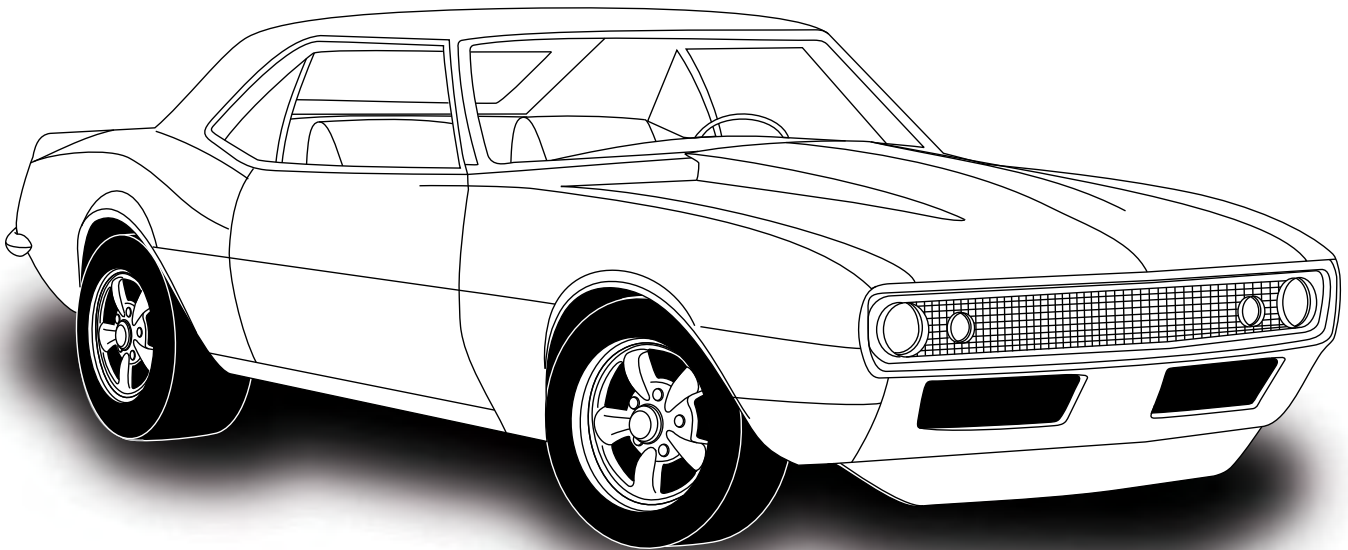




an ISO 9001:2015 Registered Company

1967-68 Chevrolet Camaro/ Pontiac Firebird

*with Factory Air
Evaporator Kit
(564190)*



18865 Goll St. San Antonio, TX 78266
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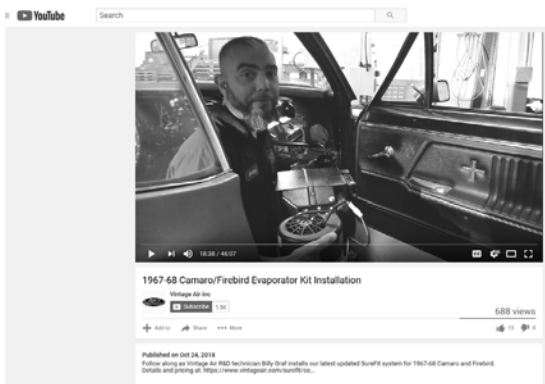
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A detailed tech video outlining the installation process is available on Vintage Air's YouTube channel at <http://bit.ly/2GWAxWY>.

Viewing the tech video along with the written instructions will provide the installer the most detailed installation procedure.



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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 remained 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, 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, 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, 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.



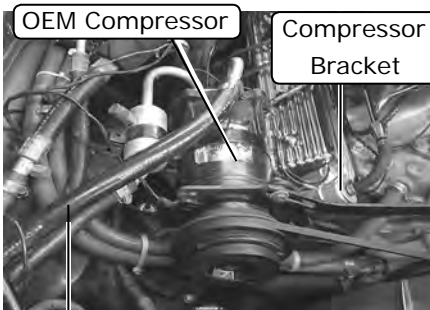
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Engine Compartment Disassembly

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 and remove the battery.
2. Remove the battery tray by removing (4) mounting bolts ((2) bolts on the core support and (2) bolts under the inner fender) (retain).
3. Drain the radiator.
4. Evacuate the A/C system (if necessary).
5. Remove the OEM compressor and compressor bracket (See Photo 1, below).
6. Remove the OEM heater hoses, A/C hoses and hardlines (discard) (See Photos 1 and 2, below).
7. Remove the A/C hoses from the inner fender. Remove the (4) OEM screws and the grommet (See Photo 3, below).
8. Remove the OEM evaporator/blower motor assembly (See Figure 1, below). **NOTE: To remove the evaporator and blower assembly (under hood) and the air distribution system (under dash), the factory manual recommends the following: Remove the right lower rocker molding. Remove the fender attaching bolts. Remove the skirt-to-fender and skirt-to-reinforcement screws. Pull out on the lower portion of the fender, moving the skirt away from the fender flange and firewall. Block the skirt with a 2" x 4" block of wood. To avoid damage to the paint and sheet metal, and for ease of removal and replacement of components, Vintage Air recommends that the right fender be removed, and the inner panel lowered. Removing the right front tire will provide easier access to the inner fender bolts.**
9. Remove the OEM evaporator/blower motor assembly (discard) (See Photo 4, below).
10. Remove the OEM A/C & heater wiring/vacuum harness molded grommet (discard) (See Photo 5, below).
11. Install a 1 5/8" plug into the firewall to cover the OEM firewall hole (See Photo 6, below). **NOTE: A 1 1/2" plug is also provided. Use the plug that best fits the vehicle.**



OEM A/C Hoses

Photo 1

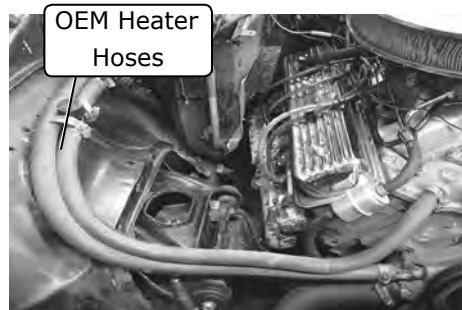
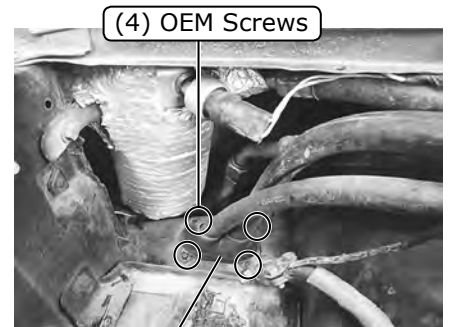


Photo 2



Grommet

Photo 3

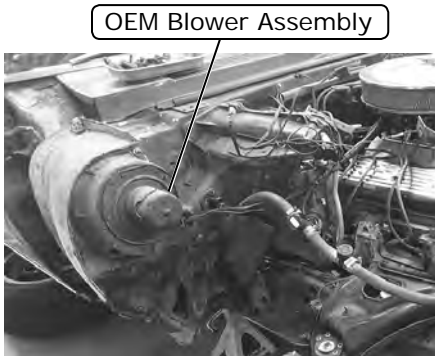


Photo 4

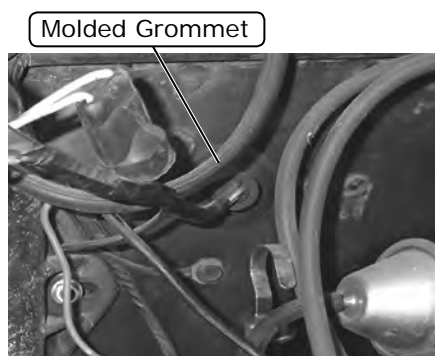


Photo 5

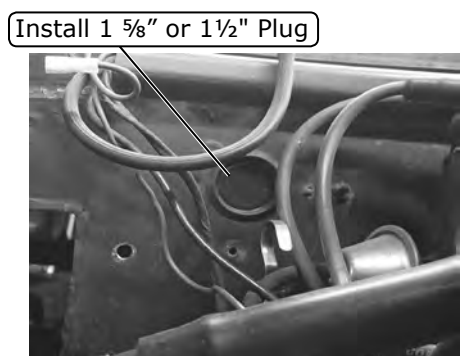


Photo 6



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Condenser Assembly and Installation

1. Refer to separate instructions included with the bracket kit to install the compressor bracket.
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: For ease of installation, Vintage Air recommends removing the front seats.

Perform the Following:

1. On 1968 models equipped with astro ventilation, remove the astro vents and door assemblies (retain astro vents, but discard door assemblies) (See Figure 1, below).
2. Remove the ashtray (retain) (See Photo 1, below).
3. Remove the trim plate and (2) screws (retain) (See Photo 2, below). **NOTE: The center console may have to be loosened to gain access to the trim plate screws. The bottom (2) screws also retain the ashtray slider assembly (See Photo 3, below).**
4. Remove the ashtray slider assembly by removing the screw (retain) (See Photo 3, below).
5. Remove the glove box door by removing (3) screws (retain) (See Photo 4, below).
6. Remove the glove box by removing (4) screws ((2) on top & (2) on the sides) (discard) (See Photo 5, below).
7. Remove the radio by removing the knobs and retaining nuts (retain).

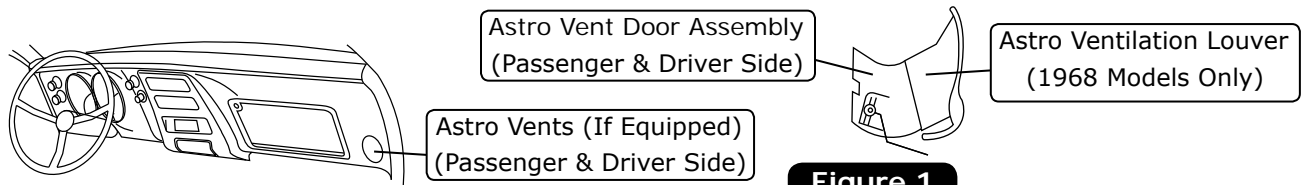


Figure 1

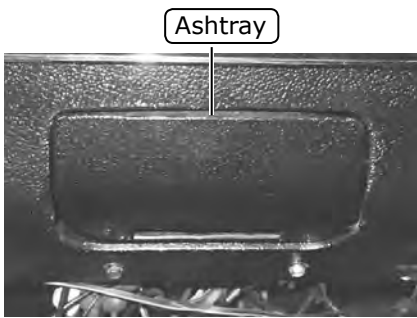


Photo 1

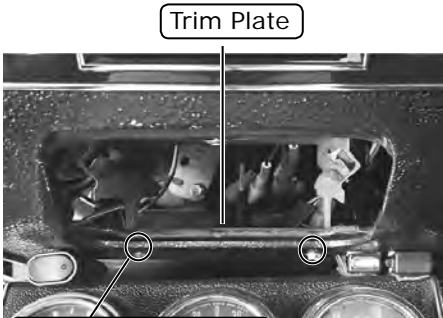


Photo 2

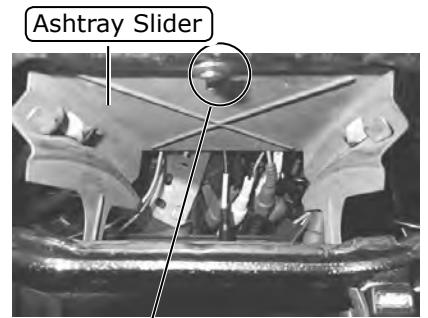


Photo 3



Photo 4

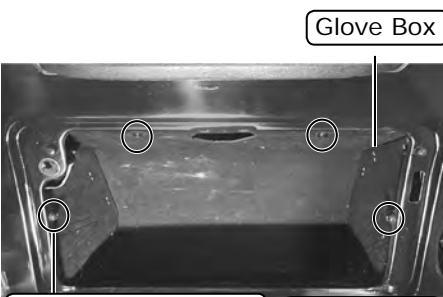


Photo 5



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Passenger Compartment Disassembly (Cont.)

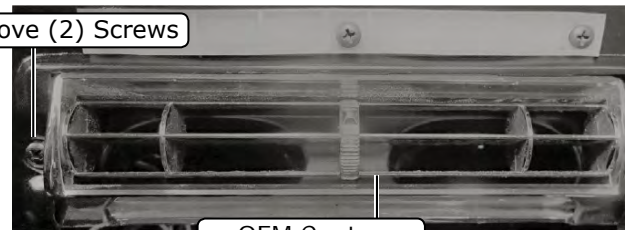
8. Remove the radio by removing the knobs and retaining nuts (retain).
9. Disconnect the wiring and antenna cable from the radio (retain).
10. Remove the OEM control panel assembly by removing (4) screws from the dash (retain) and disconnecting the light socket (retain) and cables (discard) (See Photo 6, below).
11. Remove the OEM center louver assembly by removing (2) screws from the dash and disconnecting the hose from the back of the louver housing (retain) (See Photo 7, below).
12. Loosen and lower the steering column by removing the (2) nuts from under the column (retain) (See Photo 8, below).
13. Remove (3) screws from the top of the instrument panel and (4) screws from the bottom of the panel ((2) from the left side and (2) from the right side) (retain) (See Photo 9, below).
14. Disconnect the speedometer cable and wiring plug.
15. Remove the instrument panel (retain).
16. Remove the kick panel vent vacuum actuator cover (retain) by removing (4) screws (See Photo 10, below).
17. Remove the kick panel vent vacuum actuator by removing (2) sheet metal screws. Disconnect the vacuum-hose, cable and spring from the vent door (See Photo 11, below).
18. Remove the passenger side kick panel by removing (2) screws (retain) (See Figure 1, below).



Remove (4) Screws

OEM Control Panel Assembly

Photo 6



Remove (2) Screws

OEM Center Louver Assembly

Photo 7



Remove (2) Nuts

Under Steering Column View

Photo 8

Remove (3) Screws From Top of Panel

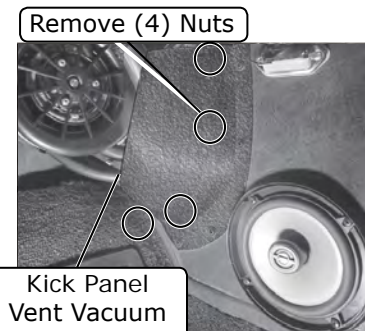


Remove (2) Screws from Bottle Left

Instrument Panel Assembly

Remove (2) Screws from Bottom Right

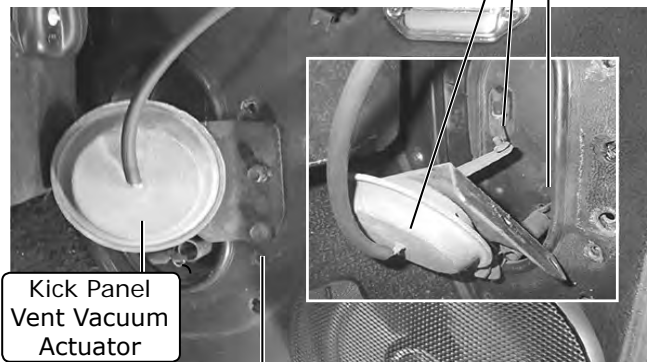
Photo 9



Remove (4) Nuts

Kick Panel Vent Vacuum Actuator Cover

Photo 10



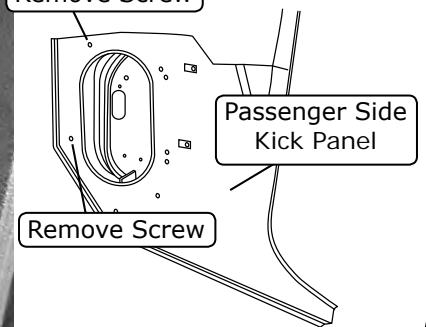
Disconnect

Remove Screw

Kick Panel Vent Vacuum Actuator

Remove (2) Sheet Metal Screws

Photo 11



Remove Screw

Passenger Side Kick Panel

Figure 1



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Passenger Compartment Disassembly (Final)

19. Remove the OEM defrost duct (discard) (See Figure 2, below).
20. Remove the center louver, and the driver & passenger side louver ducts (discard) (See Figure 3, below).
21. Remove the OEM evaporator (discard) (See Figure 4, below).

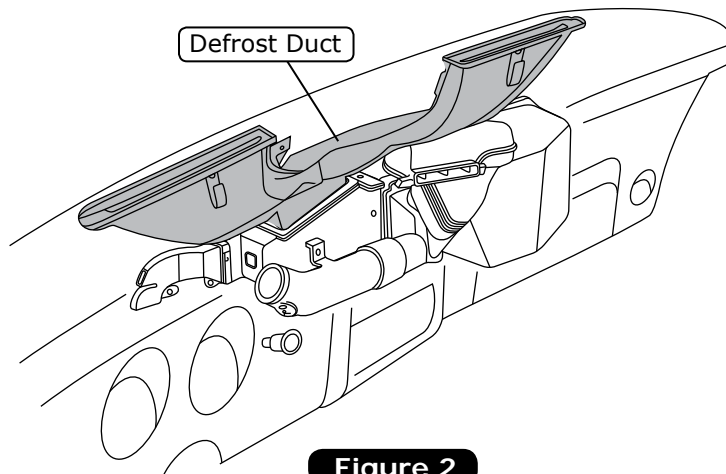


Figure 2

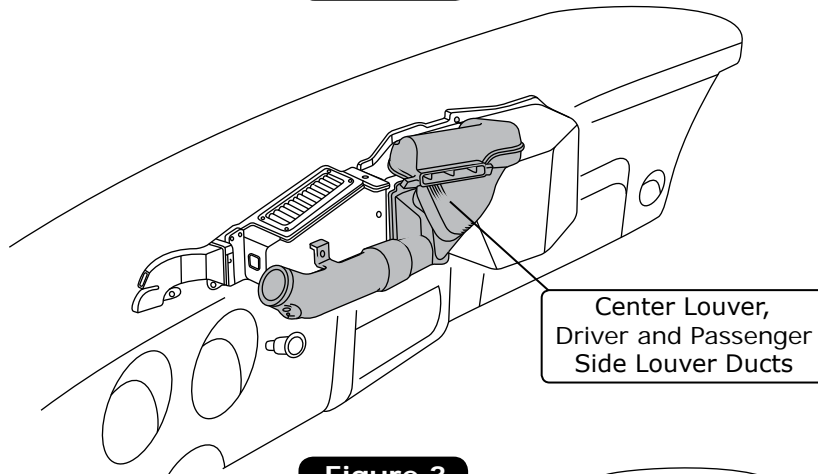


Figure 3

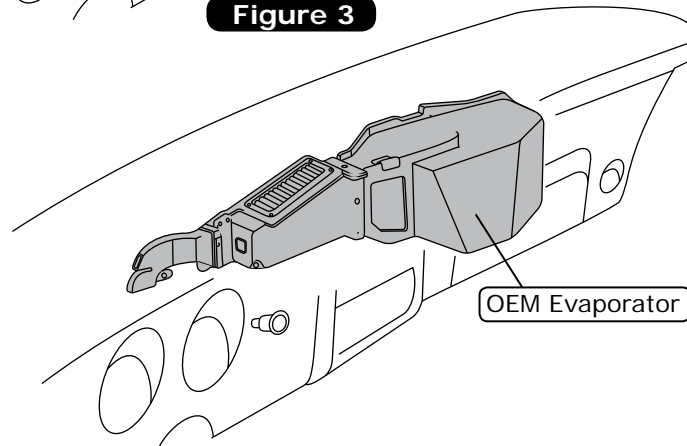


Figure 4



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Firewall Modification

NOTE: Firewall modification is required for firewall cover and drain hose installation.

1. Flatten the edges of the firewall opening (See Photo 1, below).
2. Enlarge (6) holes on the firewall to 19/64" as shown in Photo 2, below.
3. From inside the passenger compartment, directly below the lowest OEM hole under the firewall opening, mark and drill a 5/8" hole for the drain hose (See Photo 3, below). **NOTE: To ensure a tight fit, do not enlarge the hole to more than 5/8".**

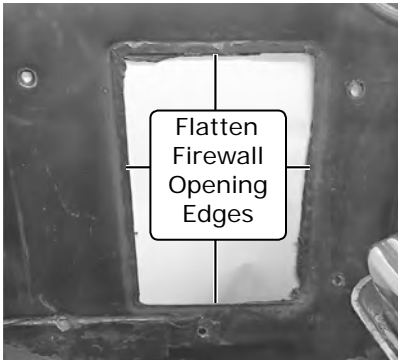


Photo 1

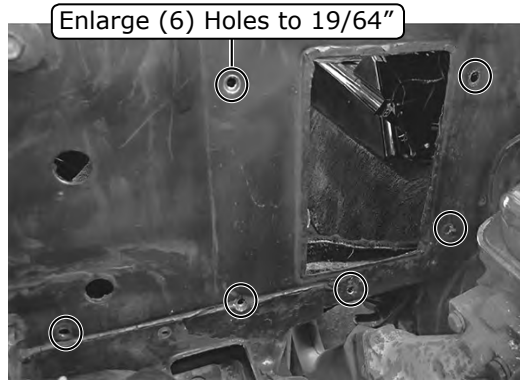
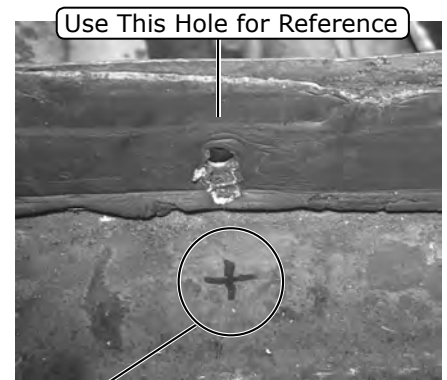


Photo 2



Drill 5/8"
Hole

Photo 3

Defrost Duct & Fresh Air Cover Installation

1. Install the defrost ducts under the dash (See Figure 1, below). Align each defrost duct with the defrost opening in the dash, and hold it in place. Using the bracket as a template, drill a 7/64" hole. Secure each defrost duct using a #10 x 1/2" sheet metal screw (See Figure 1, below).
2. If the vehicle is equipped with astro ventilation, apply a 1/4" bead of silicone to the mating surface, and install the driver and passenger side fresh air covers, using OEM hardware to secure (See Figure 1, below).

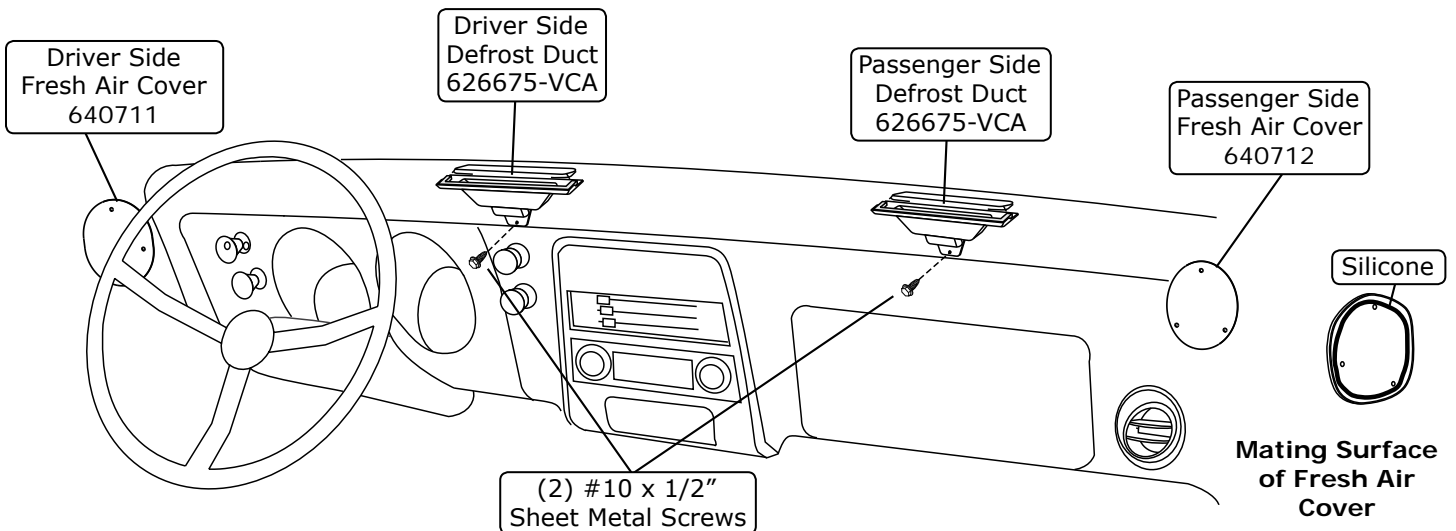


Figure 1



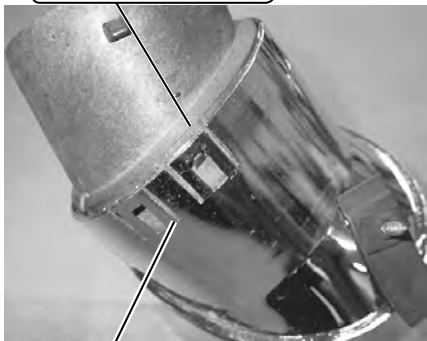
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Driver & Passenger Side OEM Louver Modification

NOTE: To install the new 2 1/2" hose adapters, it will be necessary to modify the driver and passenger side OEM louvers.

1. Disassemble the OEM louver by unclipping the (3) tabs on the louver housing and pulling the assembly apart (See Photo 1, below).
2. Remove the ball louver from the louver housing (See Photo 2, below).
3. Measure and mark 1/4" from the edge of the louver housing (See Photos 3 & 4, below). **NOTE: Repeat the process (2) more times around the louver housing.**
4. Drill (3) 1/8" holes into the louver housing (See Photo 4, below).

Unclip (3) Tabs on Louver Housing



Louver Housing

Photo 1

Remove Ball Louver from Louver Housing



Photo 2

Mark and Drill (3) 1/8" Holes

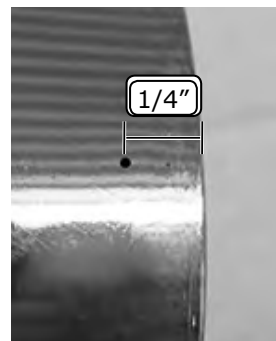
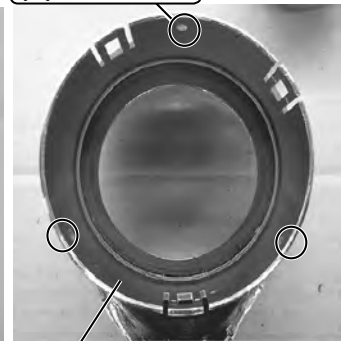


Photo 3



Louver Housing

Photo 4

OEM Louver Assembly

1. On the inner louver housing, adhere a length of the supplied felt strip to the beveled edge. **NOTE: Cut the felt strip to fit as needed (See Photo 1, below).**
2. Insert the OEM ball louver into the OEM louver housing (See Photo 2, below).
3. Install the inner louver hose adapter into the OEM louver housing (See Photo 3, below).
4. Install the outer louver hose adapter flush with the back of the louver housing as shown in Photo 4, below. **NOTE: Before continuing to the next step, ensure that the ball louver can be adjusted if it is too tight or too loose. If adjustment is required, it will need to be completed before the adapter is secured to the housing. If desired, for ease of assembly, (3) small pilot holes (approximately 5/64") can be drilled into the outer ring.**
5. Install (3) #6 x 3/8" pan head screws into the previously drilled holes on the louver housing (See Photo 5, below).

Inner Louver Hose Adapter 49872-VCI

Install Felt Strip 200101

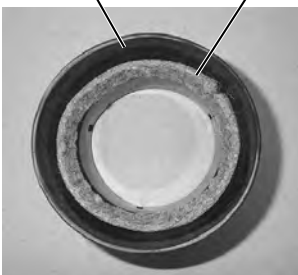


Photo 1

Insert Louver Ball into Housing



Photo 2

Install Inner Louver Hose Adapter into Housing



Photo 3

Install Outer Louver Hose Adapter to Back of Housing



Photo 4

Install (3) #6 x 3/8" Screws into Previously Drilled Holes

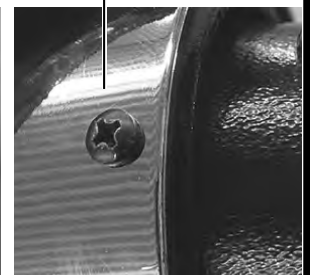


Photo 5



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Kick Panel Modification

1. Remove the fresh air door assembly from the OEM kick panel by lifting up on the door toward the spring and sliding it out of the hinge housing (See Photo 1, below).
2. Trim the fresh air door housing to make it flush with the back of the kick panel (See Photos 2 & 3, below).



Photo 1



Before Modification

Photo 2



After Modification

Photo 3

Firewall Cover Insulation

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). 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".

1. To apply insulation to the firewall cover, temporarily install the firewall cover onto the firewall using (2) 1/4-20 x 3/4" bolts and (2) 1/4-20 nuts with star washers (See Photo 1, below).
2. From the passenger compartment, trace the firewall opening onto the firewall cover (See Photo 2, below).
3. Remove the firewall cover, and apply insulation to the traced area (See Photo 3, below).

Temporarily Install Firewall Cover with (2) 1/4-20 x 3/4" Bolts & (2) 1/4-20 Nuts with Star Washers



Engine Compartment View

Firewall Cover 640684

Trace Firewall Opening

Firewall Cover 640684



Passenger Compartment View

Apply Insulation to Traced Area

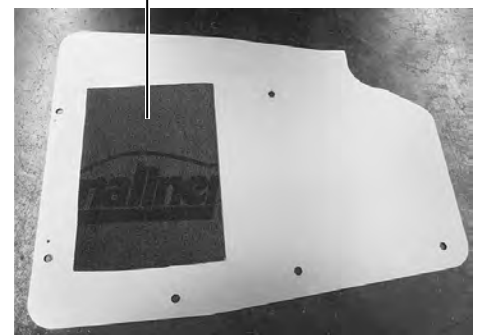
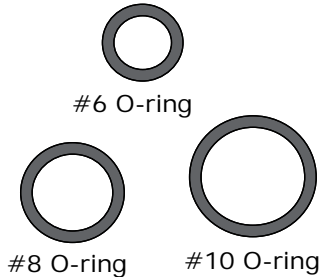


Photo 3

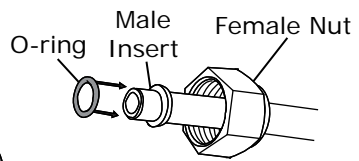


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Lubricating O-rings



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



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

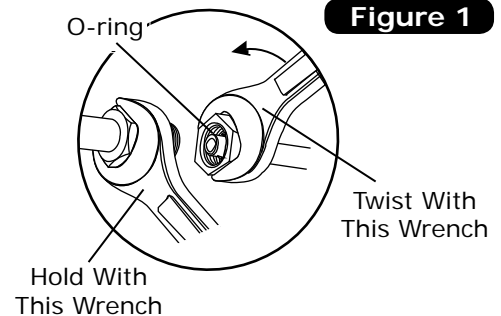
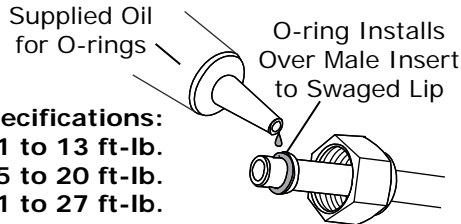


Figure 1

1. On a workbench, install the upper heater hardline onto the evaporator unit using a properly lubricated #10 O-ring (See Figure 1, above, and Photo 1, below).
2. Install the lower heater hardline onto the evaporator unit using a properly lubricated #10 O-ring (See Figure 1, above, and Photo 2, below). **NOTE: Install the upper and lower hardlines facing downward as shown in Photo 2, below.**
3. Install the evaporator firewall bracket using (4) 1/4-20 x 1/2" bolts (supplied on the evaporator unit) (See Photo 3, below).
4. Install (2) 1/4-20 x 1 1/2" studs into the (2) upper mounting holes on the evaporator firewall bracket. Thread the studs in 1/4 of the way (See Photo 4, below).

Install Upper Heater Hardline

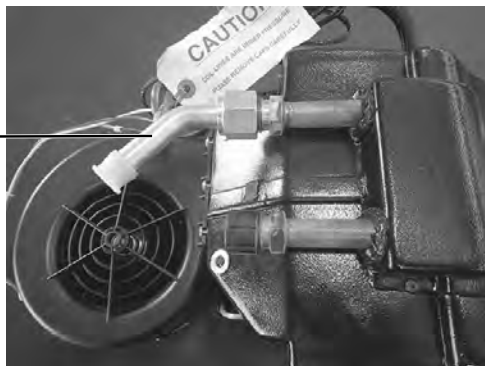


Photo 1

Install Lower Heater Hardline

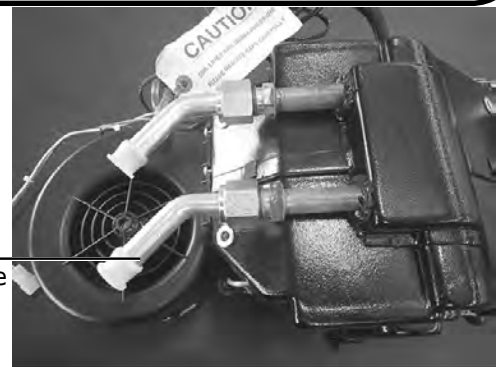


Photo 2

Install Evaporator Firewall Bracket Using (4) 1/4-20 x 1/2" Bolts (Supplied on Evaporator Unit)

Evaporator Firewall Bracket 640682

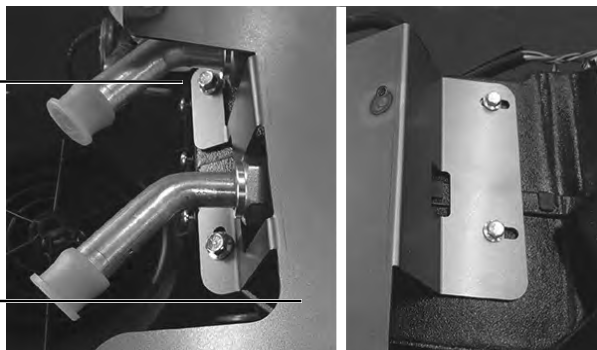


Photo 3

(2) 1/4-20 x 1 1/2" Studs

Thread Studs in 1/4 of the Way



Photo 4



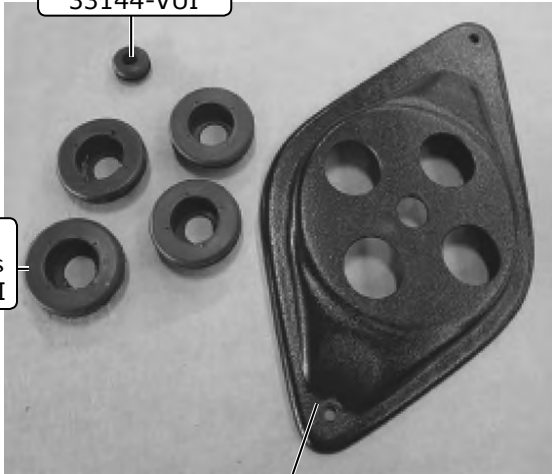
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Fresh Air Cap & Kick Panel Cover Preparation

1. Install (4) large grommets and a 7/8" grommet into the fresh air cap (See Photos 1 and 2, below).
2. Install (4) large grommets and a 7/8" grommet into the kick panel cover (See Photos 3 and 4, below).

7/8" Grommet
33144-VUI

(4) Large
Grommets
33137-VUI



Fresh Air Cap
622230

Photo 1



Completed Installation

Photo 2

7/8" Grommet
33144-VUI

(4) Large
Grommets
33137-VUI



Kick Panel Cover
622234

Photo 3



Completed Installation

Photo 4

Heater and A/C Hose Installation

NOTE: Soapy water may be used to ease insertion of A/C and heater hoses through the grommets, but be sure the hoses are capped to prevent water from getting inside.

1. On the inside of the fresh air cap, the letter "T" indicates the top mounting hole for the firewall (See Photo 1, below).



"T" Indicates
Top Mounting Hole

Photo 1



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Heater and A/C Hose Installation (Cont.)

1. Insert a length of heater hose through the bottom right large grommet on the fresh air cap (See Photo 2, below).
2. Insert a length of heater hose through the top right large grommet on the fresh air cap (See Photo 3, below).
3. Insert the straight fitting on the #6 drier/evaporator A/C hose through the bottom left large grommet on the fresh air cap (See Photo 4, below).
4. Insert the 45° fitting on the #10 compressor/evaporator A/C hose through the top left large grommet on the fresh air cap (See Photo 5, below). **NOTE: Temporarily remove the large grommet from the fresh air cap to ease insertion of the #10 hose fitting.**
5. From the passenger compartment, insert the lower heater hose through the bottom left large grommet on the kick panel cover (See Photo 6, below).
6. Insert the upper heater hose through the top left large grommet on the kick panel cover (See Photo 7, below).
7. Insert the #6 drier/evaporator A/C hose through the bottom right large grommet on the kick panel cover (See Photo 8, below).
8. Insert the #10 compressor/evaporator A/C hose through the top right grommet on the kick panel cover (See Photo 9, below). **NOTE: Temporarily remove the grommet from the kick panel cover for easier insertion.**

Fresh Air Cap
622230

Large Grommet
33137-VUI

Heater
Hose

#6 Drier/Evaporator
A/C Hose

#10 Compressor/
Evaporator A/C Hose



Heater
Hose

Photo 2



Photo 3



Photo 4



Remove Grommet
for Easier Insertion

Photo 5

Kick Panel Cover
622234

Upper
Heater Hose

#6 Drier/Evaporator
A/C Hose

#10 Compressor/
Evaporator A/C Hose



Large Grommet
33137-VUI

Lower
Heater Hose

Photo 6



Photo 7



Photo 8

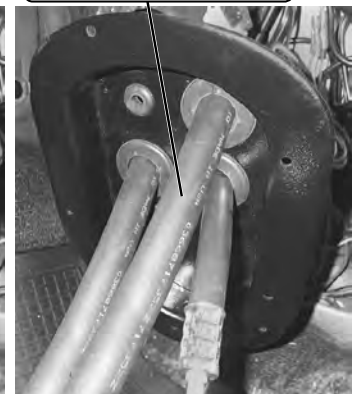


Photo 9



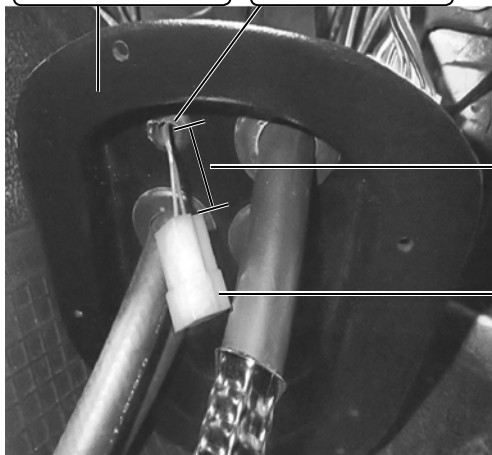
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Wiring Installation

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 and through the 7/8" grommet in the fresh air cap (See Photo 1, below). **NOTE: Leave approximately 1" of wiring between the kick panel cover and the harness connector. This allows enough wiring to reach the harness.**
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 (See Photo 3, below). **NOTE: Leave approximately 5" 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).

Kick Panel Cover
622234

7/8" Grommet
33144-VUI



Approximately 1"

Heater Control Valve Connector and Wiring (Red, White and Green)

Photo 1

Circuit Breaker

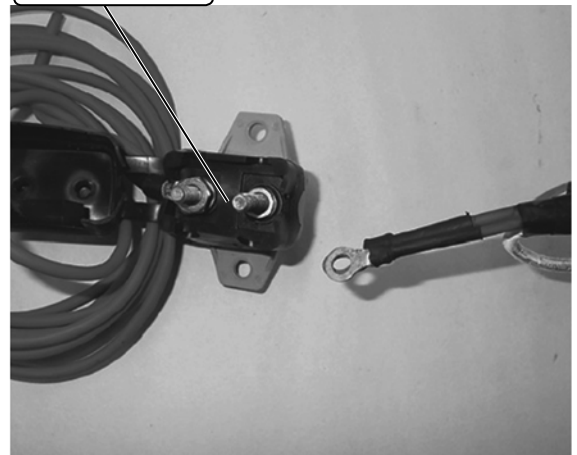


Photo 2

Kick Panel Cover
622234

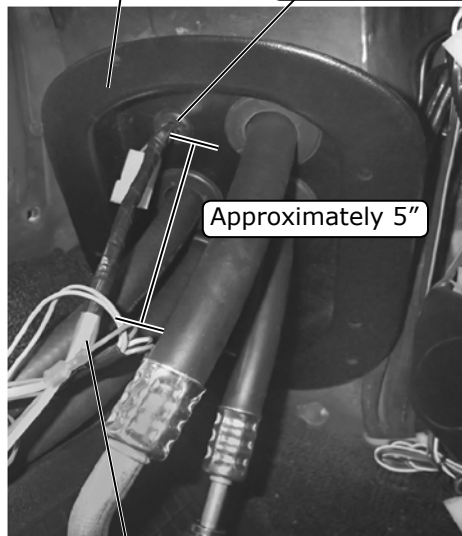
7/8" Grommet
33144-VUI

Fresh Air Cap
622230

7/8" Grommet
33144-VUI

Fresh Air Cap
622230

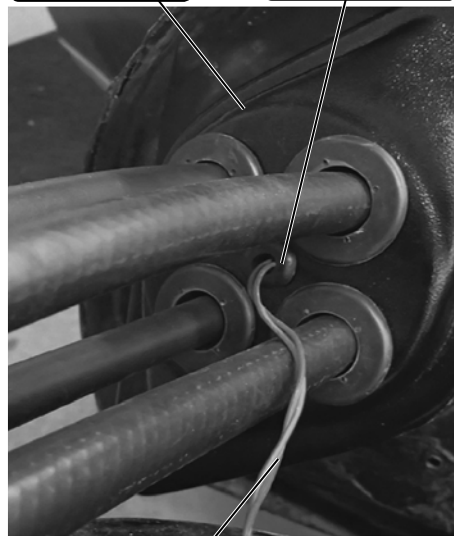
7/8" Grommet
33144-VUI



Approximately 5"

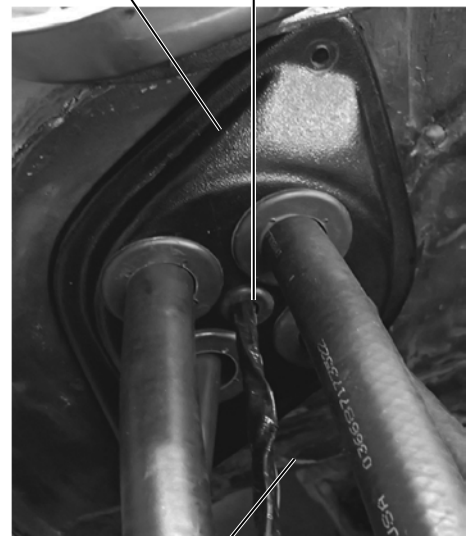
Main Wiring Harness
(Red, White and Blue)

Photo 3



Heater Control Valve Wiring (Red, White and Green)

Photo 4



Main Wiring Harness
(Red, White and Blue)

Photo 5



www.vintageair.com

Kick Panel Installation

1. Apply a bead of silicone around the mating surface of the kick panel cover (See Figure 1, below).
2. Install the kick panel cover into place, lining up the mounting holes on the cover with the OEM mounting holes on the kick panel opening.
3. Install the kick panel, routing the hoses and wiring through the opening. Secure the panel using (4) #8 x 1 1/4" screws with washers (See Photo 1, below). **NOTE: Use only the mounting holes shown in Photo 1, below, at this time.**
4. Using a #8 x 1 1/4" screw, secure the relay to the upper OEM kick panel mounting hole as shown in Photo 2, below.

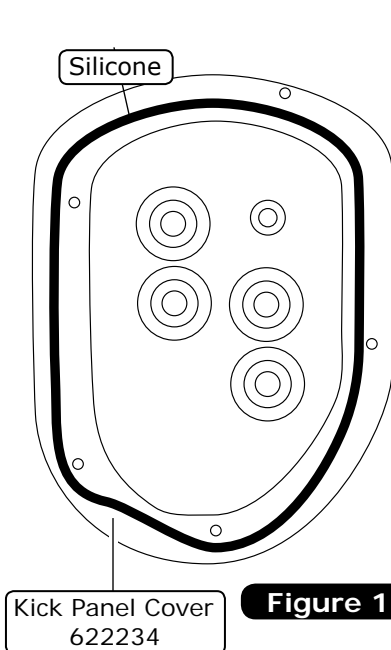


Figure 1

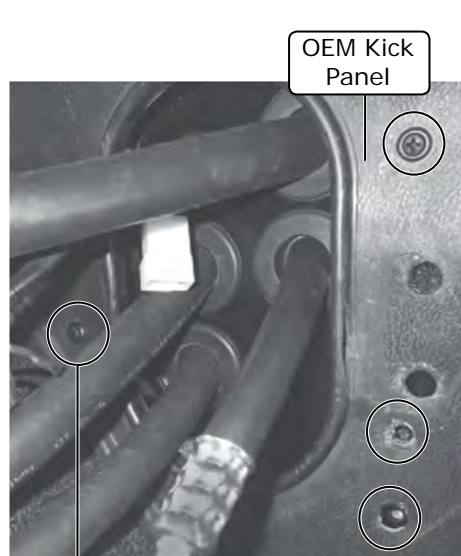


Photo 1



Photo 2

Evaporator Installation

NOTE: A 10" block of wood may be used to support the evaporator unit while the following steps are completed.

1. Place the evaporator unit under the dash (See Photo 1, below).
2. Install the straight fitting on the #6 drier/evaporator A/C hose onto the expansion valve on the evaporator unit using a properly lubricated #6 O-ring (See Figure 1, Page 16, and Photo 2, below).
3. Install the upper heater hose and a hose clamp onto the upper heater hardline on the evaporator unit (See Photo 3, below).



Photo 1

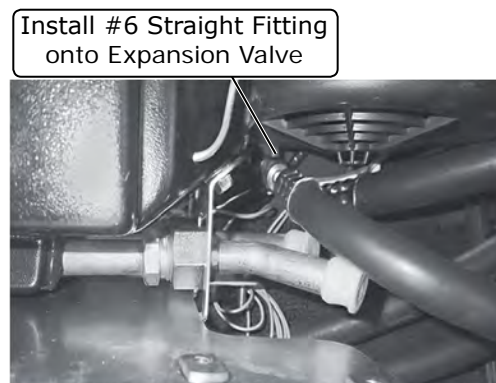


Photo 2

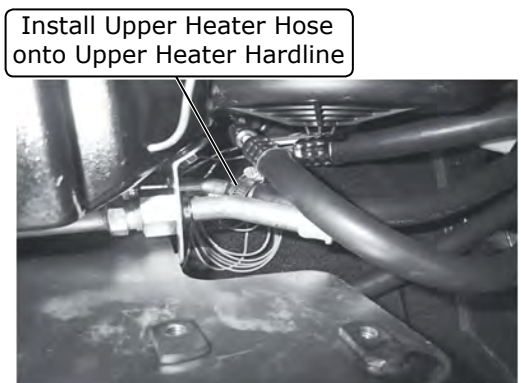


Photo 3



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Evaporator Installation (Cont.)

4. Install the lower heater hose and a hose clamp onto the lower heater hardline on the evaporator unit (See Photo 4, below).
5. Remove the support board (if used), and roll the evaporator into its mounting position. Insert the (2) 1/4-20 x 1 1/2" studs into the upper OEM mounting holes on the firewall (See Photo 5, below).
6. Install the 45° fitting on the #10 compressor/evaporator A/C hose onto the #10 fitting on the evaporator using a properly lubricated #10 O-ring (See Figure 1, Page 16, and Photo 6, below). NOTE: After installing the #10 compressor/evaporator A/C hose, wrap all exposed metal with the supplied press tape (See Photo 7, below).
7. Install (2) #8 U-nuts onto the evaporator dash bracket (See Photo 8, below). Position the evaporator dash bracket under the glove box door mounting holes, and install it onto the evaporator unit using (2) 1/4-20 x 1/2" bolts (supplied on the evaporator unit) (See Photos 9 & 10, below).

Install Lower Heater Hose onto Lower Heater Hardline

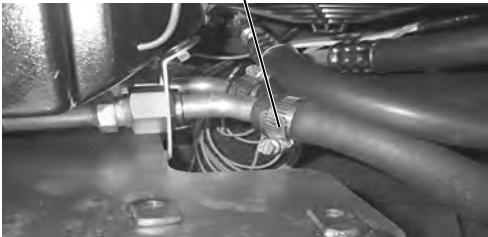


Photo 4

Insert (2) 1/4-20 x 1 1/2" Studs into Mounting Holes



Engine Compartment View

Photo 5

Install #10 A/C Hose 45° Fitting onto #10 Evaporator Fitting



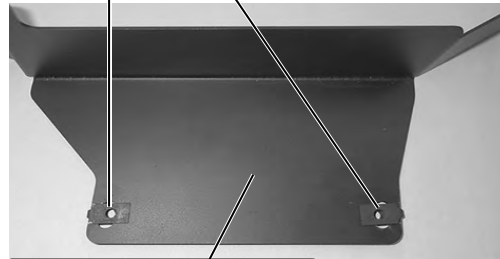
Photo 6

Wrap All Exposed Metal with Press Tape



Photo 7

Install (2) #8 U-nuts onto Evaporator Dash Bracket



Evaporator Dash Bracket 640683

Photo 8

Evaporator Dash Bracket 640683

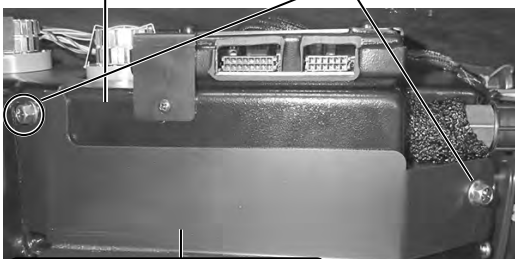


Glove Box Door Mounting Holes

Photo 9

Evaporator Unit

(2) 1/4-20 x 1/2" Bolts (Supplied on the Evaporator Unit)



Evaporator Dash Bracket 640683

Photo 10



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Drain Hose Installation

1. Install the drain hose through the previously drilled 5/8" hole in the firewall. Attach the drain hose onto the drain outlet on the bottom of the evaporator unit (See Photo 1, below).

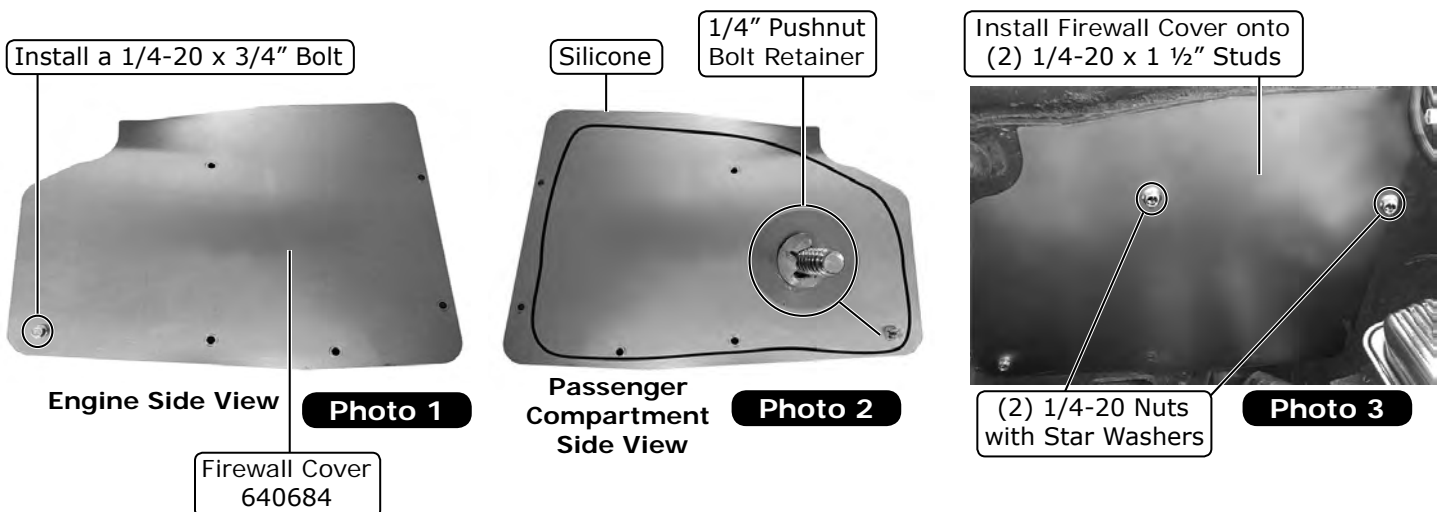


Photo 1

Firewall Cover 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.

1. Locate the bottom left mounting hole on the firewall cover, and install a 1/4-20 x 3/4" bolt and a 1/4" pushnut retainer (See Photo 1, below).
2. Apply a bead of silicone around the mating surface of the firewall cover, as shown in Photo 2, below.
3. Install the firewall cover onto the (2) 1/4-20 x 1 1/2" studs, and secure it using (2) 1/4-20 nuts with star washers (See Photo 3, below).





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Firewall Cover Installation (Cont.)

4. Install the lower heater hose and a hose clamp onto the lower heater hardline on the evaporator unit (See Photo 4, below).
5. Remove the support board (if used), and roll the evaporator into its mounting position. Insert the (2) 1/4-20 x 1 1/2" studs into the upper OEM mounting holes on the firewall (See Photo 5, below).
6. Install the 45° fitting on the #10 compressor/evaporator A/C hose onto the #10 fitting on the evaporator using a properly lubricated #10 O-ring (See Figure 1, Page 16, and Photo 6, below). **NOTE: After installing the #10 compressor/evaporator A/C hose, wrap all exposed metal with the supplied press tape (See Photo 7, below).**
7. Install (2) #8 U-nuts onto the evaporator dash bracket (See Photo 8, below). Position the evaporator dash bracket under the glove box door mounting holes, and install it onto the evaporator unit using (2) 1/4-20 x 1/2" bolts (supplied on the evaporator unit) (See Photos 9 & 10, below).

Install (3) 1/4-20 x 3/4" Bolts



Engine Compartment View

Photo 4

Remove the (2) 1/4-20 Nuts With Star Washers and (2) 1/4-20 x 1 1/2" Studs. Replace with (2) 1/4-20 x 3/4" Bolts



Photo 5

Install 1/4-20 Nut with Star Washer onto Bottom Right Firewall Cover Bolt



Passenger Compartment View

Photo 6

ECU Wiring Harness Installation

1. Route the violet power wire to a switched 12v power source on the fuse panel (See Photo 1, below).
2. Plug the white connector from the heater control valve into the white connector on the main wiring harness (See Photo 2, below).

Attach Violet Wire to Switched Power Source

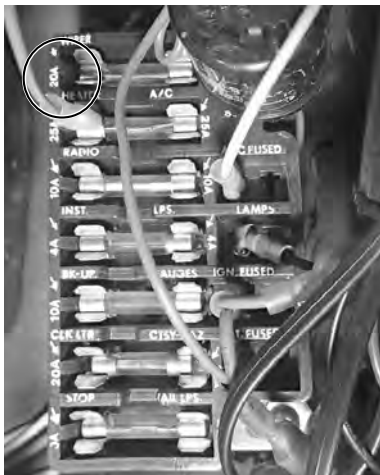


Photo 1

Main Wiring Harness Connector

Heater Control Valve Connector



Photo 2



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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).
2. Plug the white connector from the heater control valve into the white connector on the main wiring harness (See Photo 2, below).

Main Wiring
Harness Connector

Blower Motor
Connector



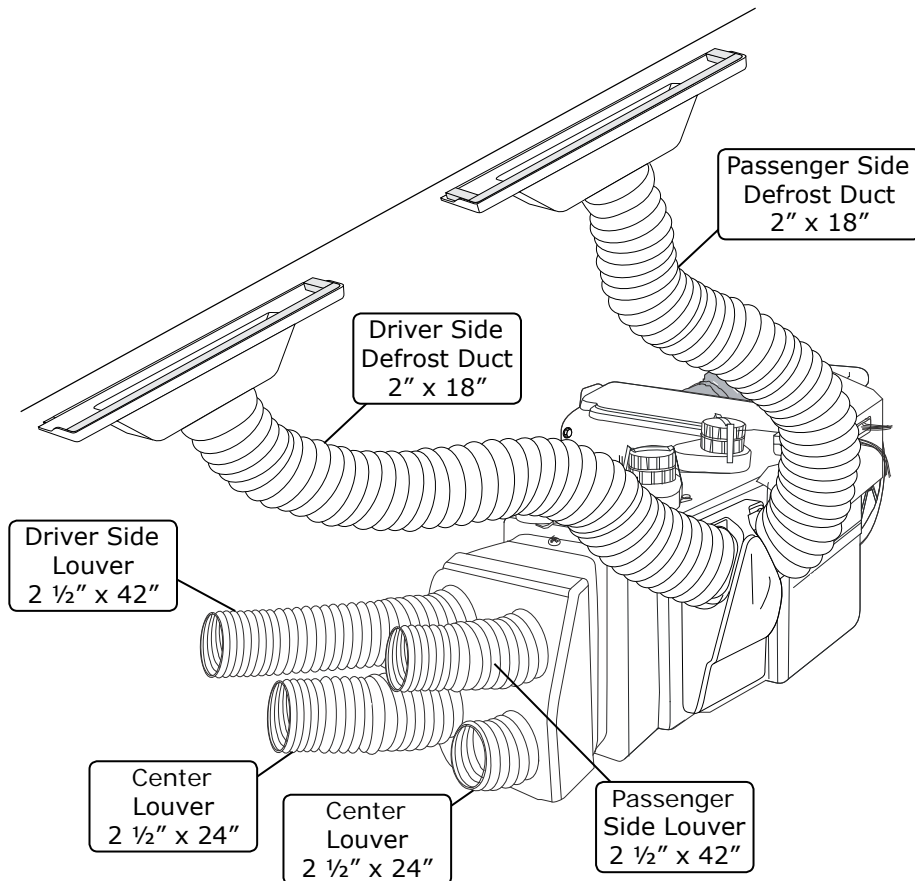
Photo 3

Plug Main Wiring
Harness into ECU



Photo 4

Duct Hose Installation





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Center Louver Installation

1. Install (2) #8 U-nuts onto the center louver hose adapter (See Figure 1, below).
2. Install (2) .313" length nylon spacers onto the tabs of the center louver vent bracket (Figure 1, below).
3. Install (2) nylon flat washers onto the center vent louver (See Figure 1, below).
4. Insert the center vent louver into the OEM louver housing. Install the center louver vent bracket with (2) nylon spacers onto the housing (See Figure 1, below).
5. Cut a piece of supplied foam, and apply it to the bottom of the louver assembly (See Photo 1, below)
6. Attach (2) 24" lengths of 2 1/2" duct hose to the center louver hose adapter (See Photo 2, below).
7. While holding the center louver assembly and the center louver hose adapter together, align the assembly holes with the holes on the dash. Secure the assembly using (2) #8 x 1/2" screws (See Photo 3, below).

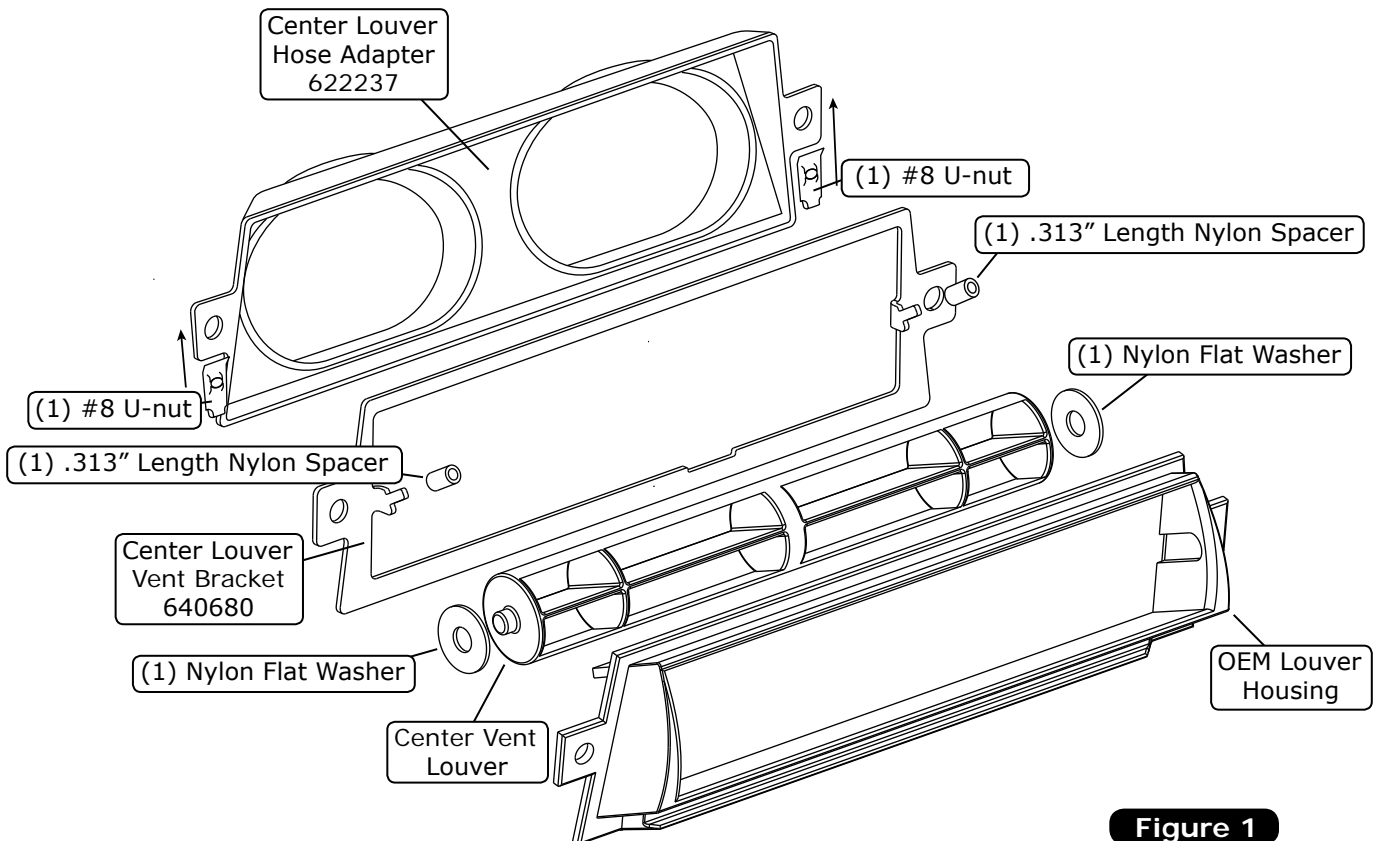


Figure 1

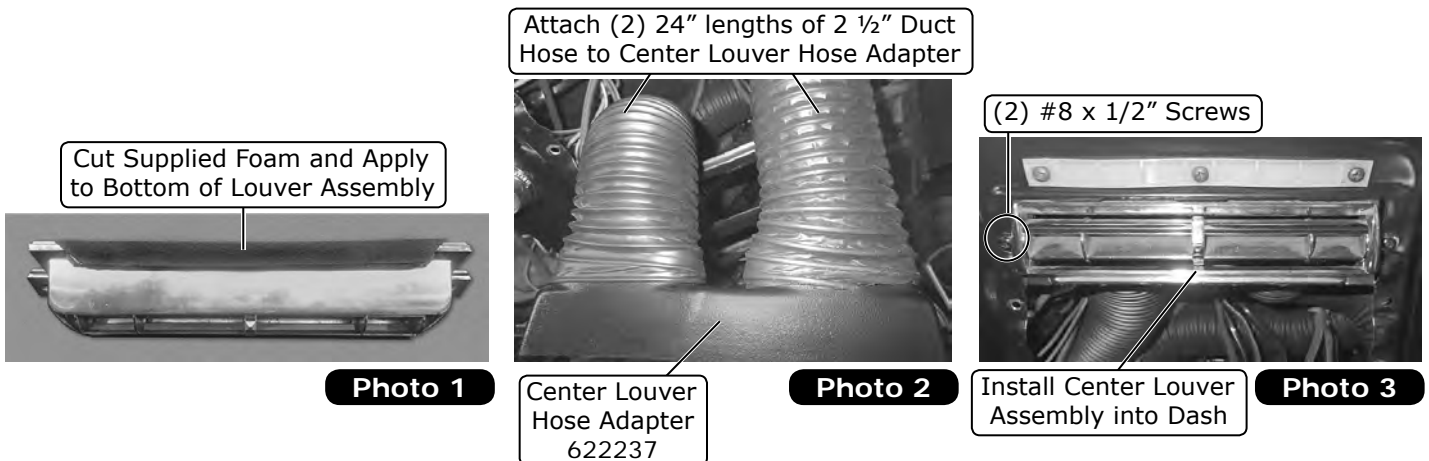


Photo 1

Center Louver
Hose Adapter
622237

Photo 2

Install Center Louver
Assembly into Dash

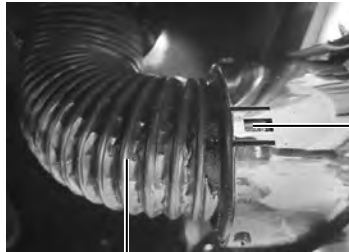
Photo 3



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Driver & Passenger Side Louver Installation

1. Attach a 42" length of 2 1/2" duct hose to the driver side louver, and install it into the dash (See Photo 1, below).
2. Attach a 42" length 2 1/2" duct hose to the passenger side louver, and install it into the dash (See Photo 2, below).



Driver Side Louver

42" Length of 2 1/2" Duct Hose

Photo 1



Passenger Side Louver

Photo 2

Control Panel Installation

1. From the driver side, install the control panel into the dash using the (4) OEM screws (See Photo 1, below).
2. Connect the control panel wiring harness to the ECU (See Photo 2, below).

(4) OEM Screws



Photo 1

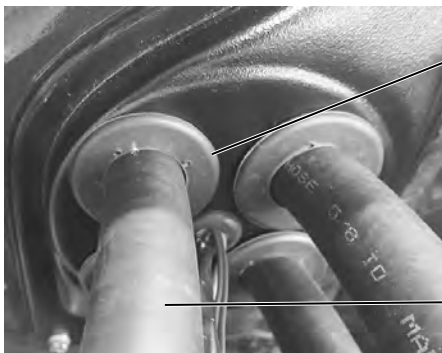
Connect Control Panel Wiring Harness to ECU



Photo 2

Fresh Air Cap Installation

1. Reinstall the large grommet on the #10 compressor/evaporator A/C hose into the fresh air cap (See Photo 1, below).
2. Gently pull the slack from the hoses in the passenger compartment, making sure the hoses are not kinked.
3. Slide the fresh air cap into position, and secure it to the firewall using (2) #14 x 3/4" sheet metal screws (See Photo 2, below).
4. Apply silicone around the outer edge of the fresh air cap (See Photo 2, below).

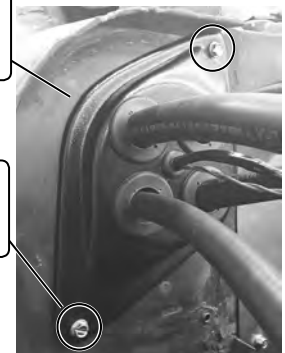


Reinstall Large Grommet into Fresh Air Cap

#10 Compressor/ Evaporator A/C Hose 090176

Photo 1

Apply Silicone Around Fresh Air Cap



Secure Fresh Air Cap with (2) #14 x 3/4" Sheet Metal Screws

Photo 2



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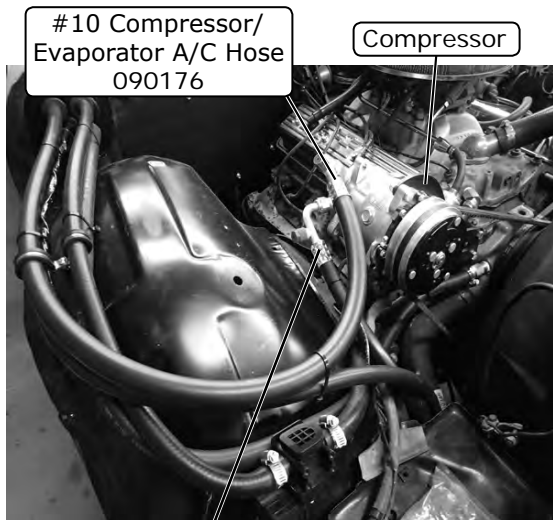
A/C Hose Installation

Standard Hose Kit:

1. Locate the #8 condenser/compressor A/C hose. Lubricate (2) #8 O-rings (See Figure 1, Page 13), and connect the #8 90° fitting with service port to the #8 discharge port on the compressor (See Photo 1, below). Then route the 45° fitting to the #8 condenser/core hardline coming from the condenser (See Photo 2, below). Tighten each fitting connection (See Figure 1, Page 13).
2. Locate the #10 compressor/evaporator A/C hose. Lubricate (1) #10 O-ring (See Figure 1, Page 13), and connect the #10 90° fitting with service port to the #10 suction port on the compressor (See Photo 1, below). Tighten the fitting connection (See Figure 1, Page 13).
3. Locate the #6 drier/evaporator hose. Lubricate (1) #6 O-ring (See Figure 1, Page 13), and connect it to the #6 drier/fenderwell hardline coming from the condenser (See Photo 2, below). Tighten the fitting connection (See Figure 1, Page 13).

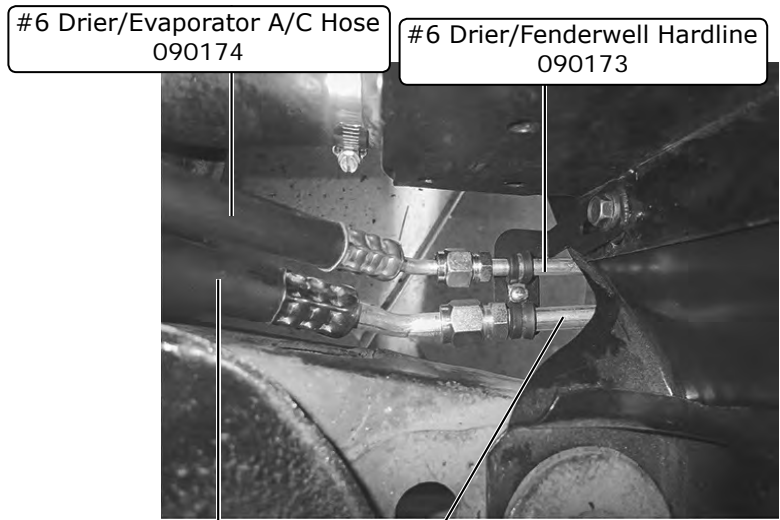
Modified Hose Kit:

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



#8 Compressor/
Evaporator A/C Hose
090175

Photo 1



#8 Compressor/
Evaporator A/C Hose
090175

#8 Condenser/
Core Hardline
35367-VCG

Photo 2



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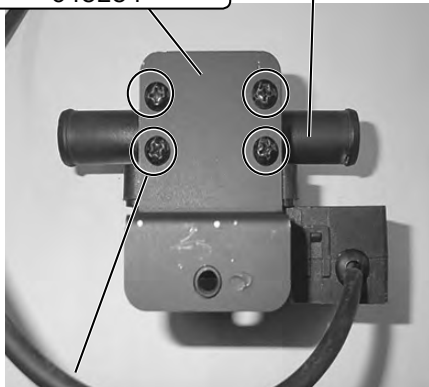
Heater Control Valve Installation

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 (Vintage Air Part # 099010) will need to be installed in the heater hose.

1. Install the heater control valve support bracket onto the heater control valve using (4) #8 x 1/2" screws (See Photo 1, below). **NOTE: Before mounting the heater control valve in the vehicle, ensure that the wiring from the main harness and heater control valve can be connected easily without tension or strain on the connection, or excessive pressure on the metal surfaces.**
2. Route a piece of heater hose (not provided) from the lower heater core fitting to the water pump. Secure using hose clamps. (See Photo 2, below).
3. Route a piece of heater hose (not provided) from the intake manifold to the heater control valve. Connect the heater hose from the upper heater core fitting to the heater control valve. Secure using hose clamps (See Figure 1 and Photo 3, below). **NOTE: Ensure proper flow direction through the heater control valve (the flow direction follows the molded arrow on the valve).**
4. Plug the heater control valve connector into the connector on the main wiring harness (See Photo 4, below). Secure the white wire from the heater control valve portion of the main harness to a suitable chassis ground.
5. Install (2) #10 Adel clamps to secure the heater hoses (See Photo 5, below). **NOTE: Use an OEM hole to mount the Adel clamps. If an OEM hole is not available, a new hole will need to be drilled. Be sure all hoses are routed away from the fan, belts and pulleys.**

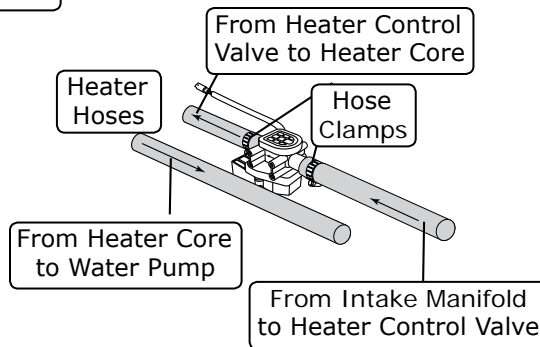
Heater Control Valve Support Bracket
648284

Heater Control Valve
461171



(4) #8 X 1/2" Screws

Photo 1



NOTE: Flow Direction Follows Molded Arrow on Valve

Figure 1

From Lower Heater Core Fitting to Water Pump



Photo 2

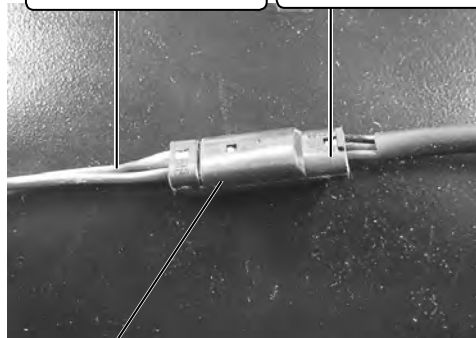
From Upper Heater Core Fittings
Intake Manifold Connection



Heater Control Valve
461171

Photo 3

Secure White Wire to Chassis Ground
Heater Control Valve Connector



Heater Control Harness Connector

Photo 4

Install (2) #10 Adel Clamps

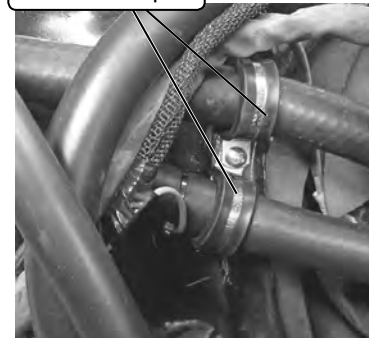


Photo 5



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Inner Fender Cover

1. Apply a bead of silicone for the OEM A/C hose opening (See Figure 1, below).
2. Install the inner fender cover using the (4) OEM screws (See Figure 1, below).

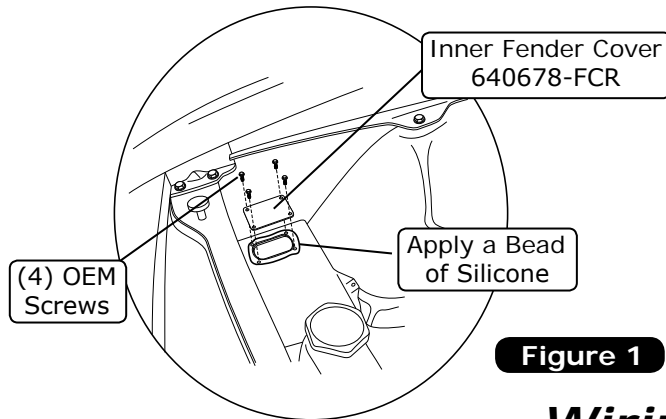
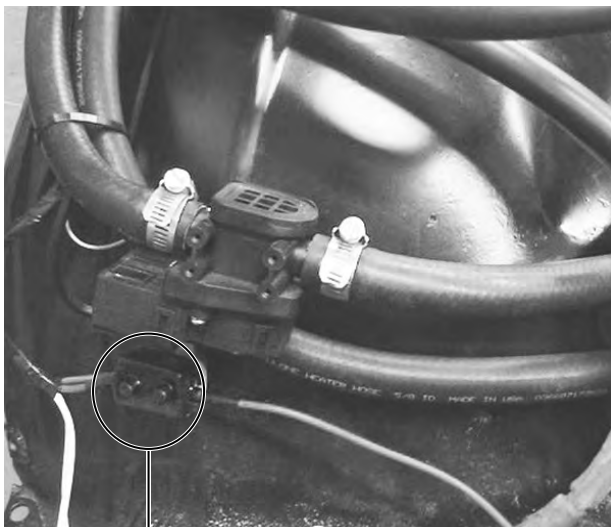


Figure 1

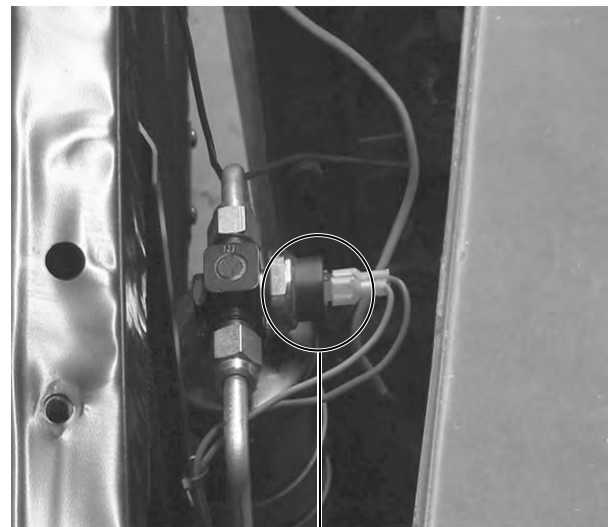
Wiring Final Steps

1. Reconnect the circuit breaker, and mount it as close as possible to battery (See Photo 1, below).
2. Route the blue lead from the main wiring harness to the safety switch (See Photo 2, below).
3. Connect the compressor lead wire to the safety switch (See Photo 2, below).
4. Wrap the safety switch wiring with flexo sleeve, and secure it with the supplied tie wraps (See Photo 3, below).



Mount Circuit Breaker Close to Battery

Photo 1



Connect Wire Leads to Safety Switch

Photo 2



Wrap Safety Switch Wiring with Flexo Sleeve

Photo 3



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Glove Box Installation

NOTE: Before installing the glove box, install a #8 U-nut onto the bottom right hole on the supplied glove box bottom (See Photo 1, below).

1. Insert the supplied glove box bottom into the glove box opening. Install a #8 x 1/2" screw into the mounting holes on each side of the glove box opening (See Photo 2, below).
2. Insert the glove box top into the glove box opening, and attach the bottom half of the glove box to the top half using (3) 10-32 x 1/2" screws (See Photo 3, below). **NOTE: Route the glove box light wiring through the cutout on the top half of glove box (See Photo 4, below).**
3. Secure the glove box top to the glove box opening using (2) #8 x 1/2" screws (See Photo 5, below).
4. Reinstall the glove box door using (3) #8 x 1/2" screws (See Photo 6, below). **NOTE: When installing the glove box door, be sure the screws install into the #8 U-nuts on the dash bracket.**
5. Install the glove box door latch using (2) OEM screws.
6. Reinstall the glove box door light (See Photo 7, below).

Install #8 U-nut onto Glove Box Bottom

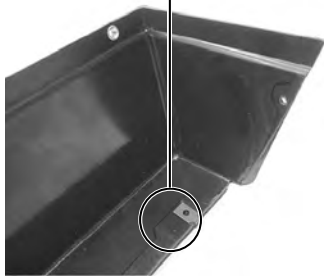
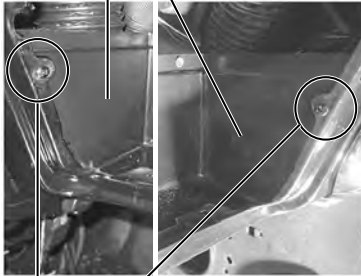


Photo 1

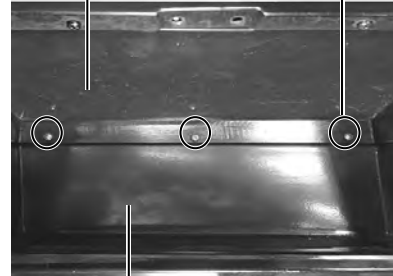
Glove Box Bottom 622231



(2) #8 x 1/2" Screws

Photo 2

Glove Box Top 622232



Glove Box Bottom 622231

Photo 3

Install (3) 10-32 x 1/2" Screws

Route Wiring Through Cutout



Photo 4

Secure Glove Box Top Using (2) #8 x 1/2" Screws



Photo 5

Reinstall Glove Box Door Using (3) #8 x 1/2" Screws

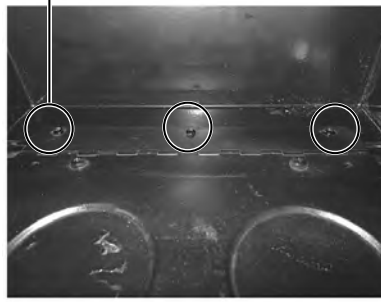


Photo 6

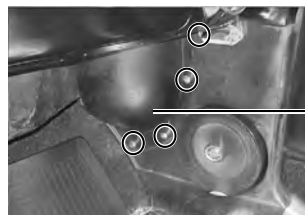
Reinstall Glove Box Light



Photo 7

Kick Panel Vent Actuator Cover Installation

1. Trim to fit, and reinstall the kick panel vent actuator cover using (4) #8 x 1 1/4" screws with washers (See Photo 1, below).



Trim to Fit Around Speaker, and Install with (4) #8 x 1 1/4" Screws with Washers

Photo 1



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Final Steps

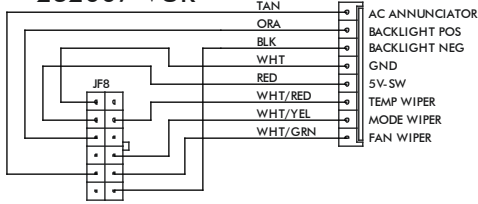
1. Reinstall all previously removed items.
2. Fill radiator with at least a 50/50 mixture of approved antifreeze and distilled water. It is the owner's responsibility to keep the freeze protection at the proper level for the climate in which the vehicle is operated. Failure to follow antifreeze recommendations 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 31.



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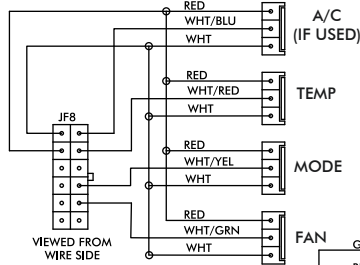
Wiring Diagram

232007-VUR



VIEWED FROM WIRE SIDE

232002-VUA



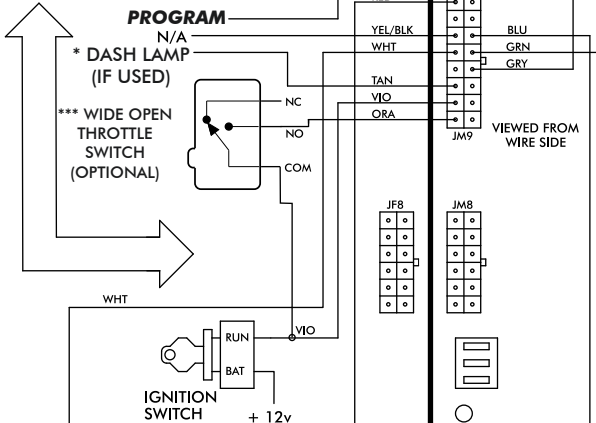
VIEWED FROM WIRE SIDE

PROGRAM

N/A

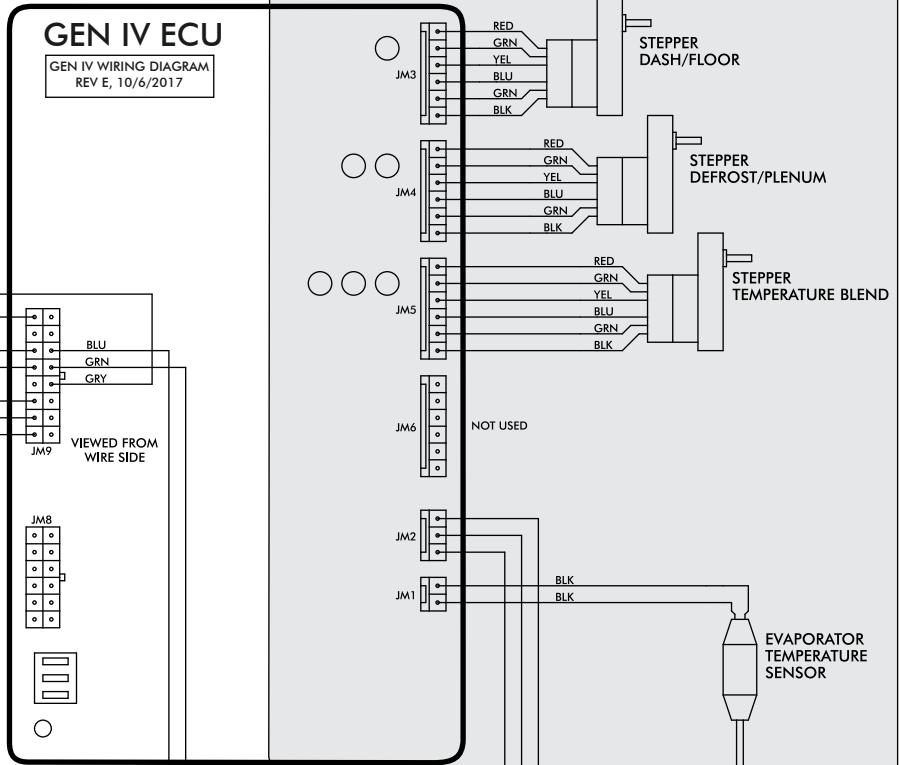
* DASH LAMP (IF USED)

*** WIDE OPEN THROTTLE SWITCH (OPTIONAL)

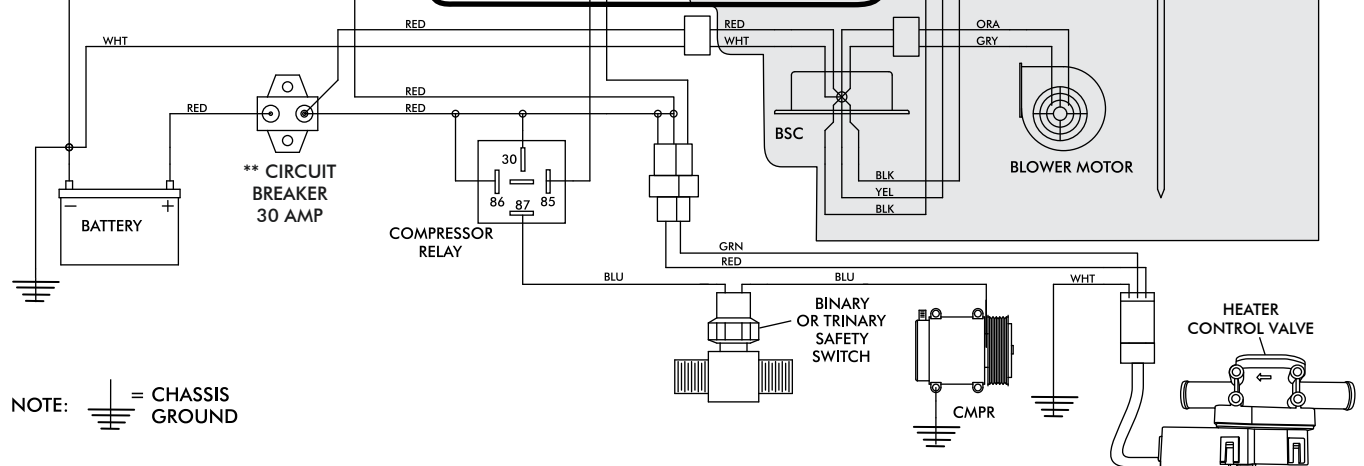


GEN IV ECU

GEN IV WIRING DIAGRAM
REV E, 10/6/2017



PRE-WIRED



NOTE: = CHASSIS GROUND

* 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).

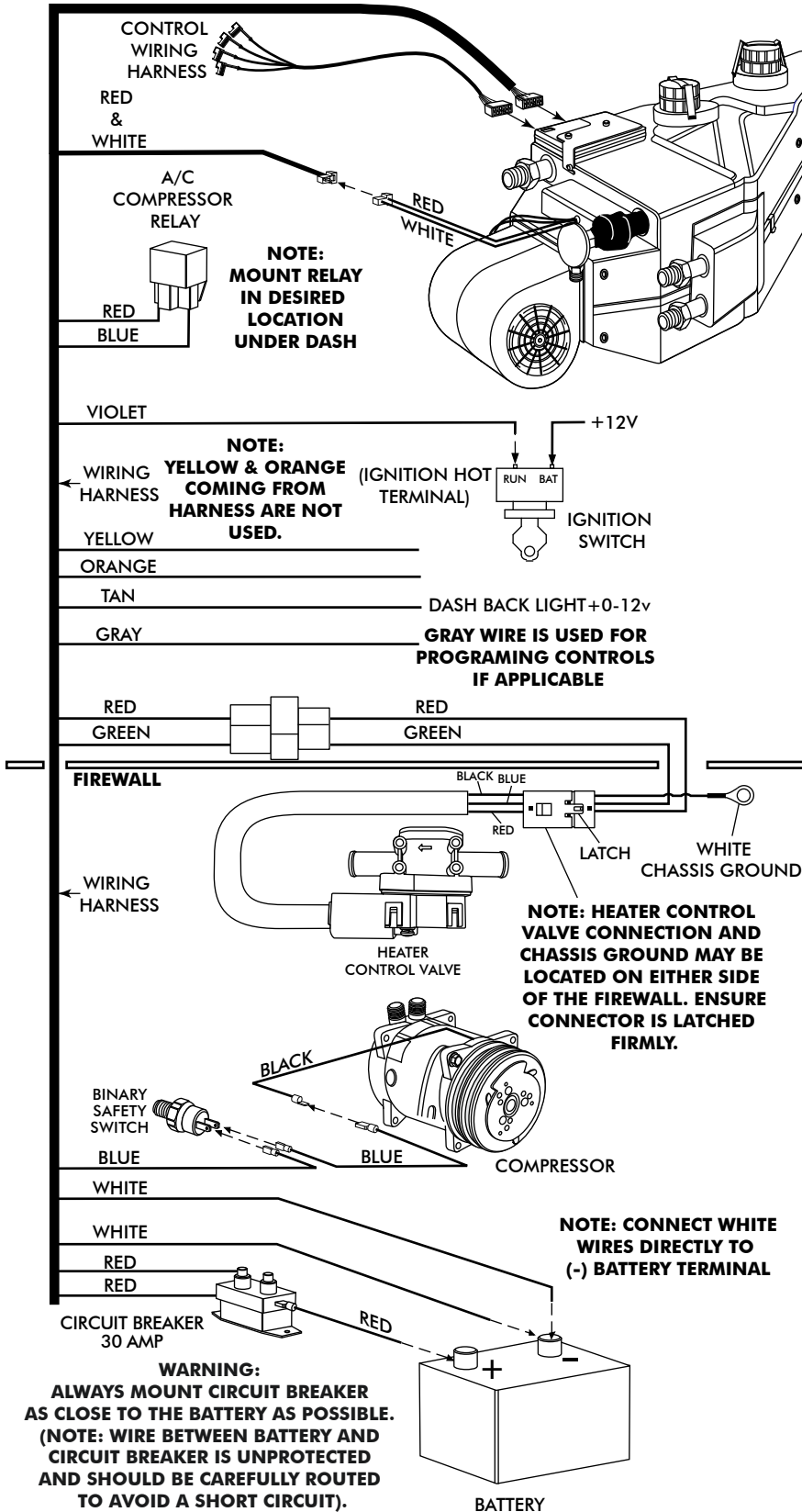
*** Wide Open Throttle Switch Contacts Close Only at Full Throttle, Which Disables A/C Compressor.



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Gen IV Wiring Connection Instruction

WIRING HARNESS



Ignition Switch:
Violet 12V Ign 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.

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).



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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 control panel instructions for calibration procedure.**

Blower Speed

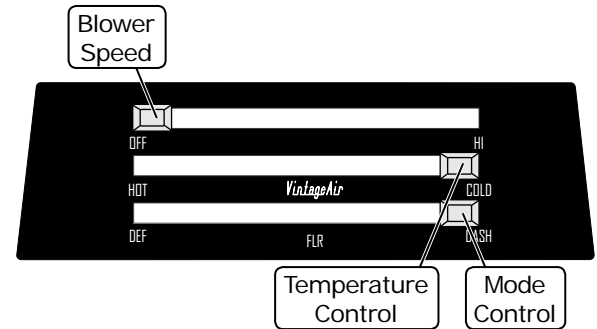
This lever/knob controls blower speed, from OFF to HI.

Mode Control

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

Temperature Control

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



A/C Operation

Blower Speed

Adjust to desired speed.

Mode Control

Adjust to desired mode position (DASH position recommended).

Temperature Control

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



Heat Operation

Blower Speed

Adjust to desired speed.

Mode Control

Adjust to desired mode position (FLOOR position recommended).

Temperature Control

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



Defrost/De-fog Operation

Blower Speed

Adjust to desired speed.

Temperature Control

Adjust to desired temperature.

Mode Control

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





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Troubleshooting Guide

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.	Loss of ground on this wire renders control head inoperable.
	All other functions work.	Check for damaged ground wire (white) in control head harness. Check for damaged blower switch or potentiometer and associated wiring.	Verify continuity to chassis ground with white control head wire at various points.	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 for disconnected or faulty thermistor.	Check continuity to ground on white control head wire. Check for 5V on red control head wire. Check 2-pin connector at ECU housing.	To check for proper pot function, check voltage at white/blue wire. Voltage should be between 0V and 5V, and will vary with pot lever position. Disconnected or faulty thermistor will cause compressor to be disabled.
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.	



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Troubleshooting Guide (Cont.)

Symptom	Condition	Checks	Actions	Notes
4.	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.
	System will not turn on, or runs intermittently.	Will not turn on under any conditions.	Check for positive power at heater valve green wire and blower red wire. Check for ground on control head white wire.	
		Verify connections on power lead, ignition lead, and both white ground wires.		
		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.	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.	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.	



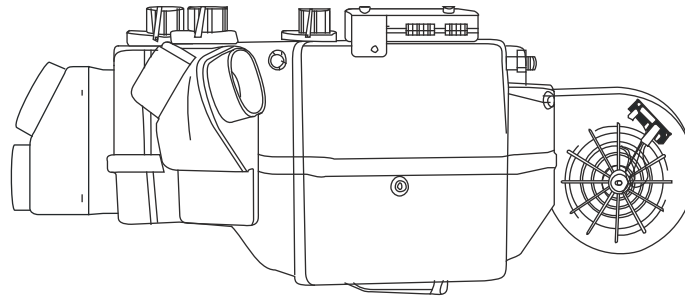
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Packing List: Evaporator Kit (564190)

No.	Qty.	Part No.	Description
1.	1	744004-VUE	Gen IV Evaporator Sub Case
2.	1	784190	Accessory Kit

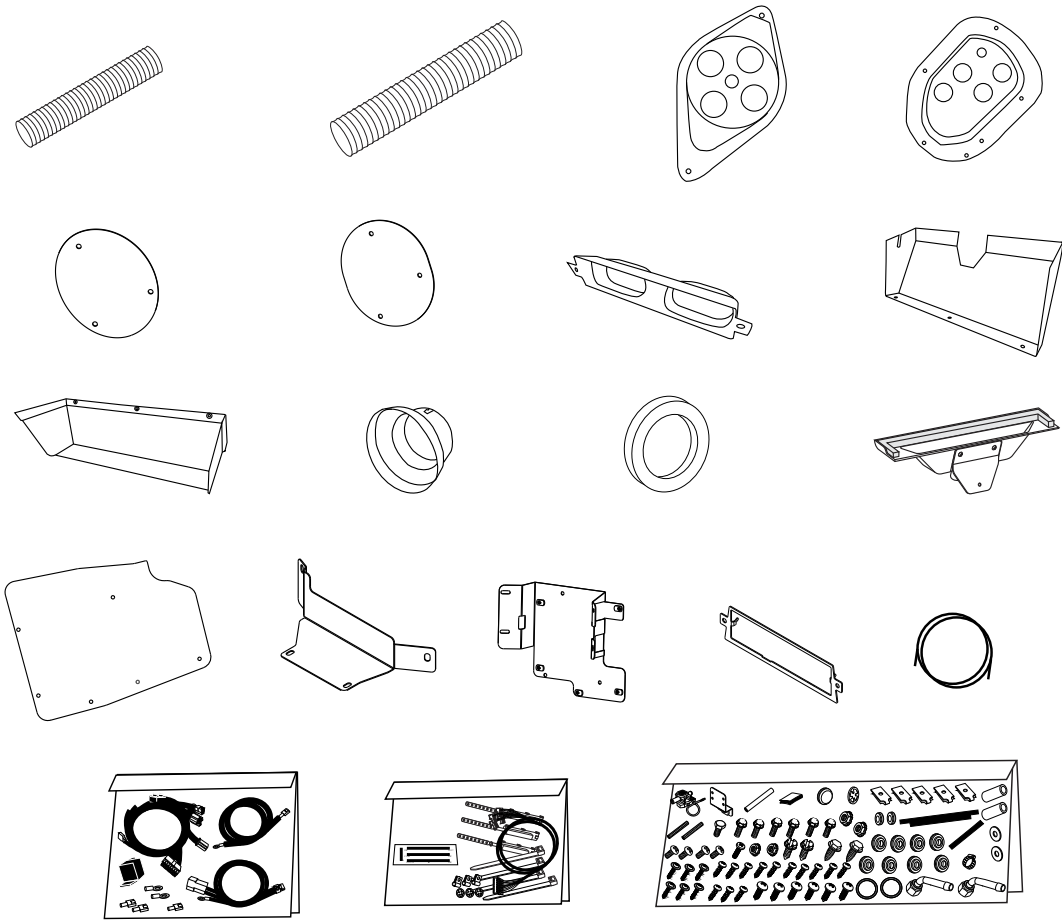
Checked By: _____
Packed By: _____
Date: _____

1



Gen IV Evaporator
Sub Case
744004-VUE

2



Accessory Kit
784190

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