

Trianco Redfyre Centrajets 37/45, 50/73 Pressure Jet Oil fired commercial boilers



By appointment to H.M. Queen Elizabeth
The Queen Mother
Manufacturers of Domestic Boilers

Installation and Commissioning Instructions

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" period. The main control is the boiler thermostat situated on the control panel immediately above the amber limit thermostat light.

The mild steel boiler consists of two vertically arranged concentric cylinders cut back at the front to accommodate the burner. A central rectangular waterway makes the flue passages into quadrants into which are fitted the baffle assemblies. The space between the cylinders contains water, the base is also water cooled. The burner assembly can be swung open for access to the heat exchanger and also for removing the baffles. The burner mounting door is fixed firmly by two clamps. Oil supply to the unit is effected by connecting the oil supply line to the socket mounted in the burner door support face.

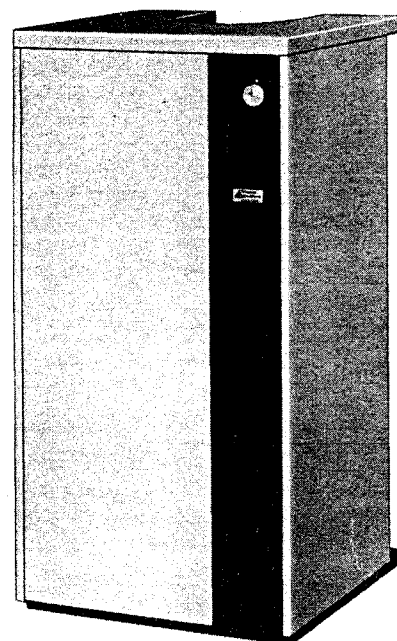
All controls for the boiler are situated in the control box to the right of the boiler and consist of burner control box, boiler thermostat, limit thermostat and terminal block for electrical connections. The casings are held in position by screws and pins. Top outlet only is available.

Removal of Panels

Lift off the top panel from the location pins. The four self tapping screws that hold the front and control fascia panels to the panel support bracket at the top can be unscrewed. Withdraw the boiler thermostat knob. The control and fascia panels can be pulled forward and withdrawn from the retaining holes in the panel support bracket at the bottom. The self tapping screws (4) fixing the side panels to the insulation baffle with a bracket can be unscrewed and remove the bracket. Unscrew the two wing nuts retaining the insulation baffle, remove the baffle. Unscrew the 4 self tapping screws fixing the side panels to the boiler body, two on the side, two on the front flanges. Withdraw the thermostat phials, uncouple the electrical connector (care must be taken in withdrawing plug, grasp top and bottom of plug and ease from the mating part). The whole panel assembly can then be lifted from its retaining holes in the base plate.

LOCATION OF BOILER

The Centrajets Commercial boilers are suitable for all types of correctly designed systems, when domestic



hot water supply is required an indirect cylinder must be used.

THE TOP, FRONT, CONTROL AND SIDE PANELS MUST BE REMOVED BEFORE INSTALLATION COMMENCES. RELEASE SCREW ON PHIAL POCKET BEFORE REMOVING BOILER AND LIMIT THERMOSTAT PHIALS.

The boiler must be mounted on a horizontal floor capable of supporting its full weight, 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 installation. The flue pipe must be 203 mm (8") bore minimum 50/73 and 152 mm (6") on the 37/45. Cast Iron or Mild Steel 4.76 mm ($\frac{3}{16}$ ") thick flue pipe should be used. Bends should not be less than 135°.

Flexible flue liners should only be used when the chimney structure warrants lining, and if used should be full length.

It is essential that the flue should not exert an excessive pull on the burner. The maximum permissible flue draught is 3.25 mm (0.13") 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 chimney is to be provided on an outside wall, it must be suitably insulated.

Chimney flues must, in any event, conform to British Standard Code of Practice CP.3002-PT2-1964, the Building Regulations and Local Authority Byelaws and requirements.

The boiler must not be installed into a flue installation with a down-draught unless this can be overcome by fitting a suitable anti-down draught cowl. Down-draught will cause inefficient combustion and, in certain circumstances, result in damage to the boiler. Check that the room or area where the boiler is situated has adequate ventilation for air supply to the 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 Centraj Commercial is so constructed that all maintenance and adjustments can be carried out from the front of the appliance.

WHEN RE-ASSEMBLING PANELS AND CONTROLS ENSURE THE THERMOSTAT TWIN PHIALS ARE FULLY ENTERED INTO THE POCKET AND FIXED IN POSITION BY THE POCKET SCREW.

Water Connections

The water connections should be in accordance with British Standard Code of Practice recommendations making suitable provisions for venting the circuit. The maximum working pressure of the boiler is 345 kN/m² (50 lb/sq. in.).

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

Electrical Connections

Ensure that the mains supply is switched off before commencing work. The electrical supply must be 240 volts, A.C. only, single phase, 50 hz and this may be supplied from a convenient combined switch and socket suitably fused—5 amp for the boiler only, excluding ancillary equipment. The supply cable should enter the back of the boiler on the right hand side and continue to the side of the control chassis, entering this via the grommet supplied. A separate hole and grommet are provided for fitting control circuit of ancillary equipment. The wiring must conform to I.E.E. Regulations. The wiring diagram for the unit is shown on the back page of this leaflet and also on the rear of the Control Panel.

Testing and Starting Up

Remove the flue insulation baffle—two wing screws—the flue access door—four nuts and washers. Withdraw the internal packing on top of the flueway baffles and ensure the baffle lugs are hooked over the baffle supports. Replace the flue access door and flue offtake cover.

Bleed air from oil supply:

(a) With single pipe systems disconnect the flexible oil pipe at the 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. Remake the joint oil tight and leave the valves open.

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

The operating pressure for the burner does not normally need to be adjusted, this is set at 759 kN/m² (110 p.s.i.) for the 37/45 and 1035 kN/m² (150 p.s.i.) for the 50/73 during manufacture. Should adjustment be necessary insert pressure gauge in appropriate port and adjust pressure to the recommended setting.

Starting up

Set all timeclocks and thermostats, 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 starts and ignition takes place after approximately 10 seconds. There may be some flame instability until all the air is released from the system resulting in the burner 'locking out', as indicated by the RED re-set button on the control box glowing. In this event, wait for one minute then press the re-set button. Should the RED light NOT go out, wait a further few seconds and press the button again.

Testing

Drill a hole large enough to take the testing probe in the flue as near to the boiler as possible.

The following readings are acceptable:

BOILER 37/45				Temp. in Flue	Flue Draught Max.	Air Control
Burner	PSI	Smoke	CO ₂			
Whirlette	110	0-2	10%	340°C	3.25 mm 0-13" WG.	20% open
BOILER 50/73						
Burner						
C2 Mk 2	150	0-2	11.5%	395°C	3.25 mm 0-13" WG.	7 mm

After the readings have been taken, lock the air controls with 2 mm Allen screws for 37/45 models or two screws on Air Disc for 50/73 models.

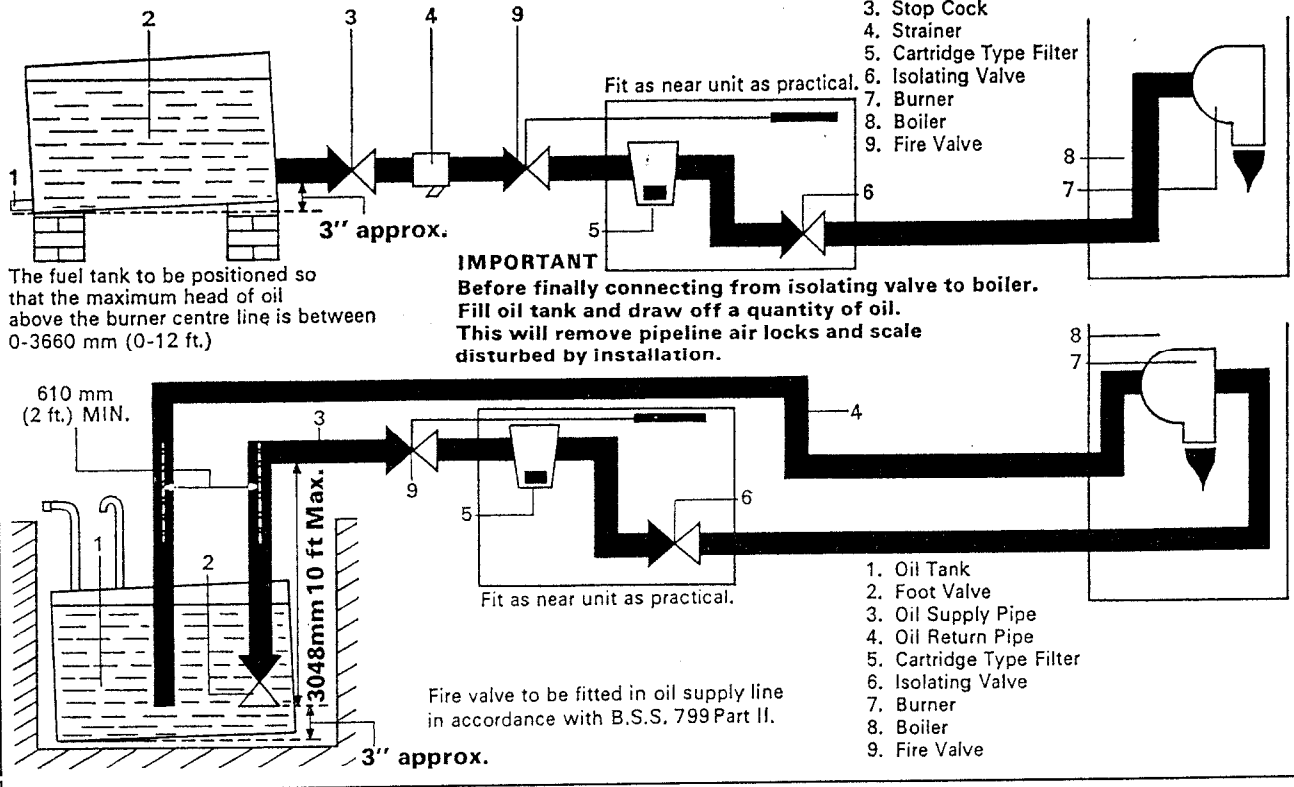
Normal Operating Sequence

Turning the knob clockwise switches on the boiler which should then be set to the required temperature level. The low setting corresponds approximately to 60-66°C (140-150°F), the high setting to 88°C (190°F). Once the boiler has been switched on the burner will start up and ignition will take place after about 10 seconds, ignition will remain on for a further 20 seconds, the boiler will continue to run until the boiler thermostat opens circuit 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 burner control box will shut down the burner after 15 seconds and go to a lock-out condition. This condition will remain for 60 seconds approximately, after which the re-set button can be pressed and an attempt be made to re-start the burner. The burner control box is in a re-set condition if the red lamp remains off after the re-set button has been pressed.

Fuel Supply

Valves, fuel line, filters and external fire valve must conform to B.S.799 Part III. With a single pipe oil supply

FUEL STORAGE TANK DETAILS



system the fuel tank may be positioned so that the head above the burner centre line is between 0-3660 mm (0-12' 0"). With a two pipe supply system the fuel tank may be positioned so that the suction head below the pump is between 0-3048 mm (0-10' 0"). In this case an extra flexible oil line and elbow 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.

Fit the by-pass plug (by-pass plug in plastic bag attached to burner) and connect a second flexible oil line to the return port.

It is important that the filter and a foot valve is fitted into the oil supply line, should these be omitted no responsibility can be accepted by Trianco 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 socket mounted in the burner door support face is $\frac{1}{4}$ " B.S.P. female. An isolating valve should be fitted as near to the unit as practicable to enable the oil line to be disconnected without undue loss of fuel.

Fuel

The recommended fuel for the Centrajel Commercial is: 35 second Gas Oil (B.S.2869:1970 Class 'D').

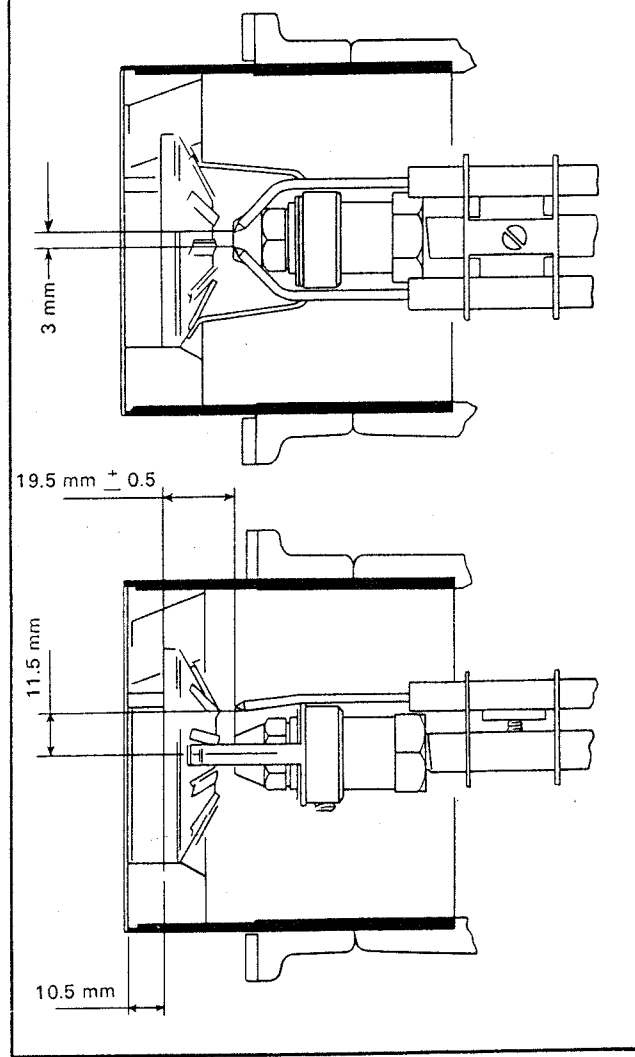
Fuel Storage Tank

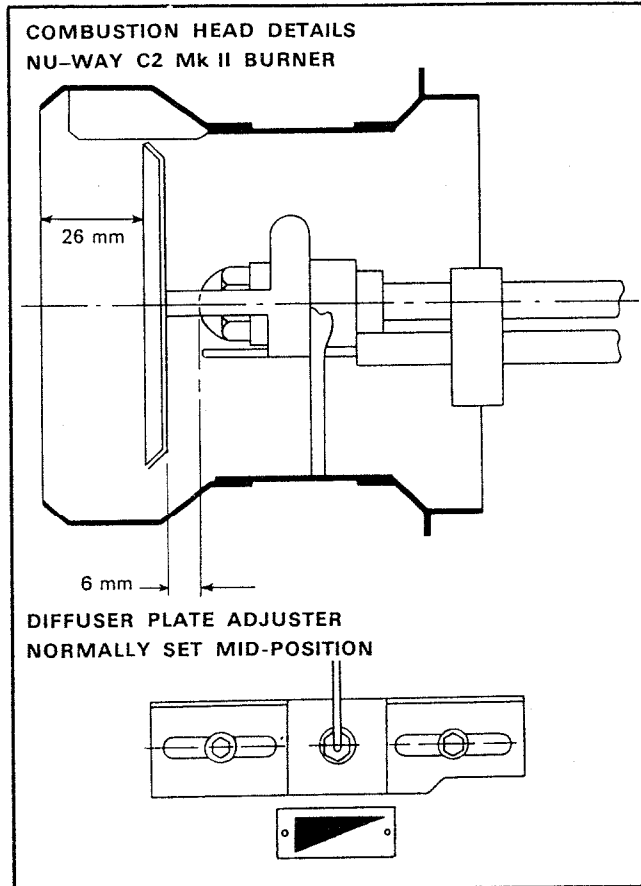
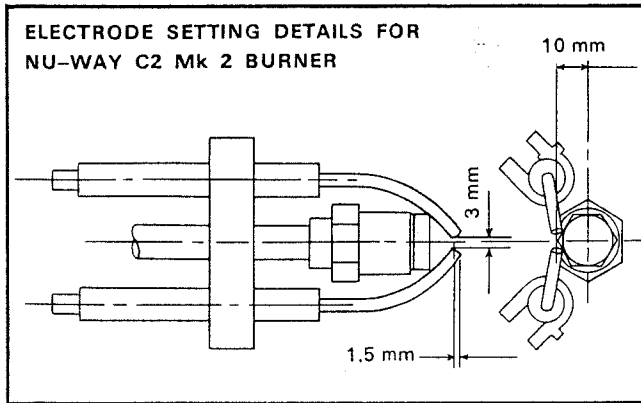
C'city C'city Dimensions

Galls	Litres	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

Combustion Head and Electrode Settings

COMBUSTION HEAD SETTING DETAILS (WHIRLETTE)





Additional Controls

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

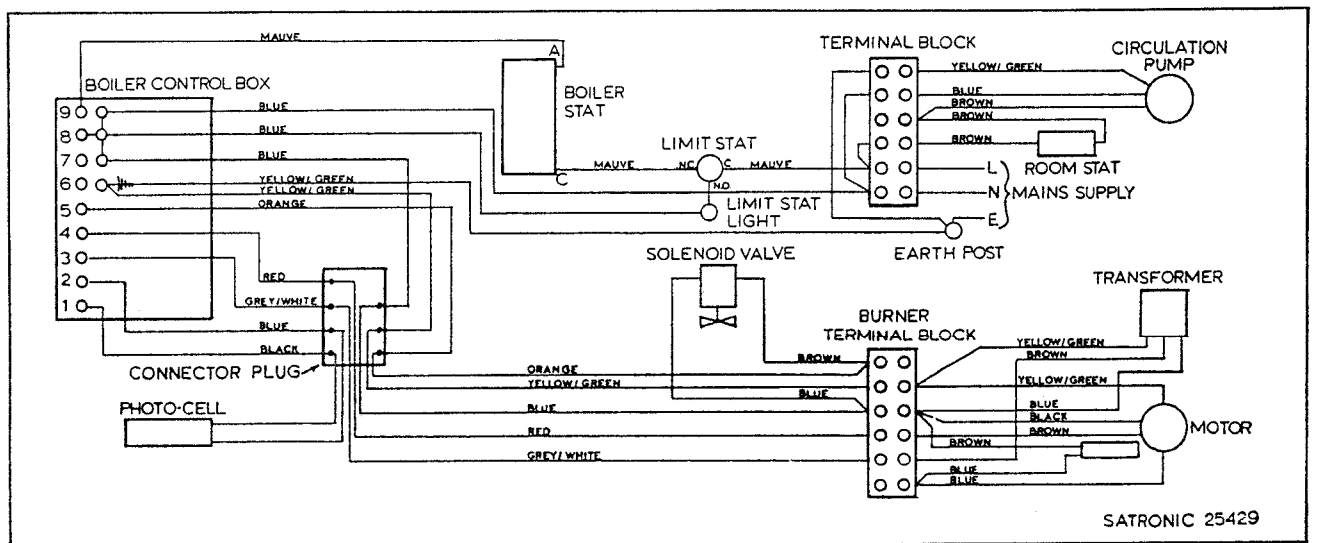
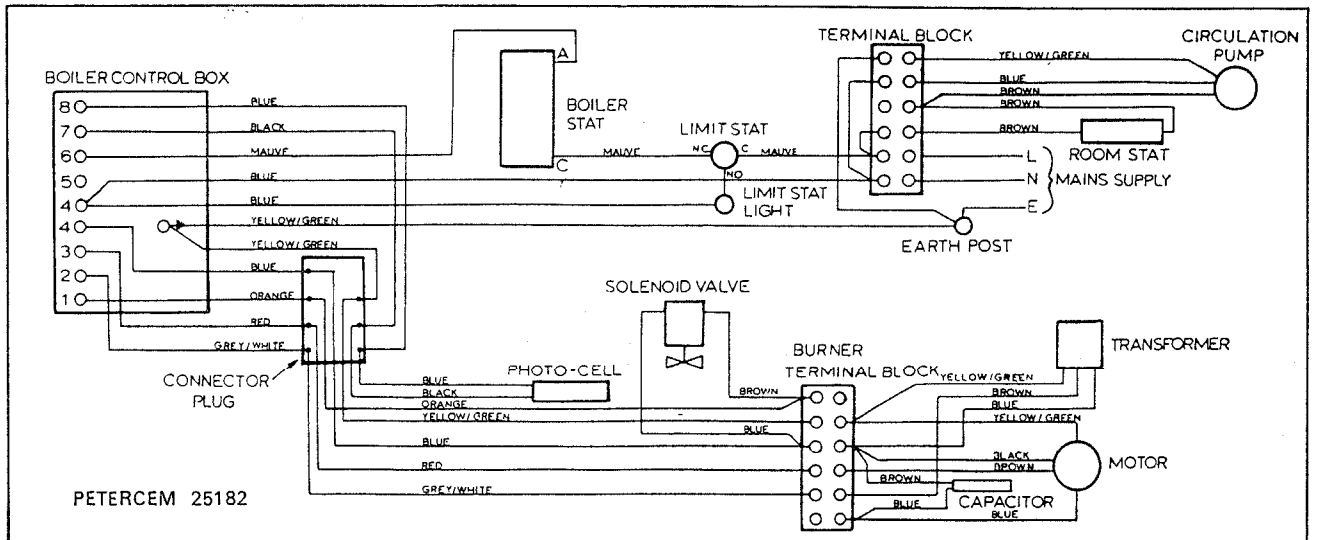
GENERAL SPECIFICATION

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

Boiler Model	37/45	50/73
Flue Offtake	152 mm (6" dia.)	203 mm (8" dia.)
Rated Output	45 kW	73 kW.
Btu/h	153,500	250,000.
Fuel Flow Rate		
Litre/h	5.68	9.46
Imp. Gal/h	1.25	2.08
US Gal/h	1.50	2.50
*Nozzle	Monarch	Monarch
(Spraytype)	45° A or AR.	60° AR.
	Delavan	
	45° W	
U.S. Gal./h	1.50	2.00
Pump Pressure	759 kN/m ² .	1035 kN/m ² .
	110 p.s.i.	150 p.s.i.
Flue Gas		
Temp.	340 °C	395 °C.
CO ₂	10%	11.5%.
Smoke	0-2	0-2.
Burner	Landonkingsway Whirlette.	Nu-way C2 Mk II.
Motor	1/10 HP capacitor start. 2,700 r.p.m.	1/5 HP capacitor start. 2,700 r.p.m.
General dimensions	Overall Height: 1200 mm (47 $\frac{1}{4}$ " Depth, back to front: 636 mm (25" Width: 610 mm (24" Weight: Empty-229 kg. (4.5 cwt.) Full -274 kg. (5.4 cwt.)	
Heat Exchanger	Vertically arranged concentric cylinders.	
Water Connections	4 x 2" B.S.P. female flow and return at 45° angles.	
Water Capacity	54 litres (12 gallons).	
Power Loading	Running 1 amp. Ignition 4 amp total.	
Power Supply	240 volts A.C. only, 50 hz.	
Fuel Supply		
Fuel Pump	Self Purging Gear type.	
Supply Head	3.660 m (12' 0") max. gravity. Max. suction lift with 2 pipe supply. 3.048 m (10' 0").	
Oil Connection	$\frac{1}{4}$ " B.S.P. female.	
Ignition	10,000 volt H.T. spark by transformer.	
Safety Control	Photo resistor type complying with requirements of B.S.799.	
Boiler Control		
Boiler Thermostat	Single pole ON/OFF type with changeover micro switch.	
Limit Thermostat	Single pole changeover switch and warning lamp.	
Control Box	Satronic TF 701 B.	
Photo Cell	Satronic FZ 711 R. or Trianco Redfyre approved alternative.	

*Our conditions of guarantee will only apply when the Centrajet is fitted with the recommended nozzle.

WIRING DIAGRAMS



Trianco Redfyre policy is one of continuous research and development. This may necessitate alterations to this specification.



Trianco Redfyre Limited

Thorncliffe, Chapeltown,
Sheffield, S30 4PZ.

Tel: Ecclesfield (07415) 61221

Stewart House, Brook Way, Kingston Road,
Leatherhead, Surrey. KT22 7LY.

Tel: Leatherhead (03723) 76453.