

Installation,
commissioning,
and maintenance
instructions

GENERAL RIGGING AND INSTALLATION

1 Shipping and packing list

Package one of two contains; Completely assembled unit fitted with four lifting brackets and with the following parts packed inside.

- Thermostat [packed in burner compartment]
- Installation instructions
- Wiring diagram fixed on inside of control box cover

A Rain Hood kit packed in the fan compartment

NOTE: If ordered, a Roof Mounting Frame will be packed and shipped separately from the unit with fixing instructions.

2 Shipping Damage

Check the unit for shipping damage. Advise the last carrier at once if damage is found.

3 General Guide

These instructions are only intended as a general guide and do not supercede local Codes of Practice in any way. Authorities having jurisdiction should be consulted before installation. The identification plate attached to the unit gives model number and rating data.

4 Requirements

The unit shall be installed, piped and wired in accordance with the relevant British Standards, British Gas Requirements, I.E.E. regulations. The current building regulations and any other relevant local requirements. See figure 1 for installation and servicing clearances.

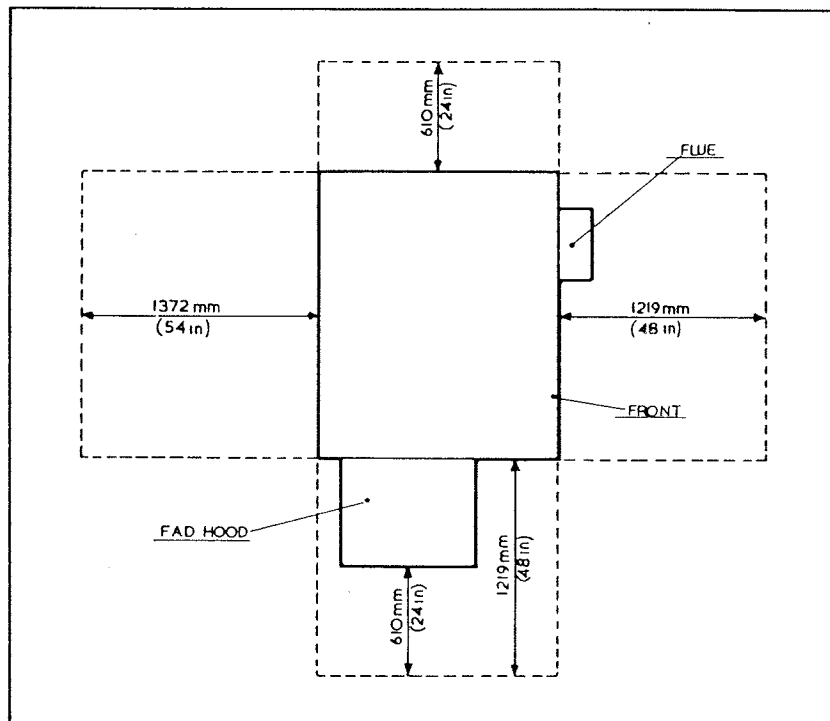


Figure 1

M7

B-1

11/1/81

5 Location of parts

Figures 2 and 3 show the general arrangement of the unit. Adequate clearance should be provided around the air opening into combustion chamber and from combustible materials. The minimum clearances for combustion air and servicing are shown on figure 1. The flue is complete and no alterations should be made. Electric power supply to the unit must be on a separate fused and permanently live electrical circuit.

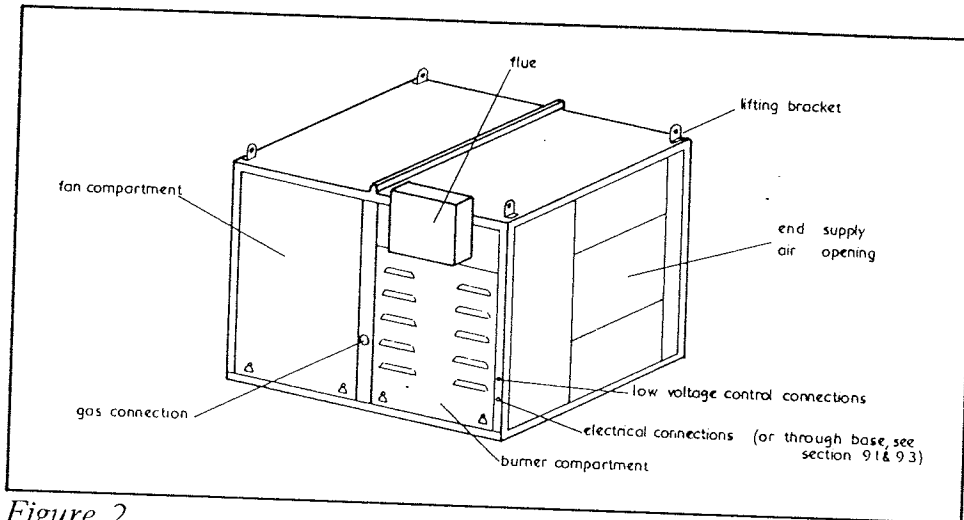


Figure 2

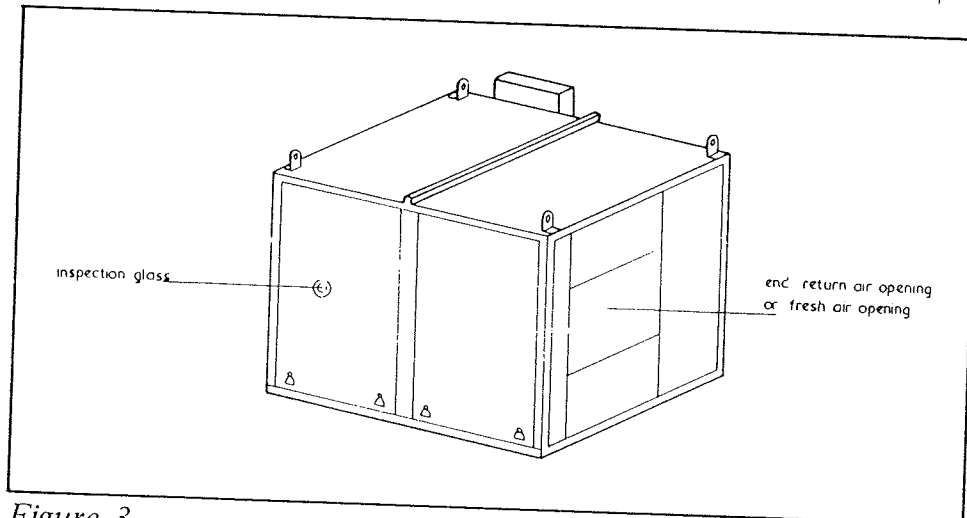


Figure 3

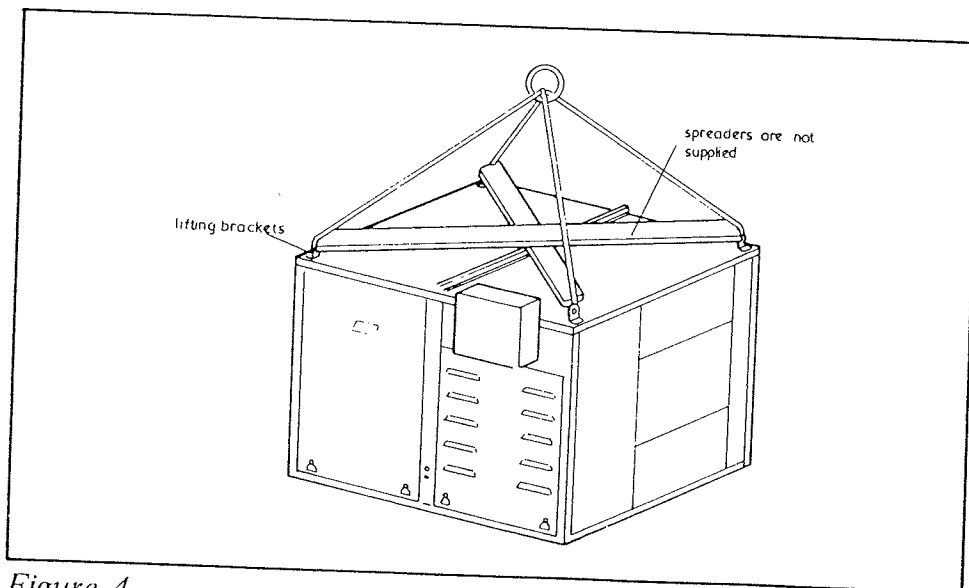


Figure 4

6 Rigging for lifting

Rig the unit with 4 lines and spreaders supplied by the installer, as illustrated in figure 4. To prevent damage to the unit during lifting care should be taken to ensure that the spreaders are of adequate length.

NOTE: Damage will occur if the spreaders are not used.

Length of unit:
1900 mm

Width of unit:
1750 mm

Net weight:

7 Installation

When the RMF3-150 Roof Mounting Frame is used it must be flashed and sealed. Duct openings in the roof should be cut prior to the installation of the units. Complete installation instructions are provided with the RMF3-150. Run a bead of caulking or ceiling compound around the top flange of the roof mounting frame. Lift the unit and lower it onto the roof mounting frame. With the unit set squarely on the frame there will be 13 mm space between the outside edge of the flange of the roof mounting frame and the base of the unit. See figure 5.

Recommended flashing for RMF roof mounting frame

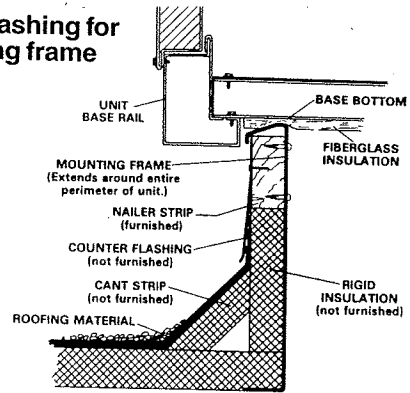


Fig 5

ROOF MOUNTING FRAME

RMF4-120 mounting frame with double duct openings

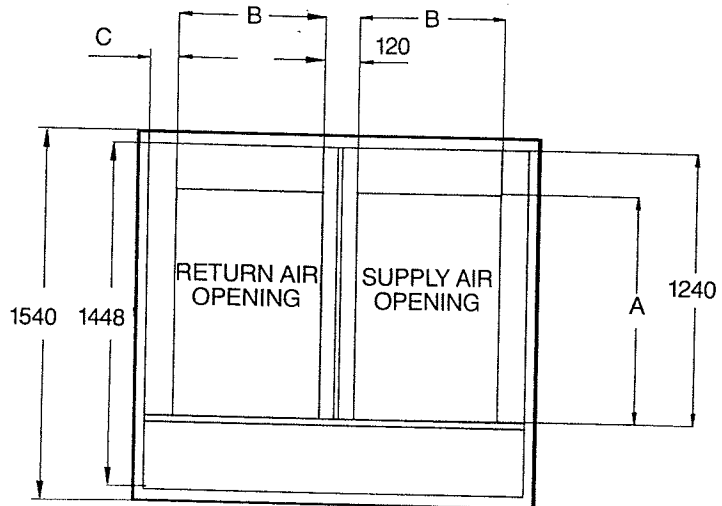


Fig 6.

NOTE: Roof deck may be omitted within confines of frame

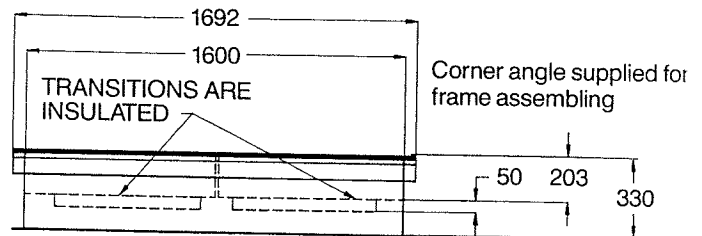


Fig.7

9 Duct Connections

Bottom supply and recirculation air

See figure 6 for the position of the ducts within the Roof Mounting Frames. Supply and recirculation openings are both 1092 mm x 610 mm.

Supply duct [see fig 7]

Insert the supply duct spigot 603 mm x 1086 mm through the roof opening into the base opening of the unit. Use clamps to support the duct and drill through the duct and the flange on the base of the unit from the inside of the supply duct. Secure the duct with self tapping screws or nuts and bolts. Complete the duct work as required.

10 Recirculation air duct [see fig 7]

The recirculation air duct can be fitted in the same manor as the supply duct. A duct connection spigot is provided and the duct connection is lower.

11 Horizontal supply and recirculation air [see fig 2 and 3]

Remove the end supply and recirculation air panels and fit them into the bottom supply and recirculation air openings. Secure the panels from inside the units. Make the duct connections to the supply and recirculation air openings in the ends of the unit. Caulk the duct connections to ensure weather tightness. Insulate and weatherproof all exposed ductwork.

12 Combination supply and recirculation ducts

The special Lennox Roof Mounting Frame RMF3-150B should be used. Installation instructions are attached to the frames.

13 Electrical connections

Refer to the wiring diagram attached to these instructions. Do not apply power until all connections are complete and the connection box cover replaced.

14 Electrical supply

WARNING: This appliance must be earthed. Electrical connections to the unit must be provided from a 415 volt 15 amp Triple pole and neutral fused isolator switch. This appliance must be earthed. Electrical connections to the unit must be provided from a 415 volt, triple pole and neutral fused isolator switch suitable for carrying 53 amps starting current and 15 amps running current. Facilities are provided for the electrical supply to be connected through the base of the unit. When a RMF 150B Roof Mounting Frame is used for combination supply and recirculation air ducting, the supply cable is fed through an opening in the panel of the roof mounting frame and connected through the box opening in the base of the unit as described.

15 Cables size (minimum)

Cable sizes are the responsibility of the contractor's electrical engineer
~~Main supply [red, yellow, blue, black] use 4 mm sq cable. Earth use 2.5 mm sq cable. Remote readout use 1 mm sq cable, 24 volt circuit use 1 mm sq cable. Final responsibility for cable sizing rests with the electrical contractor and will be determined by load and site conditions. and~~
and is determined by length of run with IEE Regulations

16 Incoming connection box

Connecting power supplies

To gain access to the control compartment in order to connect incoming power supply cables turn the isolator switch to the 'off' position and remove compartment panel.

The incoming power access box will be found in the bottom of the compartment. Power supply cables will be fed through the access box and connected to the, incoming line, terminal block as detailed in wiring drawing LBWD1993.

17 Terminal block connections

Three terminal blocks are provided inside the control compartment. Refer to the connections layout shown on drawing LBWD1993. Connect the main supply, 24 volt room thermostat wires and remote clock unit switch and readout if required in their corresponding terminal blocks. Connect the earth cable to the earthing lug provided.

18 Thermostat

Mount with accordance with the instructions supplied with the thermostat. Connect to the customer's connections box as shown on the unit wiring diagram.

19 Gas supply

Isolate the power supply to the unit before connecting the gas.

Gas connection to the unit is 1 1/4" BSP. Install the gas supply to the unit of adequate diameter to allow for bends, elbows and length of runs.

An external cock should be fitted in the supply pipe to the unit to facilitate servicing. Check all joints for gas leaks. The gas supply access box is in the bottom of the burner compartment to the left of the burner, the supply gas pipe being fed up through the access box to connect to the elbow of the gas manifold assembly of the unit.

RMF4 If a RMF3-150B Roof Mounting Frame is used to connect the unit to a combined supply and return ceiling defusser it is not possible to bring the supply gas up through the roof mounting frame to the access box as previously described. In this latter case the gas supply would be brought into the unit from outside, through the knock out supply in the panel.

20 Operating pressures for natural gas

Operating pressures when units are equipped for town gas and propane will be found on the appliance data rating plate.

Table 1

HEAD PRESSURE [high fire]		
NG Burner	2.4"	6 mbar
Pilot	4.0"	10 mbar

Installation,
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Commissioning

1 Commissioning

During commissioning the safety and general controls must be checked and their operation demonstrated to the customer. On no account may these controls be by-passed when the plant is in commission. Ensure that the commissioning check sheet is completed in full.

NOTE: On multiple installations each unit should be checked in sequence beginning with the one nearest to the main gas supply pipe and progressing to the farthest unit.

2 Visual inspection

Fans

Check the fan overload setting. This adjustment is found on the fan contactor inside the main control box. Ensure that it is set at or fractionally above the current rating on the motor nameplate. [see indoor fan operation].

Check bearing locking collars to ensure that they are correctly secured.

Check the pulleys for tightness and alignment. Check the belt tension [if adjustment is necessary, refer to maintenance instructions].

Fresh air dampers

Check for correct fitting of linkage arms.

3 Gas supply

Turn on the gas supply and ensure that the gas is available at the entry to the unit. Purge where necessary.

A minimum natural gas inlet pressure of 15 mbar [6 in wg] is required while the unit is running.

Shut off the gas at the external gas cock.

4 Safety solenoid valve soundness check

With the power off, remove the screw cap from the pressure test point at the appliance gas inlet and connect a manometer. Remove the cap from the pressure test point immediately after the safety solenoid valve.

Leaving the internal main gas cock open, ensure that the pilot gas cock is shut.

Turn on the gas at the external gas cock and note the manometer reading.

Shut off the external gas cock and check that the manometer reading is sustained.

If the manometer reading falls to zero, the safety solenoid valve is faulty and must be replaced.

After testing, disconnect the manometer and refit the pressure test point screw caps.

5 Electrical supply

With the power supply isolated from the unit check all electrical connections for tightness and correctness. Ensure that the gas supply to the unit is shut off at the gas cock.

Switch on the electrical supply to the unit. Check that the power is available at the disconnect switch and switch on.

6 Dry run

Ensure that the gas supply remains manually isolated from the unit for the duration of the dry run.

Move the roof thermostat lever to a "heating demand" and turn the system switch on the room thermostat sub-base to the 'auto' position. The burner programmer will start its sequence.

The ignition spark should commence after 36 seconds and the system go to lockout after a further six seconds.

Check also that the burner air switch operates to shut the burner down safely when the airflow is appreciably reduced.

To do this, press the lockout button to restart the programmer sequence and block off the air supply to the combustion air fan with a suitable piece of paper or card. Under this condition the programmer should lockout.

7 Setting up

[Refer to fig 8]

Connect manometers to the pilot and head pressure test points.

Follow the start-up procedure in the operation instructions to fire the unit.

Set the room thermostat above room temperature. When the thermostat is first set above room temperature there is an initial delay of about 38 seconds before the burner fires.

Should there be any air in the gas line the programmer will go to lockout. If this is so, depress the lockout button and repeat until the flame is established.

The burner will now operate on dictate from space thermostat.

2.

While the pilot is in operation check the pilot pressure and adjust the governor if necessary. Refer to Table 1 for pressure settings.

Adjust the main governor when the burner is on second stage heat. First stage should then be correct.

If necessary, slight adjustment to first stage setting pressure can be made by adjusting the throughput of the first and second stage gas valves [consult a Lennox engineer].

Check the gas consumption at the gas meter, with all other appliances off. With the room or zone thermostat to 'auto', set the thermostat above room temperature. The burner should light in sequence.

8 Safety lockout check

With the unit running, turn off the internal main gas cock. The system will go to lockout.

Reset the lockout button and while only the pilot is on, shut off the pilot gas cock. The system will go to lockout. Turn on the main gas cock and the pilot gas cock. Reset the lockout button to restart the unit.

9 Check combustion

A combustion air adjustment lever is provided on the burner. Refer to fig 9, page 18.

To adjust, loosen the lock-screws and move the damper indicator to the desired position. Relock the indicator.

By analysis of the flue gas, adjust the air damper to give optimum combustion.

10 Check temperature rise

With the unit running on full thermostat demand, check the average temperature rise across the heat exchanger.

This should not exceed 42 °C [75 °F].

11 Check indoor fan operation

With the fan access panels in position and the unit running, measure the full load current draw of the fan motor. This must be within the range stated on the motor nameplate. If not, stop the fan immediately and adjust the fan drive pulleys. Recheck the current draw.

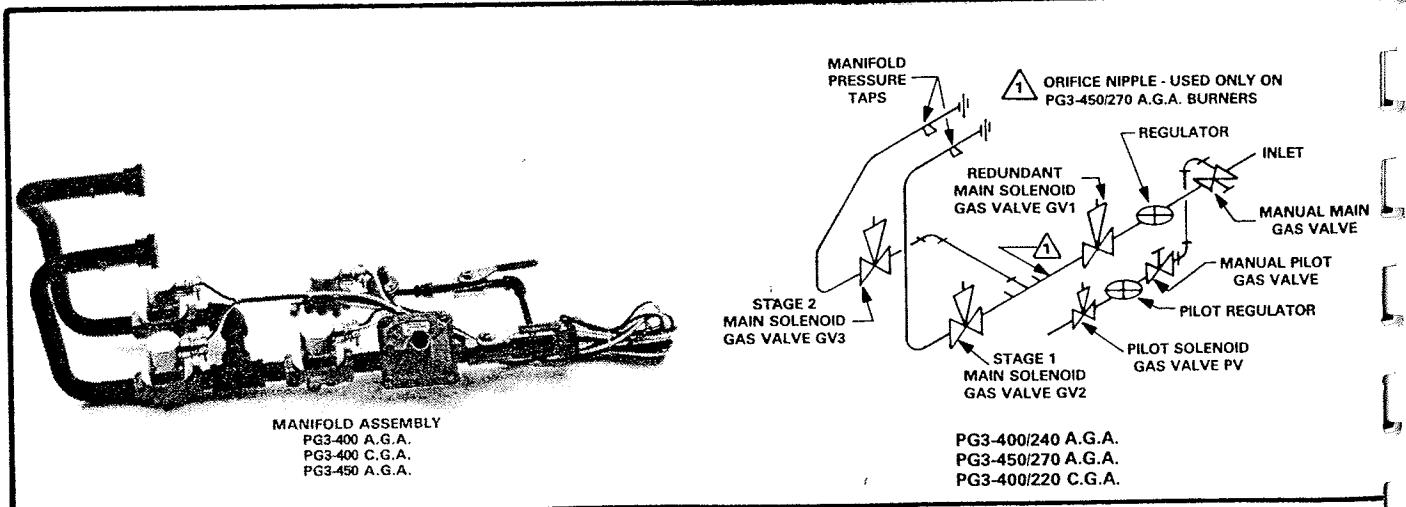


FIGURE 8

Reset the overload on the fan motor contactor to a position slightly above the full load current rating of the fan motor.

12 Check fan control operation

With the unit running and fully warmed up, set the room thermostat to the lowest setting. The burner will stop and the fan should run on for approximately 1½ minutes and then stop.

Check also that on restarting there is a delay before the fan starts up after the burner has fired.

13 Check limit control operation

Switch off the gas and allow the unit to cool down. Isolate the power supply to the unit. Remove the fan belts. Switch on the gas supply to the unit. Switch on the power supply and start the burner. Check that the limit control operates to shut down the burner.

Switch off the power supply and refit the fan belts [see Maintenance Instructions]. Re-establish the power supply and restart the burner.

14 Check fresh air dampers

Check for correct operation. Ensure that the dampers operate in concert with the recirculation air dampers and will adjust over the full range 0 to 90°. If a fixed quantity of outside air is required during the heating mode link terminals 1 and 3 of relay D7 [see DWG LBWD 1993 sheet 2] and adjust damper accordingly, keeping in mind the minimum air on temperature for the heat exchanger is 8°C.

15 Thermostat setting

Set the anticipators on the thermostat sub-base to the current draw at the thermostat terminals, W1 and W2 respectively.

Leave the thermostat at the desired temperature setting.

16 When commissioning is complete

Replace the control panels, covers and access panels. Caulk any open joints, holes or seams to make the unit completely weatherproof. Leave the instructions with the owner or in an obvious place.

Ensure that all details have been completed on the commissioning report sheet and that a copy is passed to the user.

Fully demonstrate the operation of the unit to the user and leave the unit running.

Caution - Before any maintenance is carried out on a GS4-120 turn off electricity supply.

1 Lubrication

The fan shaft bearings are packed with grease. Under normal circumstances this original lubrication is adequate for one year. After one year lubricate annually with grease gun. Use Alvania R3 with Lithuim base.

The fan motor and combustion air motor should be lubricated each year with two or three drops of machine oil SAE20 as per the instruction label.

2 Fan assembly

Check fan drives for correct alignment and check that pulley set screws are tight on the key ways.

3 Belt adjustment

Maximum life and wear can be obtained from belts only if proper pulley alignment and belt tension are maintained. Initially, tension new belt[s] at the maximum deflection recommended. This allows the belt[s] to stretch and seat in the grooves.

4 Pointers for installing belts

When twin track pulleys are fitted on 5hp drive kits use a matched set of belts. Clean oil and grease from the grooves, also remove any rust or burrs from the sheave grooves. Shorten the centre distance of the drive until the belts can be put on the sheaves without forcing.

Make sure that the sheaves are correctly aligned, that the shafts are parallel and that there is clearance for the drive to run. On twin track pulleys be sure both are set at same pitch diameter.

5 Tensioning belts

The ideal tension is the lowest tension at which the belt[s] will not slip under peak load conditions. Over-tensioning shortens the belt and bearing life. Following is a recommended procedure for tensioning belts.

Measure the span length "X" and refer to Table 3.

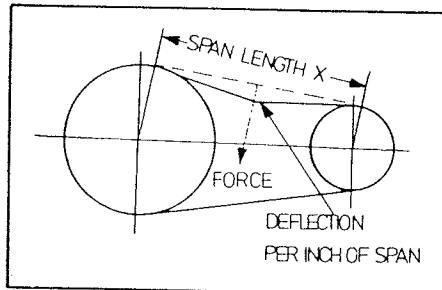
At the centre of the span apply a force [perpendicular to the span] large enough to deflect the belt 0.4 mm [1 1/64 inch] for every 25 mm [one inch] of length span.

Example: The deflection of a 1016 mm [40 inch] span would be 16 mm [5/8 inch].

Compare the force you have applied with the values given in Table 3. If the force is between the minimum and maximum range shown, the drive tension should be satisfactory. A force below the minimum value for normal tension indicates an under-tensioned belt. If the force exceeds the maximum value, the drive is tighter than it needs to be.

Table 3

Belt cross section [marked on belt]	Motor pulley pitch diameter		Deflection force			
			Minimum		Maximum	
	mm	in	kg	lb	kg	lb
A	76 - 91	3.0 - 3.6	1.19	2 3/8	1.48	3 3/4
	97 - 122	3.8 - 4.8	1.36	3	1.82	4
	127 - 178	5.0 - 7.0	1.48	3 1/4	2.27	5
B	86 - 107	3.4 - 4.2	1.36	3	1.82	4
	112 - 142	4.4 - 5.6	1.82	4	2.67	5 7/8
	147 - 218	5.8 - 8.6	2.38	5 1/4	3.58	7 7/8



6 Filters

Turn the thermostat down to the lowest setting. Set the fan switch on 'auto'. Wait until the fan has stopped operating, then switch the unit off at the main supply switch.

Access to the filters is attained by opening the fan compartment door. The filters can now be removed for cleaning. Pull the filters from the unit. Clean using a vacuum cleaner or wash with mild soap and water and rinse thoroughly.

Replace the filters.

7 Ignition system

Unscrew the spark plug retaining plate. Remove the spark plug and check that the gap is set to 0.89 mm [0.035 inch].

Check the Honeywell safety ignition system:

- a] with the unit running, turn off the internal main gas cock. The system will go to lockout.
- b] Reset the lockout button and, while the pilot is on, shut off the pilot gas cock. The system will go to lockout.

Check combustion air fan as follows; reset the lockout to restart the programme sequence. Block off the air supply to the combustion air fan with a suitable piece of paper or card. The programmer should then continually recycle over its 75 second sequence with the fan on for six seconds at the start of each cycle.

Turn on the main gas and pilot gas cocks. Reset the lockout button to restart the unit.

8 Clean up

When the unit is operating properly, replace the control panel covers and access panels, seal any open bolt holes or seams to make the unit weatherproof, set the room thermostat at the desired setting and leave the operating and maintenance instructions with the customer.

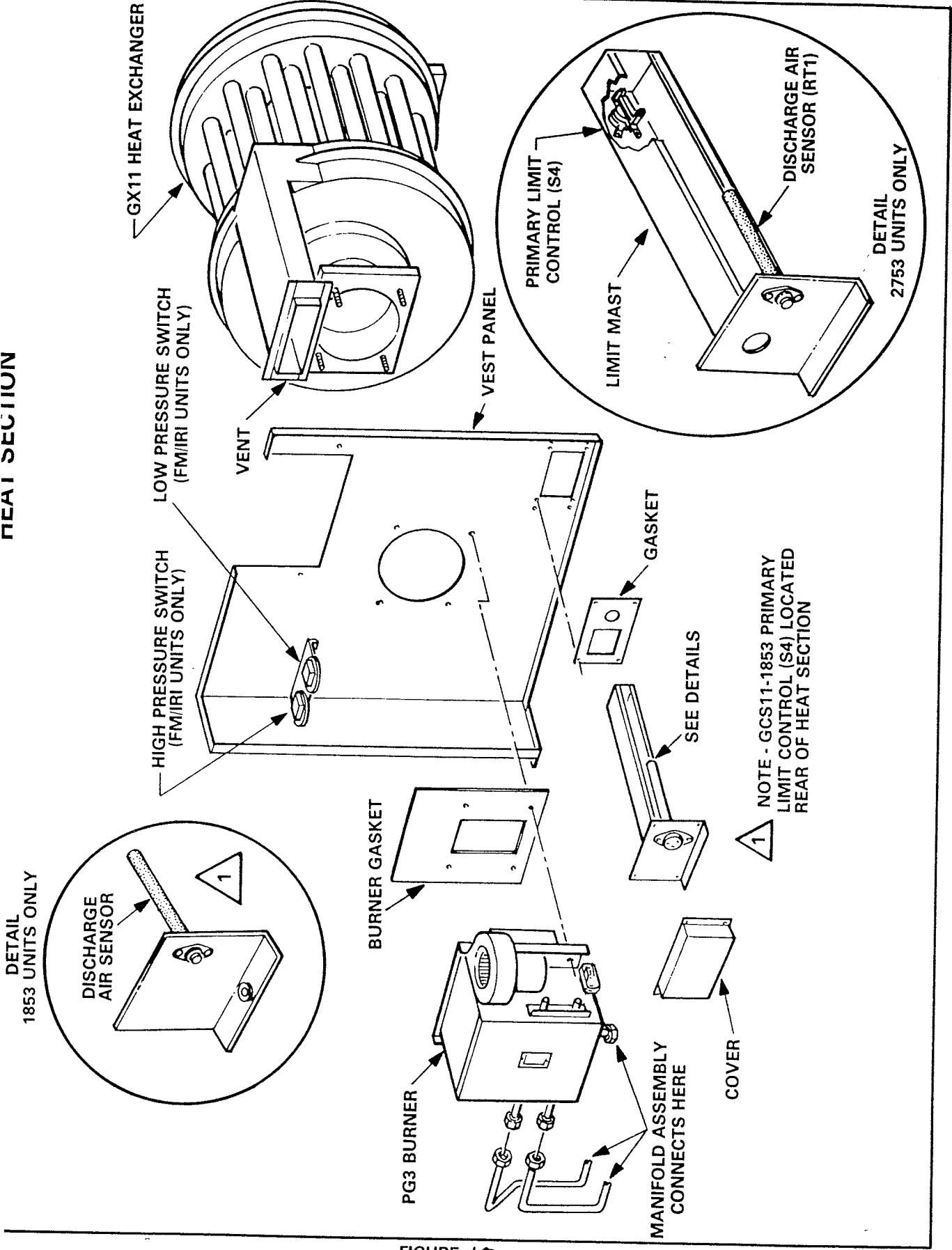


FIGURE 10

UNIT INFORMATION

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HEATING COMPARTMENT

GS4-120 units use the PG3 power burner and GX11 heat exchanger. Basically, the heating components provide fuel supply, combustion air supply, ignition source and proof of flame.

Fig. 10 identifies the components of the heat section and

Fig. 11 illustrates the PG3 burner components.

PG3 POWER BURNER

The PG3 burner in the GS4-120 has two stage operation and uses an intermittent pilot system with flame proving to ignite the main burner.

On an initial heating demand prepurge of the heat exchanger is provided by a combustion air blower. The pilot valve is then energised as the primary control provides sparking at the electrodes to light the pilot flame. When the pilot has been proved by flame rectification, the main gas valves are opened by the primary control. Gas flows from the manifold through the orifices into the venturi where it is mixed with air in the correct proportion for proper combustion. Air is provided by the combustion air blower. The existing pilot flame ignits the fuel mixture. Uniform heat distribution from the resulting flame is achieved by flame spreaders. The flame may be observed through a window in the burner box cover. Second stage burner is ignited by the first stage burner flame.

GX11 HEAT EXCHANGER

Heat exchanger condensate connections are provided on both sides of the unit. Condensate must be routed away from the heat exchanger and protected where necessary from freezing.

If it should be necessary to clean the flue gas passageways, carry out the following procedure.

1. Remove heat exchanger rear access panel.
2. Unscrew cap screws and remove heat exchanger breeching. See Fig.
3. Slide flue baffles from heat exchanger tubes.
4. Clean flue passageways with wire brush.
5. Replace gasket and reassemble heat exchanger.

PRIMARY CONTROL

GS4-120 units use the Honeywell R4341 proof-of-flame intermittent pilot ignition control, which provides automatic sequencing control of burner motor, pilot valve ignition and main valves.

A motor driven cam timer provides precise sequencing which includes the following periods: prepurge, pre-ignition, pilot stabilization, main flame trial, main flame stabilization, and post purge.

UNIT INFORMATION.

MAIN PRIMARY CONTROL AND BURNER EVENTS

(See also sequence of operation with wiring diagram).

0	Seconds	Limits are made. Controller calls for heat. Relay 1K pulls in. Timer motor starts. Burner motor starts.
6	Seconds	Start interlock by-passed. Air switch must be "made" to continue operation. Proven pre-purge begins.
38	Seconds	Pre-purge ends. Ignition commences.
43	Seconds	Pilot valves energised. 2K relay pulls in with flame.
47.5	Seconds	Ignition de-energised.
55	Seconds	Main valve energised.
59.4	Seconds	Pilot valve de-energised.
63	Seconds	Run position. Timer motor stops.
Shut down		Relay 1K drops out. Valves de-energised. Timer motor starts. Main flame extinguishes. Post-purge begins.
75	Seconds	Post purge complete. Burner motor stops. Timer motor stops. System at standby.

ELECTRODE SETTING

Fig. 12 shows the PG3 venturi with ignition assembly and electrode setting dimensions. The Honeywell spark gap is 1/16 inch.

START UP AND SHUT DOWN PROCEDURES

1. Start up.

Close manual main gas valve(s) and pilot valve. Set space or zone thermostat to lowest setting. Wait at least 5 minutes and then open gas valves. Set space or zone thermostat to desired temperature. On heating demand the pilot should light followed by the main burner. If it does not, repeat the preceding steps.

2. Safety shutdown.

Turn off power to unit. Close manual main gas valve(s) and pilot valve. DO NOT ATTEMPT TO RELIGHT BURNER WHEN COMBUSTION CHAMBER IS HOT. Wait a minimum of 5 minutes to allow heat exchanger to purge unburned gases before trying to restart unit.

3. Extended period shutdown.

Set space or zone thermostat at lowest setting and turn off power to unit. Close all gas valves both internal and external to the unit to guarantee no gas leak into the combustion chamber. All access panels, covers and vent caps must be in place and secured. Refer to step 1 to reactivate the unit.

UNIT INFORMATION.

GAS PRESSURE ADJUSTMENT

1. Check gas pipe pressure with unit firing at maximum rate. A minimum of 6 inches w.g. (15 mbar) should be maintained. On multiple unit installations, check each unit in sequence, beginning with the one closest to the supply gas main and progressing to the one furthest from the main. Line pressure should be a nominal 7 inches w.g. (18 mbar) with all units firing on high stage.
2. After line pressure has been checked and adjusted, check manifold pressure during high fire operation. Refer to Fig. and Fig. for location of manifold pressure taps from which reading can be taken. Readings should be:
Burner 2.4 inches w.g. (6 mbar)
Pilot 4.0 inches w.g. (10 mbar).
3. To check for proper gas flow to combustion chamber determine the Btu/hr (kw) input from the unit rating plate. Divide this input rating by the calorific value of the gas (Btu/ft³ or MJ/M³). Note 3.6 MJ/h = 1 kW, to find the required input volume of gas. Measure the flow of gas through the gas meter, making sure that all other gas burning equipment is not operating, for 2 minutes and multiply by 30 to calculate the actual gas flow to the burner. Gas input should not exceed burner rating. If it does, make the necessary adjustments.

BURNER FLAME

The natural gas flame is totally blue. Combustion air input is factory set for normal operation. Minor changes in the input of combustion air may be necessary to compensate for the heating value of the gas. A combustion air adjustment shutter is provided on the combustion air blower. Loosen the lock screw and move lever to desired position. See Fig. 13

For efficient operation keep the combustion air blower wheel clean. Remove combustion air blower assembly and clean the wheel blades with a small brush.

BLOWER OPERATION AND ADJUSTMENT

1. The unit centrifugal fan operates on a signal from W1 on the space or zone thermostat to D1 first stage heat relay coil and D4 blower delay relay coil. Relay switch D1-1 and D4-1 close to energise the blower contactor coil C1 and close switches CP-1.
2. If the heating limit control E51 opens on high temperature the blower is energised continuously until the limit control returns to its normally closed position.

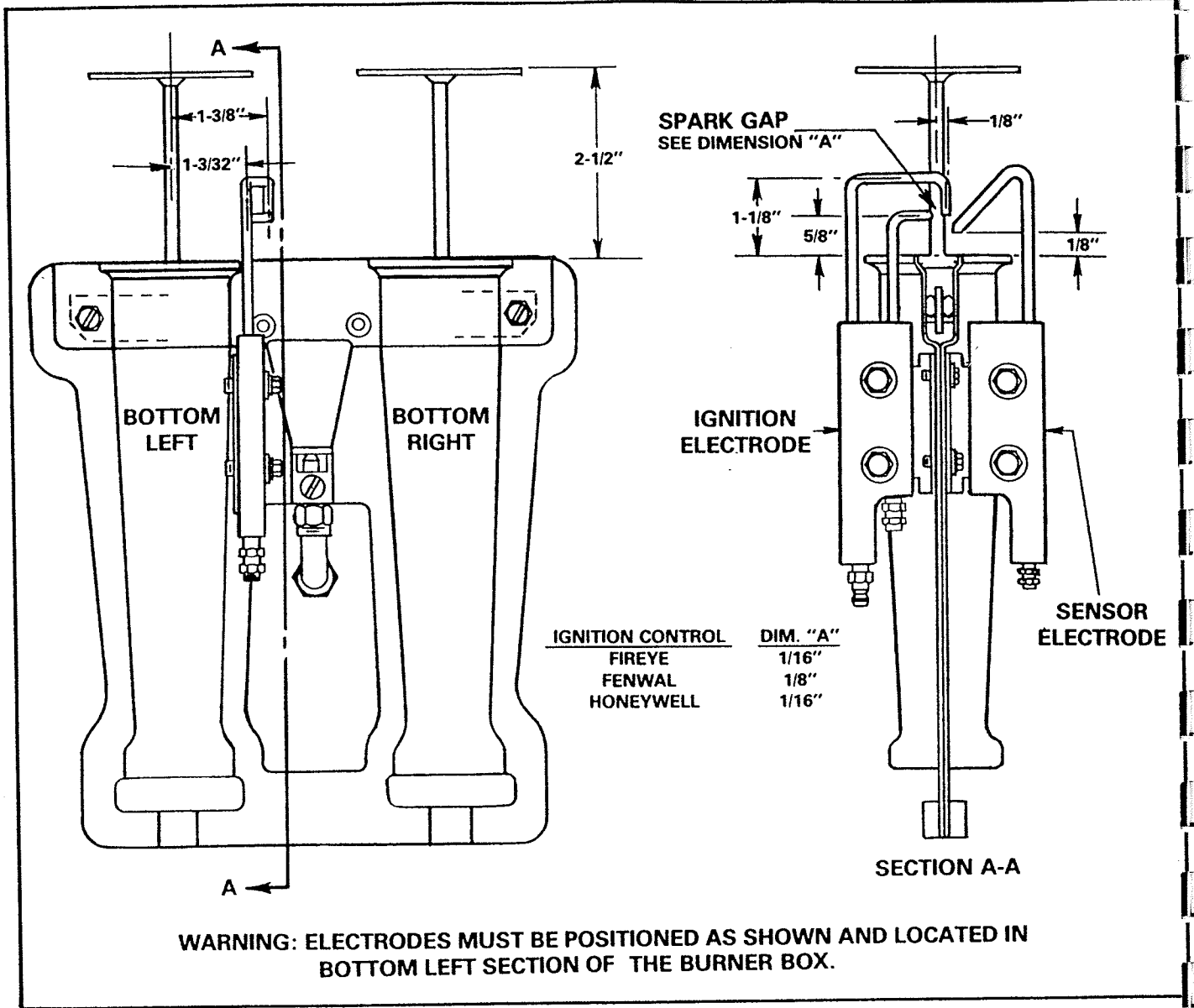


FIGURE 12.

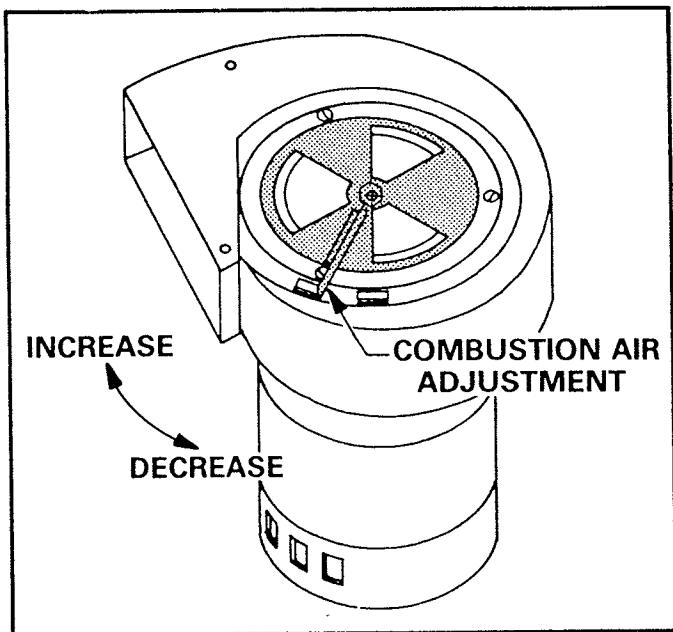


FIGURE 9

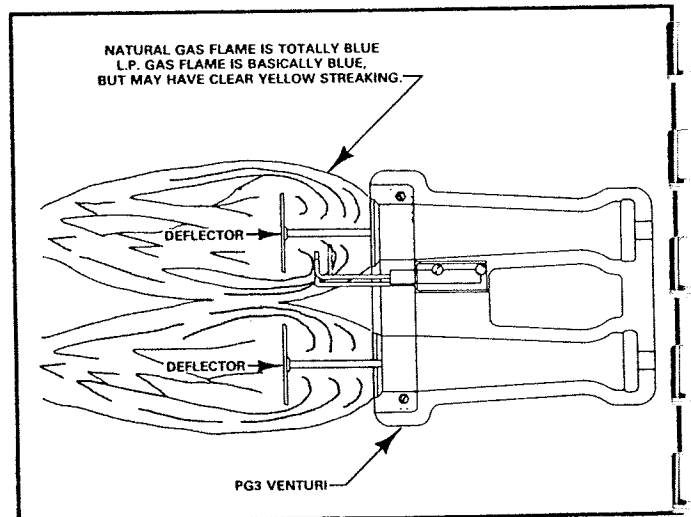


FIGURE 13

UNIT INFORMATION

DETERMINING UNIT AIR VOLUMES

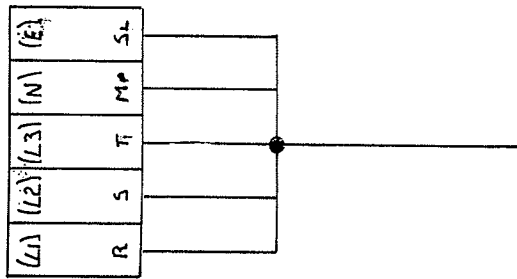
1. The following measurements may be made without a heating demand. Air filters must be in place while taking measurements.
2. Measure static pressure external to the unit with an inclined manometer.
3. Measure the fan (blower) motor r.p.m.
4. Refer to the Blower Performance Chart. Use the static pressure reading obtained from the inclined manometer and the r.p.m. readings to determine unit cfm (m^3s).
5. The air volume of the unit can be adjusted at the motor pulley. Loosen the allen screw and then turn the adjustable sheave clockwise to increase air output or counter clockwise to decrease air output.

FAN (BLOWER) BELT ADJUSTMENT

Maximum life and wear can be obtained from the belt only if proper pulley alignment and belt tension are maintained. Initially, tension a new belt after a run in period of 24-28 hours. This allows the belt to stretch and seat in the grooves. To adjust belt tension, loosen the locking bolts of the motor bracket and slide motor to increase tension. Re-tighten locking bolts.

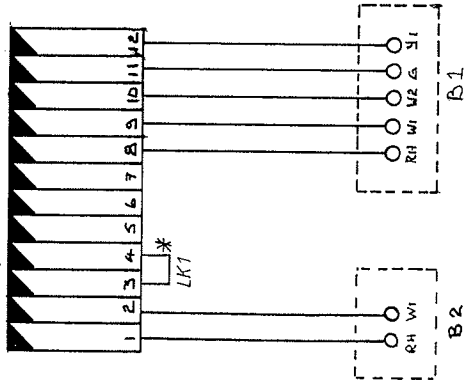
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MAINS TERMINAL BLOCK

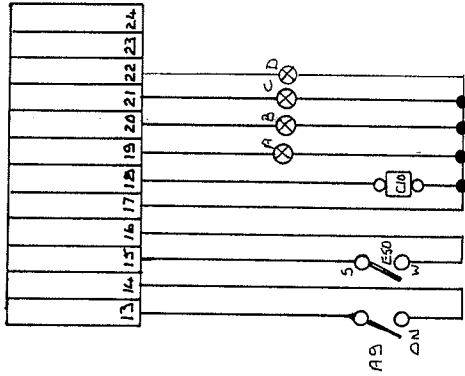


MAIN SUPPLY 3 PHASE 415V 50HZ
15 AMPS PER PHASE.

LOW VOLTAGE TERMINAL BLOCK



LINE VOLTAGE TERMINAL BLOCK



NOTE:- IF ESO NOT INSTALLED
LINK TERMINALS 15 & 16

* LK1 - WILL ALLOW DAMPER TO BE OPEN TO MINIMUM POSITION DURING HEATING MODE - DO NOT FIT IF DAMPER TO REMAIN CLOSED IN HEATING MODE

DESCRIPTION- INSTALLER WIRING

G54-120

DRAWN- RS

APP'VD - *RS*

DATE- 15-10-84

CHK'D -

LK1 ADDED 13/3/89

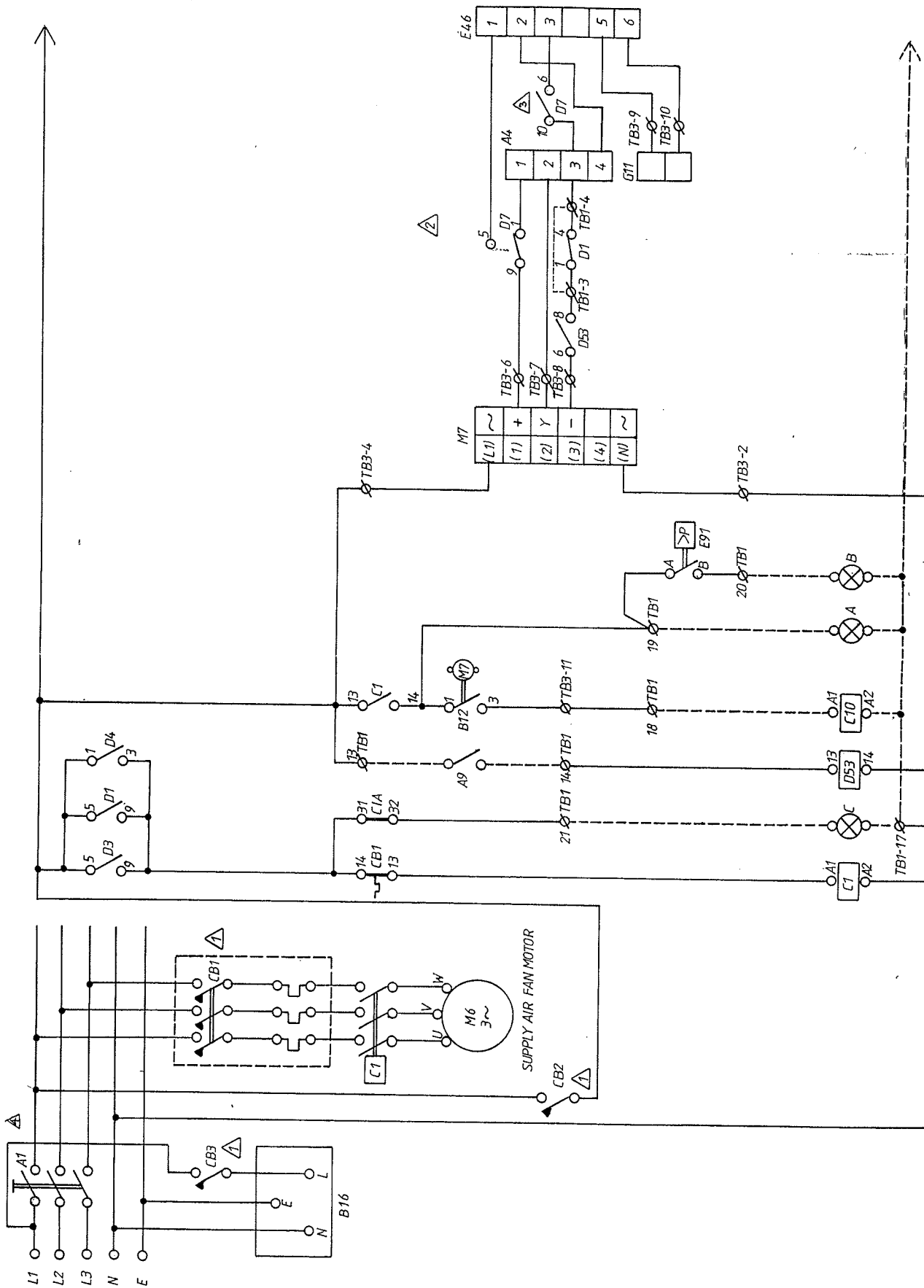
B2 ADDED 22.7.88

LENNOX Industries Ltd.
BASINGSTOKE 461261

DRG. No. L B W D 1993

SHEET 1 OF 6

5556-1045



REVISION Δ CIRCUIT BREAKERS USED INSTEAD OF FUSES 18/5/87 Δ DAMPER CONTROL MODIFIED 13/3/89 Δ D7 WIRING REVISED 12-6-89 Δ A1 WIRING REVISED 18-09-90

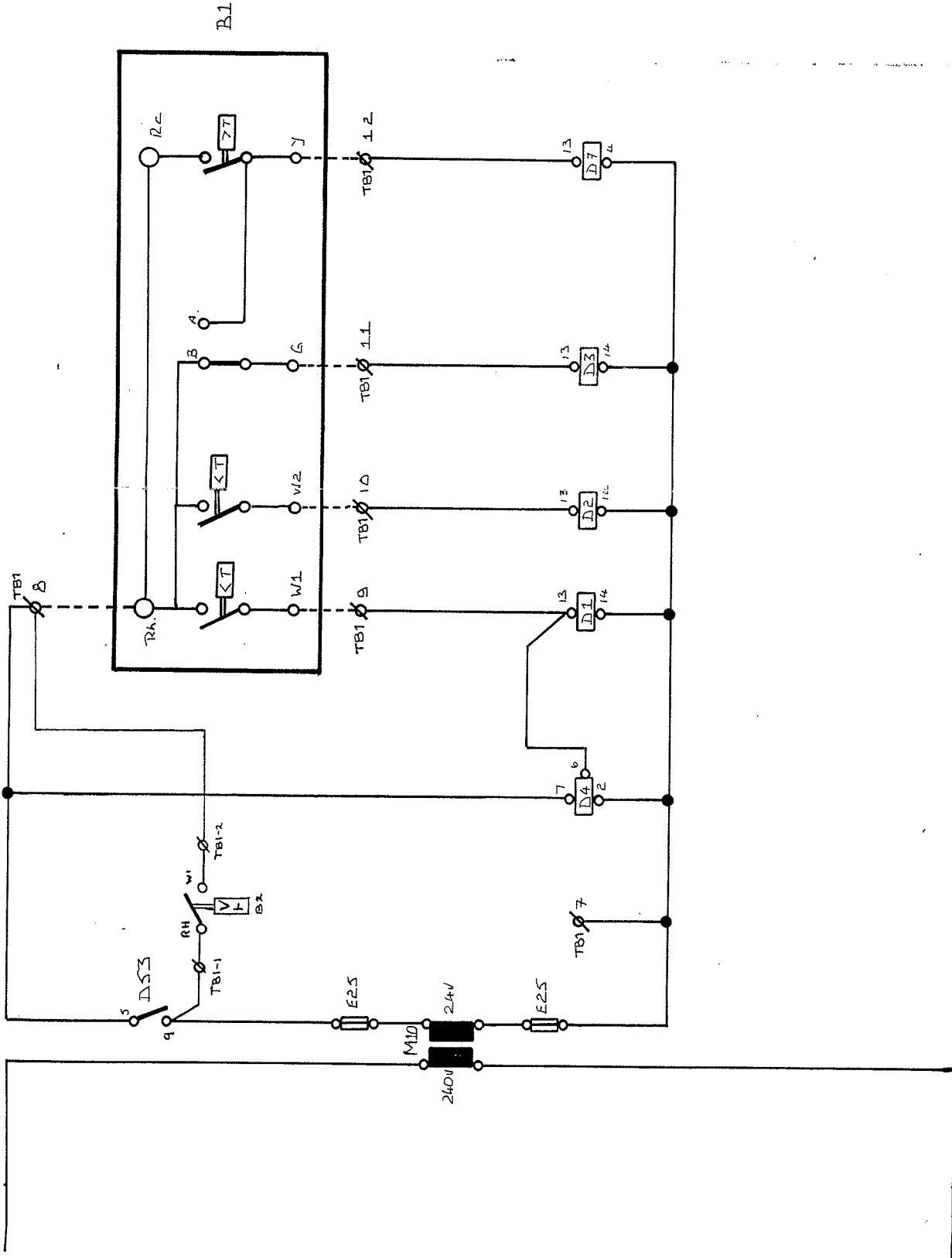
DESCRIPTION -
 3-PHASE BLOWER MOTOR, LINE VOLTAGE CONTROL WITH
 LINE VOLTAGE FRESH AIR DAMPER.

DRAWN - J.B
 APP'VD - *[Signature]*
 CH'K'D - *[Signature]*
 DATE - 13/3/89

LENNOX Industries Ltd.
 BASINGSTOKE 461261

DRG. No. LBWD - 1993
 SHEET 2 OF 6

5556



DESCRIPTION-
LOW VOLTAGE CONTROL

DRAWN-R.S.

CHK'D-M

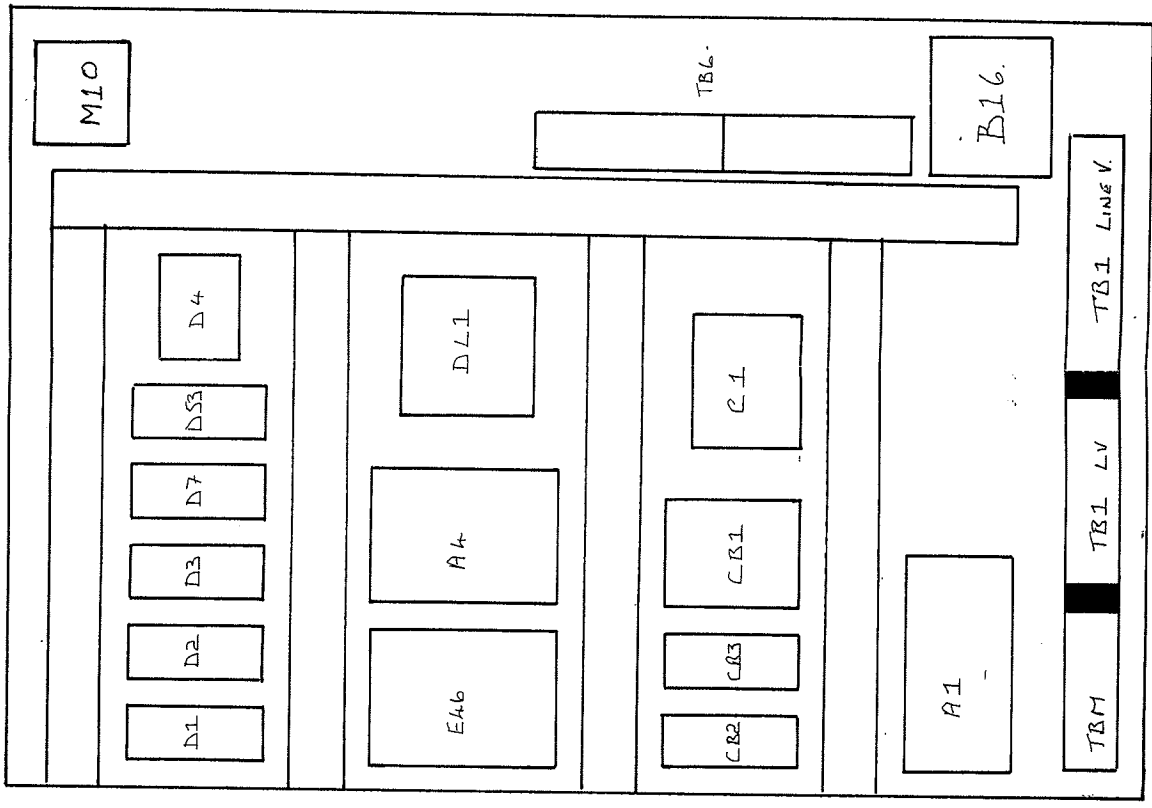
APP'VD-*[Signature]*

DATE-7-7-57

LENNOX Industries Ltd.
BASINGSTOKE 461261

DRG. No. L B W D 1993

SHEET 4 OF 6
8956-104



DESCRIPTION- REVISED. PANEL LAYOUT	DRAWN- <i>RS</i>	CHK'D - <i>huc.</i>	DRG. No. L B W D 1993 SHT. 5 OF 6
	APPV'D -	DATE- 29-6-87	
LENNOX Industries Ltd. BASINGSTOKE 461261			

Item	Description	Part Number
A1	Disconnect switch	P-8-65448
A4	Minimum positioner	P-8-66388
A9	System switch	By others
B1	Room stat	
B12	Auxiliary end switch	
B16	Maintenance socket	P-8-65470
CB1	Circuit breaker, indoor blower 3 pole	P-8-66696
CB2	Circuit breaker (control) 6A	P-8-66699
C1	Contacto supply air fan	P-8-66648
C10	Contacto exhaust fans	
CB3	Circuit breaker (Maint. socket) 16A	P-8-66700
C1A	Aux. contact block	P-8-66693
D1	Heat relay No. 1	P-8-66606 & P-8-66607
D2	Heat relay No. 2	P-8-66606 & P-8-66607
D3	Supply air fan relay	P-8-66606 & P-8-66607
D7	Fresh air damper relay	P-8-66606 & P-8-66607
D21	Gas burner control	P-8-66712
D53	System control relay	P-8-66608 & P-8-66607
DL1	Delay relay 0 - 3 mins	47A7401
D4	Delay relay - blower	P-8-65037 & P-8-60460
E25	Control fuses 24V	Part of M10
E42	Combustion air switch	64F8101 68-61049CA (94602)
E46	Mixed air temp. control	
E68	Supply air fan overload	P-8-64773
E91	Filter pressure switch	P-8-64296 & P-8-64304
E120	Fuse maintenance socket	21G6501
E51	Thermostat - high limit	
E50	Summer/winter switch (optional)	
G11	Duct sensor	P-8-66386
M6	Supply air fan	
M7	Motor - fresh air damper	
M8	Motor - combustion air blower	P-8-8495
M9	Ignition transformer	P-8-63049
M10	Transformer - low voltage control	P-8-65235
S1	Gas valve No. 1	
S2	Gas valve No. 2	
S3	Gas valve Pilot	
S6	Gas valve safety shut off	
R5	FLAME SENSE	77C-8301
A	Remote readout lights	
B	Unit in operation	
B	Dirty filters	
C	Supply air fan failure	

DESCRIPTION -
FUNCTION LISTING

CHK'D -	DATE - 21-12-87
DRAWN - RS	APP'VD -

LENNOX Industries Ltd.
BASINGSTOKE 461261