

### 3. INSTALLATION (CONT'D)

#### 3.7 INSTALLING THE EXTERIOR HOODS

Choose an appropriate location for the exterior hoods:

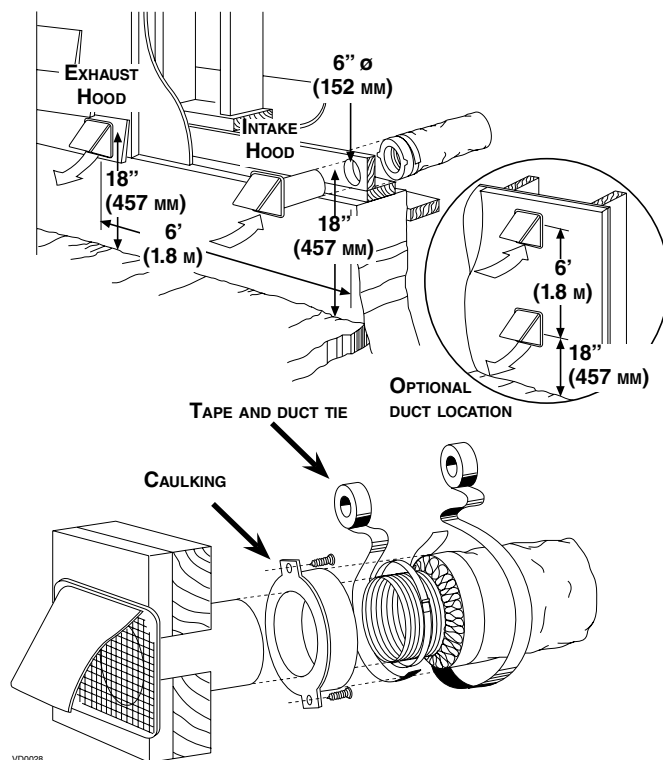
- At least 6 feet (1.8 m) away from each other to avoid cross-contamination
- At least 18 inches (457 mm) above the ground

#### ⚠ WARNING

Make sure the intake hood is at least 6 feet (1.8 m) away from any of the following:

- Dryer exhaust, high efficiency furnace vent, central vacuum vent
- Gas meter exhaust, gas barbecue-grill
- Any exhaust from a combustion source
- Garbage bin and any other source of contamination.

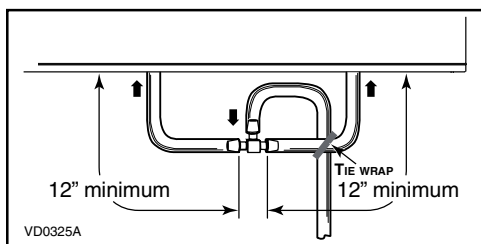
Refer to illustration at right to connect the insulated duct to the hoods. An "Anti-Gust Intake Hood" should be installed in regions where a lot of snow is expected to fall.



#### 3.8 CONNECTING THE DRAIN

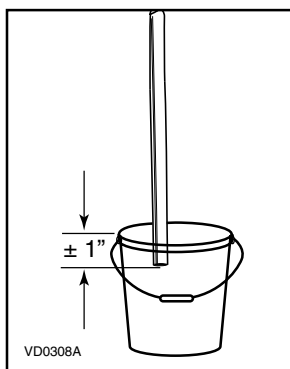
#### CAUTION

A drain tubing (included) must be installed for all units.



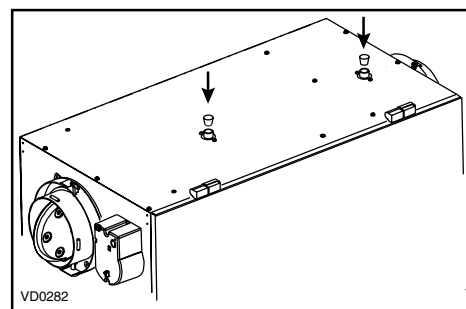
Cut 2 sections of plastic tube, at least 12"-long each, and attach them to each inner drain fitting, located under the unit.

Join both short sections to the "T" junction and main tube as shown, to prevent the unit from drawing unpleasant odors from the drain.



Run the tube to the floor drain or to an alternative drain pipe or pail.

**IMPORTANT:** If using a pail to collect water, locate the tube end approximately 1" from the top of the pail in order to prevent water from being drawn back up into the unit.



Insert both drain plugs (included in parts bag) in alternate drain fittings located on top of the unit.

## 4. CONTROLS

### 4.1 INTEGRATED CONTROL

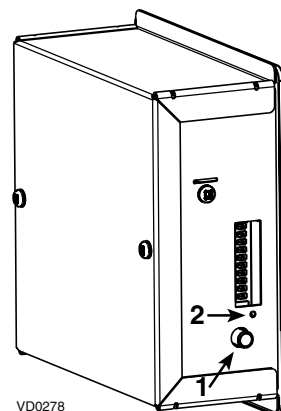
All units are equipped with an integrated control, located in front of the electrical compartment. Use the push button (1) to control the unit. The LED (2) will then show what mode the unit is in.

NOTES: 1. The integrated control **must be turned OFF** to use an optional main control.

2. If an optional auxiliary control is used, when activated, it overrides the optional main control.

Refer to table below to see how to operate the unit using its integrated control.

PRESS ON PUSH BUTTON	LED COLOR	RESULTS
ONCE	AMBER	UNIT IS ON LOW SPEED
TWICE	GREEN	UNIT IS ON HIGH SPEED
THREE TIMES	NO LIGHT	UNIT IS OFF



If a problem occurs during the unit operation, its integrated control LED (2) will blink. The color of the blinking light depends on the type of error detected. Refer to Section 9 Troubleshooting on pages 19 and 20 for further details.

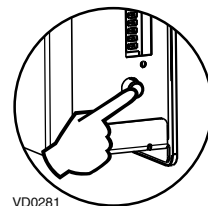
#### 4.1.1 BOOT SEQUENCE

The unit boot sequence is similar to a personal computer boot sequence. Each time the unit is plugged after being unplugged, or after a power failure, the unit will perform a 30-second booting sequence before starting to operate. During the booting sequence, the integrated control LED will light GREEN (unit set in normal defrost) or AMBER (unit set in extended defrost) for 5 seconds, and then will shut off for 2 seconds. After that, the LED will light RED for the rest of the booting sequence. During this RED light phase, the unit is checking and resetting the motorized damper position. Once the motorized damper position completely set, the RED light turns off and the booting sequence is done.

NOTE: No command will be taken until the unit is fully booted.

#### 4.1.2 SETTING EXTENDED DEFROST

The unit is factory set to normal defrost. In cold areas, it may be necessary to setup extended defrost. During the first 5 seconds of booting sequence, while the integrated control LED is GREEN, press on push-button until the LED turns AMBER (about 3 seconds).



### CAUTION

**When installed in reverse position (upside down) in a cold region where outside temperature could drop below -20°C (-4°F) for more than 5 days in a row, the unit must always be set in extended defrost.**

## 4. CONTROLS (CONT'D)

### 4.2 ELECTRICAL CONNECTION TO OPTIONAL WALL CONTROL

For more convenience, this unit can also be controlled using an optional main wall control.

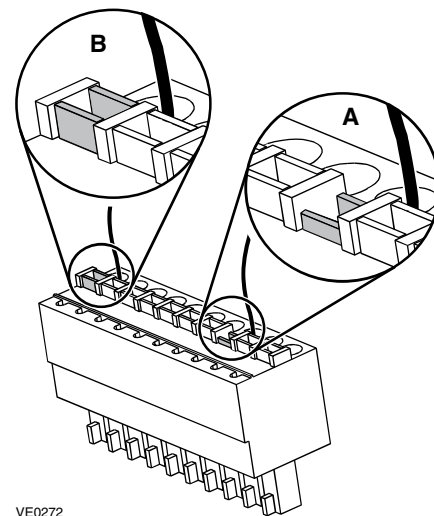
#### ⚠ WARNING

**Always disconnect the unit before making any connections. Failure in disconnecting power could result in electrical shock or damage of the wall control or electronic module inside the unit.**

#### CAUTION

**Never install more than one optional main wall control per unit. Make sure that the wires do not short-circuit between themselves or by touching any other components on the wall control. Avoid poor wiring connections. To reduce electrical interference (noise) potential, do not run wall control wiring next to control contactors or near light dimming circuits, electrical motors, dwelling/building power or lighting wiring, or power distribution panel.**

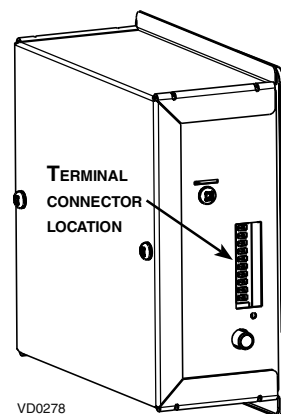
Use the terminal connector included in the installation kit to perform the electrical connection for main and optional wall controls. Check if all wires are correctly inserted in their corresponding holes in the terminal block. (A wire is correctly inserted when its orange receptacle is lower than another one without wire. On illustration at right, wire **A** is correctly inserted, but not wire **B**.)



VE0272

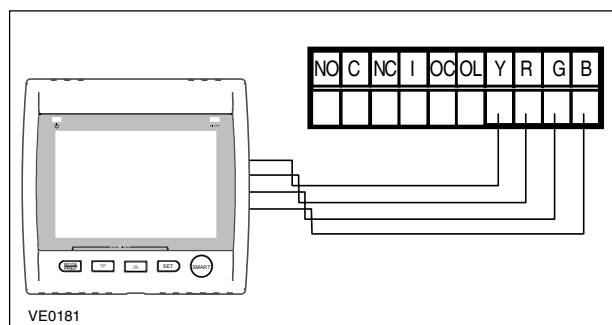
Once the wall control(s) connections have been made, insert the terminal connector in the electrical compartment front face.

NOTE: For information about the operation of the wall controls, refer to the user guide.



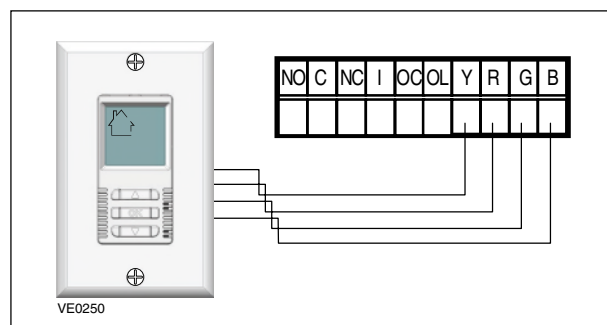
VD0278

#### 4.2.1 ELECTRICAL CONNECTION TO VT8W MAIN WALL CONTROL



VE0181

#### 4.2.2 ELECTRICAL CONNECTION TO VT7W MAIN WALL CONTROL

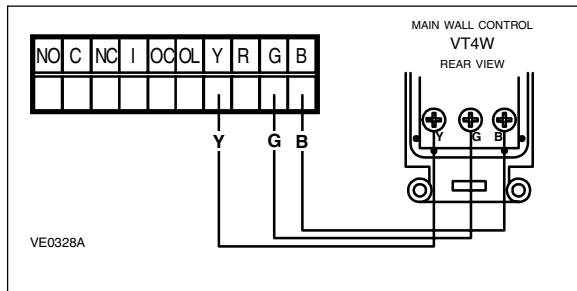


VE0250

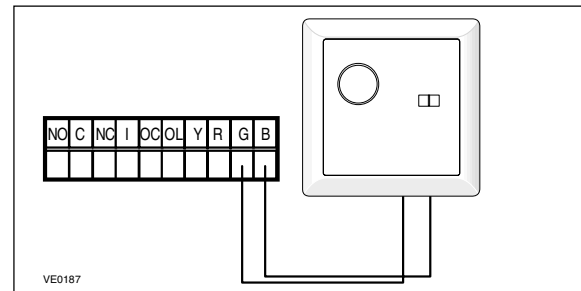
## 4. CONTROLS (CONT'D)

### 4.2 ELECTRICAL CONNECTION TO OPTIONAL WALL CONTROL (CONT'D)

#### 4.2.3 ELECTRICAL CONNECTION TO VT4W MAIN WALL CONTROL

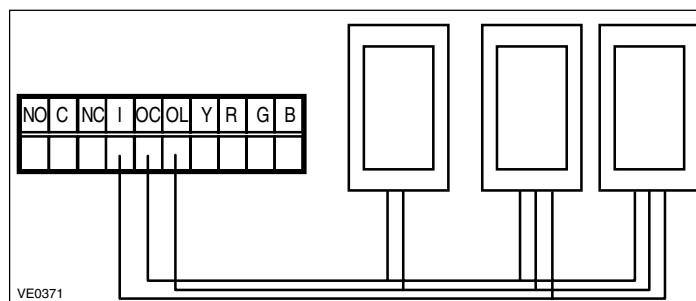


#### 4.2.4 ELECTRICAL CONNECTION TO VT6W MAIN WALL CONTROL



#### 4.2.5 ELECTRICAL CONNECTION TO OPTIONAL AUXILIARY WALL CONTROLS

NOTE: If an auxiliary wall control is first activated, and the Dehumidistat is activated afterwards, the operation of the latter will override the operation of the first.



## 5. ELECTRIC CONNECTION TO THE FURNACE

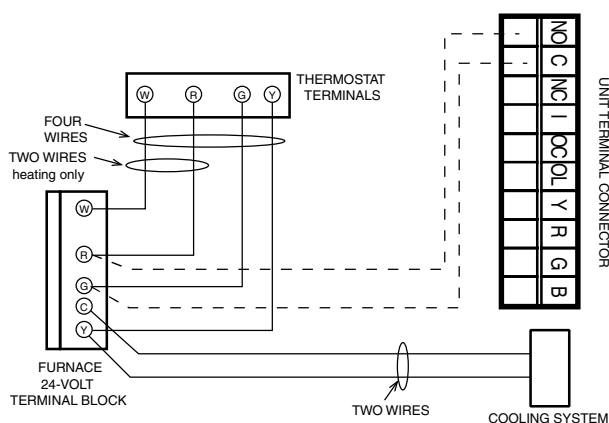
### ⚠ WARNING

**Never connect a 120-volt AC circuit to the terminals of the furnace interlock (standard wiring). Only use the low voltage class 2 circuit of the furnace blower control.**

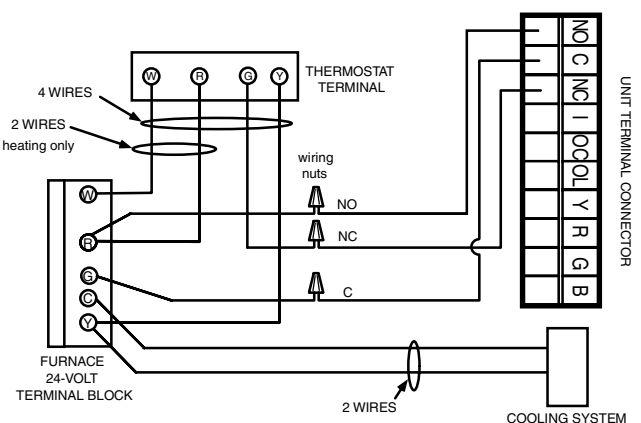
#### FOR A FURNACE CONNECTED TO A COOLING SYSTEM:

On some older thermostats, energizing the "R" and "G" terminals at the furnace has the effect of energizing "Y" at the thermostat and thereby turning on the cooling system. If you identify this type of thermostat, you must use the ALTERNATE FURNACE INTERLOCK WIRING.

#### STANDARD FURNACE INTERLOCK WIRING



#### ALTERNATE FURNACE INTERLOCK WIRING

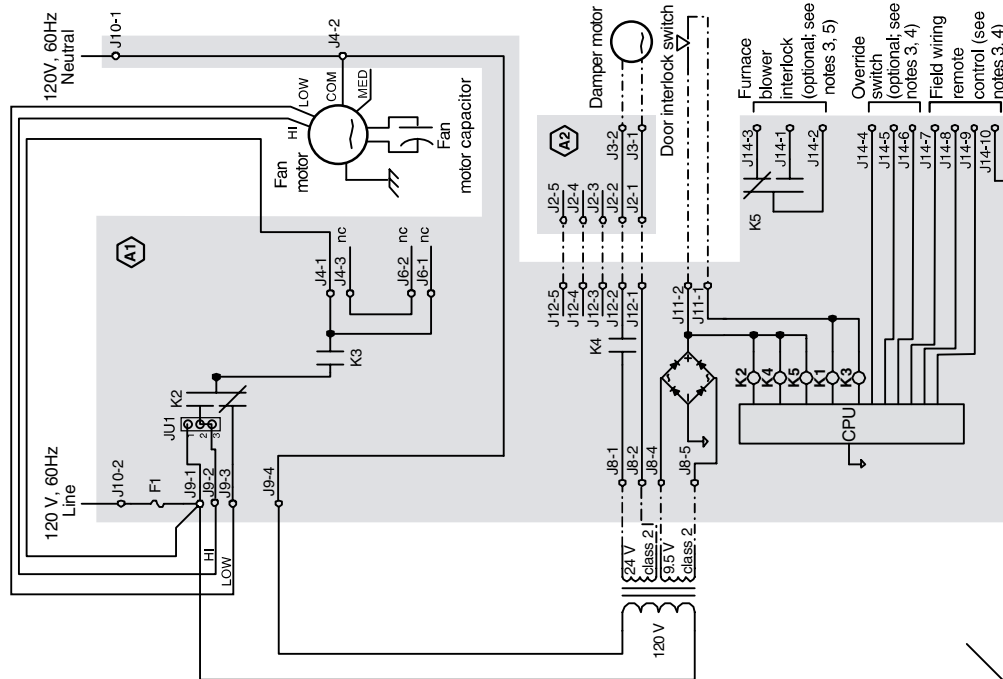


## 6. WIRING DIAGRAM

### ⚠ WARNING

- Risk of electric shocks. Before performing any maintenance or servicing, always disconnect the unit from its power source.
- This product is equipped with an overload protection (fuse). A blown fuse indicates an overload or a short-circuit situation. If the fuse blows, unplug the product and check the polarity and voltage output from the outlet. Replace the fuse as per the servicing instructions (refer to wiring diagram for proper fuse rating) and verify the product. If the replaced fuse blows, it may be a short-circuit and the product must be discarded or returned to an authorized service center for examination and/or repair.

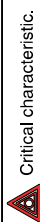
LOGIC DIAGRAM



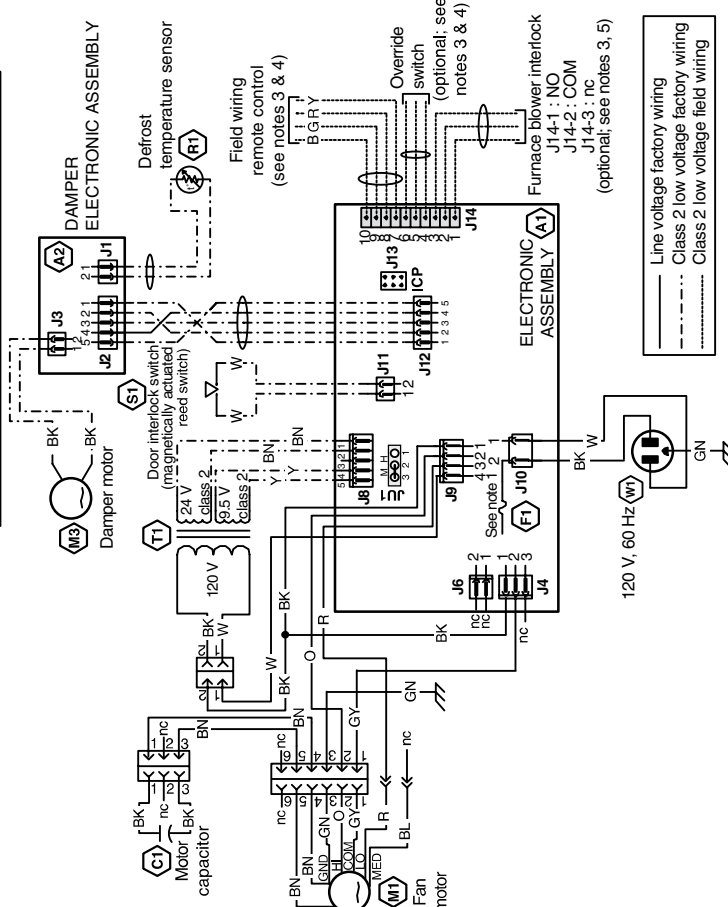
WIRING DIAGRAM

### NOTES

1. For continued fire protection. Use specified UL listed/CSA Certified line fuse (3A, 3AG Type).
2. If any of the original wire, as supplied, must be replaced, use the same equivalent wire.
3. Field wiring must comply with applicable codes, ordinances and regulations.
4. Remote controls (class 2 circuit) available, see instruction manual.
5. Furnace fan circuit must be class 2 circuit only.



Critical characteristic.



### COLOR CODE

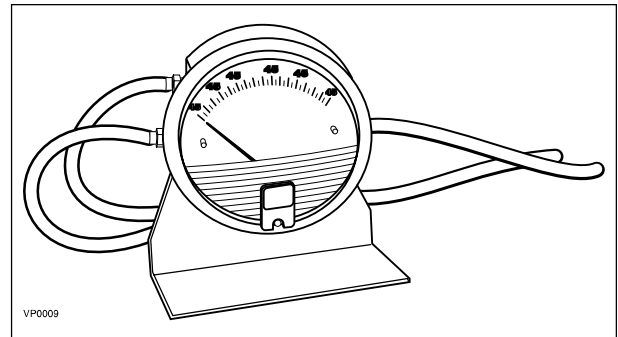
BK	BLACK	O	ORANGE
BL	BLUE	R	RED
BN	BROWN	W	WHITE
GY	GRAY	Y	YELLOW
GN	GREEN	nc	no connection

— Line voltage factory wiring  
--- Class 2 low voltage factory wiring  
..... Class 2 low voltage field wiring

## 7. BALANCING THE UNIT

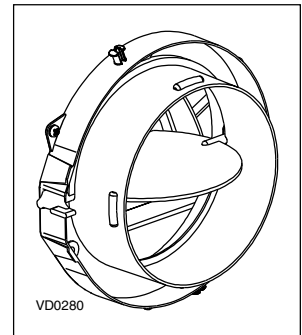
### 7.1 WHAT YOU NEED TO BALANCE THE UNIT

- A magnehelic gauge capable of measuring 0 to 0.5 inch of water (0 to 125 Pa) and 2 plastic tubes.
- The balancing chart of the unit.



### 7.2 BEFORE YOU START

- Seal all the unit ductwork with tape. Close all windows and doors.
- Turn off all exhaust devices such as range hood, dryer and bathroom fans.
- Make sure the integrated balancing dampers are fully open.
- Make sure all filters are clean (if it is not the first time the unit is balanced).



### 7.3 BALANCING PROCEDURE

#### 1. Set the unit to high speed.

Make sure that the furnace/air handler blower is ON if the installation is in any way connected to the ductwork of the cold air return. If not, leave furnace/air handler blower OFF. If the outside temperature is below 0°C/32°F, make sure the unit is not running in defrost while balancing. (By waiting 10 minutes after plugging the unit in, you are assured that the unit is not in a defrost cycle.)

#### 2. Place the magnehelic gauge on a level surface and adjust it to zero.

#### 3. Connect tubing from gauge to EXHAUST air flow pressure taps (see diagram at right). Be sure to connect the tubes to their appropriate high/low fittings. If the gauge drops below zero, reverse the tubing connections.

NOTE: It is suggested to start with the exhaust air flow reading because the exhaust has typically more restriction than the fresh air, especially in cases of fully ducted installations or source point ventilation.

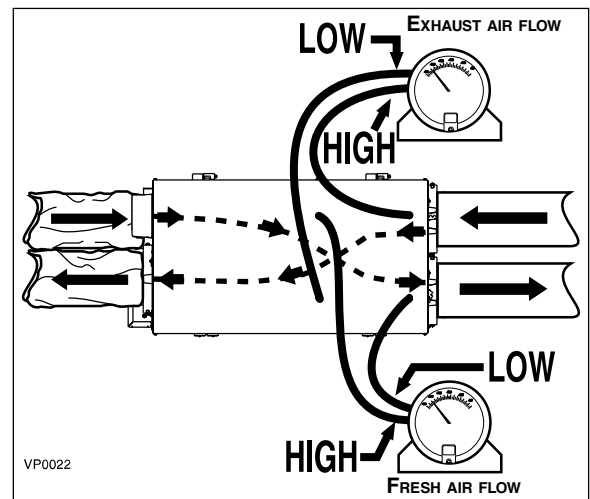
Place the magnehelic gauge upright and level. Record equivalent AIR FLOW of the reading according to the balancing chart.

#### 4. Move tubing to FRESH air flow pressure taps (see diagram). Adjust the fresh air balancing damper until the FRESH air flow is approximately the same as the EXHAUST air flow. If FRESH air flow is less than EXHAUST air flow, then go back and adjust the exhaust balancing damper to equal the FRESH air flow.

#### 5. Secure both dampers in place with a fastening screw.

#### 6. Write the required air flow information on a label and stick it near the unit for future reference (date, maximum speed air flows, your name, phone number and business address).

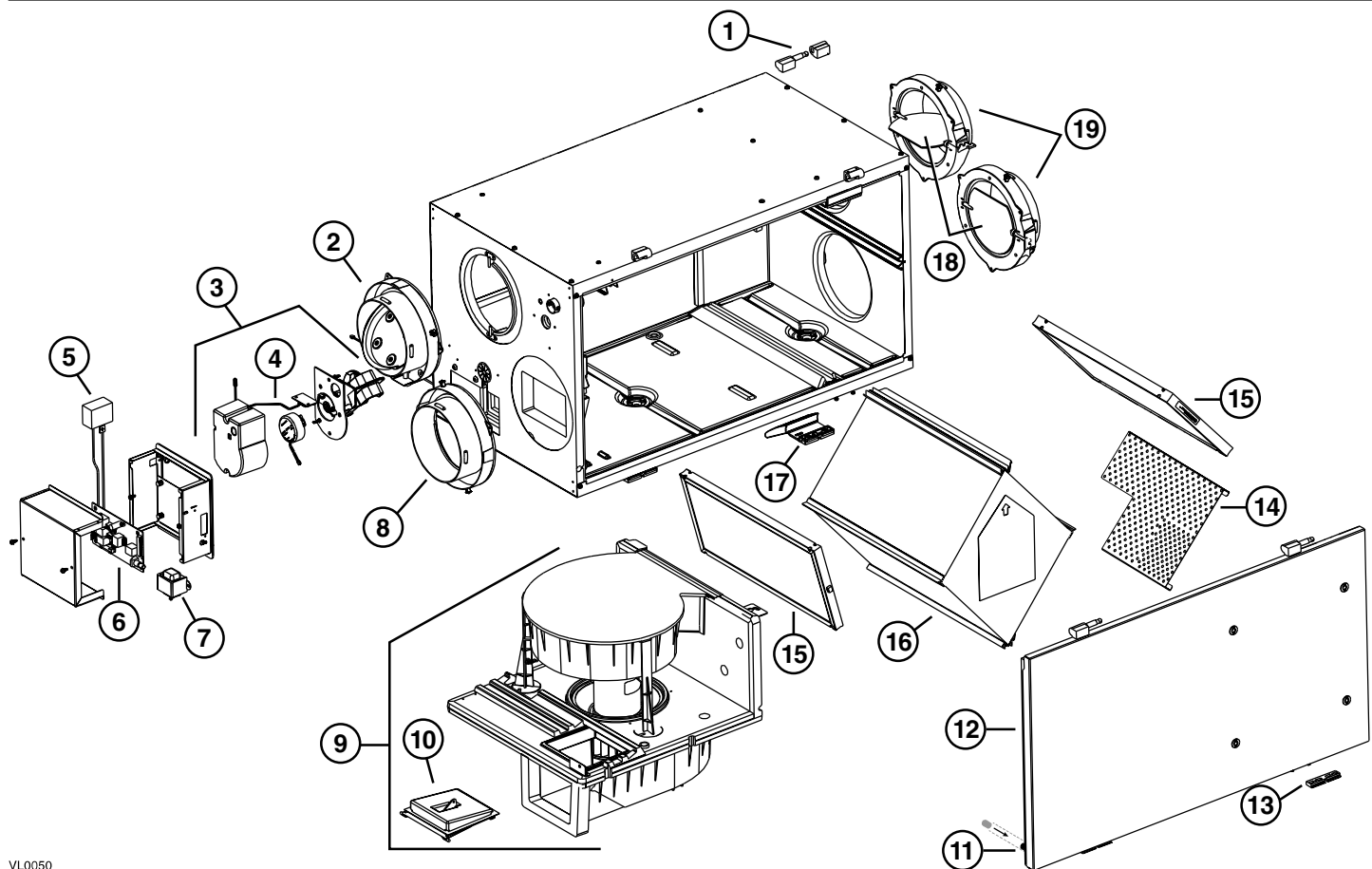
#### 7. Install 4 pressure taps plugs (included in parts bag).



NOTES: 1. Use conversion chart provided with the unit to convert magnehelic gauge readings to equivalent cfm values.

2. The unit is considered balanced even if there is a difference of  $\pm 10$  cfm (or  $\pm 5$  l/s or 17 m<sup>3</sup>/h) between the two air flows.

## 8. SERVICE PARTS



VL0050

ITEM	DESCRIPTION	HRV150FL	HRV190FL
1	Hinge assembly kit	SV13036	SV13036
2	Damper supply port assembly	SV17245	SV17245
3	Damper system actuator (including no. 4)	SV17235	SV17235
4	Thermistor kit	SV17242	SV17242
5	Capacitor 7.5 $\mu$ F	SV17240	SV17240
6	Electronic board	SV60810	SV60810
7	Transformer	SV17244	SV17244
8	Double collar port	SV60818	SV60818
9	Blower assembly (including no. 10)	SV60804	SV60805
10	Square damper kit	SV17243	SV17243
11	Magnet switch	SV19060	SV19060
12	Door assembly (including hinges and latches)	SV63500	SV63500
13	Door latches (keeper) and screws	SV00887 (2) SV00601 (4)	SV00887 (2) SV00601 (4)
14	Diffuser	SV60822	SV60822
15	Filter kit	SV60800	SV60800
16	Core	SV60801	SV60803
17	Door latches and screws	SV00886 (2) SV00601 (4)	SV00886 (2) SV00601 (4)
18	Balancing damper	SV02253	SV02253
19	Balancing double collar port	SV02256	SV02256
*	Terminal connector	SV16416	SV16416
*	Hardware kit	SV20606	SV20606

\* Not shown.

### REPLACEMENT PARTS AND REPAIRS

In order to ensure your ventilation unit remains in good working condition, you must use Broan-NuTone LLC genuine replacement parts only. The Broan-NuTone LLC genuine replacement parts are specially designed for each unit and are manufactured to comply with all the applicable certification standards and maintain a high standard of safety. Any third party replacement part used may cause serious damage and drastically reduce the performance level of your unit, which will result in premature failing. Also, Broan-NuTone LLC recommends to contact a certified service depot for all replacement parts and repairs.



## 9. TROUBLESHOOTING

If the integrated control LED of the unit is flashing, this means the unit sensors detected a problem. See the list below to know what the problem is:

LED flashes GREEN (double blink).

• Thermistor error.

Replace the thermistor kit.

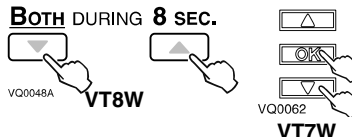
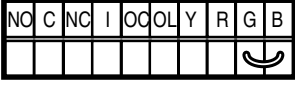
LED flashes AMBER.

• Damper error.

Go to point 10.

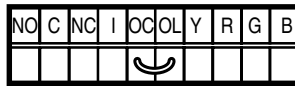
### ⚠ WARNING

**A few diagnosis procedures may require the unit to be in operation while proceeding. Open the unit door and bypass its magnetic switch by putting the door white magnet on it. Be careful with moving and/or live parts.**

PROBLEMS	POSSIBLE CAUSES	YOU SHOULD TRY THIS
1. The error code E1 is displayed on the VT8W or VT7W wall control screen.	<ul style="list-style-type: none"> <li>The wires may be in reverse position.</li> <li>The wires may be broken.</li> <li>The wires may have a bad connection.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that the color coded wires have been connected to their appropriate places.</li> <li>Inspect every wire and replace any that are damaged.</li> <li>Ensure the wires are correctly connected.</li> </ul>
2. There is no outside temperature displayed on VT8W wall control screen — — .	<ul style="list-style-type: none"> <li>Unit is on error and integrated control LED flashes (GREEN or AMBER).</li> <li>The unit thermistor is defective (integrated control LED flashes GREEN).</li> </ul>	<p>NOTE: At its very start-up or after a power failure, it takes a few minutes before the outside temperature appears on screen. The delay depends on the operation mode the wall control is in. The shortest delay is obtained when the wall control is set on MIN or MAX in VENT Mode.</p> <ul style="list-style-type: none"> <li>Check if unit is operating.</li> <li>Replace the unit thermistor.</li> </ul>
3. VT8W or VT7W wall control screen alternates between normal display and E3 or E4 appears on screen.	<ul style="list-style-type: none"> <li>VT8W or VT7W wall control needs to be reset.</li> <li>The VT8W or VT7W wall control is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Reset the VT8W or VT7W wall control by pressing simultaneously on both keys for 8 second (as shown at right). Then, <b>unplug the unit for 30 seconds. Plug the unit back.</b></li> <li>If the problem is not solved, replace the wall control.</li> </ul> 
4. On VT8W wall control, there is an important difference between temperature displayed and real temperature.	<ul style="list-style-type: none"> <li>Exterior air intake port is blocked.</li> <li>The unit thermistor is defective (integrated control LED flashes GREEN).</li> <li>The unit damper has been blocked or broken (integrated control LED flashes AMBER and unit is OFF).</li> <li>Motor won't turn.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the exterior air intake port.</li> <li>Replace the unit thermistor.</li> <li>Check for the proper operation of the unit damper; replace if necessary.</li> <li>Confirm that the motor is running, if not refer to point 9.</li> </ul>
5. Unit does not work (LED does not light up on the integrated control).	<ul style="list-style-type: none"> <li>The transformer may be defective.</li> <li>The circuit board may be defective.</li> <li>The unit is unplugged.</li> <li>The unit door is opened.</li> <li>A fuse is blown.</li> <li>Wrong control connections.</li> </ul>	<ul style="list-style-type: none"> <li>Check for 24 VAC on J8-1 and J8-2.</li> <li>Unplug the unit. Disconnect the main control and the optional(s) control(s) (if need be). Jump G and B terminals. Plug the unit back and wait about 10 seconds. If the motor runs on high speed and the damper opens, the circuit board is not defective.</li> <li>Plug the unit.</li> <li>Close unit door.</li> <li>Inspect fuse on circuit board (refer to wiring diagram F1 on page 16).</li> <li>Try the integrated control (see Section 4.1 on page 13).</li> </ul> 
6. The damper actuator does not work or rotates continuously.	<ul style="list-style-type: none"> <li>The damper actuator or the integrated damper port mechanism may be defective (integrated control LED flashes AMBER and unit is OFF).</li> <li>The circuit board or the transformer may be defective.(integrated control LED flashes AMBER and unit is OFF)</li> </ul>	<ul style="list-style-type: none"> <li>Unplug the unit. Disconnect the main control and the optional controls(s) (if need be). Wait 10 seconds and plug the unit back. Check if the damper opens. If not, use a multimeter and check for 24VAC on J12-1 and J12-2 (in electrical compartment). If there is 24VAC, replace the entire port assembly.</li> <li>NOTE: It is normal to experience a small delay (7-8 seconds) before detecting the 24VAC signal at starting-up. This signal will stay during 17-18 seconds before disappearing.</li> <li>If there is no 24VAC, check for 24VAC between J8-1 and J8-2. If there is 24VAC replace the circuit board, and if there is no 24VAC, change the transformer.</li> </ul>



## 9. TROUBLESHOOTING (CONT'D)

PROBLEMS	POSSIBLE CAUSES	YOU SHOULD TRY THIS
7. The wall control does not work OR its indicator flashes.	<ul style="list-style-type: none"> <li>The wires may be in reverse position.</li> <li>The wires may be broken.</li> <li>The wire in the wall OR the wall control may be defective.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that the color coded wires have been connected to their appropriate places.</li> <li>Inspect every wire and replace any that are damaged.</li> <li>Remove the wall control and test it right beside the unit using another shorter wire. If the wall control works there, change the wire. If it does not, change the wall control.</li> </ul>
8. The push-button timer does not work OR its indicator light does not stay on.	<ul style="list-style-type: none"> <li>The wires may be in reverse position.</li> <li>The push button may be defective.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that the color coded wires have been connected to their appropriate places.</li> <li>Jump the OL and OC terminals. If the unit switches to high speed, remove the Dehumidistat or push button and test it right beside the unit using another shorter wire. If it works here, change the wire. If it doesn't, change the Dehumidistat or the push button.</li> </ul>  <p>VE0098</p>
9. The motor does not work.	<ul style="list-style-type: none"> <li>The circuit board may be defective.</li> <li>The motor may be defective.</li> <li>The motor capacitor may be defective.</li> <li>The motor is unplugged from inside the unit.</li> <li>The motor is unplugged from the electronic board (J4).</li> <li>There is a problem with the door magnet switch.</li> <li>JU-1 jumper is missing or in wrong position.</li> </ul>	<ul style="list-style-type: none"> <li>Press on the integrated control push button until the unit turns on low speed (the LED will light AMBER). Using a multimeter, check the voltage on J9-4 and J9-3. Refer to Section 6 Wiring Diagram. The reading must be 120VAC. Then set the unit on high speed by pressing on the integrated control push button one more time (the LED will light GREEN). Using a multimeter, check the voltage on J9-4 and J9-2. The reading must be 120VAC. Check also between J4-2 and J4-1, the reading must be 120VAC. Refer to Section 6 Wiring Diagram. Check if the fuse F1 is intact. If all the readings correspond to the right voltage values, the circuit board is not defective. If one or both readings are different, change the circuit board.</li> <li>Using a multimeter, check for 120VAC for the following speeds: High Speed: between GREY and ORANGE wires; Low/Medium Speed: between GREY and RED/BLUE wires. Refer to Section 6 Wiring Diagram.</li> <li>Unplug the unit. Check for continuity between Pin 5 on the 6-pin connector (brown leads) and Pin 3 of the capacitor connector. Also check for continuity between Pin 4 on the 6-pin connector (brown leads) and Pin 1 of the capacitor connector. Refer to Section 6 Wiring Diagram.</li> <li>Open the door and ensure that the wire going to the motor is connected.</li> <li>Check J4 motor connection on circuit board.</li> <li>Door magnet switch is missing or not in its place (see item no. 11 on page 18).</li> <li>Ensure JU-1 jumper is set on "M" speed (refer to Section 6 Wiring Diagram).</li> </ul>
10. The defrost cycle does not work (the fresh air duct is frozen OR the fresh air distributed is very cold).	<ul style="list-style-type: none"> <li>Ice deposits may be hindering the damper operation.</li> <li>The damper rod or the port damper itself may be broken.</li> <li>The damper actuator or circuit board may be defective.</li> </ul>	<ul style="list-style-type: none"> <li>Remove the ice.</li> <li>Inspect these parts and replace if necessary.</li> <li>See point 6.</li> </ul>
11. The integrated control push button does not work.	<ul style="list-style-type: none"> <li>The 30-second boot sequence is not completed.</li> <li>The circuit board may be defective.</li> <li>The transformer may be defective.</li> </ul>	<ul style="list-style-type: none"> <li>See Section 4.1.1 Boot Sequence (page 13).</li> <li>Check voltage going to circuit board J8-1 and J8-2.</li> <li>Check for 24 VAC on J8-1 and J8-2.</li> </ul>