

JANSTOR Mk 2

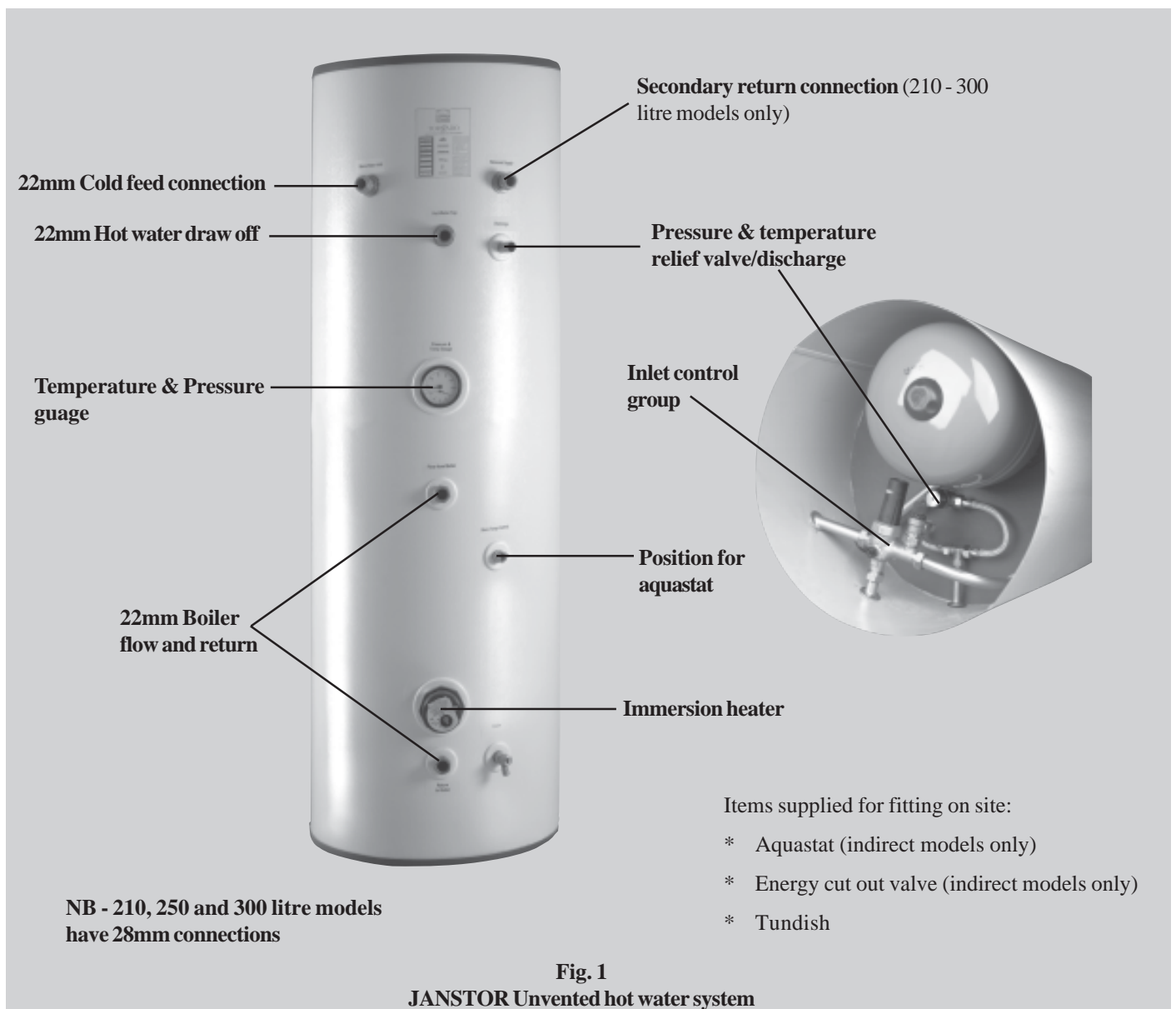
Unvented Hot Water Systems

INSTALLATION INSTRUCTIONS

Publication No. ZZ 1046/3
October 2002

1. GENERAL DESCRIPTION

- 1.1 JANSTOR Mk2 systems heat domestic water either DIRECTLY using immersion heater(s), or INDIRECTLY through an efficient heater coil fed from a boiler. The appliance is specially designed to maximise the benefits and economies of condensing boilers. Both direct and indirect variants are supplied with high temperature cutout thermostats. Indirect system supply temperature is controlled by an immersion thermostat having an on-off differential of $7^{\circ}\text{C} \pm 1^{\circ}$, whilst direct systems are controlled by the integral immersion heater thermostats.
- 1.2 Prior to installation, please note the following:
- 1.2.1 You MUST familiarise yourself with these instructions prior to starting the installation.
 - 1.2.2 You should only use the components supplied with the unit. Failure to do so is potentially dangerous and will invalidate the product guarantee.
 - 1.2.3 The JANSTOR should be fitted to the mains water supply through the pre-plumbed inlet control set. It must only be used with a pumped primary supply and with mains quality water.
 - 1.2.5 The JANSTOR mains pressure systems require an annual safety check by a competent person. Failure to carry out this safety check may invalidate the warranty.



2. INSTALLATION REQUIREMENTS

WARNING: unvented hot water systems should only be fitted and serviced by qualified ‘Competent Persons’ as defined in the Building Regulations (England and Wales) 1994 Amendment and Approved Document G3 or Equivalent Regulations.

2.1 **RELATED DOCUMENTS:**

This appliance **MUST BE** installed in accordance with the relevant requirements of the local building regulations, I.E.E wiring regulations and the bye-laws of the local water supply company. It should also be in accordance with any relevant requirements of the Local Authority and the recommendations of the following British Standard Codes of Practice:

BS 7593: Code of Practice for treatment of water in domestic hot water central heating systems.

BS 6700: Design, Installation, Testing and Maintenance of services supplying hot water for domestic use within buildings and their curtilages.

2.2 **WATER SYSTEM:**

2.2.1 A pressure of 1.5 bar should be available at the highest point of the system, with a minimum flow rate of 20 litres/min measured at the point of entry. If the unit is to be installed into an existing system, it may be useful to measure the flow rates at 2 other mains fed taps at the highest level of the system. If the water pressure is sufficient, but the flow rate is low, then checks should be made of the incoming main and valves external to the dwelling, since improvements or replacements may be carried out economically by the local water company. The design of the pipework should be carefully sized and balanced, and sizing may be smaller than that of tank fed systems. The primary circuit can be either open vented, or a sealed system, as applicable.

2.2.3 The system must be designed such that mixer taps or showers are fed with a cold supply take off after the pressure control valve. If the system is to be run at temperatures in excess of 60°C, a blend valve must be installed, set to 44°C and delivery tested at the outlets in circumstances where children, disabled or elderly people may be using them.

2.2.4 Since the hot water supply pressure will be increased, ensure that all pipework is sufficiently secured and sound and that seals (i.e. tap washers) are in good condition. Elbow fittings should be avoided where gradual bends can be used and flexible connections to showers, baths and basins should be considered. Where appliances such as dishwashers and washing machines have previously been connected to low pressure open vented systems, alterations may be required to reduce the possible occurrence of vibration.

2.2.5 **Solid fuel boilers or boilers which require heat leaks and do not have effective thermostatic control MUST NOT BE USED with JANSTOR**

2.2.6 If hard water scaling normally occurs in the region, the appliance should only be fed with softened water, provided by a water softener or water conditioner (not supplied). If in doubt, connections with valves should be built into the system, to allow the unit to be descaled using a proprietary descaler.

2.3 **ELECTRICAL:**

2.3.1 The JANSTOR requires a 230V 50Hz supply, rated at 15 A, for each immersion heater element. These supplies must be connected to the fixed wiring using a double pole switched, fused spur using suitable PVC sheathed mains cable, (3-core Brown-Blue-Green/Yellow, or flat twin and earth) 15A, 2.5mm², and incorporating a protective earth link. The fuse fitted shall be rated 15A to BS 1362 and connections shall be in accordance with the current edition of I.E.E Regulations BS 7671.

2.3.2 Only immersion heaters with a thermal cutout protection at 80°C are to be fitted. A timer rated at 16A is recommended for 3kW immersion elements.

3. INSTALLATION

3.1 Measure the area in which you plan to install the JANSTOR and referring to table 1 ensure that the floor can support the weight of the cylinder when full.

3.2 All water control and safety valves are supplied pre-plumbed and are located inside the white case. Access to these controls is made by removing the blue plastic lid. Ensure that the lid is replaced before use to prevent damage to the components.

3.3 To prevent damage to the coil and cylinder connections, make all soldered joints before connecting pipework to the cylinder.

3.4 Position the cylinder vertically and make the incoming cold water connection to the fitting labelled “mains water inlet”. For commissioning and later maintenance purposes it is essential to fit a service valve immediately before the connection to the cylinder. The incoming cold water passes through the inlet control group, which reduces the pressure to 1.8 bar or (3.0 bar in high pressure version). The inlet control group also includes a non-return valve and filter.

NOTE: The inlet control group should not be removed from its position inside the white case of the unit, or adjusted in any way!

Capacity (litres)	Outer case dimensions (mm)	Indirect re-heat times (mins)		Direct re-heat times (mins)		Immersion Heaters size & qty direct models		Primary connection (mm) indirect models		Weight (full)
		STD	HP	STD	HP	STD	HP	STD	HP	
125	h = 1310 d = 520	23	21	94	94	2 x 3Kw	2 x 3Kw	22	22	170 Kg
145	h = 1475 d = 520	25	19	110	110	2 x 3Kw	2 x 3Kw	22	22	190 Kg
185	h = 1750 d = 520	25	20	143	143	2 x 3Kw	2 x 3Kw	22	22	235 Kg
210	h = 1550 d = 570	27	21		75	2 x 3Kw	2 x 3Kw	22	28	250 Kg
250	h = 1900 d = 570	26	20	135	90	2 x 3Kw	2 x 3Kw	22	28	300 Kg
300	h = 2060 d = 570	30	20	165	110	2 x 3Kw	2 x 3Kw	22	28	350 Kg

Table 1

3.5 A connection for a balanced supply is provided and labelled “balanced supply”. The balanced supply should be used for showers and bath mixer taps only. Water Regulations require that a single check valve (not supplied) should be fitted in the balance draw-off pipework to prevent backflow.

3.6 ALL CYLINDERS:

3.6.1 Connect the discharge pipework and tundish to the connection labelled “Discharge.”

3.6.2 The tundish (supplied) must be fitted within 500mm of the cylinder and have at least 300mm of straight copper pipe below it, before any elbow or bend.

3.6.3 The pipework below the tundish should be fitted in accordance with the current edition of the Building Regulations.

Capacity (litres)	Indirect		Direct
	STD	HP	STD & HP
125	15mm	15mm	15mm
145	15mm	15mm	15mm
185	15mm	15mm	15mm
210	15mm	22mm	15mm
250	15mm	22mm	15mm
300	15mm	22mm	15mm

3.7 INDIRECT CYLINDERS ONLY:

3.7.1 Connect the boiler flow and return to the labelled connections. Before making the connections, ensure that the coil is free from obstructions by blowing through it.

**Table 2
Pipework size to tundish**

3.7.2 The energy cut out valve is an essential part of the safety requirements for indirect mains pressure cylinders and should be installed on the primary flow to the cylinder with port ‘B’ (embossed on side of valve body) to the cylinder (see figures 2 & 3). The valve will open and close on receiving a signal from the cylinder thermostat. No further control is required for the hot water in a two zone valve system. This valve must also be used in a flow share (Y Plan) system, in conjunction with the mid-position valve, to act as a safety cut out valve (see page 7).

3.7.3 The Aquastat controls the temperature of the hot water and also acts as an emergency cut out in the event that the boiler temperature controls fail. The Aquastat should be fitted into the pocket labelled “Store Temp Control” in the cylinder and connected to operate the energy cut out valve in accordance with the wiring diagram for the scheme being installed (see pages 7 and 8).

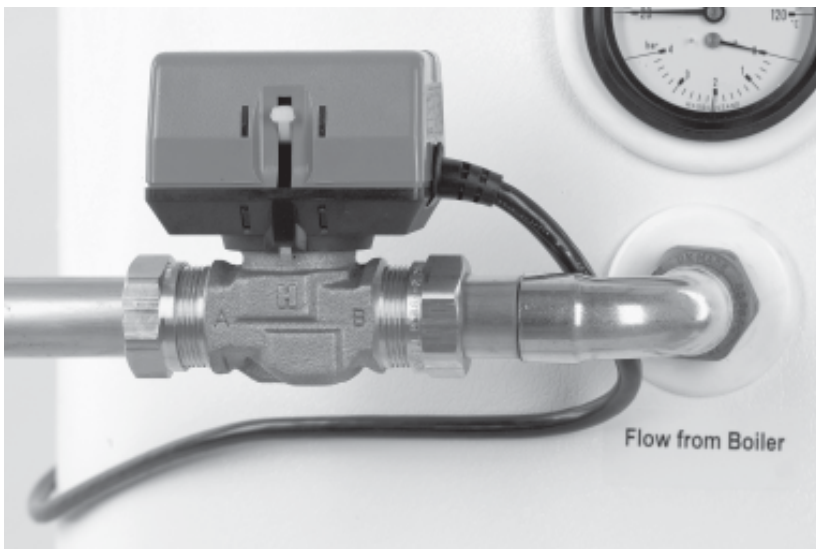


Fig 2
Energy cut off valve
in position

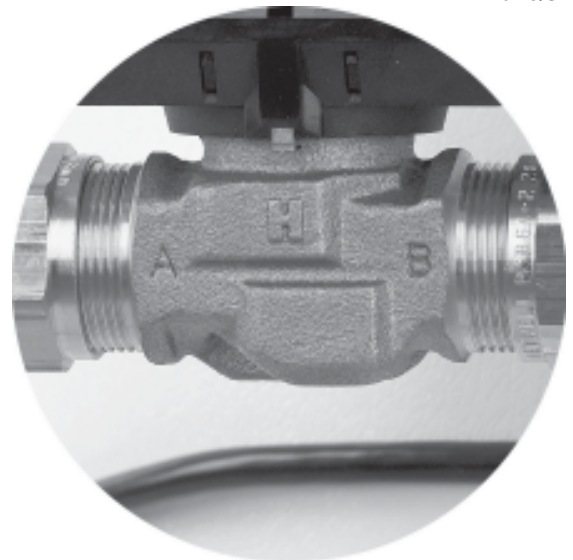


Fig 3
Energy cut off valve
Note position of port "B"

3.8 ALL CYLINDERS:

- 3.8.1 Connect the hot water draw off to the connection labelled "Hot Water Taps".
- 3.8.2 If a secondary return is fitted (210 - 300 litre models only) a non-return valve (not supplied) should be installed adjacent to the cylinder to prevent water flowing out of the cylinder from this connection.
- 3.8.3 Make electrical connections to the immersion heaters - see wiring diagram inside cap of immersion heater.

IMPORTANT: The immersion heaters fitted to the Janstor Mk2 are of a special construction. Only use genuine replacement parts which can be obtained from Johnson & Starley Ltd.

- 3.8.4 The control thermostat is factory set to 60°C. The upper limit thermostat is pre-set to 80°C and must not be tampered with.

4. COMMISSIONING AND OPERATING

- 4.1 Ensure all connections are fully tightened.
- 4.2 Open all of the hot taps supplied by the cylinder and slowly fill the cylinder by opening the service valve on the cold water supply. Continue to fill the Janstor until water runs continuously from all of the open taps. Open the service valve fully and close all taps.
- 4.3 The pressure on the gauge should read 1.8 bar maximum. If the pressure is lower this may mean that the supply pressure is low - do not attempt to adjust the pressure reducing valve. Check that all service valves/stop cocks that feed the cylinder are fully opened.
- 4.4 Check for leaks - including checking that the factory made joints inside the case have not become loose in transit.
- 4.5 Heat the water to 60°C. The pressure in the cylinder will rise and the final pressure will depend upon the cylinder size, incoming cold water temperature and boiler settings, but will rise by approximately 1.5 bar over the pressure when cold.
- 4.6 Once the desired temperature has been reached, the cylinder should be isolated and drained to flush out any flux/solder introduced during the installation process. The filter in the inlet control set should be removed, cleaned and re-fitted (see figs 4 & 5)
- 4.7 Reheat the cylinder to desired temperature and recheck for leaks.

NOTE: For safety and energy saving reasons it is advisable to operate the Janstor at a temperature between 55°C and 60°C. The boiler thermostat (indirect models only) should be set to 65°C or above to achieve the best performance from your cylinder.

- 4.8 Remove the protective film from the outer case of the cylinder and wipe down. Place this instruction book in a convenient place for the end user. Complete the Benchmark Log Book and leave inside the cylinder case for the contract manager responsible for the installation.
- 4.9 Expansion discharge MUST be run from the tundish to a safe external position in accordance with Section G3 of the Building Regulations and associated Guidance Notes.



Fig. 4
Remove the filter from the inlet control set.



Fig. 5
Clean the filter and refit.

5.

FAULTFINDING

In the unlikely event that your Janstor should develop a fault, the following table gives you a guide as to the possible cause and the appropriate remedy.

SYMPTOM	POSSIBLE CAUSE	ACTION
No flow	Mains service valve not open	Open stop valve or replace
	Blocked filter	Clean filter in base of pressure reducing valve
Low pressure	Service valve not fully open or partially blocked filter	Ensure service valve is fully open or clean filter in PRV.
	Restricted delivery pipework	Replace damaged or old pipework
	Low mains pressure	Check and rectify in accordance with paragraph 2.2
Intermittent discharge from P & T or P valve/s	Expansion vessel pressure below 1.8 bar.	Replenish in accordance with para 6.1.3
Continuous discharge from P & T or P valve/s	Wrongly set or faulty inlet pressure reducing valve	Replace PRV (1.8 bar)
	Defective expansion relief valve or debris /scale on valve seating	Operate expansion relief valve mechanism to clear debris. If discharge doesn't stop, replace expansion relief valve.
	Defective or incorrectly set Aquastat allowing water to overheat.	Check setting and operation of Aquastat (55-65°C). Replace if necessary
	Crossflow from uncontrolled cold water mains supply to mixer tap or shower valves	Check mixer taps and shower valve and fit check valves or area pressure controls if required. Alternatively, supply cold water to mixer tap etc. from balanced supply position on inlet control set.

INDIRECT		
Water Fails to Heat	Boiler not working. Pump and/or control valve not operating Aquastat upper limit stat has operated.	Check boiler controls. Check control functions and replace faulty parts. Reset the red button on the dual Aquastat after investigating cause of overheating.
Insufficient hot water	Cylinder too small	Check storage specifications
Water not hot enough	Boiler not providing enough heat. Cylinder thermostat setting incorrect	Adjust thermostat to between 55° and 65° C. Ensure boiler thermostat is set above 65°C
DIRECT		
Water fails to heat	Upper limit cut-out switch has operated in immersion heater	Isolate electrical supply and reset cut-out (red button) inside immersion heater cap or press external reset button if fixed.

6. MAINTENANCE

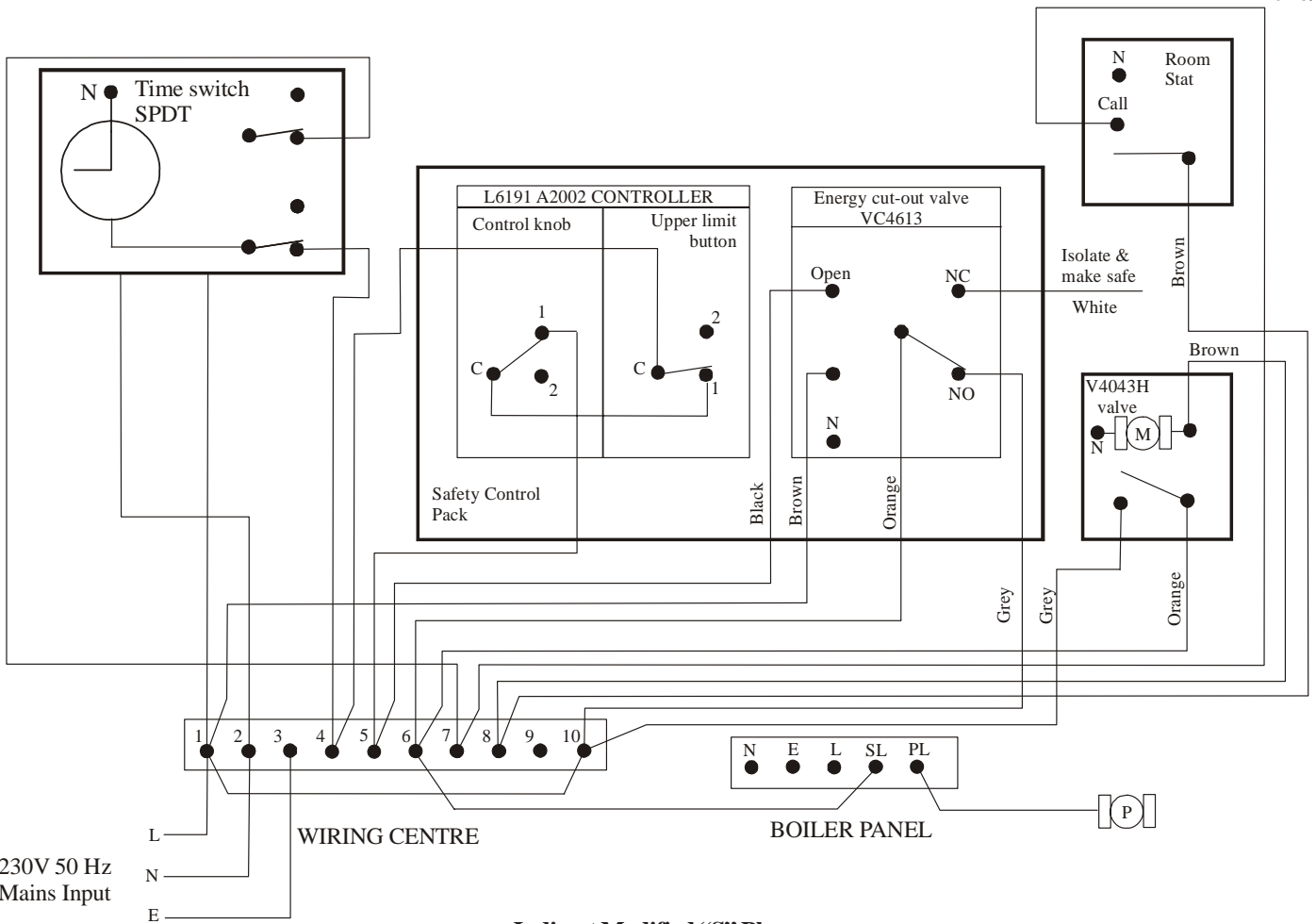
6.1 THE FOLLOWING CHECKS SHOULD BE CONDUCTED ANNUALLY:

- 6.1.1 Check operation of the T & P valve and expansion valve by rotating the heads of the valves in turn until water is discharged. The discharge should stop immediately when the valve head is released. Should this not be the case the valve should be replaced.
- 6.1.2 Remove and clean the filter in the pressure reducing valve.
- 6.1.3 The expansion vessel does not require any routine maintenance. However, if water is being discharged from the expansion valve it may be indicative of pressure loss within the expansion vessel itself. To check, drain the cylinder completely and use a tyre pressure gauge used to verify the pressure in the expansion vessel. The vessel is factory pre-charged to 1.8 bar. If the pressure is less than this it can be repressurised to 1.8 bar using a suitable pump. If the cylinder is more than 5 years old when this problem is experienced it may be advisable to replace the pressure vessel. If however, the pressure in the expansion vessel is 1.8 bar, the discharge may be being caused by back pressure or cross-over between the cold and hot water supplies.

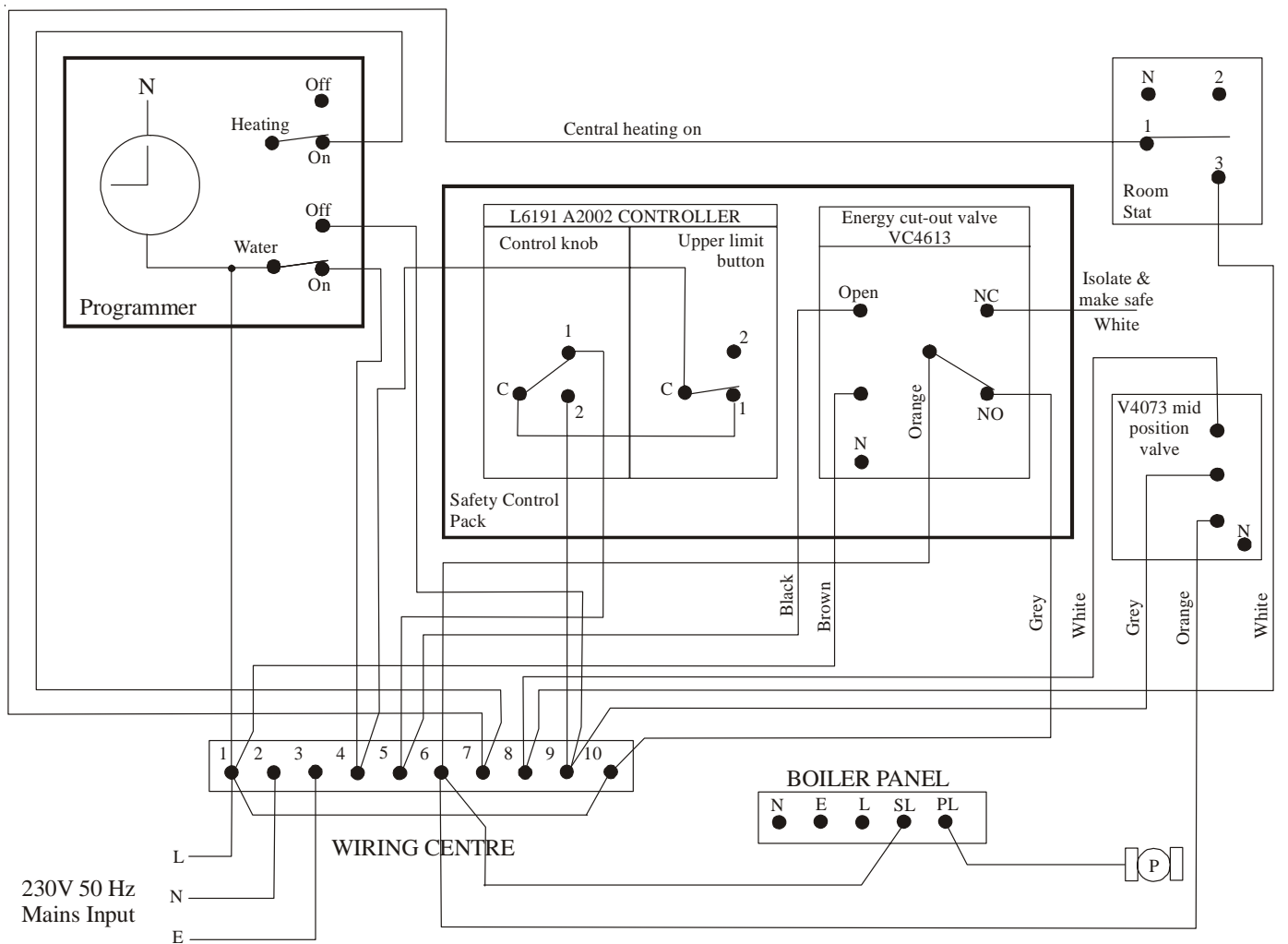
6.2 CHECKING FOR BACK PRESSURE:

Back pressure from a faulty or uncontrolled mixer valve or appliance will cause the cylinder to over pressurise and may result in water being discharged from the expansion valves. To check for back pressure follow the steps below:

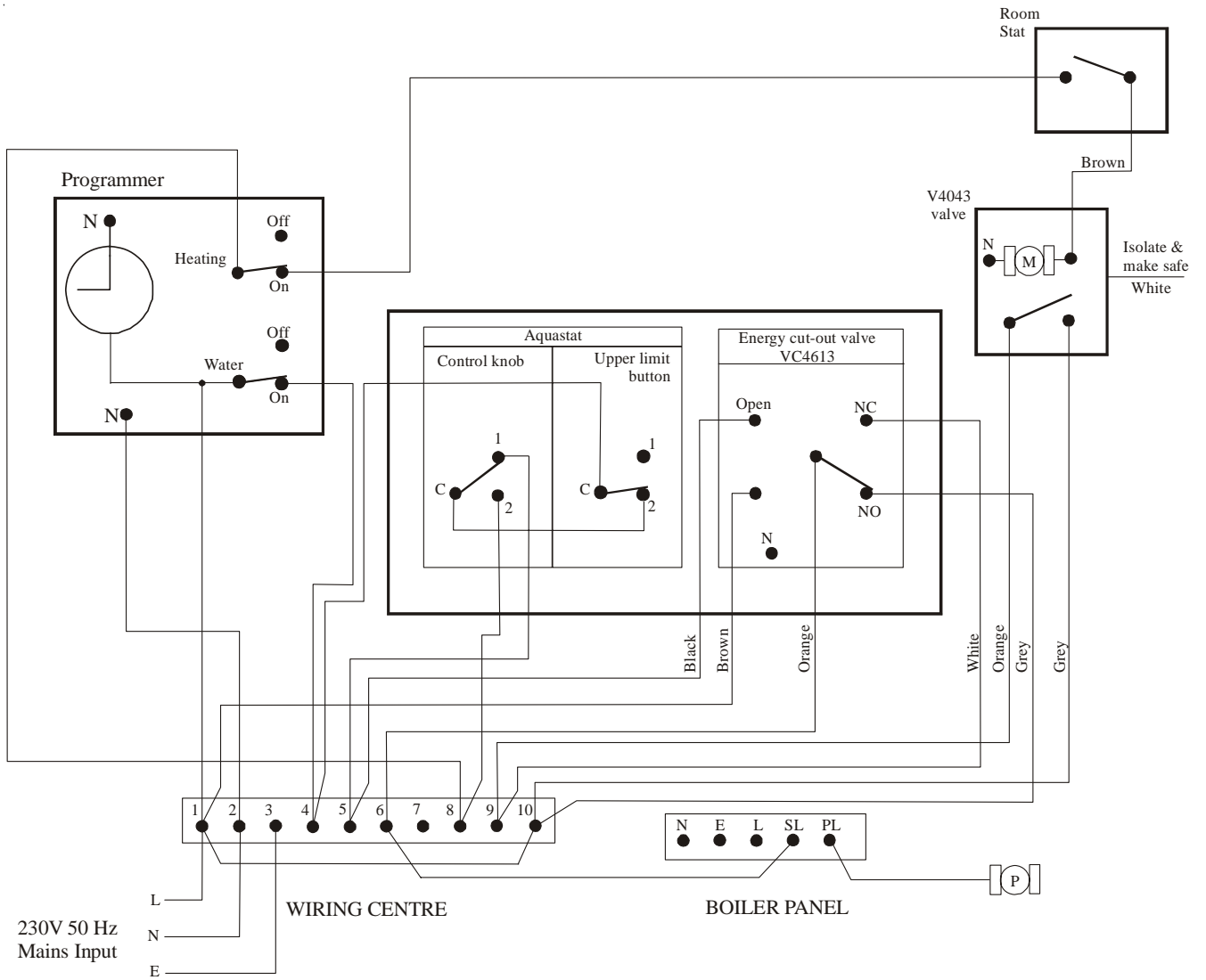
- 6.2.1 Turn off cold water supply to cylinder, whilst leaving cold supply to all mixer taps and appliances connected.
- 6.2.2 Open a single hot tap, and run water until pressure on gauge of cylinder reads less than 1 bar. Close the hot tap.
- 6.2.3 In turn, open both the hot and cold taps on mixer valves and watch pressure on gauge. The pressure will rise once the faulty mixer valve is opened as it will allow higher pressure cold water back into the cylinder. The faulty mixer should then be replaced.



Indirect Modified "S" Plan



Indirect Modified "Y" Plan



Indirect Modified "P" Plan

Johnson and Starley prides itself on its ability to supply spare parts quickly and efficiently. If your service engineer indicates a problem in obtaining a spare part, advise him to contact Johnson and Starley Spares Department at the address below.

Telephone: 01604 762881

JOHNSON AND STARLEY Ltd.,
Rhosili Road,
Brackmills,
Northampton, NN4 7LZ

Fax: 01604 767408