

## **13.2 Regular Maintenance**

### **13.2.1**

The owner of the oil-burning equipment shall ensure that it is maintained in accordance with clause **13.2** to **13.5** at least once per year.

**Note:** *Maintenance should also be in accordance with manufacturer's instructions.*

### **13.2.2**

Inspect the fuel oil tank

- (a) For leaks, and replace if necessary; and
- (b) For the slope of the tank and correct the slope if necessary.

#### **13.2.2.1**

For Metallic end outlet tanks, test for water at the bottom of the tank. Where water is found, remove the water.

#### **13.2.2.2**

Inspect the lines for leaks and repair or replace if necessary.

### **13.2.3**

Inspect the sight gauge to ensure that it is operating, and replace it if necessary.

### **13.2.4**

Inspect the fuel filter, or replace it with a type that is suitable for the installed system.

### **13.2.5**

Check the fuel pump pressure to ensure that the pressure conforms to the appliance manufacturer's requirements, and adjust or replace the fuel pump as required.

### **13.2.6**

Check the fuel pump's automatic cut-off valve or separate control valve to ensure that it is operating as intended, and repair or replace the fuel pump as required.

### **13.2.7**

Clean and adjust the electrodes, and replace them as required.

### **13.2.8**

Inspect the nozzle, and determine whether it conforms to the manufacturer's indicated flow rate, spray angle, and pattern; if necessary, replace it with a similar nozzle. If a sizing change is justified, replace it with a nozzle of greater or lesser capacity. If a flame impingement is present, replace it with a nozzle with a flow rate and spray angle that will prevent the flame impingement, as verified by a visual inspection of the flame pattern produced by the new nozzle.

### **13.2.9**

Inspect the combustion chamber, and repair or replace it as required.

**13.2.10**

Inspect, and clean where required, the heat exchanger, vent passages, and vent pipes.

**13.2.11**

Check the operation of the high-temperature-limit control, and replace it if required.

**13.2.12**

Check the safety timing and the flame-out timing, and replace the applicable combustion control(s) if required.

**13.2.13**

Measure the CO<sub>2</sub> level at the location specified in clause **5.2.1**.

**13.2.14**

Measure the flue-gas temperature at the location specified in clause **5.2.1** to determine if it meets the temperature requirements of clause **5.2.4.1**. If not, take appropriate measure to bring the flue-gas temperature below the specified maximum.

**13.2.15**

Measure the over-fire pressure (draft) to ensure that it satisfies the requirements of the burner/appliance manufacturer, and adjust the draft if required.

**13.2.16**

Measure the pressure (draft) in the vent at the location specified in clause **5.2.1** to determine if it conforms to that specified on the appliance and given in the manufacturer's certified instructions. Take the necessary measures to ensure that the specified pressure (draft) can be maintained during the normal operation of other building venting/exhaust systems.

**13.2.17**

Measure the smoke density at the location specified in clause 5.2.1 to determine if it is within the burner/appliance manufacturer's recommended range, and, if required, make changes or adjustments so that it will remain within that range.

**13.2.18**

Inspect and clean the barometric damper, and adjust or replace it with a certified barometric damper, as required.

**13.2.19**

Inspect the thermostat anticipator setting, if an anticipator is present, and adjust it if necessary.

**13.2.20**

Inspect the chimney, remove any debris found, and clean and/or replace it as necessary

**13.2.21**

Ensure that the fuse serving the appliance is appropriate and correctly sized.

### **13.2.22**

The operation of an anti-siphon valve is tested annually and a record of the test shall be maintained.

## **13.3 Forced-Air Furnaces**

### **13.3.1**

If an add-on air conditioner or heat pump is present, measure the return air temperature and the supply air temperature in the bonnet to determine if the temperature rise and the bonnet temperatures are within the range specified by the manufacturer and other applicable codes and standards or, in the absence of such requirements, 50°C (90°F).

**Note:** *Over time, the air conditioner or heat pump coil often becomes blocked with dirt or lint.*

### **13.3.2**

In a residential application, check for the presence of a return air inlet within 1.8m (6 ft) of the furnace, or within an enclosed space or furnace room containing the furnace. If such an inlet is found, close and seal the inlet.

### **13.3.3**

Inspect the air filters, and clean and/or replace them as necessary.

### **13.3.4**

If an electronic air cleaner is part of the heating system, prevent generation of ozone by ensuring that the airflow through the air cleaner is sufficient and passes through the entire air cleaner.

### **13.3.5**

Inspect the blower assembly, and clean and lubricate it as necessary.

### **13.3.6**

If a blower fan belt is present, determine whether the tension is adjusted properly, whether the belt is in proper alignment, and whether the belt is in good condition. Adjust or replace it as necessary.

### **13.3.7**

#### **13.3.7.1**

A test for heat exchanger leaks shall be conducted if, during a service call any of the following symptoms of a leaky heat exchanger is in evidence:

- (a) The owner or other building occupants report odours that could be attributable to products of combustion during the furnace operation or start-up;
- (b) An O<sub>2</sub> or CO<sub>2</sub> test in the vent indicates that excessive dilution of the flue gases is occurring after the air circulation blower starts operation;
- (c) Greasy or oily soot is present at duct connections or registers; or
- (d) There is any reason for suspicion, such as excessive moisture within the building, history of the furnace type, or customer complaints of illness during the heating season.

### **13.3.7.2**

Test the heat exchanger using one of the following:

- (a) A smoke bomb;
- (b) A smoke pencil (draft detector) to determine if the forced-air circulating fan pressurizes the heat-exchanger combustion zone when the heat exchanger is hot and when it is cool (two tests) and when the vent pipe has been removed and the vent opening of the furnace has been blocked or sealed; or
- (c) An electronic flue-gas analyzer to check for any CO or CO<sub>2</sub> in excess of the normal ambient levels within the warm air distribution supply plenum, with the air distribution fan off.

**Note:** *The test outlined in item (b) is considered to be the most accurate and acceptable test.*

### **13.3.7.3**

If a test conducted in accordance with clause **13.3.7.2** indicates that there is a leak in the heat exchanger, the heat exchanger or the furnace shall be replaced.

## **13.4 Boilers**

### **13.4.1**

Inspect the system for leaks, and adjust or repair it as required.

### **13.4.2**

Inspect the circulating pump, if one is present, to ensure that it is working properly, and lubricate it as required.

### **13.4.3**

Check the system pressure to determine if it exceeds the boiler manufacturer's or system designer's maximum and whether the pressure is sufficiently high for proper circulation with the installed head pressure. Adjust the pressure if required.

### **13.4.4**

Check the pressure-relief valve to determine if it is operating correctly, and replace it as required.

### **13.4.5**

Check the automatic fill valve, if one is present, and adjust or replace it as required.

### **13.4.6**

Check the expansion tank to determine whether it is operating as intended, and recharge it with air or replace it as required.

## **13.5 Domestic hot water heaters**

Check the operating controls. See clause **5.1**.