# 1969-70 Ford Mustang

*with* **Factory Air**
**Gen 5 Evaporator Kit**
**(554967)**

**18865 Goll St.  San Antonio, TX 78266**
**Phone: 800-862-6658**
**Sales: sales@vintageair.com**
**Tech Support: tech@vintageair.com**
**www.vintageair.com**

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# Packing List: Evaporator Kit (554967)

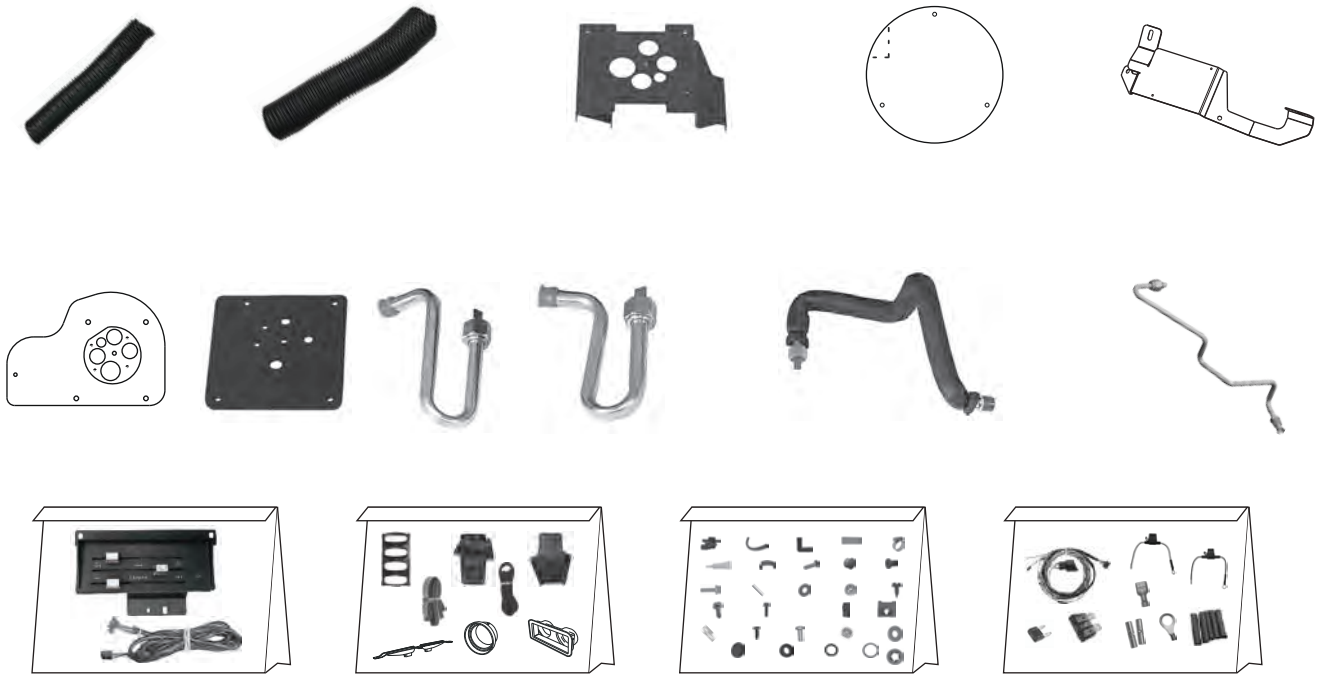
| No. | Qty. | Part No. | Description |
|---|---|---|---|
| **1.** | 1 | 765200 | Gen 5 Magnum Max Module with 404 ECU |
| **2.** | 1 | 784967 | Accessory Kit |

**** 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 784967**

**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.

# Engine Compartment Disassembly

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

**Perform the following:**

1. Remove the battery (retain).
2. Drain the radiator.
3. Evacuate the A/C system (if necessary).
4. Remove the OEM condenser and drier (discard) (See Figure 1, below).
5. Remove the OEM compressor and bracket (discard) (See Figure 1, below).
6. Remove the OEM heater hoses and A/C hoses (discard) (See Figure 1, below).

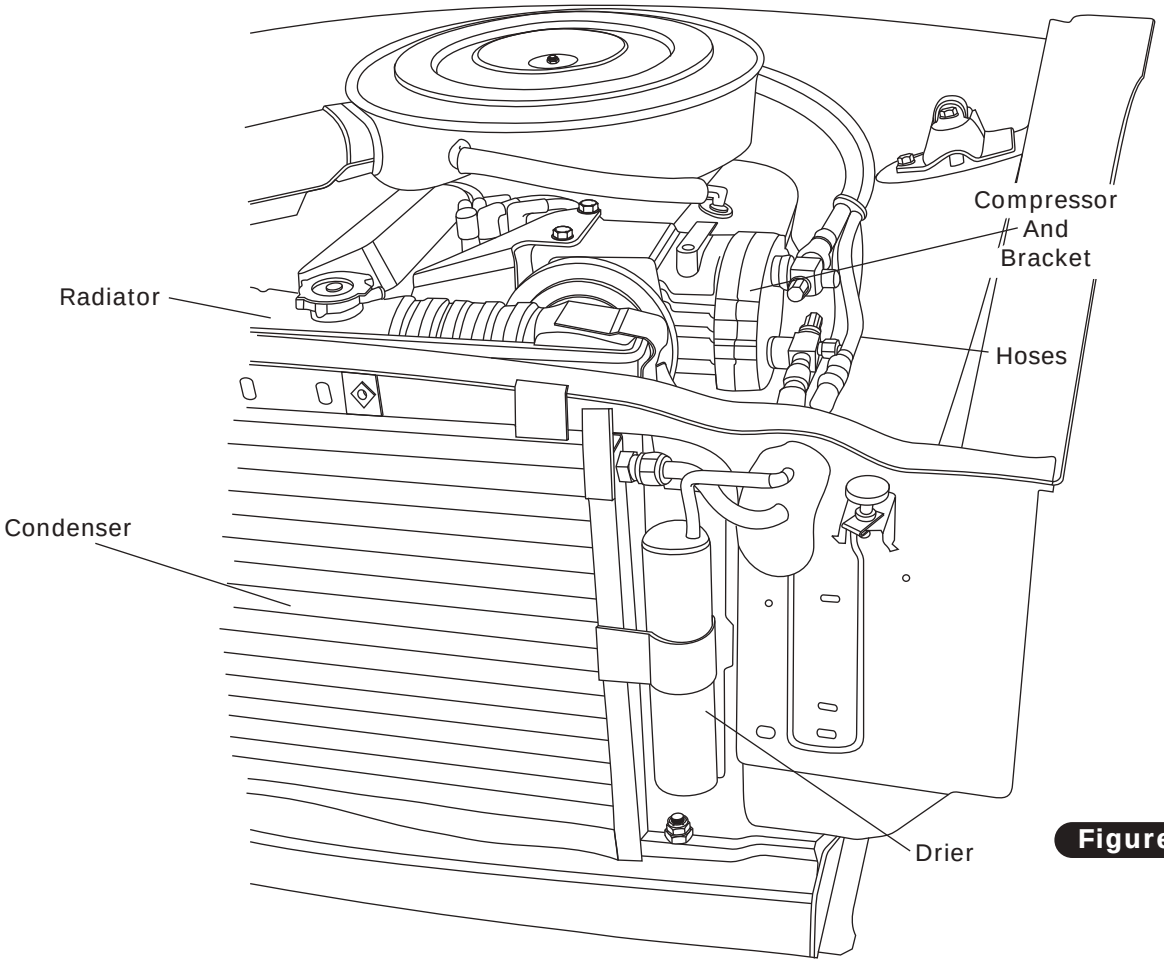



**Figure 1**

# 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 and bracket.

# Passenger Compartment Disassembly

**NOTE: Removal of the dashboard is required to install the evaporator. Vintage Air recommends that you utilize the factory service manual when you disassemble and reassemble the dashboard.**

**Remove the following:**

1. Remove the dash pad, instrument panel, passenger-side panel and lower passenger-side dashboard (retain screws) (See Figure 1, below).
2. Remove the glove box (retain) (See Figure 1, below).
3. Remove the A/C heater/evaporator assembly and all related ducting (discard) (retain screws) (See Figure 2, below).
4. Remove the control panel assembly (retain the control panel) (See Figure 1, below).
5. Refer to the control panel conversion kit instructions for installation of controls.
6. Remove the OEM defrost duct assembly (See Figure 2, below)

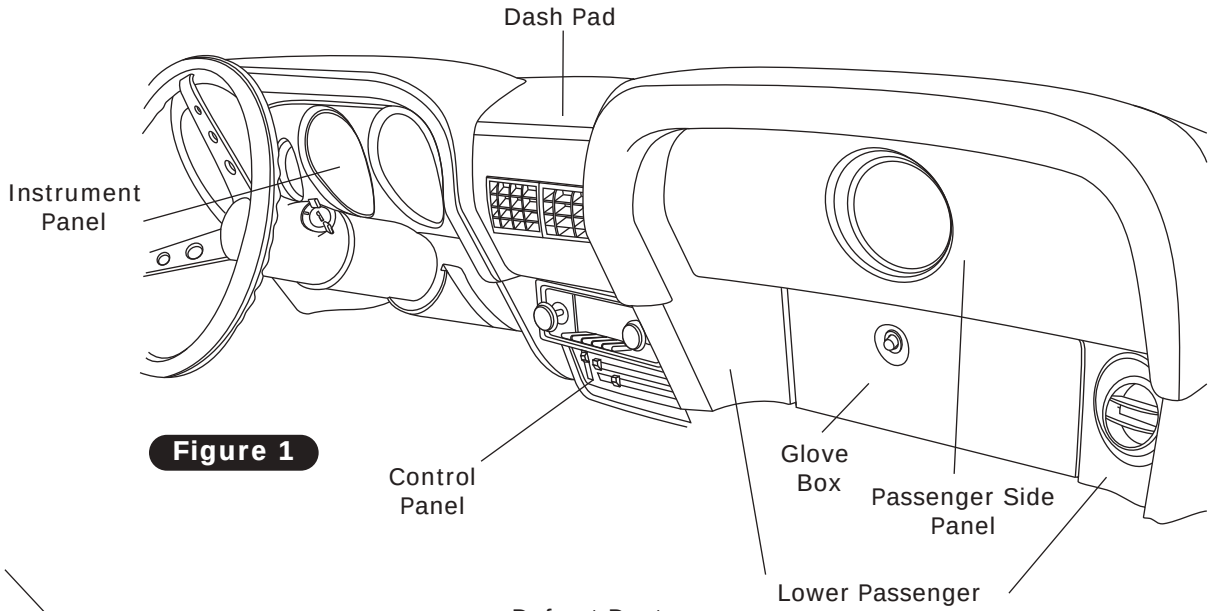



**Figure 1**

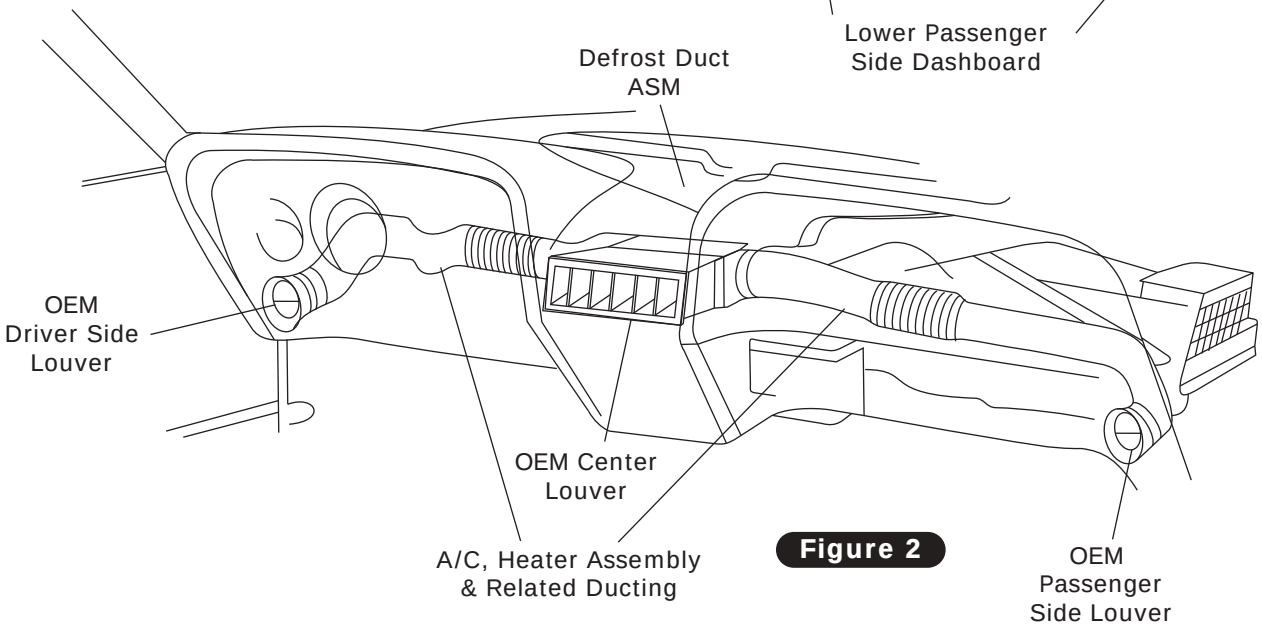



**Figure 2**

# Passenger Compartment Disassembly (Cont.)

**7.** Remove the vacuum lines and grommet (See Photo 1, below).

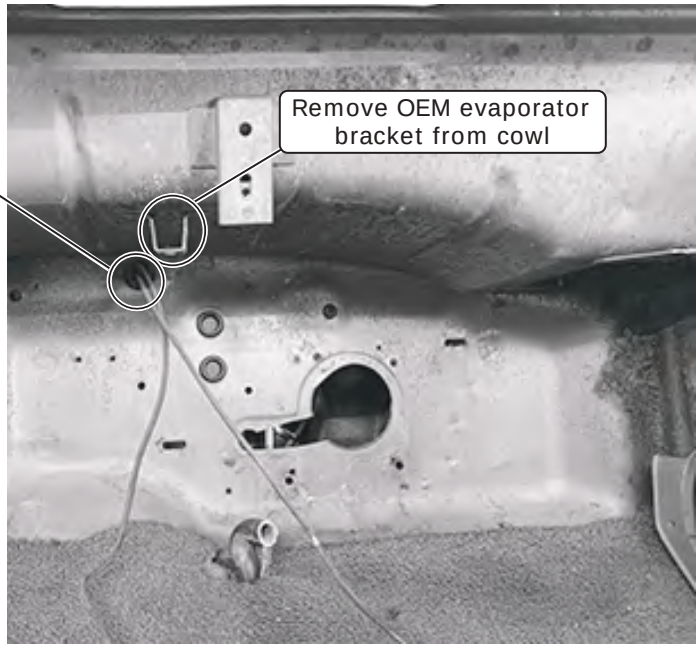



**Photo 1**

## Firewall Modification and Insulation

**NOTE: The firewall requires modification for the drain hose to be installed. For proper system operation, Vintage Air recommends using heat-blocking insulation in the area around the evaporator module (firewall, kick panel, inner cowl, 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 1/4". Vintage Air recommends using Dynaliner #461501-VIP. 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. Remove the OEM evaporator bracket (if equipped) from the cowl (See Photo 1, above). **NOTE: This bracket is not needed, and will interfere with the installation.**
2. Locate the evaporator firewall bracket and install (2) 1/4-20 x 1" full-threaded studs into the upper and lower weld nuts as shown in Photo 1, below. The hex head should be installed to face out to the engine compartment.

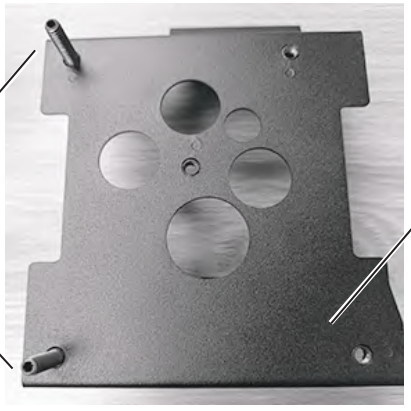



**Photo 1**

# Firewall Modification and Insulation (Cont.)

3. Place the firewall bracket into the OEM mounting holes as shown in Photo 2, below. Level the firewall bracket and mark the (2) mounting holes to be drilled (See Photo 2, below).
4. Remove the firewall bracket from the firewall and drill the (2) marked holes using a 11/64" drill bit. Also drill the OEM firewall hole marked in Photo 3, below.
5. Install (3) 1 ¼" grommets into the firewall openings (See Photo 4, below). **NOTE: Apply silicone / sealer if needed.**
6. Locate the OEM evaporator firewall washers, (2) 1/4-20 x 3/4" bolts and (2) 1/4" pushnut bolt retainers (See Photo 5, below).

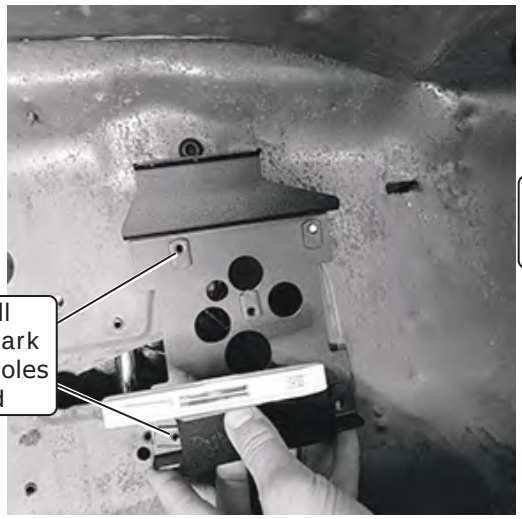



Photo 2

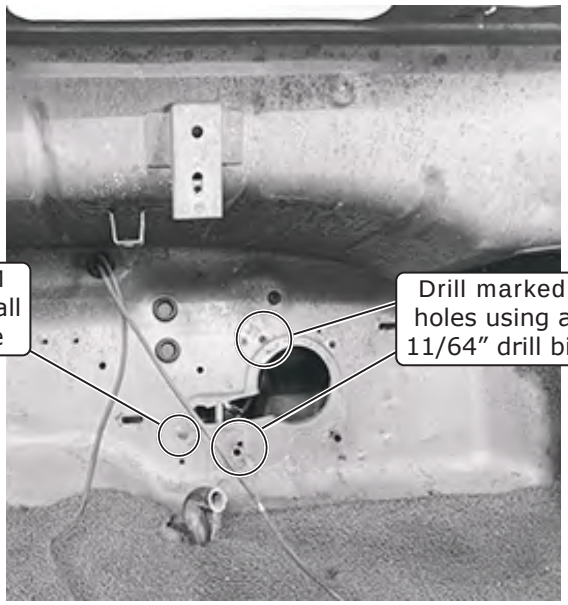



Photo 3

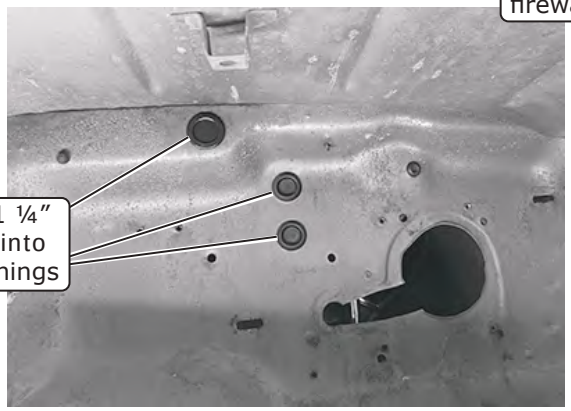



Photo 4

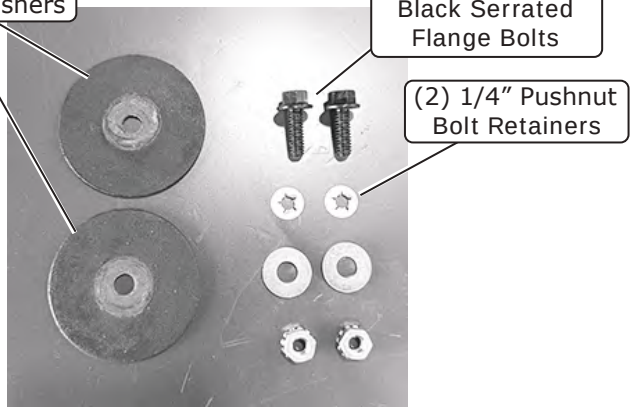



Photo 5

# Firewall Modification and Insulation (Cont.)

**7.** Install the bolts and retainers onto the OEM evaporator firewall washers as shown in Photos 6 and 7, below. Apply sealer (See Photo 8, below), then install them into the firewall in the OEM locations (See Photos 9 and 10, below). Secure using (2) washers and (2) 1/4-20 nuts with star washers (See Photos 9 and 10, below).

**8.** Apply insulation at this time (See Photo 11, below). **NOTE: Cut out openings for hardlines and hardware (See Photo 11, below).**


**Photo 6**

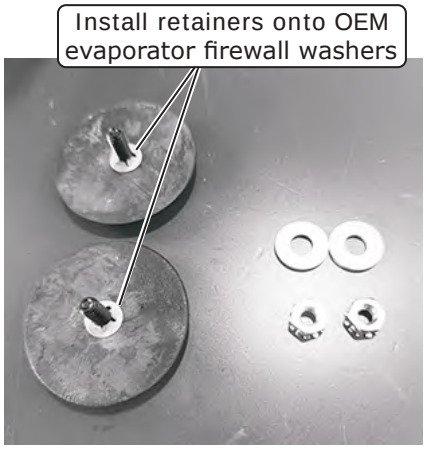
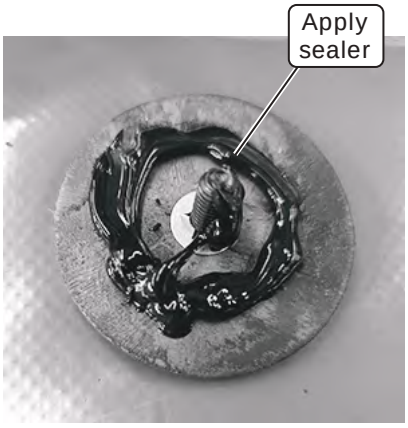



**Photo 7**

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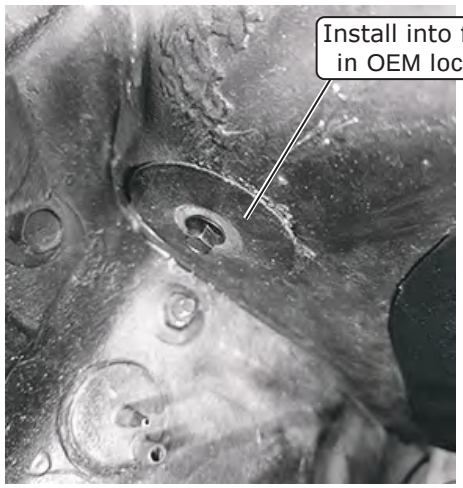


**Photo 9**

**Photo 10**

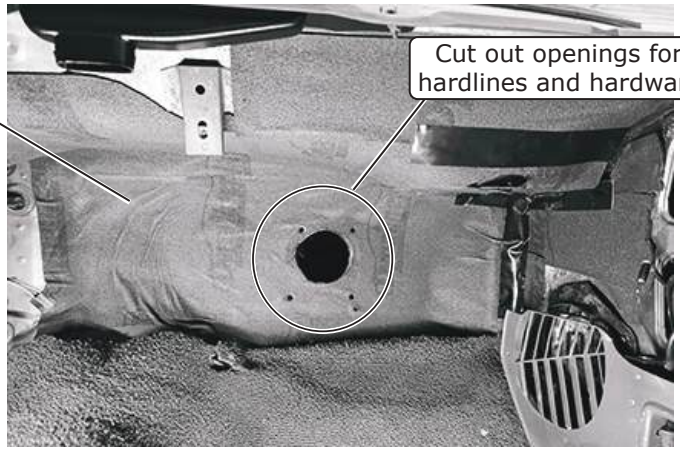


**Photo 11**

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# Defrost Duct and Fresh Air Cap Installation

1. Install the defrost duct under the dash as shown in Figure 1, below. Secure it using the OEM nuts with (3) 3/16" flat washers.
2. Hold the fresh air cap under the dash and mark the (3) mounting holes.
3. Drill (3) 1/8" mounting holes under the dash.
4. Apply a 1/4" bead of silicone around the back side of the fresh air cap as shown in Figure 1, below.
5. Secure the fresh air cap to the fresh air hole using (3) #10 x 1/2" sheet metal screws as shown in Figure 1, below.

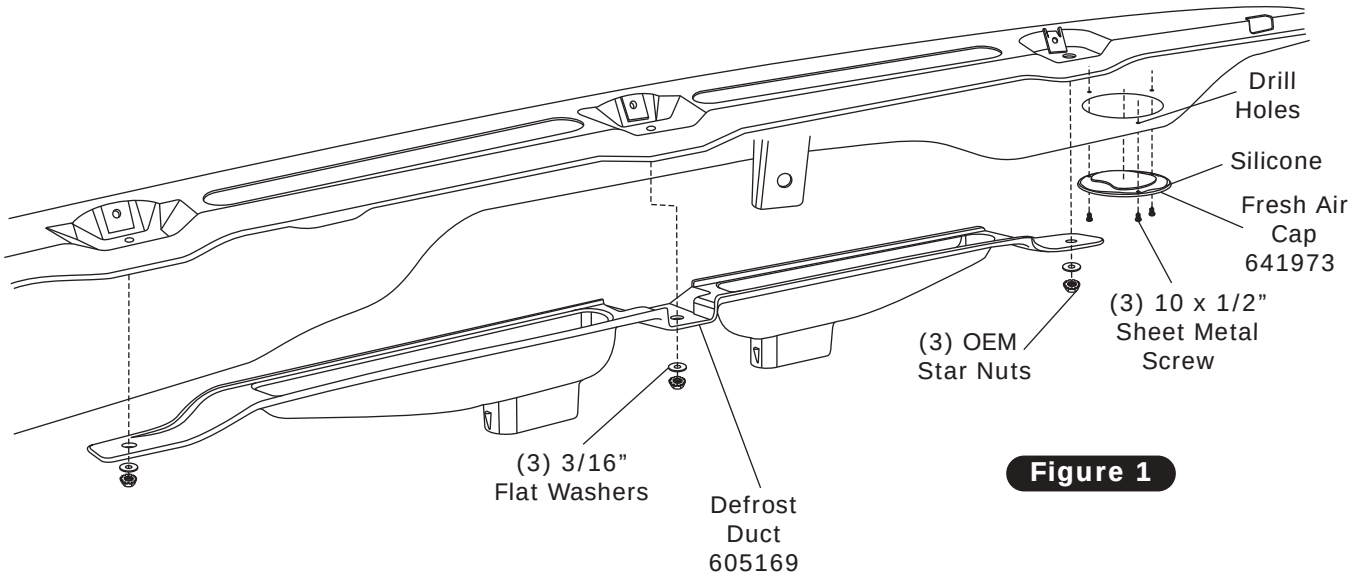
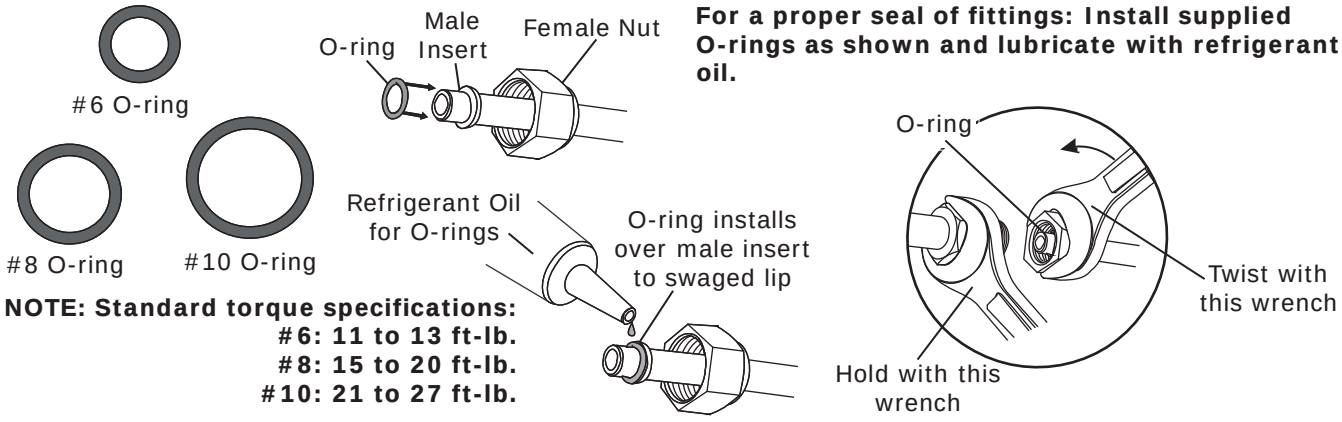



**Figure 1**

# Lubricating O-rings




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

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

# 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 Preparation

**Perform the following on a workbench:**

1. Install (3) 1/2” plastic plugs into the back of the evaporator module (See Photos 1, 2, 3 and 4, below).
2. With a properly lubricated #6 O-ring (See Lubricating O-rings, Page 11), loosely install the #6 liquid hardline onto the #6 fitting on the block valve adapter (See Photo 5, below).
3. With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 11), loosely install the lower heater hardline onto the lower heater fitting (See Photo 6, below).

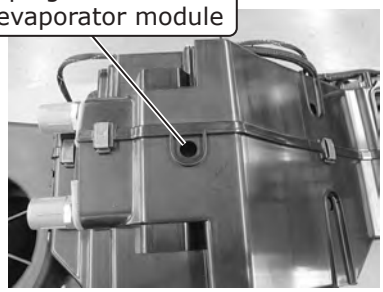



**Photo 1**

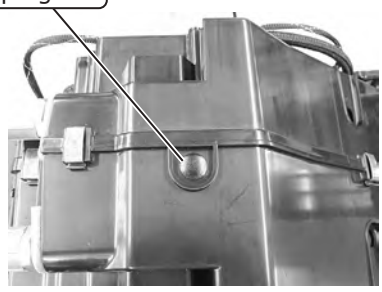



**Photo 2**

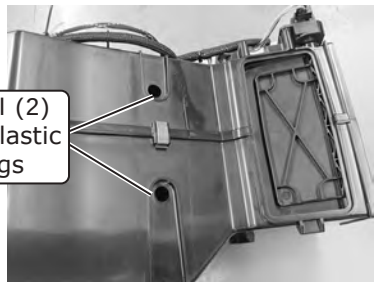



**Photo 3**

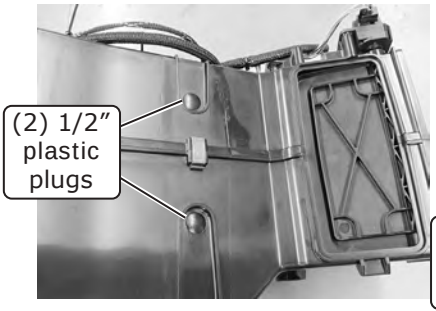



**Photo 4**

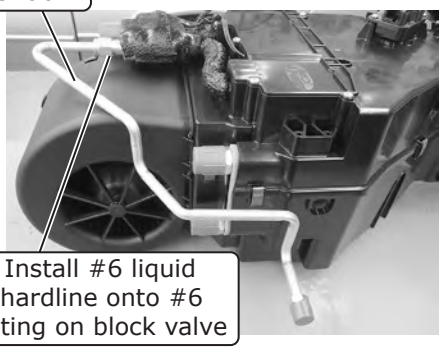



**Photo 5**

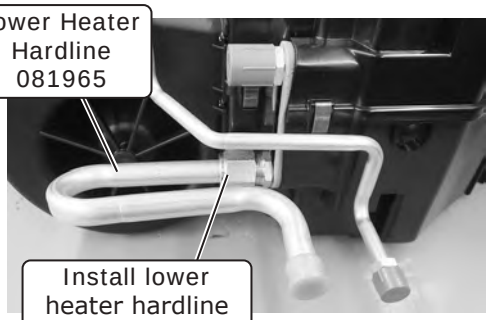



**Photo 6**

# Evaporator Preparation (Cont.)

4. With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 11), loosely install the top heater hardline onto the top heater fitting (See Photo 7, below).
5. With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 11), loosely install the #10 suction hardline onto the #10 fitting on the block valve adapter (See Photo 8, below).
6. Place the evaporator firewall bracket over the evaporator hardlines, and adjust the hardlines so each hardline is centered in the bracket (See Photo 9, below). Remove the firewall bracket, then tighten the hardlines.
7. Wrap all exposed metal at the block fitting adapter of the #10 suction hardline with press tape (See Photos 10 and 11, below).
8. Route the heater control valve connector and wiring through the wiring opening on the firewall bracket (See Photo 12, below).

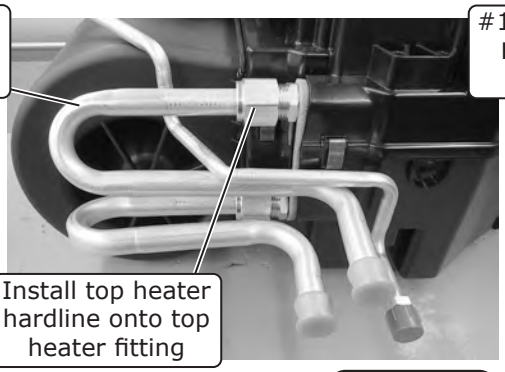
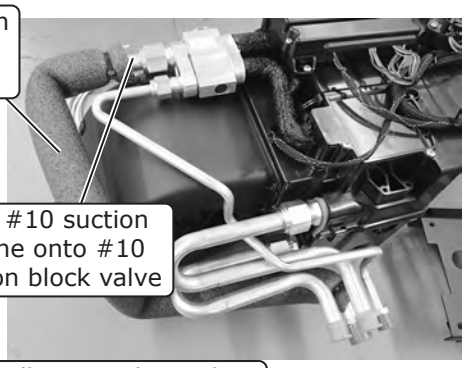



**Photo 7**

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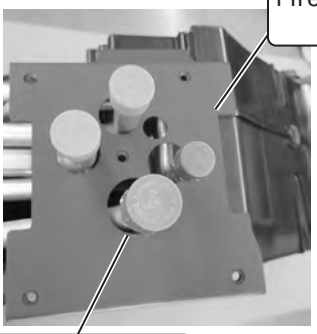



**Photo 9**

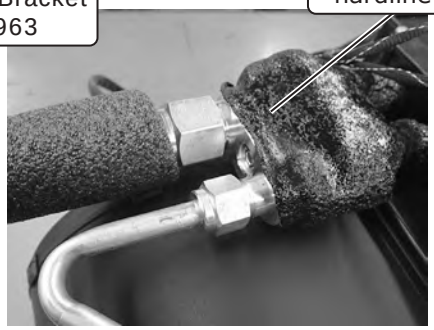



**Photo 10**

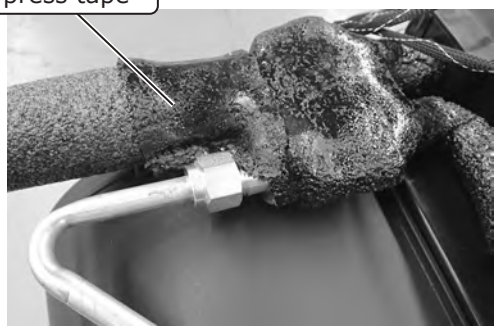


**Photo 11**

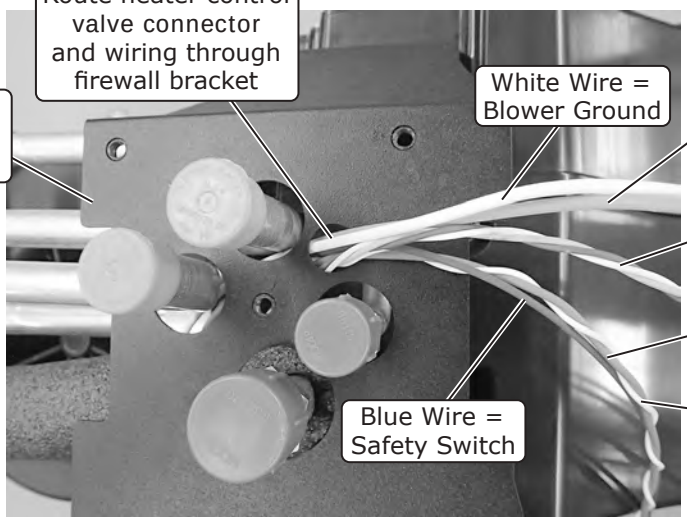



**Photo 12**

# Evaporator Preparation (Cont.)

**9.** Install the firewall bracket onto the rear of the evaporator module and secure it using (4) #10 x 5/8" screws (See Photos 13, 14 and 15, below).

**10.** Route the heater control valve connector and wiring through the firewall bracket rubber boot, then install it over the evaporator hardlines (See Photos 16 and 17, below).

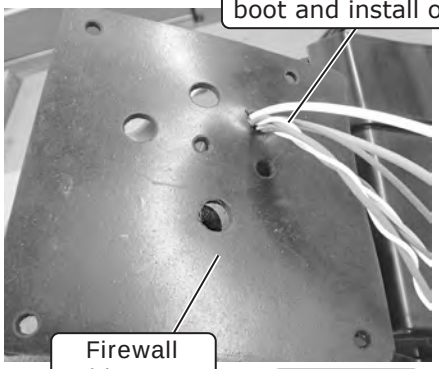
**11.** Install (2) 1/4-20 x 1" full-threaded studs into the top mounting holes of the evaporator mounting bracket (See Photo 18, below).

**12.** Using (2) spring clips, install the floor plenum onto the back of the evaporator module (See Photos 19 and 20, below).


**Photo 13**


**Photo 14**

**Photo 15**

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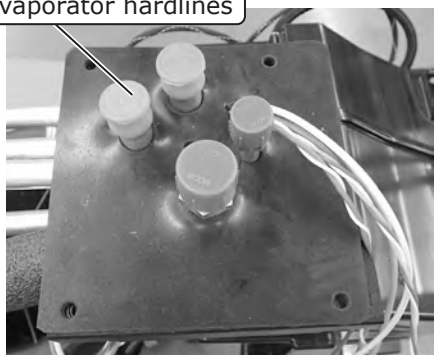


**Photo 17**

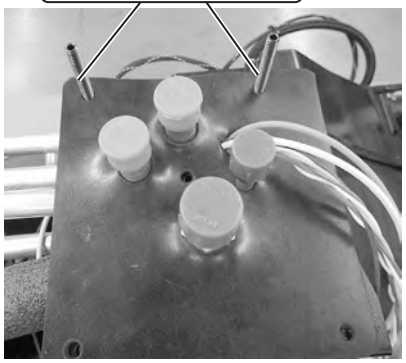



**Photo 18**


**Photo 19**

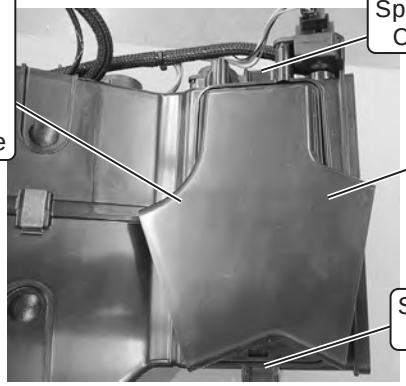



**Photo 20**

# Evaporator Preparation (Cont.)

**13.** Using (4) spring clips, install the dash plenum (See Photos 21, 22 and 23, below).

**14.** Using (2) spring clips, install the defrost plenum onto the front of the evaporator module (See Photos 24 and 25, below).

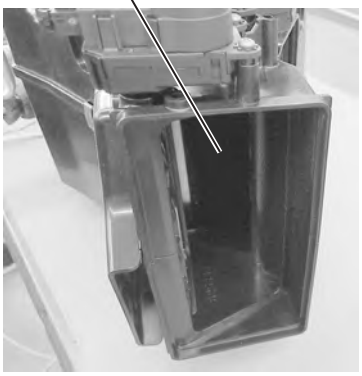



**Photo 21**

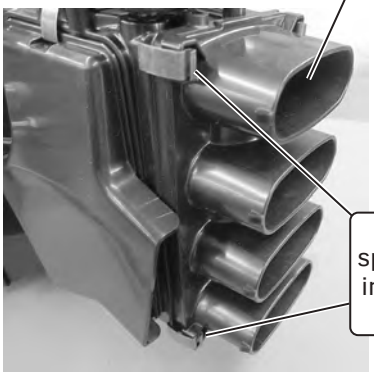



**Photo 22**

**Photo 23**

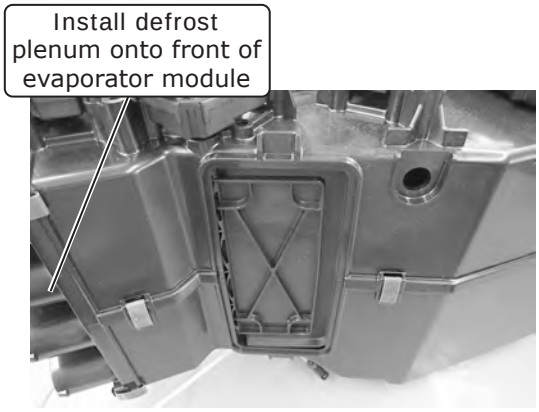



**Photo 24**

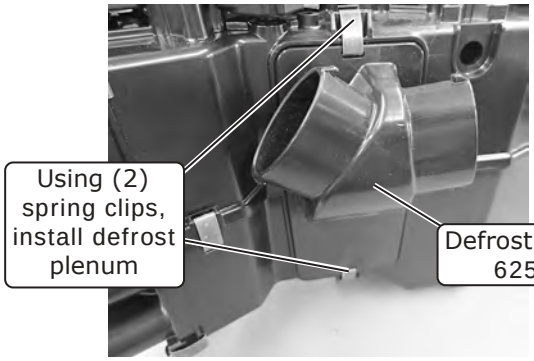



**Photo 25**

# Evaporator Preparation (Final)

**15.** Install (2) 1/4-20 well nuts into the front mounting locations (See Photo 26, below).
**16.** Using (2) 1/4-20 x 1" serrated flange bolts, install the evaporator dash bracket (See Photo 27, below).


Photo 26

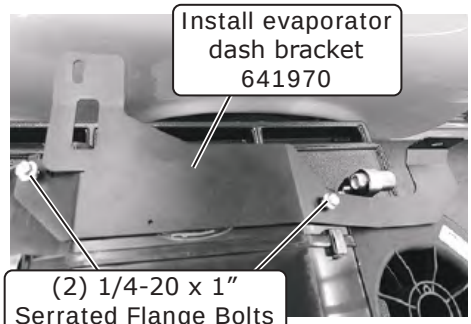



Photo 27

# Evaporator Installation (Passenger Compartment)

**1.** Place the evaporator module on the passenger-side floorboard (See Photo 1, below).
**2.** Route the heater control valve connector and wiring into the engine compartment through the firewall opening. **NOTE: Leave approximately 2' of wiring between the main relay and firewall (See Photo 2, below).**
**3.** Replace the OEM U-nut with the supplied 1/4-20 U-nut (See Photo 3, below).
**4.** Lift the evaporator module into position, using the (2) 1/4-20 x 1" full-threaded studs to locate the correct mounting positions (See Photo 4, below)
**5.** Secure the evaporator module to the OEM bracket with a 1/4-20 x 3/4" black serrated flange bolt (See Photo 5, below).

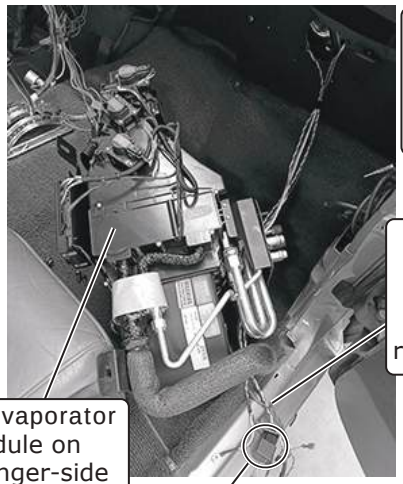



Photo 1

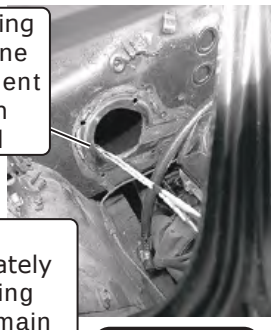



Photo 2

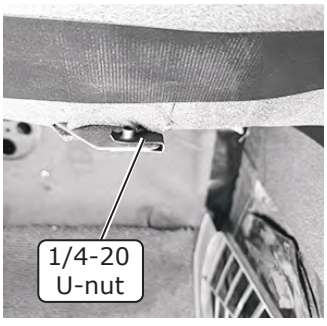



Photo 3

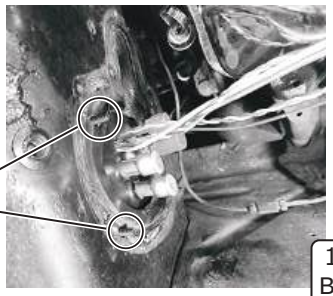



Photo 4

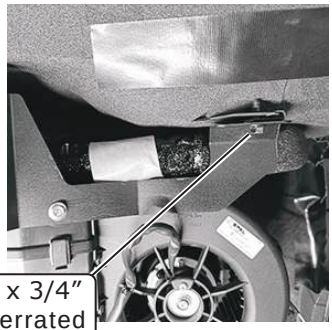



Photo 5

# Firewall Cover Preparation & Installation

1. Install a 1/4-20 x 3/4" black serrated flange bolt and 1/4" pushnut bolt retainer into the firewall cover as shown in Photos 1 and 2, below.
2. Apply silicone/seam sealer to the mating surface of the firewall cover (See Photo 3, below).
3. Route all wiring through the wiring hole in the firewall cover and install it over the hardlines and full-threaded studs (See Photo 4, below).

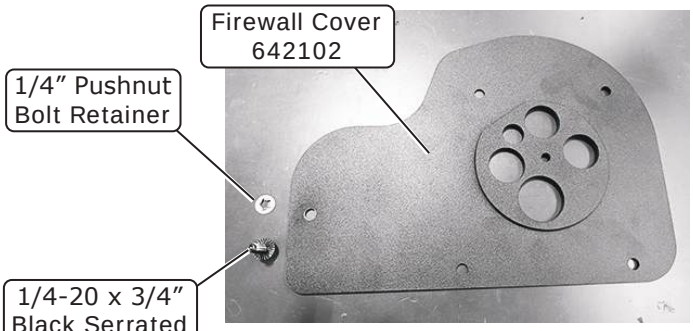



Photo 1

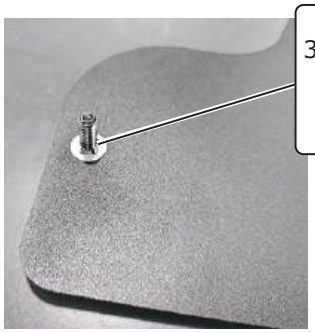



Photo 2

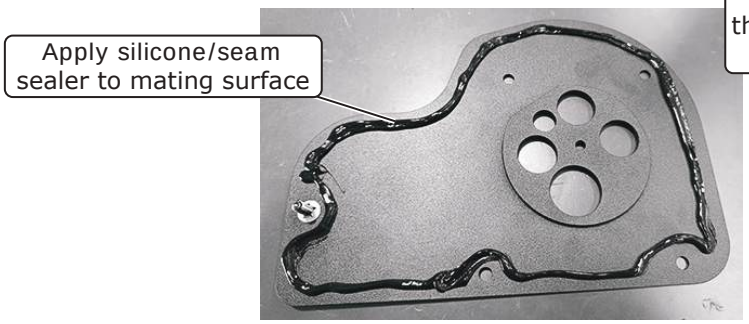



Photo 3

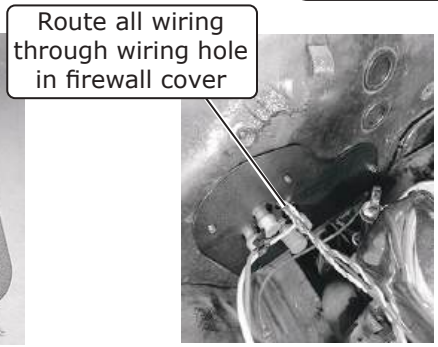



Photo 4

# Passenger Compartment Wiring

1. Select a suitable location for the main relay, and secure it using a 10-32 x 1/2" pan head screw and a 10-32 nut with star washer. Select a suitable ground location for the white ground wire eyelet from the heater control valve harness, and secure it using a #12 x 1/2" self-tapping screw (See Photo 1, below).
2. Route the violet power wire to a switched 12v power source on the fuse panel (See Photo 2, below). **NOTE: This requires a male fuse extension (not supplied).**

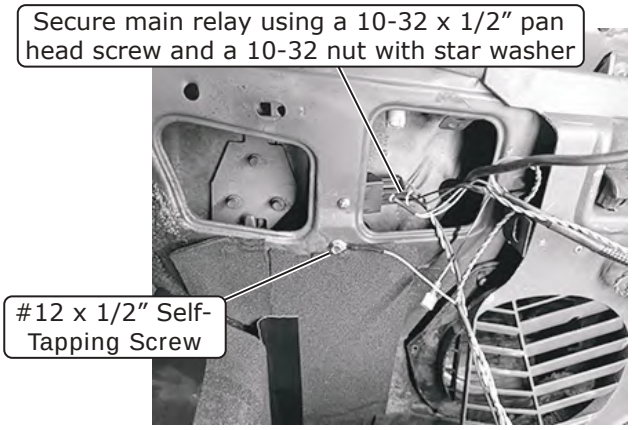



Photo 1

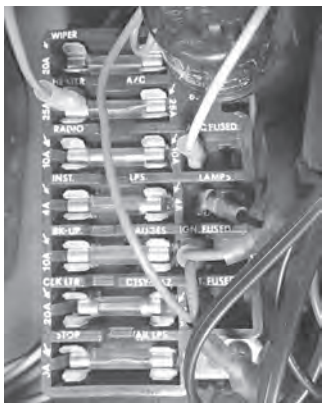



Photo 2

# Passenger Compartment Wiring (Cont.)

**3.** Connect the tan wire to the factory dash lights to enable control panel backlighting (if applicable).
**4.** Connect the BSC wiring to the main harness (See Photo 3, below).
**5.** Connect the main harness to the ECU (See Photo 4, below).

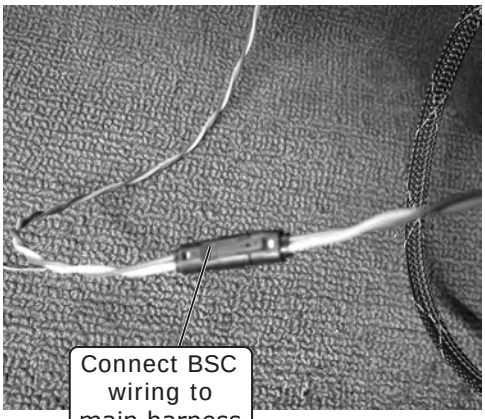



**Photo 3**

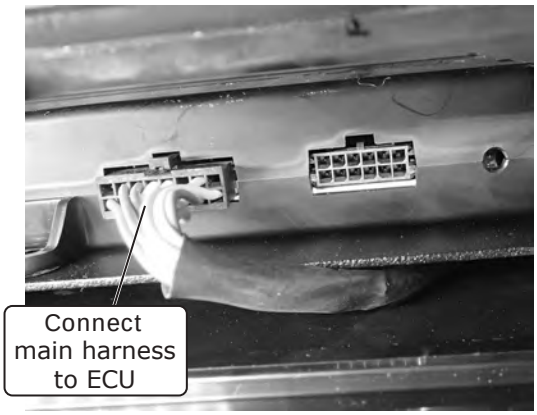



**Photo 4**

# Hose Adapter Installation

**1.** Install S-clips onto the hose adapters as shown in Figure 1, below.
**2.** Install the driver- and passenger-side hose adapters onto the OEM louvers (See Figure 1, below).

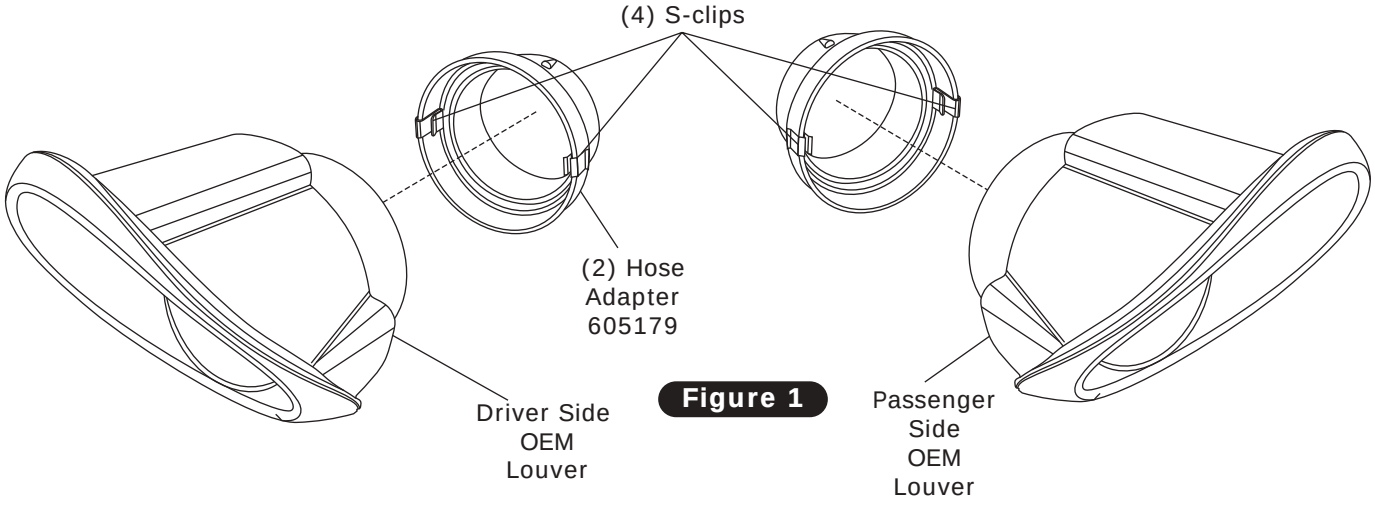



**Figure 1**

# Center Louver Installation

1. Install (2) #8 J-nuts over the mounting holes in the OEM center louver assembly as shown in Figure 1a, below.
2. Install a 1/2" x 20" piece of foam around the center louver hose adapter as shown in Figure 1, below.
3. Secure the hose adapter onto the center louver using (2) #8 x 1/2" pan head screws as shown in Figure 1, below.
4. Reinstall the dash.

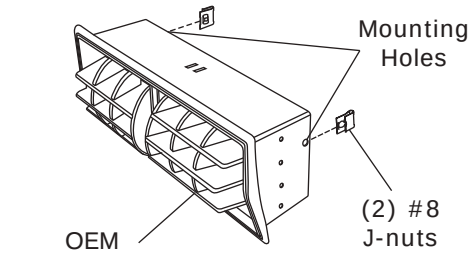



**Figure 1a**

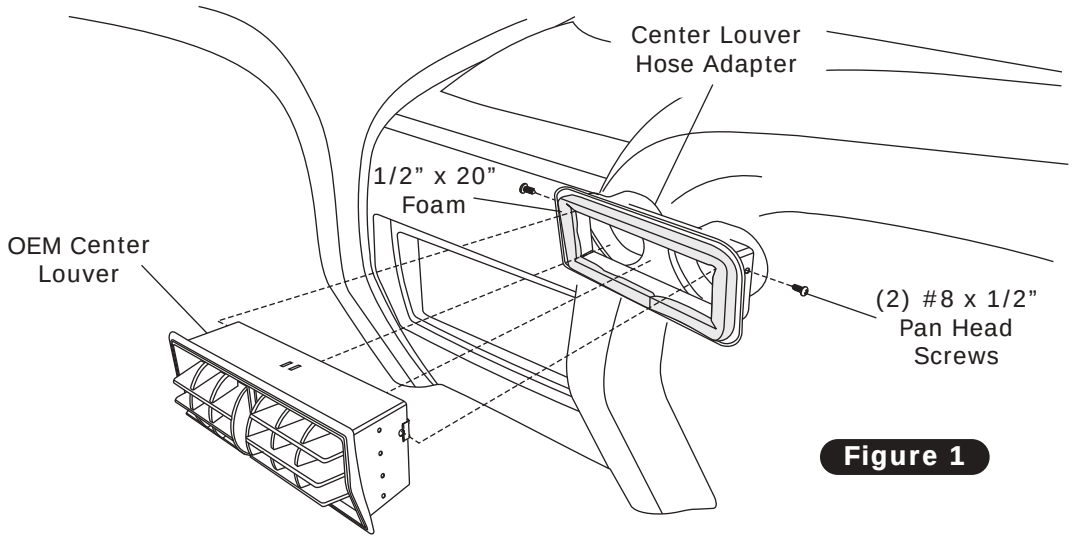
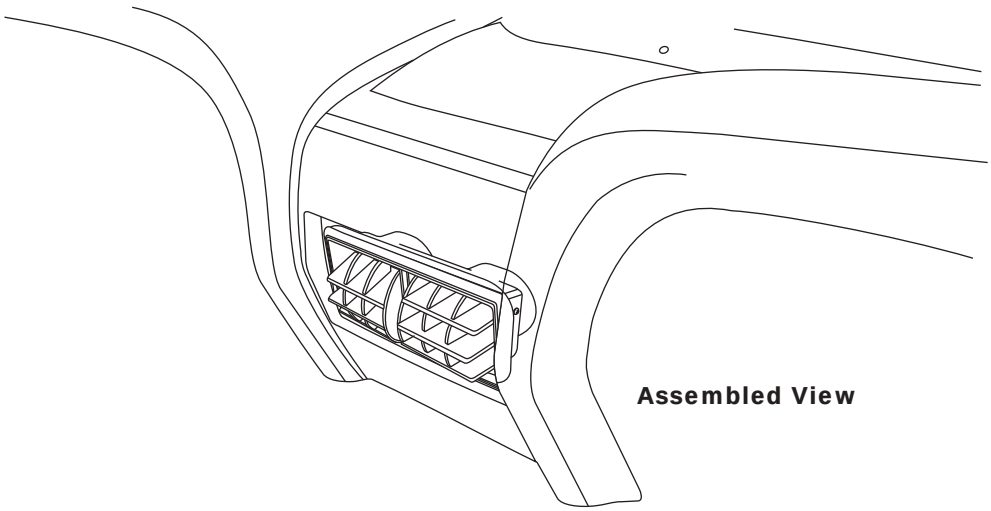



**Figure 1**



**Assembled View**

# Drain Hose Installation

1. Cut the drain hose into 3 segments at the designated lengths of 2", 2 ½" and 4 ½" (See Photo 1, below).
2. With the (2) drain elbows, connect the (3) hose segments together as shown in Photo 1, below.
3. Install the 1 ¼" O.D. x 11/16" I.D. grommet into the OEM drain hole in the floor board (See Photo 2, below).
4. Connect the 2" hose end segment to the evaporator drain. Route the other end of the drain hose assembly into the grommet and press fit the elbow into the grommet for a tight seal (See Photo 3, below).
5. Route the drain hose away from exhaust (See Photo 4, below).

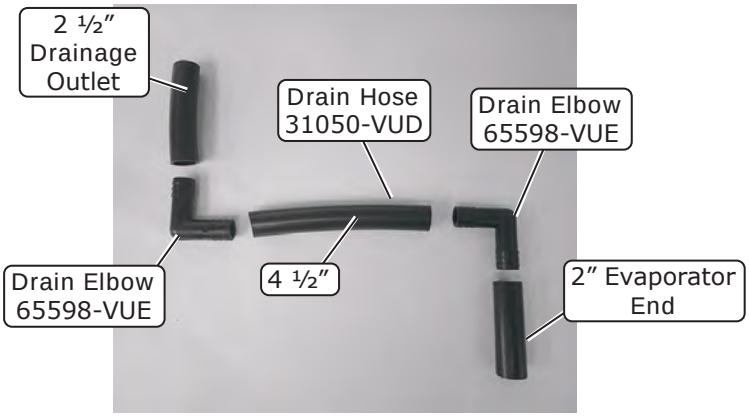



**Photo 1**

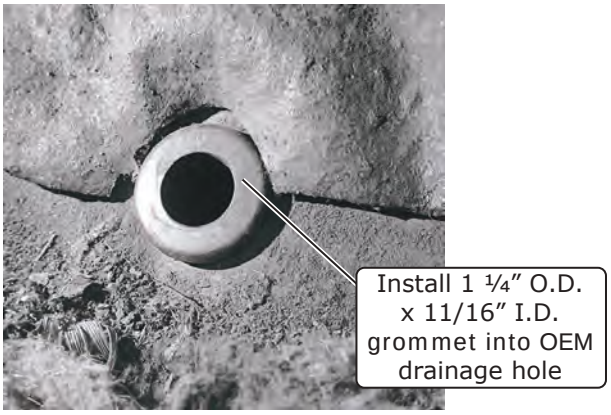



**Photo 2**

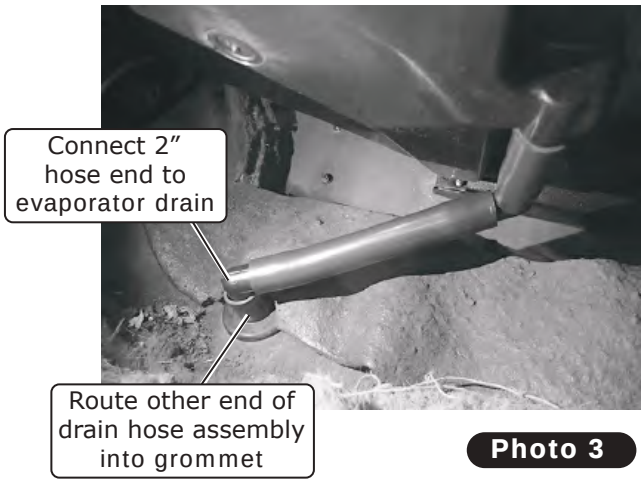



**Photo 3**

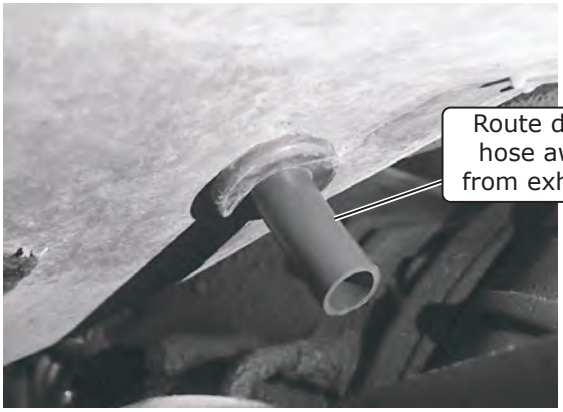



**Photo 4**

# A/C Hose Installation

**Standard Hose Kit:**

1. Locate the #6 evaporator/drier A/C hose (See Photo 1, below). Lubricate (2) #6 O-rings (See Lubricating O-rings, Page 11), and connect the straight female fitting to the #6 drier hardline coming through the radiator core support (See Photo 2, below). Route the 90° female fitting to the #6 evaporator hardline coming through the firewall (See Photo 1, below). Tighten each fitting connection as shown in Lubricating O-rings, Page 11.
2. Locate the #10 compressor/evaporator A/C hose (See Photo 3, below). With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 11), connect the 90° fitting with service port to the #10 evaporator hardline (See Photo 3, below). Route the #10 A/C hose toward the compressor, and with a properly lubricated #10 O-ring (See Lubricating O-rings, Page 11), connect the 90° fitting to the suction port on the compressor (See Photo 4, below).
3. With a properly lubricated #8 O-ring (See Lubricating O-rings, Page 11), connect the 135° fitting to the discharge port on the compressor (See Photo 4, below). Route the straight fitting with service port to the #8 condenser hardline (See Photo 2, below), and connect it using a properly lubricated #8 O-ring (See Lubricating O-rings, Page 11).

**Modified Hose Kit:**

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

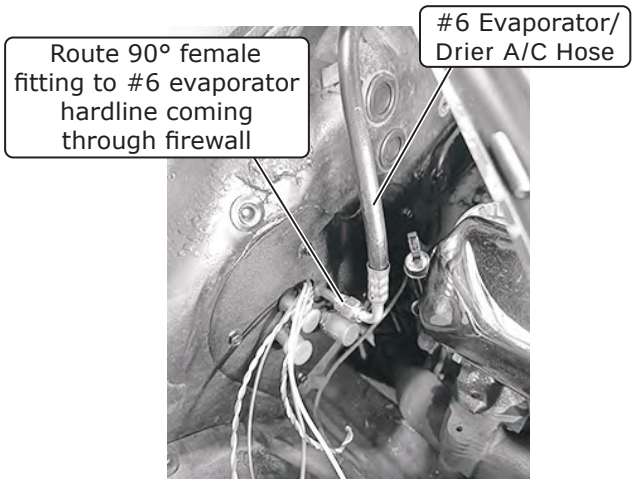



**Photo 1**

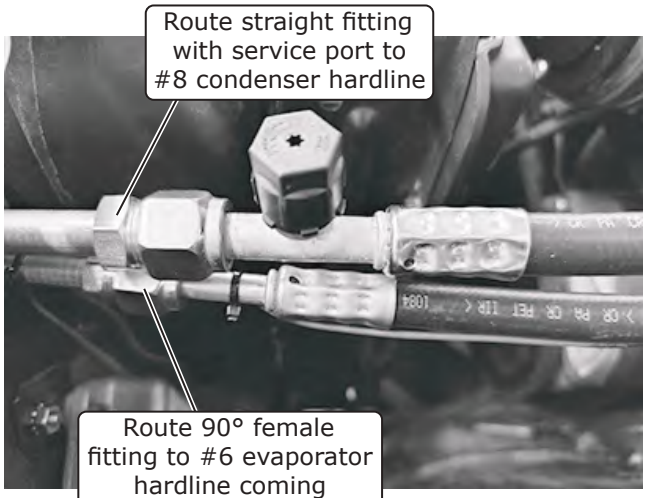



**Photo 2**

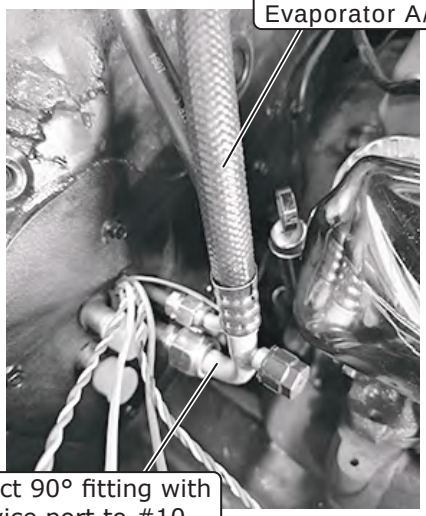



**Photo 3**

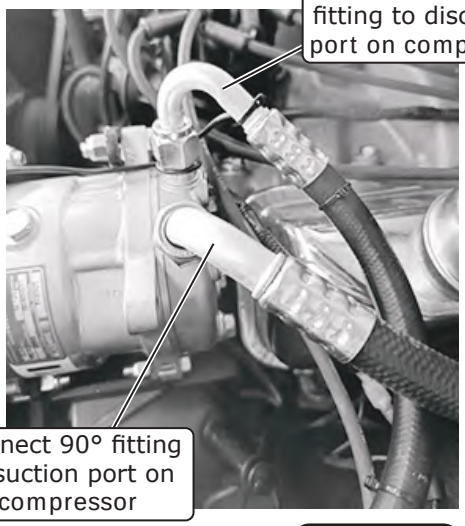



**Photo 4**

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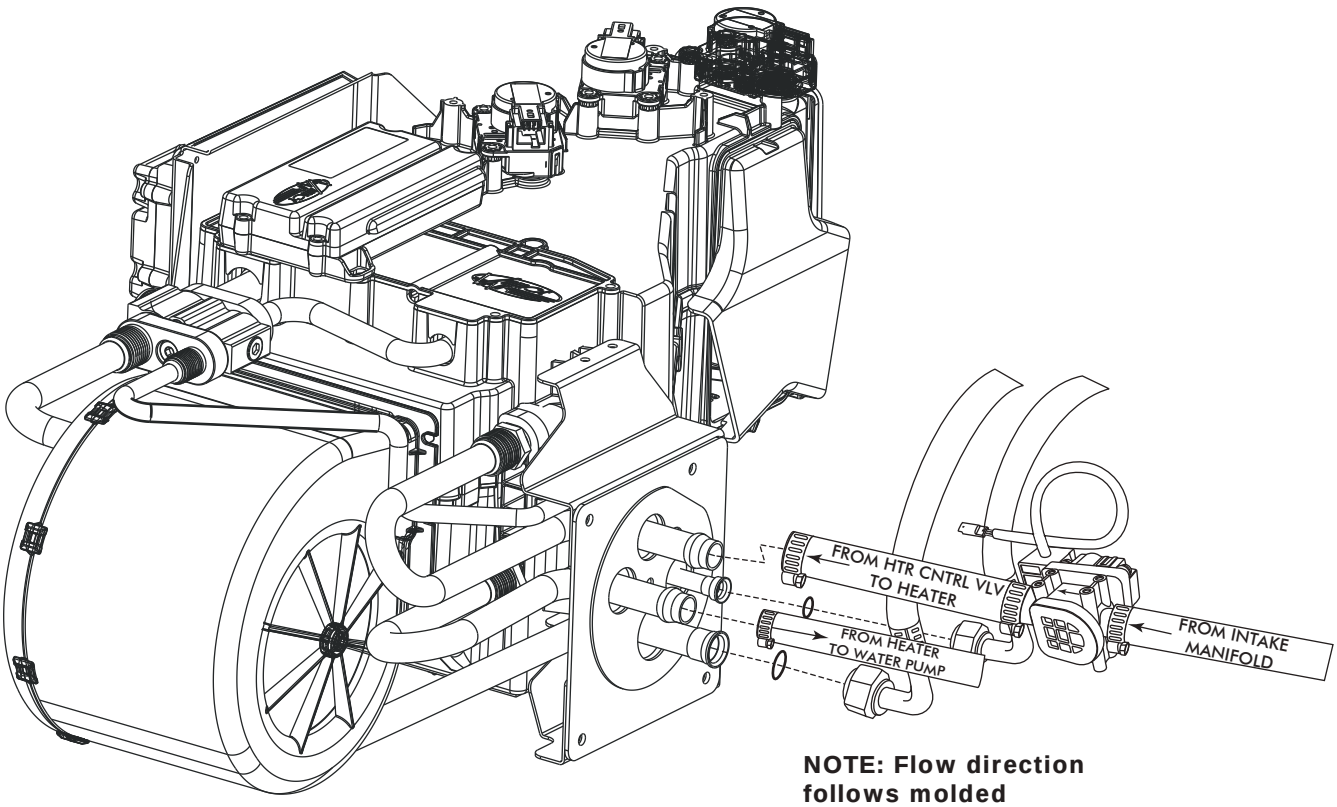
# Heater Hose & Heater Control Valve Installation

**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 a length of heater hose from the lower heater hardline to the water pump fitting, then secure it using (2) hose clamps.
2. Cut a length of heater hose approximately 4" to 5" from the firewall cover, then install it onto the upper heater hardline. Install the heater control valve and secure it with (2) hose clamps. **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 with (2) hose clamps.
4. Plug the heater control valve connector into the heater control valve connector wiring harness.




**NOTE: Flow direction follows molded arrow on valve.**

**Figure 1**

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# Driver Side
# 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) or molded hose will need to be installed in the heater hose.**

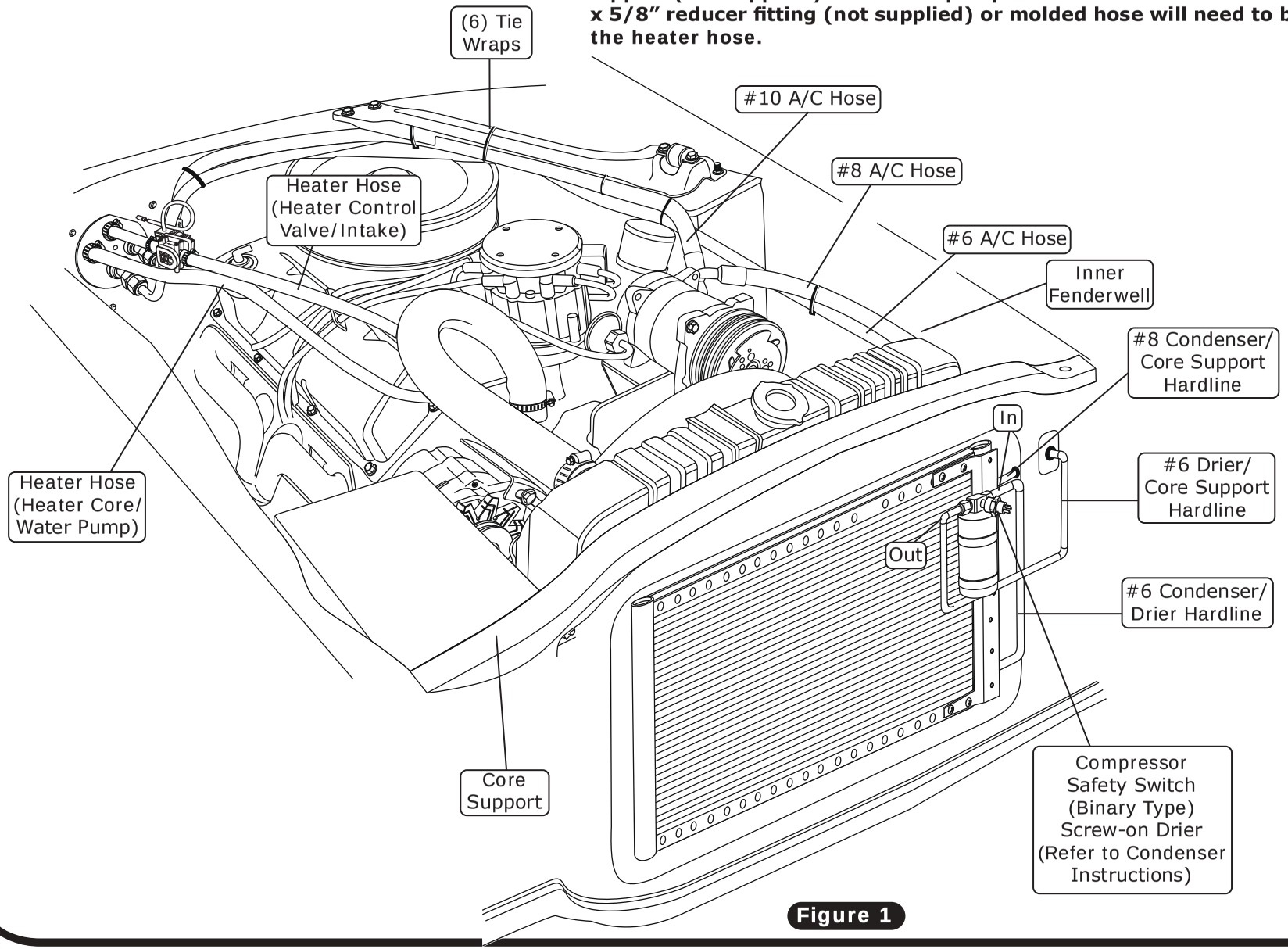



**Figure 1**

# Engine Compartment Wiring

1. Route 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 28).
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 28).
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 28)
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.**

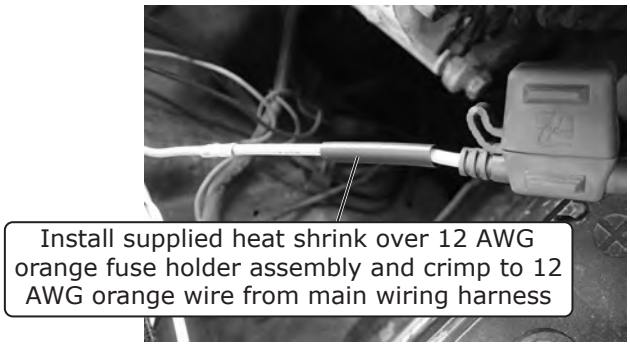



Photo 1

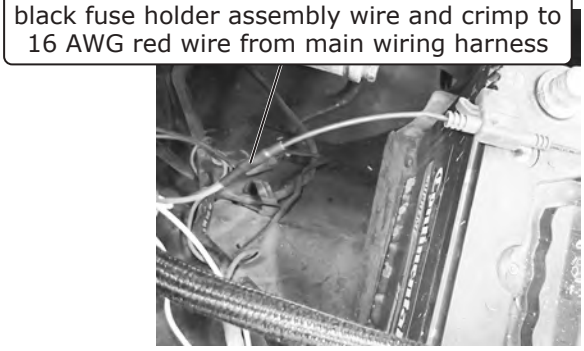



Photo 2

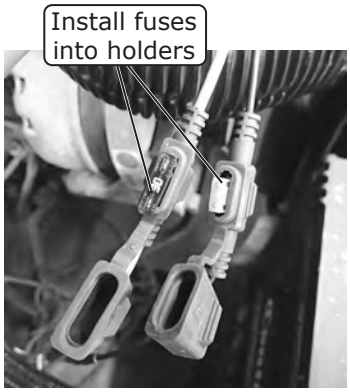



Photo 3


Photo 4

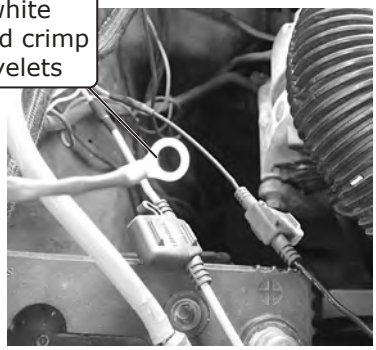


Photo 5

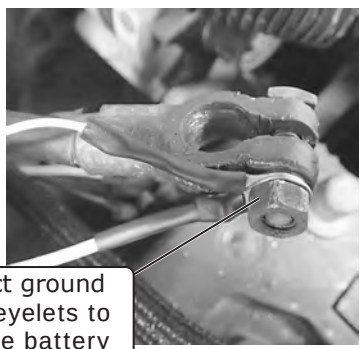



Photo 6

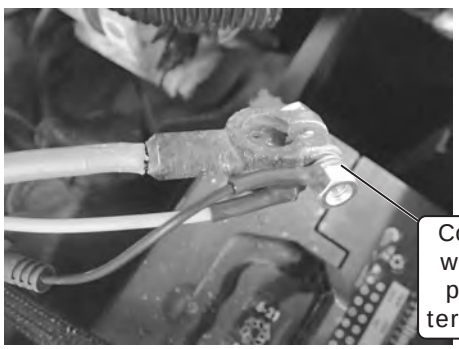



Photo 7

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

# Final Steps: Installation Check

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

# Final Steps: Completing the Install

1. Install the duct hoses as shown in Figure 1, Page 27.
2. Install the control panel assembly. **NOTE: Controls must be calibrated for proper operation. Refer to control panel instructions.**
3. 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 31.

# 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).


**Photo 1**

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

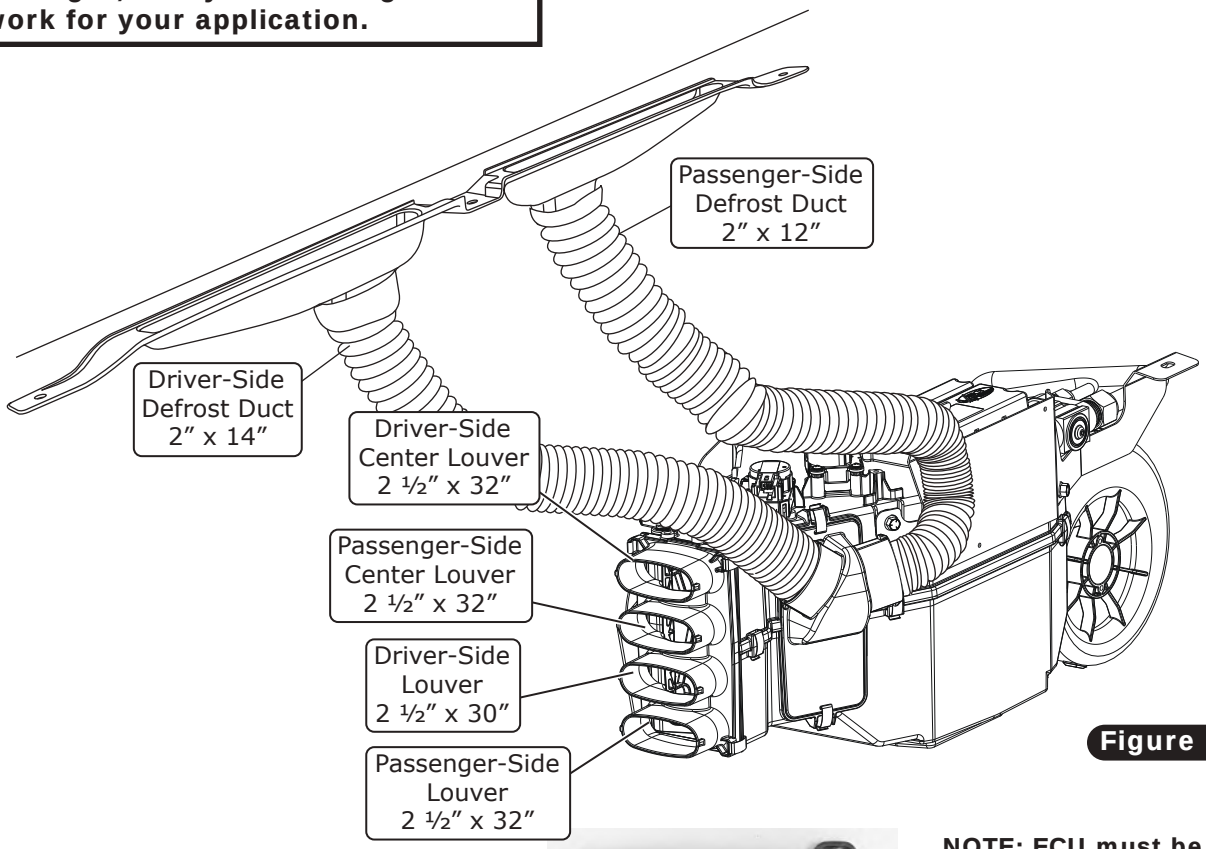



**Figure 1**


**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.**

# Quality Crimp Guideline

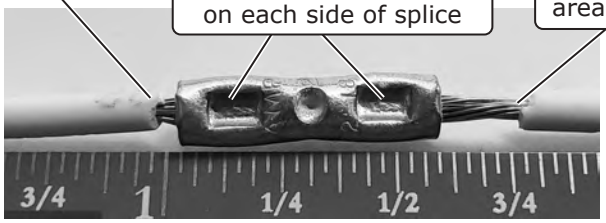



**Photo 1**

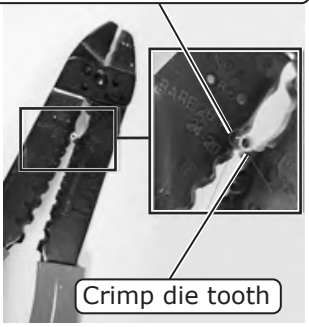



**Photo 2**

**Good Ring Terminal Crimp**


**Photo 3**

**Bad Ring Terminal Crimp**

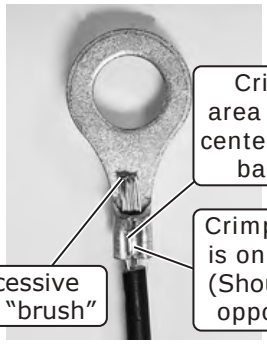



**Photo 4**


**Photo 5**

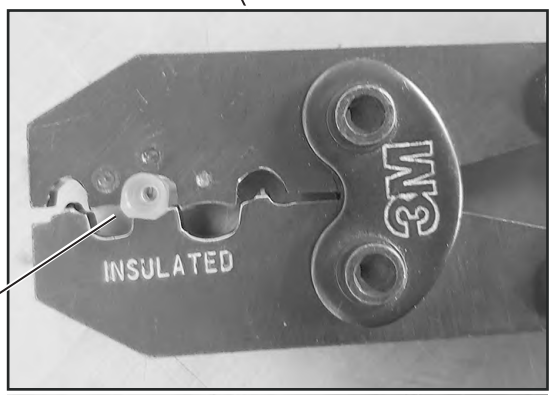
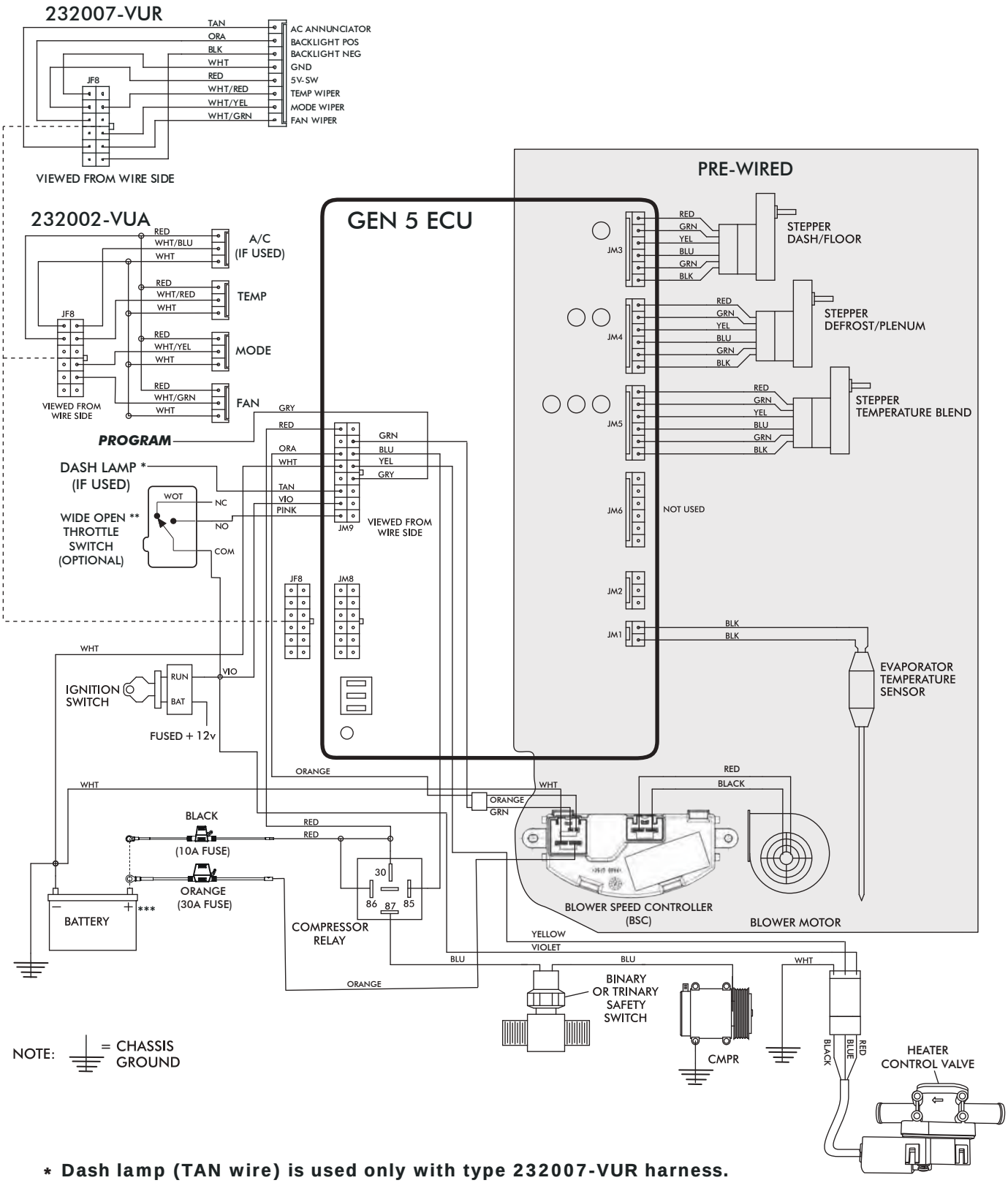



**Photo 5a**

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.

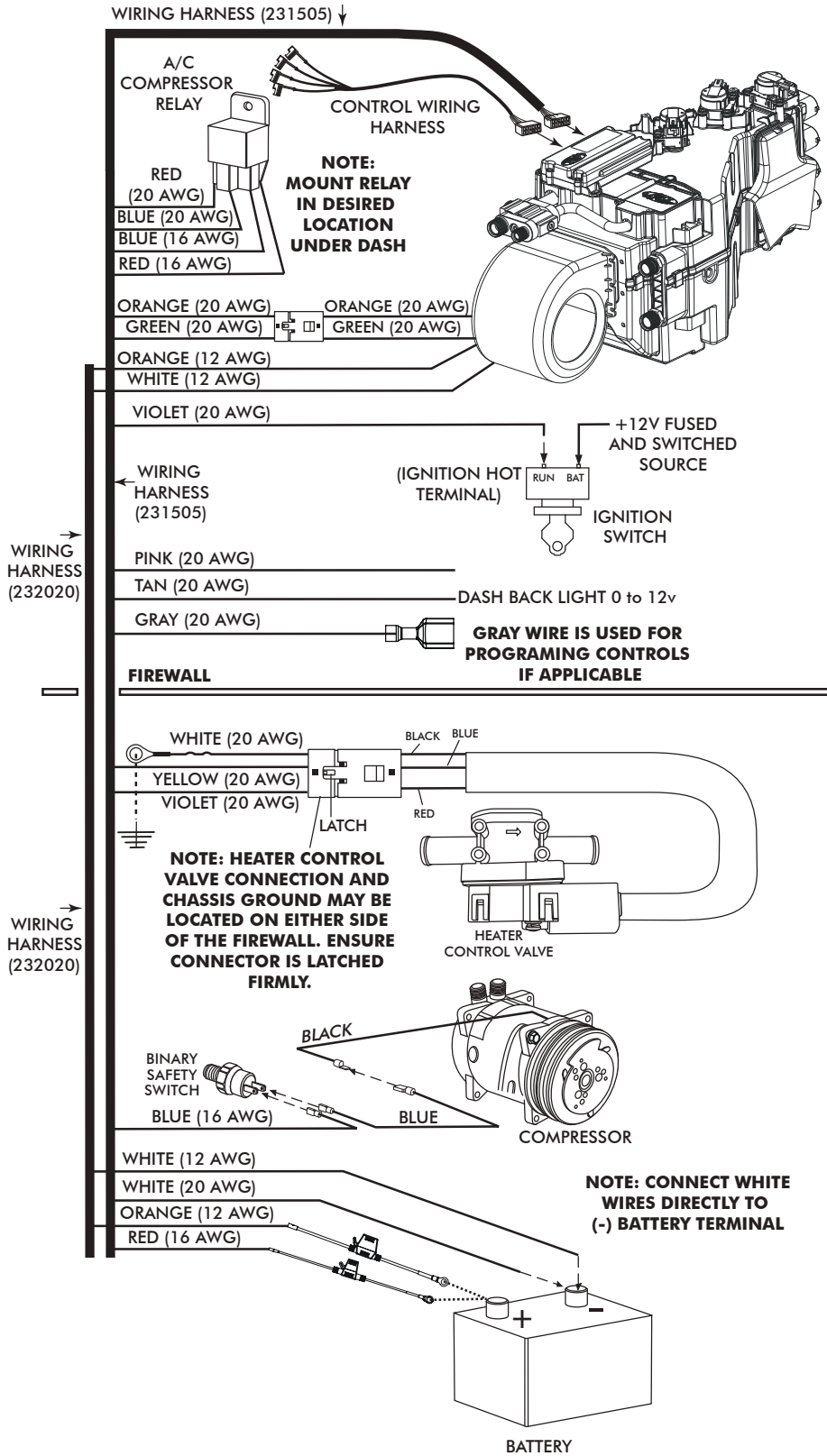
# Gen 5 Wiring Diagram




*** 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.**




**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).

**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.

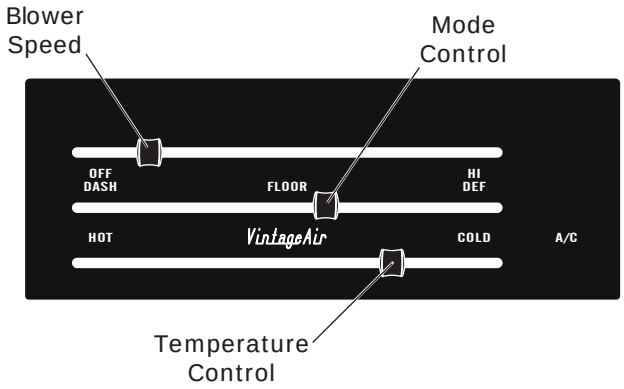
# Operation of Controls

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.

**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.

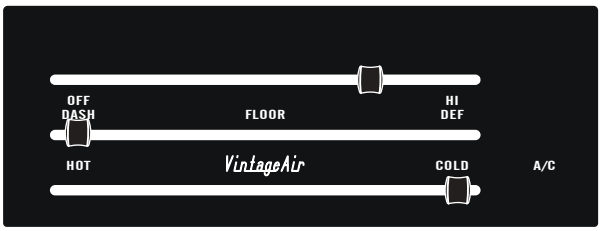



## A/C Operation

**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).

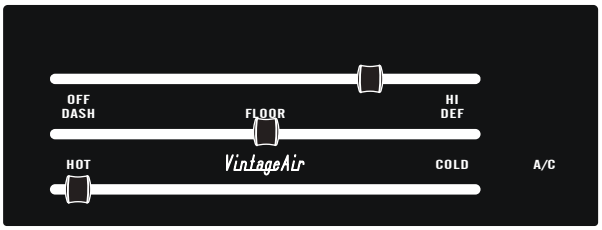



## Heat Operation

**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).

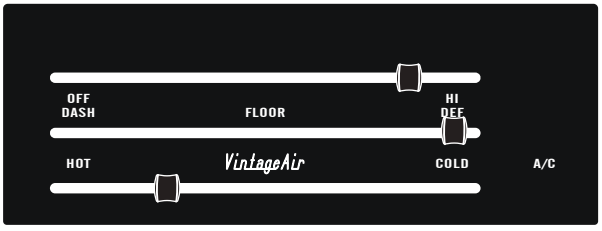



## Defrost/De-fog Operation

**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. | |
| | | Check for a bad ECU GND. | | |
| | All 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. | |
| | | Check if Blower power fuse is blown. | Replace fuse. | 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. |
| | | Check for a bad ECU GND. | 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. | **Danger: Never bypass safety switch with engine running. Serious injury can result.** |
| | System is charged. | Check for faulty A/C potentiometer or associated wiring (not applicable to 3-pot controls). | Check continuity to ground on white control head wire. Check for 5V on red control head wire. | 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. |
| | | Check for disconnected or faulty thermistor. | Check 2-pin connector at ECU housing. | Disconnected or faulty thermistor will cause compressor to be disabled. |
| 3. 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. |
| | | Check for faulty A/C relay. | Replace relay. | |

# 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

www.vintageair.com

# Packing List: Evaporator Kit (554967)

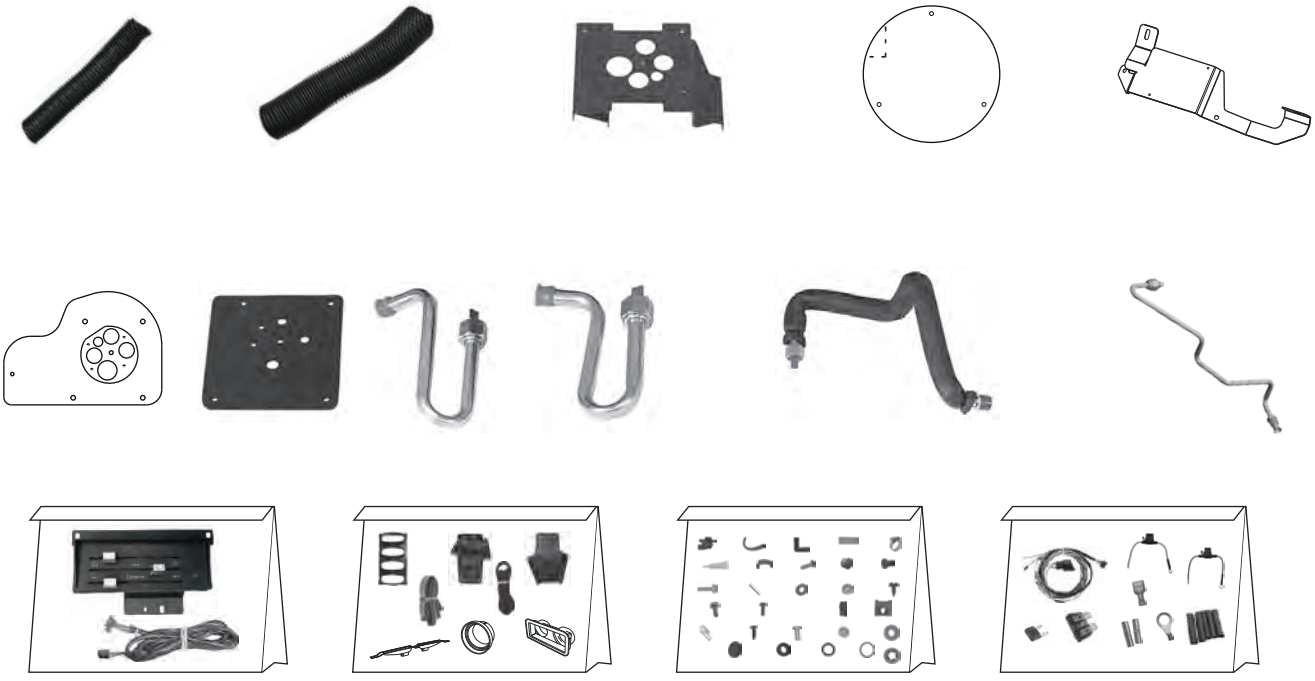
| No. | Qty. | Part No. | Description | |
|---|---|---|---|---|
| **1.** | 1 | 765200 | Gen 5 Magnum Max Module with 404 ECU | _____ |
| **2.** | 1 | 784967 | Accessory Kit | _____ |

Checked By: _____
Packed By: _____
Date: _____

1

**Gen 5 Magnum Max Module with 404 ECU 765200**

2



**Accessory Kit 784967**

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