

"WHHR Midi"



Residential Whole House Heat Recovery
Unit with Low Energy DC Motor

Installation, Operating and Maintenance
Instructions





"WHHR Midi" - WHOLE HOUSE HEAT RECOVERY UNIT INSTALLATION AND OPERATING & MAINTENANCE INSTRUCTIONS

Safety Notice

It is important to read this Instruction Manual carefully before installing or using the product. Following these instructions will ensure that your ventilation system is installed, commissioned and used properly and continues to operate effectively. Vectaire will not be held responsible and will not accept liability for any damage caused to persons or property through failure to follow the guidance provided in this manual. It should always be available with the product for easy reference.

WHHR - Midi: 5"/125mm spigot, for dwellings up to 230m², max capacity 102 litre/sec

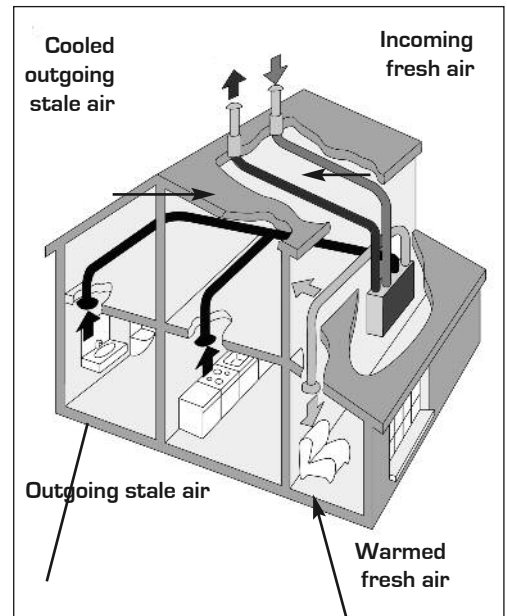
General Information

The Vectaire WHHR Midi heat recovery system provides whole house mechanical ventilation to living areas, bedrooms, kitchen and bathrooms. It extracts stale, contaminated air from kitchens, utility rooms and bathrooms, and uses the heat recovered from this air to warm fresh, incoming air to create a flow of fresh, filtered air throughout the dwelling. The extract and intake air streams are separated to avoid contamination.

The system will operate continuously to create a stable, comfortable, healthy environment avoiding the use of excessive energy and saving heat already generated.

The heat recovery unit must be installed vertically, and will generally be sited in a cupboard. It will be connected by hidden ductwork to vents sited in the ceilings of the rooms which are to be ventilated. Each unit is commissioned individually so that the amount of air moved is tailored to suit the performance required. There will be a facility to boost the extraction rate when desired (e.g when cooking or bathing, or when pollutant levels rise). This may be done automatically or manually.

The system is designed to run continuously and should NOT be switched off except for maintenance or filter replacement. It is important to follow the advice in this user manual and correctly install and maintain the system to ensure a healthy and comfortable indoor environment.



Features

- **SAP Q Eligible** whole house heat recovery units giving continuous ventilation in the kitchen and up to seven additional wet rooms (using rigid ducting)
- low noise levels
- variable choice low (trickle) speed and boost options for optimum setting at installation
- boost speed triggered by a switched live connection from:
 - a light switch (if more than one light switch is used, **each one must be a double pole switch**)
 - DRH240 (dynamic remote humidistat)
 - PIRFF (passive infra red)
 - THM (thermostat)
 - a remote switch/pull cord
- Economical EC motor with electronic control plus:

Standard control features:

- > **variable adjustment** - trickle and boost speeds set at installation for both motors independently
- > **boost setting** - with integral overrun timer adjustable up to 20 minutes
- > **optional delay-on-timer** - boost speed does not operate if switched off within 2 minutes
- > **integral frost-stat** - proportionately reduces intake motor speed as temperature falls

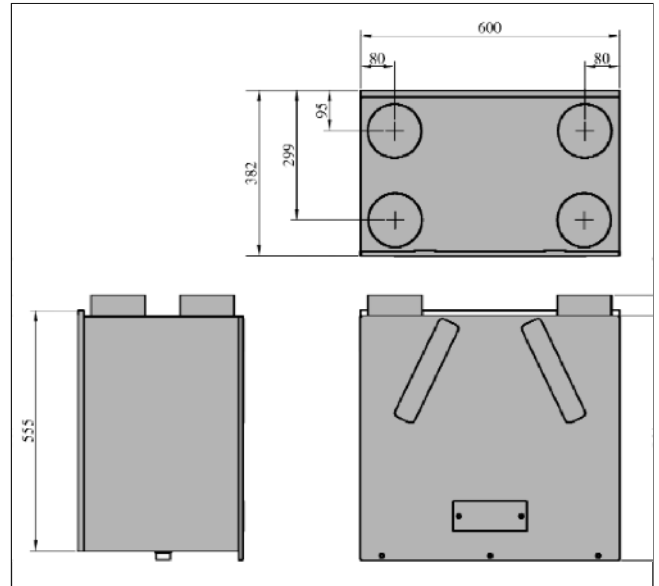
Factory Set Options

- > **change of ductwork handing**
- > **purge boost** - for rapid air change
- > **BMS connections** - for remote motor shut off
- > **integral humidistat** - proportionately increases motor speeds with rising humidity
- > **summer bypass** - automatic bypass of heat exchanger in hot weather
- Installation **MUST** be carried out by suitably qualified personnel and **MUST** be in accordance with current IEE regulations

Installation

IT IS IMPORTANT THESE INSTRUCTIONS ARE READ FULLY BEFORE INSTALLATION

- This product should not be used for any purpose other than that for which it was designed and as shown in this leaflet
- All packaging should be removed and the unit checked for damage in transit. If there is any damage, please contact your supplier
- The WHHR Midi must be installed vertically, and generally be fitted into a cupboard, loft or ceiling void.
- **In order to comply with Construction (Design & Management) Regulations, sufficient access for safe maintenance (recommended on an annual basis), or removal following installation, MUST be provided for this product. See dimensions diagram.**
- Regulations and current Building Regulations. In order to comply with these, it may be necessary to fit fire dampers or other similar devices.
- **Flue gases from fuel-burning equipment must not be drawn into a living area. If any room from which air is extracted contains a fuel burning appliance, such as a central heating boiler, then its flue must be of the sealed or balanced flue type, or allowance must be made for an adequate supply of air into the room.**
- The unit must **NOT** be installed:
 - where there is excessive oil or grease
 - where there are hazardous gasses, liquids or vapours that are flammable or corrosive
 - in ambient temperatures above 40°C or lower than 0°C
 - in areas of excessive humidity or in a wet environment
- Where possible the unit should **NOT** be installed directly above a bedroom or living room.
- The condensation drain **MUST** be fitted
- Care should be taken to ensure that ducting is free from blockages
- External grilles should be located a minimum of 600mm from any flue outlet in accordance with all Regulations
- The unit must be connected to a 230-240v, 50Hz single phase electrical supply.
- A triple pole isolation switch with contact separation of at least 3mm must be used to connect the appliance to the fixed wiring when using the Switched Live.
- The product should only be connected to the mains electricity supply or electrical outlet if:
 - your electrical voltage and frequency correspond to those shown on the rating label.
 - the capacity of your electricity supply is sufficiently powerful to operate the product at its maximum power.
- If one of the spigots is not connected to ducting a safety grille **MUST** be fitted to that spigot, so that it is impossible for any moving part to be touched.



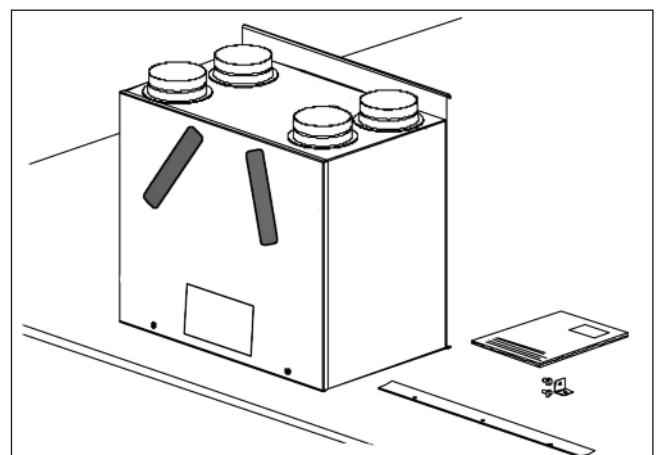
Installation of the appliance **MUST** be carried out by a qualified and suitably competent person and should be carried out in clean, dry conditions where dust and humidity are at minimal levels. The unit is not suitable for installation to the exterior of the dwelling.

Transportation, packaging and storage prior to installation

- Care should be taken when transporting the unit. Dropping or knocking will damage the inner workings of the unit.
- The unit should always be stored in a clean, dry environment.
- Remove all packaging before installation.

Pre-inspection

- Inspect the unit and electrical supply cord for any damage (damage must be repaired by a suitably qualified and competent person.)
- Check all parts are supplied as shown.

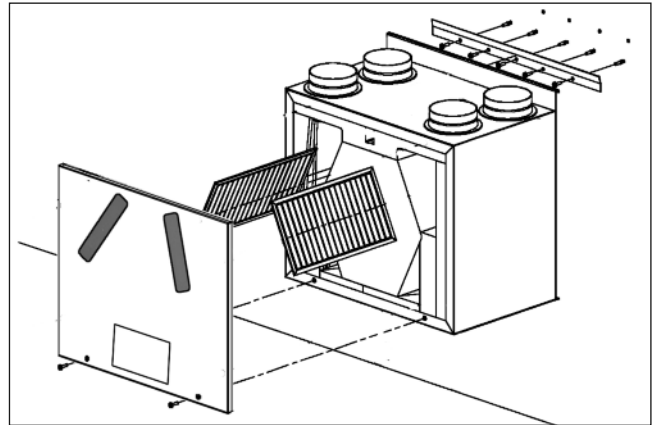




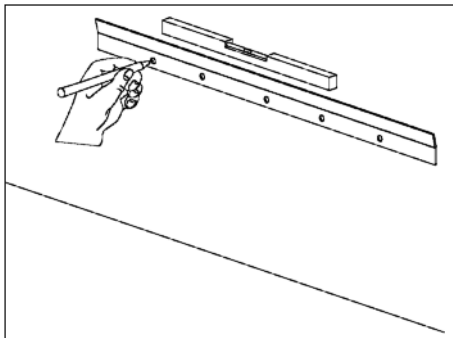
Parts list

- 1 x Vectaire WHHR Midi unit.
- 1 x Wall mounting bracket.
- 1 x Safety bracket.
- 1 x Installation, Operation & Maintenance Instructions

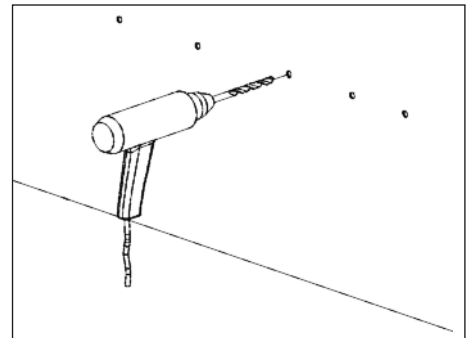
Any parts shortages or faults must be reported to the supplier immediately.



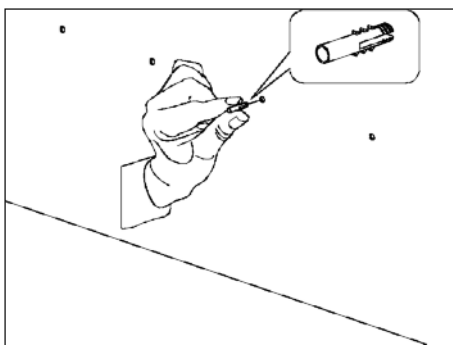
Installation - mounting



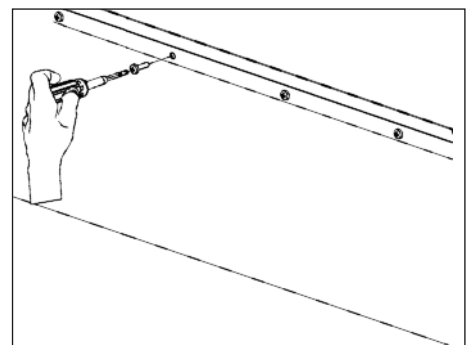
1. Mark a horizontal line on the wall using a spirit level. This line will be approximately 40mm below the location of the top face of the unit when fitted (excluding duct ports). Use the mounting bracket as a template to mark the five fixing hole centres.



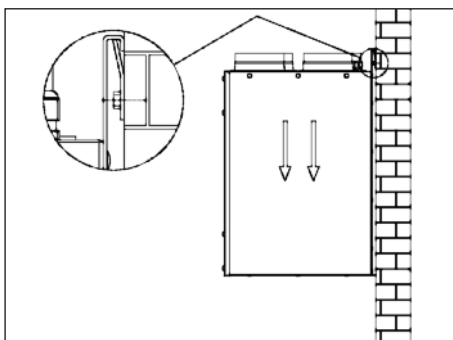
2. Check fixings supplied, which are for a solid wall, are suitable for your installation. For a different type of mounting surface, ensure appropriate fixings are used. Drill holes for fixings.



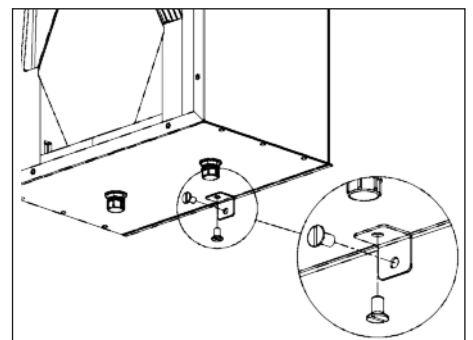
3. Fit wall plugs into drilled holes



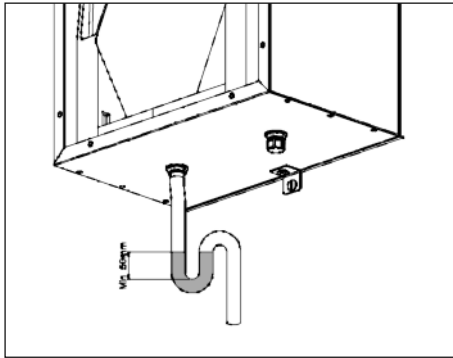
4. Mount the fixing bracket to the wall ensuring the interlocking side is at the top, as shown



5. Mount the unit by locating the bracket on the back of the unit securely over the mounting bracket



6. Fix the lower safety bracket as shown. Screw and plug supplied are for solid wall - check that this is appropriate for your installation (see '2' above.)



7. Condensation

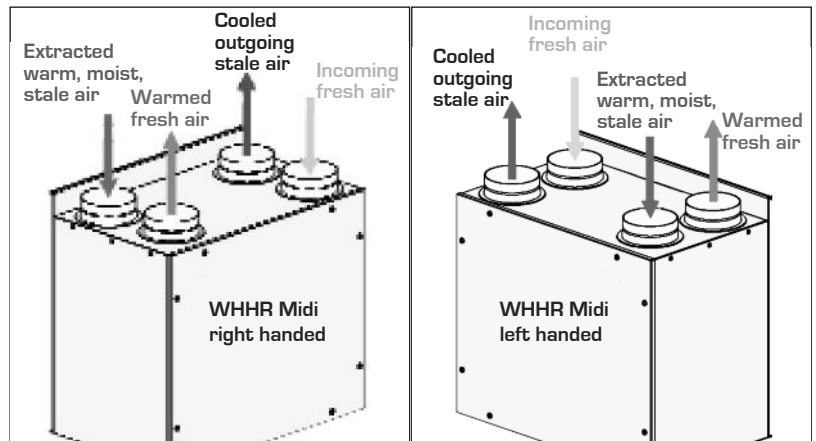
- (The unit may sometimes produce condensation which must be drained away. A 21.5/22mm dia pipe outlet is provided on this unit).
- A 21.5/22mm dia pipe must be fitted to the pipe connection. If any part of the condensate drain is in an **unheated** space it **MUST** be insulated with the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04 W/(mK).
- The drain must incorporate a wet or dry trap to prevent air penetration.
- The pipe must drain into the normal household drainage system.

The drainage pipe must have a continuous fall from the unit to the drainage collection point.

Note: optional drain positions shown in diagram, but is factory fitted only, depending on whether left or right handed model is ordered.

Duct and Duct Connections (refer to design drawing)

- 4 x 125mm nominal diameter spigots are provided for the connection of ducting. These are clearly marked for correct connection of the supply and exhaust ducts.
- Where ducting is installed in an **unheated** space, all of the ducts should be insulated. Where ducting is installed in a **heated** space, only the cold ducts should be insulated. i.e. the supply duct from outside and the extract duct from the unit to the outside.
- The duct layout must be designed to suit the requirements of the ventilation/heat recovery system and building layout.
- Where rigid duct is used, it should be installed using the least number of fittings to minimise air flow resistance. Where possible, final connection to the grilles and unit should be made with a flexible connection.
- Where flexible ducts are used, ensure that:
 - lengths of ducting longer than necessary are **not** used
 - the duct is stretched so that it is smooth and straight
 - where bends are necessary, they have large radii (ie avoid sharp bends)
 - the duct is not crushed if in a restricted area
- Where ducting passes through a fire partition, suitable fire dampers **must** be installed to prevent the transmission of fire through the duct.

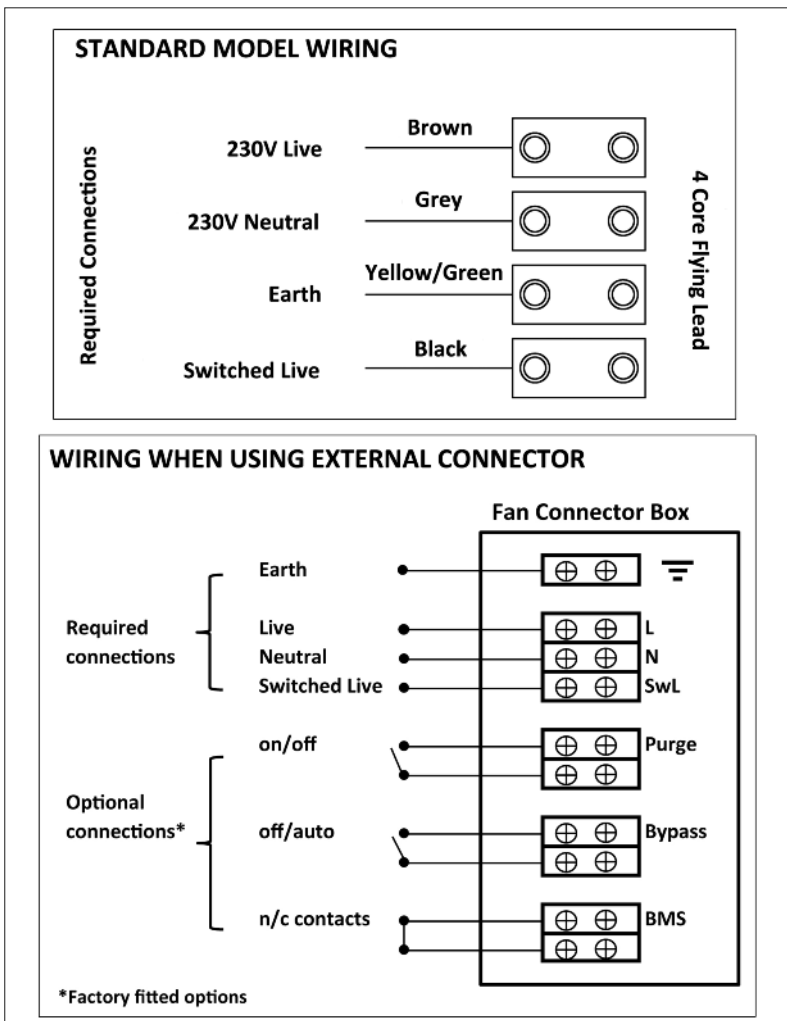


Electrical Connection

WARNING: these appliances must be earthed and all wiring must conform to current IEE Regulations and all applicable standards and Building Regulations.

- The unit is suitable for 230V, 50Hz Single phase supply.
- The unit is supplied with **either** a mains rated 4 core flexible cord (black, brown, grey and green/yellow) **or** an external connector box.
- A triple pole isolation switch with contact separation of at least 3mm must be used to connect the appliance to the fixed wiring when using the Switched Live.
- Boost controls must not be located within 1 metre of a cooker or where they may be affected by excessive heat or moisture.
- Boost and other external controls should be clearly identified and conveniently located.
- Boost speed can be triggered by a switched live connection from a variety of external devices including:
 - PIRFF (passive infra red)*
 - DRH240 (dynamic remote humidistat)*
 - THM (thermostat)*
 - a light switch (if more than one light switch is used, **each one must be a double pole switch**)
 - a remote switch/pull cord

(*PIRFF, DRH240 and THM may have integral over-run timer which controls the length of time that the fan will continue to operate at its boost speed after the boost has been switched off.)



Commissioning

1. The commissioning must only be carried out by a suitably qualified person.
2. Prior to starting the commissioning procedure, ensure that the ductwork connections and airflow directions are as marked on the product.
3. Before making any adjustments, ensure that the air valves or grilles are fully open.
4. Motor speed and timer settings are adjusted on the control board, which is located behind the small panel on the front of the cabinet. Once removed, there is access to potentiometers and jumper switches for use during the commissioning process. (See diagram on Page 8)

WARNING : With the control board panel removed, 230 volt live connections are accessible.

Airflow adjustment for Right-Hand Drainage

The supply and extract motors are adjusted separately for both the normal (trickle) speed and boost speed. The set-up procedure is as follows :-

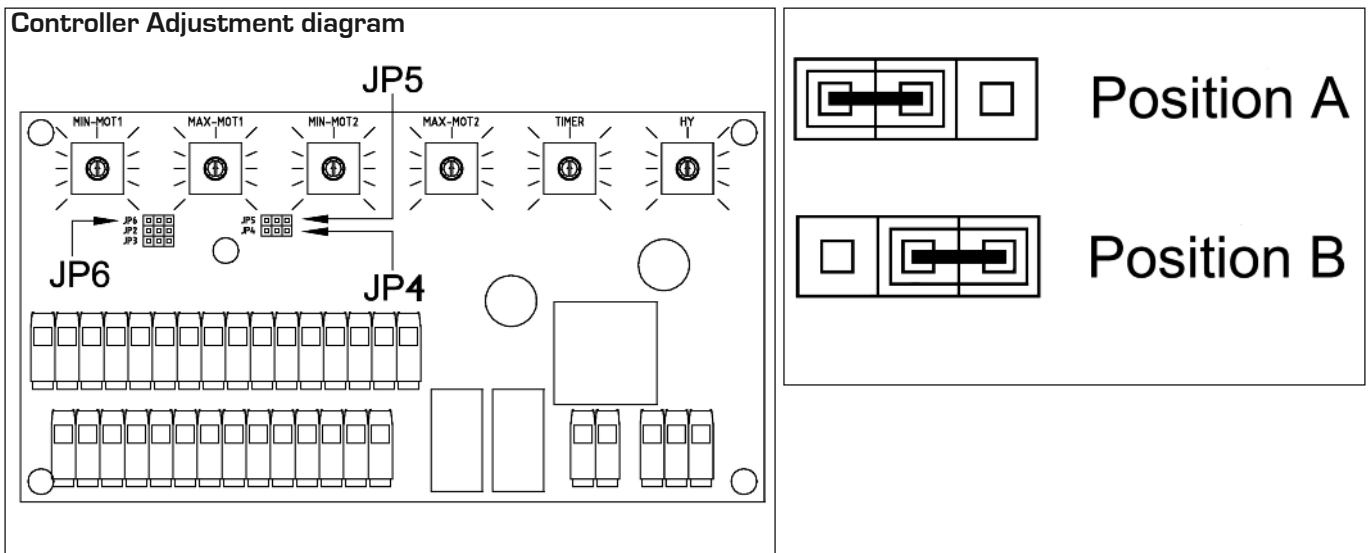
1. For right-hand drainage as shown on Page 5, ensure that the jumper switch JP4 (see diagram below) is in **Position A**

Normal (trickle) Speed (r/h drainage)

2. Before making any adjustments, move the speed adjust jumper switch JP5, to position A, as shown in the diagram. A green light will appear on the circuit board.
3. With the boost switch OFF (bathroom light switch off), measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MIN-MOT2, on the control board and re-check the airflow rate. If the value is slightly higher than that required, final adjustment can be made at the air valve.
4. Set the position of the potentiometer MIN-MOT1 to the same as MIN-MOT2.
5. Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate*. If higher, reduce the airflow by adjusting MIN-MOT1. Final minor adjustments can be made at the air valve.
*unless a different supply value has been specified.

Boost Speed (r/h drainage)

6. Switch on the boost (light switch ON).
7. Measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MAX-MOT2.
8. Re-check the airflow rate and make further adjustments at MAX-MOT2 until correct. **Do not re-adjust the air valve.**
9. Set the position of the potentiometer MAX-MOT1 to the same as MAX-MOT2.
10. Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate*. If higher, reduce the airflow by adjusting MAX-MOT1 until correct. **Do not re-adjust the air valve.**
*unless a different supply value has been specified.
11. Return the speed adjust jumper switch JP5, to position B (green light goes out)



Airflow adjustment for Left-Hand Drainage

- For left hand drainage as shown on Page 5, ensure that the jumper switch JP4 (see diagram above) is in **Position B**.

Normal (trickle) Speed (l/h drainage)

- Before making any adjustments, move the speed adjust jumper switch JP5, to position A, as shown in the diagram. A green light will appear on the circuit board.
- With the boost switch OFF (bathroom light switch off), measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MIN-MOT1, on the control board and re-check the airflow rate. If the value is slightly higher than that required, final adjustment can be made at the air valve.
- Set the position of the potentiometer MIN-MOT2 to the same as MIN-MOT1.
- Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate (*unless a different supply value has been specified*). If higher, reduce the airflow by adjusting MIN-MOT2. Final, minor adjustments can be made at the air valve.

Boost Speed (l/h drainage)

- Switch on the boost (light switch ON).
- Measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MAX-MOT1.
- Re-check the airflow rate and make further adjustments at MAX-MOT1 until correct. **Do not re-adjust the air valve.**
- Set the position of the potentiometer MAX-MOT2 to the same as MAX-MOT1.
- Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate.* If higher, reduce the airflow by adjusting MAX-MOT2 until correct. **Do not re-adjust the air valve.**
- *unless a different supply value has been specified.
- Return the speed adjust jumper switch JP5, to position B (green light goes out)

Timer Overrun Adjustment

After the boost switch has been turned off, the fan will continue to run at boost speed for up to 20 minutes. This overrun time is adjustable using the potentiometer marked TIMER. The time can be varied between 0 and 20 minutes. After the set time, the fan returns to normal speed.

Delay-on Boost

When the boost switch is operated, the boost speed activation can be delayed by 2 minutes, if required.

Using the jumper switch JP6, move the jumper position to either:-

- A** - 2 minutes, or
- B** - 0.5 seconds

Finally, replace the control panel cover securely.



Cleaning and Maintenance

WARNING: The unit uses a 230V supply and contains rotating mechanical parts.

Before carrying out any maintenance or cleaning operations the mains electrical supply **MUST** be disconnected.

The heat exchanger within the unit should be cleaned annually.

To clean the filters and heat exchanger:

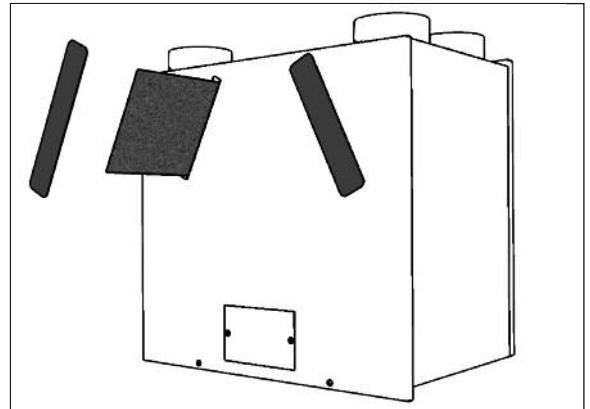
The air filters and heat exchanger of the Vectaire WHHR Midi should be cleaned regularly by a suitably qualified person (the frequency of cleaning will vary depending on the installation environment).

Filters:

- Remove the filter covers on the front panel.
- Slide out the filters by pulling out the tabs
- Clean the filters carefully using a vacuum cleaner, replace in the slots and refit the filter covers

Heat Exchanger:

- Firstly remove filters as described above
- Remove the screws securing the front panel. Unhook the top edge of the panel and lift off. Using the plastic strap fitted, carefully pull out the heat exchanger
- Caution: if this is done during cold weather, the heat exchanger may contain water. It is advisable to have a plastic bowl available to avoid spillage.
- Lightly clean the faces of the heat exchanger with a vacuum cleaner. Replace the heat exchanger carefully, by sliding the assembly back into the cabinet.
- Replace the front cover by hooking the top edge into the slots in the cabinet and secure in place using the screws.
- Finally, replace the filters as above.



Never use water or any other fluids to clean the heat exchanger

Filter Replacement

Filters should be replaced annually or after a maximum of 3 cleaning cycles.

Replacement filters are available from Vectaire - call us on +44(0)1494 522333 or email to sales@vectaire.co.uk

**Should you have any queries relating to these instructions, please contact the
Vectaire Technical Department on 01494 522333**