



By
EconoHeat Inc.

WASTE OIL FIRED HEATERS Installation, Operation, And Service Instructions

Manual 240v



MODEL OWH-150
150,000 BTU



MODEL OWH-250
250,000 BTU



MODEL OWH-350
350,000 BTU



MODEL OWH-500
500,000 BTU

Thank you and congratulations on your purchase of an Omni Waste Oil Fired Heater. You have selected a high quality, precision-engineered piece of equipment, designed to give you many benefits as well as years of outstanding performance.

PRECAUTIONS

Waste oil may contain many foreign materials. Waste oil may also contain gasoline. Therefore, specific precautions on the handling and storage of waste oils are to be observed when using, cleaning, and maintaining this heater. **Use a screen in a funnel when pouring oil into storage tank to catch foreign material, i.e., gasket material and sealant fibers, etc.** **WARNING: This appliance is not designated for use in hazardous atmospheres containing flammable vapors or combustible dust, or atmospheres containing chlorinated or halogenated hydrocarbons. Do not expose this unit to rain or moisture. If installed in high moisture atmosphere, a special cover for the integrated air compressor must be obtained from factory to avoid rusting of internal raw metals. If this occurs, see trouble-shooting guide for remedy.** Uses only crank case oil, gear oil, hydraulic oils, auto trans. Fluid, or #1 and #2 furnace oil. Do not use old, contaminated oils that have been stored in underground tanks or outside barrels for long periods. Excessive water and sludge may be present, causing quick filter plugging.

NOTES: The instructions contained in this manual apply to the installation, operation, and service of Omni Waste oil fired heaters. The following instructions should be carefully followed for obtaining the best possible installation, operation, and service conditions. Specifications are subject to change without notice. This heater was designed to be a primary or auxiliary heat source, but not the only source of heat. And provide economical disposal of waste oil. Proper operation depends on the consistency of the oil. Any water or foreign material in the oil may cause the unit to shut down. If a continuous stream of oil cannot be guaranteed at the heater, the main heating system should be set above freezing which will prevent any building damage if the waste oil heater were to become inoperative during subfreezing weather, i.e. supply tank empty, filter plugged, etc.

UNCRATING: Immediately upon uncrating units, check rating plate for certainty of electrical and mechanical characteristics. Also, check the unit for any damage that may have been incurred in shipment, if any damage is found, file a claim with the transporting agency. The unit has been tested and inspected at the factory prior to crating and was in perfect condition at that time. If anything is missing, check packing slip for indications of possible backorder of those parts or components. Otherwise, a claim must be filed for those missing parts.

IMPORTANT

NOTICE TO OWNER AND INSTALLER

To enjoy the long-term benefits of burning your used oil in an Omni Waste Oil Burning appliance, it is necessary to become familiar with the correct installation operation and maintenance of your new furnace. Before installing or operating this appliance, make sure you read and understand this manual.

IMPROPER INSTALLATION, ALTERATIONS, OR LACK OF MAINTENANCE WILL VOID THE WARRANTY

The most critical sections of this manual are in order of importance as follows:

- **Basic Operation Knowledge**
- **Oil Suction Line Installation**
- **Correct Draft Over Fire**
- **General Maintenance Requirements**

Identical to any gas or oil furnace, without adequate draft over the fire, the combustion gases cannot escape the furnaces. The flame will lengthen resulting in an overheated combustion chamber. Even if the heater is installed correctly and adequate draft achieved, a flue passage blockage will affect the draft. Burning used oil is similar to burning wood. A fine gray ash accumulates in the chamber and flue passage. This accumulation of ash will eventually affect the draft. It is important to remove this ash before the draft is affected.

These topics are discussed in detail on the pages listed above. Please familiarize yourself with these sections of your manual. Spending a few minutes to review this material will assure that you receive the return on investment that you expect from your Omni heater.

SPECIFICATIONS

MODEL	OWH-150	OWH-250	OWH-350	OWH-500
BTU'S/HR INPUT	150,000	250,000	350,000	500,000
BTU'S/HR OUTPUT	120,000	215,000	300,000	410,000
GALLONS PER HOUR	1.0	1.75	2.4	3.4
VOLTAGE REQUIREMENTS	115	115	115	115
AMPS FULL LOAD with Pump	14.6	17.0	18.7	23.5
FAN MOTOR HP	1/4	1/3	2 @ 1/4 each	2 @ 1/3 each
FAN MOTOR RPM	1075	1075	1075	1075
FAN DIA/PITCH	18/36	24/18	18/36	24/18
CFM (FREE AIR)	3762	4466	6275	9001
CFM W/ DUCTWORK at 100 FT	1380	2000	1600	3701
EFFECTIVE AIR FLOW	50 FT	60 FT	70 FT	100 FT
FLUE SIZE	8"	8"	8"	10"
WEIGHT W/ BURNER	240 LBS	365 LBS	400 LBS	660 LBS
SHIPPING WEIGHT	375 LBS	535 LBS	575 LBS	725 LBS
DIMENSIONS L/W/H	42-22-25 ½	44-30-28 ½	54-29 ½-28 ½	72-38-34 ½
SHIPPING DIMENSIONS L/W/H	64 ½-30-49	64 ½-39-49	76-38-49	92-44-50

Notes:

- All illustrations and specifications contained herein are based on the latest information available at the time of publication approval. Econo Heat reserves the right to make changes at any time without notice, in materials, specifications, and models or to discontinue models.
- These appliances are designed for commercial or industrial use only. Installation and use of this waste-oil burning appliance shall be in accordance with the Standard for the Installation of Oil Burning Equipment-ANS/NFPA 31-1987, and National Electric Code - ANSI/NFPA 70-1990 and the requirements of the inspection authorities having jurisdiction.
- Output depends on BTU content of oil used.
- Atomizing Air Pressure for all fuels 10 P.S.I.
- Furnace not to be used with air filters.
- Intended maximum outlet air temp. 200 degrees F. (93 degrees C) or less.
- Clearance from combustible materials on all models not to be less than:**

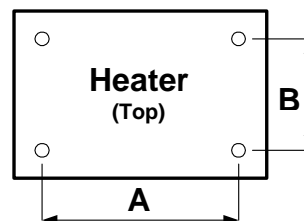
TOP- 6"
REAR- 18"

BOTTOM- 18"
FRONT- 48"

SIDES- 18"
FLUE PIPE- 18"

Mounting Dimensions:

MODEL	A	B
OWH-150	35 ½"	20"
OWH-250	35 ½"	22 ¼"
OWH-350	47 ¾"	22 ¼"
OWH-500	63 ¼"	28 ¾"



INSTALLATION PROCEDURES

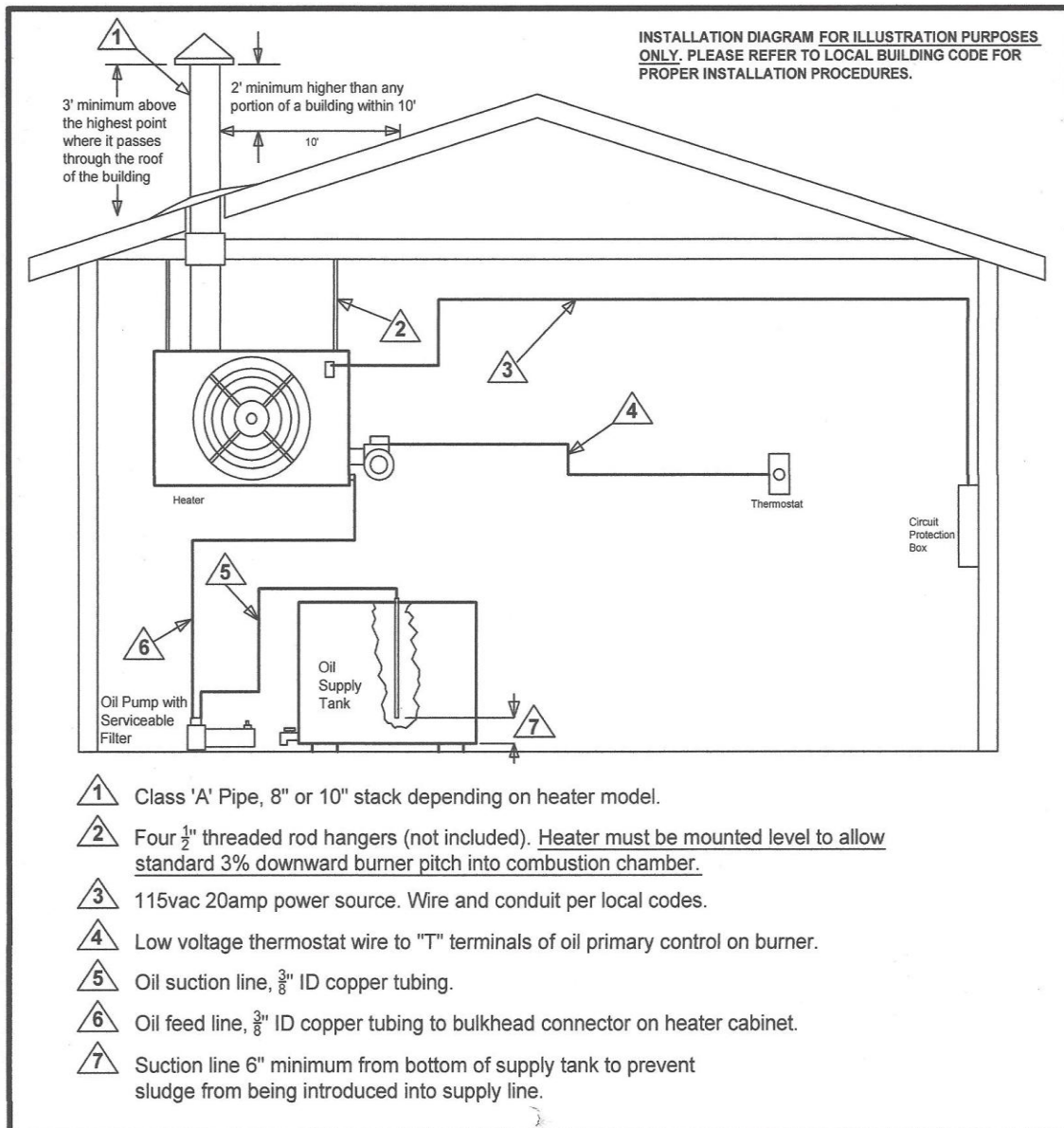


Figure 1 – Installation Diagram

STACK INSTALLATION

1. Install a barometric damper (NOT included) in the stack if the draft up the stack exceeds $-.08$. Draft up the stack must be $-.04$ to $-.06$ inches of water column. Check with draft meter between the top of the heater and damper. The over fire draft should be a minimum of $-.02$ - check through flame inspection port. Closing the damper door can increase draft.

2. For optional draft inducers or power vent wiring, See Figure 2. One of these devices must be installed where back draft is present. In building or correct draft cannot be achieved.

OIL SUPPLY PIPING

1. Use ONLY 3/8" nominal ID copper tubing with flare fittings only on the fuel suction from the tank to the heater- **Do NOT use ferrule fittings or Teflon tape on any pipefittings.**
2. Keep suction line approximately 6" from bottom of oil tank to prevent suction of sludge. Drain accumulated sludge and water from tank periodically.
3. Use only an inside oil storage tank to supply heater. **Do not draw from an outside tank,** especially not an underground tank, directly to heater. A separate transfer pump from an outside tank with proper filtration to the inside supply tank is acceptable and available from Econo Heat.
4. **The fuel supply pump included with heater is to be mounted at tank level or below.** (figure 1). This pump turns slowly requiring a number of minutes to accomplish purging ALL air, if bubbles, skips, even slight pulsations in the oil flow from pumps bleeder port is unacceptable and must be removed assuring proper oil flow to heater. Otherwise, the flame sensor will not see enough flame and heater will lockout. **NOTE: PUMP ASSEMBLY MUST BE MOUNTED HORIZONTAL.**
5. Connect 3/8" oil supply line from the supply tank through the filter (figure 1) to the pump inlet located same side as bleeder port. (figure 6) Continue oil supply line from pump outlet to bulk head fitting secured to cabinet at left side of burner assembly (bulk head fitting has fuel flex hose connecting it to burner).

WIRING

See Schematic diagram below (Pg.7 Figure 2) and/or inside door of main electrical junction box on heater.

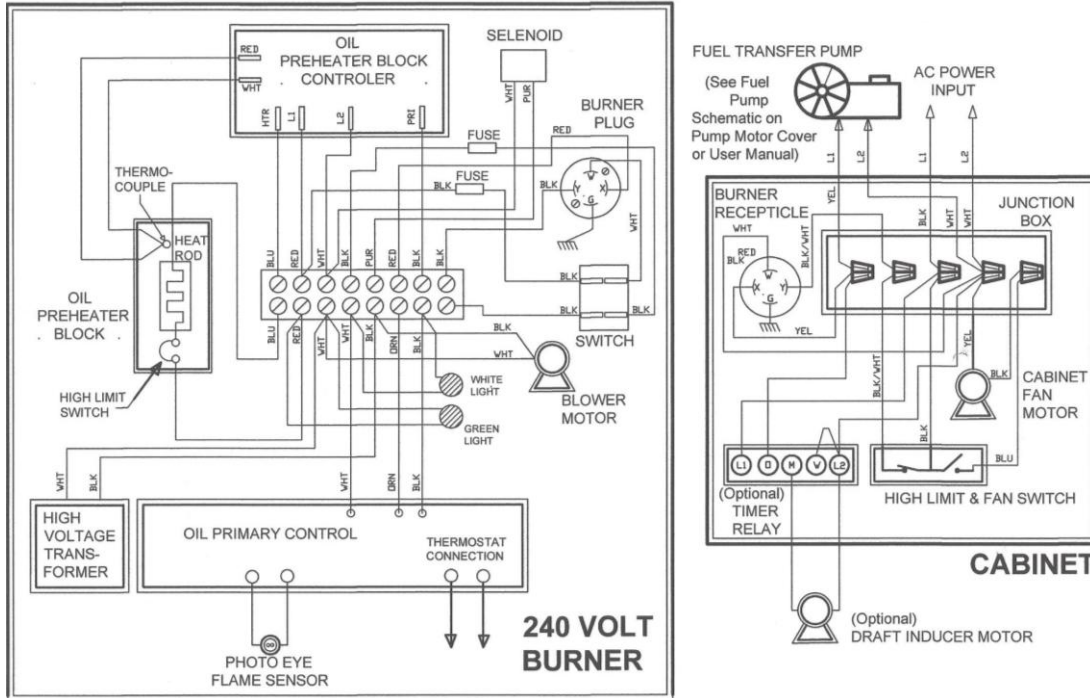


Figure 2 – Wiring Diagram

1. Wire 240V into main electrical box mounted on burner backside of heater cabinet with separate circuit **20-amp protection using 12-gauge wire**. Connect power line to black wire and all whites (NEUTRAL or COMMON) together. **IMPORTANT**, Connect ground wire to ground mounting point in main junction box (green screw).
2. Connect wires from main junction box to remote oil pump power. Yellow to yellow and neutral common white to white.
3. Wire low voltage thermostat into “T” marked terminals on oil primary control on burner. (Box on burner gun assembly with red reset button). (figure 3).

DUCTING

All unit heaters are designed with a condenser-type pressure propeller fan for air deliver, and have been successfully field ducted. (See Specifications) call factory for further assistance if needed.

OIL BURNER

WARNING

Installation and use of this used oil burning appliance shall be in accordance with the standard for the Installation of Oil Burning Equipment – ANSI/NFPA 31 – 1987, and National Electric Code – ANSI/NFPA 70 – 1990 and the requirements of the inspection authorities having jurisdiction.

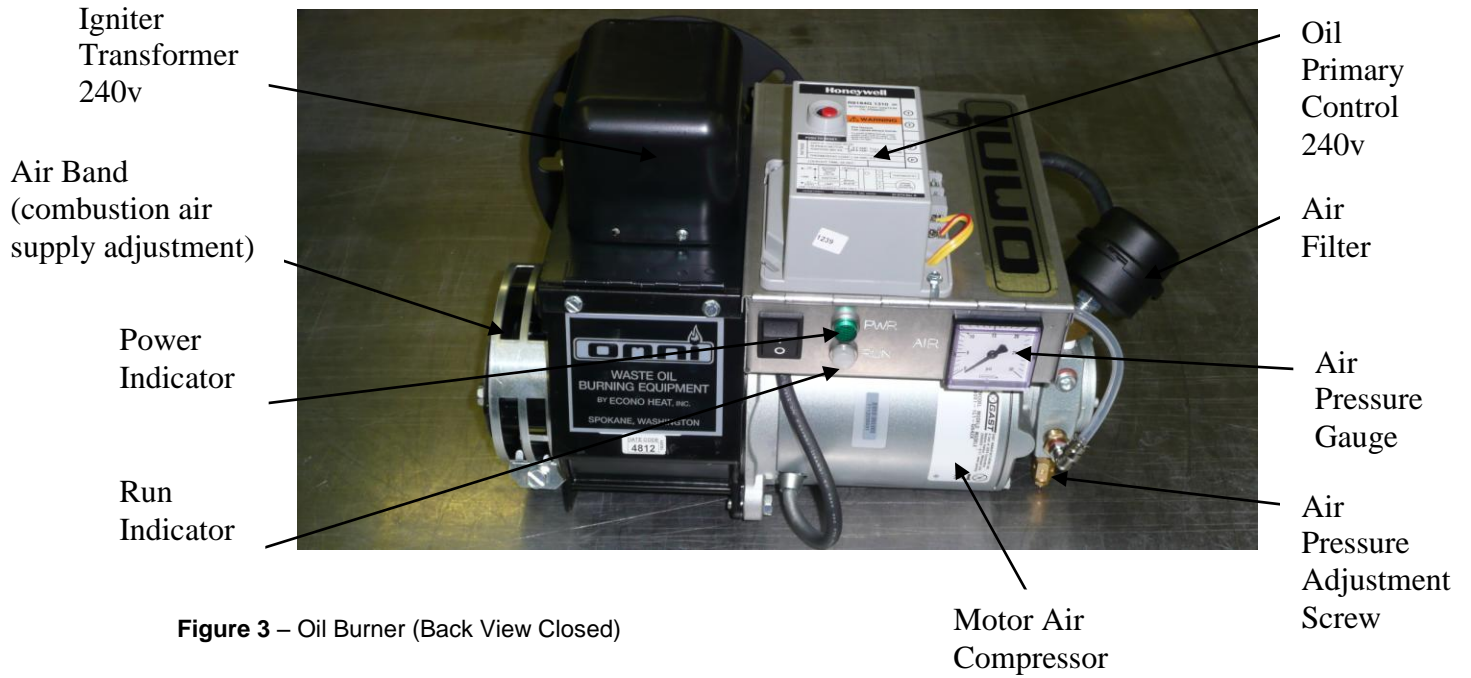


Figure 3 – Oil Burner (Back View Closed)

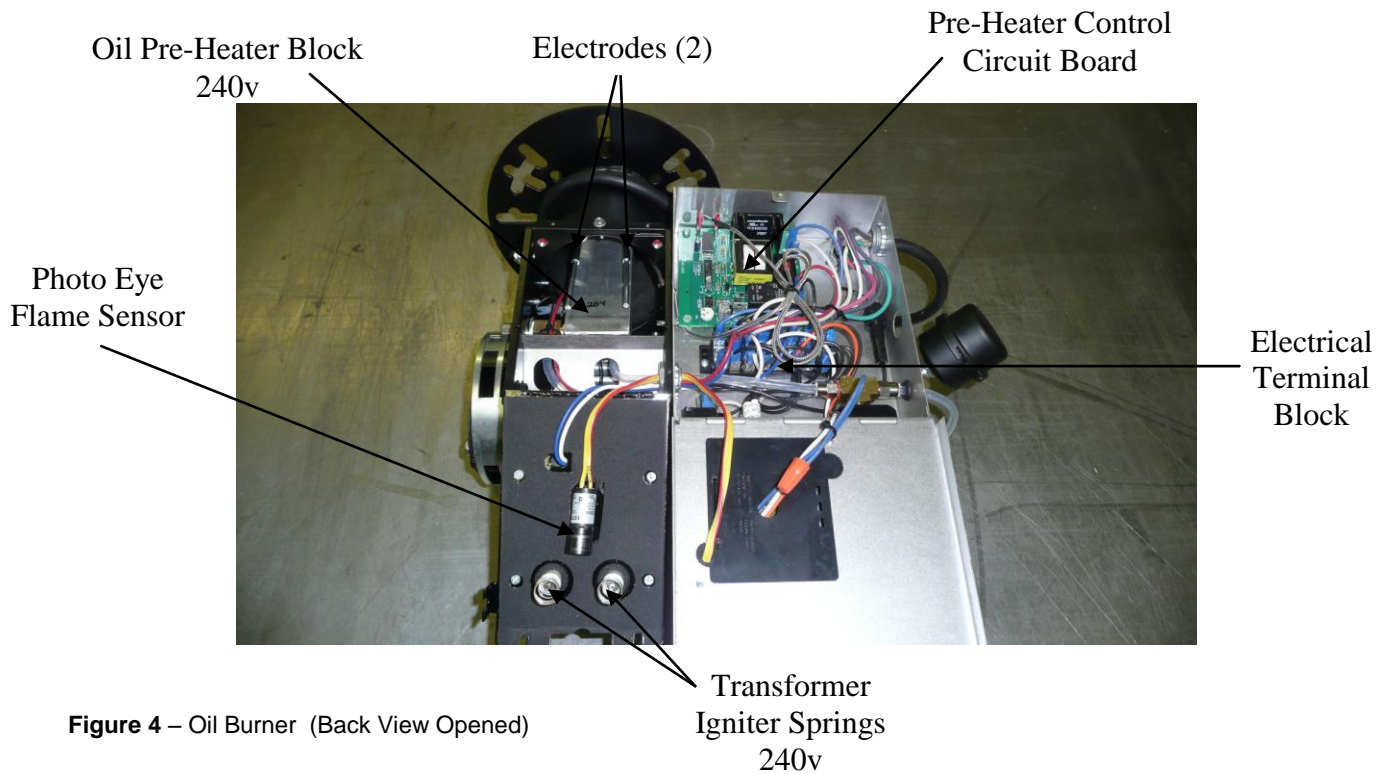


Figure 4 – Oil Burner (Back View Opened)

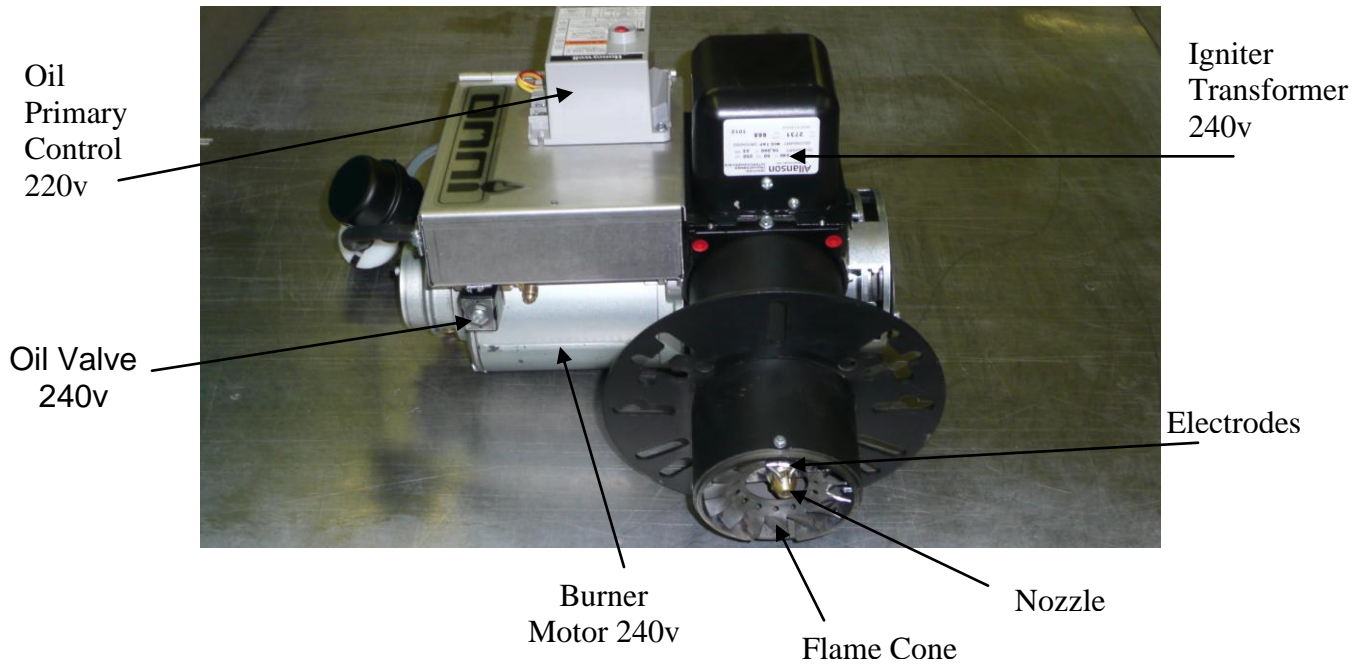


Figure 5 – Oil Burner (Front View)

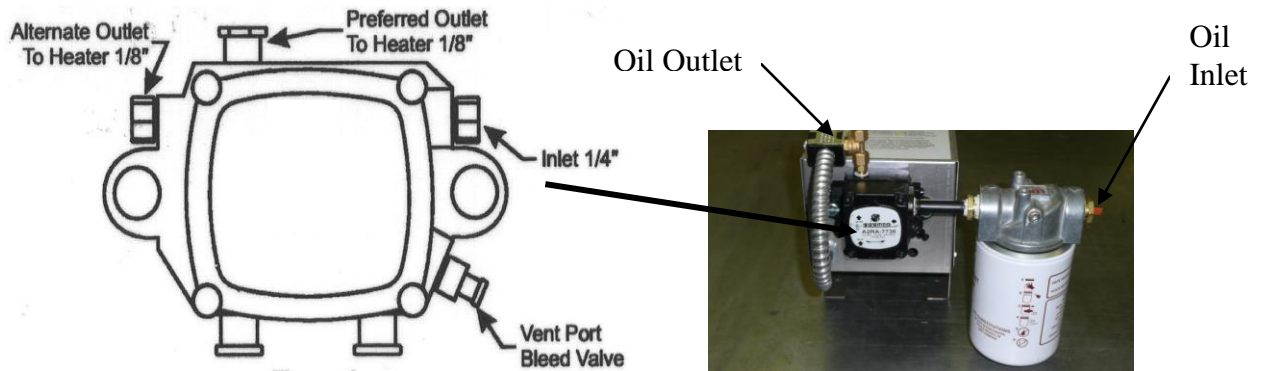


Figure 6 –Oil Pump Diagram

Oil Shut-off Valve- Eliminates start delays due to possible drain back

Spin-On Filter



Oil Primer Switch

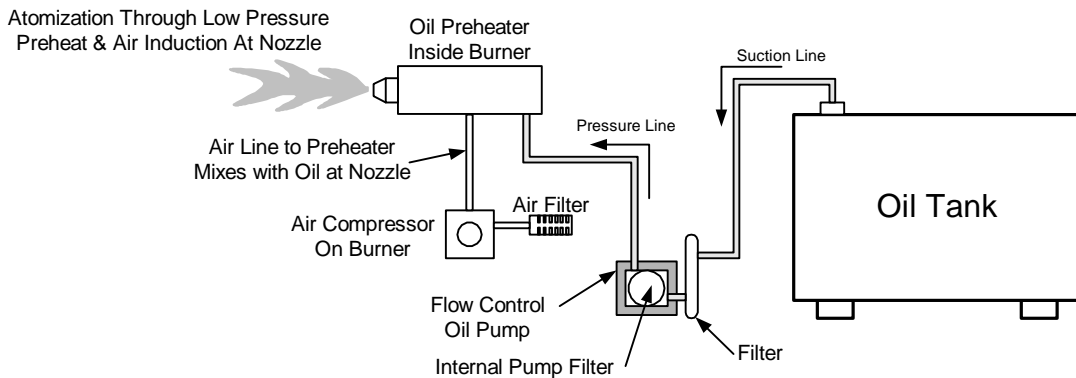
Adjustable Motor Speed- Initial set up only- Once set, no adjustment needed thereafter

Inline Breaker

Figure 7 –Oil Pump Assembly

Oil Flow Control Supply Pump has the ability to control flame even when various viscosities are used- furnace or stove oil to 90 weight straight- flame remains stable

OIL BURNER TECHNOLOGY



Omni's patented burner technology improves the efficiency of the oil burn process by continuous stabilization of the oil viscosity. Optimum atomization (spray) is accomplished by precisely pre-heating the oil and air prior to introduction to the combustion chamber. The waste oil enters into the Oil Pre-Heater Block (figure 4) and is pre-heated to operating thermo setpoint, then compressed air from the air compressor (figure 3) is mixed with the oil prior to spraying out the nozzle similar to fuel injection, by breaking up the oil droplets into a finer mist or spray (atomization). Electrodes mounted just above the nozzle (figure 5) provides continuous electrical arc across electrode to electrode igniting the fine oil mist as it sprays out of the nozzle. Once ignited the flame is forced into a swirl caused by the burners blower and specially designed flame cone (figure 5) providing a very efficient and thorough burn of the waste oil.

Burner Components

- **Igniter Transformer:** (figure 3) Supplies high voltage to the electrodes generating electrical arc igniting the oil.
- **Oil Valve:** (figure 5) energizes when burner is running and de-energizes when burner is not running eliminating bleed back of oil out of the Pre-heater block.
- **Air Band:** (figure 3) Adjusts amount of air introduced into the combustion chamber. Air band is adjusted at the factory for optimum performance, approx. ½ to ¾ inch open. **NO FIELD ADJUSTMENT REQUIRED** unless in high altitudes application where minor adjustment may be required.
- **Oil Primary Control:** (figure 3) Controls the oil burner ignition. Checks for flame in the combustion chamber, if no flame is detected within 45 seconds, the oil primary will shutdown the oil burner. To restart the unit, reset the red button on the oil primary.
- **Oil Pre-Heater Block:** (figure 4) Pre-heats the oil and air before entering combustion chamber.
- **Photo Eye:** (figure 4) Senses flame in combustion chamber and signals oil primary when no flame is present.
- **Igniter Springs:** (figure 4) Transfers the high voltage from the igniter transformer to the electrodes (when door is closed)
- **Air Pressure Gauge:** (figure 3) Displays air pressure supplied by onboard air compressor.
- **Air Compressor:** (figure 3) Supplies air used within pre-heater block to aid in atomization of the oil.
- **Air Muffler/Filter:** (figure 3) Filters air and muffles the sound generated by the compressor.
- **Pre-Heater Control Circuit Board:** (figure 4) Precisely controls temperature of the Oil Pre-Heater Block and controls safety feature of not allowing burner to energize until oil has established operating thermo setpoint or shutdown burner if Pre-Heater Block temperature falls below shutdown thermo setpoint.
- **Electrodes:** (figure 4 and 5) Provides continuous high voltage electrical arc from electrode to electrode igniting the waste oil as it is being sprayed out of the nozzle.
- **Nozzle:** (figure 5) Low-pressure nozzle for oil spray pattern.
- **Flame Cone:** (figure 5) Specially engineered flame cone forces the flame into a swirl pattern improving the burn thoroughness.
- **Burner Motor:** (figure 5) Multitask motor turns the burner blower and integrated air compressor.
- **Air Pressure Adjuster:** (figure 3) Adjusts the air pressure going to the pre-heater block. Should be adjusted between 12 PSI and 13PSI as indicated on the Air Pressure Gauge on the burner for thorough burn of the waste oil.

Note: In order to insure proper air adjustment, air gauge must read 0 when burner is cycled off or powered down.

- **Oil Pressure Adjustment:** Adjust flame length in the heater combustion chamber viewed through the inspection port located directly above the burner gun assembly by increasing CW or decreasing CCW the adjuster located on the oil delivery pump (figure7). The adjuster increases or decreases the pump motors RPM, which increases or decreases the delivery of fuel to the burner. When you increase or decrease the fuel to the burner, you will notice the flame length will increase or decrease. **Adjust flame length** so flame is just slightly **less than** halfway down main combustion chamber tube.

IMPORTANT:

- **Power Indicator:** (figure 3) Indicates when power is present at the burner.
 - **Run Indicator:** (figure 3) Indicates that the burner is ready for operation after the initial pre-heat time of approx. 5 minutes from initial power up.
1. **IMPORTANT-** Prior to starting the unit, pre-fill the filter and fuel line with oil to assist priming procedure. Oil pump motor turns at low RPM's and would take significant time to complete priming process if not pre-filled. Make sure the oil supply line fittings are air tight. Vacuum leaks are notoriously hard to find. Pressurizing the line with oil in it can help to locate leaks.
 2. Proper draft. Draft is the gasses traveling through the heater and out the stack or flue. If exhaust fans are present in your building, chances are a draft inducer will be needed. Call our factory or see our website for help, www.econoheat.com
 3. During the initial power up process the burner is locked out from energizing until the oil has been properly pre-heated to operating thermo setpoint, approx 3 to 5 minute duration. Once the oil has been pre-heated, power is then applied to burner componenets and oil pump.
 4. Making sure the thermostat is turned off, apply power to the burner. Switch burner main power switch to ON position. After allowing the oil pre-heater time to establish temperature setpoint, approximately 5 minutes. Jump the "T" terminals on the Oil Primary Control (figure 3). Once the burner is running, temporarily jump the "F" terminals on the Oil Primary. This will allow the burner to run during the pump priming process.
 5. Priming the oil pump: Open bleeder valve one turn until all air is expelled (figure 6). This may need to be done twice to insure all air is removed. **IMPORTANT:** When fully purged and flame is established remove temporarily jumpers on "F" terminals of the Oil Primary to allow safety features of the unit to operate properly.
 6. Adjust air supply of integrated air compressor to 8-12 P.S.I. This is factory preset, however, due to freight handling settings may be compromised.
 7. Combustion air band (figure 3) should be open approximately 1/2" or until flame is clear yellow, not orange. Opening the air band too far may cause delayed in starting or even prevent the flame from starting.

Inspect flame length through inspection door located above burner gun assembly. End of flame should reach **no further than ½ way down combustion tube**. To accomplish this flame length, use adjustment knob on opposite side of oil pump. **NEVER ATTEMPT TO START HEATER WHEN COMBUSTION CHAMBER IS HOT AND A DELAYED START.**

INITIAL START PROCEDURE

8. **IMPORTANT-** Prior to starting the unit, pre-fill the filter and fuel line with oil to assist priming procedure. Oil pump motor turns at low RPM's and would take significant time to complete priming process if not pre-filled. Make sure the oil supply line fittings are air tight. Vacuum leaks are notoriously hard to find. Pressurizing the line with oil in it can help to locate leaks.
9. Proper draft. Draft is the gasses traveling through the heater and out the stack or flue. If exhaust fans are present in your building, chances are a draft inducer will be needed. Call our factory or see our website for help, www.econoheat.com
10. During the initial power up process the burner is locked out from energizing until the oil has been properly pre-heated to operating thermo setpoint, approx 3 to 5 minute duration. Once the oil has been pre-heated, power is then applied to burner components and oil pump.
11. Making sure the thermostat is turned off, apply power to the burner. Switch burner main power switch to ON position. After allowing the oil pre-heater time to establish temperature setpoint, approximately 5 minutes. Jump the "T" terminals on the Oil Primary Control (figure 3). Once the burner is running, temporarily jump the "F" terminals on the Oil Primary. This will allow the burner to run during the pump priming process.
12. Priming the oil pump: Open bleeder valve one turn until all air is expelled (figure 6). This may need to be done twice to insure all air is removed. **IMPORTANT:** When fully purged and flame is established remove temporarily jumpers on "F" terminals of the Oil Primary to allow safety features of the unit to operate properly.
13. Adjust air supply of integrated air compressor to 8-12 P.S.I. This is factory preset, however, due to freight handling settings may be compromised.
14. Combustion air band (figure 3) should be open approximately 1/2" or until flame is clear yellow, not orange. Opening the air band too far may cause delayed in starting or even prevent the flame from starting.
15. Inspect flame length through inspection door located above burner gun assembly. End of flame should reach no further than 1/2 way down combustion tube. To accomplish this flame length, use adjustment knob on opposite side of oil pump. **NEVER ATTEMPT TO START HEATER WHEN COMBUSTION CHAMBER IS HOT AND A DELAYED START OCCURS.**

MAINTENANCE SCHEDULE

WEEKLY

--- Drain water from storage tank.

MONTHLY

--- Check your ash accumulation for best performance, remove if excessive (the size of unit, type of oil and run time are all contingent factors).

--- Change or Replace Spin-On Filter (figure 14). Monitor : **every** application is different and may vary depending on contamination of oils being used.

ONCE EACH SEASON

(OR MORE DEPENDING UPON USAGE OR CONTAMINATION OF OIL).

--- Swing out burner assembly clean out door and clean flame cone. (figure 5 and figure 8).

--- Open the swing out doors on both sides of the furnace. The swing out door opposite of the burner assembly requires the removal of the access panel allowing simple entry to the combustion chamber and heat exchanger(s) to vacuum out the accumulated ash & soot (hepa filter recommended). (figure 12).

--- Clean Suntec pump filter. Remove pump cover for access. (figure 13). CAUTION!-Be careful of gasket.

--- Clean air compressor filter element.

YEARLY

--- Clean flue pipe stack-to loosen soot remove stack at top of heater and tap thoroughly. Then vacuum upper heat exchanger(s).

--- Inspect electrode adjustment. (figure 10). Due to erosion, adjustment may change.

--- Replace nozzle every 3-5 years depending on usage (figure 5, 9, 11). Will lose efficiency due to erosion. This can be accessed by swinging burner clean out door open. (figure 8)

---**IMPORTANT:** TO TURN POWER OFF, Remove electrical plug from heater cabinet to burner. Remove 9/16" burner door securing nuts, swing open burner clean out door. Remove nozzle with 5/8" socket. (figure 8, 9)

ELECTRODE ADJUSTMENTS

Electrodes are adjusted at time of manufacture. However, they should be check periodically and at time of installation, to be sure they are set as noted in the following dimensional drawing. Swing burner clean out door back for inspection. (figure 5, 10, and 11)

CAUTION: TURN OFF MAIN ELECTRIC SUPPLY SWITCH BEFORE CHECKING OR ADJUSTING ELECTRODE SETTING.

NOZZLE POSITION IN RELATION TO ENDCONE/BURNER TUBE

Tip of nozzle must be 1/4" ahead of inside radius of end-cone. If nozzle is behind inside radius of end-cone, coking will occur and end cone can become clogged. (figure 10). **IMPORTANT NOTE:** be sure nozzle is centered, if nozzle is higher than center, press nozzle down to bottom out pre-heater stand.

To adjust, open burner clean out door (figure 8), loosen Preheat Sink securing nut and set screw, push fore or aft as needed. **WARNING:** This adjustment is done at the factory and should not be moved unless Fig 8 dimensions have been altered.



Figure 8 – Burner Door View

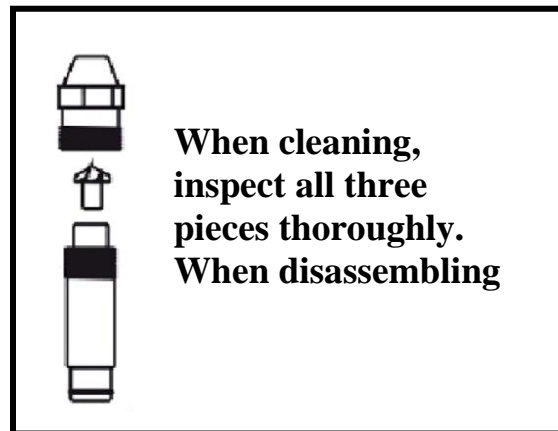


Figure 9 – Nozzle Assembly Detail

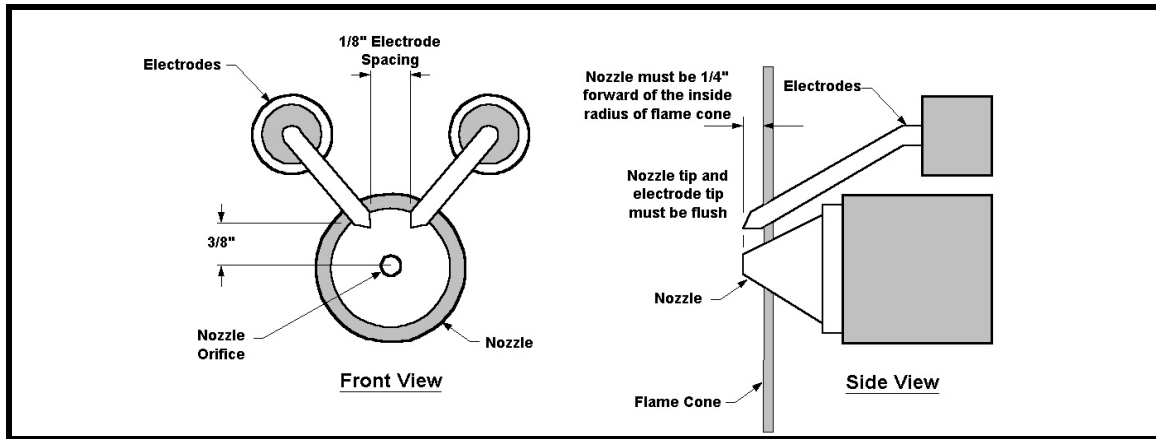


Figure 10 – Electrode Adjustment Detail

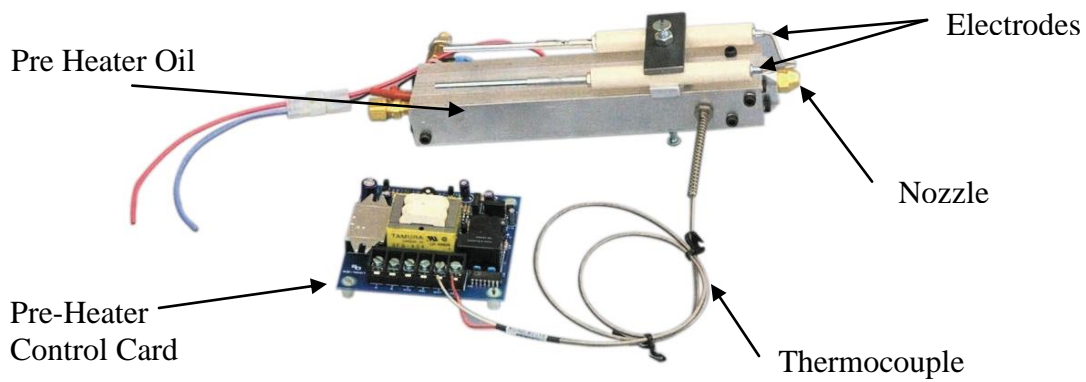


Figure 11 – Pre-Heater Block Detail (Removed From Burner for Clarity)



Figure 12 – Combustion Chamber and Heat Exchanger Cleanout Door, Models OWH 250, 350, 500

Suntec Fuel Pump



Remove 4 bolts for access to strainer filter. CAUTION must be careful not to destroy the inner gasket during removal of the housing

Suntec Strainer Filter



Suntec Gasket

Figure 13 – Pump Strainer

Spin-On Filter

Filter Housing



Figure 14 – Oil Filter (Spin-On Filter above, Pancake Style Filter below)

Pancake Filter Housing

Pancake Filter



TROUBLE SHOOTING

	◆ Most Likely	● Less Likely	♣ Least Likely
Symptom	Cause	Remedy	
1. Heater shuts off	◆ Manual reset	◆ Requiring manual restart by reset button on.	
2. Loss of prime overnight Won't hold vacuum	◆ Vacuum air leak in fuel line ♣ Plugged pump screen	◆ Check all fuel connections. Tighten fittings. ♣ Check pump screen, may need cleaning—to access, remove pump cover	
IS TANK EMPTY?	● Plugged filter or tank oil empty	● Clean filter. Using vent port, reprime pump (See Figure 6 & 7).	
3. Fails to start.	◆ Vacuum Leak ◆ Inadequate Fuel Supply ● No Pressure ● No Pre-heat ● Auto start circuit not functioning ● No Arc ● No Air Pressure	◆ Open bleeder port if air present. Check and tighten fittings. ◆ Clean filter. Check all fuel connections. Tighten fittings. ● Check, may need cleaning—to access, remove pump cover. ● Using vent port, reprime pump (See Figure 6 & 7) ● Be sure all wiring to pre-heater is tight—no loose connections. ● Bad firerod—Replace. Continuity at terminals. ● Check circuit control board and replace if necessary.(Call Factory) ● Check continuity at terminals of firerod limit snap switch. Replace if needed. ● Check springs to electrode rod adjustment (under transformer) make sure they make good contact. Open burner door and make sure electrode tips aren't touching flame cone. Readjust. ● Check pressure regulator and adjust. Check air supply line for restrictions or leaks. Pull compressor cover and inspect carbon vanes. May need to replace. Check filter, clean if needed.	
4. Reduced air pressure, cannot increase.	◆ Gauge may be bad. ◆ Intake filter muffler is plugged with dust or dirt. ♣ Compressor vanes may be worn. ● Exposed to water.	◆ Replace gauge. ◆ Remove & Clean with carburetor cleaner, dry thoroughly. Do Not Use. ♣ Replace carbon canes. ● Remove cover, clean rust with emery cloth.	
5. Hard starting diminished flame.	◆ Partially plugged filter. ♣ Out of fuel ♣ No oil to burner ● Restriction in nozzle usually only when initially installed. New lines may have foreign material in them. ● Air band open too far	◆ Clean filter. Using vent port—reprime pump (See Figure 6 & 7) ♣ Refill Storage. ♣ Clean pump screen—Remove pump cover. Using vent port, reprime pump. (See figure 6 & 7) ● Remove nozzle and check for foreign objects. (See Figure 9 and 11) ● Aluminum Block Pre-heater inside burner should not build up carbon. If carbon is present, pre-heat circuit is malfunctioning. Thermocouple heat sensor wire could have open circuit. Heat control board may have blown circuit and circuit board fuse. Inspect both and replace either if needed. (See Figure 11). ● Close air band—while viewing flame; open air band slowly until combustion chamber is clear, not orange.	
6. Heater cycles frequently, without thermostat temperature setting being achieved in area to be heated.	◆ Heater over firing. ♣ Temperature setting wrong On high limit fan safety switch. ● High limit safety switch bad	◆ Investigate and locate reason for over firing. I.e., nozzle eroded, pump not functioning properly, decrease pump motor speed. (See #6 for remedy) ♣ Check temperature setting and adjust as necessary. ● Replace high limit fan safety switch.	

7. Heater rumbles and excessive heat blow back from flame vision port.	<ul style="list-style-type: none"> ◆ Pump setting wrong ◆ Draft incorrect. If proper draft can't be achieved, heater could have excessive amount of ash and wont allow sufficient draft. 	<ul style="list-style-type: none"> ◆ Pump not functioning properly--over firing. May need RPM readjust. Reset flame slightly less than ½ way down tube combustion chamber. Use adjustment knob on pump motor. (See Figure 7). ◆ Set draft. Clean out combustion chamber and exchangers of ash. Check draft--reset if needed.
8. Heater establishes flame but locks out or shuts off. Need to reset primary.	<ul style="list-style-type: none"> ◆ Photo eye cant see flame. ◆ Due to back draft. Flame end cone may have ash. ◆ Flame too small 	<ul style="list-style-type: none"> ◆ Clean photo eye which is smoked up by back draft smoke. ◆ Swing open burner door and clean ash build up from flame end cone. (See Figure 5 & 8). ◆ Increase pump motor speed (See Figure 7).
9. Proper draft setting cannot be achieved	<ul style="list-style-type: none"> ◆ Negative draft in building or exhaust fans present. ◆ Excessive ash buildup/Heater 	<ul style="list-style-type: none"> ◆ May need to install power vent/draft inducer's in stack. (See Figure 2 for wiring). ◆ Clean ash and soot from combustion chamber and heat exchangers.
10. Poor or reduced heat production.	<ul style="list-style-type: none"> ◆ Flame too small ◆ Entire fuel supply may be plugged. ◆ Excessive ash buildup exchangers ◆ Through vision port, check flame to see if flame is smaller than usual. 	<ul style="list-style-type: none"> ◆ Nozzle may be plugged with debris--usually after filter is cleaned. ◆ Clean filter both, oil strainer and oil pump screen. ◆ Clean ash from combustion chamber and exchangers. ◆ May need to readjust pump RPM. (Use knob on pump motor). (See Figure 7).

EconoHeat Inc.

Omni Unit Heaters 150, 250, 350, 500 Fifteen (15) Year Limited Warranty

Econo Heat (manufacturer) warrants to the purchaser of Unit Heaters listed above will be free from defects in materials and workmanship for the durations specified below, which duration begins on the date of delivery to the customer. Customer is responsible for maintaining proof of date of delivery.

If return is deemed necessary for warranty evaluation and determination of repair or replacement, unit heater is to be sent to the factory with freight prepaid. Econo Heat reserves the right to determine appropriate action for repair or replacement.

No parts will be accepted by Econo Heat without RA# (return authorization number) clearly marked on outside of shipping package. Obtaining RA# requires model and serial numbers, description of part being replaced and nature of defect. Call factory to receive RA#.

Warranty Covers:

1. Combustion Chamber and Heat Exchanger full Fifteen (15) years limited. *full repair or replacement, (Parts Only)
2. Oil Heater Block, twenty (20) years. (Part Only)
3. Oil Heater Block Controller PCB, three (3) years. (Part Only)
4. All other components, one (1) year. (Parts Only)

This warranty is void if:

1. Warranty registration card is not returned within thirty (30) days of purchase.
2. Any part or component subject to abuse or altered from original manufactures specifications.
3. Installation not in accordance with instructions.
4. Has not been properly maintained, operated or has been misused.
5. Wiring not in accordance with diagram furnished with unit heater.
6. Unit heater is operated in the presence of chlorinated vapors.
7. Air through unit heater is not in accordance with rating plate and specifications.

Warranty is limited to the original purchaser.

The above warranty is in lieu of all other warranties expressed or implied. Econo Heat does not authorize any person or representative to make or assume any other obligation or liability that is not in accordance with above warranty. **Econo Heat is not responsible for any labor cost unless prior authorization in writing has been obtained.**

NOTE: Combustion Chamber Warranty is specific to material and workmanship. Workmanship means Econo Heat warranties the welds are good and will hold. Material means they will not corrode through due to sulfur in the ash that accumulates during operation. **Warranty does not apply to units that experience overheating stress cracks.** These are not incurred because the materials are inadequate for the application nor are they results of a weld breaking lose because of bad penetration, which is easily recognized by the metal left beneath the weld. These cracks occur as a direct result of (1)improper draft, either by inadequate initial installation and setup, which requires (a) establishing a proper draft during installation (b) back draft has occurred due to ash buildup, backing up hot gas passageways in either the exchangers, the stack, or both. (2) Over firing by setting oil supply pressure too high (see manual for proper setting) these are all cases of **thermal overload.**

* Under normal use only. If misuse or abuse is deemed apparent after inspection, warranty is void.

WARRANTY CARD

Please fill out, tear off and return to manufacturer

Return following warranty information to manufacturer within thirty (30) days of purchase or warranty will not be valid. (Please print or type).

Date of Purchase _____

Serial # _____ Model _____

Customer Name _____

Address _____

City _____ State _____ Zip Code _____

Dealer _____

Address _____

City _____ State _____ Zip Code _____

Installed at _____

Installation Checklist