

OF7 SERIES UNITS

I - INTRODUCTION

OF7 lo-boy furnaces use OHP 30C series oil burners. Table 1 lists the model oil burner used in each size furnace. The unit is factory assembled with a two stage oil pump. Detailed operation, maintenance and service procedures for the OHP30C oil burner are included in the "Oil Heat" section.

Units are shipped with standard nozzle sizes. Maximum nozzle sizes must be ordered extra. The "Nozzle Information" lists nozzle capacities.

Units are sent standard for a single line system, but the oil pump can be converted for two line operation. Simply install the by-pass plug provided in attached bag according to accompanying instructions. Never operate the pump with a single line when by-pass is installed. This will blow the oil bearing seal and damage pump.

Figure 1 shows a cutaway of unit.

TABLE 1

Unit Model No.	Burner Model Number
OF7-105	OHP30C-8
OF7-140	OHP31C-7

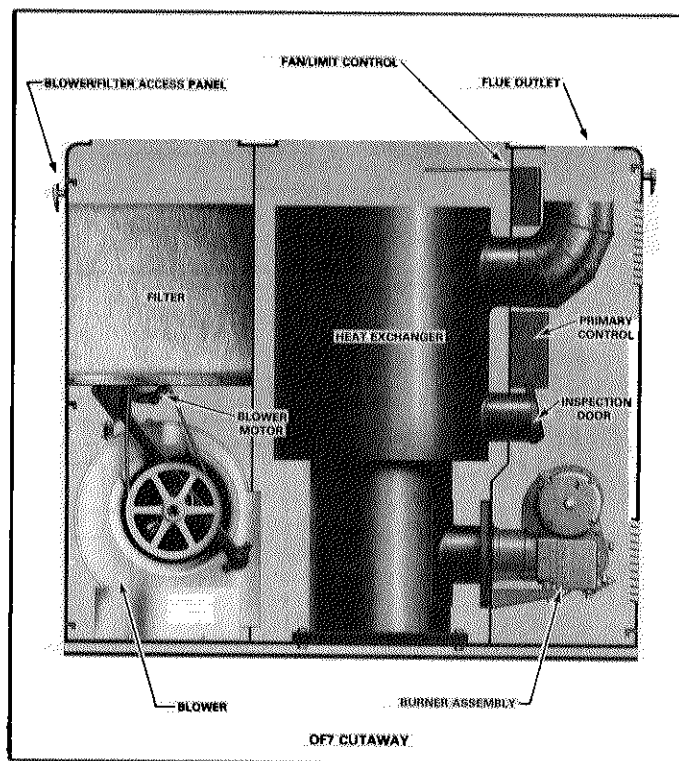


FIGURE 1

II - UNIT INFORMATION

A - Specifications

Model No.	OF7-105	OF7-140
Btuh input (maximum U.L. listing)	105,000	140,000
Btuh input (nozzle furnished)	91,000	119,000
Btuh input (minimum)	91,000	105,000
Btuh output @ bonnet (maximum U.L. listing)	84,000	112,000
Btuh output @ bonnet (nozzle furnished)	73,000	95,000
Btuh output @ bonnet (minimum)	73,000	84,000
Nozzle range (gph)	0.65 — 0.75	0.75 — 1.00
Nozzle furnished (gph)	0.65	0.85
Flue size (in. round)	6	7
Oil burner used (2-stage)	OHP30C-8	OHP31C-7
Blower wheel nominal diameter x width (in.)	10 x 8	12 x 9
Blower pulley bore x diam. (in.)	3/4 x 7 — 0	1 x 7 — A
Blower motor & drives	(Choice from drive kit selection table)	
Tons of cooling that can be added	1-1/2, 2, 2-1/2 or 3	2-1/2, 3, 3-1/2 or 4
Free filter area (sq. ft.) and cut size (in.)	3.9 (40 x 18)	5.4 (44 x 20)
Number of packages in shipment	2	2
Shipping weight (lbs.)	364	456
Electrical characteristics	115 volts — 60 hertz — 1 phase	

B - Nozzle Information

UNIT		NOZZLE SIZE		INPUT RATING		OUTPUT RATING		SPRAY ANGLE (Hollow Cone)
		Gal/hr	Kg/hr	Btuh	Kcal/hr	Btuh	Kcal/hr	
OF7-105	Stand.	.65	2.10	91,000	22 930	73,000	18 396	70°
	Max.	.75	2.42	105,000	26 460	84,000	21 168	
OF7-140	Stand.	.85	2.75	119,000	30 000	95,000	23 940	80°
	Max.	1.00	3.23	140,000	35 280	112,000	28 224	

C - Field Wiring (Figure 2)

The "R" and "W" thermostat leads wire directly to primary control. An indoor blower relay must be field provided for cooling applications.

III - COMPONENTS

1 - Combination Fan/Limit Control

The limit de-energizes the control circuit at excessive

temperatures. Do not alter setting.

Refer to Figure 3 to determine type of control used and correct fan setting.

2 - Primary Control

A White-Rodgers (style 668-440) primary control is used. It provides complete unit shutdown in case of flame failure. A 20 VA transformer is an integral part of the primary

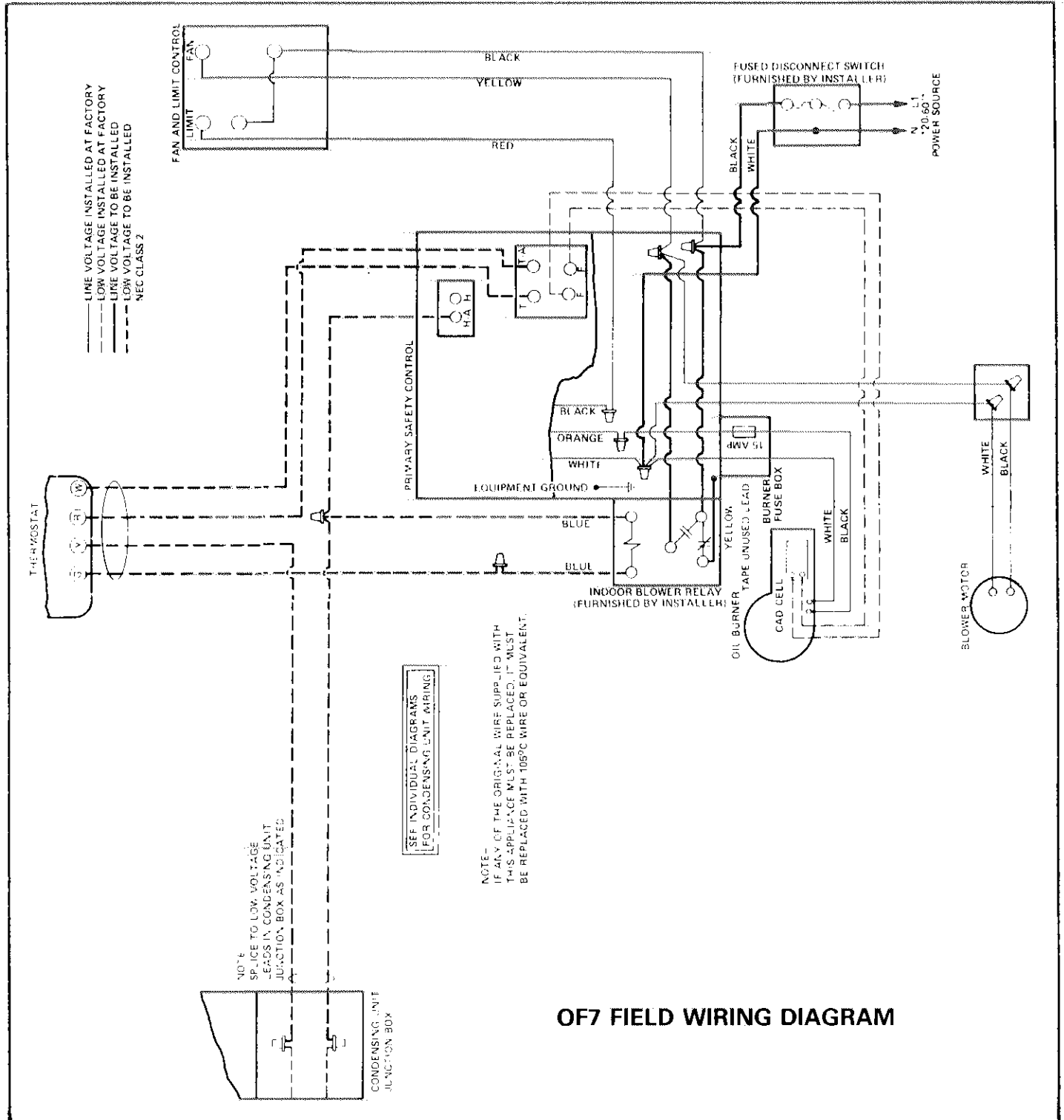


FIGURE 2

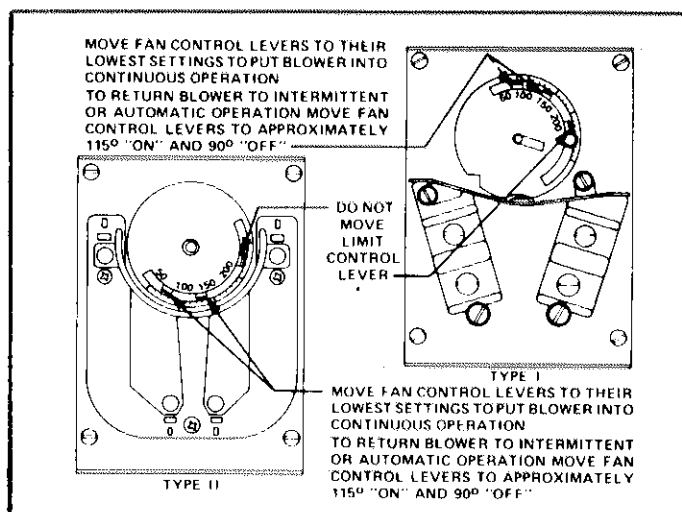


FIGURE 3

control. If the control locks out, push reset button to recycle unit.

3 - Oil Burner

OF7 uses the OHP30C series oil burner. Fuse box and 15 amp fuse are furnished for sub-fusing of burner. The burner motor has thermal cutout protection. In the event of motor lockout, push reset button after motor has had sufficient time to cool. Refer to oil burner section for additional information.

4 - Heat Exchanger (Figure 4)

The heat exchanger has a twin vent pass wrap around radiator. Cleanout access is through the vent opening and the inspection tube. The inspection tube is also used for flame observation. The fiber combustion chamber provides a high temperature zone for clean, quiet and efficient combustion. Replacement combustion chamber kits are available. See Table 2.

TABLE 2

Unit Model No.	Combustion Chamber Replacement Kit
OF7-105	LB-35903BA
OF7-140	LB-35903BB

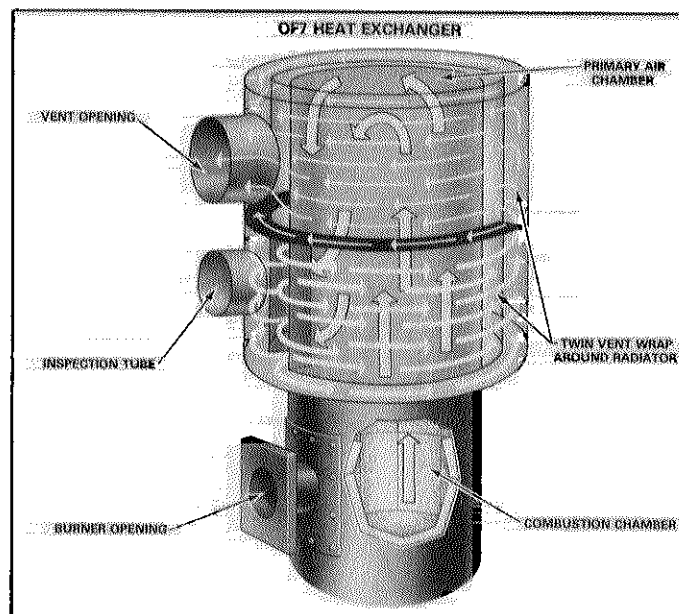


FIGURE 4

IV - TEMPERATURE RISE

To measure temperature rise, place plenum thermometers in warm air and return air plenums. Locate thermometer in warm air plenum where thermometer will not "see" heat exchanger, thus picking up radiant heat. Turn up thermostat as high as possible to start unit. After plenum thermometers have reached their highest and steadiest readings, subtract the readings. The difference should be approximately 80°F. If this temperature is low, decrease blower speed; if temperature is high, increase blower speed.

See Table 3 for available drive kits. Blower speed is regulated by means of an adjustable motor pulley. Open pulley to decrease speed and close pulley to increase speed. Adjust belt tension as loose as possible without allowing slippage.

V - SCHEMATIC WIRING DIAGRAM OPERATING SEQUENCE

Figure 5 illustrates a typical OF7.

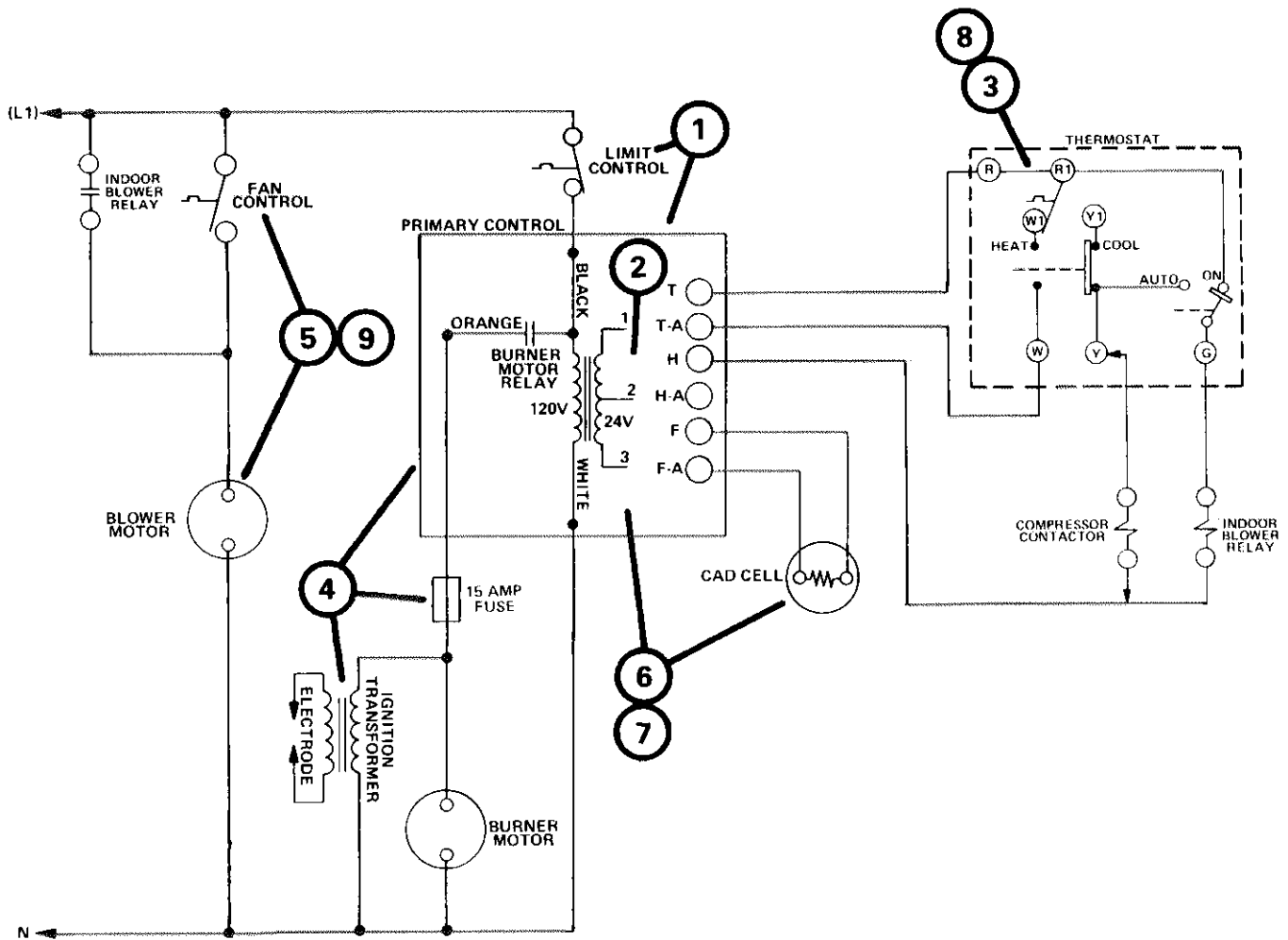
TABLE 3

Heating Drive Kits								
Furnace Model No.	Drive Kit Model No.	Motor hp	Motor Pulley (in.) & Groove	**Blower Pulley (in.) & Groove	*Rpm Range	Belt	Net Weight (lbs.) 1 Package	
OF7-105	DK-2038 (LB-19849CA)	1/4	1/2 x 3-3/4—OA	3/4 x 7—O	585—785	3L420	20	
OF7-140	DK-2003 (BM-7455)	1/4	1/2 x 3-1/4—OA	1 x 7—A	470—715	4L450	15	
Cooling Drive Kits								
Furnace Model No.	Drive Kit Model No.	Motor hp	Motor Pulley (in.) & Groove	**Blower Pulley (in.) & Groove	*Rpm Range	Belt	Net Weight (lbs.) 1 Package	
OF7-105	1-1/2 & 2Ton	DK-2038 (LB-19849CA)	1/4	1/2 x 3-3/4—OA	3/4 x 7—O	585—785	3L420	20
	2-1/2 & 3 Ton	DK-2040 (LB-19849CC)	1/3	1/2 x 4-1/8—OA	3/4 x 7—O	685—885	3L430	20
OF7-140	2-1/2 Ton	DK-2003 (BM-7455)	1/4	1/2 x 3-1/4—OA	1 x 7—A	470—715	4L450	15
	3 Ton	DK-2041 (LB-19849CD)	1/3	1/2 x 4-1/8—OA	1 x 7—A	690—935	4L470	21
	3-1/2 & 4 Ton	DK-2044 (LB-19849CG)	1/2	5/8 x 4-1/8—OA	1 x 7—A	690—935	4L470	32

*At 1725 rpm motor speed.

**Factory installed in furnace package and not included in drive kit.

TYPICAL OF7 SEQUENCE OF OPERATION



- 1 - Line potential feeds through the limit control to power primary control.
- 2 - The primary control provides 24 volt control circuit.
- 3 - On a heating demand, the thermostat heating bulb makes.
- 4 - The primary control energizes the oil burner through the 15 amp fuse. The burner motor operates the oil pump and combustion blower to feed air and oil vapor into the combustion chamber. The fuel mixture should ignite with the spark furnished by ignition transformer.

- 5 - When furnace temperature rises above fan control "cut-in" point, the contacts make to energize blower motor.
- 6 - If combustion does not take place within approximately 45 seconds, as detected by cad cell, the primary control locks itself out.
- 7 - Should a flame failure occur during an "on" cycle, the primary control locks itself out in response to the cad cell.
- 8 - As the heating demand is satisfied, the thermostat heating bulb breaks. This de-energizes the oil burner circuits.
- 9 - The blower motor continues running until furnace temperature drops below fan control setpoint.

FIGURE 5