Installation & Owner’s Manual

Model#:
HCV-APT-WAVE
HCV-APTHC-WAVE

Manufactured By:
Air Tech Equipment Ltd.
1095 Ohio Rd.
Boudreau-West, NB
Canada E4P 6N4
Tel: 1-800-416-9111
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</tbody>
</table>
Service and Warranty

For Customer Assistance

To aid in answering questions if you call for service or warranty purposes, please record below the model and serial number located on the side of the unit.

<table>
<thead>
<tr>
<th>Product Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model #:</td>
</tr>
<tr>
<td>Date of Manufacturing:</td>
</tr>
<tr>
<td>Date of Purchase:</td>
</tr>
<tr>
<td>Serial #:</td>
</tr>
<tr>
<td>Dealer Name (If Any):</td>
</tr>
</tbody>
</table>

For the Following Inquiries:
- Service
- Parts
- Accessories
- Additional Customer Information

Please contact us by:
Phone: 1-888-533-1348
Email: support@airtechequipment.ca
Consumer Limited Warranty

Air Tech Equipment Ltd. Warrants to the first consumer that this product, when shipped in its original container, will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective Product or part thereof with a new or remanufactured equivalent at no charge to the purchaser for the period(s) set forth below. The defective part must be returned to the manufacturer Air Tech Equipment Ltd. Transportation charges are the sole responsibility of the purchaser.

This warranty does not apply to any appearance items of the Product nor to the additional excluded item(s) set forth below nor to any Product the exterior of which has been damaged or defaced, which has been subjected to improper voltage or other misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser must fill out and return the warranty card as soon as possible. If your unit is not registered, a proof of purchase will be necessary should it require any services.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time period described herein on behalf of Air Tech Equipment Ltd.
Wave Ventilation

The warranties described herein shall be the sole and exclusive warranties granted by Air Tech and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Air Tech to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, and strict liability or otherwise. In no event shall Air Tech be liable, or in any way responsible, for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than an authorized servicer, unless approved by Air Tech in writing. Nor shall Air Tech be liable or in any way responsible for any incidental or consequential economic or property damage.

<table>
<thead>
<tr>
<th>Warranty Period for this product:</th>
<th>Eight (8) years on fan and cabinet. Four (4) years on all other parts, components &amp; controls. (except outside vent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Items Excluded From Warranty Coverage (If Any):</td>
<td>Appearance items of the product, Exterior vent and any printed materials.</td>
</tr>
<tr>
<td>Where to obtain service:</td>
<td>From the Manufacturer. If you require any information. Please call: 1-888-533-1348</td>
</tr>
</tbody>
</table>

This warranty is not transferable and applies to residential use only. To obtain supply, accessory or product information, call: 1-888-533-1348

**IMPORTANT**

To properly validate your warranty, you must fill out and return the warranty card as soon as possible. If your unit is not registered, a proof of purchase will be necessary should it require any services.
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Pre-Installation

Included Components

Before installing your HCV-AVT Unit, make sure that you have the right model and accessories. The following items should be included in the accessory box. If parts are missing, contact our customer service at 1-888-533-1348.

<table>
<thead>
<tr>
<th>1x Owner’s Manual</th>
<th>2x Cable Ties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x Warranty Card</td>
<td>5x Screw Covers</td>
</tr>
<tr>
<td>1x Vinyl Flex 6” x 24”</td>
<td>4x Plastic Anchors</td>
</tr>
<tr>
<td>1x Exhaust Vent 6”</td>
<td>8x #8 x 2” Screws</td>
</tr>
<tr>
<td>1x Checklist</td>
<td>6x #8 x 9/16” Screws</td>
</tr>
</tbody>
</table>

Tools Required for Installation

- Electric reciprocal or hole saw 6¼”
- Drill with a ¼” concrete bit
- Phillips and Robinson Screw Driver
- Measuring Tape
- Hammer
- Pencil

For concrete, cinderblock or brick installation, Use a hammer drill with chiseling ability ½” x 16” long and a chisel bit 1” thick.
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Key Installation Facts

1) Unit must be installed at floor level on outside wall.
2) Unit should be installed as far away as possible from the source of replenishment air. (Hallways, doors, etc…)
3) Outside duct must be no less than 6” and dedicated for the HCV-APT Unit only.
4) Location must allow for maximum circulation to draw in air from all parts of the home.
5) Unit should not be installed within 8 feet of combustion appliance, Central Air Leads or AC Units.

IMPORTANT – What Not to Do

1) DO NOT install the unit within 4 feet of a heat source (Radiator, heater, etc…)
2) DO NOT crush the vinyl Pipe.
3) DO NOT install the unit next to a replenishment air supply.

Warning!!!
Combustion Appliance Present in Dwelling
Read this Section Carefully
With the presence of appliances evacuating air outside the building envelope (such as range hood, bathroom fan, dryer, etc.) a negative pressure could be created inside the building. As the pressure inside the building gets lower than the barometric pressure outside, the smoke and gases from any combustion appliance (oil furnace, gas/wood stove, fireplace, etc.) may be drawn into the building rather than go out the chimney.
This problem is usually curable by setting the controls of exhaust appliances, including this system, at less than maximum speed during the heating season. (Note: when humidity conditions in the home are below the humidity setting on the HCV-APT, as they usually are during the heating season, it operates at approx. 50% of the capacity of a standard bathroom fan) or by introducing make-up air inside the building. A fresh air kit (Air Supply Ventilator) is available from your Wave Ventilation dealer, to help relieve the effects of negative air pressure in the building.
Installation

WARNING
TO REDUCE THE RISK OF FIRE, ELECTRICK SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

- Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
- Ducted fans must always be vented to the outdoors.
- For exhaust fans, the discharge air is to be directed to the building exterior.

Factors to consider
Examine the dwelling for the best location to install the HCV-APT. Try to find a location where no electrical wires or pipes are present inside the wall. The unit has to be installed on an outside wall.

Selecting the Duct Location
Now that you’ve decided where to install the unit, you must select a location for a 6¼” duct hole in the outside wall. This hole is needed to pass a duct through the outside wall. Make sure that the hole doesn’t line up with a stud, electrical wires, or pipe.
Preparing the HCV-APT for Installation

Measure the required Unit height. Remember that the units should be installed no more than 3” off the floor. This is crucial as these models are not adjustable in height.

<table>
<thead>
<tr>
<th>From the inside, drill a pilot hole of approximately ¼” at the center of the proposed 6¼” hole.</th>
<th><img src="image1.jpg" alt="Images" /> <img src="image2.jpg" alt="Images" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside the building, find the pilot hole. Using a hole-saw, with the pilot hole as a guide, drill a 6¼” hole.</td>
<td><img src="image3.jpg" alt="Images" /> <img src="image4.jpg" alt="Images" /></td>
</tr>
</tbody>
</table>

**Brick or Concrete Wall:** There are two ways of going through brick or concrete. The first method consists of using a hammer drill. Make holes (approximately 5/8”) with the hammer drill 1” apart through the brick in a circular shape outlining the 6 ¼” hole. Finish cutting the outer edge of the hole using a chisel. If a hammer drill is not available, a chisel can be used. As brick is brittle chiseling from the center of the pilot hole will chip the brick easily. Continue chiseling until you reach the outer edge of the 6 ¼” hole.
Fasten Unit to the Wall

Remove the 4 White Screws on the Side of the Unit. (These are along the back edge of the unit and are holding the Back Piece)

Separate the Front Aluminum Piece from the back Galvanized piece.

Place the Unit at its chosen location. Now scribe the four holes on the wall where the rubber grommets are installed. Remove the machine and drill four 1/4" holes where previously scribed. Apply anchors in the holes using a hammer.

With the help of a tie wrap attach the flex pipe to the collar on the back of the unit before attaching the unit to the wall. Insert the other end of the flex pipe inside the hole in the wall. (a few Small 9/16” Screw can be used to affix the flex to the mount)

Now fasten the unit to the wall using the 4 x 2” screws provided.

NOTE: For instructions on permanently connected model (APTHC), please see Page 25 for Wiring Instructions. Please note that this model requires a qualified person for installation.
Replace the front of the unit using the 4 Screw Caps with the 4 original screws.

Attaching the Flex, Pipe and Vent

From the **outside** pull out the flex pipe. Use only the length needed. **CUT OFF EXCESS FLEX.** With the tie wrap attach the flex to the outside vent.

Insert 4 x 2” screws to secure vent to the outside wall. Make sure the vent is not twisted by inserting the screws too tight and check to make sure the flaps are working properly. Apply caulking to act as weather seal.

Make sure the vent is not twisted by inserting the screws too tight and that the flaps are working properly.

**NOTE:** If high winds are often present in the location of the vent, they may cause a wind noise inside the house. If this is the case, an **anti-gust hood** (AGH-990) is available from your Wave Ventilation dealer.

Plug the unit into any 115V outlet.

**Note:** A grounded extension cord with a maximum length of 10 feet may be used if necessary.
Unit Operations

The first time the unit runs…

Anytime the HCV-APT unit is powered on (plugged into a power outlet), it will run at the last recorded speed setting (in memory) for 2 hours to allow air to circulate in house. The factory default setting when the unit is brand new is “High Speed”. After the initial two hour period, the unit will begin to take readings of the environmental conditions of the air coming into the house (also called replenishment air). These readings help the unit regulate its operating speed to ensure that, over time, you will get the most energy efficient ventilation for the entire home and maximum reduction of relative humidity.

If this is the first time the unit is plugged in and allowed to run, it is important to allow it to run uninterrupted for those first two hours. After this time, you can change the Min/Max operating speed as well as the dehumidistat setting.

After power outages or whenever the unit is powered down (unplugged) and powered up again (plugged into the wall again), the unit reads the last recorded speed setting and dehumidistat setting and will operate with those parameters for a period of two hours before beginning to take readings of the environmental conditions of the incoming air. However, in this case, the user can access the menu and change settings and does not have to wait for this two hour period to be over.

Note: For the unit to function properly and to allow the unit to provide the best energy efficient ventilation and humidity control, all windows, doors with access to the outdoor and vents to the outdoor should be closed to prevent an excessive amount of outdoor air from entering directly into the house.
What is the dew point?

The dew point is one of the three environmental variables that are important when discussing the conditions in your home. Understanding the dew point will help you understand how the HCV-APT unit operates and how it will help to reduce the relative humidity (RH%) level infiltrating your home and eliminate excess humidity, while providing energy efficient ventilation for your home. The dew point is defined as the temperature at which the water vapor contained in a given volume of air will condense into water. This is best illustrated by an example:

Assume the following measurements are taken by the unit:
Temperature = 68°F
Relative Humidity = 60%

Using the temperature and RH% values measured, we would calculate that the dew point in your home is 54°F. As the temperature of surfaces in your dwelling (these tend to reflect the floor temperature, which is generally cooler than the ceiling air temperature) approaches the value of the dew point, you risk having condensation on those colder surfaces (as well as uninsulated water pipes). This condensation can lead to problem situations that might produce unhealthy living conditions in your home (odors, molds, etc.)
LCD Display and Control Layout

The following sections of this operating manual refer to the user interface presented below:

The user interface consists of:

1- Humidity Button
2- Override Timer Button
3- Fan Speed Button
4- Up Arrow Button
5- Down Arrow Button
6- Ok Button
7- LCD Display
The LCD Display consists of:

1- Humidity Conditions and Trending Icons
2- User Set Humidity Level
3- Override Timer
4- User Set & Operating Fan Speed
5- Low1/Low2 Fan Speed Indicator
6- Desired Max Fan Speed Indicator
Navigating the LCD Menu

The Wave unit has an LCD display that allows the unit to display information about its operation. The LCD display also has a six button user interface that allows the user to navigate the LCD menu and change settings such as the maximum operating speed of the unit, the dehumidistat setting, as well as access the unit’s built in override mode. The following sections explain how to navigate the LCD menu and change the settings, as well as how to access the override mode.

Changing Maximum Fan Speeds

To change the maximum fan speeds, simply press the Fan Speed Button (The Desired Max Fan Speed Indicator will blink) and use the Up/Down Arrow Buttons to cycle through all of the different fan speeds and to select this speed simply press the Ok Button when you have the desired fan speed. If wrong speed is entered, repeat this procedure.

<table>
<thead>
<tr>
<th>Maximum Operating Speed</th>
<th>Airflow in Cubic Feet per Minute (CFM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>125</td>
</tr>
<tr>
<td>Intermediate</td>
<td>95</td>
</tr>
<tr>
<td>Medium</td>
<td>75</td>
</tr>
<tr>
<td>Low/Low2</td>
<td>35/60</td>
</tr>
</tbody>
</table>

*These speed may vary depending on installation

The solid bars will denote the actual speed at which the fan is operating, the arrow below denotes the maximum chosen setting.

** Please note the unit will not exceed the maximum user set fan speed, unless the override mode is running. The control will choose the proper fan speed depending on humidity, temperature and dew point conditions.
Changing Low Speeds

To change the minimum ventilation speed simply press and hold the Fan Speed Button for 10 seconds (the Low Speed bars will start blinking); Use the Up/Down Arrow Buttons to cycle through all of the different fan speeds and to select this speed simply press the Ok Button when you have the desired fan speed. If wrong speed is entered, repeat this procedure.

Changing Desired Humidity Level

To change the desired humidity, simply press the Humidity Button (the humidity setting will blink) and use the Up/Down Arrow Buttons to cycle to your desired humidity level. Press the Ok Button to enter your desired humidity level. If wrong level is entered, repeat this procedure.

** Recommended humidity level for summer season is 55% and 45% for the winter season. Please note this does not show current humidity level, but rather the desired humidity level.
Setting Override Timer for maximum ventilation

The override function permits you to provide maximum ventilation for a predetermined amount of time, regardless of the fan speed chosen by the computerized/sensor control, to alleviate certain conditions IE fumes from new paint, flooring, furniture or excess moisture from hot showers, cooking, etc. To override the unit you simply press the Override Button (the time clock icon will blink until the desired override time is selected) and use the Up/Down Arrow Buttons to cycle through the different override timer options. Once the desired override time is chosen, press the Ok Button to begin override. If wrong time is entered, repeat this procedure.

** The override timer will reduce as time goes by indicating the remaining time left. When the override time expires the unit will revert to settings, prior to activating the override function. The unit will continue to take readings during the override to ensure that the unit will automatically make any required necessary ventilation adjustments at the expiry of the override.
Unit Modes (Normal/AC/Vacant)

The HCV-APT Unit has 3 Special built in Modes that allows it to run more efficiently when a home is either Vacant for periods of time or when a home has an Air Conditioner.

AC Mode
The AC Mode is specially programmed for homes with Air Conditioners that operate consistently for more than 6 Hours a day. This mode allows for the unit to recognize when an AC unit is running and will create specific conditions as so to not put a strain on the AC.

Vacant Mode
This mode is specially programmed for vacant homes if you’re away for more than 5-7 days, switching to Vacant Mode will be beneficial for your home.

Normal Mode (Default Mode)
This mode is set by default; it should be used when AC Mode or Vacant Mode does not apply.

How to switch between modes:

1) Press and Hold the Humidity Button down for 10-12 Seconds. The words NO, VAC or AC will start flashing in the Timer Area.
2) Use the Up/Down Arrows to cycle through the modes.
   a. NO : Normal Mode
   b. VAC : Vacant Mode
   c. AC : AC Mode
3) Once the desired mode is shown on the screen, push the OK Button to activate the mode. The selected mode will stop blinking for 3 seconds and disappear.
Wave Ventilation

After selecting a mode, the House Icon at the top of the LCD will start to react differently. This will allow you to determine which mode the Unit is actually set to.

The Following is an example of how the House Icon will display when a specific mode is selected.

<table>
<thead>
<tr>
<th>Normal Mode</th>
<th>Vacant Mode</th>
<th>AC Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>The House Icon will Remain Solid</td>
<td>The House Icon will Disappear</td>
<td>The House Icon will Continuously Blink</td>
</tr>
</tbody>
</table>

**Note:** Specific humidity settings have been programmed for each mode. It is normal that your desired humidity setting is changed automatically when you change the Unit Mode.
Tamper Proof Lock Feature

The HCV-APT has a Special feature that can be activated to protect your unit from being tampered with or accessed by minors. This feature does not allow any changes (Desired Humidity, Fan Speed, Override) to be made without the permission of the owner. This is a feature that is often utilize when a unit is installed in a rented home, condo or apartment.

By default, The Tamper Proof Feature is disabled on all HCV-APT Units. A Card was included with this Manual with the Passcode that allows this feature to be enabled. If you intend on utilizing this feature, please keep that card in hand.

When the Lock is activated, it will display the following on the LCD Screen.

LOC
Humidity Trend and Conditions

Humidity Conditions

At the top of the LCD display the house with or without the 3 water drops are used to show the current humidity conditions. The image below demonstrates the different humidity conditions shown on the LCD display.

Humidity Trends

The three drops inside the house at the top of the LCD display are also used to show the current humidity trend, when the humidity is above the desired setting.

Stable Humidity Trend

The three drops will stay illuminated constantly when a stable trend is detected, with either outline or solid drops used to indicate the condition, as above.
Wave Ventilation

Negative Humidity Trend
The water drops will blink from left to right when an increasing humidity trend is detected.

Positive Humidity Trend
The water drops will blink from right to left when a decreasing humidity trend is detected, with either outline or solid drops used to indicate the condition, as above.

High Humidity Conditions
If the water drops are solid, this means that the unit has detected high humidity conditions.
Notes on LCD display features

1) The LCD display on this unit has a built-in backlight to allow for better readability in darker locations. This backlight turns on when any button on the control panel is pressed and turns off after no button has been pressed on the unit for a period of 2 minutes.

2) When the LCD is left displaying a menu in which user input is required, but no input is given within 2 minutes, the unit will exit the menu and return to its normal operation, based on previous settings for which a confirmation was given.

3) The unit is fully automatic once set, requiring adjustments only if you wish to change the settings.

Notes on Maintenance

The HCV Products do not require any internal maintenance. These systems do not have any filters to clean or buckets to empty. The manufacturer does however suggest to vacuum the bottom vents of the unit twice a year. This will prevent them from being blocked and diminishing the performance of the system.
Wave Ventilation

Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>115VAC</td>
</tr>
<tr>
<td>Amperage</td>
<td>0.26A</td>
</tr>
<tr>
<td>Watts</td>
<td>31W</td>
</tr>
<tr>
<td>Airflow</td>
<td>High: 125 CFM</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>W x L x H</td>
</tr>
<tr>
<td></td>
<td>9.5” x 5.5” x 23”</td>
</tr>
<tr>
<td>Capacity</td>
<td>Up to 2,000 Sq. Ft.</td>
</tr>
</tbody>
</table>

Electrical Box Wiring for APTHC Models
Wave Ventilation

Schematic of Wiring

Follow the wiring schematic below when the fan and/or controls need to be serviced or replaced.