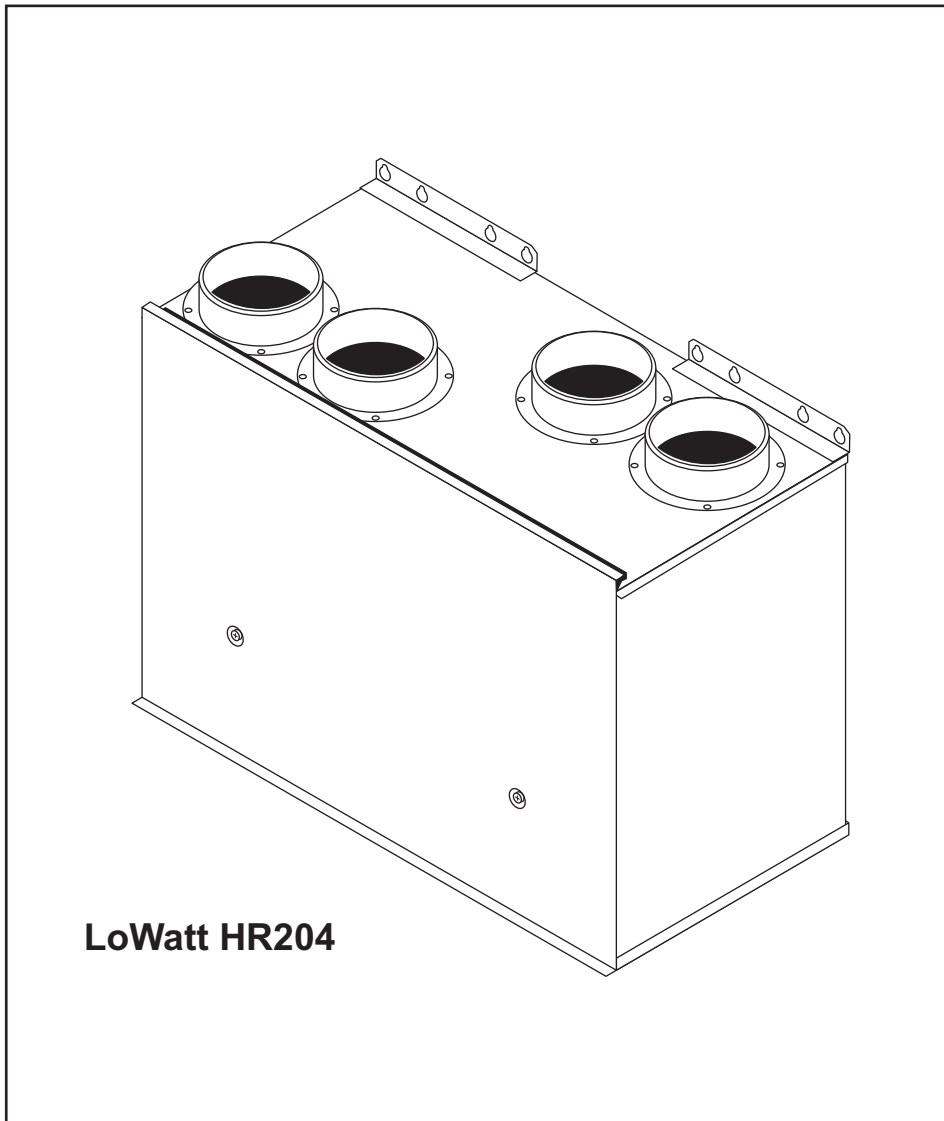


# **Vent-Axia**® Whole House Ventilation System with Heat Recovery

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## **User, Installation & Servicing Instructions**



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## 1.0 Safety and Guidance Notes



1. DO NOT install this product in areas where the following may be present or occur:
  - Excessive oil or a grease laden atmosphere.
  - Corrosive or flammable gases, liquids or vapours.
  - Ambient temperatures higher than 40°C or less than 5°C.
  - Possible obstructions which would hinder the access or removal of the product.
2. All wiring to be in accordance with the current I.E.E. Regulations, or the appropriate standards of your country and MUST be installed by a suitably qualified person.
3. The LoWatt HR204 and accessories should be provided with a local isolator switch capable of disconnecting all poles, having a contact separation of at least 3mm.
4. Ensure that the mains supply (voltage, frequency, and phase) complies with the rating label.
5. The LoWatt HR204 should only be used in conjunction with the appropriate Vent-Axia accessories.
6. When the LoWatt HR204 is used to remove air from a room containing a fuel-burning appliance, ensure that the air replacement is adequate for both the LoWatt HR204 and the fuel-burning appliance.
7. The LoWatt HR204 should not be fitted where it is liable to be subject to direct water spray.
8. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
9. Children should be supervised to ensure that they do not play with the appliance.
10. The power supply to the unit and its accessories should always be switched off before removing the cover or ducting.

## 2.0 User Information

### 2.1 General

Read the instructions fully before installing or using the appliance.

This appliance must be installed in accordance with the manufacturer's instructions and the regulations in force.

The LoWatt HR204 is a mechanical ventilation with heat recovery (MVHR) unit. The unit provides continuous extraction of stale air from the dwelling, typically from the bathroom and from the kitchen. The stale air passes through the heat exchanger before being ducted to outside.

Fresh air from the outside is continuously drawn into the unit and passed through a filter and then into the heat exchanger. In the heat exchanger the fresh air is pre-warmed and ducted into the dwelling, typically to living rooms / bedrooms.

This product should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority for recycling advice.

For **cleaning and servicing** instructions, refer to section 9, page 19.

### 2.2 The Vent-Axia Guarantee

Applicable only to products installed and used in the United Kingdom. For details of the Guarantee outside of the United Kingdom contact your local supplier.

Vent-Axia guarantees this product for two years from the date of purchase against faulty material or workmanship. In the event of any part being found to be defective, the product will be repaired, or at the Company's discretion the product will be replaced without charge, provided that the product:

- 1). Has been installed and used in accordance with the instruction given with each unit.
- 2). The electricity supply complies with the rating label.
- 3). Has not been misused, neglected or damaged.
- 4). Has not been modified or repaired by any person not authorised to do so by Vent-Axia.

**IF CLAIMING UNDER THE TERMS OF THE GUARANTEE**

Please return the complete product, carriage paid to your original supplier by post or in person. Please ensure that it is adequately packed and accompanied by a letter clearly marked 'Guarantee Claim' stating the nature of the fault and providing proof of the date and source of purchase.

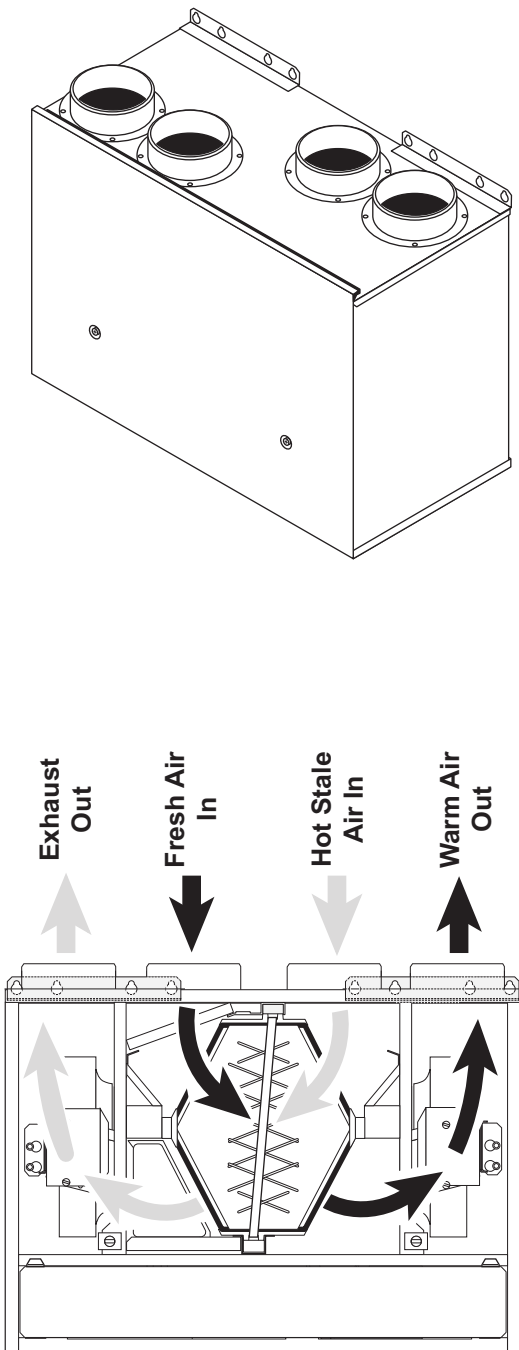
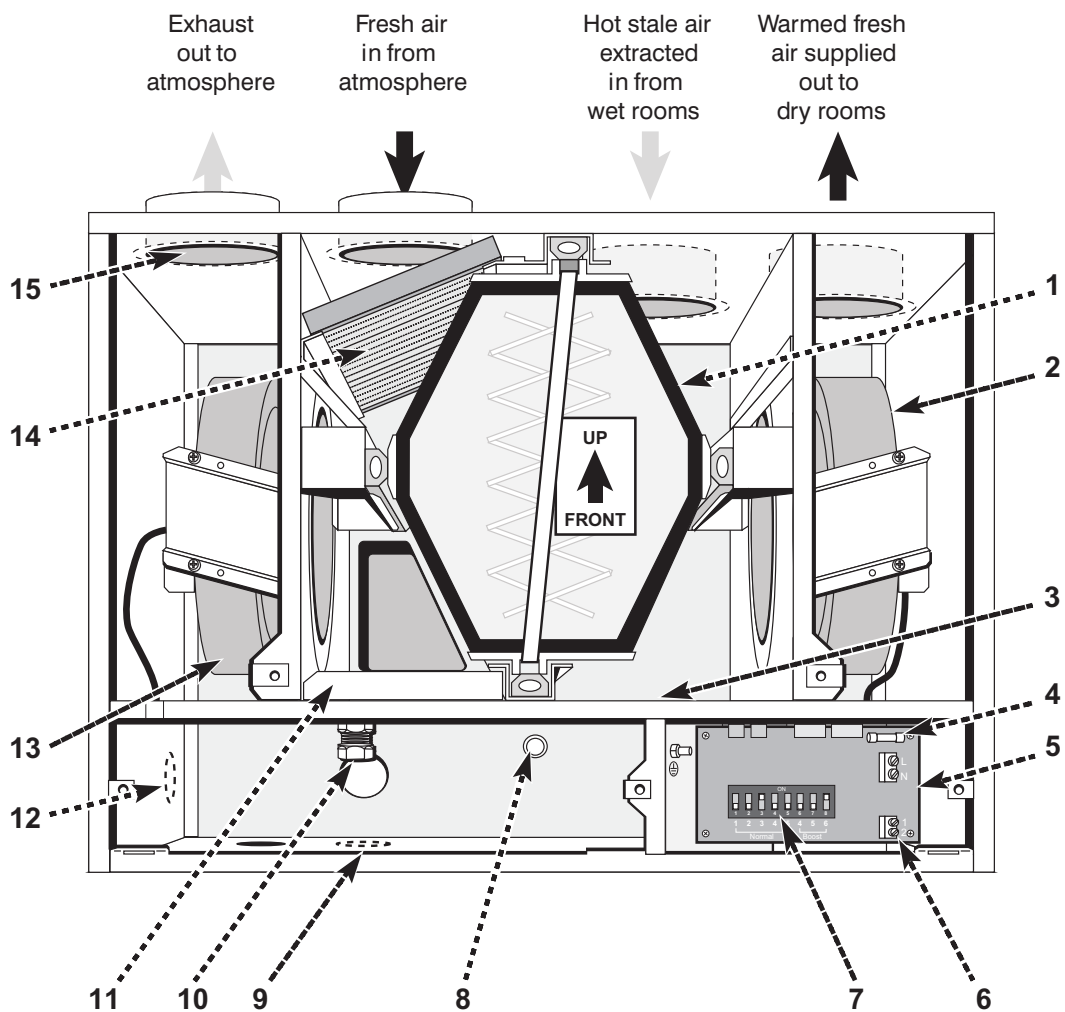


Fig. 1

### 3.0 General Layout

#### LoWatt HR204



- |    |                                |     |  |
|----|--------------------------------|-----|--|
| 1. | Heat exchanger                 | 9.  | Alternative outlet for condensate (bottom) |
| 2. | Fan (fresh air in)             | 10. | Condensate drain (Ø15mm)                   |
| 3. | Rating label                   | 11. | Condensate tray                            |
| 4. | Fuse                           | 12. | Alternative outlet for condensate (side)   |
| 5. | Speed select PCB               | 13. | Fan (extraction)                           |
| 6. | Accessory switch connection    | 14. | Air filter                                 |
| 7. | Dip switch for speed selection | 15. | Duct connections (4 off)                   |
| 8. | Lower fixing hole              |     |  |

Fig. 2

## 4.0 Technical Data

Dimensions (mm)	
Height	412
Width	552
Depth	285
Minimum clearances (mm)	
Both sides	5
Above casing	200
Below casing	100
Front for servicing	250
Front in operation	None
Lift weight (kg)	17
Power consumption @ 0Pa (watts)	
Speed 1	10
Speed 2	13
Speed 3	21
Speed 4	35
Speed 5	56
Speed 6	75
Duct connections	Suitable for Ø100mm circular ducts.
Condensate connection	Suitable for Ø15mm pipe.
Electrical supply	220-240V ~50Hz Appliance must be connected to an earthed supply
External fuse rating	3 Amps
Internal fuse rating	3.15 Amps
Filtration	EU2

Fig. 3

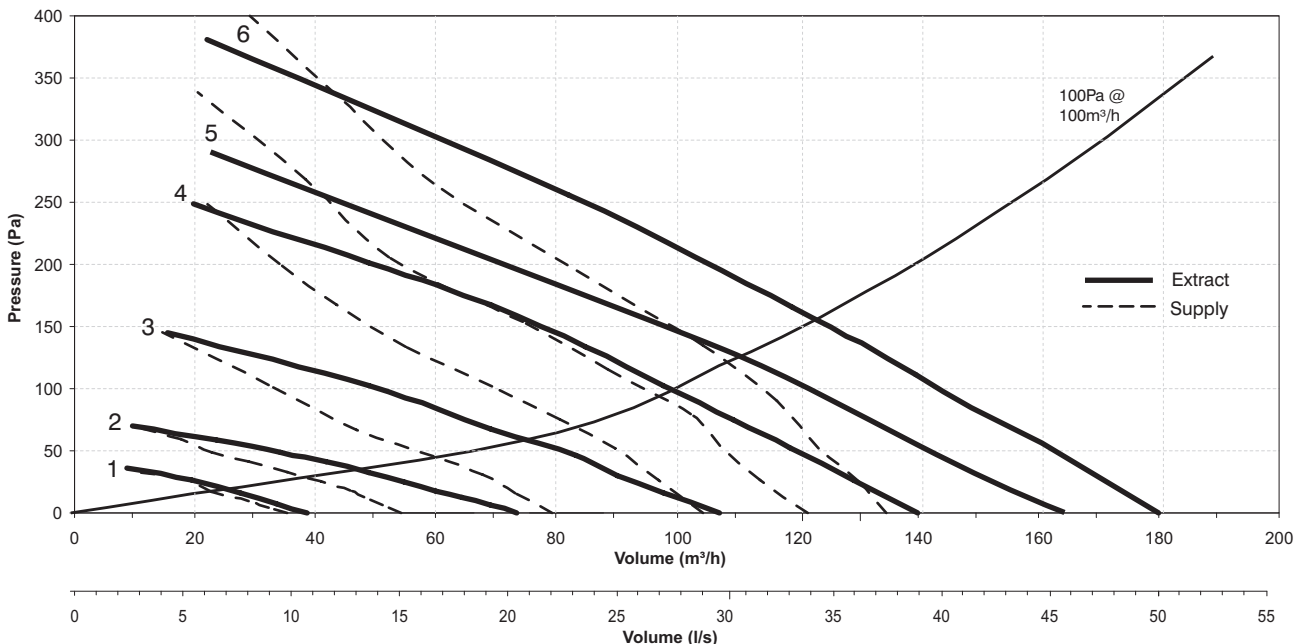
### SAP Appendix Q Test Results

As tested and published by BRE (Building Research Establishment).  
[www.sap-appendixq.org.uk](http://www.sap-appendixq.org.uk)

Exhaust terminal configuration	Fan speed setting	Total flow supply rate (l/s)	Total exhaust flow rate (l/s)	Specific fan power (W/l/s)	Heat recovery efficiency (%)
Kitchen + 1 additional wet room	2	15.0	15.0	0.81	63
Kitchen + 2 additional wet rooms	3	21.0	21.1	0.95	57

Fig. 4

Flow Rate Vs Pressure Chart



The unit has six speeds. One of the lowest five can be selected for normal speed. One of the top 3 can be selected for boost speed. The performance curve chart gives the ventilation rates at each fan speed compared to the pressure drop of the system.

Fig. 5

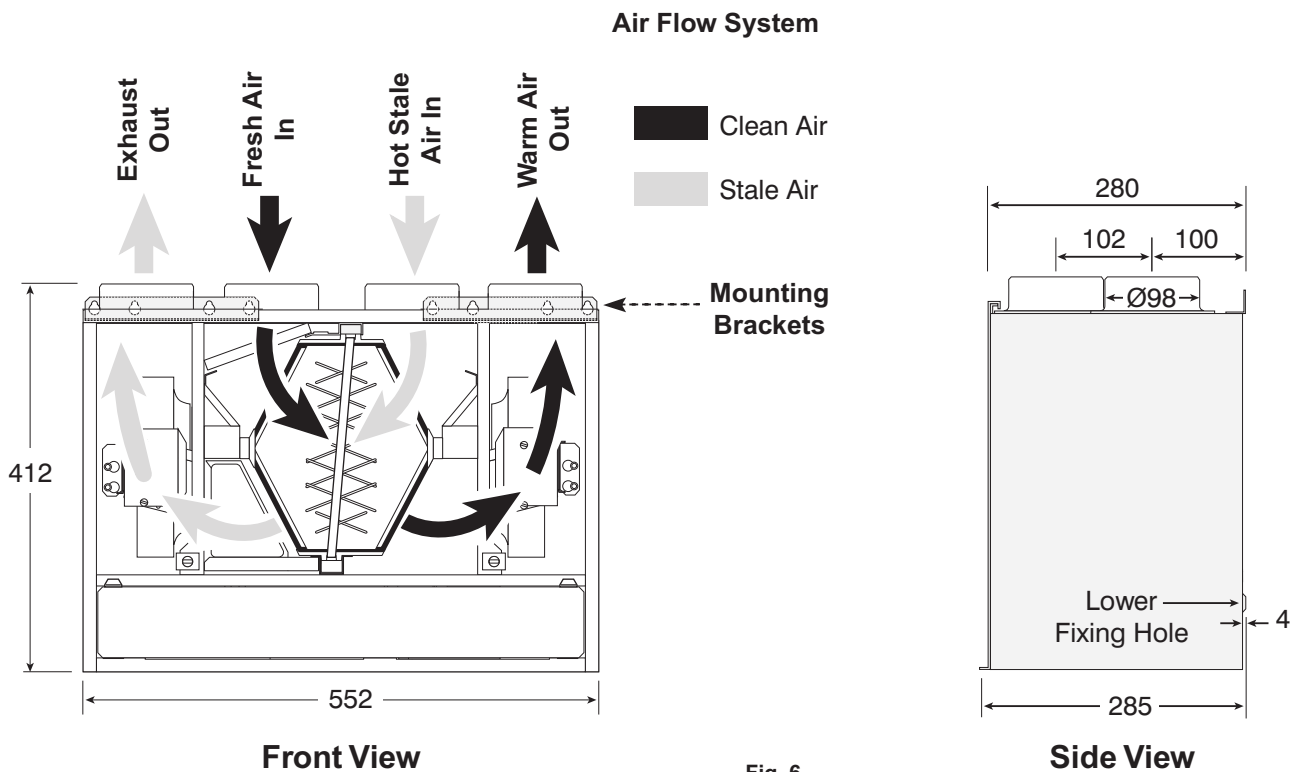
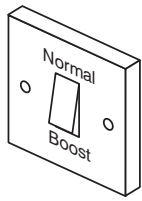


Fig. 6

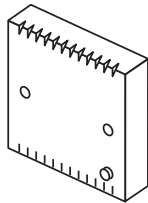
**Optional Extras.  
External Controls.**



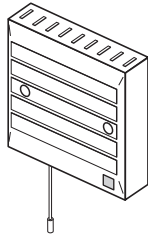
Normal/boost  
Switch  
NBSW



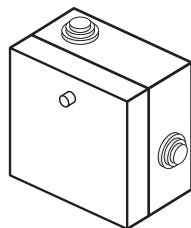
Normal/boost  
Pull Cord Switch  
PCSW



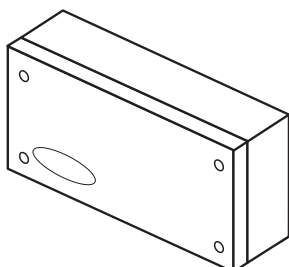
Humidity Sensor  
HS6



Humidity Sensor  
Ecotronic



TIM2 timer



CMSM control

## 5.0 Appliance Operation

On normal running the fans run at the speed set during commissioning (speed 1, 2, 3, 4 or 5).

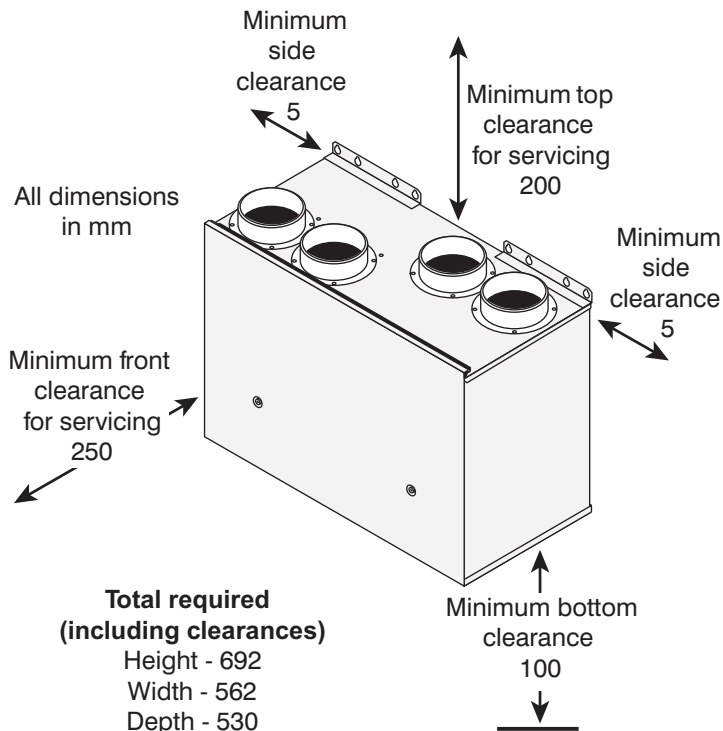
Air is then moved through the unit (see Fig 6).

If the external controls call for boost operation the fans automatically run at the boost speed & increase the air movement of both exhaust & inlet air.

The LoWatt HR204 can only be connected to external controls with an uncommitted relay.

If the fans become jammed, then the electronics will sense the reduction in speed (rpm) and stop the electrical supply to the motors to prevent overheating. The unit will check the ability of the fan to rotate every couple of seconds.

## Clearances



Note: Clearances do not take into account any acoustic mat that may be fitted between the unit and the wall.

Fig. 7

## 6.0 Installation Requirements

### 6.1 Location and Site Requirements

1. Read the instructions fully before installing or using the appliance.
2. The installation must be carried out in accordance with the manufacturer's instructions by a competent person and comply with the relevant Building Regulations and the current I.E.E Wiring Regulations.
3. Duct systems should be installed in accordance with BRE Digest 398 and CIBSE guides.
4. Consideration must be given to the position of the ductwork connections, the electrical connection and the condensate pipe connection.
5. The exhaust duct must pass through an outside wall or roof and discharge to atmosphere in a suitable position. The clean air inlet duct must pass through an outside wall or roof and be suitably positioned to provide an adequate fresh air supply from atmosphere.
6. The ventilation for any open flued appliance must always be considered before siting the extract and inlet vents. The vents must also be sited away from other flue terminals, ventilators etc. on the outside of the dwelling. In addition, there shall be adequate ventilation of the kitchen when a cooker hood is used at the same time as appliances burning gas or other fuel. The exhaust air duct must not be discharged into a flue which is used for exhausting fumes from appliances burning gas or other fuels. Refer to the relevant current British Standard Codes of Practice, Part J of the Building Regulations (England and Wales) and, in Scotland, OFTEC Technical Information Sheet TI/112.
7. The LoWatt HR204 is not suitable for installation above any cooking appliance or with any extraction system servicing a cooking appliance.
8. If the unit is fitted in a room containing a bath or shower then reference should be made to the current I.E.E Wiring Regulations.
9. A flat vertical area 692mm high x 562mm wide is required for installation.
10. It is important that any door or cupboard front covering the LoWatt HR204 is easily removable by the user as access for regular cleaning is required.
11. Check that the information on the rating label is compatible with the supply. See Fig 2.
12. The addition of anything that may interfere with the normal operation of the appliance could invalidate the appliance warranty and infringe regulations.

## 6.0 Installation Requirements

### 6.2 General

1. The LoWatt HR204 has a choice of 5 normal speed settings and 3 boost speed settings. The **performance curve chart** (Section 4, Fig.5) gives the ventilation rates at each fan speed setting compared to the pressure drop of the system.

2. The transmission of noise along ducts should be reduced by fitting noise attenuation ducts. (FS100. Part No 370426.)

### 6.3 Ducting

1. The outside exhaust duct and outside air intake duct should be sited a minimum of 2 metres apart to minimise the risk of exhaust air being drawn back into the house.

2. The duct work system should be sized and installed to minimise the pressure loss along it.

3. Using larger diameter pipes and keeping the number of bends and fittings used to a minimum will reduce the pressure drop and allow the unit to be set at a lower fan speed.

4. Bend radii for flexible ducting, measured to the inside of bends, should be kept to at least 1x the duct diameter.

5. Ducting should be insulated in cold areas to minimise heat losses. All duct joints should be suitably taped to ensure an air tight seal.

### Examples of different ducting & fittings

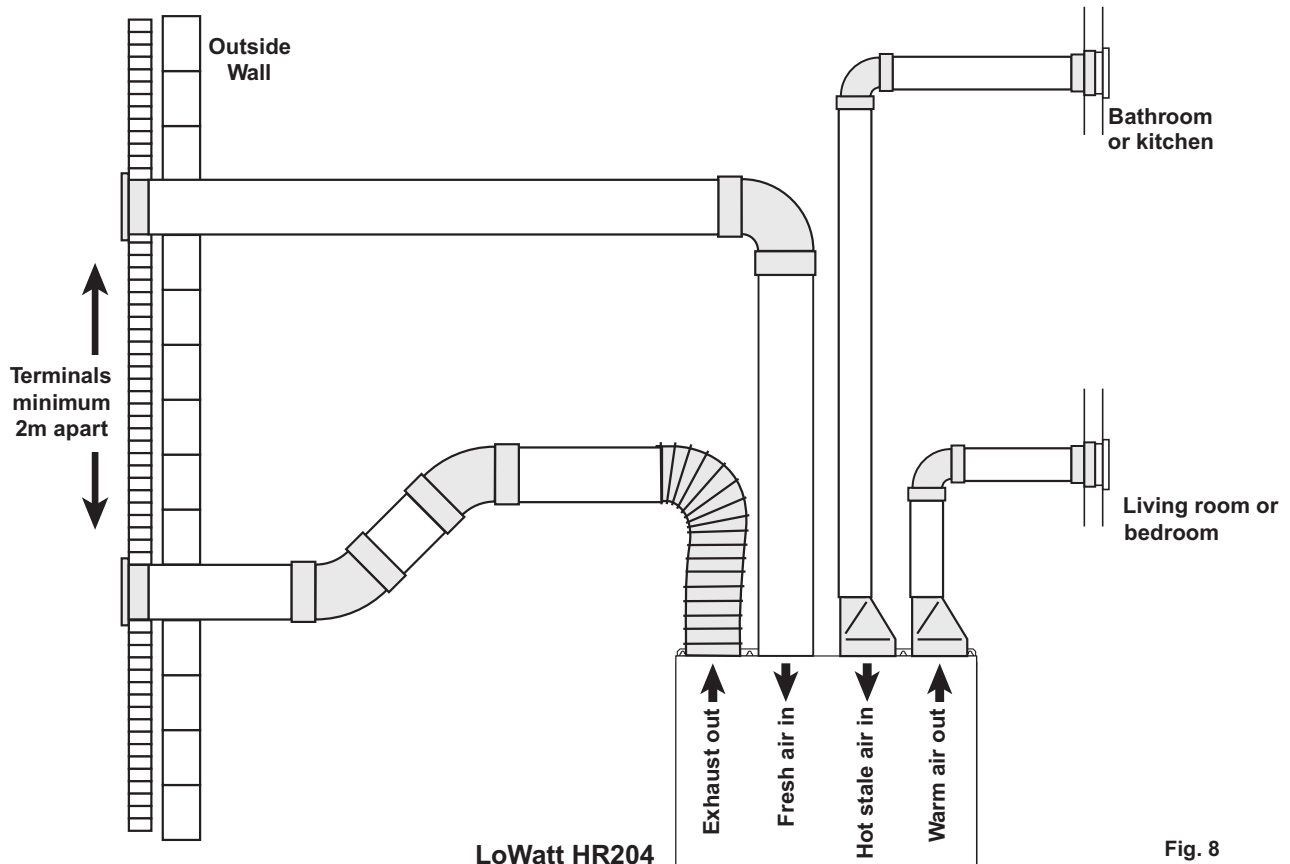


Fig. 8

## 6.0 Installation Requirements

### 6.4 System controls

See page 8 for a list of optional controls. These are used to switch the LoWatt HR204 from normal speed to boost speed.

### 6.5 Electrical supply

1. External wiring must be correctly earthed, polarised and in accordance with the current I.E.E. Regulations.

2. The mains supply must be 220-240V ~ 50Hz fused at 3 Amps.

**Note:** The method of connection to the mains supply must facilitate complete electrical isolation of the appliance. Connection may be via a fused double pole isolator with a contact separation of at least 3mm in all poles and supplying the LoWatt HR204 and its controls only. The LoWatt HR204 is not designed to be fitted with a plug.

### 6.6 Condensate drain

1. The condensate pipe should have a continuous fall of 10° (1 in 6) with as much of the condensate pipe as possible run inside the property to avoid freezing. The pipe should also incorporate a trap with a minimum height of 75mm or similar device to prevent a return of foul air from the waste pipe. See Fig. 11.

The LoWatt HR204 has three condensate outlet positions; rear, bottom and left hand side.

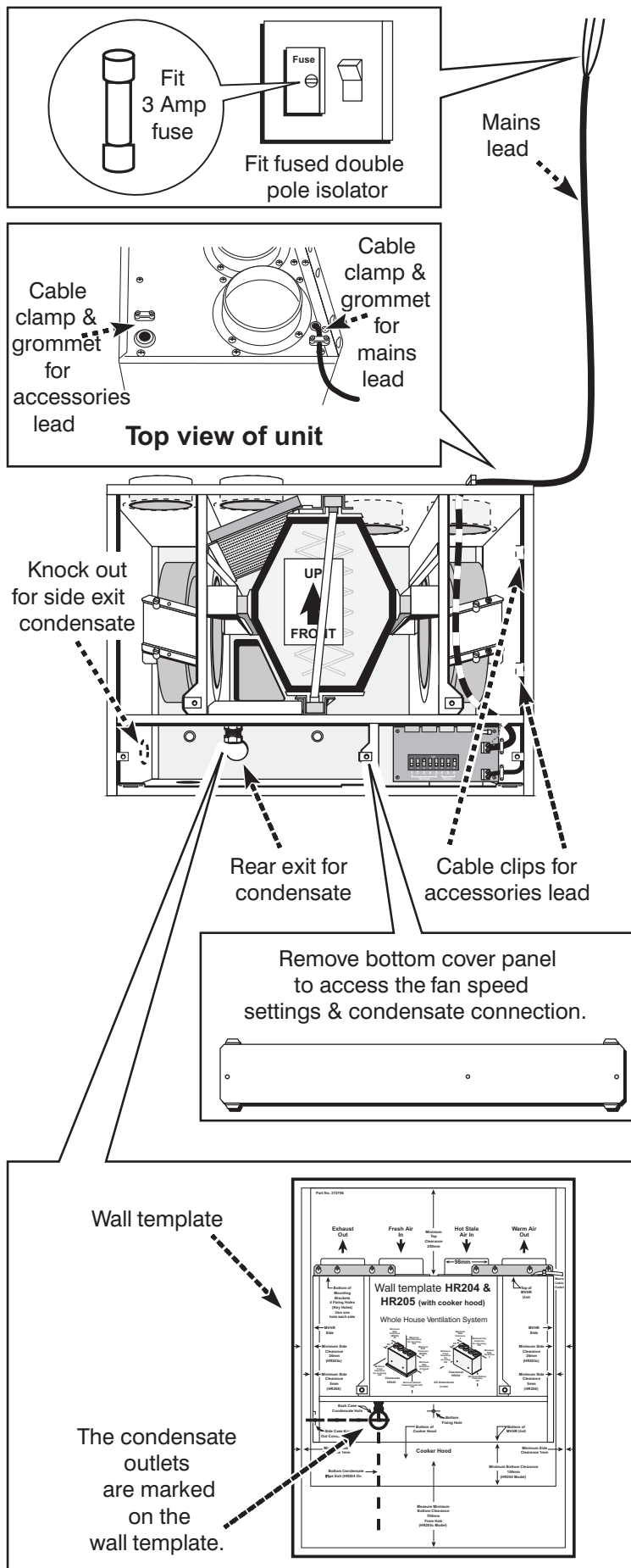


Fig. 9

## 7.0 Installation

### 7.1 Preparation

1. Check site requirements (Section 6) before commencing.
2. Remove the fixing template from the carton.
3. After considering the site requirements, position the template on the wall ensuring it is level.
4. Mark the positions of at least two top fixing holes, the lower fixing hole and the condensate outlet.
5. If required, mark off the positions of the four duct connections.
6. Drill and plug the wall at the fixing points and drill the condensate hole.
7. The top two screws should now be fitted leaving enough space for the keyhole fixing slots to engage.
6. Place the unit on its back (Fig.10). Release the two screws from the front cover and remove it.
7. Remove the bottom electrical cover plate by releasing the 3 screws, pulling the panel forwards and disconnecting the earth lead to the panel.

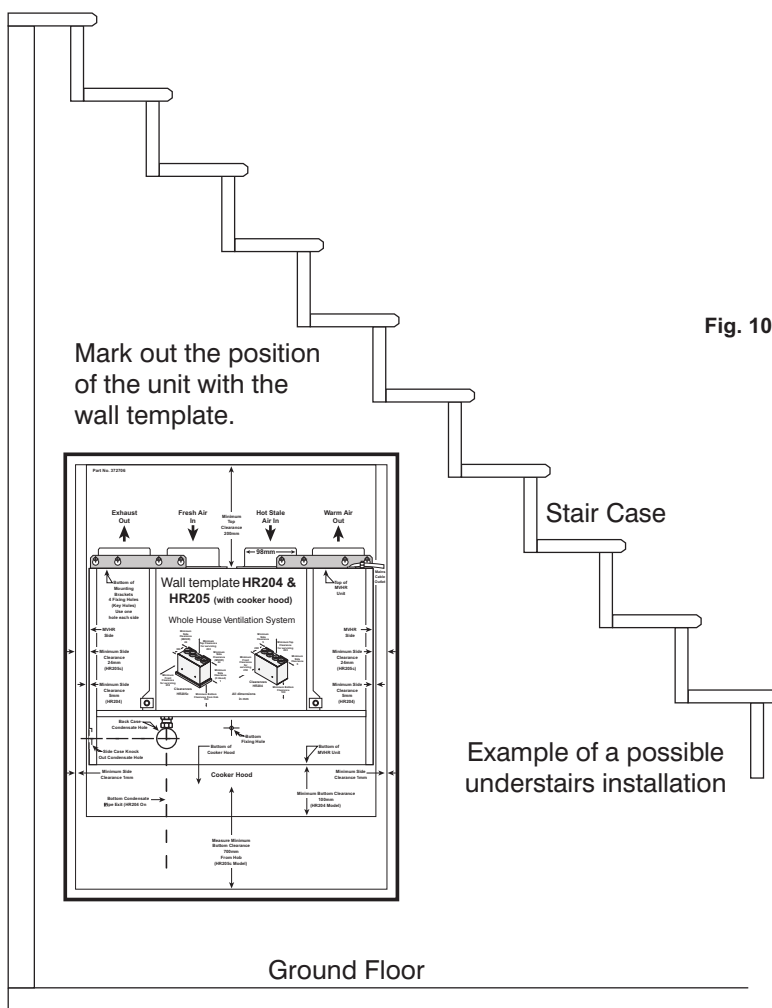
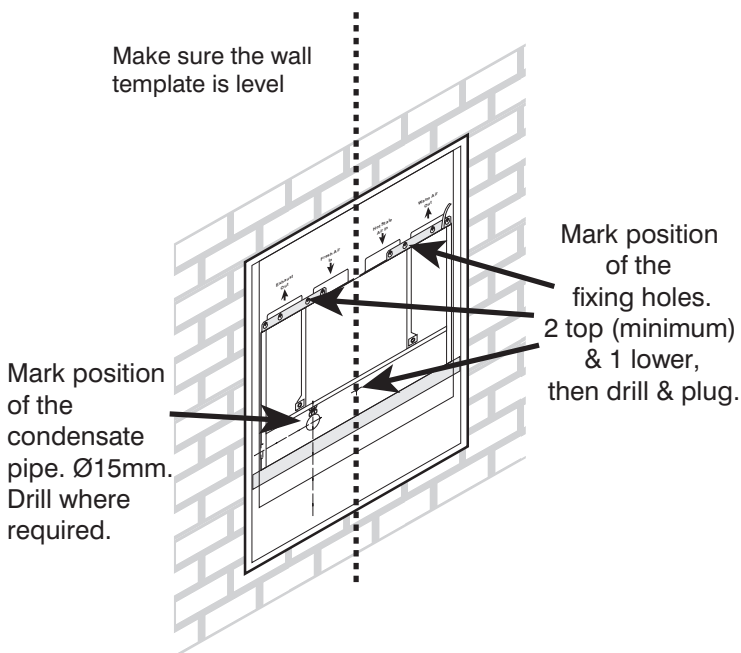
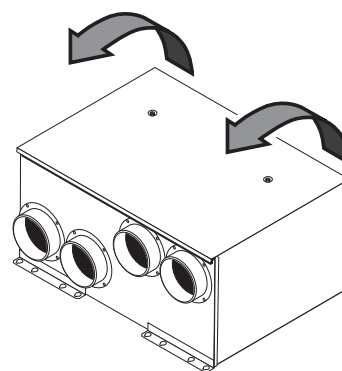
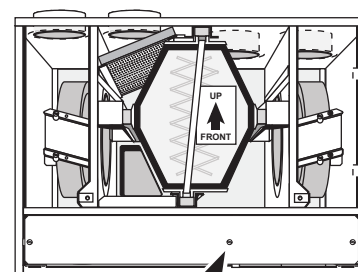


Fig. 10



Place unit on its back & remove front cover



Remove electrical cover plate (3 screws)

## 7.0 Installation

### 7.2 Condensate outlet

1. If the condensate pipe is to exit the unit at the left hand side, stand the unit up on its base.
2. Locate the semi-pierced hole and carefully remove the metal disc.
3. Swap over the grommet used on the rear exit hole and seal the rear hole with duct tape or similar.

**Note: The LoWatt HR204 has an extra condensate outlet on the bottom panel.**

### 7.3 Fitting the LoWatt HR204

1. Offer the unit to the wall and engage the keyhole slots over the screws previously fitted.
2. Make sure the unit is level and tighten the top screws before engaging the final screw.

### 7.4 Making the condensate connection

1. The condensate connector is suitable for  $\varnothing 15$  mm pipe.
2. The condensate pipe should incorporate a water trap or similar to prevent foul air being drawn into the unit. The minimum height of a trap should be 75 mm.

**Note: To ensure the condensate pipe is primed, slowly pour water into the condensate tray until it discharges into the drain.**

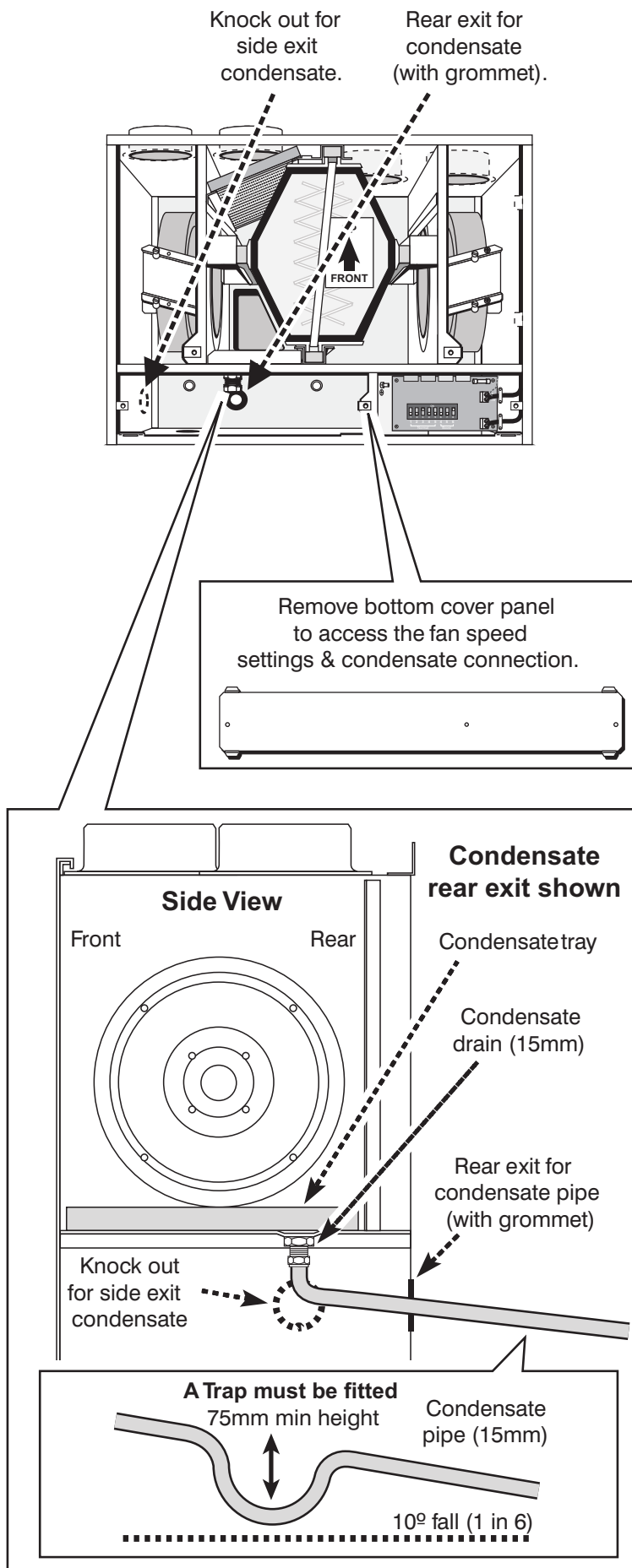


Fig. 11

## 7.0 Installation

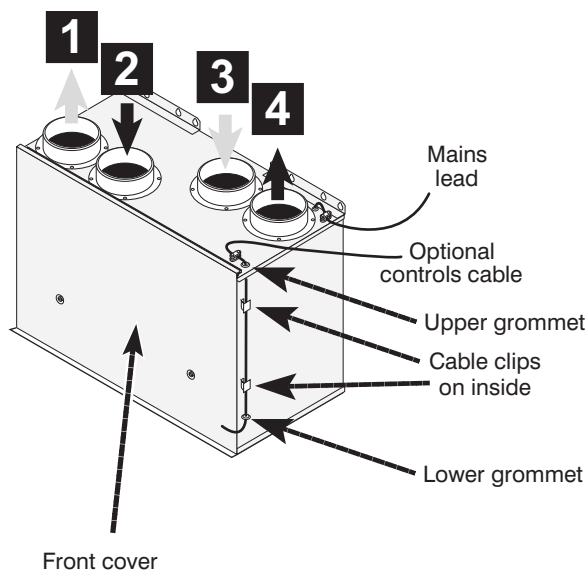
### 7.5 Making the duct connections

1. The unit has four duct connections suitable for 100mm round ducting.

1. Exhaust outlet to outside
2. Air inlet from outside
3. Stale air inlet from dwelling
4. Fresh air outlet to dwelling

**Notes: It is essential that the duct system is connected as indicated.**

**It is important that the duct system does not interfere with the correct fitting of the front cover and does not prevent the correct operation of the unit.**



### 7.6 Controls

1. The LoWatt HR204 requires external controls to enable normal/boost switching. Otherwise it will only run at its normal speed.

2. Drill a hole in the top grommet, (do not slice), equal to half the diameter of the two core cable to go through it.

3. Feed the lead into the unit through the top grommet, down the side, through the lower grommet and into the PCB area. Secure the lead with the cable clips and clamps.

5. Wire to terminals 1 and 2. See wiring diagrams in section 8.0.

### 7.7 Making the electrical connection

**Warning: This appliance must be earthed**

1. The unit must be set to the appropriate speed as determined by air flow required and duct system pressure (see page 7).

2. To change the speed settings of the fans, change the position of the dip switches on the PCB. The 5 switches on the left let you select the normal speed from speeds 1 to 5. The remaining 3 switches let you select the boost speed from speeds 4 to 6.

3. Refit the electrical cover plate and its earth lead.

4. Connect the flying lead to the mains supply - see section 6.5.

5. Check the electrical installation for earth continuity, short circuits, resistance to earth and correct polarity.

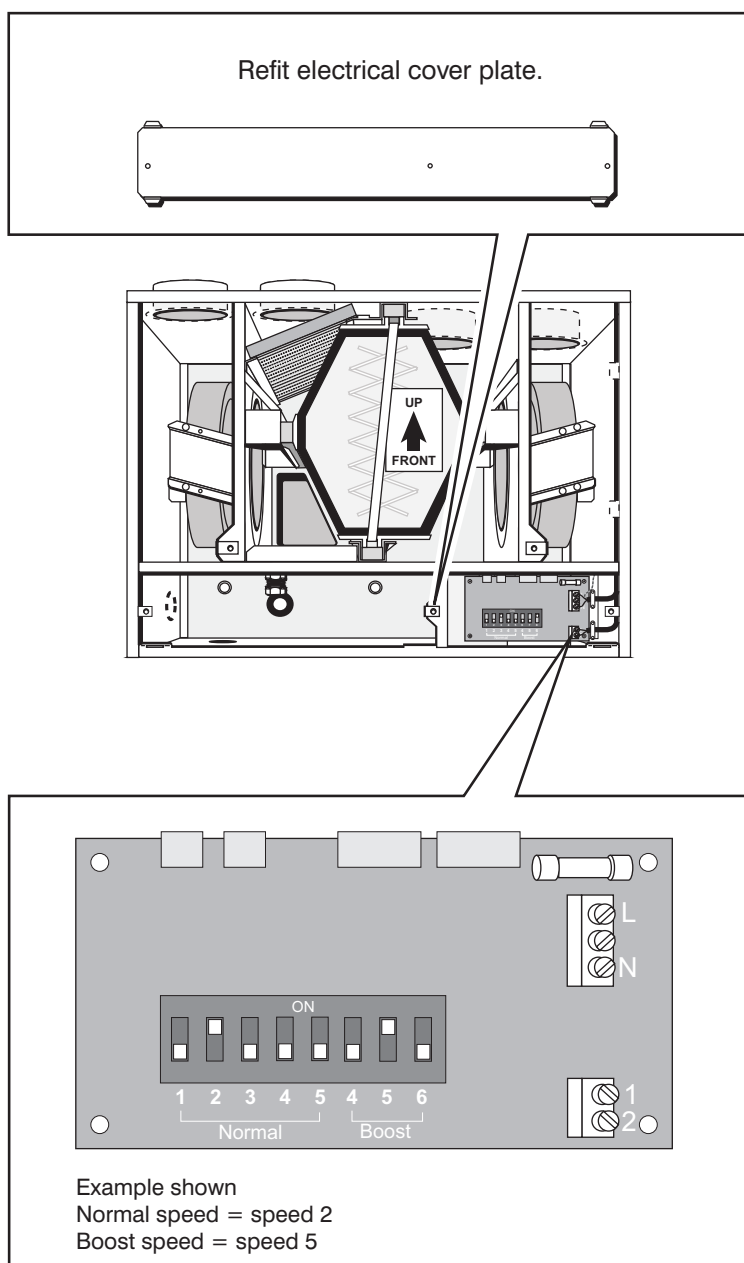


Fig. 12

## 8.0 Wiring Diagrams

### LoWatt HR204 Wiring

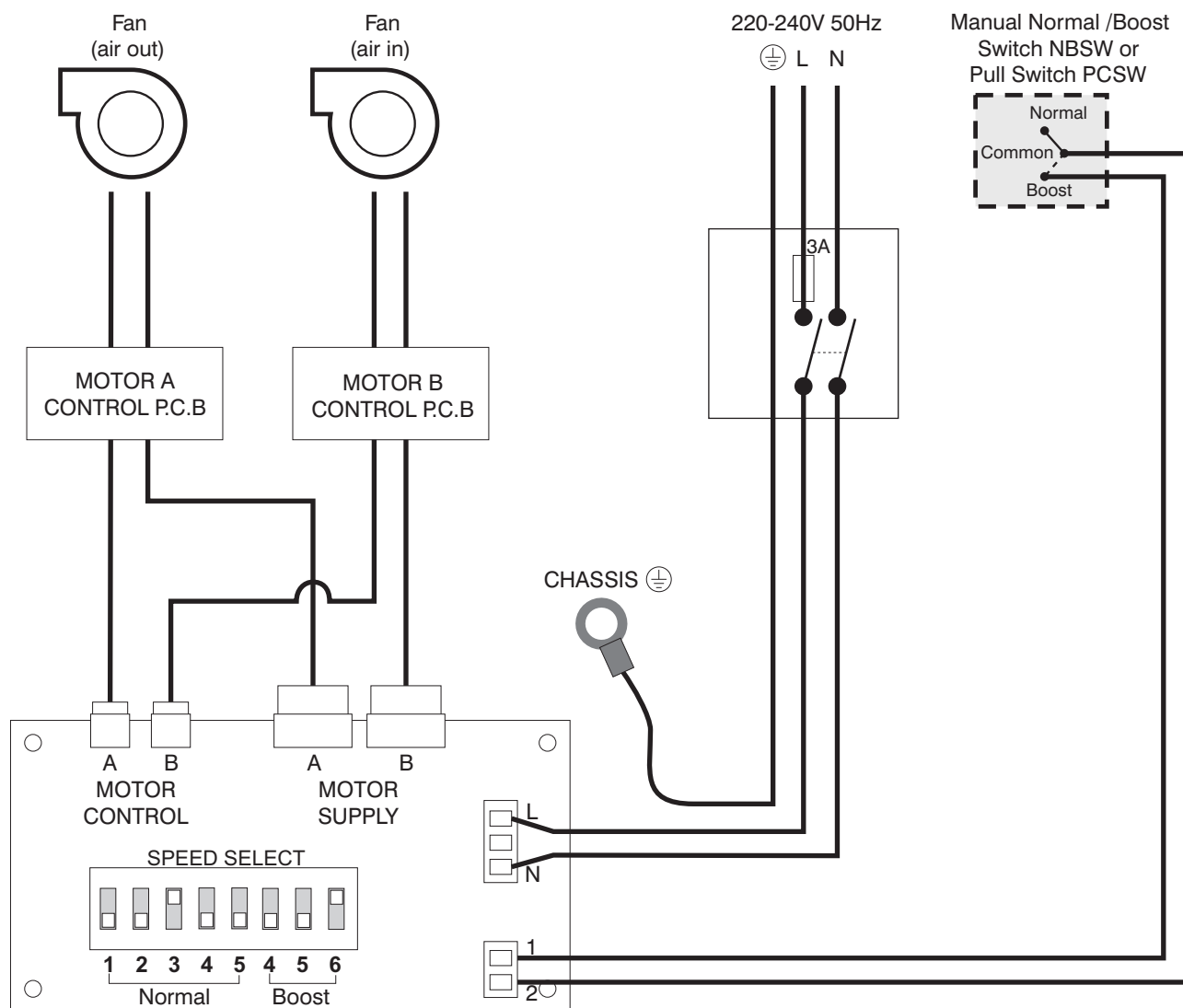


Fig. 13

## 8.0 Wiring Diagrams

### LoWatt HR204 Wiring & CMSM controller

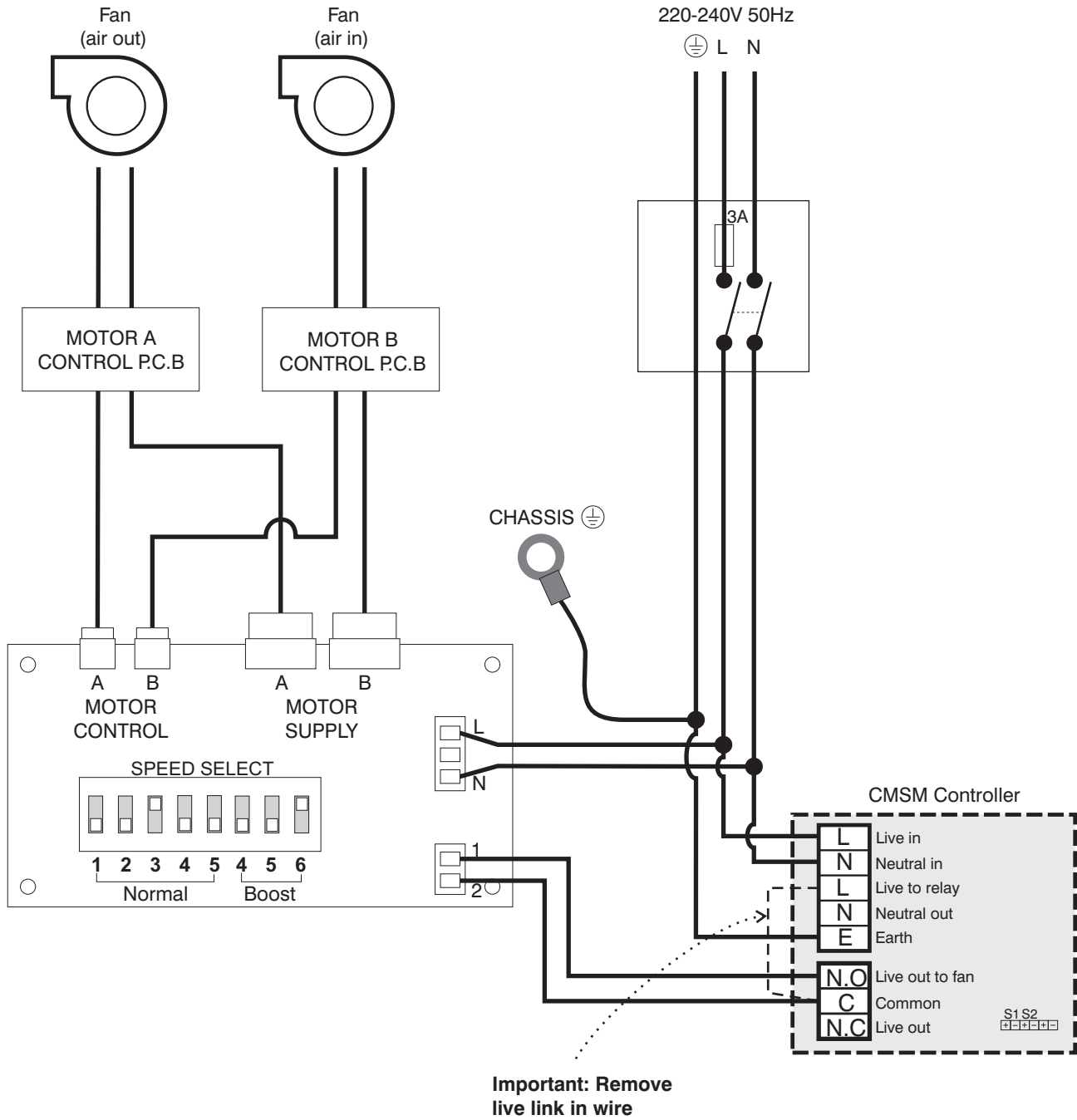


Fig. 14

## 8.0 Wiring Diagrams

### LoWatt HR204 with optional humidistats

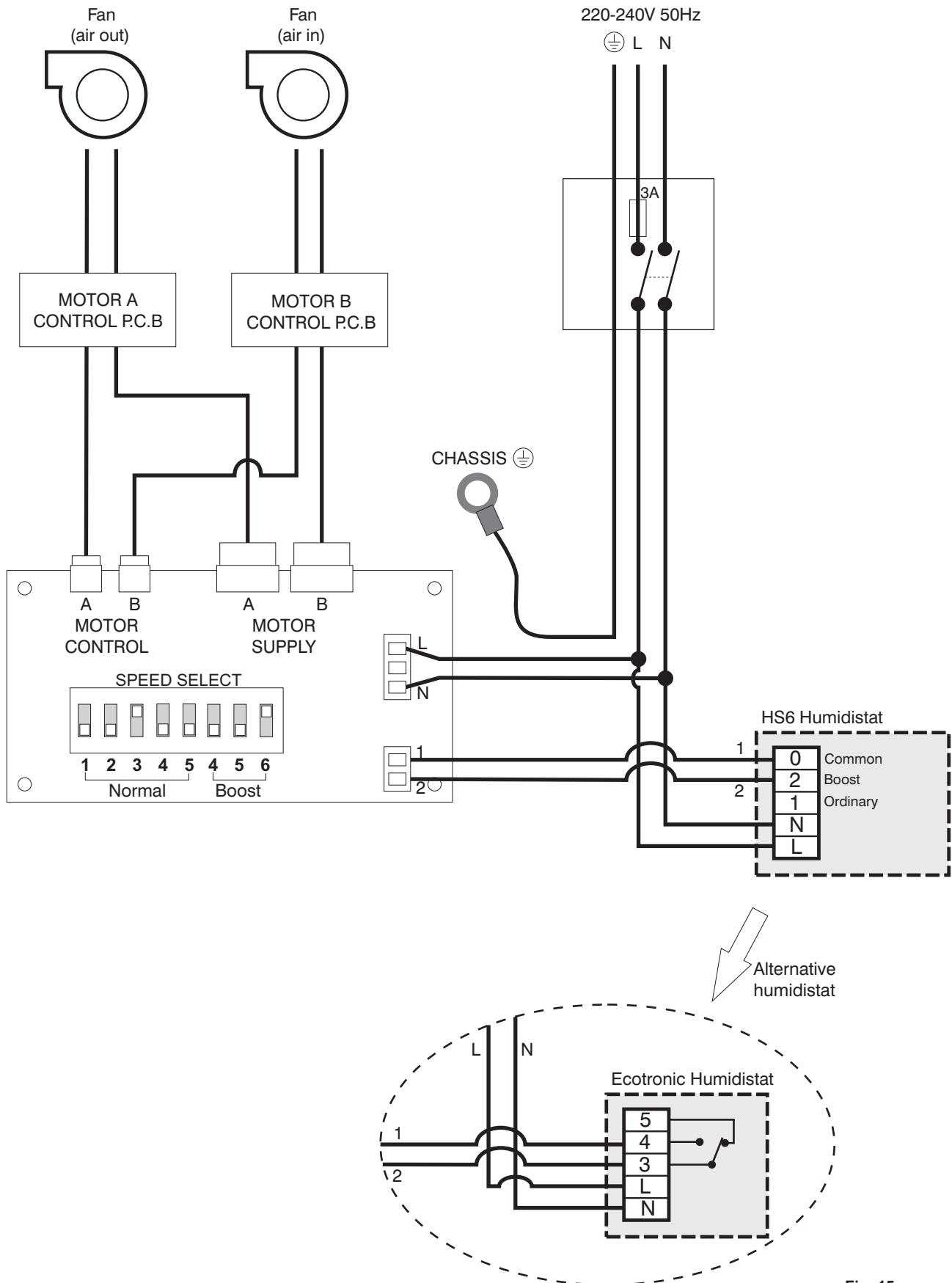


Fig. 15

## 9.0 Commissioning

### 9.1 Prepare for commissioning

1. Refit the front cover by hooking it over the top lip of the appliance and swinging down. Tighten the two case screws.
2. Check the external controls are set to normal running.
3. Turn on the electrical supply. The unit will now start running at the normal ventilation speed.
4. Set the external control to boost. The unit will now switch to boost speed.

### 9.2 Balancing the system

**It is important that a suitable anemometer is used to balance the system to give the required ventilation rates to each room.**

1. Set the appliance running on normal speed.
2. Make a preliminary adjustment of all the duct inlet and outlet louvres.

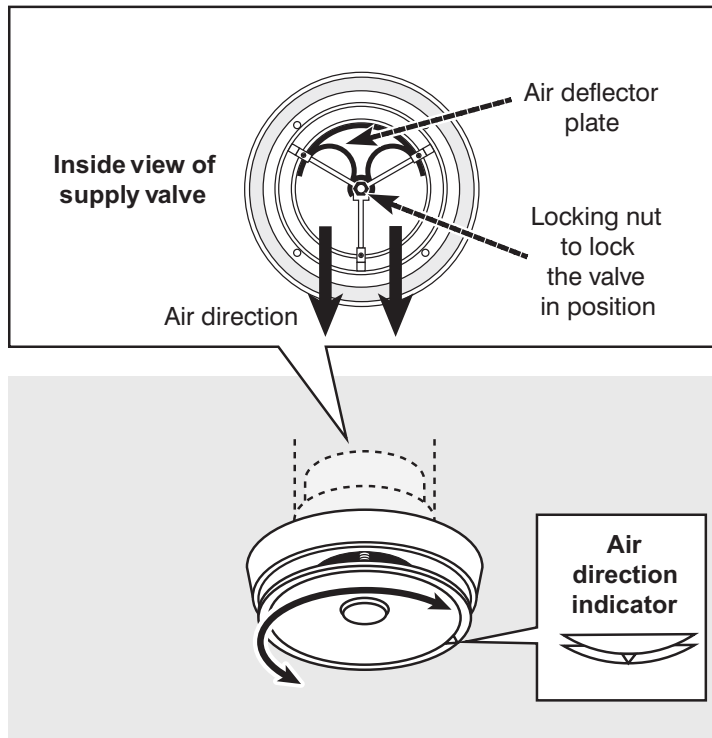
**Note: The supply air terminal is directional and incorporates a deflector plate. Ensure that the deflector plate is correctly positioned so that the active part of the terminal is discharging to the room.**

3. Check the flow rate and adjust if necessary the extract valve furthest from the appliance.
4. Check the flow rates and adjust if necessary the remaining extract valves.
5. Repeat the flow checks and adjust until the extract system is balanced.
6. Check the flow rate and adjust if necessary the inlet valve furthest from the appliance.
7. Check the flow rate and adjust if necessary the remaining inlet valves.
8. Repeat the checks and adjust until the system is correctly balanced.

**Note: If the flow rates have been achieved with all the louvres nearly closed, it may be possible to reduce the fan speed and re-adjust the louvre settings.**

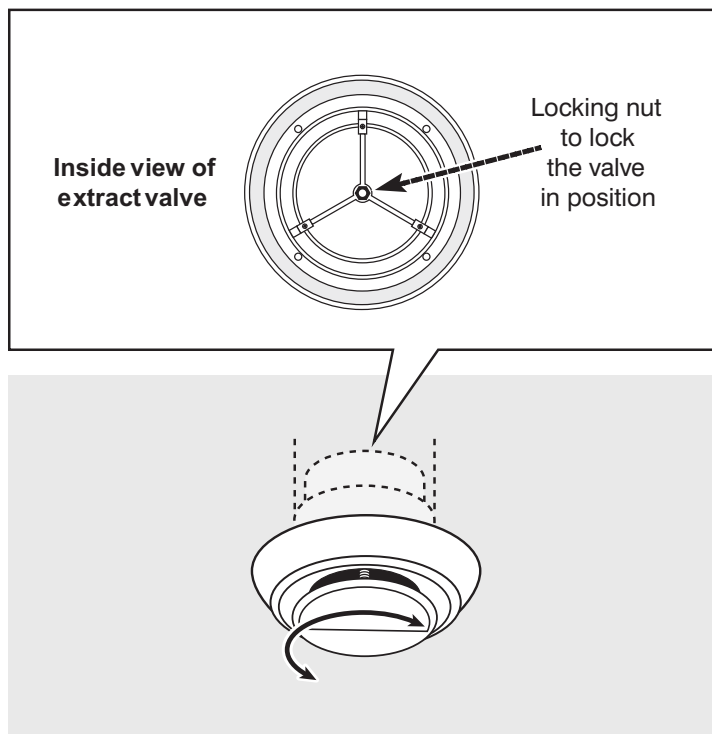
### 9.3 Instruct the user

Instruct the user in the operation of the appliance. Hand over these instructions, giving advice on the necessity for regular servicing of the filters and heat exchanger.



#### SV100

Adjust ceiling supply valve for living room etc.



#### EV100

Adjust ceiling extract valve for bathroom etc

Fig. 16

## 10.0 Maintenance

**Important: Before servicing ensure that the appliance is isolated from the electrical supply. After isolating from the electrical supply, allow one minute for the fans to stop rotating before servicing the appliance.**

The following cleaning and disinfection routine should be conducted every 6 months to maintain the efficiency and hygiene of the unit. It should be carried out by a suitably qualified person.

Care should be taken when using sterilising solutions. Gloves and eye protection are the minimum levels of personal protective equipment required. Do not spill the cleaning solution on any other surfaces, especially fabric as bleaching damage could occur.

The sterilising solution used should be a 'Milton' type solution diluted 1 to 20, or 'Instachlor PR1000' tablets (or similar), these will then give a 1,000 ppm available Chlorine solution.

1. Lift off the front cover by releasing the two screws and lifting upwards.
2. Remove the air inlet filter by pulling forwards. Carefully vacuum the filter. Replace if necessary.
3. Taking note of the offset sliders, carefully remove the heat exchanger by gently pulling forwards.
4. Check both fans and fan compartments for deposits. Clean as necessary, making sure that you do not disturb any cables or connections.
5. Remove the condensate tray by pulling forwards. Check and clean if necessary.
6. Check the condition of the four heat exchanger sealing strips and front cover seal. Replace seals as necessary.
7. Carefully wash the heat exchanger, making sure that the solution penetrates the cell plates. Take care not to loosen the plates. Dry thoroughly before refitting.
8. Drain and clean the condensate pipe using a bottlebrush, or similar, soaked in the sterilising solution.
9. Wipe down all parts showing signs of fungal / mould growth with the sterilising solution.
10. All parts should be well rinsed with clean water and dried after cleaning.
11. Re-assemble in reverse order and re-fit the front cover ensuring it makes a good seal.

**Note: Ensure the heat exchanger is located correctly in the offset sliders.**

12. Check the condition of the ductwork system, the soundness of all joints and repair if necessary.

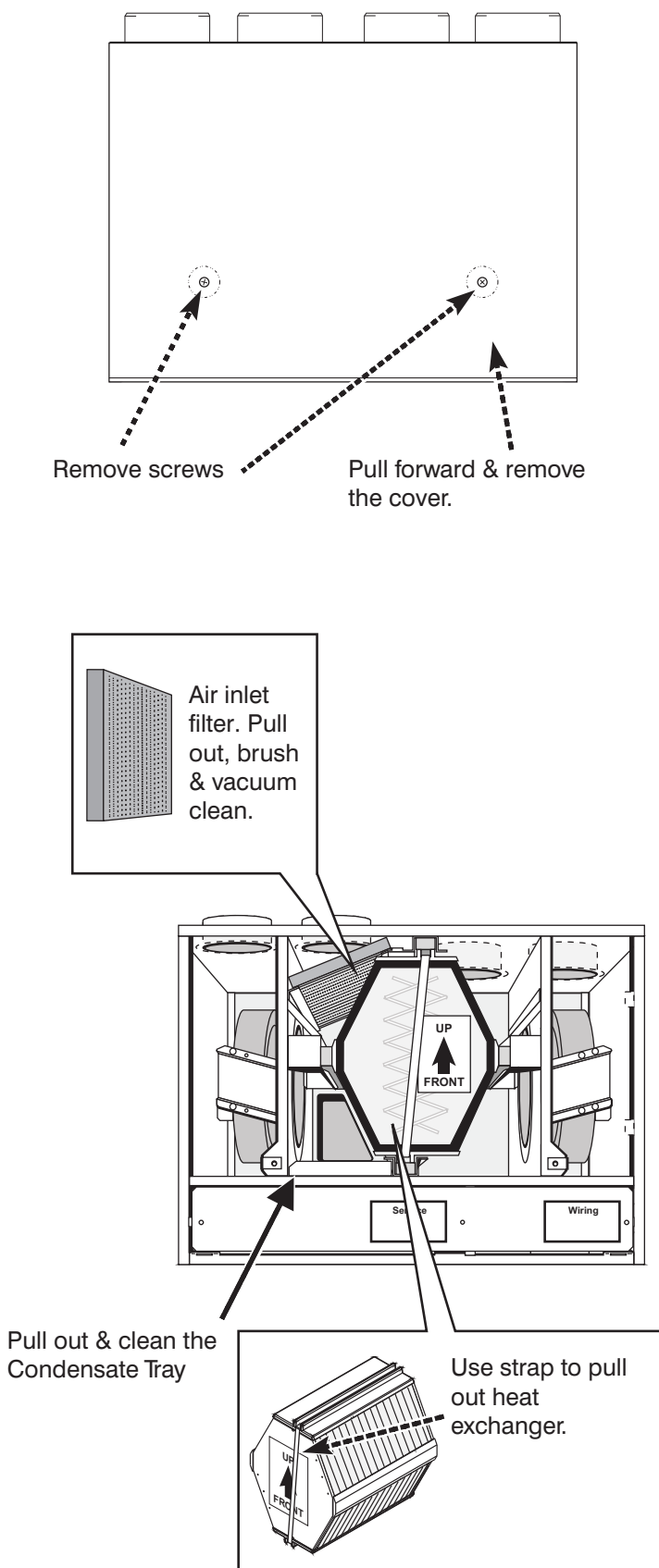


Fig. 17

## 11.0 Changing Components

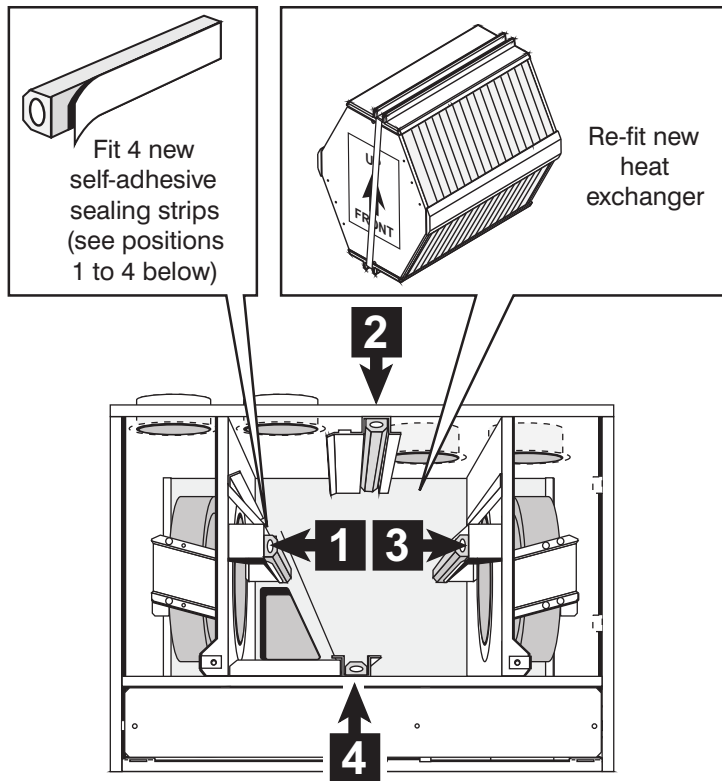
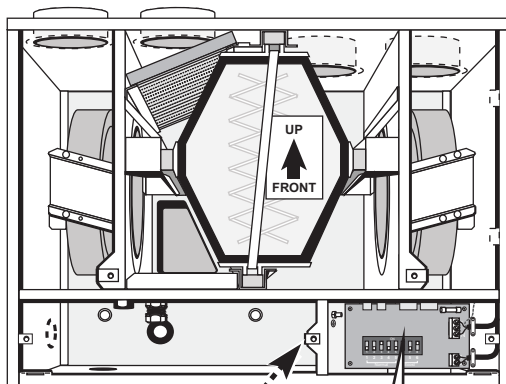
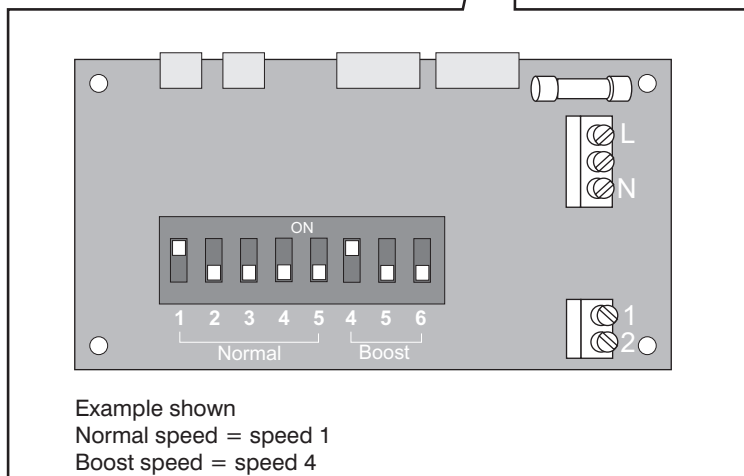


Fig. 18



Remove electrical cover plate.



**IMPORTANT: ISOLATE FROM THE ELECTRICAL SUPPLY BEFORE STARTING ANY WORK ON THE APPLIANCE. THE FANS MAY CONTINUE TO ROTATE FOR A MINUTE AFTERWARDS.**

### 11.1 Heat exchanger

1. Lift off the front cover by releasing the two screws and lifting upwards.
2. Gently remove the heat exchanger by pulling the strap forwards.
3. Re-assemble in reverse order taking care not to damage the heat exchanger seals.

### 11.2 Heat exchanger seals

1. Remove the heat exchanger (see 11.1).
2. Remove the four heat exchanger seals taking care to remove all the old adhesive backing.
3. Fit the new seals ensuring they make good contact with the location channel.
4. Re-assemble in reverse order taking care not to damage the heat exchanger seals.

### 11.3 Speed select & motor control PCBs

1. Remove the front cover by releasing the two screws and lifting the cover up and forwards.
2. Remove the bottom electrical cover plate by releasing the 3 screws, pulling the plate forwards and disconnecting the earth lead to the it. Make a note of the speed settings of the dip switch and the wiring arrangement for the PCBs.
3. Remove the two screw securing the PCB chassis to the bulkhead. Pull the chassis forward and down.
4. Make a note of the connections between PCBs and motors.
5. Disconnect the motor cables, mains cable and boost switch cable. Remove chassis and PCBs completely.
6. Replace PCBs as necessary.
7. Re-assemble in reverse order. Make sure rear tab of PCB chassis locates in slot. **Check the installation for earth continuity, short circuits, resistance to earth and correct polarity.**

## 11.0 Changing Components

### 11.4 Extract fan and input fan

1. Lift off the front cover by releasing the two screws and lifting upwards.
2. Remove the PCB chassis by following the instructions in 11.3. Disconnect the motor lead.
3. Slacken the two rear fan bracket screws.
4. Remove the two front fan bracket screws and remove the fan assembly.  
Note the position of the fan bracket relative to the fan.
5. Remove the bracket and re-fit to the new fan.
6. Re-assemble with the new fan in reverse order ensuring the cable does not foul the fan motor: **Check the electrical installation for earth continuity, short circuits, resistance to earth and correct polarity.**

**Removal of the left hand fan**  
(right hand fan similar)

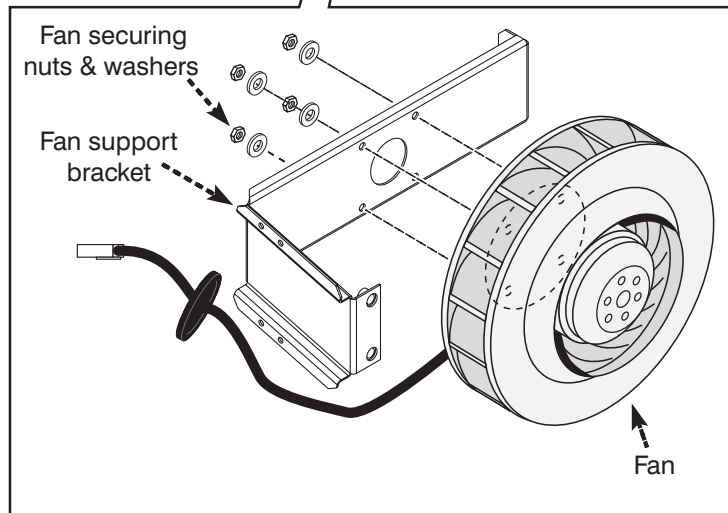
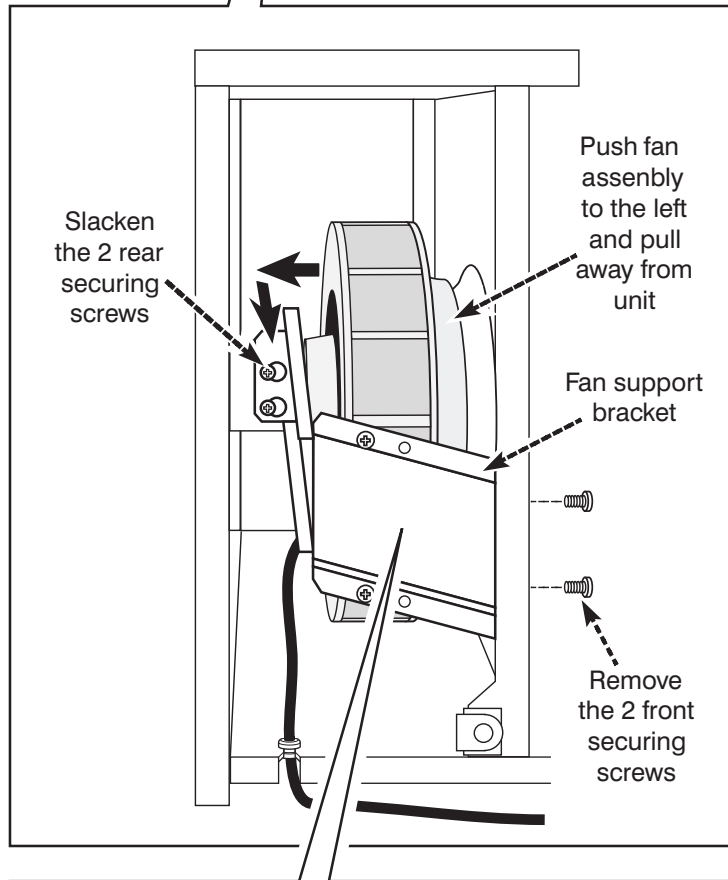
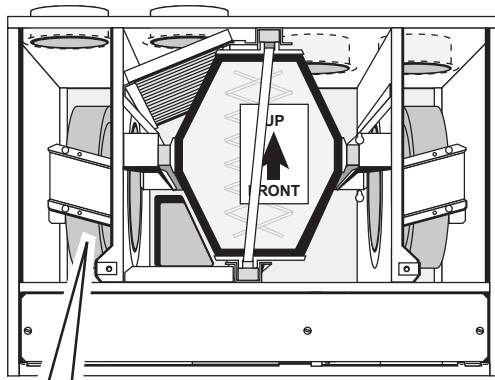


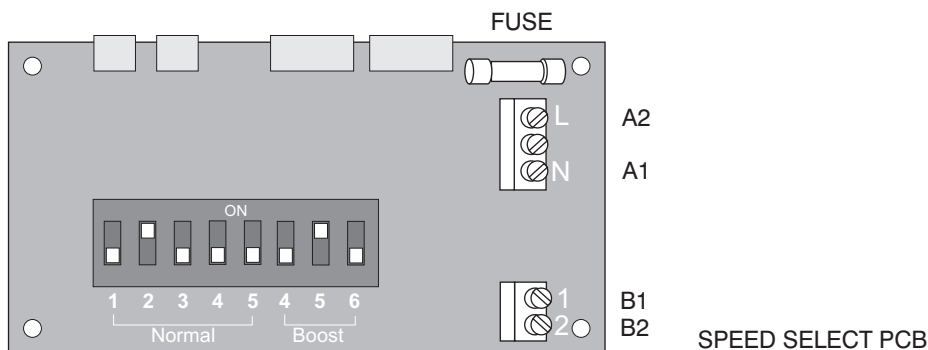
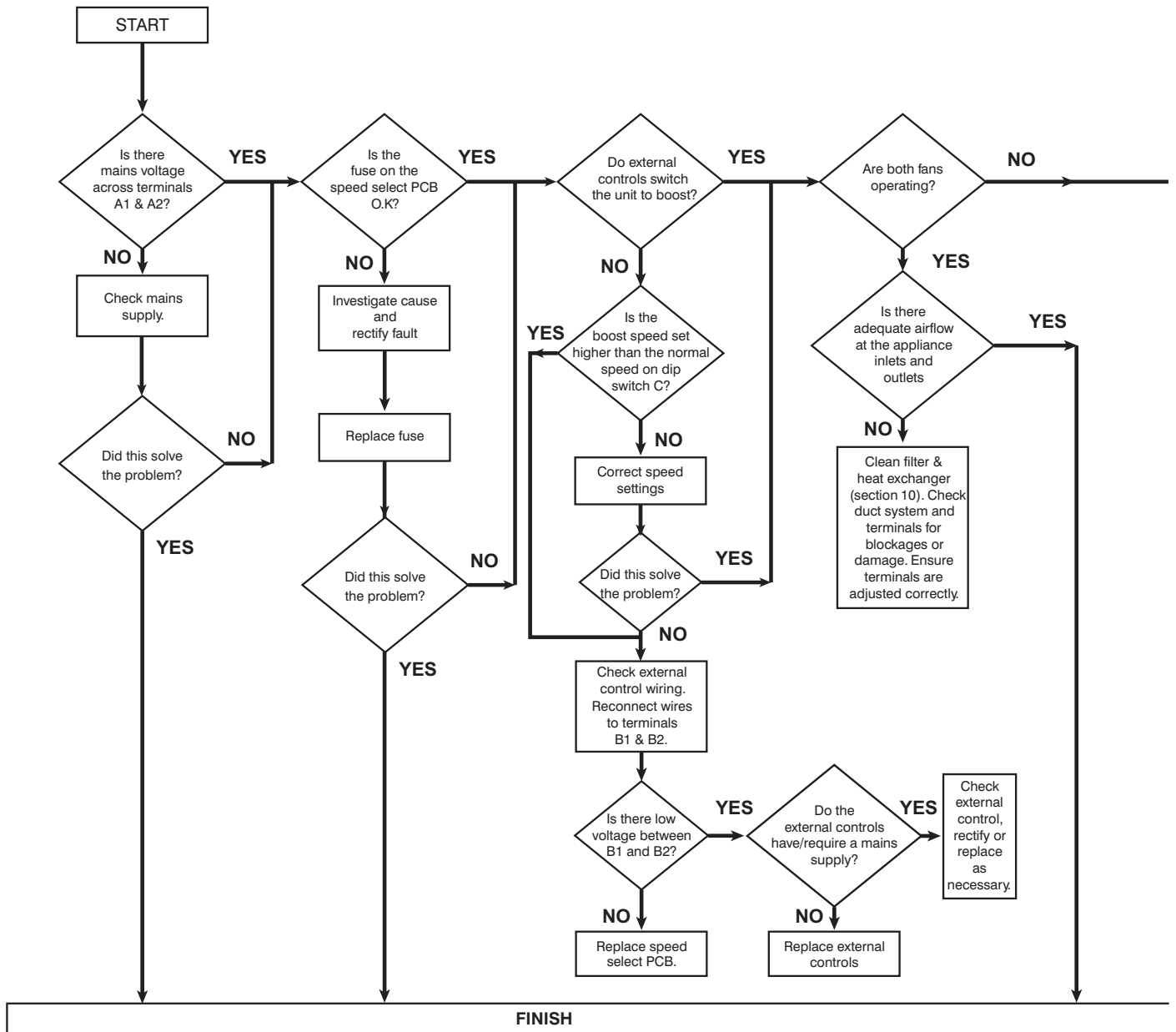
Fig. 19

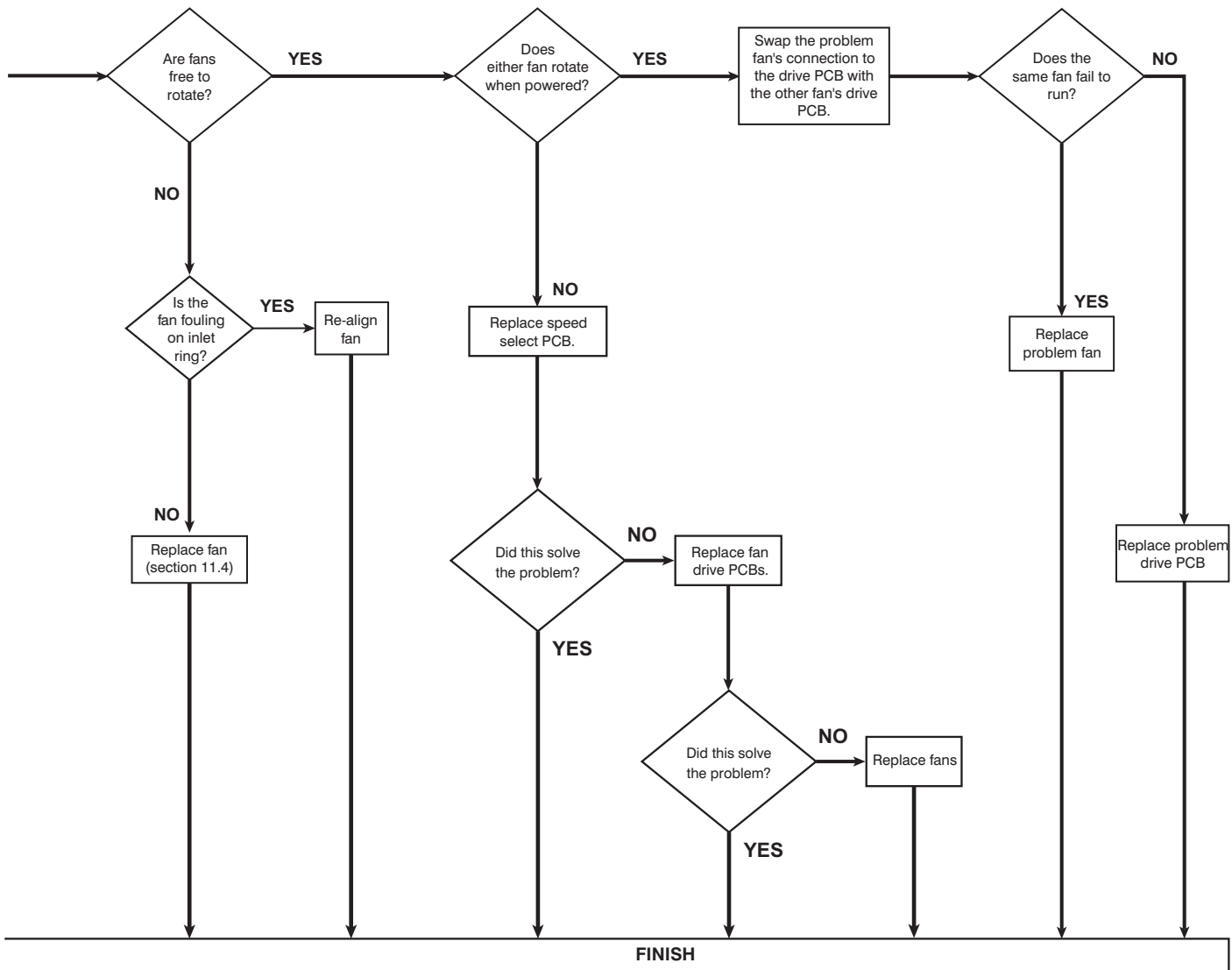
# 12.0 Fault Finding

Before starting **FAULT FINDING** carry out preliminary electrical systems checks i.e. Earth Continuity, Polarity, Short Circuit and Resistance to Earth.

Ensure all external controls are operating and are set to normal running. Ensure that a mains electrical supply is available to the unit.

Refer to diagrams below to identify terminals on components (e.g. A1, B2 etc).





**Note**

If the either fan does not rotate, check the entire system and unit for correct installation. Check all ducting outside and terminals for blockages.

The drive PCB can sense if the fan is not rotating. When this happens, it will shut off the power to the motor to prevent overheating. It will try powering the motor again every few seconds until the problem is resolved. This is characterised by the impeller jerking every few seconds.

## 13.0 Short Parts List

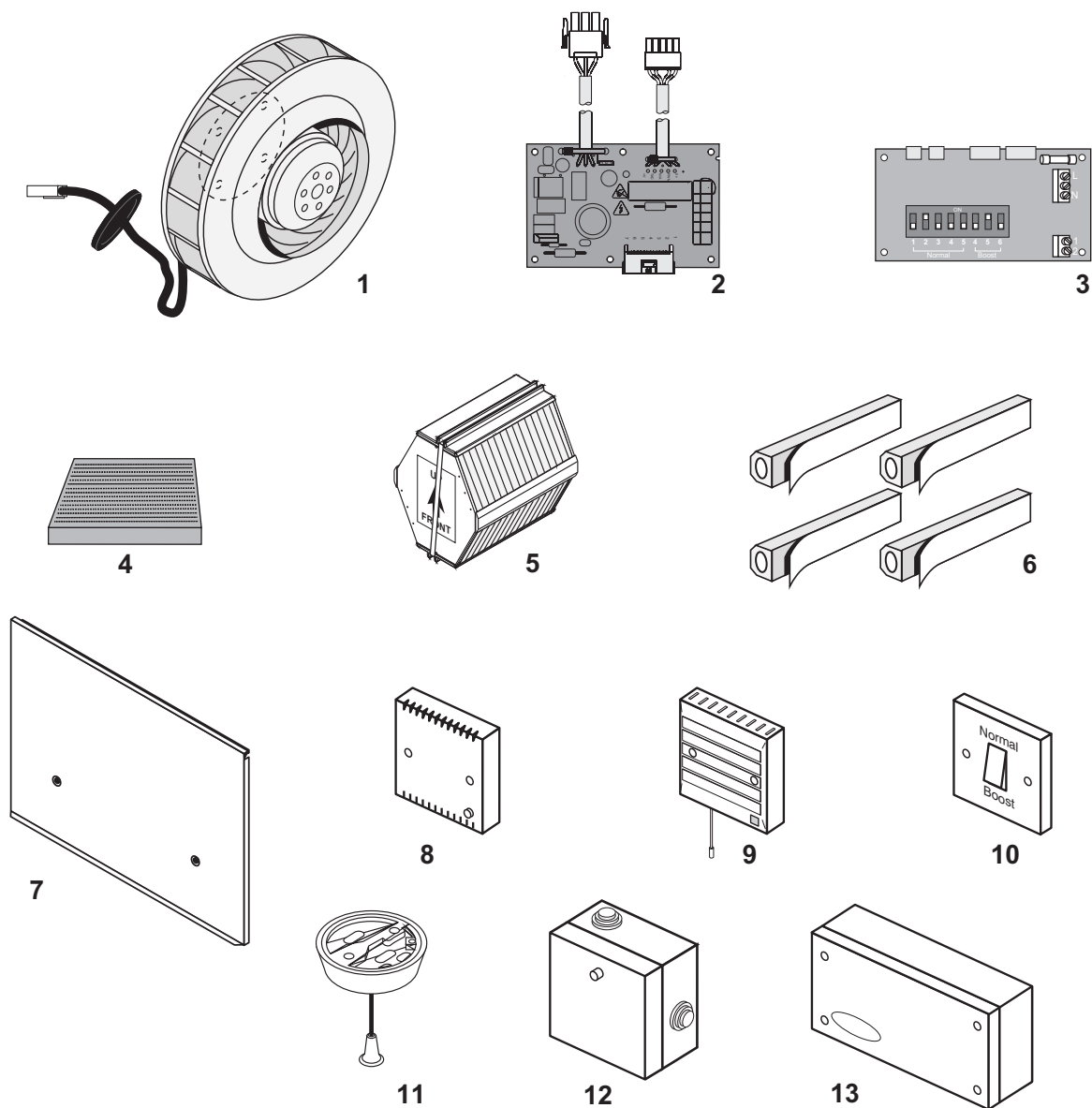


Fig. 21

Key No.	Spares Part No.	Description
1	436373	DC motor/impeller assembly
2	436374	Motor Drive PCB
3	436375	Speed Select PCB
4	372735	Inlet duct filter
5	372736	Heat exchanger
6	372737	Heat exchanger seals (4 off)
7	372739	Outer door/cover assembly
Optional extras		
8	370254	Humidity sensor HS6
9	563532	Ecotronic humidity sensor
10	370495	Normal/boost switch NBSW
11	370278	Normal/boost pull cord switch PCSW
12	370346	TIM2 timer
13	435960	CMSM controller