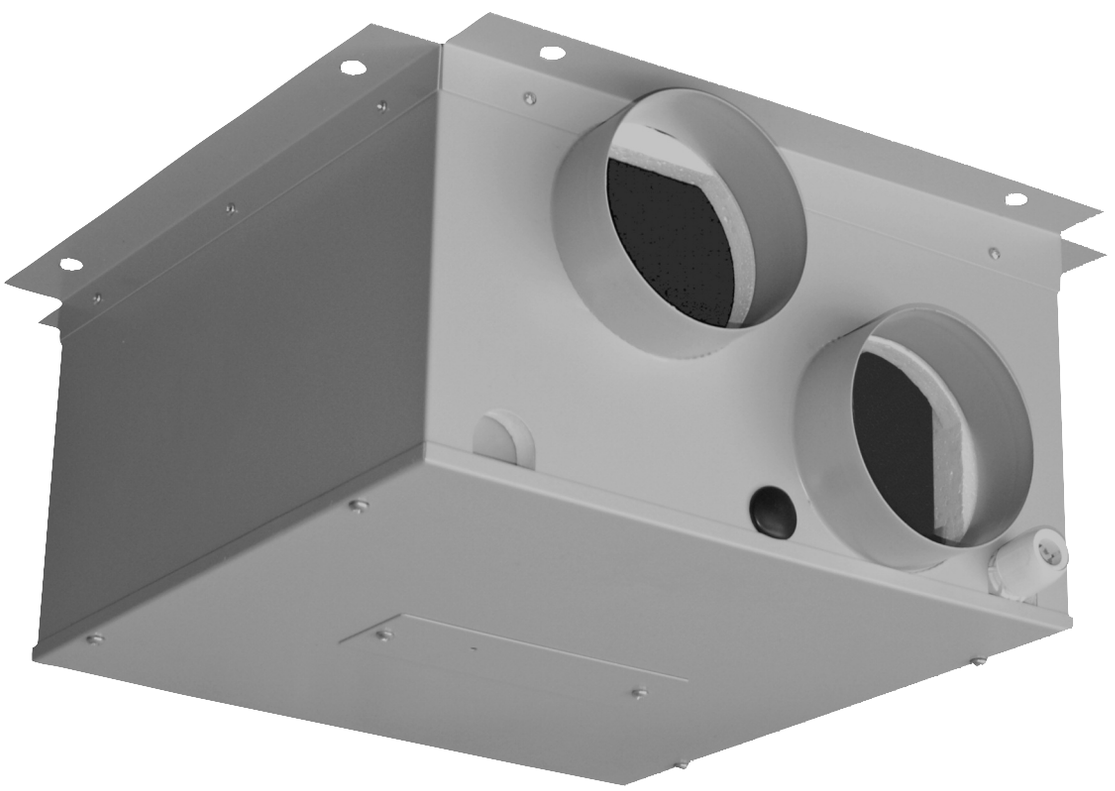
"Heatrec Mini DC"

Heat Recovery Unit
with Low Energy DC Motor

Installation, Operating and Maintenance Instructions



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"HEATREC MINI DC" - HEAT RECOVERY UNIT
INSTALLATION AND OPERATING 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.

Your unit SHOULD NOT be switched off. It is designed to run continuously. If it is switched off indoor pollutant and moisture levels may increase.

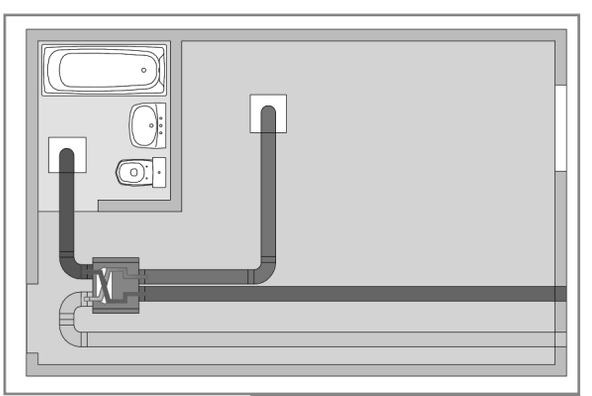
Heatrec Mini DC: 5"/125mm spigot, for continuous ventilation equivalent to a kitchen plus up to one additional wet room.
Max airflow 120m^3/hr

General Information

The Vectaire Heatrec Mini DC heat recovery system provides mechanical ventilation to bedrooms, and bathrooms. It extracts stale, contaminated air from bathrooms, replaces it with fresh air to the bedroom and vents the stale air to the outside.

Heat is reclaimed from the extracted air and used, via a heat exchanger, to warm the incoming fresh air. The extract and intake airstreams are completely separate to avoid cross-contamination.

The system operates continuously and is designed not be switched off, except for maintenance purposes.



During normal operation, the unit produces a low-volume airflow, creating a comfortable, healthy environment, using minimum energy consumption.

If additional ventilation is required, (e.g. when a shower is in use), a boost facility is included which increases the airflow rate. The boost can be operated automatically or manually.

Installation of the unit is usually above a ceiling or in a loft space and is connected to air vents via hidden ductwork.

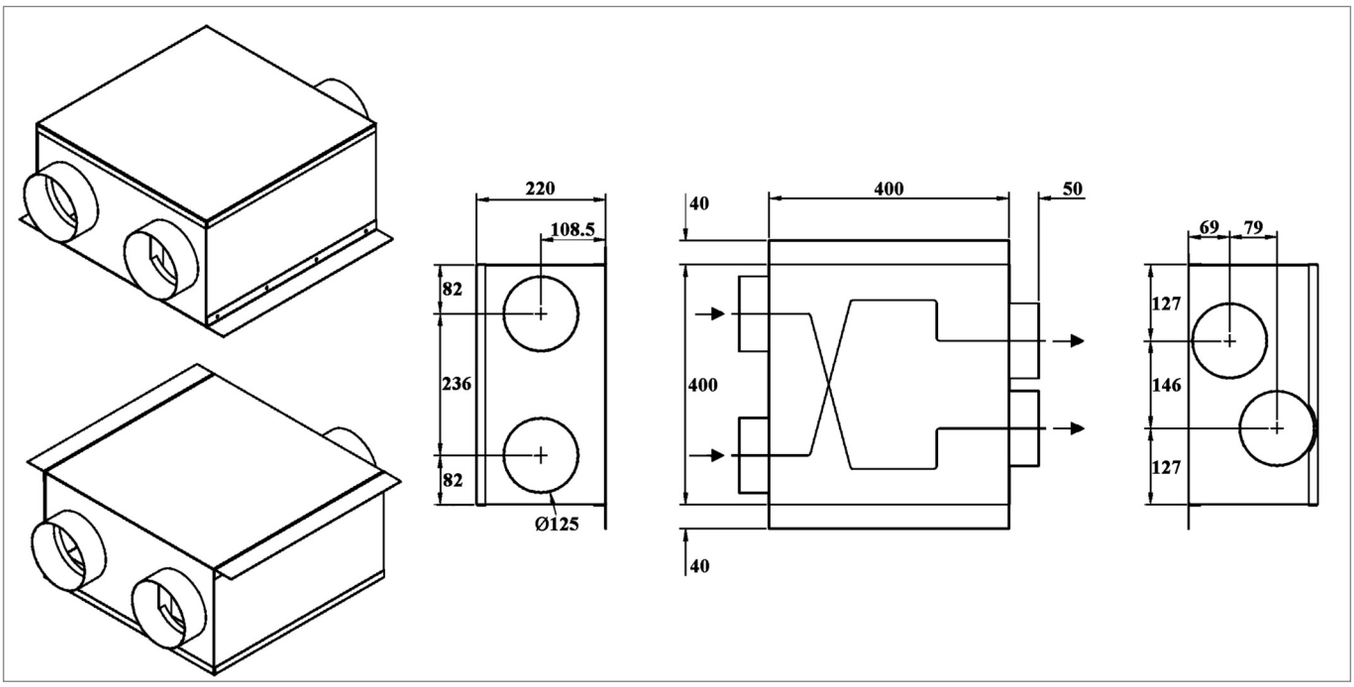
Each unit is commissioned individually allowing its performance to be matched to the size of area to be ventilated.

Standard Features

1. Variable adjustment of low (trickle) and boost speeds for optimum setting at installation.
2. Adjustable overrun timer on boost setting.
3. Optional delay-on of boost speed (2 minutes)
4. Multiple choice of external devices for automatic or manual boost switching (e.g. light switch, remote switch/pull cord, PIRFF passive infra-red*, DRH240 humidistat*, THM thermostat*.)
   ***Note** : Contact Vectaire for supply of these items.

Optional Additional Features

1. Integral humidistat – adjusts airflow rate in proportion to humidity level.
2. Summer Bypass – allows cooler air supply for warm evenings.
3. BMS connections for remote motor shut-off.
4. Purge boost – high airflow rate to provide rapid air change. Operated by an external switch and automatically timed for 15 minutes.



General Safety

PLEASE READ THESE INSTRUCTIONS FULLY, BEFORE ATTEMPTING ANY INSTALLATION

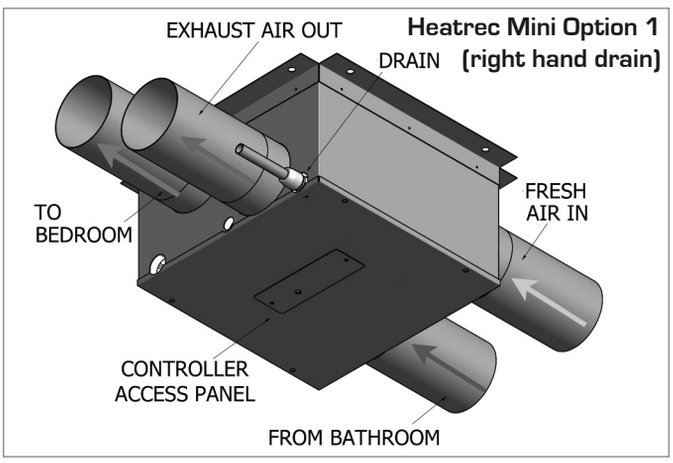
1. This product must not be used for any purpose other than that for which it was designed and shown in this leaflet.
2. All packaging should be removed and the unit checked for damage. If any damage is found, contact your supplier.
3. This product will normally be fitted into a loft or ceiling void.
   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 above.
4. The unit must NOT be be installed:
   - where there is excessive oil or grease
   - where there are hazardous gases, liquids or vapours that are flammable or corrosive
   - in ambient temperatures above 50ºC or lower than 5ºC
   - in humidity levels above 90% or in a wet environment
5. **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.**
6. The mains supply voltage and power rating must comply with the details on the product rating label.

Installation

Installation must be carried out by a suitably qualified person and must comply with all current building regulations and electrical installation regulations.

Mounting the unit

Before choosing the position for mounting, it is important to take into consideration the ductwork routes and condensate drain route. The four spigots on the unit are marked for the four unique connections. The unit can be supplied left or right-handed in order to match the required duct routes more easily. (Factory option only.)



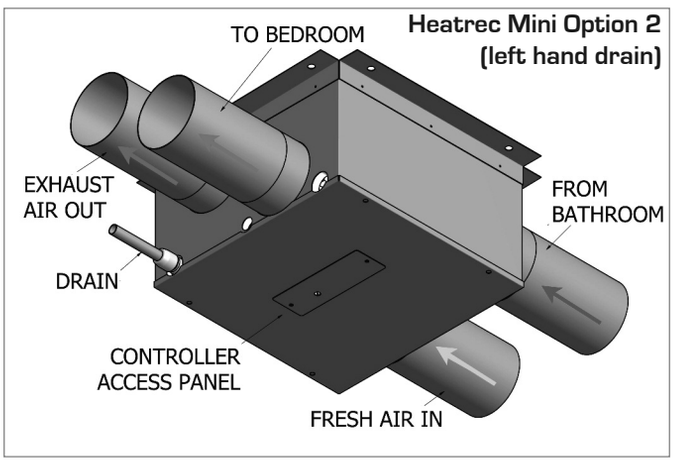
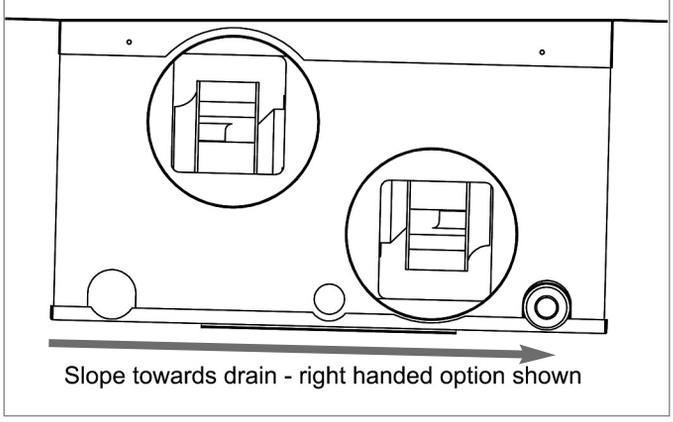


Diagram showing slope towards drain



It is also essential that adequate access to the product is provided for maintenance or removal after installation. The entire access panel needs to be removed for maintenance.

The unit is intended to be suspended from a ceiling or similar fixture. Two pairs of fixing brackets are supplied and either pair can be used depending on the more suitable orientation.

It is important that the unit is attached to its fixings so that there is a slope down towards the drainage end of the product. The correctly fitted brackets provide a drop of approximately 10 mm at the lower end.

Duct and Duct Connections (refer to design drawing)

1. 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.
2. Where ducting is installed in an unheated space, all of the ducts should be insulated. Where ducting is in stalled in a heated space, only the cold ducts should be insulated. i.e. the supply duct from outside and the ex tract duct from the unit to the outside.
3. The duct layout must be designed to suit the requirements of the ventilation/heat recovery system and building layout. If the ducting passes through a fire wall/barrier, suitable fire dampers must be installed.
4. Where rigid duct is used, it should be installed using the least number of fittings to minimise air flow resist ance. Where possible, final connection to the grilles and unit should be made with a flexible connection.
5. Where flexible ducts are used, ensure that:
   - duct runs are kept as short as possible
   - 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

Note: Whenever the unit is installed in close proximity to a bedroom or other habitable space, we recommend that sound attenuation is provided within the duct runs between the rooms and the unit. A length of 1 metre of flexible acoustic ducting will be sufficient in most circumstances, but reference should be made to the sound data provided for this product

Condensate Drainage

(the unit may sometimes produce condensation which must be drained away. A 15mm dia pipe connection is provided on this unit.

1. A 15mm rigid PVC push-fit pipe must be used for connection to the unit.
2. **IMPORTANT** : **A solvent weld must NOT be used on this joint as the joint has to be disconnected in order to remove the heat exchanger for cleaning.**
3. The condensate drain pipe must incorporate a 'U' bend or other trap in order to prevent air penetration into the unit.
4. The drainage pipe must have a continuous fall from the unit to the drainage collection point.
5. 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/m^{0}K.

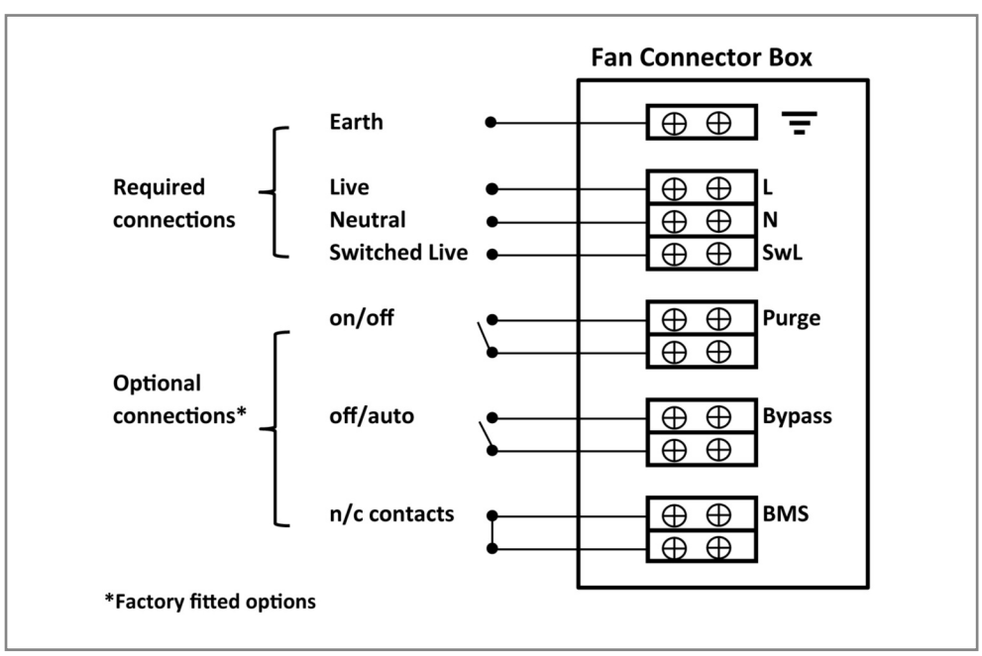
Note:

1. In order to prevent any possible condensate overspill from the unit, excess water in the condensate tray will be detected and the motors will switch off to prevent further condensation from forming. If this happens, a warning light on the unit will flash.
2. The cause of this will usually be inadequate drainage. The drain must be inspected and cleared of any block-age and the correct rate of fall from the unit must be ensured.
3. Once the drainage problem has been resolved, the unit can be re-set by switching off and on again.

Electrical Connection

1. Connection of external wiring to the unit is provided via a connector box mounted on the end of the cabinet.
2. **Warning : This product must be earthed and all wiring must conform to the current IEE Wiring Regulations.**
3. The unit requires a 230-240 volt, 50Hz, single phase supply, fused at 3 amps. A triple-pole local isolating switch should be provided for maintenance purposes.
4. In order to activate the boost facility on the unit, a switched live connection must be provided in addition to the permanent supply live. The switched live can be operated by a variety of external devices, including :-
   - PIRFF (passive infra red)*
   - DRH240 (dynamic remote humidistat)*
   - THM (thermostat)*
   - a light switch. **Note -** if an additional switching device is used together with a light switch, then the light switch must be double pole.
   - a remote switch/pull cord

(*PIRFF, DRH240 and THM may have an 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 underside of the cabinet. Once removed, there is access to potentiometers and jumper switches for use during the commissioning process. (See diagram below)

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 :-

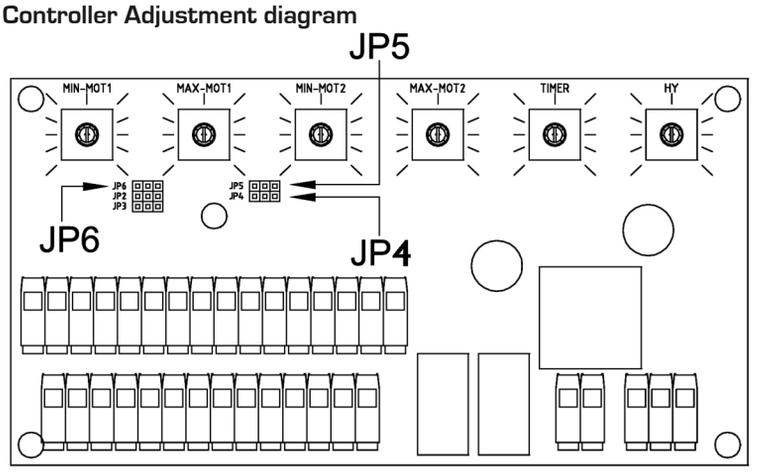
1. For right-hand drainage as shown in Drawing **Option 1** on Page 4, ensure that the jumper switch JP4 (see diagram below) is in **Position A**

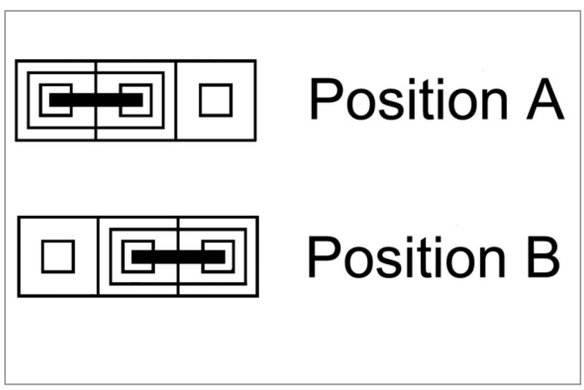
Normal (trickle) Speed

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.

Controller Adjustment diagram





Boost Speed

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

1. For left hand drainage as shown in drawing **Option 2** on Page 4, ensure that the jumper switch JP4 (see diagram below) is in **Position B.**

Normal (trickle) Speed

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-MOT1 , on the con trol 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-MOT2 to the same as MIN-MOT1.
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-MOT2. Final minor adjustments can be made at the air valve.

   *unless a different supply value has been specified.

Boost Speed

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-MOT1.
8. Re-check the airflow rate and make further adjustments at MAX-MOT1 until correct.
   Do not re-adjust the air valve.
9. Set the position of the potentiometer MAX-MOT2 to the same as MAX-MOT1.
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-MOT2 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)

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.

Heat Exchanger Access and Cleaning

1. Disconnect the condensate drain from the drain connector.
2. Remove the four screws retaining the access panel and completely remove the panel.
3. The heat exchanger and condensate drain tray are a single assembly, fastened together with a plastic strap. Before pulling out the heat exchanger by the strap, ease out the two sides of the drain tray at the drainage end.
4. Pull the strap gently downwards and the assembly should come out. Ensure that the drain tray is not trapped, by carefully easing it out together with the heat exchanger.
   Keep the whole assembly as horizontal as possible when removing, as there may be water within the heat exchanger.
5. Using a vacuum cleaner with a soft brush attachment, carefully remove any dust from the faces of the heat exchanger.
6. Check that the drain connector is clear of any deposit or blockage and remove as necessary.
   Do not use any type of cleaning fluid on this product.
7. Replace the assembly by locating the heat exchanger within the guide rails at each side of the cabinet and push upwards. Ensure that the two sides of the drain tray are also located correctly within the internal mouldings of the cabinet.
8. Check that the drain connector is located in its correct position.
9. Replace the access panel and secure using the four screws.
10. Re-connect the drain pipe and ensure that there is the required amount of fall away from the unit.

Switch on the power to the unit and check that it is running correctly.

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