

INSTALLER MANUAL

VENTILATION SYSTEMS



VB0130

Novofit 1.0 (Part no. 41121)

60H Novo+ (Part no. 1601615)

⚠ RESIDENTIAL USE ONLY ⚠

READ AND SAVE THESE INSTRUCTIONS



These products earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. They meet ENERGY STAR requirements only when used in Canada.

ABOUT THIS MANUAL

This manual uses the following symbols to emphasize particular information:

⚠ WARNING

Identifies an instruction which, if not followed, might cause serious personal injuries including possibility of death.

CAUTION

Denotes an instruction which, if not followed, may severely damage the unit and/or its components.

NOTE: Indicates supplementary information needed to fully complete an instruction.

⚠ WARNING

When performing installation, servicing or cleaning the unit, it is recommended to wear safety glasses and gloves.

CAUTION

This unit is intended for residential use only.

NOTE: This installation manual refers to Novoclimat™ requirements. The specifications are subject to change without notice. For more details, refer to Novoclimat program.

Novoclimat is a performing dwelling concept created by the *Agence de l'efficacité énergétique* of Québec, to insure comfort, health and savings for the occupants. Many requirements, mainly for the building envelope, tightness and ventilation must be met for a house to be Novoclimat certified. We have conceived these units with all the HRV features required by this concept. Please note that Novoclimat also has specific requirements regarding the system and ducts installation and balancing.

⚠ WARNING

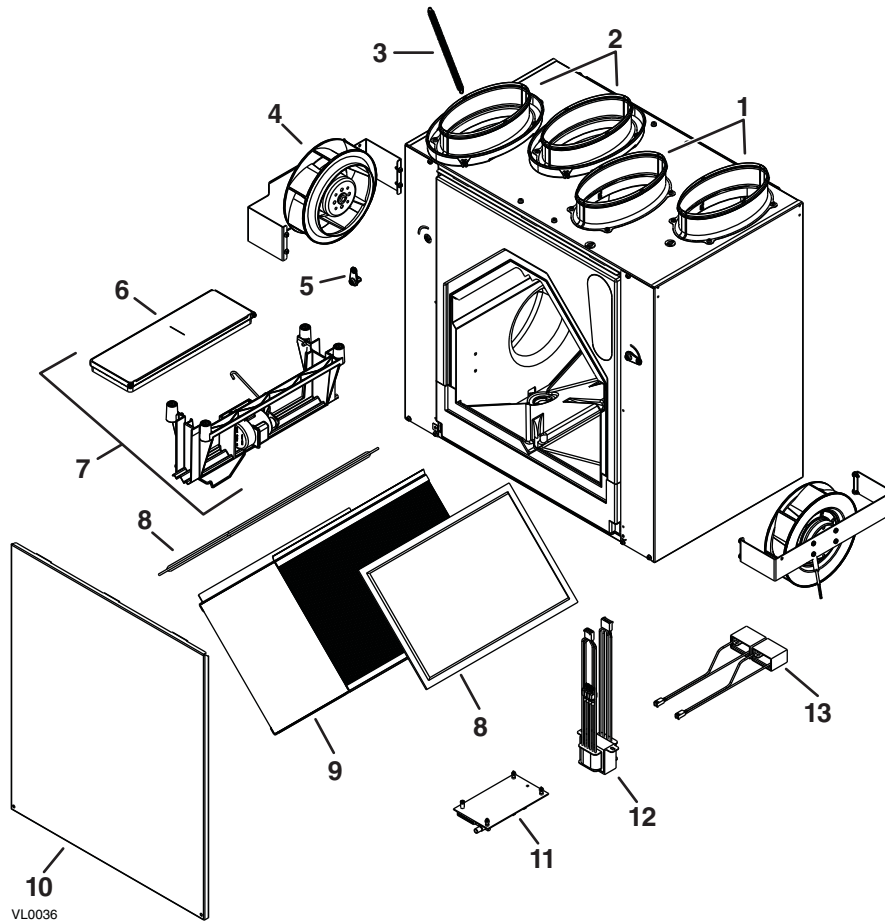
Installation work and electrical wiring must be done by a qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards.

TABLE OF CONTENTS

1.	SERVICE	4-5
1.1	SERVICE PARTS	4
1.2	TECHNICAL SUPPORT (FOR ASSISTANCE)	5
2.	SIZING	5
3.	TECHNICAL DATA	5-6
3.1	AIR DISTRIBUTION	5
3.2	DEFROST CYCLES	5
3.3	DIMENSIONS	6
3.4	SPECIFICATIONS	6
3.5	PERFORMANCE CHARTS	6
4.	TYPICAL INSTALLATIONS	7
4.1	FULLY DUCTED SYSTEM	7
4.2	SYSTEM COMBINED WITH A FURNACE	7
5.	INSTALLATION	8-12
5.1	LOCATING AND MOUNTING THE UNIT	8
5.2	PLANNING THE DUCTWORK	8
5.3	CALCULATING THE DUCT SIZE	9
5.3.1	EXAMPLE OF CALCULATION	9
5.3.2	REGISTERS LOCATION AND AIRFLOWS DISTRIBUTION	9
5.4	INSTALLING THE DUCTWORK AND REGISTERS	10
5.4.1	FULLY DUCTED SYSTEM	10
5.4.2	SYSTEM COMBINED WITH A FURNACE	10
5.5	CONNECTING THE DUCTS TO THE UNIT	11
5.6	INSTALLING THE EXTERIOR HOODS	12
5.7	CONNECTING THE DRAIN	12
6.	CONTROLS	13-16
6.1	INTEGRATED CONTROL	13
6.2	MAIN CONTROLS DIMENSIONS AND SPECIFICATIONS	13
6.3	MAIN CONTROL INSTALLATION	14
6.3.1	ALTITUDE OR PLATINUM MAIN CONTROL INSTALLATION	14
6.3.2	DECO-TOUCH MAIN CONTROL INSTALLATION	14
6.4	ELECTRICAL CONNECTION CONTROLS	15
6.4.1	ELECTRICAL CONNECTION TO MAIN CONTROL	15
6.4.2	ELECTRICAL CONNECTION TO AUXILIARY CONTROLS	15
6.5	ELECTRICAL CONNECTION TO THE FURNACE	16
7.	WIRING DIAGRAM	17
8.	AIR FLOW BALANCING	18
8.1	WHAT YOU NEED TO BALANCE THE UNIT	18
8.2	PRELIMINARY STAGES TO BALANCE THE UNIT	18
8.3	BALANCING PROCEDURE	18
9.	OVERALL VERIFICATION	19
9.1	MAIN CONTROLS	19
9.2	AUXILIARY CONTROLS	19
10.	MAINTENANCE/INSTRUCTIONS FOR USER	20
11.	TROUBLESHOOTING	21-22
12.	REFERENCES	22

1. SERVICE

1.1 SERVICE PARTS



No.	DESCRIPTION	NOVOFIT 1.0	60H Novo+	QTY.
1	OVAL PORT	18206	18206	2
2	DOUBLE COLLAR OVAL PORT	18207	18207	2
3	EXHAUST DAMPER SPRING	18221	18221	1
4	MOTOR ASSEMBLY	18197	18197	2
5	BALANCING TOOL	18220	18220	2
6	DEFROST DAMPER	18200	18200	1
7	DAMPER SYSTEM ASSEMBLY (INCLUDING NO. 6)	18199	18199	1
8	CORE FILTER	18204	18204	2
9	HEAT RECOVERY CORE	18203	18203	1
10	DOOR ASSEMBLY	18209	18208	1
11	PCB	18212	18212	1
12	TRANSFORMER	18219	18219	1
13	CAPACITOR 5 µF	16042	16042	2
14	THERMISTOR KIT (NOT SHOWN)	15749	15749	1

Please note that parts not listed are not available; those parts require assembly knowledge that only manufacturer can guarantee.

REPLACEMENT PARTS AND REPAIR

In order to ensure your ventilation unit remains in good working condition, you must use the manufacturer genuine replacement parts only. The manufacturer 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. The manufacturer recommends to contact a certified service depot for all replacement parts and repairs.

1. SERVICE (CONT'D)

1.2 TECHNICAL SUPPORT (FOR ASSISTANCE)

For assistance, call on weekdays, from 8:30 a.m. to 5:00 p.m. (Eastern Standard Time).

Novofit 1.0: 1-800-649-0372

60H Novo+: 1-888-908-2633

NOTE: Do not call these numbers for ordering parts as they are for the installers only.
To order parts: Contact your local distributor.

2. SIZING

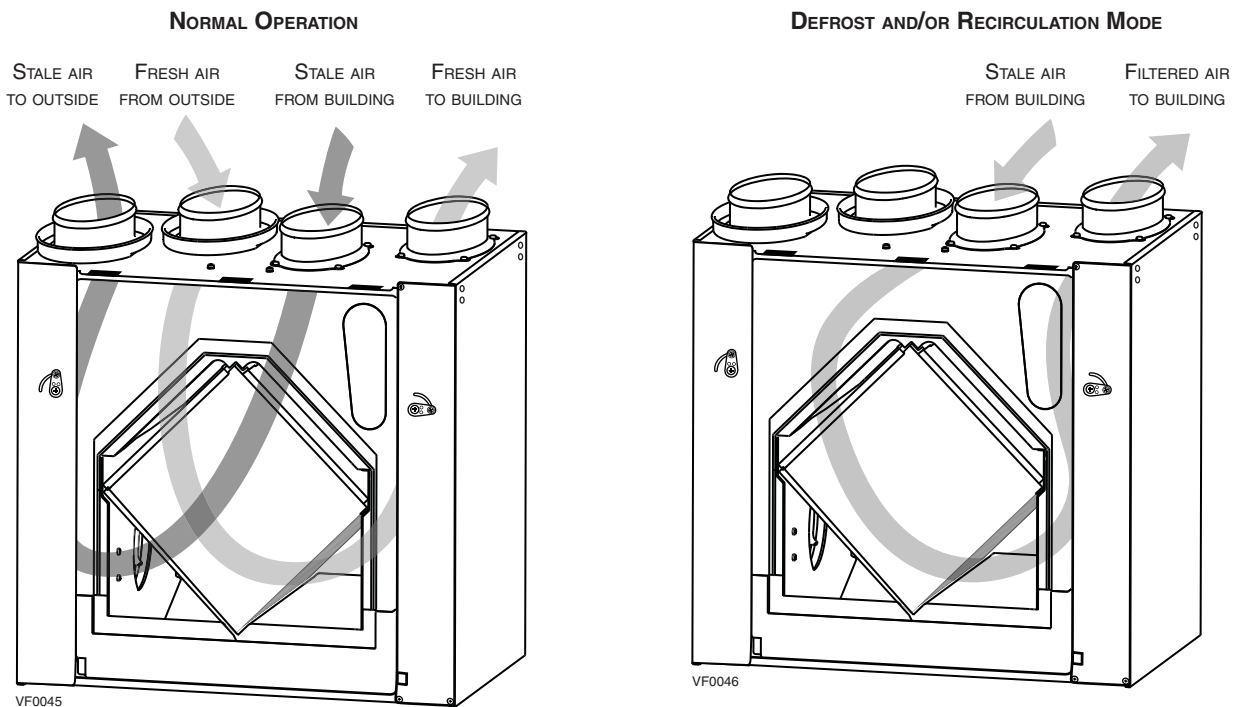
On high speed, the Novofit 1.0 and 60H Novo+ units produce about 100 CFM.

According to the Novoclimat Ventilation needs vs. the number of rooms chart, the Novofit 1.0 and 60H Novo+ units can be installed in houses having up to 8 rooms*.

* Houses with a non-finished section having an area less than 2/3 of the house, or without basement. Refer to Novoclimat requirements for more details.

3. TECHNICAL DATA

3.1 AIR DISTRIBUTION



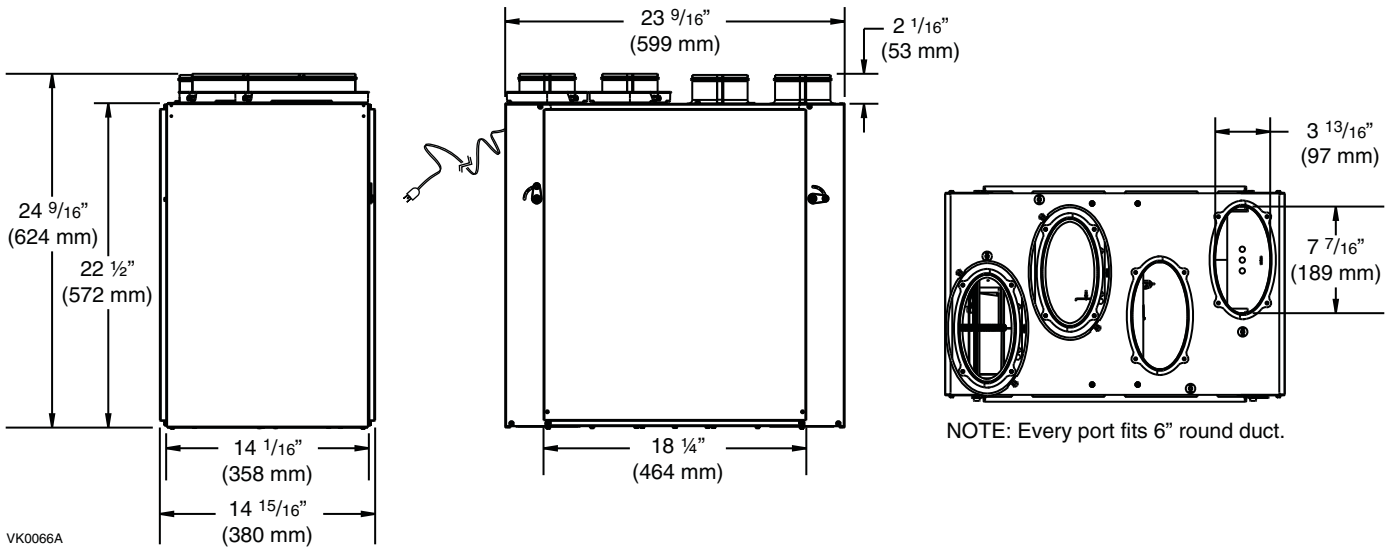
3.2 DEFROST CYCLES

OUTSIDE TEMPERATURE		NOVOFIT 1.0 & 60H NOVO+			
		DEFROST CYCLES (MINUTES)		EXTENDED DEFROST CYCLES (MIN.)	
CELSIUS (°C)	FAHRENHEIT (°F)	DEFROSTING	OPERATION BETWEEN EACH DEFROST CYCLE	DEFROSTING	OPERATION BETWEEN EACH DEFROST CYCLE
-5	23	7	25	9	23
-15	-5	7	25	9	23
-27	-17	10	22	10	22

In a cold region, (outside temperature -27°C [-17°F] and lower), it may be necessary to setup EXTENDED DEFROST. See section 6.1.

3. TECHNICAL DATA (CONT'D)

3.3 DIMENSIONS



3.4 SPECIFICATIONS

MODELS	NOVOFIT 1.0 & 60H Novo+
WEIGHT	52 LB. (23.6 KG)
PORTS	FIT 6" (152 MM) ROUND DUCT
DRAIN DIAMETER	1/2" (12 MM)
INSTALLATION	CHAINS AND SPRINGS (PROVIDED WITH THE UNIT)
MOTOR SPEED	HIGH AND LOW SPEED FACTORY SET (OPTIONAL INCREASED LOW SPEED)
ELECTRICAL SUPPLY	120 V, 60 Hz
POWER CONSUMPTION	84 WATTS

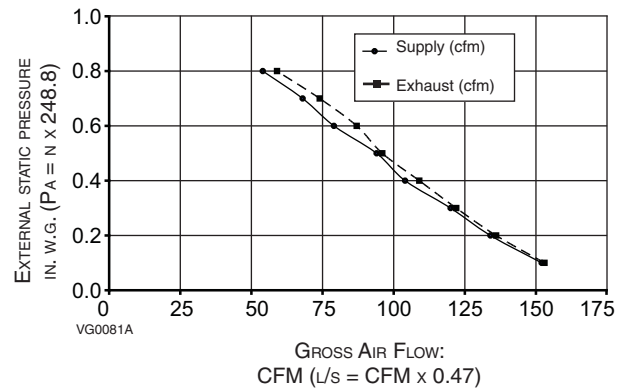
3.5 PERFORMANCE CHARTS

NOVOFIT 1.0 AND 60H Novo+

Electrical requirements: 120 volts, 0.9 ampere.

Exhaust air transfer ratio: 0.8

VENTILATION PERFORMANCE							
EXT. STATIC PRESSURE		NET SUPPLY AIR FLOW		GROSS AIR FLOW			
				SUPPLY		EXHAUST	
PA	IN. W.G.	L/S	CFM	L/S	CFM	L/S	CFM
25	0.1	72	152	72	153	72	153
50	0.2	63	134	63	135	64	136
75	0.3	56	120	57	120	57	122
100	0.4	49	104	49	105	51	109
125	0.5	44	94	44	94	45	96
150	0.6	37	79	37	79	41	87
175	0.7	32	68	32	69	35	74
200	0.8	26	54	26	55	28	59



ENERGY PERFORMANCE							
SUPPLY TEMPERATURE		NET AIR FLOW		POWER CONSUMED	SENSIBLE RECOVERY EFFICIENCY	APPARENT SENSIBLE EFFECTIVENESS	LATENT/RECOVERY MOISTURE TRANSFER
°C	°F	L/S	CFM	WATTS			
HEATING							
0	32	25	54	46	73	81	0.00
0	32	33	70	54	70	78	0.00
0	32	48	102	84	65	73	0.00
-25	-13	26	54	61	64	84	0.02

NOTE: All specifications are subject to change without notice.

4. TYPICAL INSTALLATIONS

There are two common installation methods.

4.1 FULLY DUCTED SYSTEM

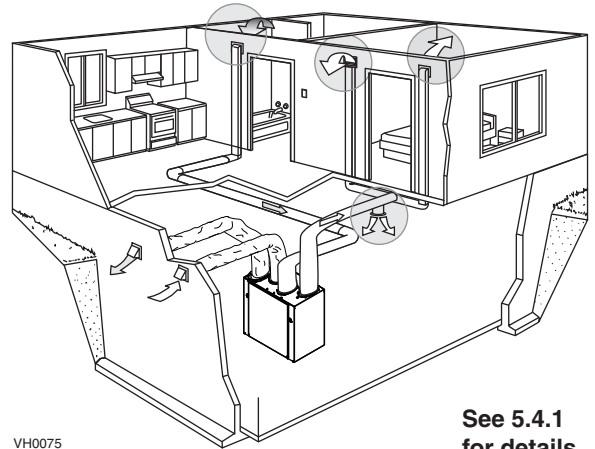
(Primarily for homes with radiant hot water or electric baseboard heating. See Figure at right.)

The complete ductwork of the ventilation system consists in ducts for the fresh air distribution and other ducts dedicated to exhaust moist, stale air to the outside.

Fresh air is supplied to bedrooms and principal living areas (at least one register per level). Moist, stale air is exhausted to the outside from the high humidity areas in the home, such as bathrooms.

Use an independent bathroom fan in washroom (without a bath tub nor a shower) and a range hood in kitchen to exhaust stale air.

Homes with more than one level require at least one exhaust register at the highest level.



4.2 SYSTEM COMBINED WITH A FURNACE

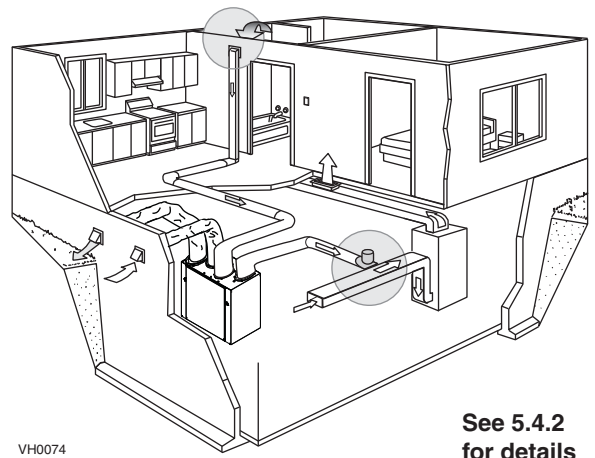
(For homes with forced air heating. See Figure at right.)

Moist, stale air is exhausted from the high humidity areas in the home, such as bathrooms, kitchen and laundry room. Fresh air is supplied to the cold air return or the supply duct of the furnace.

Use an independent bathroom fan in washroom (without a bath tub nor a shower) and a range hood in kitchen to exhaust stale air.

Homes with more than one level require at least one exhaust register at the highest level.

NOTE: For this type of installation, it is essential that the furnace blower runs when the unit is in operation.



5. INSTALLATION

⚠ WARNING

When applicable local regulations comprise more restrictive installation and/or certification requirements, the aforementioned requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.

INSPECTING THE BOX CONTENT

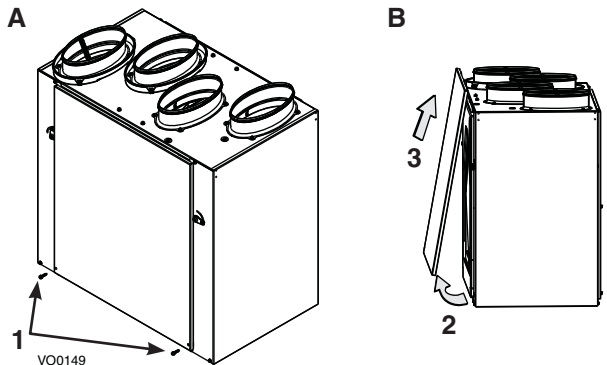
- Inspect the **exterior of the unit** for shipping damage. Ensure that there is no damage to the door, dampers, duct collars, cabinet, etc.
- Inspect the **interior of the unit** for damage. Ensure that the fan motor assemblies, heat recovery core, insulation, dampers, damper actuator and condensation tray are all intact.
- If the unit was damaged during shipping, contact your local distributor. (Claims must be made within 24 hours after delivery.)

UNIT DOOR

The unit door can be relocated on back of the unit. This can be helpful to optimize duct configuration while keeping access for unit maintenance. To change door location, follow these steps:

- A.** Remove both door lower mechanical screws no. 8-32 x 1" (1) and set aside.
- B.** Open (2) and lift out the door (3).

To remove unit back panel, repeat steps **A** and **B**, but instead of removing 2 mechanical screws, there are 4 metal screws to be removed. Hang the door to the back of the unit and secure it by tightening its both lower mechanical screws. Hang back panel to the front of the unit and secure it by tightening its four metal screws.



5.1 LOCATING AND MOUNTING THE UNIT

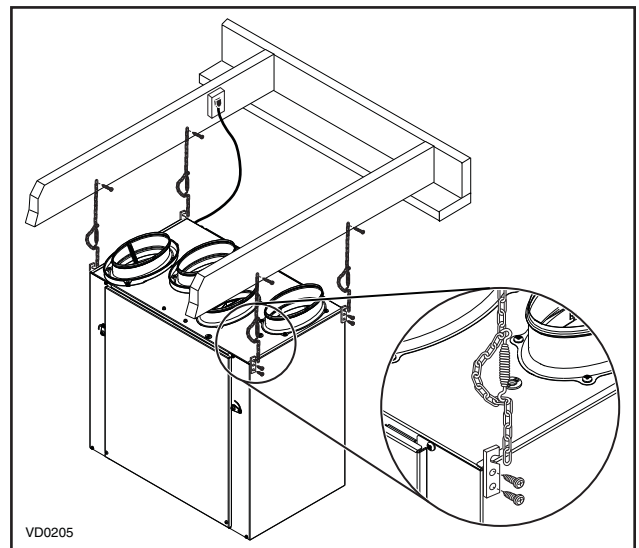
Choose an **appropriate location** for the unit:

- Within an area of the house where the temperature is kept above 10°C/50°F and below 40°C/104°F.
- Away from living areas (dining room, living room, bedroom), if possible.
- So as to provide easy access to the interior cabinet for semi-annual and annual maintenance.
- Close to an exterior wall, so as to limit the length of the insulated flexible duct to and from the unit.
- Close to a drain. If no drain is close by, use a pail to collect run-off.
- Away from hot chimneys, electrical panel and other fire hazards.
- Allow for a power source (standard 3-prong grounding outlet).

Hang the unit with the four chains and springs provided (see Figure at right).

CAUTION

Make sure the unit is level.



5.2 PLANNING THE DUCTWORK

- a) Follow the instructions in Section 5.3 on next page to determine the appropriate duct diameters for your system.
- b) Keep it simple. Plan for a minimum number of bends and joints. Keep the length of insulated duct to a minimum.
- c) Do not use wall cavities as ducts. Do not use branch lines smaller than 4" (102 mm) Ø.
- d) Do not ventilate crawl spaces or cold rooms. Do not attempt to recover the exhaust air from a dryer or a range hood. This would cause clogging of the recovery module. Use rigid ducts for fresh air distribution and stale air exhaust ("warm" side of HRV) and sheet metal for the kitchen exhaust duct (if need be).
- e) Be sure to plan for at least one exhaust register on the highest lived-in level of the house if it has 2 floors or more.

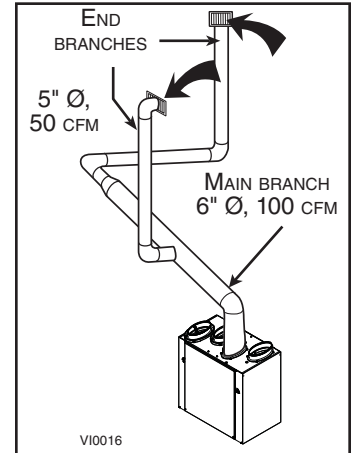
5. INSTALLATION (CONT'D)

5.3 CALCULATING THE DUCT SIZE

Use the table below to ensure that the ducts you intend to install will be carrying air flows at/or under the maximum air flow values. Never install a duct if its air flow exceeds the maximum value.

NOVOCLIMAT CHART FOR SIZE OF DUCT CONNECTED TO REGISTER VS. AIR FLOW

ROUND DUCT	RECTANGULAR DUCT	MAXIMUM AIR FLOW
4"	2¼" OR 3¼" X 10"	40 CFM
5"	2¼" OR 3¼" X 10"	65 CFM
6"	3¼" OR 4" X 10"	110 CFM



5.3.1 EXAMPLE OF CALCULATION:

Problem:

My installation requires two exhaust registers (both for the bathrooms). I will connect these registers to a main duct which will connect to the unit (high speed performance value of 100 cfm). What size of duct should I use for the main exhaust duct and for the two end branches leading to the registers? (See Figure above.)

Solution:

Main duct: Table above indicates a 6" Ø duct: maximum air flow: 110 cfm. The high speed air flow of 100 cfm is lower than the maximum value (110). Therefore a 6" Ø duct or larger is an appropriate choice for the main exhaust duct.

End branches: Each end branch will have to transport an air flow of 50 cfm (100 divided by 2). Table above indicates a 5" Ø duct: maximum air flow: 65 cfm. The high speed air flow of 50 cfm is far enough away from the maximum value (65). Therefore a 5" Ø duct or larger is an appropriate choice for both end branches.

NOTE: A 4" Ø duct would have been too small because the maximum acceptable value for a 4" Ø duct is 40 cfm.

5.3.2 REGISTERS LOCATION AND AIRFLOWS DISTRIBUTION:

The registers location and the air flow distribution must be taken in account when performing ductwork installation. Refer to the Novoclimat table below to plan the registers location.

REGISTERS LOCATION	FRESH AIR FLOWS		EXHAUST AIR FLOWS	
	MINIMUM REQUIRED	MAXIMUM ACCEPTABLE	MINIMUM REQUIRED	MAXIMUM ACCEPTABLE
KITCHEN	-	-	0	23.6 L/s (50 CFM)
DINING ROOM	4.7 L/s (10 CFM)	11.8 L/s (25 CFM)	-	-
LIVING ROOM	4.7 L/s (10 CFM)	18.9 L/s (40 CFM)	-	-
MASTER BEDROOM	9.4 L/s (20 CFM)	9.4 L/s (20 CFM)	-	-
SECONDARY BEDROOM(S)	4.7 L/s (10 CFM)	9.4 L/s (20 CFM)	-	-
MAIN BATHROOM	-	-	23.6 L/s (50 CFM)	51.9 L/s (110 CFM)
SECONDARY BATHROOM(S)	-	-	14.2 L/s (30 CFM)	51.9 L/s (110 CFM)
NON-FINISHED BASEMENT	4.7 L/s (10 CFM)	18.9 L/s (40 CFM)	-	23.6 L/s (50 CFM)

5. INSTALLATION (CONT'D)

5.4 INSTALLING THE DUCTWORK AND REGISTERS

⚠ WARNING

Never install a stale air exhaust register in a closed room where a combustion device operates, such as a gas furnace, a gas water heater or a fireplace.

5.4.1 FULLY DUCTED SYSTEM (AS ILLUSTRATED IN SECTION 4.1)

Stale air exhaust ductwork:

- Install registers in areas where contaminants are produced: bathrooms, laundry room, etc.
- Install registers 6" to 12" (152 mm to 305 mm) from the ceiling on an interior wall OR install them in the ceiling (the duct leading to the register must never go through the attic).
- If a register is installed in the kitchen, it must have a washable filter and be located at least 4 feet (1.2 m) from the range.
- If possible, measure the velocity of the air flowing through the registers. If the velocity is higher than 400 ft/min. (122 m/min), then the register type is too small. Replace with a larger one.

Fresh air distribution ductwork:

- Install registers in every bedrooms, in living room and a minimum of one per level without bedroom nor living room.
- Install registers high on the walls with air flow directed towards the ceiling. The horizontal draft must be perceptible at 3 feet (910 mm) from register.

(The cooler air will then cross the upper part of the room and mix with room air before descending to occupant level.)

5.4.2 SYSTEM COMBINED WITH A FURNACE (AS ILLUSTRATED IN SECTION 4.2)

Stale air exhaust ductwork:

(same as for Fully Ducted System, described on point 5.4.1)

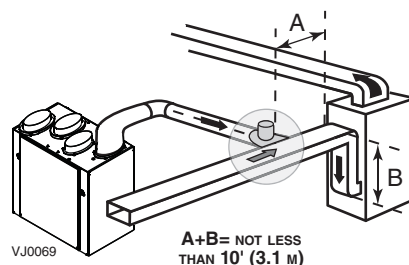
Fresh air distribution ductwork:

⚠ WARNING

When performing duct connection to the furnace, installation must be done in accordance with all applicable codes and standards. Please refer to your local building code.

- Cut an opening into the furnace return duct not less than 10 feet (3.1 m) from the furnace (A+B).
- Connect this opening to one end of the top section of a metal T coupling (the T will be reversed, see shaded part in Figure at right).
- Connect the other end of the T coupling top section to the fresh air distribution port of the HRV (see Figure at right).

NOTE: For this case, it is essential that the furnace blower runs when the unit is in operation. Synchronize the furnace blower operation with the HRV operation (see Section 6.5).



5. INSTALLATION (CONT'D)

5.5 CONNECTING THE DUCTS TO THE UNIT

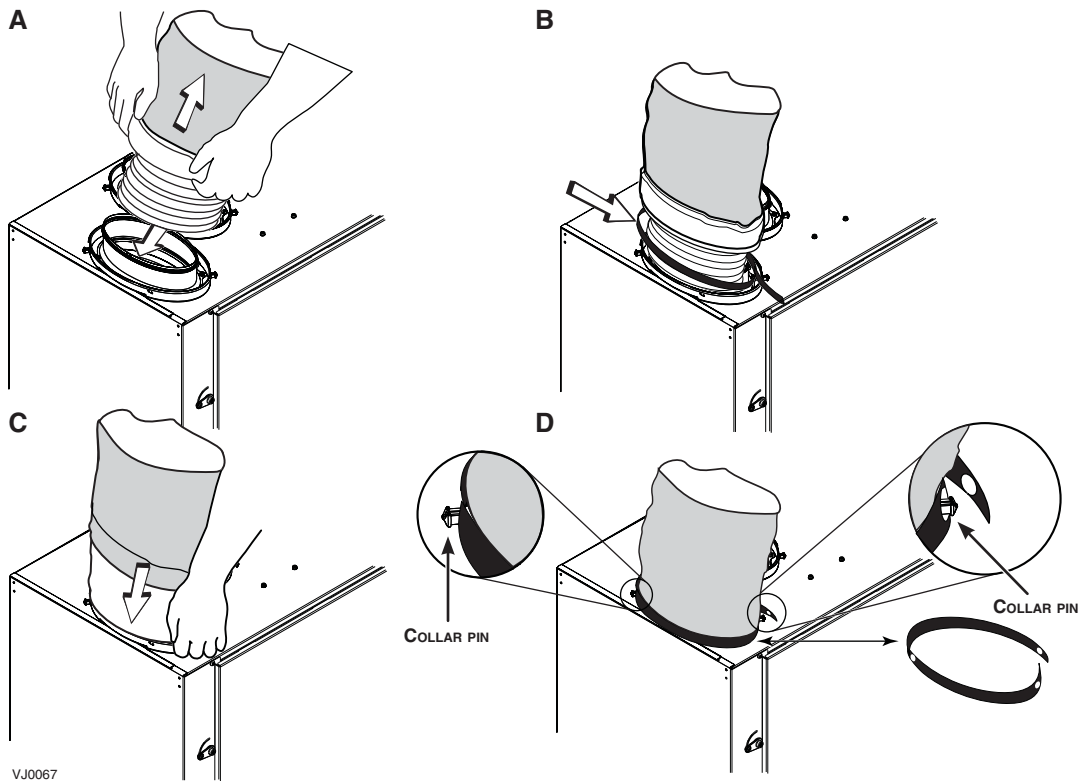
Insulated flexible duct

Use the following procedure to connect the insulated flexible duct to the ports on the unit (**Exhaust air to outside** and **Fresh air from outside**).

- Pull back the insulation to expose the flexible duct.
- Attach the flexible duct to the port using a tie wrap.
- Pull the insulation over the joint and tuck it between the inner and outer rings of the double collar.
- Pull down the vapor barrier (shaded part in illustrations below) over the outer ring to cover it completely. Fasten in place the vapor barrier using the port strap (included in unit parts bag). To do so, insert one collar pin through vapor barrier and first strap hole, then insert the other collar pin through vapor barrier and center strap hole and close the loop by inserting the first collar pin in the last strap hole.

CAUTION

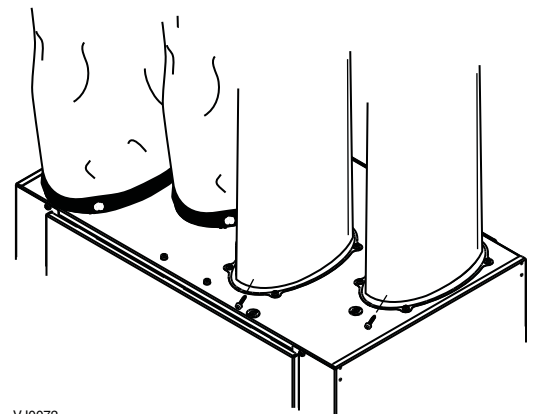
Make sure that the vapor barrier on the insulated ducts does not tear during installation to avoid condensation within the ducts.



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Non-insulated rigid ducts

Use metal screws and duct tape to connect the rigid ducts to the unit ports.



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5. INSTALLATION (CONT'D)

5.6 INSTALLING THE EXTERIOR HOODS

Choose an appropriate location to install the exterior hoods:

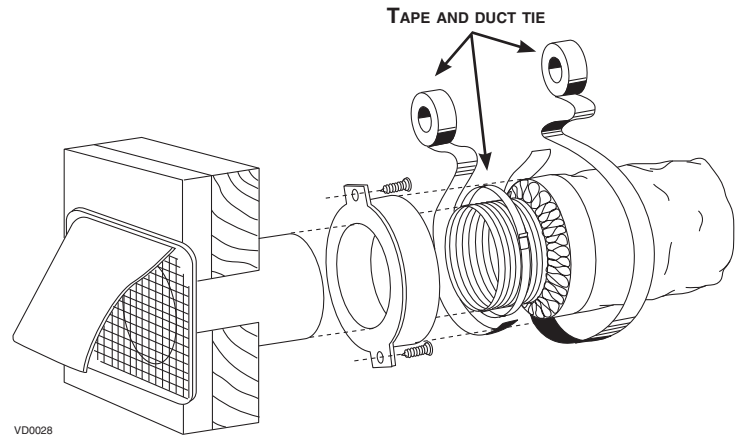
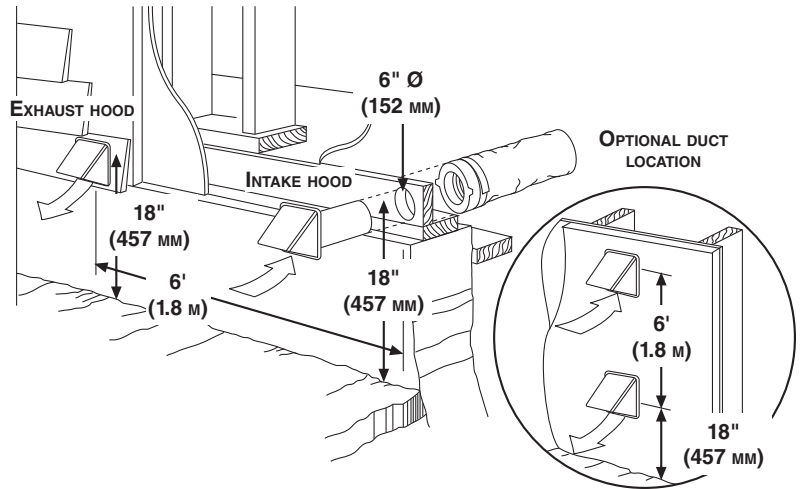
- There must be a minimum distance of 6' (1.8 m) between the hoods to avoid cross-contamination
- There must be a minimum distance of 18" (457 mm) from the ground

⚠ WARNING

Make sure the intake hood is at least 6' (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 figure at right to connect the insulated duct to the hoods. Place the "FRESH AIR INTAKE" sticker, provided in the installation kit, on corresponding hood. An anti-gust intake hood should be installed in regions where a lot of snow is expected to fall.

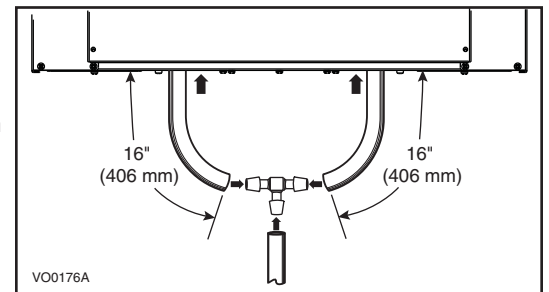


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5.7 CONNECTING THE DRAIN

Cut 2 sections of the plastic tube, at least 16" (406 mm) long, 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.

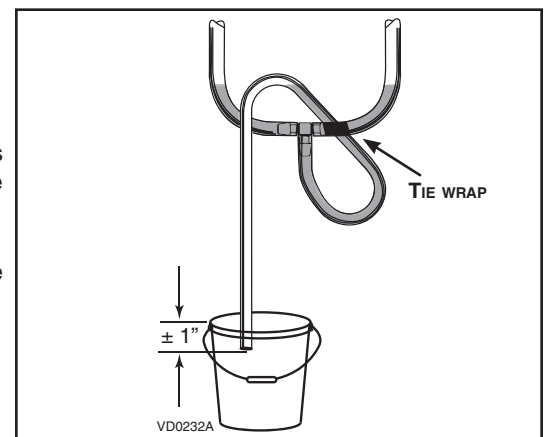


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Make a water trap loop in the tube to prevent the unit from drawing unpleasant odors from the drain source. Make sure this loop is located OVER the "T" as shown. Run the tube to the floor drain or to an alternative drain pipe or pail.

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.

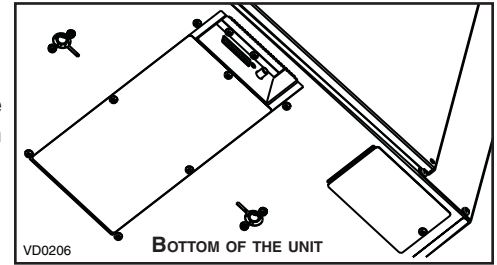


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6. CONTROLS

6.1 INTEGRATED CONTROL

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



Refer to table below 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 11 *Troubleshooting* on page 21 for further details.

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 or AMBER 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 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.

SETTING EXTENDED DEFROST

These units are factory set to normal defrost. In cold region (outside temperature -27°C [-17°F] and lower), it may be necessary to setup extended defrost. During the first 2 seconds of booting sequence, while the integrated control LED is GREEN, press on push button for 3 seconds to set the unit in extended defrost; the LED will blink AMBER to show the unit is in extended defrost mode. After that, the LED will shut off, then light RED (the unit is returned in its booting sequence).

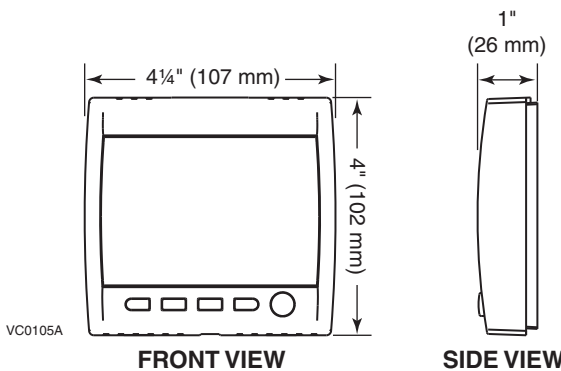
6.2 MAIN CONTROL DIMENSIONS AND SPECIFICATIONS

For more convenience, these units can also be controlled using a main wall control.

- NOTES: 1. The integrated control must be turned OFF to use the main wall control.
 2. If an optional auxiliary control is used, if activated, this auxiliary control will override the main wall control.

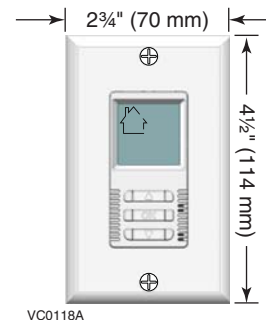
ALTITUDE OR PLATINUM

VOLTAGE: 12 volts DC



DECO-TOUCH

VOLTAGE: 12 volts DC



6. CONTROLS (CONT'D)

6.3 MAIN CONTROL INSTALLATION

⚠ WARNING

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

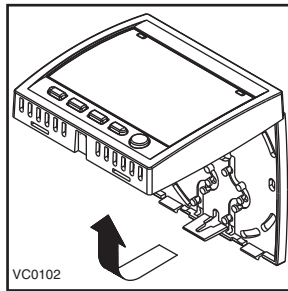
CAUTION

Failure to comply with the following can cause erratic operation of the unit:

- Never install more than one main wall control per unit.
- Keep control low voltage wiring at least 1 foot (305 mm) away from motors, lighting ballast, light dimming circuit and power distribution panel. Do not route control wiring alongside house power wiring.
- Ensure the wires are securely connected.

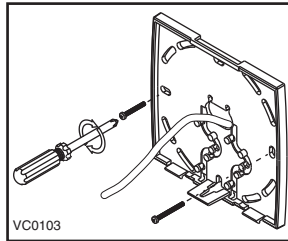
6.3.1 ALTITUDE OR PLATINUM MAIN CONTROL INSTALLATION

1. Route the cable from the unit to a convenient location for the wall control.

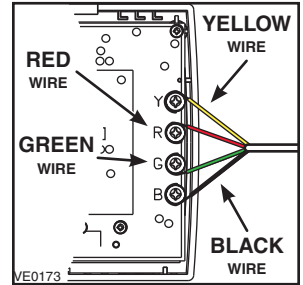


2. Detach the front module from the mounting plate by pulling the bottom part.

3. Run the cable (4 wires) through the central opening of the mounting plate and mount this plate to the wall using screws (not included). If needed, use wall anchors (not included).



4. Splice back the end of the cable to access the 4 wires. Strip the end of each wire. Connect each wire to its corresponding terminal on the back of the front module: YELLOW wire to "Y"; RED wire to "R"; GREEN wire to "G" and BLACK wire to "B".



CAUTION

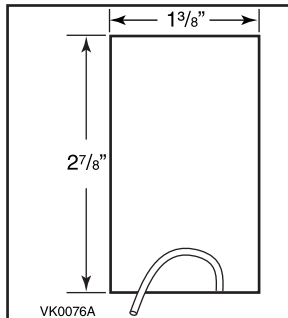
Be careful not to pinch wires when reinstalling the front module on its back plate.

5. Reinstall the front module over the back plate.

6.3.2 DECO-TOUCH MAIN CONTROL INSTALLATION

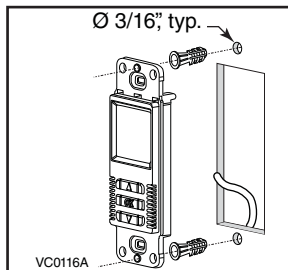
1. Cut a 2⁷/₈" x 1³/₈" hole in wall at a convenient location for the wall control. Route the cable from the unit to this hole.

NOTE: Dimensions shown are for an installation without wall box.

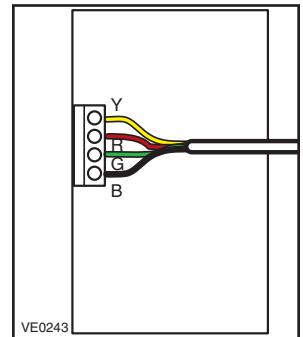


2. Temporarily place the switch over the hole and mark both mounting screw hole positions.

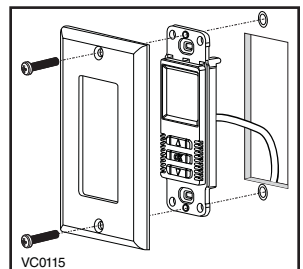
3. Remove the switch, drill both screw holes (Ø 3/16") in wall and insert wall anchors (included).



4. Strip the end of the cable to access the 4 wires. Strip the end of each wire. Using a small flat blade screwdriver, connect each wire to its corresponding terminal on the back of the wall control: YELLOW wire to "Y"; RED wire to "R"; GREEN wire to "G" and BLACK wire to "B".



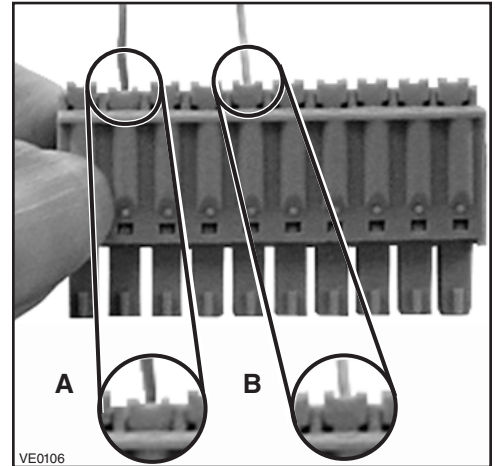
5. Mount the wall control to the wall.



6. CONTROLS (CONT'D)

6.4 ELECTRICAL CONNECTION TO CONTROLS

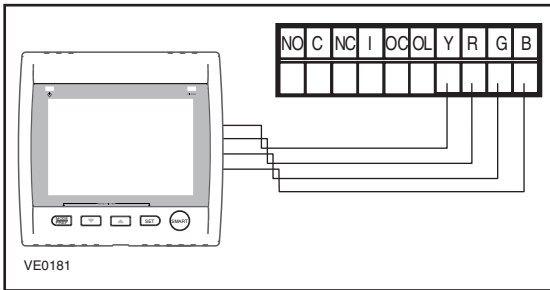
Use the terminal connector included in the installation kit to perform the electrical connection for main and optional controls. Check if all wires are correctly inserted in their corresponding holes in the terminal block. (A wire is correctly inserted when its orange receptacle is lower than another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



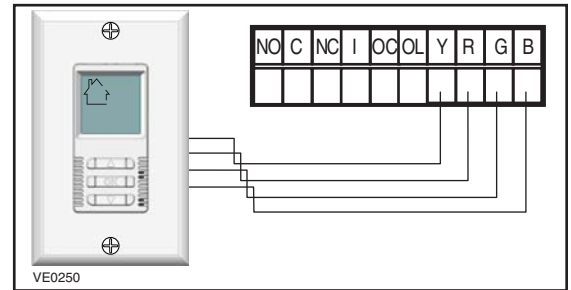
6.4.1 ELECTRICAL CONNECTION TO MAIN CONTROL

Connect the wires to their corresponding position on the terminal block. Make sure the connections of the unit and of the wall control correspond exactly.

ELECTRICAL CONNECTION TO ALTITUDE OR PLATINUM MAIN WALL CONTROL

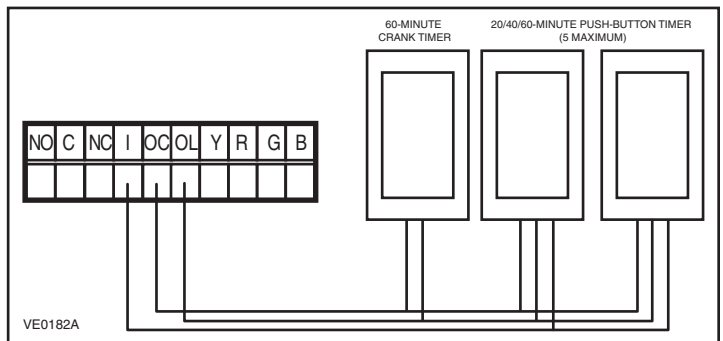


ELECTRICAL CONNECTION TO DECO-TOUCH MAIN WALL CONTROL



6.4.2 ELECTRICAL CONNECTION TO AUXILIARY CONTROLS

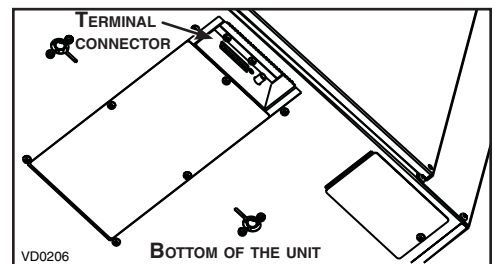
Connect the auxiliary controls (if need be).



Do the appropriate connection to the furnace (if applicable) by referring to Section 6.5.

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

Plug in the unit and do the "overall verification" of the system as described in Section 9.



6. CONTROLS (CONT'D)

6.5 ELECTRICAL CONNECTION TO THE FURNACE

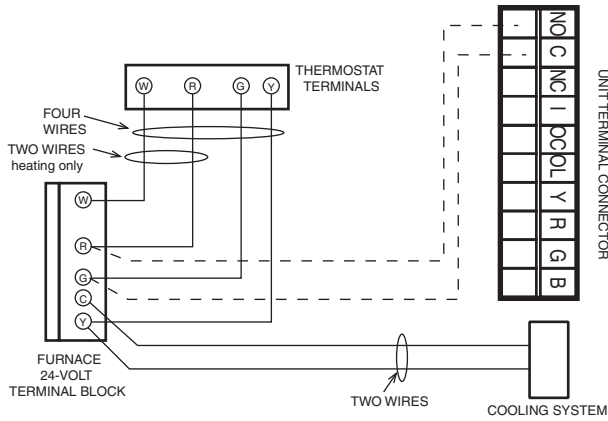
⚠ WARNING

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:

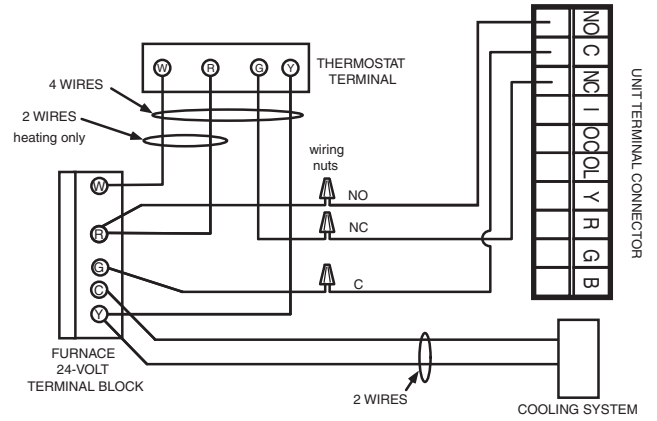
On some older thermostats, energizing the "R" and "G" terminals at the furnace has the effect of energizing "Y" at the thermostat and thereby turning on the cooling system. If you identify this type of thermostat, you must use the ALTERNATE FURNACE INTERLOCK WIRING.

STANDARD FURNACE INTERLOCK WIRING



VE0108A

ALTERNATE FURNACE INTERLOCK WIRING

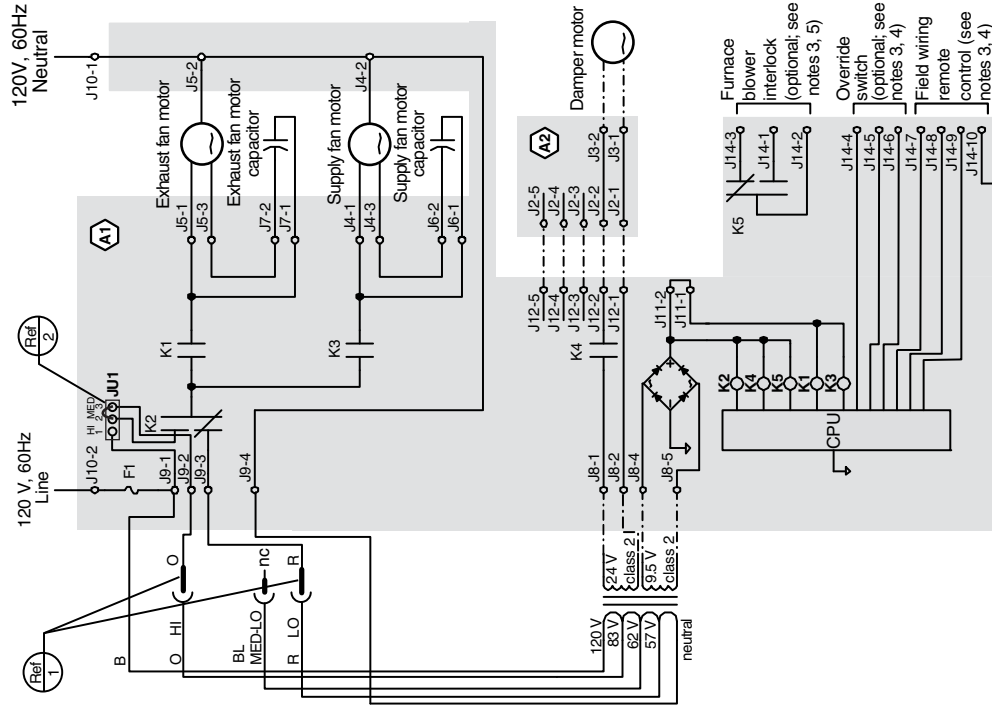


7. WIRING DIAGRAM

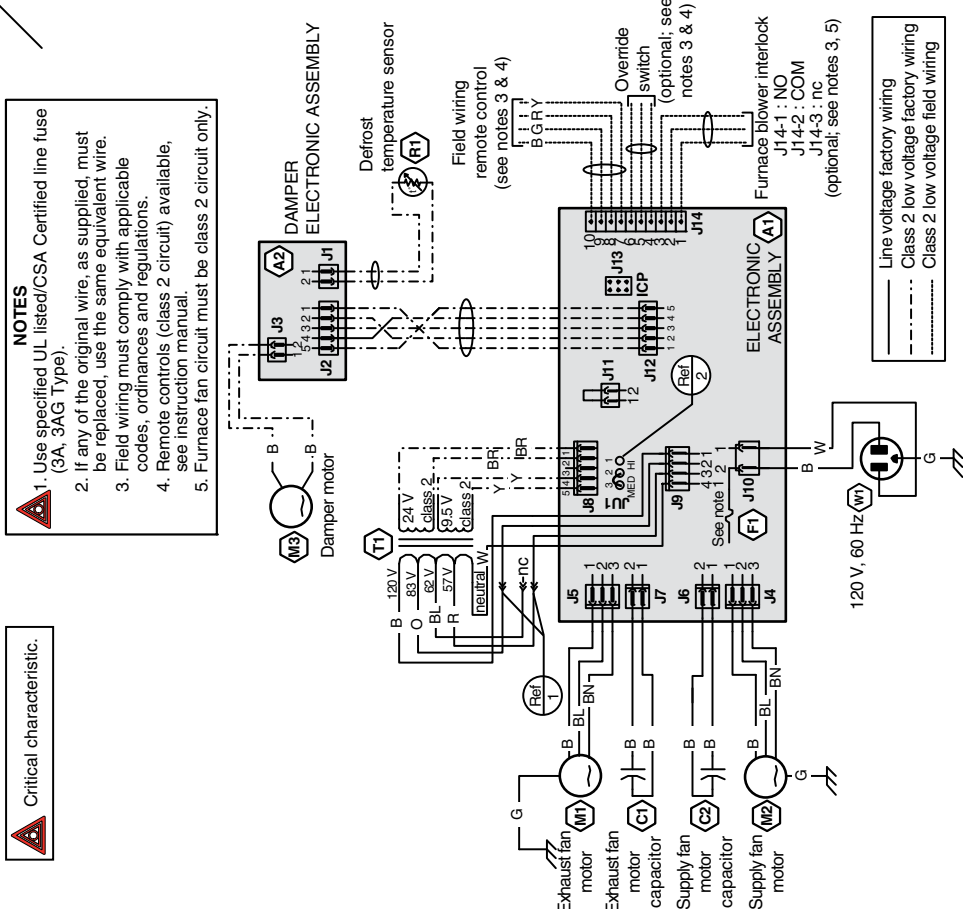
⚠ WARNING

- 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. 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.

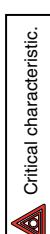
COLOR CODE

B	BLACK
BL	BLUE
BN	BROWN
G	GREEN
O	ORANGE
R	RED
W	WHITE
Y	YELLOW
nc	no connection

FAN MOTORS SPEED SELECTION

CAUTION: You can change REF 1 or REF 2, but not both at the same time. If you do change REF 1 and REF 2 you will inverse fan motor speeds.

REF 1 ORG	REF 1 RED	REF2	FAN SPEEDS
Factory shipped	3.2 1	3.2 1	HI (83V) & LO (57V)
ORG to ORG	RED to RED	3.2 1	HI (83V) & MED-LO (62V)
ORG to ORG	BLUE to RED	3.2 1	HI (83V) & MED-LO (62V)

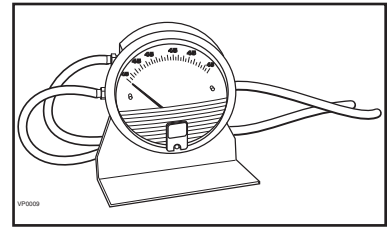


Line voltage factory wiring
 Class 2 low voltage factory wiring
 Class 2 low voltage field wiring

8. AIR FLOW BALANCING

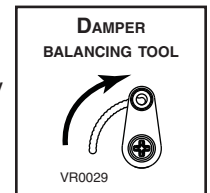
8.1 WHAT YOU NEED TO BALANCE THE UNIT

- A magnehelic gauge capable of measuring 0" to 1.0" of water (0 to 249 Pa) and 2 plastic tubes.
- The balancing chart provided with the unit.



8.2 PRELIMINARY STAGES TO BALANCE THE UNIT

- 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 by setting both damper balancing tool completely vertical.
- Make sure all filters are clean (if it is not the first time you balance the unit).



8.3 BALANCING PROCEDURE

1. Set the unit to high speed.

Make sure that the furnace blower is ON if the installation is in any way connected to the ductwork of the cold air return. 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 (the ones with arrows, see insets in illustration at right).

Be sure to connect the tubes to their appropriate high/low fittings. If the gauge drops below zero, reverse the tubing connections.

4. Note the CFM value from balancing chart on unit.

5. Repeat steps 3 and 4 but to FRESH air flow pressure taps.

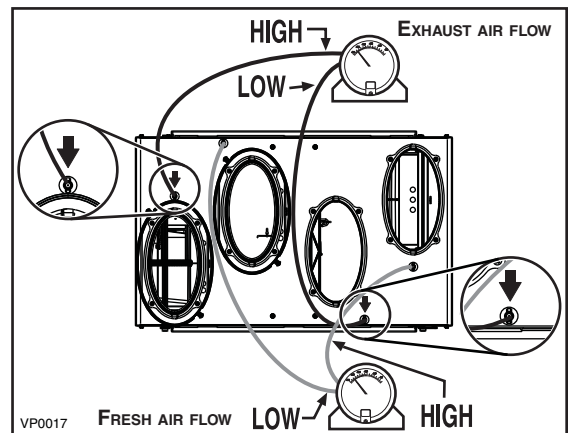
6. Match the highest CFM value to lowest by adjusting the balancing damper corresponding to the highest value.

SEE EXAMPLE BELOW:

FLOW	FRESH	EXHAUST
CFM	IN. W.G.	IN. W.G.
70	0.74	0.69
75	<u>0.71</u>	<u>0.66</u>
80	0.67	0.62
85	0.63	0.58
90	0.60	0.55
95	0.56	0.51
100	<u>0.53</u>	0.47

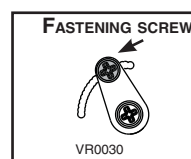
EXHAUST AIR READING VALUES

FRESH AIR READING VALUES



In that case, there is 100 CFM in FRESH air and 75 CFM in EXHAUST air. Then, adjust (close) the FRESH air balancing damper until the FRESH air flow matches the EXHAUST air flow: 75 CFM (0.71 in. w.g.) with magnehelic gauge connected to FRESH air flow pressure taps).

7. Secure both dampers in place with a fastening screw.



8. 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).

NOTE: The air flows are acceptable up to a difference of $\pm 15\%$ between the cfm home needs and the intake or exhaust airflow, but the difference between both airflows must not exceed 10%.

9. OVERALL VERIFICATION

9.1 MAIN CONTROLS

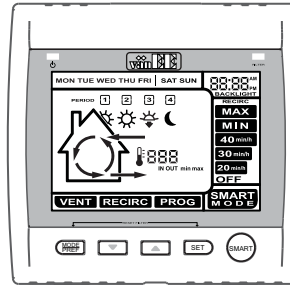
This procedure allows the installer to verify that all modes of operation are fully functional.

During the verification of the main control, make sure that all auxiliary controls are inactive.

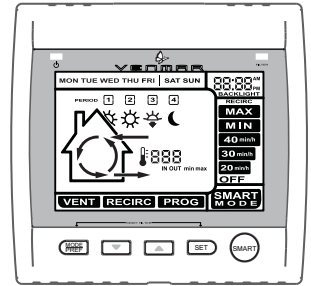
ALTITUDE OR PLATINUM MAIN CONTROLS:

At its very start-up, the Altitude or Platinum wall control will perform a booting sequence before being ready to operate. The booting sequence is done when the hour display is flashing.

Refer to the installation sheet included with the wall control for more details in programming and setting preferences.



VC0104



VC0101

DECO-TOUCH MAIN CONTROL:

Refer to the installation sheet included with the Deco-Touch wall control.



VC0117

9.2 AUXILIARY CONTROLS

First, turn OFF the main control before checking the remote auxiliary controls.

20/40/60-MINUTE PUSH-BUTTON TIMER:

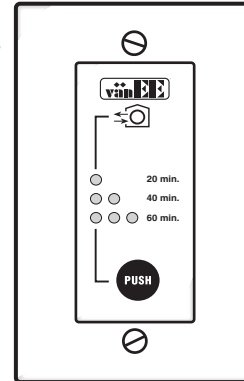
Activate the push button. Within 2 seconds, push once for 20 minutes, twice for 40 minutes or three times for a 60-minute activation.

Results expected:

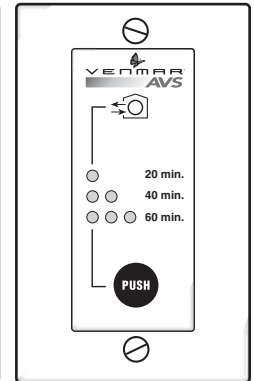
1. Motor speed: high for 20, 40 or 60 minutes.
2. Indicator light goes "ON" and flashes every 5 seconds (once to indicate a 20-minute operation, twice for a 40-minute, and three times for a 60-minute operation).

3. Air exchange indicator light goes "ON"

NOTE: To stop activation, push once more.



VC0041



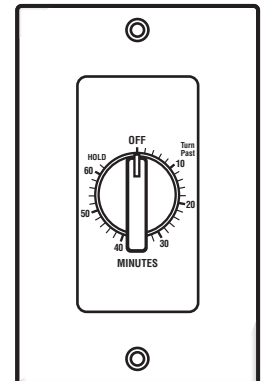
VC0007

60-MINUTE CRANK TIMER:

Activate the timer.

Results expected:

Motor speed: high for up to 60 minutes.



VC0017

10. MAINTENANCE/INSTRUCTIONS FOR USER

⚠ WARNING

Risk of electric shocks. Before performing any maintenance or servicing, always disconnect the unit from its power source.

- Review with the user the steps required for the regular maintenance of her/his ventilation system. These steps are described in detail in the user manual:

Four times a year:

- Inspect the intake hood, and clean if needed.
- Clean the filters.
- Clean the interior of the cabinet and clean the door.
- Clean the condensation tray and inspect the drain tubing.

Once a year:

- Clean the heat recovery core.
- Clean the blades of the blower wheels if needed.

- Warn the user of the necessity to rebalance the system following a major house renovation or following the installation of any extra registers.
- Make sure the user understands how to use the main control as described in the user manual.

CAUTION

Do not oil the motors. They are already permanently lubricated.



11. TROUBLESHOOTING

If the unit does not work properly, reset the unit by unplugging it for one minute and then replug it. If it still not working properly, refer to table below.


If the integrated control LED of the unit is flashing, this means the unit sensors detected a problem. See the table below to know where the problem occurs on the unit.

NOTE: Be sure to unplug and inspect the unit before proceeding with these steps.

LED SIGNAL	ERROR TYPE	ACTION	UNIT STATUS
LED flashes GREEN	Thermistor error	Replace thermistor	Unit works but will defrost frequently
LED flashes AMBER	Damper error	Go to point 6	Unit does not work
LED flashes RED	Exhaust motor error	Go to point 9	Unit does not work

	PROBLEMS	POSSIBLE CAUSES	YOU SHOULD TRY THIS
1	The error code E1 is displayed on Altitude, Platinum or Deco-Touch wall control screen.	<ul style="list-style-type: none"> The wires may be in reverse position. The wires may be broken. The wires may have a bad connection. 	<ul style="list-style-type: none"> Ensure that the color coded wires have been connected to their appropriate places. Inspect every wire and replace any that is damaged. Ensure the wires are correctly connected.
2	There is no outside temperature displayed on Altitude or Platinum wall control screen  .	<ul style="list-style-type: none"> The unit thermistor may be defective. 	<p>NOTE: At its very start-up or after a power failure, it takes some minutes before the outside temperature value appears on screen. The delay duration depends on which operation mode the wall control is set. 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"> Replace the unit thermistor.
3	Altitude, Platinum or Deco-Touch wall control screen alternates between normal display and E3.	<ul style="list-style-type: none"> The Altitude, Platinum or Deco-Touch wall control may be defective. 	<ul style="list-style-type: none"> Replace the Altitude, Platinum or Deco-Touch wall control.
4	On Altitude or Platinum wall control, there is an important difference between temperature displayed and real temperature.	<ul style="list-style-type: none"> The unit thermistor is defective. The unit damper has been blocked or broken. 	<ul style="list-style-type: none"> Replace the unit thermistor. Check for the proper operation of the unit damper; replace if necessary.
5	Unit does not work.	<ul style="list-style-type: none"> The circuit board may be defective. The fuse may be defective. 	<ul style="list-style-type: none"> Unplug the unit. Disconnect the main control and the auxiliary control(s) (if need be). Jump B and G terminals.  <small>VE0097</small> 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. Check if fuse F1 is blown. In that case, replace fuse F1 as per wiring diagram.
6	The damper actuator does not work.	<ul style="list-style-type: none"> The damper actuator or the integrated damper mechanism may be defective. The circuit board or the transformer may be defective. 	<ul style="list-style-type: none"> Unplug the unit. Disconnect the main control and the optional control(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 24 VAC on J12-1 and J12-2 (in electrical compartment). If there is 24 VAC, replace the entire damper assembly. NOTE: It is normal to experience a small delay (7-8 seconds) before detecting the 24 VAC signal at starting-up. This signal will stay during 17-18 seconds before disappearing. If there is no 24 V AC, check for 24 V AC between J8-1 and J8-2. If there is 24 V AC, replace the circuit board, and if there is no 24 V AC, change the transformer.

11. TROUBLESHOOTING (CONT'D)

	PROBLEMS	POSSIBLE CAUSES	YOU SHOULD TRY THIS
7	The wall control does not work.	<ul style="list-style-type: none"> The wires may be in reverse position. The wires may be broken. There may be a short-circuit. The wire in the wall OR the wall control may be defective. 	<ul style="list-style-type: none"> Ensure that the color coded wires have been connected to their appropriate places. Inspect every wire and replace any that is damaged. With the help of a multimeter, check for continuity. 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.
8	The 20/40/60-min. push-button timer does not work OR its indicator light does not stay on.	<ul style="list-style-type: none"> The 20/40/60-min. push button may be defective. 	<ul style="list-style-type: none"> Jump the OL and OC terminals. If the unit switches to high speed, remove the push button and test it right beside the unit using another shorter wire. If it works there, change the wire. If it doesn't, change the push button.  <p>VE0098</p>
9	The supply and/or exhaust motor does not work.	<ul style="list-style-type: none"> The fuse may be defective. The jumper JU1 may be in wrong position or missing. Jumper J11 may be missing. The circuit board or transformer may be defective. The motor(s) or capacitor(s) may be defective. 	<ul style="list-style-type: none"> Check if fuse F1 is blown. In that case, replace fuse F1 as per product nameplate. Make sure that jumper is properly located as per wiring diagram in Section 7 <i>Wiring Diagram</i>. Make sure there is a jumper on connector J11. NOTE: Refer to the FAN MOTORS SPEED SELECTION table in Section 7 <i>Wiring Diagram</i> to know what the voltage reading must be. 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 J4-1 and J4-2 (for supply motor), and on J5-1 and J5-2 (for exhaust motor). 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 J4-1 and J4-2 (for supply motor), and on J5-1 and J5-2 (for exhaust motor). 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 transformer. If no voltage is present, change the circuit board. Using a multimeter, check the ohms value on each motor connectors. For BLUE and BLACK motor wires, the right value is ± 52 ohms. For BLUE and BROWN motor wires, the right value is ± 72 ohms. For BROWN and BLACK motor wires, the right value is ± 124 ohms. If the ohms values are the same, the motor is not defective. Replace the motor capacitor.
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"> Ice deposits may be hindering the damper operation. The damper rod or the port damper itself may be broken. The damper actuator or circuit board may be defective. 	<ul style="list-style-type: none"> Remove the ice. Inspect these parts and replace if necessary. See point 6.
11	The integrated control push button does not work.	<ul style="list-style-type: none"> The 30-second boot sequence is not completed. 	<ul style="list-style-type: none"> See Section 6.1 <i>Booting Sequence</i>.

12. REFERENCES

- HVI, "Installation Manual for Heat Recovery Ventilators", 1987 edition.
- ASHRAE 1984 Systems Handbook, chapter 11, "Air Distribution Design for Small Heating and Cooling Systems"

