



The OUH Range

Users, Installation and Servicing Instructions

TESTED	
STAGE 1	Full mechanical, construction, assembly and electrical sequence check <input type="checkbox"/>
STAGE 2	Full functional test in accordance with Quality System Procedures <input type="checkbox"/>
Heater Model _____	Final <input type="checkbox"/>
Heater Serial No. _____	
Type of Oil _____	

WARNING: THIS APPLIANCE MUST BE EARTHED



powrmatic

Certificate of Guarantee



Dear Customer

This is to certify that this appliance is guaranteed for two years including parts and labour from the date of original commissioning.

The heat exchanger, where fitted, is guaranteed (parts only) for a further eight years, chargeable on a sliding scale basis, price relative to age.

To make a claim

In the first instance you must contact your appliance supplier, or installer and provide:-

1. The appliance type and serial number.
2. The original commissioning documentation.
3. As much detail as possible on the fault.

Your supplier, or installer will then contact Powrmatic to make a guarantee claim on your behalf.

Conditions of Guarantee

1. The appliance must have been installed by a competent recognised installer, and in accordance with the manufacturers instructions, building regulations and local regulations.
2. The appliance has been professionally commissioned.
3. The appliance has been maintained on a yearly basis by a competent servicing company.
4. The appliance has been used in accordance with the manufacturers instructions.
5. The correct specification fuel has been used
6. No unauthorised repairs or modifications have been made.
7. Powrmatic 'General Conditions of Sale' have been observed.
8. Except for the obligation of Powrmatic Ltd to perform warranty repairs during the guarantee period, Powrmatic will not be liable in respect of any claim for direct or indirect consequential losses, including loss of profits or increased costs arising from loss of use of the appliance, or any event arising there from.

Exclusions

1. Gaskets and fan belts are not included in the guarantee

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**Important: This certificate must
be kept with the appliance**

Users Instructions

1. Checks before lighting the Air Heater

The following preliminary checks should be made before lighting the heater(s)

- Ensure that the ELECTRICAL supply to the heater is switched OFF.
- Check that all warm air delivery outlets are open.
- Check that the thermostat is set at MAX.
- Check that the clock control is set to an ON period.
- Check that any other controls are calling for heat.
- Ensure that the Summer/Winter switch is in the Winter position.
- Check that the overheat reset button has not operated.

2. Lighting the Air Heater

NOTE: If it is not possible to light the heater after 2/3 attempts contact the local service company.

1. Switch on the electrical supply at the isolator and the burner start-up sequence will commence. The burner air fan will run and after a pre purge period of approximately 30 seconds the ignition spark will be generated and the oil valve opened. The main burner will then start.

NOTE: If the burner fails to light it will go to lockout and the lockout indicator / reset button on the burner control box will be illuminated. To restart the burner push the lockout reset button.

3. To Shut Down the Air Heater

- For Short Periods:
Turn the room thermostat to the OFF or lowest setting.
- For Long Periods:
Turn the room thermostat to the OFF or lowest setting. Wait approximately 4-5 minutes for the main air fan of the heater to stop running and the turn off the oil supplies and electric supplies to the heater.

4. Description of Operation

Important: All heaters must be controlled by the fitted external controls and not by use of the main switch in the electrical supply to the heater.

The burner start up sequence will commence when the controls e.g. Timeclock, room thermostat etc. call for heat. The burner air fan will run and after a pre purge period the burner will light. Approximately 2/3 minutes after the burner lights the heater fan will automatically start. When the external controls are satisfied the burner will be turned off and approximately 4/5 minutes later the heater fan will automatically stop.

4.1 Summer / Winter Modes

Certain types of external controls will provide for two modes of operation i.e.

Summer: The heater fan alone will run at the dictate of the external controls to provide air movement.

Winter: The heater will operate normally.

5. Fan and Limit Control

The fan and limit controls are mounted on the top of the air heater.

i) Main Air Fan MAN / Auto

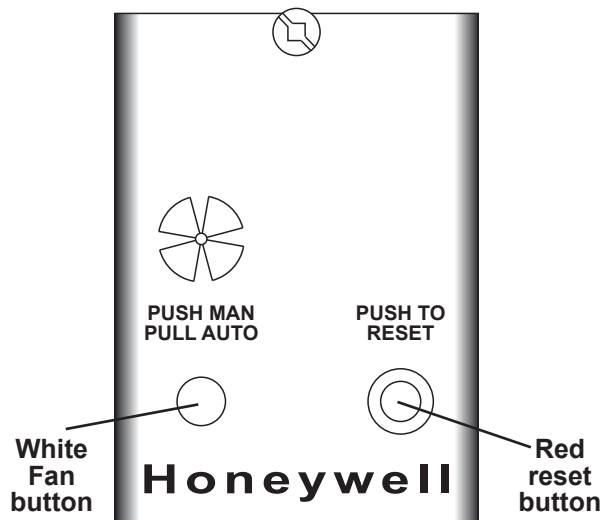
When the white button (Refer to Figure following) is pushed in the fan will run continuously i.e not controlled by any external controls e.g. Timeclock. When the white button is pulled out

the fan will start and stop automatically in conjunction with the burner. See Section 4.

ii) Limit Thermostat Reset

In the event of a fault that causes the temperature of the air leaving the air heater to rise significantly e.g. Blocked air inlets, the limit thermostat will operate to shut down the burner. Remove the cause of the fault, wait 10 minutes and then reset the thermostat by pushing the red reset button (Refer to Figure below) .If the limit thermostat continues to operate turn off the air heater and call a service engineer.

Limit Thermostat



6. Maintenance

Regular servicing is essential to maintain efficient, reliable and safe operation of the heater. Users are strongly recommended to have the heater serviced by a qualified person at least annually and preferably at the end of the heating season.

7. IMPORTANT

Free access must be maintained to and around the heater for servicing purposes and the air supply to the heater must not be restricted in any way. Combustible materials must not be stored adjacent to the heater.

All Powrmatic OUH heaters use oil and electricity to power them, they may also contain moving parts such as pulley belts. It would be hazardous to tamper with or attempt to service unless you are a competent person in the field of Oil and Electrical work.

If you have any safety questions reference the servicing and installation of any of our heaters please do not hesitate to contact our head office for expert advice.

Your safety is paramount to us.

Installation & Servicing Instructions

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1. INTRODUCTION

The Powmatic OUH Range is a range of oil fired forced draught, closed flue, fanned circulation air heaters having an output range of 20kW to 60kW .

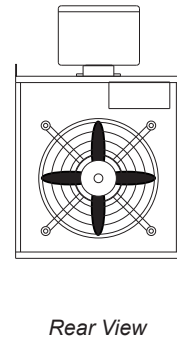
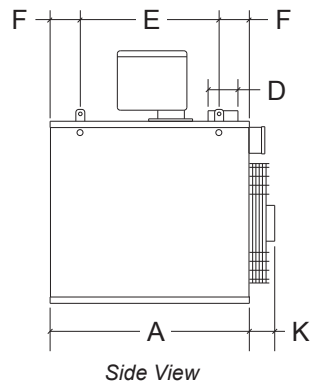
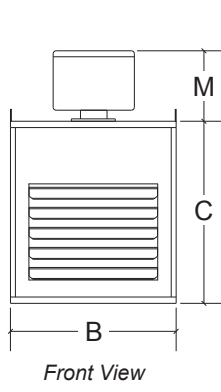
The heaters are designed for suspension from suitable roof points, or alternatively mounted on purpose designed wall brackets, and are intended for heating commercial or industrial premises.

The OUH-F has an axial type fan assembly fitted at the rear of each heater to circulate the air being heated across the combined combustion chamber/ heat exchanger. A centrifugal fan variation is presented in the OUH-C range for ducted applications. The OUH-D range, in having no fan fitted, allows for ducted use where the air moving unit is remote from the heater.

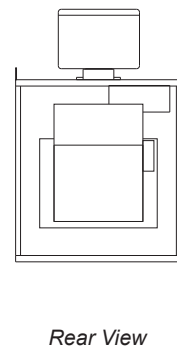
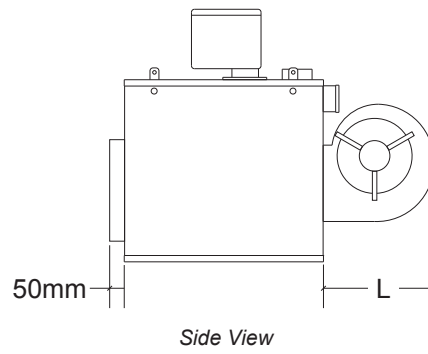
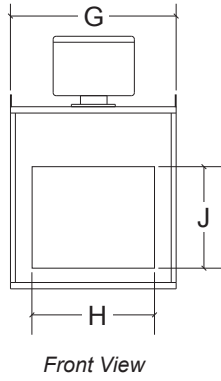
All units are fired with a forced draught packaged oil burner complete with all necessary safety controls. Each air heater must be connected to an individual closed flue system only.

2. TECHNICAL DATA

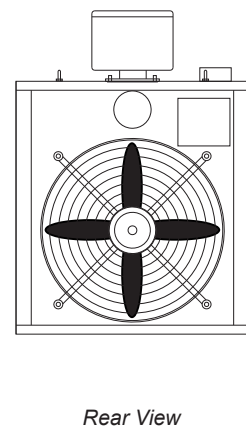
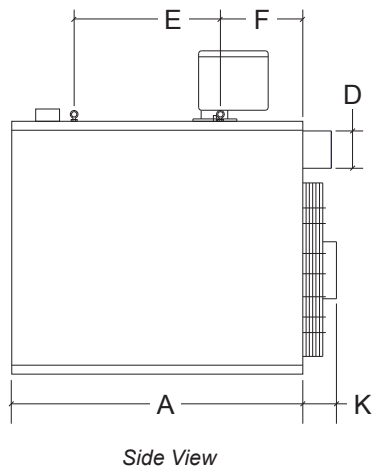
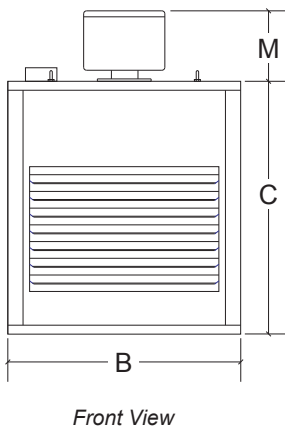
OUH20/F



OUH20/C



OUH30, 45 & 60/F



OUH30, 45 & 60/C

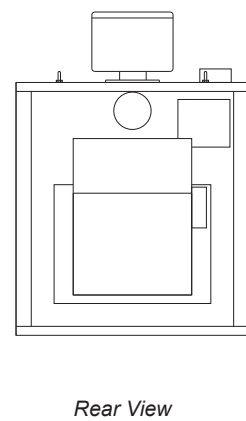
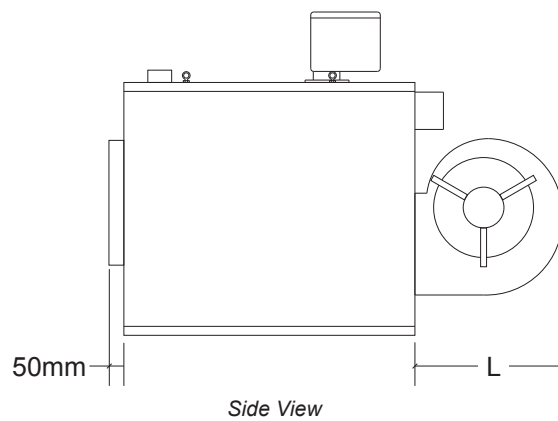
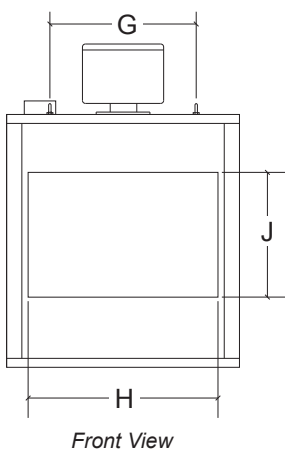


Table 1. Dimensions

Model	Type	A	B	C	D	E	F	G	H	J	K	L	M
OUH 20	F	668	555	610	100	465	101	549	N/A	N/A	85	N/A	270
	C								410	340	N/A	370	
OUH 30, 45 & 60	F	975	780	847	125	490	276	490	N/A	N/A	165	N/A	270
	C								636	418	N/A	494	

Note: D is the nominal flue diameter.

Table 2 - Specifications

MODEL		HIGH FIRE		FUEL INPUT	AIR VOLUME	THROW	MAXIMUM DUCT RESISTANCE	FAN MOTOR	NOISE LEVEL	WEIGHT
		INPUT (Net)	OUTPUT							
		kW								
OUH20	F	21.92	20.0	1.85	0.2601	8.5	N/A	0.040	46	53
	C					N/A	140	0.250	N/A	91.5
OUH 30	F	32.15	30.0	2.71	0.3902	16.1	N/A	0.120	54	126
	C					N/A	187	0.750	N/A	142
OUH 45	F	49.40	45.0	4.16	0.5203	25.3	N/A	0.412	52	126
	C					N/A	100	0.750	N/A	142
OUH 60	F	65.57	60.0	5.53	0.6503	34.1	N/A	0.412	53	126
	C					N/A	50	0.750	N/A	142

**Table 3
Electrical Loadings 1ph**

MODEL	/F Models					/C Models				
	NOMINAL MOTOR R.P.M.	PLATE AMPS (A)	START AMPS (A)	RUN AMPS (A)	FUSE RATING (A)	PLATE AMPS (A)	START AMPS (A)	RUN AMPS (A)	FUSE RATING (A)	
OUH 20	900	0.18	0.34	0.16	2	920	2.8	4.2	2.10	3
OUH 30		0.54	1.40	0.90			4.0	15.0	7.0	
OUH 45	1400	0.31	4.50	1.00	2	920	4.0	15.0	7.0	5
OUH 60		0.89	4.50	1.00			4.0	15.0	7.0	

Table 4 Burner Settings - 35sec Oil - Net CV (H_i) = 42.69MJ/kg

Model	Riello Burners									
	Type	Nozzle				Pump Pressure bar	Head Setting		Combustion Air Setting	Nominal CO ₂ %
		Make	Size US Gal	Angle °	Type		No.	Postion		
OUH 20	3GB	Danfoss	0.50	60	S	9.5	N/A	Fixed	2.0	12.5
OUH 30	G10	Danfoss	0.60	45	S	14.3	1.0	N/A	1.5	12.8
OUH 45	G10	Danfoss	1.00	45	S	12.2	3.0	N/A	2.0	12.0
OUH 60	G10	Danfoss	1.25	45	S	15.6	3.0	N/A	5.0	12.0

3. General Requirements

3.1 Related Documents

Installation of air heaters must be in accordance with the relevant requirements of:
BS 5410: Part 2: 1978 Code of Practice for Oil Firing Installations of 45kW and Above
The Building Regulations
The I.E.E. Regulations
It should also be in accordance with relevant requirements of the local authority and fire authority, in addition the following British Standard Codes of Practice must be observed
CP.3 Ch IV Precautions Against Fire Part 2 Shops and Departmental Stores Part 3 Office Buildings, and the relevant publications of OFTEC.

3.2 Location

The location chosen for the air heater must permit the provision of a satisfactory flue system and an adequate air supply. The location must also facilitate ease of servicing and satisfactory air circulation around the heater.

The air heater must be installed strictly in accordance with any fire regulations or insurance company's requirements appertaining to the area in which the heater is located, particularly where special risks are involved such as areas where petrol vehicles are housed, cellulose spraying areas, and wood working departments etc.

The air heater must be installed either:

- (a) suspended by chains or straps of adequate strength to safely carry the weight of the unit and ancillary equipment or
- (b) On specifically designed cantilever brackets from a non-combustible wall or
- (c) On a level non-combustible surface which is capable of adequately supporting the weight of the air heater and any ancillary equipment.

The heater must not be installed in conditions for which it is not specifically designed e.g. highly corrosive atmospheres, vitiated atmospheres, or where adverse wind conditions may be experienced. Where the location of the heater is such that it might suffer external mechanical damage e.g. from overhead cranes, fork lift trucks etc. it must be suitably protected.

Any ducting should be kept as short and direct as possible having regard to the distribution of the heated air.

Any combustible material adjacent to the heater and flue systems must be so placed as to ensure that its temperature does not exceed 65°C (150°F).

3.3 Oil Supply

3.3.1 Main Storage Tank and fittings

Construction and installation should be in accordance with:

- (a) BS 5410 Part 2 Section 6
- (b) BS 799 Part 5
- (c) BS 1563 and BS1564

The latter three standards apply to cast iron sectional, mild steel sectional, and mild steel welded tanks respectively and therefore must be applied appropriately.

3.3.2 Service Tanks and fittings

3.3.2.1 Construction

These should be designed and constructed in accordance with BS 799 Part 5

3.3.2.2 Installation

The installation should be in accordance with:- BS 5410 Part 2. In addition the service tank installation must comply with local regulations and by-laws and with the requirements of insurance companies

3.3.3 One Pipe System (Storage to burner)

3.3.3.1 General

Refer also to the detail provided in the burner handbook regarding

pipe sizing. These must be generally in accordance with B S 799 Part 3 and BS 5410 Part 2.

Particular attention is drawn to the following:

- a) Pipe jointing compounds must be capable of withstanding the solvent action of the fuel oil under all operating temperatures and pressures. Jointing compounds containing oil shall not be used. Hemp and other fibrous materials shall not be used as packing for screwed joints.
- b) Soft solder copper tube fittings and galvanised pipes and fittings must not be used.
- e) Oil lines must be completely air-tight.
- d) The pump suction must not exceed a maximum of 0.4 bar (30cm Hg). Beyond this limit gas may be released from the oil.

3.3.3.2 Single Pipe System - Gravity Feed

Warning: The burners are supplied adjusted for a single pipe system. If the burner is to be used on a twin pipe system the Internal bypass plug of the burner oil pump must be fitted. Refer to the burner instruction booklet.

Ideally the return pipe should terminate within the oil tank at the same level as the suction line, both being below the minimum oil level.

3.3.4 Fire Valve

It is recommended that the fire valves should be installed as follows:

1. Main storage to service tank supply (if applicable)
2. Main storage to burner supply
3. Service tank to burner supply (if applicable)

Fire valves should be installed generally in accordance with the requirements of BS 799: Part 5. The fire valve should be situated in an easily accessible position as near the tank as possible and where practicable within the boundary of the tank chamber or catchpit retaining wall.

3.4 Flue System

The flue system should generally be in accordance with BS 5410 Part 2.

Materials used for the flue system should be mechanically robust, resistant to internal and external corrosion, noncombustible and durable under the conditions to which they are likely to be subjected. Prevention of condensation within the flue should be an important factor in the design of the flue system. In order to minimise condensation the use of doublewalled flue pipe or insulation is recommended.

Where condensation in the flue is unavoidable, or rain ingress is possible, provision must be made for a condensate drain connected to a suitable drain or gully. The condensation pipe from the flue to the disposal point should be of non-corrodible material of not less than 22mm (¾ in) size.

Facilities should be provided for disconnecting the flue pipe from the air heater for inspection and servicing purposes. Bends with removable covers should be fitted for inspection and cleaning purposes where considered appropriate.

The flue should terminate in a freely exposed position and must be situated such that products of combustion do not enter any opening in a building in such concentration as to constitute a health hazard.

3.5 Air Supply

Where the air heater is to be installed in the space to be heated it requires the space containing it to have a permanent air vent direct to outside air. The air vent should have negligible resistance and must not be sited in any position where it is likely to be easily blocked or flooded, neither should it be positioned adjacent to an extraction system carrying flammable vapour. The air supply requirement that follows is related to the maximum rated heat input of the heater, or heaters if more than one is installed in the same space.

Total Input Rating of Air Heaters	Air Vent Area (Air direct-from outside)
Up to 60kW	4.5 cm ² /kW in excess of 7kW
From 60kW up to 730kW	4.5 cm ² /kW

Where the air heater is to be installed in a plant room, the heater requires the plant room housing it to have permanent air vents communicating directly with the outside air, at high and low level. Where communication with the outside air is possible only by means of high level air vents, ducting down to floor level for the lower vents should be used. Air vents should have negligible resistance and must not be sited in any position where they are likely to be easily blocked or flooded, neither should they be positioned adjacent to any extraction system carrying flammable vapour.

Grilles or louvres should be so designed that high velocity air streams do not occur within the plant room.

The air supply requirements stated below are related to the maximum rated heat input of the air heater(s). The minimum free area requirements of the air vents is given below.

Total Input Rating of Air Heater(s)	Position of Vents	Air Vent Areas (Air direct from outside)
Up to 730kW	High Level	4.5cm ² /kW
	Low Level	9.0 cm ² /kW

3.6 Air Distribution System

Where single OUH units are required to cover a large floor area, and in buildings with high roof or ceiling heights Calecon thermal economiser units should be fitted to ensure even heat distribution and minimise stratification.

Care should be taken to avoid impeding the air throw with racking, partitions, plant or machinery etc. Various outlet configurations are available as optional extras to modify the air throw pattern to suit particular site conditions.

For ducted units all delivery and return air ducts, including air filters, jointing and any insulation or lining must be constructed entirely of materials which will not contribute to a fire, are of adequate strength and dimensionally stable for the maximum internal and external temperatures to which they are to be exposed during commissioning and normal operation.

Where inter-joint spaces are used as duct routes they should be suitably lined with a fire-resisting material.

A full and unobstructed return air path to the air heater(s) must be provided.

If the air heater(s) is installed in a plant room the return air intake(s) and the warm air outlet(s) from the heater(s) must be fully ducted, into and out of the plant room to avoid interference with the operation of the heater.

The openings in the structure of the plant room through which the ducting passes must be fire stopped.

Care must be taken to ensure that return-air intakes are kept clear of sources of smells and fumes, and where there is any possibility of pollution of the air by dust, shavings etc., precautions must be taken to prevent contamination.

If necessary suitable barrier rails should be provided to prevent any combustible material being placed within 900mm of the outlets.

3.7 Electrical Supply

Wiring external to the air heater must be installed in accordance with the I.E.E. Regulations for Electrical Installations and any local regulations which apply.

All standard heaters are supplied by 230V - 1ph, 50Hz. The method of connection to the main electricity supply must:-

- facilitate the complete electrical isolation of the unit(s)
- be in a readily accessible position adjacent to the unit(s)
- serve only the unit(s)
- have a contact separation of at least 3mm in all poles. See the accompanying wiring diagram for the heater electrical connections

OUH units can also be supplied for 400V 3N, 50Hz.

4. Installation of Air Heater(s)

4.1 General

The air heater will be delivered to site pallet mounted and protected by plastic sheeting.

Whichever method of mounting the air heater is used the following minimum clearances for installation and servicing must be observed:

Right-hand side (looking at front of heater)	0.5m
Left-hand side (looking at front of heater)	0.5m
Top of burner to ceiling	1.0m
Rear of heater to nearest wall	0.4m

In order to achieve the desired performance levels it is recommended that the installation height (floor level to base of unit) is between 2.5m and 5.0m.

If the heater is to be base mounted it may be stood directly on the platform, provided it is of a suitable noncombustible material and does not extend past the front edge of the heater.

For multi-heater installations the following minimum distances between units must be observed.

Between units, side to side	3.0m
Between units, back to back	3.0m

4.2 Fitting the Air Heater

The air heater may be installed either:

- Suspended by steel chains, rods or straps.
- On specifically designed cantilever brackets from a non-combustible wall.
- On a level non-combustible surface providing the platform does not extend past the front edge of the heater.

Whatever method of installation is used it must be capable of adequately supporting the weight of the unit (See Table 2) and allowance must be made for any ancillary equipment. Before installing the heater any existing trusses, walls brackets etc. must be inspected to ensure they are suitable. All supports should be protected against corrosion.

If noise levels are of particular importance, the heater should be isolated from the structure of the building by installing it on suitable anti-vibration mountings.

In all such cases, and in addition, when the heater is suspended it is essential that all oil, duct, electrical and flue connections to the heater are made with flexible connections to maintain continuity of connection. In the case of the flue connection single wall stainless steel flue is deemed to flex sufficiently to meet the requirements.

4.3 Connection of Air Heater(s) to Flue System

The flue system connects directly into the flue socket on the top (OUH20) or rear (OUH30 - 60) of the heater. The socket is sized to accept standard sheet metal flue that is secured in place using suitable fasteners.

The flue system must be fabricated with sockets facing upwards and sound joints must be achieved by either:

- a close tolerance mechanical fit between sections, or
- the use of a suitable caulking string and cold caulking compound.

4.4 Condensate Drainage

The design of the flue system should minimise the formation of condensation and long external runs should be completed in twin wall insulated flue. Where condensate and/or rain water ingress is envisaged to be a problem a flue drain length or condensate drain tee that drains into a gully must be fitted.

4.3.2. General Requirements

In all cases the flue outlet socket must be connected via an approved flue system to outside air. If an offset is required two sets of 45° bends may be used each set being equivalent to 0.5m of flue length. The minimum flue length (end of flue terminal to top of heater) shall not be less than 2.0m.

All flue ducts must be supported independently of the air heater.

The flue terminal must not be installed so as to be less than:

- 300mm below an opening e.g. window, air brick etc.
- 200mm below eaves or gutter.
- 300mm from an internal or external corner.
- 1200mm from a surface facing the terminal.
- 1500mm vertically from another terminal on the same wall.
- 300mm horizontally from another terminal on the same wall.
- 2000mm from ground level.

4.3.3 Installation of Flue System

4.4 Oil Connection

The oil pipework length and diameter should be in accordance with the information given in the burner instruction booklet.

The pump suction should not exceed 0.4 bar.

The oil line must terminate not more than 450mm from the burner with the final connection by the flexible hoses supplied with the burner.

Because the burner is firing downward it is recommended that an additional oil solenoid valve (available as an optional extra) is fitted adjacent to the burner, and wired as shown in Section 8 (*Page 9*), to eliminate any possibility of syphoning through the burner.

4.5 Electrical Connections

All units are fully prewired and only require final connection of the incoming mains supply and completion of the control circuit (230V) via a room thermostat, time clock etc.

All units must be earthed. The electrical supply must be run to a point adjacent to the heater and be suitably terminated to provide an isolation point that will prevent remote activation of the unit during servicing. See Table 3 (*Page 3*) to ascertain the electrical loading of the unit(s) so that cables of adequate cross-sectional area are used for the electrical installation. The length of the conductors between the cord anchorage and the terminals must be such that the current carrying conductors become taut before the earth conductor if the cable or cord slips out of the cord anchorage. All external controls must be of an approved type.

See the wiring diagram in Section 8 (*Page 9*).

OUH/D models supplied less fan must be electrically interlocked to the air movement system so that this is started in the same manner as the air heater fan would be viz. A connection from the heater terminal marked "Live Main Fan" must be made to one side of the fan motor contactor coil, the other side of the coil being connected to Neutral. The fan motor electrical supply must be direct and not taken from the internal wiring of the OUH heater.

5. Air Distribution System

5.1 General

OUH/C and OUH/D models are designed for use with duct work to more precisely define the point of air delivery, and /or provide ducted return air or ducted fresh air inlet. All ducting must be independently supported of the air heater.

Joints and seams of supply ducts and fittings must be securely fastened and made airtight. If required the ductwork should be insulated to reduce heat loss.

5.2 Noise Reduction

Ducting should be connected to the heater spigots via an airtight flexible coupling of non-combustible material. Before fitting the coupling it must be ensured that a minimum clearance of approximately 15mm will be maintained between the ends of the ducting and the heater spigots.

Sound attenuators may be fitted in inlet and outlet ducts to reduce airborne fan noise. Materials used in outlet sound attenuators must be capable of withstanding 100°C air temperature without any deterioration.

5.3 Room Thermostat Siting

The room thermostat should be fitted at a point which will be generally representative of the heated area as far as temperature is concerned. Draughty areas, areas subjected to direct heat e.g. from the sun, and areas where the air movement is relatively stagnant e.g. in recesses, are all positions to be avoided.

The thermostat should be mounted about 1.5m from the floor.

Any room thermostat, frost thermostat, time clock etc. must be suitable for switching 230V, 5A and must be of the 'snap action' type to minimise contact bounce.

For electrical connections of external controls see the wiring diagram (Page 9).

6. Commissioning & Testing

6.1 Electrical Installation

Checks to ensure electrical safety must be carried out by a qualified person.

6.2 Oil Installation

This should be commissioned generally in accordance with BS 5410 Part 2 Section 59 Paragraphs 59.1.1.1 to 59.1.1.6

6.3 Air Distribution System

The system should be checked to ensure that the installation work has been carried out in accordance with the design requirements.

Particular attention should be given to the correct arrangement of delivery ducts and registers, return air ducts and grills and general adequacy of return air paths.

For OUH/C and OUH/D units ensure that the ductwork is balanced so that the specified motor running currents are achieved.

6.4 Checks before lighting the Air Heater

This should generally be in accordance with BS 541 Part 2 Section 59.2.1.1 to 59.2.1.5 inclusive. In addition check that:

- The ELECTRICAL supply to the heater is switched OFF.
- That all warm air delivery outlets are open.
- That the thermostat is set at MAX.
- That the clock control is set to an ON period.
- That any other controls are calling for heat.

f) If a Powtrol or MC200 is being used that the Winter mode is selected.

6.5 Lighting the Air Heater

Refer also to the burner instruction booklet.

1. Remove the burner cover after releasing the three retaining screws.

2. Fit pressure gauge, complete with vent tee to oil pump.

3. Check oil supply valve is open.

4. Switch on electricity supply and the burner fan should start to run. If it does not, check the red lock out button on the control box. If this is illuminated depress once to re-set.

5. During the pre-purge period bleed the air from the pump and pipework through the bleed plug on the pressure gauge vent tee, until air free oil is obtained.

N.B.: Depending upon the length of pipework it may be necessary to repeat this operation more than once. If this is the case it should be noted that the burner will go to lockout and therefore the lock-out button must be pressed to restart the burner.

6. Once air free oil is flowing from the bleed plug close the gauge vent plug. If necessary restart the ignition sequence.

6.6 Adjustments

6.6.1 Oil Pressure

Leave the appliance to run for 15 minutes and then check that the oil pressure is as specified in Table 5 Section 2. If not adjust the pump pressure accordingly. (See burner instruction booklet.)

6.6.2 Combustion

1. Complete a flue gas analysis. The Carbon Dioxide content should be within $\pm 0.5\%$ of the following values, if not adjust combustion air accordingly, (See burner instruction booklet.) and re-check the flue gas analysis.

OUH 20 12.5%

OUH 30 12.8%

OUH 45 & 60 12.0%

2. Turn the room thermostat to MIN to turn OFF the burner. Remove the pressure gauge, refit the sealing plug into the pump.

3. Refire the burner and ensure that there are no oil leaks. Replace the burner cover.

6.7 Handing over the Air Heater

Hand these instructions to the user or purchaser for retention and instruct in the efficient and safe operation of the air heater and associated controls.

Adjust the automatic controls to those values required by the User.

Finally, advise the user or purchaser that, for continued efficient and safe operation of the air heater, it is important that servicing is carried out annually.

In the event that the premises are not yet occupied turn off the oil and electricity supplies and leave instructional literature on site.

7. Servicing

WARNING: Always switch off and disconnect electricity supply, close the gas service valve or turn off the oil supply before carrying out any servicing work or replacement of failed components. (Refer also to the burner instruction booklet.)

7.1 General

Full maintenance should be undertaken not less than once per year. After any servicing work has been complete or any component replaced the air heater(s) must be fully commissioned and tested for fuel tightness as described in Section 6.

In addition the following should be completed.

a) Check and clean any oil filters

b) Check the correct operation of any fire valves

7.2 Burner Servicing/Maintenance

1. Refer to the burner instruction booklet supplied with the heater and complete the servicing/maintenance instructions therein.

7.3 Main Burner Assembly Removal

1. Ensure that the oil valve is turned OFF and then disconnect the oil supply pipe from the burner.
2. Disconnect the electrical connections to the burner.
3. Remove the nuts securing the burner to the heater.
4. Reassemble in reverse order.

7.4 Heat Exchanger

Whilst the main burner assembly is removed from the unit check that the inside of the heat exchanger is clean. If necessary clean out deposits using a stiff brush and vacuum cleaner.

7.5 Main Fan Assembly

7.5.1 OUH/F Models

1. Inspect the fan blades to see that they are not damaged and that there is no excessive build up of deposits that could give rise to an imbalance. Should it be necessary to remove the assembly for cleaning proceed as follows.
2. Slacken the cable gland on the heater casing through which the fan electrical cable passes.
3. Disconnect the fan leads from the electrical terminals.
4. Withdraw cable through entry grommet.
5. Remove the fan and motor assembly complete by removing the four hexagon headed bolts that secure the fan to the rear panel.
6. Reassemble in reverse order.

7.5.2 Centrifugal Fan

1. Inspect the fan blades to see that they are not damaged and that there is no build up of excessive deposits that could give rise to an imbalance. Should it be necessary to remove the assembly for cleaning proceed as follows.
2. Slacken the cable gland on the casing through which the fan electrical cable passes.
3. Disconnect the fan leads from the electrical terminals in the contactor enclosure.
4. Withdraw cable through entry grommet.
5. Remove the complete fan assembly by removing the fixings securing the fan to the rear panel of the heater.
6. Reassemble in reverse order.

7.6 Replacement of Faulty Components

7.6.1 Fan/Limit Thermostat - Honeywell L4064N

1. Release the single screw securing the fan and limit thermostat cover and remove cover by pulling upwards.
2. Release wiring from clamp terminals by pushing a small screwdriver into the clamp release holes adjacent to the clamps.
3. Remove the 2 screws securing the thermostat to the heater panel and withdraw thermostat.
4. Reassemble new unit in reverse order referring to the heater wiring diagram to ensure correct wiring location.

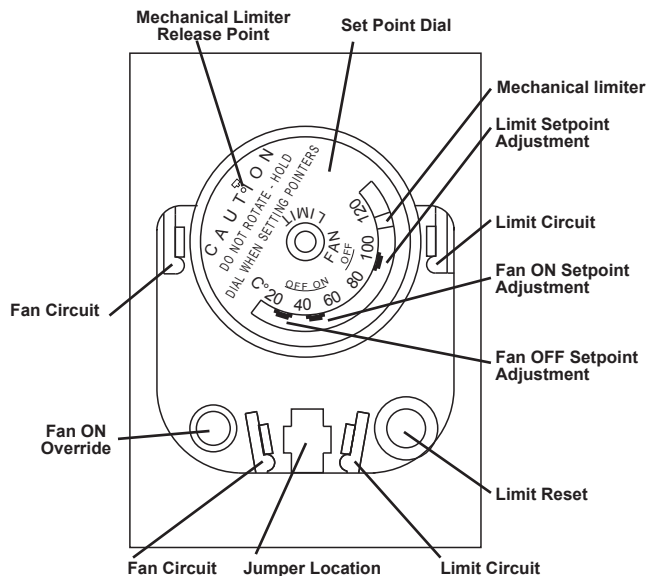
Important: A replacement fan/limit thermostat will have a brass link between the bottom fan terminal and the bottom limit terminal (situated in the slot between the two terminals). This **MUST** be removed, by breaking the link off using a pair of thin

nose pliers, before the replacement thermostat is installed.

5. Ensure that the fan and limit settings are as follows:-

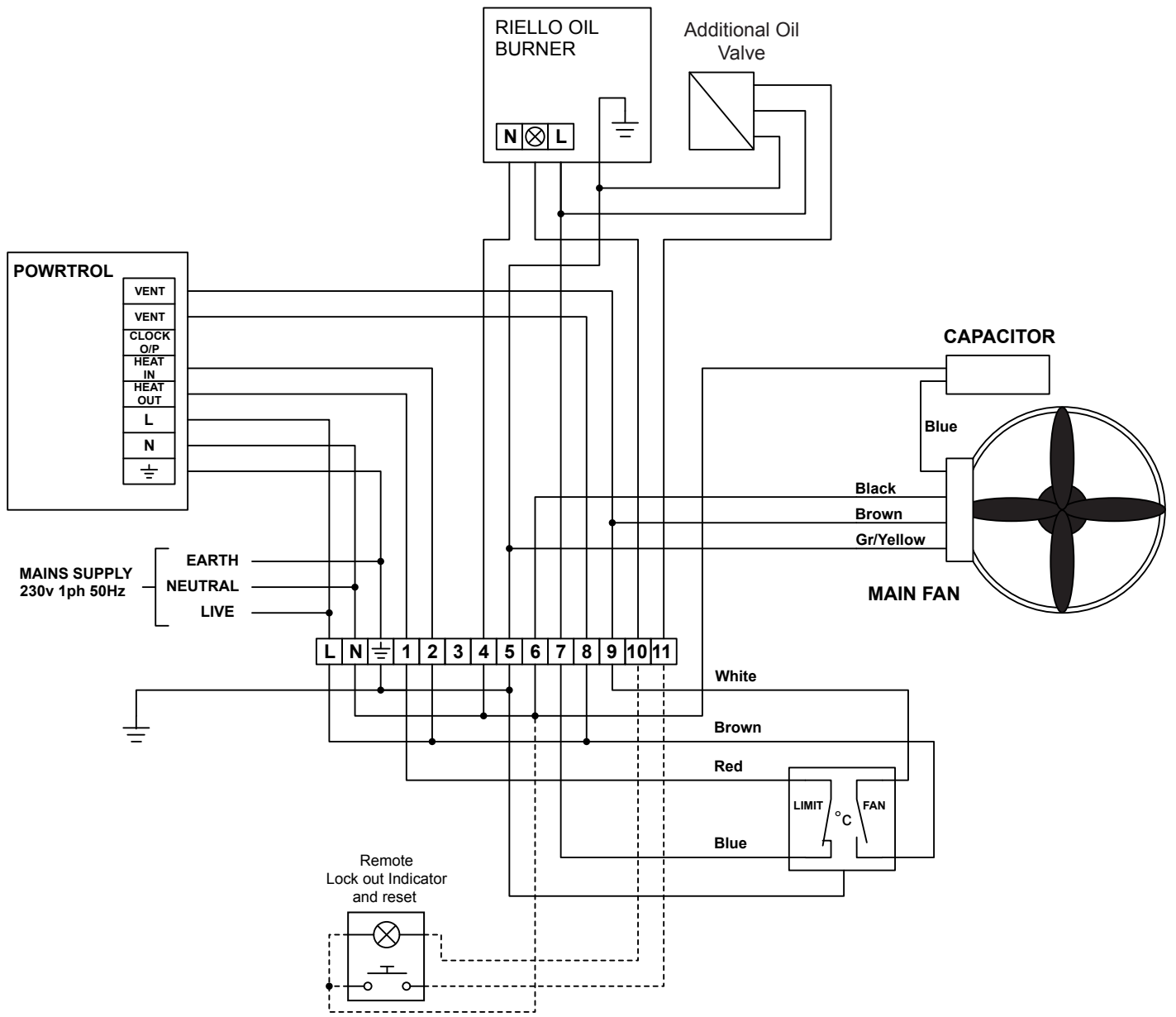
Fan ON -	50°C,	Fan OFF -	30°C
Limit	OUH 20		115°C
	OUH 30 - 60		90°C

Fig 1 Limit Thermostat



Note: The new L4064N may be supplied with the limit temperature mechanically limited to less than the setting required. To release the mechanical limit push a pointed object into the small hole at the top of the dial. At the same time prevent the dial from rotating and push the limit temperature adjuster around to the required setting.

8. Wiring Diagram



9. Short List of Parts

Only originally specified parts may be fitted as service replacements.
 Please refer to Powrmatic Ltd for any parts not detailed in the listing below.

ITEM

USAGE

PART #

Fan & Limit Thermostat - Honeywell L4064N



All

143000303

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BSI Registered Firm

FM 414
Ind. & Comm. Air Heaters;
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Flues & Chimneys; Natural
Smoke & Heat Ventilators;
Powered Supply & Extract
Fans & Systems.

