

**CENTRAL HEATING  
USERS INSTRUCTIONS**

**FOR**

**CENTRAL HEATING AND  
HOT WATER SYSTEMS**

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## **INTRODUCTION**

The heating system installed provides heating only.

The gas fired boiler heats up water for the radiators. You can control the level of heating using the radiator thermostat valves. The timeswitch allows you to set the time you want the heating to turn ON and OFF or you can control the system manually.

This manual tells you how to get the best out of your heating system. By making proper use of the controls you can stay warm and comfortable.

If you need any help in setting the controls, or if you are concerned that the system is not functioning properly, please contact our office.

**The system installed is called a pressurised sealed system. You should NOT try to disconnect radiators if you need to decorate, let air out of the radiators without topping up the system or drain down the system. Please contact our office if you have any problems with the central heating system.**



## **SECTION 1**

### **THE BASICS**

Your heating is controlled by Thermostatic Radiator Valves. Each radiator has its own radiator valve thermostat, which will allow you to lower the temperature of a room independantly. The radiator valve thermostat is located at the top end of each radiator and protrudes through the radiator casing.

The radiator thermostat valve will allow you to lower the temperature of a room when the system is ON by turning the head to a lower number setting.

2. The system must be ON for thermostats to operate. The times your system comes ON and turns OFF are controlled by the times that have been set in the timeclock. You can set the system to turn on and off automatically using the timeclock or you can operate the programmer manually using the manual buttons on the front of the programmer (see Section 3 Setting the Timeclock).

#### **Remember:**

- . **The timeclock switches the system ON and OFF.**
  - . **Thermostats control the temperature when the system is ON.**
3. You should not need to make any changes to the boiler setting. The Council has an annual gas service contract and the setting should only be changed by a qualified service engineer.

If you are a new tenant or if your boiler is off after a loss of electrical power, you should refer to Section 2 of this leaflet which explains how to operate the boiler. If you are unaware about how to proceed, please contact your local housing office. The staff will be pleased to help.



## SECTION 2

### TURNING THE BOILER ON

#### 4 Operation

##### 4.1 Overview of controls on ecoTEC plus

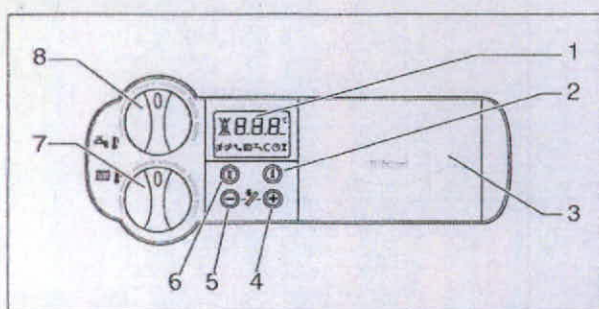


Fig. 4.1 ecoTEC plus controls

For access to the controls open the front flap by pulling at the centre of the case strip.

- 1 Display indicating the current heating flow temperature, the operating mode or additional information.
- 2 The "i" information button.
- 3 Built in control/timer (if fitted).
- 4 "+" button for moving forward in the display.
- 5 "-" button for moving back in the display.
- 6 "Reset" button.
- 7 Maximum radiator temperature control.
- 8 Optional maximum hot water temperature control available only when additional optional accessories are fitted (VR 65, VRT 360, VRC 400).

##### Advanced multifunctional display system

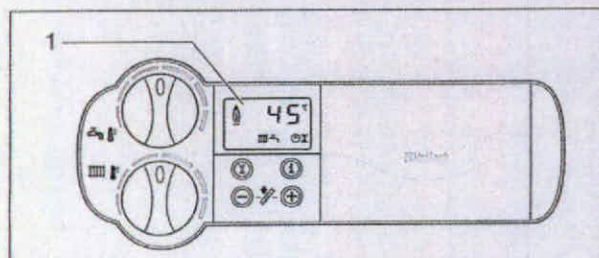


Fig. 4.2 Display on ecoTEC plus

The ecoTEC plus appliance is fitted with a digital information and analysis system. This system provides information on the operating status of your appliance. During normal operation, the display (1) shows the current heating flow temperature (in this example 45 °C). In the event of a fault, an error code appears instead of the temperature. The display also gives the following information:

- 1 Indication of the current heating flow temperature or display of a status or error code



Fan speed malfunction.



Fan speed malfunction.



As long as this symbol appears in the display, a heating flow temperature is set by the vrnetDIALOG accessory, which means the appliance uses temperatures other than those set using the controls (7) and (8).

This condition can only be ended:

- using vrnetDIALOG or
- by a change in temperature at controllers (7) or (8) of more than  $\pm$  K.

This condition cannot be ended:

- with the "Reset" button (6) or
- by turning the appliance off or on.



Heating mode active.  
Illuminated: Heating mode.  
Flashing: Anti cycling mode active.



Hot water supply active.  
Illuminated: Heating of an indirect hot water cylinder turned on.  
Flashing: Heating demand from the hot water cylinder, burner on if optional accessories are fitted.



External pump is running.



Gas valve is activated.



Flame with cross:  
Boiler is at lock out and will display fault code.



Flame without cross:  
Normal burner operation.



## 4.2 Initial checks before turning on

### 4.2.1 Opening the gas service valve

- Ensure the gas service valve is open.
- Ensure the electrical supply to the boiler is turned on.

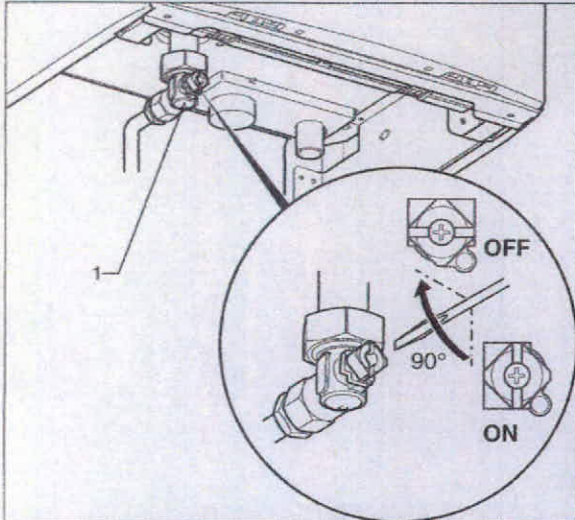


Fig. 4.3 Opening the gas service valve

## 4.3 Turning the boiler on

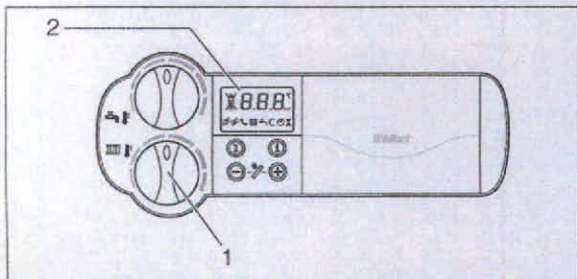


Fig. 4.4 Switching on the appliance

- Turn on appliance at control (1).

When you switch on the appliance, the current operating status appears in the display (2).

To adjust the appliance according to your requirements, read sections 4.4 and 4.5, which describe the setting options for hot water supply and heating.



### Caution!

#### Risk of damage.

The boiler frost protection and monitoring systems are only active when the electrical supply to the boiler is on and it is not disconnected from the main power supply.

## 4.4 Domestic hot water

The control of domestic hot water is only available if you have fitted the optional accessories (VR 65, VRT 360, VRC 400).

The boiler must only be used when the heating system contains water.

### 4.4.1 Setting the water temperature

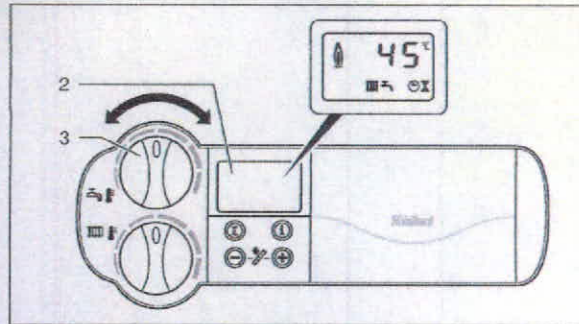


Fig. 4.5 Setting the water temperature

- Switch on the appliance as described in section 4.3.
- The domestic hot water temperature can be adjusted using the hot water temperature control (3).
- Turn the control clockwise to increase the temperature and anti-clockwise to decrease the temperature. This corresponds to:
 

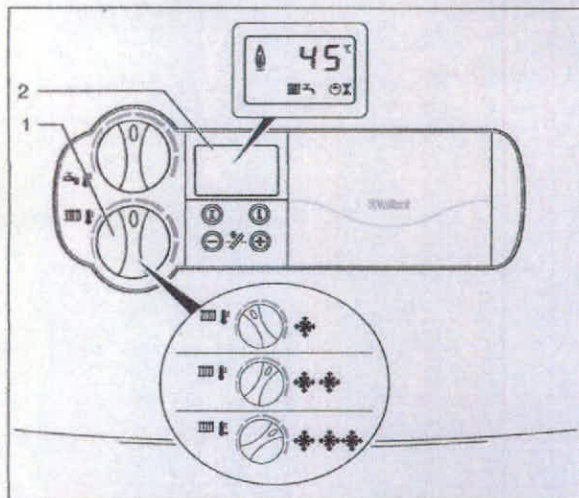
- left limit approx.	35 °C
- right limit max.	65 °C.

## 4.5 Heating operation

The boiler must only be used when the heating system contains water.



**4.5.1 Setting the maximum radiator temperature control**

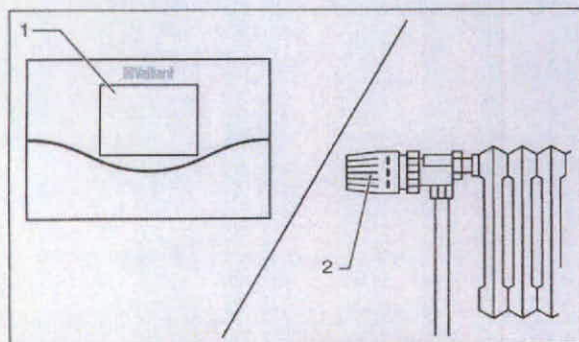


**Fig. 4.6 Setting the maximum radiator temperature control**

When you adjust the temperature, the set value is shown in the display (2). After five seconds the display returns to standard mode (the current heating flow temperature).

Normally you can adjust the knob (1) continuously up to a flow temperature of 75 °C. However, higher temperatures can be set on your appliance, have your engineer make adjustments so that you can operate the heating system at higher flow temperatures.

**4.5.2 Setting a room or outside temperature controller**



**Fig. 4.7 Setting a room or outside temperature controller**

- Set the room thermostat (1) and/or the thermostatic radiator valves (2) according to the instructions supplied with the control(s).

**Note!**

Vaillant offer room thermostat/time control accessories which give accurate and economic room temperature control as well as improved comfort.

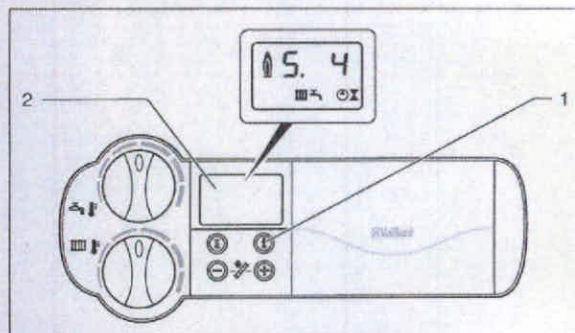
The boiler will now operate automatically to provide central heating for the conditions selected on the external controls.  
After the boiler stops operating the pump will continue to operate for a short period to fully disperse the heat from the boiler.  
After a power cut or every 23 hour in frost setting /summer mode the pump will run for one minute to prevent it from sticking. This will also occur during normal operating if there is no demand for more than 24 hours.

**4.6 Pump exercise**

**Note!**

The boiler incorporates an anti-cycling economiser control to prevent energy wasteful on and off operation of the boiler for short periods when in the central heating mode. When turning the room thermostat to a higher setting there may be a short delay before the boiler operates.

**4.7 Status displays**



**Fig. 4.8 Status displays**

The status displays provide information on the operating status of the appliance.

- Press the "i" button (1) to activate the status displays.  
The display (2) then shows the current status code, for example "S. 4" for burner operation. The table below explains the most important status codes. In switching phases, for example on starting up again after the flame was extinguished, the status message "S." briefly appears.
- Press the "i" button (1) again to switch the display back to normal mode.



Display	Meaning
	Displays during heating operation
S. 0	No heat required
S. 1	Pump running
S. 3	Ignition sequence (heating operation)
S. 4	Burner ignited
S. 6	Fan and pump overrun
S. 7	Pump overrun
S. 8	Anti cycling mode (after heating operation)
S.30	Room thermostat no heating demand
S.31	Summer mode active
S.34	Frost protection mode
	Displays in cylinder charging mode (with optional accessories fitted)
S.20	Cylinder charging request

**Table 4.1 Status codes (selection, a complete set of status codes can be found in the installation and servicing manual)**

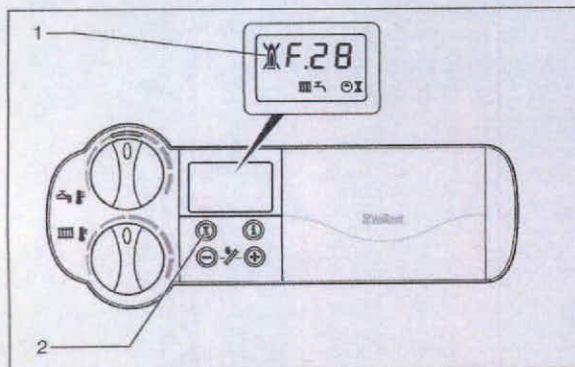
#### 4.8 Troubleshooting

In the unlikely event that a problem occurs with the operation of the ecoTEC boiler, the following points should be checked:

##### Boiler fails to operate:

- Is the gas supply turned on?
- Is there enough water in the heating system?
- Is the electrical supply switched on?
- Is there an ignition problem?

**Caution!**  
Inappropriate modifications can cause damage. If your boiler still does not operate then please consult your installer or Vaillant Service Solutions (0870 6060 777).



#### 4.8.1 Ignition problems

##### Fig. 4.9 Troubleshooting

If the burner fails to ignite after five attempts, the device does not start up and switches to "Fault". This is indicated by the fault code "F.28" or "F.29" in the display.

The display also shows the flame symbol with a cross through it (1).

Automatic ignition can only take place after you manually reset the fault.

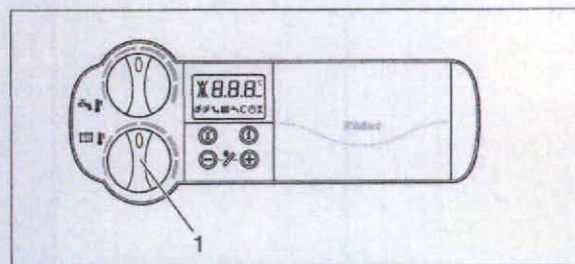
- To reset the fault, press the reset button (2) and hold it down for one second.

**Caution!**  
If the boiler still shuts off after three attempts of resetting, please consult your installer or Vaillant Service Solutions.

#### 4.8.2 Flue problems

This appliance is fitted with a fan. If the fan does not work properly, the appliance will switch itself off. The display shows the symbols  $\mathcal{A}$  and  $\mathcal{B}$  and the fault message "F.32".

**Note!**  
If contacting Vaillant Service Solutions please



remember to quote the fault code, as this will help to pinpoint the fault.

#### 4.9 Turning off the boiler

##### Fig. 4.10 Switching off the appliance

- Turn the main on/off control (1) fully anti clockwise.

**Caution!**  
The boiler frost protection and monitoring systems are only active when the electrical supply to the boiler is on and it is not disconnected from the main power supply.

To ensure that these protection devices remain active, switch your boiler on and off using the external controller.

**Note!**  
If the appliance is switched off for a long time (for example when you are on holiday) you should also turn off the gas supply and the electrical supply.



# ecoTEC pro

The ecoTEC pro 24 and 28 combination boilers have the same high build quality as ecoTEC plus combi models but with a more basic specification.



Vaillant's ecoTEC pro range of combination boilers feature comprehensive status and diagnostic information with simple push button operation for easy commissioning and servicing.

Both models feature Vaillant's 'AquaComfort' system that provides instantaneous hot water at a constant temperature. With rear facing connections the ecoTEC pro offers an unobtrusive appearance.

Performance Checklist	ecoTEC plus 824/831/837	ecoTEC pro 24/28
Compact case	•	•
'AquaComfort' system	Comprehensive system	Simplified system
Built - in filling loop	•	-
Connections	Preformed pipe-clip distance tails	Rear facing connections
Status/Diagnostic system	Comprehensive boiler display system	Simplified boiler display system
Guarantee period	2 years	1 year
User controls concealed	•	-
Bottom cover	•	-
Condensate removal mechanism	Siphonic condensate discharge	Condensate trap
Pump	Automatic 2-speed	1 speed

**1** year  
guarantee

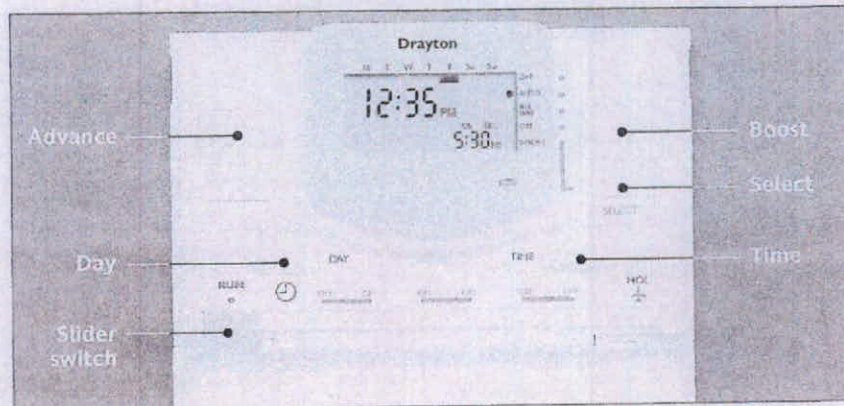


## SECTION 3

### SETTING THE TIMECLOCK

**Drayton**

#### Tempus 1 electronic timeswitch User instructions



The Tempus 1 electronic timeswitch will automatically switch ON and OFF up to three times a day. You can select one set of times for weekdays and different times for weekends (5/2 day), or programme each day of the week the same (24 hour).

The BOOST feature gives an extra one or two hours ON time when selected. The display will show the next switching time as well as the actual time of day. In the event of a power failure, the battery back-up will hold the programme times in memory.

All changes to clock and

programme times are made using the slider switch, together with the TIME and DAY buttons. Follow the step-by-step instructions overleaf to set your desired programme.

**Important note:**  
If you are replacing an old style Tempus, move the wire connected to terminal 2 on the wall-plate to terminal 3 (ON).

Please read the following notes before programming your Tempus  
You cannot set the first ON

before midnight (i.e. the previous day).

If you try to set an ON time after it's matching OFF time, both will 'lock' and the ON and OFF symbols in the display will flash alternately.

Press SELECT and TIME + at the same time to return all settings to factory pre-sets.

The slider switch must be in the RUN position before the cover will close.

To select 5/2 day or 24 hour modes see installation instructions on back page.



### Installation instructions

**MAKE SURE MAINS INPUT HAS A 3 AMP FUSE FITTED.**

Installation should be carried out by a qualified electrician or heating engineer.

Position the wallplate with 70 mm clearance to its right, 25 mm above and 150mm below. Ensure that the supporting surface will fully cover the back of the timeswitch.

Fix the wallplate, terminals at the top, either direct to a flat wall using wall plugs and 1" x No.6 woodscrews or on a flush mounting single conduit box type UA1 (BS4662) using M3.5 x 14 mm screws. DO NOT use a surface mounting box.

Make wiring connections as shown in the wiring diagram.

Tempus 1 has volt-free switching so a link from L to 1 is required for 230V output. For surface wiring, snap out the cable entry strip on the bottom edge of the wallplate. Tempus 1 is double insulated and needs no earth connection but an earth continuity terminal is provided if required.

Select 5/2 day or 24HR mode referring to the jumper position diagram.

There are two positions marked C/D. The jumpers should be removed if necessary and placed across the pins which correspond to the desired option. A/B are not used.

Fit the Tempus 1 onto the wallplate and tighten the securing screws. Check that the fuse is rated correctly (3A) and switch on the mains supply.

### Technical data

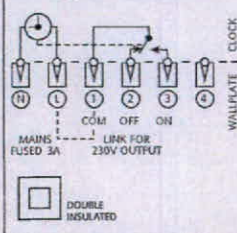
Voltage	230V AC +15% -10% 50 Hz
Rating	2 (1) A 230V AC
Wiring	Designed for Fixed Wiring only to comply with current I.E.E. regulations
Battery Backup	Display: Typically 1 hour Timekeeping: 7 to 8 hours Programme: Minimum 1½ years
Programme Resolution	10 minutes
Ambient Temperature	Operating: 0°C to 50°C Storage: -20°C to 50°C
Maintenance	No user maintenance should be attempted.

### Factory pre-set programme

	24 hour or Mon-Fri	Sat & Sun
1st ON	6.30am	7.00am
1st OFF	8.30am	9.00am
2nd ON	12.00 noon	12.00 noon
2nd OFF	12.00 noon	12.00 noon
3rd ON	4.30pm	4.00pm
3rd OFF	10.30pm	11.00pm

### Never fit the programmer to a live wallplate

#### Wiring connections



#### Jumper position

A = Not used  
B = Not used  
C = 5/2 day mode  
D = 24 hour mode  
Place the jumper across the two pins

The diagram shows four pins labeled A, B, C, and D. Pins A and B are not used. Pins C and D are used for the 5/2 day mode and 24 hour mode respectively. A jumper is placed across the two pins C and D.

### Invensys Controls Europe

Customer Service Tel: 0845 130 5522  
Customer Service Facsimile: 0845 130 0622  
Technical Helpline Tel: 0845 130 7722  
Website: [www.draytoncontrols.co.uk](http://www.draytoncontrols.co.uk)  
Email: [customer.care@invensyscontrols.com](mailto:customer.care@invensyscontrols.com)

Conforms to the essential requirements of the following directives:  
89/336/EEC - Electromagnetic compatibility  
73/23/EEC - Low voltage directive



*Invensys continuously seek to improve products and reserve the right to make changes without notice*

090-807 Issue C



### Setting the clock

Move slider switch to the  $\oplus$  position.

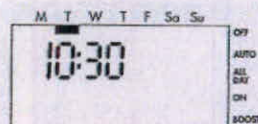
Press DAY button to move  $\blacksquare$  symbol to today's day.

Press TIME button to set time.

(Morning times do not have AM symbol).

Return slider switch to RUN position if you want to use the pre-set programme times or see below to make changes.

During installation, your Tempus 1 will have been set for either 5/2day or 24 hour programming. Refer to the appropriate section below.



### Setting the programme in 5/2 day mode

Move the slider switch to the first ON position. The display will now show the first ON time and the  $\blacksquare$  symbol will be below the days M-F.

If the setting is suitable, do nothing more. Press the TIME button if you wish to alter settings.

Move the slider switch to all the ON and OFF markers, making changes as required.

Move slider switch back to the first ON.

Press the DAY button once to move the  $\blacksquare$  symbol to Sa and Su.

The display will now show the first ON for the weekend.

Change times as required and do the same with all ON's and OFF's. Return slider switch to the RUN position.



### Setting the programme in 24hr mode

Move the slider switch to the first ON position. The display will now show the first ON time and the  $\blacksquare$  symbol will now be below all the days of the week. If the setting is suitable, do nothing more. Press the TIME button if you wish to alter settings.

Move the slider switch to all the ON and OFF markers making changes as required.

Return slider switch to RUN position.



### Operating mode

Press SELECT button to choose either:

OFF = Continuously OFF

AUTO = Switching ON and OFF as programmed

ALL DAY = On once from first ON to last OFF

ON = Continuously ON

The  $\bullet$  symbol on the display will indicate which mode you have selected. ON, OFF and the next switching times are also shown.





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Your Tempus is now programmed to your requirements and ready to operate. The following features are used to make temporary changes without affecting the programme.

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#### Advance

Press the ADVANCE button to temporarily override the programmed times, or go forward to the next period. If your Tempus is OFF, it will switch ON, and vice versa. Note that the displayed switching time will change. Pressing ADVANCE again will cancel the override and return to the original programme. ADVANCE will only operate in AUTO or ALL DAY modes.

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#### Boost

Press the BOOST button once for one extra hour ON, or twice for two hours.

The  symbol will appear in the display with a new next switching time.

Press again to cancel BOOST and return to programme.

Pressing ADVANCE will also cancel BOOST.


Pressing BOOST during an ON period will extend the ON time by one or two hours.

Whilst the programme is OFF, pressing BOOST within one hour of the next ON will move the programme into that period.

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#### Holiday

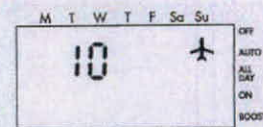
Move the slider switch to the position marked . Press TIME button to set number of days (midnight to midnight) the system is required OFF.

Return the slider switch to RUN position.

The system will now shut down for the number of days set.

Pressing any key will cancel holiday settings.

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#### BST/GMT time changes

Use this feature to change the clock by one hour in the spring and autumn.

Do not move the slider switch. Simply press TIME + once to go forward one hour, or TIME - to go back.

## **SECTION 4**

### **WHAT TO DO IF YOUR HEATING DOES NOT WORK**

#### **Checking the system if you have no heating.**

Check the digital display window on the front of the boiler and if an error code is showing, look at the fault code list to refer to the problem.

Note the settings on the time clock,

Switch the time clock selector to '**ON**'.

Press the reset button on the boiler control panel (for access to the controls open the front flap by pulling at the centre of the case strip), if the digital display window is showing a flame symbol without a cross and the temperature this indicates that the boiler is in operation, a flame symbol with a cross indicates the boiler is in lockout.

Note the setting on each radiator thermostat valve and turn the head to the highest setting.

Once the boiler is in operation wait for half an hour and see if the radiators get warm.

When the radiators are warm return the radiator thermostat valves to their original setting.

**Please note: If your mains electricity supply is ever turned off or if you have a supply failure, or if you run out of gas, you may have to reset the boiler by pressing the reset button on the display panel on the front of the boiler.**



## Fault Codes

<b>Code:</b>	<b>Meaning:</b>	<b>Cause:</b>
F.0	Flow-NTC open circuit	NTC broken, NTC cable broken. Defective connection at NTC. Defective connection at electronics.
F.1	Return-NTC open circuit	NTC broken, NTC cable broken. Defective connection at NTC. Defective connection at electronics.
F.10	Flow -NTC short circuit	NTC defective, short circuit in cable harness, cable/casing shortcut.
F.11	Return-NTC short circuit	NTC defective, short circuit in cable harness, cable/casing shortcut.
F.13	Tank-NTC short circuit	NTC defective, short circuit in cable harness, cable/casing shortcut.
F.20	Safety temperature limiter by NTC activated	Flow-NTC not correctly thermal connected or defective; or appliance does not shut down.
F.22	Dry fire	Too little water in the appliance, water pressure sensor defective, cable to pump or water sensor defective, pump blocked or defective, pump output too low.
F.23	Water shortage, temperature difference between flow and return NTC too large	Pump blocked or defective, pump output too low, flow and return NTC interchanged.
F.24	Water shortage, temperature rise too quick	Pump blocked, insufficient pump output, air in appliance, water pressure too low.
F.25	Interruption in the compact thermal module cable harness	Compact thermal module cable defective, Flame detector defective.
F.27	Incorrect sensing of flame	Faults in the gas supply supply such as:
F.28	Appliance does not start: Attempts to ignite during start failed	- Gas meter or gas pressure detector defective. - Air in gas. - Gas flow pressure too low. - Fire protection tap has disengaged. Faults in the gas valve, wrong gas setting, igniter (ignition transformer, ignition cable, ignition plug) defective, ionisation current stopped (cable, electrode,) faulty earthing in appliance, electronics defective.

F.29	Flame goes off during operation and subsequent ignition attempts failed	Gas supply temporarily stopped, faulty earthing of appliance.
F.32	Fan speed variation	Fan blocked, plug not inserted correctly on fan, hall sensor defective, fault in cable harness, electronics defective.
F.49	eBus undervoltage	Short circuit on eBus, overload on eBus or two power sources on eBus with different polarity.
F.61	Gas-valve control defective	Short circuit/earth (ground) leak in cable harness to gas valves, gas valve assembly defective (earth/ground leak from coils), electronic control system defective.
F.62	Gas valve shutoff delay	Gas valve leaking, electronics defective.
F.63	EEPROM error	Electronics defective.
F.64	Electronics/NTC fault	Short-circuit in flow or return NTC or electronics defective.
F.65	Electronics temperature too high	Electronics too hot due to external effect, electronics defective.
F.67	Flame detector input signal is outside the limits.	Electronics defective.
F.70	No valid DSN in display and/or device specific	Spare part failure display and mainboard interchanged at same time an number not adjusted.
F.71	Flow NTC reports constant value (stuck at)	Flow NTC is defective.
F.72	Flow and/or return NTC fault	Flow and/or return NTC is defective (tolerences too big).
F.73	Water pressure sensor signal out of range (too low)	Cable to water pressure sensor is broken or has a short-circuit at 0 V or water pressure sensor defective.
F.74	Water pressure sensor signal out of range (too high)	Cable to water pressure sensor has a short-Circuit at 5 V/24 V or internal fault in water pressuresensor.
F.75	No pressure rise was detected on turning on the pump	Water pressure sensor signal or/and pump defective. Air in the heating system, quick bleeder defective. Too little water in appliance; check adjustable by-pass; connect external expansion vessel to return.
F.76	Overheating protection on primary heat exchanger triggered	Cable or cable connection of fuse in the primary heat exchanger defective, or primary heat exchanger defective.
F.77	Condensate pump or feedback of accessorie blocks heating	Condensate pump defective or flume flap feedback triggered.
F.78	Wrong configuration with accessory con	Line box VR65 connected to combination boiler. Connection error display mainboard.



## **SECTION 5**

### **REPORTING A FAULT**

If, after carrying out the checks mentioned in this leaflet, your system does not operate properly you should contact our local office. The staff will arrange for a repair to be carried out if necessary. The Warranty period with ourselves expires on .....

Our staff will also be pleased to help if you have any queries about the contents of this leaflet or if you are unsure about how to make the system operate.

**Office & Yard** 01753-630101

**Emergency out of Hours** 01895-434919

### **Important**

**If you suspect a gas leak, phone 'Transco' immediately. Their number is on your gas bill or under 'Gas' in the telephone directory.**