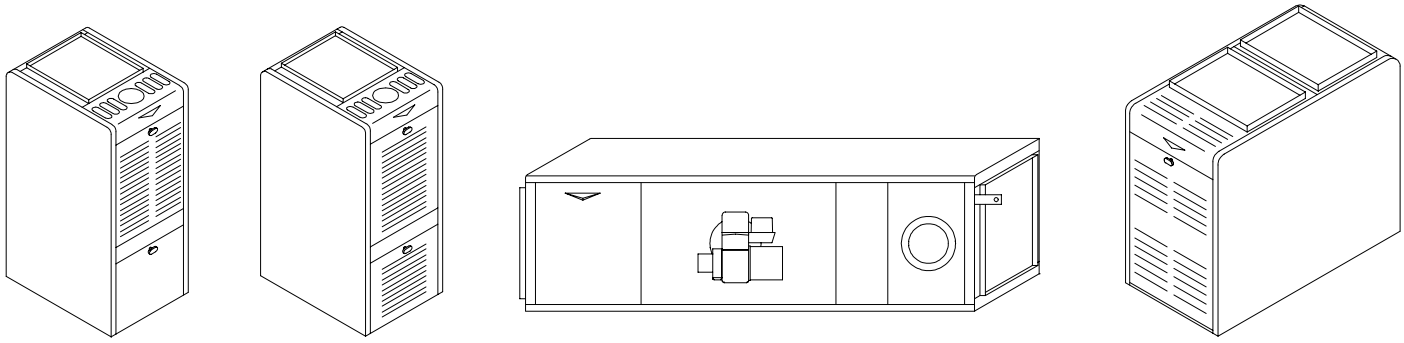
# OIL FIRED FURNACE

## INSTALLATION AND OPERATION MANUAL
## WITH USERS INFORMATION SECTION

## MODELS:

| | | |
|---|---|---|
| **OC2-56** | **OL2-56** | **OH2-56** |
| **OC5-85** | **OL5-85** | **OH3-72** |
| | **OL11-105** | **OH5-85** |
| **OT5-85** | **OL16-125** | **OH11-105** |
| **OT11-105** | **OL20-151** | **OH16-125** |
| **OT16-125** | **OL33-200** | |
| | **OL37-250** | |
| | **OL39-320** | |



⚠ **WARNING:** IF THE INFORMATION IN THESE INSTRUCTIONS IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR LOSS OF LIFE.

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

⚠ **WARNING:** IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE, OR MAINTENANCE CAN CAUSE INJURY OR PROPERTY DAMAGE. REFER TO THIS MANUAL. FOR ASSISTANCE OR ADDITIONAL INFORMATION CONSULT A QUALIFIED INSTALLER, OR SERVICE AGENCY.

**PLEASE READ THESE INSTRUCTIONS PRIOR TO INSTALLATION, INITIAL FIRING, AND BEFORE PERFORMING ANY SERVICE OR MAINTENANCE. THESE INSTRUCTIONS MUST BE LEFT WITH THE USER AND SHOULD BE RETAINED FOR FUTURE REFERENCE BY QUALIFIED SERVICE PERSONNEL.**

EFFICIENCY RATING CERTIFIED Gama

THERMO PRODUCTS, LLC.
PO BOX 217
NORTH JUDSON, IN 46366
PHONE: (574) 896-2133

UL UNDERWRITERS LABORATORIES INC.® LISTED

MADE IN USA

MO-100G
ECN 4385-MA

## I. SAFETY SECTION

**This page contains various warnings and cautions found throughout the Oil Furnace Manual. Please read and comply with the statements below.**

### ⚠WARNING AND CAUTIONS:

**⚠WARNING:** This furnace is not to be used as a construction heater. **See Page 1.**

**⚠ CAUTION MUST BE TAKEN NOT TO EXCEED 90° ROTATION (OF THE FLUE ELBOW) COUNTERCLOCKWISE FROM THE VERTICAL POSITION. See Page 2.**

**⚠WARNING:** When cutting openings in the casing **DO NOT CUT ANY SUPPORTING CLIPS OR ANGLES. See Page 5.**

**⚠WARNING:** The predetermined fan and limit locations on all of the Thermo Pride oil fired furnaces have been tested and approved by Thermo Products, LLC. in conjunction with Underwriters Laboratories, Inc. Any attempt to relocate these safety controls or replace these safety controls with a control that is not approved, or is incompatible, may result in personal injury, substantial property damage or death. **See Page 6.**

**⚠WARNING: THE HEAT EXCHANGER MUST BE CLEANED BY A QUALIFIED SERVICE PERSON. See Page 11.**

**⚠CAUTION: DO NOT ATTEMPT TO MAKE REPAIRS YOURSELF! See Page 13.**

**⚠WARNING: The area around the furnace should be kept free and clear of combustible liquids and material, especially papers and rags. See Page 13.**

**⚠WARNING: NEVER burn garbage or refuse in your furnace. Never try to ignite oil by tossing burning papers or other material into your furnace. See Page 13.**

**⚠WARNING: Thermo Products oil furnaces are designed to burn No. 1 or No. 2 distillate fuel oil. NEVER USE GASOLINE OR A MIXTURE OF OIL AND GASOLINE. See Page 13.**

**⚠CAUTION: DO NOT ATTEMPT TO START THE BURNER WHEN:**
**1. Excess oil has accumulated,**
**2. The furnace is full of vapors**
**3. The combustion chamber is very hot.**
**IF ONE OR MORE OF THESE CONDITIONS EXIST, CONTACT A QUALIFIED SERVICE PERSON. See Page 13.**

**All installations and services must be performed by qualified service personnel.**

**This page contains reproductions of the various instruction and warning labels placed on the Thermo Pride Oil Furnaces. Please read and comply with the contents of these labels.**

Underwriters Laboratories Inc.®
LISTED

EFFICIENCY RATING CERTIFIED gama

OIL-FIRED FURNACE NO. _____ MODEL _____

FOR USE WITH INTEGRAL GROUP PRIMARY SAFETY CONTROLS.

OIL NOT HEAVIER THAN NO. 2

INPUT BTU/HR INPUT G.P.H. PUMP PRESSURE P.S.I. 115 V 60 HZ

TOTAL CURRENT AMPS
MINIMUM CIRCUIT AMPACITY
MAXIMUM FUSE SIZE
EXTERNAL STATIC PRESSURE (IN. W.C.)
MAXIMUM DESIGNED OUTLET AIR TEMPERATURE 200° F OR LESS.
MAY BE INSTALLED WITH CLEARANCES TO UNPROTECTED
COMBUSTIBLE MATERIAL NOT LESS THAN:

(INCHES)

FOR MAXIMUM EFFICIENCY (AFUE) SET BURNER COMBUSTION FOR 12% $CO_2$ MINIMUM AND FURNACE TEMPERATURE RISE FOR 70°F MAXIMUM.

Thermo Products P.O. BOX 217 - NORTH JUDSON, IN 46366

3088
38022

THIS PANEL REMOVABLE BY QUALIFIED SERVICE PERSONNEL FOR ACCESS TO HEAT EXCHANGER CLEAN OUTS. BE CERTAIN CLEAN OUT GASKETS ARE INTACT AND THE COVERS IN PROPER POSITION TO ENSURE A COMPLETE SEAL PRIOR TO OPERATION.

390005

SHOULD THIS UNIT BE DISASSEMBLED ALL COMPONENTS, PANELS, BLOCK OFFS, COLLARS, GASKETS, AND FASTENERS MUST BE REASSEMBLED AS ORIGINALLY FACTORY PRODUCED.

390056

OUTSIDE POWER SOURCE
115 V. 60 CYCLE TO BE CONNECTED TO WIRES INSIDE THIS BOX.
CONNECT WIRE #1 TO THE "HOT" LINE.
CONNECT WIRE #2 TO THE "COMMON" LINE. 390004

## ⚠WARNING

The following items should be inspected every year by a qualified heating contractor.
Correct any deficiencies at once.

Heat Exchanger: Inspect for corrosion, pitting, warpage, deterioration, carbon build up and loose gaskets.

Burner: Check for correct operation, proper combustion, no fuel leakage, and if provided, clean burner filter.

Chimney/Vent Pipe: Inspect for restriction, loose joints, abnormal carbon build up and condensation.

Controls: Check for correct operation and proper settings, (if manually adjustable).

Periodic visual inspections should also be made by the owner during the heating season. Call a qualified heating contractor to report suspected deficiencies. (Do not attempt to make repairs yourself!)

Further owner and heating contractor responsibilities are detailed in the installation and maintenance instruction manual. (Shutt off power before inspecting.)

390399

"DANGER– TO AVOID INJURY FROM MOVING PARTS SHUT OFF THE FURNACE BEFORE REMOVING THIS DOOR."

WHEN IT BECOMES NECESSARY TO REPLACE OR WASH FILTER, REMOVE THE DIRTY FILTER FROM THE RACKS PROVIDED AND WASH OR REPLACE WITH IDENTICAL NEW FILTERS.

THE BLOWER MOTOR LOCATED BEHIND THIS DOOR MAY OR MAY NOT REQUIRE LUBRICATION. IF LUBRICATION INSTRUCTIONS ARE NOT SHOWN ON THE MOTOR NAME PLATE THE MOTOR SHOULD NOT BE LUBRICATED. IF THE NAME PLATE INDICATES THAT THE MOTOR REQUIRES LUBRICATION, LUBRICATE THE MOTOR AS DIRECTED OR USE 30 DROPS OF SAE 20 WEIGHT OIL OR EQUIVALENT TWICE A YEAR. DO NOT USE A LIGHT HOUSEHOLD GRADE OIL.

390025

WARNING: THIS UNIT MUST BE INSTALLED AND SERVICED BY A QUALIFIED CONTRACTOR ONLY. 390057

**All installations and services must be performed by qualified service personnel.**

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**All installations and services must be performed by qualified service personnel.**

## II. GENERAL INSTRUCTIONS - READ BEFORE START OF INSTALLATION

1. The heating output capacity of the furnace proposed for installation should be based on a heat loss calculation made according to the manuals provided by the Air Conditioning Contractors of America (ACCA) or the American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. (ASHRAE).

2. All local codes and/or regulations take precedence over the instructions in this manual and should be followed accordingly. In the absence of local codes, installation must conform with these instructions and regulations of the National Fire Protection Association, and to the provisions of the National Electrical Code (ANSI/NFPA 70-1999 or latest edition).

3. The installed furnace must be level and positioned in a central location with respect to outlet registers. It should be located near the chimney to minimize any horizontal run of flue pipe, which may be required.

4. A furnace installed in a residential garage must be installed so the burner and ignition source are located higher than 18 inches above the floor, unless the required combustion air is taken from the exterior of the garage. Also, the furnace must be located or protected to avoid physical damage by vehicles.

⚠**WARNING:** This furnace is not to be used as a construction heater.

5. Listed below are definitions of "COMBUSTIBLE MATERIAL" and "NON-COMBUSTIBLE MATERIAL."

**COMBUSTIBLE MATERIAL:**
Material made of or surfaced with wood, compressed paper, plant fibers, plastics, or other material that will ignite and burn, whether flame resistant or not.

**NON-COMBUSTIBLE MATERIAL:**
Material that is not capable of being ignited and burned. Such materials consist entirely of, or a combination of, steel, iron, brick, tile, concrete, slate, or glass.

**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS**

| TYPE OF UNIT | MODEL NO.[1] | FROM SIDES OF FURNACE | FRONT | TOP & SIDES OF PLENUM | FROM THE FLUE/VENT | REAR |
|---|---|---|---|---|---|---|
| LOWBOYS | OL2 | 1” | 2” | 1” | 4” | 1” |
| | OL5,11,16 | 1” | 24” | 1” | 6” | 1” |
| | OL20 | 1” | 24” | 1” | 18” | 1” |
| | OL33,37,39 | 1” | 24” | 1” | 18” | 1” |
| HIGHBOYS | OH3,11 | 1” | 24” | 1” | 9” | 1” |
| | OH5 | 1” | 24” | 1” | 6” | 1” |
| | OH16 | 1” | 24” | 1” | 9” | 1” |
| | OH2 | 1” | Note[3] | 2” | 9” | 1” |
| COUNTERFLOWS | OC2 | 1” | 4” | 1” | 6” | 1” |
| | OC5 | 1” | 4” | 1” | 9” | 1” |

| TYPE OF UNIT | MODEL NO.[1] | FRONT | TOP | REAR | BOTTOM | FROM THE FLUE/VENT | ANY SIDE OF PLENUM |
|---|---|---|---|---|---|---|---|
| HORIZONTALS[2] | OT5 | 24” | 1” | 1” | 1” | 4” | 1” |
| | OT11,16 | 24” | 1” | 1” | 1” | 9” | 1” |

Notes:
[1]The above are abbreviated model numbers.
[2]Horizontal units are not approved for attic installation.
[3]OH2 front clearance for 6” for Closet, 18” for Alcove.

**All installations and services must be performed by qualified service personnel.**

The minimum clearances listed in the preceding table are for fire protection. Clearance for servicing the front of the furnace and the rear of the lowboy models should be at least 24 inches. A clearance of 24 inches is recommended for passage to all points on the furnace requiring service access.

The OH2-3-5-11-16 furnaces may be installed on combustible flooring. The OL2-5-11-16-20-33-37-39 and OC2-5 furnaces are to be installed on non-combustible flooring only. A non-combustible floor base is available for the counterflow models OC2-5, which then allows these models to be adapted for installation on combustible flooring (use non-combustible floor base Model No.125 for OC5, Model No 56 for OC2).

**NOTE:** The OH2 furnace is approved for closet installation. If the OH2 is installed in a closet, it requires two openings in the closet door for combustion air, each having a minimum area of 162 sq. inches. This free area for the OH2 intentionally exceeds the recommended minimum free area of 2 square inches per 1000 BTUH of input rate.

**NOTE:** When power venting a Thermo Pride oil fired furnace with a power venting system other than the system supplied by Thermo Pride, a fiber chamber and an isolated combustion air kit (PVB or Beckett boot) is to be used with the other manufacturers power venting system.

**NOTE:** On the front flue, lowboy, all highboy or counterflow models, it is possible to rotate the flue elbow (which is factory installed for vertical discharge) 90° counterclockwise from the vertical position to adapt to various venting systems. (See following page for details)

## ⚠ CAUTION MUST BE TAKEN NOT TO EXCEED 90° ROTATION (OF THE FLUE ELBOW) COUNTERCLOCKWISE OR RIGHT FROM THE VERTICAL POSITION.

**ROTATION OF FRONT FLUE ELBOW**

When an installation requires that the flue exit out the left hand side casing on a front flue unit, remove screw securing the 90 deg. elbow and rotate it 90° **counterclockwise.** Then, by following dimensions in Table 1, locate the center point for the exit of the flue for the particular size furnace. Once the center has been located, use a scribe to mark the hole size, listed in the chart, which corresponds with the furnace being used. Cut hole out and extend flue through side casing.

A trim collar may be ordered from Thermo Products to hide the gap around the flue pipe. This trim collar, however, is not required for operation.

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**NOTE: ROTATION OF FLUE PIPE IS ONLY ALLOWED FOR LEFT HAND SIDE VENTING APPLICATIONS.**

**TABLE 1: Suggested sizes and positions of flue pipe opening on left hand side of casing.**

| UNIT | DIA. HOLE | "X" DIM. | "Y" DIM. | FLUE DIA. | TRIM COLLAR/ GASKET PART # |
|---|---|---|---|---|---|
| OC2 | 5-1/2" | 3-5/8" | 28-3/8" | 5" | 14121/330073 |
| OC5 | 6-1/2" | 4-3/4" | 31-7/16" | 6" | 14131/330005 |
| OH2 | 5-1/2" | 3/5/8" | 28-3/8" | 5" | 14121/330073 |
| OH3 | 6-1/2" | 4-9/16" | 32-3/16" | 6" | 14131/330005 |
| OH5 | 6-1/2" | 4-3/4" | 33-1/16" | 6" | 14131/330005 |
| OH11 | 6-1/2" | 4-3/4" | 35-1/4" | 6" | 14131/330005 |
| OH16 | 7-1/2" | 4-5/16" | 41-3/8" | 7" | 14132/330006 |
| OL2* | 5-1/2" | 3-5/8" | 28-5/16" | 5" | 14121/330073 |
| OL5* | 6-1/2" | 4-5/8" | 34-15/16" | 6" | 14131/330005 |
| OL11* | 6-1/2" | 4-1/2" | 37-5/8" | 6" | 14131/330005 |
| OL16* | 7-1/2" | 4-1/2" | 39-1/8" | 7" | 14132/330006 |
| OL20* | 7-1/2" | 4-1/2" | 43-1/4" | 7" | 14132/330006 |

* FRONT FLUE MODELS ONLY
"X" DIMENSION IS MEASURED FROM SEPARATOR PANEL.
"Y" DIMENSION IS MEASURED FROM THE BLOWER PAN ON "H" MODELS AND FROM THE BASE ON "L" AND "C" MODELS.

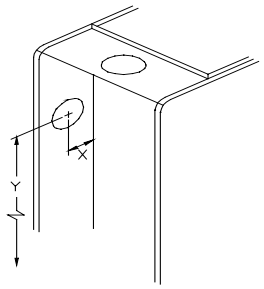


**Fig 1: Recommended location for drilling hole to connect vent pipe to the furnace through the left hand side casing.**

**A. DRAFT REGULATORS:**

A draft regulator is supplied with the furnace and should be installed according to the regulator manufacturers recommendations. With the burner operating, use a draft gauge to adjust the regulator to the proper setting. (refer to the instructions enclosed with draft regulator to adjust to the proper setting). When the burner air supply and draft are properly adjusted, the overfire draft should be a negative (-).01" to (-).02" WC, as measured at the 5/16" overfire air tap (See Fig. T). This tap is provided in the upper burner mounting plate. To measure the flue draft, punch a small hole in the vent connector pipe as close to the furnace as possible and always before the draft regulator.

**B. DUCT WORK/AIR CONDITIONING:**

If the furnace is used in connection with summer air conditioning (cooling), the furnace should be installed parallel with or on the upstream side of the evaporator coil to avoid condensation in the furnace heat exchanger. If the cooling unit is installed with a parallel flow arrangement, dampers or other means used to control flow of air should be provided to prevent chilled air from entering the furnace. If such a damper is manually operated, it must be equipped with a means to prevent operation of either unit, unless the damper is in the full heat or cool position.

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The duct system should again follow the current design standard of Air Conditioning Contractors of America (ACCA) or ASHRAE Fundamentals volume.

The most common location for the A-shaped coil (A style) is shown in Fig. 2.

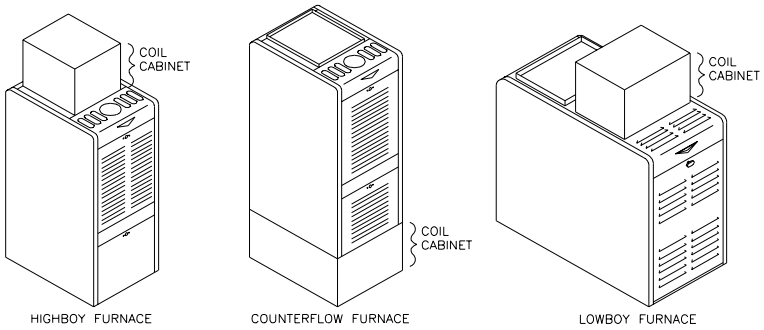


**Fig 2: Acceptable locations for the air conditioner evaporator coil.**

**NOTICE:** The minimum coil pan clearance for a sectional or drum type heat exchanger is three inches unless specified otherwise by the individual coil manufacturer.

A slab coil (H-style) is available for the horizontal air flow application on the OT5-11-16 furnaces refer to Fig. 3.

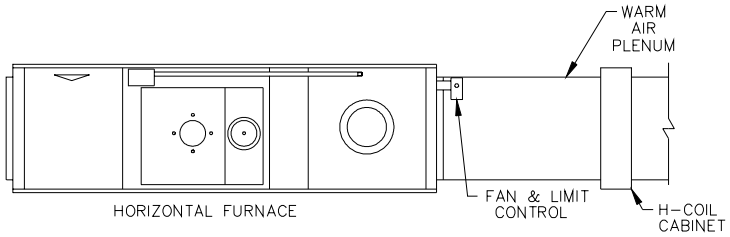


**Fig. 3: An acceptable location for the air conditioner evaporator coil when used with a horizontal furnace.**

To obtain proper airflow with an air conditioning coil installed on a belt drive unit, the motor and/or blower pulley may need to be changed. On a direct drive unit, the blower motor speed may need to be changed depending upon the size of the air conditioning system installed and the airflow resistance of the duct system.
**NOTE:** The horizontal units have direct drive blowers and no pulley or motor change is required.

**C. FILTERS MOUNTED EXTERNAL TO THE FURNACE:**

The filters of the OC2-5 mount in the return air plenum on the top opening on the top of the furnace. (For installation detail, see figure 4).

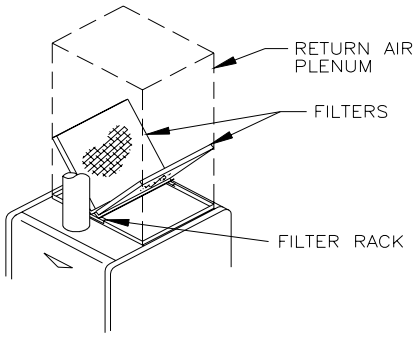


**Fig. 4: Air filter mounting location for the OC2-5 furnace.**

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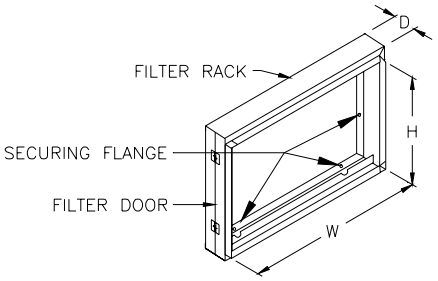
On **highboy** furnaces, it is necessary to cut the return air opening in the side or rear casing, depending upon the needs of the specific installation.

The filter rack provided with the furnace, refer to Fig. 5, will serve as a template to scribe a mark for the return air opening on the casing. Place the filter rack on the casing one inch up from the bottom of the furnace and centered from side to side. Place the securing flange against the casing when locating the return air opening.




| HIGHBOY FILTER RACK DIMENSIONS | | | |
|---|---|---|---|
| | RETURN AIR PLENUM FLANGE | | DEPTH OF RACK |
| MODELS | H | W | D |
| OH2-56 | 15" | 19-1/2" | 2-1/8" |
| OH3-72 | | | |
| OH5-85 | 15" | 24-1/2" | 2-1/8" |
| OH11-105 | | | |
| OH16-125 | 19" | 23-1/2" | 6-1/8" |

**Fig. 5: A typical filter rack and dimensions for the highboy furnaces.**

**PLEASE NOTE:** While scribing the return air opening, the filter rack can be held in position by tape or similar temporary means.

Position the open end of the filter rack so as to provide access for filter replacement. Once the filter rack is positioned correctly, scribe a line along the inside of the securing flange on three of the sides. To scribe a line on the fourth side (the open end), use the open end support as a guide.

Remove the filter rack and cut the return air opening in the casing. Now the filter rack can be anchored to the furnace with screws or pop-rivets through the securing flange of the filter rack.

⚠**WARNING:** When cutting openings in the casing **DO NOT CUT ANY SUPPORTING CLIPS OR ANGLES.** Cut as close to the scribed line as possible, but do not cut the base clip or blower pan support angle. (See Fig. 6).

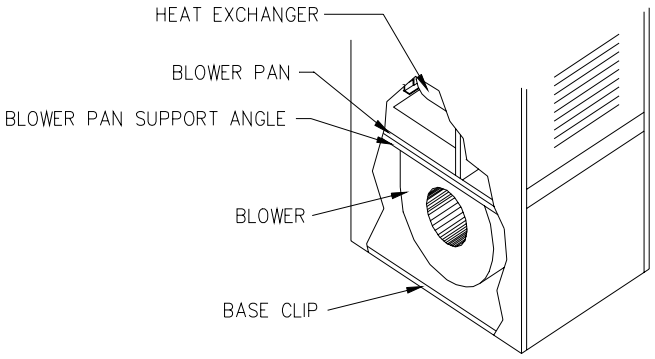



**Fig. 6: Cutaway view of fan section of a typical highboy furnace.**

Connect the return air plenum to the filter rack and slide the filter into place. Dimensions for adapting the return air plenum to the filter rack are provided on the bottom of the previous page.

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### D. FAN AND LIMIT POSITION AND LOCATION

**⚠WARNING:** The predetermined fan and limit locations on all of the Thermo Pride oil fired furnaces have been tested and approved by Thermo Products, LLC. in conjunction with Underwriters Laboratories, Inc. Any attempt to relocate these safety controls or replace these safety controls with a control that is not approved, or is incompatible, may result in personal injury, substantial property damage or death.

The units listed in the table below must have the fan and limit control installed at the time of unit installation. A locating bracket is provided with each of the units below.

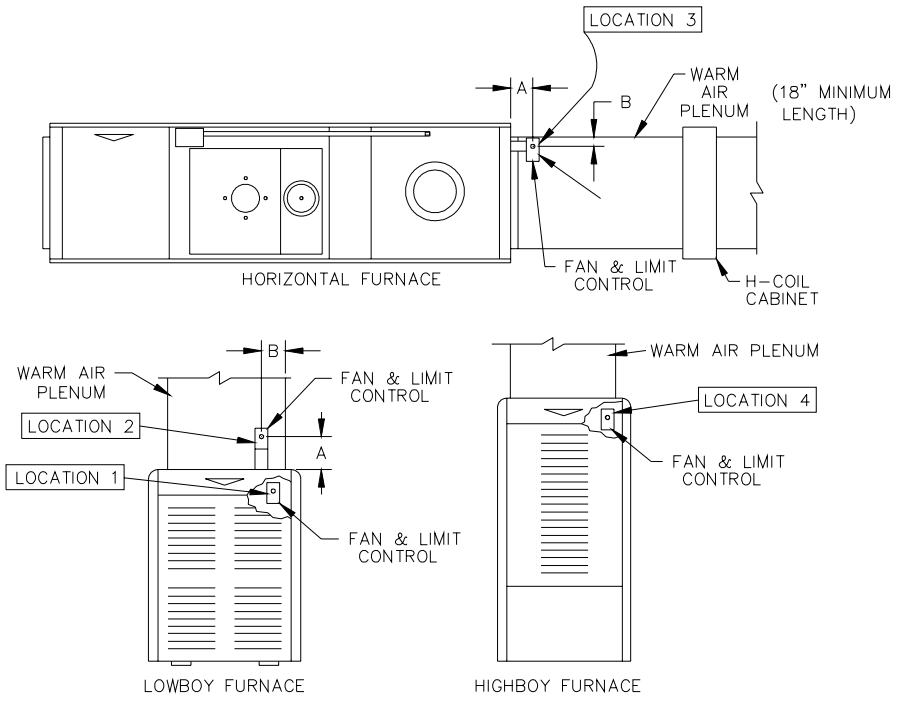



**TABLE 2: Installation location of the fan and limit control for each furnace**

| DIM. / MODEL | A | B | LOCATION |
|---|---|---|---|
| OH2-56 | — | — | 4 |
| OH3-72 | — | — | 4 |
| OH5-85 | — | — | 4 |
| OH11-105 | — | — | 4 |
| OH16-125 | — | — | 4 |
| OL2-56 | — | — | 1 |
| OL5-85 | — | — | 1 |
| OL11-105 | — | — | 1 |
| OL16-125 | — | — | 1 |
| OL20-151 | — | — | 1 |
| OL33-200 | 7" | 8" | 2 |
| OL37-250 | 7" | 6" | 2 |
| OL39-320 | 7" | 10-3/4" | 2 |
| OT5-85 | 4-5/16" | 4-3/16" | 3 |
| OT11-105 | 7" | 2" | 3 |
| OT16-125 | 7" | 2" | 3 |

**Fig. 7: Fan and limit location for lowboys, horizontal units and highboys.**

**FAN & LIMIT LOCATION FOR HORIZONTAL UNITS WITH AIR CONDITIONING COIL:**
The fan & limit control should be mounted between the H-coil cabinet and furnace. For distances from top of plenum and furnace, see Fig. 7. **IMPORTANT:** Do not try to mount fan/limit in H-coil cabinet.

**NOTE:** The OL2, OC2 and OH2 only, come standard with an oil filter packaged with the furnace. This filter has the capacity of filtering down to a 10 micron particle. This is to assure the small diameter burner nozzles in the low heating capacity furnaces are installed with a fine filter to help prevent nozzle clogging.

### E. BURNER INSTALLATION:

**NOTICE:** Remove all cardboard packing from around chamber before installing burner.

## All installations and services must be performed by qualified service personnel.

The oil burner will mount on three stud mounting bolts on the lower mounting plate covering the opening in the front of the heat exchanger. The end of the burner tube should be inserted no further than 1/4 inch back from the inside surface of the combustion chamber. A distance further than 1/4 inch back from the inside chamber wall may cause impingement and sooting.

**NOTE: OVERFIRE AIR TAP MAY BE LOCATED ON EITHER SIDE OF FLAME INSPECTION COVER. (See Fig. 8).**

**TWO PIECE MOUNTING PLATE**

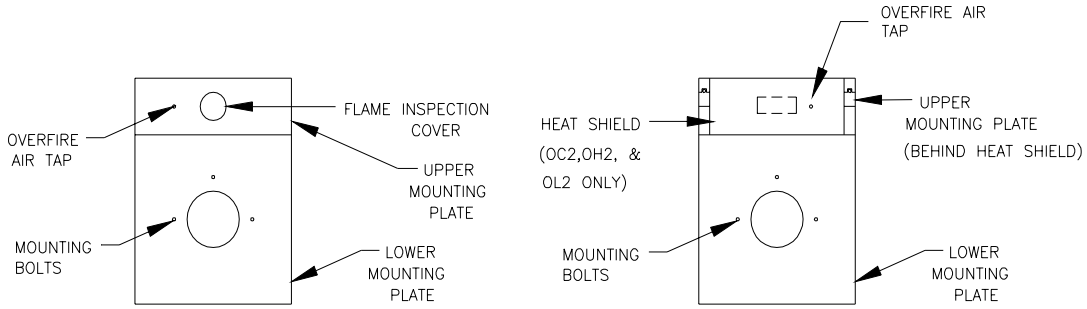



**Fig. 8: Typical location of the overfire air tap**

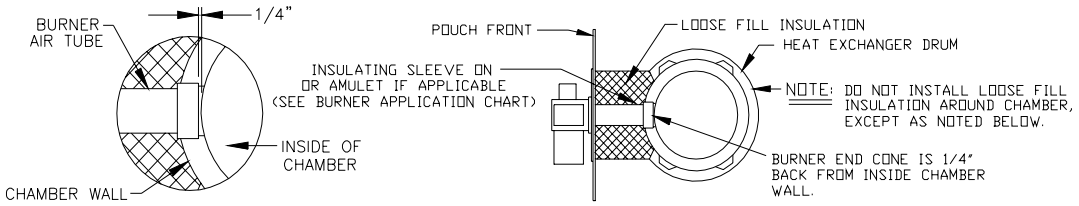



**Fig. 9: (Top view) Burner insertion illustration**

When mounting the burner, the upper mounting plate (Fig. 8) must be removed to provide access to the area in front of the combustion chamber. The combustion chamber can then be moved forward or backward slightly to allow for adjustment in positioning the burner tube. A fiber insulating sleeve or amulet is provided on the burner tube of specific Thermo Pride burners.(see Fig. 10). See Thermo Pride burner application chart for type of insulator. Do not allow the burner tube or end cone to physically touch or protrude into the chamber, as excess heat transfer could result in destruction of the tube, end cone or both. The burner tube/end cone is properly positioned, when the end is ¼ inch back from the inside surface of the combustion chamber wall.

**NOTE:** The OL2, OC2 and OH2-56 furnace models have two chamber positioning clips on the pouch bottom to prevent the chamber from being pulled forward too close to the mounting plate and burner. If the chamber is pulled back against these clips the insertion depth should be correct. The loose-fill insulation that is included in a brown paper bag should be lightly placed around the burner tube between the front of the combustion chamber and the burner mounting plate. (DO NOT PACK THE INSULATION DOWN). The loose-fill insulation should be placed in such a fashion that the surface of the insulation is sloped from the top of the combustion chamber to the top of the lower mounting plate. The purpose of the loose insulation is to help protect the burner tube, mounting plates and vestibule area from excessive temperatures.

On the horizontal units, the loose-fill insulation will fall down around the side of the chamber (the chamber is on its side in horizontal units). This presents no problem to the unit, as the amount of insulation under the side will be minimal, but take care not to allow the insulation to fall into the open end of the chamber where it may burn and blow around, possibly lodging in the burner.

**NOTE:** Do not place loose insulation around chamber sides and back except for the larger units (Models OL33, 37 and 39) where the loose insulation is to be used around rear of chamber to ensure chamber stability. See larger unit assembly instructions for further details. (See Fig. 9).

**All installations and services must be performed by qualified service personnel.**

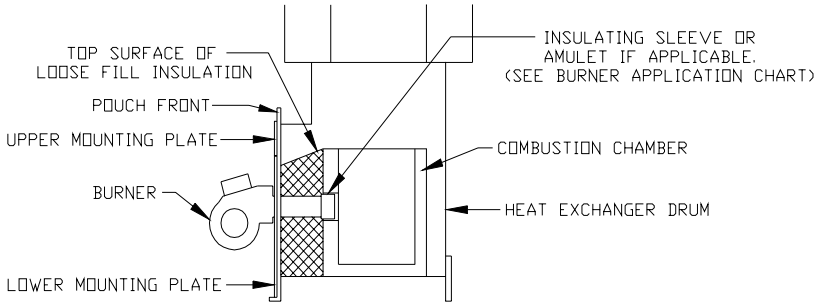



**Fig. 10: (Side view) Burner insertion illustration**

**F. HORIZONTAL FURNACE POSITIONS:**

The horizontal furnace may be turned end for end, or rotated, making the top into the bottom, as shown in Fig. 11.

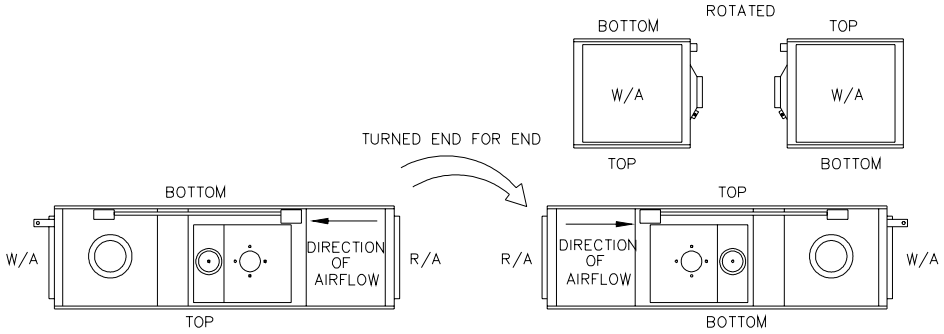



**Fig. 11: A horizontal furnace rotated 180° (or flipped end for end) to reverse airflow direction**

After the furnace has been positioned, the bottom burner mounting stud must be broken off before mounting the burner (See Fig. 12). Also, the fan & limit and its mounting bracket must be relocated once the unit is in position. (See Fig. 7).

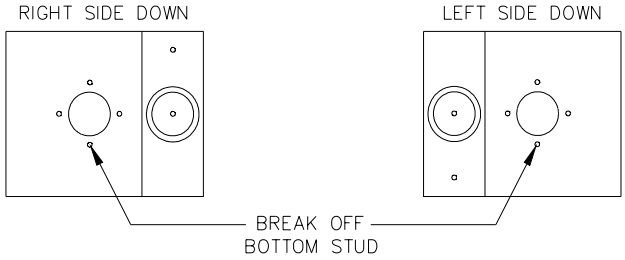



**Fig. 12: Required modification to burner mounting studs before burner installation**

**G. EXTERNAL WIRE HARNESS LOCATIONS FOR OL33, 37**

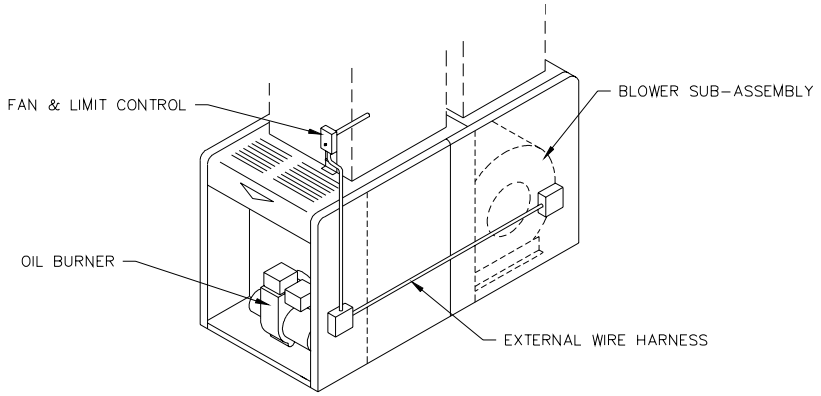



**Fig. 13: External electrical wiring in conduit on large furnace models**

**All installations and services must be performed by qualified service personnel.**

The OL33, 37 and 39 furnaces have an external wire harness that mounts in pre-punched holes in the side casings (See Fig. 13).

A Horizontal furnace is shown below with external wire harness and fan speed terminal strip (blower access panel removed). (See Fig. 14).

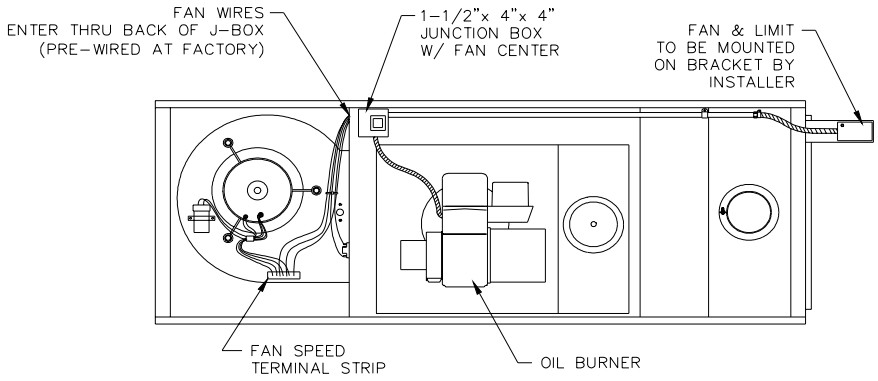



**Fig. 14: The wiring system of a typical horizontal furnace**

**H. BURNER SPECIFICATIONS AND APPLICATIONS**

## THERMO PRIDE BURNER APPLICATIONS

| FURNACE MODEL | THERMO PRIDE'S BURNER SPEC NO. | * INS | BECKETT BURNER MODEL & TUBE LENGTH | HEAD | STATIC PLATE | MAXIMUM NOZZLE SIZE** | STANDARD NOZZLE SIZE | OIL PUMP PRESSURE (PSIG) |
|---|---|---|---|---|---|---|---|---|
| OC2-56 | TP-1401 | N | AFG-3-5/8 | FO | 3-3/8 | 0.55X70H | 0.50X70H | 120 |
| | | | | | | | | |
| OC5-85 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.75X80H | 0.75X80H | 100 |
| | | | | | | | | |
| OH2-56 | TP-1401 | N | AFG 3-5/8 | F0 | 3-3/8 | 0.55X70H | 0.50X70H | 120 |
| OH3-72 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.65X80H | 0.65X80H | 100 |
| OH5-85 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.75X80H | 0.75X80H | 100 |
| OH11-105 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.90X80H | 0.90X80H | 100 |
| OH16-125 | TP-102 | S | AF 7-3/4 | F6 | 2-3/4 | 1.25X80H | 1.10X80H | 100 |
| | | | | | | | | |
| OL2-56 | TP-1401 | N | AFG 3-5/8 | F0 | 3-3/8 | 0.55X70H | 0.50X70H | 120 |
| OL5-85 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.75X80H | 0.75X80H | 100 |
| OL11-105 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.90X80H | 0.90X80H | 100 |
| OL16-125 | TP-102 | S | AF 7-3/4 | F6 | 2-3/4 | 1.25X80H | 1.10X80H | 100 |
| OL20-151 | TP-1003 | S | AF 7-3/4 | F12 | 2-3/4 | 1.35X80S | 1.35X80S | 100 |
| OL33-200 | TP-104 | S | AF 5-3/4 | F22 | 2-3/4 | 2.00X80S | 1.75X80S | 100 |
| OL37-250 | TP-105 | N | AF 5-3/4 | F31 | 2-3/4 | 2.50X80S | 2.25X80S | 100 |
| OL39-320 | TP-106 | N | AF 5-3/4 | F31 | SPIDER | 3.00X80S | 2.75X80S | 100 |
| | | | | | | | | |
| OT5-85 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.75X80H | 0.75X80H | 100 |
| OT11-105 | TP-101 | S | AF 7-3/4 | F3 | 2-3/4 | 0.90X80H | 0.90X80H | 100 |
| OT16-125 | TP-102 | S | AF 7-3/4 | F6 | 2-3/4 | 1.25X80H | 1.10X80H | 100 |

*** INSULATOR S = SLEEVE OR N = NONE**

**** MAXIMUM NOZZLE SIZE FOR UL LISTING OF FURNACE. THE NOZZLE SIZE GIVES THE NOMINAL FLOWRATE, IN GPH, FOLLOWED BY THE SPRAY ANGLE, IN DEGREE'S, AND THE SPRAY PATTERN, EITHER "H" FOR HOLLOW CONE OR "S" FOR SOLID CONE. FOR EXAMPLE, A NOZZLE RATED AT 0.65 GPH @ 100 PSIG THAT PROVIDES AN 80° SPRAY ANGLE AND A HOLLOW SPRAY PATTERN WOULD BE ABBREVIATED IN THE TABLE AS "0.65 X 80H".**

For more specific burner information, contact Thermo Products, LLC. P.O. Box 217, North Judson, IN 46366. Phone 574-896-2133.

**All installations and services must be performed by qualified service personnel.**

**STANDARD BURNER NOZZLES:** The OL2, OH2, OC2 and OC1, along with the OL33, OL37 and OL39 have the nozzles already installed in the burners. The balance of the oil units has the nozzles shipped as loose items with the furnace. Below is a chart showing the heating capacity of the furnace for each approved nozzle size.

## OIL NOZZLE CAPACITY CHART

| UNITS | NOZZLE SIZE (GPH) | EQUIVALENT HEAT INPUT RATE* (BTU/HR) | EFFECTIVE HEATING CAPACITY** (BTU/HR) |
|---|---|---|---|
| OH2,OL2,OC2 | .50 | 70,000 | 56,000 |
| | .55 | 77,000 | 61,600 |
| OH3 | .65 | 91,000 | 72,800 |
| OL,OH,OC,OT5 | .75 | 106,250 | 85,000 |
| OC5 | .85 | 119,000 | 95,200 |
| OL, OT11 | .85 | 119,000 | 95,200 |
| | .90 | 126,000 | 100,800 |
| OH11 | 1.00 | 140,000 | 112,000 |
| OH,OL,OT16 | 1.10 | 154,000 | 123,200 |
| | 1.20 | 168,000 | 134,400 |
| | 1.25 | 175,000 | 140,000 |
| OL20 | 1.35 | 189.000 | 151,200 |
| OL33 | 1.75 | 245,000 | 196,000 |
| | 2.00 | 280,000 | 224,000 |
| OL37 | 2.25 | 315,000 | 252,000 |
| | 2.50 | 350,000 | 280,000 |
| OL39 | 2.75 | 385,000 | 308,000 |
| | 3.00 | 420,000 | 336,000 |

All rates shown above achieved with 100 PSIG pump pressure (except for OH2, OL2 and OC2, which require 120 PSIG).

* Based on #2 domestic heating fuel oil having heating value of 140,000 BTU per gallon.

** Based on thermal efficiency of 80%.

**All installations and services must be performed by qualified service personnel.**

## RIELLO BURNER APPLICATION CHART

The optional F3 and F5 Riello flame retention oil burners have been UL listed (UL File #MP3252) for application on the following Thermo Pride oil fired furnaces.

| MODEL / PART | OH3 | OC5, OL5, OH5, OT5 | OL11, OH11, OT11 | OL16, OH16, OT16 | OL20 |
|---|---|---|---|---|---|
| MTG. PLATE PART NO. | TOP-25752 BTM-35733 | 35750 | 35750 | 35750 | 35750 |
| MTG. PLATE GASKET PART NO. | 330090 | 330088 | 330088 | 330088 | 330088 |
| **NOZZLE SIZE | .50-60A | .60-60A* | .75-60A* | .90-60A* | 1.10-60A* |
| NOZZLE PART NO. | 380393 | 380394 | 380395 | 380396 | 380397 |
| OIL PUMP PRESSURE | 170 PSI | 145 PSI | 145PSI | 145 PSI | 150PSI |
| BURNER | F3 | F3 | F5 | F5 | F5 |
| BURNER PART NO. | 380215 | 380215 | 380216 | 380216 | 380216 |

* A refers to hollow pattern nozzle
** NOTE: The reason the Riello burner nozzle sizes are smaller than the standard Thermo Pride burner nozzles is that pre-set pump pressures are higher, therefore achieving the same firing rate with a smaller nozzle.

For more specific burner information, specifications or service information, reference the training manual enclosed with each Riello burner or contact:

Riello Corporation of America,
5 Pond Park Road
Hingham, Massachusetts 02043
(617) 749-8292

### I. HEAT EXCHANGER CLEANING INSTRUCTIONS:

**⚠WARNING: THE HEAT EXCHANGER MUST BE CLEANED BY A QUALIFIED SERVICE PERSON.**

It is important to inspect and clean the heat exchanger once a year, or as necessary, to remove any build-up of soot. A layer of soot on the inside of the heat exchanger will act as an insulator and reduce heat transfer, resulting in less efficiency.

To clean the heat exchanger, first turn off all power to the unit. Next, remove the access panel (see below and beginning of following page) immediately above the burner (on the horizontal furnace, it will be located to the side of the burner) to gain entry to the clean-out covers, refer to figure 15. **This panel is identified with a label.** Remove clean-out covers, the vent connector pipe to the chimney, the burner, and the burner mounting plates. When removing the clean-out covers, special care must be taken not to damage the gaskets. Should the gaskets separate, crack, break, or be unsuitable for reuse, the gasket must be replaced before reattaching the clean-out covers.

**All installations and services must be performed by qualified service personnel.**

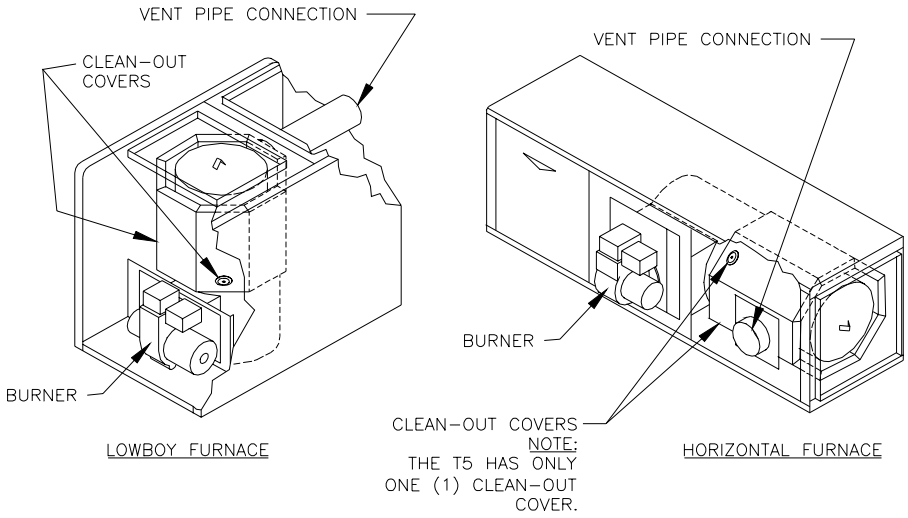



**Fig. 15: Typical Heat Exchanger Cleanout Cover Locations.**

With access to the inside of the heat exchanger through the burner area, clean-out openings, and vent pipe connection, it is possible to use a long, flexible wire brush and an industrial type vacuum cleaner to remove any soot build-up. **NOTE:** A one inch (outside diameter) vacuum cleaner hose will fit into the radiator.

To vacuum and brush the outer radiator of the heat exchanger, go through the clean-out openings in both directions, as shown in figure 16, below.

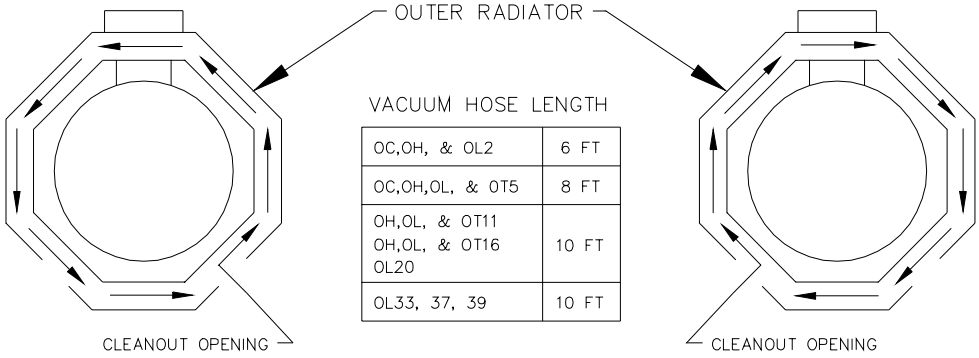



**Fig. 16: Recommended method and device for cleaning inside of heat exchanger.**

Reassemble the furnace to its original construction. Remount the burner being certain that the air tube is properly inserted into the chamber opening (see section E). If heavy soot deposits were found in the heat exchanger, this may indicate the burner is out of adjustment.

## III. USERS INFORMATION SECTION

**A. OIL SUPPLY:** Do not allow the fuel tank to run completely empty. During the summer, keep the tank full to prevent condensation of moisture on the inside surface of the tank. If the fuel tank runs completely dry, it may be necessary to purge the lines of trapped air. Contact a qualified technician to bleed the lines and restart the burner.

**OIL SUPPLY VALVE:** Turn the oil supply valve off if the burner is shut down for an extended period of time.

**B. COMBUSTION AIR SUPPLY:** The burner requires a generous amount of clean combustion air to operate safely. Lack of adequate combustion air can result in erratic operation of the burner, noisy combustion, or fuel odors in the air. NEVER BLOCK THE FURNACE FROM THE SUPPLY OF COMBUSTION AIR. If there is an exhaust fan, dryer or return air grill in the furnace room, there should be increased concern and additional efforts may be required to provide adequate combustion oil to the furnace at all times.

**All installations and services must be performed by qualified service personnel.**

**C. INSPECTION AREAS**

**VESTIBULE:** The furnace vestibule area or burner compartment should be inspected by removing the front door of the furnace and looking for signs of excessive heat such as discoloration of components materials damage, from rust or corrosion, soot or carbon build-up.
**EXTERIOR OF FURNACE:** The furnace exterior should be inspected for signs of excessive heat such as discoloration of materials and damage from rust or corrosion.
**FLUE PIPE, VENT PIPE OR CONNECTOR:** The furnace vent pipe should be inspected for signs of rust, corrosion pitting or holes in pipe, and leakage around seams in pipe, indicated by soot or condensate streaks.
**CHIMNEY OR VENTING SYSTEM:** The furnace venting system should be inspected for signs of rust, corrosion pitting or holes, and signs of condensation or moisture leakage from the venting system.

If any of the above symptoms are evident, call a qualified heating contractor for assistance.

**⚠CAUTION: DO NOT ATTEMPT TO MAKE REPAIRS YOURSELF!**

**⚠WARNING: The area around the furnace should be kept free and clear of combustible liquids and material, especially papers and rags.**

**⚠WARNING: NEVER burn garbage or refuse in your furnace. Never try to ignite oil by tossing burning papers or other material into your furnace.**

**⚠WARNING: Thermo Pride oil furnaces are designed to burn No. 1 or No. 2 distilate fuel oil. NEVER USE GASOLINE OR A MIXTURE OF OIL AND GASOLINE.**

**⚠CAUTION: DO NOT ATTEMPT TO START THE BURNER WHEN:**
**1. Excess oil has accumulated,**
**2. The furnace is full of vapors**
**3. The combustion chamber is very hot.**
**IF ONE OR MORE OF THESE CONDITIONS EXIST, CONTACT A QUALIFIED SERVICE PERSON.**

**D. STARTING THE BURNER:**
1. Turn the main service switch to "OFF" position.
2. Set thermostat substantially above room temperature.
3. Open shut-off valves in oil supply line to burner.
4. Turn service switch to furnace "ON". If burner starts and runs, but stops again on lockout, it may be necessary to bleed the lines or make burner combustion air adjustments. Contact a qualified service person to adjust and start burner.

**E. FILTER CLEANING AND LOCATION:**
The air filters should be inspected each month and cleaned when dirty. Cleaning the air filters frequently may reduce airborne contaminants from entering the furnace and depositing in the furnace, duct system and home.

**⚠WARNING: To avoid injury from moving parts, hot surfaces, or electrical shock, shut off the power to the furnace before removing any furnace access doors to service the air filters.**

**OL Series (Lowboy)**

To clean a dirty filter, first remove the blower compartment door at the rear of the furnace, refer to figure 17. Remove the dirty filter from the filter rack and clean it with a mild soap and water solution. Make sure filter is thoroughly dry before replacing. Replace the blower compartment door.

**All installations and services must be performed by qualified service personnel.**

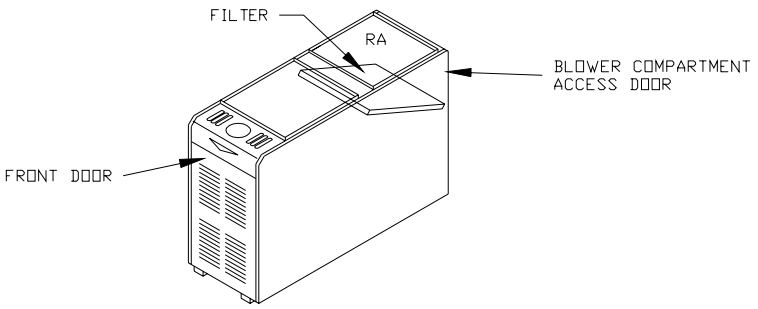



**Fig. 17: Location of the air filter and blower compartment access door on the typical lowboy furnace.**

**OH Series (Highboy)**

The filter rack will be located between the return air plenum and the return air opening on the side of the furnace, refer to figure 18. Slide the dirty filter out, clean it with a mild soap and water solution. Make sure filter is thoroughly dry before replacing.

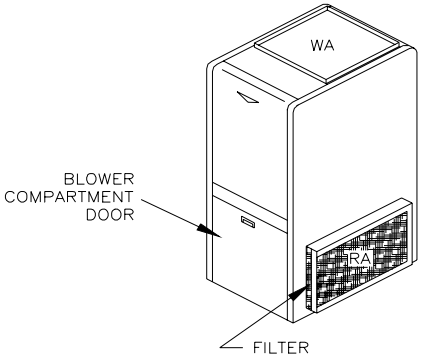



**Fig. 18: Location of the air filter on the typical highboy furnace.**

**OC Series (Counterflow)**

For removal of the filter, remove front door of furnace. Then, remove blower access panel for access to filter, refer to figure 19. Clean filter by vacuuming, tap-water rinsing or washing in an ordinary detergent soloution. After cleaning, replace the completely dry filter mesh side down.

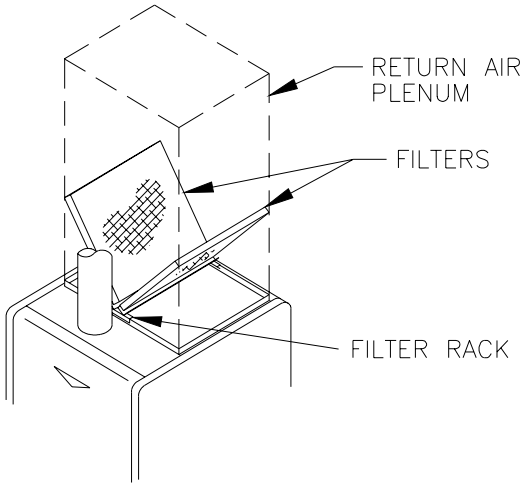



**Fig. 19: location of the air filters on a typical counterflow furnace.**

**All installations and services must be performed by qualified service personnel.**

## COMBUSTION AND EFFICIENCY TESTING FOR THERMO PRIDE OIL FIRED CENTRAL FURNACES.

Complete this form for each Thermo Pride furnace installed. Read instruction manual carefully before making tests. Retain this form with furnace.

**CUSTOMER**

NAME

ADDRESS

CITY, STATE

**HEATING SYSTEM**

| BURNER MODEL NO. | BLAST TUBE LGTH. INS. | AIR SHUTTER OPENING % OF MAX. (EST) |
|---|---|---|

| COMBUSTION CHAMBER CONDITION MATERIAL | FURNACE MODEL |
|---|---|
| | |

TYPE OF VENTING SYSTEM

- ☐ MASONRY CHIMNEY
- ☐ METAL CHIMNEY
- ☐ SIDEWALL POWER VENTER
- ☐ MASONRY CHIMNEY W/INDUCER
- ☐ METAL CHIMNEY W/INDUCER
- ☐ MASONRY CHIMNEY W/METAL LINER

| FUEL LINE FILTER | DRAFT CONTROL | FURNACE SERIAL NUMBER |
|---|---|---|
| | | |

**COMBUSTION TESTS**

**(Operate burner at least 10 minutes before starting tests.)**

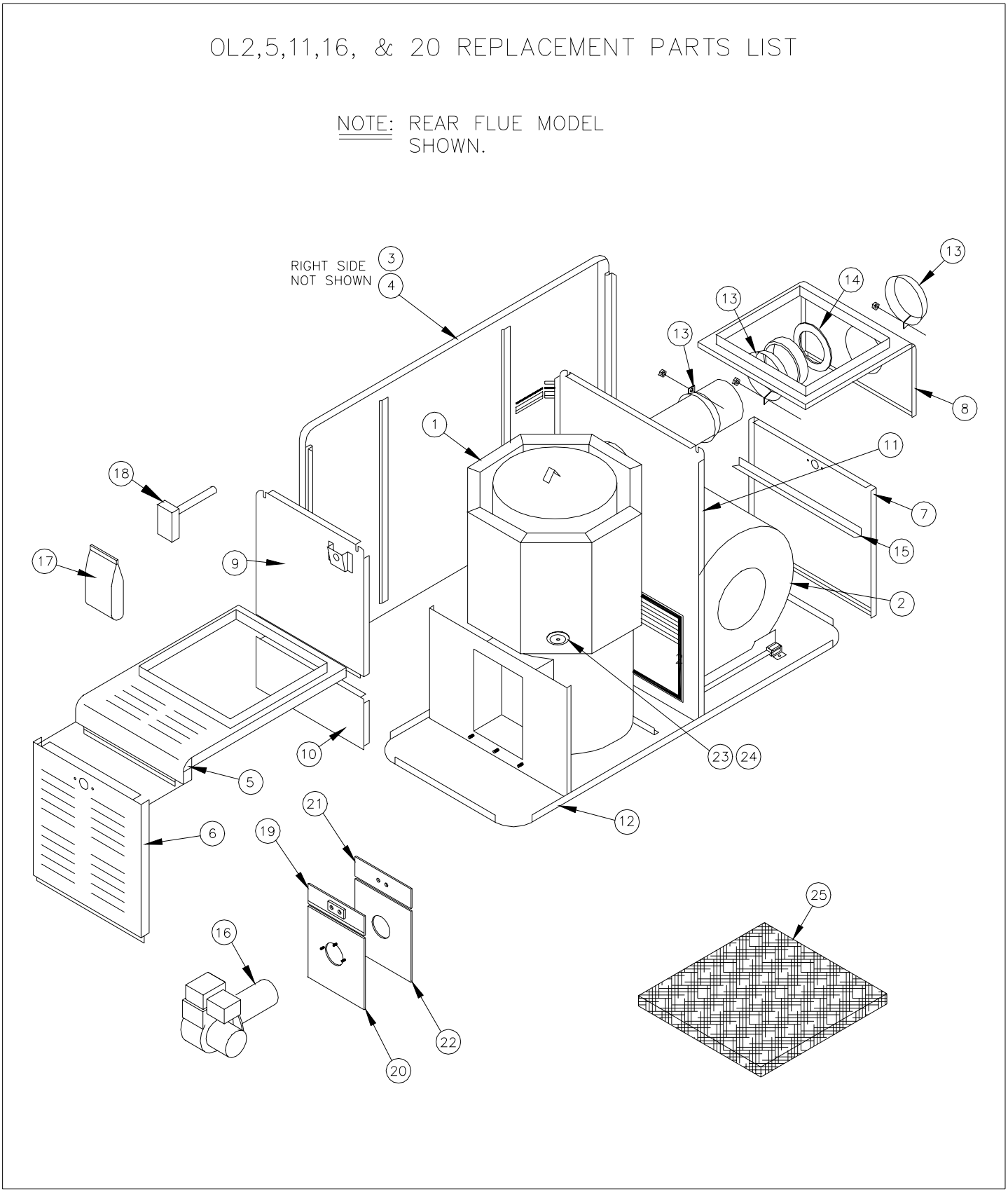
| | INITIAL INSTALLATION | SERVICE | SERVICE | SERVICE |
|---|---|---|---|---|
| CO2 in stack pipe | | | | |
| Draft Over-fire | | | | |
| Draft in stack pipe | | | | |
| Smoke number | | | | |
| Gross stack temp. | | | | |
| Furnace room temp. | | | | |
| Net stack temp. (Gross stack minus furnace room temp.) | | | | |
| Efficiency | | | | |
| Nozzle size and spray | | | | |
| Oil pump pressure | | | | |
| Operation of Controls | | | | |
| Burner Safety Controls | | | | |
| Check for oil leaks | | | | |
| Tests taken by | | | | |
| Date | | | | |

NOTES:

INSTALLER NAME & ADDRESS

**All installations and services must be performed by qualified service personnel.**

APPENDIX-A Replacement Parts List

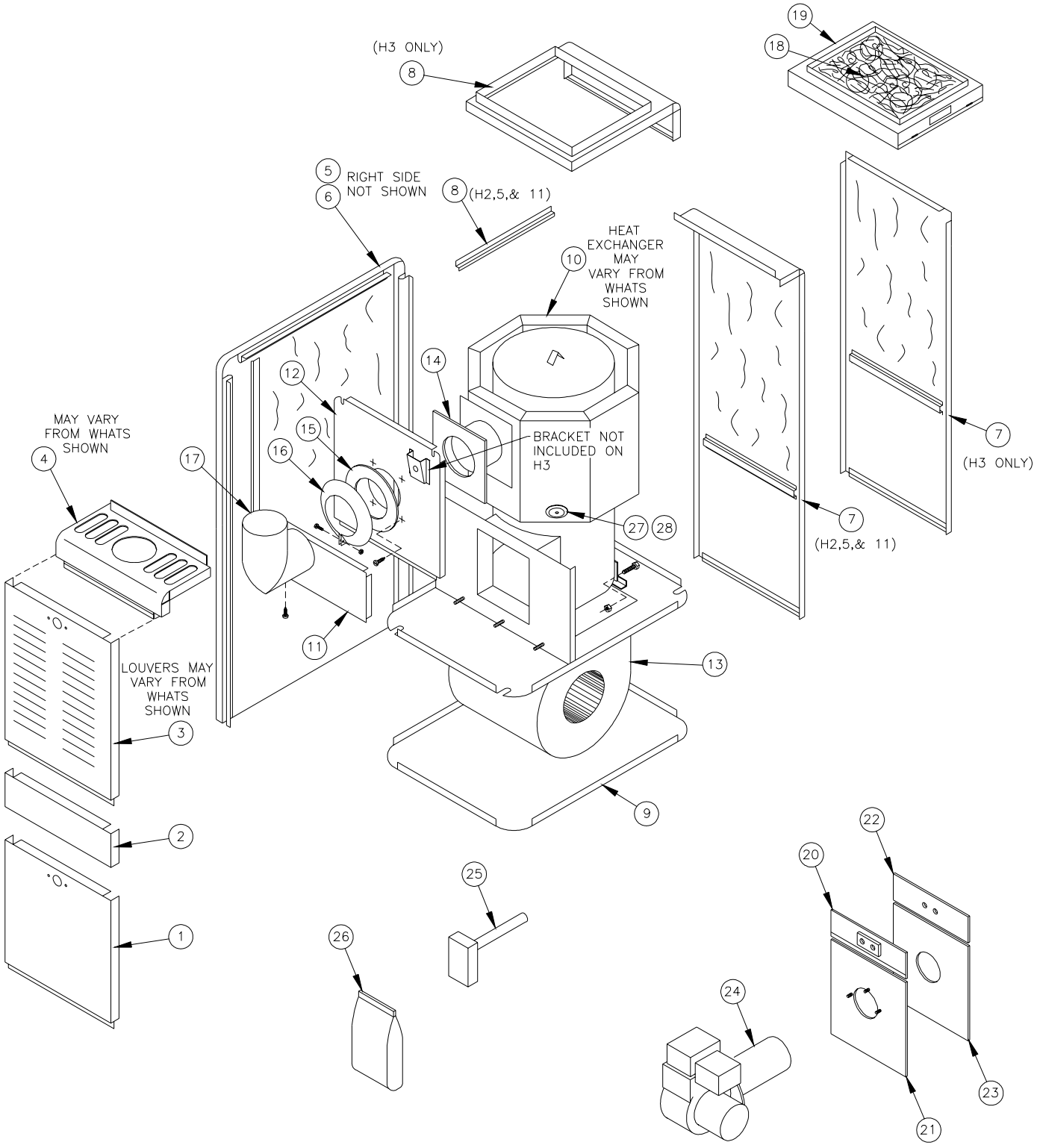


**All installations and services must be performed by qualified service personnel.**

| ITEM | UNIT / PARTS DESCRIPTION | | OL2 | | OL5 | | OL11 | | OL16 | | OL20 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE |
| 1 | HEAT EXCHANGER | | 31449 | 31448 | 31459 | 31458 | 31471 | 31470 | 31486 | 31485 | 31501 | 31500 |
| 2 | BLOWER ASS'Y | BELT | S00S4036 | S00S4036 | S00S4007 | S00S4007 | S00S4007 | S00S4007 | S00S4016 | S00S4016 | S00S4019 | S00S4019 |
| | | DIRECT | S00S4043 | S00S4043 | S00S4044 | S00S4044 | S00S4044 | S00S4044 | S00S4044 | S00S4044 | S00S4044 | S00S4044 |
| 3 | SIDE CASING (LEFT) | | 20000 | 20000 | 20002 | 20002 | 20004 | 20006 | 20008 | 20008 | 20010 | 20010 |
| 4 | SIDE CASING (RIGHT) | | 20001 | 20001 | 20003 | 20003 | 20005 | 20007 | 20009 | 20009 | 20011 | 20011 |
| 5 | TOP FRONT SECTION | | 10798 | 10405 | 20409 | 20411 | 20415 | 20417 | 20421 | 20423 | 20421 | 20423 |
| 6 | FRONT DOOR | | 20400 | 20400 | 20407 | 20407 | 20413 | 20413 | 20419 | 20419 | 20425 | 20425 |
| 7 | BLOWER ACCESS DOOR | | 20401 | 20401 | 20408 | 20408 | 20414 | 20414 | 20420 | 20420 | 20426 | 20426 |
| 8 | TOP REAR SECTION | | 10404 | 10406 | 20410 | 20412 | 20416 | 20418 | 20422 | 20424 | 20422 | 20424 |
| 9 | FRONT TOP SEPARATOR | | 21020 | 21027 | 21031 | 21032 | 21035 | 21039 | 21041 | 21044 | 21041 | 21044 |
| 10 | FRONT CENTER SEPARATOR | | 21016 | 21016 | 21030 | 21030 | 21037 | 11040 | 21047 | 21047 | 21054 | 21054 |
| 11 | REAR SEPARATOR | BELT | 21029 | 21028 | 21033 | 21034 | 21036 | 21038 | 21043 | 21046 | 21050 | 21053 |
| | | DIRECT | 21029 | 21028 | 21033 | 21034 | 21036 | 21038 | 21042 | 21045 | 21049 | 21052 |
| 12 | BASE | BELT | 20453 | 20453 | 20454 | 20454 | 20455 | 20455 | 20465 | 20465 | 20465 | 20465 |
| | | DIRECT | 20453 | 20453 | 20454 | 20454 | 20455 | 20455 | 20466 | 20466 | 20466 | 20466 |
| 13 | DRAW COLLAR | | 14121 | 14121 | 14131 | 14131 | 14131 | 14131 | 14132 | 14132 | 14132 | 14132 |
| 14 | FLUE COLLAR GASKET | | 330073 | 330073 | 330005 | 330005 | 330005 | 330005 | 330006 | 330006 | 330006 | 330006 |
| 15 | REAR FILTER SUPPORT | | 14710 | 14710 | 14715 | 14715 | 14715 | 14715 | 14726 | 14726 | 14726 | 14726 |
| 16 | BECKETT OIL BURNER | | 380204 | 380204 | 380230 | 380230 | 380230 | 380230 | 380231 | 380231 | 380252 | 380252 |
| 17 | DOOR HANDLE PACKAGE | | 320152 | 320152 | 320152 | 320152 | 320152 | 320152 | 320152 | 320152 | 320152 | 320152 |
| 18 | FAN & LIMIT CONTROL | | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 |
| 19 | TOP MTG PLATE | | 25708 | 25708 | 25716 | 25716 | 25716 | 25716 | 25716 | 25716 | 25716 | 25716 |
| 20 | BOTTOM MTG PLATE | | 25709 | 25709 | 25717 | 25717 | 25717 | 25717 | 25717 | 25717 | 25717 | 25717 |
| 21 | TOP MTG PLATE GASKET | | 330070 | 330070 | 330055 | 330055 | 330055 | 330055 | 330055 | 330055 | 330055 | 330055 |
| 22 | BOTTOM MTG PLATE GASKET | | 330078 | 330078 | 330056 | 330056 | 330056 | 330056 | 330056 | 330056 | 330056 | 330056 |
| 23 | CLEAN OUT COVER | | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 |
| 24 | CLEAN OUT COVER GASKET | | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 |
| 25 | FILTER | | 370034 (16 x 20 x 1) | 370034 (16 x 20 x 1) | 370022 (20 x 20 x 1) | 370022 (20 x 20 x 1) | 370035 (20 x 25 x 1) | 370035 (20 x 25 x 1) | 370036 (14 x 25 x 1) (2 REQ'D.) | 370036 (14 x 25 x 1) (2 REQ'D.) | 370036 (14 x 25 x 1) (2 REQ'D.) | 370036 (14 x 25 x 1) (2 REQ'D.) |

**All installations and services must be performed by qualified service personnel.**

# OH2,3,5,11 & 16 REPLACEMENT PARTS LIST



**All installations and services must be performed by qualified service personnel.**

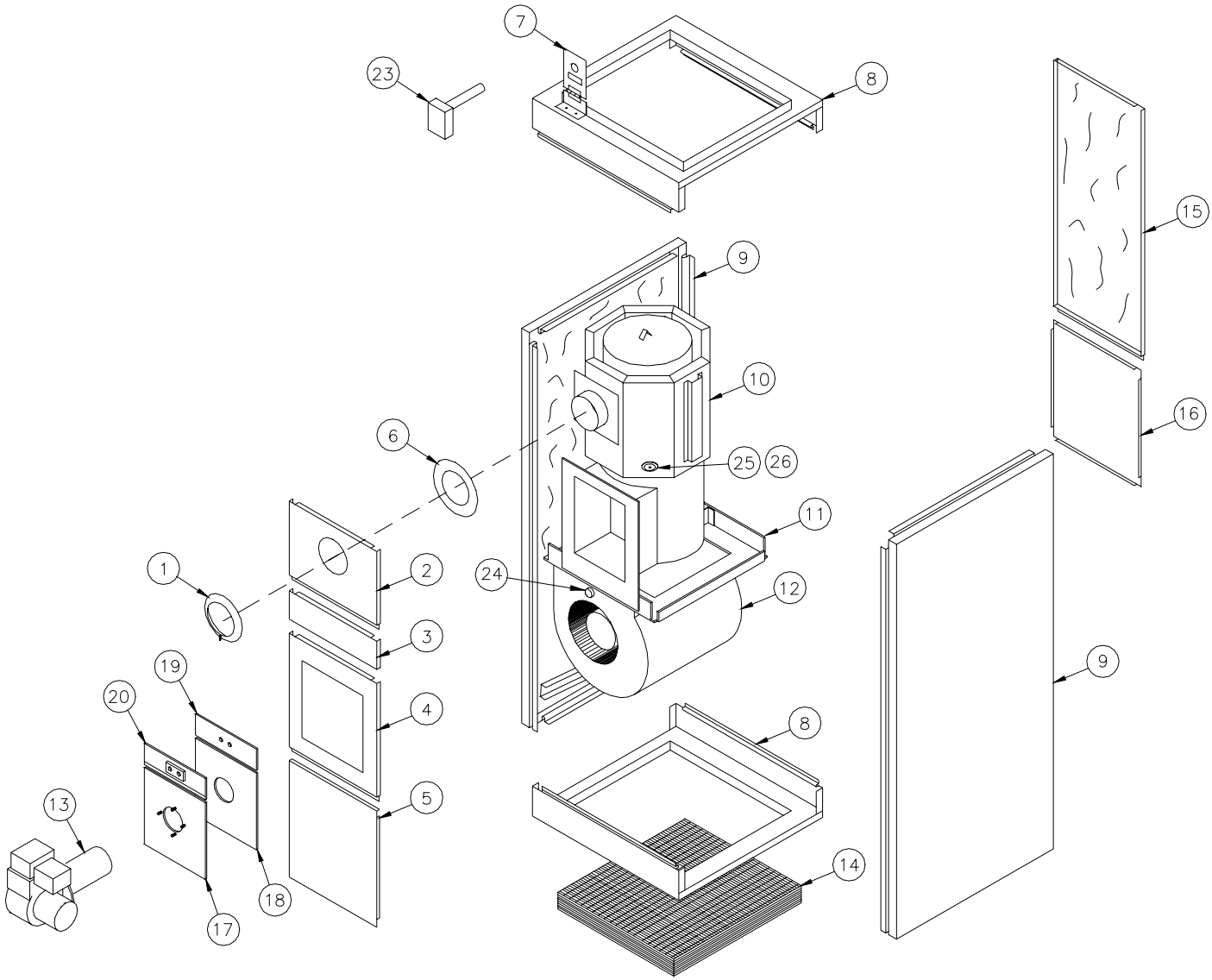
| ITEM | UNIT / PARTS DESCRIPTION | OH2 | | OH3 | | OH5 | | OH11 | | OH16 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PART NO. | QTY. | PART NO. | QTY. | PART NO. | QTY. | PART NO. | QTY. | PART NO. | QTY. |
| 1 | BLOWER ACCESS DOOR | 20538 | 1 | 20460 | 1 | 20468 | 1 | 20468 | 1 | 20746 | 1 |
| 2 | FRONT CENTER PANEL | 10451 | 1 | 10464 | 1 | 10471 | 1 | 10471 | 1 | 10749 | 1 |
| 3 | FRONT DOOR | 20447 | 1 | 20459 | 1 | 20467 | 1 | 20473 | 1 | 20745 | 1 |
| 4 | TOP FRONT SECTION | 10798 | 1 | 10461 | 1 | 10799 | 1 | 10799 | 1 | 10747 | 1 |
| 5 | SIDE CASING (LEFT) | 20016 | 1 | 20018 | 1 | 20020 | 1 | 22022 | 1 | 20088 | 1 |
| 6 | SIDE CASING (RIGHT) | 20017 | 1 | 20019 | 1 | 20021 | 1 | 20023 | 1 | 20089 | 1 |
| 7 | CASING BACK | 20450 | 1 | (REAR PANEL) 20463 | 1 | 20471 | 1 | 20474 | 1 | (REAR PANEL) 10748 | 1 |
| 8 | PLENUM STRIP | 13312 | 2 | (TOP REAR SECTION) 20462 | 1 | 13318 | 2 | 13318 | 2 | (TOP REAR SECTION) 20750 | 1 |
| 9 | BASE | 10452 | 1 | 10456 | 1 | 10472 | 1 | 10475 | 1 | 10751 | 1 |
| 10 | HEAT EXCHANGER | 31418 | 1 | 31566 | 1 | 31437 | 1 | 31580 | 1 | 31745 | 1 |
| 11 | FRONT CENTER SEPARATOR | 21016 | 1 | 21075 | 1 | 21022 | 1 | 21080 | 1 | 21170 | 1 |
| 12 | FRONT TOP SEPARATOR | 21020 | 1 | 11074 | 1 | 21077 | 1 | 21079 | 1 | 21169 | 1 |
| 13 | DIRECT DRIVE BLOWER ASS'Y | S00S4048 | 1 | S00S4049 | 1 | S00S4050 | 1 | S00S4060 | 1 | S00S4072 | 1 |
| | BELT DRIVE BLOWER ASS'Y | S00S4034 | | S00S4034 | | S00S4035 | | S00S4035 | | S00S4071 | |
| 14 | FLUE BACKING PLATE GASKET | 330071 | 1 | 330008 | 1 | 330089 | 1 | 330008 | 1 | 330023 | 1 |
| 15 | FLUE COLLAR GASKET | 330073 | 1 | 330005 | 1 | 330005 | 1 | 330005 | 1 | 330006 | 1 |
| 16 | DRAW COLLAR | 14121 | 1 | 14131 | 1 | 14131 | 1 | 14131 | 1 | 14132 | 1 |
| 17 | ELBOW | 35714 | 1 | 35719 | 1 | 35719 | 1 | 35719 | 1 | 35721 | 1 |
| 18 | FILTER | 370034 (16x20x1) | 1 | 370034 (16x20x1) | 1 | 370023 (16x25x1) | 1 | 370023 (16x25x1) | 1 | 370051 (20x25x1) | 1 |
| 19 | FILTER RACK | 24746 | | 24746 | 1 | 24750 | 1 | 24750 | 1 | AOPS7375 | 1 |
| 20 | TOP MTG PLATE | 25708 | 1 | 25734 | 1 | 25716 | 1 | 25716 | 1 | 25716 | 1 |
| 21 | BOTTOM MTG PLATE | 25709 | 1 | 25735 | 1 | 25717 | 1 | 25717 | 1 | 25717 | 1 |
| 22 | TOP MTG PLATE GASKET | 330070 | 1 | 330018 | 1 | 330055 | 1 | 330055 | 1 | 330055 | 1 |
| 23 | BOTTOM MTG PLATE GASKET | 330078 | 1 | 330013 | 1 | 330056 | 1 | 330056 | 1 | 330056 | 1 |
| 24 | BECKETT OIL BURNER | 380204 | 1 | 380230 | 1 | 380230 | 1 | 380230 | 1 | 380231 | 1 |
| 25 | FAN & LIMIT CONTROL | 350124 | 1 | 350124 | 1 | 350124 | 1 | 350124 | 1 | 350124 | 1 |
| 26 | DOOR HANDLE PKG | 320152 | 1 | 320152 | 1 | 320152 | 1 | 320152 | 1 | 320152 | 1 |
| 27 | CLEAN OUT COVER | 11403 | 2 | 11403 | 2 | 11403 | 2 | 11403 | 2 | 11403 | 2 |
| 28 | CLEAN OUT COVER GASKET | 330009 | 2 | 330009 | 2 | 330009 | 2 | 330009 | 2 | 330009 | 2 |

**All installations and services must be performed by qualified service personnel.**

# OT5,11, & 16 REPLACEMENT PARTS LIST

## (FRONT FLUE SHOWN)

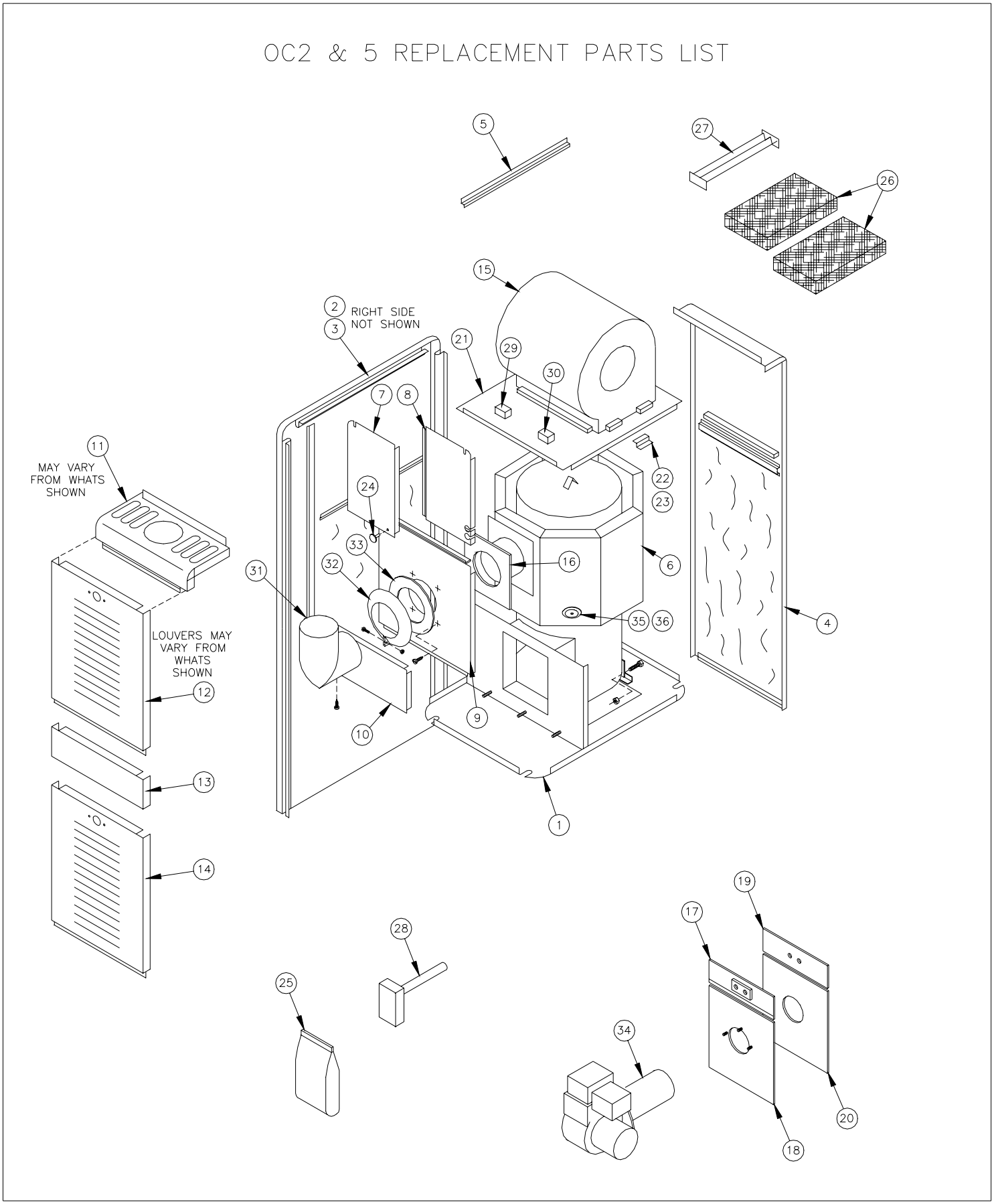
NOTE:
UNIT IS SHOWN IN A VERTICAL POSITION.



**All installations and services must be performed by qualified service personnel.**

| ITEM # | PART DESCRIPTION / UNIT | OT5 | | OT11 | | OT16 | |
|---|---|---|---|---|---|---|---|
| | | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE |
| 1 | DRAW COLLAR | 14131 | 14131 | 14131 | 14131 | 14132 | 14132 |
| 2 | FRONT TOP PANEL | 10495 | 10497 | 10504 | 10506 | 10513 | 10515 |
| 3 | FRONT REMOVABLE PANEL | 10493 | 10493 | 10502 | 10502 | 10511 | 10511 |
| 4 | FRONT CENTER PANEL | 10492 | 10492 | 10501 | 10501 | 10510 | 10510 |
| 5 | BLOWER ACCESS DOOR | 20491 | 20491 | 20500 | 20500 | 20509 | 20509 |
| 6 | FLUE GASKET | 330005 | 330005 | 330005 | 330005 | 330006 | 330006 |
| 7 | FAN/LIMIT MTG. HINGE | 24146 | 24146 | 24136 | 24136 | 24136 | 24136 |
| 8 | END CAPS (INTAKE & EXHAUST) | 20490 | 20490 | 20499 | 20499 | 20508 | 20508 |
| 9 | SIDE CASINGS (RIGHT & LEFT) | 20030 | 20030 | 20049 | 20049 | 20032 | 20032 |
| 10 | HEAT EXCHANGER ASSEMBLY | 31587 | 31588 | 31598 | 31599 | 31601 | 31602 |
| 11 | BLOWER PAN | 21082 | 21082 | 21083 | 21083 | 21084 | 21084 |
| 12 | BLOWER ASSEMBLY | S00S4008 | S00S4008 | S00S4012 | S00S4012 | S00S4017 | S00S4017 |
| 13 | BECKETT OIL BURNER | 380230 | 380230 | 380230 | 380230 | 380231 | 380231 |
| 14 | FILTER | 370050 (16x25x1) | 370050 (16x25x1) | 370051 (20x25x1) | 370051 (20x25x1) | 370051 (20x25x1) | 370051 (20x25x1) |
| 15 | REAR TOP PANEL | 10496 | 10498 | 10505 | 10507 | 10514 | 10516 |
| 16 | REAR BOTTOM PANEL | 10494 | 10494 | 10503 | 10503 | 10512 | 10512 |
| 17 | BOTTOM MTG. PLATE | 25737 | 25737 | 25737 | 25737 | 25737 | 25737 |
| 18 | BOTTOM MTG. PLATE GASKET | 330056 | 330056 | 330056 | 330056 | 330056 | 330056 |
| 19 | TOP MTG. PLATE GASKET | 330055 | 330055 | 330055 | 330055 | 330055 | 330055 |
| 20 | TOP MTG. PLATE | 25716 | 25716 | 25716 | 25716 | 25716 | 25716 |
| 21 | | | | | | | |
| 22 | | | | | | | |
| 23 | FAN & LIMIT CONTROL | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 |
| 24 | AUX CONTROL | 350163 | 350163 | 350163 | 350163 | 350163 | 350163 |
| 25 | CLEAN OUT COVER | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 |
| 26 | CLEAN OUT COVER GASKET | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 |

**All installations and services must be performed by qualified service personnel.**

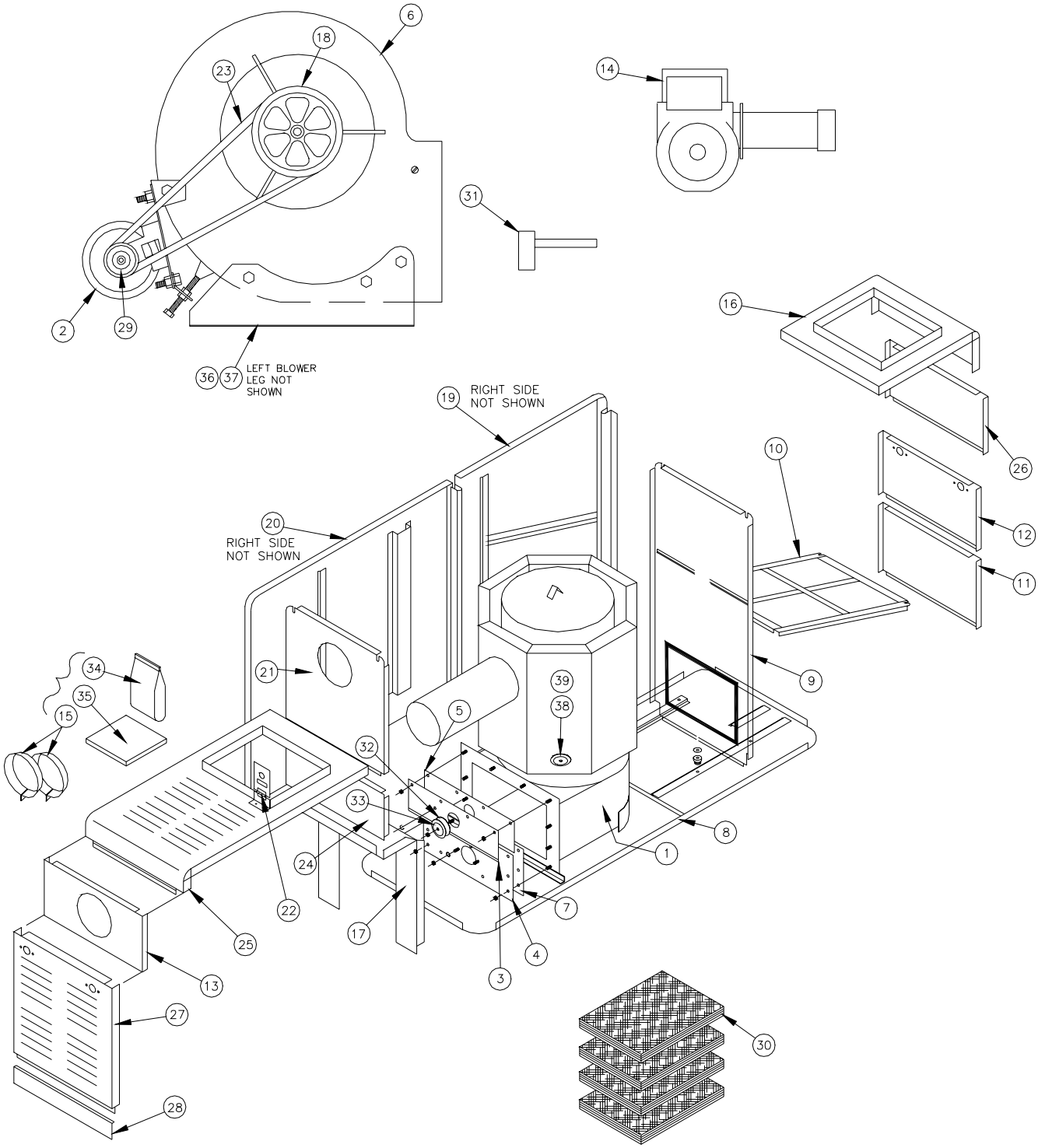


**All installations and services must be performed by qualified service personnel.**

| ITEM | UNIT / PARTS DESCRIPTION | OC2 | | OC5 | |
|---|---|---|---|---|---|
| | | PART NO. | QTY. | PART NO. | QTY. |
| 1 | BASE | 20486 | 1 | 20489 | 1 |
| 2 | SIDE CASING (LEFT) | 20026 | 1 | 20028 | 1 |
| 3 | SIDE CASING (RIGHT) | 20027 | 1 | 20029 | 1 |
| 4 | CASING BACK | 20485 | 1 | 20594 | 1 |
| 5 | PLENUM STRIP | 13312 | 2 | 13318 | 2 |
| 6 | HEAT EXCHANGER | 31419 | 1 | 31436 | 1 |
| 7 | BLOWER ACCESS PANEL (LEFT) | 11018 | 1 | 11024 | 1 |
| 8 | BLOWER ACCESS PANEL (RIGHT) | 11019 | 1 | 11025 | 1 |
| 9 | FRONT TOP SEPARATOR | 11015 | 1 | 11021 | 1 |
| 10 | FRONT CENTER SEPARATOR | 21016 | 1 | 21022 | 1 |
| 11 | TOP FRONT SECTION | 20403 | 1 | 20528 | 1 |
| 12 | BLOWER ACCESS DOOR | 20484 | 1 | 20488 | 1 |
| 13 | FRONT CENTER PANEL | 10451 | 1 | 10471 | 1 |
| 14 | FRONT DOOR | 20483 | 1 | 20487 | 1 |
| 15 | BELT DRIVE BLOWER ASS'Y<br>DIRECT DRIVE BLOWER ASS'Y | S00S4037<br>S00S4052 | 1 | S00S4006<br>S00S4053 | 1 |
| 16 | FLUE BACKING PLATE GASKET | 330071 | 1 | 330089 | 1 |
| 17 | TOP MTG PLATE | 25708 | 1 | 25716 | 1 |
| 18 | BOTTOM MTG PLATE | 25709 | 1 | 25717 | 1 |
| 19 | TOP MTG PLATE GASKET | 330070 | 1 | 330055 | 1 |
| 20 | BOTTOM MTG PLATE GASKET | 330078 | 1 | 330056 | 1 |
| 21 | BLOWER PAN | 21017 | 1 | 21023 | 1 |
| 22 | BLOWER HOLD DOWN (RIGHT) | 14114 | 1 | 14114 | 1 |
| 23 | BLOWER HOLD DOWN (LEFT) | 14113 | 1 | 14113 | 1 |
| 24 | CHROME KNOB | 320145 | 1 | 320145 | 1 |
| 25 | DOOR HANDLE PKG | 320152 | | 320152 | 1 |
| 26 | FILTER | 370040<br>(10 x 17 x 1) | 2 | 370037<br>(12 x 20 x 1) | 2 |
| 27 | FILTER RACK | 24703 | 1 | 34705 | 1 |
| 28 | FAN & LIMIT CONTROL | 350124 | 1 | 350131 | 1 |
| 29 | AUX FAN CONTROL | 350125 | 1 | 350125 | 1 |
| 30 | AUX LIMIT CONTROL | 350126 | 1 | 350126 | 1 |
| 31 | ELBOW | 35714 | 1 | 35719 | 1 |
| 32 | DRAW COLLAR | 14121 | 1 | 14131 | 1 |
| 33 | FLUE COLLAR GASKET | 330073 | 1 | 330005 | 1 |
| 34 | BECKETT OIL BURNER | 380204 | 1 | 380230 | 1 |
| 35 | CLEAN OUT COVER | 11403 | 2 | 11403 | 2 |
| 36 | CLEAN OUT COVER GASKET | 330009 | 2 | 330009 | 2 |

**All installations and services must be performed by qualified service personnel.**

# OL33, 37 & 39 REPLACEMENT PARTS LIST
## (FRONT FLUE SHOWN)

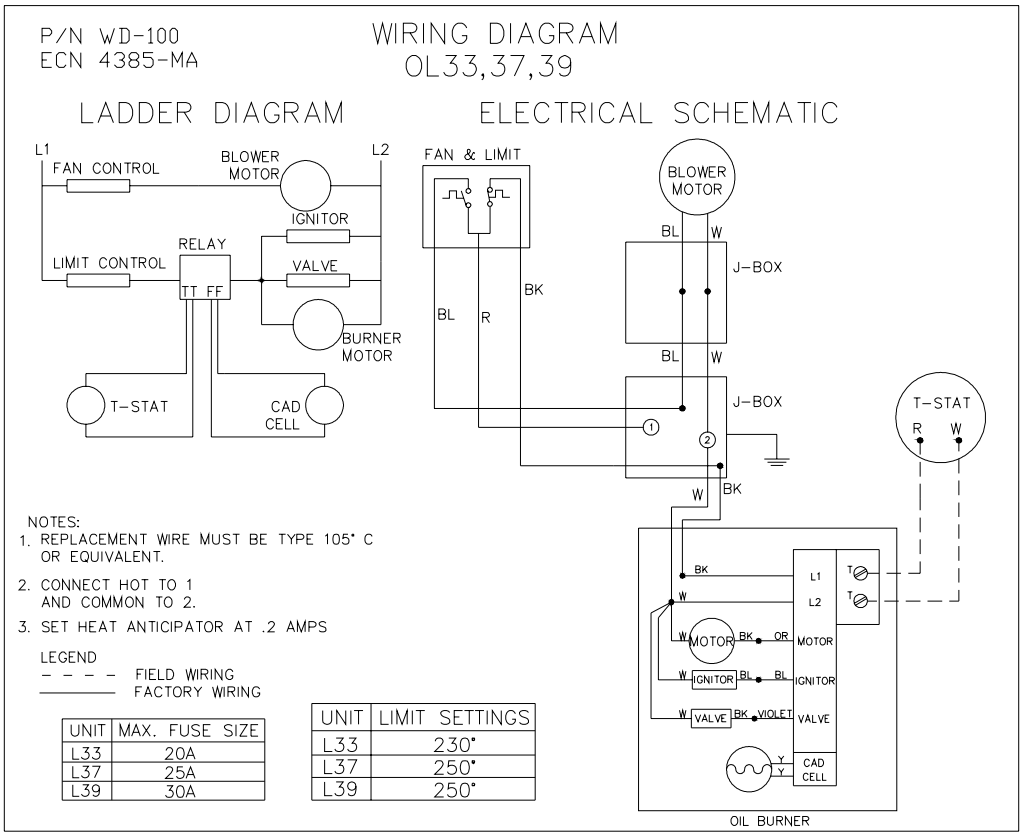


**All installations and services must be performed by qualified service personnel.**

| ITEM # | PART DESCRIPTION / UNIT | | OL33 | | OL37 | | OL39 | |
|---|---|---|---|---|---|---|---|---|
| | | | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE | FRONT FLUE | REAR FLUE |
| 1 | HEAT EXCHANGER ASSEMBLY | | 31517 | 31516 | 31558 | 31560 | 31558 | 31560 |
| 2 | BLOWER MOTOR | | 350302 | 350302 | 350305 | 350305 | 350306 | 350306 |
| 3 | TOP BURNER MTG. PLATE | | 25726 | 25726 | 25732 | 25732 | 25732 | 25732 |
| 4 | BOTTOM BURNER MTG. PLATE | | 25727 | 25727 | 25733 | 25733 | 25733 | 25733 |
| 5 | TOP BURNER MTG. PLATE GASKET | | 330091 | 330091 | 330093 | 330093 | 330093 | 330093 |
| 6 | BLOWER | | 340010 | 340010 | 340011 | 340011 | 340011 | 340011 |
| 7 | BOTTOM BURNER MTG. PLATE GASKET | | 330092 | 330092 | 330094 | 330094 | 330094 | 330094 |
| 8 | BASE | | 30457 | 30457 | 30458 | 30458 | 30458 | 30458 |
| 9 | REAR SEPARATOR | | 21058 | 21061 | 21067 | 21070 | 21067 | 21070 |
| 10 | FILTER RACK ASSEMBLY | | 24732 | 24732 | 24739 | 24739 | 24739 | 24739 |
| 11 | REAR BOTTOM PANEL | | 20436 | 20436 | 20442 | 20442 | 20442 | 20442 |
| 12 | BLOWER ACCESS DOOR | | 20432 | 20432 | 20444 | 20444 | 20444 | 20444 |
| 13 | TOP FRONT PANEL | | 10437 | 10438 | 10445 | 10446 | 10445 | 10446 |
| 14 | BECKETT OIL BURNER | | 380233 | 380233 | 380234 | 380234 | 380235 | 380235 |
| 15 | DRAW COLLAR | | 24135 | 24135 | 24135 | 24135 | 24135 | 24135 |
| 16 | TOP REAR SECTION | | 20433 | 20433 | 20440 | 20440 | 20440 | 20440 |
| 17 | FRONT BOTTOM SEPARATOR | | 21055 | 21055 | 21064 | 21064 | 21064 | 21064 |
| 18 | BLOWER PULLY | | 340209 | 340209 | 340209 | 340209 | 340208 | 340208 |
| 19 | SIDE CASING REAR | LEFT | 20014 | 20014 | 20053 | 20053 | 20053 | 20053 |
| | | RIGHT | 20015 | 20015 | 20054 | 20054 | 20054 | 20054 |
| 20 | SIDE CASING FRONT | LEFT | 20012 | 20012 | 20051 | 20051 | 20051 | 20051 |
| | | RIGHT | 20013 | 20013 | 20052 | 20052 | 20052 | 20052 |
| 21 | FRONT TOP SEPARATOR | | 11056 | 11059 | 11065 | 11068 | 11065 | 11068 |
| 22 | FAN & LIMIT BRACKET | | 24136 | 24136 | 24136 | 24136 | 24136 | 24136 |
| 23 | BELT | | 340112 | 340112 | 340121 | 340121 | 340115 | 340115 |
| 24 | FRONT CENTER SEPARATOR | | 11057 | 11057 | 11066 | 11066 | 11066 | 11066 |
| 25 | TOP FRONT SECTION | | 20434 | 20434 | 20439 | 20439 | 20439 | 20439 |
| 26 | TOP PANEL REAR | | 10438 | 10438 | 10446 | 10446 | 10446 | 10446 |
| 27 | FRONT DOOR | | 20431 | 20431 | 20443 | 20443 | 20443 | 20443 |
| 28 | FRONT BOTTOM PANEL | | 10435 | 20435 | 20441 | 20441 | 20441 | 20441 |
| 29 | MOTOR PULLY | | 340201 | 340201 | 340202 | 340202 | 340202 | 340202 |
| 30 | FILTER | | ——— | ——— | 370012 (16x20x2) 4 REQ'D. | 370012 (16x20x2) 4 REQ'D. | 370012 (16x20x2) 4 REQ'D. | 370012 (16x20x2) 4 REQ'D. |
| 31 | FAN & LIMIT | | 350124 | 350124 | 350124 | 350124 | 350124 | 350124 |
| 32 | CLEANOUT COVER GASKET | | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 |
| 33 | CLEANOUT COVER | | 15796 | 15796 | 15796 | 15796 | 15796 | 15796 |
| 34 | PARTS PACKAGE | | AOPS7566 | AOPS7566 | AOPS7566 | AOPS7566 | AOPS7566 | AOPS7566 |
| 35 | GASKET PACKAGE | | AOPS7569 | AOPS7568 | AOPS7565 | AOPS7564 | AOPS7565 | AOPS7564 |
| 36 | LEFT BLOWER LEG | | 14245 | 14245 | 14260 | 14260 | 14260 | 14260 |
| 37 | RIGHT BLOWER LEG | | 14245 | 14245 | 14260 | 14260 | 14260 | 14260 |
| 38 | CLEAN OUT COVER | | 11403 | 11403 | 11403 | 11403 | 11403 | 11403 |
| 39 | CLEAN OUT COVER GASKET | | 330009 | 330009 | 330009 | 330009 | 330009 | 330009 |

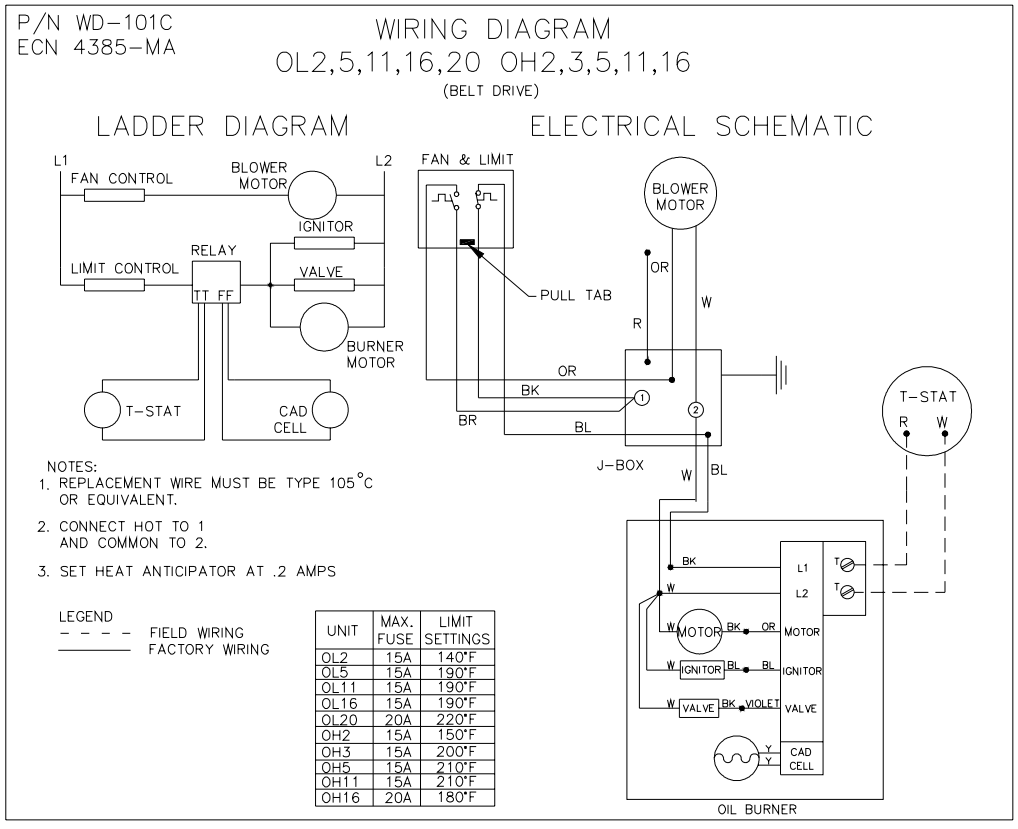
**All installations and services must be performed by qualified service personnel.**

APPENDIX-B Wiring Diagrams




| UNIT | MAX. FUSE SIZE |
|---|---|
| L33 | 20A |
| L37 | 25A |
| L39 | 30A |

| UNIT | LIMIT SETTINGS |
|---|---|
| L33 | 230° |
| L37 | 250° |
| L39 | 250° |




| UNIT | MAX. FUSE | LIMIT SETTINGS |
|---|---|---|
| OL2 | 15A | 140°F |
| OL5 | 15A | 190°F |
| OL11 | 15A | 190°F |
| OL16 | 15A | 190°F |
| OL20 | 20A | 220°F |
| OH2 | 15A | 150°F |
| OH3 | 15A | 200°F |
| OH5 | 15A | 210°F |
| OH11 | 15A | 210°F |
| OH16 | 20A | 180°F |

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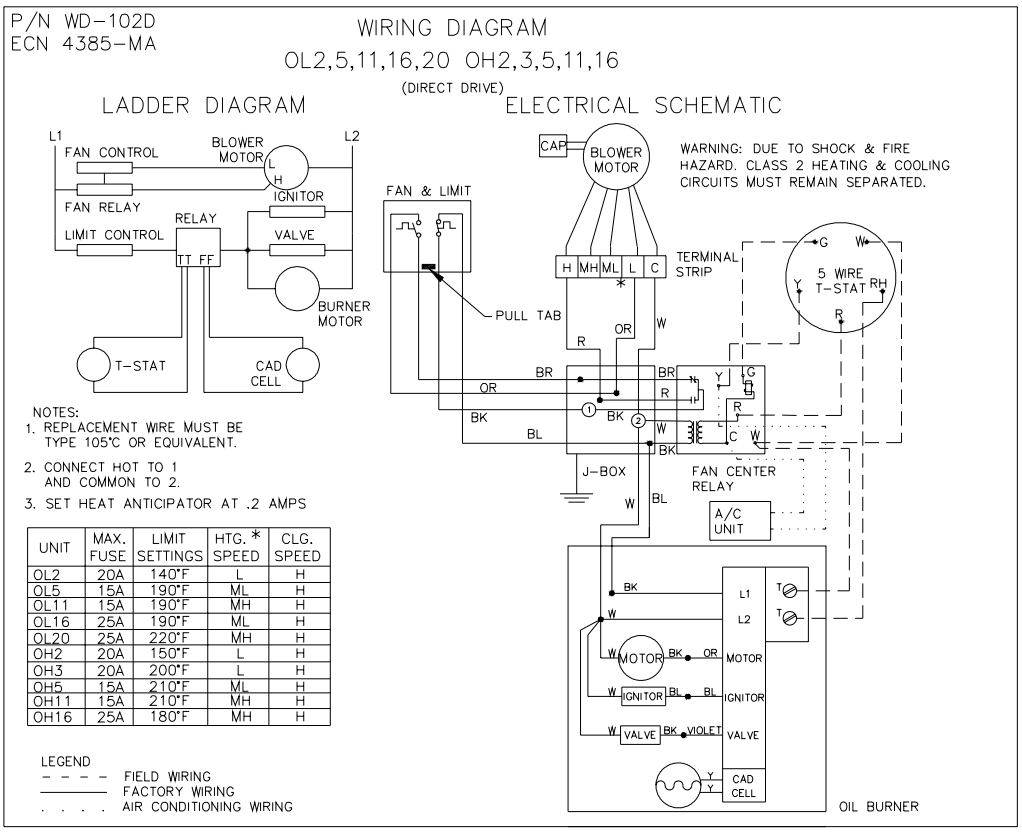
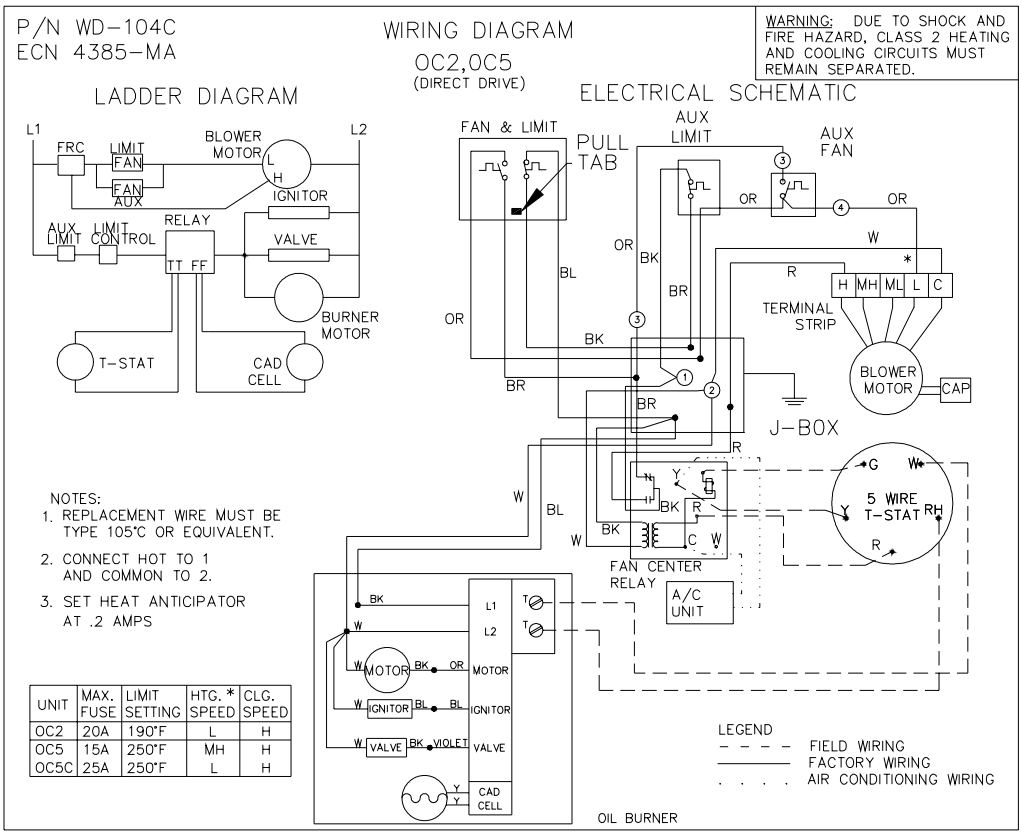



| UNIT | MAX. FUSE | LIMIT SETTINGS | HTG. * SPEED | CLG. SPEED |
|---|---|---|---|---|
| OL2 | 20A | 140°F | L | H |
| OL5 | 15A | 190°F | ML | H |
| OL11 | 15A | 190°F | MH | H |
| OL16 | 25A | 190°F | ML | H |
| OL20 | 25A | 220°F | MH | H |
| OH2 | 20A | 150°F | L | H |
| OH3 | 20A | 200°F | L | H |
| OH5 | 15A | 210°F | ML | H |
| OH11 | 15A | 210°F | MH | H |
| OH16 | 25A | 180°F | MH | H |




| UNIT | MAX. FUSE | LIMIT SETTING | HTG. * SPEED | CLG. SPEED |
|---|---|---|---|---|
| OC2 | 20A | 190°F | L | H |
| OC5 | 15A | 250°F | MH | H |
| OC5C | 25A | 250°F | L | H |

**All installations and services must be performed by qualified service personnel.**