Indiana WX Oil Furnace Inspection Guide

| Client: ___________________________________________________________ | Job #: ____________________ |
| Address: _________________________________________________________ | Phone: _____________________ |

Client Interview: ___________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Oil Dealer: ______________________________________ Date of last service: __________

Comments/Billing information:  □ Standard Inspection / Clean and Tune
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Follow-up:  □ Emergency / Furnace Replacement
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Fuel Type:  □ # 1 oil  □ # 2 oil  □ Forced air?  □ Y  □ N
Water Heater:  □ Gas  □ Oil  □ Electric  □ Is this a mobile home?  □ Y  □ N
Is the Water Heater in the same CAZ as the furnace?  □ Y  □ N
Is this the Final Inspection of a new furnace installation?  □ Y  □ N

Describe appliance types, locations, venting configurations and BTUH input ratings: ____________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Indiana WX Oil Furnace Inspection Guide 2002
Inspect entire fuel delivery system/s and oil filter/s

OK

Inspect entire vent system and barometric damper

OK

Inspect electrical system

OK

Determine if adequate combustion and ventilation air is available

OK

As a good visual inspection of the heat exchanger is a difficult thing to do, the use of a combustion analyzer or reliable heat exchanger test kit is highly recommended.

Visually inspect the integrity of the heat exchanger

Crack or hole

Test kit used?  ☐ Yes
Analyzer used?  ☐ Yes
Change with blower on:  __________ %

Replace furnace

Test kit used?  ☐ Yes
Analyzer used?  ☐ Yes
Change with blower on:  __________ %

Replace furnace

*Continue and complete all other appropriate sections of this document*

Technician

Fuel Delivery System:
☐ OK

Operational shut-off valve/s?
☐ Yes

Oil filter present?
☐ Yes

Oil filter cartridge replaced?
☐ Yes ☐ No

Vent System:
☐ OK

Operational barometric damper?
☐ Yes ☐ N/A

Operational shut-off switch?
☐ Yes

Electrical polarity correct?
☐ Yes

Appliance grounded?
☐ Yes

Total BTUH
__________ BTUH

Volume of air needed:
(BTUH/20)
__________ Cu.Ft.

Volume available:
(LxWxH)
__________ Cu. Ft.

☐ Combustion air work done by others

Inspection

Fuel Delivery System:
☐ OK

Vent system:
☐ OK

Electrical system:
☐ OK

Proper amount of combustion and ventilation air provided
☐ Yes
Inspect, clean and adjust direct drive or belt drive blower assembly

Clean and service

☐ Repairs made

Dirty

OK

OK

All vented combustion appliances are to be tested under “Worst Case Depressurization” conditions in the combustion appliance zone (CAZ). More than one CAZ requires more than one CAZ depressurization test.

Technician

Blower assembly serviced?

☐ Yes

☐ No

Blower speed increased?

☐ Yes ☐ No

Inspector

Blower assembly serviced?

☐ Yes

☐ N/A No blower

Blower speed increased?

☐ Yes ☐ No

“Worst Case” set-up complete?

☐ Yes

“Worst Case” set-up complete?

☐ Yes

Set-Up

Furnace and water heater off?

☑ Yes ☐ No

Furnace filter clean or removed?

☑ Yes ☐ No

Exterior windows and doors closed?

☑ Yes ☐ No

Fireplace or wood stove dampers closed?

☑ Yes ☐ No

Clothes dryer and all exhaust fans on?

☑ Yes ☐ No

( Exception: Do not run whole house fans)

Interior doors closed?

☑ Yes ☐ No

( Exception: Do not close doors to rooms with exhaust fans only - no supply ducts)

Blower door exhausting 300 CFM fireplace flow?

☐ Yes ☐ No

☐ N/A

CAZ Depressurization Test

Gauge set-up to measure CAZ WRT outside?

☑ Yes ☐ No

Is there a door from the interior to the CAZ?

☑ Yes ☐ No

Forced air furnace?

☑ Yes ☐ No

CAZ door:

Open

Closed

Furnace Fan OFF

Pa

Pa

Furnace Fan ON

Pa

Pa

CAZ door:

Open

Closed

Furnace Fan OFF

Pa

Pa

Furnace Fan ON

Pa

Pa

Technician

“Worst Case” set-up complete?

☑ Yes

“Worst Case” set-up complete?

☐ Yes

Gauge set-up to measure CAZ WRT outside?

☐ Yes ☐ No

Is there a door from the interior to the CAZ?

☐ Yes ☐ No

Forced air furnace?

☐ Yes ☐ No

Water Heater Test Procedure

*Note: The water heater is always tested first.

Does the water heater have a properly installed pressure and temperature relief valve?

☐ Yes ☐ No

Water temperature/Adjusted? ☐ Yes ☐ No

Fire the water heater

Was initial flow established in the vent?

☐ Yes ☐ No

Was there spillage after two minutes?

☐ Yes ☐ No

Draft pressure after five minutes: _______”WC or _______Pa

Carbon monoxide after five minutes: _______PPM

☐ Repairs made

Water Heater:

T&P relief valve?

☐ Yes

Temp: _____Deg.F.

Adjusted? ☐ Yes ☐ No

Establish flow in vent?

☐ Yes

Spillage? ☐ No

Draft pressure:

____”WC or _______Pa

Carbon monoxide:

______/____PPM

Initial

Fan Off:

Open Pa

Closed Pa

Fan On:

Open Pa

Closed Pa

Final “Worst Case” Depressurization measurement of the CAZ

Pa

Final “Worst Case” Depressurization measurement of the CAZ

Pa

Water Heater:

T&P relief valve?

☐ Yes

Temp: _____Deg.F.

Adjusted? ☐ Yes ☐ No

Establish flow in vent?

☐ Yes

Spillage? ☐ No

Draft pressure:

____”WC or _______Pa

Carbon monoxide:

______/____PPM

Carbon monoxide:

______/____PPM
Initial combustion safety testing must be completed. If it is found that the appliances will not work under “Worst Case” conditions, then continue testing and repair under “normal operating conditions” and document for the Wx Inspector in the “Follow-up” section of this guide.

**Technician**

- Not tested under “Worst Case”

**Furnace Steady state:**

- 02 _____%
- Stack temp: _____Deg.F.
- Combustion air temp: _____Deg.F.
- Net stack temp: _____Deg.F.
- Combustion efficiency _____%
- Breech draft: ___"WC or ___Pa
- Overfire draft: ___"WC or ___Pa
- Outside air temp: _____Deg.F.
- Smoke: _____#
- Carbon monoxide: _____PPM
- Temperature rise: _____Deg.F.

**Inspector**

**Furnace Steady state:**

- 02 _____%
- Stack temp: _____Deg.F.
- Combustion air temp: _____Deg.F.
- Net stack temp: _____Deg.F.
- Combustion efficiency _____%
- Breech draft: ___"WC or ___Pa
- Overfire draft: ___"WC or ___Pa
- Outside air temp: _____Deg.F.
- Smoke: _____#
- Carbon monoxide: _____PPM
- Temperature rise: _____Deg.F.

Perform a high temperature limit switch test on the appropriate appliances

- Did not work
- Repair or replace
- Repairs made

OK

Calibrate analyzer and insert probe in the vent connector upstream of the barometric damper.

Monitor the oxygen reading on start-up! A change in 02 greater than 1% validates a bad heat exchanger.

**Furnace Combustion Testing Procedure**

- Fire the furnace
- Change in 02 when blower comes on: _____%
- Did the operation of the heating appliance cause spillage or a reduction in draft at any other appliance? □ Yes □ No □ N/A
- Pump pressure: (optional) _____PSIG Adjusted to: _____PSIG
- Steady state 02: _____%
- Steady state Stack Temperature: _____Deg.F.
- Subtract Combustion air temperature: _____Deg.F.
- To get Net Stack Temperature: _____Deg.F.
- Steady state Combustion efficiency: _____%
- Burner type: Retention head □ Non-Retention head □
- Breech draft: ___"WC or ___Pa
- Overfire draft: ___"WC or ___Pa
- Outside air temperature: _____Deg.F.
- Smoke: _____#
- Carbon Monoxide: _____PPM
- Temperature rise: Supply minus Return: _____Deg.F.
- Repairs/adjustments made □ □ Bad heat exchanger

- High temperature limit switch operational? □ Yes
- Limit temperature: _____Deg.F.

Note:

Initial combustion safety testing must be completed. If it is found that the appliances will not work under “Worst Case” conditions, then continue testing and repair under “normal operating conditions” and document for the Wx Inspector in the “Follow-up” section of this guide.

**Furnace Combustion Testing Procedure**

- Fire the furnace
- Change in 02 when blower comes on: _____%
- Did the operation of the heating appliance cause spillage or a reduction in draft at any other appliance? □ Yes □ No □ N/A
- Pump pressure: (optional) _____PSIG Adjusted to: _____PSIG
- Steady state 02: _____%
- Steady state Stack Temperature: _____Deg.F.
- Subtract Combustion air temperature: _____Deg.F.
- To get Net Stack Temperature: _____Deg.F.
- Steady state Combustion efficiency: _____%
- Burner type: Retention head □ Non-Retention head □
- Breech draft: ___"WC or ___Pa
- Overfire draft: ___"WC or ___Pa
- Outside air temperature: _____Deg.F.
- Smoke: _____#
- Carbon Monoxide: _____PPM
- Temperature rise: Supply minus Return: _____Deg.F.
- Repairs/adjustments made □ □ Bad heat exchanger

- High temperature limit switch operational? □ Yes
- Limit temperature: _____Deg.F.
Test flame out safety control
   □ CAD cell relay
   □ Stack switch

Fail

Replace switch or control
   □ Repairs made

OK

Not OK

Adjust or replace switch
   □ Repairs made

OK

Perform client education

Technician

Flame out safety switch operational?
   □ Yes

Fan “off” temperature: _______ Deg. F.

Client education completed?
   □ Yes

Inspector

Flame out safety switch operational?
   □ Yes

Fan “off temperature: ______ Deg. F.

Verify client education completed?
   □ Yes

Technician: ___________________________ Date: ____________

Final Inspector: ___________________________ Date: ____________

Agency reviewer: ___________________________ Date: ____________

Additional comments: ____________________________________________

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