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Grant Vortex Eco
Condensing Oil Boiler Range

Vortex Eco External Modules
outputs from 15 to 35kW

For use with Kerosene only

Provisional
User & Installation Instructions

IMPORTANT.

These Provisional instructions MUST be read in conjunction with the Eco Utility instructions supplied with the boiler.

1 - USER INSTRUCTIONS

1.1 About your boiler

The boiler is fully automatic once switched on, providing central heating (and also heating your domestic hot water if you have an hot water cylinder fitted).
An illuminated On/Off switch, see Fig. A, is fitted to the External modules, which lights when the boiler is switched on, but does not necessarily indicate the burner is firing.

1.2 Boiler controls (See Fig. A)
To access the External module controls, remove the front panel by turning the handle and withdrawing it forwards at the bottom.

1.3 Lighting your boiler (See Fig. A)
1. Ensure that **-** There is sufficient fuel, of the correct type, in the supply tank and all fuel supply valves are open. The water supply is on. The electricity supply to the boiler is off. The Boiler On/Off switch is set to off (the neon in the switch is not alight). The Test switch is set to Off. The room thermostat (if fitted) is at the desired setting. The boiler thermostat is set to the required setting.

2. Switch on the electricity supply to the boiler.

3. Set the Boiler On/Off switch to on. A neon in the switch lights when it is in the on position.

The boiler will now light automatically.

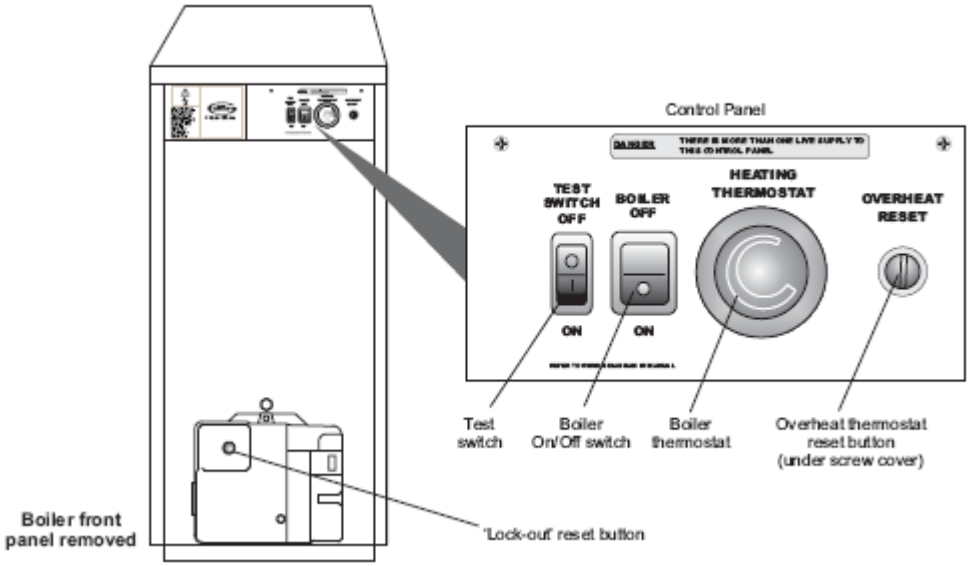

Fig. A – Controls for External Modules

2.4 Turning off your boiler (See Fig. A)

For short periods – Set the boiler switch to OFF. To restart, set the switch to ON.

For long periods - Set the boiler switch to OFF. If required, the fuel supply valve may be closed and the water and electricity supplies turned off at the mains. **Note:** If the electricity, fuel and water supplies are turned off, the built-in frost thermostat will **not** operate.

2.5 Points to check if burner fails to light

1 Check that the boiler switch is ON.

2 Check that any remote programmer (if fitted) is working and is in an 'on' period.

3 Check that all thermostats are set to the desired setting and are calling for heat.

4 Check if the burner 'Lock-out' reset button (on the burner) is lit. If it is, press it to start the burner. If

the burner fails to light and goes to 'Lock-out' again, check that you have sufficient fuel in the storage tank and that the fuel supply valve is open. Check that the fire valve in the oil supply line has not tripped.

5 Ensure that a fuse has not blown or that the electricity supply has not failed.

6 Check to see if the safety thermostat has operated (see Section 2.7).

If the burner still fails to light after carrying out these checks then a fault exists. Switch off the electricity supply to the boiler and contact your Service engineer.

2.6 About your fuel

Grant Vortex External modules operate on Class C2 Kerosene only. You should always quote the type of fuel you require when ordering from your supplier. Do not wait until the fuel runs out before you order some more.
Sludge in the bottom of the tank may be drawn into the fuel lines. If it is possible, switch off the boiler when the new supply is delivered and leave the fuel to settle for an hour before restarting the boiler.

2.7 General notes and the care of your system

1 Boiler thermostat - This control allows the temperature of the water leaving the boiler to heat the radiators and domestic hot water to be adjusted.

Note: If you have a cylinder thermostat on your hot water cylinder, this will control the temperature of your domestic hot water. The boiler thermostat setting must be equal to or above the cylinder thermostat setting to enable the cylinder thermostat to control the domestic hot water system.

2 Burner Lock-out reset button - If there is a burner malfunction, a built-in safety circuit switches the burner off and the 'Lock-out' reset button (on the burner) will light. Usually such malfunctions are short lived and pressing the reset button will restore normal operation.

If the burner continually goes to 'Lock-out' a fault exists **or** the fuel supply is low. If you have sufficient fuel, you will need to call your Service engineer.

3 Safety thermostat - Your boiler is fitted with a safety overheat thermostat which will automatically switch off the boiler in the case of a control malfunction causing overheating.

If your boiler goes off and you try to light it but nothing happens and the 'Lock-out' reset button on the burner is not lit, the overheat thermostat has probably operated. The boiler will not light until the thermostat is reset. To reset, unscrew the small plastic cap (see Fig. A), press the button then replace the cap.
If this condition continually repeats, contact your Service engineer.

4 Ventilation - Always ensure that the boiler has adequate ventilation. Any ventilation openings **must not** be obstructed. Periodically check that they are clear.

Do not attempt to 'box in' the boiler or build a compartment around.

Do not place any combustible material around or on the boiler or flue pipe.

Do not place anything against the door of the External modules that might obstruct the ventilation openings.

5 Flue terminal - The flue terminal **must not** be obstructed or damaged. In severe conditions check that the terminal does not become blocked by snow.

6 Frost protection - Your Installer may have fitted a frost thermostat. If not, and you are likely to be away for a short time, leave the boiler on with the boiler thermostat set at a low setting. For longer periods the boiler and system should be drained. Contact your Service engineer for draining and filling the system.

The control panel of the External modules includes a built-in frost thermostat factory set to 5°C.
Note: For Vortex External modules we recommend that a combined antifreeze and corrosion inhibitor be used in the primary water system.

7 Cleaning and servicing - Lightly wipe over the case with a damp cloth and a little detergent. **Do not** use abrasive pads or cleaners.

You must have your boiler serviced at least once a year to ensure safe and efficient operation. Contact your Service engineer for further details.

Warning note - *External equipment operated at 230 volts should not be serviced or repaired under adverse weather conditions.*

8 Failure of electricity supply - If the electricity supply fails, the boiler will not operate. It should relight automatically when the supply is restored.

2.8 Electricity supply

The boiler requires a 230/240 V ~ 50 Hz supply. It must be protected by a 5 Amp fuse.

Warning: This appliance must be earthed.

2.9 Sealed central heating system

If your boiler is operating on a sealed heating system, the installer will have pressurised the system and should have told you (or set it on the pressure gauge) the system pressure when cold (this is normally between 0.5 and 1.0 bar, which will increase slightly when hot). If the pressure (when cold) is below the set pressure mentioned above, you can re-pressurise the system. If the system requires frequent re-pressurising, ask your Installer or Service engineer to check the heating system for leaks and to check the expansion vessel air charge.

The boiler or system will be fitted with an automatic air vent to remove air from the system. Any air trapped in the radiators should be removed by venting the radiators using the vent screw at the top of each radiator. Only vent a radiator if the top is cool and the bottom is hot. Excessive venting will reduce the system pressure, so only vent when necessary and check the system pressure as mentioned above. Re-pressurise the system if necessary.

The boiler or system may be fitted with a safety valve to release excess pressure from the system. If water or steam is emitted from the end of the safety valve discharge pipe, switch off the boiler and contact your Installer or Service engineer.

The expansion vessel air charge must be checked annually. Failure to maintain an adequate air charge in the vessel may invalidate the warranty.

To re-pressurise the system by adding water:

1 Only add water to the system when it is cold and the boiler is off. **Do not overfill**.

2 Ensure the flexible filling loop (see Fig. B) is connected and that the shut off valve connecting it to the boiler is open and the double check valve at the front is closed. A valve is open when the operating lever is in line with the valve, and closed when it is at right angles to it.

3 Gradually open the double check valve on the front of the filling loop until water is heard to flow.

4 Vent each radiator in turn, starting with the lowest one in the system, to remove air.

5 Continue to fill the system until the pressure gauge indicates between 0.5 and 1.0 bar. Close the fill point valve.

6 Repeat steps 4 and 5 as required.

7 Close the valves either side of the filling loop and disconnect the loop.

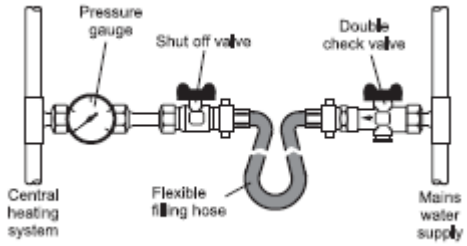

Fig. B – System filling loop arrangement

2 – INSTALLATION INFORMATION

IMPORTANT: This must be read in conjunction with the Main Installation Instructions supplied with the boiler.

2.1 BOILER DIMENSIONS

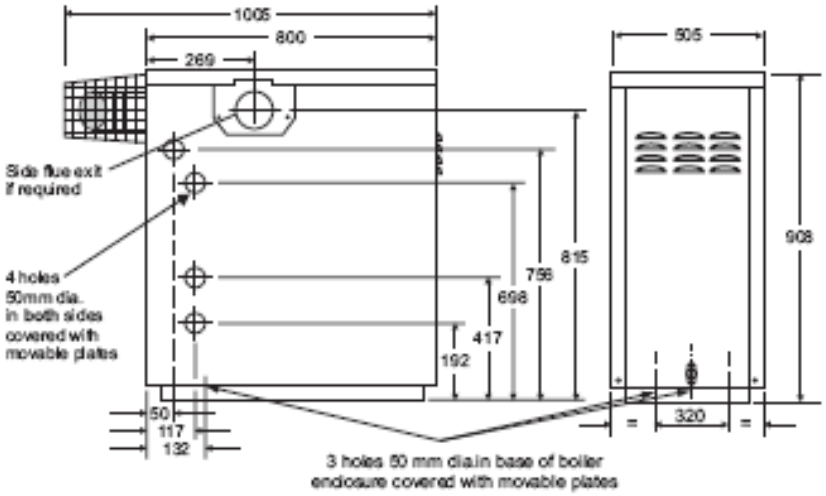

Fig. 1 – Vortex Eco External module dimensions (in mm)

2.2 SEALED SYSTEM KIT

Sealed system kit - 15/21, 21/26 & 26/35

The kit includes the following items:

- Pressure relief valve
- Automatic air vent
- Manifold pipe
- 12-litre expansion vessel
- Flexible expansion vessel hose - with sealing washer
- Filling loop kit – including pressure gauge mounted on shut-off valve
- 6 m head circulating pump - with 22 mm gate type valves
- 15 mm copper pressure relief valve discharge pipe (in 2 pieces)
- ½" BSP black iron Tee – NOT REQUIRED for external boilers
- Pump support bracket – with screw, nut & washer

To fit the sealed system kit, proceed as follows:

1 Unscrew the burner securing nut and remove the burner from the boiler.

2 Remove the ½" BSP black iron plug from the front of the boiler waterway, using a 3/8" drive socket wrench.

3 Fit the ½" BSP straight end of the flexible expansion vessel hose into the tapping on the front of the waterway using a suitable thread sealant (not supplied).

4 Position the 12-litre expansion vessel on the front of the boiler combustion door locating the vessel bracket into cut-out in the front of the combustion door.
Note: on 15/21 and 21/26 models press on the pre-cut section in the centre of the door to form the cut-out for the bracket.

5 Fit the ¾" BSP connection of the flexible expansion vessel hose to the vessel using the black rubber washer supplied and tighten the nut.

6 Fit the pump support bracket to the vertical plate on top of the boiler shell. Fasten in place using the screw, nut and washer provided.

7 Push the 22 mm push-fit elbow (supplied with the boiler) onto the boiler flow connection.

8 Fit both pressure relief valve and automatic air vent onto manifold pipe

9 Push the end of the manifold pipe into the push-fit elbow on the boiler flow connection.

10 Fit both 22 mm pump valves to the circulating pump using the sealing washers supplied.

11 Fit the pump assembly to the open end of manifold pipe ensuring that the pump shaft is horizontal and the pump motor is facing towards the front of the boiler with the body is resting on the pump support bracket. The flow arrow on the body of the pump must face in the direction of flow away from the boiler connection.

12 Assemble the pressure relief valve discharge pipe from the two sections of pipe provided in the kit. Connect to the pressure relief valve outlet using the nut and olive supplied. Route the other end discharge pipe through the slot in the base of the right hand side panel. Push the panel insulation back to expose the slot.

13 The circulating pump may be wired into the boiler control panel if required. Refer to Section 10.

14 Re-fit the burner and tighten the fixing nut to secure.

15 The filling loop should be connected, via the double check valve, to a 15mm cold water mains supply pipe in a convenient position inside the building.

2.3 ELECTRICAL CONNECTION

See wiring diagrams – Fig. 2, 3 & 4

Note: A test switch is fitted to the control panel to allow the boiler to be test-fired. When On, the switch by-passes the external control system.

1 Undo the three screws and remove the left hand cover from the control panel to gain access to the boiler terminal block.

2 Pass the mains power supply cable through the cable grommet in the control panel, through the cable clamp and connect to the terminal block as follows:-

Live (brown) to terminal 2 - marked permanent live
Neutral (blue) to terminal 3 - marked mains neutral
Earth (green/yellow) to terminal 4 – marked green/yellow) to terminal 4 – marked mains earth

3 If an external control system is to be connected to the boiler (e.g. a S-plan system with programmer, room thermostat, cylinder thermostat, motorised valves, etc.), connect the 'switched live' from the control system to terminal 1. For an example of connecting a typical control system, see Fig. 25.

4 If the circulating pump is to be fitted within the boiler enclosure, the pump live must be connected to terminal 7 of the boiler terminal block.

Pass the pump power supply cable through the cable grommet in the control panel, through the cable clamp and connect to the terminal block as follows:-

Earth (green/yellow) to terminal 10 - marked E
Neutral (blue) to terminal 9 - marked N
Live (brown) to terminal 7

Connecting the pump in this way allows it to be isolated using the isolating switch fitted in the boiler control panel, for servicing or maintenance work.

5 Ensure that the cable clamp is tightened and that all cables are secure.

6 Replace the cover on the control panel, with the yellow warning label facing outwards and secure with the three screws.

Do not switch on the electrical power to the Outdoor Module at this stage.

WIRING DIAGRAMS

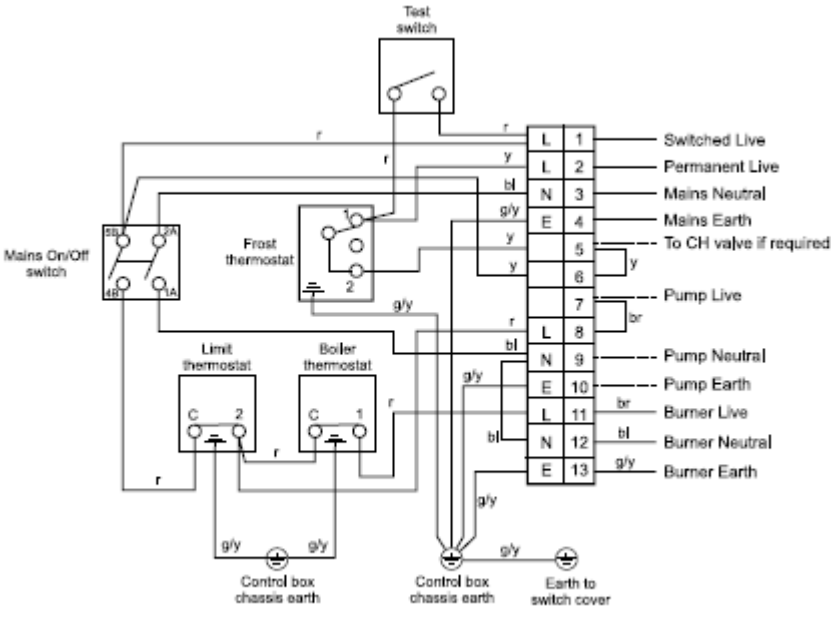

Fig.2 – Vortex Eco External Module wiring diagram

Grant programmable room thermostat

A programmable room thermostat - Part No. RSKIT is available from Grant UK. The thermostat has a 5/2 day operation and enables six time and temperature changes each day. The thermostat incorporates frost protection and an On/Off facility.

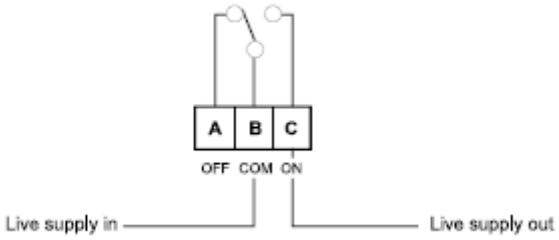

Fig.3 – Grant Programmable room thermostat connections

Typical control system wiring diagram

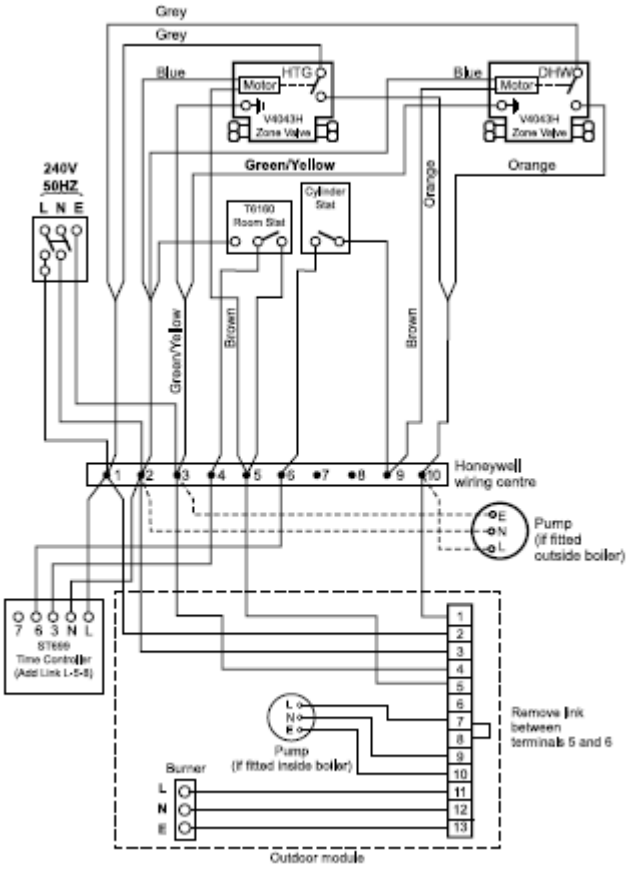

Fig. 4 - CH & HW controlled by two 2-port valves

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