



# 1966-67 Chevrolet Chevelle

*with Factory Air*  
**Gen 5 Evaporator Kit**  
**(564273)**



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## Packing List: Evaporator Kit (564273)

| No. | Qty. | Part No. | Description                            |
|-----|------|----------|----------------------------------------|
| 1.  | 1    | 765225   | Gen 5 Super Magnum Module with 444 ECU |
| 2.  | 1    | 784273   | Accessory Kit                          |

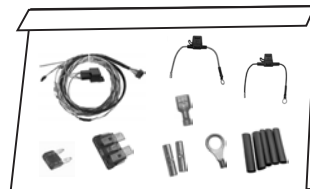
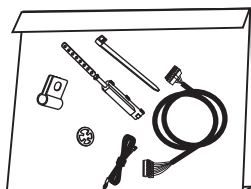
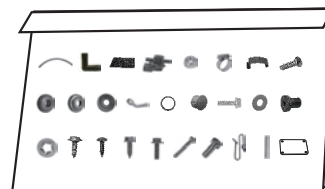
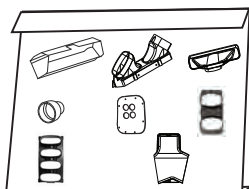
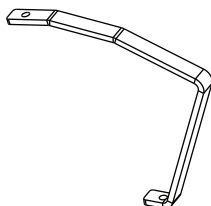
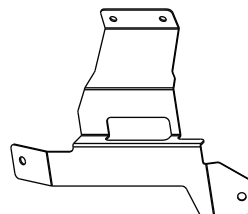
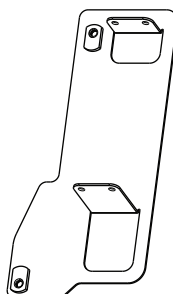
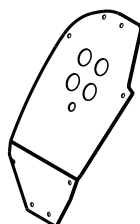
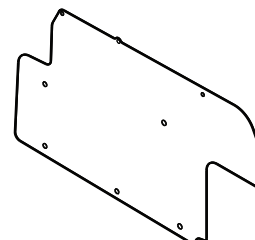
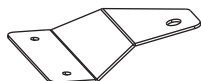
**\*\* Before beginning installation, open all packages and check contents of shipment.  
Please report any shortages directly to Vintage Air within 15 days. After 15 days,  
Vintage Air will not be responsible for missing or damaged items.**

1



**Gen 5 Super Magnum  
Module with 444 ECU  
765225**

2



**Accessory Kit  
784273**

**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.

## 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.



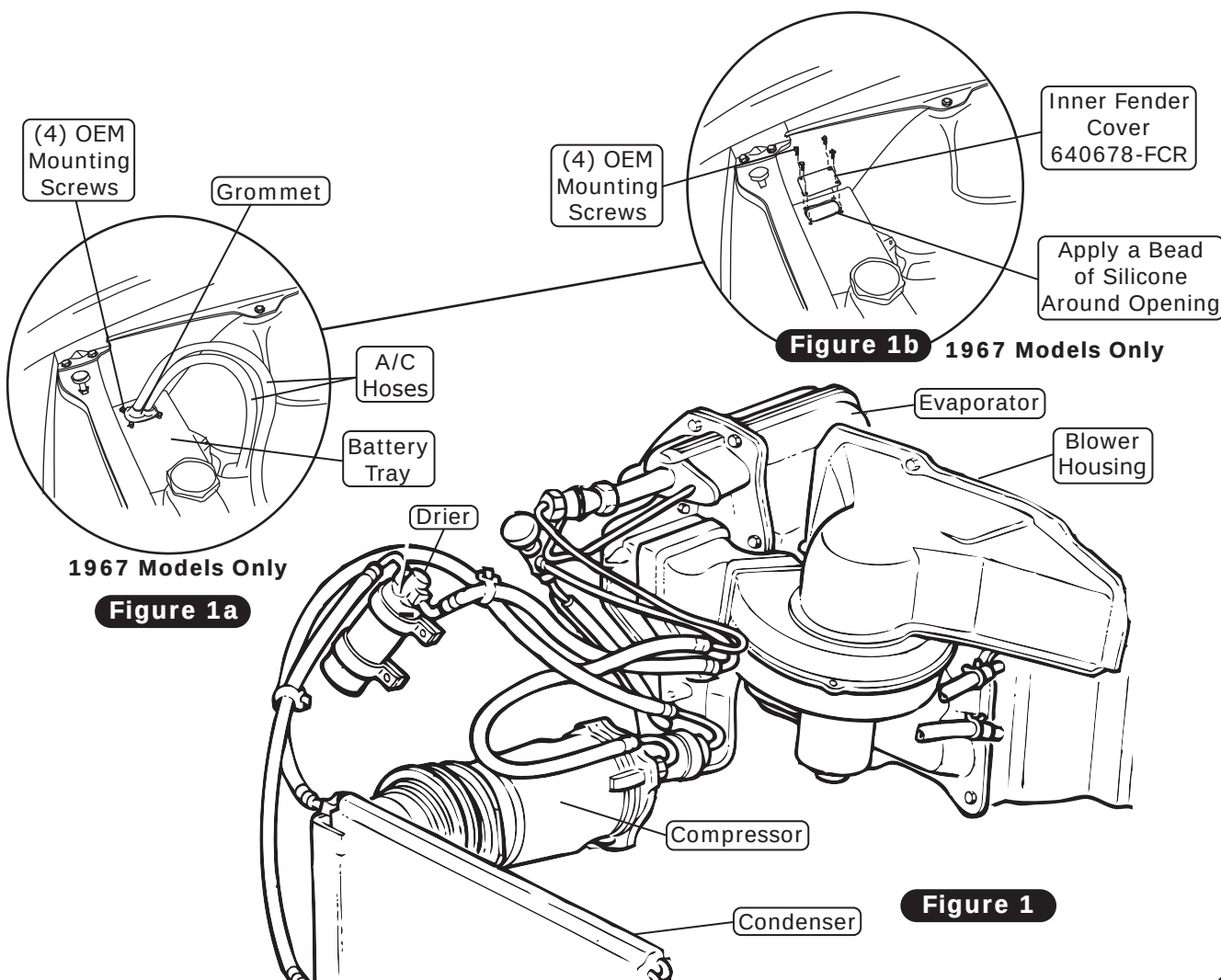
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## Engine Compartment Disassembly

**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 and battery tray (retain).
3. Drain the radiator.
4. Remove the radiator (retain). **NOTE: Removal of radiator is only needed if installing a condenser kit.**
5. Evacuate the A/C system (if necessary).
6. Remove the OEM condenser and drier (discard) (See Figure 1, below). **NOTE: Removal of OEM condenser and drier is only needed if installing a condenser kit.**
7. Remove the OEM A/C lines from the compressor to the evaporator (discard) (See Figure 1, below).  
**NOTE: On 1967 models only, remove the A/C hoses and grommet beside the battery tray (retain screws) (See Figure 1a, below). Apply a bead of silicone around the opening in the inner fender, and install the inner fender cover using the (4) OEM screws (See Figure 1b, below).**
8. Remove the OEM compressor and bracket (discard) (See Figure 1, below).
9. Remove the OEM evaporator and blower assembly (discard). **NOTE: To remove the evaporator and blower assembly (under hood) and the air distribution system (under dash), the factory manual recommends removing the passenger-side inner fender.**
10. Remove the OEM heater hoses, A/C hoses, and hardlines (discard) (See Figure 1, below).





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## 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

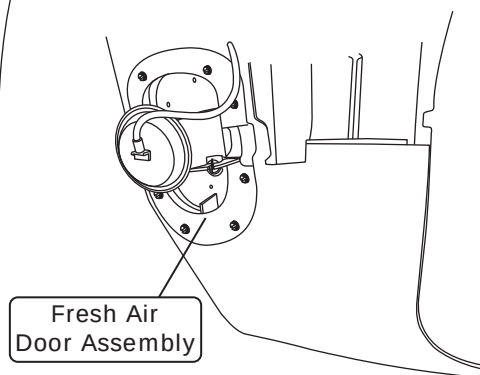
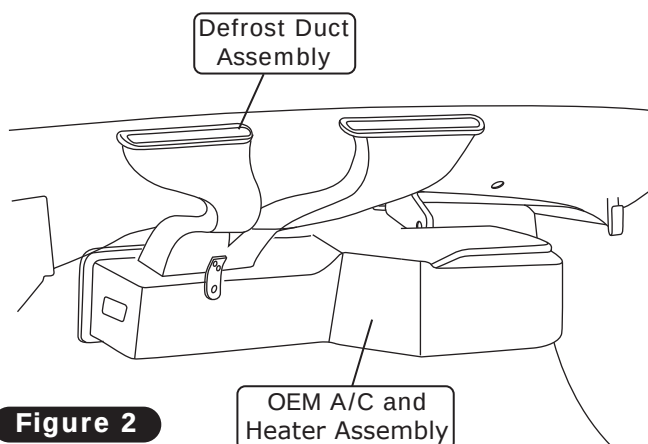
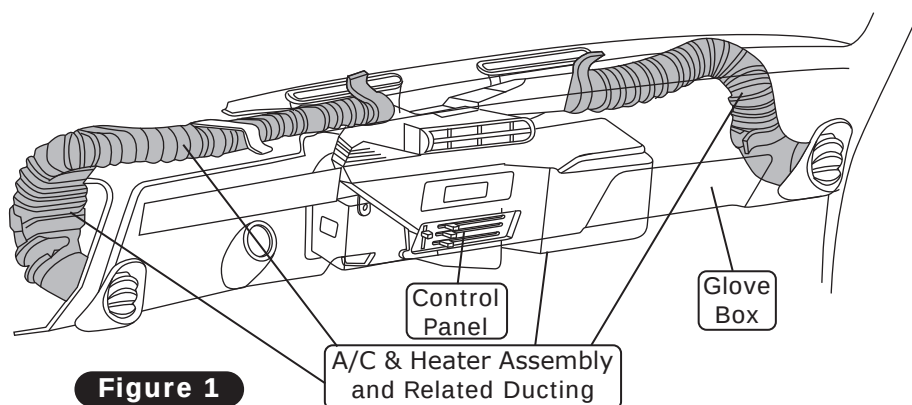
1. Refer to separate instructions included with the bracket kit to install the compressor bracket.

## Passenger Compartment Disassembly

**NOTE:** Removal of dashboard is required for evaporator installation. Vintage Air recommends using the factory service manual to disassemble and reassemble the dashboard.

**Perform the following:**

1. Remove the glove box door (retain).
2. Remove the glove box (discard).
3. Disconnect all wires and cables from the OEM control panel and radio.
4. Remove all hoses and ducting from the OEM louvers (See Figure 1, below).
5. Remove the defrost duct assembly (discard) (See Figure 2, below).
6. Remove the OEM A/C and heater assembly (discard) (See Figure 2, below).
7. Remove the passenger-side kick panel/fresh air door assembly (See Figure 3, below).





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## Firewall Modification

**NOTE: A firewall modification is required for the firewall cover and drain hose installation.**

1. Remove or flatten the edges of the firewall opening (See Photo 1, below).

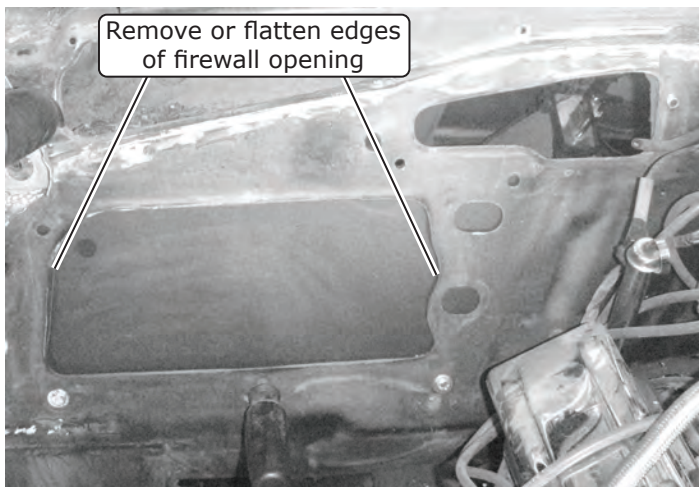
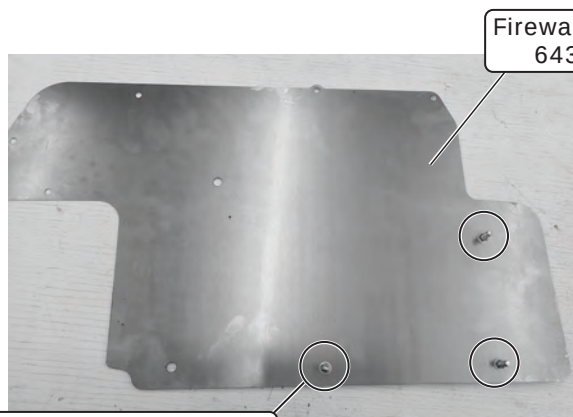


Photo 1

## Firewall Cover Preparation

1. Install (3) 1/4-20 x 3/4" black serrated flange bolts with (3) 1/4" pushnut bolt retainers onto the firewall cover (See Photos 1 and 2, below).



Install (3) 1/4-20 x 3/4" black serrated flange bolts with (3) 1/4" pushnut bolt retainers

Photo 1

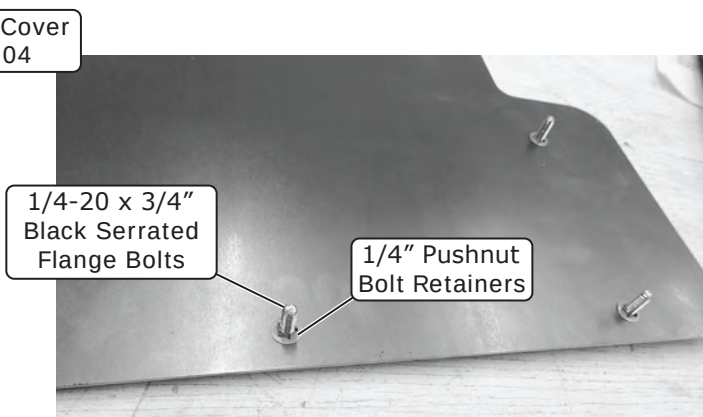


Photo 2



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## Firewall Cover Installation & 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 silicone/seam sealer to the mating surface of the firewall cover (See Photo 1, below).
2. Install the firewall cover onto the firewall, then from the passenger compartment, secure it using (3) 1.625" O.D. x .281" I.D. washers and (3) 1/4-20 nuts with star washers (See Photo 2, below).
3. From the engine compartment, secure the firewall cover to the firewall using (5) #14 x 3/4" sheet metal screws.

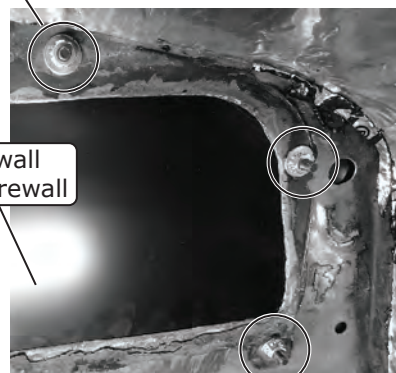
Apply silicone/seam sealer to mating surface of firewall cover



**Photo 1**

Secure firewall cover using (3) 1.625" O.D. x .281" I.D. washers and (3) 1/4-20 nuts with star washers

Install firewall cover onto firewall



**Photo 2**

Secure firewall cover to firewall using (5) #14 x 3/4" sheet metal screws



**Photo 3**

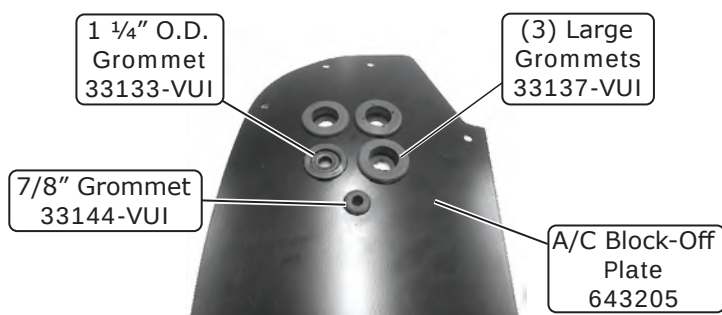


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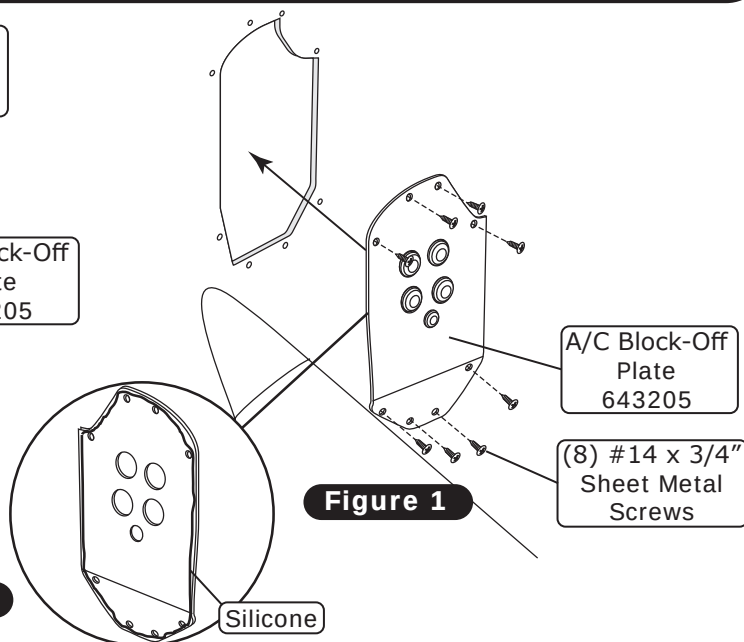
## A/C Block-Off Plate & Heater/Blower Cover Installation

**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. Install (5) grommets into the A/C block-off plate as shown in Photo 1, below.
2. Apply a 1/4" bead of silicone around the mating surface of the A/C block-off plate as shown in Figure 1a, below.
3. Install the A/C block-off plate using (8) #14 x 3/4" sheet metal screws as shown in Figure 1, below.



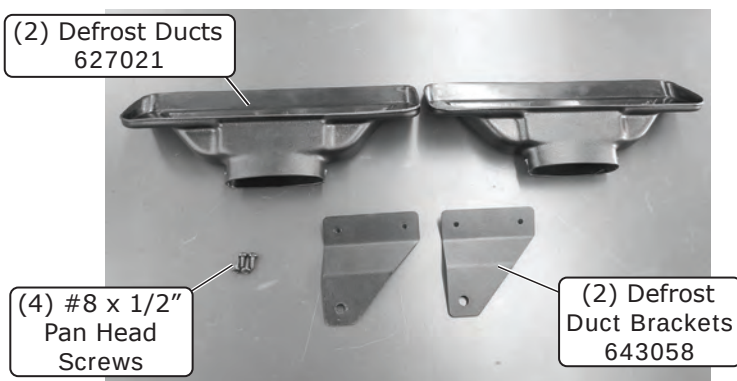
**Photo 1**



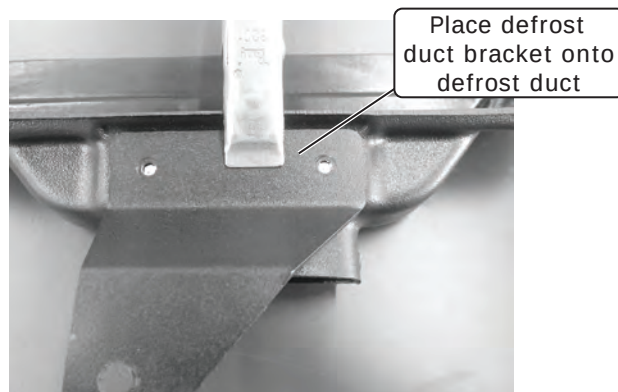
**Figure 1a**

## Defrost Duct Preparation and Installation

1. Gather (2) defrost ducts, (2) defrost duct brackets and (4) #8 x 1/2" pan head screws (See Photo 1, below).
2. Place the defrost duct bracket onto the defrost duct (See Photo 2, below).



**Photo 1**



**Photo 2**



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## Defrost Duct Preparation and Installation (Cont.)

3. Mark and drill (2) small pilot holes (See Photo 3, below), then install the (2) #8 x 1/2" pan head screws (See Photo 4, below). Repeat the process for the second defrost duct.

**IMPORTANT NOTE:** In some cases, there will be limited space under the dash after the evaporator module is installed. Vintage Air recommends installing the duct hose onto the defrost ducts before installing the evaporator module. See Duct Hose Routing, Page 27.

4. Install the defrost ducts under the dash, aligning them with the OEM openings (See Photo 5, below). Secure the driver- and passenger-side defrost ducts to the cowl using (2) #14 x 3/4" washer head screws (See Photos 5, 6 and Figure 1, below). **NOTE: On 1966 models, the driver-side defrost duct installs behind the steering column bracket and is secured using the steering column OEM bolt as shown in Figure 1a, below.**

Mark and drill (2) small pilot holes

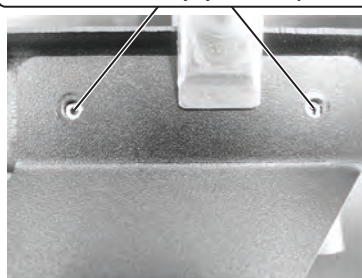


Photo 3

Install (2) #8 x 1/2" pan head screws



Photo 4

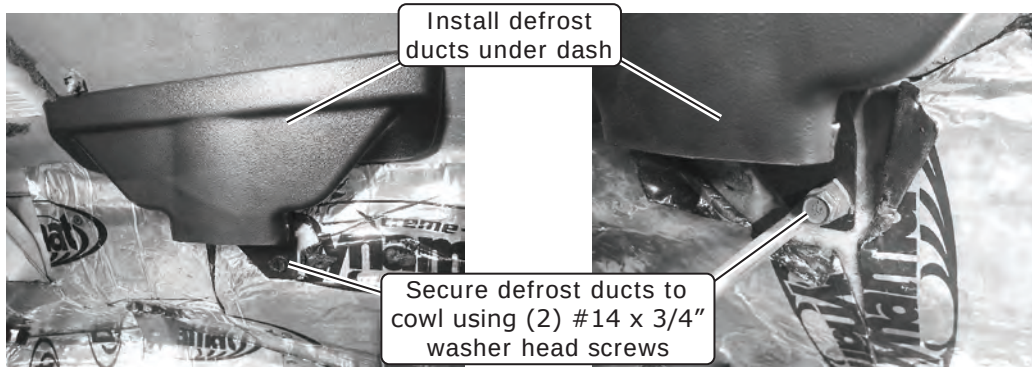


Photo 5

Photo 6

Read Important Note above before installing defrost ducts.

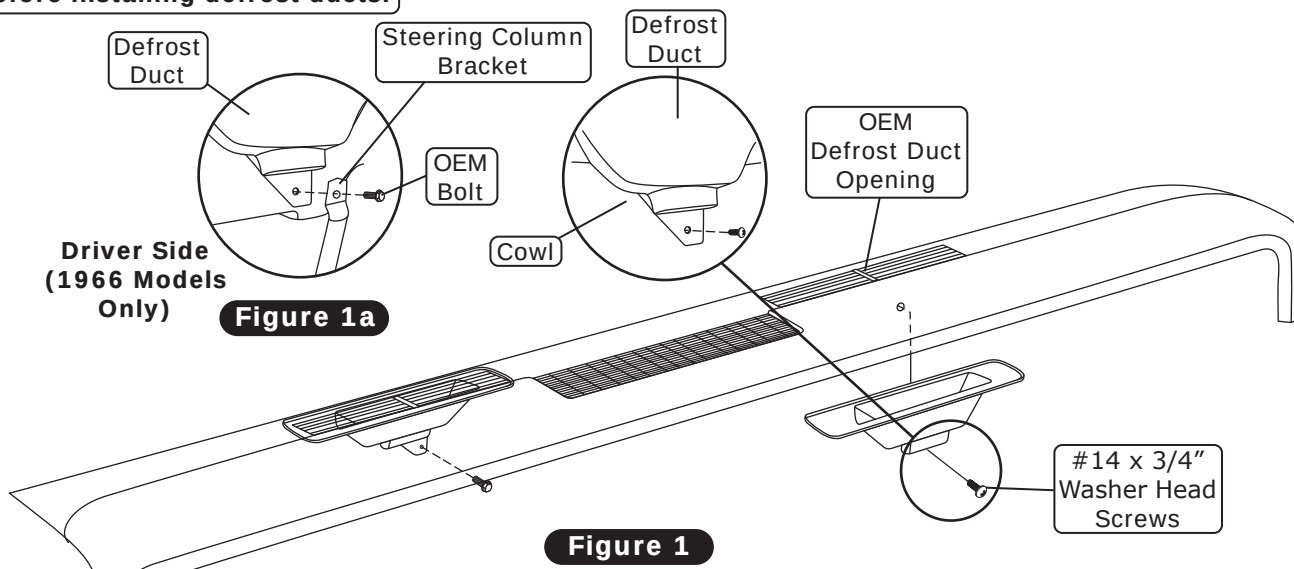


Figure 1



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## Kick Panel Modification and Preparation

1. Using the bottom-right hole on the kick panel cover, measure 1/2" to the left and 1" down, then mark and drill a 5/8" hole for the wiring grommet (See Photo 1, below).
2. Install (3) large grommets, a 1 1/4" O.D. grommet and a 7/8" wiring grommet as shown in Photo 2, below.

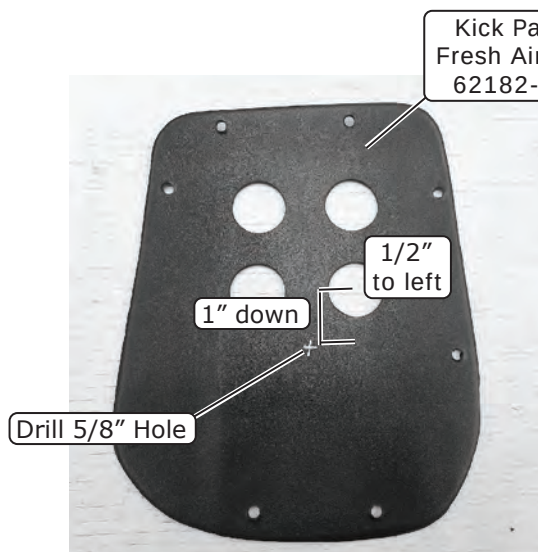


Photo 1

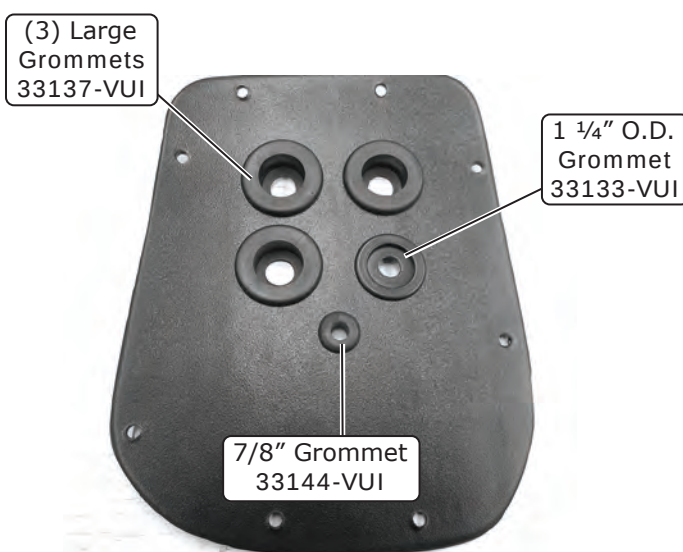


Photo 2

## Hose Adapter Installation

1. Using a #30 drill-bit, drill out the (5) OEM rivets to remove the OEM center louver from the hose adapter (See Photos 1 and 2, below).

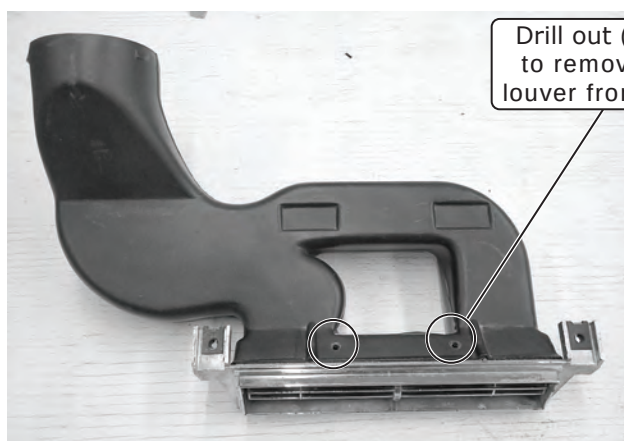


Photo 1

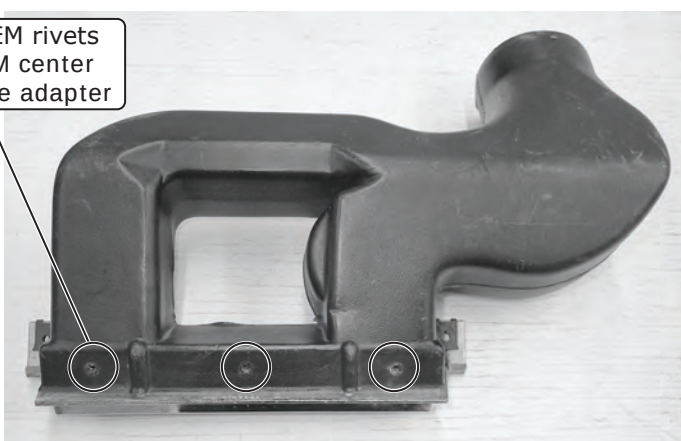


Photo 2



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## Hose Adapter Installation (Cont.)

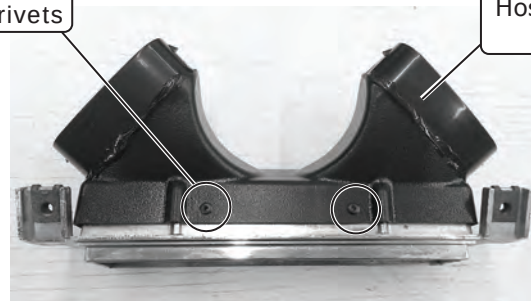
2. Install the center louver hose adapter onto the OEM center louver, matching up the mounting holes, then secure it using the (5) supplied pop rivets (See Photos 3 and 4, below).
3. Install (3) S-clips each onto both the driver- and passenger-side hose adapters (See Figure 1, below).
4. Install the driver- and passenger-side hose adapters onto the driver- and passenger-side OEM louvers (See Figure 1, below).
5. Reinstall the louvers into the dash using OEM hardware. **NOTE: Duct hoses must be attached to the center louver hose adapter before installing it onto the dash.**

Center Louver  
Hose Adapter  
627019



Photo 3

Secure using (5)  
supplied pop rivets



Center Louver  
Hose Adapter  
627019

Photo 4

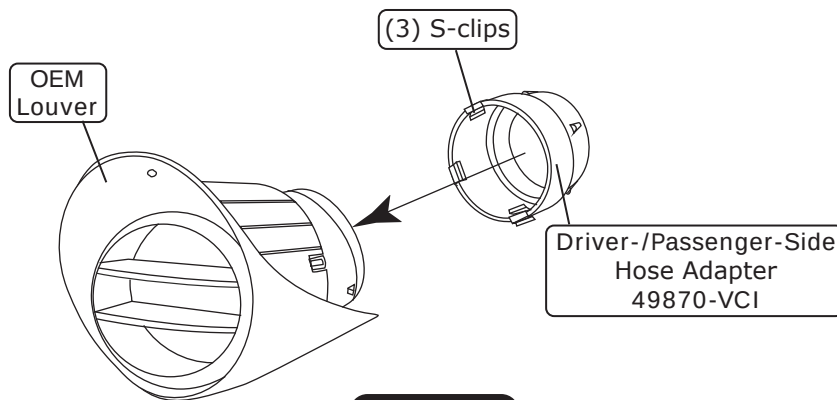
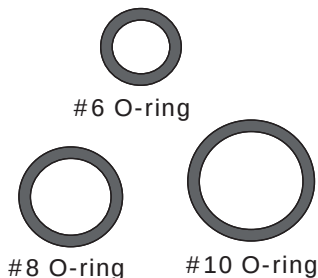
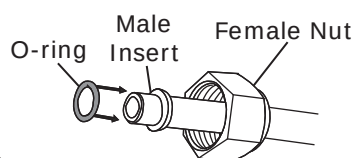


Figure 1

## Lubricating O-rings

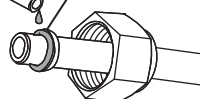


**NOTE: Standard torque specifications:**  
 #6: 11 to 13 ft-lb.  
 #8: 15 to 20 ft-lb.  
 #10: 21 to 27 ft-lb.

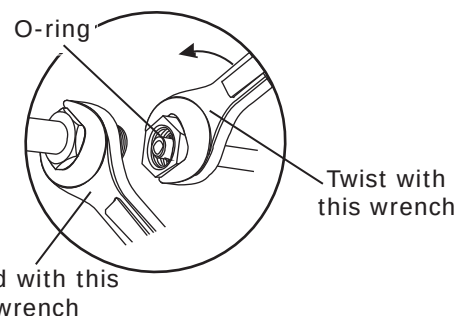


Refrigerant Oil  
for O-rings

O-ring installs  
over male insert  
to swaged lip



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





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## Properly Seated O-ring Land

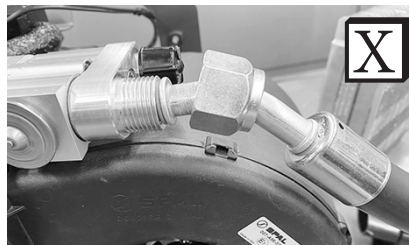
When installing a hardline or A/C hose fitting onto the evaporator module, ensure the O-ring land is seated properly (See Photo 1, below). An improperly seated O-ring land (See Photo 2, below) can cause a leak. To properly install the fitting, slide the hardline or A/C hose nut back to expose the O-ring 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.

## Evaporator Module Preparation

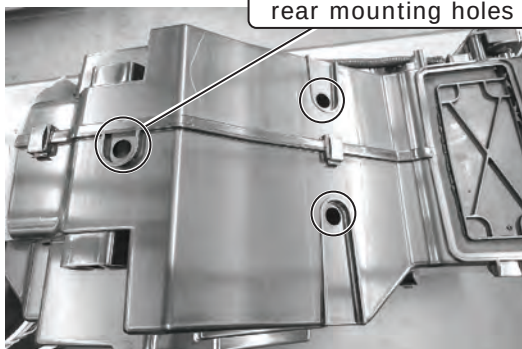
**Perform the following on a workbench:**

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 13), install the (2) 45° heater hardlines (See Photo 3, below).

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

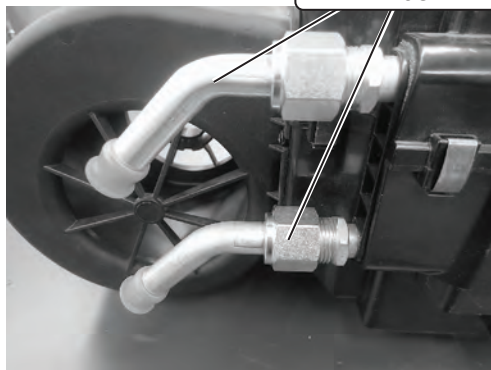


**Photo 1**



**Photo 2**

Install (2) 45° heater hardlines 121034



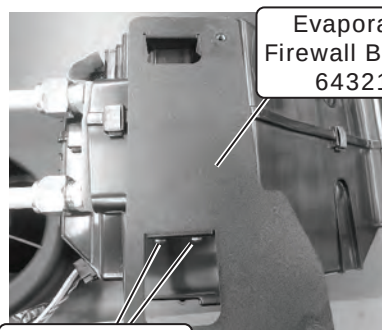
**Photo 3**



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## Evaporator Module Preparation (Cont.)

3. Using (4) #10 x 5/8" screws, install the evaporator firewall bracket onto the evaporator module (See Photos 4 and 5, below).
4. Install (2) 1/4-20 x 1 1/2" full-threaded studs into the evaporator firewall bracket (See Photo 6, below).
5. Using (2) spring clips, install the floor plenum onto the front of the evaporator module (See Photo 7, below).
6. Using (2) spring clips, install the 2-vent plenum onto the rear of the evaporator module (See Photo 8, below). **IMPORTANT NOTE: There will be a tight clearance between the firewall and the 2-vent plenum on the rear of the evaporator module. If the installer is having trouble installing the duct hose onto the plenum once the evaporator module is mounted under the dash, remove the plenum and install the duct hose onto it. Then, reinstall the plenum onto the evaporator module using the spring clips.**
7. Using (4) spring clips, install the dash plenum onto the evaporator module (See Photos 9 and 10, below).



(2) #10 x 5/8" Screws

Photo 4

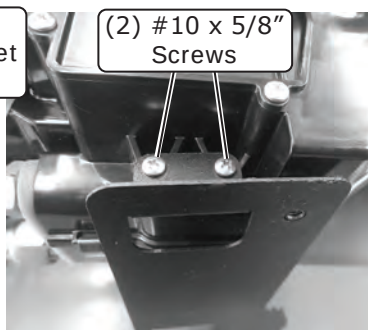


Photo 5

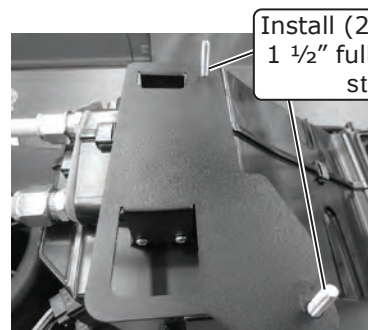


Photo 6

Using (2) spring clips, install floor plenum

Floor Plenum 625340

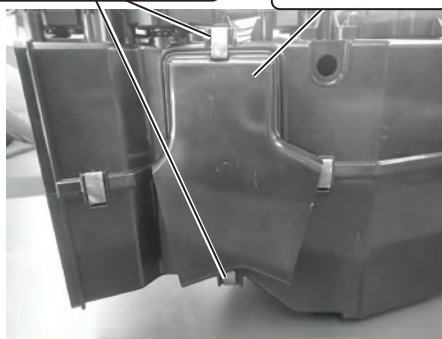


Photo 7

Using (2) spring clips, install 2-vent plenum

2-Vent Plenum 629905



Photo 8

**Read Important Note above for Step 6.**

Using (2) spring clips, install dash plenum

Dash Plenum 625330

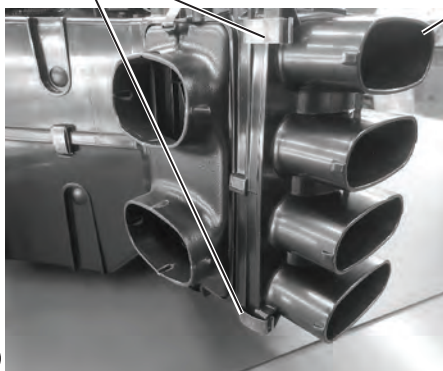


Photo 9

Using (2) spring clips, install dash plenum

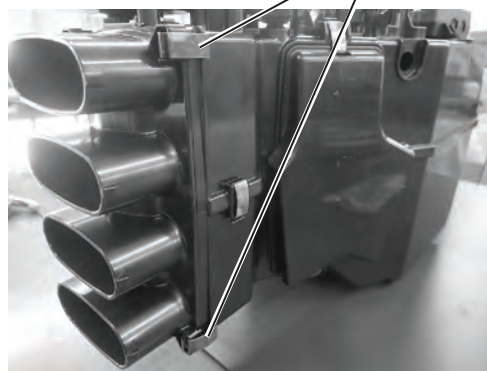


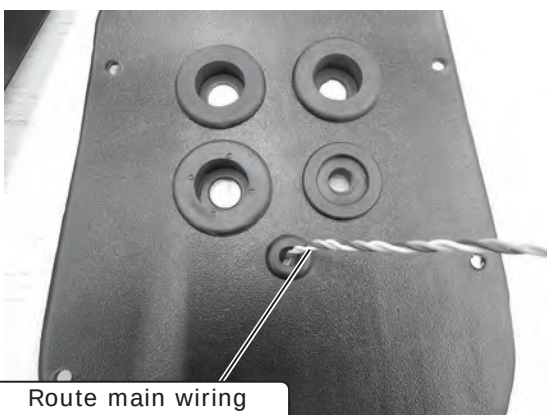
Photo 10



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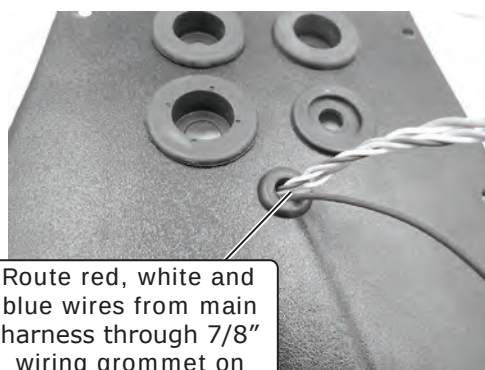
## Wiring Installation

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 fresh air cap (See Photo 1, below) and into the kick panel opening. Then, through the wiring grommet on the A/C block off plate and into the engine compartment.
2. Route the red, white and blue wires from the main harness through the 7/8" wiring grommet on the kick panel fresh air cap (See Photo 2, below) and into the kick panel opening. Then, route the wires through the wiring grommet on the A/C block-off plate and into the engine compartment.
3. Leave approximately 12" of wiring between the kick panel cover 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 fresh air cap (See Photo 3, below) and into the kick panel opening. Then, through the wiring grommet on the A/C block-off plate and into the engine compartment.
6. Connect the blower speed controller plug into the main wiring harness plug (orange and green wires) (See Photo 4, below).



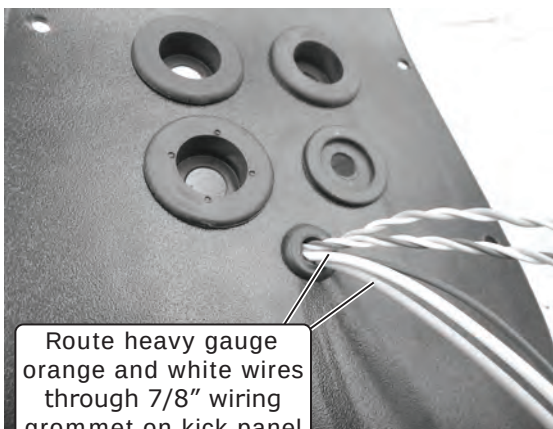
Route main wiring harness (white/yellow/purple) through 7/8" wiring grommet on kick panel fresh air cap

**Photo 1**



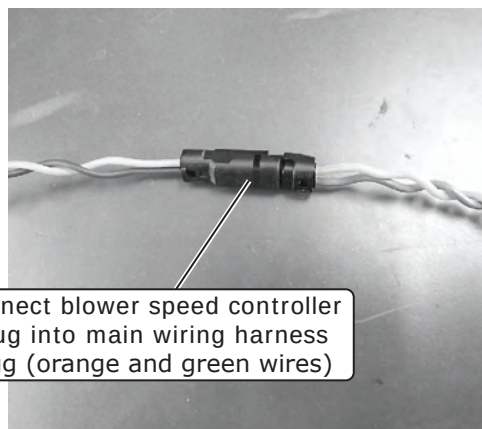
Route red, white and blue wires from main harness through 7/8" wiring grommet on kick panel fresh air cap

**Photo 2**



Route heavy gauge orange and white wires through 7/8" wiring grommet on kick panel fresh air cap

**Photo 3**



Connect blower speed controller plug into main wiring harness plug (orange and green wires)

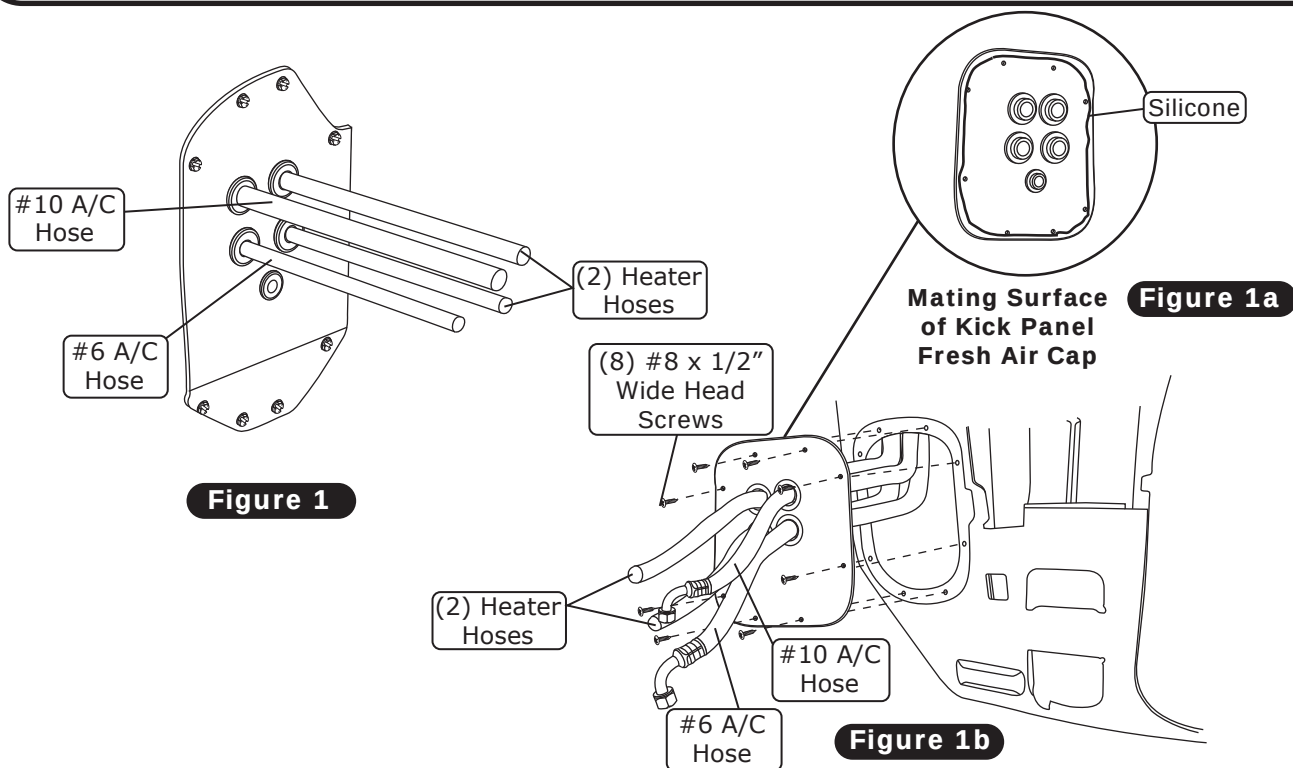
**Photo 4**



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## Kick Panel Fresh Air Cap Installation

1. Route the A/C and heater hoses from the A/C block-off plate to the kick panel fresh air cap as shown in Figures 1 and 1b, below.
2. Apply a 1/4" bead of silicone around the mating surface of the kick panel fresh air cap as shown in Figure 1a, below.
3. Secure the kick panel fresh air cap using (8) #8 x 1/2" wide head screws as shown in Figure 1b, below.



## Control Panel Installation

**NOTE:** When using the factory controls, Vintage Air recommends installing the control into the dash before installing the evaporator module. Once the evaporator module is installed, there will be limited space. If installing the OEM control panel after the evaporator module is installed, temporarily remove the 4-vent plenum by removing the (4) spring clips (See Photo 1, below). Reinstall the plenum after the control is installed.

1. Refer to the control panel instructions for installation procedures.

View from  
Under Dash

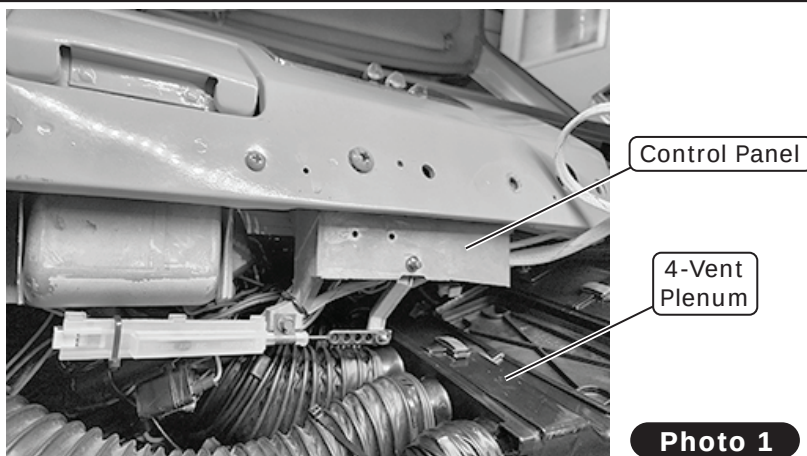


Photo 1



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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 and hose clamps onto the upper and lower heater hardlines on the evaporator module (See Photos 1 and 2, below).
2. Using a properly lubricated #6 O-ring (See Lubricating O-rings, Page 13), install the 45° fitting on the #6 drier/evaporator A/C hose onto the block valve adapter on the evaporator module (See Photo 3, below).  
**NOTE: Provide enough A/C hose when connecting the 90° fitting to the module. Once the connection is made, pull excess hose into the engine compartment, being sure not to kink it.**
3. Using a properly lubricated #10 O-ring (See Lubricating O-rings, Page 13), 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 4, below). **NOTE: After installing the #10 compressor/evaporator A/C hose, wrap all exposed metal with the supplied press tape (See Photo 5, below).**
4. Roll the evaporator module into its mounting position and insert the (2) 1/4-20 x 1 1/2" full-threaded studs into the upper and lower OEM mounting holes on the firewall.

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

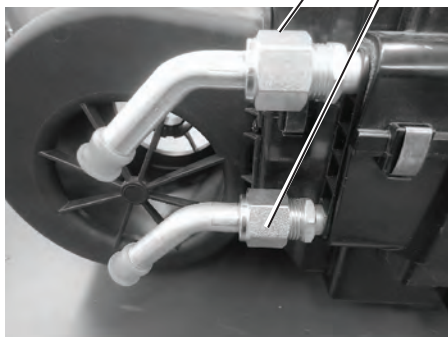


Photo 1

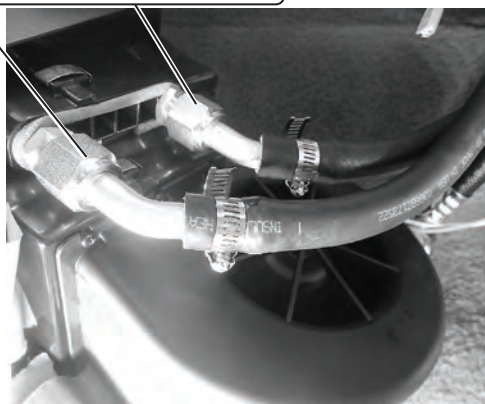


Photo 2

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



Photo 3

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

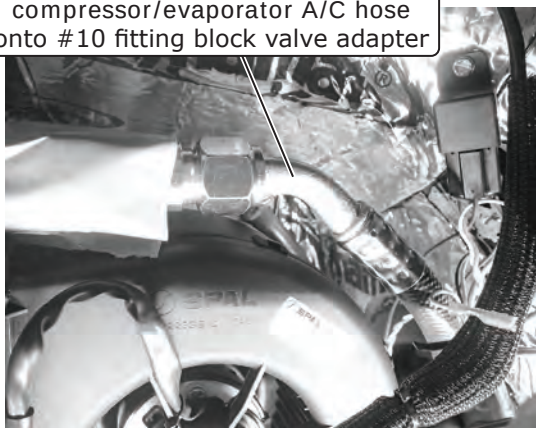
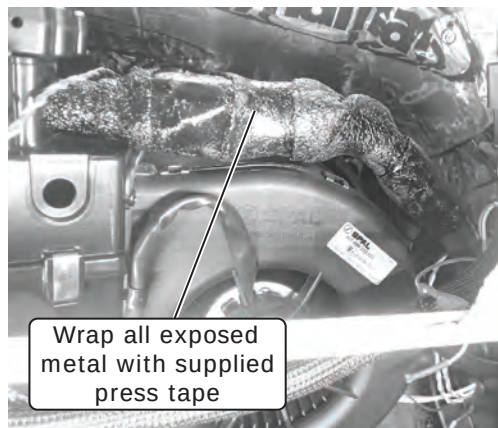


Photo 4



Wrap all exposed metal with supplied press tape

Photo 5



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## Evaporator Installation (Cont.)

5. Install (2) 1/4-20 well nuts into the front mounting holes on the evaporator module (See Photo 6, below).
6. Using (2) 1/4-20 x 1" serrated flange bolts, install the evaporator cowl bracket onto the evaporator module (See Photo 7, below). **NOTE: To ensure proper drainage, it is very important that the evaporator module is level, both left-right and fore-aft. Check for level on the flat portions of the case around the drain.**
7. Once the module is in position and level, use the bracket as a template to mark and drill (2) pilot holes. Secure the evaporator cowl bracket to the cowl using (2) #14 x 3/4" washer head screws (See Photos 8 and 9, below).

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

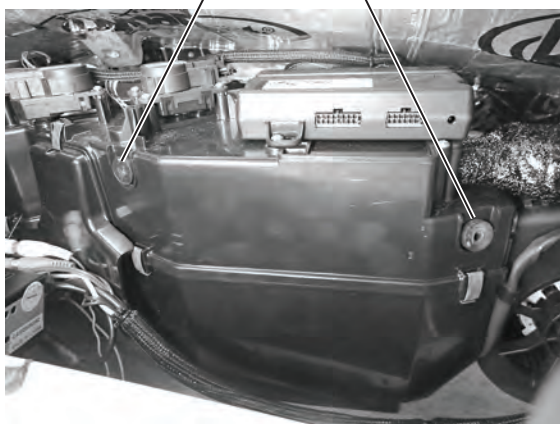


Photo 6

Evaporator Cowl Bracket 643210

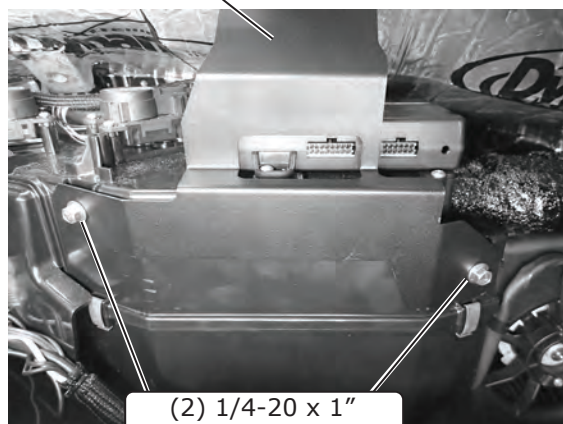


Photo 7

Mark and drill (2) pilot holes



Photo 8

(2) #14 x 3/4" Washer Head Screws



Photo 9

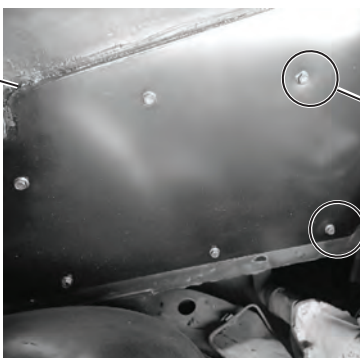


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## Evaporator Installation (Final)

8. From the engine compartment, replace the (2) 1/4-20 x 1" serrated flange black bolts with (2) 1/4-20 x 3/4" serrated flange black bolts. **NOTE: Silicone or seam sealer may be applied around the outer edge of the firewall cover (See Photo 10, below).**

Silicone or seam sealer may be applied around outer edge of firewall cover



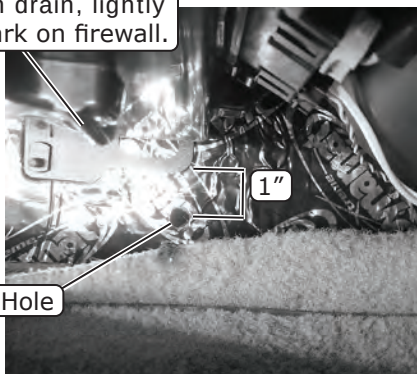
(2) 1/4-20 x 3/4" Serrated Flange Black Bolts

Photo 10

## Drain Hose Installation

1. Locate the evaporator drain on the bottom of the evaporator case.
2. In line with the drain, lightly make a mark on the firewall. Measure 1" down, then drill a 5/8" hole through the firewall (See Photo 1, below). **NOTE: To ensure a tight fit, do not enlarge the hole to more than 5/8".**
3. Locate the drain hose and cut it to 7". Install the drain elbow, then install the remaining piece of hose (See Photos 2 and 3, below).
4. From the engine compartment, route the 7" piece of drain hose through the firewall and connect it to the evaporator drain outlet (See Photos 4 and 5, below).
5. Route the drain away from the exhaust.

In line with drain, lightly make a mark on firewall.



Drill 5/8" Hole

Photo 1

Install drain elbow then install remaining piece of hose



Photo 3

Cut drain hose to 7"

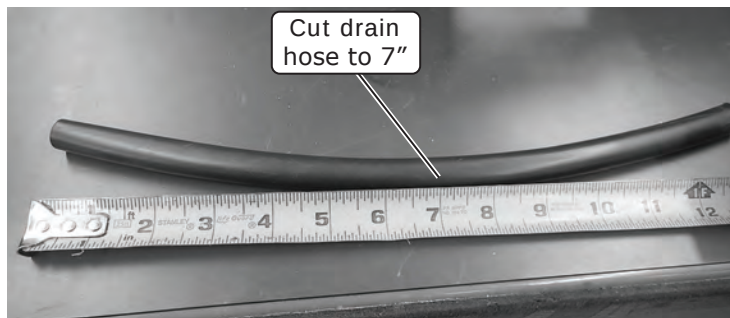


Photo 2

From engine compartment, route 7" piece of drain hose through firewall and connect it to evaporator drain outlet



Photo 4



Photo 5



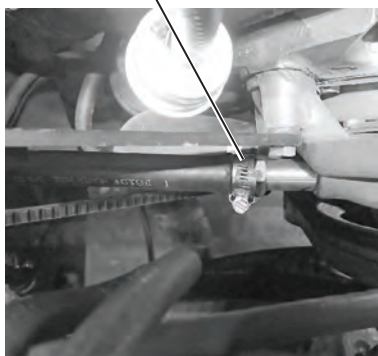
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## Heater Hose & Heater Control Valve Installation

**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 fresh air cap 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).**
3. Install another length of heater hose from the heater control valve to the intake, then secure it using the supplied hose clamp (See Photo 3, below).
4. Plug the heater control valve connector into the heater control valve connector wiring harness (See Photo 4, below).

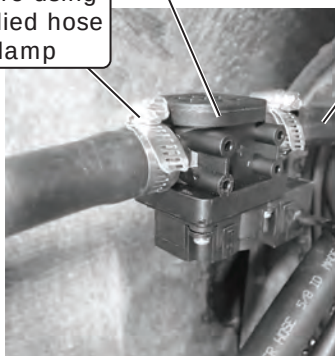
Route lower heater hose to water pump fitting, then secure it using supplied hose clamp



**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

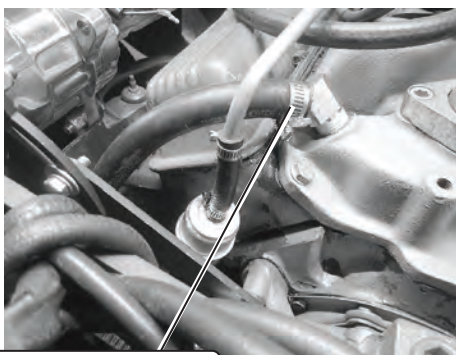
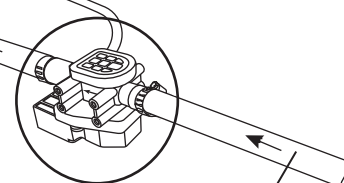
From Heater Control Valve to Heater Core

Heater Hose

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

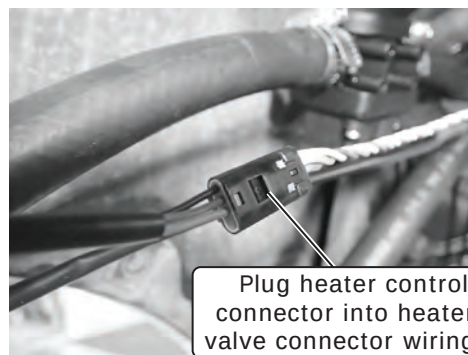
**Figure 1**

From Intake Manifold



Install another length of heater hose from heater control valve to intake, then secure using hose clamp

**Photo 3**



Plug heater control valve connector into heater control valve connector wiring harness

**Photo 4**



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## A/C Hose Installation

### Standard Hose Kit:

1. Locate the #8 compressor A/C hose. Lubricate (2) #8 O-rings (See Lubricating O-rings, Page 13), and connect the 90° female fitting with service port to the #8 discharge port on the compressor (See Photo 1, below). Then, route the 90° fitting to the #8 condenser fitting (See Photo 2, below). Tighten each fitting connection.
2. With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 13), connect the #10 135° female fitting with service port to the #10 suction port on the compressor (See Photo 1, below).
3. With a properly lubricated #6 O-ring (See Lubricating O-rings, Page 13), connect the #6 45° fitting to the drier (See Photo 3, below).

### Modified Hose Kit:

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

Connect #8 A/C hose 90° female fitting with service port to #8 discharge port on compressor

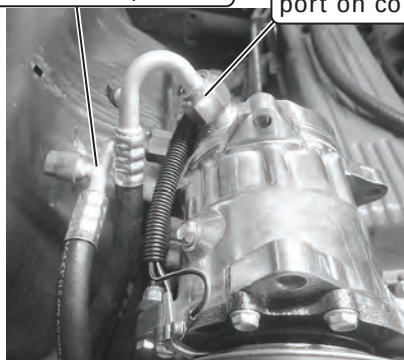


Photo 1

Connect #10 A/C hose 135° female fitting with service port to #10 suction port on compressor

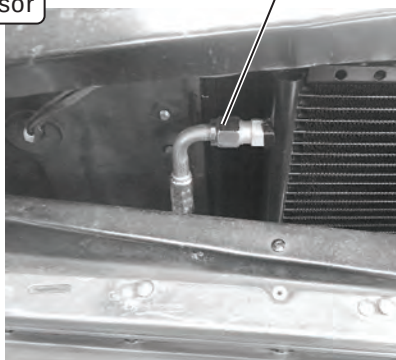


Photo 2

Connect #6 A/C hose 45° fitting to drier



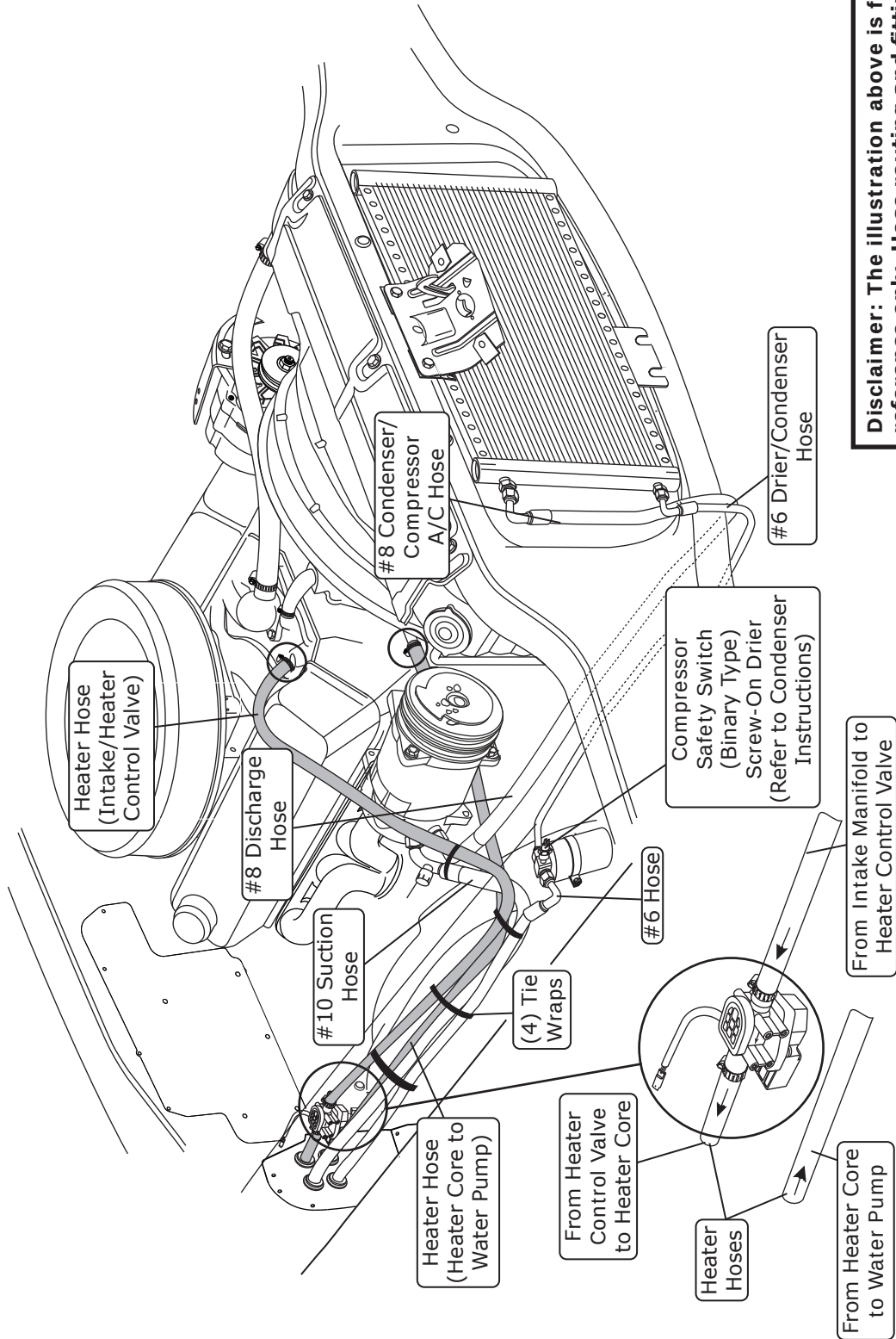
Photo 3



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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.



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## Dash Support Bracket Installation

1. Loosely install the new dash support bracket using a 5/16-18 x 3/4" hex bolt in the top mounting location (See Photo 1, below). Use a 1/4-20 x 3/4" hex bolt with a .625" O.D. x .281" I.D. washer in the lower mounting location and secure using a 1/4-20 hex nut with star washer (See Photos 2 and 3, below). Once the bracket is in place tighten hardware.

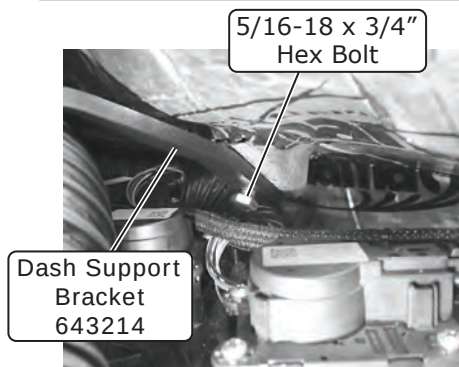


Photo 1

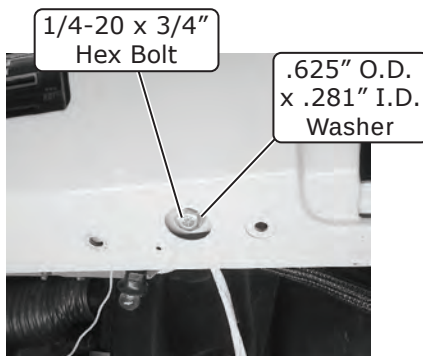


Photo 2



Photo 3

## Wiring Final

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. Select a suitable mounting location for the main relay.

Attach violet wire to switched power source



Photo 1

Connect main harness to ECU



Photo 2

## 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 29).
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 29).

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

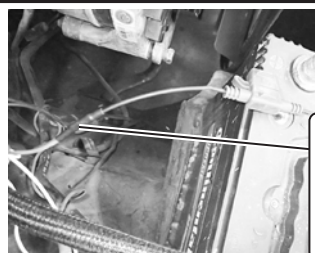


Photo 2



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## Engine Compartment Wiring (Cont.)

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 29)
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.**



Photo 3

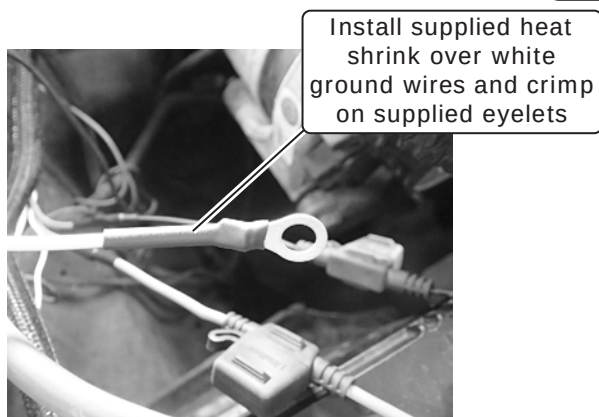


Photo 4

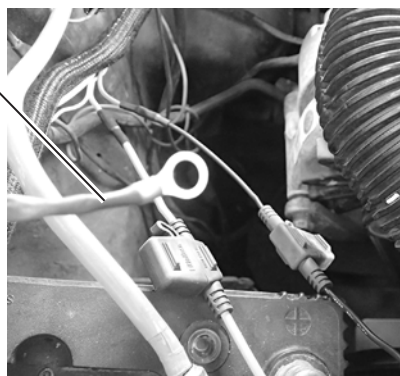
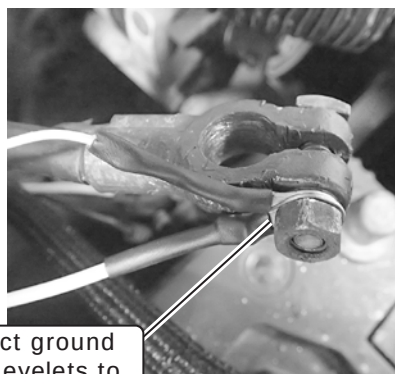
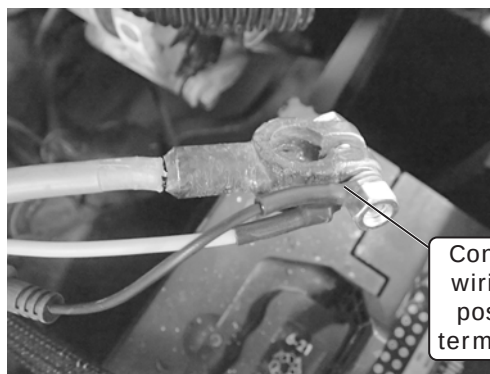


Photo 5



Connect ground wiring eyelets to negative battery terminal connector

Photo 6



Connect positive wiring eyelets to positive battery terminal connector

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

Photo 7



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## Final Steps: Installation Check

| Installation Check                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ITEM TO CHECK                                         | Procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <input type="checkbox"/> ECU                          | <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"/> Blower speed control         | <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"/> Mode control                 | <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"/> Temperature control          | <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"/> AC Indicator (If applicable) | <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"/> Backlight (If applicable)    | <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"/> Fittings                     | <p>Verify AC and Heater fittings are all tight.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



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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.

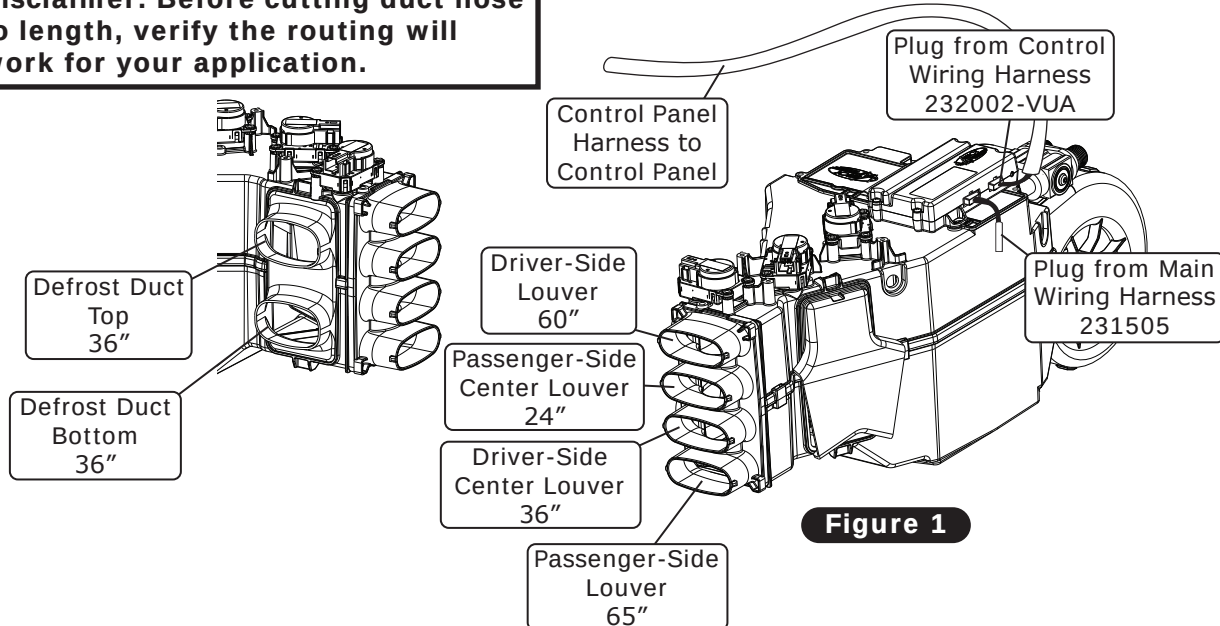
1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).
2. Refer to Figure 1, below, for duct hose routing.
3. Attach 2 1/2" duct hose to each hose adapter and connect to the evaporator as shown in Figure 1, below.
4. Recommended duct hose routing shown in Photos 2 and 3, below.

Stretch, measure,  
mark and cut  
hose to size

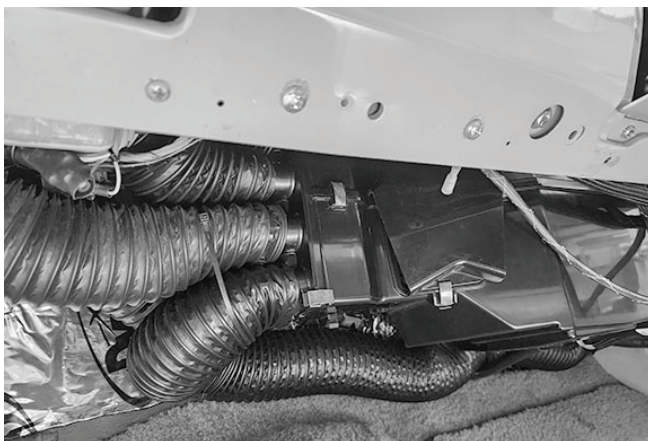


**Photo 1**

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

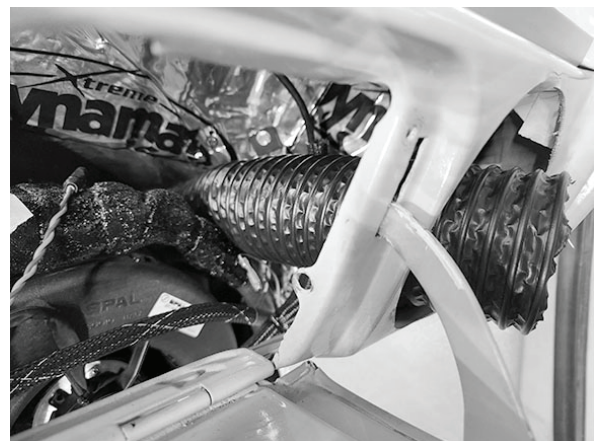


**Figure 1**



**Recommended Duct Hose Routing**

**Photo 2**



**Recommended Duct Hose Routing**

**Photo 3**



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## Final Steps: Completing the Install

1. Install duct hoses as shown in Figure 1, Page 27.
2. Install the control panel assembly. Refer to the control panel instructions.
3. Insert the new glove box assembly open side up, right side first (See Photo 1, below). Rotate the glove box assembly forward into position, lining up the (4) mounting holes (See Photos 2 and 3, below).
4. Using (4) #8 x 1/2" pan head screws, secure the glove box to the dash (See Photo 4, below).
5. Reinstall the glove box door using the OEM hardware (See Photos 5 and 6, below).
6. Reinstall all previously removed items (battery tray, battery, and inner fender). Modify passenger-side kick panel as needed.
7. 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.
8. Double check all fittings, brackets and belts for tightness.
9. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
10. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
11. Charge the system to the capacities stated on Page 4 of this instruction manual.
12. See Operation of Controls procedures on Page 32.

Insert glove box assembly open side up, right side first



Photo 1

Glove Box Assembly 625666

Rotate glove box forward into position lining up (4) mounting holes

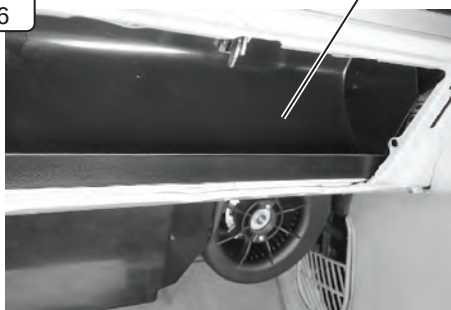


Photo 2

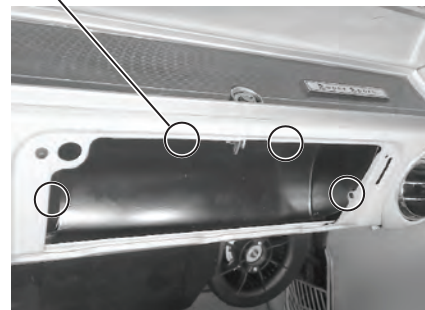


Photo 3

Using (4) #8 x 1/2" pan head screws, secure glove box to dash

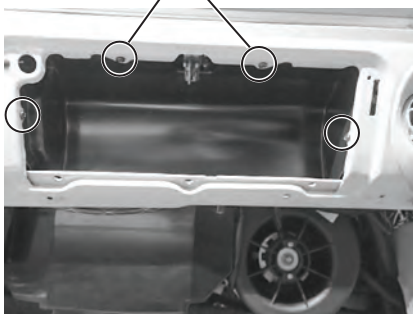


Photo 4

Reinstall glove box door using OEM hardware

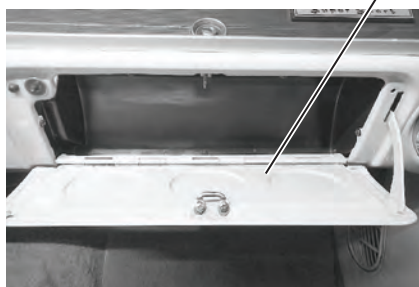


Photo 5

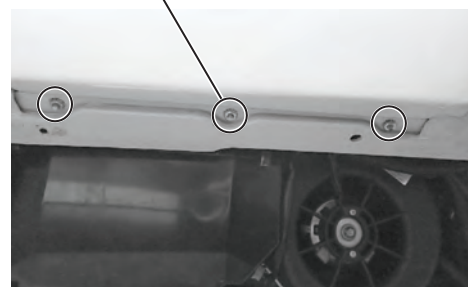


Photo 6



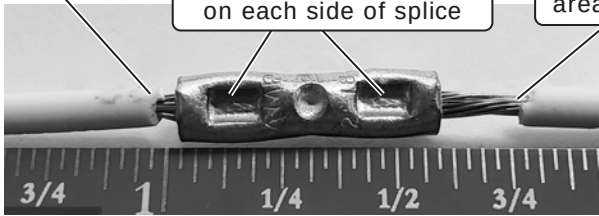
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## Quality Crimp Guideline

Acceptable strip length  
(Some copper visible)

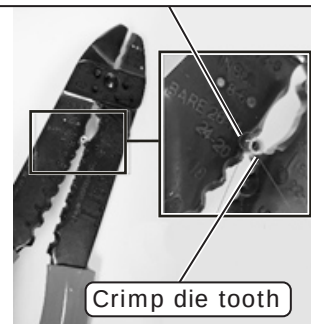
Crimped area is centered  
on each side of splice

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



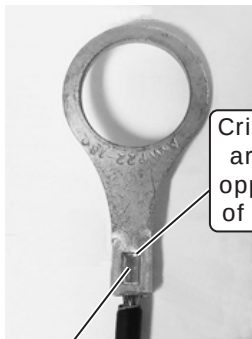
**Photo 1**

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



**Photo 2**

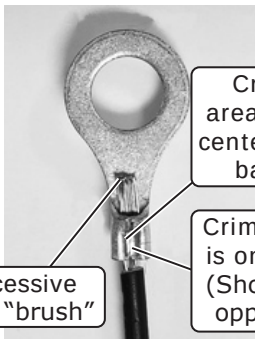
### Good Ring Terminal Crimp Bad Ring Terminal Crimp



Crimped  
area is  
opposite  
of seam

**Photo 3**

Crimp  
area is  
centered  
on barrel



Crimp  
area is not  
centered on  
barrel

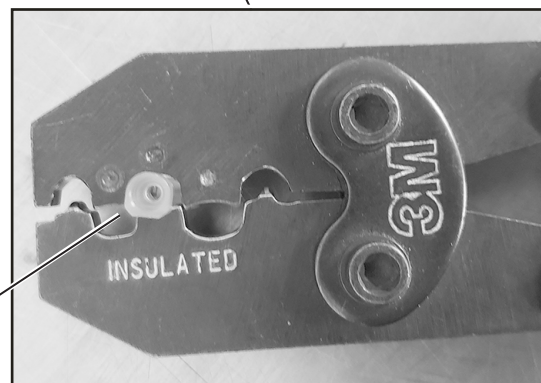
Excessive  
wire "brush"

Crimp area  
is on seam  
(Should be  
opposite)

**Photo 4**



**Photo 5**



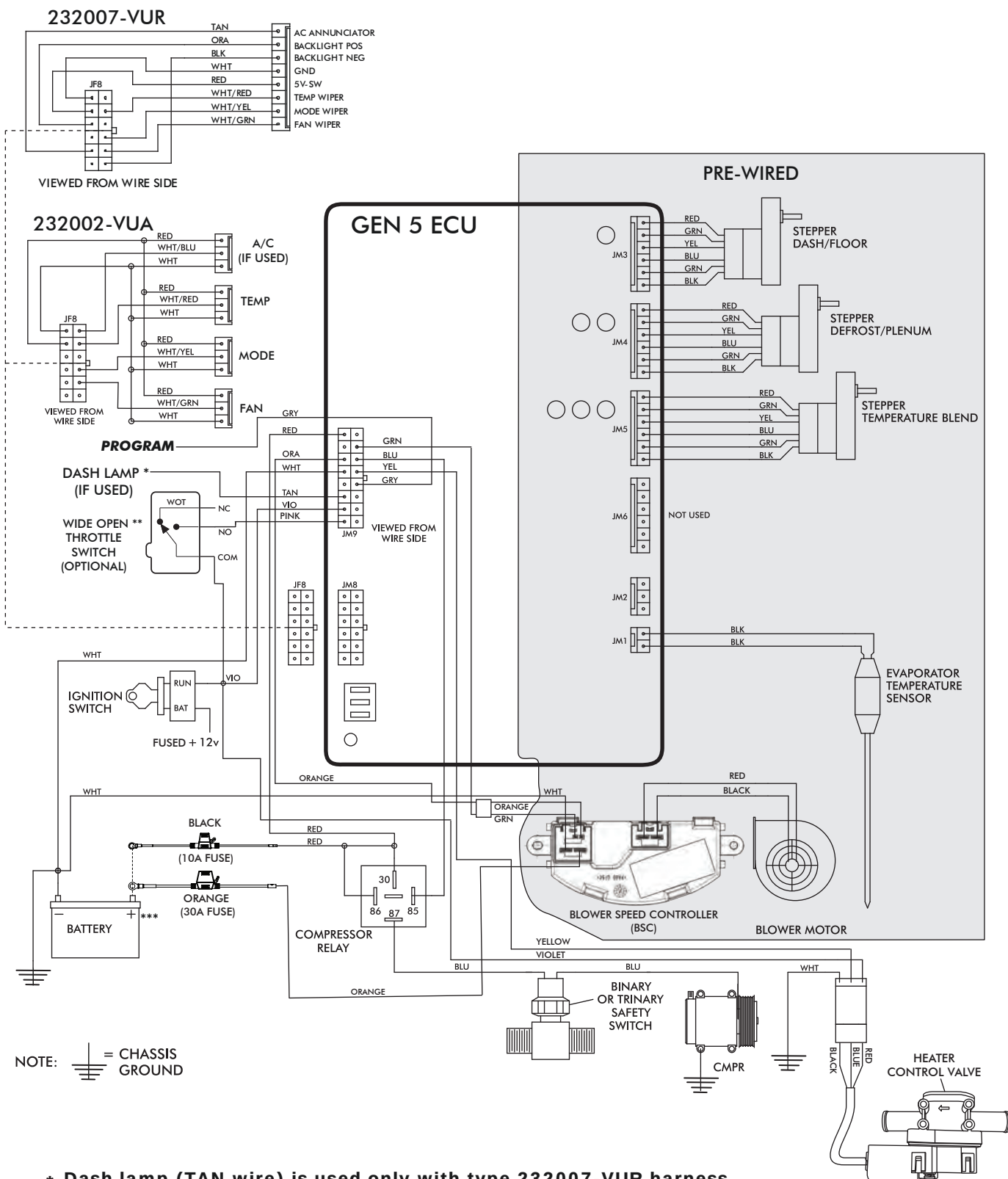
**Photo 5a**

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



\* 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.

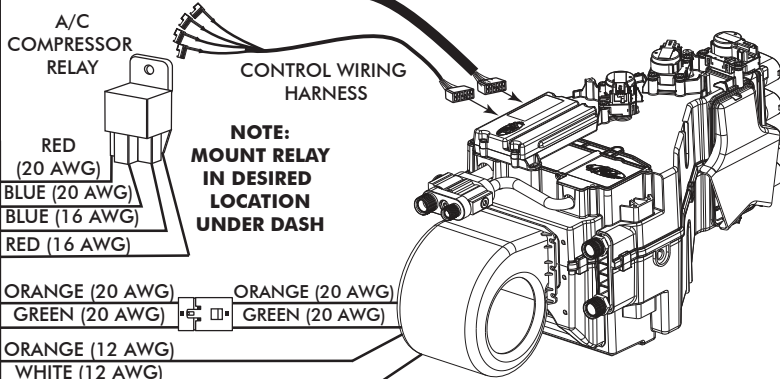
\*\*\* Install fuse assemblies at or as near to the battery as possible.



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## Gen 5 Wiring Instructions

WIRING HARNESS (231505) ↓



### 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.

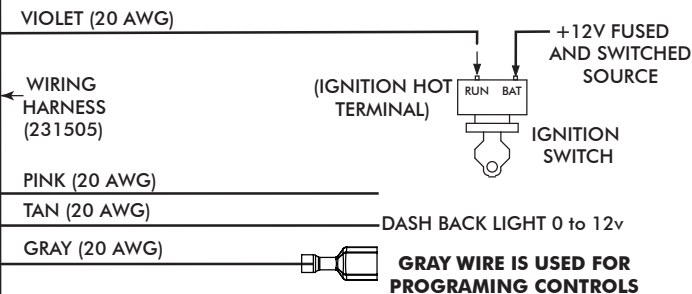
### Wide Open Throttle Switch (Optional):

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):

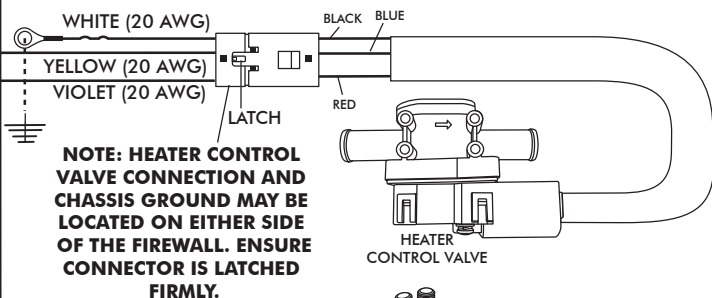
If using a Vintage Air control panel with back light, connect the 20 AWG tan wire to the vehicle's dash back light 0-12V using provided butt splice (PN 226004).

WIRING HARNESS (232020) →



FIREWALL

FIREWALL



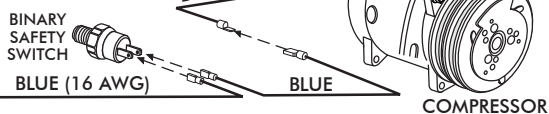
### Heater Control Valve:

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:

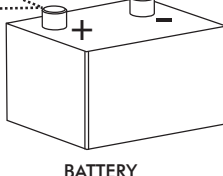
**Binary Switch:** Terminate provided insulated female terminal (PN 23172-VUW) to the blue 16 AWG wire. Connect as shown.

**Trinary Switch:** Connect according to trinary switch wiring diagram.



WHITE (12 AWG)  
WHITE (20 AWG)  
ORANGE (12 AWG)  
RED (16 AWG)

**NOTE: CONNECT WHITE WIRES DIRECTLY TO (-) BATTERY TERMINAL**



### 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 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

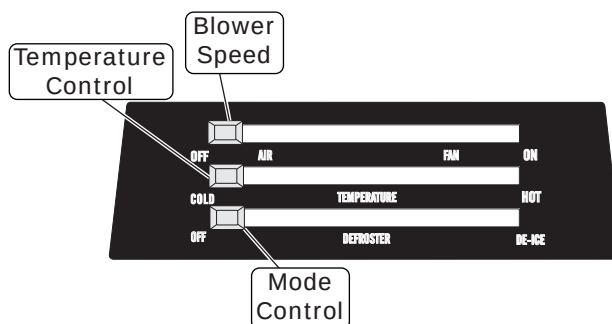
This lever/knob controls blower speed, from OFF to HI.

### 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

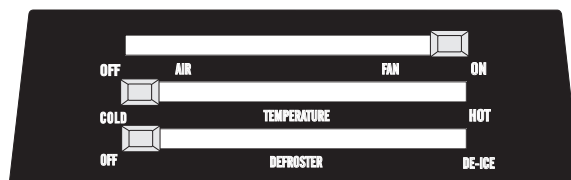
Adjust to desired speed.

### 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

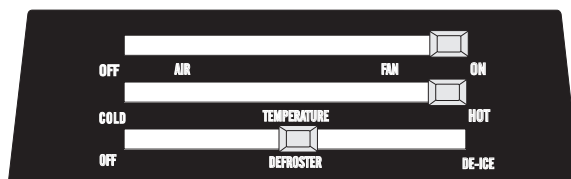
Adjust to desired speed.

### 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

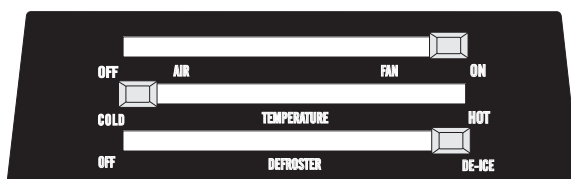
Adjust to desired speed.

### 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.<br>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.                                                                                           |                                                                                                                                                                                                                           |
|                                                                | All other functions work. | Check for a bad ECU GND.<br>Check for damaged pins or wires in the control panel wire assembly and mating header at ECU.<br>Check if Blower power fuse is blown.<br>Check for a bad ECU GND. | If found damaged, replace wire assembly or ECU.<br>Replace fuse.<br>Repair connection.                                                    | 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.                                                                |
| 2.<br>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).<br>Check for disconnected or faulty thermistor.                                                  | Check continuity to ground on white control head wire.<br>Check for 5V on red control head wire.<br>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.<br>Disconnected or faulty thermistor will cause compressor to be disabled. |
| 3.<br>Compressor will not turn off (All other functions work). |                           | Check for faulty A/C potentiometer or associated wiring.<br>Check for faulty A/C relay.                                                                                                      | Repair or replace pot/control wiring.<br>Replace relay.                                                                                   | 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.                        |



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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.             | Check for power at ECU, and confirm ignition is being applied to ECU properly.                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                     |                                                                    | Verify battery voltage is greater than 10 volts and less than 16 while engine is running. | 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.                     |                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                            |
| 6. Blower turns on and off rapidly.                 | Battery voltage is at least 12V.                                   | Check for at least 12V at circuit breaker.                                                | Ensure all system grounds and power connections are clean and tight.                                                                                                                          | System shuts off blower at 10V. Poor connections or weak battery can cause shutdown at up to 11V.                                                                                                                                                                                                                                                                                                          |
|                                                     | Battery voltage is less than 12V.                                  | Check for faulty battery or alternator.                                                   | Charge battery.                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                            |
| 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 (564273)

| No. | Qty. | Part No. | Description                            |       |
|-----|------|----------|----------------------------------------|-------|
| 1.  | 1    | 765225   | Gen 5 Super Magnum Module with 444 ECU | _____ |
| 2.  | 1    | 784273   | Accessory Kit                          | _____ |

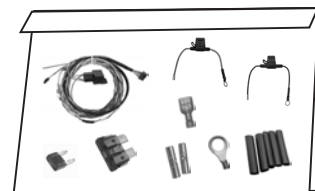
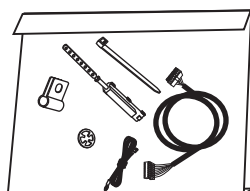
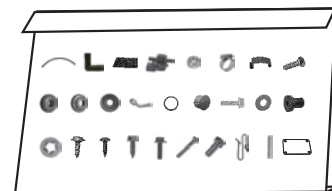
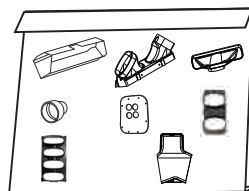
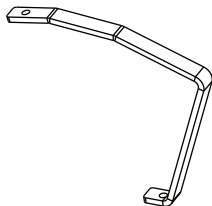
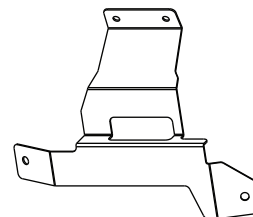
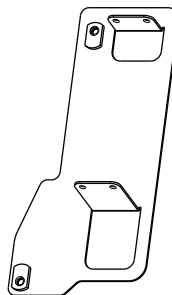
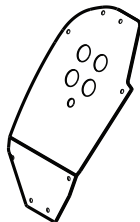
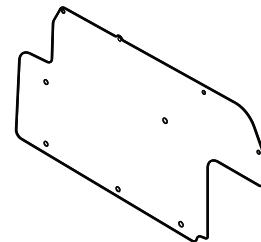
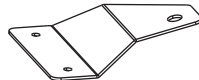
Checked By: \_\_\_\_\_  
Packed By: \_\_\_\_\_  
Date: \_\_\_\_\_

1



**Gen 5 Super Magnum  
Module with 444 ECU  
765225**

2



**Accessory Kit  
784273**

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