Firebird Elco Burner Commissioning guide

Pre-commissioning checklist

- Before pressurizing the system, ensure expansion vessel has approx. 1 bar air pressure.
- Pressurize system to between 1 and 1.5 bar, making sure the system water is adequately dosed with inhibitor.
- Ensure there is adequate heat load for the boiler; zone valves are open, radiator TRVs are open etc.
- Check fuel supply and bleed air from fuel pump if necessary. Ensure fuel filters / tiger loops are full and there is fuel at the burner.
- Using the measuring key provided, consult the installation manual and check all clearances in the burner are correct, and that the nozzle is the correct type. Adjust clearances if necessary, then refit the burner into the boiler.
- On condensing models, prime the condensate trap by pouring water into the top of the trap or the **inner** section of the flue (avoid air intake).

Purging air from the system

- Turn on power to the boiler but don't introduce a heat demand yet. Check all AAV's on the system are open.
- On the circulation pump, move the dial **fully anticlockwise to the start position**. At this stage the pump should be showing a **blinking light**, which indicates the deaeration function on the boiler is active. Leave the pump in this position for 10 minutes or until all air is removed from the system.
- After the deaeration function is complete, move the dial back to a position suitable for the specific system (see pump setting guide here).

Commissioning the burner

- Connect a fuel pressure gauge to the appropriate port on the fuel pump, see installation manual if required.
- Prepare flue gas analyzer, making sure to alter the settings for the correct fuel type (usually 'light oil'). Do not insert the probe into the boiler at this stage.
- If available, make sure a temperature measuring device is attached somewhere on the flow pipe in/near the boiler.
- Introduce a heat demand to ignite the burner and turn the boiler thermostat up to the maximum setting. Allow the boiler to reach approx. 60°C flow temperature, then insert the flue gas analyzer probe into the dedicated test point near the top of the combustion chamber (you will need to ease off the screw holding the flap in place, or remove the bung depending on the type of boiler
- Consult the manual for reference, and complete the below checks:
    - Adjust the fuel pressure to the correct setting if required.
    - **IMPORTANT –** If the boiler is standard efficiency **and** has a flue length of over 2 metres, please see **Appendix 1** before proceeding. For any other boiler model or flue configuration, proceed to the below.
    - Using the combustion chart in the manual or on the inside of the plastic burner cover, adjust the air flap to achieve the correct CO2. Reducing the air shutter setting will **increase** the CO2, and increasing the air shutter setting will **decrease** the CO2.
    - It is important to set the CO2 in relation to the outdoor ambient temperature, following the line of the combustion chart. For example, if the outdoor temperature is 20°C then the CO2 should be set to 12.5%

Final checks

- Ensure the boiler turns off and on when responding to external controls.
- Set the boiler thermostat to the set point required for the system, the following guidance is recommended; For radiator systems or systems that contain DHW set to mid-point of stat (70°C). For underfloor heating systems set to lowest setting (60°C).
- Run through the system, checking all auxiliary components are functioning correctly, E.g. zone valves are opening, the bypass valve is functioning correctly, and all radiators / underfloor loops have good flow.
- Check system pressure when cold and hot, ensure there are no leaks or large fluctuations in pressure when system is heating up. Confirm the circulation pump is set correctly and the temperature differencial between the flow and return is around 15-25°C.
- Handover to customer and explain how to use the system effectively, reiterating the importance of annual servicing.

Appendix 1

- If the boiler is standard efficiency and has a flue over 2 meters in length, it is required to adjust the combustion settings to accommodate for the increased temperature of the air being drawn into the burner.

    1. Remove the snorkel that connects the air box on the burner to the flue intake.
    2. Run the boiler until the flow temperature reaches 60°C, as mentioned before.
    3. With the snorkel removed, adjust the air shutter until the CO2 reaches 11.5%.
    4. Reattach the snorkel and record the new CO2 reading. If the new CO2 value is excessively high, i.e. over 13.5%, please contact CHNZ and ask for technical support to discuss further.
    5. You can now proceed to 'Final Checks' on the main document.

Commissioning Report

Appliance & Installation Details:

Address Of Installation:		**Date Purchased:**	
Installer Name:		**Purchased From:**	
Boiler Serial No:		**Boiler Model:**	
Commissioning Date:		**Flue Type:**	
System Description: (Provide a brief description of the installation, type of heating, control zones, location of boiler, new installation, etc)			

Burner:

Burner Model:		**Fuel Pressure:**	
Nozzle Size:		**Air Shutter setting:**	
Nozzle position (at key or how many turns back):		**CO2% & air temperature:**	
CO PPM:		**O2%:**	
Blast Tube Type (new or old? Include picture):		**Photocell Type (colour and length):**	
Fire Valve Fitted & Tested:		**Tigerloop Fitted:**	

Boiler:

Expansion Vessel Charge Pressure (before filling boiler):		**System Pressure:**	
Inhibitor Type Used & Volume Added:		**Boiler Thermostat Setting (min, med, max setting):**	
Comments:			