

## SLIM LINE

## Centrajets 18/25 28/32 35/39

## Pressure Jet Domestic Oil Boilers

It is essential that the flue should not exert an excessive pull on the burner. The maximum permissible flue draught is 3.8 mm (0.15") water gauge. Should a draught in excess of this figure be encountered, stabilisation of the flue installation must be carried out.

An existing chimney is normally satisfactory for use with the boiler providing that an up draught is available to disperse the products of combustion. If a flue is to be provided on an outside wall it must be suitably insulated. Flues must in any event conform to B.S. Code of Practice C.P. 3002 Pt. 2, 1964, Building Regulations and Local Authority Bye-Laws and requirements. The boiler must not be installed into a flue with a down draught unless this can be overcome by fitting a suitable anti-down draught cowl. Down draught will cause inefficient combustion and can, in certain circumstances, result in damage to the boiler. Check that room or area where boiler is situated has adequate ventilation for air supply to fan.

Permanent ventilation in the order of 1610 sq. mm (2.5 sq. in.) for every 3 kW (10,000 Btu/h) should be provided.

Additional ventilation area should be provided in rooms where extractor fans and/or stabilisers are installed.

The top panel, side panels (screw fixing) and front panel can be removed for convenience during installation as required.

The Centrajets are so constructed that all maintenance and adjustments can be carried out from the front of the appliance and as the boiler is fully insulated items of permanently fitted kitchen equipment can be fitted on either side with safety.

### Water connections

The water connections should be in accordance with British Standard Code of Practice recommendations making suitable provision for venting the circuit. The maximum working pressure of the boiler is 310 kN/m<sup>2</sup> (45 lbf/sq. in.) or 31.7 metres (104 ft.) head of water.

Ensure that the system is correctly designed with adequately sized flow and return pipes.

### Fuel supply

Valves, fuel line, filters and external fire valve must conform to B.S.799 Part III. With a single pipe oil supply system the fuel tank may be positioned so that the head above the burner centre line is between 0 and 3660 mm (0 and 12 ft.). With a two pipe supply system the fuel tank may be positioned so that the suction head below the pump is between 0 and 3048 mm (0 and 10 ft.). In this case an extra flexible oil line and elbow coupling should be used.

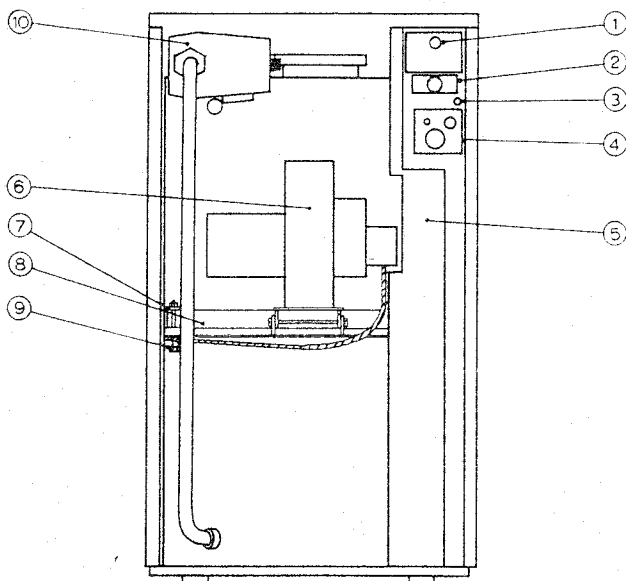
The burner unit is fitted, as standard, for use on a single pipe supply. To convert the unit for two pipe supply the following must be carried out.

*Sundstrand AN 45C.* Remove the return port plug which is situated alongside the inlet port, insert the bypass plug. (Bypass plug in plastic bag attached to burner motor) and fit the return hose.

It is important that the filter and non return valve are fitted into the oil supply line. Should these be omitted no responsibility can be accepted by Redfyre for failure to any part of the burner assembly.

Where there is any doubt as to the suitability of the tank site the Local Fire Prevention Officer should be consulted.

The oil connection from the elbow on the flexible oil pipe is  $\frac{1}{4}$ " B.S.P. female. An isolating valve should be fitted as near to the unit as practicable to enable oil line to be disconnected without undue loss of fuel.



### Key to diagram on Operating Instructions:

1. Lockout light and Reset button. 2. Boiler thermostat. 3. Limit Light.
4. Programmer (optional). 5. Control chassis. 6. Burner assembly. 7. Burner door clamp. 8. Burner door. 9. Oil supply connection. 10. Circulating pump (not supplied).

### Heating system and load

The Centrajets range of slim line boilers are suitable for all types of correctly designed systems. The boiler is also suitable for micro and mini bore installations. When a domestic hot water supply is required an indirect cylinder must be used.

### Location of boiler

The boiler must be mounted on a horizontal floor with suitable provision for fire insulation. Local Authority requirements must be adhered to. Care should be taken in siting the boiler in view of the need for periodic servicing. Provision should be made for inspecting and cleaning the flue.

Where a chimney and flue are to be of a constant bore i.e. prefabricated chimney, the bore may be 127 mm (5") for 18/25 and 28/32 units, and 152 mm (6") for 35/39 units. If the flue is to terminate within a larger chimney i.e. 9" x 9" brick, the connecting flue must be 152 mm (6") bore on all units.

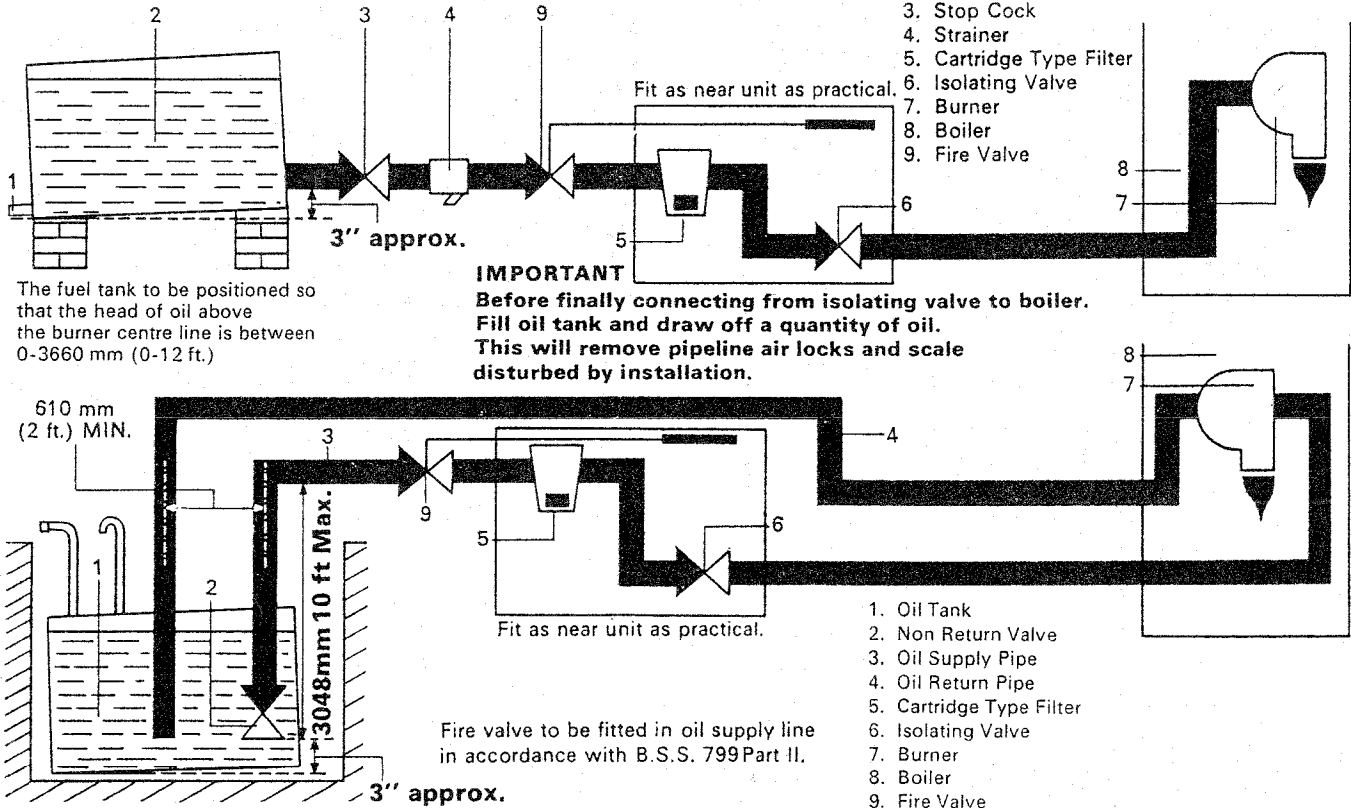
Cast iron flue pipe should be used. Where bends are to be used in the flue pipe, external to the chimney, a vertical straight length of not less than 1219 mm (4 ft.) should rise from the boiler flue outlet. Bends are to be not less than 135°.

Flexible flue liners should only be used when the chimney structure warrants lining, and if used should be full length. Where a chimney liner has to be used then the connecting flue and liner should be 152mm (6") bore for all units.

## Fuel Storage tank

Capacity Galls.	Capacity Litres	Dimensions ft. in.	mm
250	1150	5' 0" x 4' 0" x 2' 0"	1524 x 1219 x 610
300	1350	6' 0" x 4' 0" x 2' 0"	1828 x 1219 x 610
600	2700	6' 0" x 4' 0" x 4' 0"	1828 x 1219 x 1219
1,000	4550	8' 0" x 5' 0" x 4' 0"	2438 x 1524 x 1219

## FUEL STORAGE TANK DETAILS



## Fuel

The recommended fuels for the Centrajel range of boilers are 35 seconds gas oil (B.S.2869:1970 Class D) and 28 seconds kerosene (B.S.2869:1970 Class C2).

## Electrical connection

Ensure that the mains supply is switched off before commencing work. The electrical supply must be 240 volts, A.C., single phase, 50 Hz and this may be supplied from a convenient combined switch and socket suitably fused—5 amp. Ancillary equipment should be suitably protected. The supply cable should enter the back of the boiler on the right hand side and continue to the control chassis, entering this via the grommet supplied. The wiring must conform to I.E.E. regulations.

Wiring diagrams for the unit with and without Programmer are shown on the back page of this leaflet and also on the rear of the Control Chassis Cover. Where consistent low mains voltage conditions are known to exist, it is recommended that a constant voltage transformer is fitted.

## Description of boiler

The unit is a downward firing pressure jet oil burning boiler. It is fully automatic and operates only at "high-fire" or off, the oil being ignited electrically. No oil or electricity is consumed during the "off" periods. Where a programmer is fitted a small amount of current is consumed by its motor. The boiler thermostat is situated on the control panel immediately below the lockout light/reset button.

The mild steel boiler consists of two vertically arranged concentric cylinders cut back at the front to accommodate the burner. The space between the cylinders contains the water; the base is also water cooled.

The burner assembly can be swung open for access to the nozzle and flame ring and also for removing the boiler baffles. The burner mounting door is fixed firmly by two clips. Oil is supplied to the unit by connecting the oil supply line to the elbow on the flexible pipe.

All controls for the boiler are situated on the control chassis, to the right of the boiler, and consists of control box, boiler thermostat and, when fitted, the programmer. The casings are located by screws, nuts and, where applicable, nylon clips. Top outlet only is possible for the flue.

## Operation

### Normal operating sequence

Turning the knob clockwise switches on the boiler, which should then be set to the required temperature level. The low setting corresponds approximately to 66°C (150°F), the high setting to 83°C (190°F). Once the boiler has been switched on the burner will ignite immediately after the 10 seconds pre-ventilation period and continue to run until the boiler thermostat opens upon reaching the desired temperature. The electrical supply to the ignitor is controlled by the automatic control box which switches off the current when a stable flame is established. Should flame failure occur the control box will shut down the burner after 15 seconds and go to a lockout condition. This condition will remain for 60 seconds, after which the reset button can be pressed and an attempt be made to restart the burner.

### Testing and starting up

Ensure that all internal packing is removed. (Access covers at the top of the heat exchanger). Then ensure that the baffle assembly is located centrally on the hooks provided in the top section of the boiler body and that the target plate is positioned centrally inside the bore of the boiler. (Unclamp and swing open the hinged burner door to view the plate).

Bleed air from oil supply.

With single pipe systems, disconnect flexible oil pipe at pipe inlet and open stop valves slowly. Run off some of the oil into a container to establish a clean and air free supply to the pump. Re-make joint oil tight and leave valves open.

With two pipe systems, open all valves. As the pump is self priming the air will be bled off automatically.

For installations using Gas Oil (Class D fuel) the operating pressure for the burners does not need to be adjusted. This is set at 690 kN/m<sup>2</sup> (100 P.S.I.) on the 18/25, 28/32 units and 759 kN/m<sup>2</sup> (110 P.S.I.) on the 35/39 units during manufacture. For use with Kerosene the operating pressure should be set to 828 kN/m<sup>2</sup> (120 P.S.I.) on the 18/25 and 28/32 units and 690 kN/m<sup>2</sup> (100 P.S.I.) on 35 kW output unit only. Should this be necessary, remove the Hexagon head cover and set the adjustment screw with a small screwdriver.

With Sundstrand AN 45C Oil Pump the pressure gauge should be fitted into the elbow provided.

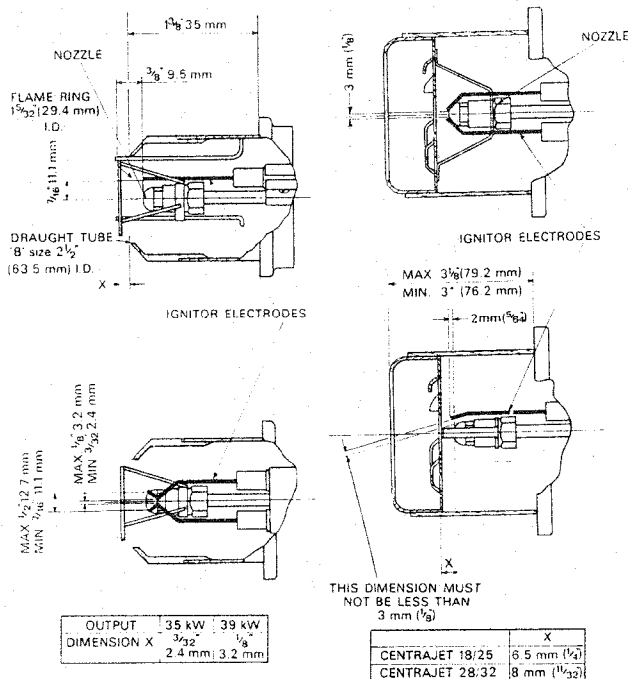
Set all thermostats and timeclocks, etc., so that the contacts are made calling for the burner to be energised.

Switch on the electricity and set the control knob to the desired setting. The burner should start immediately and ignite after 10 seconds. Until all air from the oil pump is flushed out through the nozzle there may be

the pressure gauge, sufficiently to allow air to bleed out. Should the gauge not be fitted slacken off the plug in the same way. When bubble free oil seeps out retighten.

The draught in the flue pipe should be maximum 3.8 mm (0.15") w.g. Remove screw from flue spigot for access to sampling point.

To set the combustion air check the CO<sub>2</sub> content of the flue gas with a suitable indicator.



some flame instability resulting in the burner "locking-out" as indicated by the red reset button glowing on the control box. In this event, wait for one minute then press the reset button. Should the red light not go out, wait a further few seconds and press the button again.

When the burner is running vent air from the pump by slackening off

## Alternative outputs

The boiler is supplied as standard for use with gas oil. Fitted with the following nozzles, 18/25=0.75 80° AR, 28/32=1.1 80° AR, 35/39=1.35 80° AR. Alternative nozzles should be fitted as per general specification.

This is achieved by slackening off the nuts holding the burner mounting door clamps, turning the clamps to clear the door and raising the door. Using an approved nozzle spanner the nozzle can be removed, and replaced by a specified alternative nozzle. It is essential that the electrodes should be positioned exactly as shown above after any work on the nozzle.

## Additional controls and 'pumped primary' system

Additional controls in the form of Hot Water Cylinder Thermostat and Frost Thermostat can be incorporated into the circuit to accepted Codes of Practice.

## Circulating pump

The water circulating pump may, if necessary, be fitted in the position shown. When this is done it will be necessary to fit a B.S.P. plug into the vacant tapping on the boiler body.

Ensure pipework will allow the flue cover plate on top of the boiler to be removed and that the burner door will open fully.

## General dimensions

Overall Height: 900 mm. (35 1/2")  
 Depth, back to front: 528 mm. (20 3/4")  
 Width: 520 mm. (20 1/2")  
 Weight - Empty: 115 Kg. (2 1/4 cwt.) approx.  
 Weight - Full: 148 Kg. (2 3/4 cwt.) approx.

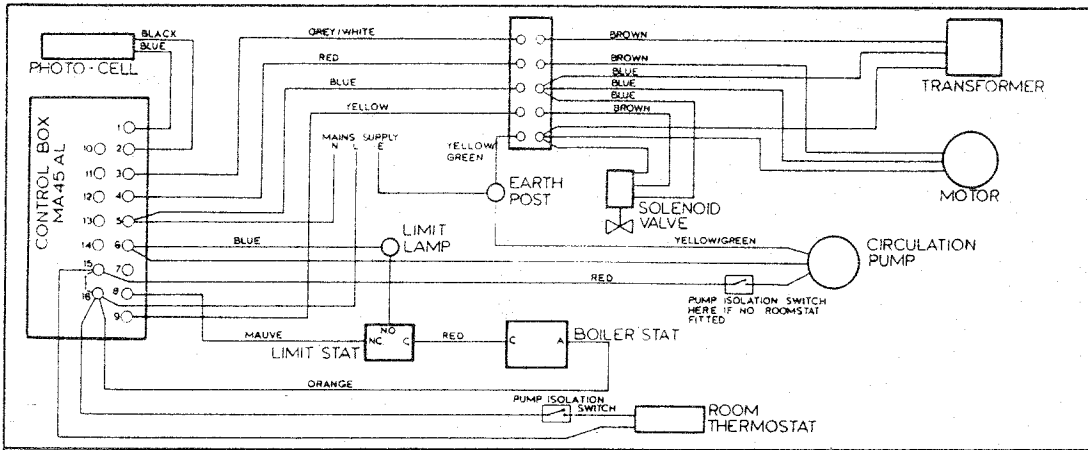
## General Specification

The serial number of the boiler is mounted on the side of the control chassis. This number should be quoted on all correspondence and orders for parts.

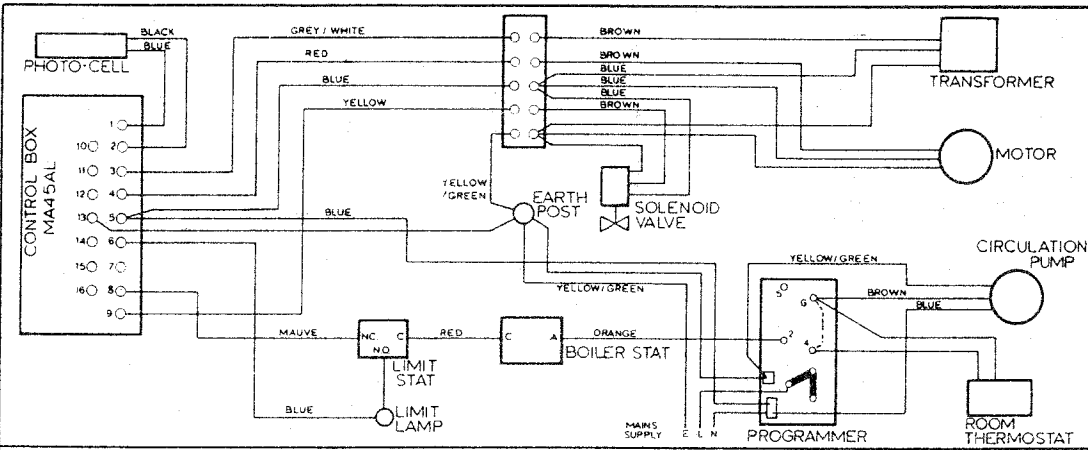
BOILER MODEL:	CENTRAJET 18/25			CENTRAJET 28/32			CENTRAJET 35/39		
HEAT EXCHANGER:	Vertically arranged concentric cylinders.			Vertically arranged concentric cylinders.			Vertically arranged concentric cylinder.		
FLUE OFFTAKE:	Combined 127 mm. dia (5" dia.) or 152 mm. dia. (6" dia.).			Combined 127 mm. dia. (5" dia.) or 152 mm. dia. (6" dia.).			152 mm. dia. (6" dia.).		
WATER CONNECTIONS:	4 - 1 1/4" B.S.P. angled at 45° 1 - 1" B.S.P. connection for pump.			4 - 1 1/4" B.S.P. angled at 45°. 1 - 1" B.S.P. connection for pump.			4 - 1 1/4" B.S.P. angled at 45°. 1 - 1" B.S.P. connection for pump.		
WATER CAPACITY:	33 litre (7 1/2 galls.).			33 litre (7 1/2 galls.).			33 litre (7 1/2 galls.).		
RATED OUTPUTS:	18 kW (61,400 Btu/h)	22 kW (75,000 Btu/h)	25 kW (85,200 Btu/h)	28 kW (95,600 Btu/h)	32 kW (109,300 Btu/h)	35 kW (120,000 Kerosene)	35 kW (120,000 Oil)	39 kW (133,000 Gas Oil)	
FUEL FLOW RATE:	2.46 l/hr. 0.541 Imp. gall/h	2.84 0.625	3.22 0.708	3.78 0.82	4.16 0.92	4.74 1.04	4.68 1.02	5.12 1.12	
PUMP PRESSURE:	690 kN/m <sup>2</sup> (100 p.s.i.) 823 kN/m <sup>2</sup> (120 p.s.i.)			690 kN/m <sup>2</sup> (100 p.s.i.) 828 kN/m <sup>2</sup> (120 p.s.i.)			759 kN/m <sup>2</sup> (110 p.s.i.) 690 kN/m <sup>2</sup> (100 p.s.i.) only 35 KW		
*NOZZLE-US MONARCH:	0.65	0.75	0.85	1.0	1.1	1.35	1.2	1.35	
POWER SUPPLY:	240 volts, A.C. only, 50 Hz.			240 volts, A.C. only, 50 Hz.			240 volts, A.C. only, 50 Hz.		
POWER LOADING:	Running 0.3 amp.	Ignition 1.6 amp.		Running 0.3 amp.	Ignition 1.6 amp.	Running 0.3 amp.	Ignition 1.6 amp.		
FLUE GAS TEMP:	Nozzle 0.65 0.75 0.85	Temperature 310°C (590°F) 340°C (644°F) 343°C (650°F)		Nozzle 1.0 1.1	Temperature 316°C (600°F) 343°C (650°F)	35 kW. 315-370°C (600-700°F)	39 kW. 343-398°C (650-750°F)		
SMOKE NO. and CO:	0-2 10.5-12.5%			0-2 11.5-12.5%			0-2 9.5-10.5% 0-2 10.0-11.0%		
BURNER TYPE:	Selectos D42/T26 Down-firing pressure jet, integral air supply fan, oil pump and solenoid valve.			Selectos D42/T40 Down-firing pressure jet, integral air supply fan, oil pump and solenoid valve.			Selectos D42/B Draught Tube 63.5 mm. (2 1/2") I.D. Flame Ring 29.4 mm. (1.5/32") I.D. Down firing pressure jet, integral air supply fan, oil pump, and solenoid valve.		
MOTOR:	1/10 h.p. Capacitor start. Speed 2700 rev/min.			1/10 h.p. Capacitor start. Speed 2700 rev/min.			1/10 h.p Capacitor start. Speed 2700 rev/min.		
LUBRICATION:	2 or 3 drops of good quality thin lubricating oil in each oil port (if fitted) on motor every 6 months.			2 or 3 drops of good quality thin lubricating oil in each oil port (if fitted) on motor every 6 months.			2 or 3 drops of good quality thin lubricating oil in each oil port (if fitted) on motor every 6 months.		
FUEL SUPPLY FUEL PUMP:	Self purging gear type.			Self purging gear type.			Self purging gear type.		
SUPPLY HEAD:	3660 mm. (12 ft.) max. gravity. Max. suction lift with 2 pipe supply 3048 mm. (10 ft.)			3660 mm. (12 ft.) max. gravity. Max. Suction lift with 2 pipe supply 3048 mm. (10 ft.)			3660 mm. (12 ft.) max. gravity. Max. suction lift with 2 pipe supply 3048 mm. (10 ft.)		
OIL CONNECTION:	1/2" B.S.P. Female.			1/2" B.S.P. Female.			1/2" B.S.P. Female.		
IGNITION:	10,000 volt H.T. spark by transformer.			10,000 volt H.T. spark by transformer.			10,000 volt H.T. spark by transformer.		
SAFETY CONTROL:	Photo resistor type complying with requirements of B.S.799.			Photo resistor type complying with requirements of B.S.799.			Photo resistor type complying with requirements of B.S.799.		
BOILER CONTROL BOILER THERMOSTAT:	Single pole, ON/OFF type with change over micro switch.			Single-pole, ON/OFF type with change over micro switch.			Single-pole, ON/OFF type with change over micro switch.		
HIGH LIMIT THERMOSTAT:	Single-pole, change over micro switch and warning lamp.			Single pole change over, micro switch and warning lamp.			Single pole change over micro switch and warning lamp.		
CONTROL BOX:	Petercem MA.29.AL. or MA.45.AL.2 Photocell 8210 8212			Petercem MA.29.AL. or MA.45.AL.2 Photocell 8210 8212			Petercem MA.29.AL. or MA.45.AL.2 Photocell 8210 8212		

\* Our conditions of guarantee will only apply when the Centrajert is fitted with the appropriate Monarch Nozzle.

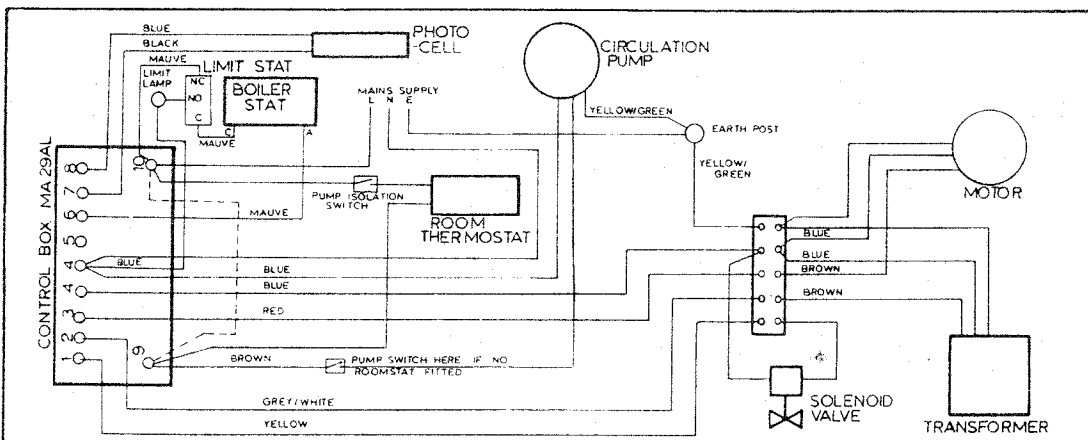
# Wiring Diagrams



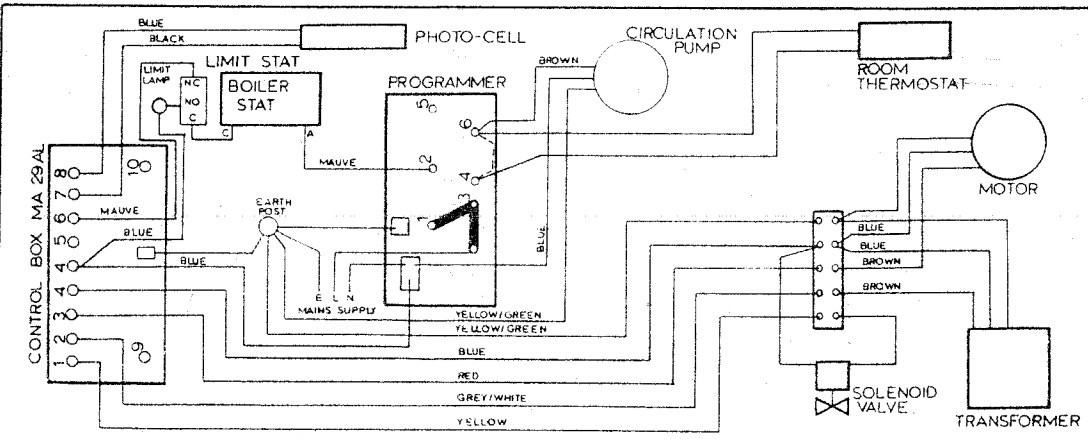
MA.45.AL.2 Wiring Diagram for Boilers Without Programmer LINK MARKED THUS [ ] TO BE REMOVED WHEN FITTING ROOM THERMOSTAT



MA.45.AL.2 Wiring Diagram for Boilers With Programmer LINKS MARKED THUS [ ] TO BE REMOVED WHEN FITTING ROOM THERMOSTAT



MA.29.AL Wiring Diagram for Boilers Without Programmer LINKS MARKED THUS [ ] TO BE REMOVED WHEN FITTING ROOM THERMOSTAT



MA.29.AL Wiring Diagram for Boilers With Programmer LINKS MARKED THUS [ ] TO BE REMOVED WHEN FITTING ROOM THERMOSTAT

In order to incorporate improvements the Company reserve the right to modify the appliance as it is now described and illustrated.