an ISO 9001:2015 Registered Company

1965-66 Chevrolet Impala

without **Factory Air Evaporator Kit (561054)**

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A detailed tech video outlining the installation process is available on Vintage Air's YouTube channel at https://bit.ly/3xd5mwm.
The application will vary on without factory air evaporator kits.
Viewing the tech video along with the written instructions will provide the installer the most detailed installation procedure.

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Packing List: Evaporator Kit (561054)

No.	Qty.	Part No.	Description
1.	1	744021	Gen IV Evaporator Sub Case
2.	1	781054	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 IV Evaporator Sub Case 744021

2

Accessory Kit 781054

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 IV 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, & diagrams.

Perform the Following:

1. Disconnect the battery and remove it from the vehicle.
2. Drain the radiator.
3. Remove the OEM heater hoses from the intake, water pump and firewall (See Photo 1, below).
4. Jack up the vehicle and support it with jack stands, then remove the passenger-side front wheel (See Photo 2, below).
5. Remove the battery tray and all mounting bolts to the passenger-side inner fender, then carefully lower and remove the inner fender (See Photo 3, below).
6. Remove the (2) inner fender bracket bolts, then remove the bracket (retain) (See Photo 4, below).
7. Disconnect the blower power wire.
8. Remove the (7) blower mounting bolts, then remove the blower assembly (discard). **NOTE: To remove the evaporator and blower assembly (under the hood), and the air distribution system (under the dash), the factory manual recommends removing the passenger-side inner fender.**
9. Remove the (3) fresh air duct mounting screws (See Photo 5, below).

Photo 1

Photo 2

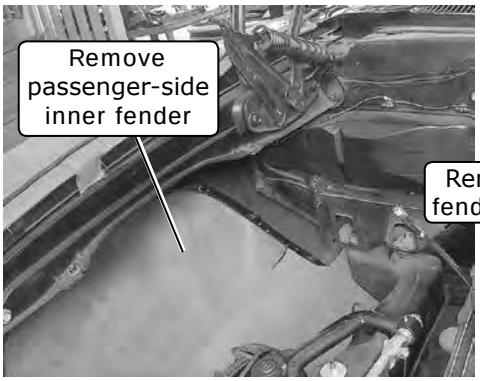

Photo 3

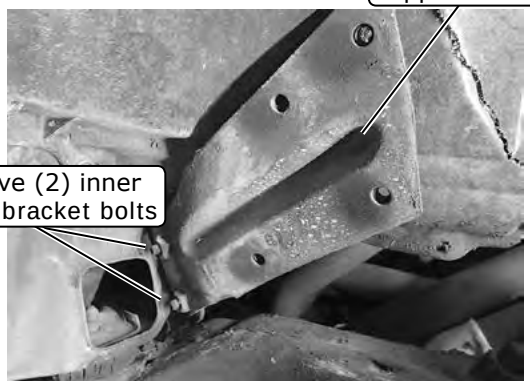

Photo 4

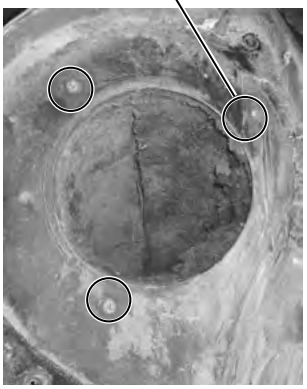

Photo 5

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: Removal of the dash bezel is optional, but is recommended.

Perform the Following:

1. Remove the glove box door by removing (3) screws. Remove the (4) glove box mounting screws, then remove the glove box (discard) (See Photo 1, below).
2. From the back of the dash, disconnect the speedometer cable (See Photo 2, below), gauge wiring (See Photos 3 and 4, below) and the stereo connections.

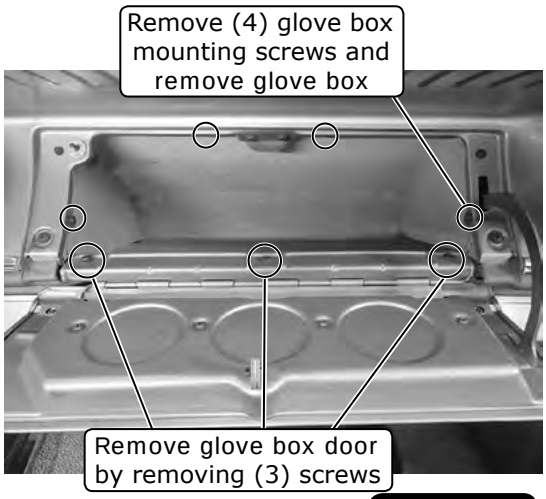

Photo 1

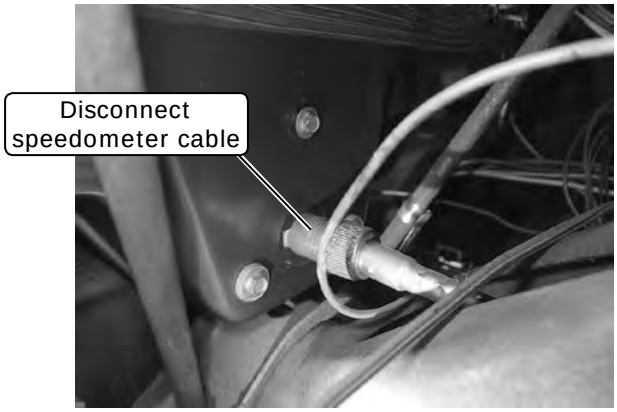

Photo 2

Photo 3

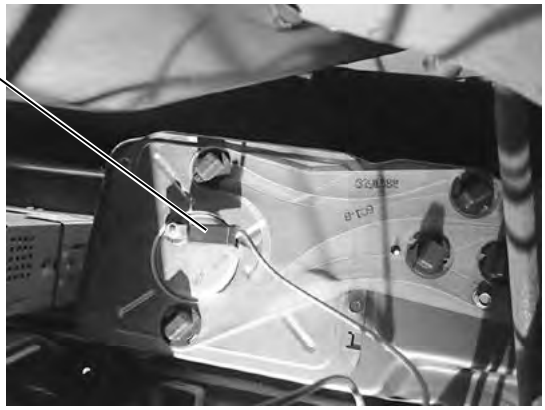

Photo 4

Passenger Compartment Disassembly (Cont.)

3. Remove the (14) dash bezel mounting screws and carefully remove the dash bezel (See Photos 5, 6, 7 and 8, below). **NOTE: It may be necessary to move the gear selector all the way down to remove the dash bezel. Ensure to engage the parking brake before doing so for safety.**
4. Remove the (2) control panel mounting screws from the lower dash (retain screws) (See Photo 9, below). Disconnect the (2) lights, plugs, cables and vaccum lines from the panel, then carefully remove the control panel from the dash.
5. Disconnect the plugs and cable holders from the heater core housing, then remove the housing from the vehicle.
6. Remove the (3) defrost duct mounting screws, then remove the duct from the dash (discard) (See Photos 10, 11 and 12, below).
7. Discard all vacuum lines and connections, as they will no longer be needed.

Photo 5

Photo 6

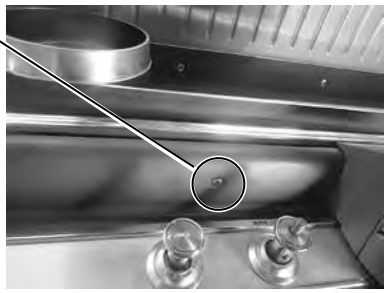

Photo 7

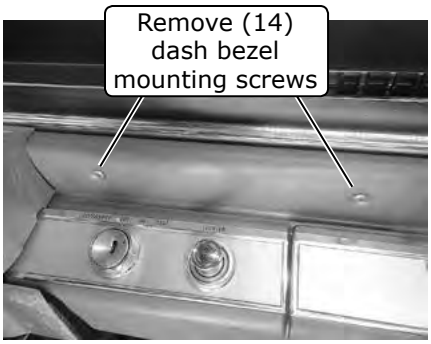

Photo 8

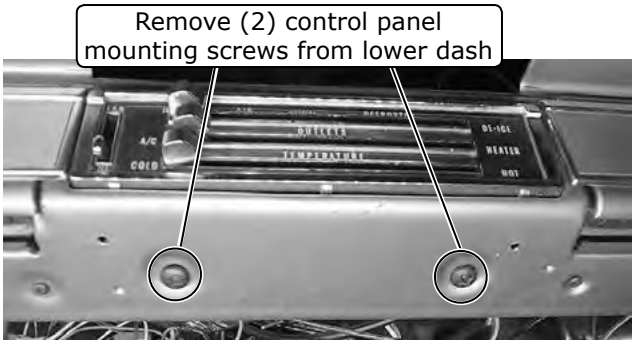

Photo 9

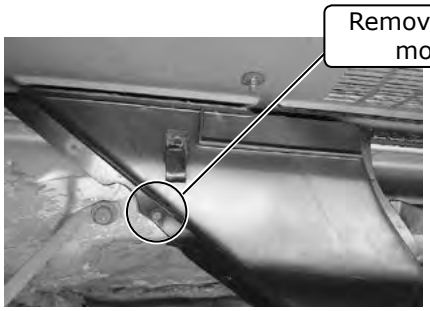

Photo 10

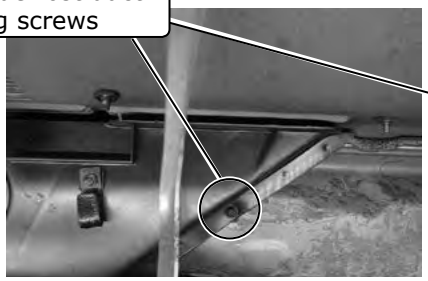

Photo 11

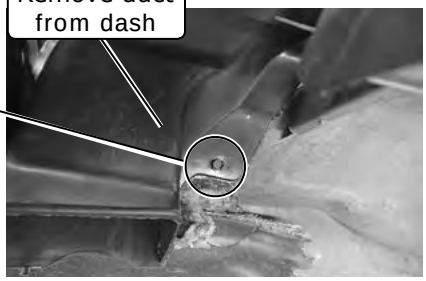

Photo 12

Passenger Compartment Disassembly (Final)

8. Remove the (5) door sill plate screws, then remove the plate (retain) (See Photo 13, below).
9. Remove the (3) kick panel screws and remove the kick panel from the vehicle (retain) (See Photos 14 and 15, below).
10. Remove the cable strap screw, then remove the cable from the fresh air door. Remove the cable from the dash bracket.
11. Remove the (6) fresh air vent assembly screws, then carefully twist and remove the assembly from the kick panel (discard) (See Photo 16, below).
12. Vacuum out the kick panel area.
13. Remove the retainer as shown in Photo 17, below.
14. Remove the OEM insulation as shown in Photo 17, below.

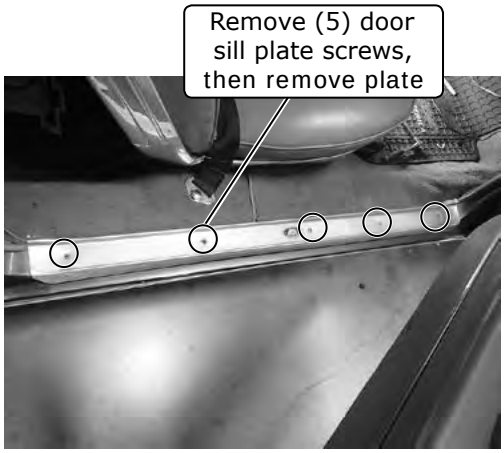

Photo 13

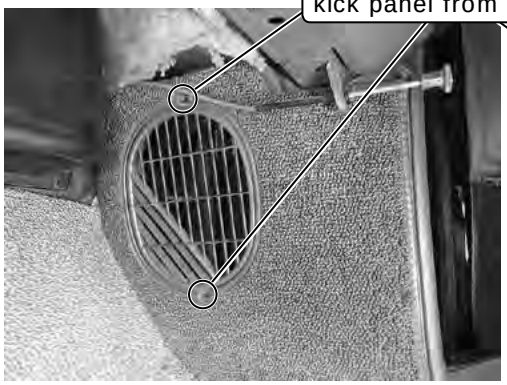

Photo 14

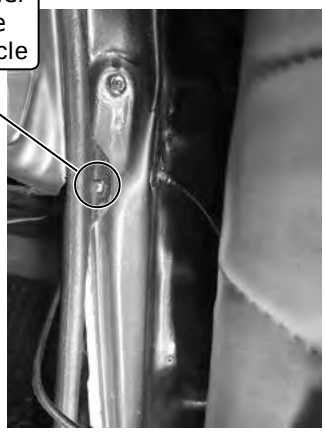

Photo 15

Photo 16

Photo 17

Kick Panel Modification

1. Remove the grille material on the kick panel (See Photos 1 and 2, below). **NOTE: The A/C and heater hoses will run through this opening.**

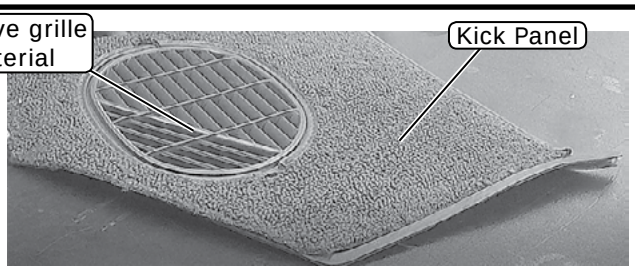

Photo 1

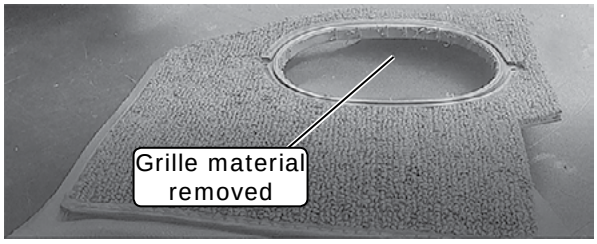

Photo 2

Firewall Cover Preparation

1. Install (2) 1/4-20 x 3/4" hex washer bolts with (2) 3/16" push-on rings as shown in Photos 1 and 2, below.

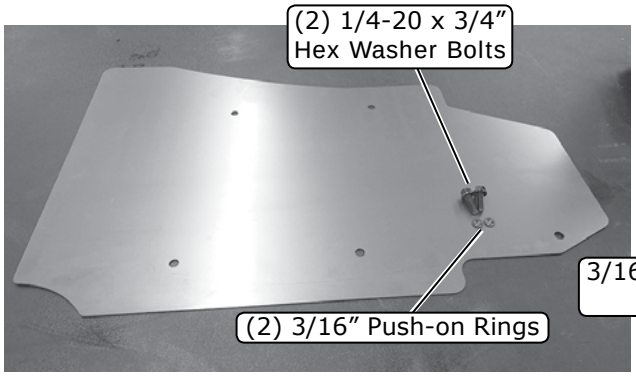

Photo 1

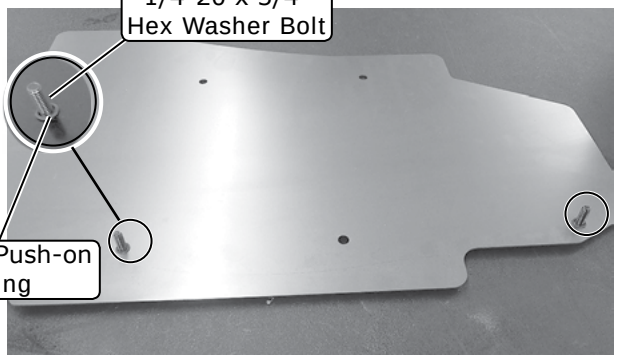

Photo 2

Firewall Modification

NOTE: The firewall requires modification for the firewall cover and drain hose to be installed.
Perform the following:

1. Flatten the edges of the firewall opening (See Photo 1, below).

2. Enlarge the (5) holes on the firewall using a 5/16" drill bit (See Photo 1, below). **NOTE: Some holes may already be 5/16" or larger.**

3. Using the floor pan bead roll for reference, on the flat portion of the floor pan, measure a 1/2" from the right and 3/4" from the firewall. Drill a 5/8" hole for the drain tube (See Photos 2 and 3, below). **NOTE: To ensure a tight fit for the drain hose, do not enlarge the hole more than 5/8".**

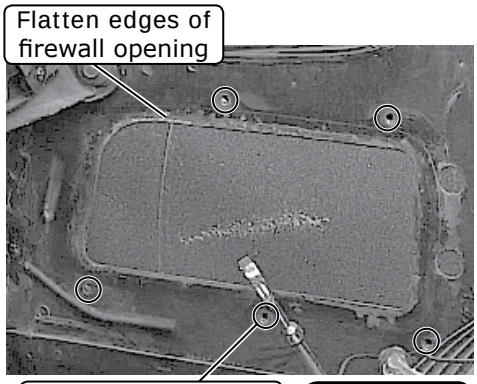

Photo 1

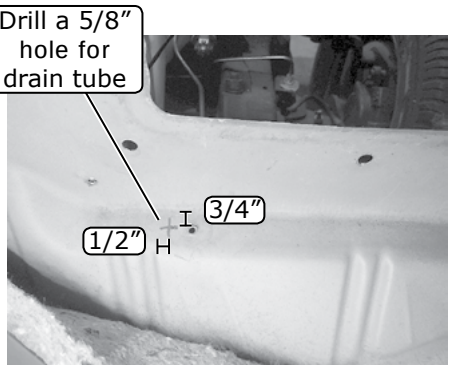

Photo 2

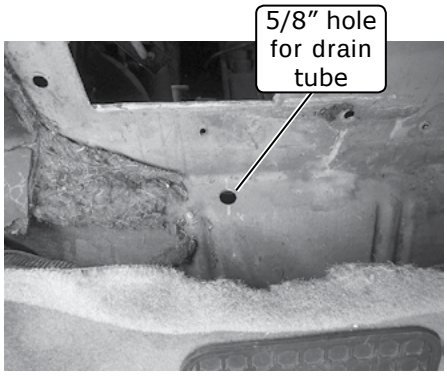

Photo 3

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Firewall Cover Installation

NOTE: 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). 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. Apply a bead of silicone around the mating surface of the firewall cover (See Photo 1, below).
2. Install the firewall cover onto the firewall using (2) 1/4-20 x 3/4" hex washer bolts that were previously installed (See Photo 2, below). From the passenger compartment, install (2) 1/4" USS flat washers and secure using (2) 1/4-20 nuts with star washers (See Photo 2, below).
3. Apply heat-blocking insulation at this time (See Photo 3, below).

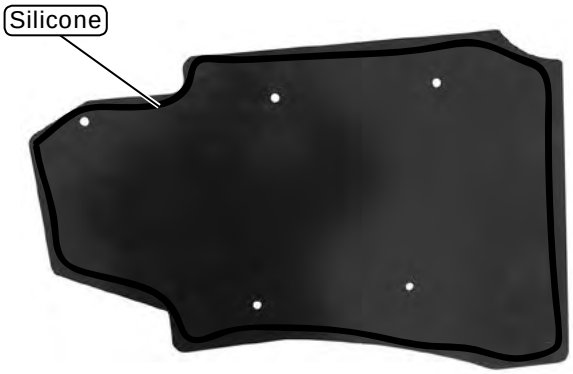


Photo 1

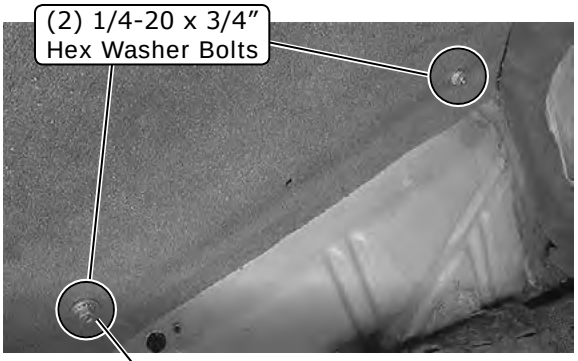
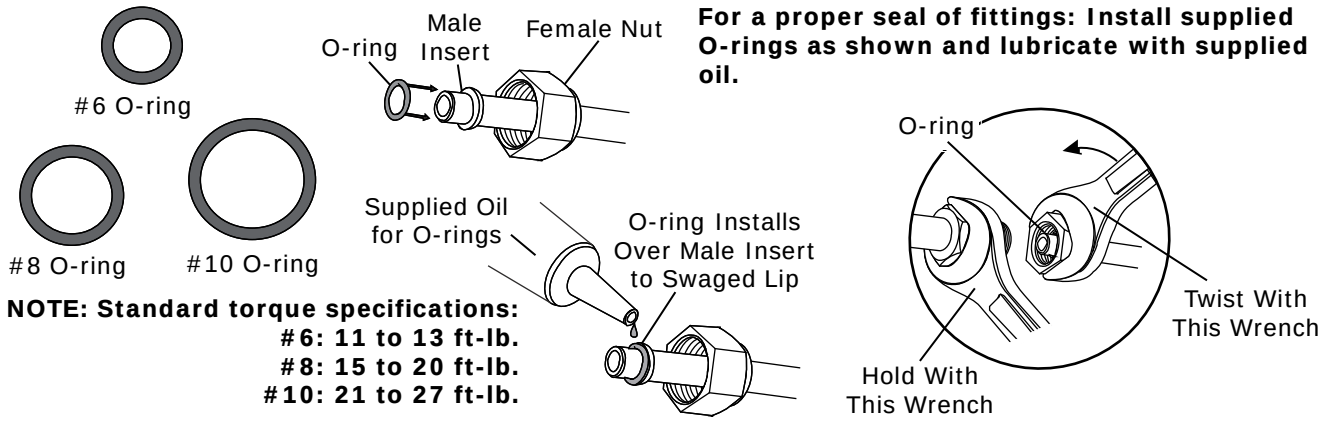


Photo 2

Photo 3

Lubricating O-rings

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



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

Evaporator Bracket & Heater Hardline Installation

NOTE: Use caution while removing heater core caps; they are under pressure. After cap is removed, be sure that the rubber insert is also removed.

Perform the following on a workbench:

1. Remove the (4) 1/4-20 x 1/2" mounting bolts from the evaporator unit (See Photo 1, below).
2. Install the upper and lower 45° heater hardlines onto the evaporator unit using (2) properly lubricated O-rings (See Lubricating O-rings, Page 11 and Photo 2, below).
3. Install the evaporator firewall bracket and secure it using the (4) 1/4-20 x 1/2" bolts previously removed from the evaporator unit (See Photo 3, below).
4. Install (3) 1/4-20 x 1 ½" full-threaded studs into the evaporator firewall bracket (See Photo 4, below).

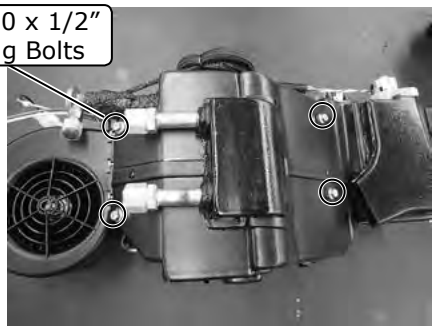


Photo 1

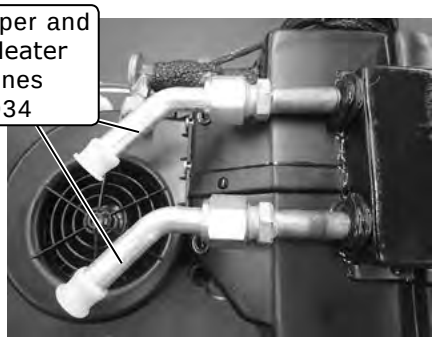


Photo 2

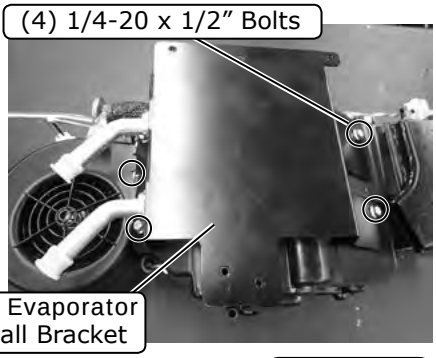


Photo 3

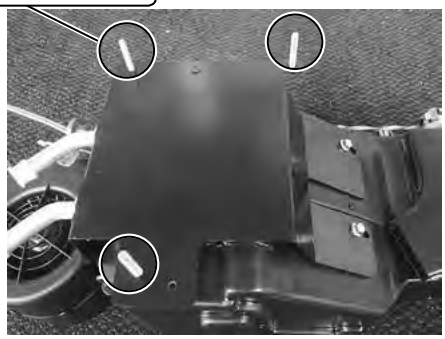


Photo 4

Fresh Air Cap & Kick Panel Preparation

1. Temporarily install the kick panel cover using (2) #10 x 1/2" sheet metal screws (See Photo 1, below).
2. Using the kick panel cover as a template, use a 9/64" drillbit to drill (2) additional kick panel mounting holes (See Photo 1, below). Remove the kick panel cover.

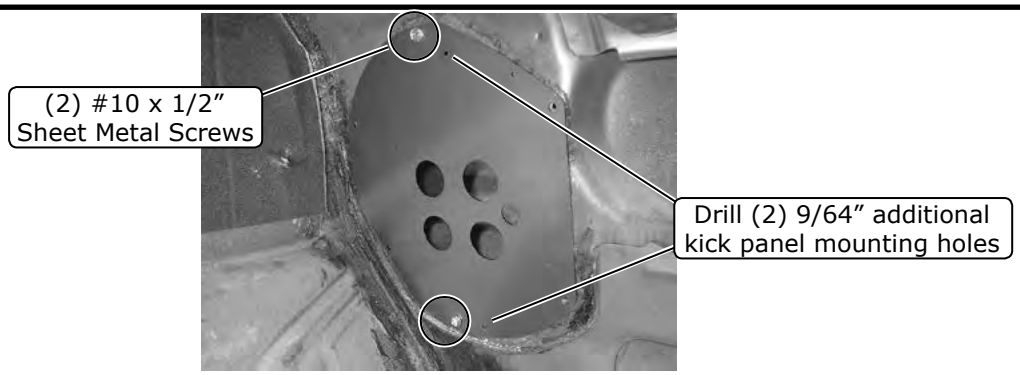


Photo 1

Fresh Air Cap & Kick Panel Preparation (Cont.)

3. Install (4) large grommets and a 7/8" grommet into the fresh air cap (See Photos 2 and 3, below).

4. On the inside of the fresh air cap, the letter "T" indicates the top mounting hole for the firewall (See Photo 4, below).

5. Install (4) large grommets and a 7/8" grommet into the kick panel cover (See Photos 5 and 6, below).

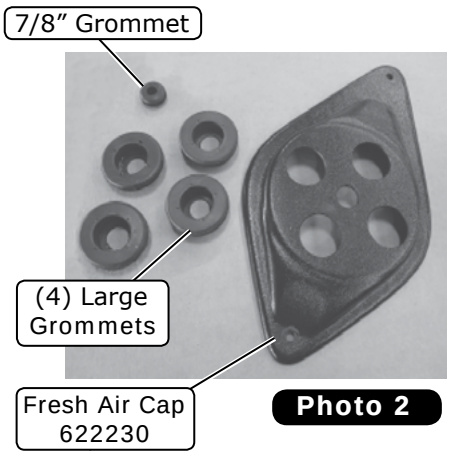
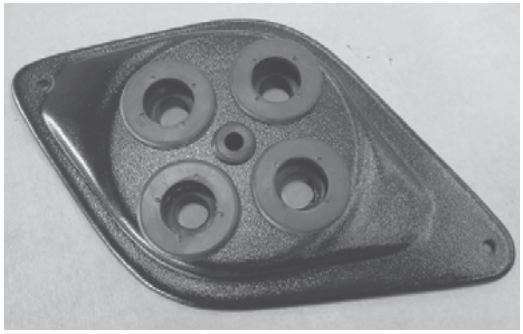


Photo 2



Completed Installation

Photo 3

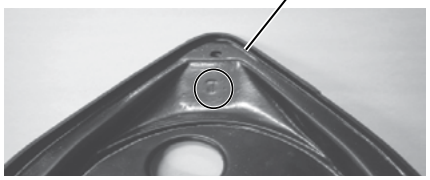


Photo 4

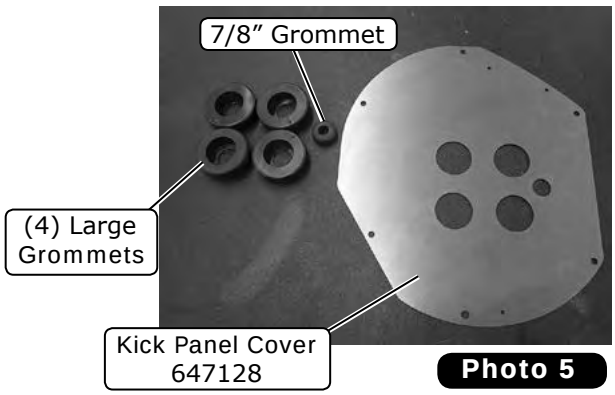
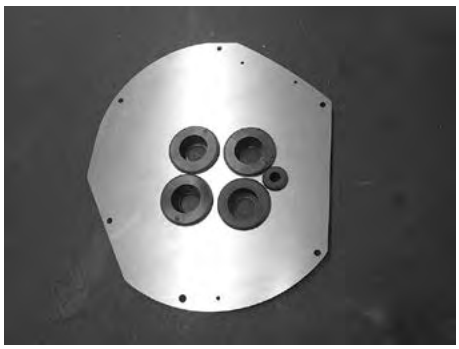


Photo 5



Completed Installation

Photo 6

Defrost Duct Installation

1. Align the defrost duct assembly onto the OEM mounting holes and secure it using (2) #10 x 1/2" sheet metal screws (See Photo 1, below).

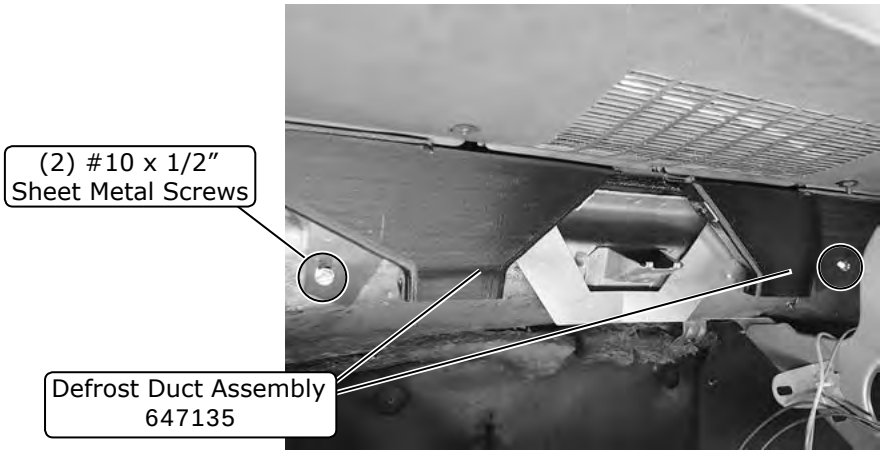


Photo 1

Wiring Installation

1. From the passenger compartment, route the heater control valve connector and wiring (red, white and green) through the 7/8” grommet in the kick panel cover (See Photo 1, below).
2. Disconnect the circuit breaker from the main wiring harness (See Photo 2, below).
3. Route the red, white and blue wires from the main wiring harness through the 7/8” grommet in the kick panel cover, through the kick panel opening, then into the engine compartment along with the heater control valve plug (See Photo 3, below). **NOTE: Leave approximately 10” of wiring between the relay and the kick panel cover. This allows enough wiring to secure the relay to the mounting position.**
4. Route the heater control valve wiring (red, white and green) through the 7/8” grommet in the fresh air cap (See Photo 4, below).
5. Route the main harness wiring (red, white and blue) through the 7/8” grommet in the fresh air cap (See Photo 5, below).

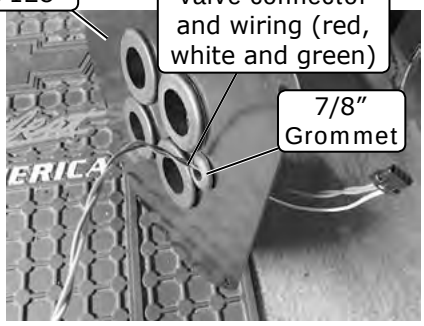
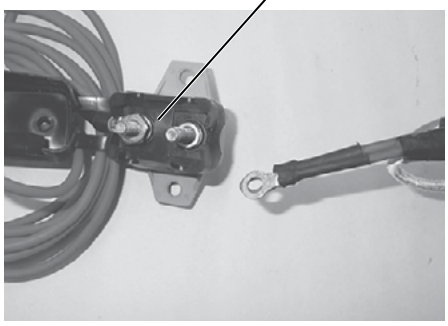


Photo 1



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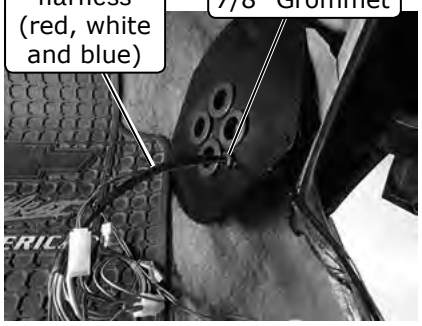

Photo 3

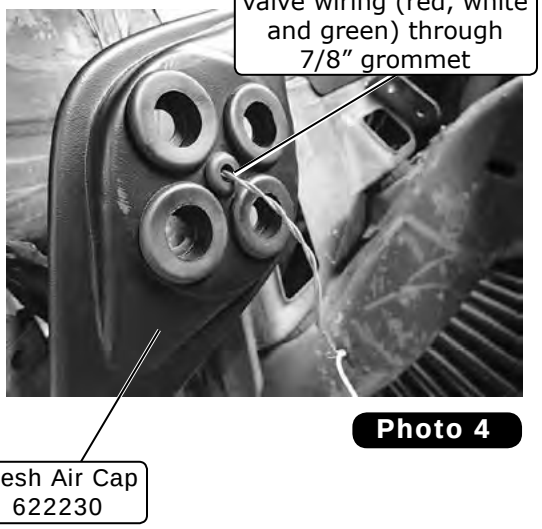

Photo 4

Photo 5

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A/C & Heater Hoses and Kick Panel Cover Installation

NOTE: All hoses install through the fresh air cap large grommets, then into the opening in the engine compartment through the kick panel opening. Be sure the fresh air cap is in the proper position before installing hoses.

1. Insert a length of heater hose through the top-right large grommet on the fresh air cap (See Photo 1, below).
2. Insert a length of heater hose through the bottom-right large grommet on the fresh air cap (See Photo 2, below).
3. Insert the straight fitting of the #6 drier/evaporator A/C hose through the bottom-left large grommet on the fresh air cap (See Photo 3, below).
4. Insert the 90° fitting on the #10 compressor/evaporator A/C hose through the top-left large grommet on the fresh air cap (See Photo 3, below).
5. Insert the first heater hose through the top-left large grommet on the kick panel cover (See Photo 4, below).
6. Insert the second heater hose through the bottom-left large grommet on the kick panel cover (See Photo 4, below).
7. Insert the straight fitting of the #6 drier/evaporator A/C hose through the bottom-right large grommet on the kick panel cover (See Photo 4, below).
8. Insert the 90° fitting on the #10 compressor/evaporator A/C hose through the top-right large grommet on the kick panel cover (See Photo 4, below). **NOTE: Temporarily remove the large grommet from the kick panel cover to ease the insertion of the #10 hose fitting.**

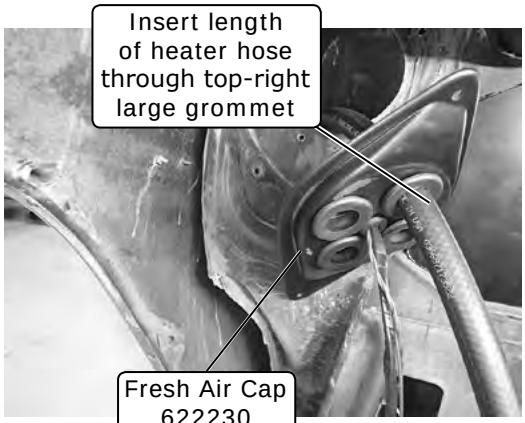
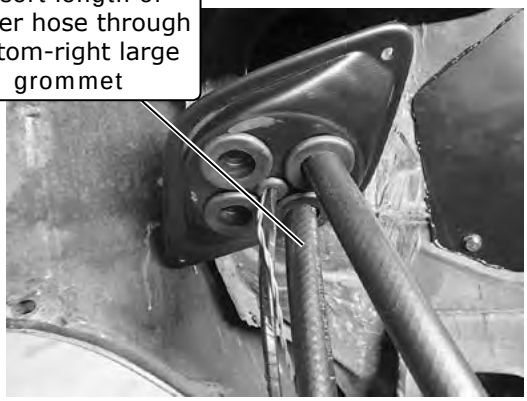


Photo 1



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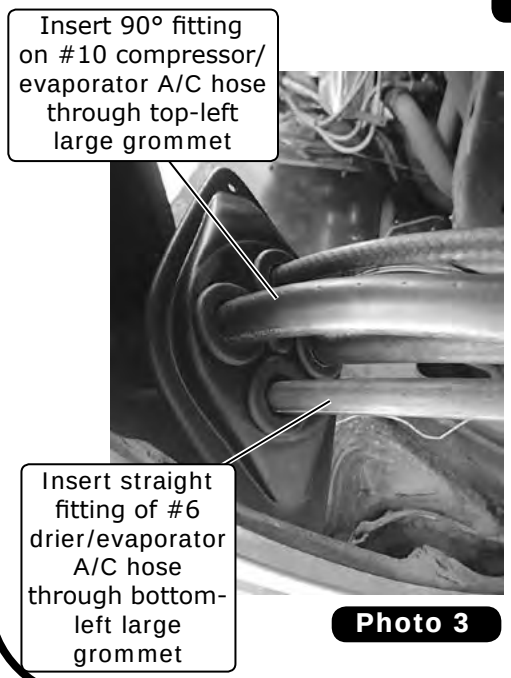

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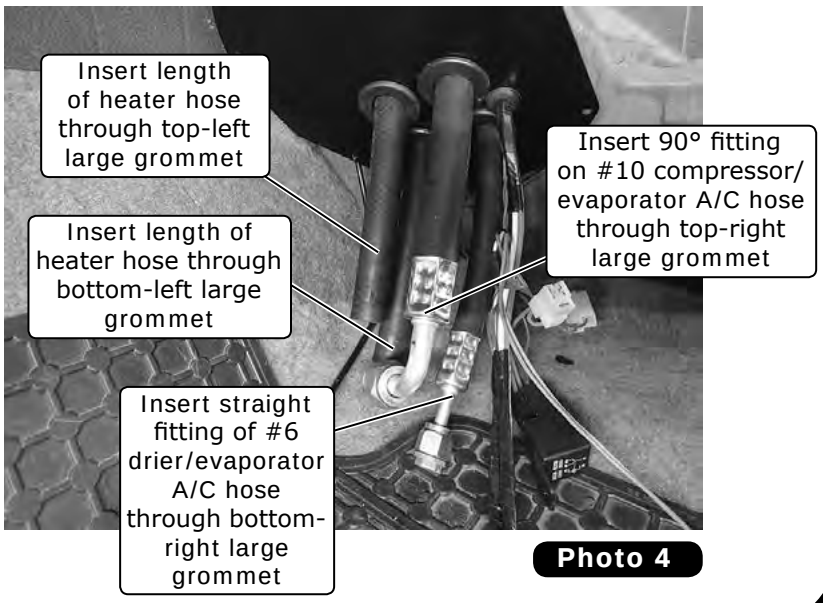
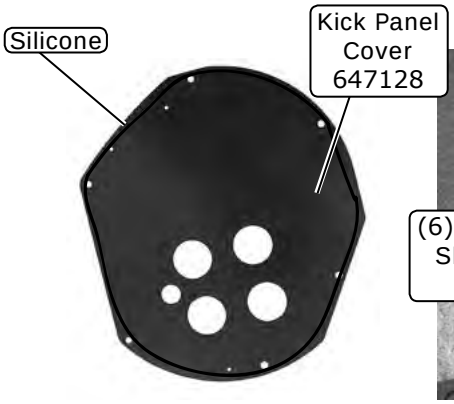


Photo 4

A/C & Heater Hoses and Kick Panel Cover Installation (Cont.)

9. Apply a 1/4" bead of silicone around the mating surface of the kick panel cover (See Photo 5, below).
10. Secure the kick panel cover using (6) #10 x 1/2" sheet metal screws (See Photo 6, below).
11. Install the kick panel using (2) #8 x 1 ¼" countersunk screws with washers (See Photo 7, below).



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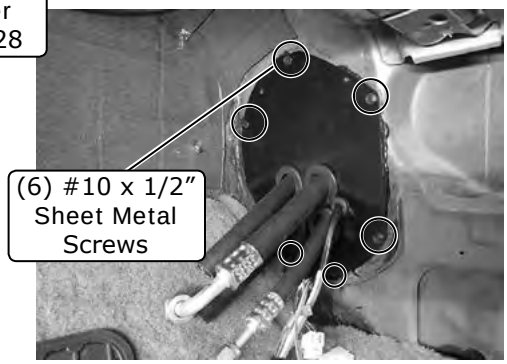

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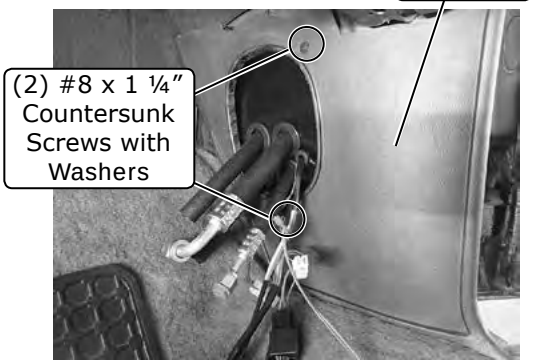


Photo 7

Evaporator & A/C Hose Installation

NOTE: To ensure a watertight seal between the passenger compartment and the exterior, for all bolts passing through the firewall, Vintage Air recommends coating the threads with silicone prior to installation. Be sure to use a backup wrench when connecting A/C hoses and hardlines to avoid damaging hose fittings.

1. Locate the 1/2" circle on the inner dash brace, just inside the glove box area (See Photo 1, below). Mark the center of the circle (See Photo 2, below), and drill a dash mounting hole using a 3/16" drill bit (See Photo 3, below).
2. Install the #8 U-nut onto the evaporator dash bracket (See Photos 4 and 5, below). **NOTE: Verify correct orientation of the U-nut.**

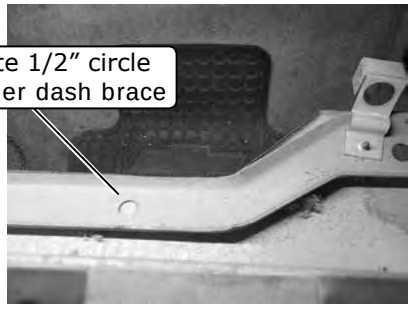
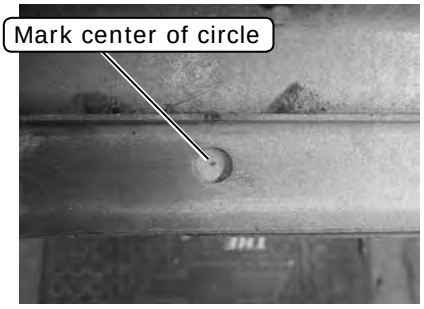


Photo 1



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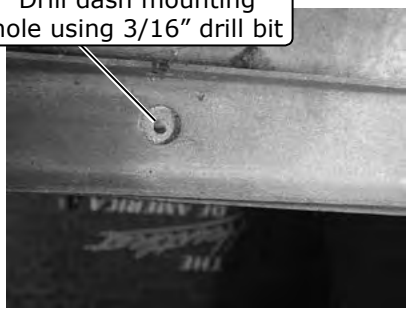


Photo 3

Photo 4

Photo 5

Evaporator & A/C Hose Installation (Cont.)

3. Place the evaporator on the passenger-side floorboard, and install the straight fitting of the #6 drier/evaporator A/C hose onto the expansion valve on the evaporator unit using a properly lubricated #6 O-ring (See Lubricating O-rings, Page 11 and Photo 6, below).
4. Install the upper and lower heater hoses onto the upper and lower 45° heater hardlines on the evaporator unit, then secure them using (2) #12 hose clamps (See Photo 7, below).
5. Lift the evaporator unit into place, using the (3) 1/4-20 x 1 ½" full-threaded studs on the evaporator firewall bracket to locate the mounting holes (See Photo 8, below).
6. Place the evaporator dash bracket into position between the evaporator and the dash, and loosely secure it to the evaporator with the (2) 1/4-20 x 1/2" bolts (See Photo 9, below).
7. Install a #8 x 1" oval head screw through the lower dash and into the dash bracket #8 U-nut (See Photo 10, below).
8. Install the 90° fitting of the #10 compressor/evaporator A/C hose onto the #10 fitting on the evaporator unit using a properly lubricated O-ring (See Lubricating O-rings, Page 11 and Photo 11, below).

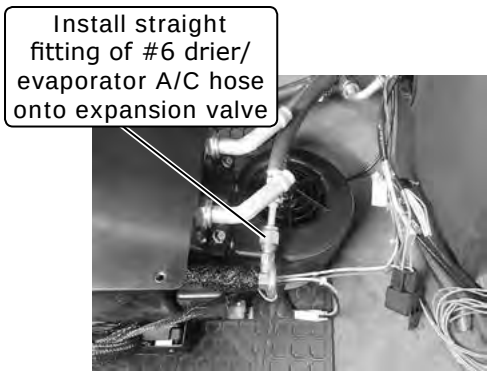
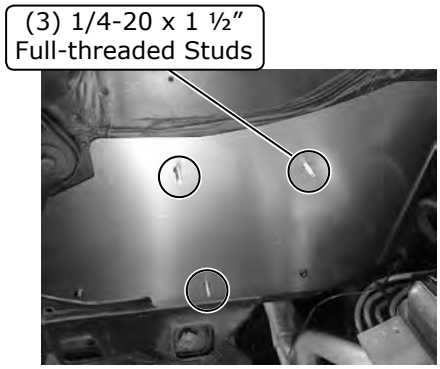


Photo 6

Photo 7



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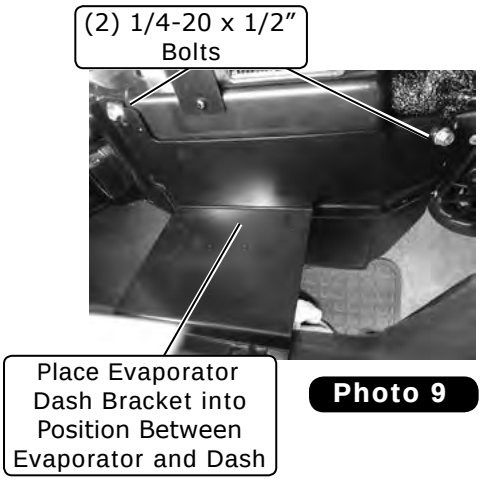

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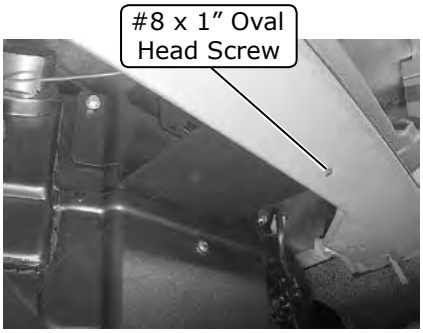

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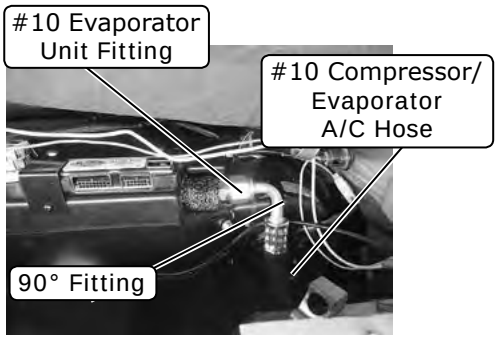

Photo 11

Evaporator & A/C Hose Installation (Final)

9. Once the #10 fitting is installed, wrap all exposed metal with the supplied press tape (See Photo 12, below).

10. From the engine compartment, replace the (3) 1/4-20 x 1 ½" full-threaded studs with (3) 1/4-20 x 3/4" hex washer bolts (See Photo 13, below). **NOTE: Do not fully tighten at this time.**

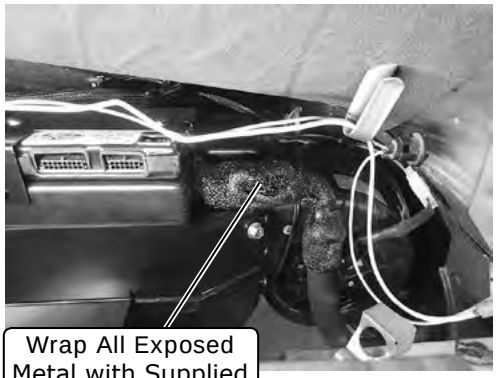

Photo 12

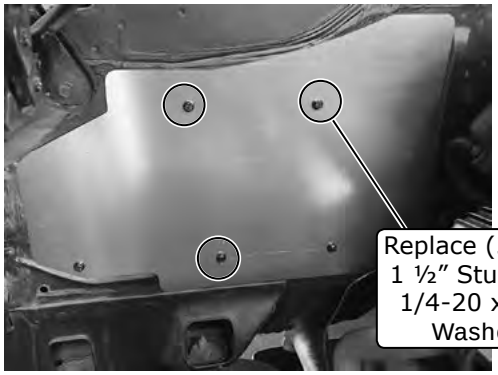

Photo 13

Leveling

NOTE: To ensure proper drainage, it is important that the evaporator is level, both left-right and fore-aft. Check for level on the flat portions of the case around the drain (See Photos 1 and 2, below).

1. Once the evaporator unit is leveled, tighten all mounting hardware ((3) bolts on the firewall and (2) on the dash bracket).

Photo 1

Photo 2

Drain Hose Installation

1. Locate the evaporator drain on the bottom of the evaporator case.

2. Install the drain hose onto the outlet on the evaporator unit, and route it through the previously drilled 5/8" hole on the lower firewall (See Photo 1, below).

Photo 1

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ECU Wiring Harness Installation

1. Route the violet power wire to a switched 12v power source on the fuse panel (See Photo 1, below).
   NOTE: This requires a male fuse extension (not supplied).
2. Plug the white connector from the heater control valve into the white connector on the main wiring harness (See Photo 2, below).
3. Plug the white two-wire connector from the main wiring harness into the white connector on the blower motor (See Photo 3, below).
4. Plug the main wiring harness into the ECU (See Photo 4, below).
5. Connect the tan wire to the factory dash lights to enable control panel backlighting.
6. Install the main relay using a #10 x 1/2" sheet metal screw (See Photo 5, below).

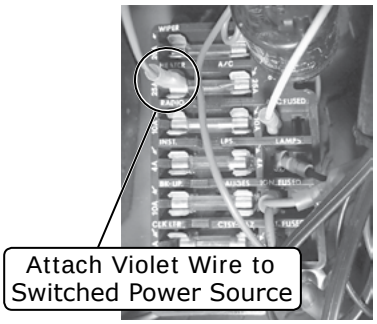


Photo 1

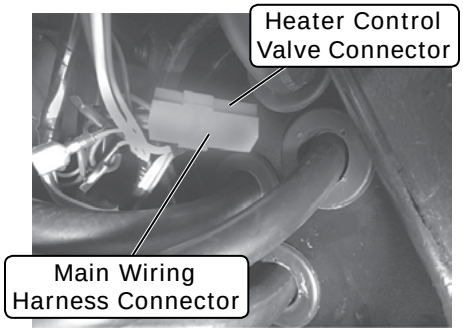
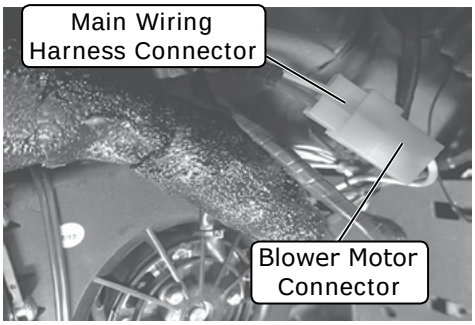


Photo 2



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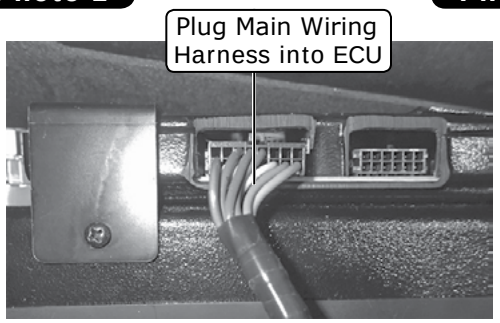

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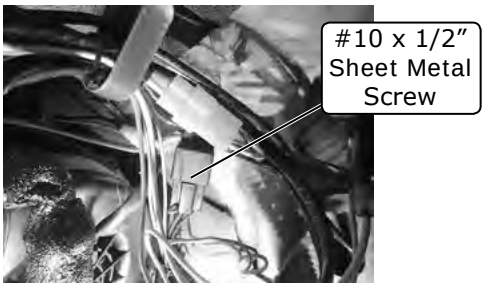

Photo 5

Control Panel Installation

NOTE: Follow the instructions provided with the new control panel kit before continuing with the installation.

1. Install the new control panel into the OEM mounting location. Do not secure it at this time (See Photo 1, below).
2. Plug the control panel harness into the ECU (See Photo 2, below).

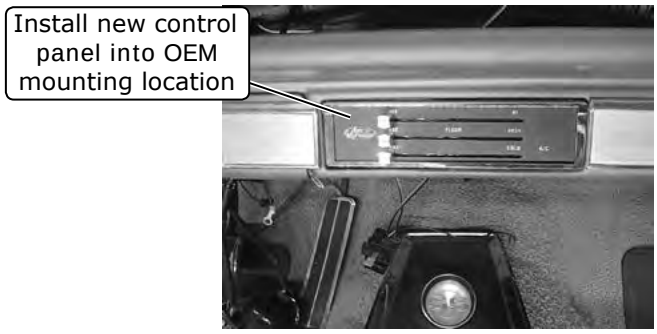

Photo 1

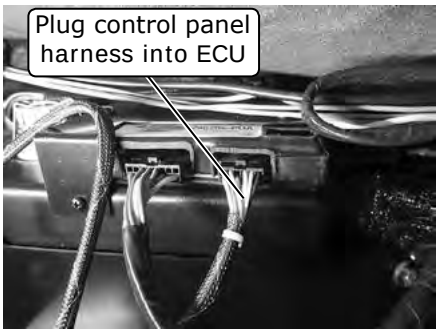

Photo 2

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Underdash Louver Preparation and Installation

NOTE: If your vehicle is equipped with a power antenna switch, it will have to be relocated to the bottom of the underdash louver.

1. Locate the (2) dimples on the bottom of the dash, below the ignition switch. Using a 3/16” drillbit, drill out the dimple to the left of the dash (See Photo 1, below).
2. Locate the driver- and passenger-side louver housings, the driver- and passenger-side support brackets, (3) #8 x 1/2” pan head screws, (3) #8 U-nuts, (2) 10-24 x 1/2” pan head screws, (2) 10-24 nuts with star washers, (2) 3/16” push-on rings and (2) 1/4-20 x 3/4” hex bolts located on the control panel.
3. Install (2) #8 U-nuts onto the driver-side support bracket (See Photo 2, below).
4. Insert the driver-side louver support bracket into the driver-side louver housing (See Photo 3, below).
5. Connect the driver- and passenger-side louvers (See Photo 4, below). Insert the passenger-side louver support bracket and secure it using (2) 10-24 x 1/2” pan head screws and (2) 10-24 nuts with star washers (See Photos 5 and 6, below).
6. Install the (2) 1/4-20 x 3/4” hex bolts located on the control panel and secure them using (2) 3/16” push-on rings (See Photo 7, below).
7. Temporarily install the underdash louver assembly using the installed 1/4-20 x 3/4” hex bolts and a #8 x 1/2” pan head screw through the OEM hole in the dash on the driver side (See Photos 8 and 9, below).

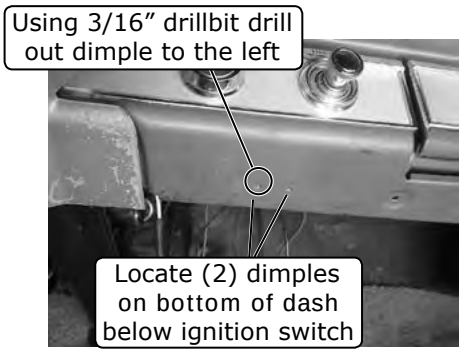
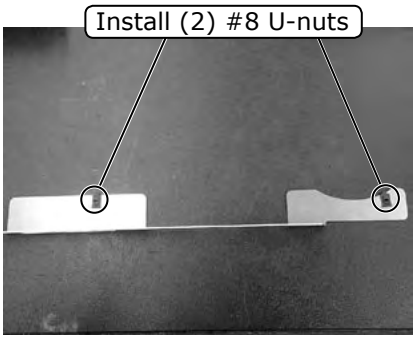


Photo 1



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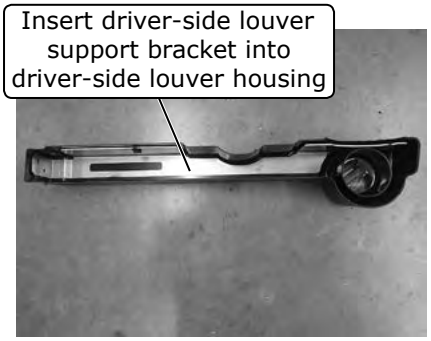

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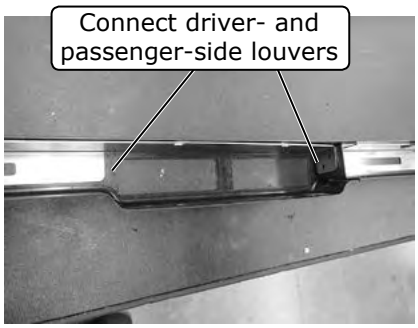


Photo 4

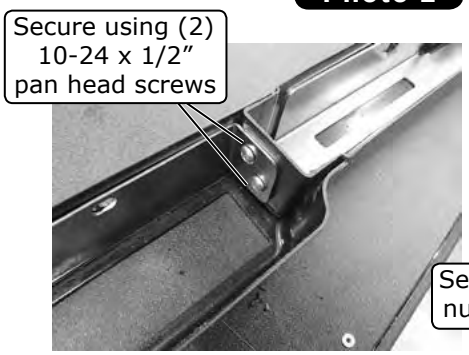


Photo 5

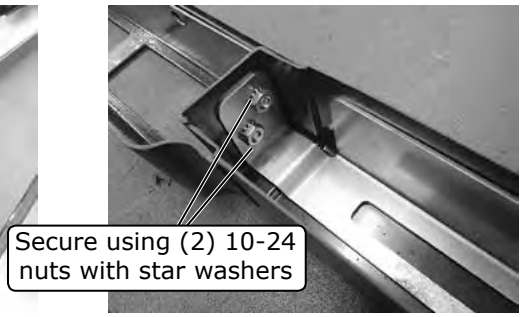


Photo 6

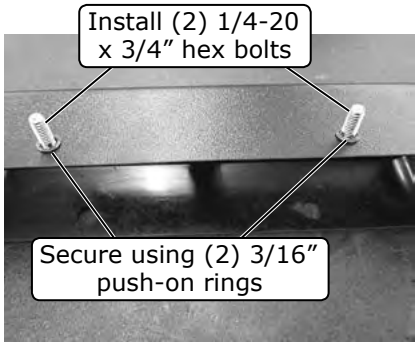


Photo 7

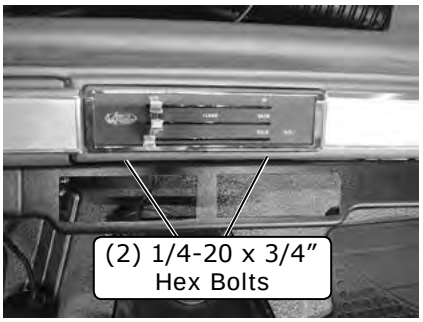


Photo 8

Photo 9

Underdash Louver Preparation and Installation (Cont.)

8. Using the underdash louver as a template, mark the last mounting point on the passenger side of the dash, then remove the underdash louver assembly (See Photo 10, below).
9. Using a 3/16" drillbit, drill the marked area (See Photo 10, below).
10. Install a #8 U-nut onto the underdash louver bracket (See Photo 11, below).
11. Reinstall the underdash louver assembly using (3) #8 x 1/2" pan head screws and the (2) 1/4-20 x 3/4" hex bolts from the control panel. Install the (2) rectangle louvers into the underdash louver (See Photo 12, below).

Photo 10

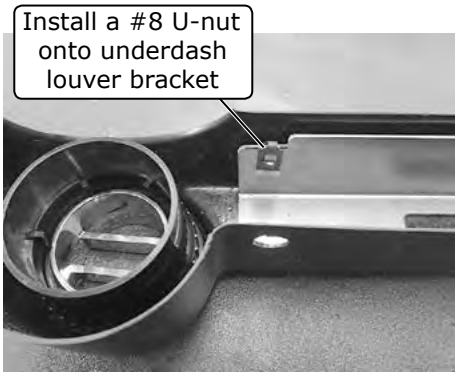


Photo 11

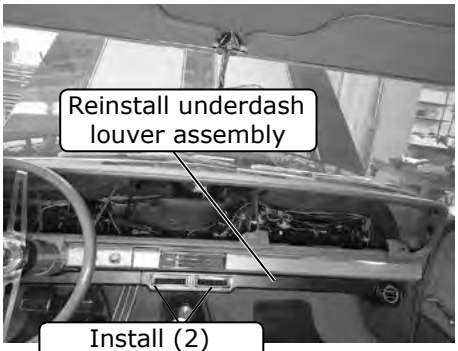
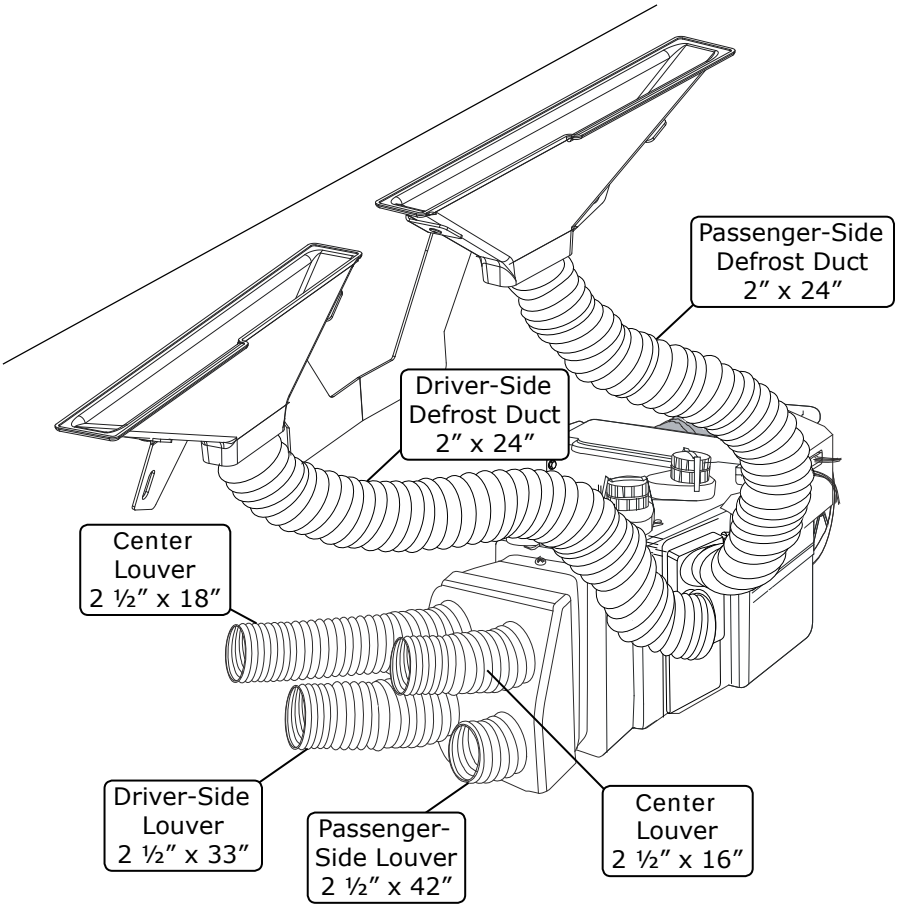


Photo 12

Duct Hose Routing



Fresh Air Cap Installation

NOTE: The fresh air cap installs on the engine side of the firewall.

1. Gently pull the slack from the hoses in the passenger compartment, making sure the hoses are not kinked.
2. Slide the fresh air cap into position, and secure it to the firewall using (2) #14 x 3/4" sheet metal screws (See Photo 1, below).
3. Apply silicone around the outer edge of the fresh air cap (See Photo 1, below).

Photo 1

Power Wiring Modification

1. The power wire must be extended to reach the battery. Perform the following steps:
   - **a.** Cut the existing eyelets from the red power wires on the main harness (See Photos 1 and 2, below).
   - **b.** Strip the insulation from the red power wires, and crimp the supplied butt connector (See Photo 3, below).
   - **c.** Disconnect the red power wire from the circuit breaker. Strip the insulation from the red power wire, and slide the supplied heat shrink over the power wire. Crimp the power wire into the butt connector, and apply heat shrink (See Photos 4 and 5, below).
   - **d.** Route the red, white and blue wires toward the battery. **NOTE: Before wiring, the wires may be secured to the #6 A/C hose using tie wraps (See Photo 6, below).**

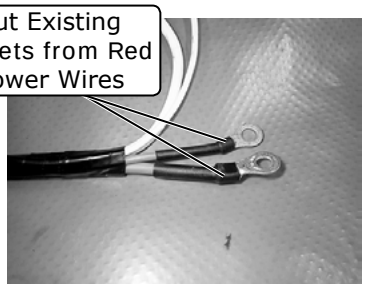


Photo 1

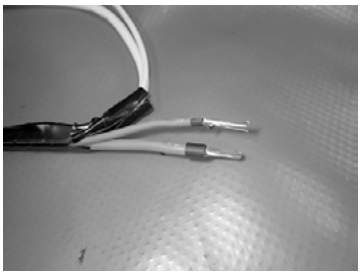


Photo 2

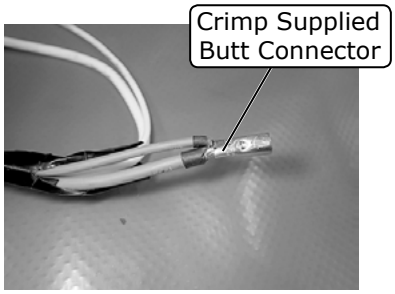


Photo 3

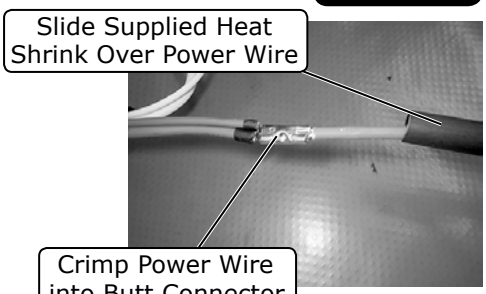


Photo 4

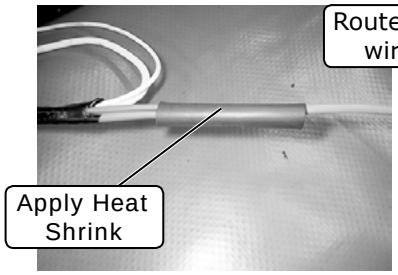


Photo 5

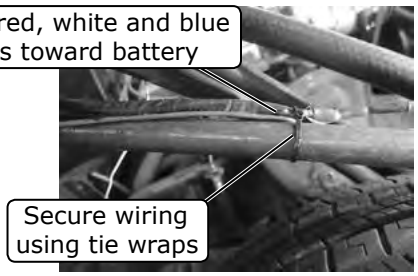


Photo 6

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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. Cut the upper heater hose approximately 4 to 5 inches from the fresh air cap (See Photo 1, below). Install the heater control valve (See Photo 2, below). **NOTE: Ensure proper flow direction through the heater control valve. The flow direction follows the molded arrow on the valve (See Figure 1, below).**
2. Install another length of heater hose onto the heater control valve and secure using the provided hose clamp (See Photo 3, below).
3. Plug the heater control valve connector into the connector on the main wiring harness. Secure the white wire from the heater control valve portion of the main wiring harness to a suitable chassis ground (See Photos 4 and 5, below).
4. Reinstall the inner fender at this time, routing the heater and A/C hoses and wiring toward the front of the vehicle.

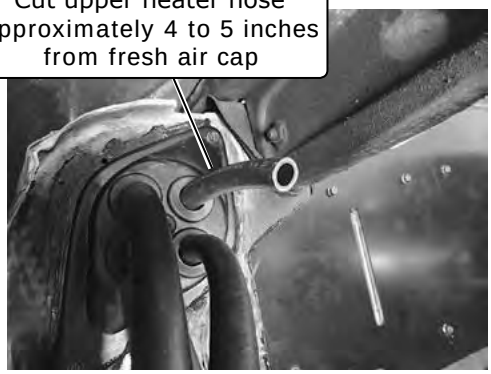


Photo 1

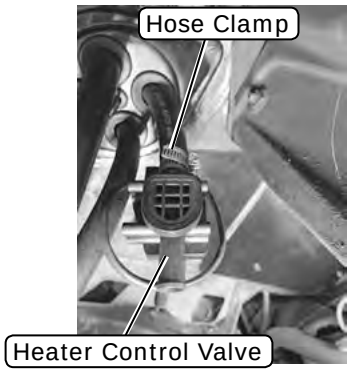


Photo 2

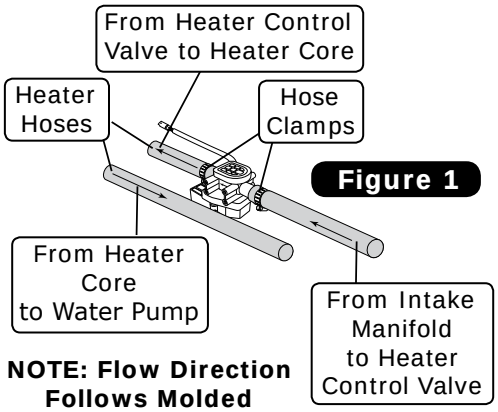


Figure 1

NOTE: Flow Direction Follows Molded Arrow on Valve

Photo 3

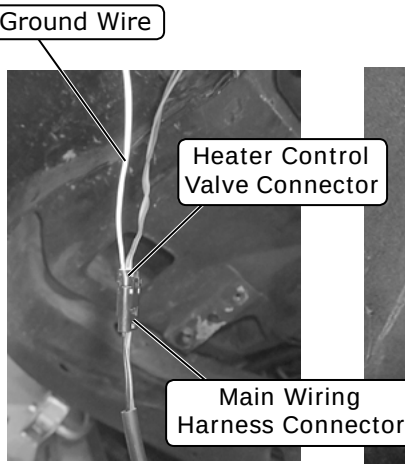


Photo 4

Photo 5

Heater Control Valve Installation (Cont.)

5. Install the lower heater hose onto the water pump and secure with a hose clamp (See Photo 6, below).
6. Install the upper heater hose to the intake and secure with a hose clamp (See Photo 7, below).

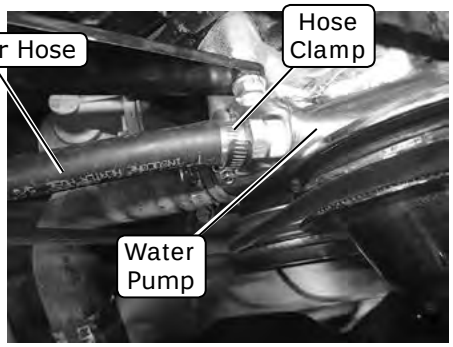


Photo 6

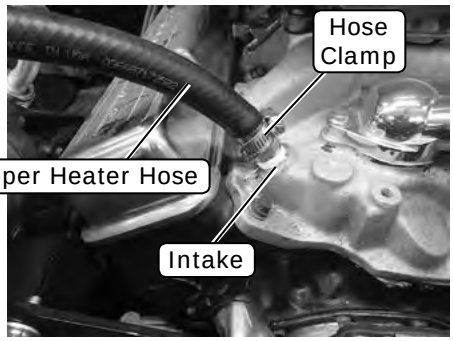


Photo 7

A/C Hose Installation

1. Locate the #10 compressor/evaporator A/C hose. Lubricate a #10 O-ring and connect the 135° fitting with service port to the #10 suction port on the compressor (See Lubricating O-rings, Page 11 and Photo 1, below). Tighten the connection fitting as shown in Lubricating O-rings, Page 11.
2. Locate the #8 condenser/compressor A/C hose. Lubricate (2) #8 O-rings, and connect the 135° fitting with service port to the #8 discharge port on the compressor (See Lubricating O-rings, Page 11 and Photo 2, below). Route the straight fitting to the #8 condenser/core hardline coming from the core support (See Photo 3, below). Tighten each fitting connection as shown in Lubricating O-rings, Page 11.
3. Locate the #6 drier/evaporator A/C hose. Lubricate a #6 O-ring, and connect the 45° fitting to the drier hardline coming through the core support (See Lubricating O-rings, Page 11 and Photo 4, below). Tighten the connection fitting as shown in Lubricating O-rings, Page 11.
4. Install a #10 Adel clamp and use tie wraps to keep hoses away from pulleys and belts (See Photo 5, below).

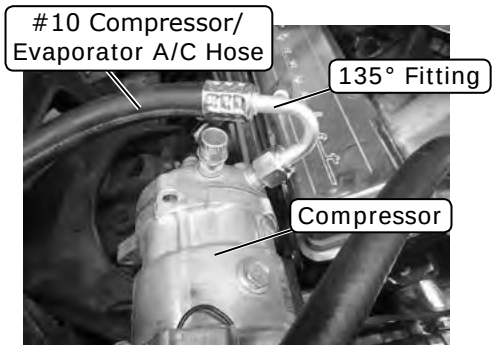


Photo 1

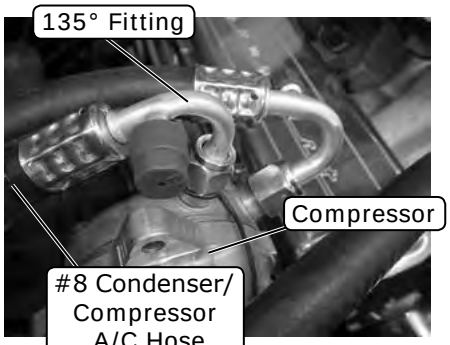


Photo 2

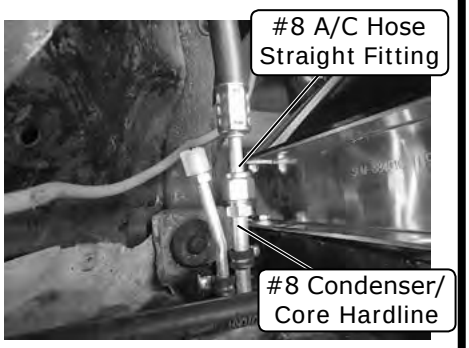


Photo 3

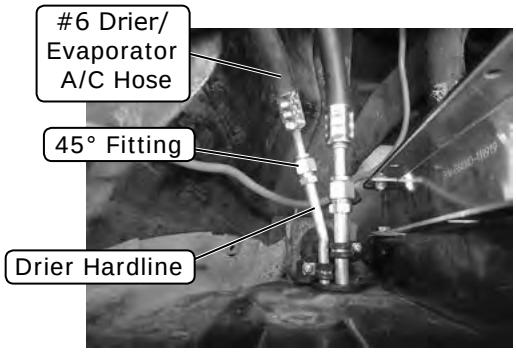


Photo 4

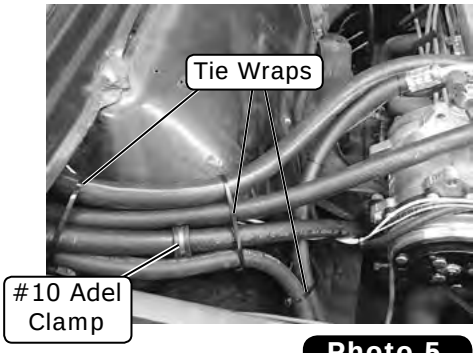


Photo 5

Wiring Final

1. Route all wiring toward the battery area.
2. Secure the blue lead from the main wiring harness to the #6 A/C hose with the supplied tie wraps.
3. Route the blue lead through the core support grommet toward the safety switch on the drier (See Photo 1, below).
4. Strip the blue lead and crimp the supplied 1/4” female terminal onto it. Connect the terminal to the safety switch on the drier (See Photo 2, below).
5. Connect the compressor bullet connector to the compressor lead (See Photo 3, below).
6. Route the compressor lead along the #8 A/C hose toward the core support grommet and secure the compressor lead with supplied tie wraps.
7. Route the compressor lead through the core support grommet toward the safety switch (See Photo 1, below).
8. Connect the terminal to the safety switch (See Photo 4, below).
9. Wrap the wiring with the supplied 1/4” Flexo sleeve and secure with tie wraps.
10. Reinstall the battery tray at this time.
11. Route the red power and white ground wires toward the battery area.
12. Select a location as close as possible to the battery to mount the circuit breaker.
13. Mark, drill and mount the circuit breaker (See Photo 5, below). Secure it using (2) 10-24 x 1/2” screws and (2) 10-24 nuts with star washers (See Photo 6, below). **NOTE: The copper stud on the circuit breaker goes to the battery.**

Photo 1

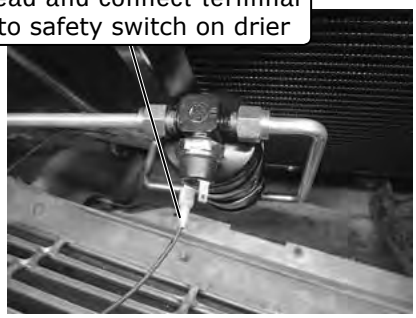


Photo 2

Photo 3

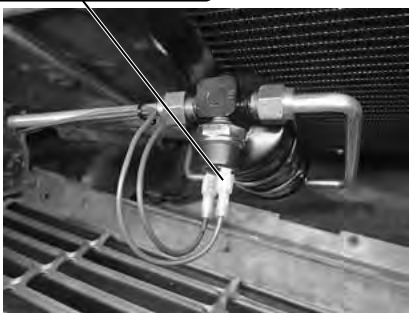


Photo 4

Photo 5

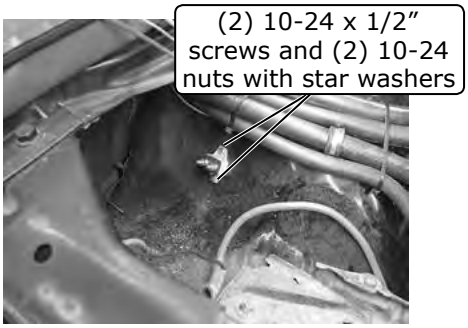


Photo 6

Wiring Final (Cont.)

13. Strip the red power wire and crimp the supplied eyelet onto it. Reconnect the red power wire eyelet to the circuit breaker (See Photo 7, below).

14. Crimp the supplied eyelet to the red power wire and connect it to the positive battery cable (See Photo 8, below). **NOTE: Do not connect the power until the installation is complete.**

15. Crimp the supplied eyelet to the white ground wires and connect it to the negative battery cable (See Photo 9, below).

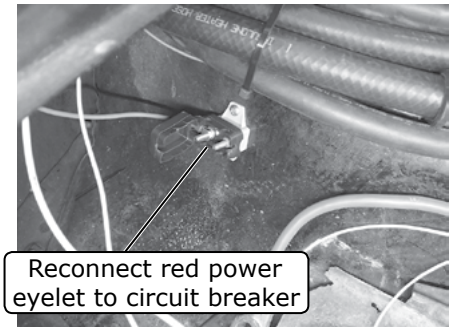


Photo 7

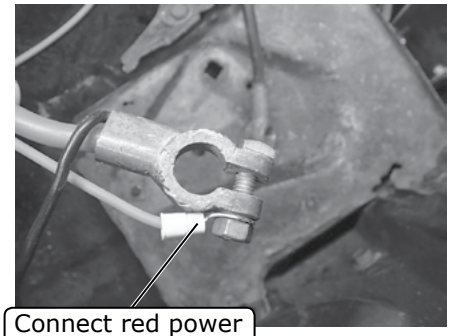


Photo 8

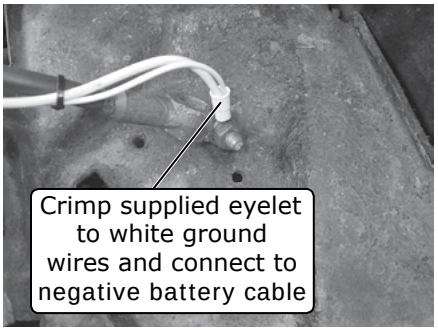


Photo 9

Glove Box Installation

On a workbench, perform the following:

1. Position the new glove box over the glove box opening in the dash bezel (See Photo 1, below). Mark the (4) mounting holes, then remove the glove box and drill (4) mounting holes using a 1/4" drillbit (See Photo 2, below).

2. Install (4) #8 U-nuts onto the glove box (See Photo 3, below).

3. Position the glove box in the dash opening.

4. Reinstall the dash bezel, and secure the glove box using (4) #8 x 1/2" wide head screws.

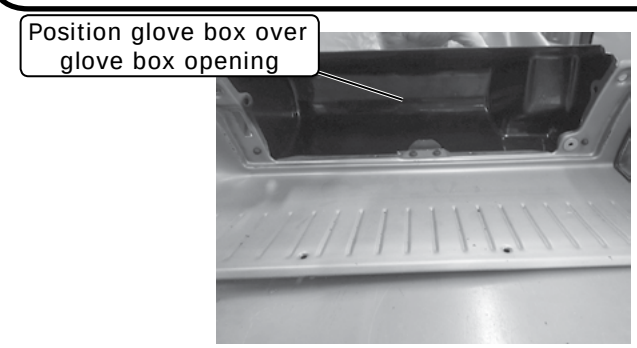


Photo 1

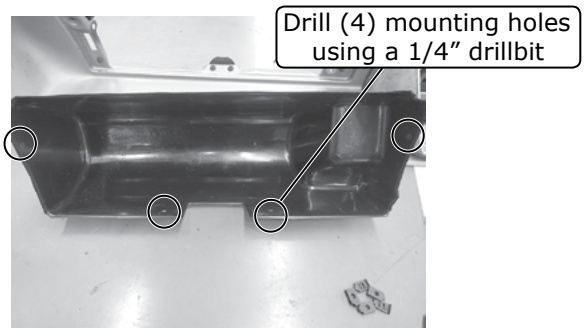


Photo 2

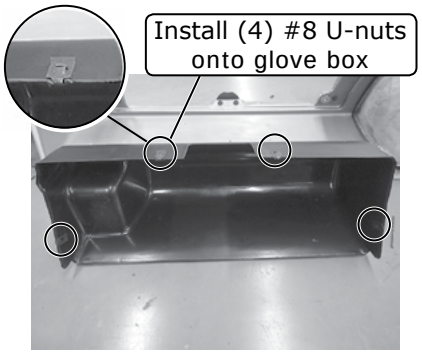


Photo 3

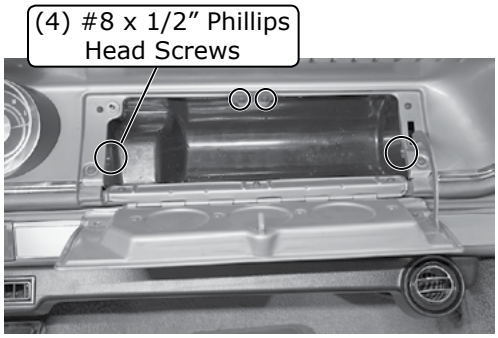
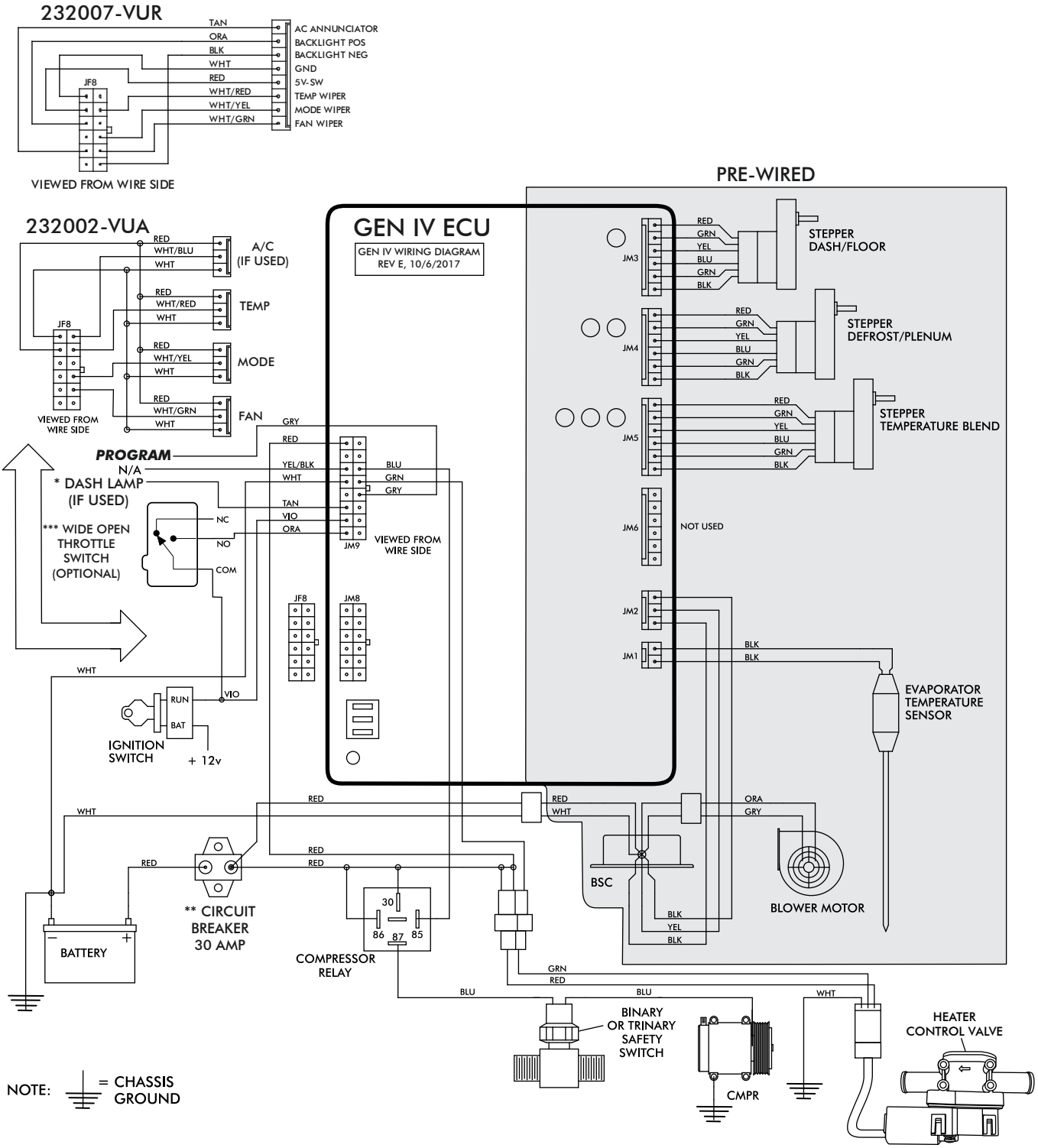


Photo 4

Final Steps

1. Reinstall all previously removed items.
2. 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.
3. Double-check all fittings, brackets and belts for tightness.
4. Vintage Air recommends that all A/C systems be serviced by a licensed automotive A/C technician.
5. Evacuate the system for a minimum of 45 minutes prior to charging, and perform a leak check prior to servicing.
6. Charge the system to the capacities stated on Page 4 of this instruction manual.
7. See Operation of Controls procedures on Page 30.

Wiring Diagram



* Dash lamp is used only with type 232007-VUR harness.

** Warning: Always mount circuit breaker as close to the battery as possible. (NOTE: Wire between battery and circuit breaker is unprotected and should be carefully routed to avoid a short circuit).

*** Wide open throttle switch contacts close only at full throttle, which disables A/C compressor.

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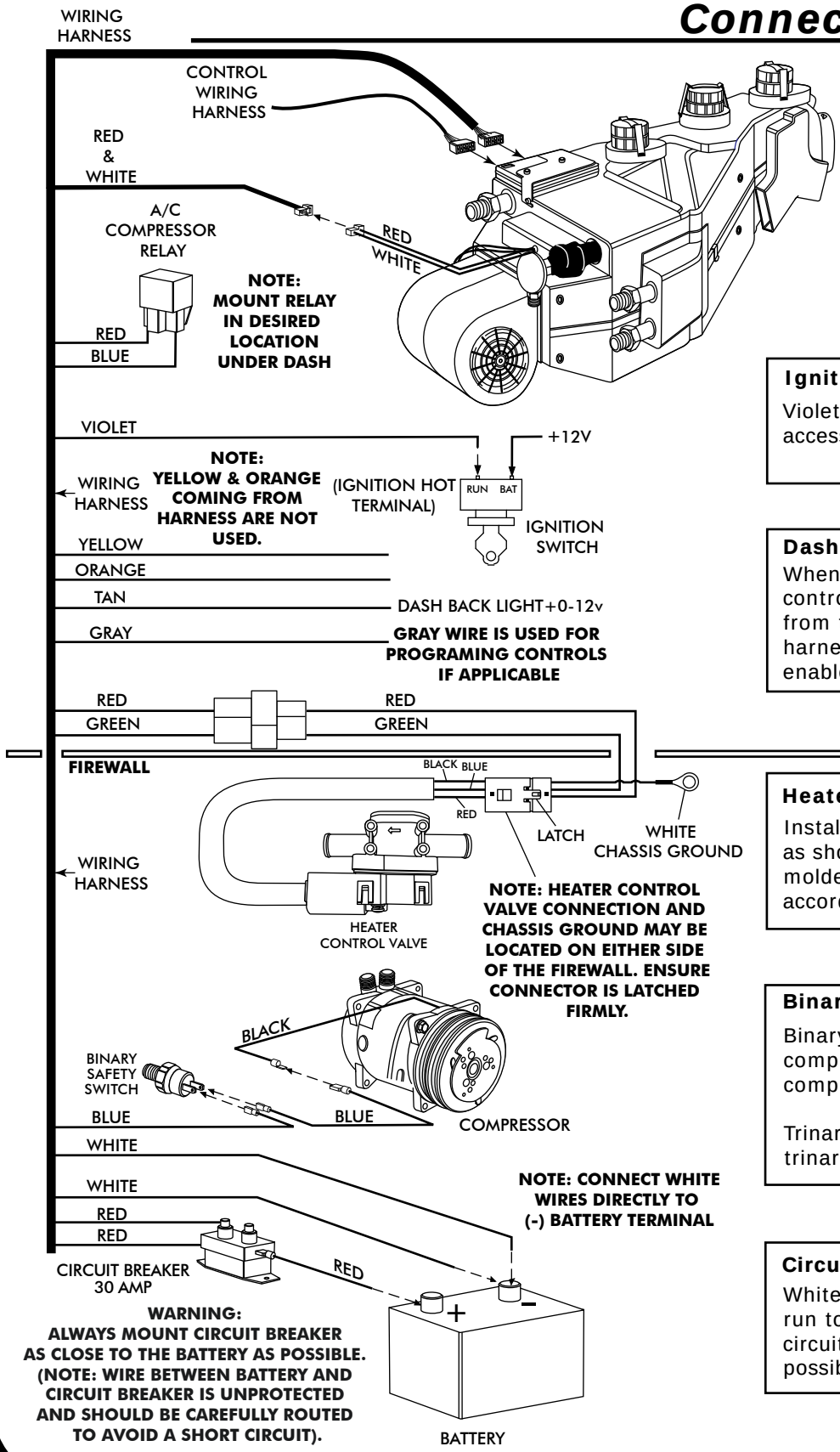
Gen IV Wiring Connection Instruction



Ignition Switch:

Violet 12V ignition switch source (key on accessory) position must be switched.

Dash Light:

When using a Vintage Air-supplied control panel, connect the tan wire from the Gen IV evaporator wiring harness to the factory dash lights to enable panel backlighting.

Heater Control Valve:

Install with servo motor facing down, as shown. Note flow direction arrow molded into valve body and install accordingly.

Binary/Trinary & Compressor:

Binary: Connect as shown (typical compressor wiring). Be sure compressor body is grounded.

Trinary Switch: Connect according to trinary switch wiring diagram.

Circuit Breaker/Battery:

White **must** run to (-) battery. Red may run to (+) battery or starter. Mount circuit breaker as close to battery as possible.

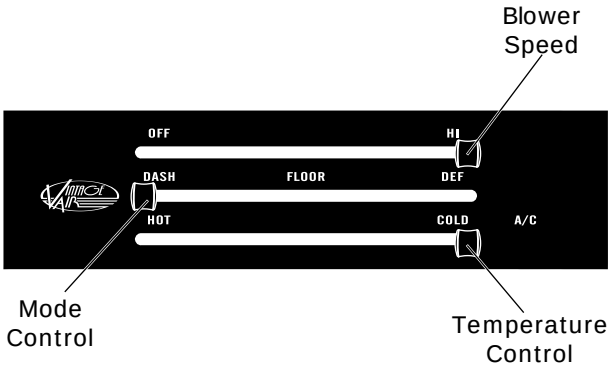
Operation of Controls

On Gen IV 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 between operations to indicate the change. **NOTE: For proper control panel function, refer to the control panel instruction.**

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).

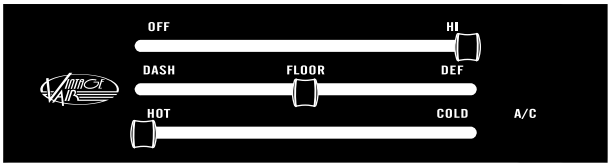
Temperature Control
For A/C operation, adjust to coldest position to engage compressor (adjust between HOT and COLD to reach desired temperature).

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).

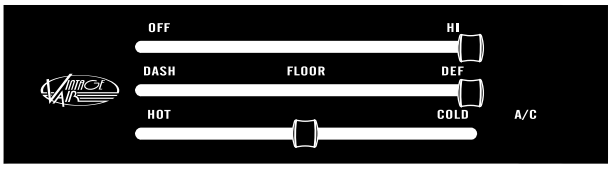


Defrost/De-fog Operation

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

Symptom	Condition	Checks	Actions	Notes
1a. Blower stays on high speed when ignition is on.	No other functions work.	Check for damaged pins or wires in control head plug.	Verify that all pins are inserted into plug. Ensure that no pins are bent or damaged in ECU.	
		Check for damaged ground wire (white) in control head harness.	Verify continuity to chassis ground with white control head wire at various points.	Loss of ground on this wire renders control head inoperable.
	All other functions work.	Check for damaged blower switch or potentiometer and associated wiring.		See blower switch check procedure.
1b. Blower stays on high speed when ignition is on or off.		Unplug 3-wire BSC control connector from ECU. If blower shuts off, ECU is either improperly wired or damaged.	Be sure the small, 20 GA white ground wire is connected to the battery ground post. If it is, replace the ECU.	
		Unplug 3-wire BSC control connector from ECU. If blower stays running, BSC is either improperly wired or damaged.	Check to ensure that no BSC wiring is damaged or shorted to vehicle ground. The BSC operates the blower by ground side pulse width modulation switching. The positive wire to the blower will always be hot. If the "ground" side of the blower is shorted to chassis ground, the blower will run on HI.	
			Replace BSC (This will require removal of evaporator from vehicle).	No other part replacements should be necessary.
2. Compressor will not turn on (All other functions work).	System is not charged.	System must be charged for compressor to engage.	Charge system or bypass pressure switch.	**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/blue 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/ Blue 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 (typically early Gen IV, but possible on all versions).	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 positive power at heater valve green wire and blower red wire. Check for ground on control head white wire.	
		Verify battery voltage is greater than 10 volts and less than 16.	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.		Typically caused by evaporator housing installed in a bind in the vehicle. Be sure all mounting locations line up and don't have to be forced into position.
	Partial function of mode doors.	Check for obstructed or binding mode doors.		
		Check for damaged stepper motor or 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.	
8. When ignition is turned on, blower momentarily comes on, then shuts off. This occurs with the blower switch in the OFF position.		This is an indicator that the system has been reset. Be sure the red power wire is on the battery post, and not on a switched source. Also, if the system is pulled below 7V for even a split second, the system will reset.	Run red power wire directly to battery.	

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Packing List: Evaporator Kit (561054)

No.	Qty.	Part No.	Description	
1.	1	744021	Gen IV Evaporator Sub Case	_____
2.	1	781054	Accessory Kit	_____

Checked By: _____
Packed By: _____
Date: _____

1

Gen IV Evaporator Sub Case 744021

2

Accessory Kit 781054

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