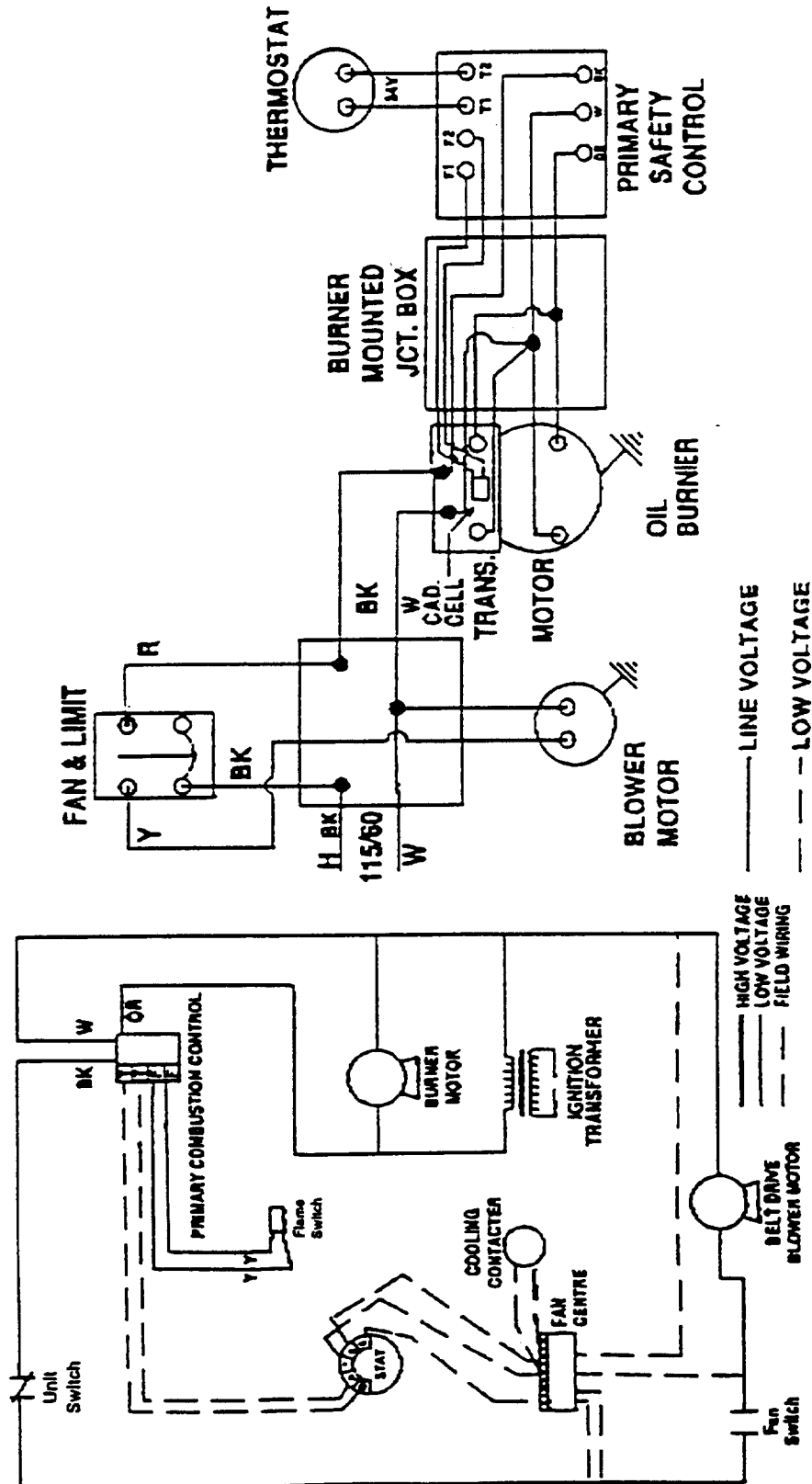


LBO - WLBO - HBO - WHBO

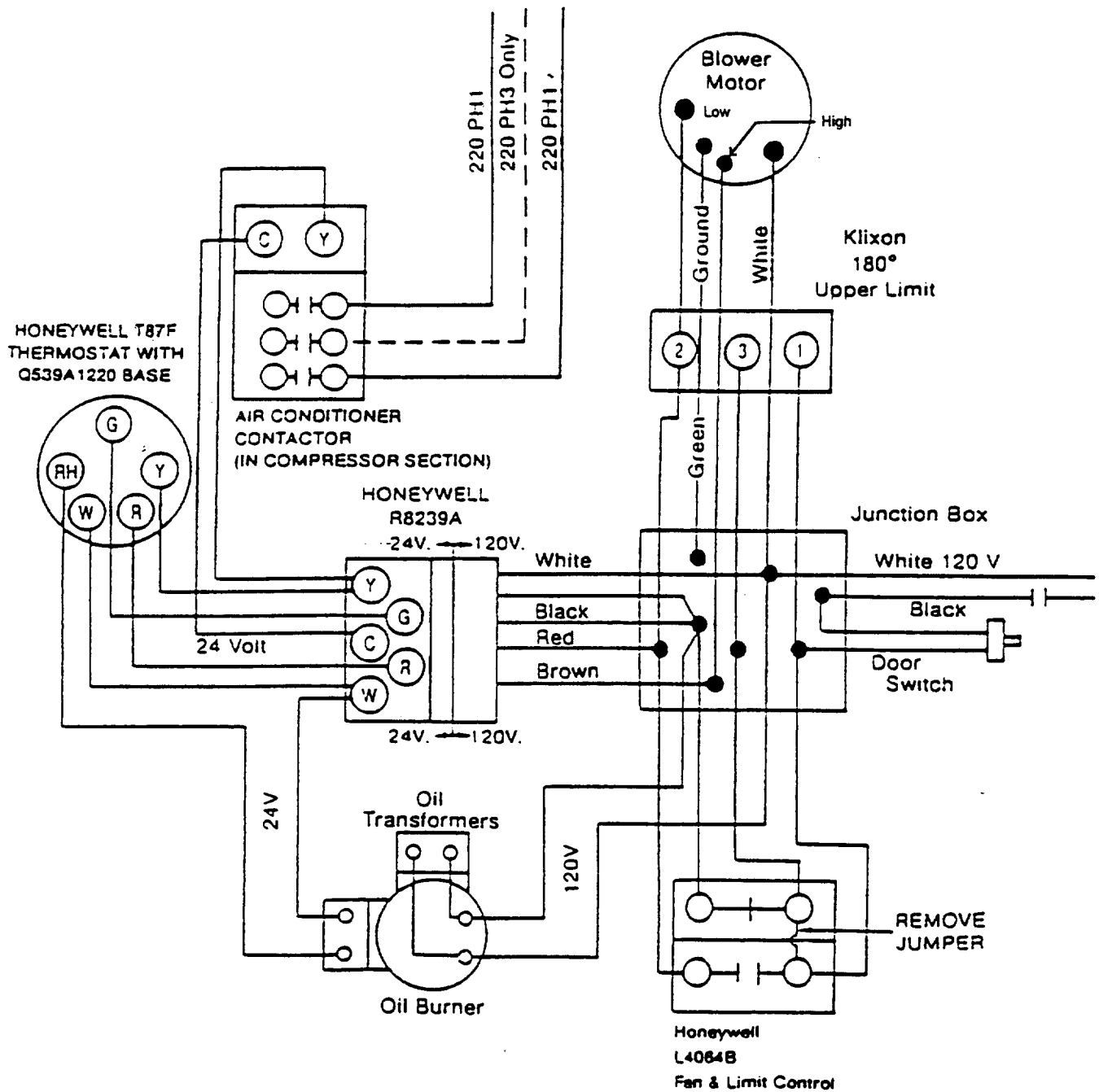
WIRING DIAGRAM

Oil Fired Warm Air Furnace

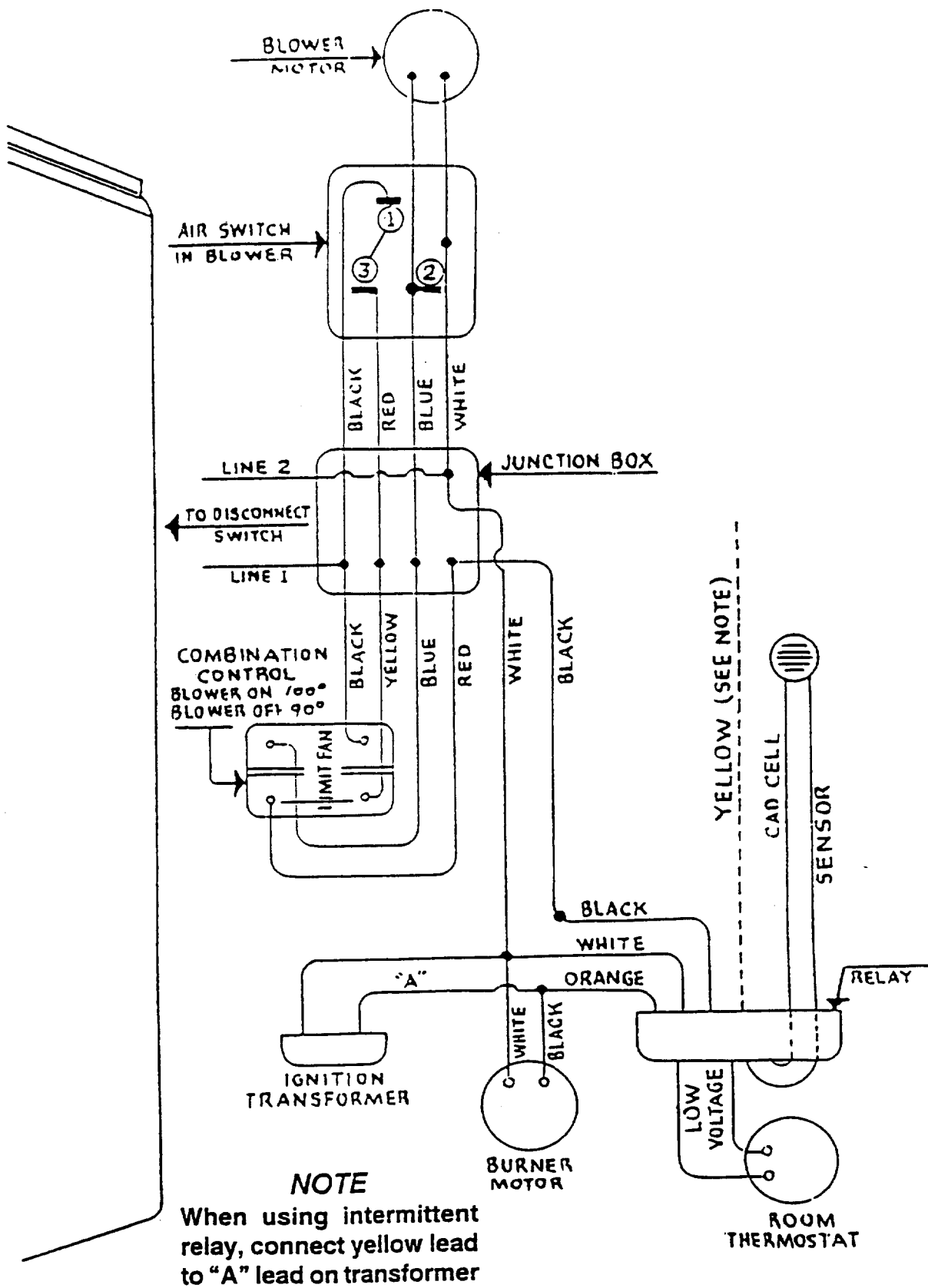
BELT DRIVE



CFO - WCFO
WIRING DIAGRAM
Counterflow Oil Fired Furnace with Air Conditioner System
DIRECT DRIVE



CFO - WCFO WIRING DIAGRAM Counterflow Oil Fired Furnace BELT DRIVE



BURNER CROSS REFERENCE

(BECKETT BURNER DATA)

FURNACE MODEL	BECKETT BURNER SPEC NO.	BURNER TYPE	NOZZLE SIZE (GPH)	SPRAY ANGLE &	AIR TUBE COMBINATION	STATIC PLATE	BURNER HEAD	REFRACTORY MODEL NO.
LO-BOY								
LBO/WLBO10A* Replaces (85,105,120)	MZ401	AFG	.60	80°A	6-5/8" SSHS	3-3/8"	F3	# 2
		AFG	.75*	80°B	6-5/8" SSHS	3-3/8"	F3	# 2
		AFG	.85	80°B	6-5/8" SSHS	3-3/8"	F3	# 2
LBO/WLBO12A* Replaces (140,175)	MZ1001	AFG	1.00*	80°B	9" SSHS	2-3/4"	F6	# 3
		AFG	1.25	80°B	9" SSHS	2-3/4"	F6	# 3
LBO/WLBO-210	MZ205	AF	1.50	80°A	10-1/2" SSSS	2-3/4"	F12	# 6
LBO/WLBO-245	MZ206	AF	1.75	70°A	10-1/2" SSSS	2-3/4"	F16	# 6
LBO/WLBO-350	-	AFG	2.50	80°B	9" SSHS	None	F31	# 8
LBO/WLBO-385	-	AFG	2.75	80°B	9" SSHS	None	F31	# 8
LBO/WLBO-420	-	AFG	3.00	80°B	9" SSHS	None	F31	# 8
HI-BOY								
HBO/WHBO10A* Replaces (85,105,120)	MZ401	AFG	.60	80°A	6-5/8" SSHS	3-3/8"	F3	# 2
		AFG	.75*	80°B	6-5/8" SSHS	3-3/8"	F3	# 2
		AFG	.85	80°B	6-5/8" SSHS	3-3/8"	F3	# 2
HBO/WHBO12A* Replaces (140,175)	MZ1001	AFG	1.00*	80°B	9" SSHS	2-3/4"	F6	# 3
		AFG	1.25	80°B	9" SSHS	2-3/4"	F6	# 3
HBO/WHBO-210	MZ205	AF	1.50	80°A	10-1/2" SSSS	2-3/4"	F12	# 6
HBO/WHBO-245	MZ206	AF	1.75	70°A	10-1/2" SSSS	2-3/4"	F16	# 6
COUNTERFLOW								
CFO/WCFO-85	MZ401	AFG	.60	80°A	6-5/8" SSHS	3-3/8"	F3	# 2
CFO/WCFO-105	MZ1001	AFG	.75	80°B	9" SSHS	2-3/4"	F3	# 3
CFO/WCFO-120	MZ1001	AFG	.85	80°B	9" SSHS	2-3/4"	F3	# 3
CFO/WCFO-140	MZ203	AF	1.00	80°A	10-1/2" SSHS	2-3/4"	F6	# 4
CFO/WCFO-175	MZ203	AF	1.25	80°A	10-1/2" SSHS	2-3/4"	F6	# 4
CFO/WCFO-210	MZ205	AF	1.50	80°A	10-1/2" SSHS	2-3/4"	F12	# 6
CFO/WCFO-245	MZ206	AF	1.75	70°A	10-1/2" SSHS	2-3/4"	F16	# 6

* Information subject to change without notice

REV. A

BELT AND DIRECT DRIVE BLOWER DATA

MODEL	BELT DRIVE BLOWER DATA					DIRECT DRIVE BLOWER DATA	
	Blower Assembly	Blower Pulley	Motor Pulley	Belt Size	Motor H.P.	Blower model	Motor H.P.
LBO/WLBO-10A	BD-10T	6 X 3/4	3 1/4 X 1/2	37	1/3	DD-10T	1/2
LBO/WLBO -12A	BD-12T	7 X 3/4	3 1/4 X 1/2	40	1/2	DD-12T	3/4
LBO210/WLBO210	BD-15	10 X 1	3 1/4 X 5/8	51	3/4	N/A	N/A
LBO245/WLBO245	BD-15	10 X 1	3 1/4 X 5/8	51	3/4	N/A	N/A
LBO350/WLBO350	BD-15	8 X 1	3 1/4 X 5/8	48	1 1/2	N/A	N/A
LBO385/WLBO385	BD-15	8 X 1	3 1/4 X 5/8	48	1 1/2	N/A	N/A
LBO420/WLBO420	BD-15	8 X 1	3 1/4 X 5/8	48	1 1/2	N/A	N/A
HBO/WHBO-10A	BD-10T	6 X 3/4	3 1/4 X 1/2	39	1/3	DD-10T	1/2
HBO/WHBO-12A	BD-12T	7 X 3/4	3 1/4 X 1/2	42	1/2	DD-12T	3/4
HBO210/WHBO210	BD-15	10 X 1	3 1/4 X 5/8	56	3/4	N/A	N/A
HBO245/WHBO245	BD-15	10 X 1	3 1/4 X 5/8	56	3/4	N/A	N/A
CFO85/WCFO85	BD-9T	7 X 3/4	3 1/4 X 1/2	40	1/4	DD-9T	1/3
CFO105/WCFO105	BD-10T	7 X 3/4	3 1/4 X 1/2	42	1/3	DD-10T	1/2
CFO120/WCFO120	BD-10T	7 X 3/4	3 1/4 X 1/2	42	1/3	DD-10T	1/2
CFO140/WCFO140	BD-12T	7 X 3/4	3 1/4 X 1/2	46	1/2	DD-12T	3/4
CFO175/WCFO175	BD-12T	7 X 3/4	3 1/4 X 1/2	46	1/2	DD-12T	3/4
CFO210/WCFO210	BD-15	10 X 1	3 1/4 X 5/8	56	3/4	N/A	N/A
CFO245/WCFO245	BD-15	10 X 1	3 1/4 X 5/8	56	3/4	N/A	N/A

* Information subject to change without notice