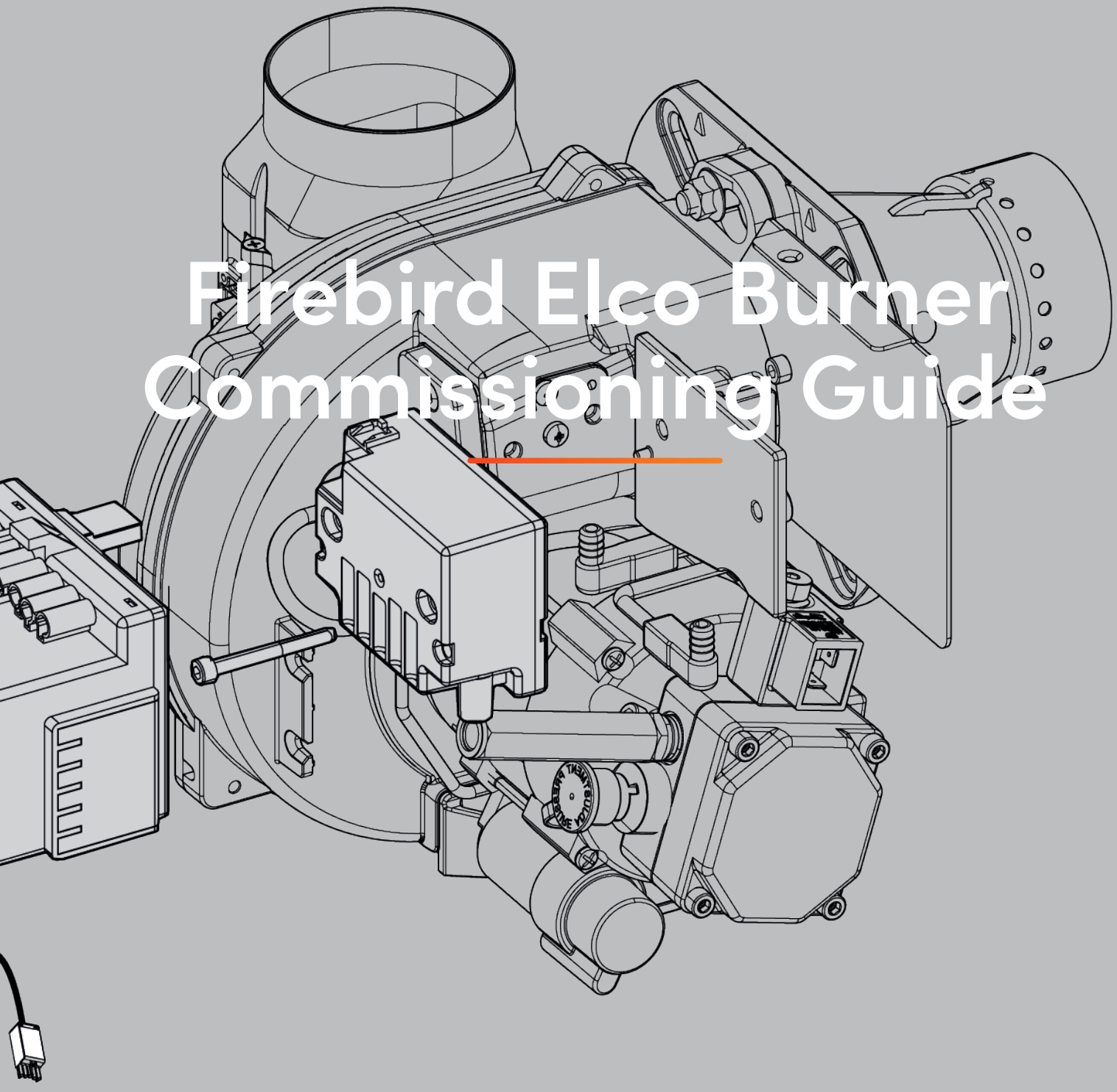
Central Heating
TRADE

Firebird Elco Burner Commissioning Guide



FIREBIRD

Commissioning Guide

This document must be read in association with the Firebird Elco Burner Installation Manual provided with the unit. It is essential the manual is read and followed to ensure the installation is as per manufacturer's criteria. The purpose of this document is to assist with the commissioning of the Elco Burner parameters and the connection of third party controls.

Contents

Important Warranty Information

To receive the full 5-year warranty, installers must complete and return the commissioning report. If this report is not provided, the warranty will be limited to 1 year only.

The warranty period will begin from the date of commissioning, or from the purchase date if commissioning details are not supplied.

Email completed report to **aftersales@centralheating.co.nz**

10/25-V2

Pre-Commissioning

Pre-Commissioning Checks

- 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

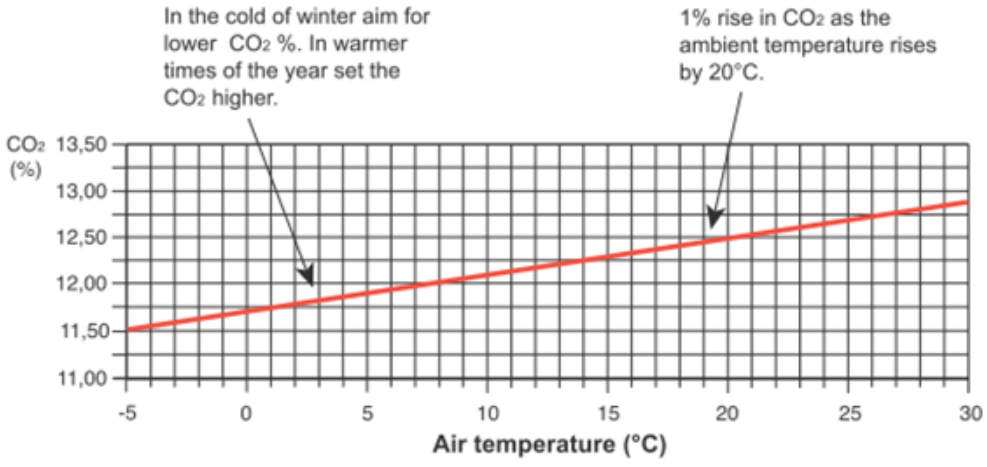
- Turn on power to the boiler but don't introduce a heat demand yet. Check all AAV's on the system are open.
- On the circulation pump, move the dial fully anticlockwise to the start position. At this stage the pump should be showing a blinking light, which indicates the deaeration function on the boiler 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

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:
  1. Adjust the fuel pressure to the correct setting if required.
  2 **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.
  3. 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.
  4. 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%

Boiler	Burner	Nozzle	Pump Pressure
C20	FB 4.1 R 20 LN	0.45 60S	12.00 Bar
C26	FB 4.1 R 26 LN	0.45 60S	16.00 Bar
C35	FB 4.1 R 35 LN	0.55 60S	16.00Bar



Final Check

- 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 differential 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, which is a condition of warranty terms.

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 and Installation Details			
Address of Installation		Date Purchased	
Installer Name		Purchased From	
Boiler Serial Number		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	
Nozzel Size		Air Shutter Setting	
CO2% and Air Temperature		CO PPM	
O2%		Fire Valve Fitted and Tested	
Tigerloop Fitted			

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

Elco Servicing Record

Appliance and Installation Details			
Address of Installation		Service Technician Name	
Customer Name		Date Installed (approx)	
Boiler Serial Number		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)			

Boiler Checks			
Confirm boiler is operational	Yes No	Record any issues	
Carry out visual inspection of boiler and flue recording any issues (water or diesel leaks, visible damage)	Visual inspection completed	Record any issues	
Confirm system pressure as expected	Yes No	Record system pressure	
Check fuel supply	• Fuel available • Check/replace filter • Test fire valve • Check fuel line for leak/damage	Record system pressure	
Remove boiler front panel and carry out visual inspection recording any issues (water or diesel leaks, visible damage)	Visual inspection completed	Record any issues	
Remove burner and boiler door, remove baffles noting their order and complete the following	• Clean burner combustion chamber with wire brush, wipe up or vacuum out debris • Clean baffles with wire brush and/or industrial wipes, then reinstate in opposite order	Record system pressure	
Condensing Only Check condensate deflector plate	• Remove deflector plate and check condensate drain clean • Check deflector plate located correctly	Record system pressure	
Condensing Only Check condensate trap and hose and prime if required	• Condensate hose intact • Condensate trap primed	Record system pressure	
Inspect combustion door deal	• Door seal intact • Heat board intact	Record system pressure	
Remove blast tube and replace nozzle	• Inspect and clean blast tube • Replace nozzle • Change electrodes (every 2 years) • Assemble burner with key clearances set • Refit burner into boiler	Record system pressure	

Replace fuel hoses (every 2 years)	• Fuel hoses replaced	Record system pressure	
Check inhibitors levels	Are inhibitor levels acceptabled? • Yes • No - Fernox Added	Record system pressure	
Isolate boiler and drop boiler pressure to 0 Bar	Expansion vessel pre-charge satisfactory • Yes • No - pressure increased • Repressurized boiler and open isolation valves	Record system pressure	
Check for combustion leakage	• Visual inspection of flue and seals • Check no C0 reading with analyser around door, burner, condensate, and flue connections	Record system pressure	

Burner Testing

Ensure adequate heat load and run boiler to complete checks of burner and record as below, refer to commissioning instructions

Burner Model		Fuel Pressure	
Nozzle Size		Air Shutter Setting	
C02% air temperature, glue gas temperature		C0 PPM	
02%		Test photo cell function (remove and cover to ensure lockout)	Burner locked out Photocell replaced

System Testing

Check boilers turn on/off when boiler thermostat adjusted	• Thermostat functions correctly	Check boiler cirulation pump	• Pump operates correctly • Pump speed suitable
Check boiler system turns on/off when system thermostat adjusted	• Boiler responds to controls correctly	Check flow and return temperature difference	Once boiler stable (5 mins) record flow and return temperature • Flow (°C) • Return (°C)

Comments

Email completed report to **aftersales@centralheating.co.nz**
For any questions, please contact CHNZ on 03 357 1233 and select Aftersales Technical Support.

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