



## **OPERATING INSTRUCTIONS**

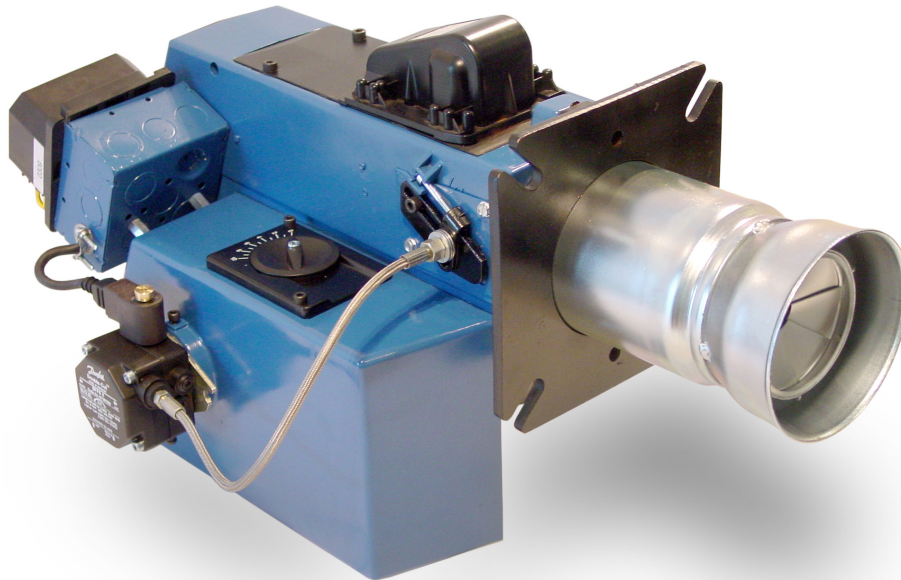
### **For Model DE-10 and DE-10LN Burners**

**CAUTION: For your safety do not store or use gasoline or other flammable vapors and liquids in the vicinity of this unit.**

**No. 2 Fuel oil firing range DE-10 2.75 – 8.50 GPH (US)**

**DE-10LN 3.1 – 6.25 (US)**

**Units of No.1 or No.2 oil (ASTM D396)**



- A qualified installer, service agency or the gas supplier must perform installation and service.
- All installations must be made in accordance with all state and local codes, which may differ from instructions in this manual.
- The installer shall also inform the user of hazards of flammable liquids and vapors and shall remove such liquids and vapors from the vicinity of the burner.
- The installation adjustment data trap, or label supplied, shall be filled in and affixed to the burner or the covered appliance.
- A combustion analyzer must be used to commission, startup or adjust the burner.

These instructions should be affixed to the burner or adjacent to the heating appliance.



**Manufactured by Heat Wise, Inc.**  
**28 Industrial Blvd. Unit I**  
**Medford, NY 11763**

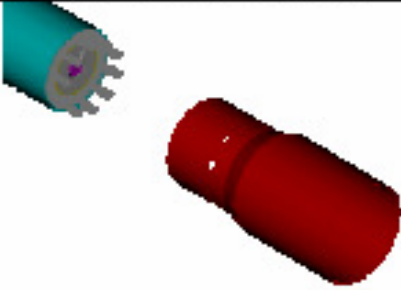
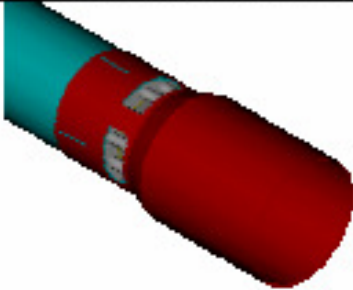


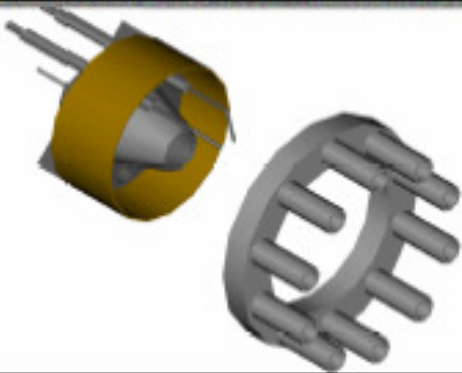
## Burner Specifications

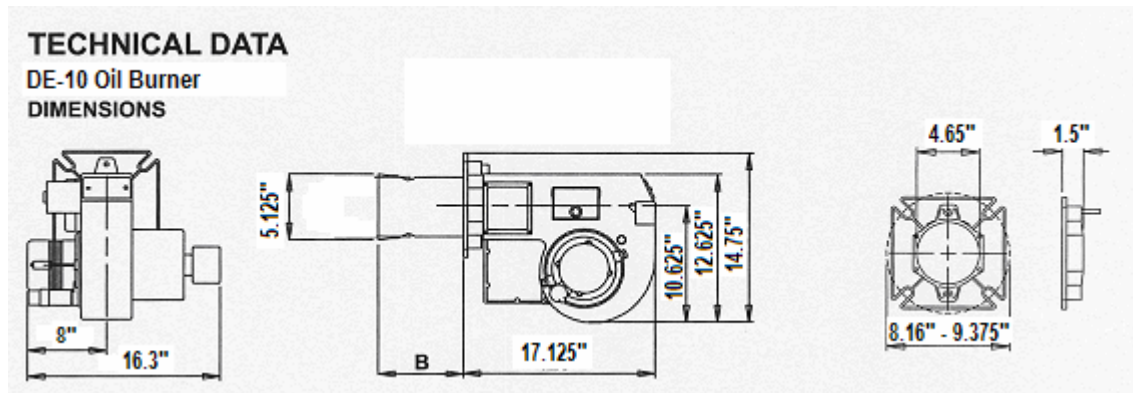
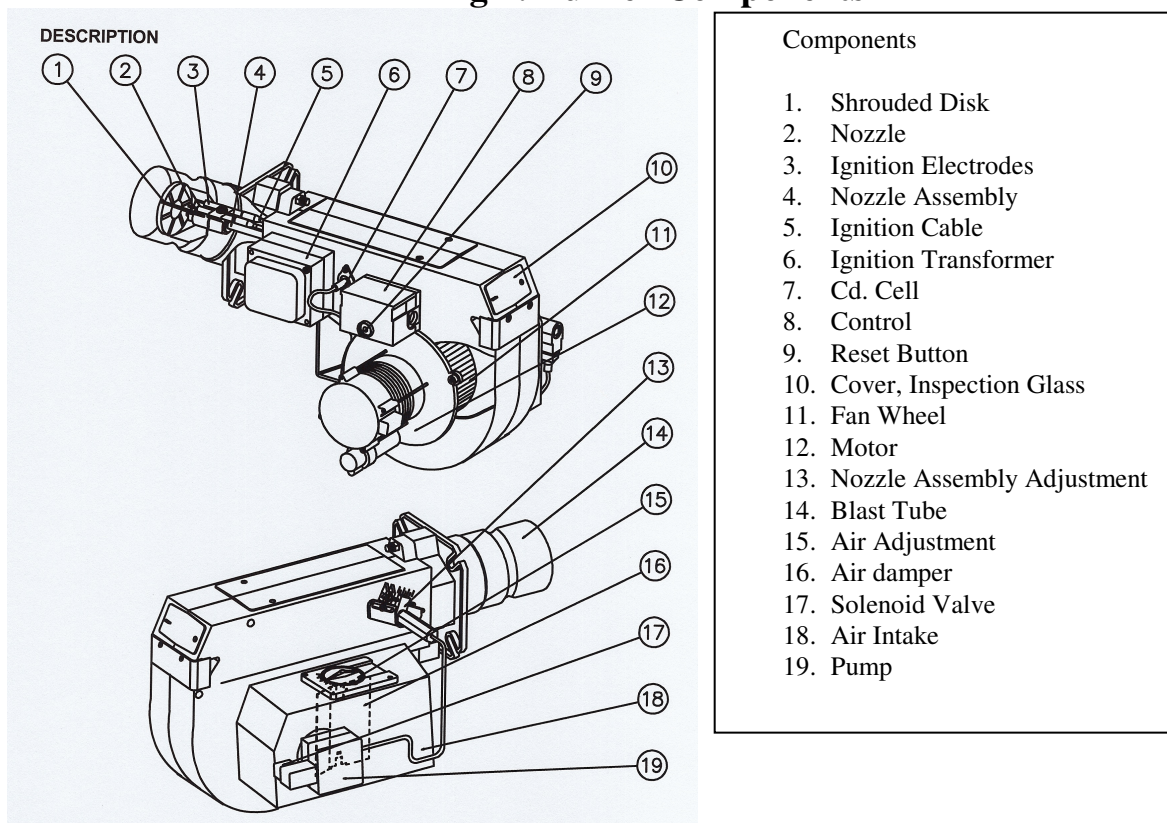
The DE-10 oil burner is listed and has been tested as an OEM burner as well as a replacement and conversion burner.

**Table 1: Burner Specifications**

Burner Model	Burner Head	Burner Fan	Firing Range GPH (US)
DE	DE-10-B	166mmX75mmX12.7mm	2.75 – 8.50
	DE-10-LN	40 Blades	3.1 – 6.25

**Table 2: DE-10-LN**

DE-10-LN Head and Flame Tube	DE-10-LN Head and Flame Tube Complete
	
DE-10-LN Front View	DE -10-LN Firing at High Fire
	
Inner Head Assembly Design	
	

**Fig 1: Burner Dimensions****Fig 2: Burner Components**

## 1. NOZZLE INSTALLATION

1.1 The DE burner is designed for ease of service. The oil line assembly is easily accessed for servicing (Fig. 3).

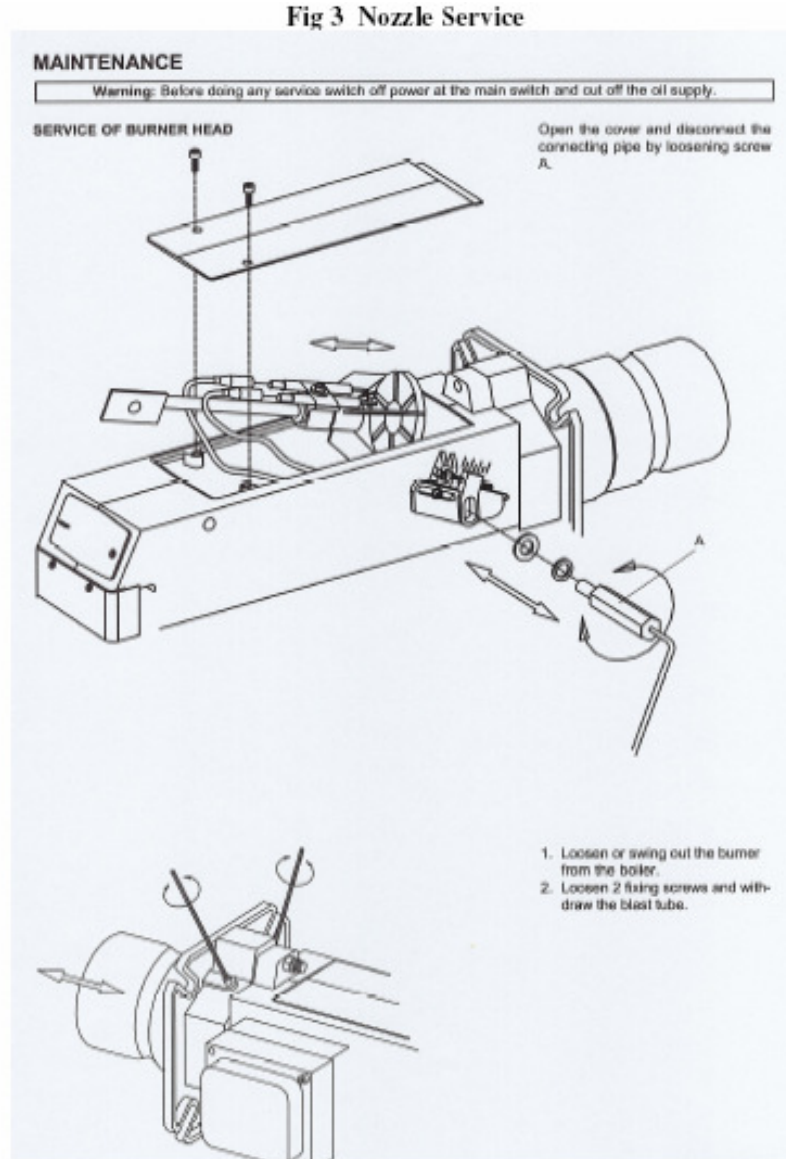
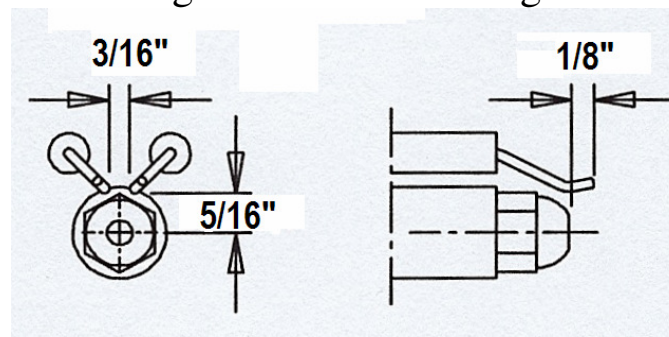


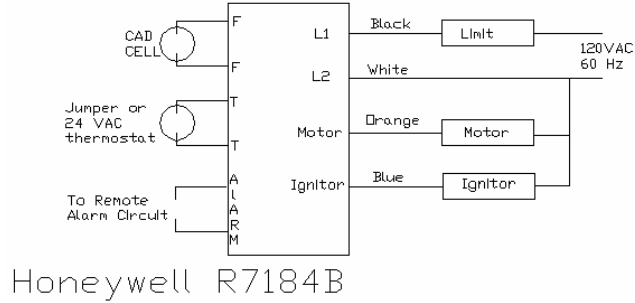
Fig. 4 Electrode Settings



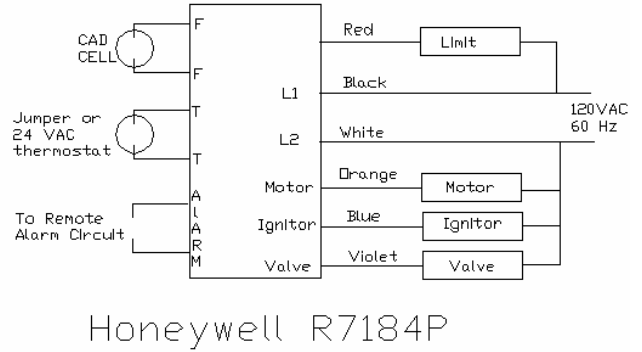
## 2. WIRING THE BURNER

**2.1** This burner can be used with the variety of controls. The standard control is the Honeywell R7184. Please follow the wiring diagrams in Fig. 5-6 (below). All the wiring should conform to the National Electric Code or the legally authorized code governing your locality. When wiring, be sure that the electric power take-off is connected to a permanently live circuit. It is recommended that the supply carry a 15-amp circuit with a service switch located no more than 3 feet from the burner.

**Fig. 5 Wiring Diagram - Standard**



**Fig. 6 Wiring Diagram – Honeywell w/ Motor Off Delay**



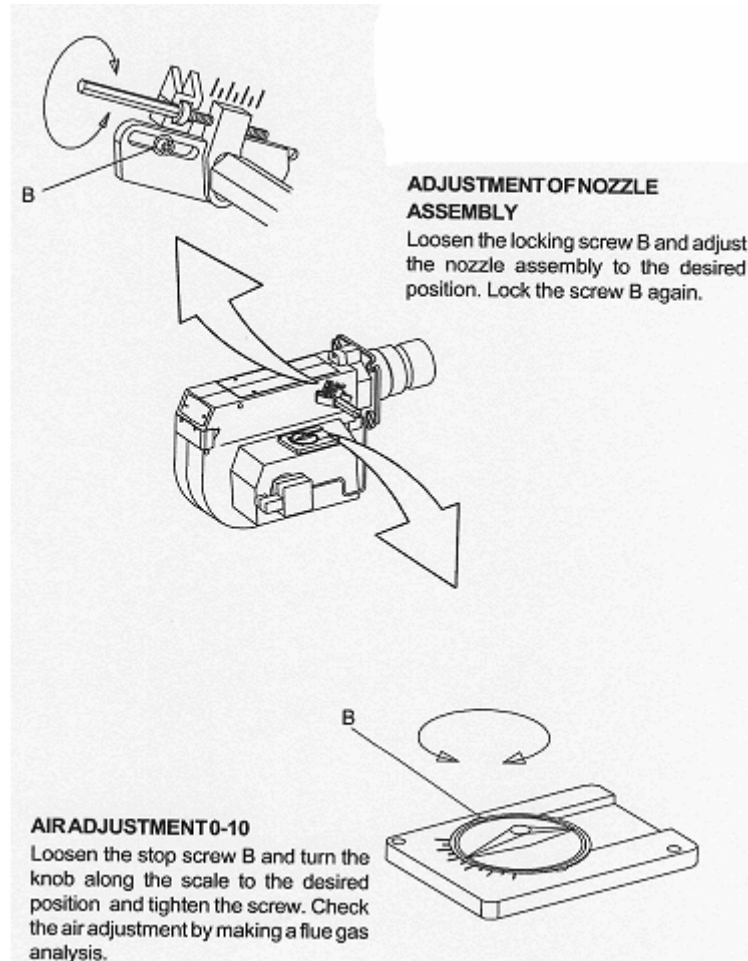


### 3. FIRING HEAD ADJUSTMENT ARE NUMBERED 0 TO 22.

**3.1** By turning the firing head adjustment screw *counter-clockwise* (Refer to Fig. 7).

Similarly, by turning that same screw *clockwise*, the firing head is ready for a minimum firing rate. There is nearly one-half inch of movement by the burner head for this range of firing rates.

**Fig. 7 Adjusting the Nozzle Assembly and Combustion Head**



### 4. AIR SHUTTER ADJUSTMENT

**4.1 On-off Burner** This should be done before any adjustments. Graduation are numbered from 0 to 10. It is suggested that the air shutter be kept wide open to number 10 by turning the shutter screw *clockwise*. If the burner does not light because of excess air, then turn the air shutter half way to number 8. A smoke reading should then be taken. If the smoke number is higher than number 1, move the burner head forward by turning the head adjustment screw *counter-clockwise* or open the air shutter more by turning the air shutter screw *clockwise*. If smoke is zero, but  $O_2$  is high and  $CO_2$  is low, turn the burner head adjustment screw *clockwise* until  $O_2$  is between 2% to 4%, and  $CO_2$  is between 13.5% and 11.5%.

**4.2 High Low Burner.** Low fire air shutter should be adjusted first. Damper motor shaft is connected to the primary air shutter. By adjusting the linkage air can be opened more or less to suit the first stage fire. It is better to have smoke as trace first and then open a little more of the air shutter to give zero smoke. Then record  $CO_2\%$ . It should be 12% to 14% with zero smoke.

Then switch to high fire mode. Follow on-off shutter adjustment for the high fire rate to get zero smoke and 12% to 14%  $CO_2\%$ .

## 5. FUEL PUMP

**5.1** Standard fuel pump is used for on-off burner. For high low burner **two step pump** is used. Therefore, it is important that discharge pressure is monitored very closely. It is recommended that a 10 micron Gerber filter before the fuel pump.

**5.2** For on-off burner operations most of the time 100 PSI pressure can be used. For better performances it is recommended to adjust the pump 140 to 150 PSI, then, follow the flow chart to get the desired nozzle out put capacity

**5.3** For High low burners, low fire should be obtained at 140 to 150 PSI and high fire should be obtained at more than 250 PSI. Nozzle flow chart should be followed to get the desired flow.

**Follow pump literature to adjust the pump for low fire as well as for the high fire pressures.**

For low fire, operating pressure is 140 to 150 PSI, adjusted by turning the slotted screw located on the top of the solenoid. The high pressure is adjusted by the screw opposite the nozzle port on the pump while the burner is in high fire mode.

BURNER OPERATION: Record the Readings at Steady State	
Draft over fire at steady state (should be -0.02 "W.C. or zero)*	
Draft in the Breech*	
Oil CO <sub>2</sub> % = (9.0% to 9.8%) or O <sub>2</sub> % = (5.0% to 3.5%)	
Smoke Number	
Stack Temperature (300°F minimum, 550°F maximum)	
Carbon Monoxide (CO) in PPM( less than 100 PPM ideal; should not exceed 400 PPM Oxygen free)	
Head Setting	
Air Setting	
Pump Pressure	
Nozzle (GPH, Angle, Manufacturer and Type)	

**\*Draft over fire and in the breech may vary according to OEM specifications. The DE-10 can handle back pressure ranging from -0.20" W.C. to +2" W.C., depending on the application. Refer to the heat exchanger manual for further details, or, contact Heat Wise for more information.**

<b>DE-10 Part List</b>		
<b>Blast tube</b>	<b>202mm</b>	<b>113 790 0105</b>
<b>NOZZLE ASS.</b>	202 MM	117 920 01
Fixing Flange		118 203 01
Complete		
Drive Coupling		113 094 07
Hydraulic Hose	230 mm	118 293 02
Locating block		117 648 01
Fan housing		91820100
Cover fan housing		1176490105
Gasket cover		11778301
Cover plate		11891401
Air damper		11819602
Flange air regulation		11795801
Pressure plate		11565401
Fixing screw		11891002
Scale		11895001
Fixing flange		11891502
Air nipple		11470401
Knob, air regulation		11701501
Blast tube		1175190105
Fan wheel 160x75x12,7 B40		11277621
Swing Door		
Danfoss pump	CC Rotation	071N1157
Blower motor 48N 3450 RPM		OL2052D
Carlin/Allanson Ignitor		2275U
Honeywell control		R7184P
Honeywell CD cell		C554