

# WARM-AIR OIL

In a forced warm-air system, a blower fan pulls air from various rooms through the house into the cold-air return duct. The air passes through a filter, into the furnace and is heated. The warm air is then forced into the rooms through ducts and registers that are located adjacent to exterior walls near windows or doors.

## **FORCED-AIR MAINTENANCE COMPONENTS FOR SERVICE TECHNICIAN:**

- CLEAN OR REPLACE THE AIR FILTER MONTHLY DURING THE HEATING SEASON
- CLEAN THE FAN BLOWER BLADES AT THE START OF EACH SEASON (ESPECIALLY IF THERE IS A DRYER NEARBY)
- CHECK THE BELT FOR WEAR, ALIGNMENT AND TENSION – THE BELT SHOULD HAVE ½" TO ¾" DEFLECTION
- EXAMINE THE DUCTS FOR LEAKS AND SEAL WITH DUCT TAPE
- KEEP COLD-AIR RETURNS CLEAR OF FURNITURE (IT IS INEFFICIENT AND MAY LEAD TO BACKDRAFTING)
- LOOK FOR SIGNS OF SOOT AROUND WARM-AIR REGISTERS – THIS MAY INDICATE A CRACKED HEAT EXCHANGER
- CHECK AUXILIARY COMPONENTS (HUMIDIFIER AND CENTRAL AIR CONDITIONER) FOR LEAKS INTO THE UNIT

Most oil burners are efficient and durable and run for many years with few problems. The furnace's flame retention burner may be **conventional** (producing inconsistent flames) or **high-efficiency** (producing more uniform and thus hotter flames). The latter is **15 to 20%** more efficient than a new, properly adjusted conventional burner. Whatever burner type, *you should have a maintenance contract with your oil supplier detailing what is to be inspected and serviced annually.*

**GUN-TYPE**, or pressure burner, is the most common. When the thermostat calls for heat, the burner motor turns on, pumping filtered fuel oil under pressure through a nozzle forming a mist. The burner's blower force air through the draft tube mixing with the mist which is ignited by a high voltage spark between two electrodes located at the end of the draft tube.

**VAPORIZING**, or pot-type burner, is usually used in small furnaces. An oil control valve opens allowing oil to pool in the pot. An electric spark ignites the oil and the heat causes more oil to vaporize. The vapors combine with air that is induced by a blower or by a natural air draft and this mixture burns in the combustion chamber. A higher grade of oil is required to vaporize easily,

## **OIL BURNER MAINTENANCE ITEMS FOR SERVICE TECHNICIAN:**

- CHECK AND CLEAN THE BLADES OF THE BURNER'S BLOWER
- CHECK AND CLEAN THE OIL PUMP STRAINER WITH KEROSENE OR MINERAL SPIRITS
- CLEAN THE OIL FILTER; ANNUALLY INSPECT THE TANK AND PIPING FOR CORROSION OR LEAKS
- CLEAN THE PHOTOELECTRIC FLAME SENSOR (DRAFT TUBE) OR THE STACK HEAT SENSOR (EXHAUST STACK)
- VACUUM AND IF NECESSARY CLEAN THE AIR-INTAKE PORTS ON THE BLOWER
- LUBRICATE THE MOTOR AND BURNER BLOWER BEARINGS ONLY IN LOCATIONS EQUIPPED TO RECEIVE OIL

A **single pipe** from tank-to-furnace is usually connected to an above ground tank. The pump must be primed if the tank becomes empty or air enters the piping. A **two line system** is self-priming and usually connected to an underground tank. In most jurisdictions, oil tanks are not permitted underground. *It is the homeowner's responsibility to remove the tank, including any contaminated soil.*

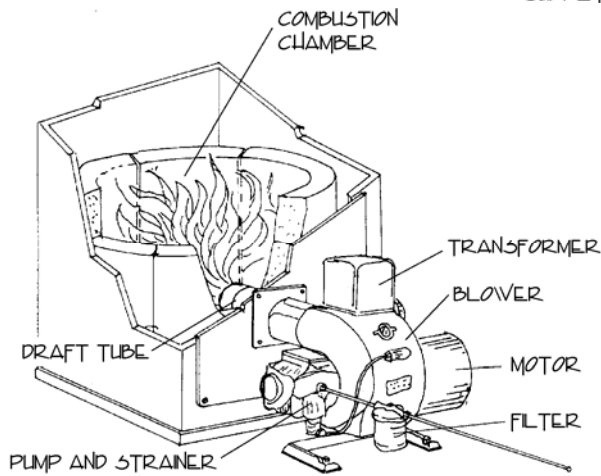
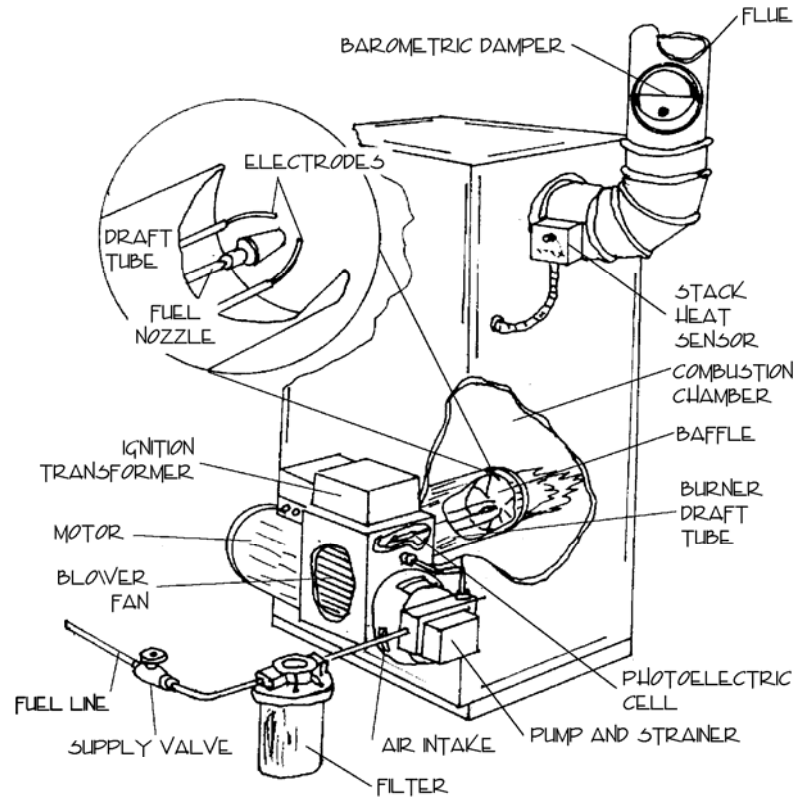
All oil-fired furnaces require a masonry chimney lined with a clay flue or a double insulated prefabricated chimney with a steel lining and be equipped with a cleanout. There must also be a **barometric damper** on the flue. The damper should be free swinging and properly balanced to ensure draft efficiency.

A **stack heat sensor** located in the flue to the chimney trips when it senses no heat. A photoelectric **flame sensor** aimed into the combustion chamber shuts the system down if there is no flame. Both have a reset button. *Call for service if the reset button has been pressed twice with no response!*

For further information contact your local public utilities office, oil supplier, a licensed HVAC contractor or the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) or the Heating, Refrigerating and Air conditioning Institute of Canada (HRAI).

# WARM-AIR OIL

**TYPICAL OIL  
FURNACE WITH  
GUN-STYLE  
BURNER/BLOWER**



**DETAIL OF  
VAPORIZING OR  
POT-TYPE  
BURNER/BLOWER**

**DETAIL OF  
GUN-TYPE OR  
PRESSURE-TYPE  
BURNER/BLOWER**

