



HR600 SUPPLY & EXTRACT VENTILATION SYSTEM WITH HEAT RECOVERY INSTALLATION, COMMISSIONING AND SERVICING INSTRUCTIONS

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1. GENERAL DESCRIPTION

- 1.1 The HR600 Heat Recovery system provides mechanical ventilation, extraction of stale and contaminated air, and recovery of heat from the extracted air to temper the incoming fresh air. The ventilation and stale air streams are separate from each other. Filtration of both clean and stale air is achieved by means of passive filters, fitted to both air inputs and prior to the heat exchanger. Electronic Air filtration of the clean air flow is available as an option.
- 1.2 Control of the HR600 is by means of a JS7 Fan Speed Controller (provided), which is mounted remotely to the unit. HR600 delivers 1200m³/h (600ft³/min) of ventilation air.

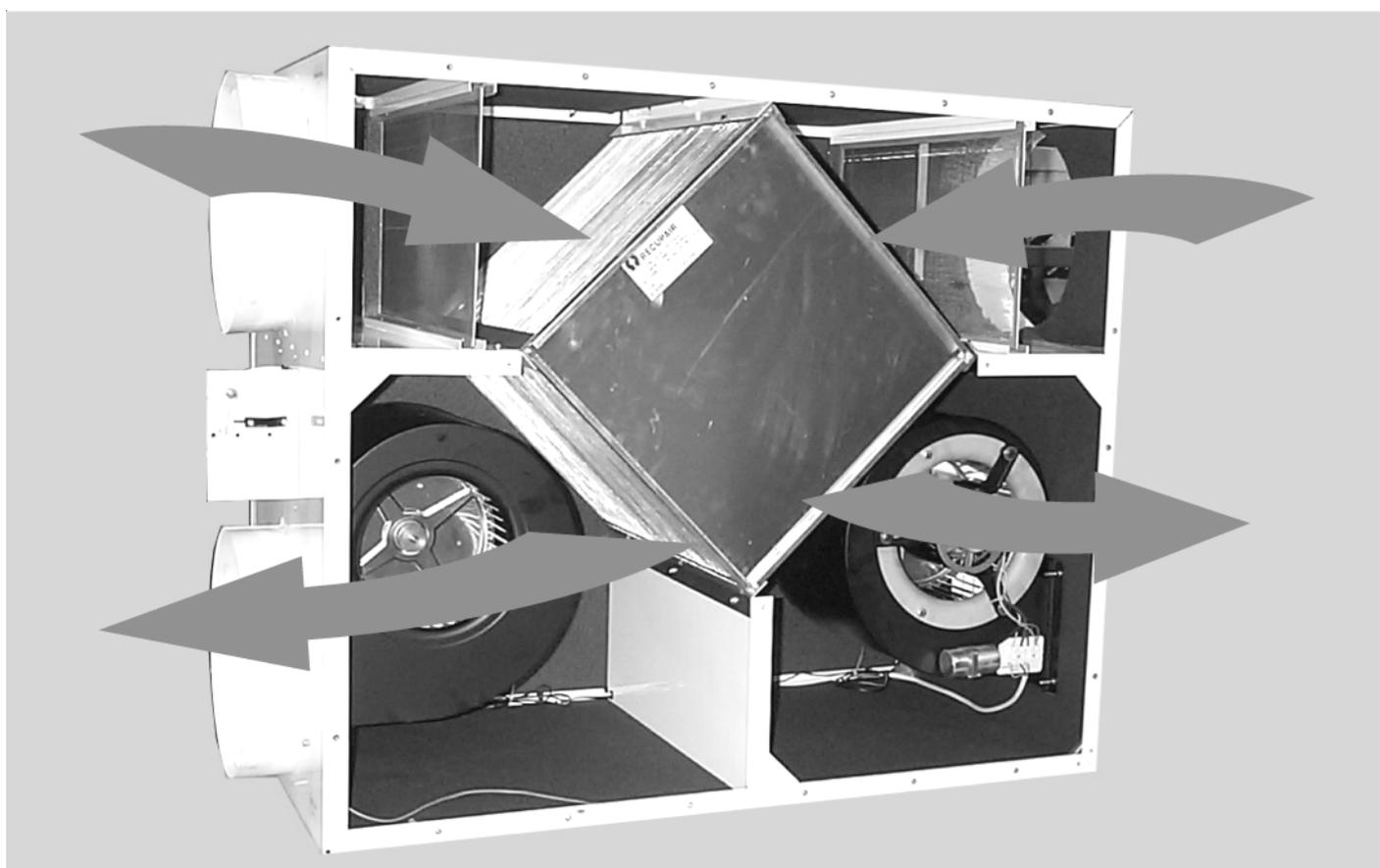


Fig. 1
HR600 Heat Recovery Unit

- 1.3 **REGULATIONS:** Installation shall be in accordance with the following regulations:
Building Standards (Scotland) (Consolidation) Regulations.
Building Regulations.
Institute of Electrical Engineering (I.E.E) Regulations (current edition).

NOTE: To conform to the above regulations, it may be necessary to fit fire dampers or other suitable devices.

The design, material specification and installation must be carried out by competent heating and ventilation engineers only.

2.

INSTALLATION

NOTE: It is important to ensure that flue gases from fuel burning equipment are not 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 either:

- a. Its flue must be of the room sealed or balanced flue type, OR
- b. Allowance must be made for an adequate supply of air into the room.

2.1 POSITIONING:

- 2.1.1 The unit should ideally be installed in the roof space or, if this is not practicable, in a purpose made enclosure.
- 2.1.2 Under no circumstance should the unit be installed so that it is directly above a noise sensitive room.
- 2.1.3 Consideration must be given to access for servicing, as servicing of the fans and cleaning of the heat exchanger must be carried out annually.

2.2 MOUNTING:

- 2.2.1 Anti-vibration mountings (supplied) are to be fitted for noise attenuation, and adjusted to guarantee a downward slope towards the condensation drains (refer para 2.4).

2.3 DUCT AND DUCT CONNECTIONS:

- 2.3.1 Four 300mm nominal diameter spigots are provided for the connection of the ducting. These are clearly marked for correct connection of the supply and exhaust ducts.
- 2.3.2 Where ducts are exposed in unheated areas, they should be insulated.
- 2.3.3 The duct layout must be designed to suit the requirements of the ventilation/recovery system and building layout and the protection of fire being transmitted through the ducting by means of suitable fire dampers.
- 2.3.4 Where rigid duct is used, it should be installed using the least number of fixings to minimise the air flow resistance. Where possible, final connection to grilles and the unit should be made with flexible connections.
- 2.3.5 Where flexible ducts are used, ensure that:
 - a. Lengths are kept to the minimum necessary,
 - b. Ducting is stretched so that it is smooth and straight,
 - c. Where bends are necessary, they are of large radii (avoiding sharp bends),
 - d. Where ducting is run in restricted areas, the ducting is not crushed.
- 2.3.6 If the fresh air supply is direct from outside, an external wall baffle must be fitted if supplied through a wall, or a recognised roof terminal if supplied through a roof.
- 2.3.6 The exhaust air must exit to outside through either a wall or roof, and must be protected by a wall baffle or recognised roof terminal.

2.4 CONDENSATION

- 2.4.1 The unit may sometimes produce condensate which must be drained away. Two 15mm dia. pipe connections are provided on the unit.
 - a. 15mm dia. plastic pipe must be connected to the pipe connection.
 - b. The pipe must be installed with a regular downward slope to assist the flow.
 - c. The pipe must terminate outside the building and drain into the normal drainage system.
 - d. As stated in para 2.2, the unit must be tilted towards the corner carrying the condensate exit point.
 - e. The two condensate drain points are provided, which allow the installer to turn the unit through 180° to simplify duct layout and connections.

2.5 ELECTRICAL

WARNING: This appliance must be earthed and all wiring must conform to I.E.E. Regulations.

- 2.5.1 The unit is suitable for a 230V, 50Hz, single phase supply protected at 6A.
- 2.5.2 The unit is provided with a clearly marked terminal strip for connection of the electrical supply cable.
- 2.5.3 The electrical cable must be 1.5mm² c.s.a. twin and earth, E.C.C. 6242Y to BS6004.
- 2.5.4 A fused spur box or double pole switch, having a minimum of 3.0mm contact separation, must be used for isolation of the unit.
- 2.5.5 The fan speed is controlled by the Fan Speed Controller, (supplied loose).
- 2.5.6 Location of the Fan Speed Controller is remote from the unit.
- 2.5.7 The cable from the fused spur to the unit and via the Fan Speed Controller must be flat twin and earth in accordance with I.E.E. Regulations, and wired as detailed in Fig. 2.

3. COMMISSIONING

- 3.1 The unit operates by a fan extracting hot stale air and passing it through a heat exchanger and out to atmosphere. Another fan draws in cool fresh air and passes it through the same heat exchanger where it picks up heat from the outgoing stale air. When the unit is set up and running, the voltage selected on the control box must relate to the designed volume airflow.
- 3.2 Before commencing the commissioning procedure, refer to design drawings for the correct air flows. **Note:** Extract air and supply air volumes will not always be equal, therefore, when setting up, the extract system should be the datum.

3.3 SETTING UP

- 3.3.1 Ensure that the exhaust and supply grilles or valves are open.
- 3.3.2 Set the voltage at the control box to a suitable value.
- 3.3.3 Check the airflows at the grilles or valves and adjust the dampers (if fitted) to suit design figures.
- 3.3.4 If the airflows still too high (or too low), adjust the voltage selector to decrease or increase the airflow as required.
- 3.3.5 Re-check the airflow at the grilles as detailed in 3.3.3
- 3.3.6 Repeat the procedure until the correct airflow is achieved.

4. SERVICING

WARNING: Before commencing any servicing, ensure the electrical supply to the unit is isolated.

4.1 FAN REMOVAL AND CLEANING:

- 4.1.1 Release the screws securing the lid, raise lid approximately 150mm (6in), and disconnect the earth lead.
- 4.1.2 Remove the lid, ensuring care is taken to avoid damage to the gasket.
- 4.1.3 Disconnect the electrical connections to the fans.
- 4.1.4 Release 4 x screws securing each fan, and withdraw the fans.
- 4.1.5 Remove all dust etc. from both impellers and motors, taking care to avoid disturbance of the fan balance.
- 4.1.6 Refitting or replacement is in reverse order.

4.2 HEAT EXCHANGER REMOVAL AND CLEANING:

- 4.2.1 Release the screws securing the lid, raise lid approximately 150mm (6in), and disconnect the earth lead.
- 4.2.2 Remove the lid, ensuring care is taken to avoid damage to the gasket.
- 4.2.3 Slacken the screw securing the heat exchanger locating runners and carefully remove the heat exchanger.
- 4.2.4 Check that all the air passages are free from obstruction, cleaning by washing out in a soap solution or using a light brush.

NOTE: Under no circumstances must any sharp implements be used that are likely to distort or perforate the air passage walls.

- 4.2.5 Refitting or replacement is in reverse order, adjusting the locating runners to ensure that each corner is sealed.

4.3 AIR FILTER REMOVAL AND CLEANING:

- 4.3.1 Release the screws securing the filter cover and remove the filter cover.
- 4.3.2 Withdraw the air filter and clean using a soft brush or vacuum cleaner.
- 4.3.3 Refitting or replacement is in reverse order.

4.4 ELECTRONIC AIR CLEANER REMOVAL AND CLEANING (if fitted):

- 4.4.1 Ensure that the electrical supply to the appliance is isolated.
- 4.4.2 Release the screws securing the filter cover and remove the filter cover.
- 4.4.3 Partially withdraw the filter, disconnect the filter electrical connection, and withdraw the filter.
- 4.4.4 Refer to the Cleanflow instructions for cleaning of the filter.
- 4.4.5 Refitting or replacement is in reverse order.

4.5 NTK 3 MODULE REMOVAL (if fitted):

- 4.5.1 Ensure that the electrical supply to the appliance is isolated.
- 4.5.2 Release the 5 screws securing the electrical access cover cover and remove the cover.
- 4.5.3 At the NTK 3 Module, Disconnect the following:
 - a. 2 x BLACK/WHITE conductors from the terminal marked '24 V +',
 - b. 2 x BLACK conductors from the terminal marked '24 V -',
 - c. BROWN conductor from the terminal marked 'L',
 - d. BLUE conductor from the terminal marked 'N',
 - e. 2 x GREEN/YELLOW conductors from the terminal marked 'E'.
- 4.5.4 Release the 2 M4 taptite screws securing the NTK 3 Module to the electrical access panel and withdraw the NTK 3 Module.
- 4.5.5 Refitting or replacement is in reverse order.

5.

SPARES LIST

Description	Part No	Qty
Air circulation fan with integral motor		2
Heat Exchanger element 405x405x500mm		1
Gasket for case cover		2
Case cover		2
JS7 Fan Speed Controller		1
NTK3 Module (if fitted)		1
Cleanflow Electronic Air Cleaner (if fitted)		1

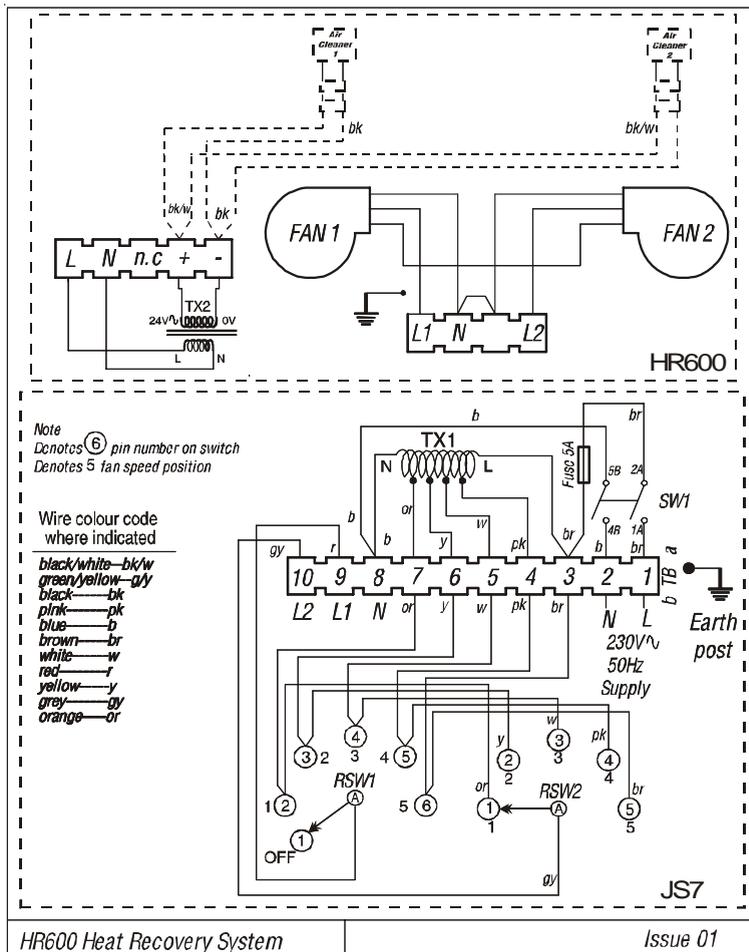


Fig. 2

HR600 INSTALLATION WIRING DIAGRAM

Johnson and Starley prides itself on its ability to supply spare parts quickly and efficiently. If your service engineer indicates a problem in obtaining a spare part, advise him to contact Johnson and Starley Spares Department at the address below.

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