



# 1963-64 Chevrolet Impala

*with* Factory Air  
Gen 5 Evaporator Kit  
(564356)



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## Packing List: Evaporator Kit (564356)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	784356	Accessory Kit

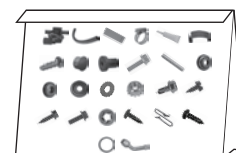
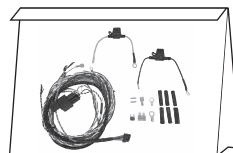
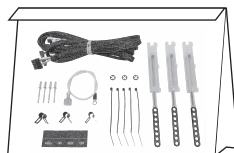
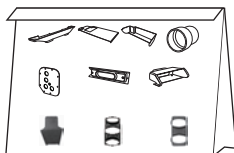
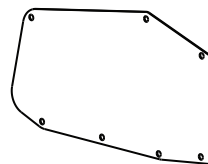
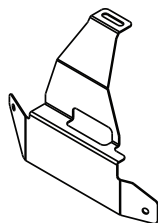
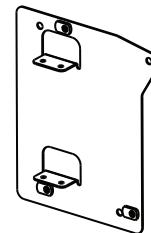
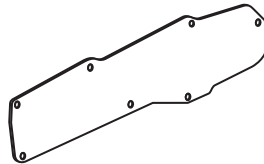
**\*\* Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**

1



Gen 5 Magnum Max  
Module with 404 ECU  
765200

2



Accessory Kit  
784356

**NOTE: Images may not depict actual parts and quantities. Refer to packing list for actual parts and quantities.**



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## Important Notice—Please Read

*For Maximum System Performance, Vintage Air Recommends the Following:*

**NOTE:** Vintage Air systems are designed to operate with R134a refrigerant only. Use of any other refrigerant could damage your A/C system and/or vehicle, and possibly cause a fire, in addition to potentially voiding the warranties of the A/C system and its components.

### Refrigerant Capacities:

**Vintage Air System:** 1.8 lbs. (28.8 oz.) or 816 grams of **R134a**, charged by weight with a quality charging station or scale. **NOTE: Use of the proper type and amount of refrigerant is critical to system operation and performance.**

**Other Systems:** Consult manufacturer's guidelines.

### Lubricant Capacities:

**New Vintage Air-Supplied Sanden Compressor:** No additional oil needed (Compressor is shipped with proper oil charge).

**All Other Compressors:** Consult manufacturer (Some compressors are shipped dry and will need oil added).

### Safety Switches

Your Vintage Air system is equipped with a binary pressure safety switch. A binary switch disengages the compressor clutch in cases of extreme low pressure conditions (refrigerant loss) or excessively high head pressure (406 PSI) to prevent compressor damage or hose rupture. A trinary switch combines Hi/Lo pressure protection with an electric fan operation signal at 254 PSI, and should be substituted for use with electric fans. Compressor safety switches are extremely important since an A/C system relies on refrigerant to circulate lubricant.

### Service Info:

**Protect Your Investment:** Prior to assembly, it is critical that the compressor, evaporator, A/C hoses and fittings, hardlines, condenser and receiver/drier remain capped. Removing caps prior to assembly will allow moisture, insects and debris into the components, possibly leading to reduced performance and/or premature failure of your A/C system. This is especially important with the receiver/drier.

Additionally, when caps are removed for assembly, **BE CAREFUL!** Some components are shipped under pressure with dry nitrogen.

**Evacuate the System for 35-45 Minutes:** Ensure that system components (Drier, compressor, evaporator and condenser) are at a temperature of at least 85°F. On a cool day, the components can be heated with a heat gun **or** by running the engine with the heater on before evacuating. Leak check and charge to specifications.

### Bolts Passing Through Cowl and/or Firewall:

To ensure a watertight seal between the passenger compartment and the vehicle exterior, for all bolts passing through the cowl and/or firewall, Vintage Air recommends coating the threads with silicone prior to installation.

### Heater Hose (not included with this kit):

Heater hose may be purchased from Vintage Air (Part#31800-VUD) or your local parts retailer. Routing and required length will vary based on installer preference.



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## Important Wiring Notice—Please Read

*Some vehicles may have had some or all of their radio interference capacitors removed. There should be a capacitor found at each of the following locations:*

- 1. On the positive terminal of the ignition coil.**
- 2. If there is a generator, on the armature terminal of the generator.**
- 3. If there is a generator, on the battery terminal of the voltage regulator.**

Most alternators have a capacitor installed internally to eliminate what is called “whining” as the engine is revved. If whining is heard in the radio, or just to be extra cautious, a radio interference capacitor can be added to the battery terminal of the alternator.

It is also important that the battery lead is in good shape and that the ground leads are not compromised. There should be a heavy ground from the battery to the engine block, and additional grounds to the body and chassis.

If these precautions are not observed, it is possible for voltage spikes to be present on the battery leads. These spikes come from ignition systems and charging systems, and from switching some of the vehicle’s other systems on and off. Modern computer-operated equipment can be sensitive to voltage spikes on the power leads, which can cause unexpected resets, strange behavior and/or permanent damage.

Vintage Air strives to harden our products against these types of electrical noise, but there is a point where a vehicle’s electrical system can be degraded so much that nothing can help.

Radio interference capacitors should be available at most auto and truck parts suppliers. They typically are cylindrical in shape, a little over an inch long and a little over a half-inch in diameter, and they have a single lead coming from one end of the cylinder with a terminal on the end of the wire, as well as a mounting clip which is screwed into a good ground on the vehicle. The specific value of the capacitance is not too significant in comparison to ignition capacitors that are matched with the coil to reduce pitting of the points.

- Care must be taken, when installing the compressor lead, not to short it to ground. The compressor lead must not be connected to a condenser fan or to any other auxiliary device. Shorting to ground or connecting to a condenser fan or any other auxiliary device may damage wiring or the compressor relay, and/or cause a malfunction.
- When installing ground leads on Gen 5 systems, the blower control ground and ECU ground must be connected directly to the negative battery post.
- For proper system operation, the heater control valve must be connected to the ECU.



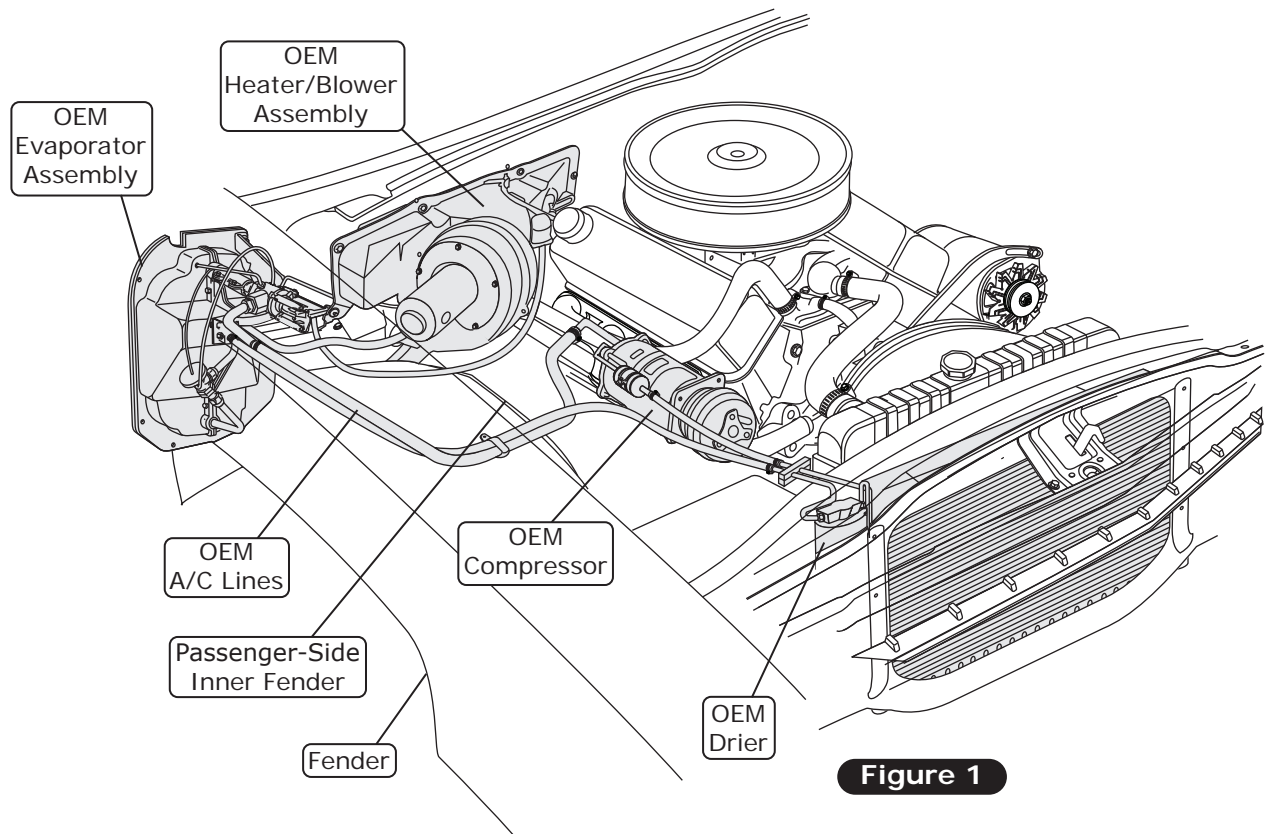
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## Engine Compartment Disassembly

**NOTE:** Before starting the installation, check the function of the vehicle (horn, lights, etc.) for proper operation, and study the instructions, illustrations, photos & diagrams.

**Perform the following:**

1. Disconnect the battery.
2. Remove the battery (retain).
3. Drain the radiator.
4. Evacuate the A/C system if necessary.
5. Remove the OEM condenser and drier (discard) (See Figure 1, below).
6. Remove the OEM A/C lines from the compressor to evaporator (discard) (See Figure 1, below).
7. Remove the OEM A/C compressor and compressor bracket (discard) (See Figure 1, below).
8. Remove the OEM blower assembly (discard) (See Figure 1, below).
9. To remove the OEM evaporator assembly, the factory manual recommends removing the passenger-side inner fender.



## Condenser Assembly and Installation

1. Refer to separate instructions included with the condenser kit to install the condenser.
2. Binary switch installation (Refer to condenser instructions).

## Compressor and Brackets

1. Refer to separate instructions included with the bracket kit to install the compressor bracket.

## Pulleys

1. In most instances, the belt lengths will remain the same.

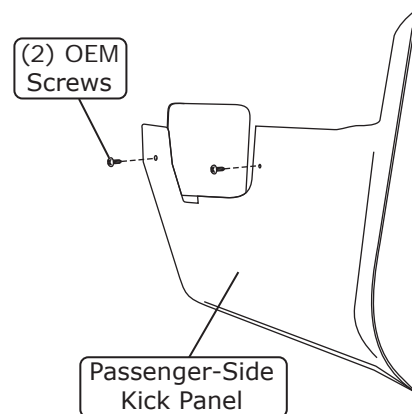
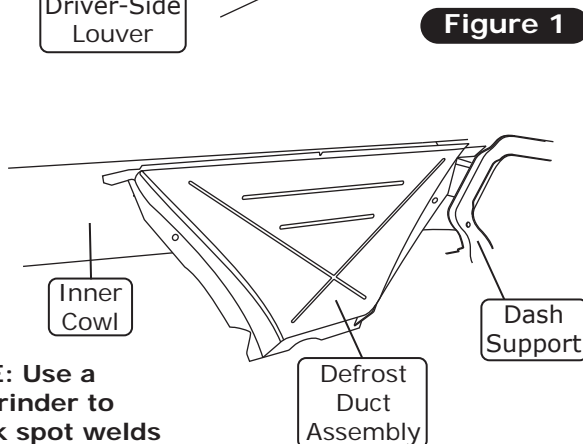
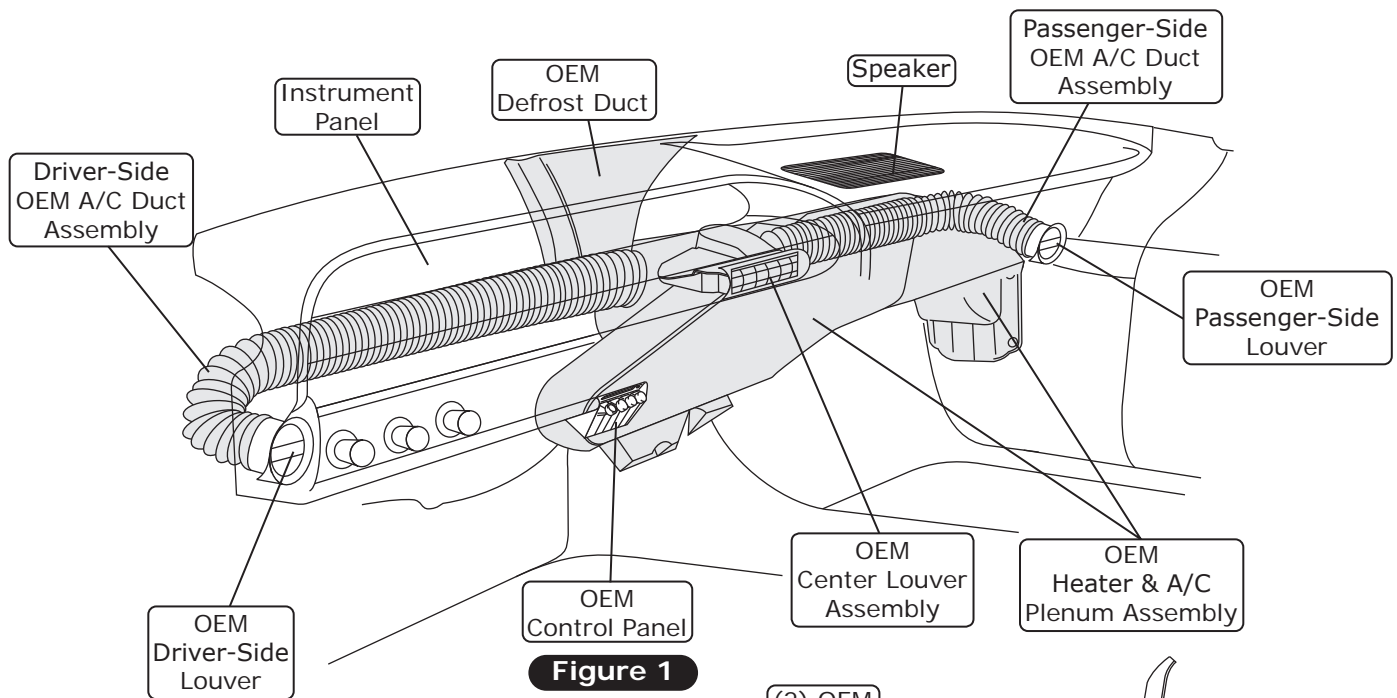


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## Passenger Compartment Disassembly

### Perform the following:

1. Remove the instrument panel (retain) (See Figure 1, below).
2. Remove the passenger-side OEM A/C duct assembly (discard) (See Figure 1, below).
3. Remove the driver-side OEM A/C duct assembly (discard) (See Figure 1, below).
4. Remove the OEM center louver assembly (retain) (See Figure 1, below).
5. Remove the OEM control panel assembly (retain) (See Figure 1, below).
6. Remove the OEM heater and A/C plenum assembly (discard) (See Figure 1, below).
7. Remove the glove box (discard).
8. Remove the radio and speaker (retain).
9. Using a chisel or die grinder, remove the spot welds on the defrost duct (See Figure 2, below).
10. Remove the OEM defrost duct assembly (discard) (See Figures 1 & 2, below).
11. Remove the passenger-side kick panel by removing (2) OEM screws (See Figure 3, below).

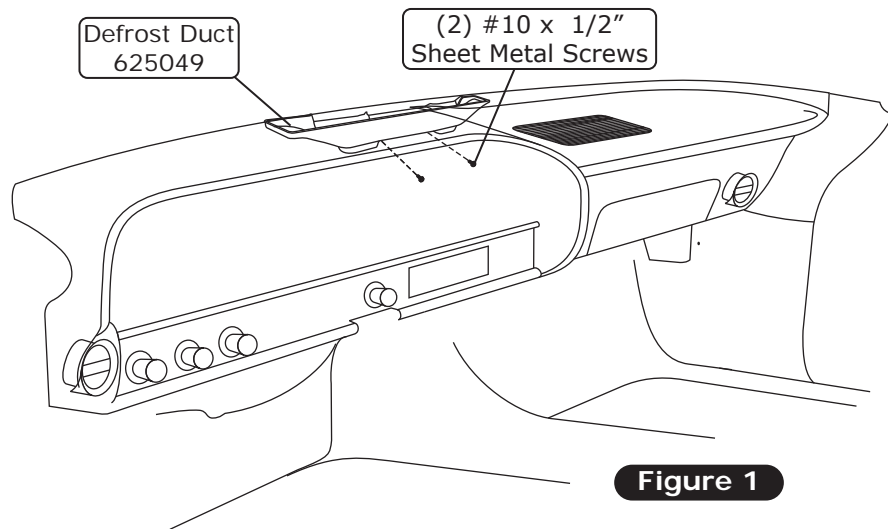




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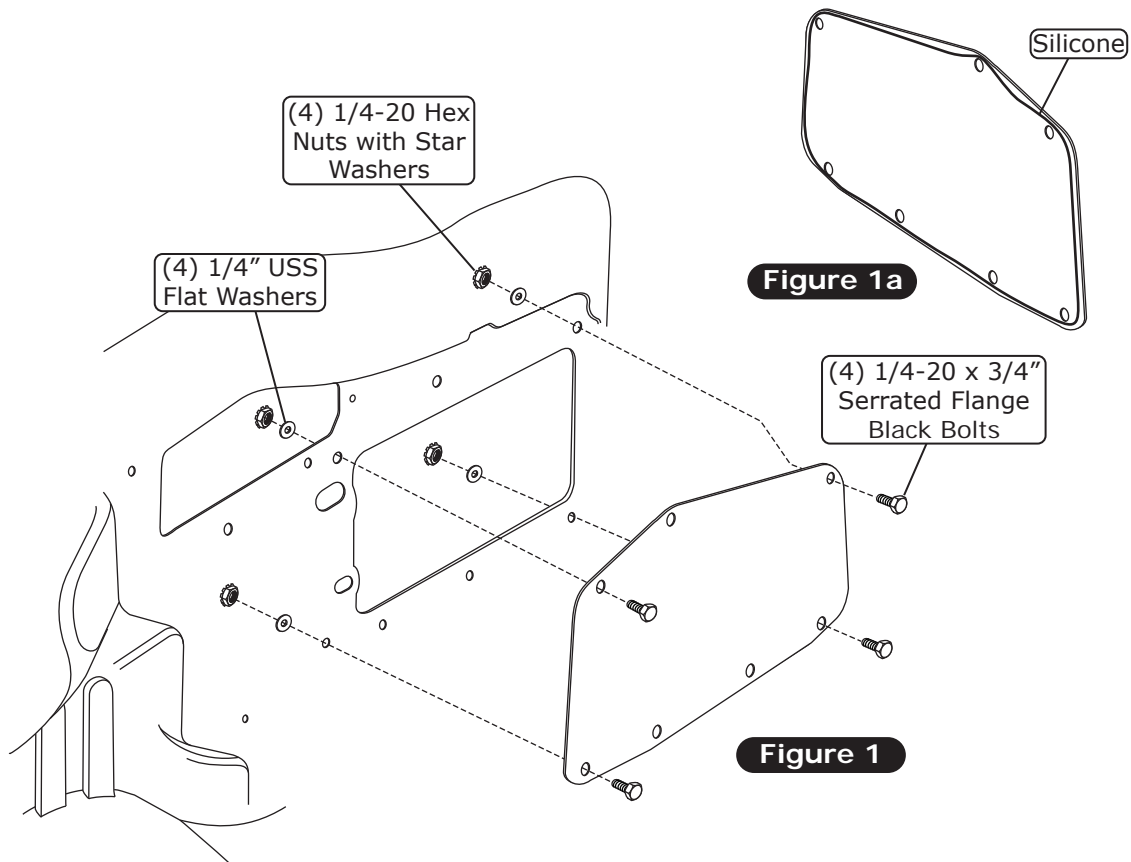
## Defrost Duct Installation

1. Place the defrost duct under the dash, and align it with the OEM defrost opening. Drill (2) 1/8" holes in the cowl, using the defrost duct hole as a template. Secure using (2) #10 x 1/2" sheet metal screws as shown in Figure 1, below.



## Firewall Cover Installation

1. Apply a 1/4" bead of silicone around the firewall cover as shown in Figure 1a, below.
2. From the passenger compartment, install the firewall cover onto the firewall. From the engine compartment, secure the cover to the firewall using (4) 1/4-20 x 3/4" serrated flange black bolts, (4) 1/4" USS flat washers and (4) 1/4-20 hex nuts with star washers (See Figure 1, below).



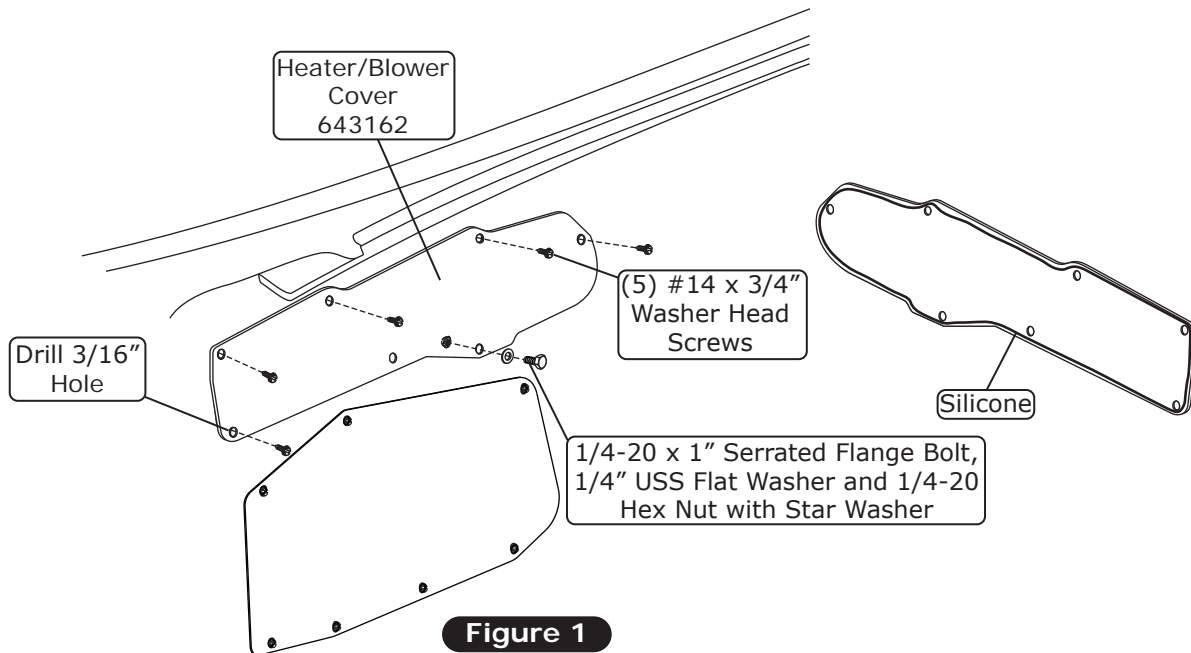




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## Heater/Blower Cover Installation

1. Apply a 1/4" bead of silicone around the mating surface of the heater/blower cover as shown in Figure 1, below.
2. Install the heater/blower cover onto the firewall using (5) #14 x 3/4" washer head screws, a 1/4-20 x 1" serrated flange bolt, a 1/4" USS flat washer and a 1/4-20 hex nut with star washer as shown in Figure 1, below.
3. Using the heater/blower cover as a template, drill a 3/16" hole into the firewall (See Figure 1, below).



## Firewall Insulation

**NOTE:** For proper system operation, Vintage Air recommends using Dynaliner (461500-VIP) heatblocking insulation in the area around the evaporator module (firewall, kick panel, inner cowl and firewall covers). Due to tight clearance for the evaporator module, between the firewall and dash, Vintage Air recommends an insulation thickness of no more than 1/8".

1. Apply insulation at this time.



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## Block-Off Plate & Kick Panel Preparation

1. Install (3) large grommets, a 1 1/4" O.D. grommet and a 7/8" grommet into the block-off plate and kick panel as shown in Photos 1 and 2, below.

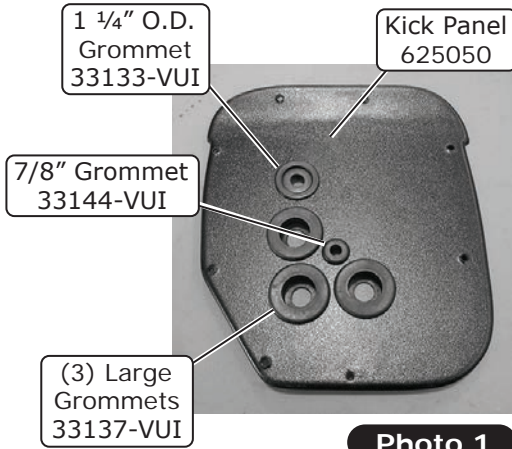


Photo 1

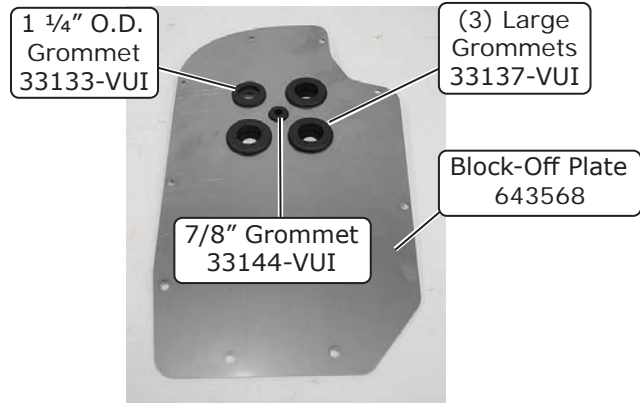
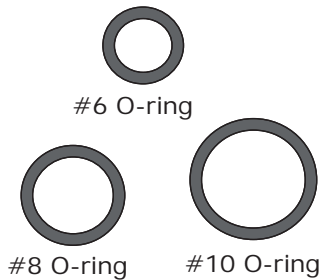
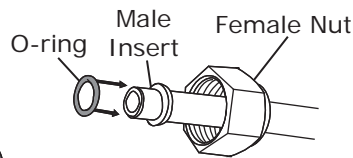


Photo 2

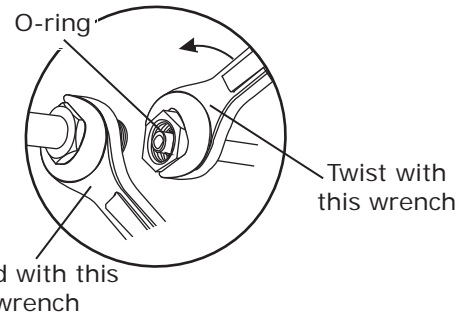
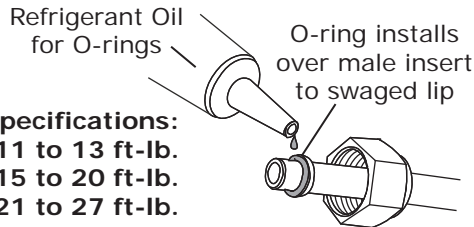
## Lubricating O-rings



**NOTE: Standard torque specifications:**  
 #6: 11 to 13 ft.-lb.  
 #8: 15 to 20 ft.-lb.  
 #10: 21 to 27 ft.-lb.



For a proper seal of fittings: Install supplied O-rings as shown and lubricate with refrigerant oil.



## Properly Seated O-ring Land

When installing a hardline or A/C hose fitting onto the evaporator module, ensure the O-ring land is seated properly (See Photo 1, below). An improperly seated O-ring land (See Photo 2, below) can cause a leak. To properly install the fitting, slide the hardline or A/C hose nut back to expose the O-ring land and seat it onto the evaporator module fitting. Then, slide the hardline or A/C hose nut forward and thread it onto the evaporator module fitting, ensuring the O-ring land does not move or lift.

Properly Seated O-ring Land



Photo 1

Improperly Seated O-ring Land

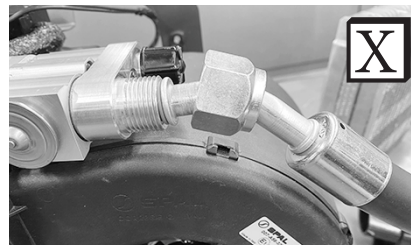


Photo 2

NOTE: Photos shown are for reference only. Fittings may vary depending on kit received.

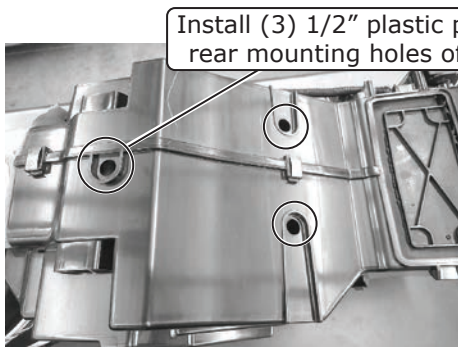


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# Evaporator Module Preparation

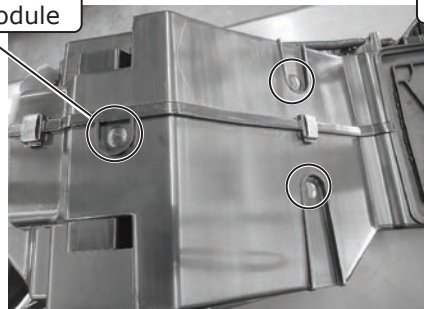
Perform the following on a workbench:

1. Install (3) 1/2" plastic plugs into the rear mounting holes of the module (See Photos 1 and 2, below).  
**NOTE: These mounting positions will not be used in this application.**
2. Remove the caps and rubber inserts from the heater fittings. With (2) properly lubricated #10 O-rings (See Lubricating O-rings, Page 10), install the (2) 45° heater hardlines (See Photo 3, below).
3. Using (4) #10 x 5/8" screws, install the evaporator firewall bracket onto the evaporator module, then install (2) 1/4-20 full-threaded studs into the bracket (See Photo 4, below).
4. Using (4) spring clips ((2) per side), install the 3-vent dash plenum onto the evaporator module (See Photo 5, below).
5. Using (2) spring clips, install the floor plenum onto the rear of the evaporator module (See Photo 6, below).
6. Using (2) spring clips, install the defrost plenum onto the front of the evaporator module (See Photos 7 and 8, below).



Install (3) 1/2" plastic plugs into rear mounting holes of module

Photo 1



Install (2) 45° heater hardlines

Photo 2

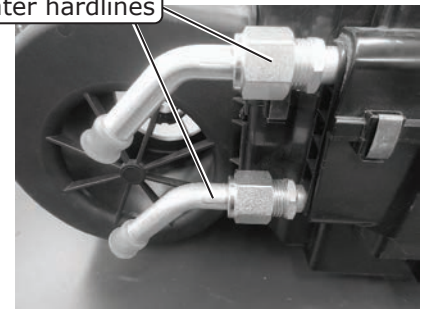
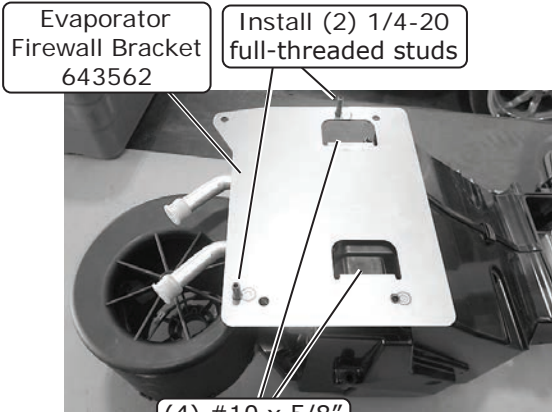


Photo 3



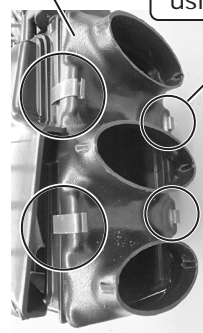
Evaporator Firewall Bracket 643562

Install (2) 1/4-20 full-threaded studs

(4) #10 x 5/8" Screws

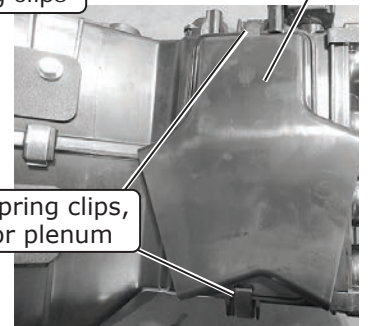
Photo 4

3-Vent Dash Plenum 629906



Install dash plenum by using (4) spring clips

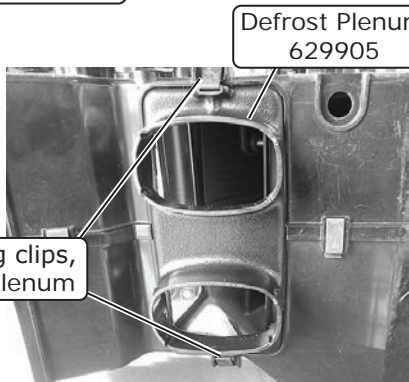
Photo 5



Floor Plenum 625338

Using (2) spring clips, install floor plenum

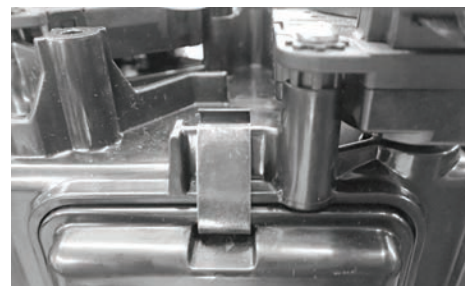
Photo 6



Defrost Plenum 629905

Using (2) spring clips, install defrost plenum

Photo 7



Spring Clip Installed

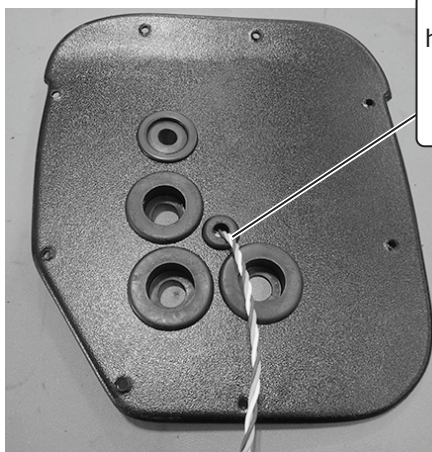
Photo 8



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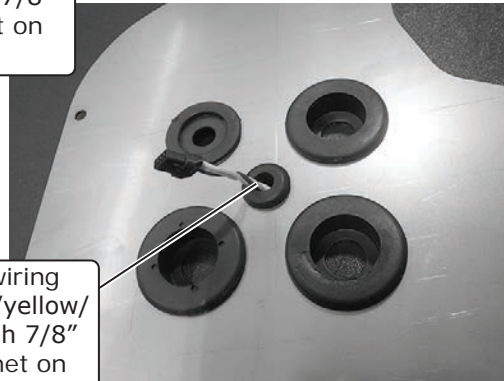
## Wiring Installation

1. Locate the heater control valve plug on the main wiring harness (white/yellow/purple). Route it through the 7/8" wiring grommet on the kick panel and into the kick panel opening (See Photo 1, below). Then, through the 7/8" wiring grommet on the block-off plate and into the engine compartment (See Photo 2, below).
2. Route the red, white and blue wires from the main wiring harness through the 7/8" wiring grommet on the kick panel (See Photo 3, below), and into the kick panel opening. Then, route the wires through the wiring grommet on the block-off plate and into the engine compartment (See Photo 4, below).
3. Leave approximately 8" of wiring between the block-off plate and relay.
4. Place the evaporator module on the passenger-side floorboard.
5. Route the heavy gauge orange and white wires through the wiring grommet on the kick panel (See Photo 5, below), and into the kick panel opening. Then, through the wiring grommet on the block-off plate (See Photo 6, below), and into the engine compartment.



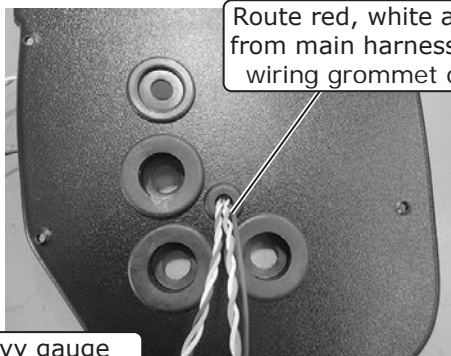
Route main wiring harness (white/yellow/purple) through 7/8" wiring grommet on kick panel

Photo 1



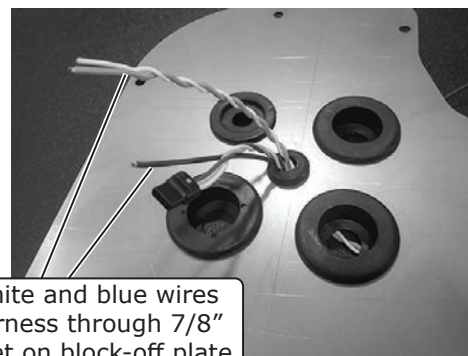
Route main wiring harness (white/yellow/purple) through 7/8" wiring grommet on block-off plate

Photo 2



Route red, white and blue wires from main harness through 7/8" wiring grommet on kick panel

Photo 3



Route red, white and blue wires from main harness through 7/8" wiring grommet on block-off plate

Photo 4

Route heavy gauge orange and white wires through wiring grommet on kick panel

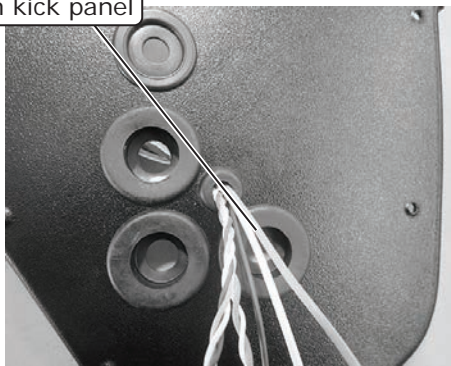
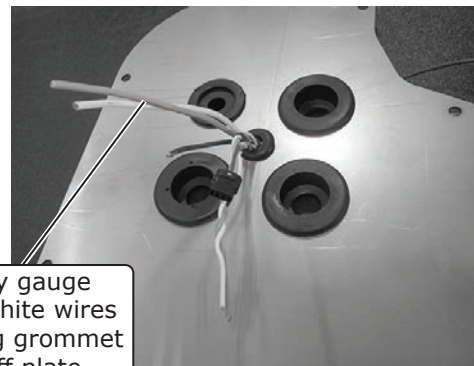


Photo 5



Route heavy gauge orange and white wires through wiring grommet on block-off plate

Photo 6



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## Block-Off Plate & Kick Panel Installation

1. Route the A/C and heater hoses through the block-off plate in the engine compartment into the passenger compartment (See Photo 1, below).
2. Route the A/C and heater hoses through the kick panel as shown in Photo 2, below.
3. Apply a 1/4" bead of silicone around the mating surface of the kick panel as shown in Figure 1a, below.
4. Install the kick panel plate onto the kick panel opening using (8) #8 x 1/2" pan head screws as shown in Figure 1, below.
5. Reinstall the OEM kick panel cover using OEM screws. **NOTE: The OEM kick panel cover may have to be trimmed to accommodate the A/C and heater hoses to be installed.**
6. Apply a 1/4" bead of silicone around the mating surface of the block-off plate as shown in Figure 2a, below.
7. Install the block-off plate onto the firewall using (9) #14 x 3/4" sheet metal screws as shown in Figure 2, below.

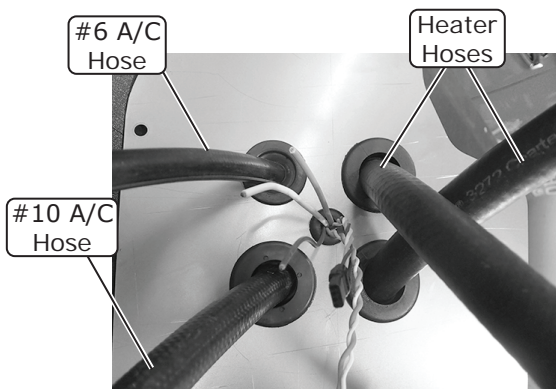


Photo 1

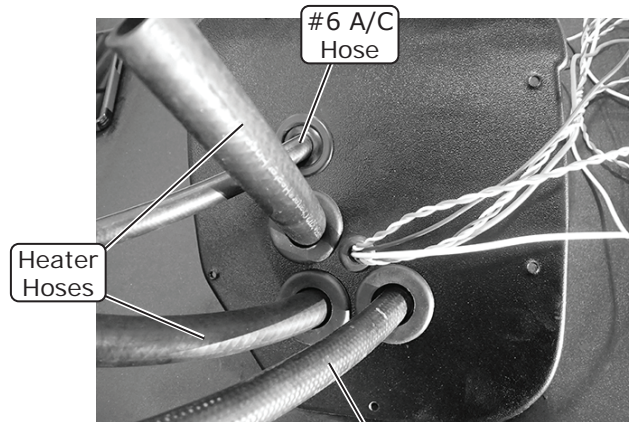


Photo 2

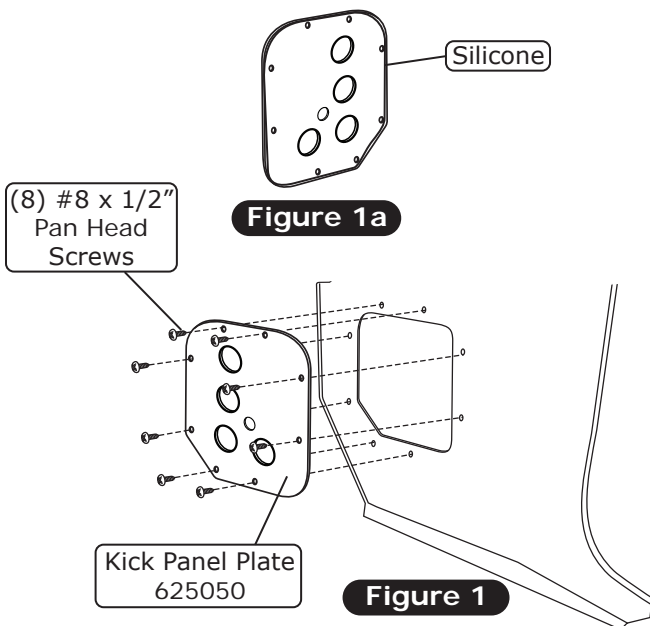


Figure 1

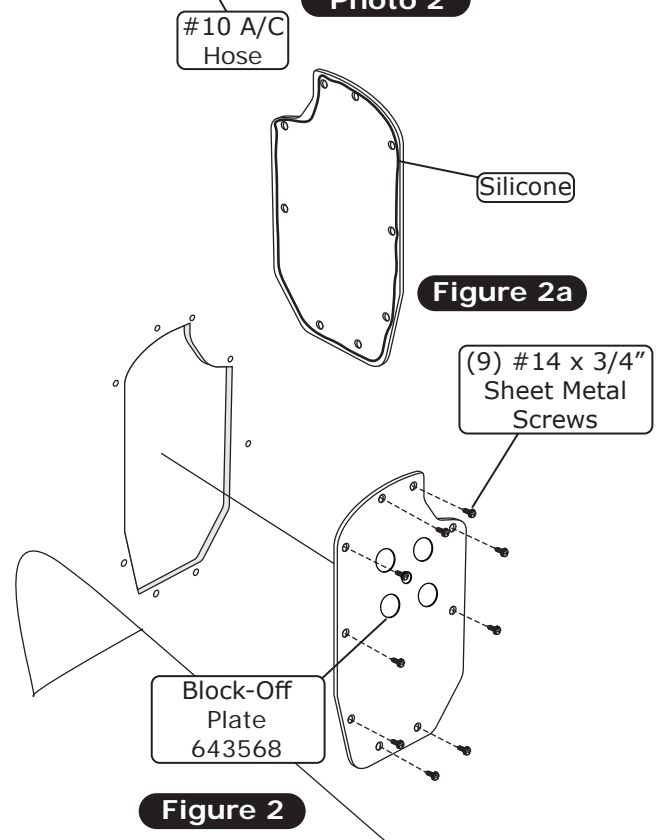


Figure 2

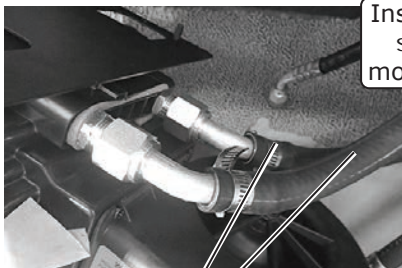


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## Evaporator Installation

**NOTE:** To ensure a watertight seal between the passenger compartment and the vehicle exterior, for all bolts passing through the firewall, Vintage Air recommends coating the threads with silicone prior to installation.

1. With the evaporator module on the passenger-side floorboard, install the upper and lower heater hoses with hose clamps onto the upper and lower heater hardlines on the evaporator module (See Photo 1, below).
2. Roll the evaporator module into its mounting position and insert the (2) 1/4-20 full-threaded studs into the upper and lower mounting holes on the firewall cover (See Photo 2, below).
3. Install (2) 1/4-20 well nuts into the front mounting provisions of the evaporator module (See Photo 3, below).
4. Using (2) 1/4-20 x 1" serrated flange bolts, secure the evaporator cowl bracket to the evaporator module (See Photo 4, below).
5. Using the OEM bolt, secure the cowl bracket tab onto the OEM speaker bracket (See Figure 1, below).
6. Using a properly lubricated #6 O-ring (See Lubricating O-rings, Page 10), install the 45° fitting on the #6 drier/evaporator A/C hose onto the #6 fitting on the block valve adapter on the evaporator module (See Photo 5, below). **NOTE: Provide enough A/C hose when connecting the 45° fitting to the module. Once the connection is made, pull excess hose into the engine compartment, being sure not to kink it.**



Install upper and lower heater hoses with hose clamps onto upper and lower heater hardlines

Photo 1

Insert (2) 1/4-20 full-threaded studs into upper and lower mounting hole on firewall cover

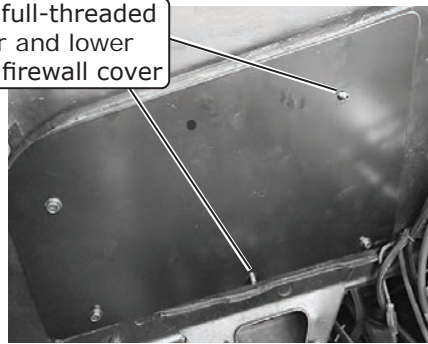
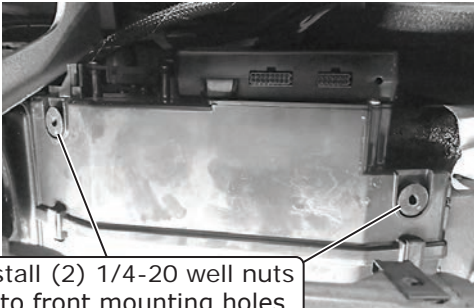
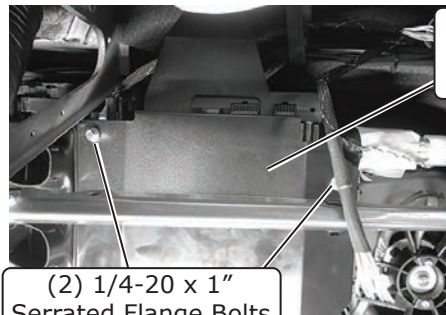


Photo 2



Install (2) 1/4-20 well nuts into front mounting holes on evaporator module

Photo 3



(2) 1/4-20 x 1" Serrated Flange Bolts

Photo 4

Evaporator Cowl Bracket 643563

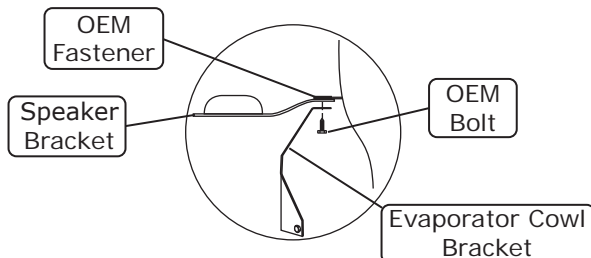
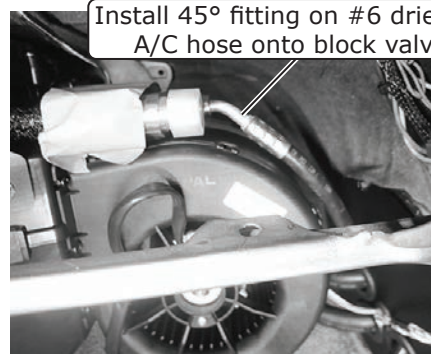


Figure 1



Install 45° fitting on #6 drier/evaporator A/C hose onto block valve adapter

Photo 5

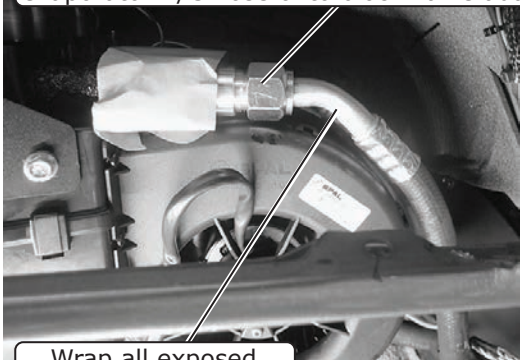


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## Evaporator Installation (Cont.)

- Using a properly lubricated #10 O-ring (See Lubricating O-rings, Page 10), install the 45° fitting on the #10 compressor/evaporator A/C hose onto the #10 fitting on the block valve adapter on the evaporator module (See Photo 6, below). **NOTE: After installing the #10 compressor/evaporator A/C hose, wrap all exposed metal with the supplied press tape.**
- From the engine compartment, install (3) 1/4-20 x 3/4" serrated flange black bolts replacing the (2) 1/4-20 full-threaded studs on the firewall cover (See Figures 1 and 2, below). **NOTE: Silicone or seam sealer may be applied around the outer edge of the firewall cover.**

Install 45° fitting on #10 compressor/evaporator A/C hose onto block valve adapter



Wrap all exposed metal with press tape

Photo 6

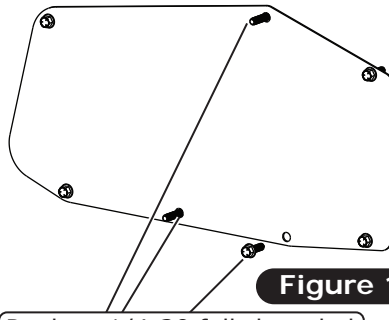
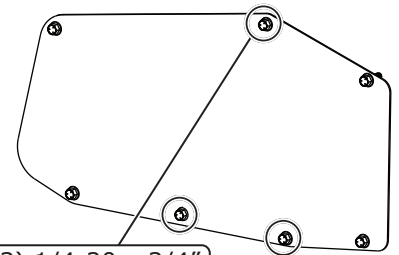


Figure 1

Replace 1/4-20 full-threaded studs with (3) 1/4-20 x 3/4" serrated flange black bolts



(3) 1/4-20 x 3/4" Serrated Flange Black Bolts

Figure 2

## Drain Hose Installation

- Locate the evaporator drain on the bottom of the evaporator module.
- In line with the drain, lightly make a mark on the firewall. Measure 2" down and 2 1/2" to the left, then drill a 5/8" hole through the firewall (See Figure 1, below).
- Install the drain hose onto the outlet on the bottom of the evaporator module, then route it through the firewall (See Figure 1, below).

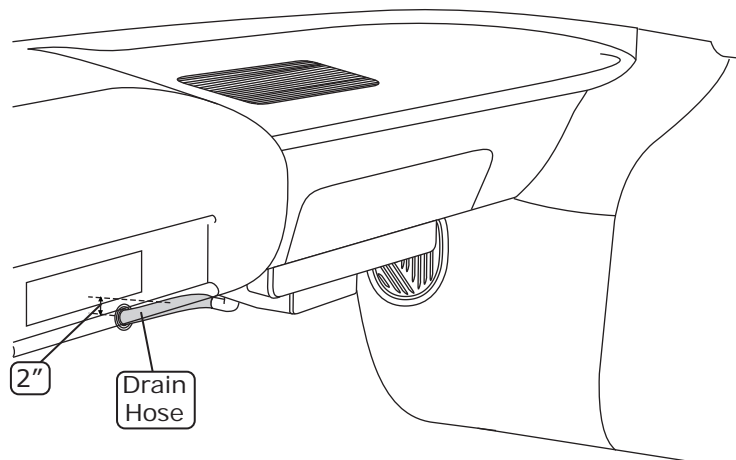
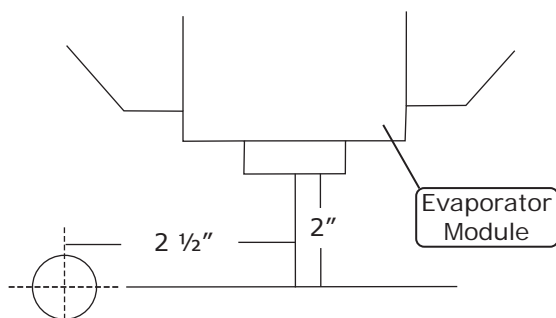


Figure 1



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## Heater Hose & Heater Control Valve Installation

**NOTE:** Vintage Air systems use 5/8" heater connections. On engines equipped with 3/4" hose nipples, these will need to be removed and replaced with 5/8" nipples (not supplied). For water pumps with a cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting (not supplied) or molded hose will need to be installed in the heater hose.

1. Route the lower heater hose to the water pump fitting, then secure it using the supplied hose clamp (See Photo 1, below).
2. Cut the upper heater hose 4 to 5 inches from the block-off plate and install the heater control valve into the upper heater hose. Secure the heater control valve using the supplied hose clamp (See Photo 2, below).

**NOTE:** Ensure proper flow direction through the heater control valve. The flow direction follows the molded arrow on the valve (See Figure 1, below).

Route lower heater hose to water pump fitting, then secure it using supplied hose clamp

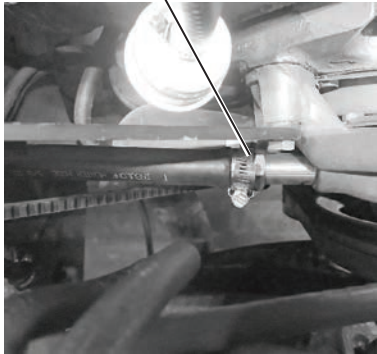


Photo 1

Install heater control valve into upper heater hose

Secure using supplied hose clamp

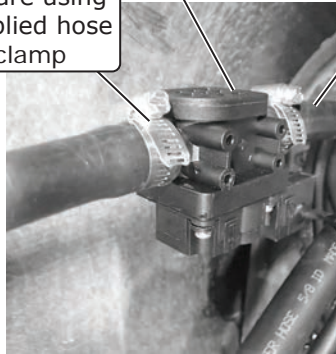


Photo 2

Cut heater hose 4" to 5" from fresh air cap

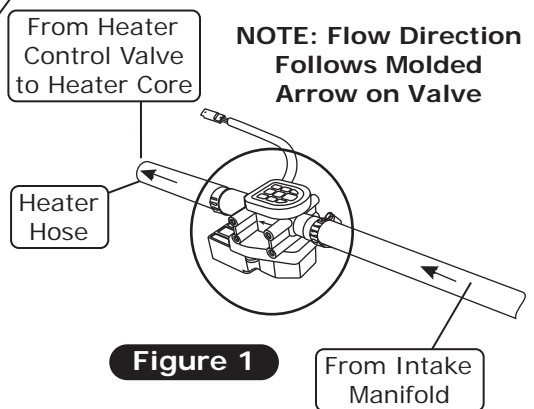
From Heater Control Valve to Heater Core

Heater Hose

**NOTE:** Flow Direction Follows Molded Arrow on Valve

Figure 1

From Intake Manifold



## Inner Fender Installation

1. Route the A/C heater hoses and wiring through the open area of the fender well toward the battery area.
2. Reinstall the inner fender using OEM bolts





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## A/C Hose Installation

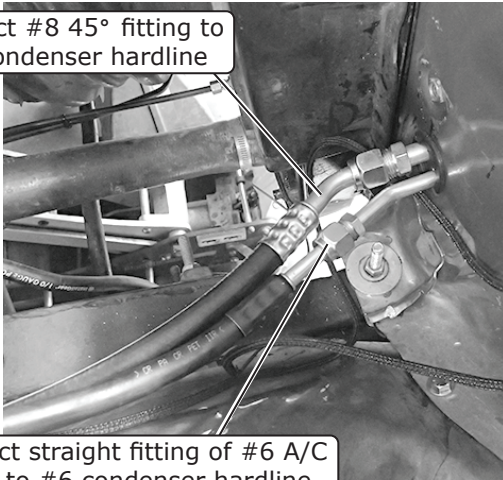
### Standard Hose Kit:

1. With a properly lubricated #6 O-ring (See Lubricating O-rings, Page 10), connect the straight fitting of the #6 A/C hose to the #6 condenser hardline (See Photo 1, below).
2. With properly lubricated #8 O-ring (See Lubricating O-rings, Page 10), connect the #8 45° fitting to the #8 condenser hardline (See Photo 1, below).
3. With a properly lubricated #8 and #10 O-ring (See Lubricating O-rings, Page 10), connect the 135° fittings of the #8 and #10 A/C hoses to the suction and discharge ports of the compressor (See Photo 2, below).

### Modified Hose Kit:

1. Refer to separate instructions included with modified hose kit.

Connect #8 45° fitting to #8 condenser hardline



Connect straight fitting of #6 A/C hose to #6 condenser hardline

Photo 1

Connect 135° fittings of #8 and #10 A/C hoses to suction and discharge ports of compressor

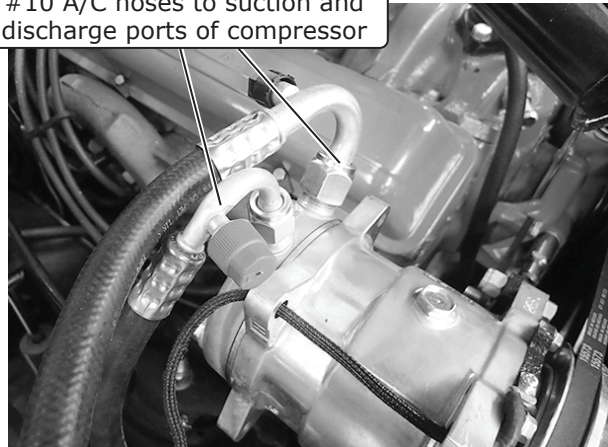


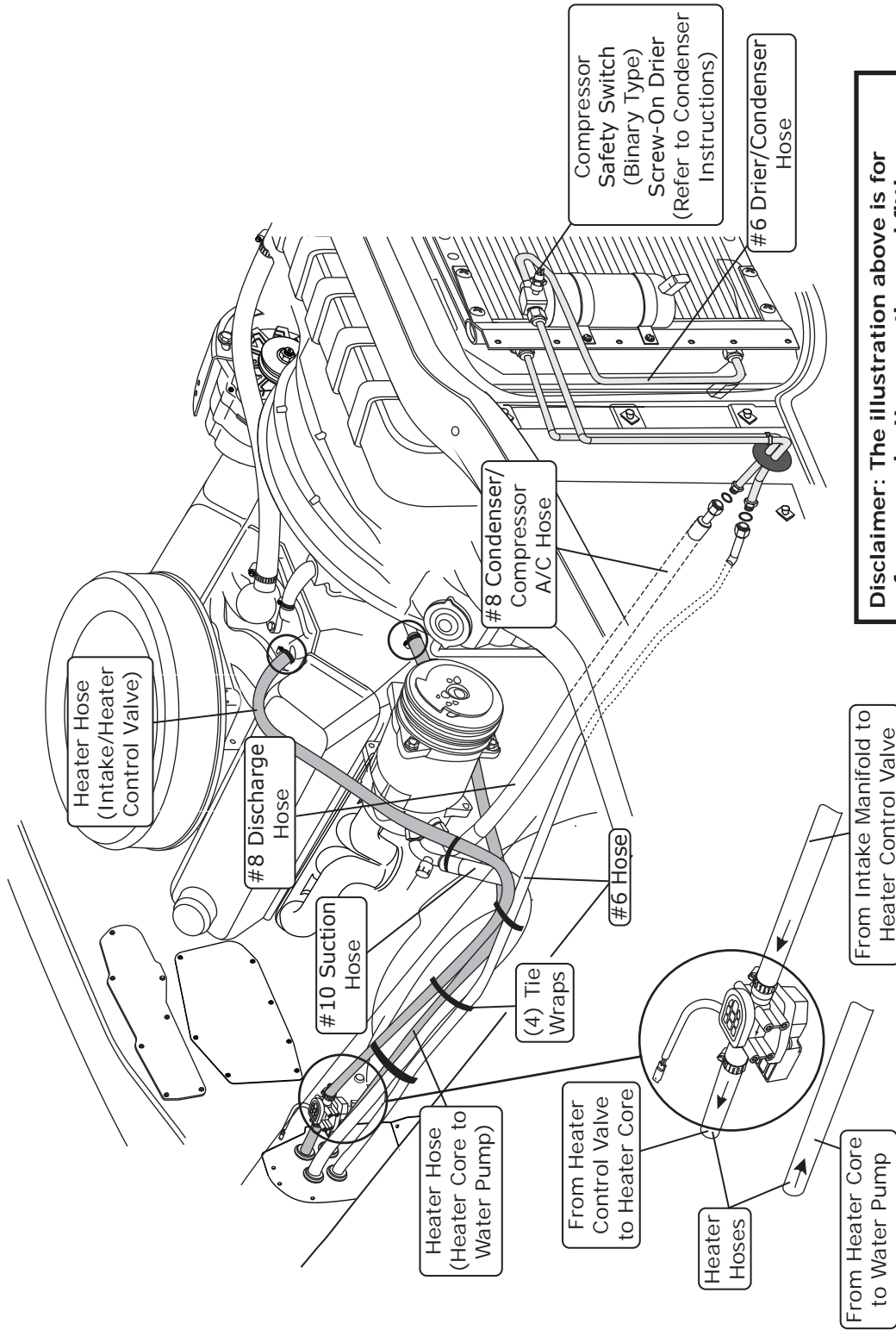
Photo 2



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# A/C and Heater Hose Routing

**NOTE:** Vintage Air Systems use 5/8" heater connections. On engines equipped with 3/4" hose nipples, these will need to be removed and replaced with 5/8" nipples (not supplied). For water pumps with a cast-in 3/4" heater outlet, a 3/4" x 5/8" reducer fitting (not supplied) will need to be installed in the heater hose.



**Disclaimer:** The illustration above is for reference only. Hose routing and fittings may differ depending on install and/or engine configuration.

**NOTE:** Flow Direction Follows Molded Arrow on Valve.



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## Passenger Compartment Wiring

1. Select a suitable ground location for the white ground wire eyelet from the heater control valve harness and secure it using a #10 x 1/2" sheet metal screw.
2. Route the violet power wire to a switched 12v power source on the fuse panel (See Photo 1, below).  
**NOTE: This requires a male fuse extension (not supplied).**
3. Connect the tan wire to the factory dash lights to enable control panel backlighting (if applicable).
4. Connect the main harness to the ECU (See Photo 2, below).
5. Connect the blower speed controller plug into the main wiring harness plug (orange and green wires) (See Photo 3, below).
6. Select a suitable mounting location for the main relay.

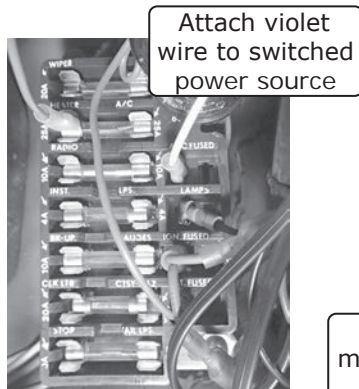


Photo 1

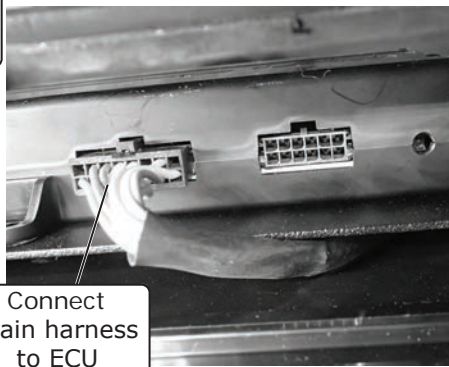


Photo 2

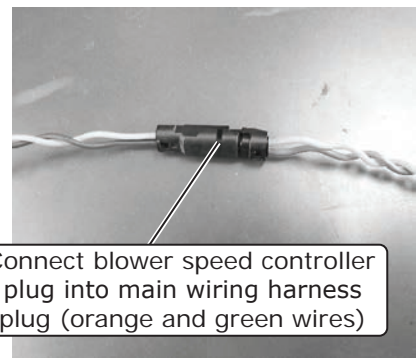


Photo 3

## OEM Driver- & Passenger-Side Louver Hose Adapter Installation

1. Install S-clips onto the driver- and passenger-side hose adapters as shown in Figure 1a, below.
2. Vintage Air recommends removing the louver doors (See Figure 1, below).
3. Install the driver- & passenger-side hose adapters onto the OEM louvers (See Figure 1a, below).

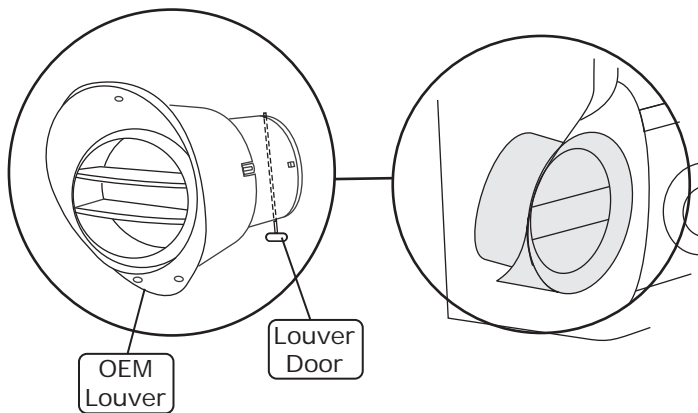


Figure 1

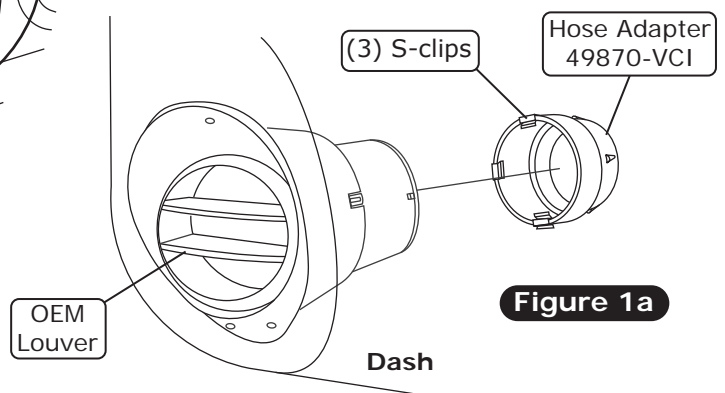


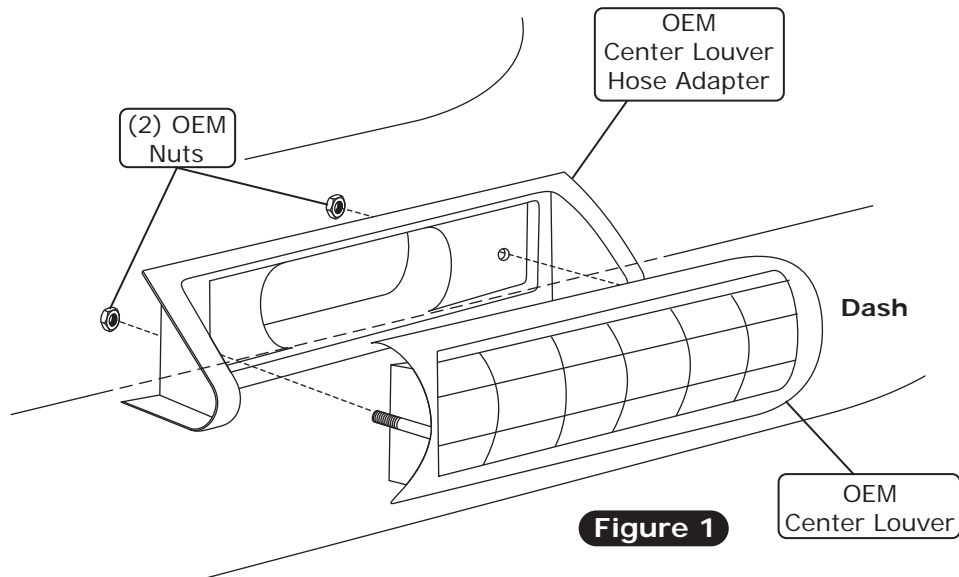
Figure 1a



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## OEM Center Louver Hose Adapter Installation

1. Install the center louver hose adapter onto the OEM center louver, then secure using (2) OEM nuts as shown in Figure 1, below.

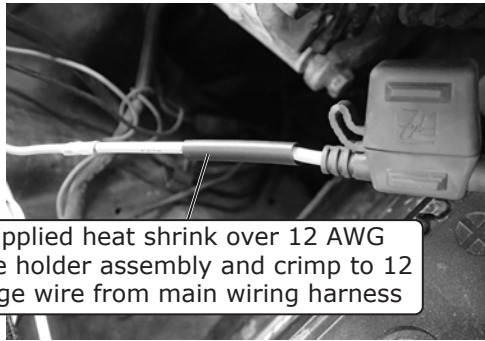




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## Engine Compartment Wiring

1. Route the power and ground wires toward the battery.
  2. Install the supplied heat shrink over the 12 AWG orange fuse holder assembly wire, and crimp it to the 12 AWG orange wire from the main wiring harness (See Photo 1, below and Quality Crimp Guidelines, Page 25).
  3. Install the supplied heat shrink over the 16 AWG black fuse holder assembly wire, and crimp it to the 16 AWG red wire from the main wiring harness (See Photo 2, below and Quality Crimp Guidelines, Page 25).
  4. Install fuses into the holders (See Photo 3, below).
  5. Install the supplied heat shrink over the white ground wires, then crimp on the supplied eyelets (See Photos 4 and 5, below and Quality Crimp Guidelines, Page 25)
  6. Connect the ground wiring eyelets to the negative battery terminal connector (See Photo 6, below).
  7. Connect the positive wiring eyelets to the positive battery terminal connector (See Photo 7, below).
- NOTE: Do not connect power until installation is completed.**



Install supplied heat shrink over 12 AWG orange fuse holder assembly and crimp to 12 AWG orange wire from main wiring harness

Photo 1

Install supplied heat shrink over 16 AWG black fuse holder assembly wire and crimp to 16 AWG red wire from main wiring harness

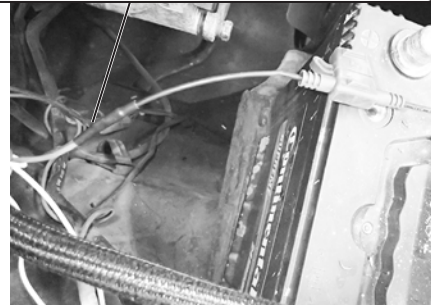


Photo 2

Install fuses into holders

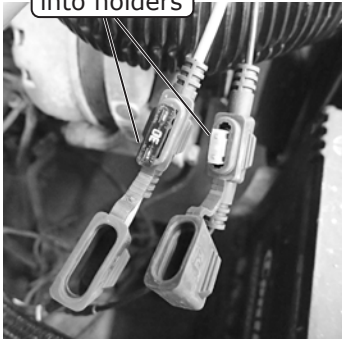


Photo 3

Install supplied heat shrink over white ground wires and crimp on supplied eyelets

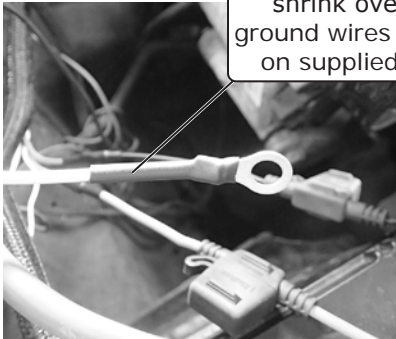


Photo 4

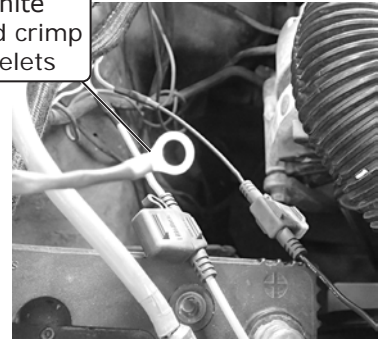


Photo 5

Connect ground wiring eyelets to negative battery terminal connector

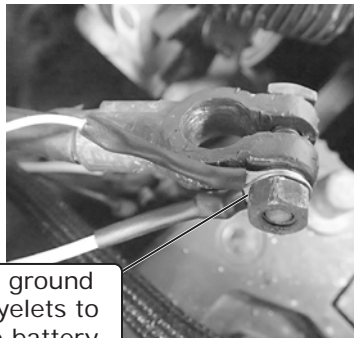


Photo 6

Connect positive wiring eyelets to positive battery terminal connector

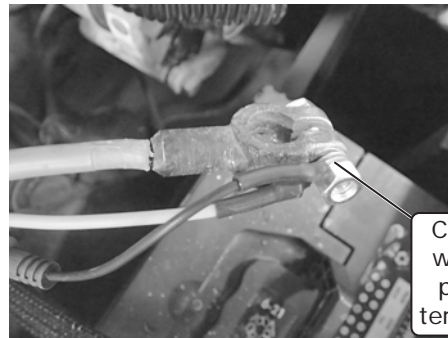


Photo 7

**NOTE: Do not connect power until installation is completed.**



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# Final Steps: Installation Check

Installation Check	
ITEM TO CHECK	Procedure
<input type="checkbox"/>	<p>ECU</p> <p>If no blinking is observed after 1 minute of turning the ignition on, go to the next check.</p> <p>If repetitive blinking is observed, go to the <b>Advanced Diagnostics</b> Section to diagnose.</p>
<input type="checkbox"/>	<p>Blower speed control</p> <p>Set the blower speed control to <b>OFF</b>, <u>confirm that the blower is off</u>.</p> <p>Position the blower speed control to <b>LOW</b> then <b>MEDIUM</b> and then <b>HIGH</b>. <u>At each setting confirm that the blower speed increases</u>, do this by feeling for the amount of air coming from the unit and hearing the blower speed increase.</p>
<input type="checkbox"/>	<p>Mode control</p> <p>Set the <b>MODE</b> control to the <b>DASH</b> position. <u>Confirm that air is being blown at the dash vents</u>.</p> <p>Set the <b>MODE</b> control to the <b>FLOOR</b> position. <u>Confirm that air is being blown at the floor vents</u>.</p> <p>Set the <b>MODE</b> control to the <b>DEFROST</b> position. <u>Confirm that all air is being blown from the defrost vents</u></p> <p><b>If heater lines are installed:</b></p> <p>Set the <b>MODE</b> control to the <b>DASH</b> position. Set the <b>TEMP</b> control to the <b>MAX HEAT</b> position. <u>Confirm that HOT air is coming from the dash vents</u>.</p>
<input type="checkbox"/>	<p>Temperature control</p> <p><b>If system is charged:</b></p> <p>Set the <b>TEMP</b> control to the <b>MAX COOL</b> position. <u>Confirm that COLD air is coming from the dash vents</u>.</p> <p>Also <u>confirm that the compressor "clicks" on</u> when adjusting the <b>TEMP</b> control from the <b>MAX HEAT</b> position to the <b>MAX COOL</b> position.</p>
<input type="checkbox"/>	<p>AC Indicator (If applicable)</p> <p>While the <b>MODE</b> control is set to the <b>DASH</b> position, and the <b>TEMP</b> control is set to the <b>MAX COOL/MIN HEAT</b> position, <u>confirm that the blue AC Indicator light is on</u>.</p>
<input type="checkbox"/>	<p>Backlight (If applicable)</p> <p>If your control panel has backlight capabilities and has been wired, turn the dash lamp on and <u>confirm that the AC panel's legend is lit</u>.</p>
<input type="checkbox"/>	<p>Fittings</p> <p>Verify AC and Heater fittings are all tight.</p>



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## Final Steps: Completing the Install

1. Install the duct hoses as shown in Duct Hose Routing, Page 24.
2. Install the control panel assembly. Refer to the control panel instructions.
3. Refer to the instructions below to install the glove box.
4. Reinstall all previously removed items.
5. Fill radiator with at least a 50/50 mixture of approved antifreeze and distilled water. It is the owner's responsibility to keep the freeze protection at the proper level for the climate in which the vehicle is operated. Failure to follow antifreeze recommendations will cause heater core to corrode prematurely and possibly burst in A/C mode and/or freezing weather, voiding your warranty.
6. Double check all fittings, brackets and belts for tightness.
7. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
8. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
9. Charge the system to the capacities stated on Page 4 of this instruction manual.
10. See Operation of Controls procedures on Page 28.

## Glove Box Installation

1. Insert the bottom half of the new glove box into the glove box opening, and position it into place (See Figure 1, below).
2. Attach the top half of the glove box to the bottom half using (4) #6 x 3/8" pan head screws (See Figure 1, below).
3. Reinstall the glove box door using (3) OEM screws through the Tinnerman nuts (See Figure 1a, below).
4. Secure the glove box using (2) OEM screws (See Figure 1a, below).

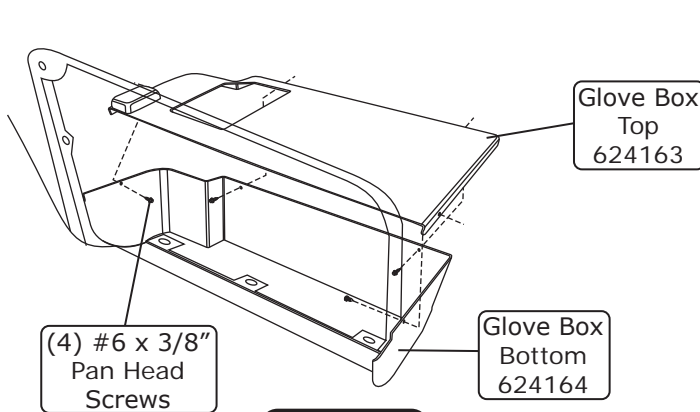


Figure 1

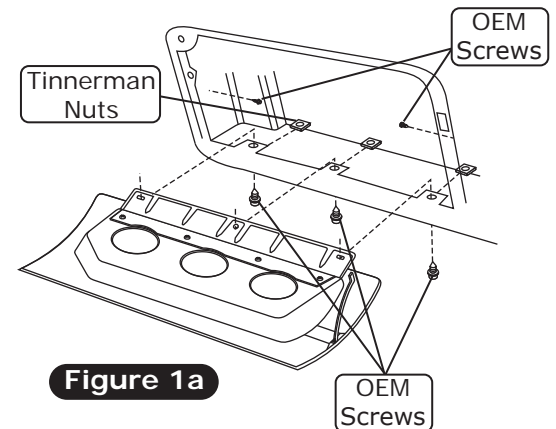


Figure 1a



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## Duct Hose Routing

**NOTE:** For the system to function optimally, the duct hoses must be routed as directly as possible, taking care to avoid kinks, sharp bends and unnecessary length. Vintage Air supplies duct hoses in continuous lengths that will need to be cut to size depending on application. Before cutting, familiarize yourself with the installation instructions and verify the routing will work with your application. For custom hose routing, additional hose may be needed and can be purchased from Vintage Air.

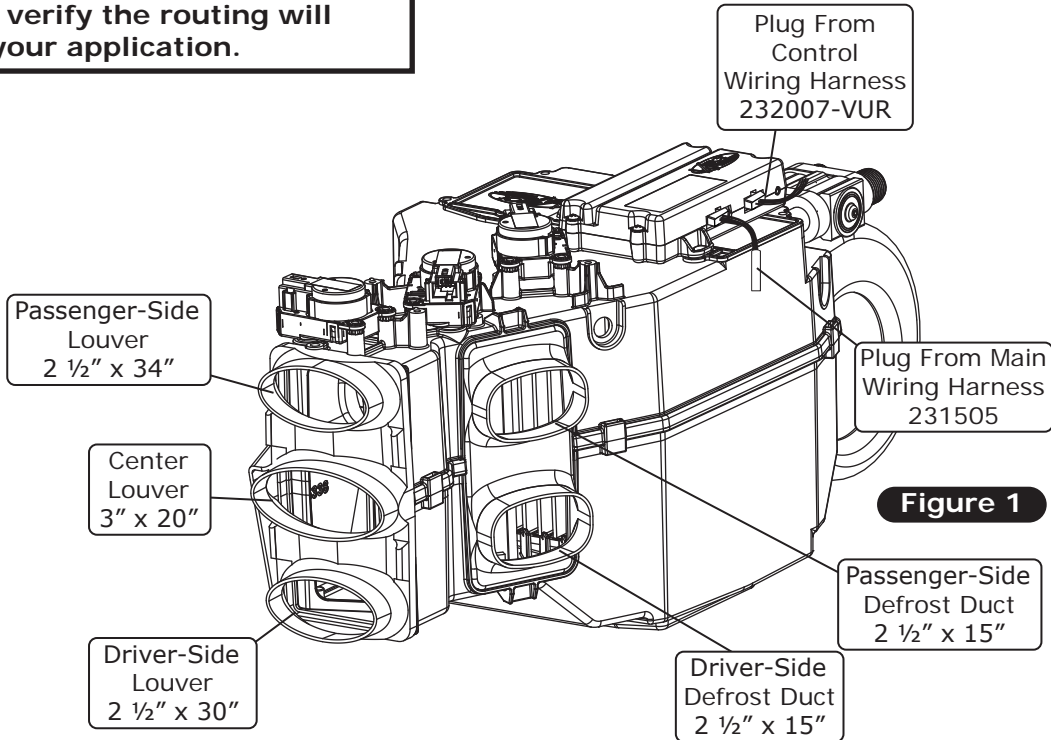
1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).

Stretch, measure, mark and cut hose to size



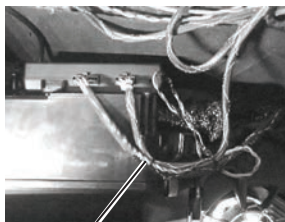
**Photo 1**

**Disclaimer:** Before cutting duct hose to length, verify the routing will work for your application.



**Figure 1**

**NOTE:** Route wires so they are lower than plugs.



Route wires lower than plugs

**NOTE:** ECU must be placed away from water and humidity, and also be accessible for servicing. If relocating, connectors must be positioned towards the bottom.



Position connectors towards bottom





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# Quality Crimp Guideline

Acceptable strip length  
(Some copper visible)

Crimped area is centered  
on each side of splice

Bad strip length  
(Too much copper visible)  
Visible copper should be  
just enough to ensure  
clearance between splice  
area and wire insulation

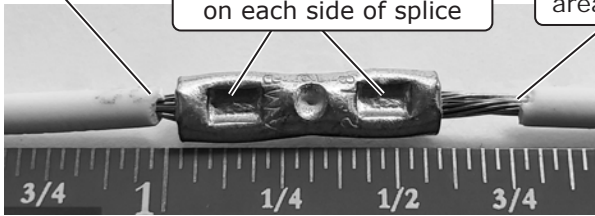


Photo 1

A good crimp requires  
seam of butt splice to be  
opposite of crimp die tooth

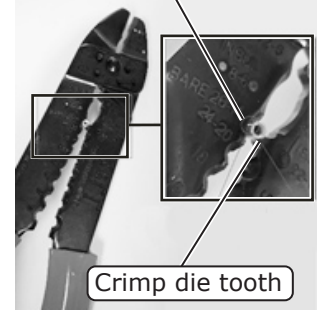


Photo 2

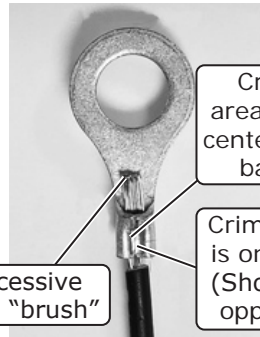
## Good Ring Terminal Crimp    Bad Ring Terminal Crimp



Crimped  
area is  
opposite  
of seam

Photo 3

Crimp  
area is  
centered  
on barrel



Crimp  
area is not  
centered on  
barrel

Excessive  
wire "brush"

Crimp area  
is on seam  
(Should be  
opposite)

Photo 4



Photo 5

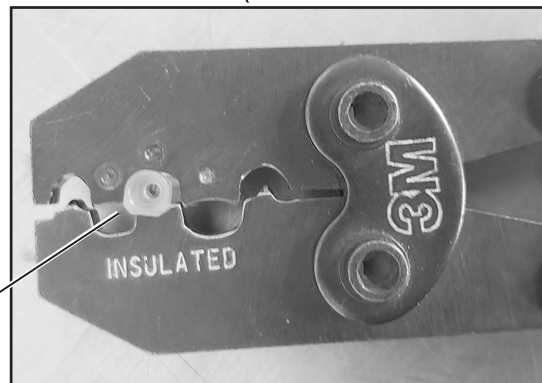


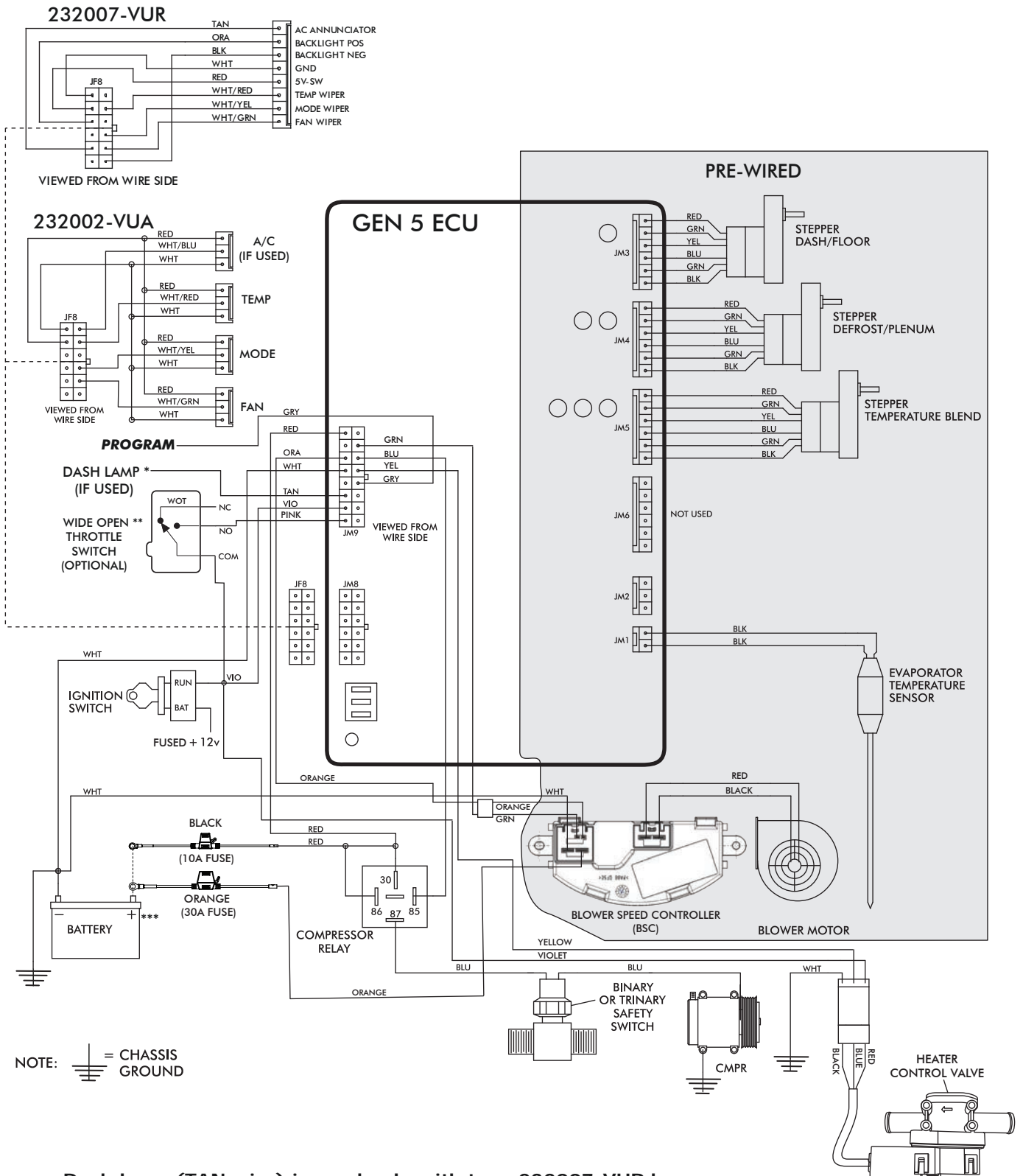
Photo 5a

Use a ratcheting crimp tool  
for insulated barrel terminals  
when crimping the provided  
female insulated terminal.  
Ensure terminal is inserted in  
appropriate position before  
crimping.



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# Gen 5 Wiring Diagram



NOTE: = CHASSIS GROUND

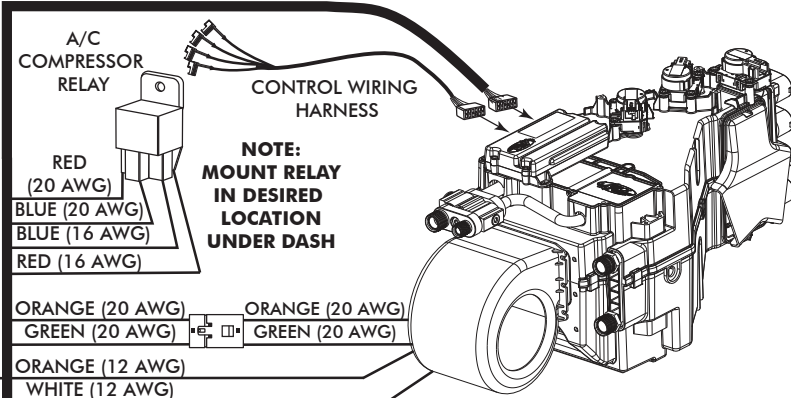
- \* Dash lamp (TAN wire) is used only with type 232007-VUR harness.
- \*\* Wide open throttle switch contacts close only at full throttle, which disables A/C compressor.
- \*\*\* Install fuse assemblies at or as near to the battery as possible.



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# Gen 5 Wiring Instructions

WIRING HARNESS (231505) ↓



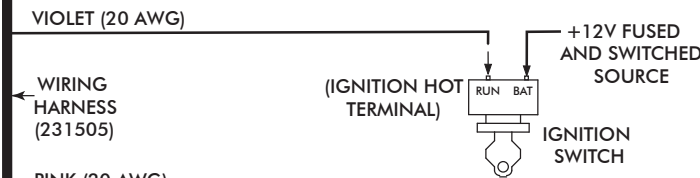
**NOTE:**  
MOUNT RELAY  
IN DESIRED  
LOCATION  
UNDER DASH

### Ignition Switch:

Using provided butt splice (PN 226004), connect the 20 AWG violet wire to a 5A fused and switched 12V source such as Key On.

### Wide Open Throttle Switch (Optional):

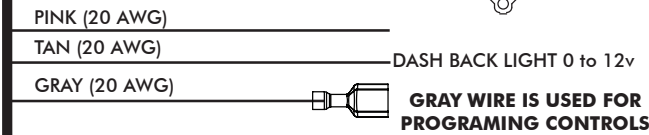
If a wide open throttle switch is required, connect the 20 AWG pink wire to a normally open switch that, when closed, connects a fused and switched 12V source to the pink wire. See Gen 5 wiring diagram for an example.



### Dash Light (Optional):

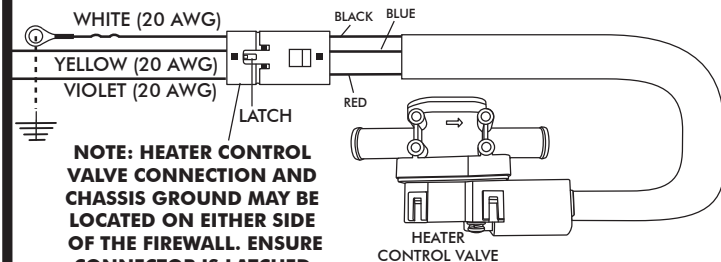
If using a Vintage Air control panel with back light, connect the 20 AWG tan wire to the vehicle's dash back light 0-12V using provided butt splice (PN 226004).

WIRING HARNESS (232020)



FIREWALL

FIREWALL



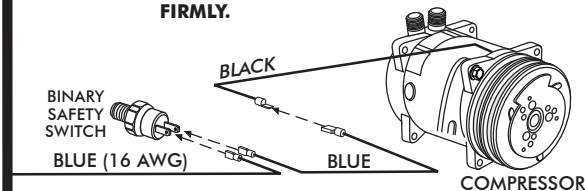
**NOTE: HEATER CONTROL VALVE CONNECTION AND CHASSIS GROUND MAY BE LOCATED ON EITHER SIDE OF THE FIREWALL. ENSURE CONNECTOR IS LATCHED FIRMLY.**

### Heater Control Valve:

Connect the Violet/Yellow/White twisted branch with 3 position connector into the heater control valve connector. Ensure that the mating latch is fully seated.

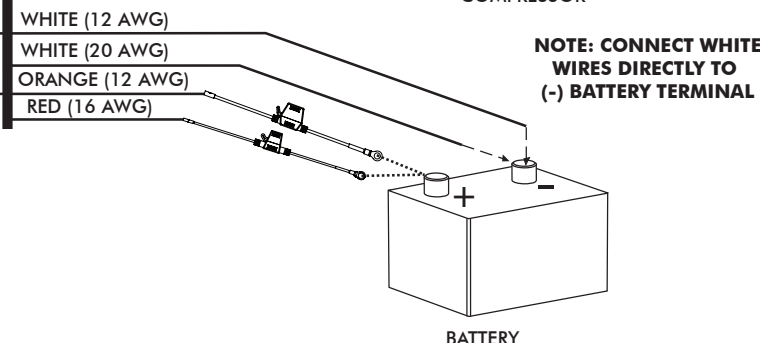
### Binary/Trinary & Compressor:

**Binary Switch:** Terminate provided insulated female terminal (PN 23172-VUW) to the blue 16 AWG wire. Connect as shown.  
**Trinary Switch:** Connect according to trinary switch wiring diagram.



### Battery Connections:

**ECU Ground:** Terminate provided ring terminal (PN 226110) to 20 AWG white wire from the 231505 wire assembly and install at battery.  
**ECU PWR:** Terminate provided fuse assembly with black leads (PN 233012) to the 16 AWG red wire from the 231505 wire assembly. Install provided 10A Red Mini Fuse (PN 226118). Install at battery.  
**Blower Speed Controller (BSC) Ground:** Terminate provided ring terminal (PN 226111) to 12 AWG white wire from the 232020 wire assembly and install at battery.  
**Blower Speed Controller (BSC) PWR:** Terminate provided fuse assembly with orange leads (PN 233008) to the 12 AWG orange wire from the 232020 wire assembly. Install provided 30A Green ATO/ATC Fuse (PN 226125). Install at battery.





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## Operation of Controls

On Gen IV or Gen 5 systems with three lever/knob controls, the temperature control toggles between heat and A/C operations. To activate A/C, move the temperature lever/knob all the way to cold and then back it off to the desired vent temperature. For heat operation, move the temperature lever/knob all the way to hot and then adjust to the desired vent temperature. The blower will momentarily change speed, each time you toggle in and out of heat and A/C operations, to indicate the change. **NOTE: For proper control panel function, refer to control panel instructions for calibration procedure.**

### Blower Speed

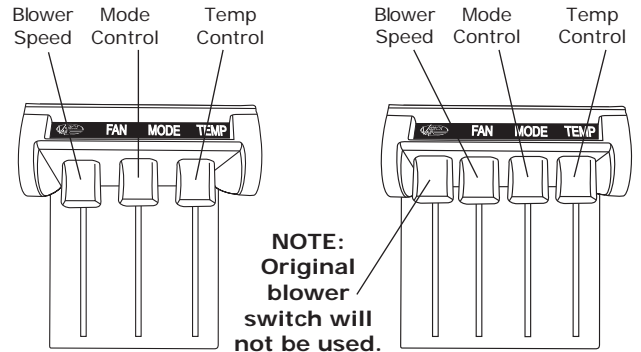
This lever/knob controls blower speed, from OFF to HI.

### Mode Control

This lever/knob controls the mode positions, from DASH to FLOOR to DEFROST, with a blend in between.

### Temperature Control

This lever/knob controls the temperature, from HOT to COLD.



## A/C Operation

### Blower Speed

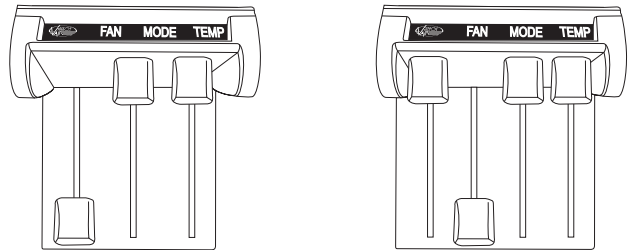
Adjust to desired speed.

### Mode Control

Adjust to desired mode position (DASH position recommended).

### Temperature Control

For A/C operation, adjust to coldest position to engage compressor (adjust between HOT and COLD to reach desired temperature).



## Heat Operation

### Blower Speed

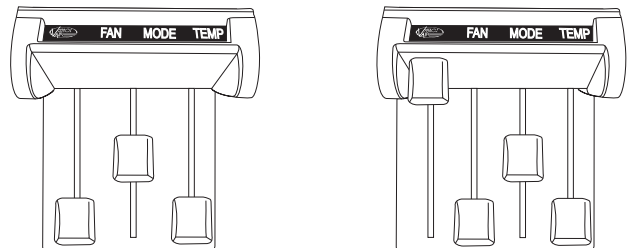
Adjust to desired speed.

### Mode Control

Adjust to desired mode position (FLOOR position recommended).

### Temperature Control

For maximum heating, adjust to hottest position (adjust between HOT and COLD to reach desired temperature).



## Defrost/De-fog Operation

### Blower Speed

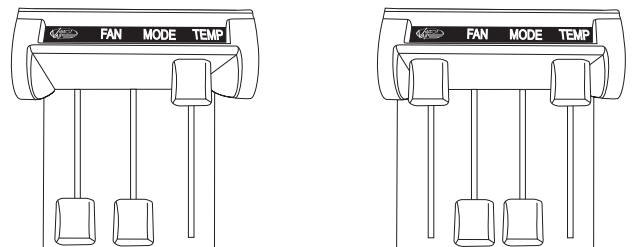
Adjust to desired speed.

### Temperature Control

Adjust to desired temperature.

### Mode Control

Adjust to DEFROST position for maximum defrost, or between FLOOR and DEFROST positions for a bi-level blend (Compressor is automatically engaged).





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# Troubleshooting Guide

This printed troubleshooting guide is our basic guide that covers common installation problems. To see our advanced diagnostics and troubleshooting guide, please refer to the following page for instructions on how to download the complete guide.

**WARNING: While troubleshooting the system, never probe connector terminals from the front mating side, only back probe.**

**WARNING: While troubleshooting the system, never use automotive check lights.**

Symptom	Condition	Checks	Actions	Notes
1. Blower stays on high speed with ignition on.	No other functions work.	Check for damaged pins or wires in the control panel wire assembly and mating header at ECU.	If found damaged, replace wire assembly or ECU.	If fuse continues to blow, there is a serious problem in the wiring. Check all wiring and ensure the wire is not damaged and shorting out along its route.
	All other functions work.	Check for a bad ECU GND. Check for damaged pins or wires in the control panel wire assembly and mating header at ECU. Check if Blower power fuse is blown. Check for a bad ECU GND.	If found damaged, replace wire assembly or ECU. Replace fuse. Repair connection.	
2. Compressor will not turn on (All other functions work).	System is not charged.	System must be charged for compressor to engage.	Charge system.	<b>Danger: Never bypass safety switch with engine running. Serious injury can result.</b>
	System is charged.	Check for faulty A/C potentiometer or associated wiring (not applicable to 3-pot controls). Check for disconnected or faulty thermistor.	Check continuity to ground on white control head wire. Check for 5V on red control head wire. Check 2-pin connector at ECU housing.	To check for proper pot function, check voltage at white/red wire. Voltage should be between 0V and 5V, and will vary with pot lever position. Disconnected or faulty thermistor will cause compressor to be disabled.
	Compressor will not turn off (All other functions work).	Check for faulty A/C potentiometer or associated wiring.	Repair or replace pot/control wiring.	Red wire at A/C pot should have approximately 5V with ignition on. White wire will have continuity to chassis ground. White/Red wire should vary between 0V and 5V when lever is moved up or down.
3. Compressor will not turn off (All other functions work).	System is charged.	Check for faulty A/C relay.	Replace relay.	



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# Troubleshooting Guide (Cont.)

Symptom	Condition	Checks	Actions	Notes
4. System will not turn on, or runs intermittently.	Works when engine is not running; shuts off when engine is started	Noise interference from either ignition or alternator.	Install capacitors on ignition coil and alternator. Ensure good ground at all points. Relocate coil and associated wiring away from ECU and ECU wiring. Check for burned or loose plug wires.	Ignition noise (radiated or conducted) will cause the system to shut down due to high voltage spikes. If this is suspected, check with a quality oscilloscope. Spikes greater than 16V will shut down the ECU. Install a radio capacitor at the positive post of the ignition coil (see radio capacitor installation bulletin). A faulty alternator or worn out battery can also result in this condition.
	Will not turn on under any conditions.	Verify connections on power lead, ignition lead, and both white ground wires. Verify battery voltage is greater than 10 volts and less than 16 while engine is running.	Check for power at ECU, and confirm ignition is being applied to ECU properly. Verify proper meter function by checking the condition of a known good battery.	
5. Loss of mode door function.	No mode change at all.	Check for damaged mode switch or potentiometer and associated wiring.		
	Blower turns on and off rapidly.	Battery voltage is at least 12V. Battery voltage is less than 12V.	Ensure all system grounds and power connections are clean and tight. Charge battery.	System shuts off blower at 10V. Poor connections or weak battery can cause shutdown at up to 11V.
7. Erratic functions of blower, mode, temp, etc.		Check for damaged switch or pot and associated wiring.	Repair or replace.	

## Advanced Diagnostics and Troubleshooting Guide

If after referencing the Troubleshooting Guide, the issue is not resolved, move to The Advanced Diagnostics and Troubleshooting Guide that covers the following:

- ECU Diagnostics Codes
- 1. **ECU Blink Sequence**
- 2. **Firmware Version Number**
- 3. **ECU Model Number**
- 4. **ECU Start-Up Blink Sequence**
- 5. **Diagnostic Codes**
- Complete Advanced Troubleshooting Guidelines

Access the latest version of the Advanced Diagnostics and Troubleshooting Guide by scanning the following QR code on your mobile device:



You can also access the guide by typing the following address into your web browser:

[https://www.vintageair.com/instructions\\_pdf/905000.pdf](https://www.vintageair.com/instructions_pdf/905000.pdf)





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## Packing List: Evaporator Kit (564356)

No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Magnum Max Module with 404 ECU
2.	1	784356	Accessory Kit

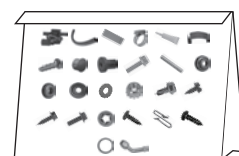
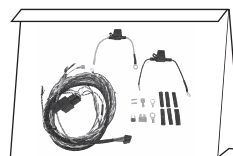
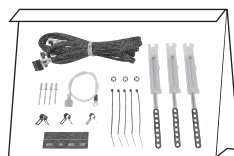
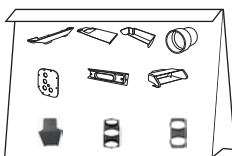
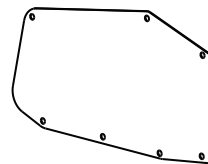
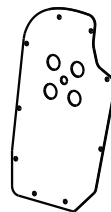
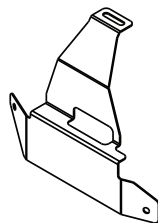
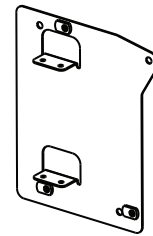
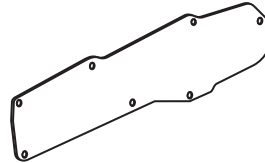
Checked By: \_\_\_\_\_  
Packed By: \_\_\_\_\_  
Date: \_\_\_\_\_

1



Gen 5 Magnum Max  
Module with 404 ECU  
765200

2



Accessory Kit  
784356

**NOTE: Images may not depict actual parts and quantities.  
Refer to packing list for actual parts and quantities.**