



HANDBOOK FOR PAC22AX SINGLE PHASE 230V

CAUTION

PLEASE READ THIS LEAFLET CAREFULLY

- 1. DO NOT APPLY MAINS WATER PRESSURE TO PAC UNITS. ACCESS TO THE FILLING POINT FOR THE WATER CIRCULATING SYSTEM IS REACHED BY REMOVAL OF THE FILLER ACCESS PLATE IN THE PAC ROOM UNIT BACK PANEL.**
- 2. WHEN REMOVING A PAC UNIT FROM AN INSTALLATION DISCONNECT WATER QUICK COUPLINGS AT ROOM UNIT FIRST.**

INTERNAL ACCESS SHOULD BE RESTRICTED TO ANDREWS TRAINED STAFF ONLY.

WARNING !

This unit **MUST** be transported and operated in the upright position at all times.

1) ELECTRICAL SUPPLY

As standard, this unit requires a 13 Amp fused electrical supply rated at 230Volts, ~1N, 50Hz.

The unit will operate from a standard 13A wall socket. The size of any extension cable that may be used is **2.5mm² minimum** up to a **maximum length of 10 metres**. For longer lengths 4.0 mm² cable must be used. If the cable is on a "cable drum" then ensure that it is **completely unwound; serious complications will occur otherwise**.

Note:- most domestic proprietary extension cables are 1.5mm². This is **not** sufficient.

2) SYSTEM DESCRIPTION.

The system comprises a room unit cooling section, an external heat exchanger and the two are interconnected by means of a flow and return water pipe and an electrical supply to the heat exchanger fan. The room unit is fitted with an automatic condensate disposal pump which discharges the condensate via a small plastic **pipe into the base of the external heat exchanger** and all interconnecting pipes and electrics are enclosed in a flexible plastic sheath. In addition, both ends of each pipe are fitted with "quick connect" couplings that open on coupling but reseal to become water tight on disconnect.

3) AIR FLOW

The angled air outlets at the top of the standard room unit are fitted with air grilles that allow the angle of air outlet to be adjusted vertically and horizontally and, in conjunction with the fan speed control switch, the air velocity and direction can be carefully set up to obtain maximum coverage of the area being cooled without causing drafts. An alternative top panel with twin 7" ducts is available. Adjustable grilles and 7" ducts are not available for machines with a convex console. Care

should be taken to avoid outlet air being obstructed as this will cause **the air to "eddy" around the unit** resulting in recirculation and short/inaccurate cycling of the machine. Ideally, cold air should be directed to create a "blanket" all across the ceiling area allowing natural convection to drop the air over the whole area at very low velocity.

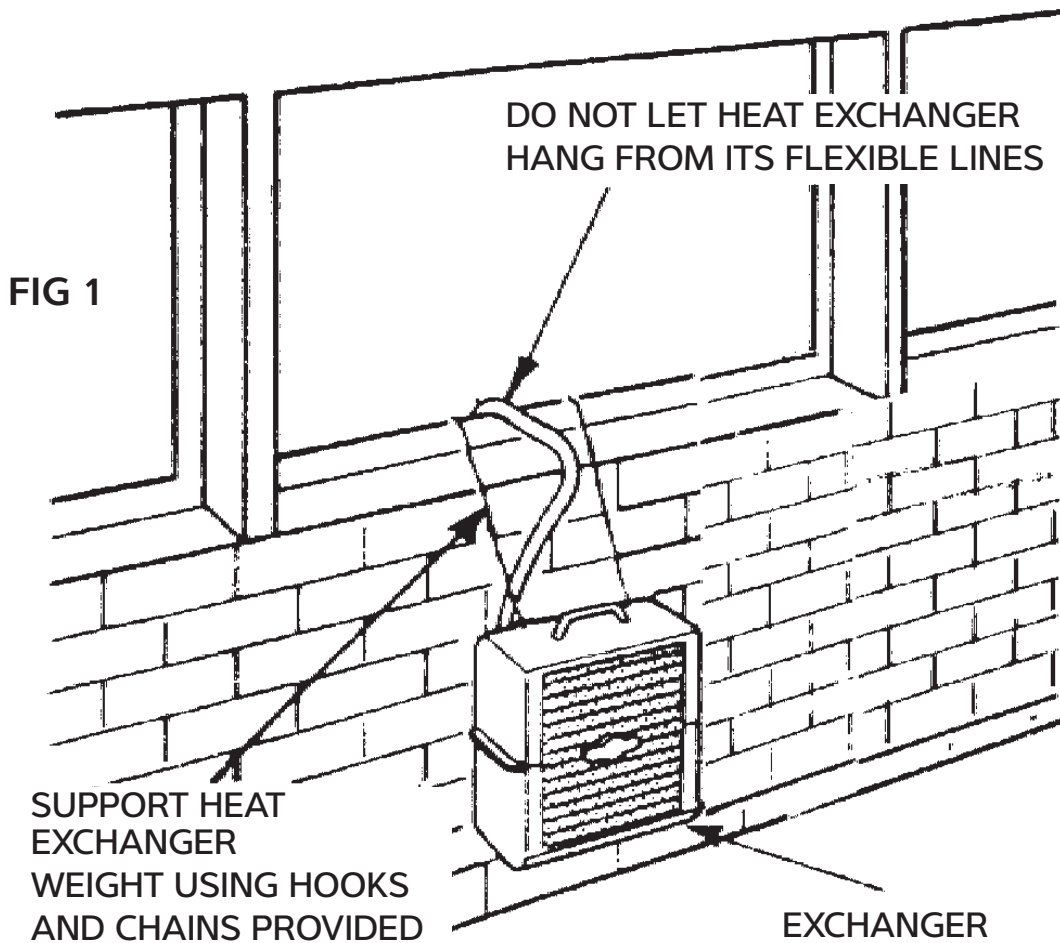
4) SITING

Ideally, the room unit should be positioned equidistant along the shortest wall in the room blowing down the length of the room. If there is more than one unit in the same area, then they would normally be positioned side by side, and **equidistant along the long wall**, all pointing in the same direction. Sometimes it may be necessary to position units around the perimeter of an area but, in this case, **great care should be taken to avoid** one unit blowing cold air straight into another which will adversely affect the machine operation. Good and correct air flow is, perhaps, the single most important aspect of satisfactorily applying portable air conditioners. If in doubt seek the advice of your supplier.

HEAT EXCHANGER

The heat exchanger must stand external to the area being cooled and, preferably, in the outside atmosphere. It can stand freely on a flat surface or may be hung, in the upright position, from a window-sill, balcony, etc, see Fig 1.

USE THE CHAINS PROVIDED TO SUPPORT THE HEAT EXCHANGER. IT WOULD BE HIGHLY DANGEROUS TO SUPPORT THE HEAT EXCHANGER BY MEANS OF THE FLEXIBLE LINES ALONE.



CONDENSATE.

In operation, the room unit is constantly condensing water vapour out of the atmosphere (reducing relative humidity). This water has to be drained away. An automatic condensate pump is fitted inside all the room unit. The flexible hose outlet from the condensate pump runs to the outside, inside the flexible sheath, the condensate is deposited in the base of the heat exchanger, considerable re-evaporation of this water takes place on the warm air stream passing through and around the heat exchanger, but please remember that there will also be a degree of dripping through the base of the heat exchanger.

HAVE GREAT REGARD FOR THIS CHARACTERISTIC WHEN POSITIONING THE EXTERNAL HEAT EXCHANGER.

The flexible water pipes should be routed

so as to avoid any possibility of kinking or unnecessary restrictions to the flow of water inside. Also, remember that plastic and rubber becomes much more flexible when warm and, as a result, much more susceptible to distortion.

5) MACHINE LINK-UP

Ensure the mains supply lead to the room unit is disconnected. A 5m (extendable to 30m) line set to connect all services between the room unit and the external heat exchanger will have been supplied. The water pipe connections are by means of "quick connect couplers". These are simple 'push-on' connectors which, when disconnected (after pulling back sprung loaded locking ring), re-seal the water system on either side. The complete system will have been filled with the necessary amount of water/antifreeze prior to its arrival on site. A water proof 3 pin quick connect electrical coupler (push fit with screw lock ring, hand

tight only), and condensate drain pipe coupler 6mm clear polythene (push fit), should also be connected. Having made the couplings, the system is operational immediately.

ROOM UNIT WATER LEVELS

The water system in the room unit will be to the correct level when delivered.

However if for some reason the level has fallen, antifreeze (33%) and water will have to be added. The header tank filler and level indication is located to the rear of the room unit and can be accessed by removing the two screws holding the security plate over the filler tank cap, see Fig 2.

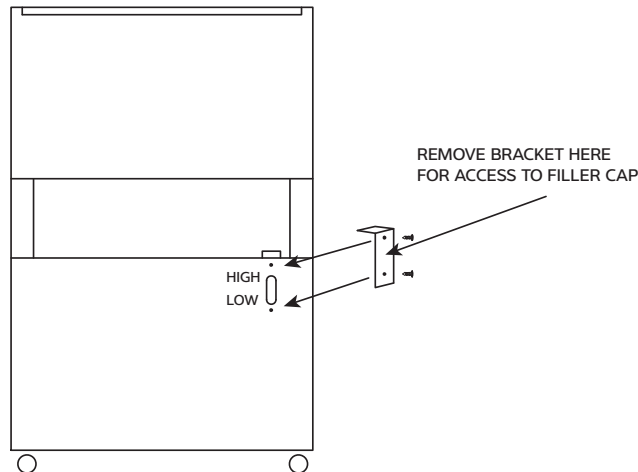
Ensure the machine is running in cooling mode before removing the header tank cap, and as with all pressure caps, remove slowly. It is recommended that a mixture,

by volume, of one part antifreeze to **two parts** water is utilised, this will prevent freezing down to an external temperature of $-20^{\circ}\text{C}/-5^{\circ}\text{F}$). The approximate total volume of the PAC system complete with heat exchanger and lines is shown below.

LINESET LENGTH	SYSTEM CAPACITY
5m	7.64 Litres/1.64 Galls.
10m	8.8 Litres/1.96 Galls.
15m	10.3 Litres/2.29 Galls.
20m	11.7 Litres/2.6 Galls.
25m	13.1 Litres/2.91 Galls.
30m	14.5 Litres/3.22 Galls.

DO NOT APPLY MAINS WATER PRESSURE TO THE SYSTEM

FIG 2



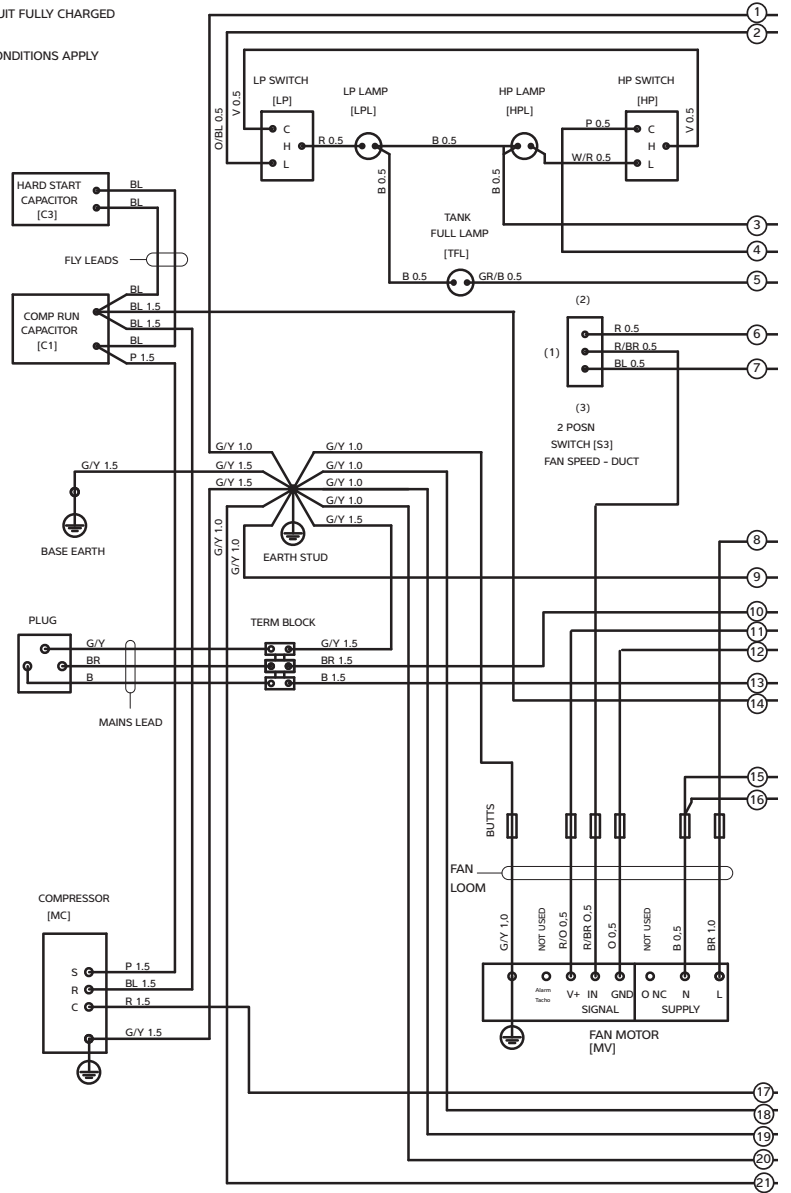
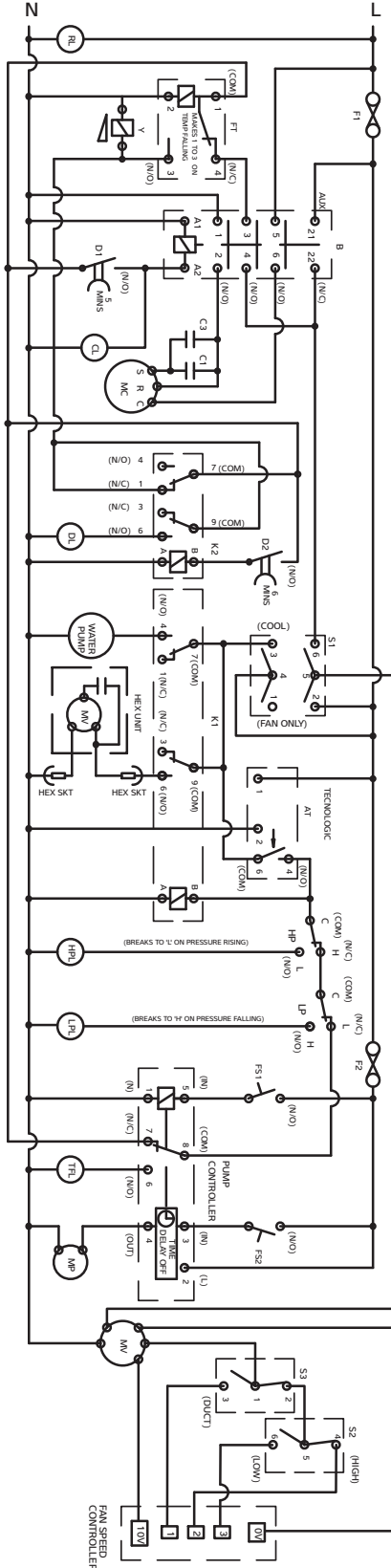
GAS CHARGE

The dehumidifier incorporates a hermetically sealed refrigeration circuit containing less than 6kg of refrigerant. R407c Global warming potential (GWP) 1774.

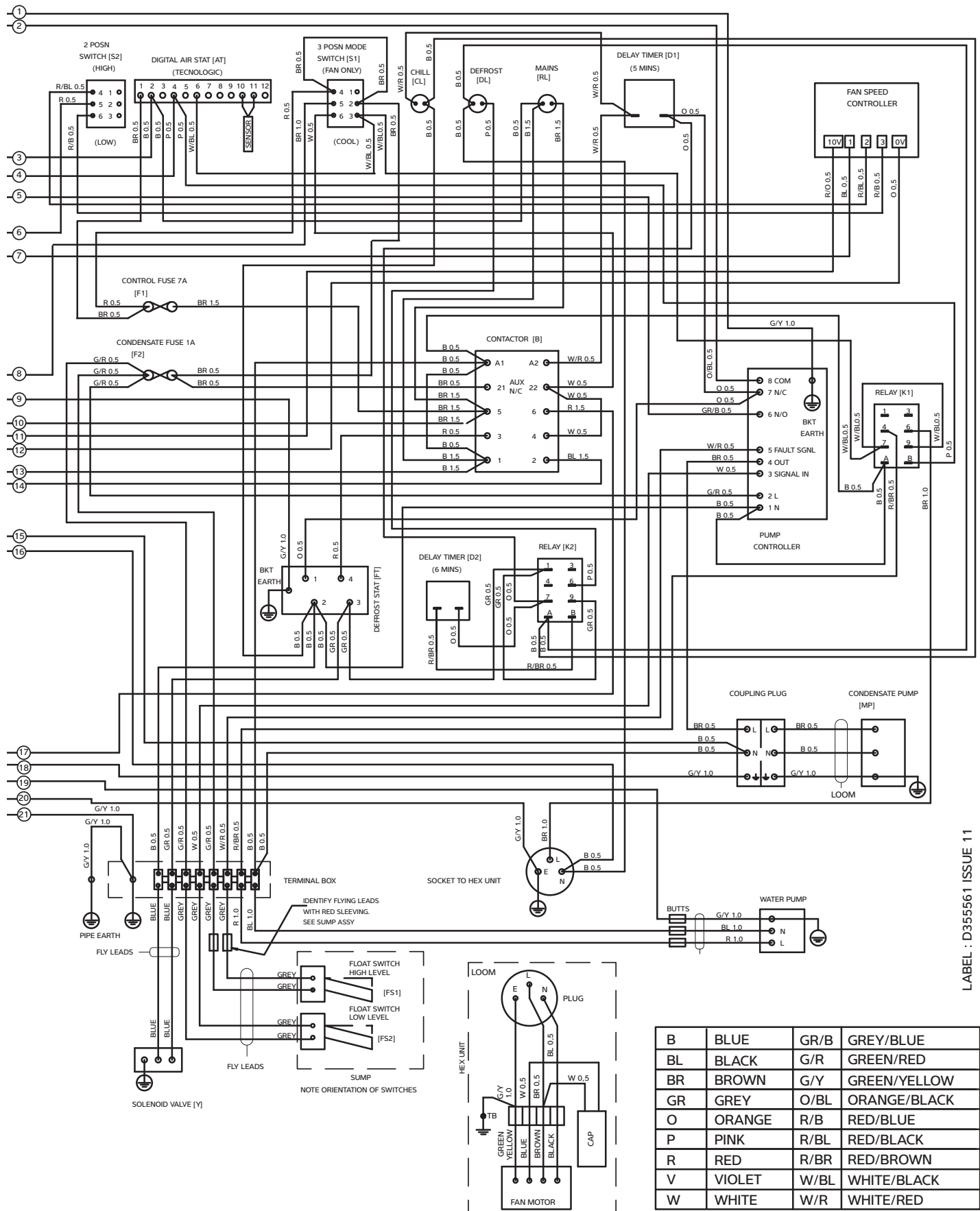
NOTES

ALL CONTACTS SHOWN IN DE-ENERGISED STATE BUT WITH REFRIGERATION CIRCUIT FULLY CHARGED
CONDENSATE / SUMP TANK IN AN EMPTY STATE .

WHERE CONTACTS ARE MARKED (N/O) OR (N/C) ON CIRCUIT DIAGRAM ABOVE CONDITIONS APPLY



TFL	TANK FULL LAMP	S3	FAN SPEED SWITCH (DUCTED)
FS1	FLOAT SWITCH HIGH LEVEL	HP	HIGH PRESSURE SWITCH
FS2	FLOAT SWITCH LOW LEVEL	LP	LOW PRESSURE SWITCH
DL	DEFROST LAMP	D	DELAY TIMER
CL	CHILL LAMP	K	RELAY
RL	MAINS (OR RUN) LAMP	MC	COMPRESSOR MOTOR
HPL	HIGH PRESSURE FAULT LAMP	MV	FAN MOTOR
LPL	LOW PRESSURE FAULT LAMP	C1	COMPRESSOR CAPACITOR
F1	CONTROL FUSE	C2	FAN CAPACITOR
F2	CONDENSATE FUSE	C3	HARD START CAPACITOR
B	CONTACTOR	Y	SOLENOID VALVE
FT	DEFROST THERMOSTAT	AT	AIR THERMOSTAT
S1	FAN MODE SWITCH	MP	CONDENSATE PUMP
S2	FAN SPEED SWITCH		



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WIRING DIAGRAM PAC22AX/ HEX22A D355560 ISSUE 11

7) OPERATING INSTRUCTIONS.

The Control Panel on the room unit is illustrated below,

AIR CONDITIONER

- a) Plug in the room unit mains cable, and switch on electricity, red mains light will illuminate.
- b) Select "Fan Only" with the mode switch. The fan will start.
- c) Select "Fan Speed", with the fan speed switch, high or low depending on air velocity required.
- d) Select "Cooling" with the mode switch.
- e) The PAC22AX is fitted with a digital thermostat which is factory preset at 28°C. With the PAC22AX set like this cooling commences at 29°C and stops at 28°C.

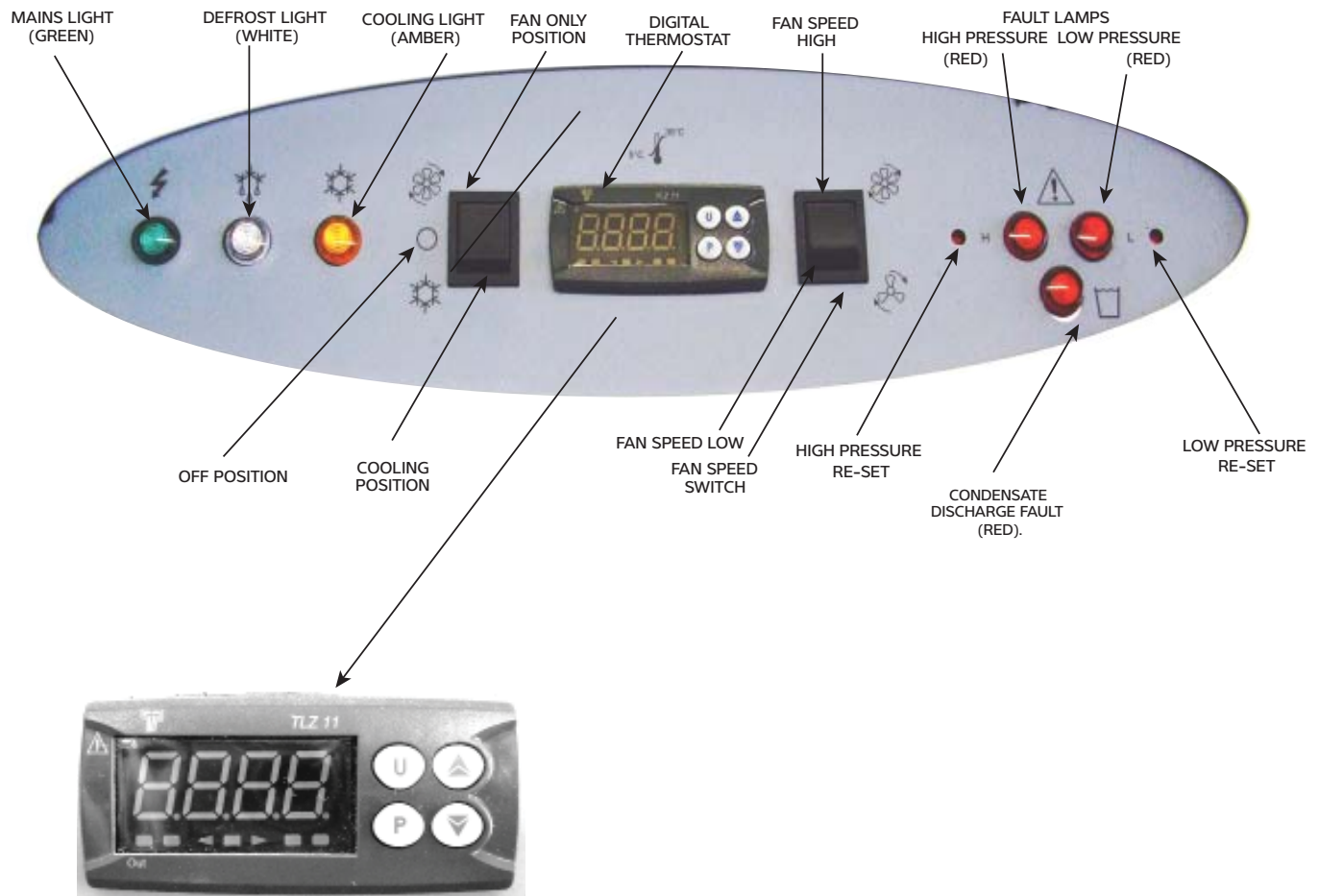
Digital Thermostat

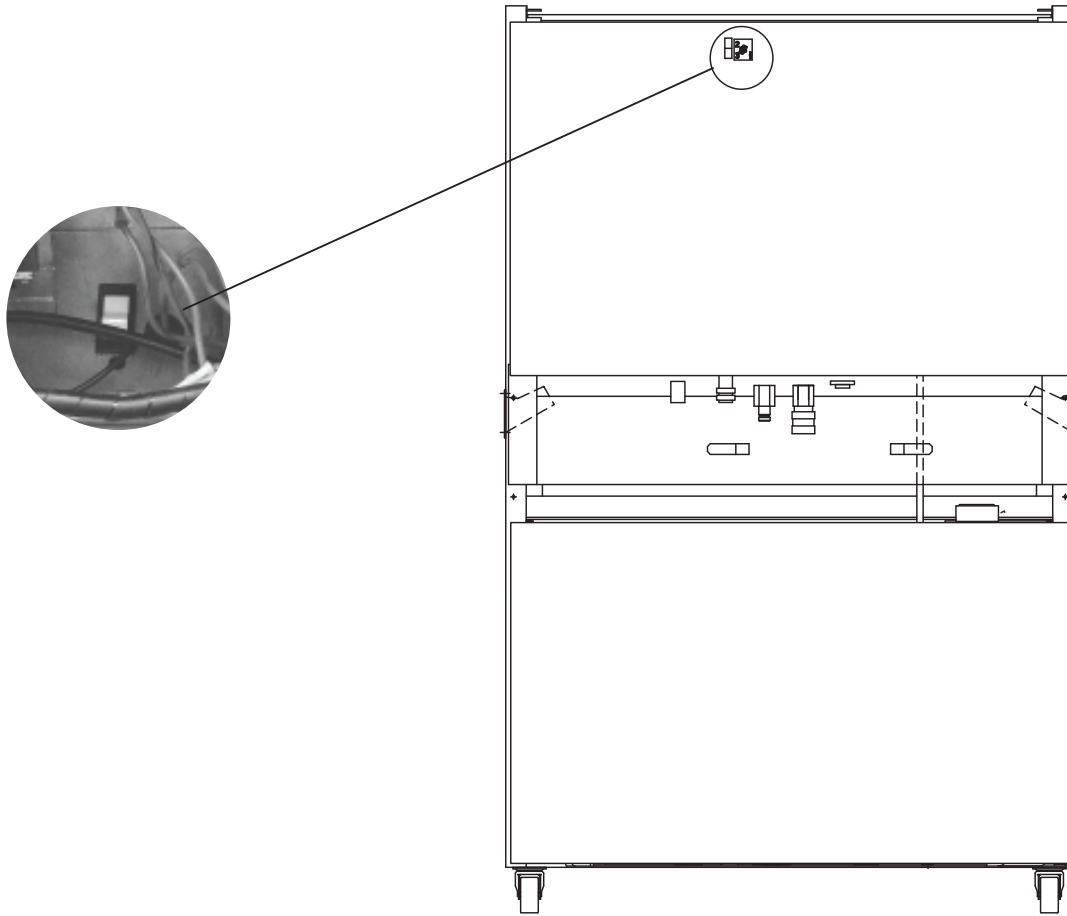
Press P button once and release. Set Point and set point value (28) will be displayed alternately.

Press the ▲ or ▼ key. to change the value of the set point. Once the desired value is displayed press P again to memorise the value. Cooling starts at 1°C above the new set point value and stops at the set point. After a delay of 5 to 10 minutes the amber "Cooling" light will illuminate and the machine will proceed to cool the air.

CHANGING THE SET POINT

FIG.3 CONSOLE LABEL/ MARKING OPTIONS WITH DIGITAL THERMOSTAT

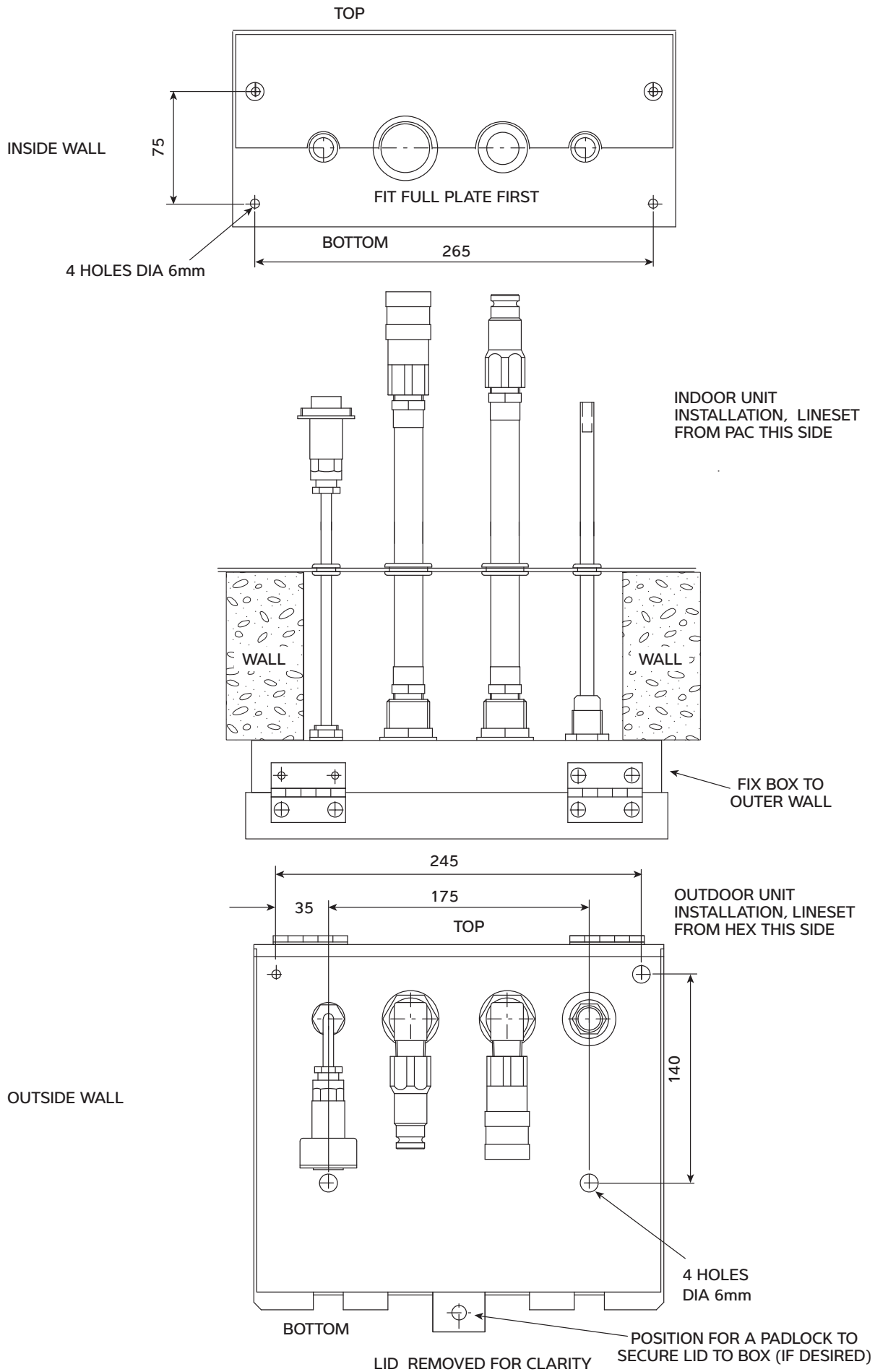




The PAC22AX has a third (higher) fan speed which is **ONLY** used when the PAC is fitted to optional ducting. The switch is situated in the electric box and is accessed by removing the upper back panel. It needs to be set to the 3 position.

Use of the switch in this position 3 without ducting fitted will result in failure of the PAC, causing blown fuses or burning out of the fan motor.

The PAC22AX has an optional wall plate kit which is installed in the following way. Please note: Fixings provided are for securing the kit to a brick wall.



8) ROUTINE MAINTENANCE

The air filter must be kept clean, never allow to become choked with dust or dirt. If allowed to do so, the performance of the unit will become impaired, resulting in loss of air flow, freezing up of the evaporator coil and possible component damage.

ACCESSING THE FILTER

Lift out the return air grille on the front face of the unit, Fig 4. On refitting the filter ensure that it is correctly positioned covering the whole rear face of the grille.

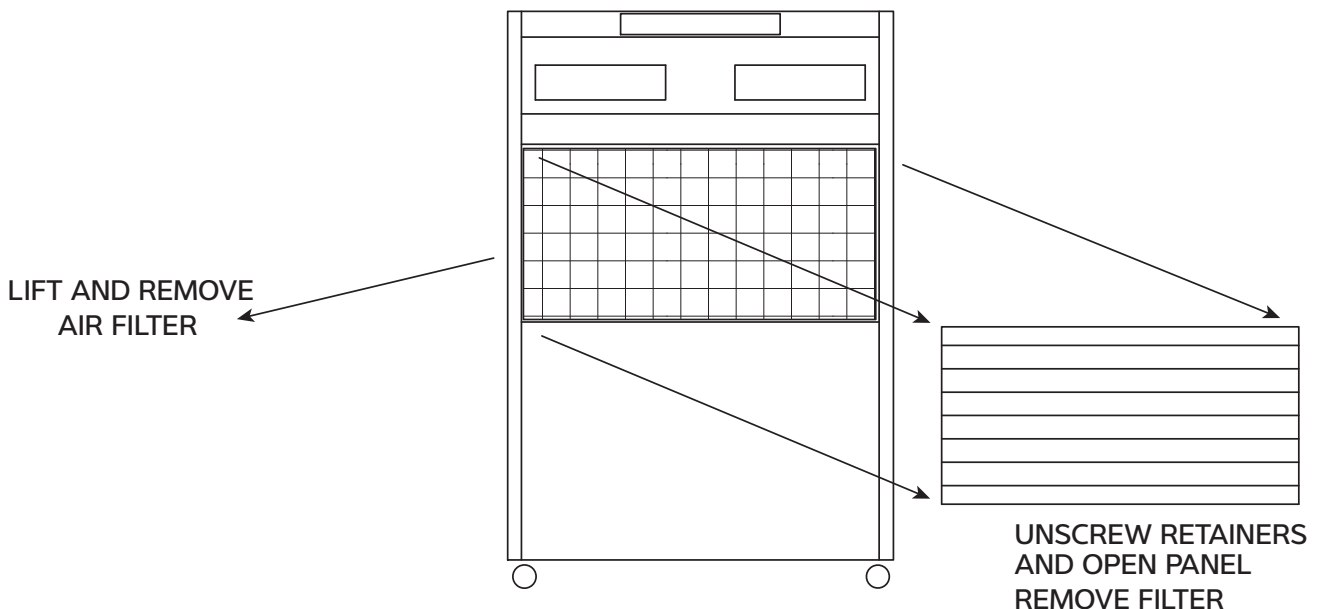
The filter (see Fig. 4) can be washed in warm, soapy water, rinsed and shaken dry before replacement. Frequency of cleaning depends upon application and can only be determined by the user. However, you should never allow more than two months to elapse between cleaning. The probable life of the filter will be about one year and spares are available from the supplier of the unit itself. Failure to have filter fitted during operation will cause serious damage.

The refrigeration circuit inside the room unit is fitted with a HIGH and a LOW pressure sensing switch. They are both manually resettable. A pencil or screwdriver with gentle pressure on the knob behind is all that is required to re-set.

Necessary access is provided through the control console of the PAC22AX.

HOWEVER, DO NOT ATTEMPT TO RESET WITHOUT FIRST DISCOVERING WHY THE TRIP OCCURRED IN THE FIRST PLACE.

FIG 4



9) MACHINE NOT WORKING?

ONLY A COMPETENT ELECTRICIAN SHOULD ATTEMPT TO RECTIFY ELECTRICAL SUPPLY PROBLEMS. DO NOT REMOVE ANY PANELS FROM THE MACHINE.

Problem - No air flow from room unit.

Diagnosis -Green "MAINS" light off.

Cure - Turn on electricity and/or check mains supply fuse.

Problem - No air flow from room unit.

Diagnosis - Green "MAINS" light on, White "DEFROST" light on.

Cure - Machine in defrost mode, do not adjust anything, machine will revert to normal run after 10 mins.

Problem - Insufficient air flow from room unit.

Diagnosis - Blocked air filter.

Cure - Clean filter

Problem - No cooling.

Diagnosis - Amber "COOLING" light off.

Cure - Change value of set point on digital thermostat to a lower setting.

Problem - No cooling.

Diagnosis - Red High Pressure fault light illuminated. High pressure trip.

Cure - Press red re-set button next to the 'H' and check for:

Lack of water flow ... kinked hoses?

Shortage of water ... top up.

External heat exchanger unit mounted in very high temperature?

Water frozen? Add glycol (33%).

External heat exchanger coil blocked with dirt.. clean.

Problem - No Cooling.

Diagnosis - Red Low Pressure fault light illuminated. Low pressure trip.

Cure - Press, red re-set button next to the 'L' and check for:

No air flow, blocked filter?

Evaporator blocked with ice. Very low air temperature?

Problem - No cooling.

Diagnosis - Red Condensate discharge fault light illuminated. High level condensate trip.

Cure - Condensate pump not reducing water level. Kink in condensate tube between room unit and external heat exchanger? Leak inside room unit. Sump filter inside room unit blocked. Condensate tube frozen.

10) ERROR CODES ASSOCIATED WITH DIGITAL THERMOSTAT.

DISPLAY	ERROR	ACTION
E1 OR -E1	PROBE INTERRUPTED OR SHORT CIRCUIT	VERIFY CORRECT CONNECTION BETWEEN PROBE AND STAT, THEN VERIFY CORRECT FUNCTIONING OF PROBE.
EEPr	INTERNAL MEMORY ERROR	CHECK AND, IF NECESSARY REPROGRAMME THE PARAMETERS FUNCTION



ANDREWS
AIR CONDITIONING

AIR TREATMENT DIVISION

Andrew Sykes Hire Limited

Premier House, Darlington Street, Wolverhampton WV1 4JJ

Telephone 01902 328700

Fax 01902 422466
