

powrmatic

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The PGUH Range



Installation and Servicing Instructions

FIRE TESTED

- | | | |
|---------------|---|--------------------------|
| TEST 1 | Full mechanical construction, quality and assembly check. | <input type="checkbox"/> |
| TEST 2 | Full electrical sequence check. | <input type="checkbox"/> |
| TEST 3 | Fire test. A complete test under normal firing conditions incorporating the testing of all sequence operations and combining a further check on electrical and mechanical operations. | <input type="checkbox"/> |

HEATER MODEL

BURNER SERIAL NUMBER

TYPE OF GAS

FINAL

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1 Introduction

The Powrmatic PGUH range is a range of gas fired natural draught, open flued fanned circulation air heaters covering a heat output range of 14.6kW (50000 Btu/h) to 114.3kW (390000 Btu/h).

The heaters are designed to be suspended from suitable roof points or alternatively to be mounted on purpose designed brackets and are intended primarily for heating commercial or industrial premises.

The PGUH-F has an axial type fan assembly fitted at the rear of each heater to circulate the air being heated through the clam-shell heat exchanger. A centrifugal fan variation is presented in the PGUH-C RANGE: The PGUH-D range allows for ducted use in having no fan fitted.

All the units are fired by a number of gas burners, gas supply control and safety functions being provided by a multifunctional control. Ignition of the low energy permanent pilot is provided by a piezo unit as standard.

Each air heater must be connected to an individual open flue system only. The draught diverter is integral with the heater.

Gas Safety (Installation and Use) (Amendment) Regulations 1990

It is law that all gas appliances are installed by competent persons* in accordance with the above regulations. Failure to install appliances correctly can lead to prosecution. It is in your own interests and that of safety to ensure that the law is complied with.

* e.g. Corgi

2 Technical Data

Table 1 — Physical Sizes PGUH 50F — 390F (Axial fan for free blowing)

MODEL	A	B	C	*D	E	F	G	H	J	K	L											
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm											
PGUH 50F	900	35.4	725	28.5	175	7.0	30	1.2	617	20.4	728	28.6	182	7.2	360	14.2	700	27.5				
PGUH 75F	900	35.4	725	28.5	175	7.0	30	1.2	617	20.4	728	28.6	182	7.2	360	14.2	700	27.5				
PGUH 85F	900	35.4	725	28.5	175	7.0	30	1.2	617	20.4	728	28.6	182	7.2	360	14.2	700	27.5				
PGUH 100F	900	35.4	725	28.5	175	7.0	30	1.2	617	20.4	728	28.6	182	7.2	360	14.2	700	27.5				
PGUH 140F	1023	40.3	782	30.8	945	37.2	200	8.0	30	1.2	711	28	728	28.6	182	7.2	360	14.2	850	33.0		
PGUH 170F	1023	40.3	782	30.8	945	37.2	200	8.0	30	1.2	711	28	728	28.6	182	7.2	360	14.2	850	33.0		
PGUH 200F	1023	40.3	782	30.8	945	37.2	200	8.0	30	1.2	711	28	728	28.6	182	7.2	360	14.2	850	33.0		
PGUH 240F	1023	40.3	832	32.7	945	37.2	200	8.0	30	1.2	711	28	880	34.6	182	7.2	355	14	850	33.0		
PGUH 270F	1572	61.9	1524	60.0	945	37.2	250	10.0	30	1.2	711	28	1467	57.8	182	7.2	1100	43.3	850	33.0		
PGUH 330F	1572	61.9	1524	60.0	945	37.2	250	10.0	30	1.2	711	28	1467	57.8	182	7.2	1100	43.3	850	33.0	762	30.0
PGUH 390F	1572	61.9	1524	60.0	945	37.2	250	10.0	30	1.2	711	28	1467	57.8	182	7.2	1100	43.3	850	33.0	762	30.0

NOTES: *D refers to nominal bore of flue to be used
Dimension K refers to the clearance required to allow burner tray removal.

Table 2 — Physical Sizes PGUH 50C — 390C (Centrifugal Fan for ducting)

MODEL	A	B	C	*D	E	F	G	H	J	K	L	M	N	P	Q														
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm														
PGUH 50C	900	35.4	782	30.8	994	39.1	175	7.0	30	517	20.4	728	28.6	182	7.2	360	14.2	700	27.5	418	16.5	45	1.8	250	9.8	636	25.0		
PGUH 75C	900	35.4	782	30.8	994	39.1	175	7.0	30	517	20.4	728	28.6	182	7.2	360	14.2	700	27.5	418	16.5	45	1.8	250	9.8	636	25.0		
PGUH 85C	900	35.4	782	30.8	994	39.1	175	7.0	30	517	20.4	728	28.6	182	7.2	360	14.2	700	27.5	418	16.5	45	1.8	250	9.8	636	25.0		
PGUH 100C	900	35.4	782	30.8	994	39.1	175	7.0	30	517	20.4	728	28.6	182	7.2	360	14.2	700	27.5	418	16.5	45	1.8	250	9.8	636	25.0		
PGUH 140C	1023	40.3	782	30.8	1260	49.6	200	8.0	30	711	28	728	28.6	182	7.2	360	14.2	850	33.0	418	16.5	45	1.8	365	14.4	636	25.0		
PGUH 170C	1023	40.3	782	30.8	1260	49.6	200	8.0	30	711	28	728	28.6	182	7.2	360	14.2	850	33.0	418	16.5	45	1.8	365	14.4	636	25.0		
PGUH 200C	1023	40.3	782	30.8	1260	49.6	200	8.0	30	711	28	728	28.6	182	7.2	360	14.2	850	33.0	418	16.5	45	1.8	365	14.4	636	25.0		
PGUH 240C	1023	40.3	924	36.4	1260	49.6	200	8.0	30	711	28	880	34.6	182	7.2	365	14	850	33.0	418	16.5	45	1.8	365	14.4	786	30.9		
PGUH 270C	1572	61.9	1524	60.0	1260	49.6	250	10.0	30	711	28	1467	57.8	182	7.2	360	14.2	850	33.0	418	16.5	45	1.8	365	14.4	1378	54.2	762	30.0
PGUH 330C	1572	61.9	1524	60.0	1260	49.6	250	10.0	30	711	28	1467	57.8	182	7.2	360	14.2	850	33.0	418	16.5	45	1.8	365	14.4	1378	54.2	762	30.0
PGUH 390C	1572	61.9	1524	60.0	1260	49.6	250	10.0	30	711	28	1467	57.8	182	7.2	360	14.2	850	33.0	418	16.5	45	1.8	365	14.4	1378	54.2	762	30.0

NOTES: *D refers to nominal bore of flue to be used
Dimension K refers to the clearance required to allow burner tray removal.

Tables 3a and 3b — Specifications (Metric and Imperial)

METRIC

MODEL	Input kW	Output kW	Gas Rate m ³ /h	Air Volume m ³ /h	Max. Press. m. bar	Throw m	Fan Motor Watts	Weight Kg
PGUH 50F	18.2	14.6	1.69	1164		7.3	44.7	98
PGUH 50C	18.2	14.6	1.69	1164	1.5		335	110
PGUH 75F	29.7	22.0	2.77	1742		11.0	119.3	98
PGUH 75C	29.7	22.0	2.77	1742	1.5		335	110
PGUH 85F	32.9	24.9	3.07	1869		12.2	119.3	98
PGUH 85C	32.9	24.9	3.07	1869	1.5		335	110
PGUH 100F	38.2	29.3	3.56	2294		15.0	119.3	98
PGUH 100C	38.2	29.3	3.56	2294	1.25		335	110
PGUH 140F	52.3	41.0	4.88	2974		19.2	119.3	134
PGUH 140C	52.3	41.0	4.88	2974	1.5		560	155
PGUH 170F	62.9	49.8	5.87	3398		22.8	119.3	134
PGUH 170C	62.9	49.8	5.87	3398	2.5		560	155
PGUH 200F	74.2	58.6	6.92	4588		30.8	410.1	134
PGUH 200C	74.2	58.6	6.92	4588	1.75		990	155
PGUH 240F	89.9	70.3	8.43	5376		30	410	153
PGUH 240C	89.9	70.3	8.43	5376	1.0		750	185.3
PGUH 270F	100.9	79.1	9.41	5947		19.2	2 x 199.3	268
PGUH 270C	100.9	79.1	9.41	5947	1.75		2 x 560	310
PGUH 330F	122.7	96.7	11.53	6797		22.8	2 x 119.3	268
PGUH 330C	122.7	96.7	11.53	6797	2.5		2 x 560	310
PGUH 390F	144.9	114.3	13.51	9176		30.8	2x 410.1	268
PGUH 390C	144.9	114.3	13.51	9176	1.75		2 x 990	310

IMPERIAL

MODEL	Input Btu/h	Output Btu/h	Gas Rate ft ³ /h	Air Volume ft ³ /min	Max. Press. in w.g.	Throw ft	Fan Motor hp	Weight lbs
PGUH 50F	62110	50000	59.68	685		24.0	0.06	216
PGUH 50C	62110	50000	59.68	685	0.6		0.45	243
PGUH 75F	101350	75000	97.82	1025		36.0	0.16	216
PGUH 75C	101350	75000	97.82	1025	0.6		0.45	243
PGUH 85F	112435	85000	108.42	1100		40.0	0.16	216
PGUH 85C	112435	85000	108.42	1100	0.6		0.45	243
PGUH 100F	130210	100000	125.72	1350		49.0	0.16	216
PGUH 100C	130210	100000	125.72	1350	0.5		0.45	243
PGUH 140F	178530	140000	172.34	1750		63.0	0.16	295
PGUH 140C	178530	140000	172.34	1750	0.60		0.74	342
PGUH 170F	214650	170000	207.30	2000		75.0	0.16	295
PGUH 170C	214650	170000	207.30	2000	1.0		0.75	342
PGUH 200F	253325	200000	244.38	2700		101.0	0.55	295
PGUH 200C	253325	200000	244.38	2700	0.7		1.33	342
PGUH 240F	3062666	240000	298	3200		98	0.55	337
PGUH 240C	3062666	240000	298	3200	0.4		1.00	408.6
PGUH 270F	344300	270000	332.31	3500		63.0	2 x 0.16	591
PGUH 270C	344300	270000	332.31	3500	0.60		2 x 0.74	684
PGUH 330F	418780	330000	407.18	4000		75.0	2 x 0.16	591
PGUH 330C	418780	330000	407.18	4000	1.0		2 x 0.75	684
PGUH 390F	494300	390000	477.10	5400		101.0	2 x 0.55	591
PGUH 390C	494300	390000	477.10	5400	0.7		2 x 1.33	684

NOTES:

- 1) Gas connection size PGUH 50-240 R ¾; PGUH 270-390 x 2 R ¾
- 2) Electrical supply required 240 volts (3N~ operation available as an optional extra)
- 3) Gas rates based on C. V. of 38.6 mJ/m³
- 4) Throws based on a terminal velocity of 0.25m/s (50 ft/min)

Table 4 — Injector Sizes and Burner Pressures (All Models)

MODEL	INJECTORS			BURNER PRESSURE		
	No.	Size mm	marked	**	m.bar	in w.g.
PGUH 50	5	1.51	300		16.8	6.7
PGUH 75	6	1.70	400		14.5	5.8
PGUH 85	7	1.70	400		13.2	5.3
PGUH 100	8	1.70	400		13.5	5.4
PGUH 140	8	2.46	700		12.8	5.1
PGUH 170	7	2.46	700		13.8	5.5
PGUH 200	8	2.46	700		14.6	5.9
PGUH 240	10	2.46	700		12.7	5.1
PGUH 270	12	2.46	700	2 x	12.3	4.9
PGUH 330	14	2.46	700	2 x	13.6	5.5
PGUH 390	16	2.46	700	2 x	14.0	5.6

NOTES:

- ** Models PGUH 270, 330 and 390 inclusive have two manifolds and Gas Controls assemblies.
Pilot injector (all models). Dia. 0.36/0.38 mm.
Marked 38/36A

Table 5 — Electrical Loadings

				Sifan Fans/Motor (1 ph)			
MODEL	MOTOR r.p.m.	STARTING Amps (total)	RUNNING Amps (total)	MODEL	MOTOR r.p.m.	STARTING Amp total	RUNNING Amps (total)
PGUH 50F	900	0.6	0.4	PGUH 50C	915	5.0	2.6 Max.
PGUH 75F	1400	1.0	0.5	PGUH 75C	915	5.0	2.6 Max.
PGUH 85F	1400	1.0	0.5	PGUH 85C	915	5.0	2.6 Max.
PGUH 100F	1400	1.0	0.5	PGUH 100C	915	5.0	2.6 Max.
PGUH 140F	900	1.4	0.9	PGUH 140C	915	12.0	5.9 Max.
PGUH 170F	900	1.4	0.9	PGUH 170C	920	13.0	6.3 Max.
PGUH 200F	1400	4.5	1.0	PGUH 200C	920	14.0	7.0 Max.
PGUH 240F	1400	5.7	2.3	PGUH 240C	1425	19.2	5.4 Max.
PGUH 270F	2 @ 900	2.8	1.8	PGUH 270C	2 @ 915	24.0	11.8 Max.
PGUH 330F	2 @ 900	2.8	1.8	PGUH 330C	2 @ 920	25.0	12.6 Max.
PGUH 390F	2 @ 1400	9.0	2.0	PGUH 390C	2 @ 920	24.0	14.0 Max.

Electrical supply required 230/250 volts, 1 ph, 50hz.

Table 6 — Damper Settings for Ducted Units (Sifan Fans)

MODEL	DESIGN AIRFLOW	DUCT RESISTANCE											in.w.g.	
		0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.0		
		0	25	50	75	100	125	150	175	200	225	250		
PGUH 50C	685 c.f.m.				Closed	1.0	1.5	2.45						ins
	0.323 m ³ /s				closed	25	38	62						mm
PGUH 75C	1025 c.f.m.				Closed	1.0	1.5	2.45						ins
	0.484 m ³ /s				Closed	25	38	62						mm
PGUH 85C	1100 c.f.m.				0.9	1.25	1.9	3.8						ins
	0.519 m ³ /s				23	32	48	97						mm
PGUH 100C	1350 c.f.m.	0.95	1.1	1.35	1.7	2.4	3.8							ins
	0.637 m ³ /s	24	28	34	43	61	97							mm
PGUH 140C	1750 c.f.m.		Closed	1.2	1.5	1.8	2.3	4.0						ins
	0.826 m ³ /s		Closed	32	38	46	58	102						mm
PGUH 170C	2000 c.f.m.				0.4	0.6	0.8	1.0	1.25	1.6	2.0	4.0		ins
	0.944 m ³ /s				10	15	20	25	32	41	51	102		mm
PGUH 200C	2700 c.f.m.	0.9	1.1	1.3	1.5	1.7	1.9	2.5	3.4					ins
	1.274 m ³ /s	23	28	33	38	43	48	63	86					mm
PGUH 270C	3500 c.f.m.		Closed	2x1.2	2x1.5	2x1.8	2x2.3	2x4.0						ins
	1.652 m ³ /s		Closed	2x32	2x38	2x46	2x58	2x102						mm
PGUH 330C	4000 c.f.m.				2x0.4	2x0.6	2x0.8	2x1.0	2x1.25	2x1.6	2x2.0	2x4.0		ins
	1.888 m ³ /s				2x10	2x15	2x20	2x25	2x32	2x41	2x51	2x102		mm
PGUH 390C	5400 c.f.m.	2x0.9	2x1.1	2x1.3	2x1.5	2x1.7	2x1.9	2x2.5	2x3.4					ins
	2.548 m ³ /s	2x23	2x28	2x33	2x38	2x43	2x48	2x63	2x86					mm

3 General Requirements

3.1 Related Documents

The installation of the air heater(s) must be in accordance with the relevant requirements of the Gas Safety Regulations, Building Regulations and the I.E.E. Regulations.

It should be in accordance also with any relevant requirements of the local gas region, local authority and fire authority and the relevant recommendations of the following documents.

BS 6230 1991 Installation of gas fired forced convection air heaters for commercial and industrial space heating.

British Standards Code of Practice

CP 331 Installation of pipes and meters for town gas Part 3. Low pressure Installation pipes.

CP 3 Ch.IV Precautions against Fire Part 2 Shops and Departmental Stores Part 3 Office Buildings

Those appliances having an input rating not exceeding 60kW viz. PGUH 50 to PGUH 140 inclusive must be installed in accordance with the relevant recommendations of the following documents.

BS 5440 Flues and Air Supply for gas appliances of rated input not exceeding 60kW (1st and 2nd family gases) Part 1 — Flues, Part 2 — Air Supply.

For PGUH-D appliances of 50-140 size, reference should also be made to BS5864. Code of Practice for installation of gas-fired ducted-air heaters of rated input not exceeding 60kW.

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 provide adequate space for servicing and air circulation around the air 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, where cellulose spraying is carried out, in wood working departments etc.

The air heater must be installed either:

- (a) suspended by steel chains or straps of adequate strength to safely carry the weight of the unit and any 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 air heater must not be installed in conditions for which it is not specifically designed e.g. where the atmosphere is highly corrosive or salty and where high wind speeds may affect burner operation.

Where the location of the air heater is such that it might suffer external mechanical damage e.g. from overhead cranes, fork lift trucks, it must be suitably protected.

Recommended mounting heights for basic 'F' units are:

PGUH Units	40	50-100	140-390
Max Heights	2.5m(8ft)	2.5m(8ft) - 3m(10ft)	3m(10ft) - 5m(16ft)

Minimum mounting heights for all units 2.5m (8ft).

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

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

3.3 Gas Supply

3.3.1 Service Pipes

The local gas region should be consulted at the installation planning stage in order to establish the availability of an adequate supply of gas.

An existing service pipe must not be used without prior consultation with the local gas region.

3.3.2 Meters

A gas meter is connected to the service pipe by the local gas region or a local gas region contractor.

An existing meter should be checked, preferably by the gas region, to ensure that the meter is adequate to deal with the rate of gas supply required.

3.3.3 Installation Pipes

Installation pipes should be fitted in accordance with CP 331:3.

Pipework from the meter to the air heater must be of adequate size. Do not use pipes of a smaller size than the inlet gas connection of the heater.

The complete installation must be tested for soundness as described in the above Code.

3.3.4 Boosted Supplies

Where it is necessary to employ a gas pressure booster the controls must include a low pressure cut off switch at the booster inlet.

The local gas region must be consulted before a gas pressure booster is fitted.

3.4 Flue System

Detailed recommendations for fluing are given in BS 5440 Part 1 (Flues).

The air heater is fitted with an integral draught diverter and must be connected to an individual flue system only. The cross sectional area of the flue serving the appliance must be not less than the area of the flue outlet of the air heater.

Materials used for the flue system should be mechanically robust, resistant to internal and external corrosion, non-combustible 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 double walled flue pipe or insulation is recommended. If double walled flue pipe is used it should be of a type acceptable to British Gas.

Where condensation in the flue is unavoidable provision should be made for condensation to flow freely to a point at which it can be released, preferably into a gully. The condensation pipe from the flue to the disposal point should be of non-corrodible material of not less than 22mm (1/2 in.) size.

Facilities should be made for disconnecting the flue pipe(s) from the air heater(s) 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 so situated as to prevent the products of combustion entering any opening in a building in such concentration as to be prejudicial to health or a nuisance.

It is recommended that consideration be given to the fitting of a terminal at the flue outlet, however, where the heater flue is less than 200mm (8 in.) in diameter a terminal of a type that has been tested and found satisfactory by British Gas must be fitted.

3.5 Air Supply

Where the air heater(s) is to be installed in the space to be heated the air heater(s) 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 or in any position adjacent to an extraction system which is carrying flammable vapour.

The air supply requirement stated below is related to the maximum rated heat INPUT of the air heater, or air heaters if more than one are installed in the same space.

TOTAL INPUT RATING OF AIR HEATERS	AIR VENT AREA (Air direct from outside)
Up to 60 kW (Up to 204, 720 Btu/h)	4.5 cm ² in excess of 7 kW (1 in ² /5000 Btu/h in excess of 25000 Btu/h)
Above 60kW and up to 730kW	4.5 cm ² /kW (1 in ² /per 5000 Btu/h)

Where the air heater(s) is to be installed in a plant room the air heater(s) requires the plant room housing it to have permanent air vents communicating directly with the outside air, at high level and at 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 or in any position adjacent to an extraction system which is 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 requirement stated below are related to the maximum rated heat INPUT of the air heater(s).

The basic minimum effective area requirements of the air vents are as follows:

TOTAL INPUT RATING OF AIR HEATER(S)	POSITION OF AIR VENTS	AIR VENT AREAS (Air direct from outside)
Up to 730 kW	High level	4.5 cm ² /kW (1 in ² /5000 Btu/h)
(Up to 2,500,000 Btu/h)	Low level	9.0 cm ² /kW (2 in ² /5000 Btu/h)

3.6 Air Distribution System

The following notes are of particular importance.

For free-blowing units it must be taken into account that the buoyancy of the heated air leaving the heater and air patterns within the space being heated will modify the air throw pattern achieved. In buildings having a low heat loss where single units are required to cover a large floor area and in buildings with high roof or ceiling heights Calecon units should be fitted to ensure even heat distribution and minimise stratification respectively. 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. In the selection of materials account must be taken of the working environment and the air temperatures which will result when the overheat limit thermostat is being commissioned. 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 to be installed in a plant room the return air and warm air discharge arrangements must be such as to avoid interference with the operation of the flue by the air circulation fan. The return air intake(s) and the warm air outlet(s) should, therefore, be fully ducted, in the plant room, to and from the heater(s) respectively. 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 in special circumstances where there is any possibility of pollution of the air by dust, shavings etc., precautions must be taken by carefully positioning return air intakes and by the provision of screens to prevent contamination.

In addition, where there is a risk of combustible material being placed close to the warm air outlets, suitable barrier rails should be provided to prevent any combustible material being within 900mm (3 ft.) of the outlets.

NOTE: The installation of a warm air heating system must be in strict accordance with any fire regulations or insurance company's requirements appertaining to the area in which the system is installed. In addition where a warm air heating system is installed in a shop or departmental store or an office building any relevant recommendations of CP 3: Ch.IV appertaining to such buildings, with respect to the installation maintaining the integrity of any fire escape route, must be complied with.

3.7 Electrical Supply

Wiring external to the air heater must be installed in accordance with the I.E.E. Regulations and any local regulations which apply. Wiring should be completed in flexible conduit.

Air heaters are supplied by 230/250 volts, 1 ph, 50 Hz.

The method of connection to the main electricity supply must facilitate complete electrical isolation of the air heater(s) and the supply should serve only the air heater(s). The method of connection should be provided adjacent to the air heater(s) in a readily accessible position.

For wiring diagrams see Section 8. Page 19

Air heaters can also be supplied for 415/240 volts, 3 ph + N, 50 Hz.

For wiring diagrams see Section 8. Page 19

4 Installation of Air Heater(s)

4.1 General

The air heater will arrive on site mounted on a pallet 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.

Clearance at RHS (looking at front of heater)	0.5m (1.6ft)
Clearance at LHS (looking at front of heater)	0.75m (2.4ft)
Top of the heater to ceiling	1.00m (3.3ft)
Rear of heater to nearest wall	1.00m (3.3ft)

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 (8.2ft) and 5.0m (16.4ft), depending on the size of unit being fitted. See section 3.2.

If the heater is to be base mounted it may be stood directly on the mounting platform providing the platform is of a suitable non-combustible material and does not extend past the front edge of the heater.

NOTE: To facilitate removal of the burner tray there must be no projection or fixture in front of the lower front panel. The distance forward of the air heater in which this is applicable is indicated by dimension K in tables 1 and 2 of Section 2 Pages 4 and 5.

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

Between units, side to side	3.0m (9.9ft)
Between units, back to back	3.0m (9.9ft)

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 Section 2, Tables 3a and 3b, Page 6) 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 the effects of rust or corrosion.

If noise levels are of particular importance the heater should be insulated 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 gas, 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 air heater(s) is fitted with an integral draught diverter therefore the flue system connects directly into the flue

socket on the top of the unit. The socket is sized to accept standard sheet metal flue (to BS 715) the latter to be secured in place using suitable fasteners. An adaptor socket is available as an optional extra to facilitate the fitting of asbestos-cement flue pipe (to BS 567 or BS 835) as appropriate when heaters are base mounted.

The flue system is to 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 a suitable cold caulking compound.

NOTE: Models PGUH 270-390 are supplied with a separate flue tee piece to join together the individual flue outlets and provide a single flue outlet. This tee piece **must** be fitted.

For flue sizes refer to tables 1 and 2 pages 4 and 5.

4.4 Condensate Drainage

The design of the flue system should minimise the formation of condensation, however when this is envisaged to be a problem provision should be made for condensate to flow to a joint where it can be drained, preferably into a gully.

4.5 Gas Connection

To facilitate removal of the burner tray for servicing purposes a union type servicing valve must be fitted at the inlet to the air heater.

The gas supply to the air heater, run to an adjacent point and adequately supported, should then be connected to the servicing valve in either solid pipework or by a suitable flexible connection of a type approved by British Gas (available as an optional extra). Only a flexible connection may be used with heaters suspended by chains or drop rods and sufficient slack must be left in the connection to take account of normal movement of the heater.

On models PGUH 270-390 it will be necessary to manifold together the two individual gas inlets. A union connection must be provided at the gas inlet to each gas control assembly and a union type service valve must be fitted at the inlet to the manifold (manifolds are available from Powmatic Ltd. as optional extras).

WARNING

When completing the final gas connection to the heater do not place undue strain on the gas pipework of the heater.

4.6 Electric Connections

All units are fully pre-wired and only require final connections for the incoming mains supply and completion of the control circuit (240V) via a room thermostat, time clock, etc.

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. Reference must be made to the Technical Data in Table 5 (Page 7) to ascertain the electrical loading of the air heater(s) being installed so that cables of adequate cross-sectional area to safely carry that load are used for the electrical installation. All external controls must be B.S.I. or B.E.A.B. approved and capable of carrying the electrical loading of the air heater(s).

Final connection to the air heater(s) must be made through non-metallic flexible conduit. See Section 8 for Wiring Diagrams.

When installing PGUH 'D' models refer to the notes at the end of Section 8 on page 19.

IMPORTANT

Air Heater Installations: No air heater shall be installed where there is a foreseeable risk of flammable particles, gases, vapours or corrosion inducing gases or vapours being drawn into either the heated air stream or the air for combustion. In such cases installation may only proceed if the air to be heated and the air for combustion are ducted to the heater from an uncontaminated source preferably outside the building. In certain situations where only airborne particles are present it may suffice to fit filters on the air inlet ducts of the heater. Advice in these instances may be obtained from Powmatic Ltd.

5 Air Distribution System

5.1 General

Whilst this type of air heater is not designed for use with long lengths of duct work, short lengths may be used to more precisely define the point of air delivery, provide ducted return air or ducted fresh air inlet. If inlet ductwork is used it must be easily removable to allow access to the centrifugal fan assembly that it will encase.

Low heat capacity materials should be used for the construction of such ducts and it is preferable for all warm air ducting to be thermally insulated.

Joints and seams of supply ducts and fittings must be securely fastened and made airtight.

5.2 Noise Reduction

If a reduction of air-borne fan noise is necessary an internal duct lining of porous material may be applied. This material must be capable of withstanding 100°C air temperature without any deterioration. For maximum effectiveness the lining should be applied close to the heater on both the discharge and return air ducts.

When a reduction of vibration transmission from the heater(s) to the ducting is required the ducting should be connected to the heater spigots via an airtight flexible coupling of non-combustible material. Before fitting a flexible coupling it must be ensured that a maximum clearance of 13mm (½ in.) will be maintained between the ends of the ducting and the heater spigots.

To allow for thermal expansion, whether or not fire stopping is required openings in walls, partitions etc., through which ducts pass should be large enough to give a clearance around the duct and the whole duct should be supported at intervals along its length such that it is free to move relative to the supports. (Failure to adhere to this instruction may lead to noise generation due to thermal expansion and contraction.)

All ducting must be independently supported of the air heater.

5.3 Room Thermostat Siting

The selection of the correct position for the room thermostat(s) is particularly important.

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 for siting the thermostat.

The thermostat should generally be mounted about 5ft from the floor.

Any room thermostat, frost thermostat, time clock etc. must be suitable for switching 240V 10 amp.

For electrical connections see Section 8 Page 19.

6 Commissioning & Testing

6.1 Electrical Installation

Checks to ensure electrical safety should be carried out by a competent person.

6.2 Gas Installation

The whole of the gas installation, including the meter, should be inspected and tested for soundness and purged in accordance with the recommendations of CP 331:3.

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 grilles and general adequacy of return air paths.

Refer to table 6 to ascertain the fan damper setting to match the resistance of the ductwork.

6.4 Check before lighting the Air Heater

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

- Ensure that the ELECTRICITY supply to the heater is switched off
- Check that all warm air delivery outlets are open.
- Check that the room thermostat is set to "ON".
- Check that the clock control is set to an "ON" period.
- Ensure that the Summer/Winter switch is in the Winter position.

6.5 Lighting the Air Heater

WARNING: The multifunctional control is operated by 240V.

6.5.1 Models PGUH 50 - 240 inc.

NOTE: When attempting to light the pilot at any time ensure that the mains electricity supply is switched off.

- Remove the escutcheon plate covering the

multifunctional control.

2. Turn on the gas servicing valve.
3. Fully depress the white start button of the multifunctional control (Fig 1-1)
4. Light the pilot flame by pressing the piezo unit button several times (Fig 1-2)

The pilot flame may be viewed through the viewing port in the heat shield (Fig 1-12).

NOTE: On initial lighting of the pilot, it may take some time to purge the pilot pipework of air.

5. Ensure that the pilot flame fully envelopes 9-12mm (5/16" 7/16") of the thermocouple tip and, if necessary, adjust the pilot regulating screw after removing the cover screw. (Fig 1-3)
6. Once the pilot has been established, continue pressing the white start button for approx. 20 seconds and then slowly release. The pilot should remain alight.

WARNING: Should the pilot be extinguished at any time, either intentionally or unintentionally, push in and release the red stop button (Fig 1-4) and wait 3 minutes before attempting to relight the gas, then repeat steps 3-5 above.

7. Switch on the electricity supply at the isolator and the main burner will light.

8. The internal pipework of the appliance has been tested for soundness before leaving the factory. Test round the gas inlet connection using a leak detection fluid e.g. soap solution.

SHUT OFF: To interrupt all gas flow through the Multifunctional control press the red OFF BUTTON (Fig 1-4). After waiting 3 minutes the appliance may be relit by following the previous instructions.

6.5.2 Models PGUH 270-390 inc.

NOTE: When attempting to light the pilots at any time ensure that the mains electricity supply is switched off.

1. Remove the left and right hand escutcheon plates covering the multifunctional controls (Note L.H. and R.H. are as seen when viewing the rear of the heater).
2. Follow steps 6.5.1 1 to 6.5.1 6 and establish the right hand pilot.
3. Follow steps 6.5.1 1 to 6.5.1 6 and establish the left hand pilot.
4. Ensure that external controls are "in the 'high' mode.
5. Switch on the electricity supply at the isolator and the main burner will light.
6. The internal pipework of the appliance has been tested for soundness before leaving the factory. Test round the gas inlet connection using a leak detection fluid e.g. soap solution.

SHUT OFF: To interrupt all gas flow through the multifunctional controls press both red OFF buttons (Fig 1-4). After waiting 3 minutes the appliance may be relit by following the previous instructions.

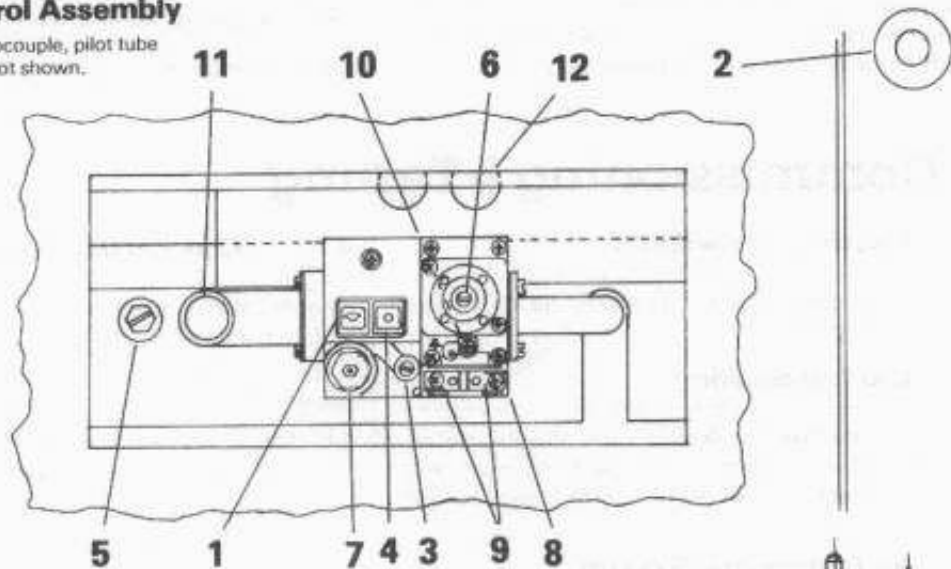
6.6 Adjustments

6.6.1 Burner Gas Pressure

This is set for the required heat input before the air heater leaves the factory and should be checked accordingly in the following manner. For models PGUH 270-390 inc. follow the

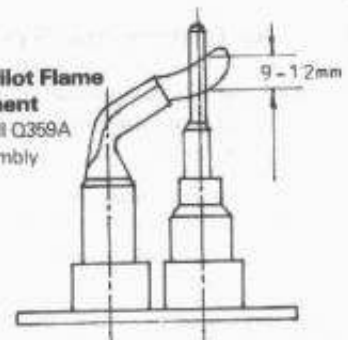
Fig. 1 Gas Control Assembly

NOTE: For clarity thermocouple, pilot tube and cross lighting tube not shown.



- | | |
|------------------------------------|----------------------------------|
| 1. Start Button (White) | 7. Thermocouple connection |
| 2. Ignition Button | 8. Pilot connection (top of MFC) |
| 3. Pilot adjustment cover screw | 9. Electrical connections |
| 4. OFF Button (Red) | 10. Earth connection |
| 5. Burner pressure test point | 11. Gas Inlet |
| 6. Governor adjustment cover screw | 12. Pilot viewing ports |

Fig. 1a Pilot Flame Adjustment
Honeywell Q359A pilot assembly



instructions below for both sets of burners whilst both sets are alight.

1. Turn the room thermostat to OFF to turn OFF the main burner and connect a pressure gauge to the burner pressure test point (Fig 1-5)
2. Turn the room thermostat to MAXIMUM to turn ON the main burner. Compare the measured burner gas pressure to that stated in Section 2 Table 4.
3. If necessary adjust the burner gas pressure by turning the regulator screw (Fig 1-6) anti-clockwise to decrease the pressure, or clockwise to increase the pressure.
4. In addition it is advisable to check the gas rate using the gas meter dial pointer. Ensure that no other appliances supplied through the meter are in operation.
5. Turn OFF the main burner as in 6.6.1 1 disconnect the pressure gauge and replace the sealing screw. Turn on the main burner as in 6.6.1 2 above and test for gas soundness around pressure test joint using a leak detection fluid e.g. soap solution.
Replace escutcheon plates.

6.6.2 Down Draught Diverter

1. Check that there is no spillage of products of combustion from the air heater down draught

7 Servicing

WARNING: Always switch off and disconnect electricity supply and close the gas service valve before carrying out any servicing work or replacement of failed components.

NOTE:

1. The following instructions refer specifically to Models PGUH 50-200. For Models 270-390 inc. repeat the instructions so that both sets of components are fully serviced.
2. If a suspended air heater is to be serviced **do not** lean ladders against the heater. Ensure that an access tower or equivalent is used.

7.1 General

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

7.2 Main Burner Assembly Removal

1. Ensure that the gas service valve is turned OFF and then unscrew the union nut situated immediately down stream of it.
2. Remove the escutcheon plates covering the multi-functional control.
3. Disconnect the electrical connections from the multi-functional control by pulling off the brown and blue leads and removing the screw securing the earth lead (Fig 1-9 and 10).
4. Disconnect from the rear of the piezo unit (Fig 1-2) the spark ignition lead going to the spark electrode.
5. Remove the front panel by releasing the two securing screws.

diverter by carrying out a spillage test, as detailed in BS 5440 Part 1.

6.6.3 Air Heater Controls

1. Check that the flame failure device will shut off the gas to the main burner within 60 seconds by turning off the gas supply at the gas service valve. A distinct click will be heard when the thermocouple current is no longer sufficient to hold in the magnetic unit.
2. Check that the room thermostat and all automatic controls are operating satisfactorily.

6.7 Handing Over the Air Heater

Hand the Users 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 adequate servicing is carried out annually.

In the event that the premises are not yet occupied turn off the gas and electricity supplies and leave instructional literature adjacent to gas meter.

6. Remove the two M5 screws that secure the burner tray in position (Fig 2-4).

7. Remove the burner tray complete, from the front of the air heater, by pulling forwards. For suspended air heaters it is recommended that the burner assembly is taken down to floor level before proceeding.

8. On models PGUH 140-390 remove the edge clips securing the burner base panel to the front burner tray frame member. Disengage the burner base panel from its rear locations and remove.

9. Release the nuts securing the cross lighting strip assembly and remove the first two strips of the three part assembly (see Fig 3, items 1 and 2).

10. Release the four screws securing the burner frame end plate complete with the third strip of the cross lighting assembly.

11. Remove each burner from its injector and using a stiff brush, not a wire brush, brush the flame strips to dislodge accumulated deposits. Inspect the burners both internally and externally to ensure that they are clean. Examine the injectors and if damaged or deteriorated, replace with new ones of the correct size and marking (see Section 2 table 4). If deemed necessary, clean the injectors. Do not broach out with wire.

NOTE: If a full service is being undertaken then complete sections 7.3 and 7.4 before continuing.

12. Re-assemble the injectors, burners and cross lighting assembly in reverse order to that above.

CAUTION: Ensure that the cross lighting strip is assembled as shown in Fig. 3 – Item 3 locates under the rolled edge around the burner flame strip and item 2 abutts onto the top of the burner.

7.3 Pilot Burner Assembly Removal

1. On models PGUH 140-390 remove the burner base tray as detailed in 7.2.8 above.

2. Remove the lower heat shield by releasing the two securing screws.

3. To remove the pilot assembly, pull-away electrode lead, release thermocouple and pilot gas tube at the multifunctional control and remove the 2 M5 tapite screws securing the pilot assembly to its mounting bracket.

Inspect pilot burner, thermocouple and electrode, making sure that they are in a sound and clean condition.

In particular check that:

Ignition electrode is clean, undamaged and straight. Check that the spark gap is 2.5-3.5mm. Clean the pilot injector, do not broach out with wire.

5. Re-assemble the pilot and refit to the burner assembly. Note that the pilot assembly is mounted on top of the manifold bracket. Ensure that the thermocouple nut at the multifunctional control is secure, but

not over tightened. Tighten by hand, then tighten by spanner 1/6th of a turn. The terminal must be clean to ensure a good electrical connection.

7.4 Flueways

Whilst the main burner assembly is removed from the appliance the flueways should be cleaned by brushing upwards from the burner tray compartment. A mirror and torch should be used to see that the flueways are clean.

7.5 Fan Assembly

7.5.1 PGUH '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 motor term-

Fig. 2 Cross Lighting Assembly Detail

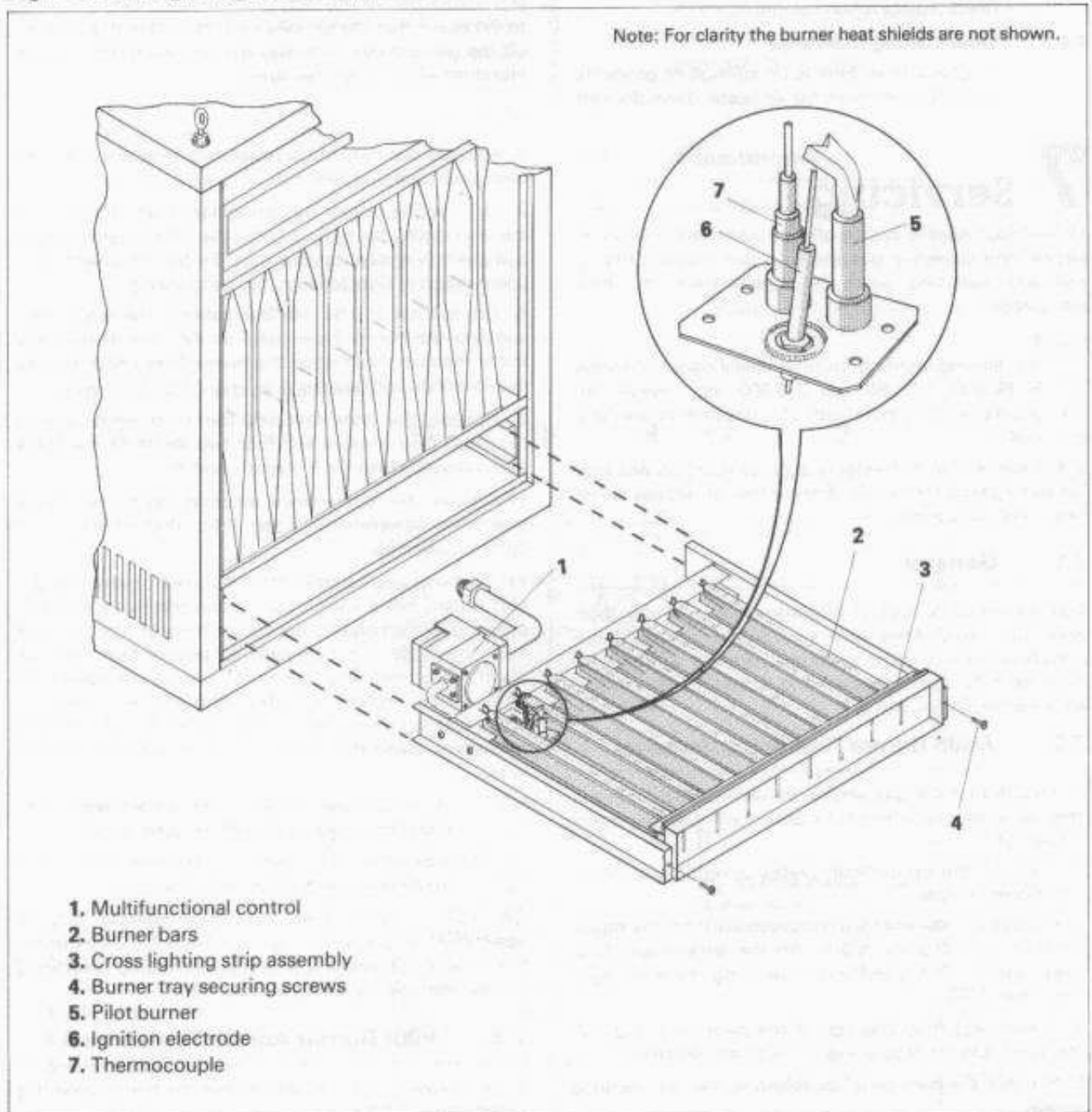
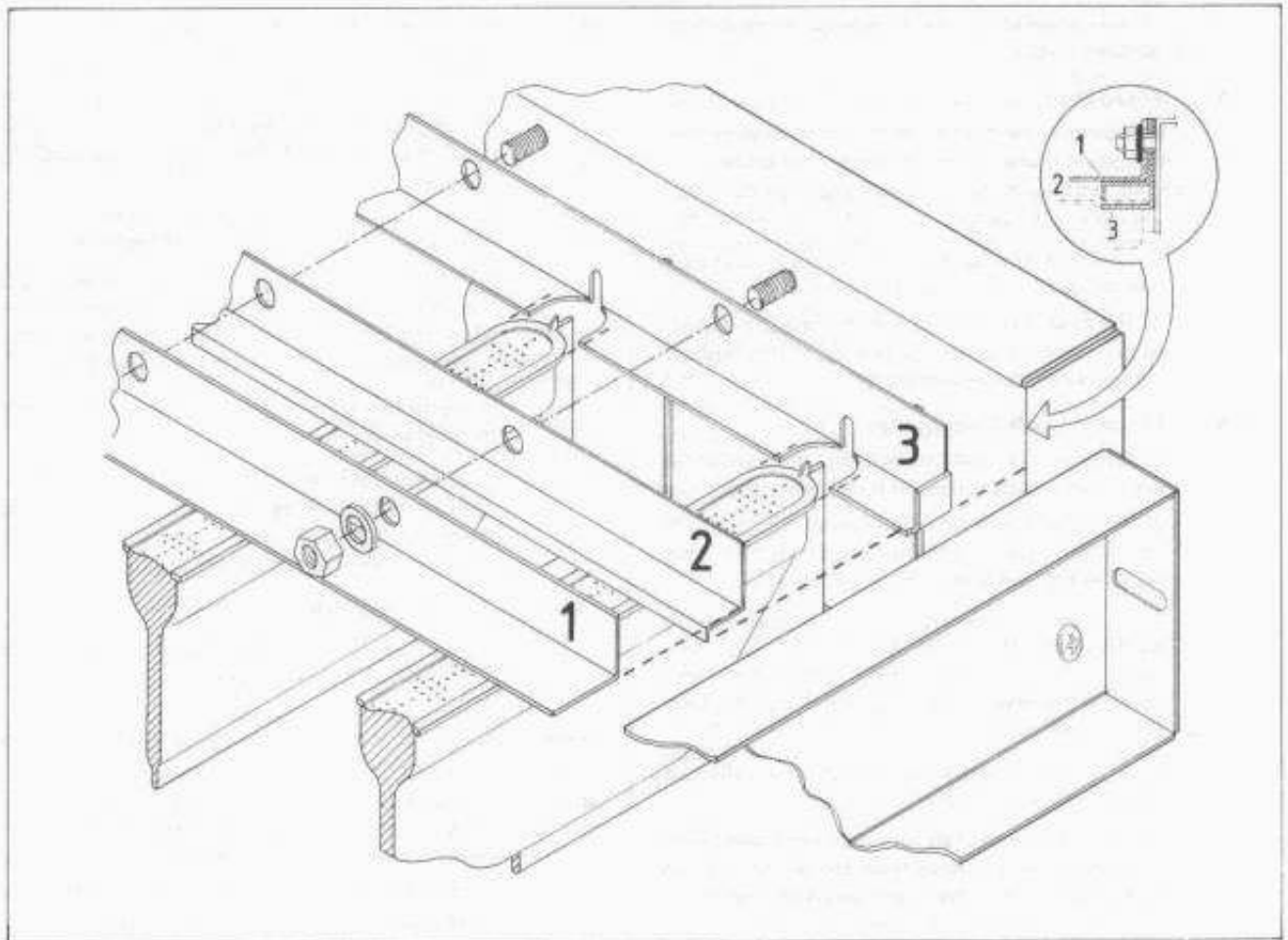


Fig. 3 Cross Lighting Assembly Detail



inal housing through which the main electrical lead from the rear panel passes (Fig 4-1).

3. Remove the two screws securing the housing cover in position and remove cover (Fig 4-2).

4. Note the motor terminals that the three wires of the above lead are connected to and then disconnect the lead. Pull the lead out through the gland.

5. Remove the fan and motor assembly complete from the rear panel by removing the four hexagon headed bolts (Fig 4-3).

6. Re-assemble in reverse order.

7.5.2 PGUH 'C' Models

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. Remove the electric panel cover (Fig 5-7) and disconnect fan motor lead.

3. Withdraw lead through entry grommet.

4. Where fan capacitor is mounted on rear of appliance remove the two screws that secure the cover box.

5. Remove the complete fan assembly from the rear panel by removing the securing nuts (Fig 5-1).

6. Re-assemble in reverse order.

7.6 Replacement of Faulty Components

7.6.1 Multifunctional Control

1. Remove the burner assembly as previously described in Section 7.2.

2. Release the thermocouple and pilot tube from the multifunctional control (Fig 1-7, 8).

3. Release the flanged elbows at the inlet and outlet of the multifunctional control by removing the M5 screws and remove the multi-functional control.

4. Re-connect the new valve in the reverse order to that above ensuring that the valve is correctly orientated. If necessary renew the sealing gaskets to ensure that sound joints can be obtained.

5. Recommission the appliance as described in Section 6.

7.6.2 Burner Bars

1. Remove the Burner assembly and dismantle it as previously described in Section 7.2. NOTE: It is not necessary to disturb the pilot assembly.

2. Exchange those burner bars as required and re-assemble components in reverse order.

3. Re-commission the appliance as described in Section 6.

7.6.3 Pilot Assembly

1. Remove the burner assembly as previously described in Section 7.2 and remove the pilot assembly as described in Section 7.3.

unit and re-assemble the components in the reverse order.

3. Re-commission the appliance as described in Section 6.

7.6.4 Piezo Unit

1. Remove the two screws (Fig 4-4) securing the cover plate on the left hand side panel.

2. Disconnect the spark ignition lead from the rear of the piezo unit.

3. Unscrew the backnut of the piezo unit and withdraw the unit from the rear panel.

4. Re-assemble the new unit into the panel, re-connect the spark ignition lead and replace the cover plate on side panel.

7.6.5 Fan and Limit Thermostat

1. Remove the two screws (Fig 4-4) securing the cover plate on the left hand side panel.

2. Remove the four screws securing the left hand side panel to the heater frame and remove the panel by pulling forwards.

3. Pull off the leads from the appropriate thermostat (the limit thermostat has two leads, the fan thermostat has four) and release the thermostat by removing the two securing screws.

4. Fit replacement thermostat and refit the electrical connections.

NOTE: On the limit thermostat either lead may be connected to either thermostat; on the fan thermostat note the orientation of the leads and re-connect to the correct terminal.

7.6.6 Fan and Motor Assembly

7.6.6.1 PGUH 'F' Models

1. Remove the complete fan and motor assembly as previously described in Section 7.5.1

2.

Either: a) Exchange the fan and motor assembly complete for a new unit

or b) Exchange the fan only as follows:

i) Note the position of the existing fan on the motor shaft and then release the locking set screw. Remove the fan from the motor shaft.

ii) Re-fit replacement fan and set to position previously noted.

or c) Exchange the motor only as follows:

i) Remove the fan as detailed in b(i) above

ii) Note the motor terminals that the 2 wires of the capacitor lead are connected to and then disconnect the lead. Remove the capacitor by unscrewing it.

iii) Remove the motor by removing the four nuts and bolts that secure it to the fan guard.

iv) Fit the replacement motor and re-assemble the fan and motor assembly in reverse order. Note that only one bolt will accept the capacitor and should be positioned at '8 o'clock'.

3. Re-fit fan and motor assembly to the heater in reverse order.

4. Ensure that fan rotates in an anti-clockwise direction. If it does not refer to the wiring diagram mounted on the motor casing and revise the electrical connections as indicated.

7.6.6.2 PGUH 'C' Models

1. Remove the complete blower assembly as previously described in Section 7.5.2.

2.

Either: a) Exchange the fan and motor assembly complete for a new unit.

or b) Exchange the blower or motor only as follows:

i) Remove the inlet damper assembly by removing the three hexagon securing screws.

ii) Note the position of the blower on the motor shaft and then release the single hexagon headed locking screw.

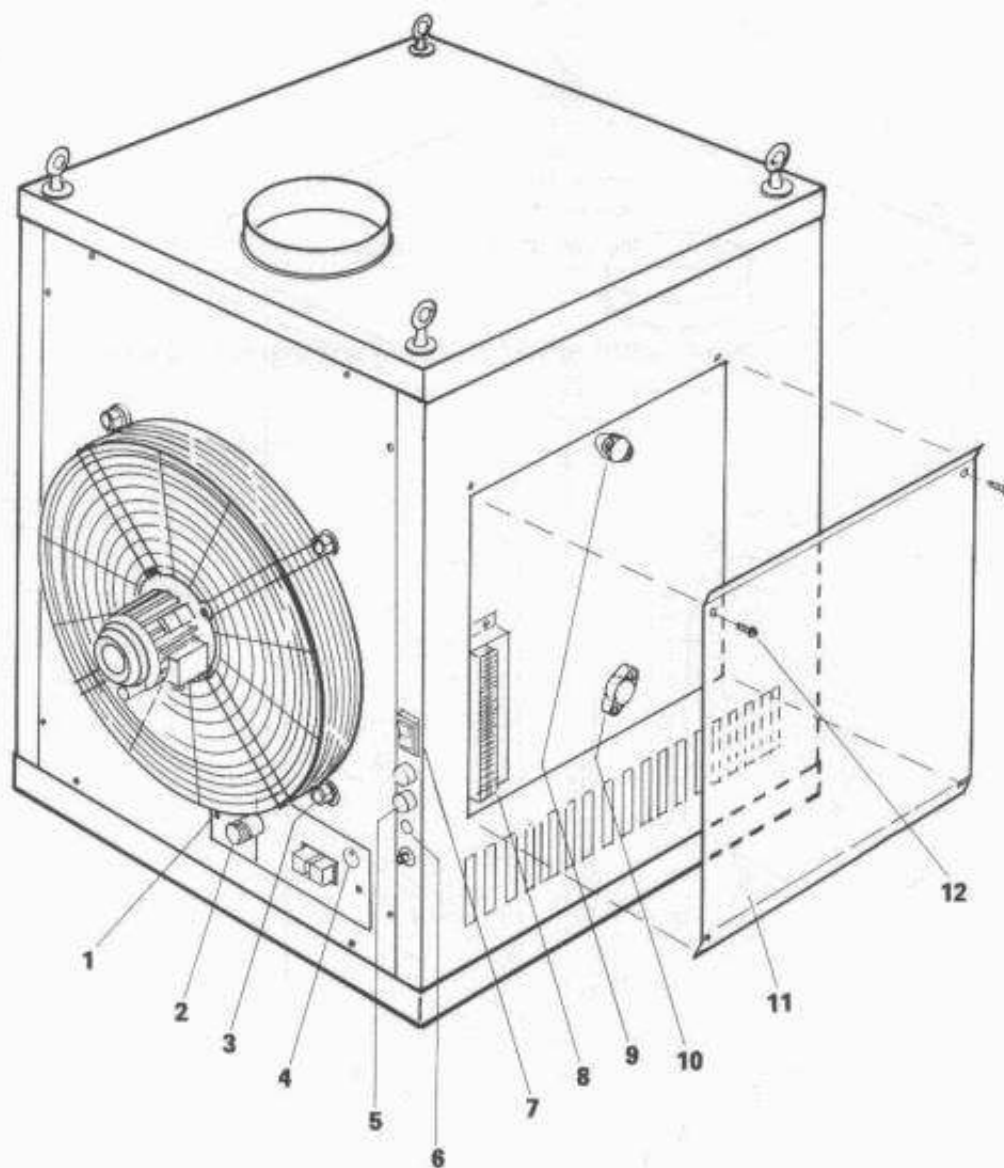
iii) Remove the motor by removing the hexagon headed securing screws.

iv) Re-assemble components in reverse order.

3. Re-fit complete assembly to the heater in reverse order.

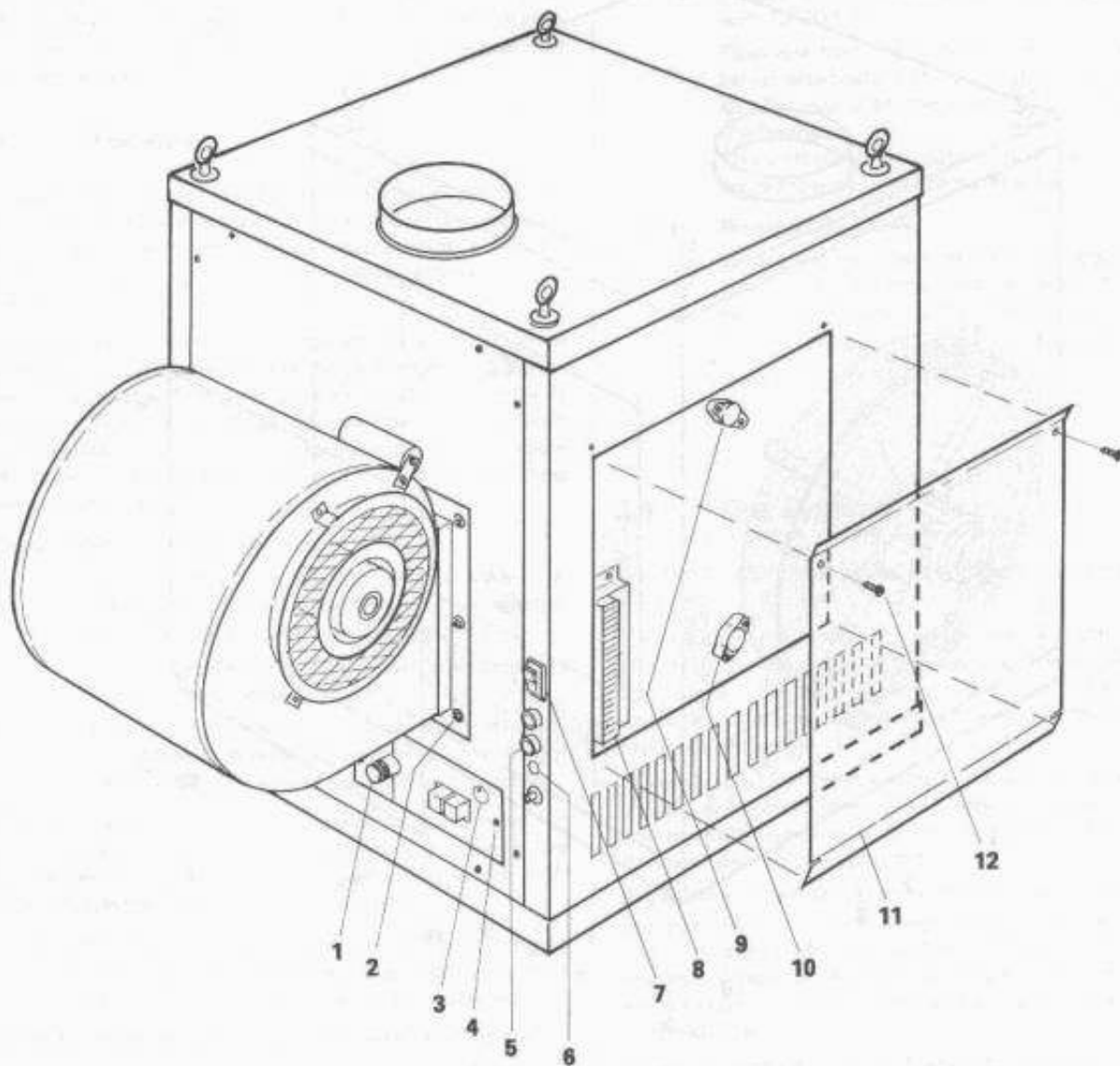
4. Ensure that blower rotates in the correct direction.

Fig. 4 Fan Assembly and electrical panel PGUH 'F' Models



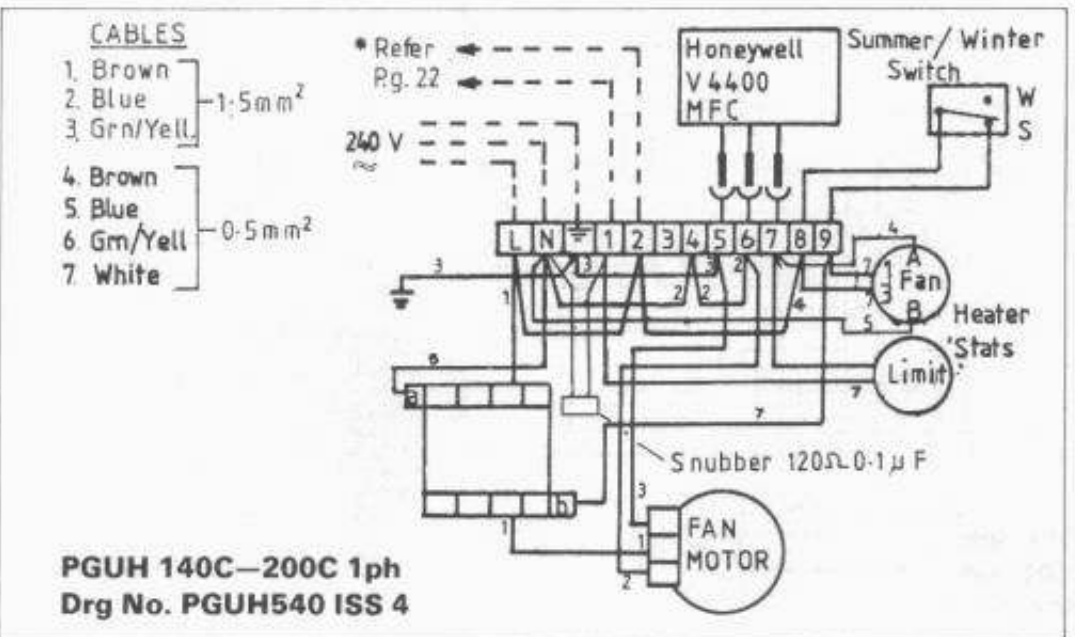
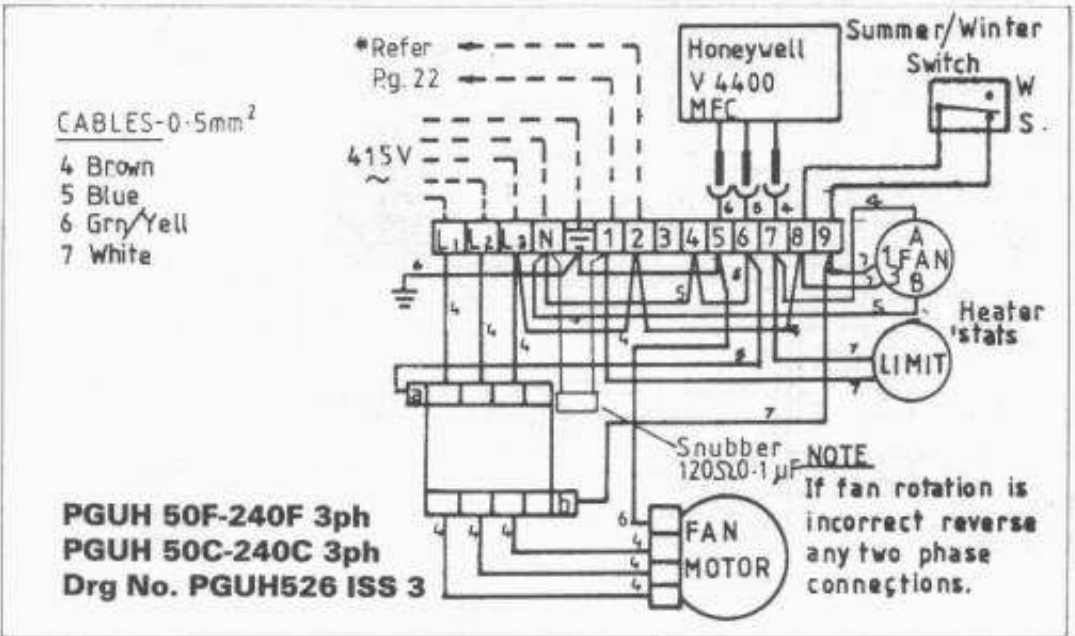
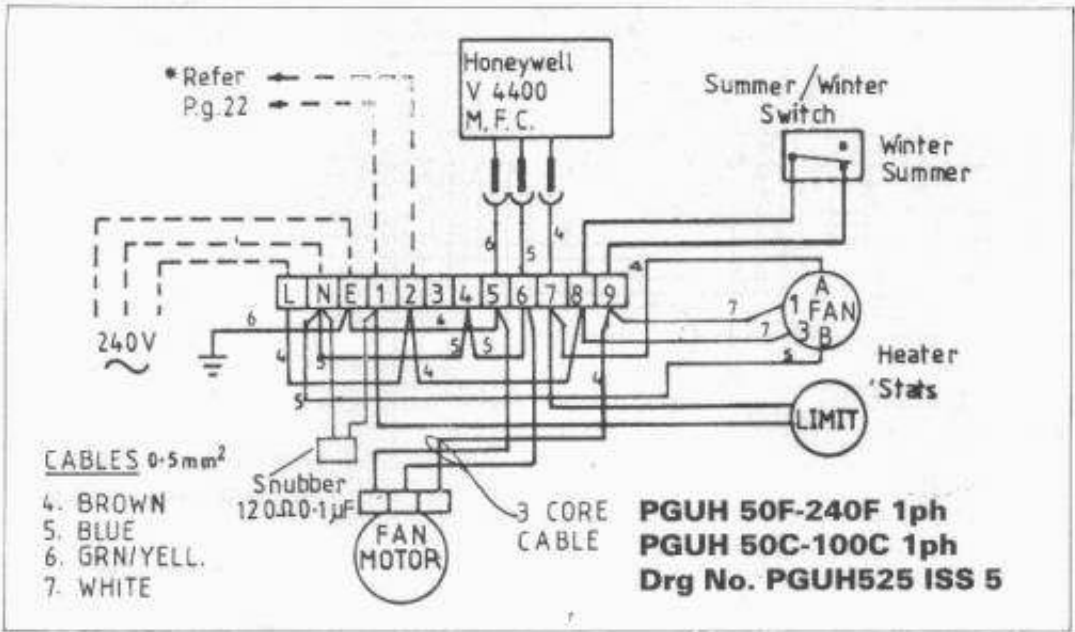
1. Gas controls cover fixing screws (2)
2. Gas inlet pipe
3. Fan assembly securing bolts (4)
4. Pilot viewing port
5. Mains lead connector
6. Fan lead connector
7. Summer/Winter switch
8. Terminal strip
9. Limit thermostat
10. Fan thermostat
11. Electrical panel cover
12. Electrical panel cover fixing screws (2)

Fig. 5 Fan Assembly and electrical panel PGUH 'C' Models

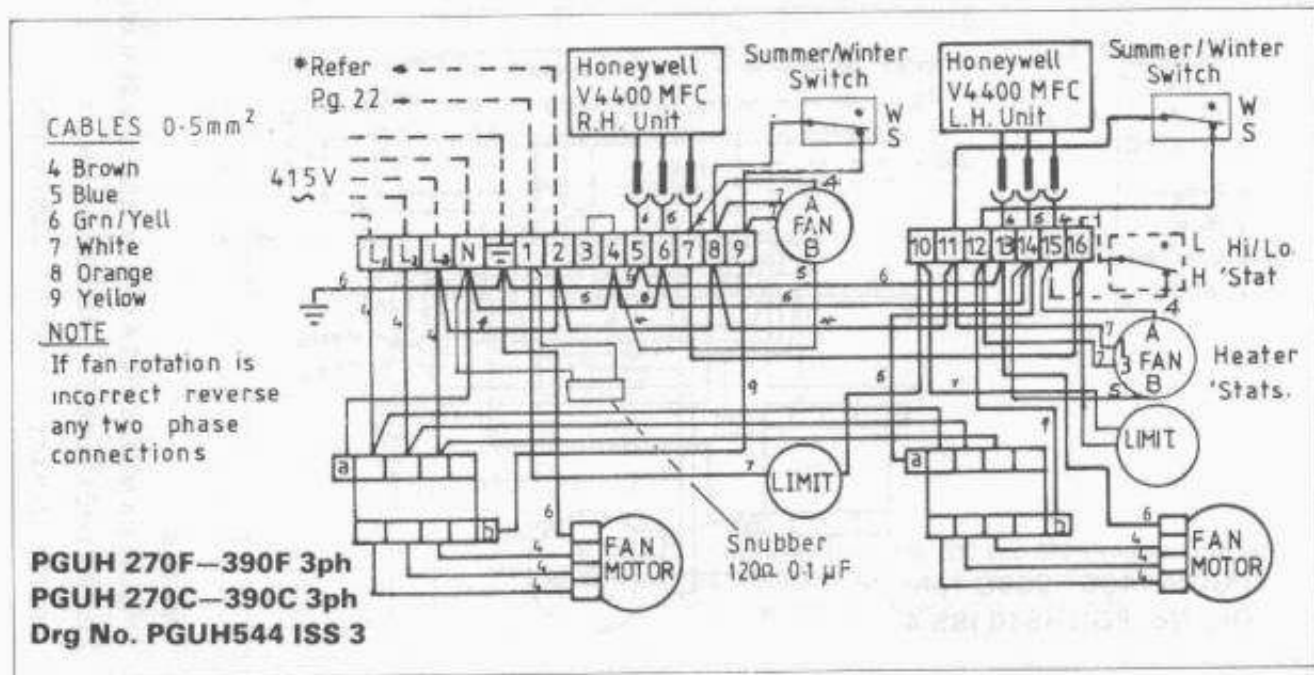
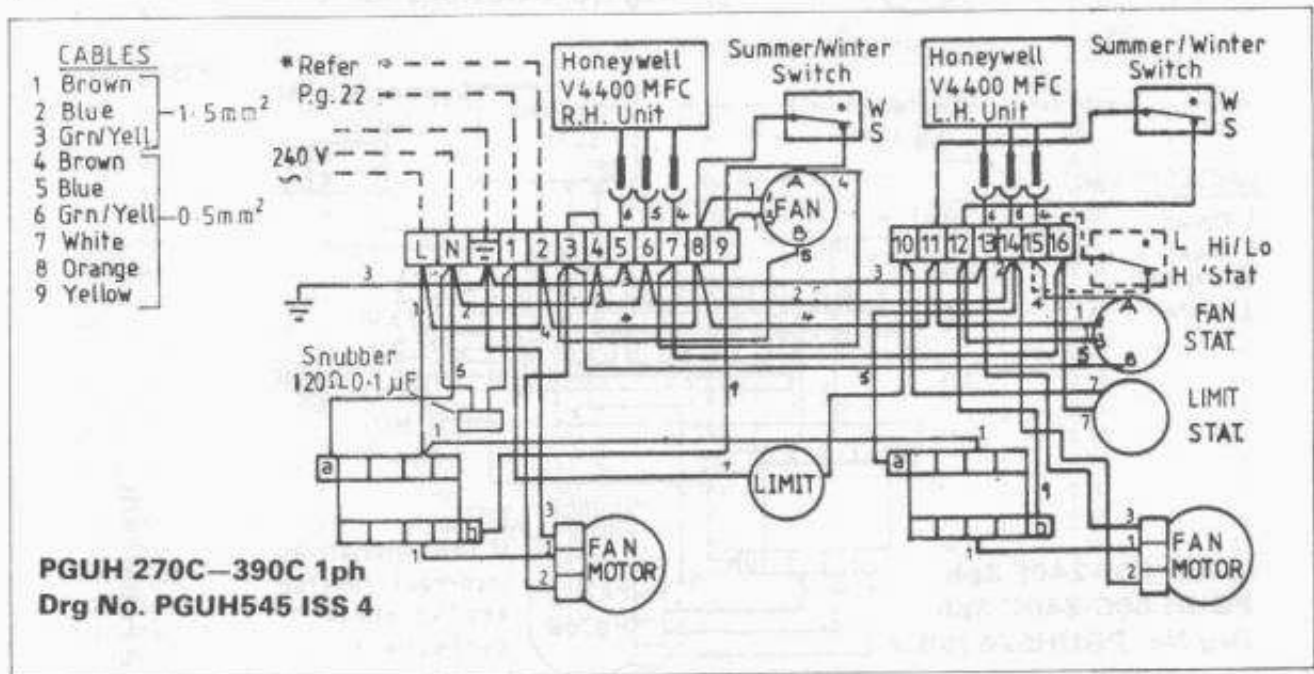
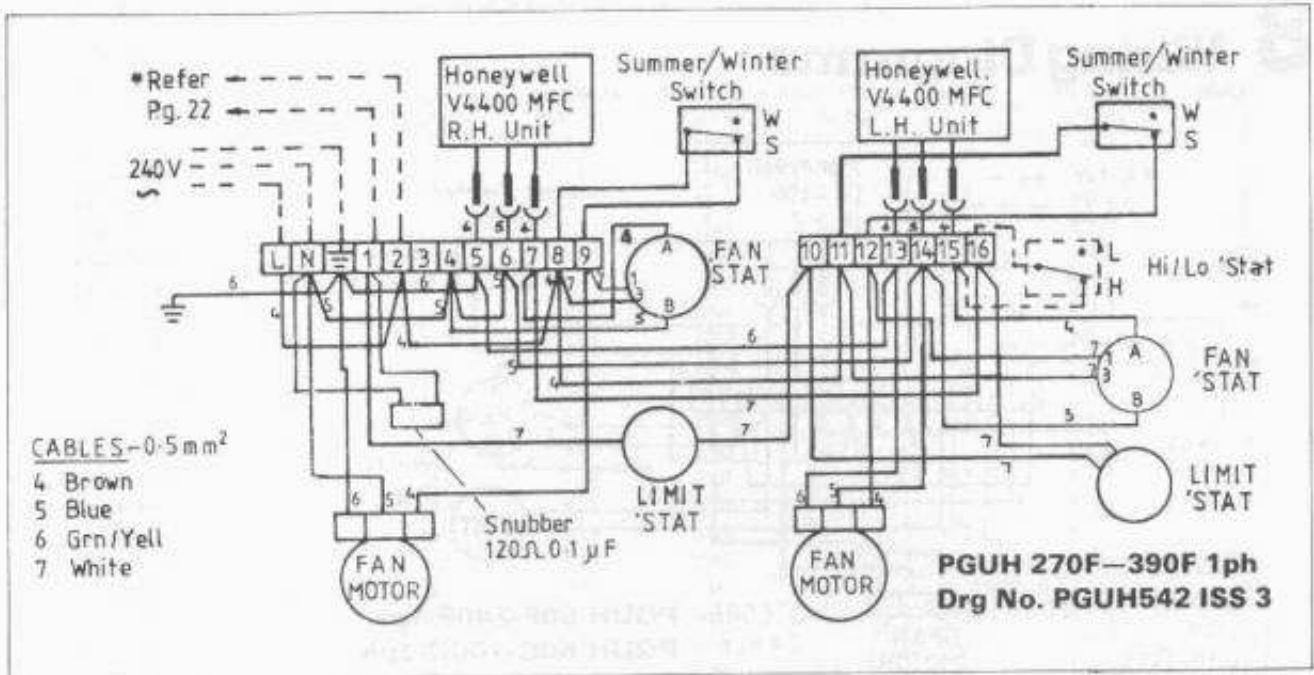


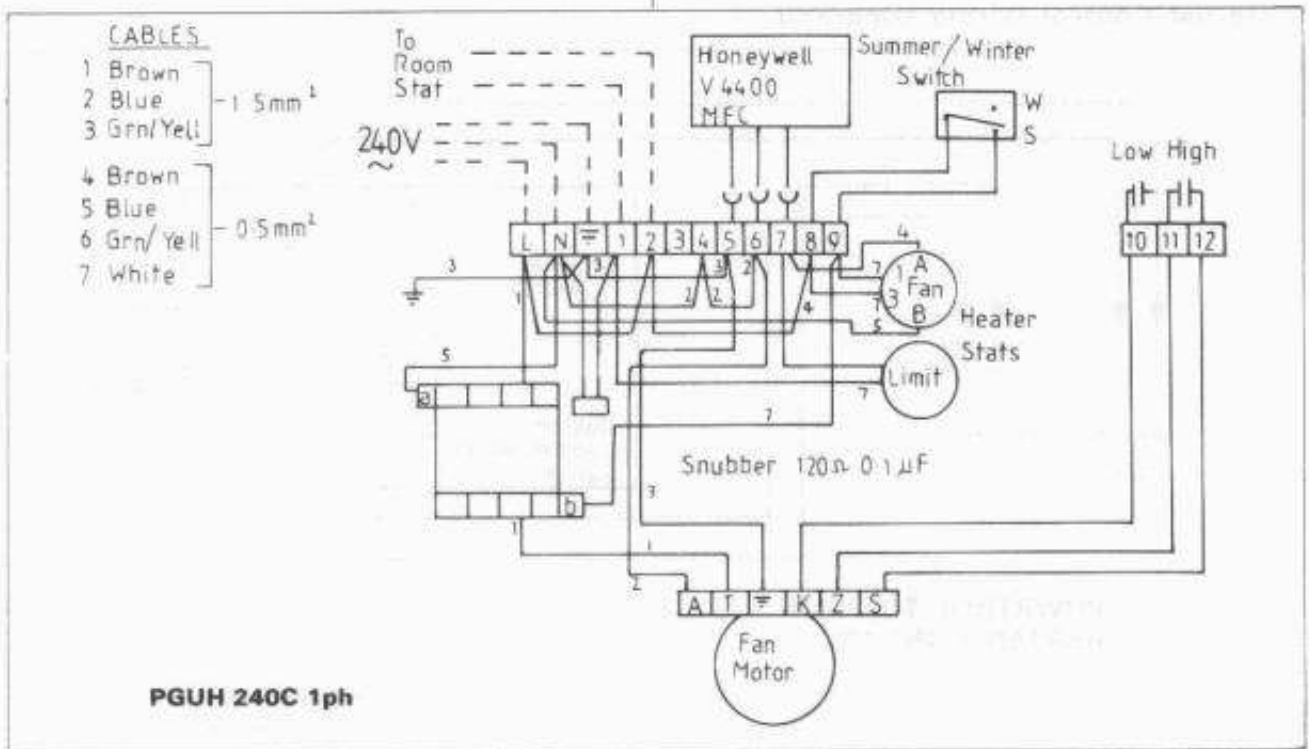
1. Gas inlet pipe
2. Fan assembly securing nuts
3. Pilot viewing port
4. Gas controls cover fixing screws (2)
5. Mains lead connector
6. Fan lead connector
7. Summer/Winter switch
8. Terminal strip
9. Limit thermostat
10. Fan thermostat
11. Electrical panel cover
12. Electrical panel cover fixing screws (2)

8 Wiring Diagrams



NOTES:
PGUH RANGE OF HEATERS CAN BE USED WITH POWRTROL,
EUROTROL AND THERMATROL UNITS
*REFER TO PAGE 22 FOR RELEVANT WIRING





PGUH 'D' Models

IMPORTANT: When installing these models they must be electrically linked to the air movement system so that this is started in the same way as the heaters own fan would be if it were fitted. A motor start relay **MUST** be fitted in the supply to the fan motor from the heater.

PGUH 50D – 200D

A connection from heater terminal 9 must be made to one side of the motor contactor relay which controls the main air fan, the other side being to Neutral.

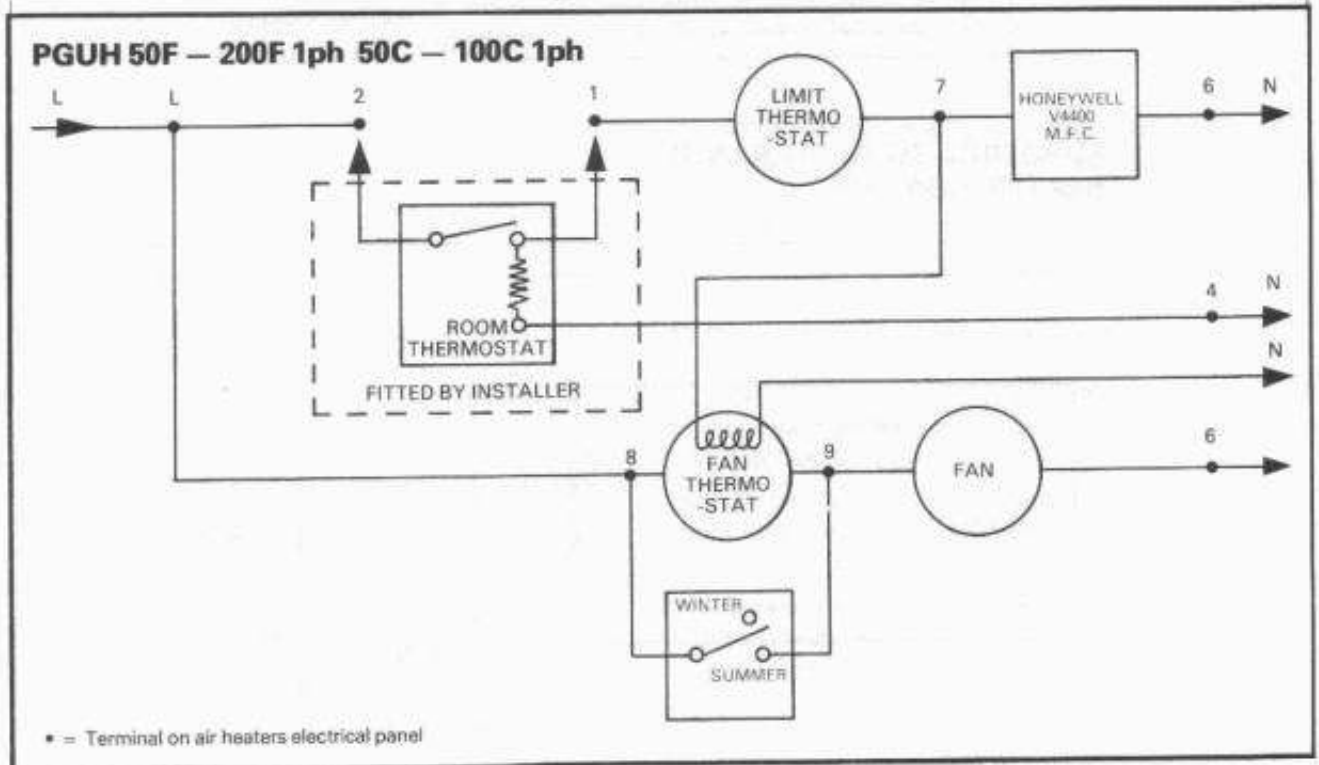
PGUH 270D – 390D

In addition to the above link heater terminals 9 and 12.

For further guidance relating to specific installations contact Powmatic Ltd.

All external wiring must be installed in accordance with the I.E.E. Regulations and any local regulations which apply.

FUNCTIONAL FLOW DIAGRAMS (Single Phase)

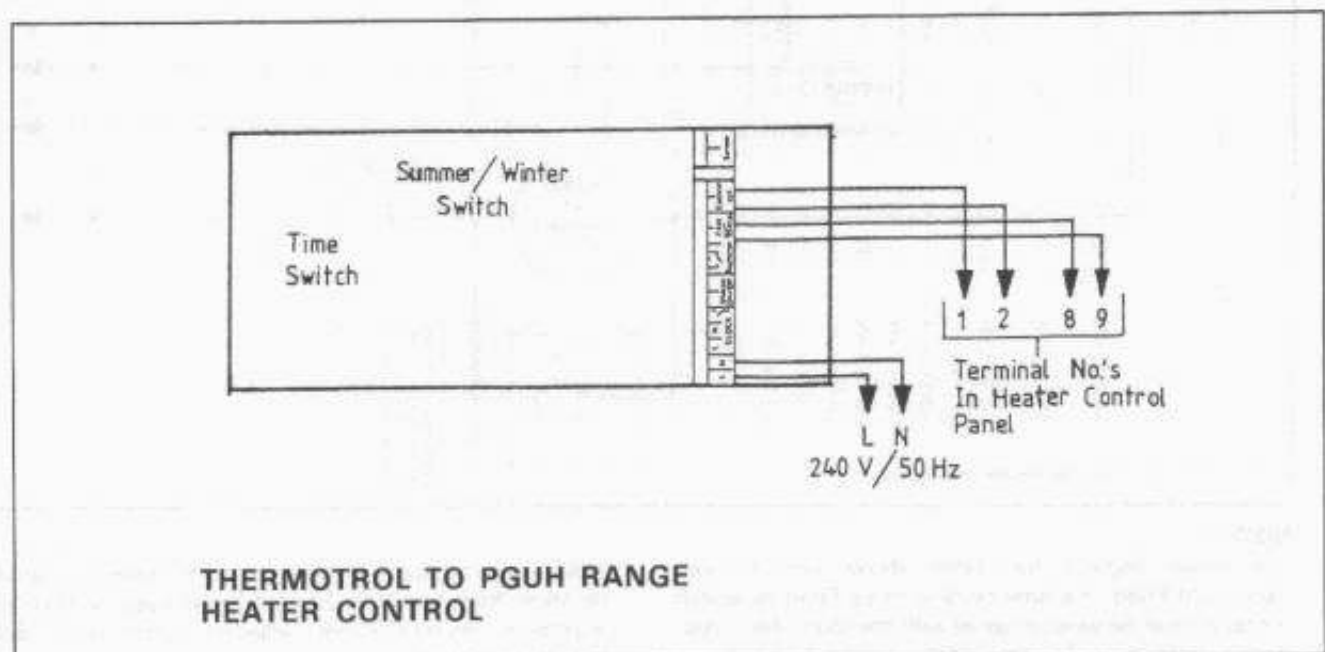
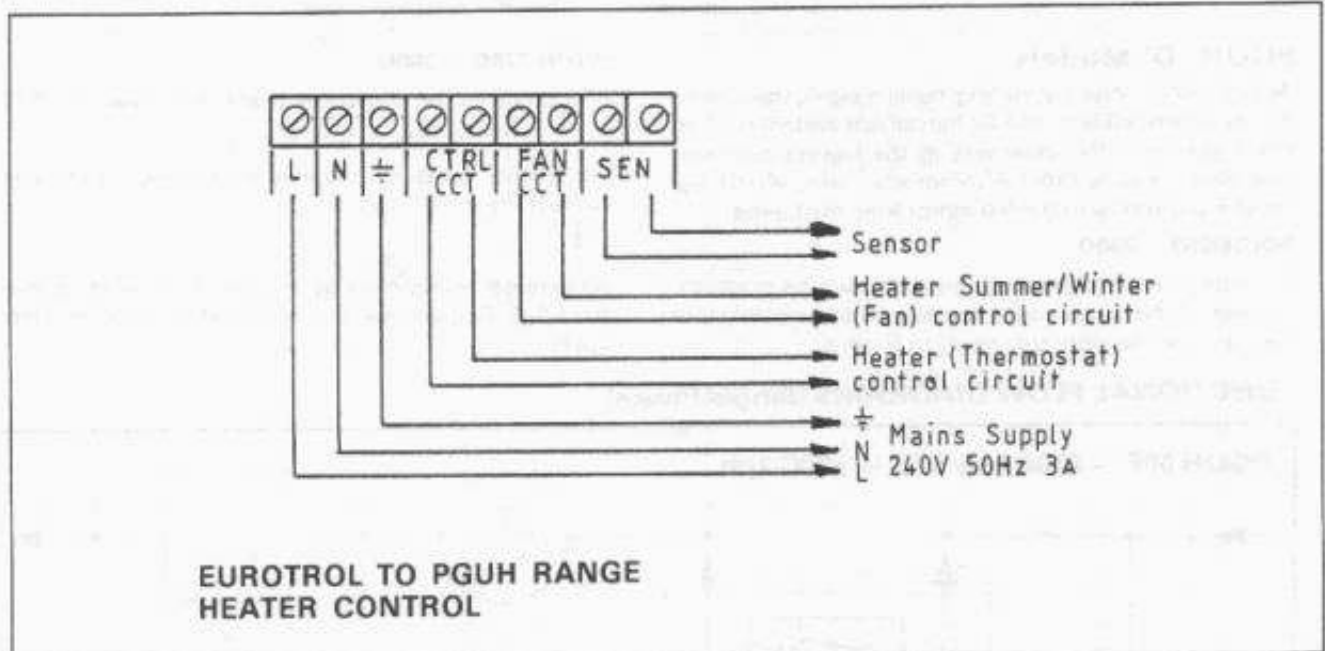
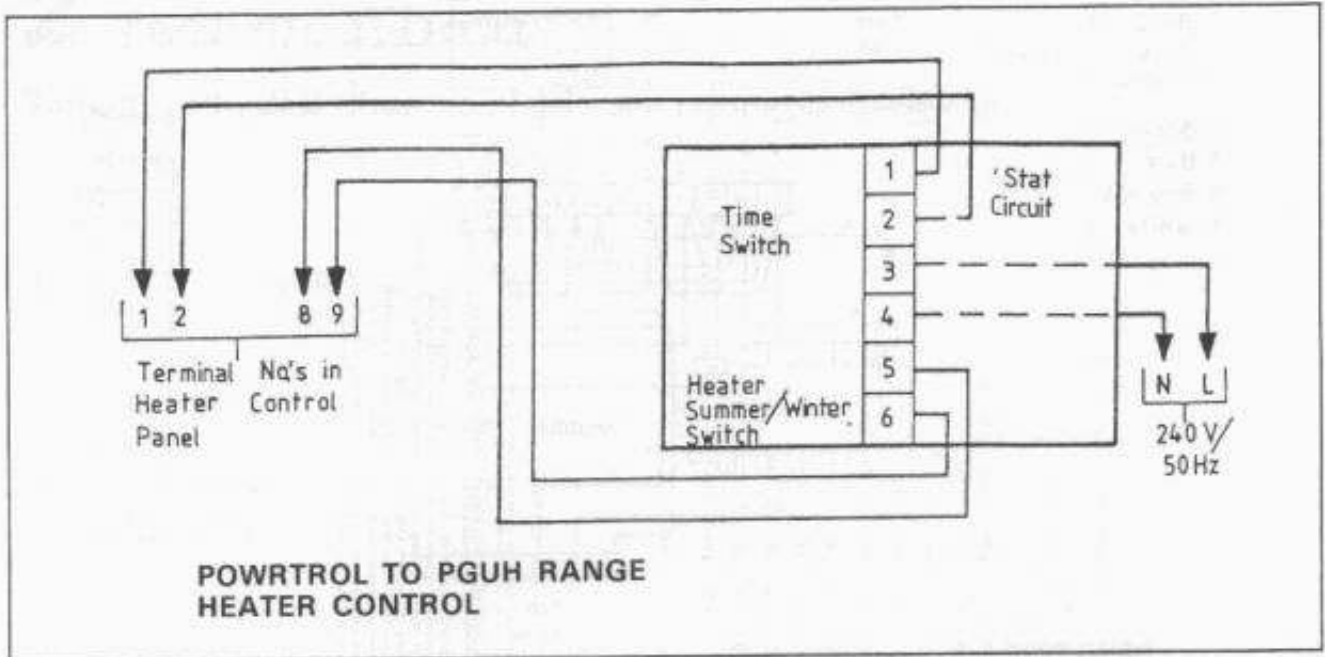


NOTE 1

The above diagram, for clarity, shows only a room thermostat fitted. If a time clock is to be fitted its switch contacts must be wired in series with the room thermostat switch contacts i.e. 2 – time clock – room thermostat –

1. A live and neutral supply for the clock motor may either be taken from terminals 2 and 4 respectively or from an alternative electrical supply adjacent to the time clock mounting position.

External Control Wiring Diagrams



9 Short list of Parts

Item	Application	Part No.
M.F.C. Honeywell V4400C1211	ALL	142400425
Pilot Assembly - Honeywell Q359A 1058	ALL	142403002
Pilot Injector - Honeywell 45.000.062.010	ALL	142402801
Pilot Compression fitting - Honeywell 45.000.026.002	ALL	142400404
Ignition Electrode - Vernitron 60820	ALL	142423100
Thermocouple - Honeywell Q309A (24")	ALL	142403827
Piezo Unit - Vernitron 60072	ALL	142436010
Burner Bar - Bray AB 17510	140-390	142400212
Burner Bar - Bray AB 17509	50-100	142400234
Injector - Bray Cat 960/300 (1.51mm)	50	142401626
Injector - Bray Cat 960/400 (1.7mm)	75-100	142401670
Injector - Bray Cat 990/700 (2.46mm)	140-390	142401691
Injector - Carrier	ALL	142401701
Thermostat, Fan - 29T12F125	ALL	142403642
Thermostat, Limit - 60T11	ALL	142403624
Fan Assembly - WDBD 127-101	240/C	140210205
Fan Pulley - 7 x 1A x 25	240/C	140201665
Fan Motor - MQA 574	240/C	140001451
Motor Pulley - 4 x 1A x 16	240/C	142000592
Fan Belts - A47	240/C	142112305
Contactors - Telemecanique LC1 - EEO3U	All 3ph 140C - 390C	143016110
Fan Assembly - WDBM 09261-05	50C - 85C	140210020
Fan Assembly - WDBM 10361-06	100C	140210010
Fan Assembly - WDBM 12461-06	170C/330C	140210052
Fan Assembly - WDBM 12461-05	200C/390C	140210073
Fan Assembly - PRG 41060-06	50F (1ph)	140210290
Fan Assembly - PRG 41060-06	50F (3ph)	140210310
Fan Assembly - PRG 4104-05	75F - 100F (1ph)	140210410
Fan Assembly - PRG 4104-05	75F - 100F (3ph)	140210430
Fan Assembly - PRG 51060-07	140F, 170F, 270F, 330F (1ph)	140210330
Fan Assembly - PRG 51060-07	140F, 170F, 270F, 330F (3ph)	140210350
Fan Assembly - PRG 51040-06	200F, 390F (1ph)	140210370
Fan Assembly - PRG 51040-06	200F, 390F (3ph)	140210390
Fan Assembly - PRG 51040-52	240F, 1ph	140210401
Fan Assembly - PRG 51040-52	240F, 3ph	140210405

BRITISH GAS APPROVED

G.C. Numbers

PGUH 50 F	42 862 72	PGUH 100 C	42 862 59	PGUH 200 D	42 862 80
PGUH 50 C	42 862 73	PGUH 100 D	42 862 77	PGUH 270 F	42 862 66
PGUH 50 D	42 862 74	PGUH 140 F	42 862 60	PGUH 270 C	42 862 67
PGUH 75 F	42 862 54	PGUH 140 C	42 862 61	PGUH 270 D	42 862 81
PGUH 75 C	42 862 55	PGUH 140 D	42 862 78	PGUH 330 F	42 862 68
PGUH 75 D	42 862 75	PGUH 170 F	42 862 62	PGUH 330 C	42 862 69
PGUH 85 F	42 862 56	PGUH 170 C	42 862 63	PGUH 330 D	42 862 82
PGUH 85 C	42 862 57	PGUH 170 D	42 862 79	PGUH 390 F	42 862 70
PGUH 85 D	42 862 76	PGUH 200 F	42 862 64	PGUH 390 C	42 862 71
PGUH 100 F	42 862 58	PGUH 200 C	42 862 65	PGUH 390 D	42 862 83

WARNING

It is important to ensure that any device used to switch the gas valve e.g. thermostat, is suitable to handle, without contact bounce, the electrical rating of the gas valve as detailed below, and installed to also avoid mechanically induced contact bounce.

If there is any doubt as to the suitability of a particular thermostat the manufacturers of that device should be contacted for advice.

Electrical Rating: 240V.A.C., 50Hz, 0.02amps (Inductive load).

GENERAL GUIDANCE

In general terms, thermostats, relays etc. which have a 'snap action' and high contact pressure will be acceptable.

**“Do business in the
right atmosphere”**

Powrmatic Limited

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