

## Boiler Tips

### 1. Tips for boiler maintenance:

**Regular Servicing:** The best way to ensure your boiler is running efficiently is to get it serviced on a yearly basis. Don't leave it until it breaks down over winter!!!

Servicing the boiler will ensure that the boiler:

- a) Is burning correctly
- b) The gas pressure is correct - If the boiler is gas
- c) The products of combustion are safely diluted and dispersed safely
- d) Efficiency will be increased by ensuring the boiler is getting enough oxygen and that the burners are set-up correctly.

**The Boiler is Correctly Flued:** The correct fluing of the boiler will ensure the boilers products of combustion are correctly dispersed of and do not re-enter/enter the property.

**The Boiler has the Correct Ventilation:** The correct ventilation will stop the dangerous levels of carbon monoxide being produced and ventilation will aid efficiency.



### 2. Safety Tips for Boilers

- Exterior shell and/or insulation. Look for indications of overheating.
- Leaks. Look for water on the floor. Check for water or steam escaping from any part of a pressurized system including the boiler, valves or piping.
- Flue gas leaks. Look for black dust (soot) around sheet-metal joints. Check any part of boiler enclosure and breaching, especially in the connection to the stack, and check the boiler exhaust system integrity.
- Controls. Look for open panels, covers and signs of rewiring on floor or bottom of panels. Check for jumper wires and locked shutoffs.
- Safety Devices. Test all operating controls and safety devices for proper operation. Observe at least three cycles of automatic operation before independent operation.
- Electrical. Ensure that covers are installed on over-limit switches, temperature sensors, and controls.
- Safety valves. Ensure that a safety valve is installed with full-sized discharge piping properly supported and directed to a point of safe discharge. Safety valve set pressure must be equal to or less than boiler maximum allowable working pressure. Safety valve relieving capacity must be equal to or greater than boiler output.
- Fuel sources. Check for the ability to shut off the fuel source to the vessel.
- Gages. Make sure temperature and pressure gages are operational and are located for proper monitoring.
- Hazards. Remove all fire hazards from the boiler room and do not use the boiler room for storage.
- Air openings. Check combustion air openings for obstructions.
- Proper piping. Check for proper supports and allowance for expansion and contraction.
- Operating certificate. Observe certificate, noting last date of inspection and expiration date, as well as when next inspection is required.

### 3. **Boiler Maintenance:**

If you recently had a new boiler installed or currently has a boiler operating in your home. You need to be protected your investment in your heating system by having your system inspected by a qualified professional every year. A qualified professional would ensure your boiler is in top operating condition and ensure against catastrophic failures that can occur if proper maintenance is not performed. Depending on the type of boiler you have, some of the inspection checkpoints that are performed annually are:

- Drain, flush and refill system.
- Clean the low water cutoff.
- Inspect the automatic water feeder.
- Clean the 'pigtail' and site glass.
- Inspect all controls and safety devices for proper operation.

### 4. **Heating Equipment Tips**

Heat pumps and oil-fired furnaces and boilers need a yearly professional tune-up. Gas-fired equipment burns cleaner; it should be serviced every other year.

#### **Step 1:**

A close inspection will uncover leaks, soot, rust, rot, corroded electrical contacts and frayed wires. In furnace (forced-air) and boiler (hot-water) systems, the inspection should also cover the chimney, ductwork or pipes, dampers or valves, blower or pump, registers or radiators, the fuel line and the gas meter or oil tank-as well as every part of the furnace or boiler itself.

#### **Step 2:**

Next, the system should be run through a full heating cycle to ensure that it has plenty of combustion air and chimney draft. Contractors use smoke pencils to check for sufficient draft and also test the air for carbon monoxide.

#### **Step 3:**

Finally, it's time for the down and dirty task of cleaning the burner and heat exchanger to remove soot and other gunk that can impede smooth operation. For the burner, efficiency hinges on adjusting the flame to the right size and color, adjusting the flow of gas or changing the fuel filter in an oil-fired system. A check of the heat pump should include an inspection of the compressor, fan, indoor and outdoor coils, and refrigerant lines. Indoor and outdoor coils should be cleaned, and the refrigerant pressure should be checked. Low pressure indicates a leak; to locate it, contractors feed tinted refrigerant into the loop and go over it with an electronic detector.

#### **Blowers**

Tuning up the distribution side of a forced-air system starts with the blower. The axle should be lubricated; blades cleaned and lower motor checked to insure the unit isn't being overloaded. The fan belt should be adjusted so it deflects no more than an inch when pressed. Every accessible joint in the ductwork should be sealed with mastic or UL-approved duct tapes. Any ducts that run outside the heated space should be insulated. On a hot-water system, the expansion tank should be drained, the circulating pump cleaned and lubricated and air bled out of the radiators.

#### **Thermostats**

While, thermostats rarely fail outright, they can degrade over time as mechanical parts stick or lose their calibration. Older units will send faulty signals if they've been knocked out of level or have dirty switches. To recalibrate an older unit, use a wrench to adjust the nut on the back of the mercury switch until it turns the system on and, using a room thermometer, set it to the correct temperature. Modern electronic thermostats, sealed at the factory to keep out dust and grime, rarely need adjusting. However, whether your thermostat is old or young, the hole

where the thermostat wire comes through the wall needs to be caulked or a draft could trick it into thinking the room is warmer or colder than it really is.

### **Humidifiers**

A neglected in-duct humidifier can breed mildew and bacteria, not to mention add too much moisture to a house. A common mistake with humidifiers is leaving them on after the heating season ends. Don't forget to pull the plug, shut the water valve and drain the unit. A unit with a water reservoir should be drained and cleaned with white vinegar, a mix of one part chlorine bleach to eight parts water or muriatic acid. Mist-type humidifiers also require regular cleaning to remove mineral deposits.

### **Filters**

Most houses with forced-air furnaces have a standard furnace filter made from loosely woven spun-glass fibers designed to keep it and its ductwork clean. Unfortunately, they don't improve indoor air quality. That takes a media filter, which sits in between the main return duct and the blower cabinet. Made of a deeply pleated, paper-like material, media filters are at least seven times better than a standard filter at removing dust and other particles. An upgrade to a pleated media filter will cleanse the air of everything from insecticide dust to flu viruses.


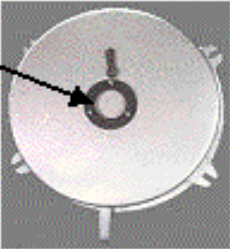
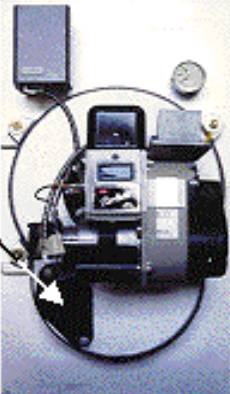
Compressed, media filters are usually no wider than six inches, but the pleated material can cover up to 75 square feet when stretched out. This increased area of filtration accounts for the filter's long life, which can exceed two years. The only drawback to a media filter is its tight weave, which can restrict a furnace's ability to blow air through the house. To insure a steady, strong airflow through the house, choose a filter that matches your blower's capacity.

### **Duct Cleaning**

Inside the walls and floors of 80 percent of American homes run a maze of heating and air conditioning ducts that connect each room to the furnace. As the supply ducts blow air into the rooms, return ducts inhale airborne dust and suck it back into the blower. Add moisture to this mixture and you've got a breeding ground for allergy-inducing molds, mites and bacteria. Many filters commonly used today can't keep dust and debris from streaming into the air and over time sizable accumulations can form dust bunnies, but bigger.

To find out if your ducts need cleaning, pull off some supply and return registers and take a look. If a new furnace is being installed, you should probably invest in a duct cleaning at the same time, because chances are the new blower will be more powerful than the old one and will stir up a lot of dust.

Professional duct cleaners tout such benefits as cleaner indoor air, longer equipment life and lower energy costs. Clean HVAC systems can also perform more efficiently, which may decrease energy costs, and last longer, reducing the need for costly replacement or repairs. Cleaning has little effect on air quality, primarily because most indoor dust drifts in from the outdoors. But it does get rid of the stuff that mold and bacteria grow on, and that means less of it gets airborne, a boon to allergy sufferers.

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| <p>1. Remove four (4) brass nuts at <b>end head</b> and drop down to expose tubes and <b>scroll</b> (p/n 210.000).</p> <p>3. Check coil studs for corrosion. Replace with <b>Brass bolts</b> (p/n 355.901) if necessary.</p> <p>5. Clean <b>small tubes</b> with a vacuum cleaner or <b>tube brush</b> (p/n 999.048).</p> <p>7. Replace <b>end head</b> rope gasket (p/n 100.301).</p> <p>9. Check 3" <b>sight glass</b> for cracks. Clean or replace as needed. (glass kit – p/n 98083)</p> | <br> | <p>2. Check <b>coil gasket</b> (p/n 100.001) for leaks. Replace if necessary.</p> <p>4. Inspect <b>scroll</b> for cracks and other damage; replace, if necessary (scroll package – p/n 98082).</p> <p>6. Check for carbon in <b>combustion tube</b>, clean out.</p> <p>8. Inspect <b>end head refractory insert</b> (p/n 921.000).</p> <p>10. Reassemble <b>end head</b> and stack connections. Make sure all vent connections are taped and secured with screws. Test gaskets for leaks. <b>Scroll</b> is important to proper efficient operation.</p> <p><b>DO NOT OMIT THIS PART.</b></p> |
| <p>11. Remove <b>cleanout cover</b> at burner end and clean 2nd and 3rd pass (belly pan) thoroughly with vacuum. Check gasket – replace as needed (p/n 100.003)</p> <p>NOTE: Specific settings for each boiler maybe found in your installation manual.</p>  |    | <p>12. Replace <b>nozzle</b>; (p/n 511.000); check all burner settings; fire boiler, check again for leaks in gaskets, stack joints. Make sure CO<sub>2</sub>, air control setting and smoke test are as they should be.</p>   |

**Reference:**

<http://www.devizesplumbing.co.uk/boilermain.html>

<http://www.thermidaire.on.ca/boiler-tips.html>

[http://www.bgehome.com/hvac\\_service\\_tips.html](http://www.bgehome.com/hvac_service_tips.html)