

INSTALLATION AND SERVICE MANUAL

PARMET P300/500/900

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Appendix A- Wiring Diagrams

Appendix B Burner Data

THIS APPLIANCE MUST BE INSTALLED IN ACCORDANCE WITH THE
MANUFACTURERS INSTRUCTIONS AND THE REGULATIONS IN FORCE AND
ONLY USED IN A SUITABLY VENTILATED LOCATION. READ THE INSTRUCTIONS
FULLY BEFORE INSTALLING OR USING THIS APPLIANCE AND INSTALLED BY AN
APPROVED ENGINEER

1. Introduction

The Parmet Range of Oil Fired Warm Air Heaters covers applications with outputs from 300,000 to 800,000 Btu/h.

The standard unit is the free-standing unit incorporating swivel type distribution heads. These units are available with inlet and outlets spigots suitable for connection to ductwork.

2. Location

The installation of a warm air heating system must conform with any fire regulations or insurance requirements especially where special risks are involved i.e. where there is paint spraying, etc. Attention must be paid where polyurethane based products are used in the premises as these can cause corrosion to the heat exchanger.

Installation of free blowing PARMET air heaters:-

Position the air heater taking into regard the position of the exhaust flue and avoid the heater being obstructed by pillars or shelving which could prevent the warm air from circulating.

When more than one air heater is installed in the same room it is good practice to distribute the air in opposing directions. If air is to be ducted from the appliance all ducting should be made from non-combustible material.

Where interjoist spaces are used as duct routes they should be suitably insulated to prevent excessive heat transferring to the

woodwork. A full unobstructed return air path should be provided to enable the air to return to the heater.

3. Positioning the Unit.

Free standing air heaters must be positioned on a level base that is capable of supporting the full weight of the unit.

Ensure that sufficient clearance is allowed for, and maintained, around the heater to facilitate easy access to the burner, main fan assembly and heat exchanger for servicing purposes and to allow unrestricted passage of the return air unless the system is ducted.

WARNING:-

Clearance should be allowed for the pressure relief to operate.

4. Combustion and Ventilation Requirements.

Combustion Air

It is important to ensure that there is sufficient air for combustion, especially when a heater is positioned in an enclosed area i.e. plant room.

The air supply requirements shown relate to the total rated input of the heater(s). Size of air vent given is for air direct from outside and relates to the free area of the grill.

(a) Heaters installed in the space being heated.

Up to 60 Kw	810cm ²	P 300	410CM ₂
(Up to 204, 720Btu/h	(126 ₂)		
Above 60 Kw	810cm ² + 6.45cm ² /kW	P 400	550 CM ₂
	in excess of 60 Kw.		
(Above 294, 720 Btu/h)	(126in ² + 1in ² /Kw	P 500	720 CM ₂
	in excess of 60 Kw)		
		P 900	1100CM ₂

(b) Heaters installed in a plant room.

Position of Air Vent

		<u>HIGH</u>	<u>LOW</u>
Low level 540cm ² +4.5cm ² /kW	P300	820CM ₂	1640CM ₂
in excess of 60 kW			
(83.7in ² + 0.7in ² /kW in excess of 60 kW)	P400	1100CM ₂	2200CM ₂
High Level 270cm ² + 2.25cm ² /kW	P500	1500CM ₂	3000CM ₂
in excess of 60 kW			
(41.85in ² + 0.35in ² /kW in excess of 60kW)	P900	2200CM ₂	4400CM ₂

Also the louvres to the fan compartment must not be restricted in any way. If the unit is fitted in an area of very high extract rate it is necessary to duct the combustion air to the burner via an air intake spigot fitted to the burner.

should be sealed to prevent rain and moisture from entering the systems. A recommended flue installation is shown in Figure 1 below

Figure 1

The discharge heads can be turned to change direction to the warm air stream. Also the angle of the louvre on the heads can be adjusted.

5. Flues

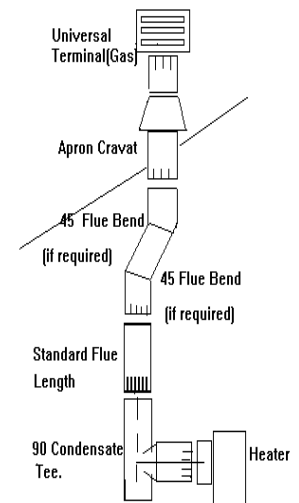
Flues: Should be installed in accordance with BS5440:Part 1 or BS 5854 as applicable.

Stainless steel flue pipe is recommended. The size for each heater is given in the table below. The flue should preferably be fitted with a condensate tee. Right angle bends should be avoided where possible. The joints

**Model
Size (Nominal Bore)**

P-300	230mm (9 in)
P-400	230mm (9 in)
P-500	230mm (9 in)
P-750	255mm (10 in)
P-900	255mm (10 in)

Flue



Wherever possible horizontal runs should be avoided, but where this is unavoidable every one foot of horizontal flue must be followed by three feet of vertical.

The draft should not exceed
4mmWG (Positive)

Before the unit is operated a check must be made to ensure that the flue has no obstruction and terminates in such a position that down draught is avoided. An 8mm(5/16in) diameter hole should be made in the flue pipe approximately 1m (3 feet) from the unit to see that the flue is pulling and to make a check on combustion. This check should be made after the unit has been running for approximately 15 minutes.

6 Oil Pipe

. The pipe to the heater should be adequately supported along its length, and also contain as near to the heater as practical a oil shut off valve to enable the burner to be removed for servicing. The units should be fitted with a fire prevention oil shut off valve complete with a fusible link sited over the burner and a oil filter.

7. Electrical

The electrical supply position is located on the front of the heater.

A CONTINUOUS ELECTRICAL SUPPLY TO THE UNIT IS REQUIRED

The P 300 model requires an operating voltage of 220/240v single phase. The rest of the range 400 to 800 require 380/440v three phase and neutral ,the burner utilising one phase and neutral. Circuit diagrams are attached to the inside of the lower front panel.

On three phase units check the direction of rotation of the main fan is correct. A Honeywell CM51 controller time clock room thermostat and frost thermostat is supplied with each unit.

Positioning of the Controller is important and care must be taken to avoid cold and draughty areas and sites likely to be subjected to local heat gain e.g.in front of windows allowing the sun to act directly on the thermostat.

Note: The main electric supply should be protected by a fused isolating switch rated at:-

P-300	13 Amps
P-400	10 Amps 3 Ph.
P-500	10 Amps.3 Ph
P-750	20 Amps 3 Ph
P900	20 Amps 3 Ph

The wiring to the appliance should be to I.E.E. Regulations. An earth wire is connected to the main terminal block in the heater, as indicated in the wiring diagrams.

8. Commissioning Instructions

Ensure that the oil and electricity supplies to the appliance are turned off. Set the thermostat to a minimum position.

Switch on the main electrical supply. Select the 'manual' setting on the fan/limit stat, which will then start the fan. Now switch to automatic. If the fan should fail to start, try to establish the cause (e.g. the blowing of a fuse or a fault in the wiring). Disconnect the main electrical supply.

Refer to the Burner Supplement supplied with the heater and complete oil soundness test on the burner controls assembly.

Complete the specified tests in the Commissioning and Testing section of the Burner Supplement. The following is a description of the sequence of events that will occur each time the external control circuit is completed.

With all the controls on and the thermostat calling for heat, the burner starts up going through a pre-purge period before ignition takes place. Start oil is released and ignited. The flame is sensed by a light sensitive photo electric cell which allows the control box to open the main oil valve thus establishing main flame.

On loss of flame or breakdown of the rectification systems the control box will go to lockout, and the reset button located on the control box will light up. Press the lockout button in order to reset the control box.

The burner motor drives a fan which provides air for combustion.. This in turn powers the oil pressure pump which atomises the oil through an oil delivery nozzle, which determines the oil spray angle, pattern and volume.

Fitted to the burner is the oil electrically operated valves.

9. Maintenance Instructions

A maintenance check should be carried out annually. The check should be for safe and reliable operation of the burner and flue system, and any wear likely to take place on switches or moving components.

Before commencing maintenance, isolate the unit from electricity supply.

Check and clean the main fan and vent and housing. Check there is no impingement of the housing.

Examine main fan bearing for wear..

Examine electrical connections for tightness, any sign of cracked or weak insulation, and all contacts for oxidation.

Remove any dust or fluff from the heat exchanger and air outlet heads. Remove the access panel on the front of the heat exchanger and remove baffle plates and clear the flue way and flue systems. Replace the fibreglass tape on location studs, and ensure a good joint.

10. Users Instructions.

START UP AND OPERATING SEQUENCE

1. Turn room thermostat to minimum, time clock to **OFF** if fitted.
2. Check both oil and electricity supply is live.
3. Turn room thermostat to required position.
4. Switch clock to manual and the sequential control fitted to the burner should operate.
5. The sequence of events is:-
 - (1) Burner fans start.
 - (2) Ignition on with start oil.
 - (3) Flame established and sensed, ignition off.

(4) Main flame established.

6. If burner goes to lockout, press reset button on control box.

7. If burner repeatedly goes to lockout call service engineer.

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