1982-88 Oldsmobile Cutlass

with **Factory Air**
Gen 5 Evaporator Kit
Magnum (564439)
Super Magnum (564440)

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Packing List: Evaporator Kit (564439)

No.	Qty.	Part No.	Description
1.	1	765100	Gen 5 Magnum Module
2.	1	784439	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 Module 765100

Packing List: Evaporator Kit (564440)

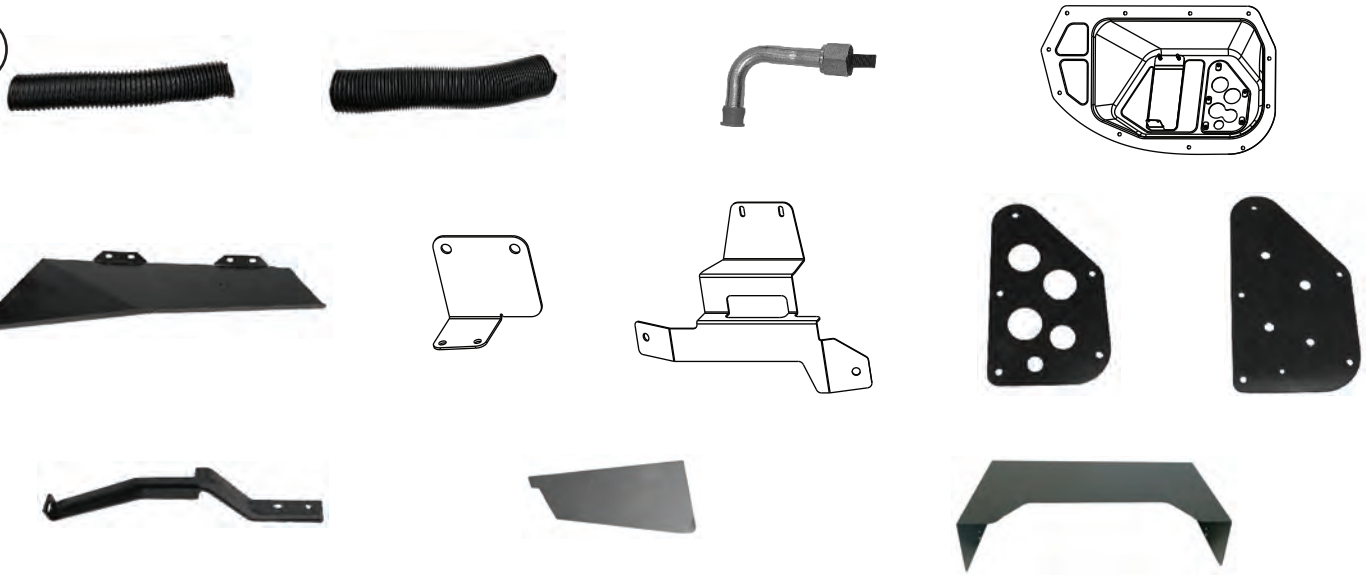
No.	Qty.	Part No.	Description
1.	1	765200	Gen 5 Super Magnum Module
2.	1	784439	Accessory Kit

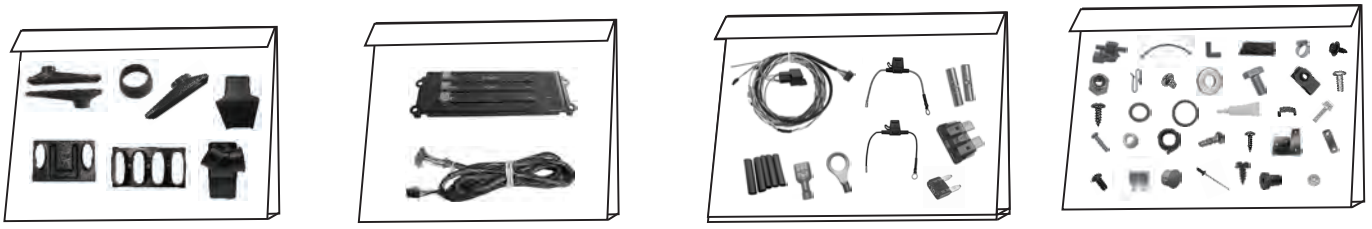
**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**

1

Gen 5 Super Magnum Module 765200

2





Accessory Kit 784439

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

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Important Notice—Please Read

For Maximum System Performance, Vintage Air Recommends the Following:

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

Refrigerant Capacities:

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

Other Systems: Consult manufacturer's guidelines.

Lubricant Capacities:

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

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

Safety Switches

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

Service Info:

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

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

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

Bolts Passing Through Cowl and/or Firewall:

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

Heater Hose (not included with this kit):

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

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Important Wiring Notice—Please Read

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

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

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

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

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

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

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

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

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Engine Compartment Disassembly

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

Perform the Following:

1. Disconnect the battery (See Photo 1, below).
2. Evacuate the A/C system (if necessary).
3. Jack up the front of the vehicle and support with jack stands.
4. Remove the passenger-side wheel.
5. Drain the radiator (See Photo 1, below).
6. Remove the air cleaner and intake duct hose (See Photo 1, below).
7. Remove the radiator cooling fan (only if installing the condenser and compressor bracket kit) (See Photo 2, Page 7) .
8. Remove the fan shroud (only if installing the condenser and compressor bracket kit) (See Photo 1, below).
9. Remove the OEM heater hoses (See Photo 1, below).
10. Remove the OEM coolant reservoir and any other components attached to the inner fender (See Photo 1, below).
11. Remove windshield wiper arms and wiper park ramps (See Photo 1, below).
12. Remove lower windshield trim and brackets (See Photo 1, below).
13. Remove the cowl weather stripping (See Photo 1, below).
14. Remove the screen mounting screws and screen (See Photo 1, below).

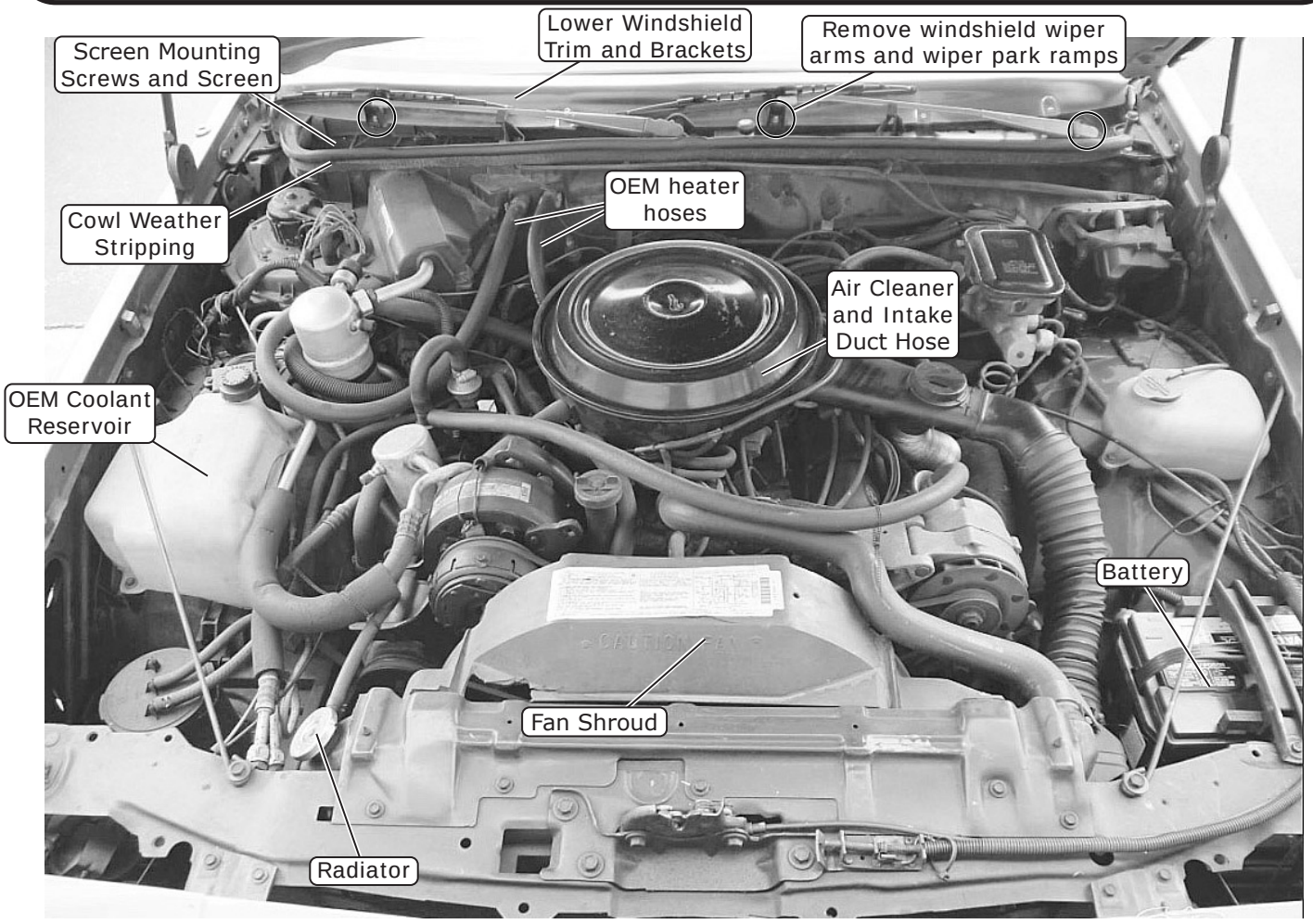


Photo 1

Engine Compartment Disassembly (Cont.)

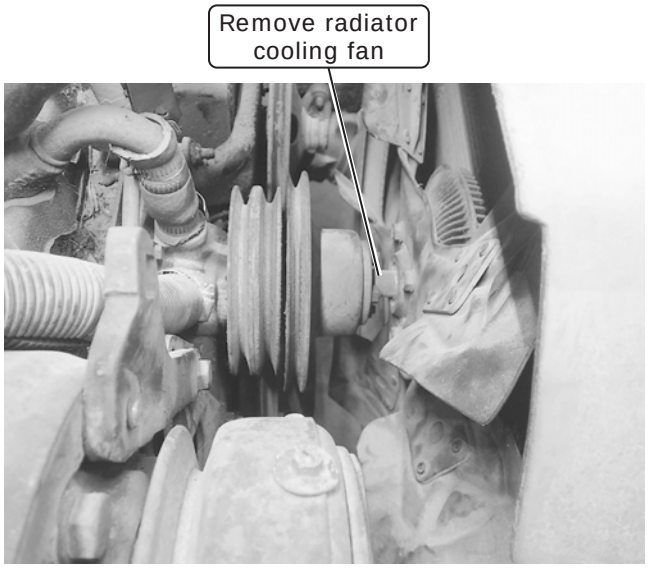
15. Disconnect all A/C hoses, vacuum and electrical connections from the OEM evaporator (See Photo 3, below).

16. Disconnect the A/C hoses from the OEM compressor, condenser and evaporator (discard) (See Photo 4, below) .

17. Remove the inner fender mounting hardware, then remove the inner fender. **NOTE: Removing the inner fender is necessary to provide space for the removal of the OEM evaporator mounting bolts and case.**

18. Remove all of the mounting hardware securing the OEM evaporator to the firewall.

19. Remove the ground wire behind the distributor cap (See Photo 5, below).



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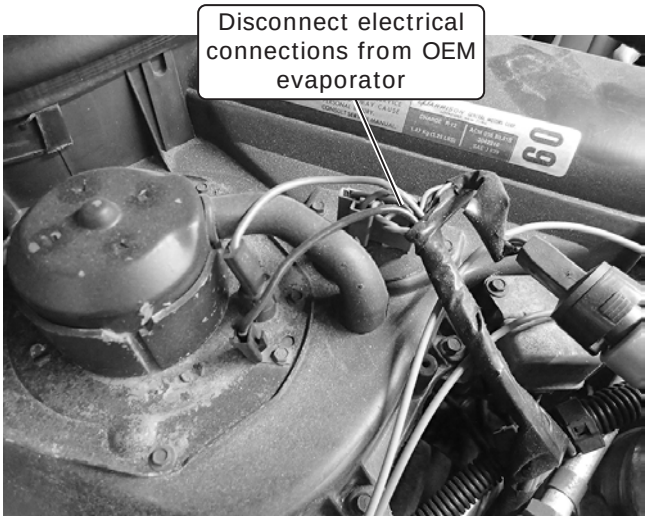

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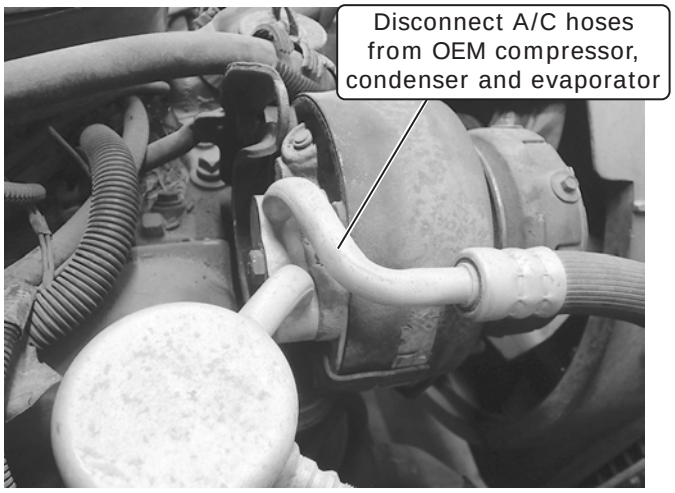

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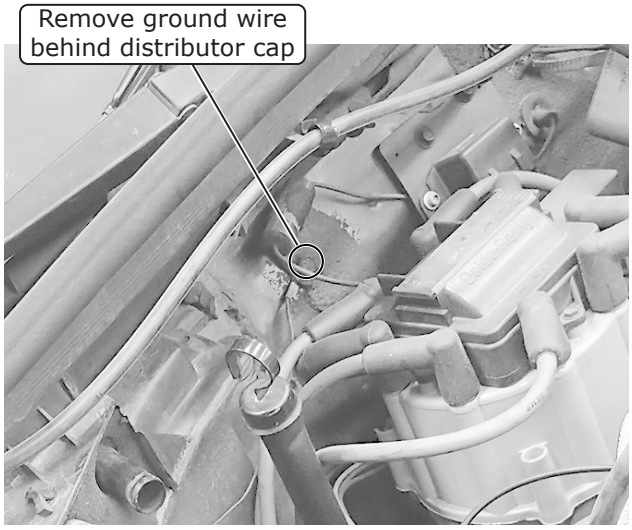


Photo 5

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: Removing the front seats will provide extra room for the passenger compartment disassembly process. The removal of the dash is required to remove the OEM duct work from the vehicle. Refer to the vehicle shop manual for more detailed information. Retain OEM bolts, washers and nuts, as some hardware will be reused.

1. Remove the glove box door by removing (4) screws (See Photo 1, below).
2. Remove the control panel/radio bezel by removing (4) screws (See Photo 2, below).
3. Remove the control panel by removing (4) mounting screws (See Photo 3, below).
4. Disconnect cables, plugs, vacuum lines and remove the control panel.
5. Remove the radio.
6. Release any clips holding wires to the OEM evaporator.
7. Remove (2) evaporator/duct work mounting screws (See Photo 4, below).
8. Remove the ground wire mounting bolt on the passenger side, above the OEM ECU.
9. Remove the OEM evaporator from the vehicle through the engine compartment.
10. Carefully remove the driver and center louvers from the dash (See Photo 5, below).

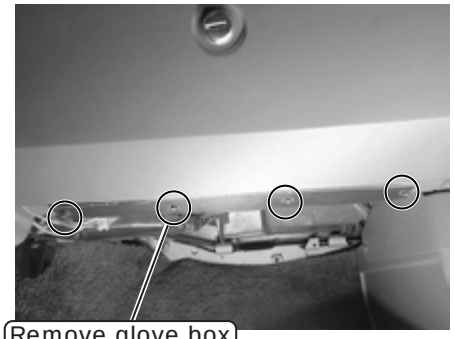


Photo 1

Photo 2

Photo 3

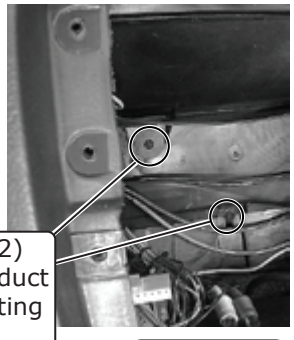
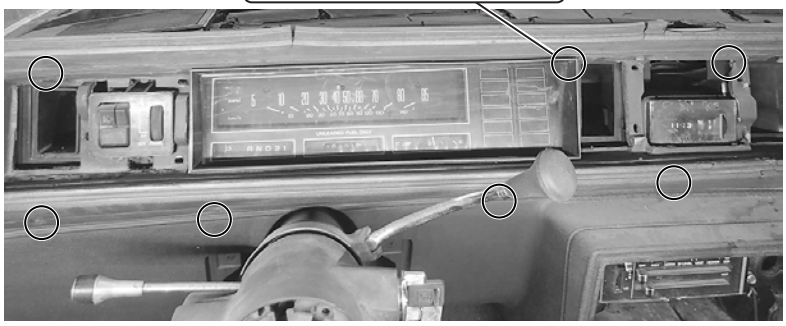


Photo 4

Photo 5

Passenger Compartment Disassembly (Cont.)

11. Remove the dash cluster pad by removing (7) screws (See Photo 6, below).
12. Remove the headlight switch by removing (2) screws (See Photo 7, below).
13. Disconnect the speedometer and remove the gauges by removing (4) screws (See Photo 8, below).
14. Remove the clock by removing (2) screws (See Photo 9, below).
15. Remove the gauge cluster reinforcement by removing (8) screws (See Photo 10, below).
16. Remove the passenger-side trim with louvers (See Photo 11, below).



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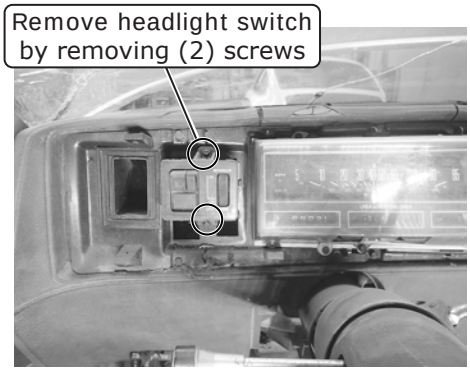

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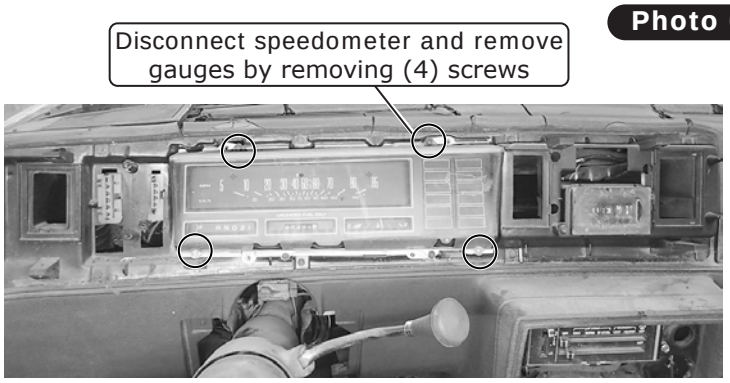

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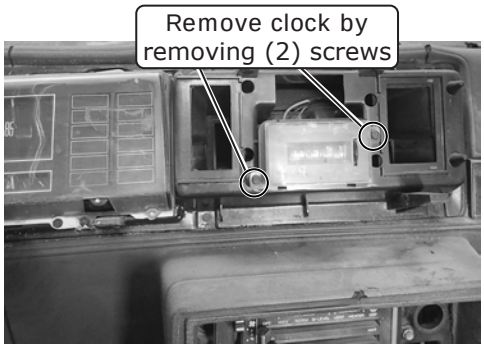


Photo 9

Photo 10

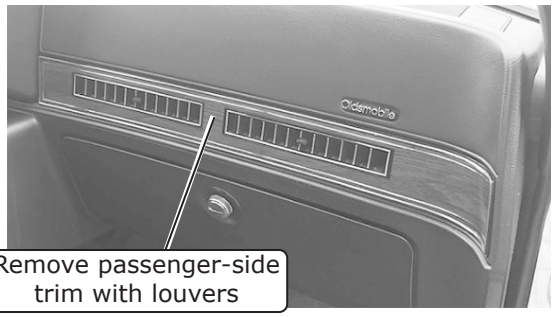


Photo 11

Firewall Modification & 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 unit (firewall, kick panel, inner cowl, firewall covers). Due to tight clearance for the evaporator unit between the firewall and dash, Vintage Air recommends an insulation thickness of no more than 1/4". 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.

Perform the following: (For Magnum Kit, proceed to Step 3, Page 11)

1. **(Super Magnum Kit Only)** Remove the metal tabs from the firewall opening (See Photos 1 and 2, below).
2. **(Super Magnum Kit Only)** Trim the OEM dash mounting bracket (See Photos 3, 4, 5, and 6, below). **NOTE: To assure the dash mounting bracket has been modified enough to provide proper clearance, the evaporator module may need to be mocked up in the vehicle multiple times. While the evaporator module is in place, loosely install the dashboard and check the passenger-side mounting bracket for clearance. The passenger-side mounting bracket may also need to be modified for fitment (See Photos 7 and 8, below).**

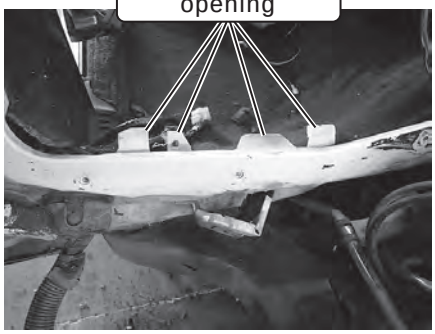


Photo 1

Metal Tabs Removed **Photo 2**

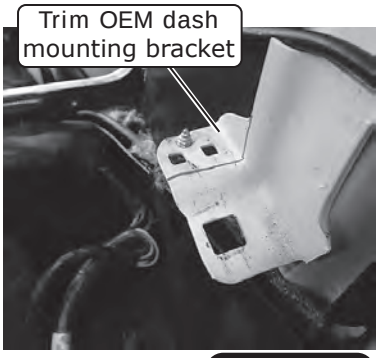
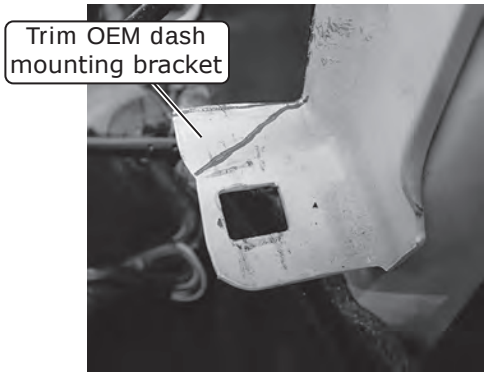


Photo 3

OEM Mounting Bracket Trimmed **Photo 4**



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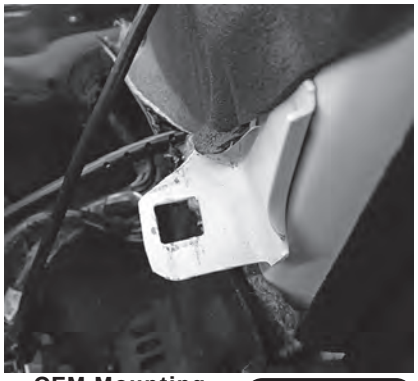
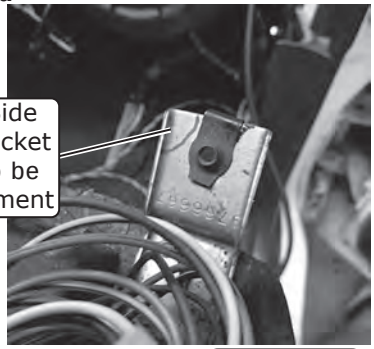


OEM Mounting Bracket Trimmed **Photo 6**



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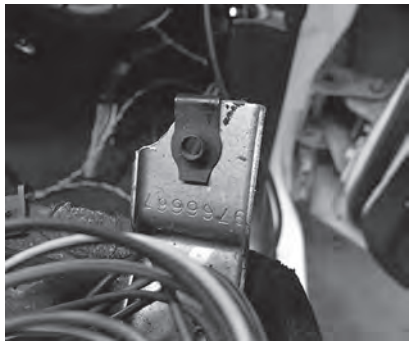


Passenger-Side Mounting Bracket Trimmed **Photo 8**

Firewall Modification & Insulation (Cont.)

3. Using the bead roll on the floor pan for reference, measure down 1/2" from the firewall (See Photo 9 , below). Mark and drill a 5/8" hole for the drain hose (See Photo 10, below). **NOTE: To ensure a tight fit for the drain hose, do not enlarge the drain hole more than 5/8".**

4. Install heat-blocking insulation onto the firewall and firewall cover at this time (See Photos 11 and 12, below).

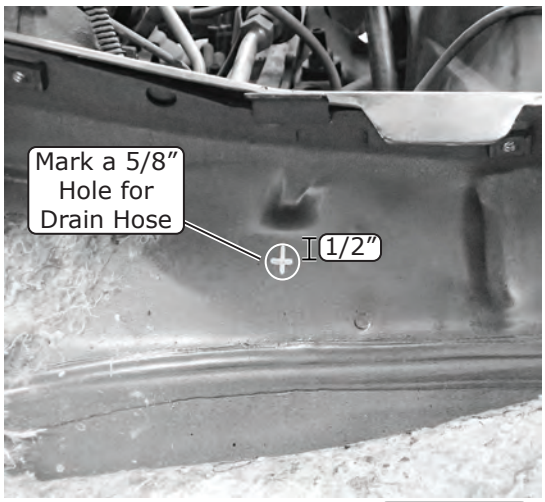
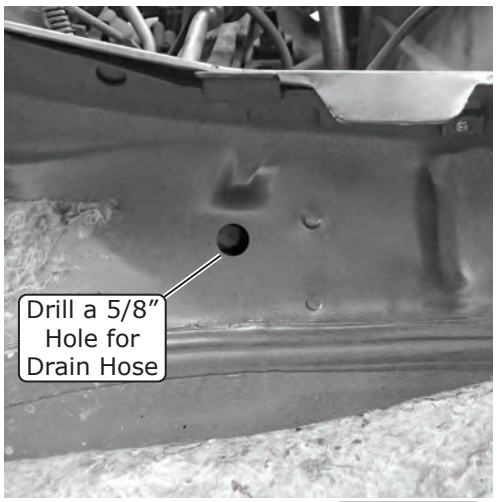


Photo 9



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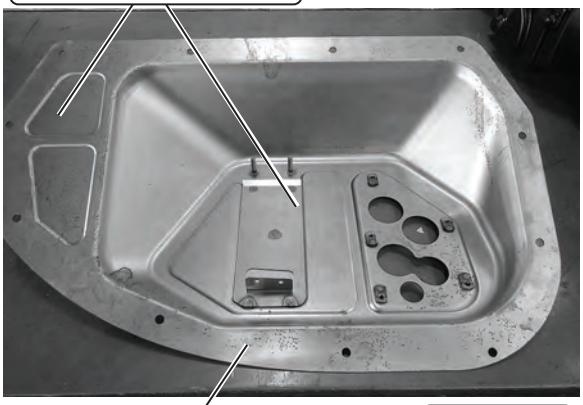
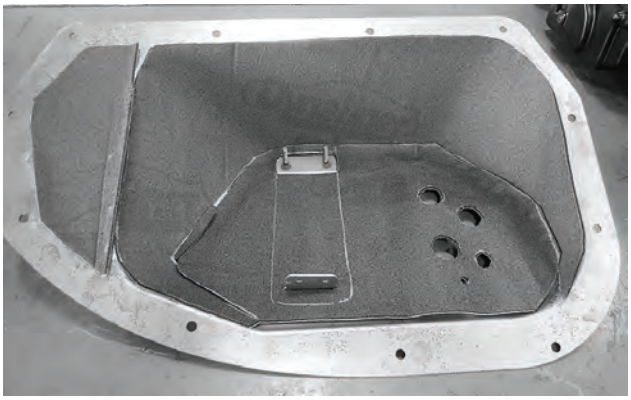


Photo 11



Heat-Blocking Insulation Installed

Photo 12

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Dash Louver Adapter Preparation

On a workbench, perform the following:

1. Install (3) S-clips onto the center louver of the OEM gauge reinforcement housing (See Photo 1, below), then install the center dash hose adapter (See Photo 2, below).
2. Install the passenger-side dash hose adapter over the passenger-side louver housing, using silicone on the mating surface (See Photos 3 and 4, below).
3. Install the hose adapter straight reducer onto the under-column air splitter, using a bead of silicone on the mating surface (See Photos 5 and 6, below). **NOTE: The other side of the splitter will be used with the OEM hose and will route to the driver-side louver.**

Photo 1

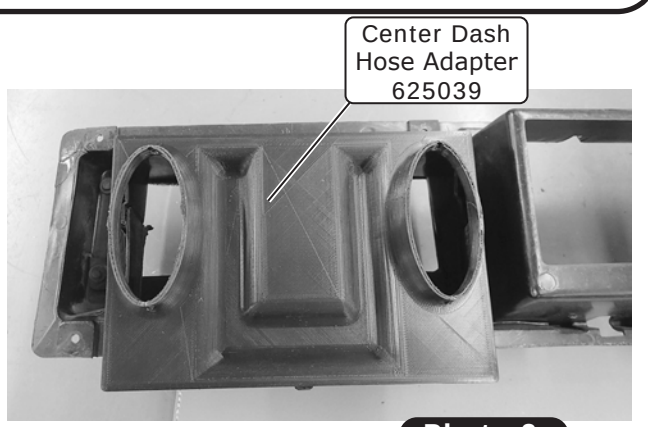
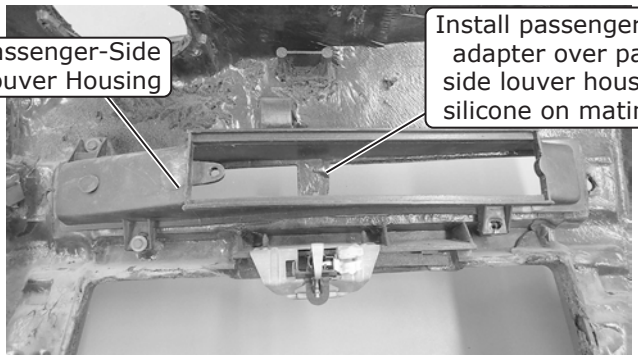


Photo 2



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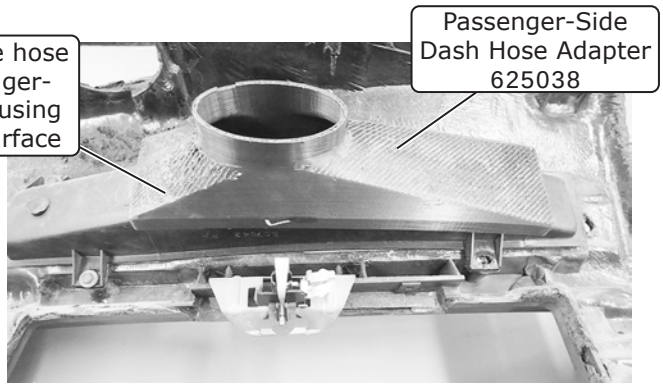

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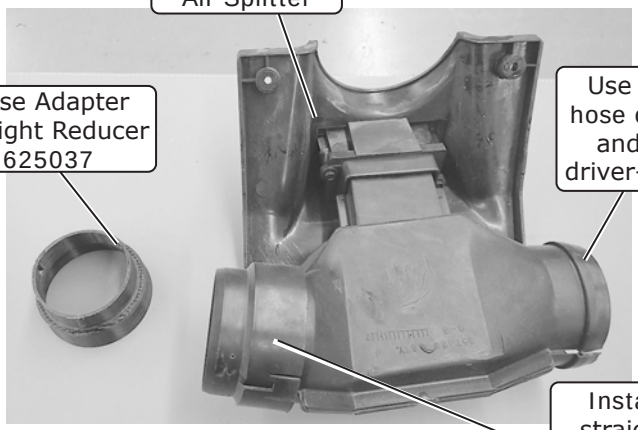

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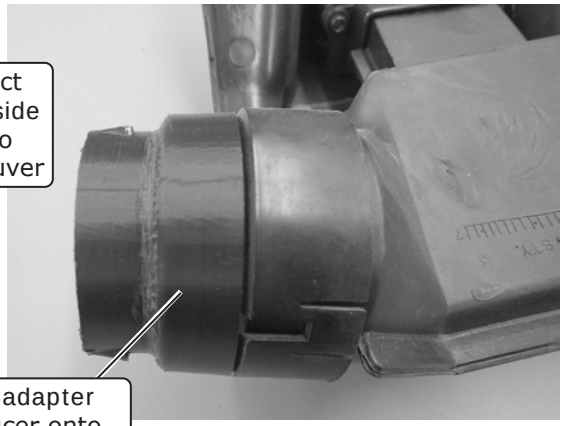


Photo 6

Evaporator Preparation

NOTE: Before fully tightening the hardlines, ensure the hardlines are aligned with the opening on the firewall cover plate as shown in Photo 8, below. Use a back up wrench when tightening fittings.

Perform the following on a workbench:

1. Install (3) 1/2" plastic plugs into the back of the evaporator module (See Photo 1, below). **NOTE: These mounting provisions will not be used in this application.**
2. Using (2) #10 x 5/8" screws, secure the evaporator firewall bracket onto the evaporator module (See Photo 2, below).
3. Using (4) spring clips, install the dash plenum onto the evaporator module as shown in Photos 3 and 4, below.
4. Using (2) spring clips, install the floor plenum onto the back of the evaporator module as shown in Photo 5, below.
5. Using (2) spring clips, install the defrost plenum onto the front of the evaporator module as shown in Photo 6, below.
6. With (2) properly lubricated #10 O-rings (See Lubricating O-rings, Page 21), loosely install the upper and lower heater hardlines (See Photo 7, below).
7. Place the evaporator module into the firewall cover and check the alignment of the heater hardlines (See Photo 8, below). Hardlines should be centered in the firewall cover openings. Once hardlines are centered, remove the firewall cover and tighten both hardlines.

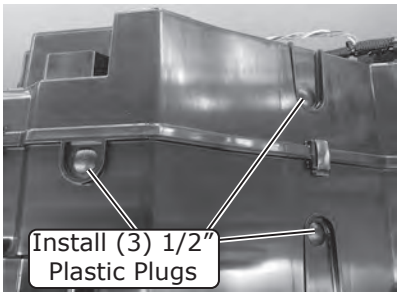
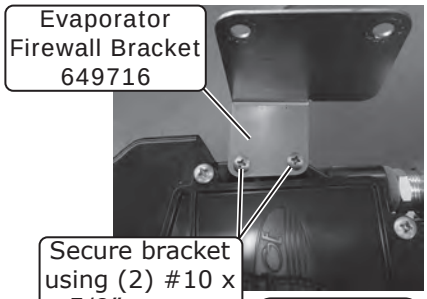


Photo 1



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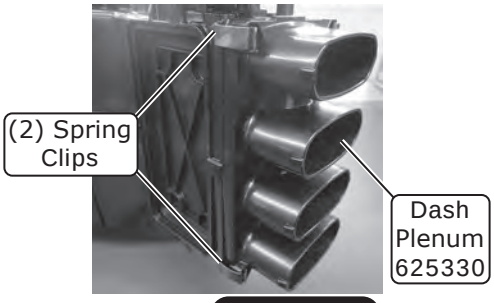

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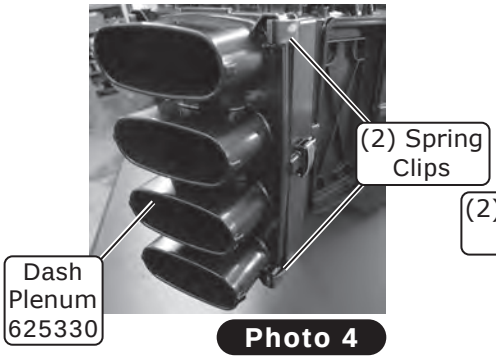


Photo 4

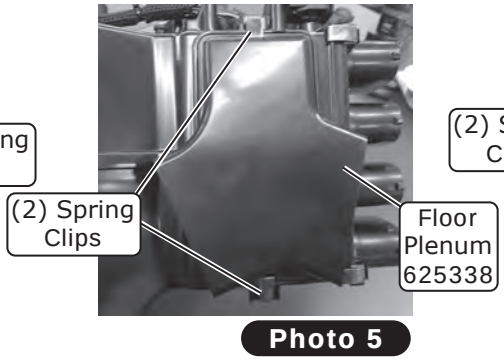


Photo 5

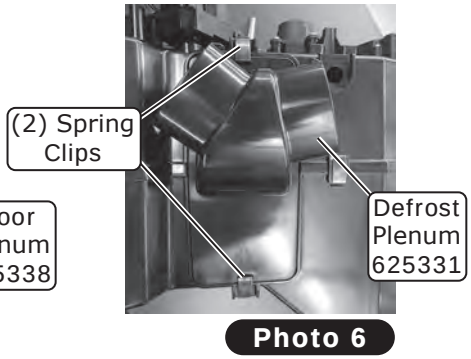


Photo 6

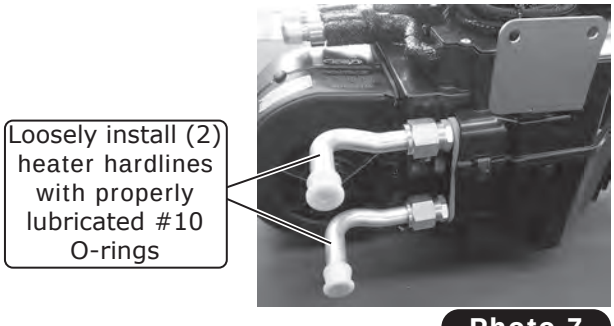


Photo 7

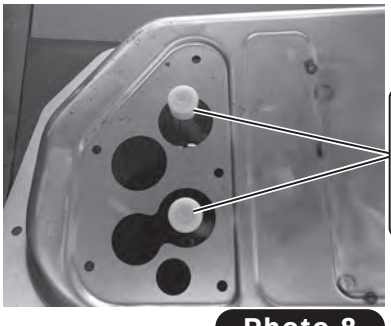


Photo 8

Evaporator Preparation (Cont.)

8. Remove the (2) #10 x 5/8" screws (discard) securing the ECU to the evaporator module (See Photo 9, below), and let it hang in front of the module.

9. Install (2) nylon bushings onto (2) 8-18 x 5/8" screws, then reinstall them into the top of the evaporator module (See Photos 10 and 11, below). **NOTE: The nylon bushings will ease the reinstallation of the ECU when the evaporator module is fully installed into the vehicle, where there is limited access to the ECU mounting screws.**

10. Place the evaporator module assembly into the firewall cover, then secure the top mount with (2) 1/4-20 locknuts (See Photo 12, below).

11. Secure the firewall cover to the evaporator module lower mount using (2) #10 x 5/8" screws (See Photo 13, below).

Photo 9

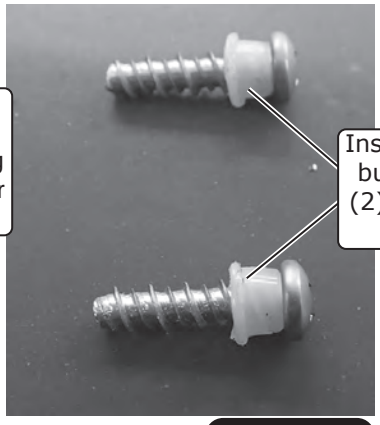


Photo 10

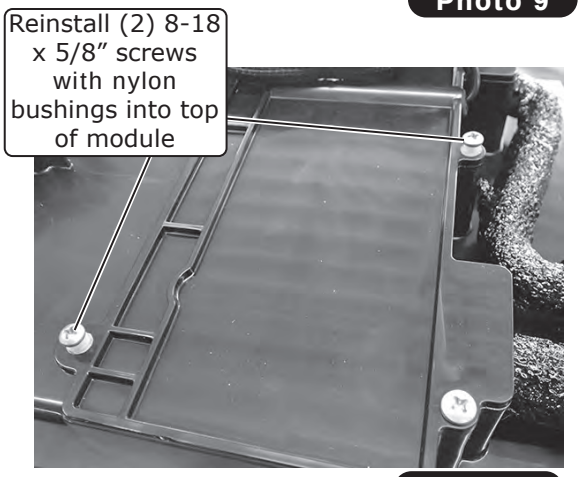


Photo 11

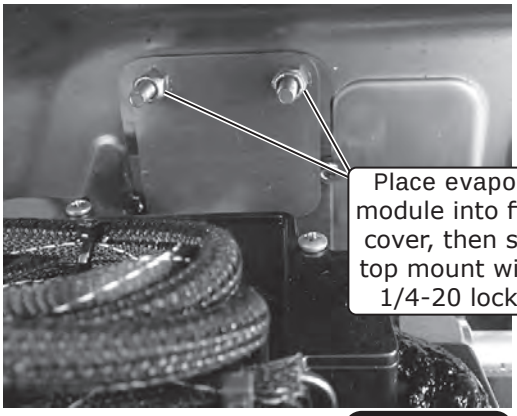


Photo 12

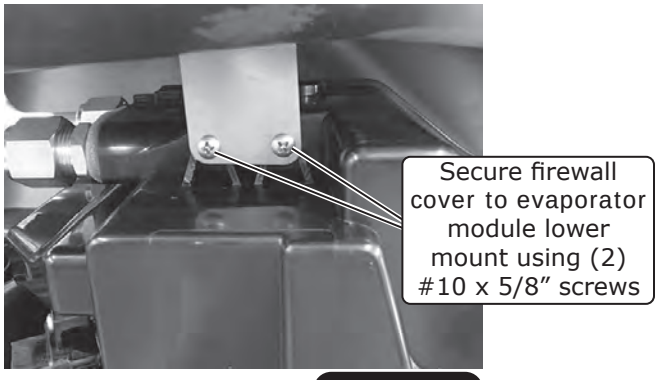


Photo 13

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. To ensure proper drainage, it is very important that the evaporator is level, both left-right and fore-aft. Check for level on the flat portions of the module around the drain (See Photos 8 & 9, Page 16).

1. Remove the OEM dash support bracket by removing the (2) mounting bolts (retain hardware) (See Photo 1, below).
2. Apply silicone to the mating surface of the firewall cover (See Photo 2, below).
3. Install the evaporator assembly onto the firewall opening, and secure it using (11) M6.3 x 16mm hex head screws (See Photos 3 and 4, below). **NOTE: Do not overtighten the screws, as this will cause the firewall cover to warp.**
4. Install the ECU onto the 8-18 x 5/8" screws with nylon bushings (See Photo 5, below).
5. Install (2) 1/4-20 well nuts onto the evaporator module (See Photo 6, below).

Photo 1

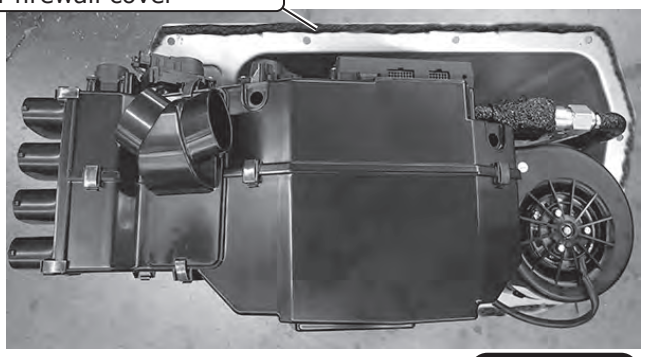


Photo 2

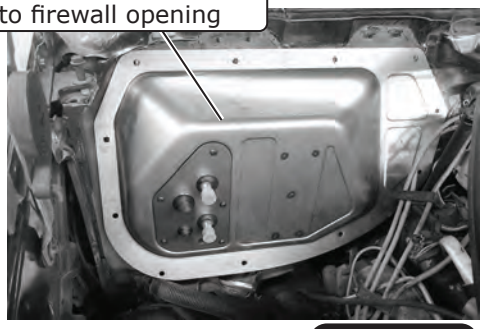


Photo 3

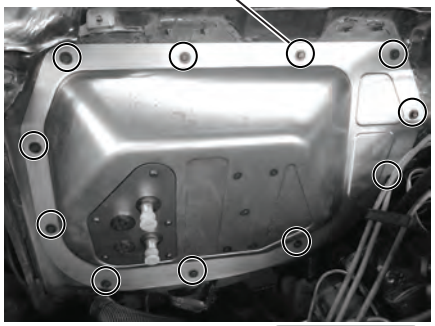


Photo 4

Photo 5

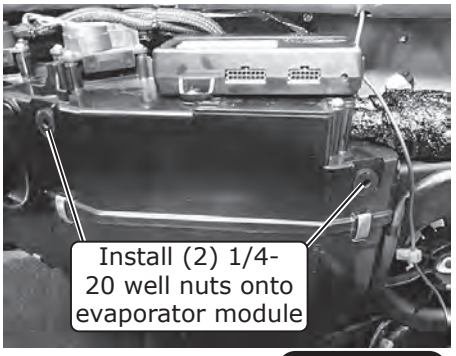


Photo 6

Evaporator Installation (Cont.)

6. Install the evaporator dash bracket using (2) 1/4-20 x 1" serrated flange bolts (See Photo 7, below).
7. Level the evaporator module, both left-right and fore-aft. Check for level on the flat portions of the module around the drain (See Photos 8 & 9,below).
8. Using (2) #12 x 1/2" self-tapping screws, secure the evaporator dash bracket to the firewall (See Photo 7, below).
9. Loosely install the new dash support brace bracket using the OEM hardware (See Photo 10, below).
10. Install a 1/4-20 U-nut onto the dash support brace bracket (See Photo 11, below).

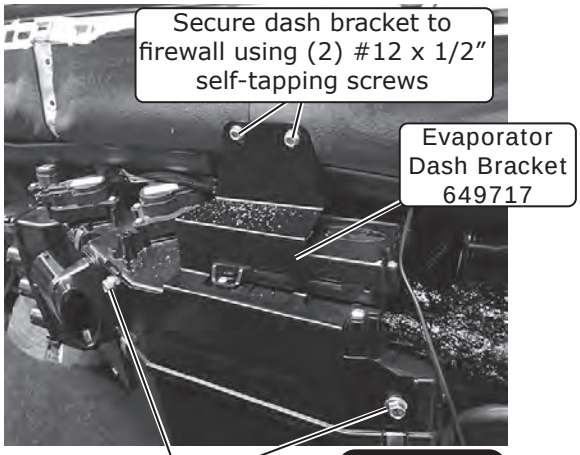


Photo 7

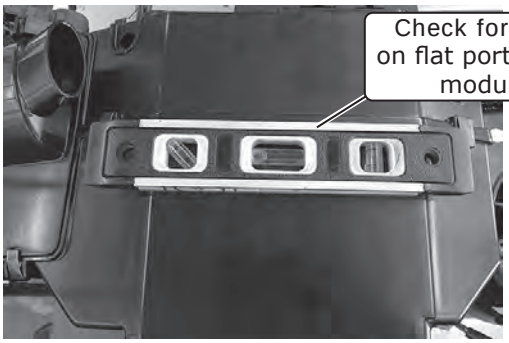


Photo 8

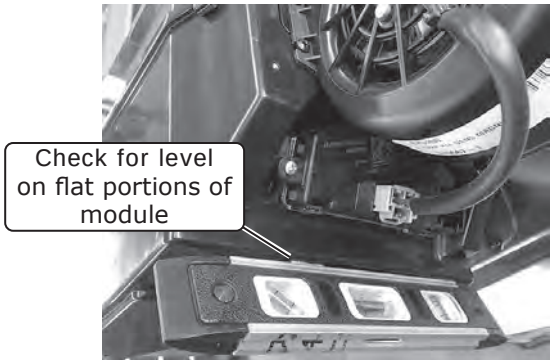


Photo 9

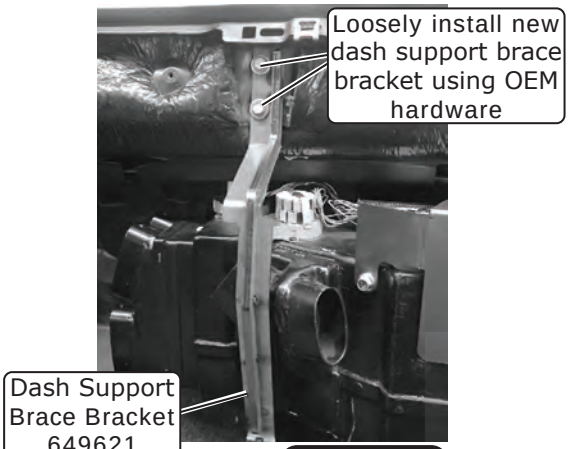


Photo 10

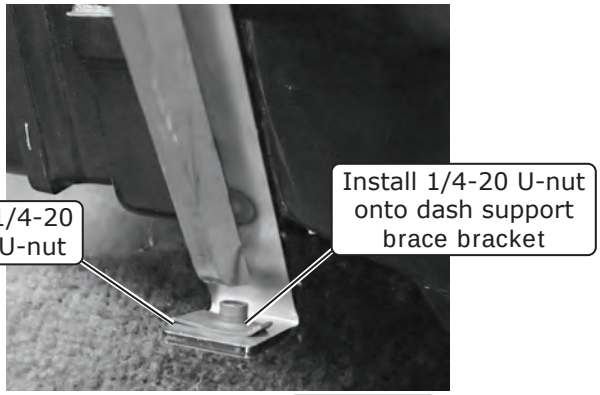


Photo 11

Wiring Installation

1. From the passenger compartment, route the heater control valve plug on the main wiring harness (white/yellow/purple) through the firewall cover (See Photo 1, below).
2. Route the red, white and blue wires from the main wiring harness through the firewall cover (See Photo 2, below). **NOTE: Leave approximately 27" of wiring between the relay and the firewall boot. This allows enough wiring to secure the relay to the mounting position.**
3. Route the heavy gauge orange and white wires through the firewall cover (See Photo 3, below).
4. Connect the blower speed controller plug into the main wiring harness plug (orange and green wires) (See Photo 4, below).

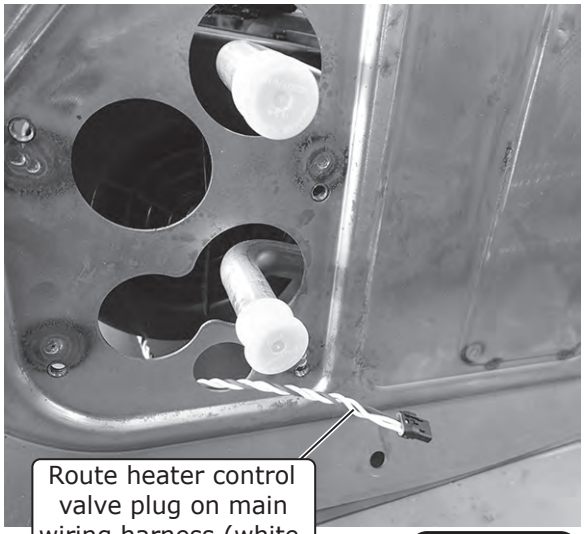


Photo 1

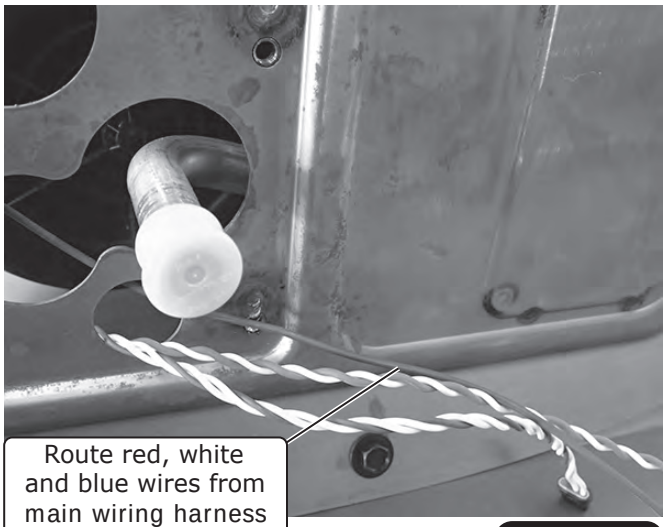


Photo 2

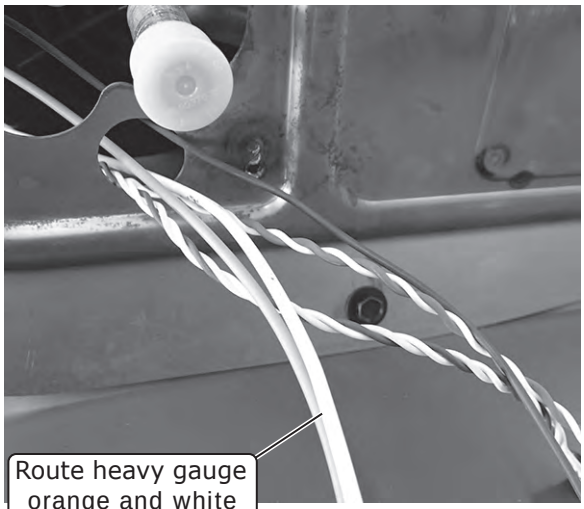


Photo 3

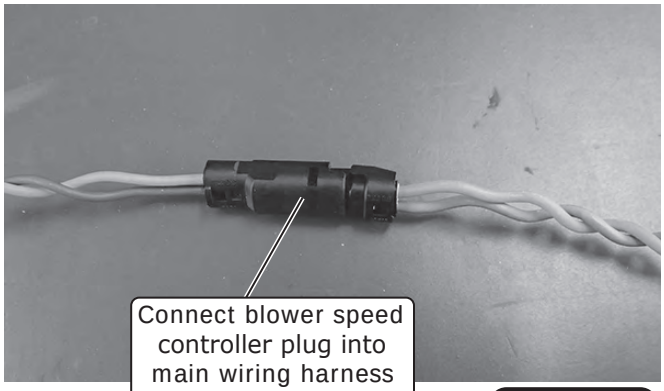
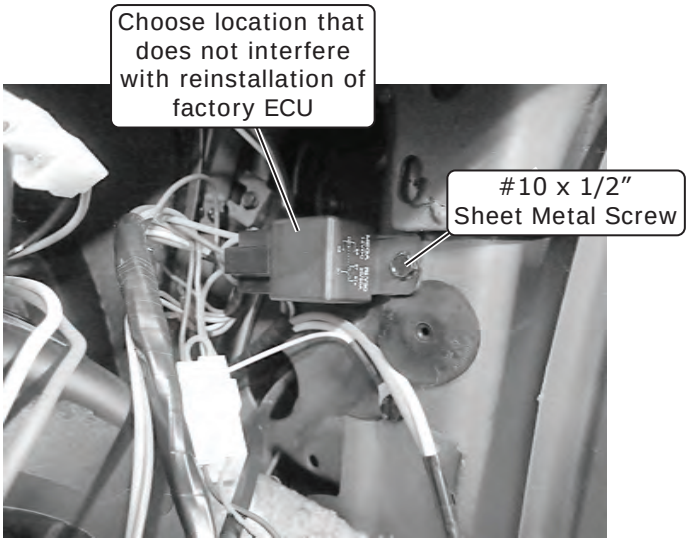


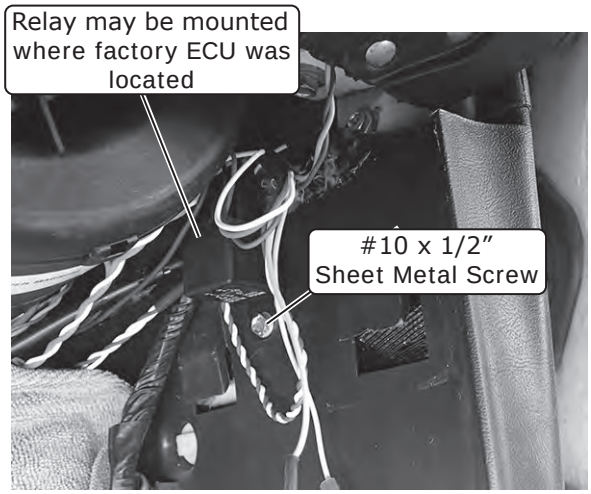
Photo 4

Wiring Installation (Cont.)

5. Select a suitable location for the main relay, then secure it using a #10 x 1/2" sheet metal screw. **NOTE: For Magnum kit, choose a location that does not interfere with the reinstallation of the factory ECU (See Photo 5, below). For Super Magnum kit, the relay may be mounted where the factory ECU was located (See Photo 6, below).**
6. Select a suitable ground location for the white ground wire eyelet from the heater control valve harness, then secure it using a #10 x 1/2" sheet metal screw (See Photo 7, below).
7. Plug the main wiring harness into the ECU (See Photo 8, below).



Magnum Kit Relay Mounting **Photo 5**



Super Magnum Kit Relay Mounting **Photo 6**

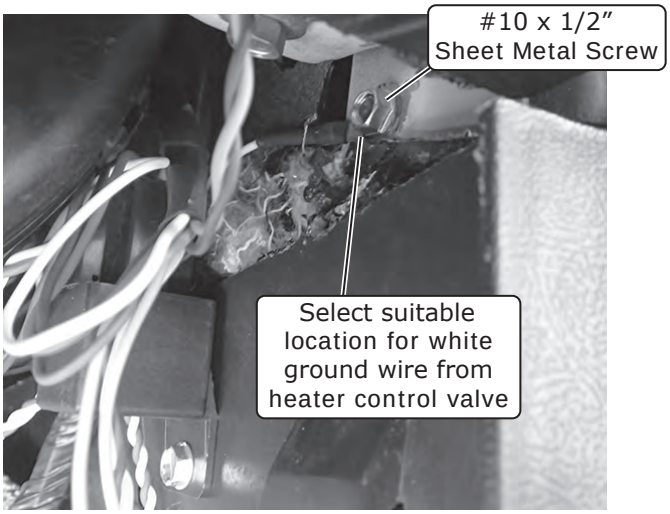


Photo 7

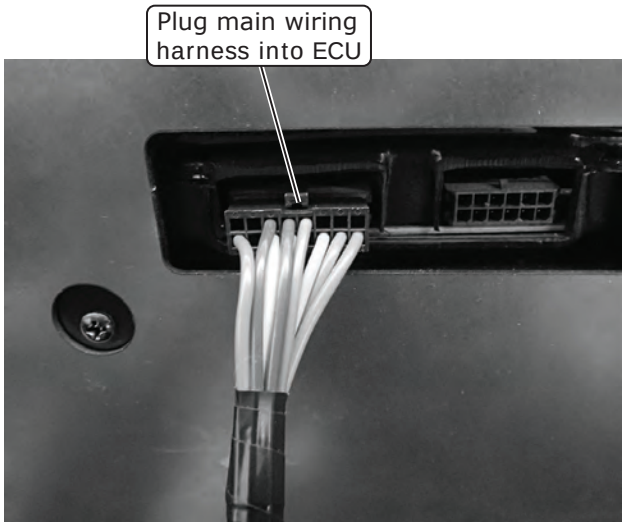


Photo 8

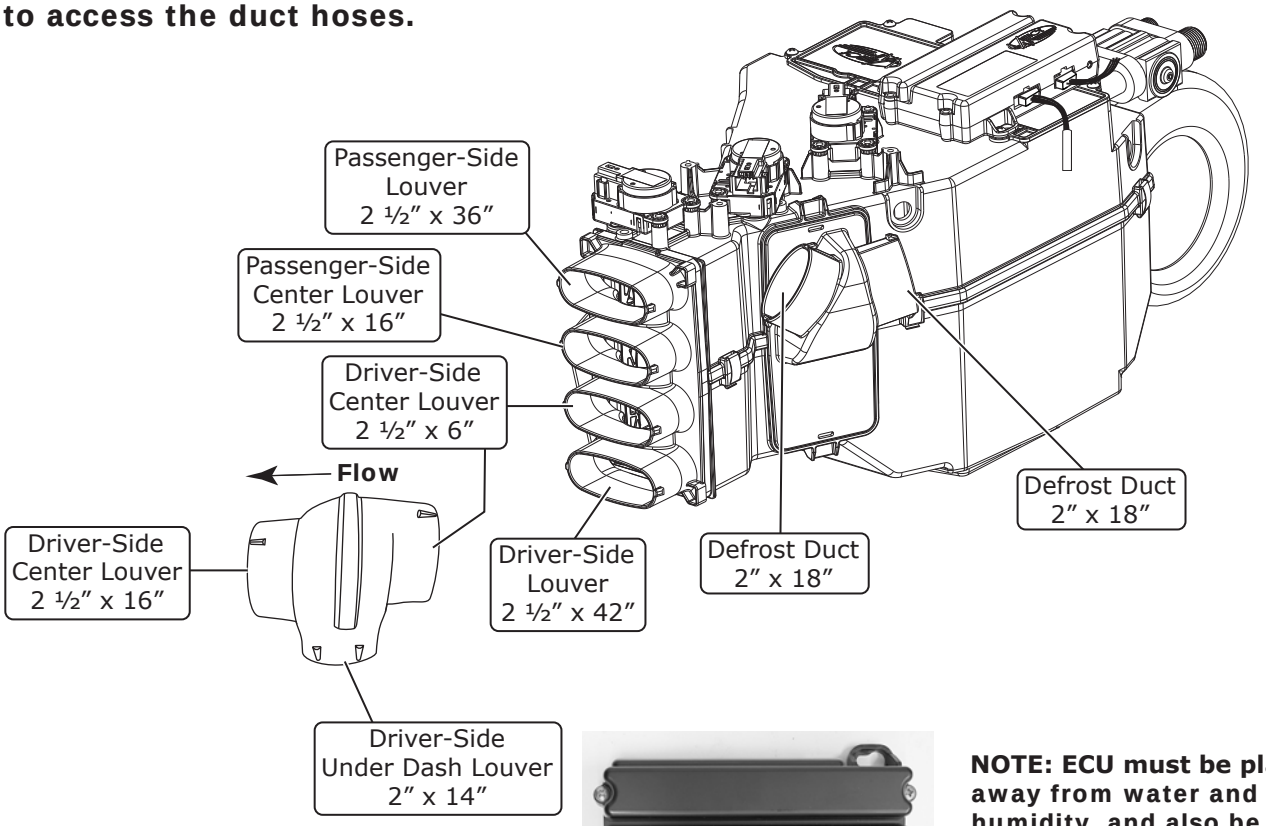
Duct Hose Routing

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.

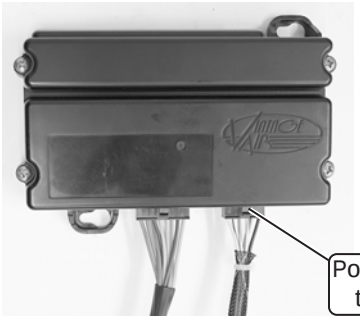
1. Stretch the duct hose until there is no slack, measure, mark and cut hose to size (See Photo 1, below).

Photo 1

NOTE: To ensure the duct hose will not disconnect from the plenums, use tie wraps or screws to secure them if loose. Once the dash is installed, it will be very difficult to access the duct hoses.



TECH TIP: Attach the duct hose to the center louver hose adapter before the reinstallation of the dash.



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.

Defrost Duct and Dash Installation

1. Install the driver- and passenger-side defrost ducts using the OEM hardware (See Photos 1 and 2, below).
2. Reinstall the dash at this time using the OEM hardware.
3. Secure the dash to the new dash support brace bracket using a 1/4-20 x 1/2” hex bolt and a 9/32” flat washer.
4. Tighten the dash support brace bracket mounting bolts at this time.
5. Secure the steering column with the OEM hardware.
6. Install and route the duct hoses as shown on Page 19.
7. Reinstall the passenger-side louver trim (See Photo 3, below).
8. Reinstall the gauge reinforcement panel with the OEM hardware (See Photo 3, below). **NOTE: Connect the center duct hoses to the louver adapter.**
9. Reinstall the gauges, clock and headlight switch, making sure the speedometer and all plugs are connected (See Photo 3, below).
10. Reinstall the dash cluster pad using the OEM hardware (See Photo 3, below).
11. Reinstall the driver-side and center dash trim containing the OEM louvers (See Photo 3, below).
12. Connect the OEM driver-side louver and the under dash louver duct hose to the OEM under-column air splitter. Reinstall the under-column louver assembly (See Photo 3, below).

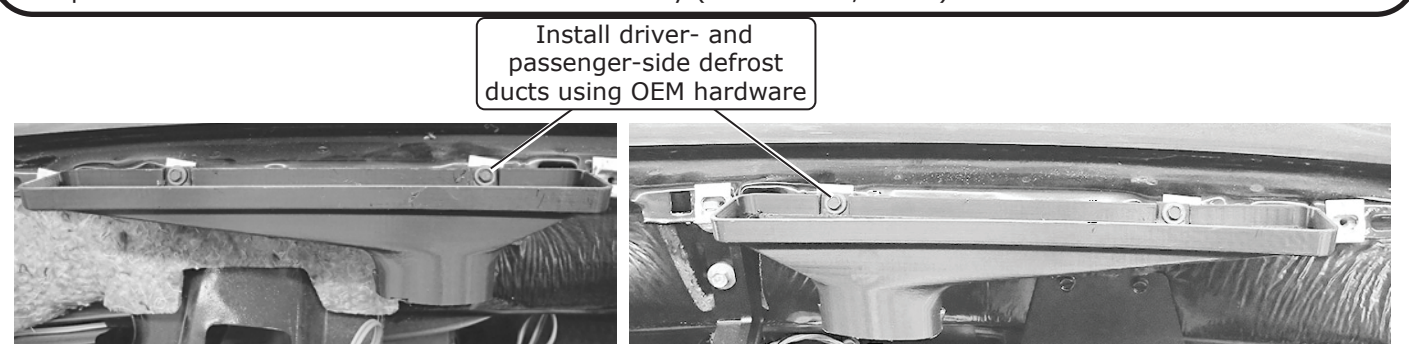


Photo 1

Photo 2

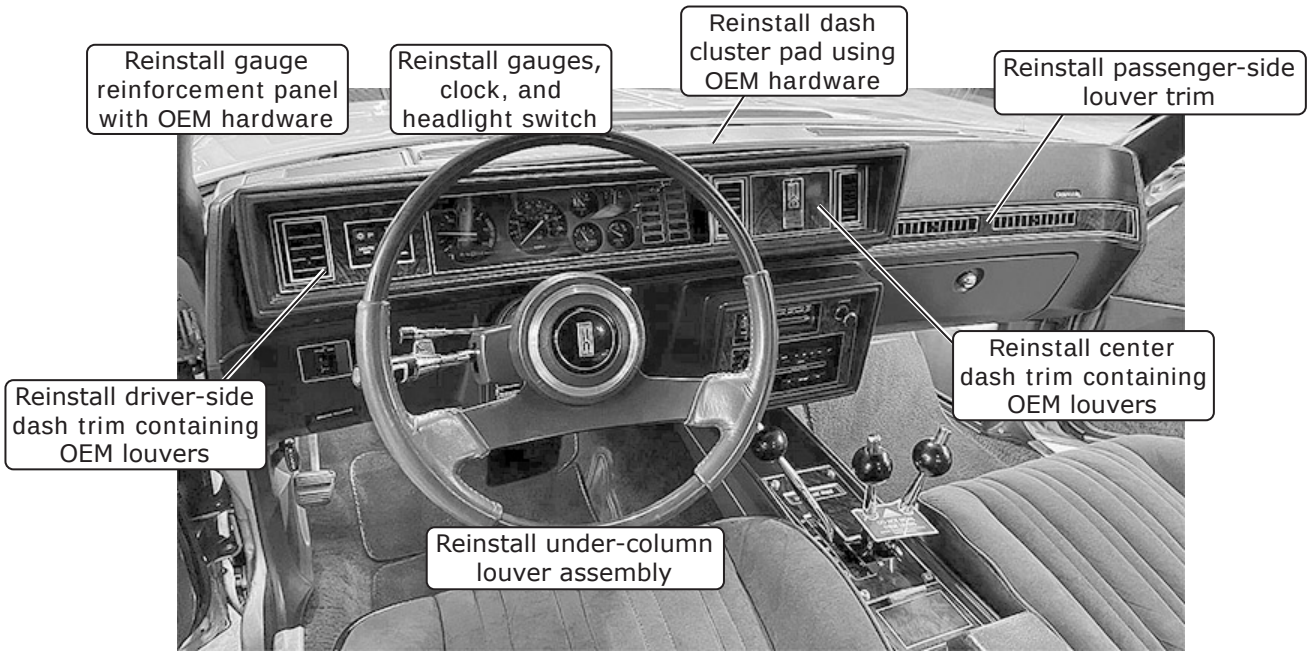


Photo 3

Passenger Compartment Wiring

NOTE: If using the factory wiring for power, the OEM A/C fuse must be changed to a 5 AMP on the fuse panel.

1. Route the violet power wire to a switched 12v power source on the fuse panel.
2. Connect the tan wire to the factory dash lights to enable control panel backlighting.

Control Panel Installation

1. Route the new control panel wiring towards the ECU.
2. Install the control panel into the OEM location and secure it using the OEM hardware (See Photo 1, below).
3. Connect the control panel harness plug into the ECU (See Photo 2, below).
4. Reinstall the dash trim (See Photo 3, below).

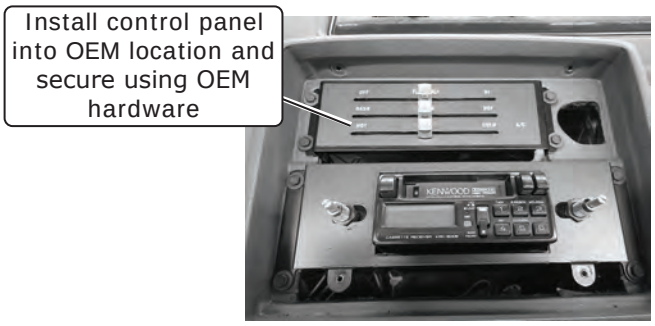


Photo 1

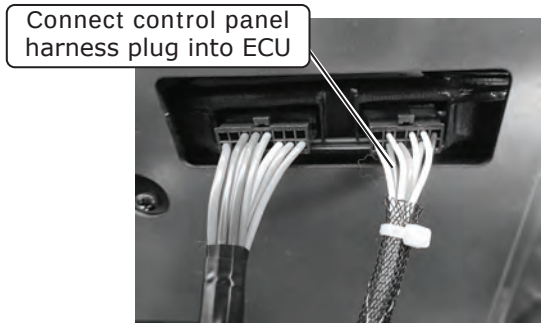


Photo 2

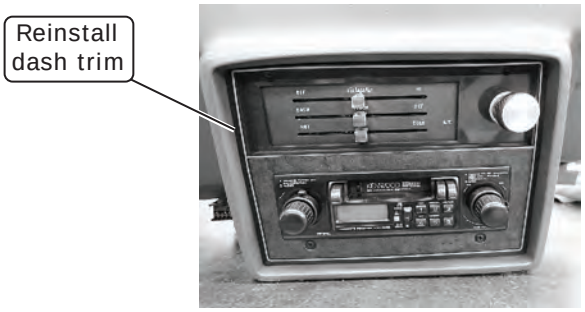
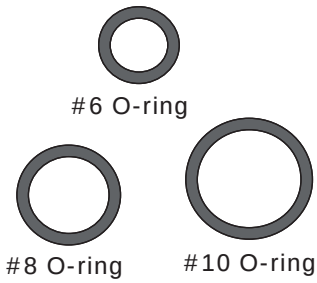


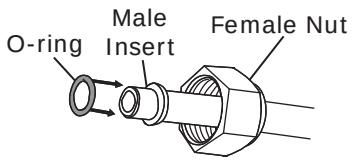
Photo 3

Inner Fender Reinstallation

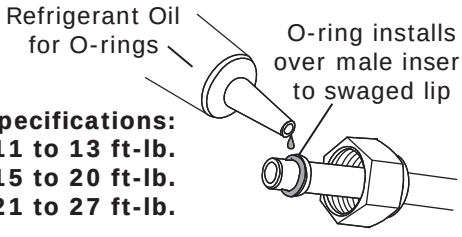
1. Reinstall the passenger inner fender at this time using the OEM hardware.

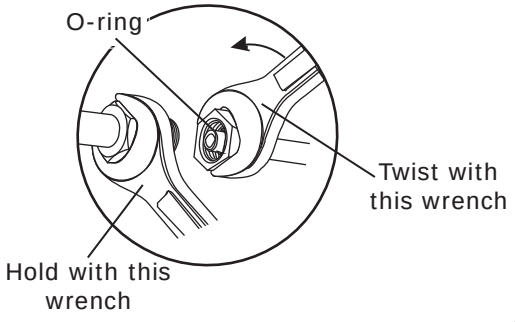
Lubricating O-rings





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.

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Firewall Cover Boot Plate Installation

1. Route the #10 A/C hose through the firewall cover boot plate and rubber boot (See Photos 1 and 2, below).
2. Route the #6 A/C hose through the firewall cover boot plate and rubber boot (See Photo 3, below).
3. Route all the wiring through the firewall cover boot plate and rubber boot (See Photos 4 and 5, below).
4. Slide the firewall cover boot plate and rubber boot into position over the heater hardlines (See Photos 6 and 7, below).
5. Secure the firewall cover boot plate to the firewall cover using (5) 1/4-20 x 1/2" button head screws (See Photo 8, below).

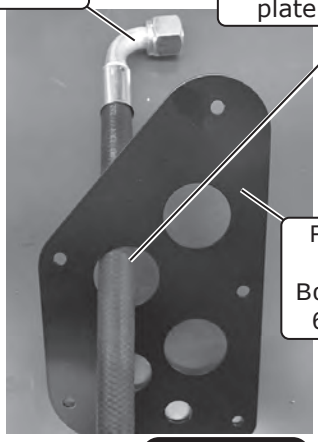

Photo 1

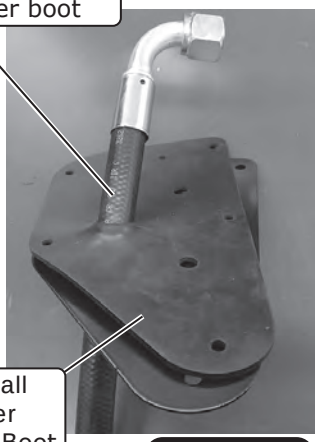

Photo 2

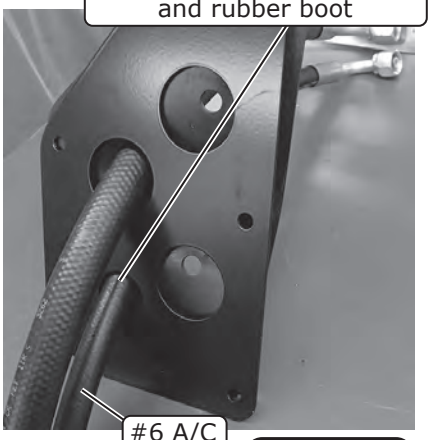

Photo 3

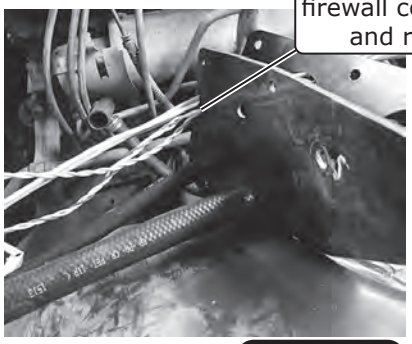

Photo 4

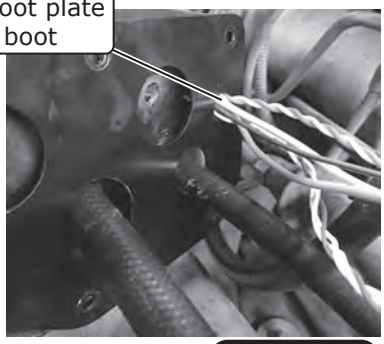
Photo 5

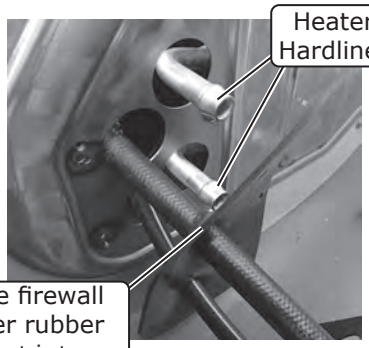

Photo 6

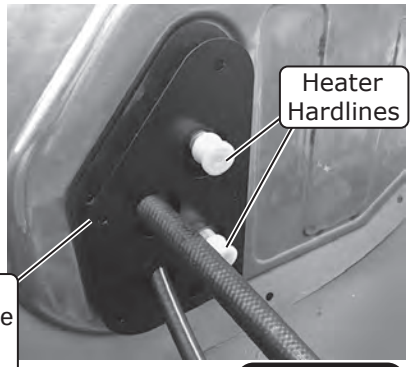

Photo 7

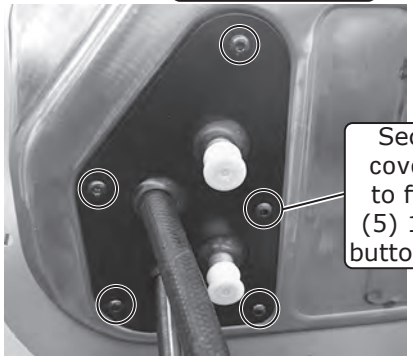

Photo 8

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

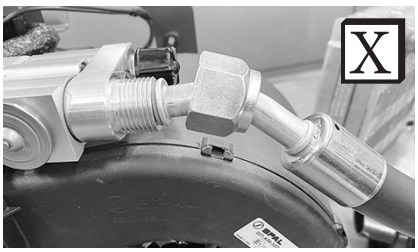

Photo 2

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

A/C Hose Installation

NOTE: Be sure to use a backup wrench when connecting A/C hoses and hardlines to avoid damaging hose fittings (See Lubricating O-rings, Page 21).

1. With a properly lubricated #10 O-ring (See Lubricating O-rings, Page 21), install the 90° fitting of the #10 A/C hose onto the #10 fitting on the evaporator module expansion valve (See Photo 1, below).
2. With a properly lubricated #6 O-ring (See Lubricating O-rings, Page 21), install the 90° fitting of the #6 A/C hose onto the #6 fitting on the evaporator module expansion valve (See Photo 2, below).
3. Using the supplied press tape, wrap all exposed metal from the A/C hoses to the evaporator module expansion valve as shown in Photo 3, below.

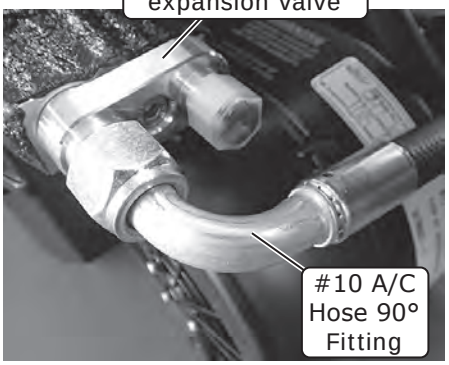

Photo 1

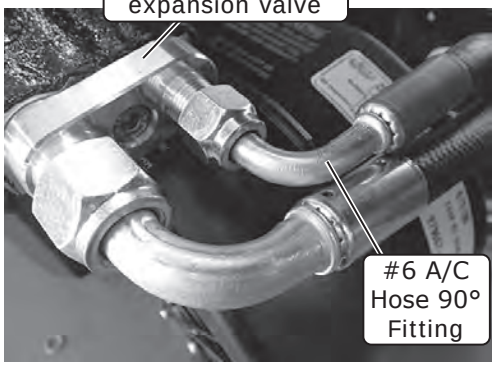

Photo 2

Photo 3

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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 (See Photos 1 and 2, below).
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 (See Photo 3, 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 with (2) hose clamps (See Photos 4 and 5, below).
4. Plug the heater control valve connector into the heater control valve connector wiring harness (See Photo 6, below).

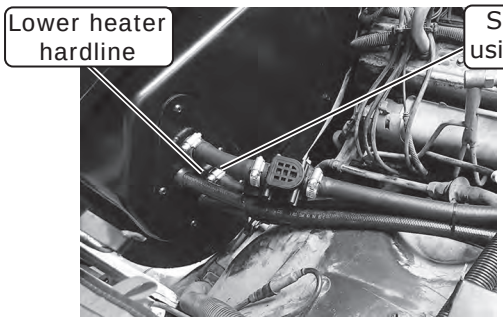


Photo 1

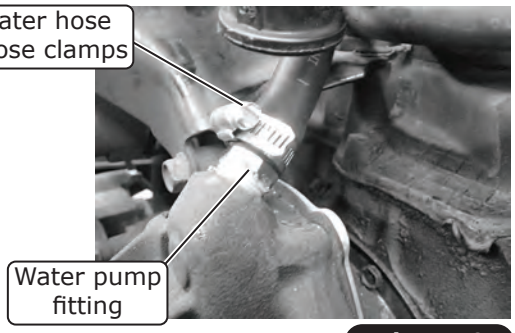


Photo 2

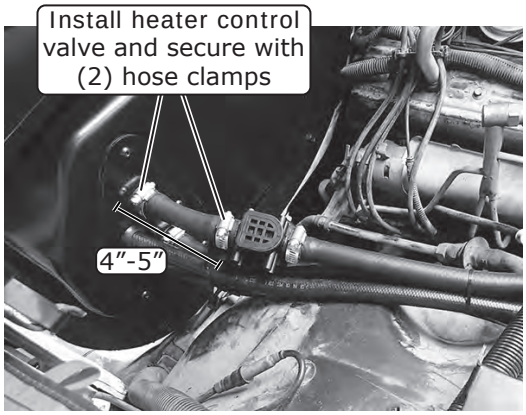
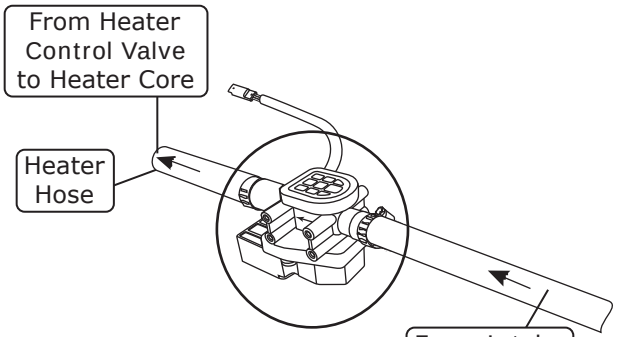


Photo 3



NOTE: Flow Direction Follows Molded Arrow on Valve.

Figure 1

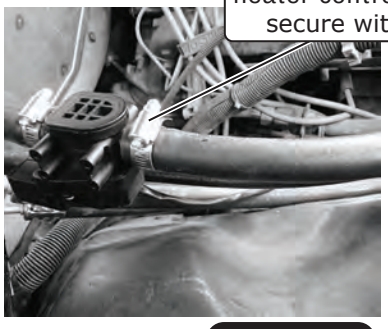
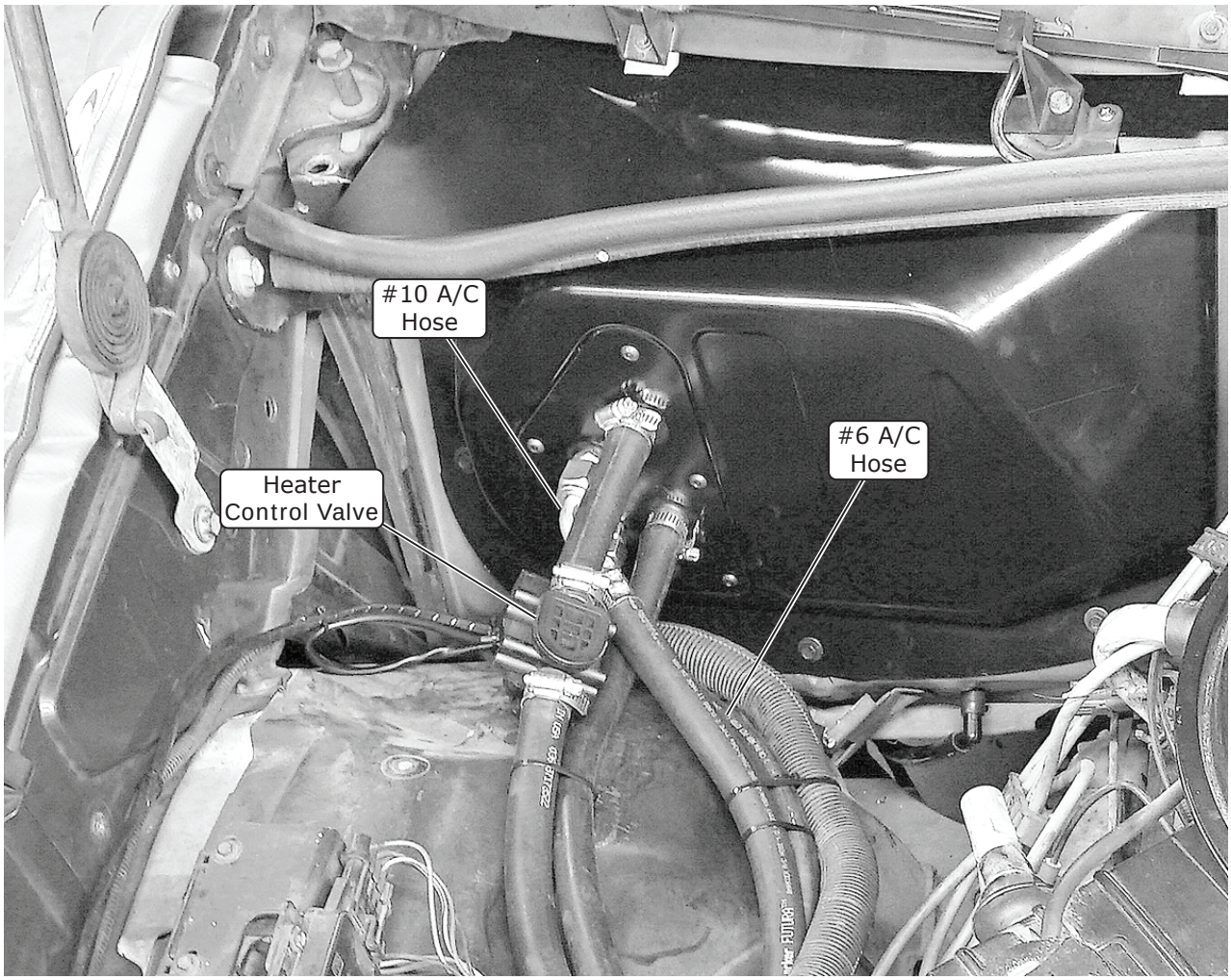


Photo 4

Photo 5

Photo 6

Heater Hose & Heater Control Valve Installation (Cont.)



Engine Compartment Wiring

1. Route the binary switch wire along the #6 A/C hose toward the battery.
2. Connect the blue wire to the binary switch boot wiring using the supplied butt connector and heat shrink tubing. Cover the safety switch wire with the split sleeve and tie wrap it to the #6 A/C hose (See Photo 1, below).
3. Connect the compressor bullet connector to the compressor lead (See Photo 2, below).
4. Route the compressor lead along the #8 A/C hose toward the core support and secure it with the supplied tie wraps.
5. Connect the compressor lead to the binary switch using the supplied butt connector and heat shrink tubing (See Photo 3, below).
6. Route the power and ground wires toward the battery.
7. 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 4, below).
8. 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 5, below).

Photo 1

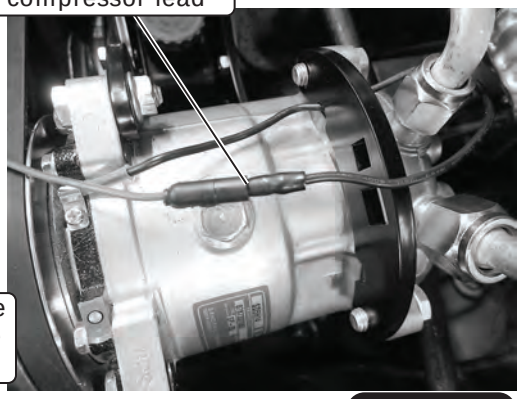


Photo 2

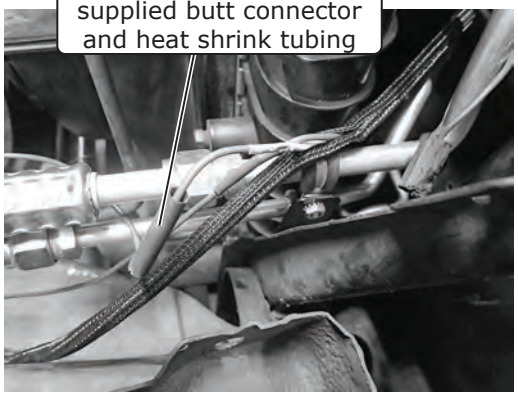


Photo 3

Photo 4

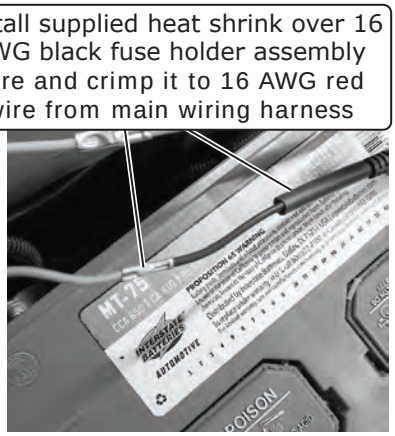


Photo 5

Engine Compartment Wiring (Cont.)

9. Install the fuses into the holders (See Photos 6 and 7, below).

10. Install the supplied heat shrink over the white ground wires, then crimp on the supplied eyelets (See Photos 8 and 9, below).

11. Connect the ground wiring eyelets to the negative battery terminal connector.

12. Connect the positive wiring eyelet to the positive battery terminal connector. **NOTE: Do not connect power until the installation is completed.**

13. Wrap exposed wiring using the supplied split sleeve.

Photo 6

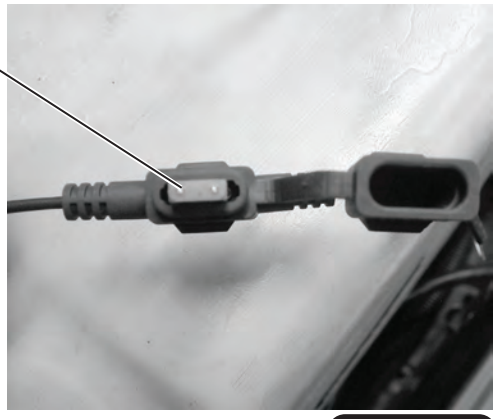


Photo 7

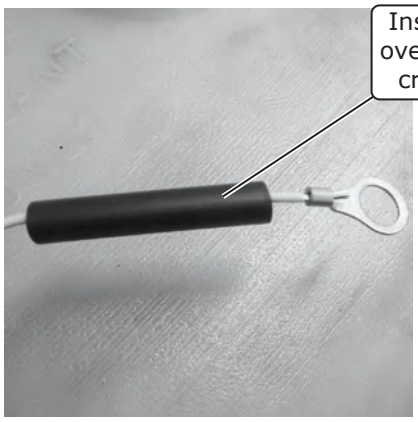


Photo 8

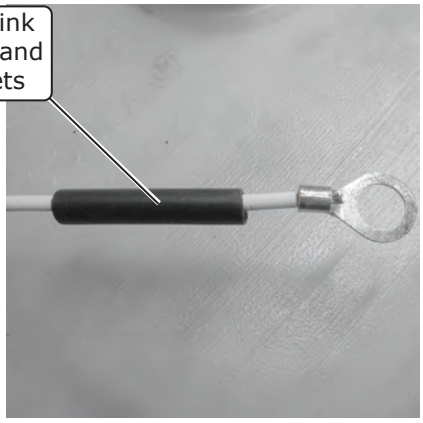


Photo 9

Water Deflector Installation

NOTE: The hood weather stripping may have to be trimmed to fit correctly.

1. Remove the windshield washer nozzle from the OEM bracket.
2. Secure the windshield washer nozzle onto the new washer nozzle bracket using a 10-32 x 1/2" screw and a 10-32 nut with star washer (See Photos 1 and 2, below).
3. Install the windshield washer nozzle assembly onto the water deflector using (2) 10-32 x 1/2" screws and (2) 10-32 nuts with star washers (See Photos 3 and 4, below).
4. Install the water deflector using OEM trim brackets and hardware.
5. Route the windshield water nozzle hose as shown in Photo 5, below, and reconnect it onto the washer nozzle.
6. Reinstall the hood weather stripping (use silicone if needed) (See Photo 6, below).
7. Reinstall the lower windshield trim using the OEM hardware.
8. Reinstall the windshield wiper arms.

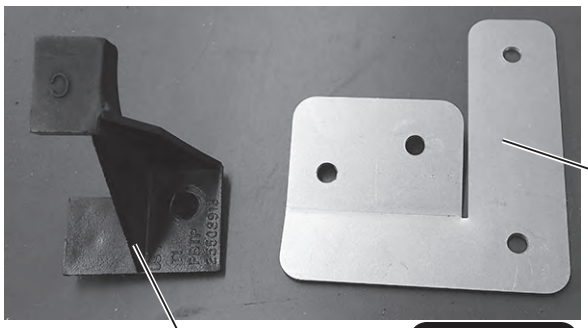


Photo 1

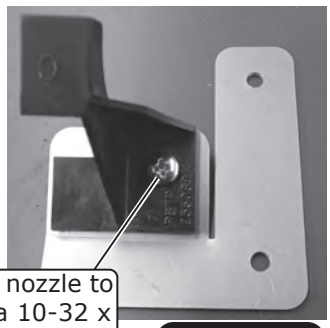


Photo 2

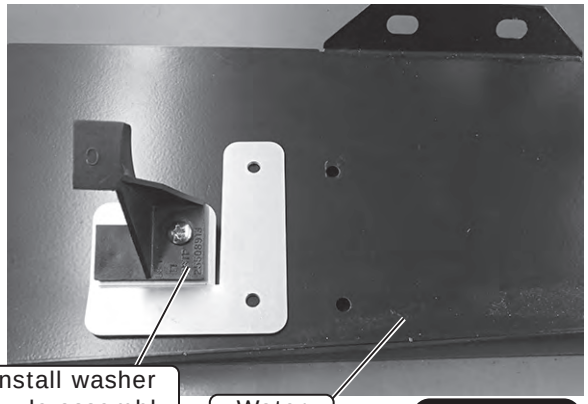


Photo 3

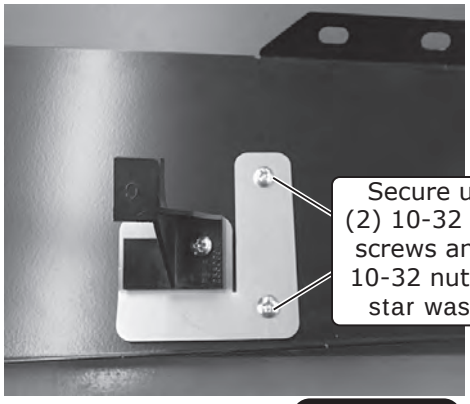


Photo 4

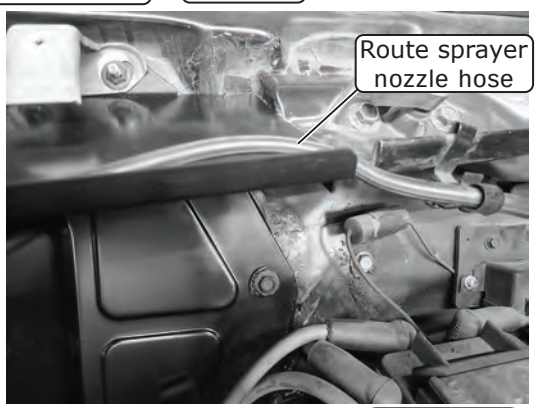


Photo 5

Photo 6

Drain Hose Installation

1. Cut the drain hose at 9" (See Photo 1, below). Install the 1/2" drain elbow and the remainder of the hose. Install the 9" piece of drain hose through the pre-drilled hole in the firewall from the engine compartment (See Photo 2, below), then connect the drain hose to the drain outlet on the evaporator unit (See Photo 3, below). In the engine compartment, route the drain hose away from the exhaust. **NOTE: Carpet may need to be trimmed.**

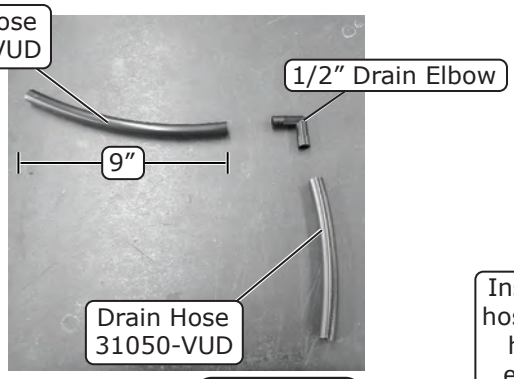


Photo 1

Photo 2

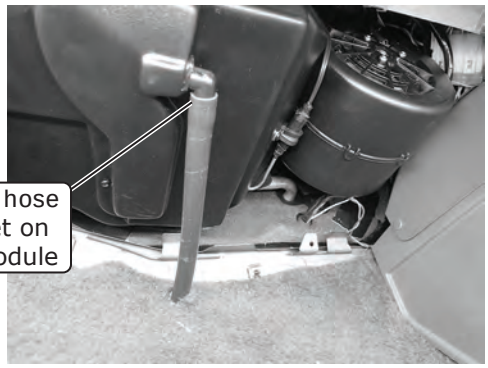


Photo 3

Courtesy Lamp Relocation (If Equipped)

1. Install the courtesy lamp bracket onto the lamp using the OEM hardware (See Photo 1, below).

2. Using a #8 x 1/2" pan head screw, install the lamp using the mounting hole on the bottom of the evaporator module (See Photos 2 and 3, below).

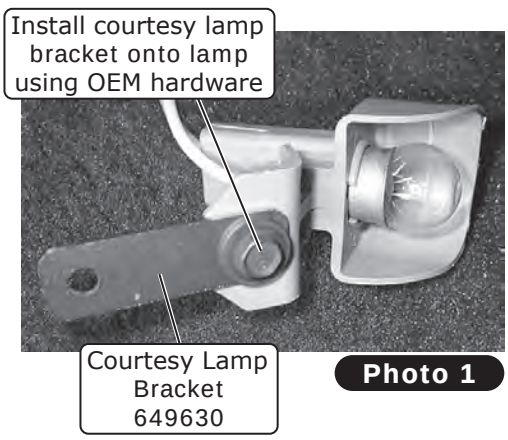


Photo 1

Photo 2

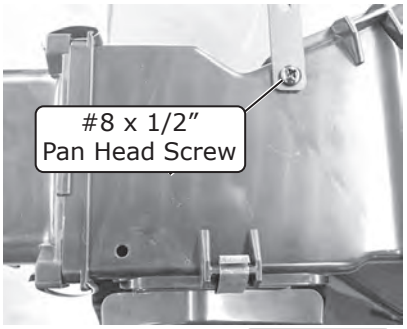
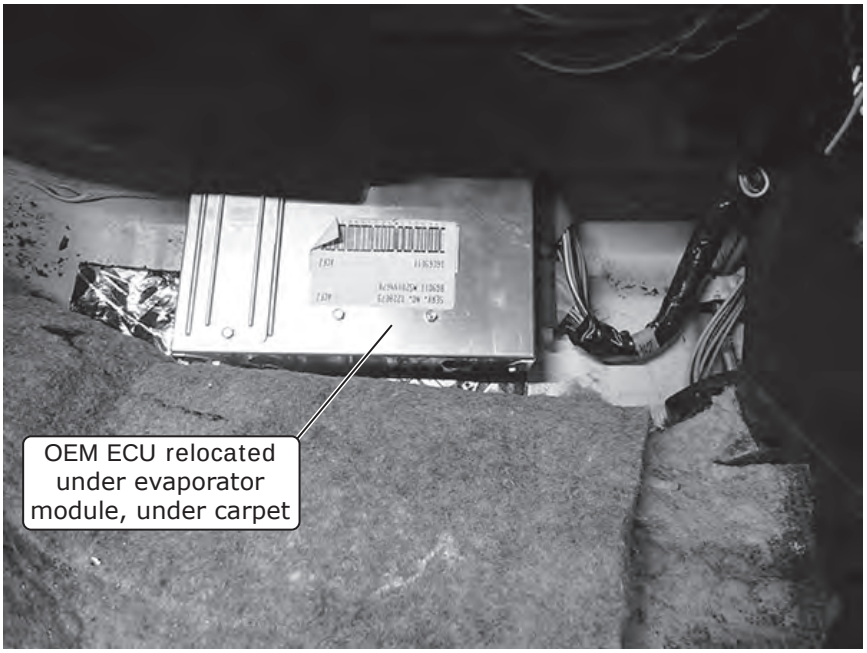


Photo 3

OEM ECU Relocation (Super Magnum Only)

1. When installing the Gen 5 Super Magnum kit, the OEM ECU will have to be relocated from it's factory location. When designing this kit, the OEM ECU was relocated under the evaporator module on the passenger side, under the carpet (See Photo 1, below).



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. 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*. 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.* Set the **MODE** control to the **FLOOR** position. *Confirm that air is being blown at the floor vents.* 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:** 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.* **If system is charged:** Set the **TEMP** control to the **MAX COOL** position. *Confirm that **COLD** air is coming from the dash vents.* 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.

Glove Box Modification and Installation (Style 1)

1. Using the template, mark and cut the glove box (See Photos 1, and 2, below).
2. Install the glove box cap over the trimmed area. Using the (2) bottom holes on each side of the cap, drill (4) small pilot holes onto the glove box, then secure the cap using (4) #6 x 3/8" pan head screws (See Photo 3, below).
3. Reinstall the glove box/door using the OEM hardware.

Photo 1

Cut Glove Box

Photo 2

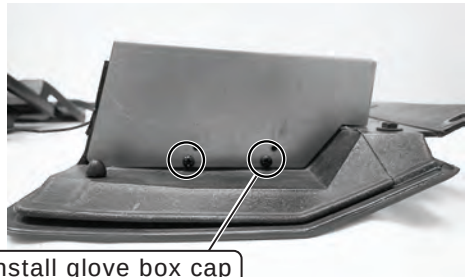


Photo 3

Glove Box Modification and Installation (Style 2)

1. For glove boxes that mount to the door with OEM screws (See Photo 1, below), use the template to mark and cut the glove box (See Photos 2 and 3, below).
2. Install the glove box cap over the trimmed area. Using the (2) upper holes (See Photo 4, below), drill (2) small pilot holes onto the glove box, then secure the cap using (4) pop rivets, ((2) per side) (See Photos 5 and 6, below).
3. Reinstall the glove box/door using the OEM hardware.

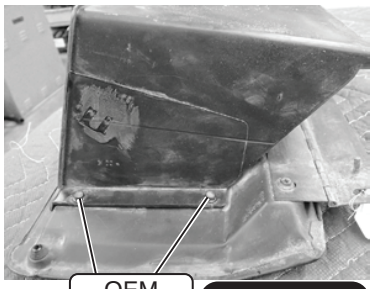
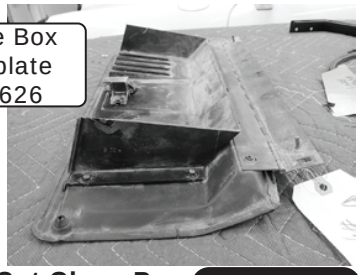


Photo 1

Photo 2



Cut Glove Box Shown

Photo 3

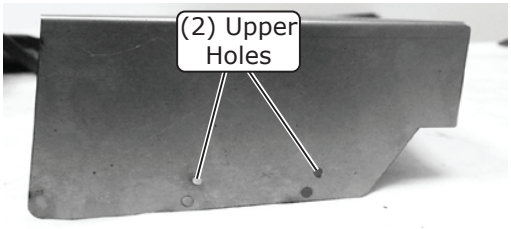


Photo 4

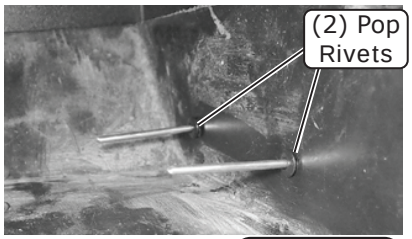


Photo 5

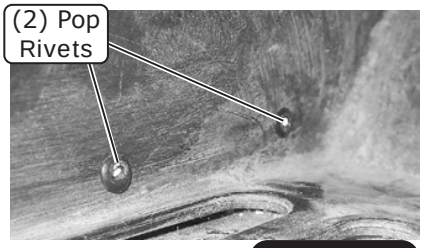
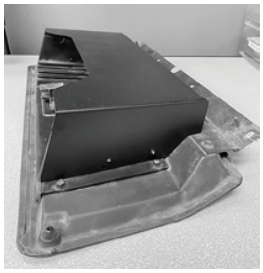


Photo 6



Final Install

Final Steps: Completing the Install

1. If using the OEM A/C power wire to connect to the violet power wire from the main harness, remove the fuse for the factory A/C from the fuse panel and replace it with the supplied 5 amp fuse.
2. Reinstall all previously removed items.
3. 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.
4. Double-check all fittings, brackets and belts for tightness.
5. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
6. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
7. Charge the system to the capacities stated on Page 4 of this instruction manual.
8. See Operation of Controls procedures on Page 37.

Quality Crimp Guideline

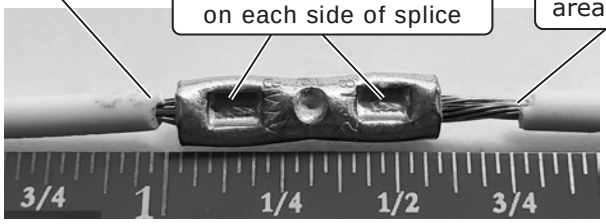


Photo 1

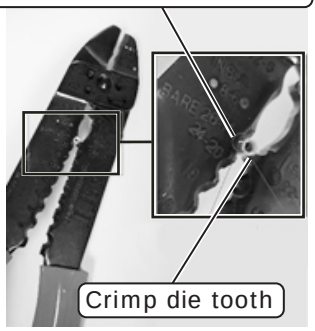


Photo 2

Good Ring Terminal Crimp **Bad Ring Terminal Crimp**

Photo 3

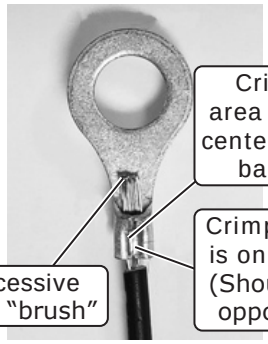


Photo 4

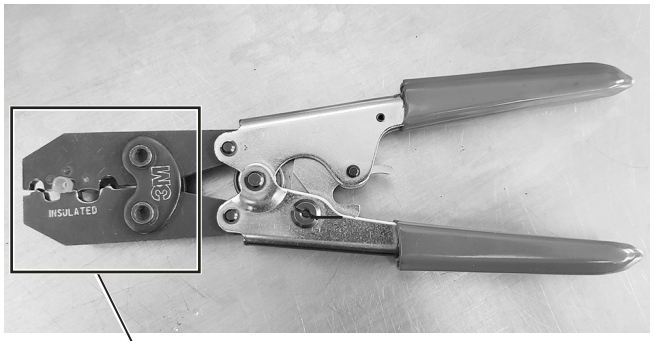
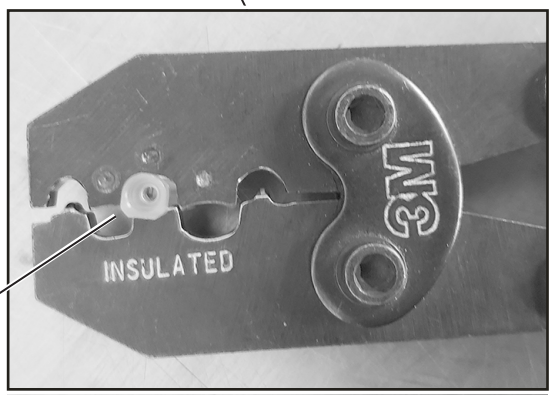


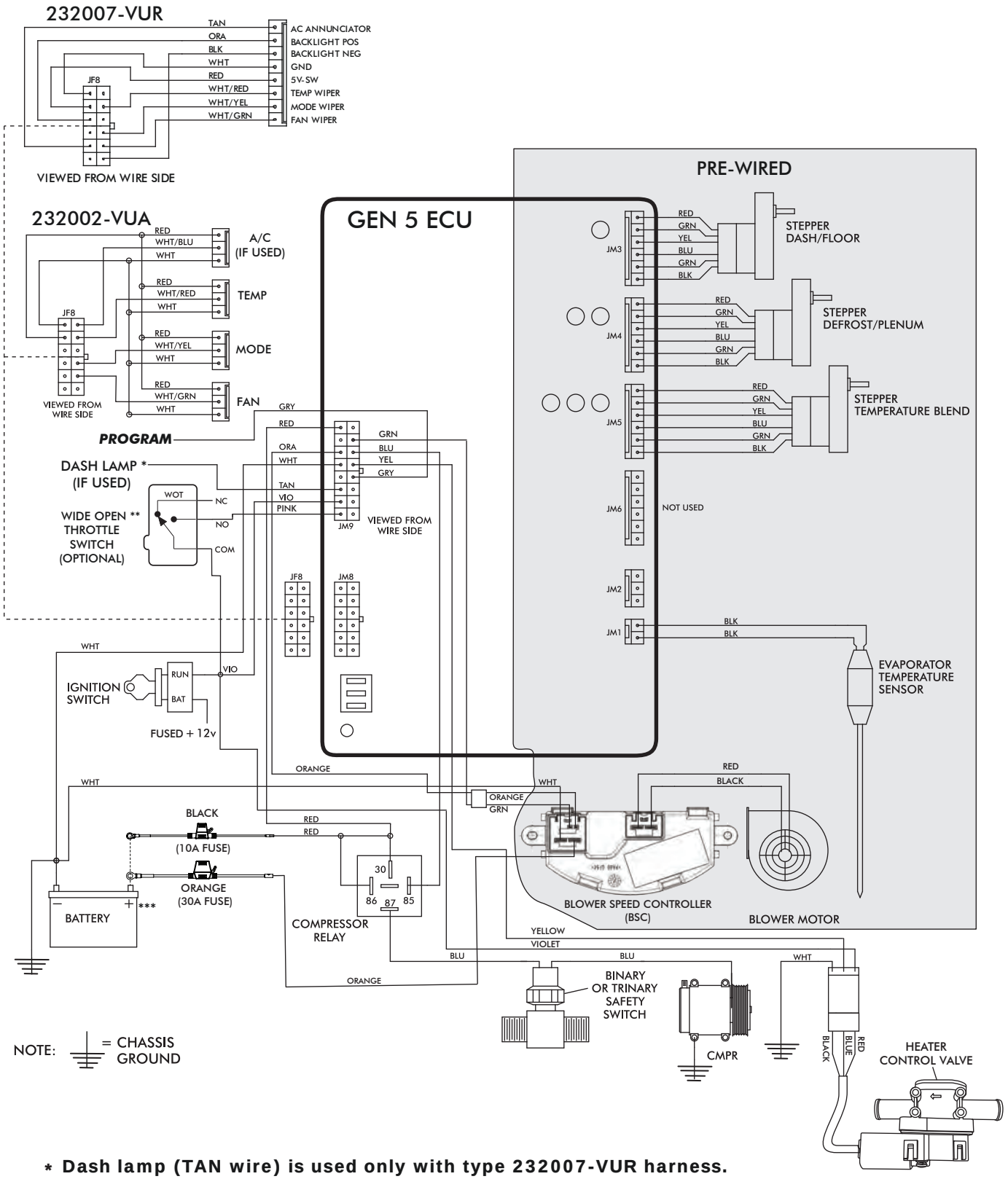
Photo 5



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.

Photo 5a

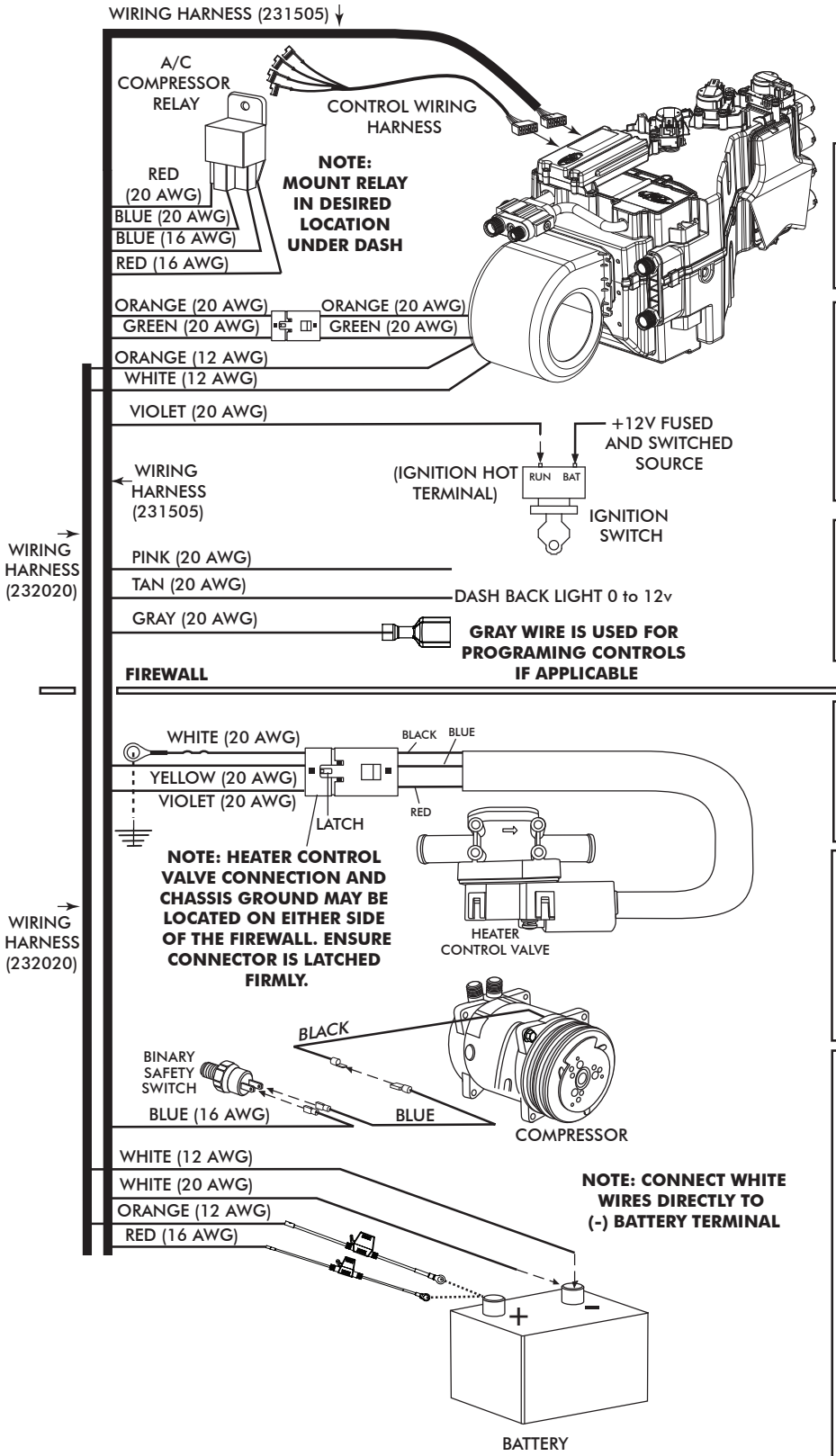
Gen 5 Wiring Diagram



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

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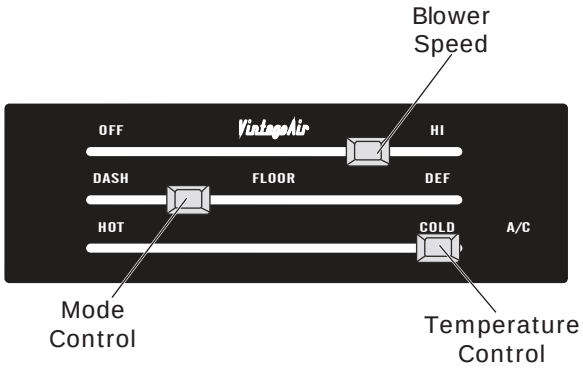
Operation of Controls

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

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).

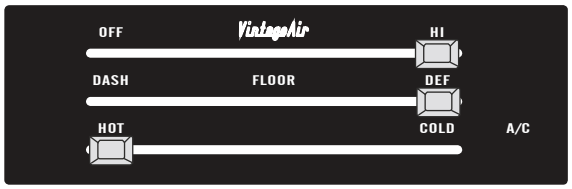
Temperature Control
For maximum heating, adjust to hottest position (adjust between HOT and COLD to reach desired temperature).

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

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Packing List: Evaporator Kit (564439)

No.	Qty.	Part No.	Description	
1.	1	765100	Gen 5 Magnum Module	_____
2.	1	784439	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 Module 765100

Checked By: _____
Packed By: _____
Date: _____

Packing List: Evaporator Kit (564440)

No.	Qty.	Part No.	Description	
1.	1	765200	Gen 5 Super Magnum Module	_____
2.	1	784439	Accessory Kit	_____

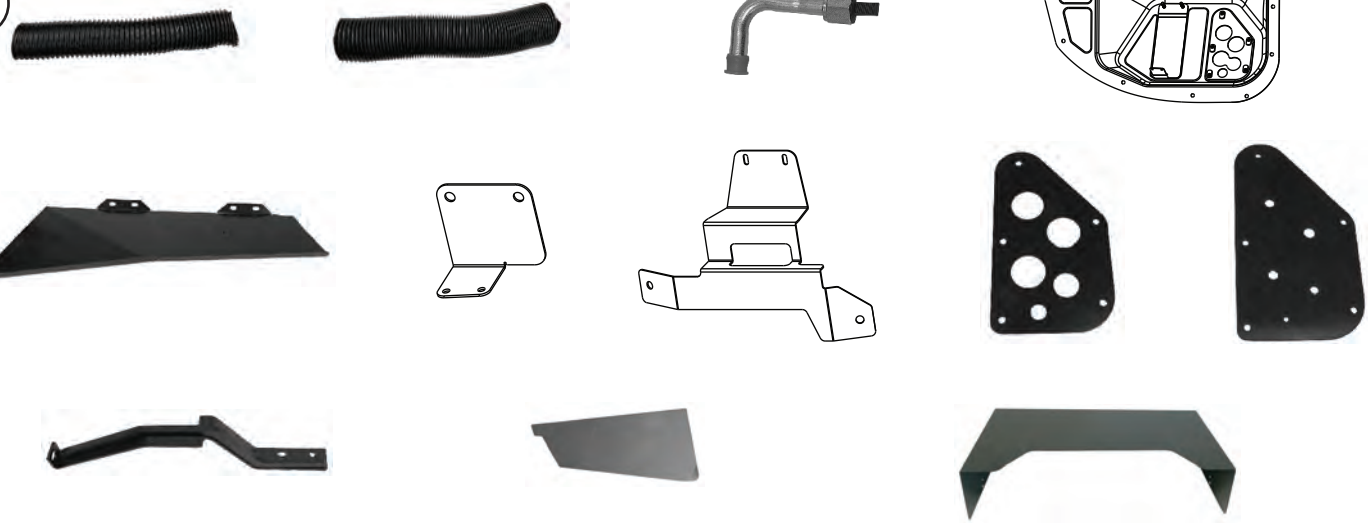
**** Before beginning installation, open all packages and check contents of shipment. Please report any shortages directly to Vintage Air within 15 days. After 15 days, Vintage Air will not be responsible for missing or damaged items.**

1

Gen 5 Super Magnum Module 765200

Checked By: _____
Packed By: _____
Date: _____

2



Accessory Kit 784439

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